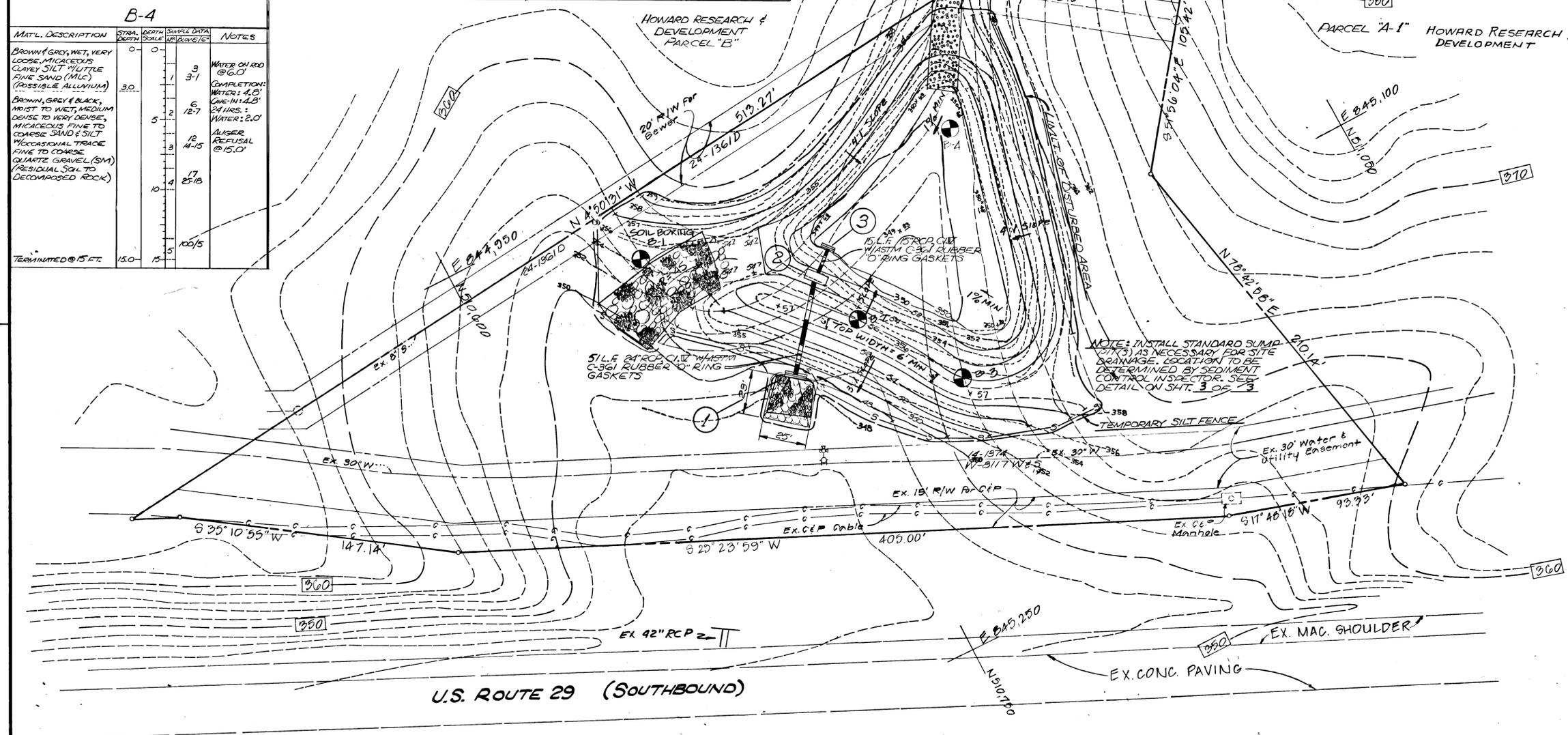


B-1				B-2				B-3			
MAT'L. DESCRIPTION	STRA. DEPTH (FEET)	SAMPLE DATA (NO. & SCALE)	NOTES	MAT'L. DESCRIPTION	STRA. DEPTH (FEET)	SAMPLE DATA (NO. & SCALE)	NOTES	MAT'L. DESCRIPTION	STRA. DEPTH (FEET)	SAMPLE DATA (NO. & SCALE)	NOTES
BROWN, GREY & WHITE, MOIST TO WET, LOOSE TO VERY DENSE TO DENSE, MICACEOUS FINE SANDY SILT WITH FINE TO COARSE ROSE QUARTZ GRAVEL IN S-6 (MLS) RESIDUAL SOIL	0			BROWN & GREY, MOIST TO WET, VERY LOOSE, SLIGHTLY ORGANIC, FINE TO MED. MICACEOUS SILTY SAND WITH WHITE SEAMS OF CLAYEY SILT (SH) (ALLUVIUM)	0			BROWN, GREY & WHITE, MOIST TO WET, MEDIUM DENSE, MICACEOUS FINE SANDY SILT (ALLUVIUM)	0		
	1	3-4	WATER ON ROD @ 6.0'		1	2-2	WATER ON ROD @ 3.0'		1	10	WATER ON ROD @ 14.0'
	2	6-6	SAMPLE #1 IS CONSIDERED TO BE DE-COMPOSED ROCK		2	2-1	COMPLETION: WATER: 3.5' CIVE-IN: 9.6' 24 HRS.: WATER: 2.5'		2	7	COMPLETION: WATER: 4.5' CIVE-IN: 14.5' 24 HRS.: WATER: 6.9'
	3	13-26	COMPLETION: WATER: 5.0' CIVE-IN: 6.5' 24 HRS.: WATER: 4.4'		3	10-17			3	25	38.42
	4	16-28			4	21-25			4	41	36.55
	5	16-28			5	35			5	30	38.64
	6	21-15			6	100/4			6	no/3	
TERMINATED @ 20 FT.	20.0			TERMINATED @ 20 FT.	20.0			TERMINATED @ 20 FT.	20.0		

