MINOR SUBDIVISION PLAN for PRIMROSE PRESERVE

CLARKSVILLE, MD 21029

TAX MAP 34, GRID 12, PARCEL 226
5TH ELECTION DISTRICT HOWARD COUNTY, MD

Site Analysis Data Chart

a. Total Project Area: 1.15± Ac. 50,006 Sq.Ft.
b. Limit of Disturbed Area: 0.97± Ac.
c. Present Zoning District: R-12
d. Proposed uses for the site and structures: Residential
e. Total number of units allowed for project as shown on the final plat: 3
f. Total number of units proposed on submission: 3
g. Open Space on site: 0.00 Ac. (Fee-in-Lieu)
h. Building coverage of site: 0.14 Ac. - 12% of gross area
i. Applicable DPZ file references: ECP-14-042, F-14-113

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
2. 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.
3. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
4. TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
5. ALL PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED. ALL CURB RADII ARE 5' UNLESS OTHERWISE NOTED.
6. BOUNDARY AND TOPOGRAPHIC SURVEY ARE BASED ON A FIELD RUN SURVEY COMPLETED BY DEVELOPMENT DESIGN CONSULTANTS, LLC. IN APRIL 2013 AND HAS BEEN SUPPLEMENTED WITH HOWARD COUNTY GIS.
7. 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 NO. 43HA AND 48AA WERE USED FOR THIS PROJECT.
8. WATER SERVICE IS PUBLIC.
9. SEWER SERVICE IS PUBLIC.
10. THIS PROPERTY IS WITHIN THE METROPOLITAN DISTRICT
11. ALL EXISTING WATER AND SEWER PER CONTRACTS 44-3299-W AND 30-3690-S.
12. STORMWATER MANAGEMENT IS ADDRESSED BY M-5 DRY WELLS AND AN M-3 LANDSCAPE INFILTRATION FACILITY. THESE STRUCTURES ARE PRIVATELY OWNED AND THEREFORE MAINTENANCE IS THE RESPONSIBILITY OF THE OWNER.
13. THERE IS NO FLOODPLAIN ON THIS SITE.
14. THE ARE NO WETLANDS ON THIS SITE. A SITE VISIT WAS CONDUCTED BY DDC, INC. ON MAY 10, 2013 TO CONFIRM.
15. SITE DISTANCE ANALYSIS WAS PREPARED BY DDC, INC AS PART OF THIS FINAL PLAN.
16. GEOTECHNICAL STUDY WAS PREPARED BY HILLIS-CARNES AND IS DATED APRIL 14, 2014
17. FOREST CONSERVATION REQUIREMENTS, PER SECTION 16.1202(B) OF THE HOWARD COUNTY CODE, WILL BE FULFILLED THROUGH THE PAYMENT OF A FEE-IN-LIEU TOTALING $5,554.50 FOR A TOTAL OBLIGATION OF 7,406 S.F. (0.17 ACRES) OF AFFORESTATION.
18. THE SUBJECT PROPERTY IS ZONED R-12 IN ACCORDANCE WITH THE 10/6/13 COMPREHENSIVE ZONING PLAN.
19. THERE ARE NO KNOWN CEMETERIES, HISTORIC STRUCTURES OR SCENIC ROADS ON OR ADJACENT TO THIS PROPERTY.
20. NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE REQUIRED WETLANDS, STREAM(S) OR THEIR BUFFERS, FOREST CONSERVATION EASEMENT AREAS AND 100 YEAR FLOODPLAIN.
21. THIS PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.
22. SEDIMENT AND EROSION CONTROL MEASURES ARE PROVIDED IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
23. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL
24. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING WILL BE DEFERRED UNTIL THE SITE DEVELOPMENT PLAN PHASE IN THE AMOUNT OF $2,700.00 FOR 4 SHADE TREES, 9 EVERGREEN TREES AND 1 ORNAMENTAL TREES.
25. THE PRIVATE USE-IN-COMMON DRIVEWAY MAINTENANCE AGREEMENT FOR LOTS 1-3 IS RECORDED IN THE LAND RECORDS OFFICE WITH THE RECORDING OF THE FINAL PLAT.
26. A COMMUNITY INPUT MEETING WAS HELD ON JULY 16, 2013 AT 6:00 PM AT CMS ROOM 10 AT THE CLARKSVILLE MIDDLE SCHOOL.
27. A FEE-IN-LIEU WILL BE PROVIDED FOR OPEN SPACE PER SECTION 16.121(a) AND (b) OF THE SUBDIVISION REGULATIONS IN THE AMOUNT OF $3,000.00 ($1,500.00 PER LOT).
28. THIS DEVELOPMENT IS DESIGNED TO BE IN ACCORDANCE WITH SECTION 16.127 - RESIDENTIAL INFILL DEVELOPMENT OF SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. THE DEVELOPER OF THIS PROJECT SHALL CREATE COMPATIBILITY WITH THE EXISTING NEIGHBORHOOD THROUGH USE OF ENHANCED PERIMETER LANDSCAPING, BERMS, FENCES, SIMILAR HOUSING UNIT TYPES AND DIRECTION ORIENTATION OF THE PROPOSED HOUSES.
29. SUBDIVISION IS SUBJECT TO SECTION 104.0.F OF THE ZONING REGULATIONS. AT LEAST 10% OF THE DWELLING UNITS SHALL BE MODERATE INCOME HOUSING UNITS (M.I.H.U.) OR AN ALTERNATIVE COMPLIANCE WILL BE PROVIDED. THE DEVELOPER SHALL EXECUTE A MIHU AGREEMENT WITH THE DEPARTMENT OF HOUSING TO INDICATE HOW THE MIHU REQUIREMENT WILL BE MET. THE MIHU AGREEMENT AND COVENANTS WILL BE RECORDED SIMULTANEOUSLY WITH THIS PLAT IN THE LAND RECORDS OFFICE OF HOWARD COUNTY, MARYLAND. THIS DEVELOPMENT WILL MEET MIHU ALTERNATIVE COMPLIANCE BY PAYING A FEE-IN-LIEU TO THE HOWARD COUNTY HOUSING DEPARTMENT.
30. THE EXISTING DWELLING WILL REMAIN ON LOT 2 ALL ACCESSORY STRUCTURES WILL BE DEMOLISHED.
31. A FEE-IN-LIEU WILL BE PROVIDED FOR PEDESTRIAN IMPROVEMENTS ALONG THE FRONTAGE OF THE SUBDIVISION ALONG GUILFORD ROAD.

