

SHEET INDEX

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ADDRESS CHART

LOT	STREET ADDRESS
F-462	8867 PALACE HALL DRIVE

SITE ANALYSIS DATA CHART

- General Site Data
 - Present Zoning: PEC-MXD-3
 - Applicable DPZ File References: F-04-127, ZB-979M, PB-339, PB-359, S-99-12, P-03-16.
 - Proposed Use of Site or Structure(s): Wetland Pond
 - Proposed Water and Sewer Systems are: N/A
 - Any Other Information Which May be Relevant: N/A
 - Parcel Area: 24.5 acre Parcel 462, 253.7 ac. Parcel 837
 - Deed Reference: 52289/330 (Owner: The Howard Research and Dev. Co.)

- Area Tabulation
 - Total Project Area: 78.2 Acres (Wetland Pond=2.37 Ac. (103,237 SF.))
 - Area of This Plan Submission: 2.60 Acres (Wetland Pond=2.37 Ac., Temp. Stockpile=0.23 Ac.)
 - Limit of Disturbed Area: ±2.1 Acres
 - Building Coverage of Site: N/A Ac and N/A % of Gross Area (Proposed)

GENERAL NOTES

- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- THE EXISTING TOPOGRAPHY IS TAKEN FROM AERIAL SURVEY WITH 2 FOOT CONTOUR INTERVALS, PREPARED BY DMW, INC. IN SUMMER 1998.
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT 47E4, 47D4 AND 47G2 WERE USED FOR THIS PROJECT.
- EXISTING UTILITIES ARE BASED ON CONTRACT NO. F-04-127.
- ANY DAMAGE TO THE COUNTY'S RIGHT-OF-WAY SHALL BE CORRECTED AT THE BUILDER'S EXPENSE.
- THE PROPERTY IS ZONED PEC-MXD-3 PER THE 212/04 COMPREHENSIVE ZONING PLAN AND PER ZB CASE NO. 979M.
- THE FOREST CONSERVATION REQUIREMENTS FOR THIS SITE WERE PREVIOUSLY ADDRESSED UNDER F-04-127. APPROXIMATELY 1.97 ACRES OF REFORESTATION IS BEING ADDED UNDER THIS SDP AS EXCESS FOREST CONSERVATION PLANTING TO BE USED AS A CREDIT FOR THE FUTURE PHASES OF THIS DEVELOPMENT.
- THERE ARE NO KNOWN CEMETERIES ON SITE.
- CLEARING, GRADING AND CONSTRUCTION OF POND IMPROVEMENTS AND PLANTING OCCUR WITHIN THE DESIGNATED WETLANDS PER THE PHASE I APPROVAL FROM M.D.E.
- IN ACCORDANCE WITH SECTION 16.16(c) OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, THE HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING AND THE HOWARD COUNTY SOIL CONSERVATION DISTRICT HAVE DETERMINED THAT WETLAND AND BUFFER DISTURBANCES ARE NECESSARY TO CREATE THE WETLAND MITIGATION AREA.
- THE PURPOSE OF THIS SITE DEVELOPMENT PLAN IS TO DETAIL THE CREATION OF EMERGENT AND FORESTED WETLANDS TO OFFSET AUTHORIZED RESOURCE IMPACTS ACROSS THE EMERSON MIXED-USE DEVELOPMENT SITE (MDE TRACKING No. 01-NT-0222/200164079). WETLAND CREATION IS A CONDITION OF APPROVAL BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT AND THE U.S. ARMY CORPS OF ENGINEERS.

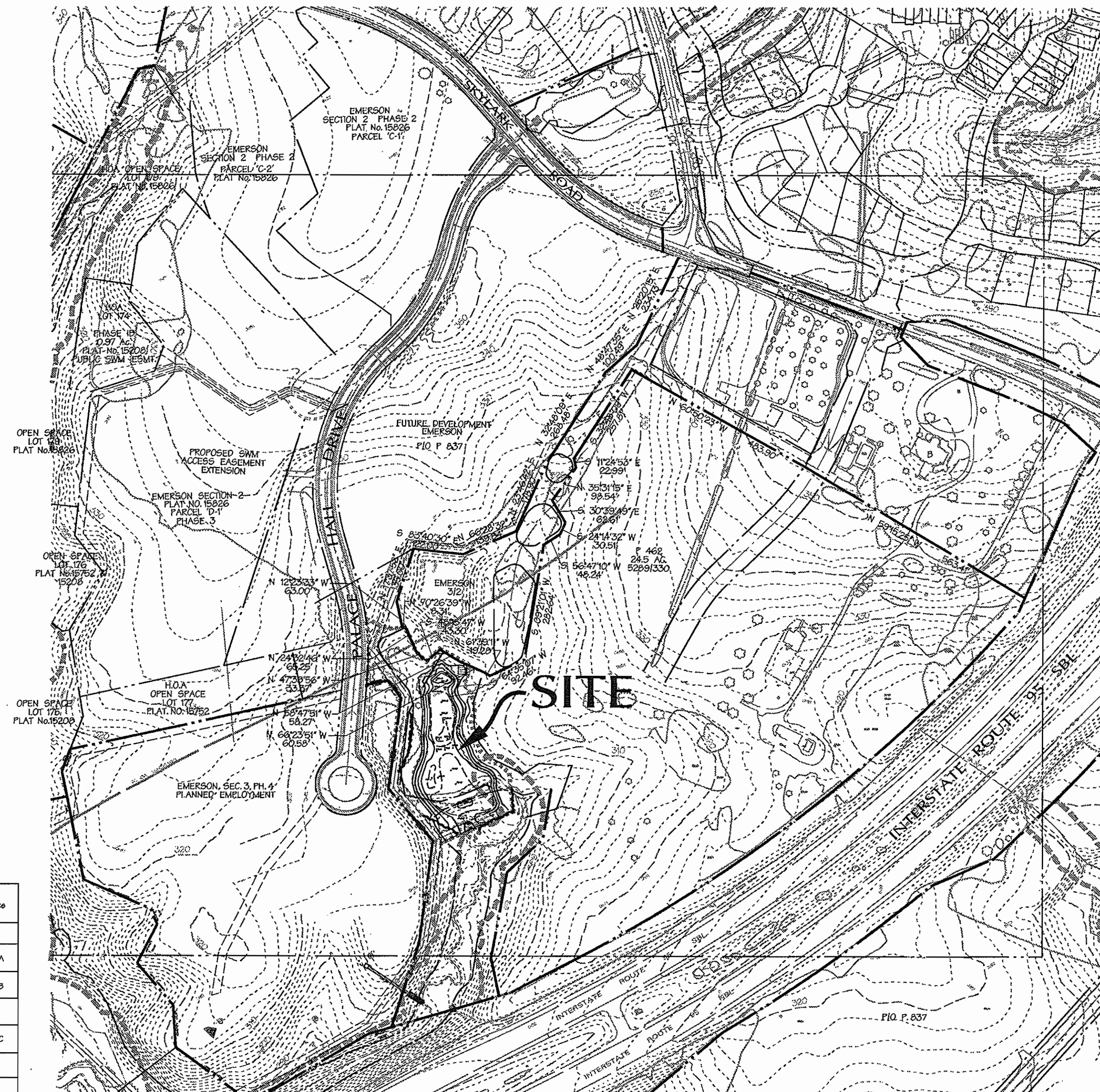
FOREST CONSERVATION TRACKING CHART

DPZ FILE Number	Section/Phase Number	Gross Area	Floodplain	Net Tract Area	Ex. Forest Area	Forest Cleared	Forest Retained	Reforest./Affor. Required	Reforest./Affor. Provided	Excess Reforest./Affor.	Future Forest Clearing	Future Reforest./Affor.	Comments
F-01-137	2 1A/B	106.20	3.50	102.70	24.70	7.93	16.77	0.61	5.03	4.42	4.48	3.41	
F-01-146	212	119.90	3.50	116.40	24.80	8.03	16.77	2.96	5.03	2.09	3.29	3.41	See Note A
F-02-56	213	137.36	4.00	133.36	34.40	12.53	21.87	1.27	5.03	3.76	2.16	3.91	See Note B
F-02-131	311	206.86	2.19	204.66	86.30	39.47	46.83	0.00	5.03	5.03	2.16	3.91	
F-02-478	312	220.27	2.27	218.00	87.50	41.67	46.83	0.00	5.03	5.03	2.16	3.91	See Note C
F-03-13	2 1A	264.81	26.57	238.24	98.18	47.15	91.03	0.00	5.77	5.77	2.49	5.24	
F-03-175	215(A)	267.84	27.40	240.44	98.62	47.59	91.03	0.00	5.77	5.77	2.49	5.24	
F-04-68	216(A)	277.75	27.40	250.35	98.62	47.59	91.03	0.00	5.77	5.77	2.49	5.24	See Note D
F-04-131	214	277.75	27.40	250.35	98.62	47.59	91.03	0.00	5.95	5.95	2.49	3.91	See Note E
F-04-53	215(A)	306.93	27.51	279.42	98.66	47.63	91.03	2.79	8.74	5.95	2.49	3.91	
F-04-127	215(B)	332.63	32.43	300.20	115.66	63.31	82.26	8.51	11.91	3.00	2.49	3.91	See Note F
F-05-48	211B	332.63	32.43	300.20	115.66	61.73	83.93	6.83	13.29	6.76	0.49	1.84	See Note G
F-05-93	217	341.19	32.43	308.76	115.66	61.73	83.93	7.81	13.29	5.48	0.49	1.84	
F-05-89	216(B)	347.46	32.43	315.03	121.26	67.33	83.93	10.15	13.52	3.37	0.49	1.84	
SDP-05-124	"FARM POND"	347.46	32.43	315.03	121.26	67.33	83.93	10.15	15.49	5.34	0.49	1.84	

