

AS-BUILT RECLINES OF

ROADWAYS, STORM DRAINS AND STORMWATER MANAGEMENT LITTLE PATUXENT RIDGE

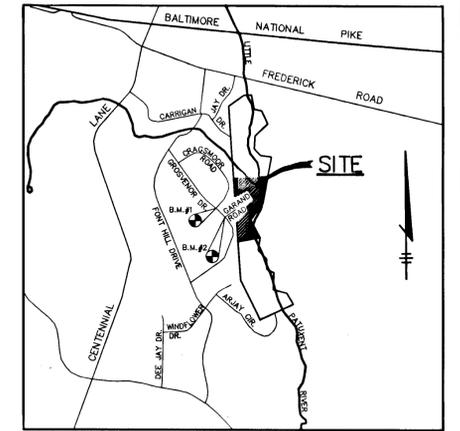
SECTION ONE LOTS 1-13 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

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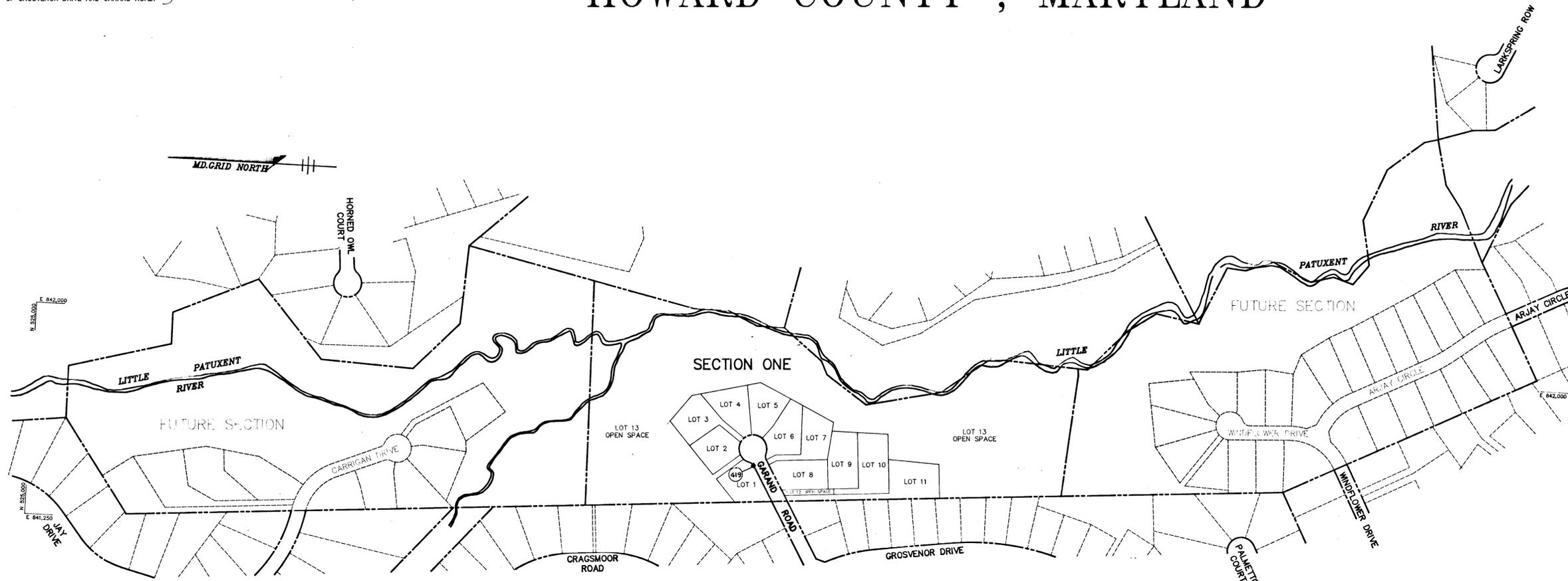
BENCH MARKS

B.M. #1 ELEV. 381.02
TOP STEM OF FIRE HYDRANT AT INTERSECTION
OF GROSVENOR DRIVE AND CRAGSMOOR ROAD.
HORIZONTAL & VERTICAL CONTROLS
USED FOR AS-BUILT SURVEY.

B.M. #2 ELEV. 379.67
TOP STEM OF FIRE HYDRANT AT INTERSECTION
OF GROSVENOR DRIVE AND GARAND ROAD.



VICINITY MAP
SCALE: 1"=2000'



GENERAL NOTES

- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOL. IV, I.e., STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION, 1990 AMENDMENTS.
- APPROXIMATE LOCATION EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE. EXISTING UTILITIES ARE SHOWN BASED ON THE BEST AVAILABLE INFORMATION.
- THE CONTRACTOR SHALL TEST PIT EXISTING UTILITIES AT LEAST FIVE (5) DAYS BEFORE STARTING WORK SHOWN ON THESE DRAWINGS.
- CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES AT LEAST FIVE (5) DAYS BEFORE STARTING WORK ON THESE DRAWINGS:

MISS UTILITY	1-800-257-777
BELL TELEPHONE SYSTEM	393-3649
LONG DISTANCE CABLE DIVISION	393-3553 or 3554
BALTIMORE GAS AND ELECTRIC CO.	539-8000
HOWARD COUNTY BUREAU OF UTILITIES	313-4900
HOWARD COUNTY CONSTRUCTION/INSPECTION SURVEY DIVISION (24 HOURS NOTICE PRIOR TO COMMENCEMENT OF WORK)	792-7272
COLONIAL PIPELINE	795-1390
- ALL INLETS SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOWARD COUNTY STANDARDS.
- ALL STREET CURB RETURNS SHALL HAVE 25' RADIUS UNLESS OTHERWISE NOTED.
- STORM DRAIN TRENCHES WITHIN ROAD RIGHT-OF-WAY SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH HOWARD COUNTY DESIGN MANUAL, VOLUME IV, I.e., STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION, 1989 AMENDMENTS.
- INSTALLATION OF TRAFFIC CONTROL DEVICES, MARKING, AND SIGNING SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 1988 EDITION.
- PIPE SHALL NOT BE INSTALLED BY THE CONTRACTOR UNTIL THE LENGTH CALLED FOR AT EACH STATION HAS BEEN APPROVED BY THE ENGINEER IN THE FIELD.

