

SHEET INDEX	
NO	DESCRIPTION
1	TITLE SHEET
2	FINAL PLAN
3	FINAL PLAN
4	FINAL GRADING AND SEDIMENT CONTROL PLAN AND SOILS MAP
5	FINAL GRADING AND SEDIMENT CONTROL PLAN AND SOILS MAP
6	FINAL LANDSCAPE PLAN
7	FINAL LANDSCAPE PLAN
8	FINAL LANDSCAPE NOTES AND DETAILS
9	40' USE-IN-COMMON PLAN AND PROFILE
10	FINAL SEDIMENT AND EROSION CONTROL DETAILS AND RAINGARDEN NOTES
11	SEDIMENT AND EROSION CONTROL NOTES
12	SOIL BORING LOGS

**GENERAL NOTES**

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/ CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
- ALL PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
- THE EXISTING TOPOGRAPHY IS TAKEN FROM FIELD RUN SURVEY WITH MAXIMUM TWO FOOT CONTOUR INTERVALS PREPARED BY PATTON HARRIS RUST & ASSOCIATES DATED SEPTEMBER 27, 2005.
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 06C6 AND 06CA WERE USED FOR THIS PROJECT.
- WATER IS PRIVATE.
- SEWER IS PRIVATE.
- THE STORMWATER MANAGEMENT REQUIREMENTS FOR THIS SITE WILL BE PROVIDED BY THE NATURAL AREA CONSERVATION CREDIT. THE DISCONNECTION OF NON-ROOFTOP RUNOFF CREDIT AND THE DISCONNECTION OF ROOFTOP RUNOFF CREDIT USING RAINGARDENS (2 PER LOT). A STORMWATER MANAGEMENT SYSTEM HAS BEEN DEVELOPED AND APPROVED UNDER F-06-148. STORMWATER MANAGEMENT SHOWN ON THESE PLANS SHALL BE REASSESSED AT TIME OF FINAL PLOT PLAN/BUILDING PERMIT BASED ON FINAL SITE LAYOUT AND BUILDING SIZE. ANY CHANGES REQUIRED TO STORMWATER MANAGEMENT SHOWN SHALL BE DESIGNED AND APPROVED AT THAT TIME. ADDITIONAL SOIL BORINGS WILL BE PROVIDED AT THAT TIME AS MAY BE REQUIRED.
- APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE. EXISTING UTILITIES ARE SHOWN BASED ON THE BEST AVAILABLE INFORMATION.
- THE FLOODPLAIN STUDY FOR THIS PROJECT WAS PREPARED BY PHR+A, DATED OCTOBER 23, 2006, AND WAS APPROVED ON DECEMBER 4, 2006 (UNDER F-06-148).
- THE WETLANDS DELINEATION STUDY FOR THIS PROJECT WAS PREPARED BY BRAY HILL, LLC, DATED AUGUST 2005, AND WAS APPROVED ON DECEMBER 4, 2006 (UNDER F-06-148). THERE ARE NO WETLANDS ON SITE THAT WILL BE DISTURBED OR THAT WILL REQUIRE 401 AND 404 WETLANDS PERMITS FROM THE STATE OF MARYLAND.
- A TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY TRAFFIC CONCEPTS DATED SEPTEMBER 2005 AND APPROVED ON MAY 3, 2006.
- A NOISE STUDY FOR THIS PROJECT IS NOT REQUIRED.
- THE BOUNDARY SURVEY FOR THIS PROJECT WAS PREPARED BY PATTON HARRIS RUST & ASSOCIATES DATED SEPTEMBER 2005.
- SUBJECT PROPERTY ZONED RC-DEO PER 02-02-04 COMPREHENSIVE ZONING PLAN AND THE "COMP LITE" ZONING AMENDMENTS EFFECTIVE 7-28-06.
- ALL ELEVATIONS SHOWN ARE BASED ON THE U.S.C. AND G.S. MEAN SEA LEVEL DATUM, 1929.
- SEE DEPARTMENT OF PLANNING AND ZONING FILE NO'S: WP-06-022 (WAIVER WAS DENIED), SP-06-009, F-06-148.
- THE CONTRACTOR SHALL TEST PIT EXISTING UTILITIES AT LEAST (5) DAYS BEFORE STARTING WORK SHOWN ON THESE DRAWINGS.
- CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS.
- PIPE SHALL NOT BE INSTALLED BY THE CONTRACTOR UNTIL THE LENGTH CALLED FOR AT EACH STATION HAS BEEN APPROVED BY THE ENGINEER IN THE FIELD.
- NO PIPE SHALL BE LAID UNTIL LINES OF EXCAVATION HAVE BEEN BROUGHT WITHIN 6" OF FINISHED GRADE.
- ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
- PROFILE STATIONS SHALL BE ADJUSTED AS NECESSARY TO CONFORM TO PLAN DIMENSIONS.
- ALL FILL AREAS WITHIN ROADWAY AND UNDER STRUCTURES TO BE COMPACTED TO A MINIMUM OF 95% COMPACTION OF AASHTO T180.
- ALL LIGHTING IS TO BE DIRECTED/REFLECTED AWAY FROM ADJACENT PUBLIC ROADS AND RESIDENTIALLY ZONED PROPERTIES, AND BE IN ACCORDANCE WITH SECTION 134 OF THE HOWARD COUNTY ZONING REGULATIONS.
- THERE ARE TWO EXISTING PERMANENT STRUCTURES ON-SITE. THE HOUSE (BUILT IN 1957) AND GARAGE (CIRCA 1957) WILL REMAIN.
- NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE LIMITS OF WETLANDS, STREAM(S), OR THEIR REQUIRED BUFFERS, FLOODPLAIN AND FOREST CONSERVATION EASEMENT AREAS.
- BASED ON AVAILABLE COUNTY MAPS AND RECORDS, THERE ARE NO HISTORIC STRUCTURES OR KNOWN CEMETERIES LOCATED ON THE SUBJECT PROPERTY.
- FOREST CONSERVATION OBLIGATIONS FOR THE SOBUS PROPERTY HAVE BEEN ADDRESSED UNDER F-06-148.
- PRESERVATION PARCEL A HAS NO FURTHER SUBDIVISION POTENTIAL. A PRESERVATION PARCEL EASEMENT FOR THE REQUIRED PRESERVATION AREA FOR THE CLUSTER LOTS SHALL BE RECORDED AT THE SAME TIME THAT THE FINAL PLANS ARE RECORDED FOR THE CLUSTER LOTS IN THIS SUBDIVISION.
- A FOREST STAND DELINEATION REPORT HAS BEEN PROVIDED WITH F-06-148.
- IN CONJUNCTION WITH BUILDING AND GRADING PERMITS FOR LOTS 1, 3-6 AND PRIOR TO THE ISSUANCE OF ANY OCCUPANCY PERMITS FOR LOTS 1 OR 3-6, THE EXISTING GRAVEL DRIVEWAY ON PROPOSED LOT 3 MUST BE REMOVED AND THE USE-IN-COMMON DRIVEWAY CONSTRUCTED.
- CLEARING (LIMIT OF DISTURBANCE) ON THE EASTERN SIDE OF LOTS 4-6 IS THE ULTIMATE LIMIT OF DISTURBANCE. TREE CLEARING AND TREE PROTECTION IN THIS AREA WILL NOT OCCUR UNTIL SUCH TIME AS REPLACEMENT SEPTIC SYSTEMS ARE INSTALLED.
- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING WILL BE POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$12,900.00 FOR 32 SHADE TREES, 0 ORNAMENTAL TREES, 22 EVERGREEN TREES, AND 0 SHRUBS.
- THE SIGHT DISTANCE ANALYSIS FOR THIS PROJECT WAS APPROVED UNDER F-06-148 ON SEPTEMBER 14, 2006.
- THIS DEVELOPMENT AND ROADS WILL NOT IMPACT WETLANDS, STREAMS, ENVIRONMENTAL BUFFERS, OR FLOODPLAIN AREA.
- AN ADDRESS RANGE SIGN IS PROPOSED AT THE INTERSECTION OF THE DRIVEWAY AND LONG CORNER ROAD. ADDRESSES MUST BE A MINIMUM OF 3" PLAIN BLOCK LETTERS.

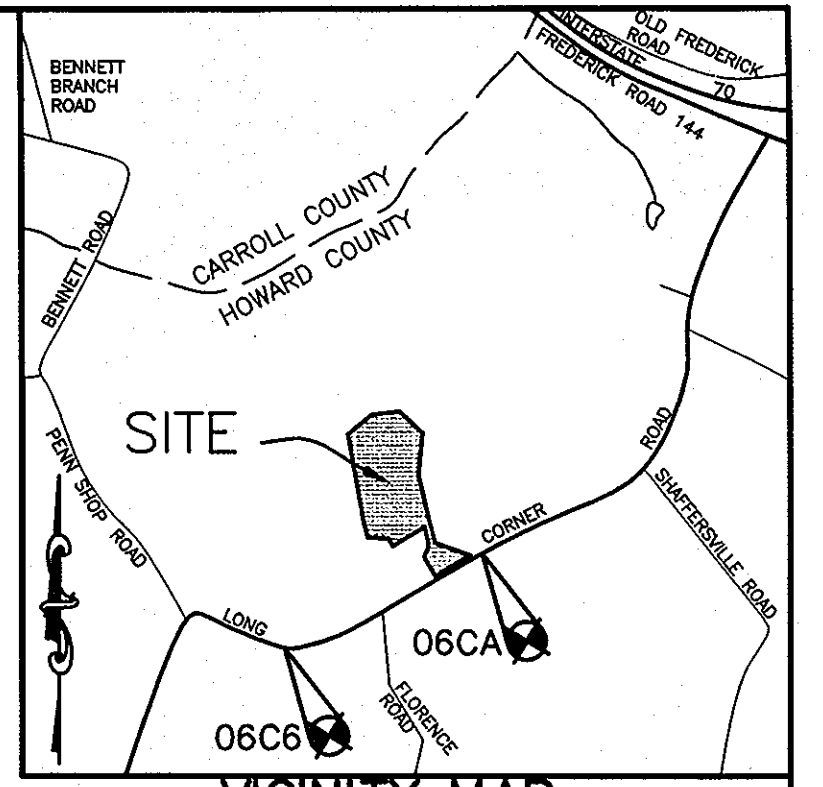
# FINAL PLANS

## SOBUS PROPERTY

### LOTS 3-6 AND BUILDABLE PRESERVATION PARCEL A

#### 4TH ELECTION DISTRICT

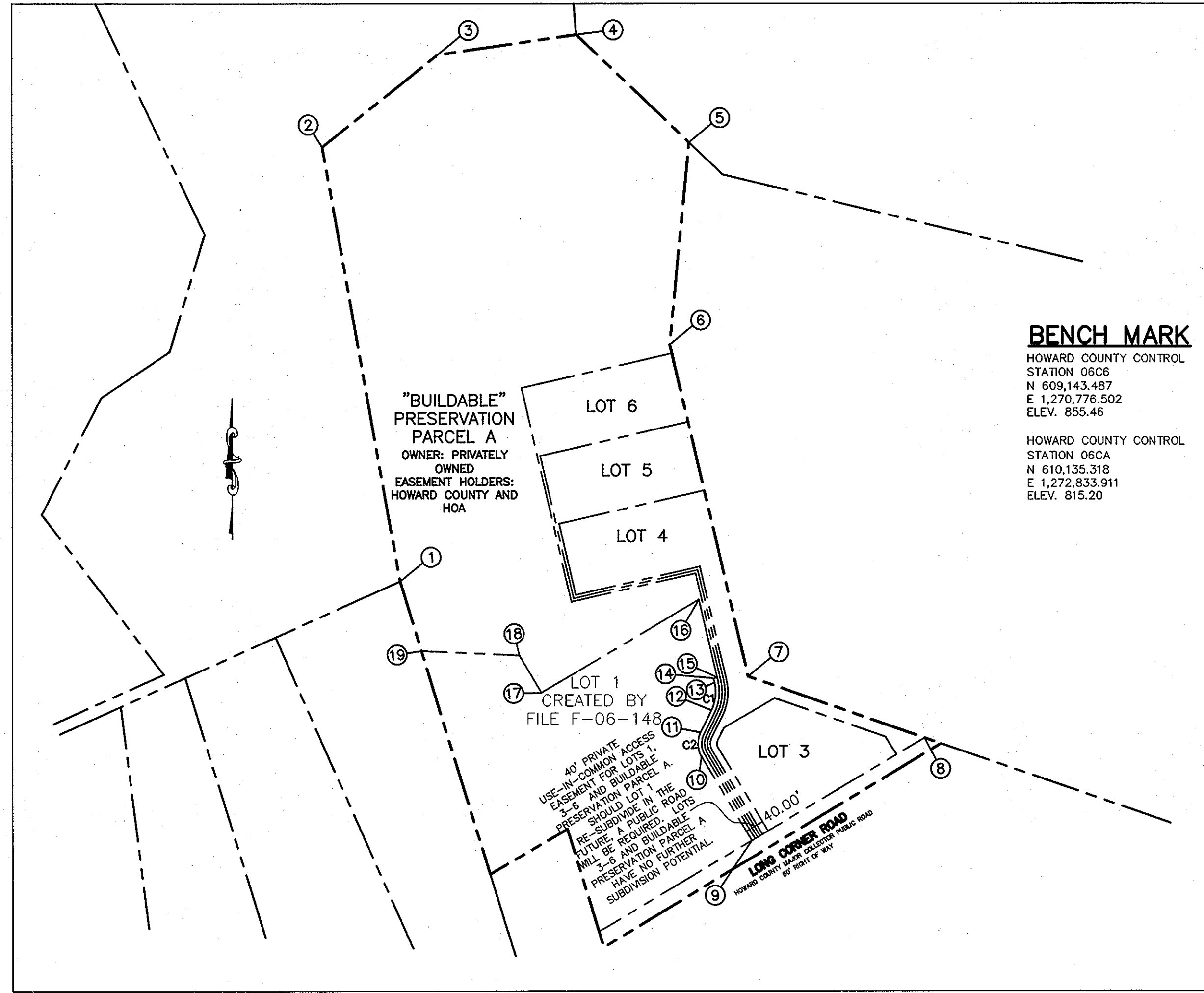
#### HOWARD COUNTY, MARYLAND



**VICINITY MAP**  
SCALE: 1"=2000'  
COPYRIGHT AND THE MAP PEOPLE  
PERMITTED USE NO. 2071188  
MAP 2: GRID E9

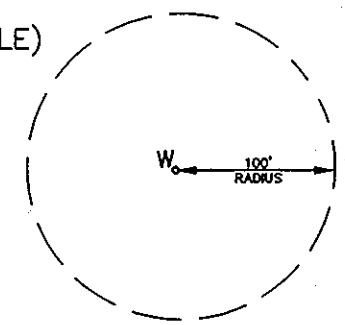
**AREA TABULATION CHART**

EXISTING ZONING:	RC-DEO
GROSS AREA OF SITE:	21.87 ACRES (952,773 SF)
AREA IN 100 YEAR FLOODPLAIN:	0.35 ACRES
AREA OF STEEP SLOPES:	0.34 ACRES (15,032 SF)
NET TRACT AREA:	21.87 ACRES
AREA OF RIGHT-OF-WAY DEDICATION:	0 ACRES (ROW DEDICATED UNDER F-06-148)
AREA OF PROPOSED RIGHT-OF-WAY:	0.36 ACRES (15,833 SF)
AREA OF PROPOSED BUILDABLE LOTS:	5,7532 ACRES
AREA OF BUILDABLE PRESERVATION PARCELS:	16.12 ACRES
AREA OF REQUIRED OPEN SPACE:	0 ACRES
LIMIT OF DISTURBED AREA:	4.69 ACRES
NUMBER OF BUILDABLE LOTS:	4 LOTS
NUMBER OF BUILDABLE PRESERVATION PARCELS:	1 (HOUSE ALREADY EXISTS AND WILL REMAIN)
NUMBER OF NON-BUILDABLE PRESERVATION PARCELS:	0
NUMBER OF OPEN SPACE LOTS:	0
PROPOSED WATER AND SEWER:	PRIVATE WELL AND SEPTIC
EXISTING USES:	EXISTING HOME, CORNFIELD, AND WOODS
PROPOSED USES:	4 LOTS
LOTS 3-6 AND PRESERVATION PARCEL A WILL BE CLUSTER DEVELOPMENT.	
CLUSTER DEVELOPMENT BASE DENSITY:	21.87 ACRES / 4.25 UNITS PER ACRE = 5 UNITS ALLOWED



**WATER AND SEWER GENERAL NOTES:**

- THIS AREA DESIGNATES A PRIVATE SEWAGE DISPOSAL EASEMENT OF AT LEAST 10,000 SQUARE FEET AS REQUIRED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL. IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED. THESE EASEMENTS SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWERAGE SYSTEM. THE COUNTY HEALTH OFFICER SHALL HAVE THE AUTHORITY TO GRANT ADJUSTMENTS TO THE PRIVATE SEWAGE EASEMENT. RECORDATION OF A REVISED SEWAGE EASEMENT SHALL NOT BE NECESSARY.
- PERC HOLES SHOWN HEREON HAVE BEEN FIELD LOCATED BY O'CONNELL & LAWRENCE IN JUNE 2005.
- DENOTES PASSING PERC TEST.
- DENOTES FAILED PERC TEST.
- WELLS AND SEPTIC SYSTEMS WITHIN 100 FEET OF THE PROPERTY BOUNDARY HAVE BEEN SHOWN TO THE BEST OF OUR KNOWLEDGE AND INFORMATION FROM AVAILABLE COUNTY RECORDS.
- THE LOTS SHOWN HEREON COMPLY WITH THE MINIMUM OWNERSHIP WIDTH AND LOT AREA AS REQUIRED BY THE MARLAND DEPARTMENT OF THE ENVIRONMENT AND HOWARD COUNTY.
- DENOTES WELL (NOT TO SCALE)



- STEEP SLOPES (25% OR GREATER) ARE LOCATED ON SITE AS SHOWN.
- ALL WELLS TO BE DRILLED PRIOR TO FINAL PLAT RECORDATION.

**PLAN**

SCALE: 1" = 200'

**PRESERVATION PARCEL A - JUSTIFICATION**  
ONE PRESERVATION PARCEL HAS BEEN CREATED IN THIS CLUSTER SUBDIVISION. PRESERVATION PARCEL A IS CREATED TO PROVIDE A BUILDABLE HOUSE SITE AND TO PRESERVE THE ON-SITE ENVIRONMENTAL & FOREST RESOURCES. FOREST CONSERVATION EASEMENTS WILL BE RECORDED ON PRESERVATION PARCEL A. EASEMENT A IS PRIVATELY OWNED WITH HOWARD COUNTY & HOA AS EASEMENT HOLDERS.

