

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEM
HOWARD COUNTY HEALTH DEPARTMENT

COUNTY HEALTH OFFICER: *Joyce Byrd* DATE: 2-27-85
APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING
PLANNING DIRECTOR: *Thomas Hamer* DATE: 3-7-85
CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION:

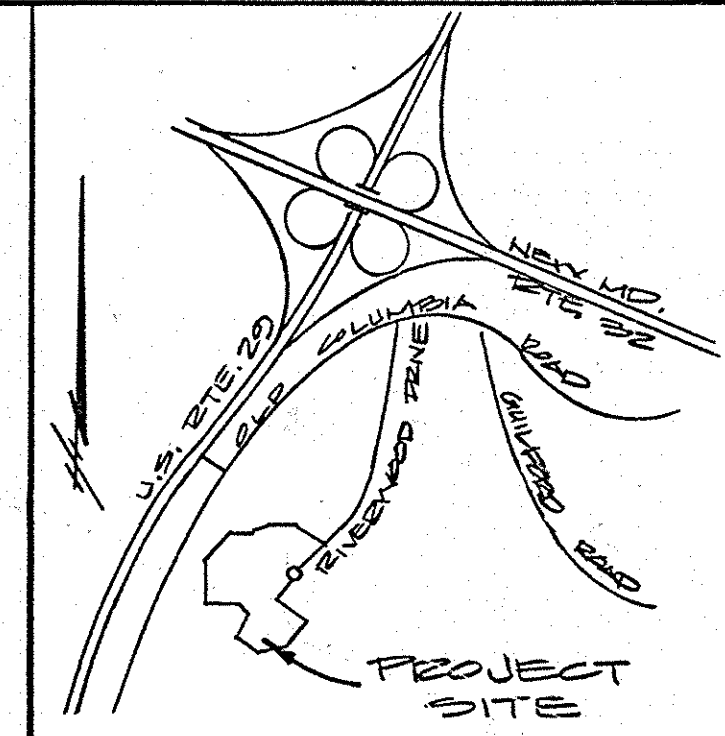
John M. Murchison DATE: 3-7-85
APPROVED: FOR PUBLIC WATER, PUBLIC SEWERAGE, STORM DRAINAGE SYSTEMS, AND ROADS.
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
DIRECTOR: *Mark R. Krumm* DATE: 1-26-85
CHIEF, BUREAU OF ENGINEERING: *William R. Kelly* DATE: 2-12-85

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for small pond construction, soil erosion and sediment control.
John M. Murchison DATE: 2/22/85
U.S. Soil Conservation Service

These plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.
APPROVED: *Robert W. Ziem* DATE: 2/22/85
Howard Soil Conservation District

APPROVED
PLANNING BOARD
OF HOWARD COUNTY
DATE: 2-6-85
MA HUNN

RIVERS CORP PARK
SECT. 1 AREA 2
OPEN SPACE LOT#1

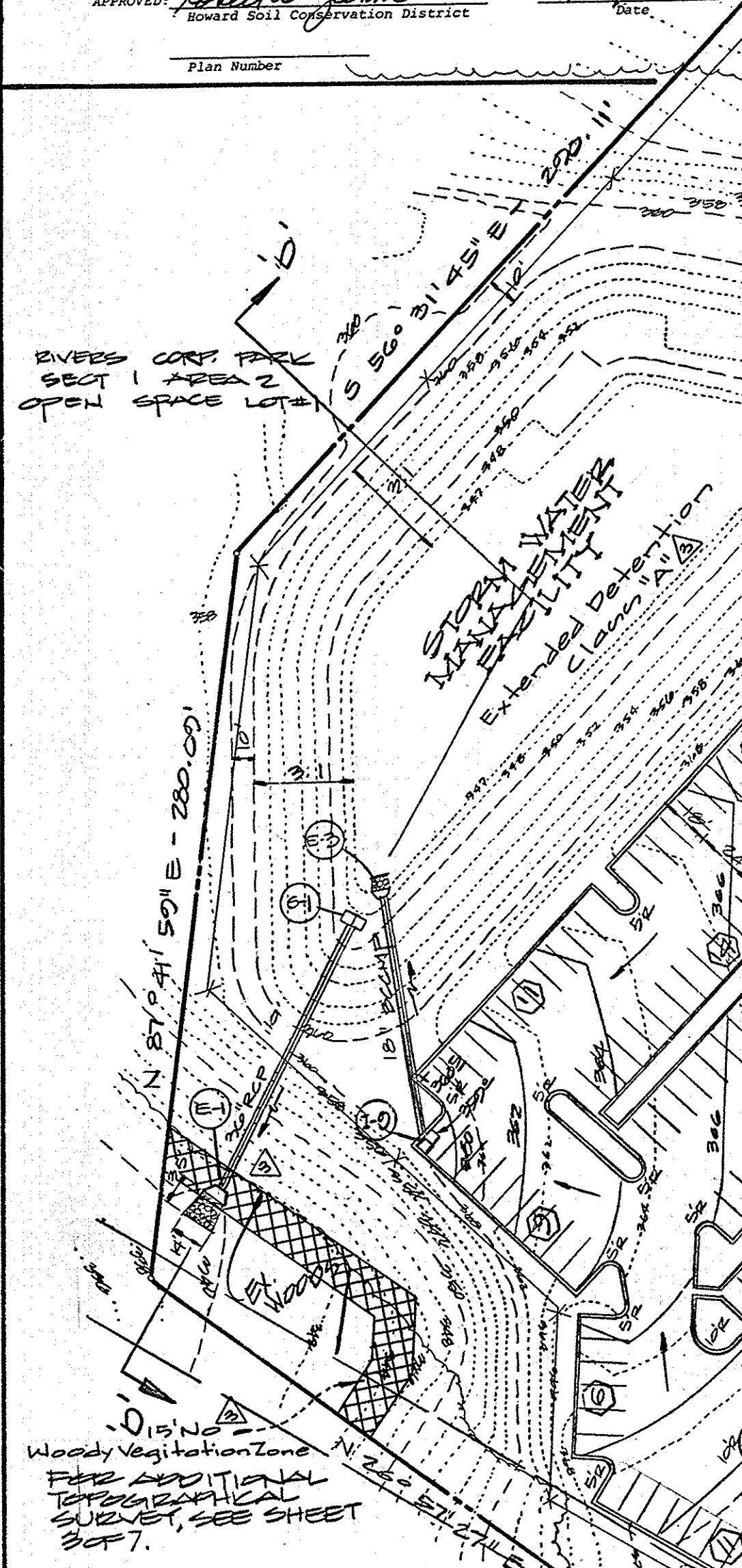
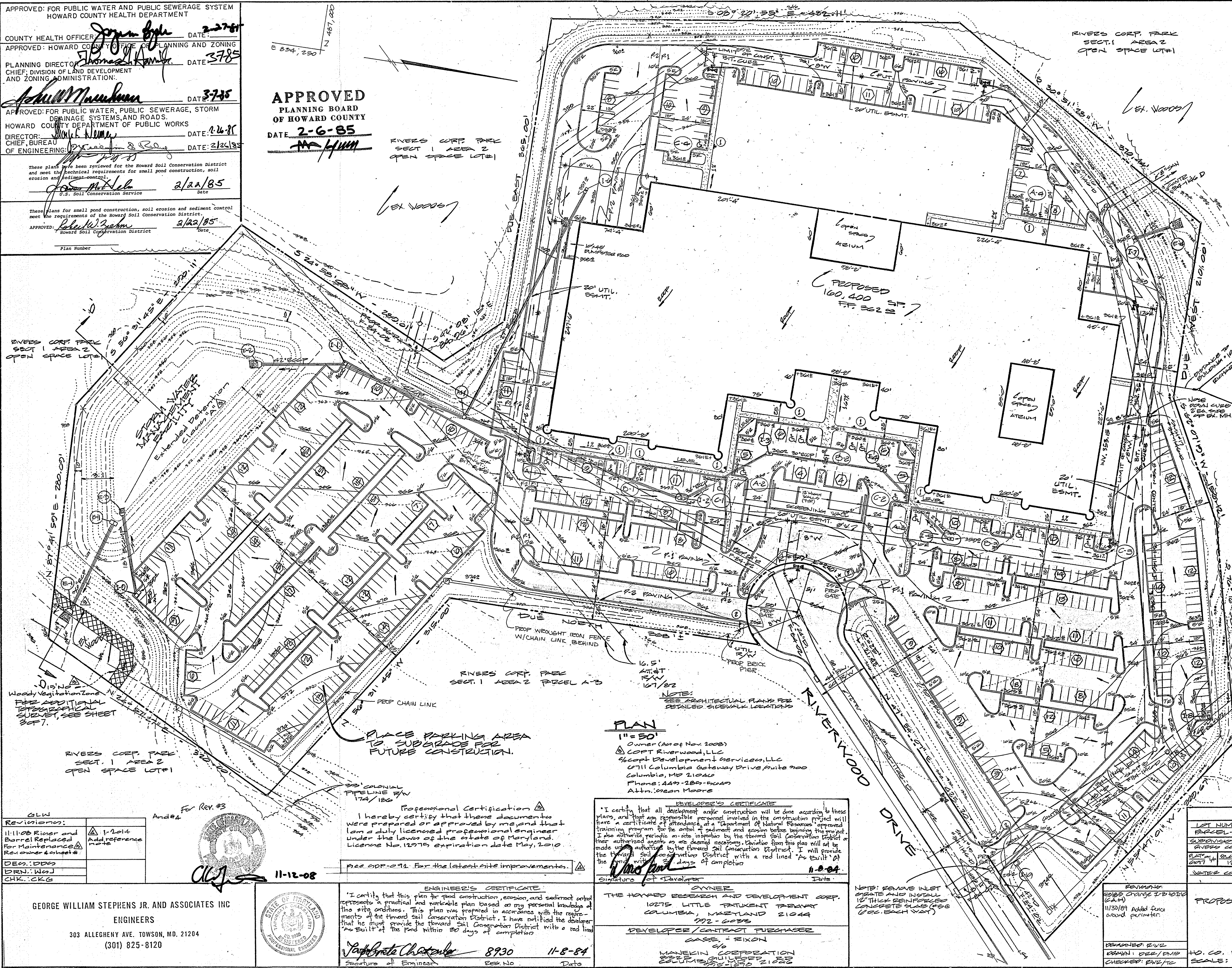


SITE DATA
AREA OF SITE: 22,924 SQ. FT.
TOTAL FLOOR AREA:
PROPOSED: 100,400 SF (ONE STORY)

EXISTING USE: VACANT
PROPOSED USE: 110,400 SF - OFFICE
50,000 SF - MANUFACTURING & WAREHOUSE (INDUSTRIAL) EMPLOYEES - 107 (ONE SHIFT ONLY) - TELECOMMUNICATIONS & COMPUTER PARKING REQUIRED:
OFFICE: 110,400 SF @ 2/1000 = 221 PS.
WAREHOUSE: 50,000 SF @ 1/1000 = 100 PS.
(MAXIMUM WAREHOUSE EMPLOYEES = 107, ONE SHIFT PARKING REQUIRED = 1 PS/2 EMPLOYEES PROVIDED = 100 PS. = 24 PS.)
PARKING PROVIDED: 321 TOTAL PS. REQ'D @ 0.16 PS/100 SF. 761 STD. 6'0" x 12' 1/2" OVERHANGS 16 HOLES @ 12' x 12' 1/2" OVERHANGS 777 - TOTAL PS.
BUILDING COVERAGE RATIO: 100,400 SF / 22,924 SF = 10.13%
PROPERTY REFERENCE: PLAT ENTITLED: RIVERS CORPORATE PARK SECT. 1, AREA 2, PAR. A-1 PLAT # 0017

EXISTING ZONING: NT INDUSTRIAL, POP-184-A-1
OPEN SPACE: 7,423 AC @ 20,234 SF = 26.6%

- LEGEND**
- INDICATES EX. GRASS
 - INDICATES EX. DRIVE
 - INDICATES EX. OR PAV. STORM DRAIN
 - INDICATES PRIVATE STORM DRAIN
 - INDICATES EX. OR PUBLIC WATER
 - INDICATES EX. OR PUBLIC SEWER
 - INDICATES PRIVATE SEWER
 - INDICATES PARKING SPACE PER HOUR
 - INDICATES HANDICAP RAMP - PERMANENT (SEE SHEET 307-G)
 - INDICATES CHAIN LINK FENCE (SEE SHEET 307-G)
 - INDICATES CHAIN LINK ONLY
 - INDICATES WROUGHT IRON FENCE W/CHAIN LINK BEHIND
 - INDICATES BRICK PIER (8' HIGH)



Revisions:

11-11-08 River and Barrel Replaced For Maintenance	Add reference note
Revised owner sheet #	
DES: DDD	
DRN: WDJ	
CHK: CKG	

Professional Certification
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the state of Maryland. License No. 12975 expiration date May, 2010.
For the latest site improvements.

ENGINEER'S CERTIFICATE
I certify that this plan for pond construction, erosion, and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he must provide the Howard Soil Conservation District with a red lined "As-Built" of the pond within 30 days of completion.

PLAN
1"=50'
Owner (As of Nov. 2008)
COPT Riverwood, LLC
3600pt Development Services, LLC
6711 Columbia Gateway Drive, Suite 900
Columbia, MD 21040
Phone: 443-285-5640
Attn: Jason Moore

DEVELOPER'S CERTIFICATE
I certify that all development and construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a certificate of attendance at a Department of Natural Resources approved training program for the control of sediment and erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District or their authorized agents as deemed necessary. Deviation from this plan will not be made without approval by the Howard Soil Conservation District. I will provide the Howard Soil Conservation District with a red lined "As-Built" of the pond within 30 days of completion.

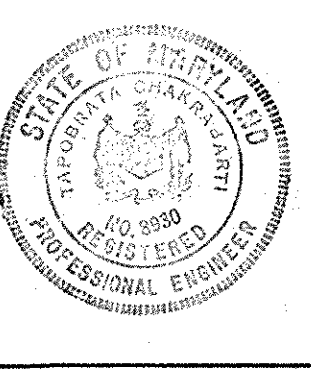
OWNER
THE HOWARD RESEARCH AND DEVELOPMENT CORP.
10215 LITTLE PATUKENT DRIVE
COLUMBIA, MARYLAND 21044
972-6035
DEVELOPER/CONTRACT PURCHASER
CASE - RIXON
MANEJIN CORPORATION
COLUMBIA, MD 21040

ADDRESS CHART

LOT NUMBER	STREET ADDRESS
PARCEL A-1	7200 RIVERWOOD DRIVE
PARCEL A-2	7200 RIVERWOOD DRIVE
PARCEL A-3	7200 RIVERWOOD DRIVE
PARCEL A-4	7200 RIVERWOOD DRIVE
PARCEL A-5	7200 RIVERWOOD DRIVE
PARCEL A-6	7200 RIVERWOOD DRIVE
PARCEL A-7	7200 RIVERWOOD DRIVE
PARCEL A-8	7200 RIVERWOOD DRIVE
PARCEL A-9	7200 RIVERWOOD DRIVE
PARCEL A-10	7200 RIVERWOOD DRIVE
PARCEL A-11	7200 RIVERWOOD DRIVE
PARCEL A-12	7200 RIVERWOOD DRIVE
PARCEL A-13	7200 RIVERWOOD DRIVE
PARCEL A-14	7200 RIVERWOOD DRIVE
PARCEL A-15	7200 RIVERWOOD DRIVE
PARCEL A-16	7200 RIVERWOOD DRIVE
PARCEL A-17	7200 RIVERWOOD DRIVE
PARCEL A-18	7200 RIVERWOOD DRIVE
PARCEL A-19	7200 RIVERWOOD DRIVE
PARCEL A-20	7200 RIVERWOOD DRIVE
PARCEL A-21	7200 RIVERWOOD DRIVE
PARCEL A-22	7200 RIVERWOOD DRIVE
PARCEL A-23	7200 RIVERWOOD DRIVE
PARCEL A-24	7200 RIVERWOOD DRIVE
PARCEL A-25	7200 RIVERWOOD DRIVE
PARCEL A-26	7200 RIVERWOOD DRIVE
PARCEL A-27	7200 RIVERWOOD DRIVE
PARCEL A-28	7200 RIVERWOOD DRIVE
PARCEL A-29	7200 RIVERWOOD DRIVE
PARCEL A-30	7200 RIVERWOOD DRIVE
PARCEL A-31	7200 RIVERWOOD DRIVE
PARCEL A-32	7200 RIVERWOOD DRIVE
PARCEL A-33	7200 RIVERWOOD DRIVE
PARCEL A-34	7200 RIVERWOOD DRIVE
PARCEL A-35	7200 RIVERWOOD DRIVE
PARCEL A-36	7200 RIVERWOOD DRIVE
PARCEL A-37	7200 RIVERWOOD DRIVE
PARCEL A-38	7200 RIVERWOOD DRIVE
PARCEL A-39	7200 RIVERWOOD DRIVE
PARCEL A-40	7200 RIVERWOOD DRIVE
PARCEL A-41	7200 RIVERWOOD DRIVE
PARCEL A-42	7200 RIVERWOOD DRIVE
PARCEL A-43	7200 RIVERWOOD DRIVE
PARCEL A-44	7200 RIVERWOOD DRIVE
PARCEL A-45	7200 RIVERWOOD DRIVE
PARCEL A-46	7200 RIVERWOOD DRIVE
PARCEL A-47	7200 RIVERWOOD DRIVE
PARCEL A-48	7200 RIVERWOOD DRIVE
PARCEL A-49	7200 RIVERWOOD DRIVE
PARCEL A-50	7200 RIVERWOOD DRIVE

SITE PLAN
PROPOSED OFFICE FOR RESEARCH & DEVELOPMENT
RIVERS CORPORATE PARK
SECT. 1 AREA 2 PARCEL A-1
COLUMBIA
TAX MAP#41

GEORGE WILLIAM STEPHENS JR. AND ASSOCIATES INC
ENGINEERS
303 ALLEGHENY AVE. TOWSON, MD. 21204
(301) 825-8120



ENGINEER'S CERTIFICATE
I certify that this plan for pond construction, erosion, and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he must provide the Howard Soil Conservation District with a red lined "As-Built" of the pond within 30 days of completion.

