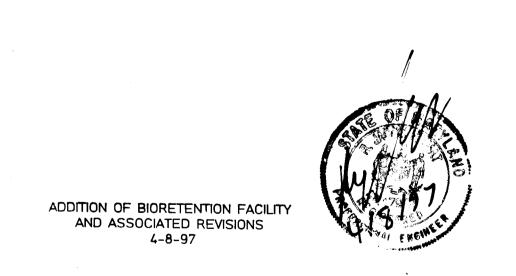


# LOCATION MAP

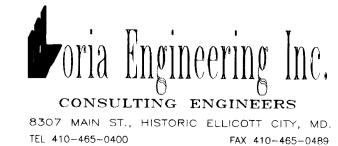
FULTON MANOR EAST HOWARD COUNTY, MARYLAND



CHTEF, DEVELOPMENT ENGINEERING DIVISION DATE					
APPROVED :  Les les chief, bureau 0	M. Cole	TY DEPARTMENT  NELV  15		WORKS	
DESIGN : JER					
DRAWN : JER		•			
CHECK : MLL					

REVISE SWM POND TO BIORETENTION FACILITY

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING



# OWNER:

GERALD & PATRICIA BOWEN c/o LAND DESIGN & DEVELOPMENT, INC. COLUMBIA, MD. 21044

# DEVELOPER:

LAND DESIGN & DEVELOPMENT INC. 10805 HICKORY RIDGE RD. COLUMBIA, MD. 21044

# COVER SHEET

LOTS 4 THRU 10 & PRESERVATION PARCEL "A" TAX MAP 40 & 41 PARCEL 455 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

FULTON MANOR EAST

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARD AND SPECIFICATION OF THE HOWARD COUNTY PLUS MDSHA STANDARDS AND

2. THE CONSTRUCTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF CONSTRUCTION INSPECTION AT 301-792-7272 AT LEAST FIVE (5) WORKING

3. THE CONTRACTOR SHALL NOTIFY MISS UTILITY AT 1-800-257-7777 AT LEAST

k. THIS SUBDIVISION IS SUBJECT TO WP-95-56 WHICH WAIVED THE

m. MINOR SUBDIVISION PLATS FOR LOTS 1, 2, & 3 WAS APPROVED ON

n. PRELIMINARY FLAN WAS APPROVED ON APRIL 29, 1996 UNDER P-96-18. 5. TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES(MUTCD). ALL STREETS AND REGULATORY SIGNS SHALL BE IN PLACE

6. BOUNDARY AND TOPOGRAPHIC SURVEY PERFORMED BY JOHN MELLEMA, INC. ON JULY 1992. 7. HORIZONTAL AND VERTICAL DATUM ARE BASED ON MARYLAND STATE COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY CONTROL STA.

8. LIGHT POLES AND FIXTURES SHALL BE IN ACCORDANCE WITH THE LATEST

11. WETLANDS DELINEATED BY WILDMAN ENVIRONMENTAL SERVICES ON AUGUST, 1995.

12. EXISTING UTILITIES ARE BASED ON HOWARD COUNTY AS BUILT PLANS AND

13. THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE

REQUIREMENT OF SECTION 16.1200 OF THE HOWARD COUNTY CODE

FOREST CONSERVATION ACT. NO CLEARING, GRADING OR CONSTRUCTION IS

PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, EXCEPT AS SHOWN ON AN APPROVED ROAD DRAWING OR SITE DEVELOPMENT PLAN.

HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF

HOWARD COUNTY DESIGN MANUAL, VOLUME III, ROAD AND BRIDGES.

10. A BIORETENTION FACILITY IS PROPOSED FOR STORMWATER MANAGEMENT.

THE TOPOGRAPHIC SURVEY BY JOHN MELLEMA, INC.

FOREST CONSERVATION EASEMENT ARE ALLOWED.

REQUIREMENT OF SECTION 16.120(b)(6)(i) to permit five(5) adjacent pipestem lots sharing a common driveway and section 16.120(c)(2)(iii)TO PERMIT PIPESTEM LOTS WITH ZERO WIDTH FRONTAGE ON A PUBLIC ROAD. I. SKETCH PLAN WAS APPROVED ON NOVEMBER 28, 1995 UNDER S-96-06

SPECIFICATIONS IF APPLICABLE.

DAYS PRIOR TO START OF WORK.

b. EXISTING ZONING = RR-DEO

f. AREA OF STEEP SLOPE = 0q. NET AREA = 30.80 ACRES

4. PROJECT BACKGROUND

48 HOURS PRIOR TO ANY EXCAVATION WORKS.

e. AREA OF FLOODPLAIN = 3.37 ACRES

a. TAX MAP 40 & 41, PARCEL 455, LIBER , FOLIO

c. TOTAL AREA OF SUBDIVISION = 34.17 ACRES

h. AREA OF PROPOSED LOTS = 7.36 ACRES

j. AREA OF RIGHT OF WAY = 0.39 ACRES

JANUARY 31, 1996 UNDER F-96-77.

PRIOR TO PLACEMENT OF ANY ASPHALT.

9. PRIVATEWATER AND PRIVATE SEWER WILL BE USED.

(NAD 83) 40FB AND 40FA.