**MINIMUM LOT SIZE CHART**

LOT NO.	MIN. LOT SIZE	PIPESTEM AREA	GROSS AREA
4	49,315	31,396	80,711
5	48,262	6,247	54,509
6	49,121	7,158	56,279
A	695,792	6,371	702,163

ALL AREAS SHOWN ABOVE ARE IN SQUARE FEET

**CURVE TABLE**

CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
C1	87.00'	59.58'	31.01'	58.43'	S 06°29'00" W	39°14'23"
C2	54.00'	53.47'	29.16'	51.31'	S 02°15'45" E	56°43'53"

**COORDINATE LIST**

1	N 610,447.84	E 1,271,598.12
2	N 611,372.00	E 1,271,434.54
3	N 611,568.30	E 1,271,678.96
4	N 611,610.87	E 1,271,972.89
5	N 611,382.64	E 1,272,211.24
6	N 610,952.30	E 1,272,170.19
7	N 610,245.30	E 1,272,335.19
8	N 610,114.73	E 1,272,708.85
9	N 609,895.41	E 1,272,342.68
10	N 610,074.81	E 1,272,236.46
11	N 610,126.08	E 1,272,234.43
12	N 610,173.31	E 1,272,257.57
13	N 610,231.36	E 1,272,264.17
14	N 610,241.03	E 1,272,261.91
15	N 610,242.75	E 1,272,269.73
16	N 610,408.26	E 1,272,231.10
17	N 610,210.64	E 1,271,897.57
18	N 610,290.39	E 1,271,850.32
19	N 610,299.61	E 1,271,643.32

APPROVED: FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS

COUNTY HEALTH OFFICER  
HOWARD COUNTY HEALTH DEPARTMENT

APPROVED: DEPARTMENT OF PUBLIC WORKS

*Walter J. ...* 5-23-08  
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

*Condy ...* 5/29/08  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

DATE	NO.	REVISION

**OWNER**  
NORTHERN L.L.P.  
P.O. BOX 228  
CLARKSVILLE, MD 21029  
410-531-5539

**DEVELOPER**  
HIGHLAND DEVELOPMENT CORPORATION  
ATTN: RICHARD DEMMITT  
P.O. BOX 228  
CLARKSVILLE, MD 21029  
410-531-5539

**PROJECT**  
SOBUS PROPERTY LOTS 3 THRU 6  
& BUILDABLE PRESERVATION PARCEL 'A'  
AREA TAX MAP 6, GRID 5, PARCEL 34, ZONING RC-DEO  
4TH ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

**TITLE**  
TITLE SHEET

**Patton Harris Rust & Associates, pc**  
Engineers, Surveyors, Planners, Landscape Architects.  
8818 Centre Park Drive  
Columbia, MD 21045  
T 410.997.8900  
F 410.997.9282

DESIGNED BY : DWC  
DRAWN BY: ALC  
PROJECT NO : 13953-1-0  
DATE : MAY 12, 2008  
SCALE : AS SHOWN  
DRAWING NO. 1 OF 12



MATCH LINE SEE THIS SHEET

MATCH LINE SEE THIS SHEET

E 1271400

E 1271400

N 611600

N 610800

STONE CREEK ESTATES  
TAX MAP 6  
PARCEL 22  
PEAT 13923  
L. 4543 F. 007B  
ZONED RC-DEO

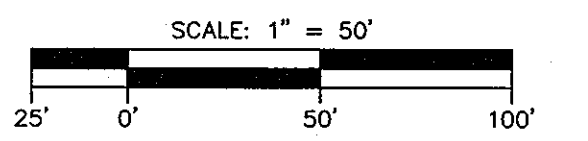
"BUILDABLE"  
PRESERVATION  
PARCEL A  
16.12 ACRES  
702,163 SF  
OWNER: PRIVATELY OWNED  
EASEMENT HOLDERS, HOWARD  
COUNTY AND HOA

MATCH LINE SEE SHEET 3

EDWARD DAY  
TAX MAP 6  
PARCEL 119  
L.2352 F.488  
ZONED RC-DEO

LEGEND

- PROPERTY LINE
- EXISTING TREELINE
- PROPOSED TREELINE
- PROPOSED LOT LINE
- EXISTING SOILS
- LIMIT OF DISTURBANCE
- WETLANDS AND 25' BUFFER
- EX. STREAM AND BUFFER
- EX. 100-YEAR FLOODPLAIN
- EXISTING CONTOURS
- EXISTING BUILDING
- PROPOSED BUILDING
- EXISTING WELL
- PROPOSED WELL
- EXISTING SEPTIC AREA
- PROPOSED SEPTIC AREA
- PASSED PERC TEST
- FAILED PERC TEST
- VEHICULAR INGRESS & EGRESS RESTRICTED
- BUILDING RESTRICTION LINE



APPROVED: FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS

COUNTY HEALTH OFFICER  
HOWARD COUNTY HEALTH DEPARTMENT

APPROVED: DEPARTMENT OF PUBLIC WORKS  
CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
CHIEF, DIVISION OF LAND DEVELOPMENT

CHIEF, DEVELOPMENT ENGINEERING DIVISION

DATE	NO.	REVISION
		OWNER
		DEVELOPER
		PROJECT
		TITLE

NORTHERN LLLP.  
P.O. BOX 228  
CLARKSVILLE, MD 21029  
410-531-5539

HIGHLAND DEVELOPMENT CORPORATION  
ATTN: RICHARD DEMMITT  
P.O. BOX 228  
CLARKSVILLE, MD 21029  
410-531-5539

SOBOS PROPERTY LOTS 3 THRU 6  
& BUILDABLE PRESERVATION PARCEL 'A'

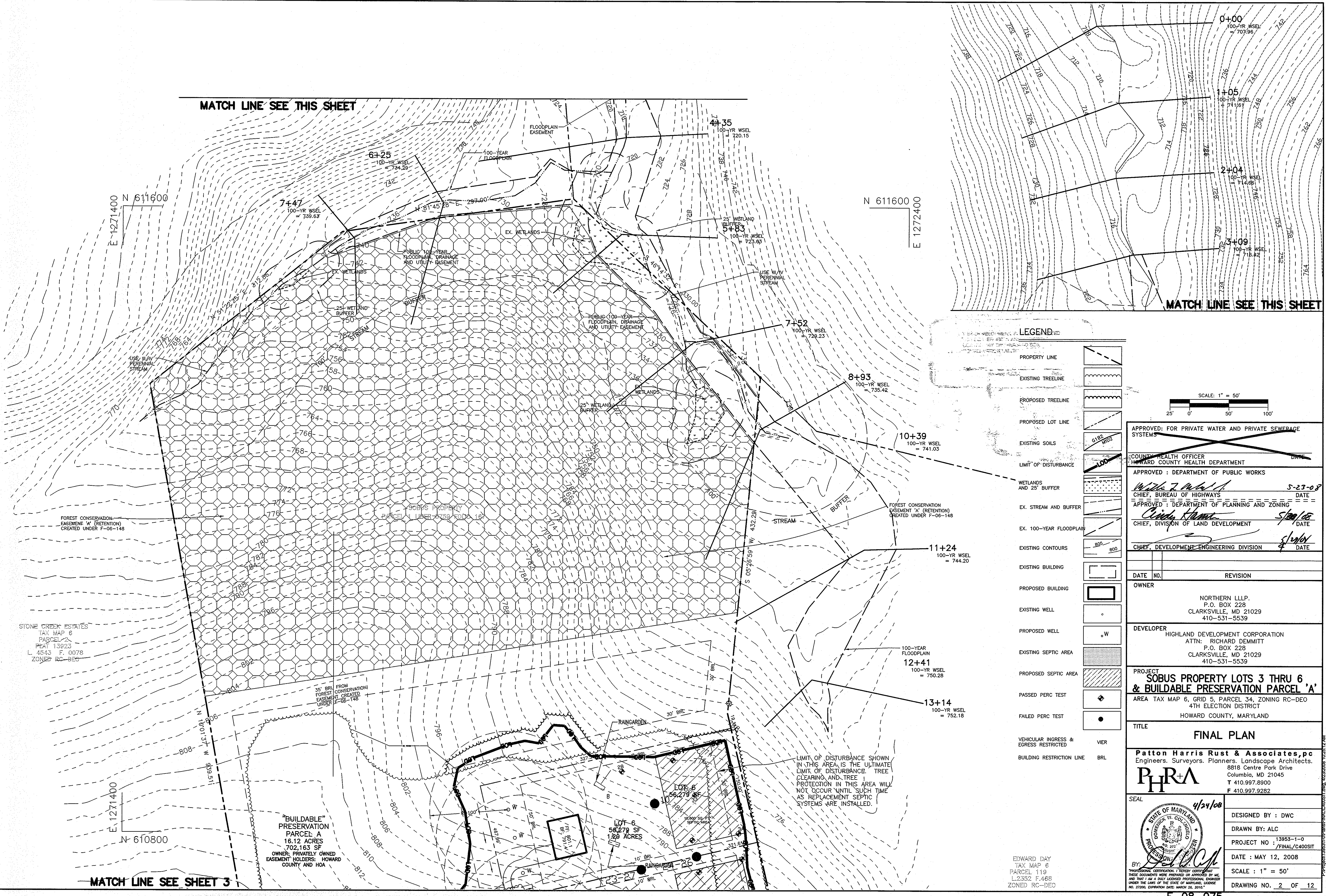
AREA TAX MAP 6, GRID 5, PARCEL 34, ZONING RC-DEO  
4TH ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

FINAL PLAN

Patton Harris Rust & Associates, pc  
Engineers, Surveyors, Planners, Landscape Architects.  
8818 Centre Park Drive  
Columbia, MD 21045  
T 410.997.8900  
F 410.997.9282

DESIGNED BY : DWC  
DRAWN BY: ALC  
PROJECT NO : 13953-1-0 /FINAL/C4005IT  
DATE : MAY 12, 2008  
SCALE : 1" = 50'  
DRAWING NO. 2 OF 12

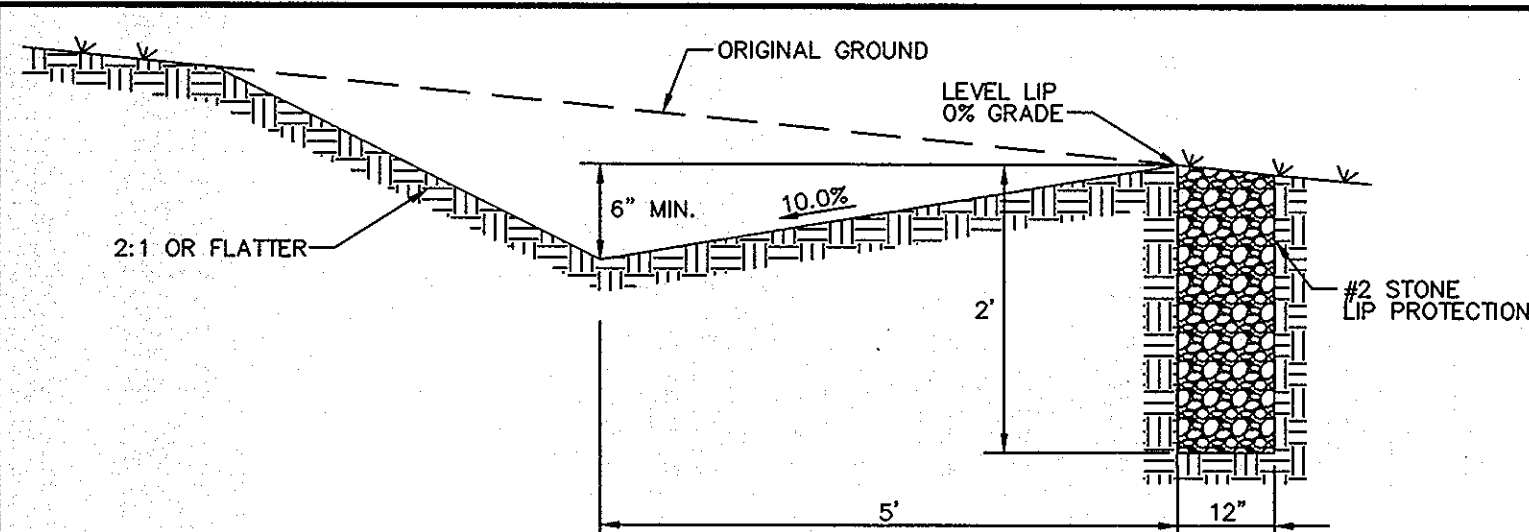
LIMIT OF DISTURBANCE SHOWN IN THIS AREA IS THE ULTIMATE LIMIT OF DISTURBANCE. TREE CLEARING AND TREE PROTECTION IN THIS AREA WILL NOT OCCUR UNTIL SUCH TIME AS REPLACEMENT SEPTIC SYSTEMS ARE INSTALLED.











AREA DESIGNATION	D (AC)	CvP REQ. (AC-FT)	CvP PROV. (AC-FT)	NOV REQ. (cf)	NOV PROV. (cf)	REV REQ. (cf)	REV PROV. (cf)	Qp10	Qp100
1	52.4	N/A	N/A	693	693	594	594	49.10	125.40
2	17.4	N/A	N/A	1441	1441	593	593	18.60	41.60

THE STORMWATER MANAGEMENT REQUIREMENTS FOR THIS SITE WILL BE PROVIDED BY THE NATURAL AREA CONSERVATION CREDIT; THE DISCONNECTION OF NON-ROOFTOP RUNOFF CREDIT AND THE DISCONNECTION OF ROOFTOP RUNOFF CREDIT USING RAINGARDENS (2 PER LOT). A STORMWATER MANAGEMENT SYSTEM HAS BEEN DEVELOPED AND APPROVED UNDER F-06-148.

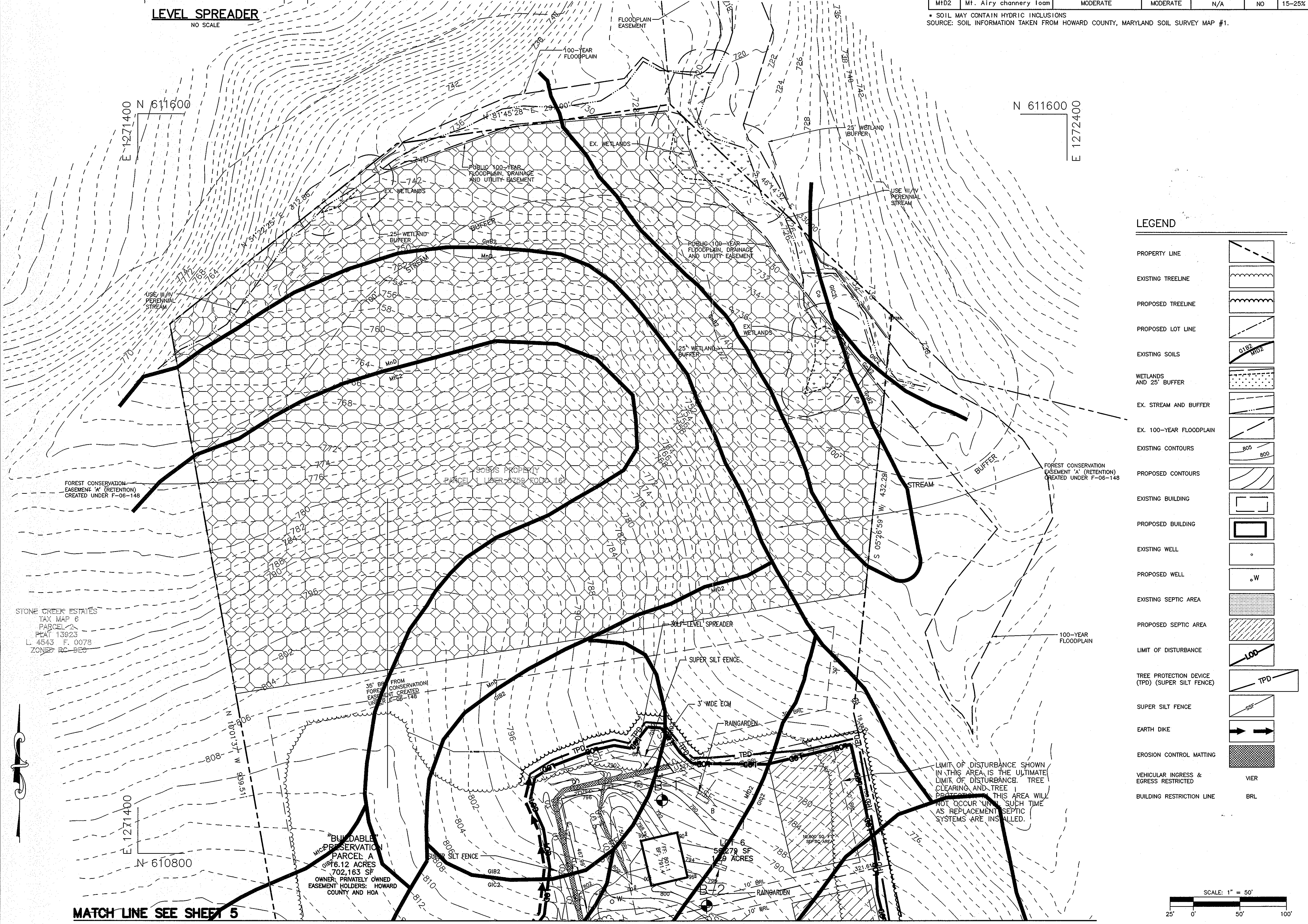
**SOILS CHART**

MAP SYMBOL	NAME	STRUCTURAL LIMITATIONS DWELLINGS	EROSION HAZARD	K FACTOR	HYDRIC (%)	SLOPE
Co	Codorus silt loam	SEVERE	N/A	N/A	NO	N/A
CoB	Comus silt loam	SLIGHT	MODERATE	N/A	NO*	3-8%
G1B2	Glennelg loam	SLIGHT	MODERATE	N/A	NO	3-8%
G1C2	Glennelg loam	MODERATE	MODERATE	MODERATE (32)	NO	8-15%
G1C3	Glennelg loam	MODERATE	SEVERE	MODERATE (32)	NO	8-15%
GnB2	Glennville silt loam	MODERATE	MODERATE	N/A	NO*	3-8%
MnD	Manor very stony loam	MODERATE	MODERATE	MODERATE (32)	NO	3-25%
M1C2	Mt. Airy channery loam	MODERATE	MODERATE	N/A	NO	8-15%
M1D2	Mt. Airy channery loam	MODERATE	MODERATE	N/A	NO	15-25%

\* SOIL MAY CONTAIN HYDRIC INCLUSIONS  
SOURCE: SOIL INFORMATION TAKEN FROM HOWARD COUNTY, MARYLAND SOIL SURVEY MAP #1.

