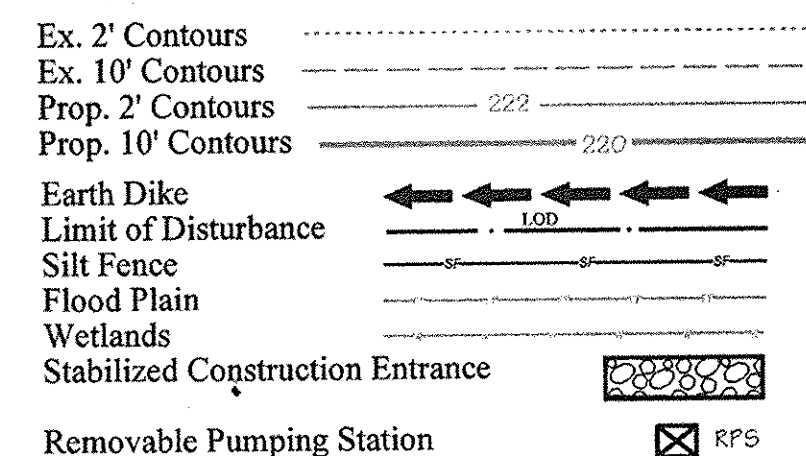


Construction Notes

1. THE CONTRACTOR SHALL NOTIFY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS CONSTRUCTION INSPECTION DIVISION AT 410-313-1880 AT LEAST 24 HOURS PRIOR TO STARTING ANY OF THE WORK SHOWN HEREON.
2. ALL AREAS NOT BEING PAVED OR RECEIVING BUILDING COVERAGE SHALL BE STABILIZED IN ACCORDANCE WITH THE PLANS APPROVED BY THE HOWARD SOIL CONSERVATION DISTRICT.
3. THE CONTRACTOR SHALL NOTE THAT IN CASE OF DISCREPANCY BETWEEN ANY SCALED DIMENSIONS AND THE FIGURED DIMENSIONS SHOWN ON THESE PLANS, THE FIGURED DIMENSIONS SHALL GOVERN.
4. CONTRACTOR SHALL MEET ALL EXISTING IMPROVEMENTS SMOOTHLY FOR LINE, GRADE AND FINISH.
5. ALL WORK SHOWN ON THESE PLANS SHALL BE COMPLETED IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS AND OF THE MARYLAND STATE HIGHWAY ADMINISTRATION AND THE HOWARD COUNTY PLUMBING CODE, UNLESS OTHERWISE NOTED.
6. IT SHALL BE DISTINCTLY UNDERSTOOD THAT FAILURE TO MENTION SPECIFICALLY ANY WORK WHICH WOULD NORMALLY BE REQUIRED TO COMPLETE THIS PROJECT SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO PERFORM SUCH WORK. THE COST OF SUCH WORK SHALL BE INCLUDED IN THE BASE BID.
7. THE CONTRACTOR SHALL INSPECT THE SITE TO DETERMINE IF ANY TREES, PAVING, ETC. ARE TO BE REMOVED PRIOR TO PLACING A BID ON SUCH ITEMS.
8. THE LOCATIONS OF EXISTING UTILITIES SHOWN HEREON ARE APPROXIMATE ONLY AND ARE PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. THE LOCATIONS ARE TAKEN FROM EXISTING RECORDS AND DO NOT REPRESENT FIELD-VERIFIED LOCATIONS. THE CONTRACTOR SHALL NOTIFY MISS UTILITY AT 1-800-287-7777 A MINIMUM OF 5 WORKING DAYS PRIOR TO DIGGING. THE CONTRACTOR SHALL CONFIRM TO HIS OWN SATISFACTION THE LOCATION OF ALL UTILITIES PRIOR TO ANY EXCAVATION OR PLACEMENT OF MATERIALS. IF ANY CONFLICT IS FOUND BETWEEN UNDERGROUND UTILITIES AND THE PROPOSED LOCATION OF ANY CONSTRUCTION, THE CONTRACTOR SHALL CONTACT G. W. STEPHENS AND THE OWNER OF THE UTILITY IMMEDIATELY. ANY DAMAGE OR DISRUPTION OF SERVICE SHALL BE AT THE EXPENSE OF THE CONTRACTOR. RELOCATION OF ANY EXISTING UTILITIES, IF NECESSARY, SHALL BE AT THE EXPENSE OF THE OWNER. THE CONTRACTOR SHALL COORDINATE RELOCATION OF THESE FACILITIES, IF NECESSARY.
9. CONTRACTOR SHALL PROTECT ALL EXISTING TREES OUTSIDE THE LIMIT OF DISTURBANCE AT ALL TIMES DURING CONSTRUCTION.
10. CONTRACTOR SHALL PROTECT ALL EXISTING IMPROVEMENTS NOT SCHEDULED FOR REMOVAL OR DEMOLITION. COST OF REPAIR TO EXISTING IMPROVEMENTS SHALL BE INCLUDED IN THE BASE BID. ALL EXISTING SITE FEATURES NOT BEING RETAINED SHALL BE REMOVED AND DISPOSED OF AT AN APPROVED LOCATION. ANY DAMAGE TO OFFSITE ROADS, RIGHTS OF WAY, OR ADJACENT PROPERTY SHALL BE REPAIRED IMMEDIATELY AT THE EXPENSE OF THE CONTRACTOR.
11. THE CONTRACTOR SHALL CLEAR THE PROJECT SITE OF ALL TREES, PAVING, STRUCTURES, ETC. WITHIN THE CONSTRUCTION AREA UNLESS OTHERWISE NOTED ON THE PLAN.
12. ONLY SUITABLE MATERIAL SHALL BE USED AS FILL AND ALL FILL SHALL BE PLACED AND COMPACTED AS SPECIFIED IN THE SOILS REPORT PREPARED FOR THIS SITE OR AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER. ALL 2:1 SLOPES SHOWN HEREON, EXCEPTING THOSE ASSOCIATED WITH LANDSCAPE BERMING, ALL GRADING UNDER PROPOSED PAVING, AND ALL FILL AND COMPACTION SHALL BE APPROVED BY A GEOTECHNICAL ENGINEER.
13. CONTRACTOR SHALL PROVIDE MINIMUM 4 FOOT BENCH AT EDGE OF PAVING IN FILL AREAS. MAXIMUM SLOPE OF BENCH SHALL BE 4% (1/4 IN PER FOOT).
14. MAXIMUM SLOPE SHALL BE 2 HORIZONTALLY TO 1 VERTICALLY.
15. CONTRACTOR SHALL PLACE 4" MINIMUM TOPSOIL IN LANDSCAPE AREAS. TOPSOIL SHALL BE APPROVED BY LANDSCAPE ARCHITECT.
16. CONTRACTOR SHALL PLACE A WITNESS POST AT THE TERMINUS OF ALL UTILITY STUBS.
17. CONTRACTOR SHALL PROVIDE A MINIMUM OF 1 FOOT OF PROTECTIVE FILL OVER STORM DRAIN PIPES DURING CONSTRUCTION.
18. ALL TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNAGE SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES." ALL STREET AND REGULATORY SIGNS SHALL BE INSTALLED PRIOR TO INSTALLATION OF FINISHED PAVING.
19. THE CONTRACTOR SHALL REPLACE ANY EXISTING BITUMINOUS PAVING OR SUB-BASE WHICH IS DAMAGED OR REMOVED DURING CONSTRUCTION. ALL EXCAVATED AREAS SHALL BE BACKFILLED AND IN ACCORDANCE WITH THE SOILS REPORT AND/OR AS DIRECTED BY GEOTECHNICAL ENGINEER. ANY AREAS TO BE PAVED WHICH EXHIBIT UNSTABLE SUBGRADE CONDITIONS SHALL BE EXCAVATED TO BEARING SOIL, REFILLED AND COMPACTED.
20. IN AN AREA WHERE EXCAVATION IS NEEDED WITHIN THE ROAD RIGHT-OF-WAY, EXCAVATION MUST BE MADE WITHIN ONE (1) FOOT OF THE FINAL SUBGRADE.
21. WHERE FILL IS PROPOSED WITHIN THE ROAD RIGHT-OF-WAY, THE FILL SHALL BE A MINIMUM OF TWO (2) FEET BELOW THE FINAL ROAD SUBGRADE.
22. THE TYPE OF STORMWATER MANAGEMENT IS PEAK MANAGEMENT PROVIDED BY DETENTION.
23. THE WATER QUALITY WILL BE PROVIDED FOR INDIVIDUAL PARCEL AT THE TIME OF SITE DEVELOPMENT PLAN SUBMISSION.

Legend

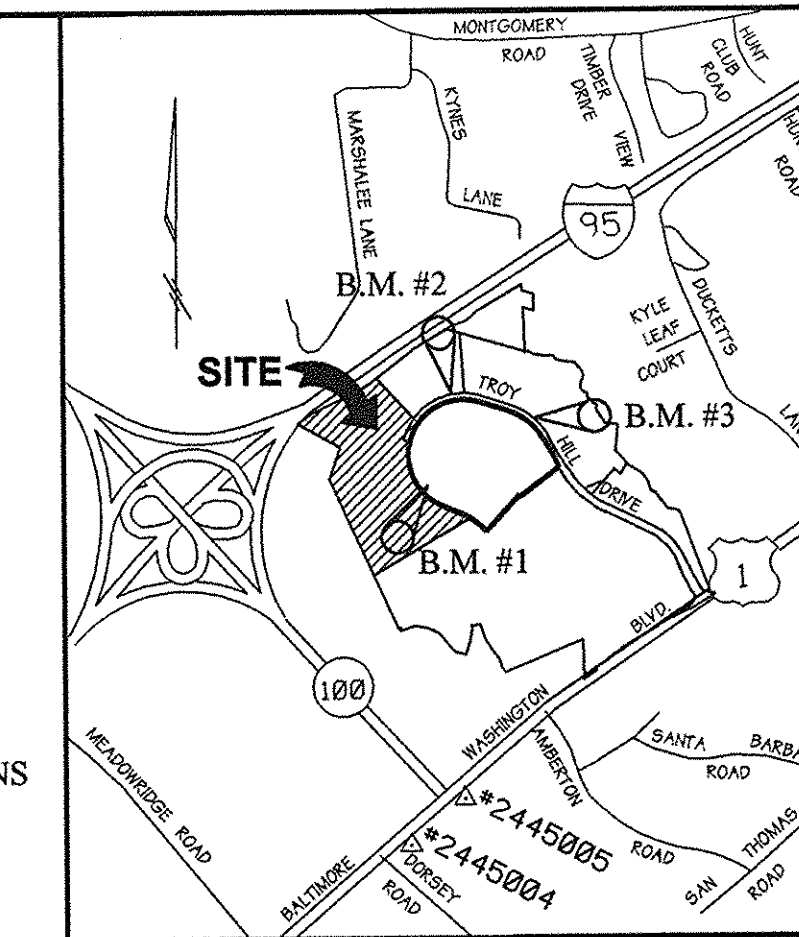


NOTE:
The owner shall provide a separate and independent sewer connection for each tenant or occupant of any building shown on this site development plan who will discharge non-domestic waste to the public sewerage system. Each separate and independent sewer connection shall include a standard manhole and other waste pretreatment devices as required and approved by Howard County. Waste lines on the interior of the building shall be designed, constructed or modified such that non-domestic waste will be discharged to the separate and independent sewer connection. No tenant or occupant of any building shown on this site development plan shall discharge regulated non-domestic waste to the public sewerage system prior to installation of the separate and independent sewer connection and related interior waste lines. The above statements shall apply to all initial and future occupants or tenants.

BENCHMARKS

- BENCHMARK #1
IRON PIN @ TRAVERSE #1066
N 496,501.3597 E 869,134.4576
ELEVATION = 175.92'
- BENCHMARK #2
IRON PIN @ TRAVERSE #1061
N 498,036.6945 E 868,791.1502
ELEVATION = 242.49'
- BENCHMARK #3
IRON PIN @ TRAVERSE #1034
N 497,636.7437 E 869,835.6586
ELEVATION = 214.85'

COORDINATES BASED ON NAD 27, AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS #2445004 AND #2445005



Vicinity Map

SCALE: 1" = 2000'

Site Data

TOTAL AREA OF SITE -	141.83 Ac. +/-
AREA OF PLAN SUBMISSION	26.7 Ac.
EXISTING ZONING -	M-1
PROPERTY REFERENCE -	F 91-24 ; 1795/347 ; 1818/485 ; 2122/417 ; 2259/844 ; 1818/472 ; 2589/276
EXISTING USE -	VACANT
PROPOSED USE -	(FUT.) WAREHOUSE/DISTRIBUTION
AREA TO BE DISTURBED -	26.7 Ac. +/-
AREA TO BE VEGETATIVELY STABILIZED -	S 90-05
SKETCH PLAN NO. -	P 90-25
PRELIMINARY PLAN NO. -	F 96-136
FINAL PLAT NO. -	WP-96-91
WAIVER PETITION :	

Site / Mass Grading / Sediment Control Plans

for

Phase IIA , Parcel A - 4

Troy Hill Corporate Center

Howard County, Maryland

SDP-98-143

Index of Sheets

SHEET NO. 1 -	COVER SHEET, GENERAL NOTES
SHEET NO. 2 -	OVERALL MASS GRADING PLAN
SHEET NO. 3 -	MASS GRADING SEDIMENT CONTROL PLAN
SHEET NO. 4 -	MASS GRADING SEDIMENT CONTROL PLAN
SHEET NO. 5 -	MASS GRADING SEDIMENT CONTROL DETAILS
SHEET NO. 6 -	MASS GRADING SEDIMENT CONTROL DETAILS
SHEET NO. 7 -	SEDIMENT BASIN PLAN - BASIN # 3
SHEET NO. 8 -	SEDIMENT BASIN PROFILES & DETAILS
SHEET NO. 9 -	SEDIMENT BASIN BORINGS & DETAILS
SHEET NO. 10	SEDIMENT BASIN DETAILS & NOTES
SHEET NO. 11	STORM WATER MANAGEMENT PLAN - POND #3
SHEET NO. 12	STORM WATER MANAGEMENT DETAILS
SHEET NO. 13	STORM WATER MANAGEMENT D.A. MAP

MANEKIN

MANEKIN CORPORATION
7165 COLUMBIA GATEWAY DRIVE
COLUMBIA MARYLAND 21046
410-290-1400

OWNER/DEVELOPER

TROY HILL BUSINESS PARK PARTNERSHIP
 c/o MANEKIN CORPORATION
 7165 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MARYLAND
 21046
 410-290-1400

PREPARED BY :



GEORGE W. STEPHENS, JR.
AND ASSOCIATES, INC.
 Civil Engineers and Land Surveyors
 658 Kenilworth Drive, Suite 100
 Towson, Maryland 21204
 (410) 825-8120



COVER SHEET

FOR
TROY HILL CORPORATE CENTER
 PHASE IIA PARCEL A - 4
 PREVIOUS FILE #S S90-05, P90-25, F91-24, WP 96-91, F96-136
 HOWARD COUNTY, MARYLAND
 1st ELECTION DISTRICT

SECTION NAME
1

PARCEL #
A-4

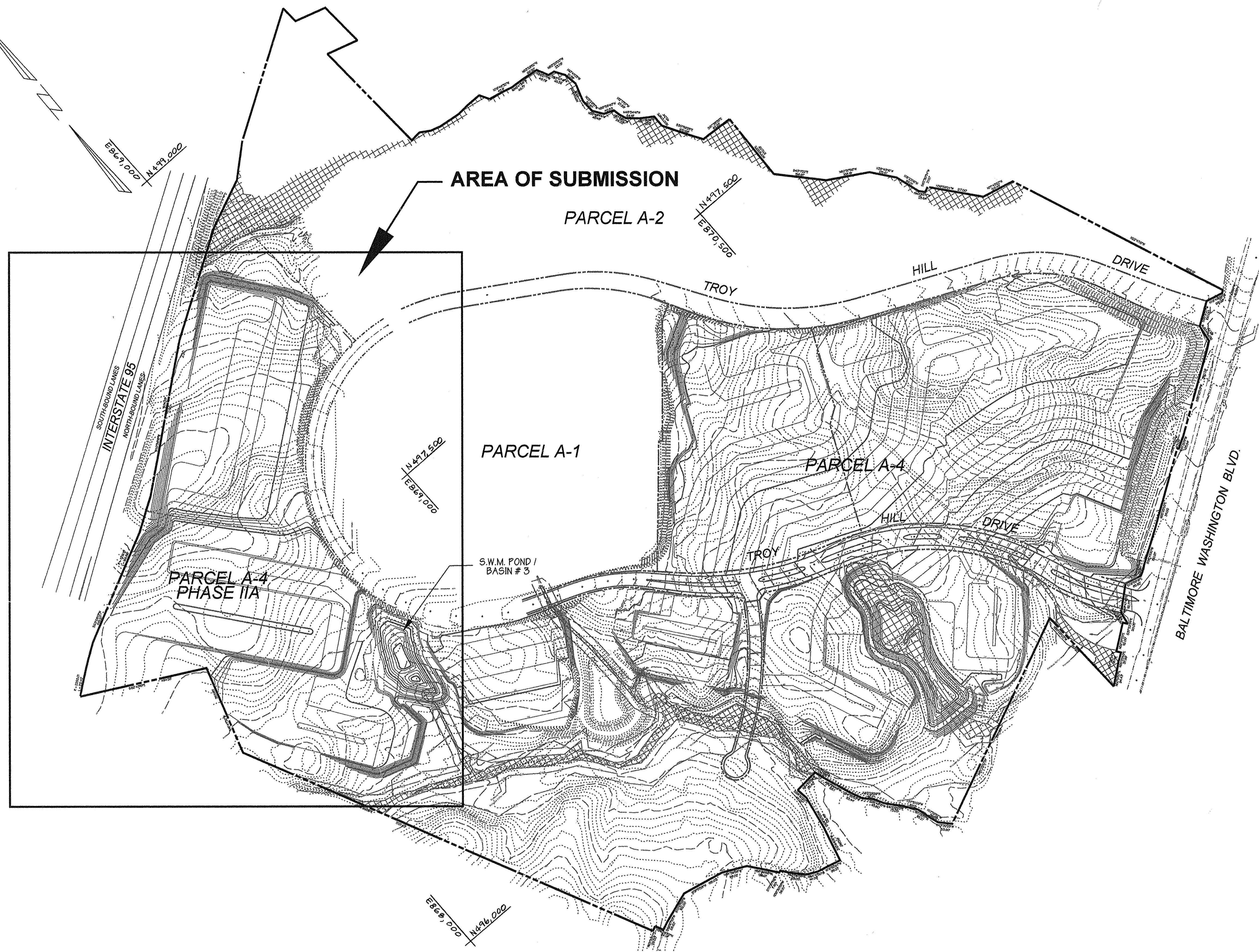
PLAT # 12428 BLOCK # ZONE /ZONE MAP M-1 ELECT. DIST. 1st CENSUS TRACT 6011.02

WATER CODE C04 SEWER CODE 4020000

SHEET 1 of 13
 JUNE 3, 1998

SDP 98-143

P/N: 8851 EAS NAME: 8851 sheetcovr01 05-01-98 K.E. 09/22/98



PLAN
SCALE: 1"=200'

TOTAL DISTURBED AREA =
1,075,932 SQ. FT. / 24.7 AC.

These plans for S.W.M. construction, soil erosion and sediment control meet the requirements of Howard Soil Conservation District.

Robert W. Ziehl
APPROVED: HOWARD SOIL CONSERVATION DISTRICT
DATE: 10/29/98

Reviewed for the Howard Conservation District and meets technical requirements.
Kevin Simmons
NATURAL RESOURCES CONSERVATION SERVICE
DATE: 10/29/98

APPROVED: Howard County Department of Planning and Zoning

John D. Dorman
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 11/2/98
Cathy Hamilton
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 11/4/98

David R. Bates
DIRECTOR
DATE: 11/6/98

PARCEL NO.	STREET ADDRESS
	TROY HILL DRIVE

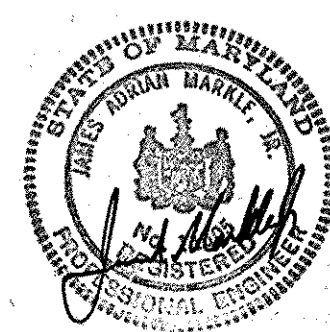
SUBDIVISION NAME	SECTION NAME	PARCEL #
TROY HILL CORPORATE CENTER	N/A	A

PLAT #	BLOCK #	ZONE	TAX MAP / ZONE MAP	ELECT. DIST.	CENSUS TRACT
1242B		M1	37	1st	601102

WATER CODE	SEWER CODE
C04	4020000

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS
DATE

PREPARED BY:
GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
658 Kenilworth Drive, Suite 100
Towson, Maryland 21204
(410) 825-8120



ENGINEER CERTIFICATION:
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 the requirements of the Howard Soil Conservation District.
Engineer: *James A. Markle Jr.* Date: 10/20/98
Name: JAMES A. MARKLE JR. PE # 11005

DEVELOPER CERTIFICATION:
I/We certify that all development and construction will be done according to this plan, 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 also authorize periodic on-site inspection by the Howard Soil Conservation District.
Developer Name: MANEKIN CORPORATION Date: 5/5/98
David E. Manekin

OWNER / DEVELOPER
TROY HILL BUSINESS PARK PARTNERSHIP
C/O MANEKIN CORPORATION
7165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
410-290-1400

DESIGNED BY: P.R.C.
DRAWN BY: K.E. E.A.S.
CHECKED BY: P.R.C.
REVISIONS

OVERALL MASS GRADING PLAN
FOR
TROY HILL CORPORATE CENTER
PHASE IIA PARCEL A-4
ELECTION DISTRICT: 1st
HOWARD CO., MARYLAND
SHT. 2 OF 13
SCALE: As Shown
DATE: June 3, 1998

MATCH LINE B-B

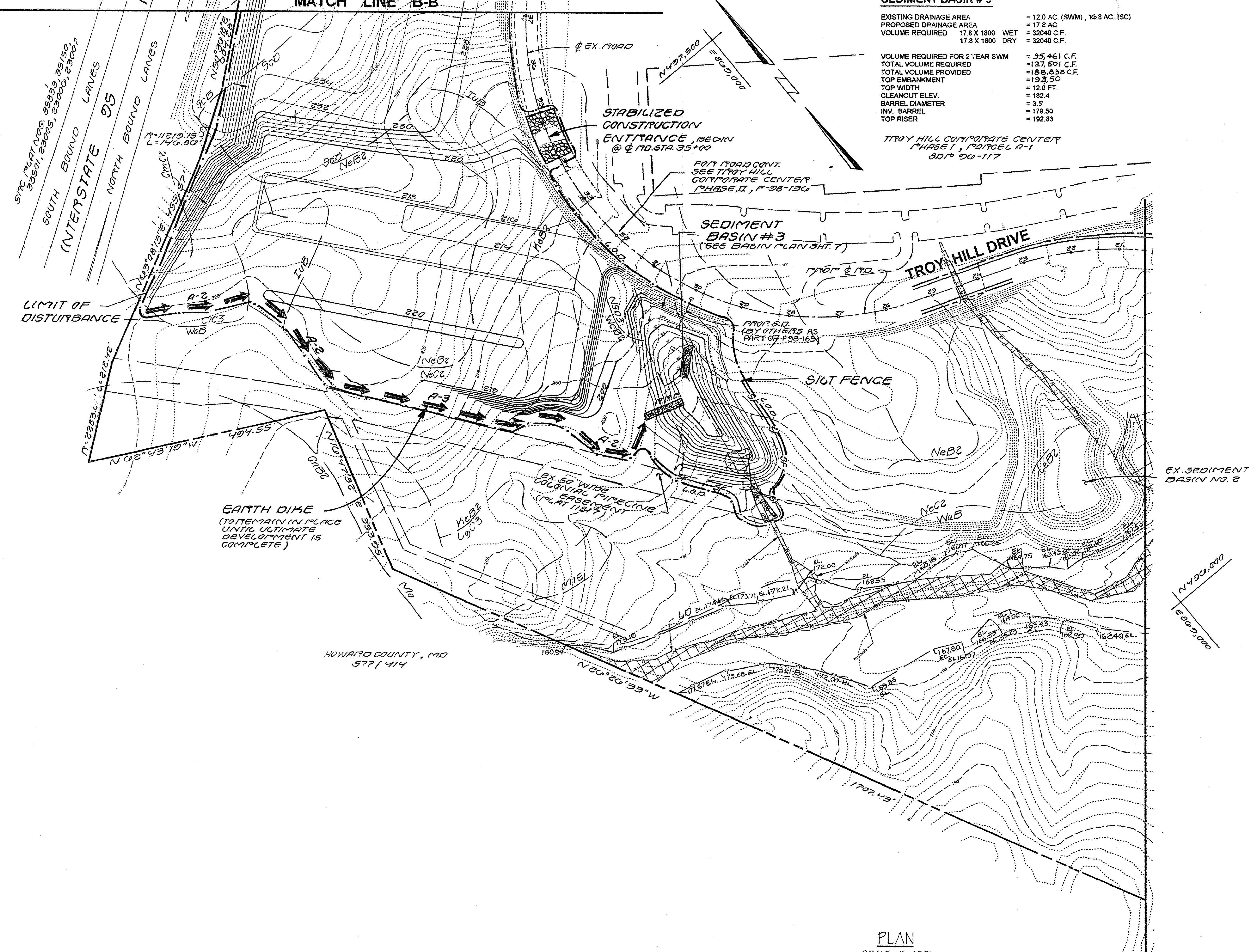
SEDIMENT BASIN # 3

EXISTING DRAINAGE AREA = 12.0 AC. (SWM), 16.8 AC. (SC)
 PROPOSED DRAINAGE AREA = 17.8 AC.
 VOLUME REQUIRED 17.8 X 1800 WET = 32040 C.F.
 17.8 X 1800 DRY = 32040 C.F.

VOLUME REQUIRED FOR 2 YEAR SWM = 35,461 C.F.
 TOTAL VOLUME REQUIRED = 127,501 C.F.
 TOTAL VOLUME PROVIDED = 188,838 C.F.
 TOP EMBANKMENT = 193.50
 TOP WIDTH = 12.0 FT.
 CLEANOUT ELEV. = 182.4
 BARREL DIAMETER = 3.5
 INV. BARREL = 179.50
 TOP RISER = 192.83

Sequence Of Operations

1. NOTIFY THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES, & PERMITS, SEDIMENT CONTROL DIVISION @ 410-313-1855, 48 HOURS BEFORE BEGINNING WORK.
2. INSTALL STABILIZED CONSTRUCTION ENTRANCE AS SHOWN. (1 DAY)
3. BEGIN INITIAL CLEARING, GRUBBING, AND GRADING FOR THE CONSTRUCTION OF THE FOLLOWING SEDIMENT CONTROL DEVICES: (21 DAYS)
 SILT FENCE, SEDIMENT BASIN # 3, PIPE OUTLET TRAP #2, AND EARTH DIKES.
4. CONSTRUCT SEDIMENT BASIN # 3 PER SPECIFICATIONS AS SHOWN ON THE SEDIMENT BASIN PLAN FOR INITIAL CONSTRUCTION. CONTACT THE ENGINEER IN CHARGE (410) 825-8120 AND THE GEOTECHNICAL ENGINEER SO THEY CAN INSPECT THE FOLLOWING:
 A. INSTALL CUTOFF TRENCH
 B. INSTALL OUTFALL PIPE, CONCRETE CRADLE, DEWATERING DEVICE, CONCRETE END SECTION AND OUTLET PROTECTION
 C. CONSTRUCT EMBANKMENT, STABILIZE ACCORDING TO SPECIFICATIONS SHOWN ON THESE PLANS.
5. UPON COMPLETION OF THE ABOVE INSTALLATIONS NOTIFY AND OBTAIN PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR TO BEGIN MASS GRADING. MAINTAIN POSITIVE DRAINAGE TO SEDIMENT CONTROL MEASURES. (1 DAY)
6. STABILIZE ALL DISTURBED AREAS ACCORDING TO THE PERMANENT STABILIZATION SPECIFICATIONS. (3 DAYS)
7. WHEN STABILIZATION IS EVIDENT ON SITE, WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR REMOVE ALL SEDIMENT CONTROL MEASURES AND STABILIZE. (3 DAYS)



PLAN
SCALE: 1" = 100'

TOTAL DISTURBED AREA = 1075932 SQ. FT. / 24.7 AC.

These plans for S.W.M. construction, soil erosion and sediment control meet the requirements of Howard Soil Conservation District.

