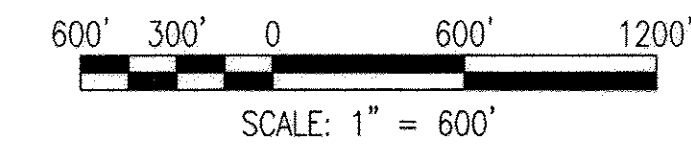


TYPE OF BUILDING: PRIVATE HOMES  
 NUMBER OF PARCELS: 7  
 WATER HOUSE CONNECTIONS: 7  
 SEWER HOUSE CONNECTIONS: 0  
 DRAINAGE AREA: ROCKBURN BRANCH  
 PRESSURE ZONE: ELEV. 550  
 WATER TEXT GRADIENT: ELEV. 700

VICINITY MAP  
 SCALE: 1"=600'



# MARLO AUSTIN WAY 8" WATER MAIN CAPITAL PROJECT NO. W8310 CONTRACT NO. 44-4693 HOWARD COUNTY, MARYLAND

BILL OF MATERIALS				
ITEM	QUANTITY	MATERIALS	AS-BUILT QUANTITY	MANUFACTURER
8" WATER MAIN	960 LF	PVC (PVC FTG.'S)	960 LF	JM EAGLE DR 18 PVC
FIRE HYDRANT, VALVE & LEAD	3 EA.	DI (BODY, PIPE, FTG.'S)	3 EA.	AMERICAN FLOW CONTROL
8" VALVE (GATE, RESILIENT SEATED)	1 EA.	DI (BODY)	1 EA.	AMERICAN FLOW CONTROL
1 1/2" WATER HOUSE CONNECTION	120 LF	K COPPER		CAMBRIDGE LEE
AIR RELEASE VALVE MANHOLE	1 EA.	--	1 EA.	
CATHODIC PROTECTION CONTIN. TEST STA.	3 EA.	COPPER (ROD)	3 EA.	
BITUMINOUS CONC. PAVEMENT RESTORATION	20 TONS	HMA SUPERPAVE		

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

NAME OF UTILITY CONTRACTOR:  
 SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH THE SPECIFICATIONS AND AS SHOWN ON THE DRAWINGS. **EP-11-008**

**HOWARD SOIL CONSERVATION DISTRICT CERTIFICATION**  
 THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT (SCD).  
*John Blunt* 2/16/12  
 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."  
*R. J. Whitman* 24478 1/31/12  
 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."  
*Thomas J. Butler* 2/8/12  
 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. 24478, EXPIRATION DATE: 10/28/13."

**DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND.**  
*John Blunt* 2/16/12  
 DIRECTOR OF PUBLIC WORKS DATE  
*Thomas J. Butler* 2/8/12  
 CHIEF, BUREAU OF UTILITIES DATE  
*Thomas J. Butler* 2/7/12  
 CHIEF, UTILITY DESIGN DIVISION DATE

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

DES: ACM			
DRN: ACM			
CHK: JDV			
DATE: 9/28/11	BY: NO.	REVISION	DATE

VICINITY MAP, TITLE,  
 BILL OF MATERIALS, SHEET INDEX

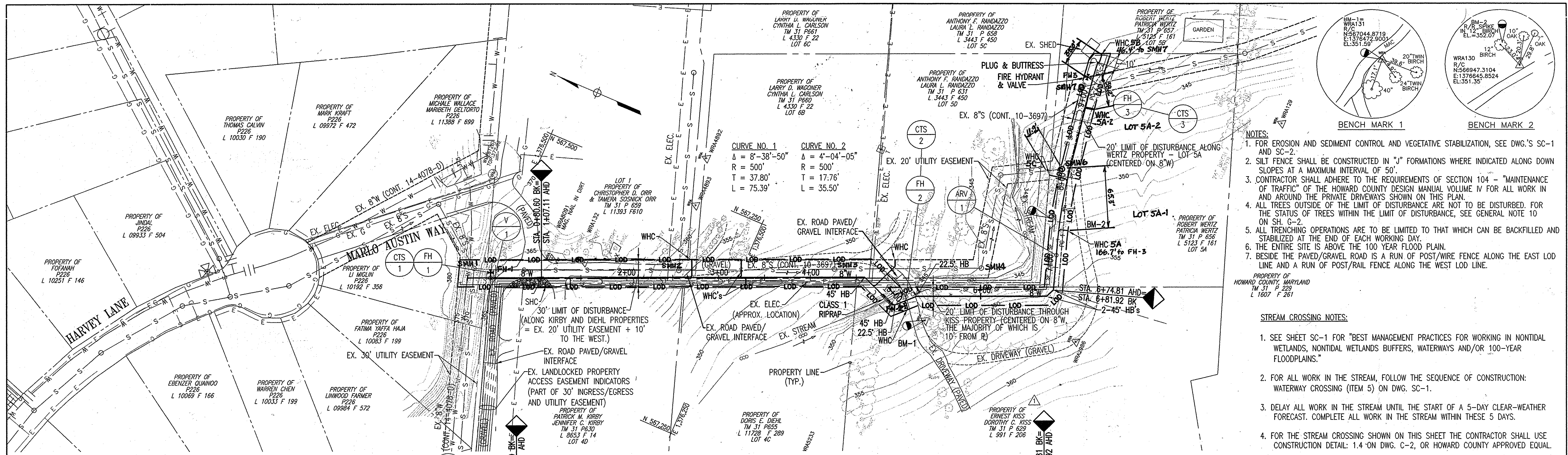
MARLO AUSTIN WAY  
 8" WATER MAIN  
 CAPITAL PROJECT NO. W-8310  
 CONTRACT NO. 44-4693  
 ELECTION DISTRICT 1  
 HOWARD COUNTY, MARYLAND

DWG.  
**G-1**  
 SCALE  
 1" = 600'  
 SHEET  
 1 OF 7









- NOTES:**
- FOR EROSION AND SEDIMENT CONTROL AND VEGETATIVE STABILIZATION, SEE DWG.'S SC-1 AND SC-2.
  - SILT FENCE SHALL BE CONSTRUCTED IN "J" FORMATIONS WHERE INDICATED ALONG DOWN SLOPES AT A MAXIMUM INTERVAL OF 50'.
  - CONTRACTOR SHALL ADHERE TO THE REQUIREMENTS OF SECTION 104 - "MAINTENANCE OF TRAFFIC" OF THE HOWARD COUNTY DESIGN MANUAL VOLUME IV FOR ALL WORK IN AND AROUND THE PRIVATE DRIVEWAYS SHOWN ON THIS PLAN.
  - ALL TREES OUTSIDE THE LIMIT OF DISTURBANCE ARE NOT TO BE DISTURBED. FOR THE STATUS OF TREES WITHIN THE LIMIT OF DISTURBANCE, SEE GENERAL NOTE 10 ON SH. G-2.
  - ALL TRENCHING OPERATIONS ARE TO BE LIMITED TO THAT WHICH CAN BE BACKFILLED AND STABILIZED AT THE END OF EACH WORKING DAY.
  - THE ENTIRE SITE IS ABOVE THE 100 YEAR FLOOD PLAIN.
  - BESIDE THE PAVED/GRAVEL ROAD IS A RUN OF POST/WIRE FENCE ALONG THE EAST LOD LINE AND A RUN OF POST/RAIL FENCE ALONG THE WEST LOD LINE.
- STREAM CROSSING NOTES:**
- SEE SHEET SC-1 FOR "BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, NONTIDAL WETLANDS BUFFERS, WATERWAYS AND/OR 100-YEAR FLOODPLAINS."
  - FOR ALL WORK IN THE STREAM, FOLLOW THE SEQUENCE OF CONSTRUCTION: WATERWAY CROSSING (ITEM 5) ON DWG. SC-1.
  - DELAY ALL WORK IN THE STREAM UNTIL THE START OF A 5-DAY CLEAR-WEATHER FORECAST. COMPLETE ALL WORK IN THE STREAM WITHIN THESE 5 DAYS.
  - FOR THE STREAM CROSSING SHOWN ON THIS SHEET THE CONTRACTOR SHALL USE CONSTRUCTION DETAIL: 1.4-ON DWG. C-2, OR HOWARD COUNTY APPROVED EQUIV.

