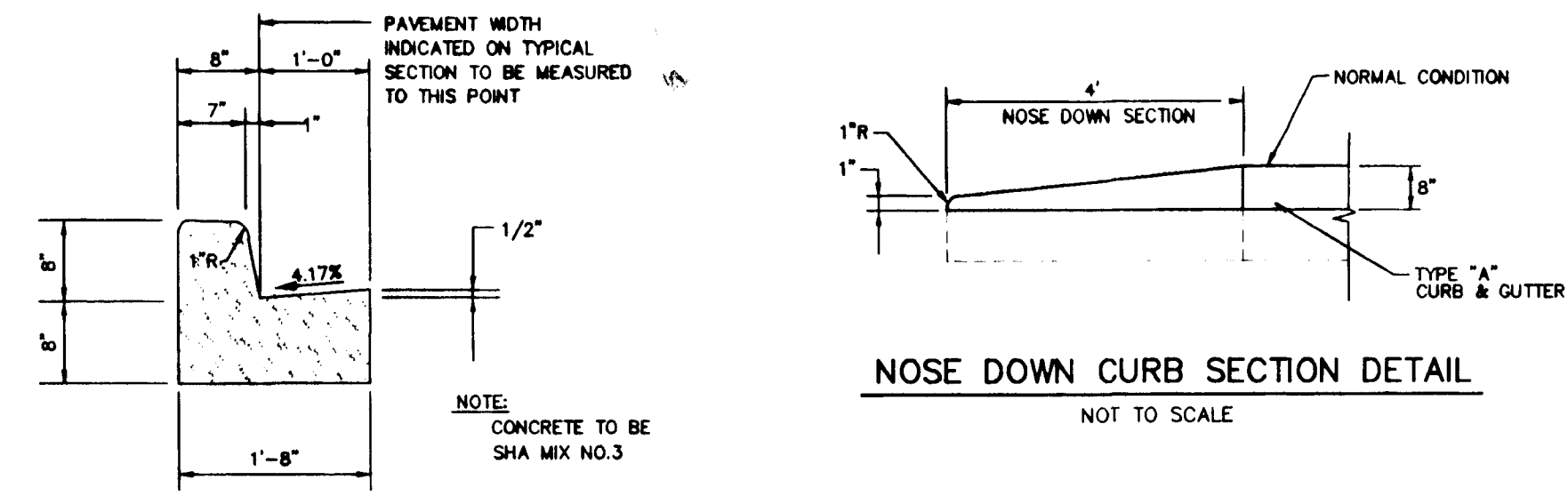
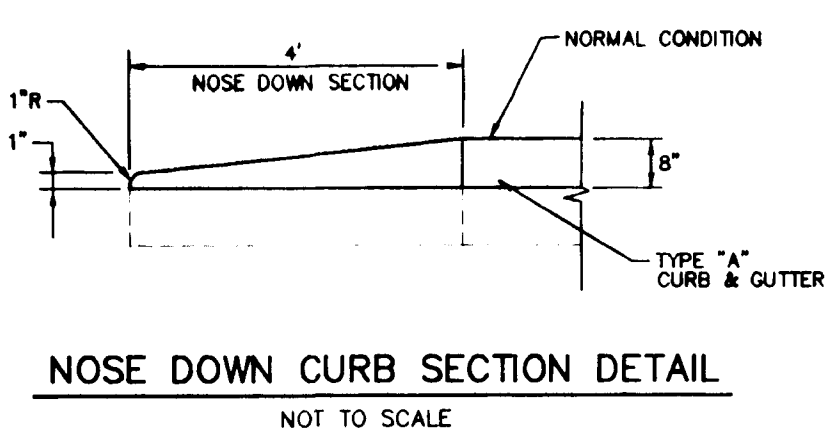


CURVE DATA						
CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
1	1841.22	205.02	101.81	202.92	S 70°28'09" E	8°19'04"
2	1831.59	341.97	171.44	341.59	S 79°28'27" E	10°41'41"

CENTERLINE CONTROL DATA - MD ROUTE 216			
STATION	NORTH	EAST	
LIMIT OF SUBMISSION STA. 10+00	238276.5157	1341266.3980	
PC STA. 11+21.85	238244.3434	1341363.9042	
PCC STA. 13+24.85	238178.1724	1341575.7310	
PT STA. 16+66.73	238115.8100	1341911.3694	
LIMIT OF SUBMISSION STA. 25+97.56	238031.7943	1342838.9352	



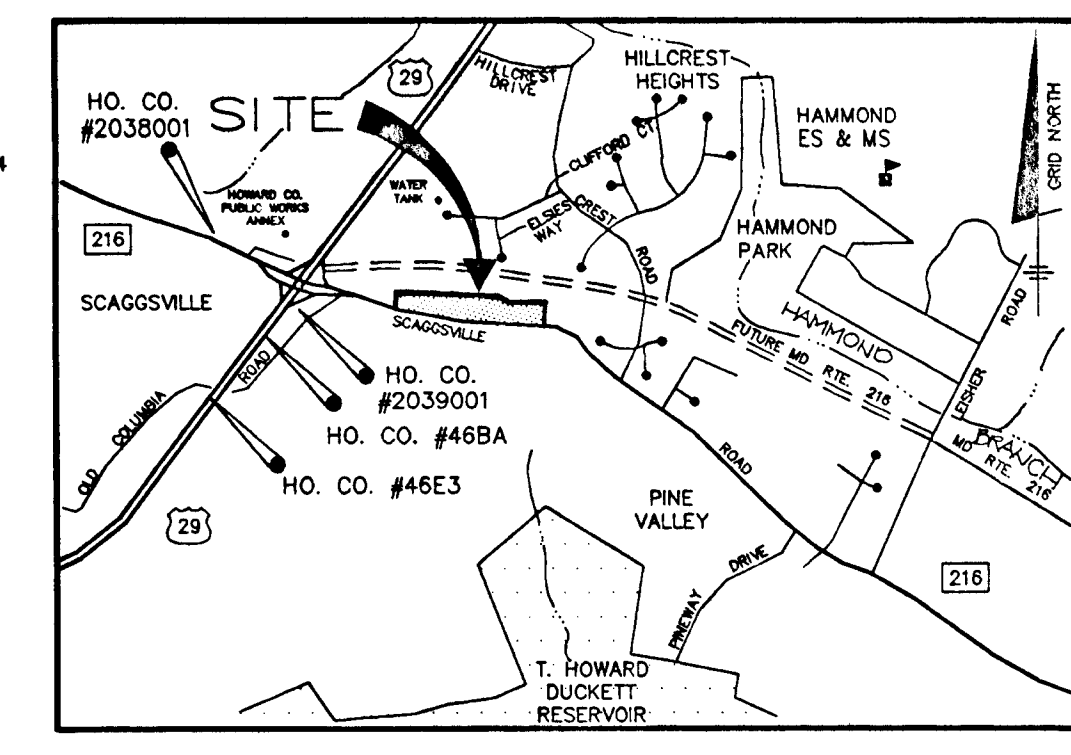
SHA TYPE "A" STANDARD COMBINATION CURB & GUTTER  
NOT TO SCALE



NOSE DOWN CURB SECTION DETAIL  
NOT TO SCALE

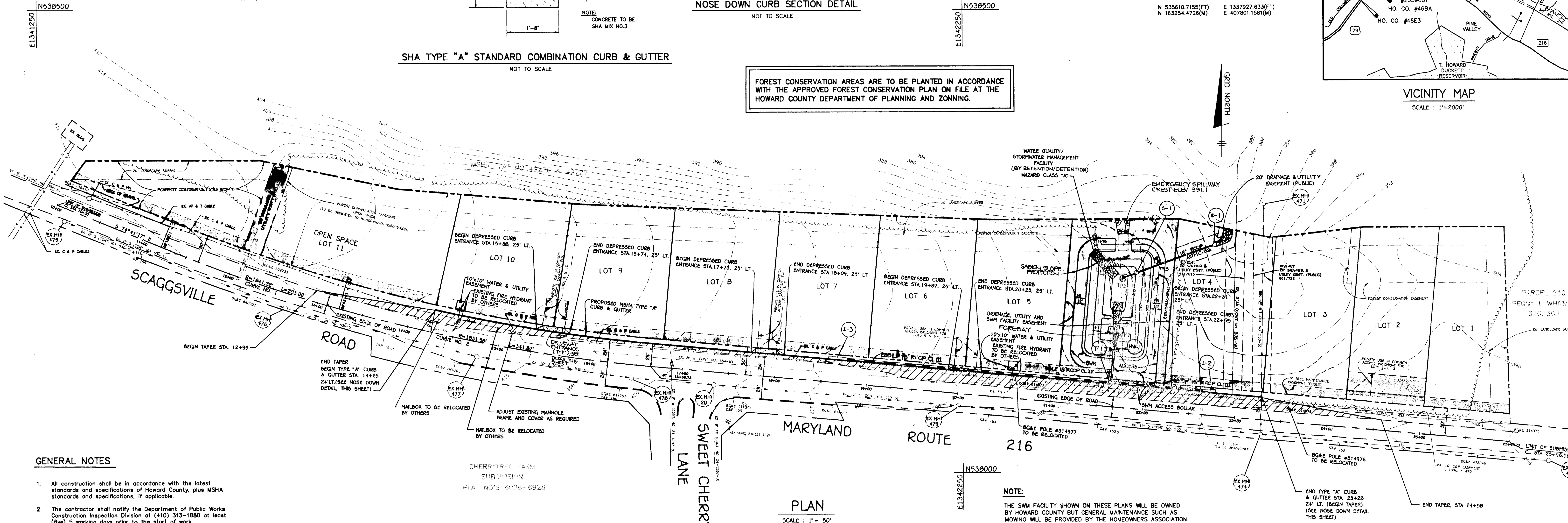
**BENCH MARKS (NAD 27)**  
 H.O. CO. #2038001 ELEV. 435.688  
 CONC. MONUMENT 23' NORTH OF NORTH  
 EDGE SCAGGSVILLE ROAD 0.3' BELOW SURFACE.  
 N 478311.283 E 826786.508  
 H.O. CO. #2038001 ELEV. 447.251  
 CONC. MONUMENT 0.1' BELOW SURFACE.  
 N 477614.342 E 828108.318

**BENCH MARKS (NAD 83)**  
 H.O. CO. #46BA  
 CONC. MONUMENT OFF OF SHOULDER ON NORTH  
 BOUND ROUTE 29, 0.15 MILES SOUTH OF MD  
 ROUTE 216, 32.4' WEST OF C&P POLE #6, G&E #219814  
 N 537545.8402(FT) E 1339849.069(FT)  
 N 163844.2998(M) E 408366.8130  
 H.O. CO. #46E3  
 CONC. MONUMENT IN GRASS MEDIAN WEST OF  
 INTERSECTION OF MD ROUTE 29 AND OLD COLUMBIA  
 ROAD, 5' OFF EDGE OF CURB.  
 N 535610.7155(FT) E 1337927.633(FT)  
 N 163254.4728(M) E 407801.1581(M)



