SHEET INDEX **DESCRIPTION** TITLE SHEET SITE DEVELOPMENT PLAN AND GRADING PLAN SEDIMENT AND EROSION CONTROL PLAN AND SOILS MAP SEDIMENT AND EROSION CONTROL PLAN, NOTES AND DETAILS LANDSCAPE PLAN STORMWATER MANAGEMENT DETAILS AND NOTES 6. STORMWATER MANAGEMENT DETAILS AND NOTES FOREST STAND DELINEATION AND FOREST CONSERVATION PLAN 8 SWM BORINGS AND SPECIFICATIONS 9

STE DEVELOPMENT PLAN

DORSEY BUSINESS CENTER, PARCEL 'A' AND DORSEY CENTER

PARCEL 'R', OVERFLOW PARKING LOT AND SWM FACILITY

1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

MARYLAND STATE HIGHWAY

ADMINISTRATION

RIGHT-OF-WAY

-BIORETENTION/DRY

BRIT-DORSEY III LLC

NBER 10148 FCLIC 594

DETENTION FACILITY privately owned and maintainet

MARYLAND STATE HIGHWAY

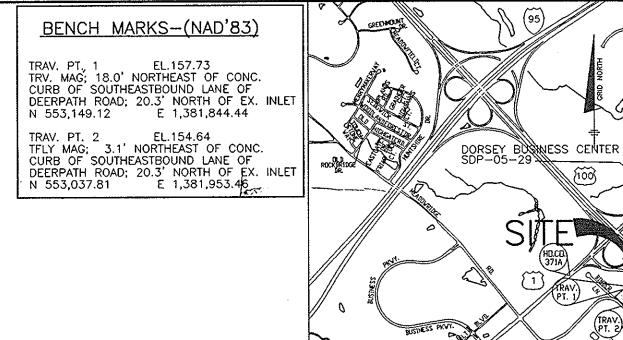
DORSEY BUSINESS CENIER

SPEEDWAY ROCK, LLC. PARCEL 'A'

ZONED: TOD

C/O DELMA PROPERTIES INC. PARCEL 'C' ZONED: TOD

EX. OFFICE BUILDING



SCALE: 1" = 2000'ADC MAP NO. 17 GRID C-11

STORMWATER MANAGEMENT SUMMARY

Stormwater Management for this site can be provided by use of a combination of a bio-retention facility to provide water quality volume and a dry detention pond to provide channel protection. Groundwater Recharge is being provided by use of a stone chamber under the bio-retention facility. Water Quality Facility Summary

Facility			Storage Volume			
	Туре		WQv	Rev		
WQv #1	Bio-Retention	Req.	0.1676 AC-FT	0.022 AC-FT		
	and Stone Chamber	Prov.	0.1685 AC-FT	0.022 AC-FT		

Note: The water quality control and groundwater recharge is fully addressed with the bio-retention facility. The stone diaphragm and 20' grass filter strip have been used for pretreatment.

Channel Protection Facility Summary

Facility	Facility Type		Storage Volume/Elevations Cpv		
SWM #1		Req.	0.2503 AC-FT		
	Dry Detention	Prov.	0.2613 AC-FT / @ 150.00°		

SWM #1	Water Surface Elevation in Facility	Pre-developed Discharge (cfs)	Post-developed Discharge (cfs)		
1 - Year Storm	149.63'	1.32	1.14		
10 - Year Storm	150.74'	6.35	9.72		
100 - Year Storm	15101'	11.65	17.45		

Note: The stormwater management for this site has been designed to maintain the 1 year storms and safely pass the 10 and 100 year storms. As indicated above the post-developed discharge from the site is less than the existing for the 1 year storm.

Summary of General Storage Requirement Drainage Area # 1 - Subarea A

Step	Requirement	Volume Required (ac-ft)	Notes
1.	Water Quality Volume (WQv)	0.1386 ac-ft (or 6035.24cf)	Provided within a bioretention facility
2.	Recharge Volume (Rev)	0.0180 ac-ft (or 0.2254 acres)	Provided within a stone chamber located below the bioretention facility.
3.	Channel Protection Volume (Cpv)	0.2503 ac-ft (or 10901.78cf)	Provided within a dry detention facility
4.	Cverbank Flood Protection Volume (Qp)	N/A	Not required
5.	Extreme Flood Volume (Qf)	N/A	Not required

Summary of General Storage Requirement Drainage Area #1 - Subarea B

Step	Requirement	Volume Required (ac-ft)	Notes
I.	Water Quality Volume (WQv)	0.0290 ac-ft (or 1266.87cf)	Provided within a bioretention facility within Subarea A
2.	Recharge Volume (Rev)	0.0037 ac-ft (or 0.0430 acres)	Provided within a stone chamber located below the bioretention facility within Subarea A
3.	Channel Protection Volume (Cpv)	N/A	Provided within a dry detention facility.
4.	Overbank Flood Protection Volume (Qp)	N/A	Not required
5.	Extreme Flood Volume (Qf)	N/A	Extreme Flood volume control provided with dry detention facility.

Summary of General Storage Requirement Drainage Area # 2

Step	Requirement	Volume Required (ac-ft)	Notes
1.	Water Quality Volume (WQv)	N/A	No new impervious areas. Area remains undisturbed under this site development plan.
2.	Recharge Volume (Rev)	N/A	No new impervious areas. Area remains undisturbed under this site development plan.
3.	Channel Protection Volume (Cpv)	N/A	No new impervious areas. Area remains undisturbed under this site development plan.
4.	Overbank Flood Protection Volume (Qp)	N/A	Not required.
5.	Extreme Flood Volume (Qf)	N/A	Not required.

PPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING CHIEF, DIVISION OF LAND DEVELOPMENT 1/14/1 DEVELOPMENT

SOILS CLASSIFICATION SOILS DELINEATION EXISTING CONTOURS PROPOSED CONTOURS EXISTING WOODS LINE PROPOSED WOODS LINE EXISTING STRUCTURE PROPOSED STRUCTURE DRAINAGE AREA DRAINAGE DIVIDE LIMIT OF DISTURBANCE

ENTRANCE

SUPER SILT FENCE

INLET PROTECTION

LEGEND

STABILIZED CONSTRUCTION _____ SSF _____

AbC1

_____999____ A) TOTAL PROJECT AREA TO INNDICATE: ----- 999 ----- PARCEL R/ DORSEY CENTER: PARCEL A/ DORSEY BUS. CENTER: 4.31±AC. ——999— mmm 0.75±AC. B) AREA OF 100-YR. FLOODPLAIN...... C) AREA OF STEEP SLOPES... MAN MAN E) NUMBER OF UNITS ALLOWED . F) NUMBER OF RESIDENTIAL UNITS PROPOSED K) PRESENT ZONING DESIGNATION......

GENERAL NOTES CONTINUED

-RAMP - US RT 1 TO RT 100 EAST

DORSEY, CENIER A

PARCEL R

SITE ANALYSIS DATA/TABULATION L) PROPOSED USES FOR THE SITE AND STRUCTURES.. CONSTRUCTION ON PARCEL 'R' OF THE DORSEY CENTER AND ON A PORTION OF THE DORSEY BUSINESS CENTER, OVERFLOW PARKING LOT AND STORM WATER MANAGEMENT FACILITY

SCALE: 1" = 100

552,550

M) FLOOR SPACE ON EACH LEVEL OF BUILDING..... N) MINIMUM LOT SIZE REQUIRED ... O) NUMBER OF PARKING SPACES REQUIRED BY ZONING REGULATIONS AND/OR FDP CRITERIA P) TOTAL NUMBER OF PARKING SPACES PROVIDED: PARCEL R/DORSEY CENTER-OVERFLOW:

PARCEL A/DORSEY BUS. CENTER/EXISTING: 188(INCLUDED HANDICAPPED) SPACES LOST DUE TO CONNECTION: R) BUILDING COVERAGE AREA(PAR. R/DORSEY CENTER) 1.06 Ac./±25%(PAVING COVERAGE)

ADDRESS CHART STREET ADDRESS PARCEL ' 6761 DORSEY ROAD BINDER PROPERTY 29. A DESIGN MANUAL WAIVER REQUEST TO DMV I, CHAPTER 5, SECTION 5.2.7.B.2 TO ALLOW FOR THE USE OF 1-%" DIAMETER LOW FLOW ORIFICE IN LIEU OF THE 1-1/2" DIAMETER MINIMUM WAS APPROVED ON OCTOBER 4, 2006. PARCEL 'A' 6800 DEERPATH ROAD

PERMIT INFORMATION CHART SUBDIVISION NAME: LOT/PARCEL SECTION/AREA: DORSEY BUSINESS CENTER, PARCEL 'A' AND DORSEY PARCELS A & R CENTER, PARCEL ELECTION CENSUS GRID No. ZONE TAX MAP 6729(F86-109) 17368(F-05-25) DISTRICT TOD 24 1ST 6012.02 **]440(**F-07-80 WATER CODE N/A SEWER CODE N/A Design: BFC | Draft: BFC | Check: DAM

GENERAL NOTES

1. THE SUBJECT PROPERTY IS ZONED TOD PER THE 2/02/04 COMPREHENSIVE ZONING PLAN AND COMP LITE ZONING AMENDMENTS EFFECTIVE JULY 28, 2006. THERE IS A FLOODPLAIN ON THIS SITE AND IS SHOWN AS RECORDED PER PLAT 6729.

THERE ARE NO WETLANDS ON THIS SITE, THIS IS BASED ON THE WETLAND STUDY PROVIDED BY HILLIS-CARNES ENGINEERING ASSOCIATES, INC. DATED JULY 12, 2004.

> 4. ALL LANDSCAPING REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL AND SECTION 16.124 OF THE SUBDIVISION REGULATIONS.

5. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING IN THE AMOUNT OF \$15,900 SHALL BE POSTED AS PART OF THE DEVELOPERS AGREEMENT UNDER THIS SDP FOR THE REQUIRED LANDSCAPING FOR 35 SHADE TREES, 26 PINE TREES AND 50 SHRUBS PER THE COUNTY FEE.

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY, PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.

THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS, CONSTRUCTION INSPECTION DIVISION AT 410-313-1880 AT LEAST FIVE(5) WORKING DAYS PRIOR TO THE START OF WORK.

8. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" @ 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK. THE CONTOURS SHOWN HEREON HAVE BEEN TAKEN FROM FIELD RUN TOPOGRAPHIC SURVEYS AT

2' INTERVALS PREPARED BY BENCHMARK ENGINEERING, INC., ON OR ABOUT JUNE, 2006.

10. VERTICAL CONTROL AND HORIZONTAL CONTROL BASED UPON HOWARD COUNTY NAD '83 CONTROL.

11. THIS PROPERTY IS WITHIN THE METROPOLITAN WATER AND SEWER DISTRICT.

12. WATER AND SEWER SERVICE FOR THIS SUBDIVISION IS PUBLIC. THE PUBLIC SEWER IS PROVIDED BY CONTRACT 14-1521-D. THE PUBLIC WATER IS PROVIDED BY CONTRACT 14-1447-D. THIS SUBDIVISION FALLS WITHINT HTE PATAPSCO DRAINAGE AREA.

