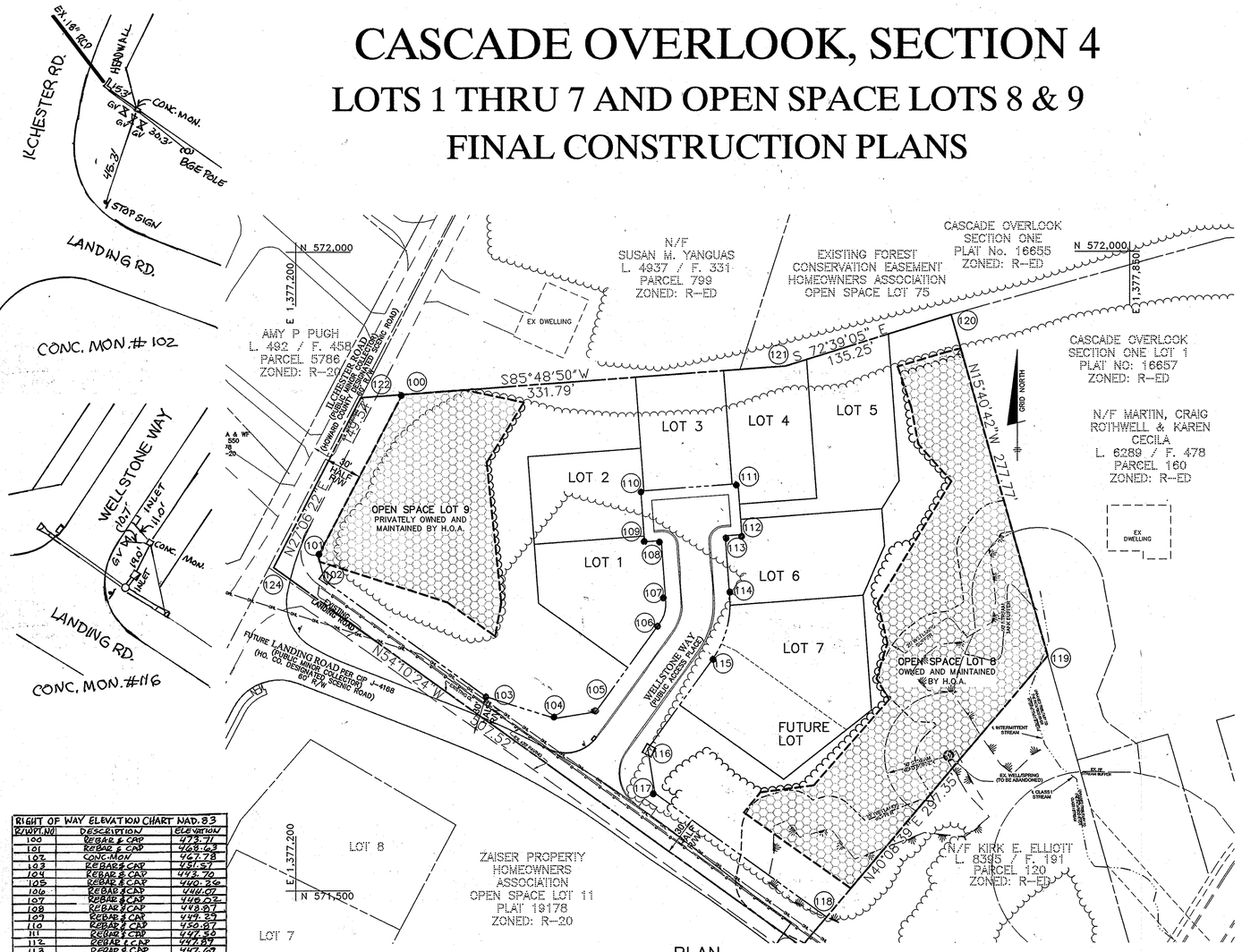
CASCADE OVERLOOK, SECTION 4

LOTS 1 THRU 7 AND OPEN SPACE LOTS 8 & 9

FINAL CONSTRUCTION PLANS

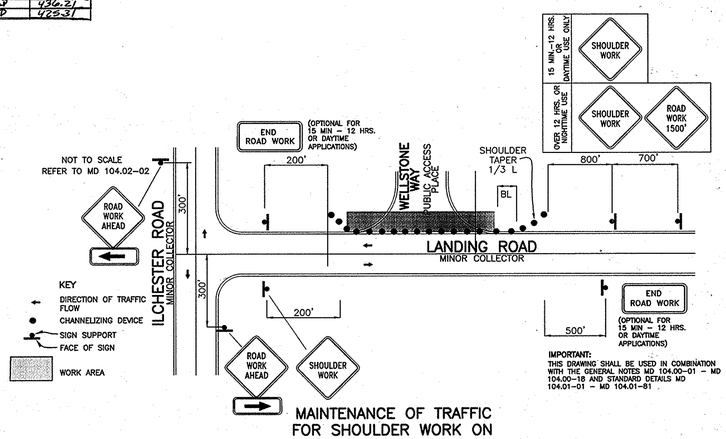
GENERAL NOTES

1. THE SUBJECT PROPERTY IS ZONED R-ED PER THE 2/02/04 COMPREHENSIVE ZONING PLAN AND PER COMP. LITE ZONING AMENDMENTS EFFECTIVE 7/28/06.
2. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
3. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410)313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
4. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
5. WATER AND SEWER ARE PUBLIC. CONTRACT NUMBER 14-4741-D. SEWER DRAINAGE IS TO THE PATAPSCO TREATMENT PLANT.
6. THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 31E6 & 31E7 WERE USED FOR THIS PROJECT.
7. PROJECT BOUNDARY AND TOPOGRAPHY ARE BASED ON FIELD RUN BOUNDARY SURVEY AND TOPOGRAPHY PERFORMED BY BENCHMARK ENGINEERING INC. MAY 5, 2005 . CONTOUR INTERVAL IS 2 FEET.
8. EXISTING UTILITIES SHOWN HEREON ARE BASED ON FIELD LOCATIONS AND RECORD DRAWINGS.
9. 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.
10. THIS SUBDIVISION IS SUBJECT TO SECTION 18.122B OF THE HOWARD COUNTY CODE, PUBLIC WATER AND PUBLIC SEWER SERVICE WILL BE GRANTED UNDER THE TERMS AND PROVISIONS OF DEVELOPER'S AGREEMENT #14-4741-DWHICH IS TO BE EXECUTED BY THE COUNTY PRIOR TO THE COMMENCEMENT OF CONSTRUCTION AND THE RECORDATION OF THE SUBDIVISION PLAT, F-12-074.
11. FOREST STAND DELINEATION PLAN WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. DATED NOV. 25, 2005 AND APPROVED UNDER SP-06-012.
12. THE WETLANDS DELINEATION STUDY FOR THIS PROJECT WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. DATED NOV 25, 2005 AND WAS APPROVED UNDER SP-06-012.
13. THERE ARE NO STEEP SLOPES (25% OR GREATER ON THIS SITE. THERE ARE WETLANDS AND WETLAND BUFFERS AND STREAM BUFFERS ON THIS SITE.
14. THERE IS NO 100-YEAR FLOODPLAIN ON THIS SITE.
15. NO NOISE STUDY IS REQUIRED FOR THIS PROJECT.
16. AN APFO TRAFFIC ANALYSIS IS NOT REQUIRED FOR THIS PROJECT, AS IT IS MORE THAN 1.5 MILES FROM THE NEAREST INTERSECTION OF TWO MAJOR COLLECTOR ROADWAYS. AN INTERSECTION SAFETEY STUDY WAS PREPARED BY THE MARS GROUP, DATED MARCH 2006 AND APPROVED UNDER SP-06-012.
17. THE GEOTECHNICAL REPORT FOR THIS PROJECT WAS PREPARED BY HILLS-CARNES ENGINEERING ASSOCIATES, DATED SEPTEMBER 26, 2005.
18. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO HISTORIC FEATURES OR CEMETERY LOCATIONS ON-SITE.
19. UNLESS NOTED AS "PRIVATE", ALL EASEMENTS ARE PUBLIC.
20. ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
21. BRL INDICATES BUILDING RESTRICTION LINE.
22. THIS PLAN IS SUBJECT TO THE 5th EDITION OF THE HOWARD COUNTY SUBDIVISION REGULATIONS AND THE AMENDED HOWARD COUNTY ZONING REGULATIONS.
23. STORMWATER MANAGEMENT SHALL BE PROVIDED FOR THIS PROJECT BASED ON GUIDELINES ESTABLISHED BY THE 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUMES I & II USING ENVIRONMENTAL SITE DESIGN. PRACTICES INCLUDE GRASS SWALES (M-8), RAIN GARDENS (M-7) AND MICRO-BIORETENTION(M-6). ON-LOT FACILITIES SHALL BE OWNED AND MAINTAINED BY PROPERTY OWNER. OPEN SPACE FACILITIES SHALL BE OWNED AND MAINTAINED BY THE HOME OWNER'S ASSOCIATION.
24. TRAFFIC CONTROL DEVICES:
    a) The R1-1 ("STOP") SIGN AND THE STREET NAME SIGN (SNS) ASSEMBLY FOR THIS DEVELOPMENT MUST BE INSTALLED BEFORE THE BASE PAVING IS COMPLETED.
    b) THE TRAFFIC CONTROL DEVICE LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND MUST BE FIELD APPROVED BY HOWARD COUNTY TRAFFIC DIVISION (410-313-5752)PRIOR TO THE INSTALLATION OF ANY OF THE TRAFFIC CONTROL DEVICES.
    c) ALL TRAFFIC CONTROL DEVICES AND THE LOCATIONS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MdMUTCD).
    d) ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT OF WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED ("QUICK PUNCH") SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2½" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) - 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
25. 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 $3,000 (FOR 8 SHADE TREES AND 4 EVERGREEN TREES) SHALL BE POSTED WITH THE DEVELOPER'S AGREEMENT UNDER THIS FINAL PLAN, F-12-074.
26. ALL AREAS OF CONTROLLED FILL TO BE AT 95% COMPACTION PER AASHTO-T180 STANDARDS.
27. THE FOREST CONSERVATION ACT REQUIREMENTS FOR THIS PROJECT WILL BE MET THROUGH THE ON-SITE RETENTION OF 1.2 ACRES FOREST WITHIN THE LIMITS OF A FOREST CONSERVATION EASEMENT. THIS RETENTION EQUALS THE BREAK-EVEN POINT THRESHOLD AND THEREFORE NO ADDITIONAL PLANTING IS REQUIRED.
28. A DESIGN MANUAL WAIVER WAS APPROVED JUNE 21, 2010, ALLOWING PAYMENT OF FEE-IN-LIEU FOR FRONTAGE IMPROVEMENTS ALONG ILCHESTER AND LANDING ROAD. THE APPROVED FEE-IN-LIEU AMOUNTS ARE $19,400 FOR ILCHESTER ROAD, AND $74,500 FOR LANDING ROAD; HOWEVER, IF THE COSTS OF UTILITY POLE RELOCATION ARE REDUCED AS A RESULT OF A BGE COST REDUCTION, THESE FEE IN LIEU AMOUNTS MAY BE REDUCED ACCORDINGLY. A DESIGN MANUAL WAIVER REQUEST TO UTILIZE OPEN SECTION ROAD AND A USE IN COMMON DRIVEWAY WAS DENIED ON THE SAME DATE.
29. A DESIGN MANUAL WAIVER WAS REQUESTED TO WAIVE THE REQUIREMENT THAT A DRAINAGE SWALE BE LOCATED 15' FROM A RESIDENTIAL STRUCTURE, AND A STORMWATER SWALE BE LOCATED 25' FROM A RESIDENTIAL STRUCTURE. THIS WAIVER WAS APPROVED JANUARY 6, 2012 BASED ON DEMONSTRATING LIMITED SIZES OF DRAINAGE AREA AND NO IMPACT ON OTHER PROPERTIES.
30. A DESIGN MANUAL WAIVER WAS APPROVED APRIL 4, 2012 ESTABLISHING TYPICAL ROAD SECTIONS FOR THE PROJECT WHICH INCLUDE CLOSED SECTION ROAD, OPEN-BACK FLOW THROUGH INLETS AND GRASS SWALES FOR STORMWATER TREATMENT.
31. WAIVER PETITION WP-11-183 REQUESTED RELIEF FROM SECTION 16.155(a)(2)(ii) WHICH REQUIRES A SITE DEVELOPMENT PLAN. THIS RELIEF WAS SOUGHT TO CONSTRUCT A MODEL HOME IN ADVANCE OF THE FINAL SUBDIVISION AND WAS DENIED JUNE 3, 2011.
32. STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURES AND POLES SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III (2006), SECTION 5.5.A. A MINIMUM OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.



PLAN
SCALE: 1" = 50'

RIGHT OF WAY ELEVATION CHART NAD 83		
POINT NO.	DESCRIPTION	ELEVATION
100	REBAR & CAP	473.71
101	REBAR & CAP	468.03
102	CONC. MON.	467.78
103	REBAR & CAP	451.57
104	REBAR & CAP	443.70
105	REBAR & CAP	440.86
106	REBAR & CAP	441.07
107	REBAR & CAP	446.05
108	REBAR & CAP	448.07
109	REBAR & CAP	449.29
110	REBAR & CAP	450.87
111	REBAR & CAP	447.80
112	REBAR & CAP	444.89
113	REBAR & CAP	447.69
114	REBAR & CAP	448.86
115	NAIL/WASHER	444.77
116	CONC. MON.	439.12
117	REBAR & CAP	430.27
118	REBAR & CAP	428.31



MAINTENANCE OF TRAFFIC
FOR SHOULDER WORK ON
LANDING ROAD

NOTES:
SHOULDER CLOSED SIGNS ARE REQUIRED IN PLACE OF SHOULDER WORK SIGNS WHEN THE SHOULDER IS CLOSED BY POSITIVE PROTECTION (TEMPORARY CONCRETE BARRIER OR SIMILAR DEVICE). REFER TO STANDARD NO. MD 104.06-18.

WHEN WORK INVOLVES A PAVEMENT EDGE DROP-OFF, REFER TO STANDARD NOS. MD 104.08-15 TO MD 104.08-19.

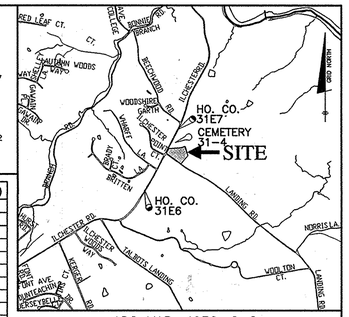
THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.

THE ENGINEER SHOULD CONSIDER ADDITIONAL ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXIST.

IMPORTANT:
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 – MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 – MD 104.01-81

BENCH MARKS NAD'83
HO. CO. #31E6
3/4" REBAR 0.5' BELOW SURFACE 3' SOUTHWEST OF ILCHESTER ROAD PAVING 500'± WEST OF WHARF LANE. N 570852.3717 E 1376700.6467
HO. CO. #31E7 3/4" REBAR 0.5' BELOW SURFACE 3' SOUTHEAST OF ILCHESTER ROAD PAVING 250'± WEST OF BEECHWOOD ROAD N 572335.3503 E 1377504.0332
HO. CO. BM#2745004 ELEV. 364.78

COORDINATE CHART (NAD '83)		
	BOUNDARY COORDINATES	
No.	NORTH	EAST
100	571888.2765	1377283.2420
101	571761.9848	1377217.6458
102	571742.6636	1377222.4952
103	571644.5913	1377358.3422
104	571634.6720	1377402.1475
105	571639.8141	1377433.7686
106	571709.2032	1377483.7993
107	571725.6493	1377488.4540
108	571773.6937	1377484.9375
109	571772.7447	1377471.9722
110	571812.6380	1377469.0524
111	571818.1857	1377544.8496
112	571778.2924	1377547.7695
113	571777.3434	1377534.8042
114	571729.2991	1377538.3206
115	571679.9608	1377524.3564
116	571610.5718	1377474.3258
117	571575.8301	1377479.9397
118	571478.8895	1377613.8488
119	571683.0310	1377786.0255
120	571950.4620	1377710.9630
121	571910.1330	1377581.8660
122	571885.9136	1377250.9588
123	571752.8026	1377182.8246
124	571455.7303	1377594.3209



ADC MAP: 4936, G-2
VICINITY MAP
SCALE : 1"=2000'

MINIMUM LOT SIZE CHART			
LOT NO.	GROSS AREA	PIPESTEM AREA	MINIMUM LOT SIZE
5	8,920 S.F.	725 S.F.	8,195 S.F.