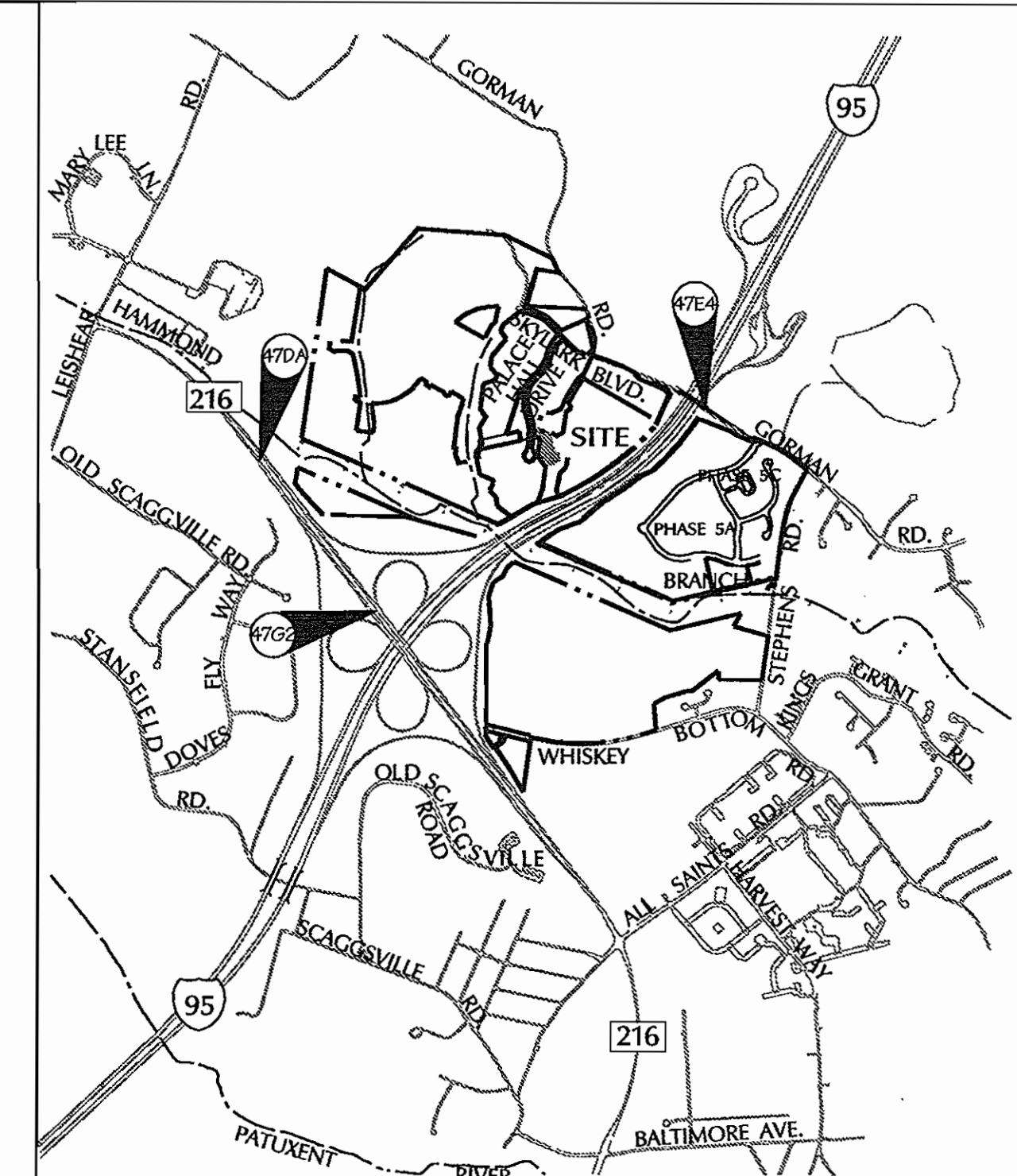
- 1.50-1.4 ACRES OF FUTURE FOREST CLEARING SHOWN ON F-01-137 WAS CLEARED FOR SWM ON OPEN SPACE LOT 17A.
- 1.10-1.1 ACRES OF FUTURE FOREST CLEARING SHOWN ON F-01-137 WAS CLEARED FOR SWM ON OPEN SPACE LOT 17B.
- 0.8095 ACRES INCLUDES 1.07-1.1 ACRES FOR SANITARY SEWER EXTENSION AND CONTAINS 0.064-1.1 ACRES OF FLOODPLAIN.
- 0.8095 ACRES EXCLUDES 0.38 ACRES FOR THE SANITARY SEWER SHOWN ON F-02-175. GROSS AREA ALSO EXCLUDES 0.07 ACRES FOR AREA PREVIOUSLY ACCOUNTED FOR UNDER F-03-16.
- THIS LINE ITEM ACCOUNTS FOR REFORESTATION PROVIDED RETROSPECTIVELY ON A PHASE THAT PREVIOUSLY ADDRESSED FOREST CONSERVATION. APPROXIMATELY 1.97 ACRES OF FUTURE REFORESTATION AREA WILL BE USED UNDER THIS REFORESTATION PLAN.
- 0.8095 ACRES INCLUDES 0.52 ACRES FOR SANITARY SEWER SHOWN ON F-02-175. A GROSS AREA INCLUDES 2.37 ACRES FOR THE WETLAND MITIGATION SITE. FLOODPLAIN INCLUDES 12 ACRES FOR THE MITIGATION AREA FLOODPLAIN.
- APPROXIMATELY 0.42 ACRES OF FUTURE CLEARING/FUTURE REFORESTATION IS BEING CLEARED AND IS NOT BEING REFORESTED. APPROXIMATELY 1.50 ACRES OF FUTURE CLEARING/FUTURE REFORESTATION IS BEING RETAINED. APPROXIMATELY 0.15 ACRES OF FUTURE REFORESTATION IS BEING REFORESTED.

SITE DEVELOPMENT PLAN

EMERSON
TAX MAP 47 PARCELS 462 AND 837
EXISTING FARM POND PHASE II
HOWARD COUNTY, MARYLAND



LOCATION MAP
SCALE: 1"=200'



Vicinity Map
SCALE: 1"=2000'

BENCHMARK
DESCRIPTION

- COORDINATES IN MARYLAND NAD83(91) (HORIZONTAL) AND NGVD29 (VERTICAL) DATUMS.
- 47DA NORTHING: 163191.9104
EASTING: 4122657.59
ELEVATION: 315905 ft.
 - 47E4 NORTHING: 163326.2295
EASTING: 41336.2250
ELEVATION: 338.3091 ft.
 - 47G2 NORTHING: 162440.1212
EASTING: 4116539279
ELEVATION: 364.2101 ft.

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

[Signature] 3/2/06
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE

[Signature] 4/5/06
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 4/7/06
DIRECTOR DATE

Revision Description

Date	No.	Description
		EXISTING FARM POND PHASE II EMERSON TAX MAP 47 PARCELS 462 AND 837 HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER:
THE HOWARD RESEARCH & DEVELOPMENT CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044
410-992-6000

DMW
Dawn DeCane-Walker, Inc.
200 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 296-3353
Fax 296-4705

A Team of Land Planners,
Landscape Architects,
Golf Course Architects,
Engineers, Surveyors &
Environmental Professionals

3/6/06
Date

[Signature]
Professional Engineer No. 14230

- DATA SOURCES:
- TOPOGRAPHICAL INFORMATION ON EMERSON SECTION 2 WAS OBTAINED THROUGH AERIAL PHOTOGRAPHY DURING THE SUMMER OF 1998.
 - BOUNDARY SHOWN IS SURVEY BY DMW JUNE, 1999.
 - WETLAND LIMITS WERE FIELD LOCATED IN SEPTEMBER, 1998 AND JANUARY, 2000 BY DMW.
 - FLOODPLAIN ELEVATION SHOWN AT EXISTING POND WAS INTERPOLATED FROM HAMMOND BRANCH FLOODPLAIN STUDY BY HOWARD COUNTY.

SUBDIVISION NAME	SECTION/AREA	MAP/PROJECT
EMERSON		P. 462, P. 837
DATE OF LP	BLOCK #	DATE OF MAP
5/22/03/330	8	MXD-3
WATER CODE	SEWER CODE	
N/A	N/A	

TITLE		
COVER SHEET PHASE II WETLAND MITIGATION PLAN		
Des. By	KM	Scale AS SHOWN
Dm. By	CRH	Date 02-03-06
Chk. By	MJP	Approved
		Proj. No. 95054.D6
		1 of 7

Legend

- EXISTING CONTOURS
- EXISTING SPOT ELEVATION
- PROPOSED CONTOURS
- 100 YR. FLOODPLAIN
- E. OF EXISTING STREAM
- EXISTING TREE LINE
- PROPOSED TREE LINE
- WETLANDS
- WETLAND BUFFER
- LIMIT OF WETLANDS
- PROPOSED ROAD
- EXEDGE OF ROAD
- EXISTING BUILDINGS
- LIMIT OF DISTURBANCE
- PROPERTY BOUNDARY
- PROPOSED ROAD R/W LINES
- STREAM BUFFER
- SOILS LINES

SECTION 2
PHASE 5B
PARCEL AA
PLAT 17365
F-04-127

FCE "AA"
AND HOA
OPEN SPACE
LOT 1
PLAT 17365
F-04-127

PALACE HALL DRIVE
PUBLIC ROAD/60' R/W
(F-04-127) PLAT 17365

EX. 20' PUBLIC
SEWER & UTILITY
EASEMENT
7534/549

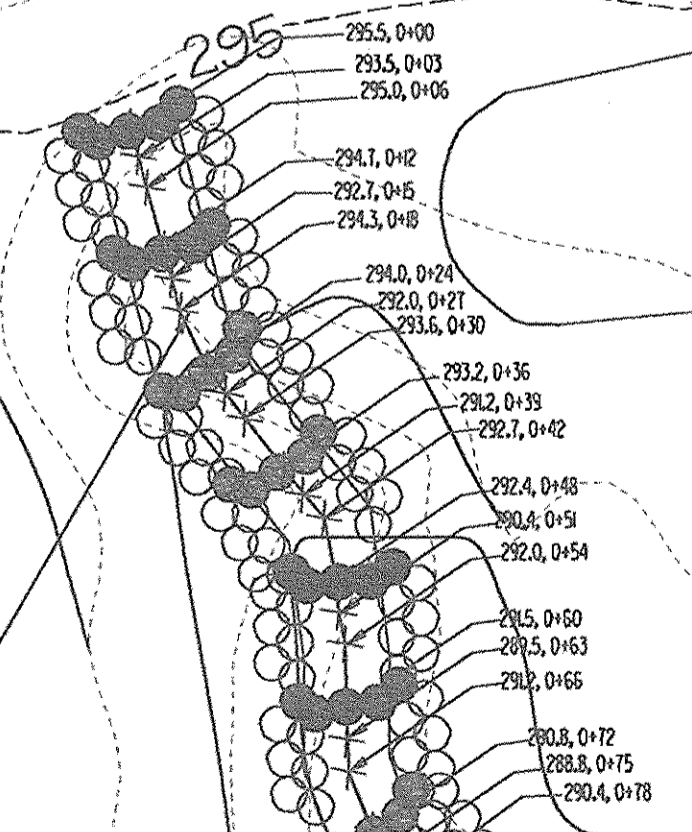
EMERSON
SECTION 3, PHASE 2
PLAT 15889
F-02-178
SWM POND

TEMPORARY
STOCKPILE
AREA
0.23 AC.

