

SHEET INDEX	
SHEET No.	DESCRIPTION
1	TITLE SHEET
2	KIDWELL PLACE PLAN AND PROFILE
3	STREET TREE, GRADING AND SEDIMENT CONTROL PLAN
4	STREET TREE, GRADING AND SEDIMENT CONTROL PLAN
5	STORM DRAIN PROFILES
6	STORMWATER MANAGEMENT NOTES AND DETAILS - BMP#1
7	SEDIMENT AND EROSION CONTROL NOTES AND DETAILS
8	SEDIMENT AND EROSION CONTROL NOTES AND DETAILS
9	DRAINAGE AREA MAP & LANDSCAPING PLAN
10	FOREST CONSERVATION PLAN
11	SOIL BORINGS
12	STORMWATER MANAGEMENT NOTES AND DETAILS - BMP#2

NO.	REVISIONS	DATE
1	REVISED PLANS TO REFLECT THE ADDITION OF PART OF PARCEL 47 TO THIS SUBDIVISION	1/15/07
2	REVISE L-7 AND ASSOCIATED PIPE LENGTH DUE TO T-TURN AROUND ADJUST T-TURN AROUND SO THAT THE DRIVEWAYS ON THE SGP WILL ALIGN STRAIGHTER	10/10/07
3	REVISED ROAD GRADES TO BALANCE SITE	

ROAD CLASSIFICATION CHART		
ROAD	CLASSIFICATION	R/W WIDTH
KIDWELL PLACE	PUBLIC ACCESS PLACE / PRIVATE ACCESS PLACE	40' R/W 24' EASEMENT

STREET LIGHT CHART				
DWG. No.	STREET NAME	STATION	OFF-SET	FIXTURE/POLE TYPE
2	MILLERS WAY DRIVE	11+80	15'R	100 WATT 'PREMIER' HP.S. VAPOR FIXTURE POST TOP FIXTURE MOUNTED ON A 14 FOOT BLACK FIBERGLASS POLE.

TRAFFIC CONTROL SIGNS				
STREET NAME	CL. STATION	OFFSET	POSTED SIGN	SIGN CODE
KIDWELL PLACE	0+27	10'L	STOP	R1-1
MILLERS WAY DRIVE	7+50	15' L & R	NO PARKING	R7-1(K)
MILLERS WAY DRIVE	15+50	15' L & R	NO PARKING	R7-1(K)

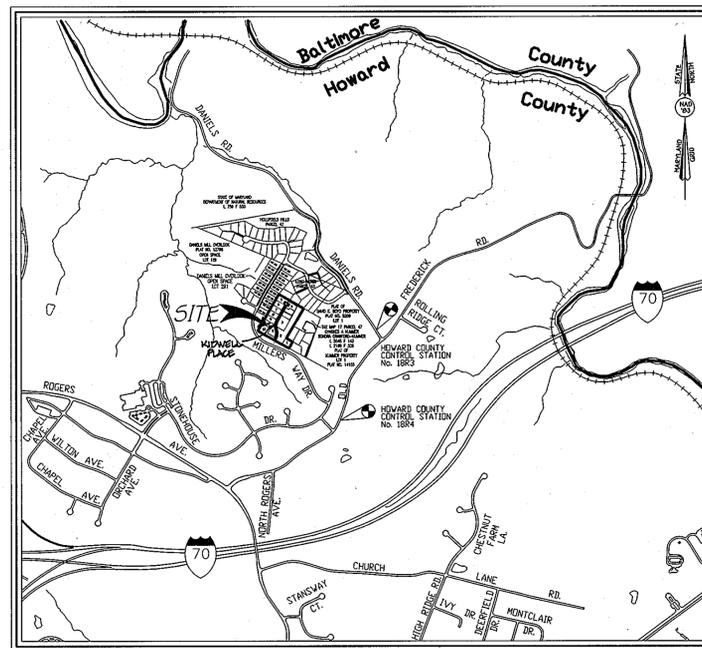
FINAL ROAD CONSTRUCTION, GRADING AND SEDIMENT CONTROL PLANS

MILLERS MILL WOODS

LOTS 1 THRU 16

ZONED: R-20

TAX MAP No. 17, GRID No. 12, PARCEL No. 44 AND PART OF PARCEL 47



Vicinity Map
Scale: 1" = 1200'

GENERAL NOTES

- SUBJECT PROPERTY ZONED R-20 Per 2/2/04 COMPREHENSIVE ZONING PLAN AND THE COMP LITE ZONING AMENDMENTS EFFECTIVE 7/28/06.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
- ALL ASPECTS OF THE PROJECT ARE IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS ARE APPROVED.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS, DIVISION OF CONSTRUCTION INSPECTION AT 410-313-1880 AT LEAST (5) WORKING DAYS PRIOR TO THE START OF CONSTRUCTION.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION.
- LOCATION: MILLERS WAY DRIVE, TAX MAP No. 17, PARCEL No. 44 AND PART OF PARCEL 47 AND SUPPLEMENTED WITH DANIEL'S MILL OVERLOOK ROAD PLANS IF 90-571.
- THE TOPOGRAPHY IS BASED ON FIELD RUN SURVEYS PERFORMED BY FISHER, COLLINS & CARTER, INC. ON OR ABOUT 01-05-06, 08/22/07 BY FISHER, COLLINS & CARTER, INC.
- BOUNDARY IS BASED ON A FIELD RUN MONUMENTED BOUNDARY SURVEY PERFORMED ON OR ABOUT SEPTEMBER, 2003, AUGUST, 2006 BY FISHER, COLLINS & CARTER, INC.
- PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT.
- PUBLIC WATER AND PUBLIC SEWER WILL BE USED WITHIN THIS SUBDIVISION. IT WILL BE CONNECTED TO THE EXISTING PUBLIC WATER AND PUBLIC SEWER LOCATED WITHIN DANIEL'S MILL OVERLOOK, SECTION 3, AREA 1 & 2 (CONTRACT Nos. 14-355-D & 14-357-D). WATER AND SEWER SERVICE TO THESE LOTS WILL BE GRANTED UNDER THE PROVISIONS OF SECTION 18.222 OF THE HOWARD COUNTY CODE. PUBLIC WATER AND PUBLIC SEWER SERVICE HAS BEEN GRANTED UNDER THE TERMS AND PROVISIONS OF THE DATE DEVELOPER AGREEMENT 14-410-D-9 WAS FILED AND ACCEPTED.
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM, HOWARD COUNTY 18 R4 AND 18 R3 WERE USED FOR THIS PROJECT.
HO. CO. STA. NO. 18 R3 N 596,747.870 ELEV. = 459.680
E 1,367,360.555
HO. CO. STA. NO. 18 R4 N 595,543.252 ELEV. = 475.951
E 1,365,800.879
- AREA TABULATION:
GROSS AREA OF TRACT: 7.77 AC.
AREA OF FLOODPLAIN: 0.00 AC.
AREA OF STEEP SLOPES: 0.00 AC.
NET AREA OF TRACT: 7.77 AC.
AREA OF PUBLIC ROAD R/W: 0.00 AC.
AREA OF BUILDABLE LOTS: 4.81 AC.
AREA OF OPEN SPACE LOTS: 3.28 AC.
- TOTAL NO. OF PROPOSED LOTS: 16
NO. OF BUILDABLE LOTS: 14
NO. OF OPEN SPACE LOTS: 2
- REQUIRED OPEN SPACE: 3,108 AC. (40% OF GROSS AREA)
OPEN SPACE PROVIDED: 3,281 AC.
a) Non-Credited Open Space = 3,145 AC.
b) Credited Open Space Provided = 3,108 AC.
RECREATIONAL OPEN SPACE REQUIRED: 200 SQ.FT. x 14 DU. = 2,800 SQ.FT.
RECREATIONAL OPEN SPACE PROVIDED: 3,001 SQ.FT.
- FOR FLAG OR PIPESTEM LOTS, REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE ARE TO BE PROVIDED TO THE JUNCTION OF THE FLAG OR PIPESTEM AND THE ROAD RIGHT-OF-WAY LINE AND NOT ONTO THE FLAG OR PIPESTEM DRIVEWAY.
- DRIVEWAY (S) SHALL BE PROVIDED PRIOR TO RESIDENTIAL OCCUPANCY TO INSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING MINIMUM REQUIREMENTS:
a) WIDTH - 12 FEET (8 FEET SERVING MORE THAN ONE RESIDENCE)
b) SURFACE - SIX (6) INCHES OF COMPACTED CRUSHER RUN BASE WITH TAR AND CHIP COATING
c) GEOMETRY - MAXIMUM 1% GRADE, MAXIMUM 10% GRADE CHANGE AND MINIMUM OF 45 FOOT TURNING RADIUS
d) STRUCTURES (CULVERTS/BRIDGES) CAPABLE OF SUPPORTING 25 GROSS TONS (255 LOADING)
e) DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100 YEAR FLOOD WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY SURFACE
f) STRUCTURE CLEARANCES - MINIMUM 12 FEET
g) MAINTENANCE - SUFFICIENT TO INSURE ALL WEATHER USE
- WETLAND AND FOREST DELINEATION PREPARED BY ECO-SCIENCE PROFESSIONALS, INC DATED SEPTEMBER, 2001, AND APPROVED UNDER SP-03-004.
- TRAFFIC REPORT PREPARED BY THE TRAFFIC GROUP, INC. AND APPROVED UNDER SP-03-004.
- SOILS INFORMATION TAKEN FROM SOIL MAP NO. 10, SOIL SURVEY, HOWARD COUNTY, MARYLAND, JULY 1968 ISSUE.
- THERE IS NO PUBLIC 100 YEAR FLOODPLAIN WITHIN THIS SUBMISSION.
- STREET LIGHTS WILL BE REQUIRED IN THIS DEVELOPMENT IN ACCORDANCE WITH THE DESIGN MANUAL, STREET LIGHT PLACEMENT AND TYPE OF FIXTURE AND POLE SELECTED SHALL BE IN ACCORDANCE WITH THE LATEST HOWARD COUNTY DESIGN MANUAL, VOLUME III (1993) AND AS MODIFIED BY "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 1993)". THE JUNE 1993 POLICY INCLUDES GUIDELINES FOR LATERAL AND LONGITUDINAL PLACEMENT. A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN AND STREET LIGHT AND ANY TREE.
- FOREST STAND DELINEATION & FOREST CONSERVATION PLAN WAS PREPARED BY ECO-SCIENCE PROFESSIONALS AND WAS APPROVED UNDER SP-03-004.
- STORMWATER MANAGEMENT WILL BE PROVIDED IN ACCORDANCE WITH HOWARD COUNTY AND MARYLAND 37B SPECIFICATIONS. WATER QUALITY WILL BE PROVIDED BY TWO BIO-RETENTION FACILITIES (B.M.P. NO. 1 & 2) LOCATED ON OPEN SPACE LOT 1 AND LOT 14 & A DRY SWALE (B.M.P. NO. 3) LOCATED ON OPEN SPACE LOT 14.
TYPE: BIO-RETENTION FACILITIES, DRY SWALE (O.S. LOT 14)
OWNER: THE HOMEOWNER'S ASSOCIATION (O.S. LOT 13), PRIVATE HOMEOWNER (LOT 15) PRIVATE - H.O.A. (O.S. LOT 14)
MAINTENANCE: THE HOMEOWNER'S ASSOCIATION - PRIVATELY MAINTAINED
- PREVIOUS DEPARTMENT OF PLANNING AND ZONING FILE NUMBERS ARE SP-03-004, AND WP-08-026
- THE FOREST CONSERVATION REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE AND FOREST CONSERVATION ACT FOR THIS SUBDIVISION WILL BE FULFILLED BY PROVIDING 1.08 ACRES OF ON-SITE FOREST RETENTION, 1.35 ACRES OF ON-SITE REFORESTATION/AFFORESTATION AND THE BALANCE OF 0.43 ACRES OF REFORESTATION OBLIGATION WILL BE PROVIDED BY A FEE-IN-LIEU PAYMENT OF \$14,040.00. A TOTAL SURETY OF \$38,900.00 BASED ON 100% AC. RETENTION x 43,560 SQ.FT./ACRE + \$9,200/SQ.FT. = \$1,877,000.00 AND 1.35 AC. REFORESTATION x 43,560 SQ.FT./ACRE + 40,500/ACRE = \$59,400.00 IS PROVIDED WITH THE DEVELOPER'S AGREEMENT.
The Forest Conservation Easement Has Been Established To Fulfill The Requirements Of Section 16.1200 Of The Howard County Code And Forest Conservation Act. No Clearing, Grading Or Construction Is Permitted Within The Forest Conservation Easement. However, Forest Management Practices As Defined In The Deed Of Forest Conservation Easement Are Allowed.
- LANDSCAPING FOR LOTS 1-16 IS PROVIDED IN ACCORDANCE WITH A CERTIFIED LANDSCAPE PLAN INCLUDED WITH THIS PLAN SET. A PERIMETER LANDSCAPE SURETY FOR 266 SHADE TREES AND 159 EVERGREEN TREES IN THE AMOUNT OF \$18,000.00 IS PROVIDED IN A DEVELOPER'S AGREEMENT. IN ADDITION, A STREET TREE SURETY FOR 33 SHADE TREES IN THE AMOUNT OF \$9,900.00 IS PROVIDED.
- "SIGN POSTS" ALL SIGN POST USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (4 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (2 GAUGE) - 3' LONG, A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
- 95% COMPACTION IN FILL AREAS SHALL BE IN ACCORDANCE WITH ASTM D 1557-00 STANDARDS.
- THE EXISTING DWELLING LOCATED ON LOT 18 AND OPEN SPACE LOT 14 HAS BEEN RAZED PRIOR TO THE RECORDATION OF THE RECORD PLAT. HAS BEEN ABANDONED - PRIOR TO SUBMISSION OF RECORD PLAT FOR SIGNATURE.
- NO WORKING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE LIMITS OF WETLANDS, STREAM (S), OR OTHER REQUIRED BUFFERS, FLOODPLAIN AND FOREST CONSERVATION EASEMENT AREAS.
- THE ENTRANCE TO THIS SUBDIVISION SHALL BE PRIVATELY MAINTAINED.

SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTRAL SQUARE OFFICE PARK - 1872 BALTIMORE NATIONAL PIKE
ELLIOTT CITY, MARYLAND 21042
(410) 461-3995

OWNERS
ELICOTT CITY HOLDING, INC.
5900 DORSEY HALL DRIVE
SUITE 102
ELLIOTT CITY, MARYLAND 21042
410-367-0422

100% LAND, INC.
5900 DORSEY HALL DRIVE
SUITE 102
ELLIOTT CITY, MARYLAND 21042
ATTN: MS. LISA DEVERIES
410-367-0422

DEVELOPER
100% LAND, INC.
5900 DORSEY HALL DRIVE
SUITE 102
ELLIOTT CITY, MARYLAND 21042
ATTN: MS. LISA DEVERIES
410-367-0422



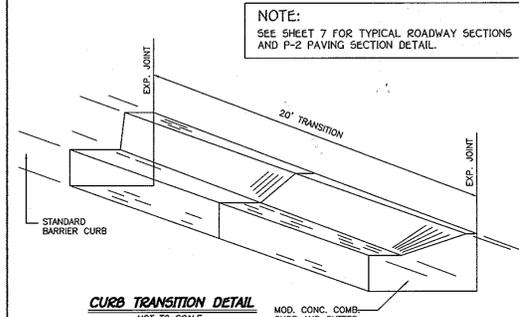
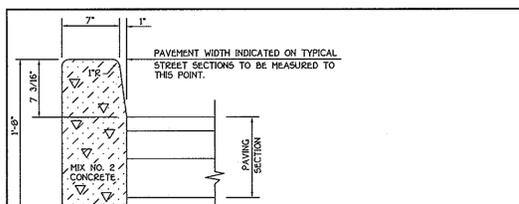
5-19-07
DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS
Walter E. Malab... 6-17-07
CHIEF, BUREAU OF HIGHWAYS MS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Judy... 6/22/07
CHIEF, DIVISION OF LAND DEVELOPMENT cm DATE

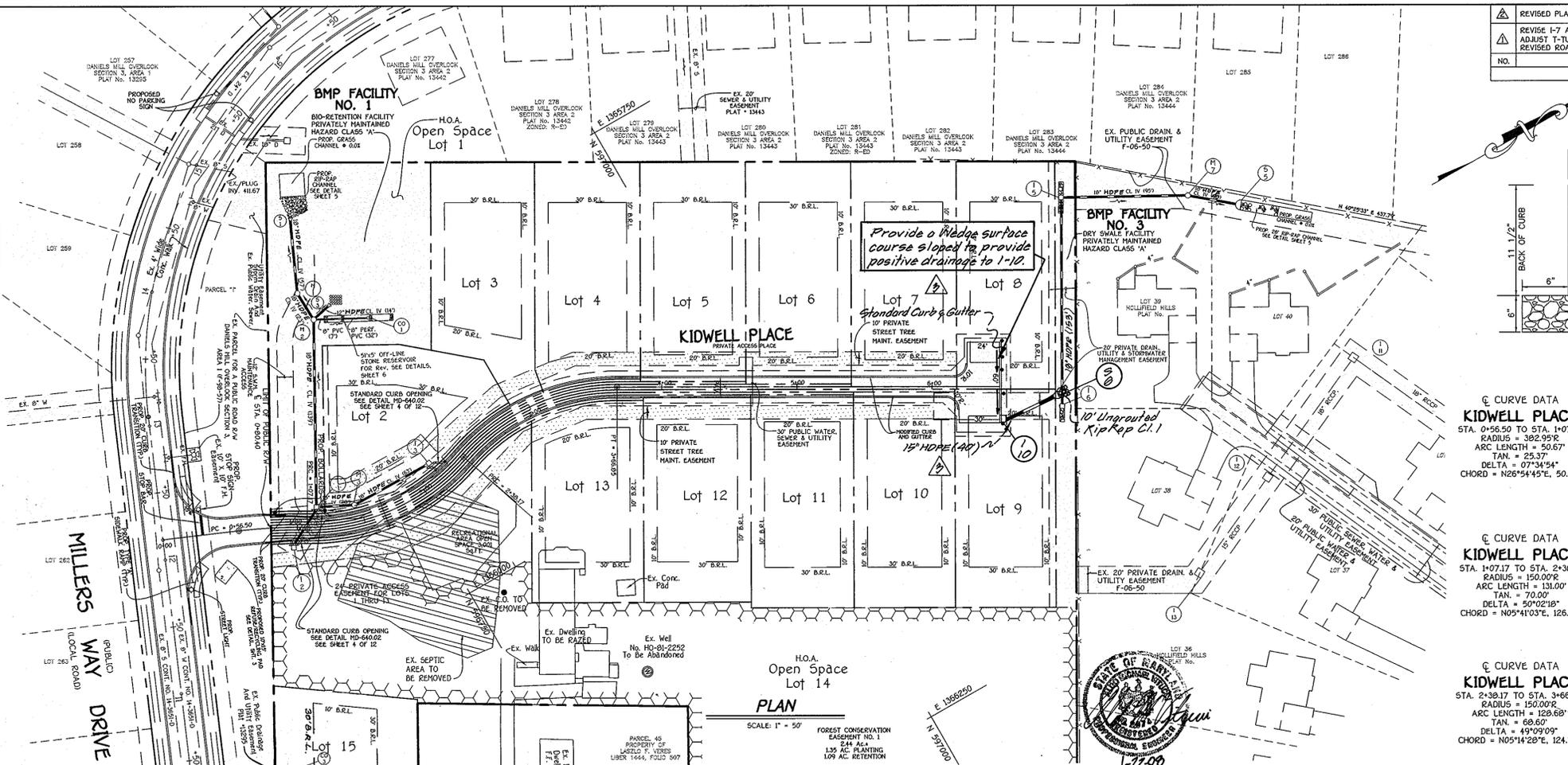
APPROVED: DEPARTMENT OF PLANNING AND ZONING
... 6/21/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

MILLERS MILL WOODS
LOTS 1 THRU 16
ZONED R-20
TAX MAP No. 17, GRID 12, PARCEL No. 44 AND PART OF PARCEL 47
SECOND ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
DATE: JANUARY, 2008
SHEET 1 OF 12

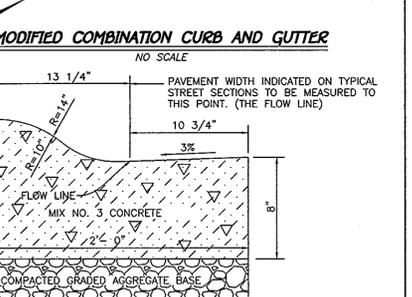


NOTE: SEE SHEET 7 FOR TYPICAL ROADWAY SECTIONS AND P-2 PAVING SECTION DETAIL.