LEGEND

EXISTING CONTOUR 390 / 395
PROPOSED CONTOUR 412
EXISTING WOODS LINE
PROPOSED WOODS LINE
EXISTING HOUSE
PROPOSED HOUSE
EX. OVERHEAD WIRE OHL OHL OHL
EX. UTILITY POLE
LIMIT OF WETLANDS
SOILS CLASSIFICATION ChB2
SOILS DELINEATION
FOREST CONSERVATION EASEMENT
EX. SEPTIC
DRAINAGE AREA LIMIT

AS-BUILT NOTES:

1.) HORIZONTAL DATUM FOR THIS AS-BUILT IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD 83/ADJ 91 AS PROJECTED FROM HO.CO. GEODETIC CONTROL STATIONS 31E6 AND 31E7. VERTICAL DATUM FOR THIS AS-BUILT IS NORTH AMERICAN VERTICAL DATUM NGVD 29 AS PROJECTED FROM HOWARD COUNTY GEODETIC CONTROL STATIONS #2745004.
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.

SITE DATA TABULATION

1. GENERAL SITE DATA
   a.) PRESENT ZONING: R-ED
   b.) LOCATION; TAX MAP: 31, GRID 10, PARCEL 133
   c.) APPLICABLE DPZ FILE REFERENCES: N/A
   d.) PROPOSED USE OF SITE: SINGLE FAMILY DETACHED RESIDENTIAL
   e.) PROPOSED WATER AND SEWER SYSTEMS: PUBLIC

2. AREA TABULATION — TOTAL
   a.) TOTAL AREA OF SITE ..... 4.05± AC.
   b.) APPROXIMATE AREA OF 100 YEAR FLOODPLAIN ..... N/A
   c.) APPROX. AREA OF STEEP SLOPES (25% OR MORE) .. N/A.
   d.) NET AREA OF SITE ..... 4.05± AC.
   e.) AREA OF THIS PLAN SUBMISSION ..... 4.05± AC
   f.) AREA OF PROPOSED BUILDABLE LOTS ..... 1.32± AC.
   g.) AREA OF PROPOSED PUBLIC ROAD RIGHT-OF-WAY .. 0.68± AC.
   h.) APPROXIMATE AREA OF LIMIT OF DISTURBANCE ..... 3.08± AC.
   I.) AREA OF PROPOSED OPEN SPACE LOTS ..... 2.05± AC.
   j.) AREA OF PROPOSED NON-CREDIT OPEN SPACE ..... 0.00 AC.

3. DENSITY TABULATION
   a.) NET AREA OF THE SITE ..... 4.05± AC.
   b.) TOTAL NUMBER OF BUILDABLE LOTS ALLOWED (2 D.U./NET AC.) 8
   c.) TOTAL NUMBER OF BUILDABLE LOTS PROPOSED ..... 7 (8 ULTIMATE)

4. UNIT/LOT TABULATION
   a.) TOTAL NUMBER OF RESIDENTIAL UNITS/LOTS PROPOSED ON THIS SUBMISSION 7*
   b.) TOTAL NUMBER OF OPEN SPACE LOTS PROPOSED 2
   c.) TOTAL NUMBER OF NON-BUILDABLE LOTS PROPOSED ..... N/A
   *LOT 7 WILL BE RE-SUBDIVIDED FOLLOWING THE RECORDATION OF THIS PLAT TO CREATE LOTS 10 & 11 (TOTAL OF 8 LOTS).

5. OPEN SPACE DATA
   a.) MINIMUM RESIDENTIAL LOT SIZE SELECTED ..... 6,000 S.F.
   b.) OPEN SPACE REQUIRED FOR TOTAL AREA OF SITE (50% OF 4.05 AC.) ..... 2.025± AC.
   c.) TOTAL AREA OF PROPOSED OPEN SPACE LOTS PROVIDED WITH THIS SUBDIVISION ..... 2.05± AC.
      1) OPEN SPACE AREAS LESS THAN 35' IN WIDTH (NON-CREDITED) ..... 0.00 AC.
      2) TOTAL AREA OF OPEN SPACE MEETING MINIMUM OPEN SPACE REQUIREMENTS ..... 2.05± AC. (50.6%)
   d.) AREA OF RECREATIONAL OPEN SPACE REQUIRED 250 SQ.FT. PER BUILDABLE LOT.
      1) TOTAL AREA OF RECREATIONAL OPEN SPACE REQUIRED ..... NONE (<10 LOTS)
      2) TOTAL AREA OF RECREATIONAL OPEN SPACE PROVIDED ..... N/A

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 3-20-15

STATE OF MARYLAND · DONALD ALAN MASON · No. 21443 · PROFESSIONAL ENGINEER

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: 12-21-16

SHEET INDEX	
NO.	DESCRIPTION
1	COVER SHEET
2	WELLSTONE WAY, ROAD PLAN AND PROFILES, AND STORM DRAIN PROFILES AND DETAILS
3	MASS GRADING, SEDIMENT & EROSION CONTROL PLAN NOTES AND DETAILS
4	STORMWATER MANAGEMENT PLAN, NOTES, DETAILS AND STORM DRAIN DRAINAGE AREA MAP
5	LANDSCAPE AND STORM DRAIN PLAN, NOTES AND DETAILS
6	FINAL FOREST CONSERVATION PLAN, NOTES AND DETAILS

NO	DATE	REVISION

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE: 12-13-12

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE: 12/19/12
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE: 12/18/12

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
60 THOMAS JOHNSON DRIVE ▲ FREDERICK, MARYLAND 21702
(P) 301-371-3505 (F) 301-371-3506
WWW.BD-CIVILENGINEERING.COM

STATE OF MARYLAND · ERICA A. MEITZER · No. 28376 · PROFESSIONAL ENGINEER
11/29/2012
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. 28376, Expiration Date: 01-01-2013.

OWNER/DEVELOPER:
CASCADE WALTHUR, L.L.C.
P.O. BOX 417
ELLICOTT CITY, MD 21041
PHONE: 410-465-4244

PROJECT: CASCADE OVERLOOK, SECTION 4
LOTS 1-7 AND OPEN SPACE LOTS 8 & 9

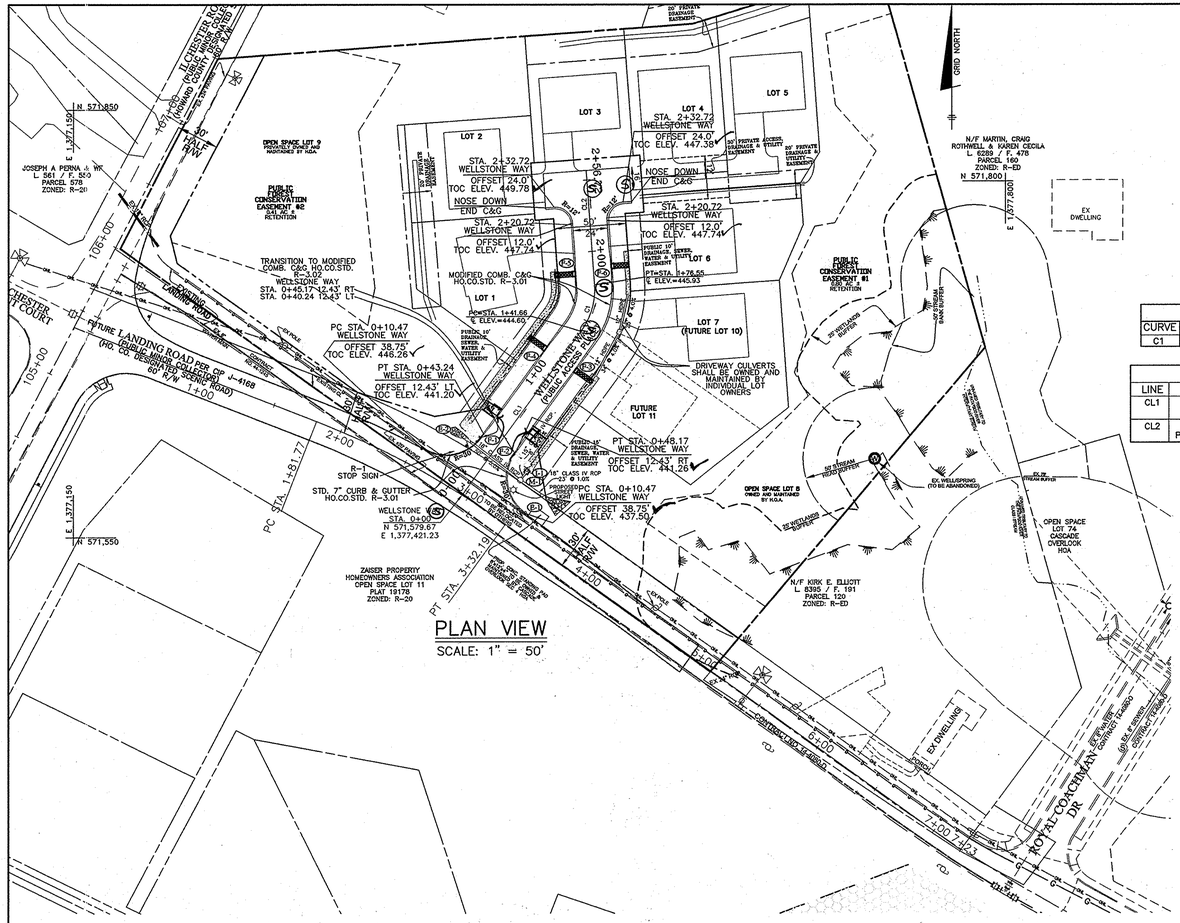
LOCATION: TAX MAP 31 – GRID 10 – PARCEL 133
ZONE: R-ED 1st ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

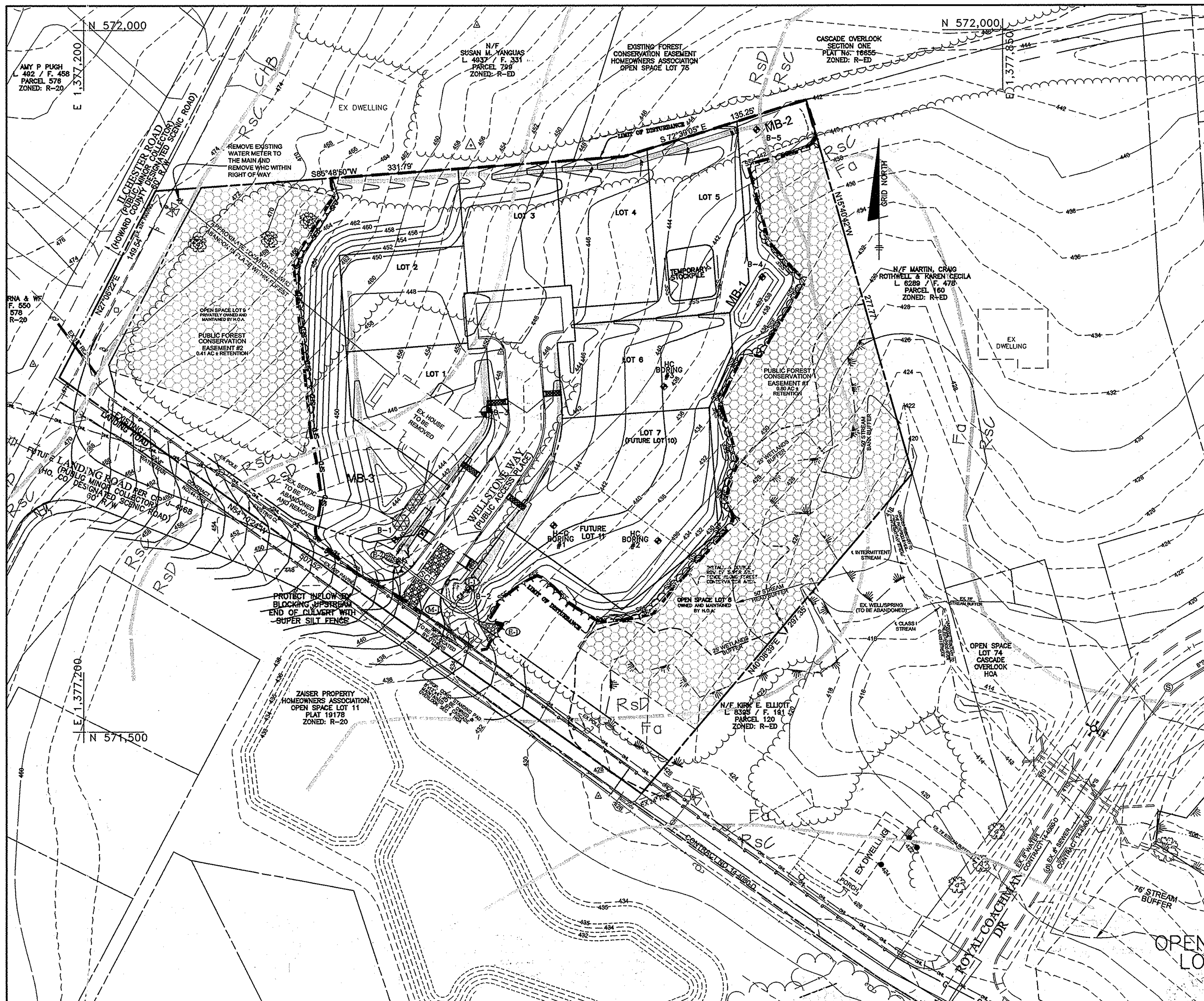
TITLE: COVER SHEET
SP-06-012, ECP-11-060, WP-11-183