STRUCTURE SCHEDULE

NO.	TYPE	INV. IN	INV. OUT	TOP ELEV.	REMARKS
1-1	24" Ø CONCRETE	348.50	348.10	348.00**	HO. CO. STD. 50'-4.24
1-2	24" Ø CONCRETE	352.35	351.85	352.00**	HO. CO. STD. 50'-4.10
1-3	24" Ø CONCRETE	353.70	353.20	354.00**	HO. CO. STD. 50'-4.10
1-4	24" Ø CONCRETE	355.00	354.50	356.00**	HO. CO. STD. 50'-4.20
1-5	24" Ø CONCRETE	355.00	355.00	355.00**	HO. CO. STD. 50'-4.20
1-6	24" Ø CONCRETE	355.00	355.00	355.00**	HO. CO. STD. 50'-4.20
1-7	24" Ø CONCRETE	347.00	347.00	350.00**	HO. CO. STD. 50'-4.24
1-8	24" Ø CONCRETE	346.50	346.50	350.00**	HO. CO. STD. 50'-4.24
1-9	24" Ø CONCRETE	355.00	355.00	355.00**	HO. CO. STD. 50'-4.24
E-1	METAL END SEC.	340.00	-	-	HO. CO. STD. 50'-5.61
E-2	TYPE 'A' HEAVY	347.00	346.00	-	HO. CO. STD. 50'-5.11
E-3	TYPE 'A' HEAVY	347.00	346.00	-	HO. CO. STD. 50'-5.11
E-4	TYPE 'A' HEAVY	350.00	350.00	-	HO. CO. STD. 50'-5.11
M-1	STD. MH.	340.00	340.00	340.00	HO. CO. STD. G-5.03

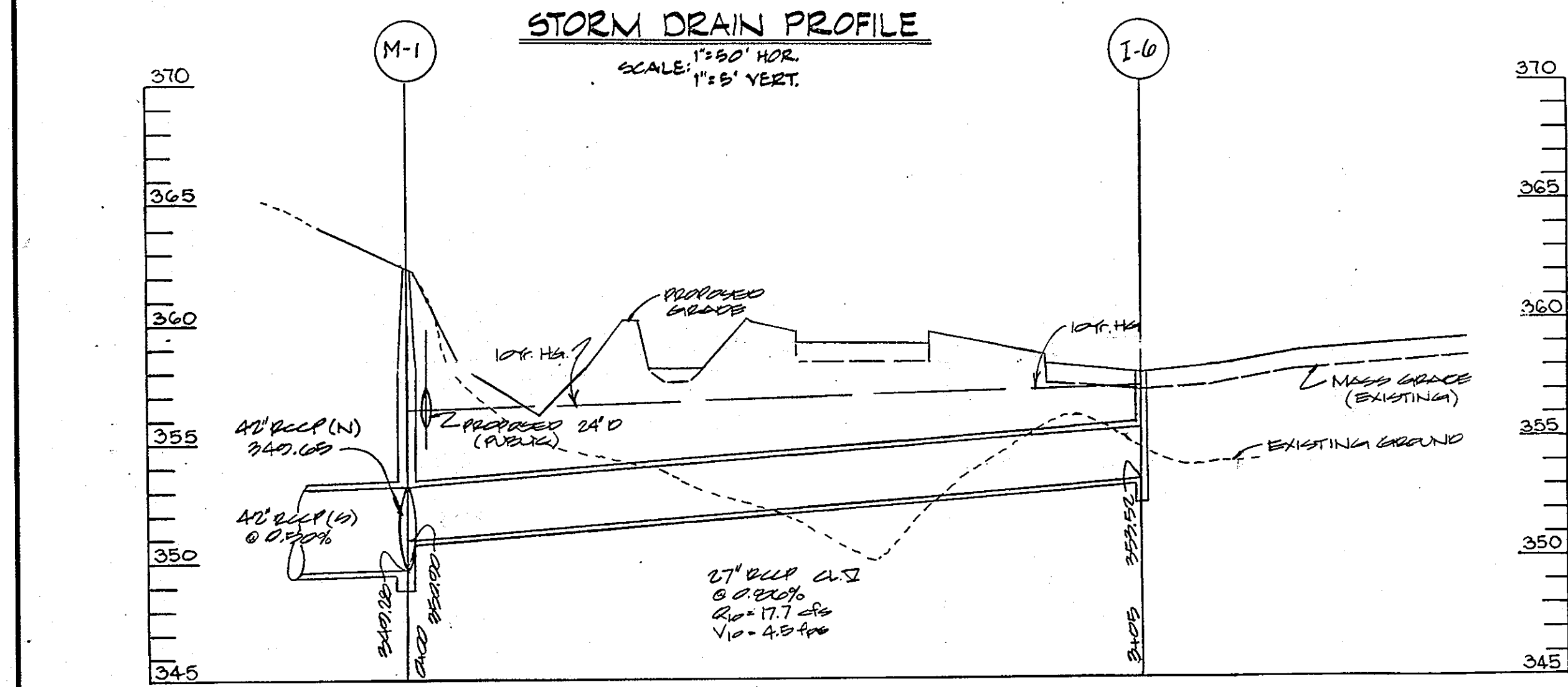
STORMWATER MANAGEMENT MAINTENANCE SCHEDULE

Maintenance Item	1	2	3	4	5	6
Maintenance Frequency	8	7	8	8	7	8
Repair Duration *	9	10	9	9	10	9

- Clean Out Silt
- Clean Out Trash
- Check Weir Clogging
- Check Slope Stabilization
- Cut Grass
- Check Structural Integrity
- Every Two Weeks
- Every Three Months
- One Week Maximum
- Two Days

* All Maintenance, Inspection & Repair Shall Be The Responsibility Of The Owner
 * Inspect All Above Items After Each Major Rainfall & Repair If Required.

** USE STANDARD DETAIL FOR 18" PIPE
 *** TOP OF GROUND ELEVATION.



APPROVED FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEM
 HOWARD COUNTY HEALTH DEPARTMENT

COUNTY HEALTH OFFICER: *[Signature]* DATE: 3-3-85

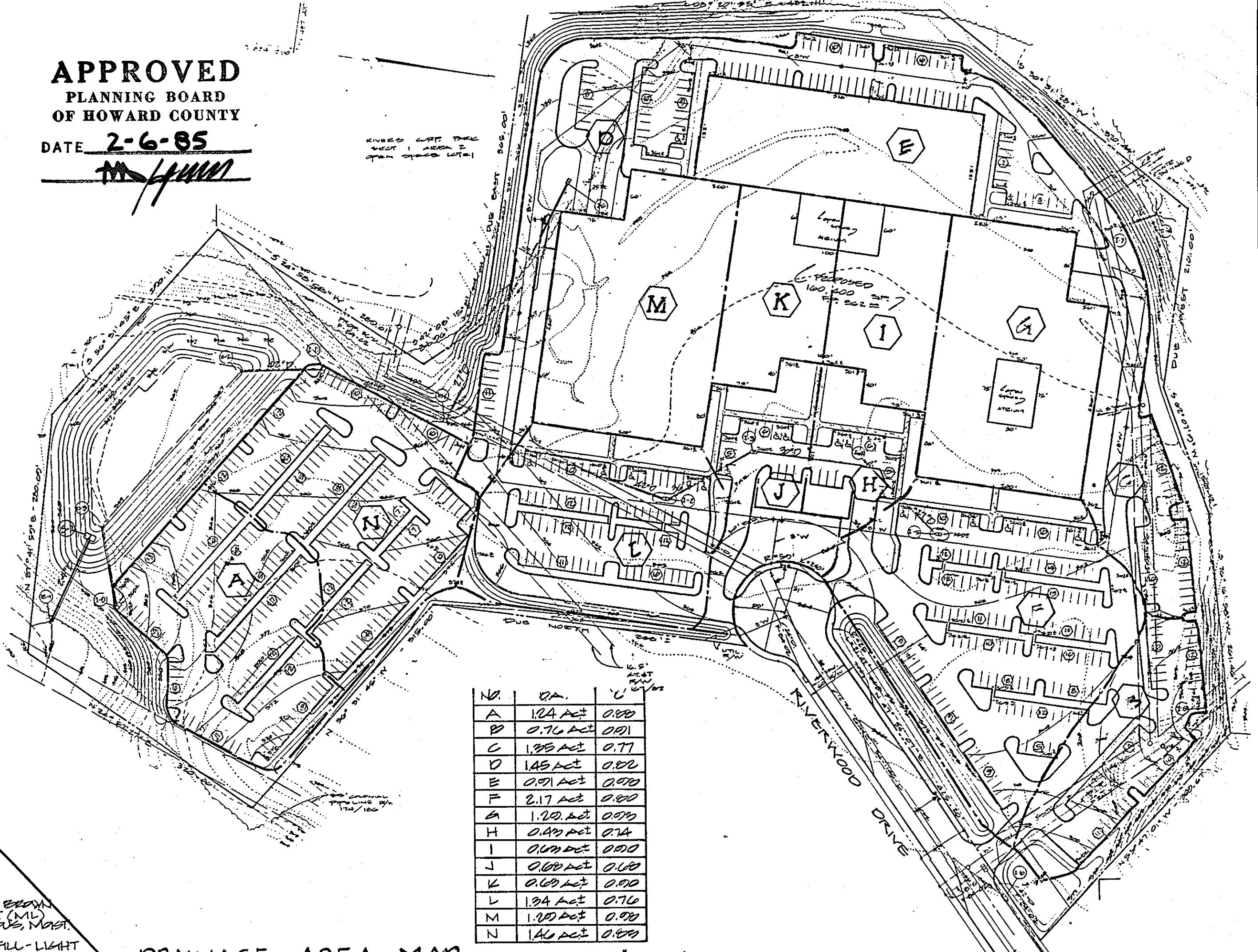
APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING
 PLANNING DIRECTOR: *[Signature]* DATE: 3-7-85

CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION:
[Signature] DATE: 3-7-85

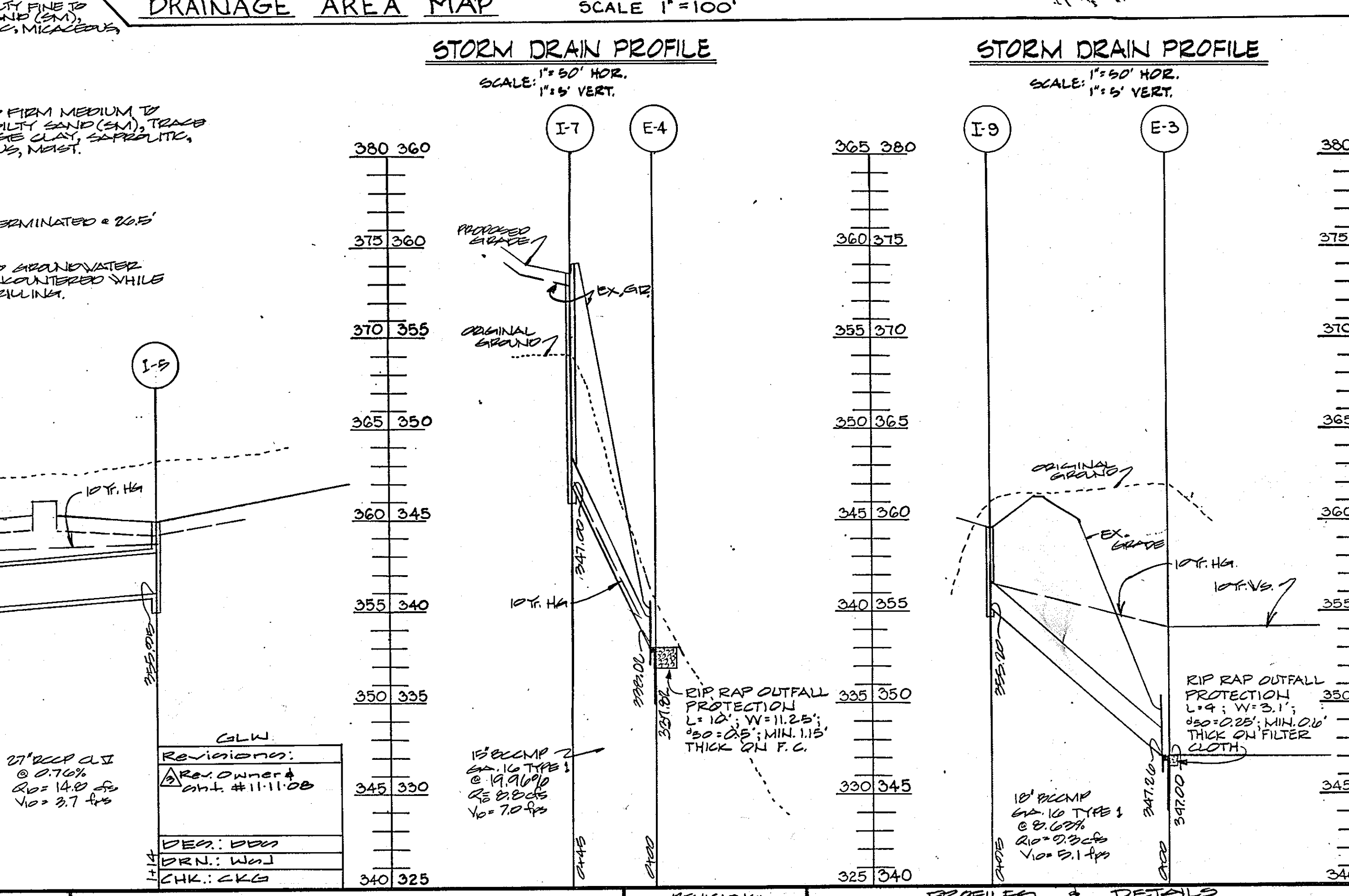
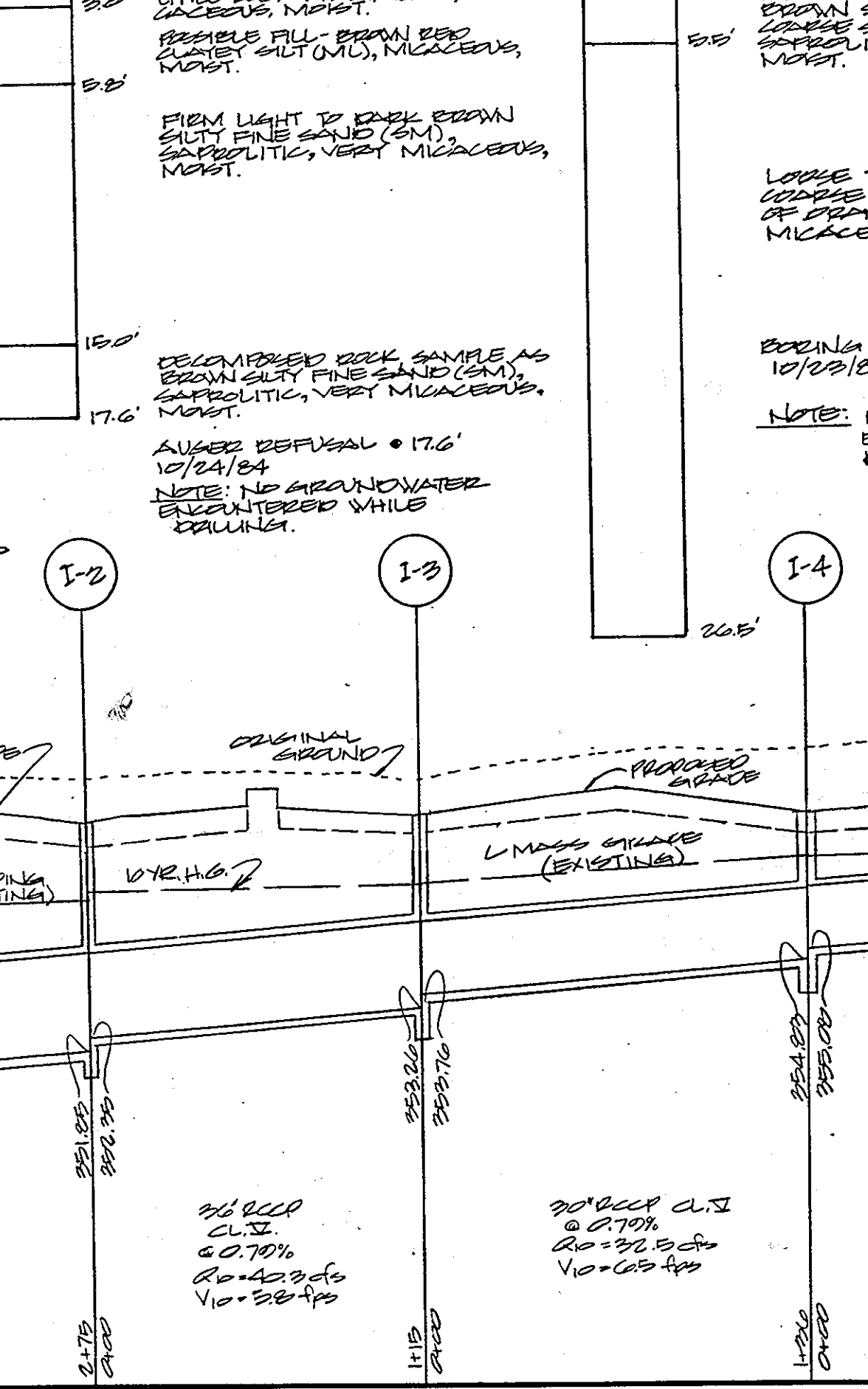
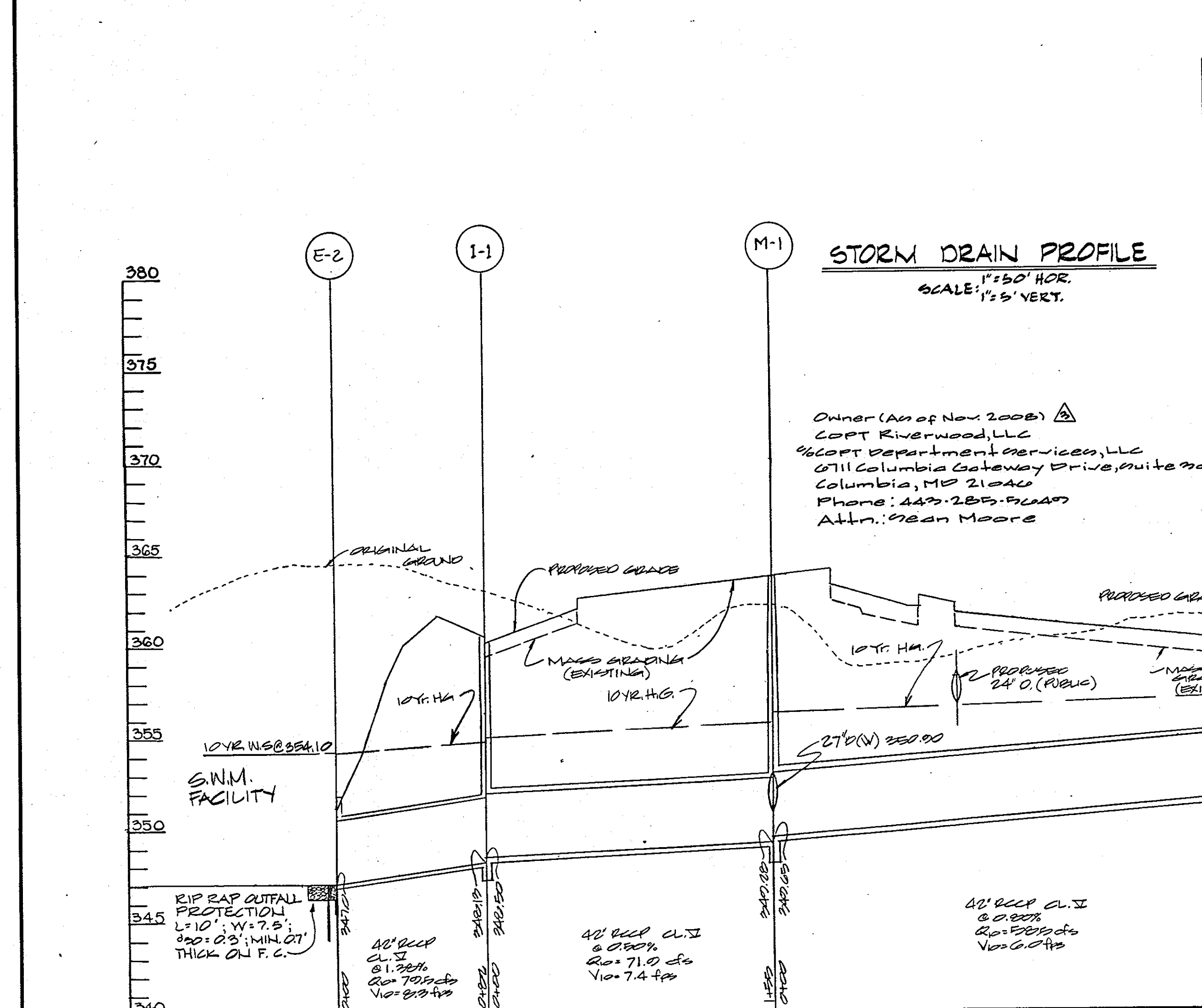
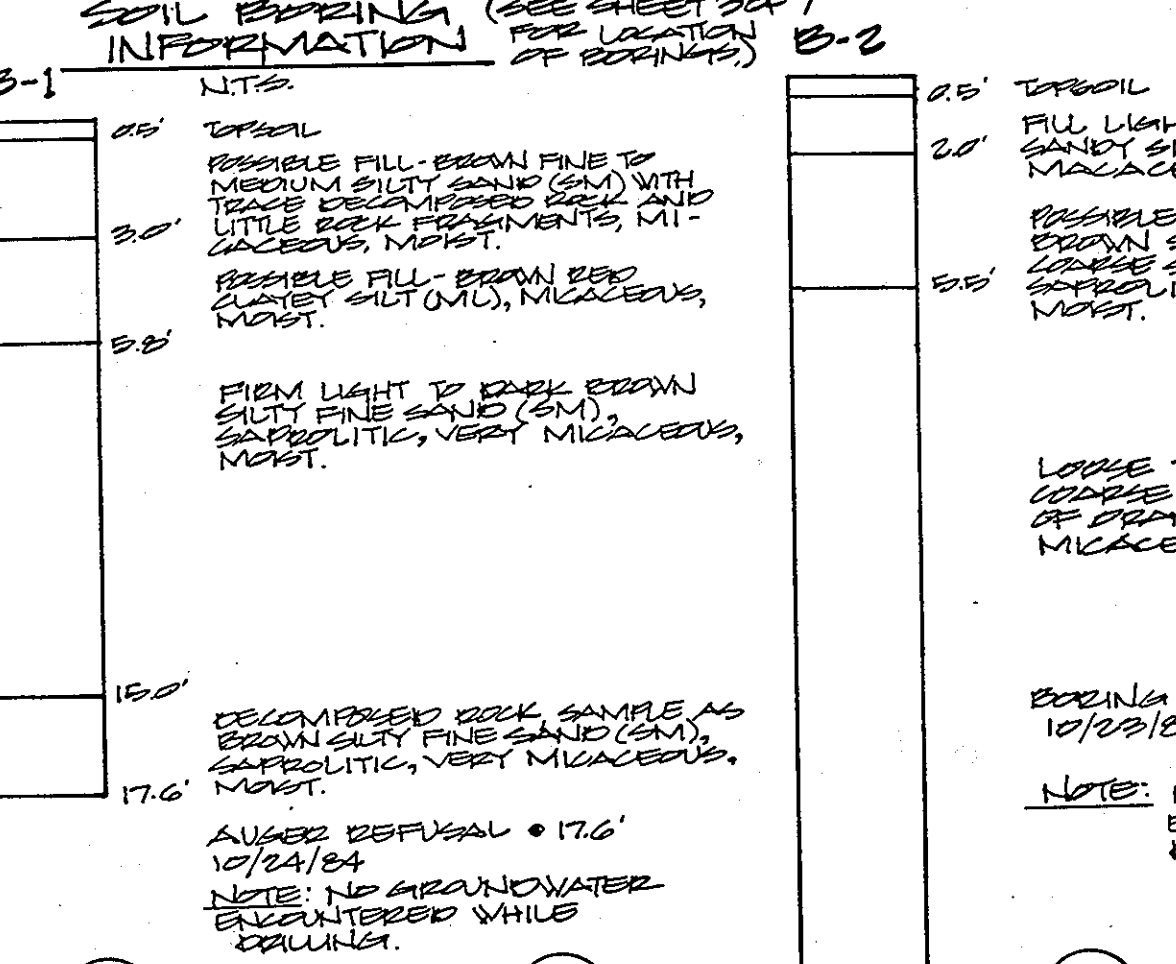
APPROVED FOR PUBLIC WATER, PUBLIC SEWERAGE, STORM DRAINAGE SYSTEMS, AND ROADS.
 HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 DIRECTOR: *[Signature]* DATE: 2-6-85