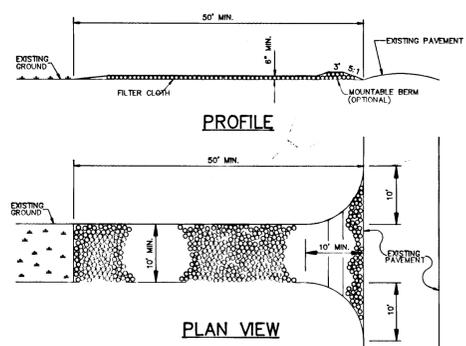
PLAN

SCALE: 1"=200'

- DESIGNED TRAFFIC SPEED IN ACCORDANCE WITH THE AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIAL STANDARDS:
 - ALL 50' RIGHT-OF-WAYS 30 M.P.H.
- ALL ELEVATIONS SHOWN ARE BASED ON U.S.C. AND G.S. MEAN SEA LEVEL DATUM, 1929.
- ALL FILL AREAS WITHIN ROADWAY AND UNDER STRUCTURES TO BE COMPACTED TO A MINIMUM OF 95% COMPACTION.
- ALL PIPE ELEVATIONS SHALL BE INVERT ELEVATIONS.
- PROFILE STATIONS SHOWN AS NECESSARY TO CONFORM TO PLAN DIMENSIONS.
- SUBJECT PROPERTY ZONED R-20 PER 8-2-85 COMPREHENSIVE ZONING PLAN.
- TOPO TAKEN FIELD RUN SURVEY DATED JANUARY 1988 BY T & T SURVEYING, INC. 539-8000
- NO PIPE SHALL BE LAID UNTIL LINES OF EXCAVATION HAS BEEN BROUGHT WITHIN 6" OF FINISHED GRADE.
- ALL STORM DRAIN PIPE BEDDING SHALL BE CLASS "C" AS SHOWN IN FIG. 11.4, VOLUME 1 OF HOWARD COUNTY DESIGN MANUAL UNLESS OTHERWISE NOTED.
- SEE OFFICE OF PLANNING AND ZONING FILE NO'S. S 88-48, P 90-34
- LIGHT POLES AND FIXTURES FOR STREET LIGHTS SHALL BE IN ACCORDANCE WITH HOWARD COUNTY DESIGN MANUAL VOLUME III - ROAD AND BRIDGES, PAGE 4A-28.
- THE STORMWATER MANAGEMENT FACILITY PROPOSED FOR THIS SITE IS A CLASS "A" HAZARD FACILITY. IN THE EVENT OF THE FAILURE OF THE FACILITY, DAMAGE WILL BE LIMITED TO FLOODPLAINS AND COUNTY ROADS.
- FLOODPLAIN WAS DETERMINED USING A STUDY PERFORMED BY CENTURY ENGINEERING, INC. FOR HOWARD COUNTY, AND APPROVED UNDER P-90-34.
- ADDITIONAL STORMWATER MANAGEMENT WILL BE PROVIDED WHEN THE SOUTHERN FUTURE SECTION IS COMPLETED. FOR ADDITIONAL INFORMATION REFER TO THE S.W.M. REPORT UNDER F-92-18.
- WATER AND SEWER TO BE CONSTRUCTED UNDER CONTRACT NO. 24-3085-D.
- BENCH MARKS #1 & #2 WERE BASED ON LAD 27, MARYLAND STATE PLAN GRID AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 3241001 & NO. 3240996.
- MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER QUALITY CERTIFICATION NUMBER 92-WQ-0028.
- MARYLAND DEPARTMENT OF NATURAL RESOURCES LETTER OF EXEMPTION NUMBER 91-NT-1134.
- 419 4" x 4" x 36" CONCRETE MONUMENT ELEV. 372.42

AS BUILT CERTIFICATE	
	2/18/94 DATE
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND LAND DEVELOPMENT <i>Arthur E. Muegge</i> 4/10/92 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT	
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS <i>Alan M. Ferguson</i> 4/10/92 CHIEF, BUREAU OF HIGHWAYS	
<i>John R. ...</i> 4-28-92 CHIEF, BUREAU OF ENGINEERING	
DATE NO.	REVISION
OWNER / DEVELOPER	
MR. PAUL MILLER P.O. BOX 307 9058 CHEVROLET DRIVE ELLICOTT CITY, MARYLAND 21043	
PROJECT	
LITTLE PATUXENT RIDGE SECTION ONE LOTS 1-13	
AREA	
TAX MAP 24 PARCEL 228 ZONED R-20 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND	
TITLE	
TITLE SHEET	
RIEMER MUEGGE & ASSOCIATES, INC.	
A Land Planning, Engineering and Consulting Firm 8818 Centre Park Drive Suite 200 Columbia, MD 21045 301-997-8900 FAX: 301-997-9282	
3/16/94 DATE	S-88-48 P-90-34
DESIGNED BY: CB	
DRAWN BY: CADD	
PROJECT NO: 67303	
DATE: MARCH 16, 1992	
SCALE: AS SHOWN	
DRAWING NO. 1 OF 6	
ARTHUR E. MUEGGE P.E.#8707	

1643



CONSTRUCTION SPECIFICATIONS

- Stone Size - Use 2" stone or reclaimed or recycled concrete equivalent.
- Length - As required, but not less than 50 feet (except on a single residence lot where a 30 foot minimum would apply).
- Thickness - Not less than six (6) inches.
- Width - Ten (10) foot minimum, but not less than the full width at points where ingress and egress occurs.
- Filter Cloth - Will be placed over the entire area prior to placing of stone. Filter will not be required on a single family residence lot.
- Surface Water - All surface water flowing or diverted toward construction entrance shall be abated across the entrance. If piping is impractical, a mounatable berm with 5:1 slopes will be permitted.
- Maintenance - The entrance shall be maintained in a condition 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 of any measures used to trap sediment. All sediment added, dropped, washed or tracked onto public rights-of-way must be removed immediately.
- Working - Where shall be cleaned to remove sediment prior to entrance onto public rights-of-way. When working is required, it shall be done on an area stabilized with stone and which drains into an approved sediment trapping device.
- Periodic inspection and needed maintenance shall be provided after each rain.

STABILIZED CONSTRUCTION ENTRANCE

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:

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

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

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

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

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

TEMPORARY SEEDING NOTES

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

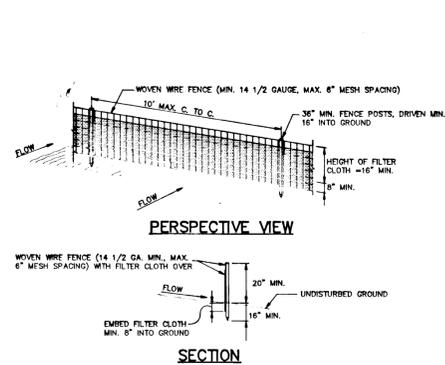
Seedbed Preparation: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding. If not previously loosened.

Soil Amendments: Apply 600 lbs. per acre 10-10-10 fertilizer (14 lbs. per 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 rye (3.2 lbs. per 1000 sq. ft.). For the period May 1 thru August 14, seed with 3 lbs. per acre of weeping lovegrass (0.07 lbs. per 1000 sq. ft.). For the period November 16 thru February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

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

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



CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

- Woven wire fence to fastened securely to fence posts with wire ties or staples.
- Filter cloth to be fastened securely to woven wire fence with ties spaced every 24" of top and mid section.
- When two sections of filter cloth abut each other they shall be overlapped by six (6) inches and stapled.
- Maintenance shall be performed as needed and material removed when "balding" develops in the silt fence.

POSTS: Steel, either T or U type or 2" hardwood.