NO.	DESCRIPTION	DATE
3	Elim 15' 30" & 1-7' bat 1-7 & 1-6; added 15' 30" bat 1-10 & 5-6; added wedge surface course note.	7-18-08
APPROVED: DEPARTMENT OF PLANNING AND ZONING		
<i>Cindy Hamrick</i>		2/15/08
CHIEF, DIVISION OF LAND DEVELOPMENT		DATE
<i>W. R. Williams</i>		2/15/08
CHIEF, DEVELOPMENT ENGINEERING DIVISION		DATE
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS "FOR PUBLIC INFRASTRUCTURES ONLY"		
<i>W. R. Williams</i>		2-12-08
CHIEF, BUREAU OF HIGHWAYS		DATE



NO.	DESCRIPTION	DATE
1	REVISED PLANS TO REFLECT THE ADDITION OF PART OF PARCEL 47 TO THIS SUBDIVISION	11/15/07
2	REVISE I-7 AND ASSOCIATED PIPE LENGTH DUE TO T-TURN AROUND ADJUST T-TURN AROUND SO THAT THE DRIVEWAYS ON THE SGP WILL ALIGN STRAIGHTER REVISED ROAD GRADES TO BALANCE SITE	10/10/07



NOTE: 95% COMPACTION IN ALL FILL AREAS SHALL BE IN ACCORDANCE WITH AASHTO T-180 STANDARDS.

REVISED FINAL ROAD CONSTRUCTION PLAN
MILLERS MILL WOODS
 Lots 1 Thru 16
 Zoned: R-20
 TAX MAP No. 17, GRID No. 12, PARCEL No. 44 AND PART OF PARCEL 47
 2nd Election District Howard County, Maryland
KIDWELL PLACE
 PLAN AND PROFILE

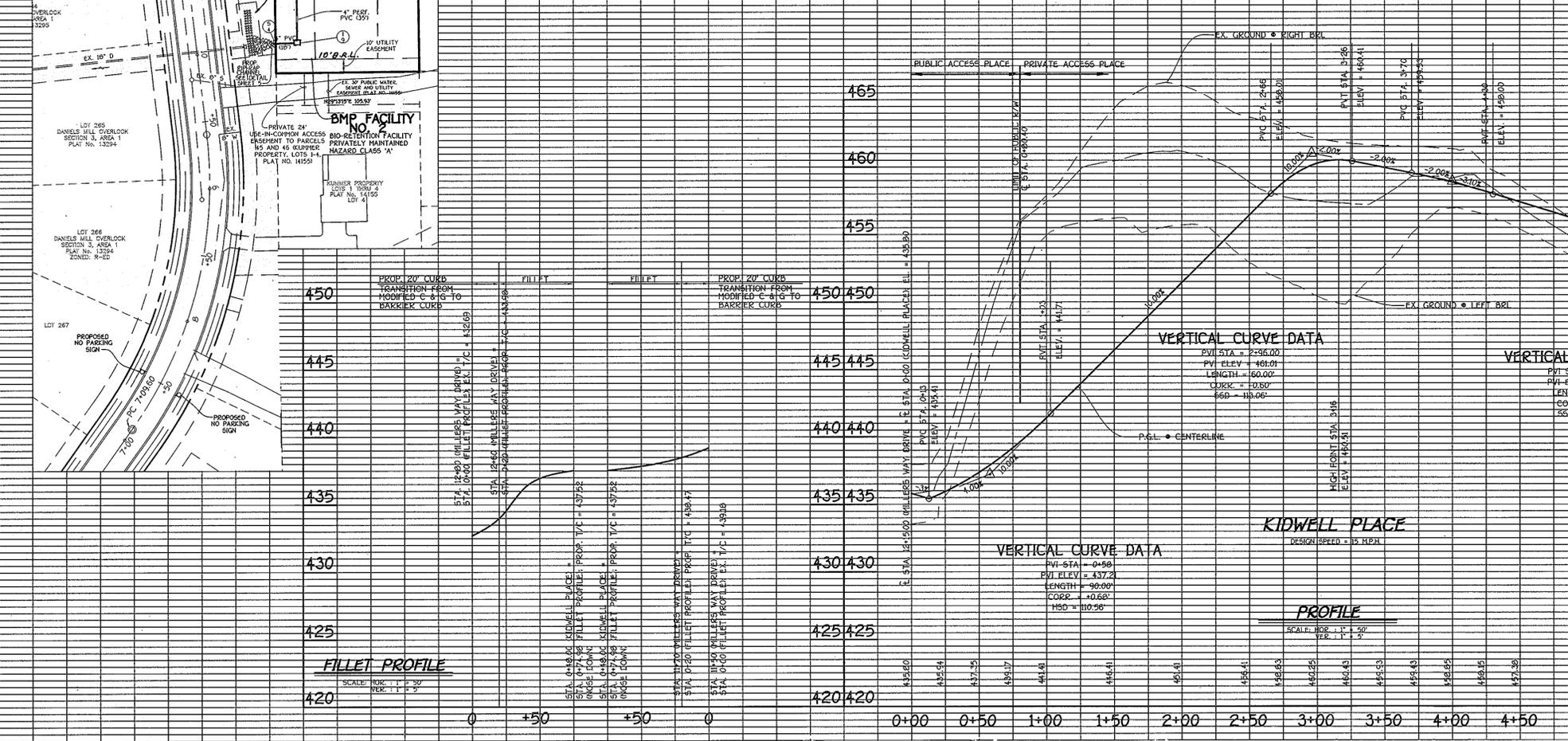
OWNER
 ELLICOTT CITY HOLDING, INC.
 5300 DORSEY HALL DRIVE
 SUITE 102
 ELLICOTT CITY, MARYLAND 21042
 410-367-0422

OWNER AND DEVELOPER
 100% LAND, INC.
 5300 DORSEY HALL DRIVE
 SUITE 102
 ELLICOTT CITY, MARYLAND 21042
 ATTN: MS. LISA DEVRIES
 410-367-0422

SCALE: 1" = 50' DATE: JANUARY, 2008 DWG. NO. 2 OF 12
 DES. AM.V. DRN. D.T.A. CHK. AM.V.

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK - 1877 BALTIMORE NATIONAL FREE
 ELLICOTT CITY, MARYLAND 21042
 (410) 461-2855

STATION	ELEVATION	REMARKS
0+00	420.00	PROPOSED NO PARKING SIGN
0+10	420.50	PROPOSED NO PARKING SIGN
0+20	421.00	PROPOSED NO PARKING SIGN
0+30	421.50	PROPOSED NO PARKING SIGN
0+40	422.00	PROPOSED NO PARKING SIGN
0+50	422.50	PROPOSED NO PARKING SIGN
0+60	423.00	PROPOSED NO PARKING SIGN
0+70	423.50	PROPOSED NO PARKING SIGN
0+80	424.00	PROPOSED NO PARKING SIGN
0+90	424.50	PROPOSED NO PARKING SIGN
1+00	425.00	PROPOSED NO PARKING SIGN
1+10	425.50	PROPOSED NO PARKING SIGN
1+20	426.00	PROPOSED NO PARKING SIGN
1+30	426.50	PROPOSED NO PARKING SIGN
1+40	427.00	PROPOSED NO PARKING SIGN
1+50	427.50	PROPOSED NO PARKING SIGN
1+60	428.00	PROPOSED NO PARKING SIGN
1+70	428.50	PROPOSED NO PARKING SIGN
1+80	429.00	PROPOSED NO PARKING SIGN
1+90	429.50	PROPOSED NO PARKING SIGN
2+00	430.00	PROPOSED NO PARKING SIGN
2+10	430.50	PROPOSED NO PARKING SIGN
2+20	431.00	PROPOSED NO PARKING SIGN
2+30	431.50	PROPOSED NO PARKING SIGN
2+40	432.00	PROPOSED NO PARKING SIGN
2+50	432.50	PROPOSED NO PARKING SIGN
2+60	433.00	PROPOSED NO PARKING SIGN
2+70	433.50	PROPOSED NO PARKING SIGN
2+80	434.00	PROPOSED NO PARKING SIGN
2+90	434.50	PROPOSED NO PARKING SIGN
3+00	435.00	PROPOSED NO PARKING SIGN
3+10	435.50	PROPOSED NO PARKING SIGN
3+20	436.00	PROPOSED NO PARKING SIGN
3+30	436.50	PROPOSED NO PARKING SIGN
3+40	437.00	PROPOSED NO PARKING SIGN
3+50	437.50	PROPOSED NO PARKING SIGN
3+60	438.00	PROPOSED NO PARKING SIGN
3+70	438.50	PROPOSED NO PARKING SIGN
3+80	439.00	PROPOSED NO PARKING SIGN
3+90	439.50	PROPOSED NO PARKING SIGN
4+00	440.00	PROPOSED NO PARKING SIGN
4+10	440.50	PROPOSED NO PARKING SIGN
4+20	441.00	PROPOSED NO PARKING SIGN
4+30	441.50	PROPOSED NO PARKING SIGN
4+40	442.00	PROPOSED NO PARKING SIGN
4+50	442.50	PROPOSED NO PARKING SIGN
4+60	443.00	PROPOSED NO PARKING SIGN
4+70	443.50	PROPOSED NO PARKING SIGN
4+80	444.00	PROPOSED NO PARKING SIGN
4+90	444.50	PROPOSED NO PARKING SIGN
5+00	445.00	PROPOSED NO PARKING SIGN
5+10	445.50	PROPOSED NO PARKING SIGN
5+20	446.00	PROPOSED NO PARKING SIGN
5+30	446.50	PROPOSED NO PARKING SIGN
5+40	447.00	PROPOSED NO PARKING SIGN
5+50	447.50	PROPOSED NO PARKING SIGN
5+60	448.00	PROPOSED NO PARKING SIGN
5+70	448.50	PROPOSED NO PARKING SIGN
5+80	449.00	PROPOSED NO PARKING SIGN
5+90	449.50	PROPOSED NO PARKING SIGN
6+00	450.00	PROPOSED NO PARKING SIGN
6+10	450.50	PROPOSED NO PARKING SIGN
6+20	451.00	PROPOSED NO PARKING SIGN
6+30	451.50	PROPOSED NO PARKING SIGN
6+40	452.00	PROPOSED NO PARKING SIGN
6+50	452.50	PROPOSED NO PARKING SIGN



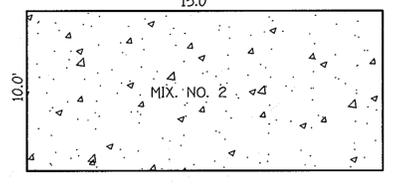
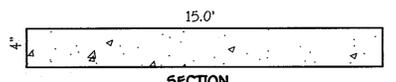
REVIS	REVISIONS	DATE
1	REVISED PLANS TO REFLECT THE ADDITION OF PART OF PARCEL 47 TO THIS SUBDIVISION	11/15/07
2	REVISE I-7 AND ASSOCIATED PIPE LENGTH DUE TO T-TURN AROUND ADJUST T-TURN AROUND SO THAT THE DRIVEWAYS ON THE SDP WILL ALIGN STRAIGHTER REVISED ROAD GRADES TO BALANCE SITE	10/10/07

PRIVATE STREET TREE SCHEDULE				
SYMBOL	QTY.	BOTANICAL AND COMMON NAME	SIZE	COMMENTS
	33	QUERCUS RUBRA NORTHERN RED OAK	2 1/2"-3" CAL.	40' APART AS SHOWN

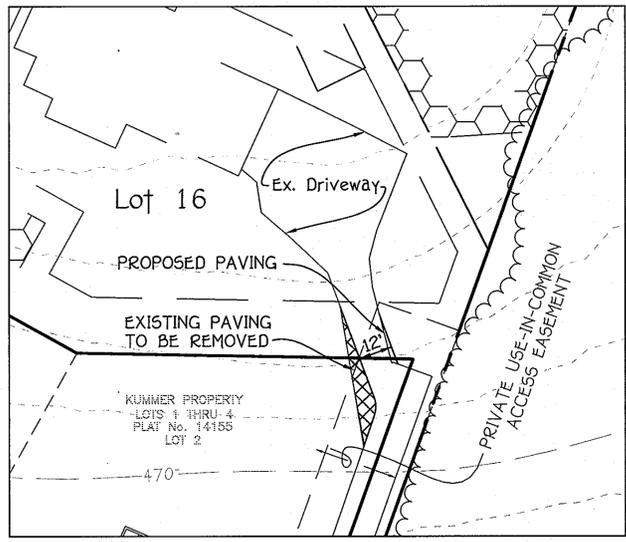
NOTE: STREET TREE TYPES ARE ONLY A RECOMMENDATION AND MAY BE SUBSTITUTED WITH A COUNTY ACCEPTED EQUIVALENT FROM THE HOWARD COUNTY LANDSCAPE MANUAL. FINANCIAL SURETY FOR THE 33 REQUIRED STREET TREES HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$ 9,900.00.
NOTE: STREET TREES TO BE PLANTED A MINIMUM OF 7' FROM PAVING OR 6' FROM SWALE CENTERLINE.

TEMPORARY SEDIMENT S.O.S.T. No. 1

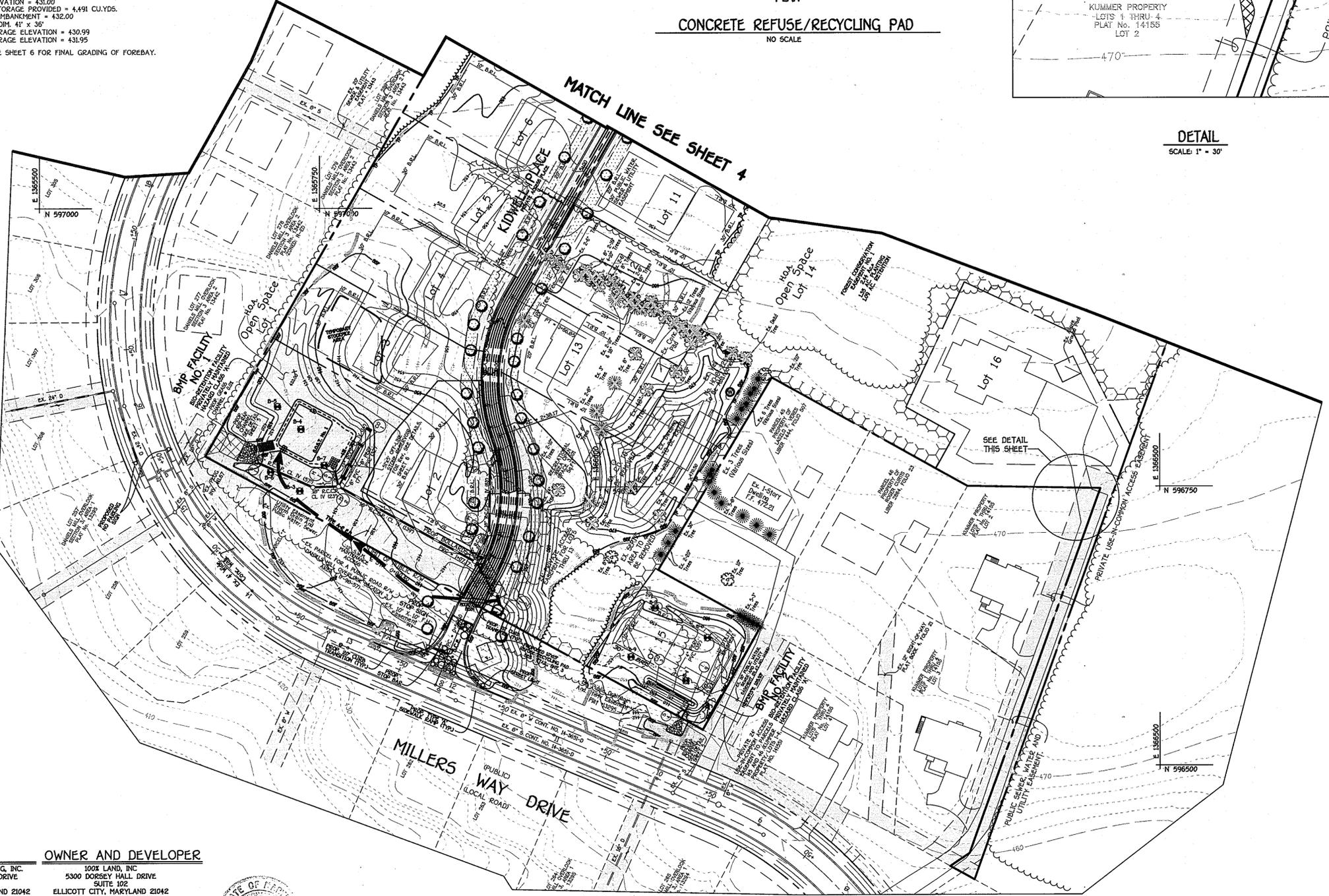
PRE D.A. = POST D.A. = 1.88 AC.
MIN. WEIR LENGTH = 7.52'
CONSTRUCTED WEIR LENGTH = 10'
MIN. TRAP SIZE = 3,600 CU.YDS.
DRY STORAGE REQUIRED = 1,800 CU.YDS.
DRY STORAGE PROVIDED = 2,691 CU.YDS.
WET STORAGE REQUIRED = 1,800 CU.YDS.
WET STORAGE PROVIDED = 1,832 CU.YDS.
WEIR ELEVATION = 431.00
TOTAL STORAGE PROVIDED = 4,491 CU.YDS.
TOP OF EMBANKMENT = 432.00
BOTTOM DIM. 41' x 36'
WET STORAGE ELEVATION = 430.99
DRY STORAGE ELEVATION = 431.95
NOTE: SEE SHEET 6 FOR FINAL GRADING OF FOREBAY.



CONCRETE REFUSE/RECYCLING PAD
NO SCALE



DETAIL
SCALE: 1" = 30'



By The Developer:
I/We Certify That All Development And/Or Construction Will Be Done According To These Plans 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 Shall Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion. I Also Authorize Periodic On-Site Inspections By The Howard Soil Conservation District.

Signature: *Donald Reuter* Date: 1/22/08
Printed Name Of Developer: Donald Reuter

By The Engineer:
I Certify That This Plan For Pond Construction, Erosion And Sediment Control Represents A Practical And Feasible Plan Based On My Personal Knowledge Of The Site Conditions. This Plan Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District. I Have Reviewed The Plans And I Have Verified That The Plans Meet The Requirements Of The Howard Soil Conservation District And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion.

Signature: *Andrew W. Schminz* Date: 1-22-08
Printed Name: Andrew W. Schminz

These Plans Have Been Reviewed For The Howard Soil Conservation District And Meet The Technical Requirements For Small Pond Construction, Soil Erosion And Sediment Control. The Requirements Of The Howard Soil Conservation District.

Signature: *Matthew W. Schminz* Date: 2/17/08
Printed Name: Matthew W. Schminz
Howard Soil Conservation District

Approved: Department Of Public Works
Signature: *William R. Mott* Date: 2-12-08
Printed Name: William R. Mott
Chief, Bureau Of Highways

Approved: Department Of Planning And Zoning
Signature: *Andy Khamis* Date: 2/15/08
Printed Name: Andy Khamis
Chief, Division Of Land Development

Signature: *Bill Penning* Date: 2/15/08
Printed Name: Bill Penning
Chief, Development Engineering Division

AS-BUILT CERTIFICATION

I Herby Certify That The Facility Shown On This Plan Was Constructed As Shown On The "As-Built" Plans And Meets The Approved Plans And Specifications.

Signature: _____ P.E. No. _____
Date: _____

Certify Means To State Or Declare A Professional Opinion Based Upon Onsite Inspections And Material Tests Which Are Conducted During Construction. The Onsite Inspections And Material Tests Are Those Inspections And Tests Deemed Sufficient And Appropriate Commonly Accepted Engineering Standards. Certify Does Not Mean Or Imply A Guarantee By The Engineer Nor Does An Engineer's Certification Believe Any Other Party From Meeting Requirements Imposed By Contract, Employment, Or Other Means, Including Meeting Commonly Accepted Industry Practices.

LEGEND

	EXISTING TREE TO BE REMOVED
	SUPER-SILT FENCE
	SILT FENCE
	TREE PROTECTION FENCE
	STABILIZED CONSTRUCTION ENTRANCE
	EARTH DIKE
	DENOTES L.O.D. LIMITS OF DISTURBANCE
	DENOTES EROSION CONTROL MATTING
	GABION INFLOW PROTECTION

- NOTES:
1. CONTRACTOR SHALL TURN ALL SF AND S6F UPHILL BY 2' VERTICAL ELEVATION.
 2. IMBRICATE ALL SF AND S6F WHICH RUNS DOWNHILL.

