GENERAL NOTES

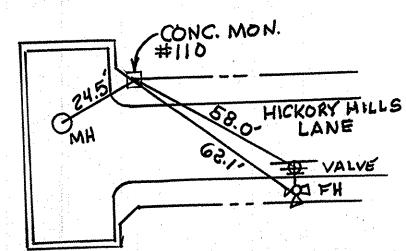
- .) THE SUBJECT PROPERTY IS ZONED R-20 PER THE 2/02/04 COMPREHENSIVE ZONING PLAN AND PER COMP. LITE ZONING AMENDMENTS EFFECTIVE 7/28/06

- 4.) THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WOL
- 5.) ALL ASPECTS OF THIS PROJECT SHALL BE IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAVER(S) HAVE BEEN APPROVED

- 4.) NO WETLANDS OR 100-YEAR FLOODPLAIN EXIST WITHIN THE PROJECT LIMITS AS PER A CERTIFICATION LETTER PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. DATED SEPTEMBER 9, 2002 AND APPROVED UNDER S-03-007.
- 17.) THE GEOTECHNICAL REPORT FOR THIS PROJECT WAS PREPARED BY GEOTCHNICAL LABORATORIES, INC. DATED NOVEMBER, 2006 AND APPROVED UNDER S-03-007.
- 8.) THERE ARE EXISTING STRUCTURES LOCATED ON-SITE TO BE REMOVED.
- 20.) UNLESS NOTED AS "PRIVATE", ALL EASEMENTS ARE PUBLIC.
- 21.) ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
- 22.) BRL INDICATES BUILDING RESTRICTION LINE.

- 6.) ALL SWM FACILITY/BMP PRATICES SHALL BE PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION.

- 41.) PUBLIC WATER AND SEWER ALLOCATIONS WILL BE GRANTED AT THE TIME OF ISSUANCE OF THE BUILDING PERMIT IF CAPACITY IS AVAILABLE AT THAT TIME. 42.) THE PROPOSED STAND PAD WITHIN THE 20' PUBLIC DRAINAGE AND UTILITY EASEMENT ALONG SCAGGSVILLE ROAD SHALL BE PRIVATELY OWNED AND
- 43.) A DESIGN MANUAL WAVER WAS SUBMITTED TO THE DEPARTMENT OF PUBLIC WORKS FOR DMV IV, STD. DETAIL R-1.02 TO ALLOW FOR DEVIATIONS
- PROPERTY, PARCEL 2. AS A REVISION TO THE OFFSITE FOREST CONSER VATION PLAN, F-07-003, SHEET 12. SURETY FOR THE TALLEY PLANTING, WAS POSTED WITH THE ORIGINAL F-07-003 DEVELOPER'S AGREEMENT. THE REQUIRED SURETY AND FEES FOR THIS PROSECT ARE ESTABLISHED BY AND PAID WITH THE DEVELOPER'S AGREEMENT FOR THE PIAT.



SITE DATA TABULATION

-) GENERAL SITE DATA
- PRESENT ZONING: R-20 LOCATION: TAX MAP 46 - GRID 12 - PARCEL 289
- APPLICABLE DPZ FILE REFERENCES: S-03-007, P-07-014
- CONTR. No.24-4449-D DEED REFERENCE: L.9218 / F.607
- PROPOSED USE OF SITE: 9 SFD HOMES; 2 OPEN SPACE LOTS
- PROPOSED WATER AND SEWER SYSTEMS: PUBLIC
- AREA TABULATION
- . TOTAL AREA OF SITE AREA OF 100 YEAR FLOODPLAIN (APPROX.)
- AREA OF STEEP SLOPES (25% OR GREATER) . NET AREA OF SITE AREA OF THIS PLAN SUBMISSION
- LIMIT OF DISTURBANCE (APPROX.) . 0.61 Ac.± AREA OF PROPOSED PUBLIC ROAD

AREA OF PROPOSED PUBLIC'R/W DEDICATION

) UNIT/LOT TABULATION TOTAL NUMBER OF RESIDENTIAL LOTS

1) TOTAL AREA OF RECREATIONAL

OPEN SPACE PROVIDED .

- PROPOSED ON THIS SUBMISSION
- TOTAL NUMBER OF OPEN SPACE LOTS
-) OPEN SPACE DATA
- MINIMUM RESIDENTIAL LOT SIZE SELECTED ... OPEN SPACE REQUIRED FOR TOTAL AREA OF SITE (30% OF 5.18 Ac.)
- TOTAL AREA OF PROPOSED OPEN SPACE LOTS PROVIDED WITH THIS SUBDIVISION 1) OPEN SPACE AREAS LESS THAN 35'
- IN WIDTH (NON-CREDITED) 2) TOTAL AREA OF OPEN SPACE MEETING MINIMUM OPEN SPACE REQUIREMENTS (CREDITED) 1.55 Ac
- AREA OF RECREATIONAL OPEN SPACE REQUIRED N/A

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

- 8.) EXISTING TOPOGRAPHY SHOWN HEREON WAS FIELD RUN BY BENCHMARK ENGINEERING, INC., ON OR ABOUT JULY, 2006. CONTOUR INTERVAL IS 2 FEE ADDITIONAL OFFSITE TOPOGRAPHY WAS PURCHASED FROM HOWARD COUNTY GEOGRAPHICAL INFORMATION SYSTEMS. .) EXISTING UTILITIES SHOWN HEREON ARE BASED ON FIELD LOCATIONS AND RECORD DRAWINGS.
- 10.) 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.
- THIS PROPERTY IS WITHIN THE METROPOLITAN DISTRICT. WATER AND SEWER SHALL BE PUBLIC, CONNECTING TO EX. CONTRACTS No.354-W & No.529-S, RESPECTIVELY, UNDER CONTR. No.24-4449-D. DRAINAGE AREA IS WITHIN THE PATUXENT RIVER WATERSHED. 2.) FOREST STAND DELINEATION PLAN WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC., DATED JUNE, 2003 AND APPROVED UNDER S-03-007
- 13.) NO SPECIMEN TREES WERE FOUND ON-SITE AS PER FOREST STAND DELINEATION PLAN PREPARED BY ECO-SCIENCE PROFESSIONALS, INC., DATED JUNE, 2003 AND APPROVED UNDER S-03-007.
- 15.) A NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT.
- 16.) A.P.F.O. TRAFFIC STUDY WAS PREPARED BY THE MARS TRAFFIC GROUP, INC. DATED APRIL, 2002 AND APPROVED UNDER S-03-007.

- 19.) TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO CEMETERY LOCATIONS ON-SITE.
- 23.) ANY DAMAGE TO THE COUNTY'S RIGHT-OF-WAY SHALL BE CORRECTED AT THE BUILDERS EXPENSE.
- 24.) THIS PLAN IS SUBJECT TO THE AMENDED 5th EDITION OF THE HOWARD COUNTY SUBDIVISION REGULATIONS AND THE AMENDED HOWARD COUNTY ZINING REGULATIONS. IT ALSO FALLS UNDER THE CRITERIA ESTABLISHED IN THE INFILL DEVELOPMENT REGULATIONS OF COUNCIL BILL 45-2003 EFFECTIVE OCTOBER 2, 2003.
- 25.) STORMWATER MANAGEMENT SHALL BE PROVIDED FOR THIS PROJECT BASED ON GUIDELINES ESTABLISHED BY THE 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUMES I & II. QUALITY CONTROL SHALL BE PROVIDED BY; A BIO-RETENTION FACILITY (F-6) WITH AN UNDERGROUND STONE RECHARGE TRENCH; THE NON-STRUCTURAL CREDIT/USE OF RAINGARDEN/BIO-RETENTION ON RESIDENTIAL LOTS; AND THE USE OF NATURAL CONSERVATION AND DISCONNECTION CREDITS. QUANTITY CONTROL (Cpv) IS NOT REQUIRED.
- 27.) 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.
- PERIMETER AND SWM LANDSCAPING SHALL BE PROVIDED AS SHOWN ON THE LANDSCAPE PLAN OF THE ROAD CONSTRUCTION DRAWINGS FOR THIS FINAL PLAN IN ACCORDANCE WITH SECTION 16.124 OF THE LANDSCAPE MANUAL. FINANCIAL SURETY IN THE AMOUNT OF \$15,000.00 FOR THE REQUIRED 37 SHADE TREES AND 26 EVERGREEN TREES SHALL BE POSTED WITH THE DEVELOPER'S AGREEMENT UNDER THIS FINAL PLAN F-08-038
- 32.) DRIVEWAYS SHALL BE PROVIDED PRIOR TO ISSUANCE OF A USE AND OCCUPANCY PERMIT FOR ANY NEW DWELLINGS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING MINIMUM REQUIREMENTS:

 A) WIDTH 12' (16' SERVING MORE THAN ONE RESIDENCE).

 B) SURFACE 6' OF COMPACT CRUSHER RUN BASE WITH 1/1/2' MIN. TAR & CHIP COATING.

 C) GEOMETRY MAX. 15% GRAD MAX. 10% GRADE CHANGE & MIN. 45' TURNING RADIUS.

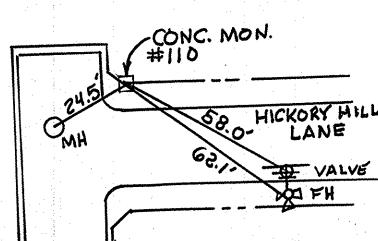
 D) STRUCTUR! S(CULVERTS/BRIDGE-) CAPABLE OF SUPPORTING 25 GROSS TONS (H25 LOAD)

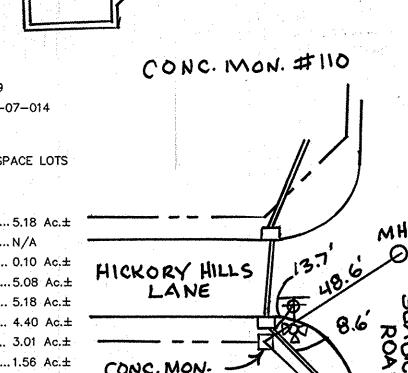
 E) DRAINAGE :LEMENTS CAPABLE OF SAFELY PASSING 100 YEAR FLOODPLAIN WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY.

 F) STRUCTURE CLEARANCES MINIMUM 12 FEET.

 G) MAINTENANCE SUFFICIENT TO INSURE ALL WEATHER USE.
- 34. THIS PLAN COMPLIES WITH THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION BY THE FOLLOWING:

 a) FOREST CONSERVATION ACT REQUIREMENTS FOR THIS PROJECT HAVE BEEN CALCULATED TO BE 0.8 AC. OF ON-SITE RETENTION WITH A SURETY AMOUNT OF \$6,969.60 AND 0.8 AC. OF REFORESTATION. b) THE REFORESTATION OBLICATION WILL BE MET BY 0.23 AC. OF ON-SITE PLANTINGS TO BE PLACED WITHIN A FOREST CONSERVATION EASEMENT WITH A SURETY AMOUNT OF \$5,009.50 AND C) 0.11 AC. OF LANDSCAPING CREDIT IN OPEN SPACE LOT II THE SURETY PAID UNDER THE LANDSCAPING SURETY AND (566 34.) CONT:)
- 37.) THE RAINGARDEN BMP'S LOCATED ON RESIDENTIAL LOTS 1, 6, & 7 SHALL BE BONDED IN THE AMOUNT OF \$27,300.00 (AT THE RATE OF \$6,500.00 PER 1000 SF OF TREATED IMPERVIOUS AREA) FOR THE 2400 SF, 1100 SF, & 700 SF, RESPECTIVELY, OF PROPOSED ROOFTOP; THIS FEE SHALL BE POSTED WITH THE DEVELOPER'S AGREEMF IT UNDER THIS FINAL PLAN, F-08-038. 8.) WRITTEN AUTHORIZATION BY BGE OF THE PROJECT LANDSCAPE PLAN WAS OBTAINED BY CORRESPONDENCE DATED FEBRUARY 28, 2007, PRIOR TO
- 39.) A LETTER OF FERMISSION FROM THE OWNERS OF THE OFF-SITE EXISTING 20' DRAINAGE EASEMENT (P.B.9/F.74) FOR CONSTRUCTION OF
- 34.) CONT: d.) THE REMAINING O. 46AC. HAS BEEN PROVIDED AS OFFSITE PLANTING ON THE TALLEY





CONC. MON. #102

PUBLIC ROADWAY IMPROVEMENT PROFILES, NOTES & DETAILS GRADING, SEDIMENT & EROSION CONTROL PLAN

1

PARCEL 150

GARDINER J. WHITE

AND WIFE

ZONED: R-20

L.0389/F.348

DESCRIPTION TITLE SHEET, NOTES AND DETAILS 2 ROAD CONSTRUCTION PLAN, NOTES AND DETAILS ROADWAY PROFILE, NOTES AND DETAILS

MERSON TRACT

ALICIA E

MERSON

ZONED: R-20

GRADING, SEDIMENT & EROSION CONTROL PLAN, NOTES AND DETAILS STORMWATER MANAGEMENT PROFILES, NOTES AND DETAILS STORMWATER MANAGEMENT PROFILES. NOTES AND DETAILS STORM DRAINAGE AREA MAP AND SOILS MAP STORM DRAIN PROFILES, NOTES AND DETAILS STORM DRAIN PROFILES, NOTES AND DETAILS

SHEET INDEX

LANDSCAPING PLAN. NOTES AND DETAILS

FOREST CONSERVATION PLAN, NOTES AND DETAILS

PARCEL 232 DAVID A. AND

BREANNA GOMBERG

ZONED: R-20

1.3253/F.544

LOCATION PLAN SCALE: 1" = 60'

14,002 SF

OREN SPACE - LOT 55,964 SF

ROCKY GORGE OVERLOOK

LOTS 1 THRU 3 & 5 THRU 10

AND O.S. LOTS 4 & 11

PARCEL 289 / ZONE: R-20

6th ELECTION DISTRICT

HOWARD COUNTY, MARYLAND

FINAL/CONSTRUCTION PLANS F-08-038

PARCEL 247 LOT 4

PINE VALLEY

SECTION 2

MYROSLAV HNATYSHYN IE

HICKORY HILLS LANE PUBLIC ACCESS PLACE

PARCEL 329 PARCEL 324

CHELSEA ESTATES

PAULINE AND

DEBRA FITZGERALD

WILCOX

XONED: R-20

PLAT No.3995

SECTION

14,002 SF

BLOCK 'B'

AND WIFE

ZONED: R-20

PB.9/F.74

PER P.B.9/F.74

14,001 SF

KENNETH R. AND

NINA M. BRYAN ZONED: R-20

L.9774/F.217

LOT 5

PINE VALLEY

BLOCK '97

ILES B. SIMMONS

SUZANN E. REYNOLDS/

ZONED: R-20

14,002 SF

20' PRIVATE DRAINAGE AND UTILITY EASEMENT

PARCEL 329

LOT

SECTION

WANDA J.

ROBERT C. JR. AND

ZONED: R-20

MURRAY

LO7

PINE VALLEY

SECTION 2

BLOCK 'B' ROBERT A. AND

LESLEY J.J. HUBBARD

ZONED: R-20

PB.9/F.74

OPEN SPACE - LOT 4 X

14,003 SF

PARCEL 327

ALICIA E.

MERSON

ZONED: R-20

PLAT No.3934

MERSON

PRIVATE

USE-IN-COMMON ACCESS AND MAINTENANCE

			75
	MINIMUM L	OT SIZE/ CH/	ART
LOT NO.	GROSS AREA	PIPESTEM AREA	MIN. LOT SIZE
. 6	16,386.3 S.F.	2,352.2 S.F.	14,034.1 S.F.
7	15,686.0 S.F.	1,679.9 S.F.	14,006.1 S.F.
8	15,485.9 S.F.	1,310.0 S.F.	14,175.9 S.F.

CONC.MON 397.63' 103 REBURECAP 405.01' 104 REBURECAP 405-16' REBARS CAP 405.37° REBARS CAP 407.09-REBARICAP 465.91 REBARS CAP 405.71' REBURE CAP CONC. MON REBAR & CAP 396.55 XCUTIN CONE. REBARSCAP :

AS-BUILT NOTES:

PARCEL 239 JULIE A. BONDS'

W. GLENN BONDS

ET-AL U/T

ZONED: R-20

L10036/F.533

1"I.P. FOUND

PARCEL 191

TIMOTHY D. AND

14,002 SF

WILLIAM E. AND BEVERLY B. DEVUONO ZONED: R-20 L1638/F.0521

Willin 2. Mlul

CHIEF, DIVISION OF LAND DEVELOPMENT

CHIEF, DEVELOPMENT ENGINEERING DIVISION

CHIEF, BUREAU OF HIGHWAYS

KATHERINE E. TRUMBULL ---

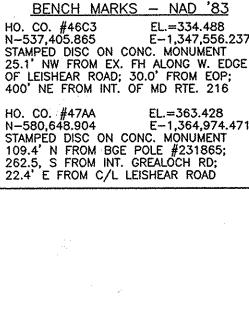
PUBLIC

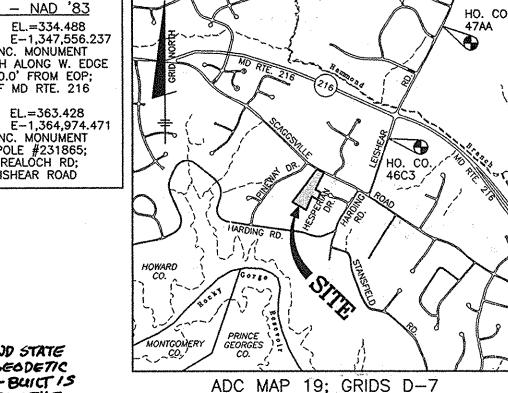
LAND DEDICATED TO HOWARD COUNTY, MARYLAND FOR THE PURPOSES OF A PUBLIC ROAD

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

RIGHT OF WAY ELEVATION CHART NAD.83 RIMPTING DESCRIPTION ELEVATION rebarecap 405. zo





VICINITY MAP SCALE: 1"=2000'

ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATIONS. Z) THE INSTRUMENTS USED IN PERFORMING THE AS-BUILT WERE A 5"TOTAL GTATION AND PRISM AND RTK GPS.

