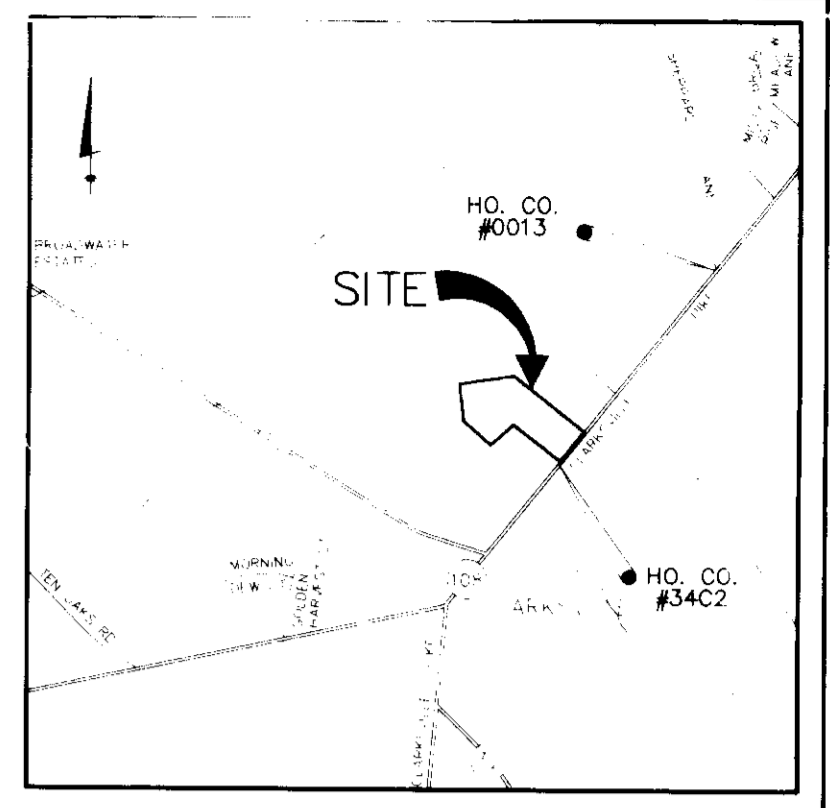
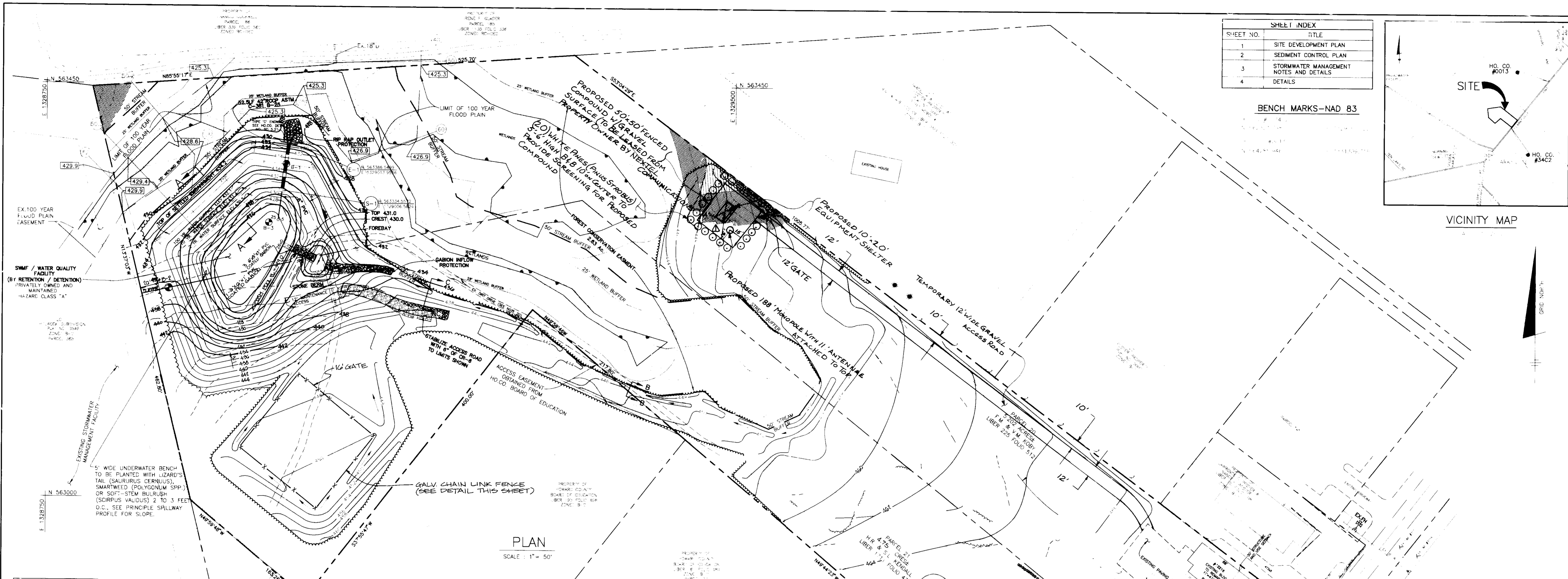


SHEET INDEX	
SHEET NO.	TITLE
1	SITE DEVELOPMENT PLAN
2	SEDIMENT CONTROL PLAN
3	STORMWATER MANAGEMENT NOTES AND DETAILS
4	DETAILS



BENCH MARKS-NAD 83

VICINITY MAP



PLAN
SCALE: 1" = 50'

LINE	DIRECTION	DISTANCE
1-1	N85°55'17"E	415.82
1-2	S89°21'00"W	25.24
1-3	S52°23'00"W	44.5
1-4	S28°18'00"W	47.25
1-5	S10°00'00"W	17.2
1-6	S8°18'00"W	63.35
1-7	S89°21'00"W	45.4
1-8	S28°18'00"W	45.1
1-9	S28°18'00"W	44.7
1-10	S89°21'00"W	24.49
1-11	S89°21'00"W	23.82
1-12	S89°21'00"W	7.69
1-13	S89°21'00"W	17.2
1-14	S89°21'00"W	17.2
1-15	S89°21'00"W	17.2
1-16	S89°21'00"W	17.2
1-17	S89°21'00"W	17.2
1-18	S89°21'00"W	17.2
1-19	S89°21'00"W	17.2
1-20	S89°21'00"W	17.2
1-21	S89°21'00"W	17.2
1-22	S89°21'00"W	17.2
1-23	S89°21'00"W	17.2
1-24	S89°21'00"W	17.2
1-25	S89°21'00"W	17.2
1-26	S89°21'00"W	17.2
1-27	S89°21'00"W	17.2
1-28	S89°21'00"W	17.2
1-29	S89°21'00"W	17.2
1-30	S89°21'00"W	17.2
1-31	S89°21'00"W	17.2
1-32	S89°21'00"W	17.2
1-33	S89°21'00"W	17.2
1-34	S89°21'00"W	17.2
1-35	S89°21'00"W	17.2
1-36	S89°21'00"W	17.2
1-37	S89°21'00"W	17.2
1-38	S89°21'00"W	17.2
1-39	S89°21'00"W	17.2
1-40	S89°21'00"W	17.2
1-41	S89°21'00"W	17.2
1-42	S89°21'00"W	17.2
1-43	S89°21'00"W	17.2
1-44	S89°21'00"W	17.2
1-45	S89°21'00"W	17.2
1-46	S89°21'00"W	17.2
1-47	S89°21'00"W	17.2
1-48	S89°21'00"W	17.2
1-49	S89°21'00"W	17.2
1-50	S89°21'00"W	17.2

GENERAL NOTES CONTINUED:
 1) THE EXISTING CABE BUILDINGS SHALL BE DEMOLISHED PRIOR TO THE COMPLETION OF THE WORK SHOWN ON THESE PLANS.
 2) NO ADDITIONAL WELLS OR BPTL CAPACITIES PROPOSED BY THIS PROJECT.

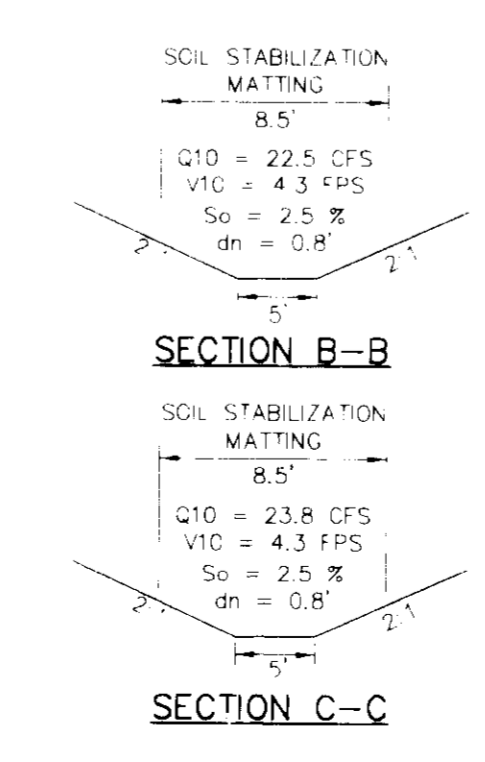
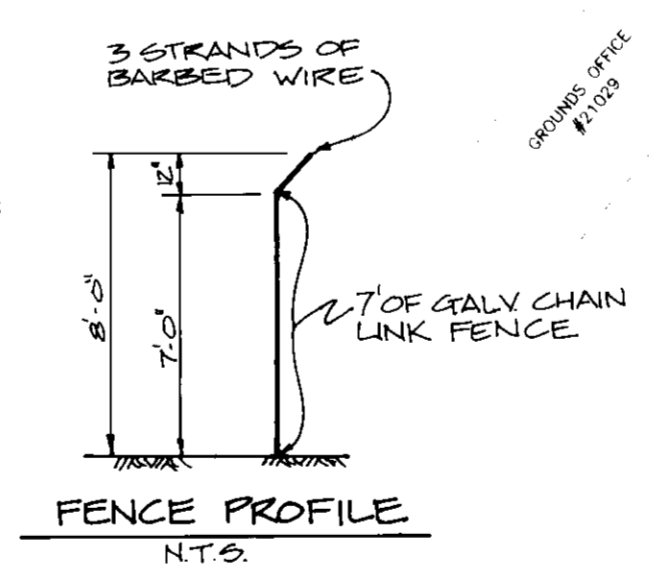
FLOODPLAIN SUMMARY			
SECTION	Q cfs	100 YR. W.S. ELEV.	
40	477.90	421.2	
50	477.90	425.3	
50.2	282.30	428.6	
50.3	282.30	429.4	
60	113.36	426.9	

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 start of work.
- The contractor shall notify "Miss Utility" at 1-800-257-7777 at least 48 hours prior to any excavation work.
- Previous Howard County file reference: waiver petition WP-95-117 was reviewed and denied on June 22, 1995 and WP-96-08 was reviewed and approved on August 28, 1995, both are requesting a waiver to section 16.155(a)(1) requiring a site plan.
- Traffic control devices, markings, and signing shall be in accordance with the latest 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.
- All plan dimensions are to the face of the curb unless otherwise noted.
- The topography shown hereon is field run at 2 foot intervals performed by ISA Group, Inc. on or about Sept. 1994.
- Water for this project is public contract no. 20-3340 and sewer is private.
- Stormwater management for this site is proposed by means of a retention/detention type facility.
- Wetland delineation was prepared by ECO-SCIENCE PROFESSIONALS dated November 14, 1994 (APPROVED 2/21/96)
- Stormwater management facility will be privately owned and maintained.
- Existing utilities shown have been taken from available contract drawing.
- Vertical control is from Howard County NAD 27 control station 2637003. Horizontal control is from Howard County NAD 83 control stations 34C2 and 0013.
- The storage buildings shown have no facilities requiring sewage disposal.
- Existing wells and septic are shown based on available records. Care shall be taken during grading operations not to disturb these areas.
- 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. Permanent signage shall be placed 50'-100' apart along the boundaries of all areas included in the Forest Conservation Easements. (See sign detail sheet no. 4)
- Landscaping shall be required at such time that buildings and parking are proposed for this site.
- 100 Year floodplain study was prepared by the ISA, GROUP INC. dated October 31, 1995. (APPROVED 2/21/96)
- The improvements to this site will not generate any additional traffic flow. Therefore a traffic study is not required.
- Existing dirt drive to be abandoned.