STORMWATER MANAGEMENT QUANTITY CONTROL FOR THIS SITE IS PROVIDED BY A DRY DETENTION FACILITY. STORMWATER MANAGEMENT QUALITY CONTROL IS BEING PROVIDED BY A BIORETENTION FACILITY WITH STONE CHAMBER AND 20' GRASS FILTER STRIP. GROUNDWATER RECHARGE IS BEING PROVIDED WITHIN A STONE CHAMBER LOCATED BELOW THE BIORETENTION FACILITY. THESE FACILITIES WILL BE PRIVATELY OWNED AND MAINTAINED. REFER TO THE SWM REPORT PROVIDED BY BENCHMARK ENGINEERING, INC DATED AUGUST 2006

NO ADDITIONAL ADEQUATE FACILITIES WILL BE REQUIRED FOR THIS PROJECT BASED ON THIS DEVELOPMENT BEING A PARKING LOT NOT PRODUCING ADDITIONAL TRIPS OTHER THAN THOSE DETERMINED FOR THE DEVELOPMENT OF DORSEY BUSINESS CENTER PARCEL 'A'

TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE MOST CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET

AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.

ALL PROPOSED EXTERIOR LIGHTING SHALL BE DIRECTED/REFLECTED AWAY FROM ALL ADJACENT PUBLIC ROADS AND RESIDENTIAL ZONING DISTRICTS IN ACCORDANCE WITH SECTION 134 OF THE HOWARD COUNTY ZONING REGULATIONS.

17. EXISTING UTILITIES SHOWN WERE LOCATED BY RECORD DRAWINGS AND FIELD LOCATIONS.

18. UNLESS NOTED AS "PRIVATE", ALL EASEMENTS ARE PUBLIC.

19. CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO ANY CONSTRUCTION ACTIVITY AND SHALL ADJUST ALL UTILITIES AND RIM ELEVATIONS AS NEEDED TO MATCH THIS PLAN.

20. ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.

21. ANY DAMAGE TO THE COUNTY'S RIGHT-OF-WAY SHALL BE CORRECTED AT THE BUILDERS EXPENSE.

22. TO THE BEST OF OUR KNOWLEDGE THERE ARE NO CEMETERY LOCATIONS ON-SITE. 23. ALL EXISTING STRUCTURES ARE TO REMAIN AT THIS TIME. THE EXISTING STRUCTURES WERE BUILT IN THE

1960'S AND ARE LISTED ON THE HOWARD COUNTY HISTORIC REGISTRY AS THE BINDER FARM. THIS PLAN CONFORMS TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION REGULATIONS. PER COUNCIL BILL NO. 45-2003 EFFECTIVE 10/2/03. DEVELOPMENT OR CONSTRUCTION ON THIS PARCEL MUST COMPLY WITH SETBACK AND

WAIVER PETITION APPLICATION, OR BUILDING PERMIT. THE BOUNDARY SHOWN HEREON IS TAKEN FROM THE BOUNDARY SURVEY PREPARED BY BENCHMARK

BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN

ENGINEERING, INC., ON OR ABOUT JUNE, 2006.

26. PREVIOUS DEPARTMENT OF PLANNING AND ZONING REFERENCE NUMBERS INCLUDE: SDP-05-29, F-86-109 & F-07-80.

27. THE FOREST CONSERVATION ACT REQUIREMENTS FOR 1.09 ACRES OF REQUIRED REFORESTATION WILL BE MET THROUGH THE PAYMENT OF A FEE-IN-LIEU. THE COST OF THIS FEE WILL BE

\$35,610.30(47,480 #X,754). 28. THERE SHALL BE NO DISTURBANCE WITHIN THE 100-YR FLOODPLAIN, WETLANDS, STREAMS, OR THEIR BUFFERS EXCEPT FOR THE DISTURBANCES TO THE FLOODPLAIN, STREAM AND STREAM BUFFER IN THE AREA OF THE OUTFALL OF SWM FACILITY. THESE AREAS HAVE BEEN DEEMED AS NECESSARY DISTURBANCES BY DPZ AND HSCD IN ACCORDANCE WITH SECTION 16.116(c) OF THE SUBDIVISION REGULATIONS IN ORDER TO DISCHARGE ONTO SLOPES LESS THAN 10%. AN MDE PERMIT REQUEST HAS BEEN SUBMITTED AND RESPONDED TO UNDER MDE PERMIT NO. 200667271/06-NT-3376.

29. BASED ON SDP-05-29 THE SUBJECT PARCEL UNDER THE SITE DEVELOPMENT PLAN IS LOCATED OUTSIDE THE BOUNDARIES OF THE 1998 BALTIMORE/WASHINGTON INTERNATIONAL AIRPORT (BWI), AIRPORT NOISE ZONE AS WELL AS THE FOUR-MILE RADIUS OF BWI AIRPORT. THEREFORE NO APPROVAL FROM THE MARYLAND AVIATION ADMINISTRATION IS REQUIRED.

30. THE DISTURBANCE TO THE 100-YEAR FLOODPLAIN, STREAM AND STREAM BUFFER ON THE SOUTHEASTERN PORTION OF THE SITE IS NECESSARY TO PROVIDE A NON-EROSIVE OUTFALL FOR THE STORMWATER MANAGEMENT FACILITY. THE SITE IS TRISECTED BY A STREAM THAT PRESENTS NO POSSIBLE DISCHARGE POINT THAT IS ON A 10% SLOPE CF LESS. A JOINT FEDERAL/STATE APPLICATION FOR THE ALTERATION OF ANY FLOODPLAIN, WATERWAY, TIDAL OR NONTIDAL WETLAND IN MARYLAND HAS BEEN SUBMITTED (TRACKING NO 200667271-NT-3376)

31. A CROSS-EASEMENT AGREEMENT FOR VEHICULAR INGRESS/EGRESS FROM PARCEL 'R' DORSEY CENTER THROUGH PARCEL 'A' DORSEY BUSINESS CENTER HAS BEEN RECORDED AS LIBER 10645 FOLIO 683 ON 4-01-01

32. THE PROPOSED STORMWATER MANAGEMENT FACILITY WILL BE PRIVATELY OWNED AND MAINTAINED.

THE COORDINATES SHOWN HEREON ARE BASED UPON THE EHOWARD COUNTY GEODETIC CONTROL, WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 317A AND 43B2 WERE USED FOR THIS

34. THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY MARS GROUP, INC., DATED JULY 2004 AND WAS APPROVED ON APRIL 4, 2005.

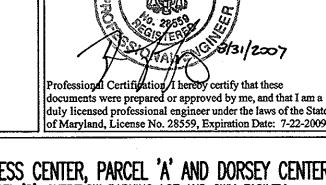
BENCHMARK

ENGINEERS A LAND SURVEYORS A PLANNERS

ENGINEERING, INC. 8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418

ELLICOTT CITY, MARYLAND 21043 PHONE: 410-465-6105 FAX: 410-465-6644 www.bei-civilengineering.com

410.579.2242



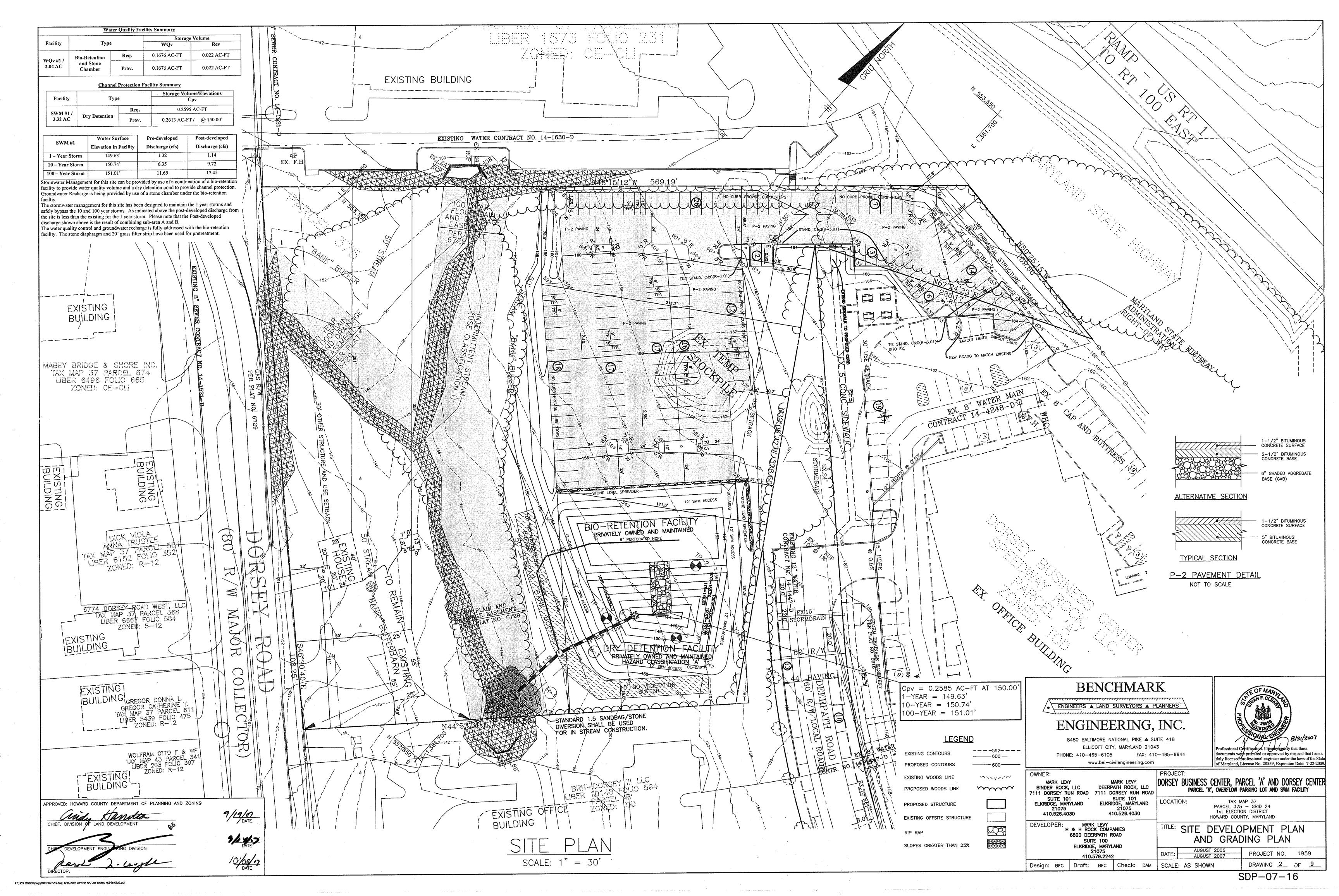
DORSEY BUSINESS CENTER, PARCEL 'A' AND DORSEY CENTER DEERPATH ROCK, LLC BINDER ROCK, LLC PARCEL 'R', OVERFLOW PARKING LOT AND SWM FACILITY 111 DORSEY RUN ROAD 7111 DORSEY RUN ROAD SUITE 101 SUITE 101 TAX MAP 37 ELKRIDGE, MARYLAND ELKRIDGE, MARYLAND PARCEL 375 - GRID 24 21075 1st ELECTION DISTRICT 410.526.4030 410.526.4030 HOWARD COUNTY, MARYLAND DEVELOPER: MARK LEVY
H & H ROCK COMPANIES TITLE SHEET 6800 DEERPATH ROAD SUITE 100 ELKRIDGE, MARYLAND