PLAN
SCALE: 1" = 50'

**REVISED FINAL ROAD CONSTRUCTION PLAN
STREET TREE, GRADING & SEDIMENT CONTROL PLAN
MILLERS MILL WOODS**
LOTS 1 - 16
ZONING: R-20
TAX MAP NO. 17 GRID NO. 12 PARCEL NO. 44 AND PART OF PARCEL 47
2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: JANUARY, 2008
SHEET 3 OF 12

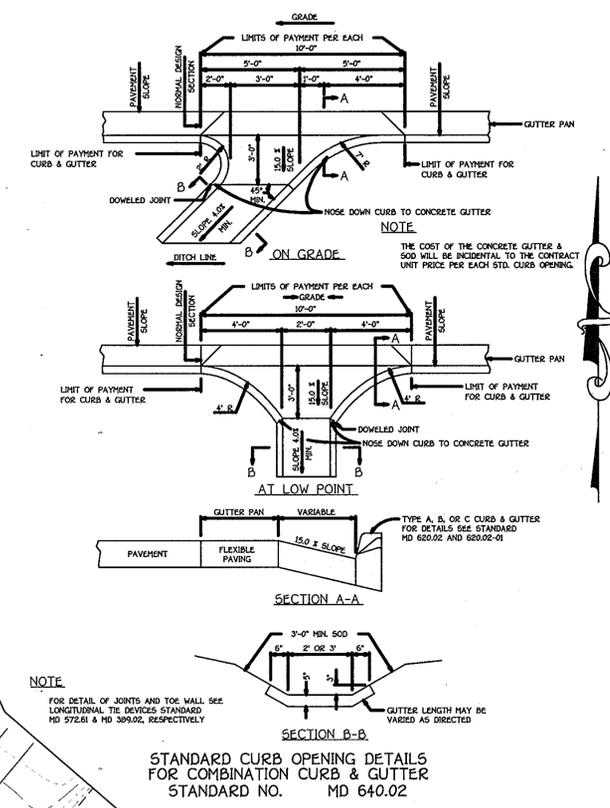
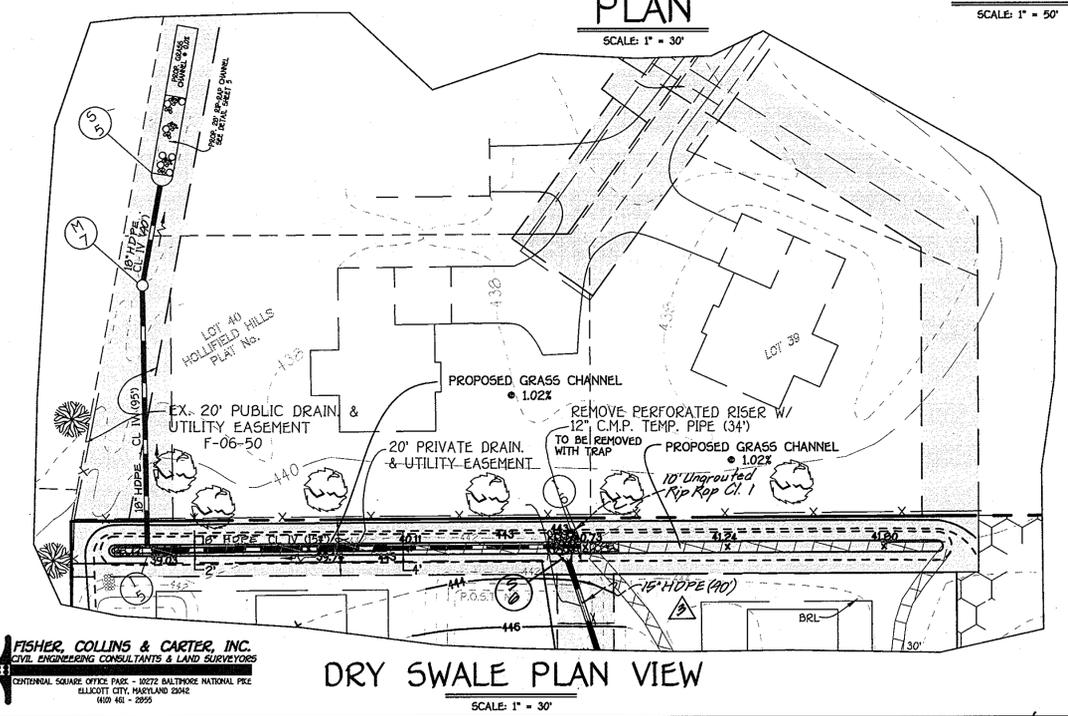
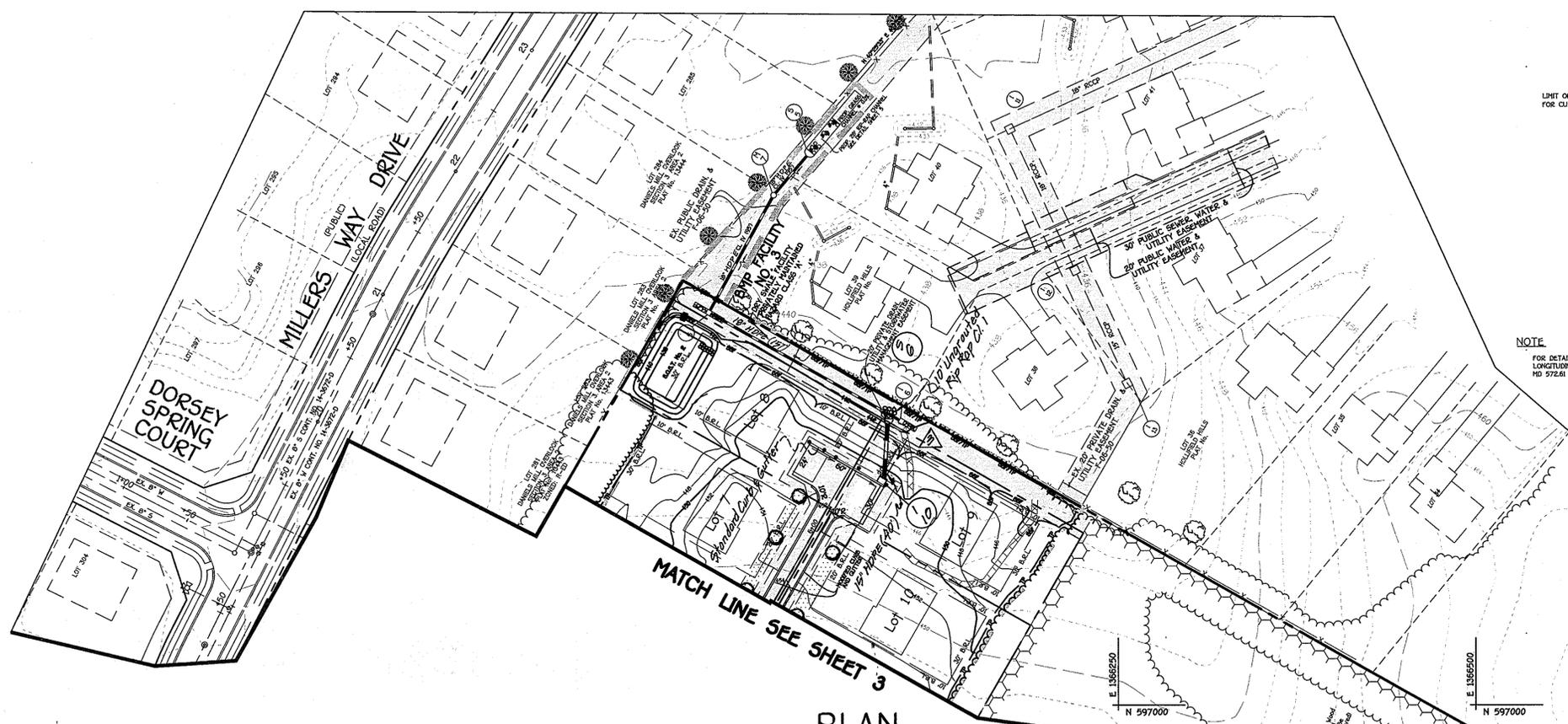
OWNER
ELLCOTT CITY HOLDING, INC.
5300 DORSEY HALL DRIVE
SUITE 102
ELLCOTT CITY, MARYLAND 21042
410-367-0422

OWNER AND DEVELOPER
100X LAND, INC.
5300 DORSEY HALL DRIVE
SUITE 102
ELLCOTT CITY, MARYLAND 21042
ATTN: MRS. LISA DEVRIES
410-367-0422



FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTRAL SQUARE OFFICE PARK - 10275 BALTIMORE NATIONAL PIKE
ELLCOTT CITY, MARYLAND 21042
(410) 481-2955

NO.	DESCRIPTION	DATE
1	REVISED PLANS TO REFLECT THE ADDITION OF PART OF PARCEL 47 TO THIS SUBDIVISION	11/15/07
2	REVISE I-7 AND ASSOCIATED PIPE LENGTH DUE TO T-TURN AROUND ADJUST T-TURN AROUND SO THAT THE DRIVEWAYS ON THE SDP WILL ALIGN STRAIGHTER REVISED ROAD GRADES TO BALANCE SITE	10/10/07
3	Elim. 15" SD & I-7 bet. I-7 & I-6; added 15" SD bet. I-10 & S-6	7-10-08



By The Developer:
 I/We Certify That All Development And/Or Construction Will Be Done According To These Plans, 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 Shall Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion. I Also Authorize Periodic On-Site Inspections By The Howard Soil Conservation District.

Signature of Developer: *1/22/08*
 Printed Name Of Developer: **RODOLFO REINER**

By The Engineer:
 I Certify That This Plan For Pond Construction, Erosion And Sediment Control Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site Conditions. This Plan Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District. I Have Notified The Developer That He/She Must Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Within 30 Days Of Completion.

Signature of Engineer: *1/22/08*
 Printed Name Of Engineer: **ALAN WITKIN**

These Plans Have Been Reviewed For The Howard Soil Conservation District And Meet The Technical Requirements For Small Pond Construction, Soil Erosion And Sediment Control.

USDA-Natural Resources Conservation Service
 These Plans For Small Pond Construction, Soil Erosion And Sediment Control Meet The Requirements Of The Howard Soil Conservation District.

Approved Department of Public Works
 Signature: *1/27/08*
 Chief, Bureau of Highways: **WALTER Z. ADAMS**

Approved Department of Planning And Zoning
 Signature: *2/15/08*
 Chief, Division of Land Development: **CHERYL HARTZ**

Signature: *2/15/08*
 Chief, Development Engineering Division: **WILLIAM DANNEBERG**

AS-BUILT CERTIFICATION
 I Herby Certify That The Facility Shown On This Plan Was Constructed As Shown On The "As-Built" Plans And Meets The Approved Plans And Specifications.

Signature: _____ P.E. No. _____
 Date: _____

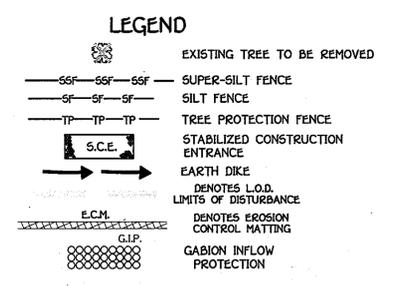
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 - IMBRICATE ALL SF AND SSF WHICH RUNS DOWNHILL.



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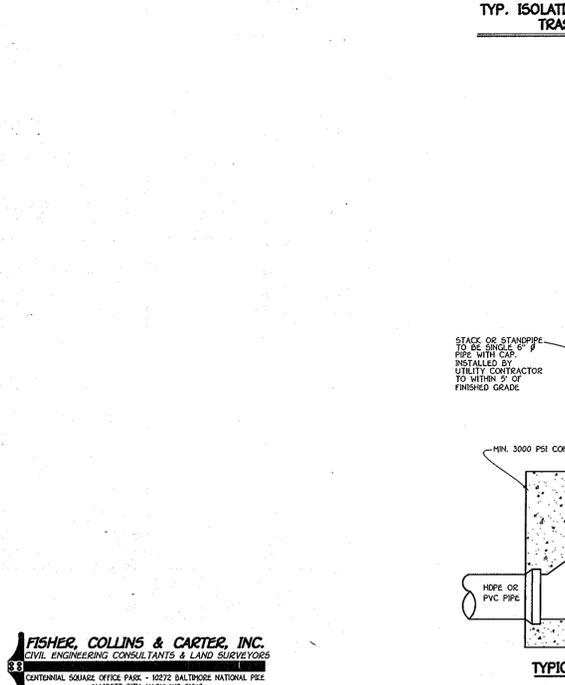
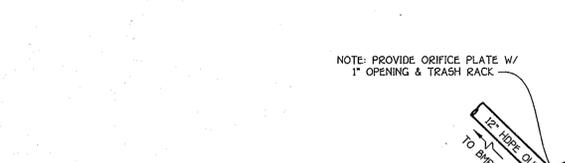
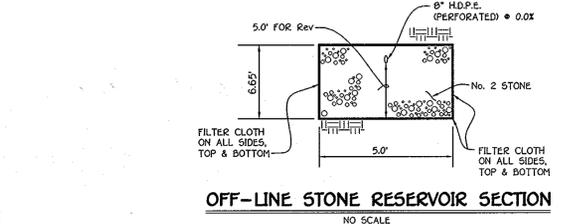
TEMPORARY SEDIMENT S.O.S.T. No. 2
 PRE. D.A. = POST. D.A. = 0.99 AC.
 MIN. WEIR LENGTH = 3.35'
 CONSTRUCTED WEIR LENGTH = 4.0'
 MIN. TRAP SIZE = 3,600 CU.YDS.
 DRY STORAGE REQUIRED = 1,800 CU.YDS.
 WET STORAGE PROVIDED = 2,046 CU.YDS.
 WET STORAGE REQUIRED = 1,800 CU.YDS.
 WET STORAGE PROVIDED = 4,778 CU.YDS.
 WEIR ELEVATION = 441.00
 TOTAL STORAGE PROVIDED = 6,824 CU.YDS.
 TOP OF EMBANKMENT = 442.00
 BOTTOM DIRT 23' x 40'
 WET STORAGE ELEVATION = 440.92
 DRY STORAGE ELEVATION = 441.92

REVISED FINAL ROAD CONSTRUCTION PLAN
 STREET TREE, GRADING & SEDIMENT CONTROL PLAN
MILLERS MILL WOODS
 LOTS 1 - 16
 ZONING: R-20
 TAX MAP NO. 17 GRID NO. 12 PARCEL NO. 44 AND PART OF 47
 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 DATE: JANUARY, 2008
 SHEET 4 OF 12

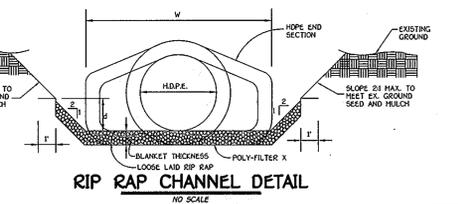
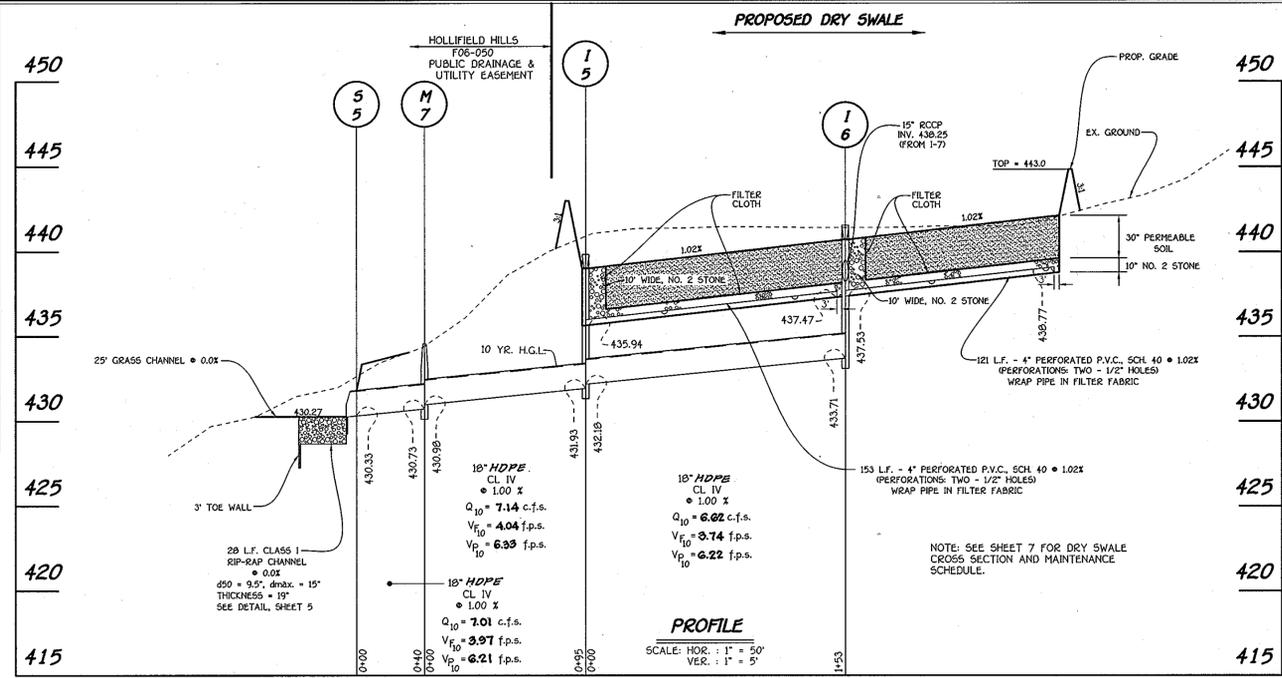
STRUCTURE SCHEDULE									
STRUCTURE NO.	TOP ELEVATION	INV. IN	INV. OUT	ROAD NAME	ROAD STA.	OFFSET	TYPE	REMARKS	
I-1	441.25	435.86	436.62	KIDWELL PLACE	C.L. STA. 1+15	15' L	5' INLET	S.D. 4.22	
I-2	439.45	---	436.21	KIDWELL PLACE	C.L. STA. 0+97	15' R	5' INLET	S.D. 4.22	
I-3	442.00	---	440.47	KIDWELL PLACE	C.L. STA. 2+16	15' L	5' INLET	S.D. 4.22	
I-4	447.00	---	443.50	N 9978403	E 13658147	---	YARD INLET	S.D. 4.14	
I-5	439.03	432.18	435.94 (4')	431.93	N 9972728	E 13659377	---	YARD INLET	S.D. 4.14
I-6	440.73	435.90	437.53 (4')	433.71	N 9971911	E 13659334	---	YARD INLET	S.D. 4.14
Z-10	449.77	---	446.60	Kidwell Place	4 sta. 0+50	20' R	"D" Inlet	D. 4.10	
I-8	430.00	430.50	430.50	N 9967851	E 13657363	---	"D" INLET	S.D. D-410	
I-9	450.00	446.83	446.83	N 9968256	E 13660313	---	"D" INLET	S.D. D-410	
M-1	434.00	430.00	429.75	N 9967503	E 13657469	---	STD. MH	G. 5.12	
M-2	435.80	431.80	429.80, 431.30, 431.55	N 9967501	E 13657659	---	STD. MH	G. 5.12	
M-3	445.64	439.19	436.90	KIDWELL PLACE	C.L. STA. 1+45	13' L	STD. MH	G. 5.12	
M-4	458.00	441.00	440.91	KIDWELL PLACE	C.L. STA. 2+87	16' L	STD. MH	G. 5.12	
M-5	457.50	441.51	441.56	KIDWELL PLACE	C.L. STA. 3+31	20' L	STD. MH	G. 5.12	
M-6	459.00	442.56	442.31	KIDWELL PLACE	C.L. STA. 3+77	17' L	STD. MH	G. 5.12	
M-7	434.28	430.98	430.73	N 9973578	E 13660918	---	STD. MH	G. 5.12	
S-1	427.46	425.96	---	N 9967279	E 13656933	---	18" FLARED END SECTION	ADS.	
S-2	427.32	425.82	---	N 9967841	E 13656914	---	18" FLARED END SECTION	SEE DETAIL, SHEET 6	
S-3	432.04	431.04	---	N 9967654	E 136576107	---	12" FLARED END SECTION	ADS.	
S-4	448.33	446.83	---	N 9965475	E 13660742	---	18" FLARED END SECTION	SEE DETAIL, SHEET 6	
S-5	431.83	430.33	---	N 9973862	E 13660337	---	CONC. END SECTION	SD D.C.B.I.	