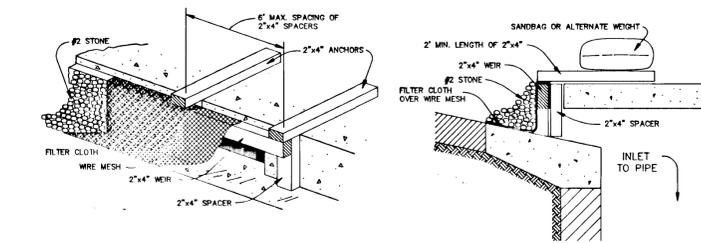
FENCE: Woven wire, 14 ga., 4" max. mesh opening.

FILTER CLOTH: Filter #, Mifflin 100X, Stobinsky 1140N or approved equal.

PRE-FABRICATED UNIT: Corbin, Enduroflow or approved equal.

SILT FENCE DETAIL

NO SCALE



CONSTRUCTION SPECIFICATIONS

- WOODEN FRAME IS TO BE CONSTRUCTED OF 2"x4" CONSTRUCTION GRADE LUMBER.
 - WIRE MESH MUST BE OF SUFFICIENT STRENGTH TO SUPPORT FILTER FABRIC, AND STONE, WITH WATER FULLY IMPOUNDED AGAINST IT.
 - FILTER CLOTH MUST BE OF A TYPE APPROVED FOR THIS PURPOSE, RESISTANT TO SUNLIGHT WITH A SEWE SIZE, EGG 40-85, TO ALLOW SUFFICIENT PASSAGE OF WATER AND REMOVAL OF SEDIMENT.
 - STONE IS TO BE 2" IN SIZE AND CLEAN, SINCE FINES WOULD CLOG THE CLOTH.
- PROCEDURE (FOR CURB INLET PROTECTION)**
 - ATTACH A CONTINUOUS PIECE OF WIRE MESH (30" MIN. WIDTH BY THROAT LENGTH PLUS 4") TO THE 2"x4" WIRE (MEASURING THROAT LENGTH PLUS 2") AS SHOWN ON THE STANDARD DRAWING.
 - PLACE A PIECE OF APPROVED FILTER CLOTH (40-85 SEVE) OF THE SAME DIMENSIONS AS THE WIRE MESH OVER THE WIRE MESH AND SECURELY ATTACH TO THE 2"x4" WIRE.
- SECURELY NAIL THE 2"x4" WIRE TO 8" LONG VERTICAL SPACERS TO BE LOCATED BETWEEN THE WEIR AND INLET FACE (MAX. 6" APART).
 - PLACE THE ASSEMBLY AGAINST THE INLET THROAT AND NAIL (MINIMUM 2" LENGTH) OF 2"x4" TO THE TOP OF THE WEIR AT SPACER LOCATIONS. THESE 2"x4" ANCHORS SHALL EXTEND ACROSS THE INLET TOP AND BE HELD IN PLACE BY SANDRAGS OR ALTERNATE WEIGHT.
 - THE ASSEMBLY SHALL BE PLACED SO THAT THE END SPACERS ARE A MINIMUM 1' BEYOND BOTH ENDS OF THE THROAT OPENING.
 - FORM THE WIRE MESH AND FILTER CLOTH TO THE CONCRETE CUTTER AND AGAINST THE FACE OF THE CURB ON BOTH SIDES OF THE INLET. PLACE CLEAN 2" STONE OVER THE WIRE MESH AND FILTER FABRIC IN SUCH A MANNER AS TO PREVENT WATER FROM ENTERING THE INLET UNDER OR AROUND THE FILTER CLOTH.
 - THIS TYPE OF PROTECTION MUST BE INSPECTED FREQUENTLY AND THE FILTER CLOTH AND STONE REPLACED WHEN CLOGGED WITH SEDIMENT.
 - ASSURE THAT STORM FLOW DOES NOT BYPASS INLET BY INSTALLING TEMPORARY EARTH OR ASPHALT DICES DIRECTING FLOW INTO INLET.

STONE FILTER INLET PROTECTION

NO SCALE

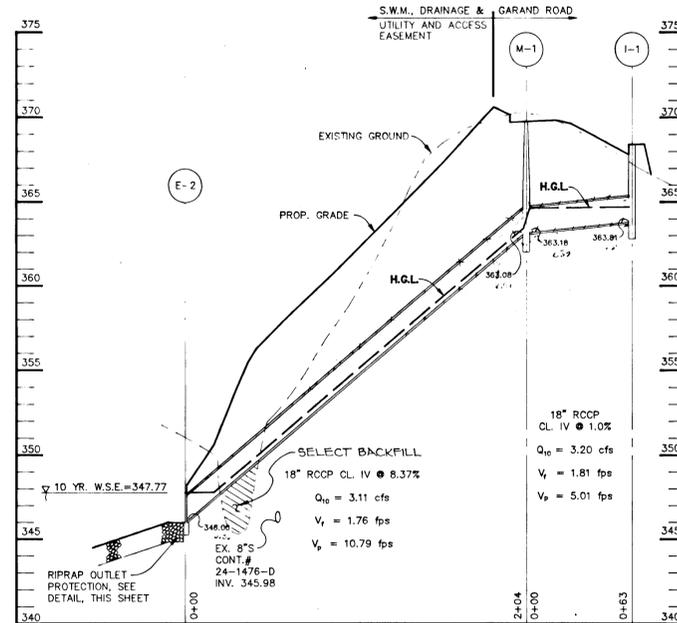
STRUCTURE SCHEDULE						
NO.	TYPE	LOCATION	TOP ELEV.	INV. IN.	INV. OUT.	REMARKS
I-1	A-5	L.P. STA. 1+42.71 GARAND ROAD	368.41	--	363.85	SEE HO. CO. STD. DETAIL SD 4.01
E-1	24" METAL END SECTION	SEE PLAN	--	--	343.33	SEE HO. CO. STD. DETAIL SD 5.61
E-2	TYPE 'C' HEADWALL	SEE PLAN	--	--	346.00	SEE HO. CO. STD. DETAIL SD 5.21
M-1	4" PRECAST MANHOLE	SEE PLAN	369.92	363.15	363.08	SEE HO. CO. STD. DETAIL G 5.12

* TOP OF CURB ELEVATION

SEDIMENT CONTROL NOTES

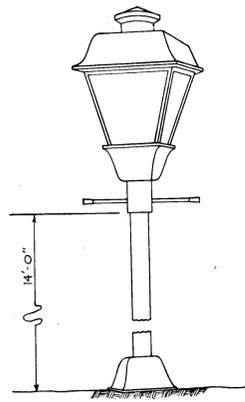
- A minimum of 24 hours notice must be given to the Howard County Office of Inspections and Permits prior to the start of any construction (992-2437).
- All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL AND EROSION CONTROL.
- 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 other disturbed or graded areas on the project site.
- All sediment traps/basins shown must be fenced and warning signs posted around the perimeter in accordance with Vol. 1, Chapter 12, of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
- All disturbed areas must be stabilized within the time period specified above in accordance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL AND EROSION CONTROL for permanent seedings (Sec. 51), sod (Sec. 54), temporary seeding (Sec. 50) and mulching (Sec. 52). Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
- All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
- Site Analysis:

Total Area of Site	21.53 acres
Area Disturbed	2.92 acres
Area to be roofed or paved	0.13 acres
Area to be vegetatively stabilized	2.79 acres
Total Cut	13,094 cu. yds.
Total Fill	3,286 cu. yds.
- Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
- Additional sediment controls must be provided, if deemed necessary by the Howard County Department of Licenses and Permits Sediment Control Inspector.
- Site grading will begin only after all perimeter sediment control measures have been installed and are in a functioning condition.
- Sediment will be removed from traps when its depth reaches clean out elevation shown on the plans.
- Cut and fill quantities provided under site analysis do not represent bid quantities. These quantities do not distinguish between topsoil, structural fill or embankment material, nor do they reflect consideration of undercutting or removal of unsuitable material. The contractor shall familiarize himself with site conditions which may affect the work.
- Borrow site to be pre-approved by Sediment Control Inspector. Or, in case of excess material, an approved sediment control plan will be needed to deposit excess off-site.



STORM DRAIN PROFILE

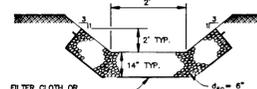
SCALE: HOR.: 1"=50'
VER.: 1"=5'



DETAIL - LIGHTING FIXTURE

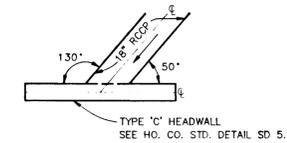
NO SCALE

NOTE: ALL STREET LIGHT FIXTURES TO BE 100 WATT HIGH PRESSURE SODIUM WITH A MINIMUM OF 1700 LUMENS 14' HIGH WITH BLACK FIBERGLASS POLE AND DIRECTED DOWNWARD LOCATIONS OF STREET LIGHT FIXTURES ARE ON THE PLAN AND ARE SHOWN THUS: *



TYPICAL RIPRAP PLACEMENT IN RIPRAP LINED CHANNEL

NO SCALE



DETAIL OF ANGLE AT E-2

NO SCALE

RIPRAP OUTLET PROTECTION DETAIL

NO SCALE

STRUCTURE	MEDIUM STONE DIA.	LENGTH (L)	WIDTH (W)	THICKNESS (T)
E-1	8"	20'	22'	20"
E-2	6"	10'	11.5'	14"

DEPTH	SOIL DESCRIPTION
0.0'	FOREST LITTER/ORGANIC MATTER
0.5'	BROWN SLIGHTLY MICACEOUS SILTY CLAY WITH SOME FINE TO MEDIUM SAND, MOIST, SOFT (CLAY LOAM)
2.5'	ORANGISH-BROWN MICACEOUS CLAYEY SILT WITH SOME FINE TO MEDIUM SAND, MOIST, STIFF (LOAM)
6.0'	ORANGE AND DARK OLIVE BROWN TO GRAYISH-OLIVE WITH DULL YELLOW MICACEOUS FINE TO MEDIUM SAND WITH SOME SILT AND A TRACE OF GRAVEL, MOIST TO WET, LOOSE (LOAMY SAND)
14.4'	DARK OLIVE BROWN/BLACK WITH OFF-WHITE AND DULL YELLOW MICACEOUS FINE TO MEDIUM SAND WITH A LITTLE SILT, WET, DENSE TO VERY DENSE (LOAMY SAND)

DEPTH	SOIL DESCRIPTION
0.0'	FOREST LITTER/ORGANIC MATTER
1.0'	ORANGISH-BROWN MICACEOUS CLAYEY SILT WITH SOME FINE TO MEDIUM SAND, MOIST, MEDIUM STIFF (LOAM)
3.0'	ORANGISH TO OLIVE BROWN MICACEOUS FINE TO COARSE SAND WITH SOME CLAYEY SILT, MOIST, LOOSE (SANDY LOAM)
5.0'	OLIVE BROWN TO LIGHT GRAY WITH DULL YELLOW MICACEOUS FINE TO COARSE SAND WITH A LITTLE SILT, MOIST, MEDIUM DENSE TO VERY DENSE (SAND)

DEPTH	SOIL DESCRIPTION
0.0'	FOREST LITTER/ORGANIC MATTER
0.5'	BROWN SLIGHTLY MICACEOUS SILTY CLAY WITH SOME FINE TO MEDIUM SAND, MOIST, SOFT (CLAY LOAM)
2.5'	LIGHT GRAY TO ORANGISH-BROWN WITH GRAY, RUST AND OFF-WHITE MICACEOUS CLAYEY SILT WITH SOME FINE TO MEDIUM SAND, MOIST, STIFF (LOAM)
6.0'	DULL ORANGE TO OLIVE TAN WITH OFF-WHITE AND DULL YELLOW MICACEOUS FINE TO COARSE SAND WITH A LITTLE SILT, DAMP TO WET, MEDIUM DENSE TO VERY DENSE (SAND)
14.4'	DARK OLIVE GRAY/BLACK WITH OFF-WHITE MICACEOUS FINE TO COARSE SAND WITH A LITTLE SILT, WET, VERY DENSE (SAND)

SOIL BORINGS

NO SCALE

SEQUENCE OF CONSTRUCTION

- Obtain grading permit, Army Corps, MDE 401 and 404 wetland permits prior to any site grading.
- Install stabilized construction entrance, protective tree fencing, and silt fence.
- Perform clearing and grubbing.
- Perform grading for stormwater management facility.
- Install storm drain system and stone filter inlet protection as necessary.
- Bring road to subgrade and install water and sewer lines.
- Install curb and gutter, paving and sidewalks.
- Install street trees and street light, and stabilize all disturbed areas in accordance with permanent seeding notes.
- Upon approval of the Howard County Sediment Control Inspector, remove all sediment control devices, and stabilize areas disturbed by their removal in accordance with permanent seeding notes.

AS BUILT CERTIFICATE

ARTHUR E. MUEGGE P.E.#8707
DATE: 2.18.94

BY THE DEVELOPER: I/WE 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 INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Paul L. Miller
DEVELOPER
DATE: 3/19/92

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.