B-4			
MAT'L. DESCRIPTION	STRA. DEPTH (FEET)	SAMPLE DATA (NO. & SCALE)	NOTES
BROWN, GREY, WET, VERY LOOSE, MICACEOUS CLAYEY SILT (MLC) (POSSIBLE ALLUVIUM)	0		
BROWN, GREY & BLACK, MOIST TO WET, MEDIUM DENSE TO VERY DENSE, MICACEOUS FINE TO COARSE SAND & SILT (MICACEOUS TRACE FINE TO COARSE QUARTZ GRAVEL (SM) RESIDUAL SOIL TO DECOMPOSED ROCK)	3.0		
	1	3-1	WATER ON ROD @ 6.0'
	2	6-6	COMPLETION: WATER: 4.5' CIVE-IN: 14.5' 24 HRS.: WATER: 2.0'
	3	12-7	AUGER REFUSAL @ 15.0'
	4	12-4-5	
	5	17-18	
	6	100/5	
TERMINATED @ 15 FT.	15.0		



SEDIMENT CONTROL & POND CONSTRUCTION

BY THE DEVELOPER:
 * I CERTIFY THAT ALL DEVELOPMENT AND / OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I WILL PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

Gregory Klar 5-25-86
 SIGNATURE OF DEVELOPER DATE
 GREGORY KLAR

BY THE ENGINEER:
 * I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, 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. I HAVE NOTIFIED THE DEVELOPER THAT HE MUST PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

Robert H. Marmion 5-17-86
 SIGNATURE OF ENGINEER DATE
 ROBERT H. MARMION

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

Robert H. Marmion 8-15-86
 U.S. SOIL CONSERVATION SERVICE DATE

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

Robert W. Ziehm 8-15-86
 HOWARD SOIL CONSERVATION DISTRICT DATE

DEPARTMENT OF PUBLIC WORKS

Richard F. Lane 8-18-86
 CHIEF, BUREAU OF ENGINEERING DATE

OFFICE OF PLANNING & ZONING

John W. MacPherson 8-15-86
 CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMIN. DATE

OWNER/DEVELOPER
 HOWARD RESEARCH & DEVELOPMENT CORP.
 10275 LITTLE PATUXENT PARKWAY
 COLUMBIA, MARYLAND 21044

No.	REVISION	DATE	BY

ENGINEERS • ARCHITECTS • PLANNERS • SCIENTISTS • SURVEYORS • PHOTOGRAMMETRISTS

GREENHORNE & O'MARA, INC.
 2 RESEARCH PLACE, ROCKVILLE, MARYLAND 20850
 (301) 948-0900

ANNAPOLIS, MD • ATLANTA, GA • BECKLEY, WV • CULPEPER, VA • DENVER, CO • EXPORT, PA • FAIRFAX, VA
 GREENBELT, MD • MONROE, MI • RALEIGH, NC • TAMPA, FL • WILLISTON PARK, NY

STORMWATER MANAGEMENT, LOT #3
COLUMBIA
 VILLAGE OF DORSEY'S SEARCH
 SECTION 3, AREA 1
 TAX MAP 30 - PARCEL B-1
 5TH ELECTION DISTRICT-HOWARD COUNTY, MARYLAND

JWC DESIGN	SCALE 1"=30'
GW/JDP DRAWN	1 OF 4
RHM CHECKED	SHEET
MAY '86 DATE	JOB No. 21258 X FILE No.

AS-BUILT T-86-226

SEDIMENT CONTROL & POND CONSTRUCTION

BY THE DEVELOPER:
 I CERTIFY THAT ALL DEVELOPMENT AND / OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I WILL PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

Gregory Klar
 SIGNATURE OF DEVELOPER
 GREGORY KLAR
 5-25-86
 DATE

BY THE ENGINEER:
 I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, 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. I HAVE NOTIFIED THE DEVELOPER THAT HE MUST PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

