

GENERAL NOTES

- OPEN SPACE AREAS MAY CONTAIN ACTIVE RECREATION FACILITIES AS ALLOWED IN THE APPROVED DEVELOPMENT CRITERIA.
- STREAM BUFFERS ARE DETERMINED BY LAND USE ADJOINING THE OPEN SPACE. EMPLOYMENT USE = 50' BUFFER FROM ANY STREAM. RESIDENTIAL USES = 50' BUFFER FOR INTERMITTENT STREAMS AND 75' BUFFER FOR PERENNIAL STREAMS.
- PHASING FOR THIS PROJECT IS ACCORDANCE WITH THE DECISION AND ORDER FOR ZONING CASE ZB-979M AND THE DECISION AND ORDER FOR PB-339 (COMPREHENSIVE SKETCH PLAN S-99-12).
- ON SEPTEMBER 3, 1998 THE ZONING BOARD GRANTED APPROVAL OF ZB-979M FOR THE PRELIMINARY DEVELOPMENT PLAN AND DEVELOPMENT CRITERIA FOR 516 ACRES OF LAND RE-ZONED AS PEC-MXD-3 AND R-SC-MXD-3.
- BULK PARCEL D MAY BE RESUBDIVIDED FOR RESIDENTIAL USES, IN ACCORDANCE WITH THE APPROVED COMPREHENSIVE SKETCH PLAN (S-99-12) AND DEVELOPMENT CRITERIA.
- DEVELOPMENT FOR THIS WILL BE DONE IN ACCORDANCE WITH THE DEVELOPMENT CRITERIA APPROVED WITH COMPREHENSIVE SKETCH PLAN S-99-12(PB-339).
- PROJECT BACKGROUND:
 LOCATION: ADC MAP 19 G7
 TAX MAP: 47 P/O PARCELS 3, 837, & 462
 ZONING: PEC-MXD-3 & P-SC-MXD-3
 ELECTION DISTRICT: 6
 GROSS AREA OF TRACT: 18.45 AC.
 PRELIMINARY PLAN FILE NUMBER AND APPROVAL DATE: P-01-17, APRIL 19, 2001
- SEE COUNTY FILE NOS. ZB-979 M, PB-339, S-99-12, P-00-16
- SKYLARK BOULEVARD AND STEPHENS ROAD ARE DESIGNATED TRANSIT ROUTES.
- PUBLIC WATER AND SEWER TO BE UTILIZED. (MIDDLE PATUXENT DRAINAGE AREA) SITE
- QUALITY & QUANTITY STORMWATER MANAGEMENT FOR SECTION 2, PHASE 3 IS PROVIDED BY ONE WET POND FACILITY ON HOA LOT 176, TO BE CONSTRUCTED UNDER THIS PLAN (F-02-55) THE WET POND FACILITY WILL BE PRIVATELY OWNED AND JOINTLY MAINTAINED BY SAID HOA AND HOWARD COUNTY ACCESS TO THE SWM FACILITY IS VIA PALACE HALL DRIVE (F-01-145). THE SUBDIVISION IS LOCATED IN THE PATUXENT RIVER AREA SUB-BASIN AND IS A CLASS I WATERSHED.
- UPON THE DEVELOPMENT OF THE INDIVIDUAL PARCELS, THE STORMWATER MANAGEMENT WILL BE AMENDED.
- TOPOGRAPHY SHOWN HAS A 2' CONTOUR INTERVAL AND WAS OBTAINED THROUGH AERIAL PHOTOGRAPHY DURING THE SUMMER OF 1998.
- BOUNDARY SHOWN IS FROM BOUNDARY SURVEY UNDERTAKEN BY DAFT McCUNE AND WALKER.
- THERE ARE NO KNOWN CEMETERIES OR GRAVE SITES ON THIS PROPERTY.
- EXISTING UTILITIES ARE BASED ON PLANS OF RECORD.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
- THE 100 YEAR FLOOD PLAIN FOR HAMMOND BRANCH WAS OBTAINED FROM THE HOWARD COUNTY FLOOD PLAN STUDY DATED NOV. 1980 REF. D-6-10-26 & AUG. 1986 REF. D-1065. THE 100 YEAR FLOOD PLAINS FOR THE REMAINING STREAMS ARE FROM FLOOD STUDY PREPARED BY DAFT McCUNE AND WALKER MARCH 2000.
- WETLAND LIMITS WERE FIELD LOCATED IN SEPTEMBER OF 1998 BY DAFT MCCUNE AND WALKER.
- THE PROPOSED DEVELOPMENT IS IN COORDINATION WITH THE APFO STUDY FOR THIS DEVELOPMENT.
- GEOTECHNICAL REPORT PREPARED BY ROBERT B. GALTER, INC.
- HORIZONTAL AND VERTICAL CONTROL BASED ON HOWARD COUNTY CONTROL STATIONS 475A, ELEV. 315.905 AND 47E4, ELEV. 338.909.
- LIGHT POLES AND FIXTURES FOR STREET LIGHTS SHALL BE IN ACCORDANCE WITH THE LATEST HOWARD COUNTY DESIGN MANUAL, VOL. III, ROADS AND BRIDGES.
- SEE SOILS MAP #33.
- SEDIMENT CONTROL SHALL BE PROVIDED IN ACCORDANCE WITH THE REQUIREMENTS OF THE "1994 MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL AND THE APPROVED DEVELOPMENT CRITERIA."
- THE PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.
- THIS PROJECT WILL BE LANDSCAPED IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL, ADOPTED MARCH 12, 19 AND THE APPROVED DEVELOPMENT CRITERIA.
- NO PERIMETER LANDSCAPING IS REQUIRED FOR PARCEL D BECAUSE ALL ADJOINING PROPERTIES ARE PART OF THE SAME DEVELOPMENT (EMERSON). PLANTINGS FOR PARKING LOTS, ALONG ROADWAYS, SWM LANDSCAPING OR FOR RESIDENTIAL INTERNAL LANDSCAPING WILL BE ADDRESSED ON A FUTURE RESUBDIVISION PLAN OR SITE DEVELOPMENT PLAN.
- THE CUMULATIVE FOREST CONSERVATION OBLIGATIONS FOR 1.27 ACRES OF REFORESTATION HAVE BEEN ADDRESSED BY THE CREATION OF 5.03 ACRES OF REFORESTATION EASEMENTS UNDER PHASE 1B, F-01-137. THE EXCESS 3.76 ACRES MAY BE USED TO ADDRESS OBLIGATIONS FOR FUTURE PHASES. THE TOTAL AMOUNT OF FOREST TO BE RETAINED IN FOREST CONSERVATION EASEMENTS 'M' & 'N' IS 5.1 ACRES.
- ACCESS TO OPEN SPACE LOT 178 WILL BE VIA THE ADJOINING LOT 171, F-01-137. SEE WAIVER PETITION WP-01-22 WHICH GRANTED LOT 171 (FORMERLY LOT 178 ON THE WAIVER EXHIBIT) AND PARCEL C-1 (PROPOSED LOT 178) RELIEF FROM SECTION 16.121.(c) OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.
- OPEN SPACE LOTS WILL BE OFFERED FOR DEDICATION TO DRP, AND HOA LOTS WILL BE DEDICATED TO THE EMERSON HOA.
 OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND JOINTLY MAINTAINED STORMWATER MANAGEMENT PONDS
 ROUTINE MAINTENANCE BY HOA
 1. FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS, INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE POND IS FUNCTIONING PROPERLY.
 2. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES PER YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHALL BE MOWED AS NEEDED.
 3. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
 4. VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS THE RIP-RAP OR GABION OUTLET AREA SHALL BE REPAIRED AS SOON AS IT IS NOTICED.
 NON-ROUTINE MAINTENANCE BY HOWARD COUNTY
 1. STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, RISER AND THE PIPES SHALL BE REPAIRED UPON THE DETECTION OF ANY DAMAGE. THE COMPONENTS SHALL BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
 2. SEDIMENT SHALL BE REMOVED FROM THE POND AND FOREBAY NO LATER THAN WHEN THE CAPACITY OF THE POND OR FOREBAY IS HALF FULL OF SEDIMENT OR WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, UPON APPROVAL FROM THE DEPARTMENT OF PUBLIC WORKS.

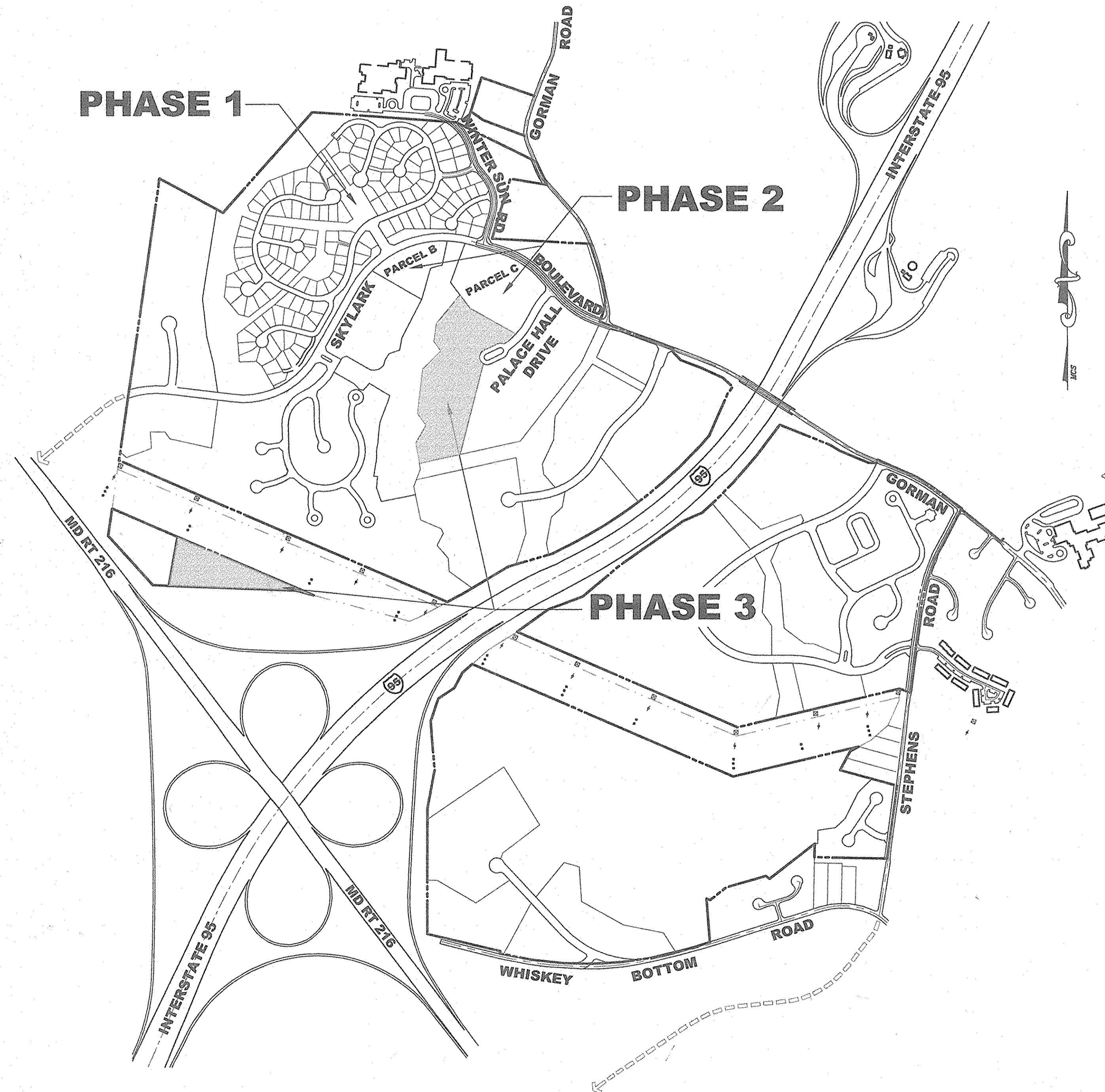
FINAL PLAN

EMERSON SECTION 2

PHASE 3

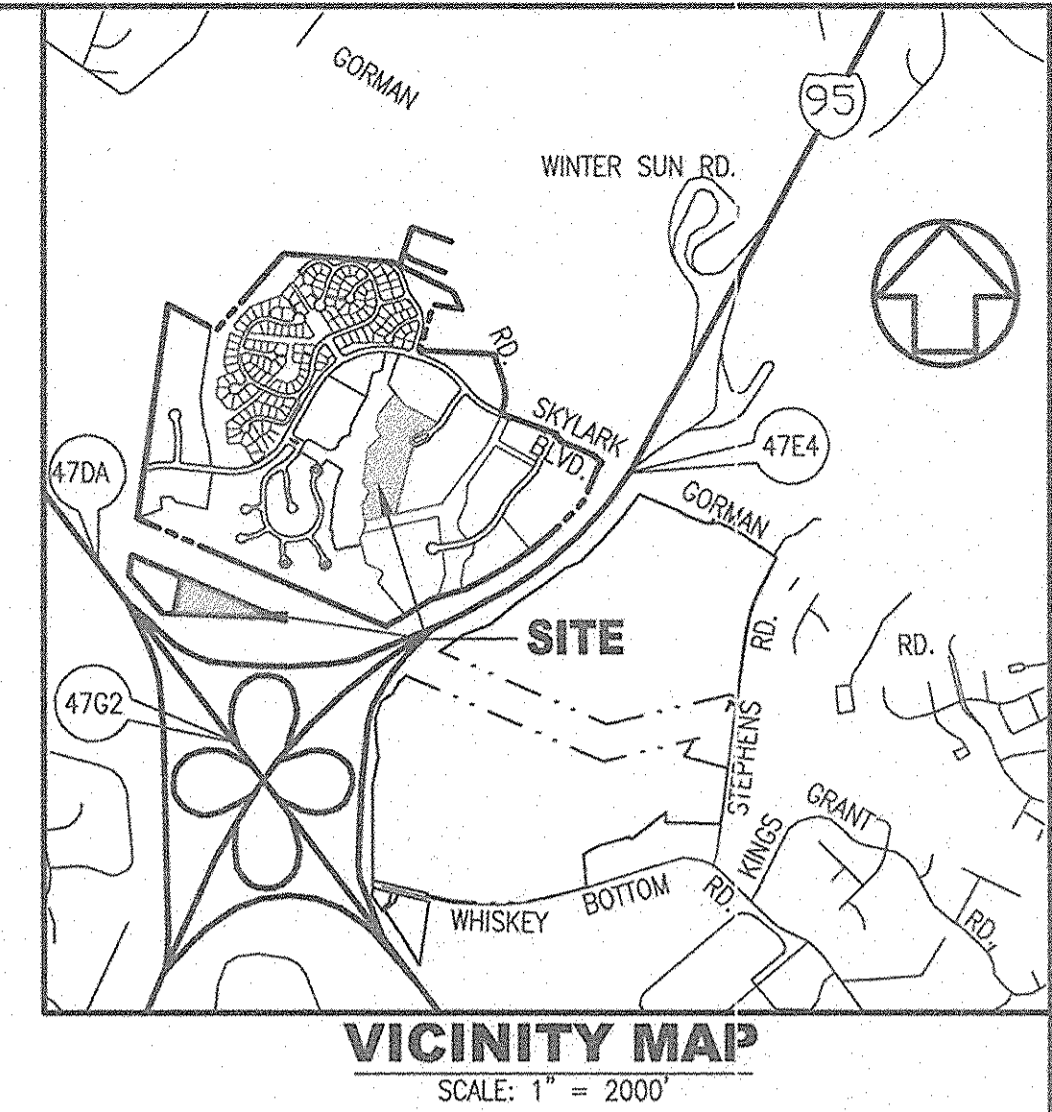
(FORMERLY KEY PROPERTY)

HOWARD COUNTY, MARYLAND



SCALE: 1" = 600'

BENCHMARKS
 475A NORTHING: 163191.9104
 EASTING: 4112865759
 ELEVATION: 315.905 FT.
 47E4 NORTHING: 163326.2295
 EASTING: 413136.2550
 ELEVATION: 338.909 FT.
 47G2 NORTHING: 162440.1212
 EASTING: 4118539279
 ELEVATION: 364.210 FT.



SHEET INDEX	
SHEET #	DESCRIPTION
1	COVER SHEET
2	SITE PLAN
3	FOREST CONSERVATION PLAN
4	GRADING AND EROSION SEDIMENT CONTROL PLAN
5	EROSION SEDIMENT CONTROL DETAILS
6	EROSION SEDIMENT CONTROL SPECIFICATIONS
7	STORMWATER MANAGEMENT PLAN
8	STORMWATER MANAGEMENT PROFILES
9	STORMWATER MANAGEMENT SPECIFICATIONS
10	STORMWATER MANAGEMENT DRAINAGE AREA MAP

DPZ FILE F-02-55

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Donohue 7/9/02
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
David Hamilton 7/2/02
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Mark M. ... 9/16/02
 CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE

DATE NO. REVISION

OWNER / DEVELOPER:
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION
 THE ROUSE BUILDING
 10275 LITTLE PATUXENT PARKWAY
 COLUMBIA, MARYLAND 21044
 PHONE: (410) 992-6370

PROJECT: **EMERSON SECTION 2, PHASE 3**
BULK PARCEL D

AREA TAX MAP NO. 47 P/O PARCEL P.837 P. 3. P. 482
 ELECTION DISTRICT No.6 HOWARD COUNTY, MARYLAND

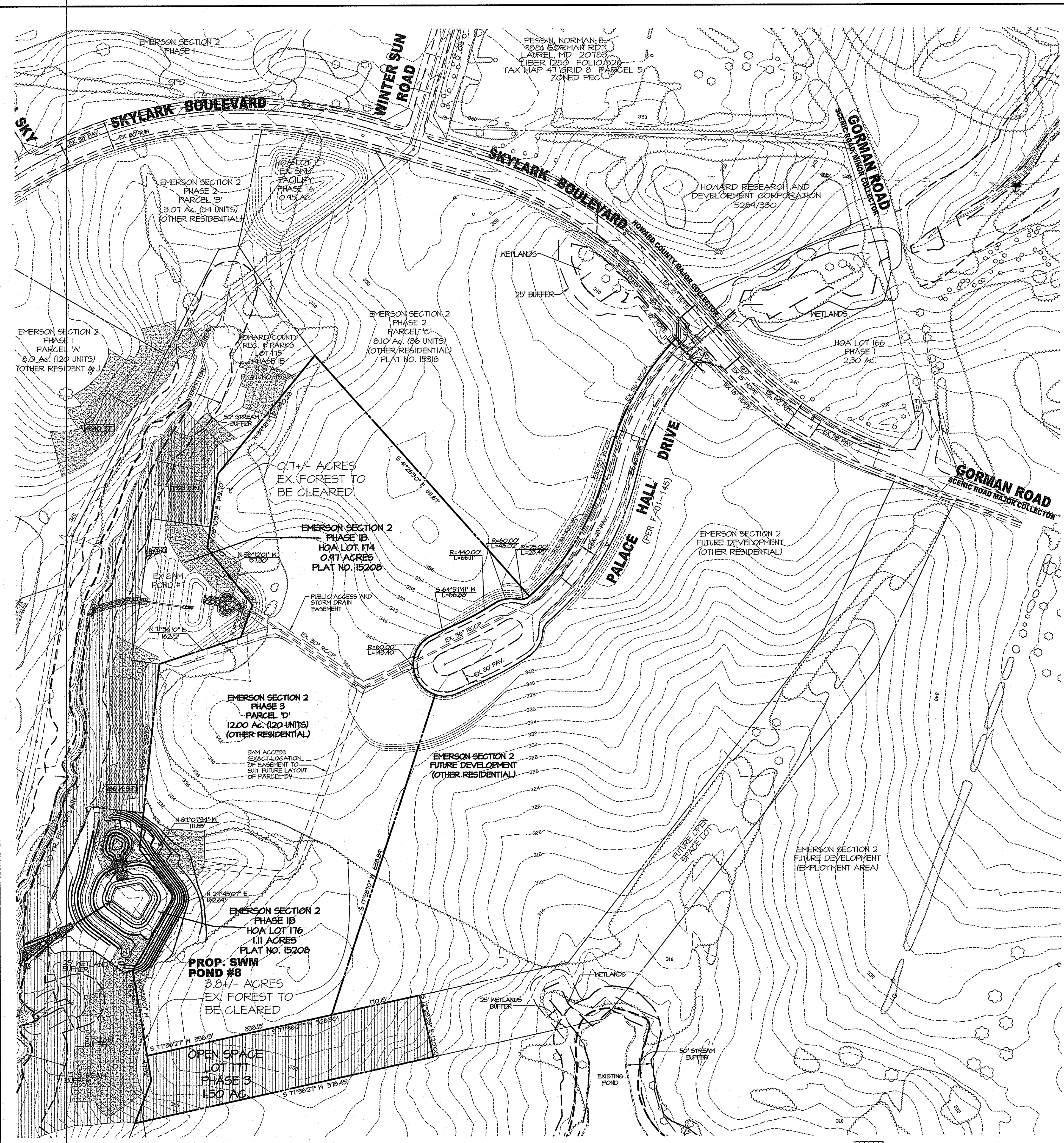
TITLE **COVER SHEET**

MRA MORRIS & RITCHIE ASSOCIATES, INC.
 ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS
 110 WEST ROAD SUITE 245
 TOWSON, MARYLAND 21284
 (410) 824-1890
 FAX (410) 824-1748

