

**GENERAL NOTES**

- THE SUBJECT PROPERTY IS ZONED R-20 PER THE 02/02/04 COMPREHENSIVE ZONING PLAN AND PER THE "COMP LITE" ZONING REGULATION AMENDMENTS EFFECTIVE 7/28/06.
- TOTAL PROJECT AREA = 2.49 AC.±  
AREA OF PLAN SUBMISSION = 1.92 AC.±  
LIMIT OF DISTURBED AREA = 1.92 AC.±  
EXISTING USE = RESIDENTIAL  
PROPOSED USE = RESIDENTIAL  
TOTAL NUMBER OF UNITS ALLOWED = 8  
TOTAL NUMBER OF UNITS PROPOSED = 8  
PREVIOUS HOWARD COUNTY FILE NUMBERS: W & S CONTR.#s 14-4442-D; WP-03-062; SP-02-010; F-07-075
- THIS PROPERTY IS WITHIN THE METROPOLITAN DISTRICT.
- THIS PROPERTY IS SUBJECT TO THE FIFTH EDITION OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.
- PUBLIC WATER AND SEWER WILL BE USED WITHIN THIS SITE. PUBLIC WATER AND SEWER SERVICE WILL BE PROVIDED BY CONTRACT NO. 14-4442-D.
- BOUNDARY SURVEY PREPARED BY MILDENBERG BOENDER & ASSOCIATES, INC. ON-SITE TOPOGRAPHY IS BASED ON THE PROPOSED CONTOURS SHOWN ON THE GRADING PLAN PREPARED BY MILDENBERG BOENDER & ASSOCIATES, INC. OFF-SITE TOPOGRAPHY IS BASED ON HOWARD COUNTY 1998 AERIAL SURVEY.
- THERE ARE NO STEEP SLOPES, HISTORIC STRUCTURES OR CEMETERIES WITHIN THE PROJECT BOUNDARY.
- WETLAND STUDY PREPARED BY WILDMAN ENVIRONMENTAL SERVICES, INC. JANUARY 2002. THE DEPARTMENT OF PLANNING AND ZONING DETERMINED THAT RECERTIFICATION OF THE WETLAND STUDY WAS UNNECESSARY SINCE NO ACTIVITIES ARE PROPOSED IN THE VICINITY OF WETLANDS OR THE WETLAND BUFFER WITHIN THE AREA OF PLAN SUBMISSION.
- THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE (5) WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS: STATE HIGHWAY ADMINISTRATION 410.531.5533  
BGE (CONTRACTOR SERVICE) 410.850.4620  
BGE (UNDERGROUND DAMAGE CONTROL) 410.787.9068  
MISS UTILITY 1.800.257.7777  
COLONIAL PIPELINE COMPANY 410.795.1390  
HOWARD COUNTY DEPT. OF PUBLIC WORKS BUREAU OF UTILITIES 410.313.4900  
HOWARD COUNTY HEALTH DEPARTMENT 410.313.2640  
AT&T 1.800.252.1133  
VERIZON 1.800.743.0033 OR 410.224.8210
- THE CONTRACTOR SHALL NOTIFY MISS UTILITY AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING PERFORMED.
- ANY DAMAGE TO PUBLIC RIGHTS-OF-WAY, PAVING OR EXISTING UTILITIES WILL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
- 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 LOTS SHOWN HEREON COMPLY WITH THE MINIMUM OWNERSHIP, WIDTH AND LOT AREA AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY IN ADDITION TO MARYLAND STATE HIGHWAY ADMINISTRATION STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- THE PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.
- EXISTING UTILITIES ARE LOCATED BY THE USE OF ANY OR ALL OF THE FOLLOWING: ROAD CONSTRUCTION PLANS, FIELD SURVEYS, PUBLIC WATER AND SEWER PLANS AND OTHER AVAILABLE RECORD DRAWINGS. APPROXIMATE LOCATION OF THE EXISTING UTILITIES ARE SHOWN FOR THE CONTRACTOR'S INFORMATION. CONTRACTOR SHALL LOCATE EXISTING UTILITIES WELL IN ADVANCE OF CONSTRUCTION ACTIVITIES AND TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND TO MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO THE CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
- ALL PIPE SPECIFICATION AND INSTALLATION SHALL MEET AASHTO M-252 TYPE S, M-294 TYPE S, AND ASTM D2321, RESPECTIVELY.
- SOIL COMPACTION SPECIFICATIONS, REQUIREMENTS, METHODS AND MATERIALS ARE TO BE IN ACCORDANCE WITH THE SOIL RECOMMENDATIONS OF THE PROJECT GEOTECHNICAL ENGINEER. DRIVEWAY PAVING TO BE HOWARD COUNTY STANDARD P-1 PAVING SECTION. GEOTECHNICAL ENGINEER TO CONFIRM ACCEPTABILITY OF PROPOSED PAVING SECTION, BASED ON TEST, PRIOR TO CONSTRUCTION.
- ESTIMATES OF EARTHWORK QUANTITIES ARE PROVIDED SOLELY FOR THE PURPOSE OF CALCULATING FEES.
- ALL TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED ON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NUMBERS 1801 AND 24C2 WERE USED FOR THIS PROJECT.
- FOREST CONSERVATION EASEMENTS HAVE BEEN PROVIDED FOR THIS PROJECT IN ACCORDANCE WITH SECTION 16.1200 OF THE HOWARD COUNTY CODE AND FOREST CONSERVATION ACT. FOREST CONSERVATION REQUIREMENTS ARE ADDRESSED IN ACCORDANCE WITH APPROVED PLAN F 07-075.
- FOR FLAG OR PIPESTEM LOTS, REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE ARE PORTION OF THE FLAG OR PIPESTEM LOT DRIVEWAY AND ROAD RIGHT-OF-WAY LINE, AND NOT TO THE PIPESTEM LOT DRIVEWAY.
- IN ACCORDANCE WITH SECTION 12B OF THE HOWARD COUNTY ZONING REGULATIONS, BAYWINDOWS, CHIMNEYS OR EXTERIOR STAIRWAYS NOT MORE THAN 16 FEET IN WIDTH MAY PROJECT NOT MORE THAN 4 FEET INTO ANY SETBACKS, PORCHES OR DECKS, OPEN OR ENCLOSED, MAY PROJECT NOT MORE THAN 10 FEET INTO THE FRONT OR REAR YARD SETBACK.
- DRIVEWAY ENTRANCE TO BE PER HOWARD COUNTY STANDARD DETAIL R-6.06.
- DRIVEWAY(S) SHALL BE PROVIDED PRIOR TO ISSUANCE OF A USE AND OCCUPANCY PERMIT FOR ANY NEW DWELLINGS TO ENSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING REQUIREMENTS:  
1) WIDTH - 12 FEET (16 FEET SERVING MORE THAN ONE RESIDENCE);  
2) SURFACE - SIX (6") INCHES OF COMPACTED CRUSHER RUN BASE WITH TAR AND CHIP COATING (1-1/2" MINIMUM);  
3) GEOMETRY - MAXIMUM 15% GRADE, MAXIMUM 10% GRADE CHANGE AND 45-FOOT TURNING RADIUS;  
4) STRUCTURES (CULVERTS/BRIDGES) - CAPABLE OF SUPPORTING 25 GROSS TONS (H25-LOADING);  
5) DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100 YEAR FLOOD WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY SURFACE;  
6) MAINTENANCE - SUFFICIENT TO ENSURE ALL WEATHER USE.
- STORMWATER MANAGEMENT IS PROVIDED IN ACCORDANCE WITH THE 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUMES I AND II. THE STORMWATER MANAGEMENT DESIGN WAS APPROVED UNDER F-07-075 DATED SEPT. 3, 2008.
- STORMWATER MANAGEMENT IS PROVIDED BY NON-ROOFTOP DISCONNECTION CREDIT, SHEET FLOW TO BUFFER, RAIN GARDENS, NATURAL CONSERVATION AREA CREDIT, AND A PRIVATELY OWNED AND MAINTAINED SURFACE SAND FILTER. THE ONLOT DISCONNECTION PRACTICES AND RAIN GARDENS ARE SUBJECT TO DECLARATION OF COVENANCE.
- A TRAFFIC STUDY WAS PERFORMED BY MARS GROUP ON JULY 2002 AND APPROVED ON JANUARY 17, 2003.
- A NOISE STUDY WAS PERFORMED BY WILDMAN ENVIRONMENTAL ON JULY 2002 AND APPROVED ON JANUARY 17, 2003.
- FINANCIAL SURETY FOR PERIMETER LANDSCAPING OBLIGATIONS HAVE BEEN PROVIDED FOR THIS PROJECT IN ACCORDANCE WITH SECTION 16.124 OF THE SUBDIVISION REGULATIONS AND THE LANDSCAPE MANUAL UNDER F-07-075. THE FINANCIAL SURETY FOR THE LANDSCAPE STREET SCREENING HAS BEEN POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$ 6,360 (17 SHADE TREES, 7 EVERGREENS, AND 7 SHRUBS), 16 STREET TREES ARE REQUIRED AND PROVIDED.
- SEWER HOUSE CONNECTION (SHC) TO BE AT 2.0% UNLESS OTHERWISE NOTED. CLEANOUTS ARE TO BE PROVIDED AT ALL BENDS. WATER HOUSE CONNECTIONS ARE TO BE 1.5" INDIAMETER, TO ACCOMMODATE SPRINKLER SYSTEMS THAT ARE REQUIRED AS OF JANUARY 1, 2011.
- MAINTENANCE OF THE PRIVATE ROADWAYS, STORM DRAINS, DRAINAGE STRUCTURES AND SWALES, AND STORMWATER MANAGEMENT FACILITIES IS THE RESPONSIBILITY OF THE HOME OWNERS ASSOCIATION AS PROVIDED FOR IN THE DECLARATION OF COVENANTS, CONDITIONS, AND RESTRICTIONS RECORDED IN THE LAND RECORDS OF HOWARD COUNTY IN LIBER MDR 11360 AT FOLIO 0016 DATED AUGUST 14, 2008.
- THE FLOODPLAIN SHOWN HEREON IS TAKEN FROM A PLAT RECORDED IN THE LAND RECORDS OF HOWARD COUNTY AS MDR PLAT NO. 20203 AND IS BASED ON A FLOODPLAIN STUDY PREPARED BY MILDENBERG BOENDER & ASSOCIATES, INC. DATED JUNE 2002 AND APPROVED ON JANUARY 17, 2003. THE FLOODPLAIN LIMITS ON THIS SDP HAVE BEEN AMENDED BASED ON THE MOST CURRENT FEMA STUDY.
- PRIVATE ON LOT STORMWATER MANAGEMENT FACILITIES SHALL HAVE A RECORDED DECLARATION OF COVENANT.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*[Signature]* 9/12/13  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*[Signature]* 9/16/13  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*[Signature]* 9/16/13  
DIRECTOR DATE

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

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

*[Signature]* 9/13/13  
HOWARD SCD DATE

OWNER'S CERTIFICATION:

I/WE HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, OR AS DEEMED NECESSARY.

*[Signature]* 8-21-13  
OWNER DATE

RICHARD TRUELOVE P.E. MD. REG. # 10800

ENGINEER'S CERTIFICATION:

I CERTIFY THAT THIS PLAN OF 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.