Robert H. Marston
 SIGNATURE OF ENGINEER
 ROBERT H. MARSTON
 5-15-86
 DATE

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

James W. Johnson
 U.S. SOIL CONSERVATION SERVICE
 8-15-86
 DATE

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

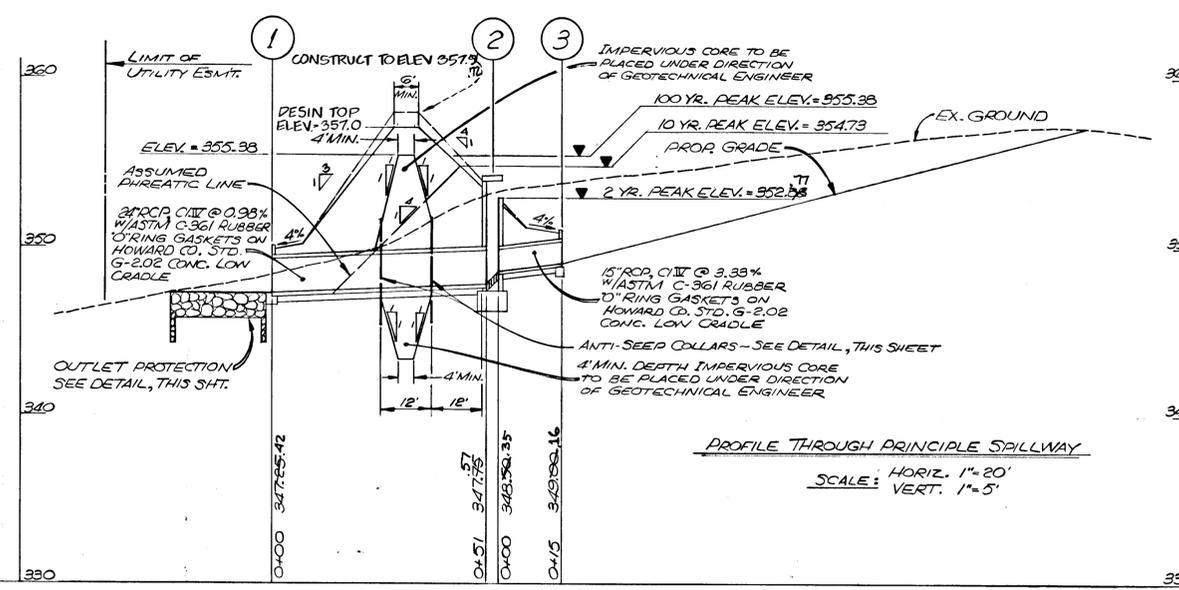
Robert Johnson
 HOWARD SOIL CONSERVATION DISTRICT
 8-15-86
 DATE

DEPARTMENT OF PUBLIC WORKS

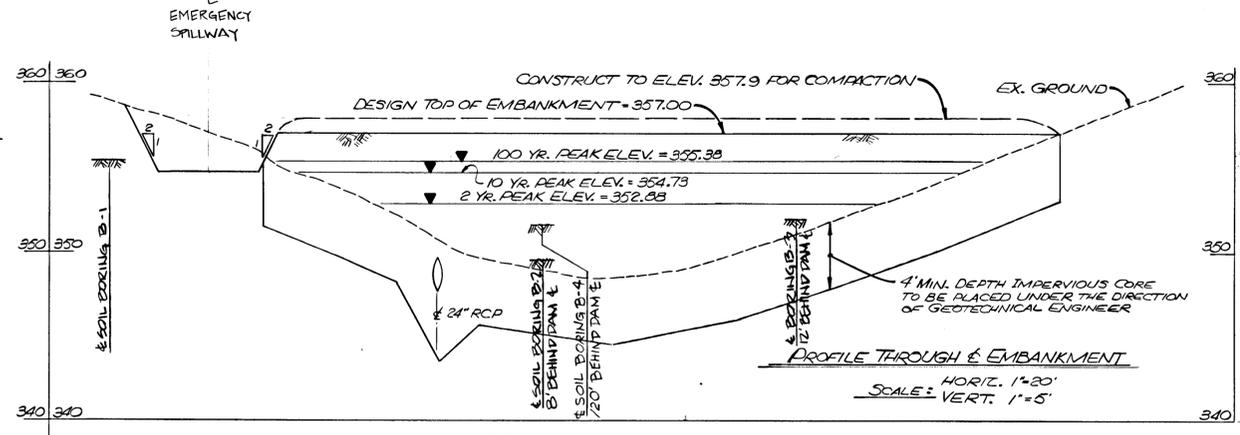
Richard E. Lane
 CHIEF, BUREAU OF ENGINEERING
 8-18-86
 DATE

OFFICE OF PLANNING & ZONING

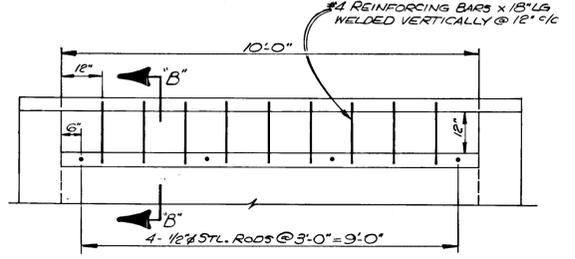
Shirley M. ...
 CHIEF, DIVISION OF LAND DEVELOPEMENT AND ZONING ADMIN.
 8-15-86
 DATE



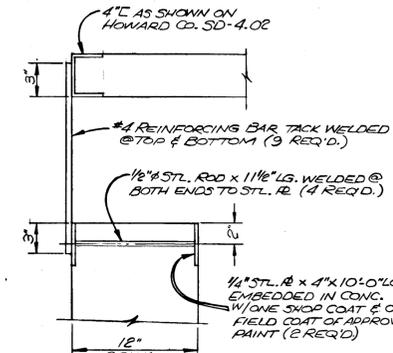
PROFILE THROUGH PRINCIPLE SPILLWAY
 SCALE: HORIZ. 1"=20'
 VERT. 1"=5'