DATE: FEB 2012 / AUG 2012 — PROJECT NO. 1817
DESIGN: AM | DRAFT: AM | CHECK: CAM
SCALE: AS SHOWN — SHEET 1 OF 6

AS-BUILT
F-12-074

P:\1817 Weller\dwg\1009501.dwg, COVER, 11/29/2012 2:56:44 PM, edd


GRID NORTH
LEICESTER ROAD
PUBLIC ACCESS PLACE
HOWARD COUNTY
N 571,850
E 1,377,150
JOSEPH A PERNA JR. WF
L 561 / F. 550
PARCEL 578
ZONED: R-20
OPEN SPACE LOT 9
PRIVATELY OWNED TBD
MAINTAINED BY HOA
PUBLIC CONSERVATION EASEMENT #2
LOT 01
RETENTION
LOT 2
LOT 3
LOT 4
LOT 5
LOT 6
LOT 7
(FUTURE LOT 10)
LOT 1
LOT 11
FUTURE LOT
STA. 2+32.72
WELLSTONE WAY
OFFSET 24.0'
TOC ELEV. 447.38
STA. 2+32.72
WELLSTONE WAY
OFFSET 24.0'
TOC ELEV. 449.78
NOSE DOWN
END C&G
STA. 2+20.72
WELLSTONE WAY
OFFSET 12.0'
TOC ELEV. 447.74
STA. 2+20.72
WELLSTONE WAY
OFFSET 17.0'
TOC ELEV. 447.24
TRANSITION TO MODIFIED
COMB. C&G HO.CO.STD.
R-3.02
WELLSTONE WAY
STA. 0+45.17 12.43' RT.
STA. 0+40.24 12.43' LT.
MODIFIED COMB. C&G
HO.CO.STD. R-3.01
PC STA. 0+10.47
WELLSTONE WAY
OFFSET 38.75'
TOC ELEV. 446.26
PT STA. 0+43.24
WELLSTONE WAY
OFFSET 12.43' LT.
TOC ELEV. 441.20
PT STA. 0+48.17
WELLSTONE WAY
OFFSET 12.43' RT.
TOC ELEV. 441.26
PC STA. 0+10.47
WELLSTONE WAY
OFFSET 38.75'
TOC ELEV. 437.50
FUTURE LANDING ROAD PER SP J-4168
(HO. CO. DESIGNATION)
60' R/W
P-2
STOP SIGN
STD. 7' CURB & GUTTER
HO.CO.STD. R-3.01
WELLSTONE WAY
STA. 0+00
N 571,579.67
E 1,377,421.23
PT STA. 3+32.19
ZAISER PROPERTY
HOMEOWNERS ASSOCIATION
OPEN SPACE LOT 11
PLAT 16178
ZONED: R-20
PUBLIC CONSERVATION EASEMENT #1
RETENTION
DRIVEWAY CULVERTS
SHALL BE OWNED AND
MAINTAINED BY
INDIVIDUAL LOT
OWNERS
PROPOSED 10" DRAINAGE, SEWER, WATER & UTILITY EASEMENT
PROPOSED 20' DRAINAGE & UTILITY EASEMENT
50' PRIVATE ACCESS, DRAINAGE & UTILITY EASEMENT
50' PRIVATE DRAINAGE & UTILITY EASEMENT
50' PRIVATE DRAINAGE EASEMENT
EX. WELLSPRING (TO BE ABANDONED)
EX. DWELLINGS
EX DWELLING
N/F MARTIN, CRAIG ROTHWELL & KAREN CECILA
L. 6289 / F. 478
PARCEL 160
ZONED: R-ED
N 571,800
E 1,377,800
N/F KIRK E. ELLIOTT
L. 8395 / F. 191
PARCEL 120
ZONED: R-ED
OPEN SPACE LOT 8
OWNED AND MAINTAINED
BY HOA
OPEN SPACE
LOT 74
CASCADE
OVERLOOK
HOA
50' WETLAND BUFFER
25' STREAM BUFFER
ROYAL COACHMAN DR
PROPOSED 8" WATER MAIN
PROPOSED 8" SEWER MAIN
PROPOSED 6" WATER SERVICE
PROPOSED 4" SEWER SERVICE
PROPOSED 18" RCP STORM DRAIN
PROPOSED 15" RCP STORM DRAIN
PROPOSED 10" RCP STORM DRAIN
18" CLASS IV RCP @ 1.0%
15" CLASS IV RCP @ 1.0%
10" CLASS IV RCP @ 1.0%
PROPOSED 18" RCP @ 10.0%
PROPOSED 15" RCP @ 5.0%
PROPOSED 10" RCP @ 5.0%
PROPOSED 18" RCP @ 1.0%
PROPOSED 15" RCP @ 1.0%
PROPOSED 10" RCP @ 1.0%
PROPOSED 18" RCP @ 5.0%
PROPOSED 15" RCP @ 5.0%
PROPOSED 10" RCP @ 5.0%
PROPOSED 18" RCP @ 10.0%
PROPOSED 15" RCP @ 10.0%
PROPOSED 10" RCP @ 10



PLAN VIEW

SCALE: 1" = 50'

LEGEND

EXISTING CONTOUR	390 / 386	LIMIT OF WETLANDS	
PROPOSED CONTOUR	442 / 441	SOILS CLASSIFICATION	ChB2
EXISTING WOODS LINE		SOILS DELINEATION	
PROPOSED WOODS LINE		FOREST CONSERVATION EASEMENT	
EXISTING HOUSE		EX. SEPTIC	
EX. OVERHEAD WIRE	OHL	EROSION CONTROL MATTING	
EX. UTILITY POLE		SUPER SILT FENCE	SSF
LIMIT OF DISTURBANCE		SILT DIVERSION FENCE	SFD
STABLIZED CONSTRUCTION ENTRANCE			

SEQUENCE OF CONSTRUCTION

NOTIFY SEDIMENT CONTROL DIVISION 48 HOURS PRIOR TO START OF CONSTRUCTION

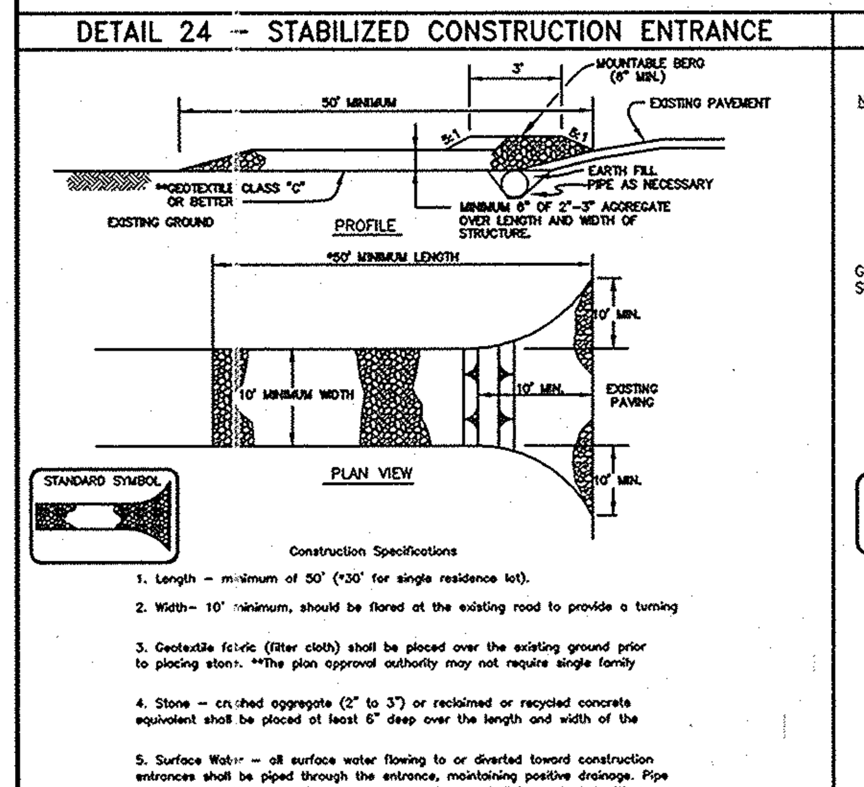
1. OBTAIN GRADING PERMIT. (DAY 1)
2. INSTALL STABILIZED CONSTRUCTION ENTRANCE, TREE PROTECTION FENCES, SUPER SILT FENCES AND CLEAN WATER DIVERSION FENCE. (DAY 2–8)
3. UPON APPROVAL OF HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, INSTALL CULVERT FROM E–1 TO E–2, AND STABILIZE UPSTREAM SWALE. (DAY 9–10)
4. ROUGH GRADE ROAD AND SWALES, AND INSTALL REMAINING STORM DRAINS. UTILIZE DUST CONTROL METHODS. (DAY 11–23)
5. BRING REMAINDER OF SITE TO GRADE AND STABILIZE SLOPES IN ACCORDANCE WITH TEMPORARY SEEDBED NOTES. (DAY 24–45)
6. UPON APPROVAL OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, INSTALL WATER, SEWER AND OTHER UTILITIES (DAY 46–66)
7. INSTALL CURB & GUTTER, GRADE ROADWAY TO FINISH SUBGRADE AND PAVE. STABILIZE DISTURBED AREAS IN ACCORDANCE WITH THE PERMANENT SEEDBED NOTES. (DAY 67–87)
8. UPON STABILIZATION OF CONTRIBUTING AREAS, MICRO–BIORETENTION FACILITIES
9. UPON APPROVAL OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE ALL REMAINING SEDIMENT CONTROL DEVICES, AND STABILIZED DISTURBED AREAS IN ACCORDANCE THE PERMANENT SEEDBED NOTES. (DAY 88–90)

SOILS CLASSIFICATION

SYMBOL	DESCRIPTION	HYDROLOGIC GROUP
ChB	CHILLUM-RUSSETT LOAMS, 2 TO 5 PERCENT SLOPES	B
Fa	FALLSINGTON SANDY LOAM, 0 TO 2 PERCENT SLOPES	D
RsC	RUSSETT FINE SANDY LOAM, 5 TO 10 PERCENT	C
RsD*	RUSSETT FINE SANDY LOAM, 10 TO 15 PERCENT	C

SOIL DATA OBTAINED FROM THE NRCS WEB SOIL SURVEY.
*HIGHLY ERODIBLE SOIL

DETAIL 24 – STABILIZED CONSTRUCTION ENTRANCE



Construction Specifications

1. Length – minimum of 50' (*30' for single residence lot).
2. Width– 10' minimum, should be flared at the existing road to provide a turning
3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family
4. Stone – crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the
5. Surface Water – all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mounted berg with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.
6. Location – A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

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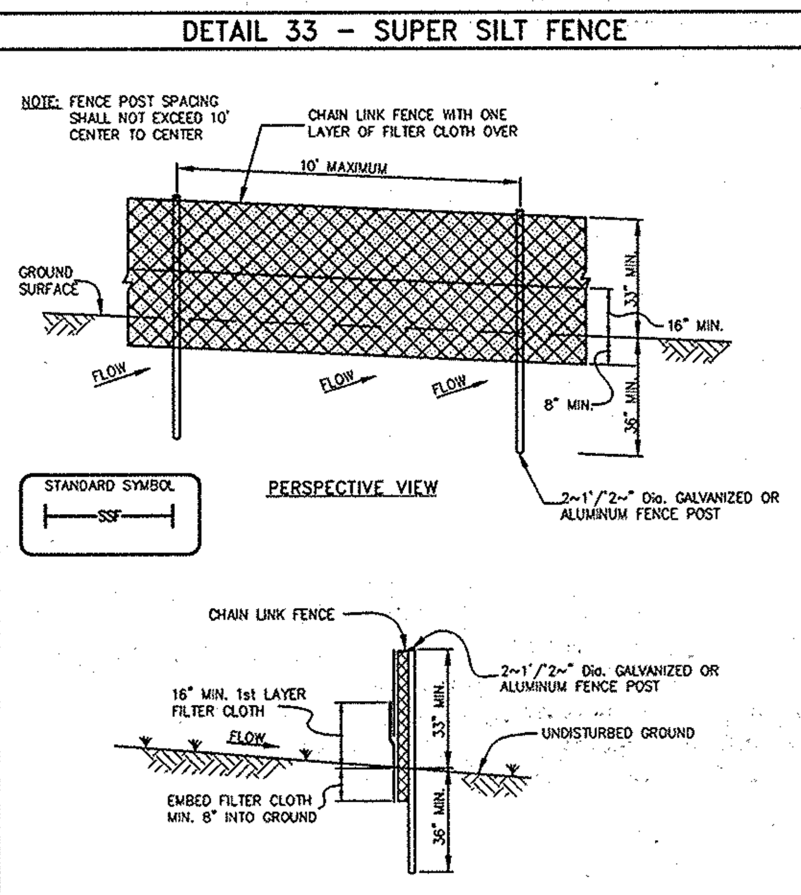
DETAIL 33 – SUPER SILT FENCE



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SUPER SILT FENCE

CONSTRUCTION SPECIFICATIONS

1. 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.
2. 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.
3. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
4. Filter cloth shall be embedded a minimum of 8" into the ground.
5. When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.
6. Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height
7. Filter cloth shall be fastened securely to each fence post with wire ties or staples at top and mid section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal/ft /minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

SUPER SILT FENCE DESIGN CRITERIA

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

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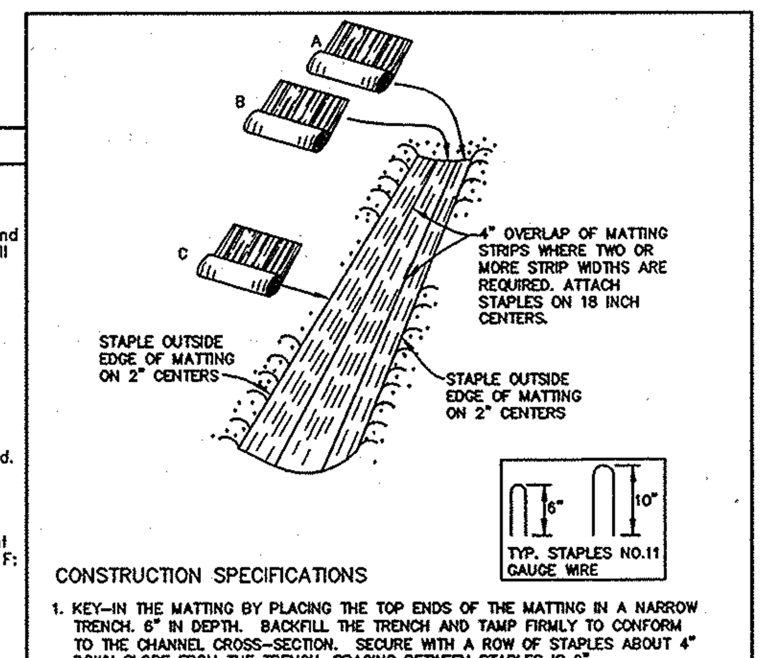
SOIL STABILIZATION MATTING – (ECM)



CONSTRUCTION SPECIFICATIONS

1. KEY-IN THE MATTING BY PLACING THE TOP ENDS OF THE MATTING IN A NARROW TRENCH, 6" IN DEPTH. BACKFILL THE TRENCH AND TAMP FIRMLY TO CONFORM TO THE CHANNEL CROSS-SECTION. SECURE WITH A ROW OF STAPLES ABOUT 4" DOWN SLOPE FROM THE TRENCH. SPACING BETWEEN STAPLES IS 6".
2. STAPLE THE 4" OVERLAP IN THE CHANNEL CENTER USING AN 18" SPACING BETWEEN STAPLES.
3. BEFORE STAPLING THE OUTER EDGES OF THE MATTING, MAKE SURE THE MATTING IS SMOOTH AND IN FIRM CONTACT WITH THE SOIL.
4. STAPLES SHALL BE PLACED 2' APART WITH 4 ROWS FOR EACH STRIP, 2 OUTER ROWS, AND 2 ALTERNATING ROWS DOWN THE CENTER.
5. WHERE ONE ROLL OF MATTING ENDS AND ANOTHER BEGINS, THE END OF THE TOP STRIP SHALL OVERLAP THE UPPER END OF THE LOWER STRIP BY 4", SHIPLAP FASHION. REINFORCE THE OVERLAP WITH A DOUBLE ROW OF STAPLES SPACED 6" APART IN A STAGGERED PATTERN ON EITHER SIDE.
6. THE DISCHARGE END OF THE MATTING LINER SHOULD BE SIMILARLY SECURED WITH 2 DOUBLE ROWS OF STAPLES.

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

NOT TO SCALE

SEDIMENT CONTROL NOTES

1. A MINIMUM OF 24 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTION, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION, (313–1850).
2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT "MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL", REVISIONS THERETO.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. 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.
5. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDINGS (SEC. 51) SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50) AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
6. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
7. SITE ANALYSIS:

TOTAL AREA OF SITE	4.05	ACRES
AREA DISTURBED	2.24	ACRES
AREA TO BE ROOFED OR PAVED	0.74	ACRES
AREA TO BE VEGETATIVELY STABILIZED	1.50	ACRES
TOTAL CUT	7,115	CY
TOTAL FILL	5,394	CY
OFF SITE BORROW LOCATION	A SITE WITH AN ACTIVE GRADING PERMIT	

*IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO IDENTIFY THE SPOIL/BORROW SITE AND NOTIFY AND GAIN APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR OF THE SITE AND ITS GRADING PERMIT NUMBER AT THE TIME OD CONSTRUCTION.

8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
9. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
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 IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN BE BACK FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

TEMPORARY SEEDBED PREPARATIONS

APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE REDISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.

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

SOIL AMENDMENTS: APPLY 600 LBS PER ACRE 10–10–10 FERTILIZER (14 LBS/1000 SQ FT).