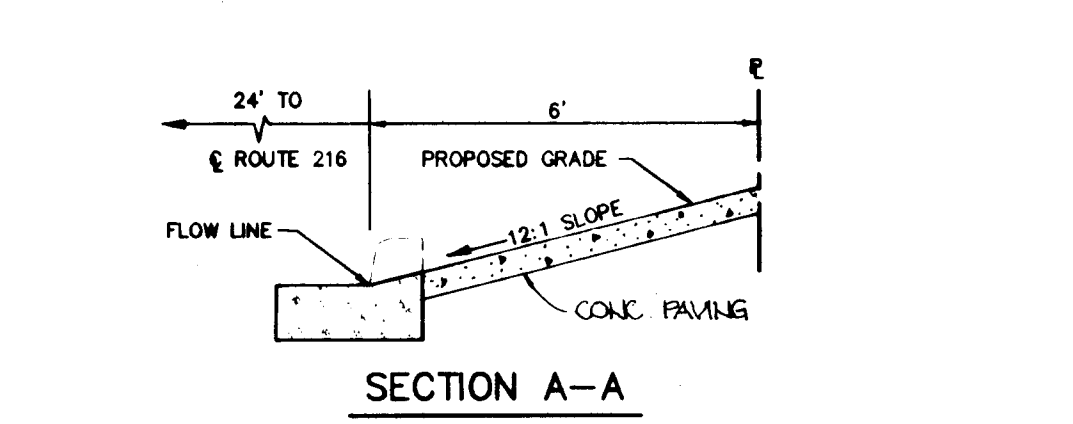
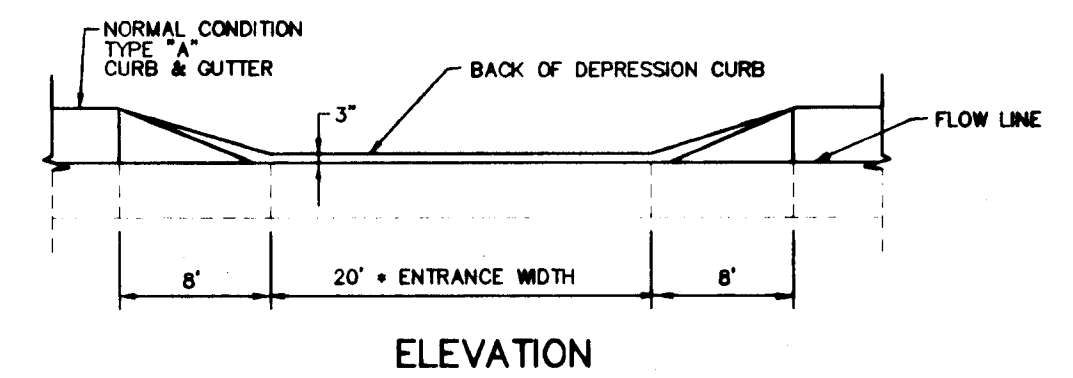
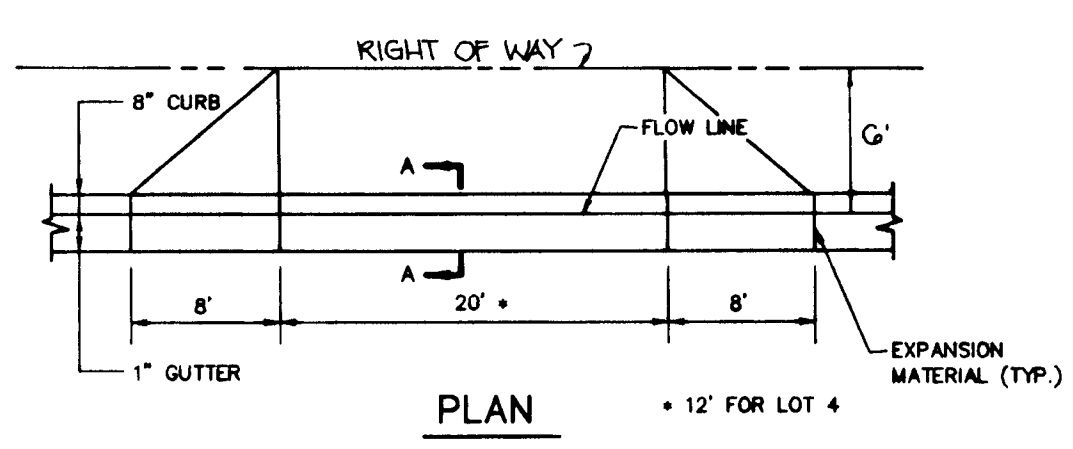
VICINITY MAP  
SCALE: 1"=2000'

FOREST CONSERVATION AREAS ARE TO BE PLANTED IN ACCORDANCE WITH THE APPROVED FOREST CONSERVATION PLAN ON FILE AT THE HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

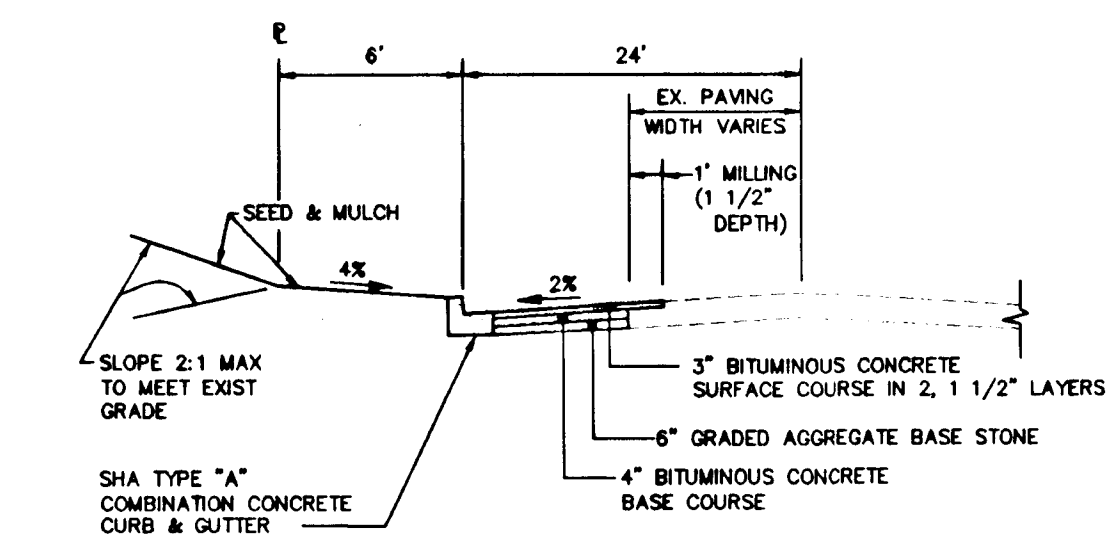


**GENERAL NOTES**

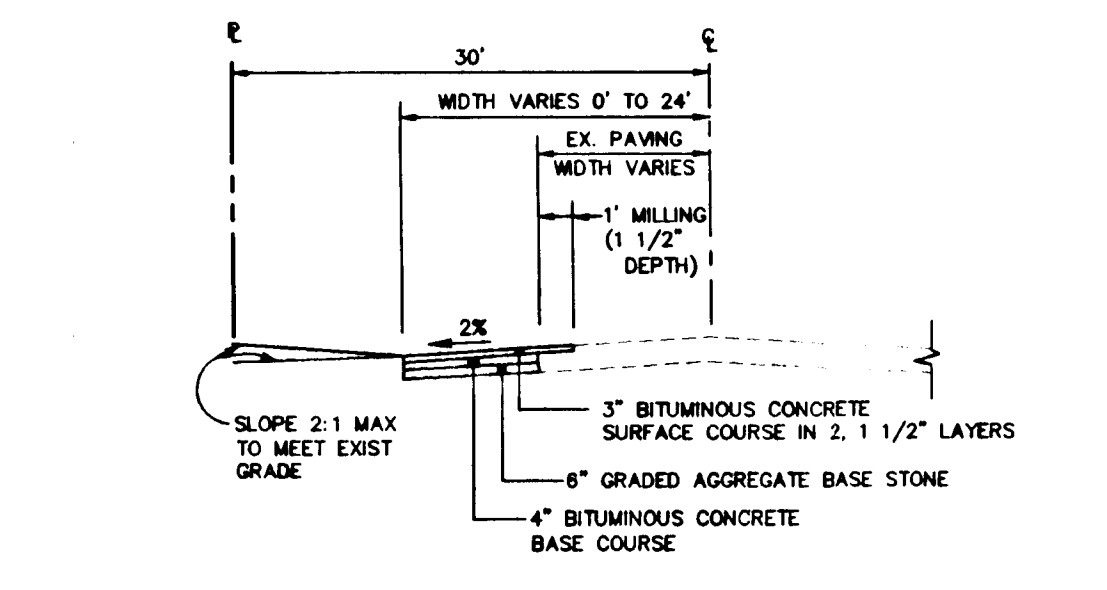
- All construction shall be in accordance with the latest standards and specifications of Howard County, plus MSHA standards and specifications, if applicable.
- The contractor shall notify the Department of Public Works Construction Inspection Division at (410) 313-1880 at least (five) 5 working days prior to the start of work.
- The contractor shall notify "Miss Utility" at 1-800-257-7777 at least 48 hours prior to any excavation work.
- Project Background:  
Location: Tax Map 46 - Parcel 1  
Zoning: R-20  
Total Tract Area: 6.38 Ac.  
Number of Proposed Lots: 10  
Date Preliminary Plan Approved: MAY 11, 1994  
DPZ Reference #: SP 94-03
- Traffic control devices, markings and signing shall be in accordance with the most current edition of the Manual on Uniform Traffic Control Devices (MUTCD). All street and regulatory signs shall be in place prior to the placement of any asphalt.
- Topography taken from field run survey performed by TSA Group Inc., dated: August, 1994, supplemented by 200' scale county topographic maps. Contour interval is 2 feet.
- Howard County monuments 2038001, 2039001, 46BA and 46E3 used for horizontal and vertical datum.
- Water and Sewer for this subdivision is public. Drainage area is Little Patuxent. Contract No. 24-3343-D.
- Stormwater Management for this subdivision is provided by an extended detention facility (class 'a' structure) with water quality by extended detention.
- Floodplain Study not required for this project.
- Forest Conservation Plan compiled by Eco-Science Professionals, Inc. September 1993.
- Traffic Study compiled by Lee Cunningham & Associates, Inc. September 1993.
- Noise Study compiled by TSA Group, Inc., March 1994.
- Geotechnical Report compiled by Atec Associates, Inc. October 1993.
- Existing utilities were located by record drawings and field run survey by TSA Group, Inc. dated August 1994.
- Unless noted as "private" all easements are public.
- The Forest Conservation Easement has been established to fulfill the requirements of Section 16.1200 of the Howard County Code; Forest Conservation Act. No clearing, grading or construction is permitted within the Forest Conservation easement. Forest management practices as defined in the deed of Forest Conservation easement are allowed.
- The stormwater facility shown on these plans will be owned by Howard County but general maintenance such as mowing will be provided by the homeowners association.
- The existing cable running on the North side of MD. Route 216 is of substantial communication importance. It shall be the contractors responsibility to verify its location and exercise extreme care when conducting construction activities in the area.
- The existing water and sewer lines reflect information obtained from as built drawings. It shall be the contractors responsibility to verify the locations and elevations of the existing lines.



DEPRESSED CURB ENTRANCE DETAIL  
NOT TO SCALE



TYPICAL MD RTE 216 WIDENING SECTION  
(@ STA.14+25 TO @ STA.23+28)  
NOT TO SCALE



TYPICAL MD RTE 216 WIDENING SECTION  
(@ STA.12+95 TO @ STA.14+25, @ STA.23+28 TO 24+58)  
NOT TO SCALE

**NOTE:**  
 THE SWM FACILITY SHOWN ON THESE PLANS WILL BE OWNED BY HOWARD COUNTY BUT GENERAL MAINTENANCE SUCH AS MOWING WILL BE PROVIDED BY THE HOMEOWNERS ASSOCIATION.

**STORMWATER MANAGEMENT OPERATIONS AND MAINTENANCE SCHEDULE**

- Top and side slopes of the embankment shall be mowed a minimum of two(2) times a year, once in June and once in September. Other side slopes, the bottom of the pond, and maintenance access should be mowed as needed.
- Debris and litter next to the outlet structure shall be removed during regular mowing operations and as needed.
- When deemed necessary for aesthetic reasons, sediment should be removed from the pond. Approval of the Department of Public Works is required.