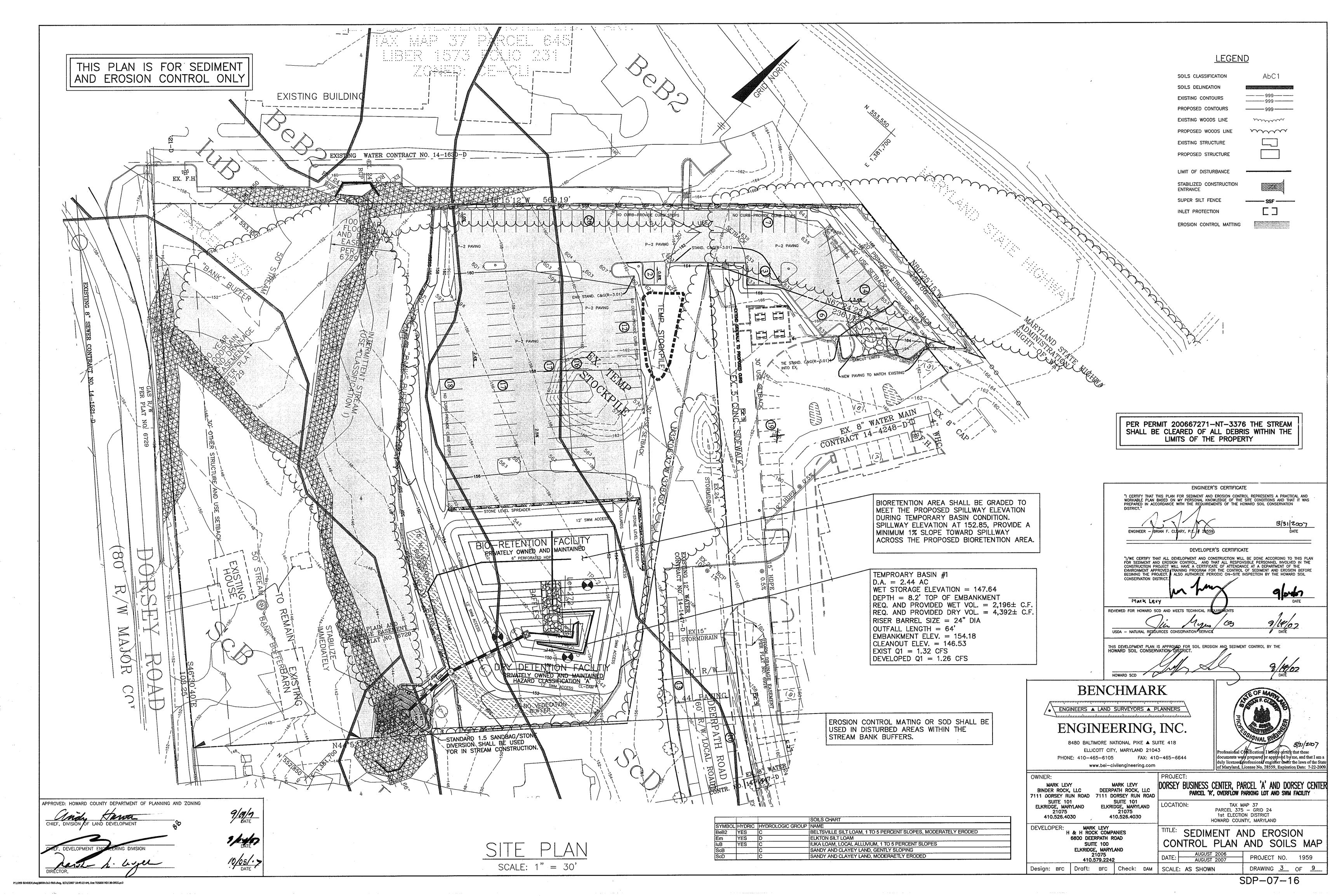
SCALE: AS SHOWN

DRAWING 1 OF 9 SDP-07-16

PROJECT NO. 1959

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SEDIMENT CONTROL NOTES

- 1. A MINIMUM OF 24 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTION, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO
- THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT "MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL
- 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.

AREAS ON THE PROJECT SITE.

SLOPES GREATER THAN 3:1, 8) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED

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. 51) SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50) AND MULCHING (SEC. 52). TEMPORARY ABILIZATION 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. 7. SITE ANALYSIS:

TOTAL AREA OF SITE (THIS SUBMISSION)	4.26 ACRES
AREA DISTURBED	2.42 ACRES
AREA TO BE ROOFED OR PAVED	1.07 ACRES
AREA TO BE VEGETATIVELY STABILIZED	1.35 ACRES
TOTAL CUT	6767 cy
TOTAL FILL	4150 cy
OFFSITE WASTE/BORROW AREA LOCATION	*
T IS THE RESPONSIBILITY OF THE CONTRACTOR TO	D IDENTIFY THE SPOIL /BORROW

- *IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO IDENTIFY THE SPOIL/BURKOW SITE AND NOTIFY AND GAIN APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR OF THE SITE AND ITS GRADING PERMIT NUMBER AT THE TIME OD CONSTRUCTION.
- ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES. APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION C PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION PPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
- TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN BE BACK FILLED AND STABILIZED WITHIN ONE WORKING DAY,
- 12. AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR, AN ADDITIONAL ROW OF "SUPER" SILT FENCE IS TO BE PLACED AT THE EASTERN L.O.D.

PERMANENT SEEDBED PREPARATIONS SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

- SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ON OF THE FOLLOWING PREFERRED - APPLY 2 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 NME OF SEEDING, APPLY 400 LBS PER ACRE 30-0-0- UREAFORM FERTILIZEF ACCEPTABLE - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SO ET) AND 1000 18S PER ACRE 10-10-10 FERTILIZER (23 18S/1000 SQ ET)
- SEEDING: FOR THE PERIODS MARCH 1 THROUGH APRIL 30 AND AUGUST 1 THROUGH OCTOBER 15, SEED WITH 60 LBS PER ACRE (1.4 LBS/1000 SQ FT) OF KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS PER ACRE (.05 LBS/1000 SQ FT) OF WEEPING LOVEGRASS. DURING PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. FESCUE AND MULCH WITH 2 TONS PER ACRE OF WELL ANCHORED STRAW. MULCHING: APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SO FT) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER
- GALLONS PER ACRE (8 GAL/1000 SQ FT) FOR ANCHORING MAINTENANCE: INSPECT ALL SEEDED AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND

FT) OF FMILSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FEET OR HIGHER, USE 348

30.0 DUST CONTROL

Controlling dust blowing and movement on construction sites and roads.

To prevent blowing and movement of dust from exposed soil surfaces, reduce on and off-site

Conditions Where Practice Applies This practice is applicable to areas subject to dust blowing and movement where on and off-site

Temporary Methods

1. Mulches — See standards for vegetative stabilization with mulches only. Mulch should

- be crimped or tracked to prevent blowing. 2. Vegetative Cover - See standards for temporary vegetative cover.
- measure which should be used before soil blowing starts. Begin plowing on windward side of site. Chisel-type plows spaced about 12 apart, spring-toothed harrows, and similar plows are examples of equipment which may produce the desired effect

3. Tillage — To roughen surface and bring clods to the surface. This is an emergency

- 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 irrigated to the point that runoff begins to flow. 5. Barriers — Solid board fences, silt 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.
- 6. Calcium Chloride Apply at rates that will keep surface moist. May need retreatment.
- Permanent Methods

 1. Permanent Vegetation See standards for permanent vegetative cover, and permanent ration with sod. Existing trees or large shrubs may afford valuable protection if
- 2. Topsoiling Covering with less erosive soil materials. See standards for topsoiling 3. Stone - Cover surface with crushed stone or coarse gravel.
- 1. Agriculture Handbook 346. Wind Erosion Forces in the United States and Their Use 2. Agriculture Information Bulletin 354. How to Control Wind Erosion, USDA-ARS

THIS PLAN IS FOR SEDIMENT AND EROSION CONTROL ONLY

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

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TOPSOIL SPECIFICATIONS

- Topsoil salvaged from the existing site may be used provided that it meets that 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 USDA—SCS in cooperation with Maryland Agricultural Experimental Station.
- II. Topsoil Specifications Soil to be used as topsoil must meet the following: Topsoil shall be a loam, sandy loam, clay loam, 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 texture subsoils and shall contain less than 5% by the property of sinders are approved fragments, groups, tricks on the state of the same of
- volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than $1-1/2^{\circ}$ in diameter. Topsoil must be free of plants or plant ports such as Bermuda grass, quack grass, Johnson grass, nutsedge, poison ivy, thistle, or others as specified. iii. 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 operation
- as described in the following procedures. III. For sites having disturbed areas under 5 acres:
- Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization Section I Vegetative Stabilization Methods and
- IV. 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:
 - a. pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrate a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.
 - b. Organic content or topsoil shall be not less than 1.5 percent by weight.
- c. Topsoil having soluble salt content greater than 500 parts per million shall
- No sod or seed 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 phyto-toxic materials. 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 ii. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization — Section I — Vegetative Stabilization Methods and

- 1. When topsoiling, maintain needed erosion and sediment control practices such as diversions, grade stabilization structures, earth dikes, slope silt fence and sediment
- Grades on the areas to be topsoiled, which have been previously established, shall be maintained, albeit 4" 8" higher in elevation.
- iii. 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 Any irregularities in the surface resulting from topsoiling or other
- operations shall be corrected in order to prevent the formation of depressions or iv. 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.
- VI. Alternative for Permanent Seeding Instead of applying the full amounts of lime and commercial fertilizer, composted studge and amendments may be applied as specified
- I. Composted Sludge Material for use as a soil conditioner for sites having distributed
- 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: a. 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
- 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. I
- compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use. c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.
- iv. Composted studge shall be amended with a potassium fertilizer applied at the 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,

SEQUENCE OF CONSTRUCTION

OBTAIN GRADING PERMIT.