APPROVED: HOWARD SOIL CONSERVATION DISTRICT
Robert W. Zickler 10/29/98
 PLAN NUMBER DATE

Reviewed for the Howard Conservation District and meets technical requirements.
 APPROVED: NATURAL RESOURCES CONSERVATION SERVICE
Carol Simmons 10/29/98
 DATE

APPROVED: Howard County Department of Planning and Zoning
 CHIEF, DEVELOPMENT ENGINEERING DIVISION 11/2/98
 DATE
 CHIEF, DIVISION OF LAND DEVELOPMENT 11/4/98
 DATE
 DIRECTOR 11/6/98
 DATE

PARCEL NO.	STREET ADDRESS
A-4	TROY HILL DRIVE

SUBDIVISION NAME TROY HILL CORPORATE CENTER		SECTION NAME N/A	PARCEL # A-4
PLAT # 12428	BLOCK # 11, 12, 17, 18	ZONE M-1	TAX MAP # 37
WATER CODE C04		ELECT. DIST. 1st	CENSUS TRACT 601102
		SEWER CODE 4020000	

PREPARED BY:
GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
 Civil Engineers and Land Surveyors
 658 Kenilworth Drive, Suite 100
 Towson, Maryland 21204
 (410) 825-8120



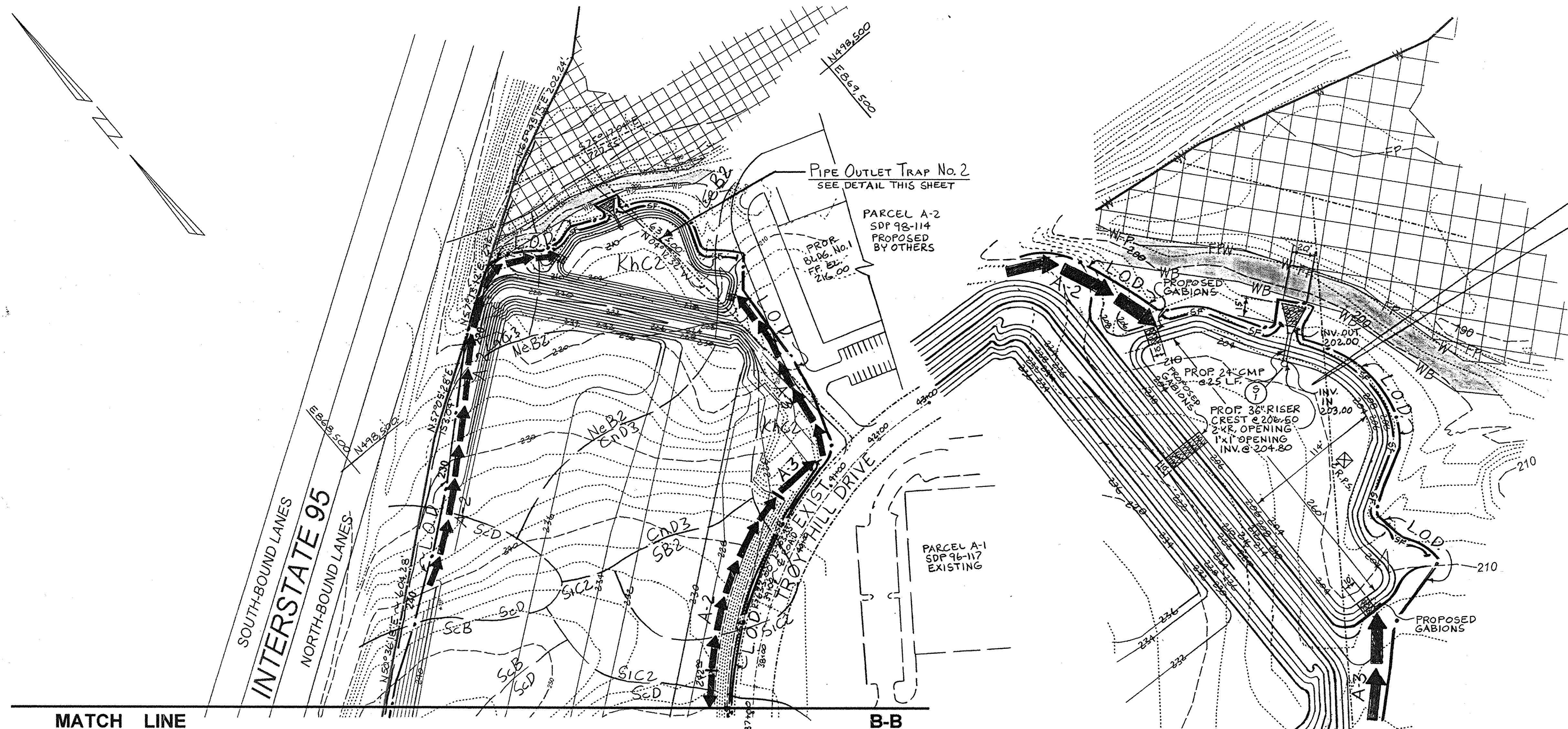
ENGINEER CERTIFICATION:
 I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.
 Engineer: *James A. Markle Jr.* Date: 5/15/95
 Name: James A. Markle Jr. PE # 11095

DEVELOPER CERTIFICATION:
 I/We certify that all development and construction will be done according to this plan, 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 also authorize periodic on-site inspection by the Howard Soil Conservation District.
 Developer Name: MANEKIN CORPORATION Date: 5/15/98
 Name: David E. Meinen

OWNER / DEVELOPER
TROY HILL BUSINESS PARK PARTNERSHIP
C/O MANEKIN CORPORATION
 7185 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MARYLAND 21046
 410-290-1400

DESIGNED BY: P.R.C.
 DRAWN BY: K.E. E.A.S.
 CHECKED BY: P.R.C.
 REVISIONS

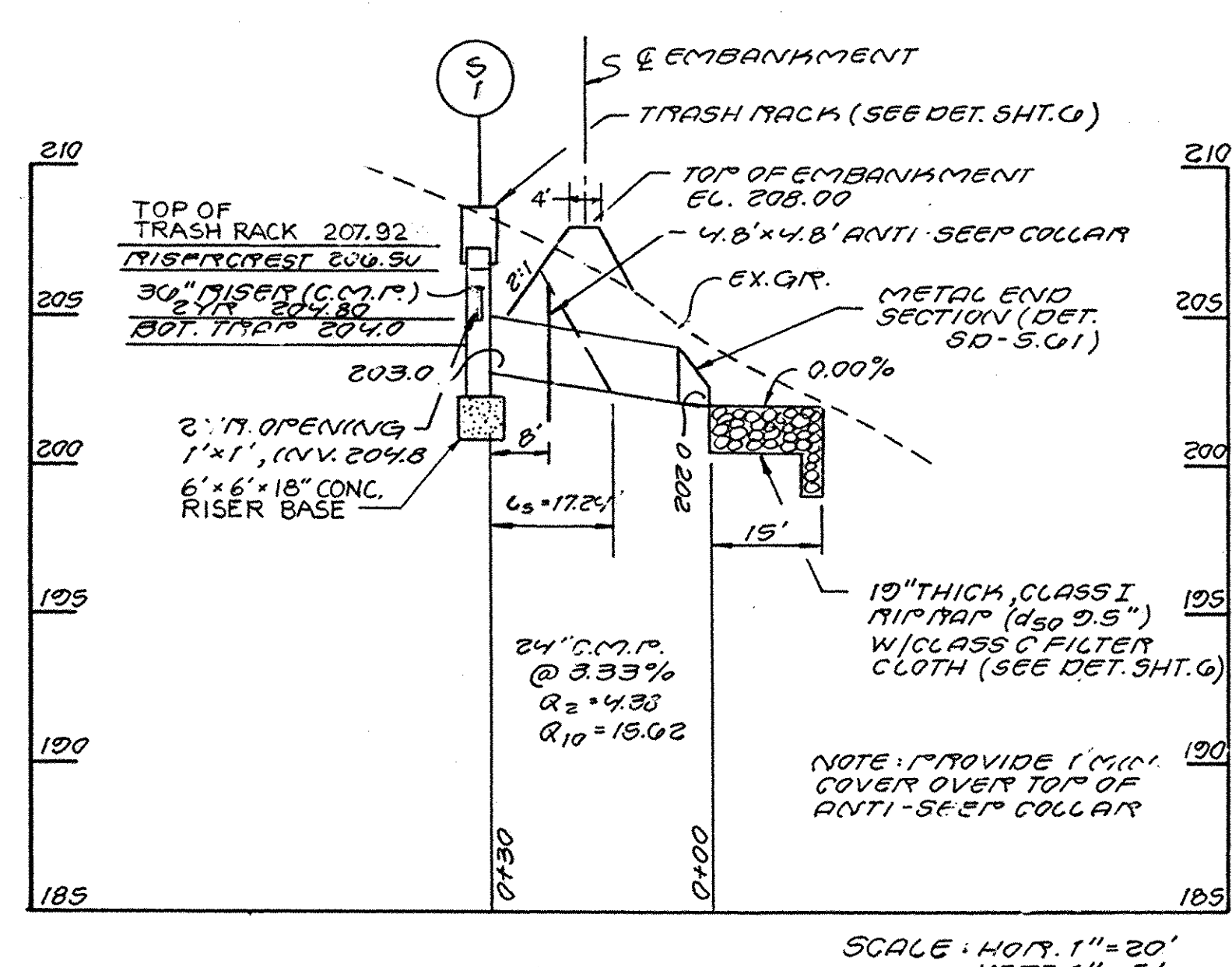
MASS GRADING SEDIMENT CONTROL PLAN
 FOR
TROY HILL CORPORATE CENTER
 PHASE IIA PARCEL A-4
 ELECTION DISTRICT: 1st
 HOWARD CO., MARYLAND SHT. 3 OF 13
 SCALE: As Shown
 DATE: JUNE 3, 1998



PIPE OUTLET TRAP # 2

EXISTING DRAINAGE AREA	= 8.90 AC.
PROPOSED DRAINAGE AREA	= 7.90 AC.
VOLUME REQUIRED 8.9 X 1800	WET = 16,020 C.F.
8.9 X 1800	DRY = 16,020 C.F.
VOLUME REQUIRED FOR 2 YEAR SWM	= 31,038 C.F.
TOTAL VOLUME REQUIRED	= 47,058 C.F.
TOTAL VOLUME PROVIDED	= 47,058 C.F.
TOP EMBANKMENT	= 208.0
TOP WIDTH	= 4'
CLEANOUT ELEV.	= 204.4
BARREL DIAMETER	= 24"
RISER DIAMETER	= 36"
TRASH RACK DIAMETER	= 54"
INV. BARREL	= 203.0
TOP RISER	= 207.25

TRAP NO. 2 DETAIL
SCALE: 1" = 50'



These plans for S.W.M. construction, soil erosion and sediment control meet the requirements of Howard Soil Conservation District.

APPROVED: HOWARD SOIL CONSERVATION DISTRICT
Robert W. Ziskin
DATE: 10/29/98

PLAN NUMBER: [blank] DATE: [blank]

Reviewed for the Howard Conservation District and meets technical requirements.

APPROVED: NATURAL RESOURCES CONSERVATION SERVICE
Caryl Semmons
DATE: 10/29/98

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
[Signature]
DATE: 11/2/98

CHIEF, DEVELOPMENT ENGINEERING DIVISION

[Signature]
DATE: 11/4/98

CHIEF, DIVISION OF LAND DEVELOPMENT

[Signature]
DATE: 11/6/98

DIRECTOR

ADDRESS CHART
PARCEL NO. A-4 STREET ADDRESS TROY HILL DRIVE

SUBDIVISION NAME TROY HILL CORPORATE CENTER SECTION NAME N/A PARCEL # A-4

PLAT # 12428 BLOCK # 11,12,17,18 ZONE M1 / ZONE MAP 37 ELECT. DIST. 1st CENSUS TRACT 601102

WATER CODE C04 SEWER CODE 4020000

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS DATE

PREPARED BY:
GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
658 Kenilworth Drive, Suite 100
Towson, Maryland 21204
(410) 825-8120



ENGINEER CERTIFICATION:
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 the requirements of the Howard Soil Conservation District.

Engineer: *James A. Markle Jr.* Date: 5/5/98
Name: JAMES A. MARKLE JR. PE # 11005

DEVELOPER CERTIFICATION:
I/We certify that all development and construction will be done according to this plan, 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 also authorize periodic on-site inspection by the Howard Soil Conservation District.

Developer: MANEKIN CORPORATION Date: 5/5/98
Name: [Signature] PE # 11005

OWNER / DEVELOPER
TROY HILL BUSINESS PARK PARTNERSHIP
C/O MANEKIN CORPORATION
7165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
410-290-1400

DESIGNED BY: P.R.C.
DRAWN BY: K.E. E.A.S.
CHECKED BY: P.R.C.
REVISIONS

MASS GRADING SEDIMENT CONTROL PLAN
FOR
TROY HILL CORPORATE CENTER
PHASE IIA PARCEL A-4

ELECTION DISTRICT: 1st HOWARD CO., MARYLAND SHT. 4 OF 13 SCALE: As Shown DATE: JUNE 3, 1998

SDP 98-143 P/N: 8831 NAME: 885massgrade2s01

DETAIL 22 - SILT FENCE

Silt Fence Design Criteria

Slope Steepness	(Maximum) Slope Length	(Maximum) Silt Fence Length
Flatter than 50:1	unlimited	unlimited
50:1 to 10:1	125 feet	1,000 feet
10:1 to 5:1	100 feet	750 feet
5:1 to 3:1	60 feet	500 feet
3:1 to 2:1	40 feet	250 feet
2:1 and steeper	20 feet	125 feet

Note: In areas of less than 2% slope and sandy soils (USDA general classification system, soil Class A) maximum slope length and silt fence length will be unlimited. In these areas a silt fence may be the only perimeter control required.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 15-8 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 5 - RIP-RAP INFLOW PROTECTION

Construction Specifications

- Rip-rap lined inflow channels shall be 1' in depth, have a trapezoidal cross section with 2:1 or flatter side slopes and 3' (min.) bottom width. The channel shall be lined with 4" to 12" rip-rap to a depth of 18".
- Filter cloth shall be installed under all rip-rap. Filter cloth shall be Geotextile Class C.
- Entrance and exit sections shall be installed as shown on the detail section.
- Rip-rap used for the lining may be recycled for permanent outlet protection if the basin is to be converted to a stormwater management facility.
- Gabion Inflow Protection may be used in lieu of Rip-rap Inflow Protection.
- Rip-rap should blend into existing ground.
- Rip-rap Inflow Protection shall be used where the slope is between 4:1 and 10:1; for slopes flatter than 10:1 use Earth Dike or Temporary Swale Lining criteria.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 15-2 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 27 - ROCK OUTLET PROTECTION III

Construction Specifications

- The subgrade for the filter, rip-rap, or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.
- The rock or gravel shall conform to the specified grading limits when installed respectively in the rip-rap or filter.
- Geotextile Class C shall be protected from punching, cutting, or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of geotextile over the damaged part or by completely replacing the geotextile. All overlaps whether for repairs or for joining two pieces of geotextile shall be a minimum of one foot.
- Stones for the rip-rap or gabion outlets may be placed by equipment. They shall be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stones for rip-rap or gabion outlets shall be delivered and placed in a manner that will ensure that it is reasonably homogeneous with the smaller stones and spalls filling the voids between the larger stones. Rip-rap shall be placed in a manner to prevent damage to the filter blanket or geotextile. Hand placement will be required to the extent necessary to prevent damage to the permanent works.
- The stone shall be placed so that it blends in with the existing ground. If the stone is placed too high than the flow will be forced out of the channel and scour adjacent to the stone will occur.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 18-10 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

ROCK OUTLET PROTECTION III

Construction Specifications

- Length - minimum of 50' (#30' for single residence lot).
- Width - 10' minimum should be fixed at the existing road to provide turning radius.
- Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. Within plan approval authority may not require single family residences to use geotextile.
- Stone - crushed aggregate (2" to 3") or recycled or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.
- Surface Water - all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mounded berm with 5:1 slope and a minimum of 8" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located on a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.
- Location - A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 18-10A MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE

Construction Specifications

- Length - minimum of 50' (#30' for single residence lot).
- Width - 10' minimum should be fixed at the existing road to provide turning radius.
- Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. Within plan approval authority may not require single family residences to use geotextile.
- Stone - crushed aggregate (2" to 3") or recycled or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.
- Surface Water - all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mounded berm with 5:1 slope and a minimum of 8" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located on a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.
- Location - A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 17-9 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 20A - REMOVABLE PUMPING STATION

Construction Specifications

- The outer pipe should be 48" dia. or shall, in any case, be at least 4" greater in diameter than the center pipe. The outer pipe shall be wrapped with 1/2" hardware cloth and geotextile Class C.
- After installing the outer pipe, backfill around outer pipe with 2" aggregate or clean gravel.
- The inside stand pipe (center pipe) should be constructed by perforating a corrugated PVC pipe between 12" and 36" in diameter. The perforations shall be 1/2" or 5/8" in diameter holes 6" on center. The center pipe shall be wrapped with 1/2" hardware cloth first, then wrapped again with Geotextile Class C.
- The center pipe should extend 12" to 18" above the anticipated water surface elevation or riser crest elevation when dewatering a basin.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 12-6 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 18 - SEDIMENT BASIN BAFFLES

Formulas:

- $D = \text{DISTANCE BETWEEN INFLOW AND OUTFLOW}$
- $A = \text{AREA OF PERMANENT POOL}$
- $W_p = \text{EFFECTIVE WIDTH} = (A/2)^{1/2}$
- $L_p = \text{TOTAL DISTANCE FROM THE INFLOW POINT AROUND THE BAFFLES TO THE RISER}$
- FORMULA:** $L_p \geq W_p \times 2$

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 10-28 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 16 - CONCENTRIC TRASH RACK AND ANTI-VORTEX DEVICE

Construction Specifications

- Pressure relief holes may be omitted if ends of corrugated cylinders are left fully open.
- Corrugated cylinders shall be welded to the top of the riser.
- Cylinder (see design table) shall be firmly fastened to the top of the riser.
- Support bar size 3/4" diameter minimum, bars shall be welded to the top of the riser or attached by straps to the top of the riser.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 10-26 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 16 - CONCENTRIC TRASH RACK AND ANTI-VORTEX DEVICE (continued)

Riser Diam., In.	Trash Rack Cylinder Diam., In.	Trash Rack Thick., In.	H., In.	Minimum Size Support Bar	Minimum Top Thickness, In.	Stiffener
12	18	16	6	#6 Rebar	16 ga.	---
15	21	16	7	"	"	---
18	27	16	8	"	"	---
21	30	16	11	"	"	---
24	36	16	13	"	14 ga.	---
27	42	16	15	"	14 ga.	---
36	54	14	17	#8 Rebar	12 ga.	---
42	60	14	19	"	"	---
48	72	12	21	1-1/2" pipe or 1-1/2" x 1-1/2" x 1/4" angle	10 ga.	---
54	78	12	25	"	"	---
60	90	12	29	1-1/2" pipe or 1-1/2" x 1-1/2" x 1/4" angle	8 ga.	---
66	96	10	33	2" pipe or 2x2x3/16 angle	8 ga.	2x2x1/4 angle
72	102	10	36	"	"	2-1/2x2-1/2x1/4 angle
78	114	10	39	2-1/2" pipe or 2x2x1/2 angle	"	"
84	120	10	42	2-1/2" pipe or 2-1/2x2-1/2x1/4 angle	"	2-1/2x2-1/2x1/4 angle

Note: The above trash rack and anti-vortex device information is only for corrugated metal pipe. Concrete risers must meet the requirements of MD 378.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 10-26A MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE

Construction Specifications

- Length - minimum of 50' (#30' for single residence lot).
- Width - 10' minimum should be fixed at the existing road to provide turning radius.
- Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. Within plan approval authority may not require single family residences to use geotextile.
- Stone - crushed aggregate (2" to 3") or recycled or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.
- Surface Water - all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mounded berm with 5:1 slope and a minimum of 8" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located on a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.
- Location - A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 17-9 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 20A - REMOVABLE PUMPING STATION

Construction Specifications

- The outer pipe should be 48" dia. or shall, in any case, be at least 4" greater in diameter than the center pipe. The outer pipe shall be wrapped with 1/2" hardware cloth and geotextile Class C.
- After installing the outer pipe, backfill around outer pipe with 2" aggregate or clean gravel.
- The inside stand pipe (center pipe) should be constructed by perforating a corrugated PVC pipe between 12" and 36" in diameter. The perforations shall be 1/2" or 5/8" in diameter holes 6" on center. The center pipe shall be wrapped with 1/2" hardware cloth first, then wrapped again with Geotextile Class C.
- The center pipe should extend 12" to 18" above the anticipated water surface elevation or riser crest elevation when dewatering a basin.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 12-6 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 18 - SEDIMENT BASIN BAFFLES

Formulas:

- $D = \text{DISTANCE BETWEEN INFLOW AND OUTFLOW}$
- $A = \text{AREA OF PERMANENT POOL}$
- $W_p = \text{EFFECTIVE WIDTH} = (A/2)^{1/2}$
- $L_p = \text{TOTAL DISTANCE FROM THE INFLOW POINT AROUND THE BAFFLES TO THE RISER}$
- FORMULA:** $L_p \geq W_p \times 2$

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 10-28 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 16 - CONCENTRIC TRASH RACK AND ANTI-VORTEX DEVICE

Construction Specifications

- Pressure relief holes may be omitted if ends of corrugated cylinders are left fully open.
- Corrugated cylinders shall be welded to the top of the riser.
- Cylinder (see design table) shall be firmly fastened to the top of the riser.
- Support bar size 3/4" diameter minimum, bars shall be welded to the top of the riser or attached by straps to the top of the riser.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 10-26 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 16 - CONCENTRIC TRASH RACK AND ANTI-VORTEX DEVICE (continued)

Riser Diam., In.	Trash Rack Cylinder Diam., In.	Trash Rack Thick., In.	H., In.	Minimum Size Support Bar	Minimum Top Thickness, In.	Stiffener
12	18	16	6	#6 Rebar	16 ga.	---
15	21	16	7	"	"	---
18	27	16	8	"	"	---
21	30	16	11	"	"	---
24	36	16	13	"	14 ga.	---
27	42	16	15	"	14 ga.	---
36	54	14	17	#8 Rebar	12 ga.	---
42	60	14	19	"	"	---
48	72	12	21	1-1/2" pipe or 1-1/2" x 1-1/2" x 1/4" angle	10 ga.	---
54	78	12	25	"	"	---
60	90	12	29	1-1/2" pipe or 1-1/2" x 1-1/2" x 1/4" angle	8 ga.	---
66	96	10	33	2" pipe or 2x2x3/16 angle	8 ga.	2x2x1/4 angle
72	102	10	36	"	"	2-1/2x2-1/2x1/4 angle
78	114	10	39	2-1/2" pipe or 2x2x1/2 angle	"	"
84	120	10	42	2-1/2" pipe or 2-1/2x2-1/2x1/4 angle	"	2-1/2x2-1/2x1/4 angle

Note: The above trash rack and anti-vortex device information is only for corrugated metal pipe. Concrete risers must meet the requirements of MD 378.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 10-26A MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

These plans for S.W.M. construction, soil erosion and sediment control meet the requirements of Howard Soil Conservation District.

Robert W. Zick
APPROVED: HOWARD SOIL CONSERVATION DISTRICT
DATE: 10/29/98

PLAN NUMBER: _____ DATE: _____

Reviewed for the Howard Conservation District and meets technical requirements.

Cheryl Simmons
NATURAL RESOURCES CONSERVATION SERVICE
DATE: 10/29/98

APPROVED: Howard County Department of Planning and Zoning

John Damman
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 11/2/98

Cindy Hammett
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 11/4/98

James A. Markle Jr.
DIRECTOR
DATE: 11/6/98

ADDRESS CHART

PARCEL NO.	STREET ADDRESS
A-4	TROY HILL DRIVE

SUBDIVISION NAME: TROY HILL CORPORATE CENTER SECTION NAME: N/A PARCEL #: A

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS DATE: _____

PLAT #	BLOCK #	ZONE	TAX /ZONE MAP	ELECT. DIST.	CENSUS TRACT
12428		MA	37	1st	60102

WATER CODE C04 SEWER CODE 4020000

MASS GRADING SEDIMENT CONTROL DETAILS
FOR
TROY HILL CORPORATE CENTER
PHASE IIA PARCEL A-4

ELECTION DISTRICT: 1st HOWARD CO., MARYLAND SHT. 6 OF 13 SCALE: As Shown DATE: JUNE 03, 1998

SDP 98-143 P/N: 8851 NAME: 285/massdetals01 KE 02/28/98

PREPARED BY:

GWS

GEORGE W. STEPHENS, JR.
AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
658 Kenilworth Drive, Suite 100
Towson, Maryland 21204
(410) 825-8120

ENGINEER CERTIFICATION:

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 the requirements of the Howard Soil Conservation District.

Engineer: **James A. Markle Jr.** Date: 10/20/98
Name: **JAMES A. MARKLE JR.** PE # 11005

DEVELOPER CERTIFICATION:

I/We certify that all development and construction will be done according to this plan, 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 also authorize periodic on-site inspection by the Howard Soil Conservation District.

Developer Name: **MANEKIN CORPORATION** Date: 5/5/98
Name: **James E. Zick**

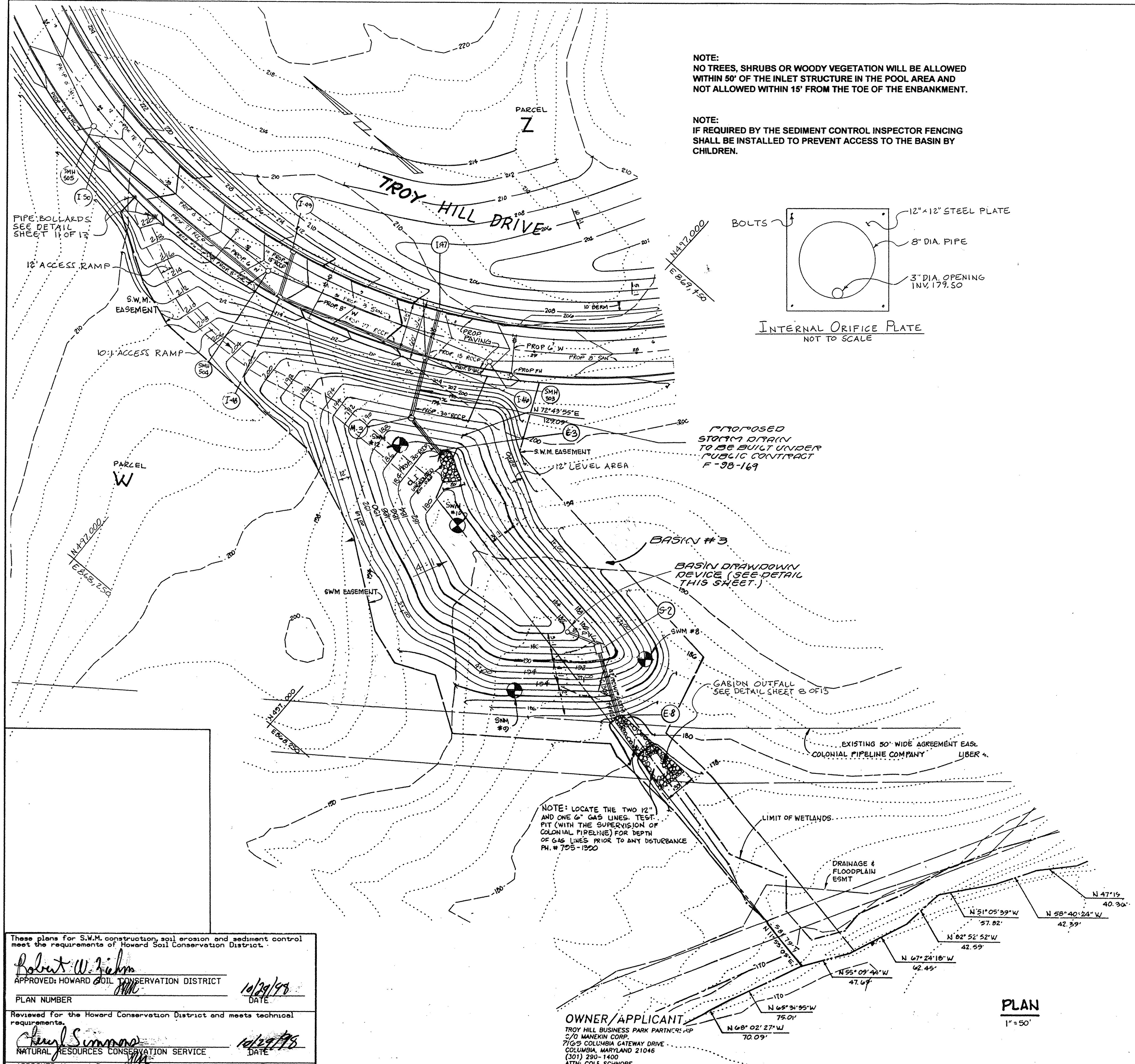
OWNER / DEVELOPER

TROY HILL BUSINESS PARK PARTNERSHIP
C/O MANEKIN CORPORATION
7165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
410-290-1400

DESIGNED BY: P.R.C.
DRAWN BY: K.E.E.A.S.
CHECKED BY: P.R.C.
REVISIONS:

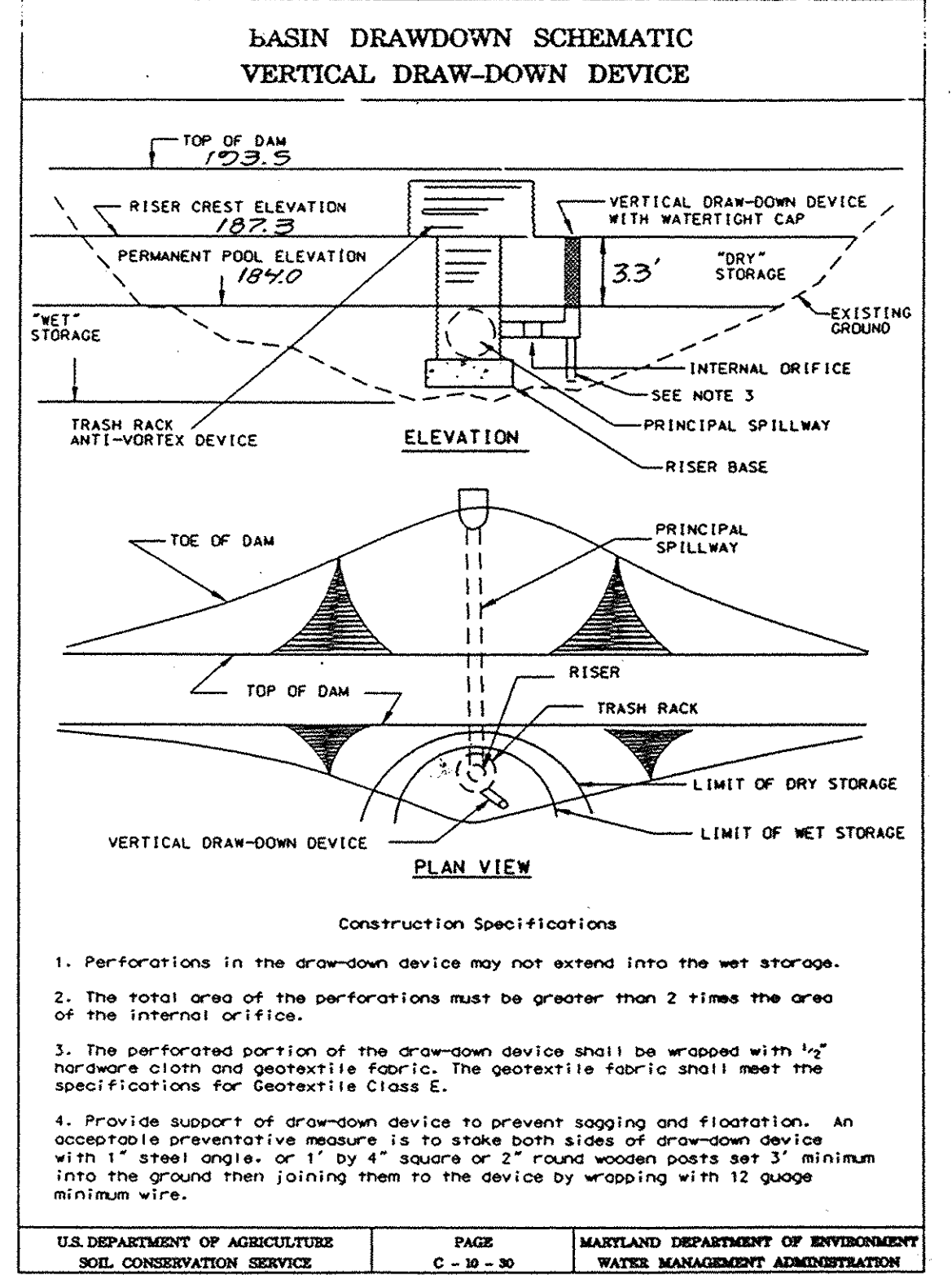
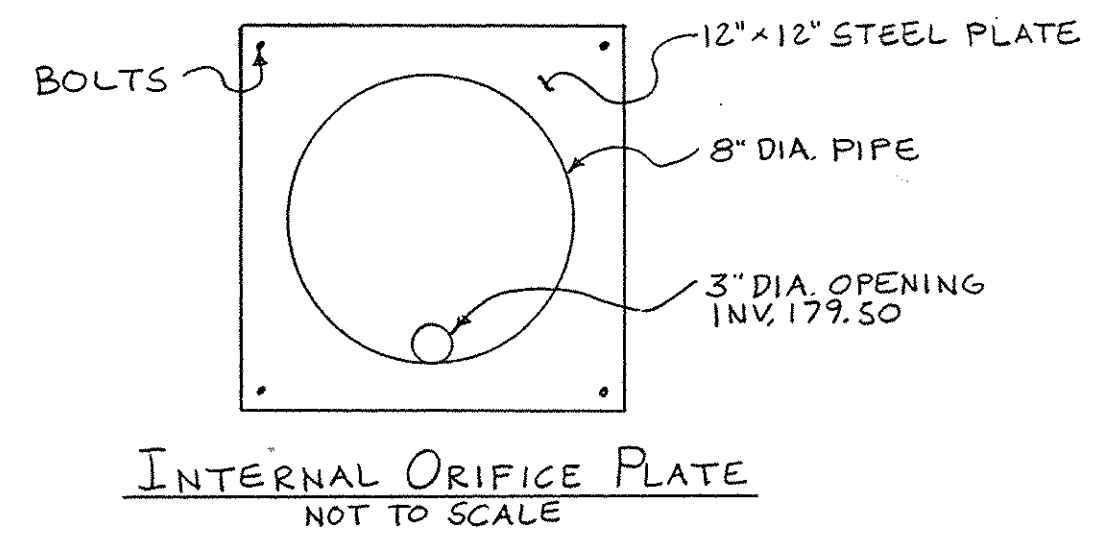
MASS GRADING SEDIMENT CONTROL DETAILS FOR TROY HILL CORPORATE CENTER PHASE IIA PARCEL A-4

ELECTION DISTRICT: 1st HOWARD CO., MARYLAND SHT. 6 OF 13 SCALE: As Shown DATE: JUNE 03, 1998



NOTE:
NO TREES, SHRUBS OR WOODY VEGETATION WILL BE ALLOWED WITHIN 50' OF THE INLET STRUCTURE IN THE POOL AREA AND NOT ALLOWED WITHIN 15' FROM THE TOE OF THE ENBANKMENT.