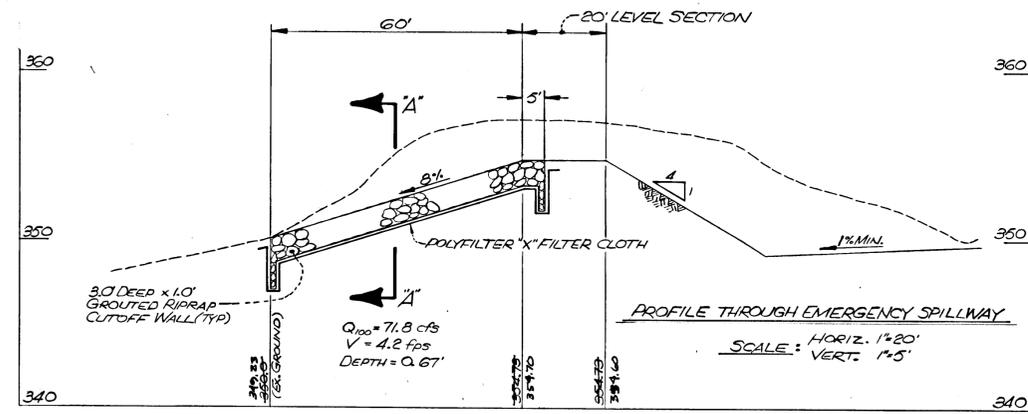
PROFILE THROUGH EMBANKMENT
 HORIZ. 1"=20'
 SCALE: VERT. 1"=5'



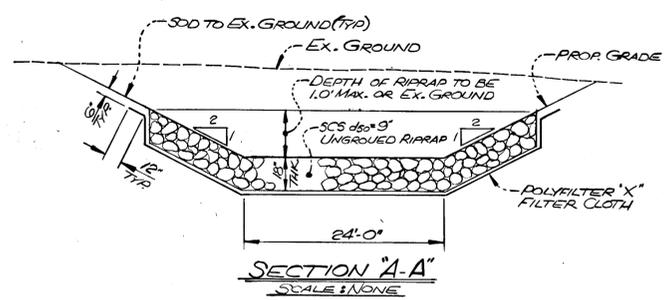
ELEVATION
 SCALE: 1/2"=1'-0"
 STRUCTURE #2 - THROAT MODIFICATIONS



SECTION "B-B"
 SCALE: 1/2"=1'-0"



PROFILE THROUGH EMERGENCY SPILLWAY
 HORIZ. 1"=20'
 VERT. 1"=5'

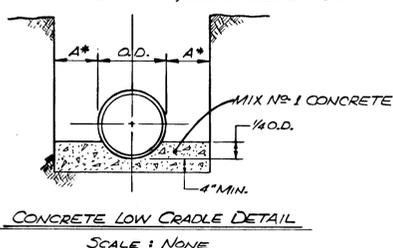


SECTION "A-A"
 SCALE: NONE

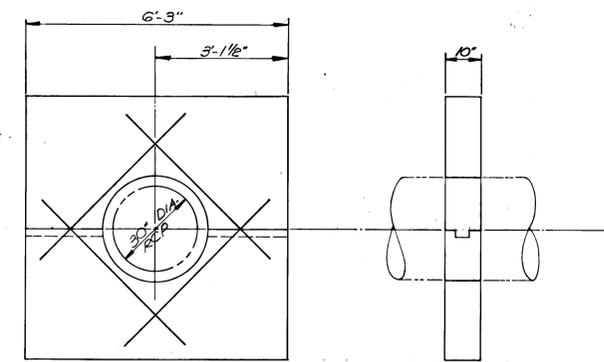
STRUCTURE SCHEDULE					
NO.	TYPE	INVERT		TOP ELEV.	STANDARD, NO.
		IN	OUT		
1	24" TYPE "C" CONC. ENDWALL	—	347.25	350.00	HOWARD CO. STD. SD-5.21
2	12'-10" INLET, MODIFIED *	349.25	347.75	354.73	HOWARD CO. STD. SD-4.02
3	15" TYPE "C" CONC. ENDWALL	349.25	—	351.25	HOWARD CO. STD. SD-5.21

* WALLS TO BE CONSTRUCTED OF BRICK, 12" THICK. INSIDE DIMENSIONS OF BOX TO BE 3'-0" x 10'-0". BASE DIMENSIONS TO BE 14'-0" x 7'-0" x 1'-3", CLASS "A" CONCRETE. THROAT TO BE MODIFIED ACCORDING TO DETAIL SHOWN ON THIS SHEET. SEE HOWARD CO. STD. SD-4.02 FOR ANY DETAILS NOT SHOWN.

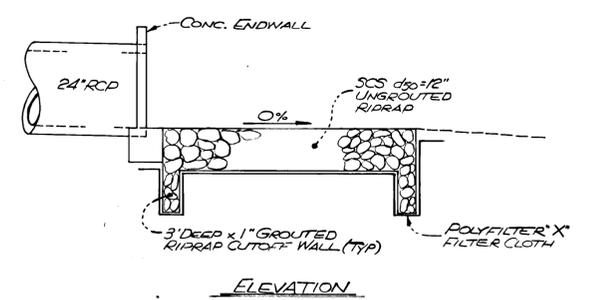
CRADLE DIMENSIONS		
SIZE	"A"	O.D.
5"	8"	1.63'
15"	12"	2.50'



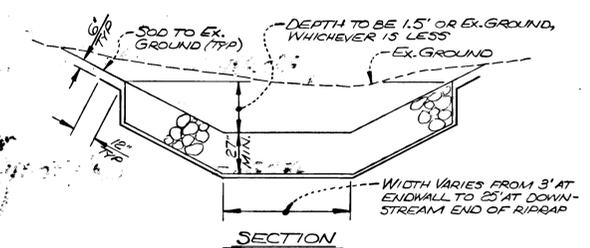
CONCRETE LOW CRADLE DETAIL
 SCALE: NONE



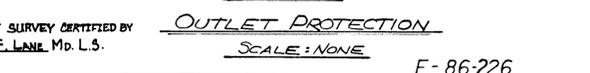
CONCRETE ANTI-SEEP COLLAR
 SCALE: 1/2"=1'-0"



ELEVATION



SECTION



OUTLET PROTECTION
 SCALE: NONE

NOTES:
 1. POUR CONCRETE TO UNDISTURBED EARTH. REMOVE SHEETINGS BEFORE POURING CONCRETE OR LEAVE LOWER PORTION OF SHEETING IN PLACE.
 2. WHEN USING SOLID SHEETING OR TRENCH SHIELDS, "A" SHALL NOT EXCEED 30'.