- CLEAR & GRUB FOR SEDIMENT CONTROL DEVICES. AND INSTALL SEDIMENT CONTROL DEVICES.
 THIS INCLUDES THE DRY DETENTION FACILITY AND PARTIAL EXCAVATION OF THE BIORETENTION FACILITY. ALL MATERIAL (RISER, BARREL, PIPE, ETC) SHALL BE ONSITE BEFORE ANY DISTURBANCE. DAY 10-15 UPON APPROVAL OF HOWARD COUNTY SEDIMENT CONTROL INSPECTOR CLEAR AND
- GRUB REMAINDER OF THE SITE. DAY 16-26 UPON APPROVAL OF HOWARD COUNTY SEDIMENT CONTROL INSPECTOR CLEAR AND GRUB

NOTIFY SEDIMENT CONTROL DIVISION 48 HOURS PRIOR TO START OF CONSTRUCTION

- REMAINDER OF THE SITE. DAY 27-28 STABILIZE IN ACCORDANCE WITH TEMPORARY SEEDBED NOTES.
- DAY 29-49 INSTALL STORM DRAINS AND OTHER STRUCTURES
- DAY 50-55 INSTALL CURB AND GUTTER.
- DAY 56-61 INSTALL BASE COURSE PAVING FOR PARKING LOT.
- DAY 62-72 CONSTRUCT BIORETENTION FACILITY AND PROVIDE SILT FENCE PROTECTION AROUND DAY 72-75 FINAL GRADE REMAINDER OF SITE AND STABILIZE IN ACCORDANCE WITH PERMANENT SEEDING NOTES.
- DAY 76-79 INSTALL REMAINING CURB AND GUTTER AND FINAL PAVING. COMPLETE EXCAVATION OF BIORETENTION FACILITY AND CONSTRUCT.
- DAY 80-81 INSTALL REQUIRED LANDSCAPING AS SPECIFIED ON THESE PLANS. DAY 82-92 UPON APPROVAL OF HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE
- REMAINING SEDIMENT CONTROL DEVICES AND PERMANENTLY STABILIZE ANY REMAINING DISTURBED AREAS. DAY 93-95 REMOVE ALL OLD JUNK (INCLUDING UNUSED CULVERT - UTILIZE DETAILS 2.4, 2.5
- AND 2.7 IF DEEMED NECESSARY) AND NEW JUNK, TRASH AND DEBRIS, AND ANY OTHER MAN MADE ITEMS FROM THE FLOODPLAIN, STREAM WETLAND AND THEIR ASSOCIATED BUFFERS. FINAL INSPECTION BY THE GEOTECH AND COUNTY INSPECTOR SHALL INCLUDE THESE AREAS TO ENSURE COMPLETE REMOVAL, BEFORE CLOSURE

NOTE: EROSION CONTROL MATTING SHALL BE PLACED IN SWALES WHERE DEEMED NECESSARY UNTIL VEGETATION IS ESTABLISHED OR SOLID SOD SHOULD BE USED. TEMPORARY SEEDBED PREPARATIONS

APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE REDISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED. SEEDED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED. SOIL AMENDMENTS: APPLY 600 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ FT). SEEDING: FOR PERIOD MARCH 1 THROUGH APRIL 30 AND FROM AUGUST 15 THROUGH NOVEMBER 15, SEED WITH 2-1/2 BUSHELS PER ACRE OF ANNUAL RYE (3.2 LBS/1000 SQ FT). FOR THE PERIOD MAY 1 THROUGH AUGUST 14, SEED WITH 3 LBS PER ACRE OF WEEPING LOVEGRASS

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 TO 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 FT. OR HIGHER, USE 348 GÁLLONS PER ACRE (8 GAL/1000 SQ FT) FOR ANCHORING.

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

DETAIL 30 — EROSION CONTROL MATTING -4" OVERLAP OF MATTIN STRIPS WHERE TWO OR MORE STRIP WIDTHS ARE REQUIRED, ATTACH EDGE OF MATTING ON 2" CENTERS-TYP, STAPLES NO.11

CONSTRUCTION SPECIFICATIONS 1. KEY-IN THE MATTING BY PLACING THE TOP ENDS OF THE MATTING IN A NARROY

- RENCH. 6" IN DEPTH. BACKFILL THE TRENCH AND TAMP FIRMLY TO CONFORM TO THE CHANNEL CROSS-SECTION. SECURE WITH A ROW OF STAPLES ABOUT 4" DOWN SLOPE FROM THE TRENCH. SPACING BETWEEN STAPLES IS 6". 2. STAPLE THE 4" OVERLAP IN THE CHANNEL CENTER USING AN 18" SPACING
- 3. BEFORE STAPLING THE OUTER EDGES OF THE MATTING, MAKE SURE THE MATTING IS SMOOTH AND IN FIRM CONTACT WITH THE SOIL.
- 5. WHERE ONE ROLL OF MATTING ENDS AND ANOTHER BEGINS, THE END OF THE TOP STRIP SHALL OVERLAP THE UPPER END OF THE LOWER STRIP BY 4", SHIPLAP FASHION.

S. DEPARTMENT OF AGRICULTURE PAGE MARYLAND DEPARTMENT OF ENVIRONMEN SOIL CONSERVATION SERVICE G - 22 - 2 WATER MANAGEMENT ADMINISTRATION

MARYLAND DEPARTMENT OF ENVIRONMENT

REINFORCE THE OVERLAP WITH A DOUBLE ROW OF STAPLES SPACED 6" APART IN A STAGGERED PATTERN ON EITHER SIDE. 6. THE DISCHARGE END OF THE MATTING LINER SHOULD BE SIMILARLY SECURED WITH WITH 2 DOUBLE ROWS OF STAPLES.

The Inside stand pipe (center pipe) should be constructed by perforating a corrugated or PVC pipe between 12" and 36" in diameter. The perforations shall

4. The center pipe should extend 12" to 18" above the anticipated water surface

elevation or riser crest elevation when dewatering a basin.

be 1/2" X 6" silts 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 C

X RPS

U.S. DEPARTMENT OF AGRICULTURE

MGWC 2.5: LIVE FASCINES

REVISED NOVEMBER 2000

MATERIAL SPECIFICATIONS

Slope Steepness Contour Distance 1:1 to 1.5:1 3-4 ft (0.9-1.2 m)

drainage as dictated in Table 2.5b.

Table 2.5b: Fascine Spacing on Wet Slope Steepness Contour Distance

5:1 to 2:1 4-5 ft (1.2-1.5 m

2:1 to 2.5:1 5-6 ft (1.5-1.8 m

5:1 to 3:1 6-8 ft (1.8-2.4 n

3.5:1 to 4:1 8-9 ft (2.4-2.7 n

1.5:1 to 2:1 3-5 ft (0.9-1.5 m

2:1 to 2.5:1 3-5 ft (0.9-1.5 m

.5:1 to 4:1 5-7 ft (1.5-2.1 m

expedite slope

4.5:1 to 5:1 9-10 ft (2.7-3.0 m)

WATERWAY CONSTRUCTION GUIDELINES

meters) for cut slopes and 3 feet (0.9 meters) for fill slopes. INSTALLATION GUIDELINES

SOIL CONSERVATION SERVICE D - 12 - 5

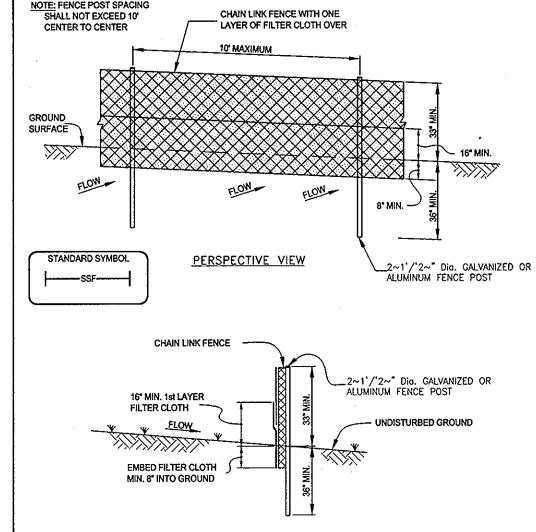
majority of the time, bundles should be arranged parallel to the contour according to Table 2.5a. Table 2.5a: Fascine Spacing on Dry Slope

onversely, if the slope is excessively wet, bundles should be installed at an angle to the contour to

Straw or mulching material should be spread between fascine rows on slopes flatter than 1.5:1, and jute

or coir fabric should be used on slopes greater than 1.5:1 to control erosion until the fascine rows and

NOTE: IF FLOW WILL ENTER FROM THE EDGE OF THE MATTING THEN THE AREA EFFECTED BY THE FLOW MUST BE KEYED-IN.



H - 26 - 3

NOTE: FENCE POST SPACING

DETAIL 33 - SUPER SILT FENCE

SUPER SILT FENCE CONSTRUCTION SPECIFICATIONS . Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length posts. . Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the tence. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section. 4. Filter cloth shall be embedded a minimum of 8" into the ground. 5. When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded. . 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 Filter cloth shall be fastened securely to each fence post with wire ties or staples top and mid section and shall meet the following requirements for Geotextile Class 50 lbs/in (min.) 20 lbs/in (min.) Tensile Modulus Test: MSMT 509 3 gal/ft /minute (max.) SUPER SILT FENCE DESIGN CRITERIA Silt Fence Length Slope (maximum) <u>Steepness</u> Unlimited 0 - 10% 0 - 10:1 Unlimited 1,500 feet 10 - 20% 10:1 - 5:1 200 feet

5:1 - 3:1 100 feet 20 - 33% 33 - 50% 3:1 - 2:1 50% + 2:1 +

PAGE

EARTH FILL
PIPE AS NECESSARY **GEOTEXTILE CLASS "C" OVER LENGTH AND WIDTH OF STRUCTURE. > EXISTING GROUND PROFILE *50' MINIMUM LENGTH PLAN VIEW SCE S 1. Length - minimum of 50' (*30' for single residence lot). 2. Width- 10' minimum, should be flored at the existing road to provide a turning 3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan opproval authority may not require single family residence to use geotextile. 4. Stone - crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the

DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE

5. 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 mounted berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE 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. 6. 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

MARYLAND DEPARTMENT OF ENVIRONMENT U.S. DEPARTMENT OF AGRICULTURE

DETAIL 18 - SEDIMENT BASIN BAFFLES DETAIL 20A - REMOVABLE PUMPING STATION PLAN VIEWS -HOOK AND CHAIN FOR REMOVAL D/2 STANDARD SYMBO A = AREA OF NORMAL POOL $L_0 = L_1 + L_2$ W = EFFECTIVE WIDTH = A/D 12" - 36" pipe wrapped w/ 1/2 hardware cloth and Geotextile L. TOTAL DISTANCE FROM THE INFLOW POINT AROUND THE BAFFLES TO THE RISER A 0 0 A 0 0 0 0 FORMULA: Le > 2 0000 0 0 0 0 S.H.A. MIX NO. 2 CONCE SURFACE ELEV. 0000 0000 RISER (OUTLET) 0000 0 0 0 0 2000 0000 CLEAN GRAVEL 0000 BAFFLE BOARD 2000 Lo= L1 + L2+ L3+ L4 0000 R 0 0 0 0 0000 RISER (OUTLET) 0000 WRAPPED WITH 1/2° S.H.A. MIX NO. 2 CONCRETE 000 000 _ WEIGHT AS NECESSA եբ = ել + եշ+ ե₃+ ել **ELEVATION (CUT AWAY)** SHEETS OF 4'X 8'X 1/2" EXTERIOR GRADE PLYWOOD OR FOUIVALENT Construction Specifications EXISTING GROUND in diameter than the center pipe. The outer pipe shall be wrapped with 1/2" hardware 11/4" SQUARE OR 2" ROUND SET AT LEAST 3' INTO cioth to prevent backfill material from entering the perforations. 2. After installing the outer pipe, backfill around outer pipe with 2" aggregate

