

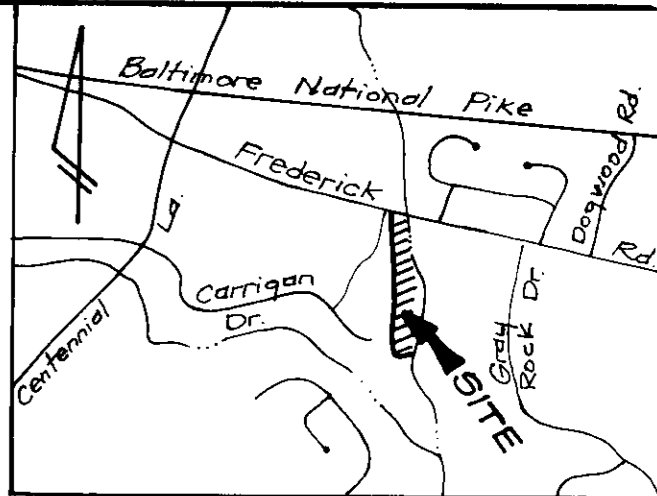


GRAY ROCK FARM
SEC. 7
ZONED R-20
PLAT No. 4336 (4337)

GRAY ROCK FARM
SEC. 7
ZONED R-20
PLAT No. 4336 (4337)

LEGEND

- Contour Interval 2 Ft
- Existing Contour
- Proposed Contour
- Direction of Drainage
- Silt Fence (double row)
- 100 Yr. Flood Plain Elevation



VICINITY MAP
Scale: 1" = 2000'

NOTE: The purpose of this plan is to create 2.05 Ac. ± of wetlands, 0.24 Ac. of which is mitigation for Gray Rock Farms Section G, 91-WQ-0335.

NOTE: Contractor to field verify location and elevation of existing sewers. Four (4) Feet min. cover to be maintained over existing sewers. Crossing of sewer by heavy equipment to be minimized.

OPEN SPACE LOT 24
(Land to be deeded to Howard County)

GENERAL NOTES

1. Topography taken from plans prepared by Reimer, Muegge and Assoc., Inc. Based on field run survey by TAT Surveying, Inc. dated January, 1988.
2. Any damage to County owned rights-of-way shall be corrected at developer's expense.
3. The contractor shall be notify "Miss Utility" at 1-800-257-7777 at least 48 hrs. prior to any excavation work.
4. The contractor shall notify the Ho. Co. Dept. of Public Works / Construction Inspection Division at 410-313-1880 at least five (5) working days prior the start of work.
5. Information concerning underground utilities was obtained from available records, the contractor must determine the exact location of utilities by digging test pits by hand at all crossings prior to construction.
6. All work within the floodplain and mitigation areas shall be done under the supervision of the Dept. of Natural Resources, Water Resources Administration.
7. Deed Reference: L. 925 F 157
L. 2086 F 667
8. This plan to be coordinated with wetlands planting plan by ESA, Inc.
9. See DP2 files 5-88-48, P-90-34, F-92-18, WP-91-51, WP-92-107, F-94-01
10. Contractor shall notify the Bureau of Utilities at 313-4900 at least five (5) working days prior to the start of work.
11. 100 Yr. Flood Plain Elevations are from plans prepared by Reimer, Muegge & Assoc., Inc. F-94-01.

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

Signature: *John C. Reimer* Date: September 15, 1993

Reviewed for HOWARD S.C.D. Name: *John C. Reimer* Date: 9/21/93
and meets Technical Requirements
Signature: *John C. Reimer* Date: 9/21/93
US Soil Conservation Service

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
Signature: *John C. Reimer* Date: 9/21/93

ENGINEER'S CERTIFICATE

I hereby certify that this plan for Sediment and Erosion 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.

Signature: *John C. Reimer* Date: 9-13-93

Signature: *John C. Reimer* Date: 9-13-93

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS.
HOWARD COUNTY HEALTH DEPARTMENT
County Health Officer: *Paul Miller* Date: 11-12-93

APPROVED: HOWARD COUNTY OFFICE OF PLANNING & ZONING
Planning Director: *Paul Miller* Date: 11/15/93
Chief Division of Land Development and Research: *Gina Summari* Date: 11/15/93

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE, STORM DRAINAGE SYSTEMS AND PUBLIC ROADS.
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Director: *Paul Miller* Date: 11-5-93
Chief Bureau of Engineering: *John C. Reimer* Date: 11/4/93

SUBDIVISION NAME		SECTION/AREA	LOTS/PARCELS
GRAY ROCK FARM SEC. 7		142	P/O PARCEL 11444
LITTLE PATUXENT RIDGE SEC. 2			LOT 24, P/O PAR. 228
PLAT NO.	BLOCK NO.	ZONE	TAX MAP NO.
4336 and L.2086 F.667	248	R-20	24
WATER CODE		ELECTION DIST.	GENUS TRACT
		2nd	G023.01
		SEWER CODE	

ADDRESS CHART

LOT NUMBER	STREET ADDRESS
L.244 P/O PAR. 228	9891 Frederick Road

ZONED R-20
POINT HILL MANOR
SEC. 7
P.B. # F.43

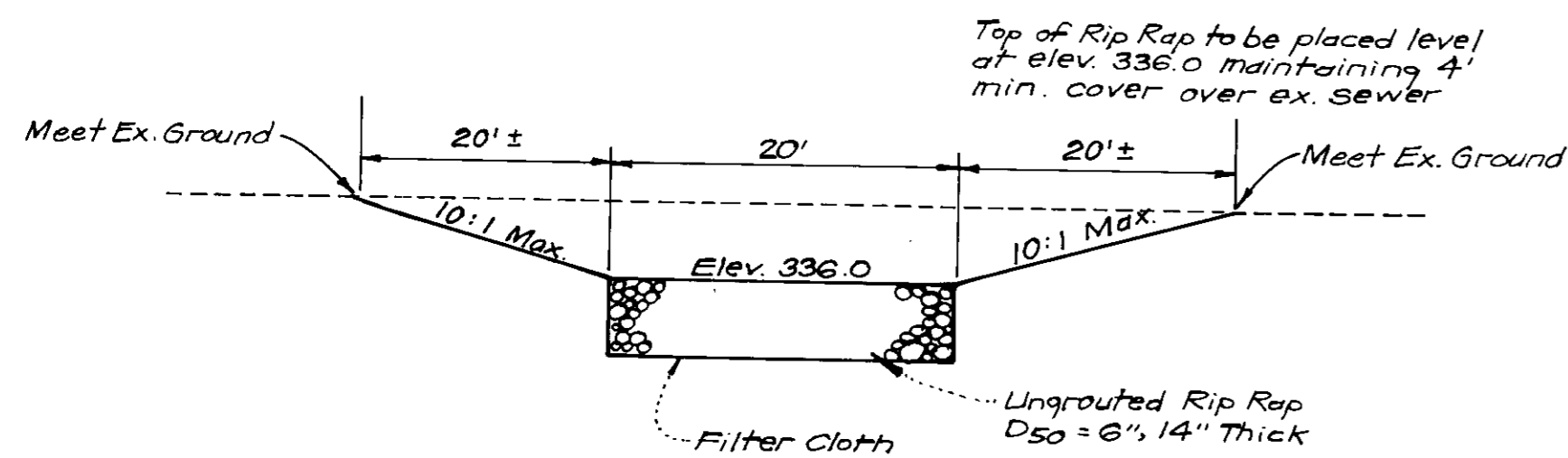
POINT HILL MANOR
SEC. 7
ZONED R-20

CLARK • FINEFROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS
7135 MINSTREL WAY • COLUMBIA, MD 21045 • (301) 381-7500 • BALTO. • (301) 621-8100 • WASH.

