

HOWARD COUNTY

Capital Project #D-1159

Hickory Ridge Channel Rehabilitation Project

Storm Water Management Division
Bureau Of Environmental Services

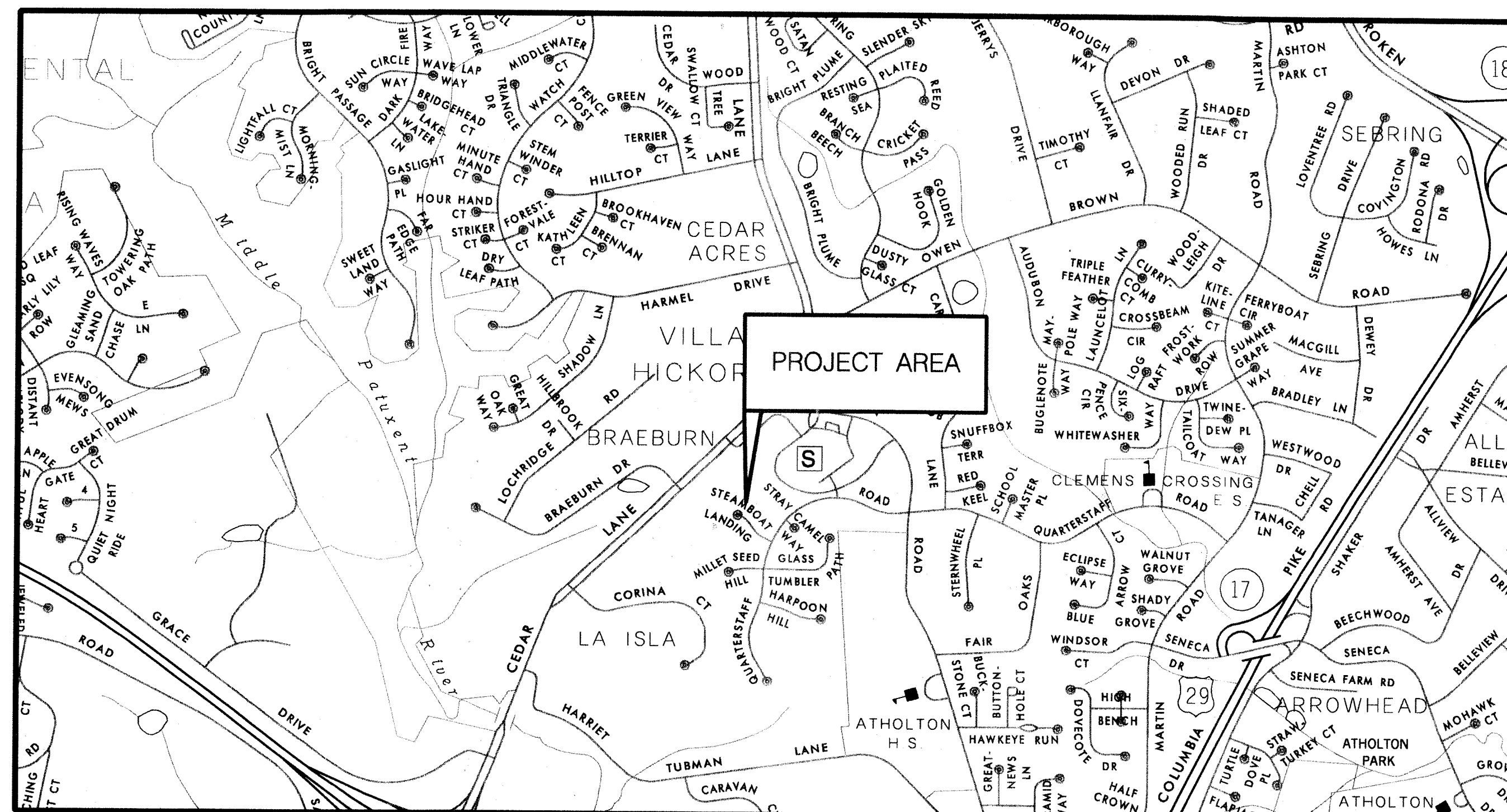
HVC Pipe & Channel - Approved

INDEX OF SHEETS

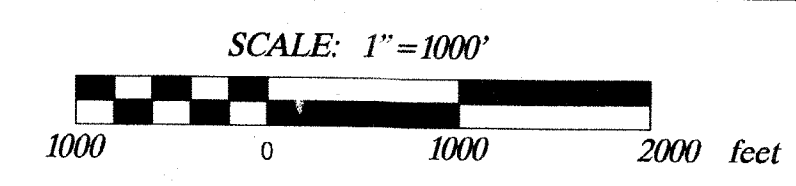
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LEGEND

PROPOSED MEDIAN BARRIER	
ELECTRICAL HAND BOX - SIGNALS	
FLOW LINE	
STATE, COUNTY OR CITY LINES	
PROPOSED TRAFFIC BARRIER	
EXISTING TRAFFIC BARRIER	
PROPOSED FENCE LINE	
EXISTING FENCE LINE	
RIGHT OF WAY LINE	
EXISTING ROADWAY	
BASE OR SURVEY LINE	
TRAVERSE POINT	
APPROXIMATE LIMITS OF CUT AND/OR FILL	
PROPOSED MAJOR CONTOUR	
PROPOSED MINOR CONTOUR	
LIMIT OF DISTURBANCE	
EXISTING MAJOR CONTOURS	
EXISTING MINOR CONTOURS	
EXISTING PIPE/CULVERT	
EXISTING DROP INLET	
WETLAND	
HEDGE /TREE LINE	
BUSH /TREE	
CONIFEROUS TREE	
LIGHT POLE	



HORIZONTAL DATUM NAD 83 / 91
VERTICAL DATUM NAVD 88



GENERAL NOTES

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MDSA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST FIVE (5) WORKING DAYS PRIOR TO ANY WORK BEING DONE.
- THIS PLAN IS PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS /BUREAU OF ENGINEERING CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- SURVEY OF THIS SITE WAS PERFORMED BY AB CONSULTANTS, INC.-AUGUST 2008 AND MAY 2009
- THE COORDINATES SHOWN HEREON ARE BASED ON HOWARD COUNTY GEODETIC CONTROL, WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. BENCHMARKS SHOWN HEREON WERE PROVIDED BY AB CONSULTANTS INC.
- STORMWATER MANAGEMENT IS NOT REQUIRED FOR THIS PROJECT SINCE THE PROJECT WILL NOT ADD IMPERVIOUS AREA TO THE EXISTING STORMWATER MANAGEMENT FACILITY.
- OBSTRUCTIONS SHOWN ON THIS DRAWING ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY AND MCCORMICK TAYLOR DOES NOT WARRANT OR GUARANTEE THE CORRECTNESS OR COMPLETENESS OF THE INFORMATION GIVEN. THE CONTRACTOR MUST VERIFY SUCH INFORMATION TO HIS OWN SATISFACTION.
- THE EXISTING INFORMATION SHOWN ON THESE PLANS WAS TAKEN FROM THE BEST AVAILABLE SOURCES AND SHALL BE VERIFIED BEFORE STARTING CONSTRUCTION. THE HOWARD COUNTY DOES NOT GUARANTEE THE COMPLETENESS OR THE CORRECTNESS OF THE SHOWN INFORMATION.
- THE CONTRACTORS SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO THE CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY. ALL UTILITIES SHALL HAVE A CLEARANCE BY A MINIMUM OF 6 INCHES VERTICALLY AND A MINIMUM OF 5 FEET HORIZONTALLY.
- SHOULD THE CONTRACTOR DISCOVER DISCREPANCIES BETWEEN THE PLANS AND FIELD CONDITIONS, THE CONTRACTOR SHALL NOTIFY MCCORMICK TAYLOR IMMEDIATELY TO RESOLVE THE SITUATION.
- ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
- THE CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS.
- SITE DEVELOPMENT DETAILS ARE REFERENCED FROM THE AS-BUILT PLANS FOR THE VILLAGE OF HICKORY RIDGE, SECTION 6 AREA 5 (F-90-97).
- A JOINT PERMIT APPLICATION AND MDE DAM SAFETY PERMIT HAS BEEN SUBMITTED TO THE MARYLAND DEPARTMENT OF THE ENVIRONMENT FOR THIS PROJECT. (TRACKING NUMBER 200962646)

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. 25819, EXPIRATION DATE: 2/5/2011

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. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

9/2/10 DATE
Chris Brooks DESIGNER'S SIGNATURE

MARYLAND REGISTRATION NUMBER 25819
CHRIS BROOKS, P.E. PRINTED NAME

OWNER'S/DEVELOPER'S CERTIFICATION

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND 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.

5/19/10 DATE
Howard E. Satterman OWNER/DEVELOPER SIGNATURE

Howard & Satterman Chief Stormwater Management Division
PRINTED NAME AND TITLE



MARYLAND DEPARTMENT OF THE ENVIRONMENT
WATER MANAGEMENT ADMINISTRATION
DAM SAFETY DIVISION

V.P. Dalal 9/14/10 DATE
SR. REGULATORY AND COMPLIANCE ENGINEER

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

THIS DEVELOPMENT IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT

Scott A. ... 5/26/10 DATE
HOWARD SCD

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Scott A. ... 5/19/10 DATE
DIRECTOR OF PUBLIC WORKS

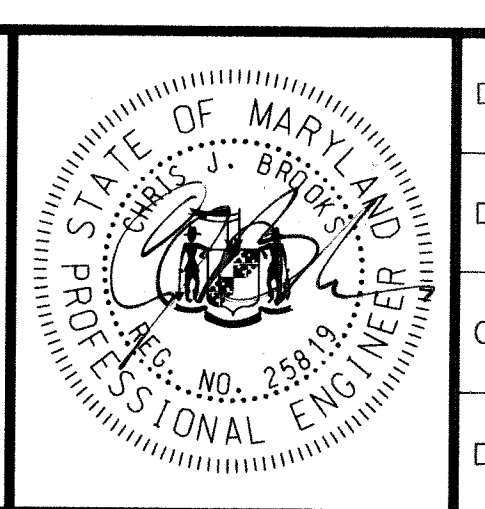
Howard E. Satterman 5/19/10 DATE
CHIEF, STORMWATER MANAGEMENT DIVISION

McCormick Taylor
Engineers & Planners Since 1946

509 South Exeter Street
4th Floor
Baltimore, Maryland 21202
(410) 662-7400

Howard County
MARYLAND

Storm Water Management Division
Bureau of Environmental Services
6751 Columbia Gateway Drive, Suite 514
Columbia, Maryland 21046-3143
(410) 313-6146

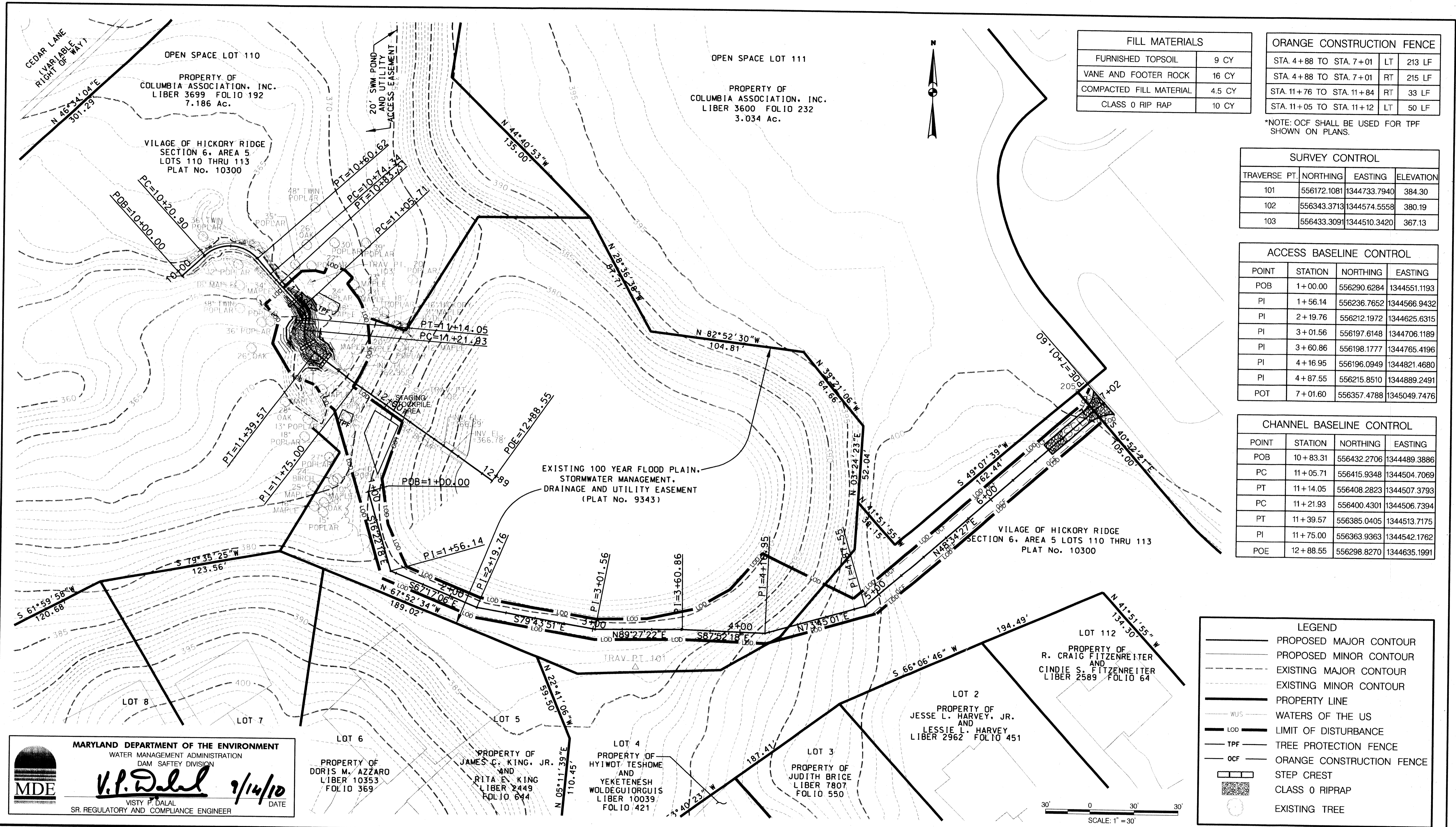


DES:	DF	BY	NO.	REVISION	DATE
DRN:	AH				
CHK:	CB				
DATE:	4/8/10				

HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
HICKORY RIDGE CHANNEL REHABILITATION PROJECT
CAPITAL PROJECT D-1159

TITLE SHEET

SCALE	AS SHOWN
SHEET	1 OF 12



FILL MATERIALS	
FURNISHED TOPSOIL	9 CY
VANE AND FOOTER ROCK	16 CY
COMPACTED FILL MATERIAL	4.5 CY
CLASS 0 RIP RAP	10 CY

ORANGE CONSTRUCTION FENCE			
STA. 4+88 TO STA. 7+01	LT	213 LF	
STA. 4+88 TO STA. 7+01	RT	215 LF	
STA. 11+76 TO STA. 11+84	RT	33 LF	
STA. 11+05 TO STA. 11+12	LT	50 LF	

*NOTE: OCF SHALL BE USED FOR TPF SHOWN ON PLANS.

SURVEY CONTROL			
TRAVERSE PT.	NORTHING	EASTING	ELEVATION
101	556172.1081	1344733.7940	384.30
102	556343.3713	1344574.5558	380.19
103	556433.3091	1344510.3420	367.13

ACCESS BASELINE CONTROL			
POINT	STATION	NORTHING	EASTING
POB	1+00.00	556290.6284	1344551.1193
PI	1+56.14	556236.7652	1344566.9432
PI	2+19.76	556212.1972	1344625.6315
PI	3+01.56	556197.6148	1344706.1189
PI	3+60.86	556198.1777	1344765.4196
PI	4+16.95	556196.0949	1344821.4680
PI	4+87.55	556215.8510	1344889.2491
POT	7+01.60	556357.4788	1345049.7476

CHANNEL BASELINE CONTROL			
POINT	STATION	NORTHING	EASTING
POB	10+83.31	556432.2706	1344489.3886
PC	11+05.71	556415.9348	1344504.7069
PT	11+14.05	556408.2823	1344507.3793
PC	11+21.93	556400.4301	1344506.7394
PT	11+39.57	556385.0405	1344513.7175
PI	11+75.00	556363.9363	1344542.1762
POE	12+88.55	556298.8270	1344635.1991

LEGEND	
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	PROPERTY LINE
	WATERS OF THE US
	LIMIT OF DISTURBANCE
	TREE PROTECTION FENCE
	ORANGE CONSTRUCTION FENCE
	STEP CREST
	CLASS 0 RIPRAP
	EXISTING TREE

MARYLAND DEPARTMENT OF THE ENVIRONMENT
 WATER MANAGEMENT ADMINISTRATION
 DAM SAFETY DIVISION

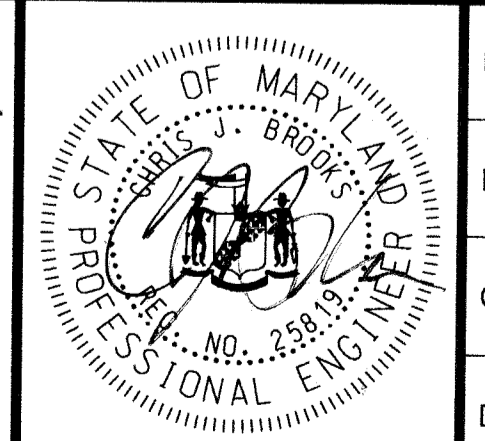
 V.P. Dalal 9/14/10
 VISTY P. DALAL
 SR. REGULATORY AND COMPLIANCE ENGINEER

REVIEWED FOR HOWARD SCD
 AND MEETS TECHNICAL REQUIREMENTS
 THIS DEVELOPMENT IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL
 BY THE HOWARD SOIL CONSERVATION DISTRICT

 HOWARD SCD 5/26/10 DATE

McCormick Taylor
 Engineers & Planners
 Since 1946
 509 South Exeter Street
 4th Floor
 Baltimore, Maryland 21202
 (410) 662-7400

Howard County
 MARYLAND
 Storm Water Management Division
 Bureau of Environmental Services
 6751 Columbia Gateway Drive, Suite 514
 Columbia, Maryland 21046-3143
 (410) 313-6146



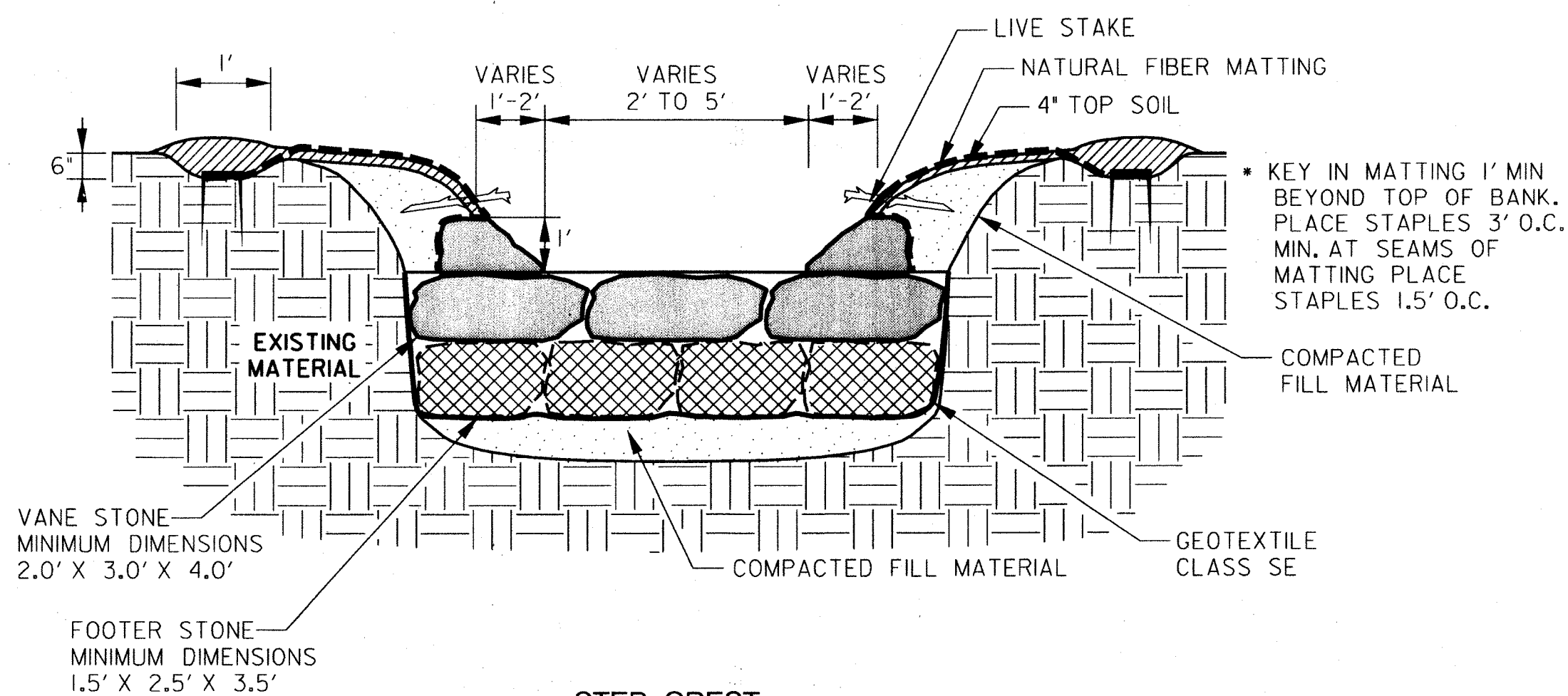
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HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
 HICKORY RIDGE CHANNEL REHABILITATION PROJECT
 CAPITAL PROJECT D-1159
SITE PLAN