SEEDING: FOR PERIOD MARCH 1 THROUGH APRIL 30 AND FROM AUGUST 15 THROUGH NOVEMBER 15, SEED WITH 2–1/2 BUSHELS PER ACRE OF ANNUAL RYE (3.2 LBS/1000 SQ FT). FOR THE PERIOD MAY 1 THROUGH AUGUST 14, SEED WITH 3 LBS PER ACRE OF WEEPING LOVEGRASS (.07 LBS/1000 SQ FT). FOR THE PERIOD NOVEMBER 16 THROUGH FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOD.

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 (8 GAL/1000 SQ FT) FOR ANCHORING.

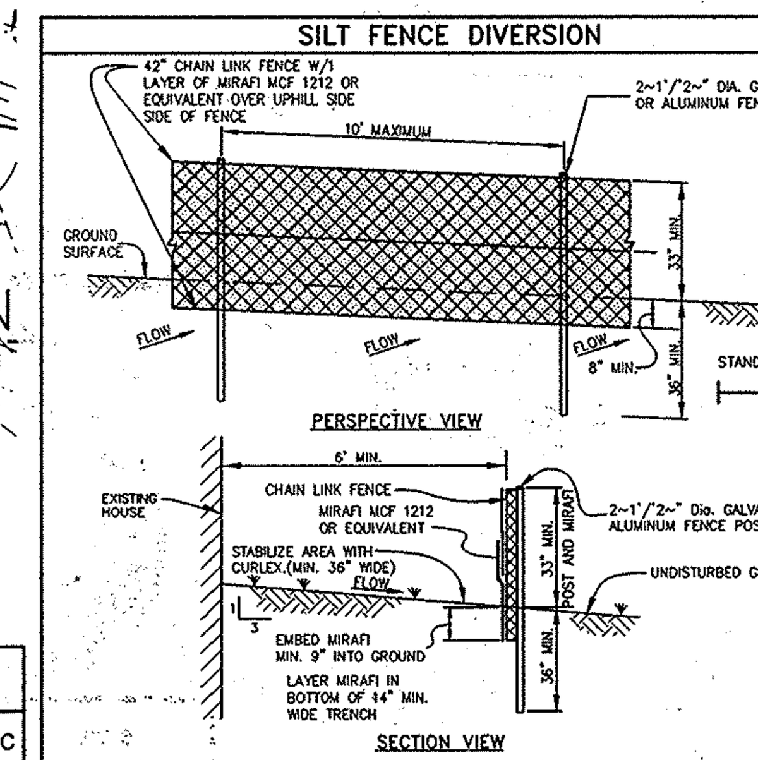
REFER TO THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.

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: 12-21-16

STATE OF MARYLAND DONALD ALAN MASON No. 21443 PROFESSIONAL ENGINEER 3-20-15

SILT FENCE DIVERSION



CONSTRUCTION SPECIFICATIONS

1. FENCING SHALL BE 42" HIGH CHAIN CONSTRUCTED IN ACCORDANCE WITH THE LATEST MARYLAND STATE HIGHWAY ADMINISTRATION STANDARD DETAILS 690.01 AND 690.02 FOR CHAIN LINK FENCING. THE SPECIFICATIONS FOR A 6'–0" FENCE SHALL BE USED, SUBSTITUTING 42" FABRIC AND 6' POSTS. POSTS SHALL BE PLACED WITHOUT CONCRETE EMBEDMENT.
2. CHAIN LINK FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. THE LOWER TENSION WIRE, BRACE AND TRUSS RODS, ANCHORS AND POST CAPS ARE NOT REQUIRED EXCEPT ON THE ENDS OF THE FENCE.
3. FILTER CLOTH TO BE FASTENED SECURELY TO CHAIN LINK FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
4. FILTER CLOTH SHALL BE IMBEDDED A MINIMUM OF 9" INTO THE GROUND.
5. WHEN TWO SECTIONS OF DIVERSION CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
6. MAINTENANCE SHALL BE PERFORMED AS NEEDED.

TOPSOIL SPECIFICATIONS

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

II. 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 texture subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1–1/2" in diameter.

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 apply soil amendments as specified in 20.0 Vegetative Stabilization – Section I – Vegetative Stabilization Methods and Materials.

IV. 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 or topsoil shall be not less than 1.5 percent by weight.

c. Topsoil having soluble salt content greater than 500 parts per million shall not be used.

d. No sod or seed shall be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.

Note: Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.

ii. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization – Section I – Vegetative Stabilization Methods and Materials.

V. Topsoil Application

i. When topsoiling, maintain needed erosion and sediment control practices such as diversions, grade stabilization structures, earth dikes, slope silt fence and sediment traps and basins.

ii. Grades on the areas to be topsoiled, which have been previously established, shall be maintained, albeit 4" – 8" higher in elevation.

iii. Topsoil shall be uniformly distributed in a 4" – 8" layer and lightly compacted to a minimum thickness of 4". Spreading shall be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and 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 grading and seedbed preparation.

VI. Alternative for Permanent Seeding – Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified

i. Composted Sludge Material for use as a soil conditioner for sites having distributed areas over 5 acres shall be tested to prescribe amendments and for sites having disturbed areas under 5 acres shall conform to the following requirements:

a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the 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.

c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.

iv. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.

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

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Weller Property SWM — Boring No. H–C B-1
Location: Howard County, MD — Job #: 05557A
SAMPLER: Datum: — Hammer Wt. 140 lbs. — Hole Diameter 6" — Foreman: Lamont Smith
Surf. Elev. 436.8 Ft. — Hammer Drop 30 in. — Rock Core Diameter — Inspector
Date Started 9/08/05 — Pipe Size 2 in. — Boring Method HSA — Date Completed 9/08/05

Description	Boring and Sampling Notes	Rec.	USCS	SPT Blows	N
Brown, moist, stiff, sandy silt to silty sand, trace rock fragments and organics (ML-SM)	Topsoil-5" No groundwater encountered while drilling.	10"	SM-ML	3-5-6	11
Yellowish orange, moist, hard, sandy silt (ML)		16"	ML	22-34-21	55
Light brown, moist, hard, silty clay, trace fine sand (CL-ML)		15"	CL-ML	11-28-21	49
Gray, moist, medium dense, silty clayey sand (SM-SC)		17"	SM-SC	7-10-10	20
Tan, moist, medium stiff, micaceous clayey silt, trace fine sand (ML-CL)		16"	CL-ML	2-3-4	7
Light brown, moist, medium stiff, micaceous sandy silt (ML)		14"	ML	3-5-5	10
Bottom of boring @ 15.0'					

GROUND WATER: AT COMPLETION Dry ft. CAVE IN DEPTH 1.5 ft.

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE. SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST. BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING.

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Weller Property SWM — Boring No. H–C B-2
Location: Howard County, MD — Job #: 05557A
SAMPLER: Datum: — Hammer Wt. 140 lbs. — Hole Diameter 6" — Foreman: Lamont Smith
Surf. Elev. 430.8 Ft. — Hammer Drop 30 in. — Rock Core Diameter — Inspector
Date Started 9/08/05 — Pipe Size 2 in. — Boring Method HSA — Date Completed 9/08/05

Description	Boring and Sampling Notes	Rec.	USCS	SPT Blows	N
Brown, moist, medium stiff, sandy silt, trace organics and rock fragments (ML)	Topsoil-5" No groundwater encountered while drilling.	7"	ML	2-3-7	10
Light brown, moist, stiff, silty clay, trace sand, with gravel (CL-ML)		17"	CL-ML	10-13-13	26
		15"		16-9-9	18
Greenish brown to light gray to orange, moist, very soft to medium stiff, micaceous silt, trace sand (ML)		16"	ML	2-2-3	5
		18"		1-2-2	4
		14"		3-5-5	10
Bottom of boring @ 15.0'					

GROUND WATER: AT COMPLETION Dry ft.

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Weller Property SWM — Boring No. H–C B-3
Location: Howard County, MD — Job #: 05557A
SAMPLER: Datum: — Hammer Wt. 140 lbs. — Hole Diameter 6" — Foreman: Lamont Smith
Surf. Elev. 440.3 Ft. — Hammer Drop 30 in. — Rock Core Diameter — Inspector
Date Started 9/08/05 — Pipe Size 2 in. — Boring Method HSA — Date Completed 9/08/05

Description	Boring and Sampling Notes	Rec.	USCS	SPT Blows	N
Tan, moist, stiff, sandy silt, trace rock fragments (ML)	Topsoil-5" No groundwater encountered while drilling.	13"	ML	3-4-7	11
Light brown, moist, stiff, silty clay, trace sand and rock fragments (CL-ML)		14"	CL-ML	3-8-10	18
Reddish light brown, moist, medium dense, silty sand, trace mica, rock fragments and clay (SM)		15"	SM	5-5-6	11
Tan to brown, moist, loose to medium dense, micaceous silty sand to sandy silt (SM-ML)		16"	SM-ML	3-4-5	9
		13"		5-6-8	14
Tan, moist, loose, micaceous silty sand (SM)		15"	SM	3-3-4	7
Bottom of boring @ 15.0'					

GROUND WATER: AT COMPLETION Dry ft. CAVE IN DEPTH 1.0 ft.

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.

30.0 DUST CONTROL

Definition

Controlling dust blowing and movement on construction sites and roads.

Purpose

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

This practice is applicable to areas subject to dust blowing and movement where on and off–site damage is likely without treatment.

Specifications

Temporary Methods

1. Mulches – See standards for vegetative stabilization with mulches only. Mulch should be crimped or tracked to prevent blowing.
2. Vegetative Cover – See standards for temporary vegetative cover.
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.
4. 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 left in place.
2. Topsoiling–Covering with less erosive soil materials. See standards for topsoiling.
3. Stone – Cover surface with crushed stone or coarse gravel.

References

1. 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.

PERMANENT SEEDBED PREPARATIONS

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

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

1. 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 FT).
2. 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.

SEEDING: FOR THE PERIODS MARCH 1 THROUGH APRIL 30 AND AUGUST 1 THROUGH OCTOBER 15, SEED WITH 60 LBS PER ACRE (1.4 LBS/1000 SQ FT) OF KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS PER ACRE (.05 LBS/1000 SQ FT) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THROUGH FEBRUARY 28, PROTECT SITE BY: OPTION (1) 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION (2) USE SOD. OPTION (3) SEED WITH 60 LBS PER ACRE OF KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS PER ACRE OF WELL ANCHORED STRAW.

MULCHING: APPLY 1–1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 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.

No As-Built information is required on this sheet

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION 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."

28376 — 11/28/2012
ENGINEER — DATE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL 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." CASCADE WALTHUR LLC

By: STEVEN K BREEDEN — James R. Moxley, III — 11/28/12
DEVELOPER — DATE

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

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

John R Robertson — 11/29/12
HOWARD SCD — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

12/19/12
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE:

12/18/12
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE:

NO	DATE	REVISION
1	3-10-15	REVISE LOCATION OF FLOW INLETS F-1 & F-2 PER AS-BUILT CONDITIONS

BENCHMARK ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410–465–6105 (F) 410–465–6644
60 THOMAS JOHNSON DRIVE ▲ FREDERICK, MARYLAND 21702
(P) 301–371–3505 (F) 301–371–3506
WWW.BEI–CIVILENGINEERING.COM

STATE OF MARYLAND ALICE A. MILLER No. 28376 PROFESSIONAL ENGINEER 11/28/2012

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. 28376, Expiration Date: 01-01-2013.

OWNER/DEVELOPER:
CASCADE WALTHUR, L.L.C.
P.O. BOX 417
ELLICOTT CITY, MD 21041
PHONE: 410–465–4244

PROJECT: **CASCADE OVERLOOK, SECTION 4**
LOTS 1–7 AND OPEN SPACE LOTS 8 & 9

LOCATION: TAX MAP 31 – GRID 10 – PARCEL 133
ZONE: R–ED 1st ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: MASS GRADING, SEDIMENT AND EROSION CONTROL PLAN, NOTES AND DETAILS

DATE: FEB 2012 / NOV 2012 — PROJECT NO. 1817

DESIGN: AM — DRAFT: AM — CHECK: CAM — SCALE: AS SHOWN — SHEET 3 OF 6

AS-BUILT F–12–074

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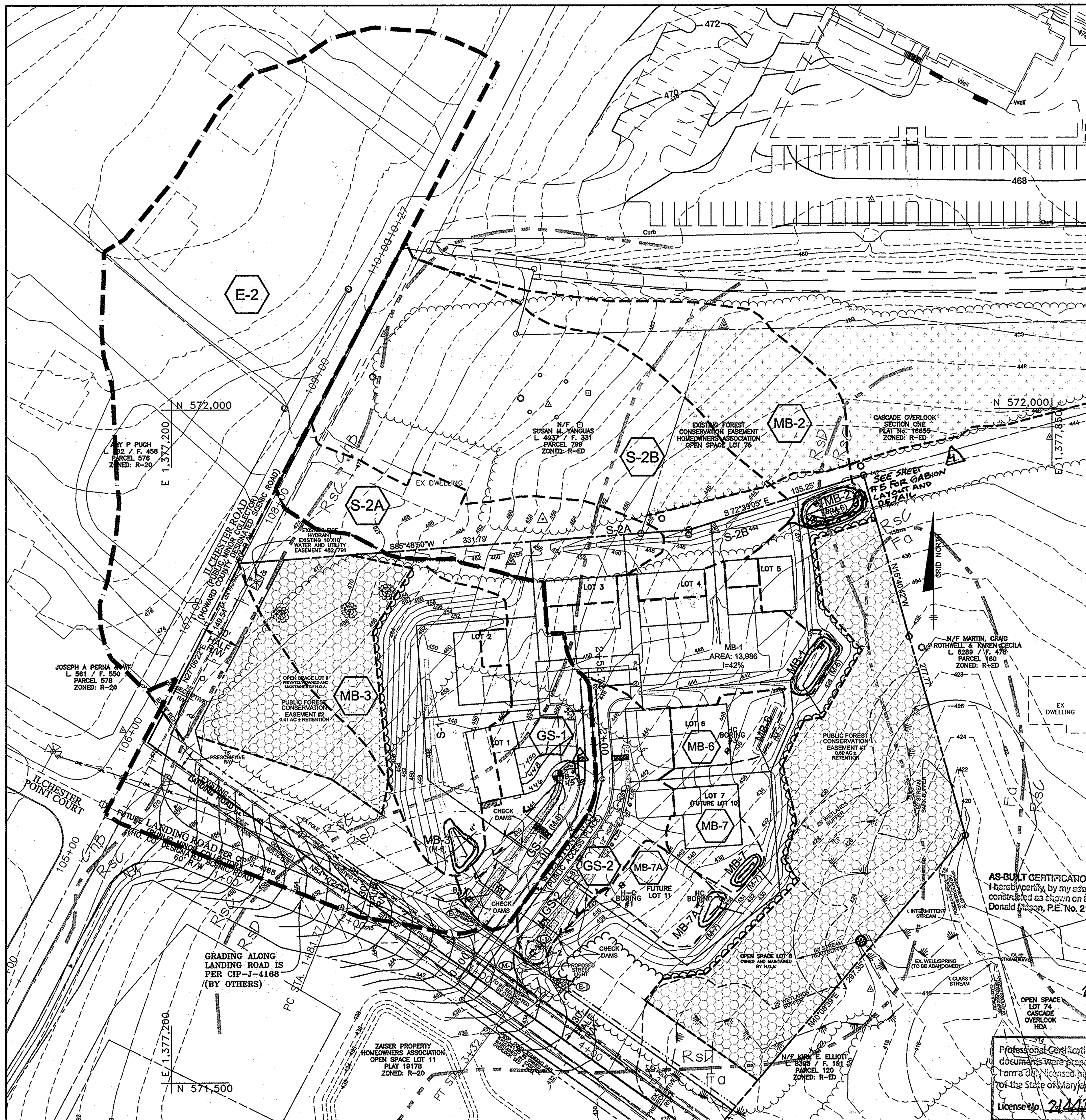
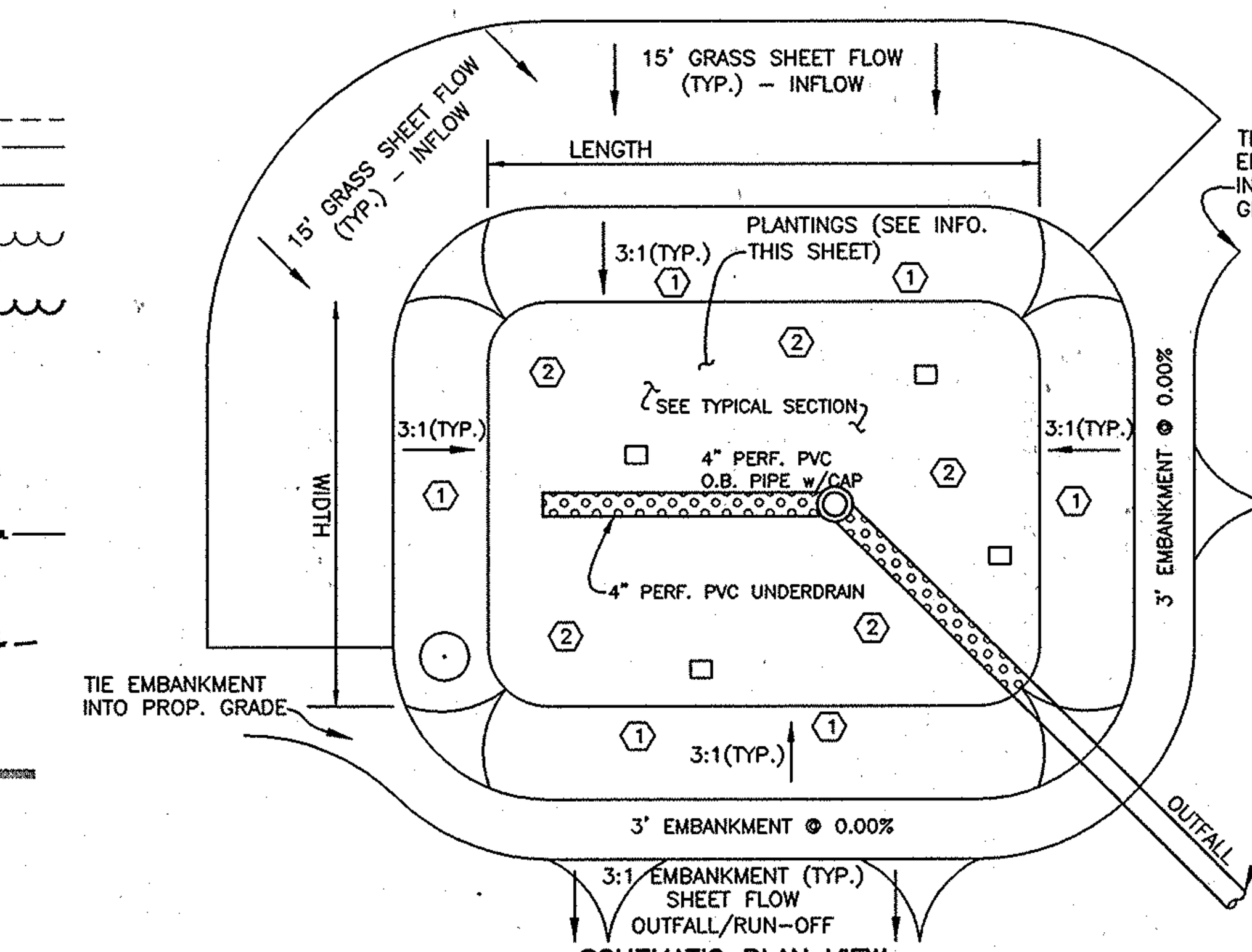