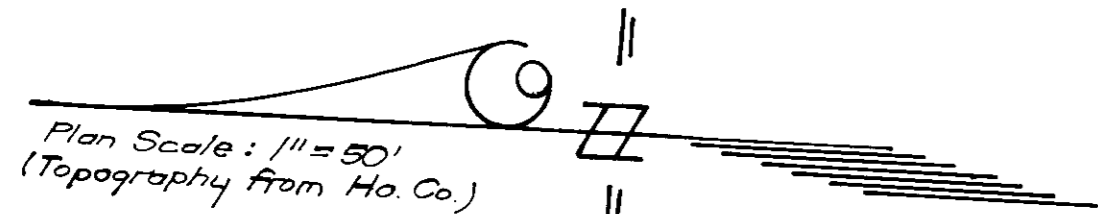
DESIGNED ULS	SEDIMENT AND EROSION CONTROL AND GRADING PLAN FOR WETLAND MITIGATION CELLS 1-3 OPEN SPACE LOT 24 LITTLE PATUXENT RIDGE SECTION 2	SCALE 1"=50'
DRAWN BAL		DRAWING 1 OF 4
CHECKED ULS		JOB NO. 92-195
DATE 9-13-93		FILE NO. 92-195 SE

OWNER: PAUL MILLER
P.O. Box 307
9058 Chevrolet Dr.
Ellicott City, Md 21043

FOR: ESA INC.
48 Maryland Ave.
Annapolis, Md 21401



UNGRADED RIP RAP DETAIL
No Scale



GRAY ROCK FARM
PLAT No. 4336 & 4337

HOWARD COUNTY DEPT. OF
PARKS AND RECREATION

100 Yr. Flood Plain
Easement

LITTLE PATUXENT RIVER

Sewer Utility Easement

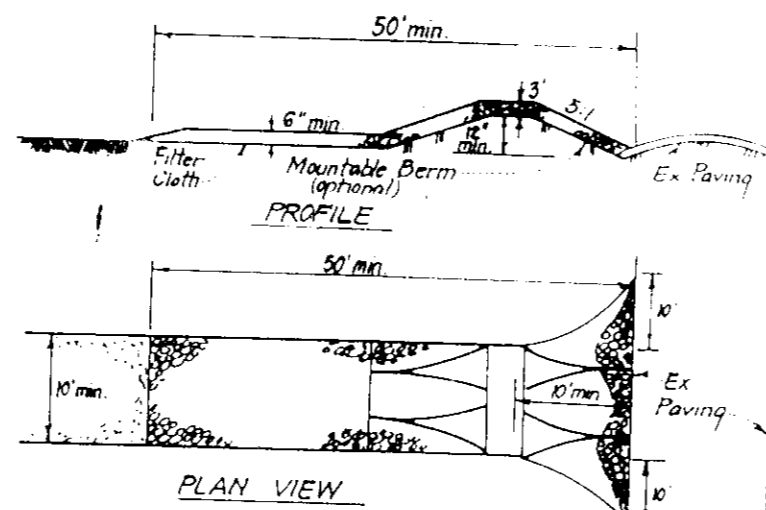
Existing Sewer
Ditch 75'

Construction Access

LIMIT OF DISTURBED AREA

POINT HILL
MANOR
P.B.G. #43

NOTE: Contractor to enter site through
existing gate off Frederick Road.
Construction access to be adjusted
in field as needed, alignment shown
is approximate location.



CONSTRUCTION SPECIFICATIONS:

1. Stone size - Use 2" stone or rounded or recycled concrete equivalent.
2. Length - As required, but not less than 50 feet (exception a single residue lot where a 30' minimum length would apply).
3. Thickness - Not less than six (6) inches.
4. Width - Ten (10) feet minimum, but not less than the full width at points where ingress or egress occurs.
5. Filter Cloth - Will be placed over the entire area prior to placing of stone. Filter will not be required on single family residence lot.
6. Surface Water - All surface water flowing or diverted toward construction entrances shall be piped across the entrance. If diverting to a storm drain, the pipe shall be 18" diameter. If diverting to a ditch, the pipe shall be 12" diameter. All pipes shall be installed in accordance with the applicable code.
7. Maintenance - The entrance shall be maintained in accordance with the specifications which will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing, with additional stone as conditions demand and repair and/or cleanup. If any repairs are used to trap sediment, all sediment spilled, dropped, washed or tracked onto public rights-of-way must be removed immediately.
8. Washing - Wheels shall be cleaned to remove sediment prior to entrance onto public rights-of-way. When washing is required, it shall be done on an area stabilized with stone and which drains into an approved sediment trapping device.
9. Periodic inspection and needed maintenance shall be provided after each rain.

STABILIZED CONSTRUCTION ENTRANCE SEE SHEET 1
NO SCALE

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:
1) 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 the 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 (0.5 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 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.

TEMPORARY SEEDING NOTES*

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

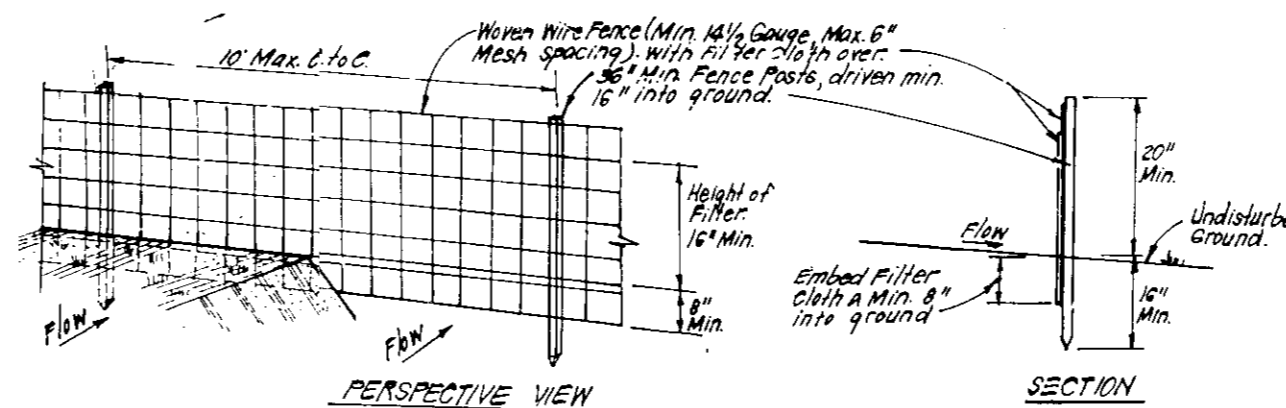
SOIL AMENDMENTS: Apply 600 lbs per acre 10-10-10 fertilizer (14 lbs./1000 sq ft).

SEEDING: For periods March 1 thru April 30 and from August 15 thru November 15, seed with 2 1/2 bushels 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 (0.7 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 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.

REFER TO THE 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.

* See Sheet 4 of 4 for specific seeding specifications and schedules.