*[Signature]* 8-21-13  
ENGINEER DATE

RICHARD TRUELOVE P.E. MD. REG. # 10800

BUILDER'S CERTIFICATE

I 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 FURTHER CERTIFY THAT UPON COMPLETION, A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE(1) YEAR GUARANTEE OF PLANT MATERIALS WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

*[Signature]* 8/21/2013  
DATE

NO.	DESCRIPTION	DATE
5	REVISE TO CHANGE HOUSE TYPES AND GRADING ON LOTS 1 AND 3. REVISIONS WERE DELAYED TO REACTIVATE PLAN	1/24/19
4	REVISE TO CHANGE SWM DEVICES USED ON LOTS 1, 3, 7, 8, 9, 10, 11	9/25/18
3	REVISE GENERIC BOXES ON LOTS 1, 3, 7, 8, 9, 10, 11	9/25/18
2	ADD SENECA, PATENT, AND POTOMAC HOUSE	9/25/18

TAX MAP 18  
2nd ELECTION DISTRICT

PARCEL 59  
HOWARD COUNTY, MARYLAND

RICHARD TRUELOVE P.E., Inc.  
registered civil engineer  
13 Elmwood Road  
Baltimore, Maryland 21210  
(410) 823-5279  
email: richard@rtpc.com

DESIGN BY: TRUELOVE  
DRAWN BY: TRUELOVE  
CHECKED BY: TRUELOVE  
SCALE: AS SHOWN  
DATE: FEBRUARY 14, 2013  
PROJECT #: 2012001  
SHEET 1 OF 7

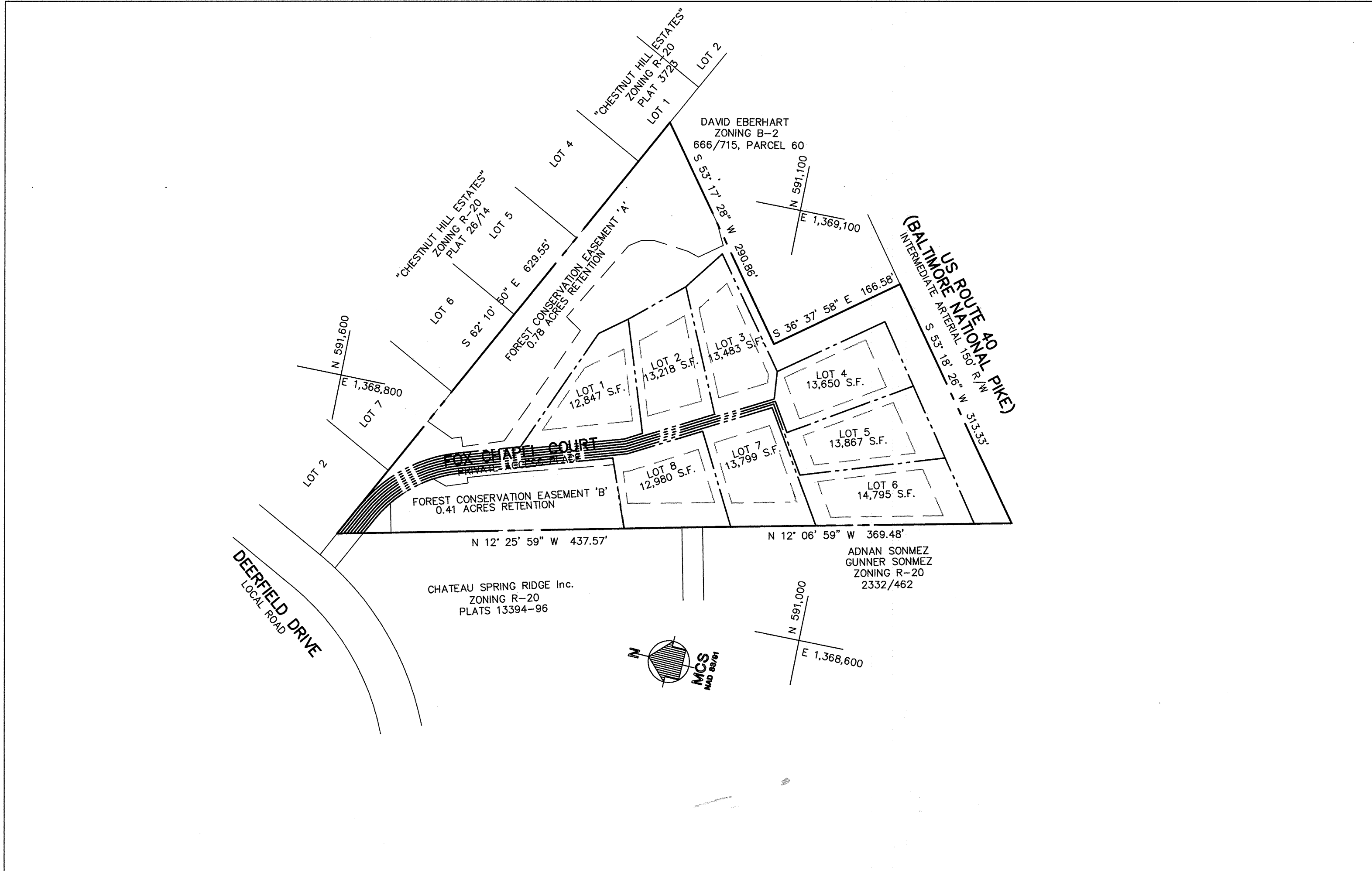
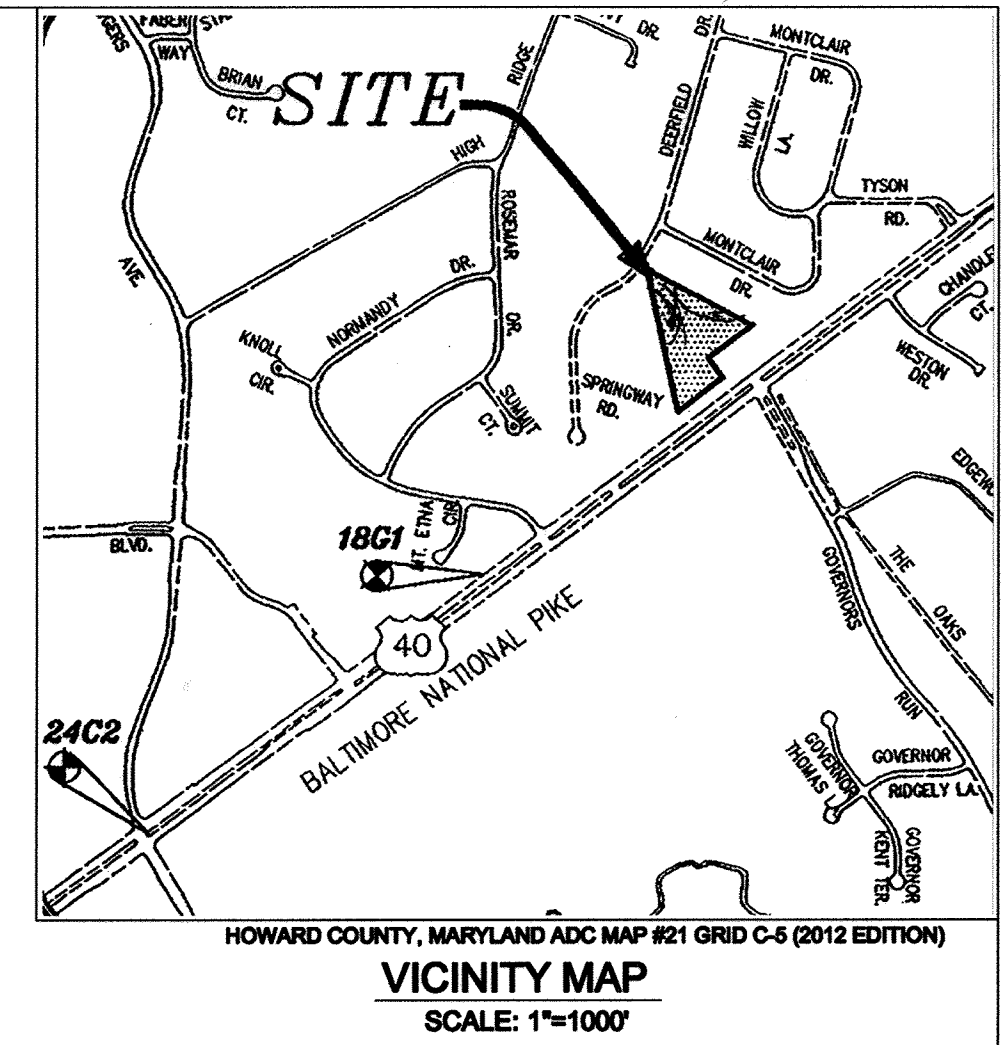
HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 10800, EXPIRATION DATE: FEBRUARY 10, 2014.

# SITE DEVELOPMENT PLAN

## SERIO ESTATES

### LOTS 1-8

### HOWARD COUNTY, MARYLAND



**BENCH MARKS**

NUMBER	NORTHING	EASTING	ELEVATION
1801	588,984.951	1,367,780.255	408.491
24C2	588,848.312	1,368,038.195	354.700

**ADDRESS CHART**

LOT	STREET ADDRESS
1	3011 FOX CHAPEL COURT
2	3015 FOX CHAPEL COURT
3	3019 FOX CHAPEL COURT
4	3023 FOX CHAPEL COURT
5	3027 FOX CHAPEL COURT
6	3031 FOX CHAPEL COURT
7	3018 FOX CHAPEL COURT
8	3014 FOX CHAPEL COURT

**SHEET INDEX**

SHEET NO.	DESCRIPTION
1	01_TITLE SHEET
2	02_SDP SHEET
3	03_SEDIMENT & EROSION CONTROL SHEET
4	04_SEDIMENT & EROSION CONTROL NOTES, HOUSE TEMPLATE SHEET CONSTRUCTION SEQUENCE, EASEMENT PLAN & OUTLINES
5	05_SEDIMENT & EROSION CONTROL VEGETATIVE NOTES
6	06_SEDIMENT & EROSION CONTROL DETAIL SHEET
7	07_RAINGARDEN PLAN, NOTE, DETAILS, HOUSE TEMPLATE

**PERMIT INFORMATION CHART**

SUBDIVISION NAME	SECTION/AREA	PARCEL #
SERIO ESTATES	N/A	59
PLAT 20203-20204	GRID # 19 ZONING R-20 TAX MAP# 18 ELECT.DIS. 2nd CENSUS TRACT 602600	

**OWNER/DEVELOPER**

FOX CHAPEL COURT LLC  
2965 BROOKWOOD ROAD  
ELLCOTT CITY, MARYLAND 21042-2501  
410-465-2512

**SEWER CONNECTION SCHEDULE**

LOT NO.	INVERT@ MAIN	INVERT@ EASE.	MIN. CELLAR ELEV.
1	397.93	398.79	402.57
2	397.66	398.12	402.32
3	396.70	397.14	401.04
4	396.19	396.66	400.46
5	405.58	405.95	409.98
6	406.58	407.27	411.27
7	396.55	397.18	400.98
8	397.85	398.51	402.31

**LOCATION MAP**  
SCALE: 1"=100'

**SITE ANALYSIS DATA CHART**

TOTAL PROJECT AREA	AREA OF SUBMISSION	DISTURBED AREA	PRESENT ZONING
2.49 Ac.±	1.92 Ac.±	1.92 Ac.±	R-20
PROPOSED USE	FLOOR SPACE PER USE	TOTAL UNITS ALLOWED	TOTAL UNITS PROPOSED
SFD	N/A	8	8
MAX. # EMP./TENANTS	PARKING SPACES REQ.	PARKING SPACES PROV.	HC SPACES PROVIDED
N/A	2 PER DWELLING	2 PER DWELLING	N/A
OPEN SPACE REQUIRED	OPEN SPACE PROVIDED	REC. O.S. PROVIDED	REC. O.S. PROVIDED
1.80 Ac.±	2.0 Ac.±	N/A	N/A
BUILDING COVERAGE	FLOOR AREA RATIO	DPZ FILE REFERENCES	
N/A	N/A	SEE GENERAL NOTE #2	