6-18-02
 DATE

PROJECT NO.: 11494
 SCALE: 1" = 100'
 DATE: JULY 5, 2002
 DRAWN BY: MLS
 DESIGNED BY: TAM
 REVIEW BY: DNM
 DRAWING NO. 1 OF 10

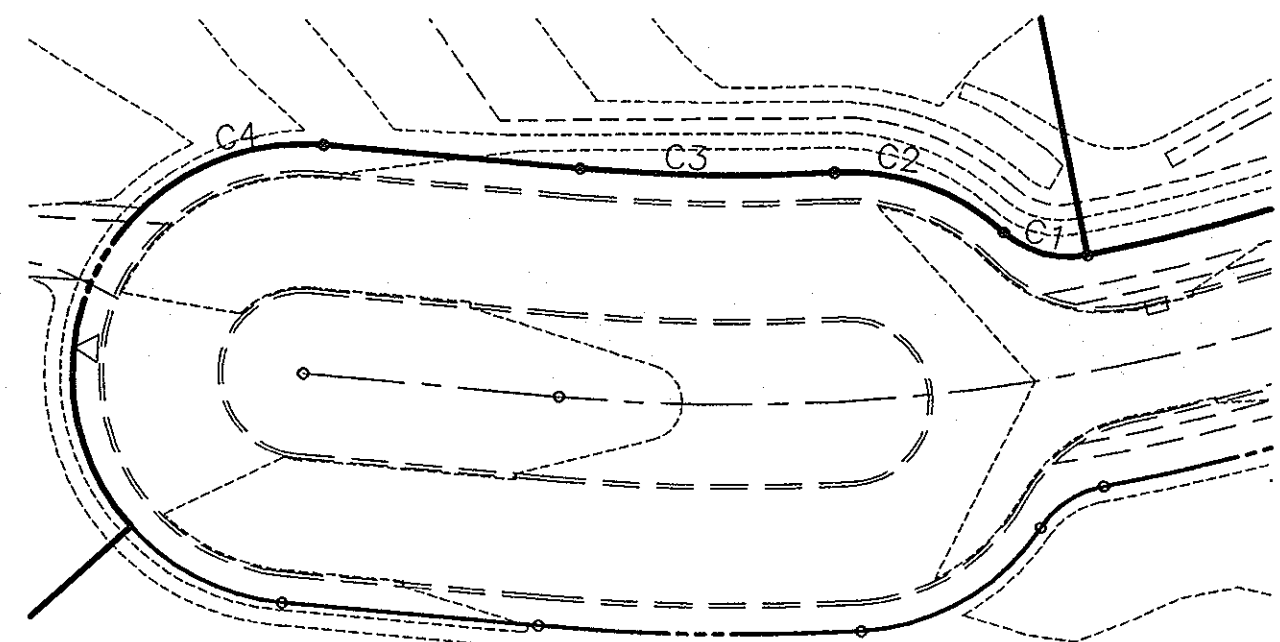
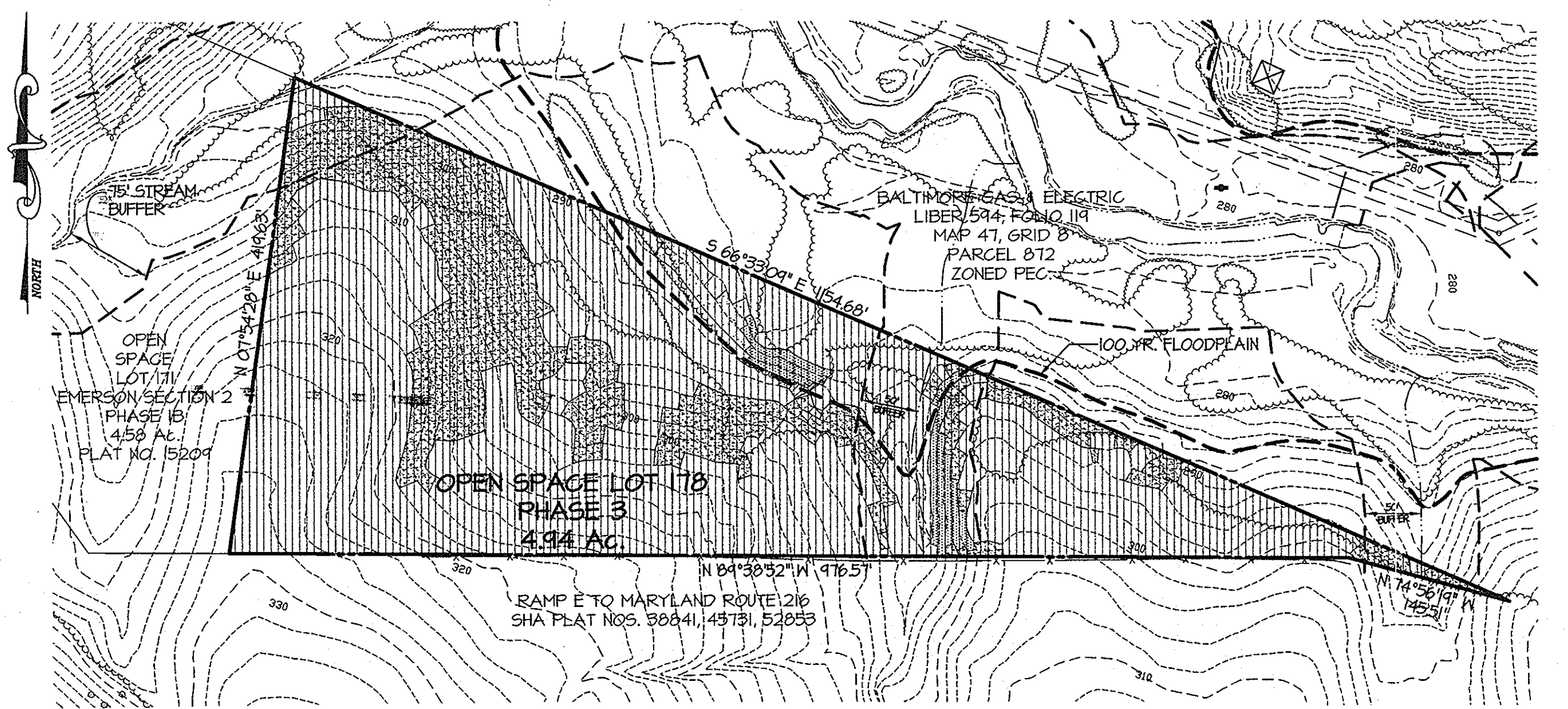




NOTE: SWM ACCESS EASEMENTS SHOWN ARE SUBJECT TO RELOCATION ON THE FINAL SITE DEVELOPMENT PLANS FOR PARCEL 'D'. EASEMENTS WILL BE RELOCATED TO FALL WITHIN PLANNED PAVED PRIVATE ROADS.

PLAN
SCALE: 1" = 100'

AREA OF SLOPES GREATER THAN 25% = 0.30 ACRES
 AREA OF SLOPES GREATER THAN 15% AND LESS THAN 25% = 2.42 ACRES



INSERT
SCALE: 1" = 50'

CURVE TABLE

CURVE	ARC	CHORD BEARING	RADIUS	DELTA	CHORD	TANGENT
C1	23.45'	S75°20'29"W	25.00'	53°44'01"	22.60'	12.67'
C2	48.02'	S79°16'49"W	60.00'	45°51'20"	46.75'	25.38'
C3	66.11'	S60°39'25"W	440.00'	08°36'32"	66.05'	33.12'
C4	143.40'	S03°33'48"E	60.00'	136°56'04"	143.40'	---

LEGEND

--- 112 ---	EX. R/W	--- 100 YR. FLOOD PLAIN ---	EX. WOODS LINE / VEGETATION
--- 110 ---	EX. 2' CONTOUR	--- METLANDS ---	PROP. HOODS LINE
--- 102 ---	EX. 10' CONTOUR	--- METLANDS BUFFER ---	--- 100 YR. FLOOD PLAIN ---
--- 100 ---	PROP. 2' CONTOUR	--- UTILITY EASEMENT ---	--- METLANDS BUFFER ---
--- 100 ---	PROP. 10' CONTOUR	--- PROP. CURETS & GUTTER ---	--- PROP. STREAM LINES ---
--- 10' SW ---	EX. CURB & GUTTER	--- EX. SANITARY ---	--- PROP. ROADS CENTERLINE ---
--- 15" SP. ---	EX. STORM DRAIN	--- PROP. STORM DRAIN ---	--- SLOPES GREATER THAN 25% ---
--- 10' W ---	EX. WATER	--- EX. WATER ---	--- SLOPES GREATER THAN 15% LESS THAN 25% ---
			--- NATURAL CONSERVATION AREA USED AS STORMWATER CREDIT ---

FOREST CONSERVATION CALCULATIONS

BASIC SITE DATA	PHASE 3 ACRES
GROSS SITE AREA	137.35
AREA WITHIN 100YEAR FLOODPLAIN	4.00
NET TRACT AREA	133.35
LAND USE CATEGORY	MPD
INFORMATION FOR CALCULATIONS	
A. NET TRACT AREA	133.35
B. REFORESTATION THRESHOLD (15% X A)	20.00
C. AFFORESTATION MINIMUM (15% X A)	20.00
D. EXISTING FOREST ON NET TRACT AREA	34.40
E. FOREST AREAS TO BE CLEARED	12.53
F. FOREST AREAS TO BE RETAINED	21.87
REFORESTATION CALCULATIONS	
A. NET TRACT AREA	133.35
B. REFORESTATION THRESHOLD (15% X A)	20.00
C. EXISTING FOREST ON NET TRACT AREA	34.40
D. FOREST AREAS TO BE CLEARED	12.53
E. FOREST AREAS TO BE RETAINED	21.87
F. FOREST AREAS TO BE CLEARED ABOVE REFORESTATION THRESHOLD	12.53
G. FOREST AREAS CLEARED BELOW REFORESTATION THRESHOLD	0.00
H. FOREST AREAS RETAINED ABOVE REFORESTATION THRESHOLD	1.87
CLEARING BELOW THE THRESHOLD	
IF FOREST AREAS TO BE RETAINED ARE LESS THAN THE REFORESTATION THRESHOLD	
(IF E IS LESS THAN B), THE FOLLOWING CALCULATIONS APPLY	
REFORESTATION FOR CLEARING ABOVE THRESHOLD	3.13
F x 1/4	
REFORESTATION FOR CLEARING BELOW THRESHOLD	0.00
G x 2	
TOTAL REFORESTATION REQUIRED	3.13
(F x 1/4) + (G x 2)	
CREDIT FOR RETENTION ABOVE CONSERVATION THRESHOLD	1.87
REFORESTATION REQUIRED	1.27
REFORESTATION PROVIDED	5.03
POTENTIAL FUTURE REFORESTATION	3.91
TOTAL	8.94

DPZ FILE F-02-55

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Richard M. Daniels 9/9/02
 CHIEF, BUREAU OF HIGHWAYS MS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Cindy Hamilton 9/13/02
 CHIEF, DIVISION OF LAND DEVELOPMENT HB DATE

Mark DeJure 9/16/02
 CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE

DATE	NO.	REVISION

OWNER / DEVELOPER:
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION
 THE ROUSE BUILDING
 10275 LITTLE PATUXENT PARKWAY
 COLUMBIA, MARYLAND 21044
 PHONE: (410) 992-6370

PROJECT: **EMERSON SECTION 2 PHASE 3**

AREA TAX MAP NO. 47 P/O PARCEL P.837 P. 3. P. 482
 ELECTION DISTRICT No.6 HOWARD COUNTY, MARYLAND

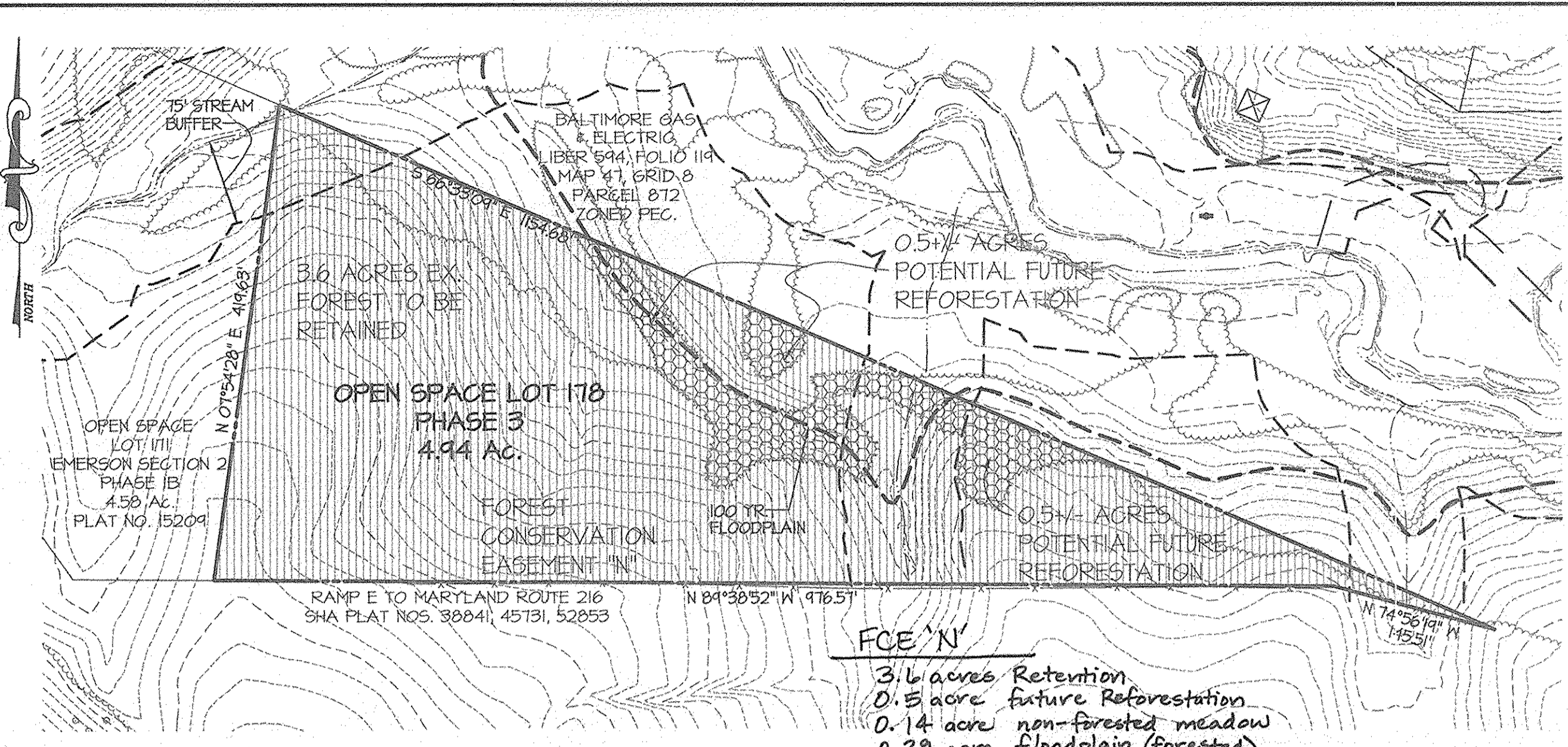
TITLE **SITE PLAN**

MRA MORRIS & RITCHIE ASSOCIATES, INC.
 ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS
 110 WEST ROAD SUITE 245
 TOWSON, MARYLAND 21204
 (410) 821-1690
 FAX (410) 821-1748

6-18-02 DATE PROJECT NO.: 11494
 SCALE: 1" = 100'
 DATE: JULY 5, 2002
 DRAWN BY: MLS & TAM
 DESIGNED BY: TAM
 REVIEW BY: DNM
 DRAWING NO. 2 OF 10



PLAN
SCALE: 1" = 100'



FCE 'N'
 3.6 acres Retention
 0.5 acre Future Reforestation
 0.14 acre non-forested meadow
 0.29 acre Floodplain (forested)
 0.41 acre of brush vegetation (non-forest)
4.94 acres

FOREST CONSERVATION TRACKING CHART

Phase Number	Gross Area	Floodplain Area	Net Tract Area	Ex. Forest Area	Forest # cleared	Forest retained	Refor./Affor. required	Refor./Affor. provided	Excess Refor./Affor.	Future Forest Clearing	Future Refor./Affor.	Comments
2/1A & 1B	106.20	3.50	102.70	24.70	7.93	16.77	0.61	5.03	4.42	4.48	3.41	
2/2	118.90	3.50	115.40	24.80	8.03	16.77	2.95	5.03	2.08	3.28	3.41	SEE NOTE A
2/3	137.35	4.00	133.35	34.40	12.53	21.87	1.27	5.03	3.76	2.18	3.91	SEE NOTE B
TOTAL												

THE TABULATIONS SHOWN ABOVE FOR EACH PHASE WILL REFLECT CUMULATIVE TOTALS FOR THIS PHASE AND ALL PREVIOUS PHASES.
 * THE FOREST CLEARED INCLUDES THE ACREAGE OF POSSIBLE FUTURE FOREST CLEARING.
 A. 1.20 ACRES OF FUTURE FOREST CLEARING SHOWN ON F-01-137 WAS CLEARED FOR SWM ON OPEN SPACE LOT 174.
 B. 1.10 ACRES OF FUTURE FOREST CLEARING SHOWN ON F-01-137 WAS CLEARED FOR SWM ON OPEN SPACE LOT 176.

