

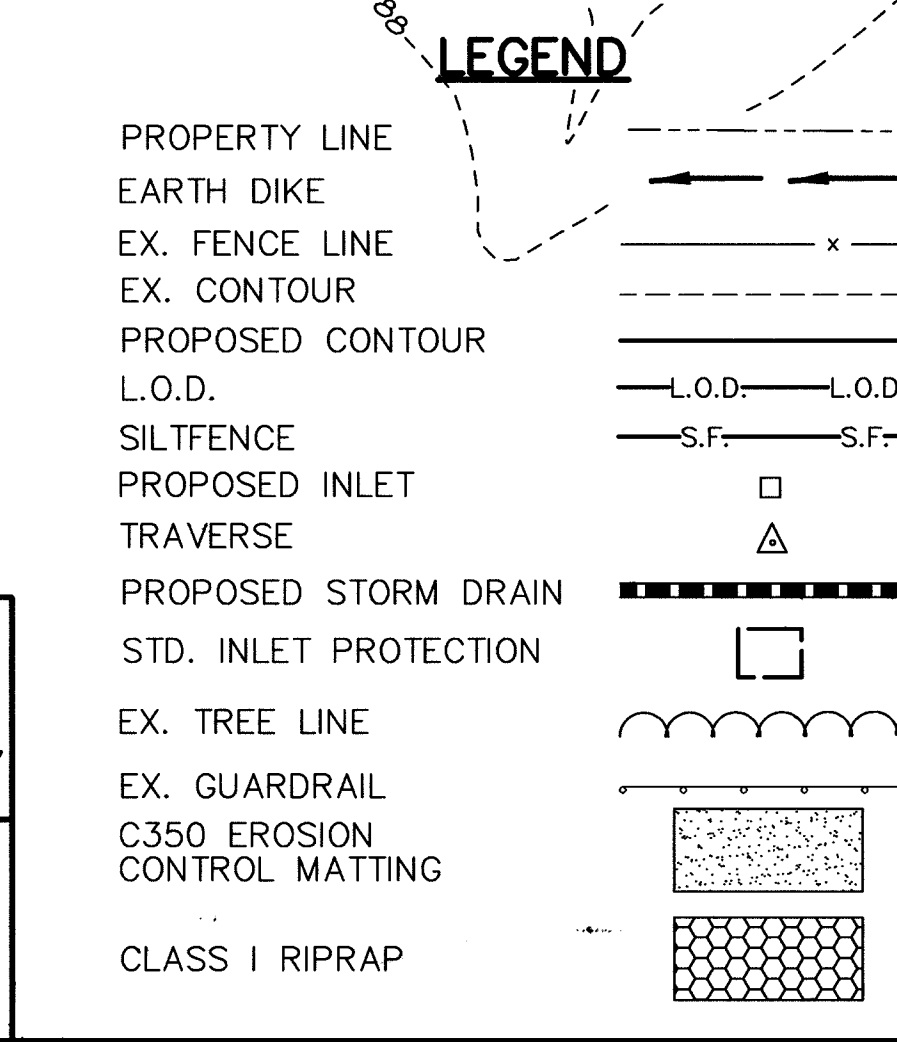
BY THE DEVELOPER:
 I/WE CERTIFY THAT ALL DESIGN AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.
Rudolf Person 4/9/98
 DEVELOPER DATE

BY THE ENGINEER:
 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.
Frank Donaldson 4/6/98
 ENGINEER DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.
Carol Simon/ps 5/13/98
 NATURAL RESOURCES CONSERVATION DATE

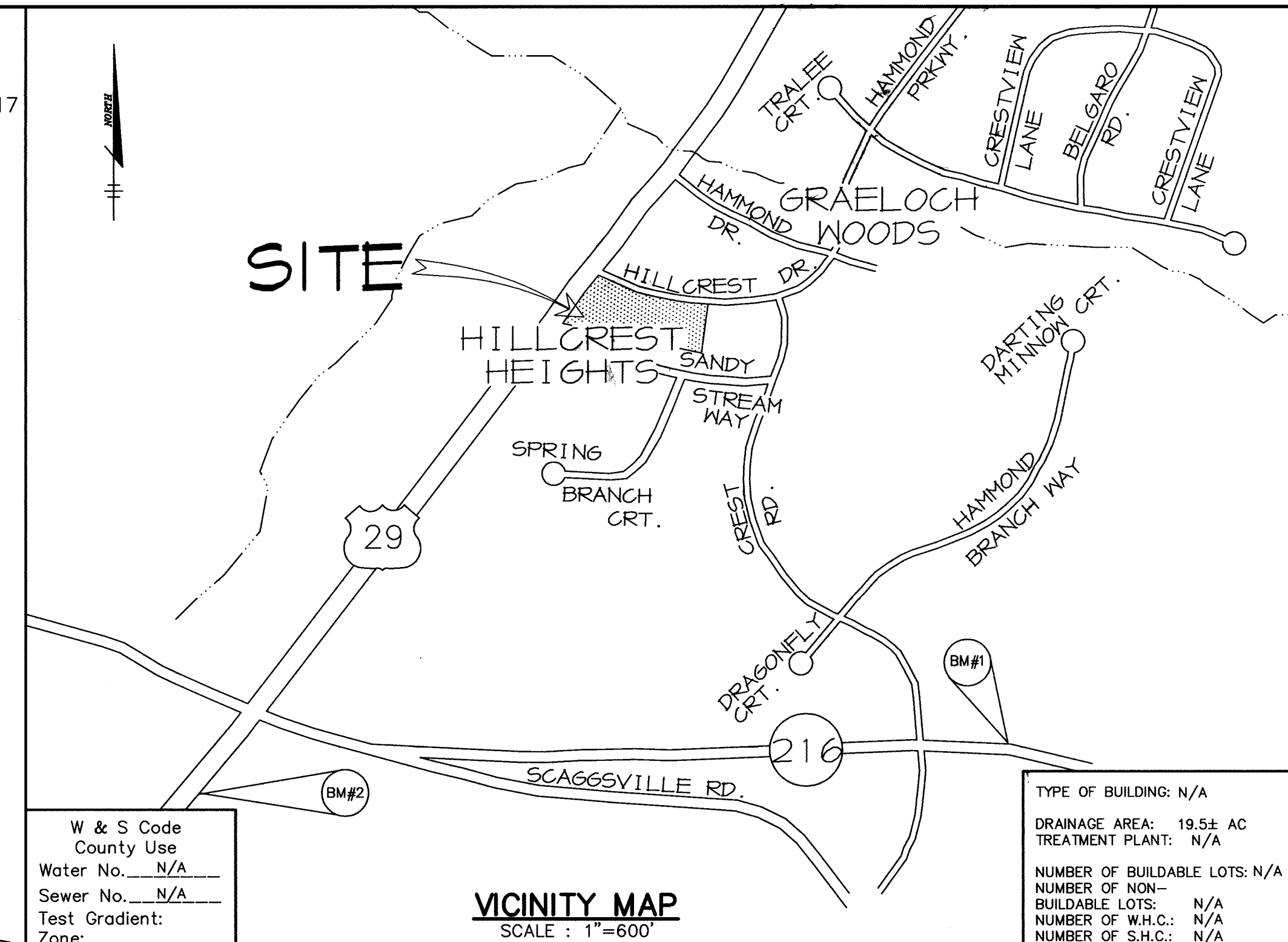
THESE PLANS FOR SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
Bob Kelly 5/13/98
 HOWARD SOIL CONSERVATION DISTRICT DATE

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 DIRECTOR OF PUBLIC WORKS: *James P. ...* 4/9/98
 CHIEF, BUREAU OF ENGINEERING: *Rudolf Person* 4/9/98
 CHIEF, BUREAU OF HIGHWAYS: *Robert M. ...* 4-19-98
 CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT: *Elizabeth ...* 4/6/98



BM #1 HO.CO. SURVEY CONTROL STATION 46B2
 STANDARD DISK ON CONCRETE MONUMENT, NORTH SIDE OF RTE. 29,
 216, 0.7 MILES WEST OF RTE. 29, 24.7 FEET NORTH OF C&P POLE #17
 ELEVATION 474.66 (NVD 88)
 N 539,987.722
 E 1,337,218.470

BM #2 HO.CO. SURVEY CONTROL STATION 46BA
 STANDARD DISK ON CONCRETE MONUMENT, EAST SIDE OF RTE. 29,
 32.4 FEET WEST OF BGE POLE #5, 0.15 MILES SOUTH OF RTE. 216
 ELEVATION 425.82 (NVD 88)
 N 537,545.8494
 E 1,339,849.084