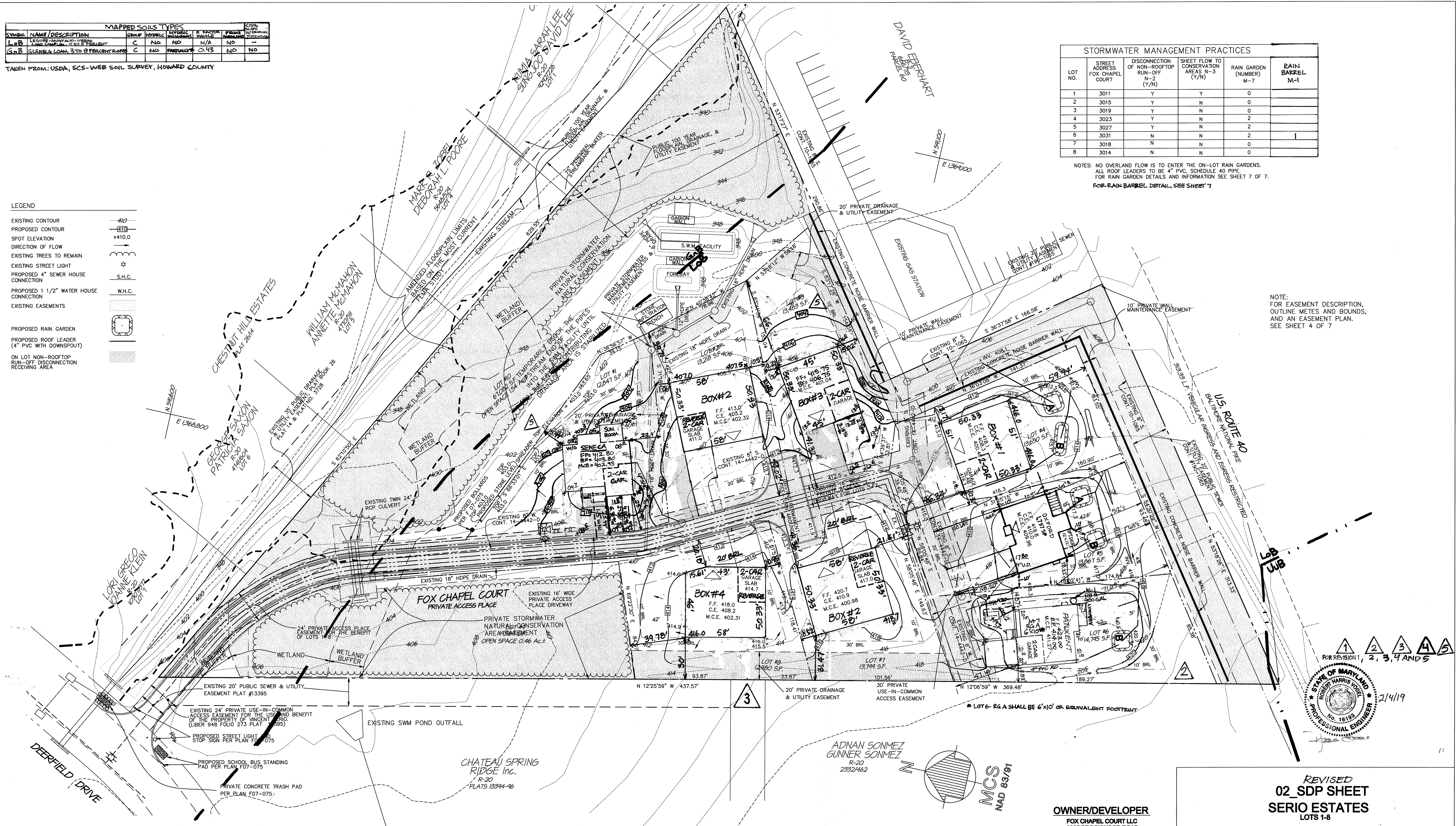
MAPPED SOILS TYPES						
SYMBOL	NAME/DESCRIPTION	GROUP	HYDRIC	HYDRIC WETLANDS	PERCENT	PERCENT
L-1B	LEONARD CLAY WITH SILT & CLAY	C	NO	NO	N/A	NO
G-1B	GLENN CLAY WITH SILT & CLAY	C	NO	PARTIALLY	0.45	NO

TAKEN FROM: USDA, SCS-WEB SOIL SURVEY, HOWARD COUNTY

STORMWATER MANAGEMENT PRACTICES					
LOT NO.	STREET ADDRESS	DISCONNECTION OF NON-ROOFTOP RUN-OFF	SHEET FLOW TO CONSERVATION AREAS	RAIN GARDEN (NUMBER)	RAIN BARREL (M-1)
1	3011	Y	Y	0	
2	3015	Y	N	0	
3	3019	Y	N	0	
4	3023	Y	N	2	
5	3027	Y	N	2	
6	3031	N	N	2	
7	3018	N	N	0	
8	3014	N	N	0	

NOTES: NO OVERLAND FLOW IS TO ENTER THE ON-LOT RAIN GARDENS.  
ALL ROOF LEADERS TO BE 4" PVC, SCHEDULE 40 PIPE.  
FOR RAIN GARDEN DETAILS AND INFORMATION SEE SHEET 7 OF 7.  
FOR RAIN BARREL DETAIL, SEE SHEET 7

- LEGEND**
- EXISTING CONTOUR: -410-
  - PROPOSED CONTOUR: -410-
  - SPOT ELEVATION: x410.0
  - DIRECTION OF FLOW: →
  - EXISTING TREES TO REMAIN: [Symbol]
  - EXISTING STREET LIGHT: [Symbol]
  - PROPOSED 4" SEWER HOUSE CONNECTION: S.H.C.
  - PROPOSED 1 1/2" WATER HOUSE CONNECTION: W.H.C.
  - EXISTING EASEMENTS: [Symbol]
  - PROPOSED RAIN GARDEN: [Symbol]
  - PROPOSED ROOF LEADER (4" PVC WITH DOWNSPOUT): [Symbol]
  - ON LOT NON-ROOFTOP RUN-OFF DISCONNECTION RECEIVING AREA: [Symbol]



NOTE: FOR EASEMENT DESCRIPTION, OUTLINE METES AND BOUNDS, AND AN EASEMENT PLAN, SEE SHEET 4 OF 7

FOR REVISION 1, 2, 3, 4 AND 5

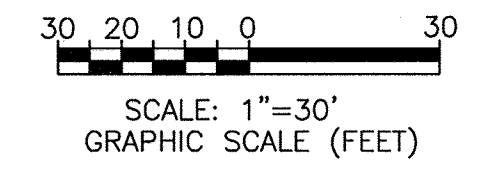
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*[Signature]* 9/19/13  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*[Signature]* 9/19/13  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

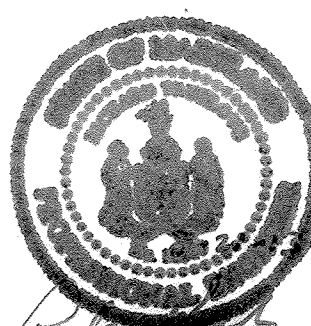
DIRECTOR DATE

*[Signature]* 9/3/13



NO.	DESCRIPTION	DATE
5	REVISE TO CHANGE HOUSE TYPES AND GRADING ON LOTS 1, 2, 3, 4, 5, 6, 7, 8	1/29/19
4	REVISE TO CHANGE SWMM DEVICES USED ON LOT 6	9/25/18
3	REVISE GENERIC BOX FOR LOTS 1, 3, 4, 5; ADD HOUSE TYPES, SEWICA, PATIENT AND PERIMAG 3/20/18	
2	REVISE HOUSE TYPE AND GRADING 2/19/18	
1	REVISED LOT 5 TO SHOW OVERSIZED MODEL	07-05-16

**OWNER/DEVELOPER**  
FOX CHAPEL COURT LLC  
2885 BROOKWOOD ROAD  
ELLICOTT CITY, MARYLAND 21042-2501  
410-485-2512



**REVISED 02\_SDP SHEET**  
**SERIO ESTATES**  
LOTS 1-8

TAX MAP 18  
2nd ELECTION DISTRICT

PARCEL 59  
HOWARD COUNTY, MARYLAND

**RICHARD TRUELOVE P.E., Inc.**  
registered civil engineer  
13 Elmwood Road  
Baltimore, Maryland 21210  
(410) 323-5279  
email: richard@rtpi.com

DESIGN BY: TRUELOVE  
DRAWN BY: TRUELOVE  
CHECKED BY: TRUELOVE  
SCALE: 1"=30'  
DATE: FEBRUARY 14, 2013  
PROJECT #: 2012001  
SHEET 2 OF 7

HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 10800, EXPIRATION DATE: FEBRUARY 10, 2014.

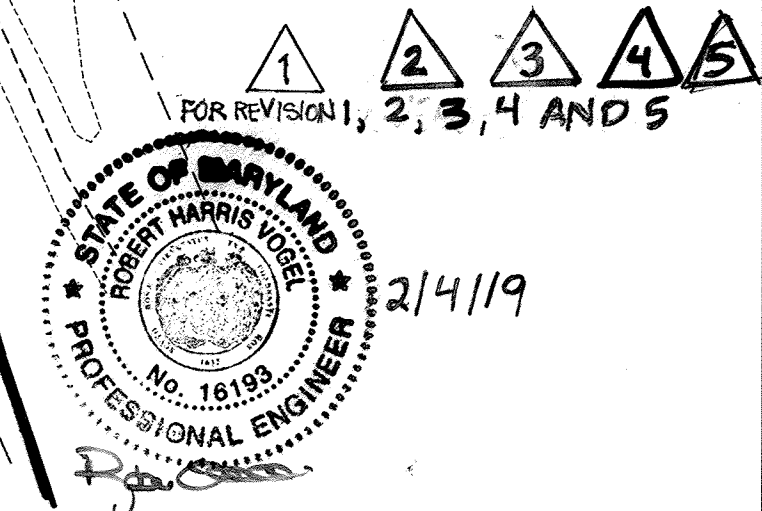
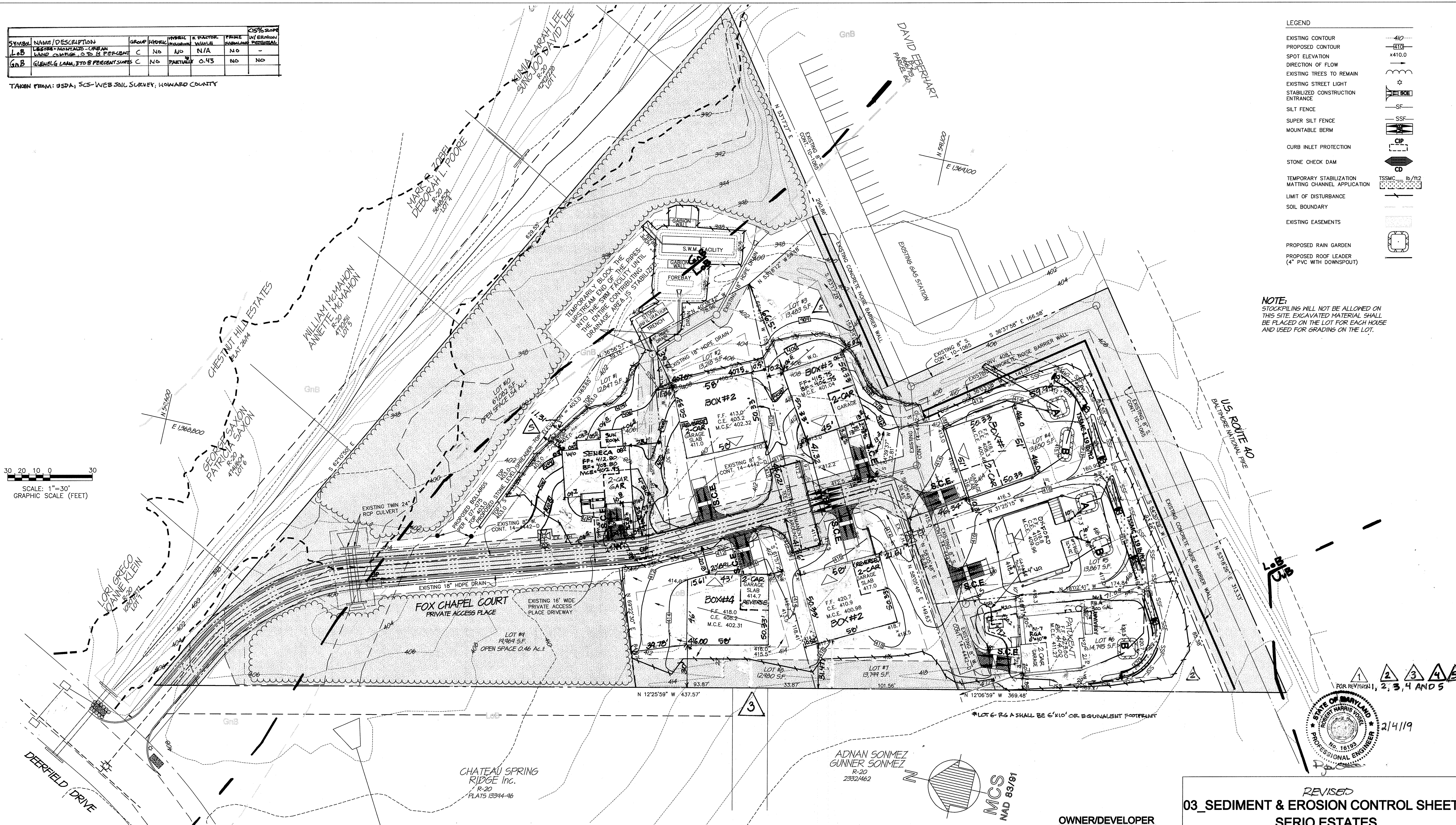
SYMBOL	NAME/DESCRIPTION	GROUP	HYDROL	HYBRIC	K FACTOR	PERME	PRIME	UN/EROSION
L&B	LEGEND MOUNTAIN - URBAN LAND COVER	C	NO	NO	N/A	NO	NO	-
GnB	GLEWELG LAAN, 370 B PERCENT	C	NO	PARTIAL	0.43	NO	NO	-

