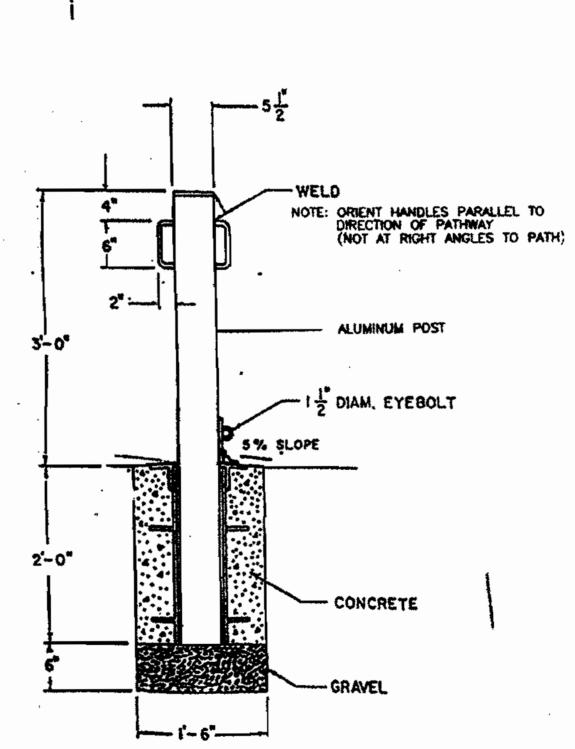
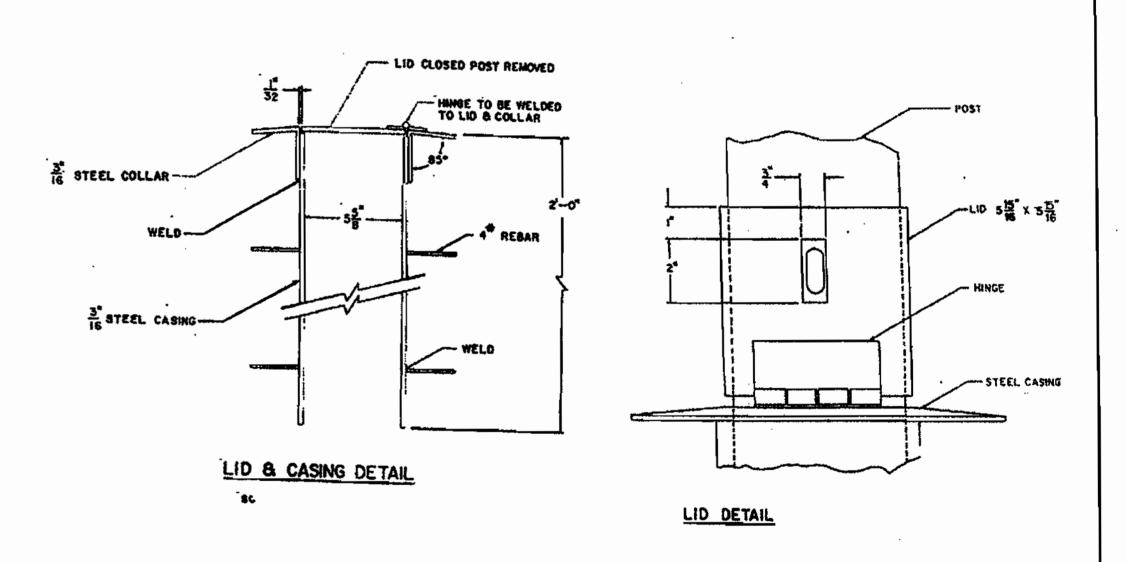


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- WELD ALL SEAMS



REMOVABLE BOLLARD WITH SAFETY LID

AND NON-PROTRUDING COLLAR

NOT TO SCALE

APPROVED: DEPARTMENT OF RECREATION AND PARKS DIRECTOR, DEPT. OF RECREATION AND PARKS Date	Chief, Division	at Land Develo	um	ZONING	Date 9/2	29/00
	SUBOMISION	N/A	SECTION/AREA	1		EL. NO. 235
OWNER	LIBER/FOILO	BLOCK NO.	ZONING	TAX/MAP	ELEC. DIST.	CENSUS TR.
HOWARD COUNTY, MARYLAND	0735/505	23	R=20	31	. 1	6011
DEPT. RECREATION AND PARKS 7120 OAKLAND MILLS ROAD COLUMBIA MD 21048	WATER CODE	D-04			SEWER CODE	2153800

CONSULTING ENGINEERS

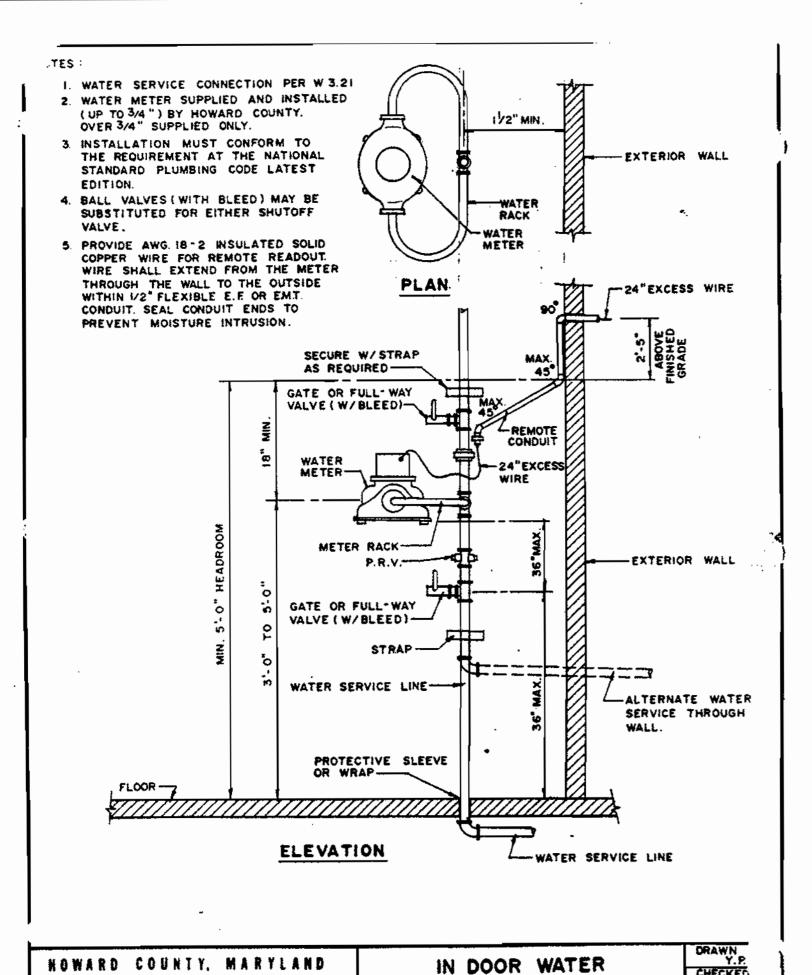
8950 ROUTE 108 E, SUITE 229

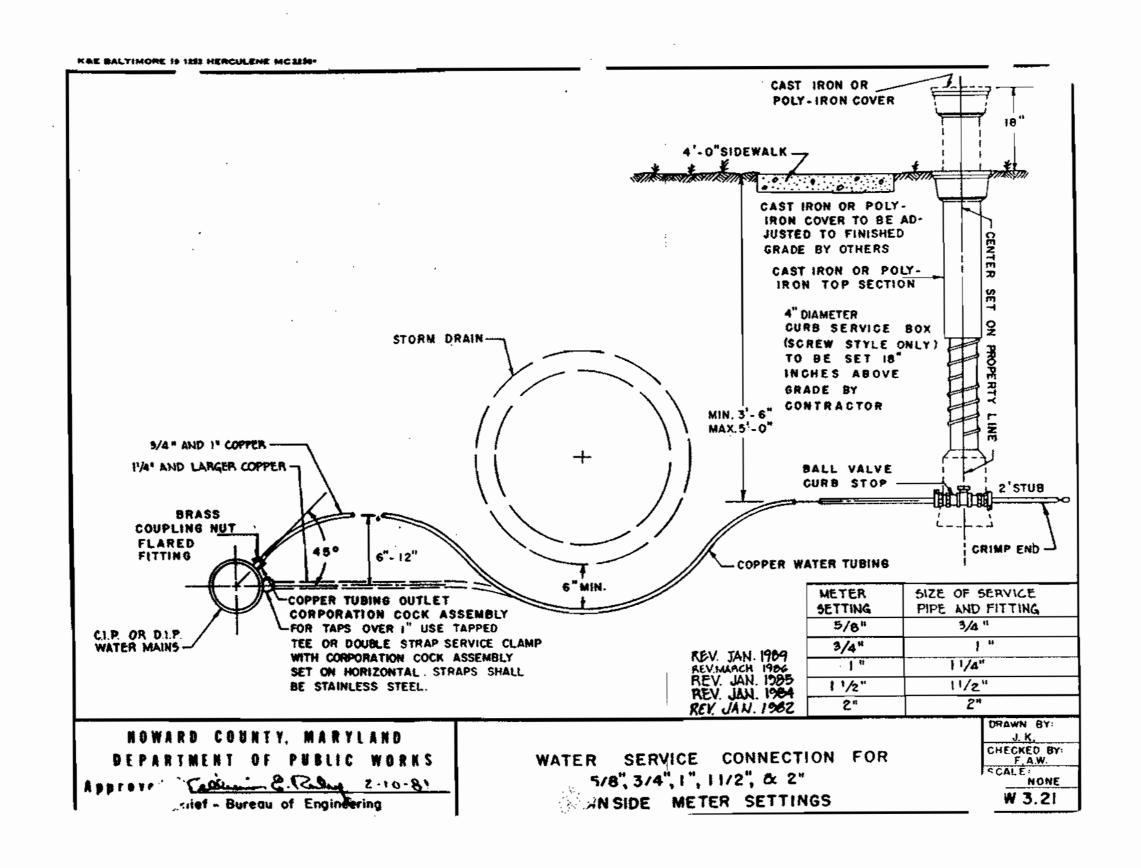
COLUMBIA, MARYLAND 21045 TEL NO. (410) 995-0090