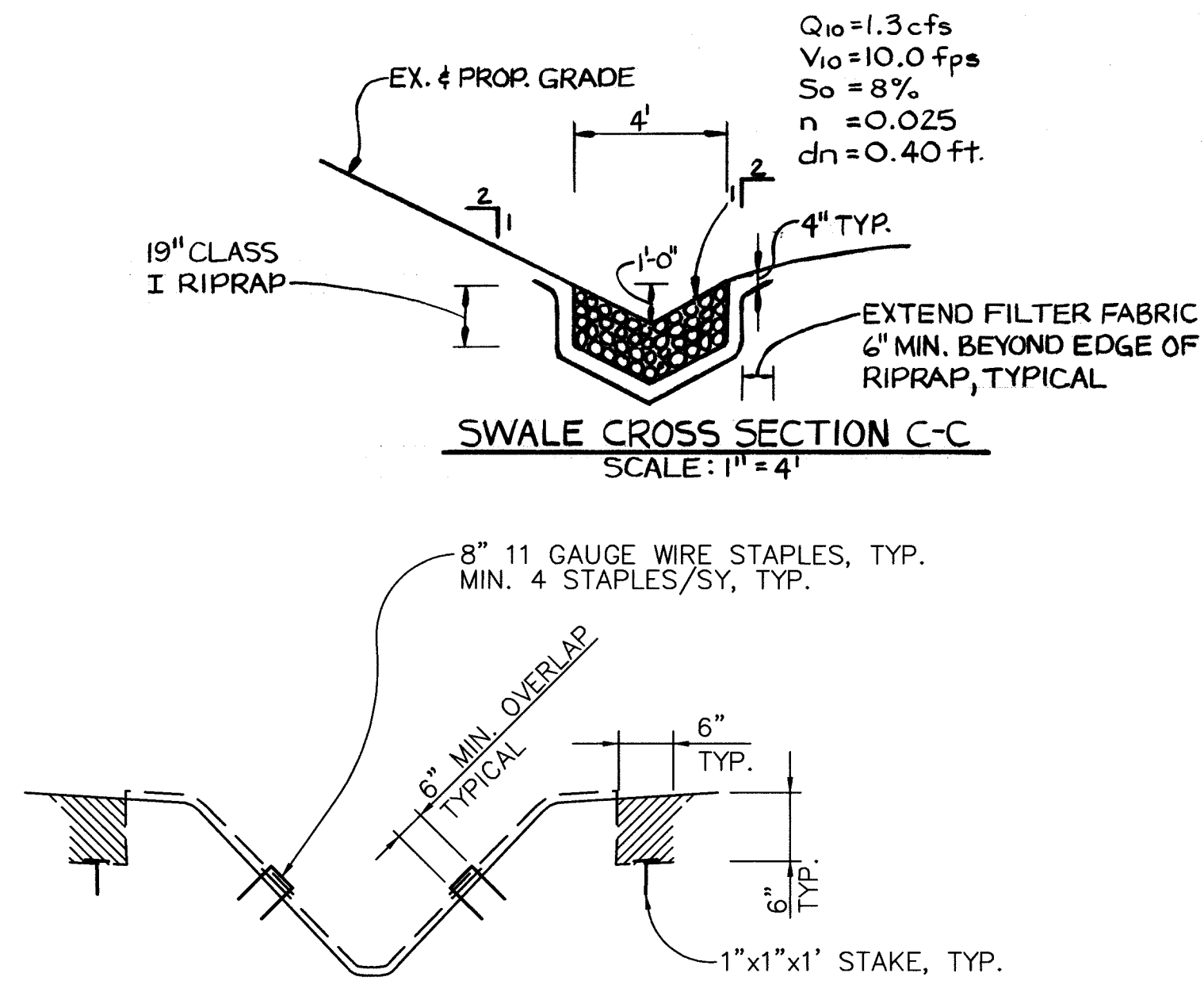
- GENERAL NOTES**
- Approximate location of existing utilities and other obstructions are shown. The Contractor shall take all necessary precautions to protect existing mains and services and maintain uninterrupted supply. Any damage incurred shall be repaired immediately to the satisfaction of the Engineer at the Contractor's expense.
 - All horizontal controls are based on NAD 83.
 - Vertical controls are based on U.S.G.S. datum.
 - All pipe elevations shown are invert elevations.
 - Clear all utilities by a minimum of 6". Clear all poles by 2'-0" minimum or tunnel as required. Coordinate with the utility companies to schedule any necessary bracing of the poles.
 - For details not shown on the drawings, and for materials required, refer to specifications.
 - Existing utilities in the vicinity of the proposed work shall be located by the Contractor two weeks in advance of construction operations at his own expense.
 - Contractor shall notify the following utility companies or agencies at least five working days before starting work shown on these plans:
 State Highway Administration 410-531-5533
 Baltimore Gas & Electric Co. Contractor Services 410-850-4620
 Baltimore Gas & Electric Co. Underground Damage Control 410-787-9068
 Miss Utility 1-800-257-7777
 Bureau of Utilities, Howard County Department of Public Works 410-313-4900
 - Trees and shrubs are to be protected from damage to maximum extent. Trees and shrubs located on private property within the construction strip, and outside the immediate line of excavation are not to be removed or damaged by the Contractor.
 - Contractor shall remove trees, stumps and roots along the immediate line of excavation. Payment for such removal shall be included in the unit price bid for construction of the stormdrain.
 - Contractor is solely responsible for construction means, methods, techniques, sequences, procedures, and safety precautions and programs.
 - Sediment control to be provided as shown and shall be approved by the Sediment Control Inspector before starting any site grading. Trench length is limited to three (3) pipe lengths at any one time, to be stabilized immediately.
 - Contractor to protect the existing trees or shrubs and replace any damaged during construction.
 - Trenching and backfilling shall be in accordance with Howard County standard detail G2.01.
 - All work shall comply with all applicable provisions of the "1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control" issued by the Maryland Department of the Environment and the Soil Conservation Service.
 - Boundary and topographic information shown here is based on "as-built" plans of Patuxent Springs dated July, 1990 and field surveys by Reimer Muegge & Associates, Inc., dated March 1997.
 - The Contractor shall note that in the case of a discrepancy between the scaled and the figured dimensions shown on the plans, the figured dimensions shall govern.
 - It shall be distinctly understood that failure to mention specifically any work which would be required to complete the project shall not relieve the Contractor of his responsibility to perform such work.
 - At the end of each working day, all sediment control measures will be inspected and left in operational condition.
 - Contractor shall immediately remove all spoil material from site to an approved location.

DES: D.A.S. DRN: E.L.R. CHK: G.C.L. DATE: 04/06/98		A.J.M.: Δ REV. DITCH-MARK AS "NOT IN CONTRACT" 12/8/98		HILLCREST DRIVE STORM DRAIN IMPROVEMENT 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND CONTRACT NO. D-1098		SCALE AS SHOWN SHEET 1 OF 3
BY NO. _____ REVISION _____ DATE _____		600' SCALE MAP NO. _____ BLOCK NO. _____		FRANK DONALDSON #8146 <i>Frank Donaldson</i> 4/6/98		