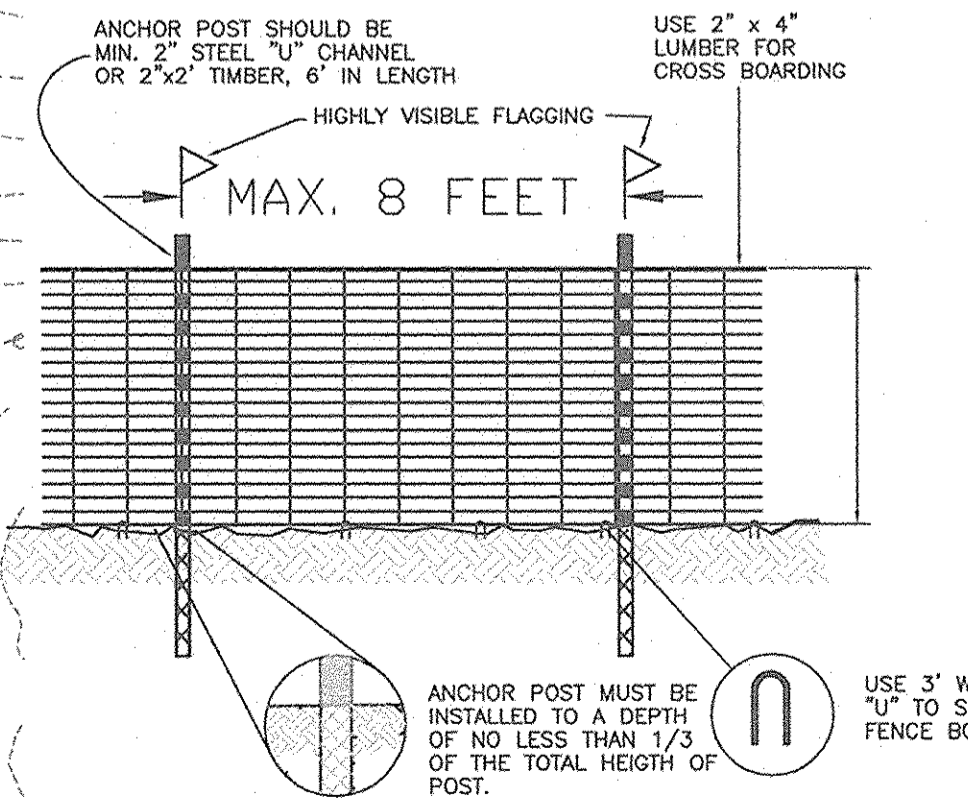
GOALS AND OBJECTIVES

DEVELOPMENT OF PHASE 3 OF EMERSON SECTION 2 UNDER THE CURRENT FOREST CONSERVATION ACT REQUIRES THE CLEARING OF APPROXIMATELY 4.50 ACRES OF EXISTING FOREST. THIS CLEARING, CONSIDERED CUMULATIVELY WITH PROPOSED CLEARING ON PHASES 1 AND 2 COMBINES FOR A TOTAL OF 12.53 ACRES OF FOREST CLEARING, WITH 21.87 AC. OF FOREST RETAINED. THE REQUIRED, CUMULATIVE AMOUNT OF REFORESTATION FOR THESE THREE PHASES IS 1.27 ACRES. THIS REFORESTATION REQUIREMENT WILL BE SATISFIED BY 5.03 ACRES OF REFORESTATION PLANTINGS PROPOSED ON EMERSON SECTION 2, PHASE 1.

THE GOALS AND OBJECTIVES OF THIS FOREST CONSERVATION PLAN ARE TO PROVIDE FOR SHORT-TERM FOREST RETENTION AREA PROTECTION BY IDENTIFYING THOSE AREAS AND INDICATING THE LOCATIONS OF FOREST PROTECTION FENCING AND SIGNAGE. ESTABLISHING THESE SHORT-TERM PROTECTION MEASURES PRIOR TO ANY EARTH-MOVING ACTIVITIES WILL HELP ENSURE THAT THESE AREAS WILL NOT BE DISTURBED DURING CONSTRUCTION ACTIVITIES. REFORESTATION AREAS WILL BE LOCATED ON EMERSON SECTION 2, PHASE 1, AND WILL BE PROTECTED BY ESTABLISHMENT OF LONG-TERM PROTECTIVE COVENANTS AND INSTALLATION OF PERMANENT PROTECTIVE SIGNAGE AS INDICATED ON THAT PLAN.

LEGEND

- EX. R/W
- EX. 2' CONTOUR
- EX. 10' CONTOUR
- PROP. 2' CONTOUR
- PROP. 10' CONTOUR
- EX. CURB & GUTTER
- PROP. CURB & GUTTER
- EX. SANITARY
- EX. STORM DRAIN
- PROP. ST. BASIN
- PROP. STORM DRAIN
- EX. WATER
- PROP. 10' H
- EX. WOODS LINE / VEGETATION
- PROP. WOODS LINE
- 100 YR. FLOOD PLAIN
- WETLANDS
- WETLANDS BUFFER
- UTILITY EASEMENT
- PROP. STREAM LINES
- PROP. ROAD CENTERLINE
- PROP. FOREST PROTECTION FENCE AND SIGNS
- EXISTING FOREST TO BE CLEARED
- POTENTIAL FUTURE REFORESTATION
- SLOPES GREATER THAN 25%
- SLOPES GREATER THAN 15% LESS THAN 25%
- NATURAL CONSERVATION AREA USED AS STORMWATER CREDIT



- NOTES:**
- FOREST PROTECTION DEVICE ONLY
 - RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS
 - BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
 - ROOT DAMAGE SHOULD BE AVOIDED.
 - PROTECTIVE SIGNAGE MAY ALSO BE USED.
 - DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

BLAZE ORANGE PLASTIC MESH
NOT TO SCALE

MIN. 11"
FOREST RETENTION AREA
 MACHINERY, DUMPING OR STORAGE OF ANY MATERIALS IS PROHIBITED
 VIOLATORS ARE SUBJECT TO FINES AS IMPOSED BY THE MARYLAND FOREST CONSERVATION ACT OF 1991
 MIN. 15"

DPZ FILE F-02-55

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Daulton 9-9-02
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Cindy Hammit 9/15/02
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Mr. Dammann 9/11/02
 CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE

DATE NO. REVISION

OWNER / DEVELOPER:
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION
 THE ROUSE BUILDING
 10275 LITTLE PATUXENT PARKWAY
 COLUMBIA, MARYLAND 21044
 PHONE: (410) 992-6370

PROJECT: **EMERSON SECTION 2 PHASE 3**

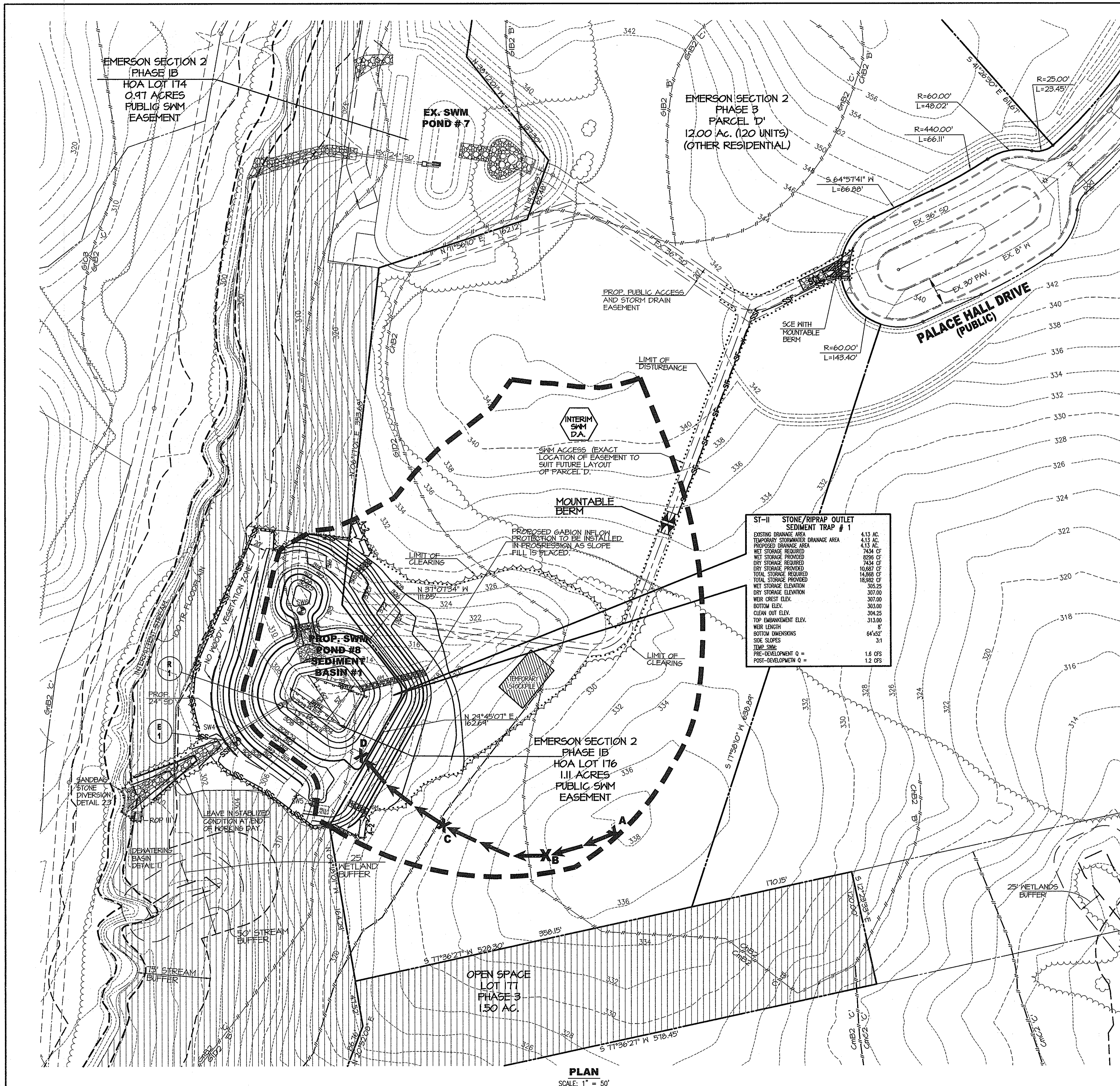
AREA TAX MAP NO. 47 P/O PARCEL P.837 P. 3. P. 482

ELECTION DISTRICT No.6 HOWARD COUNTY, MARYLAND

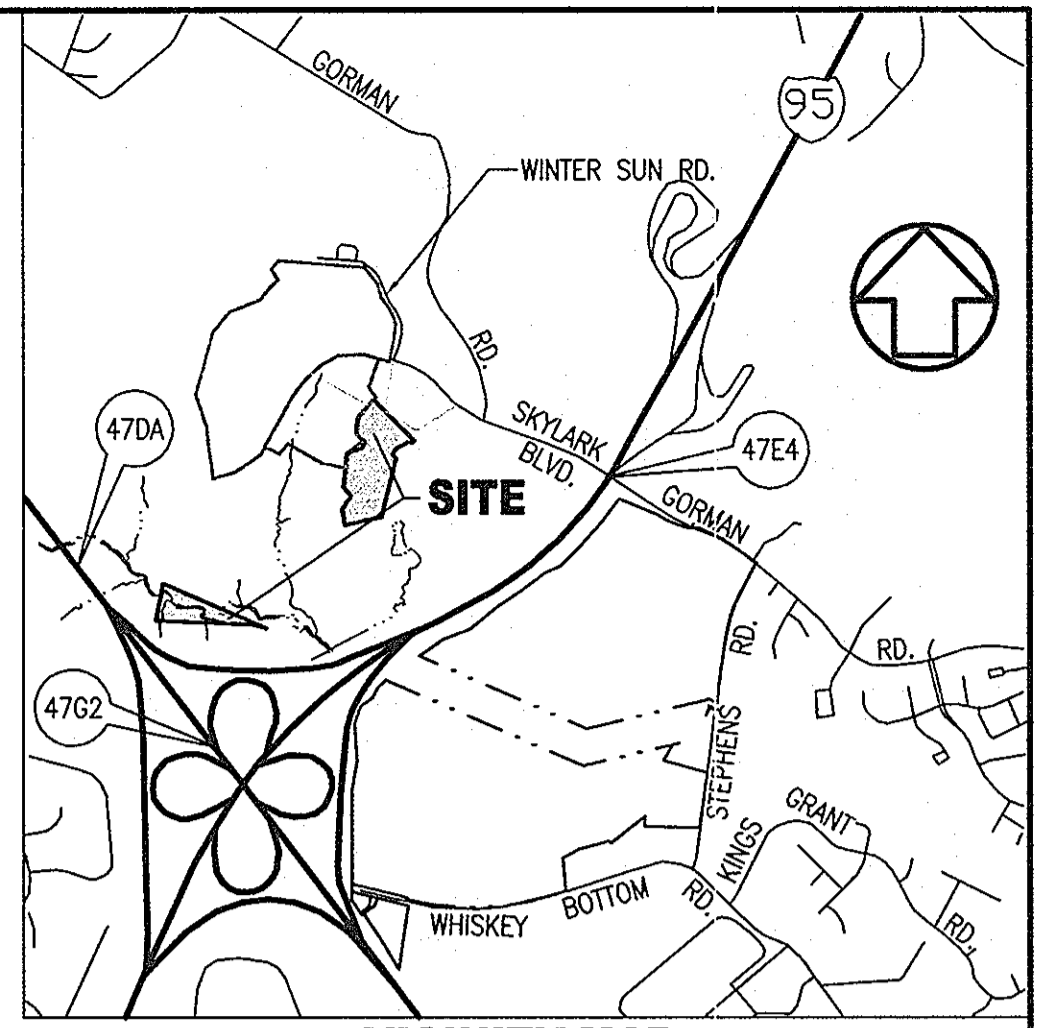
TITLE **FOREST CONSERVATION PLAN**

MRA MORRIS & RITCHIE ASSOCIATES, INC.
 ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS
 110 WEST ROAD SUITE 245
 TOWSON, MARYLAND 21284
 (410) 821-1690
 FAX (410) 821-1748

DATE 6-18-02
 PROJECT NO.: 11494
 SCALE: 1" = 100'
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 DRAWN BY: MLS & TAM
 DESIGNED BY: TAM
 REVIEW BY: DNM
 DRAWING NO. 3 OF 10



BENCHMARKS
 470A NORTHING 163191.9104
 EASTING 4112865759
 ELEVATION 315.905 FT.
 47E4 NORTHING 163326.2295
 EASTING 413136.2550
 ELEVATION 338.909 FT.
 47G2 NORTHING 162440.1212
 EASTING 4118539279
 ELEVATION 384.210 FT.



VICINITY MAP
 SCALE: 1" = 2000'

LEGEND

	EARTH DIKE TYPE A
	SWALE TYPE A
	CROSSABLE SWALE
	MOUNTABLE BERM A
	TEMPORARY STOCKPILE AREA
	NATURAL CONSERVATION AREA USED AS STORMWATER CREDIT
	L.O.D. LIMIT OF DISTURBANCE
	SSF SUPER SILT FENCE
	SF SILT FENCE
	RRP RIPRAP INFLOW PROTECTION
	SCE STABILIZED CONSTRUCTION ENTRANCE
	WETLANDS
	25' WETLANDS BUFFER
	CURB INLET BLOCKING
	RPS REMOVABLE PUMPING STATION

ST-II STONE/RIPRAP OUTLET SEDIMENT TRAP # 1

EXISTING DRAINAGE AREA	4.13 AC.
TEMPORARY STORMWATER DRAINAGE AREA	4.13 AC.
PROPOSED DRAINAGE AREA	4.13 AC.
WET STORAGE REQUIRED	7434 CF
WET STORAGE PROVIDED	8296 CF
DRY STORAGE REQUIRED	7434 CF
DRY STORAGE PROVIDED	307.00
TOTAL STORAGE REQUIRED	10,867 CF
TOTAL STORAGE PROVIDED	14,899 CF
WEIR STORAGE ELEVATION	305.25
WEIR STORAGE ELEVATION	307.00
WEIR CREST ELEV.	307.00
BOTTOM ELEV.	303.00
CLEAN OUT ELEV.	304.25
TOP EMBANKMENT ELEV.	313.00
WEIR LENGTH	8'
BOTTOM DIMENSIONS	64'x52'
SIDE SLOPES	3:1
TEMP. SWM	1.6 CFS
PRE-DEVELOPMENT Q =	1.2 CFS
POST-DEVELOPMENT Q =	

ENGINEER'S 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.
 Signature: *David N. Miller* DATE: 6-10-02

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS
 Signature: *John P. ...* DATE: 7/23/02
USDA-NATURAL RESOURCES CONSERVATION SERVICE
 THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT APPROVED
 Signature: *John P. ...* DATE: 7/23/02
 HOWARD S.C.D.

OWNER'S 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.
 Signature: *Jeff ...* DATE: 6/20/02

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.
 U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE DATE: _____
 THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
 HOWARD SOIL CONSERVATION DISTRICT DATE: _____

DPZ FILE F-02-55

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 Signature: *Andrew M. ...* DATE: 9-9-02
 CHIEF, BUREAU OF HIGHWAYS
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
 Signature: *Cindy ...* DATE: 9/5/02
 CHIEF, DIVISION OF LAND DEVELOPMENT
 Signature: *Mike ...* DATE: 9/1/02
 CHIEF, DEVELOPMENT ENGINEERING DIVISION MK

OWNER / DEVELOPER:
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION
 THE ROUSE BUILDING
 10275 LITTLE PATUXENT PARKWAY
 COLUMBIA, MARYLAND 21044
 PHONE: (410) 992-6370

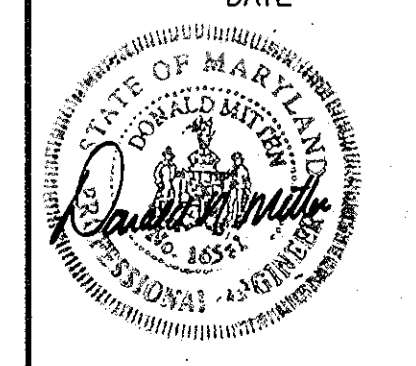
PROJECT: **EMERSON SECTION 2 PHASE 3**

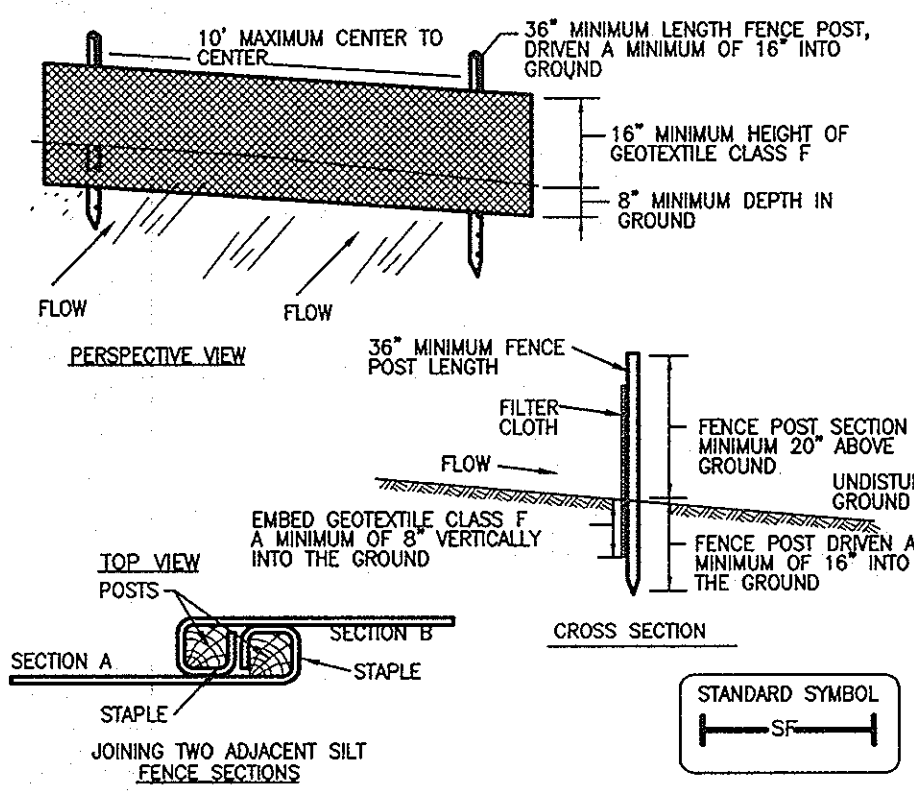
AREA TAX MAP NO. 47 P/O PARCEL P.837 P. 3. P. 482
 ELECTION DISTRICT No.6 HOWARD COUNTY, MARYLAND

TITLE **GRADING AND SEDIMENT EROSION CONTROL PLAN**

MRA MORRIS & RITCHIE ASSOCIATES, INC.
 ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS
 110 WEST ROAD SUITE 245
 TOWSON, MARYLAND 21284
 (410) 821-1690
 FAX (410) 821-1748

PROJECT NO.: 11494
 SCALE: 1" = 50'
 DATE: JULY 5, 2002
 DRAWN BY: MLS
 DESIGNED BY: TAM
 REVIEW BY: DNM
 DRAWING NO. 4 OF 10





CONSTRUCTION SPECIFICATIONS

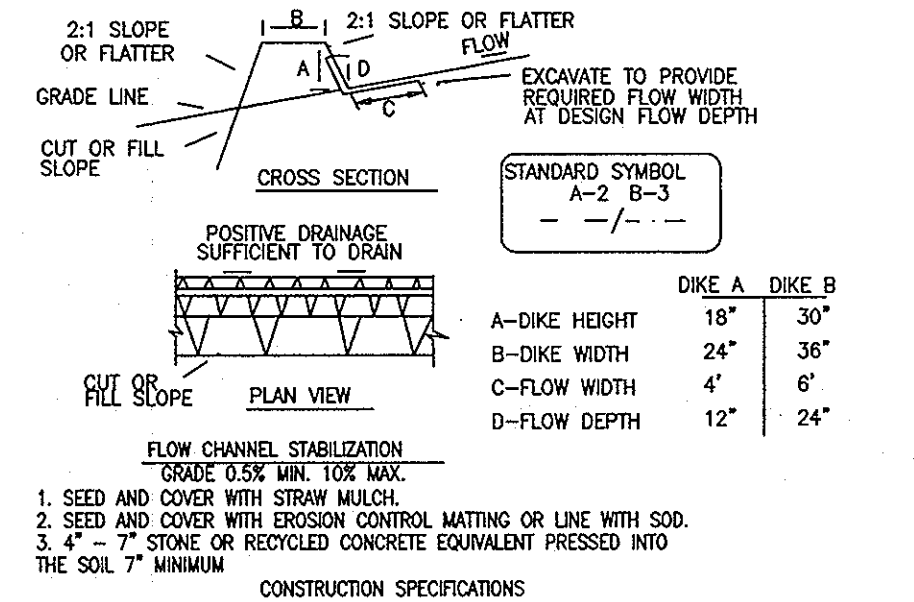
- FENCE POSTS SHALL BE A MINIMUM OF 36" LONG DRIVEN 10" MINIMUM INTO THE GROUND. WOOD POSTS SHALL BE 1-1/2" X 1-1/2" SQUARE (MINIMUM) ROUND AND SHALL BE OF SOUND QUALITY HARDWOOD. STEEL POSTS WILL BE STANDARD T OR U SECTION WEIGHING NOT LESS THAN 1.00 POUND PER LINEAR FOOT.
- GEOTEXTILE SHALL BE FASTENED SECURELY TO EACH FENCE POST WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION AND SHALL MEET THE FOLLOWING REQUIREMENTS FOR GEOTEXTILE CLASS F:

TENSILE STRENGTH	50 LBS/IN (MIN.)	TEST: MSMT 509
TENSILE MODULUS	20 LBS/IN (MIN.)	TEST: MSMT 509
FLOW RATE	0.3 GAL. FT ² / MINUTE (MAX.)	TEST: MSMT 322
FILTERING EFFICIENCY	75% (MIN.)	TEST: MSMT 322
- WHERE ENDS OF GEOTEXTILE FABRIC COME TOGETHER, THEY SHALL BE OVERLAPPED, FOLDED AND STAPLED TO PREVENT SEDIMENT BYPASS.
- SILT FENCE SHALL BE INSPECTED AFTER EACH RAINFALL EVENT AND MAINTAINED WHEN BULGES OCCUR OR WHEN SEDIMENT ACCUMULATION REACHES SOAK OF THE FABRIC HEIGHT.