TAKEN FROM: USDA, SCS-WEB SOIL SURVEY, HOWARD COUNTY

LEGEND	
EXISTING CONTOUR	410
PROPOSED CONTOUR	x410.0
SPOT ELEVATION	x410.0
DIRECTION OF FLOW	→
EXISTING TREES TO REMAIN	⊕
EXISTING STREET LIGHT	⊕
STABILIZED CONSTRUCTION ENTRANCE	— SF —
SILT FENCE	— SF —
SUPER SILT FENCE	— SSF —
MOUNTABLE BERM	— MB —
CURB INLET PROTECTION	— CIP —
STONE CHECK DAM	— CD —
TEMPORARY STABILIZATION MATTING CHANNEL APPLICATION	TSSMC 1b/12
LIMIT OF DISTURBANCE	— LD —
SOIL BOUNDARY	— SB —
EXISTING EASEMENTS	— E —
PROPOSED RAIN GARDEN	— RG —
PROPOSED ROOF LEADER (4" PVC WITH DOWNSPOUT)	— RL —

**NOTE:**  
STOCKPILING WILL NOT BE ALLOWED ON THIS SITE. EXCAVATED MATERIAL SHALL BE PLACED ON THE LOT FOR EACH HOUSE AND USED FOR GRADING ON THE LOT.

30 20 10 0 30  
SCALE: 1"=30'  
GRAPHIC SCALE (FEET)



**REVISOR**  
**03\_SEDIMENT & EROSION CONTROL SHEET**  
**SERIO ESTATES**  
LOTS 1-8  
PARCEL 59  
HOWARD COUNTY, MARYLAND

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 [Signature] 9/19/13  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 [Signature] 9/19/13  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 [Signature] 9/19/13  
 DIRECTOR

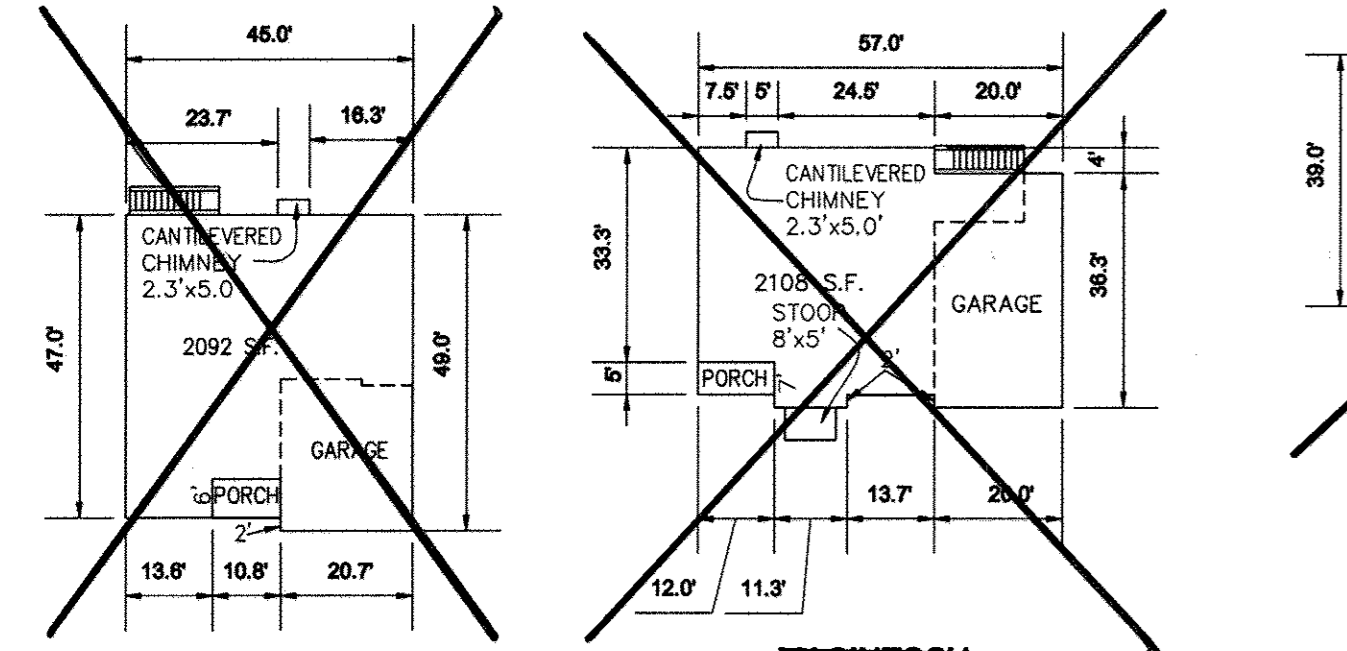
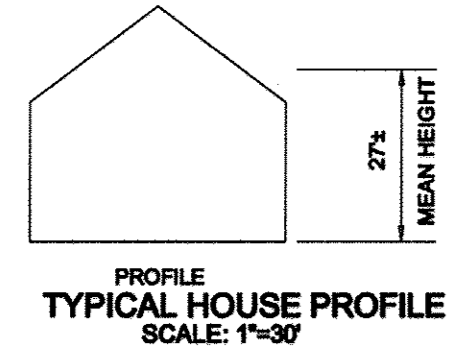
REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS  
 THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.  
 [Signature] 9/3/13  
 HOWARD SCD

OWNER'S CERTIFICATION:  
 I/WE HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, OR AS DEEMED NECESSARY.  
 [Signature] Aug 21, 2013  
 OWNER

ENGINEER'S CERTIFICATION:  
 I CERTIFY THAT THIS PLAN OF 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.  
 [Signature] Aug 21, 2013  
 RICHARD TRUELOVE P.E. MD.REG. # 10800

NO.	DESCRIPTION	DATE
5	REVISED TO CHANGE HOUSE TYPES AND GRADING ON LOTS 1 AND 2	1/24/14
4	REVISIONS WERE DELAYED TO REACTIVATE THE PLAN	
3	REVISED TO CHANGE SWIM DRENCHES USED ON LOT 6	9/25/13
2	REVISED HOUSE TYPE AND GRADING	2/19/13
1	REVISED LOTS TO SHOW OXFORD MODEL	07-05-13

TAX MAP 18  
2nd ELECTION DISTRICT  
 RICHARD TRUELOVE P.E., Inc.  
 registered civil engineer  
 13 Elmwood Road  
 Baltimore, Maryland 21210  
 (410) 323-5279  
 email: richard@rtpc.com  
 DESIGN BY: TRUELOVE  
 DRAWN BY: TRUELOVE  
 CHECKED BY: TRUELOVE  
 SCALE: 1"=30'  
 DATE: FEBRUARY 14, 2013  
 PROJECT #: 2012001  
 SHEET 3 OF 7  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 10800.  
 EXPIRATION DATE: FEBRUARY 10, 2014.



**DRAINAGE & UTILITY EASEMENT LINE TABLE**

LINE	LENGTH	BEARING	LINE	LENGTH	BEARING
SD1	26.50	S19°11'36"E	SD15	28.03	N06°05'50"E
SD2	55.26	N70°57'00"E	SD16	23.22	N53°21'43"W
SD3	28.50	N18°33'42"W	SD17	11.30	N78°37'26"E
SD4	55.55	S70°57'00"W	SD18	50.26	S44°11'54"E
SD5	128.26	N12°06'59"W	SD19	31.64	S74°27'14"E
SD6	96.94	N12°06'59"W	SD20	78.21	N40°40'12"W
SD7	20.75	S69°22'30"W	SD21	13.55	N36°56'57"W
SD8	93.87	S12°25'59"E	SD22	8.98	S53°06'24"W
SD9	135.45	S12°06'59"E	SD23	122.39	S78°37'26"W
SD10	41.16	S06°05'50"W	SD24	20.84	S27°41'55"E
SD11	77.76	S22°24'33"W			
SD12	20.27	S18°59'26"W			
SD13	110.06	N53°17'28"E			

**FENCE ACCESS EASEMENT LINE TABLE**

LINE	LENGTH	BEARING
AC1	10.75	S30°03'08"E
AC2	10.00	N36°03'08"W
AC3	10.86	N36°03'08"W
AC4	21.08	N53°17'28"E
AC5	36.48	S33°17'28"W
AC6	13.92	S73°15'42"W
AC7	67.23	N27°44'16"W
AC8	7.49	S58°05'48"W
AC9	78.43	S27°44'16"E
AC10	23.92	N73°13'42"E
AC11	7.16	N53°17'28"E

**WATER SEWER & UTILITY EASEMENTS LINE TABLE**

LINE	LENGTH	BEARING
E1	43.05	S62°10'48"E
E2	84.25	S40°32'33"E
E3	230.15	S17°36'48"E
E4	22.34	S06°21'48"E
E5	142.29	S27°44'16"E
E6	21.65	S18°15'42"W
E7	7.49	S58°05'48"W
E8	5.00	N32°11'28"E
E9	10.00	S58°05'48"W
E10	5.00	S32°11'28"E
E11	108.99	S58°05'48"W
E12	21.25	S12°06'59"E
E13	54.24	N58°05'48"E
E14	10.00	S31°54'12"E
E15	111.50	N58°05'48"E
E16	47.45	N73°13'42"E
E17	16.90	N36°03'08"W
E18	11.61	N52°50'20"E
E19	45.83	S73°13'42"W
E20	197.59	N27°44'16"W
E21	58.07	N17°36'48"W
E22	5.00	N72°05'48"E
E23	10.00	N17°36'48"W
E24	5.00	S72°05'48"W
E25	152.02	N17°36'48"W
E26	92.13	N40°32'33"W
E27	63.81	N62°10'49"W
E28	28.21	S12°23'59"E

**WALL EASEMENT LINE TABLE**

LINE	LENGTH	BEARING
W1	10.00	N56°42'32"W
W2	131.80	S53°17'28"W
W3	10.00	N36°42'32"W
W4	131.80	N53°17'28"E
W5	10.00	S33°56'57"W
W6	120.62	N36°03'08"W
W7	263.87	S53°46'58"W
W8	10.95	S12°06'59"E
W9	278.31	N53°49'58"E
W10	130.50	N36°03'08"W