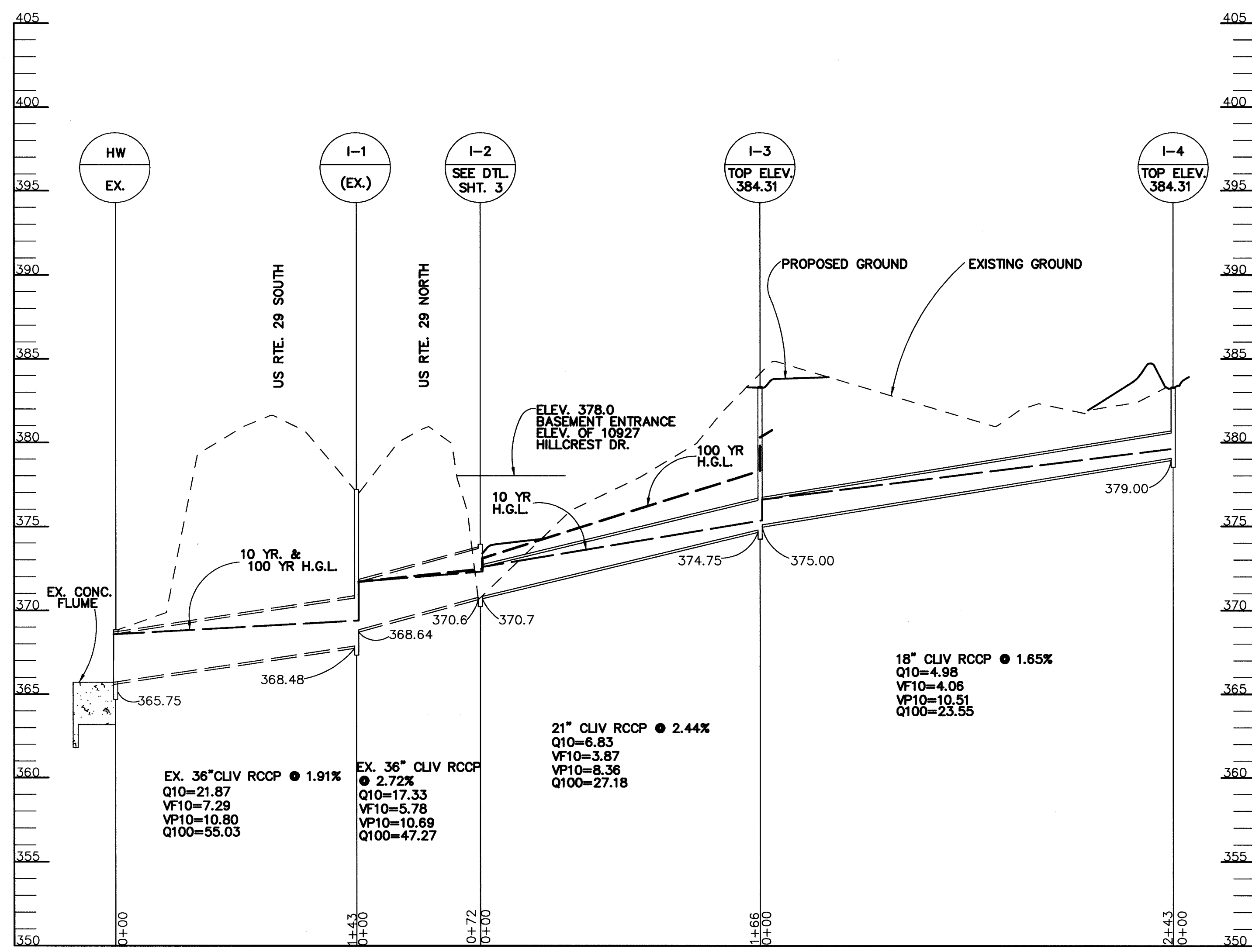
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STRUCTURE SCHEDULE							
STRUCTURE NUMBER	LOCATION	TYPE	TOP ELEV.	INV. IN	INV. OUT	CREST ELEV. OF INLET OPENING	REMARKS
I-1	N 540,877.73 E 1,342,218.96	EX. E	EXISTING	368.64	368.48	-----	-----
I-2	N 540,820.23 E 1,342,285.18	D	TO MATCH EX. HW.	370.70	370.60	(SEE DETAIL ON SHEET 3)	MOD. HO. CO. SD4.11 SEE DETAIL ON SHT. 3
I-3	N 540,689.61 E 1,342,184.29	D		384.31	375.00	383.39	HO. CO. STD. SD4.11 ALL SIDES OPEN
I-4	N 540,594.45 E 1,342,407.29	D		384.31	---	379.00	HO. CO. STD. SD4.11 ALL SIDES OPEN

STORM DRAIN FLOW TABULATION											
LOCATION		ACRES	TIME CONC. (MIN.)	Q = CIA		PIPE n = 0.014					
FROM	TO	SUB.	TOTAL	INLET	DRAIN	TOTAL	10 YR. C.F.S.	SIZE	SLOPE	VEL.(fps)	LGTH.
	I-4	13.79	13.79	33.40			4.98				
	I-4				1.44		4.98	18"	1.65%	2.82	243'
	I-3	1.30	15.09	27.60			1.85				
	I-3				0.97	34.45	6.83	21"	2.44%	2.84	166'
	I-2	5.38	20.47	16.20			10.50				
	I-2				0.21	35.89	17.33	36"	2.72%	5.78	72'
	I-1	2.08	22.55	27.60			4.54				
	I-1	EX. HW			0.33	36.86	21.87	36"	1.91%	7.29	143'

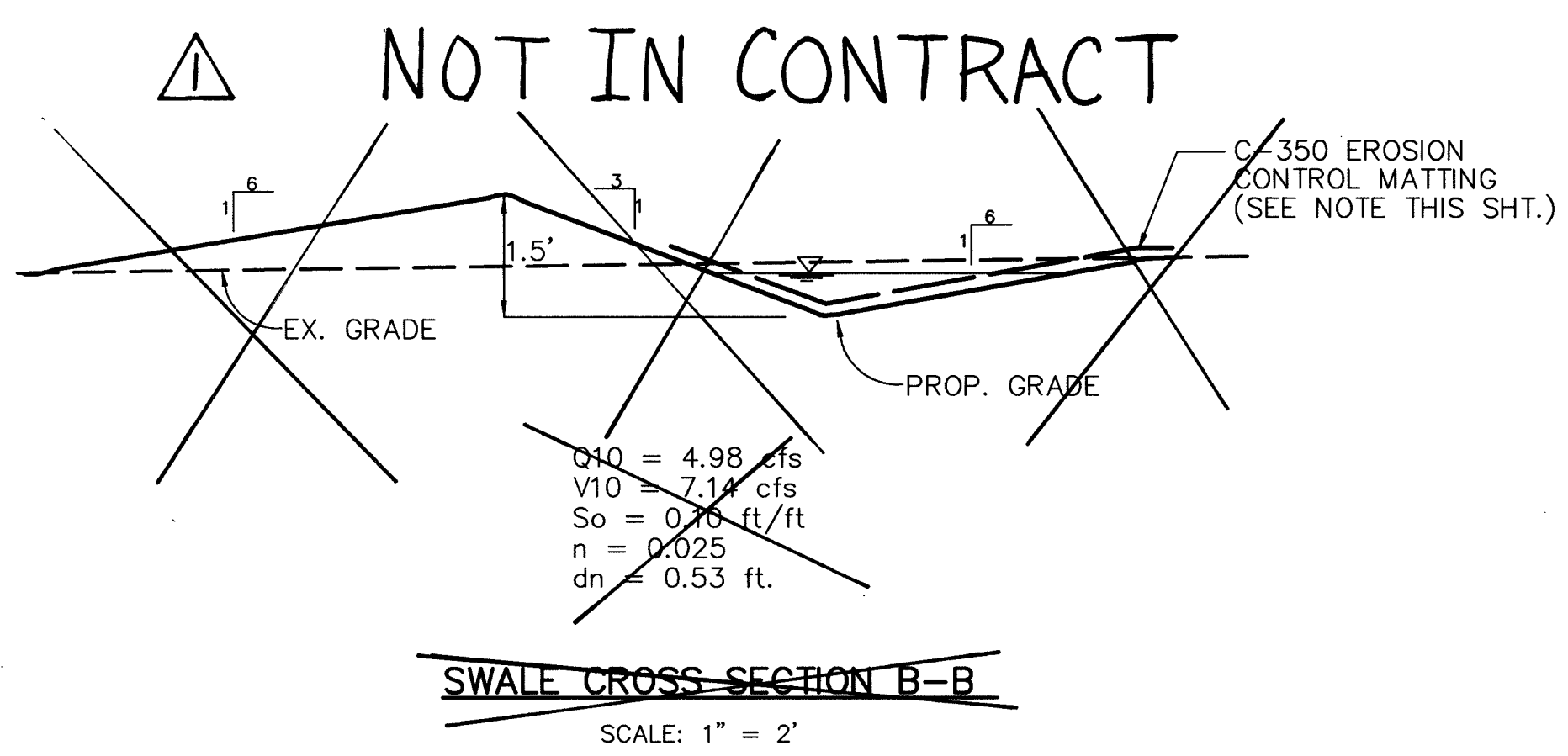


TYPICAL EROSION CONTROL MATTING INSTALLATION SECTION DETAIL N.T.S.

