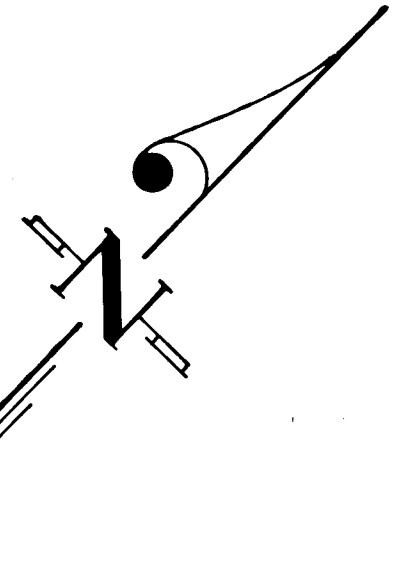


VICINITY MAP
SCALE: 1" = 2000'

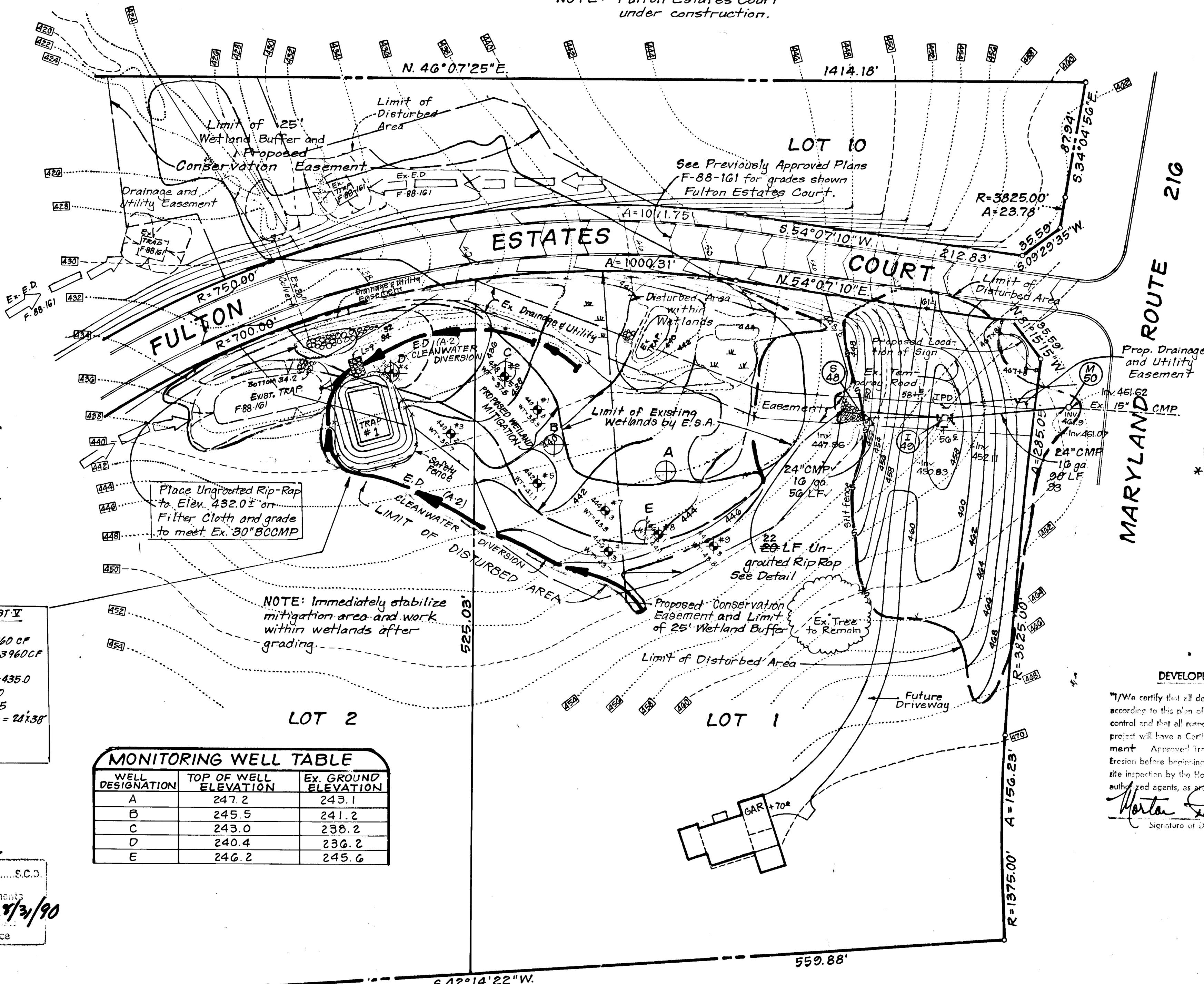
LEGEND

- Existing Contour 440
- Proposed Contour 440
- Auger Holes
- Silt Fence
- Inlet Protection
- Monitoring Wells



NOTE: The wetland buffer indicated on this plan does not affect the initial construction of a residential unit on a lot. It does prohibit subsequent clearing, grading or construction in the buffer area. Maintenance of residences, landscaping and utilities is permitted.

NOTE: Fulton Estates Court under construction.