CLEAN-OUT SCHEDULE					
STRUCTURE NO.	TOP ELEVATION	INVERT	LOCATION	TYPE	REMARKS
CO-1	434.00	429.80	N 99678635 E 136578549	SEE DETAIL, THIS SHEET	
CO-2	430.00	426.83	N 99682506 E 136574481	SEE DETAIL, THIS SHEET	
CO-3	450.00	447.83	N 99657895 E 136605270	SEE DETAIL, THIS SHEET	

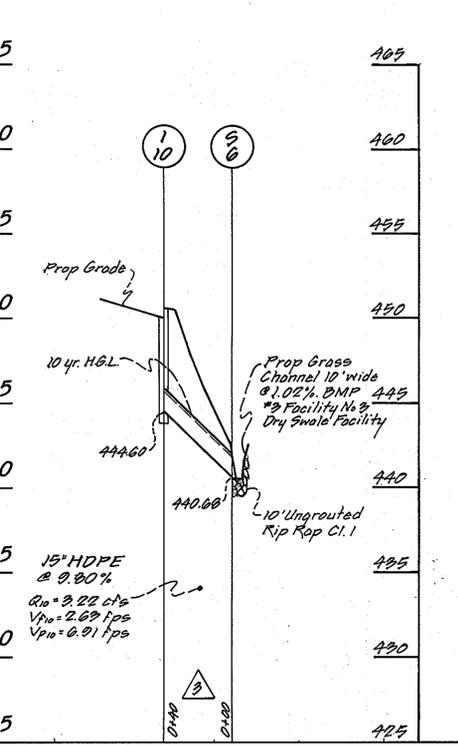
PIPE SCHEDULE		
SIZE	CLASS	LENGTH
15"	HDPE	75'
18"	HDPE	562'
8"	PVC SCH. 40	7'
4"	PERF. PVC SCH. 40	49'
6"	PERF. PVC SCH. 40	160'
12"	RECP-CL IV	11'
4"	PERF. PVC SCH. 40	271'
6"	PVC SCH. 40	28'
8"	PVC SCH. 40	32'
4"	PVC SCH. 40	11'



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 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK - 10772 BALTIMORE NATIONAL PIKE
 ELLICOTT CITY, MARYLAND 21042
 410-401-2000



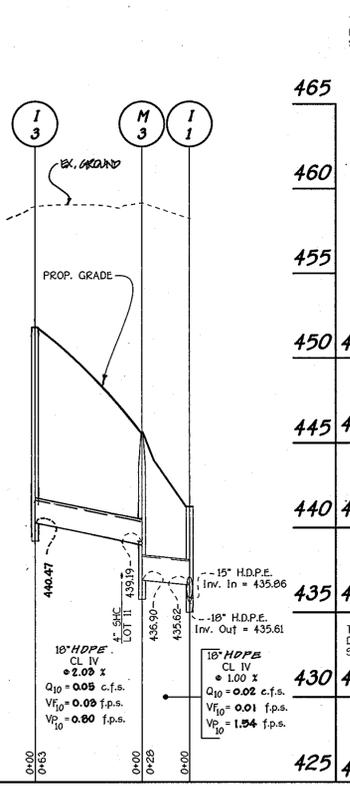
RIP-RAP CHANNEL DESIGN DATA													
STRUCTURE	AREA	WETTED PERIMETER	R	R ^{2/3}	S	S ^{1/2}	W	d	N	V	Q	BLANKET THICKNESS	
S-1	1.81	10.78	0.1678	0.3025	0.005	0.0707	10'	0.18	0.04	0.80	1.44	9.5'	15'
S-2	1.44	10.63	0.1355	0.2621	0.005	0.0707	10'	0.14	0.04	2.19	0.92	9.5'	15'
S-3	0.32	8.18	0.0391	0.1140	0.005	0.0707	8'	0.04	0.04	0.30	0.08	9.5'	15'
S-5	3.99	7.26	0.5496	0.6696	0.005	0.0707	4'	0.73	0.04	1.76	7.02	9.5'	15'



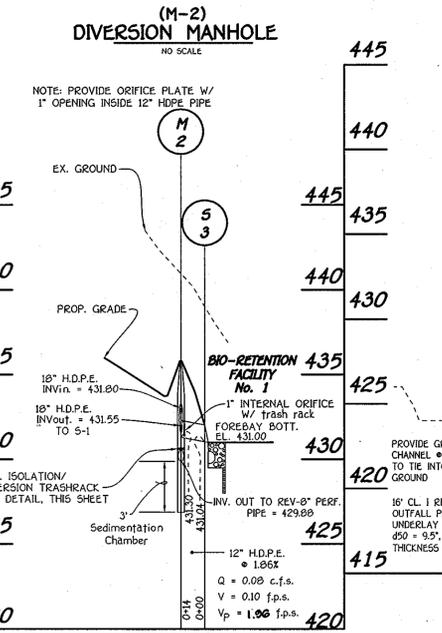
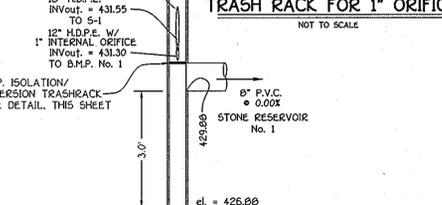
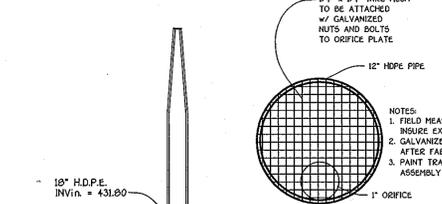
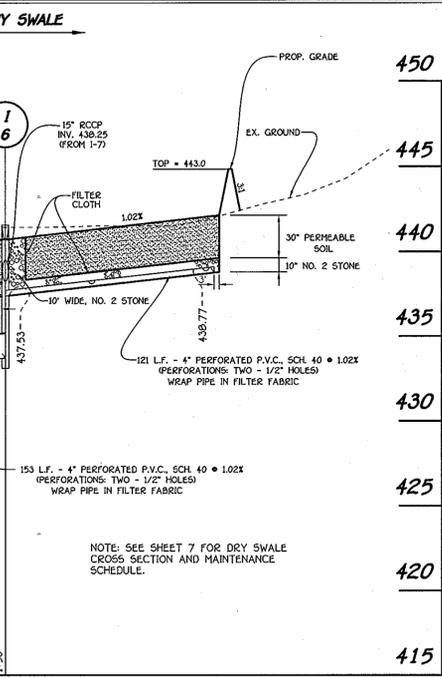
OWNERS
 ELLICOTT CITY HOLDING, INC.
 5300 DORSEY HALL DRIVE
 SUITE 102
 ELLICOTT CITY, MARYLAND 21042
 410-367-0422

100% LAND, INC.
 5300 DORSEY HALL DRIVE
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 ATTN: MS. LISA DEVRIES
 410-367-0422

- CONSTRUCTION SPECIFICATIONS FOR RIP-RAP OUTFALLS**
- The subgrade for the filter, riprap 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.
 - The rock or gravel shall conform to the specified grading limits when installed respectively in the riprap or filter.
 - Filter cloth shall be protected from punching, cutting or tearing. Any damage other than an occasional hole shall be repaired by placing another piece of cloth over the damaged part or by completely replacing the cloth. All overlaps whether for repairs or for joining two pieces of cloth shall be a minimum of one foot.
 - Stone for the riprap or gabion outlets may be placed by equipment. Both shall each 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 riprap or gabion outlets shall be delivered and placed in a manner that will insure that it is reasonably homogeneous with the smaller stones and spalls filling the voids between the larger stones. Riprap shall be placed in a manner to prevent damage to the filter fabric or filter cloth. Hand placement will be required to the extent necessary to prevent damage to the permanent works.



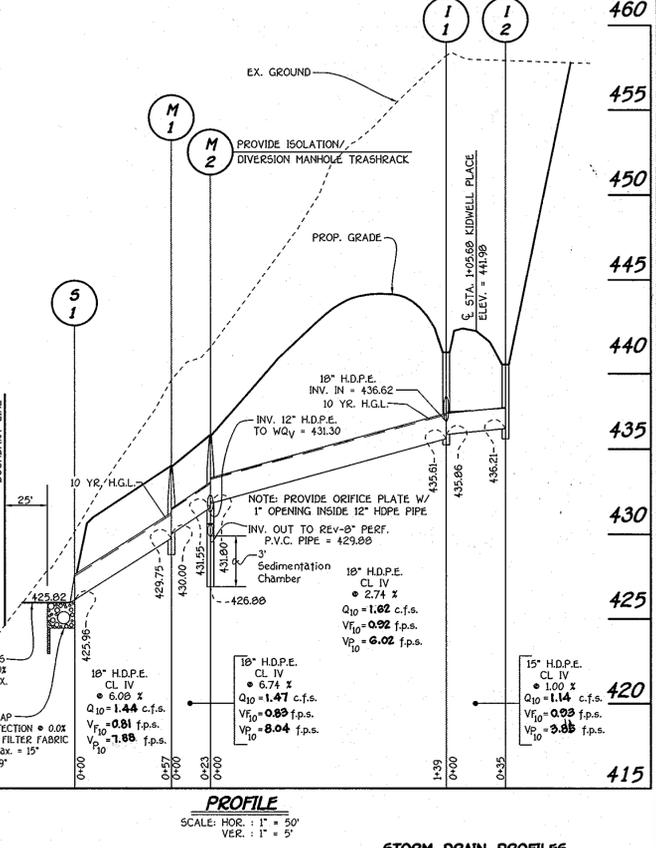
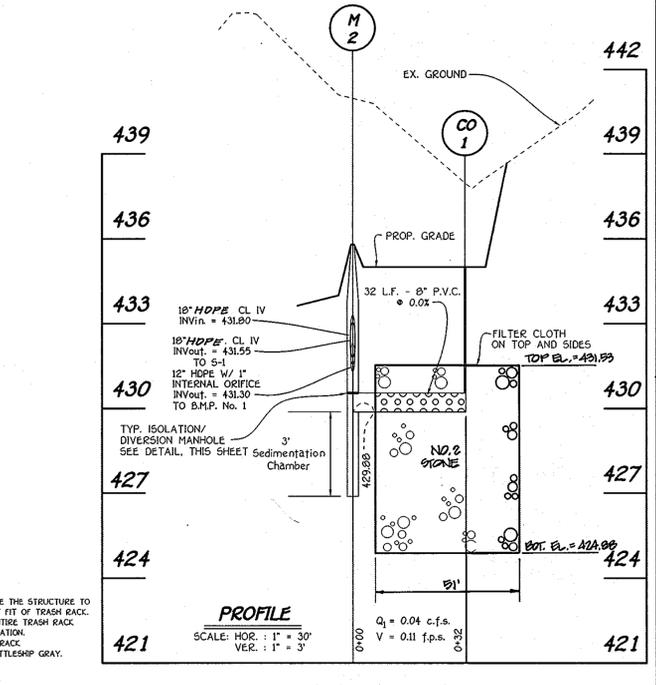
DEVELOPER
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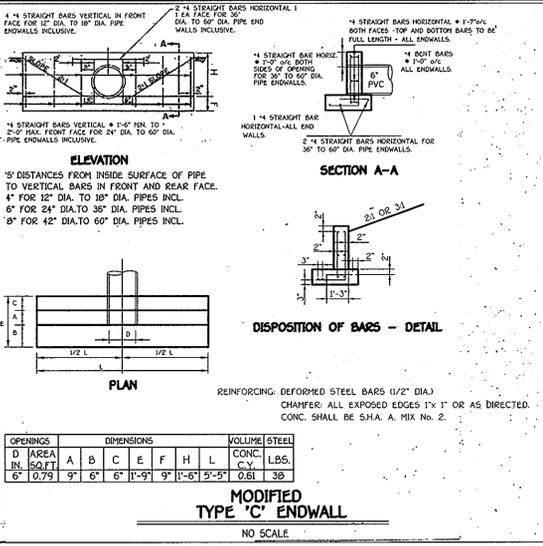
Approved: Department Of Planning And Zoning
 Chief, Division Of Land Development
 Chief, Development Engineering Division
 Approved: Howard County Department Of Public Works
 Chief, Bureau Of Highways

9/29/07
 6/24/07
 6/18/07



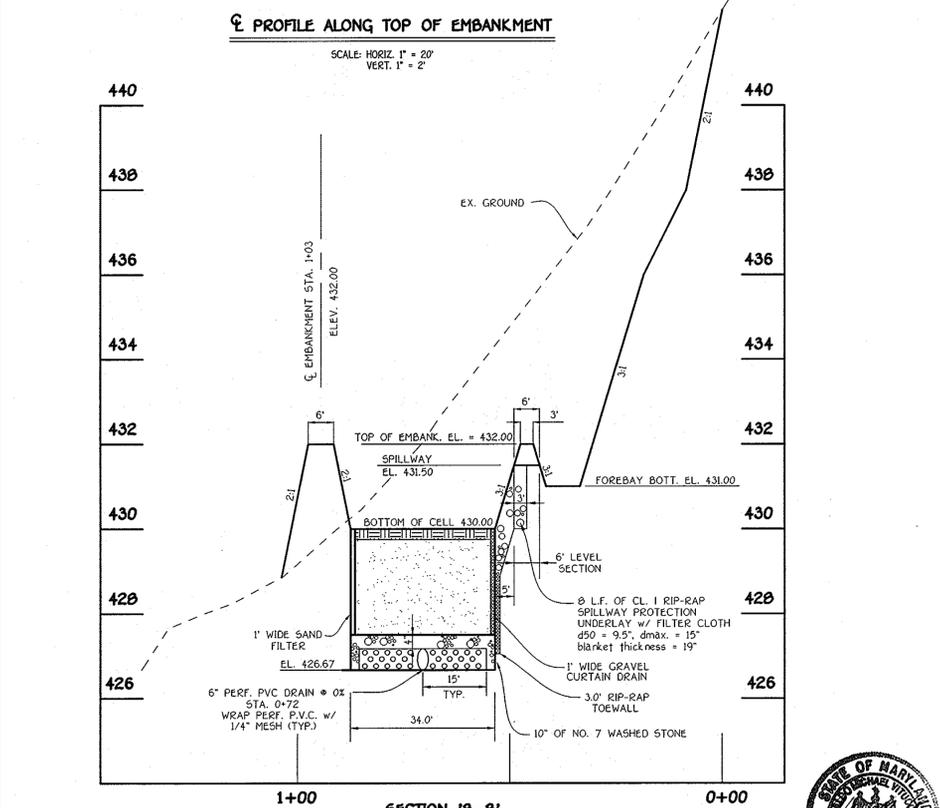
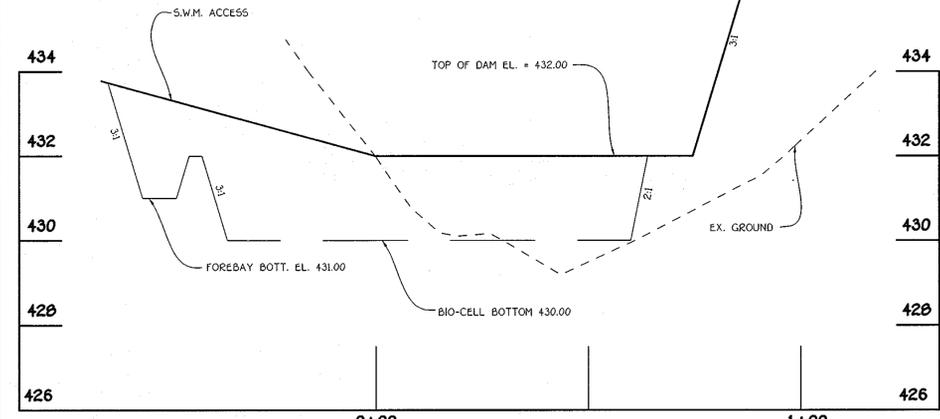
STORM DRAIN PROFILES
MILLERS MILL WOODS
 LOTS 1 - 16
 ZONING R-20
 TAX MAP NO. 17 GRID NO. 12
 2nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 DATE: JANUARY, 2008
 SHEET 5 OF 12

NO.	DATE	DESCRIPTION
1	7-16-08	Elim 18\"/>
2	11/19/07	REV. PLANS TO REFLECT THE ADDITION OF PARCEL 47 TO THIS SUBDIVISION
3	10/10/07	REV. I-7 AND ASSOCIATED PIPE LENGTH DUE TO T-TURN AROUND.



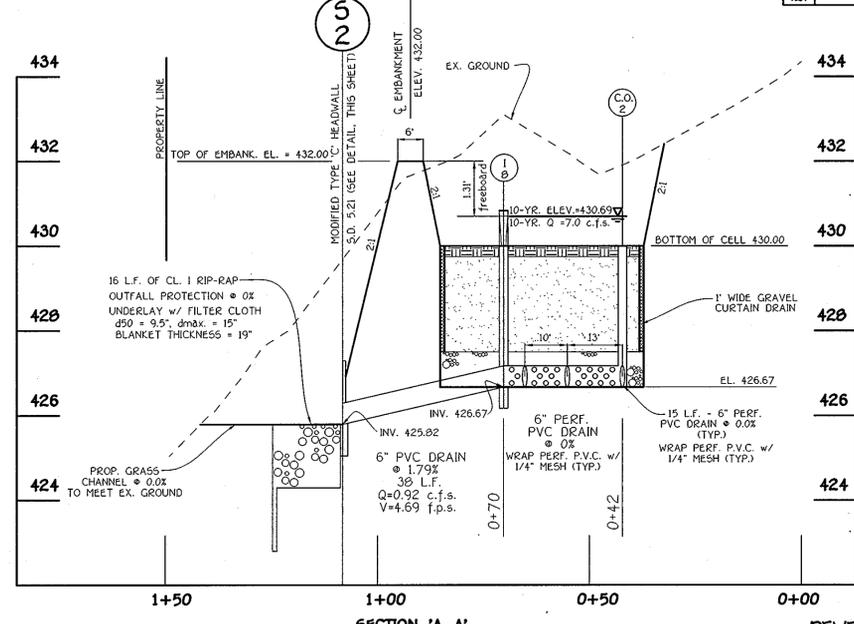
BIO-RETENTION PLANT MATERIAL CELL No. 1		
QUANTITY	NAME	MAXIMUM SPACING (FT.)
3	RED MAPLE	12
3	BLOODGOOD LONDON PLANE	12
3	SYCAMORE	12
SHRUB SPECIES		
30	WITCH HAZEL	12
20	RED OSLER DOGWOOD	12
30	WINTER BERRY	12
MIXED PERENNIALS AND GRASSES		
N/A	BLUEJOINT	N/A

NOTE: THE PLANTING SCHEDULE AND SPECIES FOR CELL 1 IS FOR DESIGN PURPOSES. PLANT DISTRIBUTION AND TYPES MAY BE SUBSTITUTED WITH SPECIES LISTED IN THE "DESIGN MANUAL FOR BIO-RETENTION IN STORM WATER MANAGEMENT" PRINCE GEORGE'S COUNTY GOVERNMENT.