i. AREA OF PRESERVATION PARCEL = 26.42 ACRES

d. NUMBER OF LOTS PROPOSED = 7 BUILDABLE & 1 PRESERVATION PARCEL

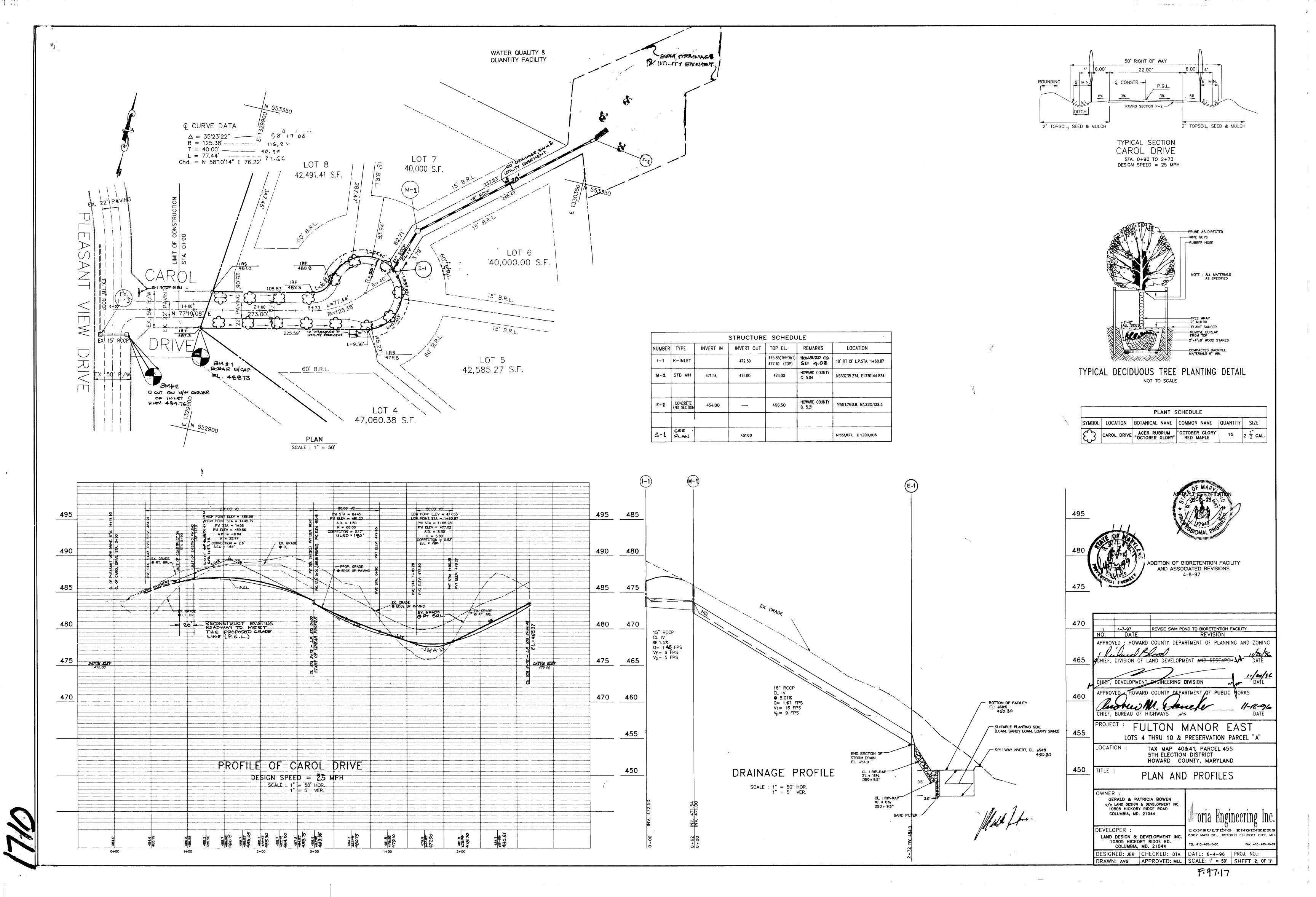
SHEET \_1\_OF\_Z

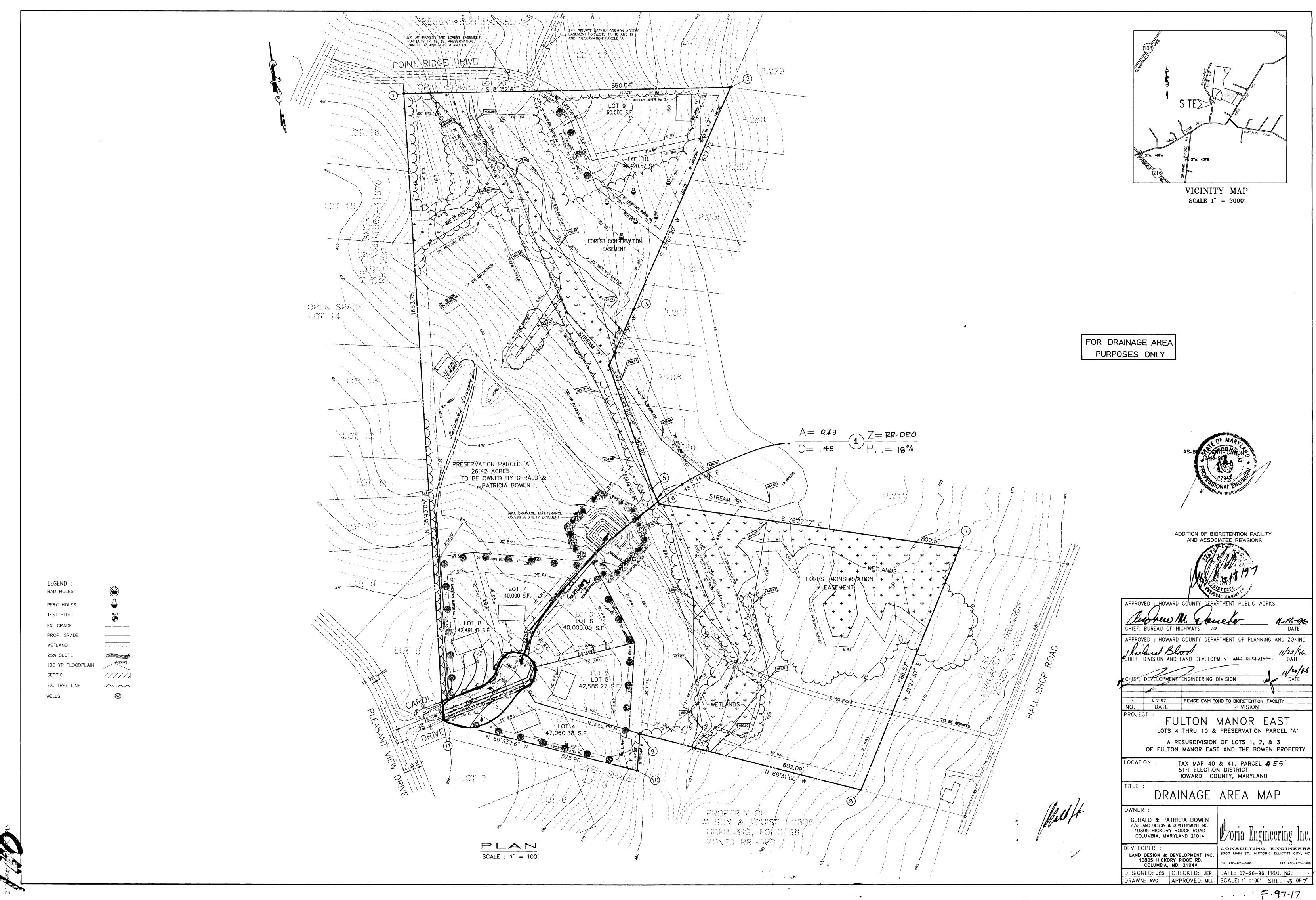
SCALE AS SHOWN