SHEET INDEX	
SHEET NO.	TITLE
1	ROAD PLAN AND DETAILS
2	GRADING/SEDIMENT CONTROL PLAN NOTES AND DETAILS
3	DRAINAGE AREA MAP/STORM DRAIN PROFILES
4	STORMWATER MANAGEMENT NOTES AND DETAILS
5	LANDSCAPE PLAN NOTES AND DETAILS

LEGEND	
PROPOSED CURB AND GUTTER	18" D
PROPOSED STORM DRAIN	18" D
PROPOSED PAVEMENT	3" BITUMINOUS CONCRETE SURFACE COURSE IN 2, 1 1/2" LAYERS
EXISTING WATER MAIN	---
EXISTING SEWER LINE	---
FOREST CONSERVATION EASEMENT	---
UNDERGROUND CABLE	---

NO.	DATE	REVISION

TSA GROUP, INC.  
 planning • architecture • engineering • surveying  
 8480 Baltimore National Pike • Ellicott City, Maryland 21043 • (410-468-8100)

OWNER/DEVELOPER:  
 SAMUEL F. LYONS  
 10608 SCAGGSVILLE ROAD  
 LAUREL, MARYLAND 20707

PROJECT:  
**MOLLY'S HILL**  
 LOTS 1 - 12  
 LOCATION:  
 TAX MAP 46 P.O. PARCEL 1  
 6TH ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND

TITLE:  
**ROAD PLAN**

DATE: FEBRUARY 10, 1995  
 MAY 5, 1995

PROJECT NO. 0609

DES: GWF DRN: JR

SCALE: AS SHOWN DRAWING 1 OF 5

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Andrew M. Daniels* 8-17-95  
 CHIEF BUREAU OF HIGHWAYS (ANDREW DANIELS) DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Gina Swinmanjio* 8/22/95  
 CHIEF DIVISION OF LAND DEVELOPMENT AND RESEARCH (GINA SWINMANJIO) DATE

APPROVED: CHIEF DEVELOPMENT ENGINEERING DIVISION  
*Charles Dammers* 8/21/95  
 (CHARLES DAMMERS) DATE

1745

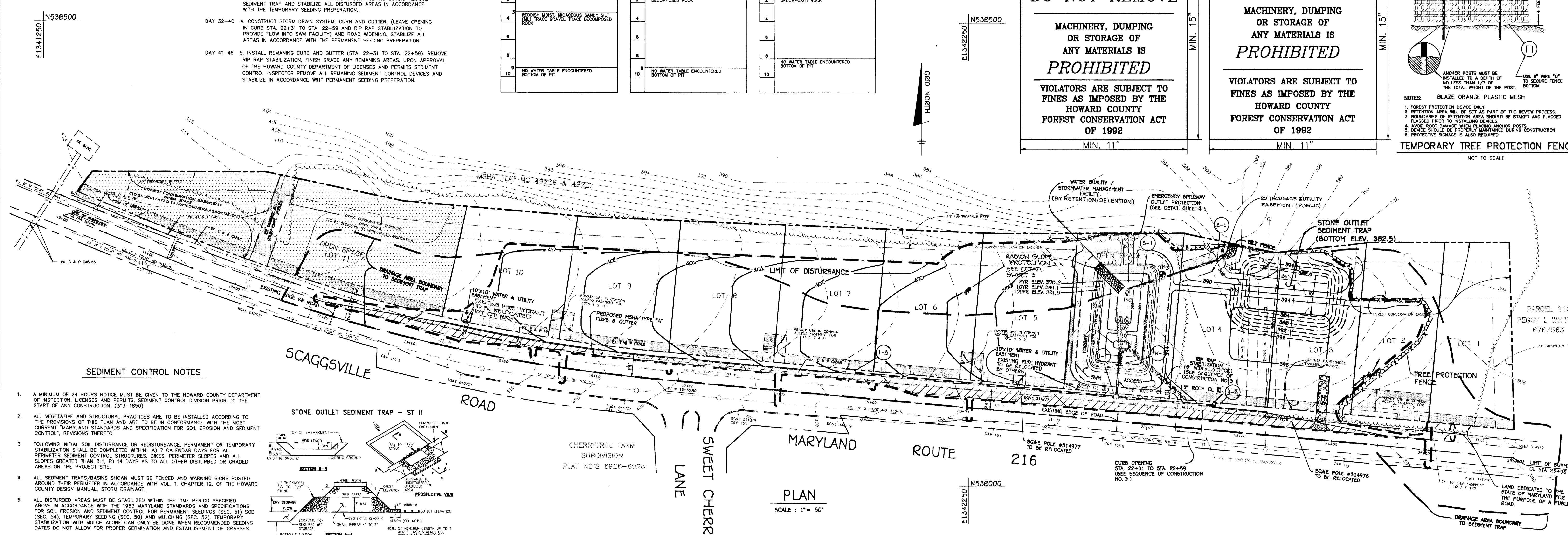
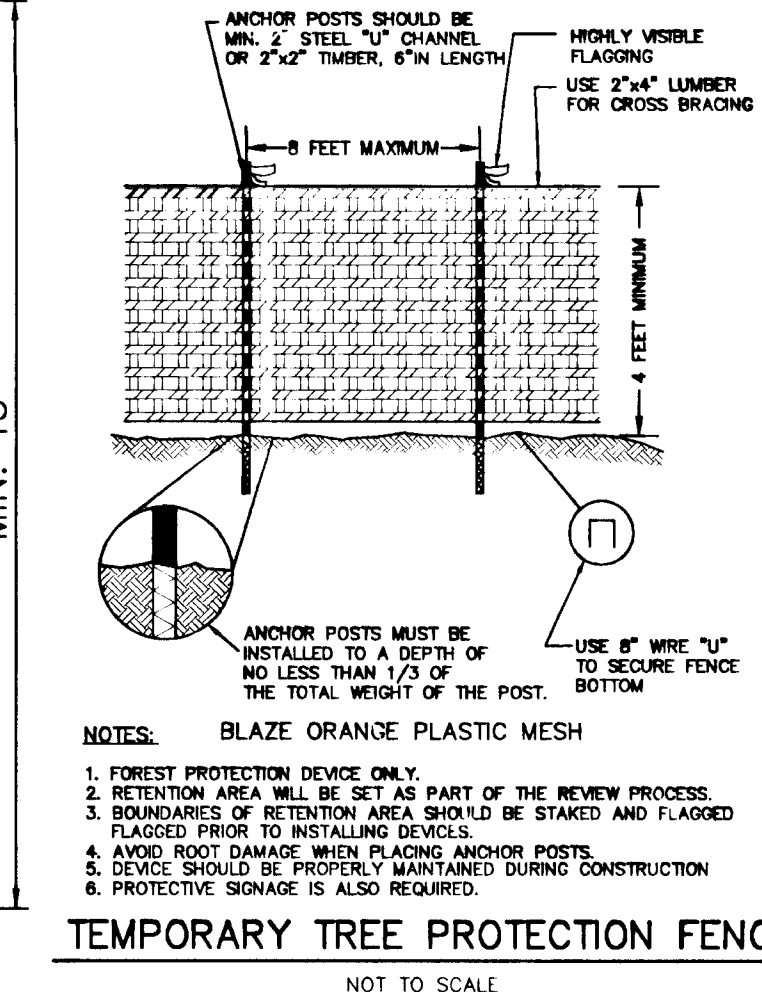
SEQUENCE OF CONSTRUCTION

- DAY 1 1. OBTAIN A GRADING PERMIT
DAY 2-16 2. INSTALL STABILIZED CONSTRUCTION ENTRANCE. CONSTRUCT WATER AND SEWER CONNECTIONS.
DAY 17-31 3. INSTALL TREE PROTECTION FENCE, SEDIMENT TRAP AND SILT FENCE. GRADE SITE, CONSTRUCT STORMWATER MANAGEMENT FACILITY. UPON APPROVAL OF HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT TRAP AND STABILIZE ALL DISTURBED AREAS IN ACCORDANCE WITH THE TEMPORARY SEEDING PREPARATION.
DAY 32-40 4. CONSTRUCT STORM DRAIN SYSTEM, CURB AND GUTTER. (LEAVE OPENING IN CURB STA. 22+31 TO STA. 22+59 AND RIP RAP STABILIZATION TO PROVIDE FLOW INTO SWM FACILITY) AND ROAD WIDENING. STABILIZE ALL AREAS IN ACCORDANCE WITH THE PERMANENT SEEDING PREPARATION.
DAY 41-46 5. INSTALL REMAINING CURB AND GUTTER (STA. 22+31 TO STA. 22+59). REMOVE RIP RAP STABILIZATION, FINISH GRADE OF REMAINING AREAS. UPON APPROVAL OF THE HOWARD COUNTY DEPARTMENT OF LICENSES AND PERMITS SEDIMENT CONTROL INSPECTOR REMOVE ALL REMAINING SEDIMENT CONTROL DEVICES AND STABILIZE IN ACCORDANCE WITH PERMANENT SEEDING PREPARATION.

TP-1, TP-2, TP-3 tables with columns for DEPTH FT. and DESCRIPTION OF MATERIALS. TP-1: 0-4" TOPSOIL, 4-2' REDDISH MOST MICACEOUS SANDY SILT... TP-2: 0-4" TOPSOIL, 4-2' REDDISH MOST MICACEOUS SANDY SILT... TP-3: 0-4" TOPSOIL, 4-2' REDDISH MOST MICACEOUS SANDY SILT...

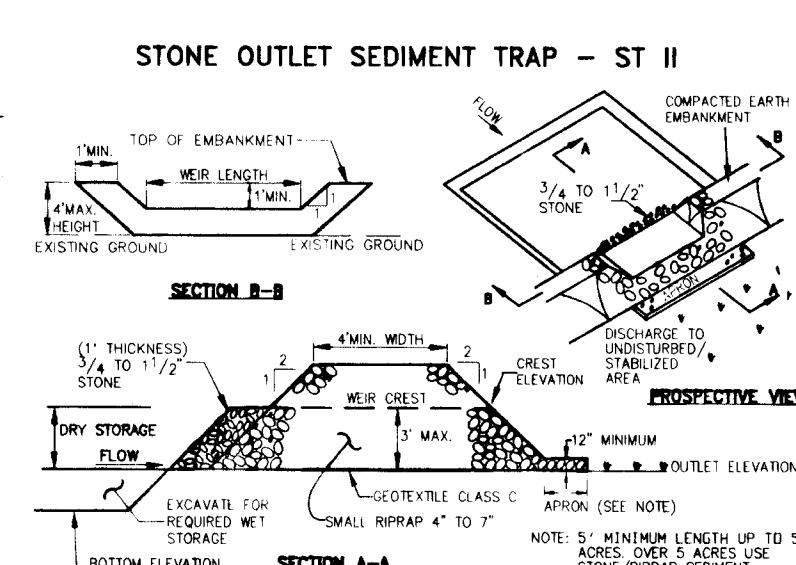
SPECIMEN TREE DO NOT REMOVE MACHINERY, DUMPING OR STORAGE OF ANY MATERIALS IS PROHIBITED VIOLATORS ARE SUBJECT TO FINES AS IMPOSED BY THE HOWARD COUNTY FOREST CONSERVATION ACT OF 1992 MIN. 11"

FOREST RETENTION AREA MACHINERY, DUMPING OR STORAGE OF ANY MATERIALS IS PROHIBITED VIOLATORS ARE SUBJECT TO FINES AS IMPOSED BY THE HOWARD COUNTY FOREST CONSERVATION ACT OF 1992 MIN. 11"



SEDIMENT CONTROL NOTES

- 1. A MINIMUM OF 24 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTION, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION. (313-1850).
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 MOST CURRENT 'MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL' REVISIONS THEREOF.
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 PERMITS FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
7. SITE ANALYSIS:
TOTAL AREA OF SITE: 6.38 ACRES
AREA TO BE ROOFED OR PAVED: 0.1 ACRES
AREA TO BE VEGETATIVELY STABILIZED: 2.46 ACRES
TOTAL CUT: 6,500 CY YDS
TOTAL FILL: 6,500 CY YDS
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 CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY 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. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN BE BACK FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

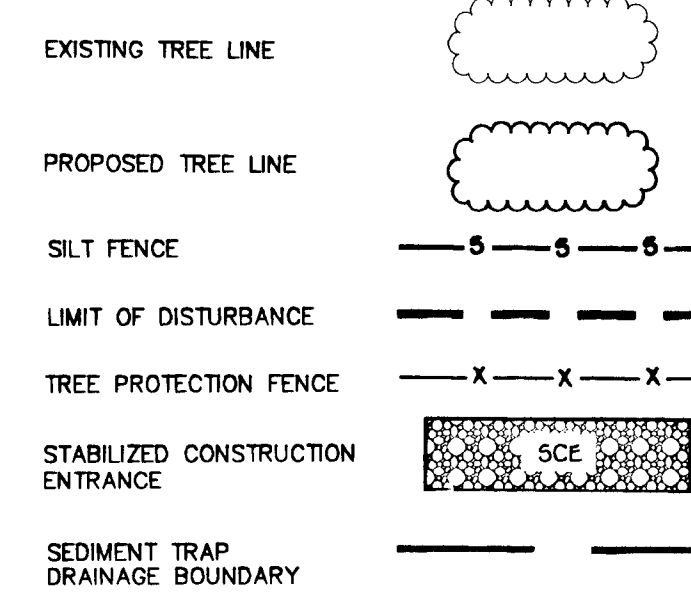


PERMANENT SEEDBED PREPARATION

SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.
SILT FENCE: 5-5-5
LIMIT OF DISTURBANCE: ---
TREE PROTECTION FENCE: X-X-X
SEDIMENT TRAP: [Symbol]
DRAINAGE BOUNDARY: [Symbol]

PLAN SCALE: 1" = 50'

LEGEND



STONE OUTLET SEDIMENT TRAP (ST II)

Table with columns for parameter and value: DRAINAGE AREA: 3.14 AC, STORAGE REQUIRED: 11,304 C.F., STORAGE PROVIDED: 11,313 C.F., BOTTOM ELEVATION: 382.50, CREST ELEVATION: 385.00, EMBANKMENT ELEVATION: 386.00, CLEANOUT ELEVATION: 383.75, CREST WIDTH: 5.0'

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS. Andrew M. Daniels, CHIEF, DIVISION OF HIGHWAYS (ANDREW DANIELS), 8/17/95 DATE.
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING. Gina Surman, CHIEF DIVISION OF LAND DEVELOPMENT AND RESEARCH (GINA SURMAN), 8/22/95 DATE.
Charles Dammer, CHIEF DEVELOPMENT ENGINEERING DIVISION (CHARLES DAMMER), 8/21/95 DATE.