SITE DATA TABULATION

GENERAL SITE DATA	
1) PRESENT ZONING:	B-2
2) APPLICABLE DPZ FILE REFERENCES:	WP-95-117, WP-96-08
3) PROPOSED USE OF SITE:	COMMERCIAL
4) PROPOSED WATER:	PUBLIC
PROPOSED SEWER SYSTEM:	PRIVATE
AREA TABULATION	
1) TOTAL PROJECT AREA:	10.20 AC.
2) AREA OF 100 YR. FLOODPLAIN:	0.50 AC.
3) NET AREA OF SITE:	9.70 AC.
4) AREA OF THIS PLAN SUBMISSION:	10.20 AC.
5) APPROXIMATE LIMIT OF DISTURBANCE:	9.26 AC.
6) BUILDING COVERAGE OF SITE (PERMITTED):	N/A 100%
7) BUILDING COVERAGE OF SITE (PROPOSED):	N/A
UNIT/LOT TABULATION	
1) TOTAL NUMBER OF RESIDENTIAL UNITS/LOTS ALLOWED FOR PROJECT:	N/A
2) TOTAL NUMBER OF RESIDENTIAL UNITS/LOTS PROPOSED ON THIS SUBMISSION:	N/A
3) DENSITY OF PROJECT PER NET ACRE:	0.0 AC.
4) TOTAL NUMBER OF NON-RESIDENTIAL LOTS/PARCELS ON THIS SUBMISSION:	N/A
5) OVERALL TOTAL NUMBER OF LOTS/PARCELS PROPOSED ON THIS SUBMISSION:	N/A
OPEN SPACE DATA	
1) OPEN SPACE ON SITE(0.0%):	N/A
2) AREA OF RECREATION OPEN SPACE REQUIRED BY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS:	N/A
ACRES REQUIRED:	N/A
ACRES PROVIDED:	N/A
PARKING SPACE DATA	
1) FLOOR SPACE ON EACH LEVEL PER BUILDING(S) PER USE:	N/A
2) MAXIMUM NUMBER OF EMPLOYEES, TENANTS ON-SITE PER USE:	N/A
3) NUMBER OF PARKING SPACES REQUIRED BY ZONING REGULATIONS AND/OR FDP CRITERIA:	N/A
4) TOTAL NUMBER OF PARKING SPACES PROVIDED ON-SITE:	N/A
5) TOTAL NUMBER OF SERVICE PARKING SPACES PROVIDED ON-SITE:	N/A
6) NUMBER OF HANDICAPPED PARKING SPACES PROVIDED ON-SITE:	N/A



LEGEND	
PROPOSED CONTOUR	560
EXISTING GRADE	
EXISTING TREE LINE	
PROPOSED TREE LINE	
FOREST CONSERVATION EASEMENT	
INDICATES EXISTING SLOPES 25% OR GREATER	
INDICATES EXISTING SLOPES 15%-24.9%	

ADDRESS CHART	
SUBDIVISION	KENDALL PROPERTY PARCELS 20, 21 & 22
BLDG NO.	STREET ADDRESS

APPROVED: FOR PUBLIC WATER/PRIVATE SEWERAGE SYSTEMS. HOWARD COUNTY HEALTH DEPARTMENT
 [Signature] COUNTY HEALTH OFFICER 8/17/96 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] CHIEF, DEVELOPMENT ENGINEERING DIVISION 1/3/96 DATE

[Signature] CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH 8/21/96 DATE

[Signature] DIRECTOR 8/22/96 DATE

NO.	DATE	REVISION
2	1-8-96	ADDED CHAIN LINK FENCE TO PLAN & DETAIL
1	3-7-97	ADDED COMMUNICATIONS TOWER COMPOUND/ACCESS ROAD S.E.L.



TSA GROUP, INC.
 planning • architecture • engineering • surveying
 8480 Baltimore National Pike • Millcreek City, Maryland 21043 • (410)480-6100

OWNER:
 MR. & MRS. HUGH KENDALL AND MS. SANDRA KENDALL
 P.O. BOX 1315 CLARKSVILLE, MARYLAND 21029

DEVELOPER:
 MR. & MRS. HUGH KENDALL AND MS. SANDRA KENDALL
 P.O. BOX 1315 CLARKSVILLE, MARYLAND 21029

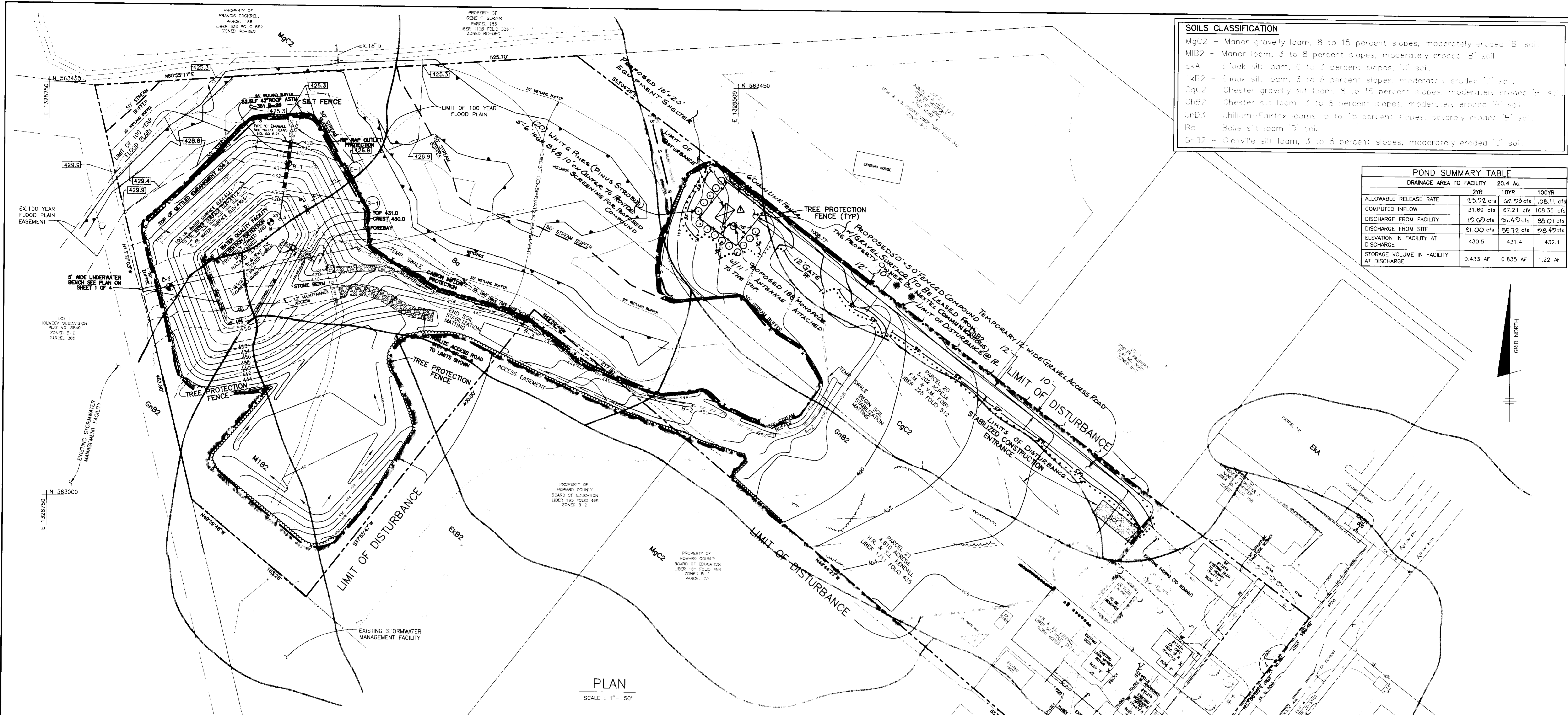
PROJECT:
KENDALL/KOBY PROPERTIES

LOCATION:
 TAX MAP 34 BLOCK 6 - PARCELS 20, 21 & 22
 5th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

TITLE:
SITE DEVELOPMENT PLAN

DATE: DECEMBER 21, 1995 PROJECT NO. 0738
 FEBRUARY 14, 1996

SCALE: AS SHOWN DRAWING 1 OF 4



SOILS CLASSIFICATION

MgC2 - Manor gravelly loam, 8 to 15 percent slopes, moderately eroded 'B' soil.
 MIB2 - Manor loam, 3 to 8 percent slopes, moderate eroded 'B' soil.
 EkA - Elk silt loam, 0 to 3 percent slopes, 'C' soil.
 EkB2 - Elk silt loam, 3 to 8 percent slopes, moderate eroded 'B' soil.
 CgC2 - Chester gravelly silt loam, 8 to 15 percent slopes, moderately eroded 'C' soil.
 ChB2 - Chester silt loam, 3 to 8 percent slopes, moderate eroded 'B' soil.
 GrD3 - Chillum Fairfax loams, 5 to 15 percent slopes, severe eroded 'B' soil.
 Bc - Boale silt loam 'C' soil.
 GbB2 - Glenville silt loam, 3 to 8 percent slopes, moderately eroded 'C' soil.

POND SUMMARY TABLE

DRAINAGE AREA TO FACILITY	20.4 Ac.		
	2YR	10YR	100YR
ALLOWABLE RELEASE RATE	45.92 cfs	67.93 cfs	106.11 cfs
COMPUTED INFLOW	31.69 cfs	67.21 cfs	108.35 cfs
DISCHARGE FROM FACILITY	12.69 cfs	51.49 cfs	88.01 cfs
DISCHARGE FROM SITE	19.00 cfs	55.72 cfs	20.49 cfs
ELEVATION IN FACILITY AT DISCHARGE	430.5	431.4	432.1
STORAGE VOLUME IN FACILITY AT DISCHARGE	0.433 AF	0.835 AF	1.22 AF

PLAN
SCALE: 1" = 50'

SITE ANALYSIS FOR COMMUNICATION TOWER
REVISION ONLY

TOTAL DISTURBED AREA = 0.55 ACRES
 TOTAL IMPERVIOUS AREA = 0.21 ACRES
 TOTAL AREA TO BE VEGETATIVELY STABILIZED = 0.34 AREA
 * TOTAL CUT = 109 YARD³
 * TOTAL FILL = 58 YARD³
 * ADDITIONAL CUT TO BE REMOVED FROM SITE TO AN APPROVED DISPOSAL AREA.

OPERATION AND MAINTENANCE SCHEDULE OF PRIVATELY OWNED AND MAINTAINED STORMWATER MANAGEMENT FACILITY RETENTION (WET) POND

- ROUTINE MAINTENANCE**
- 1) Facility shall be inspected annually and after major storms. Inspections should be performed during wet weather to determine if pond is functioning properly.
 - 2) 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.
 - 3) Debris and litter next to the outlet structure shall be removed during regular mowing operations as needed.
 - 4) Visible signs of erosion in the pond as well as riprap outlet area shall be repaired as soon as it is noticed.
- NON-ROUTINE MAINTENANCE**
- 1) Structural components of the pond such as the dam, the riser, and the pipes shall be repaired upon the detection of any damage. The components should be inspected during routine maintenance operations.
 - 2) Sediment should be removed when its accumulation significantly reduces the design storage, interfere with the function of the riser, when deemed necessary by the Howard County's Department of Public Works.

SEQUENCE OF CONSTRUCTION

DAY 1
OBTAIN A GRADING PERMIT

DAY 2-6
INSTALL STABILIZED CONSTRUCTION ENTRANCE, CLEAR AND GRUB AS REQUIRED TO INSTALL SILT FENCE, TREE PROTECTION FENCE, FOREST CONSERVATION AREA PERMANENT PROTECTIVE SIGNAGE, TEMP SWALE AND SIMP AND INSTALL SAID CONTROLS AND GRUB SITE.

DAY 7-21
GRADE SITE AND STABILIZE IN ACCORDANCE WITH PERMANENT SEEDING NOTES AND CONSTRUCT STORAGE BUILDING.