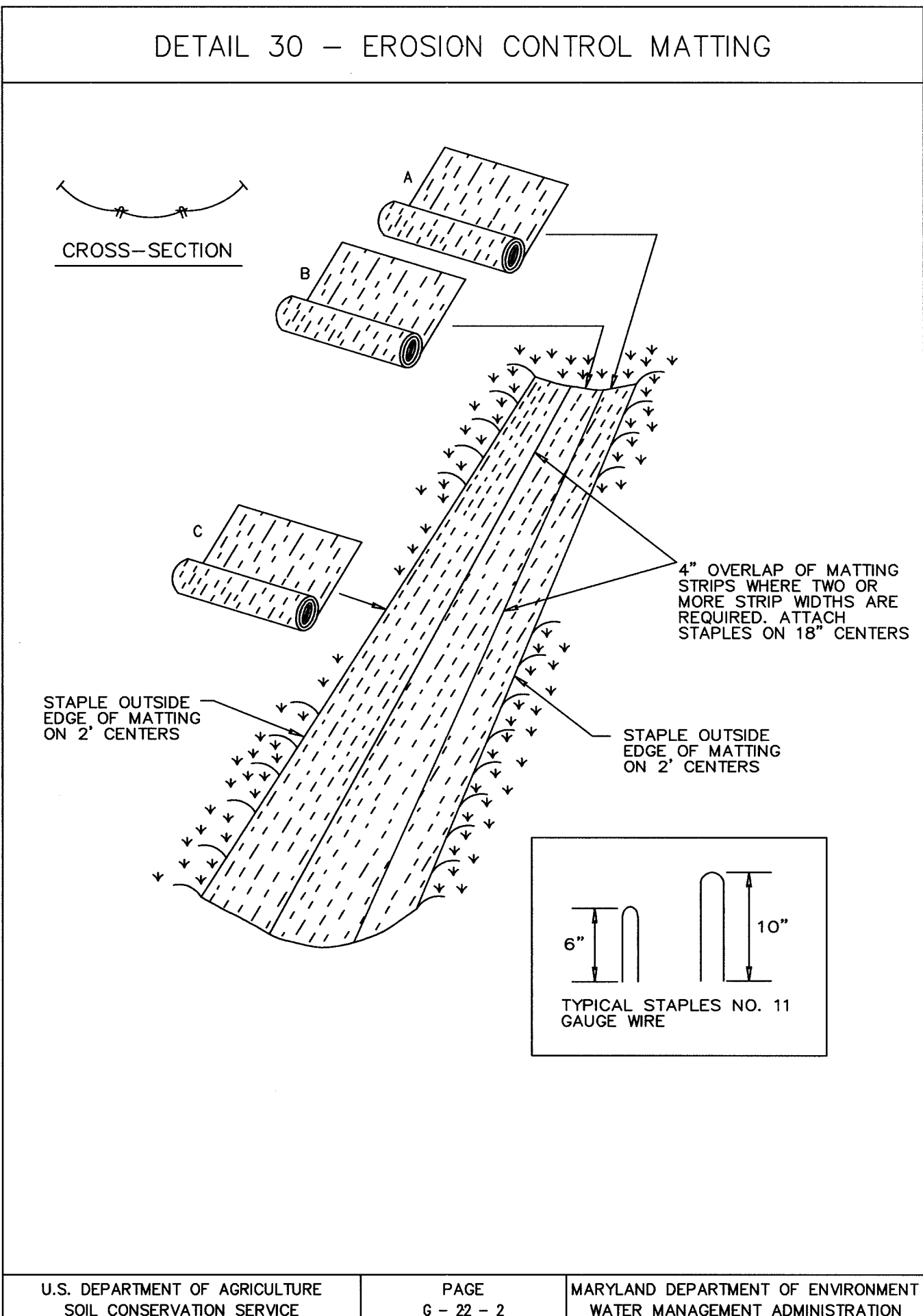


STORM DRAIN PROFILE SCALE: VERT.: 1" = 5' HORIZ.: 1" = 50'

NOTE: "TOP ELEV" DENOTES THE ELEV AT THE TOP OF THE INLET SLAB AT CENTER LINE OF INLET.



SWALE CROSS SECTION B-B SCALE: 1" = 2'



EROSION CONTROL MATTING Construction Specifications

- Key-in the matting by placing the top ends of the matting in a narrow trench, 6" in depth. Backfill the trench and tamp firmly to conform to the channel cross-section. Secure with a row of staples about 4" down slope from the trench. Spacing between staples is 6".
 - Staple the 4" overlap in the channel center using an 18" spacing between staples.
 - Before stapling the outer edges of the matting, make sure the matting is smooth and in firm contact with the soil.
 - Staples shall be placed 2' apart with 4 rows for each strip, 2 outer rows, and 2 alternating rows down the center.
 - Where one roll of matting ends and another begins, the end of the top strip shall overlap the upper end of the lower strip by 4", shiplap fashion. Reinforce the overlap with a double row of staples spaced 6" apart in a staggered pattern on either side.
 - The discharge end of the matting liner should be similarly secured with 2 double rows of staples.
- Note: If flow will enter from the edge of the matting then the area effected by the flow must be keyed-in.

EROSION CONTROL MATTING INSTALLATION NOTES:

- ALL MATTING SHALL BE FREE OF TEARS OR BREAKS.
- EROSION CONTROL MATTING INSTALLATION SHALL OCCUR ON THE SAME WORKDAY AS FINAL GRADING.
- PREPARE SOIL BEFORE INSTALLING BLANKETS. INCLUDE APPLICATION OF LIME, FERTILIZER AND SEED.
- BEGIN AT THE UPSTREAM END OF THE CHANNEL BY ANCHORING THE BLANKET IN A 6" DEEP x 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
- ROLL CENTER BLANKET IN DIRECTION OF WATER FLOW ON BOTTOM OF CHANNEL.
- PLACE BLANKETS END OVER END (SHINGLE STYLE) WITH A 6" OVERLAP. USE A DOUBLE ROW OF STAGGERED STAPLES 4" APART TO SECURE BLANKETS.
- FULL LENGTH EDGE OF BLANKETS AT TOP OF SIDE SLOPES MUST BE ANCHORED IN 6" DEEP x 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
- BLANKETS ON SIDE SLOPES MUST BE OVERLAPPED 2" OVER THE CENTER BLANKET AND STAPLED.
- PLACE A STAPLE CHECK SLOT AT 30 TO 40 FOOT INTERVALS. USE A ROW OF STAPLES 4" APART OVER ENTIRE WIDTH OF THE CHANNEL. PLACE A SECOND ROW 4" BELOW THE FIRST ROW IN A STAGGERED PATTERN.
- THE TERMINAL END OF THE BLANKETS MUST BE ANCHORED IN A 6" DEEP x 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
- NO VEHICULAR TRAFFIC OF ANY KIND IS PERMITTED ON MATTING DURING OR AFTER INSTALLATION.

