

- GENERAL NOTES**
- 1) THE SUBJECT PROPERTY IS ZONED R-20 PER THE 2/02/04 COMPREHENSIVE ZONING PLAN AND PER COMP. LITE ZONING AMENDMENTS EFFECTIVE 7/28/05.
  - 2) ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY, PLUS MSMA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
  - 3) THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS, BUREAU OF ENGINEERING, CONSTRUCTION INSPECTION DIVISION AT 315-1802 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
  - 4) THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
  - 5) ALL ASPECTS OF THIS PROJECT SHALL BE IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVER(S) HAVE BEEN APPROVED.
  - 6) THE BOUNDARY SHOWN IS BASED ON A MONUMENTED FIELD-RUN SURVEY PERFORMED BY BENCHMARK ENGINEERING, INC., DATED FEBRUARY, 2003.
  - 7) THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL, MONUMENTS 46C3 & 47AA, WHICH IS BASED ON THE MARYLAND STATE PLANE COORDINATE SYSTEM.
  - 8) EXISTING TOPOGRAPHY SHOWN HEREON WAS FIELD RUN BY BENCHMARK ENGINEERING, INC. ON OR ABOUT JULY, 2008. CONTOUR INTERVAL IS 2 FEET. ADDITIONAL TOPOGRAPHY WAS PURCHASED FROM HOWARD COUNTY GEODATICAL INFORMATION SYSTEMS.
  - 9) 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.
  - 11) 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 PATENT RIVER WATERSHED.
  - 12) FOREST STAND DELINEATION PLAN WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC., DATED JUNE, 2003 AND APPROVED UNDER S-03-007.
  - 13) NO SPECIES 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.
  - 14) 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.
  - 15) A NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT.
  - 16) A.P.F.O. TRAFFIC STUDY WAS PREPARED BY THE WARS TRAFFIC GROUP, INC. DATED APRIL, 2002 AND APPROVED UNDER S-03-007.
  - 17) THE GEOTECHNICAL STUDY FOR THIS PROJECT WAS PREPARED BY GEOTECHNICAL LABORATORIES, INC. DATED NOVEMBER, 2006 AND APPROVED UNDER S-03-007.
  - 18) THERE ARE EXISTING STRUCTURES LOCATED ON-SITE TO BE REMOVED.
  - 19) TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO CEMETERY LOCATIONS ON-SITE.
  - 20) UNLESS NOTED AS "PRIVATE", ALL EASEMENTS ARE PUBLIC. 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.
  - 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 ZONING REGULATIONS. IT ALSO FALLS UNDER THE CRITERIA ESTABLISHED IN THE INFILL DEVELOPMENT REGULATIONS OF HOWARD COUNTY 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 1 & 2. RUNOFF COEFFICIENT SHALL BE PROVIDED BY A 60-RETENTION FACILITY (R-20) WITH AN UNDERGROUND STONE RECHARGE TRENCH. THE NON-STRUCTURAL CREDIT/USE OF RANGARDEN/BIO-RETENTION ON RESIDENTIAL LOTS, AND THE USE OF NATURAL CONSERVATION AND DISCONNECTION CREDITS, QUANTITY CONTROL (SQ) IS NOT REQUIRED.
  - 26) ALL SIGN FACILITY/PROP. MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE MOST CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND ROADWAY SIGNS SHALL BE IN PLACE PRIOR TO THE MOUNTING OF ANY ASPHALT.
  - 27) EXTERIOR LIGHTING SHALL BE DIRECTED/REFLECTED AWAY FROM ALL ADJACENT PUBLIC ROADS AND RESIDENTIAL ZONING DISTRICTS. STREET LIGHT PLAC. SET AND THE TYPE OF FIXTURE AND TALL SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SEC.134 OF THE HOWARD COUNTY ZONING REGULATIONS, THE HOWARD COUNTY DESIGN MANUAL, VOL.1 (1993), AND AS MODIFIED BY GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (1996). A MINIMUM SPACING OF TWENTY FEET (20') SHALL BE MAINTAINED ANY STREET LIGHT AND TREE.
  - 28) PERMETER AND SIGN LANDSCAPING SHALL BE PROVIDED AS SHOWN ON THE LANDSCAPE PLAN OF THE ROAD CONSTRUCTION DRAWINGS FOR THIS FINAL PLAN IN ACCORDANCE WITH SECTION 18.124 OF THE LANDSCAPE MANUAL. FINANCIAL SURETY IN THE AMOUNT OF \$150,000.00 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.
  - 29) FOR FLAG OR PIPESTEM LOTS, REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE ARE PROVIDED TO THE JUNCTION OF THE FLAG OR PIPESTEM AND ROAD RIGHT-OF-WAY AND NOT TO THE FOREST LOT DRIVEWAY.
  - 30) 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' (12' SERVING MORE THAN ONE RESIDENCE).
    - b) SURFACE - 4" OF COMPACT CRUSHER RUN BASE WITH 1/1" MIN. TAR & CHIP COATING.
    - c) GEOMETRY - MAX. 15% GRADE MAX. 10% GRADE CHANGE & MIN. 45' TURNING RADII.
    - d) STRUCTURE (CULVERTS/BRIDGES) - CAPABLE OF SUPPORTING 25 GROSS TONS (425 LOAD).
    - e) DRAINAGE (DRENCH) - 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.
  - 31) APPLICABLE HOWARD COUNTY DPZ FILE REFERENCES FOR THIS PROJECT INCLUDE: S-03-007, P-07-014, CONTR. NO.24-4449-D.
  - 32) THIS PLAN COMPLETS WITH THE REQUIREMENTS OF SECTION 18.120 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION BY THE FOLLOWING: FOREST CONSERVATION ACT REQUIREMENTS FOR THIS PROJECT HAVE BEEN CALCULATED TO BE 0.8 AC. OF ON-SITE RETENTION WITH A SURETY AMOUNT OF \$6,989.60 AND 0.8 AC. OF RESTORATION. THE RESTORATION OBLIGATION WILL BE MET BY 0.23 AC. OF ON-SITE PLANTINGS TO BE PLACED WITHIN A FOREST CONSERVATION EASEMENT WITH A SURETY AMOUNT OF \$6,989.60 AND 0.23 AC. OF LANDSCAPING CREDIT. N.B. OPEN SPACE LOT 11 THE SURETY PAID UNDER THE LANDSCAPING SURETY (SEE 34) CONT.)
  - 33) A TYPE "B" LANDSCAPE BUFFER WILL BE PLANTED ALONG THE EASTERN SIDE OF OPEN SPACE LOT 11 WITHIN THE LIMITS OF THE FCE. A CREDIT OF 0.11 AC. (BASED ON DENSIFICATION RATES OF 2000 SF = 7 @ 400 SF OR 20' GAUZE SHADE TREES, 3000 SF = 9 @ 2250 SF OR 1-1/2" GAUZE OR 8-8" ORNAMENTAL OR 8-8" ORNAMENTAL TREES) WILL BE APPLIED TO THE REMAINING 0.57 AC. RESTORATION OBLIGATION. THIS WILL RESULT IN A 0.44 AC. FEE-IN-LEU PAYMENT OF \$15,029.20 (20037.6 SF @ \$375).
  - 34) ALL AREAS OF CONTROLLED FILL TO BE AT 85% COMPACTION PER ASTM-1180 STANDARDS.
  - 35) THE RANGARDEN 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 AGREEMENT UNDER THIS FINAL PLAN F-08-038.
  - 36) WRITTEN AUTHORIZATION BY BEG OF THE PROJECT LANDSCAPE PLAN WAS OBTAINED BY CORRESPONDENCE DATED FEBRUARY 28, 2007, PRIOR TO SIGNATURE APPROVAL OF FINALS/ROAD CONSTRUCTION DRAWINGS.
  - 37) A LETTER OF PERMISSION FROM THE OWNERS OF THE OFF-SITE EXISTING 20' DRAINAGE EASEMENT (P.B.9/F.74) FOR CONSTRUCTION OF THE 20' DRAINAGE EASEMENT UNDER THIS PLAN HAS BEEN OBTAINED.
  - 38) WATER AND SEWER SERVICE FOR THESE LOTS WILL BE GRANTED UNDER THE PROVISIONS OF SECTION 18.122B OF THE HOWARD COUNTY CODE.
  - 39) PUBLIC WATER AND SEWER ALLOCATIONS WILL BE GRANTED AT THE TIME OF ISSUANCE OF THE BUILDING PERMIT IF CAPACITY IS AVAILABLE AT THAT TIME.
  - 40) THE PROPOSED STAND PAD WITHIN THE 20' PUBLIC DRAINAGE AND UTILITY EASEMENT ALONG SCAGGSVILLE ROAD SHALL BE PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION.
  - 41) A DESIGN MANUAL WAIVER WAS SUBMITTED TO THE DEPARTMENT OF PUBLIC WORKS FOR DAY IV, STD. DETAIL R-102 TO ALLOW FOR DEVIATIONS FROM THE ROADWAY STANDARD FOR A PUBLIC ACCESS PLACE PERTAINING TO 24' PAVING WIDTH.

# 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

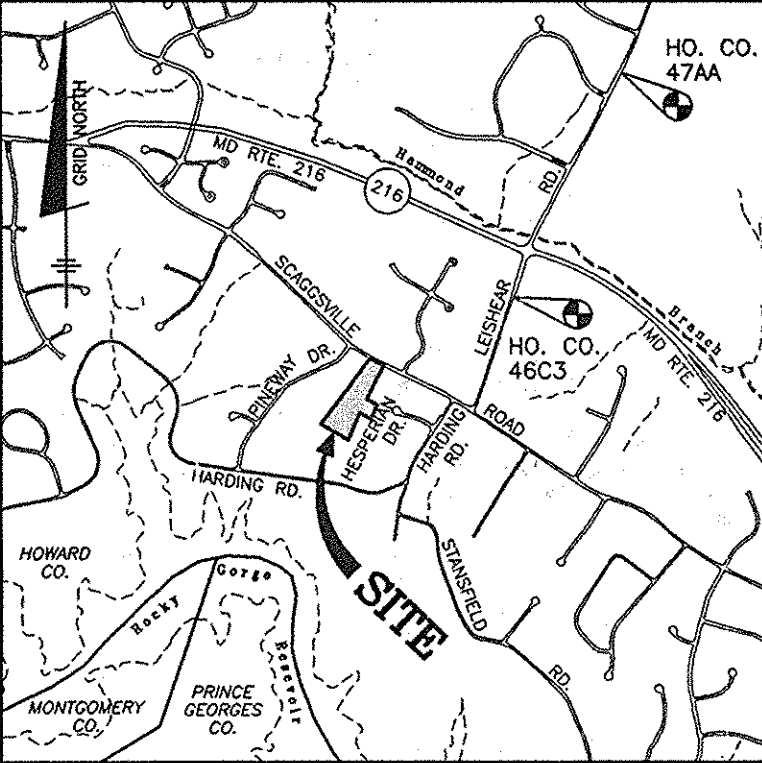
**RIGHT OF WAY ELEVATION CHART NAD 83**

R/W PT. NO.	DESCRIPTION	ELEVATION
100	REBAR # CAP	408.20'
101	REBAR # CAP	399.26'
102	CONC. N6IN	397.63'
103	REBAR # CAP	405.01'
104	REBAR # CAP	405.16'
105	REBAR # CAP	405.37'
106	REBAR # CAP	407.09'
107	REBAR # CAP	405.91'
108	REBAR # CAP	405.71'
109	REBAR # CAP	405.28'
110	CONC. MON	404.94'
111	REBAR # CAP	396.55'
112	X CUT IN CONE	397.80'
113	REBAR # CAP	397.12'

**BENCH MARKS - NAD '83**

HO. CO. #46C3 EL=334.488  
N-537,405.865 E=1,347,556.237  
STAMPED DISC ON CONC. MONUMENT  
25.1' NW FROM EX. FH ALONG W. EDGE  
OF LEISHEAR ROAD; 30.0' FROM EOP;  
400' NE FROM INT. OF MD RTE. 216

HO. CO. #47AA EL=363.428  
N-580,648.904 E=1,364,974.471  
STAMPED DISC ON CONC. MONUMENT  
109.4' N FROM BGE POLE #231865;  
262.5' S FROM INT. GLEACH ROAD;  
22.4' E FROM C/L LEISHEAR ROAD

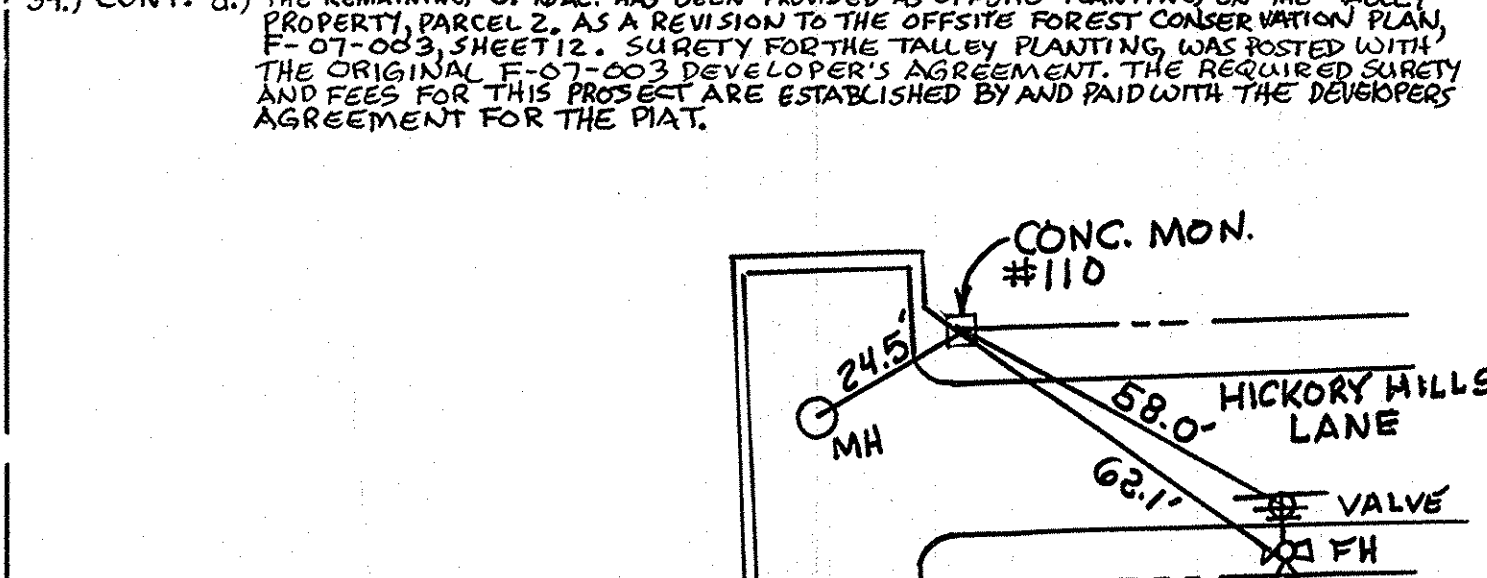
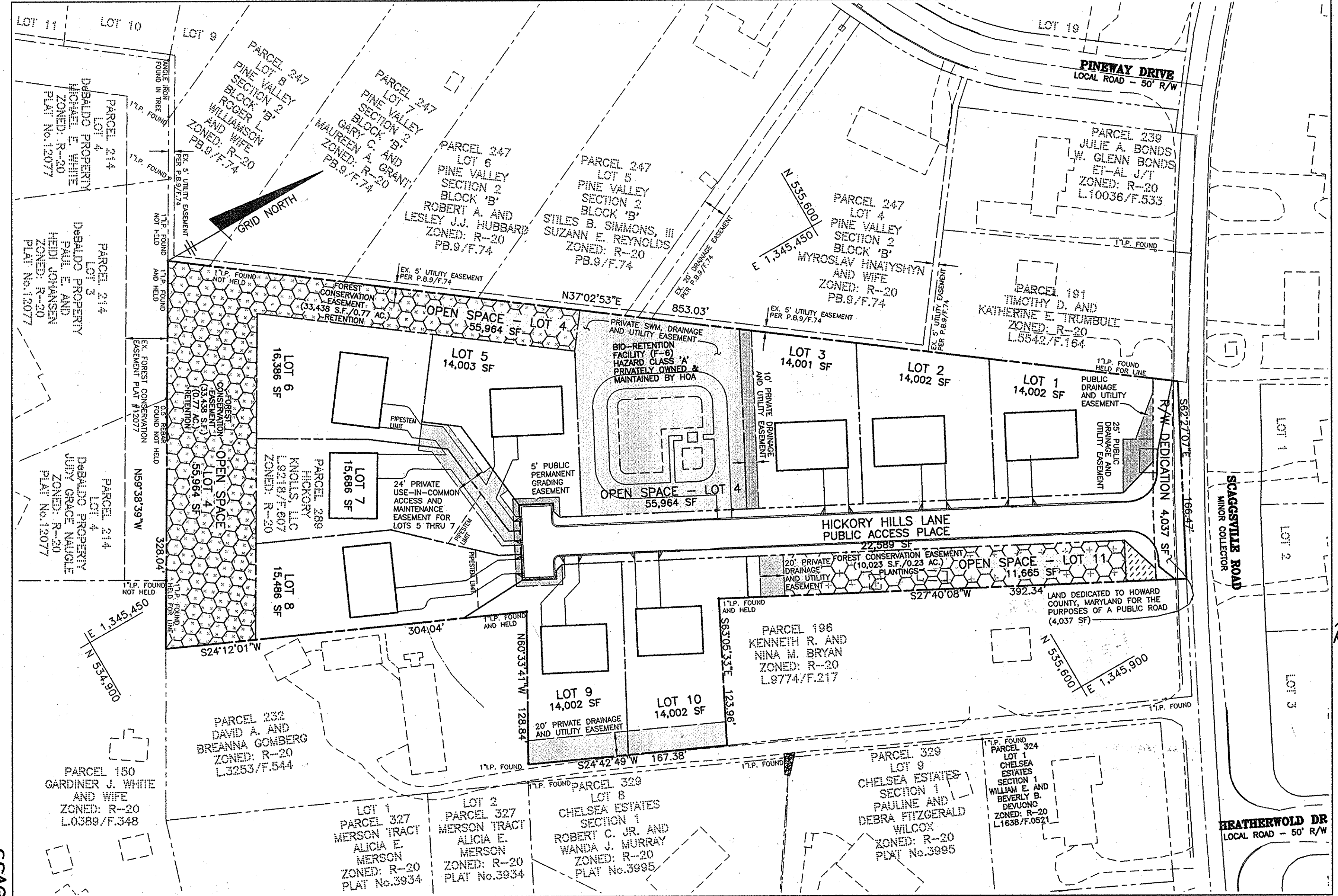


- AS-BUILT NOTES:**
- 1) HORIZONTAL DATUM FOR THIS AS-BUILT IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD 83/AD 91 AS PROJECTED FROM HO. CO. GEODETIC CONTROL STATIONS 46C3 AND 47AA VERTICAL DATUM FOR THIS AS-BUILT IS NORTH AMERICAN VERTICAL DATUM NGVD 29 AS PROJECTED FROM THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATIONS.
  - 2) THE INSTRUMENTS USED IN PERFORMING THE AS-BUILT WERE A 5" TOTAL STATION AND PRISM AND RTK GPS.
  - 3) THIS AS-BUILT WAS PERFORMED BY BENCHMARK ENGINEERING, INC.

**LEGEND**

SOILS CLASSIFICATION	ABC1
SOILS DELINEATION	---
EXISTING CONTOURS	999
PROPOSED CONTOURS	999
EXISTING WOODS LINE	---
PROPOSED WOODS LINE	---
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	---
PROP. NATURAL CONSERVATION AREA	---
SWM 15' NO-WOODY VEGETATION ZONE	---
DRAINAGE AREA	---
DRAINAGE DIVIDE	---
To STUDY PATH	---
PROP. FOREST CONSERVATION AREA	---
FCE PERMANENT SIGNAGE	---
LIMIT OF DISTURBANCE	---
STABILIZED CONSTRUCTION ENTRANCE	---
SILT DIVERSION FENCE	---
SILT FENCE	---
SUPER SILT FENCE	---
INLET PROTECTION	---
REMOVABLE PUMP STATION	---
RIP-RAP INFLOW PROTECTION	---
SOIL STABILIZATION MATTING	---

- 34) CONT: d.) THE REMAINING 0.46 AC. HAS BEEN PROVIDED AS OFFSITE PLANTING ON THE TALLEY PROPERTY, PARCEL 2, AS A REVISION TO THE OFFSITE FOREST CONSERVATION PLAN, F-07-033, SHEET 12. SURETY FOR THE TALLEY PLANTING WAS POSTED WITH THE ORIGINAL F-07-033. THE REVISION TO THE FOREST CONSERVATION PLAN AND FEES FOR THIS PROJECT ARE ESTABLISHED BY AND PAID WITH THE DEVELOPER'S AGREEMENT FOR THIS PLAN.



**SITE DATA TABULATION**

- 1) GENERAL SITE DATA
  - a. PRESENT ZONING: R-20
  - b. LOCATION: TAX MAP 46 - GRID 12 - PARCEL 289
  - c. APPLICABLE DPZ FILE REFERENCES: S-03-007, P-07-014 CONTR. No.24-4449-D
  - d. DED REFERENCE: L.9218 / F.607
  - e. PROPOSED USE OF SITE: 9 SFD HOMES; 2 OPEN SPACE LOTS
  - f. PROPOSED WATER AND SEWER SYSTEMS: PUBLIC
- 2) AREA TABULATION
  - a. TOTAL AREA OF SITE: 5.18 Ac.
  - b. AREA OF 100 YEAR FLOODPLAIN (APPROX.): 0.10 Ac.
  - c. AREA OF STEEP SLOPES (25% OR GREATER): 0.10 Ac.
  - d. NET AREA OF SITE: 5.08 Ac.
  - e. AREA OF THIS PLAN SUBMISSION: 5.18 Ac.
  - f. LIMIT OF DISTURBANCE (APPROX.): 4.40 Ac.
  - g. AREA OF PROPOSED BUILDABLE LOTS: 3.01 Ac.
  - h. AREA OF OPEN SPACE LOTS: 1.56 Ac.
  - i. AREA OF PROPOSED PUBLIC ROAD: 0.61 Ac.
  - j. AREA OF PROPOSED PUBLIC R/W DEDICATION: 0.61 Ac.
- 3) UNIT/LOT TABULATION
  - a. TOTAL NUMBER OF RESIDENTIAL LOTS PROPOSED ON THIS SUBMISSION: 9
  - b. TOTAL NUMBER OF OPEN SPACE LOTS PROPOSED ON THIS SUBMISSION: 2
- 4) OPEN SPACE DATA
  - a. MINIMUM RESIDENTIAL LOT SIZE SELECTED: 14,000 S.F.
  - b. OPEN SPACE REQUIRED FOR TOTAL AREA OF SITE (30% OF 5.18 AC.): 1.55 AC.
  - c. TOTAL AREA OF PROPOSED OPEN SPACE LOTS PROVIDED WITH THIS SUBMISSION: 1.56 AC.
    - 1) OPEN SPACE AREAS LESS THAN 35' IN WIDTH (NON-CREDITED): 0.01 AC.
    - 2) TOTAL AREA OF OPEN SPACE MEETING MINIMUM OPEN SPACE REQUIREMENTS (CREDITED): 1.55 AC.
  - d. AREA OF RECREATIONAL OPEN SPACE REQUIRED: N/A
    - 1) TOTAL AREA OF RECREATIONAL OPEN SPACE PROVIDED: 0.00 AC.