DAY 22-26
POND APPROVAL TO OF THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS REMOVE REMAINING CONTROLS AND STABILIZE DISTURBED AREA ACCORDING TO PERMANENT SEEDING NOTES.

REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEETS REQUIREMENTS. THE HOWARD COUNTY NATURAL RESOURCE CONSERVATION DISTRICT.

J. H. Wafield 8/22/96
NATURAL RESOURCE CONSERVATION DISTRICT

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

John Drummond 1/14/96
CHIEF, DEVELOPMENT ENGINEERING DIVISION

Richard Blood 1/14/96
CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH

Paul J. Leight 8/24/96
DIRECTOR

NO	DATE	REVISION	S.E.L.
1	3-7-97	ADDED COMMUNICATION TOWER COMPOUND, ACCESS ROAD, AND SEDIMENT CONTROL	S.E.L.

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.

DONALD A. MASON Date: 2-5-96
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 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.

Reverend Wharsby 1/2/96
DEVELOPER: Date

By the Engineer:
I certify that this plan for pond construction, erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he/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.

Donald A. Mason 2-5-96
DONALD A. MASON, P.E. #27443
ENGINEER: Date

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

J. H. Wafield 8/22/96
Natural Resource Conservation Service
REGISTERED PROFESSIONAL ENGINEER

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

Robert W. Zehm 8/22/96
HOWARD SOIL CONSERVATION DISTRICT
REGISTERED PROFESSIONAL ENGINEER



LEGEND

- PROPOSED CONTOUR
- EXISTING GRADE
- LIMIT OF DISTURBANCE
- SILT FENCE
- STABILIZED CONSTRUCTION ENTRANCE
- TREE PROTECTION FENCE
- SOIL TYPE DELINEATION
- SOIL TYPE
- TEMPORARY SWALE

TSA GROUP, INC.
 planning • architecture • engineering • surveying
 8400 Baltimore National Pike • Ellicott City, Maryland 21043 • (410)465-8108

John Drummond
REGISTERED PROFESSIONAL ENGINEER

OWNER:
MR. & MRS. HUGH KENDALL AND MS. SANDRA KENDALL
P.O. BOX 1315
CLARKSVILLE, MARYLAND 21029

DEVELOPER:
MR. & MRS. HUGH KENDALL AND MS. SANDRA KENDALL
P.O. BOX 1315
CLARKSVILLE, MARYLAND 21029

PROJECT:
KENDALL/KOBY PROPERTIES

LOCATION:
TAX MAP 34 BLOCK 6 - PARCELS 20, 21 & 22
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE:
SEDIMENT CONTROL PLAN

DATE: DECEMBER 21, 1995
FEBRUARY 14, 1996

PROJECT NO. 0738

DES: DM DRN: JR

SCALE: AS SHOWN

DRAWING 2 OF 4

STORMWATER MANAGEMENT NOTES

Site Preparation

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

Areas to be covered by the 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 - All material to be used as fill or backfill should be inspected, tested and approved by the Geotechnical Engineer. In general, the on-site soils which are free from organic matter or deleterious components, stones greater than 6", frozen or other objectionable materials, can be re-used as engineered fill. Granular materials were encountered in each of the test pits at depths of 6 to 12 feet below existing grades. The granular materials may be utilized as fill for the proposed embankment. Semi-cohesive material was encountered in each of the test pits from the surface to approximately 5 feet, and may be used as core trench material. Fill material for the center of the embankment and cut off trench shall conform to United Soil Classification GC, SC, CH, or CL.

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 layers (bottom layers may be thicker) and 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 placement and not excavated into the embankment.

Compaction - All fill should be placed in relatively horizontal 8 inch (maximum) loose lifts and should be compacted to a minimum of 95 percent of the maximum available dry density as determined in accordance with (ASTM D-1557). Fill materials in landscape and other non-structural areas should be compacted to at least 85 percent of Modified Proctor maximum dry density to preclude any significant subsidence of fill under its own weight. Field moisture contents should be maintained within 2 percentage points of the optimum moisture content in order to allow adequate compaction.

Moisture conditioning (that is, wetting or drying) of the soils should be anticipated to achieve proper compaction. The moisture contents of the soils should be controlled properly to avoid extensive construction delays.

A sufficient number of in-place density tests should be performed by an experienced Engineering Technician on a full-time basis to verify that the proper degree of compaction is being obtained.

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 bottom of the trench 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.

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

- Materials - Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM Designation C-351. An approved equivalent is AWWA Specification C-302.
- Bedding - All reinforced concrete pipe conduits shall be laid in a concrete bedding for their entire length. This bedding shall consist of high strength concrete placed under the pipe and up the sides of the pipe at least 10% of its outside diameter with a minimum thickness of 3 inches, or as shown on the drawings.
- Laying pipe - Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 2 feet from the riser.
- Backfilling shall conform to "Structure Backfill".
- 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:

- Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241.
- Joints and connections to anti-seep collars shall be completely watertight.
- Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soil is spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.
- Backfilling shall conform to "Structure Backfill".
- Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Concrete

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 808, 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 shall be angular to subrounded in shape. The least dimension of individual rock fragments shall be not less than one third the greatest dimension of the fragment.

The rock shall have the following properties:

- Bulk specific gravity (saturated surface-dry basis) not less than 2.5.
- Absorption not more than three percent.
- 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 Water during Construction

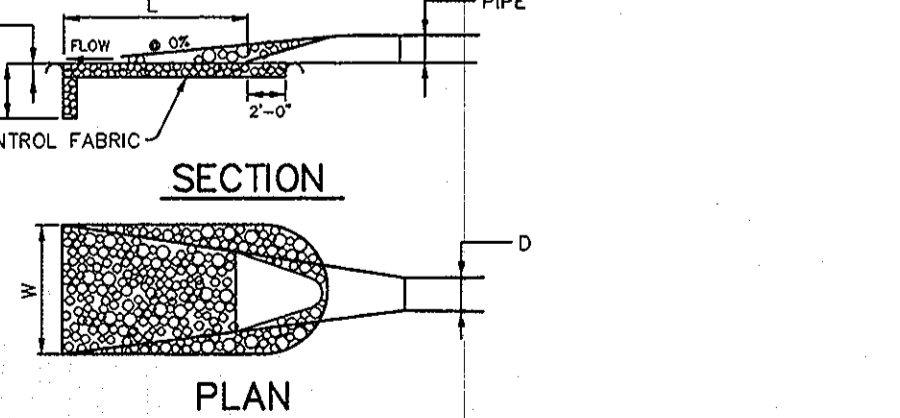
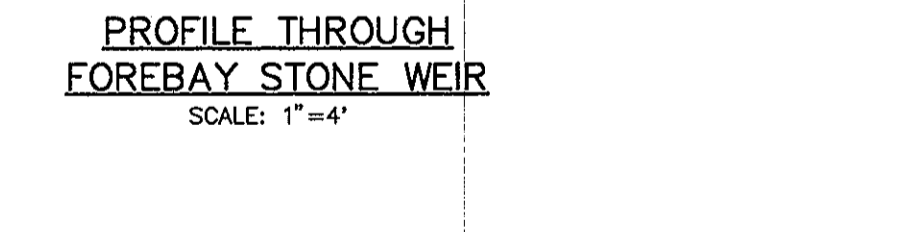
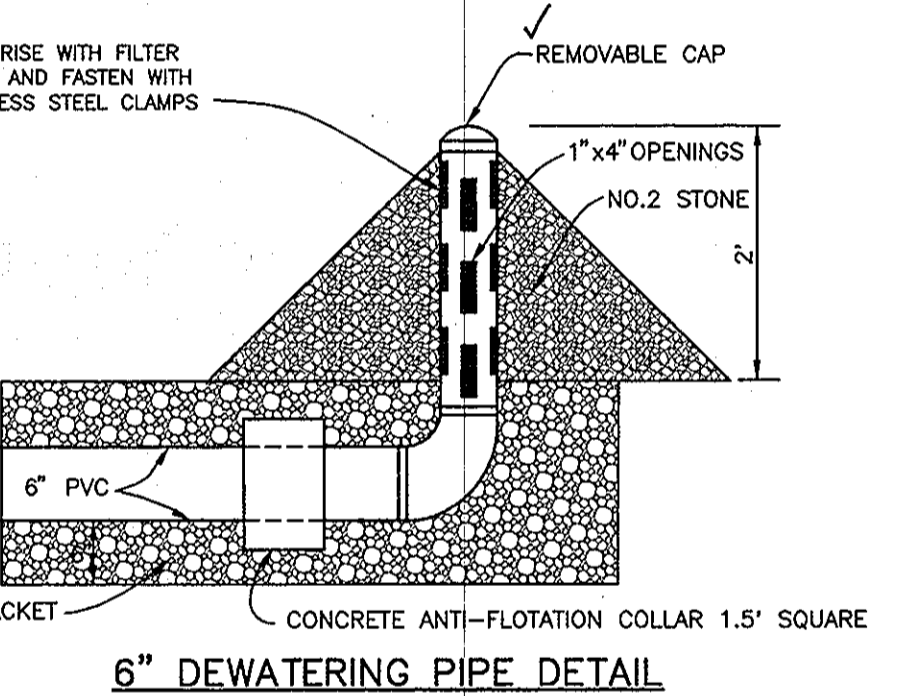
All work on permanent structures shall be carried out in areas free from water. The Contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also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