AS-BUILT SURVEY CERTIFIED BY
 RICHARD F. LANE, Md. L.S.
 No. 301

STORMWATER MANAGEMENT, LOT #3
COLUMBIA
 VILLAGE OF DORSEY'S SEARCH
 SECTION 3, AREA 1
 TAX MAP 30 - PARCEL B-1
 5TH ELECTION DISTRICT-HOWARD COUNTY, MARYLAND

JWC DESIGN SCALE AS SHOWN
 JDP DRAWN 2 OF 4
 RHM CHECKED SHEET
 MAY, '86 DATE R 12/5/86 X
 JOB No. FILE No.
 F-86-226

OWNER/DEVELOPER
 HOWARD RESEARCH & DEVELOPMENT CORP.
 10275 LITTLE PATUXENT PARKWAY
 COLUMBIA, MARYLAND 21044

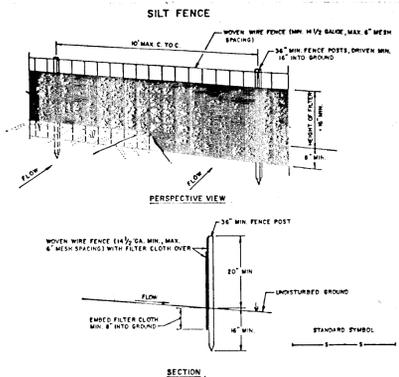
No.	REVISION	DATE	BY

ENGINEERS • ARCHITECTS • PLANNERS • SCIENTISTS • SURVEYORS • PHOTOGRAMMETRISTS
GREENHORNE & O'MARA, INC.
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 GREENBELT, MD • MONROE, MI • RALEIGH, NC • TAMPA, FL • WILLISTON PARK, NY

1159

AS-BUILT
 F-86-226

- SEQUENCE OF CONSTRUCTION
1. Clear and grub areas necessary to construct silt fence at downstream toe of proposed fill and construct silt fence.
 2. Clear and grub remainder of pond site taking care to save mature trees which are not directly in proposed grading areas.
 3. Construct sump pit(s) necessary for site drainage under the direction of the sediment control inspector.
 4. Construct impervious core trench under barrel under the direction of the geotechnical engineer.
 5. Construct all structures, connecting pipe and outfall and block off 15" directing any runoff to sump pit(s).
 6. Begin dam embankment construction including emergency spillway.
 7. Begin grading of remainder of pond.
 8. Upon completion of all construction, stabilize all disturbed areas.
 9. At such time that entire site is stabilized, remove all silt fence and sump pit under direction of sediment control inspector and regrade for drainage to 15" RCP and remove blocking. Restabilize as necessary.



- CONSTRUCTION NOTES FOR FABRICATED SILT FENCE
1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR CHAINS.
 2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24\"/>
- POSTS: STEEL EITHER 1 OR 2 TYPE 2\"/>

FENCE: WOVEN WIRE, 36 GA. 2\"/>

FILTER CLOTH: FILTER X, 1/2\"/>

PRE-FABRICATED UNIT: GEOTEXTILE, IMPERMEABLE, OR APPROVED LOCAL.

STORMWATER MANAGEMENT CONSTRUCTION SPECIFICATIONS

A. Site Preparation

Areas under the embankment, structural works, and stream diversion shall be cleared, grubbed, and the topsoil stripped to remove all trees, vegetation, roots, or other objectionable material. To facilitate clean out and restoration, the permanent pool area should be cleared of all brush and trees.

B. Earth Fill

Earth fill shall conform to SHA Specification Article 31.06 and these specifications:

1. Material

The fill material shall be taken from an approved borrow area. The first two feet of excavation under the embankment is to be wasted at the designated spoil area. The final decision as to the suitability of the exposed soil shall be made by the Soils Engineer at the time of construction. All material shall be free from roots, stumps, wood, rubbish, oversized stones, frozen or other objectionable materials. The dam embankment should be formed of material conforming to the Unified Soil Classification SC, CL, and ML. As a minimum criteria, the fill material for the dam embankment (except as noted below) will have a maximum density not less than 100 pcf as determined by ASTM D 1557 Method A. The liquid limit shall not exceed 40 and the Plasticity Index must be between 12 and 25. All material shall contain no stone larger than three inches in the greatest dimension. Such stones shall not be more than 25 percent by volume of the fill material. For dam core trenches, the material used can include clean and organic-free CH and MH material in addition to CL and ML. The embankment shall be constructed to an elevation which provides for anticipated settlement to the design elevation. The fill height all along the length of the embankment shall be increased at least ten percent above the design elevation (including freeboard) unless otherwise shown on the plans.

2. Placement

Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in eight-inch maximum thickness (before compaction) layers and shall be continuous over the entire length of the fill. The most porous borrow material shall be placed in the downstream portions of the embankment.