NOTE:
IF REQUIRED BY THE SEDIMENT CONTROL INSPECTOR FENCING SHALL BE INSTALLED TO PREVENT ACCESS TO THE BASIN BY CHILDREN.



- Construction Specifications
1. Perforations in the draw-down device may not extend into the wet storage.
 2. The total area of the perforations must be greater than 2 times the area of the internal orifice.
 3. The perforated portion of the draw-down device shall be wrapped with 1/2" hardware cloth and geotextile fabric. The geotextile fabric shall meet the specifications for Geotextile Class E.
 4. Provide support of draw-down device to prevent sagging and floatation. An acceptable preventative measure is to stake both sides of draw-down device with 1" steel angle, or 1" by 4" square or 2" round wooden posts set 3' minimum into the ground then joining them to the device by wrapping with 12 gauge minimum wire.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE C-10-30 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SEDIMENT BASIN #3

PERFORATED PIPE (AASHTO M-36)
STANDARD PATTERN FOR PERFORATION
HAS A MIN. THIRTY (30) 3/8" DIA.
ROUND HOLES PER SQ. FT. OF PIPE SURFACE

SIZE OF PERFORATIONS	= 3/8" DIA.
AREA OF PERFORATION	= 0.00077 SQ. FT.
LENGTH OF PERFORATED SECTION OF PIPE	= 3.3 FT.
MAX. ORIFICE AREA (A _o)	= .049 SQ. FT.
DRAW-DOWN ORIFICE DIA.	= 3.0"
NUMBER OF PERFORATIONS PER LINEAR FOOT OF PIPE (TWO DOUBLE ROWS OF PERFORATIONS)	= 28 X 4 = 112
TOTAL AREA OF PERFORATIONS	= 0.283 SQ. FT.
DRAINAGE AREA	= 17.8 AC.

NOTE: LOCATE THE TWO 12" AND ONE 6" GAS LINES. TEST PIT (WITH THE SUPERVISION OF COLONIAL PIPELINE) FOR DEPTH OF GAS LINES PRIOR TO ANY DISTURBANCE PH. # 795-1920

OWNER/APPLICANT
TROY HILL BUSINESS PARK PARTNERSHIP
C/O MANEKIN CORP.
7625 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
(301) 290-1400
ATTN: COLE SCHNORF

PLAN
1" = 50'

These plans for S.W.M. construction, soil erosion and sediment control meet the requirements of Howard Soil Conservation District.

Robert W. Fiehn
APPROVED: HOWARD SOIL CONSERVATION DISTRICT
DATE: 10/29/98

Reviewed for the Howard Conservation District and meets technical requirements.
Cindy Simmons
NATURAL RESOURCES CONSERVATION SERVICE
DATE: 10/29/98

APPROVED: Howard County Department of Planning and Zoning
DATE: 11/6/98

CHIEF, DEVELOPMENT ENGINEERING DIVISION
CHIEF, DIVISION OF LAND DEVELOPMENT
DIRECTOR

ENGINEER
GEORGE WILLIAM STEPHENS JR. AND ASSOCIATES, INC.
658 KENILWORTH DRIVE
SUITE 100
TOWSON, MARYLAND 21204
(410) 825-8120



DESIGNED: KJ	BY	NO	REVISION	DATE
DRAWN: COT				
CHECKED: TC				

CONSULTANT'S HAZARD CLASS CERTIFICATION:
I certify that this pond meets all requirements for hazard class B or C. (Requirements as stated in the Soil Conservation Service - Maryland Standards and Specifications for Pond, Code 37B, November 1992). All necessary investigations and computations have been performed to verify this finding. A copy of said information has been supplied to Howard County Soil Conservation District.

Signature: James A. Markle Jr.
Name: JAMES A. MARKLE JR.
PE # 11005
Date: 5/5/98

ENGINEER CERTIFICATION:
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.

Engineer: James A. Markle Jr.
Name: JAMES A. MARKLE JR.
PE # 11005
Date: 5/5/98

DEVELOPER CERTIFICATION:
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 as a Dept. of the Environment Approved Training Program for the Control of Sediments and Erosion before beginning the project. I shall engage a 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.

Developer: MANEKIN CORPORATION
Name: Daniel E. Weisner
Date: 5/5/98

SEDIMENT BASIN #3
PLAN

TROY HILL CORPORATE CENTER
PHASE 2A
TROY HILL DRIVE

HOWARD COUNTY, MD. ELECTION DISTRICT #1
SCALE: AS SHOWN DATE: 6/3/98

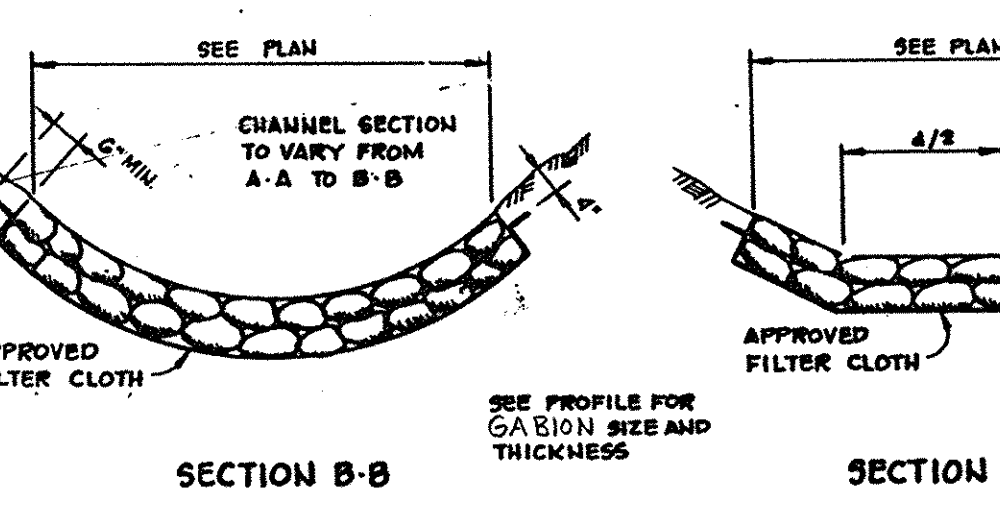
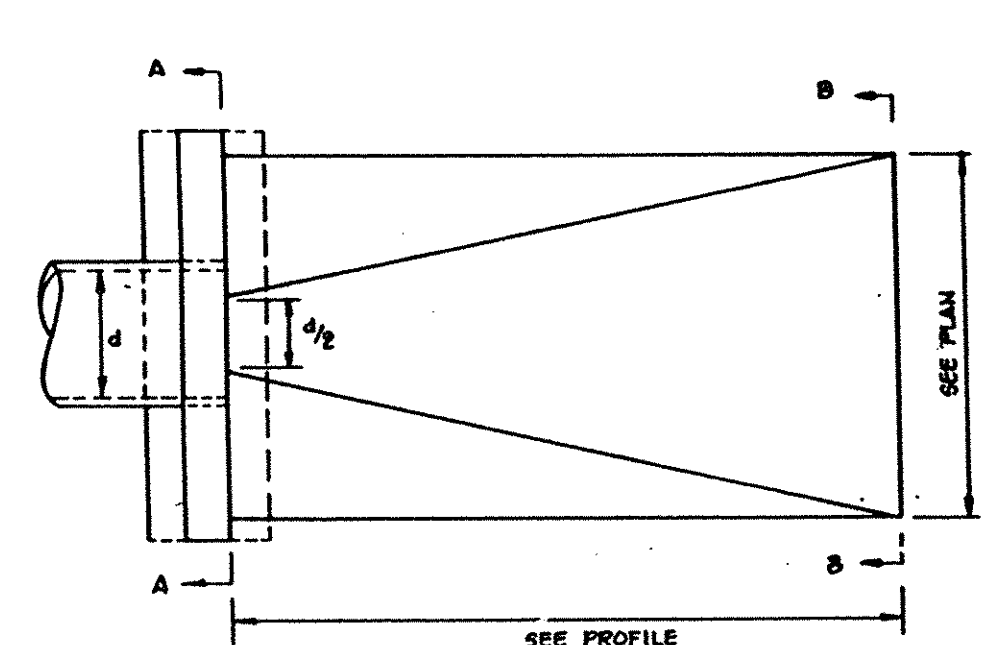
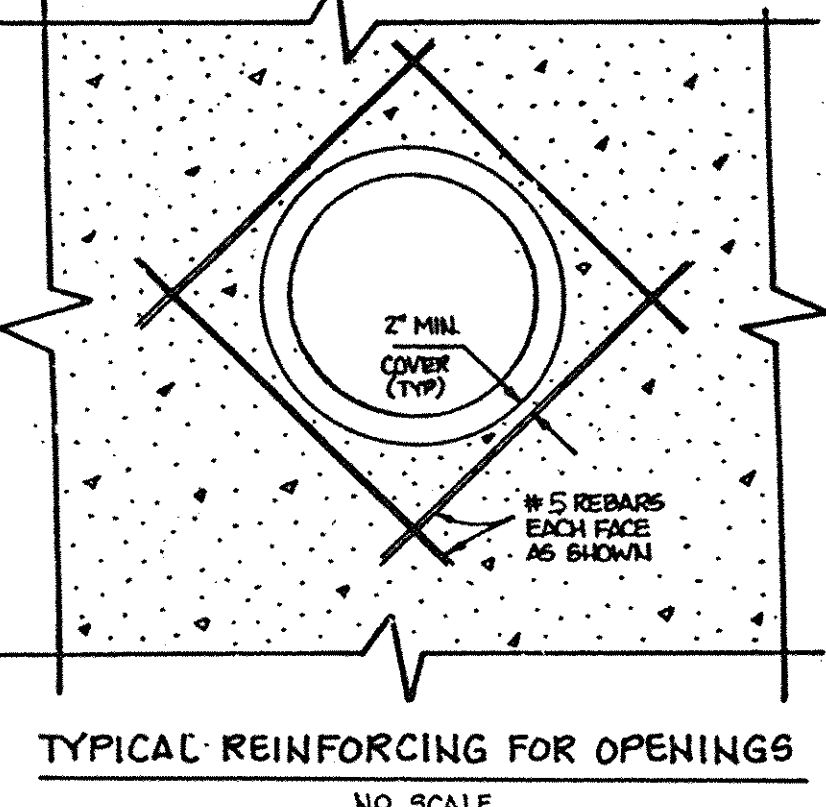
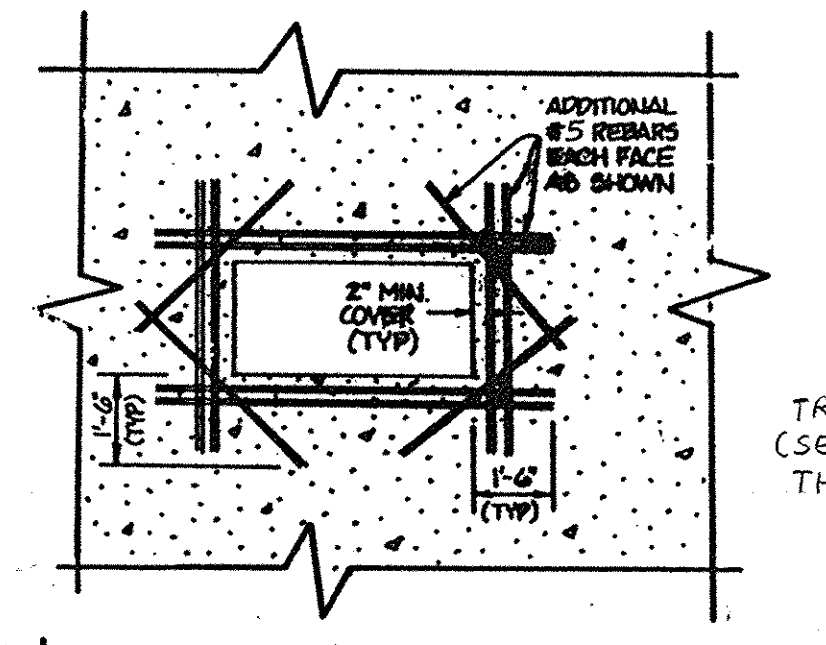
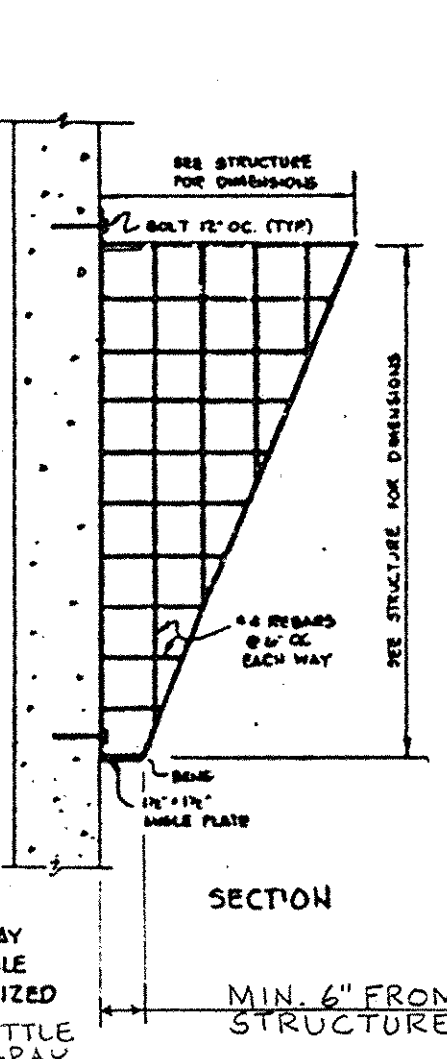
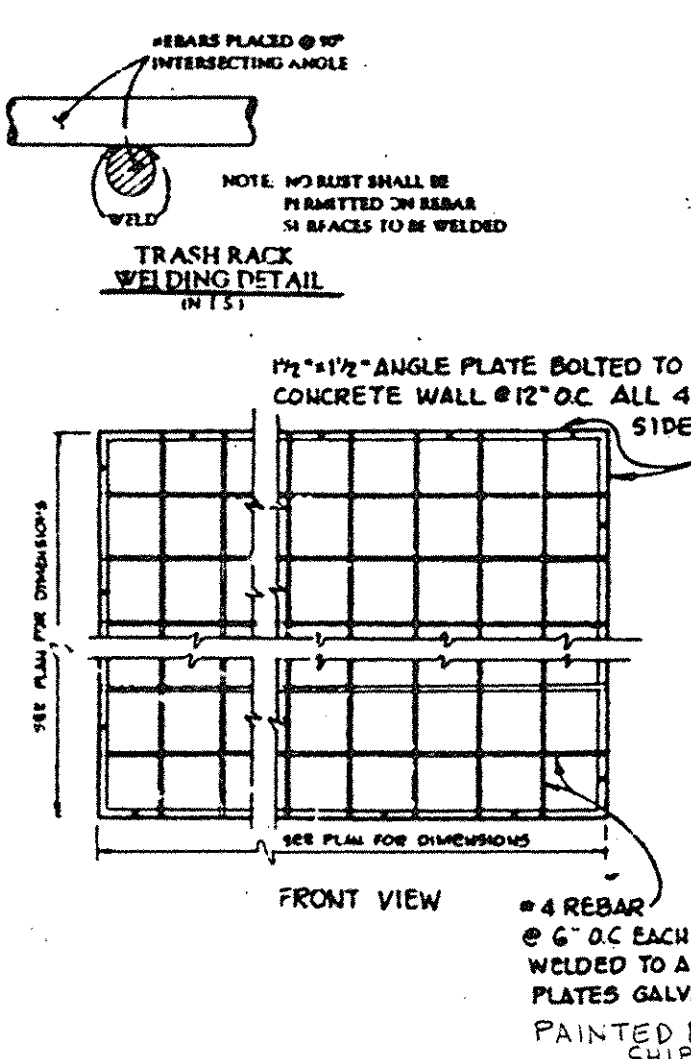
SCALE: 1" = 50'
SHEET NO. 7 OF 13

DEVELOPER CERTIFICATION:
 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 Dept. of the Environment Approval Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a 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.

Developer: **MANEKIN CORPORATION** Date: **5/5/98**
 Name: **David E. Manekin**

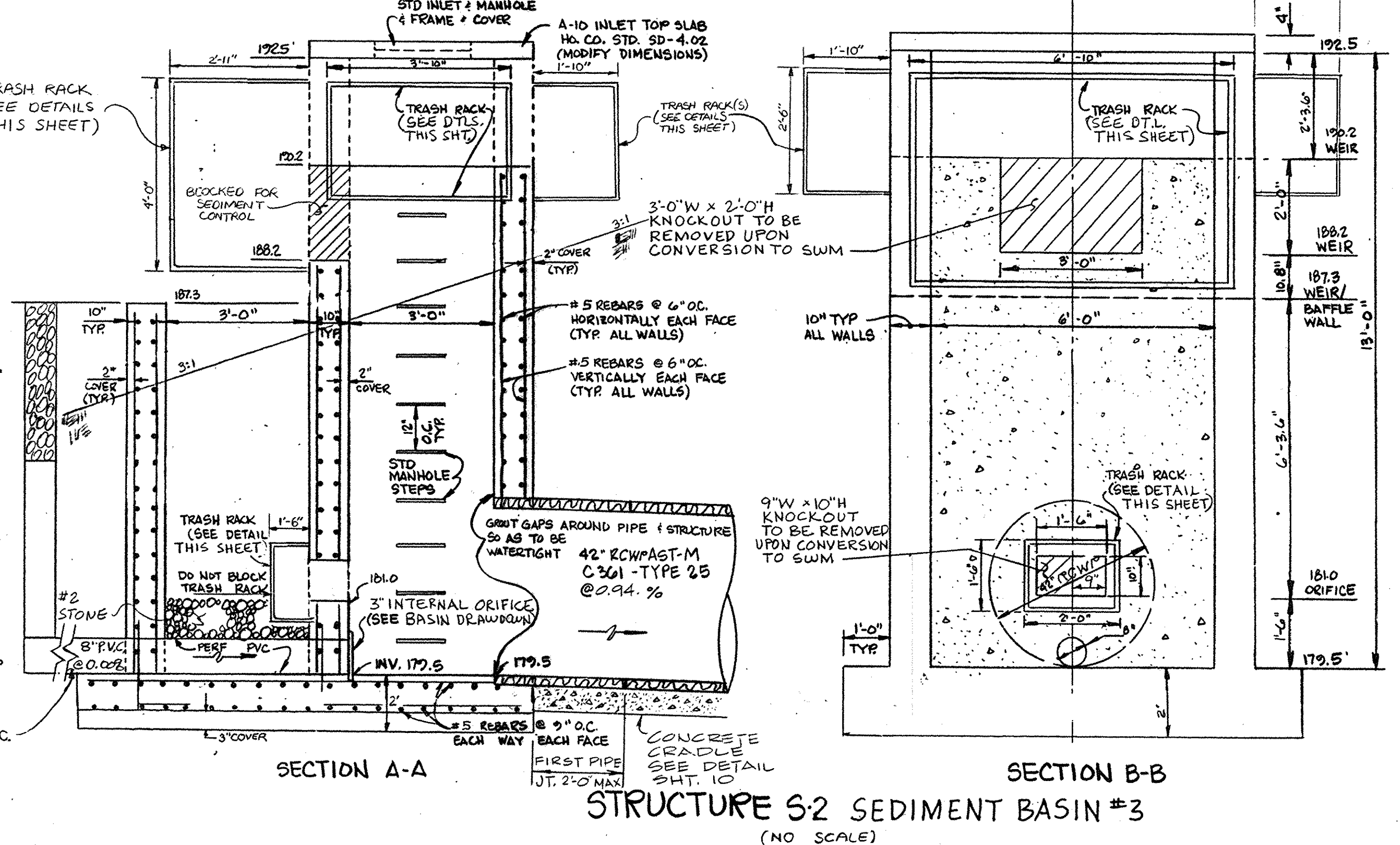
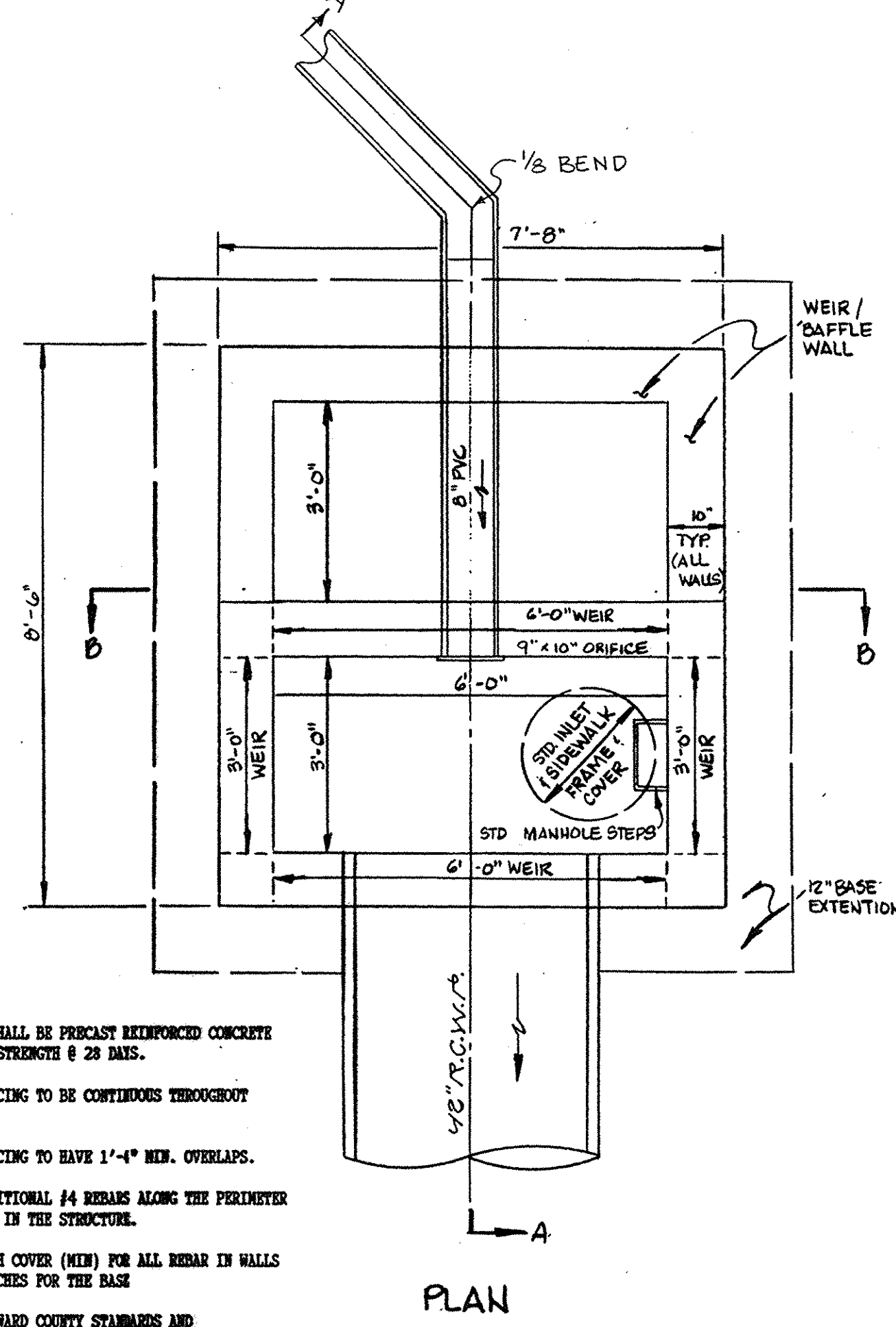
ENGINEER CERTIFICATION:
 I certify that this plan for pond construction, erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I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

Engineer: **James A. Muehle Jr.** P.E. # **11005**
 Name: **James A. Muehle Jr.** Date: **5/5/98**

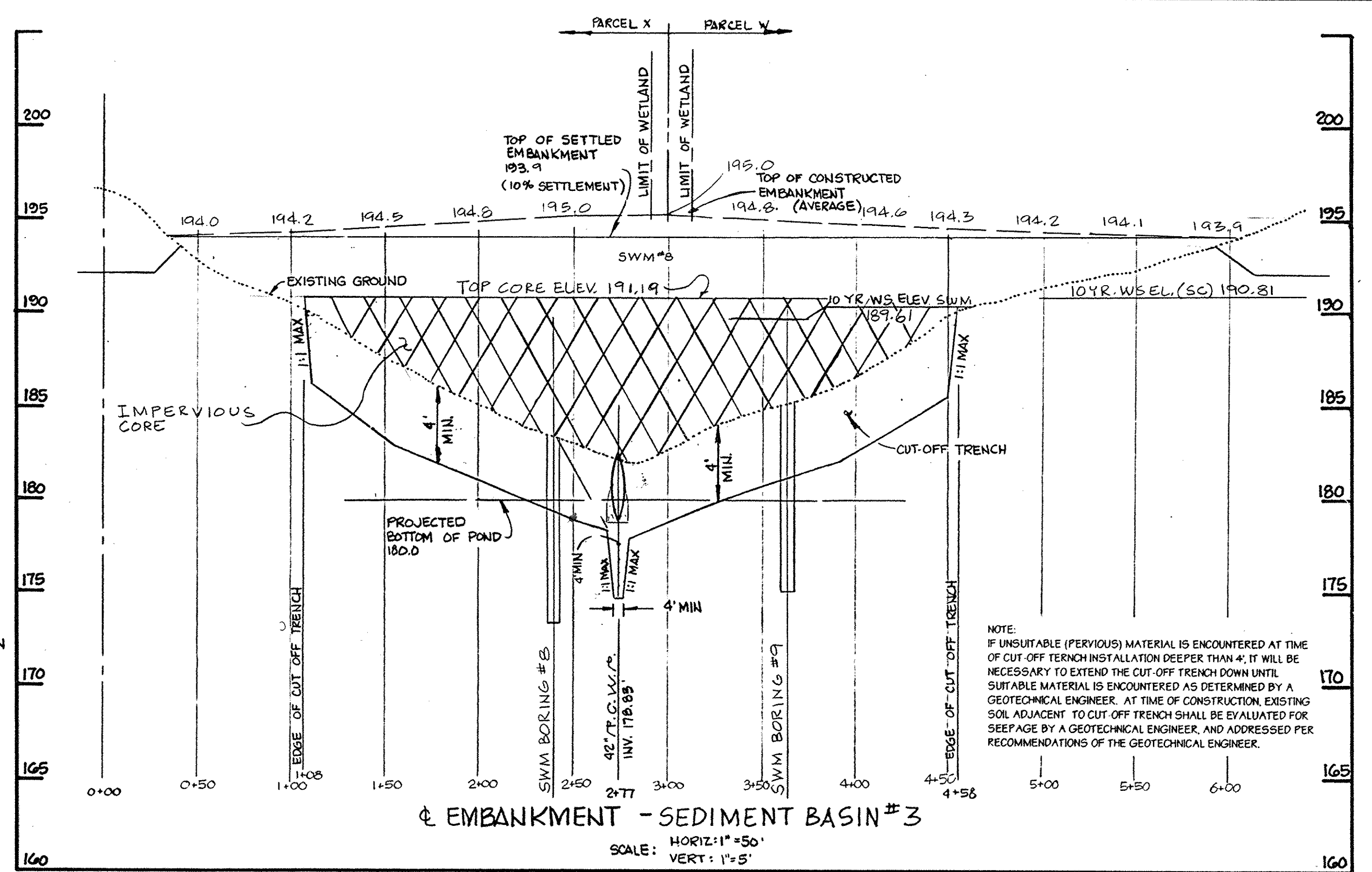


GABION DITCH DETAIL
 NOT TO SCALE

- NOTES**
- STRUCTURE SHALL BE PRECAST REINFORCED CONCRETE WITH 3,500 PSI STRENGTH @ 28 DAYS.
 - ALL REINFORCING TO BE CONTINUOUS THROUGHOUT STRUCTURE.
 - ALL REINFORCING TO HAVE 1'-4" MIN. OVERLAPS.
 - PROVIDE ADDITIONAL #4 REBARS ALONG THE PERIMETER OF ALL OPENINGS IN THE STRUCTURE.
 - TWO (2) INCH COVER (MIN) FOR ALL REBAR IN WALLS AND THREE (3) INCHES FOR THE BASE.
 - REFER TO HOWARD COUNTY STANDARDS AND SPECIFICATIONS FOR STANDARD DETAILS AND SPECIFICATIONS OF TYPES SHOWN ON DETAILS.
 - REFER TO NO. 378 SPECIFICATIONS FOR PIPE AND STONE AGGREGATE DETAILS.
 - ALL REBAR TO BE GALVANIZED.