**NOTES:**

1. RAINGARDEN SIZES SHOWN ARE ACTUAL.
2. THE SOIL FROM THE EXCAVATION OF THE TRENCHES FOR THE SEPTIC SYSTEM SHALL BE PLACED ON THE UPHILL SIDE OF THE TRENCHES.
3. STORMWATER MANAGEMENT SHOWN ON THESE PLANS SHALL BE REASSESSED AT TIME OF FINAL PLOT PLAN/BUILDING PERMIT BASED ON FINAL SITE LAYOUT AND BUILDING SIZE. ANY CHANGES REQUIRED TO STORMWATER MANAGEMENT SHOWN SHALL BE DESIGNED AND APPROVED AT THAT TIME. ADDITIONAL SOIL BORINGS WILL BE PROVIDED AT THAT TIME AS MAY BE REQUIRED.
4. ALL DOWNSPOUTS AND SPLASH BLOCKS FROM THE HOUSES ON LOTS 4, 5 AND 6 SHALL BE DIRECTED TOWARDS THE RAINGARDENS.
5. THE GRADING SHOWN ON THE PLAN IS CONSISTENT WITH THE GRADING PLANS FOR F-06-148.



**LEGEND**

- PROPERTY LINE
- EXISTING TREELINE
- PROPOSED TREELINE
- PROPOSED LOT LINE
- EXISTING SOILS
- WETLANDS AND 25' BUFFER
- EX. STREAM AND BUFFER
- EX. 100-YEAR FLOODPLAIN
- EXISTING CONTOURS
- PROPOSED CONTOURS
- EXISTING BUILDING
- PROPOSED BUILDING
- EXISTING WELL
- PROPOSED WELL
- EXISTING SEPTIC AREA
- PROPOSED SEPTIC AREA
- LIMIT OF DISTURBANCE
- TREE PROTECTION DEVICE (TPD) (SUPER SILT FENCE)
- SUPER SILT FENCE
- EARTH DIKE
- EROSION CONTROL MATTING
- VEHICULAR INGRESS & EGRESS RESTRICTED
- BUILDING RESTRICTION LINE

BY THE DEVELOPER:  
I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.  
*Richard R. Demmitt* 5-7-08  
DEVELOPER DATE

BY THE ENGINEER:  
I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.  
*Paul W. Coll* 4/21/08  
ENGINEER DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.  
*[Signature]*  
NATURAL RESOURCES CONSERVATION SERVICE DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.  
*John R. Rhoton* 5/22/08  
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS  
*[Signature]*

COUNTY HEALTH OFFICER  
HOWARD COUNTY HEALTH DEPARTMENT DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*William J. [Signature]* 5-23-08  
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*[Signature]* 5/30/08  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION  
*[Signature]* DATE

DATE NO.	REVISION

OWNER  
NORTHERN LLLP,  
P.O. BOX 228  
CLARKSVILLE, MD 21029  
410-531-5539

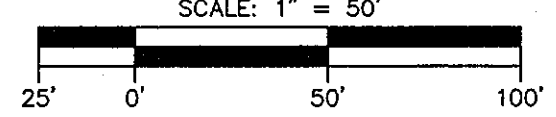
DEVELOPER  
HIGHLAND DEVELOPMENT CORPORATION  
ATTN: RICHARD DEMMITT  
P.O. BOX 228  
CLARKSVILLE, MD 21029  
410-531-5539

PROJECT  
**SOBUS PROPERTY LOTS 3 THRU 6 & BUILDABLE PRESERVATION PARCEL 'A'**  
AREA TAX MAP 6, GRID 5, PARCEL 34, ZONING RC-DEO 4TH ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

TITLE  
**FINAL GRADING & SEDIMENT CONTROL PLAN AND SOILS MAP**

Patton Harris Rust & Associates, pc  
Engineers, Surveyors, Planners, Landscape Architects.  
8818 Centre Park Drive  
Columbia, MD 21045  
T 410.997.8900  
F 410.997.9282

SEAL  
 4/21/08  
DESIGNED BY: DWC  
DRAWN BY: ALC  
PROJECT NO: 13953-1-0  
FINAL/C600GRA  
DATE: MAY 12, 2008  
SCALE: 1" = 50'  
DRAWING NO. 4 OF 12



MATCH LINE SEE SHEET 5

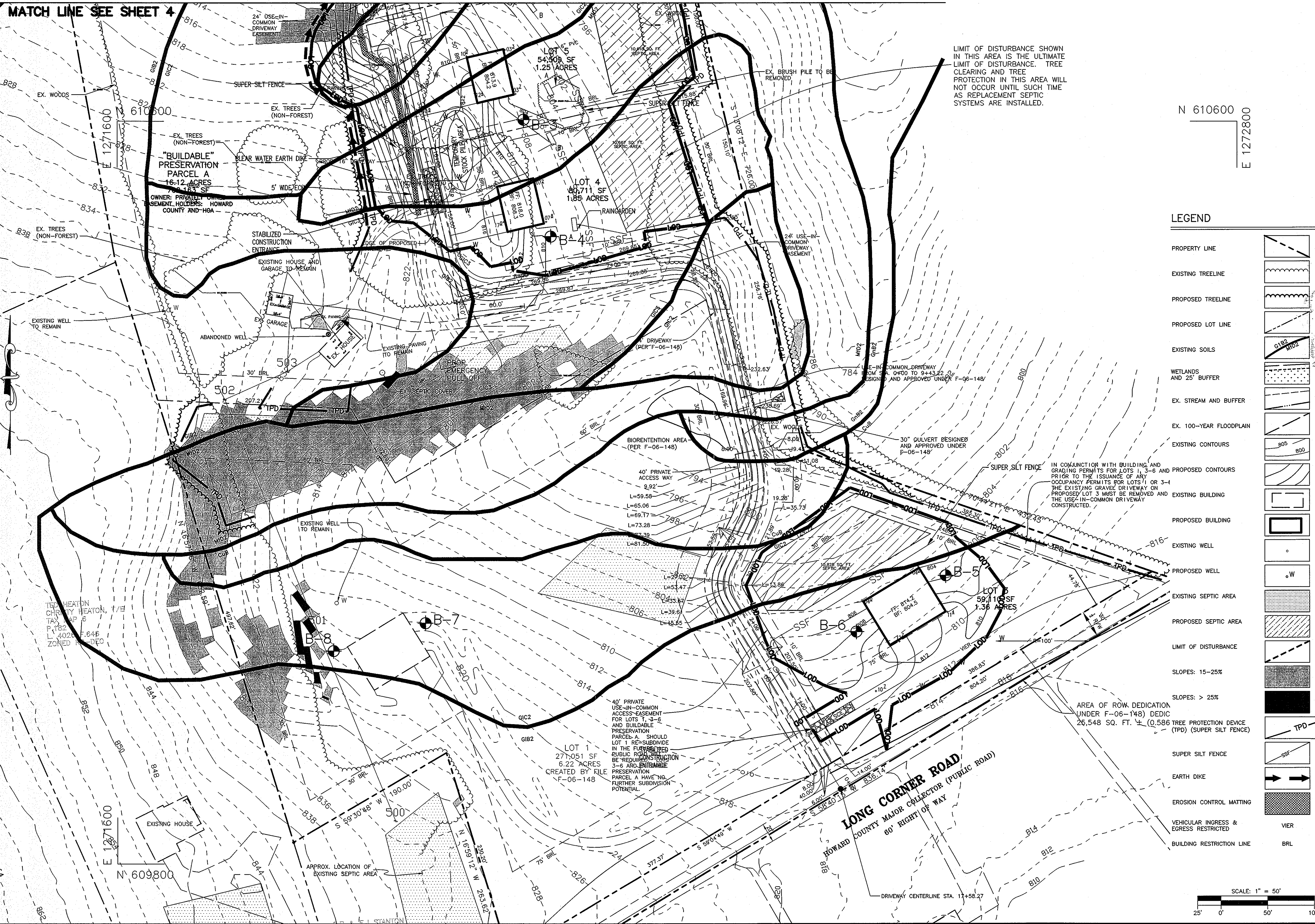


AREA DESIGNATION	D (AC)	DEV. REQ. (AC-FT)	DEV. PROV. (AC-FT)	NOV. REQ. (cf)	NOV. PROV. (cf)	REV. REQ. (cf)	REV. PROV. (cf)	Op10	Op100
1	52.4	N/A	N/A	693	693	594	594	49.10	125.40
2	17.4	N/A	N/A	1441	1441	593	593	18.60	41.60

THE STORMWATER MANAGEMENT REQUIREMENTS FOR THIS SITE WILL BE PROVIDED BY THE NATURAL AREA CONSERVATION CREDIT, THE DISCONNECTION OF NON-ROOFTOP RUNOFF CREDIT AND THE DISCONNECTION OF ROOFTOP RUNOFF CREDIT USING RAINGARDENS (2 PER LOT). A STORMWATER MANAGEMENT SYSTEM HAS BEEN DEVELOPED AND APPROVED UNDER F-06-148.

- NOTES:**
1. RAINGARDEN SIZES SHOWN ARE ACTUAL.
  2. THE SPOIL FROM THE EXCAVATION OF THE TRENCHES FOR THE SEPTIC SYSTEM SHALL BE PLACED ON THE UPHILL SIDE OF THE TRENCHES.
  3. STORMWATER MANAGEMENT SHOWN ON THESE PLANS SHALL BE REASSESSED AT TIME OF FINAL PLOT PLAN/BUILDING PERMIT BASED ON FINAL SITE LAYOUT AND BUILDING SIZE. ANY CHANGES REQUIRED TO STORMWATER MANAGEMENT SHOWN SHALL BE DESIGNED AND APPROVED AT THAT TIME. ADDITIONAL SOIL BORINGS WILL BE PROVIDED AT THAT TIME AS MAY BE REQUIRED.
  4. ALL DOWNSPOUTS AND SPLASH BLOCKS FROM THE HOUSES ON LOTS 4, 5 AND 6 SHALL BE DIRECTED TOWARDS THE RAINGARDENS.
  5. THE GRADING SHOWN ON THE PLAN IS CONSISTENT WITH THE GRADING PLANS FOR F-06-148.

MATCH LINE SEE SHEET 4



LIMIT OF DISTURBANCE SHOWN IN THIS AREA IS THE ULTIMATE LIMIT OF DISTURBANCE. TREE CLEARING AND TREE PROTECTION IN THIS AREA WILL NOT OCCUR UNTIL SUCH TIME AS REPLACEMENT SEPTIC SYSTEMS ARE INSTALLED.

N 610600  
E 1272800

**LEGEND**

- PROPERTY LINE
- EXISTING TREELINE
- PROPOSED TREELINE
- PROPOSED LOT LINE
- EXISTING SOILS
- WETLANDS AND 25' BUFFER
- EX. STREAM AND BUFFER
- EX. 100-YEAR FLOODPLAIN
- EXISTING CONTOURS
- PROPOSED CONTOURS
- EXISTING BUILDING
- PROPOSED BUILDING
- EXISTING WELL
- PROPOSED WELL
- EXISTING SEPTIC AREA
- PROPOSED SEPTIC AREA
- LIMIT OF DISTURBANCE
- SLOPES: 15-25%
- SLOPES: > 25%
- AREA OF ROW DEDICATION UNDER F-06-148 DEDIC 26,548 SQ. FT. ± (0.586 TREE PROTECTION DEVICE (TPD) (SUPER SILT FENCE)
- SUPER SILT FENCE
- EARTH DIKE
- EROSION CONTROL MATTING
- VEHICULAR INGRESS & EGRESS RESTRICTED
- BUILDING RESTRICTION LINE

BY THE DEVELOPER :

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

*Richard Demmitt* 5-7-08  
DEVELOPER DATE

BY THE ENGINEER :

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

*D.W.C.* 4/24/08  
ENGINEER DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

*[Signature]*  
NATURAL RESOURCES CONSERVATION SERVICE DATE

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

*John R. Robertson* 5/20/08  
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS

*[Signature]*  
COUNTY HEALTH OFFICER DATE  
HOWARD COUNTY HEALTH DEPARTMENT

APPROVED: DEPARTMENT OF PUBLIC WORKS

*William J. Marshall* 5-23-08  
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

*Cindy Stant* 5/20/08  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*[Signature]*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

DATE	NO.	REVISION

OWNER

NORTHERN LLLP.  
P.O. BOX 228  
CLARKSVILLE, MD 21029  
410-531-5539

DEVELOPER

HIGHLAND DEVELOPMENT CORPORATION  
ATTN: RICHARD DEMMITT  
P.O. BOX 228  
CLARKSVILLE, MD 21029  
410-531-5539

PROJECT

**SOBUS PROPERTY LOTS 3 THRU 6 & BUILDABLE PRESERVATION PARCEL 'A'**

AREA TAX MAP 6, GRID 5, PARCEL 34, ZONING RC-DEO 4TH ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

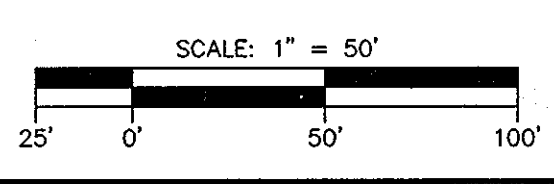
TITLE

**FINAL GRADING & SEDIMENT CONTROL PLAN AND SOILS MAP**

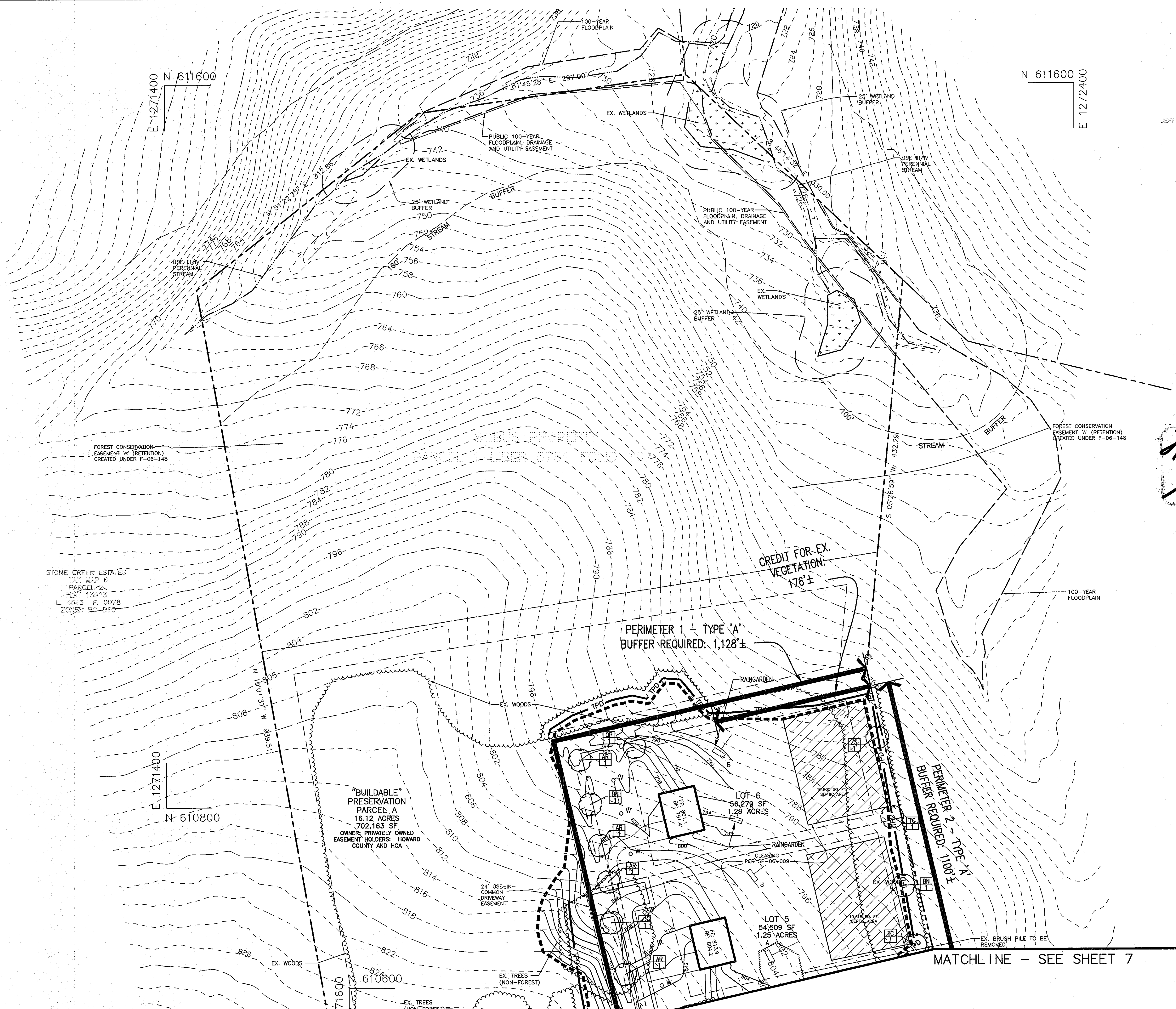
**Patton Harris Rust & Associates, pc**  
Engineers, Surveyors, Planners, Landscape Architects.  
8818 Centre Park Drive  
Columbia, MD 21045  
T 410.997.8900  
F 410.997.9282

SEAL

*[Seal]* 4/24/08  
DESIGNED BY : DWC  
DRAWN BY: ALC  
PROJECT NO. 13953-1-0 FINAL/C601GRA  
DATE : MAY 12, 2008  
SCALE : 1" = 50'  
DRAWING NO. 5 OF 12







LEGEND

- PROPERTY LINE
- EXISTING TREELINE
- PROPOSED TREELINE
- LIMIT OF DISTURBANCE
- TREE PROTECTION DEVICE (TPD) (SUPER SILT FENCE)
- PROP. SHADE TREE
- PROP. EVERGREEN TREE
- PROP. STREET TREE
- PERIMETER LANDSCAPE PLANTING
- STREET TREE PLANTING
- EXISTING WELL
- PROPOSED WELL
- EXISTING SEPTIC AREA
- PROPOSED SEPTIC AREA
- PASSED PERC TEST
- FAILED PERC TEST

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

Approved: *[Signature]* Date: *[Date]*

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*[Signature]* 5-23-08  
 CHIEF, BUREAU OF HIGHWAYS DATE  
 APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*[Signature]* 5/20/08  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION *[Signature]* DATE