3. Compaction

The movement of hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be compacted to a minimum of 95 percent of the maximum dry density obtained in compaction tests of the fill materials performed in accordance with the requirements of the ASTM D 1557 Method A, prior to next lift being spread and be certified by the Soils Engineer at the time of construction. The fill density shall meet minimum specified density regardless of the compaction method used. The moisture content of the embankment material shall be within the designated upper and lower limits of the optimum moisture content. Limits of moisture content may be modified by the engineer during construction depending on material encountered. Fill placed at densities lower than the specified minimum density or at moisture contents outside the specified acceptable range of moisture content or otherwise not conforming to the requirements of the specifications shall be reworked to meet the requirements or removed and replaced by acceptable fill.

4. Core Trench/Cutoff Trench

Where specified, a core trench shall be excavated along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be governed by the equipment used for excavation, with the minimum width being four feet. The depth shall be at least four feet or as shown on the plans. The side slopes of the trench shall be one-to-one or flatter. The backfill material for the core trench shall be approved prior to use and shall be free of all organic material. The fill for the trench shall be compacted with equipment or rollers to assure that a minimum of 95 percent of the maximum dry density and minimum permeability is achieved. **GEOTECHNICAL ENGINEER TO SPECIFY MINIMUM DEPTH DURING CONSTRUCTION INSPECTION.**

C. Structural Backfill

Backfill material shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other compaction equipment. The material must completely fill all spaces under and adjacent to the structure or pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall the contractor drive equipment over any part of a concrete structure or pipe unless there is a compacted fill of 24 inches or greater over the structure or pipe.

D. Pipe Conduits

All pipes denoted as "CMP" may be either corrugated aluminum pipe or asphalt coated corrugated steel pipe. The barrel, riser, trash rack, end section, and anti-seep collars must all be made of the same material (either steel or aluminum).

1. Corrugated Metal Pipe

a. Materials - (Steel Pipe) - This pipe and its appurtenances shall be galvanized and have full bituminous coating and shall conform to the requirements of ASTM Specification A-190, Type A, with watertight coupling bands. Any bituminous coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound.

b. Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of ASTM Specification A-196 or A-211 with watertight coupling bands. Coupling bands, anti-seep collars, and sections, etc., must be composed of the same material as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer. Hot dip galvanized bolts may be used for connections. The p of the surrounding soil shall be less than nine (9) and greater than four (4). Helically corrugated pipe, in addition to the requirements above, shall have either continuous welded seams or have lock seams which are caulked with a neoprene bead.

b. Connections - All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be welded all around and shall be at the proper angle to provide a watertight connection. Watertight coupling bands shall be used at all joints. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight.

c. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

d. Laying pipe - The pipe shall be placed with inside circumferential laps pointing downstream and with the longitudinal laps at the sides.

e. Backfilling shall conform to structural backfill as described above.

f. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

2. Reinforced Concrete Pipe

a. Materials - This pipe shall conform to SHA specification, Article 20.16. Class IV pipe shall be used unless otherwise specified. Reinforced concrete pipe shall have a rubber gasket joint and shall equal or exceed ASTM Specification C-361. Approved equivalents are AWWA Specifications C-300, -301, and -302.

b. Bedding - All reinforced concrete pipe shall be laid in a concrete bedding for their entire length. This bedding shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least ten percent of its diameter with a minimum thickness of three inches.

c. Laying pipe - Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed on the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe.

d. All concrete pipe joints will be sealed with mortar inside and outside.

e. Backfilling shall conform to structural backfill as described above.

f. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

E. Concrete

Concrete shall meet minimum requirements set forth in SHA Specification and Supplement (August 1980), Article 20.07 (Portland Cement Concrete Mixtures), for Class (A-1) or (B-1) concrete and 20.10 for reinforcement. Concrete construction shall conform to SHA Specifications, Articles 34.08 and 34.09.

F. Rip Rap and Slope Protection

Rip rap for rip rap shall conform to SHA specifications and Supplement (August 1980), Article 20.03-6. Plastic filter cloth shall be placed under all rip rap. Filter cloth shall be "Poly Filter X" or approved substitute.

G. Fencing

When required by the HOWARD SOIL CONSERVATION DISTRICT CHAIN link fence fabric, fence posts, top rails, braces, gates, and accessories shall conform to the requirements of Federal Specification HRP-191. Materials shall be as follows, except as otherwise specified:

- Fabric: Type I, 2-inch mesh, 9-gauge, minimum weight of zinc coating: 1.0 ounces per square foot.
- Barbed Wire: Zinc-coated steel.
- Posts: Type I, Class I, zinc-coated.
- Top Rails: Type II, Class I, zinc-coated.
- Braces: Zinc-coated steel.
- Gates: Type I, zinc-coated steel.

H. Stabilization

Borrow areas, spoil areas, and all graded areas of the dam and road shall be graded to provide proper drainage and left in a slightly condition. All exposed surfaces of the embankment, spillway, and borrow areas shall be stabilized by seeding and applying straw mulch in accordance with these specifications and SHA Specifications, Article 20.07, 20.28, 20.29, 36.04, and 36.05.

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

Seeded Preparation: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding.

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

- 1) Preferred - Apply 2 tons per acre dolomitic limestone (92 lbs/1000 square 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).
- 2) 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 reseeding.

I. Reforestation

Seeds should be planted above the two-year storm pool. Varieties and spacing shall be in accordance with the State Forester, Maryland Forestry Service. The State Forestry Service should be contacted to establish details of Reforestation Plan.