Arthur E. Muegge
ENGINEER
DATE: 3-16-92

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 M. Helm
U.S. SOIL CONSERVATION SERVICE
DATE: 4/3/92

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

Robert W. Ziehm
HOWARD SOIL CONSERVATION DISTRICT
DATE: 4/3/92

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND LAND DEVELOPMENT

Stewart Holman
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT
DATE: 4/26/92

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Robert J. ...
CHIEF, LAND DEVELOPMENT DIVISION
DATE: 4/26/92

Alan M. ...
CHIEF, BUREAU OF HIGHWAYS
DATE: 4/16/92

...
CHIEF, BUREAU OF ENGINEERING
DATE: 4-29-92

DATE	NO.	REVISION

OWNER / DEVELOPER: MR. PAUL MILLER, P.O. BOX 307, 9058 CHEVROLET DRIVE, ELLICOTT CITY, MARYLAND 21043

PROJECT: LITTLE PATUXENT RIDGE SECTION ONE LOTS 1-13

AREA: TAX MAP 24 PARCEL 228 ZONED R-20 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: STORM DRAIN PROFILES AND DETAILS

RIEMER MUEGGE & ASSOCIATES, INC.
A Land Planning, Engineering and Consulting Firm
8818 Centre Park Drive Suite 200 Columbia, MD 21045
301-997-8900 FAX: 301-997-9282

DATE: 3-16-92
S-88-48 P-90-34

DESIGNED BY: CB

DRAWN BY: CADD

PROJECT NO: 67303

DATE: MARCH 16, 1992

SCALE: AS SHOWN
DRAWING NO. 3 OF 6

ARTHUR E. MUEGGE P.E.#8707
F-92-18
DATE: 2-17-94

1643

These specifications are appropriate to ponds within the scope of the Standard Practice 378.

I. SITE PREPARATION

Areas designated for borrow areas, embankment and structural works shall be cleared, grubbed and stripped of topsoil. All trees, vegetation, roots and other objectionable material shall be removed. Channel banks and sharp breaks shall be sloped to no steeper than 1:1.

Areas to be covered by the pond or reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush and stumps shall be cut approximately level with ground surface.

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

II. EARTH FILL

Material

The fill material shall be taken from approved designated borrow area or areas. It shall be free of roots, stumps, wood, rubbish, oversize 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

Areas on which fill is to be placed shall be scarified prior to placement of 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 borrow 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 tread track of the equipment or compaction shall be achieved by a minimum 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 obtained with the equipment used.

Where a minimum required density is specified, each layer of fill shall be compacted as necessary to obtain that density and is to be certified by the Engineer.

Cutoff Trench

Where specified, a cutoff 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 as shown on the drawings, 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 1:1 or flatter. The backfill material for the cutoff trench shall be the most impervious material available and shall be compacted with equipment or rollers to assure maximum density and minimum permeability.

III. 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 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 twenty-four inches or greater over the structure of pipe.

IV. PIPE CONDUITS

All pipes shall be circular in cross section.

A. Corrugated Metal Pipe

1. Materials - (Steel Pipe) - This pipe and its appurtenances shall be galvanized and fully bituminous coated and shall conform to the requirements of AASHTO Specifications M-190 Type A with watertight coupling bands. Any bituminous coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound.

2. 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. Watertight coupling bands or flanges shall be used at all joints. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands are not considered to be watertight.

3. 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.

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

5. Backfilling shall conform to structural backfill as shown above.

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

B. Reinforced Concrete Pipe

1. Materials - Reinforced concrete pipe shall have a rubber gasket joint and shall equal or exceed ASTM Specification C-361. An approved equivalent is AWMA Specification C-301.

2. 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 drawings.

3. 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.

4. Backfilling shall conform to structural backfill as shown above.

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

C. For pipes of other materials, specific specifications shall be shown on the drawings.

V. CONCRETE

1. Materials

a. Cement - Normal Portland cement shall conform to the latest ASTM Specification C-150.

b. Water - The water used in concrete shall be clean, free from oil, acid, alkali, scales, organic matter or other objectionable substances.

c. Sand - The sand used in concrete shall be clean, hard, strong and durable, and shall be well graded the 100% passing a 1/4 inch sieve. Limestone sand shall not be used.

d. Coarse Aggregate - The coarse aggregate shall be clean, hard, strong and durable, and free from clay or dirt. It shall be well graded with a maximum size of 1-1/4 inches.

e. Reinforcing Steel - The reinforcing steel shall be deformed bars of intermediate grade billet steel or roll steel conforming to ASTM Specification A-615.

2. Design Mix - The concrete shall be mixed in the following proportions, measured by weight. The water-cement ratio shall be 5-1/2 to 6 U.S. gallons of water per 94 pound bag of cement. The proportion of materials for the trial mix shall be 1:2:3-1/2. The combination of aggregates may be adjusted to produce a plastic and workable mix that will not produce harshness in placing or honeycombing in the structure.

3. Mixing - The concrete ingredients shall be mixed in batch mixers until the mixture is homogeneous and of uniform consistency. The mixing of each batch shall continue for not less than one and one-half minutes after all the ingredients, except the full amount of water, are in the mixer. The minimum mixing time is predicated on proper control of the speed of rotation of the mixer and of the introduction of the materials, including water, into the mixer. Water shall be added prior to, during and following the mixer-charging operations. Excessive overmixing requiring the addition of water to preserve the required concrete consistency shall not be permitted. Truck mixing will be allowed provided that the use of this method shall cause no violation of any applicable provisions of the specifications given here.

4. Forms - The forms shall have sufficient strength and rigidity to hold the concrete and to withstand the necessary pressure, tamping and vibration without deflection from the prescribed lines. They shall be mortar-tight and constructed so that they can be removed without hammering or prying against the concrete.

The inside forms shall be oiled with a non-staining mineral oil or thoroughly wetted before concrete is placed.

Forms may be removed 24 hours after the placement of concrete. All wire ties and other devices used shall be recessed from the surface of the concrete.

5. Reinforcing Steel - All reinforcing material shall be free of dirt, rust, scale, oil, paint or any other coatings. The steel shall be accurately placed and securely tied and blocked into position so that no movement of the steel will occur during placement of concrete.

6. Consolidating - Concrete shall be consolidated with internal type mechanical vibrators. Vibration shall be supplemented by spading and hand tamping as necessary to insure smooth and dense concrete along form surfaces, in corners and around embedded items.

7. Finishing - Defective concrete, honeycombed areas, voids left by the removal of tie rods, ridges on all concrete surfaces permanently exposed to view or exposed to water on the finished structure, shall be repaired immediately after the removal of forms. All voids shall be reamed and completely filled with dry-patching mortar.