8' CENTER TO CENTER -

J.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

BAFFLE DETAIL

PAGE C - 10 - 28

J.S. DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE

PAVEMENT WIDTH INDICATED ON TYPICAL STREET SECTIONS TO BE MEASURED TO THIS POINT STANDARD 7" COMBINATION CURB AND GUTTER - PAVEMENT WIDTH INDICATED ON TYPICAL STREET SECTIONS TO BE MEASURED TO THIS POINT (FLOW LINE) MODIFIED COMBINATION CU 8 GUTTER TO BE USED C ON CUL-DE-SAC STREETS LOCAL ROADS OR MINOR COLLECTOR ROADS. MODIFIED COMBINATION CURB AND GUTTER " GUTTER PAN AT THE MEDIAN FOCE OF INTERMEDIATE ARTERIALS OR THE RIGH SIG SUPERELEVATED SECTIONS SHALL BE SLOPED AT THE SAME RATE AND IN THE SAME DIRECTION AS THE PAVEMENT, MATCH PAVEMENT CROSS SLOPE WHEN CURB IS.LOCATED ON THE LOW SIDE OF SUPERELEVATED SECTION AND THE RATE OF SUPERELEVATION IS GREATER THAN 3% FOR MODIFIED CURB AND GUTTER. HOWARD COUNTY, MARYLAND COMBINATION CURB EPARTMENT OF PUBLIC WORK Approved 90 min 2. Ca care AND GUTTER-NO SCALE

Maryland's Guidelines To Waterway Construction

DETAIL 2.5: LIVE FASCINES

Proliminary Stop — prepare fascine bundles as follows: cigar-shaped bundles of Pve, noclable brush and branches with buts alternating, 4 to 10-inch 10 to 25-cm; diameters, tied 12 to 18 inches (30 to 45 cm) on center

Step 2 - dig trench (I/2 bundle diameter in depth) above the stakes

Step 1 - insert stakes on comour

Step 3 - place bundles in trench

Step 5 - tamp soit into and along side of bundle leaving the top 2 inches (5

MARYLAND DEPARTMENT OF ENVIRONMENT U.S. DEPARTMENT OF AGRICULTURE WATER MANAGEMENT ADMINISTRATION SOIL CONSERVATION SERVICE

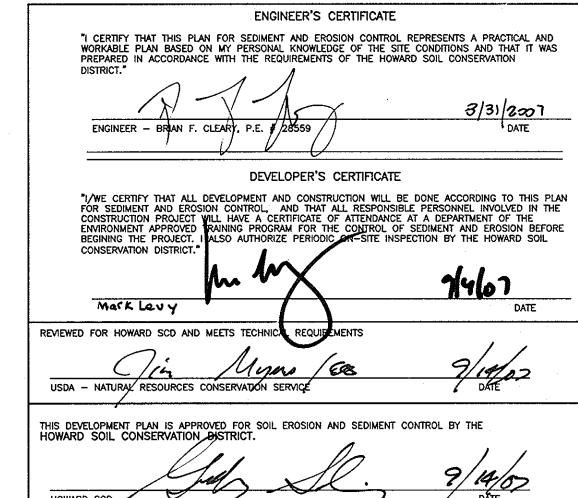
SECTION VIEW: FILL In Fill Sections: brush layer SECTION VIEW: CUT PLAN VIEW: CUT & FILL we branches should have diameters between 0.5 to 2.5 ches (1.5 to 6.0cm); branch outlings shall be arranged in a crisscens's fashlon in 4 to 124-inch 100 to 30-cm) il yets with the growing tips oriented towards the slope (e.g. maximum of 25% of the branch length shall flow flow and should proceed up the slope; a stable rock too PAGE 17 - 3 WATER MANAGEMENT ADMINISTRATION

1,000 feet

500 feet

Maryland's Guidelines To Waterway Construction DETAIL 2.7(b): BRUSH LAYERING DETAIL 2.7(a): BRUSH LAYERING SECTION VIEW maist soil layer should be 6 to 13 Inches (15 to 30 cm) thick an compacted to ensure adequate soil-branch contact for growth branch layers should be 4 to 12 inches (10 to 30 cm) thick and should be sufficiently long to reach the back of the hole or mulching material or natural-fiber fabric should be used between live or wooden stakes used MARYLAND DEPARTMENT OF THE ENVIRONMENT ADMINISTRATION

Maryland's Guidelines To Waterway Construction



BENCHMARK

ENGINEERS A LAND SURVEYORS A PLANNERS

ENGINEERING, INC.

8480 BALTIMORE NATIONAL PIKE A SUITE 418 ELLICOTT CITY, MARYLAND 21043 PHONE: 410-465-6105 FAX: 410-465-6644

documents were prepared of approved by me, and that I am duly licensed professional engineer under the laws of the State of Maryland, License No. 28559, Expiration Date: 7-22-200

www.bei-civilengineering.com OWNER: MARK LEVY DEERPATH ROCK, LLC BINDER ROCK, LLC 111 DORSEY RUN ROAD 7111 DORSEY RUN ROAD SUITE 101 SUITE 101 ELKRIDGE, MARYLAND ELKRIDGE, MARYLAND 21075 21075 410.526.4030 410.526.4030

H & H ROCK COMPANIES 6800 DEERPATH ROAD SUITE 100 ELKRIDGE, MARYLAND

PROJECT:

PARCEL 375 - GRID 24 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND TITLE: SEDIMENT EROSION CONTROL NOTES AND DETAILS

ORSEY BUSINESS CENTER, PARCEL 'A' AND DORSEY CENTER

TAX MAP 37

PARCEL 'R', OVERFLOW PARKING LOT AND SWM FACILITY

DRAWING 4 OF 9

SLOPE PROTECTION AND STABILIZATION TECHNIQUES MARYLAND DEPARTMENT OF THE SLOPE PROTECTION AND STABILIZATION TECHNIQUES MARYLAND DEPARTMENT OF THE WATERWAY CONSTRUCTION GUIDELINES MATERIAL SPECIFICATION Live branches should be cut from fresh, green, healthy, dormant parent plants which are adapted to the Willow, sider, and dogwood cuttings are well suited for use in live fascines. Fascine bundles can range from 5 to 30 feet (1.5 to 9 meters) in length, depending upon handling and transportation limitations, diameters ranging from 4 to 10 inches (10 to 25 cm). Untreated twine or wire used to tie the bundles · Live branches should be 0.5 to 2.5 inches (1.3 to 6 centimeters) in diameter and should be long enough should be at least 2 millimeters thick. If Inert (dead) stakes are employed to secure the bundles, they should be made from 2 by 4-linch (5 by 10-cm) lumber cut on the diagonal with lengths of 2.5 feet (0.8 so that 1/2 to 2/3 of the branch is in contact with the soil at the back of the terrace, bench, or gully white projecting slightly from the slope face. Commonly used woody plants for this measure include willow, poplar, and alder since they are versatile Live fascine construction should occur during the dormancy period, usually late fall to early spring, with and have high growth rates with shrubby habits, fibrous root systems, and high transpiration rates bundle preparation proceeding as follows (refer to Detail 2.5): C the growing tips of all branches should be oriented downstream in the same direction, and C bundles A partial listing of woody plants recommended by the United States Department of Agriculture's Soil should be tied every 12 to 18 inches (30 to 45 cm) along their lengths. The initial row of bundles should be positioned at the height of the normal summer water level such that one half to two thirds of the Conservation Service is presented in MGWC 2.4:Live Stakes.

Live branch cuttings should be kept covered and moist at all times and should be placed in cold storage If more than a few hours elapse between the cutting and construction times. Live or inert stakes used for live guily repair should be sufficiently long to reach 3 feet (0.9 meters) into competent soil at the base of undle is submerged. These toe bundles should be protected from washout by positioning them on bruor hole and soaked for 24 to 48 hours prior to installation INSTALLATION GUIDELINES osen vegetated reference reach for further guidance when installing live fascines. All bundles should be anchored in trenches dug to a depth at least one-helf the bundle diameter. Inert stakes should be driven every 12 to 39 inches (30 to 100 cm) through and below the lengths of the fascines with extra Brush layer installation should occur during periods of low flow beginning at the rivers edge or low point of the targeted guilty. If construction begins at the river's edge, a stable toe with an granular filter designe according to MGWC 2.1: Riprap must first be constructed below the normal baseflow level according to stakes used at bundle overlaps. The length of overlap should be approximately 1 to 3 feet (0.3 to 0.9 meter). Live stakes can be employed on the down slope side of the fascine rows or through the bundles Live cuttings should be placed on prepared earth lifts for fill brush layering or excavated torraces for cut with the tops of the stakes extending 2 to 3 inches (5 to 8 cm) above the bundle tops. Soil should be tamped into and along the sides of the bundles, leaving the top 2 inches (5 cm) exposed to promote brush layering. 1. Fill brush layers should be positioned on prepared earth lifts 7 to 17 feet (2 to 5 meters) in width, and rowth. Additional fascine rows should be installed up the slope at predetermined intervals. If the slope is dry a

MARYLAND DEPARTMENT OF ENVIRONMEN

MGWC 2.7: BRUSH LAYERING

WATER MANAGEMENT ADMINISTRATION

sh layers should be arranged on trenches with a minimum width of 3 to 7 feet (1 to 2 meters). The brush rows should be angled away from the contour on excessively wet sites, and the angle of th es from the horizontal should range from 10 to 20 degrees; steeper for wetter soils and flatter for 3. Branches should be arranged in a crisscross fashion in 4 to 12-inch (10 to 30-cm) thick layers with their cut ends touching the back of the slope or guilty. Live guilty repair requires that the branch cuttings be arranged around wooden stakes. The wooden stakes should be spaced 1 to 1.5 feet (0.3 to 0.45 meters apart and driven a minimum of 2 to 3 feet (0.6 to 0.9 meters) into competent ground. A maximum of 25% of the brush layer should protrude from the slope face. backfill should be lightly compacted on top of each layer of branches to eliminate air voids and provide an adequate soll/branch interface to initiate growth. Each layer of backfill should have a thickness of 6 to 12 inches (0.15 to 0.30 meters).