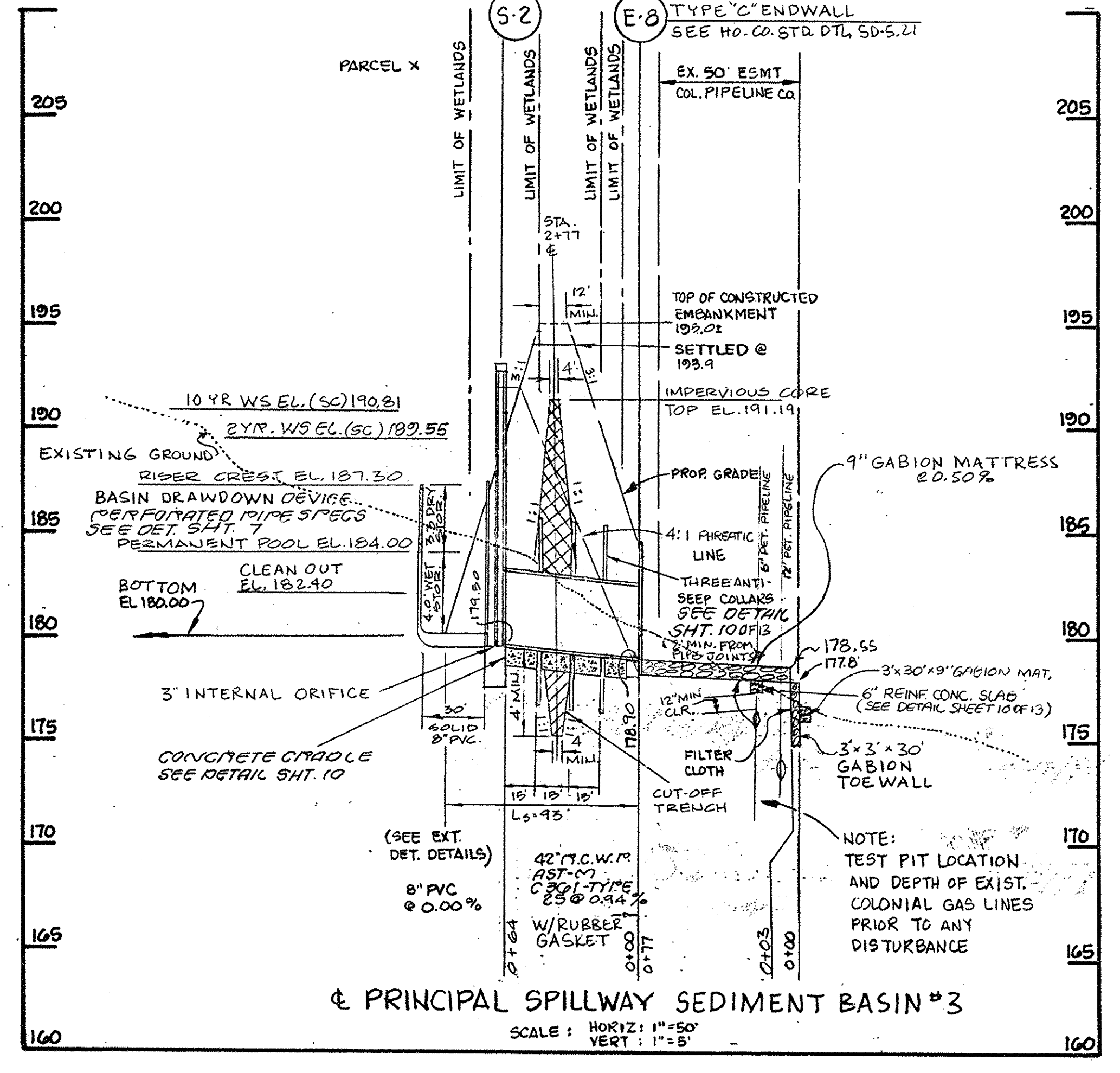


NOTE: THE FIRST PIPE JOINT MUST BE WITHIN 2 FEET OF THE RISER STRUCTURE



NOTE: SOILS TO BE USED FOR CUT-OFF TRENCH AND IMPERVIOUS CORE SHALL CONFORM TO UNIFIED CLASSES CL, SC, CH, OR GC.

NOTE: SEE SHEET 10 FOR CONSTRUCTION SPECIFICATIONS



These plans for S.W.M. construction, soil erosion and sediment control meet the requirements of Howard Soil Conservation District.

APPROVED: HOWARD SOIL CONSERVATION DISTRICT

PLAN NUMBER: **11/29/98** DATE: **11/29/98**

Reviewed for the Howard Conservation District and meets technical requirements.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DATE: **11/29/98**

DATE: **11/29/98**

DATE: **11/29/98**

OWNER/APPLICANT
 TROY HILL BUSINESS PARK PARTNERSHIP
 C/O MANEKIN CORP.
 7165 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MARYLAND 21046
 (301) 290-1400
 ATTN: COLE SCHNORF

ENGINEER
GEORGE WILLIAM STEPHENS JR.
 AND ASSOCIATES, INC.
 658 KENILWORTH DRIVE
 SUITE 100
 TOWSON, MARYLAND 21204
 (410) 825-8120



BY	NO	REVISION	DATE
KJ			
CDT			
TC			

SEDIMENT BASIN #3
 PROFILES & DETAILS

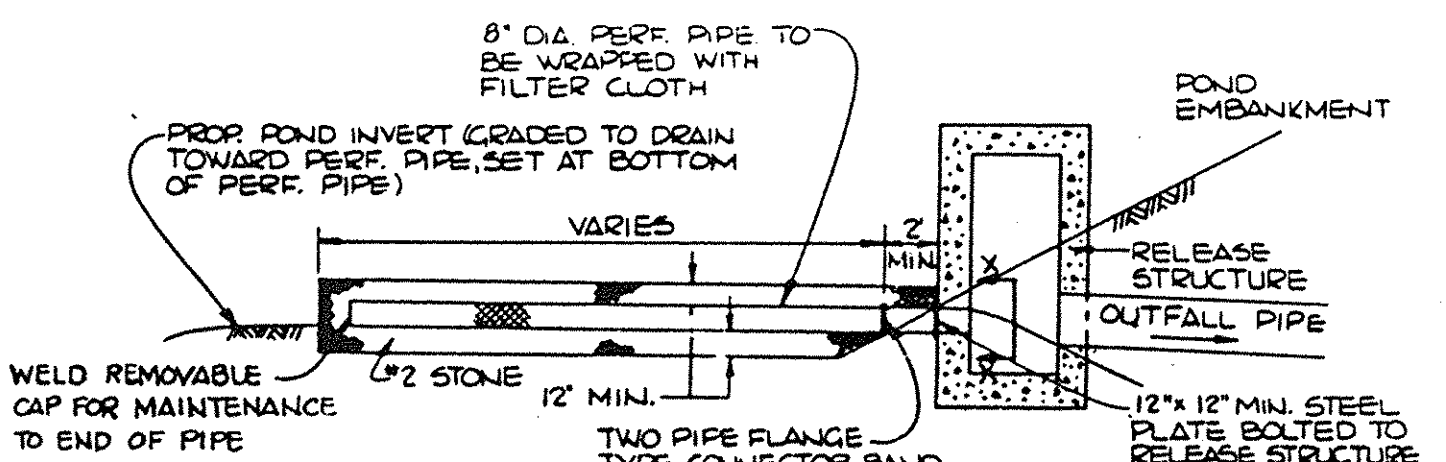
TROY HILL CORPORATE CENTER
 PHASE 2A
 TROY HILL DRIVE

HOWARD COUNTY, MD. ELECTION DISTRICT #1
 SCALE: AS SHOWN DATE: JULY 3, 1998

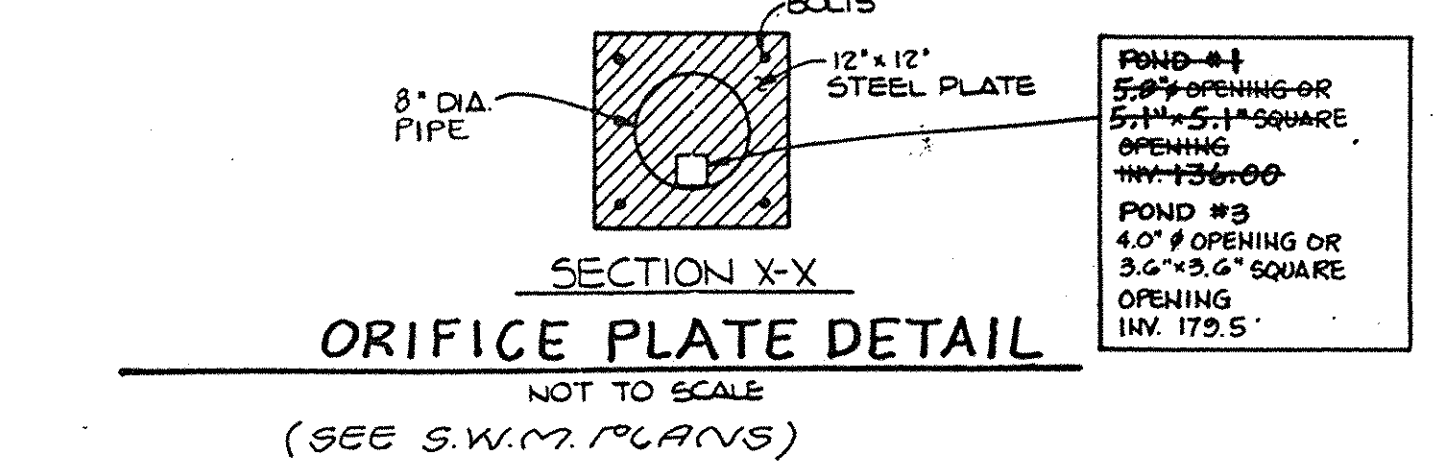
FILE NOS. S90-05, P90-25, F91-24

SCALE: AS SHOWN

SHEET NO. 8 OF 13



- NOTES:
- PERFORATED PIPE SHALL BE BANNED TO LOW FLOW PIPE.
 - PERFORATED PIPES SHALL BE SECURELY WRAPPED WITH APPROVED FILTER CLOTH AND COVERED ON ALL SIDES WITH 1/2 MIN. OF #2 STONE.
 - CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION ARE MINIMIZED.
 - SET PERFORATED PIPE AT INVERTS SPECIFIED ON STORM WATER MANAGEMENT PLANS-PRINCIPAL SPILLWAY PROFILE.
 - NUMBER OF PERFORATIONS IN PIPE MUST BE AS PER CONSTRUCTION SPECIFICATIONS SHOWN ON STORM WATER MANAGEMENT PLAN. (16 - 1/4" PERFORATION PER LINEAR FOOT OF PIPE).



DEVELOPER CERTIFICATION:
 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 as a Dept. of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a 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.

Developer: MANEKIN CORPORATION Date: 5/5/98
 Name: David E. Manekin

ENGINEER CERTIFICATION:
 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.

Engineer: [Signature] P.E. # 11005
 Name: James A. Markle Jr Date: 5/5/98

ANALYSIS/RECOMMENDATIONS

The subsurface conditions encountered on this site are generally suitable for the construction of the proposed stormwater management facilities. The general evaluation of soils encountered relative to stormwater management by infiltration is; near surface soils are not favorable, the soils encountered at depths below the clayey soils are favorable.

The subsurface conditions are favorable for infiltration at SWM-3, SWM-6, SWM-7, SWM-10 and SWM-11, after establishment of final grades. Conditions are not favorable at SWM-8 due to clayey soils. Conditions are not favorable at SWM-1 and SWM-4 due to shallow water after establishment of final grades.

The use of stormwater management infiltration systems on fill material is not recommended according to the Maryland Department of Natural Resources Standards and Specifications for Infiltration Practices. Fills of 6 to 12 feet are proposed for locations SWM-2, SWM-5, and SWM-9. The conditions would be improved to favorable if the device was designed to extend through the fill and the near surface clayey soils. Location SWM-12 would similarly be improved to favorable if the device is designed to extend through the clayey surface soils.

This evaluation is dependent on the specific design requirements established by the site engineer.

The native soils encountered in this investigation are generally satisfactory for the proposed basin construction. We recommend that the entire basin bottom be compacted to provide a uniform and more impervious condition. Native on-site soils meeting the classification requirements for SM, SC, ML, CL, or CH, as classified in accordance with the Unified Soil Classification system, may be used for construction of the core trench and dike embankment. Soils meeting the requirements for SM or SC must contain a minimum of 30% silt and/or clay. Other soils may be used with the approval of the soils engineer based on laboratory test results. We recommend that the core and dike embankment be compacted to a minimum of 90% of the maximum dry density as determined in accordance with the modified moisture density relationship test (ASTM 1557).

The subsurface conditions are favorable for support of outlet structures and the dike embankment. Principle structures should be founded on footings proportioned for an allowable soils pressure of 2,000 psf. Results of the soil sample recoveries from the surficial soils at the site and tested for the moisture content and standard moisture-density relationship test (ASTM 1557), indicate that these soils will be suitable for the construction of the embankment for stormwater management facility provided that they can be properly compacted. The soils encountered in cut areas have natural moisture contents well in excess of the optimum moisture content and, therefore, should be dried prior to use in construction to facilitate compaction. The most significant influence on the earthwork operations will likely be the weather conditions during which the operations are conducted. We recommend scheduling the earthwork operations during the summer if possible.

P-12	
200	200
195	195.05
190	190
185	185
180	180
175	175
170	170

P-10		P-9		P-8	
195	191.15	195	195	195	195
190	190	190	190	190	190
185	185	185	185	185	185
180	180	180	180	180	180
175	175	175	175	175	175
170	170	170	170	170	170
165	165	165	165	165	165
160	160	160	160	160	160
155	155	155	155	155	155

P-4		P-3		P-2		P-1	
160	160	160	160	160	160	160	160
155	155.24	155	155	155	155	155	155
150	150	150	150	150	150	150	150
145	145	145	145	145	145	145	145
140	140	140	140	140	140	140	140
135	135	135	135	135	135	135	135
130	130	130	130	130	130	130	130
125	125	125	125	125	125	125	125
120	120	120	120	120	120	120	120
115	115	115	115	115	115	115	115

OWNER/APPLICANT
 TROY HILL BUSINESS PARK PARTNERSHIP
 C/O MANEKIN CORP.
 7185 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MARYLAND 21046
 (301) 290-1400
 ATTN: COLE SCHNORF

ENGINEER
GEORGE WILLIAM STEPHENS JR.
AND ASSOCIATES, INC.
 658 KENILWORTH DRIVE
 SUITE 100
 TOWSON, MARYLAND 21204
 (410) 825-8120



DESIGNED:	BY:	NO:	REVISION:	DATE:
KJ				
CDT				
CHECKED:	TC			

SEDIMENT BASIN # 3
DETAILS

TROY HILL CORPORATE CENTER
 PHASE 2A
 TROY HILL DRIVE

HOWARD COUNTY, MD. ELECTION DISTRICT #1
 SCALE: AS SHOWN DATE: 6-3-98
 FILE NOS. S90-05, P90-25, F91-24

These plans for S.W.M. construction, soil erosion and sediment control meet the requirements of Howard Soil Conservation District.

[Signature]
 APPROVED: HOWARD SOIL CONSERVATION DISTRICT
 PLAN NUMBER: _____ DATE: 11/29/98

Reviewed for the Howard Conservation District and meets technical requirements.

[Signature]
 APPROVED: NATURAL RESOURCES CONSERVATION SERVICE
 DATE: 11/29/98

[Signature]
 APPROVED: Howard County Department of Planning and Zoning
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 11/29/98

[Signature]
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE: 11/29/98

[Signature]
 DIRECTOR DATE: 11/6/98

SCALE: AS SHOWN
 SHEET NO. 2 OF 13

POND CONSTRUCTION SPECIFICATIONS

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

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 plan. Trees, brush, and stumps shall be cut approximately level with the ground surface. For dry stormwater management ponds, a minimum of a 50 foot radius around the inlet structure shall be cleared.

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

EARTH FILL

MATERIAL - The fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, wood, rubbish, stones greater than 6" from or other objectionable materials. Fill material for the center of the embankment and cut-off trench shall conform to Unified Soil Classification GC, SC, CH, or CL.

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

COMPACTION - The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one tread track of the equipment or compaction shall be achieved by a minimum of four complete passes of a shoopfoot, 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 crumble yet not be so wet that the water can be squeezed out.

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

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.

PIPE CONDUITS All pipes shall be circular in cross section.

REINFORCED CONCRETE PIPE - All pipe to be circular in cross section.

All the following criteria shall apply for reinforced concrete pipe:

1. Materials - Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM Designation C-301.
2. Bedding - All reinforced concrete pipe conduits shall be laid in a concrete bedding for their entire length. This bedding shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 75% of its outside diameter with a minimum thickness of 3 inches, or as shown on the drawings.
3. Laying Pipe - Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 2 feet from the floor.
4. Backfilling shall conform to "Structure Backfill".
5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

PERFORATED PIPE

Bituminous coated corrugated metal pipe (BOCMP) shall conform to the requirements of AASHTO M195. Pipe shall be specified to be fully bituminous coated in accordance with AASHTO M195. Perforated pipe is TYPE III. Pipe shall have CLASS 2 perforations 3/8" in diameter.

CONCRETE

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

REINFORCING STEEL IN CONCRETE STRUCTURES

Reinforcing steel shall be ASTM A 615, Grade 60. Steel angles and anchor bars shall be ASTM 1-36.

ROCK RIP-RAP

Rock riprap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 311 & Section 9012.

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 321.09.

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 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 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 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.

Stormwater management facility will be stabilized with permanent slope seeding as follows:

1. Seeded Preparation - loosen upper 3 inches of soil by raking, disking or other acceptable means before seeding.
2. Soil Amendments - apply 2 tons per acre Dolomitic Limestone (92 lbs/1000 sq. ft.), 600 lbs per acre 10-10-10 fertilizer (4 lbs/1000 sq. ft.), and 400 lbs per acre 30-0-0 Ureaform Fertilizer (92 lbs/1000 sq. ft.). Harrow or disc lime and fertilizer into upper 3 inches of soil. At time of seeding, apply 400 lbs (92 lbs/1000 sq. ft.) of 30-0-0 Ureaform Fertilizer and 500 lbs per acre (115 lbs/1000 sq. ft.) of 10-0-0 fertilizer.
3. Seeding - for the period March 1 through April 30 seed with 40 lbs per acre Kentucky 31 Tall Fescue, and 15 lbs per acre inoculated Crown Vetch. For the period May 1 through July 31 seed with 60 lbs per acre Kentucky 31 Tall Fescue and 2 lbs per acre inoculated Weeping Lovegrass. For the period August 1 through October 15 seed with 40 lbs per acre Kentucky 31 Tall Fescue, and 20 lbs per acre inoculated Interstate Serika Leopedeza. For the period October 16 through February 29 protect the site by Option (I): 2 tons per acre of well anchored straw. For the period May 1 through February 29 inoculated Crown Vetch shall be applied during the subsequent period of March 1 through April 30 at the rate of 15 lbs per acre.
4. Mulching - apply 15 to 2 tons per acre of un-rotted small grain straw immediately after seeding. Anchor mulch immediately after application using 210 gallons per acre of emulsified asphalt. On flat areas of slope 3 feet or higher, use 240 gallons per acre of anchoring.
5. Maintenance - reseed all seeded areas and make needed repairs, replacements and re-seeding.

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.

PERMANENT SLOPE SEEDING

After spreading 4" topsoil, seed with a mixture of 30% inoculated Crown Vetch and 70% Kentucky 31 Tall Fescue applied at a rate of 60 lbs/acre; 10-20-20 fertilizer shall be applied at a rate of 25 lbs/1000 sq. ft.; lime at a rate of 92 lbs/1000 sq. ft.; mulch area with unweathered small grain straw at a rate of 15 Tons/acre; anchor with a rapid curing asphalt (RC-70, RC-250 or RC-800 at a rate of 0.1 gal/S.Y.

FILTER CLOTH

Filter cloth shall meet or exceed the requirements in Section 2025-3 of the Baltimore County Standard Specifications and Details for Construction. Durable filter fabrics for drainage purposes are not limited to Mirafi 1405, DuPont TYPAC No. 3341 or 3401.

Filter cloth shall be protected from puncturing or tearing. Any damage other than an occasional small hole shall be repaired by placing another small piece of filter cloth over the damaged area or by replacing the cloth section. All overlaps shall be a minimum of one foot.

GABIONS

Gabions shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 312 and must be C.I.V. PVC coated.

OUTFALL PROTECTION

Subgrade for riprap or gabion outfalls shall be prepared to the required line and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material. All rock or gravel shall conform to the specified grading limits when installed in the riprap or gabion. All stone shall be delivered and placed in a manner that will insure the stone 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. Stone for outfalls may be placed by equipment. Riprap or gabion outlets shall be constructed to full course thickness in one operation and in such a manner as to avoid any displacement of underlying materials. The contractor shall avoid damage to the filter blankets or cloth during placement of riprap. Hand placement shall be required as needed to prevent damage to the permanent works. Filter cloth shall be placed under all riprap and gabions.

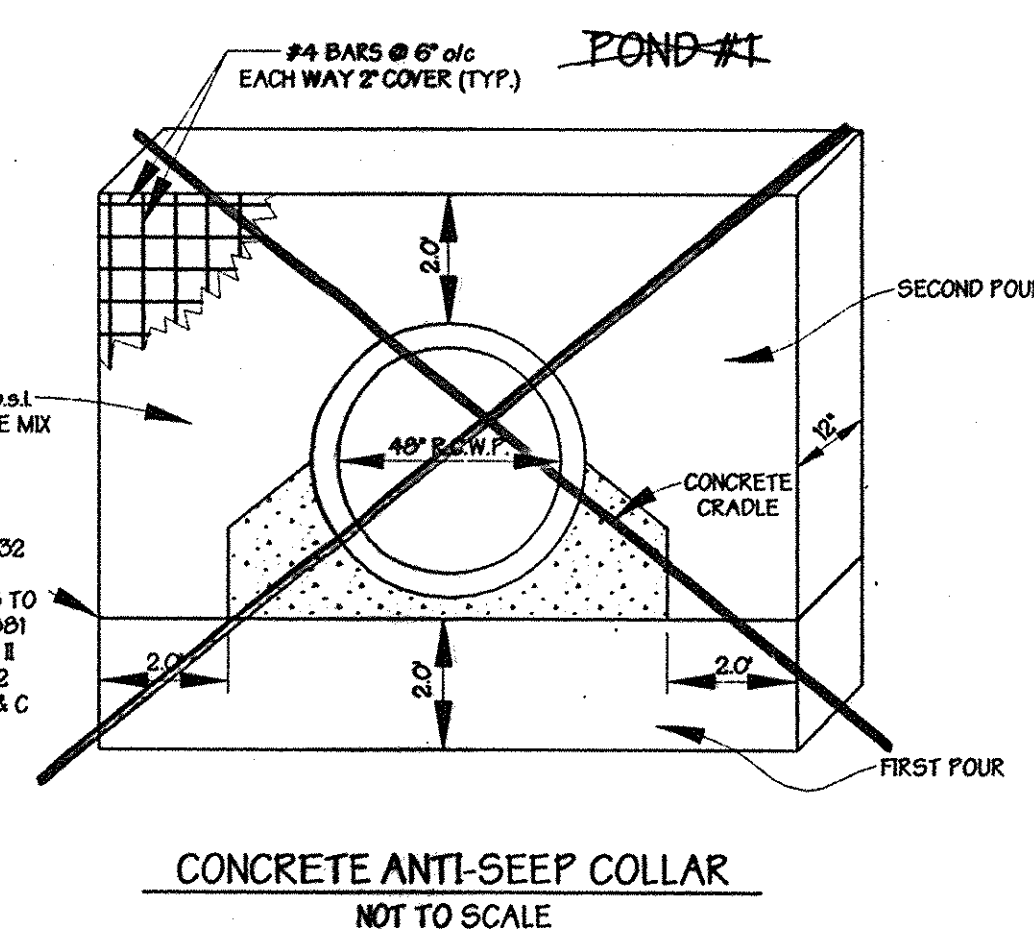
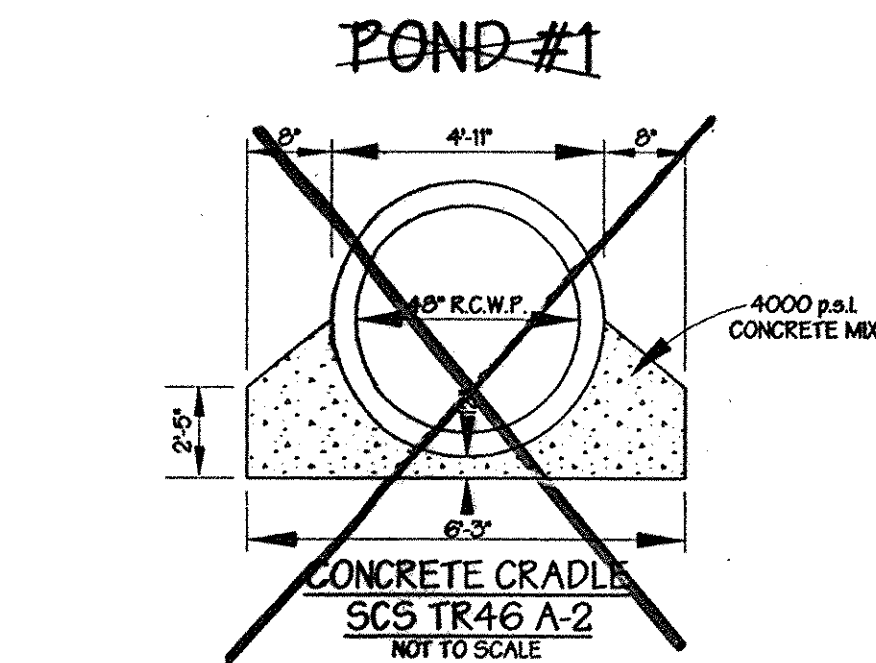
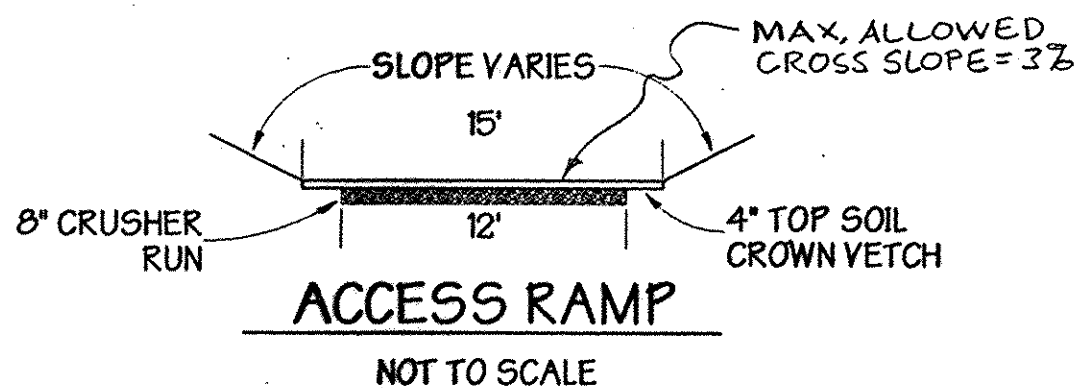
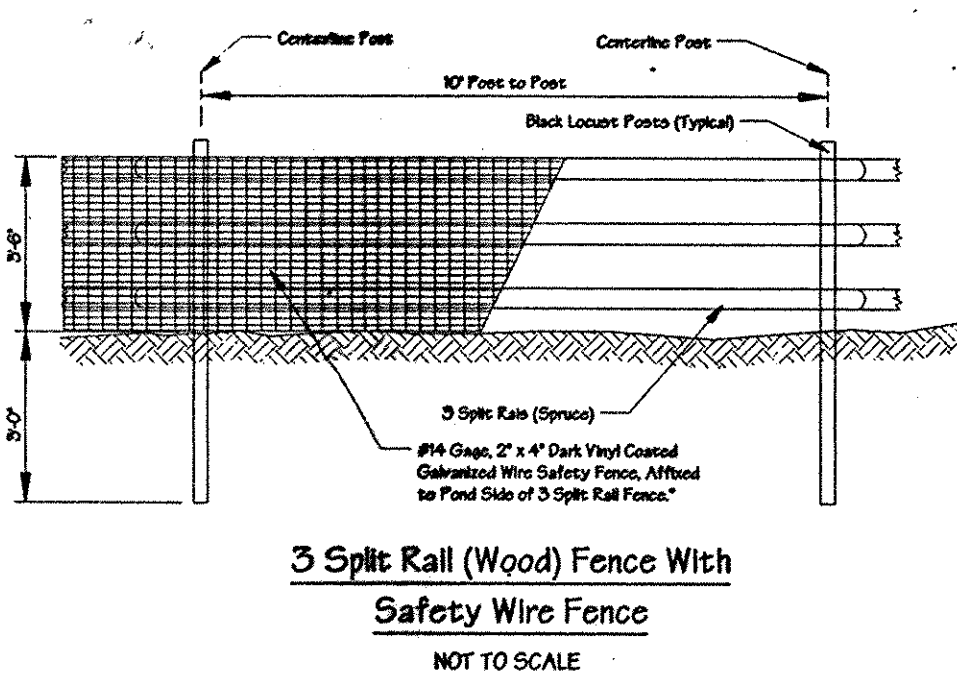
FENCE

Construct fencing in accordance with the State Highway Administration standard details 690.01 and 690.02. Use specifications for a 6' fence, substituting 42" fabric and 6" x 6" pipe posts. Construct the gate in accordance with the SHA standard detail 690.01 with 42" fabric. The fabric used for the fence and gate must conform to AASHTO designation M-1974. Dark vinyl coating is required for the fence posts and wire fabric in accordance with the landscape manual adopted by resolution 56-80, October 1, 1990.