CLASS	APPROXIMATE OPENING SIZE	SOAK TENSILE LB. MIN.	BURST STRENGTH LB. MIN.
F (SILT FENCE)	0.40 - 0.80"	190	190

* US STD. SIEVE CW-02215

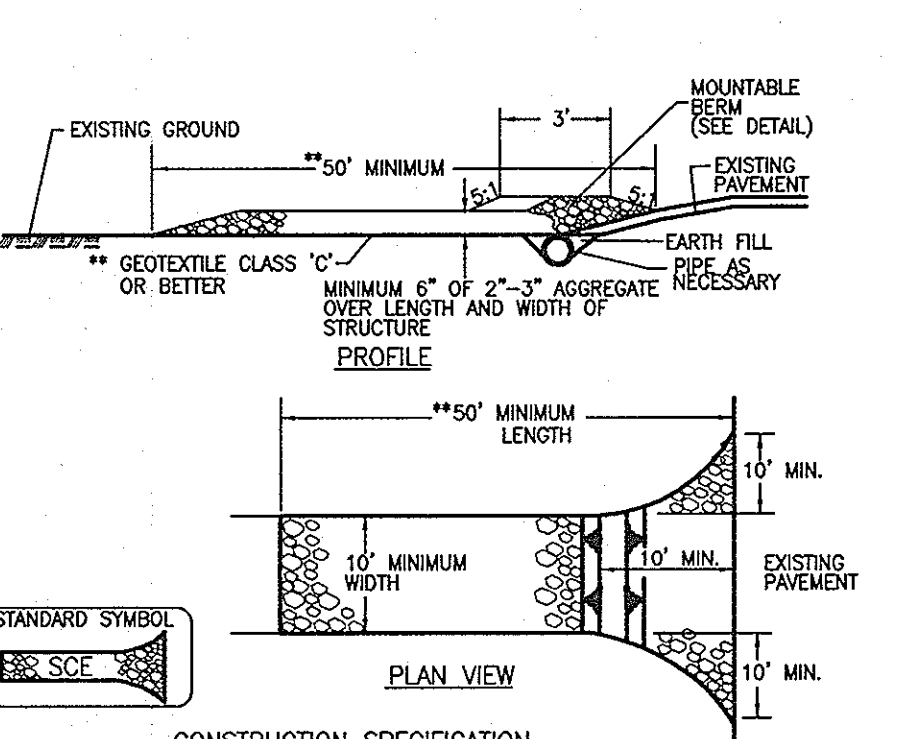
SILT FENCE
NOT TO SCALE



CONSTRUCTION SPECIFICATIONS

- ALL TEMPORARY EARTH DIKES SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO AN OUTLET. SPOT ELEVATIONS MAY BE NECESSARY FOR GRADES LESS THAN 1%.
- RUNOFF DIVERTED FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
- RUNOFF DIVERTED FROM AN UNDISTURBED AREA SHALL OUTLET DIRECTLY INTO AN UNDISTURBED, STABILIZED AREA AT A NON-CROSSE VELOCITY.
- ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBSTRUCTIONAL MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE DIKE.
- THE DIKE SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPIDE NORMAL FLOW.
- FILL SHALL BE COMPACTED BY EARTH MOVING EQUIPMENT.
- ALL EARTH REMOVED AND NOT NEEDED FOR CONSTRUCTION SHALL BE PLACED SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE DIKE.
- INSPECTION AND MAINTENANCE MUST BE PROVIDED PERIODICALLY AND AFTER EACH RAIN EVENT.

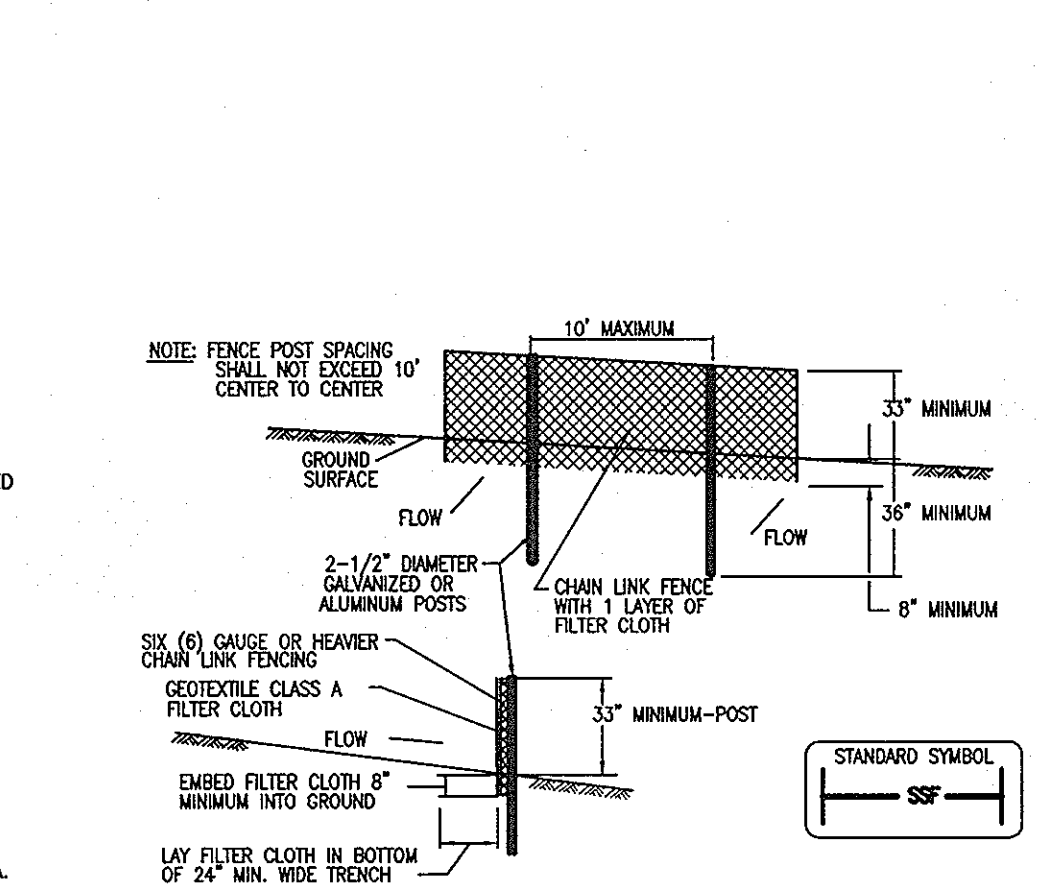
EARTH DIKE
NOT TO SCALE



CONSTRUCTION SPECIFICATION

- LENGTH - MINIMUM OF 50' (30' FOR SINGLE RESISTIVE LID).
- WIDTH - 10' MINIMUM, SHOULD BE FLARED AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
- GEOTEXTILE FABRIC (FILTER CLOTH) SHALL BE PLACED OVER THE EXISTING GROUND PRIOR TO PLACING STONE. THE PLAN APPROVAL AUTHORITY MAY NOT REQUIRE SINGLE FAMILY RESIDENCES TO USE GEOTEXTILE.
- STONE - CRUSHED AGGREGATE (4" 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 MOUNTABLE BERM WITH 6:1 SLOPES AND A MINIMUM OF 6" OF STONE OVER THE PIPE. PIPE HAS TO BE SIZED ACCORDING TO THE DRAINAGE. WHEN THE SOE IS LOCATED AT 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.

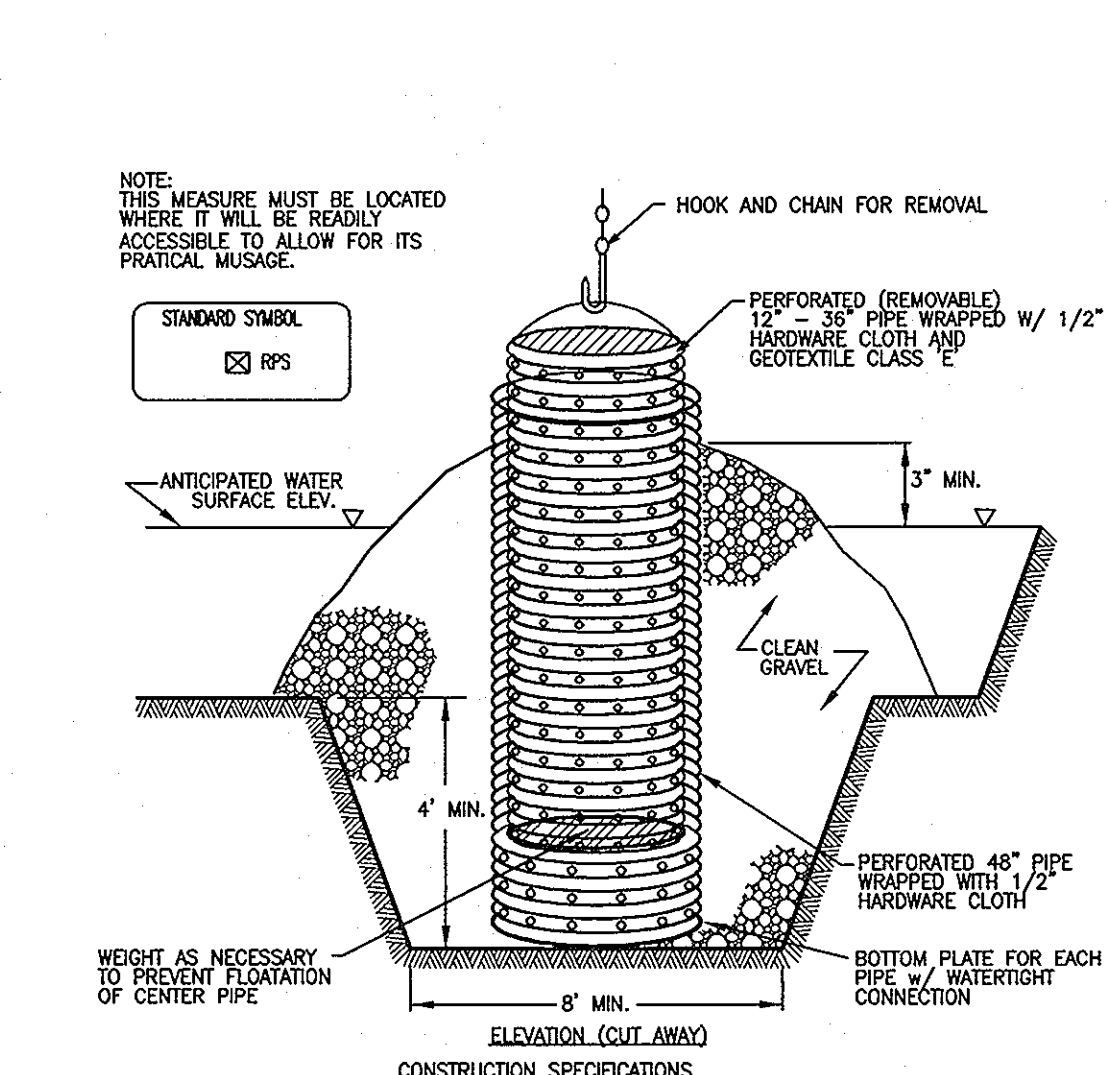
STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE



CONSTRUCTION SPECIFICATIONS

- FENCING SHALL BE 42" IN HEIGHT AND CONSTRUCTED IN ACCORDANCE WITH THE LATEST MARYLAND STATE HIGHWAY (MSH) DETAILS FOR CHAIN LINK FENCING. THE (MSH) SPECIFICATIONS FOR A 6" FENCE SHALL BE USED, SUBSTITUTING 42" FABRIC AND 6" LENGTH POSTS.
- THE POSTS DO NOT NEED TO BE SET IN CONCRETE.
- CHAIN LINK FENCE SHALL BE FASTENED SECURELY TO THE FENCE POSTS WITH WIRE TIES OR STAPLES. THE LOWER TENSION WIRE, BRACE AND TRUSS RODS, DRIVE ANCHORS AND POST CAPS ARE NOT REQUIRED EXCEPT ON THE ENDS OF THE FENCE. THE CHAIN LINK FENCING SHALL BE SOX (6) GAUGE OR HEAVIER.
- FILTER CLOTH SHALL BE FASTENED SECURELY TO THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24" AT THE TOP AND MID SECTION.
- FILTER CLOTH SHALL BE EMBEDDED A MINIMUM OF 8" INTO THE GROUND.
- WHEN TWO SECTIONS OF GEOTEXTILE FABRIC ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY 6" AND FASTENED SECURELY TOGETHER.
- MAINTENANCE SHALL BE PERFORMED AS NEEDED AND SILT BUILDUPS REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE, OR WHEN SILT REACHES SOAK OF THE FENCE HEIGHT.

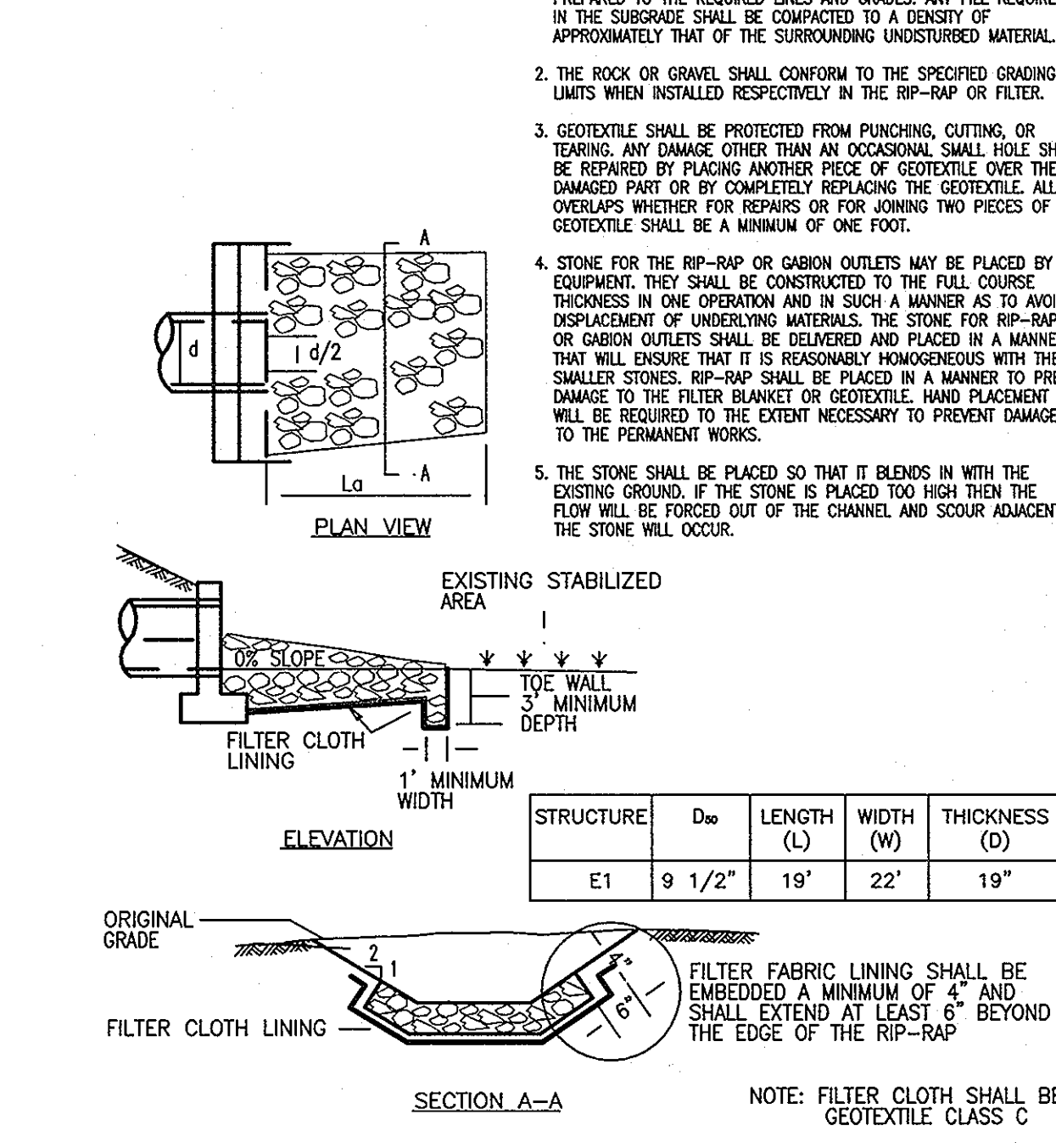
SUPER SILT FENCE (MODIFIED)
NOT TO SCALE



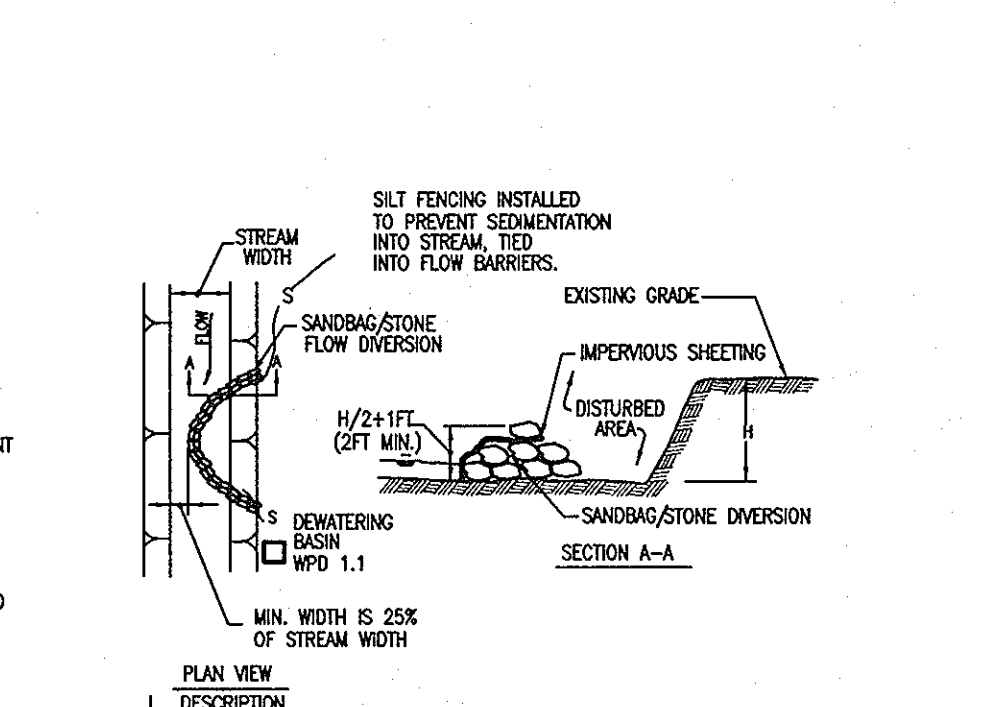
CONSTRUCTION SPECIFICATIONS

- 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 TO PREVENT BACKFILL MATERIAL FROM ENTERING THE PERFORATIONS.
- 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 OR PVC PIPE BETWEEN 1/2" AND 3/8" IN DIAMETER. THE PERFORATIONS SHALL BE 1/2" X 6" SLOTS OR 1" DIAMETER HOLES 6" ON CENTER. THE CENTER PIPE SHALL BE WRAPPED WITH 1/2" HARDWARE CLOTH FIRST, THEN WRAPPED AGAIN WITH GEOTEXTILE CLASS E.
- THE CENTER PIPE SHOULD EXTEND 12" TO 18" ABOVE THE ANTICIPATED WATER SURFACE ELEVATION OR RISER CREST ELEVATION WHEN DOWNGRADE A BASIN.