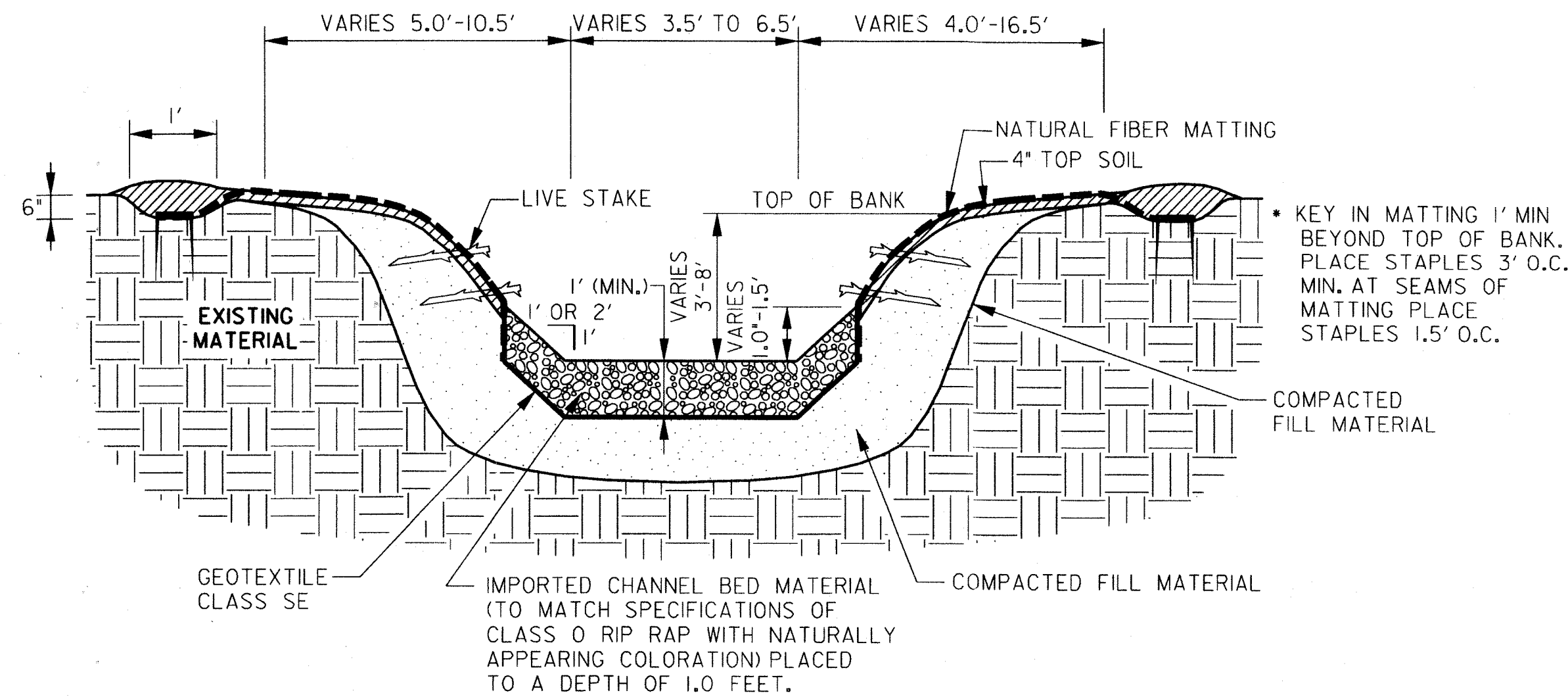
SCALE
 1" = 30'
 SHEET
 2 OF 12

NOTE:

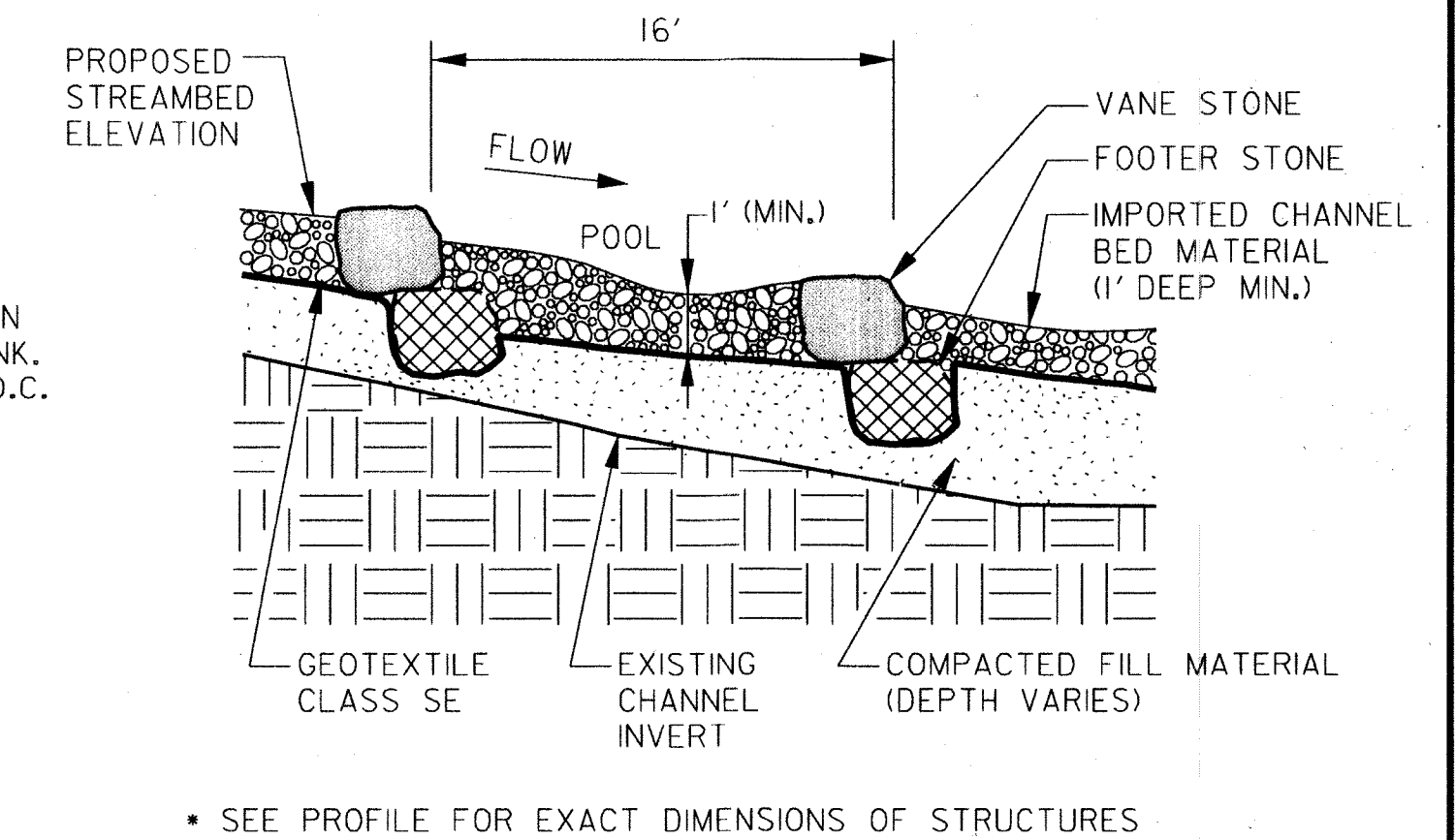
REFER TO SHEET 8 OF 12 FOR RIP RAP AND STEP POOL INSTALLATION GUIDELINES



STEP-CREST
CROSS SECTION VIEW
(NOT TO SCALE)

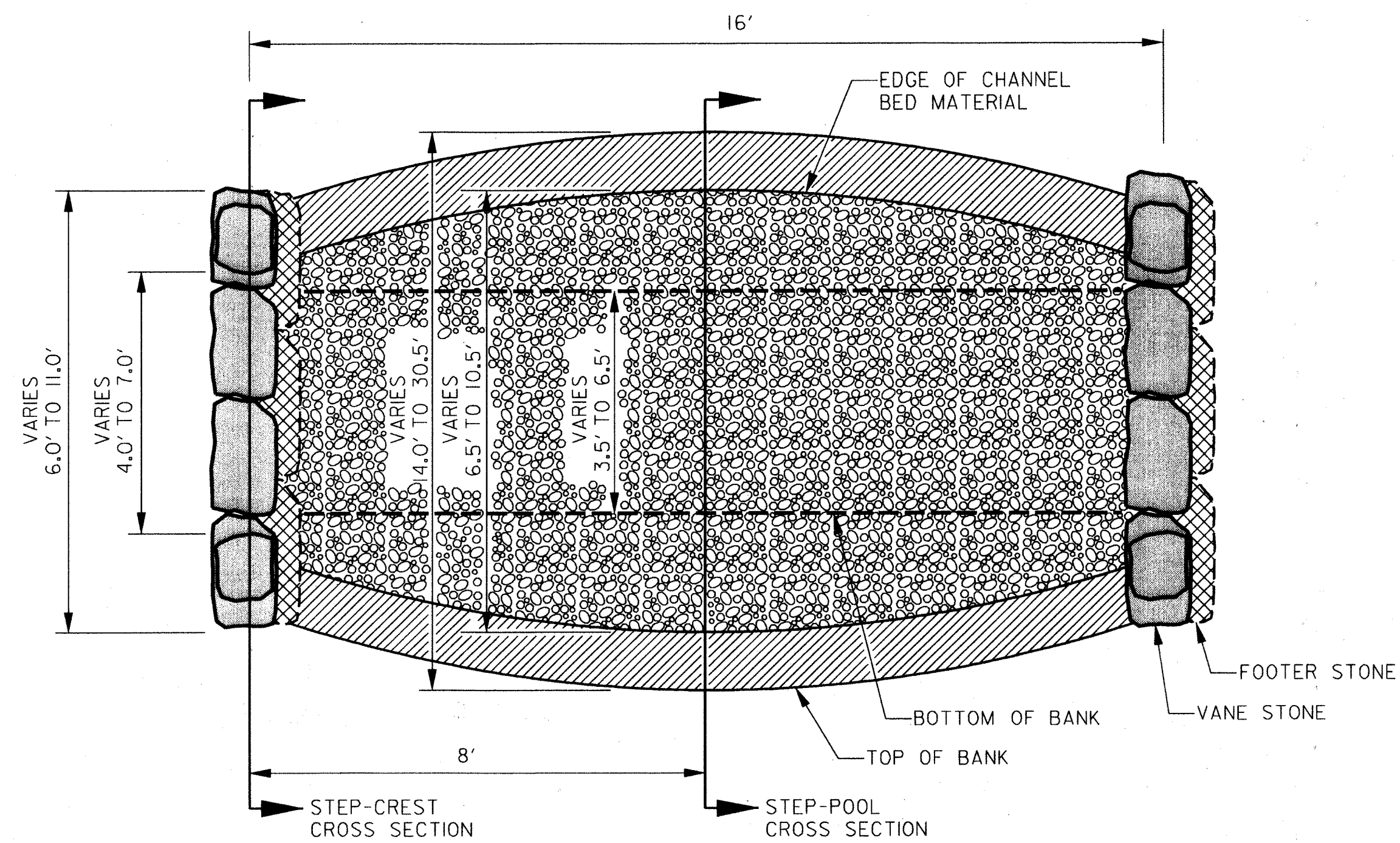


STEP-POOL
CROSS SECTION VIEW
(NOT TO SCALE)

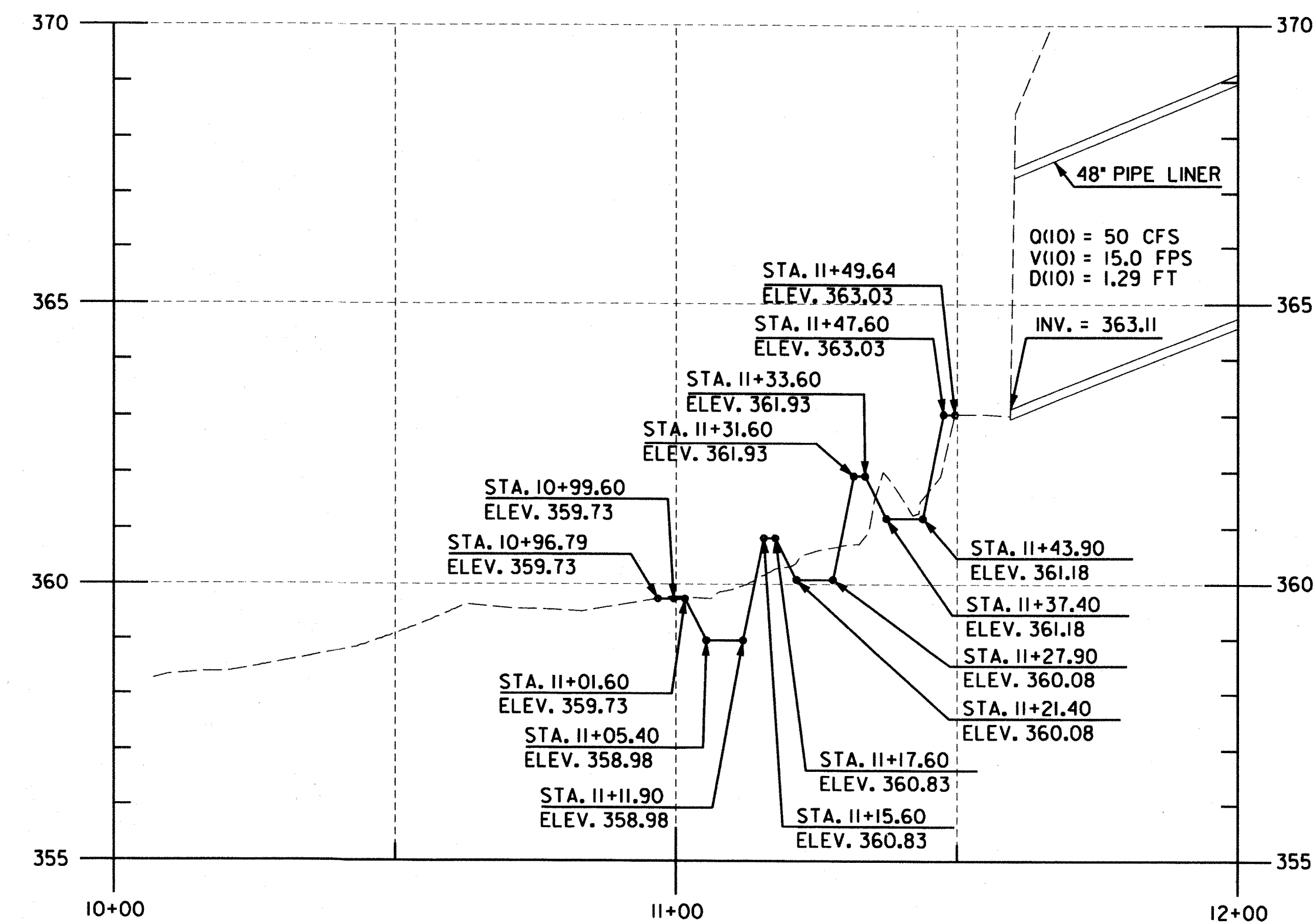


SEE PROFILE FOR EXACT DIMENSIONS OF STRUCTURES

STEP-POOL STRUCTURES
PROFILE VIEW
(NOT TO SCALE)



STEP-POOL STRUCTURES
TYPICAL PLAN VIEW
(NOT TO SCALE)



CHANNEL PROFILE

SCALE:
VERTICAL: 1" = 2'
HORIZONTAL: 1" = 20'

MARYLAND DEPARTMENT OF THE ENVIRONMENT
WATER MANAGEMENT ADMINISTRATION
DAM SAFETY DIVISION

V. P. Dalal 9/14/10
VISTY P. DALAL
SR. REGULATORY AND COMPLIANCE ENGINEER

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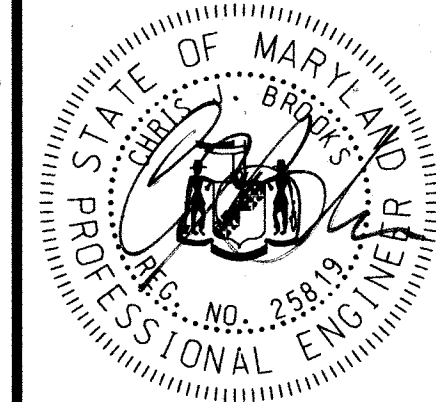
Gregg Sch... 5/26/10
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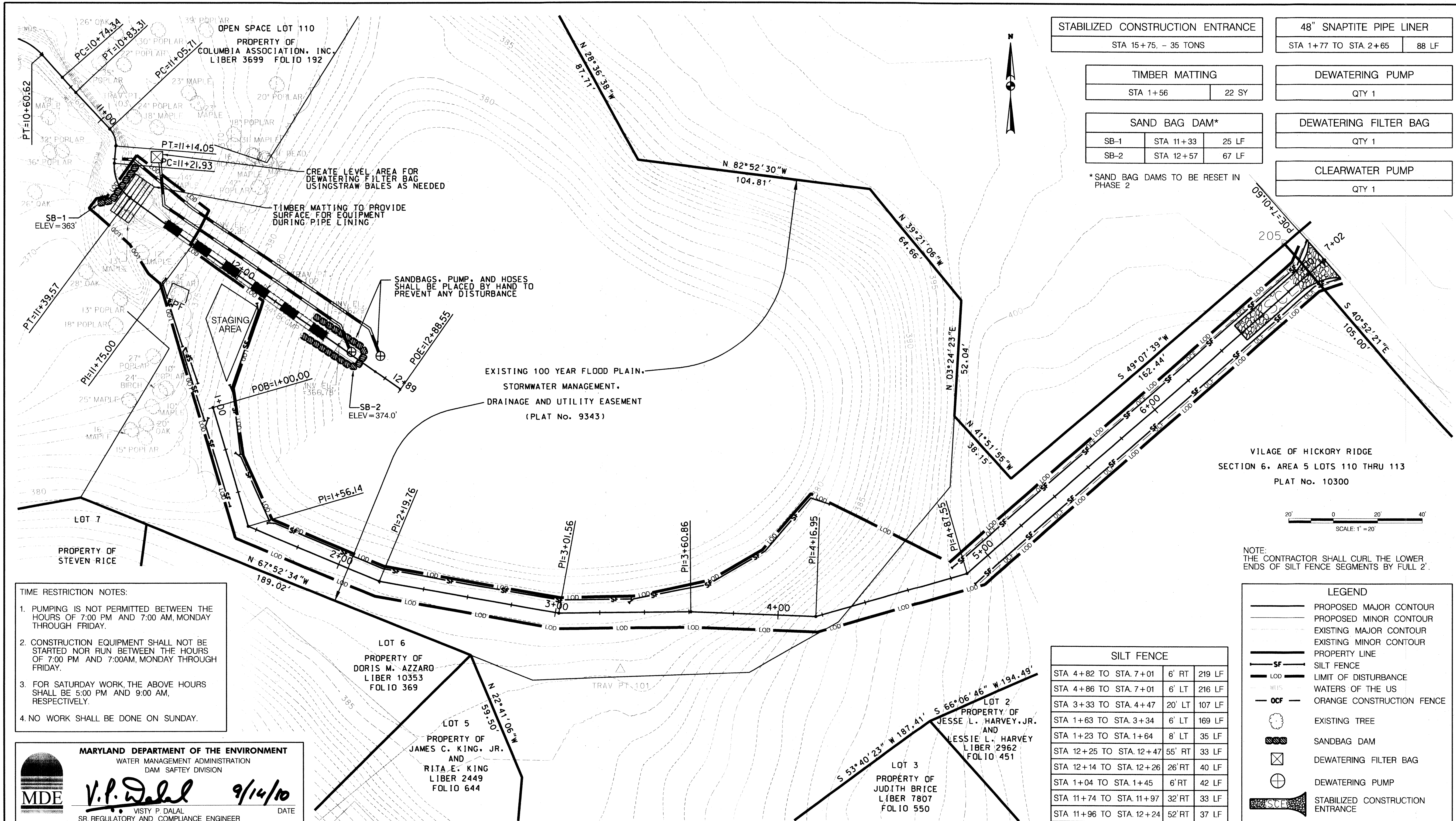
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HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
HICKORY RIDGE CHANNEL REHABILITATION PROJECT
CAPITAL PROJECT D-1159