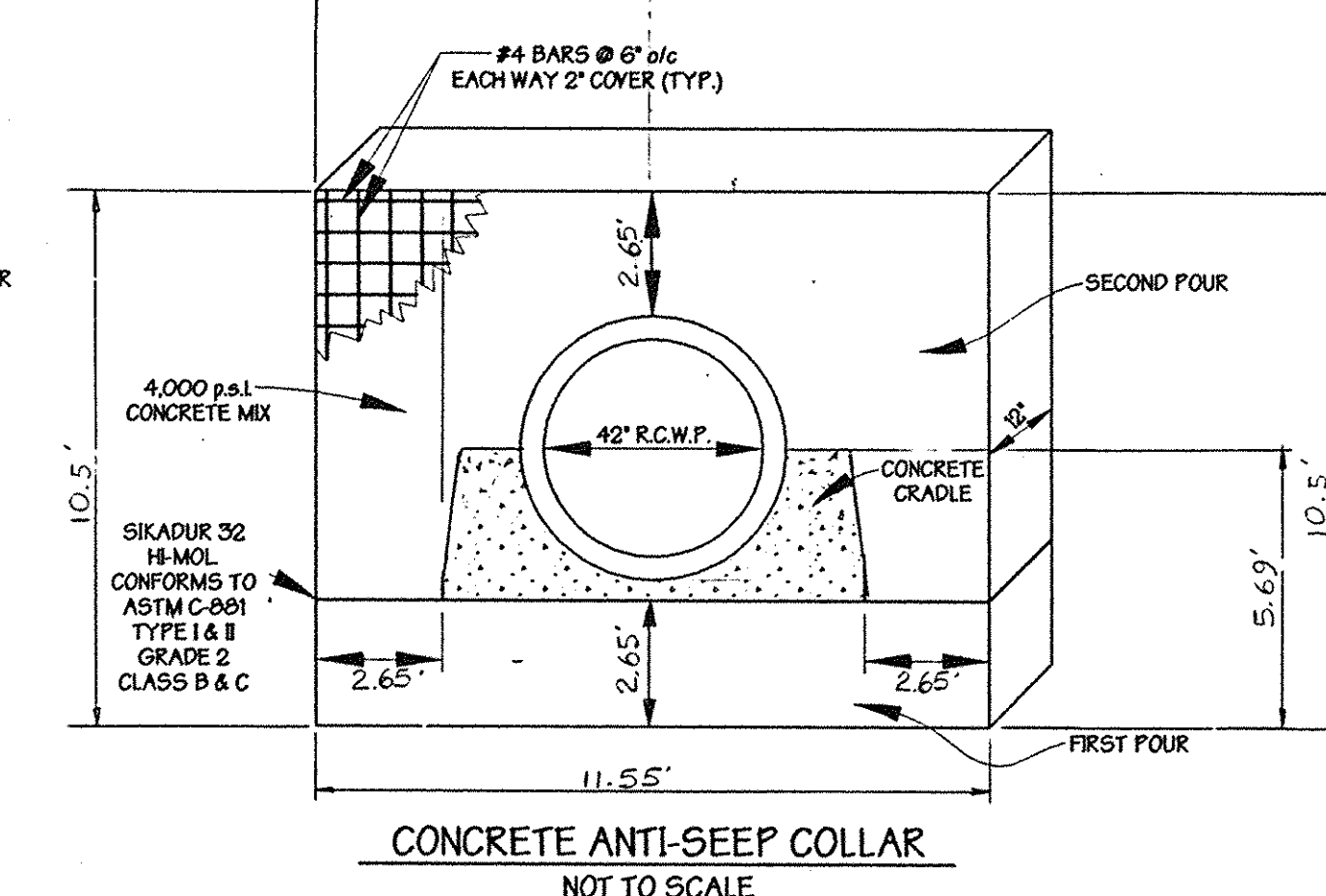
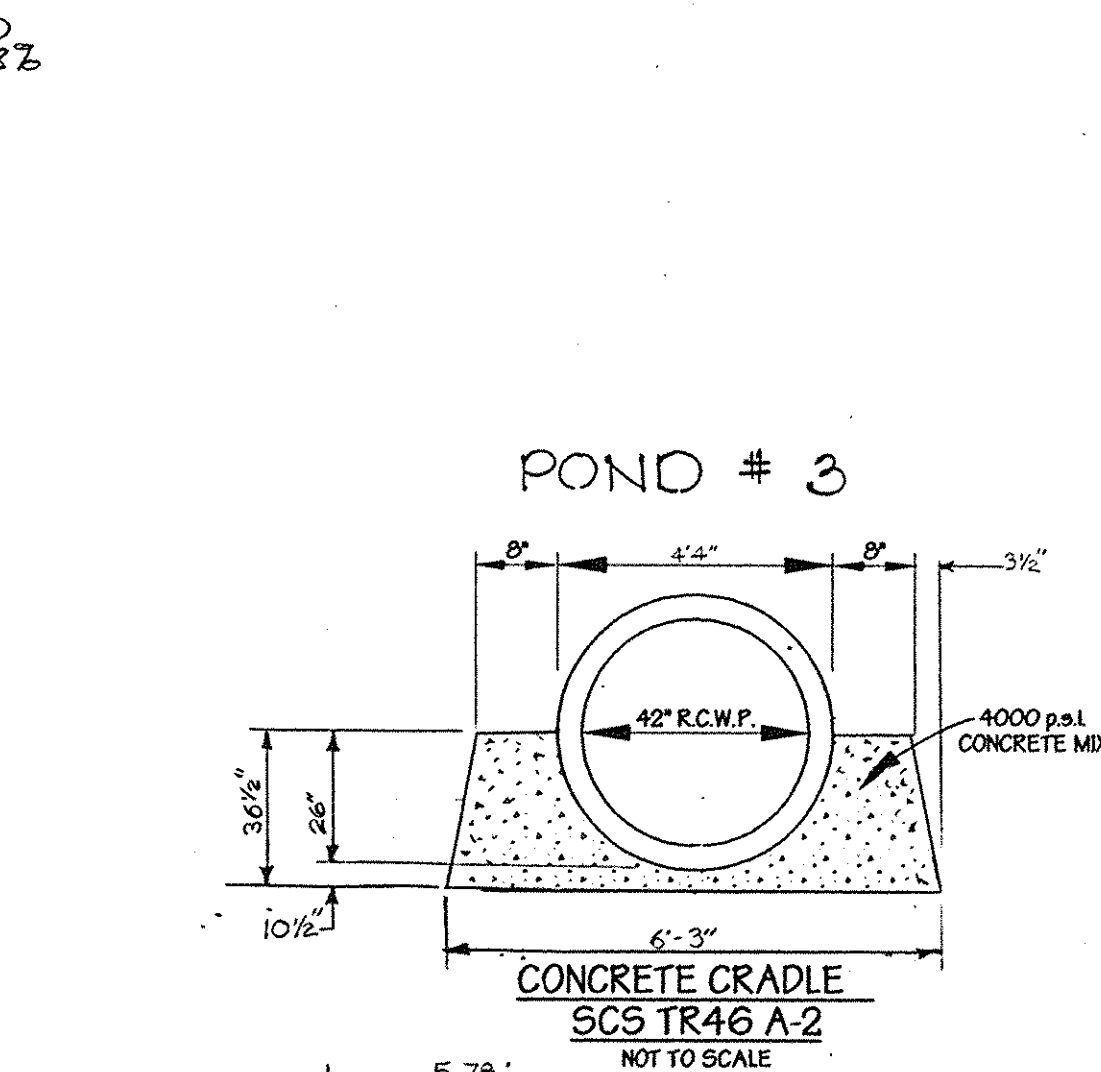
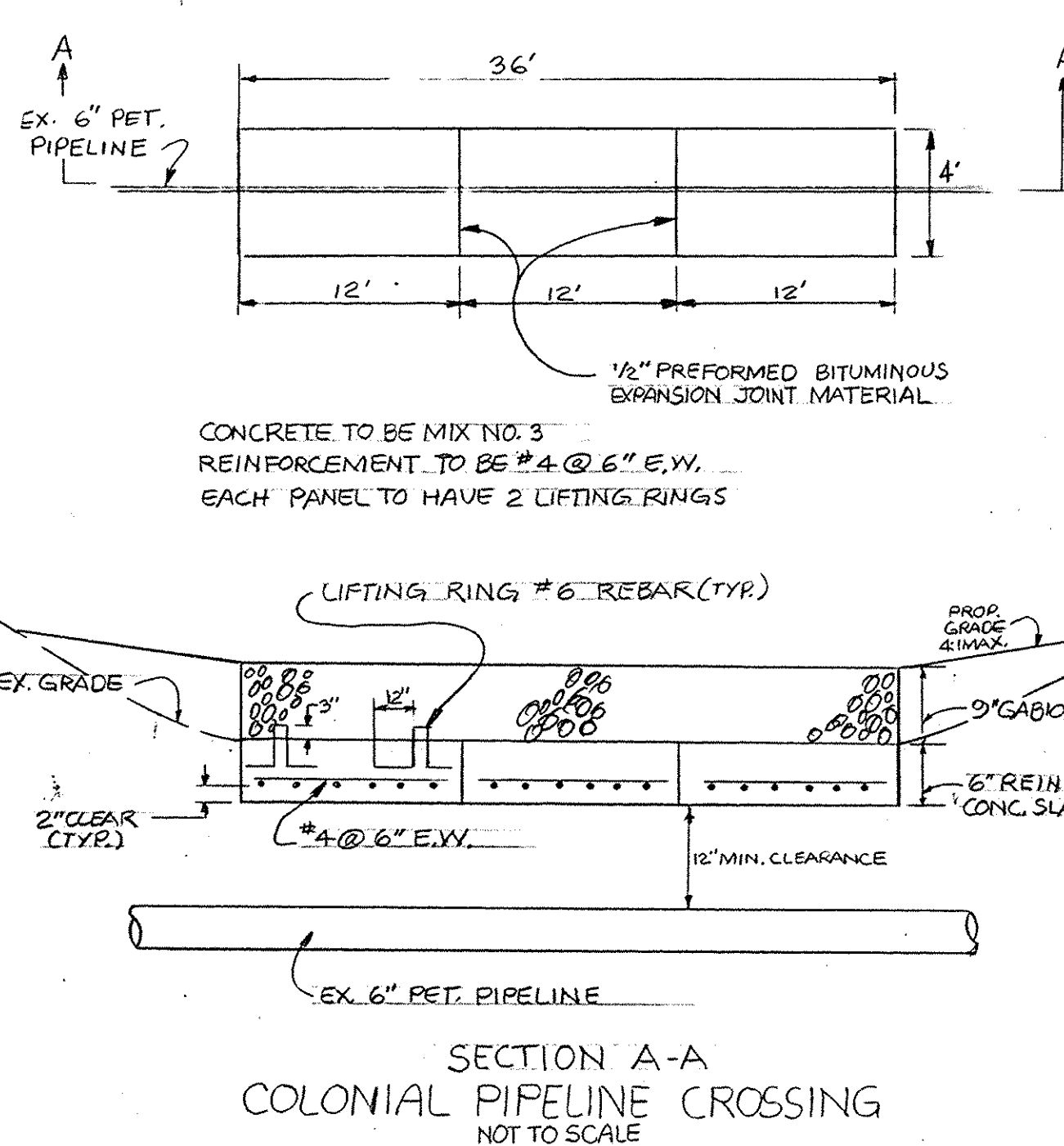
*3 Split rail (wood) fence is optional.

CUT-OFF TRENCH - THE CUT-OFF 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 1:1 OR FLATTER. THE BACKFILL SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TAMPERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY.

IMPERVIOUS CORE - THE CORE SHALL BE FILLED ALONG OR PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE TOP WIDTH OF THE FILL SHALL BE GOVERNED BY THE EQUIPMENT USED, WITH MINIMUM WIDTH BEING FOUR FEET. THE TOP WIDTH SHALL BE SHOWN ON THE PLAN. THE SIDE SLOPES OF THE FILL SHALL BE 1:1 OR FLATTER. THE BACKFILL SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS OR HAND TAMPERS TO ASSURE MAX PERMEABILITY.



NOTE:
1. LOCATE 2" MIN. FROM ALL PIPE JOINTS.
2. ALL MATERIAL TO BE IN ACCORDANCE WITH CONSTRUCTION AND CONSTRUCTION MATERIALS SPECIFICATIONS.
3. THE SEAL BETWEEN THE PIPE AND COLLAR SHALL BE WATER TIGHT.
4. COLLAR SHALL PROJECT A MIN. OF 2.0" FROM THE EXTERIOR OF THE CONCRETE CRADLE AND THE PIPE ON ALL FOUR SIDES.



USE A 11.55' x 10.5' CONG. COLLAR (THREE COLLARS REQUIRED)

Evergreen Planting Detail

NOT TO SCALE

Tree Planting Detail

NOT TO SCALE

These plans for S.W.M. construction, soil erosion and sediment control meet the requirements of Howard Soil Conservation District.

Robert W. Zickm
APPROVED: HOWARD SOIL CONSERVATION DISTRICT
PLAN NUMBER
DATE

Reviewed for the Howard Conservation District and meets technical requirements.
Sheel Simmons
NATURAL RESOURCES CONSERVATION SERVICE
DATE

APPROVED: Howard County Department of Planning and Zoning
CHIEF, DEVELOPMENT ENGINEERING DIVISION
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE

DIRECTOR
DATE

ADDRESS CHART
PARCEL NO. A-4
STREET ADDRESS Troy Hill Drive

SUBDIVISION NAME	SECTION NAME	PARCEL #
TROY HILL CORPORATE CENTER	1	A-4
PLAT # 12428	BLOCK # 11, 12, 17, 18	ZONE M-1
WATER CODE C04	ELECT. DIST. 1st	CENSUS TRACT 6011.02
	SEWER CODE 402000	

SEDIMENT BASIN DETAILS & NOTES
FOR
TROY HILL CORPORATE CENTER
PHASE 2A
HOWARD COUNTY, MARYLAND
1st ELECTION DISTRICT
SCALE: AS SHOWN
JUNE 3, 1998

PREPARED BY:
GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
658 Kenilworth Drive, Suite 100
Towson, Maryland 21204
(410) 825-8120



ENGINEER CERTIFICATION:
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.
Engineer: James A. Manke, Jr. P.E. 11005
Name: James A. Manke, Jr. Date: 5/15/98

OWNER/DEVELOPER
TROY HILL BUSINESS PARK PARTNERSHIP
c/o MANEKIN CORPORATION
7165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
(410) 290-1400

DEVELOPER CERTIFICATION:
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 as a Dept. of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a 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.
Developer: MANEKIN CORPORATION Date: 5/15/98
Name: David E. Minner

CONSULTANT'S HAZARD CLASS CERTIFICATION:
I certify that this pond meets all requirements for hazard class B or C. (Requirements as stated in the Soil Conservation Service - Maryland Standards and Specifications for Pond, Code 378, November 1992). All necessary investigations and computations have been performed to verify this finding. A copy of said information has been supplied to Howard County Soil Conservation District.
Signature: James A. Manke, Jr. P.E. # 11005
Name: James A. Manke, Jr. Date: 5/15/98

DEVELOPER CERTIFICATION

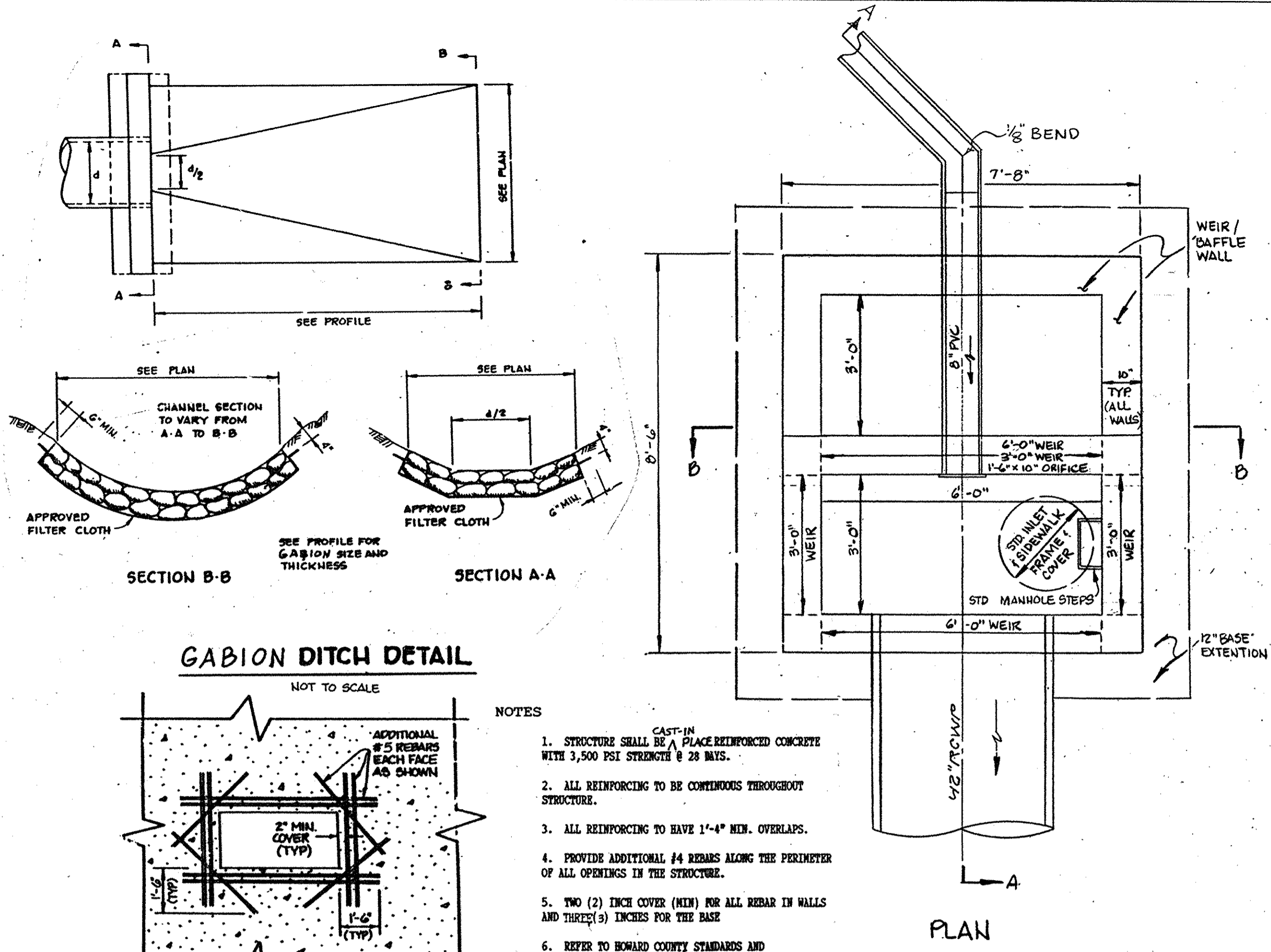
We certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Dept. of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a 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.

Developer: **MANEKIN CORPORATION** Date: **4/1/98**
 Name: **Steve E. Minner**

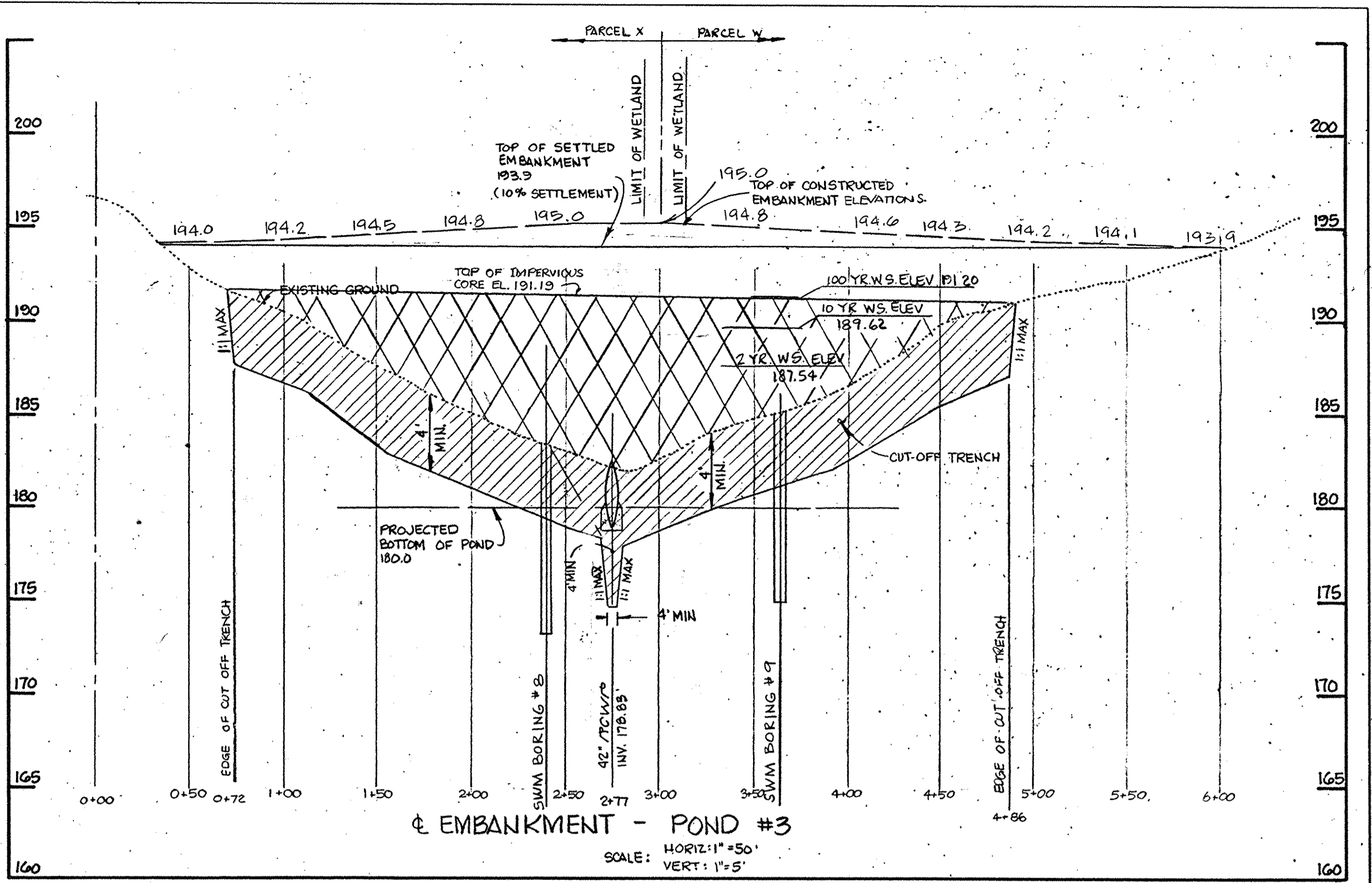
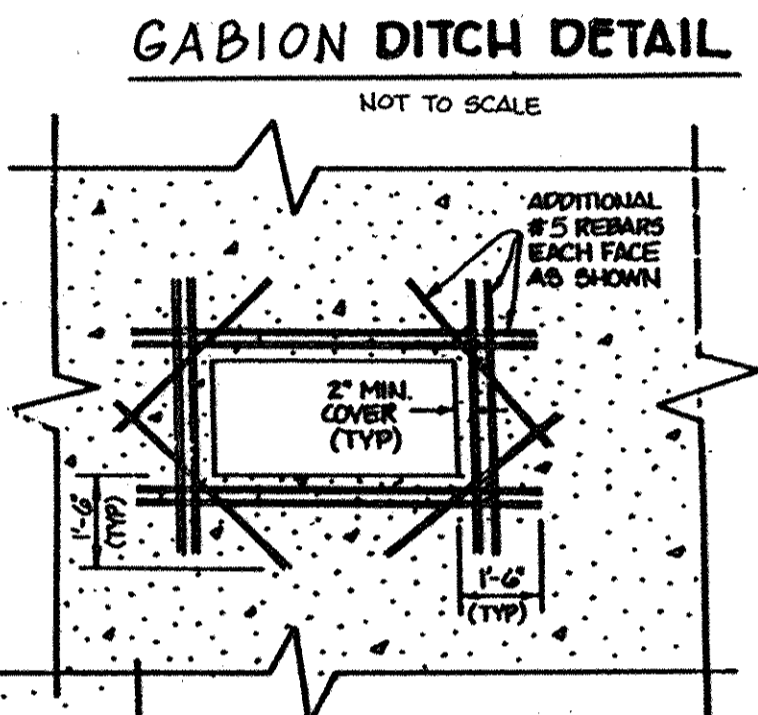
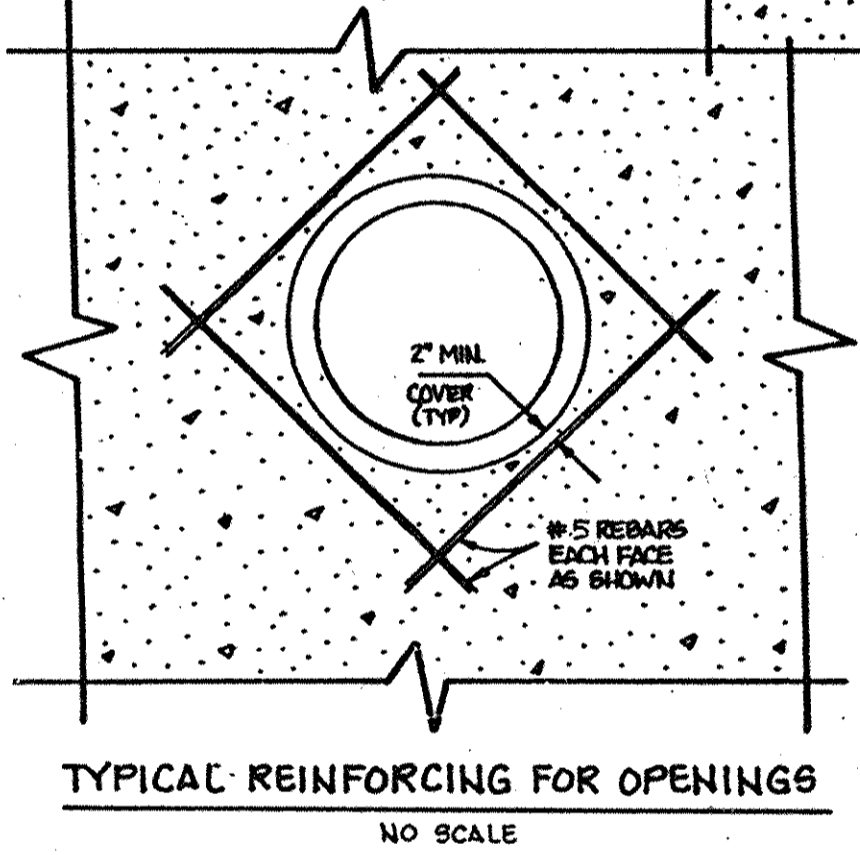
ENGINEER CERTIFICATION

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.

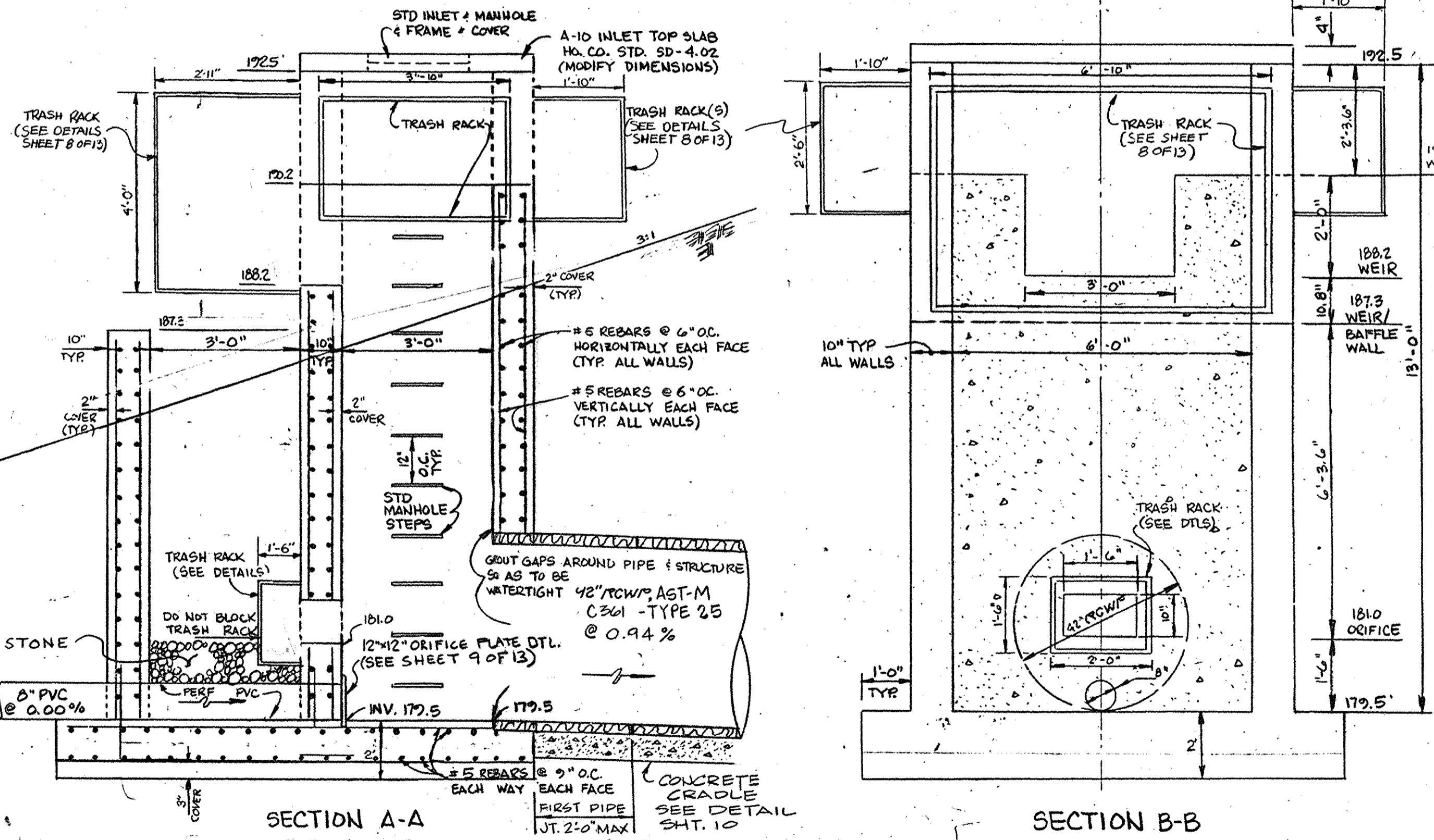
Engineer: **James H. Markle, Jr.** P.E. # **11005**
 Name: **James H. Markle, Jr.** Date: **10/20/98**



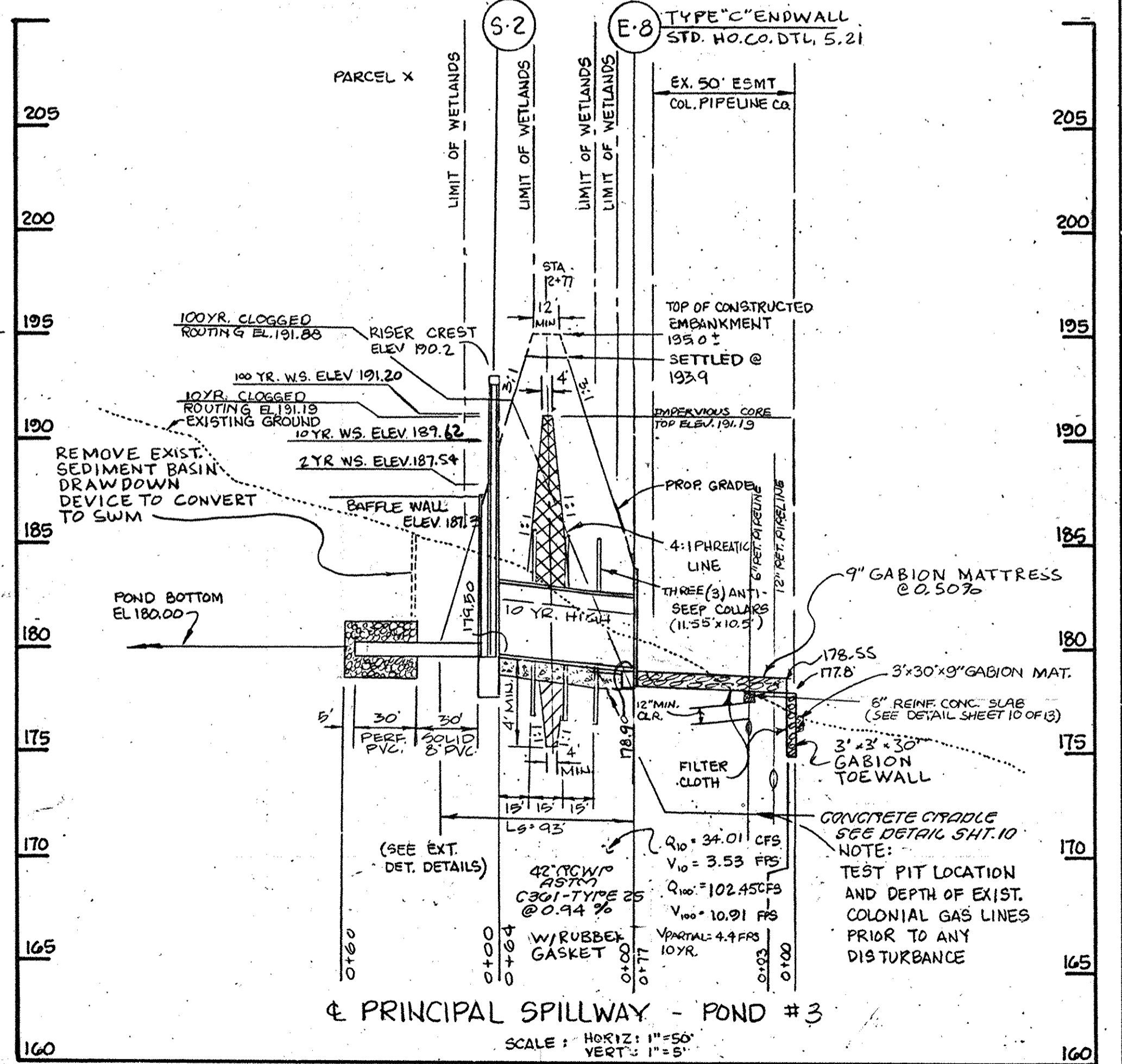
- NOTES**
1. STRUCTURE SHALL BE CAST-IN PLACE REINFORCED CONCRETE WITH 3,500 PSI STRENGTH @ 28 DAYS.
 2. ALL REINFORCING TO BE CONTINUOUS THROUGHOUT STRUCTURE.
 3. ALL REINFORCING TO HAVE 1'-4" MIN. OVERLAPS.
 4. PROVIDE ADDITIONAL #4 REBARS ALONG THE PERIMETER OF ALL OPENINGS IN THE STRUCTURE.
 5. TWO (2) INCH COVER (MIN) FOR ALL REBAR IN WALLS AND THREE (3) INCHES FOR THE BASE.
 6. REFER TO HOWARD COUNTY STANDARDS AND SPECIFICATIONS FOR STANDARD DETAILS AND SPECIFICATIONS OF ITEMS SHOWN ON DETAILS.
 7. REFER TO MD. 378 SPECIFICATIONS FOR PIPE AND STORE AGGREGATE DETAILS.
 8. ALL REBAR TO BE GALVANIZED.