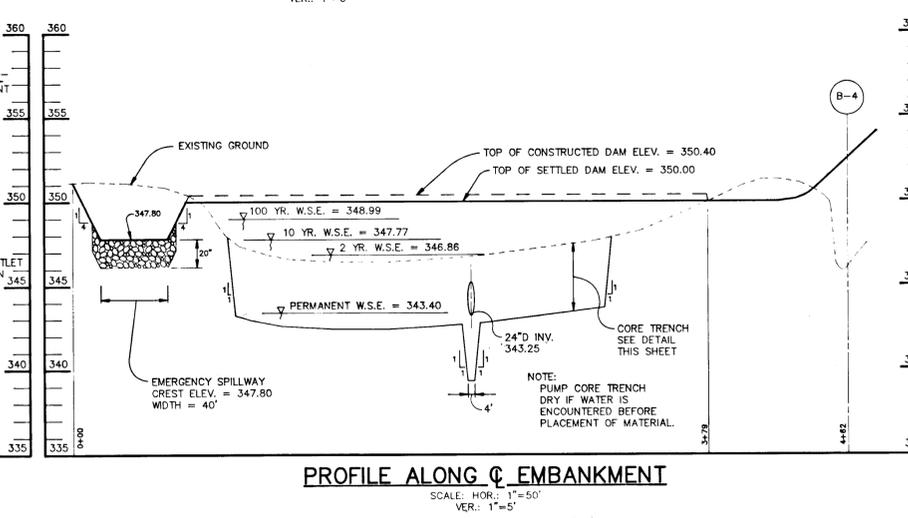
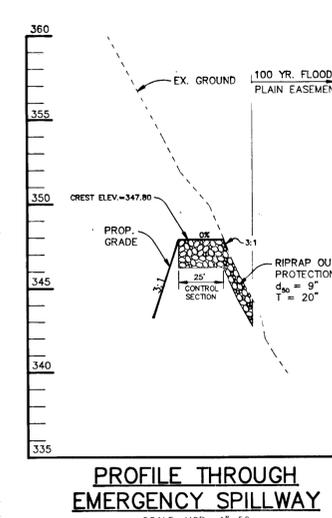
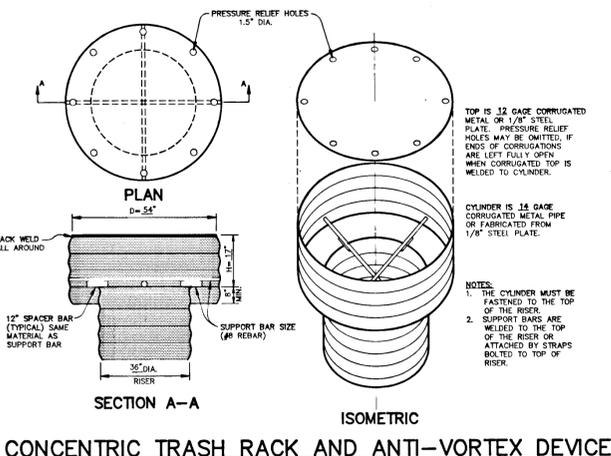
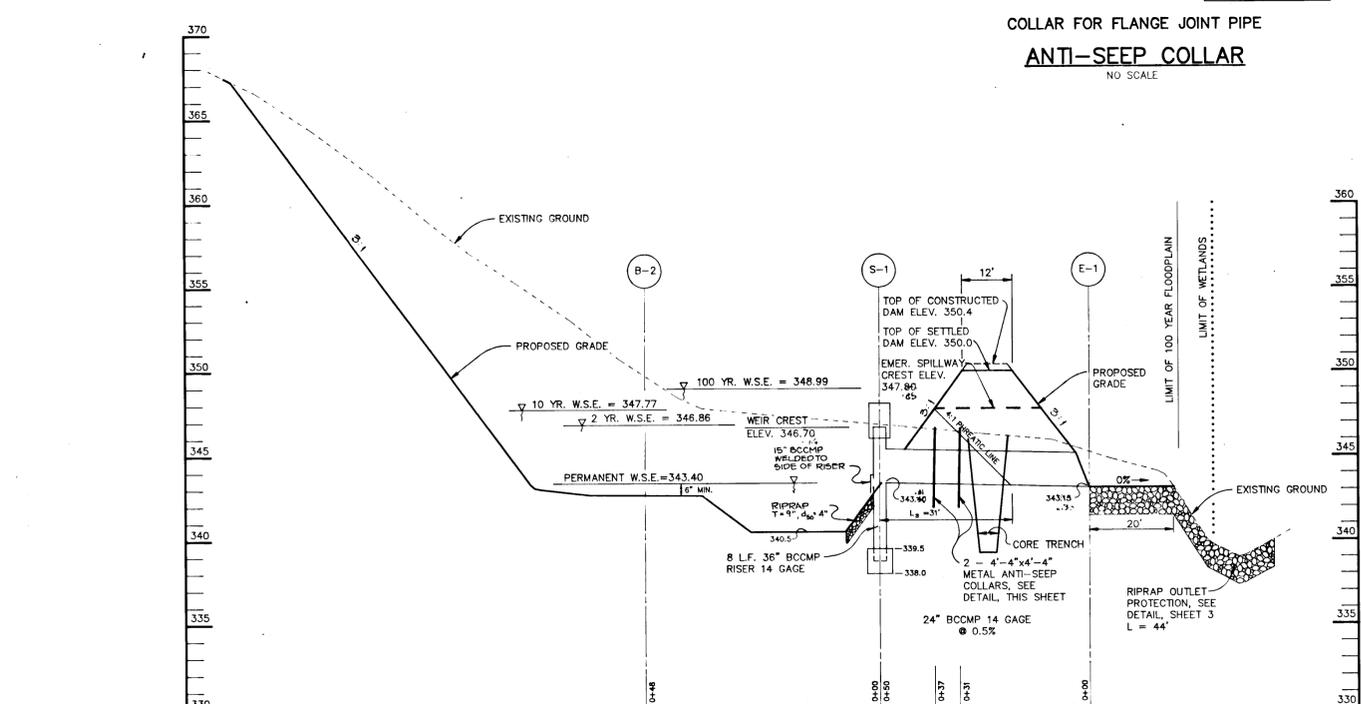
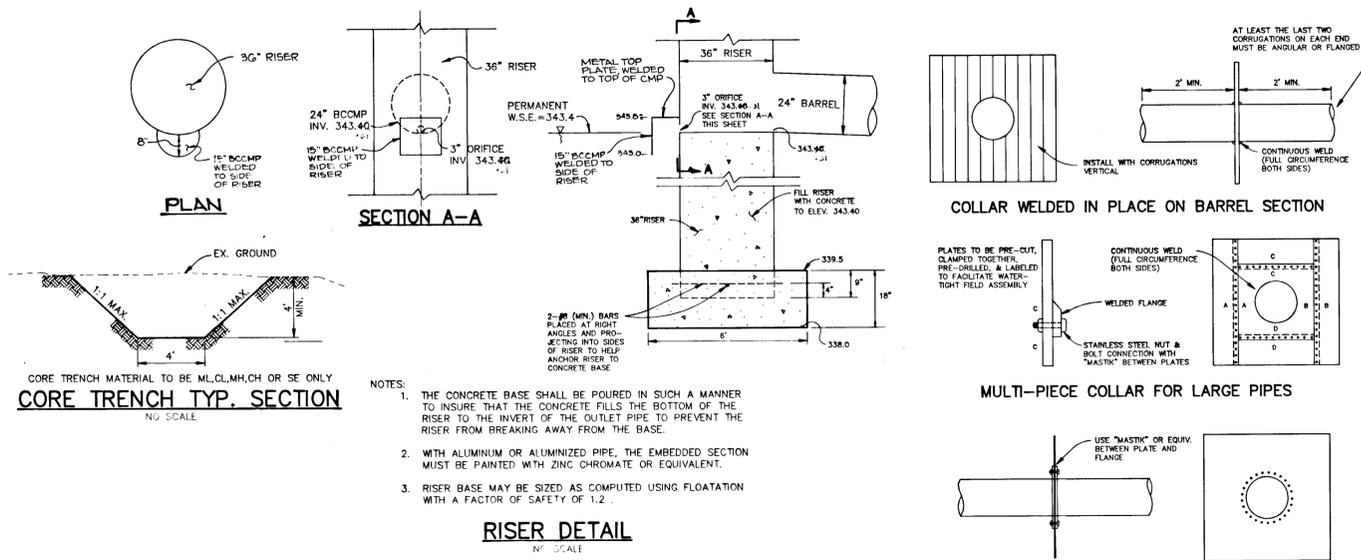
8. Protection and Curing - Exposed surfaces of concrete shall be protected from the direct rays of the sun for at least the first three (3) days. All concrete shall be kept continuously moist for at least ten (10) days after being placed. Moisture may be applied by spraying or sprinkling as necessary to prevent the concrete from drying. Concrete shall not be exposed to freezing during the curing period. Curing compounds may also be used.