EMERSON
FUTURE DEVELOPMENT
L. 3245, F. 2514
L. 5289, F. 330
PARCEL 462
(RESIDENTIAL)

HRD LAND HOLDINGS, INC
5289/330

STEP POOL DETAIL
+294.0



FINAL ELEVATION OF
STEP POOL TO BE
DETERMINED IN THE
FIELD BY THE
ENVIRONMENTAL
SPECIALIST TO
ENSURE PROPER
WETLAND HYDROLOGY

STEP POOL
FEATURE LEGEND

- STEP POOL STRUCTURE
- PROPOSED SPOT ELEVATION & STATION MARK
- GRAVEL/CORBLE
- PROPOSED CHANNEL CENTERLINE

SCALE: 1" = 10'
SEE CONSTRUCTION DETAILS ON
SHEETS 5 OF 7 AND 7 OF 7

NOTE:
ENTIRE FARM POND PARCEL IS TO BE PLACED IN A
FOREST CONSERVATION EASEMENT.

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING	
 CHIEF, DEVELOPMENT ENGINEERING DIVISION	2/16/06 DATE
 CHIEF, DIVISION OF LAND DEVELOPMENT	4/5/06 DATE
 DIRECTOR	4/5/06 DATE

Date	No.	Revision Description
EMERSON TAX MAP 47 PARCELS 462 AND 837 EXISTING FARM POND PHASE II OWNER/DEVELOPER: THE HOWARD RESEARCH & DEVELOPMENT CORPORATION 10275 LITTLE PATUMENT PARKWAY COLUMBIA, MARYLAND 21044		

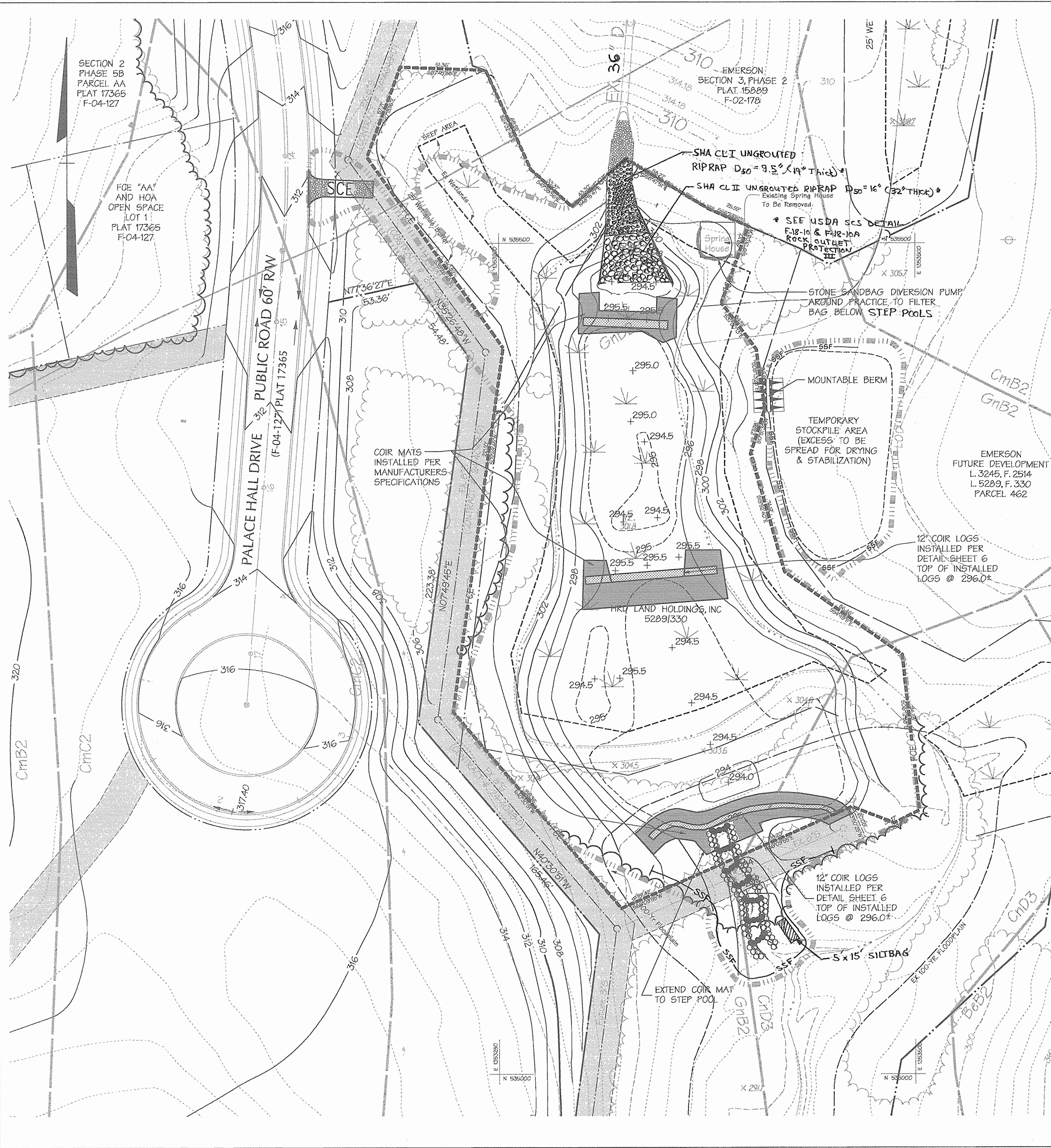
DMW
Dorr-McCune-Walkers, Inc.
200 East Pennsylvania Avenue
Towson, Maryland 21286
410 296-3829
Fax 296-3705

A Team of Land Planners,
Landscape Architects,
Golf Course Architects,
Engineers, Surveyors &
Environmental Professionals

2/16/06
Date

Professional Engineer No. 14230

TITLE GRADING PLAN			
Des. By	KM	Scale	1"=30'
Drn. By	CRH	Date	02-03-06
Chk. By	MJP	Approved	
			Proj. No. 95054-D6 2 of 7



Utility Construction Outside Sediment Control

- EXCAVATED TRENCH MATERIAL SHALL BE PLACED ON UPSTREAM SIDE OF TRENCH.
- IMMEDIATELY FOLLOWING PIPE INSTALLATION, THE TRENCH SHALL BE BACKFILLED, COMPACTED AND IMMEDIATELY STABILIZED (MULCHED, SEED, AND/OR SODDED MECHANICAL STABILIZATION) AT THE END OF EACH WORK DAY.
- SILT FENCE SHALL BE PLACED IMMEDIATELY DOWNSTREAM OF ANY DISTURBED AREA INTENDED TO REMAIN DISTURBED LONGER THAN ONE (1) WORKING DAY. (SILT FENCE AS PER SCS STANDARD DRAWING - E-15-3)
- THE CONTRACTOR SHALL DISTURB AND OPEN TRENCH THE MINIMUM PRACTICAL AREA REQUIRED TO ACCOMPLISH THE WORK DESIGNATED FOR EACH DAY.
- ALL SEDIMENT AND EROSION CONTROL PRACTICES AND VEGETATIVE STABILIZATION SHALL BE IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL IN DEVELOPING AREAS, ANY EROSION AND SEDIMENT CONTROL PRACTICES DAMAGED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.

Sequence of Operations

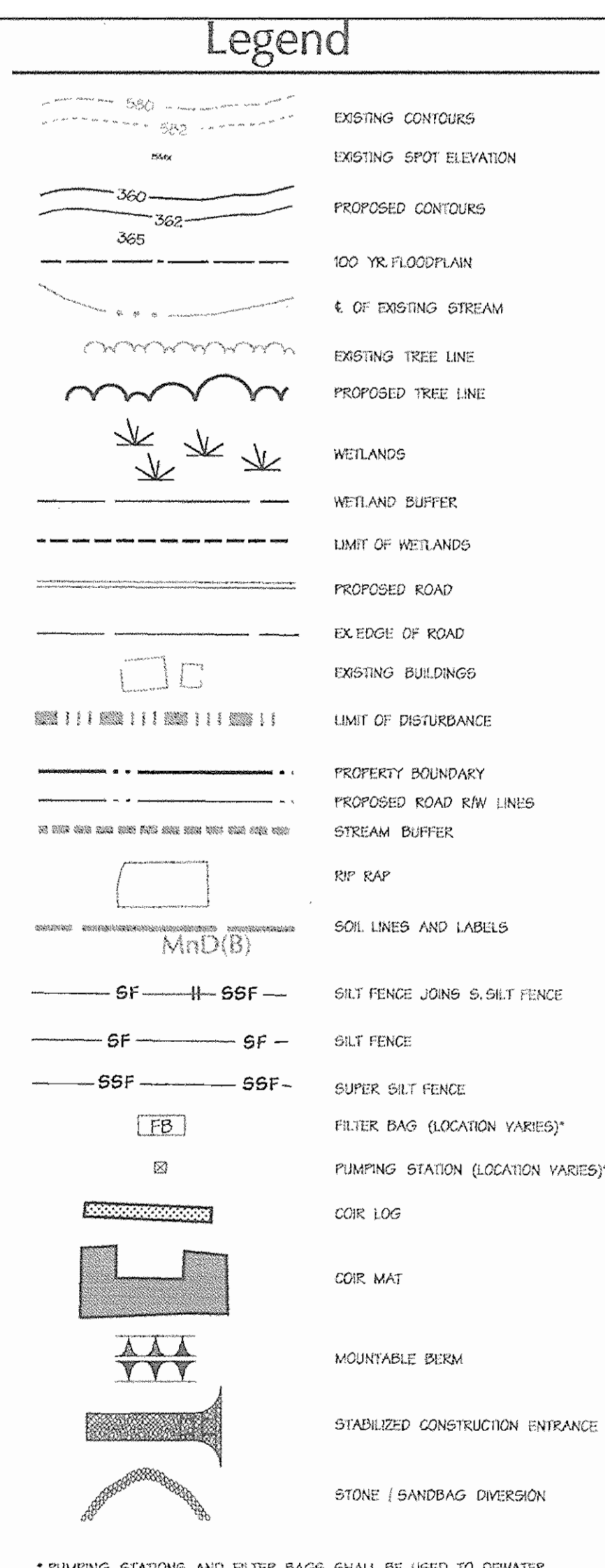
- Obtain Grading permit, Notify Maryland Department of Environmental and Natural Resources and Waterways Inspections and Compliance sections at (410)-631-3510 at least five days in advance of beginning any work in streams, 100-year floodplain, nontidal wetlands and wetland buffers. 1 Day
- Notify HCD Department of Inspections 410-243-1955 at least 48 hours prior to beginning any work. Department of Inspections (410)243-1955 at least 48 hours prior to beginning work. 1 Day
- Orange high visibility fence shall be manually installed along the limit of disturbance, where the limit is within 50 feet of forest conservation easement, 100-year floodplain, wetlands buffer or stream buffer. This shall be completed by and inspected at the pre-construction meeting. 2 Days
- With permission from the Sediment Control Inspector, clear and grub for and install the Stabilized Construction Entrance. Install Super Silt Fence (SSF) and Silt Fence (SF). 1 Week
- Notify HCD Department of Inspection upon completion of said installation and proceed with grading, coir logs placement, plantings and stabilization as shown on plans. 1 Month
- With the permission of the Sediment Control Inspector, remove sediment control measures and stabilize any areas disturbed by their removal. 1 Day
- Submit as-built drawings to all appropriate agencies within 30 days of completion. 4 Weeks

*Use Wetters: In-stream work shall not be conducted during the period March 1, through June 15 inclusive during any year.