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

DEVELOPER — DATE: 9/4/15

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

Paul G. Cavanaugh Sept 4, 2015
ENGINEER — DATE

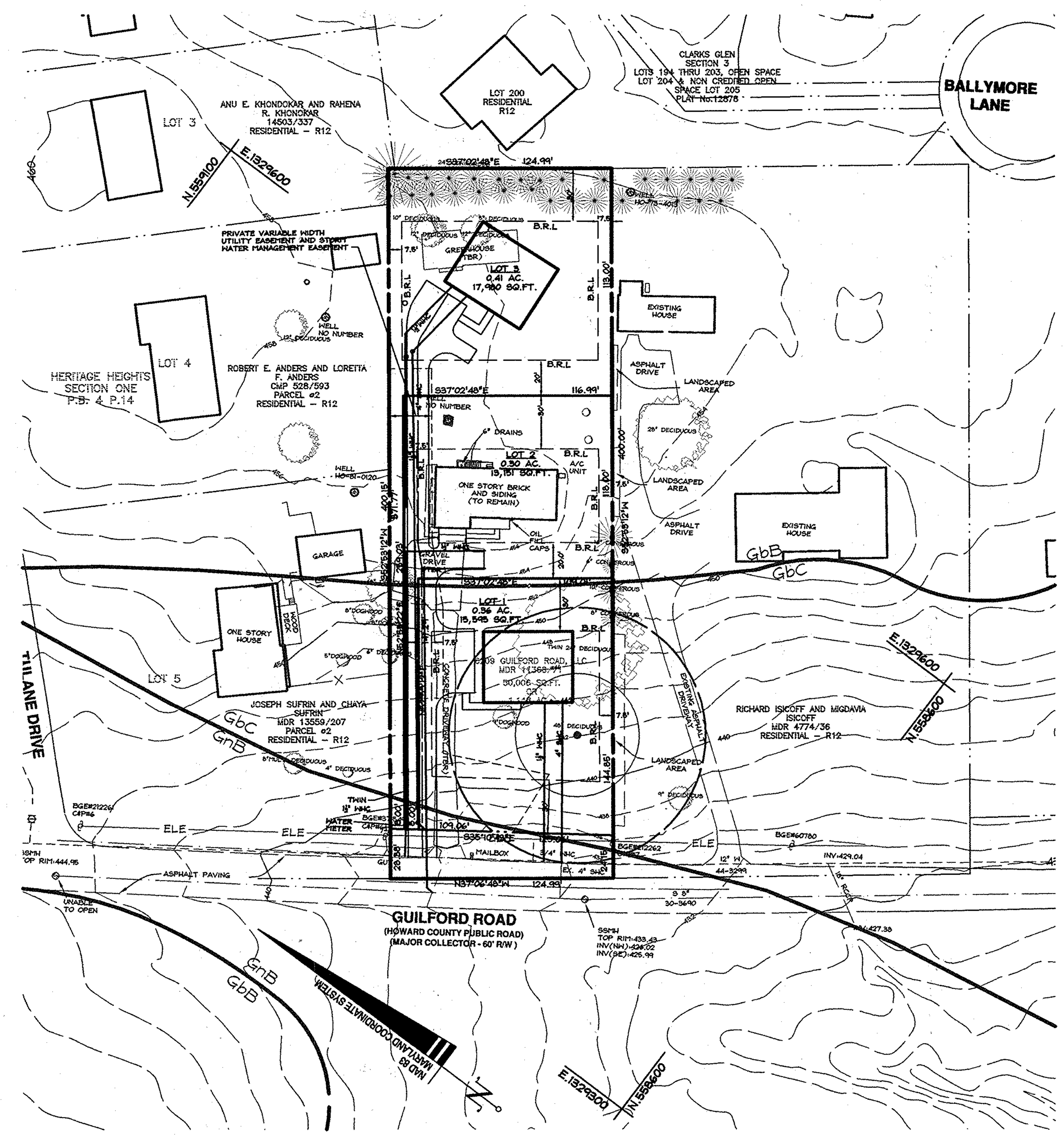
THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL AND CONSERVATION DISTRICT.