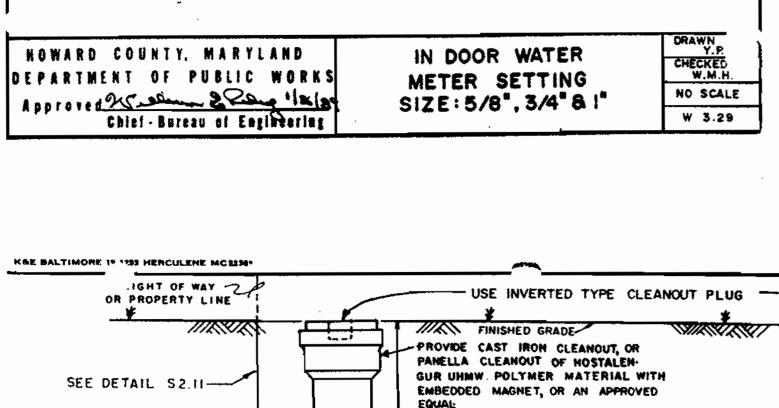


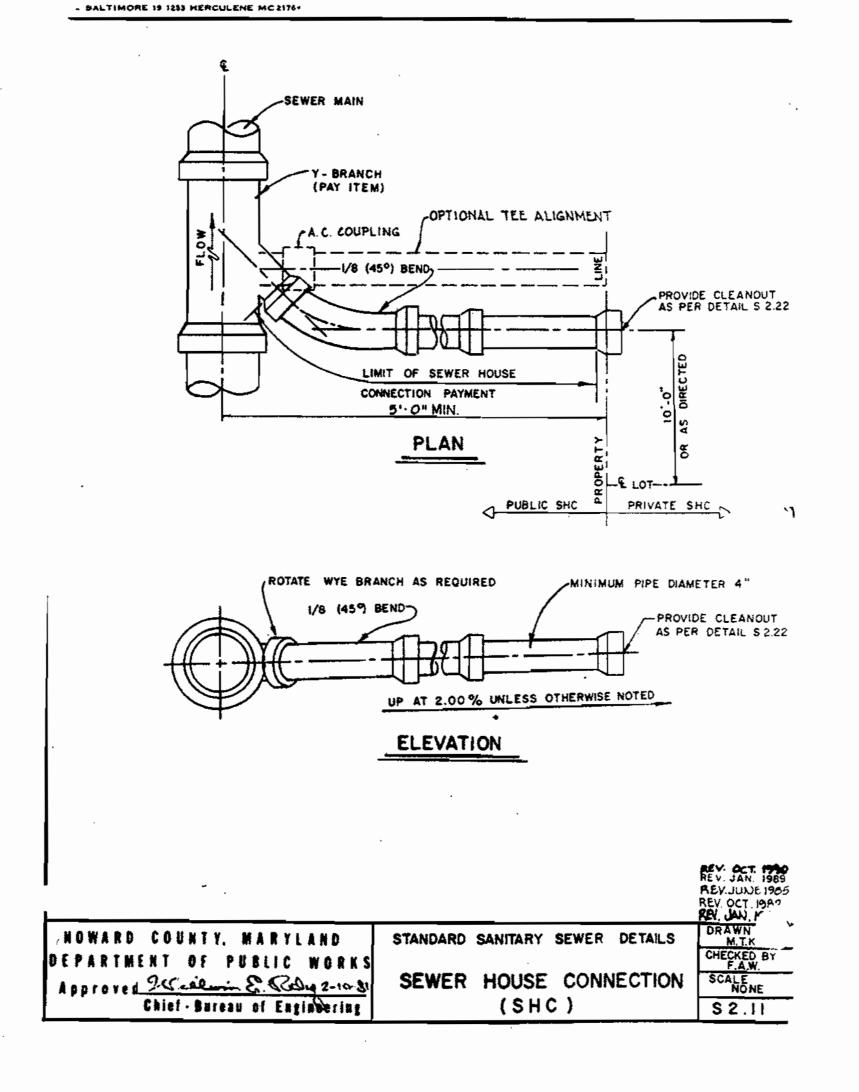
PFEIFFER CORNER SCHOOLHOUSE ROCKBURN BRANCH PARK, 6105 MONTGOMERY ROAD ELKRIDGE, MD 21075

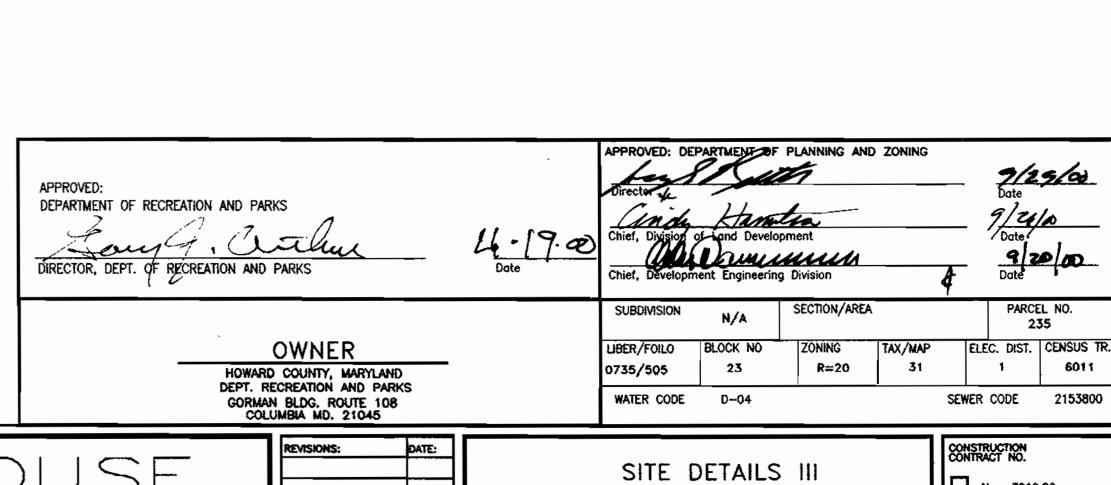
21046			v
	DATE:	SITE DETAILS II	CONSTRUCTION CONTRACT NO. N - 3910.CC
		DRAWN BY :	DRAWING NO.
		QUALITY ASSURANCE	5
		DATE : FEB. 8, 2000	SET SHEET 3 OF 12