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

Cheryl Sumner 5/13/98
NATURAL RESOURCES CONSERVATION

THESE PLANS FOR SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

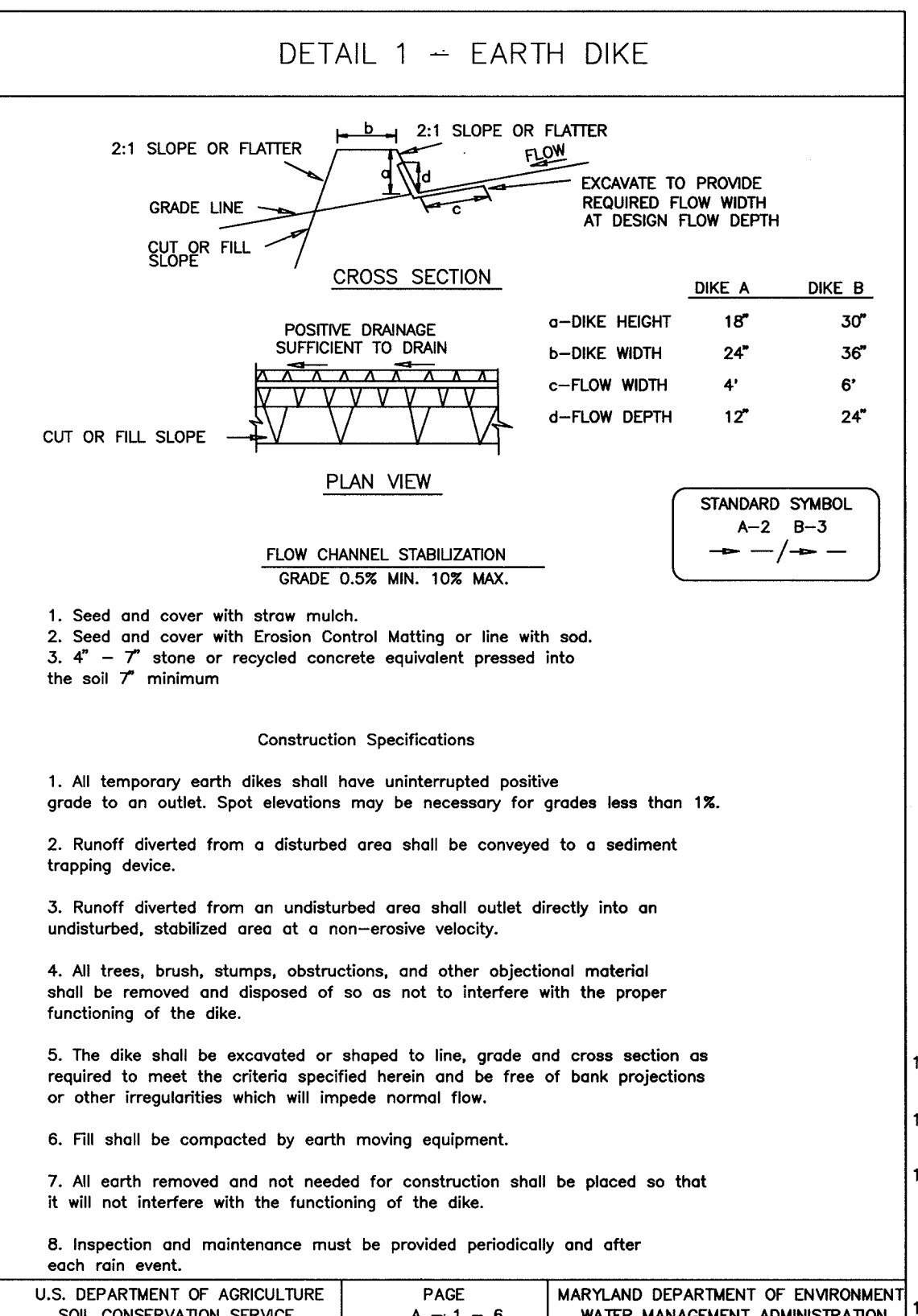
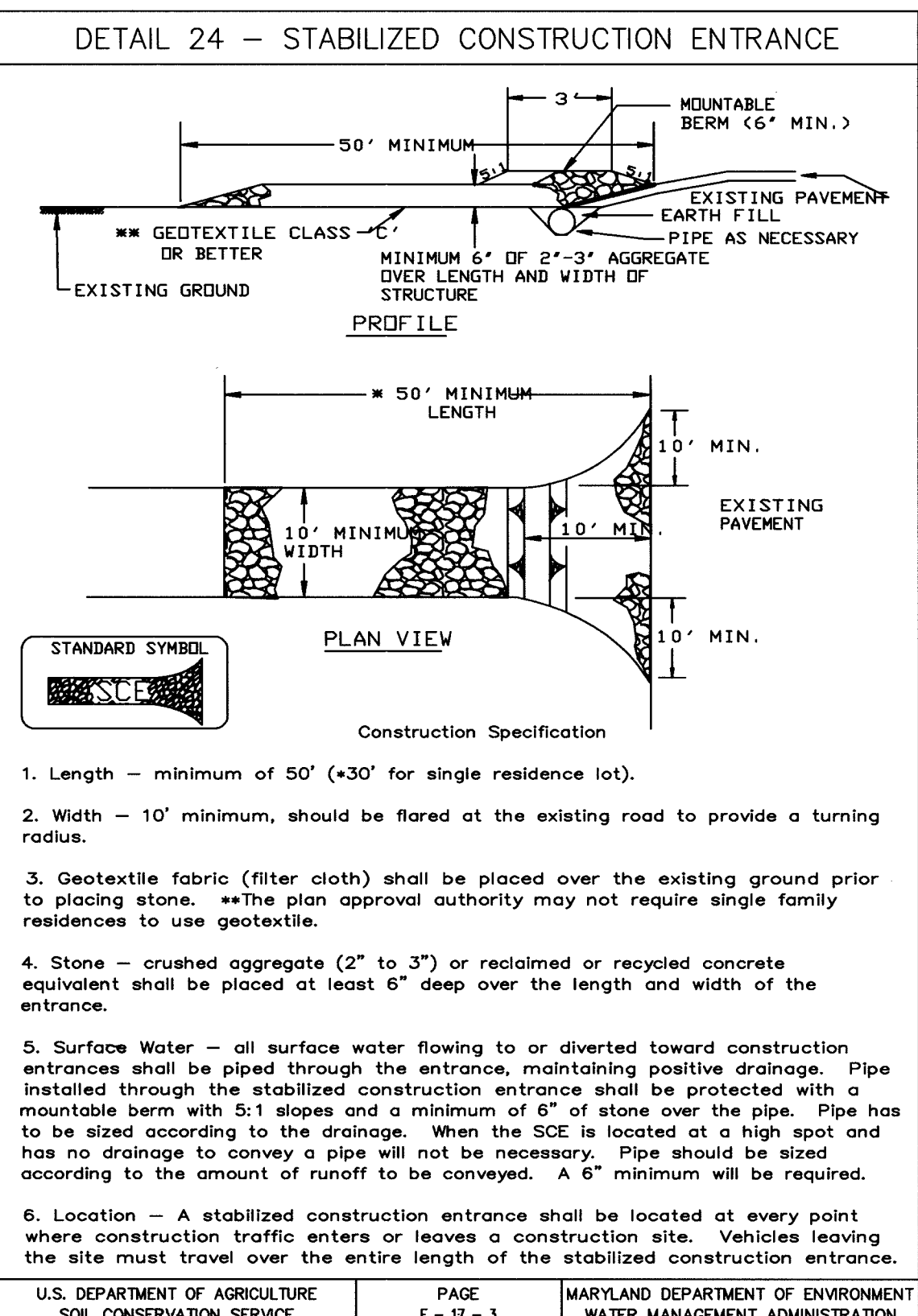
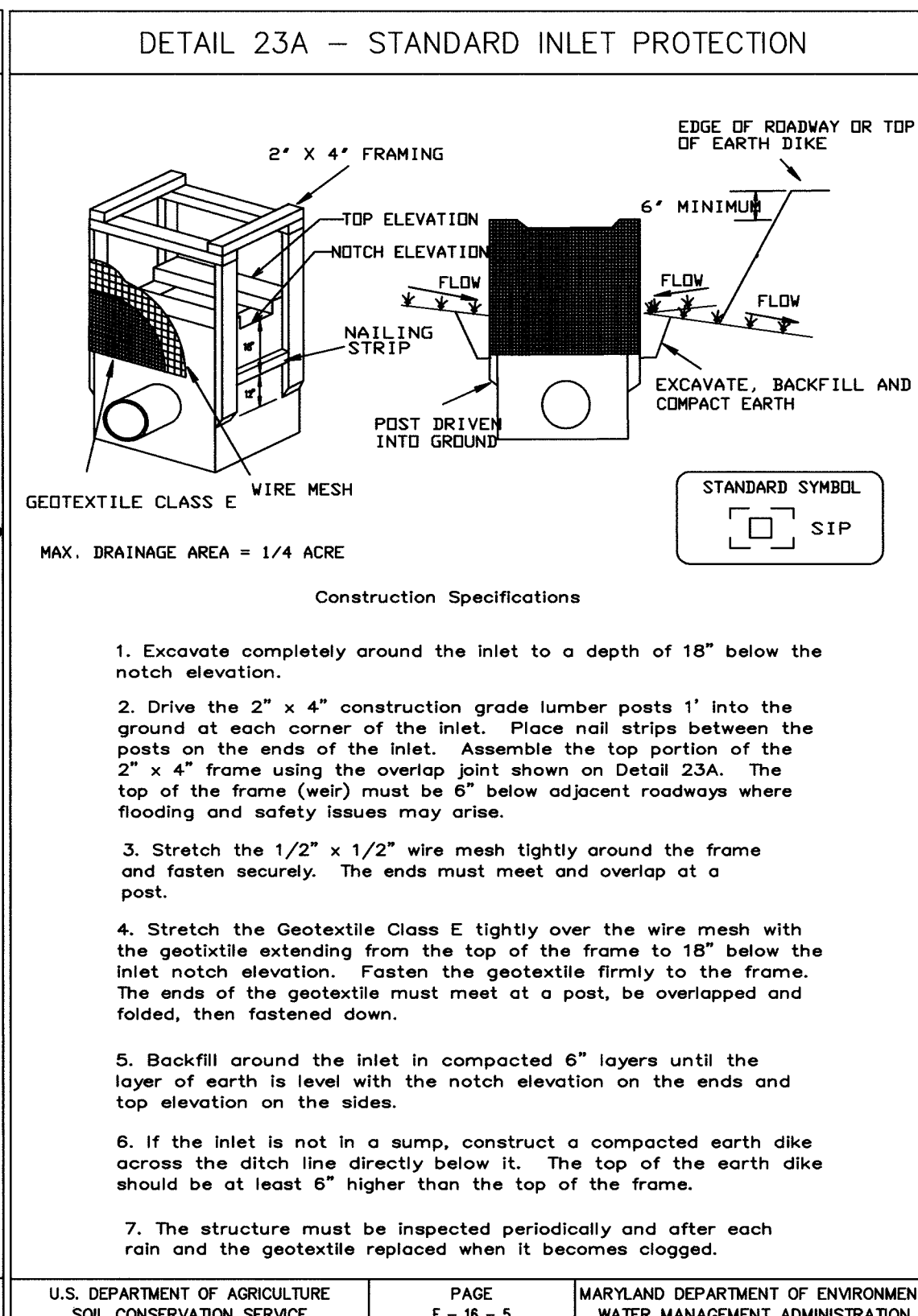
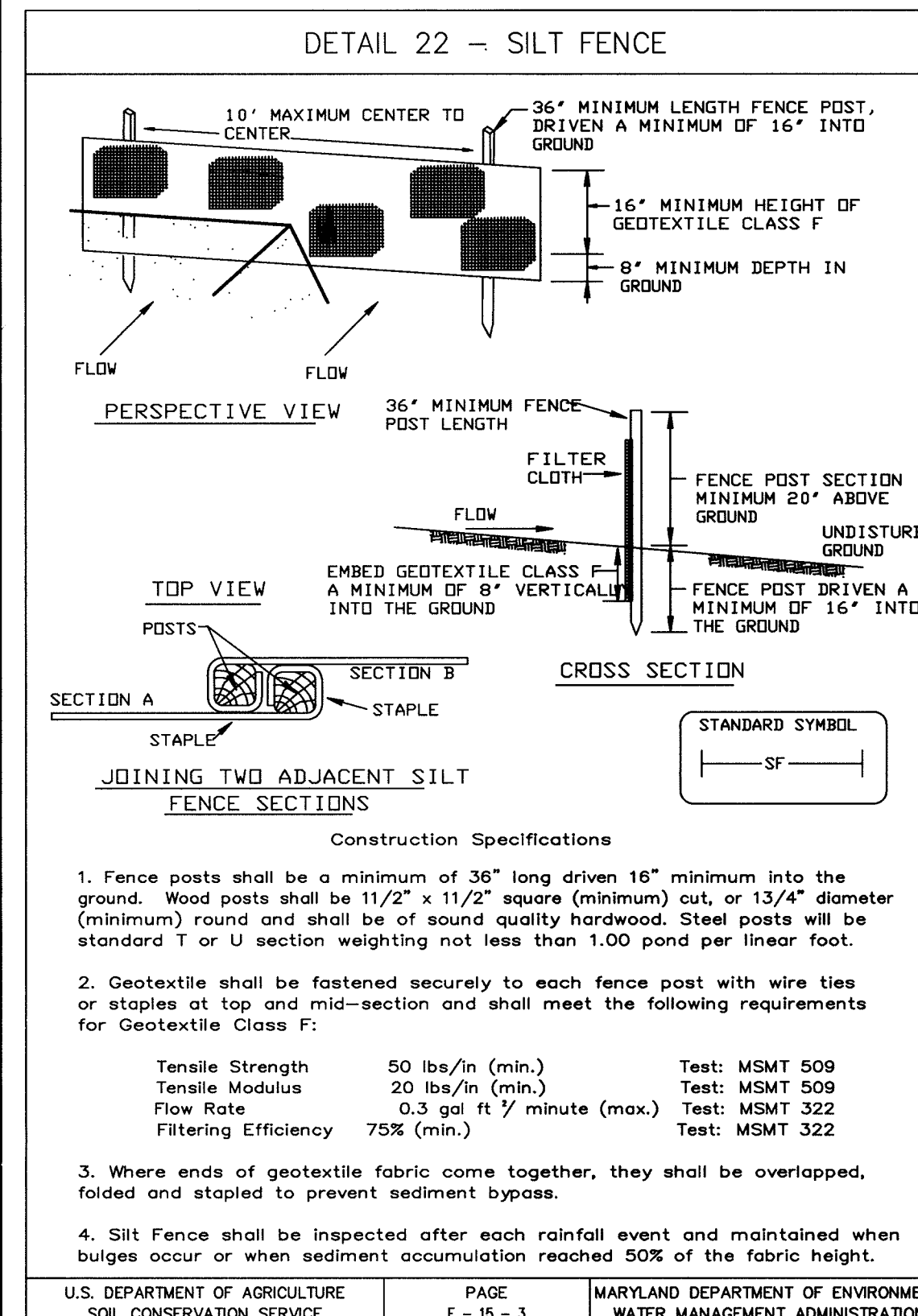
Cheryl Sumner 5/13/98
HOWARD SOIL CONSERVATION DISTRICT