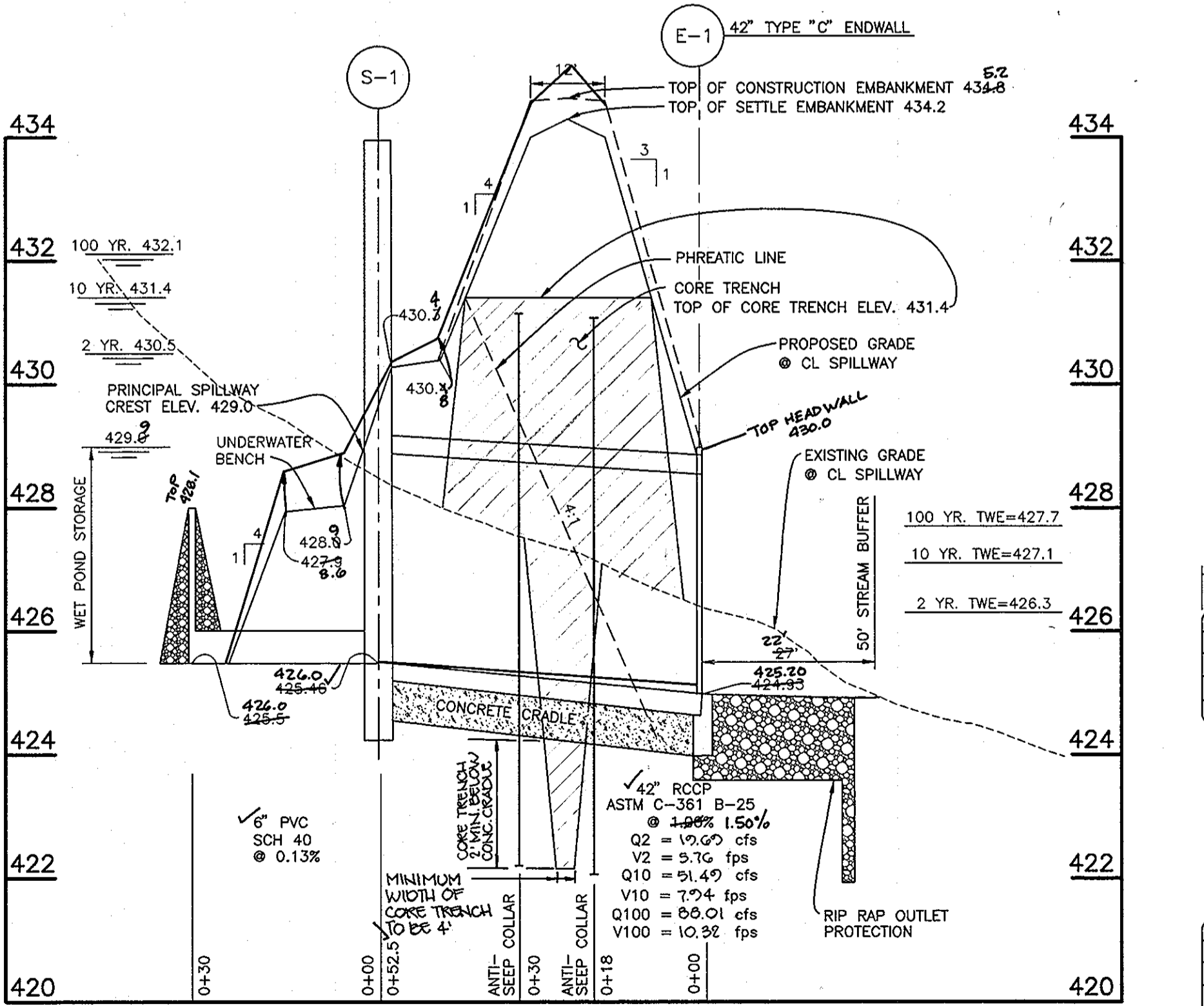
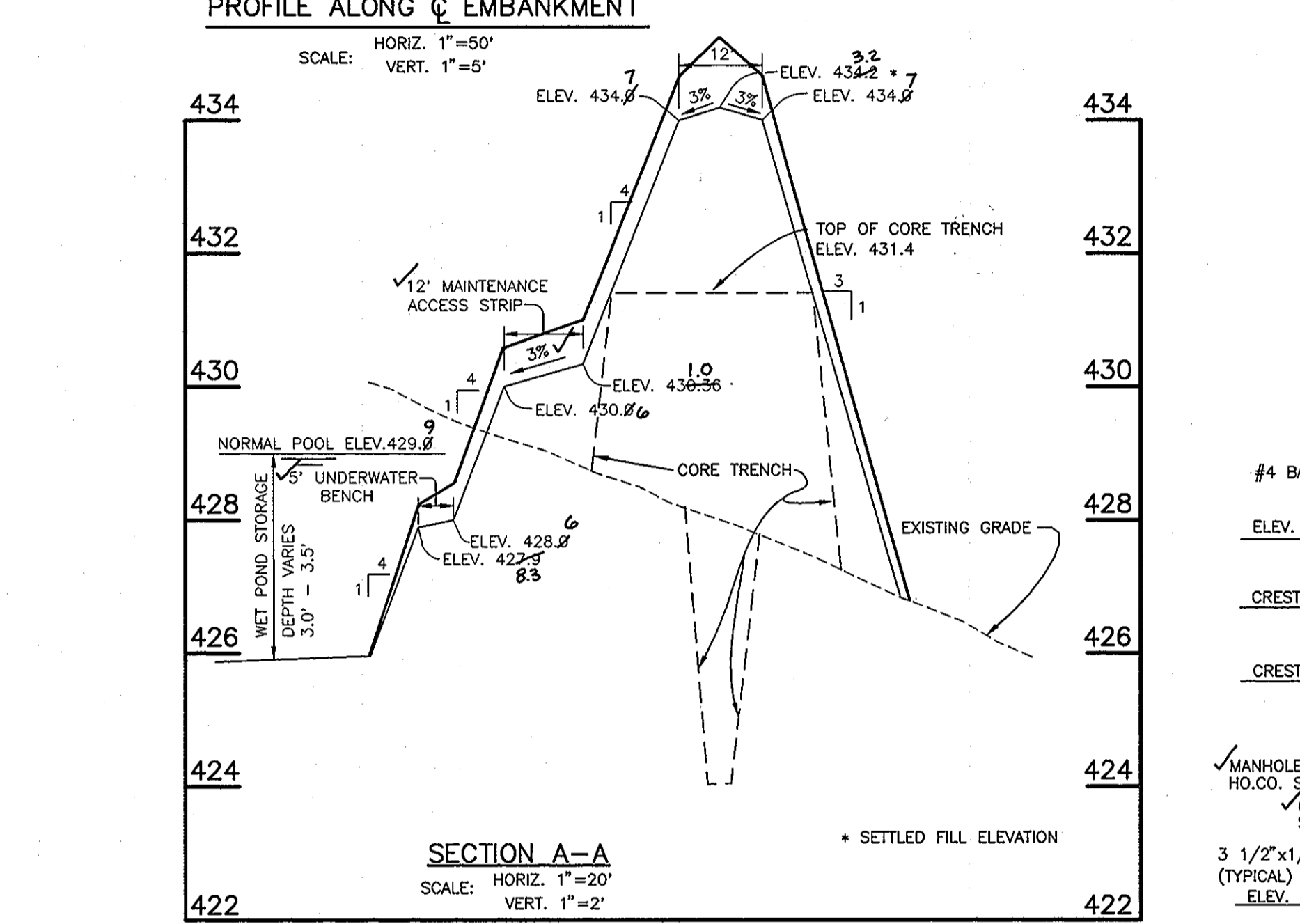
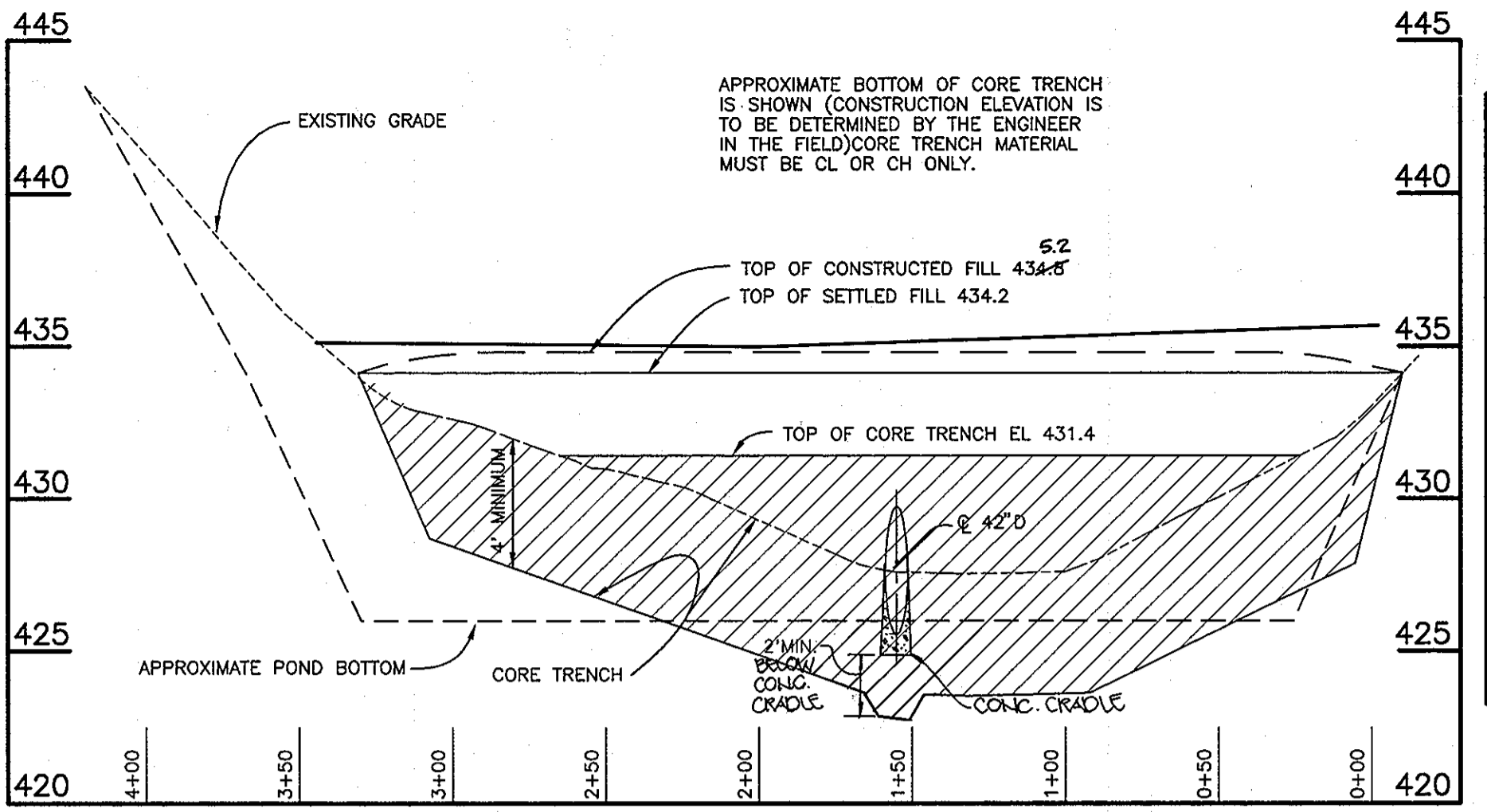
STRUCTURE	d-50	LENGTH (L)	WIDTH (W)	THICKNESS (T)
E-1	0.75'	24.0'	13.0'	1.50'

TEST PIT LOGS

TP-1 Elevation 427.5
0.0' - 0.5' Topsoil and root matter.
0.5' - 6.0' Light gray to light brown micaceous fine Sandy SILT, trace Clay (ML)
6.0' - 12.0' Brown and white micaceous fine Sandy SILT, trace Clay and some rock fragments (ML)
12.0' Bottom of pit
Water encountered at 6.5 feet below grade.

TP-2 Elevation 436.0
0.0' - 0.5' Topsoil and root matter.
0.5' - 8.0' Light brown to reddish brown Silty fine SAND, (SM)
8.0' - 10.0' Grayish brown micaceous fine Sandy SILT (ML)
10.0' Bottom of pit
Water encountered at 7 feet below grade.

TP-3 Elevation 431.0
0.0' - 0.5' Topsoil and root matter
0.5' - 3.0' Light brown micaceous fine Sandy SILT, trace Clay (ML)
3.0' - 6.0' Reddish brown micaceous fine Sandy SILT, trace Clay (ML)
6.0' - 8.0' Brown and white micaceous fine Silty SAND, trace Clay, some rock fragments (SM)
8.0' - 10.0' Brown and white micaceous fine Sandy SILT, some rock fragments (ML)
10.0' Bottom of pit
Water encountered at 7 feet below grade.