REMOVABLE PUMPING STATION
NOT TO SCALE



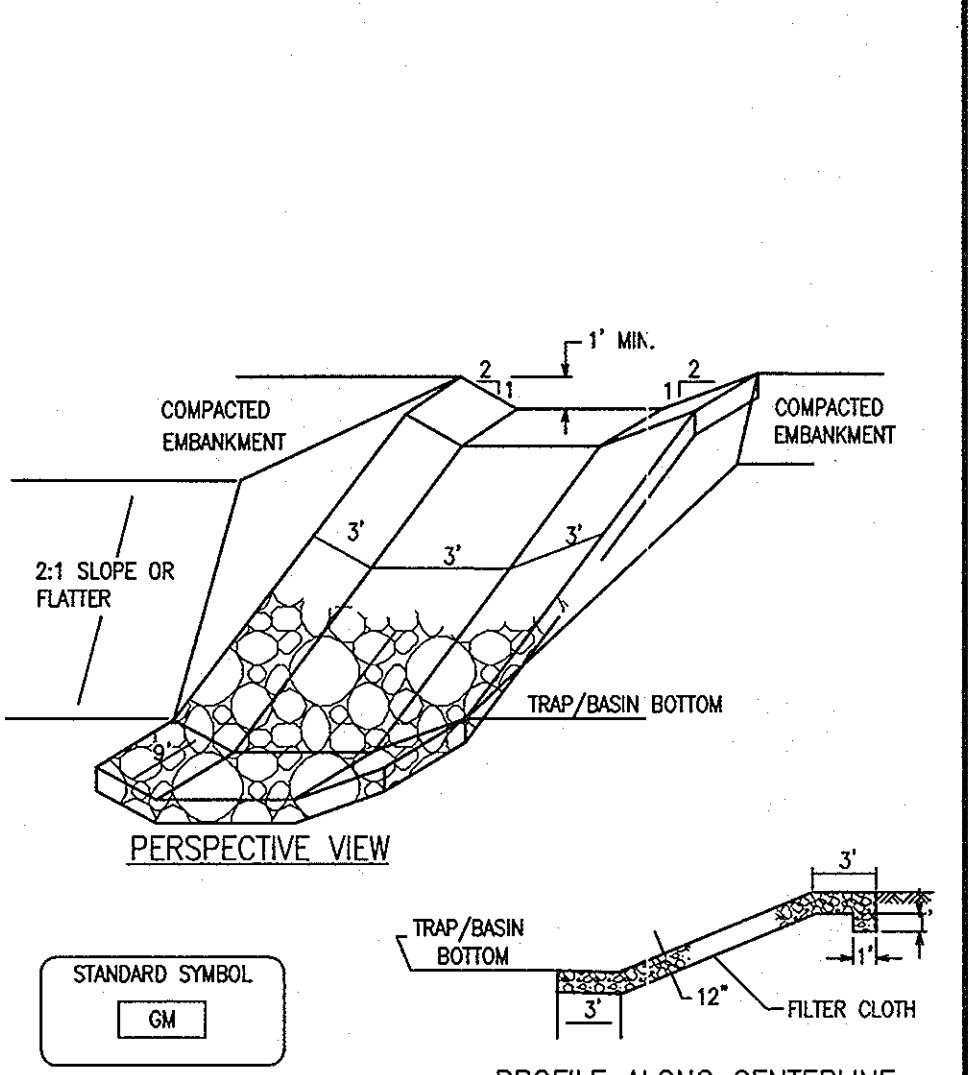
ROCK OUTLET PROTECTION III
NOT TO SCALE



CONSTRUCTION SPECIFICATIONS

- THE WORK SHALL CONSIST OF INSTALLING FLOW DIVERSIONS FOR THE PURPOSE OF EROSION CONTROL WHEN CONSTRUCTION ACTIVITIES TAKE PLACE WITHIN THE STREAM CHANNEL SUCH AS BANK STABILIZATION OR BRIDGE ABUTMENT CONSTRUCTION.
- MATERIAL SPECIFICATIONS**
 - SANDBAGS: SANDBAGS SHALL CONSIST OF MATERIALS WHICH ARE RESISTANT TO ULTRA-VIOLET RADIATION, TEARING AND PUNCTURE AND WHICH THICKEN ENOUGH TO PREVENT LEAKAGE OF FILL MATERIAL (I.E. SAND, FINE GRAVEL, ETC.).
 - STONE: STONE SHALL BE WASHED AND HAVE A MINIMUM DIAMETER OF 6 INCHES.
 - SHEETING: SHEETING SHALL CONSIST OF POLYETHYLENE OR OTHER MATERIAL WHICH IS IMPERVIOUS AND RESISTANT TO PUNCTURE AND TEARING.
- CONSTRUCTION REQUIREMENTS**
 - ALL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE INSTALLED AS THE FIRST ORDER OF WORK.
 - THE DIVERSION STRUCTURE SHALL BE INSTALLED FROM UPSTREAM TO DOWNSTREAM.
 - THE HEIGHT OF THE DIVERSION STRUCTURE SHALL BE ONE HALF THE DISTANCE FROM THE STREAM BED TO THE STREAM BANK PLUS ONE FOOT, AS INDICATED ON THE CROSS-SECTION VIEW.
 - ALL EXCAVATED MATERIALS SHALL BE DISPOSED OF IN A SCD APPROVED DISPOSAL AREA OUTSIDE THE 100 YEAR FLOODPLAIN UNLESS OTHERWISE APPROVED ON THE PLANS BY THE MDA.
 - ALL WATERBARRING OF THE CONSTRUCTION AREA SHALL BE PUMPED TO A DOWNGRADE BASIN PRIOR TO RE-ENTERING THE STREAM.
 - SHEETING SHALL BE OVERLAPPED SUCH THAT THE UPSTREAM PORTION COVERS THE DOWNSTREAM PORTION WITH AT LEAST AN 18 INCH OVERLAP.
 - SEDIMENT CONTROL DEVICES ARE TO REMAIN IN PLACE UNTIL ALL DISTURBED AREAS ARE STABILIZED IN ACCORDANCE WITH AN APPROVED SEDIMENT AND EROSION CONTROL PLAN AND THE INSPECTING AUTHORITY APPROVES THEIR REMOVAL.

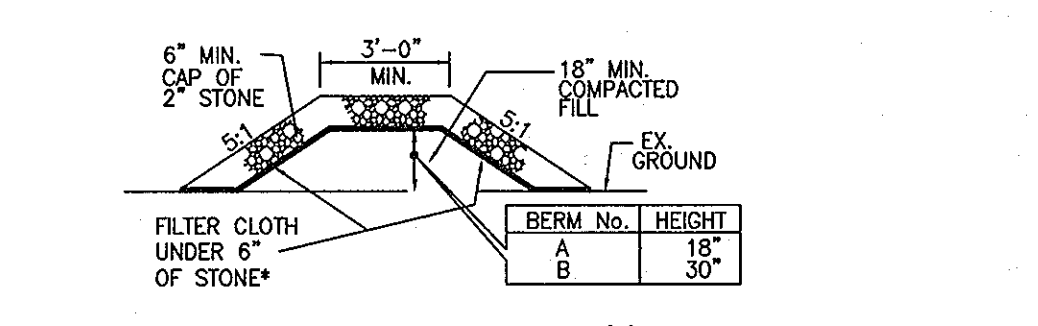
SANDBAG / STONE DIVERSION
NOT TO SCALE



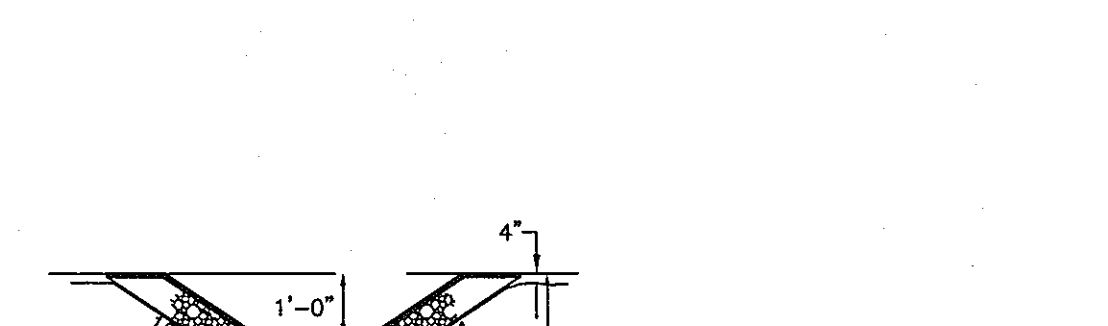
CONSTRUCTION SPECIFICATIONS

- GABION INFLOW PROTECTION SHALL BE CONSTRUCTED OF 9' X 3' X 9" GABION BASKETS FORMING A TRAPEZOIDAL CROSS SECTION 1' DEEP, WITH 2:1 SIDE SLOPES, AND A 3' BOTTOM WIDTH.
- GEOTEXTILE CLASS C SHALL BE INSTALLED UNDER ALL GABION BASKETS.
- THE STONE USED TO FILL THE GABION BASKETS SHALL BE 4" - 7".
- GABIONS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
- GABION INFLOW PROTECTION SHALL BE USED WHERE CONCENTRATED FLOW IS PRESENT ON SLOPES STEEPER THAN 4:1.

GABION INFLOW PROTECTION
NOT TO SCALE



MOUNTABLE BERM
NOT TO SCALE



CROSSABLE SWALE
NOT TO SCALE



DETAIL 18 SEDIMENT BASIN BAFFLES
NOT TO SCALE



DEWATERING BASINS
NOT TO SCALE

DPZ FILE F-02-55

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.

Jin Nuyalos 7/23/02
S.U.D.A. NATURAL RESOURCES CONSERVATION SERVICE DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

John S. Lee 7/23/02
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Richard M. Danek 9-9-02
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Andy Hammett 9/18/02
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Mike 9/18/02
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

DATE	REVISION

OWNER / DEVELOPER:

THE HOWARD RESEARCH & DEVELOPMENT CORPORATION
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044
PHONE: (410) 992-6370

PROJECT: **EMERSON SECTION 2 PHASE 3**

AREA TAX MAP NO. 47 P/O PARCEL P.837 P. 3, P. 482

ELECTION DISTRICT No.6 HOWARD COUNTY, MARYLAND

TITLE: **SEDIMENT CONTROL DETAILS**

MORRIS & RITCHIE ASSOCIATES, INC.
ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS

MRA

110 WEST ROAD SUITE 245
TOWSON, MARYLAND 21204
(410) 821-1690
FAX (410) 811-1748

6-18-02 DATE

PROJECT NO.: 11494

SCALE: NOT TO SCALE

DATE: JULY 5, 2002

DRAWN BY: MLS

DESIGNED BY: TAM

REVIEW BY: DNM

DRAWING NO. 5 OF 10

F-02-55

SEDIMENT CONTROL GENERAL NOTES

- A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (513-1855).
- ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE "1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL" AND REVISIONS THERETO.
- FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:
 - SEVEN CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3:1.
 - FOURTEEN 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 VOL. 1, 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 "1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL" FOR PERMANENT SEEDING, SODS, TEMPORARY SEEDING AND MULCHING (SECTION G). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
- ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- SITE ANALYSIS:
 - TOTAL AREA OF SITE: 18.45 Ac.
 - AREA DISTURBED: 2.21 Ac.
 - AREA TO BE VEGETATIVELY STABILIZED: 2.21 Ac.
 - AREA TO BE PAVED: 0.00 Ac.
 - TOTAL CUT: 6,200 Cu. Yds.
 - TOTAL FILL: 5,900 Cu. Yds.
 - OFF-SITE WASTE/BORROW AREA LOCATION WASTE- N/A EXCESS 5% OF TOTAL
- 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 CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
- TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

I. PERMANENT SEEDING NOTES

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

- SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCING, OR OTHER ACCEPTABLE MEANS BEFORE SEEDING.
 - SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ONE OF THE FOLLOWING:
 - PREFERRED: APPLY TWO TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS./1000 SQ. FT.) AND 600 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS./1000 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/FOR FERTILIZER (9LBS./1000 SQ. FT.)
 - ACCEPTABLE: APPLY TWO TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS./1000 SQ. FT.) AND 1000 LBS. PER ACRE 10-10-10 FERTILIZER (23 LBS./SQ. FT.) BEFORE SEEDING, HARROW OR DISC INTO UPPER THREE INCHES OF SOIL.
 - SEEDING: FOR PERIODS MARCH 1 THROUGH APRIL 30, AND AUGUST 1 THROUGH OCTOBER 15, SEED WITH 60 LB. PER ACRE (1.4 LBS./1000 SQ. FT.) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD MAY 1 THROUGH JULY 31, SEED WITH 60 LBS. OF KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS. PER ACRE) 0.05 LBS./1000 SQ. FT.) OF WEEPING LOVEGRASS. DURING THE PERIOD OCTOBER 16 THROUGH FEBRUARY 28, PROTECT SITE BY:
 - OPTION 1: TWO TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN SPRING.
 - OPTION 2: USE SOD.
 - OPTION 3: SEED WITH 60 LBS./ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH TWO TONS/ACRE WELL ANCHORED STRAW.
 - MULCHING: APPLY 1 1/2 TO 2 TONS PER ACRE (70-90) LBS./1000 SQ. FT. OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ. FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 3 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL./1000 SQ. FT.) FOR ANCHORING.
 - MAINTENANCE: TO BE CONSISTANT INSPECT ALL SEEDED AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS, AND RESEEDINGS.
- II. TEMPORARY SEEDING NOTES**
APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE REDISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.
- SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES BY DISCING, RAKING, OR OTHER ACCEPTABLE MEANS BEFORE SEEDING.
 - SOIL AMENDMENTS: APPLY 600 LBS./ACRE (14 LBS./1000 SQ. FT.) OF 10-10-10 FERTILIZER.
 - SEEDING: FOR PERIODS MARCH 1 THROUGH APRIL 30, AND FROM AUGUST 15 THROUGH NOVEMBER 15, SEED WITH 2 1/2 BU./ACRE OF ANNUAL RYE (3.2 LBS. PER 1000 SQ. FT.) FOR THE PERIOD MAY 1 THRU AUGUST 14, SEED WITH 3 LBS PER ACRE OF WEEPING LOVEGRASS (0.07 LBS./1000 SQ. FT.). FOR THE PERIOD NOVEMBER 16 THROUGH FEBRUARY 28, PROTECT SITE BY APPLYING TWO TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOD.
 - MULCHING: APPLY 1 1/2 TO 2 TONS PER ACRE (70-90) LBS./1000 SQ. FT. OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ. FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL./1000 SQ. FT.) FOR ANCHORING.

DUST CONTROL SPECIFICATIONS

TEMPORARY METHODS:

- MULCHES - SEE STANDARDS FOR VEGETATIVE STABILIZATION WITH MULCHES ONLY. MULCH SHOULD BE CRIMPED OR TACKED TO PREVENT BLOWING.
- VEGETATIVE COVER - SEE STANDARDS FOR TEMPORARY VEGETATIVE COVER.
- TILLAGE - TO ROUGHEN SURFACE AND BRING CLODS TO THE SURFACE. THIS IS AN EMERGENCY MEASURE WHICH SHOULD BE USED BEFORE SOIL BLOWING STARTS. BEGIN PLOWING ON WINDWARD SIDE OF SITE. CHISEL-TYPE PLOWS SPACED ABOUT 12 INCHES APART. SPRING TOOTHED HARROWS AND SIMILAR PLOWS ARE EXAMPLES OF EQUIPMENT WHICH MAY PRODUCE THE DESIRED EFFECT.
- IRRIGATION-THIS IS GENERALLY DONE AS AN EMERGENCY TREATMENT. SITE IS SPRINKLED WITH WATER UNTIL THE SURFACE IS MOIST. REPEAT AS NEEDED. AT NO TIME SHOULD THE SITE BE IRRIGATED TO THE POINT THE RUNOFF BEGINS TO FLOW.
- BARRIERS-SOLID BOARD FENCES, SNOW FENCES, BURLAP FENCES, STRAW BALES, AND SIMILAR MATERIAL CAN BE USED TO CONTROL AIR CURRENTS AND SOIL BLOWING. BARRIERS PLACED AT RIGHT ANGLES TO PREVAILING CURRENTS AT INTERVALS OF ABOUT 10 TIMES THEIR HEIGHT ARE EFFECTIVE IN CONTROLLING SOIL BLOWING.
- CALCIUM CHLORIDE-APPLY AT RATES THAT WILL KEEP SURFACE MOIST, MAY NEED RETREATMENT.

PERMANENT METHODS:

- PERMANENT VEGETATION-SEE STANDARDS FOR PERMANENT VEGETATIVE COVER, AND PERMANENT STABILIZATION WITH SOD. EXISTING TREES OR LARGE SHRUBS MAY AFFORD VALUABLE PROTECTION IF LEFT IN PLACE.
- TOPSOILING-COVERING WITH LESS EROSIIVE SOIL MATERIALS. SEE STANDARDS FOR TOPSOILING.
- STONE-COVER SURFACE WITH CRUSHED STONE OR COARSE GRAVEL.

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 HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.