**SHEET INDEX**

NO.	DESCRIPTION
1	TITLE SHEET, NOTES AND DETAILS
2	ROAD CONSTRUCTION PLAN, NOTES AND DETAILS
3	ROADWAY PROFILE, NOTES AND DETAILS
4	PUBLIC ROADWAY IMPROVEMENT PROFILES, NOTES & DETAILS
5	GRADING, SEDIMENT & EROSION CONTROL PLAN
6	GRADING, SEDIMENT & EROSION CONTROL PLAN, NOTES AND DETAILS
7	STORMWATER MANAGEMENT PROFILES, NOTES AND DETAILS
8	STORMWATER MANAGEMENT PROFILES, NOTES AND DETAILS
9	STORM DRAINAGE AREA MAP AND SOILS MAP
10	STORM DRAIN PROFILES, NOTES AND DETAILS
11	STORM DRAIN PROFILES, NOTES AND DETAILS
12	LANDSCAPING PLAN, NOTES AND DETAILS
13	FOREST CONSERVATION PLAN, NOTES AND DETAILS

**MINIMUM LOT SIZE CHART**

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.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*William J. Mabel* 8-18-08  
CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Carolee Hamm* 11/21/08  
CHIEF, DIVISION OF LAND DEVELOPMENT

*William J. Mabel* 11/21/08  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

AS-BUILT 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 Date 9-26-14

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

**BENCHMARK 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:**  
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

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

TITLE: FINAL/CONSTRUCTION PLANS  
TITLE SHEET  
NOTES AND DETAILS

DATE: SEPTEMBER 7, 2007  
AUGUST 8, 2008 PROJECT NO. 1560

Des: MCR/DAM Draft: MCR Check: DAM SCALE: AS SHOWN DRAWING 1 OF 13

AS-BUILT F-08-038

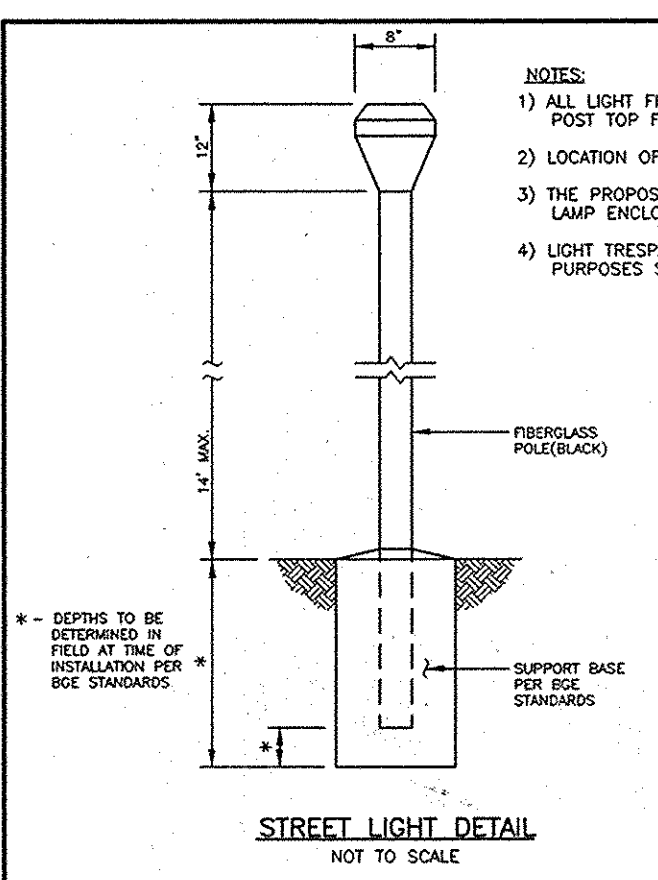


NOTE: CONTRACTORS TO EXERCISE EXTREME CAUTION WHEN WORKING IN AREA OF EXIST. OVERHEAD LINES ALONG SCAGGSVILLE ROAD

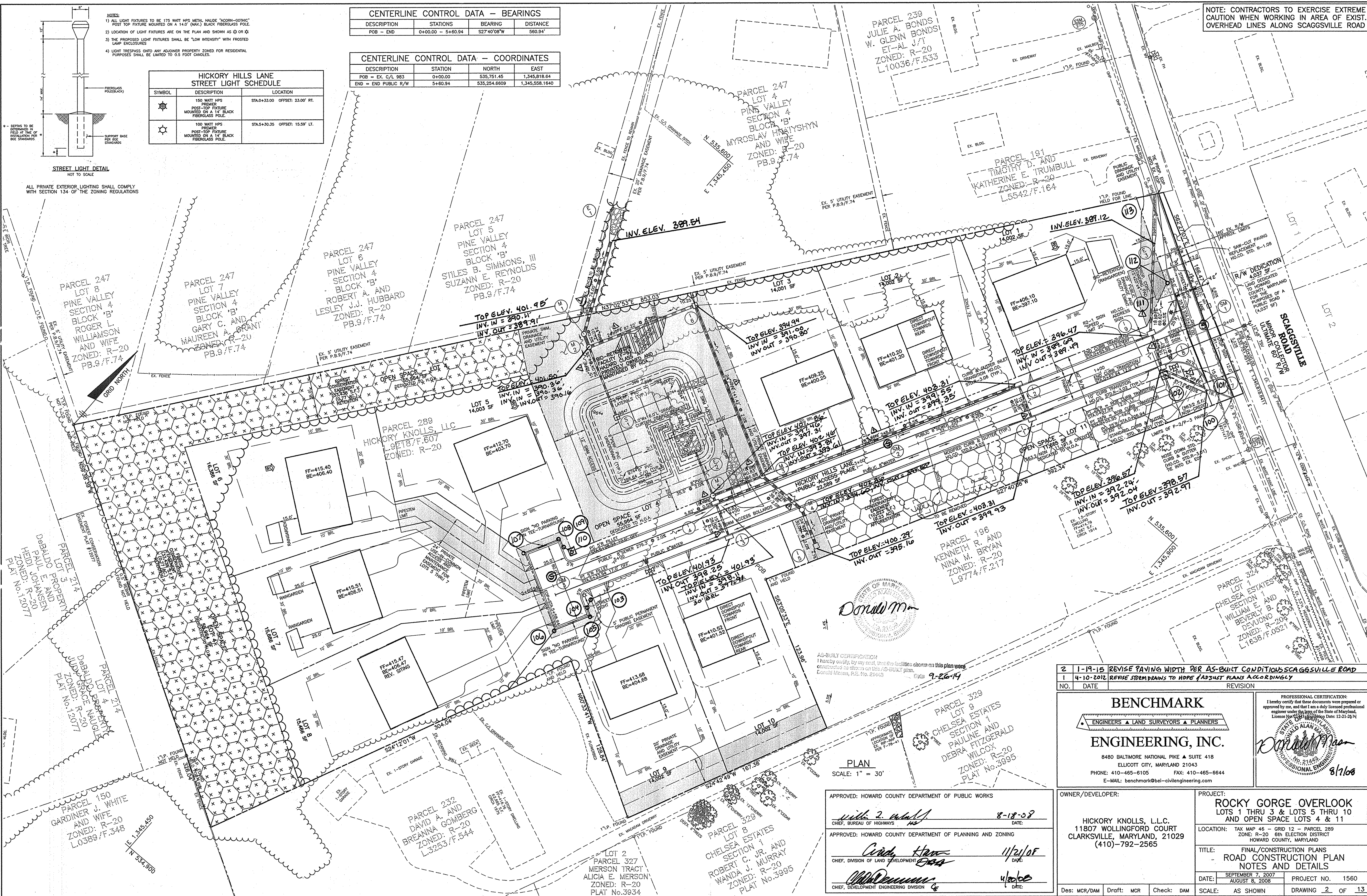
CENTERLINE CONTROL DATA -- BEARINGS			
DESCRIPTION	STATIONS	BEARING	DISTANCE
POB -- END	0+00.00 -- 5+60.94	S27°40'08"W	560.94'

CENTERLINE CONTROL DATA -- COORDINATES			
DESCRIPTION	STATION	NORTH	EAST
POB = EX. C/L 983	0+00.00	535,751.45	1,345,818.64
END = END PUBLIC R/W	5+60.94	535,254.6609	1,345,558.1640

HICKORY HILLS LANE STREET LIGHT SCHEDULE		
SYMBOL	DESCRIPTION	LOCATION
	150 WATT HPS PREMIER POST-TOP FIXTURE MOUNTED ON A 14" BLACK FIBERGLASS POLE	STA.04+33.00 OFFSET: 23.00' RT.
	100 WATT HPS PREMIER POST-TOP FIXTURE MOUNTED ON A 14" BLACK FIBERGLASS POLE	STA.54+30.35 OFFSET: 15.59' LT.



ALL PRIVATE EXTERIOR LIGHTING SHALL COMPLY WITH SECTION 134 OF THE ZONING REGULATIONS



NO.	DATE	REVISION
2	1-19-15	REVISE PAVING WIDTH PER AS-BUILT CONDITIONS SCAGGSVILLE ROAD
1	4-10-2012	REVISE STORMDRAINS TO HDPE ADJUST PLANS ACCORDINGLY

**BENCHMARK ENGINEERING, INC.**  
 ENGINEERS • LAND SURVEYORS • PLANNERS  
 8480 BALTIMORE NATIONAL PIKE • SUITE 418  
 ELLICOTT CITY, MARYLAND 21043  
 PHONE: 410-465-6105 FAX: 410-465-6844  
 E-MAIL: benchmark@bei-civilengineering.com

**PROFESSIONAL CERTIFICATION:**  
 I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 11877, Expiration Date: 12-31-2014

*Donall M. Mason*  
 PROFESSIONAL ENGINEER  
 No. 21443  
 8/1/08

**OWNER/DEVELOPER:**  
 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

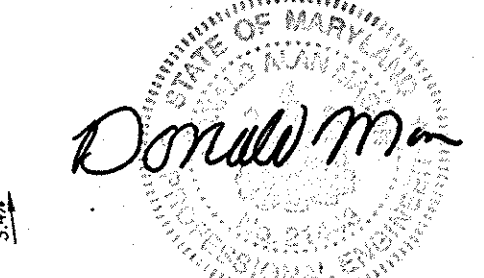
**LOCATION:** TAX MAP 46 -- GRID 12 -- PARCEL 289  
 ZONE: R-20 6th ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND

**TITLE:** FINAL/CONSTRUCTION PLANS  
 ROAD CONSTRUCTION PLAN  
 NOTES AND DETAILS

**DATE:** SEPTEMBER 7, 2007 PROJECT NO. 1560  
 AUGUST 8, 2008 DRAWING 2 OF 13

**SCALE:** AS SHOWN DRAWING 2 OF 13

Des: MCR/DAM Draft: MCR Check: DAM



AS-BUILT CERTIFICATION  
 I hereby certify, by my seal, that the facilities shown on this plan were constructed as shown on this AS-BUILT plan.  
 Donall Mason, P.E. No. 21443  
 9-26-14

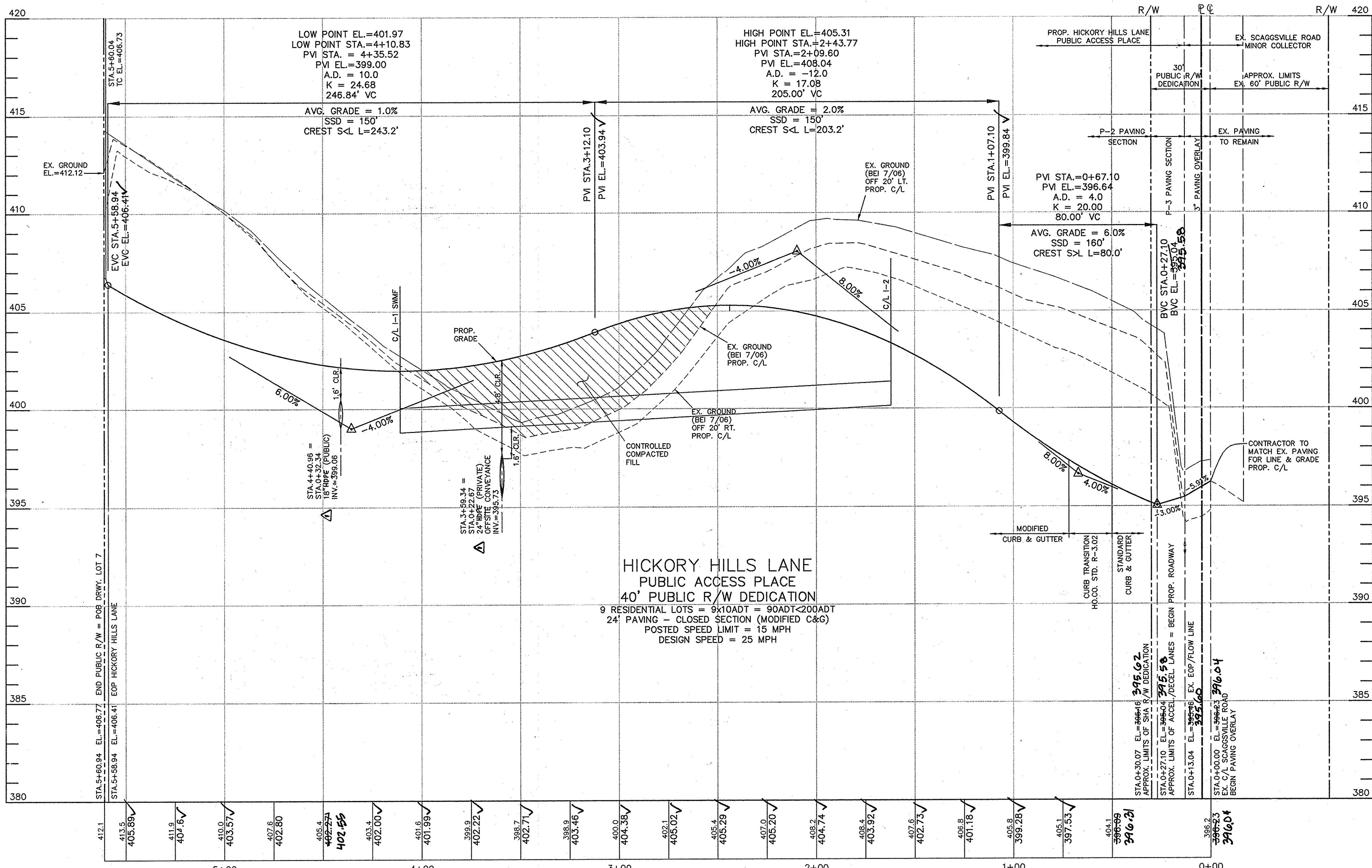
PLAN  
 SCALE: 1" = 30'

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*with 2 marks* 8-18-08  
 CHIEF, BUREAU OF HIGHWAYS DATE:

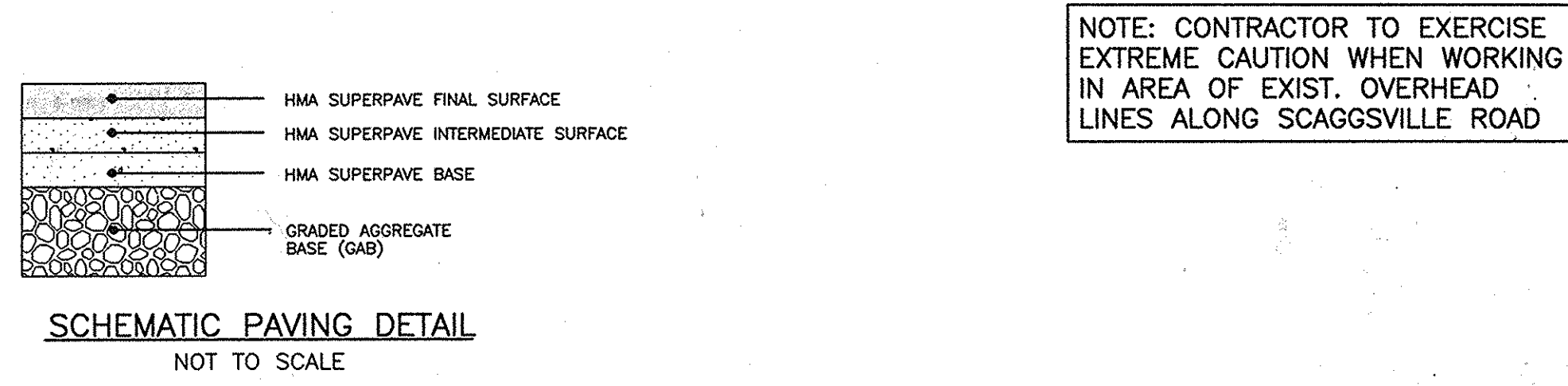
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Cindy Hane* 11/21/07  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE:

*Donall Mason* 11/20/08  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE:



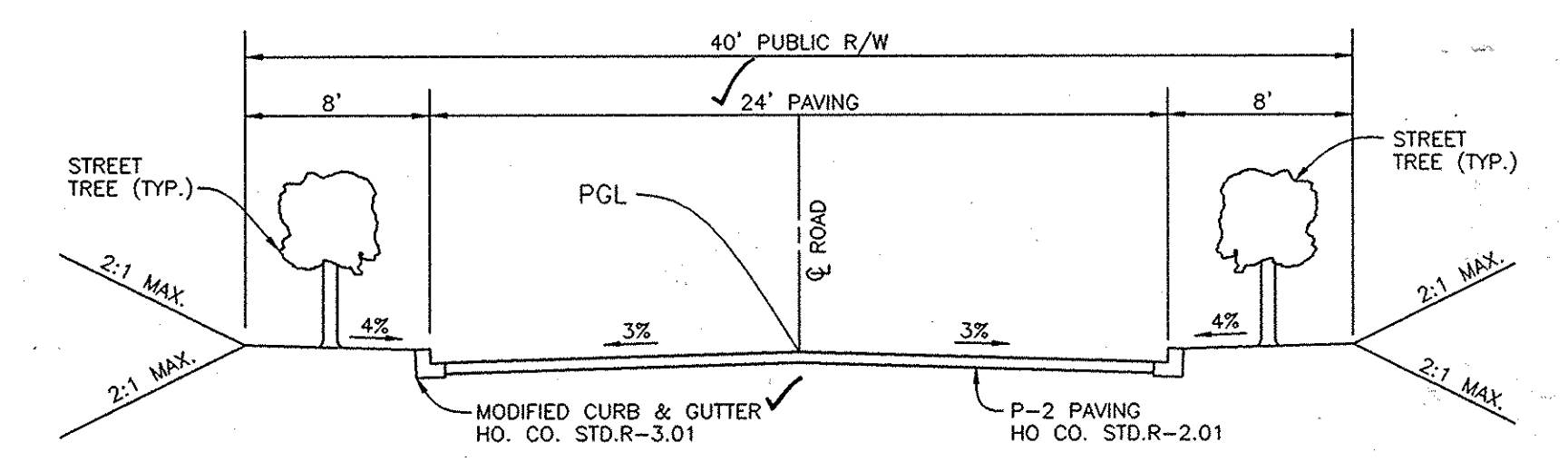


**ROADWAY PROFILE**  
 HORIZONTAL SCALE: 1" = 30'  
 VERTICAL SCALE: 1" = 3'



SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR)					
		PAVEMENT MATERIAL (INCHES)		3 to <5 to <7		27	
P-2	PARKING DRIVE AISLES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS PER DAY ACCESS PLACE, ACCESS STREET 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
		HMA SUPERPAVE INTERMEDIATE SURFACE 9.5 MM PG 64-22, LEVEL 1 (LOW ESAL)		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	2.0
P-3	PARKING DRIVE AISLES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS PER DAY ACCESS PLACE, ACCESS STREET LOCAL ROADS: ACCESS PLACE, ACCESS STREET CUL-DE-SAC: NON-RESIDENTIAL MINOR COLLECTORS: RESIDENTIAL	HMA SUPERPAVE FINAL SURFACE 9.5 MM PG 64-22, LEVEL 1 (LOW ESAL)		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
		HMA SUPERPAVE BASE 9.0 MM PG 64-22, LEVEL 1 (LOW ESAL)		3.0	3.0	3.0	2.0
		GRADED AGGREGATE BASE (GAB)		8.0	4.0	3.0	4.0