VI. STABILIZATION

All borrow areas shall be graded to provide proper drainage and left in a slightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas and berms shall be stabilized by seeding, liming, fertilizing and mulching (if required) in accordance with the vegetative treatment specifications or as shown on the accompanying drawings.

VII. EROSION AND SEDIMENT CONTROL

Construction operations 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. Construction plans shall detail erosion and sediment control measures to be employed during the construction process.



AS BUILT CERTIFICATE

STATE OF MARYLAND
ARTHUR E. MUEGGE P.E.#8707
DATE: 2-18-94

BY THE DEVELOPER:
I/WE 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 INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

PAUL MILLER 3/19/92
DEVELOPER 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.

ARTHUR E. MUEGGE 3-16-92
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.

JAMES M. HULM/JPH 4/3/92
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. ZIEHN 4/3/92
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND LAND DEVELOPMENT
SUNIL K. KHANNA 4/30/92
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
DAVID DAMANN 4/28/92
CHIEF, LAND DEVELOPMENT DIVISION DATE
CALVIN M. TONGAN 4/16/92
CHIEF, BUREAU OF HIGHWAYS DATE
JACQUELINE B. REED 4-28-92
CHIEF, BUREAU OF ENGINEERING DATE

DATE NO. REVISION

OWNER / DEVELOPER
MR. PAUL MILLER
P.O. BOX 307
9058 CHEVROLET DRIVE
ELLICOTT CITY, MARYLAND
21043

PROJECT
LITTLE PATUXENT RIDGE
SECTION ONE LOTS 1-13

AREA TAX MAP 24 PARCEL 228 ZONED R-20
2nd ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE
STORMWATER MANAGEMENT NOTES,
PROFILES & DETAILS

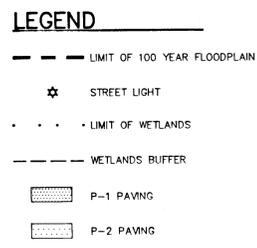
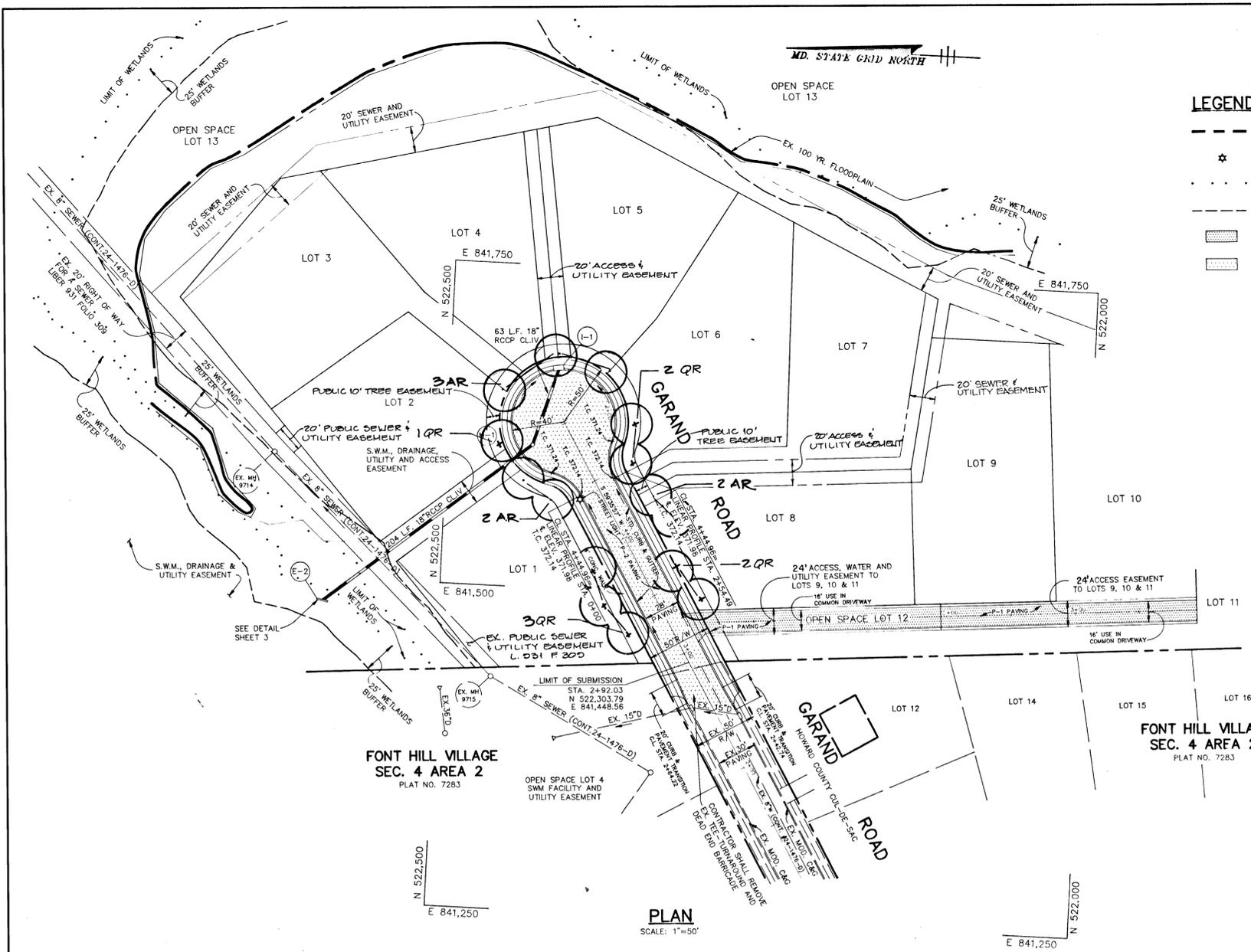
RIEMER MUEGGE & ASSOCIATES, INC.
A Land Planning, Engineering and Consulting Firm
8818 Centre Park Drive Suite 200 Columbia, MD 21045
301-997-8900 FAX: 301-997-9282