John R Robertson 9/15/15
HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9/14/15

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9-22-15



PLAN VIEW:

DRAWING LEGEND

Symbol	Description
682	EXISTING MINOR CONTOUR (2' INTERVAL)
680	EXISTING MAJOR CONTOUR (10' INTERVAL)
	ADJACENT PROPERTY LINE
N 06°45'45"W 120.00'	EXISTING PROPERTY BOUNDARY
	EX. ROAD / EDGE OF PAVING
	EX. SEWER LINE & MANHOLES, CLEAN-OUTS
	EX. OVERHEAD ELECTRIC & UTILITY POLES
	PROPOSED PRIVATE ROAD/DRIVE CENTERLINE
	EX. BUILDING
	PROPOSED BUILDING
	EXISTING TREELINE

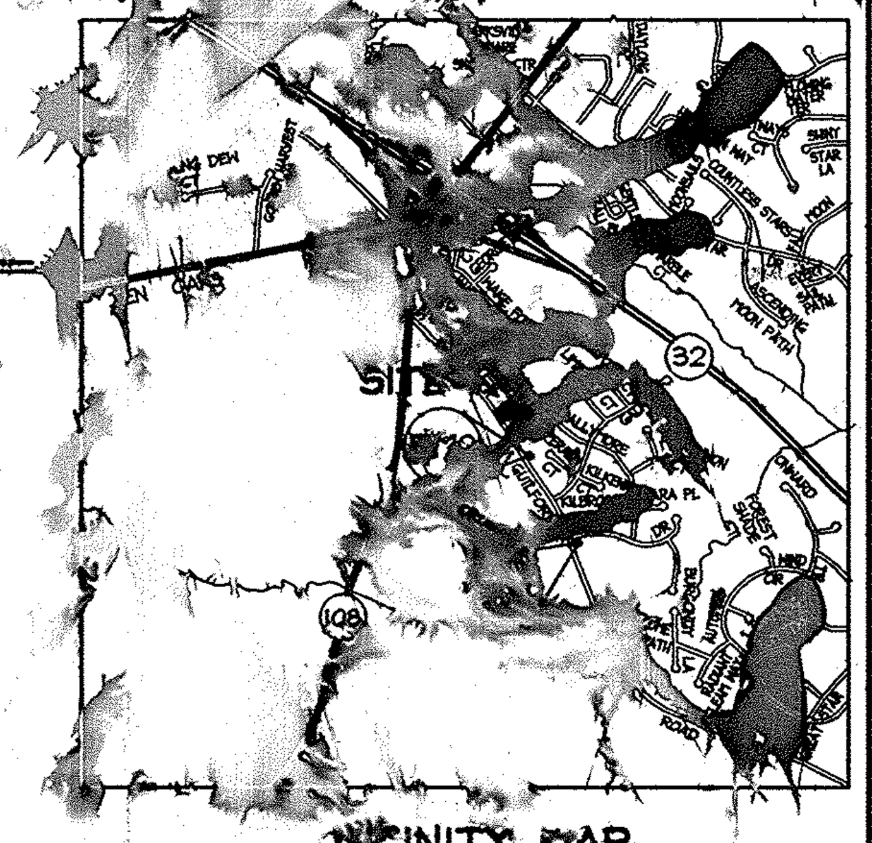
GRAPHIC SCALE
50 0 50 100 150

BENCHMARKS

BENCHMARK #1
N. 557439.91
E. 1330191.32
B.M. 34FB - CON'C MON
ELEV. 406.15

BENCHMARK #2
N. [illegible]
E. [illegible]
B.M. [illegible]
ELEV. [illegible]