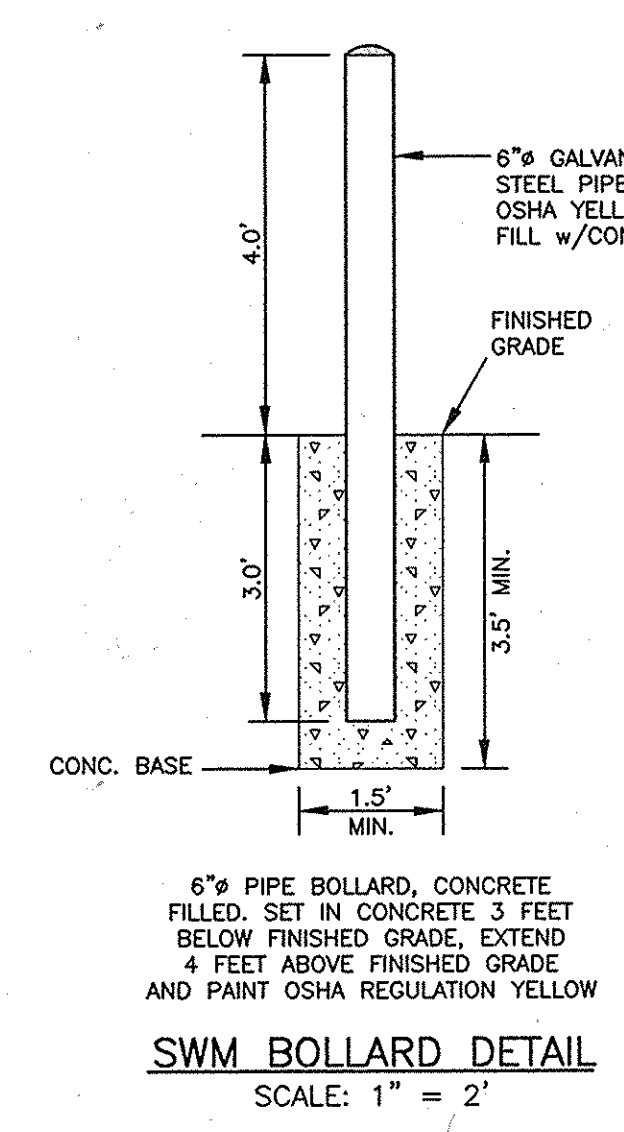
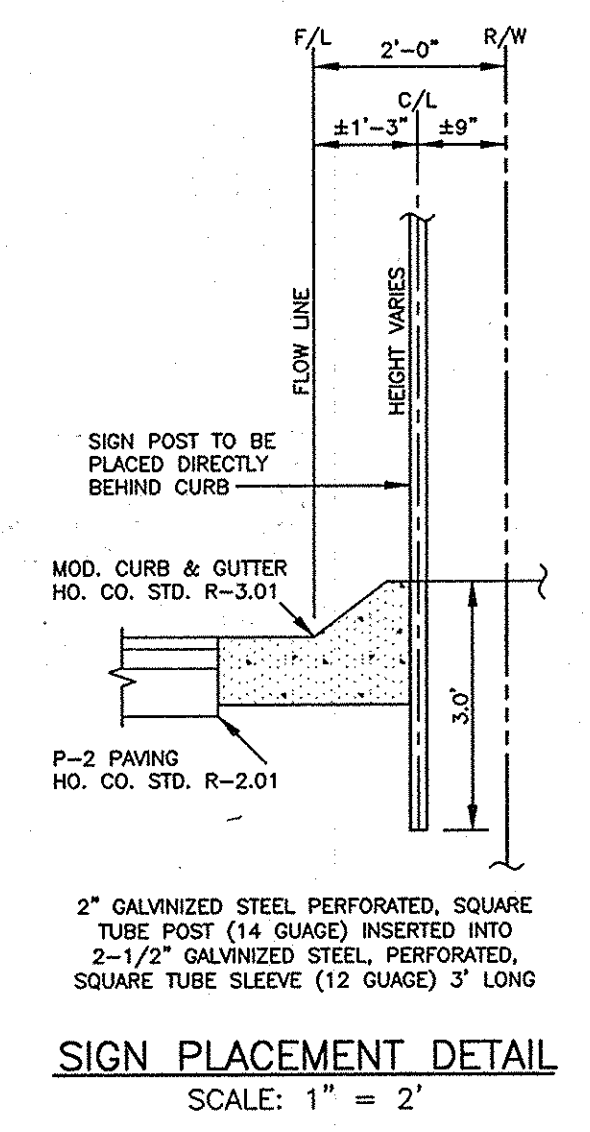
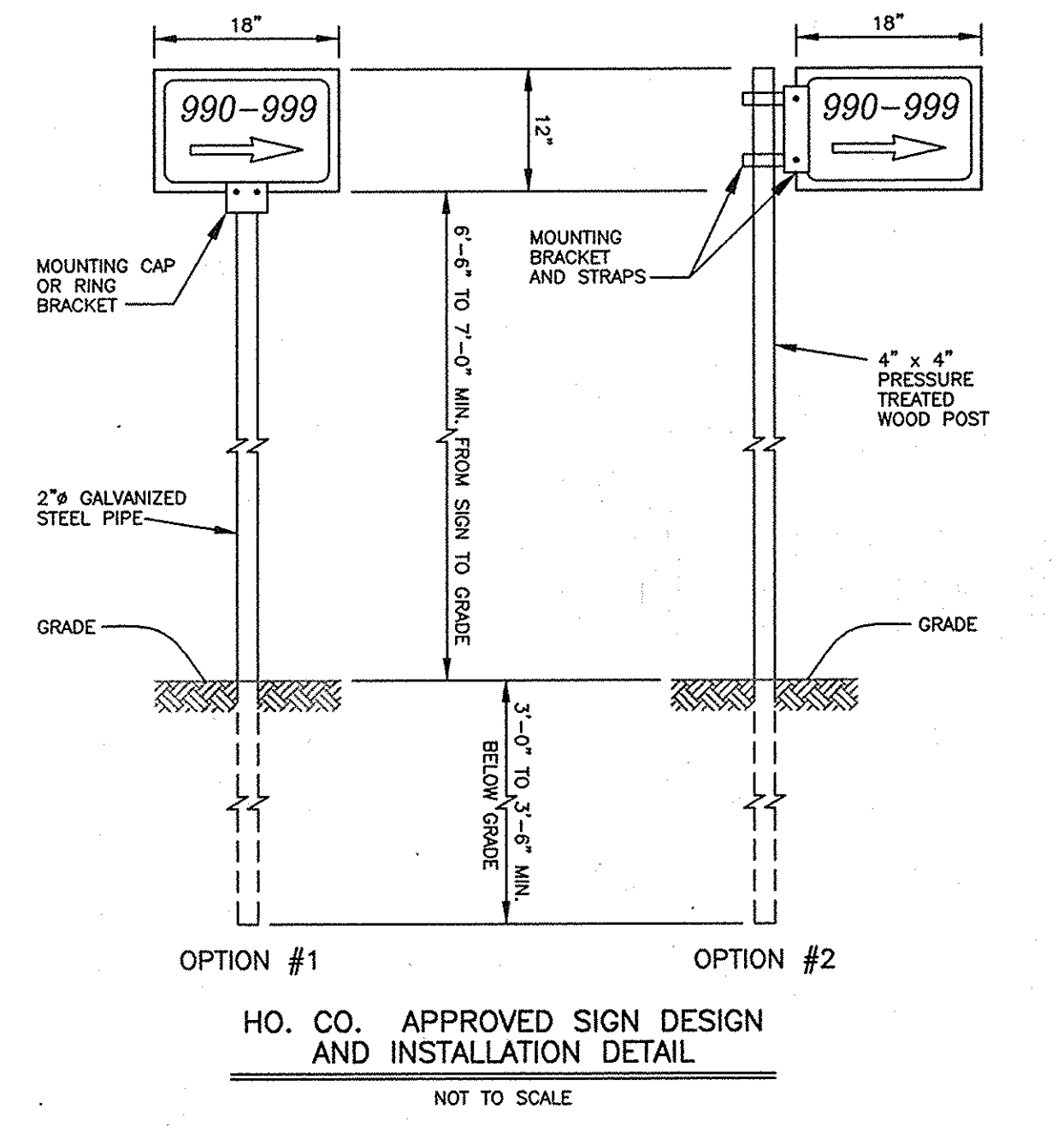
**PAVING SPECIFICATIONS (HO.CO. STD R-2.01)**



**HICKORY HILLS LANE**  
 PUBLIC ACCESS PLACE - LESS THAN 200 ADT  
 POSTED SPEED: 15 MPH (DESIGN SPEED: 25 MPH)  
 FROM STA. 0+70.87 (END CURB TRANSITIONS @ ENTRANCE)  
 TO STA. 5+58.94 (EOP PROP ROADWAY)

DESCRIPTION	STATIONS	BEARING	DISTANCE
POB - END	0+00.00 - 5+60.94	S27°40'08"W	560.94'

DESCRIPTION	STATION	NORTH	EAST
POB = EX. C/L 983	0+00.00	535,751.45	1,345,818.64
END = END PUBLIC R/W	5+60.94	535,254.6609	1,345,558.1640

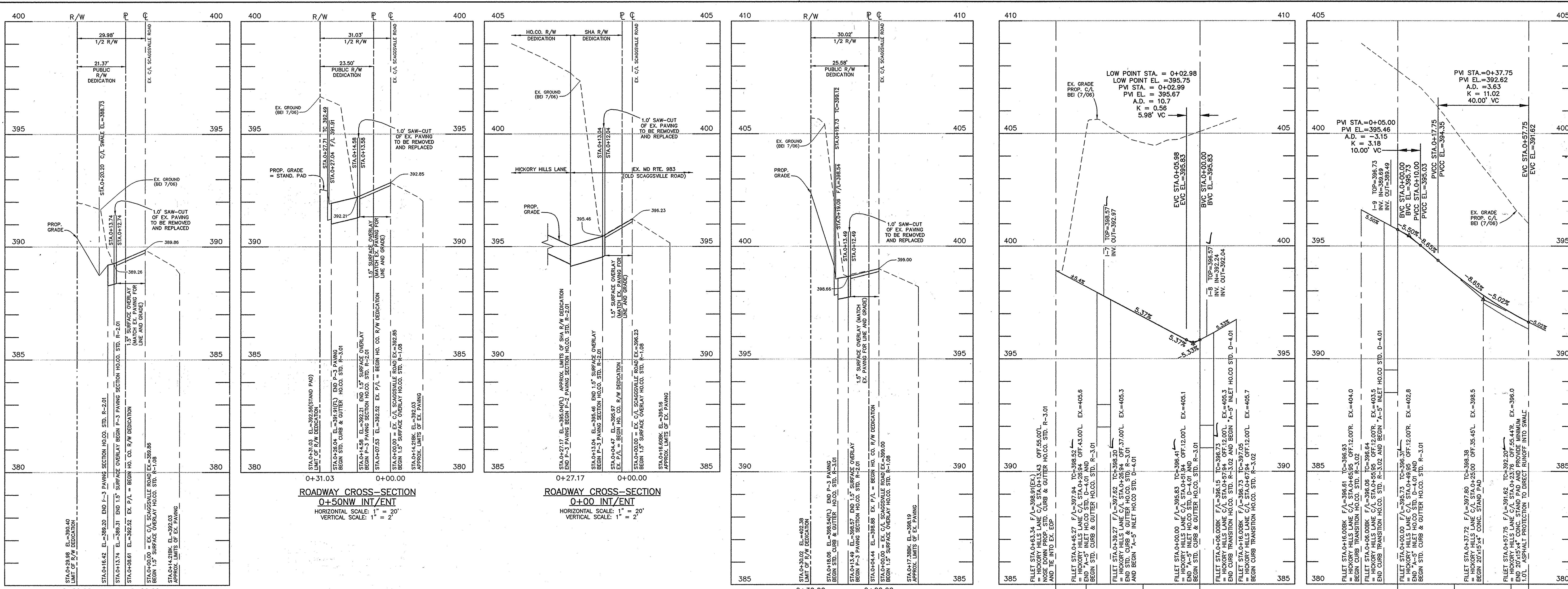


**AS-BUILT CERTIFICATION**  
 I hereby certify, by my seal, that the facilities shown on this plan were constructed as shown on this AS-BUILT plan.  
 Donald Mason, P.E. No. 21443 Date 9-26-14

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS <i>William J. Marshall</i> 8-18-08 CHIEF, BUREAU OF HIGHWAYS	APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING <i>Cathy K. Hunt</i> 11/21/08 CHIEF, DIVISION OF LAND DEVELOPMENT
APPROVED: <i>Donald Mason</i> 11/21/00 CHIEF, DEVELOPMENT ENGINEERING DIVISION	

<b>BENCHMARK ENGINEERING, INC.</b> 8480 BALTIMORE NATIONAL PIKE SUITE 418 ELLICOTT CITY, MARYLAND 21043 PHONE: 410-465-8105 FAX: 410-465-6644 E-MAIL: benchmark@bei-civilengineering.com		<b>PROFESSIONAL CERTIFICATION:</b> 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. <i>Donald Mason</i> 8/7/08 License No. 21443
<b>OWNER/DEVELOPER:</b> HICKORY KNOLLS, L.L.C. 11807 WOLLINGFORD COURT CLARKSVILLE, MARYLAND, 21029 (410)-792-2565	<b>PROJECT:</b> <b>ROCKY GORGE OVERLOOK</b> 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	
DATE: SEPTEMBER 7, 2007 AUGUST 8, 2008	PROJECT NO. 1560 SCALE: AS SHOWN DRAWING 3 OF 13	





**ROADWAY CROSS-SECTION  
1+00NW INT/ENT**  
HORIZONTAL SCALE: 1" = 20'  
VERTICAL SCALE: 1" = 2'

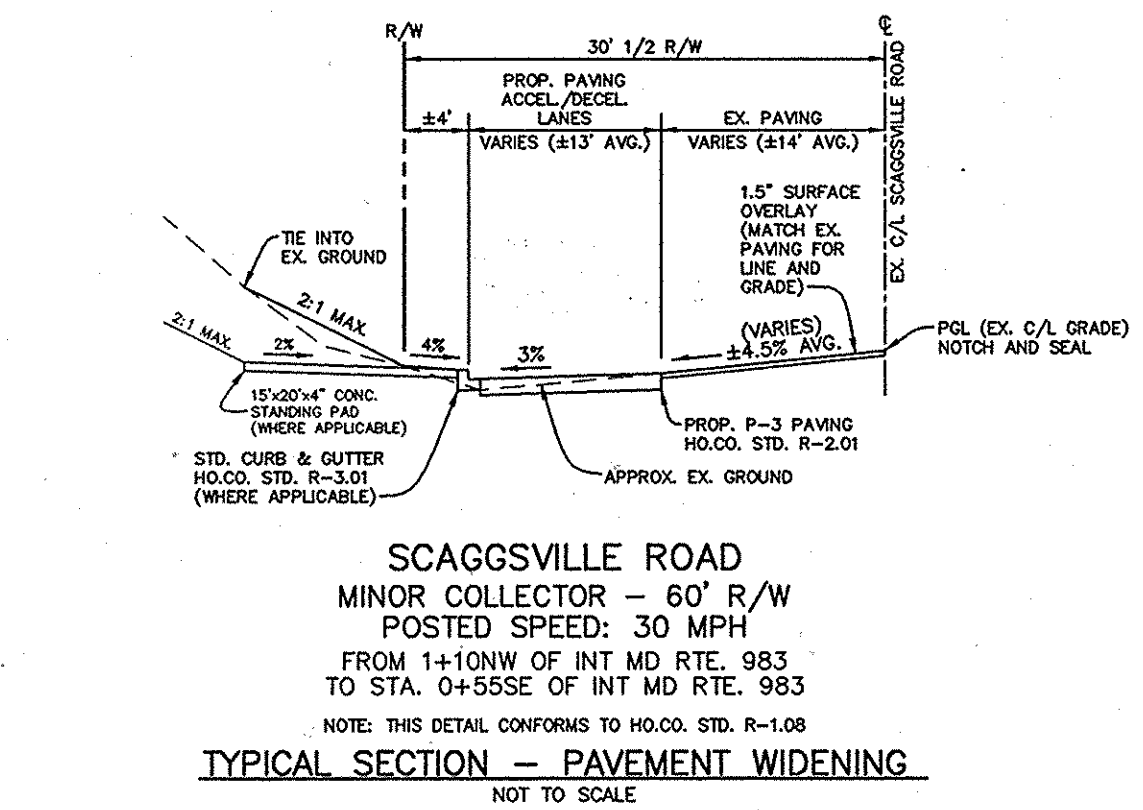
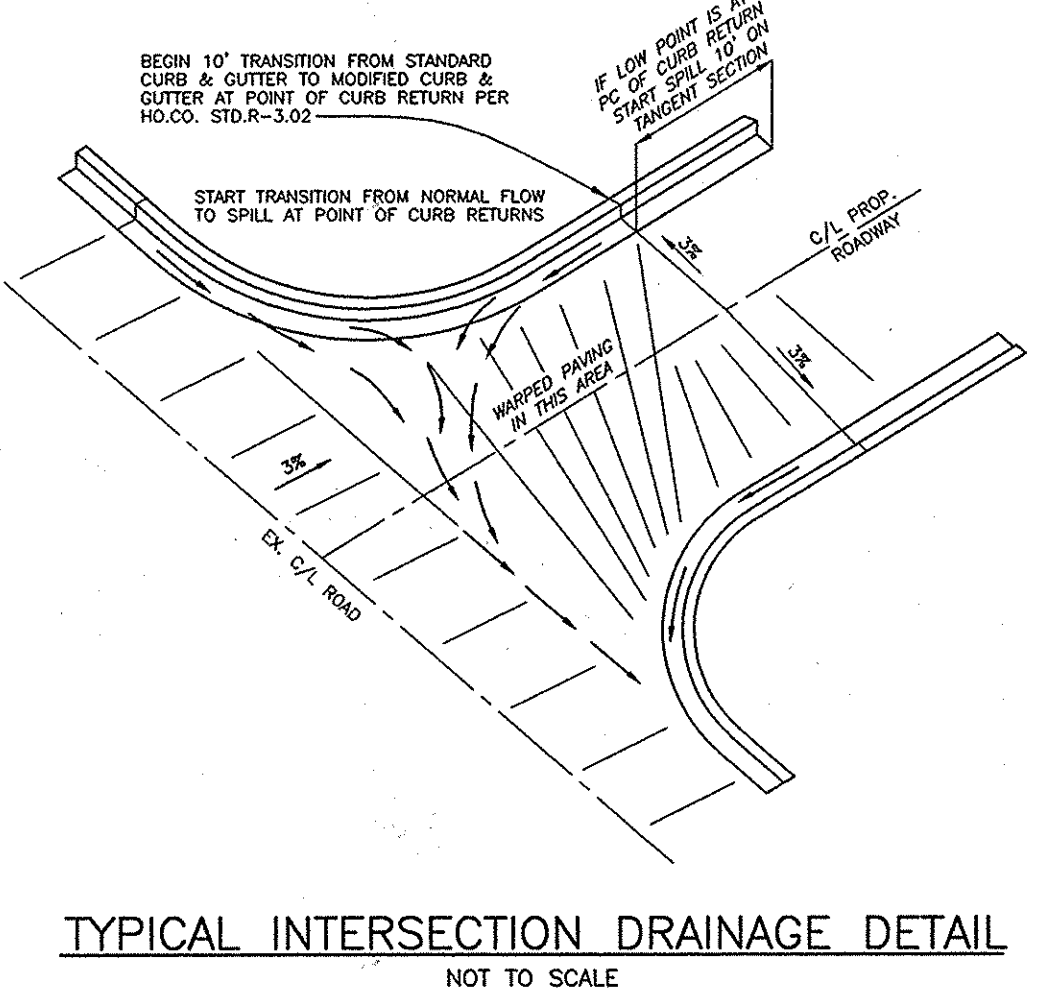
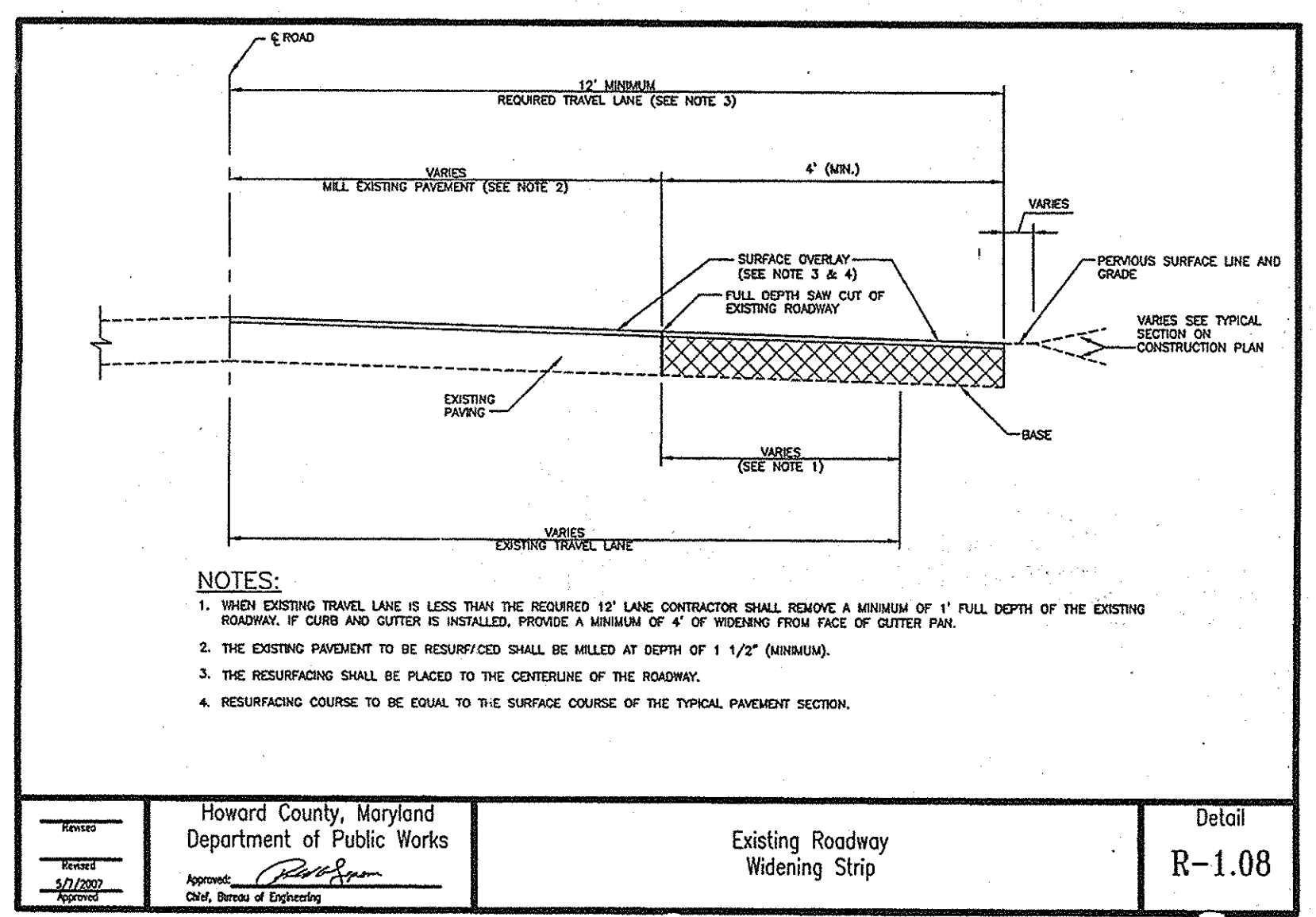
**ROADWAY CROSS-SECTION  
0+50NW INT/ENT**  
HORIZONTAL SCALE: 1" = 20'  
VERTICAL SCALE: 1" = 2'

**ROADWAY CROSS-SECTION  
0+00 INT/ENT**  
HORIZONTAL SCALE: 1" = 20'  
VERTICAL SCALE: 1" = 2'

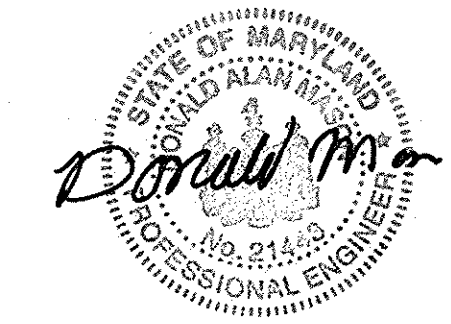
**ROADWAY CROSS-SECTION  
0+50SE INT/ENT**  
HORIZONTAL SCALE: 1" = 20'  
VERTICAL SCALE: 1" = 2'