STEP POOL DETAILS AND PROFILE

SCALE
AS SHOWN

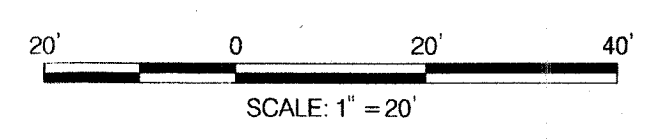
SHEET
3 OF 12



STABILIZED CONSTRUCTION ENTRANCE		48" SNAPTITE PIPE LINER	
STA 15+75, - 35 TONS		STA 1+77 TO STA. 2+65	88 LF
TIMBER MATTING		DEWATERING PUMP	
STA 1+56	22 SY	QTY 1	
SAND BAG DAM*		DEWATERING FILTER BAG	
SB-1	STA 11+33	25 LF	QTY 1
SB-2	STA 12+57	67 LF	
*SAND BAG DAMS TO BE RESET IN PHASE 2		CLEARWATER PUMP	
		QTY 1	

- TIME RESTRICTION NOTES:
- PUMPING IS NOT PERMITTED BETWEEN THE HOURS OF 7:00 PM AND 7:00 AM, MONDAY THROUGH FRIDAY.
 - CONSTRUCTION EQUIPMENT SHALL NOT BE STARTED NOR RUN BETWEEN THE HOURS OF 7:00 PM AND 7:00AM, MONDAY THROUGH FRIDAY.
 - FOR SATURDAY WORK, THE ABOVE HOURS SHALL BE 5:00 PM AND 9:00 AM, RESPECTIVELY.
 - NO WORK SHALL BE DONE ON SUNDAY.

VILAGE OF HICKORY RIDGE
SECTION 6, AREA 5 LOTS 110 THRU 113
PLAT No. 10300



NOTE:
THE CONTRACTOR SHALL CURL THE LOWER ENDS OF SILT FENCE SEGMENTS BY FULL 2'.

SILT FENCE		
STA 4+82 TO STA. 7+01	6' RT	219 LF
STA 4+86 TO STA. 7+01	6' LT	216 LF
STA 3+33 TO STA. 4+47	20' LT	107 LF
STA 1+63 TO STA. 3+34	6' LT	169 LF
STA 1+23 TO STA. 1+64	8' LT	35 LF
STA 12+25 TO STA. 12+47	55' RT	33 LF
STA 12+14 TO STA. 12+26	26' RT	40 LF
STA 1+04 TO STA. 1+45	6' RT	42 LF
STA 11+74 TO STA. 11+97	32' RT	33 LF
STA 11+96 TO STA. 12+24	52' RT	37 LF

LEGEND	
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	PROPERTY LINE
	SILT FENCE
	LIMIT OF DISTURBANCE
	WATERS OF THE US
	ORANGE CONSTRUCTION FENCE
	EXISTING TREE
	SANDBAG DAM
	DEWATERING FILTER BAG
	DEWATERING PUMP
	STABILIZED CONSTRUCTION ENTRANCE

MARYLAND DEPARTMENT OF THE ENVIRONMENT
WATER MANAGEMENT ADMINISTRATION
DAM SAFETY DIVISION

V.P. Dalal 9/14/10
VISTY P. DALAL
SR. REGULATORY AND COMPLIANCE ENGINEER

LOT 6
PROPERTY OF
DORIS M. AZZARO
LIBER 10353
FOLIO 369

LOT 5
PROPERTY OF
JAMES C. KING, JR.
AND
RITA E. KING
LIBER 2449
FOLIO 644

LOT 3
PROPERTY OF
JUDITH BRICE
LIBER 7807
FOLIO 550

LOT 2
PROPERTY OF
JESSE L. HARVEY, JR.
AND
LESSIE L. HARVEY
LIBER 2962
FOLIO 451

REVIEWED FOR HOWARD SCD
AND MEETS TECHNICAL REQUIREMENTS

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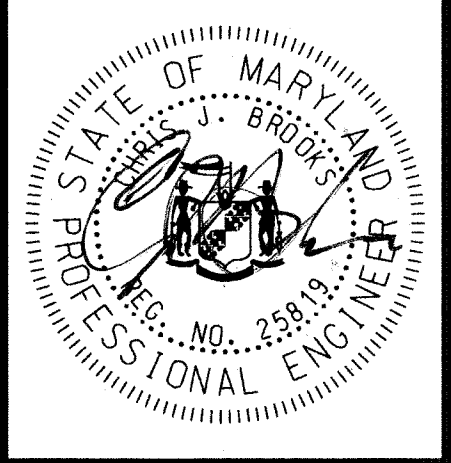
Guy A. Sch... 5/26/10
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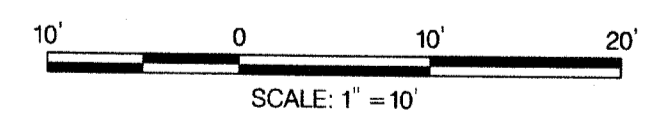
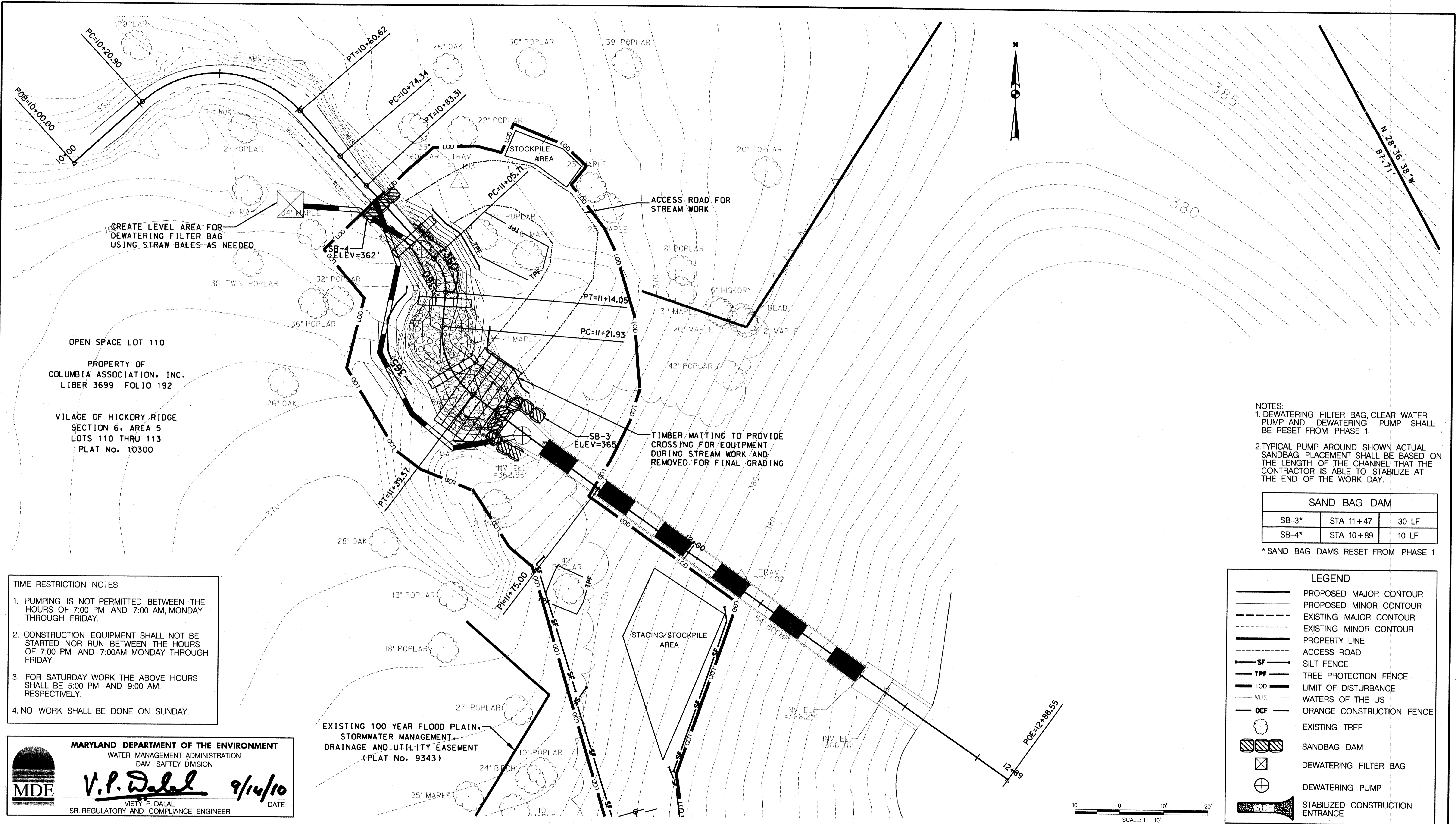
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HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
HICKORY RIDGE CHANNEL REHABILITATION PROJECT
CAPITAL PROJECT D-1159

**EROSION AND SEDIMENT CONTROL PLAN
PHASE 1**

SCALE
1" = 20'

SHEET
4 OF 12



- NOTES:
1. DEWATERING FILTER BAG, CLEAR WATER PUMP AND DEWATERING PUMP SHALL BE RESET FROM PHASE 1.
 2. TYPICAL PUMP AROUND SHOWN. ACTUAL SANDBAG PLACEMENT SHALL BE BASED ON THE LENGTH OF THE CHANNEL THAT THE CONTRACTOR IS ABLE TO STABILIZE AT THE END OF THE WORK DAY.

SAND BAG DAM		
SB-3*	STA 11+47	30 LF
SB-4*	STA 10+89	10 LF

*SAND BAG DAMS RESET FROM PHASE 1

- TIME RESTRICTION NOTES:
1. PUMPING IS NOT PERMITTED BETWEEN THE HOURS OF 7:00 PM AND 7:00 AM, MONDAY THROUGH FRIDAY.
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MARYLAND DEPARTMENT OF THE ENVIRONMENT
 WATER MANAGEMENT ADMINISTRATION
 DAM SAFETY DIVISION

V.P. Dalal 9/14/10
 VISTY P. DALAL
 SR. REGULATORY AND COMPLIANCE ENGINEER

LEGEND

- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPERTY LINE
- ACCESS ROAD
- SILT FENCE
- SF —
- TPF — TREE PROTECTION FENCE
- LOD — LIMIT OF DISTURBANCE
- WUS — WATERS OF THE US
- OCF — ORANGE CONSTRUCTION FENCE
- EXISTING TREE
- SANDBAG DAM
- DEWATERING FILTER BAG
- DEWATERING PUMP
- STABILIZED CONSTRUCTION ENTRANCE

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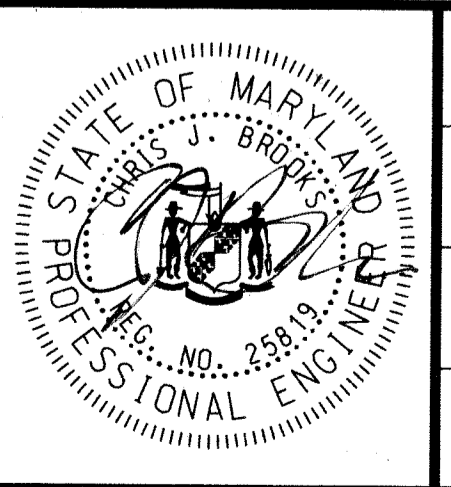
[Signature] 5/26/10
 HOWARD SCD DATE

McCormick Taylor
 Engineers & Planners Since 1946

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 4th Floor
 Baltimore, Maryland 21202
 (410) 662-7400

Howard County
 MARYLAND

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 Bureau of Environmental Services
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 Columbia, Maryland 21046-3143
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**HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
 HICKORY RIDGE CHANNEL REHABILITATION PROJECT
 CAPITAL PROJECT D-1159**

**EROSION AND SEDIMENT CONTROL PLAN
 PHASE 2**

SCALE: 1" = 10'

SHEET: 5 OF 12

EROSION AND SEDIMENT CONTROL – GENERAL NOTES

HOWARD SOIL CONSERVATION DISTRICT TEMPORARY SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE RE-DISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.

SEEDBED PREPARATION: – LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS: – APPLY 600 LBS/ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ. FT.).

SEEDING: – FOR PERIODS MARCH 1 – APRIL 30 AND FROM AUGUST 15 – OCTOBER 15, SEED WITH 2-1/2 BUSHEL PER ACRE OF ANNUAL RYE (3.2 LBS/1000 SQ. FT.). FOR THE PERIOD MAY 1 – AUGUST 14, SEED WITH 3 LBS / ACRE OF WEEPING LOVEGRASS (.07 LBS/1000 SQ. FT.). FOR THE PERIOD NOVEMBER 16 – FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS/ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOD.

MULCHING: – APPLY 1-1/2 TO 2 TONS/ACRE (70 TO 90 LBS/1000 SQ. FT.) OF UNROTTED WEED-FREE, SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL. NO ASPHALT EMULSION SHALL BE USED FOR ANCHORING. ONLY A NON-TOXIC, LATEX BACKING MATERIAL IS ALLOWED.

REFER TO THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR ADDITIONAL RATES AND METHODS NOT COVERED.

SEQUENCE OF CONSTRUCTION

1. OBTAIN GRADING PERMIT, MDE DAM SAFETY PERMIT AND MDE PERMIT (TRACKING NUMBER 200962646).
2. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST FIVE (5) DAYS PRIOR TO THE START OF WORK. THE CONTRACTOR SHALL NOTIFY THE HOWARD COUNTY CONSTRUCTION INSPECTION DIVISION (410) 313-1880 A MINIMUM OF 24 HOURS PRIOR TO THE START OF ANY CONSTRUCTION. THE CONTRACTOR SHALL ALSO NOTIFY THE HOWARD COUNTY BUREAU OF UTILITIES (410) 313-4900 AND MARYLAND DEPARTMENT OF ENVIRONMENT INSPECTOR AT (301) 665-2850, FIVE (5) DAYS BEFORE ANY LAND DISTURBING ACTIVITY.
3. ORANGE HIGH VISIBILITY FENCE SHALL BE MANUALLY INSTALLED WHERE INDICATED ON THE PLANS. THIS SHALL BE COMPLETED BY AND INSPECTED AT THE PRECONSTRUCTION MEETING. (1 DAY)
4. THE CONTRACTOR SHALL COORDINATE AN ON-SITE PRE-CONSTRUCTION MEETING WHICH SHALL INCLUDE, BUT NOT BE LIMITED TO, THE COUNTY PROJECT MANAGER, THE ENGINEER, AND A REPRESENTATIVE FROM HOWARD COUNTY CONSTRUCTION INSPECTION. (1 DAY)
5. CONSTRUCT THE FOLLOWING PERIMETER CONTROLS AS SHOWN ON THE PLAN: STABILIZED CONSTRUCTION ENTRANCE AND SILT FENCE, CLEARING ONLY THE AREA NEEDED TO INSTALL THE E&S CONTROLS. (1 DAY)
6. DURING A 5 DAY DRY FORECAST FROM THE NATIONAL WEATHER SERVICE, INSTALL THE TIMBER MATTING, SB-1, SB-2, CLEAR WATER PUMP AND DEWATERING PUMP PER PHASE 1. (1 DAY)
7. COMPLETE PHASE 1 PIPE LINING. (5 DAYS)
8. STABILIZE DISTURBED AREA IN PHASE 1. (1 DAY)
9. WITH PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR AND DURING A 5 DAY DRY FORECAST FROM THE NATIONAL WEATHER SERVICE, REMOVE CLEAR WATER PUMP, DEWATERING PUMP SB-1 AND SB-2. INSTALL AND RESET SAND BAG DAMS AT SB-3 AND SB-4 AND PUMP AROUND AS SHOWN ON PLANS FOR PHASE 2. (1 DAY)
10. COMPLETE PHASE 2. FILL EXISTING CHANNEL WITH SPECIFIED MATERIAL AND, GRADE CHANNEL PER THE PLAN FROM DOWNSTREAM TO UPSTREAM. (5 DAYS)
11. STABILIZE DISTURBED AREA IN PHASE 2. (1 DAY)
12. INSTALL LANDSCAPING PER PLAN. (3 DAYS)
13. REMOVE TEMPORARY CONSTRUCTION ACCESS AND GRADE TO FINAL ELEVATIONS REMOVING ALL RUTS. (2 DAYS)
14. WHEN AREAS ARE FULLY STABILIZED, AND UPON PERMISSION FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE THE REMAINING SEDIMENT CONTROL DEVICES AND STABILIZE ANY DISTURBED AREAS. (1 DAY)

IN-CHANNEL PUMPING NOTES

1. THE DISTURBED LENGTH SHALL NOT EXCEED THAT WHICH CAN BE COMPLETED IN ONE DAY. AT THE END OF EACH WORK DAY, THE WORK AREA MUST BE STABILIZED AND THE PUMP AROUND REMOVED FROM THE CHANNEL. REFER TO THE DETAILS AND SPECIFICATIONS FOR MCWC 1.2: PUMP-AROUND PRACTICE WHICH ARE INCLUDE ON THE PLANS.
2. THE CONTRACTOR SHALL SIZE THE PUMP AND DIVERSION HOSES TO ACCOMMODATE A MINIMUM OF 206 GAL/MIN AND THE FLOWS ANTICIPATED DURING CONSTRUCTION IN THE CHANNEL SECTION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND MAINTAINING A CONSTRUCTION PHASE DEWATERING SYSTEM, INCLUDING A TEMPORARY SYSTEM OF PUMPS, DRAINAGE DITCHES AND, SANDBAG/ STONE DIVERSIONS, AS REQUIRED TO REMOVE WATER FROM ANY SOURCE, INCLUDING GROUND WATER, AND MAINTAIN WORKABLE, DRY CONDITIONS IN THE WORK AREA.
4. NO CLAIMS WILL BE CONSIDERED FOR DELAYS RELATED TO WET CONDITIONS OR DETERIORATED SUB GRADE RESULTING FROM THE LACK OR PROPER MAINTENANCE OF AN EFFECTIVE TEMPORARY DEWATERING SYSTEM, DISTURBANCE OF THE SUB GRADE DUE TO POOR CONSTRUCTION PROCEDURES, OR FROM CONSTRUCTION WORK DURING UNFAVORABLE WEATHER CONDITIONS. THE CONTRACTOR SHALL BE AWARE OF WEATHER FORECASTS AND RAIN PREDICTIONS SO AS TO BE PROPERLY PREPARED TO MAINTAIN OR SHUT DOWN OPERATIONS WHEN APPROPRIATE.