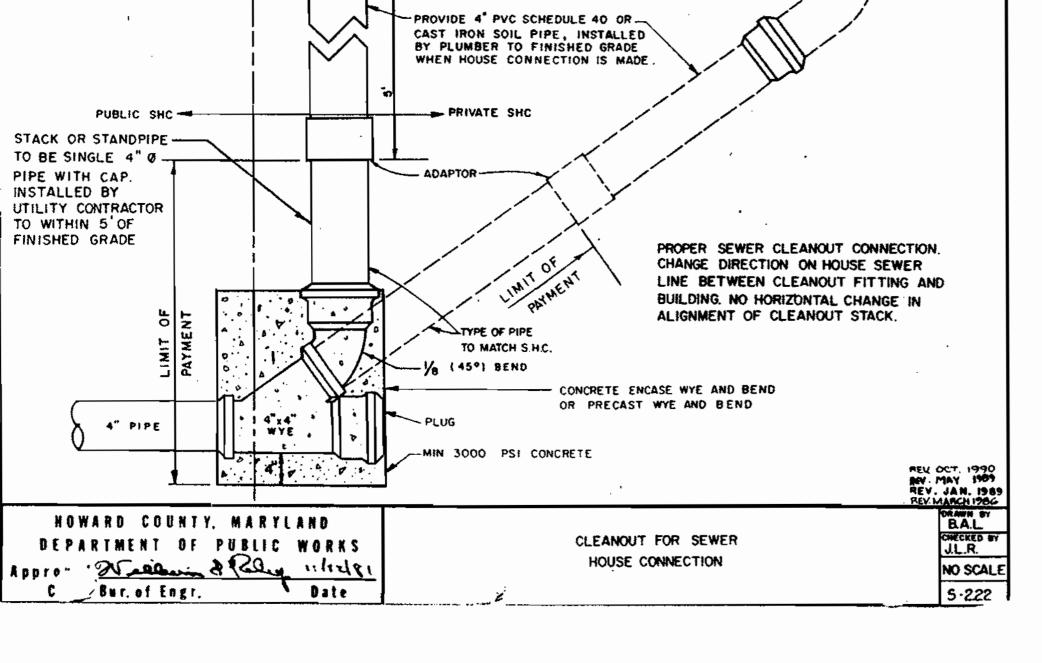




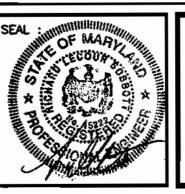








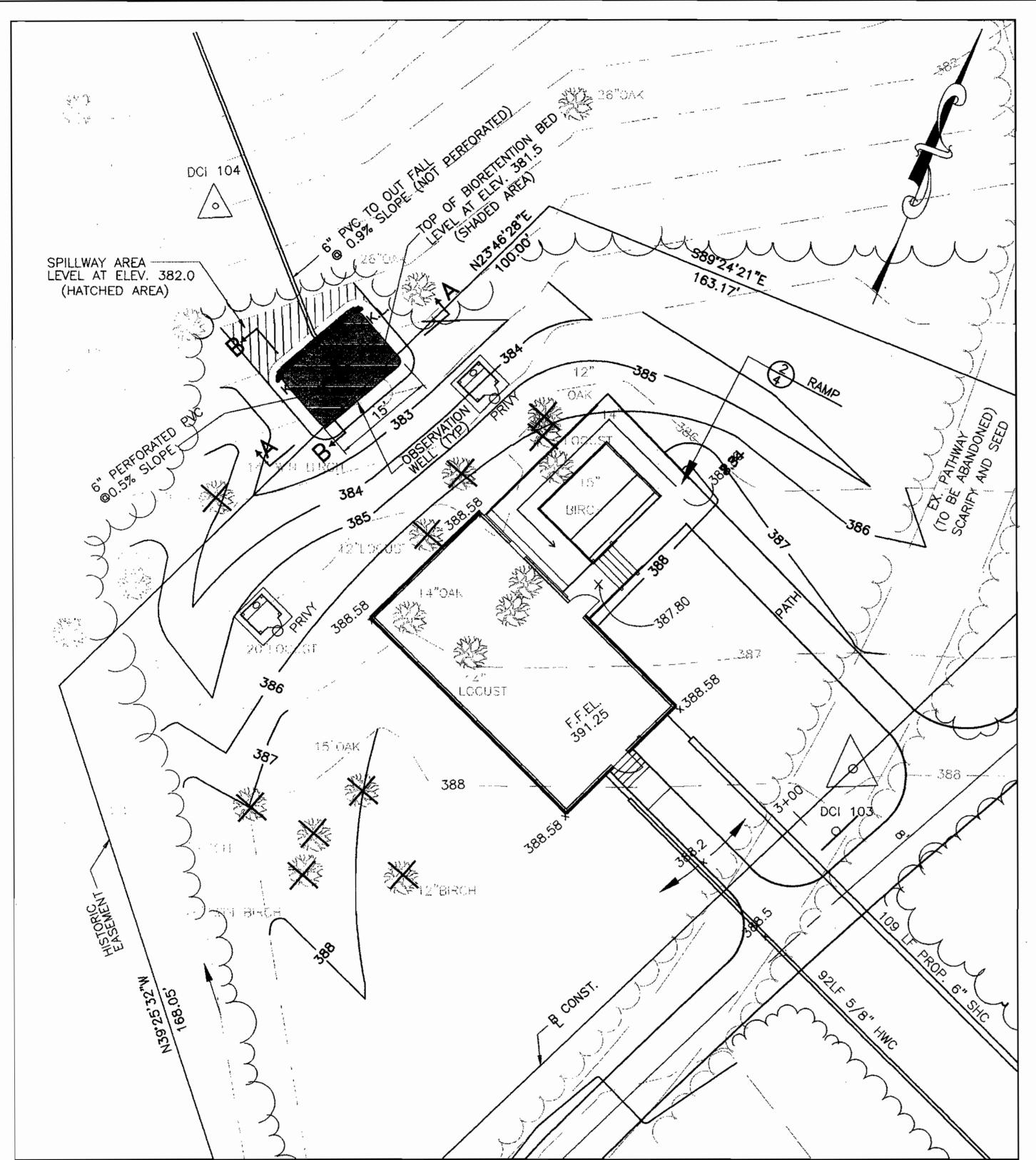




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PFEIFFER CORNER SCHOOLHOUSE ROCKBURN BRANCH PARK, 6105 MONTGOMERY ROAD ELKRIDGE, MD 21075

NS:	DATE:	•	SITE DETAILS I	CONSTRUCTION CONTRACT NO. N - 3910.CC
		DRAWN BY :		DRAWING NO.
_		QUALITY ASSURANCE		 4
		DATE : APRIL 12.	2000	SET SHEET 4



NOTE: SEE SHEET 6 FOR SECTION A-A AND B-B

BIORETENTION AREA SOIL SPECIFICATIONS

A. PLANTING SOIL

THE BIORETENTION AREA PLANTING SOIL SHALL CONSIST OF A SANDY LOAM OR A LOAMY SAND. LOAMY SOILS MAY BE UTILIZED FOR THE PLANTING SOIL BUT MUST CONSIST OF 35% SAND. IN ADDITION, THE FURNISHED PLANTING SOIL SHALL BE OF UNIFORM COMPOSITION, FREE OF STONES, STUMPS, ROOTS OR SIMILAR OBJECTS LARGER THAN ONE INCH. BRUSH, OR ANY OTHER MATERIAL OR SUBSTANCE WHICH MAY BE HARMFUL TO PLANT GROWTH, OR A HINDRANCE TO PLANTING OR

THE PLANTING SOIL SHALL BE FREE OF PLANTS OR PLANT PARTS OF BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, MUGWORT, NUTSEDGE, POISON IVY, CANADIAN THISTLE OR OTHERS AS SPECIFIED.

IT SHALL NOT CONTAIN TOXIC SUBSTANCES HARMFUL TO PLANT GROWTH.

THE PLANTING SOIL SHALL BE TESTED AND MEET THE FOLLOWING CRITERIA: PH RANGE 5.2 - 7.0

ORGANIC MATTER 1.5-4.0% MAGNESIUM Mg 35 lb/acre (±10%) PHOSPHORUS P₂ O₅ 75lbs/acre(±10%)

POTASSIUM 85 lbs/acre (±10%) SOLUBLE SALTS NOT TO EXCEED 500 ppm

THE FOLLOWING TEST FREQUENCIES SHALL APPLY TO THE ABOVE SOIL CONSTITUENTS:

PH ORGANIC MATTER: 1 TEST PER 90 CUBIC YARDS, BUT NO MORE THAN 1 TEST PER BIORETENTION AREA MAGNESIUM, PHOSPHORUS, POTASSIUM, SOLUBLE SALTS:

1 TEST PER 500 CUBIC YARDS, BUT NOT LESS THAN 1 TEST PER BORROW SOURCE ONE GRAIN SIZE ANALYSIS SHALL BE PERFORMED PER 90 CUBIC YARDS OF PLANTING SOIL, BUT NO LESS THAN 1 TEST PER BIORETENTION AREA.

B. MULCH LAYER SPECIFICATIONS

A MULCH LAYER SHALL BE PROVIDED AROUND TREES AND SHRUBS. AN ACCEPTABLE MULCH LAYER SHALL INCLUDE SHREDDED HARDWOOD OR SHREDDED WOOD CHIPS WHICH MEET THE REQUIREMENT OF MD-SHA 920-05-01.02. OF THE APPROVED MULCH PRODUCTS ALL MUST BE WELL AGED, UNIFORM IN COLOR, AND FREE OF FOREIGN MATERIAL INCLUDING PLANT MATERIAL. WELL-AGED MULCH IS DEFINED AS MULCH THAT HAS BEEN STOCKPILED OR STORED FOR AT LEAST TWELVE (12) MONTHS.

C. SAND SPECIFICATIONS

THE SAND SHALL BE FREE OF DELETERIOUS MATERIAL AND ROCKS GREATER THAN 1 INCH IN DIAMETER AASHTO M-6 OR ASTM C-33

D. COMPACTION

SOIL SHALL BE PLACED IN LIFTS LESS THAN 18 INCHES AND LIGHTLY COMPACTED (MINIMAL COMPACTIVE EFFORT) BY TAMPING WITH A BUCKET FROM A DOZER OR BACKHOE.

NOTE

THE CONTRACTOR FOR THE BIO-RETENTION AREAS SHALL HAVE HAD AT LEAST THREE (3) YEARS EXPERIENCE REGARDING THE CONSTRUCTION AND PLANTING OF BIO-RETENTION AREAS, WETLAND MITIGATION FACILITIES, OR SIMILAR ENVIRONMENTAL FEATURES.

SYMBOL	BOTANICAL/ COMMON NAME	QUANTITY	SIZE & ROOT	SPACING	REMARKS
K.L.	KALMIA LATIFOLIA MOUNTAIN LAUREL KALMIA	3	2'-3' HT, B&B	4' O.C.	FULL, WELL-BRANCHED
R.V.	RHODODENDRON VISCOSUM SWAMP AZALEA	2	2'-3' HT, B&B	3' O.C.	FULL, WELL-BRANCHED
R.A.	RHODODENDUM ARBORESCENS SWEET AZALEA	2	2'-3' HT, B&B	3' O.C.	FULL, WELL-BRANCHED
H.AZ.	HEMEROCALLIS "AZTEC GOLD" "AZTEC GOLD" DAY LILY	54	NO. 2 CONT.	2' O.C.	SHOWN AS

OPERATION AND MAINTENANCE SHEDULE FOR **BIO-RETENTION AREAS**

- ANNUAL MAINTENANCE OF PLANT MATERIAL, MULCH LAYER AND SOIL LAYER IS REQUIRED. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSET INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING.
- 2. SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL. THIS INSPECTION WILL INDICATE REMOVE OF DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, TREATMENT OF ALL DISEASED TREES AND SHRUBS AND REPLACEMENT OF ALL DEFICIENT STAKES AND WIRES.
- 3. MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.
- 4. SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.

PLANTING NOTES:

- ALL PLANTING PROCEDURES AND WARRANTIES SHALL CONFORM TO THE LANDSCAPE SPECIFICATIONS.
- 1. ALL PLANT MATERIALS SHALL BE THE GENUS SPECIES, SIZE AND BRANCHING QUALITY AS SHOWN ON THE PLANT LIST.
- 2. ALL TREES AND SHRUBS SHALL HAVE BEEN PROPAGATED AND/OR GROWN UNDER WET-CULTURED CONDITIONS FOR AT LEAST 1 YEAR PRIOR TO DELIVERY ON THE SITE.
- 3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO UTILITIES AND MAY MAKE MINOR ADJUSTMENTS IN THE SPACING AND/OR LOCATION OF PLANT MATERIALS AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL "AS BUILT" OVERHEAD AND UNDERGROUND UTILITIES PRIOR TO BEGINNING ANY PLANTING OPERATIONS.
- 4. ANY PLANT BROUGHT TO THE SITE WITH SIGNS OF DAMAGE OF ANY SORT, INDICATIONS OF DISEASE OR INSECT INFESTATION SHALL BE REJECTED.
- 5. ALL TREES SHALL BE PLANTED IN ACCORDANCE WITH THE RESPECTIVE PLANTING DETAIL SHOWN ON THIS SHEET.
- 6. BETWEEN OCTOBER 15 AND APRIL 15, ALL DECIDUOUS TREES AND SHRUBS SHALL BE PLANTED AT ANY TIME THE GROUND IS NOT FROZEN OR EXCESSIVELY MUDDY AND THE AIR TEMPERATURE IS ABOVE 35°F.
- 7. PLANT ALL TREES AND SHRUBS AS NEARLY AS POSSIBLE TO THE LOCATIONS SHOWN ON THE PLANTING PLAN.
- 8. NO SUBSTITUTIONS OF PLANT MATERIALS SHALL BE MADE WITHOUT THE APPROVAL
- 9. ALL PLANT PITS SHALL BE EXCAVATED TO THE DEPTH AND DIMENSIONS IN ACCORDANCE WITH THE PLANTING DETAILS, ALL SOIL EXCAVATION FROM THE PLANT PITS SHALL BE MIXED WITH THE PLANTING SOIL BACKFILL, ANY EXCESS SOIL SHALL BE REMOVED FROM
- 10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY RESETTING AND STAKING SHOWN ON THE PLANTING PLAN.
- 1. ALL AREAS NOT STABILIZED IN PAVING OR PLANT MATERIALS SHOULD BE SEEDED AND

CONTRACTOR'S OBLIGATION

THE CONTRACTOR SHALL THOROUGHLY REVIEW ALL DATA SHOWN ON THE PLAN SHEETS PRIOR TO SUBMITTING A BID FOR THIS WORK. SHOULD THERE BE ANY QUESTIONS REGARDING ANY ITEMS OR NOTES ETC., CONTACT THE CONSTRUCTION MANAGER FOR CLARIFICATION. OTHERWISE IT WILL BE ASSUMED THAT THE CONTRACTOR IS FULLY AWARE OF ALL OPERATIONS AND MATERIALS PERTINENT TO THE PROPER COMPLETION OF THE WORK.