CONSTRUCTION SPECIFICATIONS:

1. Weave wire fence to be fastened securely to fence posts with wire ties or staples.
2. Filter cloth to be fastened securely to weave wire fence with ties spaced every 24" at top and mid section.
3. When 2 sections of filter cloth adjoin each other they shall be overlapped by 6" and stapled.
4. 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: Weave Wire, 1/4" Gauge, 6" Max Mesh Spacing
FILTER CLOTH: Filter Cloth, 100% Subirrigation Approved
PREFABRICATED UNIT: Geotex
Emulsified Asphalt, 5 gal/1000 sq ft

SILT FENCE DETAIL (S)
NO SCALE

SEDIMENT AND EROSION 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. (913-1895).
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 SPECS. FOR SOIL EROSION AND SEDIMENT CONTROL.
3. Following initial soil disturbance or redistribution, 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 perimeters 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) sod (Sec. 54), temporary seeding (Sec. 52) 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: 4.25 Ac.
Area Disturbed: 4.0 Ac.
Area to be roofed or paved: 4.25 Ac.
Area to be vegetatively stabilized: 14,600 sq ft.
Total Cut: 14,600 cu yd.
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 control must be provided, if deemed necessary by the Howard County DPW 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. All pipes to be blocked at the end of each day (see detail this sheet).
12. The total amount of silt fence = 2300 LF

* It is the responsibility of the contractor to identify the spoil/borrow site and notify and gain approval from the sediment control inspector of the site and it's grading permit number at the time of construction.

CONSTRUCTION SEQUENCE:	NO. OF DAYS
A. Obtain grading permit	7
B. Install sediment and erosion control devices and stabilize.	7
C. Rough grade mitigation cells *	30
D. Final grade and stabilize in accordance with Stds. and Specs.	30
E. Upon approval of the sediment control inspector, remove sediment and erosion control devices and stabilize.	14

* Construct Mitigation Cell #1 prior to beginning work on Cells 2 and 3.

OWNER:

PAUL MILLER
P.O. Box 307
8058 Chevrolet Dr.
Ellicott City, Md. 21043

CLARK • FINEFROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS
7135 MINSTREL WAY • COLUMBIA, MD 21045 • (301) 381-7500 - BALTO. • (301) 621-8100 - WASH.

DESIGNED JLS	SEDIMENT AND EROSION CONTROL AND GRADING PLAN FOR WETLAND MITIGATION CELLS 1-3 OPEN SPACE LOT 24 LITTLE PATUXENT RIDGE SECTION 2	SCALE 1" = 50'
DRAWN BAL		DRAWING 2 OF 4
CHECKED JLS	TAX MAP No. 24 PARCEL 228 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND	JOB NO. 92-195
DATE 9/13/93	FOR: ESA INC. 48 Maryland Ave. Annapolis, Md 21401	FILE NO. 92-195se

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS.
HOWARD COUNTY HEALTH DEPARTMENT
11-72-93

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
11/15/93

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE,
STORM DRAINAGE SYSTEMS AND PUBLIC WORKS
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
11/15/93

Reviewed for: HOWARD S.C.D.
Name: _____
Signature: _____ Date: 10/21/93
US Soil Conservation Service

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

John C. Robertson 10/21/93
Approved

DEVELOPER'S/BUILDER'S CERTIFICATE

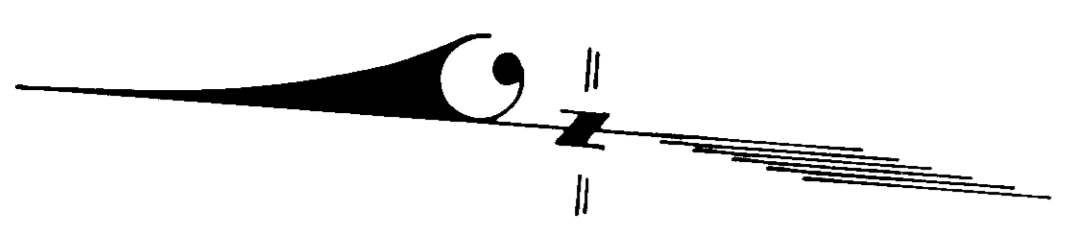
"I/We certify that all development and construction will be done according to this plan of development and plan for sediment and erosion control and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment approved Training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

Signature: _____ Date: SEPTEMBER 15, 1993

ENGINEER'S CERTIFICATE

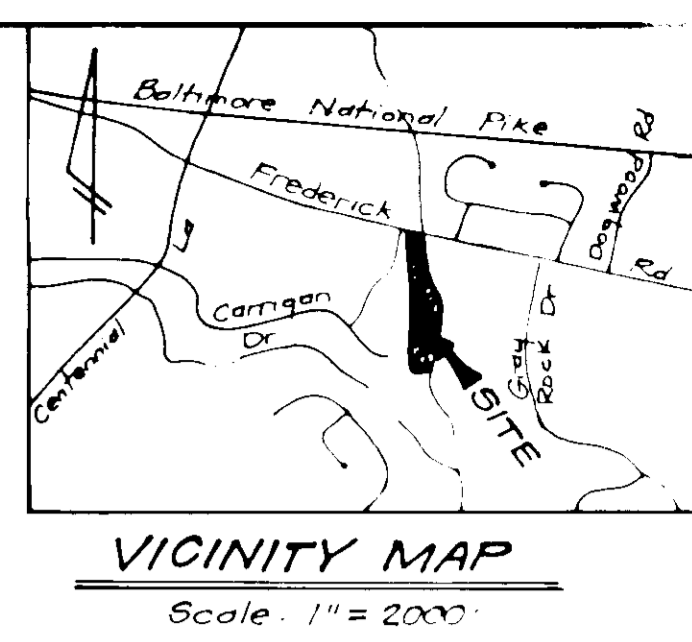
I hereby certify that this plan for Sediment and Erosion Control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

Signature: G. Nelson Clark Date: 9-13-93



LEGEND

Contour Interval	2 Ft
Existing Contour	---
Proposed Contour	- - -
Direction of Drainage	→
Silt Fence	— S — S —
(double row)	— S — S — S — S —