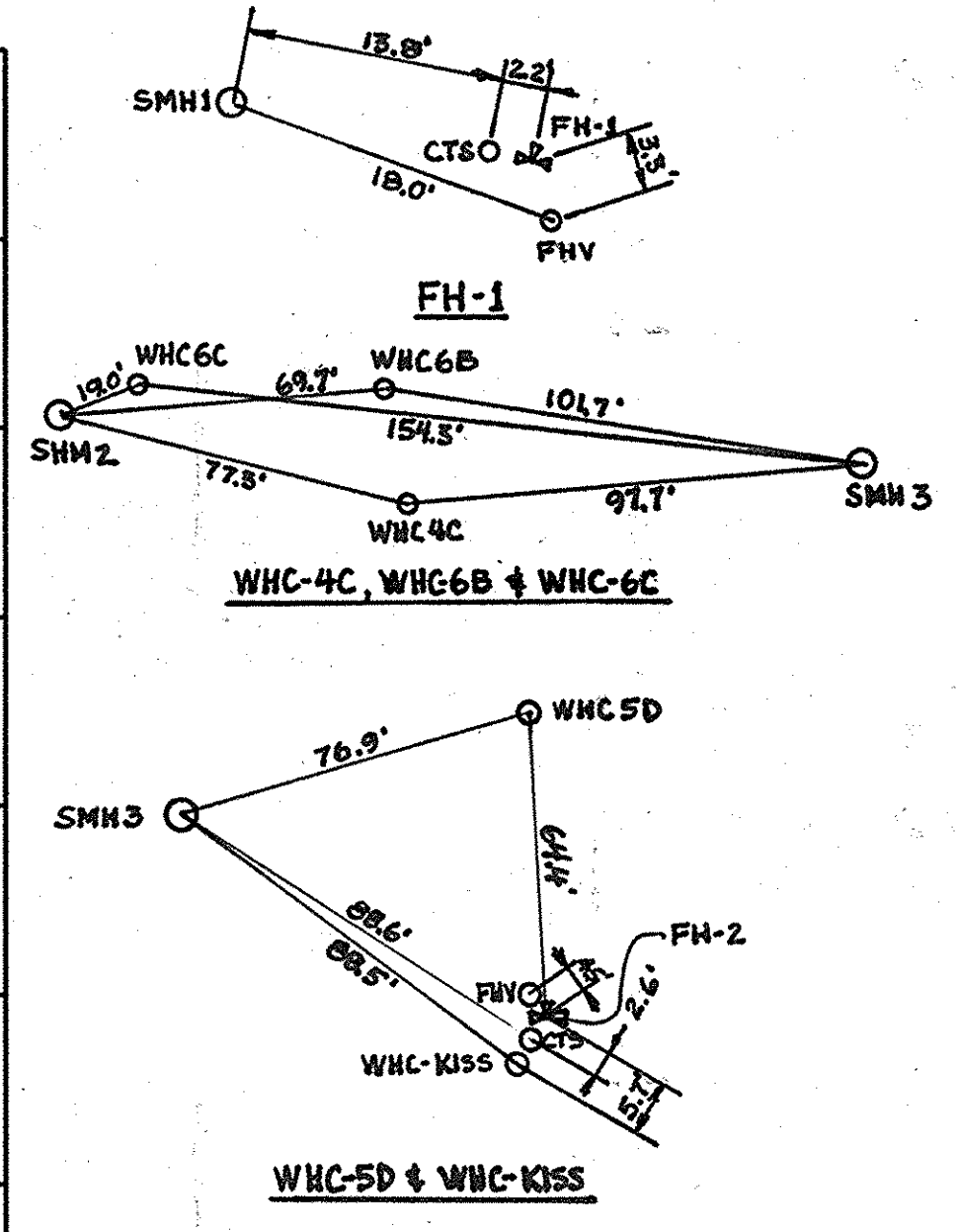
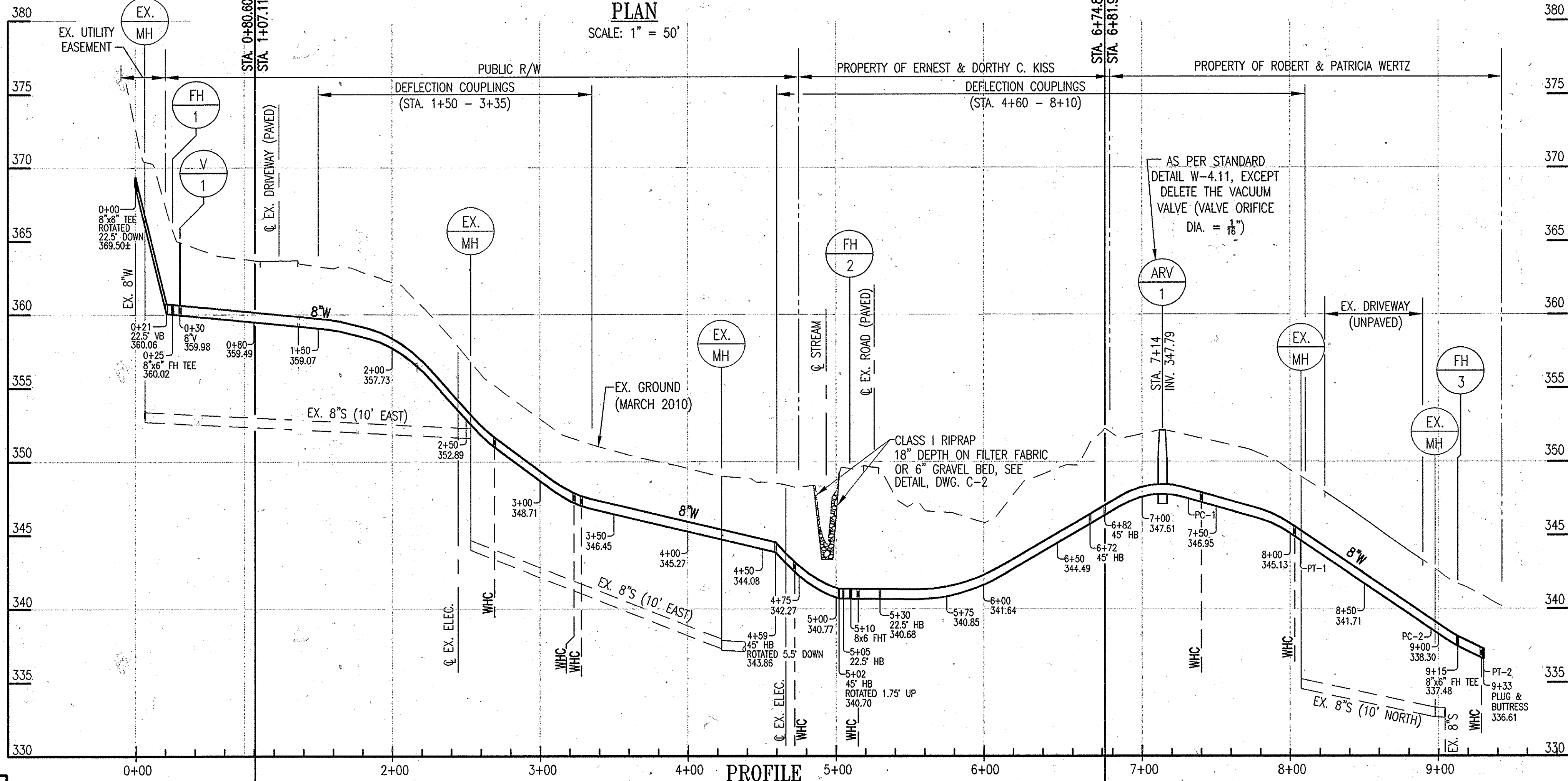
**8" WATER MAIN STAKEOUT GEOMETRY**