HOWARD SOIL CONSERVATION DISTRICT PERMANENT SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT LONG-LIVED VEGETATIVE COVER IS NEEDED.

SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ONE OF THE FOLLOWING SCHEDULES:

1. **PREFERRED** – APPLY 2 TONS/ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ. FT.) AND 600 LBS/ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ.FT) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 LBS/ACRE 30-0-0 UREAFORM FERTILIZER (9 LBS/1000 SQ. FT.).

2. **ACCEPTABLE** – APPLY 2 TONS/ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ. FT.) AND 1000 LBS/ACRE 10-10-10 FERTILIZER (23 LBS/1000 SQ. FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL.

SEEDING – FOR THE PERIODS MARCH 1 – APRIL 30, AND AUGUST 1 – OCTOBER 15, SEED WITH 60 LBS / ACRE (1.4 LBS/1000 SQ. FT.) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD MAY 1 – JULY 31, SEED WITH 60 LBS KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS/ACRE (0.05 LBS/100 SQ. FT.) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 – FEBRUARY 28, PROTECT SITE BY: **OPTION 1** – TWO TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. **OPTION 2** – USE SOD. **OPTION 3** – SEED WITH 60 LBS/ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS/ACRE WELL ANCHORED STRAW.

MULCHING – APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ. FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL. NO ASPHALT EMULSION SHALL BE USED FOR ANCHORING. ONLY A NON-TOXIC, LATEX TACKING MATERIAL IS ALLOWED.

MAINTENANCE – INSPECT ALL SEEDING AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

HOWARD COUNTY CONSERVATION DISTRICT STANDARD SEDIMENT CONTROL NOTES

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (313-1855).
2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12 OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
5. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. 51), SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50) AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
6. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
7. **SITE ANALYSIS:**

TOTAL AREA OF SITE	0.43 ACRES
AREA DISTURBED	0.43 ACRES
AREA TO BE ROOFED OR PAVED	0 ACRES
AREA TO BE VEGETATIVELY STABILIZED	0.43 ACRES
TOTAL CUT	44.4 CU. YDS.
TOTAL FILL	39.9 CU. YDS.
OFFSITE WASTE/BORROW AREA LOCATION	SEE NOTE 12 BELOW
8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
9. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
10. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING, OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
11. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTH OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORK DAY, WHICHEVER IS SHORTER.
12. OFFSITE WASTE / BORROW SITE SHALL HAVE AN APPROVED SEDIMENT CONTROL PLAN AND PERMIT.

STANDARD AND SPECIFICATIONS FOR TOPSOIL

DEFINITION: PLACEMENT OF TOPSOIL OVER A PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION.

PURPOSE: TO PROVIDE A SUITABLE, SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.

CONDITIONS WHERE PRACTICE APPLIES

- I. THIS PRACTICE IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
 - A. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
 - B. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.
 - C. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
 - D. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.

II. FOR THE PURPOSE OF THESE STANDARDS AND SPECIFICATIONS, AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN FOR ADEQUATE STABILIZATION. AREAS HAVING SLOPES STEEPER THAN 2:1 SHALL HAVE THE APPROPRIATE STABILIZATION SHOWN ON THE PLANS.

CONSTRUCTION AND MATERIAL SPECIFICATIONS

I. TOPSOIL SALVAGED FROM THE EXISTING SITE MAY BE USED PROVIDED THAT IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-SCS IN COOPERATION WITH MARYLAND AGRICULTURAL EXPERIMENTAL STATION.

II. TOPSOIL SPECIFICATIONS – SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:

A. TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. REGARDLESS, TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND SHALL CONTAIN LESS THAN 5% BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1-1/2" IN DIAMETER.

B. TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACKGRASS, JOHNSONGRASS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.

C. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE SPREAD AT THE RATE OF 4-8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL. LIME SHALL BE DISTURBED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING PROCEDURES.

III. FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES:

A. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION – SECTION – VEGETATIVE STABILIZATION METHODS AND MATERIALS.

IV. FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES:

A. ON SOIL MEETING TOPSOIL SPECIFICATIONS, OBTAIN TEST RESULTS DICTATING FERTILIZER AND LIME AMENDMENTS REQUIRED TO BRING THE SOIL INTO COMPLIANCE WITH THE FOLLOWING:

1. PH FOR TOPSOIL SHALL BE BETWEEN 6.0 AND 7.5. IF THE TESTED SOIL DEMONSTRATES A PH OF LESS THAN 6.0, SUFFICIENT LIME SHALL BE PRESCRIBED TO RAISE THE PH TO 6.5 OR HIGHER.
2. ORGANIC CONTENT OF TOPSOIL SHALL BE NOT LESS THAN 1.5 PERCENT BY WEIGHT.
3. TOPSOIL HAVING SOLUBLE SALT CONTENT GREATER THAN 500 PARTS PER MILLION SHALL NOT BE USED.
4. NO SOD OR SEED SHALL BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME AS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.

NOTE: TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST, AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY, MAY BE USED IN LIEU OF NATURAL TOPSOIL.

B. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION – SECTION VEGETATIVE STABILIZATION METHODS AND MATERIALS.

V. TOPSOIL APPLICATION

- A. WHEN TOPSOILING, MAINTAIN NEEDED EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, EARTH DIKES, SLOPE SILT FENCE AND SEDIMENT TRAPS AND BASINS.
- B. GRADES ON THE AREAS TO BE TOPSOILED, WHICH HAVE BEEN PREVIOUSLY ESTABLISHED, SHALL BE MAINTAINED, ALBEIT 4" – 8" HIGHER IN ELEVATION.
- C. TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4" – 8" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4". SPREADING SHALL BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
- D. TOPSOIL SHALL NOT BE PLACED WHILE THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.

MARYLAND DEPARTMENT OF THE ENVIRONMENT
WATER MANAGEMENT ADMINISTRATION
DAM SAFETY DIVISION

V. P. Dalal 9/14/10
DATE

VISTY P. DALAL
SR. REGULATORY AND COMPLIANCE ENGINEER

**REVIEWED FOR HOWARD SCD
AND MEETS TECHNICAL REQUIREMENTS**

THIS DEVELOPMENT IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT

[Signature] 5/26/10
DATE

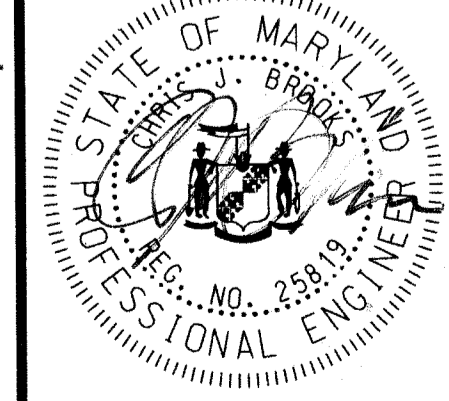
HOWARD SCD

**McCormick
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Howard County
M A R Y L A N D

Storm Water Management Division
Bureau of Environmental Services
6751 Columbia Gateway Drive, Suite 514
Columbia, Maryland 21046-3143
(410) 313-6146

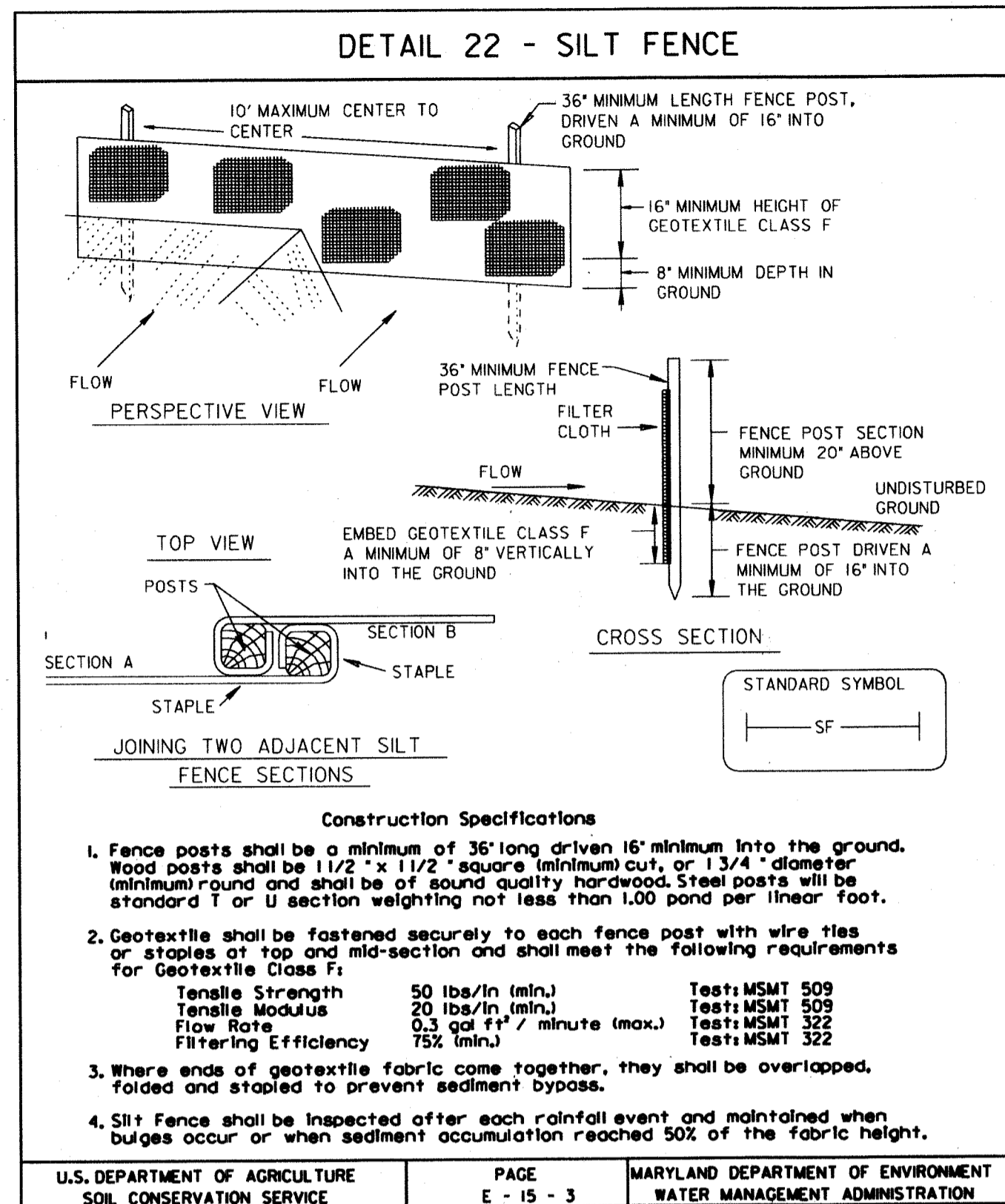


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CHK: CB							
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**HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
HICKORY RIDGE CHANNEL REHABILITATION PROJECT
CAPITAL PROJECT D-1159**

**EROSION AND SEDIMENT
CONTROL NOTES**

SCALE
NOT TO
SCALE
SHEET
6 OF 12



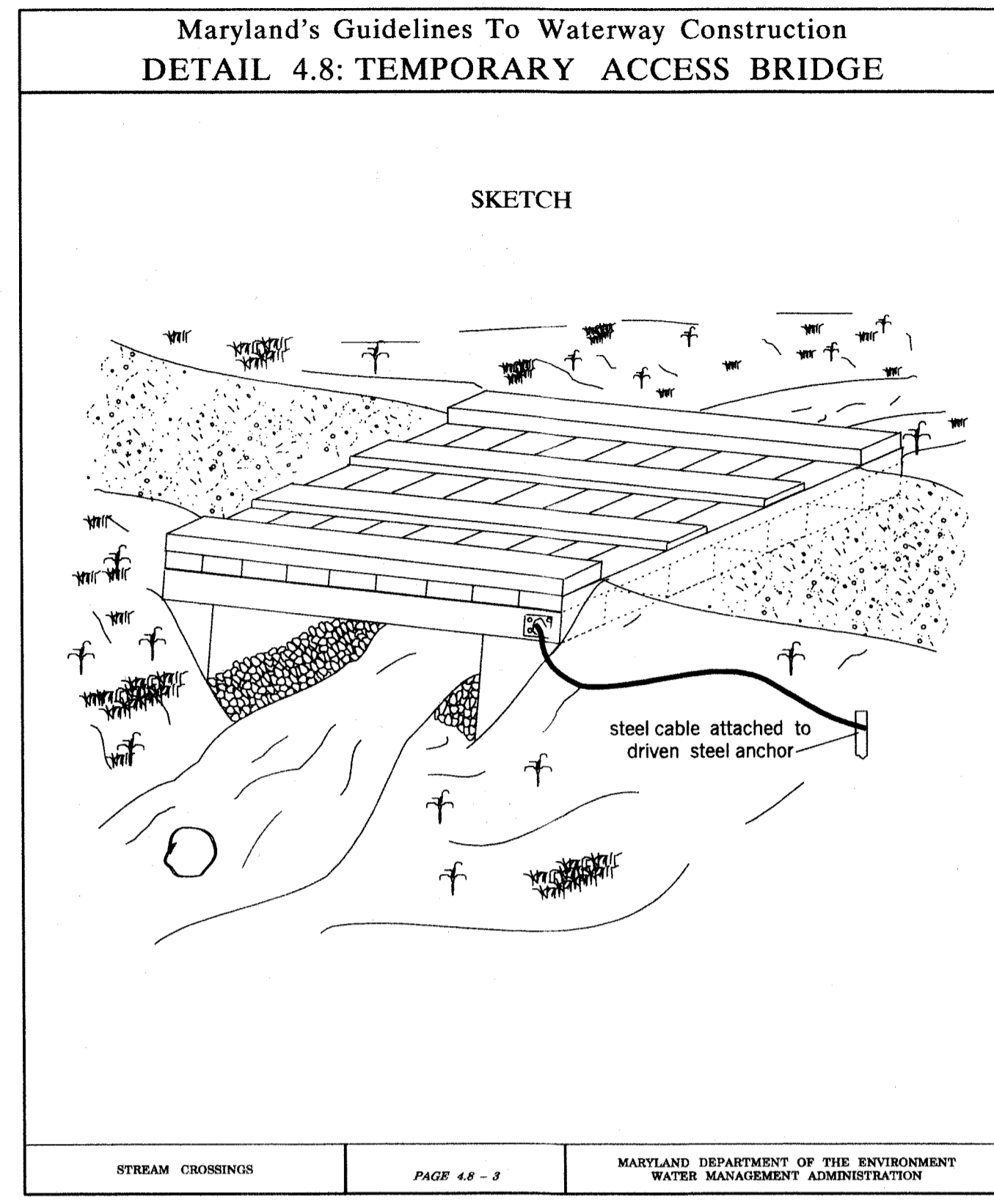
SILT FENCE

Silt Fence Design Criteria

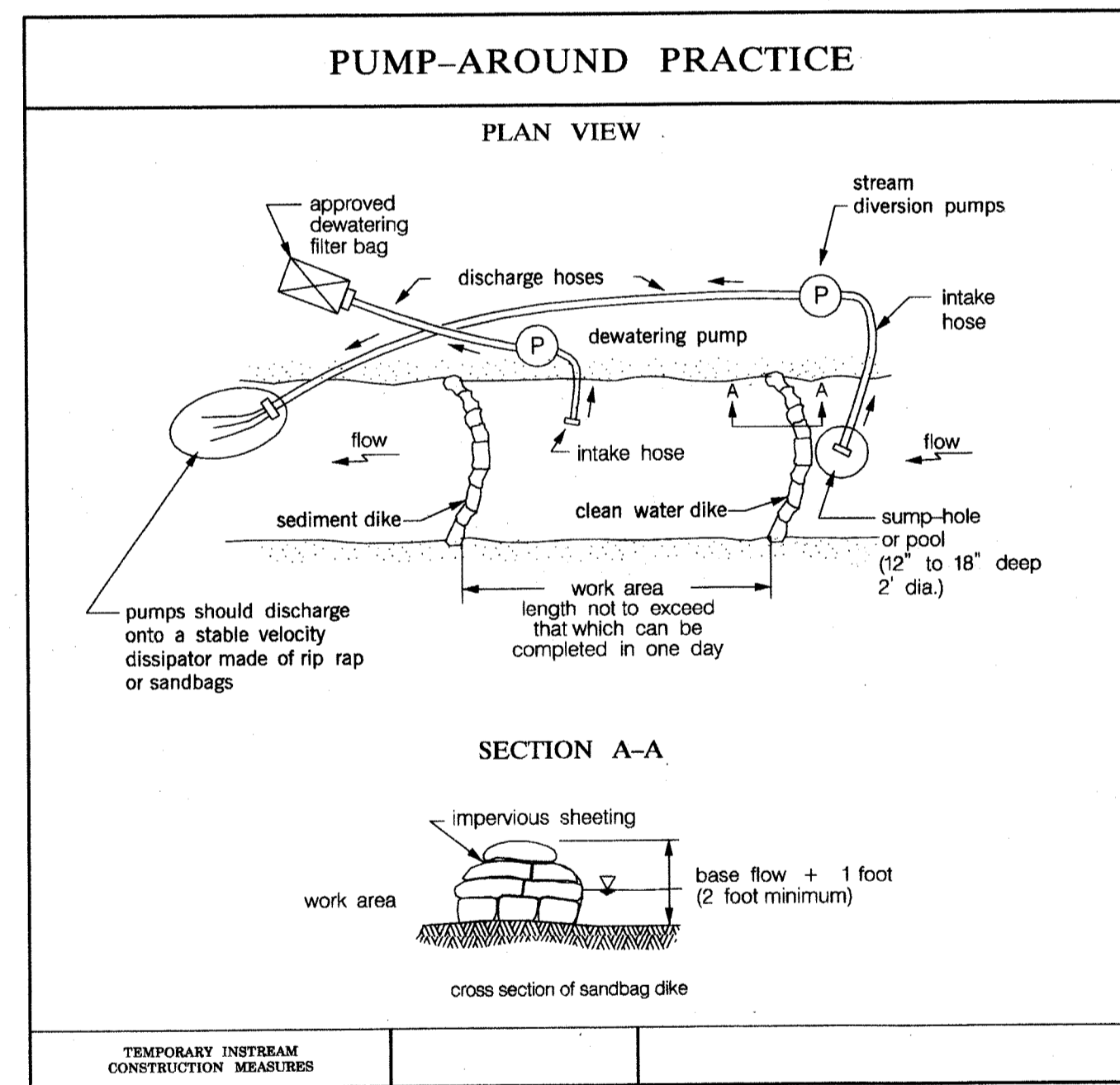
Slope Steepness	(Maximum) Slope Length	(Maximum) Silt Fence Length
Flatter than 50:1	unlimited	unlimited
50:1 to 10:1	125 feet	1,000 feet
10:1 to 5:1	100 feet	750 feet
5:1 to 3:1	60 feet	500 feet
3:1 to 2:1	40 feet	250 feet
2:1 and steeper	20 feet	125 feet

Notes: 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.