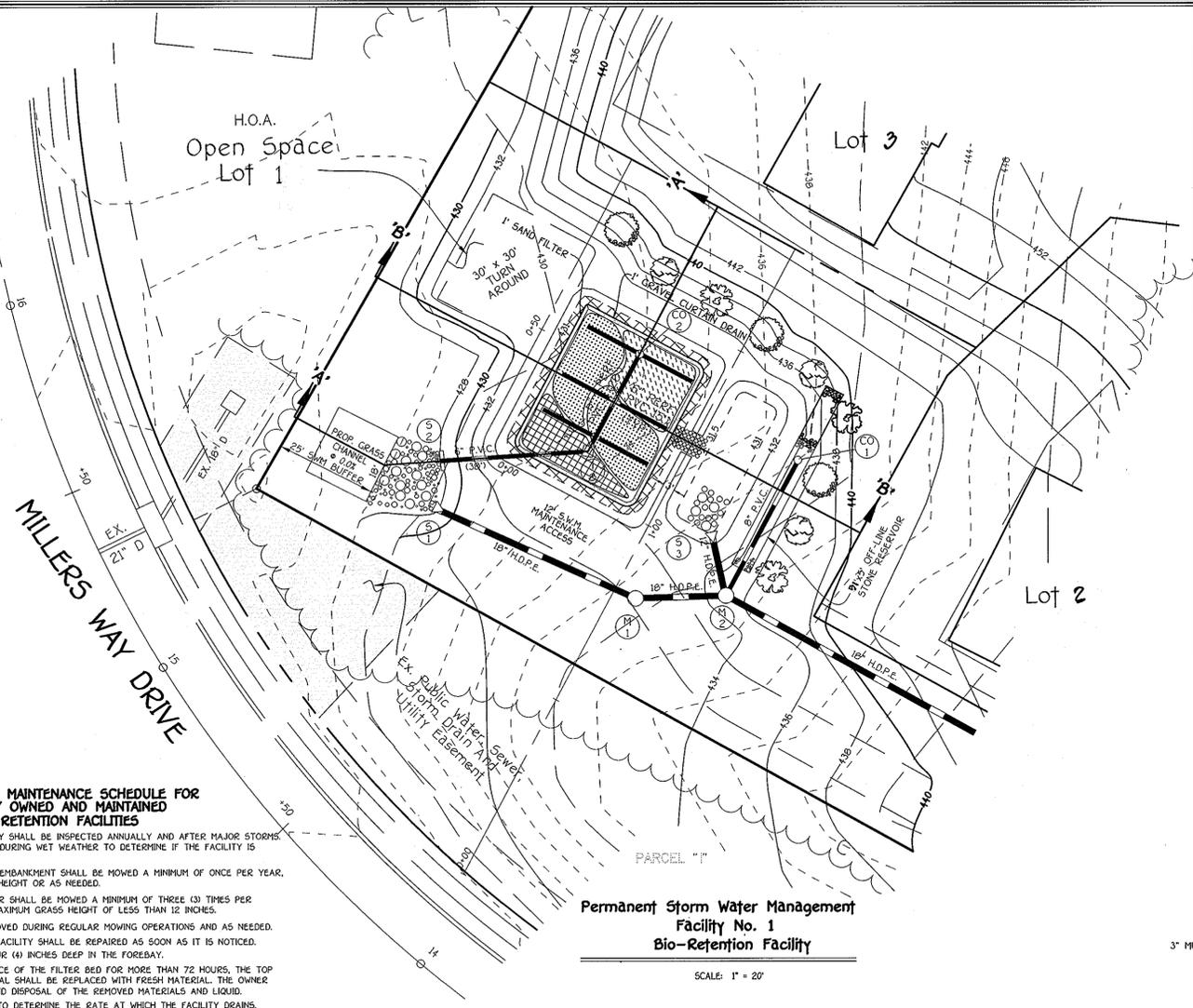


OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED BIO-RETENTION FACILITIES

1. THE STORMWATER WETLAND FACILITY 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 TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOVED A MINIMUM OF ONCE PER YEAR, WHEN VEGETATION REACHES 18" IN HEIGHT OR AS NEEDED.
3. FILTERS THAT HAVE A GRASS COVER SHALL BE MOVED A MINIMUM OF THREE (3) TIMES PER GROWING SEASON TO MAINTAIN A MAXIMUM GRASS HEIGHT OF LESS THAN 12 INCHES.
4. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOVING OPERATIONS AND AS NEEDED.
5. VISIBLE SIGNS OF EROSION IN THE FACILITY SHALL BE REPAIRED AS SOON AS IT IS NOTICED.
6. REMOVE SILT WHEN IT EXCEEDS FOUR (4) INCHES DEEP IN THE FOREBAY.
7. WHEN WATER PONDS ON THE SURFACE OF THE FILTER BED FOR MORE THAN 72 HOURS, THE TOP FEW INCHES OF DISCOLORED MATERIAL SHALL BE REPLACED WITH FRESH MATERIAL. THE OWNER MUST FOLLOW PROPER CLEANING AND DISPOSAL OF THE REMOVED MATERIALS AND LIQUID.
8. A LOGBOOK SHALL BE MAINTAINED TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
9. THE MAINTENANCE LOGBOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
10. ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION SYSTEM HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.



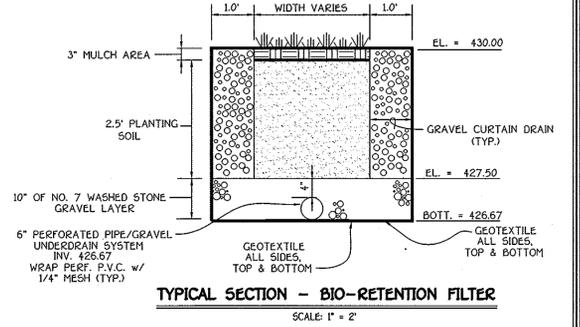
SECTION 'A-A' PROFILE THRU BIO-RETENTION FACILITY
SCALE: HORIZ. 1" = 20'
VERT. 1" = 2'



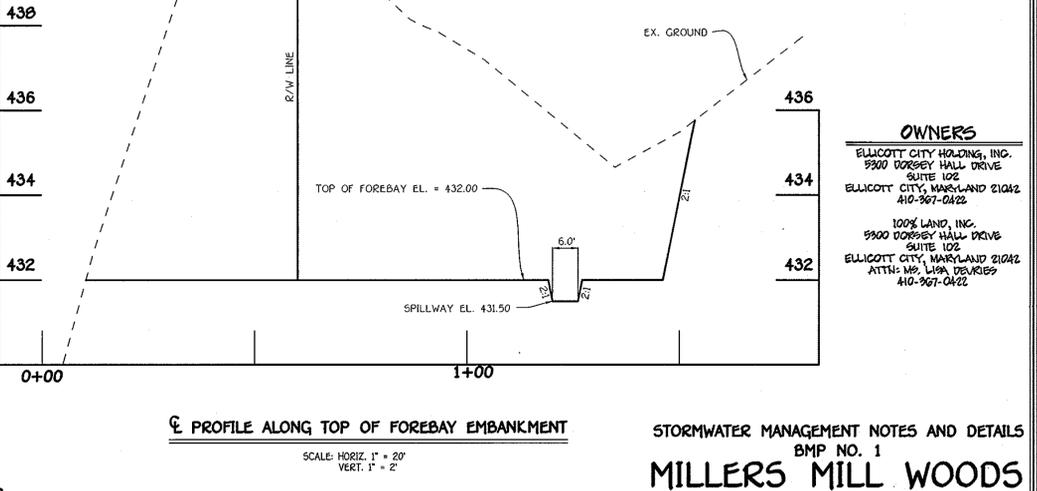
NO.	REVISIONS	DATE
1	REVISED PLANS TO REFLECT THE ADDITION OF PART OF PARCEL AT TO THIS SUBDIVISION	11/19/07
2	REVISE 1-7 AND ASSOCIATED PIPE LENGTH DUE TO T-TURN AROUND ADJACENT T-TURN AROUND SO THAT THE DRIVEWAYS ON THE SPP WILL ALIGN STRAIGHTER	10/10/07
	REVISED ROAD GRADING TO BALANCE SITE	

Permanent Storm Water Management Facility No. 1 Bio-Retention Facility

SCALE: 1" = 20'



TYPICAL SECTION - BIO-RETENTION FILTER
SCALE: 1" = 2'



SECTION 'B-B' PROFILE THRU BIO-RETENTION FACILITY
SCALE: HORIZ. 1" = 20'
VERT. 1" = 2'

By The Developer:
Signature: *Donald R. Reuel*
Printed Name: DONALD R. REUEL
Date: 5/16/07

By The Engineer:
Signature: *Jim Meyer*
Printed Name: JIM MEYER
Date: 5/23/07

Signature: *Chris Hamilton*
Printed Name: CHRIS HAMILTON
Date: 6/22/07

Signature: *Oliver Dammus*
Printed Name: OLIVER DAMMUS
Date: 6/24/07

AS-BUILT CERTIFICATION
I Herby Certify That The Facility Shown On This Plan Was Constructed As Shown On The "As-Built" Plans And Meets The Approved Plans And Specifications.

Signature: _____ P.E. No. _____
Date: _____

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ATTN: MS. LISA DEVRIES
410-367-0422

STORMWATER MANAGEMENT NOTES AND DETAILS
BMP NO. 1
MILLERS MILL WOODS
LOTS 1 - 16
ZONING: R-20
DAX MAP NO. 17, GRID NO. 12, PARCEL NO. 44 AND PART OF PARCEL 47
2ND. ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
DATE: JANUARY, 2006
SHEET 6 OF 12

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 12712 BALTIMORE NATIONAL FREE
ELLICOTT CITY, MARYLAND 21042
410-81-2855



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ATTN: MS. LISA DEVRIES
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200 STANDARDS AND SPECIFICATIONS

VEGETATIVE STABILIZATION
 Using vegetation as cover for barren soil to protect it from forces that cause erosion.
 Vegetative stabilization specifications are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of water. Permanent seeding is required.
 This practice shall be used on denuded areas as described in the plans. It shall be used on highly erodible or critically eroding areas. This specification is divided into Temporary Seeding, to quickly establish vegetative cover for short duration (up to one year), and Permanent Seeding, for long term vegetative cover. Temporary Seeding shall be used for areas that are to be seeded during construction phases, earth dikes, and for Permanent Seeding are shown, dune, cut and fill slopes and other areas at final grade forming stable and lasting areas, etc.

EFFECTS ON WATER QUALITY AND QUANTITY
 Planting vegetation in disturbed areas will have an effect on the water budget, especially on volume and rates of runoff. Vegetation reduces runoff, increases infiltration, and reduces erosion. Vegetation over time will increase organic matter content and improve the water holding capacity of the soil and subsequent plant growth.
 The movement of sediment and nutrients from the soil to receiving waters. Filters will also help protect groundwater supplies by assimilating those substances present within the root zone. Sediment control devices may be used in place during grading, seeding, sodding and vegetative establishment to prevent these substances from entering into surface waters.

SECTION 1 - VEGETATIVE STABILIZATION METHODS AND MATERIALS
 A. Site Preparation
 1. Install erosion and sediment control structures (either temporary or permanent) such as diversions, grade stabilization structures, berms, waterways, or sediment control basins.
 2. Perform all grading operations at right angles to the slope. Final grading and shaping is not usually necessary for temporary seeding.
 3. Schedule required soil tests to determine soil amendment composition and application rates for sites having disturbed areas over 5 acres.
 B. Soil Amendments (Fertilizer and Lime Specifications)
 1. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas over 5 acres. Soil analysis may be performed by the University of Maryland or a recognized commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analysis.
 2. Fertilizers shall be uniform in composition, free flowing and suitable for accurate application by approved equipment. Fertilizer may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers shall all be delivered to the site fully blended according to the applicable site fertilizer laws and shall bear the name, trade name or trademark and warranty of the producer.
 3. Lime materials shall be ground limestone (hydrated or burnt lime may be substituted) which contains at least 90% calcium oxide plus magnesium oxide. Limestone shall be ground to a maximum particle size that at least 50% will pass through a 100 mesh sieve and 90-100% will pass through a 20 U.S. sieve. Inorganic lime and fertilizer into the top 3-5" of soil by disking or other suitable means.
 C. Seeding Preparation
 1. Seeding Preparation shall consist of loosening soil to a depth of 3" to 5" by means of mechanical preparation or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened it should not be tilled or dragged or rolled, but left in the roughened condition. Sloped areas greater than 3:1 should be tracked leaving the surface in an irregular condition with ridges running parallel to the contour of the slope.
 2. Apply fertilizer and lime as prescribed on the plans.
 3. At appropriate time and fertilizer into the top 3-5" of soil by disking or other suitable means.

SECTION 2 - TEMPORARY SEEDING
 Vegetation - annual grass or grain used to provide cover on disturbed areas for up to 12 months. For longer duration of vegetative cover, Permanent Seeding is required.
 Purpose
 Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation.
 Conditions Where Practice Applies
 1. This practice is limited to areas having 2:1 or flatter slopes where:
 a. The texture of the exposed subsoil (parent material) is not adequate to produce vegetative growth.
 b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
 c. The original soil to be vegetated contains material toxic to plant growth.
 d. The soil is so acidic that treatment with limestone is not feasible.
 II. For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans.
 Construction and Material Specifications
 I. Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-SCS in cooperation with Maryland Agricultural Experiment Station.
 II. Topsoil Specifications - Soil to be used as topsoil must meet the following:
 1. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, rocks, trash, or other material larger than 1 1/2" in diameter.
 2. Topsoil must be free of plants or plant parts such as bermuda grass, quackgrass, Johnson grass, nutgrass, poison ivy, thistle, or other as specified.
 3. 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 lbs/acre) 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.
 II. For sites having disturbed areas under 5 acres:
 1. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section 1 - Vegetative Stabilization Methods and Materials.
 III. For sites having disturbed areas over 5 acres:
 1. On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:
 a. pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.
 b. Organic content of topsoil shall be not less than 1.5 percent by weight.
 c. Topsoil having soluble salt content greater than 500 parts per million shall not be used.
 d. No soil 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 phytotoxic 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 1 - Vegetative Stabilization Methods and Materials.
 V. Topsoil Application
 1. 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.
 2. Grades on the areas to be topsoiled, which have been previously established, shall be maintained, albeit 4" - 8" higher in elevation.
 3. 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 time and commercial fertilizer, composted sludge and amendments may be applied as specified below:
 1. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribe amendments and for sites having disturbed areas under 5 acres shall conform to the following requirements:
 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 time application rate.
 References: Guideline Specifications, Soil Preparation and Sodding, MD-WA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institute, Revised 1973.

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Purpose
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 1. This practice is limited to areas having 2:1 or flatter slopes where:
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 2. Topsoil must be free of plants or plant parts such as bermuda grass, quackgrass, Johnson grass, nutgrass, poison ivy, thistle, or other as specified.
 3. 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 lbs/acre) 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.
 II. For sites having disturbed areas under 5 acres:
 1. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section 1 - Vegetative Stabilization Methods and Materials.
 III. For sites having disturbed areas over 5 acres:
 1. On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:
 a. pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.
 b. Organic content of topsoil shall be not less than 1.5 percent by weight.
 c. Topsoil having soluble salt content greater than 500 parts per million shall not be used.
 d. No soil 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 phytotoxic 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 1 - Vegetative Stabilization Methods and Materials.
 V. Topsoil Application
 1. 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.
 2. Grades on the areas to be topsoiled, which have been previously established, shall be maintained, albeit 4" - 8" higher in elevation.
 3. 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 time and commercial fertilizer, composted sludge and amendments may be applied as specified below:
 1. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribe amendments and for sites having disturbed areas under 5 acres shall conform to the following requirements:
 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 time application rate.
 References: Guideline Specifications, Soil Preparation and Sodding, MD-WA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institute, Revised 1973.

No.	Species	Application Rate (lb/acre)	Seeding Dates	Seeding Depth	Fertilizer Rate (lb/100-100)	Lime Rate
1	BARLEY OATS RYE	122 96 140	3/1 - 5/15 8/15 - 10/15	1" - 2" 1" - 2" 1" - 2"	600 lb/acre 95 lb/1000sqft	2 ton/acre 100 lb/1000sqft

SECTION 3 - PERMANENT SEEDING
 Seeding grass and legumes to establish ground cover for a minimum of one year on disturbed areas generally receiving low maintenance.
 A. Seed Mixtures - Permanent Seeding
 1. Select one or more of the species or mixtures listed in Table 25 for the appropriate Plant Hardiness Zone (from Figure 5) and enter them in the Permanent Seeding Summary below, along with application rates and seeding dates and seedling depths. If this summary is not put on the plans, additional planting specifications for exceptional sites such as shorelines, streambanks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USGS-SCS Technical Field Guide, Section 342 - Critical Area Planting. For special lawn maintenance areas, see sections IV D and V B. Turfgrass.
 2. For sites having disturbed areas over 5 acres, the rates shown on this table shall be deleted and the rates recommended by the soil testing agency shall be written in.
 3. For areas receiving low maintenance, apply urea-form fertilizer (46-0-0) at 1 1/2 lbs/1000 sq. ft. (150 lbs/acre) in addition to the above soil amendments shown in the table below, as performed at the time of seeding.

Seed Mixture (Hardiness Zone - - - - -)	From Table 25	Seeding Dates	Seeding Depth	Fertilizer Rate (lb/100-100)	Lime Rate
1	TALL FESCUE (85%) PERENNIAL RYE GRASS (10%) CRICKET GRASS (5%)	3/1 - 5/15 8/15 - 10/15	1" - 2"	80 lb/acre 175 lb/acre 175 lb/acre	2 ton/acre 100 lb/1000sqft
10	TALL FESCUE (80%) HARD FESCUE (20%)	3/1 - 5/15 8/15 - 10/15	1" - 2"	80 lb/acre 175 lb/acre 175 lb/acre	2 ton/acre 100 lb/1000sqft

SEED SPECIFICATIONS
 I. All seed must meet the requirements of the Maryland State Seed Law. All seed shall be subject to a minimum of 6 months of germination testing. All seed used shall be tested within 6 months immediately preceding the date of sowing such material on this job.
 Note: Seed that has been treated with fungicides or other chemicals shall be tested in accordance with the requirements of the Maryland State Seed Law.
 II. Inoculant - The inoculant for treating legume seed in the seed mixtures shall be a pure culture of the bacteria indicated on the container. Add fresh inoculant as directed on package. Use four times the amount of inoculant for each bushel of seed. Inoculant should be applied to the seed in a dry condition. Temperatures above 75-80° F. can weaken bacteria and make the inoculant less effective.
 E. Methods of Seeding
 1. Hydroseeding - Apply seed uniformly with hydroseeder (seeds include seed and fertilizer), broadcast or drop seeded, or a subsoiler seeder.
 a. If fertilizer is being applied at the time of seeding, the application rates amounts will not exceed the rates shown in Table 25.
 b. Time - use only after ground has been prepared to a depth of 3-5" and a uniform seedbed has been established. Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not seed until the soil is moist and hydrated when hydroseeding.
 c. Seed and fertilizer shall be mixed on site and seeding shall be done immediately and uniformly.
 2. Dry Seeding - This includes use of conventional drop or broadcast spreaders.
 a. Seed spreading shall be done in accordance with the specifications for the sites described on the Temporary or Permanent Seeding Summary or Tables 25 or 26. The seeded area shall be protected from erosion by the use of erosion control measures.
 b. Where practical, seed shall be applied in two directions perpendicular to each other.
 c. Apply half the seeding rate in each direction.
 3. Drill or Cultivator Seeding - Mechanized seeders that apply and cover seed with soil.
 a. Cultivating and seeding shall be done in accordance with the specifications for the sites described on the Temporary or Permanent Seeding Summary or Tables 25 or 26. The seeded area shall be protected from erosion by the use of erosion control measures.
 b. Where practical, seed shall be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.
 F. Mulch Specifications (in order of preference)
 1. Straw shall consist of thoroughly threshed wheat, rye or oat straw, reasonable bright in color, and shall be free of weed seeds, insecticides, and other contaminants.
 2. Wood cellulose fiber mulch (WCFM)
 a. WCFM shall consist of specially prepared wood cellulose processed into a uniform fibrous strand mat.
 b. WCFM shall be dry green or contain a green dye in the package that will provide an distinctive color to facilitate visual inspection of the mulch spread during application.
 c. WCFM including dye, shall contain no germination or growth inhibiting factors.
 d. WCFM materials shall be processed and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry.
 e. The mulch material shall form a blotter-like ground cover, on application having moisture penetration properties and shall cover and hold ground seed in contact with the soil without inhibiting the growth of the grass seedlings that will be phytotoxic.
 f. WCFM must conform to the following physical requirements: fiber length to approximately 10 mm., diameter approximately 1 mm., of color of 4.0 to 6.5, ash content of 10% maximum, and water holding capacity of 20% minimum.
 G. Mulching Seeded Areas - Mulch shall be applied to all seeded areas immediately after seeding.
 i. If grading is completed outside of the seeding season, mulch shall be applied as prescribed in this section. If mulching occurs during the seeding season, seeding and mulching can be performed in accordance with these specifications.
 ii. When straw mulch is used, it shall be spread over all seeded areas at the rate of 2 tons/acre. Mulch shall be applied to a uniform loose depth of between 1" and 2". Mulch applied shall achieve a uniform distribution and depth so that the soil surface is not exposed. If a mulch anchoring tool is to be used, the rate should be increased to 2.5 tons/acre.
 iii. Wood cellulose fiber used as a mulch shall be applied at a net dry weight of 1500 lbs. per acre. The wood cellulose fiber shall be mixed with water, and the mixture shall contain a maximum of 50 lbs. of wood cellulose fiber per 100 gallons of water.
 H. Securing Straw Mulch (Mulch Anchoring) - Mulch anchoring shall be performed immediately following mulch application to minimize loss by wind or water. This may be done by one of the following methods listed by preference, depending upon size of area and erosion hazard:
 1. A mesh anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of two (2) inches. This practice is most effective on large areas, but is limited to 3:1 slopes where equipment can operate safely. If used on a slope, this practice should be used on the contour if possible.
 2. Wood cellulose fiber may be used for anchoring straw. The fiber binder shall be applied at a net dry weight of 750 pounds/acre. The wood cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 pounds of wood cellulose fiber per 100 gallons.
 iii. Application of liquid binders should be heavier at the edges where wind catches mulch, such as at the ends of dikes. The remainder of and windward side of the dikes should be treated with application. Synthetic binders - such as Acrylic DLR (Ago-Tack), DCA-70 Petro-Tex, Terra Tax Tack, or other approved equal may be used at 1/2 sites recommended by the manufacturer to anchor mulch.
 iv. Lightweight plastic may be stapled over the mulch according to manufacturer's recommendations. Netting is usually available in rolls 4' to 15' feet wide and 300 to 3,000 feet long.
 I. Incremental Stabilization - Cut Slopes
 1. All cut slopes shall be dressed, prepared, seeded and mulched as the work progresses. Slopes shall be excavated and stabilized in equal increments not to exceed 15'.
 2. Construction erosion control to Figure 3 below.
 a. Excavate and stabilize all temporary swales, side ditches, or berms that will be used to convey runoff from the excavation.
 b. Perform Phase 1 excavation, dress, and stabilize.
 c. Perform Phase 2 excavation, dress and stabilize. Overseed Phase 1 areas as necessary.
 d. Perform final phase excavation, dress and stabilize. Overseed previously seeded areas as necessary.
 Note: Once excavation has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation of completing the operation of the seeding season will necessitate the application of temporary stabilization.
 Incremental Stabilization of Embankments - Fill Slopes
 1. Embankments shall be constructed in lifts as prescribed on the plans.
 2. Slopes shall be stabilized immediately when the vertical height of the multiple lifts reaches 15', or when the grading operation ceases as prescribed in the plans.
 3. At the end of each lift, temporary berms and slope drains should be constructed along the top edge of the embankment to intercept surface runoff and convey it down the slope in a non-erodible manner to sediment trapping devices.
 iv. Construction Erosion Control
 1. Excavate and stabilize all temporary swales, side ditches, or berms that will be used to convey runoff from the excavation.
 2. Figure 4 unless other methods shown on the plans stabilize this area.
 a. Perform Phase 1 excavation, dress and stabilize.
 b. Perform Phase 2 excavation, dress and stabilize. Overseed previously seeded areas as necessary.
 Note: Once the placement of fill has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation of completing the operation of the seeding season will necessitate the application of temporary stabilization.