Sediment Control General Notes

- A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (303-1995).
- ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND REVISIONS THEREOF.
- FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:
 - SEVEN CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DICES, 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 SEEDINGS (SEC.5), SODS (SEC.5A), TEMPORARY SEEDING (SEC.5B), AND MULCHING (SEC.5C), 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	2.37 ACRES
AREA TO BE ROOFED OR PAVED	2.10 ACRES
AREA TO BE VEGETATIVELY STABILIZED	0.00 ACRES
TOTAL CUT	210 ACFT
TOTAL FILL	7500 CUBIC YARDS
EXCESS MATERIAL WILL BE PLACED ON-SITE, DRYED AND STABILIZED, IF AN OFF-SITE WASTE / BORROW AREA IS REQUIRED, IT SHALL CONSIST OF A FACILITY APPROVED BY THE HOWARD COUNTY SCS AND THAT HAS AN ACTIVE HOWARD COUNTY GRADING PERMIT.	50 CUBIC YARDS
- 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 (3) FEET LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.



*PUMPING STATIONS AND FILTER BAGS SHALL BE USED TO Dewater WORK AREA. THESE ARE NOT SHOWN ON PLAN TO ALLOW FLEXIBILITY DURING CONSTRUCTION. EACH LOCATION SHALL BE APPROVED BY THE SEDIMENT CONTROL INSPECTOR BEFORE INSTALLATION.

NOTE: ENTIRE FARM POND PARCEL IS TO BE PLACED IN A FOREST CONSERVATION EASEMENT.

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: Jeffrey L. Schwab
 DATE: 2/6/06

OWNER'S CERTIFICATION:
 I HAVE CERTIFIED THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE THE CERTIFICATE OF ATTENDANCE AS 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: Steve G. Cavanaugh
 DATE: 2/6/06

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.
 Signature: [Signature]
 DATE: 2/6/06
 U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE
 THESE PLANS FOR SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF HOWARD SOIL CONSERVATION DISTRICT.
 APPROVED: [Signature]
 DATE: 2/6/06
 PLAN NUMBER: 14230

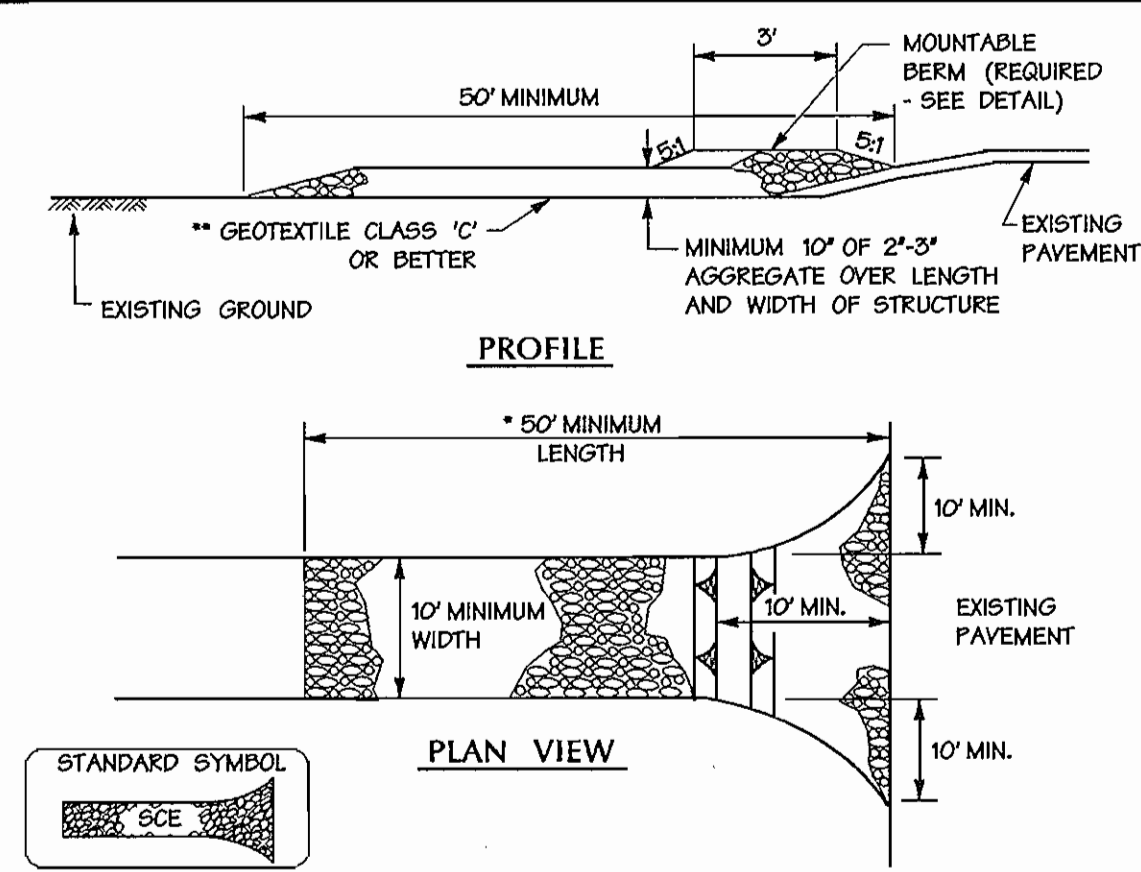
DATE: 2/6/06
 PROFESSIONAL ENGINEER NO. 14230

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DIRECTOR

EMERSON
 TAX MAP 47 PARCELS 462 AND 837
 EXISTING FARM POND PHASE II
 OWNER/DEVELOPER:
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION
 10276 LITTLE PATIENT PARKWAY
 COLUMBIA, MARYLAND 21044

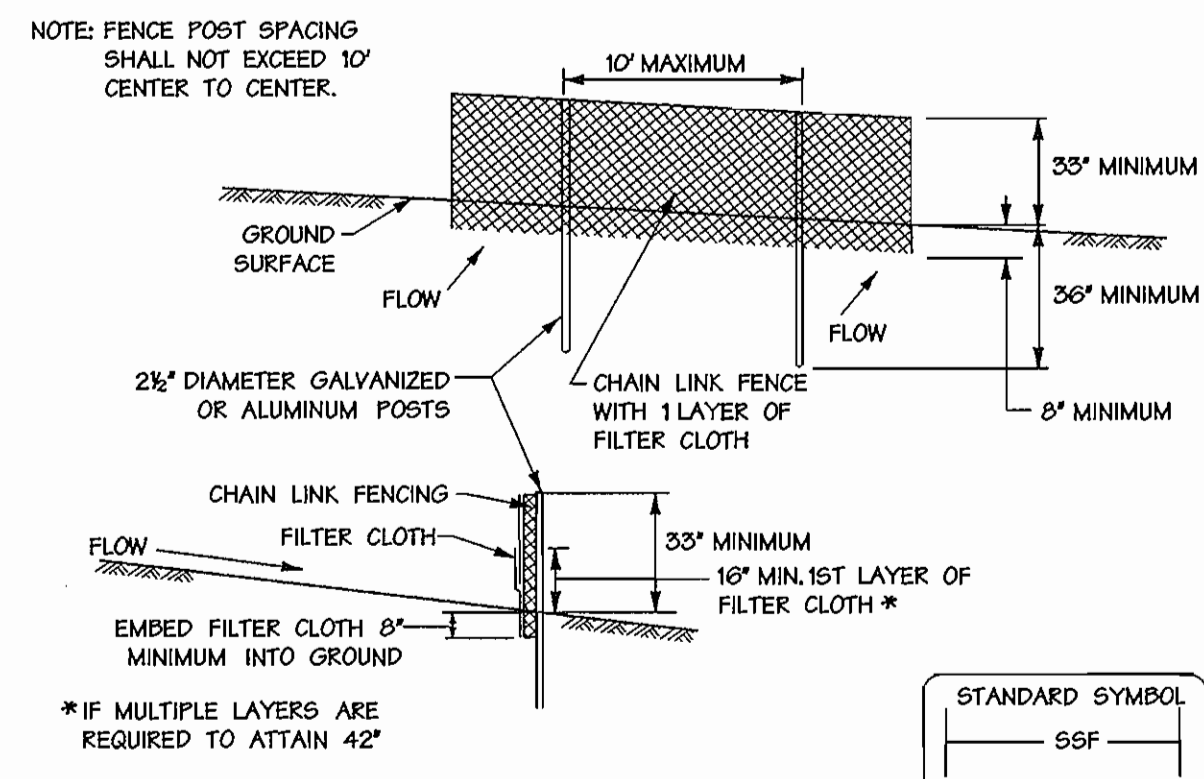
DMW
 Dan McCune-Walker, Inc.
 300 East Pennsylvania Avenue
 Towson, Maryland 21286
 (410) 298-3253
 Fax: 298-4705
 A Team of Land Planners, Landscape Architects, Golf Course Architects, Engineers, Surveyors & Environmental Professionals

TITLE: SEDIMENT AND EROSION CONTROL PLAN
 Des. By: KM Scale: 1"=30' Proj. No. 95054.06
 Drn. By: CRH Date: 02-03-06
 Chk. By: MJP Approved: 3 of 7