**CURB RETURN PROFILE  
SE ENTRANCE CORNER**  
HORIZONTAL SCALE: 1" = 20'  
VERTICAL SCALE: 1" = 2'

**CURB RETURN PROFILE  
NW ENTRANCE CORNER**  
HORIZONTAL SCALE: 1" = 20'  
VERTICAL SCALE: 1" = 2'



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



AS-BUILT 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 Date 9-26-14

NO.	DATE	REVISION

**BENCHMARK 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

**PROFESSIONAL CERTIFICATION:**  
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.  
License No. 21443 Expiration Date: 12-21-2014

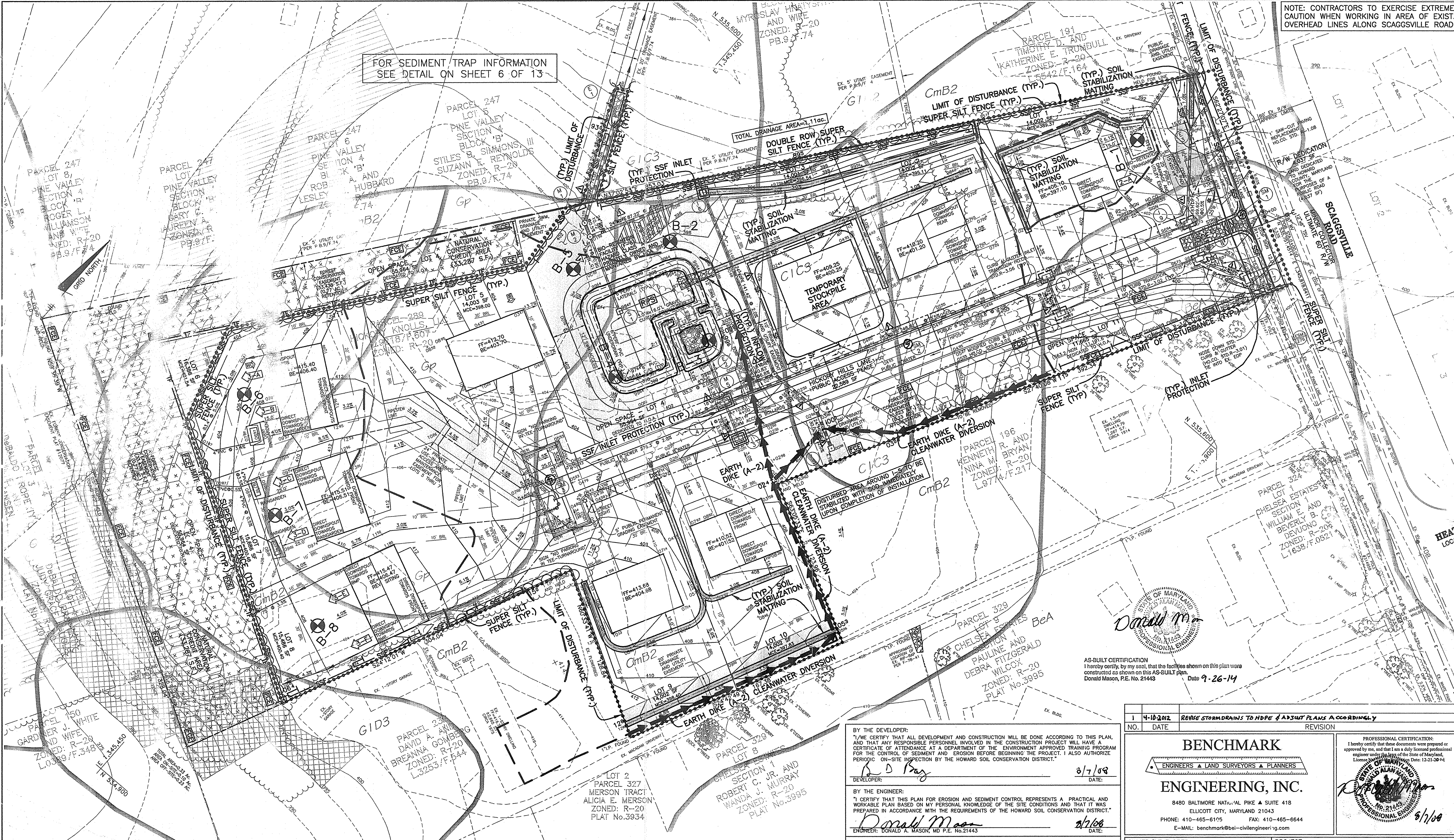
*Donald Mason*  
No. 21443  
Professional Engineer

<p>OWNER/DEVELOPER: HICKORY KNOLLS, L.L.C. 11807 WOLLINGFORD COURT CLARKSVILLE, MARYLAND, 21029 (410)-792-2565</p>	<p>PROJECT: <b>ROCKY GORGE OVERLOOK</b> LOTS 1 THRU 3 &amp; LOTS 5 THRU 10 AND OPEN SPACE LOTS 4 &amp; 11</p>
<p>TITLE: FINAL/CONSTRUCTION PLANS <b>PUBLIC ROADWAY IMPROVEMENTS PROFILES, NOTES AND DETAILS</b></p>	<p>LOCATION: TAX MAP 46 - GRID 12 - PARCEL 289 ZONE: R-20 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND</p>
<p>DATE: SEPTEMBER 7, 2007 AUGUST 8, 2008</p>	<p>PROJECT NO. 1560</p>
<p>Des: MCR/DAM Draft: MCR Check: DAM</p>	<p>SCALE: AS SHOWN DRAWING 4 OF 13</p>



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

FOR SEDIMENT TRAP INFORMATION SEE DETAIL ON SHEET 6 OF 13



SOILS LEGEND		
MAP SYMBOL	SOIL TYPE	MAPPING UNIT
BeA*	C	BELTSVILLE SILT LOAM - 0 TO 1 PERCENT SLOPES
CIC3	B	CHILLUM GRAVELLY LOAM - 5 TO 10 PERCENT SLOPES - SEVERELY ERODED
CmB2	B	CHILLUM SILT LOAM - 1 TO 5 PERCENT SLOPES - MODERATELY ERODED
Gp	A	GRAVEL PITS AND QUARRIES
GIB2	B	GLENELG LOAM - 3 TO 8 PERCENT SLOPES - MODERATELY ERODED
GIC3	B	GLENELG LOAM - 8 TO 15 PERCENT SLOPES - SEVERELY ERODED
GID3	B	GLENELG LOAM - 15 TO 25 PERCENT SLOPES - SEVERELY ERODED

HO. CO. USDA SOILS MAP No. 33  
\* - INDICATES HYDRIC SOILS INCLUSIONS

PLAN  
SCALE: 1" = 30'

ALL SEDIMENT & EROSION CONTROL FEATURES ARE TO BE REPAIRED IMMEDIATELY IF DISRUPTED BY UTILITY INSTALLATION

SUPER SILT FENCE IS TO BE INSPECTED FREQUENTLY & CLEANED, REPAIRED AND/OR RE-INSTALLED IMMEDIATELY AS NECESSARY

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

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.

DEVELOPER: *B. D. Bay* 8/7/08 DATE:

BY THE ENGINEER:  
I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

ENGINEER: *Donald Mason* 8/7/08 DATE:  
DONALD A. MASON, MD P.E. No. 21443

THIS DEVELOPMENT PLAN IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT

*John K. Blunt* 8/14/08 DATE:  
HOWARD SOIL CONSERVATION DISTRICT

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*W. D. Quinn* 11/20/08 DATE:  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

*Andy* 11/20/08 DATE:  
CHIEF, DIVISION OF LAND DEVELOPMENT

*Steve* DATE:  
DIRECTOR

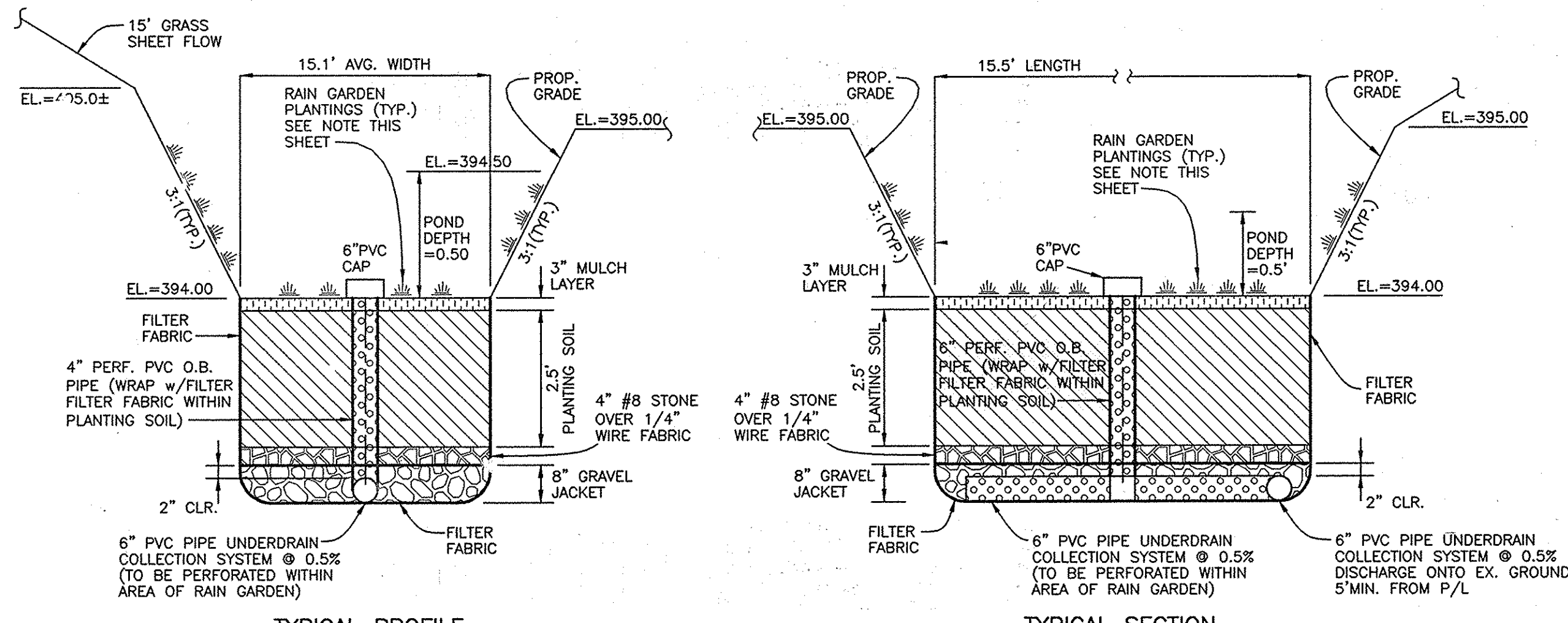
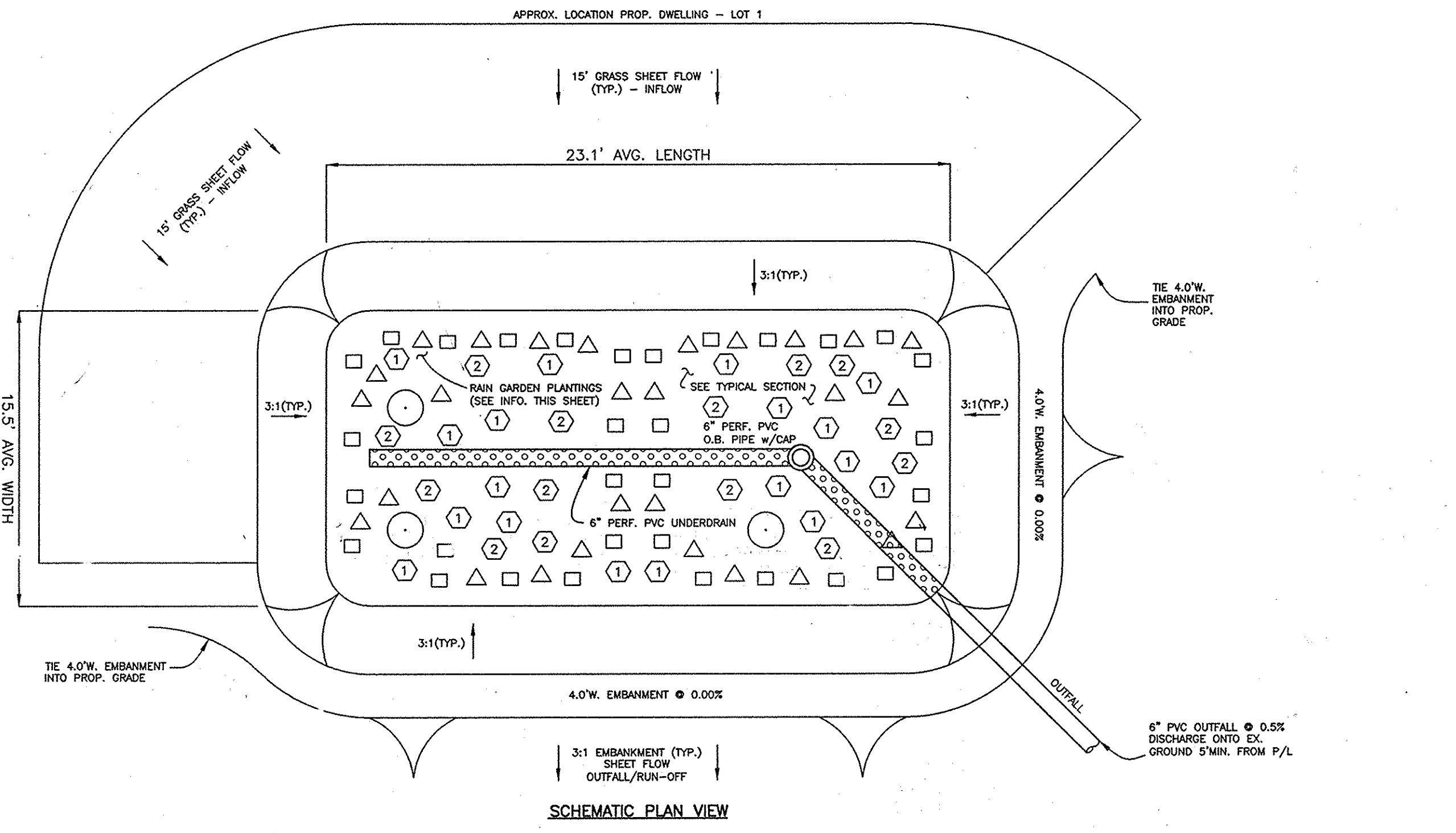
AS-BUILT CERTIFICATION  
I hereby certify, by my seal, that the facilities shown on this plan were constructed as shown on this AS-BUILT plan.  
Donald Mason, P.E. No. 21443 Date 9-26-14

NO. 1	DATE 4-10-2012	REVISION REVISE STORMDRAINS TO HDPE & ADJUST PLANS ACCORDINGLY			
<b>BENCHMARK</b>					
ENGINEERS • LAND SURVEYORS • PLANNERS					
<b>ENGINEERING, INC.</b>					
8480 BALTIMORE NATIONAL PIKE SUITE 418 ELLCOTT CITY, MARYLAND 21043 PHONE: 410-465-6105 FAX: 410-465-6644 E-MAIL: benchmark@bei-civilengineering.com					
OWNER/DEVELOPER: HICKORY KNOLLS, L.L.C. 11807 WOLLINGFORD COURT CLARKSVILLE, MARYLAND, 21029 (410)-792-2565		PROFESSIONAL CERTIFICATION: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 11443 Date: 9/26/14			
PROJECT: ROCKY GORGE OVERLOOK LOTS 1 THRU 3 & LOTS 5 THRU 10 AND OPEN SPACE LOTS 4 & 11		<table border="1"> <tr> <td>TITLE: FINAL/CONSTRUCTION PLANS SEDIMENT &amp; EROSION CONTROL AND GRADING PLAN</td> </tr> <tr> <td>DATE: SEPTEMBER 7, 2007 AUGUST 8, 2008</td> <td>PROJECT NO. 1560</td> </tr> </table>	TITLE: FINAL/CONSTRUCTION PLANS SEDIMENT & EROSION CONTROL AND GRADING PLAN	DATE: SEPTEMBER 7, 2007 AUGUST 8, 2008	PROJECT NO. 1560
TITLE: FINAL/CONSTRUCTION PLANS SEDIMENT & EROSION CONTROL AND GRADING PLAN					
DATE: SEPTEMBER 7, 2007 AUGUST 8, 2008	PROJECT NO. 1560				
Des: MCR/DAM Draft: MCR Check: DAM		SCALE: AS SHOWN DRAWING 5 OF 13			









ON LOT FACILITIES ARE AS-BUILT UNDER GRADE CERT. FOR HOUSES

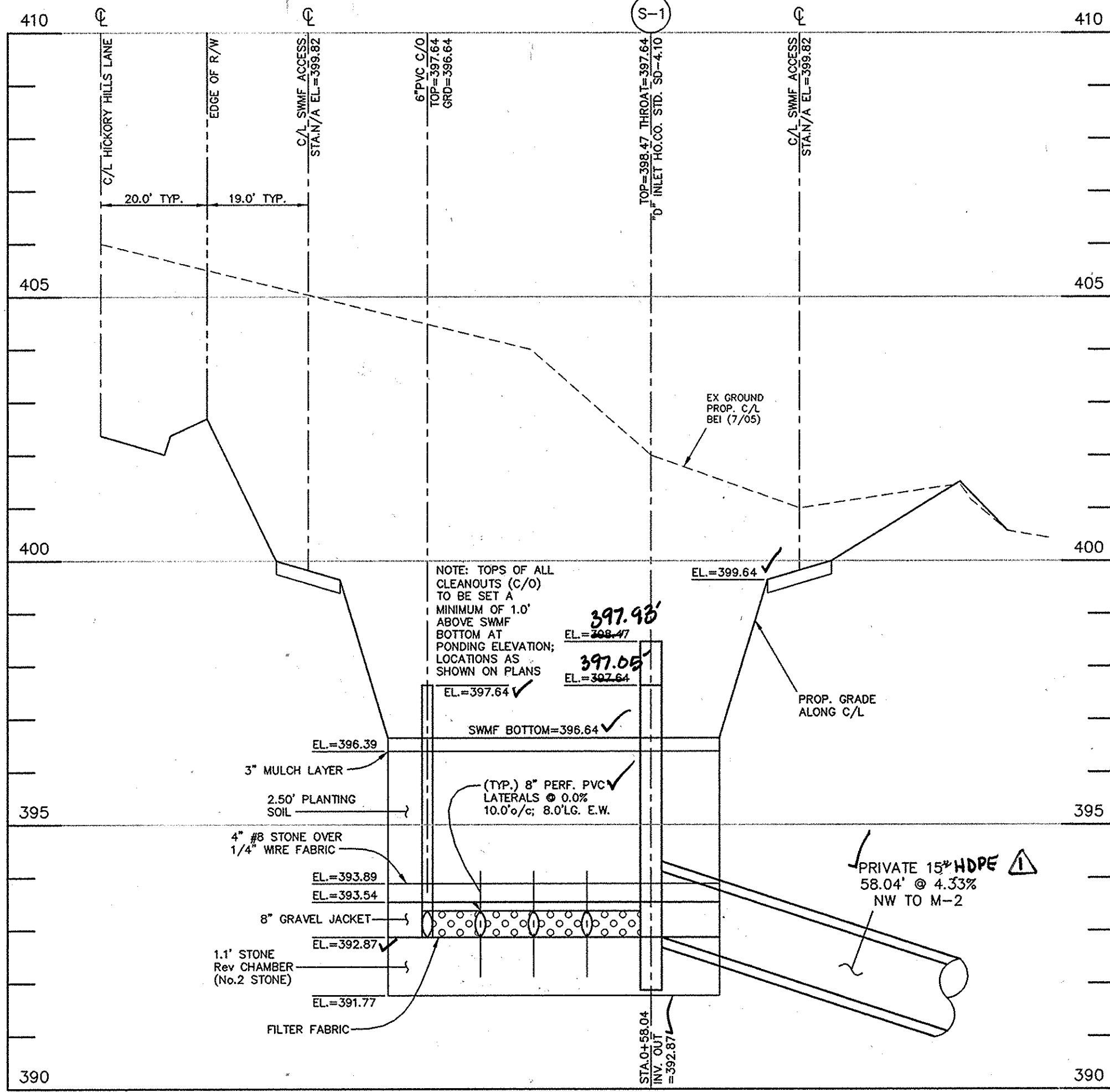
MATERIAL	SPECIFICATION	SIZE	NOTES:
PLANTINGS (IF REQUIRED)	SEE APPENDIX A; TABLE A.4	N/A	PLANTINGS ARE SITE SPECIFIC
PLANTING SOIL (2.5' TO 4.0' DEEP)	SAND: 30-60% SILT: 30-55% CLAY: 0-25%	N/A	USDA SOIL TYPES: LOAMY SAND, SANDY LOAM OR LOAM
MULCH	SHREDDED HARDWOOD	N/A	AGED 6 MONTHS, MINIMUM
GEOTEXTILE (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"	3/8" PERF. 6" O/C, 4 HOLES PER ROW; MINIMUM OF 3" OF GRAVEL OVER PIPES, NOT NECESSARY UNDERNEATH PIPES
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 BIO-RETENTION (RAINGARDEN-BMP)**

- 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.
- 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.
- MULCH SHALL BE INSPECTED EACH SPRING. REMOVE THE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.
- SOIL EROSION TO BE ADDRESSED ON AN AS-NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.

PLANTING DATA	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 (IRIS VERSICOLOR), DAYLILY (HEMEROCALLIS SP.), WHITE GLORY (ASTILE SP.)
3. AVOID PLANTINGS WITH EXCESSIVE ROOT MASS IN POND AREA OF THE RAIN GARDEN NEAR O.B. PIPE AND UNDERDRAIN.	