NO DATE REVISION table with 2 columns and 1 row.

TSA GROUP, INC. planning • architecture • engineering • surveying 8400 Baltimore National Pike • Ellicott City, Maryland 21045 • (410-486-8100)

Project information table: OWNER/DEVELOPER: SAMUEL F. LYONS, 10688 SCAGGSVILLE ROAD, LAUREL, MARYLAND 20707. PROJECT: MOLLY'S HILL LOTS 1 - 12. LOCATION: SP-94-03. TITLE: GRADING AND SEDIMENT CONTROL PLAN NOTES AND DETAILS. DATE: MAY, 1995. PROJECT NO.: 0609. SCALE: AS SHOWN. DRAWING: 2 OF 5.

JOHN M. ELORRIAGA Date: 7/27/95. Certify means to state or declare a professional opinion based upon onsite inspections and materials tests which are conducted during construction. The onsite inspections and materials tests are those inspections and tests deemed sufficient and appropriate by commonly accepted engineering standards. Certify does not mean or imply a guarantee by the Engineer nor does an Engineer's certification relieve any other party from meeting requirements imposed by contract, employment or other means, including meeting commonly accepted industry practices.

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/she must engage 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 completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District.
Robert W. Zielhuis 8/14/95 Date

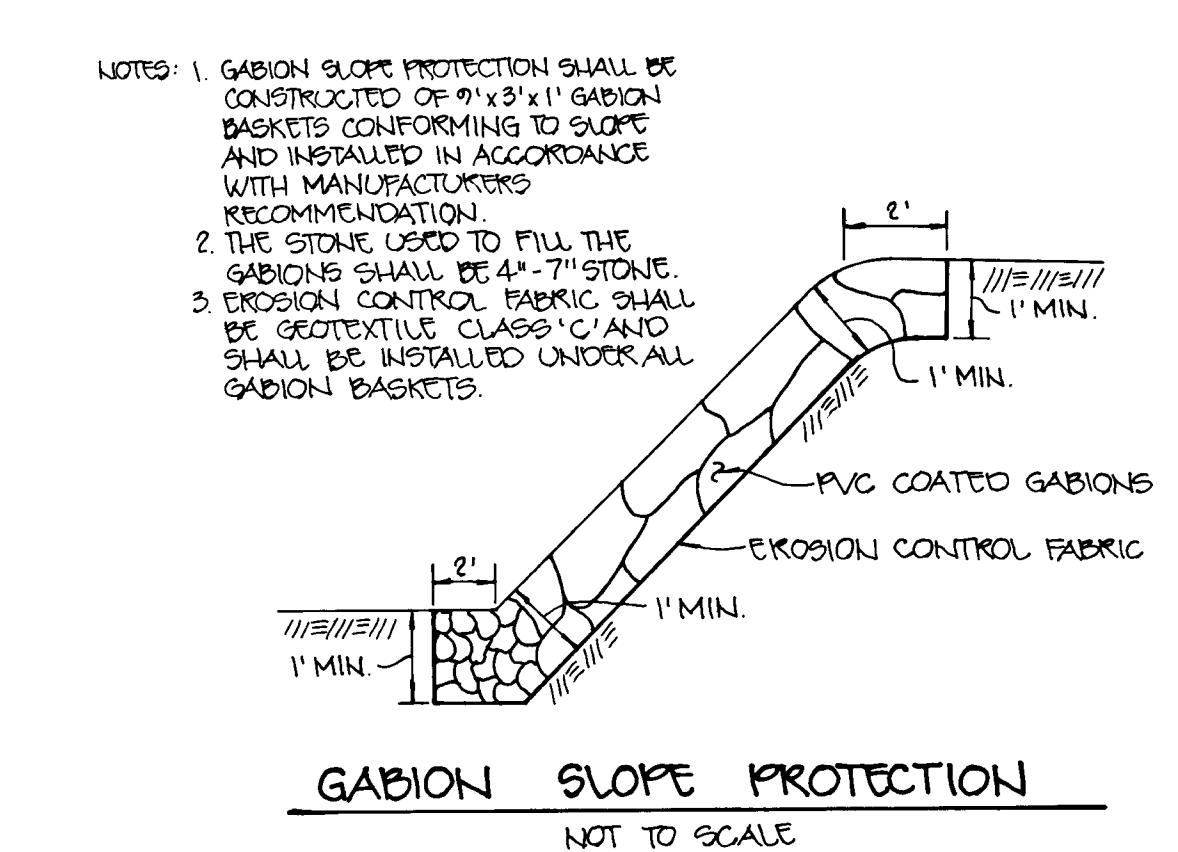
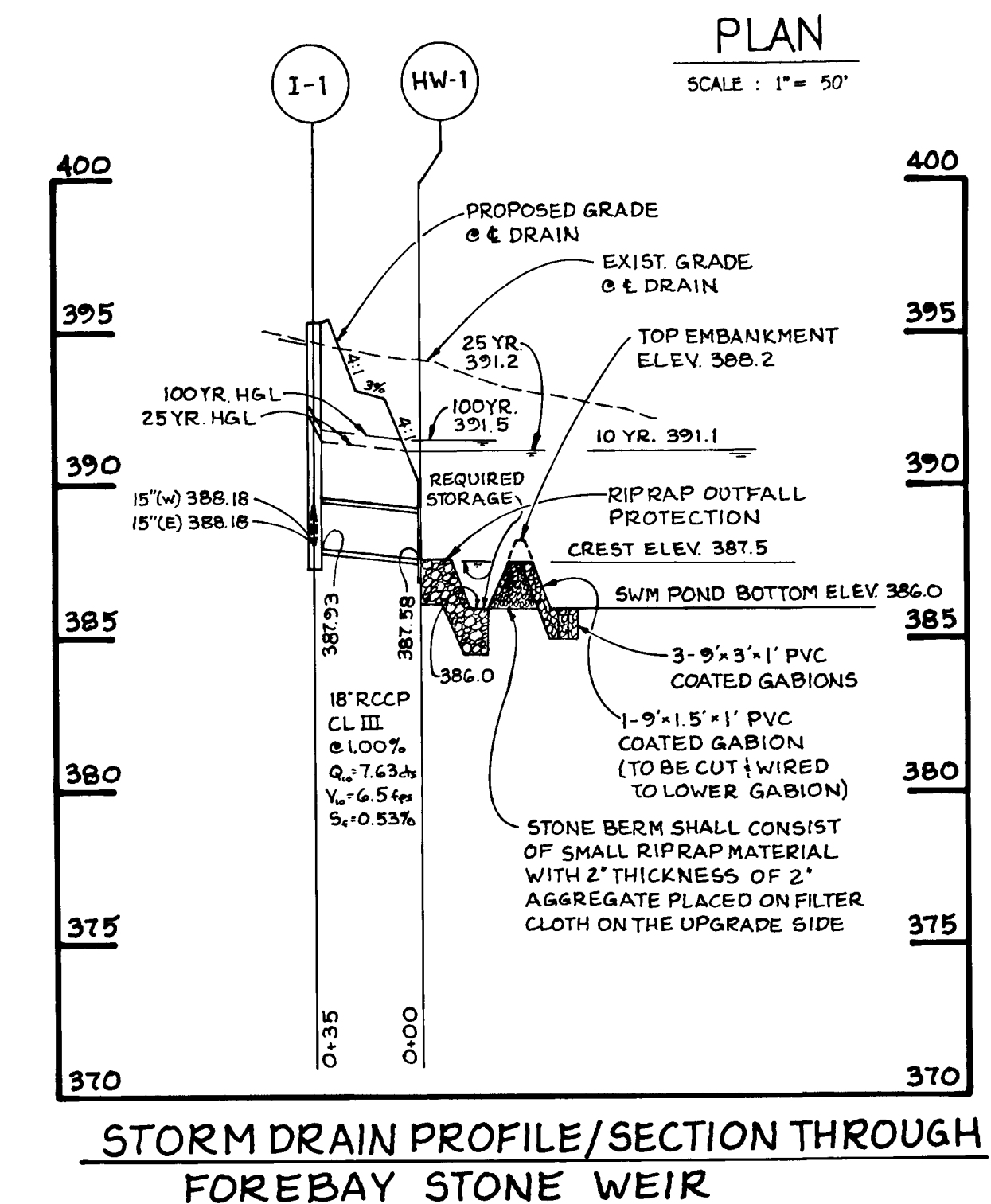
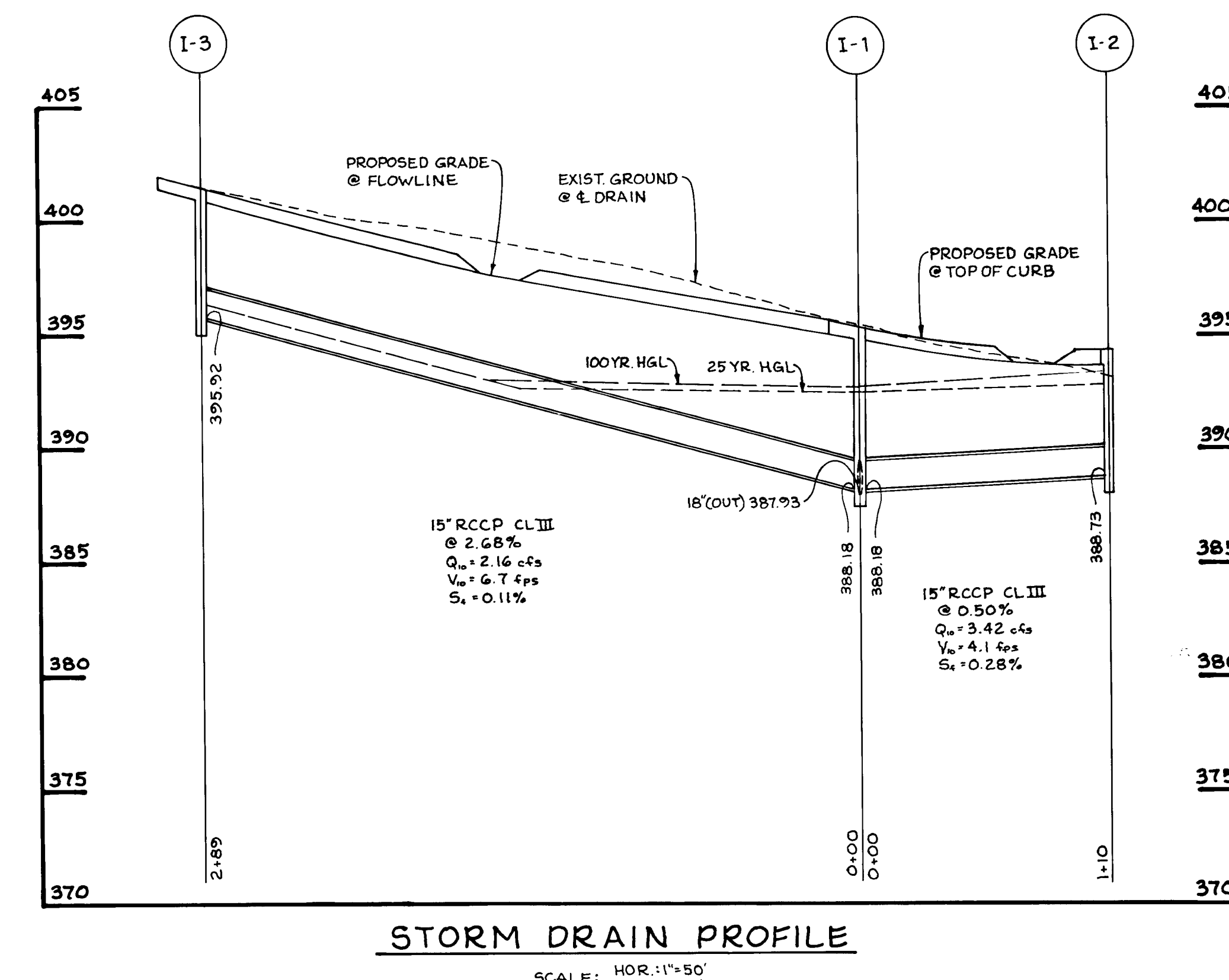
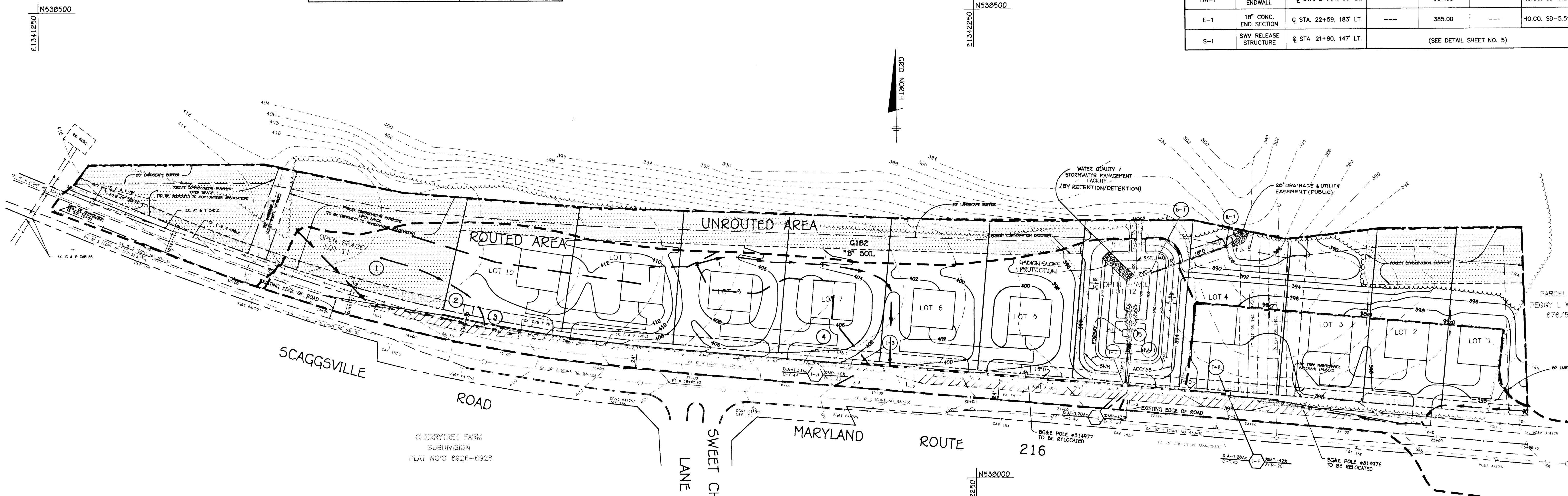
By the Developer: These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for small pond construction, soil erosion and sediment control.
Samuel F. Lyons 7/27/95 Date