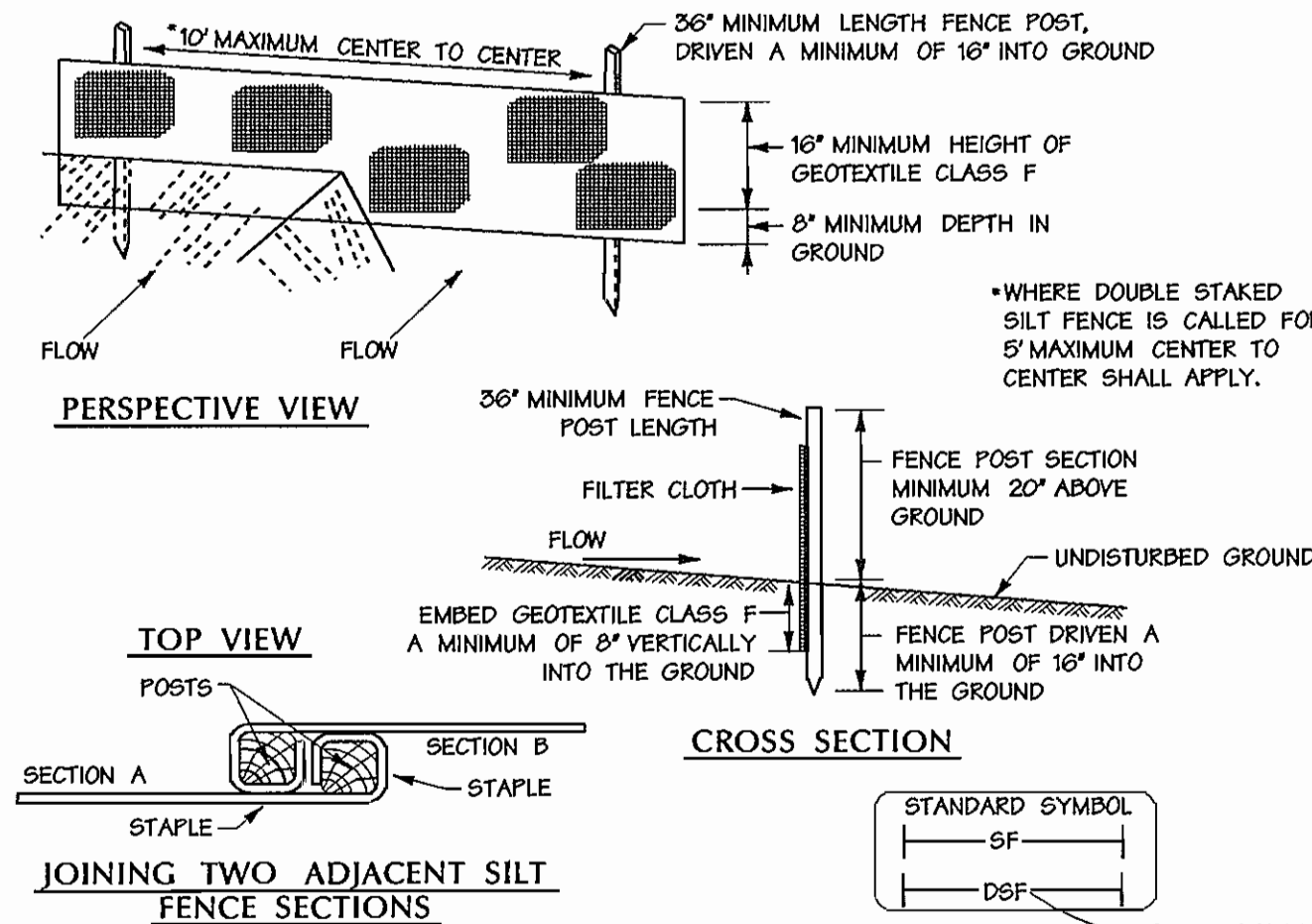
- CONSTRUCTION SPECIFICATIONS**
1. STONE - CRUSHED AGGREGATE (2" TO 3") OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
 2. LENGTH - AS REQUIRED, BUT NOT LESS THAN 50 FEET (EXCEPT ON SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WILL APPLY).
 3. THICKNESS - NOT LESS THAN TEN (10) INCHES.
 4. WIDTH - TEN (10) FOOT MINIMUM, BUT LESS THAN FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
 5. GEOTEXTILE FABRIC CLASS "C" OR BETTER SHALL BE PLACED OVER THE EXISTING GROUND PRIOR TO PLACING OF STONE. GEOTEXTILE FABRIC WILL NOT BE REQUIRED ON A SINGLE FAMILY RESIDENT LOT.
 6. A MOUNTABLE BERM WITH 5/8" SLOPES IS REQUIRED FOR ALL SURFACE WATER FLOWING OR DIVERTED TOWARDS CONSTRUCTION ENTRANCE.
 7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE REMOVED IMMEDIATELY.
 8. WASHING - WHEELS MUST BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAIN INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
 9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION
Heavy Duty Stabilized Construction Entrance Not To Scale



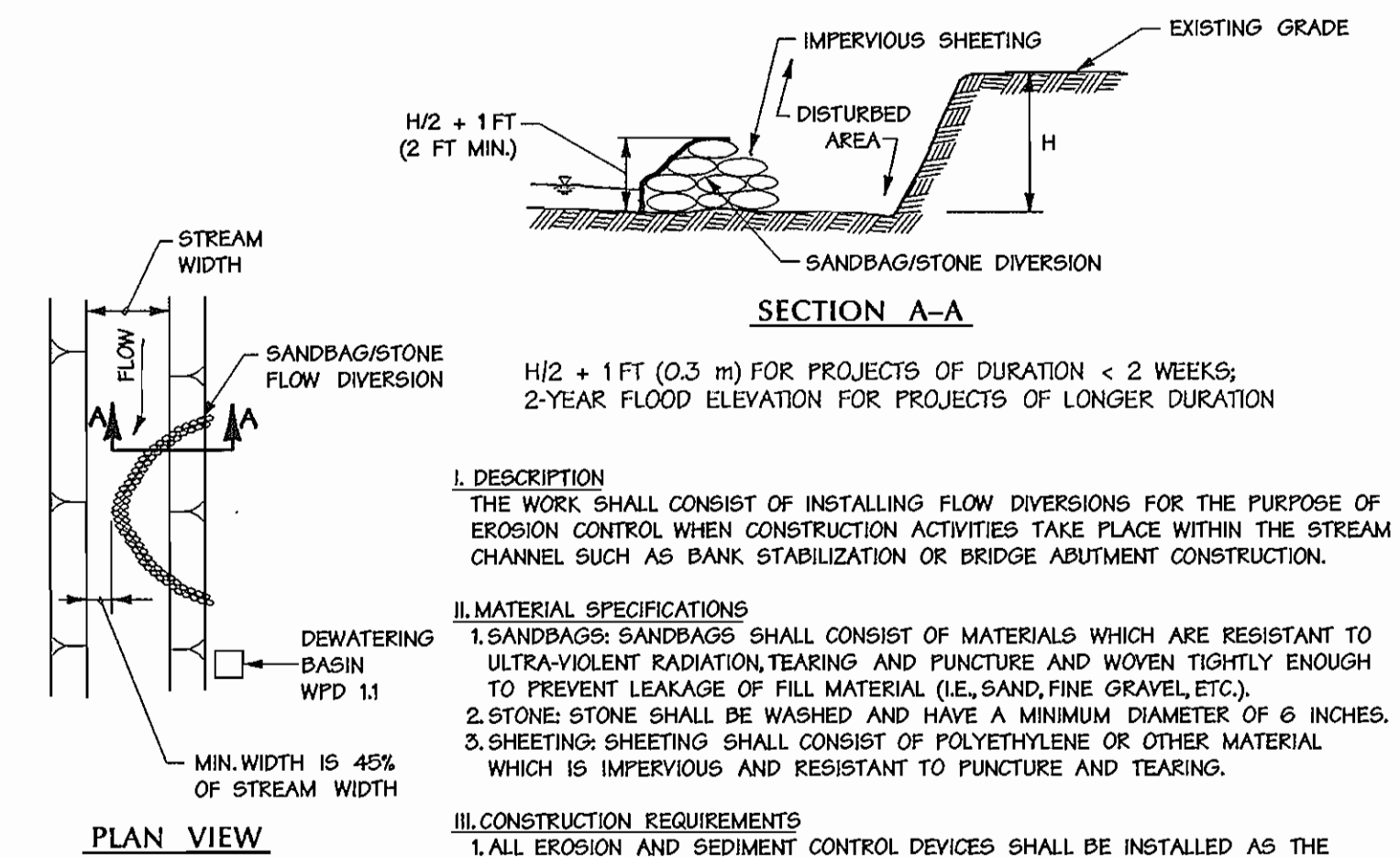
- CONSTRUCTION SPECIFICATIONS**
1. FENCING SHALL BE 42 INCHES IN HEIGHT AND CONSTRUCTED IN ACCORDANCE WITH THE LATEST MARYLAND STATE HIGHWAY (SHA) DETAILS FOR CHAIN LINK FENCING. THE SPECIFICATION FOR A 6" FENCE SHALL BE USED, SUBSTITUTING 42" FABRIC AND 6" LENGTH POSTS.
 2. THE POSTS DO NOT NEED TO BE SET IN CONCRETE.
 3. 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 SIX (6) GAUGE OR HEAVIER.
 4. FILTER CLOTH SHALL BE FASTENED SECURELY TO THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24" AT THE TOP AND MID SECTION.
 5. FILTER CLOTH SHALL BE EMBEDDED A MINIMUM OF 8" INTO THE GROUND.
 6. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY 6" AND FOLDED.
 7. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND SILT BUILDUPS REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE, OR WHEN SILT REACHES 50% OF FENCE HEIGHT.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE H - 26 - 3 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION
Super Silt Fence Not To Scale