NORTH AMERICAN VERTICAL DATUM NGVO 29 AS PROTECTED FROM THE

CONTROL STATIONS 46C3 AND 47AA VERTICAL DATUM FOR THIS AS-BUICT 15

1) HORIZONTAL DATUM FORTHIS AS-BUILT IS BASEDON THE MARYLAND STATE REFERENCE SYSTEM NAD 83/ADJ 91 AS PROJECTED FROM HO.CO. GEODETIC

3) THIS AS-BUILT WAS PERFORMED BY BENCHMARK ENGINEERING, TNC.

SOILS CLASSIFICATION SOILS DELINEATION ---- 999 -----**EXISTING CONTOURS** -----999 -----PROPOSED CONTOURS _____999 ------EXISTING WOODS LINE phylogeny PROPOSED WOODS LINE MANA EXISTING STRUCTURE PROPOSED STRUCTURE STEEP SLOPES 15% TO 24.9% STEEP SLOPES 25% OR GREATER PROP. PUBLIC DRAINAGE AND UTILITY EASEMENT PROP. PRIVATE DRAINAGE AND UTILITY EASEMENT NON-CREDITED

OPEN SPACE 7 PROP. NATURAL CONSERVATION AREA SWM 15' NO-WOODY VEGETATION ZONE DRAINAGE AREA

DRAINAGE DIVIDE To STUDY PATH PROP. FOREST CONSERVATION AREA

FCE PERMANENT SIGNAGE 00000000000 LIMIT OF DISTURBANCE STABILIZED CONSTRUCTION **ENTRANCE** SILT DIVERSION FENCE

SUPER SILT FENCE INLET PROTECTION REMOVABLE PUMP STATION

Date 9-26-14

SILT FENCE

SOIL STABILIZATION MATTING

RIP-RAP INFLOW PROTECTION

NOTE: CONTRACTORS TO EXERCISE EXTREME CAUTION WHEN WORKING IN AREA OF EXIST. OVERHEAD LINES ALONG SCAGGSVILLE ROAD

PROFESSIONAL CERTIFICATION:

I hereby certify that these documents were prepared or

approved by me, and that I am a duly licensed profession

engineer under the laws of the State of Maryland

DRAWING 1 OF 13

RPS

1 2-28-12 REVISE GENERAL NOTE #34 PER PLAT NO. DATE REVISION

I hereby certify, by my seal, that the facilities shown on this plan were

AS-BUILT CERTIFICATION

Donald Mason, P.E. No. 21443

OWNER/DEVELOPER:

Des: MCR/DAM | Draft: MCR

constructed as shown on this AS-BUILT plan.

(pa

HEATHERWOLD DR

LOCAL ROAD - 50' R/W

8-18-08

DATE:

11/20/08

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 E-MAIL: benchmark@bei-civilengineering.com

HICKORY KNOLLS, L.L.C. 11807 WOLLINGFORD COURT CLARKSVILLE, MARYLAND, 21029 (410)-792-2565

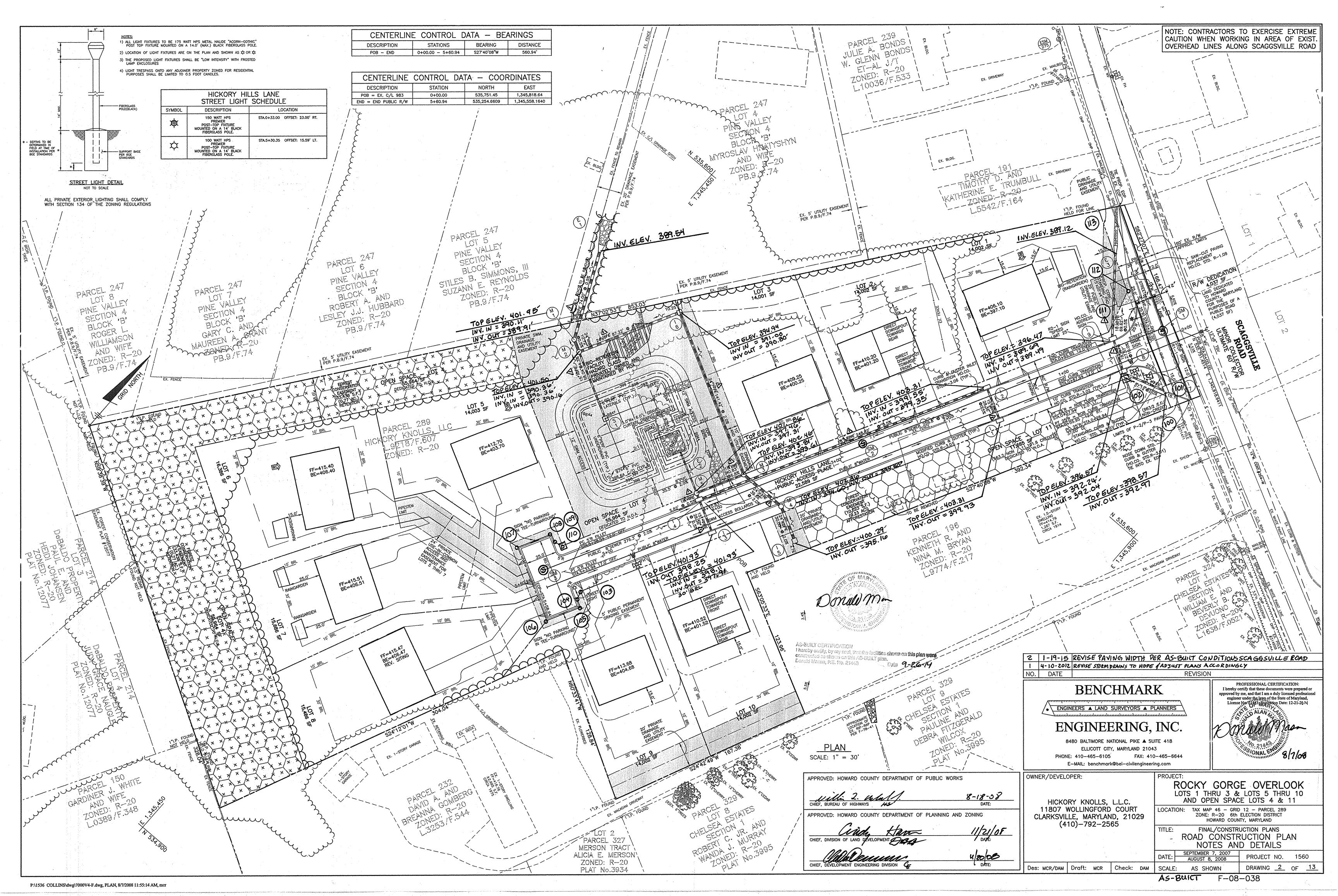
ROCKY GORGE OVERLOOK LOTS 1 THRU 3 & LOTS 5 THRU 10 AND OPEN SPACE LOTS 4 & 1 TAX MAP 46 - GRID 12 - PARCEL 289

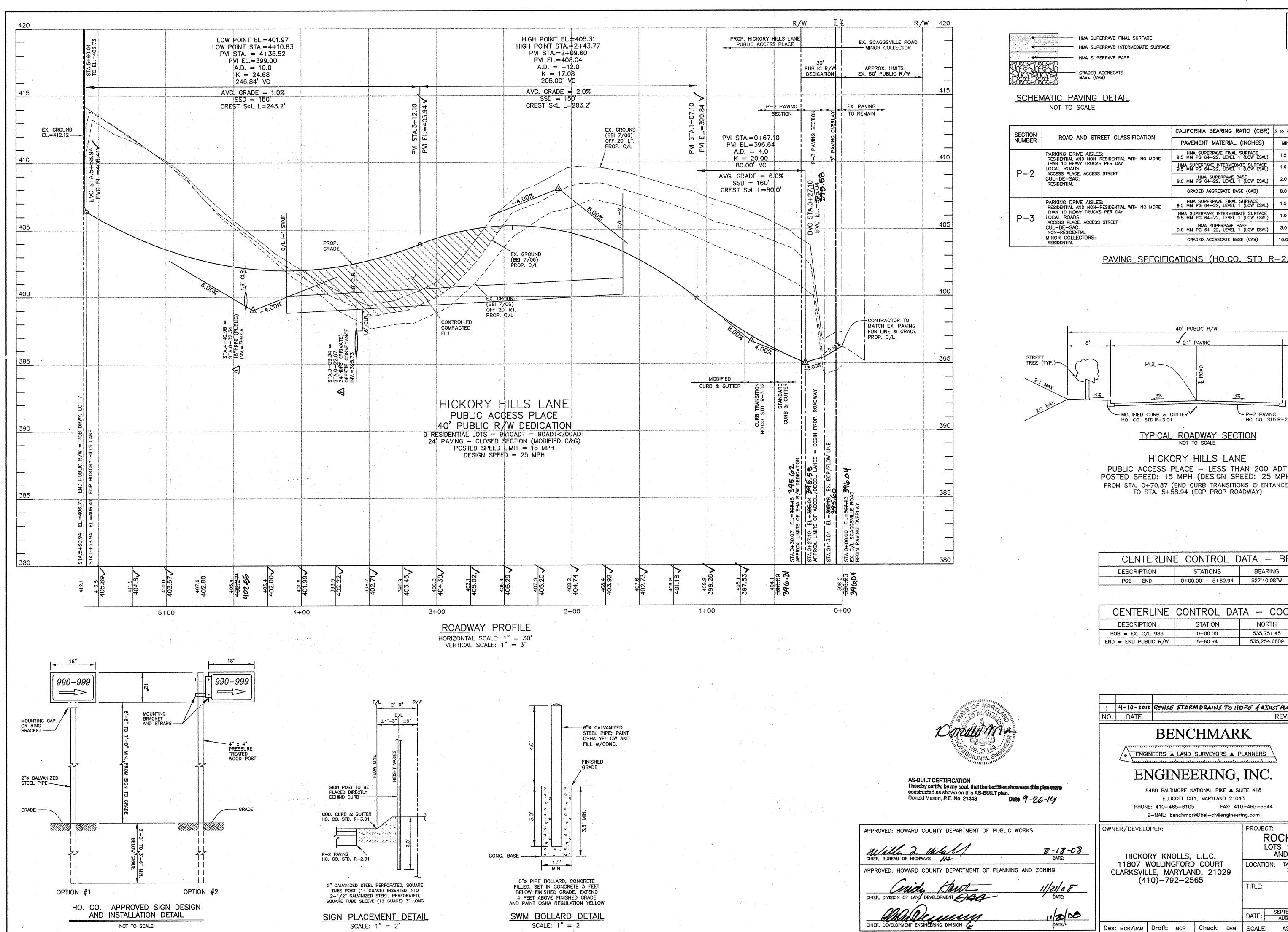
ZONE: R-20 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND FINAL/CONSTRUCTION PLANS TITLE SHEET NOTES AND DETAILS PROJECT NO. 1560

Check: DAM AS SHOWN AS-BUILT

F-08-038

P:\1536 COLLINS\dwg\7009V4-F.dwg, COVER, 8/7/2008 12:05:15 PM, mcr

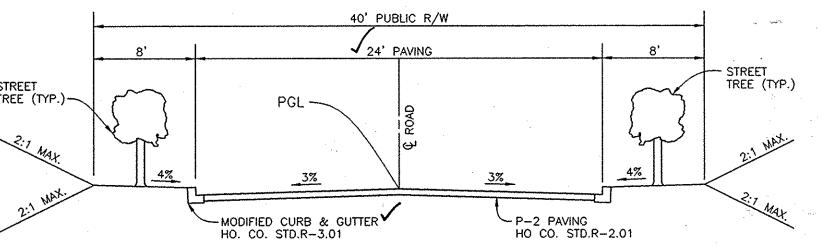




NOTE: CONTRACTOR TO EXERCISE EXTREME CAUTION WHEN WORKING IN AREA OF EXIST. OVERHEAD LINES ALONG SCAGGSVILLE ROAD

SECTION	DOLD AND OTHER OF ACCIDINATION	CALIFORNIA BEARING RATIO (CBR)	3 to <5	5 to <7	≥7	3 to <5	5 to <7	≥7
NUMBER	ROAD AND STREET CLASSIFICATION	PAVEMENT MATERIAL (INCHES)	MIN.	HMA WITH	GAB	HMA WIT	H CONSTA	ANT GAB
P-2	PARKING DRIVE AISLES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS PER DAY LOCAL ROADS: ACCESS PLACE, ACCESS STREET CUL-DE-SAC: RESIDENTIAL	HMA SUPERPAVE FINAL SURFACE 9.5 MM PG 64-22, LEVEL 1 (LOW ESAL)	1.5	1.5	1,5	1.5	1.5	1.5
		HMA SUPERPAVE INTERMEDIATE SURFACE 9.5 MM PG 64-22, LEVEL 1 (LOW ESAL)	1.0	1.0	1.0	1.0	1.0	1.0
		HMA SUPERPAVE BASE 9.0 MM PG 64-22, LEVEL 1 (LOW ESAL)	2.0	2.0	2.0	3.5	2.0	2.0
		GRADED AGGREGATE BASE (GAB)	8.0	4.0	3.0	4.0	4.0	4.0
PARKING DRIVE AISLES: RESIDENTIAL AND NON-RESIDENTIAL WITH THAN 10 HEAVY TRUCKS PER DAY LOCAL ROADS: ACCESS PLACE, ACCESS STREET CUL-DE-SAC: NON-RESIDENTIAL MINOR COLLECTORS: RESIDENTIAL	PARKING DRIVE AISLES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE	HMA SUPERPAVE FINAL SURFACE 9.5 MM PG 64-22, LEVEL 1 (LOW ESAL)	1.5	1.5	1.5	1.5	1.5	1.5
	THAN 10 HEAVY TRUCKS PER DAY LOCAL ROADS: ACCESS PLACE, ACCESS STREET CUL-DE-SAC:	HMA SUPERPAVE INTERMEDIATE SURFACE 9.5 MM PG 64-22, LEVEL 1 (LOW ESAL)	1.0	1.0	1.0	1.0	1.0	1.0
		HMA SUPERPAVE BASE 9.0 MM PG 64-22, LEVEL 1 (LOW ESAL)	3.0	3.0	3.0	4.5	3.0~	2.0
	MINOR COLLECTORS:	GRADED AGGREGATE BASE (GAB)	10.0	6.0	3.0	6.0	6.0	5.0

PAVING SPECIFICATIONS (HO.CO. STD R-2.01)



POSTED SPEED: 15 MPH (DESIGN SPEED: 25 MPH) FROM STA. 0+70.87 (END CURB TRANSITIONS @ ENTANCE)

CENTERLIN	E CONTROL [DATA – BEA	ARINGS
DESCRIPTION	STATIONS	BEARING	DISTANCE
POB - END	0+00.00 - 5+60.94	S27'40'08"W	560.94'

CENTERLINE	CENTERLINE CONTROL DATA - COC			ORDINATES	
DESCRIPTION	STATION		NORTH	EAST	
POB = EX. C/L 983	0+00.00		535,751.45	1,345,818.64	
FND = FND PUBLIC R/W	5+60.94		535,254,6609	1.345.558.1640	

4-10-2012 REVISE STORMDRAINS TO HOPE & AJUST PLANS ACCORDINGLY

PROFESSIONAL CERTIFICATION: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland,