GENERAL NOTE

THE CONTRACTOR SHALL CONTACT THE PLANT MATERIAL SOURCES
LISTED BELOW PRIOR TO SUBMITTING HIS BID TO ENSURE AVAILABILITY
OF THE PLANT MATERIALS (SPECIES, SIZE, FORM, ETC.) SHOWN ON THE PLANT
LIST. THIS IS NECESSARY SO THAT THE SOURCE OF SUPPLY HAS ADEQUATE
TIME TO OBTAIN AND/OR PREPARE THE PLANT MATERIALS FOR TRANSPORTATION
TO THE CONTRACTOR'S YARD OR TO THE PROJECT SITE WITHIN THE SCHEDULE TIME

ECOSCIENCE WETLAND NURSERY RR4, BOX 4294 MOSCOW.PA. 184444 (717) 842-7631

WETLAND NURSERY P.O. BOX 24

OXFORD, PA 19363 (717) 529-3160 SYLVA NATIVE NURSERY & SEED CO.

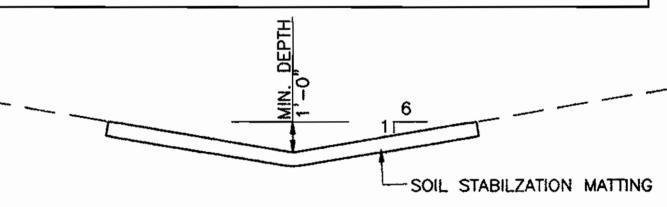
R.D. 2, BOX 1003 NEW FREEDOM, PA 17349 (717) 227-0484

P.O. BOX 1038 OAK GROVE, VA 22443 (804) 24 -7111 PRINCETON NURSERIES P.O. BOX 191 PRINCETON, NEW JERSEY 08542 1-800-916-1776

INGLESIDE PLANTATION NURSERIES

WAYNESBORO NURSERIES P.O. BOX 987 WAYNESBORO, VA 22980 1-800-868-8676

BOBTOWN NURSERY 16212 COUNTRY CLUB RD. MELFA, VA 23410 1-800-201-4714



TYPICAL DITCH SECTION SCALE 1"=10' PROP. GROUND 4:1 SLOPE-

LEVEL EL. 382.0

-4:1 SLOPE

(LOOKING DOWN STREAM) SPILLWAY SECTION SCALE 1"=10"

9/29/00 Date DEPARTMENT OF RECREATION AND PARKS DIRECTOR, DEPT OF RECREATION AND PARKS 9 20 BD PARCEL NO. OWNER ELEC. DIST. CENSUS 1 HOWARD COUNTY, MARYLAND LIBER/FOILO DEPT. RECREATION AND PARKS R=20 0735/505 7120 OAKLAND MILLS ROAD COLUMBIA MD. 21046 SEWER CODE 2153800 WATER CODE D-04

BIORETENTION GRADING PLAN SCALE 1"=10"

SUMMARY TABLE OF DESIGN CRITERIA FOR BIORETENTION AREA

DRAINAGE AREA = 0.18 ACRES PERCENT IMPERVIOUS = 16.4 VOLUME RUNOFF COFFICIENT = 0.20 RAINFALL DEPTH = 1.0 RECHARGE FACTOR = .25HYDROLOGIC SOIL TYPE = B WATER QUALITY VOLUME = 131 CF RECHARGE VOLUME = 33 CF

COEFF. OF PERMEABLITY = 0.5 FT/DAY

AVERAGE HEIGHT OF WATER = 0.25 FT. BED DRAIN TIME = 2 DAYS REQUIRED BED AREA = 124 SF. PROVIDE BED AREA = 150 SF. $Q_2 = 0.17$ CFS WSEL = 382.01 $Q_{10} = 0.49$ CFS WSEL=382.02 $Q_{100} = 0.92 \text{ CFS WSEL} = 382.03$

CONSULTING ENGINEERS 8950 ROUTE 108 E, SUITE 229 COLUMBIA, MARYLAND 21045 TEL NO. (410) 995-0090



PFEIFFER CORNER SCHOOLHOUSE ROCKBURN BRANCH PARK, 6105 MONTGOMERY ROAD ELKRIDGE, MD 21075

NS:	DATE:	SITE DETAILS IV		CONSTRUCTION CONTRACT NO.
		DRAWN BY : R.J.D.		DRAWING NO.
		QUALITY ASSURANCE		5
_		DATE : APRIL 12, 2000	- 1	SET SHEET 5 OF

MD- 378 SPECIFICATIONS:

These specifications are appropriate to all ponds within the scope of the Standard for Practice MD- 378. All references to ASTM and AASHTO specifications apply to the most recent

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. All trees shall be cleared and arubbed within 25 feet of the toe of the embankment.

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 25 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. Materials used in the outer shell of the embankment must have the capability to support vegetation of the quality required to prevent erosion of the embankment.

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.

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

The minimum required density shall not be less than 95% of maximum dry density with a moisture content within +2% of the optimum for all urban ponds. 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 glong 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.

Structure backfill may be flowable fill with 70-200 psi, 28 day unconfined compressive strength. The flowable fill shall have a minimum pH -of 4.0 and a minimum resistivity of 2,000 ohm-cm. Material shall be placed such that a minimum of 6" of flowable fill shall be under (bedding), over and, on the sides of the pipe. Average slump of the fill shall be 7' to assure flowability of the material. Adequate measures shall be taken (sand bags, etc.) to prevent floating the pipe. Any adjoining soil fill shall take placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually direct compaction equipment. The material shall completely fill all voids adjacent to the flowable fill zone. 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. Backfill material outside the Compaction — The movement of the hauling and spreading equipment structural backfill (flowable fill) zone shall be of the type and quality conforming to that specified for the core

> of the embankment or other embankment materials. 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 conform to the requirements of AASHTO Specifications M-36 & M-218. It shall be fully bituminous coated and shall conform to the requirements of AASHTO Specification M-190 Type A with watertight coupling bands or flanges. Any bituminous coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound.

PROP. SHRUBS ---

Materials - (Polymer Coated steel pipe) - Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. This pipe and its appurtenances shall conform to the requirements of AASHTO Specifications M-245 & M-246 with watertight coupling bands flanges.

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. Aluminum Coated Steel Pipe, when used with flowable fill, shall be fully bituminous coated per requirements of ASSHTO Specification M-190 Type A. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer.

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 Pipe, when used with flowable fill, shall be fully bituminous coated per requirements of ASSHTO Specification M-190 Type A. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer. Hot dipped, galvanized bolts may be used for connection, The pH of the surrounding soils shall be between 4 and 9.

- 2. Coupling bands, 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.
- 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 aasket 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 connections are acceptable for pipes less than 24 inches in diameterflanges on both ends of the pipe with a circular gasket, pre-punched to the flange bolt circle sandwiched between adjacent flanges; a 12 inch wide standard lap type band with 12 inch wide by 3/8 inch thick closed cell circular neoprene gasket; and a 12 inch wide hugger type band with 0-ring gaskets having a minimum diameter of 1/2 inch greater than the corrugation depth. Pipes 24 inches in diameter and larger shall be connected by a 24 inch long annular corrugated band using a minimum of 4 (four) rods and lugs, 2 on each connecting pipe end. A 24 inch wide by 5. Other details (anti-seep collars) shall be as shown on the 3/8 inches thick closed call circular neoprene gasket will be installed with 12 inches on the end of each pipe. Flanged joints with gaskets are also acceptable.

Helically corrugated pipe shall have either continuously welded seams or have lock seams with internal caulking or

- 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 C-361.
- 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 50% of its outside diameter with a minimum thickness of 6 inches, or as shown on the drawinas.
- 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 NRCS-MARYLAND 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) Plastic - All of the following criteria shall apply for polyvinyl chloride (PVC) pipe:

- 1. Materials PVC pipe shall be PVC-1 120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241.
- 2. Joints and connections to anti-seep collars shall be completely Watertiaht
- 3. Bedding The pipe shall be firmly and uniformly bedded throughout its entire length. Where rack 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"
- drawings.

Concrete:

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 414. Mix No. 3.

Rock Riprop:

Rock riprap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 901.

Filter cloth shall be placed meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 921.09.

Care of Water during Construction:

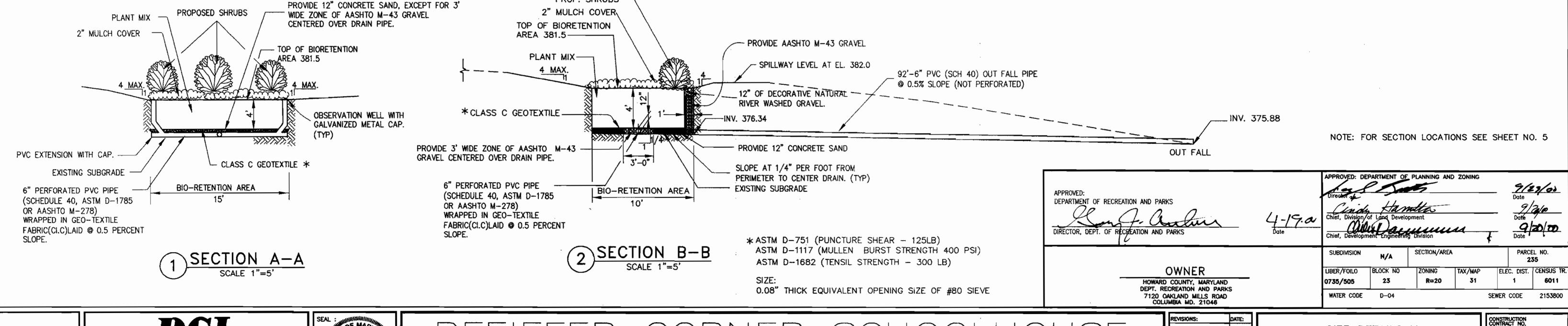
All work on permanent structures shall be carried out in areas free from water. The Contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from 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 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 sumps from which the water shall be pumped.

Stabilization:

All borrow areas shall be graded to provide proper drainage and left in a sightly conditions All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by deeding, 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.