Vertical stamp: 1745

STORMWATER MANAGEMENT SUMMARY TABLE		
DRAINAGE AREA TO FACILITY: 4.19 Ac.	2 YEAR	10 YEAR
PRE-DEVELOPED CONDITION:	1.92 CFS	8.50 CFS
COMPUTED INFLOW TO THE FACILITY:	4.35 CFS	10.64 CFS
DISCHARGE FROM THE FACILITY:	1.72 CFS	6.64 CFS
ELEVATION IN THE FACILITY AT DISCHARGE:	390.2	391.1
STORAGE PROVIDED AT ELEVATION:	0.248 AC.FT	0.366 AC.FT
POST-DEVELOPMENT COMBINED DISCHARGE:	1.89 CFS	7.50 CFS

SOILS LEGEND		
TYPE	SYMBOL	NAME
"B"	G1B2	GLENELG LOAM, 3 TO 8 PERCENT, SLOPES MODERATELY ERODED

STRUCTURE SCHEDULE						
NO.	TYPE	LOCATION	INVERT IN	INVERT OUT	TOP ELEVATION	STD. DETAIL NO.
I-1	COG 15	@ STA. 21+64, 24' LT	15" 388.18	18" 387.93	395.49	MSHA MD374.51
I-2	COS 10	@ STA. 22+74, 24' LT.	---	15" 388.73	394.40	MSHA MD374.61
I-3	COG 20	@ STA. 18+75, 24' LT.	---	15" 395.92	401.59	MSHA MD374.61
HW-1	18" TYPE 'C' ENDWALL	@ STA. 21+64, 59' LT.	---	387.58	---	HO.CO. SD-5.21
E-1	18" CONC. END SECTION	@ STA. 22+59, 183' LT.	---	385.00	---	HO.CO. SD-5.51
S-1	SWM RELEASE STRUCTURE	@ STA. 21+80, 147' LT.	(SEE DETAIL SHEET NO. 5)			



LEGEND	
--- --	STORMWATER MANAGEMENT DRAINAGE AREA BOUNDARY
① --- ②	STORMWATER MANAGEMENT TIME OF CONCENTRATION FLOW PATH
---	STORM DRAIN INLET DRAINAGE AREA BOUNDARY
--- --	STORM DRAIN TIME OF CONCENTRATION FLOW PATH
---	EXISTING TREE LINE
---	PROPOSED TREE LINE

NO.	DATE	REVISION

TSA GROUP, INC.  
planning • architecture • engineering • surveying  
8680 Baltimore National Pike • Ellicott City, Maryland 21043 • (410-486-8106)

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.  
*Andrew M. Daneker* 8-17-95  
CHIEF BUREAU OF HIGHWAYS (ANDREW DANEKER) DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.  
*Gina Tirinnanzi* 9/22/95  
CHIEF DIVISION OF LAND DEVELOPMENT AND RESEARCH (GINA TIRINNANZI) DATE

*Charles Dammers* 9/21/95  
CHIEF DEVELOPMENT ENGINEERING DIVISION (CHARLES DAMMERS) DATE

OWNER/DEVELOPER:  
SAMUEL F. LYONS  
10688 SCAGGSVILLE ROAD  
LAUREL, MARYLAND 20707

PROJECT:  
**MOLLY'S HILL**  
LOTS 1 - 12

LOCATION:  
TAX MAP 46 P.O. PARCEL 1  
6TH ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

TITLE:  
**DRAINAGE AREA MAP  
AND STORM DRAIN PROFILES**

DATE: MAY, 1995 PROJECT NO. 0609

DES: GWF DRN: JR SCALE: AS SHOWN DRAWING 2 OF 3

1745

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 shore breaks shall be sloped to no steeper than 1:1.

Areas to be covered by the 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 the ground surface. For dry stormwater management ponds, a minimum of a 50 foot radius around the inlet structure shall be cleared.

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.

Earth Fill

Material - The fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, wood, rubbish, stones greater than 6", frozen or other objectionable materials. Fill material for the center of the embankment and cut off trench shall conform to Unified Soil Classification GC, SC, CH, or CL. Consideration may be given to the use of other materials in the embankment if design and construction are supervised by a geotechnical engineer.

Placement - Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in maximum 8 inch thick (before compaction) layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portions of the embankment. The principal spillway must be installed concurrently with fill placement and not excavated into 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 will be obtained 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 squeezed out.

Where a minimum required density is specified, it shall not be less than 95% of maximum dry density with a moisture content within +/- 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.

Cut Off Trench - 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 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 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 - All of the following criteria shall apply for 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 Specification M-190 Type A with watertight coupling bands. Any bituminous coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. The following coatings or an approved equal may be used: Nexon, Plastico-Cote, Blac-Klad, and Beth-Cu-Loy. Coated corrugated steel pipe shall meet the requirements of AASHTO M-245 and M-246.

Materials - (Aluminum Coated 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 shall be between 4 and 9.

- 2. Coupling bands, anti-seep collars, and sections, etc., must be composed of the same material as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials of least 24 mils in thickness.
- 3. 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. 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.

All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be rolled on adequate number of corrugations to accommodate the band width. The following type connections are acceptable for pipes less than 48" in 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 corrugation depth. Pipes 48" in diameter and larger shall be connected by a 24" long annular corrugated band 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.

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

Reinforced Concrete Pipe - All of the following criteria shall apply for reinforced concrete pipe:

- 1. Materials - Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM Designation C-361. An approved equivalent is AWWA Specification C-302.
- 2. Bedding - All reinforced concrete pipe conduits shall be laid in a concrete bedding for their entire length. The bedding shall consist of high slump concrete placed under 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 and 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 from the riser.
- 4. Backfilling shall conform to "Structure Backfill."
- 5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Polyvinyl Chloride (PVC) Pipe - All of the following criteria shall apply for polyvinyl 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 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. Backfilling shall conform to "Structure Backfill."
- 5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Concrete

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

Rock Riprap

All rock shall be dense, sound, and free from cracks, seams, and other defects conducive to accelerated weathering. The rock fragments to be used shall be of such size that the largest dimension of an individual rock fragment shall not be less than one third the greatest dimension of the fragment.

The rock shall have the following properties:

- 1. Bulk specific gravity (saturated surface-dry basis) not less than 2.5.
- 2. Absorption not more than three percent.
- 3. Soundness: Weight loss in five cycles not more than 20 percent when sodium sulfate is used.

Bulk specific gravity and absorption shall be determined according to ASTM C 127. The test for soundness shall be performed according to ASTM C 88.

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 reasonably homogeneous with the larger rocks uniformly distributed and firmly in contact one to another with the smaller rocks filling the voids between the larger rocks. Filter cloth shall be placed under all riprap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 919.12.

Care of Work during Construction

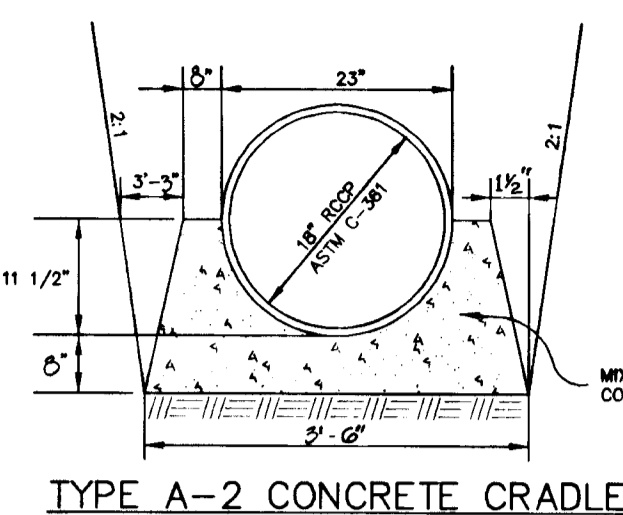
All work on permanent structures shall be carried out in areas free from water. The contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also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

Stabilization

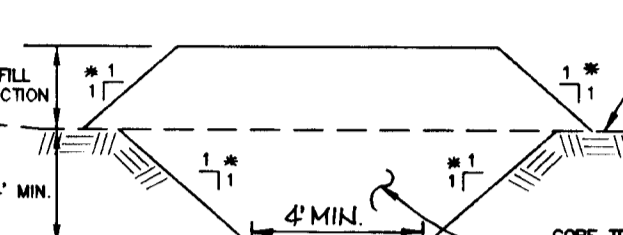
All borrow areas shall be graded to provide proper drainage and left in a slightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Maryland Soil Conservation Service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

Erosion and Sediment Control

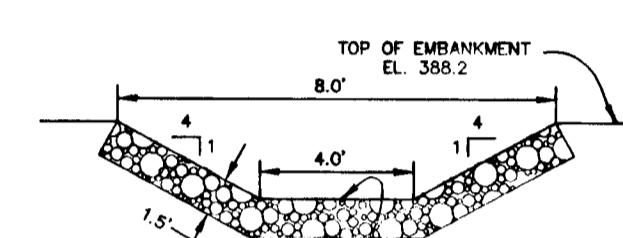
Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures to be employed during the construction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



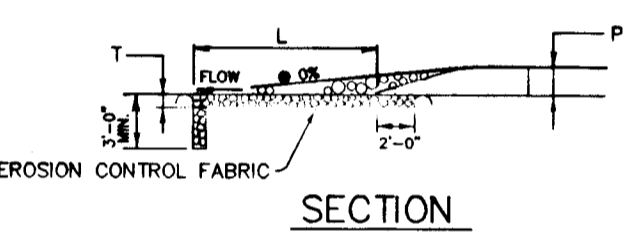
TYPE A-2 CONCRETE CRADLE



CORE TRENCH SECTION



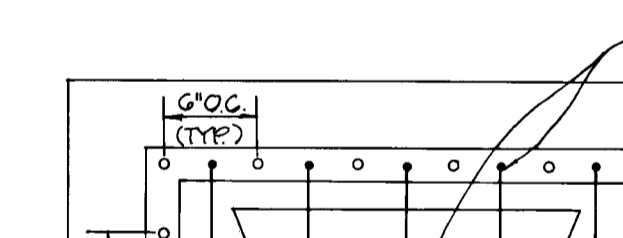
PROFILE THROUGH FOREBAY STONE WEIR



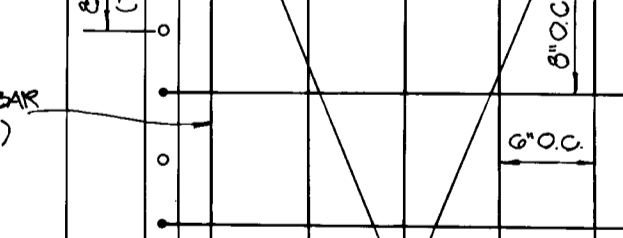
SECTION PLAN

Table with columns: STRUCTURE, L-50, LENGTH (L), WIDTH (W), THICKNESS (T). Rows include HW-1+ and E-1+X.