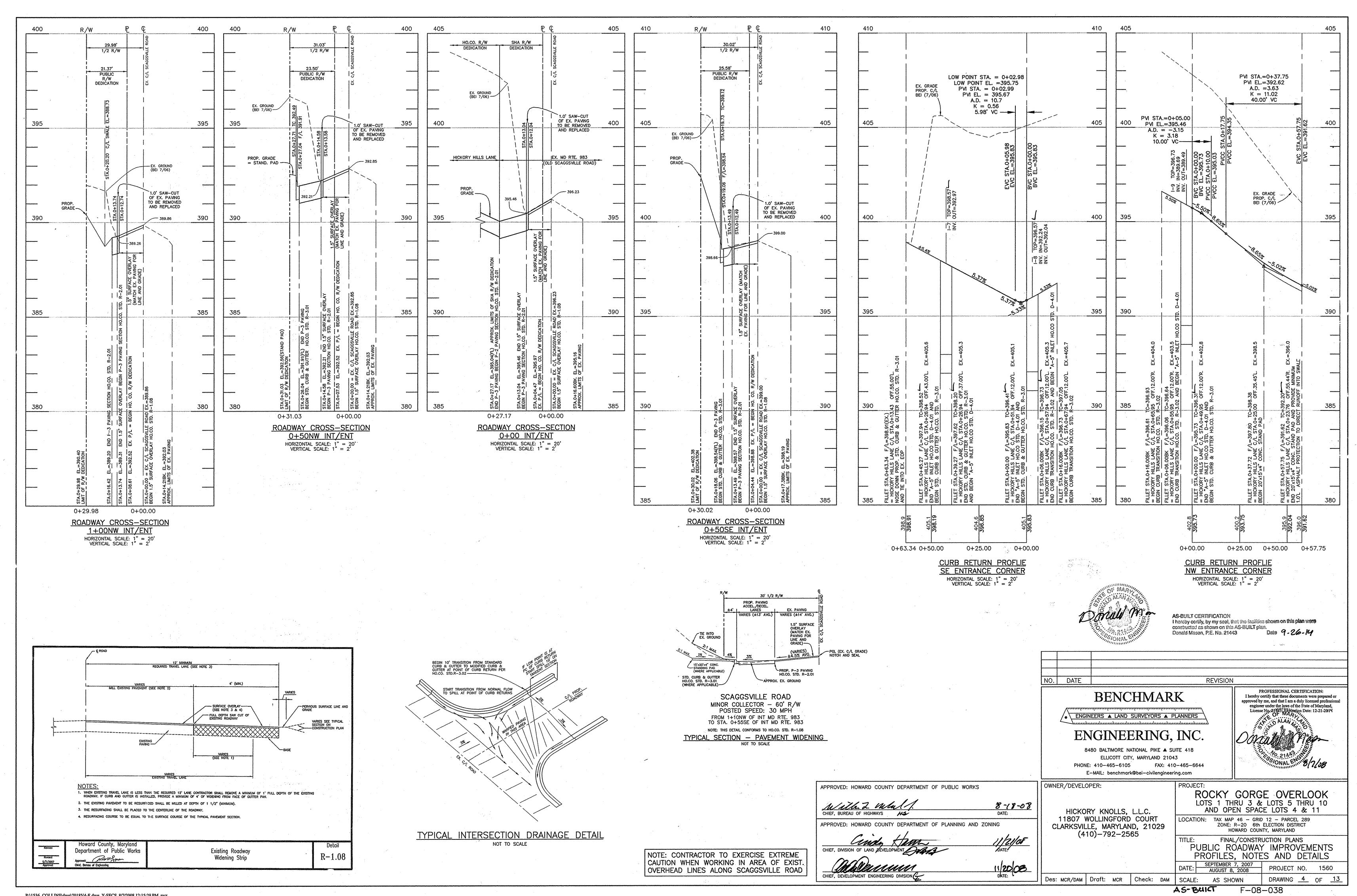
ROCKY GORGE OVERLOOK LOTS 1 THRU 3 & LOTS 5 THRU 10

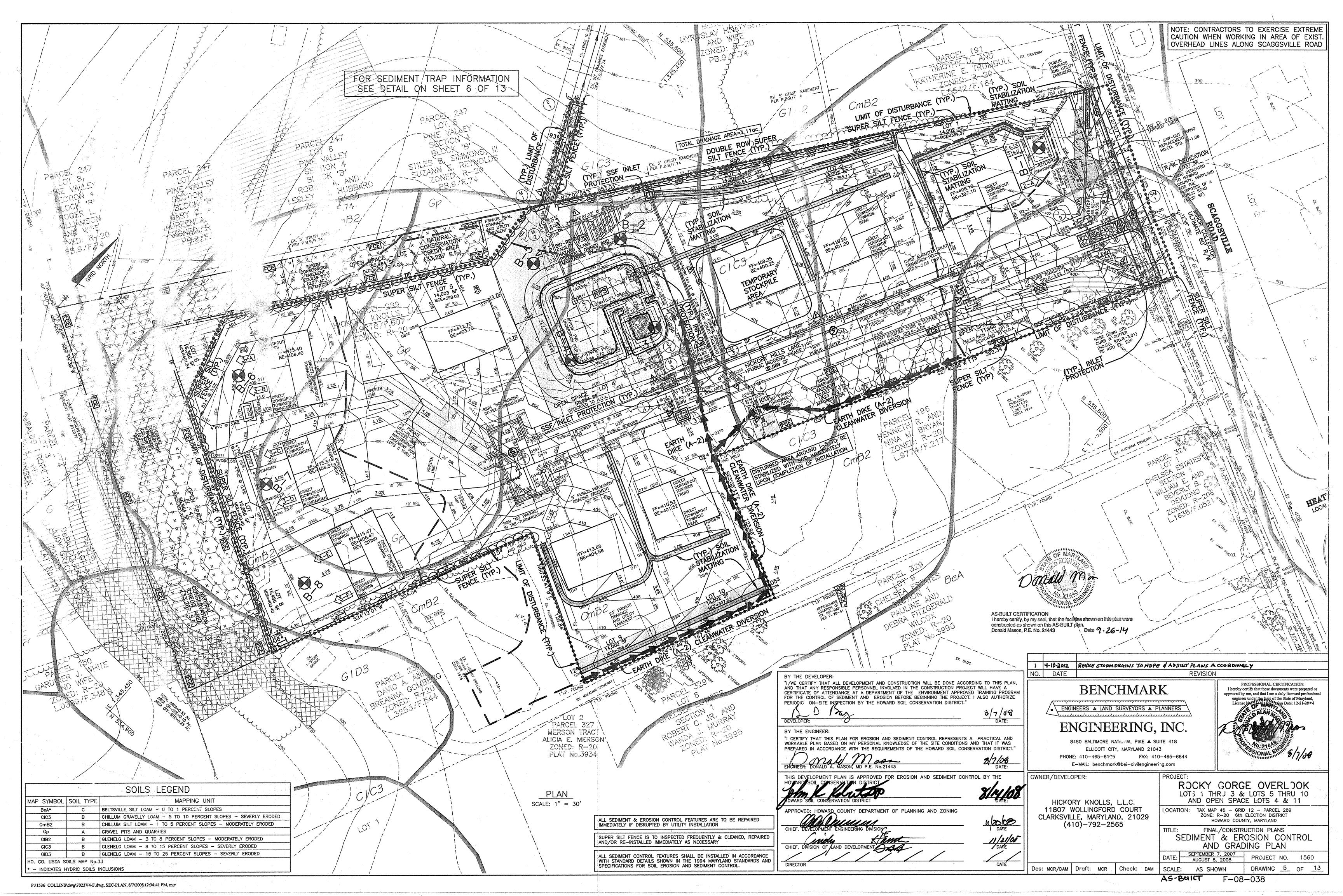
AND OPEN SPACE LOTS 4 & 11 LOCATION: TAX MAP 46 - GRID 12 - PARCEL 289

ZONE: R-20 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND FINAL/CONSTRUCTION PLANS ROADWAY PROFILE

NOTES AND DETAILS DATE: SEPTEMBER 7, 2007 PROJECT NO. 1560 DRAWING 3 OF 13 AS SHOWN

AS-BUICT F-08-038





21.0 STANDARD AND SPECIFICATIONS FOR TOPSOIL

Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation

To provide a suitable medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil

Conditions Where Practice Applies

This practice is limited to areas having 2:1 or flatter slopes where:

- a. The texture of the exposed subsoil/parent material is not adequate to produce
- b. 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.
- c. The original soil to be vegetated contains material toxic to plant growth
- d. The soil is so acidic that treatment with limestone is not feasible. II. For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans

Construction and Material Specifications

Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA—SCS in cooperation with Maryland Agricultural Experimental Station.

Topsoil Specifications — Soil to be used as topsoil must meet the following

- i. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 1/2"
- ii. Topsoil must be free of plants or plant parts 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 operations as described in the following procedures.

III. For sites having disturbed areas under 5 acres:

- i. Place topsoil (if required) and a say soil amendments as specified in 20.0 Vegetative Stabilization — Section I — Vesctative Stabilization Methods and Materials. V. For sites having disturbed areas over 5 acres
- i. 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 demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.
- b. Organic content of topsoil shall be not less than 1.5 percent by weight.
- c. Topsoil having soluble salt content greater than 500 parts per million shall not be used.
- d. No sod or seed shall be placed on soil which has been treated with soil sterilants or cher icals 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 natural topsoil.
- ii. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.
- i. When topsoiling, maintain needed erosion and sediment control practices such as diversion, Grade Stabilization Scructures, Earth Dikes, Slope Silt Fence and Sediment Traps and Basins.
- ii. Grades on the greas to be topsoiled, which have been previously established, shall be maintained, albeit 4" - 8" nigher 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 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.
- 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
- 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:
- i. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribed 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 Maryland Department of the
- Environment under COMAR 26.04.06.
- b. 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.

iv. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000

- c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.
- square feet, and 1/3 the normal lime application rate.
- Guideline Specifications, Soil Preparation and Sodding. MD-VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

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 damage, health hazards, and improve traffic safety. Conditions Where Practice Applies

Temporary Methods

1. Mulches - See standards for vegetative stabilization with mulches only. Mulch should be crimped or tracked to prevent blowing.

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

- Vegetative Cover See standards for temporary vegetative cover.
- 3. Tillage To roughen surface and bring clods to the surface. This is an emergency measure which should be used before soil blowing starts. Begin plowing on windward side of site. Chisel—type plows spaced about 12" apart, spring—toothed harrows, and similiar plows are examples of equipment which may produce the desired effect.
- Irrigation This is generally done as an emergency treatment. Site is sprinkled with water until the surface is moist. Repeat as needed. At no time should the site be irrigated to the point that runoff begins to flow.
- 5. Barriers Solid board fences, silt fences, snow fences, burlap fences, straw bales, and similiar 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
- stabilization 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
- Agriculture Handbook 346. Wind Erosion Forces in the United States and Their Use in Predicting Soil Loss. 2. Agriculture Information Bulletin 354. How to Control Wind Erosion, USDA-ARS.

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY

OR GRADED AREAS ON THE PROJECT SITE.

ESTABLISHMENT OF GRASSES.

SEDIMENT CONTROL NOTES

- DEPARTMENT OF INSPECTIONS AND PERMITS SEDIMENT CONTROL DIVISION PRIOR ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING
- TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR EMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 7 CALENDAR DAYS

FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES

AND ALL SLOPES GREATER THAN 3:1, B) 14 DAYS AS TO ALL OTHER DISTURBED

- 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.
- 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). TEMPÒRARY STARILIZATION WITH MUI CH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND
- 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.

_ ACRES

ACRES

- TOTAL AREA OF SITE TOTAL AREA DISTURBED AREA TO BE ROOFED OR PAVED 2.90 ACRES AREA TO BE VEGETATIVELY STABILIZED <u>J</u> CU. YDS. TOTAL CUT TOTAL FILL
- 8. 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
- 10. 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.
- 11 TRENCHES FOR THE CONSTRUCTION OF UTILITIES ARE LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN BE BACK FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.
- * IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO IDENTIFY AN OFF-SITE SPOIL AREA WITH AN APPROVED SEDIMENT & EROSION CONTROL PLAN AND PERMIT.

TEMPORARY SEEDBED PREPARATION

APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE REDISTURBED WHERE A

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

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 (.07 LBS/1000 SQ FT). FOR HE PERIOD NOVEMBER 16 THROUGH FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOD.

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 GALLONS PER ACRE

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

PERMANENT SEEDBED PREPARATION

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

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

 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 TIME OF SEEDING, APPLY 400 LBS PER ACRE 30-0-0- UREAFORM FERTILIZER (9 LBS/1000 SQ

ACCEPTABLE - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ FT) AND 1000 LBS PER ACRE 10-10-10 FERTILIZER (23 LBS/1000 SQ FT) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL.

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 BS/1000 SQ FT) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER THROUGH FEBRUARY 28, PROTECT SITE BY: OPTION (1) 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING OPTION (2) LISE SOD OPTION (3) SEED WITH 60 LRS PER ACRE OF KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS PER ACRE OF WELL

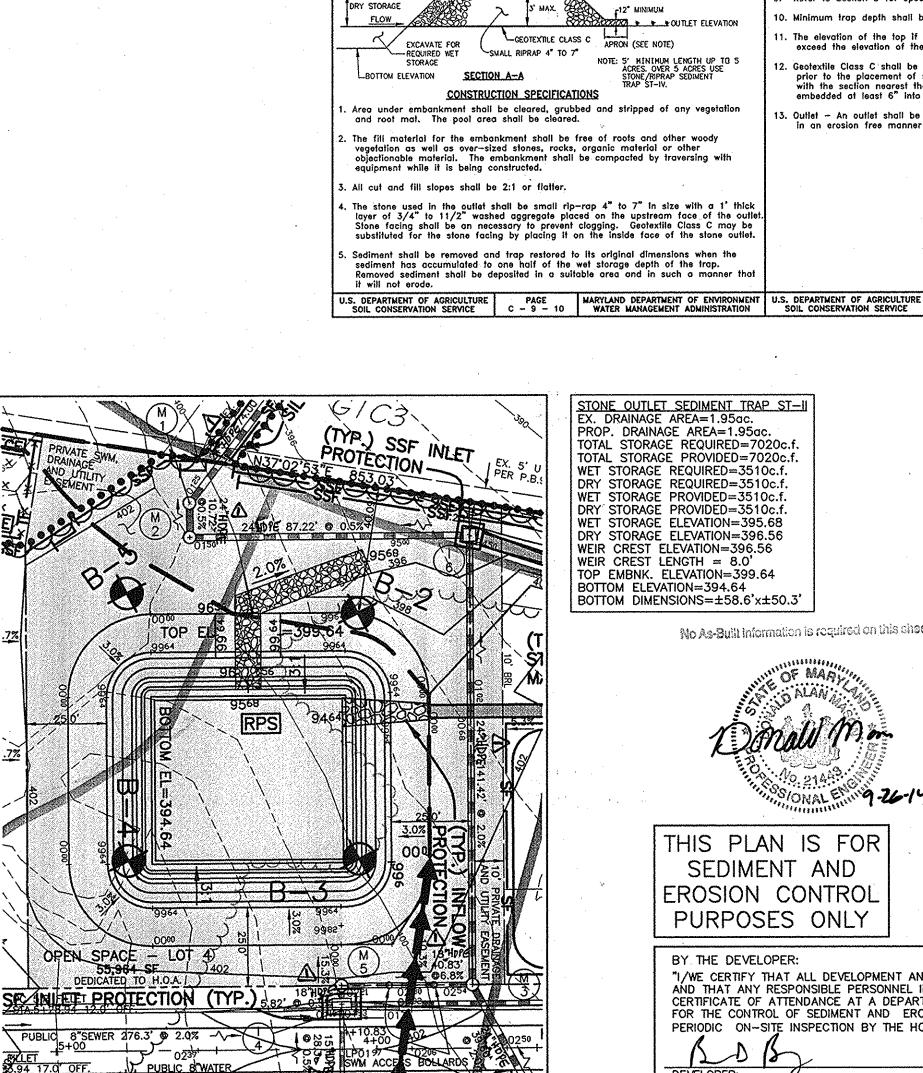
MULCHING: APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ FT) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ FT) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ FT) FOR ANCHORING.

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

SEQUENCE OF CONSTRUCTION NOTIFY SEDIMENT CONTROL DIVISION 48 HOURS

PRIOR TO START OF CONSTRUCTION ACTIVITY

- OBTAIN GRADING PERMIT
- INSTALL CONSTRUCTION ENTRANCE; CLEAR & GRUB FOR PERIMETER DAY 2-5 SEDIMENT CONTROL DEVICES
- INSTALL PERIMETER SEDIMENT CONTROL DEVICES; INSTALL STORM DRAIN
- RUN FROM I-5, M-4, M-3, I-6, M-2, M-1, TO E-1 (OFFSITE BYPASS)
 THIS ACTIVITY TO OCCUR WITHIN A FIVE(5) DAY CLEAR WEATHER (NO PRECIPITATION) FORECST BY THE NATIONAL WEATHER SERVICE(NWS); UPON COMPLÉTION INSTALL SOST SEDIMENT TRAP & PRELIMINARY STABILZE THE OUTFALLS AND DISTURBED AREAS
- TEST PIT AREA OF EXISTING UTILITY CONNECTIONS TO DETERMINE EXACT LOCATIONS AND ELEVATIONS: RAZE EXISTING STRUCTURES.
- UPON APPROVAL OF HOWARD COUNTY SEDIMENT CONTROL INSPECTOR. CLEAR & GRUB REMAINDER OF SITE AND COMPLETE MASS GRADING
- BEGIN INSTALLATION OF PROPOSED UTILITIES AND BRING PROP. ROADWAY TO SUBGRADE; TIE ENTRANCE INTO EX. ROADWAY
- STABILIZE SITE IN ACCORDANCE WITH TEMPORARY SEEDBED NOTES. BRING REMAINING ROADWAY TO SUBGRADE AND FINISH INSTALLING BASE
- COURSE PAVING. FINAL GRADE REMAINDER OF SITE AND STABILIZE IN ACCORDANCE WITH PERMANENT SEEDING NOTES.
- INSTALL REQUIRED LANDSCAPING AS SPECIFIED ON THESE PLANS UPON APPROVAL OF HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, CONVERT SOST SEDIMENT TRAP TO BIO-RETENTION FACILITY, INSTALL
- REMAINING SWM BMP PRACTICES AND PERMANENTLY STABILIZE SLOPES DAY 106-110 UPON APPROVAL OF HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE REMAINING SEDIMENT CONTROL DEVICES AND PERMANENTLY STABILIZE ANY REMAINING DISTURBED AREAS.