Q10 = 4.98 cfs
V10 = 6.58 fps
So = 0.094 ft/ft
n = 0.025
dn = 0.43 ft.

SWALE CROSS SECTION A-A SCALE: 1" = 2'

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND Director of Public Works: <i>Jan P. ...</i> 4/9/98 Chief, Bureau of Engineering: <i>Cheryl Sumner</i> 4/8/98 Chief, Bureau of Highways: <i>Andrew M. ...</i> 4/12/98 Chief, Division of Transportation Projects and Watershed Management: <i>Robert ...</i> 4/8/98		RIEMER MUEGGE & ASSOCIATES, INC. ENGINEERING • ENVIRONMENTAL SERVICES • PLANNING • SURVEYING 8818 Centre Park Drive • Suite 200 • Columbia, MD 21045 410-997-8900 FAX: 410-997-9282 HYDRO/000001 W-CLASS DWG		STATE OF MARYLAND PROFESSIONAL ENGINEER FRANK DONALDSON #8146 DATE: 04/06/98		DES: D.A.S. AJM DRN: E.L.R. CHK: G.C.L. DATE: 04/06/98		REV. SWALE CROSS SECTION B-B AS N.I.C. 12/8/98 BY NO. REVISION DATE		STORM DRAIN PROFILE STRUCTURE SCHEDULE & SWALE CROSS SECTIONS 600' SCALE MAP NO. BLOCK NO.		HILLCREST DRIVE STORM DRAIN IMPROVEMENT 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND CONTRACT NO. D-1098 SCALE AS SHOWN SHEET 2 OF 3	
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M:\PROJECT\9706A\HILLCREST\PROFILE Mon Apr 6 12:14:30 1998 RIEMER MUEGGE AND ASSOCIATES, INC.



SEDIMENT CONTROL NOTES

- A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS AND PERMITS PRIOR TO THE START OF ANY CONSTRUCTION (313-1855).
- ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL AND EROSION CONTROL, AND REVISIONS THEREOF.
- FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES AND ALL SLOPES GREATER THAN 3:1, B) 14 DAYS AS TO OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THE PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
- ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1991 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL AND EROSION CONTROL FOR PERMANENT SEEDINGS (SEC. 51), SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50) AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONG CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
- 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.
- SITE ANALYSIS:

TOTAL AREA OF SITE	19.50 ACRES
AREA DISTURBED	0.40 AC
AREA TO BE ROOFED OR PAVED	0.00 AC
AREA TO BE VEGETATIVELY STABILIZED	0.40 AC
TOTAL CUT	252 CY
TOTAL FILL	83 CY

 OFF-SITE WASTE/BORROW AREA LOCATION: CONTRACTOR SHALL SELECT A LOCATION WITH AN APPROVED ACTIVE GRADING PERMIT.
- ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- SITE GRADING WILL BEGUN ONLY AFTER ALL PERIMETER SEDIMENT CONTROL MEASURES HAVE BEEN INSTALLED AND ARE IN A FUNCTIONING CONDITION.
- SEDIMENT WILL BE REMOVED FROM TRAPS WHEN ITS DEPTH REACHES CLEAN OUT ELEVATION SHOWN ON THE PLANS.
- CUT AND FILL QUANTITIES PROVIDED UNDER SITE ANALYSIS DO NOT REPRESENT BID QUANTITIES. THESE QUANTITIES DO NOT DISTINGUISH BETWEEN TOPSOIL, STRUCTURAL FILL OR EMBANKMENT MATERIAL, NOR DO THEY REFLECT CONSIDERATION OF UNDERCUTTING OR REMOVAL OF UNSUITABLE MATERIAL. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH SITE CONDITIONS WHICH MAY AFFECT THE WORK.
- ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 AC., 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.
- TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN BE BACKFILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

TEMPORARY SEEDING NOTES

Apply to graded or cleared areas likely to be redisturbed where a short-term vegetative cover is needed.