Subsequent rows of brush layers should be spaced as follows, though frequently wet and unstable slopes may require closer spacing: Table 2.7: Suggested Spacing for Brush Leyers Slope Steepness Contour Spacing | 1.5:1 to 2:1 4-5 ft (1.2-1.5 m)

.5:1 to 3:1 6-8 ft (1.8-2.4 m :1 to 4:1 7-10 ft (2.1-3.0 m) should be used between brush layer rows on slopes of 3H:1V or flatter to impede surface erosion until ative vegetation invades the area. On steeper slopes, jute or coir fabric should be used

MGWC 2.4: LIVE STAKES SLOPE PROTECTION AND STABILIZATION TECHNIQUES MARYLAND DEPARTMENT OF THE ENVIRONMENT
WATERWAY CONSTRUCTION GUIDELINES REVISED NOVEMBER 2000 PAGE 2.4 - 1 MATERIAL SPECIFICATION When choosing and preparing woody material for live stakes, the following guidelines should be followed: Live stakes should be cut from fresh, green, healthy, dormant parent plants which are adapted to the alder since they are versatile and have high growth rates with shrubby habits, fibrous root systems, and ranspiration rates, especially when in leaf. A partial listing of woody plants recommended by the United

riards solls, however, a steel rod should be employed to create a pilot hole before the stakes are planted.

- Twenty percent of the live stake, and a minimum of two lateral buds, should be exposed above the

4. After the stakes have been inserted into the ground, soil should be tamped firmly around their bases to

3. Unstable slope toes should be reinforced against scouring and undercutting using live fascines or rock

slope so that green, leafy shoots will readily grow.

(30 to 46 centimeters) apart to form chevron-like rows that point downst

fill to give the live stakes the best opportunity to root and grow.

Side Branch Removed at Slight Angle

Water Table

SECTION VIEW

Live stout states shall be spaced 2 to 3 feet (0.6 to 0.9 meters) apert to give a density of 2 to 4 cuttings per square yard (0.8 square meters).

MARYLAND DEPARTMENT OF ENVIRONMENT

45 Degree Tapered Butt End

Maryland's Guidelines To Waterway Construction

DETAIL 2.4: LIVE STAKES

Adapted From USDA-SCS (1994)

DBTAIL

Live stout stakes should be long enough to reach below the groundwater table. (Generally, a longth of 2 to 3 test, or 0.6 to 0.9 meters, is sufficient.) Additionally, the stakes should have a dameter in the range of 0.75 to 1.5 inches (2 to 4 certimeters).

WATER MANAGEMENT ADMINISTRATION

SIGHT PROTECTION AND PACE 15.5 WATER MANAGEMENT OF THE ENVIRONMENT STABILITATION TECHNOLOGY PACE 15.5 HARTLAND DEPARTMENT OF THE ENVIRONMENT OF THE ENVIR Maryland's Guidelines To Waterway Construction DETAIL 15: SANDBAGSTONE DIVERSION - disturbed area ----States Department of Agriculture's Soil Conservation Service is presented in Table 2.4.

Live stakes should have a diameter between 0.75 and 1.5 inches (2 to 4 centimeters) and should be ong enough to reach below the groundwater table so that a strong root system can quickly develop. At (0.25 meters) and lengths ranging from 4 to 6 feet (1.2 to 1.8 meters) may also be used at the discretion of the project manager.

Live stakes should be kept covered and moist at all times and should be placed in cold storage if more than a few hours elepse between the cutting and replanting times INSTALLATION GUIDELINES PLAN VIEW Live stake installation should proceed as follows (refer to Detail 2.4): 1. Live stake rooting areas should be soaked in barrels of water for 24 to 48 hours just prior to 2. While keeping the bark of the live stakes intact, the side branches should be cleanly removed, the basal ends angled for easy insertion, and the tops cut square.

3. The cuttings should be implanted with the angled basal end down and buds oriented up at a minimum. minimum opening is 45% of stream width angle of 10 degrees to the horizontal so that rooting will not be restricted. All stakes should be poabove the normal baseflow level. Project planners may need to study an aptly chosen vegetated eference reach for further guidance when Installing live stakes. In soft soils, the stakes can be inserted perpendicularly into the slope using a dead blow hammer, in

disturbed area encourage root growth.

5. Successive stakes should be arranged in a triangular configuration and speced a distance of 2 to 3 feet (0.6 to 0.9 meters) apart, allowing for a typical density of 2 to 4 cuttings per square yard (0.8 square meters). Willow posts require additional room for growth and propagation and should be planted at 3 to 5-foot (1 to 1.5-meter) intervals. When inserted in arrays, the stakes should be spaced 12 to 18 inches