DIKF (A-2) 1+0298

ALL SEDIMENT & EROSION CONTROL FEATURES ARE TO BE REPAIRED

SUPER SILT FENCE IS TO INSPECTED FREQUENTLY & CLEANED, REPAIRED

ALL SEDIMENT CONTROL FEATURES SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD DETAILS SHOWN IN THE 1994 MARYLAND STANDARDS AND

IMMEDIATELY IF DISRUPTED BY UTILITY INSTALLATION

AND/OR RE-INSTALLED IMMEDIATELY AS NECESSARY

SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.

SEDIMENT TRAP (SOST II)

PLAN DETAIL

SCALE: 1'' = 30'

DETAIL 20A - REMOVABLE PUMPING STATION

2005

000

0000

0000

8000

ELEVATION (CUT AWAY)

The outer pipe should be 48" dio, or shall, in any case, be at least 4" greater
in diameter than the center pipe. The outer pipe shall be wrapped with 1/2" hardware
cloth to prevent backfill material from entering the perforations.

Construction Specifications

After installing the outer pipe, backfill around outer pipe with 2" aggregate or clean gravel.

3. 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 "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, than wrapped again with Geotextile Class C

DETAIL 9 - STONE OUTLET SEDIMENT TRAP - ST II

The center pipe should extend 12" to 18" above the anticipated water surface elevation or riser crest elevation when dewatering a basin.

WEIR CREST

WEIR LENGTH

SECTION B-B

STANDARD SYMBOL

⊠ RPS

HOOK AND CHAIN FOR REMOVAL

12" — 36" pipe wropped w/ 1/2' hardware cloth and Geotextil Class 'E'

NOTE: 5' MINIMUM LENGTH UP TO 5

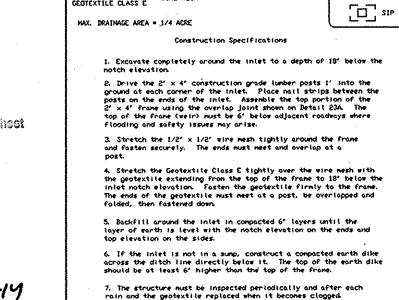
DRY STORAGE REQUIRED=3510c.f WET STORAGE PROVIDED=3510c.f. PROVIDED=3510c.f. DRY STORAGE WET STORAGE ELEVATION=395.68 DRY STORAGE ELEVATION=396.56 WEIR CREST ELEVATION=396.56 WEIR CREST LENGTH = 8.0' TOP EMBNK. ELEVATION=399.64 BOTTOM ELEVATION=394.64 BOTTOM DIMENSIONS=±58.6'x±50.3

No As-Built information is required on this sinest



SEDIMENT AND EROSION CONTROL PURPOSES ONLY

DIRECTOR



EOTEXTILE CLASS E

THIS PLAN IS FOR

U.S. DEPARTMENT OF ACRICULTURE PAGE MARYLAND DEPARTMENT OF ENVIRONMENT SOIL CONSERVATION SERVICE E - 16 - 5 VATER MANAGEMENT ADMIDISTRATION NOTE: CONTRACTORS TO EXERCISE EXTREME CAUTION WHEN WORKING IN AREA OF EXIST. OVERHEAD LINES ALONG SCAGSVILLE ROAD

DETAIL 23A - STANDARD INLET PROTECTION

TOP ELEVATION m

-NOTCH ELEVATION

BY THE DEVELOPER: 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." 8/7/08 DEVELOPER: DATE: BY THE ENGINEER: I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND

DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE

PROFILE

PLAN VIEW

Construction Specifications

2. Width- 10' minimum, should be flored at the existing road to provide a turning

3. Geotextile fobric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family

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

5. Surface Water - all surface water flowing to or diverted toward construct

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

STONE OUTLET SEDIMENT TRAP - ST II

CONSTRUCTION SPECIFICATIONS

The structure shall be inspected periodically and after each rain and repairs made

Construction of traps shall be carried out in such a manner that sediment pollut is abated. Once constructed, the top and outside face of the embankment shall be stabilized with seed and mulch. Points of concentration inflow shall be protected

In accordance with grade stabilization structure criteria. The remainder of the interior slopes should be stabilized (one time) with seed and mulch upon trap

The Structure shall be dewatered by approved methods, removed and the area

. The elevation of the top if any dike directing water into the trap must equal or

12. Geotextile Class C shall be placed over the bottom and sides of the outlet channel prior to the placement of stone. Sections of filter cloth must overlap at least 1' with the section nearest the entrance placed on top. The filter cloth shall be embedded at least 6" into existing ground at the entrance of the outlet channel.

Outlet - An outlet shall be provided, including a means of conveying the discharge in an erosion free manner to an existing stable channel.

Refer to Section D for specifications concerning trap dewatering.

10. Minimum trap depth shall be measured from the weir elevation.

completion and monitored and maintained erosion free during the life of the trap.

occording 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

1. Length - minimum of 50' (*30' for single residence lot).

*50' MINIMUM LENGTH

**GEOTEXTILE CLASS *C*

residence to use geotextile.

STANDARD SYMBOL

SCE S

J.S. DEPARTMENT OF AGRICULTURE PAGE MARYLAND DEPARTMENT OF ENVIRONMENT U.S. DEPARTMENT OF AGRICULTURE PAGE MARYLAND DEPARTMENT OF ENVIRONMENT SOIL CONSERVATION SERVICE F - 17 - 3 WATER MANAGEMENT ADMINISTRATION

- EXISTING PAVEMENT

THIS DEVELOPMENT PLAN IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE

COUNTY DEPARTMENT OF PLANNING AND ZONING Ham CHIEF, DIVISION OF LAND DEVELOPMENT

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. 3005/11

GROUND SURFACE XXX FLOW FLOW STANDARD SYMBOL PERSPECTIVE VIEW _2~1'/'2~" Dia. CALVANIZED OR ALUMINUM FENCE POST FLOW EMBED FILTER CLOTH JUIN. 8" INTO GROUND

SECTION

E OW

TO THE PROPERTY OF THE PARTY OF

SECTION

EMBED GEOTEXTILE CLASS F A MINIMUM OF 8" VERTICALLY

PERSPECTIVE VIEW

10' MAXIMUM CENTER TO CENTER

FLOW

DETAIL 22 - SILT FENCE

PAGE MARYLAND DEPARTMENT OF ENVIRONMENT
H - 26 - 3 WATER MANAGEMENT ADMINISTRATION

- 36" MINIMUN LENGTH FENCE POS

-----SF-----

36" MINIMUM FENCE

FENCE POST SECTION

FENCE POST DRIVEN

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

ECTION A

KIND AND AND AND SHIT

TOP VIEW

EDGE OF ROADVAY OR T OF EARTH DIKE

STANDARD SYMBOL

FENCE SECTIONS

DETAIL 33 - 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 fence. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section. Filter cloth shall be embedded a minimum of 8" into the ground. When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded Maintenance shall be performed as needed and silt buildups removed when "builges' develop in the silt fence, or when silt reaches 50% of fence height

SUPER SILT FENCE

50 lbs/in (min.) 20 lbs/in (min.) 0.3 gai/ft /minute (max.) 75% (min.)

PAGE MARYLAND DEPARTMENT OF ENVIRONMEN E - 26 - 3A WATER MANAGEMENT ADMINISTRATION

OF 2" X 4"

SUPER SILT FENCE DESIGN CRITERIA

Silt Fence Length Steepness (maximum) 0 - 10% 0 - 10:1Unlimited Unlimited 1,500 feet 10 - 20% 10:1 - 5:1 200 feet 5:1 - 3:1 20 - 33% 100 feet 1,000 feet 33 - 50% 100 feet `3:1 - 2:1 500 feet 2:1 + 50 feet 250 feet

SILT FENCE DESIGN CRITERIA

SILT FENCE

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

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

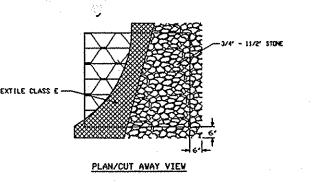
CONSTRUCTION NOTES FOR FABRICATED SILT FENCE Fence posts shall be a minimum of 36" long driven 16" minimum into the ground Wood posts shall be 11/2" x 11/2" square (minimum) cut, or 13/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighing not less than 1.00 pond per linear toot. Geotextile shall be fastened securely to each fence post with wire ties or staples

AGIP

DETAIL 23C - CURB INLET PROTECTION (COG OR COS INLET DETAIL 23B - AT GRADE INLET PROTECTION

6" MAXIMUM SPACING OF 2" X 4" SPACERS

2" X 4" ANCHORS



Construction Specifications

MAX. DRAINAGE AREA # 1/4 ACRE 46" - 3/4" - 11/2" STONE . Attach a continuous piece of wire mesh (30" minimum width by throat length plus to the 2° x 4° weir (measuring throat length plus 2') as shown on the standard

. Place a continuous piece of Ceotextile Class E the same dimensions as the wire less over the wire mesh and securely attach it to the 2" x 4" weir. 3. Securely not the 2° \times 4° wer to a 9° long vertical spacer to be located between the weir and the lefet face (max. 4' apart). 4. Place the assembly against the inlet throat and noil (minimum 2' lengths of $2^{\prime\prime}$ x 4" to the top of the weir at spacer locations). These $2^{\prime\prime}$ x 4" anchors shall extend across the inlet top and be held in place by sandbags or alternate weight. CROSS SECTION

5. The assembly shall be placed so that the end-spacers are a minimum 1' beyond both ends of the throat opening. 8. Form the 1/2 "x 1/2" wire mesh and the geotextile fabric to the concrete gutter and against the face of the curb on both sides of the inlet. Place clean 3/4 "x 1 1/2" stone over the wire mesh and geotextile in such a manner to prevent water from entering the inlet under or around the geotextile. Lift grate and wrap with Geotextile Class E to completely cover all openings,

Construction Specifications

7. This type of protection must be inspected frequently and the fifter cloth and stone replaced when clagged with sediment, ${\bf r}$ Place 3/4" to 11/2" stone, 4"-6" thick on the grate to secure the fabric and

U.S. DEPARTMENT OF AGRICULTURE PAGE MARYLAND DEPARTMENT OF ENVIRONMENT U.S. DEPARTMENT OF AGRICULTURE PAGE MARYLAND DEPARTMENT OF ENVIRONMENT SOIL CONSERVATION SERVICE E - 16 - 58 VATER MANAGEMENT ADMINISTRATION SOIL CONSERVATION SERVICE E - 16 - 58 VATER MANAGEMENT ADMINISTRATION

4-10-2012 REVISE STORM DRAIN TO HOPE & ADJUST PLANS ACCORDINGLY NO. DATE

PROFESSIONAL CERTIFICATION: **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 E-MAIL: benchmark@bei-civilengineering.com

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed profession engineer under the laws of the State of Maryland, License Nav 21441; Expiration Date: 12-21-2014

HICKORY KNOLLS, L.L.C. 11807 WOLLINGFORD COURT CLARKSVILLE, MARYLAND, 21029 (410)-792-2565

ROCKY GORGE OVERLOOK LOTS 1 THRU 3 & LOTS 5 THRU 10 AND OPEN SPACE LOTS 4 & 11 TAX MAP 46 - GRID 12 - PARCEL 289

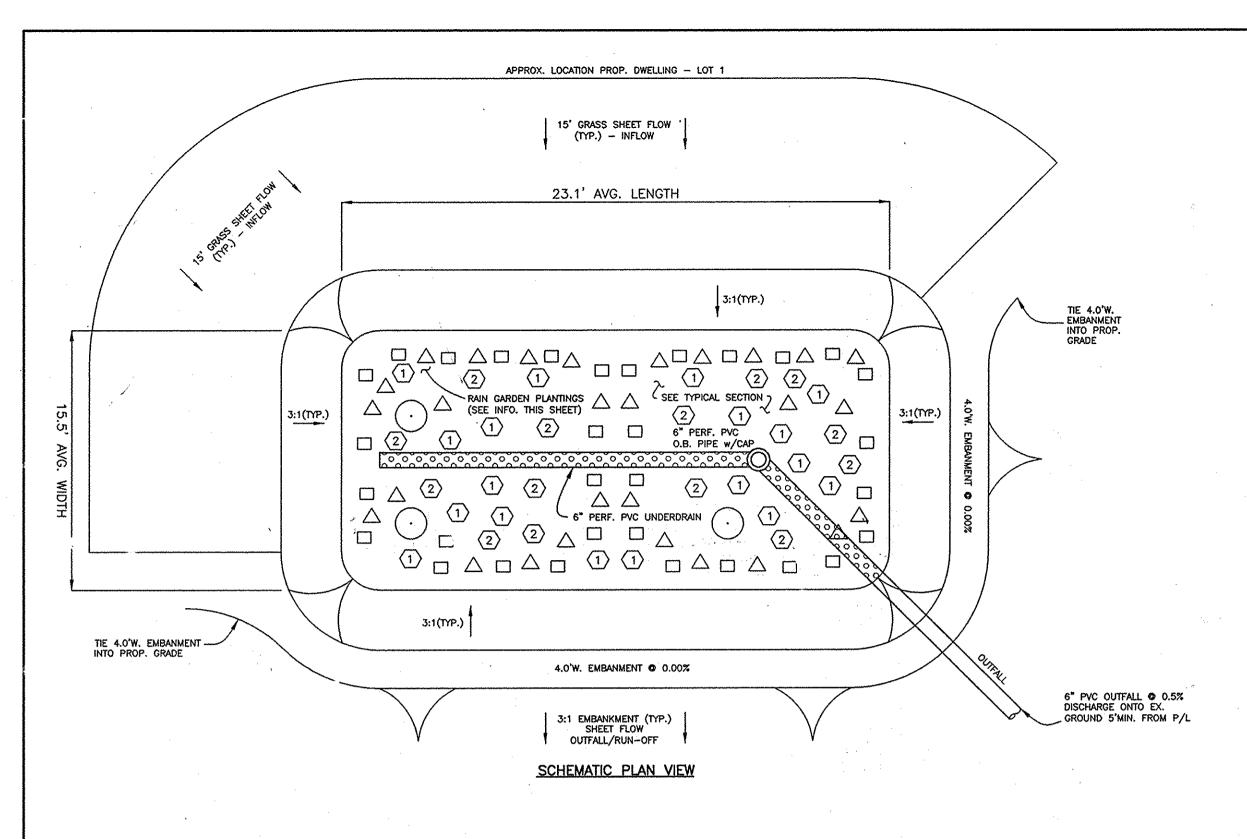
ZONE: R-20 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND FINAL/CONSTRUCTION PLANS SEDIMENT & EROSION CONTROL NOTES AND DETAILS

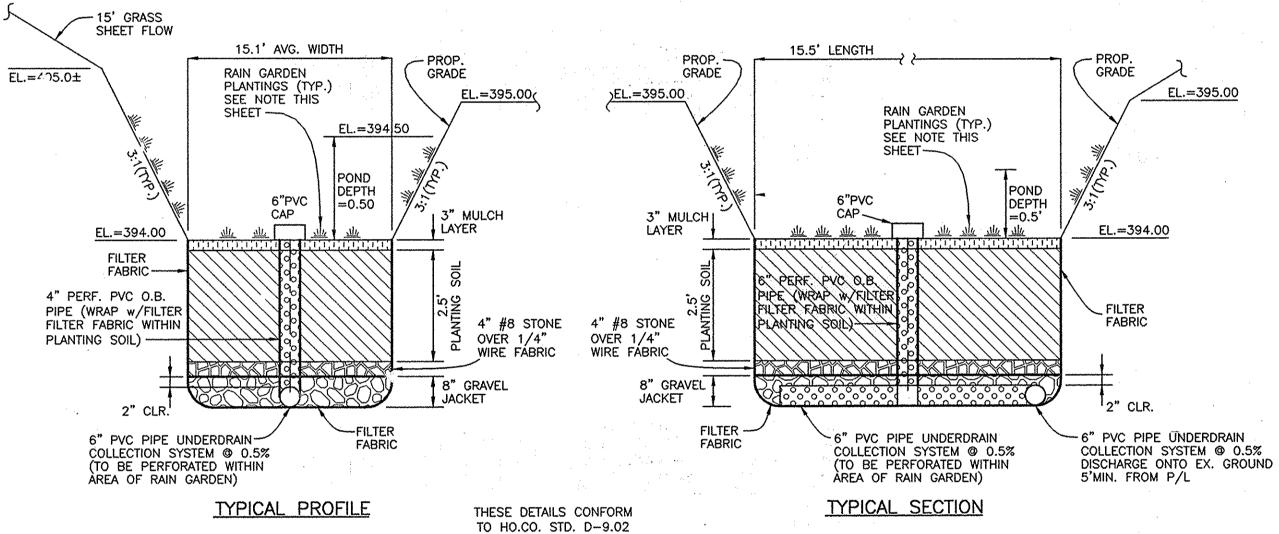
DATE: SEPTEMBER 7, 2007
AUGUST 8, 2008 Check: DAM Des: MCR/DAM | Draft: MCR

DRAWING <u>6</u> OF <u>13</u> AS SHOWN AS-BUILT F-08-038

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PROJECT NO. 1560





BIO-RETENTION

(RAIN GARDEN-BMP) LOT 1 NOT TO SCALE

MATERIALS &	c SPECIFICATION	NS FOR B	IO-RETENTION (RAINGARDEN-BMP)
MATERIAL	SPECIFICATION	SIZE	NOTES:
PLANTINGS	SEE APPENDIX A; TABLE A.4	N/A	PLANTINGS ARE SITE SPECIFIC
PLANTING SOIL (2.5' TO 4.0' DEEP)	SAND: 30-60% SILT: 30-55% CLAY: 0-25%	N/A	USDA SOIL TYPES: LOAMY SAND, SANDY LOAM OR LOAM
MULCH	SHREDDED HARDWOOD	N/A	AGED 6 MONTHS, MINIMUM
GEOTEXTILE (CLASS "C")	APPARENT OPENING SIZE: (ASTM D-4751) GRAB TENSILE STRENGTH: (ASTM D-4632) PUNCTURE RESISTANCE: (ASTM D-4833)	N/A	FOR USE AS NECESSARY BENEATH UNDERDRAINS ONLY
GEOTEXTILE (1/4" WIRE MESH)		1/4" WIRE MESH	1/4" WIRE MESH
DRAIN STONE		#8 STONE	#8 STONE
UNDERDRAIN GRAVEL	AASHTO M-43	0.375" TO 0.750"	
UNDERDRAIN PIPING	F758, TYPE PS28 OR AASHTO M-278	4" TO 6" RIGID SCH.40 PVC, SDR35 OR HDPF	3/8" PERF. @ 6" O/C, 4 HOLES PER ROW; MINIMUM OF 3" OF GRAVEL OVER PIPES, NOT NECESSARY UNDERNEATH PIPES

OPERATION & MAINTENANCE SCHEDULE FOR BIO-RETENTION (RAINGARDEN-BMP)

1. ANNUAL MAINTENANCE OF PLANT MATERIAL AND MULCH LAYER IS REQUIRED. MAINTENANCE OF MULCH IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH-OUT. ANY REPLACEMENT OF MULCH SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE & INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL & PRUNING.

2. SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN THE SPRING AND FALL. THIS INSPECTION WILL INCLUDE; REMOVAL OF DEAD & DISEASED VEGETATION CONSIDERED BEYOND TREATMENT; TREATMENT OF ALL DISEASED TREES & SHRUBS; AND REPLACEMENT OF ALL DEFICIENT STAKES & WIRES. 3. MULCH SHALL BE INSPECTED EACH SPRING. REMOVE THE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS. 4. SOIL EROSION TO BE ADDRESSED ON AN AS-NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.

BIO-RETENTION (RAINGARDEN-BMP) PLANTING DATA

ON LOT FACILITIES ARE AS-BUILT

UNDER GRADE CERT. FOR HOUSES

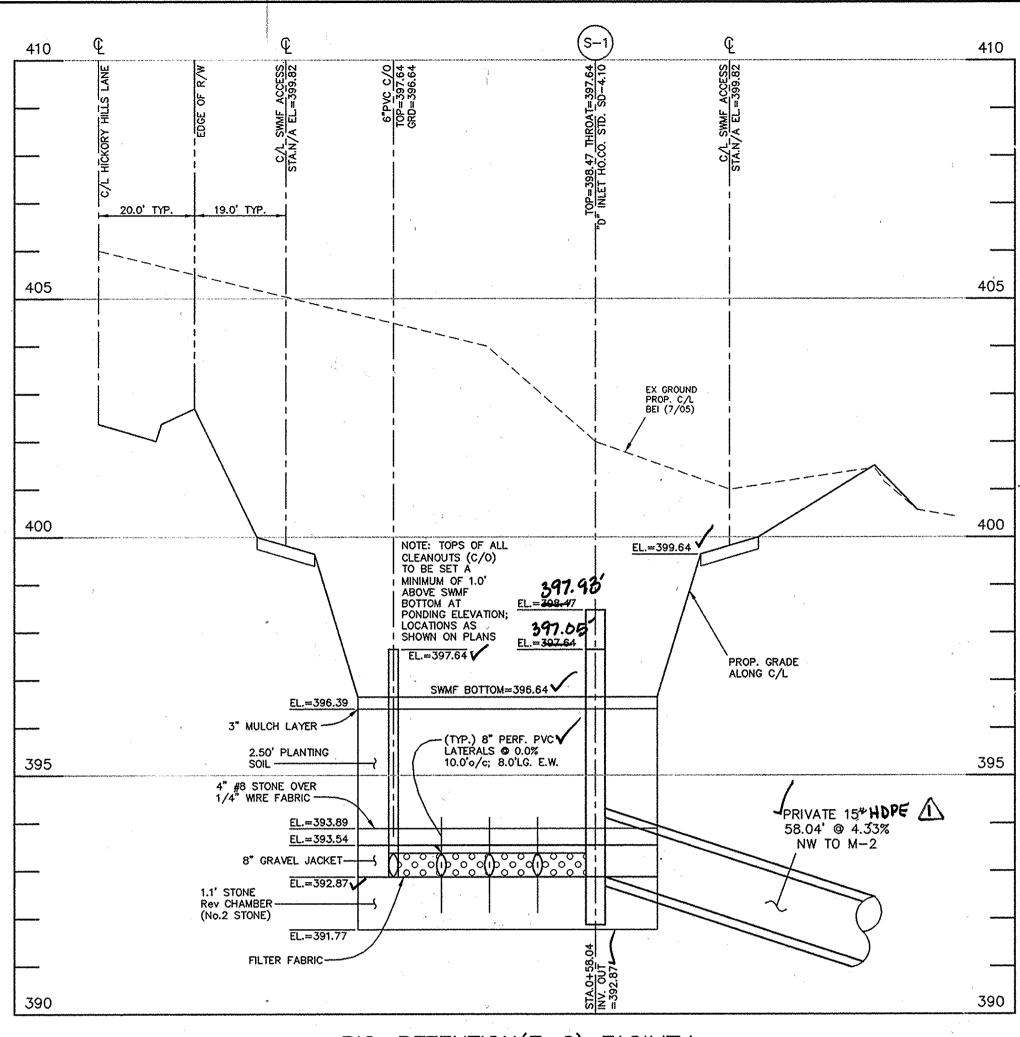
1. PLANTINGS WITHIN THE PONDING AREA OF THE RAIN GARDEN ARE TO BE OF A MEDIUM TO HIGH WATER TOLERANCE CREEPING BUGLEWEED (AJUGA REPTANS) COMMON PERIWINKLE (VINCA MINOR) LILY-TURF (LIRIOPE, SP.)

2. PLANTINGS ALONG THE PERIMETER (BERM) AREA OF THE RAIN GARDEN ARE TO BE OF A LOW TO MEDIUM WATER TOLERANCE SUGGESTED SPECIES: (PERENNIALS/ANNUALS) IRIS (IRIS VERSICOLOR) DAYLILY (HEMEROCALLIS SP.) WHITE GLORY (ASTIBLE SP.)

3. AVOID PLANTINGS WITH EXCESSIVE ROOT MASS IN POND AREA OF THE RAIN GARDEN NEAR O.B. PIPE AND UNDERDRAIN.

BIO-RETENTION (RAINGARDEN-BMP) PLANTING SCHEDULE

\supset	VINCA MINOR (COMMON PERIWINKLE)	34
$\overline{2}$	AJUSTA REPTAN S (CREEPING BUGLEWEED)	30
	IRIS VERSICOLOR (IRIS)	16
2	HEMEROCALLIS SP (DAYLILY)	14
$\widehat{\cdot}$	ACER RUBRUM (RED MAPLE)	3



BIO-RETENTION(F-6) FACILITY PROFILE VIEW - TYPICAL SECTION HORIZONTAL SCALE: 1" = 20' VERTICAL SCALE: 1" = 2'

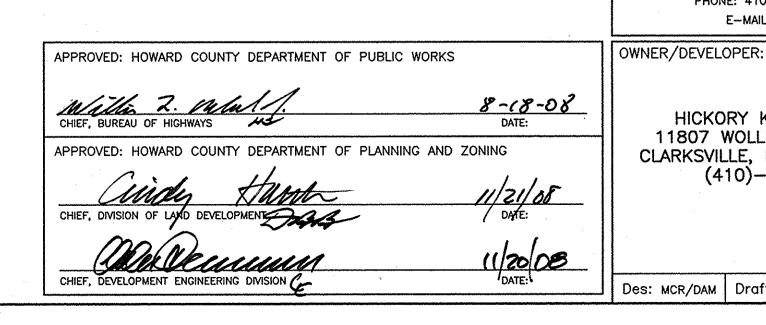
		*	
TABLE B.3.	2 MATERIALS	AND SPEC	IFICATIONS FOR BIO-RETENTION
MATERIAL	SPECIFICATION	SIZE	NOTES:
PLANTINGS (IF REQUIRED)	SEE APPENDIX A; TABLE A.4	N/A	PLANTINGS ARE SITE SPECIFIC
PLANTING SOIL (2.5' TO 4.0' DEEP)	SAND: 35-60% SILT: 30-35% CLAY: 10-25%	N/A	USDA SOIL TYPES: LOAMY SAND, SANDY LOAM OR LOAM
MULCH	SHREDDED HARDWOOD	N/A	AGED 6 MONTHS, MINIMUM
PEA GRAVEL DIAPHRAGM AND CURTAIN DRAIN	PEA GRAVEL: ASTM D-448 ORNAMENTAL STONE: WASHED COBBLES	PEA GRAVEL: NO.6 STONE: 2" TO 5"	
GEOTEXTILE (CLASS "C")	APPARENT OPENING SIZE: (ASTM D-4751) GRAB TENSILE STRENGTH: (ASTM D-4632) PUNCTURE RESISTANCE: (ASTM D-4833)	N/A	FOR USE AS NECESSARY BENEATH UNDERDRAINS ONLY
GEOTEXTILE (1/4" WIRE MESH)		1/4" WIRE MESH	1/4" WIRE MESH
DRAIN STONE	_	#8 STONE	#8 STONE
UNDERDRAIN GRAVEL	AASHTO M-43	0.375" TO 0.750"	`
UNDERDRAIN PIPING	F758, TYPE PS28 OR AASHTO M-278	4" TO 6" RIGID SCH.40 PVC OR SDR35	3/8" PERF. © 6" O/C, 4 HOLES PER ROW; MINIMUM OF 3" OF GRAVEL OVER PIPES, NOT NECESSARY UNDERNEATH PIPES
POURED-IN-PLACE CONC. (IF REQUIRED)	MSHA MIX NO.3; f'c=3500psi	N/A	ON-SITE TESTING OF POURED-IN-PLACE CONC. REQUIRED; 28 DAY STRENGTH TEST AND SLUMP TEST: ALL CONC. DESIGN (CAST-IN-PLACE OF PRE-CAST) NOT USING PREVIOUSLY APPROVED STATE OR LOCAL STANDARDS REQUIRES DESIGN DRAWINGS SEALED AND APPROVED BY A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE OF MARYLAND. — DESIGN TO INCLUDE MEETING ACI CODE 350.R/89: VERTICAL LOADING (H-10 of H-20) ALLOWABLE HORIZONTAL LOADING (BASED ON SOIL PRESSURES); AND ANALYSIS OF POTENTIAL CRACKING
SAND (1.0' DEEP)	AASHTO M-6 OR ASTM C-33	0.02" TO 0.04"	SAND SUBSTITUTIONS SUCH AS DIABASE AND GRAYSTONE#10 ARE NOT ACCEPTABLE. NO CALCIUM CARBONATED OR DOLOMITIC SAND SUBSTITUTIONS ARE ACCEPTABLE. NO "ROCK DUST" CAN BE USED FOR SAND

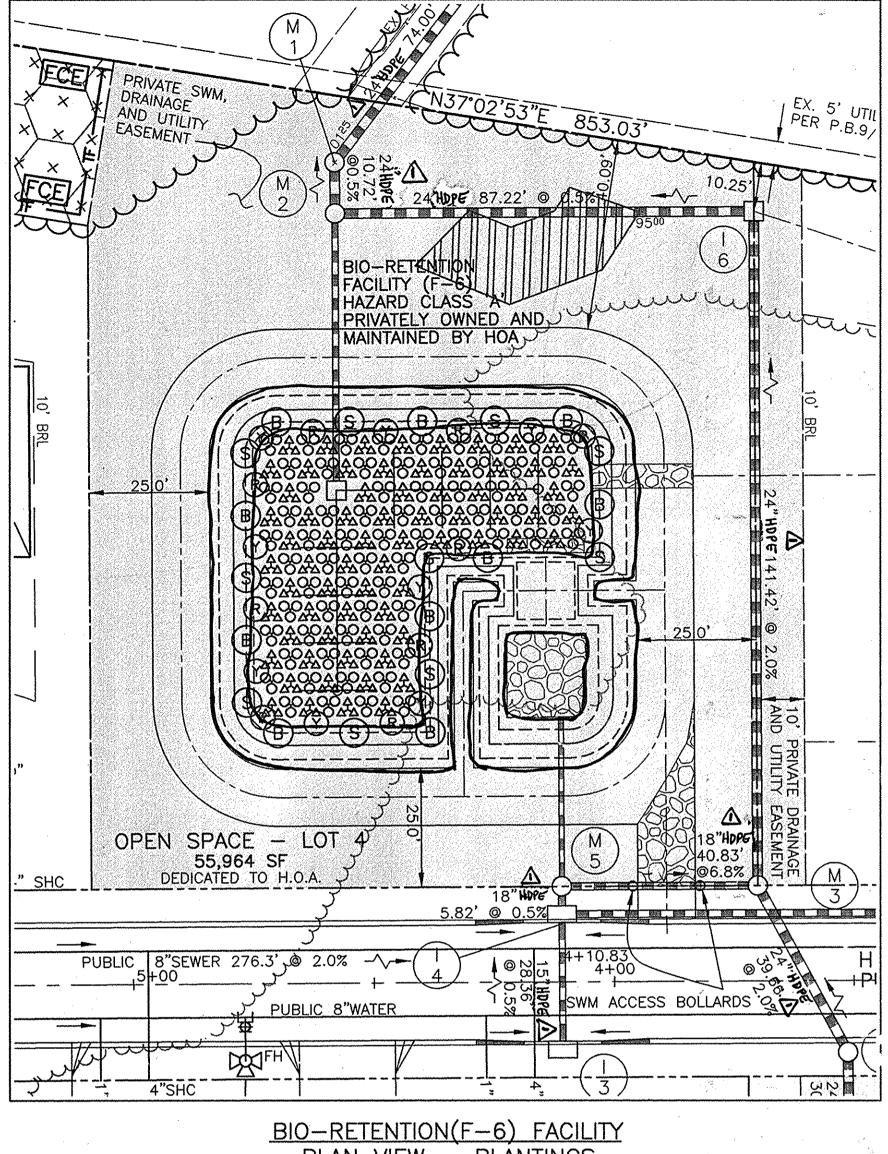
	BIO-RETENTION PLANTING LIST						
	SYMBOL	QUANTITY	NAME	REMARKS			
	В	10	CEPHALANTHUS OCCIDENTALIS "BUTTONBUSH"	5.0' — 6.0' HT. UNSHEARED			
	S	10	VIBURNUM DENTATUM "SOUTHERN ARROWOOD"	5.0' — 6.0' HT. UNSHEARED			
	\odot	9	ILEX VOMITORIA "YAUPON HOLLY"	2.0' — 2.5' HT. 15" —18" WIDTH 18" —24" SPACE MIN.			
, in the second	R	9	ANDROMEDIA POLIFOLIA "BOG ROSEMARY"	2.0' - 2.5' HT. 15" -18" WIDTH 18" -24" SPACE MIN.			
	80	69	ANDROPOGAN GLOMERATUS "BUSHY BEARDGRASS"	UP TO 12" WHIPS			
	₩.	69	SPARGANIUM EURYCARPIUM "GIANT BURWEED"	UP TO 12* WHIPS			

BIO-RETENTION LANDSCAPE DATA HYDROLOGIC ZONE 3 - REGULARLY INUNDATED SHORELINE FRINGE (HIGH MARSH)

HYDROLOGIC CONDITION - 0" TO 1'-0" DEEP HARDINESS - TEMPERATE ZONE 6b (-5' TO 0') SEE SHEET _ FOR SEQUENCE OF CONSTRUCTION

NOTE: REFER TO MDE 2000 MD STORMWATER DESIGN MANUAL VOLUMES 1 & 2 FOR LANDSCAPE CONTRACTOR RESPONSIBILITIES, PRACTICES AND MAINTENANCE DUTIES





PLAN VIEW - PLANTINGS SCALE: 1" = 20'

OPERATION & MAINTENANCE SCHEDULE FOR BIO-RETENTION AREAS

1. ANNUAL MAINTENANCE OF PLANT MATERIAL, MULCH LAYER AND SOIL LAYER IS REQUIRED. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH-OUT. ANY REPLACEMENT OF MULCH SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE & INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL & PRUNING.

2. SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN THE SPRING AND FALL. THIS INSPECTION WILL INCLUDE; REMOVAL OF DEAD & DISEASED VEGETATION CONSIDERED BEYOND TREATMENT; TREATMENT OF ALL DISEASED TREES & SHRUBS; AND REPLACEMENT OF ALL DEFICIENT STAKES & WIRES. 3. MULCH SHALL BE INSPECTED EACH SPRING. REMOVE THE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.

4. SOIL EROSION TO BE ADDRESSED ON AN AS-NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.



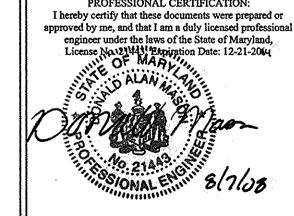
AS-BUILT CERTIFICATION I hereby certify, by my seal, that the facilities shown on the place were thereby certify, by my sear, that the transfer on this AS-BUILT plan.

	4-10-2012	REVISE STORMDRAIN TO HOPE & REVIS	E PLANS	Accordingly
NO.	DATE	RE	VISION	in the second
	,	BENCHMARK		PROFESSIONAL CERTIFICATION I hereby certify that these day license approved by me, and that I am a duly license approved by me, and that I am a fall State See a second se

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 E-MAIL: benchmark@bei-civilengineering.com



HICKORY KNOLLS, L.L.C. 11807 WOLLINGFORD COURT CLARKSVILLE, MARYLAND, 21029

(410) - 792 - 2565

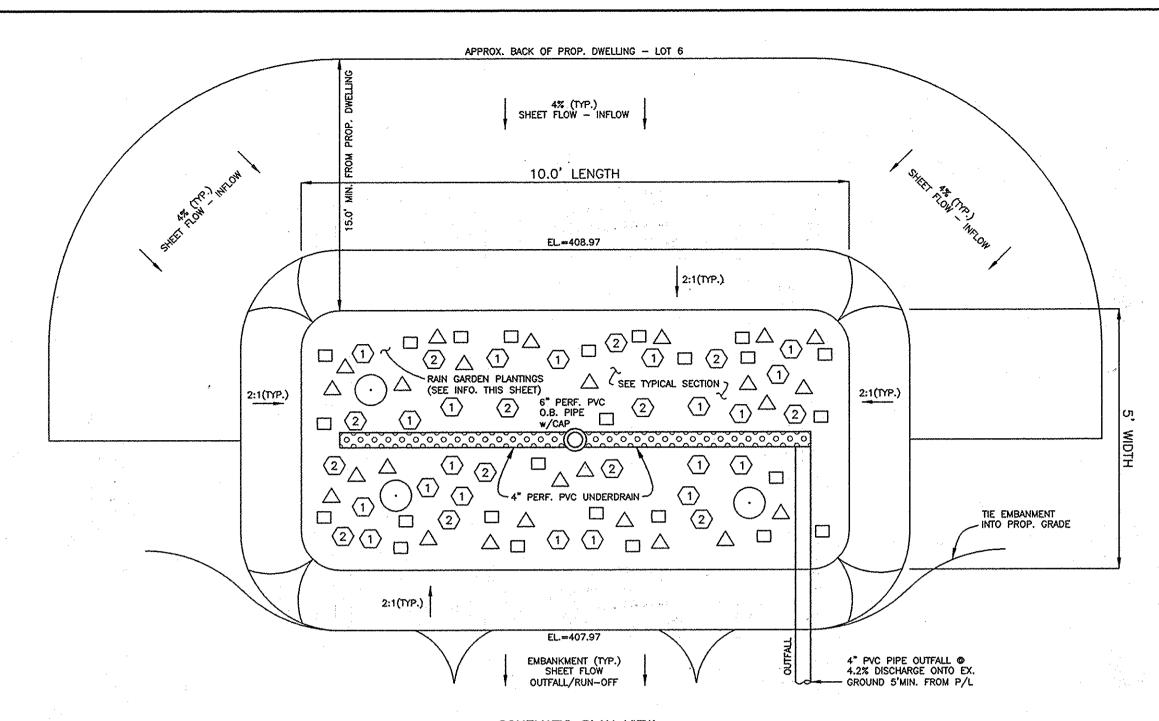
ROCKY GORGE OVERLOOK LOTS 1 THRU 3 & LOTS 5 THRU 10 AND OPEN SPACE LOTS 4 & 11 LOCATION: TAX MAP 46 - GRID 12 - PARCEL 289

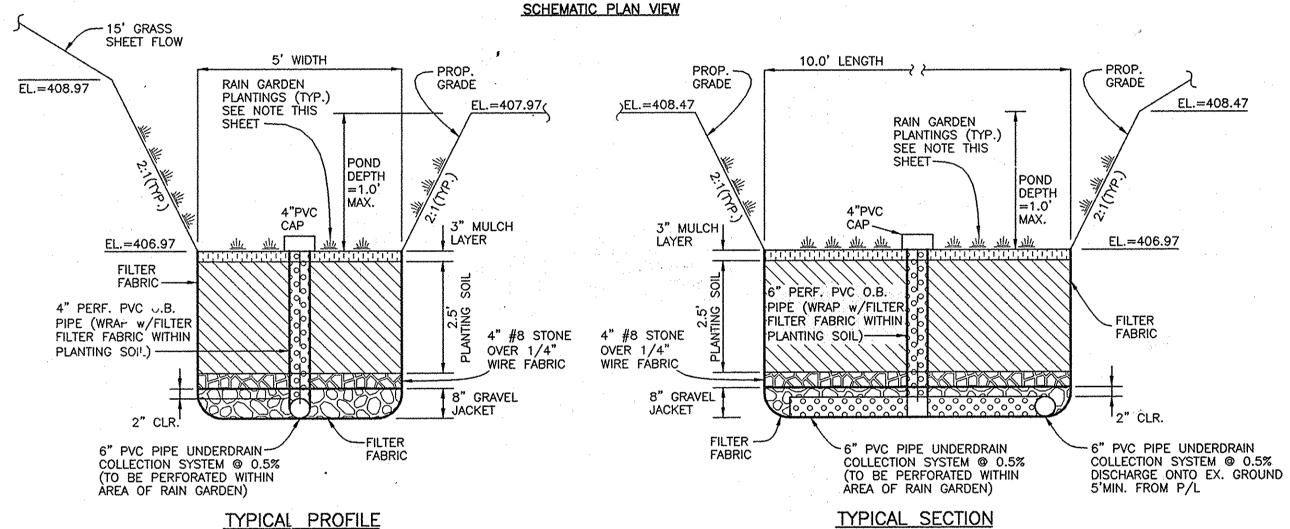
ZONE: R-20 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND FINAL/CONSTRUCTION PLANS

STORMWATER MANAGEMENT PROFILES, NOTES, AND DETAILS DATE: SEPTEMBER 7, 2007 PROJECT NO. 1560 DRAWING 7 OF 13

Des: MCR/DAM | Draft: MCR | Check: DAM AS SHOWN AS-BAILT F-08-038

P:\1536 COLLINS\dwg\7024V4-F.dwg, SWM-1, 8/7/2008 12:19:35 PM, mcr





THESE DETAILS CONFORM TO HO.CO. STD. D-9.02 RAIN GARDEN DETAIL - LOT 6

NOT TO SCALE

•	the second secon		
MATERIALS &	SPECIFICATION	NS FOR B	IO-RETENTION (RAINGARDEN-BMP)
MATERIAL	SPECIFICATION	SIZE	NOTES:
PLANTINGS	SEE APPENDIX A; TABLE A.4	N/A	PLANTINGS ARE SITE SPECIFIC
PLANTING SOIL (2.5' TO 4.0' DEEP)	SAND: 30-60% SILT: 30-55% CLAY: 0-25%	N/A	USDA SOIL TYPES: LOAMY SAND, SANDY LOAM OR LOAM
MULCH	SHREDDED HARDWOOD	N/A	AGED 6 MONTHS, MINIMUM
GEOTEXTILE (CLASS "C")	APPARENT OPENING SIZE: (ASTM D-4751) GRAB TENSILE STRENGTH: (ASTM D-4632) PUNCTURE RESISTANCE: (ASTM D-4833)	N/A	FOR USE AS NECESSARY BENEATH UNDERDRAINS ONLY
GEOTEXTILE (1/4" WIRE MESH)		1/4" WIRE MESH	1/4" WIRE MESH
DRAIN STONE	-	#8 STONE	#8 STONE
UNDERDRAIN GRAVEL	AASHTO M-43	0.375" TO 0.750"	
UNDERDRAIN PIPING	F758, TYPE PS28 OR AASHTO M-278	4" TO 6" RIGID SCH.40 PVC, SDR35 OR HDPE	3/8" PERF. @ 6" O/C, 4 HOLES PER ROW; MINIMUM OF 3" OF GRAVEL OVER PIPES, NOT NECESSARY UNDERNEATH PIPES

OPERATION & MAINTENANCE SCHEDULE FOR RAIN GARDENS ANNUAL MAINTENANCE OF PLANT MATERIAL AND MULCH LAYER IS REQUIRED. MAINTENANCE OF MULCH IN IMITED TO CORRECTING AREAS OF EROSION OR WASH-OUT. ANY REPLACEMENT OF MULCH SHALL BE DONE IN THE SPRING, PLANT MATERIAL SHALL BE CHECKED FOR DISEASE & INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL & PRUNING.

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4. SOIL EROSION TO BE ADDRESSED ON AN AS-NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.

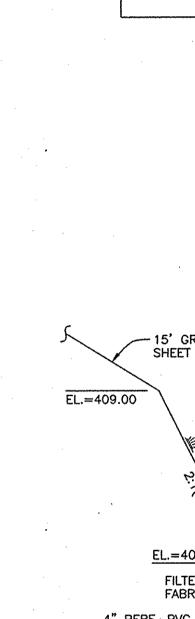
RAIN GARDEN - PLANTING DATA

- 1. PLANTINGS WITHIN THE PONDING AREA OF THE RAIN GARDEN ARE TO BE OF A MEDIUM TO HIGH WATER TOLERANCE SUGGESTED SPECIES: CREEPING BUGLEWEED (AJUGA REPTANS) COMMON PERIWINKLE (VINCA MINOR)
- LILY-TURF (LIRIOPE, SP.) 2. PLANTINGS ALONG THE PERIMETER (BERM) AREA OF THE RAIN GARDEN ARE TO BE OF A LOW TO MEDIUM WATER TOLERANCE SUGGESTED SPECIES: (PERENNIALS/ANNUALS) IRIS ('RIS VERSICOLÒR)
 DAYLILY (HEMEROCALLIS SP.)
- 3. AVOID PLANTINGS WITH EXCESSIVE ROOT MASS IN POND AREA OF THE RAIN GARDEN NEAR O.B. PIPE AND UNDERDRAIN.

1	VINCA MINOR (COMMON PERIWINKLE)	20
	AJUSTA REPTAN S (CREEPING BUGLEWEED)	25
	IRIS VERSICOLOR (IRIS)	25
2	HEMEROCALLIS SP (DAYLILY)	13

RAIN GARDEN - PLANTING SCHEDULF

1.4	CAILDER I DARRING OCH	<u> </u>
1	VINCA MINOR (COMMON PERIWINKLE)	20
\triangle	AJUSTA REPTAN S (CREEPING BUGLEWEED)	25
	IRIS VERSICOLOR (IRIS)	25
2	HEMEROCALLIS SP (DAYLILY)	13
$\widehat{\cdot}$	ACER RUBRUM (RED MAPLE)	3



RAIN GARDEN - PLANTING SCHEDULE

1) VINCA MINOR (COMMON PERIWINKLE) 17

IRIS VERSICOLOR (IRIS)

HEMEROCALLIS SP (DAYLILY)

ACER RUBRUM (RED MAPLE)

SPECIFICATION

SHREDDED HARDWOOD

(ASTM D-4751) GRAB TENSILE STRENGTH: (ASTM D-4632)

PUNCTURE RESISTANCE:

APPARENT OPENING SIZE: N/A

SEE APPENDIX A;

SAND: 30-60% SILT: 30-55% CLAY: 0-25%

(ASTM D-4833)

AASHTO M-43

F758, TYPE PS28 OR AASHTO M-278

ON LOT FACILITIES ARE AS-BUILT

UNDER GRADE CERT FOR HOUSES

TABLE A.4

MATERIAL

PLANTINGS

MULCH

GEOTEXTILE (CLASS "C")

PLANTING SOIL

(2.5' TO 4.0' DEEP)

GEOTEXTILE (1/4" WIRE MESH)

UNDERDRAIN GRAVEL

UNDERDRAIN PIPING

No As-Built information is required on this sheet

DRAIN STONE

AJUSTA REPTAN S (CREEPING BUGLEWEED) 20

MATERIALS & SPECIFICATIONS FOR BIO-RETENTION (RAINGARDEN-BMP)

1/4" WIRE MESH 1/4" WIRE MESH

#8 STONE

PLANTINGS ARE SITE SPECIFIC

AGED 6 MONTHS, MINIMUM

USDA SOIL TYPES: LOAMY SAND, SANDY LOAM OR LOAM

FOR USE AS NECESSARY BENEATH UNDERDRAINS ONLY

SIZE

8 STONE

0.375" TO 0.750

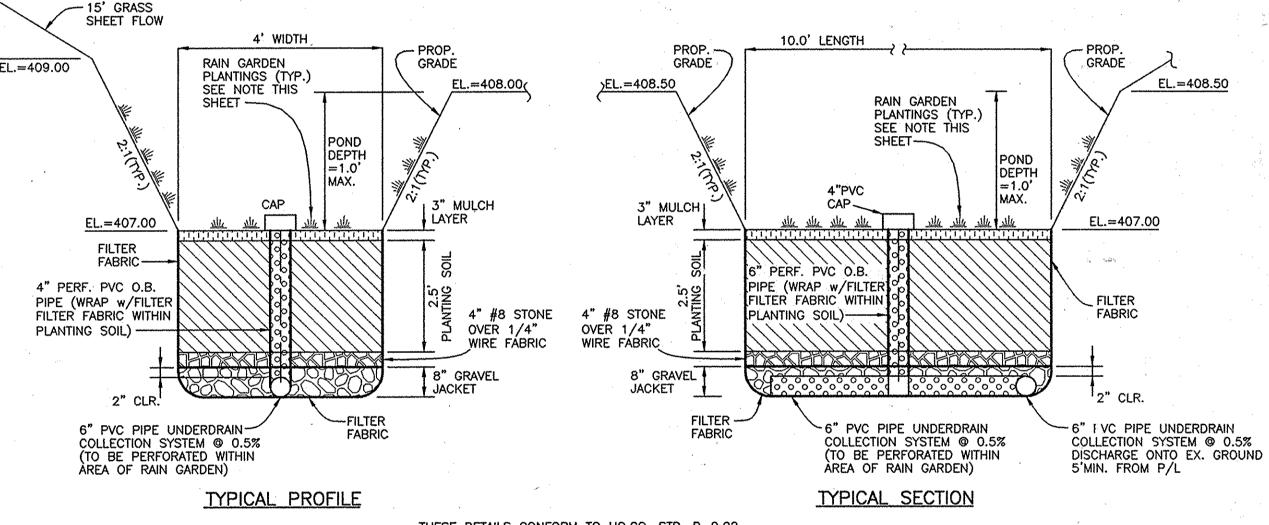
4" TO 6" RIGID

MAINTENANCE WILL ADDRESS DEAD MATERIAL & PRUNING.

NEW LAYER ONCE EVERY 2 TO 3 YEARS.