CHIEF, BUREAU OF ENGINEERING: *[Signature]* DATE: 2-6-85

HOWARD SOIL CONSERVATION DISTRICT
 THIS DEVELOPMENT IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 DISTRICT: *[Signature]* DATE: 2/2/85
 APPROVED: HOWARD SOIL CONSERVATION DISTRICT
 REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS
 SIGNATURE: *[Signature]* DATE: 2/2/85
 THE UNITED STATES SOIL CONSERVATION SERVICE



- #### GENERAL NOTES
- Maximum building height = 50'.
 - All areas not being paved or receiving building coverage shall be stabilized in accordance with the plans approved by the Howard Soil Conservation District.
 - Any damage to public rights-of-way and/or adjacent properties shall be repaired immediately at the contractor's expense.
 - The contractor shall maintain at least a 2' level bench behind all curb and gutter in fill areas.
 - The contractor shall verify all existing utilities to his own satisfaction before starting construction.
 - All slopes shall be 2:1 or flatter.
 - All work shall be done in accordance with Howard County Standard Specifications and details for construction, or as shown on these plans.
 - The contractor shall notify the C & P Telephone Co. and the Gas and Electric Company five days prior to starting work shown on these plans by calling "Miss Utility", call collect 1-555-0100.
 - For details of ramps and signs for the handicapped see the Maryland Building Code for the Handicapped and sign and as shown herein.
 - The contractor shall maintain a minimum of 3.5' cover over all proposed water lines.
 - All rip-rap shall be placed on filter cloth.
 - The contractor or developer shall contact the Construction Inspection/Survey Division, 24 hours in advance of commencement of work at 982-2417 or 797-7772.
 - The contractor shall remove all existing paving, curb and gutter, etc. that may interfere with proposed construction.
 - All utilities installed shall receive full trench compaction.
 - All water main tees, bends, caps, etc. shall be buttressed in accordance with Howard County Design requirements.



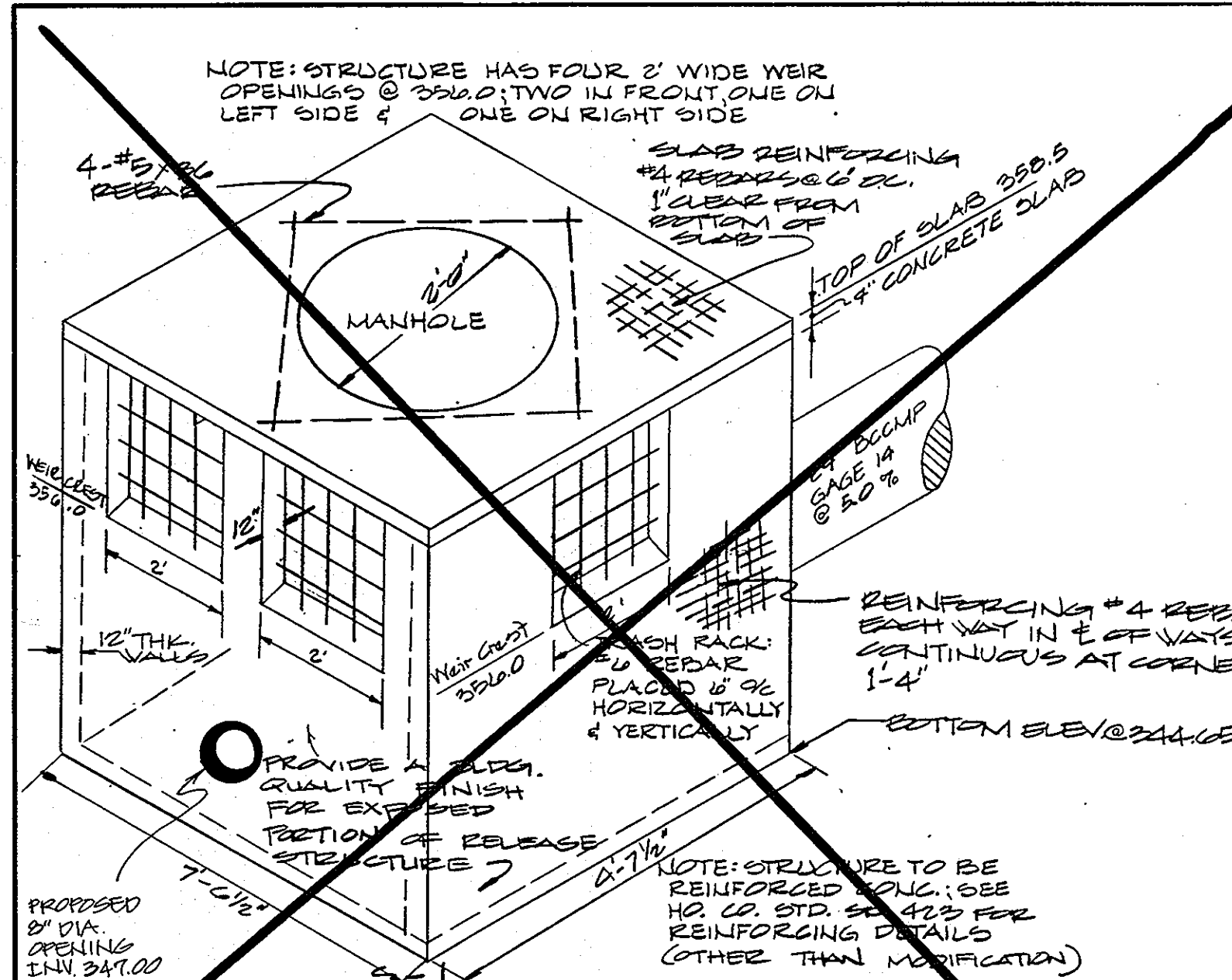
ENGINEER
GEORGE WILLIAM STEPHENS, JR.
 & ASSOCIATES INC.
 ENGINEERS & SURVEYORS
 303 ALLEGHTON AVENUE
 TOWSON, MARYLAND, 21204

ENGINEER
[Signature]
 Yashvate Chandra 8930
 REG. NO. 11-8-84
 DATE

OWNER
 THE HOWARD RESEARCH AND DEVELOPMENT CORP.
 10275 LITTLE PATUKENT PARKWAY
 COLUMBIA, MARYLAND 21044
 992-6033
 DEVELOPER / CONTRACT PURCHASER
 CASE - RIXON
 c/o
 MANEKIN CORPORATION
 5325 GUILFORD ROAD COLUMBIA, MD 21046
 995-1670

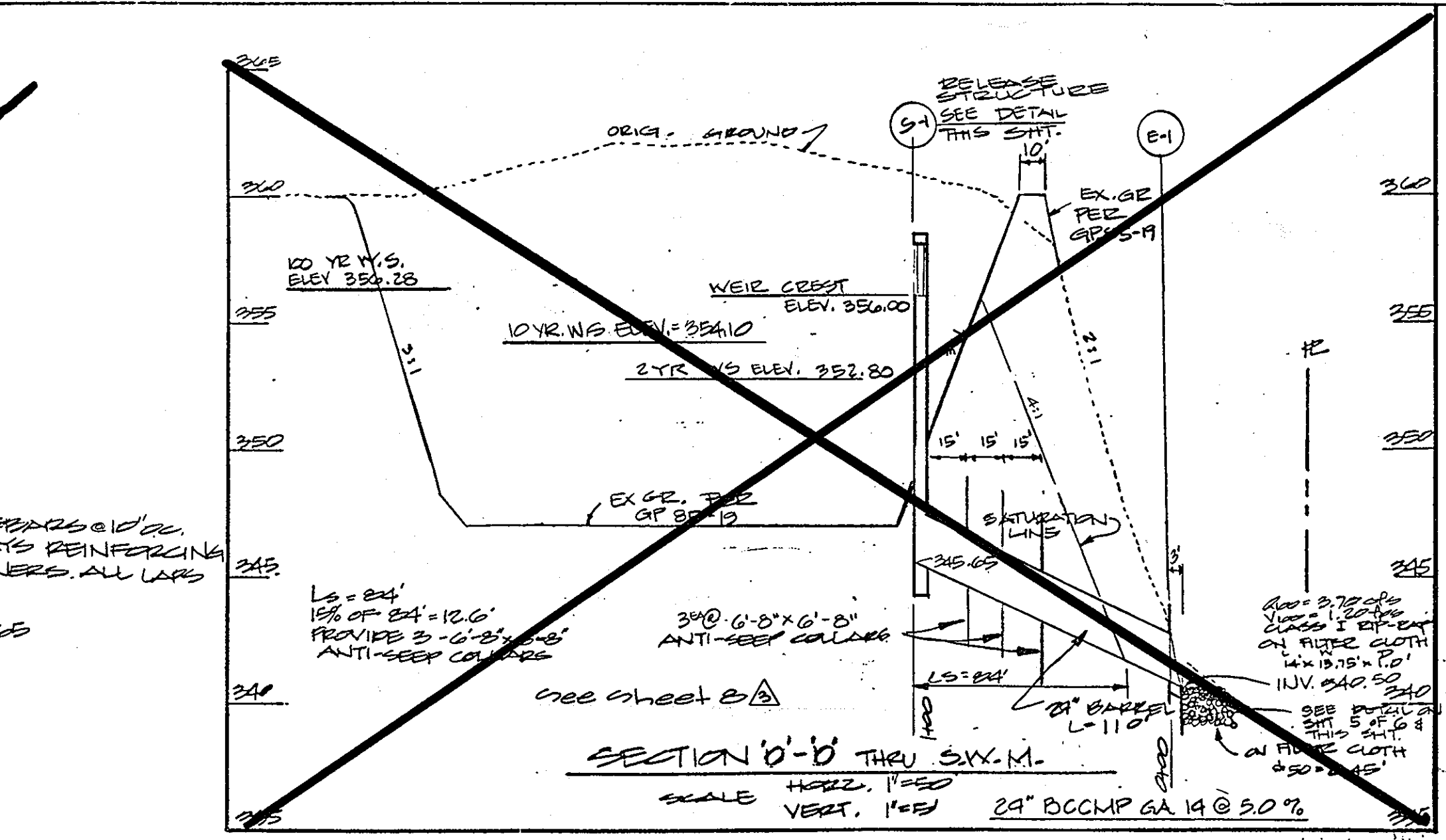
DEVELOPER
[Signature]
 664. PARTNER
 11-8-84
 DATE

PROFILES & DETAILS FOR PROPOSED OFFICE FOR RESEARCH & DEVELOPMENT
 RIVERS CORPORATE PARK
 SECT. 1 AREA 2 PARCEL A
 COLUMBIA MAP # 41
 HOWARD CO. MD. SCALE: AS SHOWN
 SHEET 2 OF 3
 ELEC. DIST # 6
 NOV. 8, 1984
 SDP-85-89C