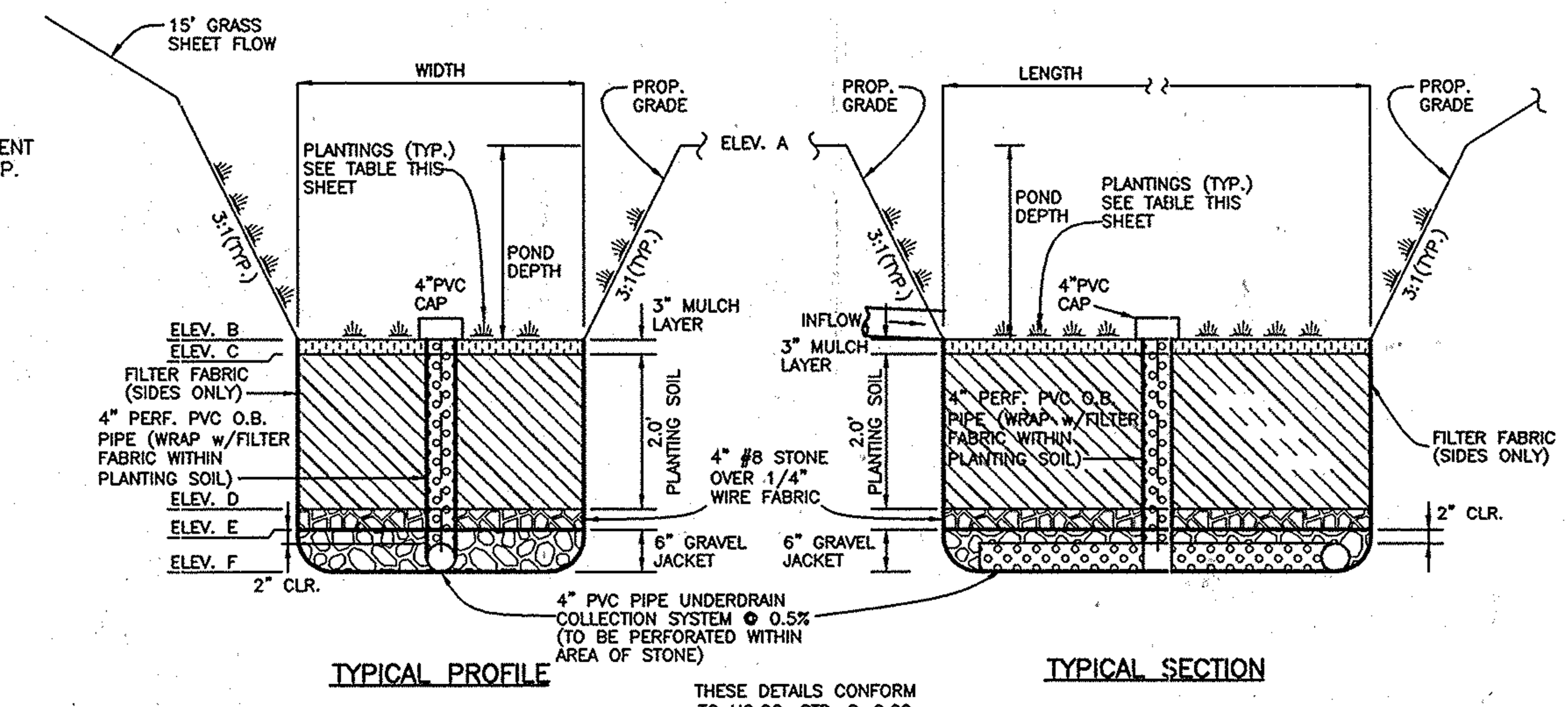
PLAN VIEW
SCALE: 1" = 50'

LEGEND

EXISTING CONTOUR	390 / 386
PROPOSED CONTOUR	412
EXISTING WOODS LINE	
PROPOSED WOODS LINE	
EXISTING HOUSE	
PROPOSED HOUSE	
EX. OVERHEAD WIRE	OHL
EX. UTILITY POLE	
LIMIT OF WETLANDS	
SOILS CLASSIFICATION	ChB2
SOILS DELINEATION	
FOREST CONSERVATION EASEMENT	
EX. SEPTIC	
DRAINAGE AREA LIMIT	
STORM DRAIN DRAINAGE AREA LIMIT	



SCHEMATIC PLAN VIEW



TYPICAL PROFILE TYPICAL SECTION

THESE DETAILS CONFORM TO HO.CO. STD. D–9.02

MICRO–BIORETENTION DETAILS
NOT TO SCALE

MICRO–BIORETENTION GEOMETRY											Af
LOT	LENGTH	WIDTH	DEPTH	A	B	C	D	E	F	G	SF
MB–1	38'	8'	1.0'	~~438.2~~ 437.9	~~437.2~~ 436.9	436.95	434.95	434.62	434.12	434.0	327
MB–2	40'	15'	1.0'	441.86	440.81	440.25	438.25	437.92	437.42	436.9	475
MB–3	24'	11'	1.0'	444.04	~~443.0~~ 443.6	442.75	440.75	440.42	439.92	439.8	237
MB–6	34'	7'	1.0'	439.0	438.4	438.42	436.42	436.09	435.59	435.5	259
MB–7	22'	5'	1.0'	436.7	435.8	433.75	431.75	431.42	430.92	430.8	109
MB–7A	21'	5'	1.0'	436.7	435.8	434.75	432.75	432.42	431.92	431.8	99

NOTE: FACILITY SHAPES ARE IRREGULAR. SEE PLAN VIEW FOR LAYOUT.

STORMWATER MANAGEMENT DRAINAGE AREA DATA		
FACILITY NO.	AREA (SF)	% IMPERVIOUS
MB–1	13,986	42
MB–2	76,953	11
MB–3	29,095	11
MB–6	3,737	43
MB–7	4,086	53
MB–7a	3,592	60
GS–1	15,556	42
GS–2	9,624	50

STORMWATER MANAGEMENT PRACTICES			
LOT NUMBER	ADDRESS	MICRO-BIORETENTION M-6 (NUMBER)	SWALES M-8 (NUMBER)
LOT 6		1	
LOT 7 FUTURE LOT 10		1	
FUTURE LOT 11		1	

SWALE DRAINAGE AREA DATA		
FACILITY NO.	AREA (SF)	% IMPERVIOUS
S–1=MB–3	29,095	11
S–2A	16,272	22
S–2B	59,537	14

STORM DRAIN DRAINAGE AREA DATA				
INLET NO.	ZONING	AREA (AC)	'C' FACTOR	% IMPERVIOUS
I–1=GS–2	R–ED	0.32	0.49	45
E–2	R–ED	3.41	0.27	25

SOILS CLASSIFICATION		
SYMBOL	DESCRIPTION	HYDROLOGIC GROUP
ChB	CHILLUM-RUSSETT LOAMS, 2 TO 5 PERCENT SLOPES	B
Fa	FALLSINGTON SANDY LOAM, 0 TO 2 PERCENT SLOPES	D
RsC	RUSSETT FINE SANDY LOAM, 5 TO 10 PERCENT	C
RsD*	RUSSETT FINE SANDY LOAM, 10 TO 15 PERCENT	C

SOIL DATA OBTAINED FROM THE NRCS WEB SOIL SURVEY.
*HIGHLY ERODIBLE SOIL

OPERATION AND MAINTENANCE SCHEDULE FOR GRASS SWALES, (M–8)

1. THE OPEN CHANNEL SYSTEM SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE FACILITY IS FUNCTIONING PROPERLY.
2. THE OPEN CHANNEL SHALL BE MOWED A MINIMUM OF AS NEEDED DURING THE GROWING SEASON TO MAINTAIN A MAXIMUM GRASS HEIGHT OF LESS THAN 6 INCHES.
3. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
4. VISIBLE SIGNS OF EROSION IN THE OPEN CHANNEL SYSTEM SHALL BE REPAIRED AS SOON AS IT IS NOTICED.
5. REMOVE SILT IN THE OPEN CHANNEL SYSTEM WHEN IT EXCEEDS 25% OF THE ORIGINAL WQV.
6. INSPECT CHECK DAMS TWICE A YEAR FOR STRUCTURAL INTEGRITY. RESTORE CHECK DAMS TO ORIGINAL CONDITION AS APPLICABLE.

OPERATION AND MAINTENANCE SCHEDULE FOR MICRO–BIORETENTION (M–6)

A. THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME II, TABLE A.4.1 AND 2.
B. THE OWNER SHALL PERFORM A PLANT IN THE SPRING AND IN THE FALL OF EACH YEAR. DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, REPLACE DEAD PLANT MATERIAL WITH ACCEPTABLE REPLACEMENT PLANT MATERIAL, TREAT DISEASED TREES AND SHRUBS, AND REPLACE ALL DEFICIENT STAKES AND WIRES.
C. THE OWNER SHALL INSPECT THE MULCH EACH SPRING. THE MULCH SHALL BE REPLACED EVERY TWO TO THREE YEARS. THE PREVIOUS MULCH LAYER SHALL BE REMOVED BEFORE THE NEW LAYER IS APPLIED.
D. THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.

PLANTING DATA

1. PLANTINGS WITHIN THE PONDING AREA OF THE MICRO–BIORETENTION AREA ARE TO BE OF A MEDIUM TO HIGH WATER TOLERANCE.
2. PLANTINGS ALONG THE PERIMETER (BERM) AREA OF THE RAIN GARDEN ARE TO BE OF A LOW TO MEDIUM WATER TOLERANCE.
3. AVOID PLANTINGS WITH EXCESSIVE ROOT MASS IN POND AREA OF THE RAIN GARDEN NEAR O.B. PIPE AND UNDERDRAIN.

MICRO–BIORETENTION PLANTING SCHEDULE

MB–6, MB–7 AND MB–7A
- 4 (1) IRIS VERSICOLOR (IRIS)
- 3 ☐ NYMPHOIDES PELTATA FLOATING–HEART YELLOW
- 3 (2) LOBELIA CARDINALIS CARDINAL FLOWER
- 1 (·) ACER RUBRUM (RED MAPLE)

MB–1
- 14 (1) IRIS VERSICOLOR (IRIS)
- 13 ☐ NYMPHOIDES PELTATA FLOATING–HEART YELLOW
- 14 (2) LOBELIA CARDINALIS CARDINAL FLOWER
- 1 (·) ACER RUBRUM (RED MAPLE)

MB–2
- 21 (1) IRIS VERSICOLOR (IRIS)
- 21 ☐ NYMPHOIDES PELTATA FLOATING–HEART YELLOW
- 21 (2) LOBELIA CARDINALIS CARDINAL FLOWER
- 1 (·) ACER RUBRUM (RED MAPLE)

MB–3
- 10 (1) IRIS VERSICOLOR (IRIS)
- 10 ☐ NYMPHOIDES PELTATA FLOATING–HEART YELLOW
- 10 (2) LOBELIA CARDINALIS CARDINAL FLOWER
- 1 (·) ACER RUBRUM (RED MAPLE)

TABLE B.3.2 MATERIALS AND SPECIFICATIONS FOR SWM FACILITIES			
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	2" TO 3" DEPTH, 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
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 @ 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.R/89; VERTICAL LOADING (H–10 or H–20) ALLOWABLE HORIZONTAL LOADING (BASED ON SOIL PRESSURES); AND ANALYSIS OF POTENTIAL CRACKING
CHECK DAM (TREATED WOOD)	AWPA STANDARD C6	6"X6" OR 8"X8"	DO NOT COAT WITH CREOSOTE; EMBED AT LEAST 3' INTO SIDE SLOPES

BORING LOG — GEOLAB, INC.
Client: Security Development. Project: Cascade Overlook, Section 4. Project No. 112-017. Boring No: B-1 (1 of 1). Total Depth: 12. Elev: 446.1. Location: See Boring Location Plan. Type of Boring: SSA/HA. Started: 2/22/12. Completed: 2/22/12. Driller: Geolab, Inc.