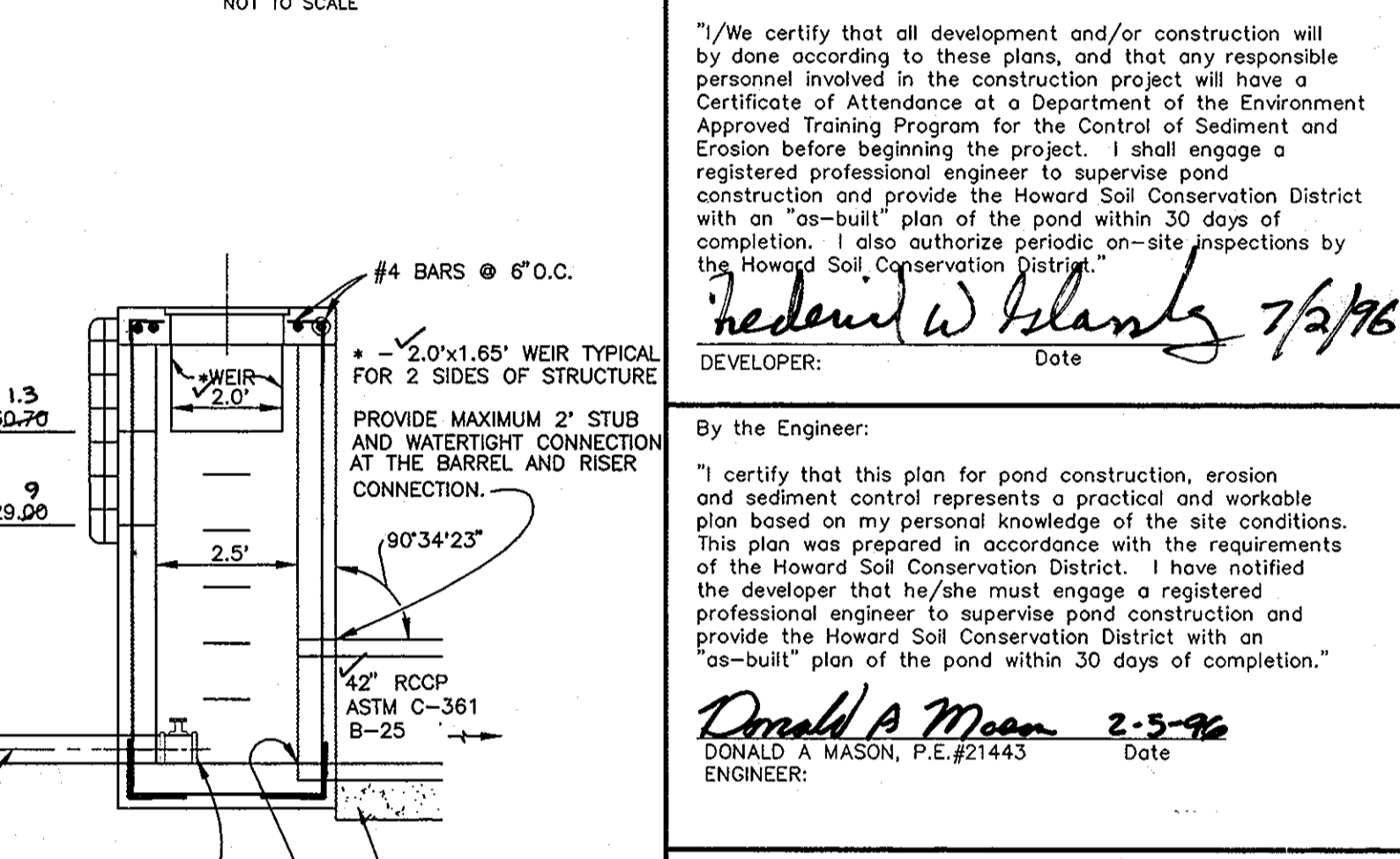
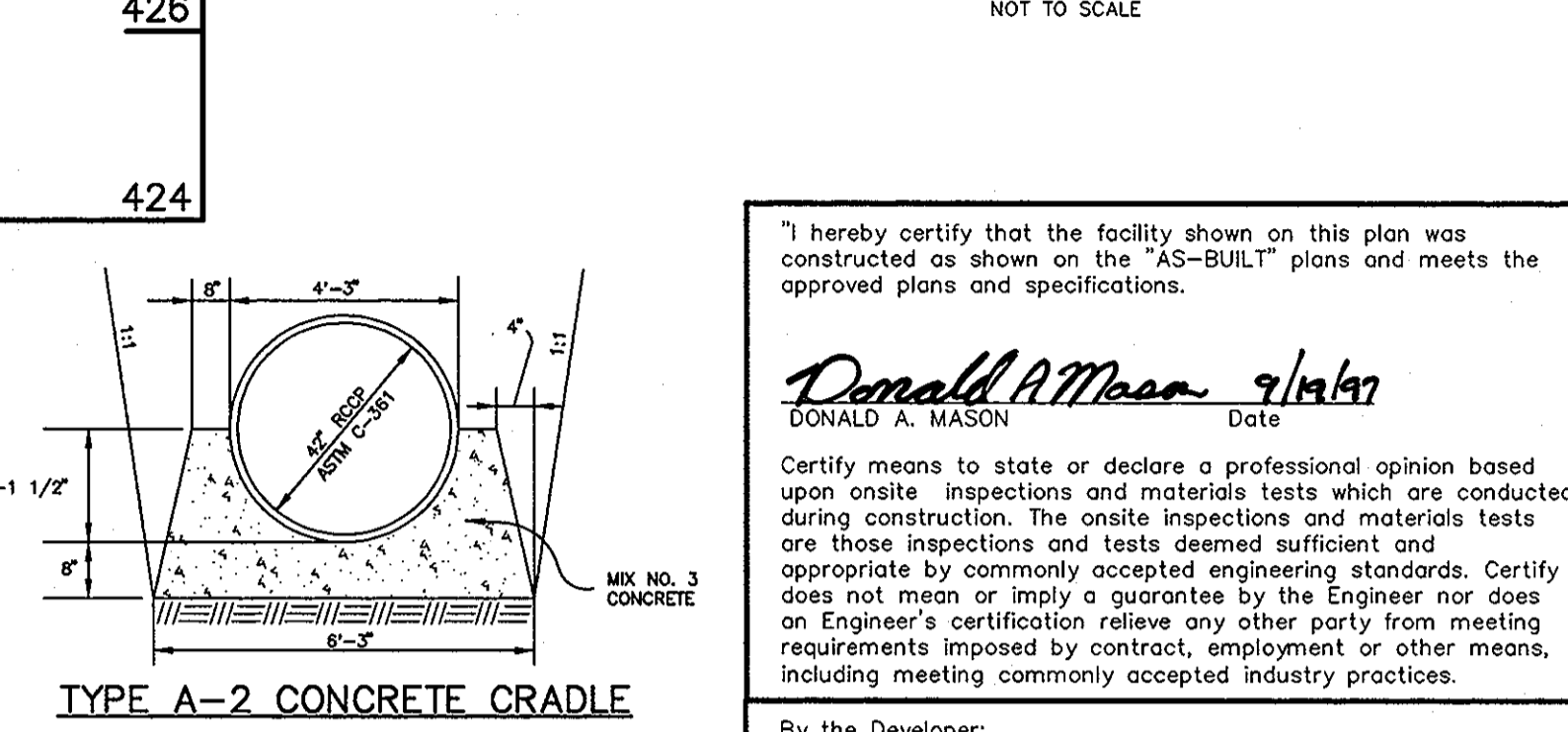
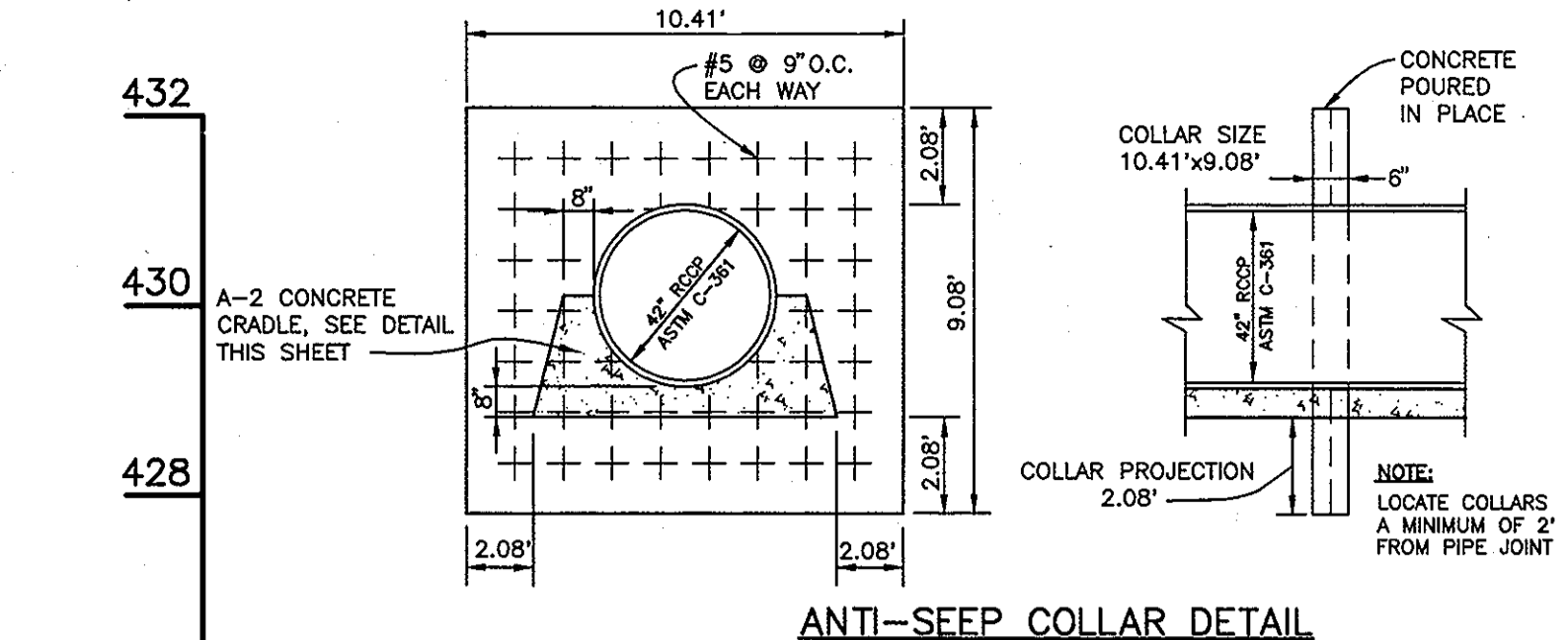
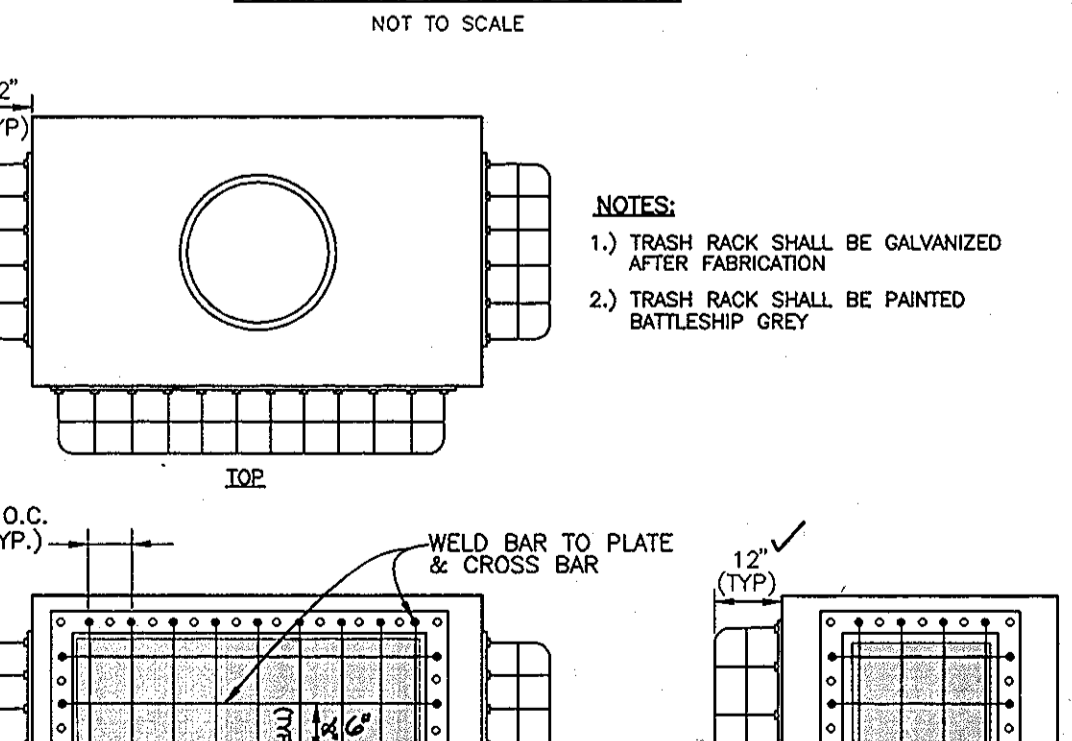
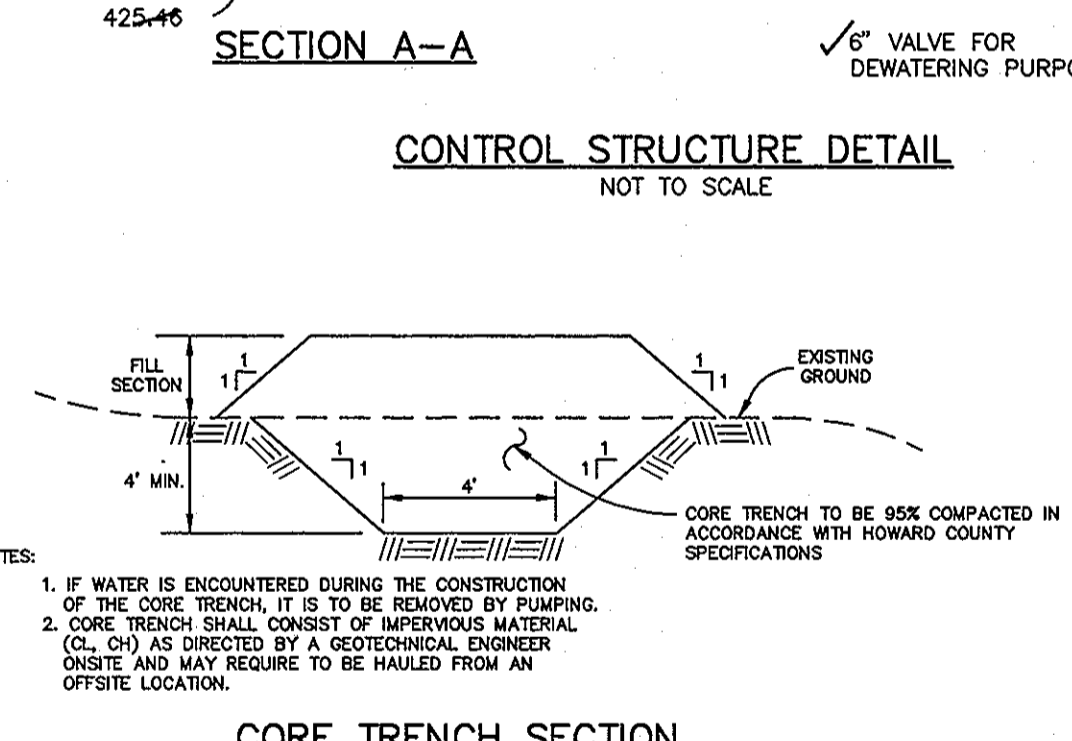
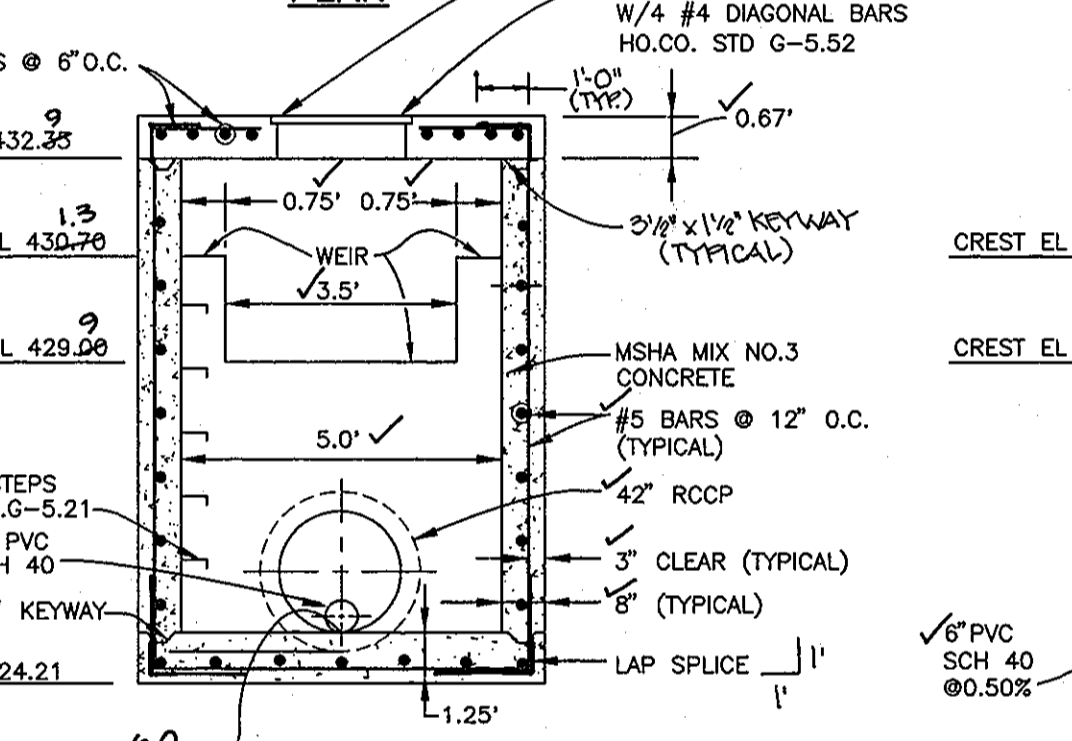
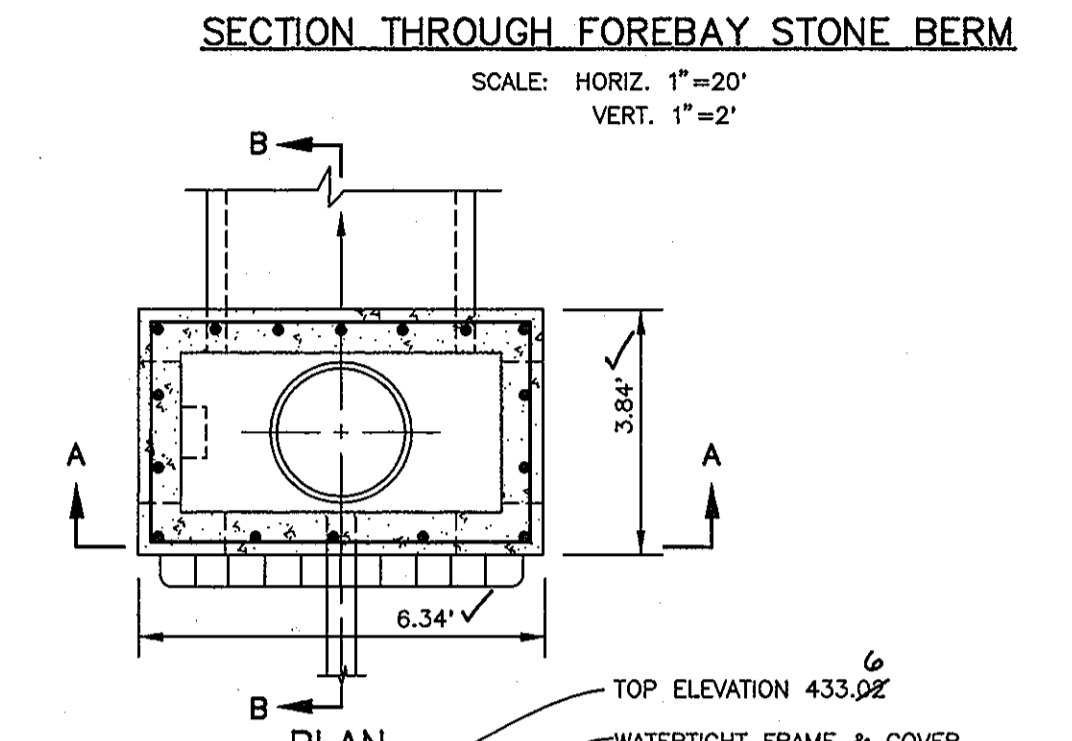
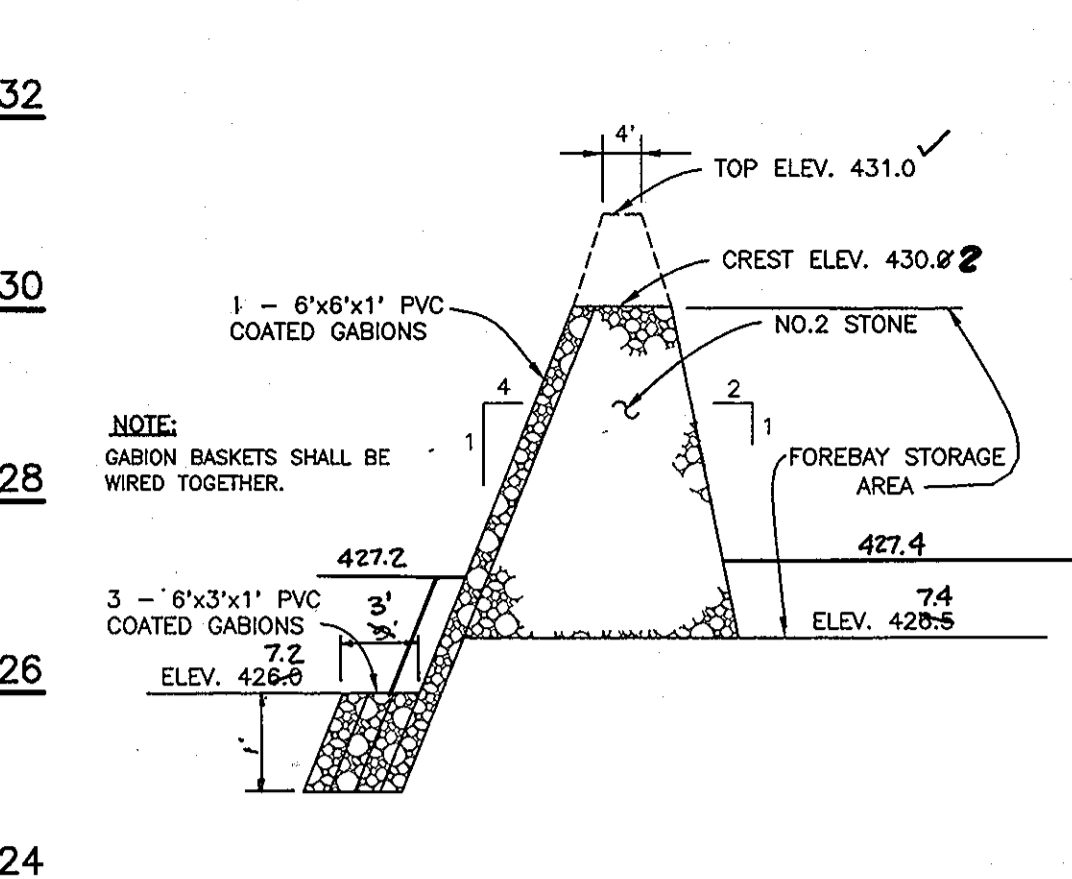