CONSTRUCTION SEQUENCE

1. Obtain grading permit. 7 days
2. Construct Storm Drainage M-50 to S-48 and install silt fence and inlet protection. 14 days
3. Install Trap #1 and respective E.D.'s. Install ungrouted Rip Rap at end of Ex. 30" CMP. See Plan. 7 days
4. Rough grade site:
Note:
All existing sediment and erosion control devices must be refurbished and maintained to their original condition as required in field. 7 days
5. Upon approval of the sediment control inspector, remove sediment and erosion control measures and stabilize. 7 days

TRAP #1 S.O.B.T ST#
D.A. = 2.2 Acres
Storage Req'd = 3960 CF
Storage Provided = 3960 CF
Depth = 3'
Top of Stone Weir = 435.0
Bottom Elev. = 431.0
Clean Out Elev. = 432.5
Bottom Dimensions = 24' x 38'
2:1 Side Slopes
L = 0'

MONITORING WELL TABLE

WELL DESIGNATION	TOP OF WELL ELEVATION	EX. GROUND ELEVATION
A	247.2	243.1
B	245.5	241.2
C	243.0	238.2
D	240.4	236.2
E	246.2	245.6

Reviewed for Howard County S.C.D. and meets Technical Requirements
John M. Helm 9/23/90
U.S. Soil Conservation Service

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD COUNTY CONSERVATION DISTRICT.
John R. Robertson 9/31/90
Approved Date

PIPE SUMMARY

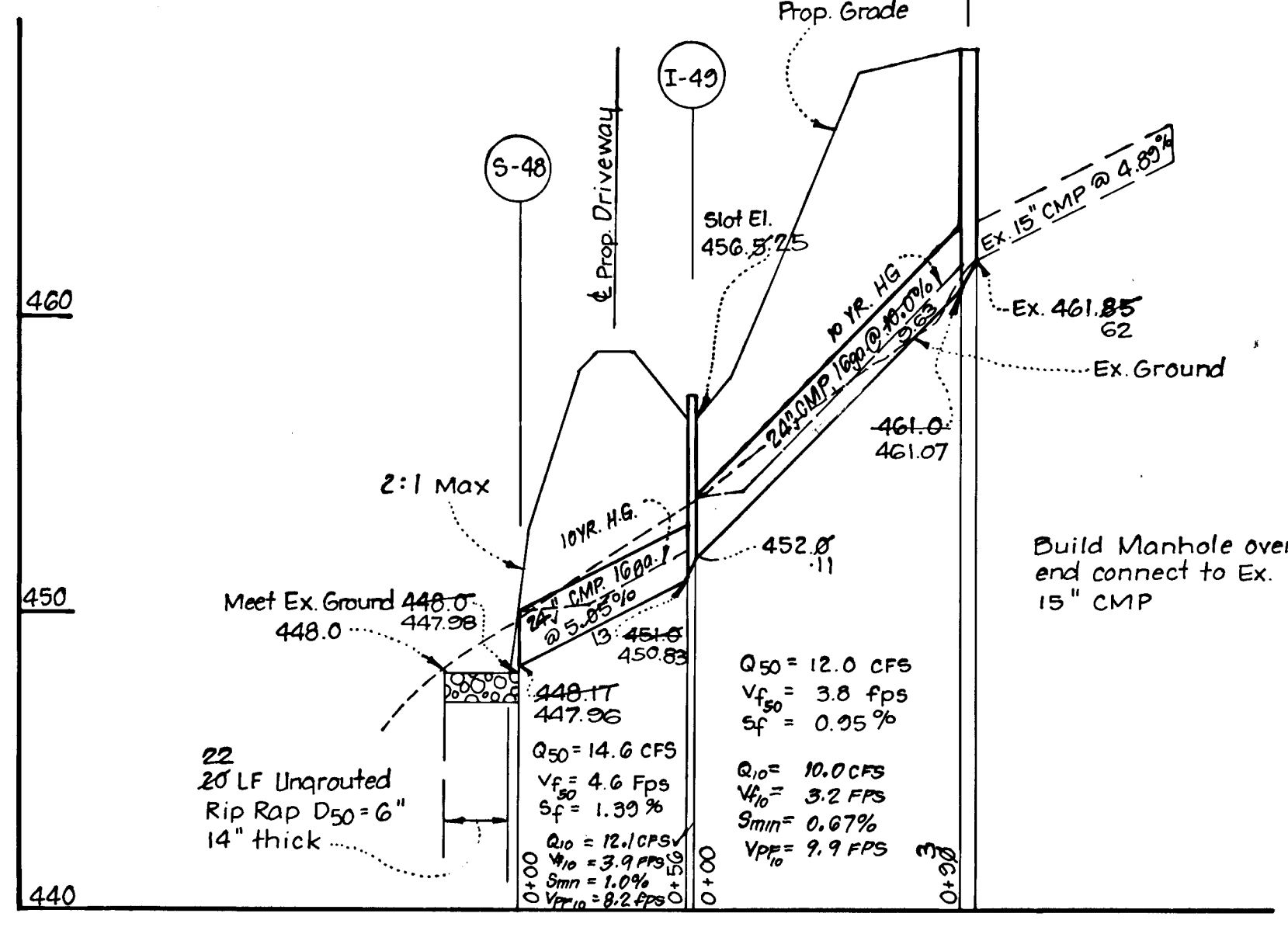
SIZE	TYPE	LENGTH
24"	CMP	16.32
24"	LF	146 LF