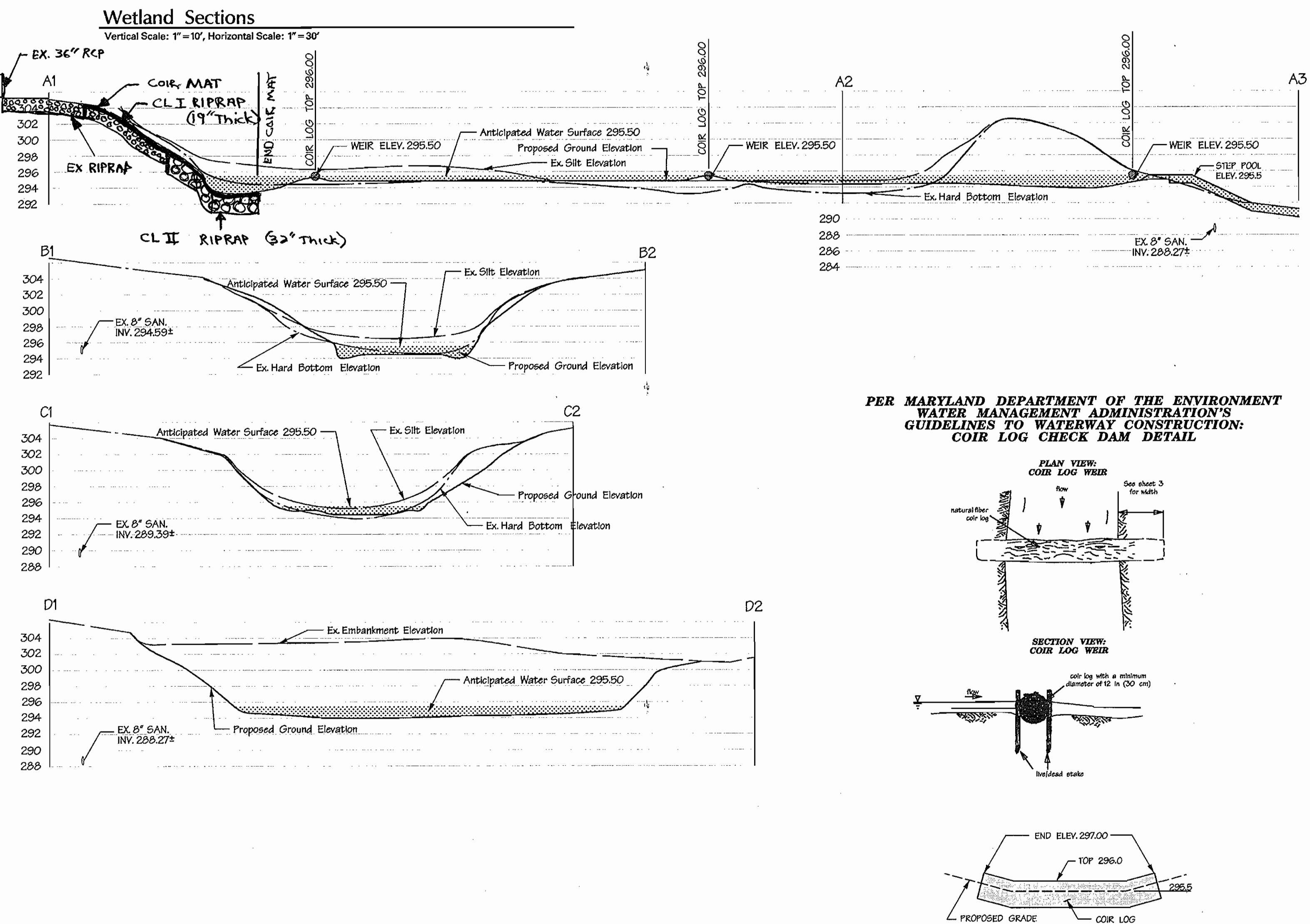
- CONSTRUCTION SPECIFICATIONS**
1. FENCE POSTS SHALL BE A MINIMUM OF 36" LONG DRIVEN 16" MINIMUM INTO THE GROUND. WOOD POSTS SHALL BE 1 1/2" x 1 1/2" SQUARE (MINIMUM) CUT, OR 1 1/2" DIAMETER (MINIMUM) ROUND AND SHALL BE OF SOUND QUALITY HARDWOOD. STEEL POSTS WILL BE STANDARD T OR U SECTION WEIGHING NOT LESS THAN 100 POUND PER LINEAR FOOT.
 2. GEOTEXTILE SHALL BE FASTENED SECURELY TO EACH FENCE POST WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION AND SHALL MEET THE FOLLOWING REQUIREMENTS FOR GEOTEXTILE CLASS F:
 TENSILE STRENGTH 50 LBS/LIN (MIN) TEST: MSMT 509
 TENSILE MODULUS 20 LBS/LIN (MIN) TEST: MSMT 509
 FLOW RATE 0.3 GAL FT/MIN (MAX) TEST: MSMT 322
 FILTERING EFFICIENCY 75% (MIN) TEST: MSMT 322
 3. WHERE ENDS OF GEOTEXTILE FABRIC COME TOGETHER, THEY SHALL BE OVERLAPPED, FOLDED AND STAPLED TO PREVENT SEDIMENT BYPASS.
 4. SILT FENCE SHALL BE INSPECTED AFTER EACH RAINFALL EVENT AND MAINTAINED WHEN BULGES OCCUR OR WHEN SEDIMENT ACCUMULATION REACHED 50% OF THE FABRIC HEIGHT.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE E - 16 - 3 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION
Silt Fence Not To Scale



- CONSTRUCTION SPECIFICATIONS**
1. SANDBAGS: SANDBAGS SHALL CONSIST OF MATERIALS WHICH ARE RESISTANT TO ULTRA-VIOLET RADIATION, TEARING AND PUNCTURE AND WOVEN TIGHTLY ENOUGH TO PREVENT LEAKAGE OF FILL MATERIAL (IE. SAND, FINE GRAVEL, ETC.).
 2. STONE: STONE SHALL BE WASHED AND HAVE A MINIMUM DIAMETER OF 6 INCHES.
 3. SHEETING: SHEETING SHALL CONSIST OF POLYETHYLENE OR OTHER MATERIAL WHICH IS IMPERVIOUS AND RESISTANT TO PUNCTURE AND TEARING.
- CONSTRUCTION REQUIREMENTS**
1. ALL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE INSTALLED AS THE FIRST ORDER OF WORK.
 2. THE DIVERSION STRUCTURE SHALL BE INSTALLED FROM UPSTREAM TO DOWNSTREAM.
 3. 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 IN SECTION A-A.
 4. ALL EXCAVATED MATERIALS SHALL BE DISPOSED OF IN A SCD APPROVED DISPOSAL AREA OUTSIDE THE 100-YEAR FLOOD PLAIN UNLESS OTHERWISE APPROVED ON THE PLANS BY THE WMA.
 5. ALL DEWATERING OF THE CONSTRUCTION AREA SHALL BE PUMPED TO A DEWATERING BASIN PRIOR TO RE-ENTERING THE STREAM.
 6. SHEETING SHALL BE OVERLAPPED SUCH THAT THE UPSTREAM PORTION COVERS THE DOWNSTREAM PORTION WITH AT LEAST AN 18 INCH OVERLAP.
 7. 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.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE E - 16 - 3 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION
Sandbag /Stone Diversion Not To Scale



PER MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION'S GUIDELINES TO WATERWAY CONSTRUCTION: COIR LOG CHECK DAM DETAIL

Coir Fiber Logs

Natural fiber and vegetative system for bank stabilization

Coir fiber logs composed of biodegradable materials are commercially available in 16 or 18-inch (0.40 or 0.45-meter) diameter rolls. Plantings: Vegetative plantings should be chosen according to their adaptability to site-specific conditions and objectives by a plant specialist. Live stakes: Live stakes should be cut from fresh, healthy dormant parent plants which are adapted to the site conditions whenever possible.

INSTALLATION GUIDELINES

All erosion and sediment control devices, including dewatering basins, should be implemented as the first order of business according to a plan approved by the WMA or local authority. Refer to the 1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control. The recommended construction procedure for natural coir fiber logs should proceed as follows (refer to Detail).

1. Natural coir fiber rolls should be installed so that they rest against the bottom of the waterway in ponds or lakes.
2. Plants should be plugged in an alternating pattern along the top of the coir fiber log in gaps between the coir fiber netting. Appropriate species and a spacing ranging from 6 to 12 inches (0.15 to 0.3 meters) should be selected by a plant specialist according to the site characteristics such as soil properties, anticipated post-construction bank slope, water chemistry, amount of available sunlight, and expected duration of inundation during high stream flows. If water levels are too low for the fiber logs to be submerged to 2/3 of their diameter, plants should be plugged inside the soil/log interface where they will receive adequate moisture.
3. Dead or live stakes should be used to anchor the fiber logs in place. Stakes should be notched approximately 5 inches (13 centimeters) from their tops and pounded partially into the ground on either side of the bundle at a spacing of 3 to 4 feet (0.9 to 1.2 meters). Twine should be tied from the notch in one stake to the notch in the stake directly opposite. The stakes should then be driven so that the twine is secured against the top of the roll. Ideally, the top of the stake should be flush with the top of the roll.
4. The ends of adjacent logs should be laced together with twine by making a number of passes in the end netting between the logs and pulling the twine taut. Where a fiber roll does not abut another fiber roll, the end should be bent inward and buried in the bank to prevent water from intruding behind the roll and dislodging it.
5. Successive rows of fiber rolls should be offset 3 to 8 inches (8 to 20 centimeters). Additionally, to ensure that roots extend into the soil, plants should be plugged into the sides of the fiber logs near the soil. The need to backfill/contour the soil behind the fiber logs and between successive lifts will depend on the specific aesthetic and physical requirements of the project. The re-contoured soil should be seeded and/or plugged with appropriate vegetative species and covered with an erosion control blanket to prevent stream erosion.

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.

Jeffrey L. Schumb 2/6/06
 SIGNATURE OF ENGINEER DATE
 PRINT NAME BELOW SIGNATURE

OWNER'S CERTIFICATION:

I HAVE CERTIFIED 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.

James G. Cavanaugh 2/6/06
 SIGNATURE OF DEVELOPER DATE
 PRINT NAME BELOW SIGNATURE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

Jim Hagan 2/6/06
 U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE DATE

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

Jeffrey L. Schumb 2/6/06
 APPROVED: HOWARD SOIL CONSERVATION DISTRICT DATE

PLAN NUMBER

Professional Engineer No. 14230

3/6/06
 Date



Professional Engineer No. 14230

BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAINS

- 1) No excess fill, construction material, or debris shall be stockpiled or stored in nontidal wetlands, nontidal wetland buffers, waterways, or the 100-year floodplain.
- 2) Place materials in a location and manner which does not adversely impact surface or subsurface water flow into or out of nontidal wetlands, nontidal wetland buffers, waterways, or the 100-year floodplain.
- 3) Do not use the excavated material as backfill if it contains waste metal products, unignited debris, toxic material, or any other deleterious substance. If additional backfill is required, use clean material free of waste metal products, unignited debris, toxic material, or any other deleterious substance.
- 4) Place heavy equipment on mats or suitably operate the equipment to prevent damage to nontidal wetlands, nontidal wetland buffers, waterways, or the 100-year floodplain.
- 5) Repair and maintain any serviceable structure or fill so there is no permanent loss of nontidal wetlands, nontidal wetland buffers, or waterways, or permanent modification of the 100-year floodplain in excess of that lost under the originally authorized structure or fill.
- 6) Rectify any nontidal wetlands, wetland buffers, waterways, or the 100-year floodplain temporarily impacted by any construction.
- 7) All stabilization in the nontidal wetland and nontidal wetland buffer shall consist of the following species: Annual Ryegrass (Lolium multiflorum), Millet (Setaria italica), Oats (Avena sp.), and/or Rye (Secale cereale). These species will allow for the stabilization of the site while also allowing the voluntary revegetation of natural wetland species. Other non-persistent vegetation may be acceptable, but must be approved by the Nontidal Wetlands and Waterways Division. Kentucky 31 fescue shall not be utilized in the wetland or buffer areas. The area should be seeded and mulched to reduce erosion after construction activities have been completed.
- 8) After installation has been completed, make post-construction grades and elevations the same as the original grades and elevations in temporarily impacted areas.
- 9) To protect aquatic life, in-stream work is prohibited as determined the classification of the stream:
 Use 1 Waters: In-stream work shall not be conducted during the period March 1 through June 15, inclusive, during any year.
- 10) Stormwater runoff from impervious surfaces shall be controlled to prevent the washing of debris into the waterway.
- 11) Culverts shall be constructed and any riprap placed so as not to obstruct the movement of aquatic species, unless the purpose of the activity is to impound water.