○ VINCA MINOR (COMMON PERIWINKLE)	34
△ AJUGA REPTANS S (CREEPING BUGLEWEED)	30
□ IRIS VERSICOLOR (IRIS)	16
◇ HEMEROCALLIS SP (DAYLILY)	14
● ACER RUBRUM (RED MAPLE)	3



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

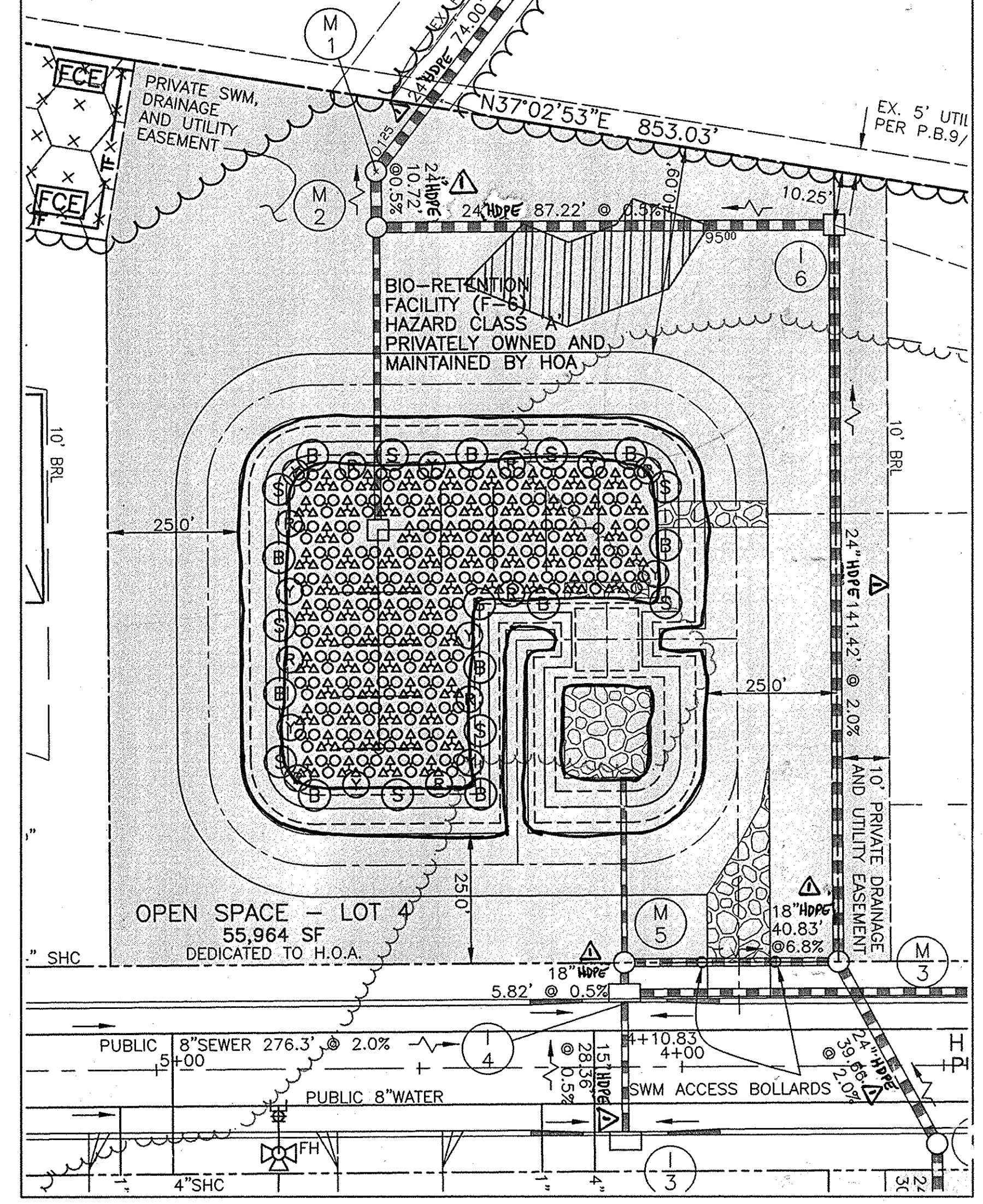
MATERIAL	SPECIFICATION	SIZE	NOTES:
PLANTINGS (IF REQUIRED)	SEE APPENDIX A; TABLE A.4	N/A	PLANTINGS ARE SITE SPECIFIC
PLANTING SOIL (2.5' TO 4.0' DEEP)	SAND: 30-60% SILT: 30-55% CLAY: 10-25%	N/A	USDA SOIL TYPES: LOAMY SAND, SANDY LOAM OR LOAM
MULCH	SHREDDED HARDWOOD	N/A	AGED 6 MONTHS, MINIMUM
PEA GRAVEL 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"	3/8" PERF. 6" O/C, 4 HOLES PER ROW; MINIMUM OF 3" OF GRAVEL OVER PIPES, NOT NECESSARY UNDERNEATH PIPES
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 @ 28 DAYS, NORMAL WEIGHT, AIR ENTRAINED; REINFORCING TO MEET ASTM 615-60	N/A	ON-SITE TESTING OF POURED-IN-PLACE CONC. REQUIRED; 28 DAY STRENGTH TEST AND SLUMP TEST; ALL CONC. DESIGN (CAST IN-PLACE OR 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 350.8.9(B); VERTICAL LOADING (H=10 OR 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 GRANSTONE#10 ARE NOT ACCEPTABLE. NO CALCIUM CARBONATE OR DOLOMITIC SAND SUBSTITUTIONS ARE ACCEPTABLE. NO "ROCK DUST" CAN BE USED FOR SAND

SYMBOL	QUANTITY	NAME	REMARKS
(B)	10	CEPHALANTHUS OCCIDENTALIS "BUTONIBUSH"	5.0' - 6.0' HT. UNSHARED
(S)	10	YIBURNUM DENTATUM "SOUTHERN ARROWWOOD"	5.0' - 6.0' HT. UNSHARED
(Y)	9	ALEX VOMITORIA "YAUPON HOLLY"	2.0' - 2.5' HT. 15" - 18" WIDTH 18" - 24" SPACE MIN.
(R)	9	ANDROMEDA POLIFOLIA "BOG ROSEMARY"	2.0' - 2.5' HT. 15" - 18" WIDTH 18" - 24" SPACE MIN.
○	69	ANDROPOGON GLOMERATUS "BUSHY BEARDGRASS"	UP TO 12" WHIPS
△	69	SPARGANUM EURYCARPIUM "GIANT BURWEED"	UP TO 12" WHIPS

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*William Z. ...* 8-18-08  
CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*...* 11/21/08  
CHIEF, DIVISION OF LAND DEVELOPMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*...* 11/20/08  
CHIEF, DEVELOPMENT ENGINEERING DIVISION



**BIO-RETENTION(F-6) FACILITY PLAN VIEW - PLANTINGS**  
SCALE: 1" = 20'

**OPERATION & MAINTENANCE SCHEDULE FOR BIO-RETENTION AREAS**

- 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.
- 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.
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- 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 this plan were constructed as shown on this AS-BUILT plan.  
Donald Mazon, P.E. No. 21443 Date: 9-26-14

NO.	DATE	REVISION
1	4-10-2012	REVISE STORMDRAIN TO HDPE & REVISE PLANS ACCORDINGLY

**BENCHMARK ENGINEERING, INC.**  
ENGINEERS • LAND SURVEYORS • PLANNERS  
8480 BALTIMORE NATIONAL PIKE SUITE 418  
ELLCOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-6644  
E-MAIL: benchmark@bei-civilengineering.com

**PROFESSIONAL CERTIFICATION:**  
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 21443, Registration Date: 12-21-2004.

**OWNER/DEVELOPER:**  
HICKORY KNOLLS, L.L.C.  
11807 WOLLINGFORD COURT  
CLARKSVILLE, MARYLAND, 21029  
(410)-792-2565

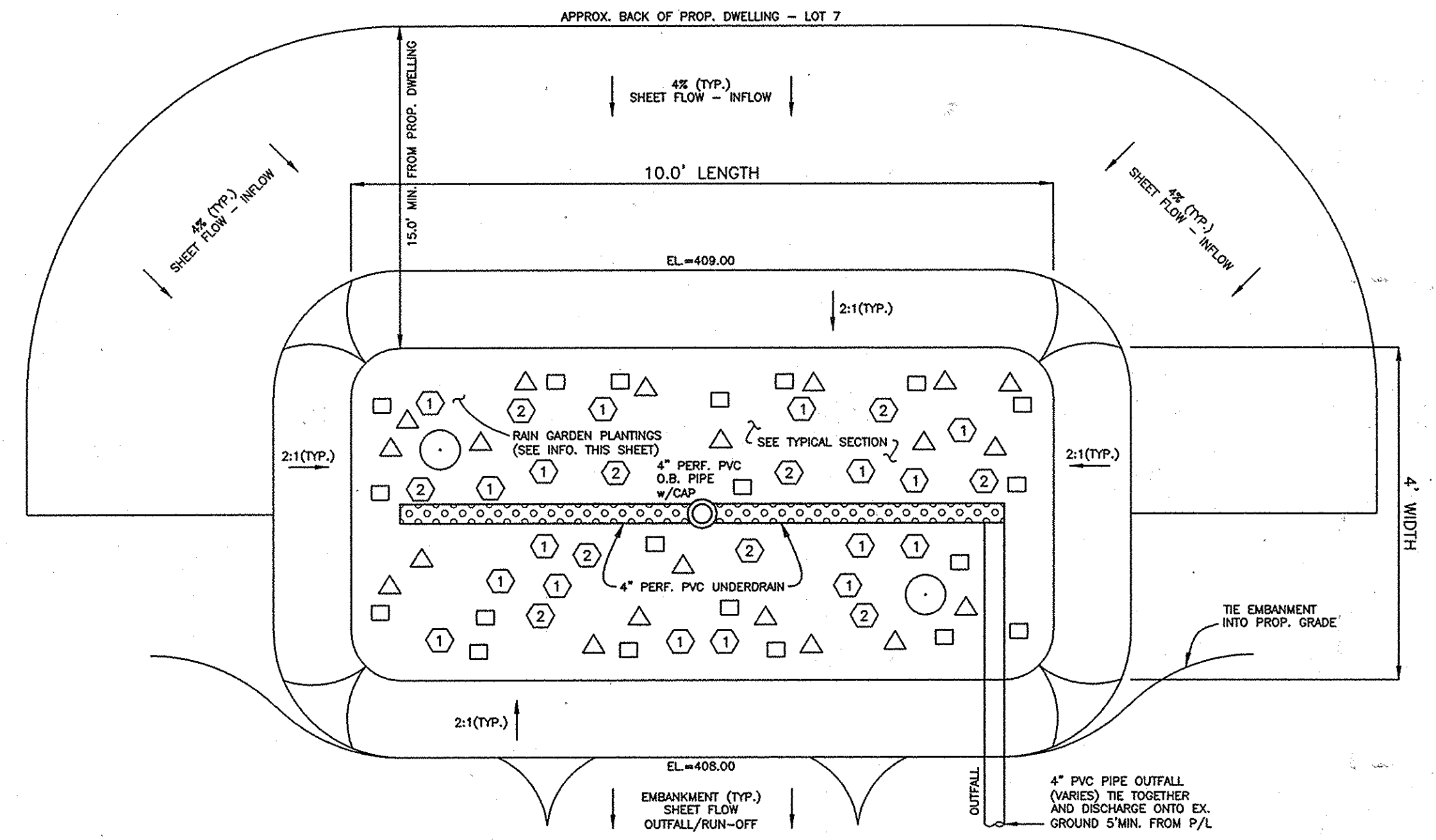
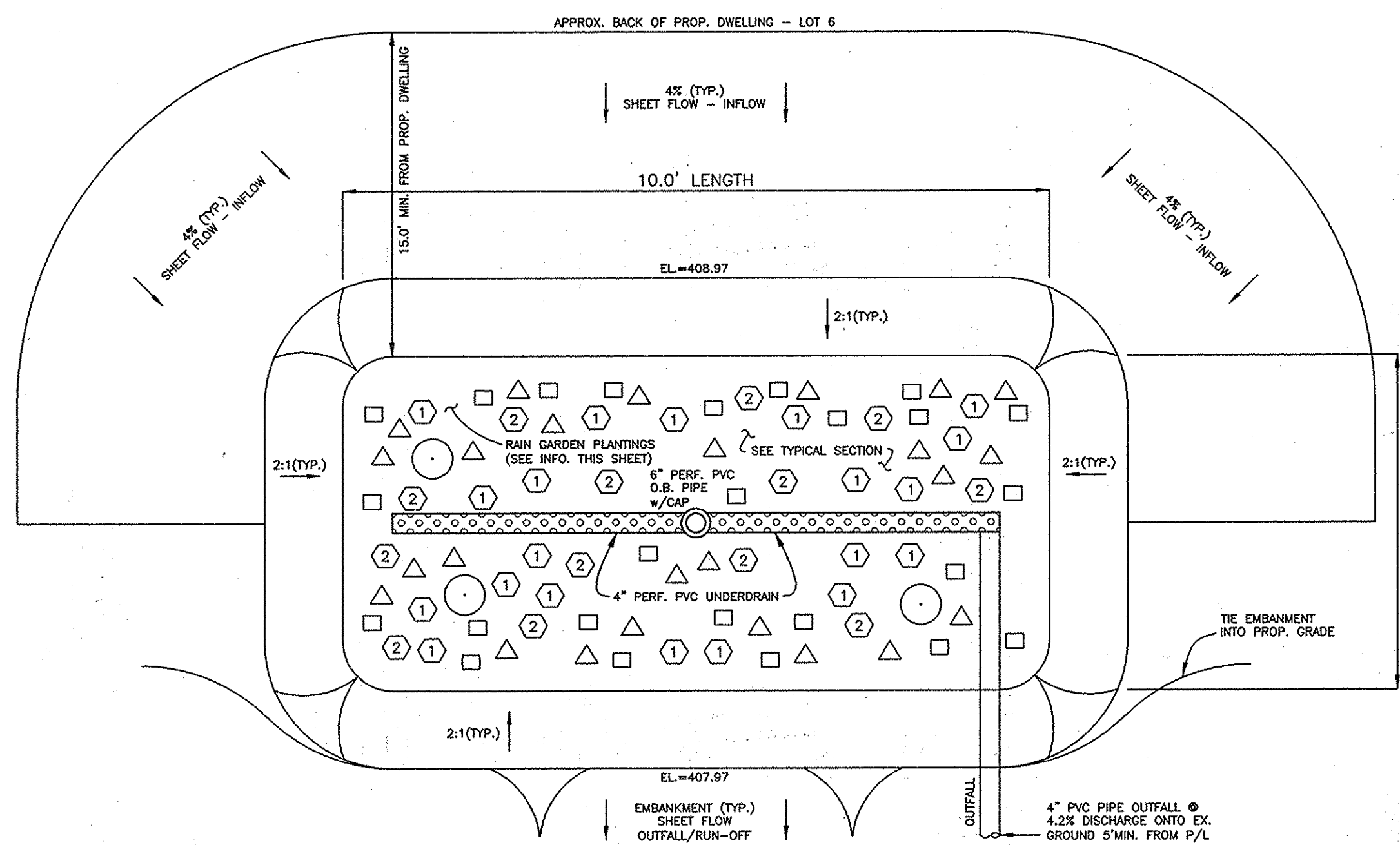
**PROJECT:**  
ROCKY GORGE OVERLOOK  
LOTS 1 THRU 3 & LOTS 5 THRU 10  
AND OPEN SPACE LOTS 4 & 11  
LOCATION: TAX MAP 46 - GRID 12 - PARCEL 289  
ZONE: R-20 8th ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

**TITLE:** FINAL/CONSTRUCTION PLANS  
STORMWATER MANAGEMENT  
PROFILES, NOTES, AND DETAILS

DATE: SEPTEMBER 7, 2007  
AUGUST 8, 2008  
PROJECT NO. 1560  
SCALE: AS SHOWN DRAWING 7 OF 13

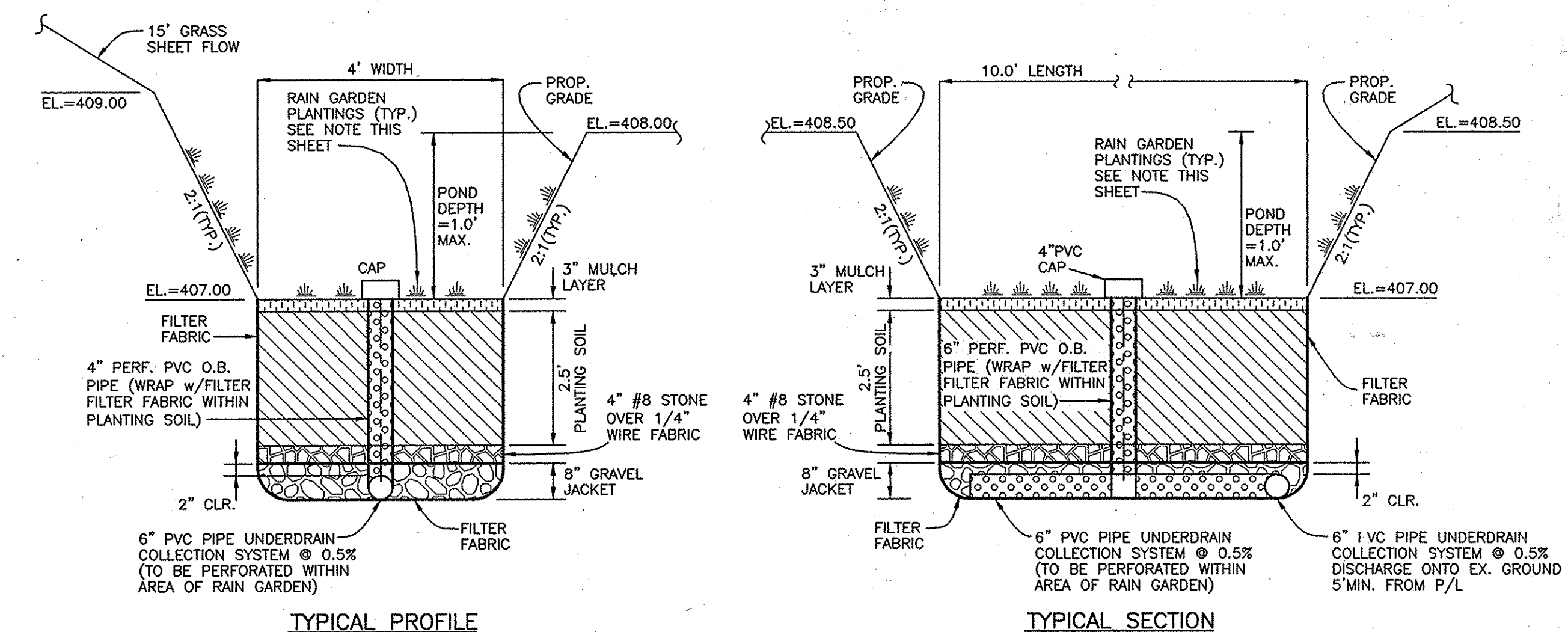
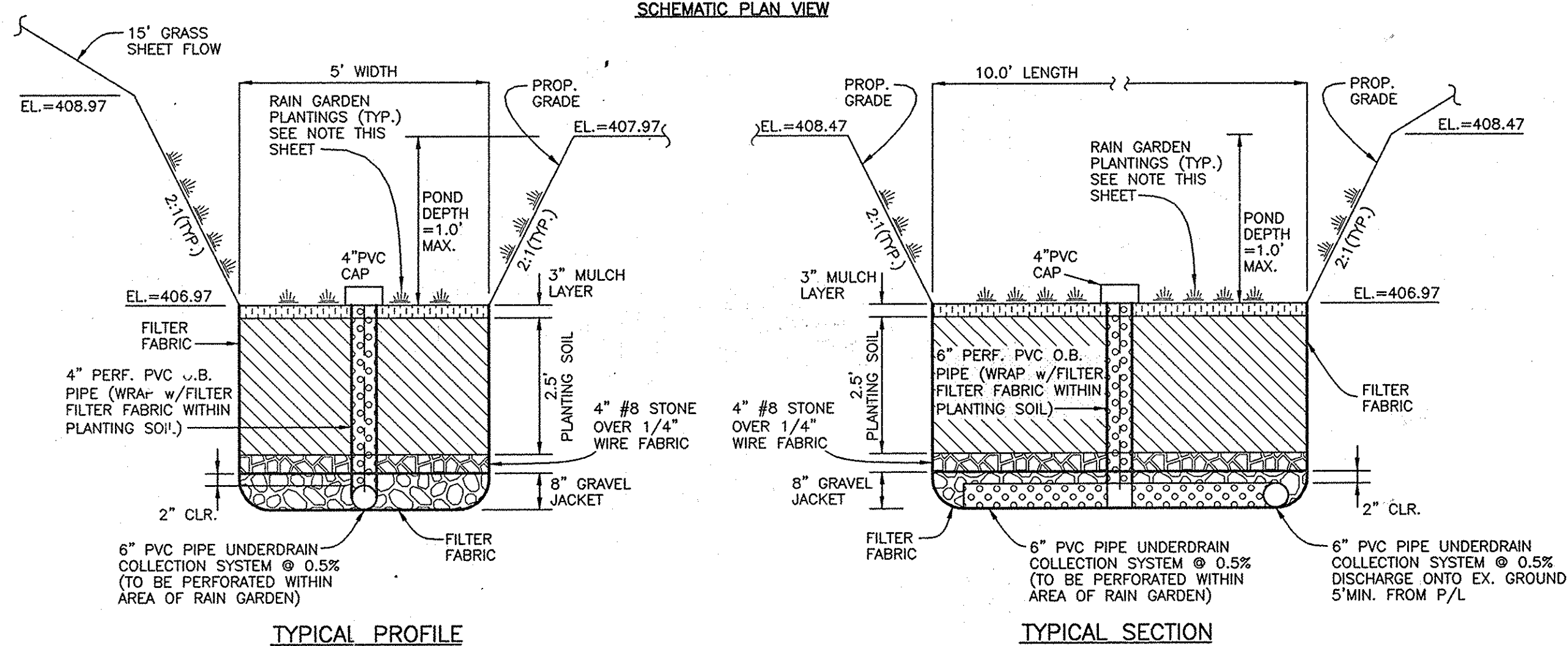
Des: MCR/DAM Draft: MCR Check: DAM





SCHEMATIC PLAN VIEW

SCHEMATIC PLAN VIEW



THESE DETAILS CONFORM TO HO.CO. STD. D-9.02  
RAIN GARDEN DETAIL - LOT 6  
NOT TO SCALE

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

RAIN GARDEN - PLANTING SCHEDULE

①	VINCA MINOR (COMMON PERIWINKLE)	17
△	AJUSTA REPTAN S (CREEPING BUGLEWEED)	20
□	IRIS VERSICOLOR (IRIS)	20
②	HEMEROCALLIS SP (DAYLILY)	10
○	ACER RUBRUM (RED MAPLE)	2

MATERIALS & SPECIFICATIONS FOR BIO-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-4832) 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 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.
- 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.
- MULCH SHALL BE INSPECTED EACH SPRING. REMOVE THE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.
- 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

- 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.)
- 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 (ASTILE SP.)
- AVOID PLANTINGS WITH EXCESSIVE ROOT MASS IN POND AREA OF THE RAIN GARDEN NEAR O.B. PIPE AND UNDERDRAIN.

RAIN GARDEN - PLANTING DATA

- 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.)
- 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 (ASTILE SP.)
- AVOID PLANTINGS WITH EXCESSIVE ROOT MASS IN POND AREA OF THE RAIN GARDEN NEAR O.B. PIPE AND UNDERDRAIN.