PFEIFFER CORNER SCHOOLHOUSE ROCKBURN BRANCH PARK, 6105 MONTGOMERY ROAD ELKRIDGE, MD 21075

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SET SHEET 6 OF 12

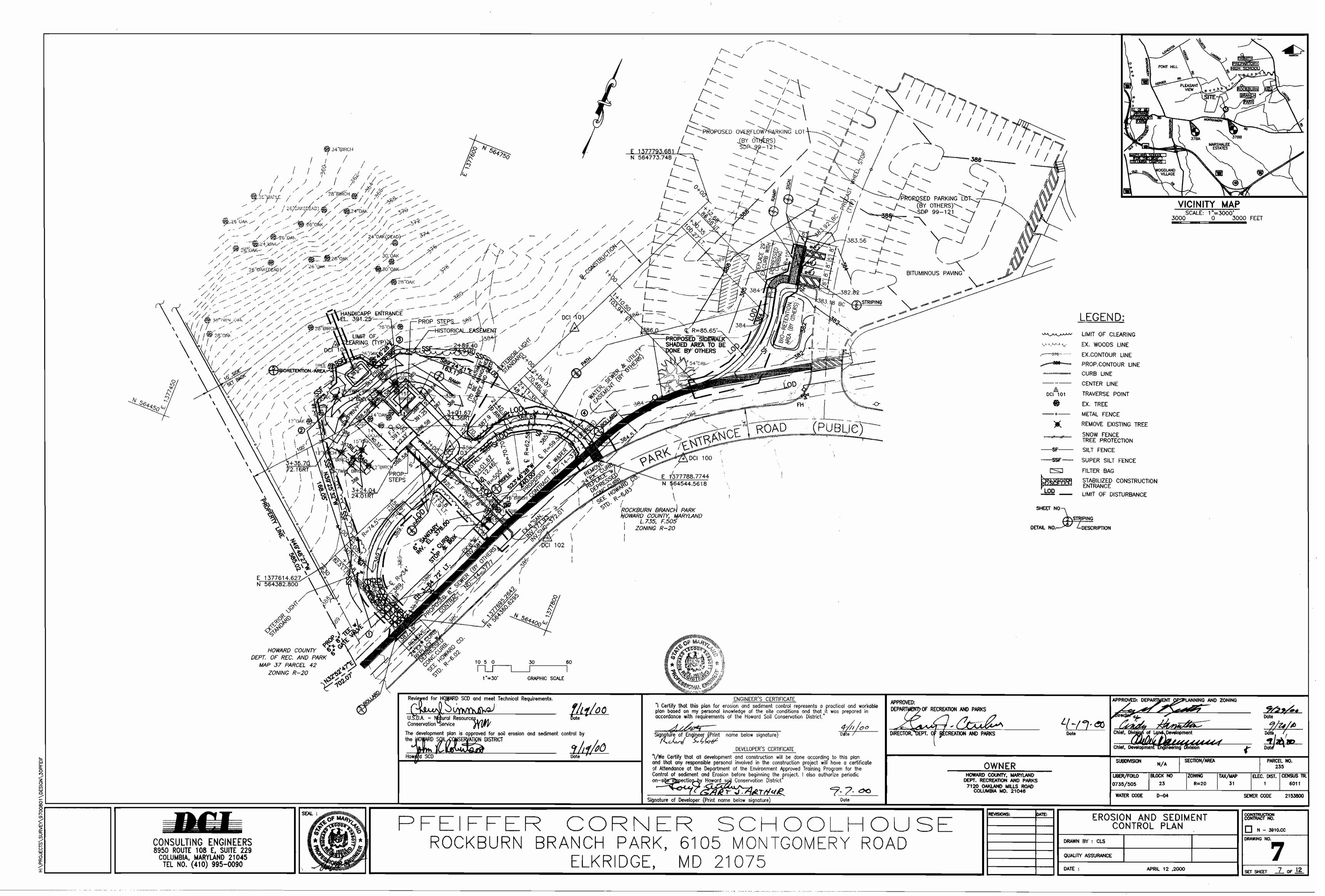
DRAWING NO.

SITE DETAILS V

DRAWN BY : R.J.D.

QUALITY ASSURANCE

DATE : APRIL 12, 2000

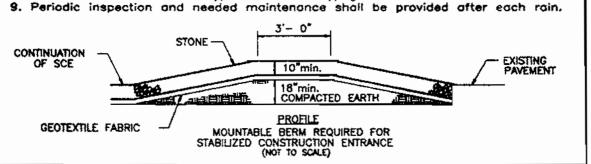


2. Length - As required, but not less than 50 feet (except on single residence lot where a 30 foot minimum length will apply.) Thickness - not less than ten (10) inches.

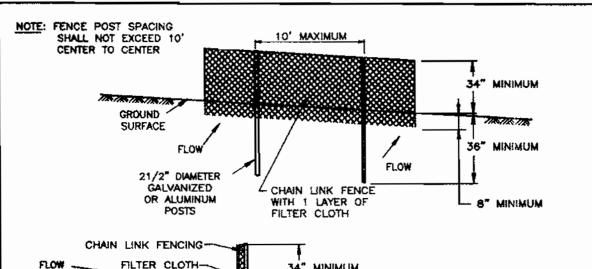
4. Width - Ten (10) foot minimum, but not less than the full width at points where ingress and engress occurs. Geotextile fabric class 'C' or better shall be placed over the existing ground prior to placing of stone. Geotextile fabric will not be required on a single family

5. A mountable berm with 5:1 slopes is required for all surface water flowing or diverted towards construction entrance. Maintenance - The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto public right-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment. All sediment spilled, dropped, vrashed or

tracked onto public right-of-way must be removed immediately. Washing - Wheels must be cleaned to remove sediment prior to entrance onto public right-of-way. When washing is required, it shall be done on an area stabilized with stone and which drains into an approved sediment trapping device.



DETAIL 33 - SUPER SILT FENCE



EMBED FILTER CLOTH 8"-MINIMUM INTO GROUND STANDARD SYMBOL * IF MULTIPLE LAYERS ARE REQUIRED TO ATTAIN 42" Construction Specifications 1. Fencing shall be 42" in height and constructed in accordance with the

for a 6' fence shall be used, substituting 42" fabric and 6' length 2. Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not

latest Maryland State Highway Details for Chain Link Fencing. The specification

required except on the ends of the fence. 3. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.

4. Filter cloth shall be embedded a minimum of 8" into the ground.

6. Maintenance shall be performed as needed and silt buildups removed when "bulger develop in the silt fence, or when silt reaches 50% of fence height 7. Filter cloth shall be fastened securely to each fence post with wire ties staples at top and mid section and shall meet the following requirements for

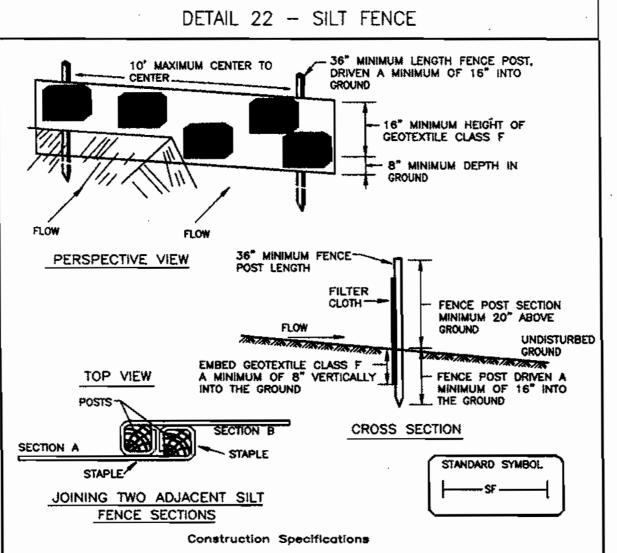
Tenelle Strength Tensile Modulus Flow Rate Filtering Efficiency

STAL CONSERVATION SERVICE

Geotextile Class F:

50 lbs/ln (min.) 20 lbs/in (min.) 0.3 gal/ft 1/minute (max.) 75% (min.)

Test: MSMT 509 Test: MSMT 322 Test: MSMT 322 HARYLAND DEPARTMENT OF ENVIRONMENT



. Fence posts shall be a minimum of 36" long driven 16" minimum into the

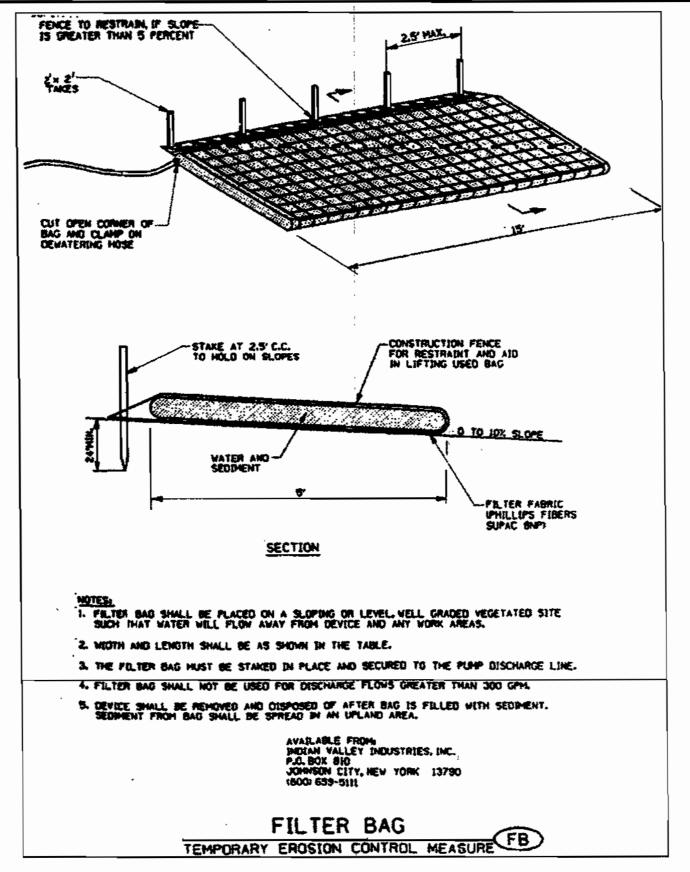
ground. Wood posts shall be 11/2" x 11/2" square (minimum) cut, or 13/4" diameter minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pond per linear foot.

2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

50 lbs/in (min.) Test: MSMT 509 Tensile Strength 20 lbs/in (min.) Tensile Modulus Test: MSMT 509 0.3 gal ft* / minute (max.) Test: MSMT 322 Filtering Efficiency Test: MSMT 323

3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.

4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.



TEMPORARY SEEDING SUMMARY

	Seed Mixture (F	Fertilizer Rate	Lime			
No.	Species	Application Rate(lb/ac)	Seeding Dates	Seeding Depths	(10-10-10)	Rate
No.	RYE PLUS FOXTAIL MILLET	150	2/1-4/30 5/1-8/14 8/15-11/30	1"	90 lb/ac (2.0 lb/	2 tons/ac (100 lb/
					1000 sf)	1000 is/

Seeding

Dates

5/1-8/14

8/15-11/30

5/16-8/14

Seed Mixture (For Hardiness Zone 7A)

Applic.