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 2. For sites having disturbed areas over 5 acres, the rates shown on this table shall be deleted and the rates recommended by the soil testing agency shall be written in.
 3. For areas receiving low maintenance, apply urea-form fertilizer (46-0-0) at 1 1/2 lbs/1000 sq. ft. (150 lbs/acre) in addition to the above soil amendments shown in the table below, as performed at the time of seeding.

Seed Mixture (Hardiness Zone - - - - -)	From Table 25	Seeding Dates	Seeding Depth	Fertilizer Rate (lb/100-100)	Lime Rate
1	TALL FESCUE (85%) PERENNIAL RYE GRASS (10%) CRICKET GRASS (5%)	3/1 - 5/15 8/15 - 10/15	1" - 2"	80 lb/acre 175 lb/acre 175 lb/acre	2 ton/acre 100 lb/1000sqft
10	TALL FESCUE (80%) HARD FESCUE (20%)	3/1 - 5/15 8/15 - 10/15	1" - 2"	80 lb/acre 175 lb/acre 175 lb/acre	2 ton/acre 100 lb/1000sqft

SEED SPECIFICATIONS
 I. All seed must meet the requirements of the Maryland State Seed Law. All seed shall be subject to a minimum of 6 months of germination testing. All seed used shall be tested within 6 months immediately preceding the date of sowing such material on this job.
 Note: Seed that has been treated with fungicides or other chemicals shall be tested in accordance with the requirements of the Maryland State Seed Law.
 II. Inoculant - The inoculant for treating legume seed in the seed mixtures shall be a pure culture of the bacteria indicated on the container. Add fresh inoculant as directed on package. Use four times the amount of inoculant for each bushel of seed. Inoculant should be applied to the seed in a dry condition. Temperatures above 75-80° F. can weaken bacteria and make the inoculant less effective.
 E. Methods of Seeding
 1. Hydroseeding - Apply seed uniformly with hydroseeder (seeds include seed and fertilizer), broadcast or drop seeded, or a subsoiler seeder.
 a. If fertilizer is being applied at the time of seeding, the application rates amounts will not exceed the rates shown in Table 25.
 b. Time - use only after ground has been prepared to a depth of 3-5" and a uniform seedbed has been established. Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not seed until the soil is moist and hydrated when hydroseeding.
 c. Seed and fertilizer shall be mixed on site and seeding shall be done immediately and uniformly.
 2. Dry Seeding - This includes use of conventional drop or broadcast spreaders.
 a. Seed spreading shall be done in accordance with the specifications for the sites described on the Temporary or Permanent Seeding Summary or Tables 25 or 26. The seeded area shall be protected from erosion by the use of erosion control measures.
 b. Where practical, seed shall be applied in two directions perpendicular to each other.
 c. Apply half the seeding rate in each direction.
 3. Drill or Cultivator Seeding - Mechanized seeders that apply and cover seed with soil.
 a. Cultivating and seeding shall be done in accordance with the specifications for the sites described on the Temporary or Permanent Seeding Summary or Tables 25 or 26. The seeded area shall be protected from erosion by the use of erosion control measures.
 b. Where practical, seed shall be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.
 F. Mulch Specifications (in order of preference)
 1. Straw shall consist of thoroughly threshed wheat, rye or oat straw, reasonable bright in color, and shall be free of weed seeds, insecticides, and other contaminants.
 2. Wood cellulose fiber mulch (WCFM)
 a. WCFM shall consist of specially prepared wood cellulose processed into a uniform fibrous strand mat.
 b. WCFM shall be dry green or contain a green dye in the package that will provide an distinctive color to facilitate visual inspection of the mulch spread during application.
 c. WCFM including dye, shall contain no germination or growth inhibiting factors.
 d. WCFM materials shall be processed and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry.
 e. The mulch material shall form a blotter-like ground cover, on application having moisture penetration properties and shall cover and hold ground seed in contact with the soil without inhibiting the growth of the grass seedlings that will be phytotoxic.
 f. WCFM must conform to the following physical requirements: fiber length to approximately 10 mm., diameter approximately 1 mm., of color of 4.0 to 6.5, ash content of 10% maximum, and water holding capacity of 20% minimum.
 G. Mulching Seeded Areas - Mulch shall be applied to all seeded areas immediately after seeding.
 i. If grading is completed outside of the seeding season, mulch shall be applied as prescribed in this section. If mulching occurs during the seeding season, seeding and mulching can be performed in accordance with these specifications.
 ii. When straw mulch is used, it shall be spread over all seeded areas at the rate of 2 tons/acre. Mulch shall be applied to a uniform loose depth of between 1" and 2". Mulch applied shall achieve a uniform distribution and depth so that the soil surface is not exposed. If a mulch anchoring tool is to be used, the rate should be increased to 2.5 tons/acre.
 iii. Wood cellulose fiber used as a mulch shall be applied at a net dry weight of 1500 lbs. per acre. The wood cellulose fiber shall be mixed with water, and the mixture shall contain a maximum of 50 lbs. of wood cellulose fiber per 100 gallons of water.
 H. Securing Straw Mulch (Mulch Anchoring) - Mulch anchoring shall be performed immediately following mulch application to minimize loss by wind or water. This may be done by one of the following methods listed by preference, depending upon size of area and erosion hazard:
 1. A mesh anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of two (2) inches. This practice is most effective on large areas, but is limited to 3:1 slopes where equipment can operate safely. If used on a slope, this practice should be used on the contour if possible.
 2. Wood cellulose fiber may be used for anchoring straw. The fiber binder shall be applied at a net dry weight of 750 pounds/acre. The wood cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 pounds of wood cellulose fiber per 100 gallons.
 iii. Application of liquid binders should be heavier at the edges where wind catches mulch, such as at the ends of dikes. The remainder of and windward side of the dikes should be treated with application. Synthetic binders - such as Acrylic DLR (Ago-Tack), DCA-70 Petro-Tex, Terra Tax Tack, or other approved equal may be used at 1/2 sites recommended by the manufacturer to anchor mulch.
 iv. Lightweight plastic may be stapled over the mulch according to manufacturer's recommendations. Netting is usually available in rolls 4' to 15' feet wide and 300 to 3,000 feet long.
 I. Incremental Stabilization - Cut Slopes
 1. All cut slopes shall be dressed, prepared, seeded and mulched as the work progresses. Slopes shall be excavated and stabilized in equal increments not to exceed 15'.
 2. Construction erosion control to Figure 3 below.
 a. Excavate and stabilize all temporary swales, side ditches, or berms that will be used to convey runoff from the excavation.
 b. Perform Phase 1 excavation, dress, and stabilize.
 c. Perform Phase 2 excavation, dress and stabilize. Overseed Phase 1 areas as necessary.
 d. Perform final phase excavation, dress and stabilize. Overseed previously seeded areas as necessary.
 Note: Once excavation has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation of completing the operation of the seeding season will necessitate the application of temporary stabilization.
 Incremental Stabilization of Embankments - Fill Slopes
 1. Embankments shall be constructed in lifts as prescribed on the plans.
 2. Slopes shall be stabilized immediately when the vertical height of the multiple lifts reaches 15', or when the grading operation ceases as prescribed in the plans.
 3. At the end of each lift, temporary berms and slope drains should be constructed along the top edge of the embankment to intercept surface runoff and convey it down the slope in a non-erodible manner to sediment trapping devices.
 iv. Construction Erosion Control
 1. Excavate and stabilize all temporary swales, side ditches, or berms that will be used to convey runoff from the excavation.
 2. Figure 4 unless other methods shown on the plans stabilize this area.
 a. Perform Phase 1 excavation, dress and stabilize.
 b. Perform Phase 2 excavation, dress and stabilize. Overseed previously seeded areas as necessary.
 Note: Once the placement of fill has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation of completing the operation of the seeding season will necessitate the application of temporary stabilization.

SEED SPECIFICATIONS
 I. All seed must meet the requirements of the Maryland State Seed Law. All seed shall be subject to a minimum of 6 months of germination testing. All seed used shall be tested within 6 months immediately preceding the date of sowing such material on this job.
 Note: Seed that has been treated with fungicides or other chemicals shall be tested in accordance with the requirements of the Maryland State Seed Law.
 II. Inoculant - The inoculant



NOTES:

All the time of plant installation, all trees listed and approved on the Landscape Plan shall comply with the proper height requirement in accordance with the Howard County Landscape Manual. In addition, no substitutions or relocations of the required plantings may be made without prior review and approval from the Department of Planning and Zoning. Any deviations from the approved Landscape Plan may result in denial or delay in the release of landscape surety until such time as all required materials are planted and/or revisions are made to the road drawing plans.

The Owner, tenants and/or their agents shall be responsible for maintenance of the required perimeter landscaping. All plant materials shall be maintained in good growing condition, and when necessary, replaced with new materials to ensure continued compliance with applicable regulations. All the other required landscaping shall be permanently maintained in good condition, and when necessary, repaired or replaced.

NOTE: CONTRACTOR TO REGRADE, SOIL OR HYDROSEED AND STRAW MULCH ALL AREAS DISTURBED AS A RESULT OF THEIR WORK.
SPRAY WITH MILT-PROOF ACCORDING TO MANUFACTURERS STANDARDS

PRUNE 1/3 LEAF AREA BUT RETAIN NATURAL FORM OF TREE

2 PIECES OF REINFORCED RUBBER HOSE
DOUBLE #12 GALVANIZED WIRE GUYTS TWISTED

3-2X 2" OAK STAKES
NOTCH STAKES TO HOLD WIRE

WRAP TRUNK TO SECOND TIER OF BRANCHES WITH WATERPROOF TREE WRAP. THE AT 2' INTERVALS (EXCEPT EVERGREENS)

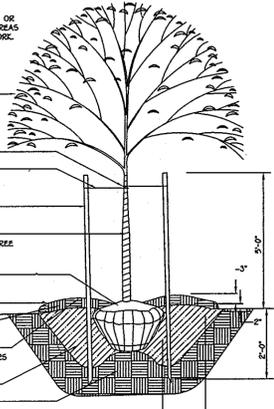
REMOVE ANY COVERING FROM TOP OF ROOT CROWN

3" MULCH

MAINTAIN GROUND LINE WITH TOP OF FOOT CROWN

CONSTRUCT 3" SAUCER BAY-FLOOD WITH WATER TWICE WITHIN 24 HOURS

TOP SOIL MIXTURE
CONVEX BOTTOM 6" MIN. HT.



TREE PLANTING DETAIL

PLANTING SPECIFICATIONS

Plants, related material, and operations shall meet the detailed description as given on the plans and as described herein.

All plant material, unless otherwise specified, shall be nursery grown, uniformly banded, have a vigorous root system, and shall conform to the species, size, root and shape shown on the plant list and the American Association of Nurserymen (AAN) Standards. Plant material shall be healthy, vigorous, free from defects, decay, desquaring roots, sun scald injuries, abrasions of the bark, plant disease, insect pest eggs, borers and all forms of insect infestations or objectionable infestations. Plant material that is weak or which has been cut back from larger grades to meet specified requirements will be rejected. Trees with forked leaders will not be accepted. All plants shall be freshly dug, no heeled-in plants from cold storage will be accepted.

Unless otherwise specified, all general conditions, planting operations, details and planting specification shall conform to "Landscape Specification Guidelines for Baltimore-Washington Metropolitan Area", hereinafter "Landscape Guidelines" approved by the Landscape Contractors Association of Metropolitan Washington and the Potomac Chapter of the American Society of Landscape Architects, latest edition, including all appendices.

Contractor shall be required to guarantee all plant material for a period of one year after date of acceptance in accordance with the appropriate section of the Landscape Guidelines. Contractor's attention is directed to the maintenance requirements found within the one year specifications including watering and replacement of specified plant material.

Contractor shall be responsible for notifying utility companies, utility contractors and "Gas Utility" a minimum of 48 hours prior to beginning any work. Contractor may make minor adjustments in spacing and location of plant material to avoid conflicts with utilities. Damage to existing structure and utilities shall be repaired at the expense of the Contractor.

Protection of existing vegetation to remain shall be accomplished by the temporary installation of 4 foot high snow fence or blaze orange safety fence at the drip line.

Contractor is responsible for installing all material in the proper planting season for each plant type. All planting is to be completed within the growing season of completion of site construction.

Bid shall be based on actual site conditions. No extra payment shall be made for work arising from site conditions differing from those indicated on drawings and specifications.

Plant quantities are provided for the convenience of the contractor only. If discrepancies exist between quantities shown on plan and those shown on the plant list, the quantities on the plan take precedence.

All shrubs shall be planted in continuous trenches or prepared planting beds and mulched with composted hardwood mulch as details and specified except where noted on plans.

Positive drainage shall be maintained in planting beds 2 percent slope.

Planting mix shall be as follows: Deciduous Plants - Two parts topsoil, one part well-rotted cow or horse manure. Add 3 lbs. of standard fertilizer per cubic yard of planting mix. Evergreen Plants - two parts topsoil, one part humus or other approved organic material. Add 3 lbs. of evergreen fertilizer per cubic yard of planting mix. Topsoil shall conform to the Landscape Guidelines.

Weed Control: Incorporate a pre-emergent herbicide into the planting bed following recommended rates on the label. Caution: Be sure to carefully check the chemical used to assure its adaptability to the specific ground cover to be treated.

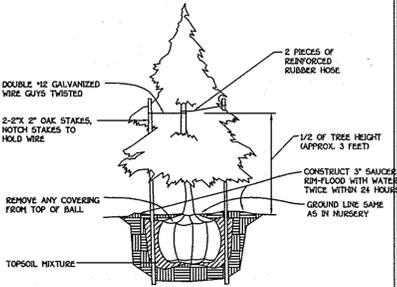
All areas within contract limits disturbed during or prior to construction not designated to receive plants and mulch shall be fine grade and seeded.

This plan is intended for landscape use only. See other plan sheets for more information on grading, sediment control, layout, etc.

Approved: Department Of Public Works
Walter F. ... 2-12-08
Chief, Bureau of Highways Date

Approved: Department Of Planning And Zoning
Andy Hamilton 2/15/08
Chief, Division of Land Development Date

W. ... 2/15/08
Chief, Development Engineering Division Date



EVERGREEN PLANTING DETAIL

PERIMETER	CATEGORY (PROPERTIES/ROADWAYS)	LANDSCAPE TYPE	LINEAR FEET OF ROADWAY FRONTAGE PERIMETER	CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	CREDIT FOR WALL, FENCE OR BERRY (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NUMBER OF PLANTS REQUIRED AND PROVIDED		
						SHADE TREES	EVERGREEN TREES	SHRUBS
P-1	ADJACENT TO PERIMETER	A	680'	355'	NO	6	-	-
P-2	ADJACENT TO PERIMETER	A	141'	NO	NO	2	-	-
P-3	ADJACENT TO PERIMETER	A	472'	NO	NO	8	-	-
P-4	ADJACENT TO PERIMETER	A	106'	NO	NO	2	-	-
P-5	ADJACENT TO ROADWAY	N/A	224'	HOUSE FRONTS ROAD AND FCE	NO	0	0	-
P-6	ADJACENT TO ROADWAY	B	123'	NO	NO	2	3	-
P-7	ADJACENT TO PERIMETER	A	477'	YES (145')	NO	6	-	-

SCHEDULE D STORMWATER MANAGEMENT AREA LANDSCAPING		D-1 - 492'
LINEAR FEET OF PERIMETER		10
NUMBER OF TREES REQUIRED:		12
SHADE TREES		
EVERGREEN TREES		
CREDIT FOR EXISTING VEGETATION (NO, YES AND %)	NO	
CREDIT FOR OTHER LANDSCAPING (NO, YES AND %)	NO	
NUMBER OF TREES PROVIDED:		
SHADE TREES	10	
EVERGREEN TREES	12	

LANDSCAPING PLANT LIST			
QTY.	KEY	NAME	SIZE
13		ACER RUBRUM "OCTOBER GLORY" "OCTOBER RED MAPLE"	2 - 2 1/2" CALIPER FULL CROWN, B&B
23		QUERCUS RUBRA RED OAK	2 - 2 1/2" CALIPER FULL CROWN, B&B
15		PINUS STROBUS EASTERN WHITE PINE	6' - 8' HT.

* THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. FINANCIAL SURETY FOR THE REQUIRED 36 SHADE TREES & 15 EVERGREEN TREES HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$13,050.00.

DRAINAGE AREA DATA				
STRUCTURE NO.	AREA(ac.)	"C"	ZONED	X IMP.
I-1	0.08	0.94	R-20	98X
I-2	0.55	0.31	R-20	9X
I-3	0.02	0.30	R-20	7X
I-5	0.95	0.43	R-20	25X
I-6	1.45	0.37	R-20	17X
I-7	0.39	0.43	R-20	25X

NO.	DESCRIPTION	DATE
1	REVISED PLANS TO REFLECT THE ADDITION OF PART OF PARCEL 47 TO THIS SUBDIVISION	11/15/07
2	REVISE I-7 AND ASSOCIATED PIPE LENGTH DUE TO T-TURN AROUND ADJUST T-TURN AROUND SO THAT THE DRIVEWAYS ON THE SDP WILL ALIGN STRAIGHTER	10/10/07
3	REVISED ROAD GRADES TO BALANCE SITE	
REVISIONS		
4	Elev 15'-5.0' & I-7 but I-7 & I-6; added 15'-5.0' between I-10 & 5-6.	7-16-08

LANDSCAPE DEVELOPER'S CERTIFICATE
I/We certify that the landscaping shown on this plan will be done according to the plan, Section 16124 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.