NOTE: SEE SHEET 10 FOR POND CONSTRUCTION SPECIFICATIONS



NOTE: THE FIRST PIPE JOINT MUST BE WITHIN 2 FEET OF THE RISER STRUCTURE



These plans for S.W.M. construction, soil erosion and sediment control meet the requirements of Howard Soil Conservation District.

APPROVED: **Robert W. Ziehm** 10/29/98
 APPROVED: HOWARD SOIL CONSERVATION DISTRICT

PLAN NUMBER: _____ DATE: _____

Reviewed for the Howard Conservation District and meets technical requirements.

APPROVED: **Clayton Simmons** 10/29/98
 NATURAL RESOURCES CONSERVATION SERVICE

APPROVED: Howard County Department of Planning and Zoning

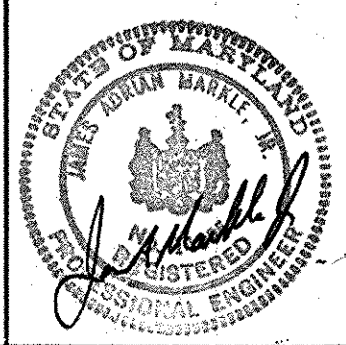
APPROVED: **Mike D'Amico** 4/2/98
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

APPROVED: **Candy Harvath** 11/4/98
 CHIEF, DIVISION OF LAND DEVELOPMENT

APPROVED: **James H. Markle, Jr.** 11/6/98
 DIRECTOR

OWNER/APPLICANT
 TROY HILL BUSINESS PARK PARTNERSHIP
 C/O MANEKIN CORP.
 7185 COLUMBIA GATEWAY DRIVE
 COLUMBIA, MARYLAND 21046
 (301) 290-1400
 ATTN: COLE SCHNORF

ENGINEER
GEORGE WILLIAM STEPHENS JR.
AND ASSOCIATES, INC.
 658 KENILWORTH DRIVE
 SUITE 100
 TOWSON, MARYLAND 21204
 (410) 825-8120



DESIGNED: KJ
 DRAWN: CDT
 CHECKED: TC

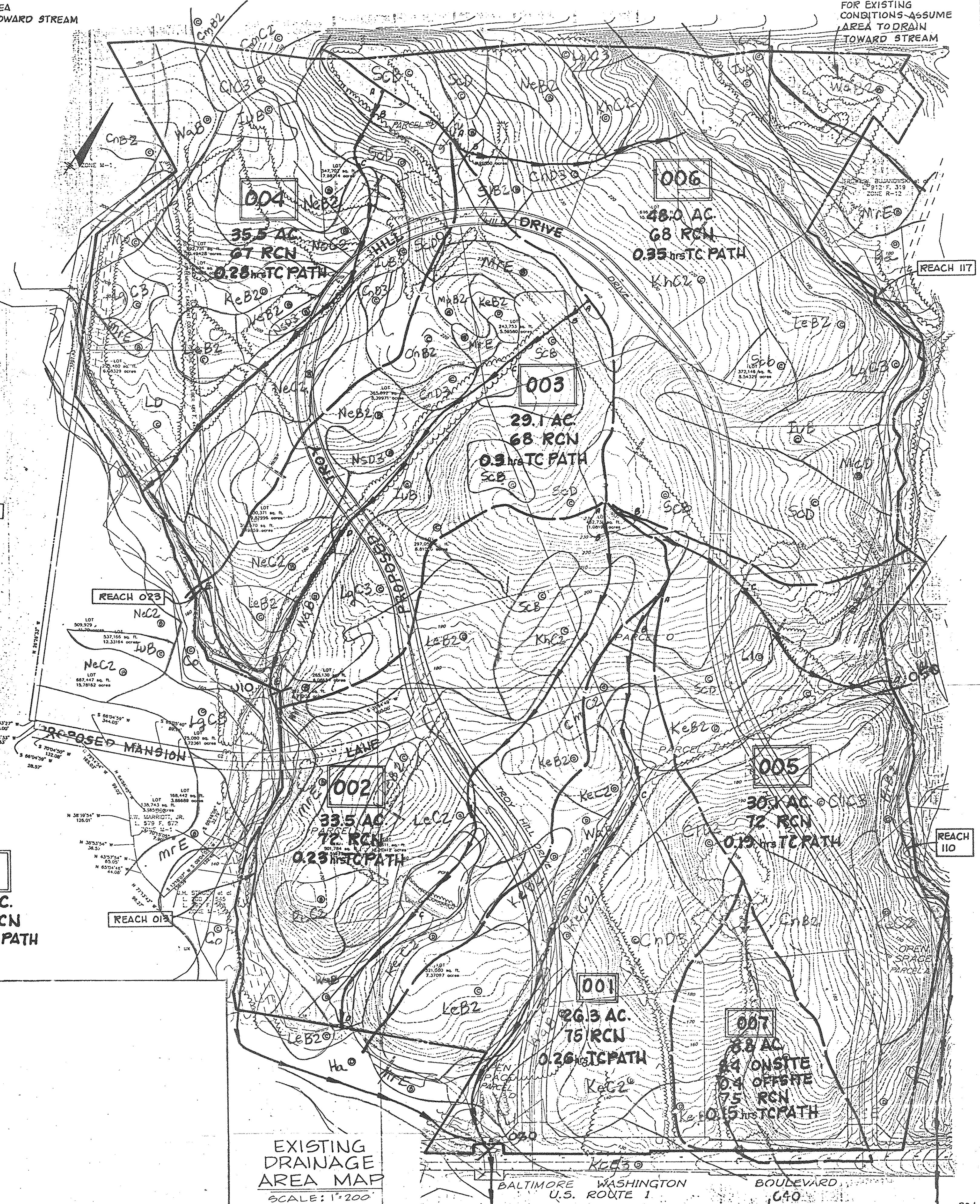
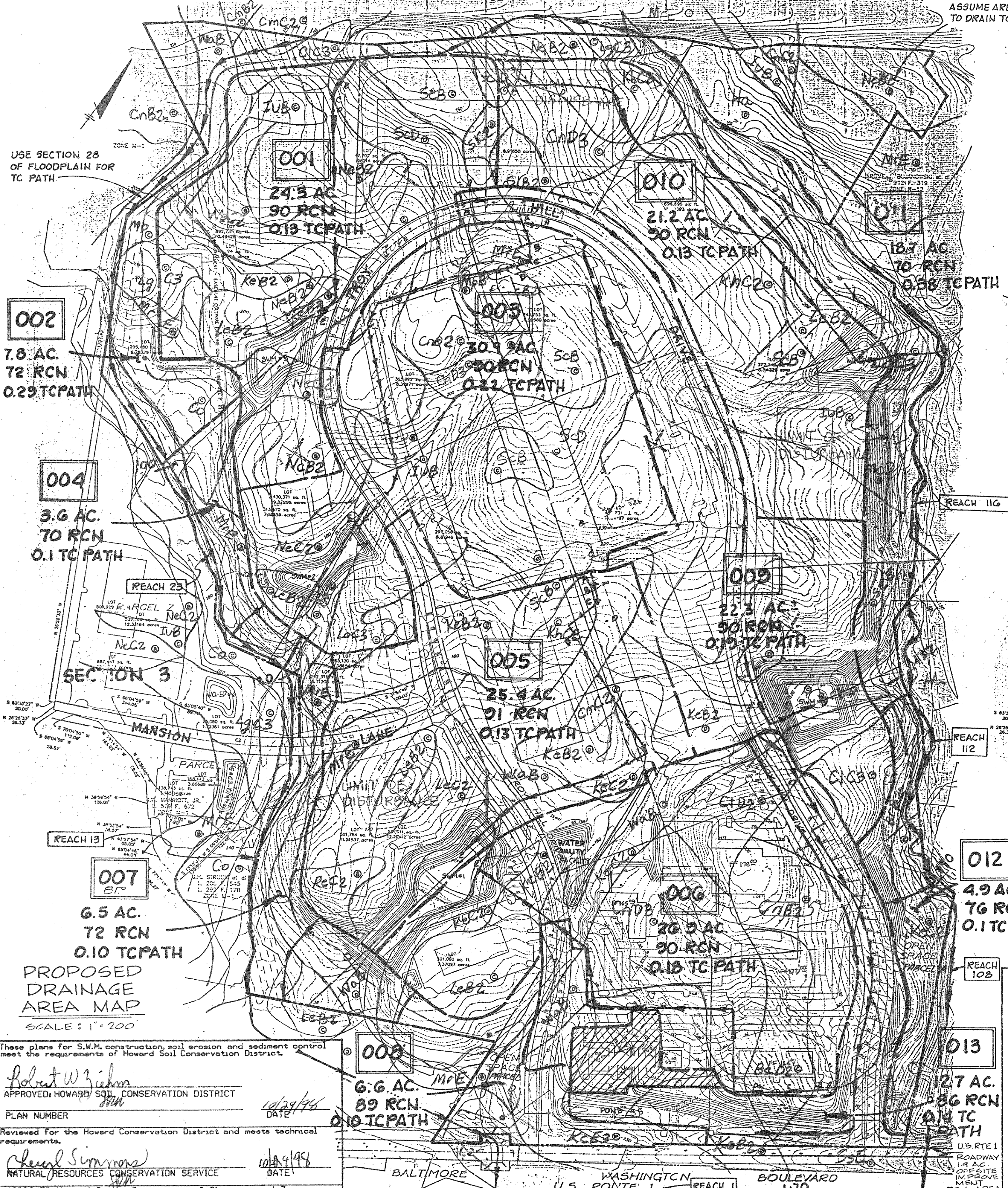
BY	NO	REVISION	DATE

STORM WATER MANAGEMENT DETAILS

TROY HILL CORPORATE CENTER
PHASE IIA
TROY HILL DRIVE

HOWARD COUNTY, MD. ELECTION DISTRICT #1
 SCALE: AS SHOWN DATE: 6-3-98

SCALE: AS SHOWN
 SHEET NO. 12 OF 13



These plans for S.W.M. construction soil erosion and sediment control meet the requirements of Howard Soil Conservation District.

Robert W. Zickm
APPROVED: HOWARD SOIL CONSERVATION DISTRICT
PLAN NUMBER: _____ DATE: 10/29/94

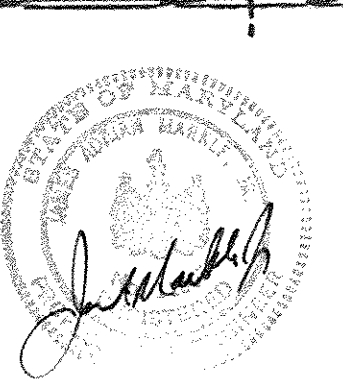
Reviewed for the Howard Conservation District and meets technical requirements.
Carol Simmons
NATURAL RESOURCES CONSERVATION SERVICE
APPROVED: Howard County Department of Planning and Zoning
DATE: 10/29/94

CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 11/2/94

CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 11/1/94

DIRECTOR
DATE: 11/6/94

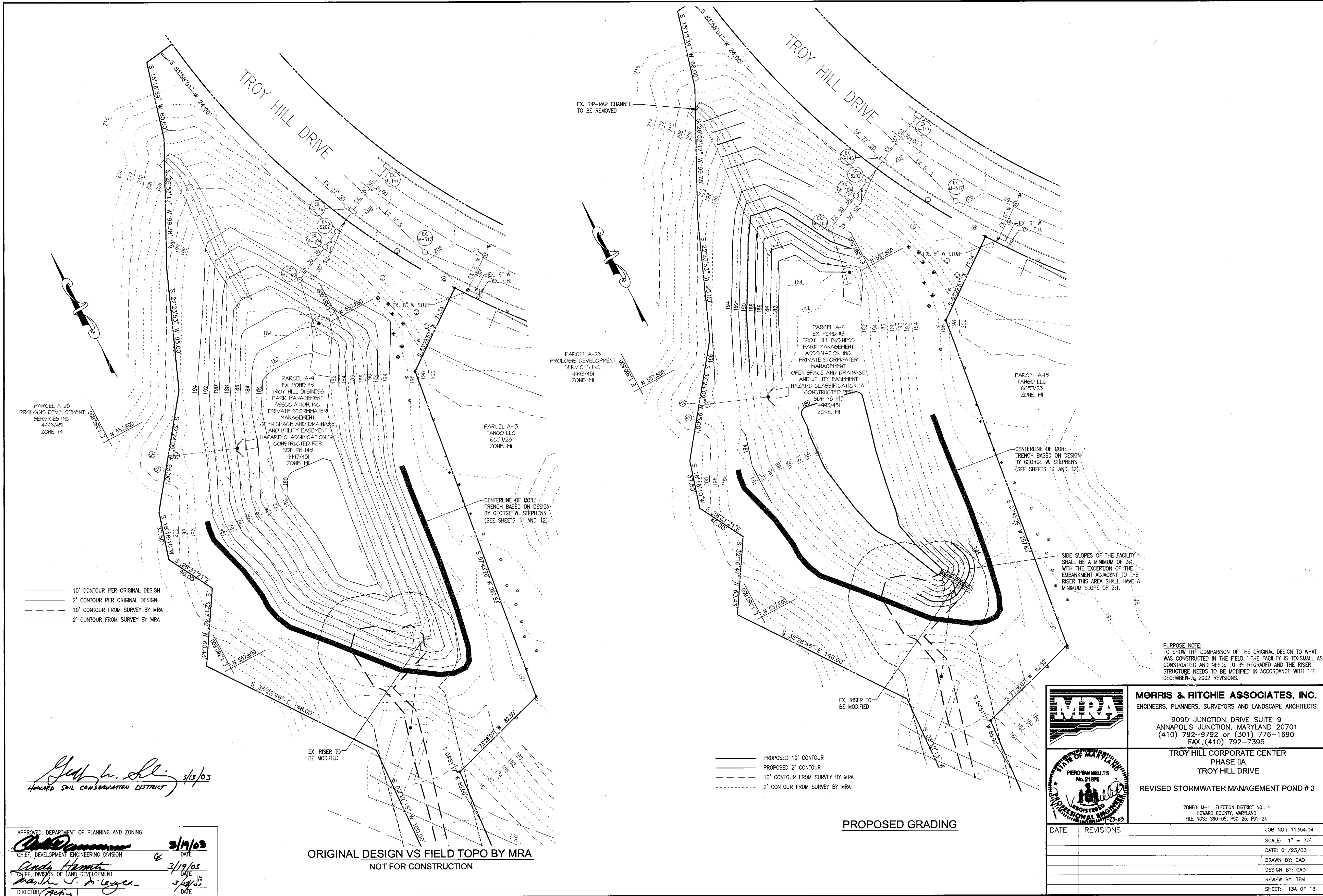
ENGINEER
**GEORGE WILLIAM STEPHENS JR.
AND ASSOCIATES, INC.**
658 KENILWORTH DRIVE
SUITE 100
TOWSON, MARYLAND 21204
(301) 825-8120



DESIGNED:	BY	NO	REVISION	DATE
DRAWN:				
CHECKED:				

OWNER/DEVELOPER
TROY HILL BUSINESS PARK PARTNERSHIP
c/o MANEKIN COPORATION
7165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND
21046
410-290-1400

TROY HILL CORPORATE CENTER
PHASE IIA PARCEL A-4
STORMWATER MANAGEMENT
DRAINAGE AREA MAP
HOWARD COUNTY, MD. ELECTION DISTRICT #1
SCALE: AS SHOWN DATE: 6-3-98
SHEET NO. 13 OF 13
FILE NOS. S90-05, P90-25, F91-24



10' CONTOUR PER ORIGINAL DESIGN
 2' CONTOUR PER ORIGINAL DESIGN
 10' CONTOUR FROM SURVEY BY MRA
 2' CONTOUR FROM SURVEY BY MRA

John W. Lee 3/13/03
 HOWARD SOIL CONSERVATION DISTRICT

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Chad D... 3/19/03
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
Cindy Ham... 3/19/03
 CHIEF, DIVISION OF LAND DEVELOPMENT
... 3/23/03
 DIRECTOR (Acting)

ORIGINAL DESIGN VS FIELD TOPO BY MRA
 NOT FOR CONSTRUCTION

PROPOSED 10' CONTOUR
 PROPOSED 2' CONTOUR
 10' CONTOUR FROM SURVEY BY MRA
 2' CONTOUR FROM SURVEY BY MRA

PROPOSED GRADING

PURPOSE NOTE:
 TO SHOW THE COMPARISON OF THE ORIGINAL DESIGN TO WHAT WAS CONSTRUCTED IN THE FIELD. THE FACILITY IS TOO SMALL AS CONSTRUCTED AND NEEDS TO BE REGRADED AND THE RISER STRUCTURE NEEDS TO BE MODIFIED IN ACCORDANCE WITH THE DECEMBER 3, 2002 REVISIONS.

MORRIS & RITCHIE ASSOCIATES, INC.
 ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS
 9090 JUNCTION DRIVE SUITE 9
 ANNAPOLIS JUNCTION, MARYLAND 20701
 (410) 792-9792 or (301) 776-1690
 FAX (410) 792-7395

TROY HILL CORPORATE CENTER
 PHASE IIA
 TROY HILL DRIVE
 REVISED STORMWATER MANAGEMENT POND # 3

ZONED: M-1 ELECTION DISTRICT NO.: 1
 HOWARD COUNTY, MARYLAND
 FILE NOS.: S90-05, P90-25, F91-24

DATE	REVISIONS	JOB NO.: 11354.04
		SCALE: 1" = 30'
		DATE: 01/23/03
		DRAWN BY: CAO
		DESIGN BY: CAO
		REVIEW BY: TFM
		SHEET: 13A OF 13

Construction Notes

1. THE CONTRACTOR SHALL NOTIFY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS CONSTRUCTION INSPECTION DIVISION AT 410-313-1880 AT LEAST 24 HOURS PRIOR TO STARTING ANY OF THE WORK SHOWN HEREON.
2. ALL AREAS NOT BEING PAVED OR RECEIVING BUILDING COVERAGE SHALL BE STABILIZED IN ACCORDANCE WITH THE PLANS APPROVED BY THE HOWARD SOIL CONSERVATION DISTRICT.
3. THE CONTRACTOR SHALL NOTE THAT IN CASE OF DISCREPANCY BETWEEN ANY SCALED DIMENSIONS AND THE FIGURED DIMENSIONS SHOWN ON THESE PLANS, THE FIGURED DIMENSIONS SHALL GOVERN.
4. CONTRACTOR SHALL MEET ALL EXISTING IMPROVEMENTS SMOOTHLY FOR LINE, GRADE AND FINISH.
5. ALL WORK SHOWN ON THESE PLANS SHALL BE COMPLETED IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS AND OF THE MARYLAND STATE HIGHWAY ADMINISTRATION AND THE HOWARD COUNTY PLUMBING CODE, UNLESS OTHERWISE NOTED.
6. IT SHALL BE DISTINCTLY UNDERSTOOD THAT FAILURE TO MENTION SPECIFICALLY ANY WORK WHICH WOULD NORMALLY BE REQUIRED TO COMPLETE THIS PROJECT SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO PERFORM SUCH WORK. THE COST OF SUCH WORK SHALL BE INCLUDED IN THE BASE BID.
7. THE CONTRACTOR SHALL INSPECT THE SITE TO DETERMINE IF ANY TREES, PAVING, ETC. ARE TO BE REMOVED PRIOR TO PLACING A BID ON SUCH ITEMS.
8. THE LOCATIONS OF EXISTING UTILITIES SHOWN HEREON ARE APPROXIMATE ONLY AND ARE PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. THE LOCATIONS ARE TAKEN FROM EXISTING RECORDS AND DO NOT REPRESENT FIELD-VERIFIED LOCATIONS. THE CONTRACTOR SHALL NOTIFY MISS UTILITY AT 1-800-251-7777 A MINIMUM OF 5 WORKING DAYS PRIOR TO DIGGING. THE CONTRACTOR SHALL CONFIRM TO HIS OWN SATISFACTION THE LOCATION OF ALL UTILITIES PRIOR TO ANY EXCAVATION OR PLACEMENT OF MATERIALS. IF ANY CONFLICT IS FOUND BETWEEN UNDERGROUND UTILITIES AND THE PROPOSED LOCATION OF ANY CONSTRUCTION THE CONTRACTOR SHALL CONTACT MISS UTILITY AND THE OWNER OF THE UTILITY IMMEDIATELY. ANY DAMAGE OR DISRUPTION OF SERVICE SHALL BE AT THE EXPENSE OF THE CONTRACTOR. RELOCATION OF ANY EXISTING UTILITIES, IF NECESSARY, SHALL BE AT THE EXPENSE OF THE OWNER. THE CONTRACTOR SHALL COORDINATE RELOCATION OF THESE UTILITIES, IF NECESSARY.
9. CONTRACTOR SHALL PROTECT ALL EXISTING TREES OUTSIDE THE LIMIT OF DISTURBANCE AT ALL TIMES DURING CONSTRUCTION.
10. CONTRACTOR SHALL PROTECT ALL EXISTING IMPROVEMENTS NOT SCHEDULED FOR REMOVAL OR DESTRUCTION. COST OF REPAIR TO EXISTING IMPROVEMENTS SHALL BE INCLUDED IN THE BASE BID. ALL EXISTING SITE FEATURES NOT BEING RETAINED SHALL BE REMOVED AND DISPOSED OF AT AN APPROVED LOCATION. ANY DAMAGE TO OFFSITE ROADS, RIGHTS OF WAY OR ADJACENT PROPERTY SHALL BE REPAIRED IMMEDIATELY AT THE EXPENSE OF THE CONTRACTOR.
11. THE CONTRACTOR SHALL CLEAR THE PROJECT SITE OF ALL TREES, PAVING, STRUCTURES, ETC. WITHIN THE CONSTRUCTION AREA UNLESS OTHERWISE NOTED ON THE PLAN.
12. ONLY SUITABLE MATERIAL SHALL BE USED AS FILL AND ALL FILL SHALL BE PLACED AND COMPACTED AS SPECIFIED IN THE SOILS REPORT PREPARED FOR THIS SITE OR AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER. ALL 2:1 SLOPES SHOWN HEREON, EXCEPTING THOSE ASSOCIATED WITH LANDSCAPE BERMING, SHALL BE APPROVED BY A GEOTECHNICAL ENGINEER.
13. CONTRACTOR SHALL PROVIDE MINIMUM 4 FOOT BENCH AT EDGE OF PAVING IN FILL AREAS. MAXIMUM SLOPE OF BENCH SHALL BE 4% (1/4 IN PER FOOT).
14. MAXIMUM SLOPE SHALL BE 2 HORIZONTALLY TO 1 VERTICALLY.
15. CONTRACTOR SHALL PLACE 4" MINIMUM TOPSOIL IN LANDSCAPE AREAS. TOPSOIL SHALL BE APPROVED BY LANDSCAPE ARCHITECT.
16. CONTRACTOR SHALL PLACE A WITNESS POST AT THE TERMINUS OF ALL UTILITY STUBS.
17. CONTRACTOR SHALL PROVIDE A MINIMUM OF 1 FOOT OF PROTECTIVE FILL OVER STORM DRAIN PIPES DURING CONSTRUCTION.
18. ALL TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNAGE SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES". ALL STREET AND REGULATORY SIGNS SHALL BE INSTALLED PRIOR TO INSTALLATION OF FINISHED PAVING.
19. THE CONTRACTOR SHALL REPLACE ANY EXISTING BITUMINOUS PAVING OR SUB-BASE WHICH IS DAMAGED OR REMOVED DURING CONSTRUCTION. ALL EXCAVATED AREAS SHALL BE BACKFILLED AND IN ACCORDANCE WITH THE SOILS REPORT AND/OR AS DIRECTED BY GEOTECHNICAL ENGINEER. ANY AREAS TO BE PAVED WHICH EXHIBIT UNSTABLE SUBGRADE CONDITIONS SHALL BE EXCAVATED TO BEARING SOIL, REFILLED AND COMPACTED.
20. IN AN AREA WHERE EXCAVATION IS NEEDED WITHIN THE ROAD RIGHT-OF-WAY, EXCAVATION MUST BE MADE WITHIN ONE (1) FOOT OF THE FINAL SUBGRADE.
21. WHERE FILL IS PROPOSED WITHIN THE ROAD RIGHT-OF-WAY, THE FILL SHALL BE A MINIMUM OF TWO (2) FEET BELOW THE FINAL ROAD SUBGRADE.
22. THE TYPE OF STORMWATER MANAGEMENT IS PEAK MANAGEMENT PROVIDED BY DETENTION.
23. THE WATER QUALITY WILL BE PROVIDED FOR INDIVIDUAL PARCEL AT THE TIME OF SITE DEVELOPMENT PLAN SUBMISSION.

Legend

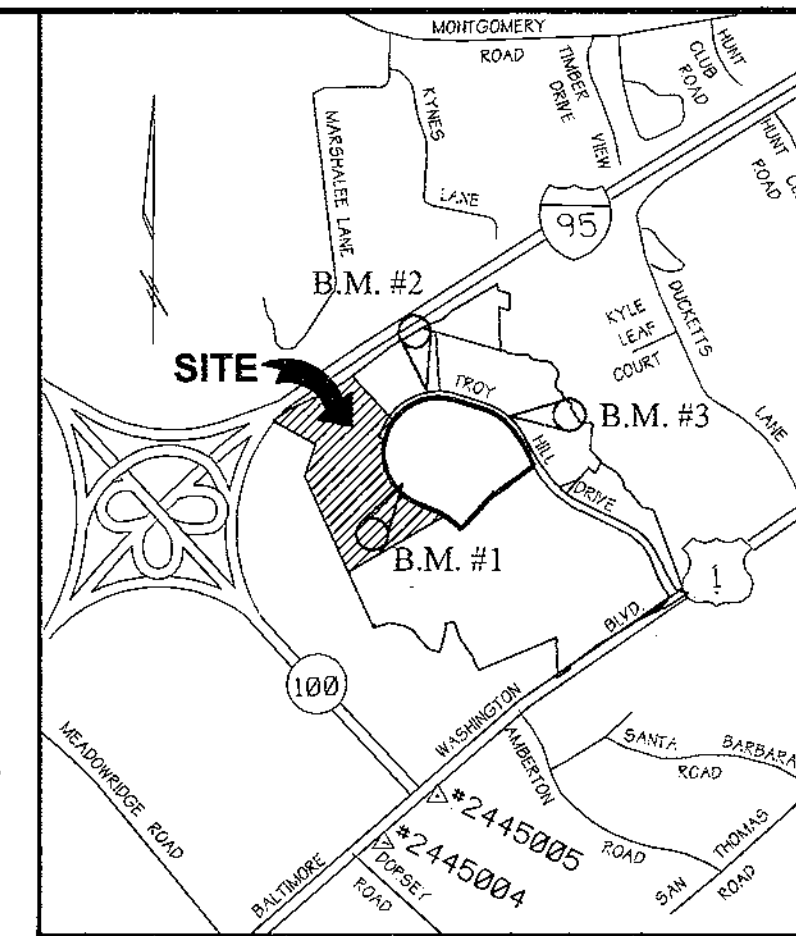
- Ex. 2' Contours
- Ex. 10' Contours
- Prop. 2' Contours
- Prop. 10' Contours
- Earth Dike
- Limit of Disturbance
- Silt Fence
- Flood Plain
- Wetlands
- Stabilized Construction Entrance
- Removable Pumping Station

NOTE:
The owner shall provide a separate and independent sewer connection for each tenant or occupant of any building shown on this site development plan who will discharge non-domestic waste to the public sewerage system. If each separate and independent sewer connection shall include a standard manhole and other waste pretreatment devices as required and approved by Howard County. Waste lines on the interior of the building shall be designed, constructed or modified such that non-domestic waste will be discharged to the separate and independent sewer connection. No tenant or occupant of any building shown on this site development plan shall discharge regulated non-domestic waste to the public sewerage system prior to installation of the separate and independent sewer connection and related interior waste lines. The above statements shall apply to all initial and future occupants or tenants.

BENCHMARKS

- BENCHMARK #1
IRON PIN @ TRAVERSE #1066
N 496,501.3597 E 869,134.4576
ELEVATION = 175.92'
- BENCHMARK #2
IRON PIN @ TRAVERSE #1061
N 498,036.6945 E 868,791.1502
ELEVATION = 242.49'
- BENCHMARK #3
IRON PIN @ TRAVERSE #1034
N 497,636.7437 E 869,835.6586
ELEVATION = 214.85

COORDINATES BASED ON NAD 27, AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS #2445004 AND #2445005



Vicinity Map
SCALE: 1" = 2000'

Site Data

TOTAL AREA OF SITE -	141.83 Ac +/-
AREA OF PLAN SUBMISSION	26.7 Ac.
EXISTING ZONING -	M-1
PROPERTY REFERENCE -	F 91-24 ; 1795/347 ; 1818/465 ; 2122/417 ; 2259/644 ; 1818/472 ; 2689/276
EXISTING USE -	VACANT
PROPOSED USE -	(FUT.) WAREHOUSE/DISTRIBUTION
AREA TO BE DISTURBED -	26.7 Ac.
AREA TO BE VEGETATIVELY STABILIZED -	26 Ac. +/-
SKETCH PLAN NO. -	S 90-05
PRELIMINARY PLAN NO. -	P 90-25
FINAL PLAT NO. -	F 96-136
WAIVER PETITION :	WP-96-91

Site / Mass Grading / Sediment Control Plans

for

Phase IIA , Parcel A - 4

Troy Hill Corporate Center

Howard County, Maryland

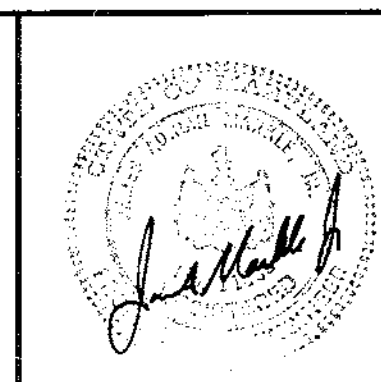
SDP-98-143

Index of Sheets

SHEET NO. 1 -	COVER SHEET, GENERAL NOTES
SHEET NO. 2 -	OVERALL MASS GRADING PLAN
SHEET NO. 3 -	MASS GRADING SEDIMENT CONTROL PLAN
SHEET NO. 4 -	MASS GRADING SEDIMENT CONTROL PLAN
SHEET NO. 5 -	MASS GRADING SEDIMENT CONTROL DETAILS
SHEET NO. 6 -	MASS GRADING SEDIMENT CONTROL DETAILS
SHEET NO. 7 -	SEDIMENT BASIN PLAN - BASIN # 3
SHEET NO. 8 -	SEDIMENT BASIN PROFILES & DETAILS
SHEET NO. 9 -	SEDIMENT BASIN BORINGS & DETAILS
SHEET NO. 10 -	SEDIMENT BASIN DETAILS & NOTES
SHEET NO. 11 -	STORM WATER MANAGEMENT PLAN - POND #3
SHEET NO. 12 -	STORM WATER MANAGEMENT DETAILS
SHEET NO. 13 -	STORM WATER MANAGEMENT D.A. MAP
△ SHEET NO. 13A	REVISED STORM WATER MANAGEMENT D.A. MAP

MANEKIN
MANEKIN CORPORATION
7165 COLUMBIA GATEWAY DRIVE
COLUMBIA MARYLAND 21046
410-290-1400

PREPARED BY:
GWS
GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
658 Kenilworth Drive, Suite 100
Towson, Maryland 21204
(410) 825-8120



OWNER/DEVELOPER
TROY HILL BUSINESS PARK PARTNERSHIP
c/o MANEKIN CORPORATION
7165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND
21046
410-290-1400

BY NO REVISION DATE
MRA △ REVISE ACCESS RAMP GRADES, MODIFY RIBER, ELIMINATE LOW FLOW CHANNEL 12/9/02

COVER SHEET FOR TROY HILL CORPORATE CENTER PHASE IIA PARCEL A - 4
PREVIOUS FILE #S 990-05, 990-25, F91-24, WP 96-91, F96-136
HOWARD COUNTY, MARYLAND 1st ELECTION DISTRICT SHEET 1 of 13
SCALE: AS SHOWN JUNE 3, 1998

These plans for S.W.M. construction, soil erosion and sediment control meet the requirements of Howard Soil Conservation District.