Rate

150 LB/AC

110 LB/AC

3 LB/AC

20 LB/AC

(From Table 25)

Species

TALL FESCUE (75%)

CANADA BLUEGRASS (10%)

KENTUCKY BLUEGRASS(10%)

REDTOP (5%)

TALL FESCUE (83%)

WEEPING LOVEGRASS

PLUS SERECIA (2%)

LESPEDEZA (15%)

SEQUENCE OF CONSTRUCTION EROSION / SEDIMENT CONTROL

- 1. Obtain proper permits. Notify Howard County Department of Permits, Sediment
- 2. Clear and grub for installation of perimeter sediment controls. Install stabilized construction entrance, filter bag, and silt fence as shown on the plan. (1 week)
- 3. Rough grade site and construct mechanical room below building. (1 week)
- 4. Construct new utilities and vehicular access drive from park road to building site. (1 week)
- 6. Construct the Bioretention Area (1 Week)

Rate

2 tons/ac

(100 lb/

1000 sf)

- 7. Remove filter bag and complete fine grading. Install permanent stabilization. (1 week)
- 8. Upon approval from the Sediment Control Inspector perimeter controls shall be removed. (2 days)

Notes: The production times given only to satisfy a regultory requirement. The contractor shall not use these production times to establish a construction schedule.

- Control Division representative as per Note 1 of SEDIMENT CONTROL NOTES.
- 5. Move building onto site and complete construction. Install pathways and landscaping. (2 weeks)

STANDARD SEDIMENT CONTROL NOTES

HOWARD SOIL CONSERVATION DISTRICT

- A minimum of 48 hours notice must be given to the Howard County Department of Inspections, Licenses and Permits, Sediment Control Division prior to the start of any construction (313—1855).
- All vegetative and structural practices are to be installed according to the provisions to this plan and are to be in conformance with the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL and revisions thereto.
- 3. Following initial soil disturbance or re—disturbance, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes steeper 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 7 of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
- All disturbed areas must be stabilized within the time period specified above in accordance with the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding, sod, temporary seeding, and mulching (Sec.G). Temporary stabilization with mulch alone shall only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
- 6. All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
- 7. Site Analysis:

= 0.61 Acres Total Area of Site = 0.61Acres Area Disturbed Area to be roofed or paved = 0.02 Acres Area to be vegetatively stabilized = 0.48 Acres = 60 CY. = 100 CY. Offsite waste/borrow area location = To Be Determined

- 8. 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 control must be provided, if deemed necessary by the Howard County Sediment Control
- 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 inspecting approvals may not be authorized until this initial approval by the inspecting agency is made.
- 11. Trenches for the construction of utilities is limited to three pipe lengths or that which shall be back-filled and stabilized within one working day, whichever is shorter.

PERMANENT SEEDING NOTES

Apply to graded or cleared areas not subject to immediate further disturbance where a permanent long-lived

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

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

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

2. Acceptable — Apply 2 tons/ acre dolomitic limestone (92 lbs/1000 sq.ft.) and 1000 lbs/acre 10-10-10 fertilizer (23 lbs/1000 sq. ft) before seeding. Harrow or disk into upper three inches of soil.

Seeding — For the periods March 1 — April 30, and August 1 — October 15, seed with 60 lbs/acre (1.4 lbs/1000 sq. ft.) of Kentucky 31 Tall Fescue. For the period May 1 — July 31, seed with 60 lbs Kentucky 31 Tall Fescue per acre and 2 lbs/acre (.05 lbs/1000 sq. ft.) of weeping lovegrass. During the period of October 16 — February 28, protect site by: Option 1 — Two 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 lobs/acre Kentucky 30 Tall Fescue and mulch with 2 tons/acre well anchored straw.

Mulching — Apply 1—1/2 to 2 tons per acre (70 to 90 lbs/1000 sq. ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slope 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq. ft.) for anchoring.

Maintenance - Inspect all seeding areas and make needed repairs, replacements and reseedings.

TEMPORARY SEEDING NOTES

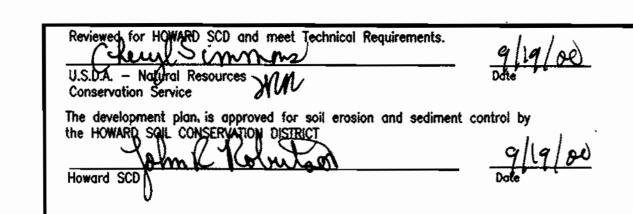
Apply to graded or cleared areas likely to be re-disturbed where a short-term vegetative cover is needed. Seedbed preparation: - Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, if not previously loosened.

Soil Amendments: - Apply 600 lbs/acre 10-10-10 fertilizer (14lbs/1000 sq. ft.)

Seeding: — For periods March 1 — April 30 and from August 15 — October 15, seed with 2—1/2 bushel per acre of annual rye (3.2 lbs/1000 sq.ft.). For the period May 1 — August 14, seed with 3 lbs/acre of weeping lovegrass (.07 lbs/1000 sq. ft.). For the period November 16 — February 18, protect site by applying 2 tons/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/acre (70 to 90 lbs/1000 sq.ft.) of unrotted weed—free, 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 slope 8 ft. or higher, use 348 gal. per acre (8 gal/1000 sq. ft.) for anchoring.

Refer to the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL additional rates and methods not covered.



PERMANENT SEEDING SUMMARY

Seeding

Depths

Fertilizer Rate

(10-20-20)

P205

175 lb/ac

(4.0 lb/

1000 sf)

90 lb/ac

(2.0 fb/)

1000 sf)

175 lb/ac

(4.0 lb/

1000 sf)

ENGINEER'S CERTIFICATE "I Certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with requirements of the Howard Soil Conservation District.

Salwa Signature of Engineer (Print name below signature) Richard Subsott DEVELOPER'S CERTIFICATE

"I/We Certify that all development and construction will be done according to this plan and that any responsible personal involved in the construction project will have a certificate of Attendance at the Department of the Environment Approved Training Program for the Control of sediment and Erosion before beginning the project. I also authorize periodic

on-site inspection by Howard Soil Conservation District

ARTHUR 7.7.00 Signature of Developer (Print name below signature)

DEPARTMENT OF RECREATION AND PARKS 2-22-00 DIRECTOR, DEPT. OF RECREATION AND PARKS

ŗ		
	OWNER	
	HOWARD COUNTY, MARYLAND	

9/25/00 9/20 00 . SECTION/AREA PARCEL NO. SUBDIMISION 235 ELEC. DIST. CENSUS T LIBER/FOILO BLOCK NO R=20 6011 23 0735/505 2153800 WATER CODE D-04 SEWER CODE



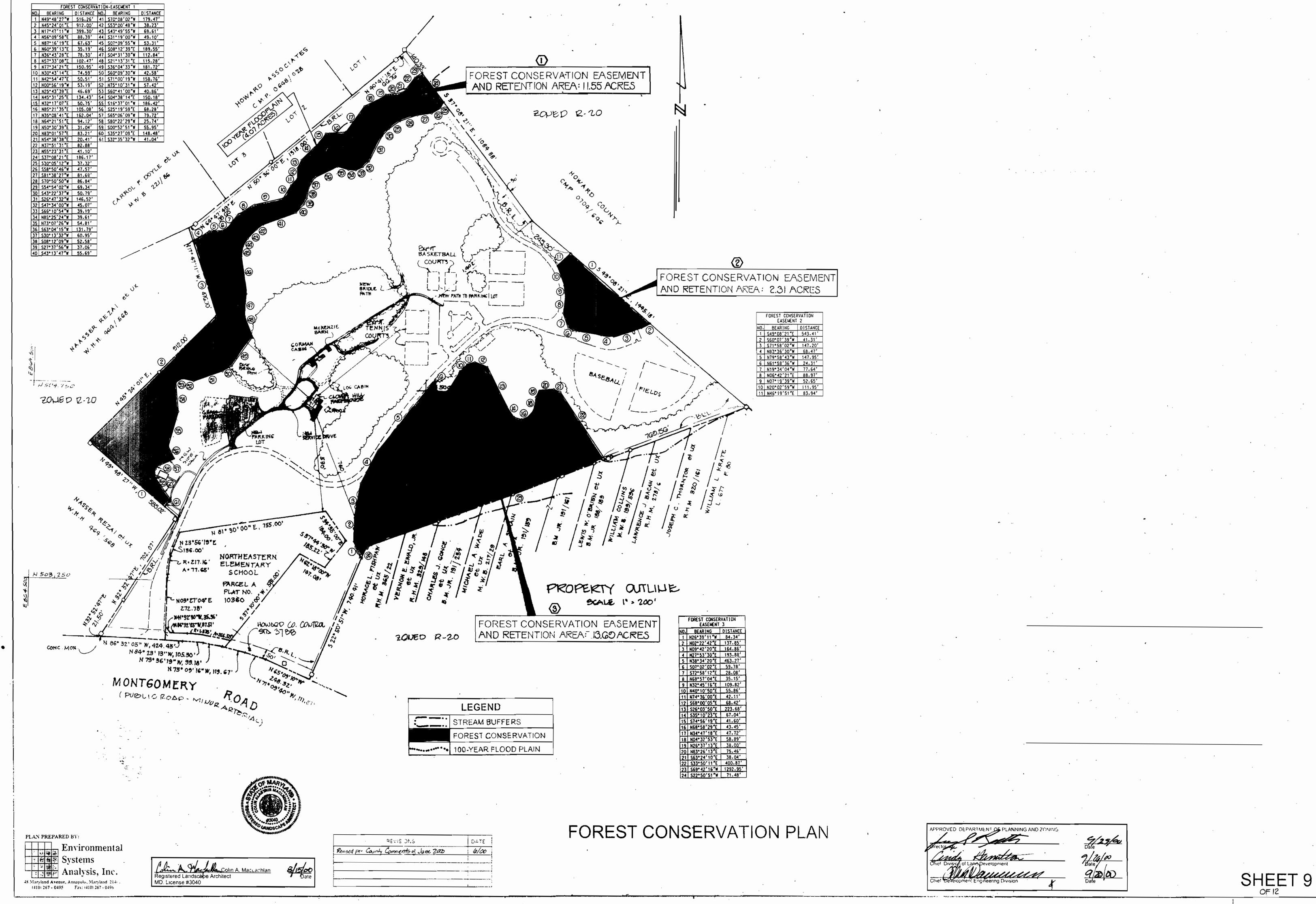
CONSULTING ENGINEERS 8950 ROUTE 108 E. SUITE 229 COLUMBIA, MARYLAND 21045 TEL NO. (410) 995-0090