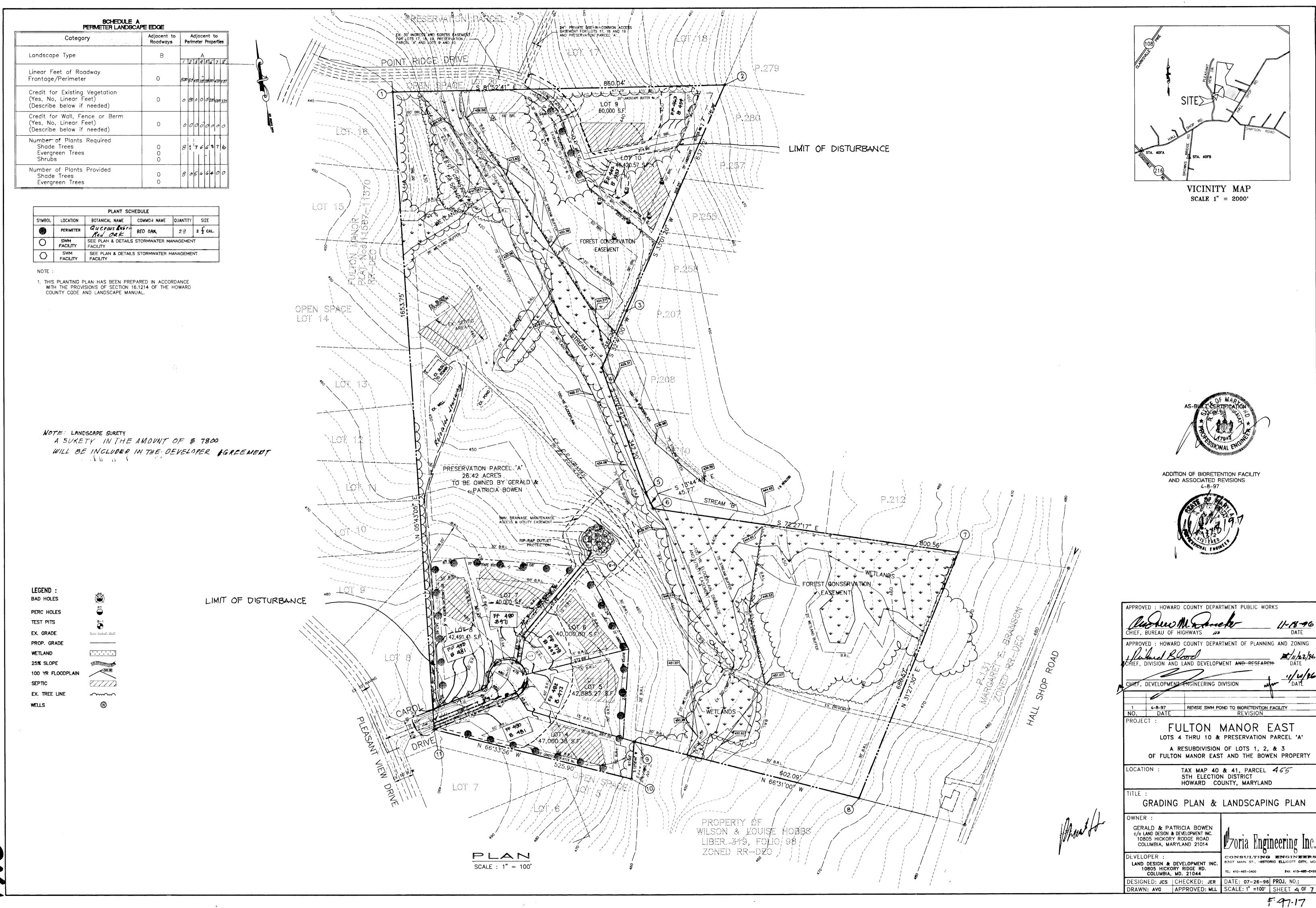
F-97-17

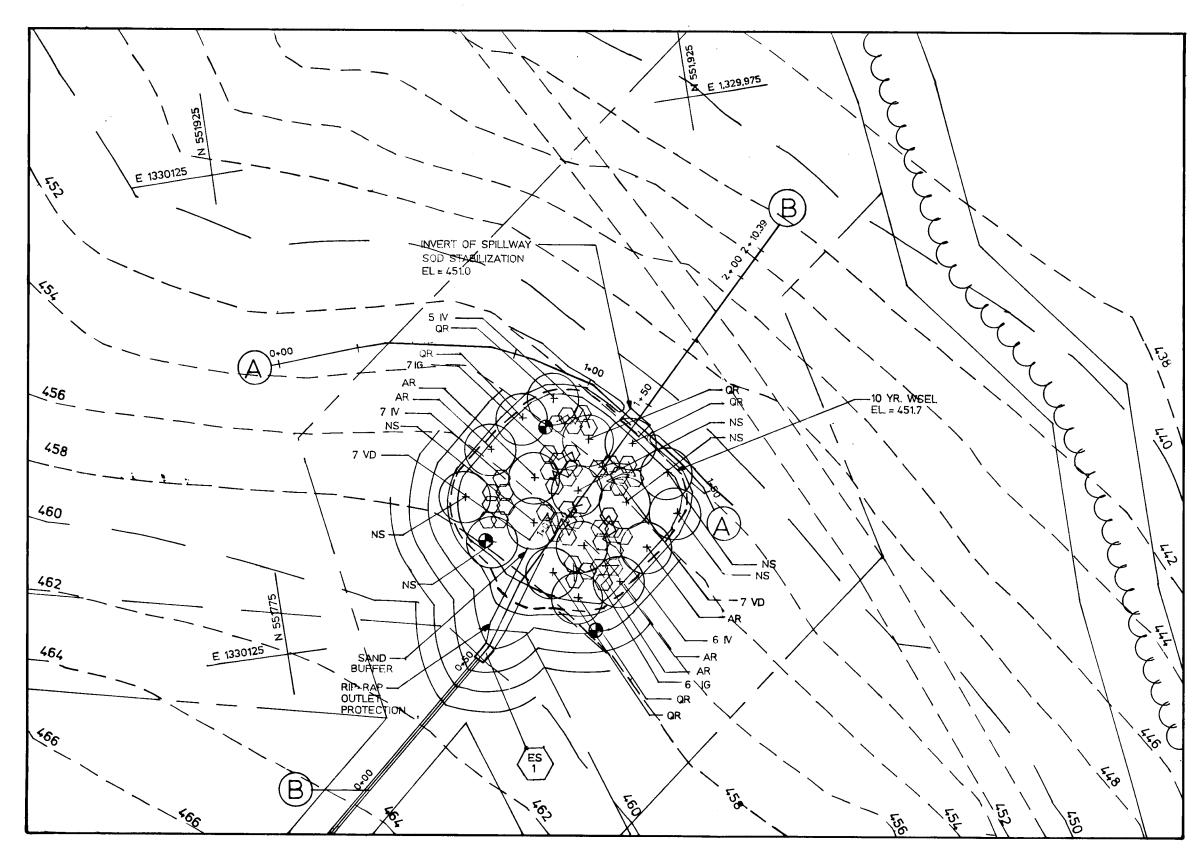


# DEPARTMENT OF PUBLIC WORKS

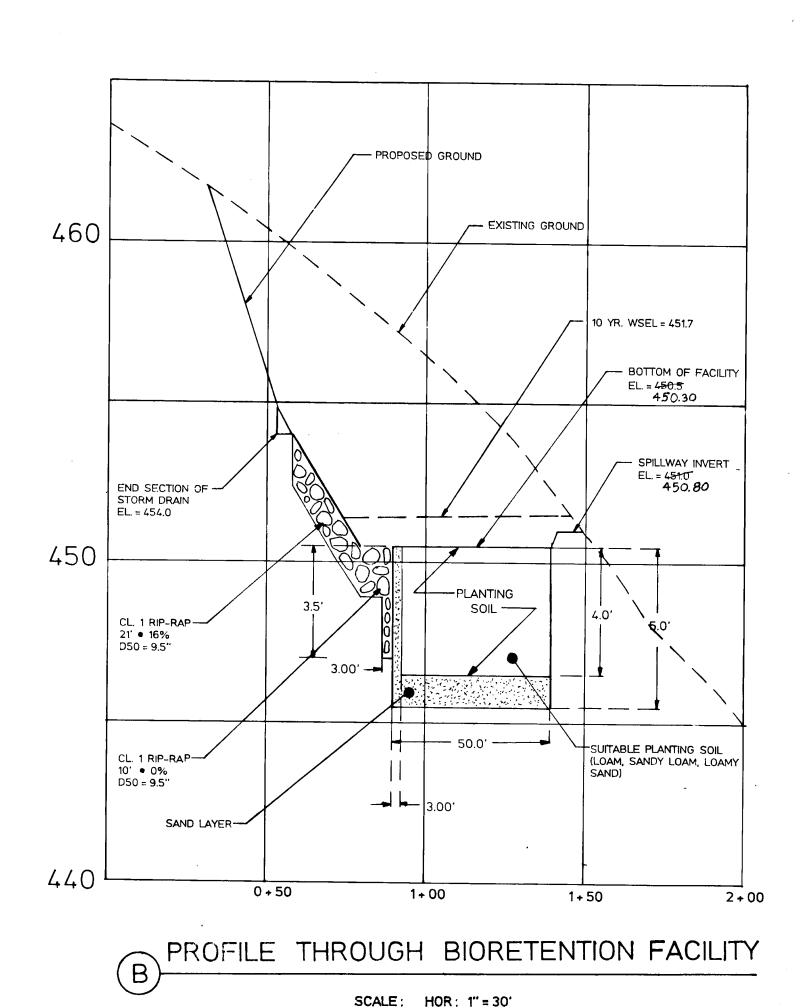








BIORETENTION FACILITY SCALE = 1" = 30"