LEGEND

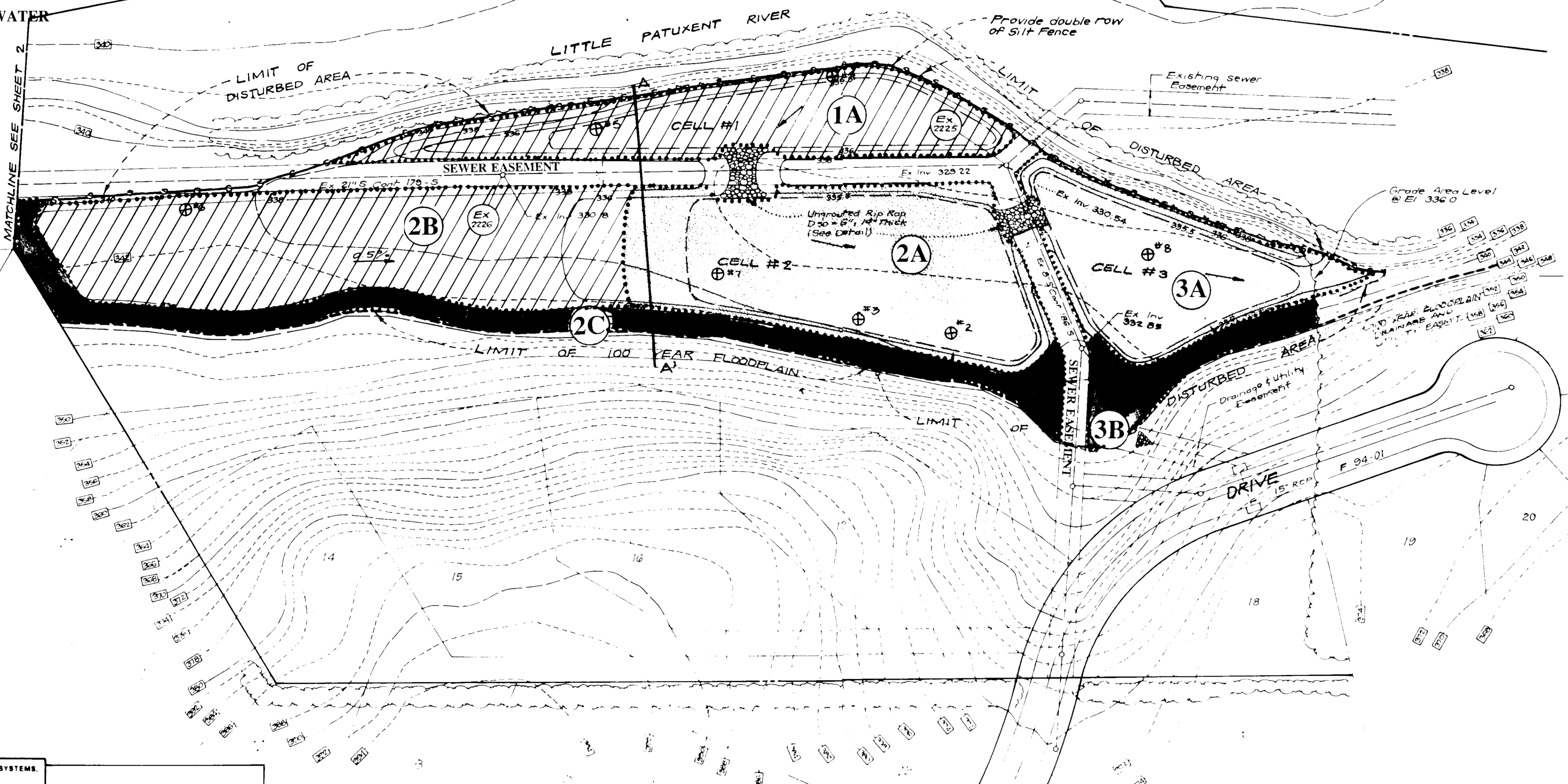
[Symbol]	PLANTING AND SEEDING BOUNDARY
[Symbol]	TYPICAL PLANTING AND SEEDING AREA
[Symbol]	PLANTING AND SEEDING AREAS 1A & 2B
[Symbol]	PLANTING AND SEEDING AREAS 2A & 3A
[Symbol]	PLANTING AND SEEDING AREAS 2C & 3B
[Symbol]	LOCATION OF GROUNDWATER MONITORING WELLS

- GENERAL NOTES**
- 1 Topography taken from plans prepared by Senior Muegge and Associates, Inc.
 - 2 Any damage to County owned rights of way shall be corrected at developer's expense.
 - 3 The contractor shall be notified by the County at 1-800-257-7777 at least 48 hrs prior to any excavation work.
 - 4 The contractor shall notify the Ho Co Dept of Public Works / Bureau of Construction Inspection at 410-313-1810 at least 48 hrs prior to the start of work.
 - 5 Information concerning underground utilities was obtained from available records, the contractor must determine the exact location of utilities by digging test pits by hand at all crossings prior to construction.
 - 6 All work within the floodplain and migration areas shall be done under the supervision of the Dept of Natural Resources, Water Resources Administration.
 - 7 Deed Reference L 329 F 157 L 2086 F 667

NOTE: Contractor to field verify location and elevation of existing sewers. Four (4) Feet min. cover to be maintained over existing sewers.

OPEN SPACE LOT 24 (Land to be deeded to Howard County)

MATCHLINE SEE SHEET 2



APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS, HOWARD COUNTY HEALTH DEPARTMENT	11-12-93
COUNTY HEALTH OFFICER	DATE
APPROVED: HOWARD COUNTY OFFICE OF PLANNING & ZONING	11/15/93
PLANNING DIRECTOR	DATE
APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE, STORM DRAINAGE SYSTEMS AND PUBLIC ROADS, HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	11/15/93
DIRECTOR	DATE
CHIEF BUREAU OF ENGINEERING	DATE

PREPARED BY:

Environmental Systems Analysis, Inc.
 48 Maryland Avenue, Annapolis, Maryland 21401
 (410) 267-0495 Fax: (410) 267-0496

DEVELOPER:
 DEPARTMENT OF NATURAL RESOURCES
 NONTIDAL WETLANDS AND WATERWAYS DIVISION
 TAWES STATE OFFICE BUILDING
 ANNAPOLIS, MARYLAND 21401

OWNER:
 PAUL MILLER
 604-4-77
 2086 CARRISAN DRIVE
 ELICOTT CITY, MD 21043

CLARK • FINEFROCK & SACKETT, INC. ENGINEERS • PLANNERS • SURVEYORS		SCALE 1"=50'
DESIGNED JLS	PLANTING PLAN FOR	DRAWING 3 OF 4
DRAWN BAL	MITIGATION CELLS 1-3 OPEN SPACE LOT 24 LITTLE PATUXENT RIDGE SECTION 2	JOB NO 02-195
CHECKED JLS	TAX MAP No. 24 PARCEL 228 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND	FILE NO 02-195 SE
DATE 9-23-93	FOR ESA INC. 48 Maryland Ave Annapolis, Md 21401	



PLANTING SPECIFICATIONS

GENERAL NOTES

- This wetland mitigation planting plan has been prepared to comply with the wetland mitigation requirements set forth by the Nontidal Wetlands & Waterways Division of the Maryland Department of Natural Resources Water Resources Administration.
- Base sheet information for the wetland mitigation area was taken from Clark, Finefrock & Sackett, Inc. Sediment and Erosion Control Plan dated September 13, 1993.
- The landscape contractor shall notify ESA Inc. at least 1 week prior to the start of planting within the wetland creation, restoration and enhancement areas so that planting and seeding zones may be established.
- The landscape contractor is responsible of the location of all underground utilities. Repairs of utilities damaged during planting shall be at the contractor's expense.
- The storage of all machinery, equipment or supplies shall be in the upland area, west of the wetland mitigation area.
- The wetland mitigation site shall be graded and stabilized by October 31, 1993. The wetland mitigation area will be planted during the months of April or May of 1994.

QUALITY ASSURANCE

- Names of plant material listed conform generally with names accepted by the nursery trade. The contractor is to provide stock true to botanical name.
- Hardwood seedlings shall be at minimum 6-12" in height and tube grown. The tube grown seedlings shall have a solid root mass with the soil in place. The roots shall appear clean and white in coloration. If growing, the seedlings shall appear healthy with no foliage spots, discoloration, wilting or other evidence of the presence of disease or insects.
- If specified material is not obtainable, submit in writing to ESA, Inc. for the evaluation and approval of equivalent material. Only plant material native to Maryland will be acceptable for plantings.

PRODUCT SPECIFICATIONS

Fertilizer:
 Planting: OSMOCOTE, 18-5-11, 12 to 14 month release fertilizer shall be amended into soil backfill at the time of planting at the following rate:
 Seedling Plug/Tube 15 g = 1/2 oz
 Dormant/Growing Bare Root 15 g = 1/2 oz
 Quart Container 30 g = 1 oz

Seeding: Fertilizer shall be applied at 20 lbs of 10-10-10 per 1000 sf (1,000 lbs per acre).

Pine Compost: Potting grade pine compost with no particle larger than 1/2 inch and less than 10% wood fiber.

Straw: Straw shall be bright in color, free of rot and mildew, small grained, and free of all noxious weed seeds.