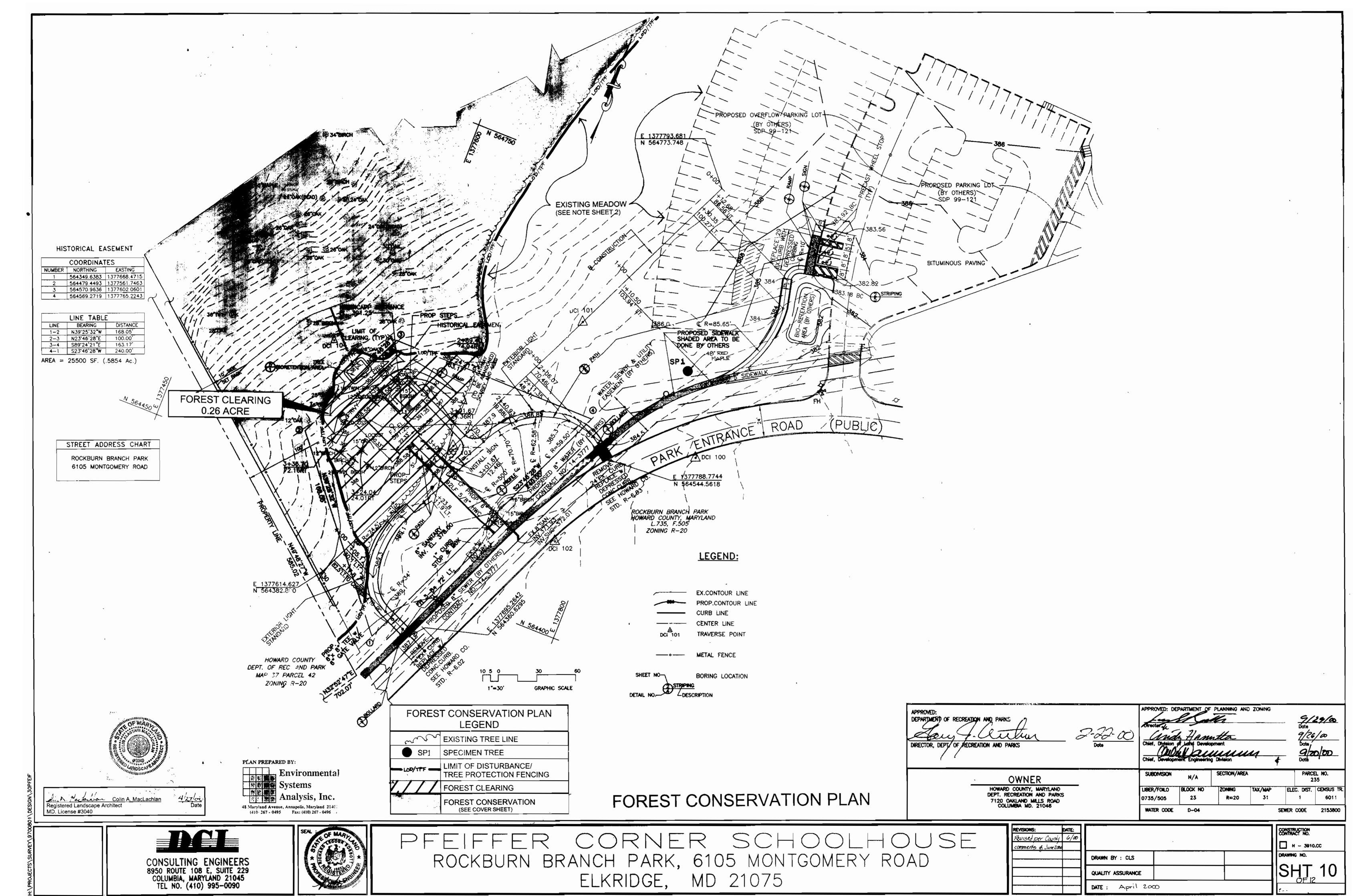
PFEIFFER CORNER SCHOOLHOUSE ROCKBURN BRANCH PARK, 6105 MONTGOMERY ROAD ELKRIDGE, MD 21075

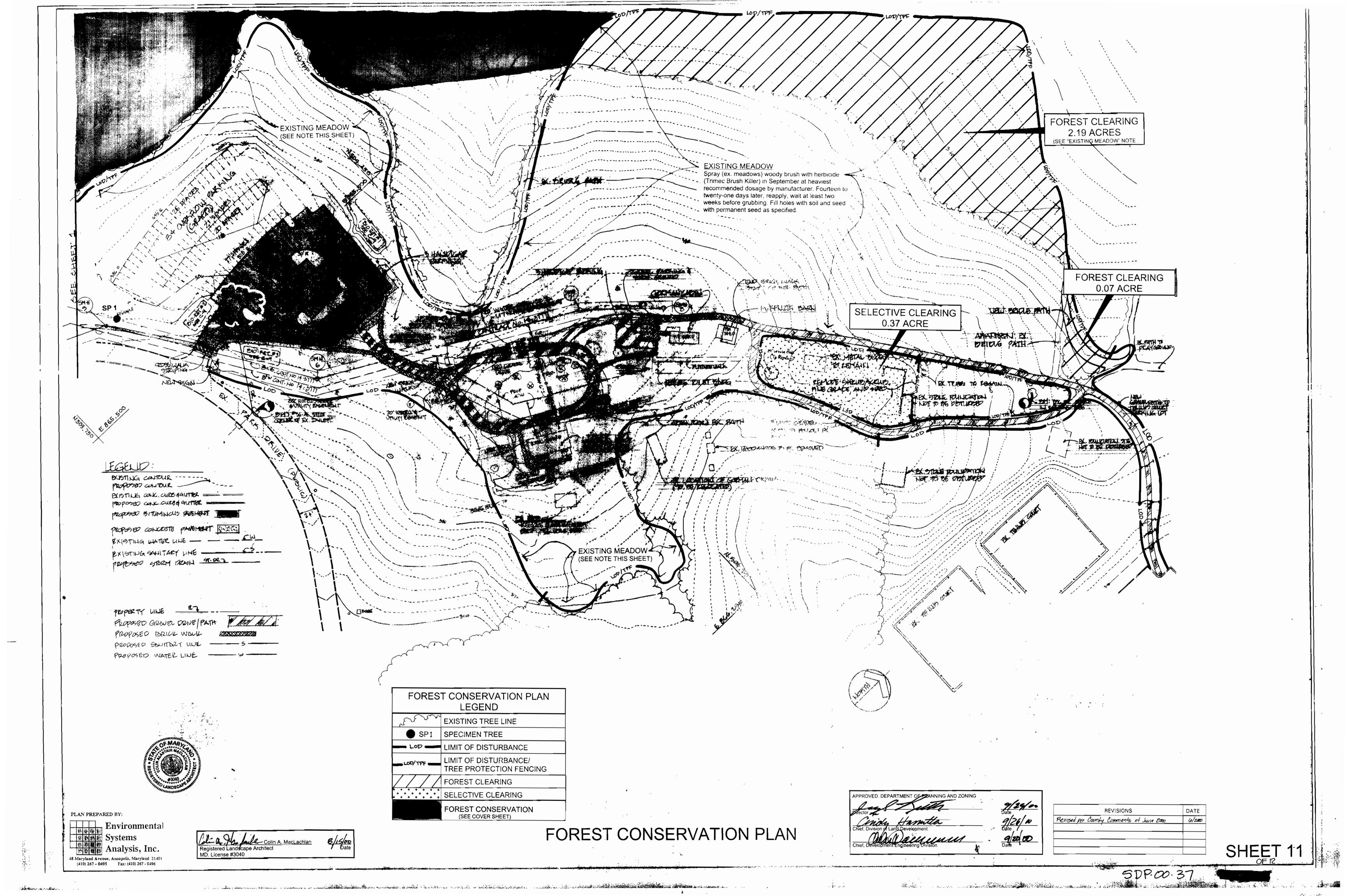
7120 COL	DAKLAND MILLS R UMBIA MD. 21046	OAD		WATER CODE	D-04	 SEWER CODE
REVISIONS: DATE		DATE:	EROSION /		DIMENT ND DETA	CONSTRUCTION CONTRACT NO.
	_		DRAWN BY: CLS		-	DRAWING NO.
			QUALITY ASSURANCE			Ш.
			DATE :	FEB. 8,	2000	SET SHEET

8 or 12



SDP.00:372





NARRATIVE

Rockburn Branch Park is a 106 (+/-) acre tract located on Montgomery Road in Eastern Howard County. The parcel is zoned R-20. Existing park facilities include two baseball fields, two basketball courts, two tennis courts, three parking lots and a 24 foot wide drive providing access. The park also contains the Gorman Cabin and Clover Hill Farm House which are listed in the Howard County Historic Sites Survey.

This Final Forest Conservation Plan has been prepared for the Howard County Department of Public Works and is based on the site development plans prepared for the Pfeiffer Corner Schoolhouse (dated 1/18/2000) and the Clover Hill Restoration (SDP 99-121). Forest stands shown on these plans correspond with the April 2000 Forest Stand Delineation/Natural Resource Inventory prepared by Environmental Systems Analysis, Inc. The forest conservation areas proposed on this plan were selected based on the following:

- Protection of steep slopes
- Protection of wetland and stream buffers
- Preservation of mature forest stands for wildlife habitat and natural heritage

GENERAL NOTES

- This forest conservation plan has been prepared in accordance with the requirements set forth by the Howard County Forest Conservation Act. The preparation of this plan, the notes and details were prepared using the guidelines of the Howard County Forest Conservation Manual.
- Base sheet information was provided by the Howard County Department of Public Works.
- All appropriate bonds shall be posted prior to the issuance of any permits per Howard County Forest Conservation Act. These bonds will be retained as surety until all required activities have been satisfied.