Elevation	Depth	DESCRIPTION OF MATERIALS (classification)	*Sample Blows	Sample Depth (Feet)	Moisture Content	REMARKS
446.1	0.0	Sod with root (organic) matter and organic soil		0.0 / 0.5		Boring dry during drilling and at completion.
445.6	0.5	Orangish-brown clayey SILT with some fine to medium sand and gravel, damp (ML) (USDA: SILT LOAM)		1.0 / 1.5	13.8	
441.1	5.0	Orange to yellow silty CLAY with trace fine sand, moist (CL) (USDA: SILTY CLAY)		5.0 / 5.5	25.8	
439.1	7.0	Yellow, orange and white fine SAND with some silty clay, moist (SC) (USDA: SANDY LOAM)		7.0 / 7.5	11.7	
				10.0 / 10.5		
				11.5 / 12	21.6	
434.1	12.0	End of Boring				

BORING LOG — GEOLAB, INC.
Client: Security Development. Project: Cascade Overlook, Section 4. Project No. 112-017. Boring No: B-2 (1 of 1). Total Depth: 5. Elev: 438.3. Location: See Boring Location Plan. Type of Boring: SSA/HA. Started: 2/22/12. Completed: 2/22/12. Driller: Geolab, Inc.

Elevation	Depth	DESCRIPTION OF MATERIALS (classification)	*Sample Blows	Sample Depth (Feet)	Moisture Content	REMARKS
438.3	0.0	Sod with root (organic) matter and oranic soil		0.0 / 0.5		Boring dry during drilling and at completion.
437.8	0.5	Light brown to brown clayey SILT with some fine to medium sand and trace gravel, moist (ML) (USDA: SILT LOAM)		1.0 / 1.5	16.3	
436.8	1.5	Light brown to orangish-brown silty CLAY with little fine sand, moist (CL) (USDA: SILTY CLAY)		2.0 / 2.5	24.7	
				4.5 / 5	25.2	
433.3	5.0	End of Boring				

BORING LOG — GEOLAB, INC.
Client: Security Development. Project: Cascade Overlook, Section 4. Project No. 112-017. Boring No: B-3 (1 of 1). Total Depth: 10. Elev: 448.5. Location: See Boring Location Plan. Type of Boring: SSA/HA. Started: 2/22/12. Completed: 2/22/12. Driller: Geolab, Inc.

Elevation	Depth	DESCRIPTION OF MATERIALS (classification)	*Sample Blows	Sample Depth (Feet)	Moisture Content	REMARKS
448.5	0.0	Sod with root (organic) matter and organic soil		0.0 / 0.5		Boring dry during drilling and at completion.
448	0.5	FILL: Reddish-brown gravelly silty clayey fine to coarse SAND, moist (SM) (USDA: SANDY LOAM)		1.0 / 1.5	11.7	
447	1.5	Orangish-brown with red/grey mottling FAT CLAY with trace fine to medium sand, moist (CH) (USDA: CLAY)		5.5 / 6	51.2	
				8.5 / 9	58.1	
				9.5 / 10	62.9	
438.5	10.0	End of Boring				

BORING LOG — GEOLAB, INC.
Client: Security Development. Project: Cascade Overlook, Section 4. Project No. 112-017. Boring No: B-4 (1 of 1). Total Depth: 8. Elev: 435.9. Location: See Boring Location Plan. Type of Boring: SSA/HA. Started: 2/22/12. Completed: 2/22/12. Driller: Geolab, Inc.

Elevation	Depth	DESCRIPTION OF MATERIALS (classification)	*Sample Blows	Sample Depth (Feet)	Moisture Content	REMARKS
435.9	0.0	Forest litter with root (organic) matter and organic soil		0.0 / 0.5		Boring dry during drilling and at completion.
435.4	0.5	Orangish-brown clayey SILT with some fine to medium sand and trace gravel, moist (ML) (USDA: SILT LOAM)		1.0 / 1.5	26.7	
434.4	1.5	Orangish to light brown clayey silty fine to medium SAND, moist (SM) (USDA: SANDY CLAY LOAM)		3.0 / 3.5	23.7	
				4.5 / 5	27.8	
427.9	8.0	End of Boring				

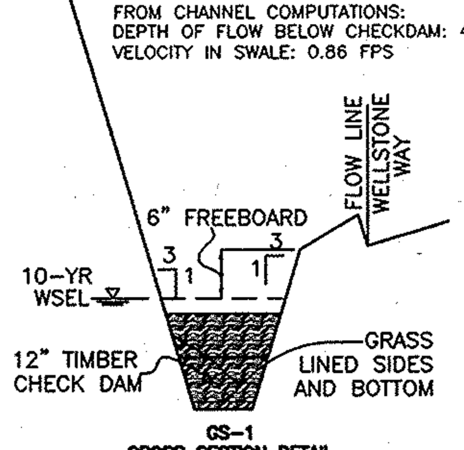
BORING LOG — GEOLAB, INC.
Client: Security Development. Project: Cascade Overlook, Section 4. Project No. 112-017. Boring No: B-5 (1 of 1). Total Depth: 10. Elev: 442.2. Location: See Boring Location Plan. Type of Boring: SSA/HA. Started: 2/22/12. Completed: 2/22/12. Driller: Geolab, Inc.

Elevation	Depth	DESCRIPTION OF MATERIALS (classification)	*Sample Blows	Sample Depth (Feet)	Moisture Content	REMARKS
442.2	0.0	Forest litter and root (organic) matter and organic soil		0.0 / 0.5		Boring dry during drilling and at completion.
441.2	1.0	Reddish-brown to grey silty fine to medium SAND with some gravel, damp (SM) (USDA: SANDY LOAM)		2.5 / 3	10.9	
439.2	3.0	Light brown to orangish-brown silty CLAY with some fine to medium sand, moist (CL) (USDA: CLAY LOAM)		4.5 / 5	20.0	
437.2	5.0	Tan to yellow to off-white clayey silty fine to coarse SAND, moist (SM) (USDA: SANDY LOAM)		7.5 / 8	23.8	
				9.0 / 9.5	22.3	
432.2	10.0	End of Boring				

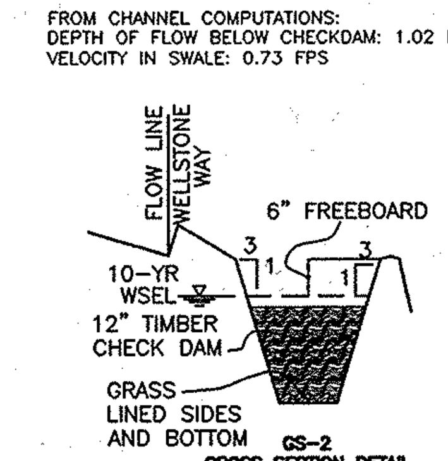
*Number of blows required for a 140 lb hammer dropping 30" to drive 2" O.D., 1.375" I.D. sampler a total of 18 inches in three 6" increments. The sum of the last two increments of penetration is termed the standard penetration resistance, N.

GS–1 – FLOW OVER CHECKDAM
Q_{10}=1.99 cfs Q = C(L)H^1.5
H=0.16'
L=12.0' OR
C=2.5 H = (Q/CL)^0.666
FROM CHANNEL COMPUTATIONS:
DEPTH OF FLOW BELOW CHECKDAM: 4.0 IN.
VELOCITY IN SWALE: 0.86 FPS

GS–2 – FLOW OVER CHECKDAM
Q_{10}=1.22 cfs Q = C(L)H^1.5
H=0.12'
L=12.0' OR
C=2.5 H = (Q/CL)^0.666
FROM CHANNEL COMPUTATIONS:
DEPTH OF FLOW BELOW CHECKDAM: 1.02 IN.
VELOCITY IN SWALE: 0.73 FPS



GS–1 CROSS SECTION DETAIL
NOT TO SCALE (VERTICAL SCALE FACTOR = 10)

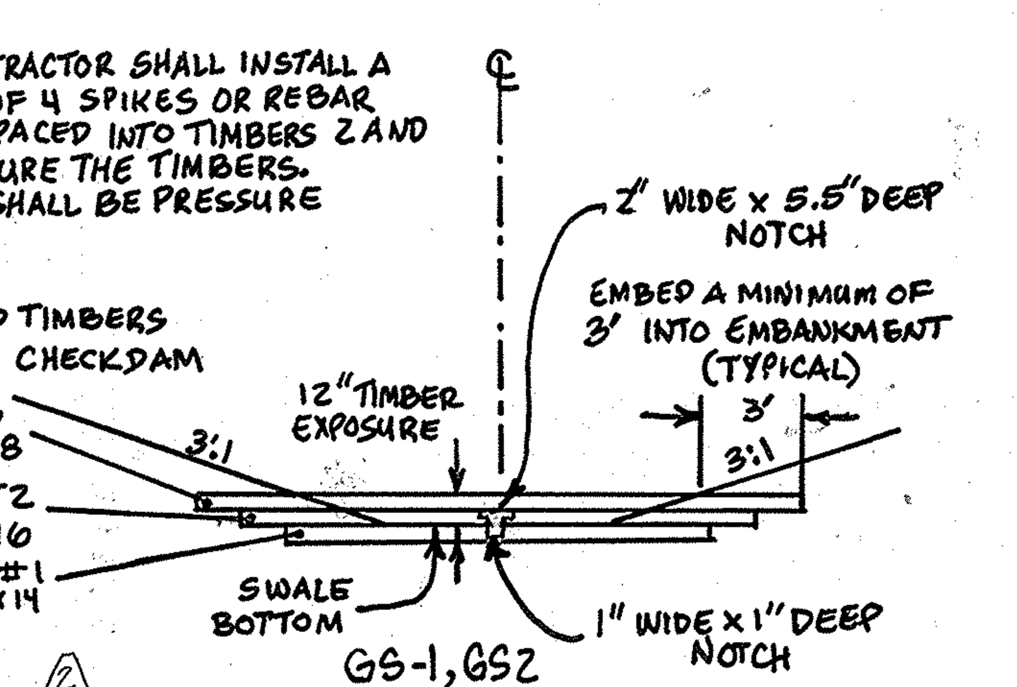


GS–2 CROSS SECTION DETAIL
NOT TO SCALE (VERTICAL SCALE FACTOR = 10)

* NOTE: APPLY SOLID SOD FROM BACK OF INLET TO FIRST CHECK DAM IMMEDIATELY UPON COMPLETION OF GRADING

(5) NO RIPRAP IS REQUIRED BEHIND F-5.

NOTE:
CONTRACTOR SHALL INSTALL A MINIMUM OF 4 SPIKES OR REBAR EVENLY SPACED INTO TIMBERS 2 AND 3 TO SECURE THE TIMBERS. TIMBERS SHALL BE PRESSURE TREATED.



(2) GS-1, GS2
TIMBER CHECK DAM DETAIL
NOT TO SCALE

(5) CHECK DAM DIMENSIONS ARE TO BE +/- 1".

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 3-20-15

STATE OF MARYLAND — DONALD ALAN MASON — No. 21443 — PROFESSIONAL ENGINEER

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: 12-21-16

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	
CHIEF, BUREAU OF HIGHWAYS	DATE: 12-13-12
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING	
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE: 12/19/12
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE: 12/18/12

NO	DATE	REVISION
6	4-22-16	REVISE MICRO BIO GEOMETRY TABLE TO MATCH DETAIL AND FIELD CONDITIONS
5	12-15-15	REVISE TO ADD NOTES REQUESTE BY CID
4	8-7-15	REVISE TO ADD GABION PROTECTION TO MB-2
3	3-10-15	REVISE LOCATION OF FLOW INLETS F-1 & F-2 PER AS-BUILT CONDITIONS
2	10-28-14	REVISE CHECK DAM DETAIL
1	3-28-14	REVISE SWALE GS-1 AT LOT 1

BENCHMARK ENGINEERING, INC.
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410–465–6105 (F) 410–465–6644
60 THOMAS JOHNSON DRIVE ▲ FREDERICK, MARYLAND 21702
(P) 301–371–3505 (F) 301–371–3506
WWW.BEI–CIVILENGINEERING.COM

STATE OF MARYLAND — PROFESSIONAL ENGINEER
11/29/2012
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. 28376, Expiration Date: 01-01-2013.

OWNER/DEVELOPER:
CASCADE WALTHUR, L.L.C.
P.O. BOX 417
ELLICOTT CITY, MD 21041
PHONE: 410–465–4244

PROJECT:
CASCADE OVERLOOK, SECTION 4
LOTS 1–7 AND OPEN SPACE LOTS 8 & 9

LOCATION: TAX MAP 31 – GRID 10 – PARCEL 133
ZONE: R–ED 1st ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: STORMWATER MANAGEMENT PLAN, NOTES, DETAILS AND STORM DRAIN DRAINAGE AREA MAP

DATE: FEB 2012 / NOV 2012 | PROJECT NO: 1817
DESIGN: AM | DRAFT: AM | CHECK: CAM | SCALE: AS SHOWN | SHEET 4 OF 6

AS BUILT F–12–074

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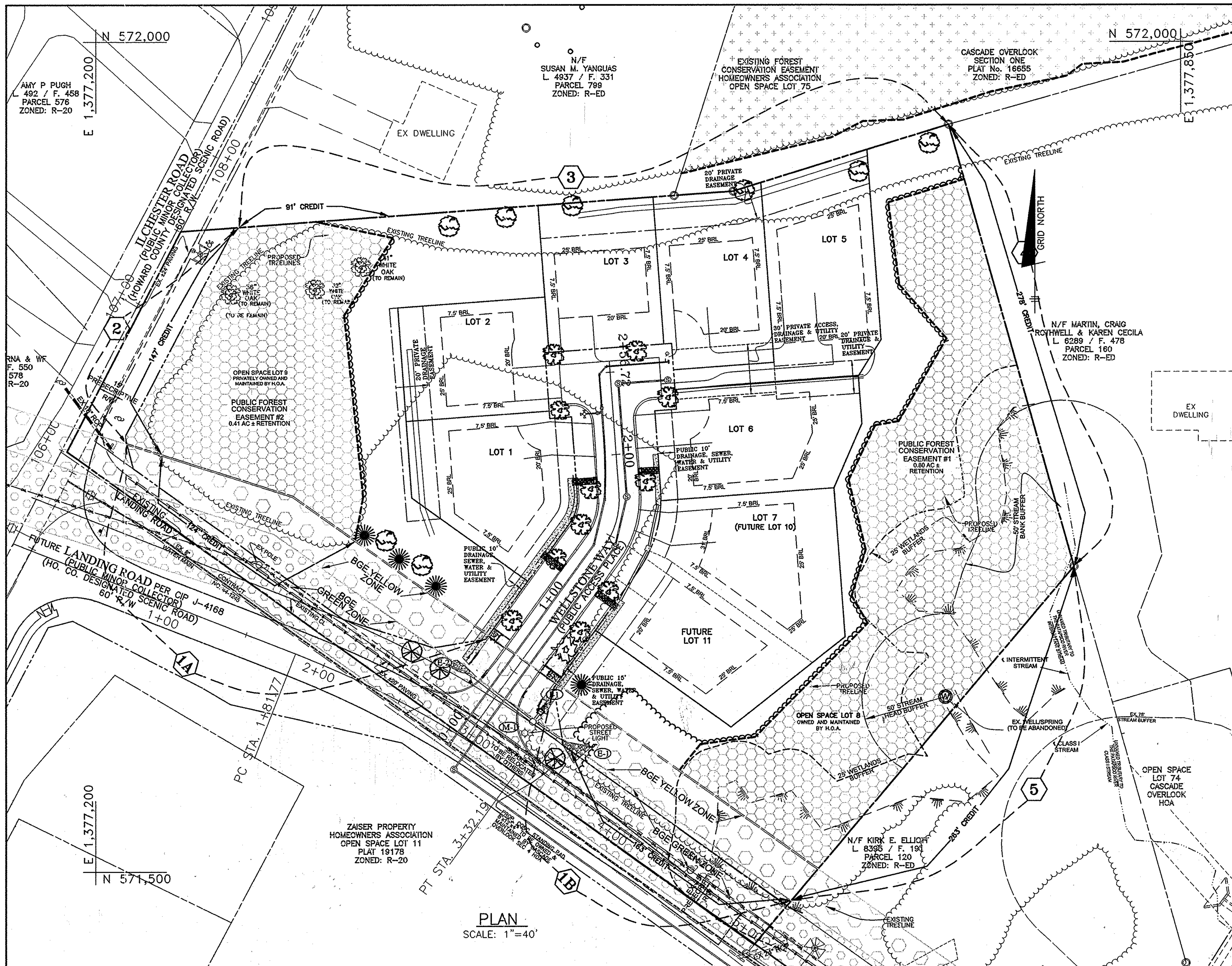