TEST PIT LOGS

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Water encountered at 7 feet below grade.

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8.0' - 10.0' Brown and white micaceous fine Sandy SILT, some rock fragments (ML)
10.0' Bottom of pit
Water encountered at 7 feet below grade.



AS-BUILT 9/19/97

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Richard W. Johnson
CHIEF, DEVELOPMENT ENGINEERING DIVISION

Richard B. Coel
CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH

Frank V. Slaughter
DIRECTOR

7/24/96 DATE

8/26/96 DATE

8/22/96 DATE

NO DATE REVISION

TSA GROUP, INC.
planning • architecture • engineering • surveying
8609 Baltimore National Pike • Ellicott City, Maryland 21043 • (410)465-0105

OWNER: MR. & MRS. HUGH KENDALL AND MS. SANDRA KENDALL, P.O. BOX 1315, CLARKSVILLE, MARYLAND 21029

DEVELOPER: MR. & MRS. HUGH KENDALL AND MS. SANDRA KENDALL, P.O. BOX 1315, CLARKSVILLE, MARYLAND 21029

PROJECT: **KENDALL/KOBY PROPERTIES**

LOCATION: TAX MAP 34 BLOCK 6 - PARCELS 20, 21 & 22, 5th ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

TITLE: **STORMWATER MANAGEMENT NOTES AND DETAILS**

DATE: NOVEMBER 21, 1995 / FEBRUARY 14, 1996 PROJECT NO. 0738

DES: DM DRN: JR SCALE: AS SHOWN DRAWING 3 OF 4

SEDIMENT CONTROL NOTES

- 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)
- 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 SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL. REVISIONS HERE TO.
- FOLLOWING INITIAL SOIL DISTURBANCE OR RESTORATION, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN A 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, FURROW SLOPES AND ALL SLOPES GREATER THAN 3:1 TO 4:1 AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 72, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
- ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1996 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDINGS (SEC. 51) SOO (SEC. 54), TEMPORARY SEEDING (SEC. 50) AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
- ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- SITE ANALYSIS:

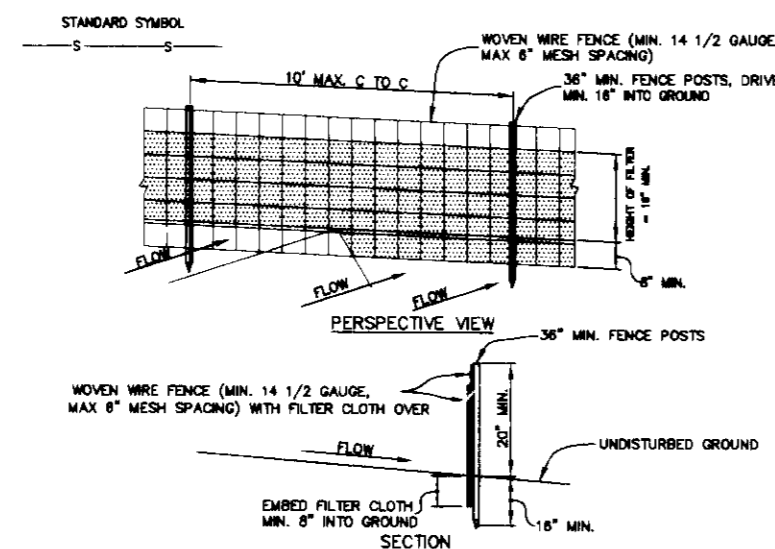
TOTAL AREA OF SITE	10.2	ACRES
AREA DISTURBED	5.2	ACRES
AREA TO BE ROOFED OR PAVED	0.7	ACRES
AREA TO BE VEGETATIVELY STABILIZED	4.3	ACRES
TOTAL C.I.T.	6.6	ACRES
TOTAL FILL	8400	CY
OFFSITE WASTE/BORROW AREA LOCATION	0	

- 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 INSPECTOR.
- 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.
- 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.