APPROVED: HOWARD SOIL CONSERVATION DISTRICT
Robert W. Ziehm
DATE: 10/29/98

PLAN NUMBER: _____ DATE: _____

Reviewed for the Howard Conservation District and meets technical requirements.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Cheryl Simmons
NATURAL RESOURCES CONSERVATION SERVICE
DATE: 10/29/98

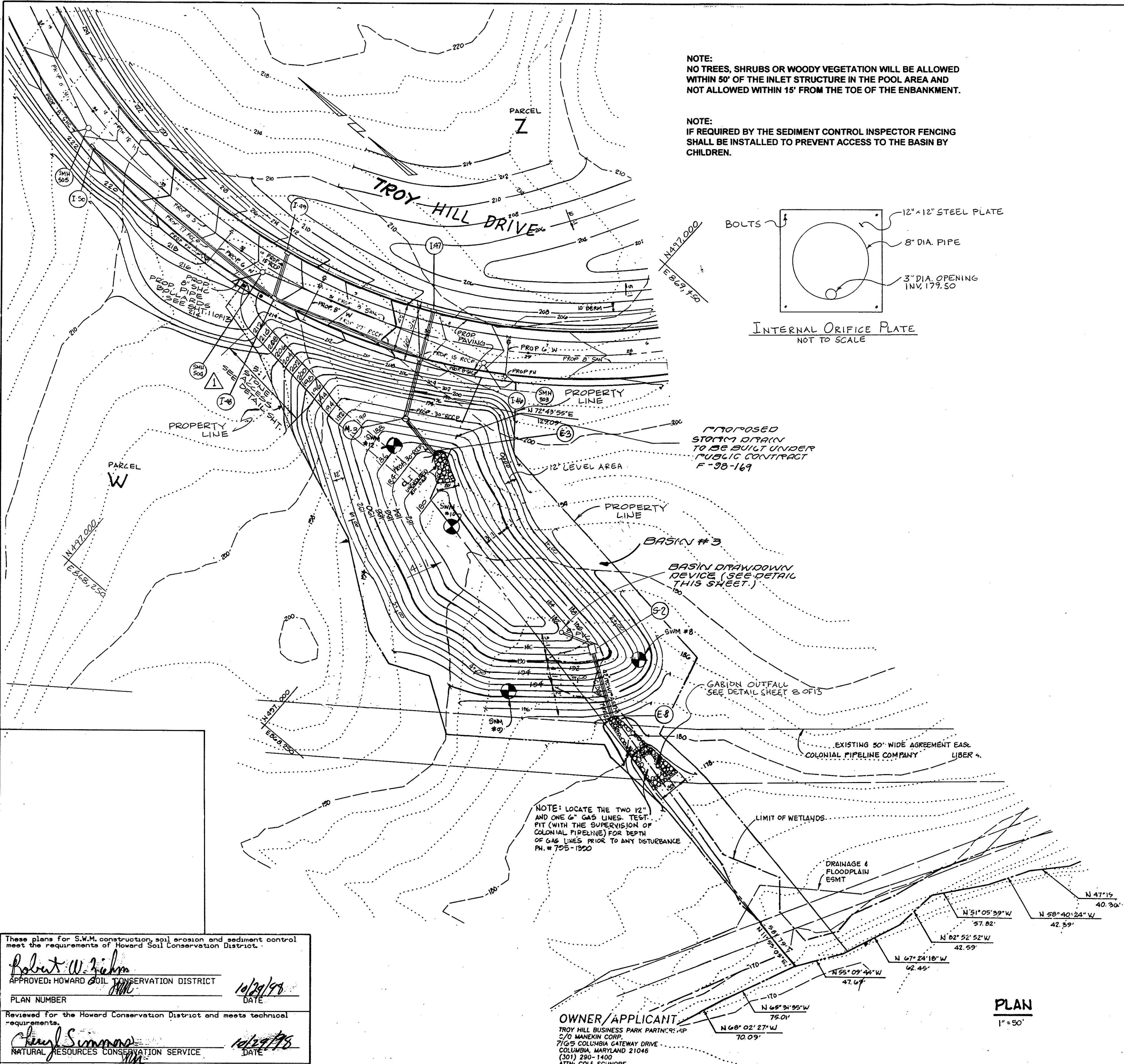
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
William J. Williams
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 11/2/98

Cindy Hamilton
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 11/4/98

James S. Davis
DIRECTOR
DATE: 11/4/98

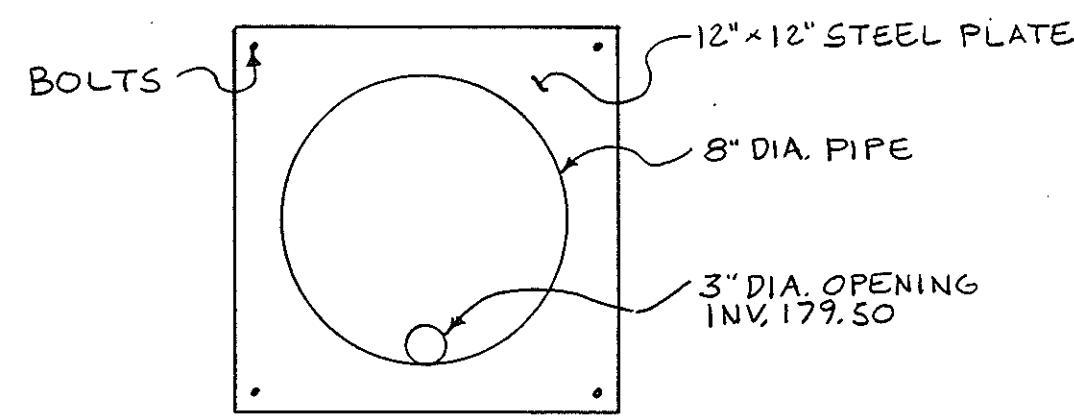
ADDRESS CHART
PARCEL NO. _____ STREET ADDRESS _____

SUBDIVISION NAME: TROY HILL CORPORATE CENTER SECTION NAME: 1 PARCEL #: A-4
PLAT #: 12428 BLOCK #: 37 ZONE: M-1 ELECT. DIST.: 1st CENSUS TRACT: 6011.02
WATER CODE: C04 SEWER CODE: 4020000

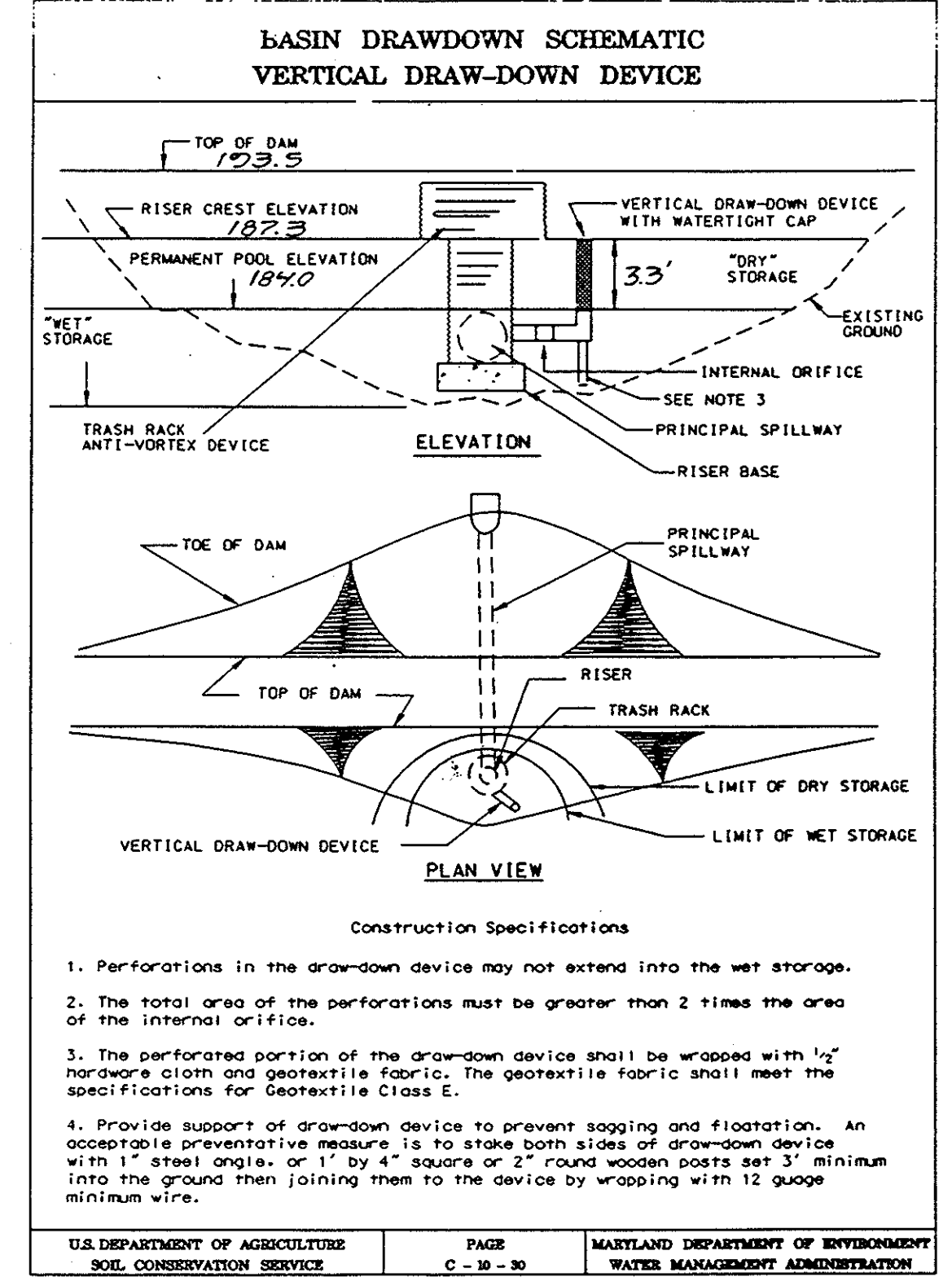


NOTE:
NO TREES, SHRUBS OR WOODY VEGETATION WILL BE ALLOWED WITHIN 50' OF THE INLET STRUCTURE IN THE POOL AREA AND NOT ALLOWED WITHIN 15' FROM THE TOE OF THE ENBANKMENT.

NOTE:
IF REQUIRED BY THE SEDIMENT CONTROL INSPECTOR FENCING SHALL BE INSTALLED TO PREVENT ACCESS TO THE BASIN BY CHILDREN.



INTERNAL ORIFICE PLATE
NOT TO SCALE



SEDIMENT BASIN #3

PERFORATED PIPE (AASHTO M-36)
STANDARD PATTERN FOR PERFORATION
HAS A MIN. THIRTY (30) 3/8" DIA.
ROUND HOLES PER SQ. FT. OF PIPE SURFACE

SIZE OF PERFORATIONS	= 3/8" DIA.
AREA OF PERFORATION	= 0.00077 SQ. FT.
LENGTH OF PERFORATED SECTION OF PIPE	= 3.3 FT.
MAX. ORIFICE AREA (A _o)	= .049 SQ. FT.
DRAW-DOWN ORIFICE DIA.	= 3.0"
NUMBER OF PERFORATIONS PER LINEAR FOOT OF PIPE	= 28 X 4 = 112
(TWO DOUBLE ROWS OF PERFORATIONS)	
TOTAL AREA OF PERFORATIONS	= 0.283 SQ. FT.
DRAINAGE AREA	= 17.8 AC.

NOTE: LOCATE THE TWO 12" AND ONE 6" GAS LINES. TEST PIT (WITH THE SUPERVISION OF COLONIAL PIPELINE) FOR DEPTH OF GAS LINES PRIOR TO ANY DISTURBANCE. PH. # 795-1990

These plans for S.W.M. construction, soil erosion and sediment control meet the requirements of Howard Soil Conservation District.

Robert W. Fiehn
APPROVED: HOWARD SOIL CONSERVATION DISTRICT
DATE: 10/29/98

Reviewed for the Howard Conservation District and meets technical requirements.
Sheryl Summers
NATURAL RESOURCES CONSERVATION SERVICE
DATE: 11/24/98

APPROVED: Howard County Department of Planning and Zoning
David Hamilton
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 11/2/98

David Hamilton
DIRECTOR
DATE: 11/2/98

ENGINEER
GEORGE WILLIAM STEPHENS JR.
AND ASSOCIATES, INC.
658 KENILWORTH DRIVE
SUITE 100
TOWSON, MARYLAND 21204
(410) 825-8120



DESIGNED: KJ	BY: GWS	NO: 1	REVISION: REVISED ACCESS RAMP TO SEDIMENT BASIN NO. 3 AND REVISED PROPERTY LINES	DATE: 2/19/99
CHECKED: TC				

CONSULTANT'S HAZARD CLASS CERTIFICATION:
I certify that this pond meets all requirements for hazard class Q/B or C. (Requirements as stated in the Soil Conservation Service - Maryland Standards and Specifications for Pond Code 378, November 1992). All necessary investigations and computations have been performed to verify this finding. A copy of said information has been supplied to Howard County Soil Conservation District.

Signature: **James A. Markle Jr.** P.E. # 11005
Name: **JAMES A. MARKLE JR.** Date: 5/5/98

ENGINEER CERTIFICATION:
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.

Engineer: **James A. Markle Jr.** P.E. # 11005
Name: **JAMES A. MARKLE JR.** Date: 5/5/98

DEVELOPER CERTIFICATION:
I/we certify that all developments 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 as a Dept. of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a 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.

Developer: **MANEKIN CORPORATION**
Name: **David E. Manekin** Date: 5/5/98

SEDIMENT BASIN #3
PLAN

TROY HILL CORPORATE CENTER
PHASE 2A
TROY HILL DRIVE

HOWARD COUNTY, MD. ELECTION DISTRICT #1
SCALE: AS SHOWN DATE: 6/3/98

FILE NOS. S90-05, P90-25, F91-24

SCALE: 1" = 50'
SHEET NO. 7 OF 13

DEVELOPER CERTIFICATION:

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 as a Dept. of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a 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.

Developer: **MANEKIN CORPORATION** Date: **4/1/98**
Name: **David E. Minner**

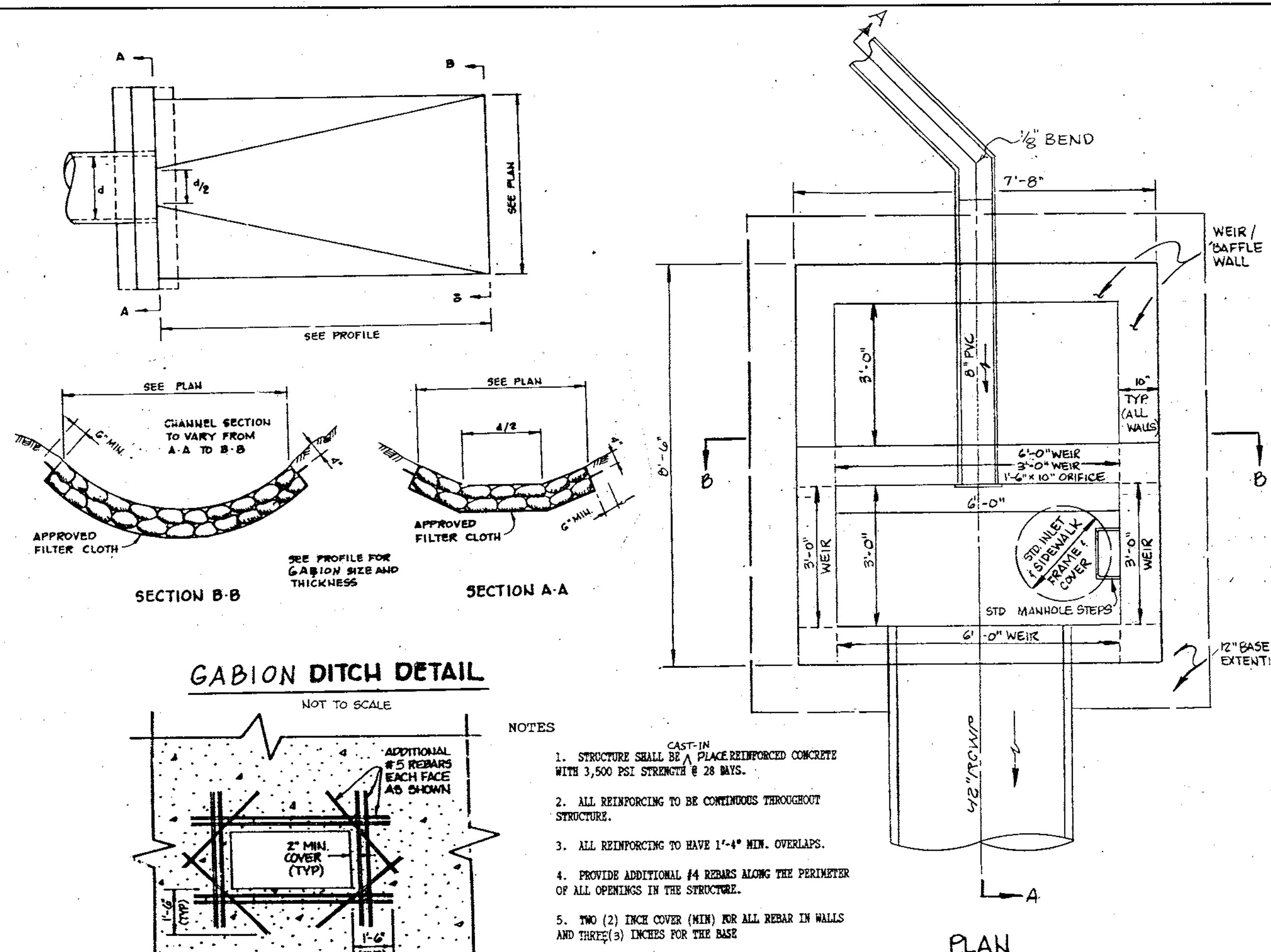
ENGINEER CERTIFICATION:

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.

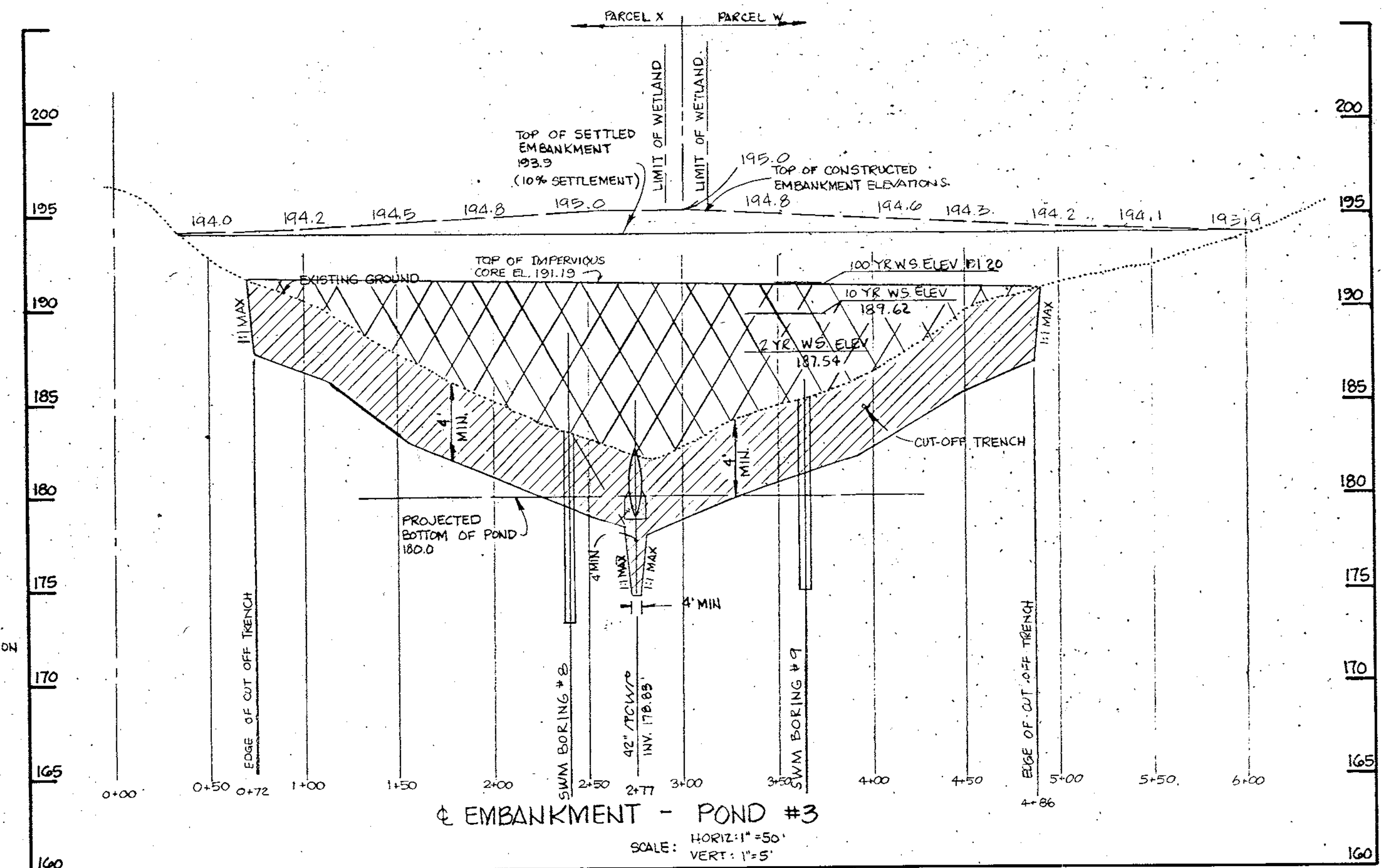
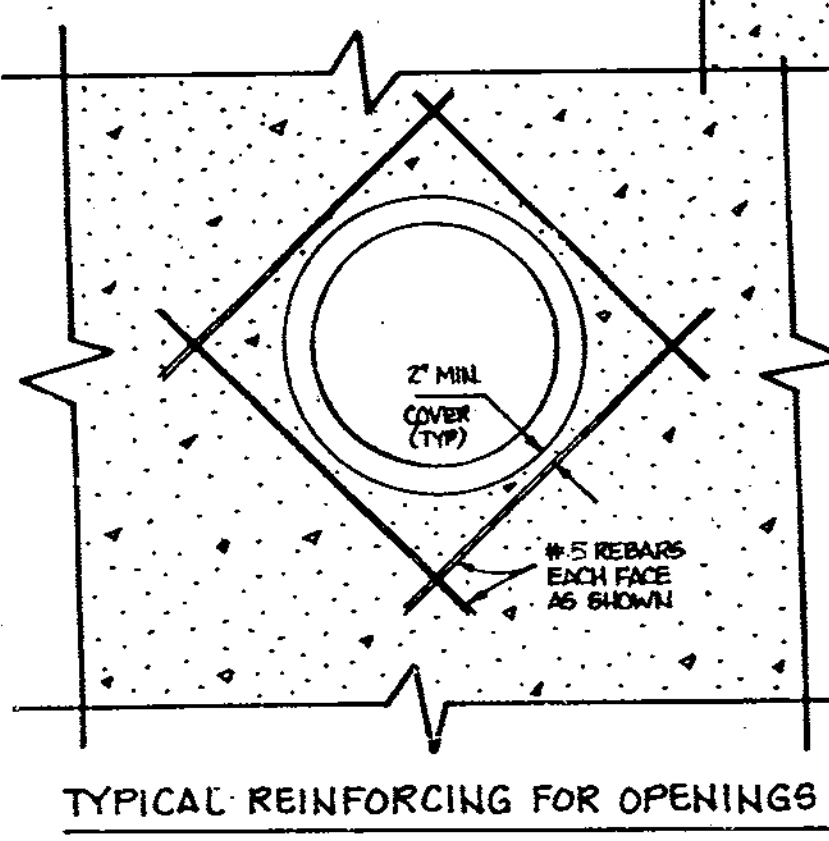
Engineer: **James B. Mackie, Jr.** P.E. # **11005**
Name: **James B. Mackie, Jr.** Date: **10/20/98**

NOTE:
IF UNSUITABLE (PERVIOUS) MATERIAL IS ENCOUNTERED AT TIME OF CUT-OFF TRENCH INSTALLATION DEEPER THAN 4', IT WILL BE NECESSARY TO EXTEND THE CUT-OFF TRENCH DOWN UNTIL SUITABLE MATERIAL IS ENCOUNTERED AS DETERMINED BY A GEOTECHNICAL ENGINEER. AT TIME OF CONSTRUCTION, EXISTING SOIL ADJACENT TO CUT-OFF TRENCH SHALL BE EVALUATED FOR SEEPAGE BY A GEOTECHNICAL ENGINEER, AND ADDRESSED PER RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER.

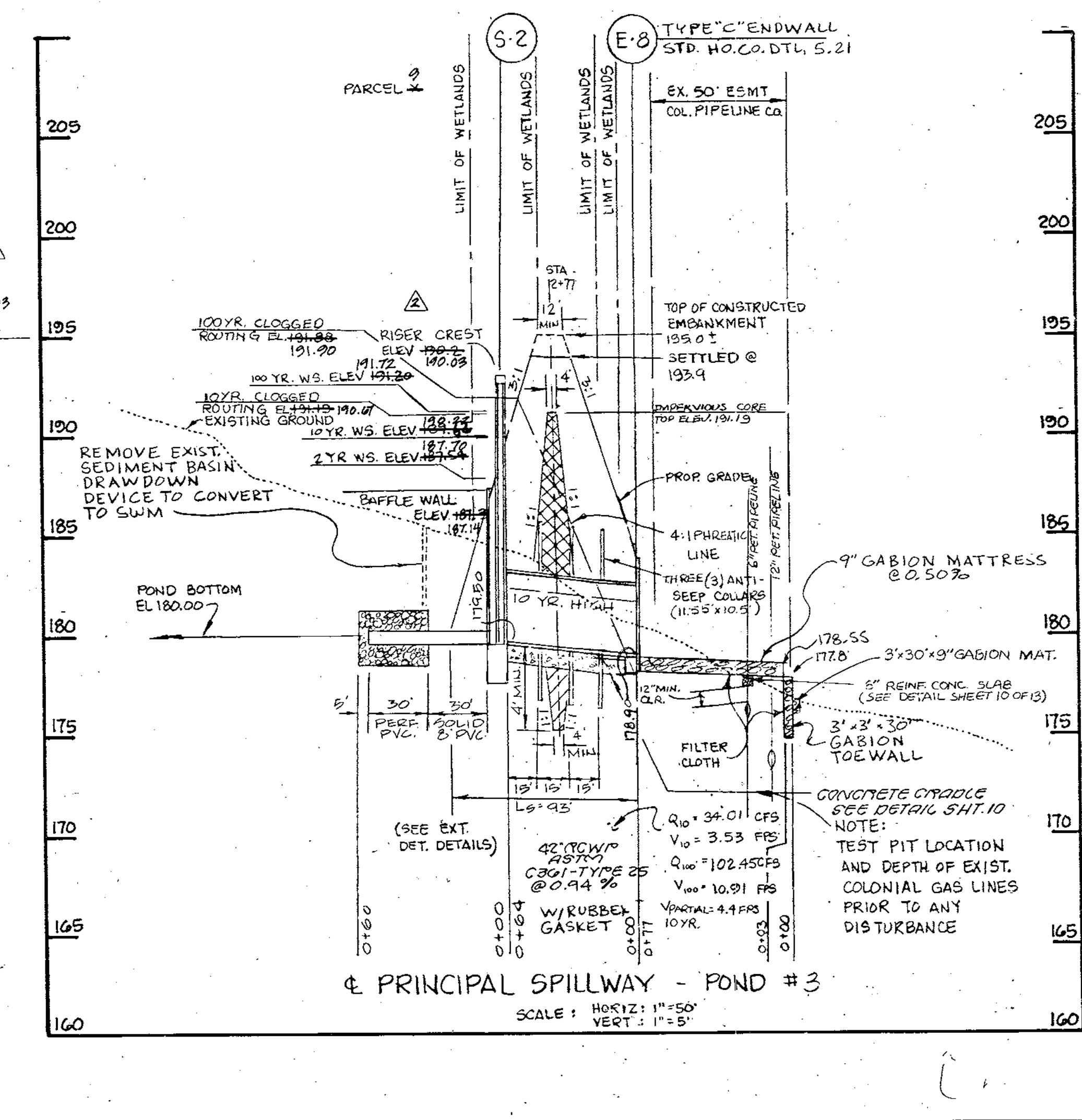
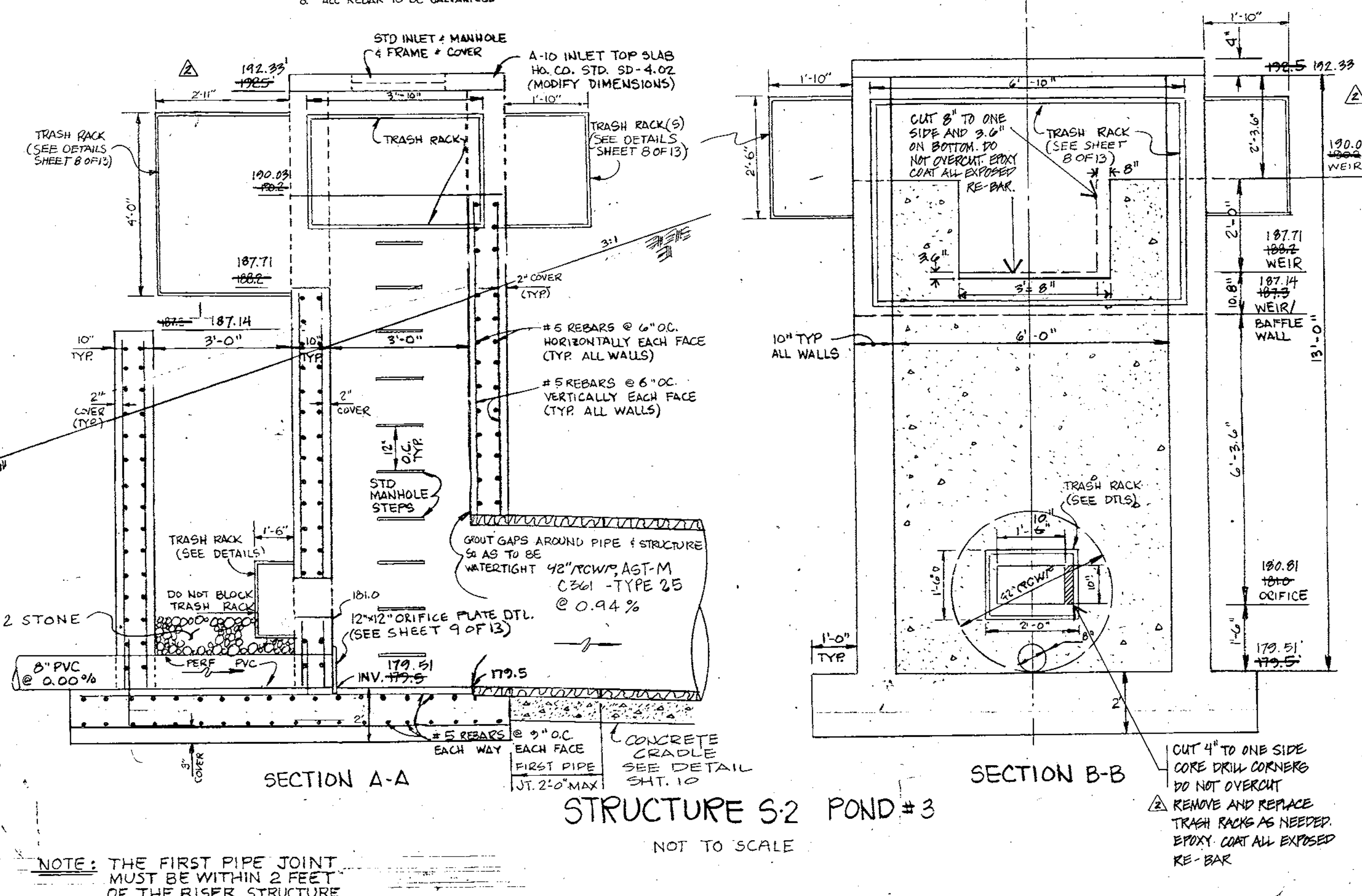
NOTE:
SOILS TO BE USED FOR CUT-OFF TRENCH AND IMPERVIOUS CORE SHALL CONFORM TO UNIFIED CLASSES CL, SC, CH, OR GC.