CONTRUCTION DESCRICES

PAGE 1 - 3

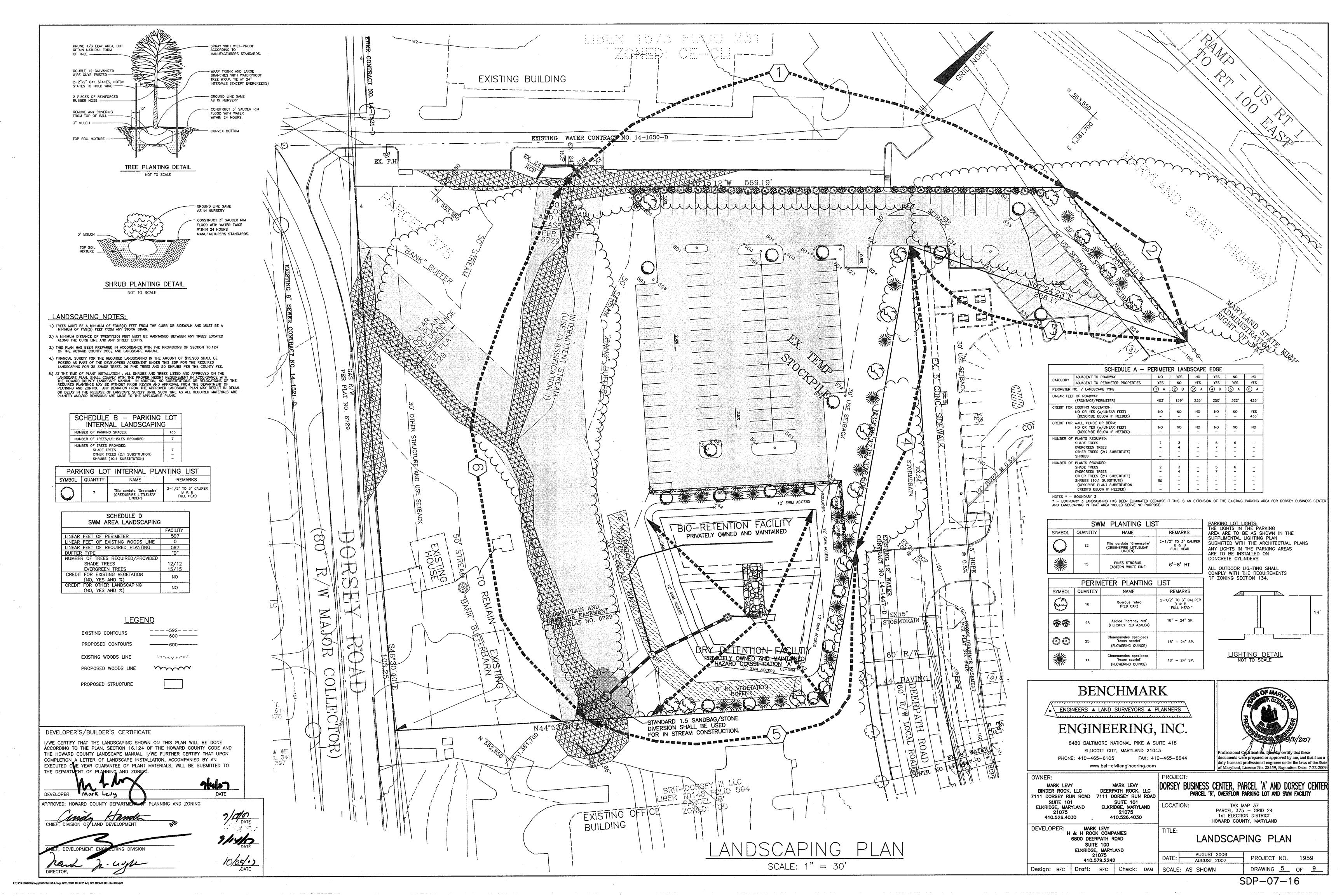
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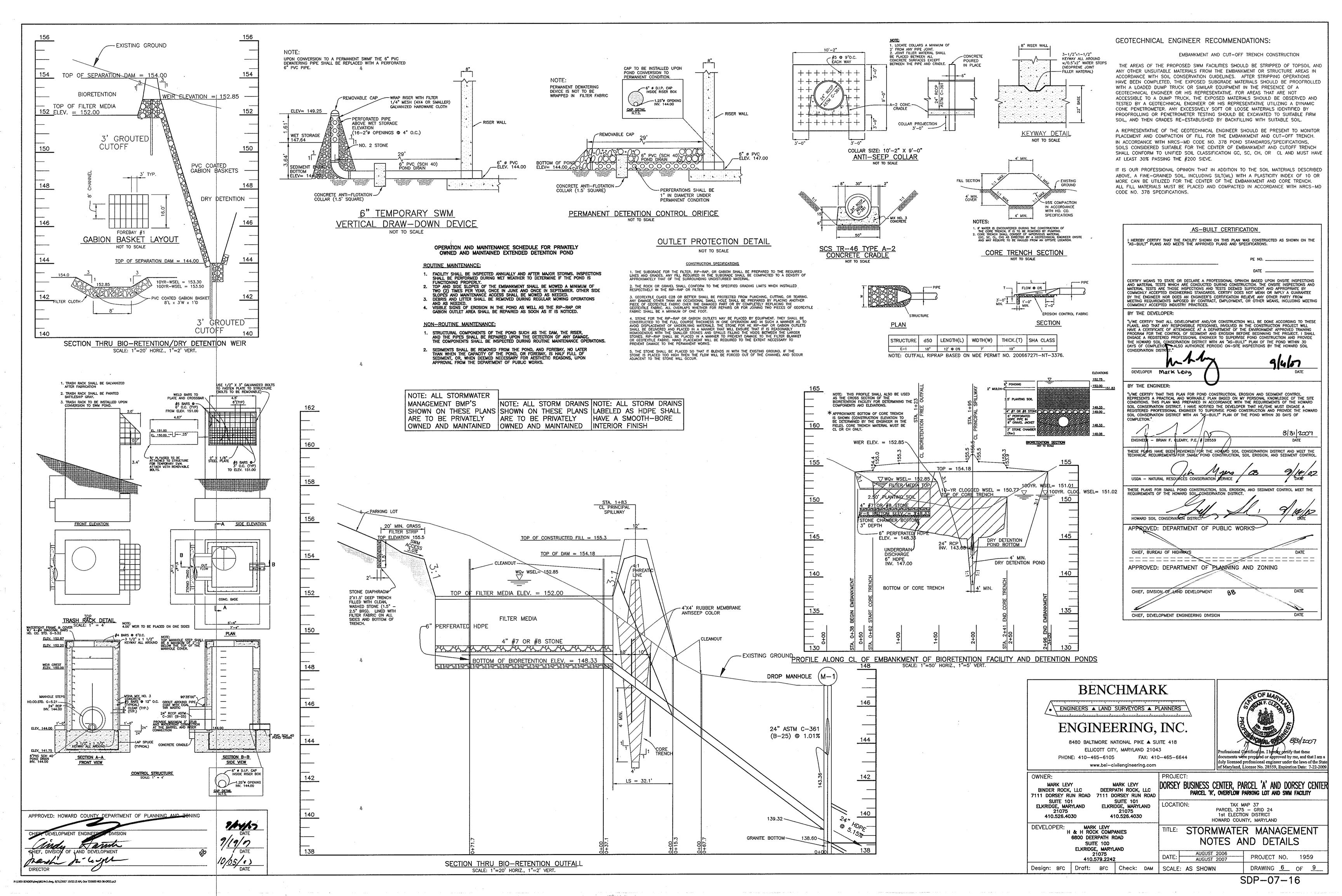
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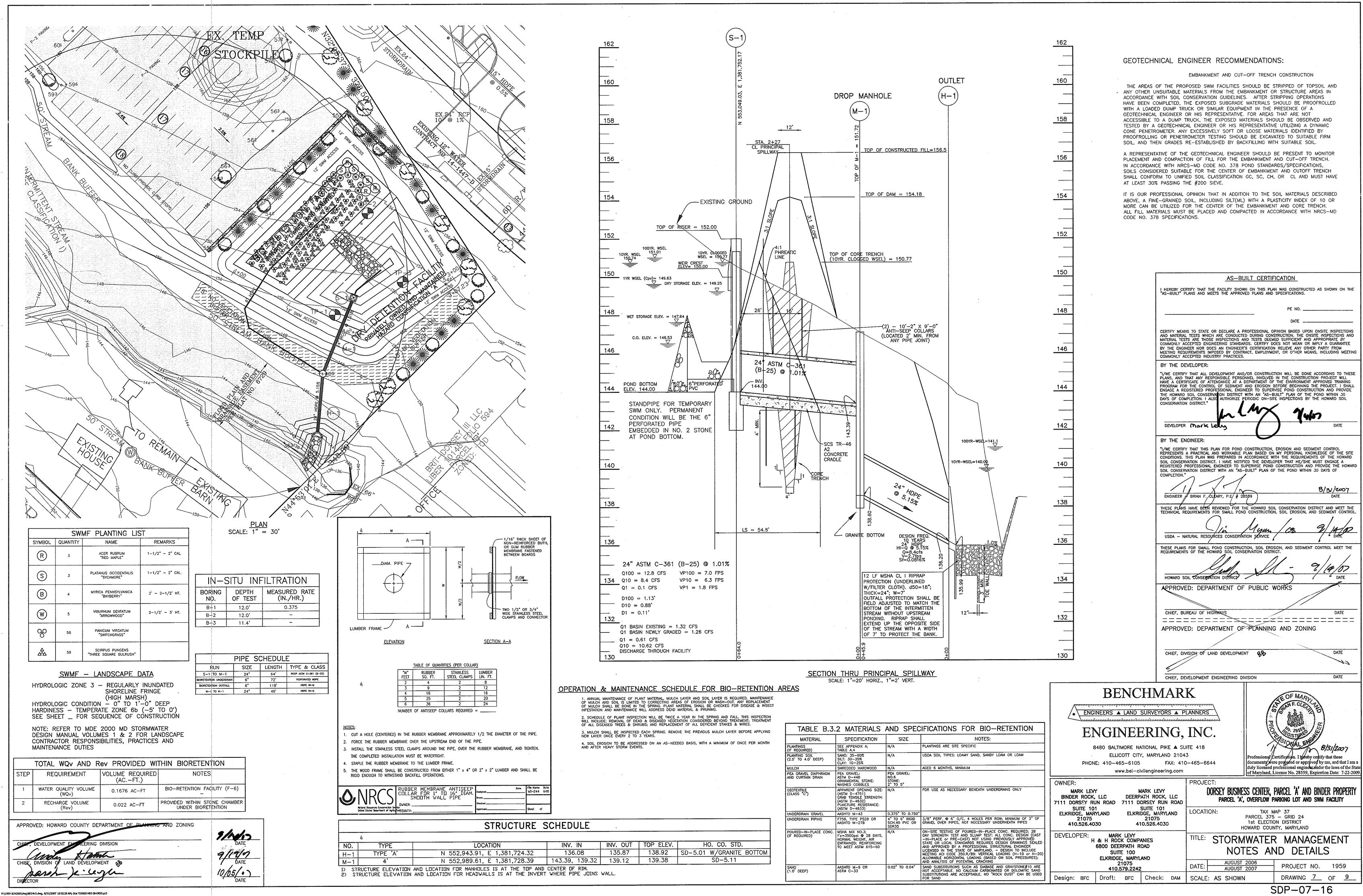
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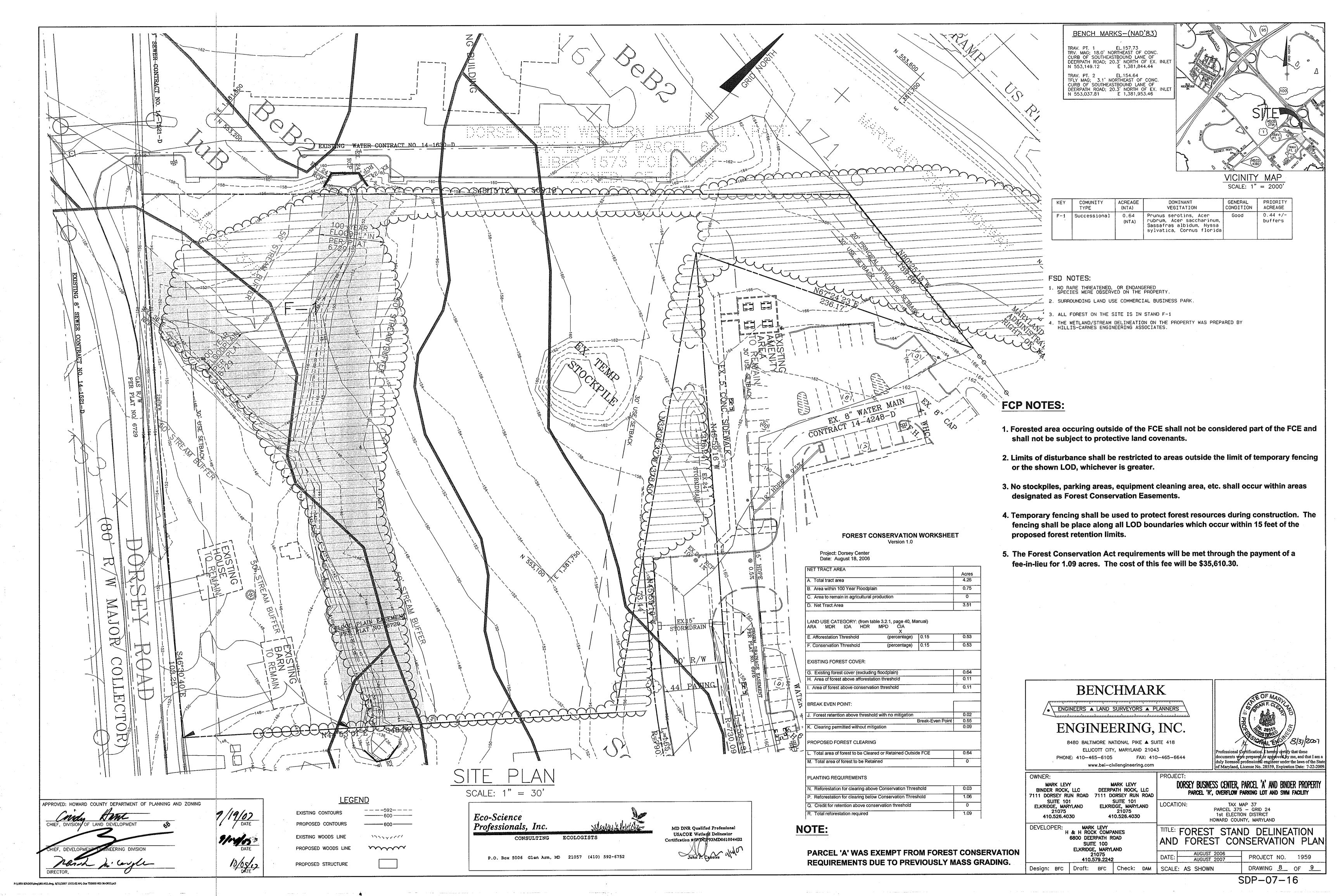
PROJECT NO. 1959 I SCALE: AS SHOWN

SDP-07-16









CONSTRUCTION SPECIFICATIONS

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

Site Preparation

Areas designated for borrow areas, embankment, and structural works shall be gleared. grubbed and stripped to 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 the reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees brush, and stumps shall be cut approximately level with the ground surface. For dry storm water management ponds, a minimum of a 25-foot radius around the inlet structure shall be

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

Earth Fill

Material - The fill material shall be taken from approved designated borrow areas. If shall be free of roots, stumps, wood, rubbish, stones greater than 6", frozen or other objectionable material. Fill material for the center of the embankment, and cut off trench shall conform to Unified Soil Classification GC, SC, CH, or CL and must have at least 30% passing the #200 sieve. Consideration may be given to the use of other materials in the embankment if designed by a geotechnical engineer. Such special designs must have construction supervised by a geotechnical engineer

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

<u>Placement</u> — 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 embankmer Compaction - the movement of the hauling and spreading equipment over the fill shall be

controlled so that the entire surface of each lift shall be traversed by not less than one tread track of heavy 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 will be obtained with teh equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble, yet not be so wet that water can be squeezed out.

When required by the reviewing agency the minimum required density shall not be less than 95% of maximum dry density with a moisture content within ± 2% of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by AASHTO Method T-99 (Standard Proctor).

Cut Off Trench - The cutoff trench shall be excavated into impervious material along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be governed by the equipment used for excavation, with the minimum width being four feet. The depth shall be a 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 construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability.

Embankment Core - The core shall be parallel to the centerline of the embankment as shown on the plans. The top width of the cores 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.

Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe. unless there is a compacted fill of 24" or greater over the structure or pipe.

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 minimum resistively 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 sided 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 floating the pipe. When using flowable fill, all metal pipe shall be bituminous coated. Any adjoining soil fill shall be pidced 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 of pipe. Backfill conforming to that specified for the core of the embankment or other embankment

Pipe Conduits

All pipes shall be circular in cross section

Corrugated Metal Pipe — all of the following criteria shall apply for corrugated metal pipe: 1. Materials - (Polymer Coated steel pipe) - Steel pipes with polymeric coatings shall bave a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. This pipe and its appurtenances shall conform to the requirements of AASHTO Specifications M-245 & M-246 with watertight coupling bands or flanges.