APPROX. STATION	NORTH	EAST	REMARKS
0+00	567,521±	1,376,318±	8" W (CONNECTION)
0+81	567,447.04	1,376,350.43	EQUALITY BACK
1+07	567,447.04	1,376,350.43	EQUALITY AHEAD
4+59	567,123.84	1,376,490.23	45' HB
5+02	567,084.20	1,376,474.22	45' HB
5+05	567,081.44	1,376,475.39	22.5' HB
5+30	567,064.02	1,376,493.12	22.5' HB
6+72	566,933.62	1,376,549.52	45' HB
6+82	566,929.55	1,376,558.65	45' HB, EQUALITY BACK
6+75	566,929.55	1,376,558.65	45' HB, EQUALITY AHEAD
7+14	566,941.87	1,376,595.40	ARV-1
7+31	566,947.38	1,376,611.85	PC CURVE NO.1
	566,959.15	1,376,647.77	PI CURVE NO. 1
8+06	566,965.38	1,376,685.06	PT CURVE NO. 1
8+95	566,979.90	1,376,772.74	PC CURVE NO. 2
	566,982.81	1,376,790.26	PI CURVE NO. 2
9+43	566,984.47	1,376,807.94	PLUG & PT CURVE NO. 2

**FIRE HYDRANT STANDPIPE HEIGHT\***

FH NO.	PIPE STA.	STANDPIPE INV.	APPROX. EX. GRADE ELEV.	STANDPIPE HEIGHT*
1	0+25	360.0	365.7	6.0'
2	5+10	340.8	349.5	9.0'
3	9+12	337.6	341.7	4.5'

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



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DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND.

*John R. ...* 2/13/12  
DIRECTOR OF PUBLIC WORKS DATE

*Thomas J. ...* 2/1/12  
CHIEF, BUREAU OF ENGINEERING DATE

*...* 2/1/12  
CHIEF, BUREAU OF UTILITIES DATE

*...* 2/1/12  
CHIEF, UTILITY DESIGN DIVISION DATE

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

**WR&A**

DES: ACM	
DRN: ACM	
CHK: JDV	
DATE: 9/28/11	
BY NO.	
REVISION	12/21/11 - REVISED ALIGNMENT THRU KISS PROPERTY

PLAN AND PROFILE

600' SCALE MAP NO. 31 BLOCK NO. 22

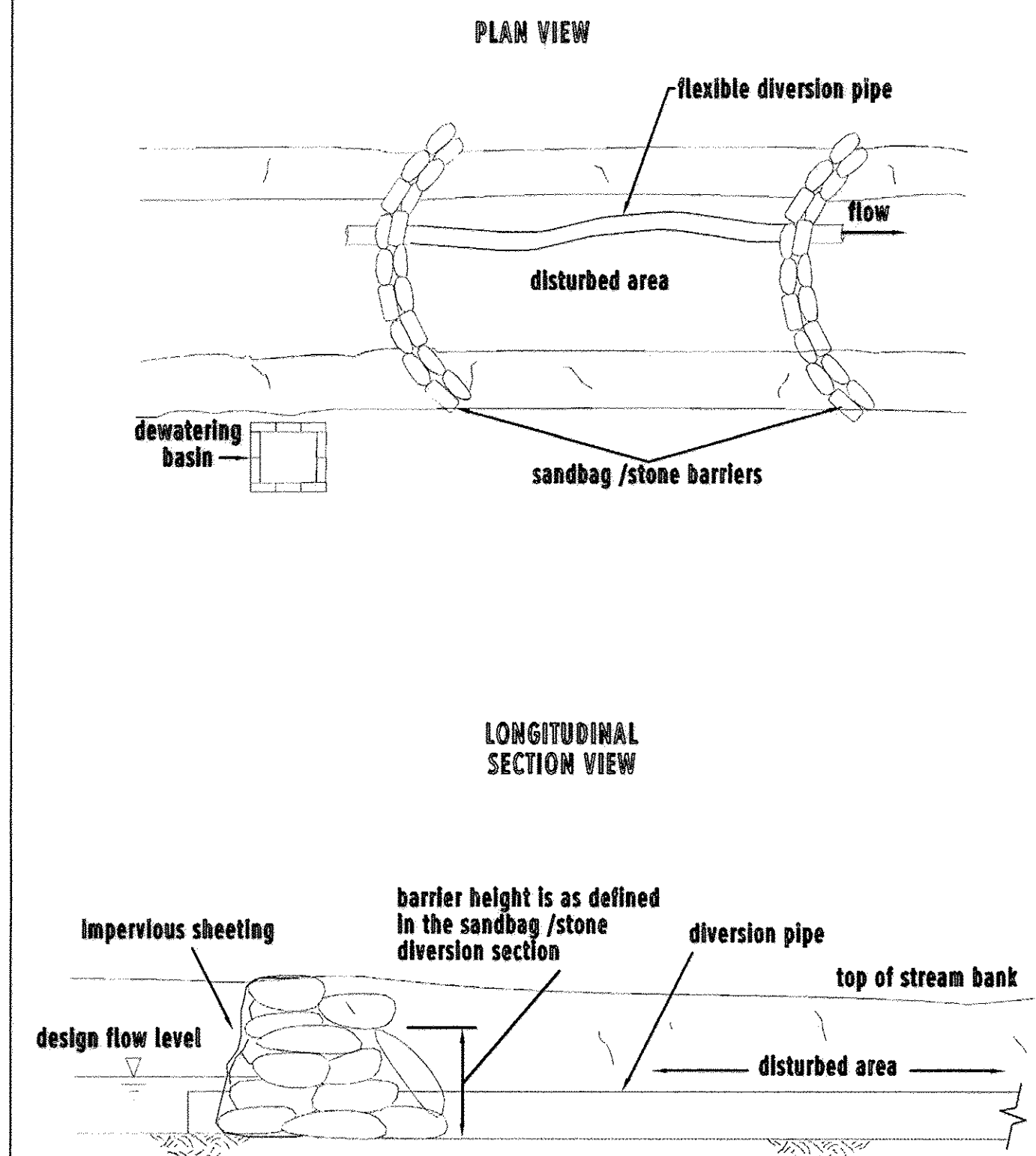
MARLO AUSTIN WAY  
8" WATER MAIN  
CAPITAL PROJECT NO. W-8310  
CONTRACT NO. 44-4693