* 2 3/8" x 1/2" Corrugations

STRUCTURE SCHEDULE

Str. No.	TYPE	INV. IN	INV. OUT	TOP ELEVATION	REMARKS
M-50	Standard Manhole	Ex. 461.85	461.07	462.008	SHA Standard 383.01
I-49	D- Inlet	452.011	452.85	457.357	Ho. Co. Standard SD-4.11
S-48	Metal End Section	448-1T	448.0		Ho. Co. Standard 6D-5.01 24" Dia

Δ Inverts to be fully developed



GENERAL NOTES

1. All storm drain & paving shall be constructed in accordance with the latest edition and specifications of Howard County & MD SHA.
2. Types of storm drainage refer to the Standard details of Ho. Co. & MD SHA.
3. Trench compaction for storm drains within road or street right of way limits shall be in accordance with "Ho. Co. Design Manual, Vol. III" Std. G-201.
4. Information concerning underground utilities was obtained from available records, but the contractor must determine the exact location and elevation of mains by digging test pits, by hand, at all utility crossings, well in advance of construction.
5. All utility companies shall be notified 24 hrs. in advance of construction.
6. All traffic services, parking and signing to be done in accordance with the "Manual of Uniform Traffic Control Devices," 1978 Edition.
7. Design Speed See Sections Sheet 9 Zoning: R
8. The contractor or developer shall contact the Construction Inspection Survey Division 24 hrs. in advance of commencement of work Ph. 702-7272.
9. NOTE: See previously approved plans F-88-161 for construction of Fulton Estates Court.
10. Wetlands Delineation done by Environmental Systems Analysis, Inc.
11. Plant materials and planting to be done in accordance with approval of the Army Corps of Engineers and under the supervision of Environmental Systems Analysis, Inc. See Plan prepared by Environmental Systems Analysis, Inc. dated Feb. 1990.

DEVELOPER'S/BUILDER'S CERTIFICATE

"I/We certify that all development and construction will be done according to this plan of development and construction for erosion and sediment control and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Dept. of Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I/We authorize periodic on-site inspection by the Howard County Conservation District or their authorized agents, as provided in the plan."
Morton S. King 5/29/90
Signature of Developer/Builder Date

ENGINEER'S CERTIFICATE

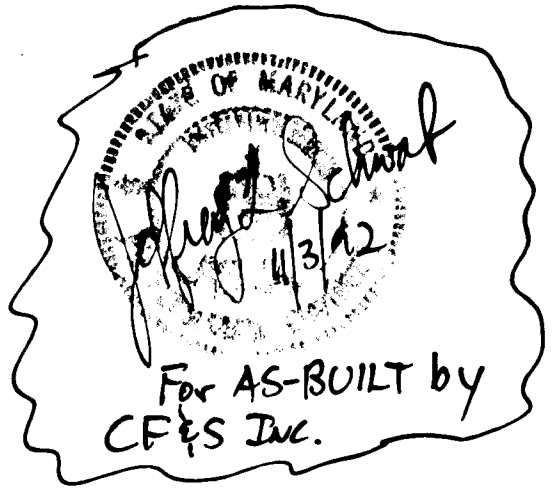
Thereby certify that this plan for Erosion and Sediment Control conforms to a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard County Conservation District.
G. Nelson Clark 5-29-90
Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Alan M. Sengman 9/12/90
Chief, Land Development Division Date
Danville W. Wellwood 9/14/90
Chief, Bureau of Highways Date
James B. Ray 9/14/90
Chief, Bureau of Engineering Date
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Mark C. Taylor 11/6/90
Chief, Division of Community Planning & Land Development Date

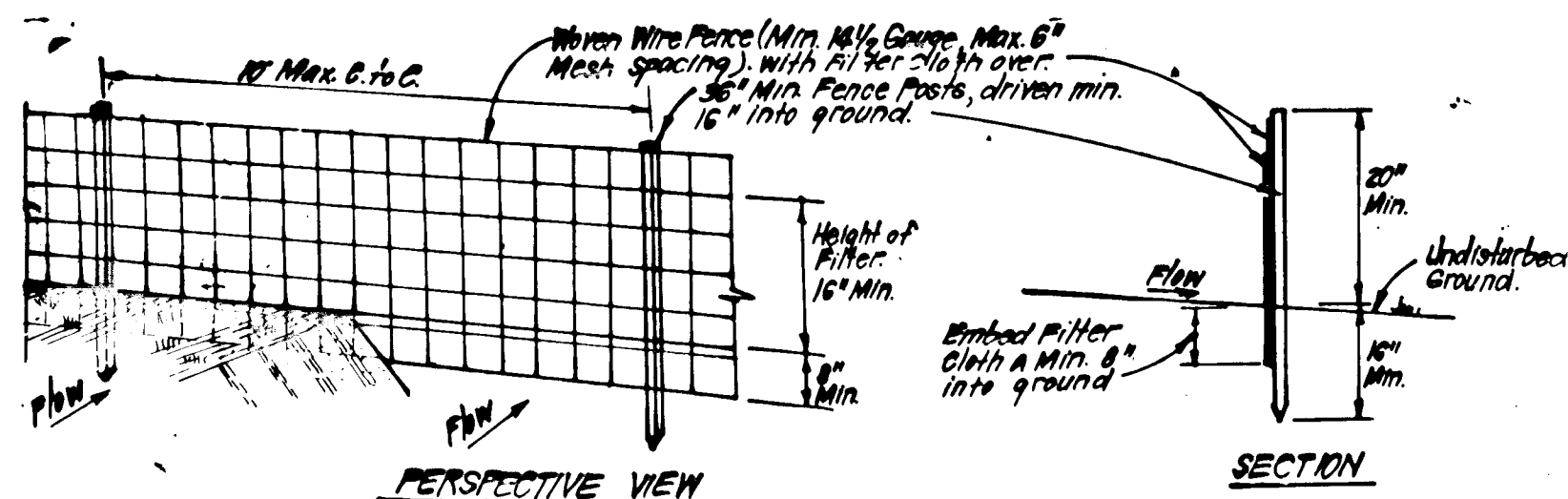
CLARK • FINEFROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS
7135 MINISTREL WAY • COLUMBIA, MD 21045 • (301) 381-7500 - BALTO • (301) 671-8100 - WASH