VER: 1"=3"

BIORETENTION AREA PLANTING SCHEDULE QUANTITY SYMBOL BOTANICAL NAME NYSSA SYLVATICA BLACK GUM 21/2" - 3" CAL RED SUNSET RED MAPLE ACER RUBRUM 'RED SUNSET' 21/2" - 3" CAL. QUERCUS RUBRA RED OAK 21/2" - 3" CAL VIBURNUM DENTATUM ARROWWOOD 2.5' - 3' HT. ILEX VERTICILLATA WINTERBERRY 2.5' - 3' HT. ILEX GLABRA INKBERRY 2.5' - 3' HT. 70 TREES & SHRUBS (35 TREES, 105 SHRUBS)

PLANT MATERIAL GUIDELINES

BALLED & BURLAPPED AND CONTAINEIZED TREES AND SHRUBS SHOULD BE PLANTED BETWEEN MARCH 15 AND JUNE 30 OR SEPTEMBER 15 AND NOVEMBER 15 AS SPECIFIED ON THE ROAD PLAN DRAWINGS. GROUNDCOVERS FOLLOW TREE AND SHRUB PLANTING DATES. GRASSES AND LEGUMES SHOULD BE PLANTED IN THE SPRING.

FOR ALL PLANT INSTALLATION, THE CONTRACTOR SHALL PROVIDE A ONE (1) YEAR 80% CARE AND REPLACEMENT WARRANTY, THIS WARRANTY SHALL BEGIN AFTR INSPECTION AND APPROVAL OF THE COMLETE INSTALLATION OF ALL PLANT MATERIAL AND CONTINUE FOR (1) YEAR. REPLACEMENT OF PLANT MATERIAL SHALL CONFORM TO THE SPECIFICATIONS SET FORTH IN THE MAINTENANCE SCHEDULE.

INSTALLATION & MAINTENANCE SCHEDULE

INSPECT AND REPAIR EROSION MONTHY.

PROVIDE A MINIMUM OF FOUR (4) FEET OF PLANTING SOIL WITH A ONE (1) FOOT SAND LAYER BENEATH. SUITABLE PLANTING SOILS HAVE A SANDY LOAM, LOAM SAND, OR LOAM

ORGANIC LAYER:

ONCE TREES AND SHRUBS HAVE BEEN INSTALLED, THE MULCH MAY BE ADDED. ANY GROUNDCOVERS SPECIFIED AS PLUGS MAY BE INSTALLED ONCE THE MULCH HAS BEEN LAID DOWN. GROUNDCOVERS ESTABLISHED BY SEEDING AND/OR CONSISTING OF GRASSES SHOULD NOT BE COERED WITH A MULCH LAYER.

SINCE THESE PLANT COMMUNITIES ARE WITHIN AN URBAN LOCATION, THE ORGANIC LAYER TENDS TO BECOME VERY ACIDIC DUE TO PRECIPITATION AND RUNOFF. ONCE TO TWICE A YEAR. TESTING OF PH OF THE ORGANIC LAYER SHALL BE DONE TO DETERMINE THE AMOUNT OF LIMESTONE REQUIRED TO TREAT THE PLANTING SOIL.

ANNUAL SOIL TESTING SHOULD BE CONDUCED TO DETECT AND PREVENT THE ACCUMULATION OF TOXINS AND HEAVY METALS.

ONCE A YEAR IN THE SPRING BY HAND, REMOVE PREVIOUS MULCH LAYER AND APPLY NEW MULCH LAYER IF NEEDED.

WHENEVER NEEDED, REMULCH ANY VOID AREAS BY HAND.

ONCE PLANTING HAS BEEN COMPLETED, PLANT MATERIAL SHOULD BE WATERED BY HAND AT THE END OF EACH DAY FOR FOURTEEN CONSECUTIVE DAYS. ANNUAL MAINTENANCE WILL BE REQUIRED FOR ALL PLANT MATERIAL. INSPECTION OF ALL VEGETATION SHALL OCCUR TWICE A YEAR, PLANT MATERIAL MAINTENANCE AND UPKEEP SHALL INCLUDE ADDRESSING PROBLEMS ASSOCIATED WITH DISEASE OR INSECT INFESTATIONS AND ANY NECESSARY PRUNING AS WELL AS REPLACEMENT OF DEAD PLANT MATERIAL. DEAD PLANT MATERIAL SHALL BE REPLACED BETWEEN MARCH 15 AND APRIL 30 OR OCTOBER 1 AND NOVEMBER 30.

DEPENDING ON THE TYPE OF INSECT AND DISEASE INFESTATION, DISEASED TREES AND SHRUBS SHOULD BE TREATED BY HAND AT VARIOUS TIMES DURING THE YEAR. WHENEVER NEEDED, DEFICIENT STAKES AND WIRES SHOULD BE REPLACED BY HAND. ONCE A YEAR, ONLY IN THE SPRING, STAKES SHOULD BE REPLACED.

- EXISTING GROUND

COMPACTED TO

COUNTY SPECIFICATIONS-

8' SPILLWAY EL.: 451:0 450.80

1+00

PROPOSED GROUND

EL: 452

- PROPOSED PONDING

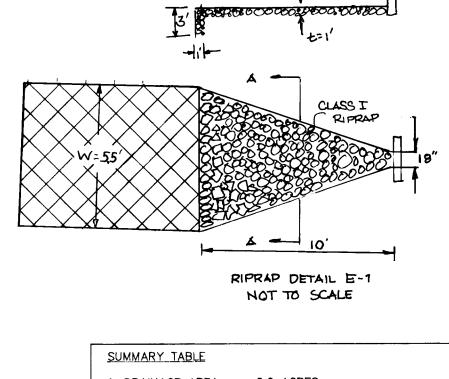
EL.: 450.30

1+50

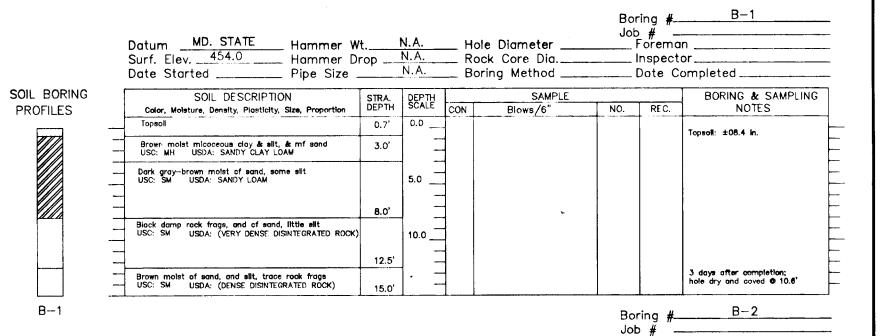
SCALE: HOR: 1" = 30"

VER: 1" = 3'

TOP OF EARTH DAM



1. DRAINAGE AREA = 2.9 ACRES 2. DESIGN CRITERIA STORM FREQUENCY ALLOWABLE INFLOWS RELEASE, cfs
2.65 cfs 3.31 cfs **784** cfs 8.84 cfs 10 YR. 15.83 cfs 100 YR N.A. ACTUAL DISCHARGE ELEVATION STORAGE STORM 2.1 cfs 451.17 ft. 0.06 ACRE--FT 2 YR. 12.9 cfs 451.83 ft. 0.11 ACRE-FT