ELECTION DISTRICT 1  
HOWARD COUNTY, MARYLAND

DWG. C-1  
SCALE AS SHOWN  
SHEET 3 OF 7



Maryland's Guidelines To Waterway Construction  
**DETAIL 1.4: DIVERSION PIPE\***

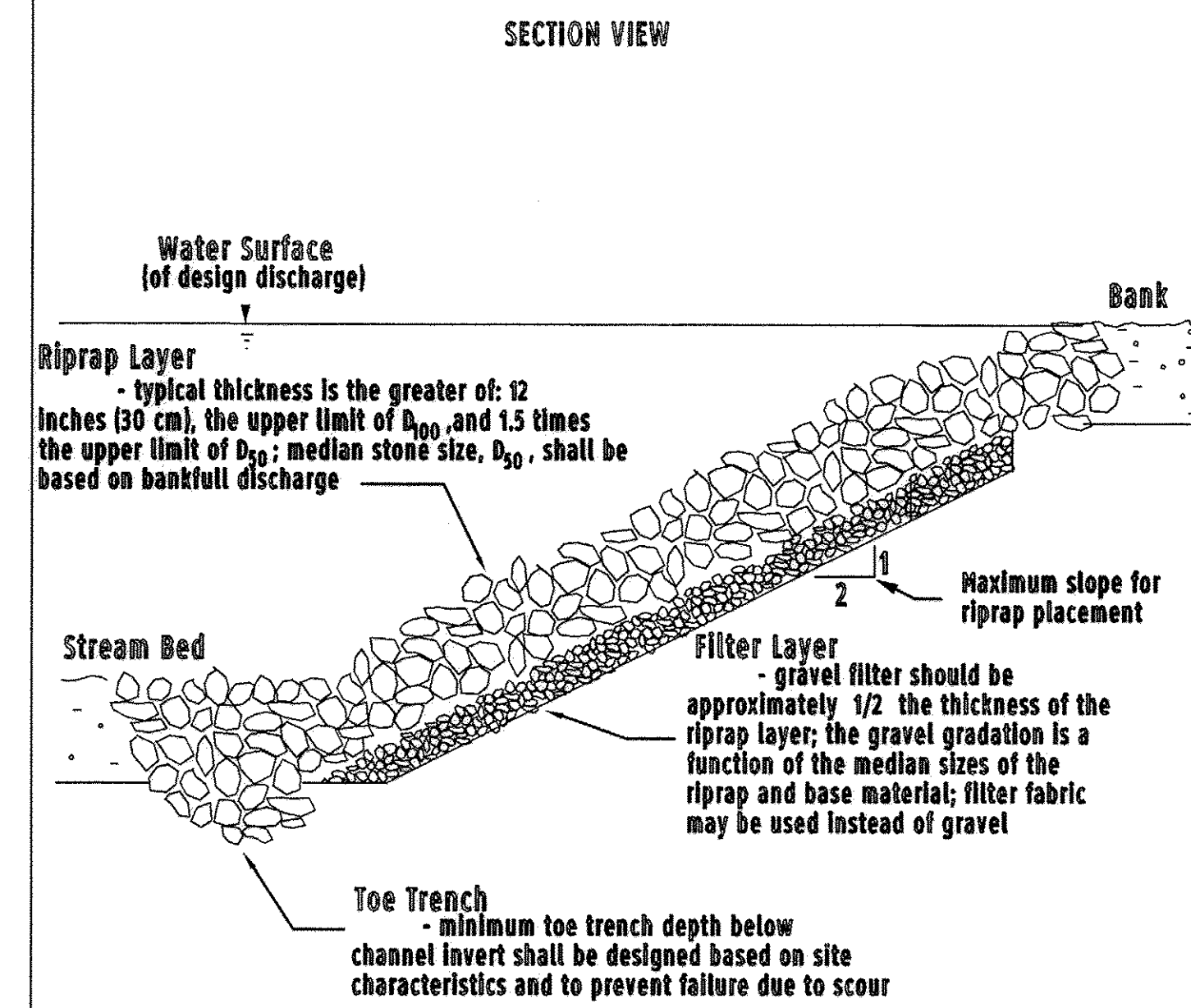


TEMPORARY INSTREAM CONSTRUCTION MEASURES  
 REVISED NOVEMBER 2000  
 PAGE 1.4 - 2  
 MARYLAND DEPARTMENT OF THE ENVIRONMENT  
 WATER MANAGEMENT ADMINISTRATION

\* DETAIL 1.4 HAS BEEN MODIFIED TO SHOW A FLEXIBLE DIVERSION PIPE WITHIN THE STREAM INSTEAD OF EXCAVATED INTO THE BANK.

1. IN-CHANNEL CONSTRUCTION ACTIVITIES SHALL OCCUR ONLY DURING PERIODS OF LOW (AND/OR NO) FLOW.
2. FOR MATERIALS SPECIFICATIONS AND INSTALLATION GUIDELINES, SEE THE DESIGN MANUAL FROM WHICH THE ABOVE DETAIL WAS TAKEN, "MARYLAND'S WATERWAY CONSTRUCTION GUIDELINES" (MDE-WMA). THIS INCLUDES SIZING THE DIVERSION PIPE AT 12" DIAMETER (IF SMOOTH INTERIOR).
3. FOR ADDITIONAL REQUIREMENTS, SEE THE INSTALLATION GUIDELINES FOR DETAIL 1.5 OF THE ABOVE DOCUMENT, INCLUDING BARRIER HEIGHT WHICH, FOR THIS PROJECT IS TO BE A.) HALF THE BANK HEIGHT PLUS ONE FOOT OR B.) THE BANKFULL HEIGHT, WHICHEVER IS GREATER.