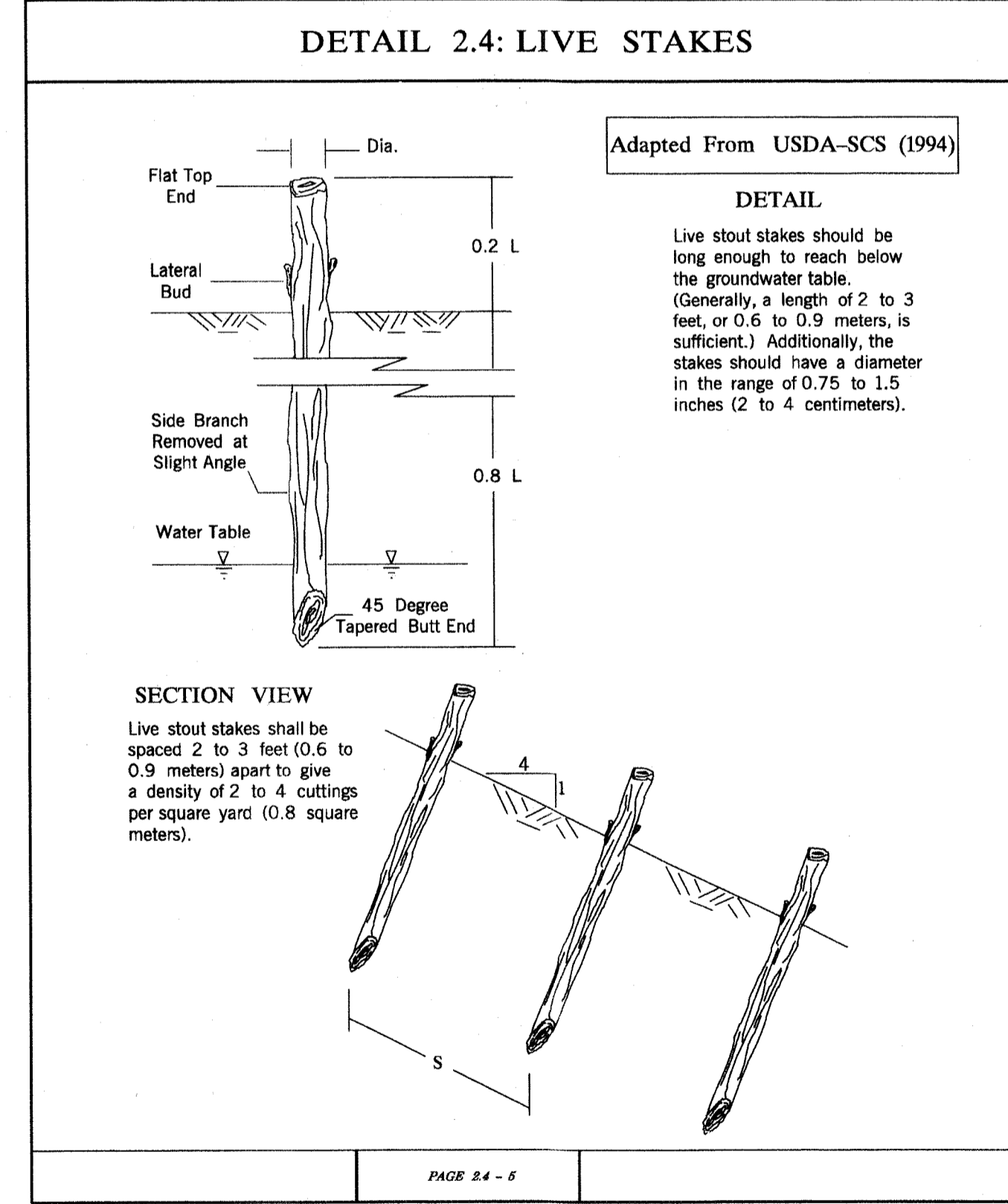
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE E - 15 - 3A MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



- ### TEMPORARY ACCESS BRIDGE
- SEQUENCE OF CONSTRUCTION**
- Abutments should be placed parallel to, and on, stable banks such that the structure is at or above bankfull depth to prevent the entrapment of floating materials and debris.
 - Temporary access bridges should be constructed to span the entire channel.
 - All decking members should be placed perpendicularly to the stringers, butted tightly, and securely fastened to the stringers. Decking materials must be butted tightly to prevent any soil material tracked onto the bridge from falling into the waterway.
 - Although run planks are optional, they may be necessary to properly distribute loads. One run plank should be provided for each track of the equipment wheels and should be securely fastened to the length of the span.
 - Curbs or fenders may be installed along the outer sides of the deck to provide additional safety.
 - Bridges should be securely anchored at one end using steel cable or chain to prevent the bridge from floating downstream and possibly causing an obstruction to the flow. Anchoring at only one end will prevent channel obstruction in the event that flood waters float the bridge. Acceptable anchors are large trees, boulders, or driven steel anchors.
 - All areas disturbed during installation should be stabilized within 14 calendar days in accordance with a revegetation plan approved by the WMA.
 - Periodic inspection should be performed by the user to ensure that the bridge, streambed, and stream banks are maintained and not damaged.
 - Maintenance should be performed as needed to ensure that the structure complies with all standards and specifications. This should include the removal of trapped sediment and debris which should then be disposed of and stabilized outside the floodplain.
 - When the temporary bridge is no longer needed, all structures including abutments and other bridging materials should be removed within 14 calendar days. Removal of the bridge and clean-up of the area, including protection and stabilization of disturbed stream banks, should be accomplished without the use of construction equipment in the waterway.



- ### Maryland's Guidelines To Waterway Construction
- #### DETAIL 1.2: PUMP-AROUND PRACTICE
- DESCRIPTION**
The work should consist of installing a temporary pump around and supporting measures to divert flow around instream construction sites.
- IMPLEMENTATION SEQUENCE**
Sediment control measures, pump-around practices, and associated channel and bank construction should be completed in the following sequence (refer to Detail 1.2):
- Construction activities including the installation of erosion and sediment control measures should not begin until all necessary easements and/or right-of-ways have been acquired. All existing utilities should be marked in the field prior to construction. The contractor is responsible for any damage to existing utilities that may result from construction and should repair the damage at his/her own expense to the county's or utility company's satisfaction.
 - The contractor should notify the Maryland Department of the Environment or WMA sediment control inspector or local environmental protection and resource management division and the provider of local utilities a minimum of 48 hours before starting construction.
 - The contractor should conduct a pre-construction meeting on site with the WMA sediment control inspector, the county project manager, and the engineer to review limits of disturbance, erosion and sediment control requirements, and the sequence of construction. The contractor should stake out all limits of disturbance prior to the pre-construction meeting so they may be reviewed. The participants will also designate the contractor's staging areas and flag all trees within the limit of disturbance which will be removed for construction access. Trees should not be removed within the limit of disturbance without approval from the WMA or local authority.
 - Construction should not begin until all sediment and erosion control measures have been installed and approved by the engineer and the sediment control inspector. The contractor should stay within the limits of the disturbance as shown on the plans and adjacent to the work area whenever possible.
 - Upon installation of all sediment control measures and approval by the sediment control inspector and the local environmental protection and resource management division, the contractor should proceed with the establishment of stabilized construction entrances. In some cases, work may begin downstream. If appropriate, the sequence of construction must be followed unless the contractor obtains written approval for deviations from the WMA or local authority. The contractor should only begin work on a tributary or stream crossing after the work area has been stabilized and the pump around removed from the channel. Work should not be conducted in the channel during rain events.
 - Sandbag dikes should be situated at the upstream and downstream ends of the work area as shown on the plans, and stream flow should be pumped around the work area. The pump should discharge onto a slope velocity dissipater made of rip rap or sandbags.
 - Water from the work area should be pumped to a sediment filtering measure such as a dewatering basin, sediment bag, or other approved device. The measure should be located such that the water drains back into the channel below the downstream sandbag dike.
 - Traversing a channel reach with equipment within the work area where no work is proposed should be avoided. If equipment has to reach for access to another area, then fiber mats or similar measures should be used to minimize disturbance to the channel. Temporary stream crossings should be used only when necessary and only where noted on the plans or specified. See Section 4, Stream Crossings, Maryland Guidelines to Waterway Construction.
 - All stream restoration measures should be installed as indicated by the plans and all banks graded in accordance with the approved plans and typical cross-sections. All grading must be stabilized at the end of each day with seed and mulch or seed and mowing as specified on the plans.
 - After an area is completed and stabilized, the clean water dike should be removed. After the first sediment flush, a new clean water dike should be established upstream from the old sediment dike. Finally, upon establishment of a new sediment dike below the old one, the old sediment dike should be removed.
 - A pump around must be installed on any tributary or storm drain outfall which contributes baseflow to the work area. This should be accomplished by locating a sump hole at the downstream end of the tributary or storm drain outfall and pumping the stream flow around the work area. This water should discharge onto the same velocity dissipater used for the main stem pump around.
 - If a tributary is to be restored, construction should take place on the tributary before work on the main stem reaches the tributary confluence. Construction in the tributary, including pump around practices, should follow the same sequence as for the main stem of the river or stream. When construction on the tributary is completed, work on the main stem should resume. Water from the tributary should continue to be pumped around the work area in the main stem.
 - The contractor is responsible for providing access to and maintaining all erosion and sediment control devices until the sediment control inspector approves their removal.
 - After construction, all disturbed areas should be regraded and revegetated as per the planting plan.
- TEMPORARY INSTREAM CONSTRUCTION MEASURES REVISED NOVEMBER 2000 PAGE 1.2 - 3 MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



- ### LIVE STAKES
- INSTALLATION GUIDELINES**
- Live stake installation should proceed as follows (refer to Detail 2.4):
 - Live stake rooting areas should be soaked in barrels of water for 24 to 48 hours just prior to installation.
 - While keeping the bark of the live stakes intact, the side branches should be cleanly removed, the basal ends angled for easy insertion, and the tops cut square.
 - The cuttings should be implanted with the angled basal end down and buds oriented up at a minimum angle of 10 degrees to the horizontal so that rooting will not be restricted. All stakes should be positioned above the normal baseflow level. Project planners may need to study an aptly chosen vegetated reference reach for further guidance when installing live stakes.
 - In soft soils, the stakes can be inserted perpendicularly into the slope using a dead blow hammer. In hard soils, however, a steel rod should be employed to create a pilot hole before the stakes are planted.
 - Twenty percent of the live stake, and a minimum of two lateral buds, should be exposed above the slope so that green, leafy shoots will readily grow.
 - Split or otherwise damaged stakes should be discarded.
 - After the stakes have been inserted into the ground, soil should be tamped firmly around their bases to encourage root growth.
 - Successive stakes should be arranged in a triangular configuration and spaced a distance of 2 to 3 feet (0.6 to 0.9 meters) apart, allowing for a typical density of 2 to 4 cuttings per square yard (0.8 square meters). Willow posts require additional room for growth and propagation and should be planted at 3 to 5-foot (1 to 1.5-meter) intervals. When inserted in arrays, the stakes should be spaced 12 to 18 inches (30 to 45 centimeters) apart to form chevron-like rows that point downstream.
 - Unstable slope toes should be reinforced against scouring and undercutting using live fascines or rock fill to give the live stakes the best opportunity to root and grow.