PLAN
SCALE: 1"=40'

SCHEDULE A PERIMETER LANDSCAPE EDGE								
CATEGORY	ADJACENT TO ROADWAY	YES	YES	YES	NO	NO	NO	TOTALS
	ADJACENT TO PERIMETER PROPERTIES	NO	NO	NO	YES	YES	YES	
PERIMETER NO. / LANDSCAPE TYPE		1A B	1B B	2 B	3 A	4 A	5 A	
LINEAR FEET OF (FRONTAGE/PERIMETER)		243'	192'	147'	467'	278'	263'	
CREDIT FOR EXISTING VEGETATION: NO OR YES (w/LINEAR FEET) (DESCRIBE BELOW IF NEEDED)		YES 124'	YES 163'	YES 147'	YES 91'	YES 278'	YES 263'	
CREDIT FOR WALL, FENCE OR BERM: NO OR YES (w/LINEAR FEET) (DESCRIBE BELOW IF NEEDED)		NO –	NO –	NO –	NO –	NO –	NO –	
NUMBER OF PLANTS REQUIRED:								
SHADE TREES		2	0	–	6	–	–	8
EVERGREEN TREES		3	1	–	–	–	–	4
OTHER TREES (2:1 SUBSTITUTE)		–	–	–	–	–	–	–
SHRUBS		–	–	–	–	–	–	–
NUMBER OF PLANTS PROVIDED:								
SHADE TREES		2	0	–	6	–	–	8
EVERGREEN TREES		3	1	–	–	–	–	4
OTHER TREES (2:1 SUBSTITUTE)		–	–	–	–	–	–	–
SHRUBS (10:1 SUBSTITUTE)		–	–	–	–	–	–	–
(DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)		–	–	–	–	–	–	–

STREET TREE CALCULATIONS LANDING AND ILCHESTER ROAD
STREET TREES REQUIRED FOR 515 LF OF RIGHT-OF-WAY WITH 445 LF OF CREDIT FOR PRESERVING EXISTING VEGETATION (558-455) / 30 = 3 TREES REQUIRED
3 TREES PROVIDED

STREET TREE CALCULATIONS WELLSTONE WAY
STREET TREES REQUIRED FOR 486 LF OF RIGHT-OF-WAY
486 / 40 = 12 TREES REQUIRED
12 TREES PROVIDED

PERIMETER PLANTING LIST			
SYMBOL	QUANTITY	NAME	REMARKS
	8	ACER SACCHARUM "SUGAR MAPLE"	2.5"-3.0" MIN. CAL. B & B FULL HEAD
	4	CUPPRESSOCYPARIS LEYLANDI "LELAND CYPRESS"	5.0'-6.0' MIN. HT. UNSHEARED

STREET TREE PLANTING LIST			
SYMBOL	QUANTITY	NAME	REMARKS
	12	QUERCUS COCCINEA "SCARLET OAK"	2.5"-3.0" MIN. CAL. B & B FULL HEAD
	3	ACER GRISEUM "PAPERBACK MAPLE"	2.5"-3.0" MIN. CAL. B & B FULL HEAD

LANDSCAPING NOTES

1.) PERIMETER LANDSCAPING SHALL BE PROVIDED BY THE EXISTING VEGETATION TO REMAIN AND BY THE PLANTINGS AS SHOWN ON THESE PLANS.

2.) SEE TREE PLANTING DETAIL – THIS SHEET.

3.) THE DEVELOPER SHALL BE RESPONSIBLE FOR THE PLANTINGS AND FOR PRESERVATION VEGETATION AS SHOWN ON THESE PLANS. BONDING FOR PLANTINGS IS THE OBLIGATION OF THE DEVELOPER AS PART OF THE DEVELOPERS AGREEMENT.

4.) STREET TREES SHALL BE PLANTED A MINIMUM OF FOUR (4) FEET FROM THE CURB OR SIDEWALK, A MINIMUM OF SIX (6) FEET BEHIND FACE OF CURB WHEN THERE IS NO SIDEWALK AND MUST BE A MINIMUM OF FIVE (5) FEET FROM ANY STORM DRAIN.

5.) A MINIMUM DISTANCE OF TWENTY (20) FEET MUST BE MAINTAINED BETWEEN ANY TREES LOCATED ALONG THE CURB LINE AND FROM ANY STREET LIGHTS.

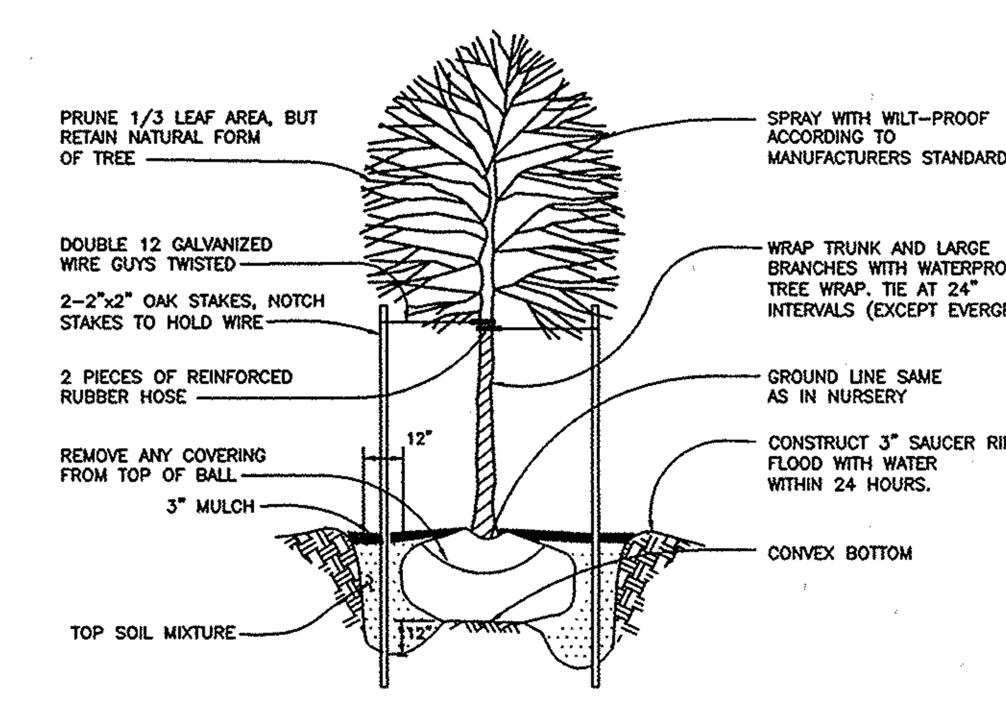
6.) THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SEC.-16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL.

7.) STREET TREES SHALL BE PLANTED A MINIMUM OF FIVE (5) FEET FROM OPEN SPACE ACCESS STRIP AND 10' FROM DRIVEWAY.

8.) AT THE TIME OF INSTALLATION, ALL SHRUBS AND OTHER PLANTINGS HEREWITH LISTED AND APPROVED FOR THIS SITE, SHALL BE OF THE PROPER HEIGHT 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 CERTIFICATIONS.

9.) PERIMETER 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 $3,000 ($2,400 FOR 8 SHADE TREES AND $600 FOR 4 EVERGREEN TREES) SHALL BE POSTED WITHIN THE DEVELOPER'S AGREEMENT UNDER THIS FINAL PLAN, F-12-

10.) SMALL ORNAMENTAL TREES SHALL BE PLANTED ALONG PERIMETER 1 IN ACCORDANCE WITH BGE "GREEN ZONE".



TREE PLANTING DETAIL
NOT TO SCALE

BGE ZONE LEGEND

GREEN ZONE

YELLOW ZONE

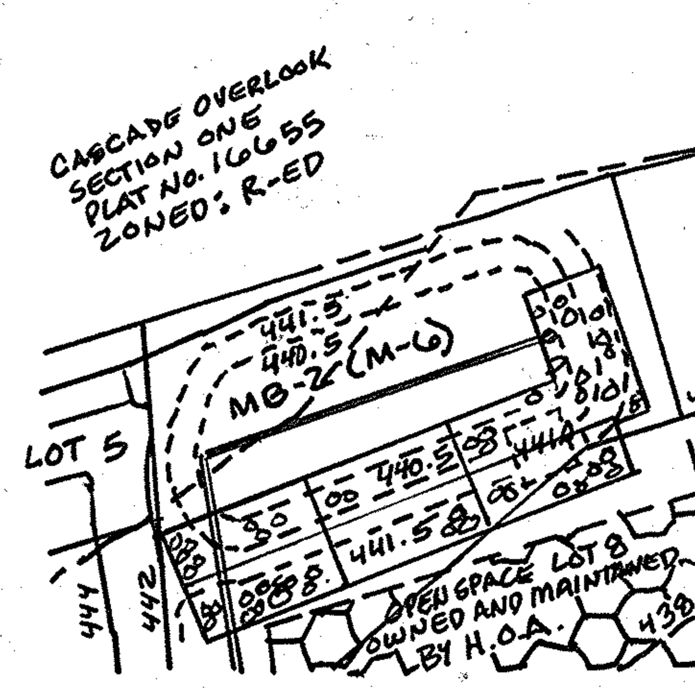
LINER SPECIFICATIONS FOR MICRO-BIORETENTION M-2			
MATERIAL	SPECIFICATION	SIZE	NOTES
IMPERVIOUS LINER	ASTM D-4833 (THICKNESS) ASTM-D-412 (TENSILE STRENGTH 1,100 LB., ELONGATION (200%) ASTM-D-624 (TEAR RESISTANCE 150 LB./IN) ASTM-D-471 (WATER ADSORPTION +8 TO -2% MASS)	30 MIL THICK	LINER TO BE ULTRAVIOLET RESISTANT. A GEOTEXTILE FABRIC SHOULD BE USED TO PROTECT THE LINER FROM PUNCTURE.

CONSTRUCTION NOTES:

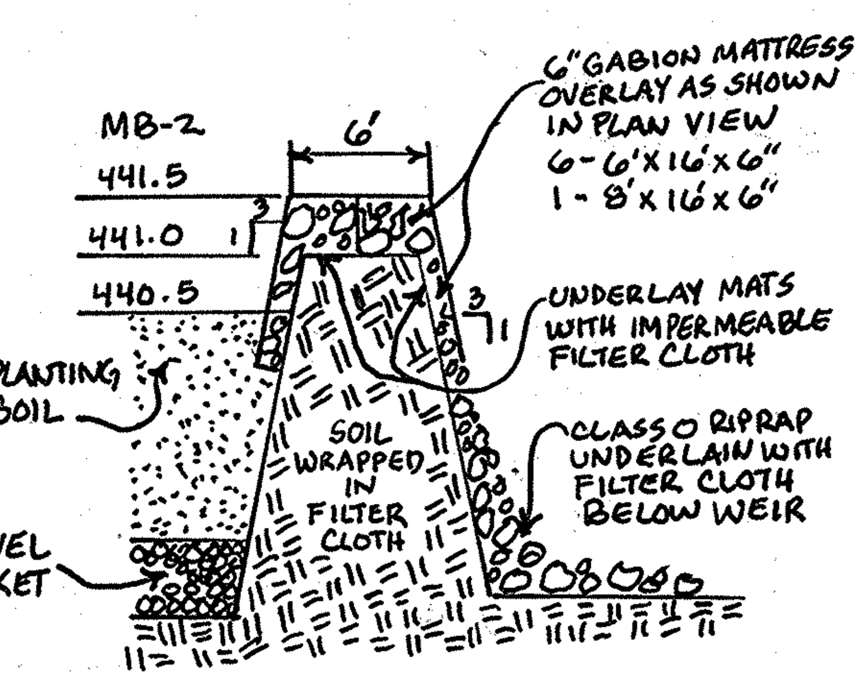
1. PULL PLANTING SOIL AWAY FROM INSIDE FACE OF EMBANKMENT APPROXIMATELY 1 FOOT.
2. EXCAVATE BREACHED AREA TO NATURAL GROUND.
3. RECONSTRUCT EMBANKMENT USING SOIL FILL WRAPPED IN PERMEABLE FILTER CLOTH WITH IN BREACHED AREA, LEAVING 6' WEIR AREA 6" DEPRESSED FROM TOP OF EMBANKMENT.
4. PLACE GABION MATTRESSES ON TOP OF ENBANKMENT, EXTENDING DOWN INSIDE AND OUTSIDE FACES.
5. REPLACE PLANTING SOIL AROUND MATTRESS AND ENBANKMENT,
6. BACKFILL OUTSIDE FACE OF ENBANKMENT WITH CLASS O' RIPRAP WITHIN 2' OF EITHER SIDE OF WEIR. TIE THE REMAINING MATTRESS AREA WITH TOPSOIL AND SOD FOR SMOOTH FINISH.

LEGEND

EXISTING WOODS LINE		LIMIT OF WETLANDS	
PROPOSED WOODS LINE		PRIVATE DRAINAGE & UTILITY EASEMENT	
EXISTING STRUCTURE		PROP. FOREST CONSERVATION EASEMENT	
PROPOSED STRUCTURE		EX. PRIVATE ACCESS EASEMENT	
EX. OVERHEAD WIRE	—OHL—OHL—OHL—	L.S. PERIMETER AREAS	3
EX. UTILITY POLE		PERMANENT FOREST CONSERVATION SIGNAGE	FCE
PROPOSED STREET LIGHT		PROP. FIRE HYDRANT	



MICRO-BIORETENTION M-2
GABION BASKET LAYOUT
SCALE: 1"=20'



MICRO-BIORETENTION M-2
RECONFIGURATION
SECTION THROUGH WEIR
NOT TO SCALE

No As-Built information is required on this sheet

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: 12-21-16

STATE OF MARYLAND DONALD ALAN MASON No. 21443 PROFESSIONAL ENGINEER 8-20-15

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE: 12-13-12

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE: 12/19/12

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE: 12/18/12

DEVELOPER'S/BUILDER'S CERTIFICTION

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION, A LETTER OF NOTICE, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

NAME: James R. Moxley, III Steven K. Breeden MEMBER DATE: 11/20/12

NO	DATE	REVISION
2	8-7-15	REVISE TO ADD GABION PROTECTION TO MB-2
1	3-10-15	REVISE LOCATION OF FLOW INLETS F-1 & F-2 PER AS-BUILT CONDITIONS

BENCHMARK ENGINEERING, INC.
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
60 THOMAS JOHNSON DRIVE ▲ FREDERICK, MARYLAND 21702
(P) 301-371-3505 (F) 301-371-3506
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND ALICE A. MILLER No. 28376 PROFESSIONAL ENGINEER 11/29/2012

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. 28376, Expiration Date: 01-01-2013.

OWNER/DEVELOPER:
CASCADE WALTHUR, L.L.C.
P.O. BOX 417
ELLICOTT CITY, MD 21041
PHONE: 410-465-4244

PROJECT:
CASCADE OVERLOOK, SECTION 4
LOTS 1-7 AND OPEN SPACE LOTS 8 & 9

LOCATION: TAX MAP 31 – GRID 10 – PARCEL 133
ZONE: R-ED 1st ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: LANDSCAPE PLAN, NOTES AND DETAILS

DATE: FEB 2012 / NOV 2012 | PROJECT NO. 1817

DESIGN: AM | DRAFT: AM | CHECK: CAM | SCALE: AS SHOWN | SHEET 5 OF 6

AS-BUILT F-12-074

P:\1817 Weller\dwg\7022s05.dwg, landscape plan, 11/29/2012 2:59:18 PM, edd

CONSTRUCTION PERIOD PROTECTION PROGRAM

A. Forest Protection Techniques

1. Soil Protection Area (Critical Root Zone)

The soil protection area, or critical root zone, of a tree is that portion of the soil column where most of a its roots may be found. The majority of roots responsible for water and nutrient uptake are located just below the soil surface. Temporary fencing shall be placed around the critical root zone of the forest in areas where the forest limits occur within 25 feet of the limit of disturbance.