J. Construction Inspection by Designated Engineer

The construction of the pond and embankment shall be under the supervision of a registered engineer. The engineer must certify that the pond and embankment have been built in accordance with the plans and submit such a written certification to the Department of Environmental and Natural Resources, Howard Soil Conservation District immediately following the completion of the project. The engineer shall have the responsibility and authority to make minor changes in the plans in order to compensate for unusual soil conditions encountered during construction as long as changes do not adversely affect the integrity of the dam. Major changes to the design which may result from site conditions encountered during construction must be reviewed and approved by the Design Engineer and the HRCO prior to initiation of construction. **CONSTRUCTION INSPECTION TO BE MADE BY GEOTECHNICAL ENGINEER.**

K. Care of Water During Construction

All work on permanent structures shall be carried out in areas free from water. The contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works, and to furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from the various parts of the work and for maintaining the excavations, foundation, and other parts of the work free from water as required or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary protective works shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works and so as not to interfere in any way with the operation or maintenance of the structure. The diversion and care of the stream will be diverted through the site until the full flow can be passed through the permanent works. The removal of water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom of required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the locations being refilled shall be maintained below the bottom of the excavation at such locations, which may require draining the water to sumps from which the water shall be pumped.

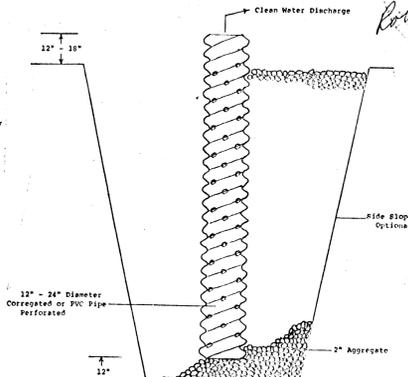
ADDITIONAL INFORMATION:
CONSULT GEOTECHNICAL ENGINEERING REPORT PRIOR TO CONSTRUCTION FOR ANY ADDITIONAL REQUIREMENTS.

APPROVED: HOWARD COUNTY OFFICE OF PLANNING & ZONING

John M. Macchiaro 8-15-86
CHIEF, ENGINEERING DEPARTMENT

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

Robert H. Mamm 8-18-86
CHIEF, BUREAU OF ENGINEERING



- CONSTRUCTION SPECIFICATIONS
1. Pit dimensions are optional.
 2. The standpipe should be constructed by perforating a 12" - 24" diameter corrugated or PVC pipe.
 3. A base of 2" aggregate should be placed in the pit to a depth of 12". After installing the standpipe, the pit surrounding the standpipe should then be backfilled with 2" aggregate.
 4. The standpipe should extend 12" to 18" above the lip of the pit.
 5. If discharge will be pumped directly to a storm drainage system, the standpipe should be wrapped with filtercloth before installation. If desired, 1/2" - 3/4" hardware cloth may be placed around the standpipe, prior to attaching the filtercloth. This will increase the rate of water seepage into the pipe.

SEDIMENT CONTROL & POND CONSTRUCTION

BY THE DEVELOPER:
"I CERTIFY THAT ALL DEVELOPMENT AND / OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I WILL PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

Robert H. Mamm 5-17-86
SIGNATURE OF ENGINEER DATE

BY THE ENGINEER:
"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, 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. I HAVE NOTIFIED THE DEVELOPER THAT HE MUST PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

Robert H. Mamm 5-17-86
SIGNATURE OF ENGINEER DATE

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

Robert H. Mamm 8-16-86
U.S. SOIL CONSERVATION SERVICE DATE

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

Robert H. Mamm 8-15-86
HOWARD SOIL CONSERVATION DISTRICT DATE

SEDIMENT CONTROL NOTES

- 1) 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. (992-2423)
- 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 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
- 3) Following initial soil disturbance or redistribution, permanent or temporary stabilization shall be completed within 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, 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 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seedings (Sec. 51) and (Sec. 54), temporary seedings (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	4.1 Acres
Area Disturbed	0.2 Acres
Area to be roofed or paved	0.0 Acres
Area to be vegetatively stabilized	0.7 Acres
Total Cut	0.0 yds
Total Fill	0.0 yds
Offsite waste/borrow area location	

- 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 controls must be provided, if deemed necessary by the Howard County SW 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.