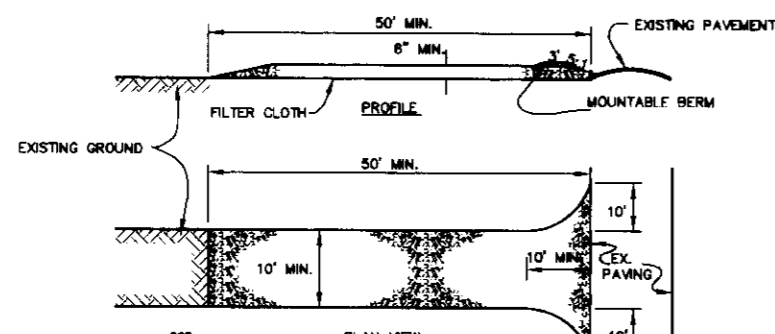
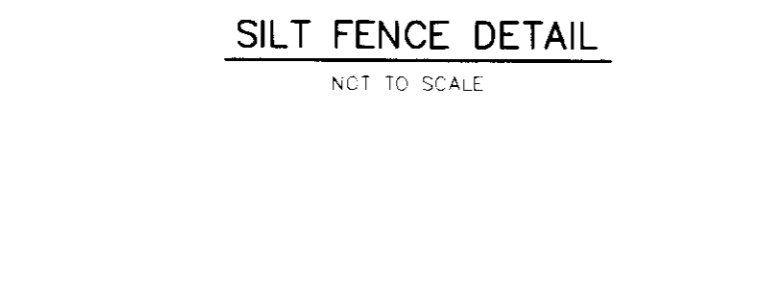
TEMPORARY SEEDBED PREPARATION
 APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE REDISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.
SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING. IF NOT PREVIOUSLY LOOSENED.
SOIL AMENDMENTS: APPLY 600 LBS PER ACRE 10-10-10 FERTILIZER (4 LBS/1000 SQ FT).
SEEDING: FOR PERIOD MARCH 1 THROUGH APRIL 30 AND FROM AUGUST 15 THROUGH NOVEMBER 15, SEED WITH 2-1/2 BUSHELS PER ACRE OF ANNUAL RYE (3.2 LBS/1000 SQ FT). FOR THE PERIOD MAY 1 THROUGH AUGUST 14, SEED WITH 3 LBS PER ACRE OF WEEPING LOVEGRASS (0.7 LBS/1000 SQ FT). FOR THE PERIOD NOVEMBER 16 THROUGH FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOO.
MULCHING: APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ FT) OF UNROTATED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ FT) OF EMULSIFIED ASPHALT ON FLAT AREAS, ON SLOPES 8 FT OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ FT) FOR ANCHORING.
 REFER TO THE 1996 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.

PERMANENT SEEDBED PREPARATION
SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING. IF NOT PREVIOUSLY LOOSENED.
SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ONE OF THE FOLLOWING SCHEDULES:

- PREFERRED - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ FT) AND 600 LBS PER ACRE 10-10-10 FERTILIZER (4 LBS/1000 SQ FT) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 600 LBS PER ACRE 30-0-0-0 UREAFORM FERTILIZER (9 LBS/1000 SQ FT).
 - ACCEPTABLE - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ FT) AND 1000 LBS PER ACRE 10-10-10 FERTILIZER (23 LBS/1000 SQ FT) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL.
- SEEDING:** FOR THE PERIODS MARCH 1 THROUGH APRIL 30 AND AUGUST 1 THROUGH OCTOBER 15, SEED WITH 60 LBS PER ACRE (1.4 LBS/1000 SQ FT) OF KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS PER ACRE (0.5 LBS/1000 SQ FT) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THROUGH FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION (2) USE SOO. OPTION (3) SEED WITH 60 LBS PER ACRE OF KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS PER ACRE OF WELL ANCHORED STRAW.
MULCHING: APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ FT) OF UNROTATED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ FT) OF EMULSIFIED ASPHALT ON FLAT AREAS, ON SLOPES 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ FT) FOR ANCHORING.
MAINTENANCE: INSPECT ALL SEEDBEDS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

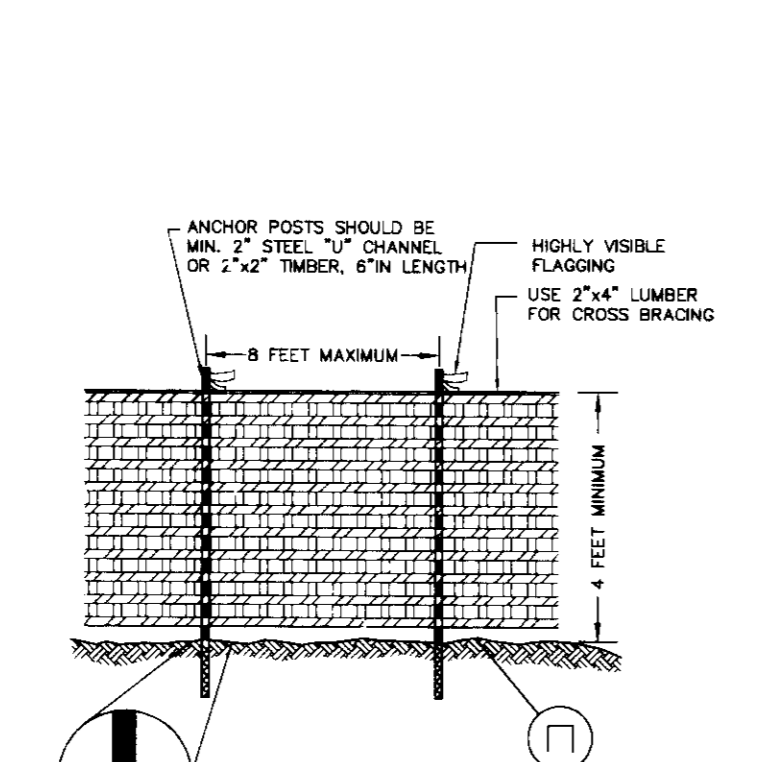


- CONSTRUCTION NOTES FOR FABRICATED SILT FENCE**
- Woven wire fence to be fastened securely to fence posts with wire ties or staples.
 - Filter cloth to be fastened securely to upper wire fence with wire staples every 24\"/>



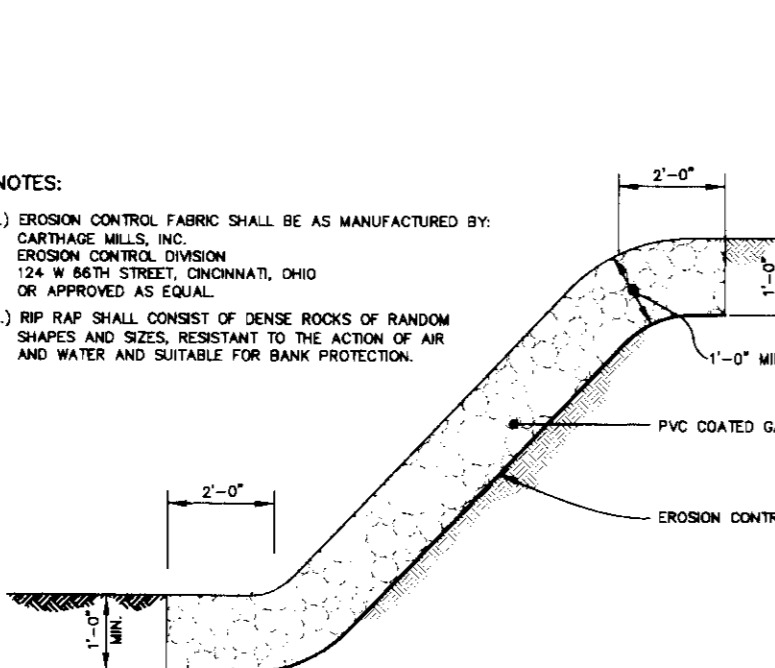
- CONSTRUCTION SPECIFICATIONS**
- Stone size - Use 2\"/>

STABILIZED CONSTRUCTION ENTRANCE
 NOT TO SCALE



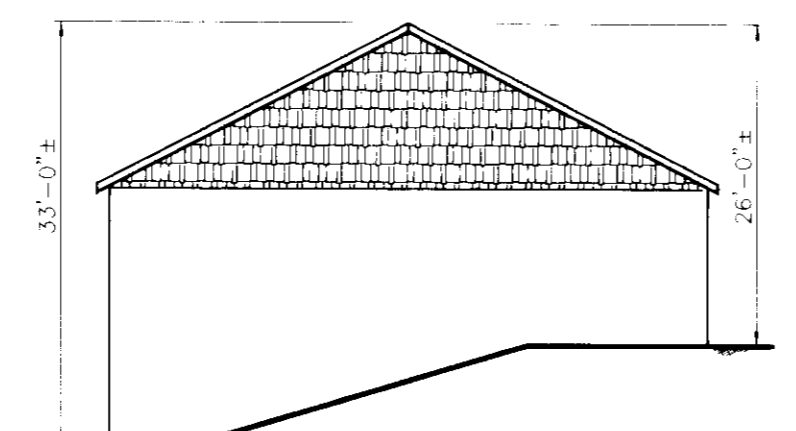
- CONSTRUCTION SPECIFICATIONS**
- KEY-IN THE MATTING BY PLACING THE TOP ENDS OF THE MATTING IN A NARROW TRENCH 6\"/>

TEMPORARY TREE PROTECTION FENCE
 NOT TO SCALE

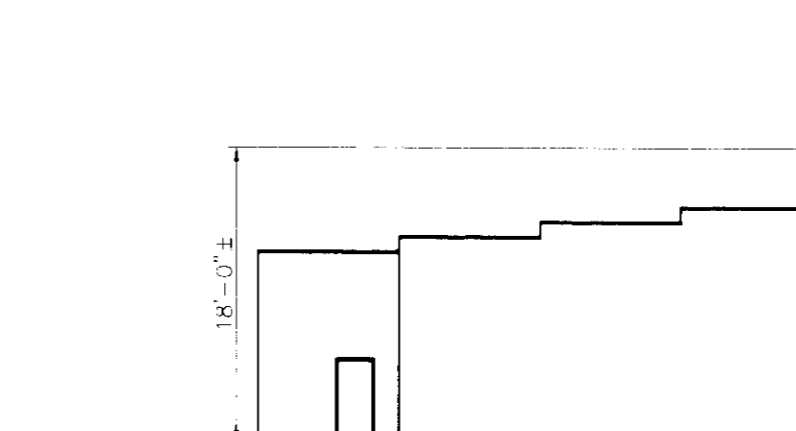


- NOTES:**
- EROSION CONTROL FABRIC SHALL BE AS MANUFACTURED BY CARTRIDGE MILLS, INC. EROSION CONTROL DIVISION 124 W 6TH STREET, CINCINNATI, OHIO OR APPROVED AS EQUAL.
 - RIP RAP SHALL CONSIST OF DENSE ROCKS OF RANDOM SIZES AND BEES RESISTANT TO THE ACTION OF AIR AND WATER AND SUITABLE FOR BANK PROTECTION.