CONDITIONS WHERE PRACTICE APPLIES

- THIS PRACTICE IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
 - THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
 - THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES 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.
- 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 MATERIAL SPECIFICATIONS

- 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 A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA - SCS IN COOPERATION WITH MARYLAND AGRICULTURAL EXPERIMENTAL STATION.
 - TOPSOIL SPECIFICATIONS -SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:
 - TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. REGARDLESS, TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND SHALL CONTAIN LESS THAN 5% BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1 1/2" IN DIAMETER.
 - TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACKGRASS, JOHNSONGRASS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
 - WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE SPREAD AT THE RATE OF 4 TONS/ACRES (200 - 400 POUNDS PER 1,000 SQ. FT.) PRIOR TO THE PLACEMENT OF TOPSOIL. LIME SHALL BE DISTURBED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING PROCEDURES.
 - FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES:
 - PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION - SECTION 1 - VEGETATIVE STABILIZATION METHODS AND MATERIALS.
 - FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES:
 - ON SOIL MEETING TOPSOIL SPECIFICATIONS, OBTAIN TEST RESULTS DICTATING FERTILIZER AND 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 DEMONSTRATES A PH OF LESS THAN 6.0, SUFFICIENT LIME SHALL BE PRESCRIBED TO RAISE THE PH TO 6.5 OR HIGHER.
 - ORGANIC CONTENT OF TOPSOIL SHALL BE NOT LESS THAN 1.5% BY WEIGHT.
 - TOPSOIL HAVING SOLUBLE SALT CONTENT GREATER THAN 500 PARTS PER MILLION SHALL NOT BE USED.
 - NO SOD OR SEED SHALL BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNIT SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.
- NOTE: TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY, MAY BE USED IN LIEU OF NATURAL TOPSOIL.
- PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION -SECTION 1 - VEGETATIVE STABILIZATION METHODS AND MATERIALS.
- TOPSOIL APPLICATION
 - WHEN TOPSOILING, MAINTAIN NEEDED EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, EARTH DIKES, SLOPE SILT FENCE AND SEDIMENT TRAPS AND BASINS.
 - GRADES ON THE AREAS TO BE TOPSOILED, WHICH HAVE BEEN PREVIOUSLY ESTABLISHED, SHALL BE MAINTAINED, ALBEIT 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 SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
 - TOPSOIL SHALL NOT BE PLACED WHILE THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.

SEQUENCE OF OPERATIONS

OPERATION	NO. OF DAYS
1. CLEAR AND GRUB FOR AND INSTALL STABILIZED CONSTRUCTION ENTRANCE.	1
2. NOTIFY CERTIFYING ENGINEER (410-821-1690) AT LEAST 5 DAYS PRIOR TO COMMENCING CONSTRUCTION OF POND TO ENSURE THAT THE KEY COMPONENTS OF THE POND WILL BE INSPECTED DURING CONSTRUCTION AND THAT THE "AS-BUILT" MAY BE ACCOMPLISHED LATER.	N/A
3. THE CONTRACTOR SHALL OBTAIN A COPY OF THE GEOTECHNICAL EVALUATION AND SEEPAGE ANALYSIS PRIOR TO COMMENCING CONSTRUCTION.	N/A
4. NOTIFY HOWARD COUNTY DEPARTMENT OF INSPECTIONS LICENSES AND PERMITS (410-313-1855) AT LEAST 48 HOURS PRIOR TO BEGINNING WORK ON SITE.	2
5. WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, CLEAR, GRUB FOR, AND INSTALL TREE PROTECTION FENCE, INSTALL SEDIMENT CONTROL DEVICES FOR CONSTRUCTION OF POND AND OUTFALLS. THIS WOULD INCLUDE SILT FENCE, SUPER SILT FENCE, AND MOUNTABLE BERM.	2
6. EXCAVATE FOR CUTOFF TRENCH. BASED ON THE SUBSURFACE INVESTIGATION THE RELATIVELY IMPROVISED MATERIALS CONFORMING TO THE UNIFIED SOILS CLASSIFICATION GC, SC, CH OR CL WERE NOT ENCOUNTERED IN THE AREA OF THE POND. A DETAILED SEE PAGE ANALYSIS WAS PERFORMED FOR THE POND SITE. AS A RESULT OF THE ANALYSIS THE ON-SITE SILTS AND SILTY SANDS WERE CONSIDERED TO BE SUITABLE FOR USE AS CUTOFF TRENCH MATERIALS. THE EMBANKMENT CONSTRUCTION MUST BE SUPERVISED BY A GEOTECHNICAL ENGINEER.	2
7. BACKFILL AND COMPACT CUTOFF TRENCH IN 8" LIFTS WITH APPROVED MATERIAL TO PIPE GRADE LEVEL.	2
8. INSTALL CONCRETE RISER.	2
9. INSTALL SANDBAG / STONE DIVERSION AND DEWATERING BASIN. CONSTRUCT & STABILIZE RIPRAP OUTFALL CHANNEL WORKING FROM DOWNSTREAM TO UPSTREAM AND LEAVING IT IN STABILIZED CONDITION AT THE END OF EACH WORKING DAY.	3
10. INSTALL BARREL W/ CONCRETE CRADLE, ANTI-SEEP COLLARS, AND CONCRETE END SECTION. INSTALL REMOVABLE PUMPING STATION (RPS). THE RPS WITHIN THE FACILITY IS TO BE USED FOR MAINTENANCE PURPOSES SUCH AS CLEAN OUT OPERATIONS.	2
11. ATTACH TEMPORARY DRAW-DOWN DEVICE TO THE POND DRAIN.	0
12. BACKFILL AND COMPACT AROUND BARREL AND ANTI-SEEP COLLARS, MAKING SURE THAT THERE ARE NO VOIDS AND THAT BACKFILL AND COMPACTION ARE DONE IN 4" LIFTS.	1/2
13. CONSTRUCT CORE AND EMBANKMENT TO FINAL GRADE BUILDING UP WITH PROPER COMPACTION AND APPROVED MATERIAL.	3
14. COMPLETE GRADING IN THE REMAINDER OF THE POND AREA.	5
15. CONSTRUCT EMERGENCY SPILLWAY PER PLAN.	1/2
16. INSTALL FOREBAY AND ASSOCIATED EARTH BERM.	1
17. VEGETATIVELY STABILIZE ALL DISTURBED AREAS.	1
18. AFTER RECEIVING GRADING PERMIT AND WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, MASS GRADE SITE.	5
19. FINE GRADE SITE.	TBD
20. PERMANENTLY STABILIZE AND LANDSCAPE SITE.	TBD
21. WHEN THE SITE IS FULLY STABILIZED AND WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR REMOVE THE TEMPORARY DRAW-DOWN DEVICE. INSTALL THE BAR GUARD ON THE POND DRAIN AND THE REVERSE SLOPE DRAIN. STABILIZE ANY REDISTURBED AREAS. PLEASE NOTE THAT IT MAY BE DESIRABLE TO UTILIZE THIS SEDIMENT BASIN TO RECEIVE THE RUNOFF FROM THE DEVELOPMENT OF BULK PARCEL D. DISTINCT PLANS AND COMPS WILL BE REQUIRED FOR THE DEVELOPMENT OF PARCEL D.	2
19. AN AS-BUILT SURVEY AND PROFESSIONAL ENGINEER'S CERTIFICATION IS TO BE COMPLETED WITHIN 30 DAYS OF CONSTRUCTION.	30

DPZ FILE F-02-55

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.

Jim Ryan / 65 7/23/02
U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

John Hill 7/23/02
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Richard M. Daulton 9-9-02
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Cindy Hammett 9/15/02
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Michael Dammann 9/15/02
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

DATE	NO.	REVISION

OWNER / DEVELOPER:
THE HOWARD RESEARCH & DEVELOPMENT CORPORATION
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044
PHONE: (410) 992-6370

PROJECT: **EMERSON SECTION 2 PHASE 3**

AREA TAX MAP NO. 47 P/O PARCEL P.837 P. 3. P. 482
ELECTION DISTRICT No.6 HOWARD COUNTY, MARYLAND

TITLE **SEDIMENT CONTROL NOTES AND SPECIFICATIONS**

MRA MORRIS & RITCHIE ASSOCIATES, INC.
ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS
110 WEST ROAD SUITE 245
TOWSON, MARYLAND 21284
(410) 821-1690
FAX (410) 821-1748

6-18-02	PROJECT NO.: 11494
DATE OF MARYLAND PROFESSIONAL ENGINEERING EXAMINATION	SCALE: NOT TO SCALE
DATE: JULY 5, 2002	DATE: JULY 5, 2002
DRAWN BY: MLS	DRAWN BY: MLS
DESIGNED BY: TAM	DESIGNED BY: TAM
REVIEW BY: DNM	REVIEW BY: DNM
PROFESSIONAL ENGR. NO. 16581	DRAWING NO. 6 OF 10

F-02-55

No.	Revisions	Date
1	Revised Topo As-Built Conditions	7.26.05

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND JOINTLY MAINTAINED STORMWATER MANAGEMENT PONDS

ROUTINE MAINTENANCE BY HOA

- FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS, INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE POND IS FUNCTIONING PROPERLY.
- TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES PER YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHALL BE MOWED AS NEEDED.
- DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
- VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS THE RIP-RAP OR GABION OUTLET AREA SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

NON-ROUTINE MAINTENANCE BY HOWARD COUNTY

- STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, RISER AND THE PIPES SHALL BE REPAIRED UPON THE DETECTION OF ANY DAMAGE. THE COMPONENTS SHALL BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
- SEDIMENT SHALL BE REMOVED FROM THE POND AND FOREBAY NO LATER THAN WHEN THE CAPACITY OF THE POND OR FOREBAY IS HALF FULL OF SEDIMENT OR WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, UPON APPROVAL FROM THE DEPARTMENT OF PUBLIC WORKS.

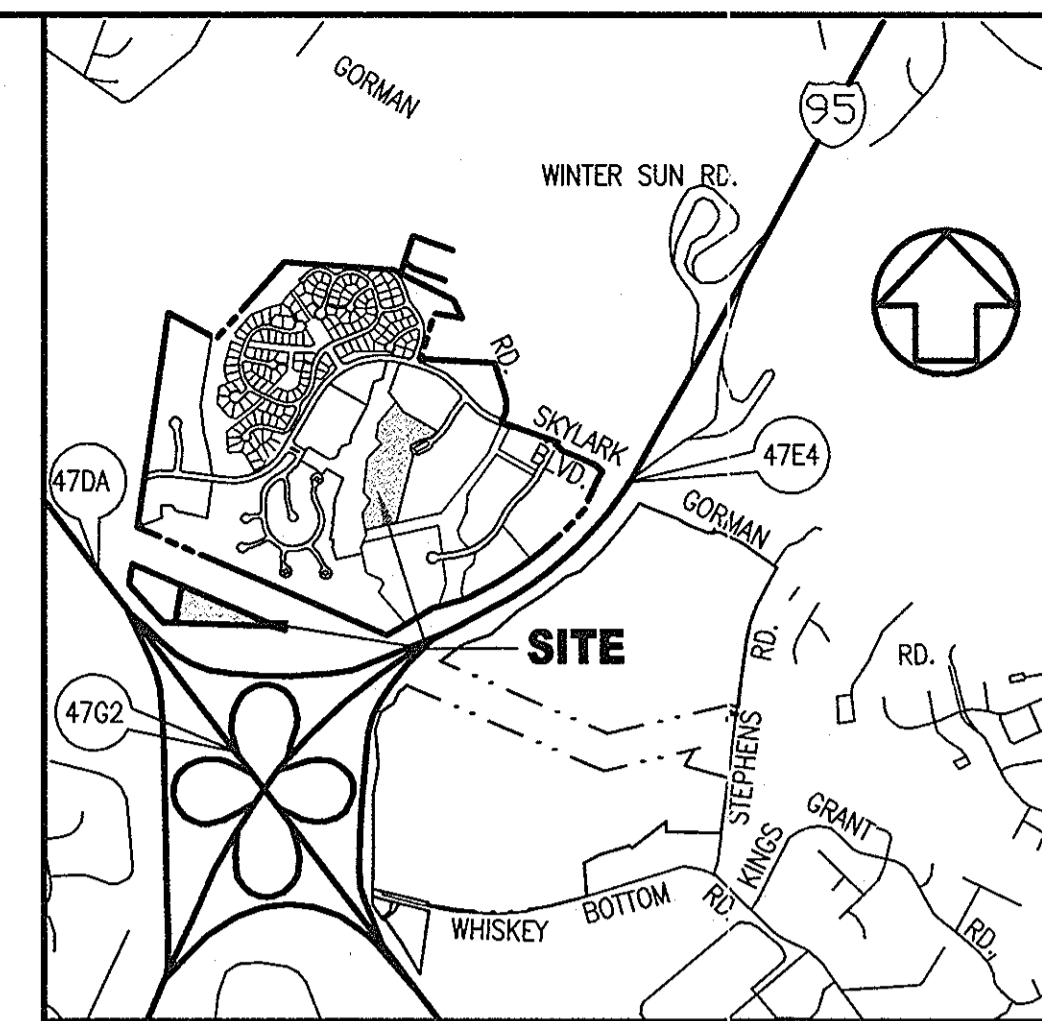
INSPECTION SCHEDULE

- INSPECTION SCHEDULE AND REPORTS
 - THE DEVELOPER SHALL NOTIFY THE COUNTY AT LEAST 48 HOURS COMMENCING ANY WORK IN CONJUNCTION WITH THE STORMWATER MANAGEMENT PLAN AND UPON COMPLETION OF A PROJECT WHEN A FINAL INSPECTION WILL BE CONDUCTED.
 - INSPECTIONS SHALL BE CONDUCTED BY THE DEPARTMENT OF PUBLIC WORKS OR ITS AUTHORIZED REPRESENTATIVE. WRITTEN INSPECTION REPORTS SHALL BE MADE OF THE PERIODIC INSPECTIONS NECESSARY DURING CONSTRUCTION OF STORMWATER MANAGEMENT SYSTEMS TO ENSURE COMPLIANCE WITH THE APPROVED PLAN.
 - WRITTEN INSPECTION REPORTS SHALL INCLUDE:
 - THE DATE AND LOCATION OF THE INSPECTION;
 - WHETHER CONSTRUCTION WAS IN COMPLIANCE WITH THE APPROVED STORMWATER MANAGEMENT PLAN;
 - ANY VARIATIONS FROM THE APPROVED CONSTRUCTION SPECIFICATIONS; AND
 - ANY VIOLATIONS THAT EXIST.
 - THE OWNER/DEVELOPER AND ON-SITE PERSONNEL SHALL BE NOTIFIED IN WRITING WHEN VIOLATIONS ARE OBSERVED. WRITTEN NOTIFICATION SHALL DESCRIBE THE NATURE OF THE VIOLATION AND THE REQUIRED CORRECTIVE ACTION.
 - NO WORK SHALL PROCEED UNTIL THE COUNTY INSPECTS AND APPROVES THE WORK PREVIOUSLY COMPLETED AND FURNISHES THE DEVELOPER WITH THE RESULTS OF THE INSPECTION REPORTS AFTER COMPLETION OF EACH REQUIRED INSPECTION.
- INSPECTION REQUIREMENTS DURING CONSTRUCTION
 - AT A MINIMUM, REGULAR INSPECTIONS SHALL BE MADE AND DOCUMENTED AT THE FOLLOWING SPECIFIED STAGES OF CONSTRUCTION:
 - PODS
 - UPON COMPLETION OF EXCAVATION TO SUB-FOUNDATION AND WHEN REQUIRED, INSTALLATION OF STRUCTURAL SUPPORTS OR REINFORCEMENT FOR STRUCTURES, INCLUDING BUT NOT LIMITED TO CORE TRENCHES FOR STRUCTURAL EMBANKMENTS, INLET AND OUTLET STRUCTURES, ANTI-SEEP COLLARS OR FILTER DAPHEROUS, WATERFIGHT COVERS ON PIPES, AND TRENCHES FOR ENCLOSED STORM DRAIN FACILITIES;
 - DURING PLACEMENT OF STRUCTURAL FILL, CONCRETE, AND INSTALLATION OF FOUNDATIONS AND TRENCHES;
 - DURING BACKFILL OF FOUNDATIONS AND TRENCHES;
 - DURING EMBANKMENT CONSTRUCTION; AND
 - UPON COMPLETION OF FINAL GRADING AND ESTABLISHMENT OF PERMANENT

NOTE: NO WORK SHALL PROCEED UNTIL THE ENGINEER INSPECTS AND APPROVES THE WORK PREVIOUSLY COMPLETED.

MAINTENANCE SCHEDULE

- INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USFS, SCS STANDARDS AND SPECIFICATIONS FOR PONDS (MD 378). THE POND OWNER(S) AND ANY HEIRS, SUCCESSORS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTENANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATIONS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING, OR SLUMPING.
- VEGETATED COVER SHALL BE MAINTAINED AT ALL TIMES.
- RILLS ON THE SLOPES OF THE DAM AND WASHES IN THE EARTH SPILLWAY SHALL BE FILLED WITH SUITABLE MATERIAL AND THOROUGHLY COMPACTED. THESE AREAS SHALL BE RESEDED OR RESODDED, LIMED, AND FERTILIZED AS NEEDED.
- ALL APURTANCES SHALL BE KEPT FREE OF TRASH.
- SEDIMENT REMOVAL IN THE FOREBAY SHALL OCCUR WHEN 50% OF THE TOTAL FOREBAY CAPACITY HAS BEEN LOST.
- VEGETATION GROWING ON THE EMBANKMENT TOP AND FACES OF THE FOREBAY OR BASIN IS NOT ALLOWED TO EXCEED 18 INCHES IN HEIGHT AT ANY TIME.
- SEDIMENTS EXCAVATED FROM STORMWATER PONDS THAT DO NOT RECEIVE RUNOFF FROM DESIGNATED HOTSPOTS ARE NOT CONSIDERED TOXIC OR HAZARDOUS MATERIAL AND CAN BE SAFELY DISPOSED BY EITHER LAND APPLICATION OR LAND FILLING. SEDIMENT TESTING MAY BE REQUIRED PRIOR TO SEDIMENT DISPOSAL WHEN A HOTSPOT LAND USE IS PRESENT.
- SEDIMENT REMOVED FROM STORMWATER PONDS SHOULD BE DISPOSED OF ACCORDING TO CURRENT EROSION AND SEDIMENT CONTROL REGULATIONS.



VICINITY MAP

SCALE: 1" = 200'
BENCHMARKS

- 475A NORTHING: 163191.9104
EASTING: 4112865759
ELEVATION: 315.905 FT.
- 47E4 NORTHING: 163326.2295
EASTING: 413136.2550
ELEVATION: 338.909 FT.
- 47G2 NORTHING: 162440.1212
EASTING: 4118539279
ELEVATION: 364.210 FT.

CONTRACTOR'S "AS-BUILT" NOTE

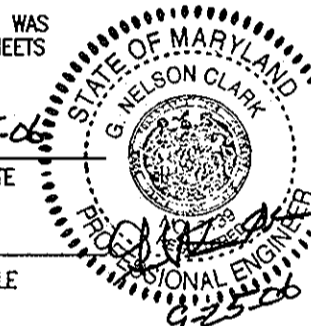
AS-BUILT PLANS AND CERTIFICATION ARE REQUIRED FOR THIS STORMWATER MANAGEMENT FACILITY. THESE MUST BE PREPARED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER. THE STORMWATER MANAGEMENT PERMIT SECURITY WILL NOT BE RELEASED UNTIL THE AS-BUILT PLAN AND CERTIFICATION ARE APPROVED BY HOWARD COUNTY.

IN ORDER TO PREPARE THE REQUIRED AS-BUILT PLANS AND CERTIFICATION, THIS STORMWATER MANAGEMENT FACILITY MUST BE INSPECTED BY THE ENGINEER AT SPECIFIC STAGES DURING CONSTRUCTION AS REQUIRED BY THE CURRENT HOWARD COUNTY STORMWATER MANAGEMENT POLICY AND DESIGN MANUAL. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AT LEAST TEN (10) WORKING DAYS PRIOR TO STARTING ANY WORK SHOWN ON THESE PLANS.

AS BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

Signature: *[Signature]* DATE: 9-25-02
Signature: *[Signature]* DATE: P.E.
Signature: *[Signature]* DATE: P.E.



CONSULTANT'S HAZARD CLASS CERTIFICATION

I CERTIFY THAT THIS POND MEETS ALL REQUIREMENTS FOR HAZARD CLASS A (REQUIREMENTS AS STATED IN THE SOIL CONSERVATION SERVICE - MARYLAND STANDARDS AND SPECIFICATIONS FOR POND, CODE 378, JANUARY, 2000.) ALL NECESSARY INVESTIGATIONS AND COMPUTATIONS HAVE BEEN PERFORMED TO VERIFY THIS FINDING. A COPY OF SAID INFORMATION HAS BEEN SUPPLIED TO S.C.S./H.O.S.C.D.