Walter F. ...
Name
1/22/08
Date

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PEZ
ELLCOTT CITY, MARYLAND 21042
410-461-2000

PLAN
SCALE: 1" = 50'

OWNER
ELLCOTT CITY HOLDING, INC.
5300 DORSEY HALL DRIVE
SUITE 102
ELLCOTT CITY, MARYLAND 21042
410-367-0422

OWNER AND DEVELOPER
1007 LAND, INC.
5300 DORSEY HALL DRIVE
SUITE 102
ELLCOTT CITY, MARYLAND 21042
ATTN: MS. LISA DEVRIES
410-367-0422

REVISED FINAL ROAD CONSTRUCTION PLAN
LANDSCAPE PLAN & DRAINAGE AREA MAP
MILLERS MILL WOODS
LOTS 1 - 16
ZONING: R-20
TAX MAP NO. 17 GRID NO. 12 PARCEL NO. 44 AND PART OF 47
2nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: JANUARY, 2008
SHEET 9 OF 12

FCP NOTES

- THE FOREST CONSERVATION EASEMENTS HAVE BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE, FOREST CONSERVATION ACT. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENTS; HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.
- NO STOCKPILES, PARKING AREAS, EQUIPMENT CLEANING AREAS, ETC. SHALL OCCUR WITHIN AREAS DESIGNATED AS FOREST CONSERVATION EASEMENTS.
- TEMPORARY FENCING SHALL BE USED TO PROTECT FOREST RESOURCES DURING CONSTRUCTION. THE FENCING SHALL BE PLACED ALONG ALL FCE BOUNDARIES WHICH OCCUR WITHIN 15 FEET OF THE PROPOSED LIMITS OF DISTURBANCE.
- PERMANENT SIGNAGE SHALL BE PLACED 50 - 100' APART ALONG THE BOUNDARIES OF ALL AREAS INCLUDED IN FOREST CONSERVATION EASEMENTS.
- THE FOREST CONSERVATION REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE AND FOREST CONSERVATION ACT FOR THIS SUBDIVISION WILL BE FULFILLED BY PROVIDING 1.09 ACRES OF ON-SITE FOREST RETENTION, 1.35 OF ON-SITE REFORESTATION AND THE BALANCE OF 0.43 ACRES OF REFORESTATION OBLIGATION WILL BE PROVIDED BY A FEE-IN-LIEU PAYMENT.
- THE FCA SURETY FOR THIS PROJECT SHALL BE CALCULATED BY THE FOLLOWING:

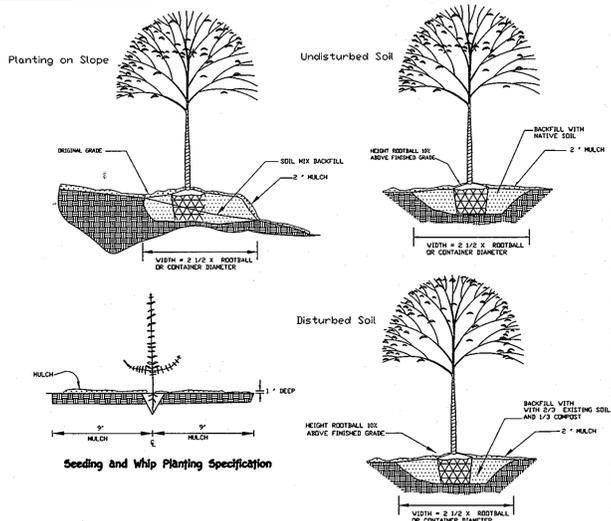
\$0.50/SQ.FT. RETENTION	=	\$3,437.00
\$2.00/SQ.FT. REFORESTATION	=	\$23,403.00
TOTAL SURETY COST	=	\$26,840.00
- THE OUTSTANDING FCA OBLIGATION FOR THIS PROJECT 0.43 ACRES WILL BE MET BY A FEE-IN-LIEU PAYMENT TO THE COUNTY.

THE FEE-IN-LIEU COST FOR OUTSTANDING OBLIGATION	=	\$14,049.00
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- THE PROPOSED TOTAL COST OF FORESTATION WITH FEE-IN-LIEU = \$42,949.00

FOREST CONSERVATION EASEMENT

UNAUTHORIZED DISTURBANCE OF VEGETATION IS PROHIBITED. VIOLATORS SUBJECT TO PENALTIES UNDER THE HOWARD COUNTY FOREST CONSERVATION ACT OF 1993.

TREES FOR YOUR FUTURE



CONTAINER GROWN AND B & B PLANTING TECHNIQUES

FCE Planting Area # 1 - 1.4 acres

Planting units required: 980 (450 whip)

Planting units provided: 900 (469 whips and 12 trees)

Qty	Species	Size	Spacing	Total FCA Units
6	Acer rubrum - Red maple	1" cal	15' o.c.	6
6	Quercus alba - White oak	1" cal	15' o.c.	6
12 Total 1" caliper trees (12 planting units per tree) = 42 Total FCA unit credit				
30	Acer rubrum - Red maple	2-3" whip	11' o.c.	30
30	Cercis canadensis - Red bud	2-3" whip	11' o.c.	30
30	Cornus florida - Flowering dogwood	2-3" whip	11' o.c.	30
30	Liriodendron tulipifera - Tulip poplar	2-3" whip	11' o.c.	30
15	Prunus serotina - Black cherry	2-3" whip	11' o.c.	15
24	Robinia pseudo-acacia - Black locust	2-3" whip	11' o.c.	24
15	Quercus alba - White oak	2-3" whip	11' o.c.	15
15	Viburnum prunifolium - Blackhaw	2-3" whip	11' o.c.	15
469 Total whip plantings (2 planting units per tree) = 938 Total FCA unit credit				
Total Unit Credit				(42 + 938)
				980

1" CAL. TREES = 200/ACRE (12 TREES/200 = 0.06 AC)
 WHIPS w/shelters = 350/ACRE = 350 x 1.34 AC = 469 WHIPS

3.5 Planting units = 1 - 1" Cal. Tree
 2 Planting units = 1 whip

Planting Notes:

Planting units defined by the spacing requirements established in the FCA Manual. One planting unit is defined as 1 seedling or whip without shelter. The Manual states that 700 seedlings/whips without shelters are required per acre, or 350 whips w/shelters, or 200 2" caliper trees, or 100 2" caliper trees. By conversion it has been determined that a seedling or whip without shelter = 1 unit, whip with shelter = 2 units, 1" caliper tree = 3.5 units and 2" caliper tree = 7 units. The use of plant units simplifies the plant density calculations when mixing stock size.

** - These species should not be planted within the wetland limits.

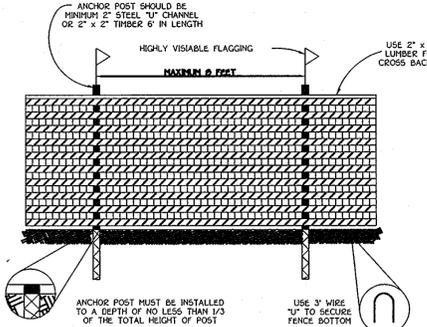
1" caliper trees should be staggered along the outer perimeter of the planting area to serve as demarcation of the boundary. The trees should be no closer than 15 foot spacing, whip spacing to be placed on 11 foot centers, shelters will be required per Howard County policy.

Planting shall be made in a curvilinear fashion along contour. The planting should avoid a grid appearance but should be spaced to facilitate maintenance.

Multiflor rose/heavy brush removal/control may be required prior to installation of planting.

All whips are required to be installed with tree shelters per Howard County FCA requirements.

BLAZE ORANGE PLASTIC MESH



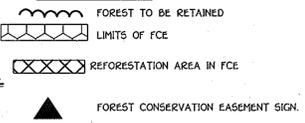
- NOTES:**
- FOREST PROTECTION DEVICE ONLY.
 - RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
 - BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
 - ROOT DAMAGE SHOULD BE AVOIDED.
 - PROTECTIVE SIGNAGE MAY ALSO BE USED.
 - DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

TREE PROTECTION DETAIL

FSD NOTES

- NO RARE, THREATENED OR ENDANGERED SPECIES WERE OBSERVED ON THE PROPERTY.
- SURROUNDING LAND USE IS LOW-MEDIUM DENSITY RESIDENTIAL DEVELOPMENT.
- ALL FOREST ON THE SITE IS WITHIN STAND F-1 AND F-2.
- SPENOTES PUBLIC FOREST CONSERVATION EASEMENT. THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOREST CONSERVATION ACT. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENTS; HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.

FCP LEGEND



Approved: Department Of Public Works
 Chief: Bureau of Highways
 Date: 2-12-08

Approved: Department Of Planning And Zoning
 Chief: Division of Land Development
 Date: 2/15/08

Approved: Department of Engineering
 Chief: Development Engineering Division
 Date: 2/15/08

Planting/Soil Specifications

- Installation of bare-root plant stock shall take place between March 15 - April 20, b&b/container stock March 15 - May 30 or September 15 - November 15. Fall planting of b&b stock is not recommended.
- Disturbed areas shall be seeded and stabilized as per general construction plan for project. Planting areas not impacted by site grading shall have no additional topsoil installed.
- Bare-root plants shall be installed so that the top of root mass is level with the top of existing grade. Soils shall be dipped in an anti-desiccant gel prior to planting. Backfill in the planting pits shall consist of 3 parts existing soil to 1 part pine fines or equivalent.
- Fertilizer shall consist of Agriform 20-20-2, or equivalent, applied as per manufacturer's specifications, for woody plants. Herbaceous plants shall be fertilized with Dynomite 9-9-12.
- Plant material shall be transported to the site in a fitted or covered truck. Plants shall be kept moist prior to planting.
- All non-organic debris associated with the planting operation shall be removed from the site by the contractor.

Sequence of Construction

- Sediment control shall be installed in accordance with general construction plan for site.
- Plants shall be installed as per Plant Schedule and the Planting/Soil Specifications for the project.
- Upon completion of the planting, signage shall be installed as shown.
- Plantings shall be maintained and guaranteed in accordance with the Maintenance and Guarantee requirements for project.

Maintenance of Plantings

- Maintenance of plantings shall last for a period of 2 years.
- Plantings must receive 2 gallons of water, either through precipitation or watering, weekly during the first growing season, as needed. During second growing season, once a month during March-September, if needed.
- Invasive exotics and noxious weeds will be removed, as required, from planting areas mechanically and/or with limited herbicide application (see groundcover note where appropriate). Old field successional species will be retained.
- Plants will be examined a minimum two times during the growing season for serious plant pests and diseases. Serious problems will be treated with the appropriate agent.
- Dead branches will be pruned from plantings.

Guarantee Requirements

- A 75 percent survival rate of forestation plantings will be required at the end of 2 growing seasons. All plants material below the 75 percent threshold will be replaced at the beginning of the next growing season. Wild trees arising from natural regeneration may be counted up to 50 percent towards the total survival number if they are healthy, native species at least 12 inches tall.

Surety for Re-forestation

- The developer shall post a surety bond (letter of credit) to ensure that forestation plantings are completed.

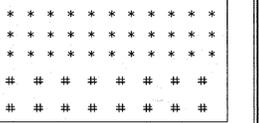
Planting Notes

When possible, plants shall be installed within 24 hours of delivery. If installation cannot be performed within this time frame, plants shall be installed and protected from desiccation.

Application of herbicide, Roundup or equivalent, may be used to reduce plant competition from old field successional growth at the time of installation. However, re-application of herbicide, or a combination thereof, may be used to control unwanted, competing vegetation.

Planting shall be installed within one year or two growing seasons of subdivision approval. Plantings shall be installed in accordance with the time schedule included in Note 1 of the planting/seeding specifications.

PATTERN SPACING DIAGRAM



* - whip w/shelter 11' on center spacing
 # - 1" caliper tree 15' on center spacing
 Species shall be randomly interspersed, rows should be planting along contours

FOREST CONSERVATION WORKSHEET

NET TRACT AREA	ACRES
A. TOTAL TRACT AREA	7.77
B. AREA WITHIN 100 YEAR FLOODPLAIN	0.60
C. AREA TO REMAIN IN AGRICULTURAL PRODUCTION	---
D. NET TRACT AREA (NTA)	7.77

LAND USE CATEGORY: (FROM TABLE 3.21, PAGE 40 MANUAL)

INPUT THE NUMBER "1" UNDER THE APPROPRIATE LAND USE ZONING AND LIMIT TO ONLY ONE ENTRY

AREA	MDR	IDA	HDR	MPD	CIA
1					

E. AFFORESTATION THRESHOLD	15% x D =	1.17
F. CONSERVATION THRESHOLD	20% x D =	1.52

G. EXISTING FOREST COVER (EXCLUDING FLOODPLAIN)	4.96
H. AREA OF FOREST ABOVE AFFORESTATION THRESHOLD	3.79
I. AREA OF FOREST ABOVE CONSERVATION THRESHOLD	3.41

J. FOREST RETENTION ABOVE THRESHOLD WITH NO MITIGATION	2.24
K. CLEARING PERMITTED WITHOUT MITIGATION	2.72

L. TOTAL AREA OF FOREST TO BE CLEARED	3.67
M. TOTAL AREA OF FOREST TO BE RETAINED	1.09

N. REFORESTATION FOR CLEARING ABOVE CONSERVATION THRESHOLD	0.85
P. REFORESTATION FOR CLEARING BELOW CONSERVATION THRESHOLD	0.93
Q. CREDIT FOR RETENTION ABOVE CONSERVATION THRESHOLD	0.00
R. TOTAL REFORESTATION REQUIRED	1.78
S. TOTAL AFFORESTATION REQUIRED	0.00
T. TOTAL REFORESTATION AND AFFORESTATION REQUIRED	1.78

NO.	DESCRIPTION	DATE
3	Revised plans to reflect new inlet, 210, E.S. 5-6 & storm drain alignment.	1/14/08
4	REVISED PLANS TO REFLECT THE ADDITION OF PART OF PARCEL 47 TO THIS SUBDIVISION	11/15/07
5	REVISE I-7 AND ASSOCIATED PIPE LENGTH DUE TO T-TURN AROUND ADJUST T-TURN AROUND SO THAT THE DRIVEWAYS ON THE SDP WILL ALIGN STRAIGHTER	10/10/07
6	REVISED ROAD GRADES TO BALANCE SITE	

REVISED FINAL ROAD CONSTRUCTION PLAN
FOREST CONSERVATION PLAN
MILLERS MILL WOODS
 LOTS 1 - 16

ZONING: R-20
 TAX MAP NO. 17 GRID NO. 12 PARCEL NO. 44 AND PART OF 47
 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 DATE: JANUARY, 2008
 SHEET 10 OF 12



FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK - 1072 BALTIMORE NATIONAL FEE
 ELLICOTT CITY, MARYLAND 21042
 (410) 461-2095

Eco-Science Professionals, Inc.
 CONSULTING ECOLOGISTS

MD DNR Qualified Professional License Wildlife Director
 Certification # WDPC931006100418

JOHN P. CANOLES

OWNER
 ELLICOTT CITY HOLDING, INC.
 5300 DORSEY HALL DRIVE
 SUITE 102
 ELLICOTT CITY, MARYLAND 21042
 410-367-0422

OWNER AND DEVELOPER
 100X LAND, INC
 5300 DORSEY HALL DRIVE
 SUITE 102
 ELLICOTT CITY, MARYLAND 21042
 ATTN: MS. LISA DEVRIES
 410-367-0422

Approved: Department of Public Works
 Chief: *Walter F. Roberts* Date: *6-18-07*

Approved: Department of Planning and Zoning
 Chief: *Andy Hamilton* Date: *6/20/07*

William W. Warrum
 Chief, Development Engineering Division Date: *10/21/07*

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION Page 1 of 1

Project Name: *Kidwell Property - SWM* Boring Number: *SWM-1*
 Location: *Howard County, Maryland* Job #: *02291A*

Sampler: *Lamont Smith*
 Date Started: *06-12-02* Date Completed: *06-12-02*

ELEV.	SOIL DESCRIPTION	DEPTH	SCALE	CON.	SAMPLE BLOWS	NO.	REC.	BORING & SAMPLING NOTES
0.0	SURFACE	0.0						4" Topsoil
1.0	Brown, dry, dense, fine to medium sand (SP)	1.0		D	3-11-25	1	10'	No groundwater encountered while drilling
2.5	Tan, dry, very dense, fine to medium sand (SP) (Decomposed Rock)	2.5		D	516"	2	6"	Caved in at 3.5' at Completion
5.0		5.0		D	15-11-13	3	16"	Caved in at 2.5' after 24 hours
8.0		8.0		D	12-11-13	4	12"	
10.0	Bottom of Hole at 10.0'	10.0						

STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1" WITH 140# HAMMER FALLING 30" COUNT MADE AT 6" INTERVALS

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION Page 1 of 1

Project Name: *Kidwell Property - SWM* Boring Number: *SWM-2*
 Location: *Howard County, Maryland* Job #: *02291A*

Sampler: *Lamont Smith*
 Date Started: *06-12-02* Date Completed: *06-12-02*

ELEV.	SOIL DESCRIPTION	DEPTH	SCALE	CON.	SAMPLE BLOWS	NO.	REC.	BORING & SAMPLING NOTES
0.0	SURFACE	0.0						4" Topsoil
1.0	Brown and tan, dry, medium dense fine sand trace rock fragments (SP)	1.0		D	57-9	1	12"	No groundwater encountered while drilling
2.0		2.0		D	87-6	2	11"	
5.0	Tan and gray, dry, very dense fine sand trace rock fragments (SP) (Decomposed Rock)	5.0		D	514"	3	4"	Caved in at 5.0' at Completion
8.8		8.8		D	512"	4	5"	Caved in at 6.5' after 24 hours
10.0	Bottom of Hole at 8.8'	10.0						

STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1" WITH 140# HAMMER FALLING 30" COUNT MADE AT 6" INTERVALS

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION Page 1 of 1

Project Name: *Kidwell Property - SWM* Boring Number: *SWM-3*
 Location: *Howard County, Maryland* Job #: *02291A*

Sampler: *Lamont Smith*
 Date Started: *06-12-02* Date Completed: *06-12-02*

ELEV.	SOIL DESCRIPTION	DEPTH	SCALE	CON.	SAMPLE BLOWS	NO.	REC.	BORING & SAMPLING NOTES
0.0	SURFACE	0.0						5" Topsoil
1.0	Brown to tan and gray, moist, loose silty sand trace roots (SM)	1.0		D	2-3-5	1	13"	No groundwater encountered while drilling
2.0		2.0		D	3-3-4	2	16"	
3.0		3.0		D	3-5-7	3	18"	
6.0	Tan and gray medium dense fine sand (SP)	6.0		D	6-9-9	4	12"	Caved in at 7.0' at Completion
12.0		12.0		D	5-6-9	5	16"	Caved in at 6.0' after 24 hours
20.0	Bottom of Hole at 12.0'	20.0						

STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1" WITH 140# HAMMER FALLING 30" COUNT MADE AT 6" INTERVALS

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION Page 1 of 1

Project Name: *Kidwell Property - SWM* Boring Number: *SWM-4*
 Location: *Howard County, Maryland* Job #: *02291A*

Sampler: *Lamont Smith*
 Date Started: *06-11-02* Date Completed: *06-11-02*

ELEV.	SOIL DESCRIPTION	DEPTH	SCALE	CON.	SAMPLE BLOWS	NO.	REC.	BORING & SAMPLING NOTES
0.0	SURFACE	0.0						5" Topsoil
1.0	Brown, moist, medium dense silty sand (SM)	1.0		D	2-4-6	1	14"	No groundwater encountered while drilling
2.0		2.0		D	7-9-11	2	10"	
5.5	Brown, moist, medium dense, silty sand with trace rock (SM)	5.5		D	2-5-7	3	11"	Caved in at 5.5' at Completion
7.5		7.5		D	6-5-6	4	12"	Caved in at 1.1' after 24 hours
10.0	Bottom of Hole at 10.0'	10.0						

STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1" WITH 140# HAMMER FALLING 30" COUNT MADE AT 6" INTERVALS

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION Page 1 of 1

Project Name: *Kidwell Property - SWM* Boring Number: *SWM-5*
 Location: *Howard County, Maryland* Job #: *02291A*

Sampler: *Lamont Smith*
 Date Started: *06-11-02* Date Completed: *06-11-02*

ELEV.	SOIL DESCRIPTION	DEPTH	SCALE	CON.	SAMPLE BLOWS	NO.	REC.	BORING & SAMPLING NOTES
0.0	SURFACE	0.0						5" Topsoil
1.0	Brown, moist, medium dense, silty sand (SM)	1.0		D	1-0-2	1	16"	No groundwater encountered while drilling
2.0		2.0		D	4-5-6	2	16"	
3.0		3.0		D	7-8-8	3	16"	Caved in at 7.0' at completion
4.0		4.0		D	7-9-11	4	16"	Caved in at 1.9' after 24 hours
10.0	Bottom of Hole at 10.0'	10.0						

STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1" WITH 140# HAMMER FALLING 30" COUNT MADE AT 6" INTERVALS

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION Page 1 of 1

Project Name: *Kidwell Property - SWM* Boring Number: *SWM-6*
 Location: *Howard County, Maryland* Job #: *02291A*

Sampler: *Lamont Smith*
 Date Started: *06-10-02* Date Completed: *06-10-02*

ELEV.	SOIL DESCRIPTION	DEPTH	SCALE	CON.	SAMPLE BLOWS	NO.	REC.	BORING & SAMPLING NOTES
0.0	SURFACE	0.0						5" Topsoil
1.0	Brown, moist, medium dense silty sand (SM)	1.0		D	2-3-6	1	11"	No groundwater encountered while drilling
2.0		2.0		D	8-9-10	2	16"	
5.0	Brown, gray, moist, medium dense silty sand with quartz fragments (SM)	5.0		D	7-9-9	3	14"	
8.5		8.5		D	3-4-5	4	13"	
15.0	Bottom of Hole at 15.0'	15.0		D	7-6-7	5	14"	Caved in at 10.0' at Completion

STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1" WITH 140# HAMMER FALLING 30" COUNT MADE AT 6" INTERVALS

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION Page 1 of 1

Project Name: *Kidwell Property - SWM* Boring Number: *SWM-7*
 Location: *Howard County, Maryland* Job #: *02291A*

Sampler: *Lamont Smith*
 Date Started: *06-10-02* Date Completed: *06-10-02*

ELEV.	SOIL DESCRIPTION	DEPTH	SCALE	CON.	SAMPLE BLOWS	NO.	REC.	BORING & SAMPLING NOTES
0.0	SURFACE	0.0						5" Topsoil
1.0	Brown, moist, medium dense silty sand with rock fragments (SM)	1.0		D	2-3-4	1	16"	No groundwater encountered while drilling
2.0		2.0		D	7-6-5	2	17"	
3.0		3.0		D	3-4-6	3	16"	
5.0	Brown, gray, moist, medium dense silty sand (SM)	5.0		D	5-5-6	4	15"	Caved in at 10.0' at Completion
15.0	Bottom of Hole at 15.0'	15.0		D	7-6-7	5	12"	Caved in at 3.0' after 24 hours

STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1" WITH 140# HAMMER FALLING 30" COUNT MADE AT 6" INTERVALS

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
 ELICOTT CITY, MARYLAND 21042
 410-461-2255

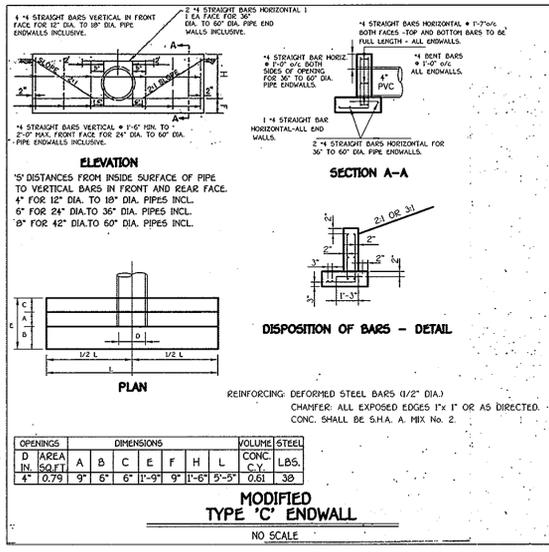


NO.	DESCRIPTION	DATE
1	REV. PLANS TO REFLECT THE ADDITION OF PART OF PARCEL 47 TO THIS SUBDIVISION	11/19/07
2	REV. I-T AND ASSOCIATED PIPELENGTH DUE TO T-TURN AROUND ADJUST T-TURN AROUND SO DRIVEWAYS ON THE SDP WILL ALIGN STRAIGHT	10/10/07

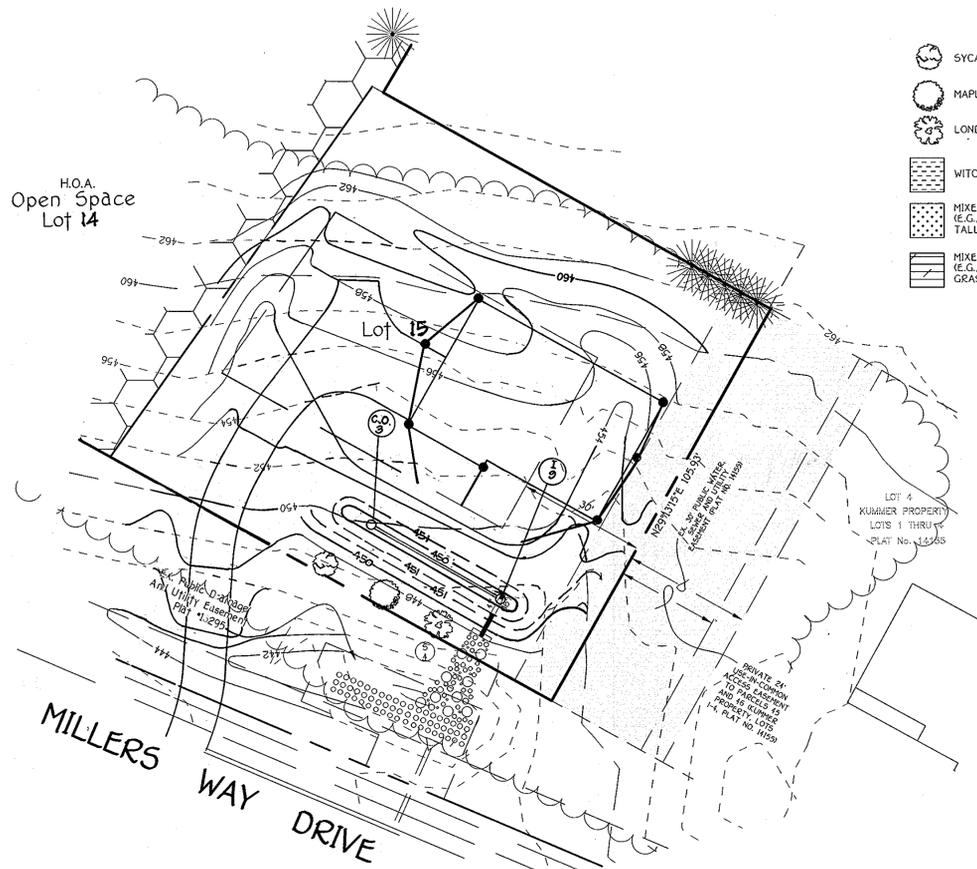
DEVELOPER
 100% LAND, INC.
 5300 DORSEY HALL DRIVE
 SUITE 102
 ELLICOTT CITY, MARYLAND 21042
 ATTN: MS. LISA DEVRIES
 410-367-0422

OWNERS
 ELLICOTT CITY HOLDING, INC.
 5300 DORSEY HALL DRIVE
 SUITE 102
 ELLICOTT CITY, MARYLAND 21042
 410-267-0422

SOIL BORINGS
 MILLERS MILL WOODS
 LOTS 1 - 16
 ZONING R-20 PART OF PARCEL 47 AND GRID No. 12 PARCEL No. 14
 TAX MAP NO. 17 HOWARD COUNTY, MARYLAND
 2nd ELECTION DISTRICT DATE: JANUARY 7, 2009
 SHEET 11 OF 12



H.O.A. Open Space Lot 14



Infiltration and Filter System Construction Specifications

Infiltration and filter systems either take advantage of existing permeable soils or create a permeable medium such as sand for WC, and Re V. In some instances where permeability is great, these facilities may be used for Qp as well. The most common systems include infiltration trenches, infiltration basins, sand filters, and organic filters.

Design Constraints:

- Planting buffer strips of at least 20 feet will cause sediments to settle out before reaching the facility, thereby reducing the possibility of clogging.
- Determine areas that will be saturated with water and water table depth so that appropriate plants may be selected hydrology will be similar to bioretention facilities, see figure A.3 and Table A.4 for planting material guidance.
- Plants known to send down deep taproots should be avoided in systems where filter fabric is used as part of facility design.
- Test soil conditions to determine if soil amendments are necessary.
- Plants shall be located so that access is possible for structure maintenance.
- Stabilize heavy flow areas with erosion control mats or sod.
- Temporarily divert flows from seeded areas until vegetation is established.
- See Table A.5 for additional design considerations.

Bio-retention Soil Bed Characteristics

The characteristics of the soil for the bioretention facility are perhaps as important as the facility location, size, and treatment volume. The soil must be permeable enough to allow runoff to filter through the media, while having characteristics suitable to promote and sustain a robust vegetative cover crop. In addition, much of the nutrient pollutant uptake (nitrogen and phosphorus) is accomplished through absorption and microbial activity within the soil profile. Therefore, soils must balance their chemical and physical properties to support biotic communities above and below ground.

The planting soil should be a sandy loam, loamy sand, loam (USDA), or a loam/sand mix (should contain a minimum 35 to 60% sand, by volume). The clay content for these soils should be less than 25% by volume (Environmental Quality Resources (EQ), 1996, Engineering Technology Inc. and Biobility, Inc. (ET&B), 1993). Soils should fall within the SM, ML, SC classifications or the Unified Soil Classification System (USCS). A permeability of at least 10 feet per day (0.57") is required (a conservative value of 0.5 feet per day is used for design). The soil should be free of stones, stumps, roots, or other woody material over 1" in diameter. Brush or seeds from noxious weeds (e.g., Johnson Grass, Mayweed, Nutcracker and Canada Thistle or other noxious weeds as specified under COMAR 15.08.01.05) should not be present in the soils. Placement of the planting soil should be in 12 to 18 lifts that are loosely compacted (tamped lightly with a backhoe bucket or traversed by dozer tracks). The specific characteristics are presented in Table A.3.

Parameter	Value
pH range	5.2 to 7.00
Organic matter	1.5 to 4.0% (by weight)
Magnesium	35 lbs. per acre, minimum
Phosphorus (phosphate - P2O5)	75 lbs. per acre, minimum
Potassium (potash - K2O)	85 lbs. per acre, minimum
Soluble salts	500 ppm
Clay	10 to 25 %
Silt	30 to 55 %
Sand	35 to 60%

Mulch Layer

The mulch layer plays an important role in the performance of the bioretention system. The mulch layer helps maintain soil moisture and avoids surface sealing, which reduces permeability. Mulch helps prevent erosion, and provides a microenvironment suitable for soil biota at the mulch/soil interface. It also serves as a pretreatment layer, trapping the finer sediments, which remain suspended after the primary pretreatment.

Planting Guidance

Plant material selection should be based on the goal of simulating a terrestrial forested community of native species. Bioretention simulates an upland-species ecosystem. The community should be dominated by trees, but have a distinct community of understory trees, shrubs and herbaceous materials. By creating a diverse, dense plant cover, a bioretention facility will be able to treat stormwater runoff and withstand urban stresses from insects, disease, drought, temperature, wind, and exposure.

The proper selection and installation of plant materials is key to a successful system. There are essentially three zones within a bioretention facility (Figure A.5). The lowest elevation supports plant species adapted to standing and fluctuating water levels. The middle elevation supports plants that like drier soil conditions, but can still tolerate occasional inundation by water. The outer edge is the highest elevation and generally supports plants adapted to drier conditions. A sample of appropriate plant materials for bioretention facilities are included in Table A.4. The layout of plant material should be flexible, but should follow the general principals described in Table A.5. The objective is to have a system, which resembles a random, and natural plant layout, while maintaining optimal conditions for plant establishment and growth. For a more extensive bioretention plan, consult ET&B, 1993 or Claytor and Schuler, 1997.

By The Developer:
I/We Certify That All Development And/Or Construction Will Be Done According To These Plans, 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 Shall Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion. I Also Authorize Periodic On-Site Inspections By The Howard Soil Conservation District.

Signature: *Donald R. Power* Date: 5/10/07

By The Engineer:
I Certify That These Plans Have Been Reviewed For The Howard Soil Conservation District And Meet The Technical Requirements For Small Pond Construction, Erosion And Sediment Control Represents A Practical And Feasible Solution On My Personal Knowledge Of The Site Conditions. This Plan Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District. I Have Reviewed The Plans And I/We Must Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Within 30 Days Of Completion.

Signature: *Alvin...* Date: 5/10/07

By The Engineer:
These Plans Have Been Reviewed For The Howard Soil Conservation District And Meet The Technical Requirements For Small Pond Construction, Erosion And Sediment Control.

Signature: *Jim...* Date: 5/23/07

Approved Department of Public Works
Signature: *...* Date: 6-18-07

Approved Department of Planning And Zoning
Signature: *...* Date: 6/23/07
Signature: *...* Date: 10/21/07

AS-BUILT CERTIFICATION

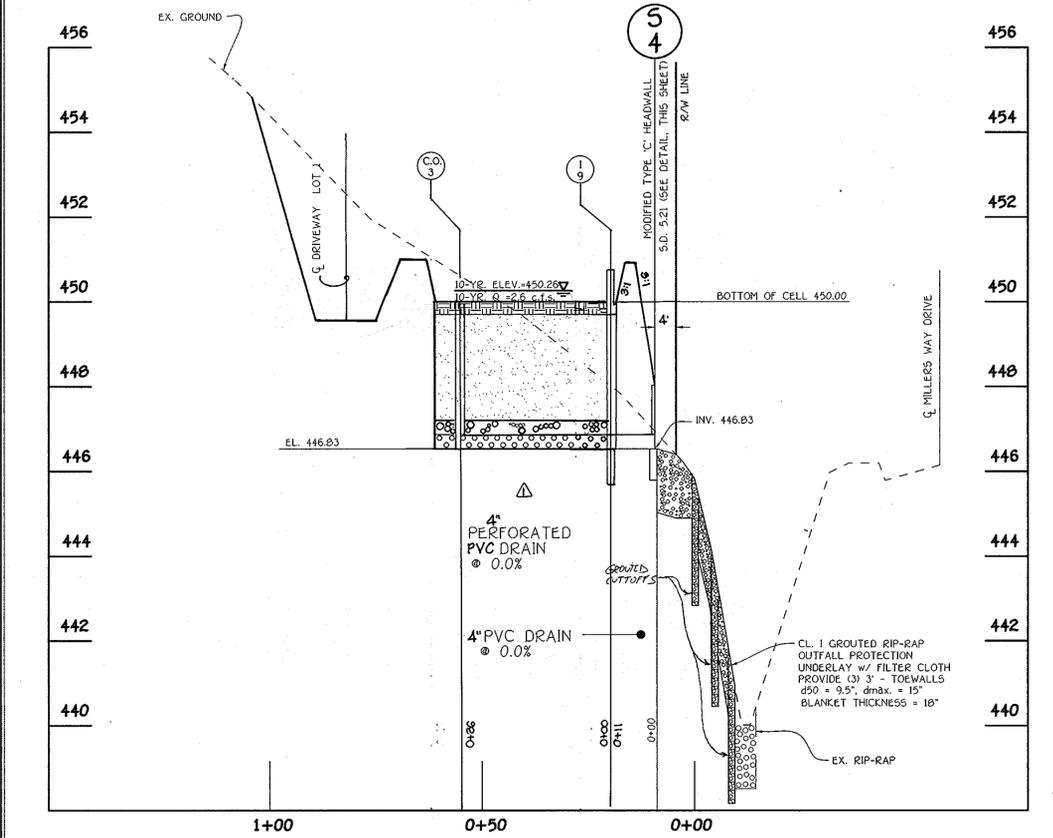
I hereby certify that the Facility shown on this Plan was constructed as shown on the "As-Built" Plans and Meets the Approved Plans and Specifications.

Signature: _____ P.E. No. _____
Date: _____

Certify Meets To State Or Decline A Professional Opinion Based Upon Onsite Inspections And Material Tests Which Are Conducted During Construction. The Onsite Inspections And Material Tests Are Those Inspections And Tests Deemed Sufficient And Appropriate Commonly Accepted Engineering Standards. Certify Does Not Mean Or Imply A Guarantee By The Engineer Nor Does An Engineer's Certification Relieve Any Other Party From Meeting Requirements Imposed By Contract, Employment, Or Other Means, Including Meeting Commonly Accepted Industry Practices.

NO.	REVISIONS	DATE
1	REVISED PLANS TO REFLECT THE ADDITION OF PART OF PARCEL 47 TO THIS SUBDIVISION	11/19/07
2	REVISE L-7 AND ASSOCIATED PIPE LENGTH DUE TO TURN AROUND ADJUST TURN AROUND SO THAT THE DRIVEWAYS ON THE SDP WILL ALIGN STRAIGHTER	10/10/07
3	REVISED ROAD GRADES TO BALANCE SITE	10/10/07

NUMBER	DATE	DESCRIPTION
10/10/07	Rev. Bioretention Area Lot 1 to Facilitate a house on the SDP	REVISION BLOCK



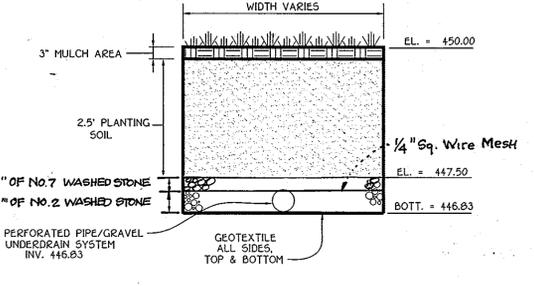
Permanent Storm Water Management Facility No. 2 Bio-Retention Facility

QUANTITY	SPECIES	NAME	MAXIMUM SPACING (FT)
1	TREE SPECIES	RED MAPLE	12
1	TREE SPECIES	BLOODGOOD LONDON PLANE	12
1	TREE SPECIES	SYCAMORE	12
10	SHRUB SPECIES	WITCH HAZEL	12
10	SHRUB SPECIES	RED OSLER DOGWOOD	12
N/A	MIXED PERENNIALS AND GRASSES	BLUEJOINT	N/A

NOTE: THE PLANTING SCHEDULE AND SPECIES FOR CELL 1 IS FOR DESIGN PURPOSES. PLANT DISTRIBUTION AND TYPES MAY BE SUBSTITUTED WITH SPECIES LISTED IN THE "DESIGN MANUAL FOR BIO-RETENTION IN STORM WATER MANAGEMENT" PRINCE GEORGES COUNTY GOVERNMENT.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED BIO-RETENTION FACILITIES

- THE STORMWATER WETLAND FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE FACILITY IS FUNCTIONING PROPERLY.
- THE TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF ONCE PER YEAR, WHEN VEGETATION REACHES 18" IN HEIGHT OR AS NEEDED.
- FILTERS THAT HAVE A GRASS COVER SHALL BE MOWED A MINIMUM OF THREE (3) TIMES PER GROWING SEASON TO MAINTAIN A MAXIMUM GRASS HEIGHT OF LESS THAN 12 INCHES.
- DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
- VISIBLE SIGNS OF EROSION IN THE FACILITY SHALL BE REPAIRED AS SOON AS IT IS NOTICED.
- REMOVE SILT WHEN IT EXCEEDS FOUR (4) INCHES DEEP IN THE FOREBAY.
- WHEN WATER PONDS ON THE SURFACE OF THE FILTER BED FOR MORE THAN 72 HOURS, THE TOP FEW INCHES OF DISCOLORED MATERIAL SHALL BE REPLACED WITH FRESH MATERIAL. THE OWNER MUST FOLLOW PROPER CLEANING AND DISPOSAL OF THE REMOVED MATERIALS AND LIQUID.
- A LOGBOOK SHALL BE MAINTAINED TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
- THE MAINTENANCE LOGBOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
- ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION SYSTEM HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.



TYPICAL SECTION - BIO-RETENTION FILTER
SCALE: 1" = 2'

Table B.3.2 Materials Specifications for Bioretention

Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
planting soil (2.5' to 4' deep)	sand 35-60% silt 30-55% clay 10-25%	n/a	USDA soil types loamy sand, sandy loam or loam
mulch	shredded hardwood		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
underdrain gravel	AASHTO M-43	0.375" to 0.75"	
underdrain piping	F 750, Type P5 20 or AASHTO M-270	4" to 6" rigid schedule 40 PVC or SDR35	3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underwidth pipes
poured in place concrete (if required)	MSHA, Mix No. 3, f'c= 3500 psi @ 28 days, normal weight, air-entrained; reinforcing to meet ASTM-615-60	n/a	on-site testing of poured-in-place concrete required: 28 day strength and slump test; all concrete 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 350.8/89, vertical loading (H-10 or H-20), allowable horizontal loading based on soil pressure and analysis of potential cracking
Sand (1' deep)	AASHTO M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone N10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for Sand.

STORMWATER MANAGEMENT NOTES AND DETAILS
BMP NO. 2
MILLERS MILL WOODS
LOTS 1 - 1G
ZONING: R-20
TAX MAP NO. 17 GRID NO. 12 PARCEL NO. 44 AND PART OF PARCEL 47
2nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: JANUARY, 2008
SHEET 12 OF 12

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELICOTT CITY, MARYLAND 21042
(410) 461-2255



SECTION 'A-A' PROFILE THRU BIO-RETENTION FACILITY
SCALE: HORIZ. 1" = 20'
VERT. 1" = 2'

OWNERS
ELICOTT CITY HOLDING, INC. 100% LAND, INC.
5900 DORSEY HALL DRIVE 5900 DORSEY HALL DRIVE
SUITE 102 SUITE 102
ELICOTT CITY, MARYLAND 21042 ELICOTT CITY, MARYLAND 21042
ATTN: MS. LISA DEVLIN ATTN: MS. LISA DEVLIN
410-367-0422 410-367-0422

DEVELOPER
100% LAND, INC.
5900 DORSEY HALL DRIVE
SUITE 102
ELICOTT CITY, MARYLAND 21042
ATTN: MS. LISA DEVLIN
410-367-0422