FOREST PROTECTION MEASURES

- After the limits of disturbance (LOD) and the location of all Tree Protection Devices (TPD's) have been staked and/or flagged in the field, an on-site pre-construction meeting shall be held. During this meeting, the limits of clearing specified on the approved plan shall be field-verified and authorization shall be given for the installation of TPD's with any necessary adjustments. This meeting shall include a representative of the Department of Public Works, the on-site foremen in charge of land disturbance, a licensed arborist, the Howard County Erosion & Sediment Control inspector, and the Howard County forest conservation inspector. Upon approval of the flagged or staked locations by the inspectors and an evaluation of Specimen Tree #4 (see "Specimen Trees" section below), installation may begin. TPD installation shall be completed prior to installation of initial Sediment Controls. No cutting or clearing of trees may begin before final approval of TPD installation.
- Filter cloth on wire mesh and orange safety fencing shall be the short-term TPD's. Filter cloth on wire mesh shall be located along the limits of disturbance (LOD) where tree clearing is proposed and erosion control is required. Orange safety shall be used in all remaining areas where TPD's are shown. Details for both TPD's along with installation notes are provided on this sheet.
- Short-term forest protection devices shall be installed prior to any land clearing or grading and shall be maintained during the entire construction phase including fine grading and final seeding.
- 4. Equipment, machinery, vehicles, materials, or debris shall not be allowed within forest areas located outside of the limits of disturbance.
- 5. After construction activities have been completed, an on-site inspection by Howard County Department of Recreation & Parks or their representative will be conducted to evaluate the remaining trees for damage or impacts which may have occurred during the construction process. If trees along the forest perimeter are found to be damaged or dead as a direct result of the construction process, corrective action must be taken. The measures may include the following and must be carried out by a qualified tree professional:
 - Removal of dead or dying trees located within 20 feet of the limits of disturbance which are potentially hazardous. Dead or dying trees which are not potentially hazardous shall be left to provide wildlife habitat. Removal should be authorized by Howard County.
 - Pruning of dead or declining limbs
 - Soil aeration
 - Fertilizing Watering
 - Watering
 Wound repair
- Temporary tree protection devices shall remain in place until their removal is approved by the Howard County Erosion & Sediment Control inspector.
- 7. When removing the temporary tree protection devices, care shall be taken to not disturb or clear additional area within the limit of disturbance. Hand removal of vines, excessive dead material and trash is permitted. The burial of discarded materials is not permitted on the site.

SPECIMEN TREES

One specimen tree has been identified on these plans, a 48" DBH, open grown Red Maple. This tree has excellent form and would provide a dramatic entrance, but it is in poor condition. For that reason, no extraordinary measures (i.e., root pruning) are recommended for preserving this tree. A licensed arborist should attend the pre-construction meeting and determine if the tree can be maintained without extraordinary measures and without being a potential hazard to automobiles parked in the proposed lots. If the arborist determines that the tree can be preserved, then sanitary pruning shall be conducted by the arborist to remove all dead wood and to maximize the health of the tree.

SELECTIVE CLEARING

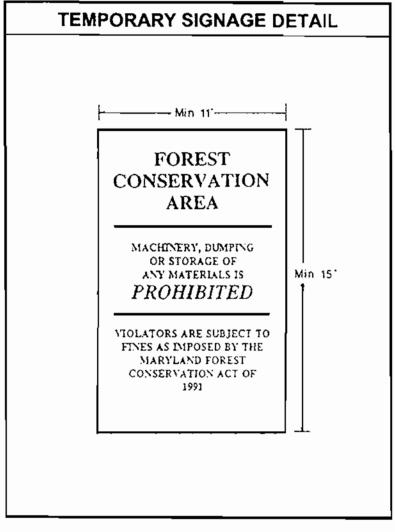
- Selective clearing in the designated area shown on this plan (See Sheet 2) will consist of the removal of invasive, exotic trees, shrubs, and vines (e.g., Mulberry and Multiflora Rose) that are established in the understory.
- Selective clearing shall not include native trees or shrubs unless they threaten the integrity of the structures to be preserved (i.e., the existing stone foundation and the existing metal building).

3. On the Forest Conservation Worksheet, the selective clearing area has been considered forest clearing since the quantity of trees removed from the area might result in tree densities below the forest threshold. However, all healthy canopy trees will be preserved unless they threaten stone foundation and the existing metal building.

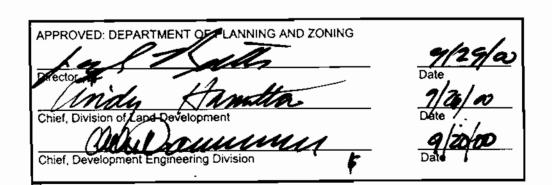
LONG TERM MANAGEMENT PLAN

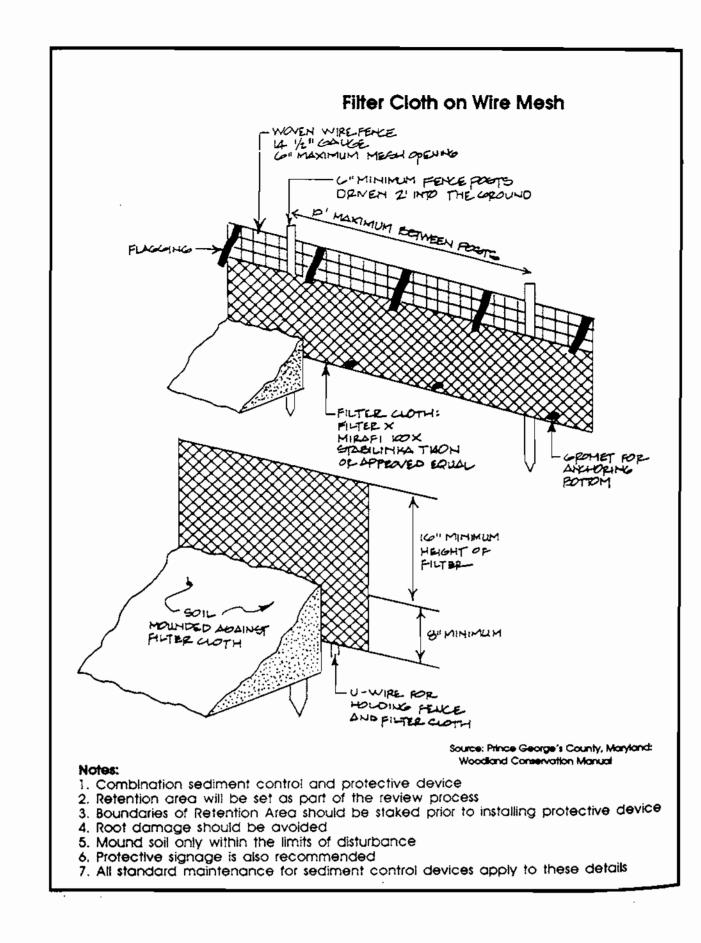
- All forest conservation areas shall be protected by conservation easements which will be recorded at record plat.
- 2. The periodic removal of vines and or other invasive and non-native vegetation along the perimeter of the forest conservation areas may be conducted to control the intrusion and development of such vegetation and maintain forest productivity.
- Woody vegetation located within 20' from the forest perimeter susceptible to windthrow and dead or diseased trees along the forest perimeter may be selectively thinned if potentially hazardous.

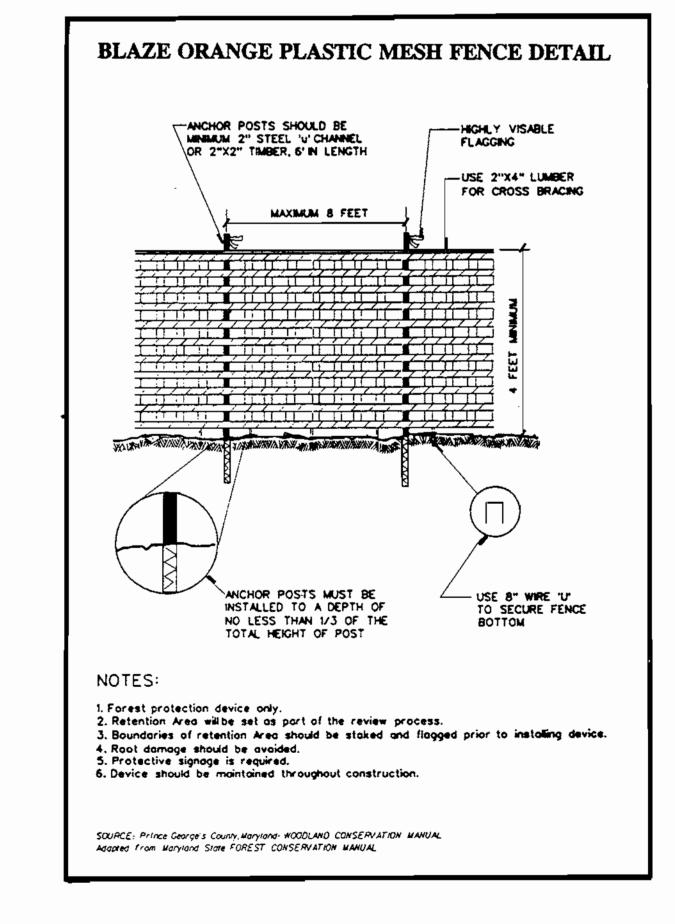
Rockburn Branch Park Forest Conservation Worksheet Input Parameter: Enter: Tract Area 100-Year Floodplain Area 4.07 Other ROW/Easements to be Excluded from Net Tract Area Disturbance within Floodplain to be added to Net Tract Area Existing Forest Area within Net Tract Area 55.6 Afforestation Threshold Percentage 0.15 Conservation Threshold Percentage 0.2 Total Area of Forest to be Cleared 2.89 Calculated Parameters: Enter: Net Tract Area 102.73 Afforestation Threshold 15,4095 Conservation Threshold 20.546 Area of Forest Above Afforestation Threshold 40.1905 Area of Forest Above Conservation Threshold 35.054 Break Even Point 27.5568 Clearing Permitted with no Mitigation 28.0432 52.71 Total Area of Forest to be Retained Reforestation for Clearing Above Conservation Threshold 0.7225 Reforestation for Clearing Below the Conservation Threshold Credit for Retention Above the Conservation Threshold Total Reforestation Required Total Afforestation Required TOTAL Afforestation/Reforestation Required



Note: Signs to be attached every 100 feet onto the Tree Protection Fencing support posts.









PLAN PREPARED BY:

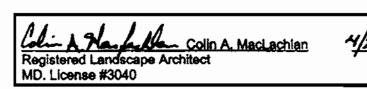
Environmental

Analysis, Inc.

Systems

48 Maryland Avenue, Annapolis, Maryland 21401

(410) 267 - 0495 Fax: (410) 267 - 0496



REVISIONS	DATE
Revised per County Comments of June 2000	6/2000

FOREST CONSERVATION PLAN

ROCKBURN BRANCH PARK

Howard County, Maryland No Scale April 2000

SHEET 12