2. Fencing and Signage

Existing forest limits occurring within 25 feet of the limits of disturbance shall be protected using temporary protective fencing. Permanent signage shall be placed around the afforestation area prior to plant installation, as shown on the plan.

B. Pre-Construction Meeting

Upon staking of limits of disturbance a pre-construction meeting will be held between the developer, contractor and appropriate County inspector. The purpose of the meeting will be to verify that all sediment control is in order, and to notify the contractor of possible penalties for non-compliance with the FCP.

C. Storage Facilities/Equipment Cleaning

All equipment storage, parking, sanitary facilities, material stockpiling, etc. associated with construction of the project will be restricted to those areas outside of the proposed Forest Conservation Easement. Cleaning of equipment will be limited to area within the LOD of the proposed homesites. Wastewater resulting from equipment cleaning will be controlled to prevent runoff into environmentally sensitive areas.

D. Sequence of Construction

The following timetable represents the proposed timetable for development. The items outlined in the Forest Conservation Plan will be enacted within two (2) years of subdivision approval.

Below find a proposed sequence of construction.

1. Install all signage and sediment control devices.
2. Hold pre-construction meeting between developer, contractor and County Inspector.
3. Build access roads, install water and sewer, and construct houses. Stabilize all disturbed areas accordingly.
4. Remove sediment control.
5. Hold post-construction meeting with County Inspectors to assure compliance with FCP. Submit Certification of Installation.

E. Construction Monitoring

Eco-Science Professionals, or another qualified professional designated by the developer, will monitor construction of the project to ensure that all activities are in compliance with the Forest Conservation Plan.

F. Post-Construction Meeting

Upon completion of construction, Eco-Science Professionals, or another qualified professional designated by the developer, will notify the County that construction has been completed and arrange for a post-construction meeting to review the project site. The meeting will allow the County inspector to verify that forest retention requirements have been met.

POST-CONSTRUCTION MANAGEMENT PLAN

Howard County requires a two year post-construction management plan be prepared as part of the forest conservation plan. The plan goes into effect upon acceptance of the construction certification of completion by the County. Eco-Science Professionals, or another qualified professional designated by the developer, will be responsible for implementation of the post-construction management plan.

The following items will be incorporated into the plan:

A. Fencing and Signage

Permanent signage indicating the limits of the retention/reforestation area shall be maintained.

B. General Site Inspections

Site inspections will be performed to insure that retention of the forest is met in accordance with this plan and that the forest edge remains healthy and stable.

C. Education

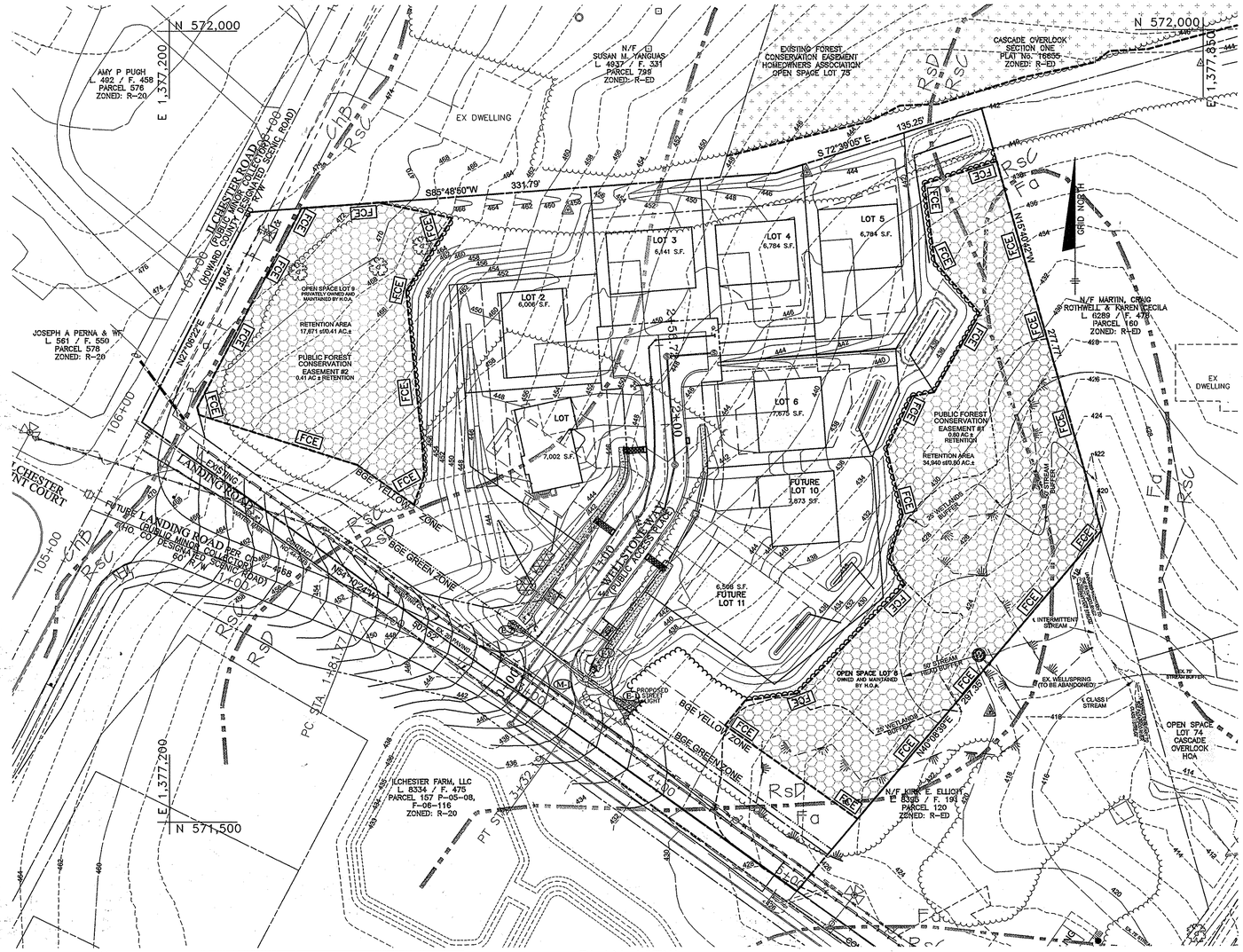
The developer will provide appropriate materials to property owners informing them of the location and purpose of the forest conservation easement. Materials may include site plans and information explaining the intent of the forest conservation law.

D. Final Inspection

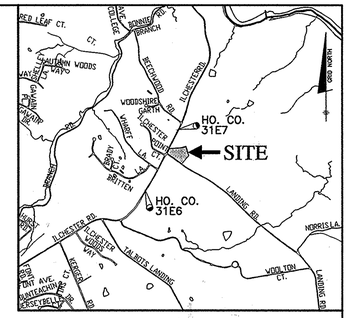
At the end of the two year post-construction management period, Eco-Science Professionals, or another qualified professional, will submit to the administrator of the Howard County Forest Conservation Program certification that all retention/afforestation requirements have been met. Upon acceptance of this certification, the County will release the developer from all future obligations and release the developer's bond.

FOREST CONSERVATION EASEMENTS

Easements are a legal means of providing permanent protection of forests, farmland and open space. In accordance with the criteria outlined in the Howard County Forest Conservation Manual, a forest conservation easement will be recorded for the retention areas for the subject property. Submission of the easements for recordation will occur prior to commencement of construction activities.



PLAN VIEW
SCALE: 1" = 40'



VICINITY MAP
SCALE : 1"=2000'

LEGEND

EXISTING CONTOUR 390 / 386
PROPOSED CONTOUR 412
EXISTING WOODS LINE
PROPOSED WOODS LINE
EXISTING HOUSE
PROPOSED HOUSE
EX. OVERHEAD WIRE
EX. UTILITY POLE
LIMIT OF WETLANDS
SOILS CLASSIFICATION ChB2
SOILS DELINEATION
FOREST CONSERVATION EASEMENT
EX. SEPTIC
FOREST RETENTION SIGNS FCE

SOILS CLASSIFICATION

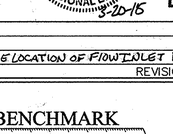
SYMBOL	DESCRIPTION	HYDROLOGIC GROUP
ChB	CHILLUM-RUSSETT LOAMS, 2 TO 5 PERCENT SLOPES	B
Fa	FALLSINGTON SANDY LOAM, 0 TO 2 PERCENT SLOPES	D
RsC	RUSSETT FINE SANDY LOAM, 5 TO 10 PERCENT	C
RsD*	RUSSETT FINE SANDY LOAM, 10 TO 15 PERCENT	C

SOIL DATA OBTAINED FROM THE NRCS WEB SOIL SURVEY.
*HIGHLY ERODIBLE SOIL

FCP NOTES:

1. ANY FOREST CONSERVATION EASEMENT (FCE) AREA SHOWN HEREON IS SUBJECT TO PROTECTIVE COVENANTS WHICH MAY BE FOUND IN THE LAND RECORDS OF HOWARD COUNTY WHICH RESTRICT THE DISTURBANCE AND USE OF THESE AREAS.
2. FORESTED AREAS OCCURRING OUTSIDE OF THE FCE SHALL NOT BE CONSIDERED PART OF THE FCE AND SHALL NOT BE SUBJECT TO PROTECTIVE LAND COVENANTS.
3. LIMITS OF DISTURBANCE SHALL BE RESTRICTED TO AREAS OUTSIDE THE LIMIT OF TEMPORARY FENCING OR THE FCE BOUNDARY, WHICHEVER IS GREATER.
4. THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION OR DISTURBANCE OF VEGETATION IN THE FOREST CONSERVATION EASEMENT, EXCEPT AS PERMITTED BY HOWARD COUNTY DPZ.
5. NO STOCKPILES, PARKING AREAS, EQUIPMENT CLEANING AREAS, ETC. SHALL OCCUR WITHIN AREAS DESIGNATED AS FOREST CONSERVATION EASEMENTS.
6. TEMPORARY FENCING SHALL BE USED TO PROTECT FOREST RESOURCES DURING CONSTRUCTION. FENCING SHALL BE INSTALLED ALONG LIMITS OF DISTURBANCE OCCURRING WITHIN 50 FEET OF THE PROPOSED FCE LIMITS.
7. PERMANENT SIGNAGE WILL BE POSTED AT 50-100' INTERVALS ALONG ALL FCE LIMITS.
8. THE FOREST CONSERVATION ACT REQUIREMENTS FOR THIS PROJECT WILL BE MET THROUGH THE RETENTION OF 1.2 ACRES OF NET TRACT AREA FOREST WITHIN THE LIMITS OF A FOREST CONSERVATION EASEMENT. THIS RETENTION EQUALS THE BREAK-EVEN POINT THRESHOLD AND THEREFORE NO ADDITIONAL PLANTING IS REQUIRED.

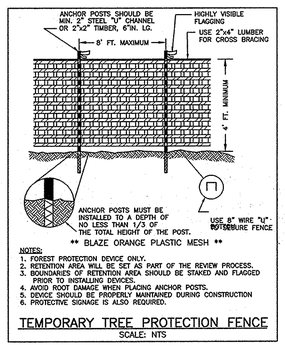
No As-Built information is required on this sheet



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. 21413 Expiration Date: 12-21-16

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

RETENTION AREA SIGN DETAIL
NOT TO SCALE



NOTES:
1. FOREST PROTECTION DEVICE ONLY.
2. RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
3. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICES.
4. AVOID ROOT DAMAGE WHEN PLACING ANCHOR POSTS.
5. DEVICE SHOULD BE PROPERLY MAINTAINED DURING CONSTRUCTION
6. PROTECTIVE SIGNAGE IS ALSO REQUIRED.

TEMPORARY TREE PROTECTION FENCE
SCALE: NTS

FOREST CONSERVATION WORKSHEET
Version 1.0

Project: Weller Property
Date: November 25, 2005

NET TRACT AREA			Acres
A. Total tract area			4.1
B. Area within 100 Year Floodplain			0
C. Area to remain in agricultural production			0
D. Net Tract Area			4.1
LAND USE CATEGORY: (from table 3.2.1, page 40, Manual) ARA MDR IDA HDR MPD CIA — X			
E. Afforestation Threshold	(percentage)	15%	0.6
F. Conservation Threshold	(percentage)	20%	0.8
EXISTING FOREST COVER:			
G. Existing forest cover (excluding floodplain)			2.7
H. Area of forest above afforestation threshold			2.1
I. Area of forest above conservation threshold			1.9
BREAK EVEN POINT:			
J. Forest retention above threshold with no mitigation			0.4
		Break-Even Point	1.2
K. Clearing permitted without mitigation			1.5
PROPOSED FOREST CLEARING			
L. Total area of forest to be Cleared or Retained Outside FCE			1.5
M. Total area of forest to be Retained in FCE			1.2
PLANTING REQUIREMENTS			
N. Reforestation for clearing above Conservation Threshold			0.4
P. Reforestation for clearing below Conservation Threshold			0
Q. Credit for retention above conservation threshold			0.4
R. Total reforestation required			0.0
S. Total afforestation required			0
T. Total reforestation and afforestation required			0.0

Forest Stand Data

Key	Community Type	Acreage	Dominant Vegetation	General Condition	Priority Acreage
F1	Successional	2.7	Acer rubrum, Prunus serotina, Robinia pseudo-acacia, Myrsa sylvatica, Rosa multiflora, Lindera benzoin	Fair	0.6 +/- wetlands/ buffers

See accompanying report for complete stand descriptions

NOTES:

1. No rare, threatened or endangered species were observed on the property.
2. Surrounding land use is primarily medium density residential development.

Wetland Data

WETLAND SYSTEM	COWARDIN CLASSIFICATION	DOMINANT VEGETATION	ACREAGE
A	PFO1A	Acer rubrum, Acer saccharinum, Lindera benzoin, Viburnum dentatum, Impatiens capensis, Cinna arundinacea,	0.2
B	PEM1A/C	Impatiens capensis, Carex lurida, Carex vulpinioides, Polygonum sagittatum, Lindera benzoin, Sambucus canadensis	0.2

MD DNR Qualified Professional
USACOE Wetland Delineator
Certification # WDCP93MD0610044D2
John P. Canoles

Eco-Science Professionals, Inc.
Consulting Ecologists
P.O. Box 5006 Glen Arm, Maryland 21057
Telephone (410) 833-2488 Fax (410) 833-2483

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 12-13-12

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/19/12
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/19/12

THIS PLAN IS FOR FOREST CONSERVATION ONLY

NO	DATE	REVISION
1	3-10-15	REVISE LOCATION OF FLOW INLET F-1 & F-2 PER AS-BUILT CONDITIONS

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 416 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
60 THOMAS JOHNSON DRIVE ▲ FREDERICK, MARYLAND 21702
(P) 301-371-3505 (F) 301-371-3506
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND CHRISTOPHER ALAN HALLMAN No. 21413 PROFESSIONAL ENGINEER 12/19/12

OWNER/DEVELOPER:
CASCADE WALTHUR, L.L.C.
P.O. BOX 417
ELLICOTT CITY, MD 21041
PHONE: 410-465-4244

PROJECT:
CASCADE OVERLOOK, SECTION 4
LOTS 1-7 AND OPEN SPACE LOTS 8 & 9

LOCATION: TAX MAP 31 - GRID 10 - PARCELS 133
ZONE: R-ED 1st ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: FOREST CONSERVATION PLAN

DESIGN: AAM DRAFT: AAM CHECK: CAM
DATE: FEBRUARY, 2012 PROJECT NO. 1817
SCALE: AS SHOWN SHEET 6 OF 6

AS-BUILT

F-12-074

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