SCH.40 PVC. SDR35 OR HDPE

4% (TYP.) SHEET FLOW - INFLOW 10.0' LENGTH EL=409.00 2:1(TYP.) 1 1 1 2 2:1(TYP.) EMBANKMENT (TYP.) SHEET FLOW SCHEMATIC PLAN VIEW -15' GRASS SHEET FLOW

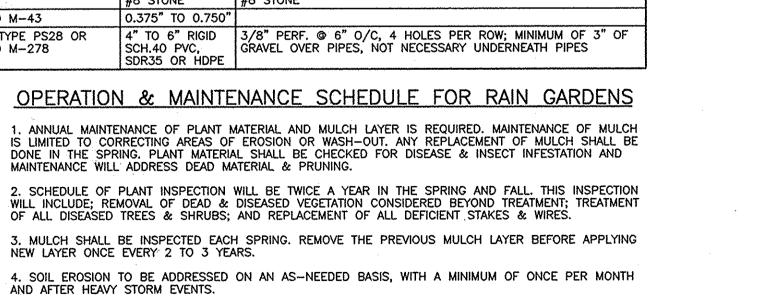


THESE DETAILS CONFORM TO HO.CO. STD. D-9.02 RAIN GARDEN DETAIL - LOT 7(2) NOT TO SCALE

RAIN GARDEN - PLANTING DATA

NO. DATE

- 1. PLANTINGS WITHIN THE PONDING AREA OF THE RAIN GARDEN ARE TO BE OF A MEDIUM TO HIGH WATER TOLERANCE SUGGESTED SPECIES: CREEPING BUGLEWEED (AJUGA REPTANS) COMMON PERIWINKLE (VINCA MINOR) LILY-TURF (LIRIOPE, SP.)
- 2. PLANTINGS ALONG THE PERIMETER (BERM) AREA OF THE RAIN GARDEN ARE TO BE OF A LOW TO MEDIUM WATER TOLERANCE SUGGESTED SPECIES: (PERENNIALS/ANNUALS) IRIS (IRIS VERSICOLÒR) DAYLILY (HEMEROCALLIS SP.) WHITE GLORY (ASTIBLE SP.)
- 3. AVOID PLANTINGS WITH EXCESSIVE ROOT MASS IN POND AREA OF THE RAIN GARDEN NEAR O.B. PIPE AND UNDERDRAIN

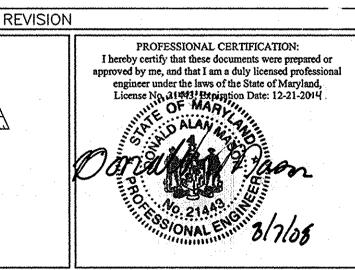


BENCHMARK

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 E-MAIL: benchmark@bei-civilengineering.com



OWNER/DEVELOPER:

Des: MCR/DAM | Draft: MCR

HICKORY KNOLLS, L.L.C. 11807 WOLLINGFORD COURT CLARKSVILLE, MARYLAND, 21029 (410)-792-2565

PROJECT ROCKY GORGE OVERLOOK LOTS 1 THRU 3 & LOTS 5 THRU 10 AND OPEN SPACE LOTS 4 & 11

TAX MAP 46 - GRID 12 - PARCEL 289 ZONE: R-20 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND FINAL/CONSTRUCTION PLANS STORMWATER MANAGEMENT

PROFILES, NOTES, AND DETAILS PROJECT NO. 1560 DRAWING <u>8</u> OF <u>13</u> AS SHOWN

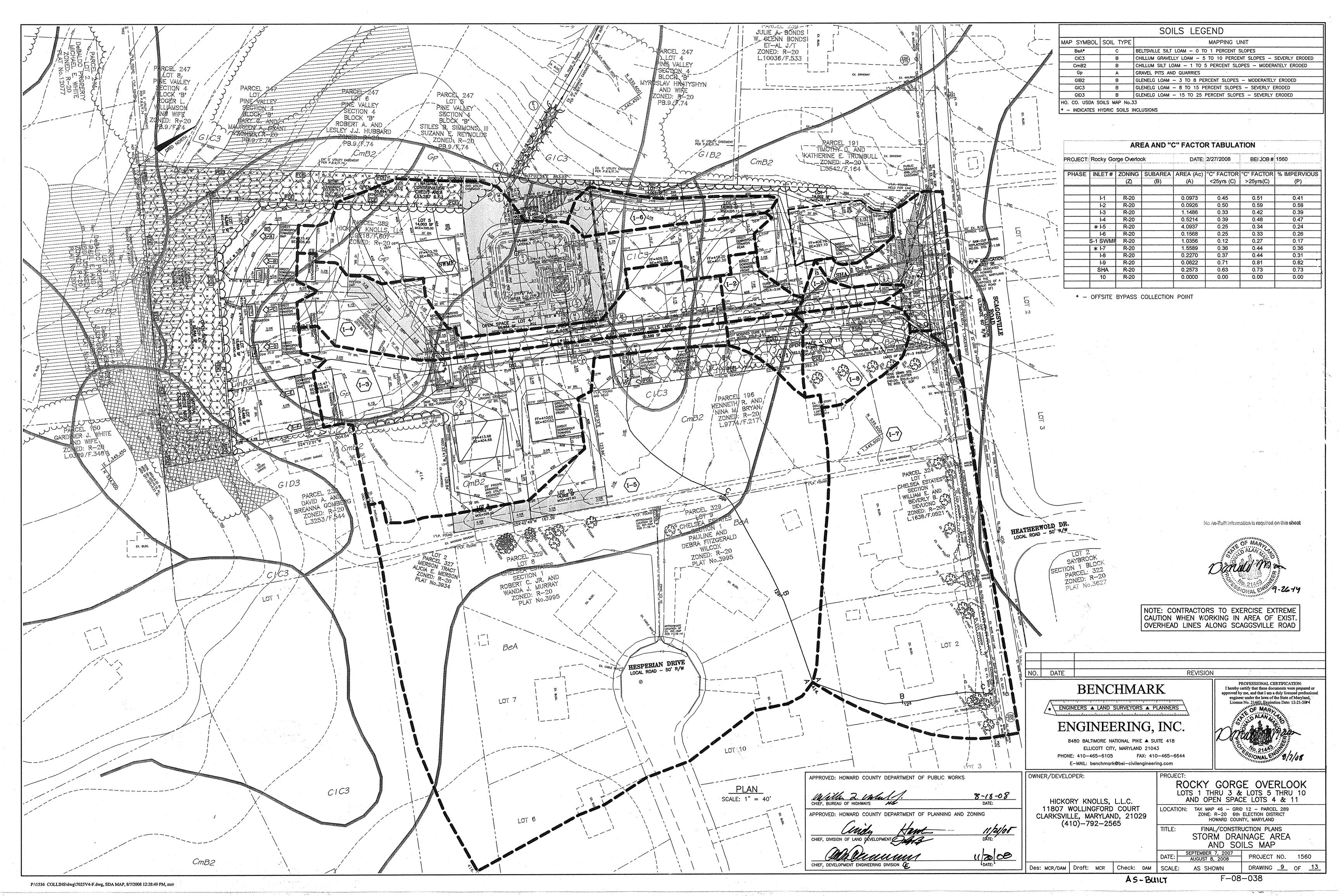
F-08-038

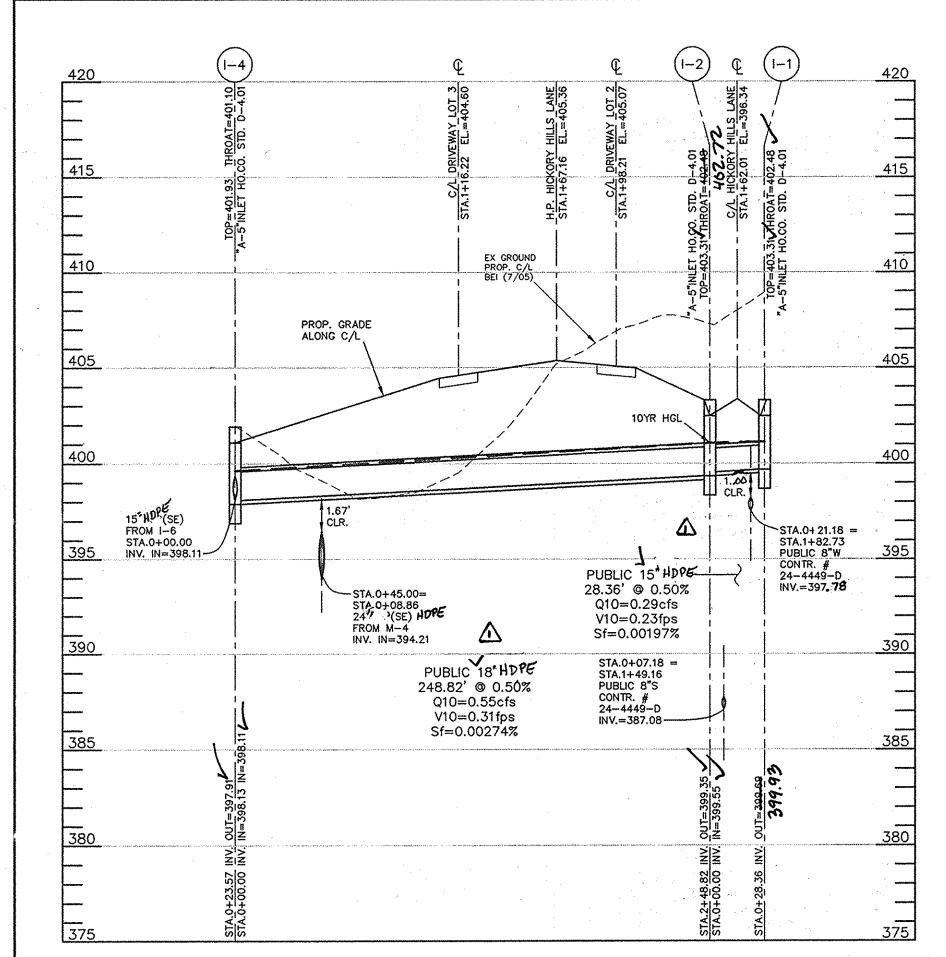
AS-BUILT

Check: DAM

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS willin 2. mlas 8-18-08 CHIEF, BUREAU OF HIGHWAYS DATE: APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING CHIEF, DIVISION OF LAND DEVELOPMENT DATE: DATE:V CHIEF, DEVELOPMENT ENGINEERING DIVISION

WHITE GLORY (ASTIBLE SP.)





STORM DRAIN PROFILE FROM I-1 TO I-4

HORIZONTAL SCALE: 1" = 50' VERTICAL SCALE: 1" = 5'

COORDINATES

N 535,601.3864 E 1,345,755.9700

N 535,614.5557 E 1,345,730.8530

N 535,381.0170 E 1,345,640.4259

N 535,394.1863 E 1,345,615.3090

N 535,419.3887 E 1,345,695.3444

N 535,498.7173 E 1,345,503.8615

N 535,707.4693 E 1,345,840.7452

N 535,696.4106 E 1,345,805.3075

N 535,710.9424 E 1,345,781.8760

N 535,426.4532 E 1,345,453.8645

N 535,421.4739 E 1,345,463.3612

N 535,433.0458 E 1,345,629.1123

N 535,433.3195 E 1,345,668.7751

N 535,396.8889 E 1,345,610.1545

N 535,493.5521 E 1,345,422.6598

N 535,412.6771 E 1,345,580.0426

N 535,764.7917 E 1,345,737.7555

STRUCTURE SCHEDULE

398.11

390.36

-399.55 ✓

398.11√

391.00√

392.24√

389.69

394.03**393**.BI

396.14395.71 -

399*549*7

399.35 🗸

397.91

395.66 16

390.80

392.97 ✓

392.04

389.49√

389.91

390.16

393.8661

389.51

389.09 🗸

392.87

397.68 3/ | 396.86 (6"PVC)

306.1+395.77 -

INVERT IN | INVERT IN | INVERT OUT | INVERT OUT | TOP ELEV. | THROAT EL. | HO. CO. STD.

403.31 🗸

403.31

401.93

401.93

396.57✓

396.47

401.28(EX)

402.68 46

402.86 🗸

391.54 🗸

396.81

390.62

397.93 398.47

402:35 401, 86

- 405. 29 401.21

402.48 ¥

402,58 72

401.10

401.10

395.33 394.94 394.50394 04 D-4.10

397.74

395.74

395.64 🗸

397.05 (4)397.6+

400.38**399.4** D-4.10

D-4.01

D-4.01

D-4.01

D-4.01

D-4.01

G-5.11

G-5.11

G-5.11

G-5.11

D-4.01

415 410 1 R/W | 4 | 0.S. LOT 11 | PARCEL 196 P/L LOT 3 & O.S. LOT 4 OPEN SPACE LOT 4 PROP. GRADE ALONG C/L STA.0+08.86= -400 STA 0+45.00 18 HDPE(NE) FROM I-2 INV. IN=398.34 PUBLIC 8"W CONTR. # 24-4449-D INV.=397.90 🗸 STA.0+20.60 INV. OUT=390.16-10YR HGL 184HD (SW)-STA.0+90.46 PUBLIC 8"S CONTR. #24-4449-D STRUCTURE STA.0+00.00 INV. IN=394.03-393.81 PUBLIC 24"HDPE PRIVATE 24 HDPE PRIVATE 24"HDPE 39.66' @ 2.00% 30.00' @ 2.00% 87.22' 🥹 0.50% Q10=8.02cfs Q10=8.02cfs Q10=5.65cfs V10=2.55fps V10=2.55fpsV10=1.80fps Sf=0.12577% Sf=0.12577% Sf=0.06246% PRIVATE 24" HDPE 141.42' @ 2.00% Q10=5.64cfs V10=1.79fps Sf=0.06211%

PROP. GRADE, STA.0+21.18 = STA.4+31.55 PUBLIC 8"W CONTR. # 24-4449-0 INV.=396:36-15 HOY (SE) 395 FROM I-6 STA.0+00.00 8"PVC(NW) TO SWMF STA.0+35.50 STA.1+41.42 INV. OUT=393.83 PUBLIC 15" HOPE -PUBLIC 18 HOPE 5.82' @ 0.50% 28.36' @ 0.50% Q10=3.40cfs Q10=3.57cfs V10=1.93fps V10=2.91 fpsSf=0.30605% Sf=0.10511% - PUBLIC 18"HOPE STA.0+07.18 =STA.1+38.21 40.83' @ 2.00% PUBLIC 8"S CONTR. # 24-4449-D Q10=3.40cfs V10=1.92fps Sf=0.10460% 888

 Δ PUBLIC R/WI LOT 1 PUBLIC R/W PARCEL 191 GRADE ALONG C/L CONC. STAND PAD =389.09 INV. IN=389.12 STA.0+75.25 PUBLIC 8"W CONTR. # 24-4449-0 INV.=389.58 PUBLIC 15"HDPE STA.0+06.77 = STA.0+40.51 37.12' @ 1.97% Q10=4.11cfs PUBLIC 8"S CONTR. #24-4449-D V10=3.35 fpsSf=0.40513% INV.=383.74, PUBLIC 18"HOPE A 31.43'L.F. @ 1.0% MSHA CL. I RIP-RAP PUBLIC 18"HOPE 27.57° @ 8.52% 69.62' @ 0.50% ! ! OUTFALL PROTECTION Q10=4.05cfsQ10=4.18cfs w/ FILTER CLOTH V10=0.21fps Sf=0.00127% V10=0.42fps thk. = 6" Sf=0.00503% width = 2.0'370 STORM DRAIN PROFILE

INTERIOR DIMS.

2'-6" x 5'-0"

2'-6" x 5'-0"

2'-6" x 5'-0"

2'-6" x 5'-0"

30" x 30"

30" × 30"

3'-6" x 3'-0"

2'-6" x 5'-0"

2'-6" x 5'-0"

4.0' DIA.

4.0' DIA.

4.0' DIA.

4.0' DIA.

4.0' DIA.

8" DIA.

_

4'-0" (OPEN 4 SIDES)

PIPE SCHEDULE SIZE LENGTH TYPE & CLASS 4" 150.0 50.5 PERF. PVC 212.0 35.5 PVC 15" 150.5 HOPE 392.6

NOTE: PIPES LABELED AS HOPE SHALL HAVE A SMOOTH BORE INTERIOR FINISH.

LOCATION

HICKORY HILLS LANE STA.1+62.01 OFF-14.18'L

HICKORY HILLS LANE STA.1+62.01 OFF-14.18'R

HICKORY HILLS LANE STA.4+10.83 OFF-14.18'L

HICKORY HILLS LANE STA.4+10.83 OFF-14.18'R

HICKORY HILLS LANE STA.3+51.34 OFF-45.00'L

HICKORY HILLS LANE STA.3+70.00 OFF-161.42'R

HICKORY HILLS LANE STA.0+28.69 OFF-40.00'L

HICKORY HILLS LANE STA.0+54.94 OFF-13.75'L

HICKORY HILLS LANE STA.0+52.95 OFF-13.75'R

HICKORY HILLS LANE STA.3+70.00 OFF-20.00'R

HICKORY HILLS LANE STA.4+10.83 OFF-54.00'R

383.1

24"

TYPE

PRE-CAST A-5

PRE-CAST A-5

PRE-CAST A-5

PRE-CAST A-5

PRE-CAST TYPE "D"

PRE-CAST A-5

PRE-CAST A-5

I-5 PRE-CAST TYPE "D"

HOPE

STORM DRAIN PROFILE FROM 1-5 TO M-2 HORIZONTAL SCALE: 1" = 50' VERTICAL SCALE: 1" = 5'

REMARKS

OFFSITE BYPASS - OPEN ON FOUR SIDES

OPEN ON FOUR SIDES

OFFSITE BYPASS @ P/L

OUTFALL @ ENTRANCE

OUTFALL @ ENTRANCE

DIVERSION STRUCTURE

BIO-RETENTION (F-6) SWMF - OUTFALL

SWMF FOREBAY - Wqv INFLOW

OUTFALL @ P/L

BIO-RETENTION (F-6) SWMF

STORM DRAIN PROFILE FROM I-3 TO M-3 HORIZONTAL SCALE: 1" = 50' VERTICAL SCALE: 1" = 5'

HORIZONTAL SCALE: 1" = 50' VERTICAL SCALE: 1" = 5'

Q10=0.21cfs H=0.06' W L=6.17'(E-3) WHERE: H=(Q/CL)^0.67 C=2.5 DEPTH VARIES EL.=VARIES W = 2'

> TYPICAL SECTION GRAVEL OUTFALL CHANNEL NOT TO SCALE

NOTE: CONTRACTORS TO EXERCISE EXTREME CAUTION WHEN WORKING IN AREA OF EXIST OVERHEAD LINES ALONG SCAGGSVILLE ROAD



AS-SUILT CERTIFICATION I hereby certify, by my seal, that the facilities shown on this plan were constructed as shown on this AS-BUILT plan. Donald Mason, P.E. No. 21443

4-10-2012 REVISE STORM DRAIN TO HOPE & ADJUST PLANS ACCORDINGLY NO. DATE **BENCHMARK**

ENGINEERS A LAND SURVEYORS A PLANNERS

ENGINEERING, INC. 8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418 ELLICOTT CITY, MARYLAND 21043

E-MAIL: benchmark@bei-civilengineering.com

PHONE: 410-465-6105

HICKORY KNOLLS, L.L.C.