DESIGNED JLS	STORM DRAINAGE AND WETLANDS MITIGATION PLAN	SCALE 1" = 50'
DRAWN JAP LAI		DRAWING 1 of 2
CHECKED JLS	5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND	JOB NO. 88-104
DATE 5-24-90		For: ASSOCIATED INVESTMENT COMPANY 7979 Old Georgetown Road Bethesda, Maryland 20014

AS-BUILT F 90 186



1300



CONSTRUCTION SPECIFICATIONS:

- Woven wire fence to be fastened securely to fence posts with wire ties or staples.
- Filter cloth to be fastened securely to woven wire fence with ties spaced every 24" at top and mid section.
- When 2 sections of filter cloth adjoin each other they shall be overlapped by 6" and folded.
- Maintenance shall be performed as needed and material removed when "bulges" develop in silt fence.

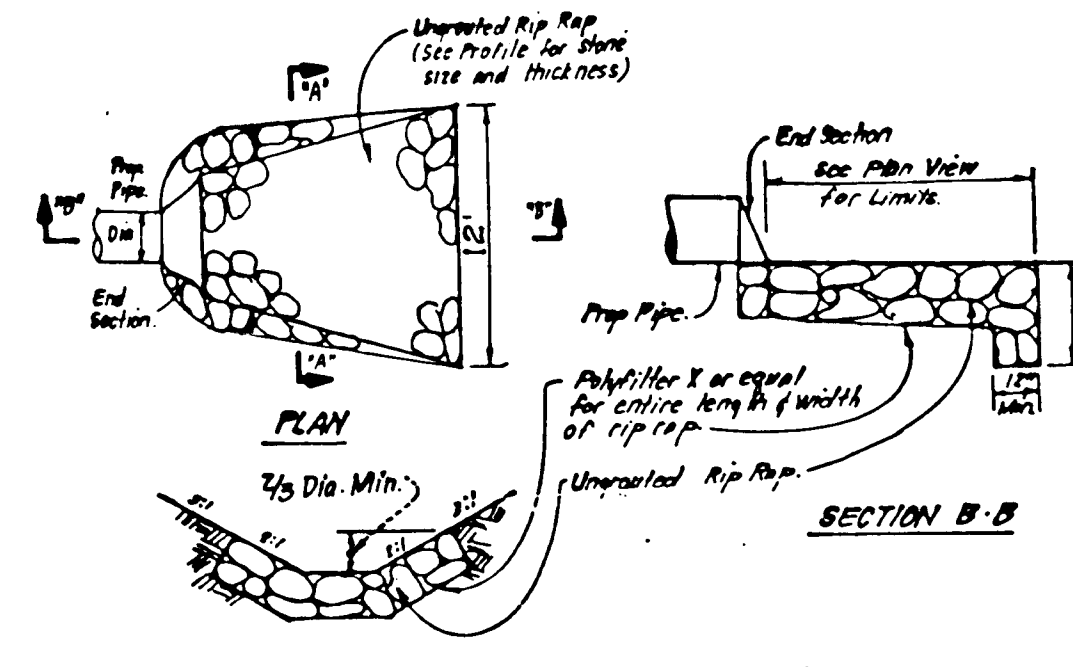
POSTS: Steel, either T or U Type or 2" Hardwood.

FENCE: Woven Wire, 1 1/2 Gauge, 6" Max. Mesh Opening.