DATE NO. REVISION

OWNER  
 NORTHERN LLLP  
 P.O. BOX 228  
 CLARKSVILLE, MD 21029  
 410-531-5539

DEVELOPER  
 HIGHLAND DEVELOPMENT CORPORATION  
 ATTN: RICHARD DEMMITT  
 P.O. BOX 228  
 CLARKSVILLE, MD 21029  
 410-531-5539

PROJECT  
**SOBUS PROPERTY LOTS 3 THRU 6 & BUILDABLE PRESERVATION PARCEL 'A'**  
 AREA TAX MAP 6, GRID 5, PARCEL 34, ZONING RC-DEO  
 4TH ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND

TITLE  
**FINAL LANDSCAPE PLAN**

Patton Harris Rust & Associates, pc  
 Engineers, Surveyors, Planners, Landscape Architects.  
 8818 Centre Park Drive  
 Columbia, MD 21045  
 T 410.997.8900  
 F 410.997.9282

DESIGNED BY: ALC  
 DRAWN BY: ALC  
 PROJECT NO.: 13953-1-0  
 DATE: MAY 12, 2008  
 SCALE: 1" = 50'  
 DRAWING NO. 6 OF 12

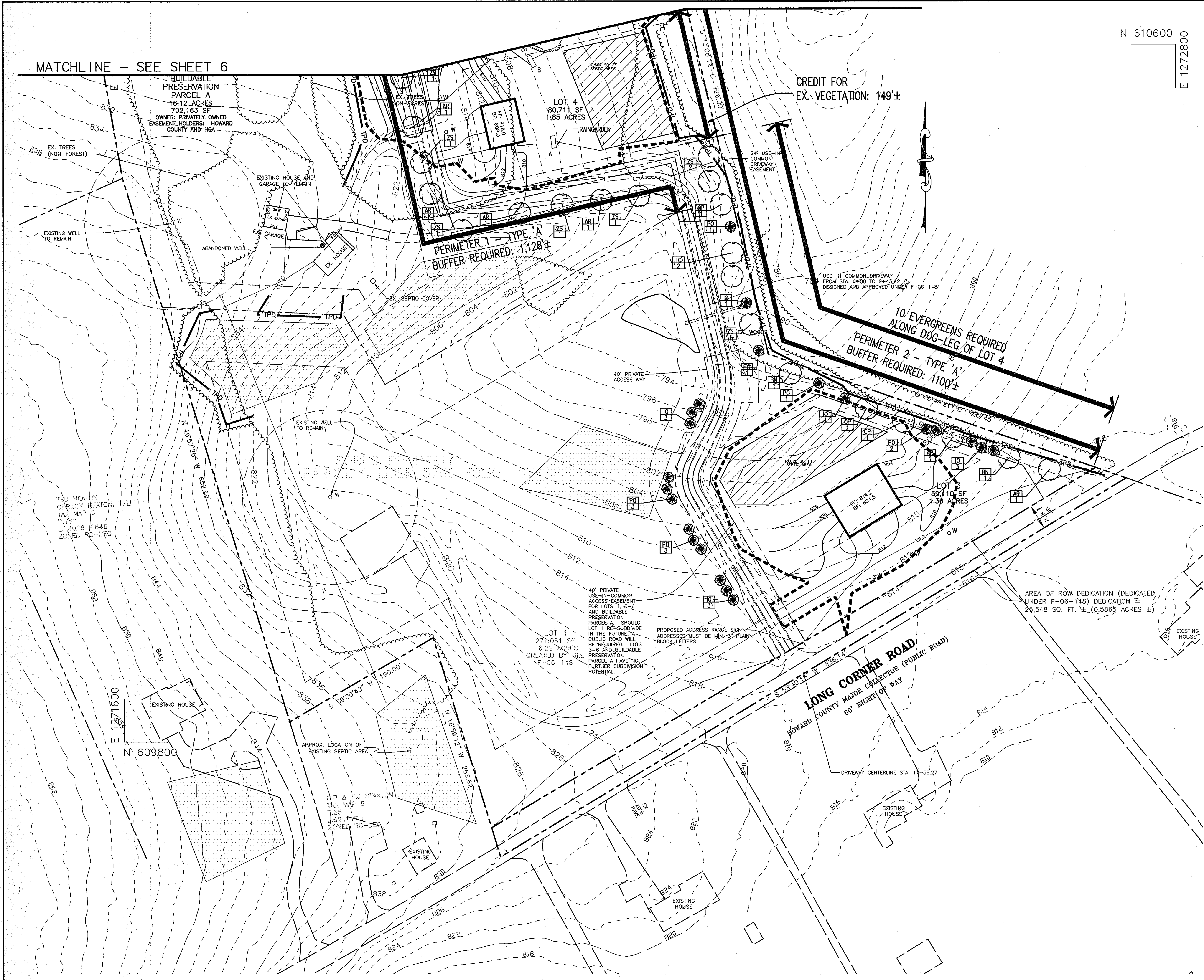


MATCHLINE - SEE SHEET 6

N 610600  
E 1272800

LEGEND

- PROPERTY LINE
- EXISTING TREELINE
- PROPOSED TREELINE
- LIMIT OF DISTURBANCE
- TREE PROTECTION DEVICE (TPD) (SUPER SILT FENCE)
- PROP. SHADE TREE
- PROP. EVERGREEN TREE
- PROP. STREET TREE
- PERIMETER LANDSCAPE PLANTING
- STREET TREE PLANTING
- EXISTING WELL
- PROPOSED WELL
- EXISTING SEPTIC AREA
- PROPOSED SEPTIC AREA
- PASSED PERC TEST
- FAILED PERC TEST



APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Walter Z. ...* 5-23-08  
 CHIEF, BUREAU OF HIGHWAYS DATE  
 APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Clayton ...* 5/20/08  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION 5/20/08 DATE

DATE	NO.	REVISION

OWNER  
 NORTHERN L.L.P.  
 P.O. BOX 228  
 CLARKSVILLE, MD 21029  
 410-531-5539

DEVELOPER  
 HIGHLAND DEVELOPMENT CORPORATION  
 ATTN: RICHARD DEMMITT  
 P.O. BOX 228  
 CLARKSVILLE, MD 21029  
 410-531-5539

PROJECT  
**SOBUS PROPERTY LOTS 3 THRU 6 & BUILDABLE PRESERVATION PARCEL 'A'**  
 AREA TAX MAP 6, GRID 5, PARCEL 34, ZONING RC-DEO  
 4TH ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND

TITLE  
**FINAL LANDSCAPE PLAN**

**Patton Harris Rust & Associates, pc**  
 Engineers. Surveyors. Planners. Landscape Architects.  
 8818 Centre Park Drive  
 Columbia, MD 21045  
 T 410.997.6900  
 F 410.997.9282

SEAL  
  
 DESIGNED BY: ALC  
 DRAWN BY: ALC  
 PROJECT NO: 13953-1-0  
 DATE: MAY 12, 2008  
 SCALE: 1" = 50'  
 BY: *Peter J. Stone* 5-7-08  
 PETER J. STONE #3068  
 DRAWING NO. 7 OF 12



**GENERAL NOTES:**

- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
- FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING MUST BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$12,900.00.  
 32 SHADE TREES @ \$300 = 9,600  
 0 ORNAMENTAL TREES @ \$150 = 0  
 22 EVERGREEN TREES @ \$150 = 3,300  
 0 SHRUBS @ \$30 = 0
- THIS PLAN IS FOR LANDSCAPING PURPOSES ONLY.
- CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS.
- ALL MATERIAL SELECTED SHALL BE EQUAL TO OR BETTER THAN THE REQUIREMENTS OF THE "USA STANDARD FOR NURSERY STOCK", LATEST EDITION, AS PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
- ALL MATERIAL SHALL BE PLANTED IN ACCORDANCE WITH THE MINIMUM STANDARDS CITED IN THE LATEST EDITION OF "LANDSCAPE SPECIFICATION GUIDELINES" PUBLISHED BY THE LANDSCAPE CONTRACTORS ASSOCIATION.
- AT THE TIME OF INSTALLATION, ALL SHRUBS AND OTHER PLANTINGS SHALL BE OF THE PROPER HEIGHT AND/OR SPREAD REQUIREMENTS IN ACCORDANCE WITH THIS PLAN AND THE HOWARD COUNTY LANDSCAPE MANUAL.
- NO SUBSTITUTIONS OR RELOCATION OF PLANTS MAY BE MADE WITHOUT PRIOR APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING OF HOWARD COUNTY. ANY DEVIATION FROM THIS LANDSCAPE PLAN MAY RESULT IN A REQUIREMENT FOR SUBMITTAL OF AN OFFICIAL "REDLINE REVISION" TO THE SITE DEVELOPMENT PLAN(S) AND/OR DENIAL IN THE RELEASE OF LANDSCAPE SURETY.
- PERIMETER LANDSCAPE OBLIGATIONS WILL BE FULFILLED BY A COMBINATION OF NEW PLANTINGS AND PRESERVATION OF EXISTING VEGETATION.
- SHOULD ANY TREE DESIGNATED FOR PRESERVATION, FOR WHICH LANDSCAPING CREDIT IS GIVEN, DIE PRIOR TO RELEASE OF BONDS, THE OWNER WILL BE REQUIRED TO REPLACE THE TREE WITH THE EQUIVALENT SPECIES OR WITH A TREE WHICH WILL OBTAIN THE SAME HEIGHT, SPREAD AND GROWTH CHARACTERISTICS. THE REPLACEMENT TREE MUST BE A MINIMUM OF 3 INCHES IN CALIPER AND INSTALLED AS REQUIRED IN THE LANDSCAPE MANUAL.
- DEVELOPER/BUILDER IS RESPONSIBLE FOR INSTALLATION OF PERIMETER LANDSCAPING. NO INTERNAL LANDSCAPING IS REQUIRED WITH THIS DEVELOPMENT.
- THE OWNER, TENANT AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING, INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. 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 OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION AND WHEN NECESSARY, REPAIRED OR REPLACED.

- PLANTS, related material, and operations shall meet the detailed description, as given on the plans and as described herein. Where discrepancies exist between Standards & Guidelines referenced within these specifications and the Landscape Manual of the applicable jurisdiction, the latter takes precedence.
- All plant material, unless otherwise specified, that is not nursery grown, uniformly branched, does not have a vigorous root system, and does not conform to the most recent edition of the American Association of Nurserymen (AAN) Standards will be rejected. Plant material that is not healthy, vigorous, free from defects, decay, disfiguring roots, sunscald injuries, abrasions of the bark, plant disease, insect pest eggs, borers and all forms of insect infestations or objectionable disfigurements will be rejected. 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 be rejected. All B & B plants shall be freshly dug; no heeled-in plants or plants from cold storage will be accepted.
- Unless otherwise specified, all general conditions, planting operations, details and planting specifications shall conform to the most recent edition of the "Landscape Specification Guidelines" by the Landscape Contractors Association of MD, DC, & VA", (hereinafter "Landscape Guidelines") approved by the Landscape Contractors Association of Metropolitan Washington and the Potomac Chapter of the American Society of Landscape Architects.
- Contractor shall guarantee all plant material for a period of one year after date of acceptance in accordance with the appropriate section on 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 all relevant and appropriate utility companies, utility contractors, and "Miss Utility" a minimum of 48 hours prior to the beginning of any work. Contractor may make minor adjustments in spacing and location of plant material to avoid conflicts with utilities. Major changes will require the approval of the landscape architect. Damage to existing structure and utilities shall be repaired at the expense of the Contractor.
- Protection of existing vegetation to remain shall be accomplished via the temporary installation of 4 foot high snow fence at the drip line, see detail.
- Contractor is responsible for installing all material in the proper planting season for each plant type. All planting is to be completed within growing season of completion of site construction. Do not plant Pinus strobus or Xcupressocyparis leylandii between November 15 and March 15. Landscape plants are not to be installed before site is graded to final grade.
- Contractor to regrade, fine grade, sod, hydroseed and straw mulch all areas disturbed by their work.
- Bid shall be based on actual site conditions. No extra payment shall be made for work arising from actual 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. Where discrepancies on the plan exist between the symbols and the callout leader, the number of symbols take precedence.
- All shrubs and groundcover areas shall be planted in continuous planting beds, prepared as specified, unless otherwise indicated on plans. (See Specification 13). Beds to be mulched with minimum 2" and maximum 3" of composted, double-shredded hardwood mulch throughout.
- Positive drainage shall be maintained on planting beds (minimum 2 percent slope).
- Bed preparation shall be as follows: Till into a minimum depth of 6" 1 yard of Compro or Leafgro per 200 SF of planting bed, and 1 yard of topsoil per 100 SF of bed. Add 3 lbs of standard 5-10-5 fertilizer per cubic yard of planting mix and till. Ericaceous plants (Azaleas, Rhododendrons, etc.): top dress after planting with iron sulfate or comparable product according to package directions. Taxus baccata 'Rependens' (English weeping yews): Top dress after planting with 1/4 to 1/2 cup lime each.
- Planting mix: For trees not in a prepared bed, mix 50% Compro or Leafgro with 50% soil from tree hole to use as backfill, see tree planting detail.
- Weed & insect control: Incorporate a pre-emergent herbicide into the planting bed following recommended rates on the label. For tree planting, apply a pre-emergent on top of soil and root ball before mulching. Caution: For areas to be planted with a ground cover, be sure to carefully check the chemical used to assure its adaptability to the specific groundcover to be treated. Maintain the mulch weed-free for the extent of the warranty period. Under no circumstances is a pesticide containing chlorpyrifos to be used as a means of pest control.
- Water: All plant material planted shall be watered thoroughly the day of planting. All plant material not yet planted shall be properly protected from drying out until planted. At a minimum, water unplanted plant material daily and as necessary to avoid desiccation.
- Pruning: Do not heavily prune trees and shrubs at planting. Prune only broken, dead, or diseased branches.
- All areas within contract limits disturbed during or prior to construction not designated to receive plants and mulch shall be fine graded, grass seed planted, and covered with straw mulch.