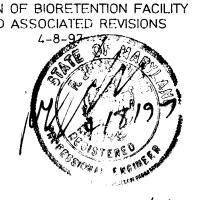
DatumMD. STATEHammer Wt.N.A.Hole DiameterSurf. Elev.457.5Hammer DropN.A.Rock Core Dia.Date StartedPipe SizeN.A.Boring Method \_\_\_ Date Completed \_\_\_\_ BORING & SAMPLING Color, Moisture, Density, Plasticity, Size, Proportion NOTES Topsoff: ±09.6 lm. Brown moist micoceous clay & silt, little mf sond Gray-brown moist rock frags, and of sand, little silt USC: GM USDA: (VERY DENSE DISINTEGRATED ROCK) Rig refusal at 11.1". 3 days after completion;

Datum MD. STATE Hammer Wt. N.A. Hole Diameter Surf. Elev. 458.0 Hammer Drop N.A. Rock Core Dia. Date Started Pipe Size N.A. Boring Method \_Inspector\_ \_\_\_ Date Completed ... BORING & SAMPLING STRA. DEPTH DEPTH SCALE Color, Moisture, Density, Plasticity, Size, Proportion NOTES Topsoff: ±04.8 in.

trace rock frags USC: MH USDA: SANDY CLAY LOAM Dark gray-brown moist of sond, some clayey silt, little to some rock frags, tracs mica USC: SM USDA: SANDY LOAM Rig refusat ● 13.3° 3 days after completion; water © 9.8', caved © 10.3'

ERTIFICATION

ADDITION OF BIORETENTION FACILITY AND ASSOCIATED REVISIONS



ENGINEER'S CERTIFICATE "I certify that this plan for pend construction, erosion and sediment control represents a practical and workable plan based on my 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/she must engaged a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as built" plan of the pond within 30 days of sympletion.

B-2

B--3

DEVELOPER'S/BUILDER'S CERTIFICATE

SIGNATURE OF ENGINEER

These plans have been reviewed for the

Howard Soil Conservation district and meet

the technical requirements for the Small Pond

Construction, Soil Erosion and Sediment Control.

These plans for Small Form Construction, Soil

Erosion and Sediment Control meet the requirements of the Howard County Soil Conservation District.

"I/We certify that all development and/or construction will be done according to these plans, and that any responsible involved in the construction project will have a Certificate of attendance at a Department of of the Environment Approved Training Program for the Control of Sediment and Erosian before beginning the project. I shall engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan within 30 days of completion. I also authorize inspections by the Howard Soil Conservation

REVISE SWM POND TO BIORETENTION FACILITY APPROVED: HOWARD COUNTY DEPARTMENT PUBLIC WORKS 11-18-96 APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING HEF, DIVISION AND LAND DEVELOPMENT <del>AND RESEARCH \{\}</del>

\_\_ Inspector\_\_\_\_\_

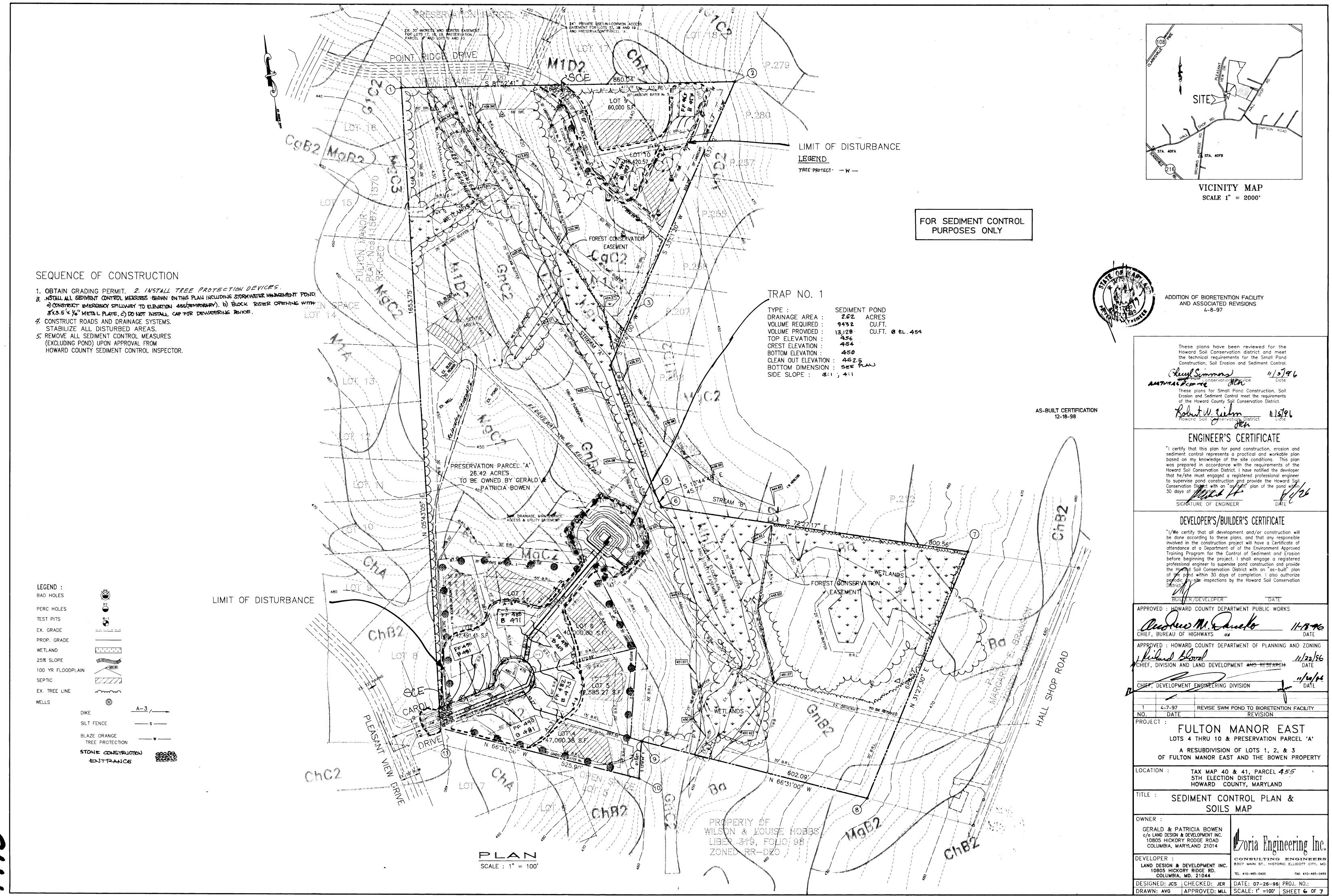
CHIEF DÉVELOPMENT ENGINEERING DIVISION FULTON MANOR EAST LOTS 4 THRU 10 & PRESERVATION PARCEL 'A' A RESUBDIVISION OF LOTS 1, 2, & 3 OF FULTON MANOR EAST AND THE BOWEN PROPERTY

TAX MAP 40 & 41, PARCEL 455 5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND PLAN & DETAILS

STORMWATER. MANAGEMENT FACILITY OWNER GERALD & PATRICIA BOWEN c/o LAND DESIGN & DEVELOPMENT INC. **L**oria Engineering 10805 HICKORY RODGE ROAD

COLUMBIA, MARYLAND 21014 EVELOPER : CONSULTING ENGINEERS 3307 MAIN ST., HISTORIC ELLICOTT CITY, N LAND DESIGN & DEVELOPMENT INC. 10805 HICKORY RIDGE RD. COLUMBIA, MD. 21044 DESIGN: AVG CHECKED: JER | DATE: 07-23-96 PROJ. NO. DRAWN: DTA APPROVED: MLL | SCALE: AS SHOWN SHEET 5 OF 7





population for the state of the

# I. SEDIMENT CONTROL NOTES: PERMANENT SEEDING NOTES

Apply to graded or cleared greas not subject to immediate further disturbance where a permanent long—lived vegetative cover is

Seedbed Preparation: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding, unless previously loosened.