Signature: *[Signature]* DATE: 6-18-02
Signature: *[Signature]* DATE: 6-18-02

DPZ FILE F-02-55

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Signature: *[Signature]* DATE: 9-9-02

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Signature: *[Signature]* DATE: 9/15/02

Signature: *[Signature]* DATE: 9/11/02

OWNER / DEVELOPER:
THE HOWARD RESEARCH & DEVELOPMENT CORPORATION
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044
PHONE: (410) 992-6370

PROJECT: **EMERSON SECTION 2 PHASE 3**

AREA TAX MAP NO. 47 P/O PARCEL P.837 P. 3, P. 482
ELECTION DISTRICT No.6 HOWARD COUNTY, MARYLAND

TITLE: **STORMWATER MANAGEMENT POND 8 AND SEDIMENT BASIN 1 PLAN**

MORRIS & RITCHIE ASSOCIATES, INC.
ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS
110 WEST ROAD SUITE 245
TOWSON, MARYLAND 21284
(410) 821-1690
FAX (410) 821-1748

PROJECT NO.: 11494
SCALE: 1" = 30'
DATE: JULY 5, 2002
DRAWN BY: TAM
DESIGNED BY: TAM
REVIEW BY: DNM
DRAWING NO. 7 OF 10

As-Built Plan
F-02-55



PLAN
SCALE: 1" = 30'

LEGEND

- PROPERTY LINE
- EXISTING GROUND
- PROPOSED GRADE
- PERMANENT WET POOL
- PROP. STORM DRAIN
- PROPOSED SPOT ELEV. +360.2
- SOIL BORING
- FOREST CONSERVATION AREA
- RIPRAP
- EXISTING WOODS

STREAM NOTES:

- NOTIFY MDE'S WATER MANAGEMENT ADMINISTRATION INSPECTION & COMPLIANCE SECTION AT (410) 631-3510 AT LEAST FIVE DAYS PRIOR TO BEGINNING ANY WORK IN STREAMS OR 100-YEAR FLOODPLAINS, AND AGAIN WITHIN FIVE DAYS OF COMPLETION OF ANY IN-STREAM WORK.
- IN-STREAM WORK PROHIBITED FROM MARCH 1 THRU JUNE 15, INCLUSIVE, FOR A USE 1 STREAM.

GENERAL NOTES

- UNLESS OTHERWISE NOTED, ALL CONSTRUCTION AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH:
 - THE HOWARD COUNTY DESIGN MANUAL VOLUME 1 AND THE MARYLAND STORMWATER DESIGN MANUAL VOLUMES 1 & 2.
 - MARYLAND SOIL CONSERVATION SERVICE STANDARDS AND SPECIFICATIONS POND CODE 378, JANUARY, 2000.
 - MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION, 1993, STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS.
- THIS SITE LIES WITHIN THE PATUXENT RIVER WATERSHED WHICH IS DESIGNATED CLASS 1 RECREATIONAL WATERS BY THE STATE OF MARYLAND.
- THE FACILITY IS PRIVATE AND MAINTENANCE RESPONSIBILITY WILL BE THAT OF THE HOME OWNERS ASSOCIATION.
- STORMWATER QUANTITY MANAGEMENT IS NOT REQUIRED FOR THE 2 AND 10 YEAR STORMS.
- THE PROPOSED STORMWATER MANAGEMENT POND SHOWN HEREON IS A WET POND.
- RIPRAP OUTFALL CONSTRUCTION IN WATERWAY / 100 YR FLOODPLAIN TO BE IN ACCORDANCE WITH MDE PERMIT.

MD. 378 SMALL POND SPEC QUALIFIER

ALL STORMWATER MANAGEMENT AND WATER QUALITY FACILITIES ARE TO BE BUILT TO THE SOIL CONSERVATION SERVICE STANDARDS AND SPECIFICATIONS FOR SMALL PONDS NO. 378 AND/OR THE MARYLAND DEPARTMENT OF NATURAL RESOURCES WATER RESOURCES ADMINISTRATION STANDARDS AND SPECIFICATIONS FOR INFILTRATIONS PRACTICES.

NOTICE: OWNER & CONTRACTOR
ENGINEER-IN-CHARGE SHALL BE NOTIFIED TWO (2) WEEKS IN ADVANCE OF CONSTRUCTION. FACILITY CONSTRUCTION MUST BE MONITORED AND INSPECTED FOR AS-BUILT CERTIFICATION.

HYDROLOGY SUMMARY

DESIGN STORM	PROPOSED SWM FACILITY INFLOW	PROPOSED SWM FACILITY DISCHARGE	WATER SURFACE ELEV. W/ IN FACILITY	STORAGE VOLUME PROVIDED IN FACILITY
	cfs	cfs	ft	ac.-ft.
10 YEAR	35.5	25.9 *	311.03	0.4445
100 YEAR	52.5	42.6	311.35	0.5827/3.63
10 YR BASIN	11.8	3.5	308.41	0.2870

* BASED ON CLOGGED ROUTING

BY THE DEVELOPER
I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR 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 SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Signature: *[Signature]* DATE: 6/20/02
DEVELOPER: JOSEPH NECKER

BY THE ENGINEER:
I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

Signature: *[Signature]* DATE: 6-18-02
ENGINEER: DONALD N. MITTEN

Signature: *[Signature]* DATE: 7/23/02
Signature: *[Signature]* DATE: 7/23/02
HOWARD SOIL CONSERVATION DISTRICT

STORMWATER MANAGEMENT CONSTRUCTION SPECIFICATIONS

I. SITE PREPARATION
 Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped of topsoil. All trees, vegetation, roots and other objectionable material shall be removed. Channel banks and sharp breaks shall be sloped to no steeper than 1:1. All trees shall be cleared and grubbed within 15 feet of the toe of the embankment.
 Areas to be covered by or reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush and stumps shall be cut approximately level with the ground surface. For dry stormwater management ponds, a minimum of a 25 foot radius around the inlet structure shall be cleared.
 All cleared and grubbed material shall be disposed of outside and below the limits of the dam and reservoir as directed by the owner or his representative. When specified, a sufficient quantity of topsoil will be stockpiled in a suitable location for use on the embankment and other designated areas.

II. EARTH FILL
A. MATERIAL
 The fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, wood, rubbish, stones greater than 6" frozen or other objectionable materials. Fill material for the center of the embankment and cut off trench shall conform to Unified Soil Classification SC, CH, or CL and must have at least 30% passing # 200 sieve. Consideration may be given to the use of other materials in the embankment if design and construction are 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.
B. PLACEMENT
 Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in maximum 8 inch thick (before compaction) layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portions of the embankment. The principal spillway must be installed concurrently with fill placement and not excavated into the embankment.
C. 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 of the equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction is obtained with the equipment used. The fill material shall contain sufficient moisture such that if formed into a ball it will not crumble yet not be so wet that 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 ASTM Method T-99 (standard proctor).

III. CUT OFF TRENCH AND IMPERVIOUS CORE
 The cutoff trench shall be excavated into impervious material along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be governed by the equipment used for excavation, with the minimum width being that of the trench. The depth shall be at least four feet below existing grade or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill shall be compacted with equipment, rollers or hand tampers to assure maximum density and minimum permeability. The core shall be parallel to the centerline of the embankment as shown on the plans. The top width 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 to 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.

IV. 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 closer than four feet, measured horizontally, to any part of the structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe unless there is a compacted fill of 24" or greater over the structure or pipe.
 Structure backfill may be flowable fill meeting the requirements of Maryland Department of Transportation State Highway Administration Standard Specifications for construction and materials, Section 313 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 side of the pipe. It only needs to extend up to the spring line for rigid conduits. Average slump of the fill shall be 7" to assure flowability of the material. Adequate measures shall be taken (sand bags, etc.) to prevent flooding of the pipe. When using flowable fill, all material pipe shall be bituminous coated. Any adjoining soil 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. 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 structure or pipe unless there is a compacted fill of 24" or greater over the structure or pipe. Backfill material outside the structural backfill (flowable fill) zone shall be of the type and quality conforming to that specified for the core of the embankment or other embankment materials.

V. PIPE CONDUITS
 All pipes shall be circular in cross section.
A. REINFORCED CONCRETE PIPE
 1. Materials - Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM Specification C-361.
 2. Bedding - Reinforced concrete pipe conduits shall be laid in a concrete bedding/grade for their entire length. The bedding/grade shall consist of high strength concrete placed under the pipe and up the sides of the pipe at least 50% of its outside diameter with a minimum thickness of 6 inches. Where a concrete cradle is not needed for structural reasons, flowable fill may be used as described in the "Structure Backfill" section of this standard. Gravel bedding is not permitted.
 3. Laying pipe - Bell and spigot pipe shall be placed with the bell and upstream. Joints shall be made in accordance with the 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 rise.
 4. Backfilling shall conform to "Structure Backfill".
 5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.
B. PLASTIC PIPE
 1. Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241 (High Density Polyethylene) (HDPE) coupling and fittings shall conform to the following: 4"-10" inch pipe shall meet the requirements of ASTM D252 Type S, and 12" through 24" inch shall meet the requirements of ASTM D294 S.
 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.

VI. CONCRETE
 Concrete shall meet the minimum requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 414 No. 3.
VII. STABILIZATION
 All borrow areas shall be graded to provide 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, mulching or sodding in accordance with the Natural Resources Conservation Service. Standard and Specifications for critical area Planting (MD 342) or as shown on the accompanying drawings.
A. SOD
 1. Specifications - Sod shall be "K-31" Tall Fescue or Kentucky Bluegrass/Red Fescue mixture or approved equal. Class of turfgrass sod shall be Maryland or Virginia state certified or approved sod.
 2. Site Preparation - Where soil is acidic or composed of heavy clays, ground limestone shall be spread at the rate of 100 lbs./1000 sq. ft. in all soils 5-10-5 fertilizer or approved equal shall be applied at the rate of 20 lbs./1000 sq. ft. Fertilizer shall be uniformly applied and mixed into the top 3" of soil with the required lime. Slow release nitrogen, at the rate of 3.5 lbs./1000 sq. ft. shall be applied to the prepared soil immediately prior to sod installation. This material shall be applied immediately after sod installation and two-thirds water insoluble nitrogen. Urea formaldehyde (UF) and isobutylenes (IBU) meet these standards.
 3. Sod Installation - The first row of sod shall be laid in a straight line with subsequent rows placed parallel to and tightly wedged against each other. Lateral joints shall be staggered to promote more uniform growth and strength. Areas that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots. On sloping areas where erosion may be a problem, sod shall be laid with long edges parallel to the contour and with staggered joints. Secure the sod by tamping and pegging or other approved methods. As sodding is completed in any one section, the entire area shall be rolled or tamped to insure full contact of roots with the soil surface. Sod shall be watered immediately after rolling or tamping until the underside of the sod pad and solid surface below the sod are thoroughly wet. The operation of laying, tamping and irrigating for any piece of sod shall be completed within eight hours.

B. PERMANENT SEEDING
 All disturbed areas shall be stabilized as follows:
 1. Seedbed Preparation - Loosen upper 3 inches of soil by raking, discing 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 (14 lbs./1000 sq. ft.) and 400 lbs. per acre of 30-0-0 ureiform fertilizer (9.2 lbs./1000 sq. ft.). Harrow or disc lime and fertilizer into upper three inches of soil. At time of seeding, apply 400 lbs. per acre (9.2 lbs./1000 sq. ft.) of 30-0-0 ureiform fertilizer and 500 lbs. per acre (11.5 lbs./1000 sq. ft.) of 10-10-10 fertilizer.
 3. Seeding - For the period March 1 through April 30 seed with 40 lbs. per acre Kentucky 31 Hard Fescue and 15 lbs. per acre inoculated Crownvetch. For the period May 1 through July 31 seed with 60 lbs. per acre Kentucky 31 Hard 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 Hard Fescue and 20 lbs. per acre inoculated Interstate Series Leguminosae. During the period of October 16 through February 28, protect site by: Option (1) - 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring. Option (2) - use sod. Option (3) - seed with 60 lbs. per acre Kentucky 31 Hard Fescue and mulch with 2 tons per acre well anchored straw. For the period of May 1 through February 28, inoculated Crownvetch shall be applied during the subsequent period of March 1 through April 30 at the rate of 15 lbs. per acre.
 4. Mulching - Apply 1.5 to 2 tons per acre of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using 218 gallons per acre of emulsified asphalt on flat areas. On slope 8 feet or higher, use 348 gallons per acre for anchoring.
 5. Maintenance - Inspect all seeded areas and make needed repairs, replacements and reseeding.

C. TEMPORARY SEEDING
 1. Seedbed Preparation - Loosen upper 3 inches of soil by discing, raking or other acceptable means before seeding.
 2. Soil Amendments - Apply 600 lbs. per acre of 10-10-10 fertilizer. Where soil is acidic or composed of heavy clays, ground limestone shall be applied at the rate of 2 tons per acre (92 lbs./1000 sq. ft.).
 3. Seeding - For periods March 1 through April 30, and from August 15 through November 15, seed with 2.5 bushels per acre annual ryegrass. For the period May 1 through August 14, seed with 3 lbs. per acre of weeping lovegrass. For the period November 16 through February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring or use sod.
 4. Mulching - Same as permanent seeding.

VIII. 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.

IX. FENCING
 Fencing shall be 42" high chain fence constructed in accordance with the latest Maryland State Highway Administration Standard Details 615.02 and 615.03. The specifications for a 6'-0" fence shall be used, substituting 42" fabric and 6'-8" line posts. Gate shall be constructed in accordance with State Highway Administration Standard Detail 692.01 with 42" fabric. Fabric for fence and gate shall conform to ASHTO Designation M181.74. Dark vinyl coating is required for the fence posts and wire fabric in accordance with the Landscape Manual adopted by Resolution 55-90, October 1, 1990.

X. ROCK RIPRAP
 Rock riprap shall meet the requirements of Maryland Department of Transportation, State Highway Administration standard specifications for construction and materials, Section 311.