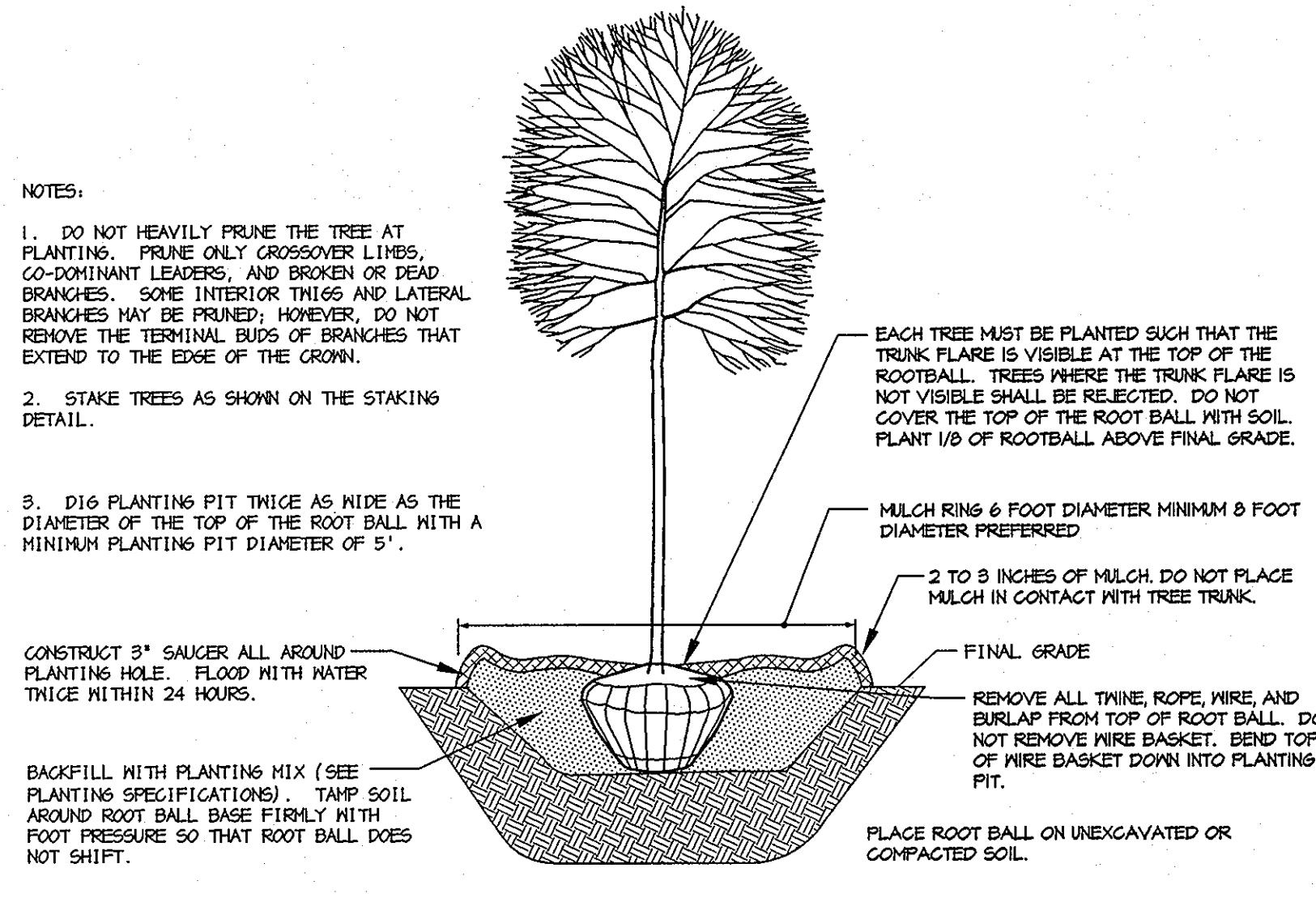
**DEVELOPER'S/BUILDER'S CERTIFICATE:**

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

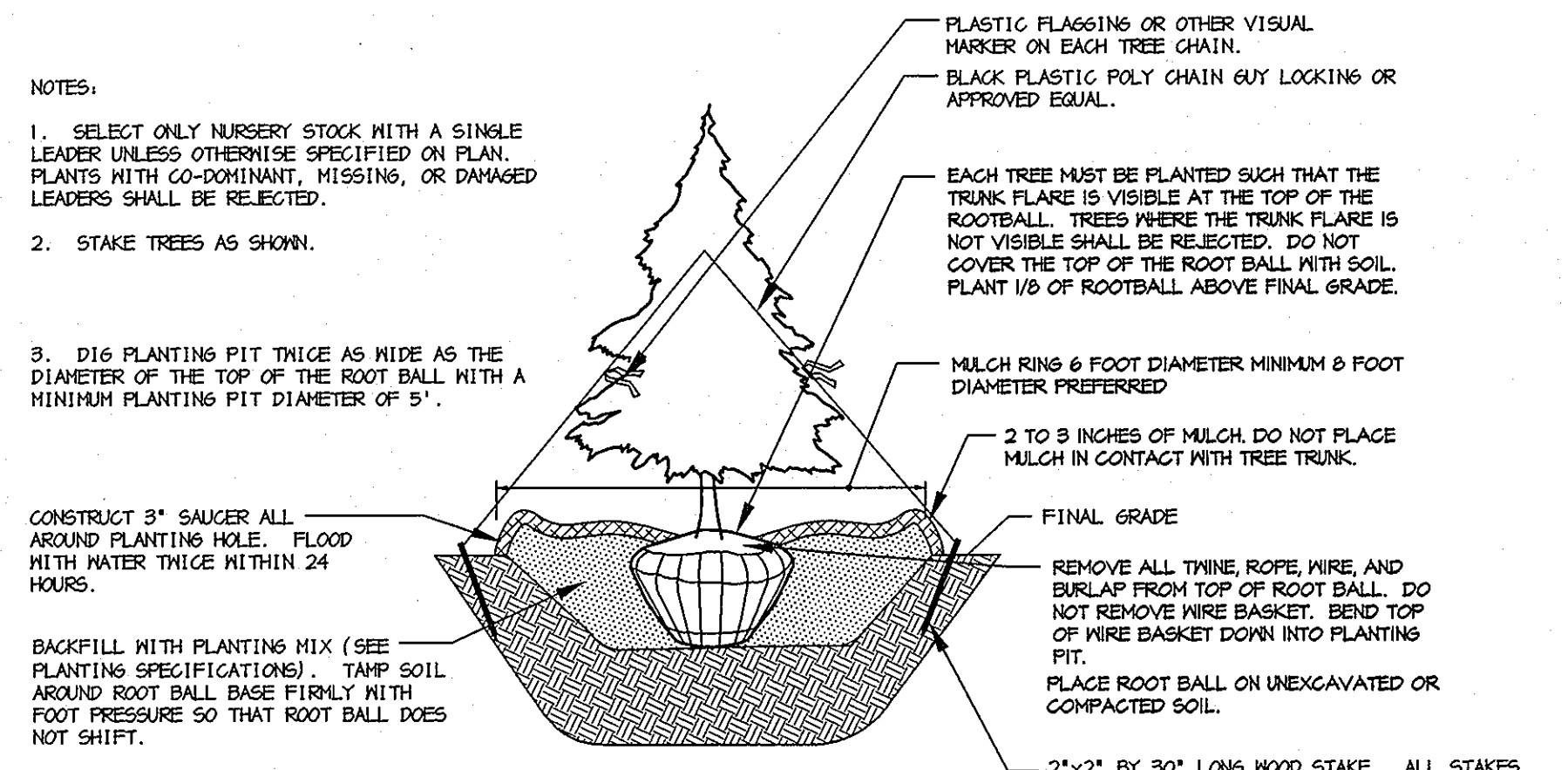
*Richard Demmitt* 5-7-08  
 SIGNATURE DATE

**PLANTING SPECIFICATIONS**

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- Unless otherwise specified, all general conditions, planting operations, details and planting specifications shall conform to the most recent edition of the "Landscape Specification Guidelines" by the Landscape Contractors Association of MD, DC, & VA", (hereinafter "Landscape Guidelines") approved by the Landscape Contractors Association of Metropolitan Washington and the Potomac Chapter of the American Society of Landscape Architects.
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- Pruning: Do not heavily prune trees and shrubs at planting. Prune only broken, dead, or diseased branches.
- All areas within contract limits disturbed during or prior to construction not designated to receive plants and mulch shall be fine graded, grass seed planted, and covered with straw mulch.



**DECIDUOUS B&B TREE PLANTING DETAIL**  
 NOT TO SCALE



**EVERGREEN B&B TREE PLANTING DETAIL**  
 NOT TO SCALE

SCHEDULE A - PERIMETER LANDSCAPE EDGE		ADJACENT TO PERIMETER PROPERTIES		ADJACENT TO ROADWAYS	
PERIMETER	1	2			
LANDSCAPE TYPE	A	A			
LINEAR FEET OF ROADWAY FRONTAGE/ PERIMETER	1128±	1100±			
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	YES 176'	YES 149'			
CREDIT FOR WALL, FENCE, BERM OR DRIVE AISLE (YES/NO/LINEAR FEET)	NO	NO			
LINEAR FEET REMAINING	952±	951±			
NUMBER OF PLANTS REQUIRED					
SHADE TREES	16	16			
EVERGREEN TREES	0	10*			
SHRUBS	0	0			
NUMBER OF PLANTS PROVIDED					
SHADE TREES	16	16			
EVERGREEN TREES	0	10			
SMALL FLOWERING TREES SHRUBS	0	0			

**SCHEDULE 'A' NOTES:**  
 REGULATIONS DO NOT REQUIRE LANDSCAPE EDGES, BUFFERING, OR SCREENING BETWEEN INTERNAL LOTS OR PARCELS WITHIN THE SAME DEVELOPMENT. (PAGE 17 OF THE HO.Co. LANDSCAPE MANUAL)

**SUBSTITUTION NOTES:**  
 \* 10 EVERGREEN TREES ARE SHOWN AS BEING REQUIRED BASED ON RECOMMENDATION OF DEPARTMENT OF PLANNING AND ZONING STAFF UNDER SP-06-009  
 12 EVERGREEN TREES ARE SHOWN ALONG THE 40' PRIVATE ACCESS EASEMENT ALONG LOT 1 AS RECOMMENDED BY PLANNING AND ZONING STAFF. THESE 12 EVERGREENS HAVE BEEN ADDED TO THE SURETY AMOUNT.

PLANT SCHEDULE					
SYMBOL	QTY.	SCIENTIFIC/COMMON NAME	SIZE	ROOT	REMARKS
AR	10	ACER RUBRUM 'RED SUNSET'	2.5" CAL.	B&B	PLANT AS SHOWN
BN	4	BETULA NIGRA 'HERITAGE'	10-12' HT.	B&B	MULTI-STEM
QP	4	QUERCUS PHellos	2.5" CAL.	B&B	PLANT AS SHOWN
TC	4	TILIA CORDATA 'GREENSPIRIT'	2.5" CAL.	B&B	PLANT AS SHOWN
ZS	10	ZELKOVA SERRATA 'VILLAGE GREEN'	2.5" CAL.	B&B	PLANT AS SHOWN
IO	11	ILEX OPACA 'AMERICAN HOLLY'	5-6' HT.	B&B	PLANT AS SHOWN
PO	11	PICEA OMORIKI 'SERBIAN SPRUCE'	6-8' HT.	B&B	PLANT AS SHOWN

APPROVED : DEPARTMENT OF PUBLIC WORKS  
*Walter R. ...* 5-23-08  
 CHIEF, BUREAU OF HIGHWAYS DATE  
 APPROVED : DEPARTMENT OF PLANNING AND ZONING  
*Charles ...* 5/20/08  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

DATE NO. REVISION

OWNER  
 NORTHERN LLLP.  
 P.O. BOX 228  
 CLARKSVILLE, MD 21029  
 410-531-5539

DEVELOPER  
 HIGHLAND DEVELOPMENT CORPORATION  
 ATTN: RICHARD DEMMITT  
 P.O. BOX 228  
 CLARKSVILLE, MD 21029  
 410-531-5539

PROJECT  
**SOBUS PROPERTY LOTS 3 THRU 6 & BUILDABLE PRESERVATION PARCEL 'A'**  
 AREA TAX MAP 6, GRD 5, PARCEL 34, ZONING RC-DEO  
 4TH ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND

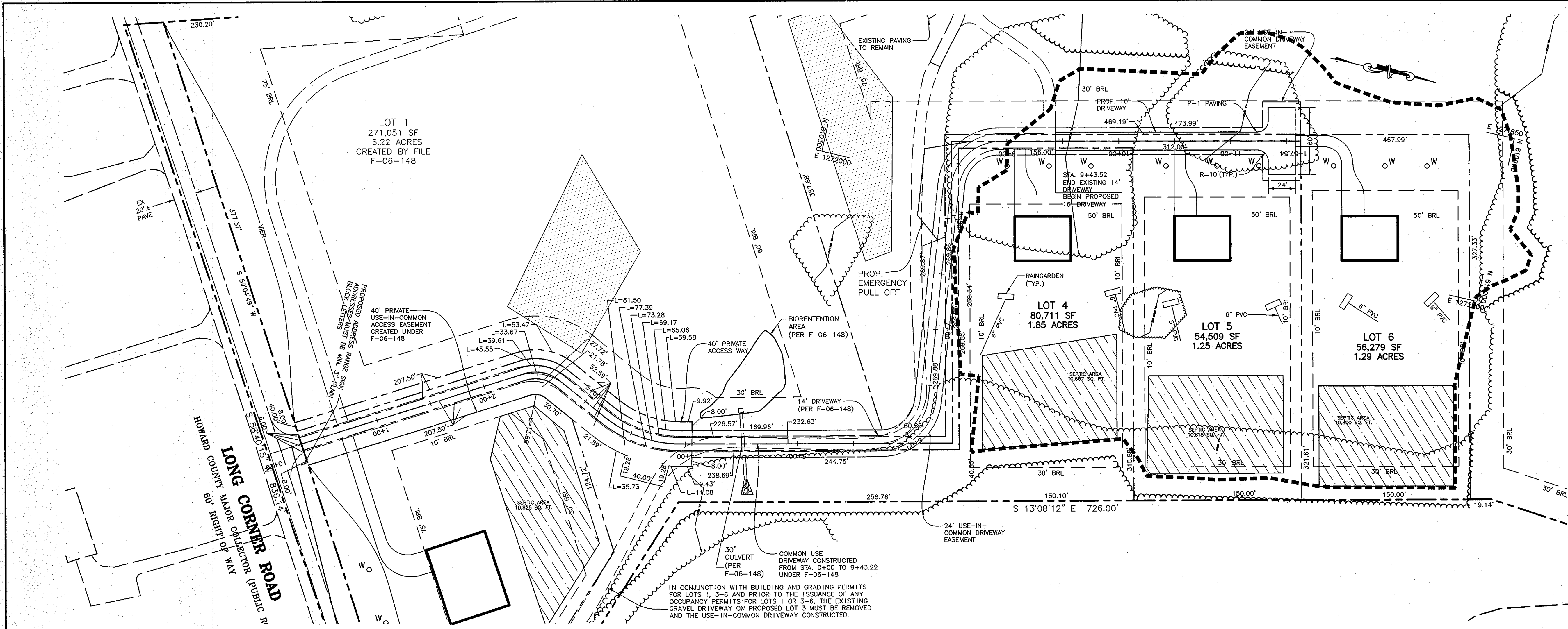
TITLE  
**FINAL LANDSCAPE PLAN**

**Patton Harris Rust & Associates, pc**  
 Engineers. Surveyors. Planners. Landscape Architects.  
 8818 Centre Park Drive  
 Columbia, MD 21045  
 T 410.997.8900  
 F 410.997.9282

DESIGNED BY : ALC  
 DRAWN BY: ALC  
 PROJECT NO : 13953-1-0  
 DATE : MAY 12, 2008  
 SCALE : 1" = 50'  
 DRAWING NO. 8 OF 12

PETER J. STONE #3068





HMA SUPERPAVE FINAL SURFACE 9.5 MM PG 64-22, LEVEL 1 (ESAL)	1 1/2"
HMA SUPERPAVE BASE 19.0 MM, PG 64-22, LEVEL 1 (ESAL)	2 1/2"
GRADED AGGREGATE BASE (GAB)	4"

HOWARD COUNTY DESIGN MANUAL VOLUME IV - STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (DRAWING R-2.01)

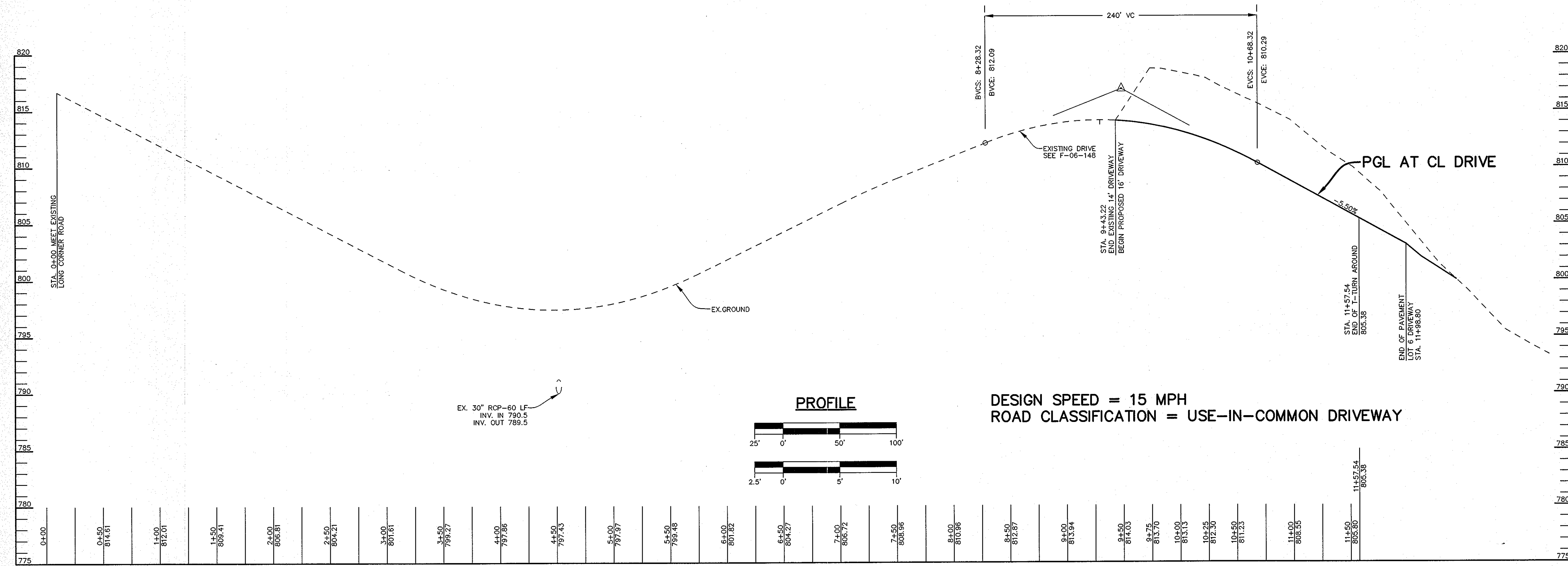
THE PAVING SECTION SHOWN HAS NOT BEEN DESIGNED FOR ACTUAL SOIL CONDITIONS, IN PLACE COMPACTION RESULTS, OR TRAFFIC VOLUMES SPECIFIC TO THIS PROJECT. IT IS RECOMMENDED THAT THE USER CONSULT WITH A LICENSED PROFESSIONAL GEOTECHNICAL ENGINEER FOR A SPECIFIC PAVING DESIGN BASED ON THE APPROPRIATE PARAMETERS PRIOR TO INSTALLATION OF THIS PAVING SECTION.

**P-1 PAVING**  
NO SCALE

ROAD INFORMATION CHART	
ROAD CLASSIFICATION	USE-IN-COMMON DRIVEWAY
DESIGN SPEED	15 MPH
STATION	9+43.22 TO 11+57.54
PAVING TYPE	P-1

IN CONJUNCTION WITH BUILDING AND GRADING PERMITS FOR LOTS 1, 3-6 AND PRIOR TO THE ISSUANCE OF ANY OCCUPANCY PERMITS FOR LOTS 1 OR 3-6, THE EXISTING GRAVEL DRIVEWAY ON PROPOSED LOT 3 MUST BE REMOVED AND THE USE-IN-COMMON DRIVEWAY CONSTRUCTED.

H.P. ELEV = 814.11  
H.P. STA = 9+29.38  
PVI STA = 9+48.32  
PVI ELEV = 816.89  
CORR = -2.85'



APPROVED: FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS

COUNTY HEALTH OFFICER: \_\_\_\_\_ DATE: \_\_\_\_\_  
 HOWARD COUNTY HEALTH DEPARTMENT

APPROVED: DEPARTMENT OF PUBLIC WORKS  
 \_\_\_\_\_ DATE: 5-23-08  
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 \_\_\_\_\_ DATE: 5/10/08  
 CHIEF, DIVISION OF LAND DEVELOPMENT

CHIEF, DEVELOPMENT ENGINEERING DIVISION: \_\_\_\_\_ DATE: \_\_\_\_\_

DATE	NO.	REVISION

OWNER: NORTHERN LLLP, P.O. BOX 228, CLARKSVILLE, MD 21029, 410-531-5539

DEVELOPER: HIGHLAND DEVELOPMENT CORPORATION, ATTN: RICHARD DEMMITT, P.O. BOX 228, CLARKSVILLE, MD 21029, 410-531-5539

PROJECT: SOBUS PROPERTY LOTS 3 THRU 6 & BUILDABLE PRESERVATION PARCEL 'A'  
 AREA TAX MAP 6, GRID 5, PARCEL 34, ZONING RC-DEO, 4TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