RAIN GARDEN - PLANTING SCHEDULE

①	VINCA MINOR (COMMON PERIWINKLE)	20
△	AJUGA REPTAN S (CREEPING BUGLEWEED)	25
□	IRIS VERSICOLOR (IRIS)	25
②	HEMEROCALLIS SP (DAYLILY)	13
○	ACER RUBRUM (RED MAPLE)	3

ON LOT FACILITIES ARE AS-BUILT UNDER GRADE CERT FOR HOUSES



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*William P. ...* 8-18-08  
 CHIEF, BUREAU OF HIGHWAYS DATE:

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*...* 11/20/08  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE:

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*...* 11/20/08  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE:

NO. DATE REVISION

**BENCHMARK ENGINEERING, INC.**  
 ENGINEERS • LAND SURVEYORS • PLANNERS  
 8480 BALTIMORE NATIONAL PIKE • SUITE 418  
 ELLICOTT CITY, MARYLAND 21043  
 PHONE: 410-465-6105 FAX: 410-465-6644  
 E-MAIL: benchmark@bei-civilengineering.com

PROFESSIONAL CERTIFICATION:  
 I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 01887, Expiration Date: 12-21-2014.  
*Donald M. ...* 8/7/08

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

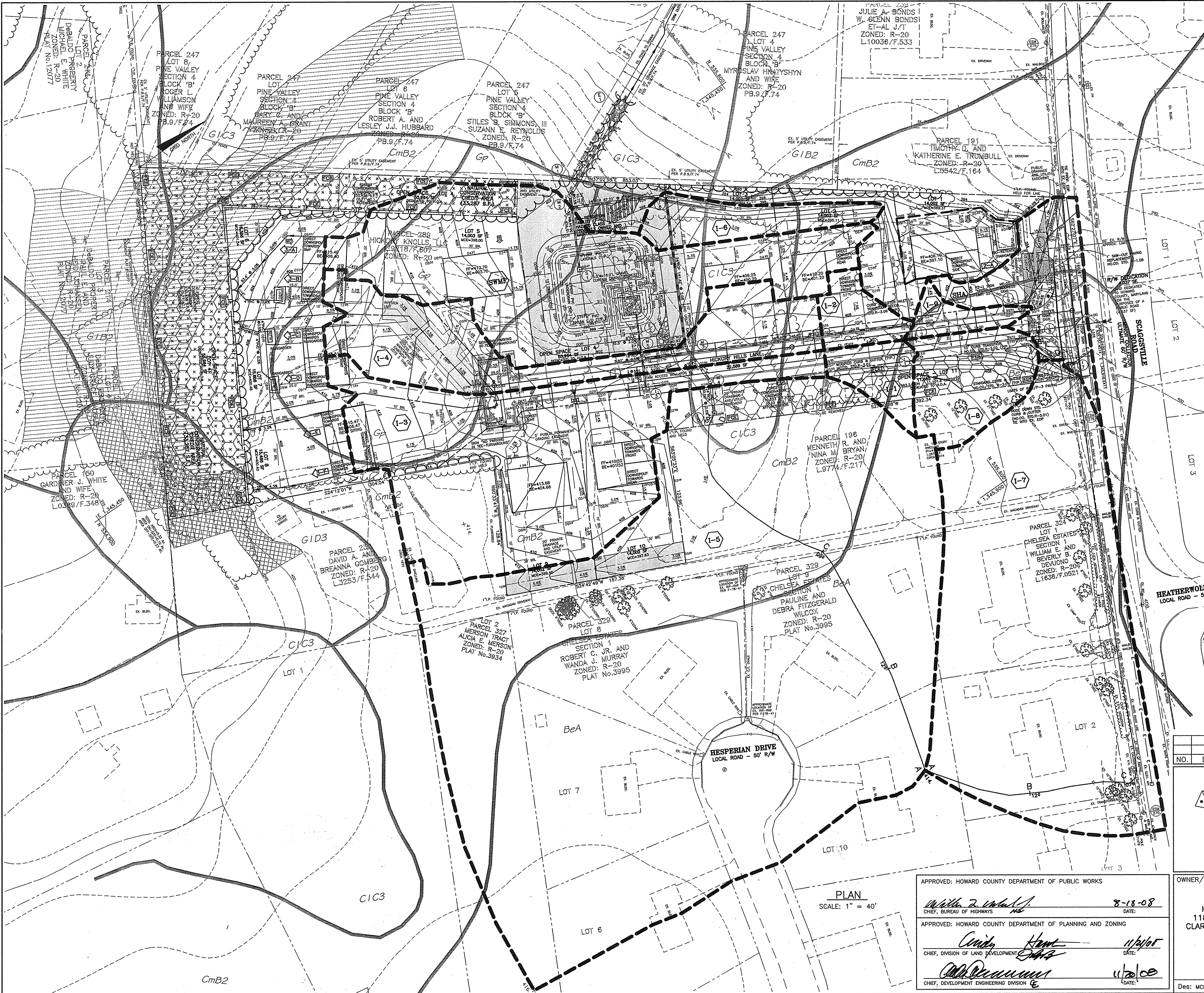
TITLE:  
 FINAL/CONSTRUCTION PLANS  
 STORMWATER MANAGEMENT  
 PROFILES, NOTES, AND DETAILS

DATE: SEPTEMBER 7, 2007  
 AUGUST 8, 2008 PROJECT NO. 1560

SCALE: AS SHOWN DRAWING NO. OF 13

Des: MCR/DAM Draft: MCR Check: DAM





SOILS LEGEND		
MAP SYMBOL	SOIL TYPE	MAPPING UNIT
BeA*	C	BELTSVILLE SILT LOAM - 0 TO 1 PERCENT SLOPES
GIC3	B	CHILLUM GRAVELLY LOAM - 5 TO 10 PERCENT SLOPES - SEVERELY ERODED
CmB2	B	CHILLUM SILT LOAM - 1 TO 5 PERCENT SLOPES - MODERATELY ERODED
Gp	A	GRAVEL PITS AND QUARRIES
GIB2	B	GLENELG LOAM - 3 TO 8 PERCENT SLOPES - MODERATELY ERODED
GIB3	B	GLENELG LOAM - 8 TO 15 PERCENT SLOPES - SEVERELY ERODED
GID3	B	GLENELG LOAM - 15 TO 25 PERCENT SLOPES - SEVERELY ERODED

HO. CO. USDA SOILS MAP No.33  
 \* - INDICATES HYDRIC SOILS INCLUSIONS

AREA AND "C" FACTOR TABULATION							
PROJECT: Rocky Gorge Overlook		DATE: 2/27/2008		BEI JOB # 1560			
PHASE	INLET #	ZONING (Z)	SUBAREA (B)	AREA (Ac) (A)	"C" FACTOR <25yrs (C)	"C" FACTOR >25yrs (C)	% IMPERVIOUS (P)
	I-1	R-20		0.0973	0.45	0.51	0.41
	I-2	R-20		0.0926	0.50	0.59	0.58
	I-3	R-20		1.1486	0.33	0.42	0.39
	I-4	R-20		0.5214	0.39	0.48	0.47
	* I-5	R-20		4.0937	0.25	0.34	0.24
	I-6	R-20		0.1568	0.25	0.33	0.26
	S-1 SWMF	R-20		1.0356	0.12	0.27	0.17
	* I-7	R-20		1.5589	0.36	0.44	0.36
	* I-8	R-20		0.2270	0.37	0.44	0.31
	I-9	R-20		0.0622	0.71	0.81	0.82
	SHA	R-20		0.2573	0.63	0.73	0.73
	I-10	R-20		0.0000	0.00	0.00	0.00

\* - OFFSITE BYPASS COLLECTION POINT

No As-Built information is required on this sheet



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

NO.	DATE	REVISION

**BENCHMARK**  
 ENGINEERS • LAND SURVEYORS • 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

PROFESSIONAL CERTIFICATION:  
 I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 21443, Expiration Date: 12-21-2014

*David M. ...*  
 PROFESSIONAL ENGINEER  
 9/1/08

OWNER/DEVELOPER: 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

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

TITLE: FINAL/CONSTRUCTION PLANS  
 STORM DRAINAGE AREA  
 AND SOILS MAP

DATE: SEPTEMBER 7, 2007  
 AUGUST 8, 2008

PROJECT NO. 1560  
 DRAWING 9 OF 13

Des: MCR/DAM Draft: MCR Check: DAM  
 SCALE: AS SHOWN

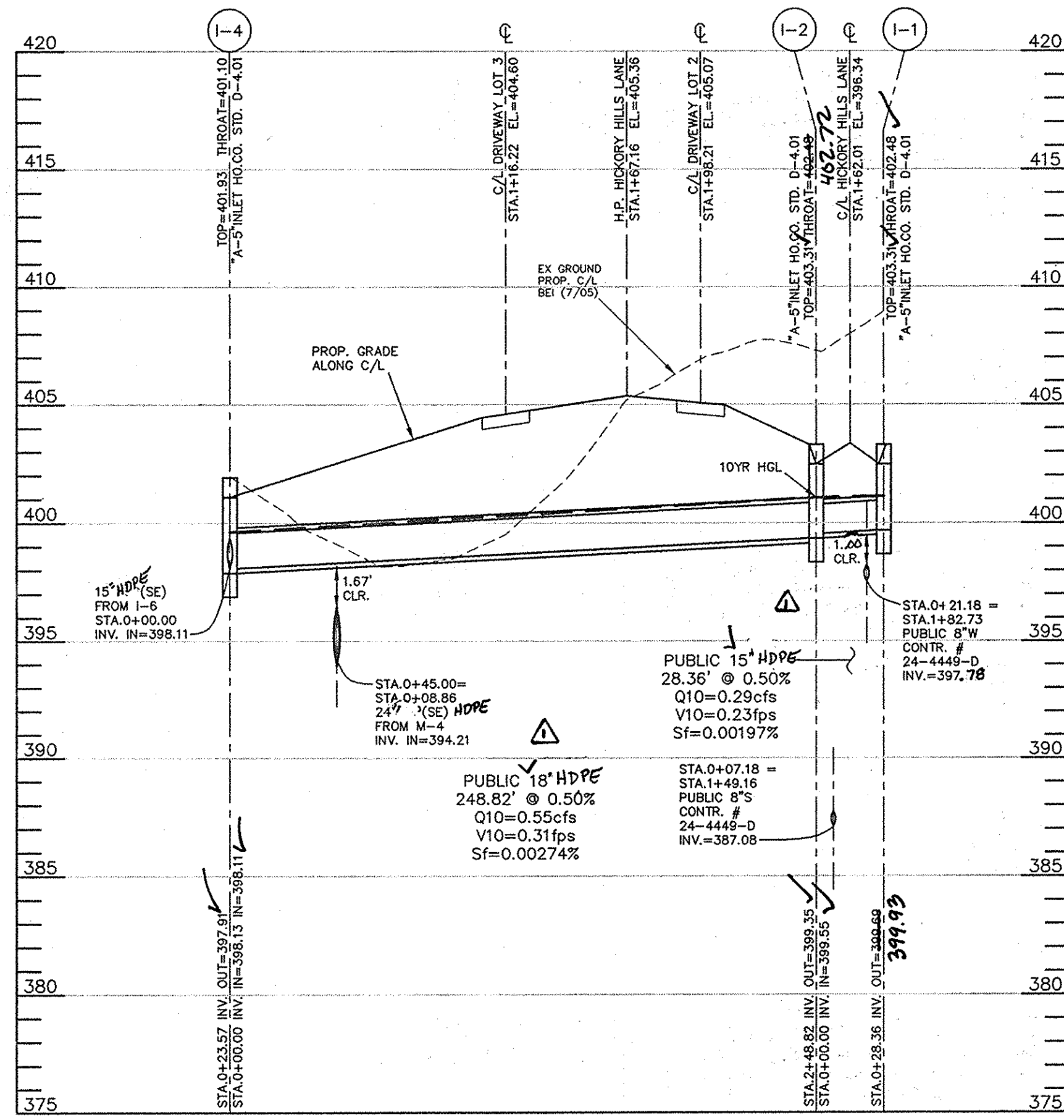
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*William J. ...* 8-18-08  
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Conrad ...* 11/24/08  
 CHIEF, DIVISION OF LAND DEVELOPMENT

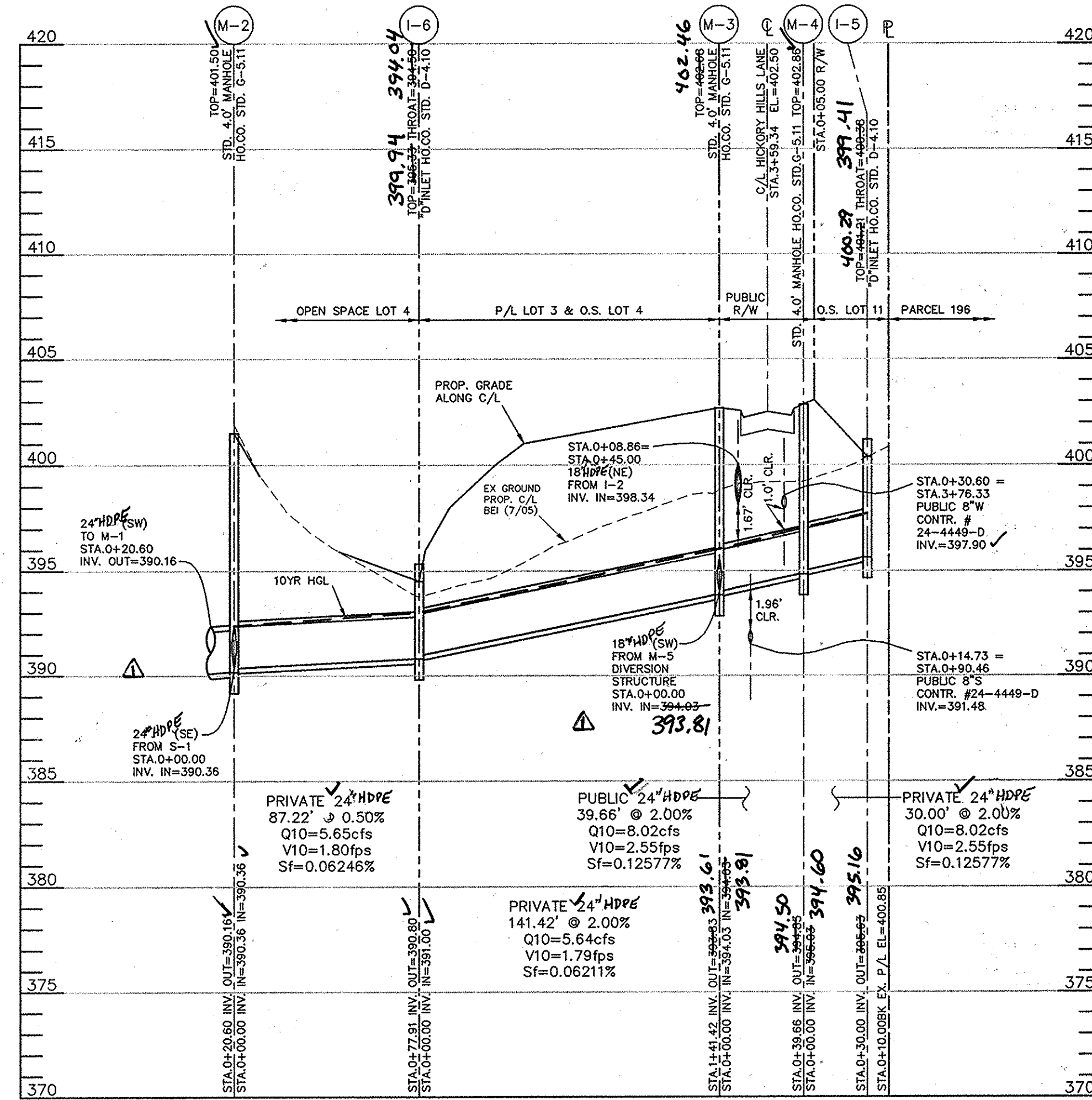
*John ...* 11/24/08  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

PLAN  
 SCALE: 1" = 40'

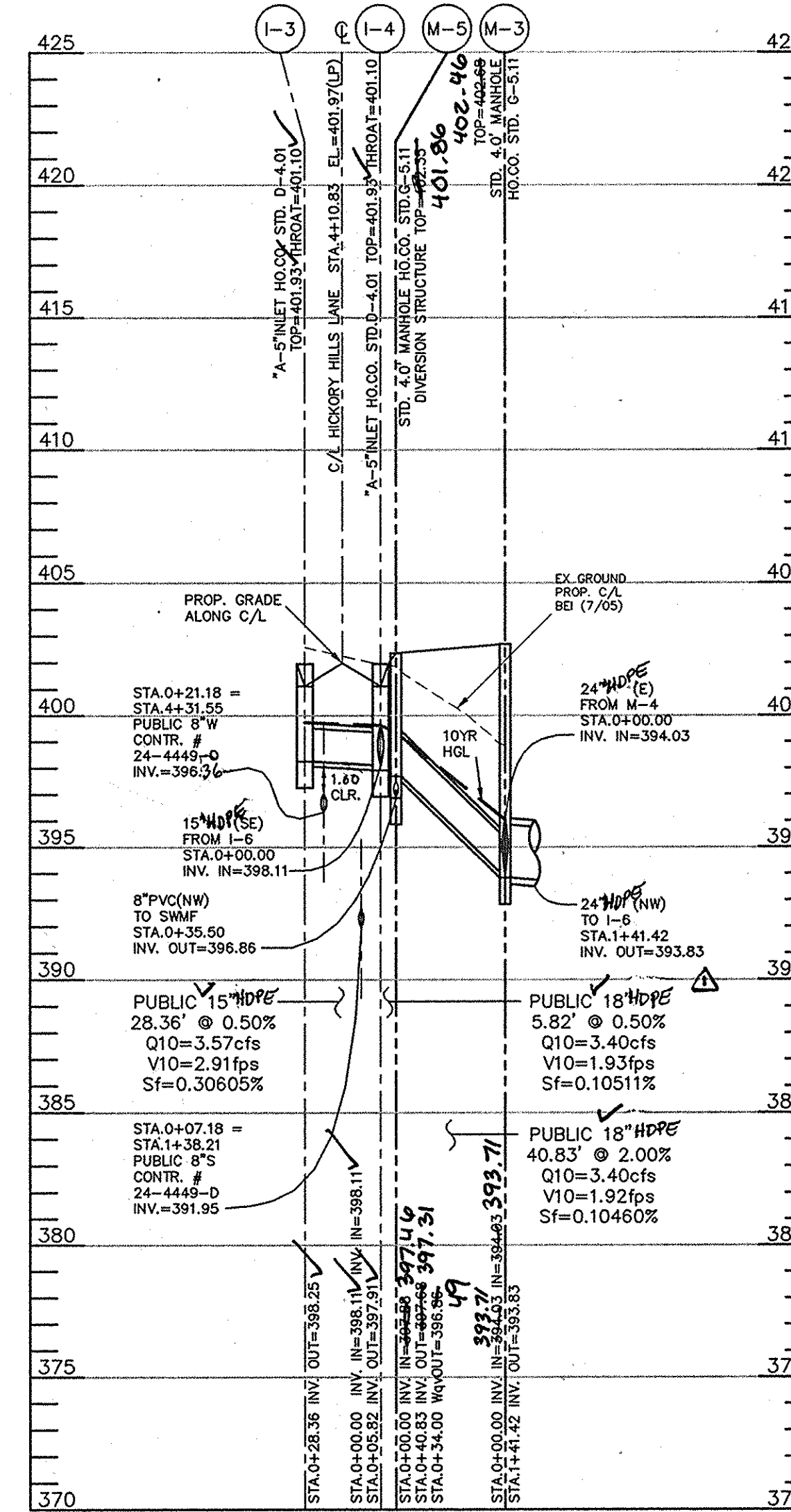




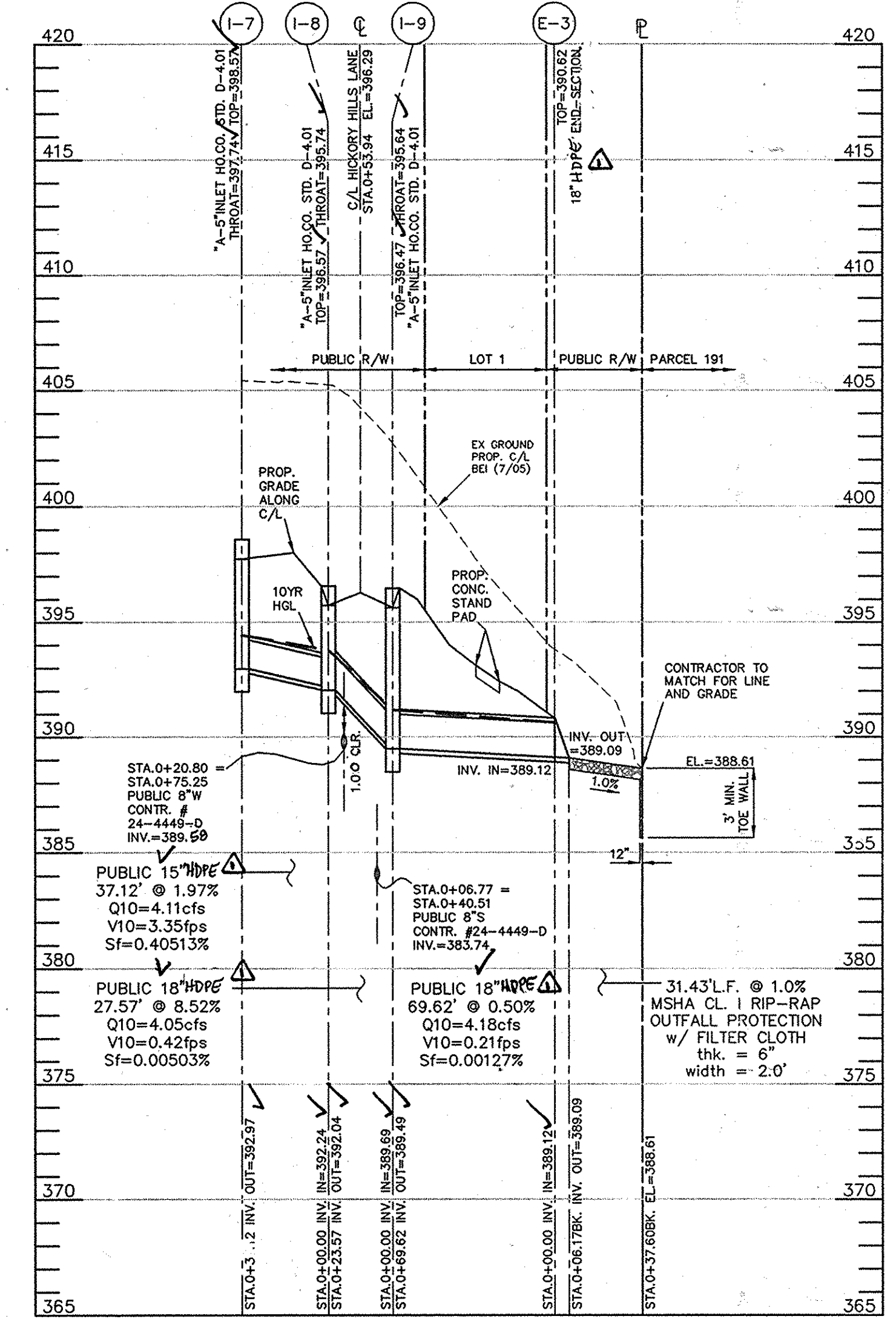
**STORM DRAIN PROFILE FROM I-1 TO I-4**  
 HORIZONTAL SCALE: 1" = 50'  
 VERTICAL SCALE: 1" = 5'