Topsoil: For seeding purposes, topsoil shall be free of stones, lumps, plants, roots and other debris over 1 1/2 inches. Topsoil must be free from exotic and nuisance weeds which may invade the wetland mitigation area. Topsoil shall not contain toxic substances harmful to plant growth.

PREPLANTING SPECIFICATIONS

- Allow six (6) months in advance to order materials and plants.
- Deliver fertilizer materials in original, unopened and undamaged containers showing weight, analysis and name of manufacturer. Store in a manner to prevent wetting and deterioration.
- Seed shall be delivered in containers (bottles, jars, paper/cloth bags/sacks) having labels that report the origin of the seed, the purity of the seed and the germination percentage, and date of germination testing of the seed.
- Plants shall be properly marked for identification and for checking. Each block of plants and at least 25% of each variety of separate plants in any one shipment shall have legible labels securely attached before delivery to the site.
- After being delivered to the job site the plants may be stored for a short period out of direct exposure to the sun and wind and their root masses maintained moist through periodic watering until time of planting. Plants shall not remain unplanted for longer than (1) week after delivery.
- All wetland plant species located in planting areas 2A and 2B shall be wet cultured for a minimum of 3 months during the growing season.
- All wet cultured plants shall be shipped and stored in moist conditions.
- Soil root masses shall be thoroughly moist upon delivery to the site. Any dry or light weight plants shall be rejected.
- If the soil/root masses are substantially smaller than the specified container size and loose soil exists on the bottom of the containers, the plants shall be rejected.
- If the plugs and tubes are not contained in their growing units upon delivery and will not be planted immediately, they shall be treated as above and their root masses shall be protected by the use of straw, peat moss, compost, or other suitable materials.
- All rejected material shall be removed from the site.
- Prior to planting and seeding, the surface shall be cleared of all trash, debris and stones larger than 1 1/2 inches in diameter or length.

PLANTING SPECIFICATIONS

- Refer to the planting schedule and planting plan for plant quantities, type, random spacing and size.
- All seedlings shall be randomly spaced at distances specified in the plant schedule and planted as shown in the planting details.
- Prior to planting, thoroughly water all plant materials, making sure that all of the root mass is moist.
- If planting during the month of September, 0.2 feet of water shall be added to the entire area, if rain does not provide this water cover within one week following planting.
- Should sprouting of primary woody roots exist on the outside of the soil/root mass upon the removal of the plants from the containers, the landscape contractor shall carefully separate the soil/root mass prior to planting. Do not remove plants from containers until time of planting.
- Plants coming from flat bottom containers shall not be planted in V-shaped holes such as those that result when using a dibble bar or pointed spade in the planting operation.
- All plant material shall be planted by manual methods of planting using shovels, planting or dibble bars or mattocks.
- De-consolidate the soil within the wetland mitigation area to a depth of 12" by discing or plowing.
- Only the number of seedlings that can be planted in one day shall be taken to the field.
- Seed shall not be broadcast over the wooded and shrub planting sites. The seed should be dropped between the plants from a "bin" seeder, and care should be taken to ensure that no seeds are distributed over the planted sites.
- From elevation 338 to the outer boundary of the disturbed area and within the sewer easement, mulch the area using straw or pine compost at rates of 100 bales/16 cubic yards per acre. From elevation 338 and below within the wetland mitigation area layer with a thin film of silt or mud (topsoil from excavation is acceptable).

SEEDING

- Prior to seeding the surface shall be cleared of all roots, brush, wire, and other objects that may interfere with seeding operations.
- Thoroughly rototill the area to a depth of 2-3", so as to allow good soil to seed contact.
- Mix the seeds with two parts of clean washed sand (by volume) and the appropriate mix of fertilizer. Following seed broadcasting, disc the area to ensure good soil-seed contact.
- Seed shall not be broadcast over the wooded and shrub planting sites.
- From elevation 338 to the outer boundary of the disturbed area and within the sewer easement, mulch the area using straw or pine compost at rates of 100 bales/16 cubic yards per acre. From elevation 338 and below within the wetland mitigation area layer with a thin film of silt or mud (topsoil from excavation is acceptable).

MONITORING

- The created wetlands for the Little Patuxent Ridge project shall be monitored for a period of 5 years by the Maryland Department of Natural Resources. During this time, exotic and nuisance vegetation shall be removed and a permanent nontidal wetland system shall be established. It is recommended that the data gathered in the beginning of the monitoring period be analyzed for use in the following years of monitoring.

MAINTENANCE AND GUARANTEE

- Plant material shall be maintained through its first growing season by the contractor including removal and a one-time replacement of all dead or diseased vegetation.
- The contractor shall guarantee a 75% survival rate for all plants, after a one-time replacement, as specified above, for the first year after the wetland has been constructed except in the case of damage by natural conditions or human vandalism.
- Any plant material which is 25% dead or more shall be considered dead. A tree shall be considered dead when the main leader has died back, or 25% of the crown is dead.
- Plant material replacements shall be of the same size, type and variety as specified in the plant legend or as accepted as substitutes before original planting.* Plants shall be furnished and planted as specified.

Environmental Systems Analysis, Inc.
 48 Maryland Avenue, Annapolis, Maryland 21401
 (410) 267 - 0495 Fax: (410) 267 - 0496

THE PROJECT GOAL

The GOAL of this wetland mitigation project is to successfully construct 2.95 acres of forested wetlands and 0.57 acres of transitional uplands within the 100-year floodplain of the Little Patuxent River. The wetland mitigation area will be planted with woody vegetation, thus creating a indigenous wildlife habitat that will provide food and cover for birds and other forms of wildlife. Wildlife habitat, appealing and diverse vegetation, and hydrologic conditions were important aspects that were considered in the design of the wetland mitigation area.

THE HYDROLOGIC SOURCE

The hydrologic source for the wetland creation area is seasonal groundwater (refer to the data sheets on this sheet), overland runoff from approximately 10.00 acres of drainage area and flood waters from the Little Patuxent River. Because the substrate is a mixed alluvial and permeable soil, the wetland mitigation cells will slowly infiltrate which is desirable for a forested floodplain wetland. The wetland mitigation elevations were based on this information. The expected water level for each cell is 6" during the early growing season, with saturated soil during the drier times of the year.