Seeding Preparation: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding, if not previously loosened.

Soil Amendments: Apply 600 lbs. per acre 10-10-10 fertilizer (14 lbs. per 1000 sq.ft.).

Seeding: For periods March 1 thru April 30 and from August 15 thru November 15, seed with 1 1/2 bushels per acre of annual ryegrass (3.2 lbs. per 1000 sq.ft.). For the period May 1 thru August 14, seed with 3 lbs. per acre of weeping lovegrass (0.07 lbs. per 1000 sq.ft.). For the period November 16 thru February 28, protect site by applying 2 tons per 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 per acre (70 to 90 lbs. per 1000 sq.ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gal. per acre (5 gal. per 1000 sq.ft.) of emulsified asphalt on flat areas. On slopes, 8 ft. or higher, use 347 gal. per acre (8 gal. per 1000 sq.ft.) for anchoring.

Refer to the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for rate and methods not covered.

PERMANENT SEEDING NOTES

Apply to graded or cleared areas not subject to immediate further disturbance where a permanent long-lived vegetative cover is needed.

Seeding Preparation: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding, if not previously loosened.

Soil Amendments: In lieu of soil test recommendations, use one of the following schedules:

- Preferred - Apply 2 tons per acre dolomitic limestone (92 lbs. per 1000 sq.ft.) and 600 lbs. per acre 10-10-10 fertilizer (14 lbs. per 1000 sq.ft.) before seeding. Harrow or disc into upper three inches of soil. At time of seeding, apply 400 lbs. per acre 30-0-0 ureaform fertilizer (9 lbs. per 1000 sq.ft.).
- Acceptable - Apply 2 tons per acre dolomitic limestone (92 lbs. per 1000 sq.ft.) and 1000 lbs. per acre 10-10-10 fertilizer (23 lbs. per 1000 sq.ft.) before seeding. Harrow or disc into upper three inches of soil.

Seeding: For the period March 1 thru April 30 and from August 1 thru October 15, seed with 60 lbs. per acre (1.4 lbs. per 1000 sq.ft.) of Kentucky 31 Tall Fescue. For the period May 1 thru July 31, seed with 60 lbs. Kentucky 31 Tall Fescue per acre and 2 lbs. per acre (0.05 lbs. per 1000 sq.ft.) of weeping lovegrass. During the period October 16 thru February 28, protect site by one of the following options:

- 2 tons per acre of well-anchored mulch straw and seed as soon as possible in the spring.
- Use sod.
- Seed with 60 lbs. per acre Kentucky 31 Tall Fescue and mulch with 2 tons per acre well anchored straw.

Mulching: Apply 1 1/2 to 2 tons per acre (70 to 90 lbs. per 1000 sq.ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gal. per acre (5 gal. per 1000 sq.ft.) of emulsified asphalt on flat areas. On slopes, 8 ft. or higher, use 347 gal. per acre (8 gal. per 1000 sq.ft.) for anchoring.

Maintenance: Inspect all seeded areas and make needed repairs, replacements and reseeding.