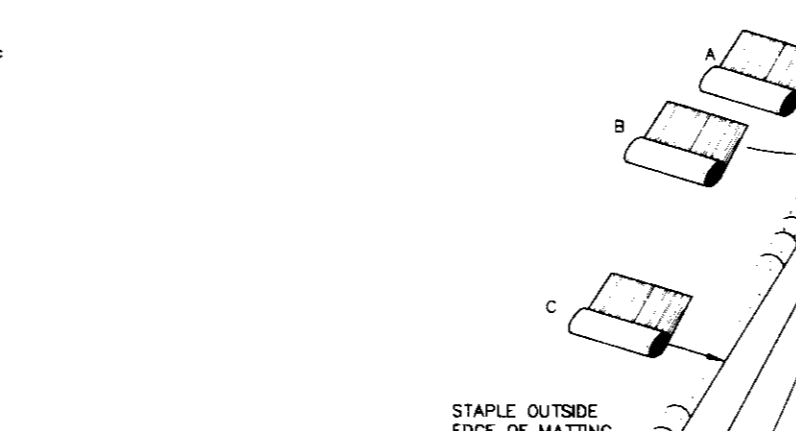
EXISTING KENDALL HARDWARE FRONT ELEVATION
 NOT TO SCALE



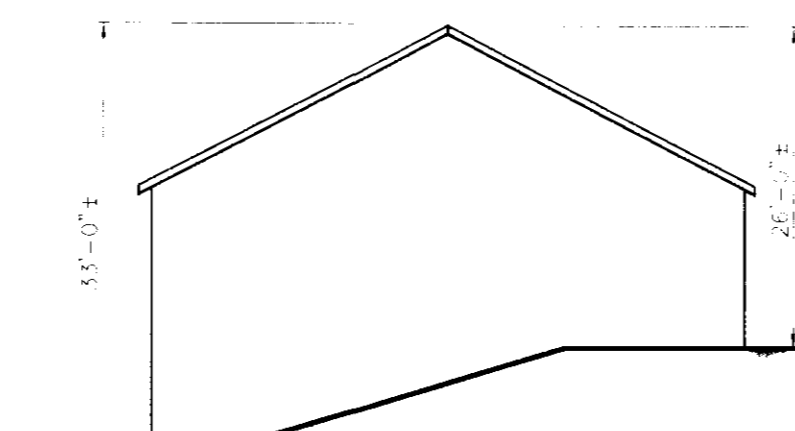
EXISTING INSURANCE OFFICE LEFT ELEVATION
 NOT TO SCALE



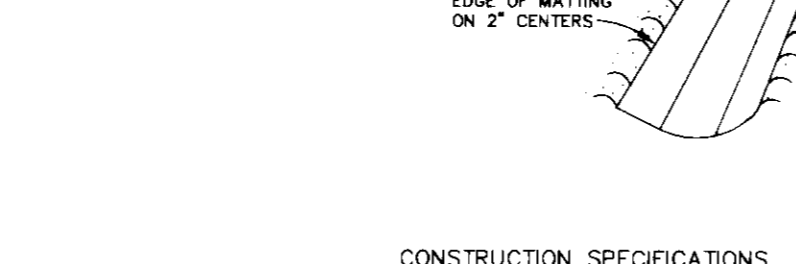
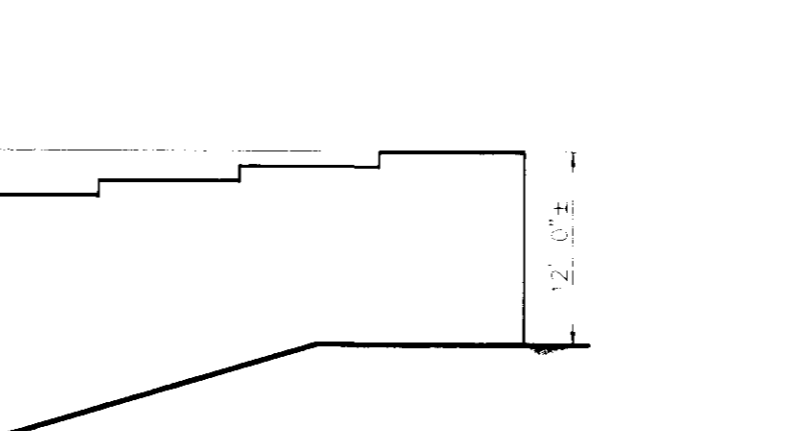
EXISTING MARKET PLACE GIFTS - LEFT ELEVATION
 NOT TO SCALE



EXISTING LAWN MOWER REPAIR SHOP LEFT ELEVATION
 NOT TO SCALE

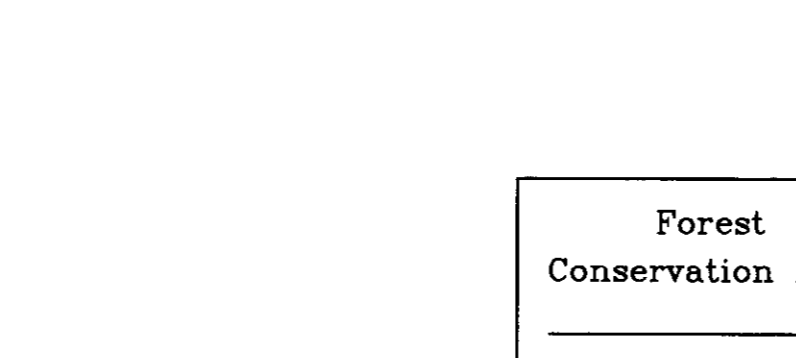


EXISTING MARKET PLACE CAFE LEFT ELEVATION
 NOT TO SCALE

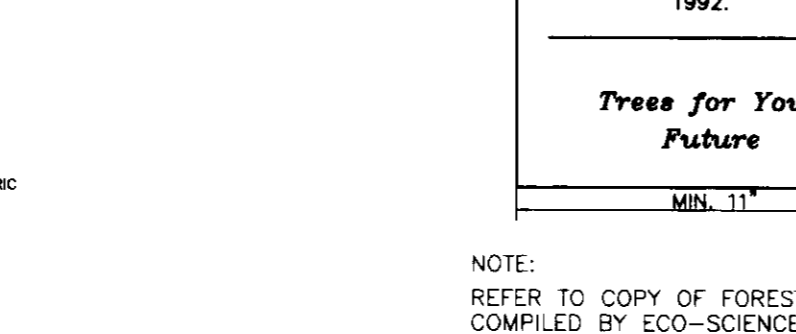


- CONSTRUCTION SPECIFICATIONS**
- KEY-IN THE MATTING BY PLACING THE TOP ENDS OF THE MATTING IN A NARROW TRENCH 6\"/>

SOIL STABILIZATION MATTING
 NOT TO SCALE



TEMPORARY TREE PROTECTION FENCE
 NOT TO SCALE

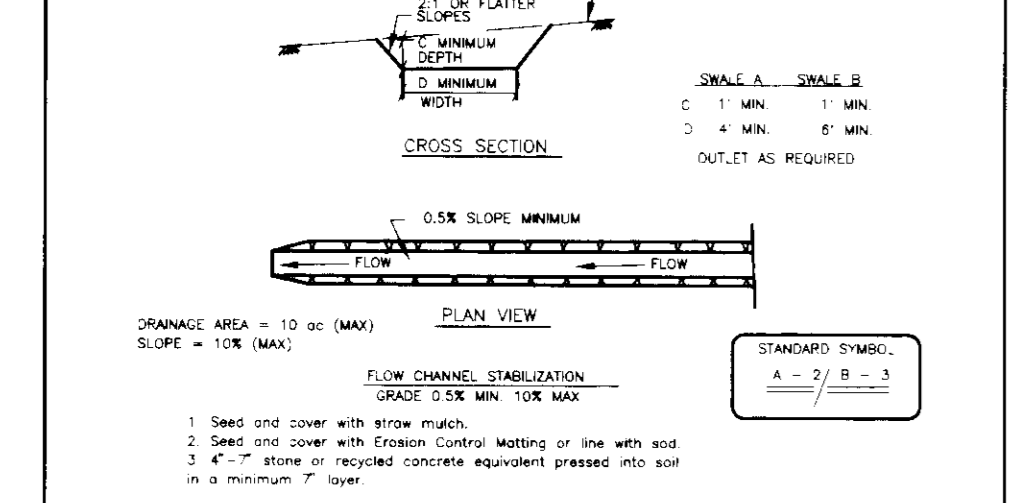


- NOTES:**
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 - RIP RAP SHALL CONSIST OF DENSE ROCKS OF RANDOM SIZES AND BEES RESISTANT TO THE ACTION OF AIR AND WATER AND SUITABLE FOR BANK PROTECTION.



- NOTES:**
- EROSION CONTROL FABRIC SHALL BE AS MANUFACTURED BY CARTRIDGE MILLS, INC. EROSION CONTROL DIVISION 124 W 6TH STREET, CINCINNATI, OHIO OR APPROVED AS EQUAL.
 - RIP RAP SHALL CONSIST OF DENSE ROCKS OF RANDOM SIZES AND BEES RESISTANT TO THE ACTION OF AIR AND WATER AND SUITABLE FOR BANK PROTECTION.

DETAIL 2 - TEMPORARY SWALE



- CONSTRUCTION SPECIFICATIONS**
- All temporary swales shall have unimproved positive grade to an outlet. Soil structure may be necessary for grades less than 1%.
 - Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.
 - Runoff diverted from an undisturbed area shall outlet directly into an undisturbed stabilized area of a non-erosive velocity.
 - All trees, shrubs, stumps, obstructions, and other objectionable material shall be removed and disposed of so as not to interfere with the proper functioning of the swale.
 - The swale shall be excavated or shaped to line, grade and cross section as required to meet the criteria specified herein and the line of bank projections or other irregularities which will impede normal flow.
 - If, if necessary, shall be compacted by earth moving equipment.
 - All earth removed and not needed for construction shall be placed to meet all soil criteria with the functioning of the swale.
 - Inspection and maintenance must be provided periodically until after each rain event.

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.

 DONALD A. MASON Date

Certify means to state or declare a professional opinion based upon on-site inspections and materials tests which are conducted during construction. On-site 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 meetings, commonly accepted industry practices.

By the Developer:

I, We certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of 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.

Robert W. Ziehm 7/2/96
 DEVELOPER Date

By the Engineer:

I certify that this plan for pond construction, erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he/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.

Donald A. Mason 2-5-96
 DONALD A. MASON, P.E. #21443 Date
 ENGINEER

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.

J. H. Warfield 8/22/96
 J. H. Warfield, P.E. #21443 Date
 Natural Resource Conservation Service

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

Robert W. Ziehm 8/22/96
 Robert W. Ziehm, P.E. #21443 Date
 Howard Soil Conservation District

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Michael... 7/13/96
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Richard B. Boel 8/26/96
 CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH DATE

Mark S. ... 7/26/96
 DIRECTOR DATE

NO. DATE REVISION

TSA GROUP, INC.
 planning • architecture • engineering • surveying
 8480 Baltimore National Pike • Ellicott City, Maryland 21043 • (410)460-6105

Donald A. Mason
 DONALD A. MASON, P.E. #21443
 REGISTERED PROFESSIONAL ENGINEER

OWNER: MR. & MRS. HUGH KENDALL AND MRS. SANDRA KENDALL P.O. BOX 1315 CLARKSVILLE, MARYLAND 21029

PROJECT: KENDALL/KOBY PROPERTIES

LOCATION: TAX MAP 34 BLOCK 6 - PARCELS 20, 21 & 22 5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DEVELOPER: MR. & MRS. HUGH KENDALL AND MRS. SANDRA KENDALL P.O. BOX 1315 CLARKSVILLE, MARYLAND 21029

TITLE: DETAILS

DATE: NOVEMBER 21, 1995 PROJECT NO. 0738
 FEBRUARY 14, 1996

SCALE: AS SHOWN DRAWING 4 OF 4

DES: DM DRN: JR