DATE 3-16-92
S-88-48 P-90-34
DESIGNED BY: CBD
DRAWN BY: CADD
PROJECT NO: 67303
DATE: MAY 04 16, 1992
SCALE: AS SHOWN
DRAWING NO. 5 OF 6

STATE OF MARYLAND
ARTHUR E. MUEGGE P.E.#8707
F-92-18 AS-BUILT - 2-17-94

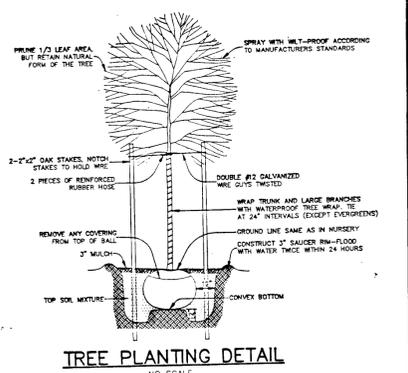
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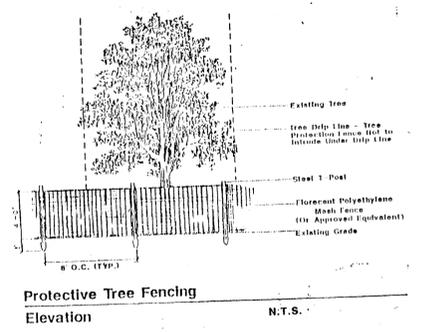
PLANT LIST

QTY	KEY	NAME	SIZE	REMARKS
7	AR	ACER RUBRUM 'OCTOBER GLORY' October Glory Red Maple	2 1/2"-3" cal. 12'-14' ht.	Full Crown
8	QR	QUERCUS RUBRA RED OAK	2 1/2"-3" cal. 12'-14' ht.	Full Crown



TREE PLANTING DETAIL

NOTE: TREES ARE TO BE PLANTED A MINIMUM OF 4' BEHIND THE SIDEWALK.



Protective Tree Fencing Elevation N.T.S.

- TREE PRESERVATION PROCEDURES**
- THE EDGE OF WOODS TO BE PRESERVED SHALL BE MARKED IN THE FIELD PRIOR TO THE START OF CONSTRUCTION ACTIVITIES.
 - PROTECTIVE FENCING SHALL BE EXTENDED AT THE DEEP LINE OF THE EDGE OF WOODS. ALL AREAS WITHIN PROTECTIVE FENCING ARE TO BE CONSIDERED "OFF LIMITS" FOR ANY CONSTRUCTION ACTIVITIES.
 - PROTECTIVE FENCING SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. THE GENERAL CONTRACTOR SHALL APPROVE LOGS TO THE FENCING INDICATING THAT THESE AREAS ARE "TREE PRESERVATION AREAS". THE GENERAL CONTRACTOR SHALL TAKE SPECIAL CARE TO PROTECT THE ROOT SYSTEMS DURING THE CONSTRUCTION CYCLE. TREE ROOT SYSTEMS SHALL BE PROTECTED FROM INCHING, FLOODING, EXCESSIVE SOILING FROM DECONTAMINATION OPERATIONS AND OFF SITE WASTE, AND DRAINAGE OF EXCESSIVE CONSTRUCTION MATERIALS DEPOSITED TO THESE AREAS.
 - REMOVAL OF TOPSOIL OR ROOT MAT WITHIN THE TREE PRESERVATION AREA SHALL BE PROHIBITED. THE GENERAL CONTRACTOR SHALL BE PROHIBITED FROM PARKING ANY CONSTRUCTION EQUIPMENT OR FROM STORING MATERIALS OR SUPPLIES ON SUCH STOCKPILES WITHIN THE TREE PRESERVATION AREAS.
 - POST TRAFFIC, AS WELL AS VEHICLE TRAFFIC, IN THE TREE PRESERVATION AREAS SHALL BE STOPPED BY A SIGN. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR ANY TREE DAMAGE OR DISTURBANCE WITHIN THE TREE PRESERVATION AREAS. METHOD CHIEF BY THE CONTRACTOR, ALL WASTES, SOFTENED, DISCONTAMINATED OR LITTERED.
 - CONSTRUCTION ACTIVITIES EXPRESSLY RESTRICTED WITHIN THE TREE PRESERVATION AREAS.
 - PLACING BACKFILL IN PROTECTED AREAS.
 - PELLING TREES WITHIN PROTECTED AREAS.
 - GRADING CONSTRUCTION EQUIPMENT WITHIN PROTECTED AREAS.
 - BURNING OR IN OTHER PROXIMITY TO PROTECTED AREAS.
 - STORAGE OF MATERIALS WITHIN PROTECTED AREAS.
 - CONDUCTING WELDING OPERATIONS IN PROTECTED AREAS.
 - BRACING BEYOND THE LIMITS OF DISTURBANCE.
 - THE GENERAL CONTRACTOR SHALL PROVIDE A "HARD HAT" AREA FOR CONCRETE TRUCKS OR TRUCKS, WHICH WILL NOT DRIFT TOWARD A PROTECTED AREA.
 - ALL TREES WHICH ARE NOT TO BE PRESERVED WITHIN FIFTY FEET OF ANY TREE PRESERVATION AREA ARE TO BE REMOVED IN A MANNER THAT WILL NOT DAMAGE THOSE TREES THAT ARE DESIGNATED FOR PRESERVATION. IT IS STRONGLY RECOMMENDED THAT TREE REMOVAL WITHIN THE FIFTY FEET AREA BE CONDUCTED WITH A STOP SANDING MACHINE TO MINIMIZE DAMAGE.

AS BUILT CERTIFICATE

ARTHUR E. MUEGGE P.E. #8707 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND LAND DEVELOPMENT

Edward Almond 4/30/92 DATE

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chad Deamon 4/29/92 DATE

CHIEF, LAND DEVELOPMENT DIVISION

John M. Tompkins 4/10/92 DATE

CHIEF, BUREAU OF HIGHWAYS

James R. Riley 4-29-92 DATE

CHIEF, BUREAU OF ENGINEERING

OWNER / DEVELOPER

MR. PAUL MILLER
P.O. BOX 307
9058 CHEVROLET DRIVE
ELLCOTT CITY, MARYLAND
21043

PROJECT: LITTLE PATUXENT RIDGE SECTION ONE LOTS 1-13

AREA: TAX MAP 24 PARCEL 228 ZONED R-20 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE LANDSCAPE PLAN

RIEMER MUEGGE & ASSOCIATES, INC.
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301-997-8900 FAX: 301-997-9282

3-20-92

S-88-48 P-90-34

DESIGNED BY: CB

DRAWN BY: CADD

PROJECT NO: 67303

DATE: MARCH 16, 1992

SCALE: AS SHOWN

DRAWING NO. 6 OF 6