OWNER/DEVELOPER
HOWARD RESEARCH & DEVELOPMENT CORP.
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

No.	REVISION	DATE	BY

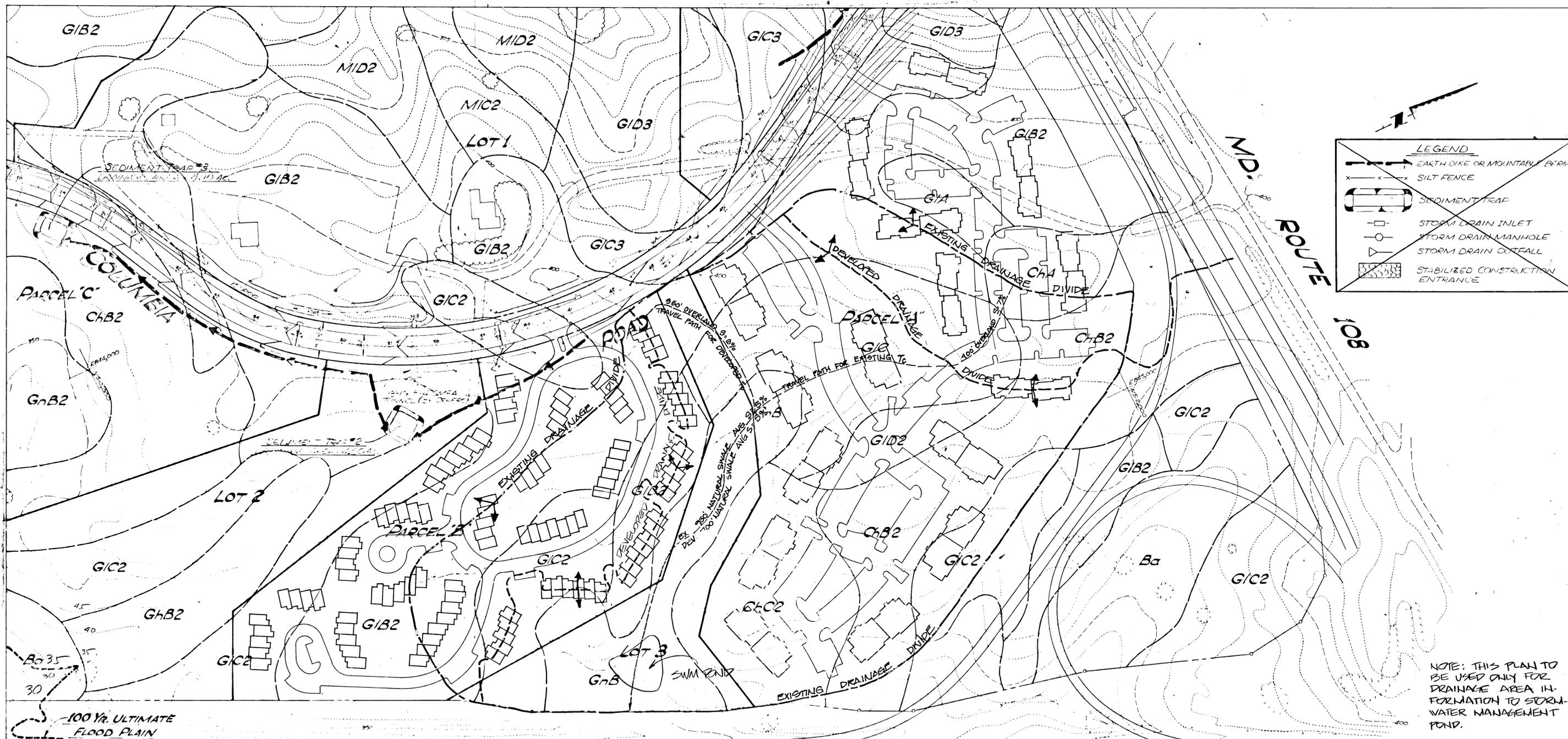


ENGINEERS • ARCHITECTS • PLANNERS • SCIENTISTS • SURVEYORS • PHOTOGRAMMETRISTS
GREYNHORNE & O'MARA, INC.
2 RESEARCH PLACE, ROCKVILLE, MARYLAND 20850
(301) 948-0900
GREENBELT, MD • ANNAPOLIS, MD • ATLANTA, GA • BECKLEY, WV • CULPEPER, VA • DENVER, CO
FAIRFAX, VA • GREENSBORO, NC • MONROE, MI • EXPORT, PA • WILLISTON PARK, NY

STORMWATER MANAGEMENT, LOT # 3
COLUMBIA
VILLAGE OF DORSEY'S SEARCH
SECTION 3, AREA 1, PHASE 1 & I
TAX MAP 30 - PARCEL B-1
15TH ELECTION DISTRICT - HOWARD COUNTY, MARYLAND

DESIGN	SCALE	NONE
DRAWN		3 OF 4
CHKD		
CHECKED		
DATE	JOB No.	FILE No.

F-86-226



LEGEND

- EARTH DIKE OR MOUNTAIN BERM
- SILT FENCE
- SEDIMENT TRAP
- STORM DRAIN INLET
- STORM DRAIN MANHOLE
- STORM DRAIN OUTFALL
- STABILIZED CONSTRUCTION ENTRANCE

NOTE: THIS PLAN TO BE USED ONLY FOR DRAINAGE AREA INFORMATION TO STORM WATER MANAGEMENT POND.

DEPARTMENT OF PUBLIC WORKS
John S. Row 8-18-86
 CHIEF, BUREAU OF ENGINEERING DATE

OFFICE OF PLANNING & ZONING
William M. ... 8-15-86
 CHIEF, DIVISION OF LAND DEVELOPMENT & ZONING ADMINISTRATION DATE

U.S. ROUTE 29

DRAINAGE AREA MAP

OWNER/DEVELOPER
 HOWARD RESEARCH & DEVELOPMENT CORP.
 10275 LITTLE PATUXENT PARKWAY
 COLUMBIA, MARYLAND 21044

No.	REVISION	DATE	BY



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 (301) 948 - 0900 20850
 GRIFFIN, MD • ANNAPOLIS, MD • FAIRFAX, VA • MD. HUNTINGTON, PA

SWM POND LOT #3
 COLUMBIA
 VILLAGE OF DORSEY'S SEARCH
 SECTION 3, AREA 1, PHASE 191
 TAX MAP 30 ~ PARCELS B-1
 5TH ELECTION DISTRICT ~ HOWARD COUNTY, MARYLAND

JWC DESIGN	SCALE 1"=100'
JWB DRAWN	4 OF 4
KHM CHECKED	SHEET
MAY 86 DATE	2-1287-X FILE No.

F-86-226

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