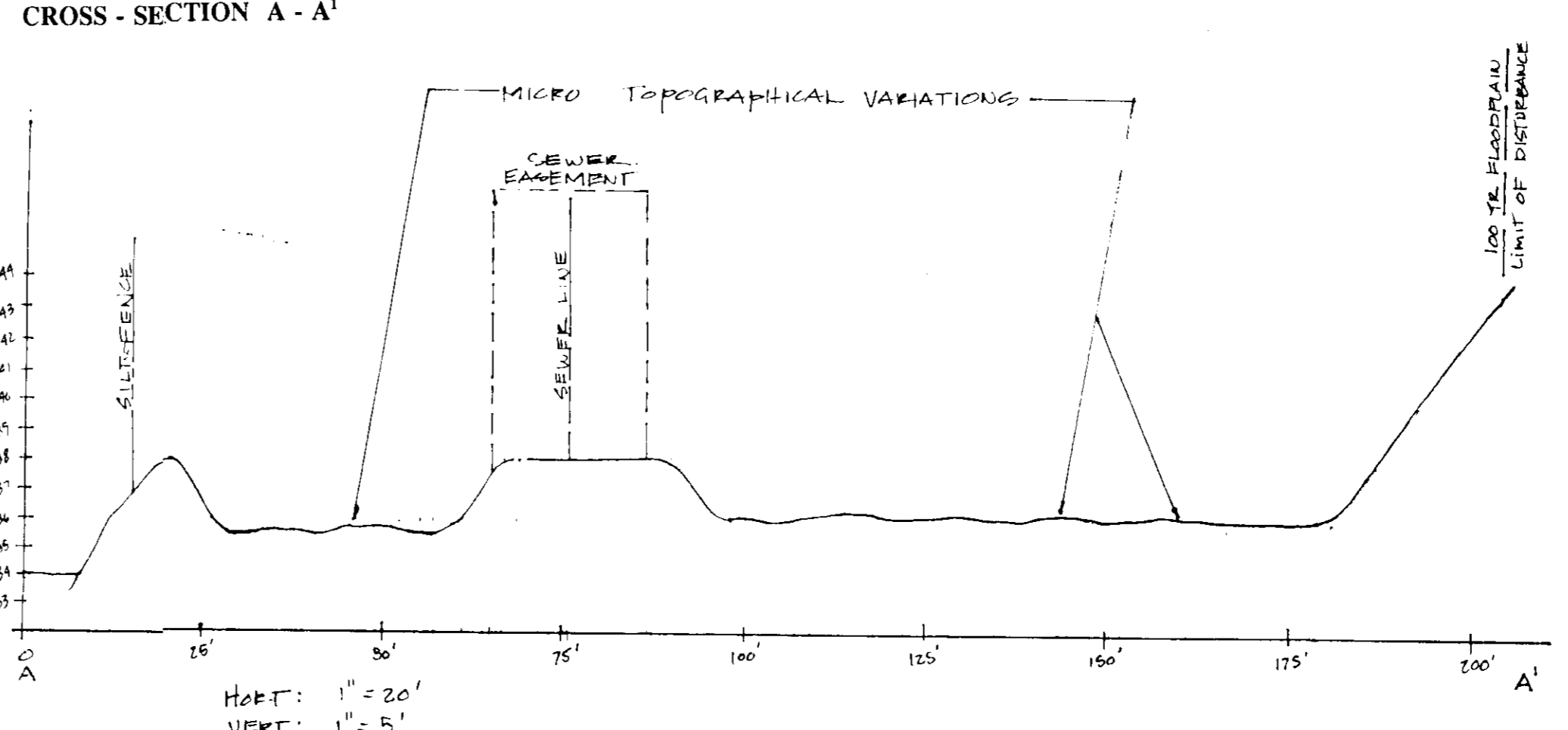
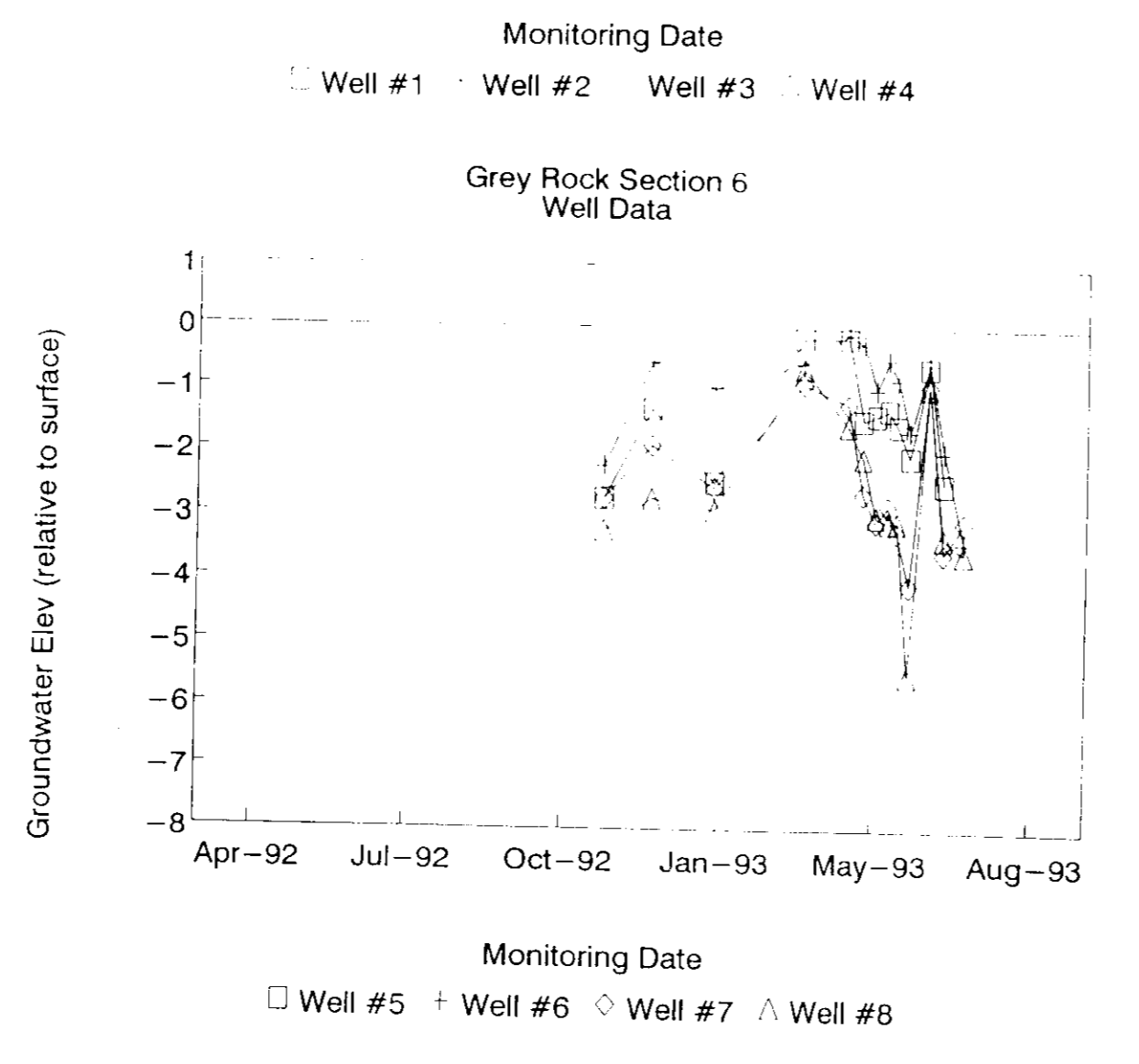
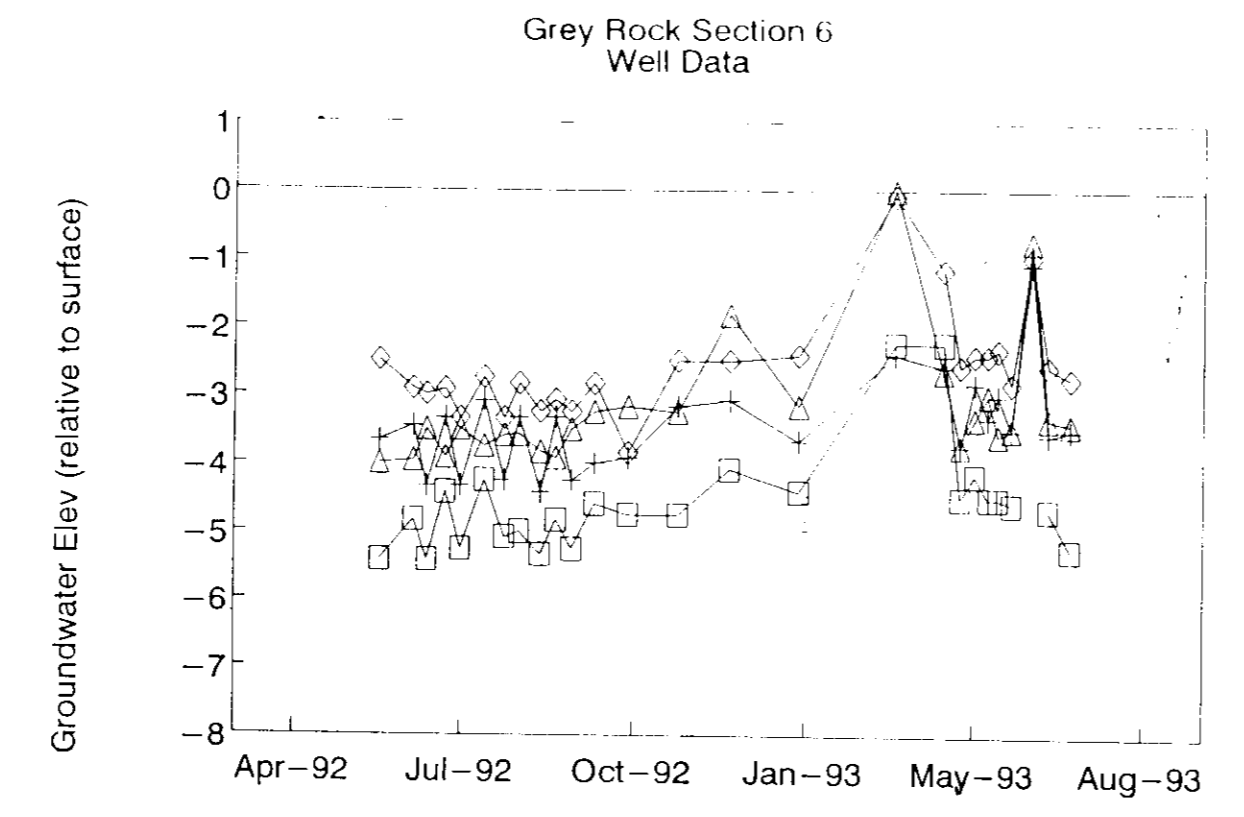
PROTECTION MECHANISM