Soil Amendments: In lieu of soil test recommendations, use 1) Preferred — apply 2 tons per acre dolomitic limestone (92 lbs/1000 square feet) and 600 lbs per acre 10-10-10fertilizer (14 lbs/1000 sq ft) before seeding.harrow or disc into upper three inches of soil. at time of seeding, apply 400lbs per acre 30-0-0 ureaform fertilizer (9lbs /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 one of the following schedules.

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/100 sq ft) of unrotted small grain straw immediately after seeding. 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 reseedings temporary seeding notes sa 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.

## 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,

unless 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 1 thru November 15, seed with 2 1/2 bushel per acre of annual rye (3.2 lbs/1000 sq ft). for the period May 1 thru August 14, seed with 3 lbs per acre of weeping lovegrass (.07lbs/1000 sq. ft.) Mulching: apply 1 1/2 to 2 tons per acre (70 to 90 lbs/1000 so 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.

# STANDARD AND SPECIFICATION FOR VEGETATIVE STABILIZATION WITH SOD

1. Class of turfgrass sod shall be Maryland Vr virginia state certified, or Maryland or Virginia state approved sod.

2. SOD shall be machine cut at a uniform soil thickness of 3/4 inch, plus or minus 1/4 inch, at the time of cutting. measurement for thickness shall exclude top growth and thatch.

3. Standard size sections of sod shall be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.

4. Individual pieces of sod shall be cut to the suppliers width and length. maximum allowable deviation from standard widths and lengths shall be 5 percent, broken pads and torn or uneven ends will not be acceptable.

5. SOD shall not be harvested or transplanted when moisture content excessively dry or wet) may adversely affect its survivo

6. SOD shall be harvested, delivered and installed within a period of 36 hours. sod not transplanted within this period shall be inspected and approved prior to its installation.

Fertilizer and lime application rates shall be determined by soil tests. Under unusual circumstances where there is unsufficient time for a complete soil test, fertilizer and lime materials may be applied in amounts shown under b, below.

a. Prior to Sodding, the surface shall be cleared of all trash, debris, and of all roots, brush, wire, grade stakes, and other objects that would interfere with planting, fertilizing or

b. Where the soil is acid or composed of heavy clays, ground limestone shall be spread at the rate of 2 tons/acre or pounds per 1,000 square feet. in all soils 1,000 pounds per acre or 25 pounds per 1,000 square feet of 10-10-10 fertilizer or equivalent shall be uniformly applied and mixed into the top 3 inches of soil

c. All areas receiving sod shall be uniformly fine graded. hardpacked earth shall be scarified prior to placement of sod. STANDARD SEDIMENT CONTROL NOTES:

with the required lime.

1) A minimum of 48 hours notice must be given to the Howard County Office of Inspection and Permits prior to the start of any construction. (313-1855)

2. All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 1983 Maryland Standards and Specifications for Soil Erosion and Sediment Control.

3. 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.

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) sod (sec. 54), temporary seeding (sec. 50) and mulching (sec. 52), temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.

6. All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control

7. Site analysis: total area of site 34.18 acres area disturbed 4.30 acres area to be roofed or paved 0.64 acres 3.66 acres area to be vegetatively stabilized total cut 1000 cu. yds 1000 cu. yds total fill offsite waste/borrow area location n.a.

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 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 shall be between 4 and 9. until this initial approval by the inspection agency is made.

General Notes

1) Refer to "1983 Maryland Standards and Specifications for soil erosion and sediment control for standard details and detailed specifications of each practice specified herein

2) With the approval of the sediment control inspector, minor field adjustments can and will be made to insure the control of any sediment. changes in sediment control practices require prior approval of the sediment control inspector and the county soil conservation district.

3) At the end of each working day, all sediment control practices will be inspected and left in operational condition.

4) Following initial soil disturbance or redisturbance, permanent or temporary stabilization shall be completed within: a.) seven calendar days as to the surface of all perimeter controls, dikes, swales, ditches, perimeter slopes, and all slopes greater than 3 horizontal to 1 vertical (3:1) and (b.) fourteen days as to all other disturbed or graded areas on

5) Any change to the grading proposed on this plan requires re—submission to county soil conservation district for approval.

6) Dust control will be provided for all disturbed areas. refer to 1983 Maryland Standards and Specifications for soil erosion and sediment control, pp 62.01 and 62.02 for acceptable methods and specifications for

7) Any variation from the sequence of operations stated on this plan requires the approval of the sediment control inspector and the county soil conservation district prior to the initiation of the change.

8) Excess cut or borrow material shall go to or come from, respectively, a site with an approved sediment control plan. the following item may be used as applicable:

B) Refer to "Maryland's guidelines to waterworks construction" by the Water Resources Administration (WRA), dated January, 1986 for standard details and detailed specifications of each practice specified herein for waterway construction.

1. All dikes shall be compacted by earth-moving equipment.

All dikes shall have positive drainage to an outlet. Top width may be wider and side slopes may be flatter if desired to facilitate crossing by construction traffic. 4. Field location should be adjusted as needed to utilize a stabilized

safe outlet. 5. Earth dikes shall have an outlet that functions with a minimum of erosion, runoff shall be conveyed to a sediment trapping device such as a sediment trap or sediment basin where either the dike channel or the drainage area above the dike are not adequately stabilized.

6. Stabilization shall be: (a) In accordance with standard specifications for seed and straw mulch or straw mulch if not in seeding season, (b) Flow channel as per the chart below. II. GENERAL NOTES FOR PONDS:

> SITE PREPARATION : Area under the borrow areas, embankment, and structural works shall be cleared, grubbed and the top soil stripped to remove all trees, vegetation, roots or the other objectionable material. Channel

banks and sharp breaks shall be sloped to no steeper than 1:1. Areas covered by the pond or reservoir will be cleared of all trees. brush, logs, fences, rubbish and other objectionable materials unless otherwise designated on the plans. Trees, brush, and stump shall be cut approximately level with the ground surface.

All cleared and grubbed material shall be disposed of outside the limits of the dam and reservoir as directed by the owner or his authorized representative. When specified, a sufficient quality of top soil will be stockpiled in a suitable location for use on the embankment and other designated areas.

EARTH FILL

The fill material shall be taken from approved designated borrow area or areas. It shall be free of roots, stumps, wood, rubbish, over-size stones, frozen or other objectionable materials. 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 above the design elevation(including freeboard) as shown on the plans.

Placement Area on which fill is to be placed shall be scarified prior to placement of the fill. Fill materials shall be placed in 8-inch maximum thickness (before compaction) layers which are to be continuous over the entire length of the fill. The most porous material shall be placed in the downstream portions of the embankment.

Compaction The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one thread track of the equipment or compaction shall be achieve by aluminum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction can be obtain with the equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble yet not be so wet that water can be

Where a minimum required density is specified, it shall not be less than 95% of maximum dry density with a moisture content within  $\pm 2\%$  of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by AASHTO Method T-99.

The cutoff trench shall be excavated into impervious material 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 below existing grade or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density

and minimum permeability.