**FLOOD PLAIN LINE TABLE**

LINE	LENGTH	BEARING
FP1	78.36	S34°29'30"E
FP2	59.85	S30°14'47"E
FP3	11.25	N90°00'00"E
FP4	76.25	N62°20'24"E
FP5	173.34	N62°10'50"W

**CURVE TABLE**

CURVE	LENGTH	RADIUS	DELTA	TANGENT	BEARINGS	CHORD
C1	136.87	174.00	45°04'15"	72.20	N39°38'42"W	133.37
C2	134.51	171.00	45°04'15"	70.95	N39°38'42"W	131.67
C3	132.15	168.00	45°04'15"	69.71	N39°38'42"W	128.77
C4	129.79	165.00	45°04'15"	68.46	N39°38'42"W	126.47
C5	127.44	162.00	45°04'15"	67.22	N39°38'42"W	124.17
C6	125.08	159.00	45°04'15"	65.98	N39°38'42"W	121.88
C7	122.72	156.00	45°04'15"	64.73	N39°38'42"W	119.58
C8	120.36	153.00	45°04'15"	63.49	N39°38'42"W	117.28
C9	118.00	150.00	45°04'15"	62.24	N39°38'42"W	114.98

**WETLAND LINE TABLE**

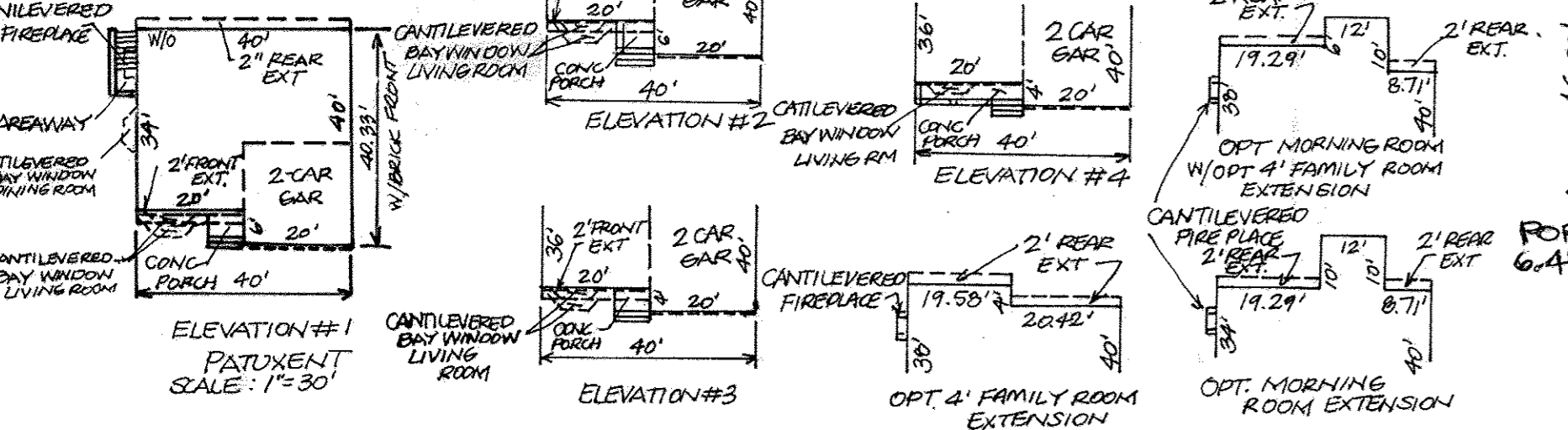
LINE	LENGTH	BEARING
WL1	20.59	S80°46'48"W
WL2	15.93	N70°28'42"W
WL3	78.67	N54°05'40"W
WL4	33.65	S78°40'19"W
WL5	20.73	S55°07'11"W
WL6	62.98	S12°28'52"E
WL7	16.87	N86°35'26"E
WL8	104.70	S78°36'11"W
WL9	27.57	S48°44'00"E
WL10	19.36	N71°53'42"E
WL11	22.02	N42°28'50"E
WL12	24.33	S72°06'18"E
WL13	38.87	S55°18'22"E
WL14	25.95	S07°46'35"E
WL15	21.29	S42°03'41"E
WL16	23.31	N53°28'51"E
WL17	30.37	N43°43'29"E
WL18	171.54	N62°10'50"W

**FOREST CONSERVATION EASEMENT CURVE TABLE**

CURVE	LENGTH	RADIUS	DELTA	TANGENT	BEARINGS	CHORD
FC1	58.16	150.00	22°35'51"	28.97	N40°49'49"W	58.77

**EASEMENT OUTLINE TABLES**

THE EASEMENTS SHOWN ON THE SOP AND DESCRIBED ABOVE WERE TAKEN FROM THE SUBDIVISION PLAT FOR SERIO ESTATES RECORDED IN MDR PLAT NO. 20203 (F-01-15).



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION: *[Signature]* DATE: 9/19/13

CHIEF, DIVISION OF LAND DEVELOPMENT: *[Signature]* DATE: 9/19/13

DIRECTOR: *[Signature]* DATE: 9/19/13

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

HOWARD SCD: *[Signature]* DATE: 9/13/13

OWNER'S CERTIFICATION:

I/WE HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, OR AS DEEMED NECESSARY.

OWNER: *[Signature]* DATE: Aug 21, 2013

ENGINEER'S CERTIFICATION:

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

ENGINEER: *[Signature]* DATE: Aug 21, 2013

RICHARD TRUELOVE P.E. MD. REG. # 10800

OWNER/DEVELOPER

FOX CHAPEL COURT LLC  
2968 BROOKWOOD ROAD  
ELLIOTT CITY, MARYLAND 21042-2801  
410-465-2612

NO.	DESCRIPTION	DATE
3	REVISE GENERIC BOX FOR LOTS 1, 2, 3; ADD SENeca PATIENT, POTOMAC MODEL	8/20/10
2	REVISE HOUSE TYPE AND GRADING LOT 6; ADD PATIENT HOUSE MODEL	2/15/10
1	REVISED LOT 5 TO SHOW OXFORD MODEL	07-05-10

**04 SEDIMENT & EROSION CONTROL NOTES**

**EASEMENT PLAN AND OUTLINES & HOUSE TEMPLATE SHEET**

**SERIO ESTATES**

LOTS 1-8  
REVISED

TAX MAP 18  
2nd ELECTION DISTRICT

PARCEL 59  
HOWARD COUNTY, MARYLAND

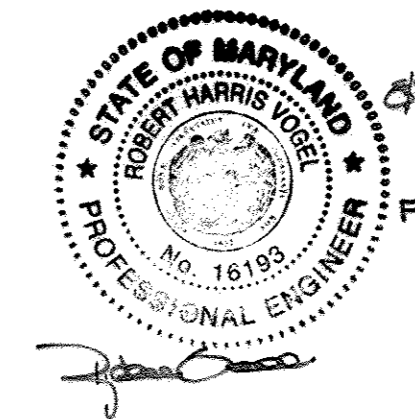
RICHARD TRUELOVE P.E., Inc.  
registered civil engineer  
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Baltimore, Maryland 21210  
(410) 323-5279  
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DESIGN BY: TRUELOVE  
DRAWN BY: TRUELOVE  
CHECKED BY: TRUELOVE  
SCALE: AS SHOWN  
DATE: FEBRUARY 14, 2013  
PROJECT #: 2012001  
SHEET 4 OF 7

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 10000, EXPIRATION DATE: FEBRUARY 10, 2014.

- SEDIMENT CONTROL NOTES**
- A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTION, LICENSE, AND PERMITS SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (410-313-1855).
  - ALL VEGETATION AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.
  - FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:
    - 3 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES, AND ALL SLOPES GREATER THAN 3:1
    - 7 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
  - ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL.1, CHAPTER 7, HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
  - ALL DISTURBED AREAS MUST BE STABILIZED WITH THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, FOR PERMANENT SEEDING, SOD, TEMPORARY SEEDING, AND MULCHING (SECTION B-4-3, B-4-4, AND B-4-5). TEMPORARY STABILIZATION WITH MULCH ALONE SHALL BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
  - 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.
  - SITE ANALYSIS:  
TOTAL AREA: 4.49 ACRES  
AREA DISTURBED: 1.92 ACRES  
AREA TO BE ROOFED OR PAVED: 0.63 ACRES  
AREA TO BE VEGETATIVELY STABILIZED: 2.47 ACRES  
TOTAL CUT: 2800 CY  
TOTAL FILL: 2800 CY  
OFFSITE WASTE/BORROW AREA LOCATION: \*\*
  - ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
  - ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
  - ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THE INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
  - 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.
- \*EARTHWORK QUANTITIES ARE SOLELY FOR THE PURPOSE OF CALCULATING FEES, CONTRACTOR TO VERIFY ALL QUANTITIES PRIOR TO THE START OF CONSTRUCTION.  
\*\*TO BE DETERMINED BY CONTRACTOR, WITH PRE-APPROVAL OF THE SEDIMENT CONTROL INSPECTOR WITH AN APPROVED AND ACTIVE GRADING PERMIT.

- CONSTRUCTION SEQUENCE**
- OBTAIN GRADING PERMIT.
  - NOTIFY HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSE, AND PERMITS AT (410)313-1855 AT LEAST 24 HOURS BEFORE STARTING ANY WORK.
  - INSTALL CURB INLET PROTECTION AT INLETS 1-1 AND 1-2.
  - BLOCK THE PIPES LEADING INTO THE SWM FACILITY FOREBAY, AND THE STONE INFILTRATION TRENCH AT MANHOLE #1 AND MANHOLE #2. UNTIL THE ENTIRE SITE IS STABILIZED, MAINTAIN FLOW THROUGH MANHOLE #2 TO MANHOLE #3. (1 DAY)
  - INSTALL STABILIZED CONSTRUCTION ENTRANCES AND ANY ADDITIONAL SILT FENCE OR SUPER SILT FENCE AS NECESSARY. (1 WEEK)
  - COMPLETE CONSTRUCTION OF HOUSES. (1 YEAR)
  - AS PART OF THE HOUSE CONSTRUCTION ON LOTS 4,5, AND 6 GRADE OUT FOR THE SWALE ALONG THE REAR OF THE LOTS. INSTALL THE RAIN GARDENS AND SURROUND EACH ONE WITH SILT FENCE TO INSURE THAT NO OVERLAND FLOW ENTERS THE FACILITIES UNTIL THE SITE IS FULLY STABILIZED.
  - COMPLETE FINE GRADING OF SITE TO GRADES INDICATED AND STABILIZE ALL AREAS AS SHOWN ON SEDIMENT CONTROL PLAN. (1 DAY)
  - WHEN THE SWALES ARE READY TO BE VEGETATIVELY STABILIZED, INSTALL SOIL EROSION MATTING IN THE SWALE. (5 DAYS)
  - COMPLETE THE RAIN GARDENS IN LOTS #4, #5, AND #6. (10 DAYS)
  - WHEN THE HOUSES ARE COMPLETE AND THE ENTIRE SITE IS STABILIZED, INSTALL THE LEVEL SPREADER IN LOT #1. INSTALL THE STONE INFILTRATION TRENCH, THE FOREBAY AND SAND FILTER IN ACCORDANCE WITH F 07-075. REMOVE THE PIPE BLOCKING INSTALLED IN STEP #4. (15 DAYS)
  - STABILIZE ALL REMAINING DISTURBED AREAS. (1 DAY)
  - THE SWM FACILITIES SHALL BE INSPECTED ONCE THE SITE CONSTRUCTION IS COMPLETE AND STABILIZED. AT THAT TIME, ANY SEDIMENT DEPOSITS SHALL BE REMOVED AND ALL REPAIRS SHALL BE MADE.
  - WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR REMOVE ALL SEDIMENT CONTROL MEASURES AND STABILIZE THE REMAINING DISTURBED AREA. (1 WEEK)
- NOTES:
- FOLLOWING INITIAL SOIL DISTURBANCE, OR ANY REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:
    - 3 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, AND ALL SLOPES GREATER THAN 3:1.
    - 7 CALENDAR DAYS FOR ALL OTHER DISTURBED AREAS.
  - DURING GRADING AND AFTER EACH RAINFALL, CONTRACTOR WILL INSPECT AND PERFORM NECESSARY MAINTENANCE TO THE SEDIMENT CONTROL MEASURES ON THIS PLAN.