APPROVED:

Jeffrey L. Schumb 2/6/06
 CHIEF, DEVELOPMENT ENGINEERING DIVISION MJK DATE

James G. Cavanaugh 2/6/06
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

David A. Leagle 2/7/06
 DIRECTOR DATE

EMERSON
 TAX MAP 47 PARCELS 462 AND 837
 EXISTING FARM POND PHASE II

OWNER/DEVELOPER:

THE HOWARD RESEARCH & DEVELOPMENT CORPORATION
 10275 LITTLE PATIENT PARKWAY
 COLUMBIA, MARYLAND 21044

DMW
 Dan McCune Walker, Inc.
 300 East Pennsylvania Avenue
 Towson, Maryland 21286
 (410) 296-3333
 Fax: 296-4705

A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

TITLE

CONSTRUCTION SPECIFICATIONS
 DETAIL SHEET

Des. By KM Scale 1"=30' Proj. No. 95054.06
 Dm. By CRH Date 02-03-06
 Chk. By MJP Approved 6 of 7

21.0 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.

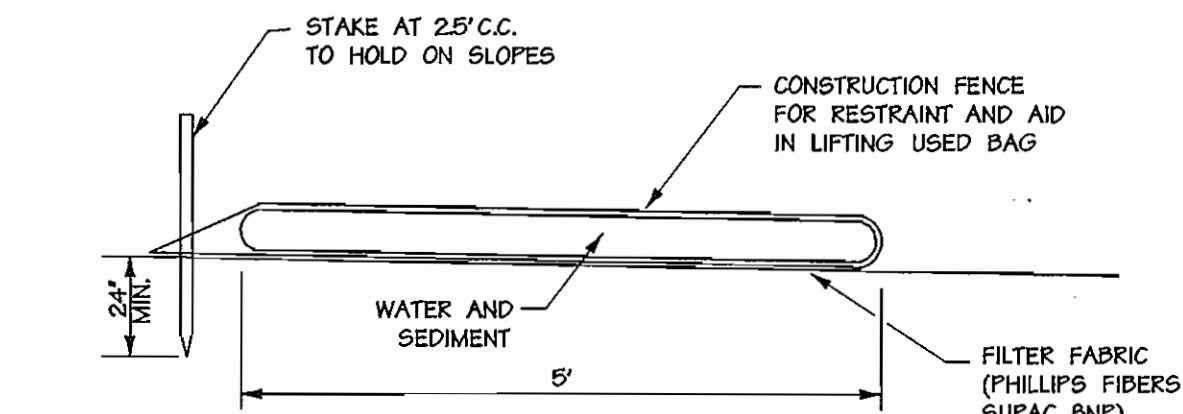
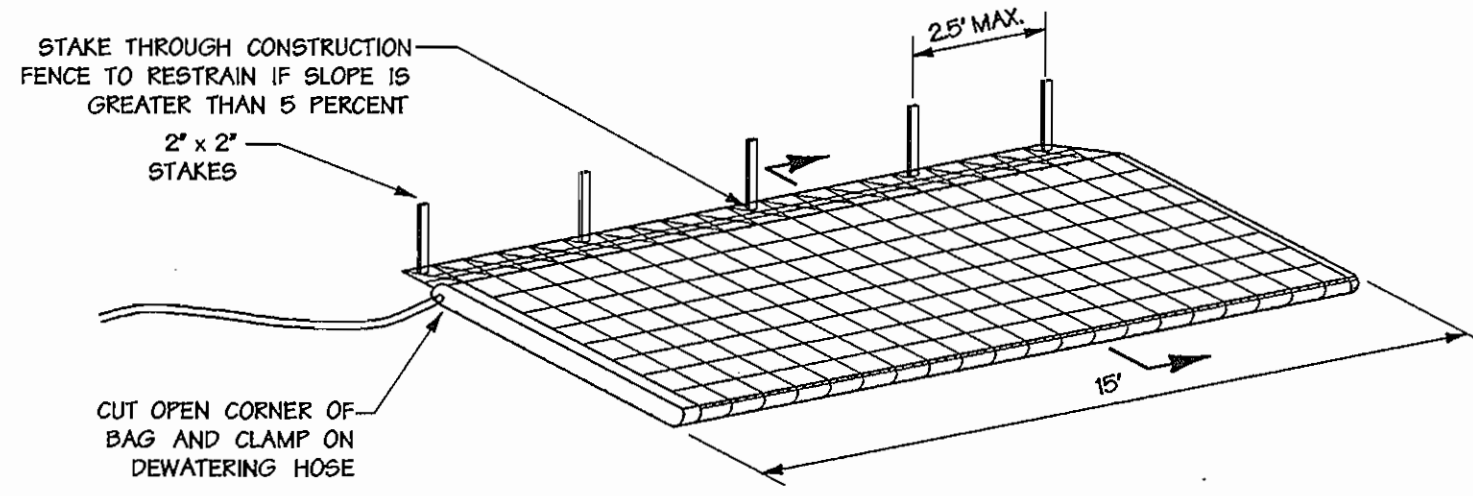
CONDITIONS WHERE PRACTICE APPLIES

- 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 AND MATERIAL SPECIFICATIONS

- Topsoil salvages from the existing site may be used provided that it meets the standards 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 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" 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 4-8 tons/acre (200-400 pounds per 1,000 square feet) 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.
- For sites having disturbed areas under 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 percent by weight.
 - Topsoil having soluble salt content greater than 500 parts per million shall not be used.
 - No seed or sod shall be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phytotoxic materials.
 - Note: Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate 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 I - 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, about 4" - 6" higher in elevation.
 - Topsoil shall be uniformly distributed in a 4" - 6" 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 seeded preparation.
- 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, 1.5 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/1,000 square feet.
 - Composted sludge shall be amended with a potassium fertilizer applied at a rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.

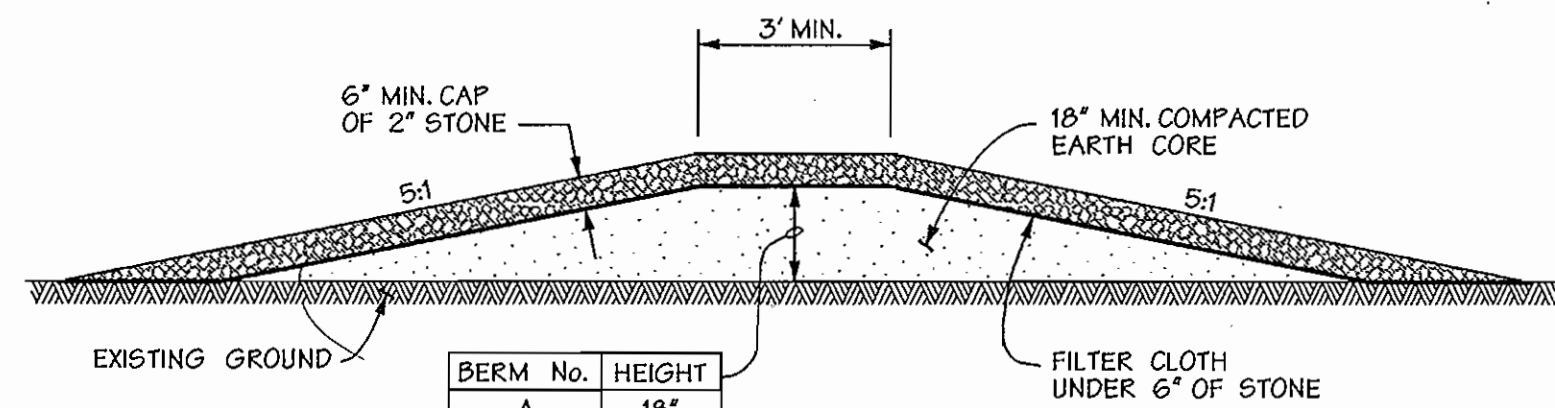
References: Guidelines Specifications, Soil Preparation and Sodding, MD-VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes, Revised 1973.



- Filter bag shall be placed on a sloping or level, well-graded vegetated site such that water will flow away from device and any work areas.
- Width and length shall be as shown in the table.
- The filter bag must be staked in place and secured to the pump discharge line.
- Filter bag shall not be used for discharge flows greater than 300 GPM.
- Device shall be removed and disposed of after bag is filled with sediment. Sediment from bag shall be spread in an upland area.