The 100-year floodplain parcel containing the mitigation project site will be conveyed to the Howard County Department of Recreation and Parks at the time that the Little Patuxent Ridge, Section Two subdivision is recorded. This conveyance will include a meets and bounds description of the three cells comprising the mitigation project site and language identifying the site as a created wetland area subject to regulatory protection.

Little Patuxent Ridge Well Data Summary*

Date	Well #1	Well #2	Well #3	Well #4	Well #5	Well #6	Well #7	Well #8
05/28/92	5.42	3.87	2.5	4				
06/17/92	4.83	3.46	2.92	3.96				
06/25/92	5.42	4.33	3	3.5				
07/06/92	4.42	3.34	2.92	3.91				
07/15/92	5.25	4.33	3.34	3.5				
07/29/92	4.25	3.09	2.75	3.75				
08/19/92	5.68	4.25	3.34	3.59				
08/19/92	5	3.33	2.84	3.58				
08/31/92	5.33	4.42	3.25	3.83				
09/09/92	4.83	3.33	3.08	3.92				
09/18/92	5.25	4.25	3.25	3.5				
10/01/92	4.59	4	2.84	3.25				
10/20/92	4.75	3.92	3.84	3.17				
11/18/92	4.75	3.17	2.5	3.25	2.75	2.25	2.75	3.25
12/18/92	4.08	3.08	2.5	1.83	1.34	0.58	1.92	2.75
01/27/93	4.41	3.67	2.42	3.16	2.5	1	2.58	2.92
03/25/93	2.25	2.41	0.08	0	0.16	0.58	0.92	0.87
04/23/93	2.25	2.59	1.17	2.66	0.16	0.09	1.25	1.59
05/03/93	4.5	3.75	2.58	3.75	1.5	0.25	2.56	2.09
05/12/93	4.16	2.83	2.42	3.34	1.42	1	3.09	3
05/20/93	4.5	3.93	2.42	3	1.33	0.5	2.84	3.09
05/26/93	4.5	3	2.93	3.58	1.58	0.84	3.25	3.08
06/03/93	4.58	3.5	2.83	3.5	2.08	1.67	4.08	5.5
06/15/93	1.09	0.98	0.75	0.64	0.57	0.94	0.97	
06/25/93	4.67	3.58	2.58	3.34	2.5	2	3.58	3.33
07/08/93	5.25	3.5	2.75	3.42	0	3.41	3.09	3.58
	4.57	3.43	2.59	3.19	1.38	1.13	2.53	2.76

* Data is expressed in feet below existing grade.



MASTER PLANT SCHEDULE

LAYER	QTY.	SCIENTIFIC NAME	COMMON NAME	SIZE	COND.	SPACING.
TREE	477	<i>Acer rubrum</i>	Red maple	6-12"	Tube	8' RS
TREE	165	<i>Betula nigra</i>	River birch	6-12"	Tube	8' RS
TREE	90	<i>Fraxinus americana</i>	White ash	6-12"	Tube	8' RS
TREE	205	<i>Fraxinus pennsylvanica</i>	Green ash	6-12"	Tube	8' RS
TREE	35	<i>Juniperus virginiana</i>	Red cedar	6-12"	Tube/Plug	8' RS
TREE	100	<i>Liquidambar styraciflua</i>	Sweetgum	6-12"	Tube	8' RS
TREE	95	<i>Liriodendron tulipifera</i>	Tulip poplar	6-12"	Tube	8' RS
TREE	215	<i>Nyssa sylvatica</i>	Blackgum	6-12"	Tube	8' RS
TREE	397	<i>Platanus occidentalis</i>	American sycamore	6-12"	Tube	8' RS
TREE	370	<i>Quercus palustris</i>	Pin oak	6-12"	Tube	8' RS
TREE	170	<i>Salix nigra</i>	Black willow	6-12"	Tube	8' RS
SHRUB	70	<i>Alnus serrulata</i>	Smooth alder	6-12"	Plug	6' RS
SHRUB	75	<i>Ilex verticillata</i>	Winterberry	6-12"	Plug	6' RS
SEED	7.82 lbs.	<i>Agrostis alba</i>	Redtop	---	---	2 lbs/ac.
SEED	0.49 lb.	<i>Andropogon scoparius</i>	Little bluestem	---	---	0.5 lb./ac.
SEED	0.49 lb.	<i>Andropogon virginicus</i>	Broomsedge	---	---	0.5 lb./ac.
SEED	1.49 lbs.	<i>Aster novi-belgii</i>	New York aster	---	---	0.5 lb./ac.
SEED	39.1 lbs.	<i>Echinochloa crusgalli</i>	Japanese millet	---	---	10 lbs/ac.
SEED	0.86 lb.	<i>Elymus riparius</i>	Riverbank wild rye	---	---	0.25 lb./ac.
SEED	1.4 lbs.	<i>Leersia oryzoides</i>	Rice cutgrass	---	---	1 lb./ac.
SEED	0.86 lb.	<i>Scirpus cyperinus</i>	Woolgrass	---	---	0.25 lb./ac.