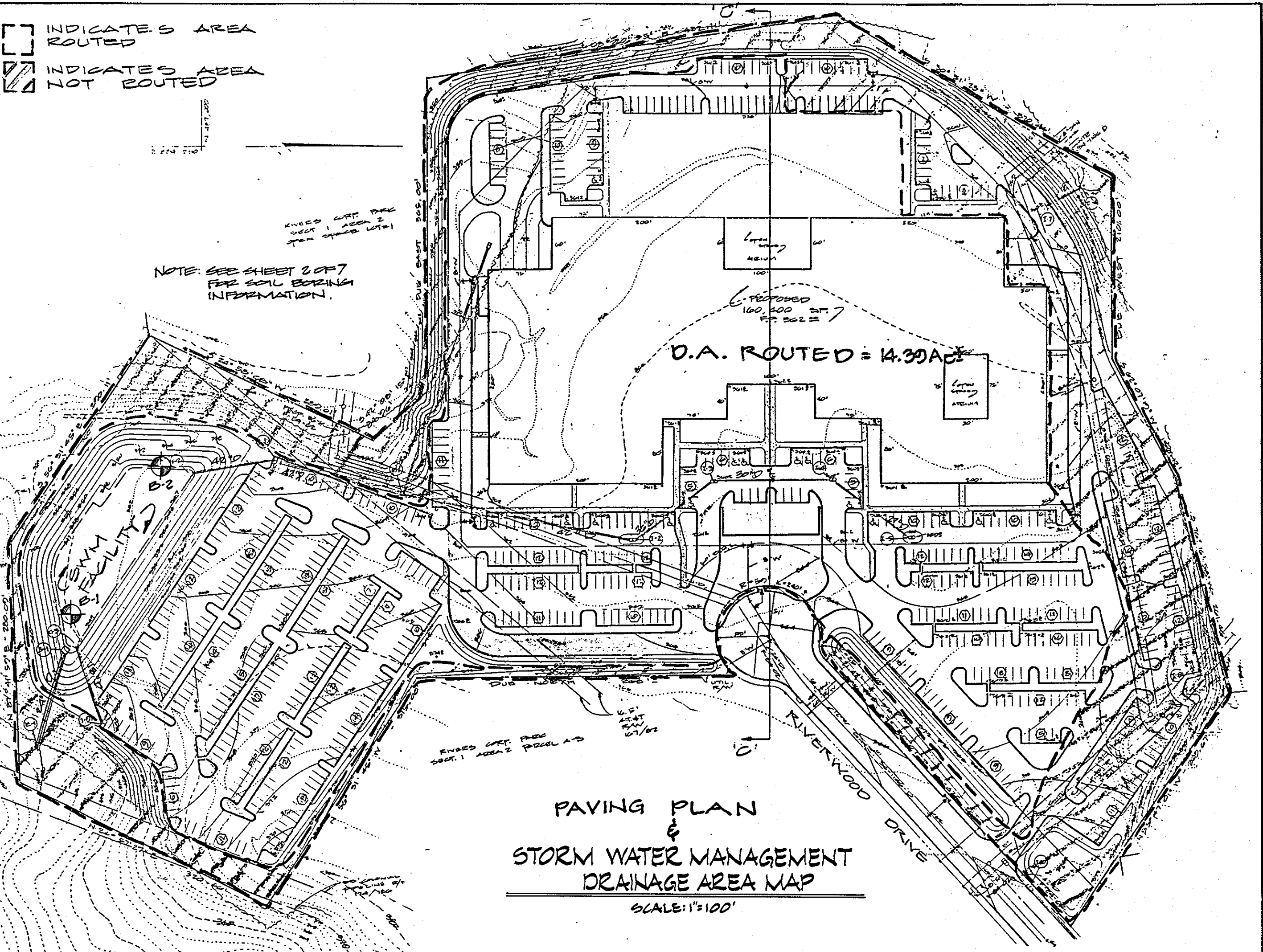
RELEASE STRUCTURE
NOT TO SCALE
DOUBLE Y-TYPE INLET-HOWARD COUNTY STR 4.23

NOTE: STRUCTURE TO BE REINFORCED WITH #4 REBAR @ 10\"/>



SECTION D-D THRU SWM.
SCALE: HORIZ. 1\"/>

NOTE: ALL SUITABLE MATERIAL SHALL BE USED FOR THE EMBANKMENT AND BUILT TO A MINIMUM DENSITY OF 95% OF THE DRY UNIT WEIGHT AS DETERMINED BY AASHTO T-99. CONSTRUCTION OF SWM POND SHALL BE PERFORMED UNDER STRICT SUPERVISION OF A SOILS ENGINEER.



SECTION NUMBER	ROAD AND STREET CLASSIFICATION	FULL DEPTH BIT. CONC. ALTERNATE	GRANULAR BASE ALTERNATES
P-1	PAVING AREAS AND DRIVEWAYS APARTMENTS AND COMMERCIAL INDUSTRIAL (OVER 10' HIGH TRUCKS)	1 1/2\"/>	
P-2	RESIDENTIAL ZONES LOCAL, COLLECTOR STS., ALLEYS AND DRIVEWAYS (UNDER 10' HIGH TRUCKS)	1 1/2\"/>	

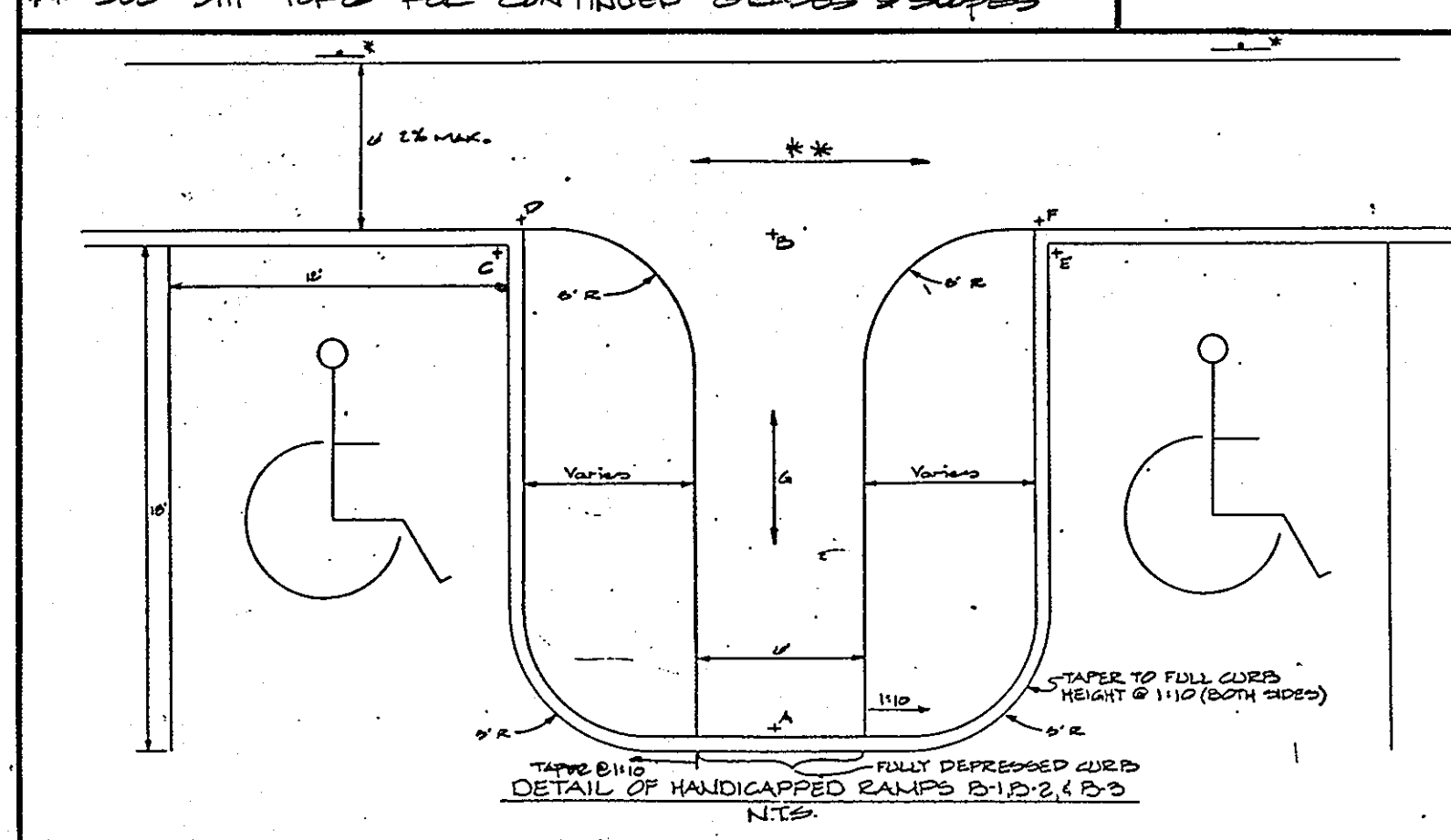
STORM WATER MANAGEMENT POND CONSTRUCTION SPECIFICATIONS

- SITE PREPARATION**
The fill area and borrow area shall be cleared and grubbed to remove all trees, stumps, roots and other objectionable material. Fill areas shall be constructed to the elevation shown on the plan to allow for anticipated settlement.
- FILL MATERIAL**
Fill material shall be obtained from on-site under the supervision of a soils engineer. It shall be free from roots, stumps, wood rubbish, oversized stones, frozen or other objectionable material. Fill areas shall be constructed to the elevation shown on the plan to allow for anticipated settlement.
- STRUCTURAL BACKFILL**
Backfill material shall be the type and quality specified for the adjoining fill material. The fill shall be placed in horizontal layers 4\"/>

HANDICAP RAMP SLOPES AND ELEVATIONS

	A	B	C	D	E	F	G
A-1	306.2	306.2	306.2	306.2	2%	0.77%	---
A-2	306.0	306.0	306.1	306.3	2%	2.85%	---
A-3	306.0	306.0	306.1	306.3	2%	2.85%	---
A-4	306.0	306.0	306.1	306.3	2%	2.85%	---
B-1	306.0	306.1	306.2	306.3	2%	3.33%	---
B-2	306.1	306.1	306.2	306.3	2%	2.00%	---
B-3	306.0	306.1	306.2	306.3	2%	2.89%	---
C-1	306.0	306.0	306.1	306.3	2%	0.56%	---
C-2	306.0	306.0	306.1	306.3	2%	2.85%	---
C-3	306.1	306.1	306.2	306.3	2%	2.38%	---
C-4	306.1	306.2	306.1	306.2	2%	2.38%	---

* ONE SIGN CENTERED ON EACH PAVING SPACE
** SEE SHT 1 OF 6 FOR CONTINUED GRADES & SLOPES

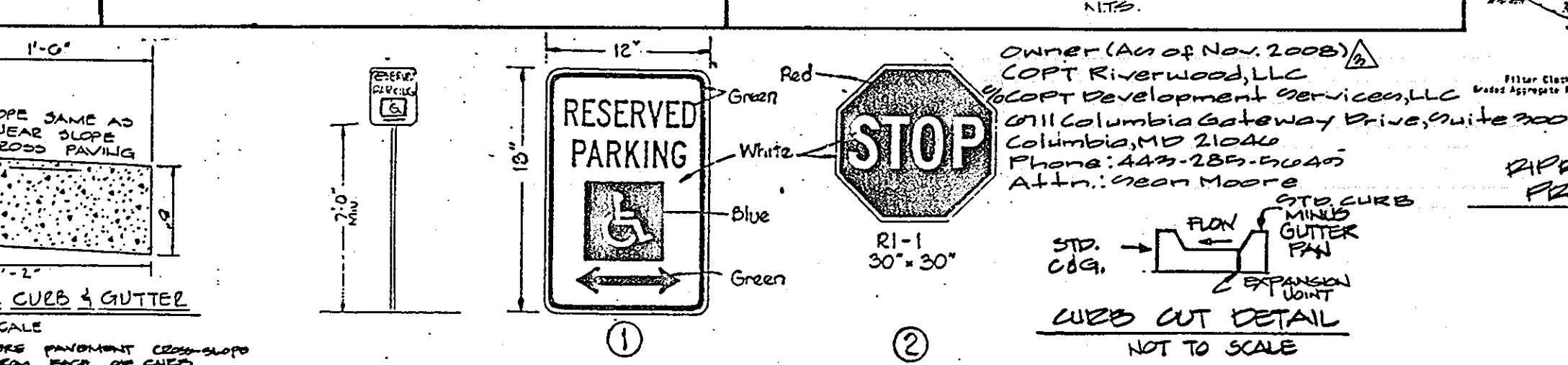
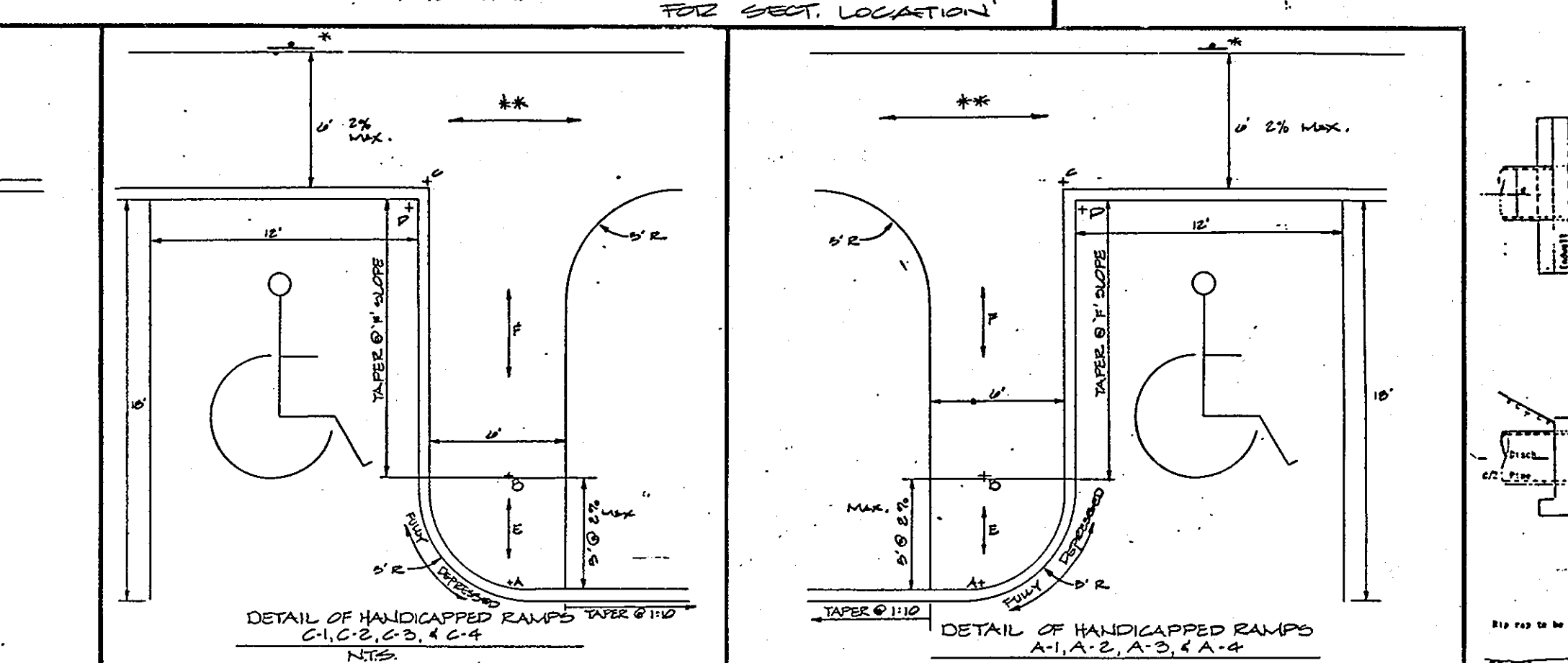
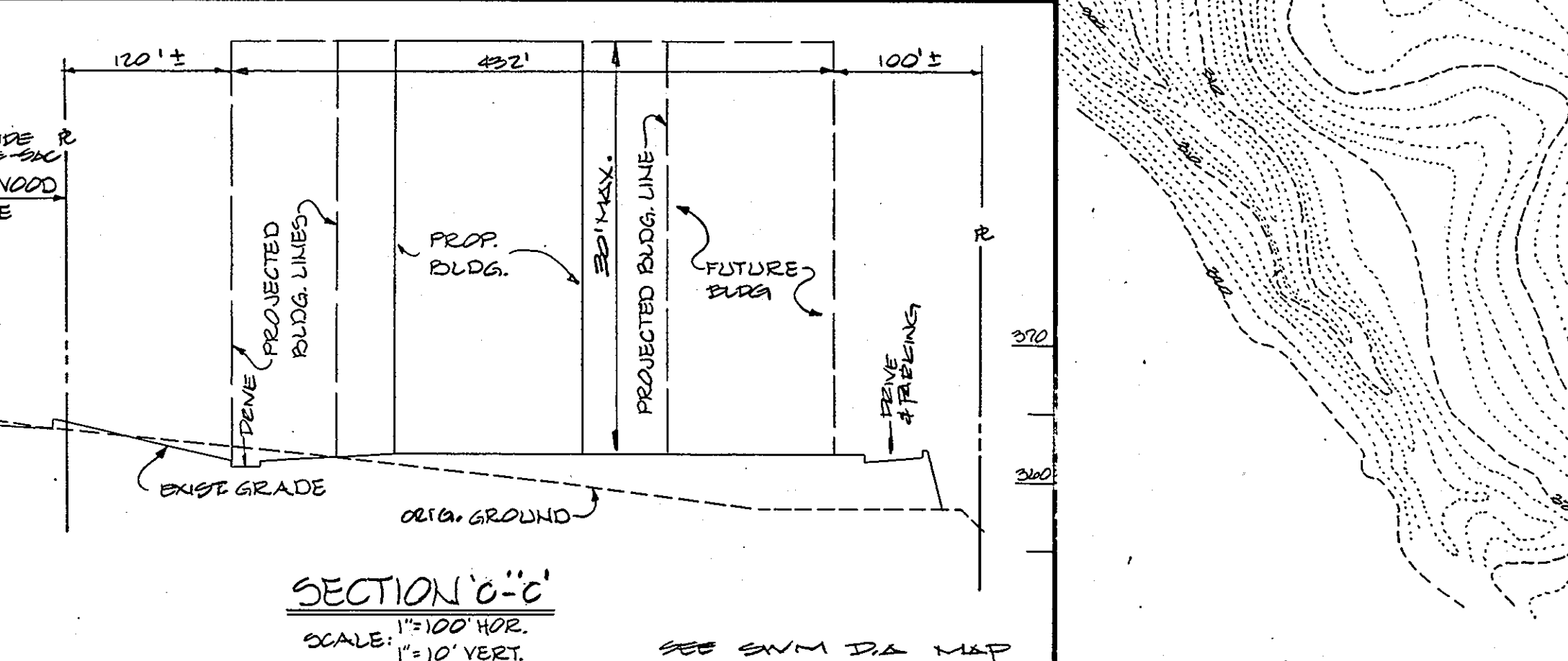


Professional Certification
I hereby certify that these documents were prepared, approved by me, and I am a duly licensed professional engineer under the laws of the state of Maryland, license No. 12972, expiration date May, 2016.