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



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

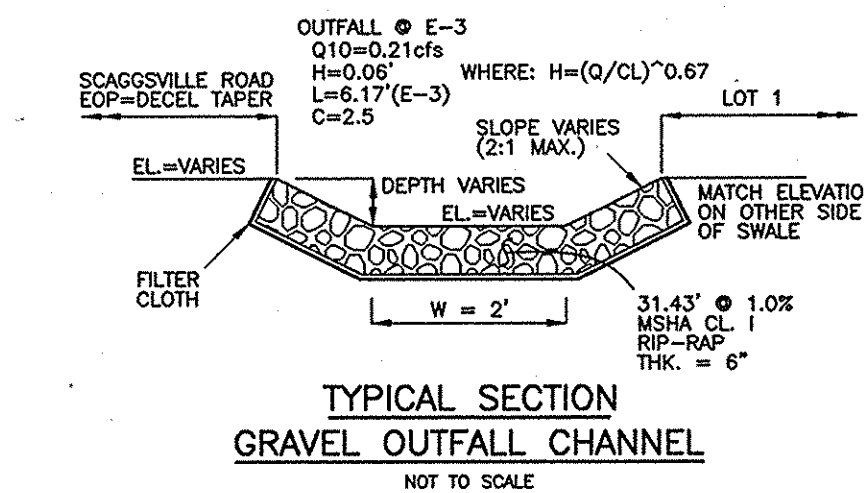


**STORM DRAIN PROFILE FROM I-7 TO E-3**  
 HORIZONTAL SCALE: 1" = 50'  
 VERTICAL SCALE: 1" = 5'

PIPE SCHEDULE		
SIZE	LENGTH	TYPE & CLASS
4"	150.0	PVC
4"	50.5	PERF. PVC
6"	212.0	PERF. PVC
6"	35.5	PVC
15"	150.5	HDPE
18"	392.6	HDPE
24"	383.1	HDPE

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

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



STRUCTURE SCHEDULE												
NO.	TYPE	LOCATION	COORDINATES	INVERT IN	INVERT IN	INVERT OUT	INVERT OUT	TOP ELEV.	THROAT EL.	HO. CO. STD.	REMARKS	INTERIOR DIMS.
I-1	PRE-CAST A-5	HICKORY HILLS LANE STA 1+82.01 OFF -14.18'L	N 535,601.3864 E 1,345,755.9700	-	-	399.8493	-	403.31	402.48	D-4.01	-	2'-6" x 5'-0"
I-2	PRE-CAST A-5	HICKORY HILLS LANE STA 1+62.01 OFF -14.18'R	N 535,614.5557 E 1,345,730.8530	399.55	-	399.35	-	403.31	402.48	D-4.01	-	2'-6" x 5'-0"
I-3	PRE-CAST A-5	HICKORY HILLS LANE STA 4+10.83 OFF -14.18'L	N 535,381.0170 E 1,345,640.4259	-	-	398.25	-	401.93	401.10	D-4.01	-	2'-6" x 5'-0"
I-4	PRE-CAST A-5	HICKORY HILLS LANE STA 4+10.83 OFF -14.18'R	N 535,394.1863 E 1,345,615.3090	398.11	398.11	397.91	-	401.93	401.10	D-4.01	-	2'-6" x 5'-0"
I-5	PRE-CAST TYPE "D"	HICKORY HILLS LANE STA 3+51.34 OFF -45.00'L	N 535,419.3887 E 1,345,695.3444	-	-	395.8616	400.29	404.21	400.29	D-4.10	OFFSITE BYPASS - OPEN ON FOUR SIDES	30' x 30'
I-6	PRE-CAST TYPE "D"	HICKORY HILLS LANE STA 3+70.00 OFF -161.42'R	N 535,498.7173 E 1,345,503.8615	391.00	-	390.80	-	395.53	394.94	D-4.10	OPEN ON FOUR SIDES	30' x 30'
I-7	PRE-CAST A-5	HICKORY HILLS LANE STA 0+28.69 OFF -40.00'L	N 535,707.4693 E 1,345,840.7452	-	-	392.97	-	396.57	397.74	D-4.01	OFFSITE BYPASS @ P/L	3'-6" x 3'-0"
I-8	PRE-CAST A-5	HICKORY HILLS LANE STA 0+54.94 OFF -13.75'L	N 535,696.4108 E 1,345,805.3075	392.24	-	392.04	-	396.57	395.74	D-4.01	OUTFALL @ ENTRANCE	2'-6" x 5'-0"
I-9	PRE-CAST A-5	HICKORY HILLS LANE STA 0+52.95 OFF -13.75'R	N 535,710.9424 E 1,345,781.8760	389.68	-	389.48	-	396.47	395.64	D-4.01	OUTFALL @ ENTRANCE	2'-6" x 5'-0"
M-1	STD. 4.0' PRE-CAST	HICKORY HILLS LANE STA 4+57.22 OFF -172.15'R	N 535,428.4532 E 1,345,453.8645	390.11	-	389.91	-	401.28(D)	-	G-5.11	-	4.0' DIA.
M-2	STD. 4.0' PRE-CAST	HICKORY HILLS LANE STA 4+57.22 OFF -181.43'R	N 535,421.4739 E 1,345,463.3612	390.36	390.36	390.16	-	401.50	-	G-5.11	-	4.0' DIA.
M-3	STD. 4.0' PRE-CAST	HICKORY HILLS LANE STA 3+70.00 OFF -20.00'R	N 535,433.0458 E 1,345,629.1123	390.40	390.40	390.20	-	402.88	402.88	G-5.11	-	4.0' DIA.
M-4	STD. 4.0' PRE-CAST	HICKORY HILLS LANE STA 3+51.34 OFF -15.00'L	N 535,433.3195 E 1,345,668.7751	395.03	394.60	394.80	50	402.86	402.86	G-5.11	-	4.0' DIA.
M-5	STD. 4.0' PRE-CAST	HICKORY HILLS LANE STA 4+10.83 OFF -20.00'R	N 535,396.8889 E 1,345,610.1545	397.86	397.86	397.86	396.86	400.86	400.86	G-5.11	DIVERSION STRUCTURE	4.0' DIA.
E-1	24" HDPE END SEC.	HICKORY HILLS LANE STA 4+12.29 OFF -230.94'R	N 535,493.5521 E 1,345,422.6598	389.54	-	389.51	-	391.54	-	-	BIO-RETENTION (F-6) SWMF - OUTFALL	-
E-2	8" PVC END SEC.	HICKORY HILLS LANE STA 4+10.83 OFF -54.00'R	N 535,412.6771 E 1,345,580.0426	392.41	392.41	392.41	-	396.11	-	-	SWMF FOREBAY - W/IN FLOW	8" DIA.
E-3	18" HDPE END SEC.	HICKORY HILLS LANE STA 0+25.75 OFF -77.83'R	N 535,764.7917 E 1,345,737.7555	389.12	-	389.09	-	390.62	-	-	OUTFALL @ P/L	-
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	392.87	392.87	392.87	-	397.93	397.05	-	BIO-RETENTION (F-6) SWMF	4'-0" (OPEN 4 SIDES)

NOTES:  
 1. STRUCTURE LOCATION FOR INLETS IS AT THE TOP AND CENTER OF STRUCTURE.  
 2. STRUCTURE LOCATION FOR ENDSECTIONS IS AT THE CONNECTION OF PIPE AND END SECTION.  
 3. STRUCTURE LOCATION FOR MANHOLES IS AT THE CENTER OF THE STRUCTURE.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

4-10-2011 REVISE STORM DRAIN TO HDPE & ADJUST PLANS ACCORDINGLY

**BENCHMARK ENGINEERING, INC.**  
 ENGINEERS • LAND SURVEYORS • PLANNERS  
 8480 BALTIMORE NATIONAL PIKE SUITE 418  
 ELICOTT CITY, MARYLAND 21043  
 PHONE: 410-465-6105 FAX: 410-465-6844  
 E-MAIL: benchmark@bei-civilengineering.com

**PROFESSIONAL CERTIFICATION:**  
 I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 14499, Expiration Date: 12-31-2014  
 Date: 7-26-14

**OWNER/DEVELOPER:**  
 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

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

**TITLE:** FINAL/CONSTRUCTION PLANS  
 STORM DRAIN PROFILES  
 NOTES AND DETAILS

**DATE:** SEPTEMBER 7, 2007  
 AUGUST 8, 2008

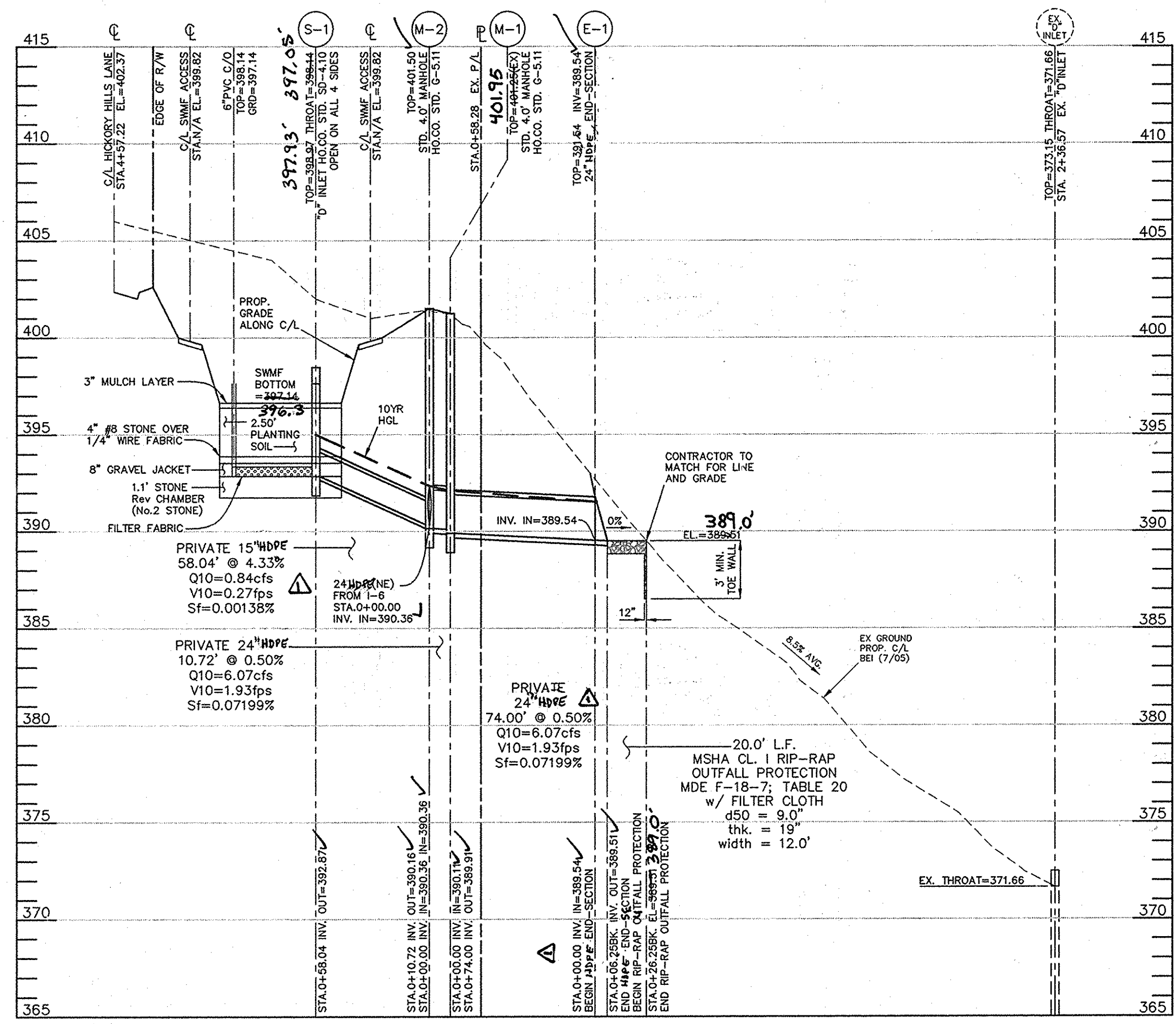
**PROJECT NO. 1560**

**SCALE:** AS SHOWN DRAWING 10 OF 13

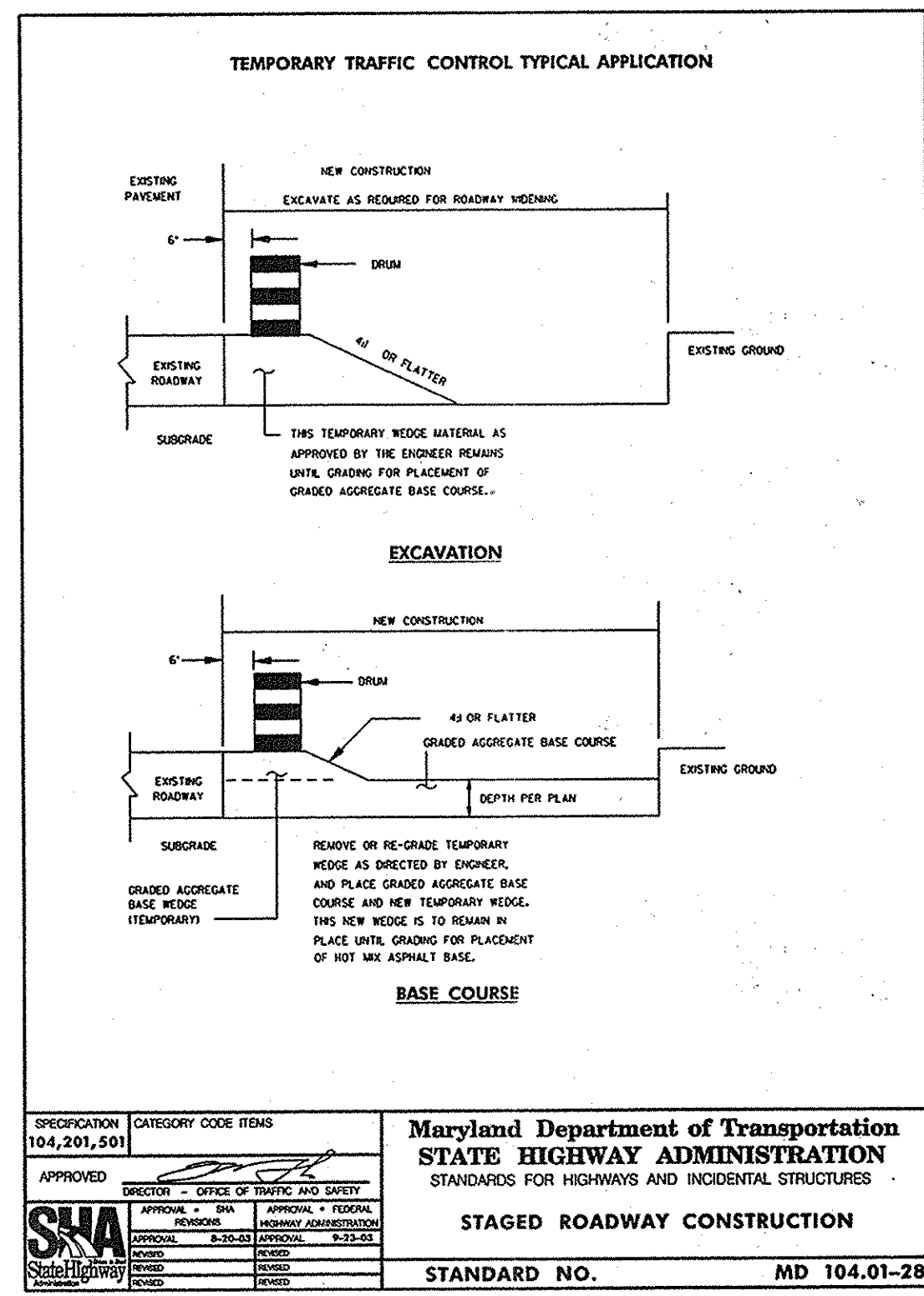
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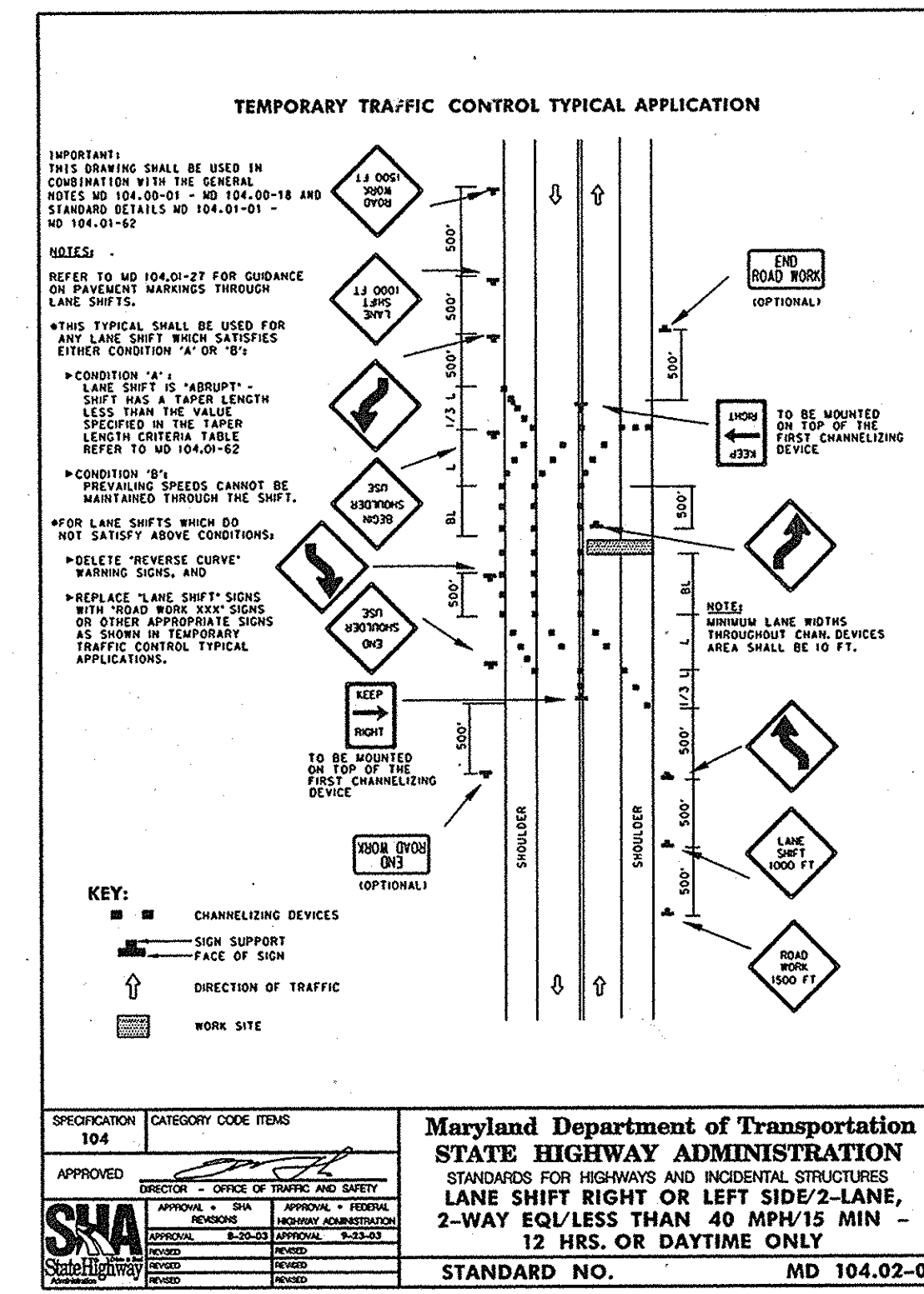
NOTE: CONTRACTORS TO EXERCISE EXTREME CAUTION WHEN WORKING IN AREA OF EXIST. OVERHEAD LINES ALONG SCAGGSVILLE ROAD



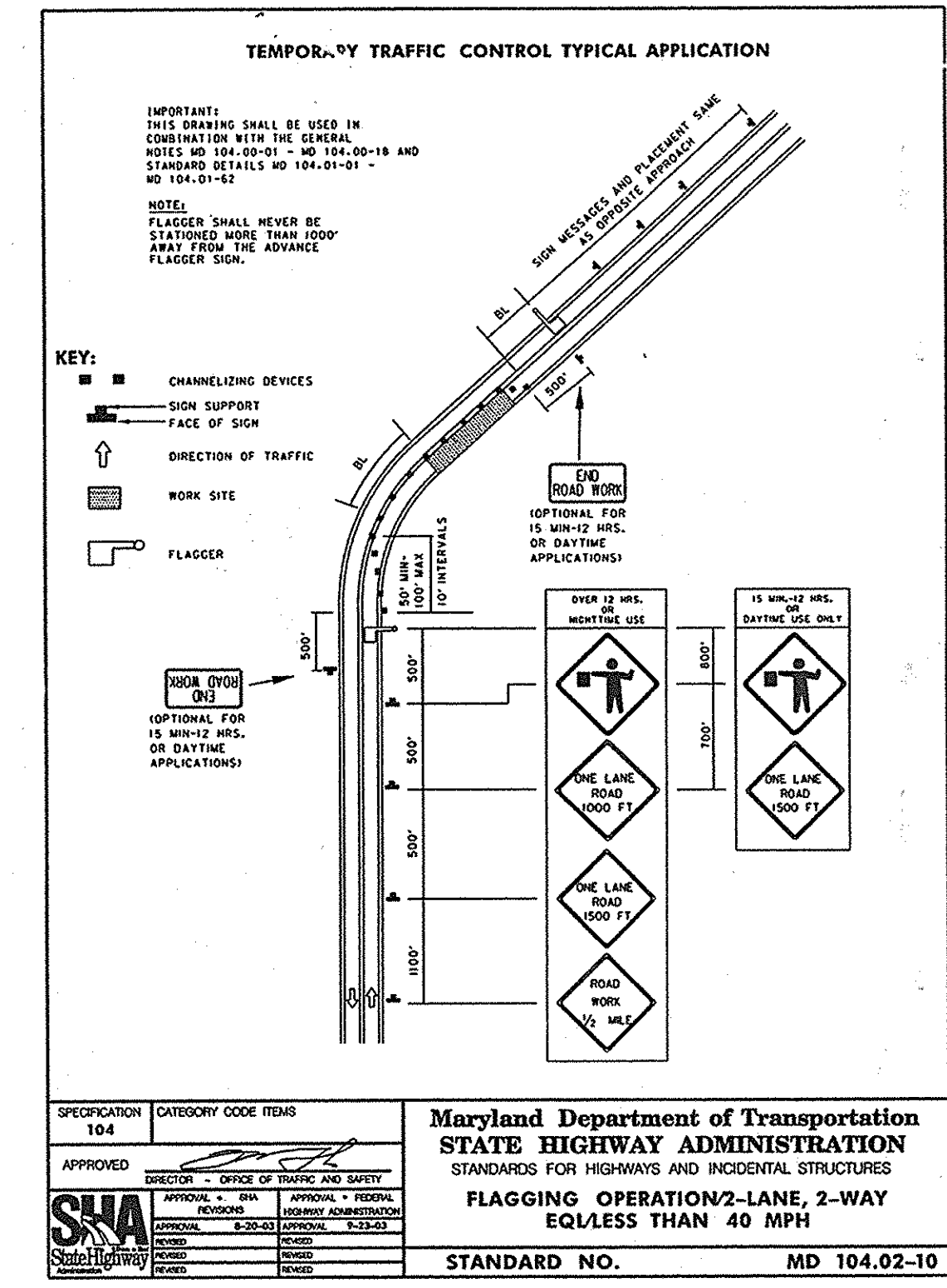
STORM DRAIN PROFILE FROM S-1 TO E-2  
HORIZONTAL SCALE: 1" = 50'  
VERTICAL SCALE: 1" = 5'