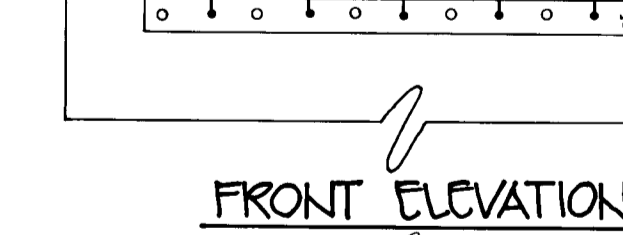
OUTLET PROTECTION DETAIL



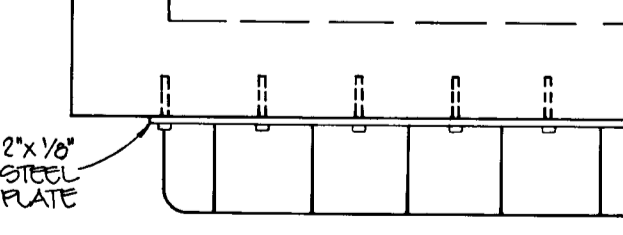
FRONT ELEVATION



SIDE ELEVATION



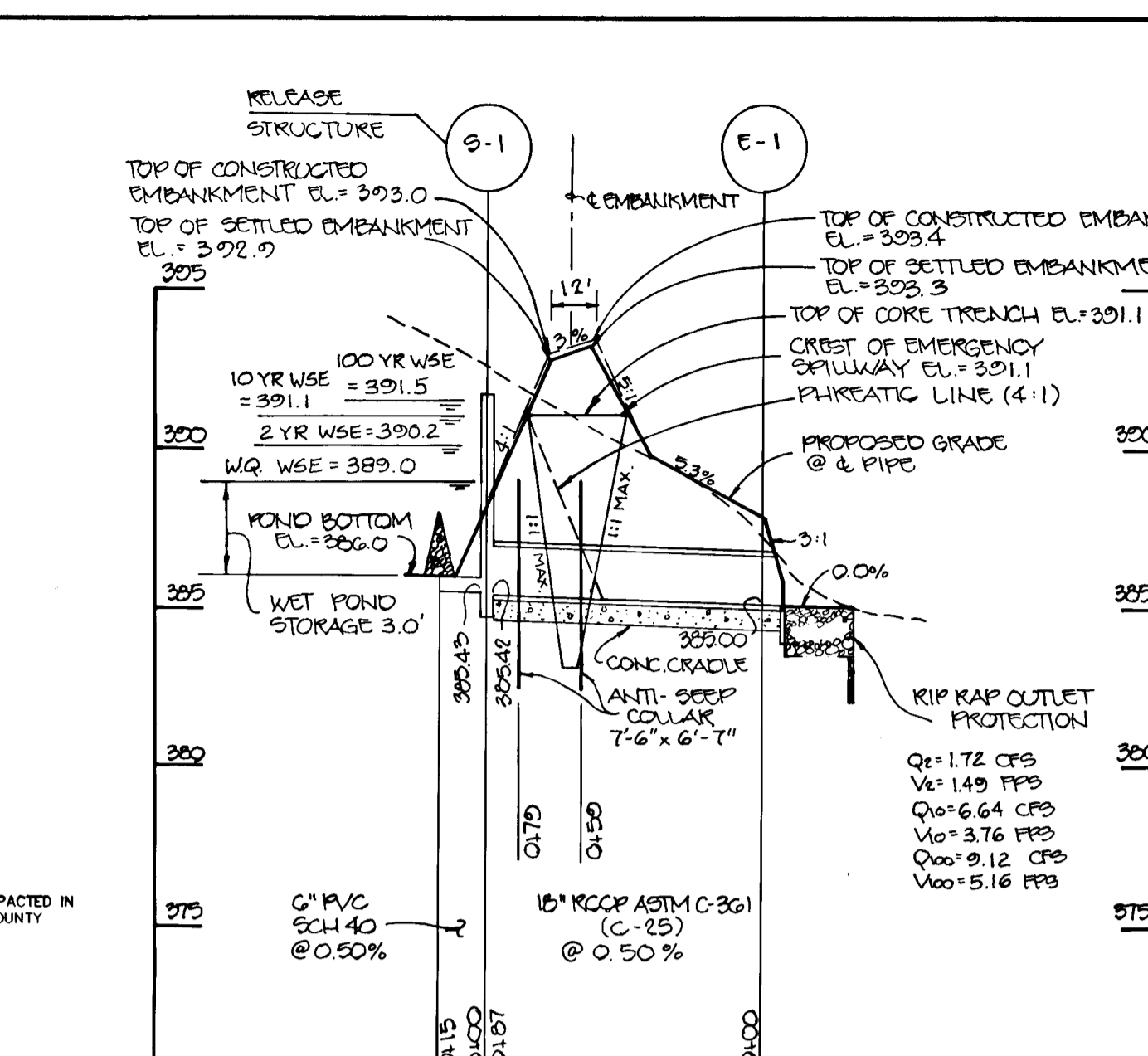
TOP



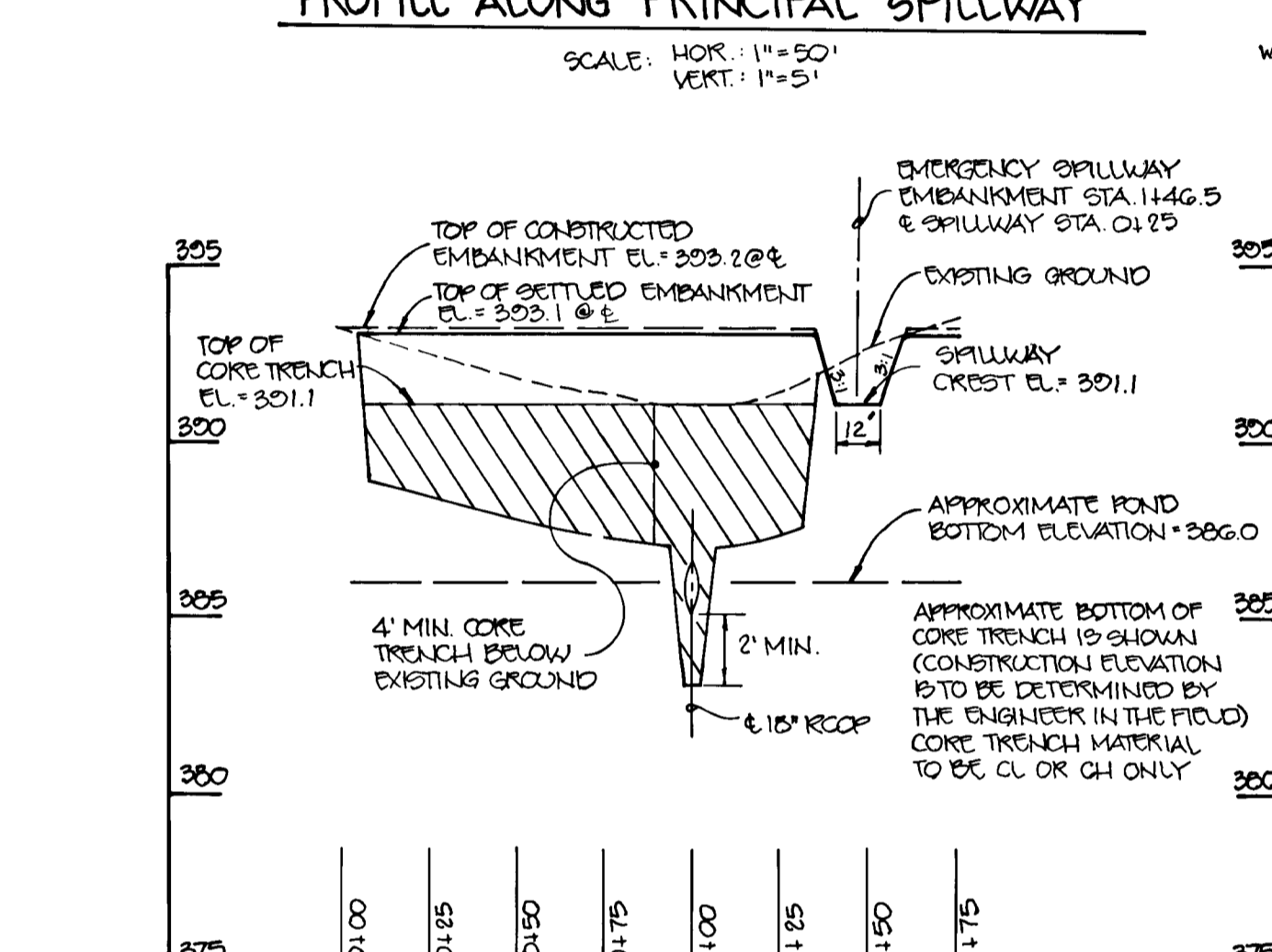
TRASH RACK DETAIL



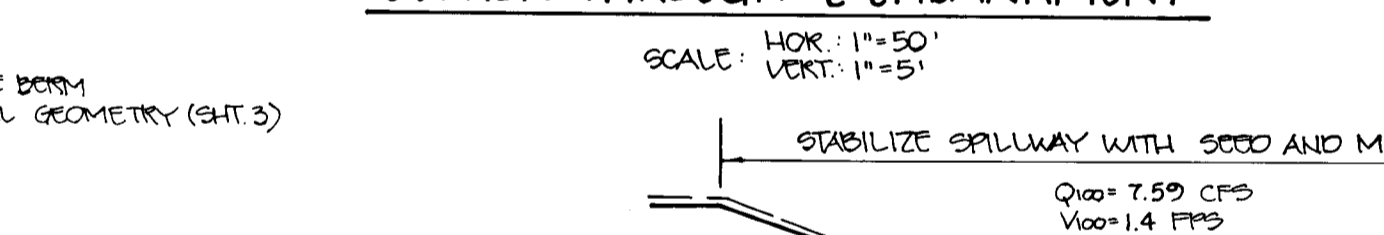
POND DEWATERING DEVICE DETAIL



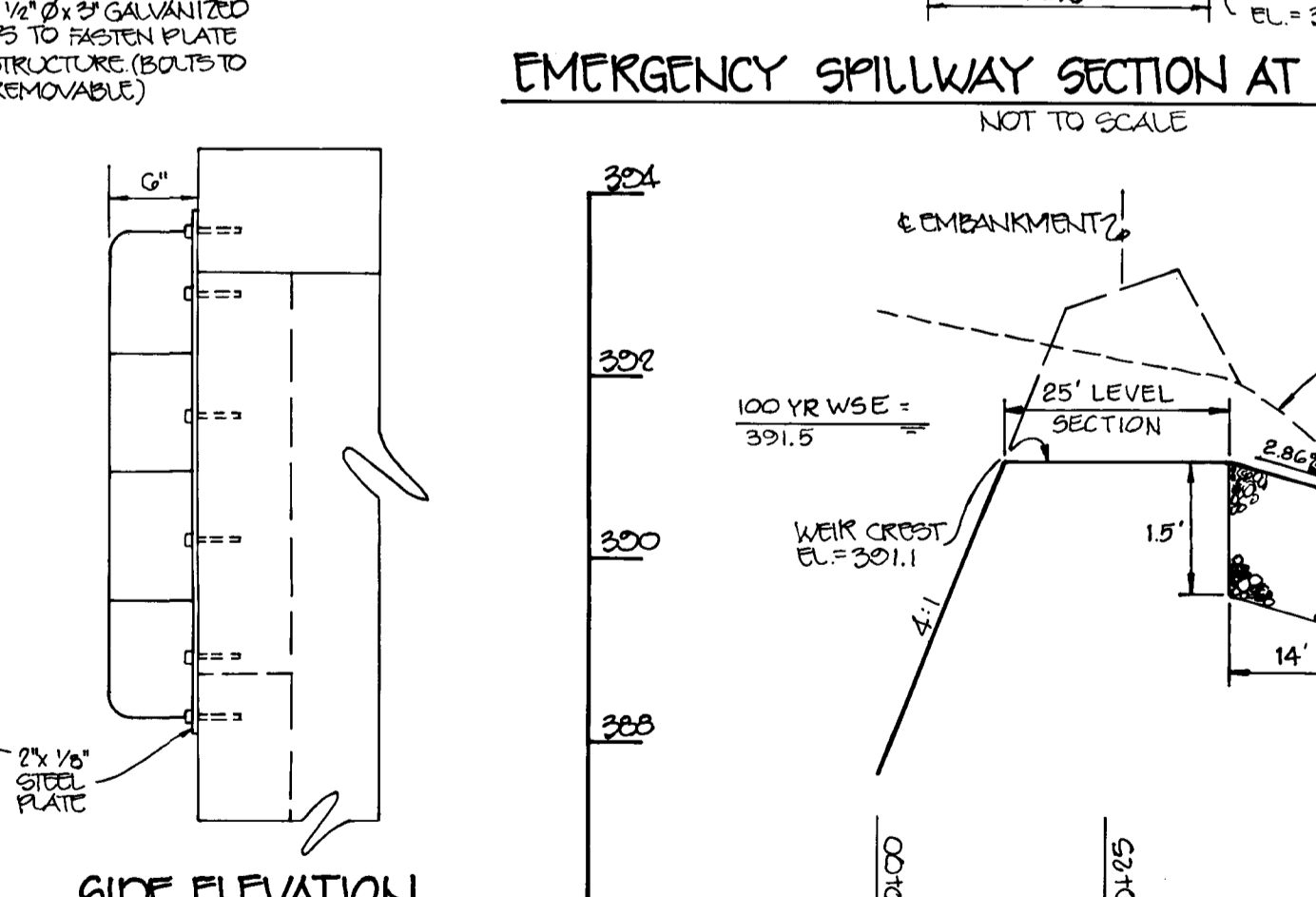
PROFILE ALONG PRINCIPAL SPILLWAY



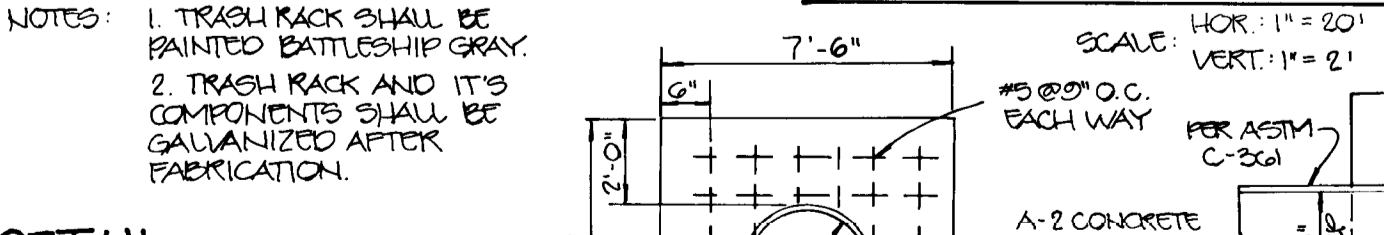
SECTION THROUGH EMBANKMENT



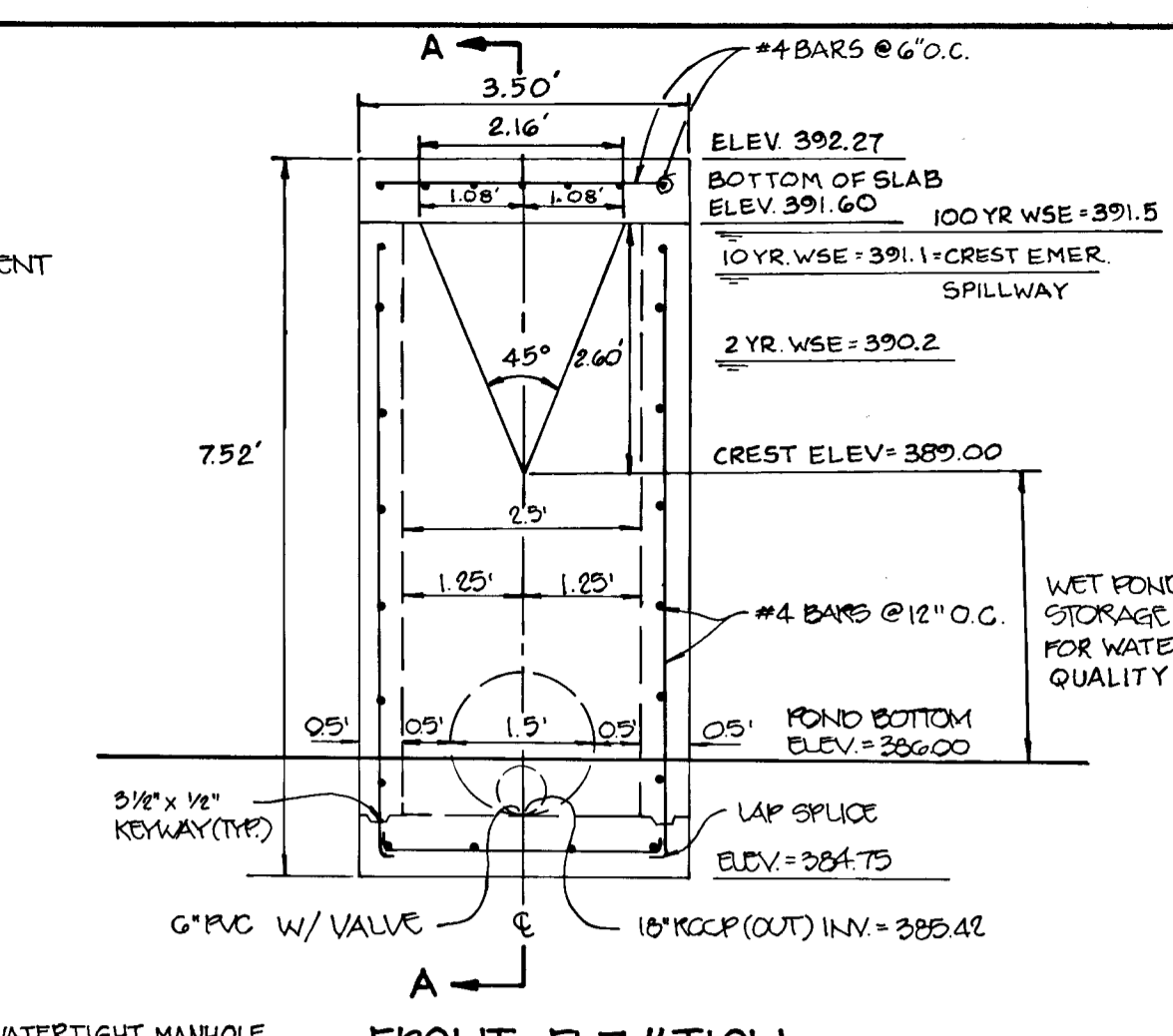
EMERGENCY SPILLWAY SECTION AT EMBANKMENT



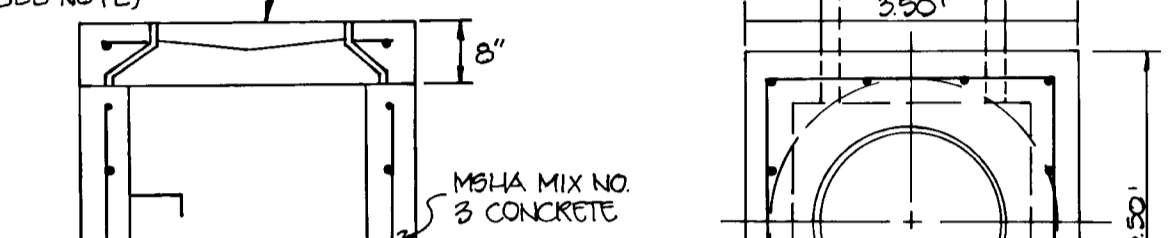
EMERGENCY SPILLWAY PROFILE



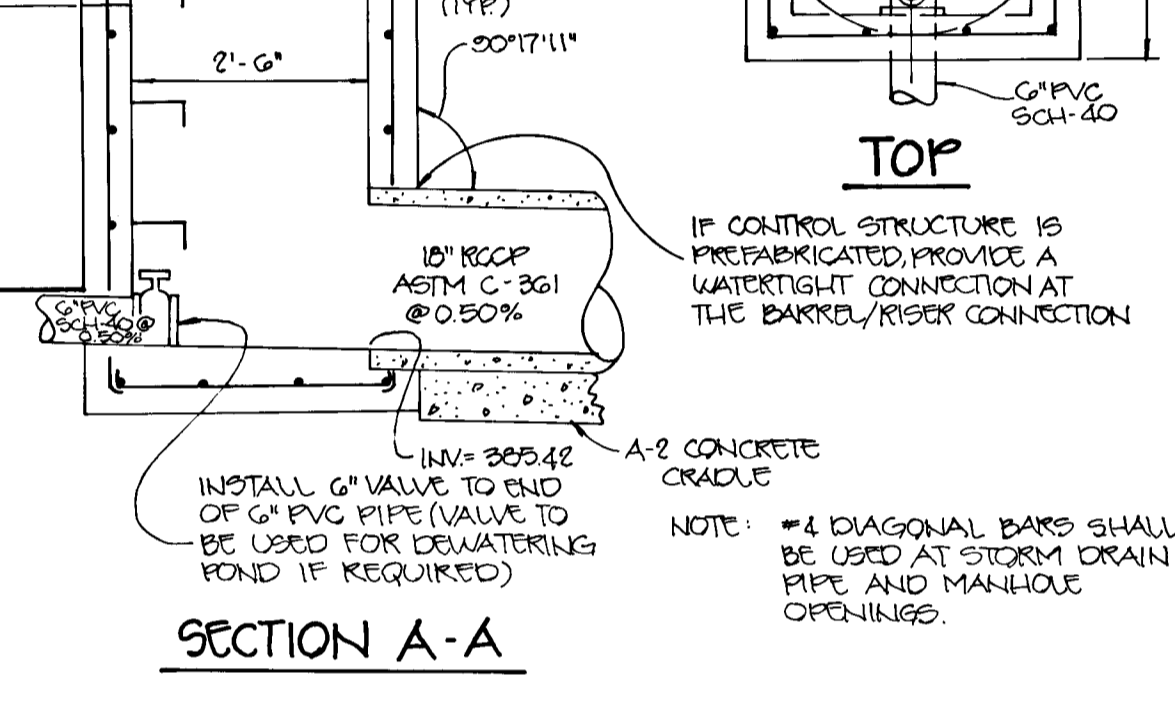
ANTI-SEEP COLLAR DETAIL