For Rev. # 3

11-18-08

ENGINEER
GEORGE WILLIAM STEPHENS, JR.
& ASSOCIATES INC.
ENGINEERS & SURVEYORS
303 ALLEGHENY AVENUE
TOWSON, MARYLAND, 21204



OWNER
THE HOWARD RESEARCH AND DEVELOPMENT CORP.
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044
992-6033

DEVELOPER / CONTRACT PURCHASER
CASE # 010
MANEKIN CORPORATION
8325 GUILDFORD ROAD
COLUMBIA, MARYLAND 21046
292-1670

APPROVED FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEM
HOWARD COUNTY HEALTH DEPARTMENT

COUNTY HEALTH OFFICER: *[Signature]* DATE: 3-7-85

APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING

PLANNING DIRECTOR: *[Signature]* DATE: 3-7-85
CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION.

APPROVED: FOR PUBLIC WATER, PUBLIC SEWERAGE, STORM DRAINAGE SYSTEMS, AND ROADS.
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

DIRECTOR: *[Signature]* DATE: 2-26-85
CHIEF, BUREAU OF ENGINEERING: *[Signature]* DATE: 2/26/85

THIS DEVELOPMENT IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
DISTRICT: *[Signature]* DATE: 2/22/85
APPROVED: HOWARD SOIL CONSERVATION DISTRICT

REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS
SIGNATURE: *[Signature]* DATE: 2/22/85
THE UNITED STATES SOIL CONSERVATION SERVICE

PROPOSED OFFICE FOR RESEARCH & DEVELOPMENT
RIVERS CORPORATE PARK
SECT. 1 AREA 2 PARCEL A
COLUMBIA
TAX MAP # 41

HOWARD CO. MD.
SCALE: AS SHOWN
ELECT. DIST. # 6
NOV. 8, 1984

APPROVED FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEM
 HOWARD COUNTY HEALTH DEPARTMENT

COUNTY HEALTH OFFICER: *John B. ...* DATE: 2-27-85

APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING
 PLANNING DIRECTOR: *John W. ...* DATE: 3-7-85

CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION

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 DIRECTOR: *John C. ...* DATE: 2-26-85

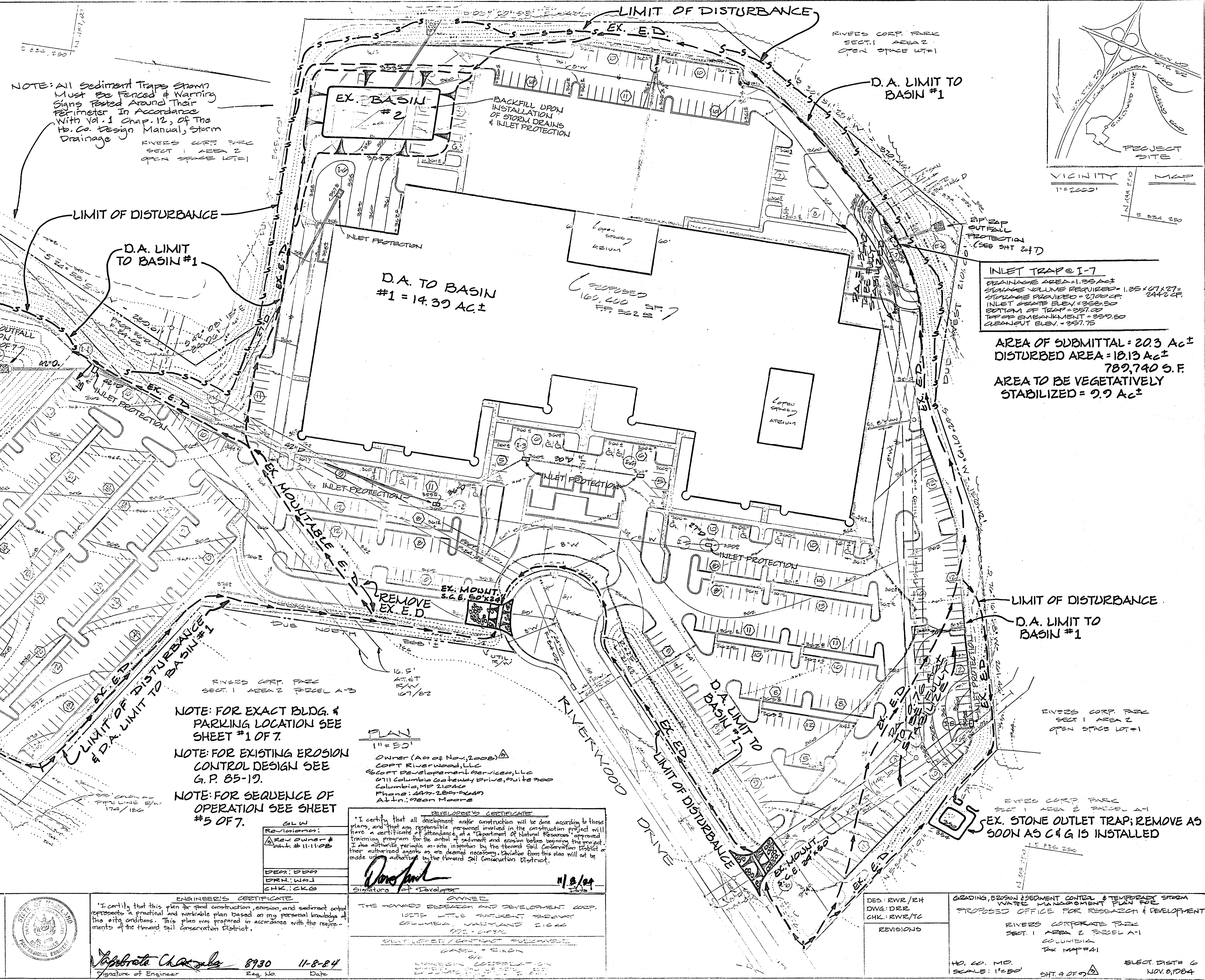
CHIEF, BUREAU OF ENGINEERING: *John C. ...* DATE: 2-26-85

HOWARD SOIL CONSERVATION DISTRICT
 THIS DEVELOPMENT IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT
 DISTRICT: *John C. ...* DATE: 4/22/85

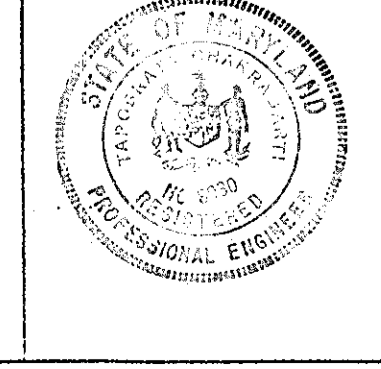
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 REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS
 SIGNATURE: *John C. ...* DATE: 4/22/85

THE UNITED STATES SOIL CONSERVATION SERVICE

APPROVED
 PLANNING BOARD OF HOWARD COUNTY
 DATE: 2-6-85



GEORGE WILLIAM STEPHENS JR. AND ASSOCIATES INC.
 ENGINEERS
 303 ALLEGHENY AVE. TOWSON, MD. 21284
 (301) 825-0120



Signature of Engineer: *Robert ...* 8930 11-8-84

Signature of Developer: *David ...* 11/8/04

DES: RWR/RH
 DWG: DRB
 CHK: RWR/TC

GRADING, EROSION & SEDIMENT CONTROL & TEMPORARY STORM WATER MANAGEMENT PLAN FOR PROPOSED OFFICE FOR RESEARCH & DEVELOPMENT

RIVERS CORPORATE PARK SECT. 1 AREA 2 PCEAL A-1 COLUMBIA TAX MAP #41

H.D. CO. MD. SCALE: 1"=50' SHT. 4 OF 7

ELECT. DIST# 6 NOV. 8, 1984

SDP. 85-89c

APPROVED FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEM
HOWARD COUNTY HEALTH DEPARTMENT

COUNTY HEALTH OFFICER: *John W. Munn* DATE: 2-22-85

APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING

PLANNING DIRECTOR: *John W. Munn* DATE: 3-7-85

CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION:

John W. Munn DATE: 2-7-85

APPROVED FOR PUBLIC WATER, PUBLIC SEWERAGE, STORM DRAINAGE SYSTEMS, AND ROADS

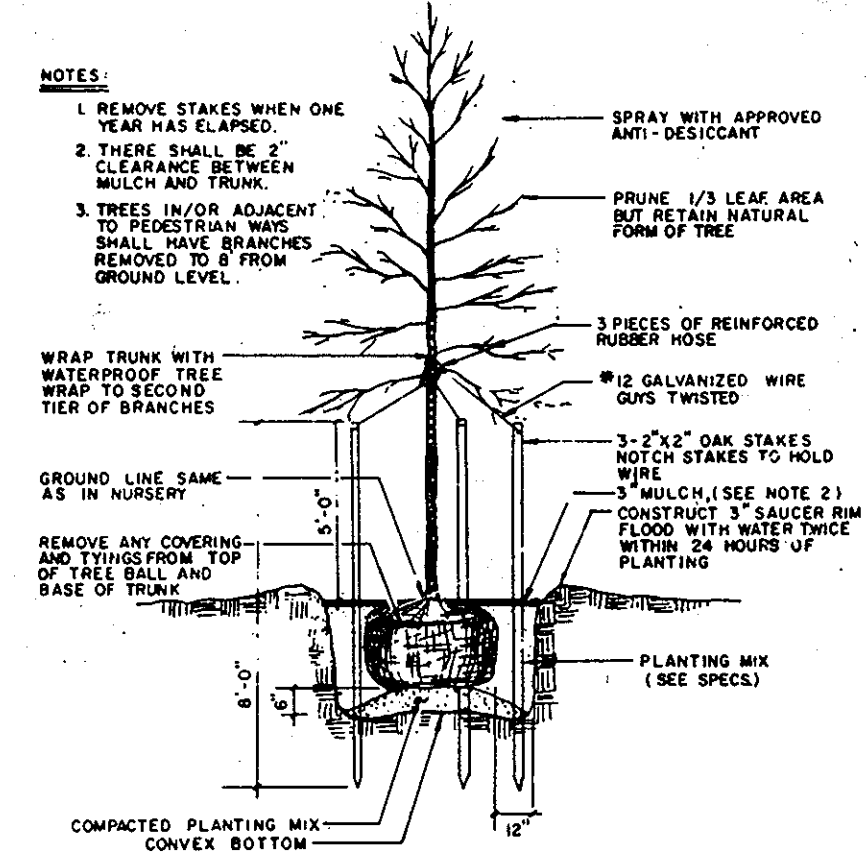
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

DIRECTOR: *John W. Munn* DATE: 2-26-85

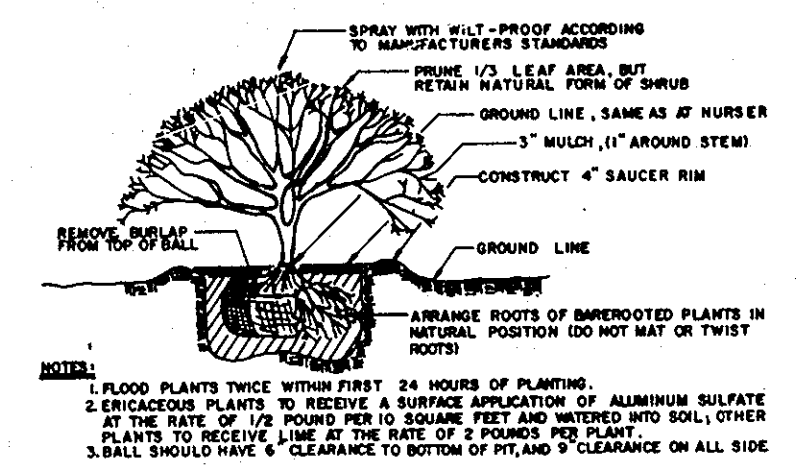
CHIEF, BUREAU OF ENGINEERING: *John W. Munn* DATE: 2-26-85