STRUCTURE BACKFILL Backfill adjacent to pipes or structures shall be of the type and quality conforming to the 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 manually directed compaction equipment. The material needs to fill completely all spaces under and adjacent to the 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 equipment be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24" or greater over the structure or pipe.

PIPE CONDUITS

All pipes shall be circular in cross section. Corrugated metal pipe

Materials -(steel pipe) - This pipe and its appurtenance shall be galvanized and fully bituminous coated and shall conform to the requirements of AASHTO Specification M-190 type A with water tight coupling bands. Any bituminous coating damaged ot otherwise removed shall be placed with cold applied bituminous coating compound. Steel pipes with polymeric coatings shall have a minimum coating thickness of .01 inch (10 mil) on both sides of the pipe. he following coatings or an approved equal may be used: Nexon, Plasti-Cote, Blac-Klad, and Beth-Cu-Loy. Coated corrugated steel pipe shall meet the requirements of AASHTO M-245 and

Materials - (Aluminum Coated Steel Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274 with watertight coupling bands or flanges. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound.

Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or M-211 with watertight coupling bands or flanges. 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 pH of the surrounding soils Coupling band, anti-seep collars, end 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

Connections - All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Antiseep collars shall be connected to the pipe in such manner as to be completely watertight. Dimple bands are not considered to be watertight.

All connection shall used a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled an adequate number of corrugations to accommodate the band width. The following type connection are acceptable for pipe less than 48" inches diameter: flanges on both ends of the pipe, a 12" wide standard lap type band with 12" wide by 3/8" thick closed cell circular neoprene gasket; and a 12" wide hugger type band with o-ring gaskets having a minimum diameter of 1/2" greater than the corrugated depth. Pipes 48" in diameter and larger shall be connected by a 24" long annular corrugated bands using rods and lugs. A 12" wide by 3/8" thick closed cell circular neoprene gasket will be installed on the end of each pipe for a total of 24". Helically corrugated pipe shall have either continuously welded seams or have lock seams.

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. Backfilling shall conform to "Structure Backfill"

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

REINFORCED CONCRETE PIPE

materials - Reinforced concrete pipe shall have bell and spigot joints with rubber gasket and shall equal or exceed ASTM Designation C-361. An approved equivalent is AWWA specification

Bedding - All reinforced concrete pipe conduits 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 10% of its outside diameter with a minimum thickness of 3 inches, or as shown on the

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 for 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. The first joint must be located within 2 feet

Backfilling shall conform to "Structure Backfill".

Other details (anti-seep collar, valves, etc.) shall be as shown

POLYMNYL CHLORIDE (PVC) PIPE 1. Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to

ASTM D-1785 or ASTM D-2241. 2. Joints and connections to anti-seep collars shall be completely

3. Bedding — The pipe shall be firmly and uniformly bedded through out 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.

4. Backfilling shall conform to "Structure Backfill." 5. Other details(anti-seep collars, valves, etc.)shall be shown on

the drawings CONCRETE

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specification for Construction and Materials, Section 608, Mix No. 3

Rock riprap shall meet the requirements of Maryland Department of Transportation. State Highway Adminstration Standard Specifications for Construction and Materials Section 905 The riprap shall be placed to the required thickness in one operation.

The rock shall be delivered and placed in a manner that will insure the riprap in place shall be reasonable homogeneous with the larger uniformly distributed and firmly in contact one to another with the smaller rock s filling the voids between the larger rocks. Filter cloth shall be under all riprop and shall meet the requirements of Maryland Department of Transportation, State Highway Administration for Construction and materials. Section 919.12.

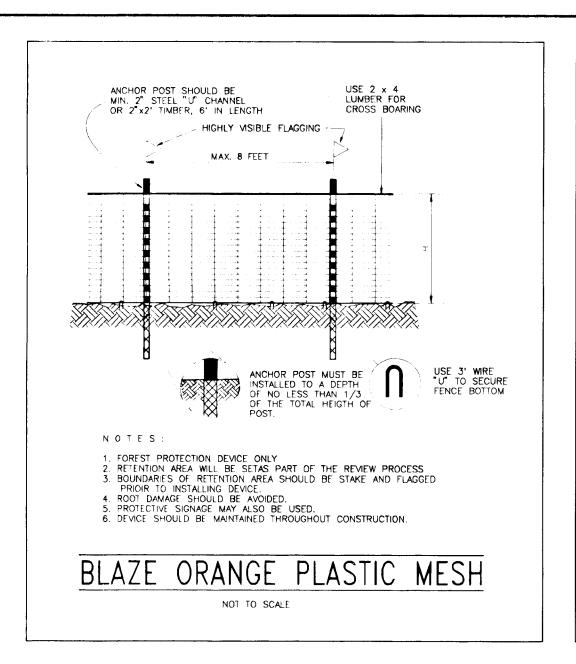
CARE OF WATER DURING CONSTRUCTION:

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 streams diversions necessary to protect the areas to be occupied by the permanent works the contractor shall also furnnish, 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 by the Engineer for constructing each part of the work. After having served their porpuse, 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 interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until the full floww 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 placeing and compacting of material in required excavations, the water level at the loacation being refilled shall be maintained below the bottm of the excavation at such locations which may require draining the water to sumps from which the water shall be pumped. STABILIZATION

All borrow areas shall be graded to provide proper drainage and left in a sightly condition. All exposed surfaces of the embankment spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Maryland Soil Conservation Service Standards and Specifications for Critical Area Planting (MD-342) or as shown on the accompanying drawings.

EROSION AND SEDIMENT CONTROL:

Construction operation will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Contruction plans shall detail erosion and sediment control measures to be employed during the construction process.



STANDARDS & SPECIFICATIONS FOR TOPSOILING SECTION I - SITE PREPARATION(WHERE TOPSOIL IS TO BE ADDED) A. When topsoiling, maintain needed erosion and sediment control practices such as dnersions, grade stabilization structures,

berms, dikes, waterways, and sediment basin.

B. Grades on the areas to be topsoiled which have been previously established shall be maintained.

C. Limimg: Where the subsoil is either highly acid or composed of heavy clays, ground limestone shall be spread at the rate of 4 - 8 tons/acre (200 - 400 lbs. per 1000 sq.ft.). Lime shall be distributed uniformly over designated areas and worked into that soil in conjuction with the tillage operations as described in the following procedures D. Tilling: After the greas to be topsoiled have been brought to grade, and immediately prior to dumping and spreading the topsoil, the subgrade shall be loosened by discing a by scarifying to a depth of at least 3 inches to permit bonding of the topsoil to the subsoil. Pack by passing a bulldozer up and down over the entire surface area of the slope to create horizontal check slots to prevent topsoi from sliding down the slope.