MARYLAND DEPARTMENT OF THE ENVIRONMENT
WATER MANAGEMENT ADMINISTRATION
DAM SAFETY DIVISION

V. P. Dalal 9/14/10
VISTY P. DALAL DATE
SR. REGULATORY AND COMPLIANCE ENGINEER

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

THIS DEVELOPMENT IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT

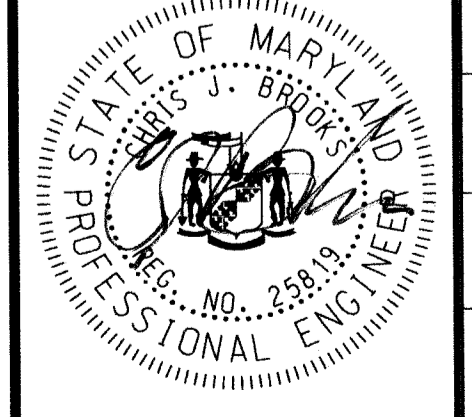
[Signature] 5/26/10
HOWARD SCD DATE

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MARYLAND

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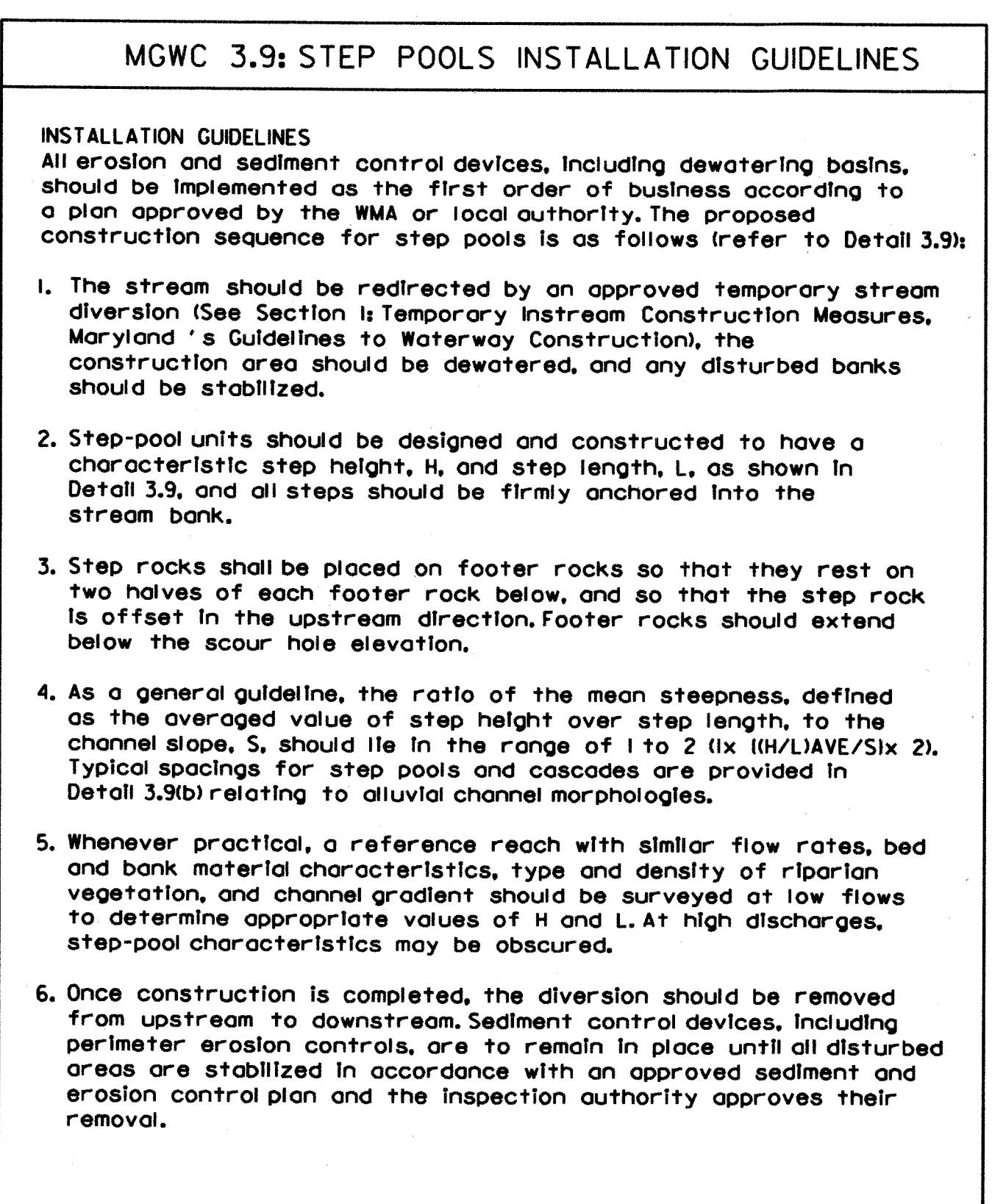
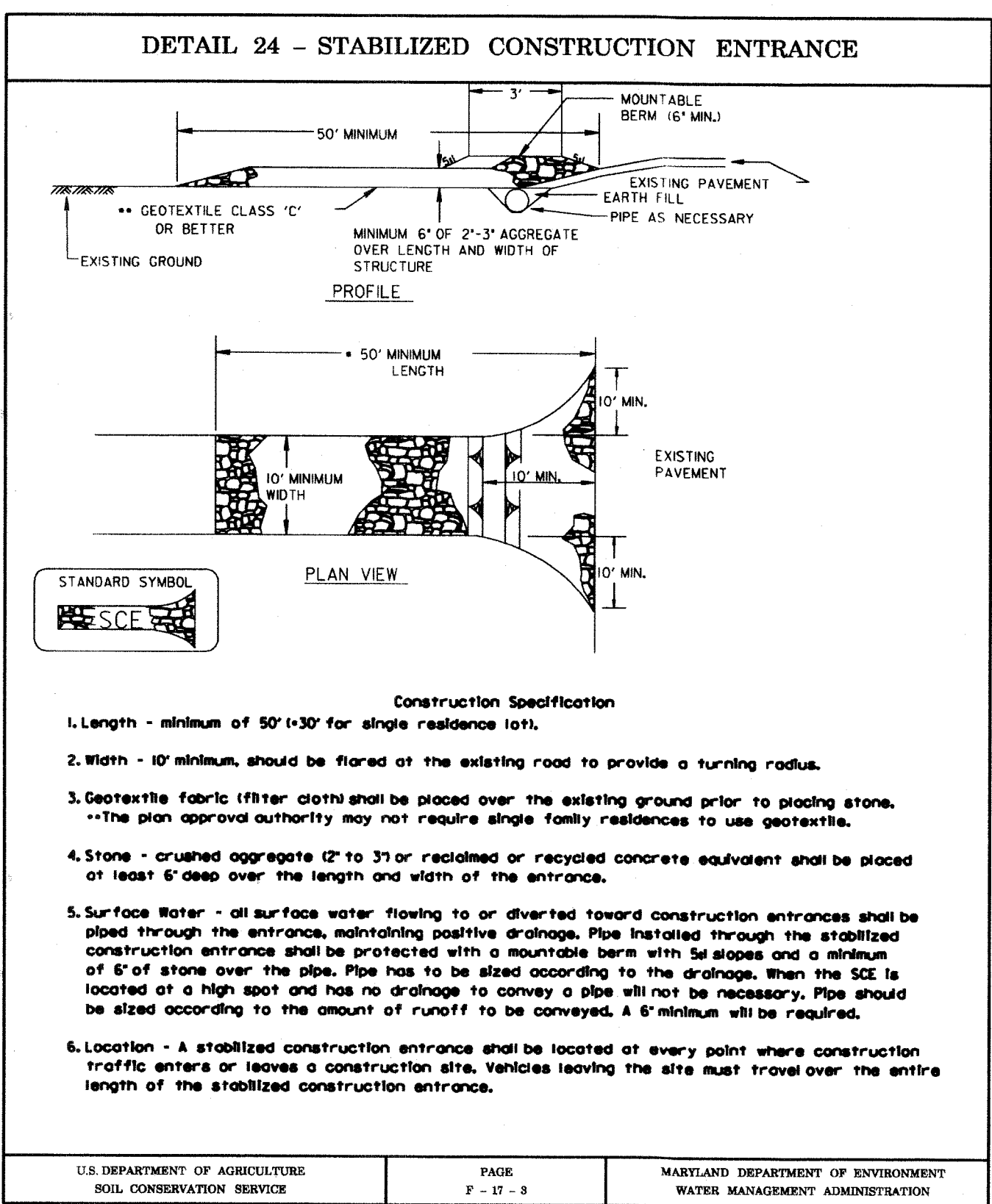
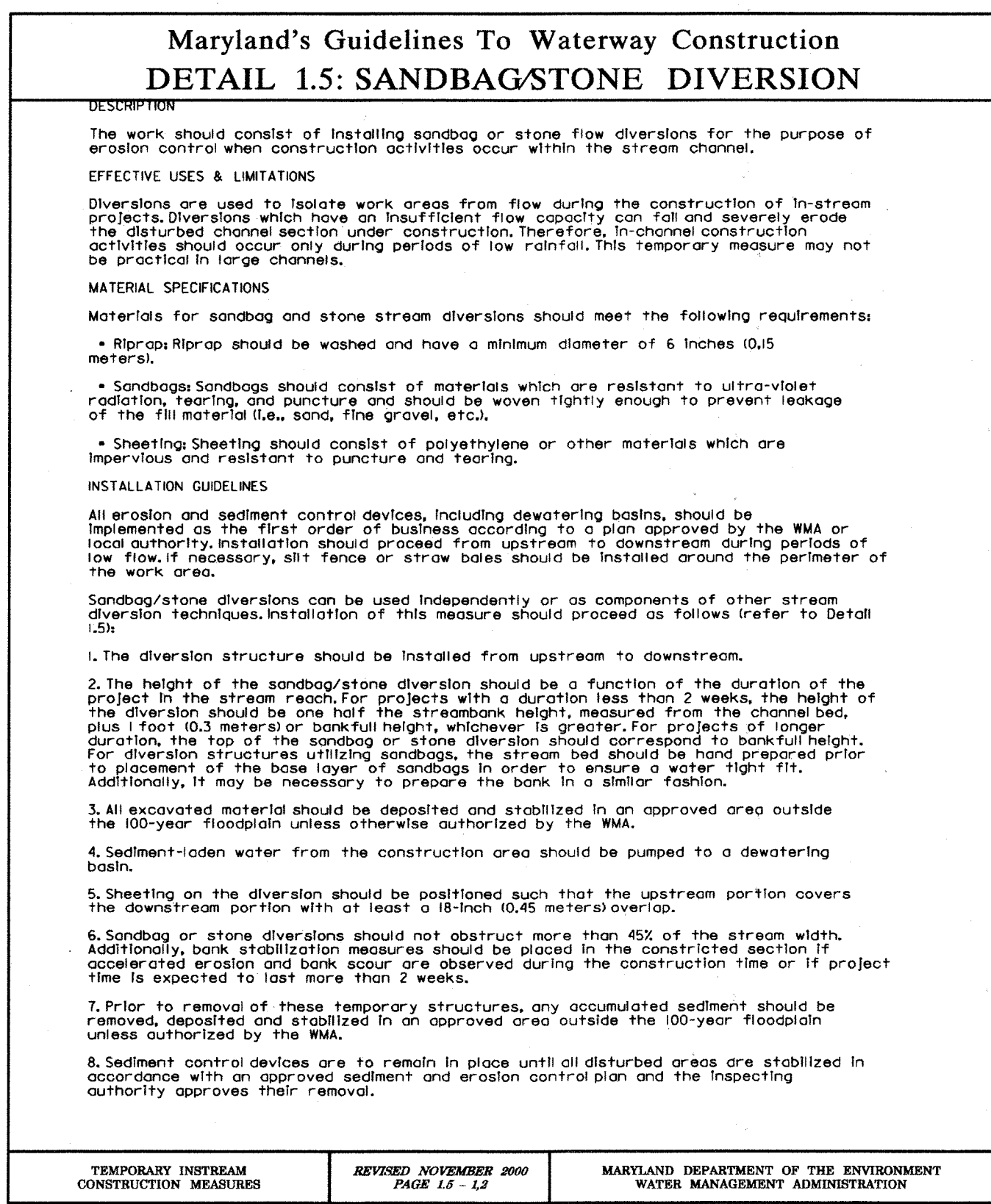
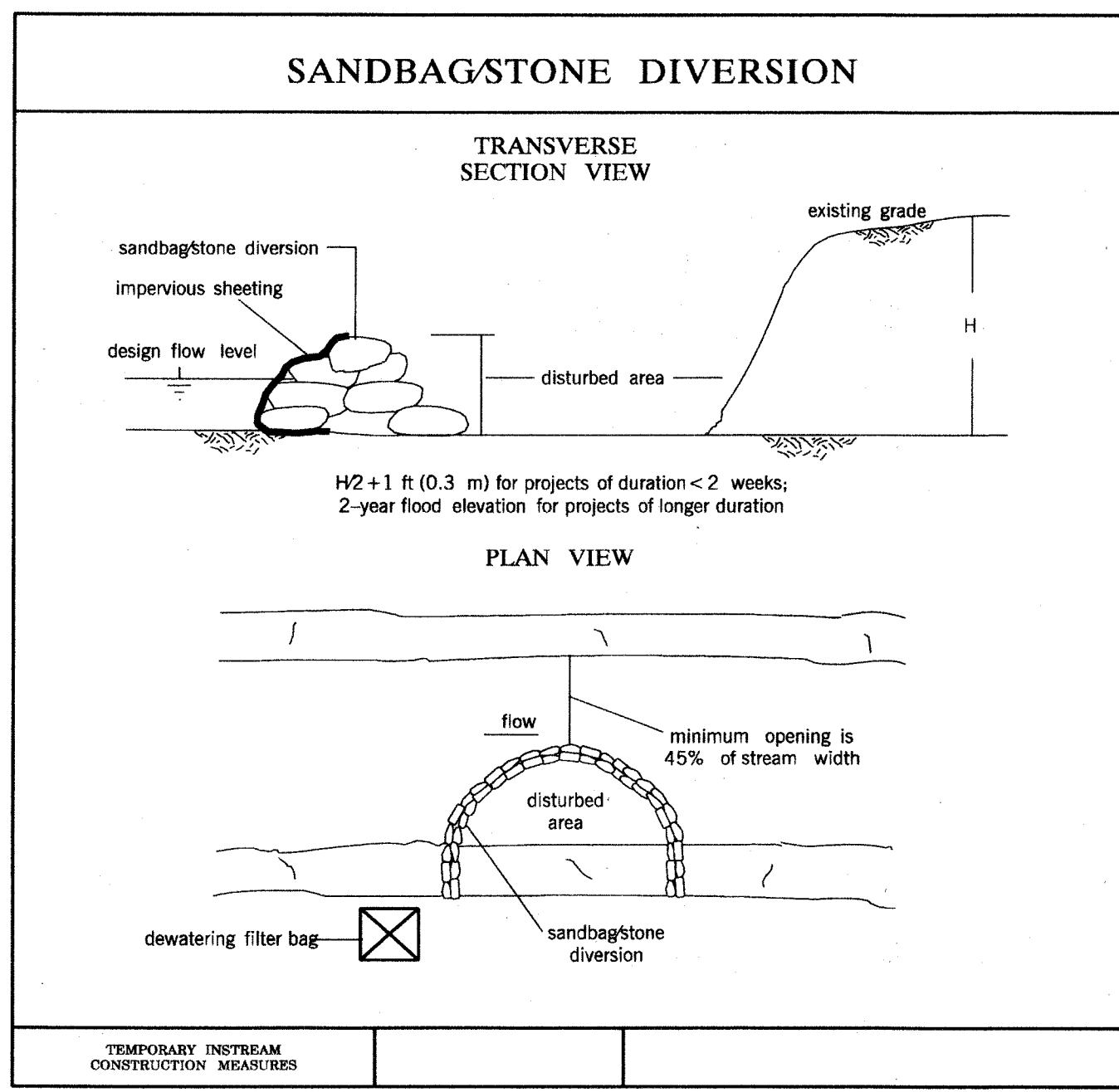
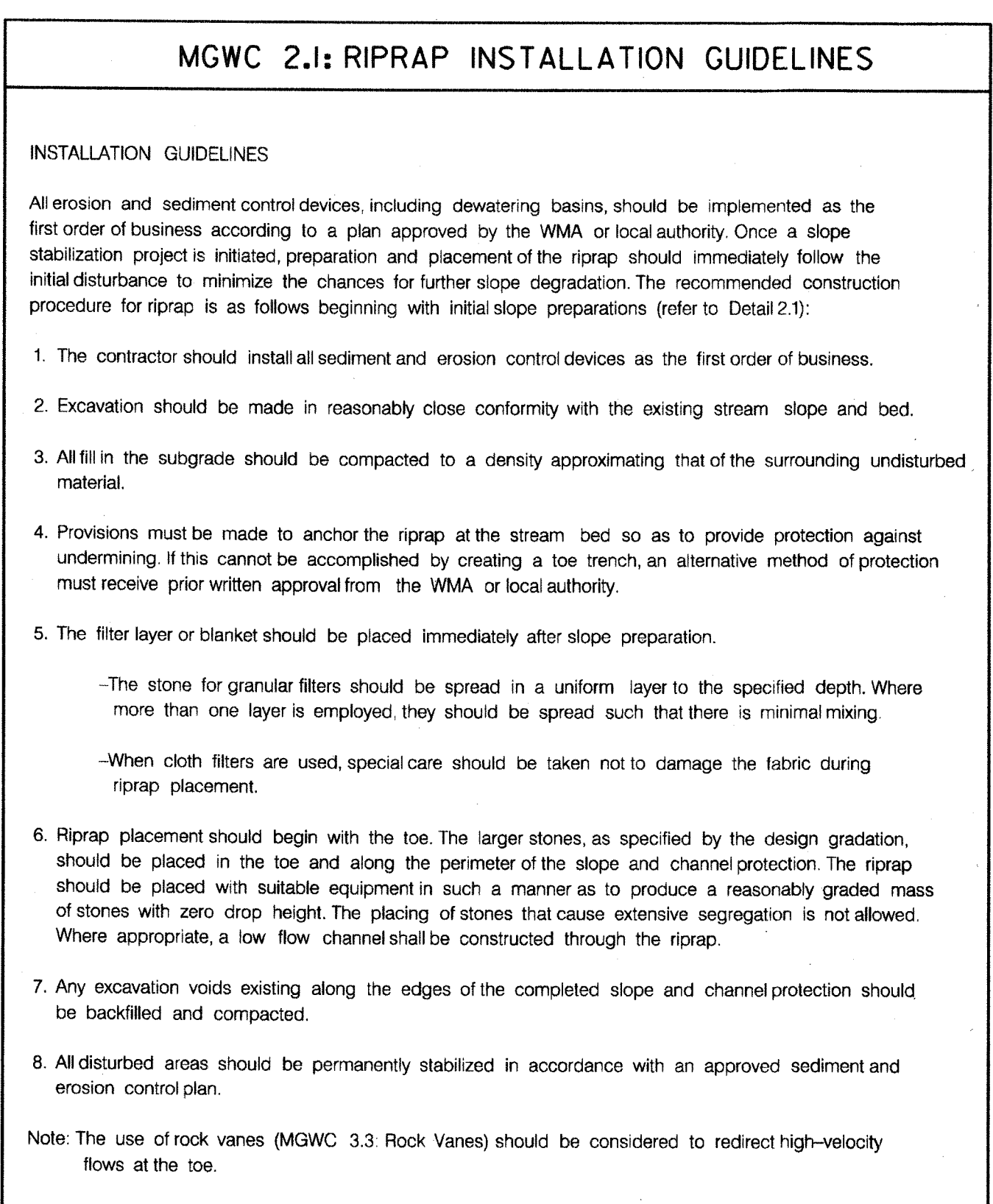
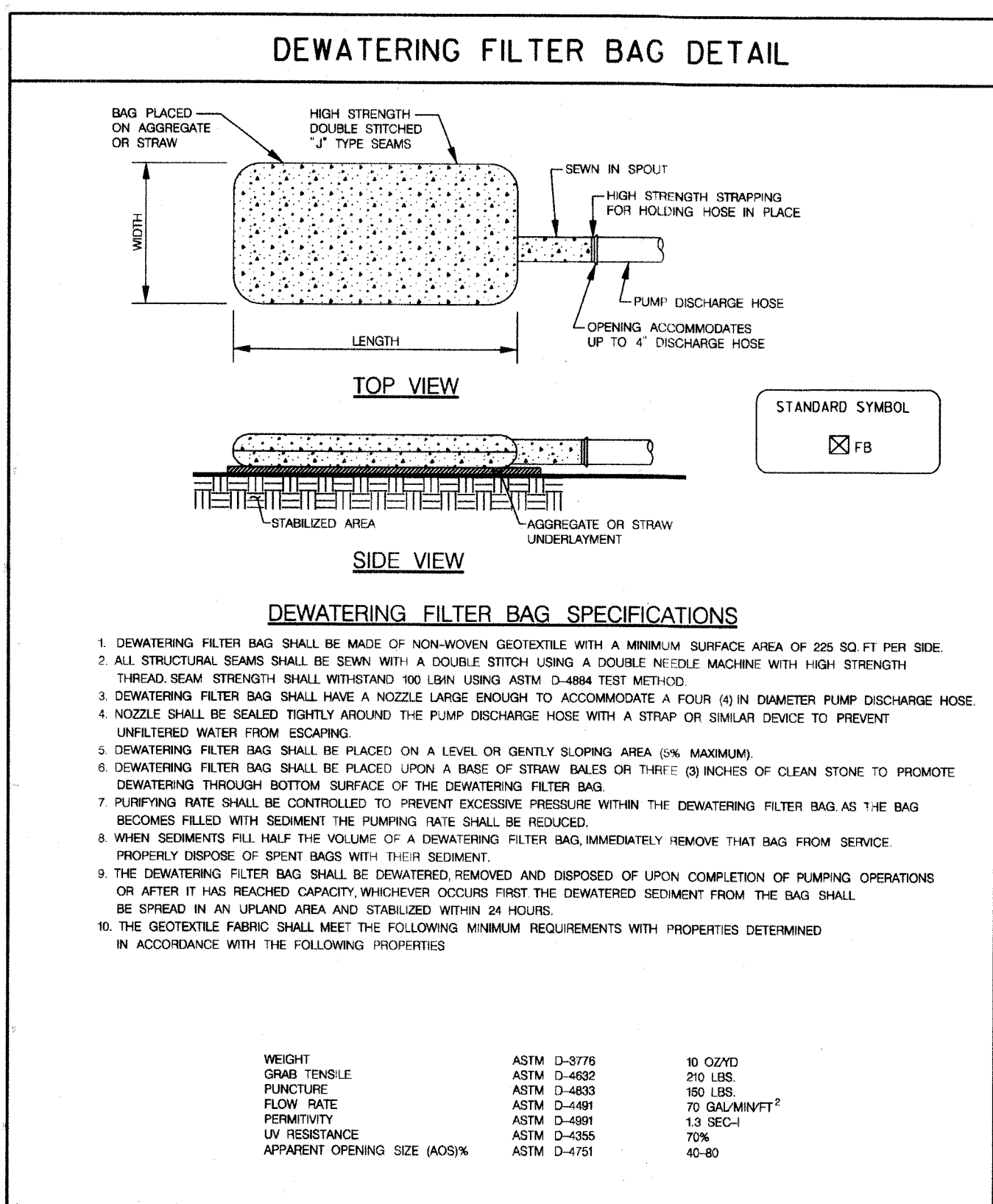
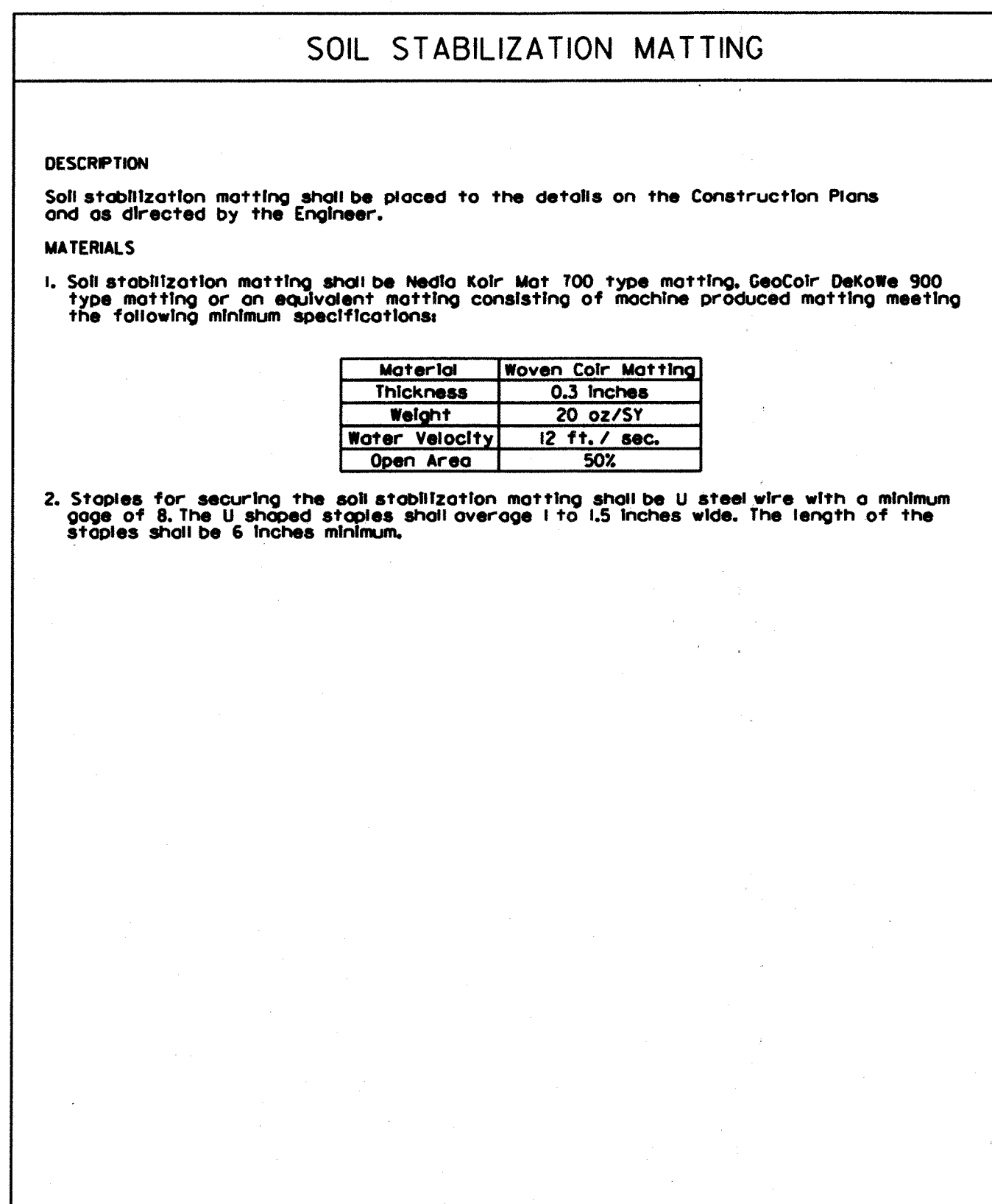
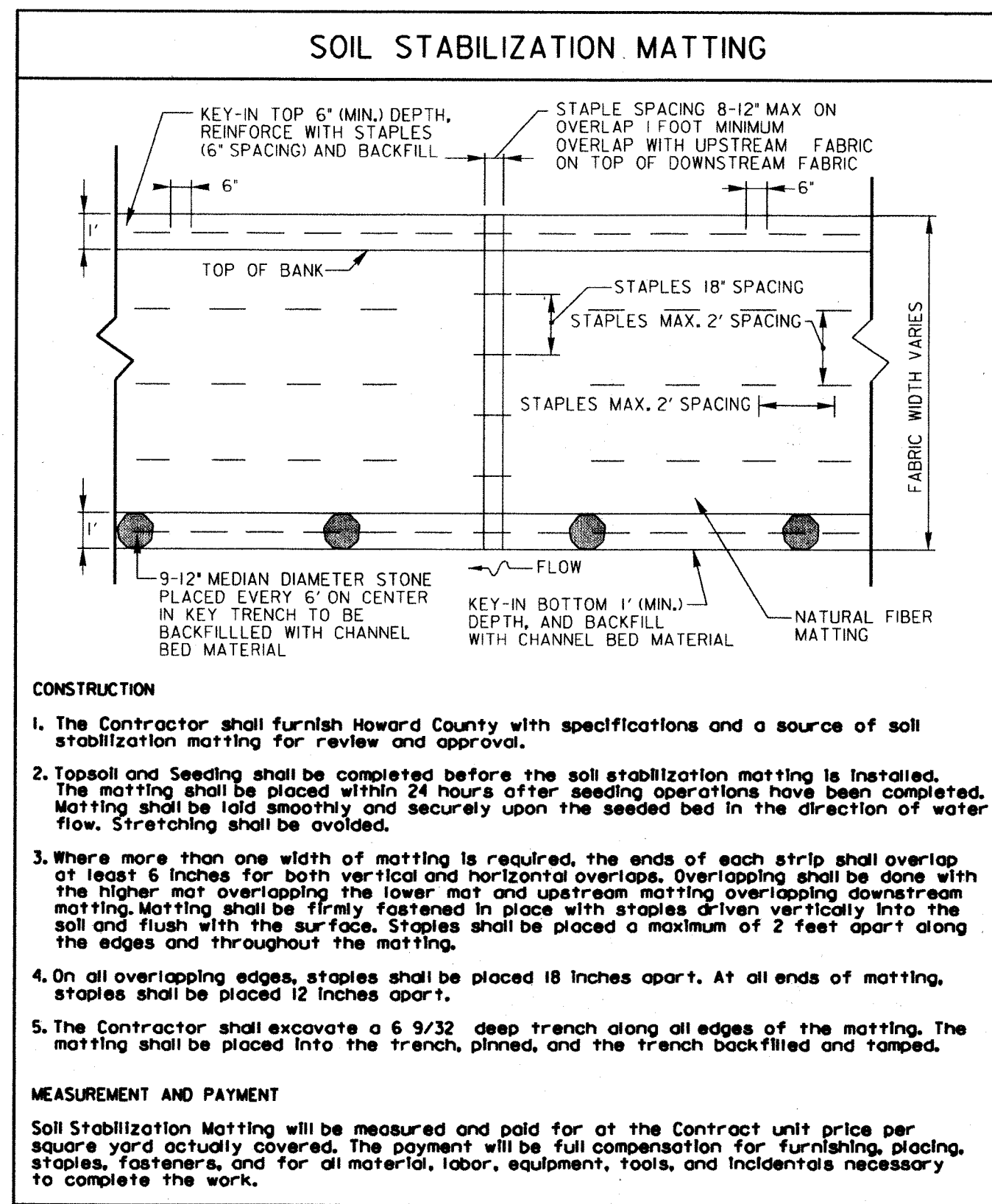
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CHK:	CB				
DATE:	4/8/10				
BY:		NO.		REVISION	DATE

HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
HICKORY RIDGE CHANNEL REHABILITATION PROJECT
CAPITAL PROJECT D-1159

EROSION AND SEDIMENT CONTROL DETAIL SHEET

SCALE NOT TO SCALE

SHEET 7 OF 12



MARYLAND DEPARTMENT OF THE ENVIRONMENT
WATER MANAGEMENT ADMINISTRATION
DAM SAFETY DIVISION

V. P. Dalal 9/14/10
SR. REGULATORY AND COMPLIANCE ENGINEER

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

THIS DEVELOPMENT IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT

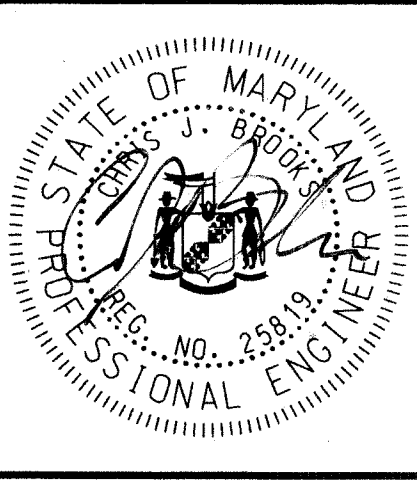
[Signature] 5/26/10
HOWARD SCD DATE

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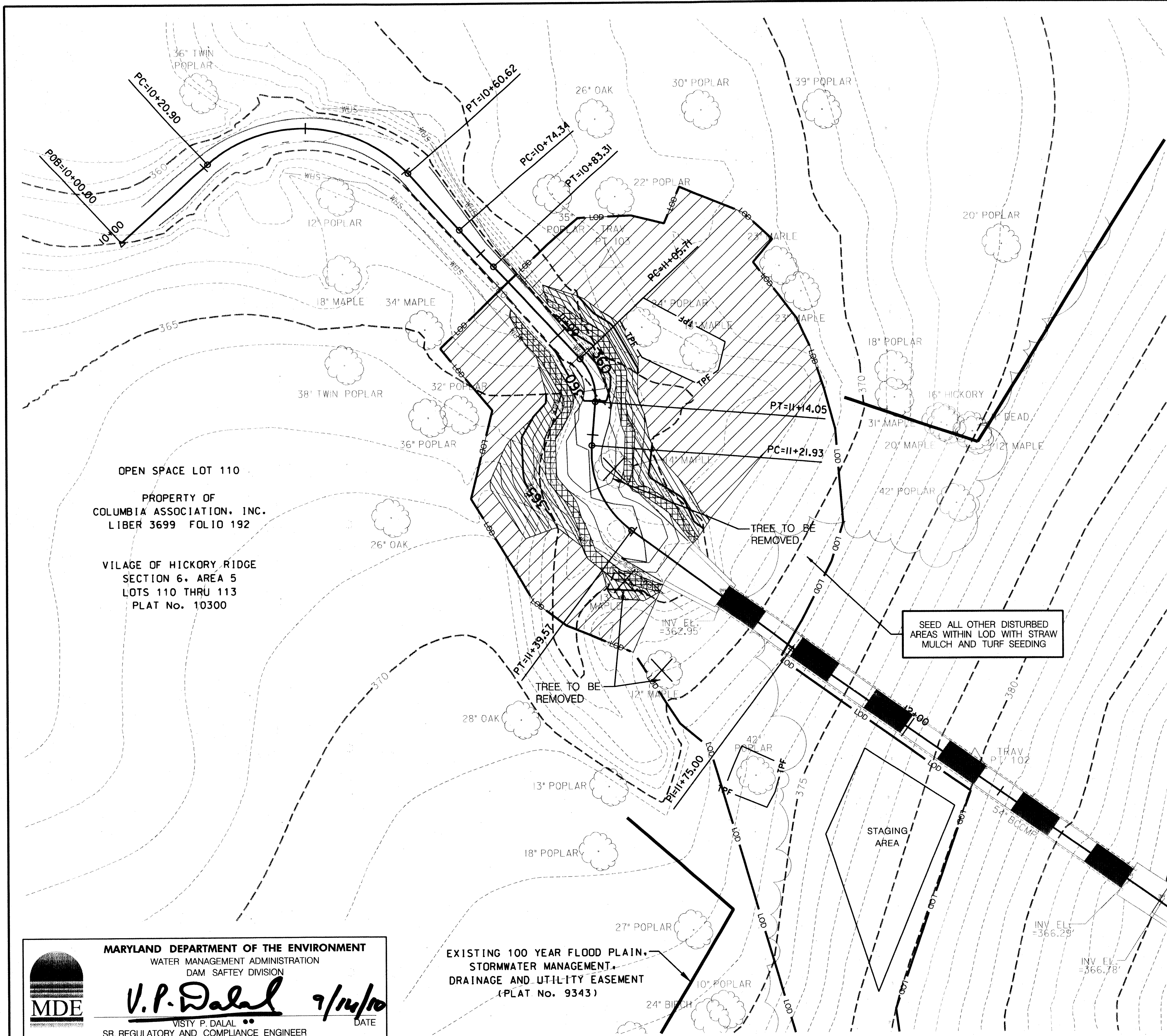


DESIGNER	DATE	BY	NO.	REVISION	DATE
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HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
HICKORY RIDGE CHANNEL REHABILITATION PROJECT
CAPITAL PROJECT D-1159

EROSION AND SEDIMENT CONTROL DETAIL SHEET

SCALE: NOT TO SCALE
SHEET: 8 OF 12



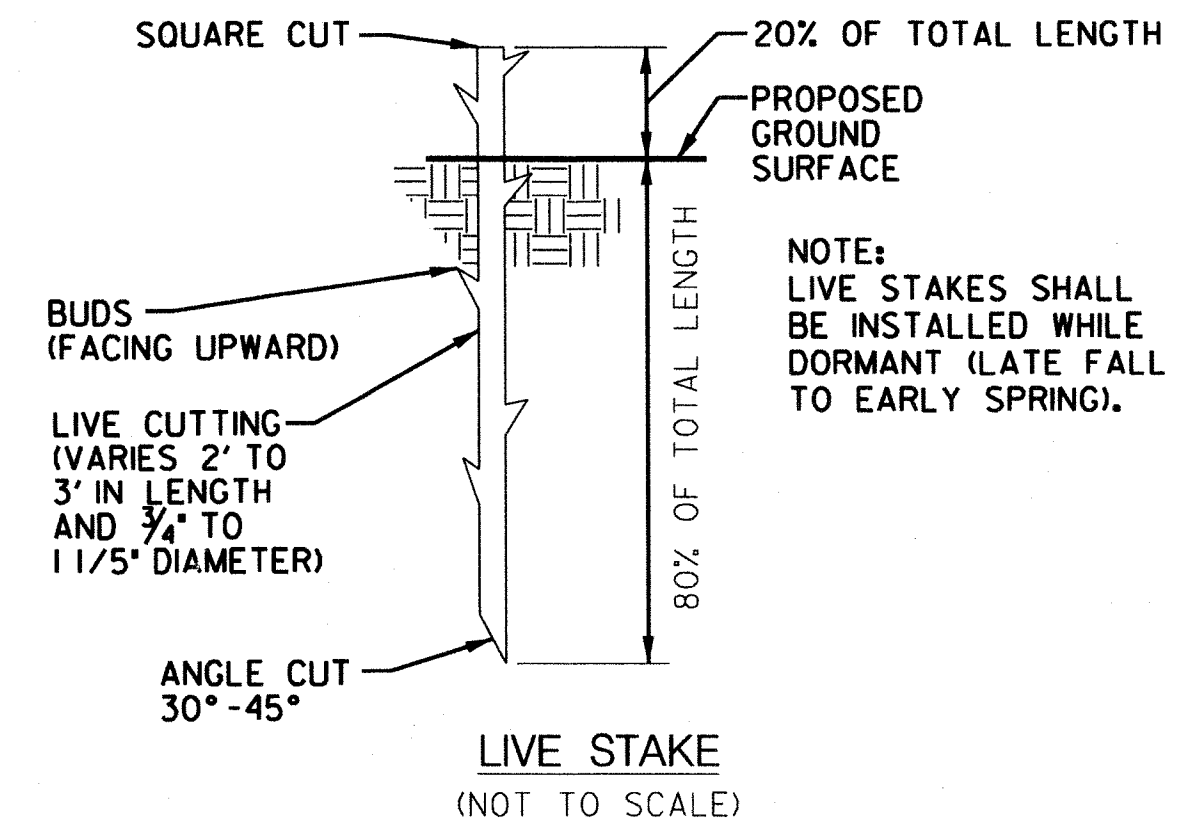
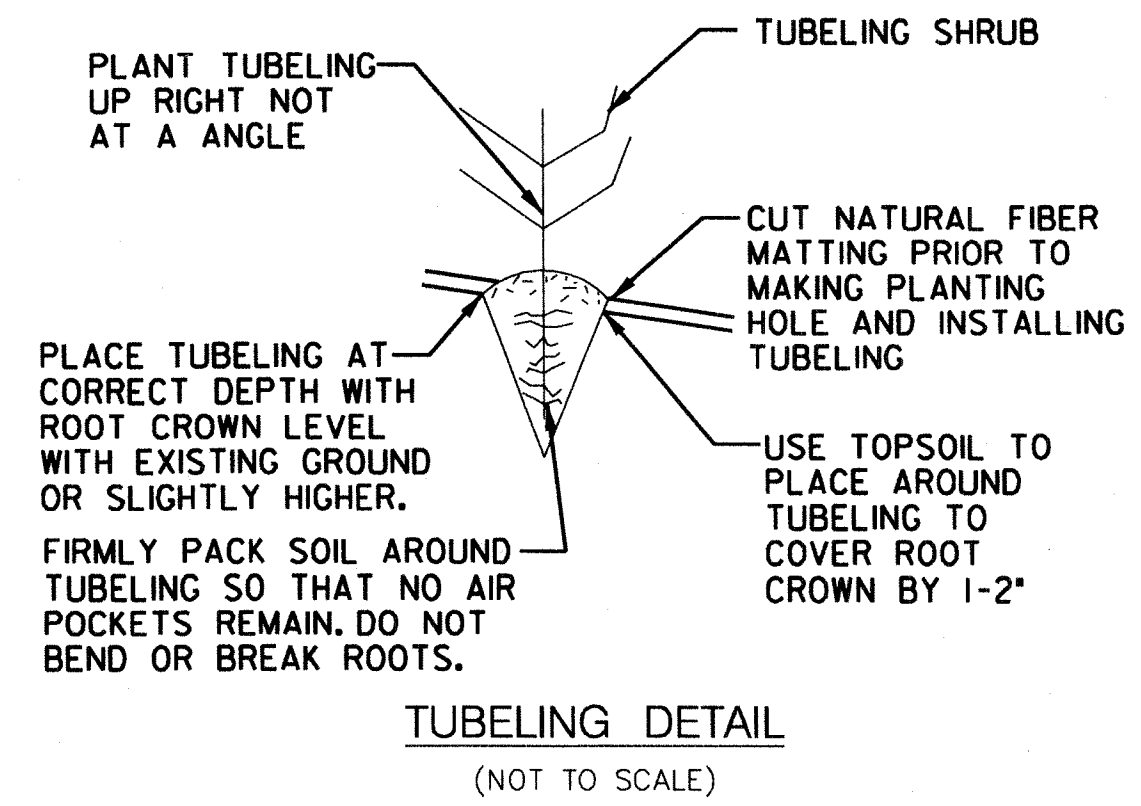
LIVE STAKE, TUBELING, AND RIPARIAN ZONE AREA SEEDING
2607 SQUARE FEET (0.06 ACRES) AT 30 LB. PER ACRE

COMMON NAME	SCIENTIFIC NAME	FREQUENCY (%)	QUANTITY (LBS.)
REDTOP	AGROSTIS ALBA	10	0.18
RIVERBANK WILD RYE	ELYMUS RIPARIAS	20	0.36
VIRGINIA WILD RYE	ELYMUS VIRGINICUS	20	0.36
ANNUAL RYEGRASS	LOLIUM MULTIFLORUM	15	0.27
SWITCHGRASS	PANICUM VIRGATUM	10	0.18
LITTLE BLUESTEM	SCHIZACHYRIUM SCOPARIUM	20	0.36
BLUE VERVAIN	VERBENA HASTATA	5	0.09
		TOTAL	1.8 LBS.

PLANTING SCHEDULE

PLANTING ZONE	QUANTITY	COMMON NAME	SCIENTIFIC NAME	SIZE	SPACING
LIVE STAKE PLANTING ZONE	16	SILKY DOGWOOD	CORNUS AMOMUM	3' STAKE	2' O.C.
	16	RED-OSIER DOGWOOD	CORNUS STOLINFERA	3' STAKE	2' O.C.
	16	DRAWF BANKERS WILLOW	SALIX X COTTETII	3' STAKE	2' O.C.
NOTE: RANDOMLY MIX PLANTINGS IN GROUPINGS 3 TO 7 SIMILAR SPECIES TOGETHER					
TUBLING PLANTING ZONE	23	RED OSIER DOGWOOD	CORNUS STOLINFERA	BARE ROOT	2' O.C.
	24	BLACK WILLOW	SALIX NIGRA	BARE ROOT	2' O.C.
	24	BROAD LEAF WILLOW	SALIX MYRICOIDES	BARE ROOT	2' O.C.
NOTE: RANDOMLY MIX PLANTINGS IN GROUPINGS 3 TO 7 SIMILAR SPECIES TOGETHER					

NATURAL FIBER MATTING
68 SY



LEGEND

- PROPOSED MAJOR CONTOUR
- - - PROPOSED MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- - - EXISTING MINOR CONTOUR
- PROPERTY LINE
- WJS WATERS OF THE US
- EXISTING TREE
- LOD LIMIT OF DISTURBANCE
- OCF ORANGE CONSTRUCTION FENCE
- TPF TREE PROTECTION FENCE
- Grid pattern LIVE STAKE PLANTING ZONE
- Diagonal lines TUBLING PLANTING ZONE
- Horizontal lines RIPARIAN PLANTING ZONE

OPEN SPACE LOT 110
PROPERTY OF
COLUMBIA ASSOCIATION, INC.
LIBER 3699 FOLIO 192
VILAGE OF HICKORY RIDGE
SECTION 6, AREA 5
LOTS 110 THRU 113
PLAT No. 10300

EXISTING 100 YEAR FLOOD PLAIN.
STORMWATER MANAGEMENT,
DRAINAGE AND UTILITY EASEMENT
(PLAT No. 9343)

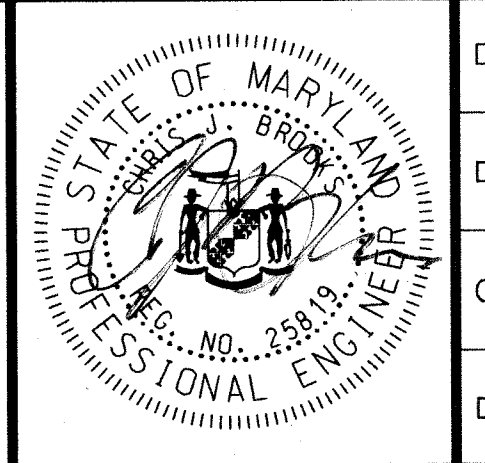
SEED ALL OTHER DISTURBED
AREAS WITHIN LOD WITH STRAW
MULCH AND TURF SEEDING

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DAM SAFETY DIVISION
V.P. Dalal 7/14/10
VISTY P. DALAL
SR. REGULATORY AND COMPLIANCE ENGINEER

REVIEWED FOR HOWARD SCD
AND MEETS TECHNICAL REQUIREMENTS
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BY THE HOWARD SOIL CONSERVATION DISTRICT
HOWARD SCD *[Signature]* 5/26/10 DATE

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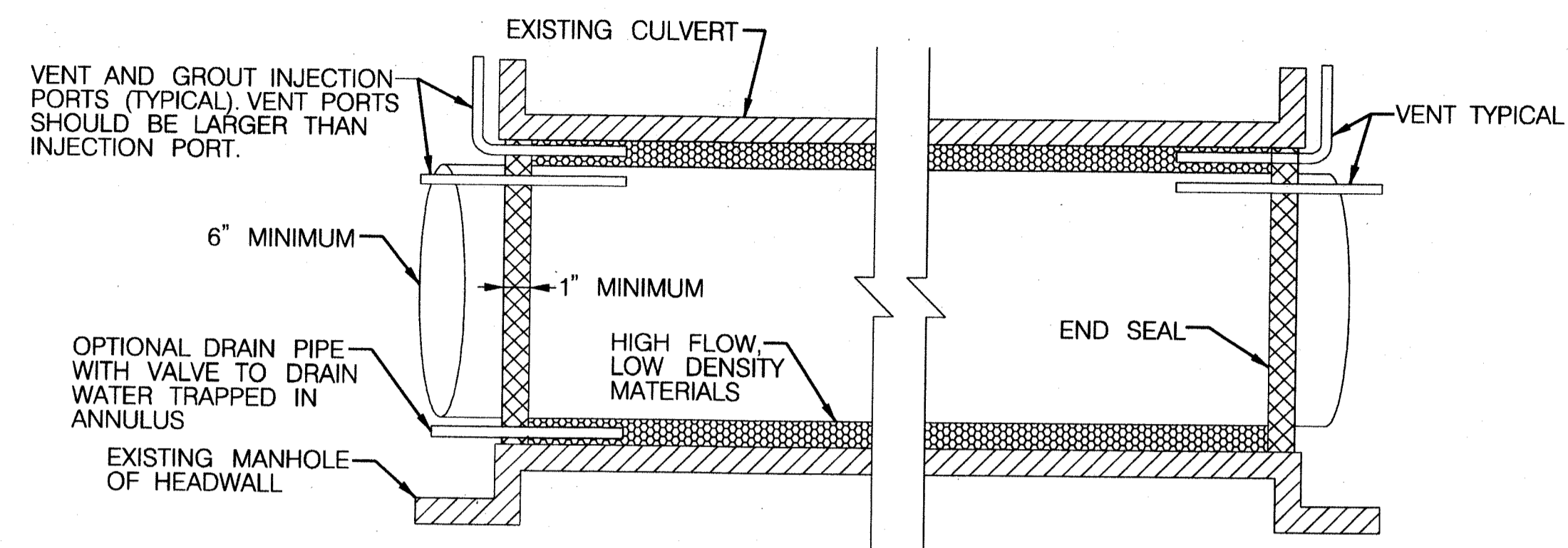
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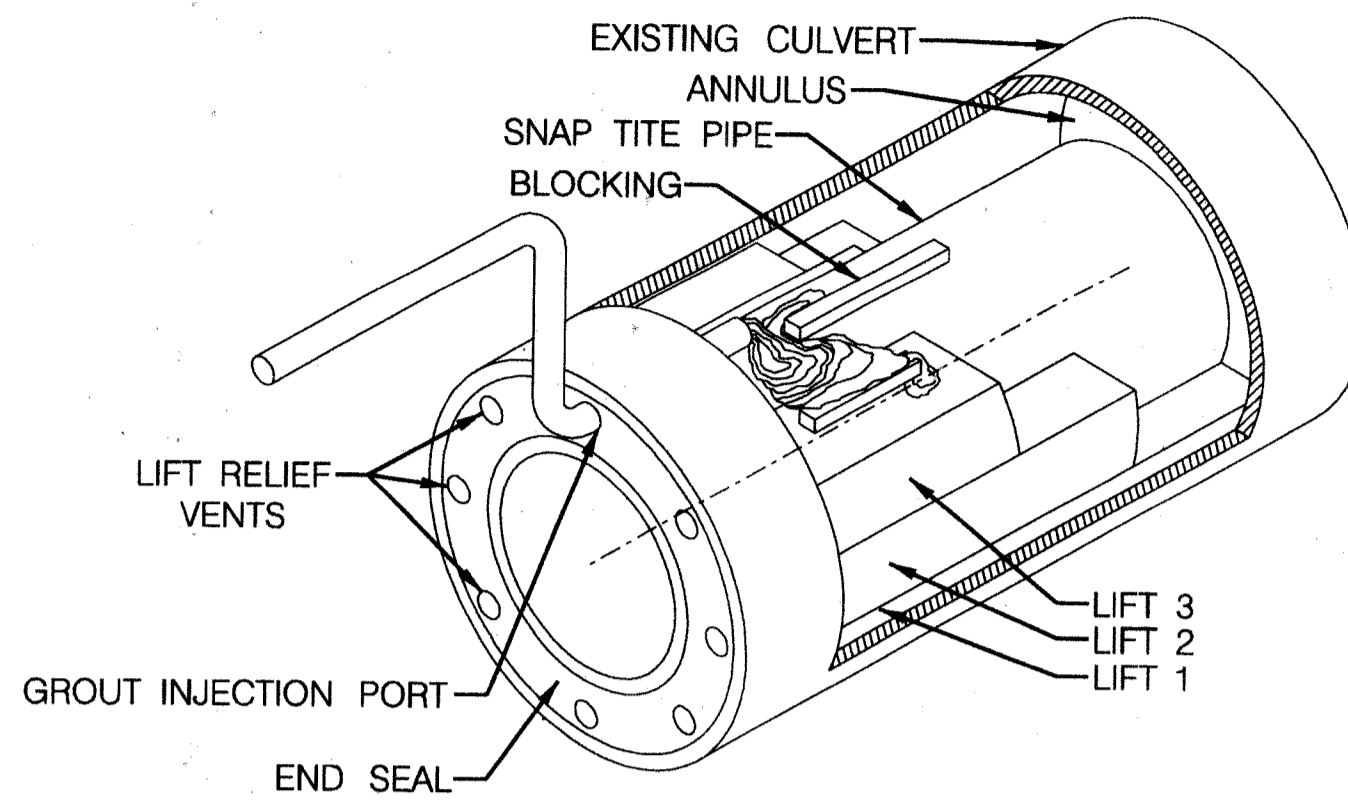
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HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
HICKORY RIDGE CHANNEL REHABILITATION PROJECT
CAPITAL PROJECT D-1159
LANDSCAPING PLAN