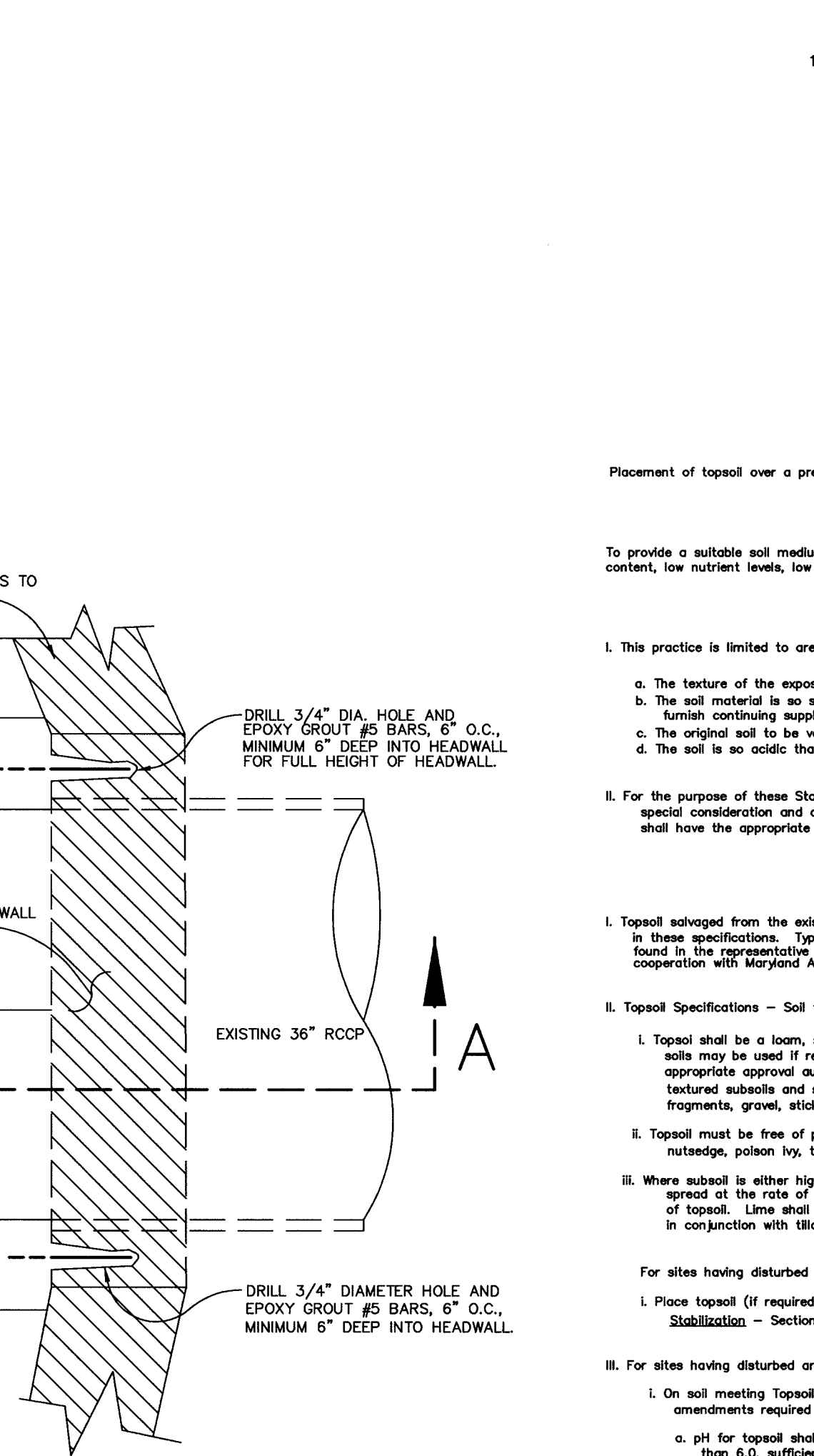
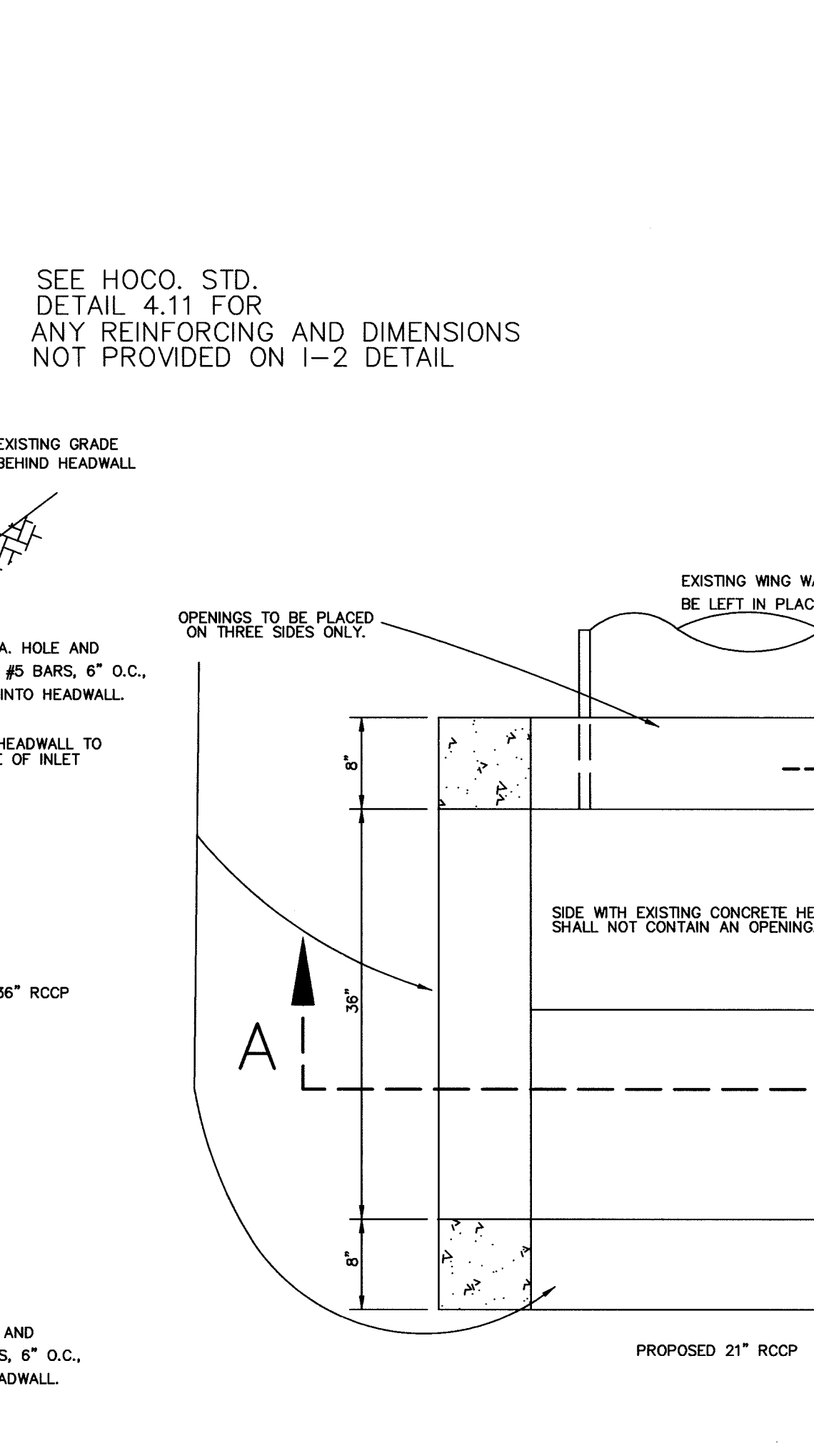
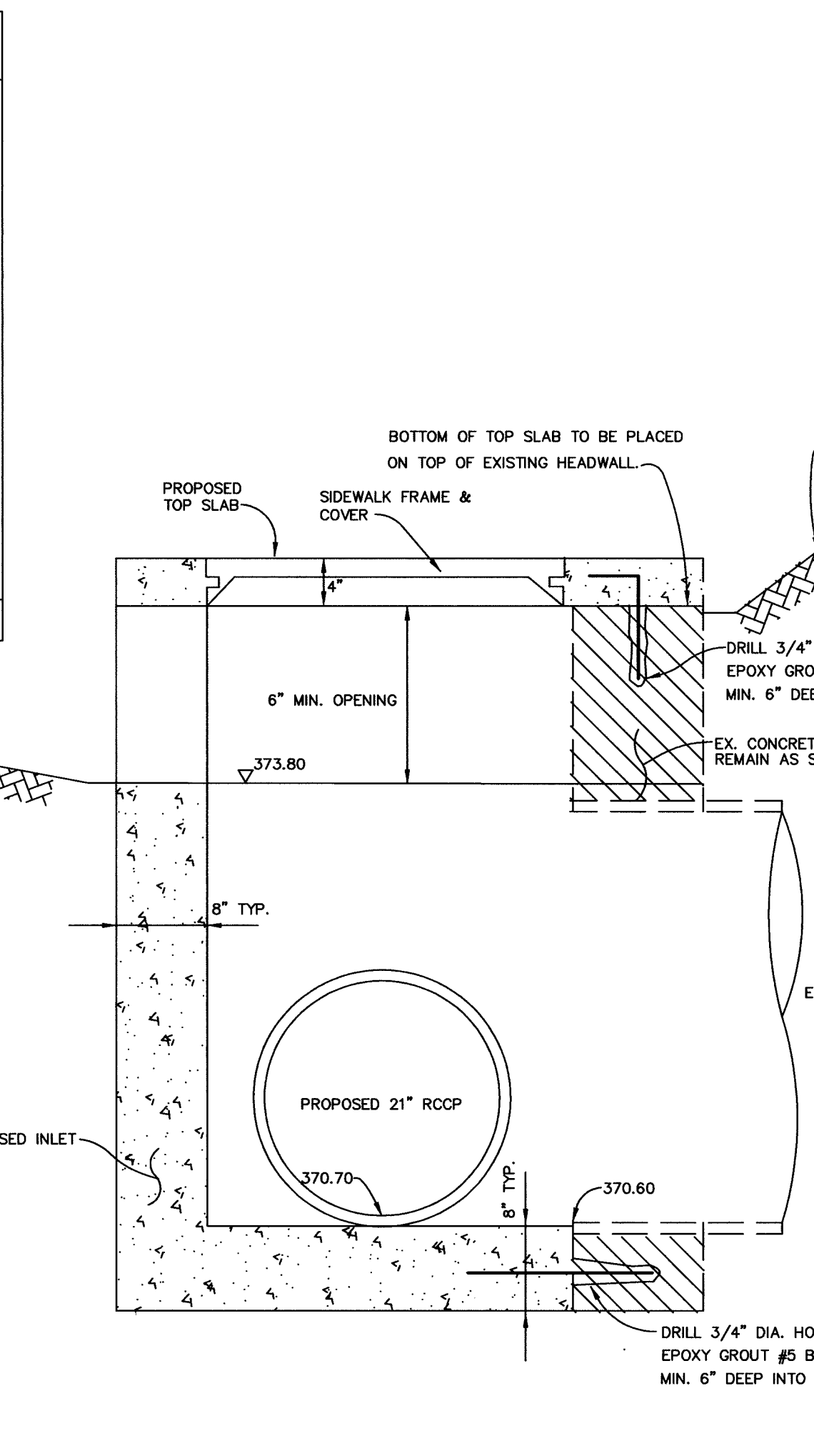
SILT FENCE

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



21.0 STANDARDS 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

- This practice is limited to areas having 2:1 or flatter slopes where:
 - The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
 - 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.
 - The original soil to be vegetated contains material toxic to plant growth.
 - The soil is so acidic that treatment with limestone is not feasible.
- 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

- 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 Experimentation Station.
- Topsoil Specifications - Soil to be used as topsoil must meet the following:
 - Topsoil shall be a loam, sandy loam, clay loam, all 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.
 - Topsoil must be free of plants or plant parts such as bermuda grass, quackgrass, Johnsongrass, nutsedge, poison ivy, thistle, or others as specified.
- Where 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 distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.
 - For sites having disturbed areas under 5 acres:
 - Place topsoil (if required) and apply soil amendments as specified in 200.0 Vegetative Stabilization - Section 1 - Vegetative Stabilization Methods and Materials.
 - For sites having disturbed areas over 5 acres:
 - On soil meeting topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:
 - 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.
 - Organic content of topsoil shall be not less than 1.5 percent by weight.

V. Topsoil Application

- 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.
- Grades on the areas to be topsoiled, which have been previously established, shall be maintained, albeit 4" - 8" higher in elevation.
- 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.
- Topsoil shall not be placed where the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seeded preparation.

VI. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:

- Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribe amendments and for site having disturbed areas under 5 acres shall conform to the following requirements:
 - Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06.
 - Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a pH of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.
 - Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.
 - Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.

References: Guideline Specifications, Soil Preparation and Sodding, MD-VH, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD COUNTY CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

Chief Surveyor 5/13/98 DATE

THESE PLANS FOR SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD COUNTY CONSERVATION DISTRICT.

Chief of Public Works 4/18/98 DATE

Chief, Bureau of Engineering 4/18/98 DATE

Chief, Division of Transportation Projects and Watershed Management 4/18/98 DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works 4/18/98 DATE

Chief, Bureau of Engineering 4/18/98 DATE

Chief, Division of Transportation Projects and Watershed Management 4/18/98 DATE

RIEMER MUEGGE & ASSOCIATES, INC.
ENGINEERING - ENVIRONMENTAL SERVICES - PLANNING - SURVEYING
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RIEMER/000001 9-CLASS-09C

FRANK DONALDSON #8146

DATE: 04/06/98

DES: D.A.S.				
DRN: E.L.R.				
CHK: G.C.L.				
DATE: 04/06/98				
BY: NO.		REVISION		

HILLCREST DRIVE
STORM DRAIN IMPROVEMENT
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
CONTRACT NO. D-1098

SCALE AS SHOWN

SHEET 3 OF 3