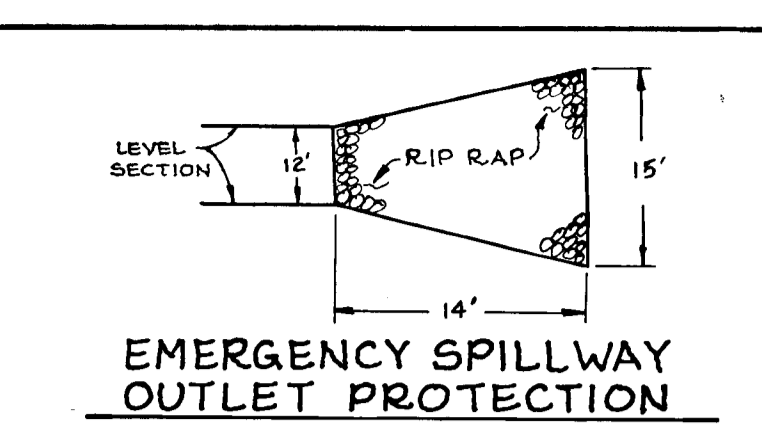
FRONT ELEVATION



SECTION A-A



S-1 RELEASE STRUCTURE



EMERGENCY SPILLWAY OUTLET PROTECTION

OPERATION, MAINTENANCE AND INSPECTION

Inspection of the pond shown herein shall be performed at least annually, in accordance with the checklist and requirements contained within USDA, SCS "STANDARDS AND SPECIFICATIONS FOR PONDS" (MD-378) and any heirs, successors, or assigns shall be responsible for the safety of the pond and the continued operation, surveillance, inspection, and maintenance thereof. The pond owner(s) shall promptly notify the SOIL CONSERVATION DISTRICT of any unusual observations that may be indications of distress such as excessive seepage, turbid seepage, sliding or slumping.