Maryland's Guidelines To Waterway Construction  
**DETAIL 2.1: RIPRAP**



TEMPORARY INSTREAM CONSTRUCTION MEASURES  
 REVISED NOVEMBER 2000  
 PAGE 2.1 - 4  
 MARYLAND DEPARTMENT OF THE ENVIRONMENT  
 WATER MANAGEMENT ADMINISTRATION

1. SEE SHEET C-1 FOR PERMANENT RIPRAP CLASS AND DEPTH.



"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: 10/28/13."

DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND

Director of Public Works: *Jan 7th* 2/13/12  
 Chief, Bureau of Utilities: *Steve Clemen* 2/13/12

Chief, Bureau of Engineering: *Mona E. Kuttler* 2/13/12  
 Chief, Utility Design Division: *Ray D. Brown* 2/13/12

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

**WR&A**

DES: ACM			
DRN: ACM			
CHK: JDV			
DATE: 9/28/11			
BY	NO.	REVISION	DATE

CIVIL DETAILS

600' SCALE MAP NO. 31 BLOCK NO. 22

MARLO AUSTIN WAY  
 8" WATER MAIN  
 CAPITAL PROJECT NO. W-8310  
 CONTRACT NO. 44-4693

ELECTION DISTRICT 1 HOWARD COUNTY, MARYLAND

DWG.  
**C-2**  
 SCALE  
 N/A  
 SHEET  
 4 OF 7



**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 HOWARD COUNTY AND 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

**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 0.49 ACRES  
 AREA DISTURBED 0.05 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

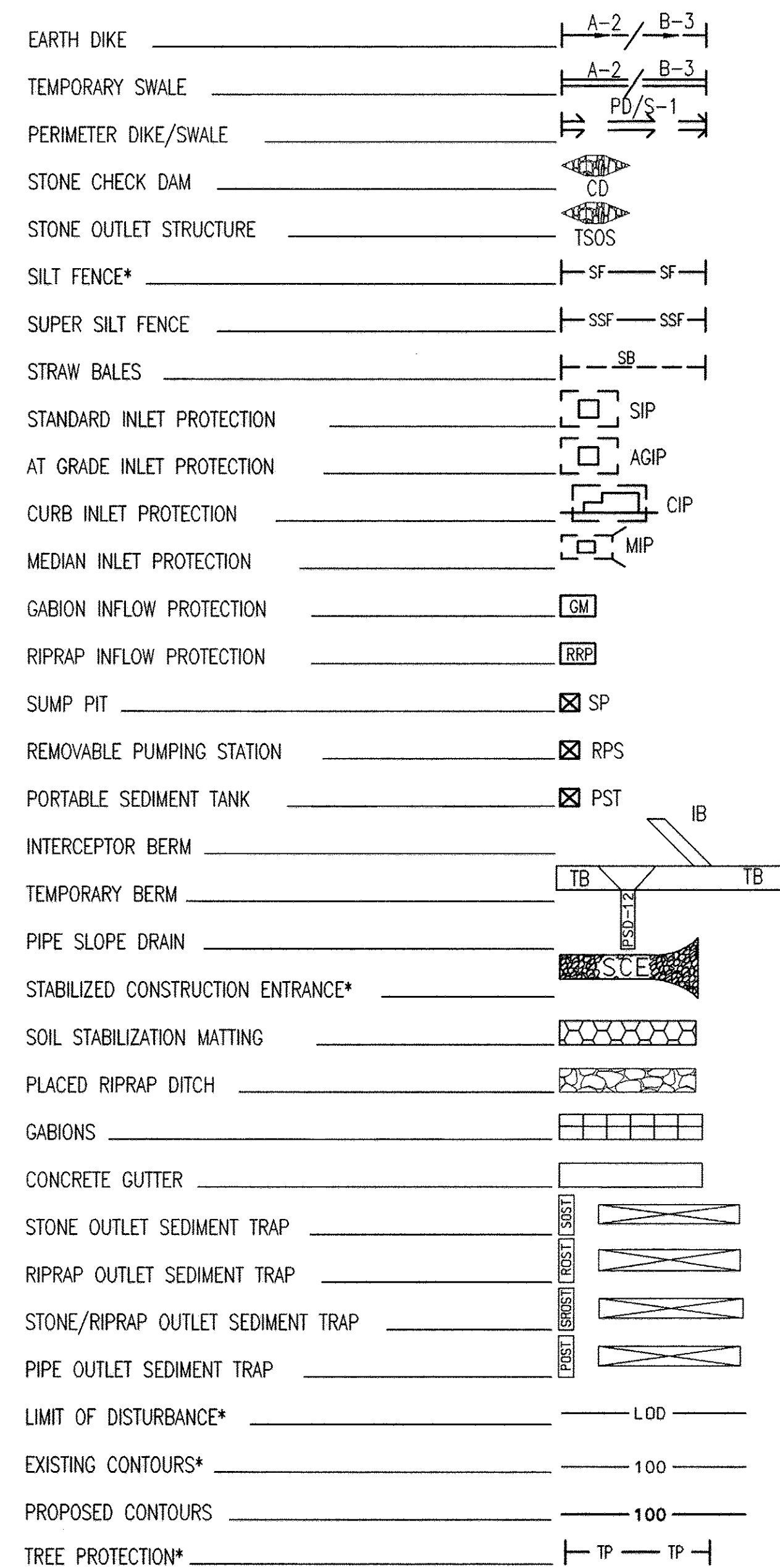
**12. CHECKLIST FOR REQUIRED INSPECTIONS**

**\*\* 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 CONFORMANCE	<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**



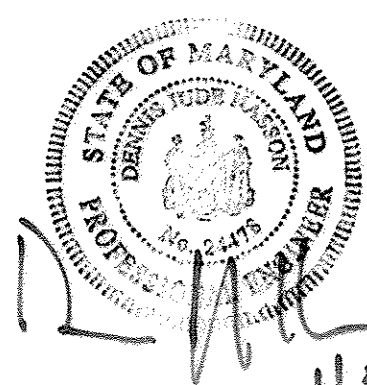
\* = PERTINENT TO THIS PROJECT.

**BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, NONTIDAL WETLANDS BUFFERS, WATERWAYS, AND/OR 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 (UNIOIA 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**

- CALL "MISS UTILITY" AT 1-800-257-7777 48 HOURS BEFORE ANY CONSTRUCTION IS TO BEGIN.
- NOTIFY THE HOWARD COUNTY CONSTRUCTION INSPECTION DIVISIONS 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. SEE PLAN AND PROFILE SHEETS FOR ADDITIONAL SEDIMENT AND EROSION CONTROL MEASURES.
- INSTALL SANDBAG DIVERSIONS, TEMPORARY CULVERT PIPES, OR PUMP-AROUND PRACTICES AND DEWATERING BASINS AT ALL WATERWAY CROSSINGS AS INDICATED. ALL WATERWAY CROSSINGS SHALL BE PERFORMED IN AN EXPEDIENT MANNER. DEWATERING BASINS ON EACH BANK WILL RECEIVE WATER PUMPED FROM THE WATERWAY CROSSING SITE. PORTABLE SEDIMENT TANKS MAY BE USED IN PLACE OF DEWATERING BASINS SO AS TO MINIMIZE DISTURBANCE OF EXISTING TREES AND VEGETATION.
- STOCKPILE TOPSOIL. ALL TOPSOIL FROM NON-TIDAL WETLANDS SHALL BE MAINTAINED SEPARATE FROM UPLAND MATERIALS AND REUSED WITHIN THE LIMITS OF THE ORIGINAL WETLAND AREA AFTER UTILITY INSTALLATION IS COMPLETED.
- EXCAVATE FOR AND INSTALL WATERMAINS AND ASSOCIATED STRUCTURES. EXCAVATION FROM TRENCHING OPERATIONS SHALL BE PLACED ON THE UPHILL SIDE OF THE TRENCH.
- VEGETATIVELY STABILIZE BACKFILLED TRENCH AND STRUCTURE SITES AS WORK PROGRESSES.
- NOTIFY HOWARD COUNTY 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: 10/28/13."

DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND

Director of Public Works: *John G. ...* 2/13/12  
 Chief, Bureau of Engineering: *Monica J. ...*  
 Chief, Bureau of Utilities: *Silvia ...* 2/17/12  
 Chief, Utility Design Division: *...*

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



DES:	ACM			
DRN:	ACM			
CHK:	JDV			
DATE:	9/28/11			
BY:	NO.	REVISION	DATE	

EROSION AND SEDIMENT CONTROL  
 GENERAL NOTES

600' SCALE MAP NO. 31 BLOCK NO. 22

MARLO AUSTIN WAY  
 8" WATER MAIN  
 CAPITAL PROJECT NO. W-8310  
 CONTRACT NO. 44-4693

ELECTION DISTRICT 1

HOWARD COUNTY, MARYLAND

DWG.

SC-1

SCALE

N/A

SHEET

5 OF 7



**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				SEEDING DEPTHS	FERTILIZER RATE (10-10-10)	LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES			
	ANNUAL RYEGRASS	50	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	500 400	11.5 9.2	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	250 100	5.8 2.3	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 MIMCO #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.

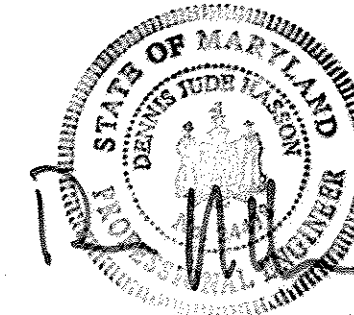
**D. REPAIRS AND MAINTENANCE**

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.

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"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: 10/28/13."



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

Director of Public Works: *2/13/12*  
 Chief, Bureau of Utilities: *2/13/12*  
 Chief, Bureau of Engineering: *2/13/12*  
 Chief, Utility Design Division: *2/7/12*

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



DES: ACM					
DRN: ACM					
CHK: JDV					
DATE: 9/28/11					
BY	NO.	REVISION	DATE	600' SCALE MAP NO.	31
				BLOCK NO.	22

**EROSION AND SEDIMENT CONTROL  
GENERAL NOTES**

ELECTION DISTRICT 1

MARLO AUSTIN WAY  
 8" WATER MAIN  
 CAPITAL PROJECT NO. W-8310  
 CONTRACT NO. 44-4693

HOWARD COUNTY, MARYLAND

DWG.

SC-2

SCALE

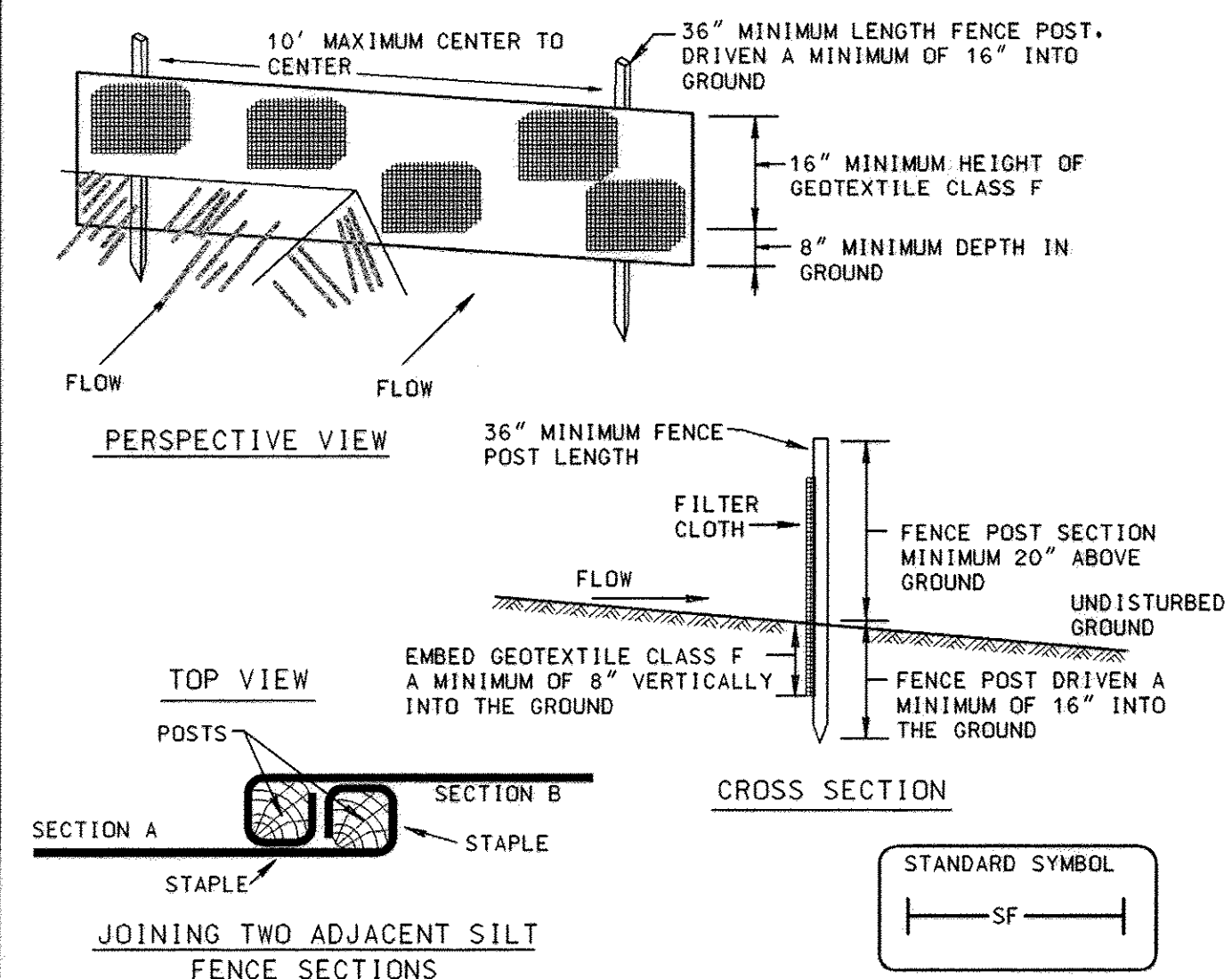
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SHEET