Maryland Department of Transportation  
STATE HIGHWAY ADMINISTRATION  
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES  
STAGED ROADWAY CONSTRUCTION  
STANDARD NO. MD 104.01-28

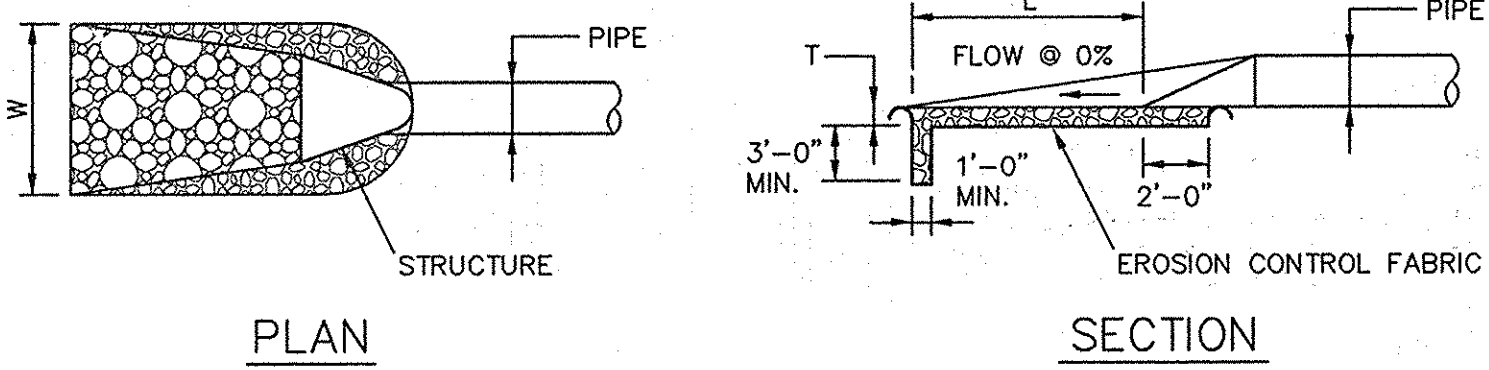


Maryland Department of Transportation  
STATE HIGHWAY ADMINISTRATION  
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES  
LANE SHIFT RIGHT OR LEFT SIDE/2-LANE, 2-WAY EQ/LESS THAN 40 MPH/15 MIN - 12 HRS. OR DAYTIME ONLY  
STANDARD NO. MD 104.02-04



Maryland Department of Transportation  
STATE HIGHWAY ADMINISTRATION  
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES  
FLAGGING OPERATION/2-LANE, 2-WAY EQ/LESS THAN 40 MPH  
STANDARD NO. MD 104.02-10

MAINTENANCE OF TRAFFIC DETAILS

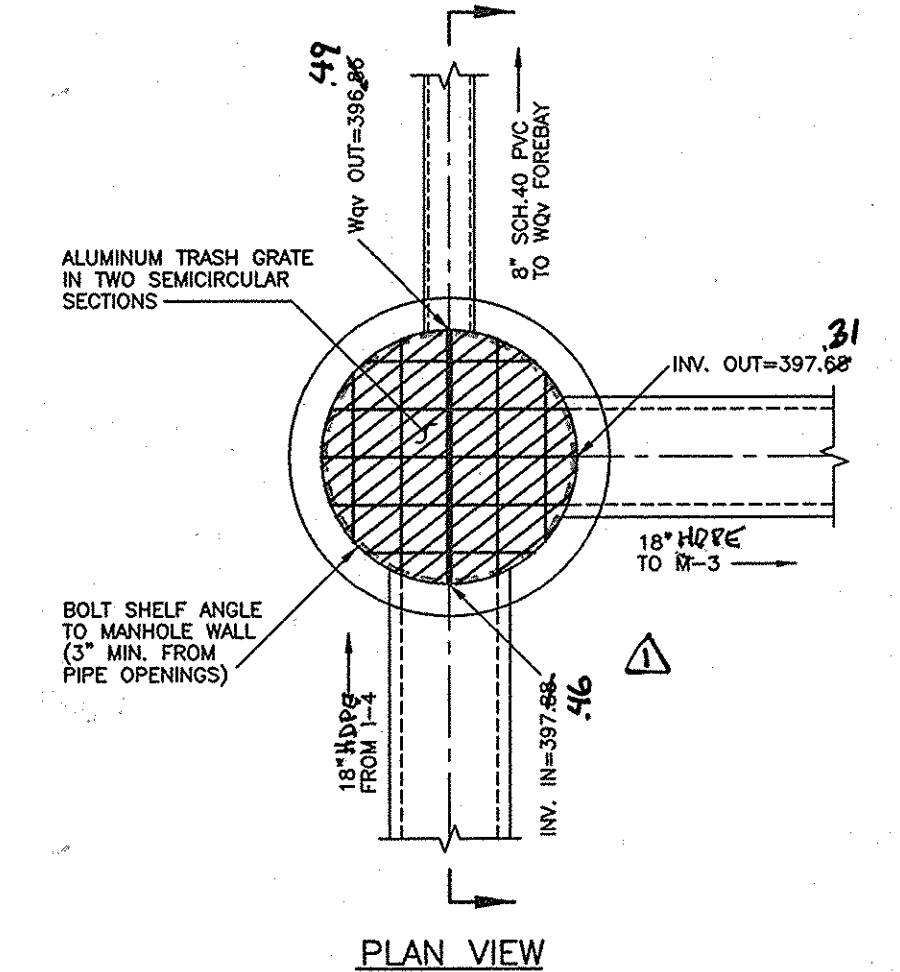
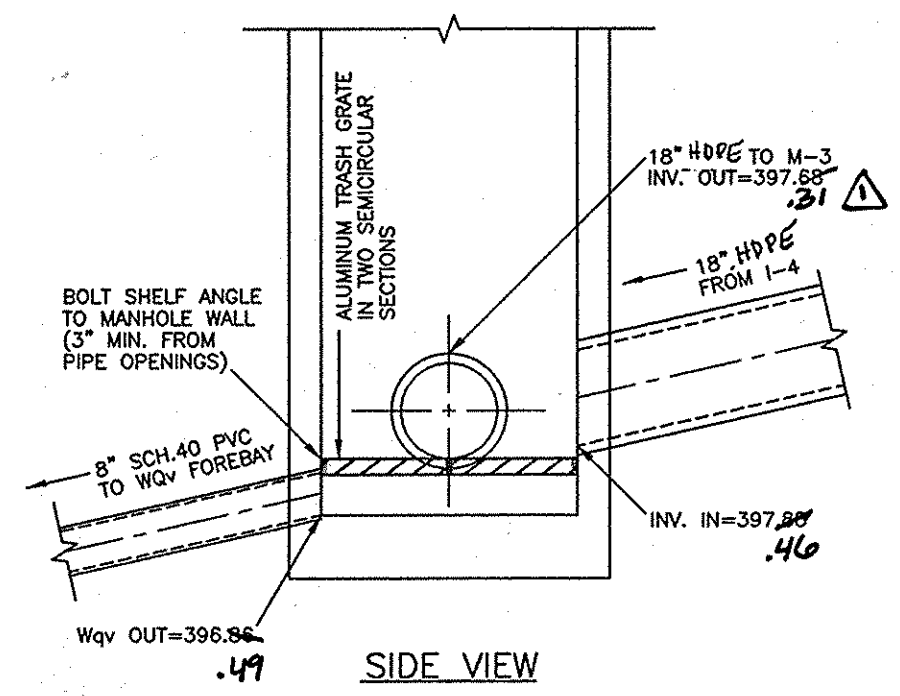


STRUCTURE	d50	LENGTH(L)	WIDTH(W)	THICK.(T)	SHA CLASS
ES-1	9.5"	20' @ 0%	12'	19"	I
ES-2	9.5"	*17.5' ± @ 0%	*16.5' ±	19"	I
ES-3	-	31.4' ± @ 1.0%	2' ±	6"	I

\* = ENTIRE BIO-RETENTION (F-6) FOREBAY TO BE LINED WITH RIP-RAP

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 THE RIP-RAP OR GABION OUTLETS SHALL BE DELIVERED AND PLACED IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENEOUS 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.



M-5 TO WQV FOREBAY  
CONFORMS TO MDE APPENDIX D-8, DETAIL 6 AND HO. CO. STD. DETAIL G-5.11



AS-BUILT 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 Date 9-26-14

NO.	DATE	REVISION
1	4-10-2012	REVISE STORMDRAIN TO HDPE & ADJUST PLANS ACCORDINGLY

**BENCHMARK ENGINEERING, INC.**  
ENGINEERS • LAND SURVEYORS • PLANNERS  
8480 BALTIMORE NATIONAL PIKE • SUITE 418  
ELLCOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-6644  
E-MAIL: benchmark@bei-civilengineering.com

PROFESSIONAL CERTIFICATION:  
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.  
License No. 21443 Registration Date: 12-21-2004  
9/1/14

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

TITLE: FINAL/CONSTRUCTION PLANS  
STORM DRAIN PROFILES  
NOTES AND DETAILS

DATE: SEPTEMBER 7, 2007  
AUGUST 8, 2008 PROJECT NO. 1560

Des: MCR/DAM Draft: MCR Check: DAM SCALE: AS SHOWN DRAWING 11 OF 13

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
8-18-08  
CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
11/21/08  
CHIEF, DIVISION OF LAND DEVELOPMENT

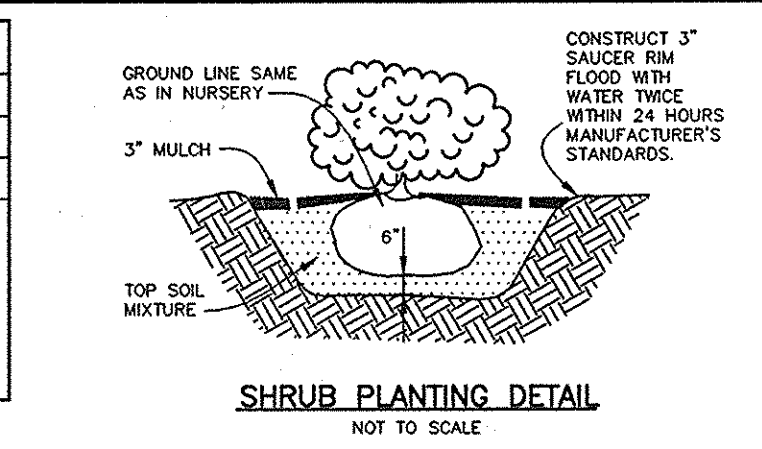
APPROVED: [Signature]  
CHIEF, DEVELOPMENT ENGINEERING DIVISION



SCHEDULE A PERIMETER LANDSCAPE EDGE					
CATEGORY	ADJACENT TO ROADWAY	ADJACENT TO PERIMETER PROPERTIES	NO	YES	NO
PERIMETER NO. / LANDSCAPE TYPE	1 / A	2 / B	3 / B	4 / A	5 / A
LINEAR FEET OF PERIMETER (FRONTAGE/ROADWAY)	831.9	115.4	342.2	748.8	328.0
CREDIT FOR EXISTING VEGETATION: NO OR YES (4/LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	346.7 FCE	---	---	75.4 FCE	---
LINEAR FEET OF REQUIRED PERIMETER LANDSCAPING	349.1	115.4	342.2	673.4	0.0
CREDIT FOR WALL, FENCE OR BERM: NO OR YES (4/LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	---	---	---	---	---
NUMBER OF PLANTS PROVIDED: SHADE TREES	6	2	7	11	---
EVERGREEN TREES	---	---	---	---	---
OTHER TREES (2:1 SUBSTITUTE)	---	---	---	---	---
SHRUBS	---	---	---	---	---
NUMBER OF PLANTS PROVIDED: SHADE TREES	6	0	7	3	---
EVERGREEN TREES	---	---	---	---	---
OTHER TREES (2:1 SUBSTITUTE)	---	---	---	---	---
SHRUBS (10:1 SUBSTITUTE)	---	---	---	---	---

SCHEDULE D SWMF AREA LANDSCAPING TYPE "B" BUFFER	
STORMWATER MANAGEMENT FACILITY NO.	1
LINEAR FEET OF PERIMETER	602.4
CREDIT FOR EXISTING VEGETATION: NO OR YES (4/LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	35.0 FCE
LINEAR FEET OF REQUIRED PERIMETER LANDSCAPING	567.4
CREDIT FOR OTHER LANDSCAPING: NO OR YES (4/LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	---
NUMBER OF PLANTS PROVIDED: SHADE TREES	11
EVERGREEN TREES	14
OTHER TREES (2:1 SUBSTITUTE)	---
SHRUBS	---
NUMBER OF PLANTS PROVIDED: SHADE TREES	11
EVERGREEN TREES	14
OTHER TREES (2:1 SUBSTITUTE)	---
SHRUBS (10:1 SUBSTITUTE)	---

STREET TREE REQUIREMENTS	
ROADWAY NAME:	HICKORY HILLS LANE
LINEAR FEET OF PERIMETER	1121.9
STREET TREES REQUIRED	28
CREDIT FOR EXISTING VEGETATION: NO OR YES (4/LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	---
NUMBER OF PLANTS PROVIDED: SHADE TREES	28
EVERGREEN TREES	---
OTHER TREES (2:1 SUBSTITUTE)	---
SHRUBS (10:1 SUBSTITUTE)	---



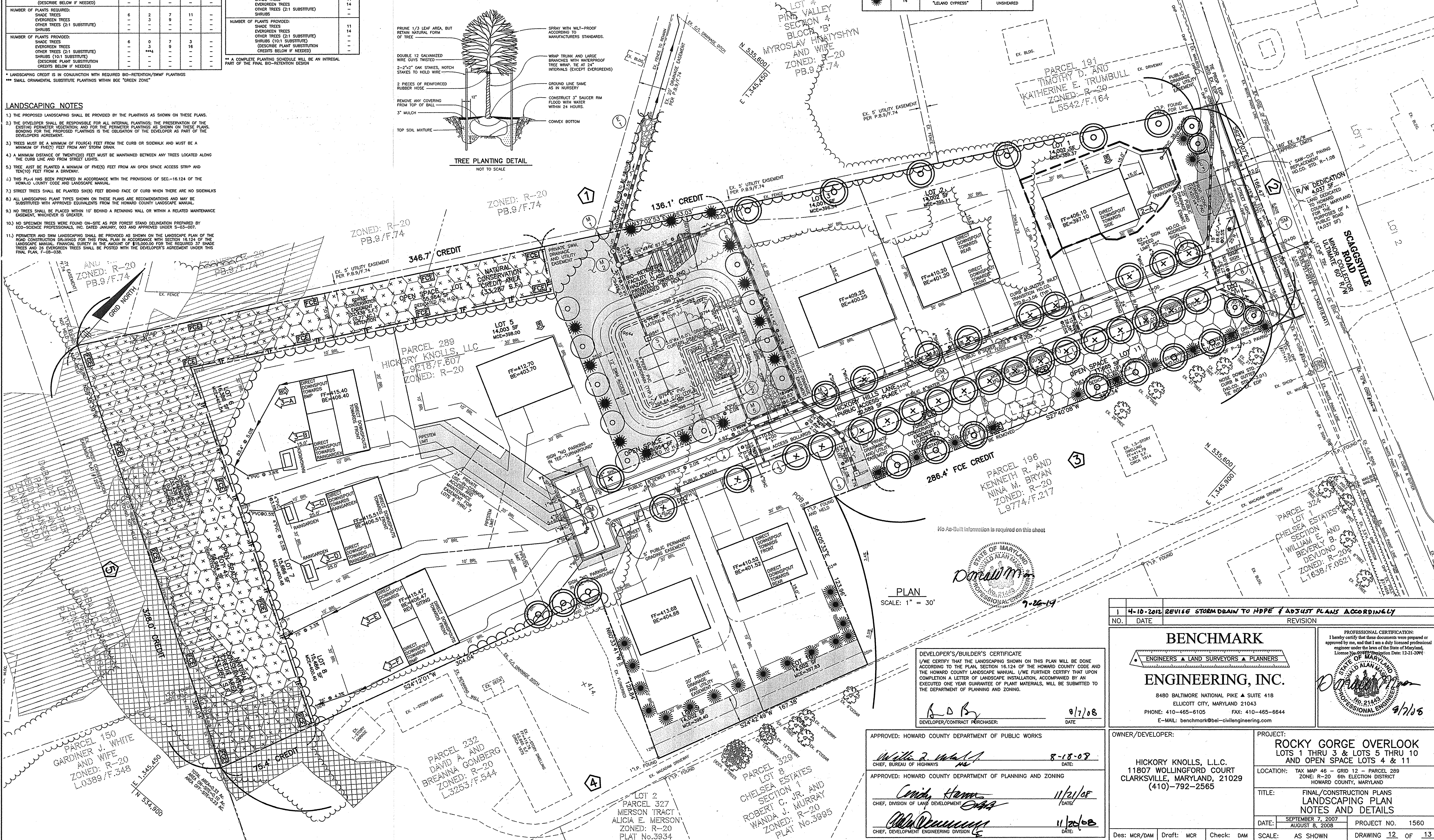
PERIMETER PLANTING LIST			
SYMBOL	QUANTITY	NAME	REMARKS
(Symbol 1)	16	ACER SACCHARINUM "SUGAR MAPLE"	2.5"-3.0" MIN. CAL. B & B FULL HEAD
(Symbol 2)	4	MAGNOLIA STELLATA "STAR MAGNOLIA"	6.0"-8.0" MIN. HT. UNSHEARED
(Symbol 3)	28	PINUS STROBUS "EASTERN WHITE PINE"	6.0"-8.0" MIN. HT. UNSHEARED

STREET TREE PLANTING LIST			
SYMBOL	QUANTITY	NAME	REMARKS
(Symbol 4)	28	PRUNUS SARGENTI "SARGENT CHERRY"	2.5"-3.0" MIN. CAL. B & B FULL HEAD

AT THE TIME OF INSTALLMENT, ALL SHRUBS AND OTHER PLANTINGS HERETHIN LISTED AND APPROVED FOR THIS SITE SHALL BE OF THE PROPER HEIGHT REQUIREMENTS IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATION OF REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THIS APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO APPLICABLE PLANS AND CERTIFICATES.

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

- LANDSCAPING NOTES**
- THE PROPOSED LANDSCAPING SHALL BE PROVIDED BY THE PLANTINGS AS SHOWN ON THESE PLANS.
  - THE DEVELOPER SHALL BE RESPONSIBLE FOR ALL INTERNAL PLANTINGS; THE PRESERVATION OF THE EXISTING PERIMETER VEGETATION; AND FOR THE PERIMETER PLANTINGS AS SHOWN ON THESE PLANS. BORROWING FOR THE PROPOSED PLANTINGS IS THE OBLIGATION OF THE DEVELOPER AS PART OF THE DEVELOPER'S AGREEMENT.
  - TREES MUST BE A MINIMUM OF FOUR(4) FEET FROM THE CURB OR SIDEWALK AND MUST BE A MINIMUM OF FIVE(5) FEET FROM ANY STORM DRAIN.
  - A MINIMUM DISTANCE OF TWENTY(20) FEET MUST BE MAINTAINED BETWEEN ANY TREES LOCATED ALONG THE CURB LINE AND FROM STREET LIGHTS.
  - TREE MUST BE PLANTED A MINIMUM OF FIVE(5) FEET FROM AN OPEN SPACE ACCESS STRIP AND TEN(10) FEET FROM A DRIVEWAY.
  - THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SEC.-16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL.
  - STREET TREES SHALL BE PLANTED SIX(6) FEET BEHIND FACE OF CURB WHEN THERE ARE NO SIDEWALKS.
  - ALL LANDSCAPING PLANT TYPES SHOWN ON THESE PLANS ARE RECOMMENDATIONS AND MAY BE SUBSTITUTED WITH APPROVED EQUIVALENTS FROM THE HOWARD COUNTY LANDSCAPE MANUAL.
  - NO TREES SHALL BE PLACED WITHIN 10' BEHIND A RETAINING WALL OR WITHIN A RELATED MAINTENANCE EASEMENT, UNLESS OTHERWISE INDICATED.
  - NO SPECIMEN TREES WERE FOUND ON-SITE AS PER FOREST STAND DELINEATION PREPARED BY EDD-SCIENCE PROFESSIONALS, INC. DATED JANUARY, 03 AND APPROVED UNDER 9-03-007.
  - PERIMETER AND SWMF 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 28 EVERGREEN TREES SHALL BE POSTED WITH THE DEVELOPER'S AGREEMENT UNDER THIS FINAL PLAN, 7-08-038.



PLAN  
SCALE: 1" = 30'

DEVELOPER'S/BUILDER'S CERTIFICATE  
I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

*A. O. B.* 9/7/08  
DEVELOPER/CONTRACT PURCHASER: DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*William J. White* 8-18-08  
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Condy Hamm* 11/21/08  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*John Demus* 11/21/08  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

4-10-2012 REVISE STORMDRAIN TO HPPE & ADJUST PLANS ACCORDINGLY  
NO. DATE REVISION

**BENCHMARK ENGINEERING, INC.**  
8480 BALTIMORE NATIONAL PIKE SUITE 418  
ELLICOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-6644  
E-MAIL: benchmark@bel-civilengineering.com

PROFESSIONAL CERTIFICATION:  
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.  
License No. 011872 Expiration Date: 12-31-2014

*John Demus* 9/7/08  
PROFESSIONAL ENGINEER NO. 21444

OWNER/DEVELOPER:  
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

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

TITLE:  
FINAL/CONSTRUCTION PLANS  
LANDSCAPING PLAN  
NOTES AND DETAILS

DATE: SEPTEMBER 7, 2007  
AUGUST 8, 2008 PROJECT NO. 1560

SCALE: AS SHOWN DRAWING 12 OF 13