Materials - (Aluminum Coated Steel Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274 with watertight coupling bands or flanges. Aluminum Coated Steel Pipe, when used with flowable fill or when soil and/or water conditions warrant the need for increased durability, shall be fully bituminous cated per requirements of AASHTO Specification M-190 Type A. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt.

Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or M-211 with watertight coupling bands or flonges. Aluminum Pipe, when used with flowable fill or when soil and/or water conditions warrant for increased durability, shall be fully biturninous coated per requirements of AASHTO Specification M-190 Type A. Aluminum surfaces that are to be contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be between 4 and 9.

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

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

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

Helically corrugated pipe shall have either continuously welded seams or have lock seams

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

5. Backfilling shall conform to "Structure Backfill". 6. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

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

2. Bedding - Reinforced concrete pipe conduits shall be laid in a concrete bedding/cradle for their entire length. This bedding/cradle shall consist of high slump 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 a described in the "Structure Rockfill" section of this standard. Gravel bedding is not permitted.

1. Materials - Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets

3. Loying pipe — Bell and spigot pipe shall be places with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material.

After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation form the original line and grade of the pipe. The first joint must be located within 4 feet from the riser.

4. Backfilling shall conform to "Structure Backfill".

and shall equal or exceed ASTM C-361

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

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

1. Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241. Corrugated High Density Polyethylene (HDPE) pipe, couplings and fittings shall conform to the following: 4' - 10" inch pipe shall meet the requirements of AASHTO M252 Type S, and 12" through 24" inch shall meet the requirements of AASHTO M294 Type 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 sail 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. <u>Drainage Diaphragms</u> — When a drainage diaphragm is used, a registered professional engineer will supervise the design and construction inspection.

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 414,

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

Care of Water during Construction

All work on permanent structures shall be carried out in areas free from water. The contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from various parts of the work and for maintaining the evacuations, foundation, and other parts of the work free from water as required or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary, protective works shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works and so as not to interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent works. The removal of water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the location being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water sumps from which the water shall be pumped.

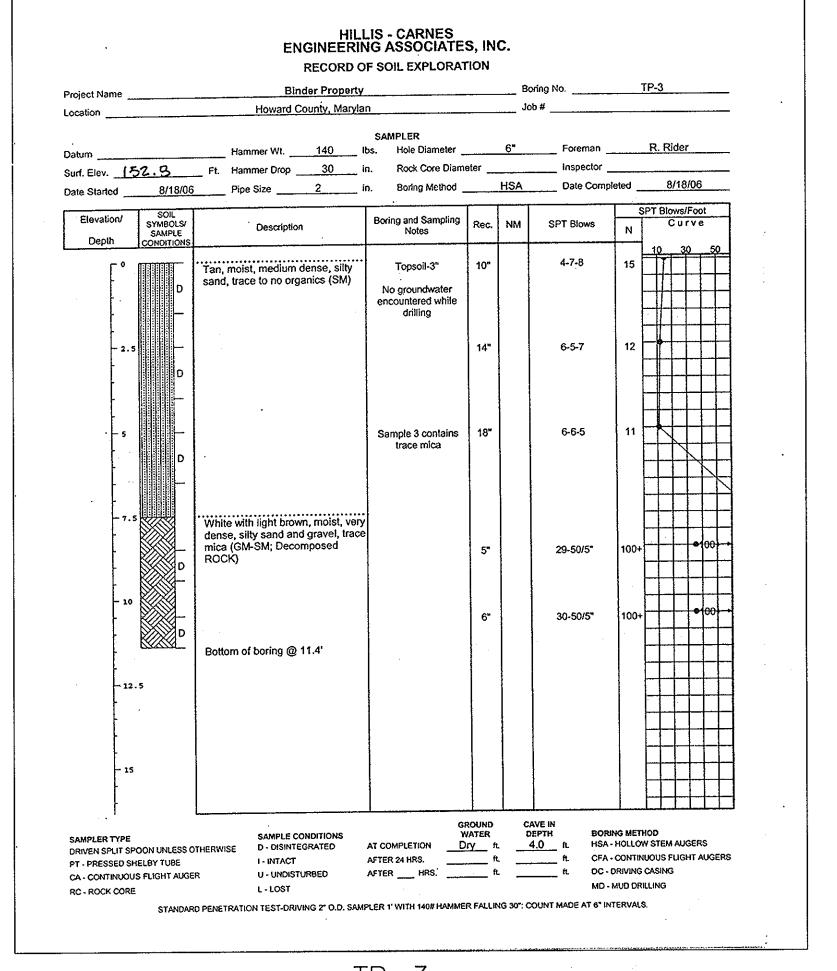
All borrow areas shall be graded to provide proper drainage and left in a sightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Natural Resources Conservation Service Standards and Specifications for Critical Area Planting (MD-342) or as shown on the accompanying drawings.

Erosion and Sediment Control

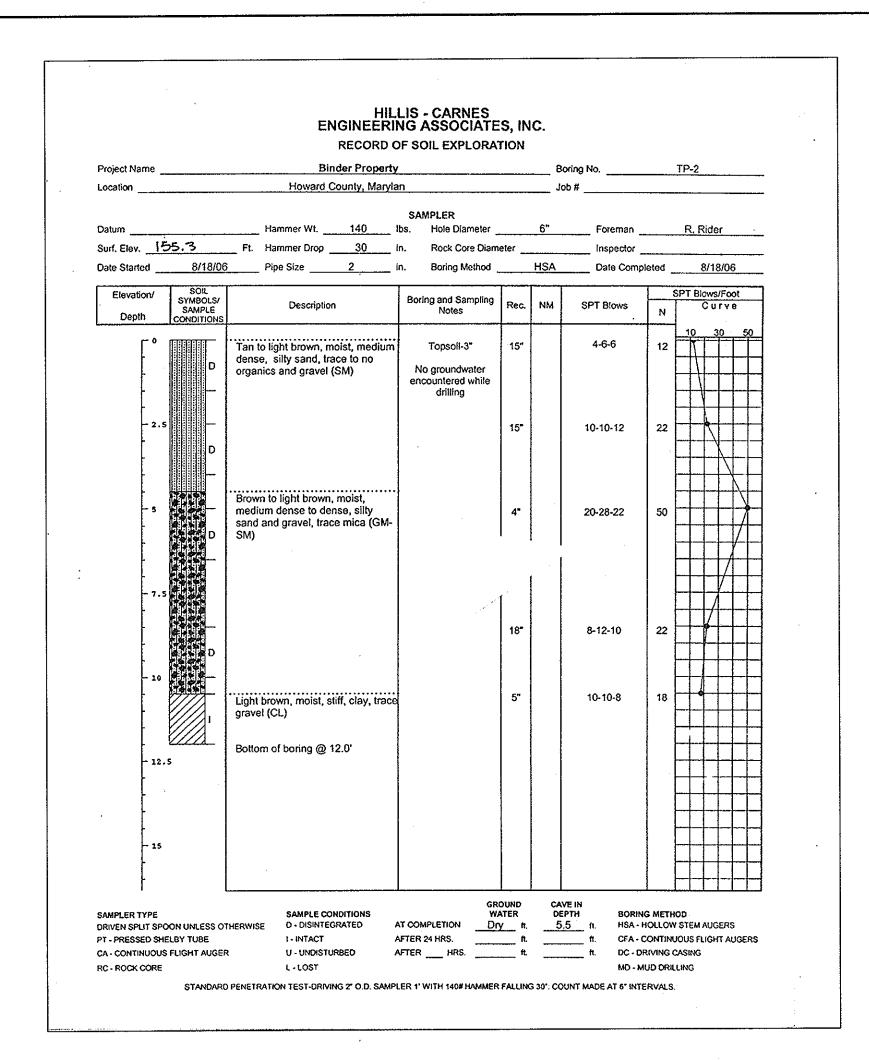
Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION ______ Boring No. ______TP-1 Binder Property Howard County, Marylan Hammer Wt. 140 lbs. Hole Diameter 6* Foreman R, Rider Surf. Elev. 149. 6 Ft. Hammer Drop 30 in. Rock Core Diameter Inspector Date Started 8/18/06 Pipe Size 2 in. Boring Method HSA Date Completed 8/18/06 Elevation/ Boring and Sampling Notes Depth 4-7-8 Topsoil-3" Tan, moist, medium dense, silty sand, trace organics (SM) ight brown, moist, stiff, fine sandy 5-8-8 +1+1Tan, moist to damp, dense to very 32-42-25 dense, silty sand and gravel (GM-12-14-16 Groundwater ncountered @ 10.0' 12-18-24 Bottom of boring @ 12.0" WATER SAMPLER TYPE SAMPLE CONDITIONS AT COMPLETION Dry ft. 5.4 ft. HSA - HOLLOW STEM AUGERS DRIVEN SPLIT SPOON UNLESS OTHERWISE D - DISINTEGRATED CFA - CONTINUOUS FLIGHT AUGERS PT - PRESSED SHELBY TUBE 1 - INTACT AFTER 24 HRS. DC - DRIVING CASING CA - CONTINUOUS FLIGHT AUGER U - UNDISTURBED MD - MUD DRILLING RC - ROCK CORE L-LOST STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1" WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.

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TP-3



BENCHMARK

ENGINEERS A LAND SURVEYORS A PLANNERS

ENGINEERING, INC.

PHONE: 410-465-6105 FAX: 410-465-6644

8480 BALTIMORE NATIONAL PIKE A SUITE 418 ELLICOTT CITY, MARYLAND 21043

cuments were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the Stat

	vilengineering.com	duly licensed professional engineer under the laws of the State of Maryland, License No. 28559, Expiration Date: 7-22-2009.								
OWNER: MARK LEV BINDER ROCK 7111 DORSEY RI	, LLC	MARK LEVY DEERPATH ROCK, LLC 7111 DORSEY RUN ROAD		PROJECT: DORSEY BUSINESS CENTER, PARCEL 'A' AND DORSEY CENTER PARCEL 'R', OVERFLOW PARKING LOT AND SWM FACILITY					CENTER Y	
SUITE 101 SUITE 101 ELKRIDGE, MARYLAND ELKRIDGE, MARYLAND 21075 21075 410.526.4030 410.526.4030				LOCATI		PARCEL 1st ELE	X MAP 37 375 — GRID 2 CTION DISTRIC OUNTY, MARYL	Т		
DEVELOPER: MARK LEVY H & H ROCK COMPANIES 6800 DEERPATH ROAD SUITE 100 ELKRIDGE, MARYLAND 21075 410.579.2242				TITLE:	SWM BOR	INGS A	ND SPECIF	FICATION	NS	
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CHIEF, DIVISION OF LAND DEVELOPMENT

PPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND. ZONING

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