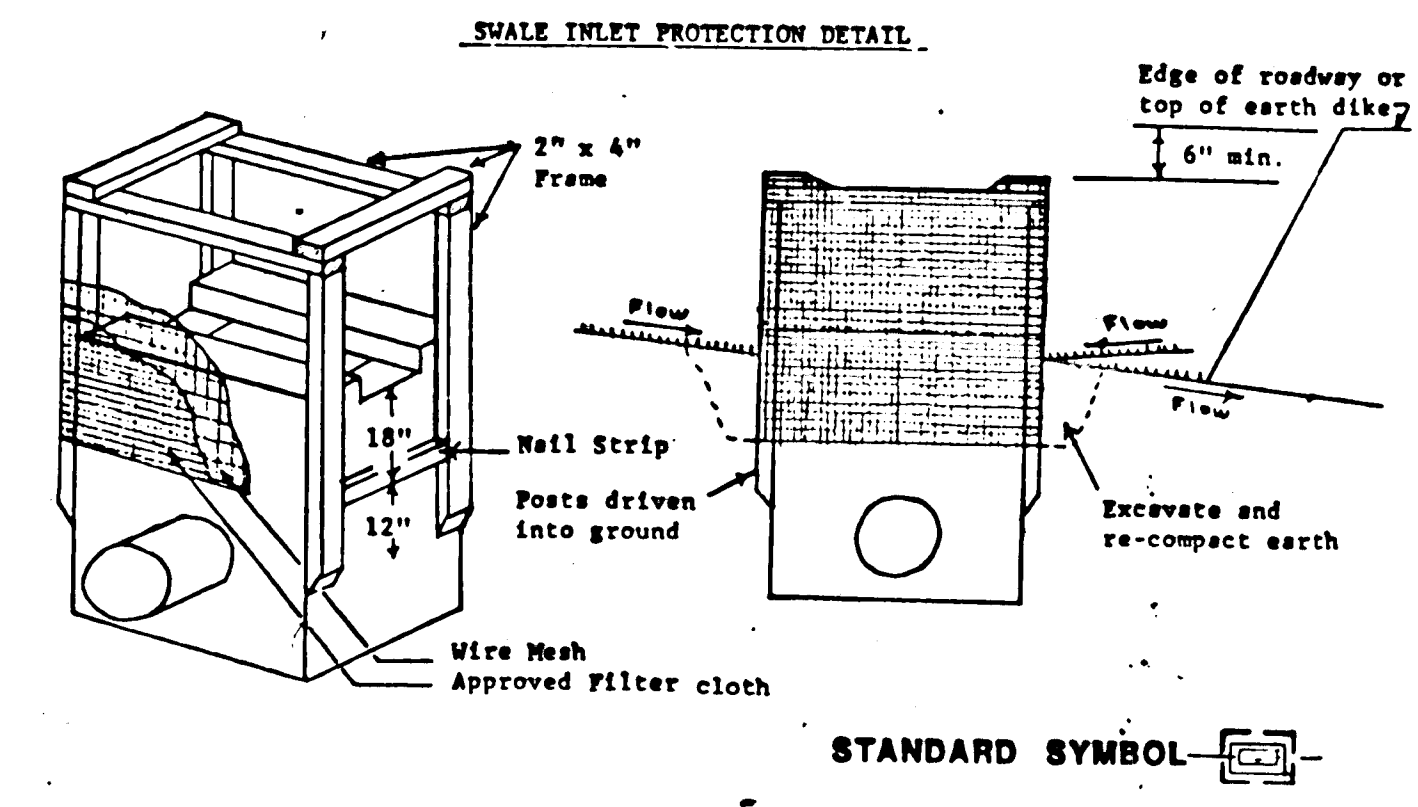
FILTER CLOTH: Filter Cloth, 100% Polypropylene, 1/2" Thick, 100% or Approved Equal.

PREFABRICATED UNIT: Geotubes, Envirofence, or Approved Equal.

SILT FENCE DETAIL (9)
NO SCALE



UNGRADED RIPRAP PAVING DETAILS
NO SCALE



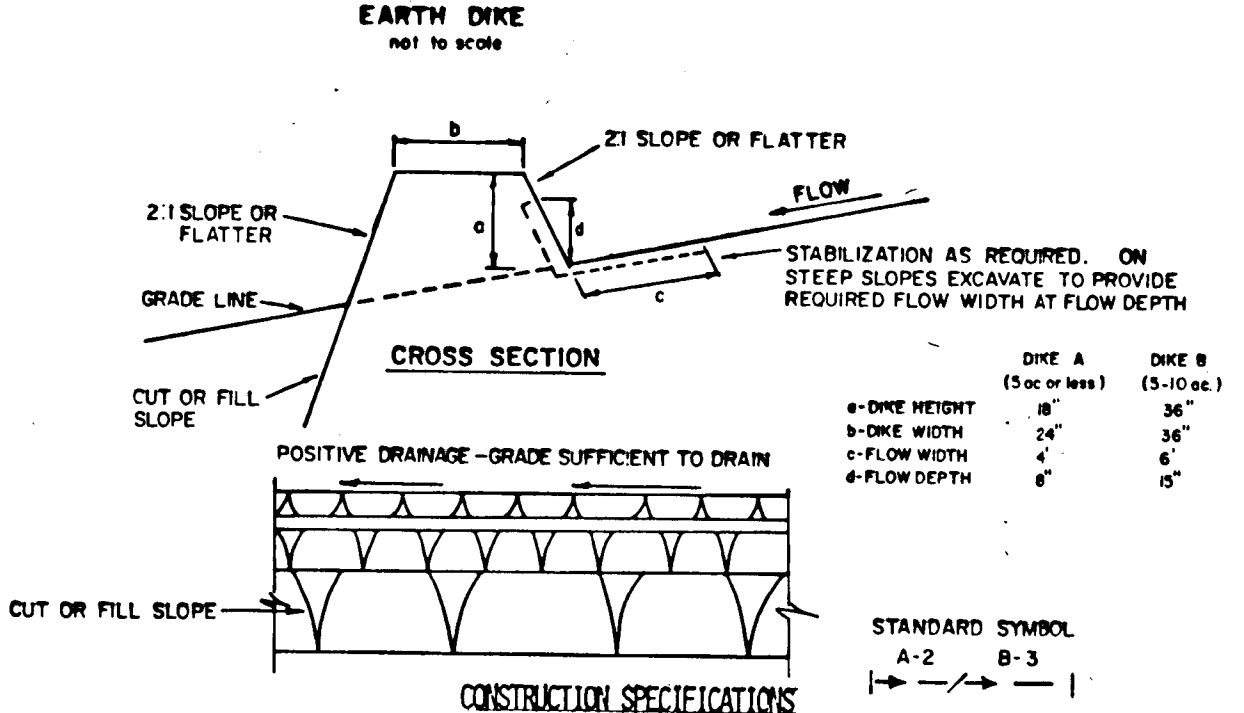
CONSTRUCTION SPECIFICATIONS:

MATERIALS:

- Wooden frame to be constructed of 2x4 construction grade lumber.
- Wire mesh must be of sufficient strength to support filter fabric, and stone for curb inlets, with water fully impounded against it.
- Filter cloth must be of a type approved for this purpose; resistant to sunlight with sieve size, E-20-85, to allow sufficient passage of water and removal of sediment.
- Stone to be 2" in size and clean since fines would clog the cloth.

PROCEDURE: SWALE, DITCHLINE OR YARD INLET PROTECTION

- Excavate completely around inlet to a depth of 18" below notch elevation.
- Drive 2x4 post 1' into ground at four corners of inlet. Place nail strips between posts at ends of inlet. Assemble top portion of 2x4 frame using over-lap joint shown. Top of frame (weir) must be 6" below edge of roadway adjacent to inlet.
- Stretch wire mesh tightly around frame and fasten securely. Ends must meet at post.
- Stretch filter cloth tightly over wire mesh, the cloth must extend from top of frame to 18" below inlet notch elevation. Position securely to frame. Ends must meet at post, be overlapped and folded down.
- Backfill around inlet in compacted 6" layers until layer of earth is even with notch elevation on ends and top elevation on sides.
- If the inlet is not in a low point, construct a compacted earth dike in the ditch line below it. The top of this earth dike is to be at least 6" higher than the top of frame (weir).
- The structure must be inspected frequently and filter fabric replaced when clogged.



TYPE OF TREATMENT	FLOW CHANNEL STABILIZATION	
	CHANNEL GRADE	DIKE
1	5-3.0% SEED AND STRAW MULCH	DIKE A SEED AND STRAW MULCH
2	3.1-5.0% SEED AND STRAW MULCH	DIKE B SEED USING JUTE, OR EXCELSTOR; SOG; 2" STONE
3	5.1-8.0% SEED WITH JUTE, OR SOG; 2" STONE	LINED RIP-RAP 4-8"
4	8.1-20% LINED RIP-RAP 4-8"	ENGINEERING DESIGN

7. PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED AFTER EACH RAIN EVENT.

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENT.
James P. Kelly 8/31/90
 SIGNATURE DATE
U.S. SOIL CONSERVATION SERVICE
 This Development Plan is approved for Soil Erosion and Sediment Control by the Howard Soil Conservation District.
 APPROVED: *John R. Rhuton* 8/31/90
 Howard S.C.D. DATE

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, 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/1000 sq ft) and 600 lbs per acre 10-10-10 fertilizer (14 lbs/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/1000 sq ft).
- Acceptable - Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sq ft) and 1000 lbs per acre 10-10-10 fertilizer (23 lbs/1000 sq ft) before seeding. Harrow or disc into upper three inches of soil.

Seeding: For the periods March 1 thru April 30, and August 1 thru October 15, seed with 60 lbs per acre (1.4 lbs/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 (.05 lbs/1000 sq ft) of weeping lovegrass. During the period of October 16 thru February 28, protect site by: Option (1) 2 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 or 218 gallons per acre (5 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq ft) for anchoring.