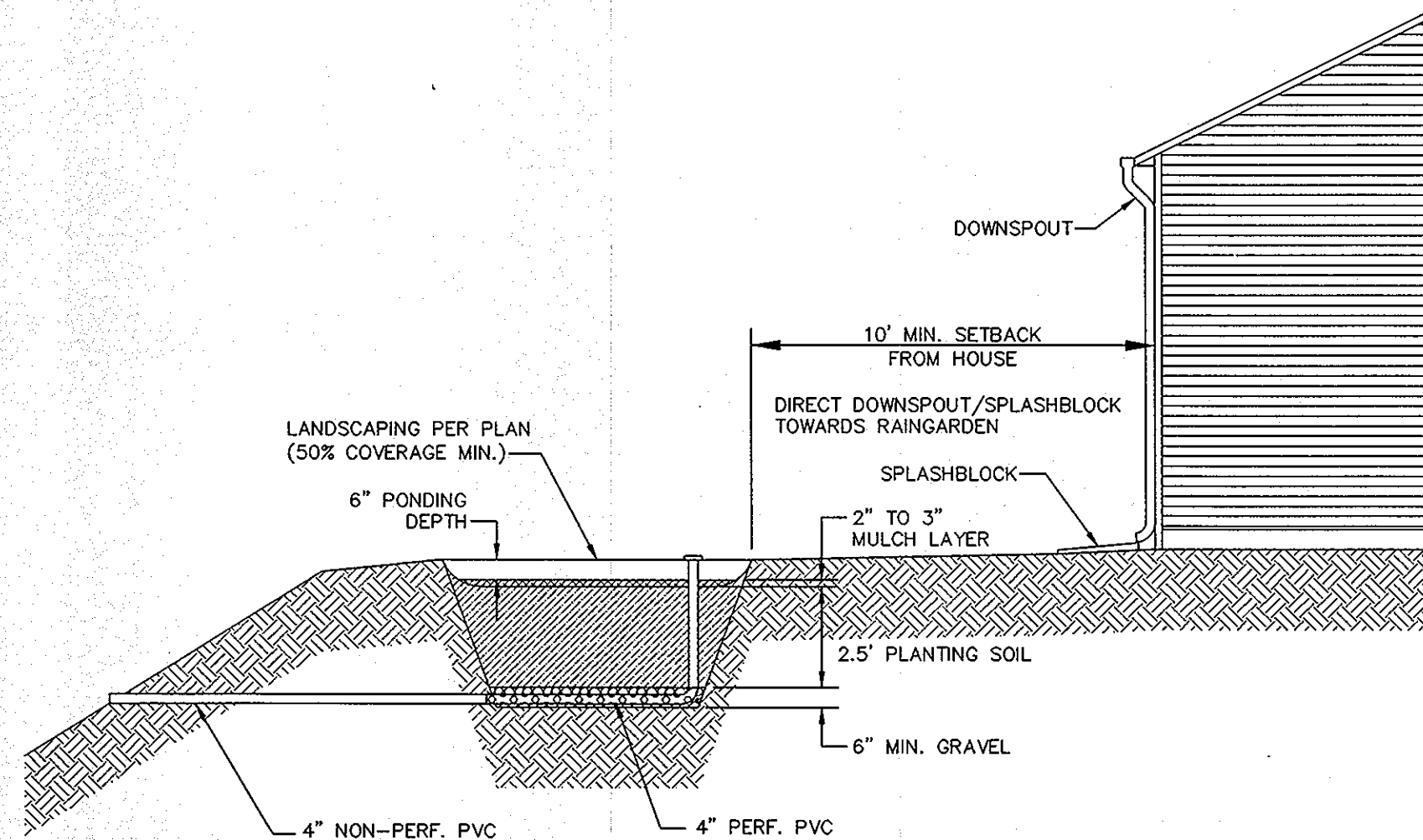
TITLE: **40' USE-IN-COMMON PLAN AND PROFILE**

Patton Harris Rust & Associates, pc  
 Engineers, Surveyors, Planners, Landscape Architects.  
 8818 Centre Park Drive, Columbia, MD 21045  
 T 410.997.8900 F 410.997.9282

SEAL: \_\_\_\_\_ 4/21/08

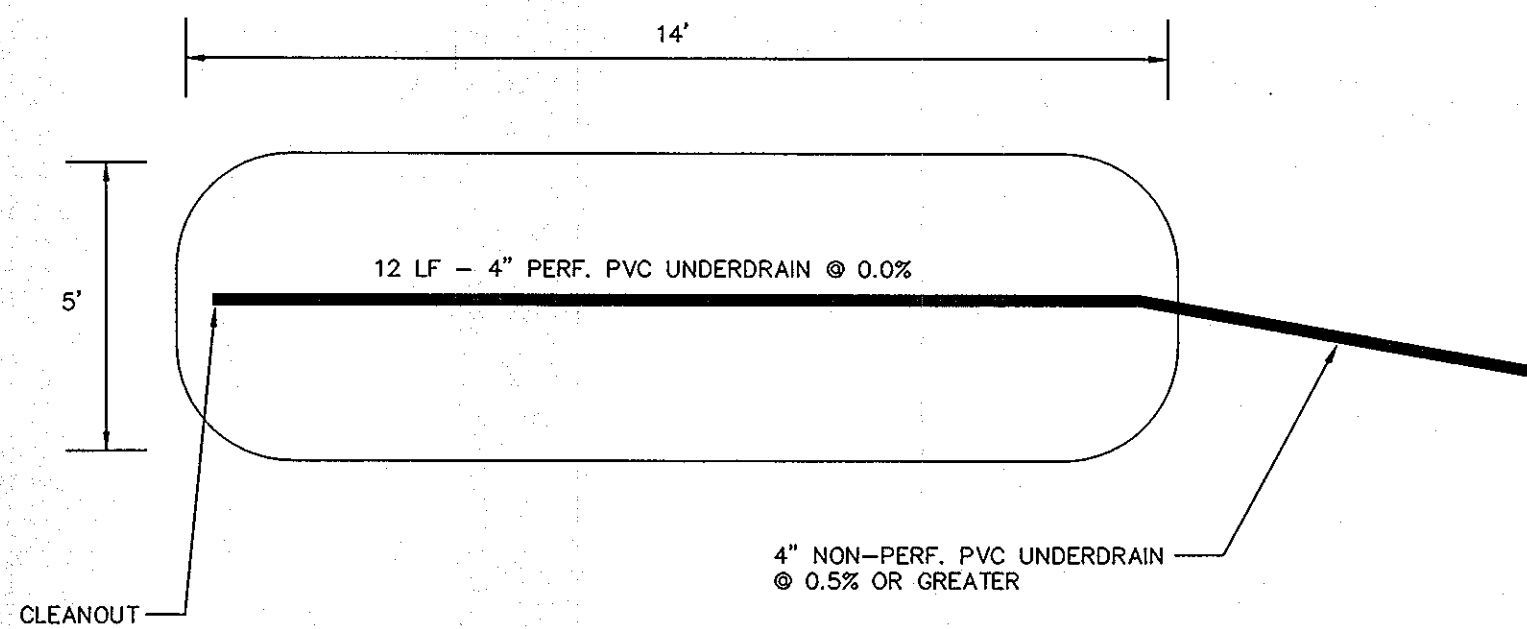
DESIGNED BY: DWC  
 DRAWN BY: ALC  
 PROJECT NO: 13953-1-0 FINAL/C700PRO  
 DATE: MAY 12, 2008  
 SCALE: AS SHOWN  
 DRAWING NO. 9 OF 12





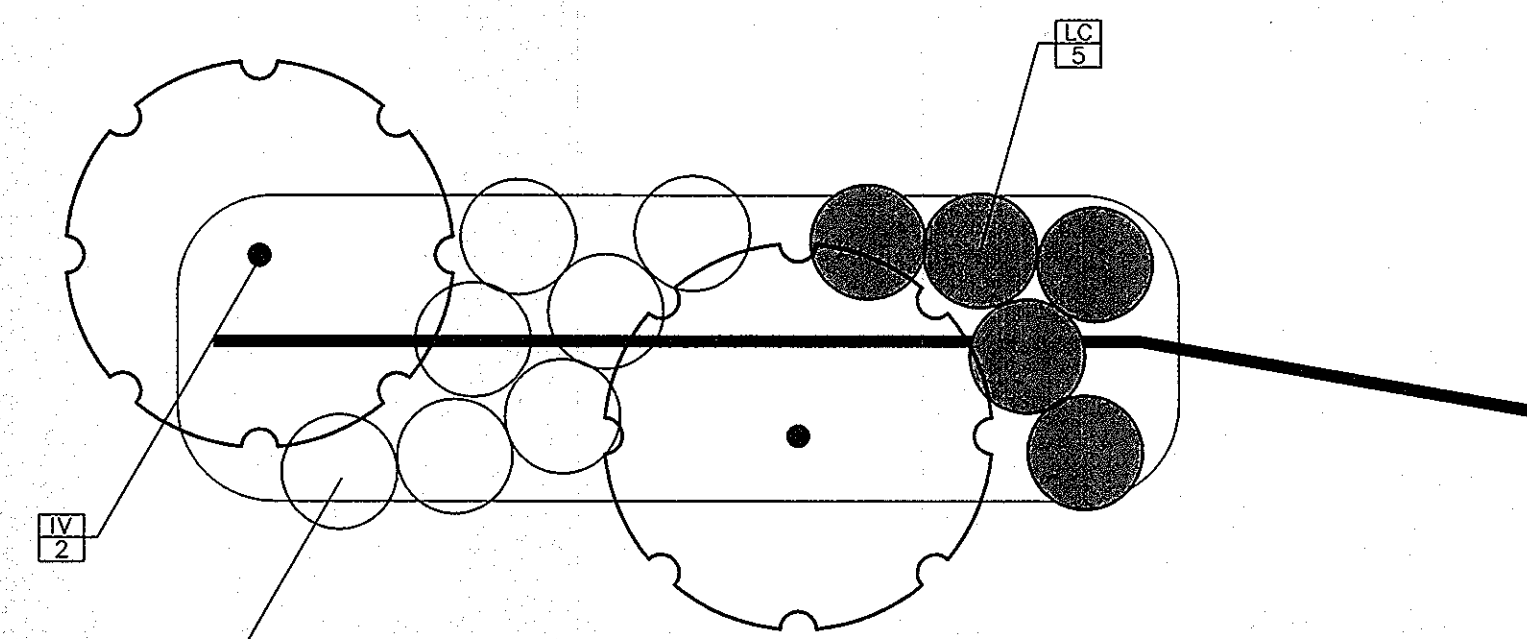
**TYPE I RAINGARDEN PROFILE**

NOT TO SCALE



**TYPE I RAINGARDEN PLAN**

NOT TO SCALE



**TYPE I RAINGARDEN LANDSCAPE PLAN**

NOT TO SCALE

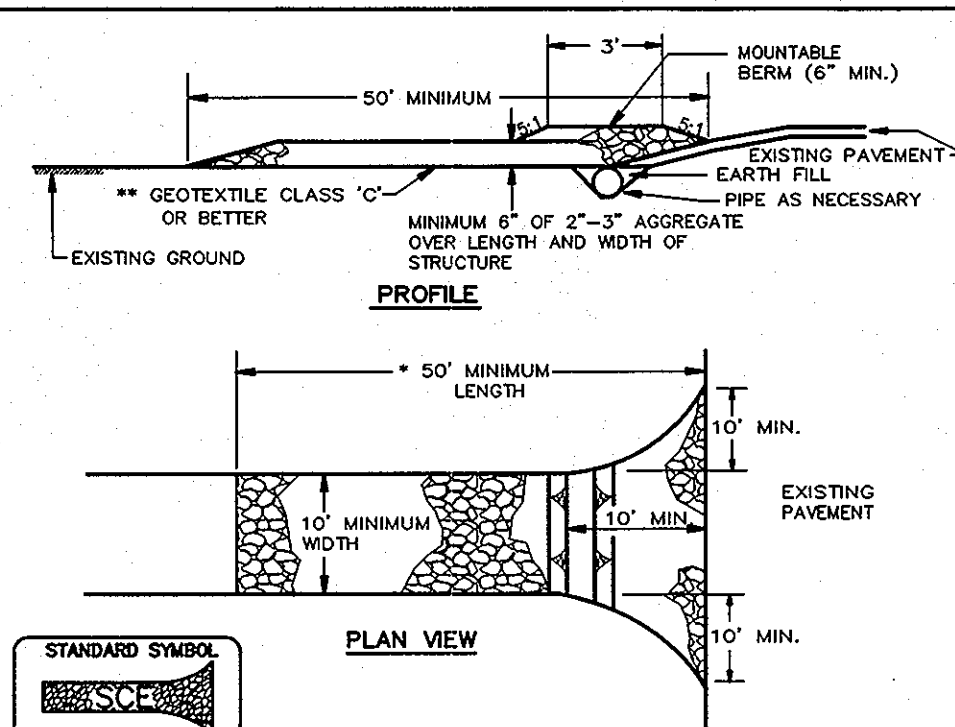
RAINGARDEN SCHEDULE							
LOT #	SIZE	TYPE	TOP EL. AT MULCH LAYER	4" PERF. PIPE INV.	4" PIPE OUTFALL INV.	4" NON-PERF LINEAR FEET	
4	A	70 SF	I	806.5	803.25	802.0	59.00
4	B	70 SF	I	806.0	802.75	802.0	36.00
5	A	70 SF	I	804.0	800.75	799.0	42.00
5	B	70 SF	I	800.0	796.75	796.0	29.00
6	A	70 SF	I	794.0	790.75	789.5	32.00
6	B	70 SF	I	786.0	782.75	783.0	18.00

RAINGARDEN PLANT LIST						
KEY	QTY. PER GARDEN	SCIENTIFIC/COMMON NAME	SIZE	ROOT	SPACING	ZONE*
IV	2	ITEA VIRGINICA 'HENRY'S GARNET'	2.5'-3" HT.	CONT.	PLANT AS SHOWN	***
LC	5	LOBELIA CARDINALIS 'CARDINAL FLOWER'	1 GAL.	CONT.	18" SPACING	1, (2, 3), 4
IB	7	IRIS VERSICOLOR 'BLUE FLAG' BLUE FLAG IRIS	1 GAL.	CONT.	18" SPACING	(1, 2), 3

**RAINGARDEN LIST NOTES:**

- \* HYDROLOGIC ZONES ACCORDING TO APPENDIX A OF THE MARYLAND MODEL STORMWATER MANAGEMENT ORDINANCE JULY 2000.
- \*\* KNOWN TO TOLERATE INUNDATION AS WELL AS DRY AREAS ACCORDING TO DIRR, MICHAEL A., MANUAL OF WOODY LANDSCAPE PLANTS
- \*\*\* COMMONLY USED BIORETENTION SPECIES ACCORDING TO TABLE A.4 IN APPENDIX A OF THE MARYLAND MODEL STORMWATER MANAGEMENT ORDINANCE JULY 2000.

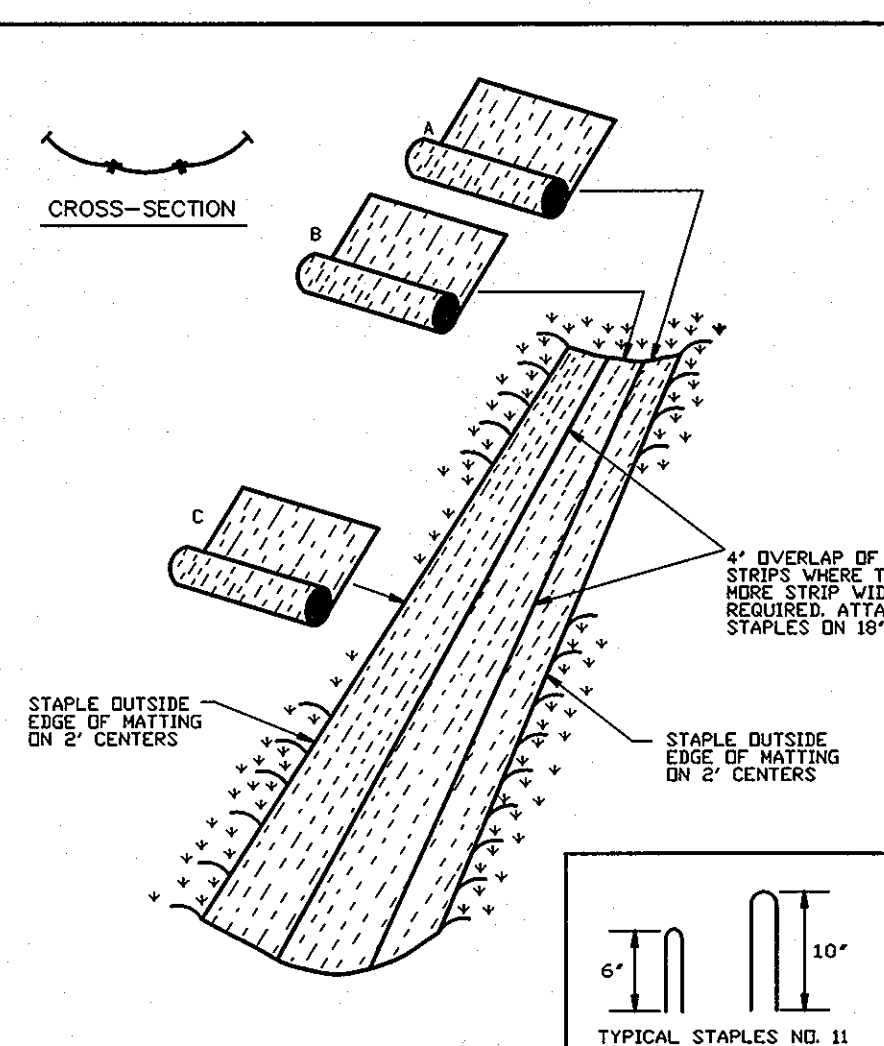
**DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE**



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

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 6-28-2 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

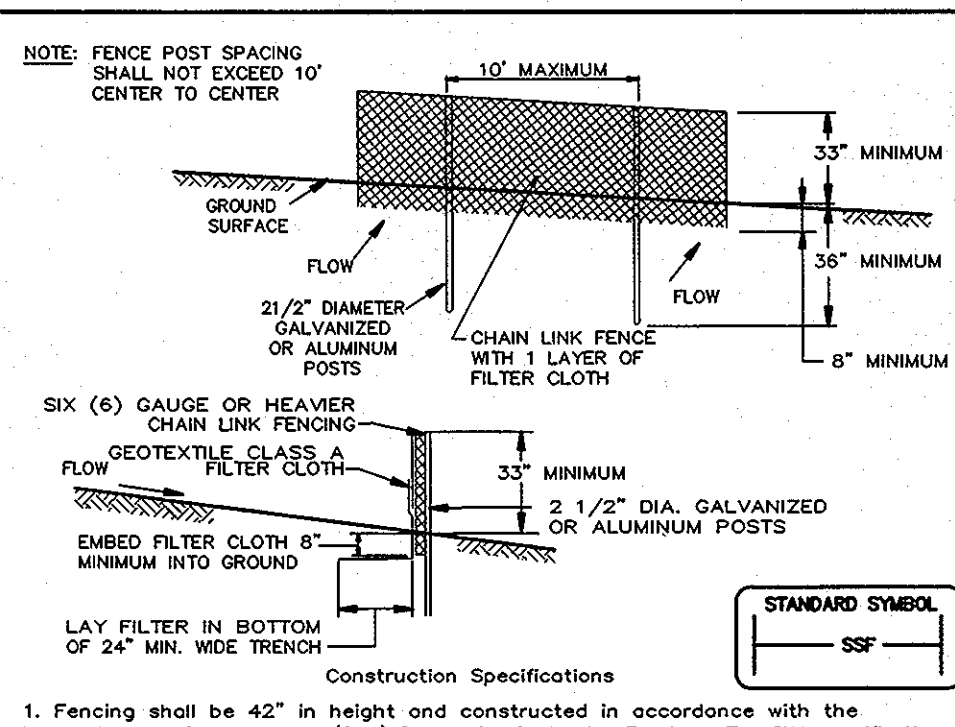
**DETAIL 30 - EROSION CONTROL MATTING**



- Construction Specifications**
- Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1 1/2" x 1 1/2" square (minimum) cut, or 1 3/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighing not less than 1.00 pound per linear foot.
  - Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:  
Tensile Strength 50 lbs/in (min.) Test: MSMT 509  
Tensile Modulus 20 lbs/in (min.) Test: MSMT 509  
Flow Rate 0.3 gal ft<sup>2</sup>/minute (max.) Test: MSMT 322  
Filtering Efficiency 75% (min.) Test: MSMT 322
  - Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.
  - Silt fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reaches 50% of the fabric height.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 6-28-2 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