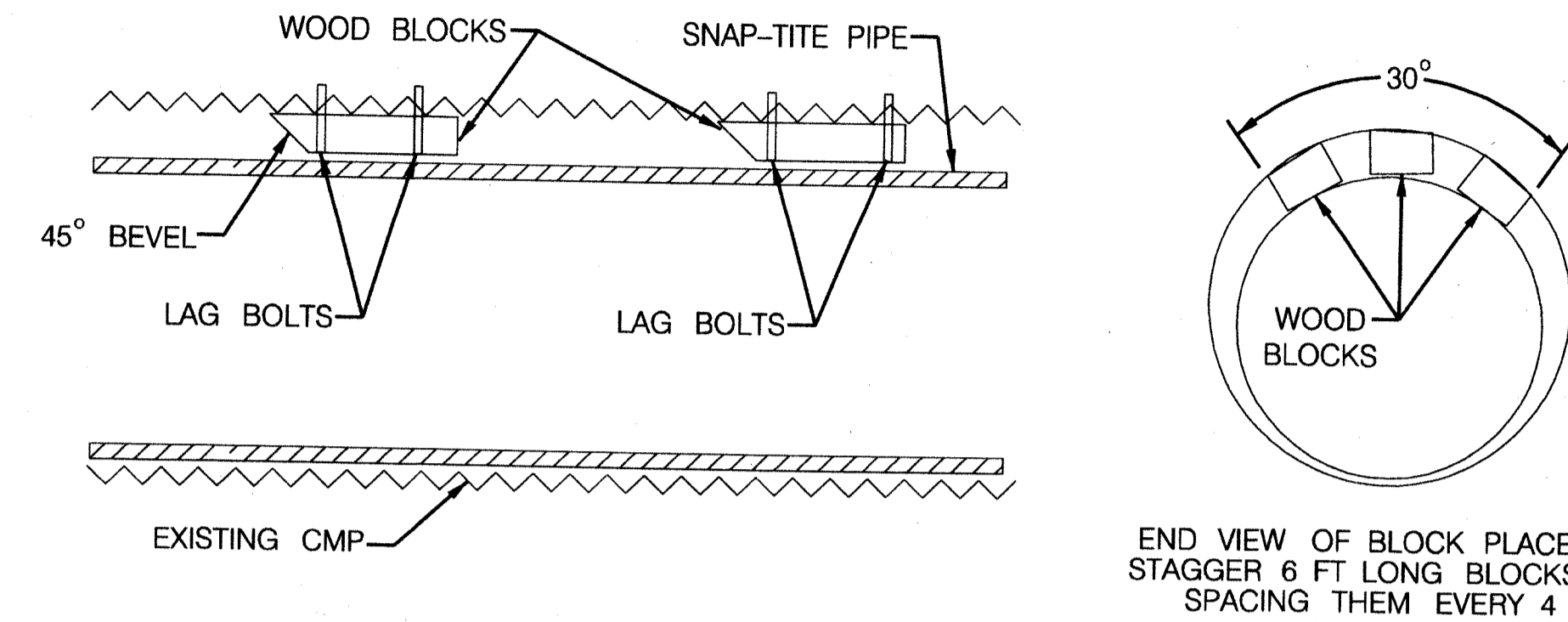
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SHEET
9 OF 12



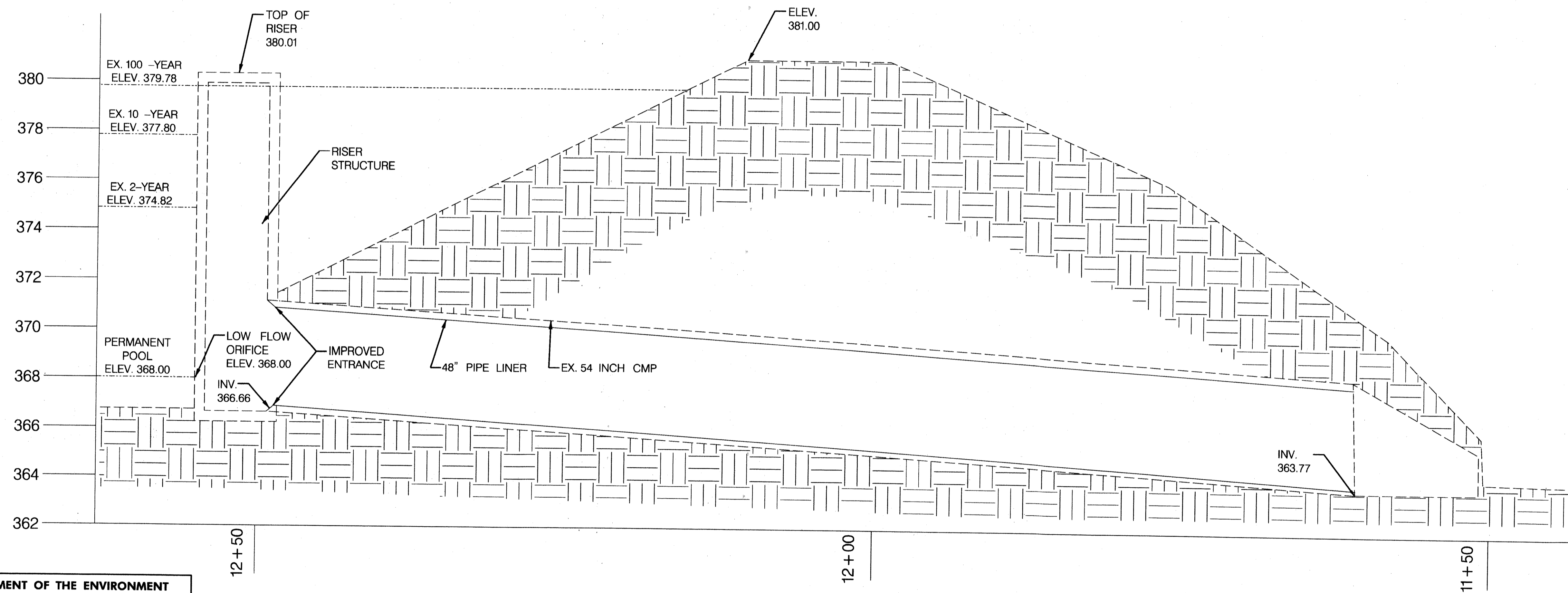
TYPICAL GROUTING ARRANGEMENT



SEALING THE ANNULAR SPACE



BLOCKING DETAIL

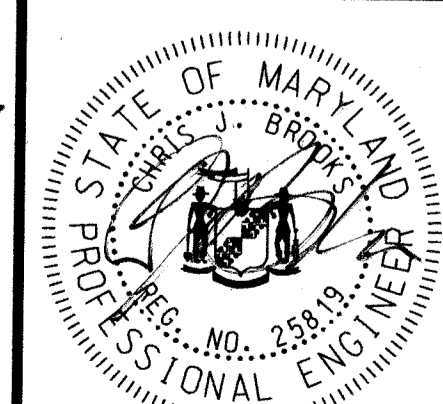


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DAM SAFETY DIVISION
MDE
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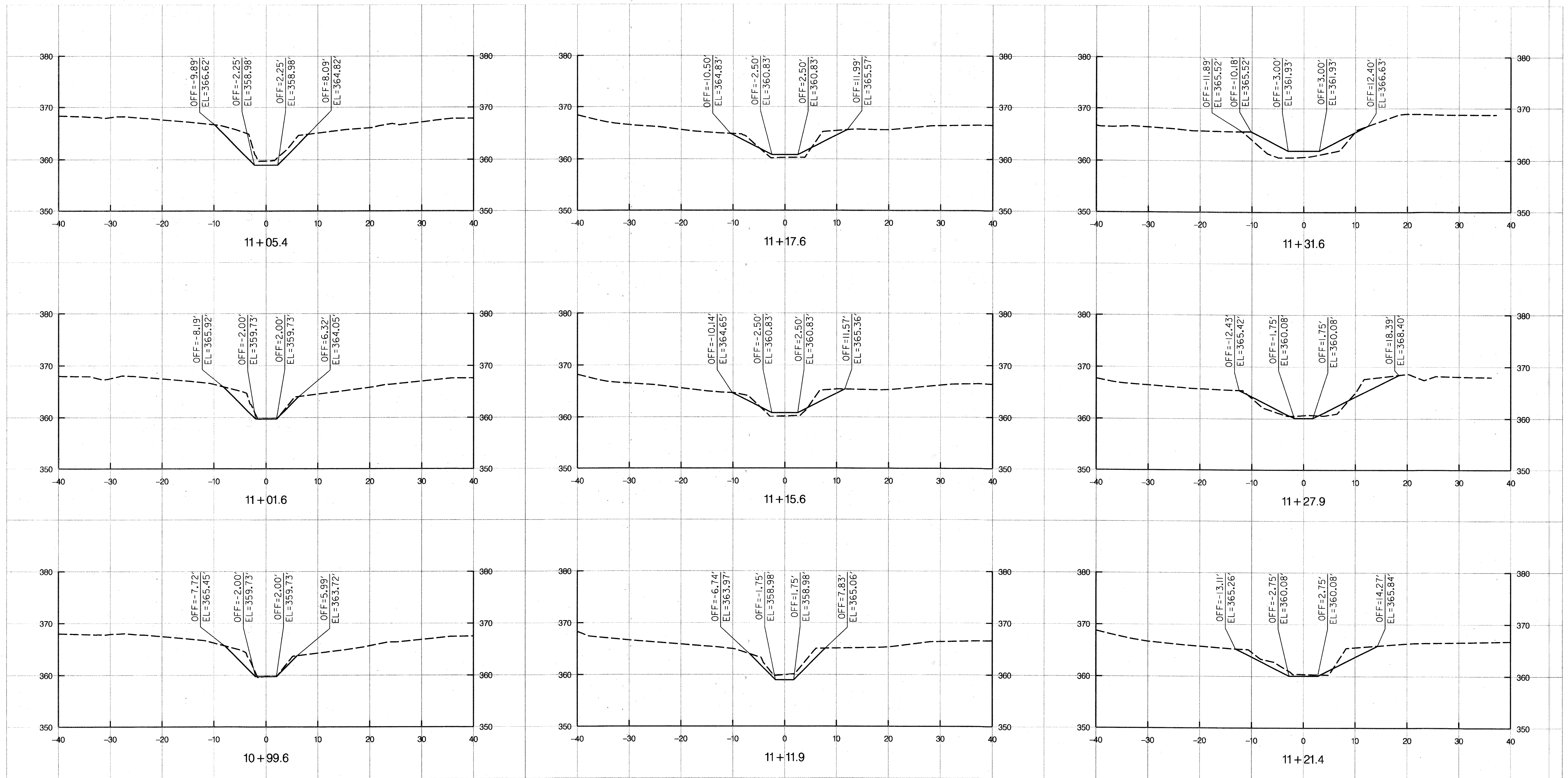
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HOWARD COUNTY STORMWATER MANAGEMENT EVALUATION
HICKORY RIDGE CHANNEL REHABILITATION PROJECT
CAPITAL PROJECT D-1159
PIPE PROFILE

SCALE
AS SHOWN
SHEET
10 OF 12



MARYLAND DEPARTMENT OF THE ENVIRONMENT
 WATER MANAGEMENT ADMINISTRATION
 DAM SAFETY DIVISION

V.P. Dalal 9/14/10
 VISTY P. DALAL DATE
 SR. REGULATORY AND COMPLIANCE ENGINEER

LEGEND
 --- EXISTING --- PROPOSED

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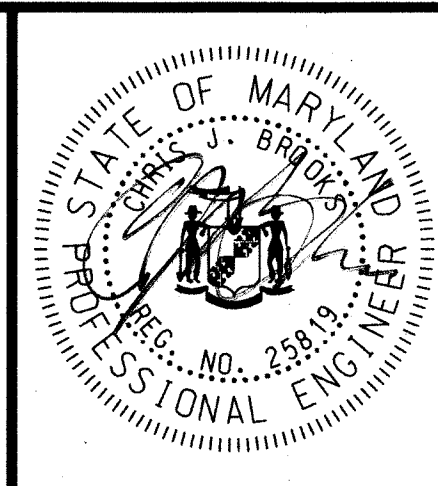
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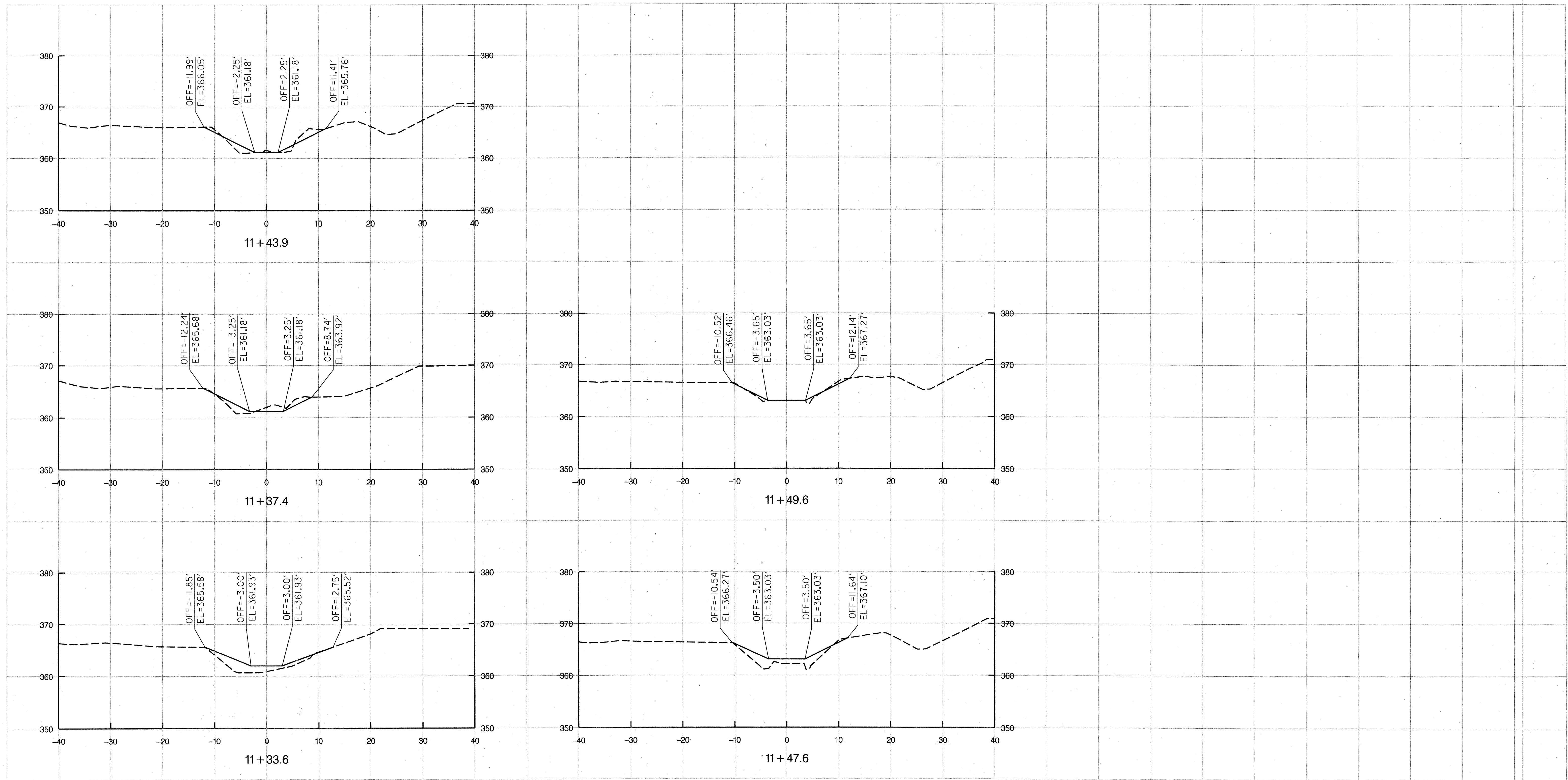
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CROSS SECTIONS

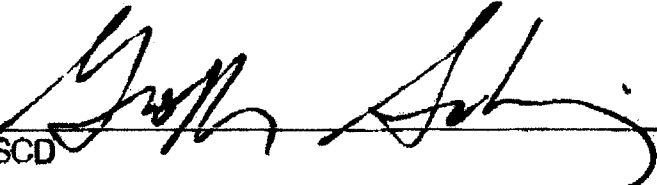
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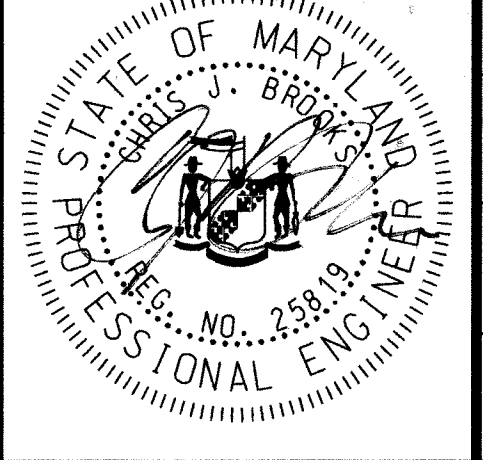

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