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

TEMPORARY SEEDING NOTES

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

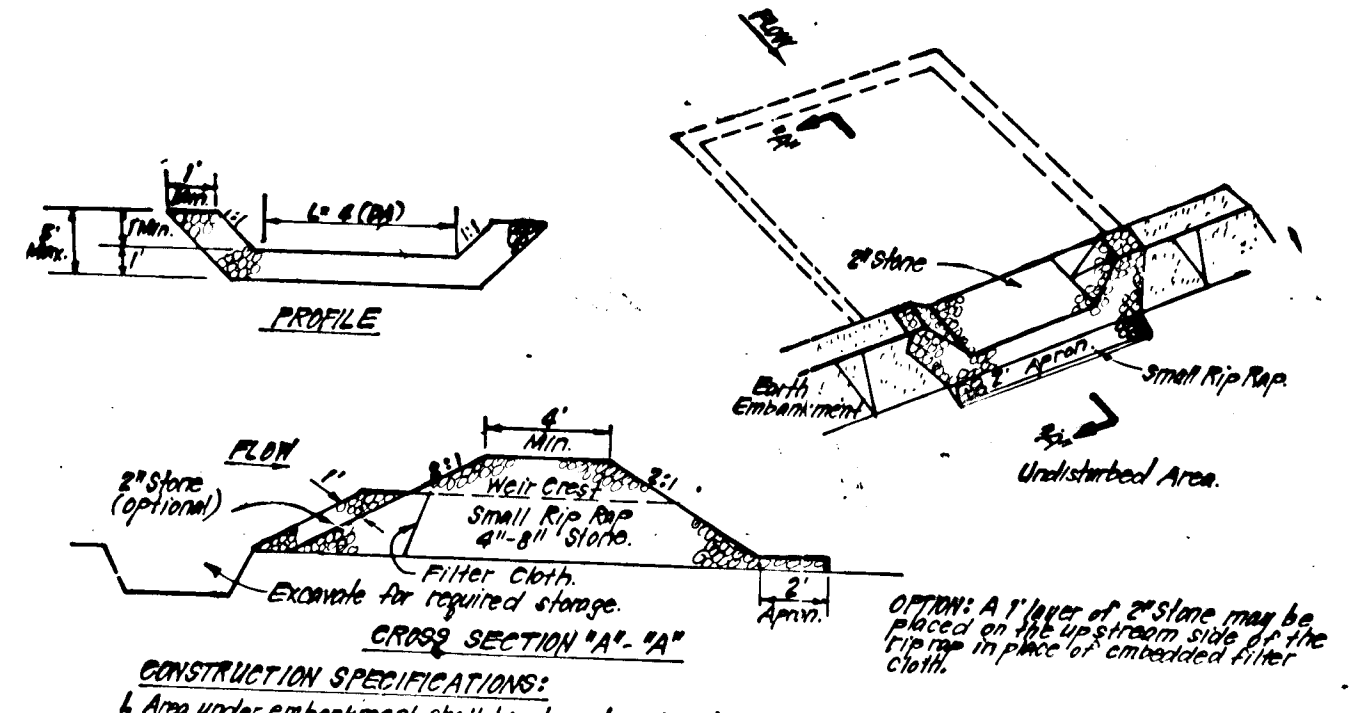
Seedbed Preparation: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding, if not previously loosened.

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

Seeding: For periods March 1 thru April 30 and from August 15 thru November 15, seed with 25 bushel per acre of annual ryegrass (3.2 lbs/1000 sq ft). For the period May 1 thru August 14, seed with 3 lbs per acre of weeping lovegrass (.07 lbs/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/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/1000 sq ft) of emulsified asphalt on flat areas. On slopes, 8 ft or higher, use 348 gal per acre (8 gal/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.



CONSTRUCTION SPECIFICATIONS:

- Area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The trap area shall be cleared.
- The fill material for the embankment shall be free of roots and other woody vegetation as well as oversized stones, rocks or any material or other obstructions material. The embankment shall be compacted by traversing with equipment while it is in operation.
- All cut and fill slopes shall be 2:1 or flatter.
- The stone used in the outlet shall be small rip-rap 4-8" along with 1" thickness of an appropriate placed on the up-grade side on the small rip-rap of 1/2" diameter filter cloth in the rip-rap.
- Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to its design capacity of the trap.
- The structure shall be inspected after each rain and repairs made as needed.
- Construction operations shall be carried out in such a manner that erosion and water pollution is minimized.
- The structure shall be removed and the area stabilized when the drainage area has been properly stabilized.

DEVELOPER'S/BUILDER'S CERTIFICATE

"I/We certify that all development and construction will be done according to this plan of development and risk for erosion and sediment control and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Dept. of Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I/We authorize periodic on-site inspection by the Howard Soil Conservation District or their authorized agents, as are deemed necessary."

Mark C. J. Campbell 7/19/90
 Signature of Developer/Builder Date

ENGINEER'S CERTIFICATE

I hereby 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.