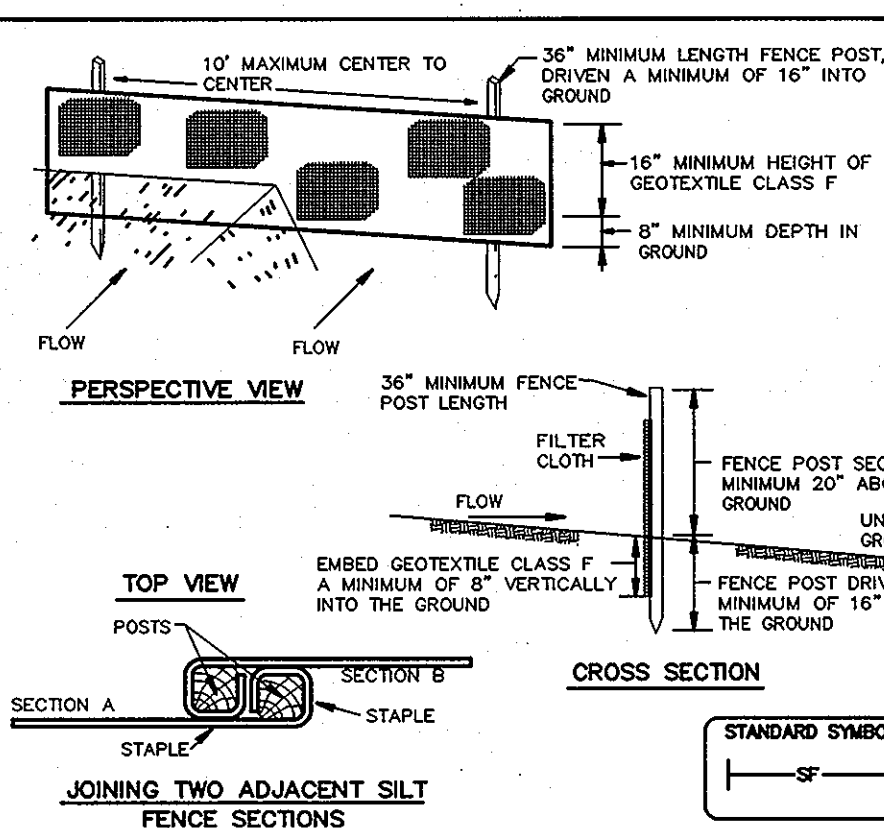
**DETAIL 33 - SUPER SILT FENCE**



- Construction Specifications**
- Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway (SHA) Details for Chain Link Fencing. The SHA specifications for a 6 foot fence shall be used, substituting 42" fabric and 6 foot length posts.
  - The posts do not need to be set in concrete.
  - Chain link fence shall be fastened securely to the fence posts with wire ties or staples. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence. The chain link fencing shall be six (6) gauge or heavier.
  - Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
  - Filter cloth shall be embedded a minimum of 8" into the ground.
  - When two sections of geotextile fabric adjoin each other, they shall be overlapped by 6" and folded.
  - Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 6-28-2 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

**DETAIL 22 - SILT FENCE**



- Construction Specifications**
- Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1 1/2" x 1 1/2" square (minimum) cut, or 1 3/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighing not less than 1.00 pound per linear foot.
  - Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:  
Tensile Strength 50 lbs/in (min.) Test: MSMT 509  
Tensile Modulus 20 lbs/in (min.) Test: MSMT 509  
Flow Rate 0.3 gal ft<sup>2</sup>/minute (max.) Test: MSMT 322  
Filtering Efficiency 75% (min.) Test: MSMT 322
  - Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.
  - Silt fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reaches 50% of the fabric height.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 6-28-2 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

**30.0 - DUST CONTROL**

**DEFINITION**  
CONTROLLING DUST BLOWING AND MOVEMENT ON CONSTRUCTION SITES AND ROADS.

**PURPOSE**  
TO PREVENT BLOWING AND MOVEMENT OF DUST FROM EXPOSED SOIL SURFACES, REDUCE ON AND OFF-SITE DAMAGE, HEALTH HAZARDS, AND IMPROVE TRAFFIC SAFETY.

**CONDITIONS WHERE PRACTICE APPLIES**  
THIS PRACTICE IS APPLICABLE TO AREAS SUBJECT TO DUST BLOWING AND MOVEMENT WHERE ON OFF-SITE DAMAGE IS LIKELY WITHOUT TREATMENT.

**SPECIFICATIONS**

**TEMPORARY METHODS**

- MULCHES - SEE STANDARDS FOR VEGETATIVE STABILIZATION WITH MULCHES ONLY. MULCH SHOULD BE CRUMPED OR TACKED TO PREVENT BLOWING.
- VEGETATIVE COVER - SEE STANDARDS FOR TEMPORARY VEGETATIVE COVER.
- TILLAGE - TO ROUGHEN SURFACE AND BRING CLODS TO THE SURFACE. THIS IS AN EMERGENCY MEASURE WHICH SHOULD BE USED BEFORE SOIL BLOWING STARTS. BEGIN PLOWING ON WINDWARD SIDE OF SITE. CHELSEY-TYPE PLOWS SPACED ABOUT 12' APART, SPRING-TOOTHED HARROWS, AND SIMILAR PLOWS ARE EXAMPLES OF EQUIPMENT WHICH MAY PRODUCE THE DESIRED EFFECT.
- IRRIGATION - THIS IS GENERALLY DONE AS AN EMERGENCY TREATMENT. SITE IS SPRINKLED WITH WATER UNTIL THE SURFACE IS MOIST. REPEAT AS NEEDED. AT NO TIME SHOULD THE SITE BE IRRIGATED TO THE POINT THAT RUNOFF BEGINS TO FLOW.
- BARRIERS - SOLID BOARD FENCES, SILT FENCES, SNOW FENCES, BURLAP FENCES, STRAW BALES, AND SIMILAR MATERIAL CAN BE USED TO CONTROL AIR CURRENTS AND SOIL BLOWING. BARRIERS PLACED AT RIGHT ANGLES TO PREVAILING CURRENTS AT INTERVALS OF ABOUT 10 TIMES THEIR HEIGHT ARE EFFECTIVE IN CONTROLLING SOIL BLOWING.
- CALCUM CHLORIDE - APPLY AT RATES THAT WILL KEEP SURFACE MOIST. MAY NEED RETREATMENT.

**PERMANENT METHODS**

- PERMANENT VEGETATION - SEE STANDARDS FOR PERMANENT VEGETATIVE COVER, AND PERMANENT STABILIZATION WITH 500, EXISTING TREES OR LARGE SHRUBS MAY AFFORD VALUABLE PROTECTION IF LEFT IN PLACE.
- TOPSOILING - COVERING WITH LESS ERODIBLE SOIL MATERIALS. SEE STANDARDS FOR TOPSOILING.
- STONE - COVER SURFACE WITH CRUSHED STONE OR COARSE GRAVEL.

**REFERENCES**

- AGRICULTURE HANDBOOK 346, WIND EROSION FORCES IN THE UNITED STATES AND THEIR USES IN PREDICTING SOIL LOSS.
- AGRICULTURE INFORMATION BULLETIN 354, HOW TO CONTROL WIND EROSION, USDA-ARS.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 6-28-2 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

**OPERATION AND MAINTENANCE SCHEDULE**

- ANNUAL MAINTENANCE OF PLANT MATERIAL, MULCH LAYER AND SOIL LAYER IS REQUIRED. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND FRUING.
- SCHEDULE OF PLANTING INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL. THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD AND DISEASE VEGETATION CONSIDERED BEYOND TREATMENT, TREATMENT OF ALL DISEASED TREES AND SHRUBS AND REPLACEMENT OF ALL DEFICIENT STAKES AND WIRES.
- MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.
- SOIL EROSION SHALL BE ADDRESSED ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE A MONTH AND AFTER HEAVY STORMS.

**MATERIAL SPECIFICATIONS FOR RAINGARDENS**

MATERIAL	SPECIFICATION	SIZE	NOTES
PLANTING SOIL	SAND: 30% TO 60% SILT: 30% TO 55% CLAY: 0% TO 25%	N/A	USDA SOIL TYPES LOAMY SAND, SANDY LOAM, OR LOAM
MULCH	SHREDDED HARDWOOD	N/A	AGED SIX MONTHS MINIMUM
GEOTEXTILE	CLASS "C" (ASTM D-4751) GRAB TENSILE STRENGTH (ASTM D-4832) PUNCTURE RESISTANCE (ASTM D-4833)	N/A	USE AS NECESSARY BENEATH UNDERDRAINS ONLY.
GRAVEL	AASHTO M-43 #57 OR #67	3/8" TO 3/4"	
UNDERDRAIN PIPING	F 758, TYPE PS 28 OR AASHTO M-278	4" RIGID SCHEDULE 40 PVC, SDR 35, OR HDPE	3/8" PERF. @ 6" ON CENTER, 4 HOLES PER ROW, MIN. OF 2" GRAVEL OVER PIPES, GRAVEL NOT NECESSARY BENEATH PIPES.

**RAINGARDEN SPECIFICATIONS**

PLANTING SOIL SHOULD BE SANDY LOAM, LOAMY SAND, OR A LOAM/SAND MIX AND SHOULD CONTAIN A MINIMUM 35 TO 60% SAND BY VOLUME. THE CLAY CONTENT SHOULD BE LESS THAN 25%. THE SOIL SHOULD BE FREE OF STONES, STUMPS, ROOTS, OR OTHER WOODY MATERIAL OVER 1" IN DIAMETER. ONE SIMPLE METHOD OF FOR PRODUCING SUITABLE PLANTING SOIL IS TO MIX THREE PARTS OF COMMERCIALY AVAILABLE WASHED SAND WITH TWO PARTS TOPSOIL TO PRODUCE A HOMOGENEOUS SOIL. PLANTING SOIL SHOULD BE PLACED IN 12" TO 18" LAYERS THAT ARE LOOSELY COMPACTED (TAMPED LIGHTLY WITH A BACKHOE BUCKET) TO A DEPTH OF 2 1/2 FEET.

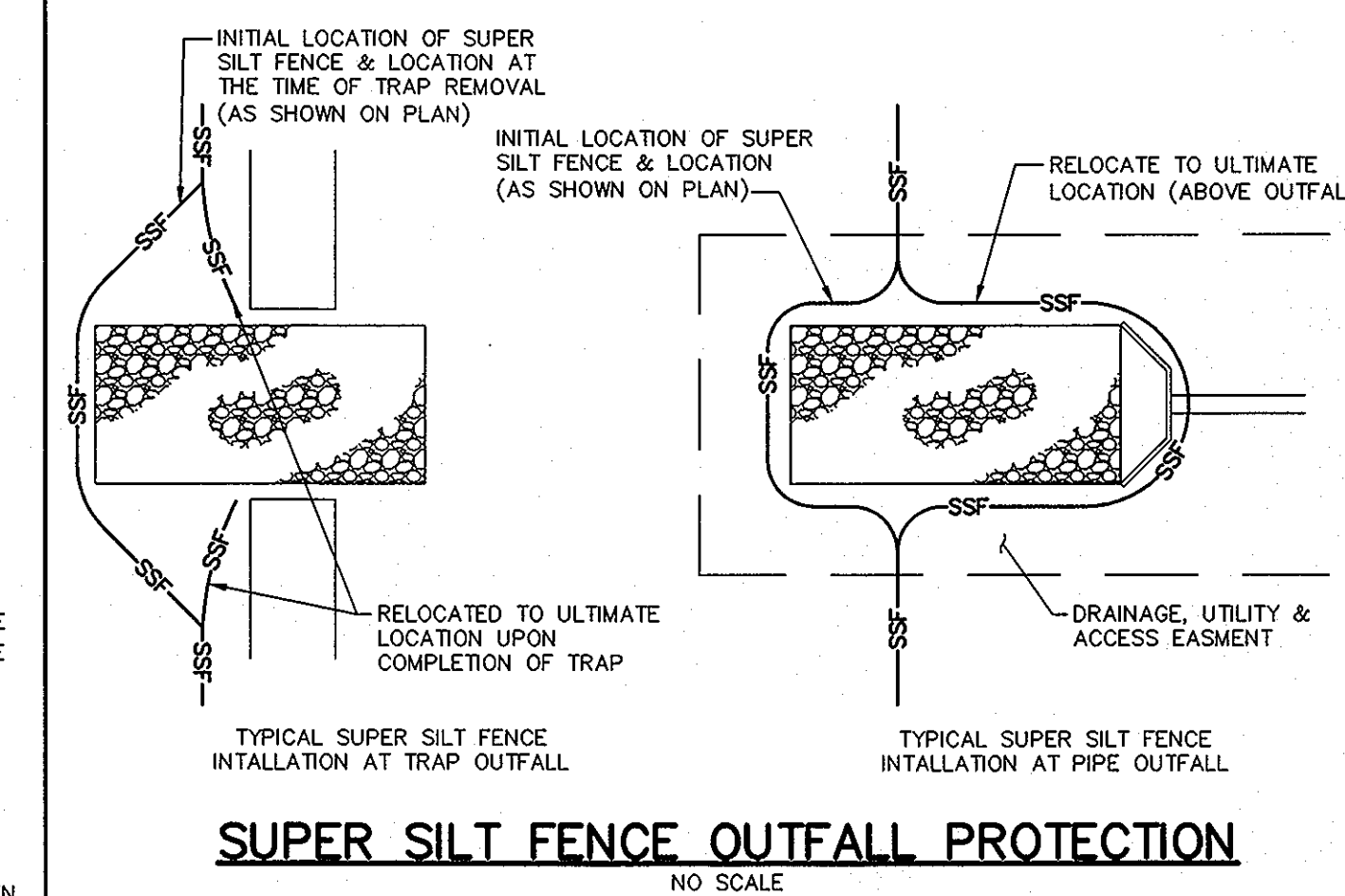
RAINGARDEN MULCH SHOULD BE STANDARD LANDSCAPE STYLE, SINGLE OR DOUBLE SHREDDED HARDWOOD MULCH. THE MULCH SHOULD BE WELL AGED, UNIFORM IN COLOR, AND FREE OF OTHER MATERIALS SUCH AS WEEDS OR ROOTS. GRASS CLIPPINGS ARE UNACCEPTABLE AS A MULCH MATERIAL. MULCH SHOULD BE APPLIED TO A MAXIMUM DEPTH OF THREE INCHES. RAINGARDENS SHOULD BE REMULCHED ON AN ANNUAL BASIS.

UNDERDRAINS SHALL CONSIST OF A 4" DIAMETER RIGID SCHEDULE 40 (OR SDR 35) PVC PIPE (SLOTTED HDPE IS ALSO ACCEPTABLE) THAT IS PERFORATED WITHIN THE RAINGARDEN. PERFORATIONS SHALL BE 3/8" DIAMETER MINIMUM AT 6" ON CENTER WITH MINIMUM OF 4 HOLES PER ROW. UNDERDRAINS SHALL BE PLACED ON A 3" WIDE SECTION OF FILTER CLOTH (CLASS "C" GEOTEXTILE). THE PIPE IS PLACED NEXT, FOLLOWED BY THE GRAVEL BEDDING. THE MAIN COLLECTOR PIPE FOR UNDERDRAIN SYSTEMS SHALL BE CONSTRUCTED AT A MINIMUM SLOPE OF 0.5%. AT LEAST ONE OBSERVATION WELL/CLEANOUT MUST BE PROVIDED PER RAINGARDEN. A RODENT GUARD SHOULD BE INSTALLED AT THE DOWNSTREAM END OF UNDERDRAINS TO PREVENT MICE AND LARGER RODENTS FROM ENTRY. A TYPICAL RODENT GUARD CONSISTS OF A 3/8" HEX-HEAD BOLT THROUGH THE PIPE HORIZONTALLY. NUTS ARE PLACED ON BOTH THE INSIDE AND OUTSIDE OF THE PIPE.

RAINGARDENS SHALL NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.

FOR PLANT INSTALLATION ROOT STOCK OF THE PLANT MATERIAL SHALL BE KEPT MOIST DURING TRANSPORT AND ON-SITE STORAGE. THE PLANT ROOT BALL SHOULD BE PLANTED SO THAT 1/8 OF THE BALL IS ABOVE THE FINAL GRADE SURFACE. THE DIAMETER OF THE PLANTING PIT SHOULD BE AT LEAST SIX INCHES LARGER THAN THE DIAMETER OF THE PLANTING BALL. SET AND MAINTAIN THE PLANT STRAIGHT (UPRIGHT) DURING THE PLANTING PROCESS. THOROUGHLY WATER GROUND BED COVER AFTER INSTALLATION. GRASSES AND LEGUME SEED SHOULD BE DRILLED INTO THE SOIL TO A DEPTH OF AT LEAST ONE INCH. GRASS AND LEGUME PLUGS SHALL BE PLANTED FOLLOWING THE NON-GRASS GROUND COVER SPECIFICATIONS.

THE TOPSOIL SPECIFICATIONS PROVIDE ENOUGH ORGANIC MATERIAL TO ADEQUATELY SUPPLY NUTRIENTS FROM NATURAL CYCLING. THE PRIMARY FUNCTION OF THE RAINGARDEN IS TO IMPROVE WATER QUALITY. ADDING FERTILIZERS DEFEATS, OR AT A MINIMUM, IMPEDES THIS GOAL. ONLY ADD FERTILIZER IF WOOD CHIPS OR MULCH IS USED TO AMEND THE SOIL.