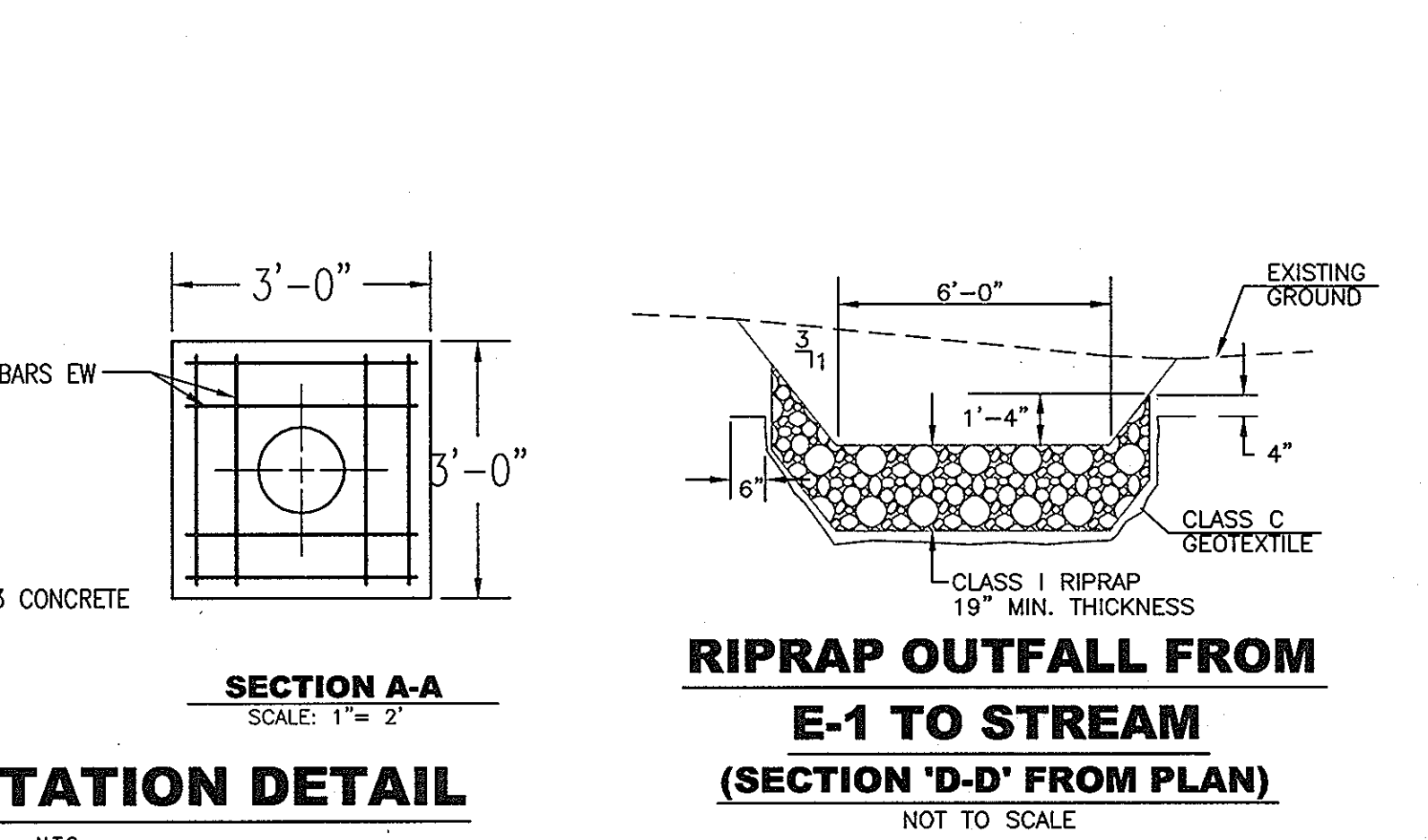
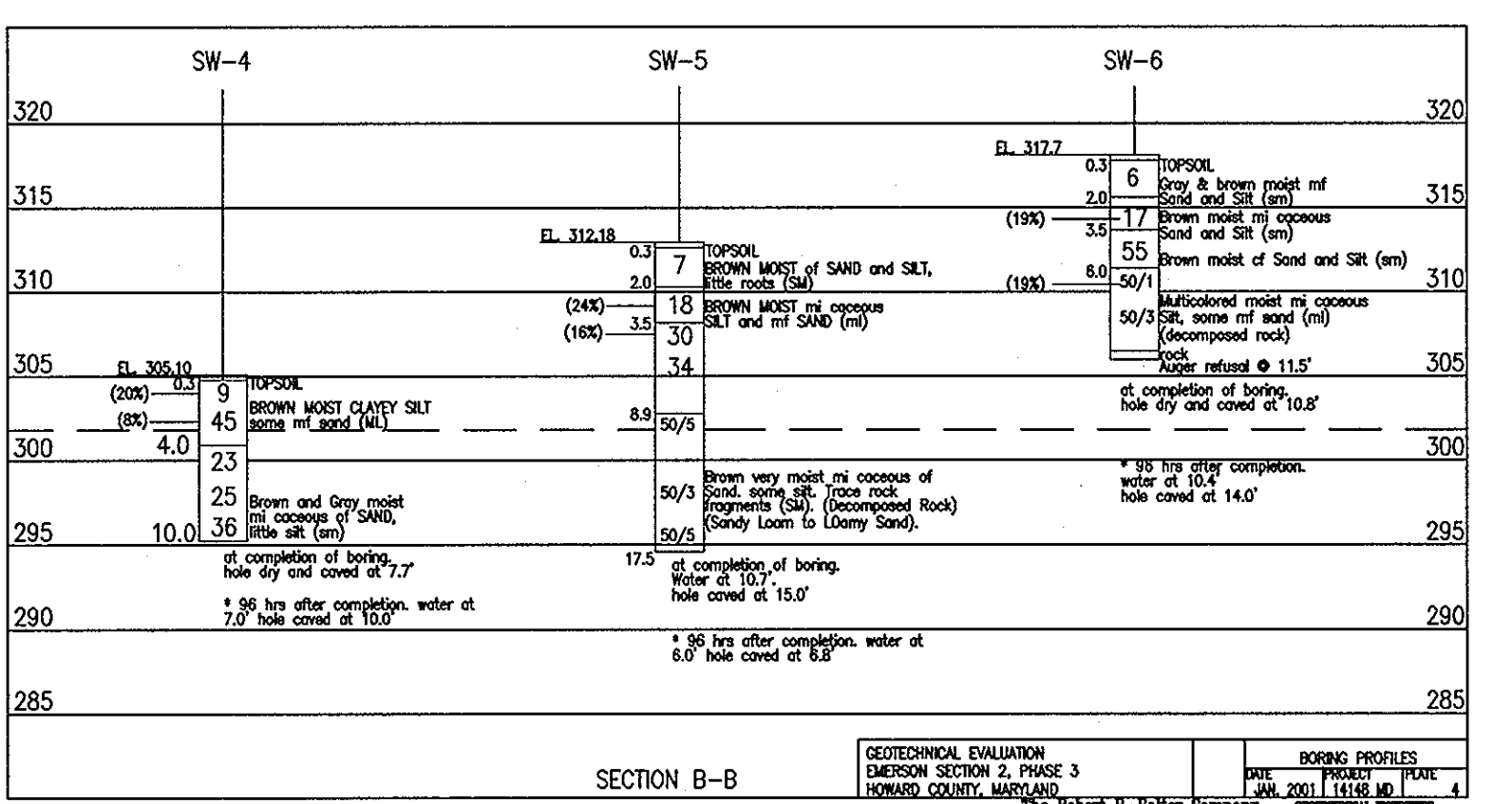
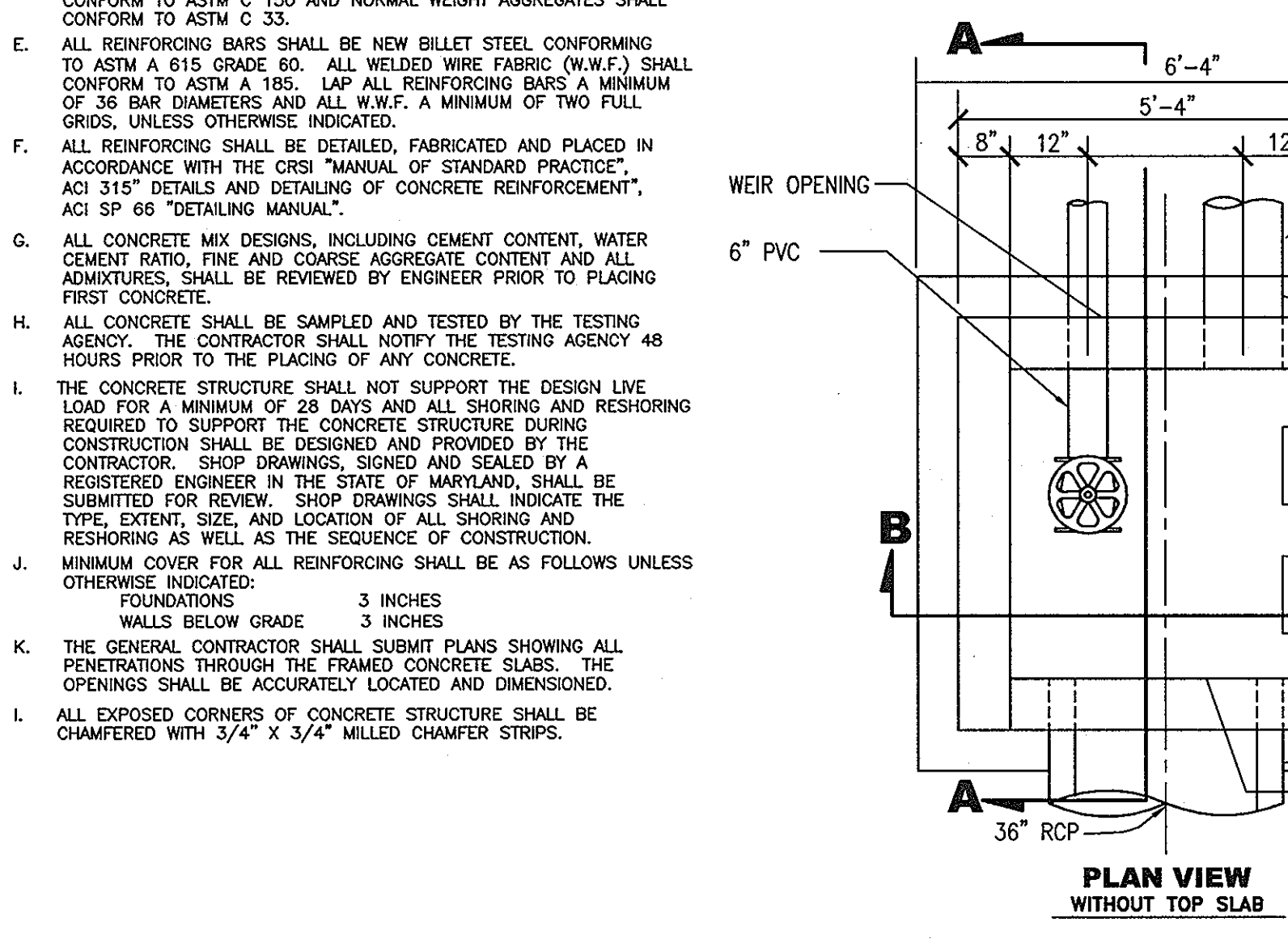
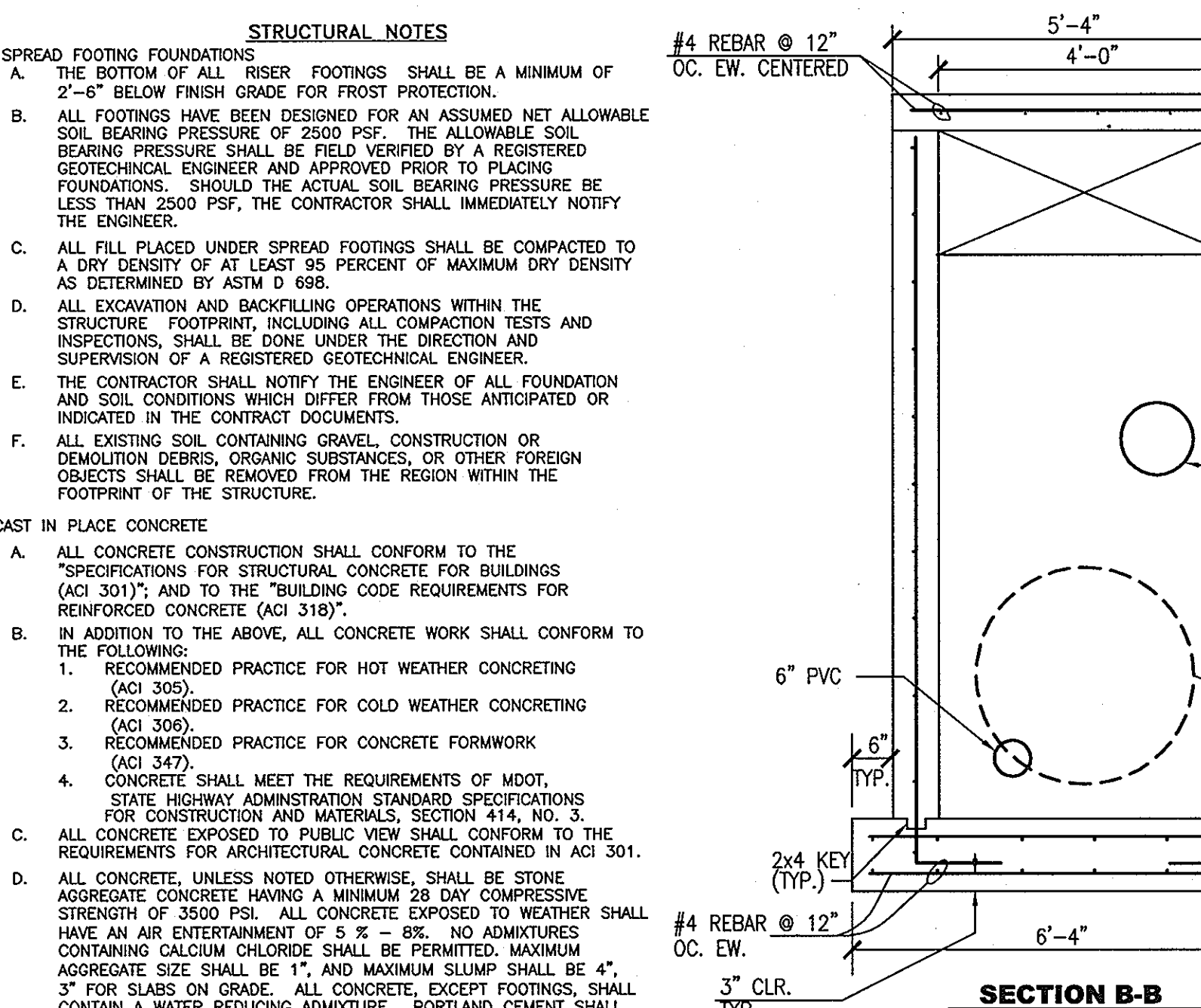
XI. FILTER CLOTH
 1. Geotextile shall be placed under all riprap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for construction and Materials, Section 921.09, class C.

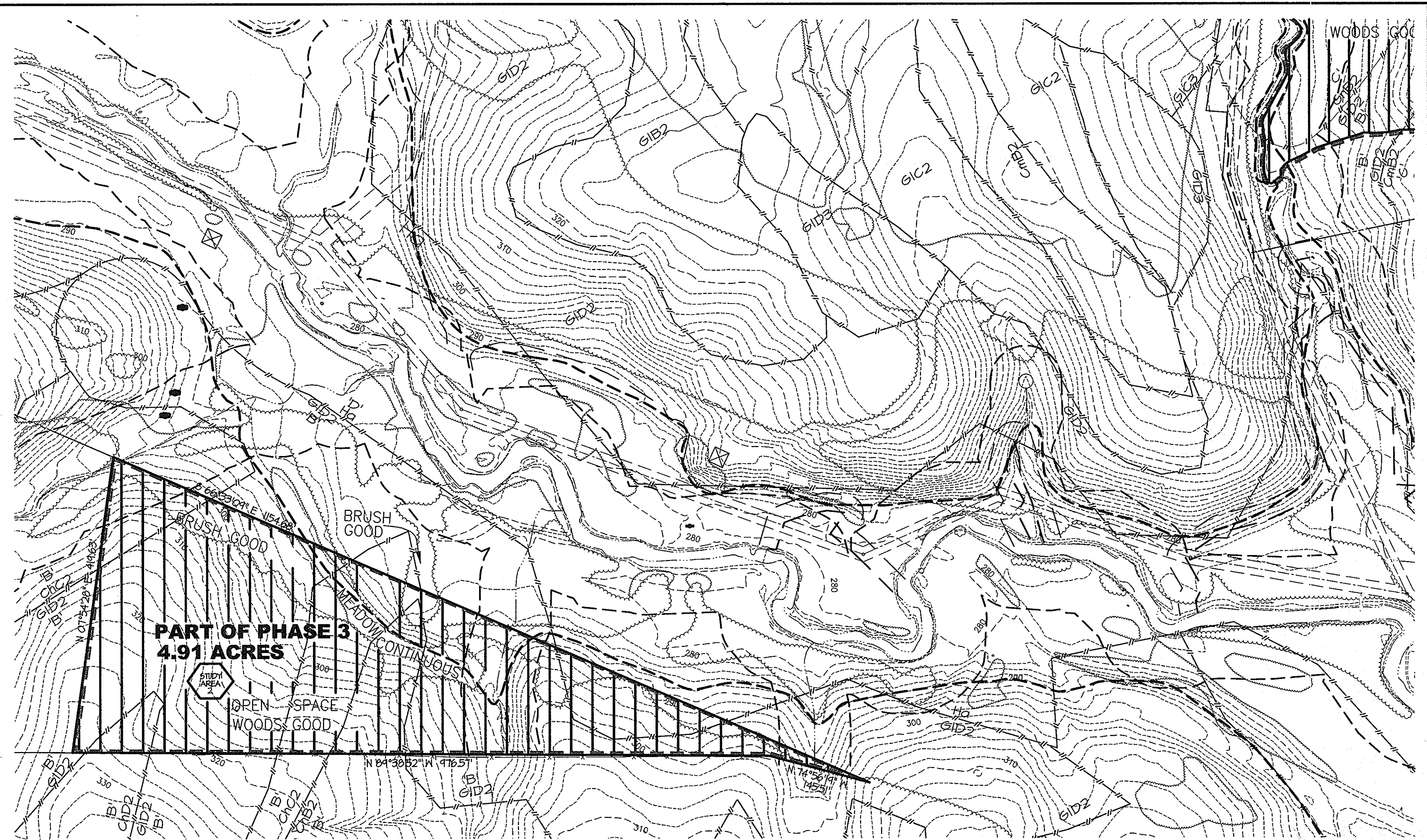
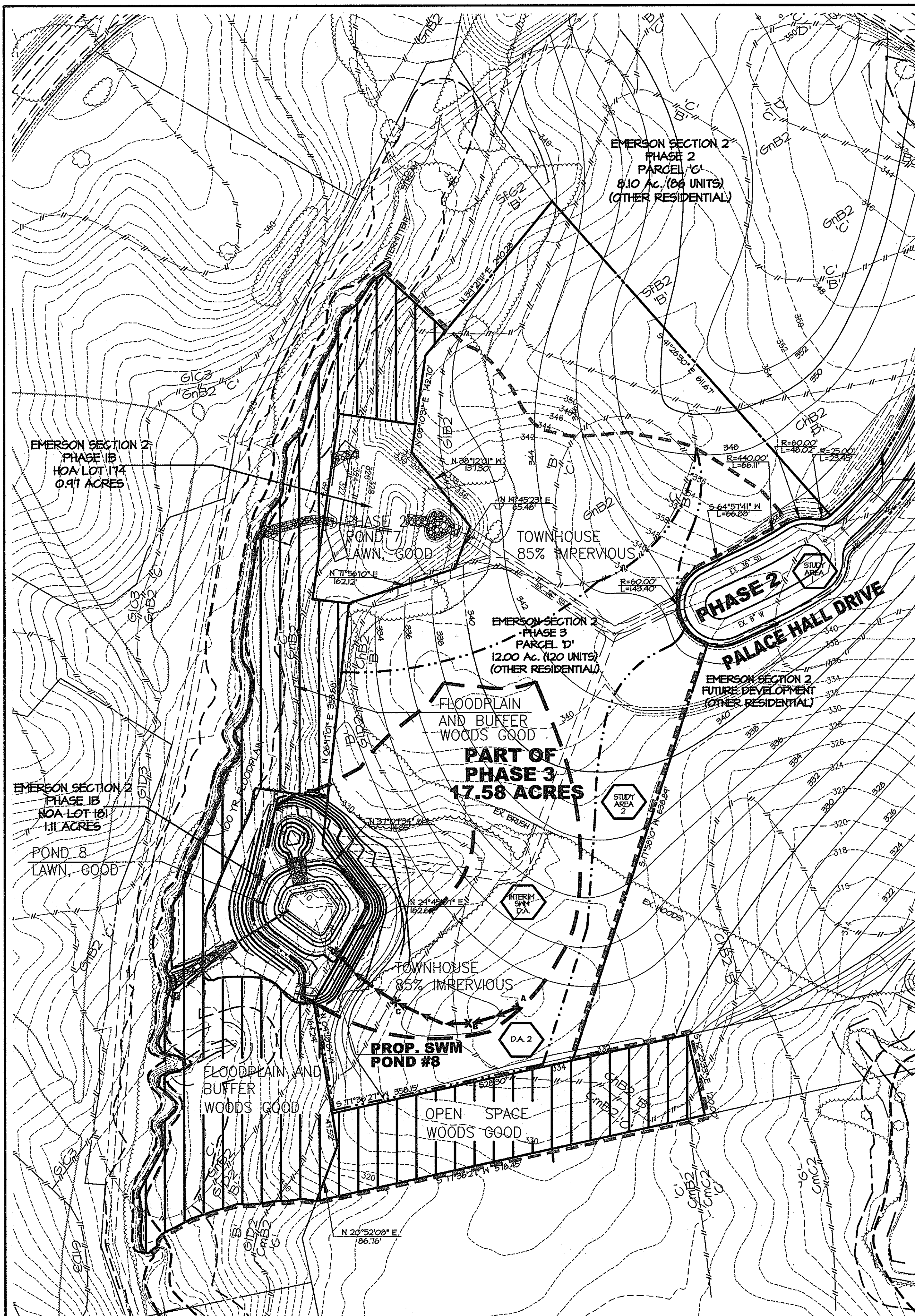
XII. GABIONS
 1. Gabions to be PVC coated. Class M, Section H.24, Maryland Standard Specifications and Details for Soil Erosion and Sediment Control.

XIII. INSPECTION
 The contractor shall notify the engineer at least 5 working days prior to starting any work shown on these plans so that stormwater management pond may be inspected during construction.

XIV. 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 to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works and so as not to interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until full flow can be passed through the permanent work. 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. The timing and sequencing of excavation and foundation work shall be such that the water level at the locations being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water to sumps from which the water shall be pumped.

XV. REFERENCES
 Unless otherwise noted, all materials and construction practices shall conform to the following:
 1. "Standard Specifications and Details for Construction" of the Howard County, Maryland, Department of Public Works, as amended.
 2. "Standard Specifications for Construction and Materials", 1993, of the Maryland State Highway Administration, as amended.
 3. "Standard Specifications for Ponds" of the Soil Conservation Service of Maryland (MD-378), January 2000 and as amended.





NOTE:
 PROPOSED CONTOURS SHOWN HERE ON (OUTSIDE OF POND CONSTRUCTION LIMITS) ARE CONCEPTUAL FOR THE PURPOSE OF ESTABLISHING DRAINAGE AREA 2.

DRAINAGE AREAS

- AREA = 22.41 AC. (0.0791 SQ. MI.) ZONING: HXD
 RCN = 78, TC = 0.15 HOUR (ASSUMED) 37% IMPERVIOUS
 HSG A = 0%
 HSG B = 40%
 HSG C = 20%
 HSG D = 26%
- AREA = 6.64 AC. (0.0208 SQ. MI.) ZONING: HXD
 RCN = 40, TC = 0.15 HOUR (ASSUMED) 77% IMPERVIOUS
 HSG A = 0%
 HSG B = 0%
 HSG C = 10%
 HSG D = 0%
- AREA = 4.13 AC. (0.00645 SQ. MI.) COVER: WOODS, BRUSH, LAWN, ROOF CROPS
 RCN = 74, TC = 0.27 HOUR 4% IMPERVIOUS (POND POOL)
 HSG A = 0%
 HSG B = 0%
 HSG C = 10%
 HSG D = 0%

LEGEND

- A — TC — B TIME OF CONCENTRATION PATH
- BOUNDARY LINE PHASE 3
- STORMWATER MANAGEMENT ACCESS EASEMENT
- DRAINAGE AREA TO POND USED FOR ROUTING THE 10 & 100 YEAR STORMS
- STUDY AREA USED FOR SWM POND DESIGN BASED ON MDE 2000 MARYLAND STORMWATER DESIGN MANUAL
- INTERIM STORMWATER MANAGEMENT DRAINAGE AREA DIVIDE
- EXISTING 2' CONTOUR
- EXISTING 10' CONTOUR
- PROPOSED 2' CONTOUR
- PROPOSED 10' CONTOUR

DPZ FILE F-02-55

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.

Jim Meyer / *CS* 7/23/02
 U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

John J. ... / *CS* 7/23/02
 HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. ... / *CS* 9-9-02
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Christy ... / *CS* 7/13/02
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

John ... / *CS* 7/11/02
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

DATE	NO.	REVISION

OWNER / DEVELOPER:
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION
 THE ROUSE BUILDING
 10275 LITTLE PATUXENT PARKWAY
 COLUMBIA, MARYLAND 21044
 PHONE: (410) 992-6370

PROJECT: **EMERSON SECTION 2 PHASE 3**

AREA TAX MAP NO. 47 P/O PARCEL P.837 P. 3, P. 482

ELECTION DISTRICT No.6 HOWARD COUNTY, MARYLAND

TITLE **STORMWATER MANAGEMENT DRAINAGE AREA MAP**

MRA MORRIS & RITCHIE ASSOCIATES, INC.
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6-18-02 DATE
 PROJECT NO.: 11494
 SCALE: 1" = 100'
 DATE: JULY 5, 2002
 DRAWN BY: MLS & TAM
 DESIGNED BY: TAM
 REVIEW BY: DNM
 DRAWING NO. 10 OF 10