**B-4-2 STANDARDS AND SPECIFICATIONS**

**FOR**

**SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS**

**Definition**

The process of preparing the soils to sustain adequate vegetative stabilization.

**Purpose**

To provide a suitable soil medium for vegetative growth.

**Conditions Where Practice Applies**

Where vegetative stabilization is to be established.

**Criteria**

- A. Soil Preparation
  - 1. Temporary Stabilization
    - a. Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked with ridges running parallel to the contour of the slope.
    - b. Apply fertilizer and lime as prescribed on the plans.
    - c. Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means.
  - 2. Permanent Stabilization
    - a. A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:
      - i. Soil pH between 6.0 and 7.0.
      - ii. Soluble salts less than 500 parts per million (ppm).
      - iii. Soil contains less than 40 percent clay but enough fine grained material (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: If lowgrass will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable.
      - iv. Soil contains 1.5 percent minimum organic matter by weight.
      - v. Soil contains sufficient pore space to permit adequate root penetration.
    - b. Application of amendments or topsoil is required if on-site soils do not meet the above conditions.
    - c. Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.
    - d. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test.
    - e. Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Rake lawn areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site conditions will not permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seedbed loosening may be unnecessary on newly disturbed areas.

- B. Topsoiling
  - 1. Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is 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.
  - 2. Topsoil salvaged from an existing site may be used provided 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-NRCS.
  - 3. Topsoiling 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.
  - 4. Areas having slopes steeper than 2:1 require special consideration and design.
  - 5. Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:
    - a. Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 1/2 inches in diameter.
    - b. Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.
    - c. Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.
  - 6. Topsoil Application
    - a. Erosion and sediment control practices must be maintained when applying topsoil.
    - b. Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to 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 must be corrected in order to prevent the formation of depressions or water pockets.
    - c. Topsoil must not be placed if 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.
- C. Soil Amendments (Fertilizer and Lime Specifications)
  - 1. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.
  - 2. Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Measure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must all be delivered to the site fully labeled according to the applicable laws and must bear the name, trade name or trademark and warranty of the producer.
  - 3. Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydroseeding) which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh sieve and 98 to 100 percent will pass through a #20 mesh sieve.
  - 4. Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disking or other suitable means.
  - 5. Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil.

**B-4-3 STANDARDS AND SPECIFICATIONS**

**FOR**

**SEEDING AND MULCHING**

**Definition**

The application of seed and mulch to establish vegetative cover.

**Purpose**

To protect disturbed soils from erosion during and at the end of construction.

To the surface of all perimeter controls, slopes, and any disturbed area not under active grading.

**Conditions Where Practice Applies**

**A. Seeding**

**1. Specifications**

- a. All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate.
- b. Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied when the ground thaws.
- c. Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants must not be used later than the date indicated on the container. Add fresh inoculants as directed on the package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective.
- d. Sod or seed must not be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.

**2. Application**

- a. Dry Seeding: This includes use of conventional drop or broadcast spreaders.
  - i. Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, Permanent Seeding Table B.3, or site-specific seeding summaries.
  - ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. Roll the seeded area with a weighted roller to provide good seed to soil contact.
- b. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.
  - i. Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after planting.
  - ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction.
- c. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer).
  - i. If fertilizer is being applied at the time of seeding, the application rates should not exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P<sub>2</sub>O<sub>5</sub> (phosphorus), 200 pounds per acre; K<sub>2</sub>O (potassium), 200 pounds per acre.
  - ii. Lime: Use only ground agricultural limestone (up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.
  - iii. Mix seed and fertilizer on site and seed immediately and without interruption.
  - iv. When hydroseeding do not incorporate seed into the soil.

**B. Mulching**

**1. Mulch Materials (in order of preference)**

- a. Straw consisting of thoroughly threshed wheat, rye, oat, or barley and reasonably bright in color. Straw is to be free of noxious weed seeds as specified in the Maryland Seed Law and not musty, moldy, caked, decayed, or excessively dusty. **Note: Use only sterile straw mulch in areas where one species of grass is desired.**
- b. Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose processed into a uniform fibrous physical state.
  - i. WCFM is to be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.
  - ii. WCFM, including dye, must contain no germination or growth inhibiting factors.
  - iii. WCFM materials are to be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material must form a blotter-like ground cover, on application, having moisture absorption and percolation properties and must cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.
  - iv. WCFM material must not contain elements or compounds at concentration levels that will be phyto-toxic.
  - v. WCFM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter approximately 1 millimeter, pH range of 4.0 to 8.5, ash content of 1.6 percent maximum and water holding capacity of 90 percent minimum.

- 2. Application
  - a. Apply mulch to all seeded areas immediately after seeding.
  - b. When straw mulch is used, spread it over all seeded areas at the rate of 2 tons per acre to a uniform loose depth of 1 to 2 inches. Apply mulch to achieve a uniform distribution and depth so that the soil surface is not exposed. When using a mulch anchoring tool, increase the application rate to 2.5 tons per acre.
  - c. Wood cellulose fiber used as mulch must be applied at a net dry weight of 1500 pounds per acre. Mix the wood cellulose fiber with water to attain a mixture with a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
- 3. Anchoring
  - a. Perform mulch anchoring immediately following application of mulch to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon the size of the area and erosion hazard:
    - i. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of 2 inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should follow the contour.
    - ii. Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net dry weight of 750 pounds per acre. Mix the wood cellulose fiber with water at a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
    - iii. Synthetic binders such as Acrylic DLR (Agro-Tack), DCA-70, Petrosel, Terra Tax II, Terra Tack AR or other approved equal may be used. Follow application rates as specified by the manufacturer. Application of liquid binders needs to be heavier at the edges where wind catches mulch, such as in valleys and on crests of banks. Use of asphalt binders is strictly prohibited.
    - iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer recommendations. Netting is usually available in rolls 4 to 15 feet wide and 300 to 3,000 feet long.

**B-4-4 STANDARDS AND SPECIFICATIONS**

**FOR**

**TEMPORARY STABILIZATION**

**Definition**

To stabilize disturbed soils with vegetation for up to 6 months.

**Purpose**

To use fast growing vegetation that provides cover on disturbed soils.

**Conditions Where Practice Applies**

Exposed soils where ground cover is needed for a period of 6 months or less. For longer duration of time, permanent stabilization practices are required.

**Criteria**

- 1. Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant Hardiness Zone (from Figure B.3), and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths. If this Summary is not put on the plan and completed, then Table B.1 plus fertilizer and lime rates must be put on the plan.
- 2. For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding.
- 3. When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch alone as prescribed in Section B-4-3.A.1.b and maintain until the next seeding season.

**Temporary Seeding Summary**

Hardiness Zone (from Figure B.3): _____				Fertilizer Rate (10-20-20)	Lime Rate
Seed Mixture (from Table B.1):					
No.	Annual Ryegrass	Application Rate (lb/acre)	Seeding Rate (lb/acre) 8/Drills/15	Seeding Depths	
9	Foxtail Millet	40	5/16-7/31	1/2"	436 lb/acre (10 lb/1000 sf)
					2 tons/acre (90 lb/1000 sf)

**B-4-5 STANDARDS AND SPECIFICATIONS**

**FOR**

**PERMANENT STABILIZATION**

**Definition**

To stabilize disturbed soils with permanent vegetation.

**Purpose**

To use long-lived perennial grasses and legumes to establish permanent ground cover on disturbed soils.

**Conditions Where Practice Applies**

Exposed soils where ground cover is needed for 6 months or more.

**Criteria**

**A. Seed Mixtures**

**1. General Use**

- a. Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan.
- b. Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 342 - Critical Area Planting.
- c. For sites having disturbed area over 5 acres, use and show the rates recommended by the soil testing agency.
- d. For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 1/2 pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown in the Permanent Seeding Summary.

**2. Turfgrass Mixtures**

- a. Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance.
- b. Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be placed on the plan.

- i. Kentucky Bluegrass: Full Sun Mixture: For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
- ii. Kentucky Bluegrass/Perennial Rye: Full Sun Mixture: For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
- iii. Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes: Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended.
- iv. Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes: Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1 1/2 to 3 pounds per 1000 square feet.

**Notes:**

Select turfgrass varieties from those listed in the most current University of Maryland Publication, Agronomy Memo #77, "Turfgrass Cultivar Recommendations for Maryland"

Choose certified material. Certified material is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line

**c. Ideal Times of Seeding for Turf Grass Mixtures**

- Western MD: March 15 to June 1, August 1 to October 1 (Hardiness Zones: 5b, 6a)
- Central MD: March 1 to May 15, August 15 to October 15 (Hardiness Zone: 6b)
- Southern MD, Eastern Shore: March 1 to May 15, August 15 to October 15 (Hardiness Zones: 7a, 7b)

- d. Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1 1/2 inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty.
- e. If soil moisture is deficient, supply new seedlings with adequate water for plant growth (1/2 to 1 inch every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedlings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

**6b Permanent Seeding Summary**

Hardiness Zone (from Figure B.3): _____				Fertilizer Rate (10-20-20)			Lime Rate
Seed Mixture (from Table B.3):				N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	
No.	Annual Ryegrass	Application Rate (lb/acre)	Seeding Rate (lb/acre) 8/Drills/15	Seeding Depths			
9	Kentucky Bluegrass/Perennial Ryegrass	40	5/16-7/31	1/2"	45 pounds per acre (1.0 lb/1000 sf)	90 lb/acre (2 lb/1000 sf)	90 lb/acre (2 lb/1000 sf)
							2 tons/acre (90 lb/1000 sf)

- B. Sod: To provide quick cover on disturbed areas (2:1 grade or flatter).
  - 1. General Specifications
    - a. Class of turfgrass sod must be Maryland State Certified. Sod labels must be made available to the job foreman and inspector.
    - b. Sod must be machine cut at a uniform soil thickness of 1/4 inch, plus or minus 1/8 inch, at the time of cutting. Measurement for thickness must exclude top growth and thatch. Broken pads and torn or uneven ends will not be acceptable.
    - c. Standard size sections of sod must be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
    - d. Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
    - e. Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period must be approved by an agronomist or soil scientist prior to its installation.
  - 2. Sod Installation
    - a. During periods of excessively high temperature or in areas having dry subsoil, lightly irrigate the subsoil immediately prior to laying the sod.
    - b. Lay the first row of sod in a straight line with subsequent rows placed parallel to it and tightly wedged against each other. Stagger lateral joints to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots.
    - c. Wherever possible, lay sod with the long edges parallel to the contour and with staggering joints. Roll and tamp, peg or otherwise secure the sod to prevent slippage on slopes. Ensure solid contact exists between sod roots and the underlying soil surface.
    - d. Water the sod immediately following rolling and tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. Complete the operations of laying, tamping and irrigating for any piece of sod within eight hours.
  - 3. Sod Maintenance
    - a. In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the day to prevent wilting.
    - b. After the first week, sod watering is required as necessary to maintain adequate moisture content.
    - c. Do not mow until the sod is firmly rooted. No more than 1/2 of the grass leaf must be removed by the initial cutting or subsequent cuttings. Maintain a grass height of at least 3 inches unless otherwise specified.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Chief, Development Engineering Division* 9/19/13  
*Chief, Division of Land Development* 9/19/13  
*Director* 9/19/13

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.  
*HOWARD SCD* 9/3/13

OWNER'S CERTIFICATION:

I/WE HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, OR AS DEEMED NECESSARY.  
*Vincent S. Serio* 9/21/13  
 OWNER DATE

ENGINEER'S CERTIFICATION:

I CERTIFY THAT THIS PLAN OF 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.  
*Richard Truelove* 9/21/13  
 SIGNATURE DATE  
 RICHARD TRUELOVE P.E. MD.REG. # 10800

OWNER/DEVELOPER

FOX CHAPEL COURT LLC  
 2865 BROOKWOOD ROAD  
 ELLICOTT CITY, MARYLAND 21042-2501  
 410-485-2512

**05\_SEDIMENT & EROSION CONTROL VEGETATIVE NOTES**

**SERIO ESTATES**  
 LOTS 1-8

TAX MAP 18  
 2nd ELECTION DISTRICT

PARCEL 59  
 HOWARD COUNTY, MARYLAND

RICHARD TRUELOVE P.E., Inc.  
 registered civil engineer  
 13 Elmwood Road  
 Baltimore, Maryland 21210  
 (410) 323-6279  
 email: richard@rtpe.com

DESIGN BY: TRUELOVE  
 DRAWN BY: TRUELOVE  
 CHECKED BY: TRUELOVE  
 SCALE: NOT TO SCALE  
 DATE: FEBRUARY 14, 2013  
 PROJECT #: 2012001  
 SHEET 6 OF 7

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 10800, EXPIRATION DATE: FEBRUARY 10, 2014.