"I hereby certify that the facility shown on this plan was constructed as shown on the "AS-BUILT" plans and meets the approved plans and specifications.

JOHN M. ELORRAGA, PE #16891 Date

Certify means to state or declare a professional opinion based upon onsite inspections and materials tests which are conducted during construction. The onsite inspections and materials tests are those inspections and tests deemed sufficient and appropriate by commonly accepted engineering standards. Certify does not mean or imply a guarantee by the Engineer nor does it constitute a warranty of any kind. The Engineer's liability is limited to the professional services rendered by the Engineer and shall not extend to any other party from meeting requirements imposed by contract, employment or other means, including meeting commonly accepted industry practices.

By the Developer: "I certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion 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 of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District."

JOHN M. ELORRAGA, PE #16891 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/she must engage 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 completion."

JOHN M. ELORRAGA, PE #16891 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.

These plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS. APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

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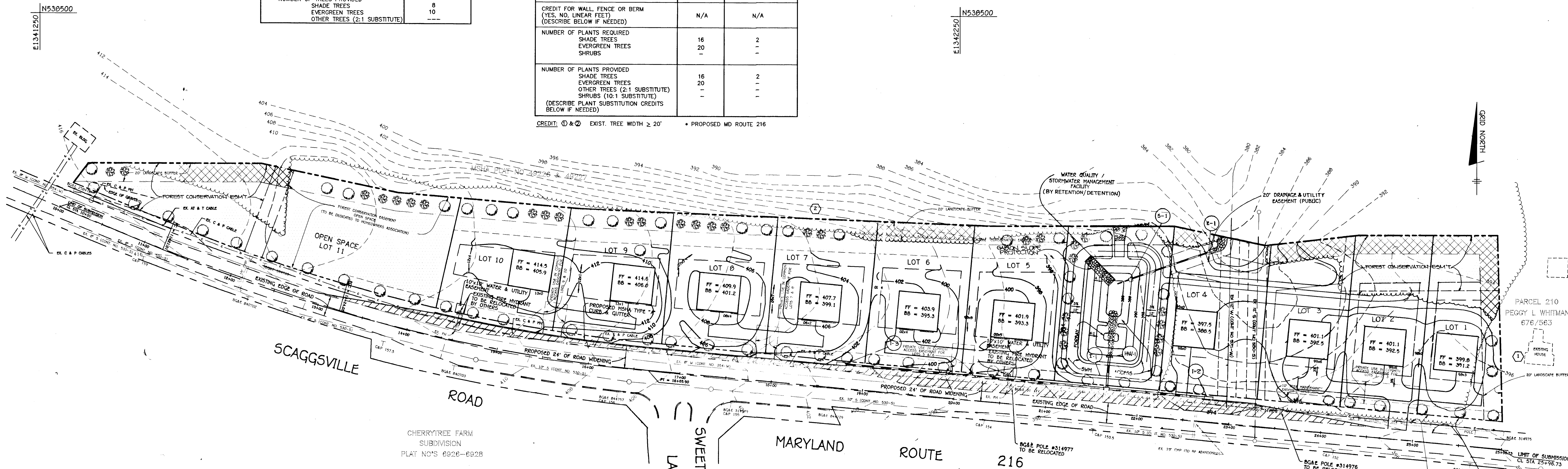
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS. APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

STILL

SCHEDULE D STORMWATER MANAGEMENT AREA LANDSCAPING	
LINEAR FEET OF PERIMETER	415
NUMBER OF TREES REQUIRED	8
SHADE TREES	10
EVERGREEN TREES	NO
CREDIT FOR EXISTING VEGETATION (NO, YES AND %)	NO
CREDIT FOR OTHER LANDSCAPING (NO, YES AND %)	NO
NUMBER OF TREES PROVIDED	8
SHADE TREES	10
EVERGREEN TREES	---
OTHER TREES (2:1 SUBSTITUTE)	---

SCHEDULE A PERIMETER LANDSCAPE EDGE		
CATEGORY	ADJACENT TO ROADWAYS	ADJACENT TO PERIMETER PROPERTIES
LANDSCAPE TYPE	TYPE "B"	TYPE "A"
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	1,075'	195'
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	YES 282'	YES 90'
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	N/A	N/A
NUMBER OF PLANTS REQUIRED	16	2
SHADE TREES	20	---
EVERGREEN TREES	---	---
SHRUBS	---	---
NUMBER OF PLANTS PROVIDED	16	2
SHADE TREES	20	---
EVERGREEN TREES	---	---
OTHER TREES (2:1 SUBSTITUTE)	---	---
SHRUBS (10:1 SUBSTITUTE)	---	---
(DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)		

CREDIT: ① & ② EXIST. TREE WIDTH ≥ 20' \* PROPOSED MD ROUTE 216

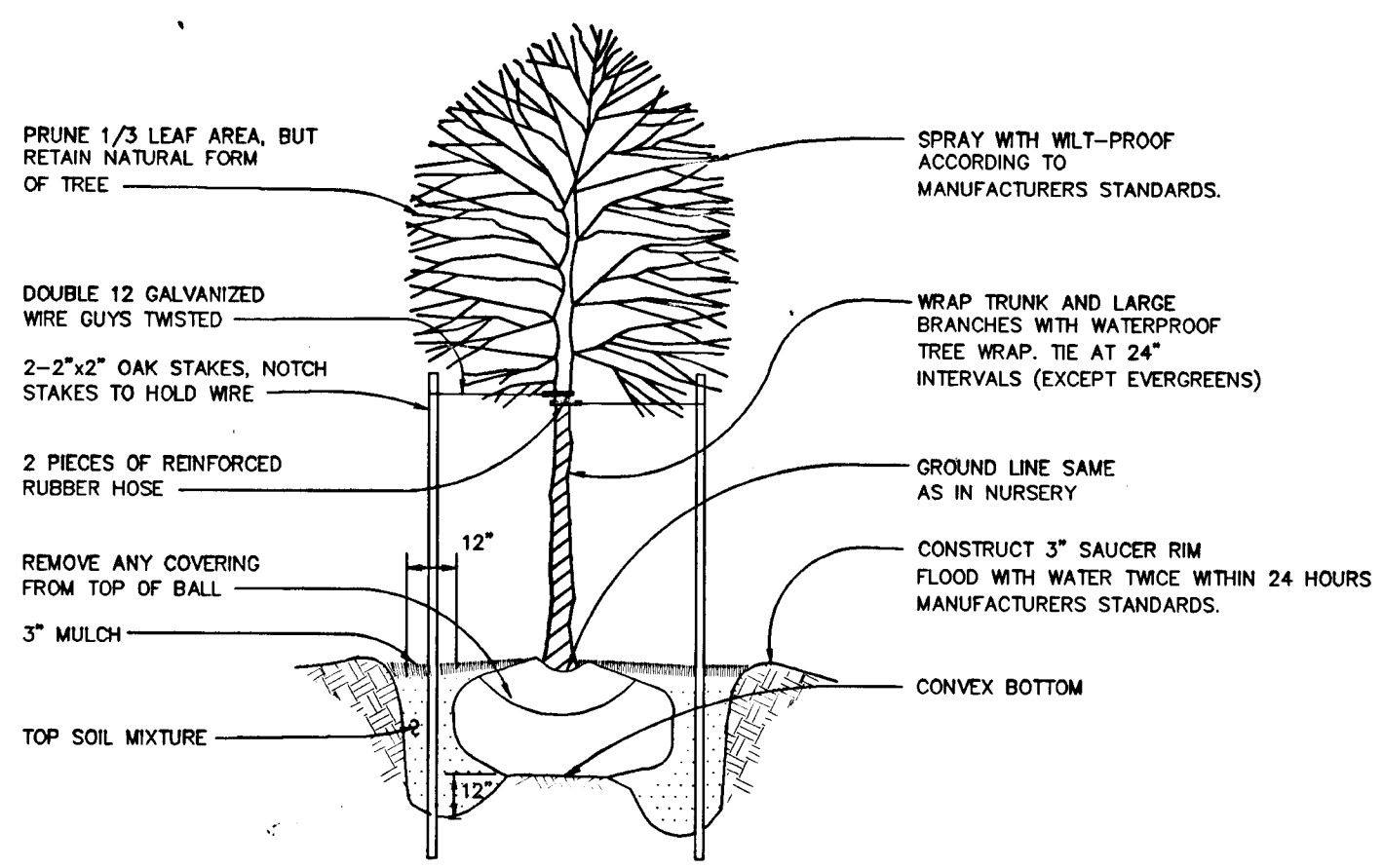


- NOTES:**
- TREES MUST BE PLANTED A MINIMUM OF 4 FEET FROM THE CURB AND MUST BE A MINIMUM OF 5 FEET FROM ANY STORM DRAIN.
  - A MINIMUM DISTANCE OF 20 FEET SHALL BE MAINTAINED BETWEEN ANY TREES LOCATED ALONG THE CURB LINE.
  - TREES MUST BE PLANTED A MINIMUM OF 5 FEET FROM ANY OPEN SPACE ACCESS STRIP AND 10 FEET FROM A DRIVEWAY.
  - SEE TREE PLANTING DETAIL, THIS SHEET.

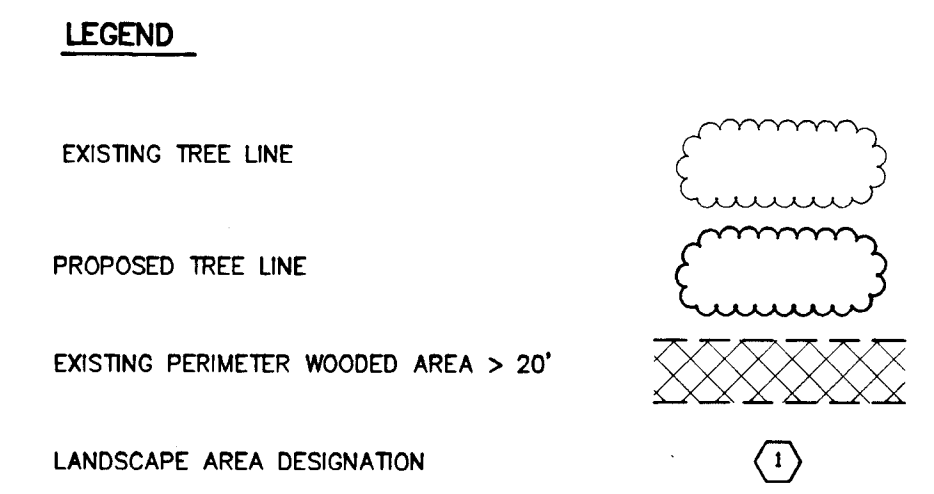
**PLAN**  
SCALE: 1" = 50'

THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISION OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.  
FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DEPARTMENT OF PUBLIC WORKS DEVELOPERS AGREEMENT IN THE AMOUNT \$500.00.

PLANTING LIST			
SYMBOL	QUANTITY	NAME	REMARKS
○	65	ACER RUBRUM (RED MAPLE)	2 1/2" MIN. CAL. B&B FULL HEAD
●	30	PINUS STROBUS (EASTERN WHITE PINE)	5'-6" HT. UNSHEARED



**TREE PLANTING DETAIL**  
NOT TO SCALE



NO.	DATE	REVISION

TSA GROUP, INC.  
planning architecture engineering surveying  
8400 Baltimore National Pike • Ellicott City, Maryland 21043 • (410-466-6100)

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.  
*Andrew M. Danek*  
CHIEF BUREAU OF HIGHWAYS (ANDREW DANENK) DATE: 8-17-95

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.  
*Gina Tikhonantzi*  
CHIEF DIVISION OF LAND DEVELOPMENT AND RESEARCH (GINA TIKHONANTZI) DATE: 8/22/95

*Charles Dammers*  
CHIEF DEVELOPMENT ENGINEERING DIVISION (CHARLES DAMMERS) DATE: 8/14/95

OWNER/DEVELOPER:  
SAMUEL F. LYONS  
10688 SCAGGSVILLE ROAD  
LAUREL, MARYLAND 20707

PROJECT:  
**MOLLY'S HILL**  
LOTS 1 - 12

SP-94-03  
LOCATION:  
TAX MAP 46 P.O. PARCEL 1  
6TH ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

TITLE:  
**LANDSCAPE PLAN AND DETAILS**

DATE: FEBRUARY 10, 1995  
MAY 2, 1995

PROJECT NO. 0609

SCALE: AS SHOWN DRAWING 5 OF 5

DES: GWF DRN: JR

1745