6 OF 7



**DETAIL 22 - SILT FENCE**



- 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 3/4" 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 <sup>2</sup> /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**

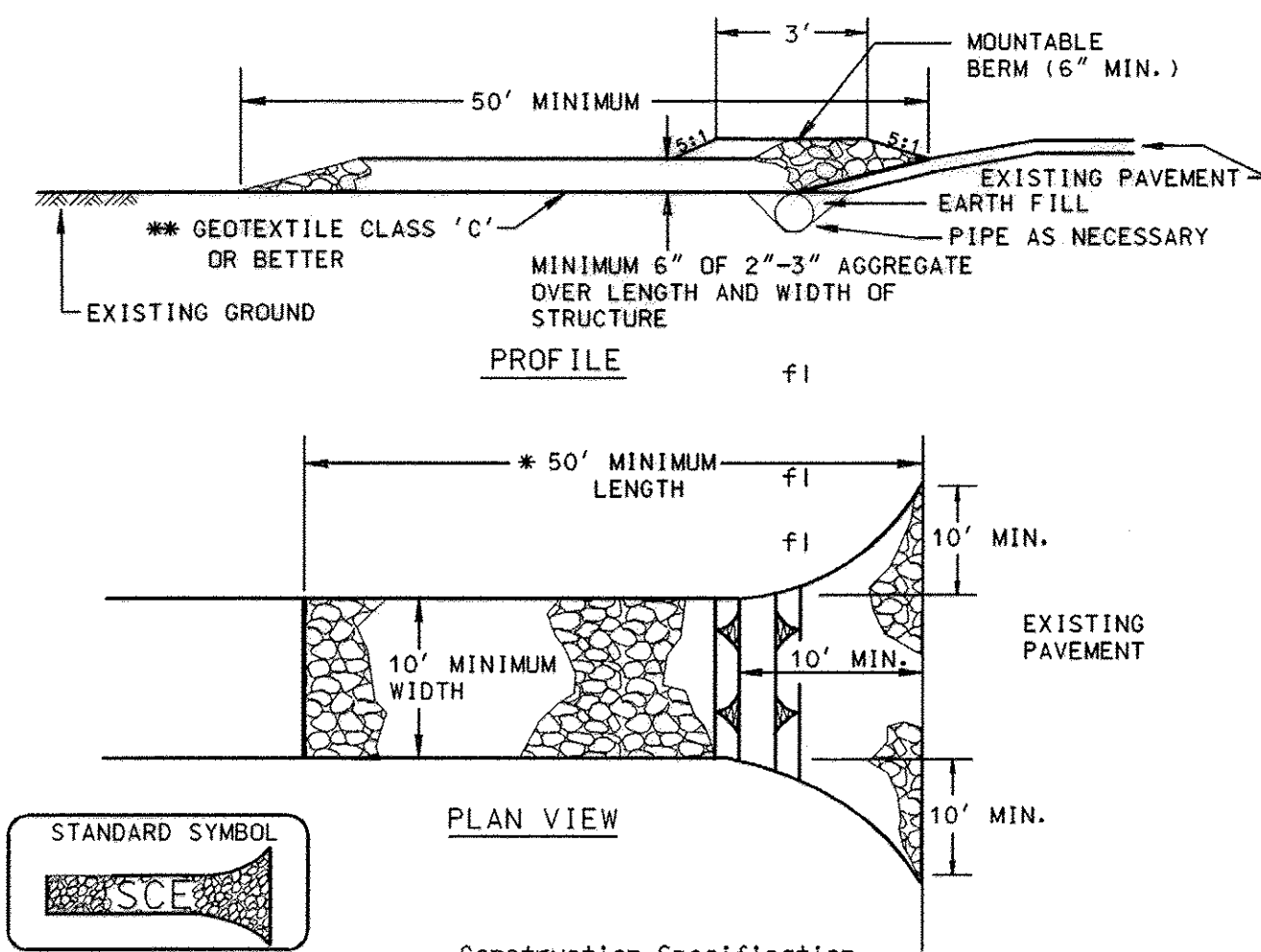
**Silt Fence Design Criteria**

Slope Steepness	(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.

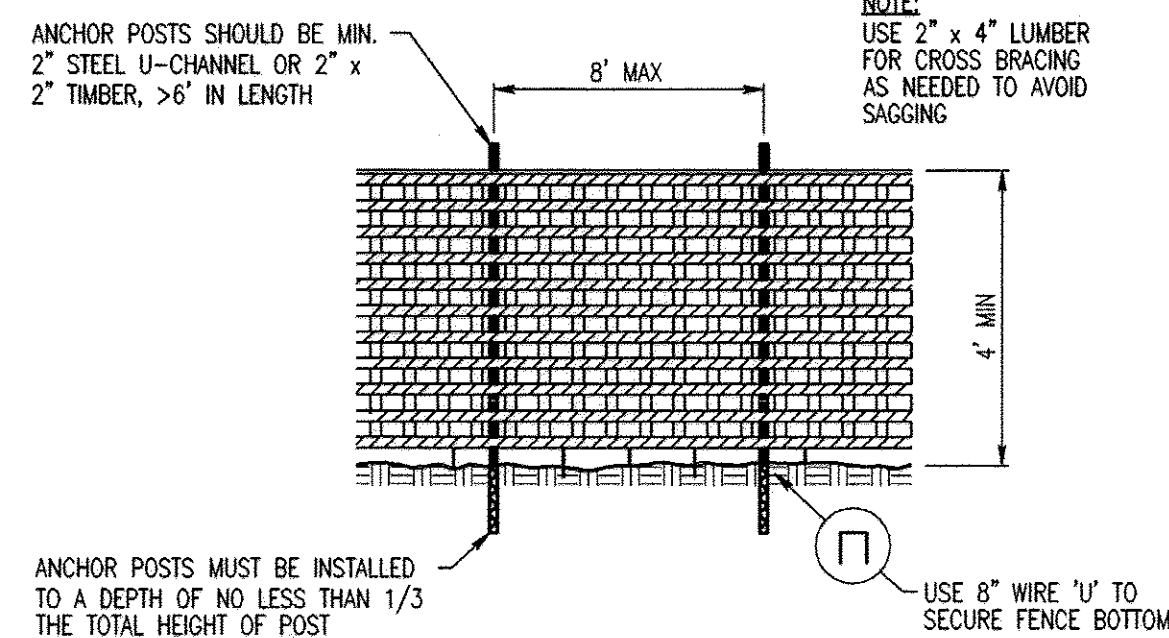
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE E-15-3A MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

**DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE**



- 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

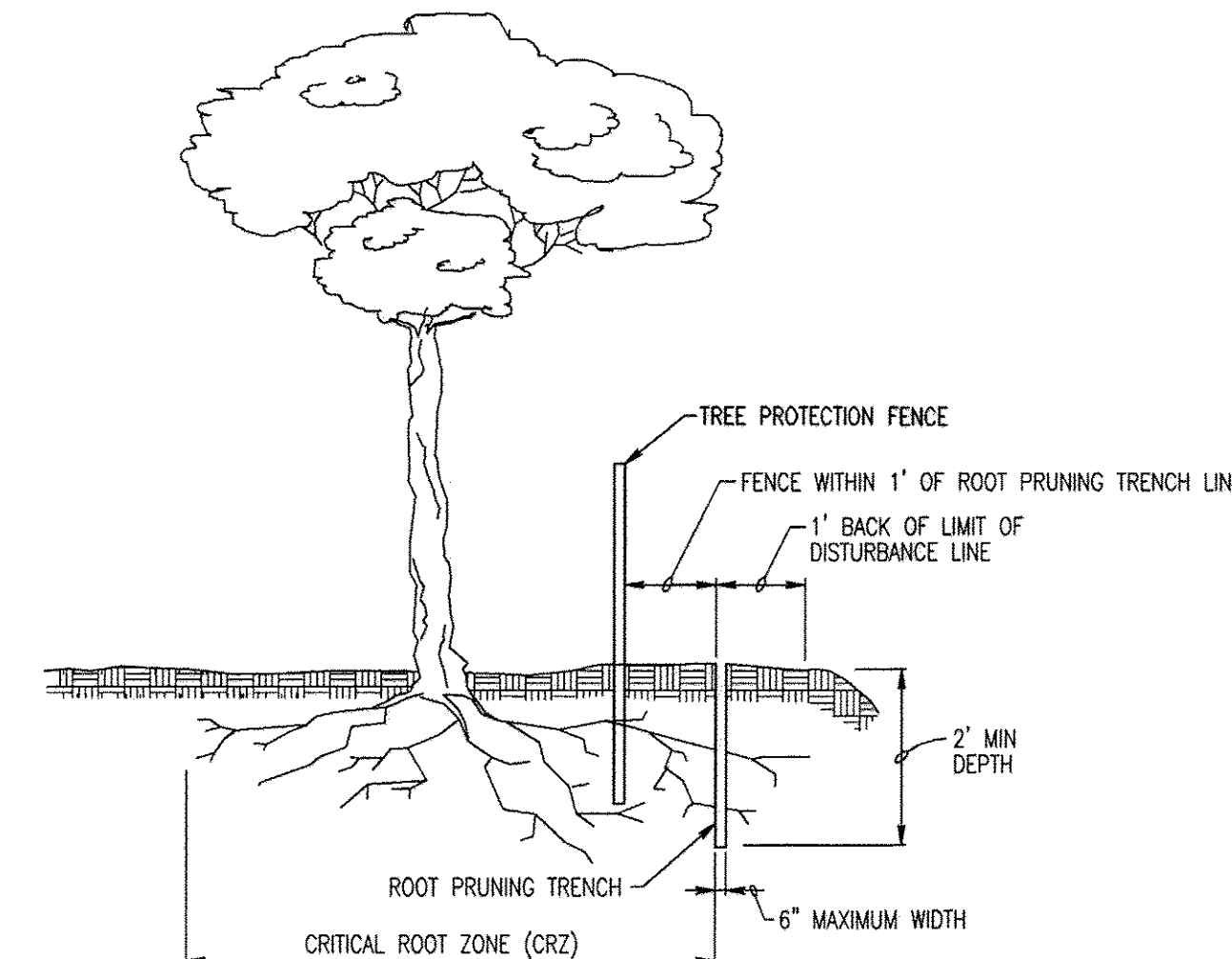


- NOTES:**
- BLAZE ORANGE PLASTIC MESH FENCE FOR TREE PROTECTION DEVICE.
  - BOUNDARIES OF RETENTION AREA WILL BE ESTABLISHED AS PART OF THE FOREST CONSERVATION PLAN REVIEW PROCESS OR AS SHOWN ON THE PLANS.
  - BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
  - AVOID DAMAGE TO CRITICAL ROOT ZONE, DO NOT DAMAGE OR SEVER LARGE ROOTS WHEN INSTALLING POSTS.
  - PROTECTION SIGNAGE IS TO BE PROVIDED AND PLACED IF REQUIRED BY THE COUNTY.
  - DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

**PLASTIC MESH TREE PROTECTION FENCE**

NO SCALE

**DETAIL - TREE PROTECTION**



THE CRITICAL ROOT ZONE (CRZ):  
FOR TREES ALONG THE EDGES OF STANDS, THE CRZ RADIUS = 1 FOOT FOR EVERY 1 INCH OF TREE DIAMETER.  
FOR RETENTION AREAS LESS THAN 10,000 SF AND ISOLATED SPECIMEN TREES, THE CRZ RADIUS = 1.5 FEET FOR EVERY 1 INCH OF TREE DIAMETER.

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

**DETAIL - ROOT PRUNING**

NO SCALE

**TREE CONSERVATION NOTES**

**PRE-CONSTRUCTION ACTIVITIES**

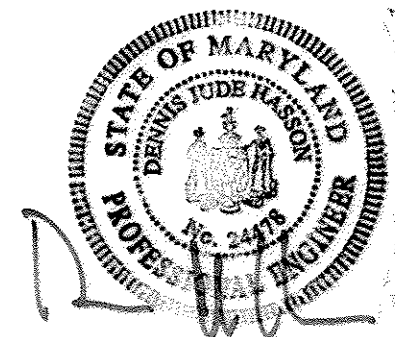
- PRIOR TO THE START OF ANY CONSTRUCTION:
- THE CONTRACTOR SHALL LOCATE THE LIMITS OF DISTURBANCE (LOD) IN THE FIELD PRIOR TO ANY CONSTRUCTION ACTIVITIES, THEN INSTALL ALONG THE LOD BLAZE ORANGE FENCING. LOD SHALL BE PLACED OUTSIDE OF CRITICAL ROOT ZONES OF TREES TO BE PRESERVED WHEREVER POSSIBLE.
  - 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 TREES/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.

**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 OF 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**

- THE CONTRACTOR SHALL RETAIN A CERTIFIED TREE EXPERT, LANDSCAPE ARCHITECT, FORESTER OR ARBORIST TO DEVELOP A TREE REPAIR PLAN. THE TREE REPAIR PLAN MUST BE APPROVED BY THE COUNTY.



"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: 10/28/13."

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND.

Director of Public Works: *Laurel K. Zisk* DATE: 2/7/12  
 Chief, Bureau of Utilities: *Steve* DATE: 2/7/12  
 Chief, Engineering: *Marlo Austin Way* DATE: 2/7/12  
 Chief, Utility Design Division: *DeDe Fin* DATE: 2/7/12

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



DES:	ACM				
DRN:	ACM				
CHK:	JDV				
DATE:	9/28/11	BY:	NO.	REVISION	DATE

EROSION AND SEDIMENT CONTROL  
DETAILS

600' SCALE MAP NO. 31 BLOCK NO. 22

MARLO AUSTIN WAY  
8" WATER MAIN  
CAPITAL PROJECT NO. W-8310  
CONTRACT NO. 44-4693

ELECTION DISTRICT 1 HOWARD COUNTY, MARYLAND

DWG. SC-3  
SCALE AS SHOWN  
SHEET 7 OF 7