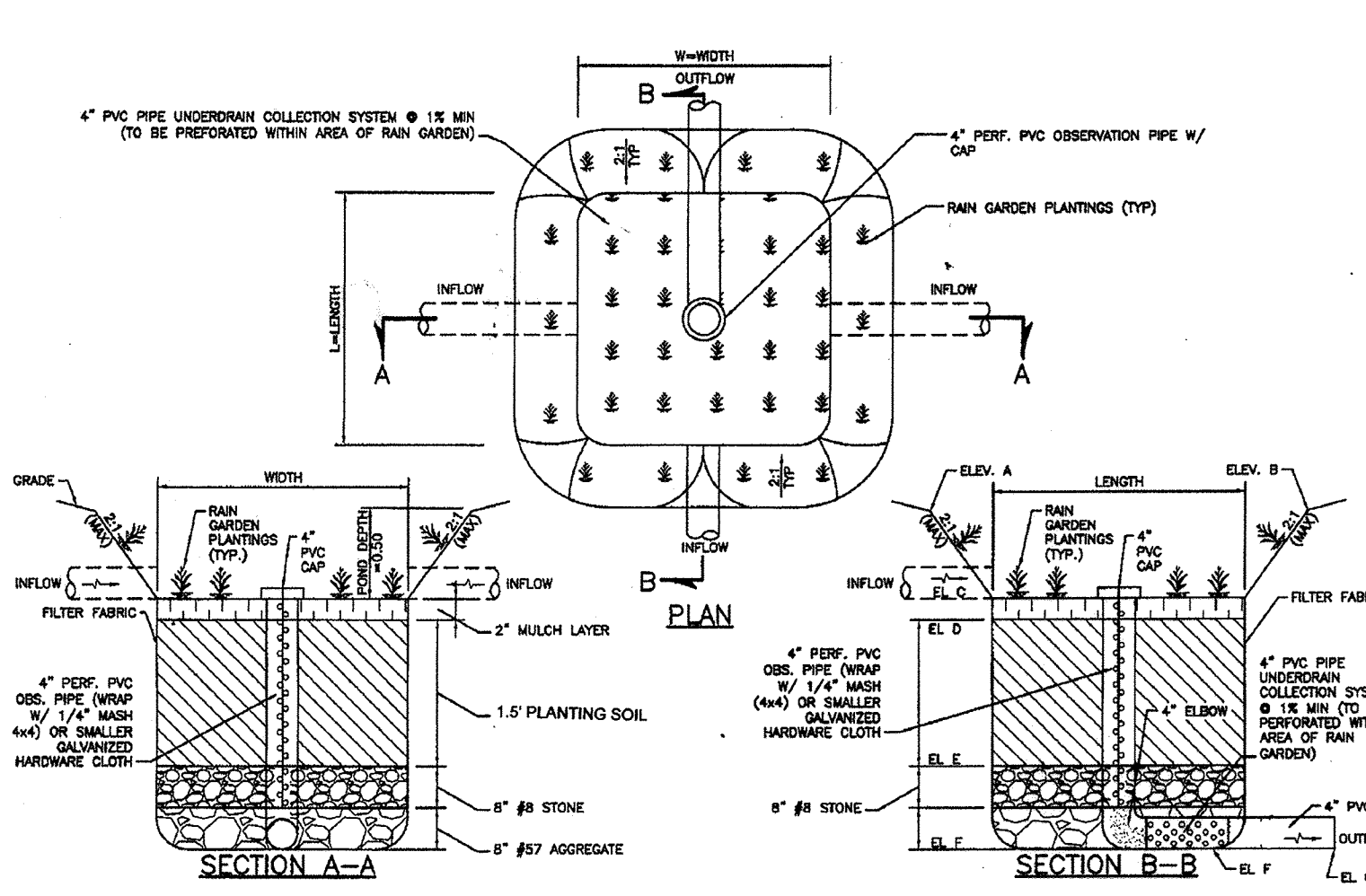
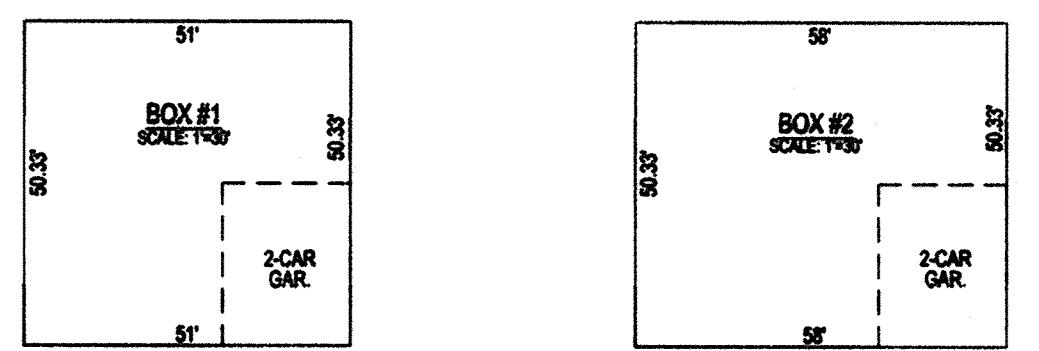


MAPPED SOILS TYPES						
SYMBOL	NAME/DESCRIPTION	GROUP	HYDRAULIC	PERCENT SAND	PERCENT SILT	PERCENT CLAY
LoB	LEASOY-MONTICOMERY	C	NO	NO	N/A	NO
LoB	LEASOY-MONTICOMERY	C	NO	NO	N/A	NO
LoB	LEASOY-MONTICOMERY	C	NO	NO	N/A	NO
LoB	LEASOY-MONTICOMERY	C	NO	NO	N/A	NO
LoB	LEASOY-MONTICOMERY	C	NO	NO	N/A	NO
LoB	LEASOY-MONTICOMERY	C	NO	NO	N/A	NO

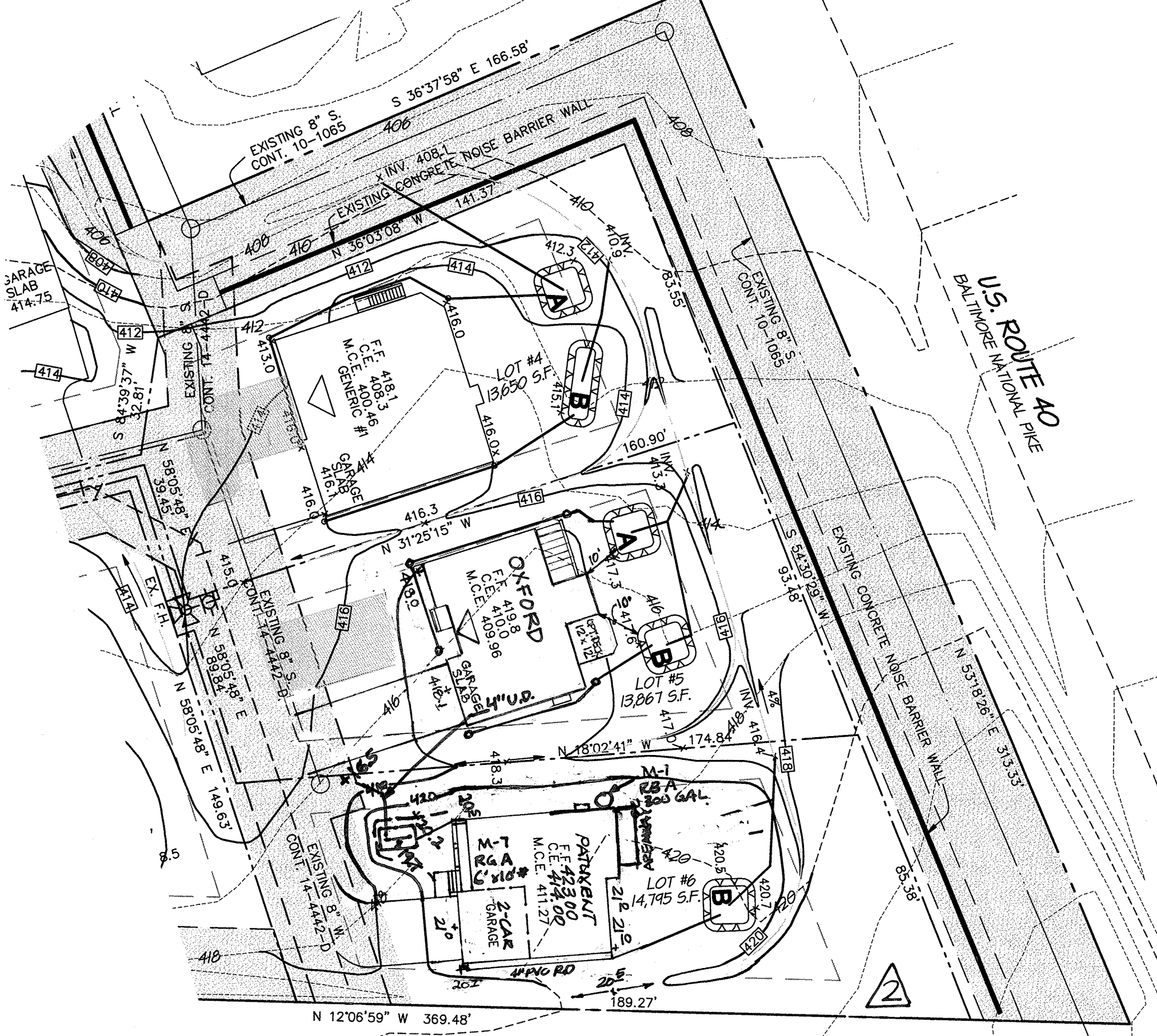
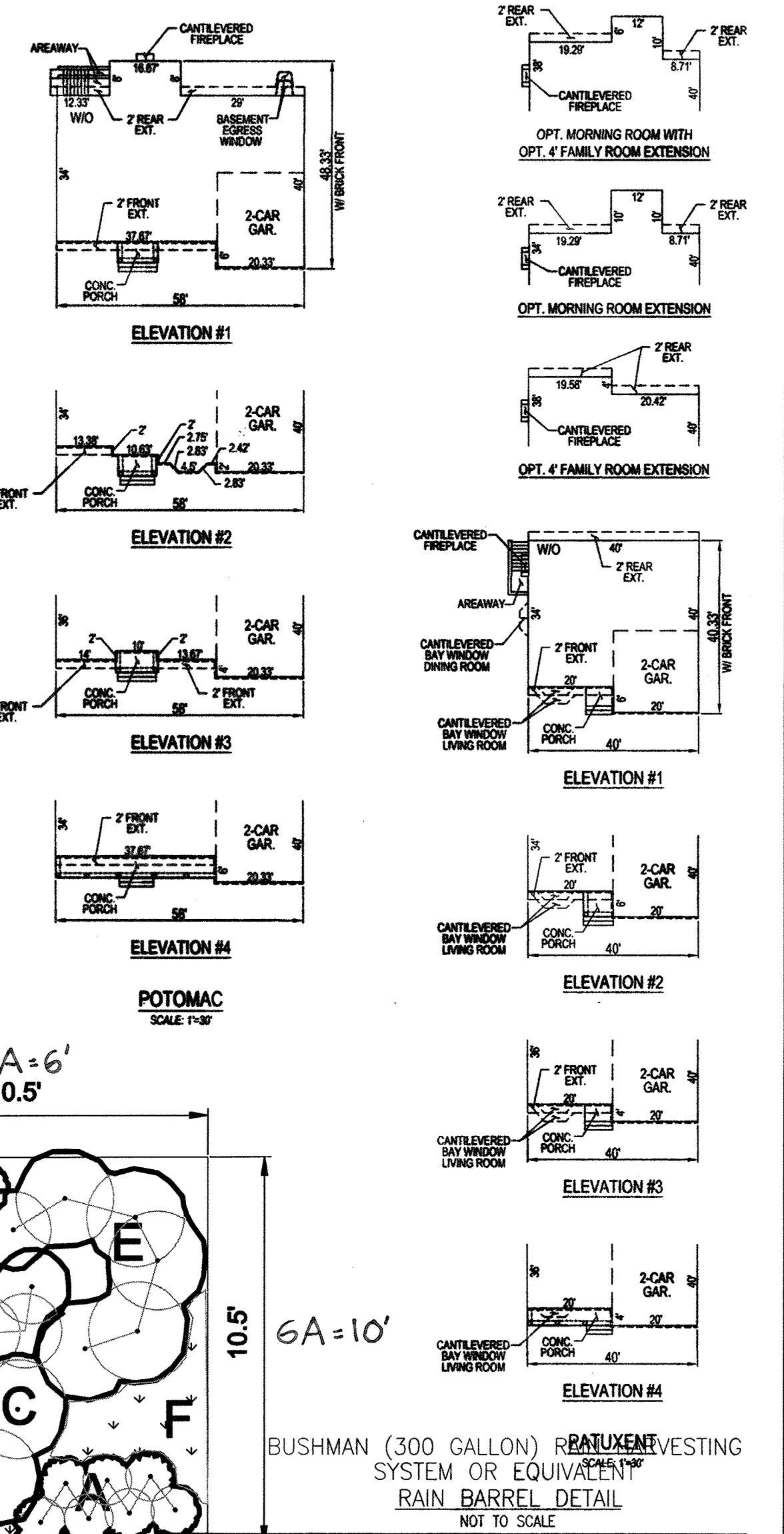
TAKEN FROM: USDA, SCS-WBB SOIL SURVEY, HOWARD COUNTY