- NOTES
- 1. STRUCTURE SHALL BE CAST-IN PLACE REINFORCED CONCRETE WITH 3,500 PSI STRENGTH @ 28 DAYS.
- 2. ALL REINFORCING TO BE CONTINUOUS THROUGHOUT STRUCTURE.
- 3. ALL REINFORCING TO HAVE 1'-4" MIN. OVERLAPS.
- 4. PROVIDE ADDITIONAL #4 REBARS ALONG THE PERIMETER OF ALL OPENINGS IN THE STRUCTURE.
- 5. TWO (2) INCH COVER (MIN) FOR ALL REBAR IN WALLS AND THREE(3) INCHES FOR THE BASE.
- 6. REFER TO HOWARD COUNTY STANDARDS AND SPECIFICATIONS FOR STANDARD DETAILS AND SPECIFICATIONS OF ITEMS SHOWN ON DETAILS.
- 7. REFER TO MD. 375 SPECIFICATIONS FOR PIPE AND STONE AGGREGATE DETAILS.
- 8. ALL REBAR TO BE GALVANIZED.



NOTE:
SEE SHEET 10 FOR POND CONSTRUCTION SPECIFICATIONS



These plans for S.W.M. construction, soil erosion and sediment control meet the requirements of Howard Soil Conservation District.
Robert W. Ziehm
APPROVED: HOWARD SOIL CONSERVATION DISTRICT
DATE: **10/29/98**
PLAN NUMBER: **10/29/98**
Reviewed for the Howard Conservation District and meets technical requirements.
Keayl Simmons
NATURAL RESOURCES CONSERVATION SERVICE
DATE: **10/29/98**
APPROVED: Howard County Department of Planning and Zoning
Mike Wasserman
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: **4/26/98**
Cindy Horvath
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: **11/4/98**
David Smith
DIRECTOR
DATE: **11/6/98**

OWNER/APPLICANT
TROY HILL BUSINESS PARK PARTNERSHIP
C/O MANEKIN CORP.
7165 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046
(301) 290-1400
ATTN: COLE SCHNORF

ENGINEER
GEORGE WILLIAM STEPHENS JR. AND ASSOCIATES, INC.
658 KENILWORTH DRIVE
SUITE 100
TOWSON, MARYLAND 21204
(410) 825-8120

DESIGNED: KJ	BY: MRA	NO: 1	REVISION: REVISE ACCESS RAMP GRADES, MODIFY RISER, ELIMINATE LOW FLOW CHANNEL	DATE: 11/03/98
DRAWN: CDT	CHECKED: TC			

STORM WATER MANAGEMENT DETAILS

TROY HILL CORPORATE CENTER
PHASE IIA
TROY HILL DRIVE

HOWARD COUNTY, MD. ELECTION DISTRICT #1
SCALE: AS SHOWN DATE: 6-3-98

FILE NOS. S90-05, P90-25, F91-24

SCALE: AS SHOWN
SHEET NO. 12 OF 13

SDP 98-143

DEVELOPER CERTIFICATION:

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 Dept. of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a 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.

Developer: **MANEKIN CORPORATION** Date: **4/1/98**
 Name: **David E. Minkus**

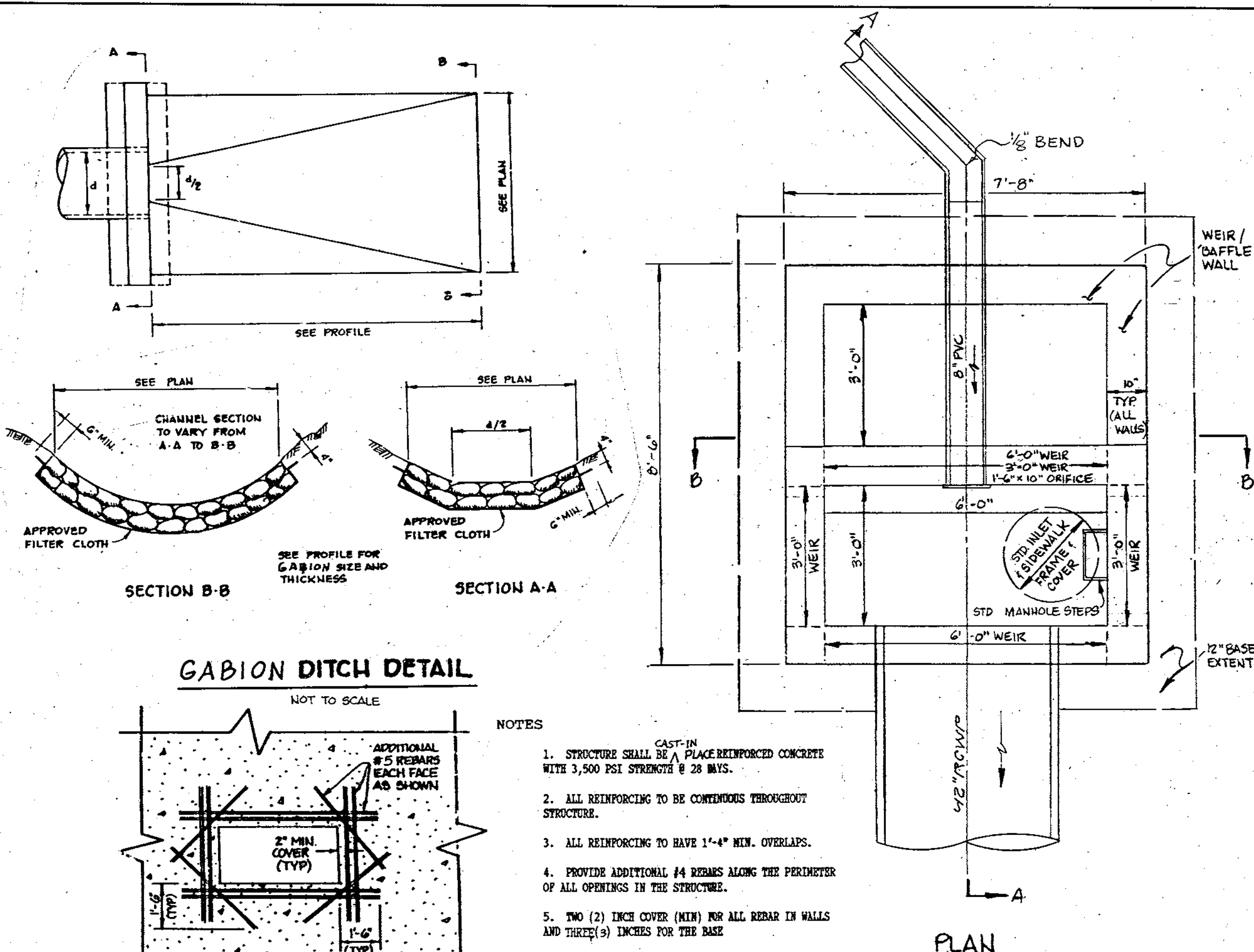
ENGINEER CERTIFICATION:

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.

Engineer: **George W. Stephens Jr.** P.E. # **11005**
 Name: **George W. Stephens Jr.** Date: **10/20/98**

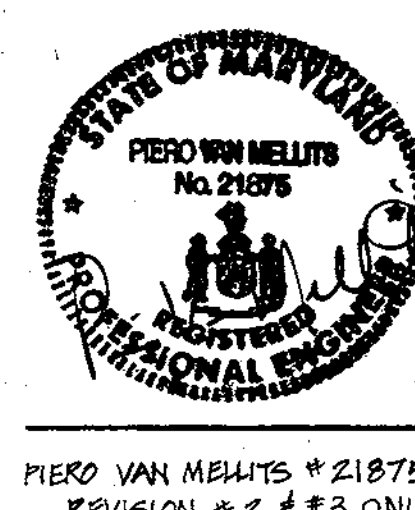
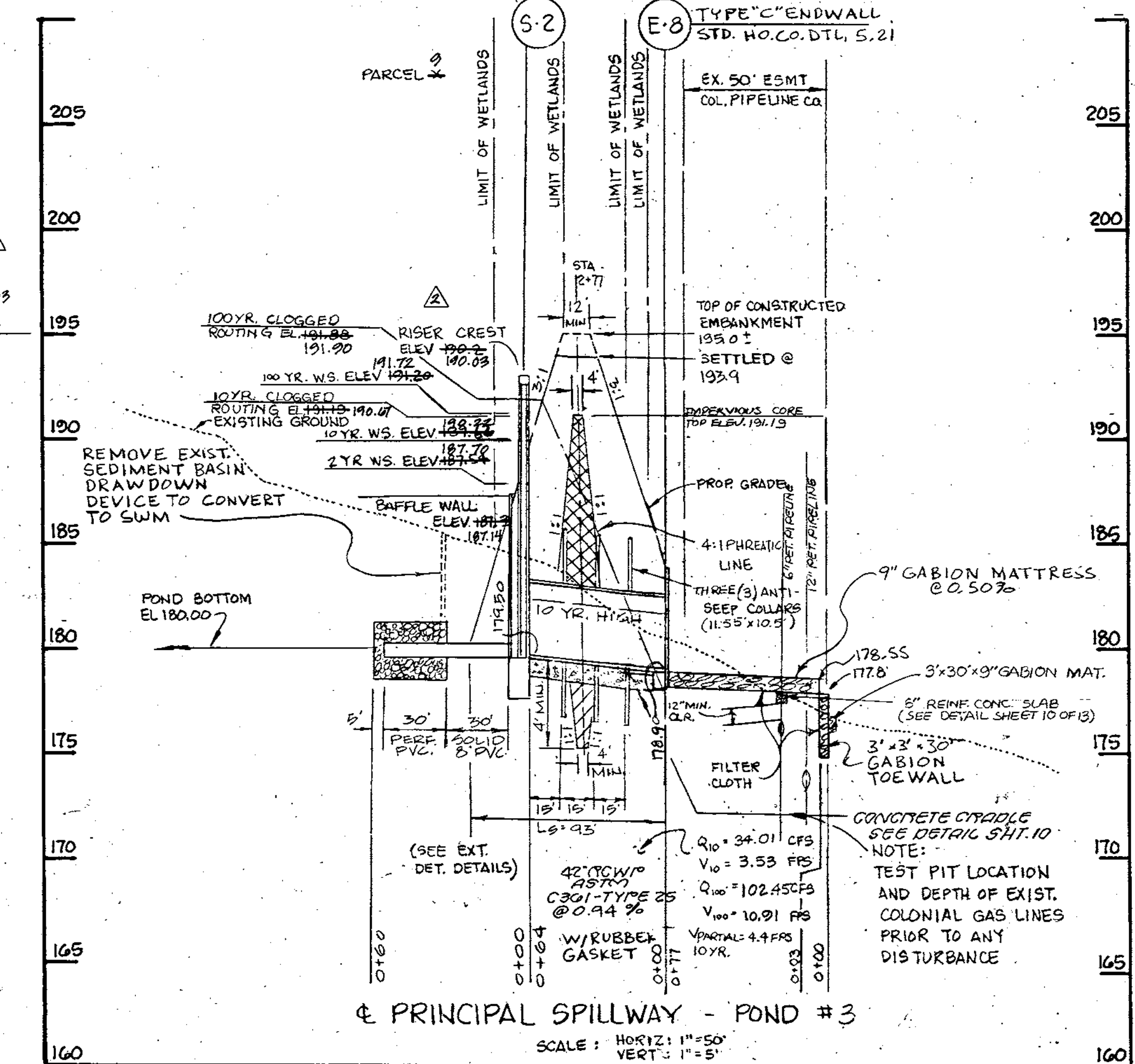
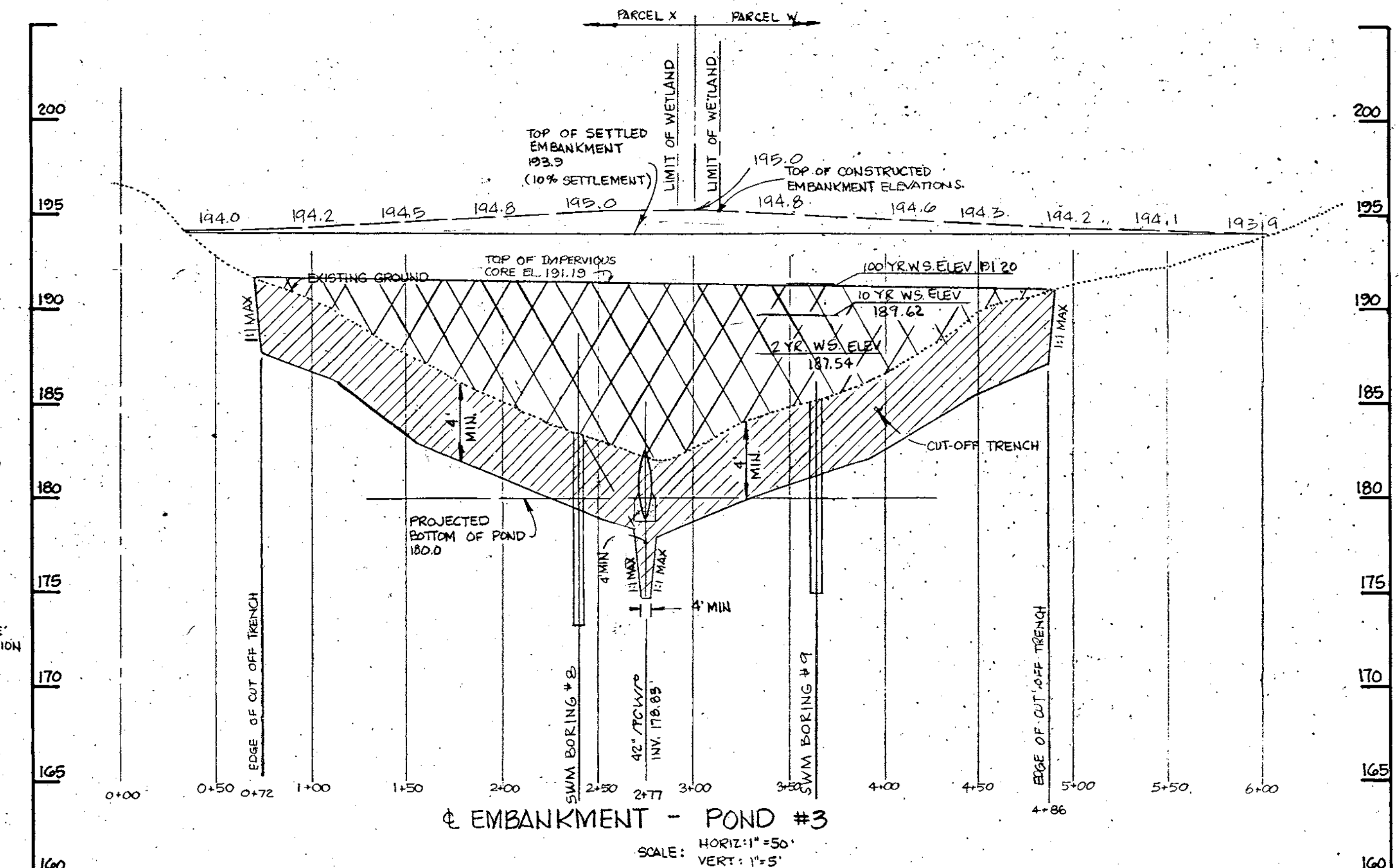
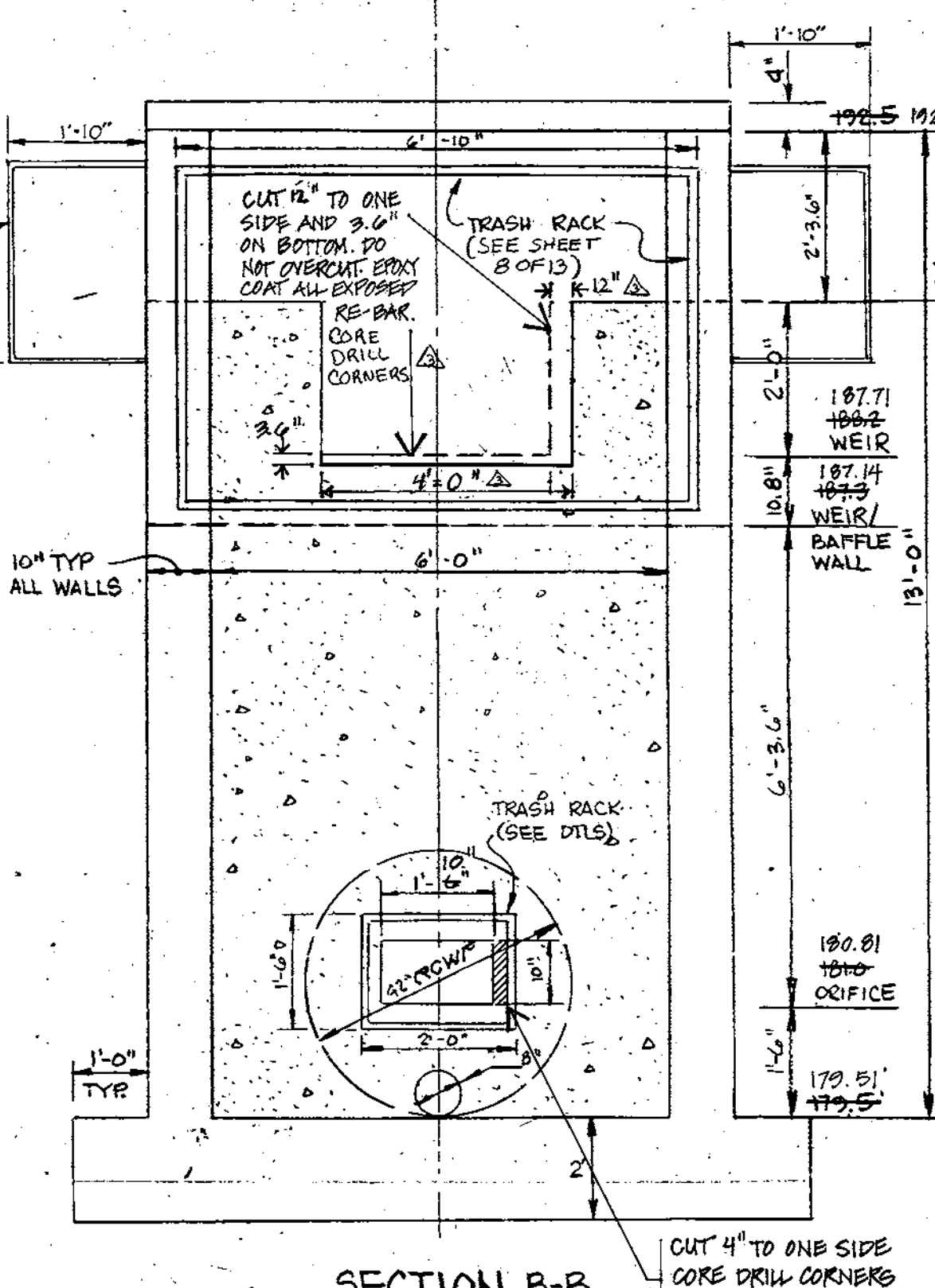
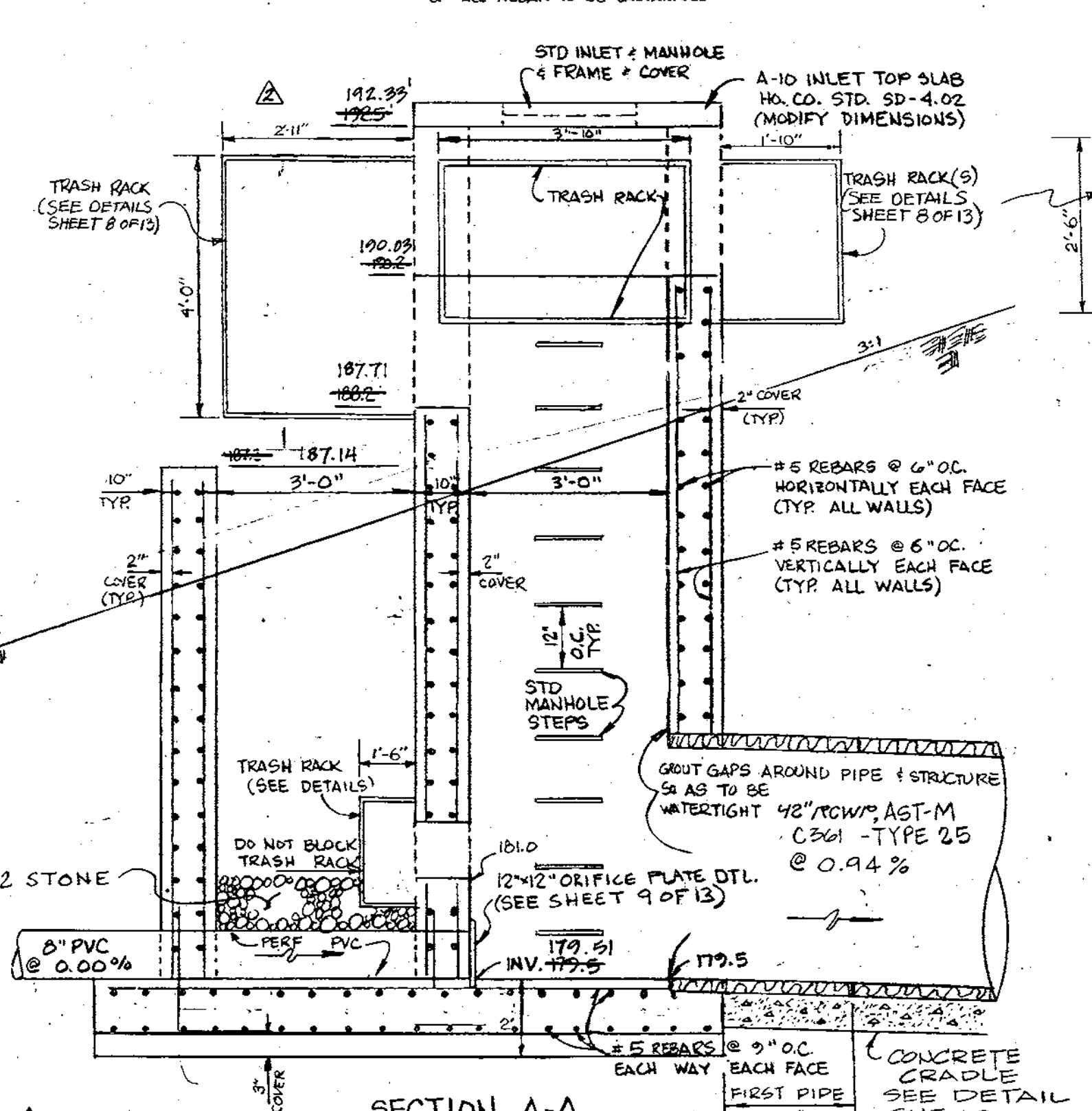
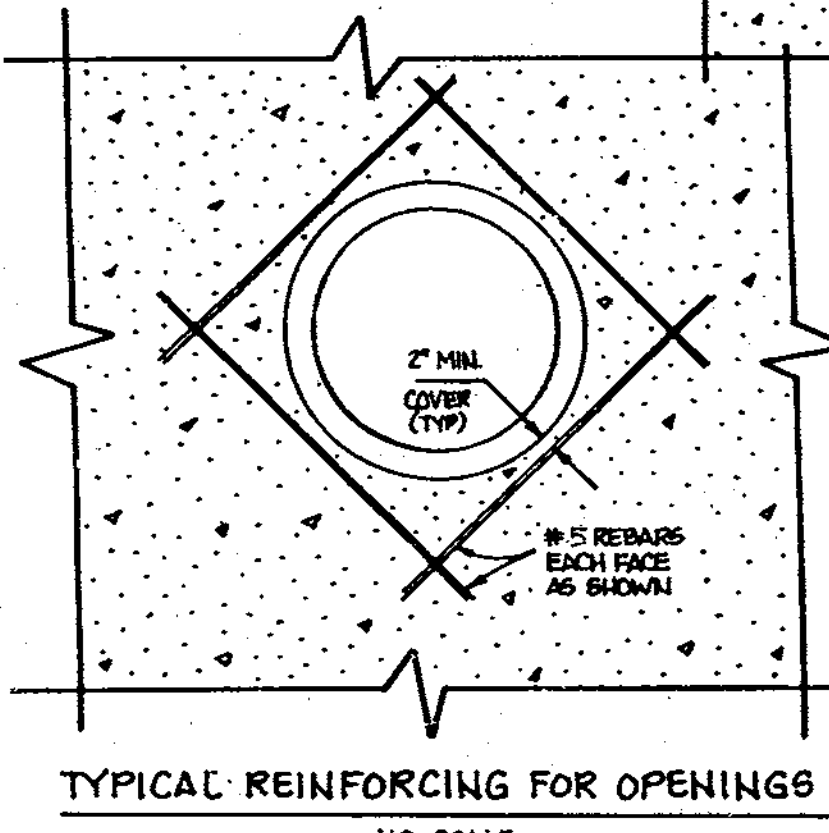
NOTE:
 IF UNSUITABLE (PERVIOUS) MATERIAL IS ENCOUNTERED AT TIME OF CUT-OFF TRENCH INSTALLATION DEEPER THAN 4', IT WILL BE NECESSARY TO EXTEND THE CUT-OFF TRENCH DOWN UNTIL SUITABLE MATERIAL IS ENCOUNTERED AS DETERMINED BY A GEOTECHNICAL ENGINEER. AT TIME OF CONSTRUCTION, EXISTING SOIL ADJACENT TO CUT-OFF TRENCH SHALL BE EVALUATED FOR SEEPAGE BY A GEOTECHNICAL ENGINEER, AND ADDRESSED PER RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER.

NOTE:
 SOILS TO BE USED FOR CUT-OFF TRENCH AND IMPERVIOUS CORE SHALL CONFORM TO UNIFIED CLASSES CL, SC, CH, OR GC.



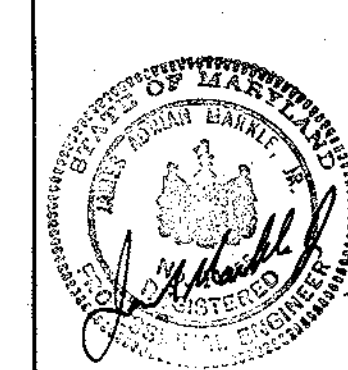
GABIION DITCH DETAIL
 NOT TO SCALE

- NOTES**
- STRUCTURE SHALL BE CAST-IN PLACE REINFORCED CONCRETE WITH 3,500 PSI STRENGTH # 28 BARS.
 - ALL REINFORCING TO BE CONTINUOUS THROUGHOUT STRUCTURE.
 - ALL REINFORCING TO HAVE 1'-4" MIN. OVERLAPS.
 - PROVIDE ADDITIONAL #4 REBARS ALONG THE PERIMETER OF ALL OPENINGS IN THE STRUCTURE.
 - TWO (2) INCH COVER (MIN) FOR ALL REBAR IN WALLS AND THREE (3) INCHES FOR THE BASE.
 - REFER TO HOWARD COUNTY STANDARDS AND SPECIFICATIONS FOR STANDARD DETAILS AND SPECIFICATIONS OF ITEMS SHOWN ON DETAILS.
 - REFER TO MD. 378 SPECIFICATIONS FOR PIPE AND STONE AGGREGATE DETAILS.
 - ALL REBAR TO BE GALVANIZED.



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 SUITE 100
 TOWSON, MARYLAND 21204
 (410) 825-8120



DESIGNED: KJ
 DRAWN: CDT
 CHECKED: TC

NO	REVISION	DATE
1	REVISE ACCESS RAMP GRAPES, MODIFY RISER, ELIMINATE LOW FLOW CHANNEL	11/09/98
2	Revise Riser Opening	11/20/98

STORM WATER MANAGEMENT DETAILS

TROY HILL CORPORATE CENTER
PHASE IIA
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HOWARD COUNTY, MD. ELECTION DISTRICT #1
 SCALE: AS SHOWN DATE: 6-3-98
 FILE NOS. S90-05, P90-25, F91-24

SCALE: AS SHOWN
 SHEET NO. 12 OF 13

These plans for S.W.M. construction, soil erosion and sediment control meet the requirements of Howard Soil Conservation District.

Robert W. Ziehm
 APPROVED: HOWARD SOIL CONSERVATION DISTRICT
 PLAN NUMBER: **10/29/98**
 DATE: **10/29/98**

Reviewed for the Howard Conservation District and meets technical requirements.

Clayton Simmons
 APPROVED: NATURAL RESOURCES CONSERVATION SERVICE
 DATE: **10/29/98**

APPROVED: Howard County Department of Planning and Zoning

Mike Wasserman 11/2/98
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: **11/4/98**

Andy Horvath
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: **11/6/98**

David Butler
 DIRECTOR