PLANT SCHEDULES

CELL 1-A: 0.60 acre or 26,136 sf

QTY.	SCIENTIFIC NAME	CONDITION	INDICATOR STATUS
85	<i>Acer rubrum</i>	Tube	FAC
65	<i>Betula nigra</i>	Tube	FACW
25	<i>Ilex verticillata</i>	Plug	FACW+
85	<i>Nyssa sylvatica</i>	Tube	FAC
85	<i>Platanus occidentalis</i>	Tube	FACW-
75	<i>Quercus palustris</i>	Tube	FACW+

CELL 1-A - SEEDING SCHEDULE

QTY.	SCIENTIFIC NAME	QTY./ACRE	INDICATOR STATUS
1.2 lbs.	<i>Agrostis alba</i>	2 lbs/ac	FACW
0.3 lb.	<i>Aster novi-belgii</i>	0.5 lb/ac	FACW+
6.0 lbs.	<i>Echinochloa crusgalli</i>	10 lbs/ac	FACU
0.15 lb.	<i>Elymus riparius</i>	0.25 lb/ac	FACW
0.15 lb.	<i>Scirpus cyperinus</i>	0.25 lb/ac	FACW+

CELL 2-A: 0.89 acre or 38,768 sf

QTY.	SCIENTIFIC NAME	CONDITION	INDICATOR STATUS
125	<i>Acer rubrum</i>	Tube	FAC
45	<i>Alnus serrulata</i>	Plug	OBL
125	<i>Fraxinus pennsylvanica</i>	Tube	FACW
125	<i>Platanus occidentalis</i>	Tube	FACW-
113	<i>Quercus palustris</i>	Tube	FACW
90	<i>Salix nigra</i>	Tube	FACW+

CELL 2-A - SEEDING SCHEDULE

QTY.	SCIENTIFIC NAME	QTY./ACRE	INDICATOR STATUS
1.78 lbs.	<i>Agrostis alba</i>	2 lbs/ac	FACW
0.45 lb.	<i>Aster novi-belgii</i>	0.5 lb/ac	FACW+
8.9 lbs.	<i>Echinochloa crusgalli</i>	10 lbs/ac	FACU
0.23 lb.	<i>Elymus riparius</i>	0.25 lb/ac	FACW
0.89 lb.	<i>Leersia oryzoides</i>	1 lb/ac	OBL
0.23 lb.	<i>Scirpus cyperinus</i>	0.25 lb/ac	FACW+

CELL 2-C: 0.42 acre or 18,295 sf

QTY.	SCIENTIFIC NAME	CONDITION	INDICATOR STATUS
65	<i>Acer rubrum</i>	Tube	FAC
70	<i>Fraxinus americana</i>	Tube/Plug	FACU
25	<i>Juniperus virginiana</i>	Plug	FACU
70	<i>Liquidambar styraciflua</i>	Tube	FAC
65	<i>Liriodendron tulipifera</i>	Tube	FACU

CELL 2-C SEEDING SCHEDULE

QTY.	SCIENTIFIC NAME	QTY./ACRE	INDICATOR STATUS
0.21 lb.	<i>Andropogon scoparius</i>	0.5 lb/ac	FACU-
0.21 lb.	<i>Andropogon virginicus</i>	0.5 lb/ac	FACU
0.84 lb.	<i>Agrostis alba</i>	2 lbs/ac	FACW
4.2 lbs.	<i>Echinochloa crusgalli</i>	10 lbs/ac	FACU
0.11 lb.	<i>Elymus riparius</i>	0.25 lb/ac	FACW
0.11 lb.	<i>Scirpus cyperinus</i>	0.25 lb/ac	FACW+

CELL 3-A: 0.51 acre or 22,216 sf

QTY.	SCIENTIFIC NAME	CONDITION	INDICATOR STATUS
57	<i>Acer rubrum</i>	Tube	FAC
25	<i>Alnus serrulata</i>	Plug	OBL
80	<i>Fraxinus pennsylvanica</i>	Tube	FACW
57	<i>Platanus occidentalis</i>	Tube	FACW-
58	<i>Quercus palustris</i>	Tube	FACW
80	<i>Salix nigra</i>	Tube	FACW+

CELL 3-A - SEEDING SCHEDULE

QTY.	SCIENTIFIC NAME	QTY./ACRE	INDICATOR STATUS
1.02 lbs.	<i>Agrostis alba</i>	2 lbs/ac	FACW
0.26 lb.	<i>Aster novi-belgii</i>	0.5 lb/ac	FACW+
5.1 lbs.	<i>Echinochloa crusgalli</i>	10 lbs/ac	FACU
0.13 lb.	<i>Elymus riparius</i>	0.25 lb/ac	FACW
0.51 lb.	<i>Leersia oryzoides</i>	1 lb/ac	OBL
0.13 lb.	<i>Scirpus cyperinus</i>	0.25 lb/ac	FACW+

CELL 3-B: 0.15 acre or 6,534 sf

QTY.	SCIENTIFIC NAME	CONDITION	INDICATOR STATUS
15	<i>Acer rubrum</i>	Tube	FAC
25	<i>Fraxinus americana</i>	Tube	FACU
10	<i>Juniperus virginiana</i>	Tube/Plug	FACU
30	<i>Liquidambar styraciflua</i>	Tube	FAC
25	<i>Liriodendron tulipifera</i>	Tube	FACU

CELL 3-B - SEEDING SCHEDULE

QTY.	SCIENTIFIC NAME	QTY./ACRE	INDICATOR STATUS
0.08 lb.	<i>Andropogon scoparius</i>	0.5 lb/ac	FACU-
0.08 lb.	<i>Andropogon virginicus</i>	0.5 lb/ac	FACU
0.3 lb.	<i>Agrostis alba</i>	2 lbs/ac	FACW
1.5 lbs.	<i>Echinochloa crusgalli</i>	10 lbs/ac	FACU

SEEDING SCHEDULE WITHIN EXISTING SEWER EASEMENT: 0.39 acre or 16,988 sf

QTY.	SCIENTIFIC NAME	QTY./ACRE	INDICATOR STATUS
0.20 lb.	<i>Andropogon scoparius</i>	0.5 lb/ac	FACU-
0.20 lb.	<i>Andropogon virginicus</i>	0.5 lb/ac	FACU
0.78 lb.	<i>Agrostis alba</i>	2 lbs/ac	FACW
3.9 lbs.	<i>Echinochloa crusgalli</i>	10 lbs/ac	FACU

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS, HOWARD COUNTY HEALTH DEPARTMENT
 COUNTY HEALTH OFFICER: [Signature] DATE: 01-12-93

APPROVED: HOWARD COUNTY OFFICE OF PLANNING & ZONING
 PLANNING DIRECTOR: [Signature] DATE: 11/15/93
 CHIEF DIVISION OF LAND DEVELOPMENT AND RESEARCH: [Signature] DATE: 11/15/93

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE, STORM DRAINAGE SYSTEMS AND PUBLIC ROADS, HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 DIRECTOR: [Signature] DATE: 11/5/93
 CHIEF BUREAU OF ENGINEERING: [Signature] DATE: 11/4/93

CLARK • FINEFROCK & SACKETT, INC.
 ENGINEERS • PLANNERS • SURVEYORS
 7135 MNSTREL WAY • COLUMBIA, MD 21045 • (301) 381-7500 - BALTO. • (301) 621-8100 - WASH.

PLANTING PLAN FOR
MITIGATION CELLS 1-3 OPEN SPACE LOT 24
LITTLE PATUXENT RIDGE
 SECTION 2
 TAX MAP No. 24 PARCEL 228
 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 FOR: ESA INC.
 48 Maryland Ave.
 Annapolis, Md 21401

DESIGNED: ULS
 DRAWN: BAL
 CHECKED: ULS
 DATE: 01/13/93

SCALE: 1"=50'
 DRAWING: 4 OF 4
 JOB NO.: 92-195
 FILE NO.: 92-195-58