OWNER/DEVELOPER:

PROFESSIONAL CERTIFICATION: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professions engineer under the laws of the State of Maryland,

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CLARKSVILLE, MARYLAND, 21029 (410)-792-2565

ROCKY GORGE OVERLOOK LOTS 1 THRU 3 & LOTS 5 THRU 10 11807 WOLLINGFORD COURT

AND OPEN SPACE LOTS 4 & 11 LOCATION: TAX MAP 46 - GRID 12 - PARCEL 289 ZONE: R-20 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND FINAL/CONSTRUCTION PLANS

AS SHOWN

STORM DRAIN PROFILES NOTES AND DETAILS DATE: SEPTEMBER 7, 2007
AUGUST 8, 2008
PROJECT NO. 1560

F-08-038

DRAWING <u>10</u> OF <u>13</u>

Des: MCR/DAM | Draft: MCR | Check: DAM AS-BUILT

	Millia Z. Malala. CHIEF, BUREAU OF HIGHWAYS	8-/8-08 DATE:
,	APPROVED: HOWARD COUNTY DEPARTMENT OF PLANN	NING AND ZONING
	CHIEF, DIVISION OF LAND DEVELOPMENT	///2//0F
	Ma Vermin	11/20/08
	CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE:

S-1 | PRE-CAST TYPE "D" | HICKORY HILLS LANE STA.4+57.22 OFF-103.39'R | N 535,394.5211 E 1,345,514.7666 STRUCTURE LOCATION FOR INLETS IS AT THE TOP AND CENTER OF STRUCTURE.
STRUCTURE LOCATION FOR ENDSECTIONS IS AT THE CONNECTION OF PIPE AND END SECTION.
STRUCTURE LOCATION FOR MANHOLES IS AT THE CENTER OF THE STRUCTURE.

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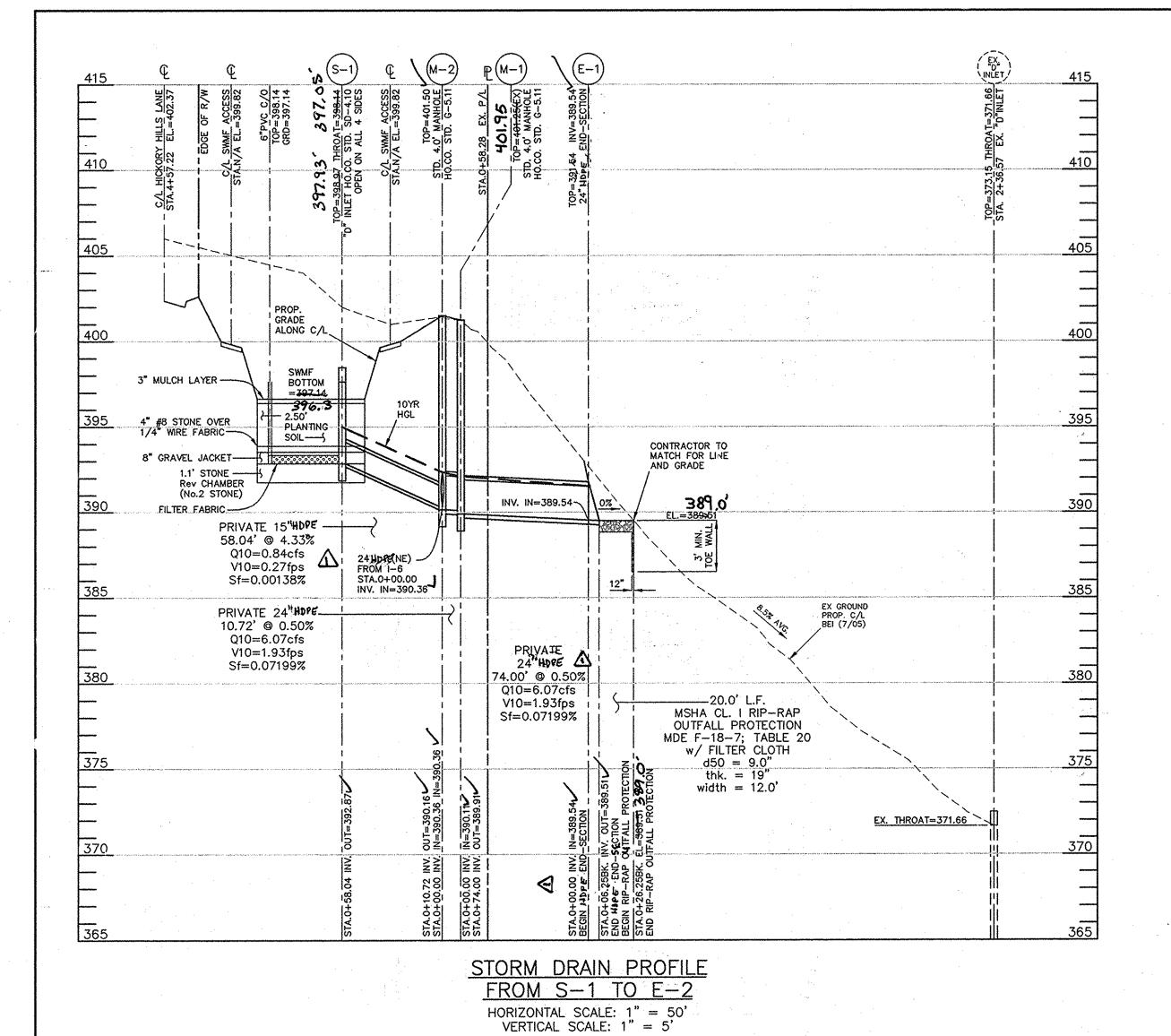
M-1 STD. 4.0' PRE-CAST HICKORY HILLS LANE STA.4+57.22 OFF-172.15'R

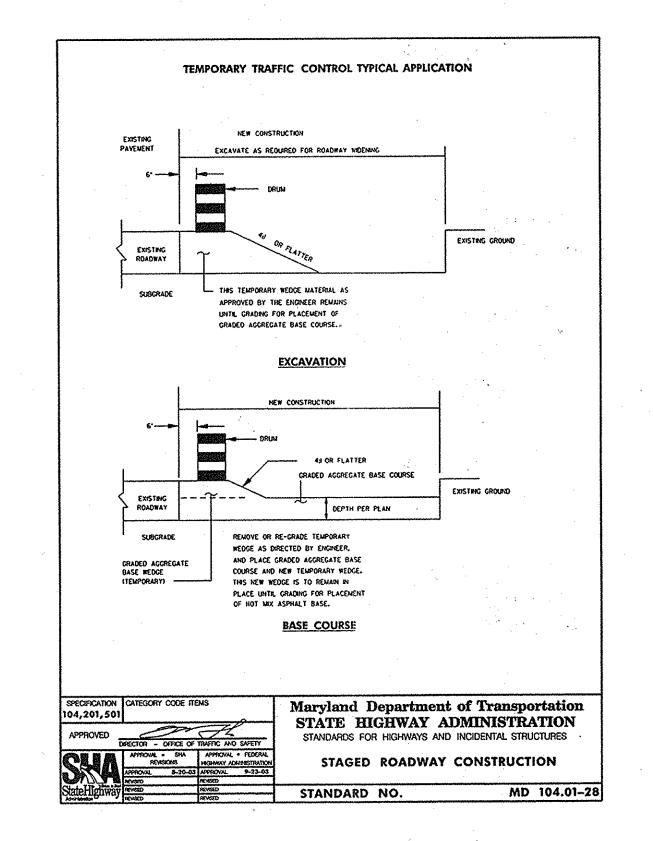
M-2 STD. 4.0' PRE-CAST | HICKORY HILLS LANE STA.4+57.22 OFF-161.43'R

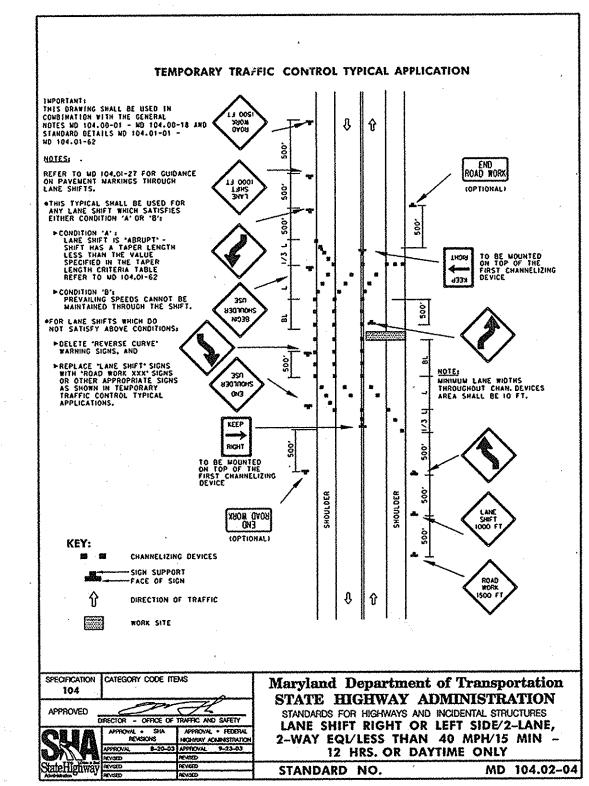
M-5 STD. 4.0' PRE-CAST | HICKORY HILLS LANE STA.4+10.83 OFF-20.00'R

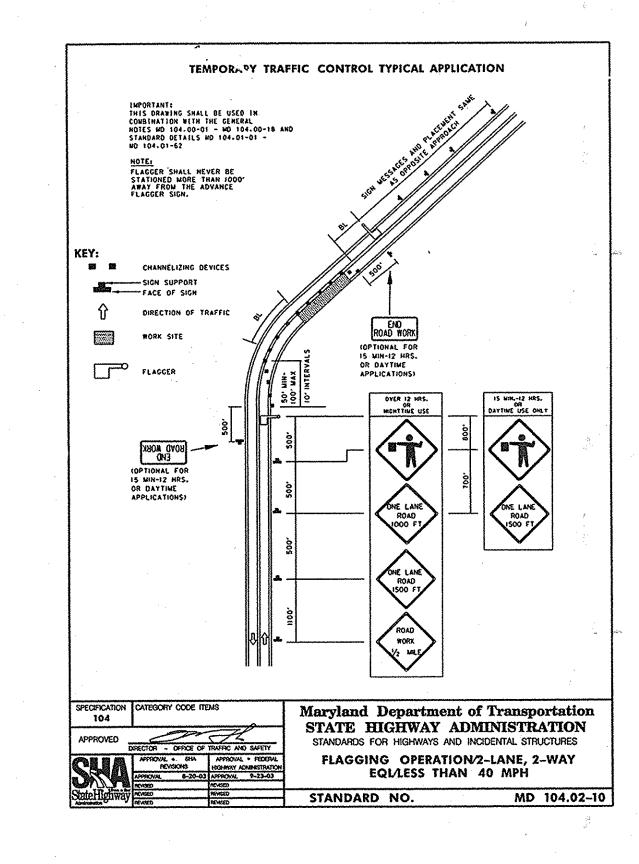
E-1 24" HDPE, END SEC. HICKORY HILLS LANE STA.4+12.29 OFF-230.94'R

E-3 18" HOPE END SEC. HICKORY HILLS LANE STA.0+25.75 OFF-77.83'R

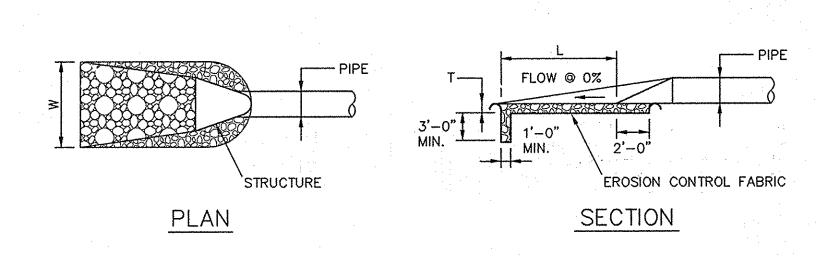








MAINTENANCE OF TRAFFIC DETAILS



STRUCTURE	d50	LENGTH(L)	WIDTH(W)	THICK.(T)	SHA CLASS
ES-1	9.5"	20' @ 0%	12'	19"	1
ES-2	9.5"	*17.5'± @ 0%	*16.5'±	19"	ı
ES-3	_	31.4'± @ 1.0%	2'±	6"	ı

OUTLET PROTECTION DETAIL NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

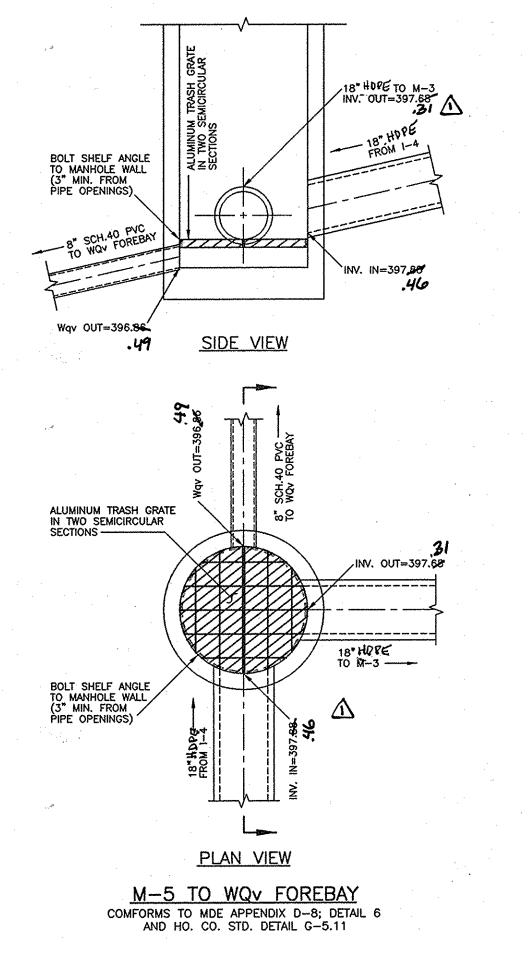
1. THE SUBGRADE FOR THE FILTER, RIP-RAP, OR GABION SHALL BE PREPARED TO THE REQUIRED LINES AND GRADES. ANY FILL REQUIRED IN THE SUBGRADE SHALL BE COMPACTED TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.

2. THE ROCK OR GRAVEL SHALL CONFORM TO THE SPECIFIED GRADING LIMITS WHEN INSTALLED RESPECTIVELY IN THE RIP-RAP OR FILTER.

3. GEOTEXTILE CLASS C28 OR BETTER SHALL BE PROTECTED FROM PUNCHING, CUTTING, OR TEARING. ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE SHALL BE PREPARED BY PLACING ANOTHER PIECE OF GEOTEXTILE FABRIC OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE FABRIC. ALL OVERLAPS WHETHER FOR REPAIRS OR FOR JOINING TWO PIECES OF GEOTEXTILE FABRIC SHALL BE A MINIMUM OF ONE FOOT.

4. STONE FOR THE RIP—RAP OR GABION OUTLETS MAY BE PLACED BY EQUIPMENT. THEY SHALL BE CONSTRUCTED TO THE FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. THE STONE FOR HE RIP—RAP OR GABION OUTLETS SHALL BE DELIVERED AND PLACED IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. RIP—RAP SHALL BE PLACED IN A MANNER TO PREVENT DAMAGE TO THE FILTER BLANKET OR GEOTEXTILE FABRIC. HAND PLACEMENT WILL BE REQUIRED TO THE EXTENT NECESSARY TO PREVENT DAMAGE TO THE PERMANENT WORKS.

5. THE STONE SHALL BE PLACED SO THAT IT BLENDS IN WITH THE EXISTING GROUND. IF THE STONE IS PLACED TOO HIGH THEN THE FLOW WILL BE FORCED OUT OF THE CHANNEL AND SCOUR ADJACENT TO THE STONE WILL OCCUR.





AS-BUILT CERTIFICATION
I hereby centify, by my seal, that the facilities shown on this plan were constructed as shown on this AS-BUILT plan.
Donald Mason, P.E. No. 21443

Date 9 - 26 - 14

FAX: 410-465-6644

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PHONE: 410-465-6105

(410) - 792 - 2565

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT

CHIEF, DEVELOPMENT ENGINEERING DIVISION C.

DATE:

OWNER/DEVELOPER:

PROJECT:

ROCKY GORGE OVERLOOK

LOTS 1 THRU 3 & LOTS 5 THRU 10

AND OPEN SPACE LOTS 4 & 11

LOCATION: TAX MAP 46 - GRID 12 - PARCEL 289

ZONE: R-20 6th ELECTION DISTRICT

LOCATION: TAX MAP 46 - GRID 12 - PARCEL 289

ZONE: R-20 6th ELECTION DISTRICT

LOCATION: TAX MAP 46 - GRID 12 - PARCEL 289
ZONE: R-20 6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: FINAL/CONSTRUCTION PLANS
STORM DRAIN PROFILES

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