APPROVED
PLANNING BOARD
OF HOWARD COUNTY

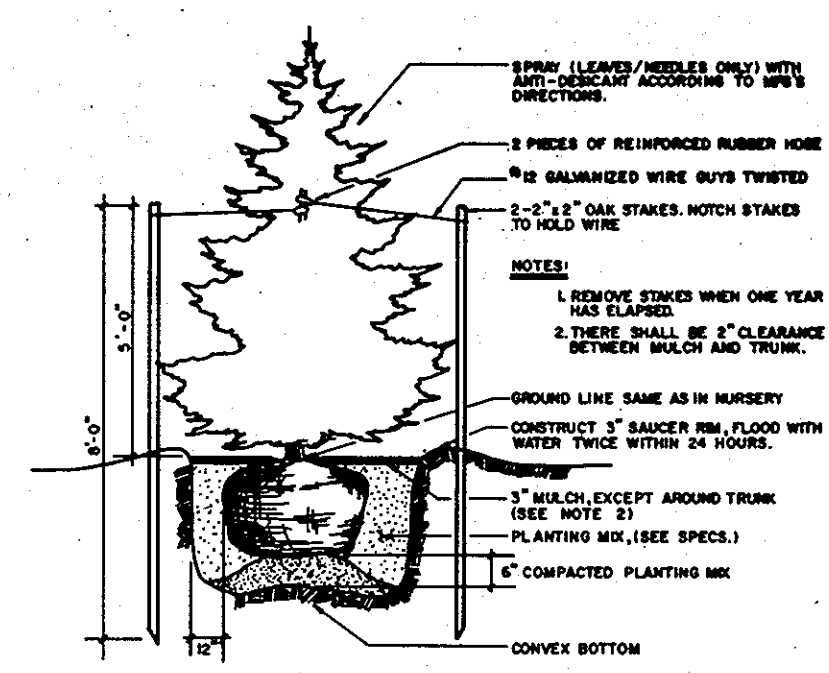
DATE: 2-6-85



PLANTING DETAIL FOR TREES 1/4" - 4" CAL.
NOT TO SCALE



PLANTING DETAIL FOR EVERGREENS AND DECIDUOUS SHRUBS
NOT TO SCALE

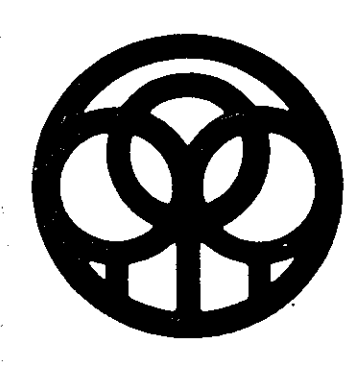


PLANTING DETAIL FOR EVERGREEN TREES 3" - 8" TALL
NOT TO SCALE

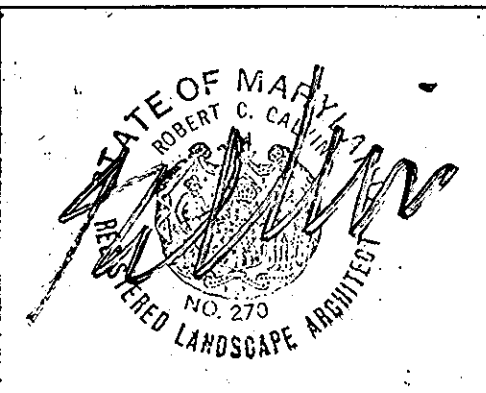
Plant List

KEY QUANT.	APPROX. BOTANICAL NAME	COMMON NAME	SIZE	COUL.	REMARKS
SHADE TREES					
T-1	13 QUERCUS ACUTISSIMA	SAWTOOTH OAK	2 1/2 - 3' CAL.	B & B	
T-2	23 QUERCUS ALBA	WHITE OAK	2 1/2 - 3"	B & B	
T-3	18 ACER RUBRUM 'OCT. GLORY'	OCTOBER GLORY MAPLE	2 1/2 - 3"	B & B	
T-4	4 SALIX NIOBE	NIOBE WILLOW	1 3/4 - 2"	B & B	
T-5	13 ZELKOVA SERRATA	ZELKOVA	3 - 3 1/2'	B & B	HEAVY
T-6	5 GLEDITSIA TRIACANTHOS 'SUNBURST'	SUNBURST HONEYLOCUST	3 - 3 1/2'	B & B	HEAVY
T-7	1 LIQUIDAMBAR STYRACIFLUA	SWEETGUM	2 1/2 - 3"	B & B	
T-8	7 KOLREUTERIA PANICULATA	GOLDEN RAIN TREE	2 1/2 - 3"	B & B	
T-9	5 MAGNOLIA GRANDIFLORA	SOUTHERN MAGNOLIA	2 1/2 - 3"	B & B	
T-10	7 PLATANUS ACERIFOLIA	LONDON PLANE TREE	2 1/2 - 3"	B & B	
FLOWERING TREES					
F-1	11 PRUNUS SERRULATA 'KWANZAN'	KWANZAN CHERRY	2 - 2 1/2' CAL.	B & B	
F-2	14 MALUS THEIFERA	TEA CRABAPPLE	2 - 2 1/2"	B & B	
F-3	6 CRATAEGUS PHAENOPYRUM	WASHINGTON HAWTHORN	2 - 2 1/2"	B & B	
F-4	8 PYRUS CALLERYANA 'REDSPIRE'	REDSPIRE PEAR	2 - 2 1/2"	B & B	
F-5	FRINGE TREE	2 - 2 1/2"	B & B		
F-6	6 AMELANCHIER CANADENSIS	SERVICE BERRY	2 - 2 1/2"	B & B	
F-7	4 PRUNUS SUBhirtella PENDULA	WEeping CHERRY	2 - 2 1/2'	B & B	
EVERGREEN TREES					
E-1	50 PINUS STROBUS	WHITE PINE	6 - 8'	B & B	
E-2	34 PICEA ABIES	NORWAY SPRUCE	6 - 8'	B & B	
E-3	75 PINUS THUNBERGI	JAPANESE BLACK PINE	6 - 8'	B & B	
E-4	6 CEDRUS DEODORA	DEODOR CEDAR	6 - 8'	B & B	
E-5	10 CHAMAECYPARIS OBUSA	HINOKI CYPRESS	6 - 8'	B & B	
E-6	7 ILEX CORNUTA 'BURFORDII'	BURFORD HOLLY	6 - 8'	B & B	
SHRUBS					
S-1	17 EUONYMUS SIEBOLDI	SIEBOLD EUONYMUS	24 - 30"	B & B	
S-2	8 EUONYMUS ALATUS	WINGED EUONYMUS	24 - 30"	B & B	
S-3	65 NANDINA DOMESTICA	HEAVENLY BAMBOO	2 1/2 - 3'	B & B	
S-4	16 TAXUS BACCATA REPANDENS	SPREADING ENG. YEW	24 - 30"	B & B	
S-5	41 ILEX CRENATA 'HETZI'	HETZ JAP. HOLLY	2 1/2 - 3'	CONT.	
S-6	24 MAHONIA BEALII	LEATHERLEAF MAHONIA	2 1/2 - 3'	CONT.	
S-7	15 AZALEA 'POLAR BEAR'	AZALEA - WHITE	18 - 24"	CONT.	
S-8	14 PIERIS JAPONICA	ANDROMEDA	18 - 24"	B & B	
S-9	58 JUNIPERUS PROCLUMBENS NANA	DWARF JAP. JUNIPER	15 - 18"	CONT.	
S-10	266 JUNIPERUS CONFERTA	SHORE JUNIPER	15 - 18"	CONT.	
S-11	67 JUNIPERUS HORIZONTALIS 'WILTOWII'	BLUE RUG JUNIPER	15 - 18"	CONT.	
S-12	32 FORSYTHIA INTERMEDIA SPECTABILIS	SHOWY BORDER FORSYTHIA	3 - 4'	B & B	
S-13	28 CORNUS SERICEA	RED-TWIG DOGWOOD	3 - 4'	B & B	
S-14	10 CORNUS STOLONIFERA LUTEA	YELLOW-TWIG DOGWOOD	3 - 4'	B & B	
S-15	160 OPHIOPOGON JAPONICUS	MONDO GRASS	1 GAL.	CONT.	
S-16	41 PINUS MUGO MUGO	MUGO PINE	15 - 18"	B & B	
GROUND COVERS					
G-1	12,900 PACHYSANDRA TERMINALIS	PACHYSANDRA	2 1/4" POTS		
G-2	1800 EUONYMUS FORTUNEI COLORATUS	PURPLE LEAVED EUONYMUS	2 1/4" POTS		
G-3	260 LIRIOPE MUSCARI 'BIG BLUE'	'BIG BLUE' LIRIOPE	1 GAL.		
G-4	1000 VINCA MINOR	VINCA	2 1/4" POTS		
PERENNIALS					
P-1	1000 CROCUS				
P-2	500 DAFFODILS				

GEORGE WILLIAM STEPHENS JR. AND ASSOCIATES INC
ENGINEERS
303 ALLEGHENY AVE. TOWSON, MD. 21204
(301) 825-8120



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WASH. (301) 621-5607



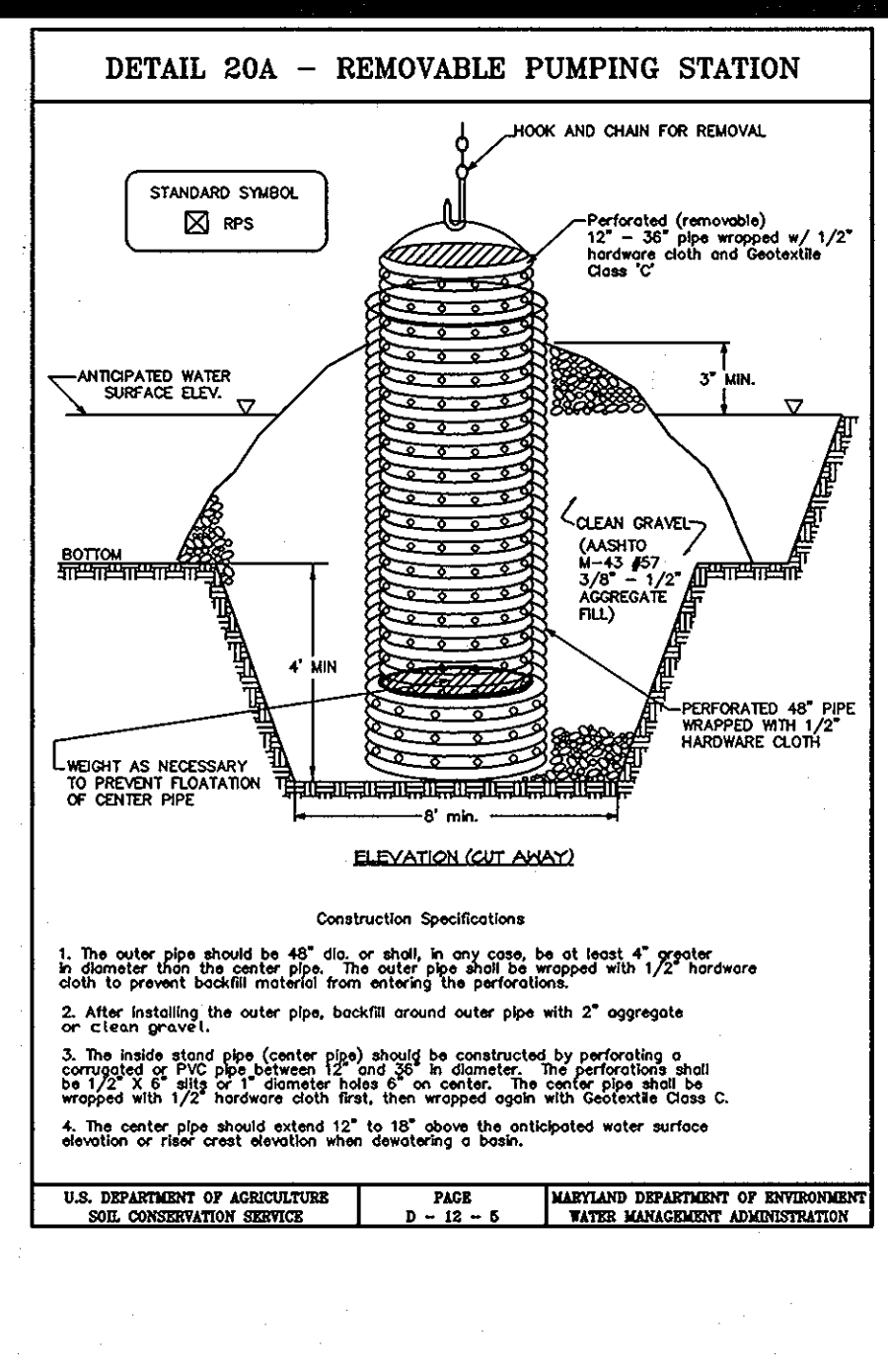
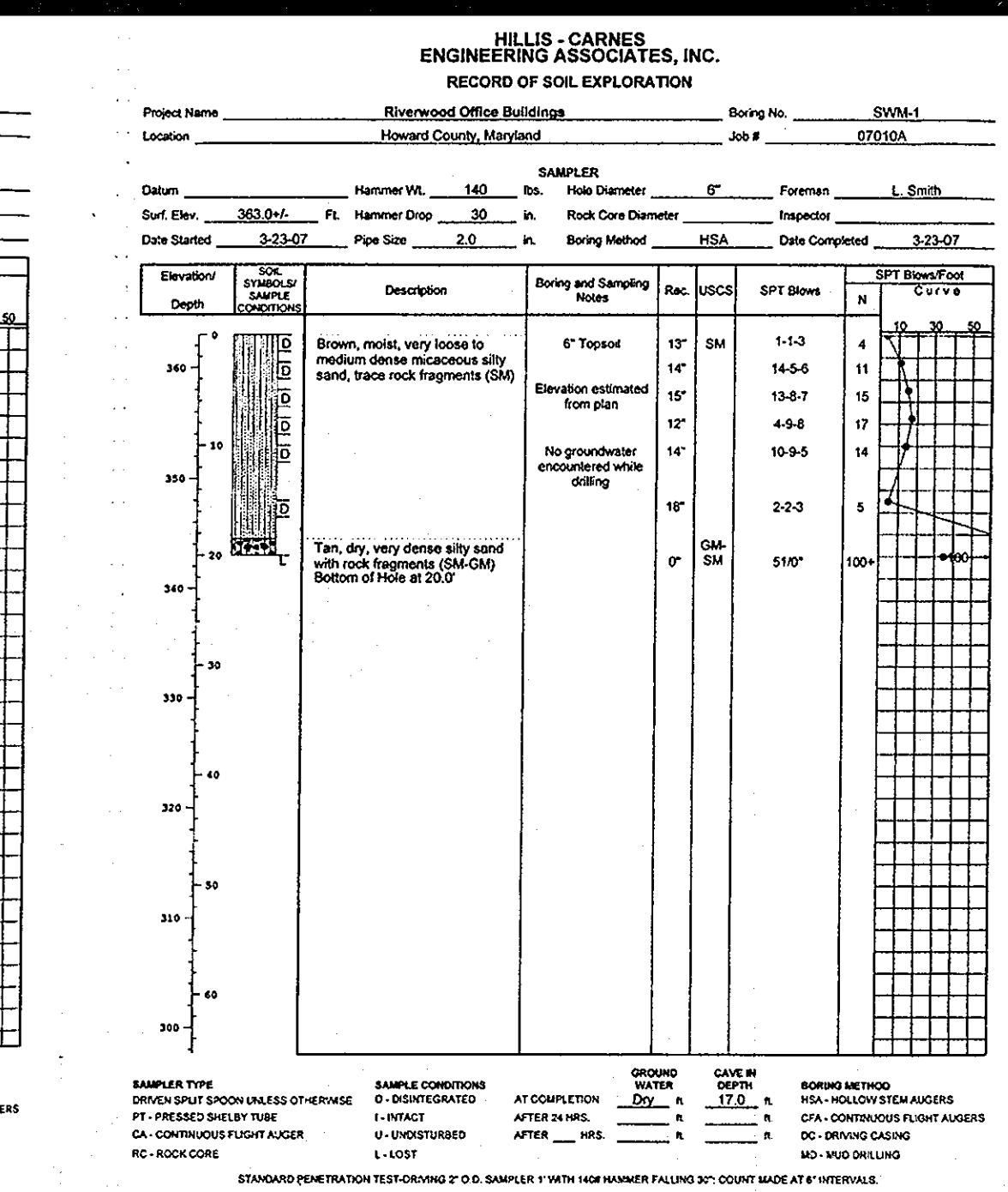
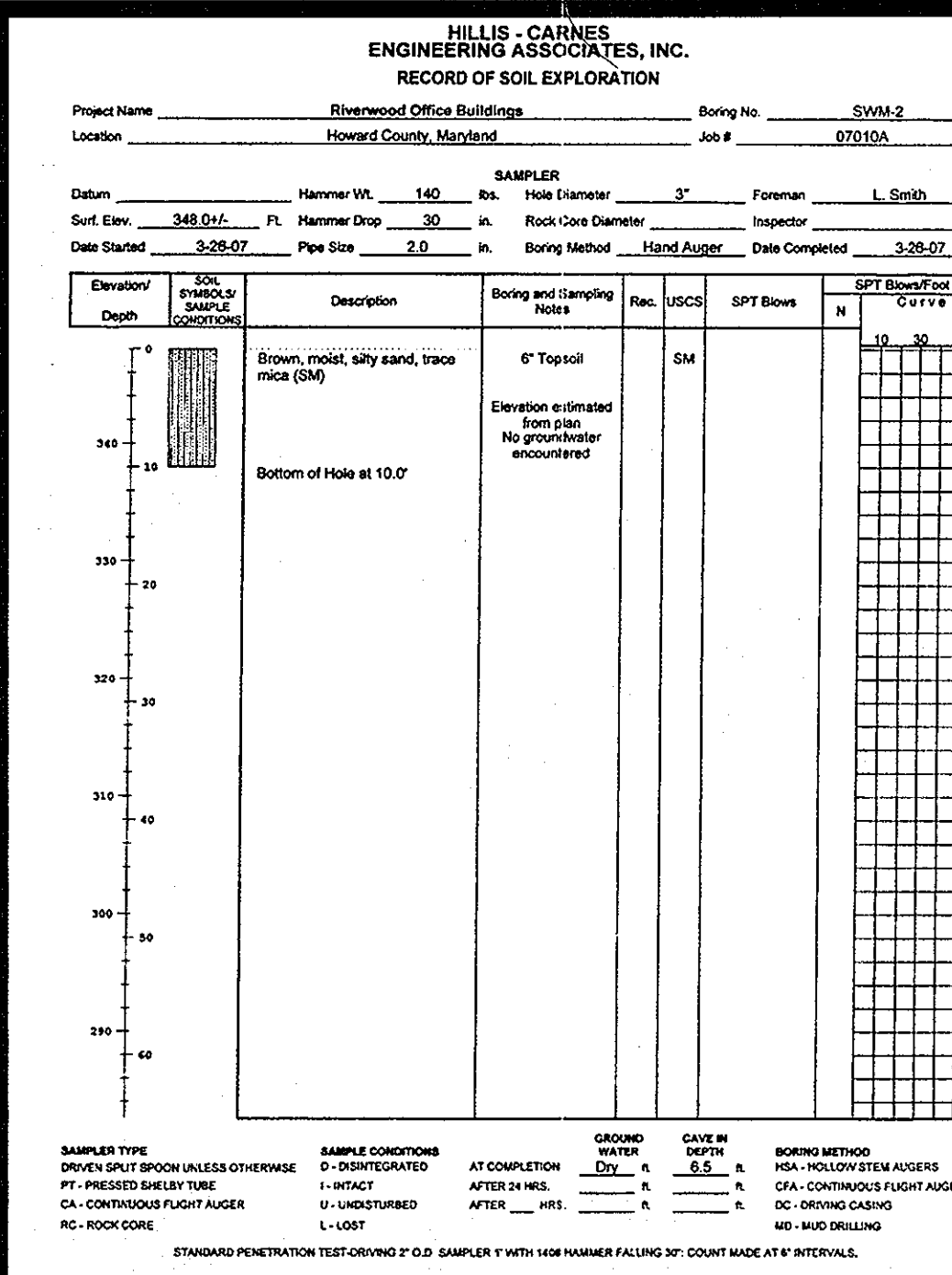
Robert C. Walker 11/8/84

Owner (As of Nov. 2008)
Capt Riverwood, LLC
%COPT Development Services, LLC
6711 Columbia Gateway Drive, Suite 200
Columbia, MD 21046
Phone: 443-285-5000
Attn: Sean Moore

COLW

REVISIONS
1. Add owner & Rev. sheet #11-11-08
DES: JPS
DRN: WJ
CHK: ZKS

SUBDIVISION NAME RIVERS CORPORATE PARK	SECT./AREA 1/2	LOT/PARCEL PARCEL 'A'
PLAT	BLOCK #	ZONE
TAX/ZONE MAP	ELECT. DIST.	CENSUS TRACT
WATER CODE		SEWER CODE
PLANTING PLAN DETAILS		
PROPOSED OFFICE FOR RESEARCH & DEVELOPMENT		
RIVERS CORPORATE PARK		
SECTION 1 AREA 2 PARCEL A		
COLUMBIA		
TAX MAP #42		
HO. CO. MD.	SHEET 7 OF 12	ELECT. DIST. #6
		NOV. 8, 1984



CONSTRUCTION SPECIFICATIONS

These specifications are applicable to all ponds. 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, rocks and other objectionable material shall be removed. Channel banks and sharp breaks shall be sloped to no steeper than 1:1. All areas to be cleared and grubbed within 20 feet of the toe of the embankment.

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

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

Earth Fill

Material - The fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, wood, rubbish, stones greater than 6", frozen or other objectionable materials. Fill material for the core of the embankment conform to Unified Soil Classification GC, SG, CH, or CL and must have at least 30% passing the #20 sieve. Consideration may be given to the use of other materials in the embankment if designed by a geotechnical engineer. Such special designs must have construction supervised by a geotechnical engineer.

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

Placement - Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in maximum 6-inch thick (before compaction) layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portions of the embankment. The principal spillway must be isolated 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 track tread of heavy equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot roller, tire or vibratory roller. Fill materials shall contain sufficient moisture such that the required degree of compaction will be obtained with the equipment used. The fill material will contain sufficient moisture so that if formed into a ball it will not crumble, yet not be so moist that water can be squeezed out.

When required by the reviewing agency the 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 placement. All compaction is to be determined by AASHTO Method T-99 (Standard Proctor).

Embankment Core - The core shall be parallel to the centerline of the embankment and shall be placed in the center of the core shall be a minimum of four feet. The height shall extend up to at least the 10-year water elevation or as shown on the plans. The side slopes shall be 1:1 or flatter. The core shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability. In addition, the core shall be placed concurrently with the outer shell of the embankment.

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 outside the 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 pipe.

Structure backfill may be flowable fill meeting the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 519 as modified. The mixture shall have a 100-200 psi, 28 day unconfined compressive strength. The flowable fill shall have a minimum pH of 4.0 and a minimum resistivity of 2,000 ohm-cm. Material shall be placed such that a minimum of 6" measured perpendicular to the outside of the pipe of flowable fill shall be under (bedding), over and, on the sides of the pipe. It only needs to extend up to the spring line for rigid conduits. Average slope of fill shall be 1:1 to assure flowability of the material. Adequate measures shall be taken (sand bags, etc.) to prevent floating the pipe. When using flowable fill, all metal pipe shall be blanchard coated. Any adjoining 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 shall completely fill all voids adjacent to the flowable fill zone. As 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 pipe. Backfill material outside the structural backfill (flowable fill) zone shall be of the type and quality conforming to other embankment materials.

Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-245 or M-246 with watertight coupling bands or flanges. Aluminum Pipe, when used with flowable fill or when soil and/or water conditions warrant for increased durability shall be fully blanchard coated per requirements of AASHTO Specification M-245 Type A. Aluminum surfaces that are to be in contact with concrete shall be provided with one coat of zinc chromate primer or two coats of asphalt. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be between 4 and 9.

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

3. Connections - All connections with pipes shall be completely watertight. The drain pipe or barrel connection to the pipe shall be held all around when the pipe and riser are metal. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Dipole bands are not considered to be watertight.

All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled an adequate number of corrugations to accommodate the bandwidth. The following type connections are acceptable for pipes less than 24 inches in diameter. Flanges on both ends of the pipe with a circular 3/8 inch closed cell neoprene gasket, prepared to the flange bolt circle, sandwiched between adjacent flanges; a 12-inch wide standard lap type band with 12-inch wide by 1/2-inch thick closed cell neoprene gaskets; and a 12-inch wide lugger type band with wing gaskets having a minimum diameter of 1/2 inch greater than the corrugation depth. Pipes 24 inches in diameter and larger shall be connected by a 24 inch long annular corrugated band using a minimum of 4 (four) rods and lugs, 2 on each connecting pipe end. A 24-inch wide by 1/2-inch thick closed cell neoprene gasket will be installed with 12 inches on the end of each pipe. Flanged joints with 3/8 inch closed cell gaskets the full width of the flange is also acceptable.

Hetically corrugated pipe shall have externally welded seams or have lock seams with internal caulking or a neoprene bead.

4. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

5. Backfilling shall conform to "Structure Backfill".

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

Plastic Pipe - The following criteria shall apply for plastic pipe:

1. Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1185 or ASTM D-2241. Corrugated High Density Polyethylene (HDPE) pipe, couplings and fittings shall conform to the following: 4" - 10" through 24" shall meet the requirements of AASHTO M-252 Type 5 and 12" through 24" shall meet the requirements of AASHTO M-254 Type 5.

2. Joints and connections to anti-seep collars shall be completely watertight.

3. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

4. Backfilling shall conform to "Structure Backfill".

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

Concrete

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

Rock Riprap

Rock riprap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 511.

Geotextile 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 421.04, Class C.

Care of Water during Construction

All work on permanent structures shall be carried out in areas free from water. The Contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from various parts of the work and for maintaining the excavations, foundation, and other parts of the work free from water as required or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary protective works shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works and so as not to interfere in any way with the 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 shall completely fill all voids adjacent to the flowable fill zone. As 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 pipe. Backfill material outside the structural backfill (flowable fill) zone shall be of the type and quality conforming to other embankment materials.

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.

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.

Operation and Maintenance

An operation and maintenance plan in accordance with Local or State Regulations will be prepared for all ponds. As a minimum, the dam inspection checklist located in Appendix A shall be included as part of the operation and maintenance plan and performed at least annually. Inspections shall be conducted by the owner or a qualified professional engineer and shall be reported to the developer. Repairs shall be returned to a file. The issuance of a Maintenance and Repair Permit for any repairs or maintenance that involves the modification of the dam or spillway from its original design and specifications is required. A permit is also required for any repairs or reconstruction that involve a substantial portion of the structure. All indicated repairs are to be made as soon as practical.

STANDARD AND SPECIFICATIONS FOR TOPSOIL

DEFINITION

PLACEMENT OF TOPSOIL OVER A PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION.

PURPOSE

TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN ARE THOSE WHICH CONTAIN LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.

CONDITIONS WHERE PRACTICE APPLIES

I. THIS PRACTICE IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPE HERE:

- THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
- THE SOIL MATERIAL IS 50 SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIED OF MOISTURE AND PLANT NUTRIENTS.
- THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
- THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.

II. FOR THE PURPOSE OF THESE STANDARDS AND SPECIFICATIONS, AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN FOR ADEQUATE STABILIZATION. AREAS HAVING SLOPES STEEPER THAN 2:1 SHALL HAVE THE APPROPRIATE STABILIZATION SHOWN ON THE PLANS.

CONSTRUCTION AND MATERIAL SPECIFICATIONS

I. TOPSOIL SALVAGED FROM THE EXISTING SITE MAY BE USED PROVIDED THAT IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY THE DEPTH OF TOPSOIL TO BE SALVAGED FOR USE ON SLOPE TYPE CAN BE FOUND IN THE RESPECTIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-SCS IN COOPERATION WITH MARYLAND AGRICULTURAL EXPERIMENTAL STATION.

II. TOPSOIL SPECIFICATIONS - SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:

- TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILTY LOAM, SANDY CLAY LOAM, LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY A GEOTECHNICAL OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE AUTHORITY. REGARDLESS, TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND SHALL CONTAIN LESS THAN 5% BY VOLUME OF SANDS, STONES, SLUGS, COARSE FRAGMENTS, GRASS, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1/2" IN DIAMETER.
- TOPSOIL SHALL BE FREE OF PLANT PARTS SUCH AS BERMUDA GRASS, QUACKGRASS, JOHNSONGRASS, NITSEDEGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
- WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, GRANITE LIMESTONE SHALL BE SPREAD AT THE RATE IF 4-8 TONS/ACRE (200-400 SQ YDS PER ACRE) PRIOR TO THE PLACEMENT OF TOPSOIL. LIME SHALL BE DISTRIBUTED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING PROCEDURES:

III. FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES:

- PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 2.0 VEGETATIVE STABILIZATION - SECTION I - VEGETATIVE STABILIZATION METHODS AND MATERIALS (OR SEE SEEDING NOTES).

IV. FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES:

- ON SOIL MEETING TOPSOIL SPECIFICATIONS, OBTAIN TEST RESULTS DICTATING FERTILIZER & LIME AMENDMENTS REQUIRED TO BRING THE SOIL INTO COMPLIANCE WITH THE FOLLOWING:
- PH FOR TOPSOIL SHALL BE BETWEEN 6.0 AND 7.5. IF THE TESTED SOIL DEFICIENCY IS A PH LEVEL LESS THAN 6.0, SUFFICIENT LIME SHALL BE PRESCRIBED TO RAISE THE PH TO 6.5 OR HIGHER.
- ORGANIC CONTENT OF TOPSOIL SHALL NOT BE LESS THAN 15 PERCENT BY WEIGHT.
- TOPSOIL HAVING SOLUBLE SALT GREATER THAN 500 PARTS PER MILL SHALL NOT BE USED.
- NO SOD OR PEED SHALL BE PLACED ON SOIL WHICH HAS BEEN WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNLESS SUFFICIENT TIME (4-6 DAYS MIN) TO PERMIT DEVELOPMENT OF PHOTO-CYTOXIC MATERIALS.

NOTE: TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRICULTURIST OR SOIL SCIENTIST, SHALL BE USED IN LIEU OF NATURAL TOPSOIL. APPROVAL AUTHORITY, MAY BE USED IN LIEU OF NATURAL TOPSOIL.

- PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 2.0 VEGETATIVE STABILIZATION - SECTION I - VEGETATIVE STABILIZATION METHODS AND MATERIALS (OR SEE SEEDING NOTES).

V. TOPSOIL APPLICATION

- WHEN TOPSOILING, MAINTAIN EROSION AND SEDIMENT CONTROL STRUCTURES SUCH AS DIVERSION STRUCTURES, EARTH DIKES, SLOPE SILT FENCES AND NEEDED TRAPS AND BASINS.
- GRADES ON THE AREAS TO BE TOPSOILED, SHALL BE MAINTAINED, ALBERT 4"-8" HIGHER IN ELEVATION.
- TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4" - 8" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4". SPREADING SHALL BE PERFORMED IN SUCH A MANNER THAT SOODONS OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY UNDESIRABLE IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER.
- TOPSOIL SHALL NOT BE PLACED WHILE THE TOPSOIL OR SUBSOIL IS FROZEN OR MUDDY CONDITION WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY BE DETRIMENTAL TO PROPER GRASSING AND SEEDING PREPARATION.

VI. ALTERNATIVE FOR PERMANENT SEEDING - INSTEAD OF APPLYING THE FULL AMOUNTS OF LIME AND COMMERCIAL FERTILIZER, COMPOSTED SLUDGE AND AMENDMENTS MAY BE APPLIED AS SPECIFIED BELOW:

- COMPOSTED SLUDGE MATERIAL FOR USE AS A SOIL CONDITIONER FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES SHALL BE TESTED TO PRESCRIBE AMENDMENTS AND FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:
 - COMPOSTED SLUDGE SHALL BE SUPPLIED BY, OR ORIGINATE FROM, A PERSON OR PERSONS THAT ARE PERMITTED (AT THE TIME OF ACQUISITION OF THE COMPOST) BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT UNDER COMAR 26.04.06.
 - COMPOSTED SLUDGE SHALL CONTAIN AT LEAST 1 PERCENT NITROGEN, 15 PERCENT PHOSPHORUS, AND 0.2 PERCENT POTASSIUM AND HAVE A PH OF 7.0 TO 8.0. IF COMPOST DOES NOT MEET THESE REQUIREMENTS, THE APPROPRIATE CONSTITUENTS MUST BE ADDED TO MEET THE REQUIREMENTS PRIOR TO USE.
 - COMPOSTED SLUDGE SHALL BE APPLIED AT A RATE OF 1 TON/1000 SQUARE FEET.
 - COMPOSTED SLUDGE SHALL BE AMENDED WITH A POTASSIUM FERTILIZER APPLIED AT A RATE OF 4 LB/1000 SQUARE FEET, AND 1/2 THE NORMAL LIME APPLICATION RATE.

REFERENCES: GUIDELINE SPECIFICATIONS, SOIL PREPARATION AND SOODING MVA-PB-RV-11; COOPERATIVE EXTENSION SERVICE, UNIVERSITY OF MARYLAND AND VIRGINIA POLYTECHNIC INSTITUTES, REVISED 1973.

SEDIMENT CONTROL NOTES

- A MINIMUM OF 24 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY OFFICE OF INSPECTION AND PERMITS PRIOR TO THE START OF ANY CONSTRUCTION. (410) 393-1855
- ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 1984 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.
- FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN 14 DAYS OF THE DATE OF INITIAL DISTURBANCE. ALL SLOPES GREATER THAN 3:1, 8:1 H DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VEG. CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
- ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1984 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING, SOO, TEMPORARY SEEDINGS AND MULCHING (SEC. 6). TEMPORARY STABILIZATION, WITH MULCH ALONE, CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATA DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
- ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND BE MAINTAINED IN OPERATIVE CONDITION UNTIL FURTHER ACTION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

TOTAL AREA OF SITE (PARCELS A & C3) : 2030 ± ACRES
 AREA TO BE ROOFED OR PAVED : 0.1 ± ACRES
 AREA TO BE VEGETATIVELY STABILIZED : 0.1 ± ACRES
 TOTAL CUT : 1600 ± CU YDS
 TOTAL FILL : 1600 ± CU YDS
 OFF-SITE WASTE/BORROW AREA LOCATION : NONE

- ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY DPM SEDIMENT CONTROL INSPECTOR.
- ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUIRED UNDER THE MARYLAND SEDIMENT CONTROL ACT PRIOR TO THE START OF ANY CONSTRUCTION AND BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION AGENCIES (NOT INCLUDING THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR) SHALL BE NOTIFIED PRIOR TO THE START OF ANY CONSTRUCTION.
- TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO 3 PIPE LENGTHS OR THAT WHICH SHALL BE BACKFILLED AND STABILIZED WITHIN 1 WORKING DAY, WHICHEVER IS SHORTER.

PERMANENT SEEDING NOTES

APPLY TO GRADED OR CLEARED AREA NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT LONG-LIVED VEGETATIVE COVER IS NEEDED.

SEEDING PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING (UNLESS PREVIOUSLY LOOSENED).

SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ONE OF THE FOLLOWING SCHEDULES

- PREFERRED - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (2 LB/5000 SQUARE FEET) AND 500 LBS PER ACRE 10-10-10 FERTILIZER (14 LB/5000 SQ FT) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 LBS PER ACRE 30-0-0 UREA-FORM FERTILIZER (1 LB/5000 SQ FT).
- ACCEPTABLE - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (2 LB/5000 SQ FT) AND 1000 LBS PER ACRE OF 10-10-10 FERTILIZER (23 LB/5000 SQ FT) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL.

SEEDING: FOR THE PERIODS MARCH 1 THRU APRIL 30, AND AUGUST 1 THRU OCTOBER 31, SEED WITH 60 LBS PER ACRE (14 LB/5000 SQ FT) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD MAY 1 THRU JUNE 30, SEED WITH 60 LBS PER ACRE (14 LB/5000 SQ FT) OF KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS PER ACRE (0.5 LB/5000 SQ FT) OF KEEPING LOVERGRASS. DURING THE PERIOD OF OCTOBER 16 THRU FEBRUARY 28, PROTECT SITE BY OPTION (1) 2 TONS PER ACRE OF WELLS ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION (2) USE SOO. OPTION (3) SEED WITH 2 TONS PER ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS/ACRE WELLS ANCHORED STRAW.

MULCHING: APPLY 1/2 TO 2 TONS PER ACRE (10 TO 40 LB/5000 SQ FT) OF UNROTTED SMALL GRASS STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 2/8 GAL PER ACRE (5 GAL/5000 SQ FT) OF BML518F ASPHALT ON FLAT AREAS. ON SLOPES 5 FT OR HIGHER USE 3/8 GAL PER ACRE (6 GAL/5000 SQ FT) FOR ANCHORING.

MAINTENANCE: INSPECT ALL SEEDING AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