Gene Clark 5-29-90
 G. Nelson Clark Date



SEDIMENT CONTROL NOTES

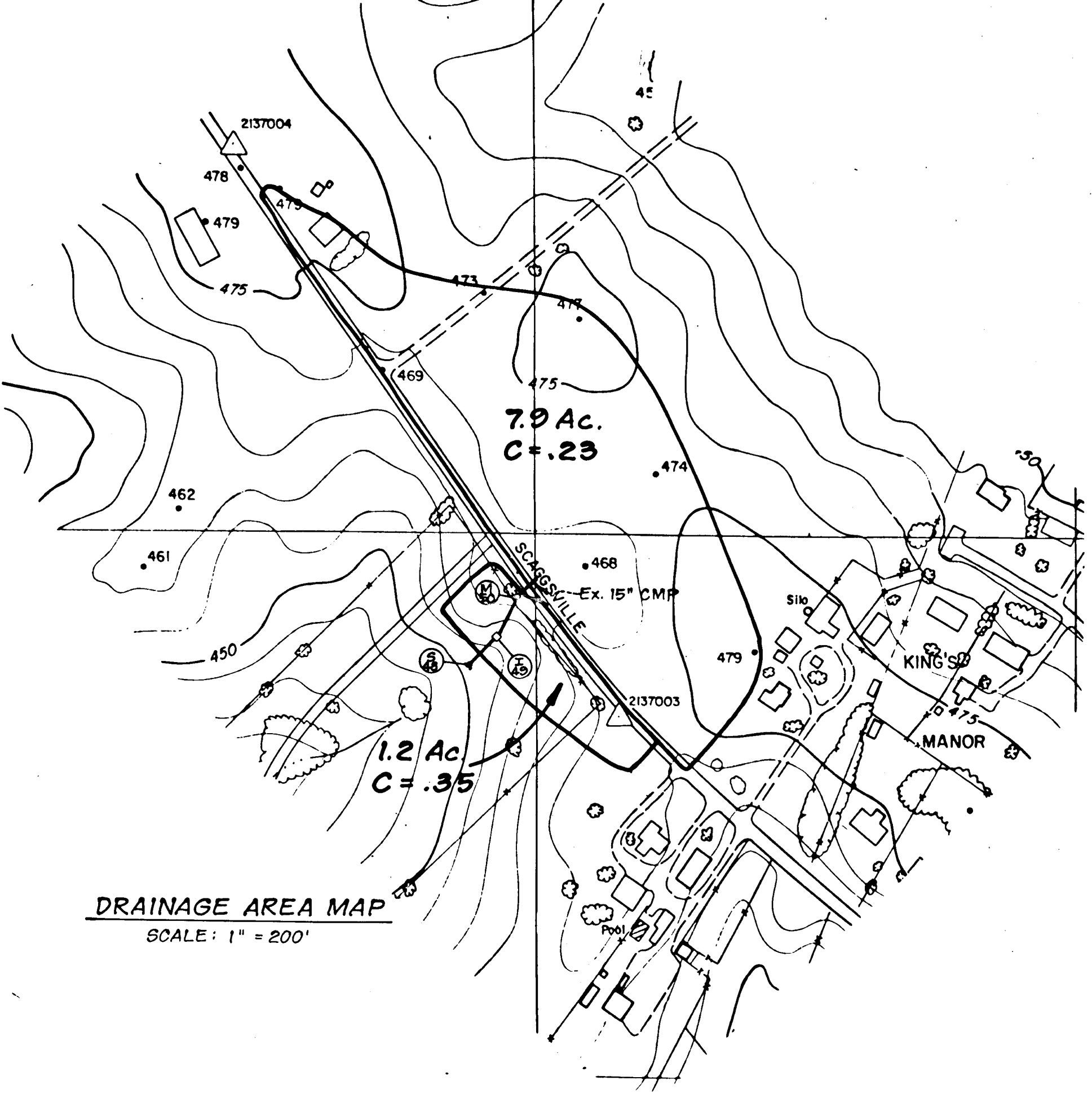
- A minimum of 24 hours notice must be given to the Howard County Office of Inspection and Permits prior to the start of any construction. (992-2437)
- All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
- 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 greater than 3:1, b) 14 days as to all other disturbed or graded areas on the project site.
- 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.
- All disturbed areas must be stabilized within the time period specified above in accordance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seedings (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.
- 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	2.99 Acres
Area Disturbed	2.99 Acres
Area to be roofed or paved	6.00 Acres
Area to be vegetatively stabilized	2.99 Acres
Total Cut	485 Cu. yds
Total Fill	6379 Cu. yds
Offsite waste/borrow area location	Undetermined
- Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
- Additional sediment control must be provided, if deemed necessary by the Howard County DWM sediment control inspector.
- 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.
- If houses are to be constructed on an "As-Sold" basis, at random, single lot sediment control as shown below shall be implemented. N/A
- All pipes to be blocked at the end of each day (see detail below).
- The total amount of straw bale dikes/silt fence equals 210 L.F.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Olga M. Jensen 9/17/90
 CHIEF, LAND DEVELOPMENT DIVISION DATE
David W. W. W. W. 9/14/90
 CHIEF, BUREAU OF HIGHWAYS DATE
John R. Rhuton 9-15-90
 CHIEF, BUREAU OF ENGINEERING DATE
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Mark C. J. Campbell 9/6/90
 CHIEF, DIVISION OF COMMUNITY PLANNING & LAND DEVELOPMENT DATE

CLARK • FINEFROCK & SACKETT, INC. ENGINEERS • PLANNERS • SURVEYORS 7135 MINSTREL WAY • COLUMBIA, MD 21045 • (301) 381-7500 - BALTO • (301) 621-8100 - WASH		
DESIGNED JLS	STORM DRAINAGE AND WETLANDS MITIGATION PLAN	SCALE As Shown
DRAWN LAI JAD	FULTON ESTATES	DRAWING 2 of 2
CHECKED JLS	5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND	JOB NO. 88-164
DATE 5-24-90	For: ASSOCIATED INVESTMENT COMPANY 7975 Old Georgetown Road Bethesda, Maryland 20014	FILE NO. 88-164 D

DRAINAGE AREA MAP
SCALE: 1" = 200'



1340