**SUPER SILT FENCE OUTFALL PROTECTION**

NO SCALE

BY THE DEVELOPER:  
I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

*Richard Demmitt* 5-7-08  
DEVELOPER DATE

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

*D.W.C.H.* 4/24/08  
ENGINEER DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

*[Signature]*  
NATURAL RESOURCES CONSERVATION SERVICE DATE

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

*John R. Palumbo* 5/24/08  
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS

COUNTY HEALTH OFFICER  
HOWARD COUNTY HEALTH DEPARTMENT

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*William R. McNeil* 5-23-08  
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Charles Palmer* 5/24/08  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION  
*[Signature]* 5/24/08  
DATE

DATE	NO.	REVISION

OWNER  
NORTHERN LLLP,  
P.O. BOX 228  
CLARKSVILLE, MD 21029  
410-531-5539

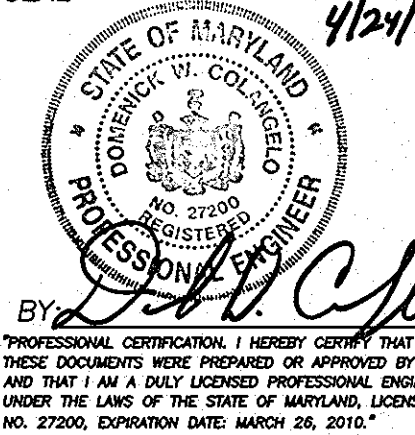
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PROJECT  
**SOBOS PROPERTY LOTS 3 THRU 6 & BUILDABLE PRESERVATION PARCEL 'A'**  
AREA TAX MAP 6, GRID 5, PARCEL 34, ZONING RC-DEO  
4TH ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

TITLE  
**FINAL SEDIMENT AND EROSION CONTROL DETAILS AND RAINGARDEN NOTES**

**Patton Harris Rust & Associates, pc**  
Engineers, Surveyors, Planners, Landscape Architects.  
8818 Centre Park Drive  
Columbia, MD 21045  
T 410.997.8900  
F 410.997.9282

DESIGNED BY: DW  
DRAWN BY:  
PROJECT NO. 13953-1-0  
C000DET.DWG  
DATE: MAY 12, 2008  
SCALE: AS SHOWN  
DRAWING NO. 10 OF 12





MD-378 STANDARDS AND SPECIFICATIONS

SPECIFICATIONS

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

SITE PREPARATION

Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped of topsoil. All trees, vegetation, roots and other objectionable material shall be removed. Channel banks and sharp breaks shall be sloped to no steeper than 1:1. All trees shall be cleared and grubbed within 15 feet of the toe of the embankment.

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush and stumps shall be cut and removed to a minimum of 25 foot ground surface, or dry stormwater management ponds, a minimum of a 25 foot radius around the inlet structure shall be cleared.

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

EARTH FILL

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

Placement - Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in maximum 8-inch thick (before compaction) layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portions of the embankment. The principal spillway shall be compacted concurrently with fill placement and not excavated into the embankment.

Compaction - The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one tread track of the equipment or compaction shall be achieved by a minimum of four complete passes of a sheepfoot, rubber tire or vibratory roller. Fill material shall contain sufficient moisture so that the required degree of compaction will be obtained with the equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble yet not be so wet that water can be squeezed out.

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

Cutoff Trench - The cutoff trench shall be excavated into impervious material along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be 1 to 1.5 ft wider than the top width. The trench shall be 1 to 1.5 ft wider than the top width. The depth shall be at least four feet below existing grade or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The bottom shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability. In addition, the core shall be placed concurrently with the outer shell of the embankment.

Embankment Core - The core shall be parallel to the centerline of the embankment as shown on the plans. The top width of the core shall be a minimum of 10 feet. The height shall extend up to at least the 10 year water elevation or as shown on the plans. The side slopes shall be 1 to 1 or flatter. The core shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability. In addition, the core shall be placed concurrently with the outer shell of the embankment.

STRUCTURE BACKFILL

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

Structure backfill may be flowable fill meeting the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 313 as modified. The mixture shall have a 100-200 pass 28 day unconfined compressive strength. The flowable fill shall have a minimum pH of 4.0 and a minimum resistivity of 2000 ohm-cm. Material shall be placed such that a minimum of 6" (measured perpendicular to the pipe) of flowable fill shall be under (bedding) over and, on the sides of the pipe. It only extends up to the spring line for rigid conduits. Average slump of the fill shall be 7" to assure flowability of the material. Adequate plasticity (measured as sand bags, etc.) to prevent floating the pipe. When using flowable fill, all metal pipe shall be bituminous coated. Any adjoining soil fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material shall completely fill all voids adjacent to the flowable fill zone. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a structure or pipe unless there is a compacted fill of 24" or greater over the structure or pipe. Backfill material outside the structural backfill (flowable fill) zone shall be of the type and quality conforming to that specified for the embankment or other embankment materials.

PIPE CONDUITS

All pipes shall be circular in cross section.

Corrugated Metal Pipe - All of the following criteria shall apply for corrugated metal pipe:

1. Materials - (Polymer Coated steel pipe) - Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inches on both sides of the pipe. This pipe and its appurtenances shall conform to the requirements of AASHTO Specifications M-245 & M-246 with watertight coupling bands or flanges.

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

Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specifications M-195 or M-211 with watertight coupling bands or flanges. Aluminum Pipe, when used with flowable fill or when soil and/or water conditions warrant the need for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt. Hot dip galvanized bolts not be used for connections. The pH of the surrounding soils shall be between 4 and 9.

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

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

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

Helically corrugated pipe shall have either continuously welded seams or have lock seams with internal caulking or a neoprene bead.

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

5. Backfilling shall conform to "Structure Backfill."

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

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

1. Materials - Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM Designation C-361.

2. Bedding - All reinforced concrete pipe conduits shall be laid in a concrete bedding/cradle for their entire length. This bedding/cradle shall consist of high slump concrete placed under the pipe or on top of the pipe to at least 50% of its outside diameter with a minimum thickness of 6 inches. Where a concrete cradle is not needed for structural reasons, flowable fill may be used as described in the Structure Backfill section of this standard. Grovel bedding is not permitted.

21.0 STANDARD AND SPECIFICATIONS

FOR TOPSOIL

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

Purpose

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

Conditions Where Practice Applies

I. 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-SSC in cooperation with Maryland Agricultural Experimentation Station.

II. Topsoil Specifications - Soil to be used as topsoil must meet the following:

i. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, silt, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1" in diameter.

ii. Topsoil must be free of plants or plant parts such as bermuda grass, quackgrass, Johnsongrass, nutsedge, poison ivy, thistle, or others as specified.

iii. Where subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.

III. For sites having disturbed areas over 5 acres:

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

II. For sites having disturbed areas over 5 acres:

i. On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:

- a. pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.
b. Organic content of topsoil shall be not less than 1.5 percent by weight.
c. Topsoil having soluble salt content greater than 500 parts per million shall not be used.
d. No sod or seed shall be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phytotoxic materials.

Note: Topsoil substitutes to 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 - B Section I - Vegetative Stabilization Methods and Materials.

V. Topsoil Application

i. When topsoiling, maintain needed erosion and sediment control practices such as diversions, Grade Stabilization Structures, Earth Dikes, Slope Silt Fence and Sediment Traps and Basins.

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

iii. Topsoil shall be uniformly distributed in a 4" - 8" layer and lightly compacted to a minimum thickness of 4". Spreading shall be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations shall be corrected in order to prevent the formation of depressions or water pockets.

iv. Topsoil shall not be placed while the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

V. Alternative for Permanent Seeding - instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:

i. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribe amendments and for site 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.
d. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.

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

Mulching - Apply 1-1/2 to 2 tons per acre (70 to 90 lbs. per 1000 sq.ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or a 5 gal. per 1000 sq.ft. of emulsified asphalt on flat areas. On slopes, 8 ft. or higher, use 347 gal. per acre (8 gal. per 1000 sq.ft.) for anchoring.

ERTION - This is a MARYLAND STANDARD AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for rate and methods not covered.

TEMPORARY SEEDING NOTES

Apply to graded or cleared areas likely to be redisturbed where a short-term vegetative cover is needed.

Seeded Preparation - Loosen upper three inches of soil by raking, discing or other acceptable means before seeding. If not previously loosened.

Soil Amendments - Apply 600 lbs. per acre 10-10-10 fertilizer (14 lbs. per 1000 sq.ft.).

Seeding - For periods March 1 thru April 30 and from August 15 thru November 15, seed with 2-1/2 bushels per acre of annual ryegrass (2.2 lbs. per 1000 sq.ft.). For the period May 1 thru August 14, seed with 3 lbs. per acre of weeping lovegrass (0.07 lbs. per 1000 sq.ft.). For the period November 16 thru February 28, protect site by applying 2 tons per acre 30-0-0 urea-form fertilizer (8 lbs. per 1000 sq.ft.) possible in the spring, or use sod.

Mulching - Apply 1-1/2 to 2 tons per acre (70 to 90 lbs. per 1000 sq.ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or a 5 gal. per 1000 sq.ft. of emulsified asphalt on flat areas. On slopes, 8 ft. or higher, use 347 gal. per acre (8 gal. per 1000 sq.ft.) for anchoring.

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PERMANENT SEEDING NOTES

Apply to graded or cleared areas not subject to immediate further disturbance where a permanent long-lived vegetative cover is needed.

Seeded Preparation - Loosen upper three inches of soil by raking, discing or other acceptable means before seeding. If not previously loosened.

Soil Amendments - In lieu of soil test recommendations, use one of the following schedules:

- 1) Preferred - Apply 2 tons per acre dolomitic limestone (92 lbs. per 1000 sq.ft.) and 500 lbs. per acre 10-10-10 fertilizer (14 lbs. per 1000 sq.ft.) before seeding. Harrow or disc into upper three inches of soil. At time of seeding, apply 400 lbs. per acre 30-0-0 urea-form fertilizer (8 lbs. per 1000 sq.ft.).
2) Acceptable - Apply 2 tons per acre dolomitic limestone (92 lbs. per 1000 sq.ft.) and 1000 lbs. per acre 10-10-10 fertilizer (23 lbs. per 1000 sq.ft.) before seeding. Harrow or disc into upper three inches of soil.

Seeding - For the period March 1 thru April 30 and from August 1 thru October 15, seed with 60 lbs. per acre (1.4 lbs. per 1000 sq.ft.) of Kentucky 31 Tall Fescue. For the period May 1 thru June 31, seed with 60 lbs. Kentucky 31 Tall Fescue per acre and 2 lbs. per acre of urea-form fertilizer (0.05 lbs. per 1000 sq.ft.) before seeding. During the period October 16 thru February 28, protect site by one of the following options:

- 1) 2 tons per acre of well-anchored mulch straw and seed as soon as possible in the spring.
2) Use sod.
3) Seed with 60 lbs. per acre Kentucky 31 Tall Fescue and mulch with 2 tons per acre well anchored straw.

Mulching - Apply 1-1/2 to 2 tons per acre (70 to 90 lbs. per 1000 sq.ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or a 5 gal. per 1000 sq.ft. of emulsified asphalt on flat areas. On slopes, 8 ft. or higher, use 347 gal. per acre (8 gal. per 1000 sq.ft.) for anchoring.

Maintenance - Inspect all seeded areas and make needed repairs, replacements and reseedings.

21.0 STANDARD AND SPECIFICATIONS

FOR TOPSOIL

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- 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-SSC in cooperation with Maryland Agricultural Experimentation Station.

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ii. Topsoil must be free of plants or plant parts such as bermuda grass, quackgrass, Johnsongrass, nutsedge, poison ivy, thistle, or others as specified.

iii. Where subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.

III. For sites having disturbed areas over 5 acres:

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

II. For sites having disturbed areas over 5 acres:

i. On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:

- a. pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.
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c. Topsoil having soluble salt content greater than 500 parts per million shall not be used.
d. No sod or seed shall be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phytotoxic materials.

Note: Topsoil substitutes to 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.

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ERTION - This is a MARYLAND STANDARD AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for rate and methods not covered.

STANDARD SEDIMENT CONTROL NOTES

- 1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (313-1855).
2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 7 CALENDAR DAYS FOR ALL PERMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERMETER SLOPES, AND ALL SLOPES STEEPER THAN 3:1. B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THE PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 7, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
5. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING, SOO, TEMPORARY SEEDING, AND MULCHING (SEC. G.), TEMPORARY STABILIZATION WITH MULCH ALONE SHALL ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHED OF GRASSES.
6. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

7. SITE ANALYSIS:

Table with 2 columns: Description and Area. Includes TOTAL AREA OF SITE (21.87 ACRES), AREA DISTURBED (4.69 ACRES), AREA TO BE ROOFED OR PAVED (1.22 ACRES), AREA TO BE VEGETATIVELY STABILIZED (20.65 ACRES), TOTAL CUT (2,500 CY), TOTAL FILL (2,500 CY).

OFFSITE WASTE AREA LOCATION TO HAVE ACTIVE GRADING PERMITS. \*QUANTITIES ARE FOR COUNTY FEE PURPOSES ONLY. CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF ACTUAL QUANTITIES.

8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.

9. ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

10. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.

11. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

12. SITE GRADING WILL BEGIN ONLY AFTER ALL PERIMETER SEDIMENT CONTROL MEASURES HAVE BEEN INSTALLED AND ARE IN A FUNCTIONING CONDITION.

13. SEDIMENT WILL BE REMOVED FROM TRAPS WHEN ITS DEPTH REACHES CLEAN OUT ELEVATION SHOWN ON THE PLANS.

14. CUT AND FILL QUANTITIES PROVIDED UNDER SITE ANALYSIS DO NOT REPRESENT BTO QUANTITIES. THESE QUANTITIES DO NOT DISTINGUISH BETWEEN TOPSOIL, STRUCTURAL FILL OR EMBANKMENT MATERIAL, NOR DO THEY REFLECT CONSIDERATION OF UNDERCUTTING OR REMOVAL OF UNSUITABLE MATERIAL. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH SITE CONDITIONS WHICH MAY AFFECT THE WORK.

FINAL

BY THE DEVELOPER :

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Richard Demmitt 5-7-08 DEVELOPER DATE

BY THE ENGINEER :

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

D.W.C. 4/24/08 ENGINEER DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

John R. Roberts 5/22/08 HOWARD SOIL CONSERV



**BORING LOG** **geolab**

Depth	Description of Materials	Remarks
0.00	TOPSOIL/ROOTMAT	
0.47	RED-ORANGE SILTY CLAY	NO GROUNDWATER ENCOUNTERED
2.00	RED-ORANGE SILTY CLAY WITH SHALE INCLUSIONS	
4.00	RED-ORANGE SHALE	
8.00	END OF BORING/TEST PIT	

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

**BORING LOG** **geolab**

Depth	Description of Materials	Remarks
0.00	TOPSOIL/ROOTMAT	
0.47	RED-ORANGE SILTY CLAY	NO GROUNDWATER ENCOUNTERED
2.00	RED-ORANGE SILTY CLAY WITH SHALE INCLUSIONS	
4.50	RED-ORANGE SHALE	
8.00	END OF BORING/TEST PIT	

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

**BORING LOG** **geolab**

Depth	Description of Materials	Remarks
0.00	TOPSOIL/ROOTMAT	
0.47	RED-ORANGE SILTY CLAY	NO GROUNDWATER ENCOUNTERED
3.25	RED-ORANGE SILTY CLAY WITH SHALE INCLUSIONS	
4.25	RED-ORANGE SHALE	
7.25	END OF BORING/TEST PIT	

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

**BORING LOG** **geolab**

Depth	Description of Materials	Remarks
0.00	TOPSOIL/ROOTMAT	
1.00	RED-ORANGE SILTY CLAY	NO GROUNDWATER ENCOUNTERED
3.00	RED-ORANGE SILTY CLAY WITH SHALE INCLUSIONS	
4.50	RED-ORANGE SHALE	
8.00	END OF BORING/TEST PIT	

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

**BORING LOG** **geolab**

Depth	Description of Materials	Remarks
0.00	TOPSOIL/ROOTMAT	
1.00	RED-ORANGE SILTY CLAY	NO GROUNDWATER ENCOUNTERED
4.00	RED-ORANGE SILTY CLAY WITH SHALE INCLUSIONS	
5.50	RED-ORANGE SHALE	
8.00	END OF BORING/TEST PIT	

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

**BORING LOG** **geolab**

Depth	Description of Materials	Remarks
0.00	TOPSOIL/ROOTMAT	
0.47	RED-ORANGE SILTY CLAY	NO GROUNDWATER ENCOUNTERED
3.00	RED-ORANGE SILTY CLAY WITH SHALE INCLUSIONS	
4.50	RED-ORANGE SHALE	
8.00	END OF BORING/TEST PIT	

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

**BORING LOG** **geolab**

Depth	Description of Materials	Remarks
0.00	TOPSOIL/ROOTMAT	
1.00	YELLOW-ORANGE SILTY CLAY	NO GROUNDWATER ENCOUNTERED
3.00	YELLOW-ORANGE SILTY CLAY WITH SHALE INCLUSIONS	
5.00	YELLOW-ORANGE SHALE	
8.00	END OF BORING/TEST PIT	

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

**BORING LOG** **geolab**

Depth	Description of Materials	Remarks
0.00	TOPSOIL/ROOTMAT	
1.00	YELLOW-ORANGE SILTY CLAY	NO GROUNDWATER ENCOUNTERED
3.00	YELLOW-ORANGE SILTY CLAY WITH SHALE INCLUSIONS	
4.00	YELLOW-ORANGE WITH GRAY SHALE	
7.00	END OF BORING/TEST PIT	

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

APPROVED: DEPARTMENT OF PUBLIC WORKS  
 DATE: 5-23-08  
 CHIEF, BUREAU OF HIGHWAYS  
 APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 DATE: 5/20/08  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 APPROVED: DEPARTMENT OF ENGINEERING DIVISION  
 DATE: 5/20/08  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

DATE NO. REVISION

OWNER  
 NORTHERN LLLP.  
 P.O. BOX 228  
 CLARKSVILLE, MD 21029  
 410-531-5539

DEVELOPER  
 HIGHLAND DEVELOPMENT CORPORATION  
 ATTN: RICHARD DEMMITT  
 P.O. BOX 228  
 CLARKSVILLE, MD 21029  
 410-531-5539

PROJECT  
**SOBUS PROPERTY LOTS 3 THRU 6  
 & BUILDABLE PRESERVATION PARCEL 'A'**  
 AREA TAX MAP 6, GRID 5, PARCEL 34, ZONING RC-DEO  
 4TH ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND

TITLE  
**SOIL BORING LOGS**

Patton Harris Rust & Associates, pc  
 Engineers, Surveyors, Planners, Landscape Architects.  
 8818 Centre Park Drive  
 Columbia, MD 21045  
 T 410.997.8900  
 F 410.997.9282

SEAL  
 STATE OF MARYLAND  
 PROFESSIONAL ENGINEER  
 4/24/08  
 DESIGNED BY: DWC  
 DRAWN BY:  
 PROJECT NO. 13953-1-0  
 C902DET.DWC  
 DATE: MAY 12, 2008  
 SCALE: AS SHOWN  
 DRAWING NO. 12 OF 12