TEMPORARY SEEDING NOTES

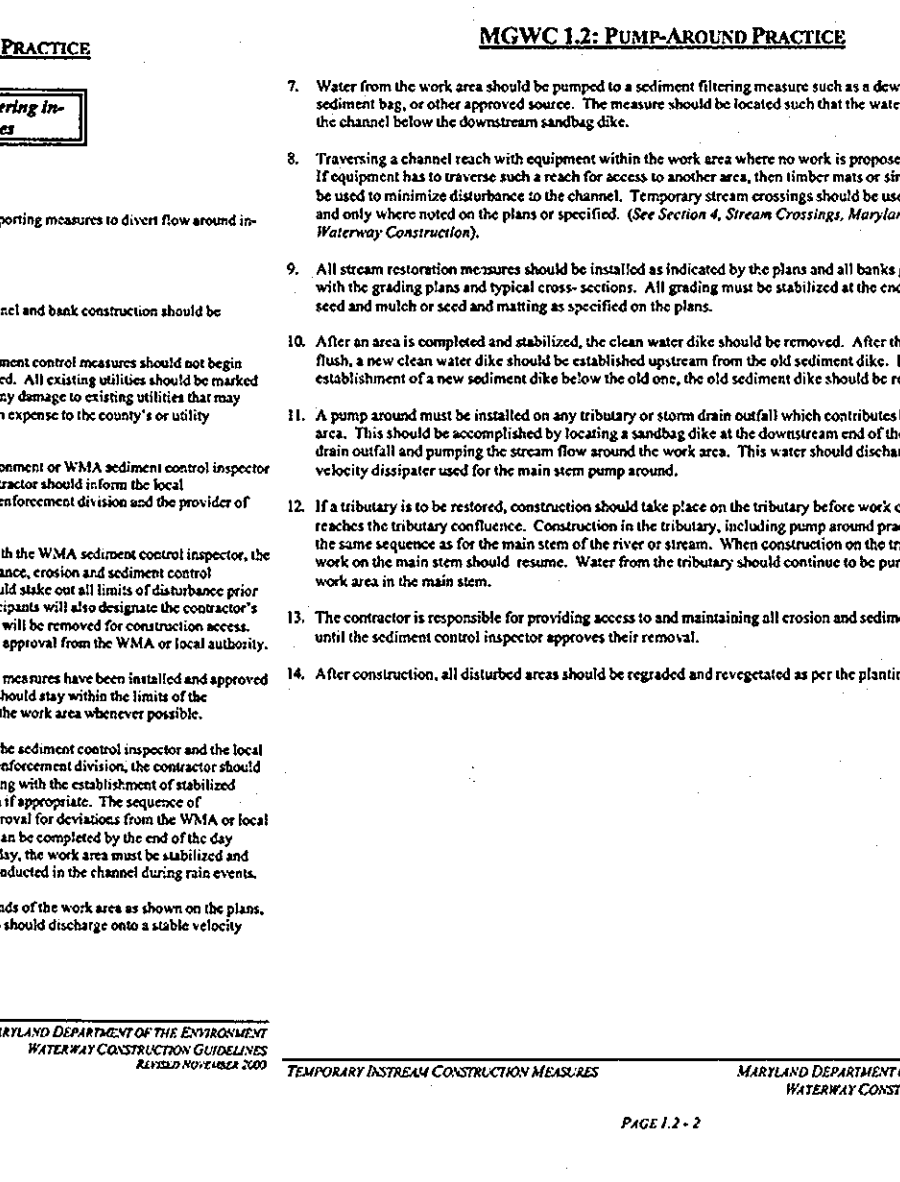
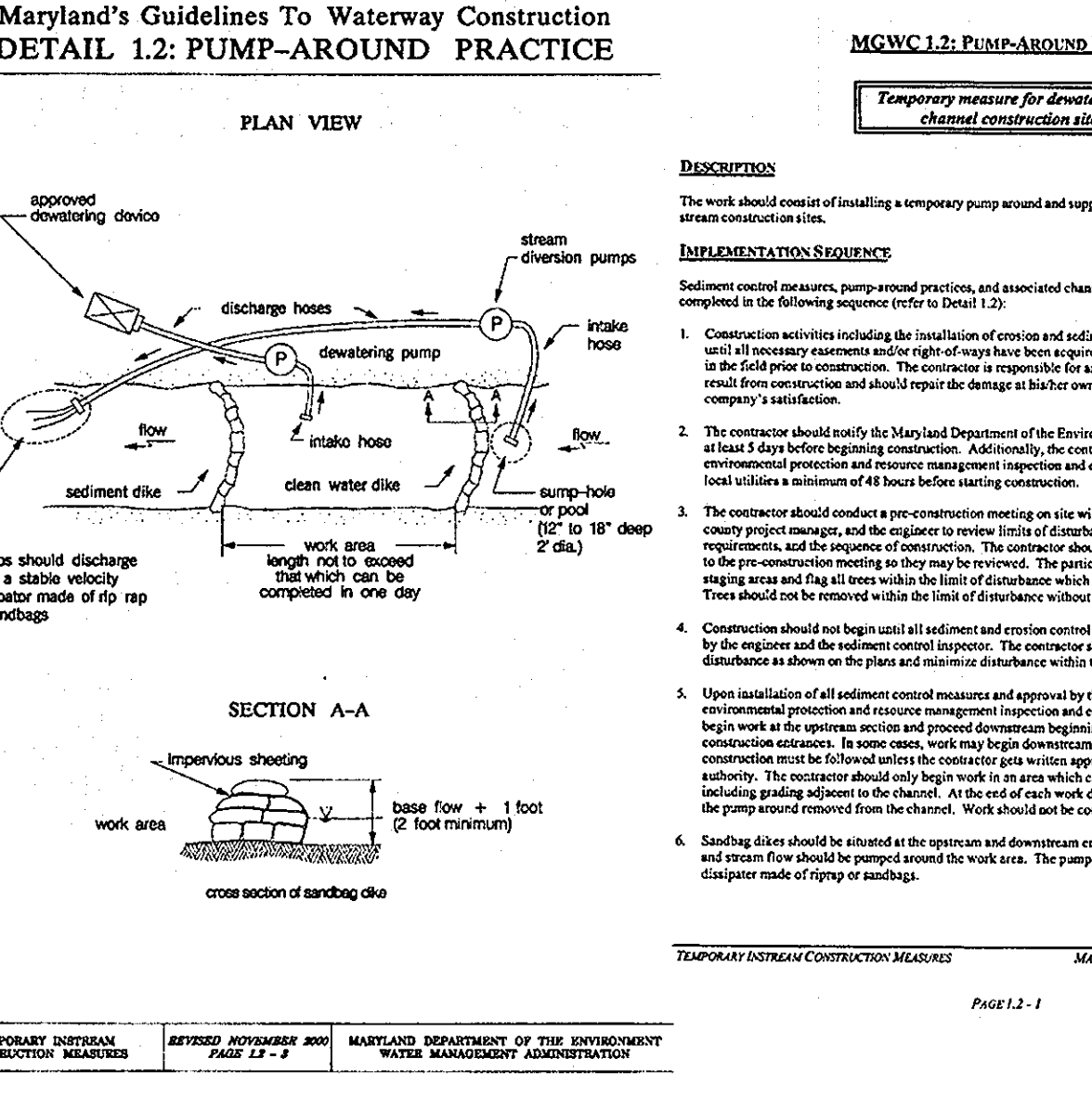
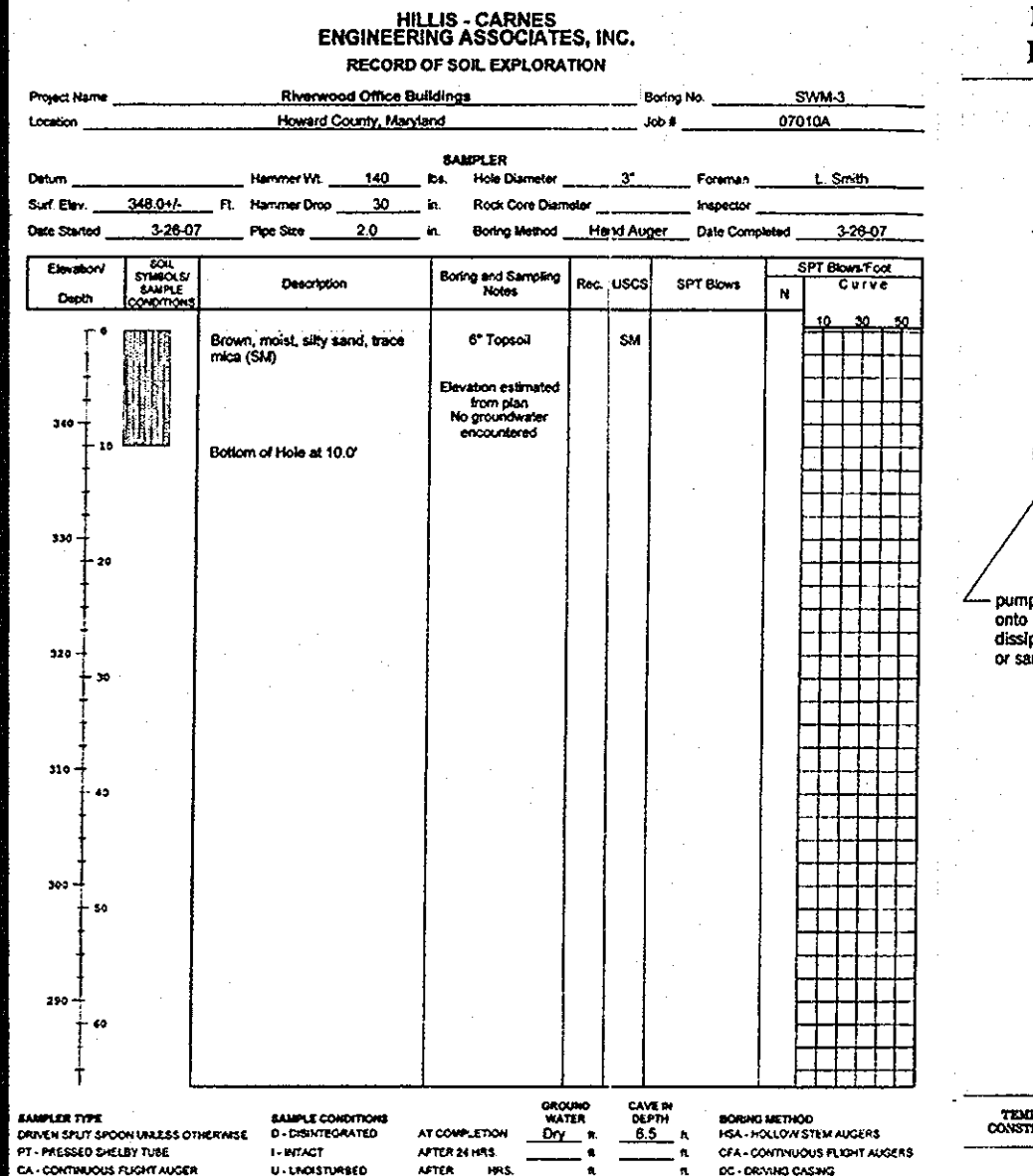
APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE REDISTURBED AFTER A SHORT-TERM VEGETATIVE COVER IS NEEDED.

SEEDING PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING (UNLESS PREVIOUSLY LOOSENED).

SOIL AMENDMENTS: APPLY 500 LBS PER ACRE 10-10-10 FERTILIZER (14 LB/5000 SQ FT).

SEEDING: FOR PERIODS MARCH 1 THRU APRIL 30 AND FROM AUGUST 15 THRU OCTOBER 15, SEED WITH 2 1/2 BUHEL PER ACRE OF ANNUAL RYE (3 LB/5000 SQ FT). FOR THE PERIOD MAY 1 THRU AUGUST 14, SEED WITH 1.5 TONS PER ACRE OF WELLS ANCHORED STRAW (50 LB/5000 SQ FT) BY APPLYING 2 TONS PER ACRE OF WELLS ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOO.

MULCHING: APPLY 1/2 TO 2 TONS PER ACRE (10 TO 40 LB/5000 SQ FT) OF UNROTTED, WEED-FREE, SMALL GRASS STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 2/8 GAL PER ACRE (5 GAL/5000 SQ FT) OF BML518F ASPHALT ON FLAT AREAS. ON SLOPES 5 FT OR HIGHER, USE 3/8 GAL PER ACRE (6 GAL/5000 SQ FT) FOR ANCHORING.



MGWC 1.2: PUMP-AROUND PRACTICE

Temporary measure for diverting the stream

DESCRIPTION

The work shall consist of installing a temporary pump-around structure to divert flow around in-stream construction sites.

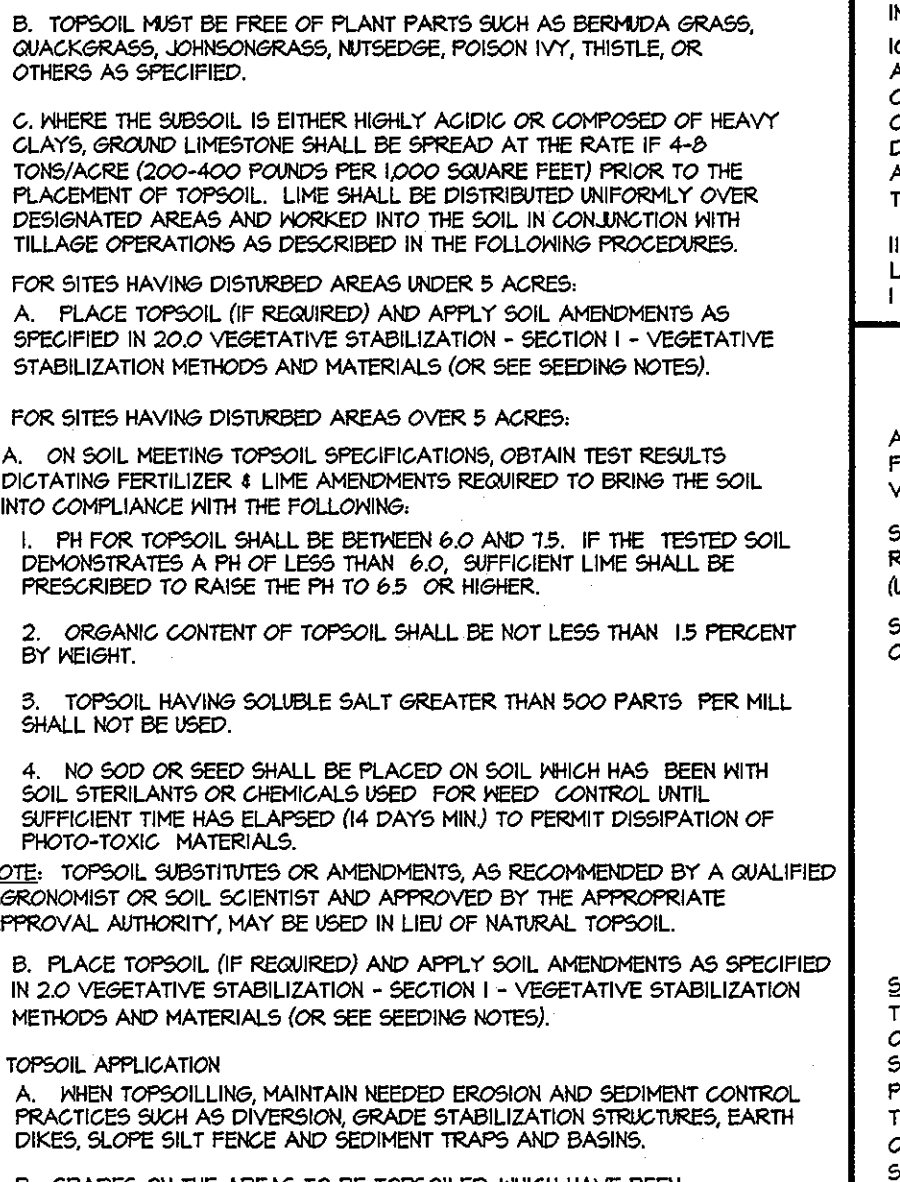
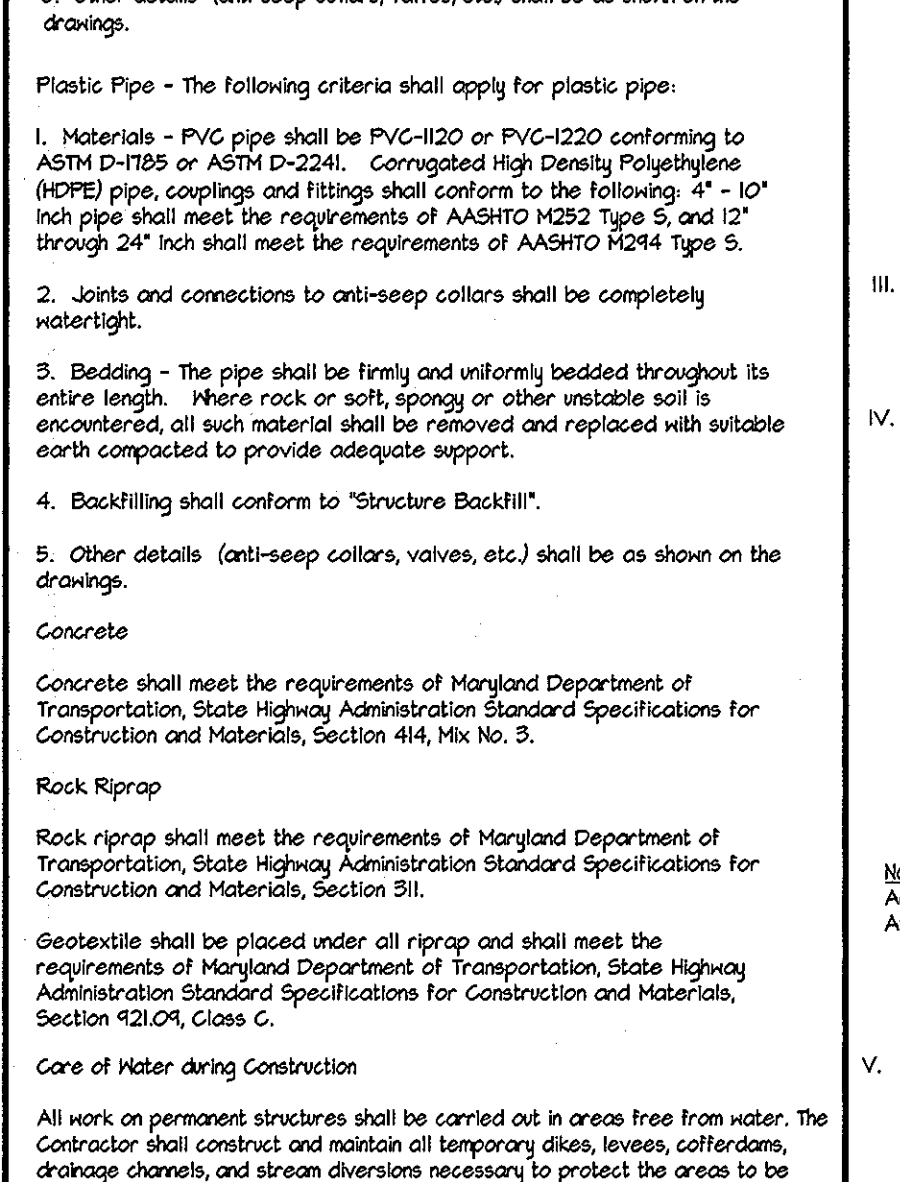
IMPLEMENTATION SPECIFICATIONS

1. Sediment control measures, pump-around structures, and associated channel bank construction should be completed in the following sequence (refer to Detail 1.2):
 - Install sediment control measures upstream of the work area.
 - Install the pump-around structure.
 - Install sediment control measures downstream of the work area.
2. Traversing a channel reach with equipment within the work area where work is proposed should not be used to maintain disturbance in the channel. Temporary stream crossings should be used only when necessary and should be removed as soon as possible. Water from the stream should continue to the proposed embankment fill placement and not excavated into the embankment.
3. All stream restoration measures should be installed as indicated by the plan and all berms graded in accordance with the grading plan and typical cross-sections. All grading must be submitted at the end of each day with the plan and cross-sections.
4. After an area is completed and stabilized, the clean water dike should be removed. After the final section is completed, a new clean water dike should be established upstream from the last section. Finally, upon establishment of a new sediment dike before the clean water dike, the old sediment dike should be removed.
5. A pump-around must be installed on any tributary or stream drain outlet which contributes backflow to the work area. This should be accomplished by locating a sandbag dike at the downstream end of the tributary or stream drain outlet and pumping the stream flow around the work area. This water should discharge into the same velocity dissipater used for the main stream pump-around.
6. If a tributary is to be retained, construction should take place on the tributary before work on the main stream reaches the tributary confluence. Construction in the tributary, including pump-around practices, should follow the same sequence as for the main stem of the river or stream. When construction on the tributary is completed, work on the main stem should resume. Water from the tributary should continue to the proposed embankment fill placement and not excavated into the embankment.
7. The contractor is responsible for providing access to and maintaining all erosion and sediment control devices and the sediment control inspector approves their use.
8. After construction, all disturbed areas should be regraded and revegetated as per the planting plan.

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 outside the 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 pipe.

Structure backfill may be flowable fill meeting the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 519 as modified. The mixture shall have a 100-200 psi, 28 day unconfined compressive strength. The flowable fill shall have a minimum pH of 4.0 and a minimum resistivity of 2,000 ohm-cm. Material shall be placed such that a minimum of 6" measured perpendicular to the outside of the pipe of flowable fill shall be under (bedding), over and, on the sides of the pipe. It only needs to extend up to the spring line for rigid conduits. Average slope of fill shall be 1:1 to assure flowability of the material. Adequate measures shall be taken (sand bags, etc.) to prevent floating the pipe. When using flowable fill, all metal pipe shall be blanchard coated. Any adjoining 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 shall completely fill all voids adjacent to the flowable fill zone. As 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 pipe. Backfill material outside the structural backfill (flowable fill) zone shall be of the type and quality conforming to other embankment materials.



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

[Signature] 2/10/09
 Director

[Signature] 2/10/09
 Chief, Division of Land Development

[Signature] 2/10/09
 Chief, Development Engineering Division

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