RAIN BARREL DATA CHART		
LOT	RAIN BARREL	RAIN BARREL SIZE
6	A	300 GALLON

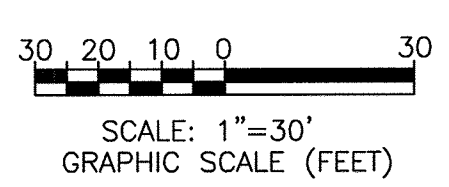
RAIN GARDEN DATA CHART						
LOT	RAIN GARDEN	TOP OF BERM	TOP OF MULCH	INVERT F	INVERT G	PONDING ELEVATION
4	A	412.3±	411.6±	408.6±	408.1±	412.3±
4	B	415.1±	414.4±	411.3±	410.9±	415.1±
5	A	417.3±	416.6±	413.6±	413.3±	417.3±
5	B	417.6±	416.9±	413.9±	413.3±	417.6±
6	A	420.2±	419.7±	416.7±	416.5±	420.2±
6	B	420.7±	420.0±	416.9±	416.4±	420.7±



TYPICAL RAIN GARDEN PLAN NOT TO SCALE



PARTIAL SITE PLAN SHOWING RAIN GARDEN LOCATION SCALE: 1"=30'



MATERIALS SPECIFICATIONS FOR RAIN GARDENS			
MATERIAL	SPECIFICATION	SIZE	NOTES
PLANTINGS	SEE PLANT LIST THIS SHEET	SEE RAIN GARDEN PLANTING	SEE RAIN GARDEN DETAIL PLANT LIST
PLANTING SOIL (1.5' DEEP)	SANDY LOAM 30% COARSE SAND 30% COMPOST 60%	N/A	USDA SOIL TYPES LOAMY SAND OR SANDY LOAM; CLAY CONTENT < 5%
MULCH	SHREDDED HARDWOOD		AGED 6 MONTHS (MINIMUM) NO PINE OR WOOD CHIPS
GRAVEL (UNDERDRAINS)	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE (3/8" TO 3/4")	
UNDERDRAIN PIPING	ASTM-F 758, TYPE PS 28 OR AASHTO M-278	4" TO 6" RIGID SCHEDULE 40 PVC OR SDR 35	SLOTTED OR PERFORATED PIPE; 3/8" PERFORATED PIPE, 4 HOLES PER ROW; MINIMUM 3" OF GRAVEL OVER PIPES, PERFORATED PIPE SHALL BE WRAPPED WITH 1/4" GALVANIZED HARDWARE CLOTH.
SAND	AASHTO M-6 OR ASTM-C-33	0.02" TO 0.04"	SAND SUBSTITUTIONS SUCH AS DIABASE AND GRAYSTONE (AASHTO) #10 ARE NOT ACCEPTABLE. NO CALCIUM CARBONATED OR DOLIMITIC SAND SUBSTITUTIONS ARE ACCEPTABLE. NO "ROCK DUST" CAN BE USED FOR SAND.

RAIN GARDEN PLANTING

KEY	QUANTITY	SIZE	SPACING	BOTANICAL/Common NAME
A	7	2" plug	12" o.c.	Chelone glabra White Turtlehead
B	8	2" plug	18" o.c.	Iris versicolor Blue Flag
C	5	2" plug	18" o.c.	Panicum virgatum Switchgrass
D	7	quart	18" o.c.	Hypericum densiflorum dense St. Johns wort
E	6	2" plug	2' o.c.	Arsonia hubrichtii Narrow Leaf Blue Star
F	6	quart	2' o.c.	Thelypteris palustris Marsh Fern

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED RAINWATER HARVESTING SYSTEMS (M-1)

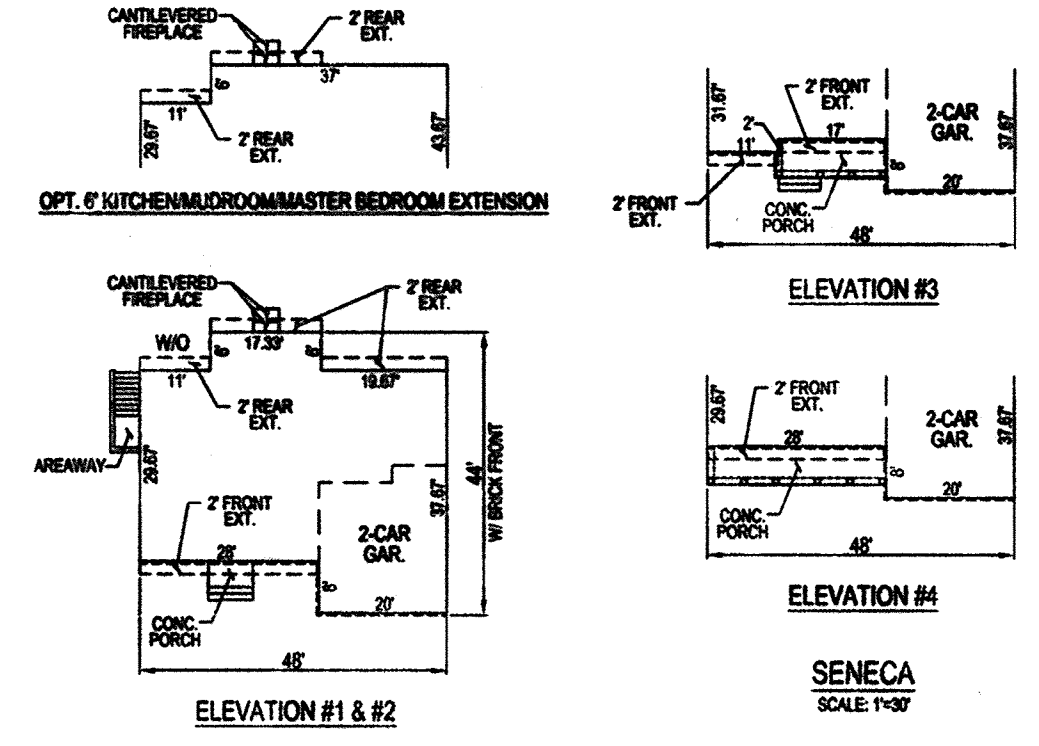
- THE OWNER SHALL EMPTY BARRELS ON A MONTHLY BASIS AND CLEAN BARREL WITH A HOSE.
- THE OWNER SHALL VERIFY INTEGRITY OF LEAF SCREENS, GUTTERS, DOWNSPOUTS, SPLITS AND INSULATED SCREENS AND CLEAN AND REPAIR ANY DEFECTS.
- THE OWNER SHALL REPLACE DAMAGED COMPONENTS AS NEEDED.
- THE OWNER SHALL ALLOW THE BARREL TO DRAIN BY BOTTOM SPIGOT DURING THE WINTER SEASON.

OWNER/DEVELOPER  
FOX CHAPEL COURT LLC  
2985 BROOKWOOD ROAD  
ELLICOTT CITY, MARYLAND 21042-2501  
410-485-2512

07\_RAIN GARDEN PLAN, NOTES, & DETAILS SHEET  
HOUSE TEMPLATE SHEET  
SERIO ESTATES  
LOTS 1-8  
REVISED  
TAX MAP 18  
2nd ELECTION DISTRICT  
PARCEL 59  
HOWARD COUNTY, MARYLAND

**BUSHMAN**  
NEW 2015 gallon Capacity  
BRT205 Round Tank  
Features & Benefits:  
• Water capacity of 205 gallons rain barrels  
• High quality rotational-molded polyethylene construction ensures maximum strength  
• One-piece construction and horizontal ribs around the tank provide added wall strength  
• Tank includes mesh mosquito screen and cover  
• Overflow assembly provided with mosquito screen and 90 degree elbow  
• Tank openings are pre-installed for easy installation  
• Bushman's 5 Year Warranty

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
9/15/13  
CHIEF, DIVISION OF LAND DEVELOPMENT  
9/19/13  
DIRECTOR  
9/19/14



OPERATION AND MAINTENANCE SCHEDULE FOR RAIN GARDENS

- 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 WILL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION. PLANT MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME II, TABLE A.4.1 AND 2.
- SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL. THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD AND DISEASED 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 OR 3 YEARS.
- SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED BASIS WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY RAIN STORMS.

FOR REVISIONS 1, 2, 3, 4 AND 5  
STATE OF MARYLAND  
PROFESSIONAL ENGINEER  
2/14/19

NO.	DESCRIPTION	DATE
5	REVISE TO CHANGE HOUSE TYPES AND GRADING ON LOTS 1 AND 3. REVISIONS WERE DELAYED TO REACTIVATE THE PLAN	11/24/19
4	REVISE TO CHANGE SHOWN DETAILS LOAD ON LOT 6	9/25/18
3	REVISE GENERAL BARREL LOTS 1, 3, 7, 8, ADD	3/26/18
2	HOUSE TYPES SHOWN, DRAINAGE AND POTENTIAL REVISE HOUSE TYPE AND GRADING LOT 6; ADD PATUXENT HOUSE TYPE	2/16/18
1	REVISED LOT 5 TO SHOW OXFORD MODEL	07-05-16

RICHARD TRUELOVE P.E., Inc.  
registered civil engineer  
13 Elmwood Road  
Baltimore, Maryland 21210  
(410) 323-5279  
email: richard@rtruelove.com  
DESIGN BY: TRUELOVE  
DRAWN BY: TRUELOVE  
CHECKED BY: TRUELOVE  
SCALE: AS SHOWN  
DATE: FEBRUARY 14, 2013  
PROJECT #: 2012001  
SHEET 7 OF 7

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 10800, EXPIRATION DATE: FEBRUARY 10, 2014.