SECTION II - TOPSOIL MATERIAL AND APPLICATION

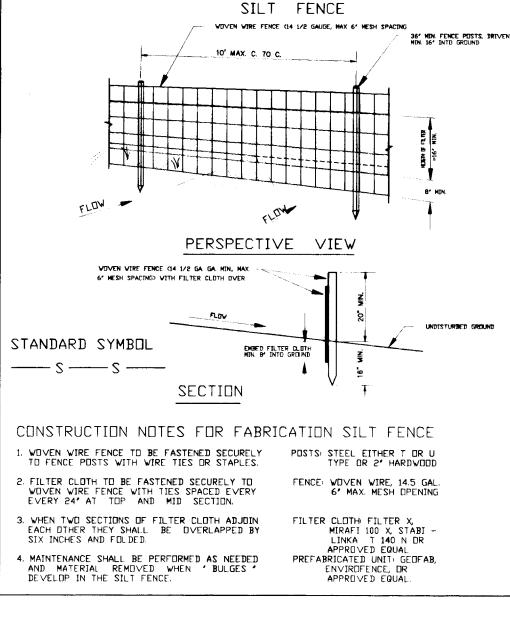
NOTE: Topsoil salvaged from the existing site may often be used but it should meet the same state standards as set forth in these specifications. The depth of the topsoil to be salvaged shall be no more than the depth described as a representative profile for that particular soil type as described in the soil survey published bt the USDA - SCS in the cooperation with Maryland Agriculture Experimental Station

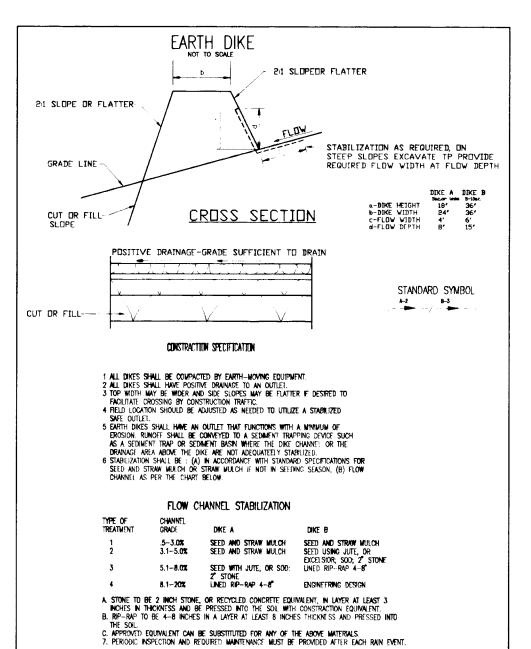
A. Materials: Topsoil shall be loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand or other soil as approved by an agronomist or soil scientist. It shall not have a mixture of contrasting textured subsoil and contain no more than 5 percent by volume of cinders, stones, slag, course fragment, gravel, sticks, roots, trash or othe extraneous materials larger than 1-1/2 inches in diameter Topsoil must be free of plant parts of Bermuda grass, quack grass, Johnson grass, nuts edge, poison ivy, thistves, or others as specified. All topsoil shall be tested by a recognized laboratory for organic matter content, pH level and soluble saits. A pH of 6.0 to 7.5 and an organic content of not less that 1.5 percent by weight is required if pH value is less than 6.0, lime shall be applied and incorporated with the topsoil to adjust the pH to 6.5 of higher. Topsoil containing soluble salts greater than 500 parts per million shall not be used. No sod or seed shall be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapse to permit dissipation

NOTE: Topsoil substitutes or amendments as approved by a qualified agronomist or soil scientist, may be used in lieu of natural topsoil.

of toxic materials.

B. Grading: Topsoil shall be uniformly distributed and compacted to a minimum of four(4) inches. Spreading shall be performed in such a manner that soding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations shall be connected in order to preven the formation of depression or water pockets. Topsoil shall not be placed while in a frozen or muddy state, when the subgrade is excessively wet, or in a condition that may otherwise be detrimental to proper grading and seed bed preparation.

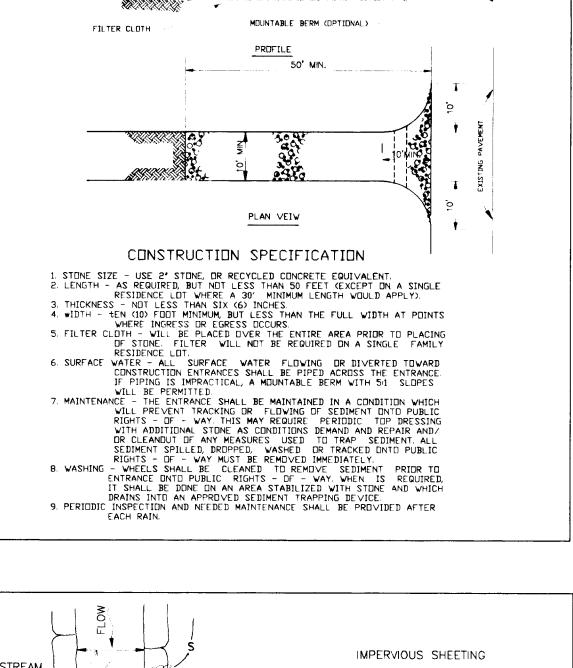




\_\_\_\_11"\_\_\_\_ RETENTION AREA PROHIBITED

SIGNAGE DETAIL

SEE SHEET 6 FOR LOCATION

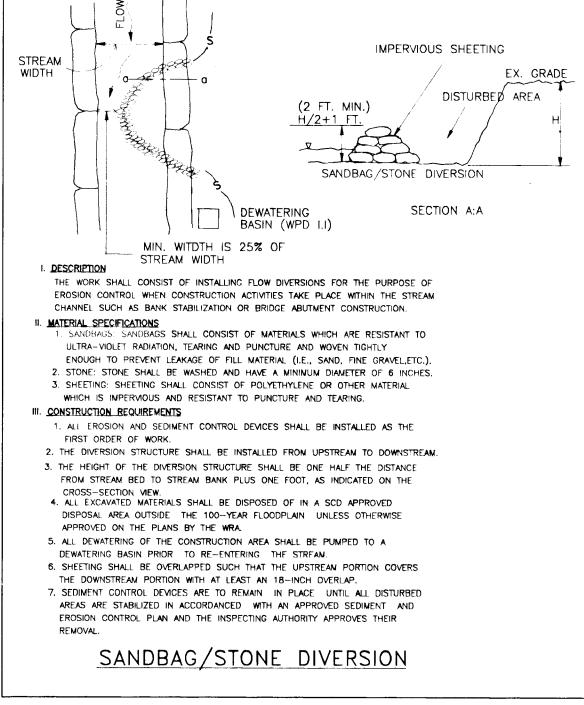


STABILIZED CONSTRUCTION ENTRANCE

- EXISTING PAVEMENT

STANDARD SYMBOL

SCE

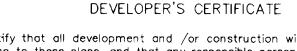


These plans have been reviewed for the Howard Soil Conservation district and meet the technical requirements for the small pond construction, soil erosion and sediment Control.

Luy Sommona Resources Conservation These plans for small pond construction, soil and

sediment control meet the requirements of the Howard

Soil Conservation District. Howard Soil Conservation District



" 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, i also authorize periodic on-site inspection by the Howard Soil Conservation District.

DÉVÉLOPER'S SIGNATURE

ENGINEER'S CERTIFICATE

Certify that this plan for pond construction, erosion and sediment control répresents 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.

NO. DATE REVISION HHEF, DEVELOPMENT ENGINEERING DIVISION APPROVED. AARD COUNTY DEPARENT IEF, BUREAU OF HIGHWAYS FULTON MANOR EAST

LOTS 4 THRUID AND PRESERVATION PARCEL A OCATION: TAX MAP 40 & 41, PARIEL 455

SEDIMENT CONTROL NOTES & DETAILS GENERATE NOTES FOR PONDS Genald & Patricia Bowl

10 gos Hilley Rigers Oria Ingineering EVELOFIR LAND DESIGN & DEVELOPMENT INC T MAIN 51., HISTORYC ELLICOTT CITY 10805 HICKORY RIDGE RD. COLUMBIA, MD. 21044

EL 410-465-0400 DESIGNED: DOF CHECKED: JER | DATE: 10-22-96 PROJ. NO.: DRAWN: AVG APPROVED: MIL SCALE: 1" =100' SHEET / OF /