Filter Bag

See Ref: MD/ALFBD Not To Scale



Filter Cloth shall be Geotextile Class 'C', or better

Mountable Berm Detail

See Ref: MD/175 NOT TO SCALE

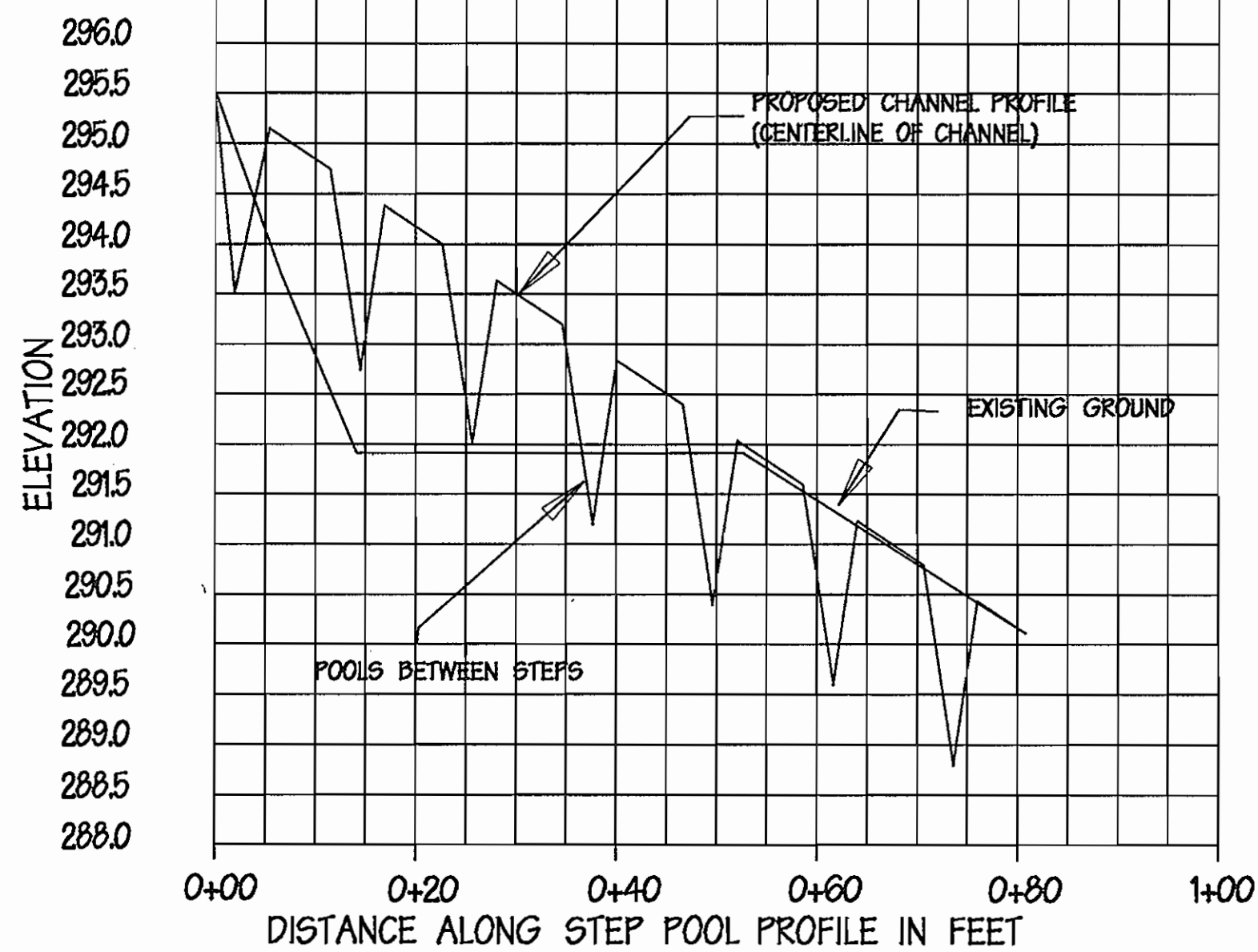
STEP POOL SEQUENCE

Installation Sequence

- Work shall proceed from upstream to downstream. Excavate existing channel to form subgrade of proposed step pool sequence.
- Lay and lay in geotextile fabric to maintain an unbroken layer on bottom and sides of channel. Overlap sides and ends at least 18 inches. Upstream sections of fabric must overlap downstream sections.
- Place footer boulders at the base of each step. Set footer boulders and side boulders in pools, filling interstitial gaps with gravel/cobble mix as boulders are set.
- Fill pools with gravel/cobble mix.
- Grade sides to meet existing topography and seed and mulch all graded areas. No disturbed areas are to be graded at a slope greater than 2:1.

STONE SPECIFICATIONS FOR STEP POOL STRUCTURES

- Stone shall consist of angular flat rock with a blocky shape so that it is easily stacked, and of appropriate color (e.g., green, gray, brown, gray, dark gray, and/or dark brown in color) obtained from an approved source. Stone shall be obtained from a commercial quarry operation. All stone shall be free from laminations, weak cleavages and will not disintegrate from the action of air, salt water and in handling and placing. Granular sedimentary stone will generally be unacceptable. Concrete will not be considered as an alternative for stone. White stone is not acceptable.
- For Step Pool structures, the dimensions of all the rock will be a minimum of 2 feet and maximum of 3 feet along the long (a) axis, a minimum of 1 foot and maximum of 2 feet along the median (b) axis, a minimum of 1 foot and a maximum of 1.5 feet along the short (c) axis. Rock shall have a minimum density of 150 lbs/cu.ft.
- The Contractor will locate potential sources for the rocks. The Contractor will not be granted an extension of time or extra compensation due to delay caused by sampling, testing, approval or disapproval of stone protection material under the requirements of these specifications. The Contractor shall obtain from the quarry and submit to the OWNER or its agent a certificate verifying the following:
 - Stone Classification.
 - Weight of Stone Being Supplied.
 - Stone quality shall meet all of the above specifications.



STEP POOL SUBSTRATE MATERIAL

1. DESCRIPTION

The contractor shall furnish all labor, material and equipment required to install substrate material as described in these Special Provisions and shown on the Construction Documents. The work shall consist of furnishing, transporting, stockpiling, placing and maintaining substrate material to be utilized to construct stream bank protection devices in and along the stream and at other locations.

2. MATERIALS

Crushed rock from a quarry shall be permitted. The channel substrate material shall be sound, tough, dense, resistant to the action of air and water, and suitable in all respects for the purpose intended. Substrate material may contain small amounts of fine aggregate but shall contain no amount of soil material.

Source and supply of substrate material shall be from an approved mining operation with up-to-date regulatory permits, and shall be submitted for review and approval prior to beginning construction. Gravel sifting shall NOT be indiscriminately mined from active streams and rivers.

Substrate material shall be a mixture containing approximately the following size distribution:

- 50 % Gravel - 0.12 to 5 inch (0.3 - 7.6 cm) diameter
- 50 % Cobble - 5 to 12 inch (7.6 - 30.5 cm) diameter

All substrate material shall meet the approval of the Designated Specialist. While no specific gradation is required, the various sizes of the rock shall be equally distributed within the required size range. The size of an individual rock particle shall be determined by measuring its diameter across the intermediate axis.

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: Jeffrey L. Schwab
Date: 2/6/06

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: Paul G. Cavanaugh
Date: 2/6/06

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

Signature: Jim Myer
Date: 2/6/06

Signature: [Signature]
Date: 2/6/06

APPROVED: [Signature] DATE: 2/6/06

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, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

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

1. PREFERRED - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (82 LBS./1,000 SQ. FT.) AND 1000 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS./1,000 SQ. FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 LBS. PER ACRE 30-0-0 UREAFORM FERTILIZER (8 LBS./1,000 SQ. FT.)
2. ACCEPTABLE - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (82 LBS./1,000 SQ. FT.) AND 1000 LBS. PER ACRE 10-10-10 FERTILIZER (23 LBS./1,000 SQ. FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL.

SEEDING - FOR THE PERIODS MARCH 1 THRU APRIL 30, AND AUGUST 1 THRU OCTOBER 15, SEED WITH 60 LBS. PER ACRE (14 LBS./1,000 SQ. FT.) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD MAY 1 THRU JULY 31 SEED WITH 60 LBS. KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS. PER ACRE (2 LBS./1,000 SQ. FT.) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THRU 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. (3) - SEED WITH 60 LBS./ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS/ACRE WELL ANCHORED STRAW.

MULCHING - APPLY 1 1/2 TO 2 TONS PER ACRE (70 - 90 LBS./1,000 SQ. FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATIONS USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1,000 SQ. FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS, ON SLOPES 3 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1,000 SQ. FT.) FOR ANCHORING.

MAINTENANCE - INSPECT ALL SEEDING AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDING.

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 OF SOIL BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS - APPLY 600 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS./1,000 SQ. FT.)

SEEDING - FOR THE PERIODS MARCH 1 THRU APRIL 30, AND AUGUST 15 THRU OCTOBER 15, SEED WITH 2 1/2 BUSHES PER ACRE OF ANNUAL RYE (32 LBS./1,000 SQ. FT.). FOR THE PERIOD MAY 1 THRU AUGUST 14, SEED WITH 3 LBS. PER ACRE OF WEEPING LOVEGRASS (27 LBS./1,000 SQ. FT.). FOR THE PERIOD NOVEMBER 16 THRU 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.

MULCHING - APPLY 1 1/2 TO 2 TONS PER ACRE (70 - 90 LBS./1,000 SQ. FT.) OF UNROTTED WEEED FREE SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GAL. PER ACRE (5 GAL/1,000 SQ. FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS, ON SLOPES 3 FEET OR HIGHER, USE 348 GAL. PER ACRE (8 GAL/1,000 SQ. FT.) FOR ANCHORING.

REFER TO THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR ADDITIONAL RATES AND METHODS NOT COVERED.

Permanent/Temporary Seeding Notes

NOTE: PLANTING SHOWN ON SHEET 4 OF 7 AND SPECIFIED ON SHEET 5 OF 7 SUPERSEDES THIS SPECIFICATION. THIS SPECIFICATION APPLIES ONLY TO AREAS OUTSIDE OF PLANTING ZONES AS SHOWN ON SHEET 4 OF 7.

APPROVED:		
CHIEF, DEVELOPMENT ENGINEERING DIVISION	<i>[Signature]</i>	3/2/06 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT	<i>[Signature]</i>	4/15/06 DATE
DIRECTOR	<i>[Signature]</i>	4/21/06 DATE

EMERSON
TAX MAP 47 PARCELS 462 AND 837
EXISTING FARM POND PHASE II

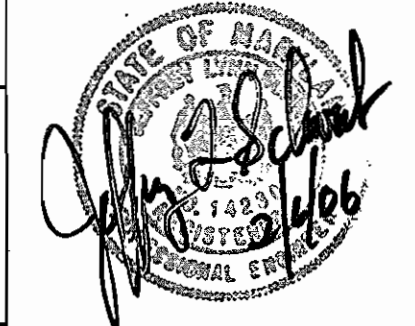
OWNER/DEVELOPER:
THE HOWARD RESEARCH & DEVELOPMENT CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

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A Team of Land Planners,
Landscape Architects,
Golf Course Architects,
Engineers, Surveyors &
Environmental Professionals

CONSTRUCTION SPECIFICATIONS DETAIL SHEET

Des. By	KM	Scale	1"=30'	Proj. No.	95054.D6
Dm. By	CRH	Date	02-03-06		
Chk. By	MJP	Approved			7 of 7



Professional Engineer No. 14230