ADC MAP COORDINATES
MAP 14 E8
N 39°12'00", E 76°56'20"



VICINITY MAP
SCALE: 1"=2000'

SHT #	DRAWING LIST
1	COVER
2	GRADING, STORMWATER MANAGEMENT AND SEC PLAN
3	SEDIMENT & EROSION CONTROL, NOTES & DETAILS
4	STORMWATER MANAGEMENT PROFILES, NOTES & DETAILS
5	SOILS & STORMWATER MANAGEMENT BORING PLAN
6	LANDSCAPE/FOREST CONSERVATION PLAN
7	LANDSCAPE DETAILS

DATA SOURCES:
ONSITE BOUNDARY AND TOPOGRAPHY IS BASED UPON A FIELD RUN SURVEY PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC. IN APRIL, 2013. EXISTING SOILS SHOWN PER USDA WEB SOIL SURVEY.
EXISTING OFFSITE TOPOGRAPHY SHOWN PER HOWARD COUNTY OIT/GIS, BASED ON MARYLAND COORDINATE SYSTEM, NAD-83(1991), NAVD-88.

Planners
Surveyors
Engineers
Landscape Architects
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Westminster, MD 21157
410.386.0560
410.386.0564 (Fax)
DDC@DDCinc.us
www.DDCinc.us
Development Design Consultants

OWNER:
6209 GUILFORD ROAD, LLC
[illegible] WARD ROAD
[illegible] MD 21036
[illegible]5080

DEVELOPER:
SAME AS OWNER

SITE ADDRESS:
6209 GUILFORD ROAD
CLARKSVILLE, MD 21029

PRIMROSE PRESERVE
MINOR SUBDIVISION
COVER

5TH ELECTION DISTRICT HOWARD COUNTY, MD

NO.	DESCRIPTION OF CHANGES (REVISIONS)	DRN.	REV.	DATE

09/04/15
DATE
Professional Certification.
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 27020, Expiration Date: 1-25-16.
PAUL G. CAVANAUGH
P.E. 27020

PLAT #:	DES. BY: BKC
TAX ACC. #: 05363411	DRN. BY: TPM
TAX MAP: 34	CHK. BY: PGC
BLOCK / GRID: 12	DATE: 9/4/15
PARCEL #: 0226	DDC JOB#: 11102.1
ZONE / USE: R-12	SHEET NUMBER: 1 of 7
DWG. SCALE: 1"=50'	

F-14-113

SWM SUMMARY TABLE		
	M-3 LANDSCAPE INFILTRATION	M-5 DRY WELL
FACILITY OWNERSHIP/MAINT.	PRIVATE	PRIVATE
OWNER NAME	PRIMROSE PRESERVE	PRIMROSE PRESERVE
DRAINAGE AREA TO FACILITY(Ac)	0.29	0.14
ESDv REQUIRED (cu-ft)	316	152
ESDv PROVIDED(cu-ft)	963	432
Pe REQUIRED (in)	1.2	1.2
Pe PROVIDED (in)	4.2	1.3
1-YR STORM, PR OUTFLOW(cfs)	0.1	-
1-YR WATER SURFACE ELEV(ft)	440.33	-
10-YR STORM, PR OUTFLOW(cfs)	2.7	-
10-YR WATER SURFACE ELEV(ft)	440.75	-
100-YR STORM, PR OUTFLOW(cfs)	3.5	-
100-YR WATER SURFACE ELEV(ft)	440.76	-

TABLE B.4.1 Materials Specifications for Micro-Bioretention, Rain Gardens, & Landscape Infiltration			
Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
Planting soil (2' to 4' deep)	loamy sand (60-65%) & compost (35-40%) or sandy loam (30%), coarse sand (30%) & compost (40%)	n/a	USDA soil types loamy sand or sandy loam; clay content <5%
Organic content	Min. 10% by dry weight (ASTM D 2974)		
Mulch	shredded hardwood		aged 6 months, minimum; no pine or wood chips
Pea gravel diaphragm	pea gravel: ASTM-D-448	NO. 8 OR NO. 9 (1/8" TO 3/8")	
Curtain drain	ornamental stone: washed cobbles	stone: 2" to 5"	
Geotextile		n/a	PE Type 1 nonwoven
Gravel (underdrains and infiltration berms)	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE (3/8" to 3/4")	
Underdrain piping	F 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe; 3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes. Perforated pipe shall be wrapped with 1/4" galvanized hardware cloth.
Poured in place concrete (if required)	MSHA Mix No. 3; f'c=3500 psi @ 28 days, normal weight, air-entrained; reinforcing to meet ASTM-615-60	n/a	on-site testing of poured-in-place concrete required: 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) not using previously approved State or local standards requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 350.R/89; vertical loading H-10 or H-20; allowable horizontal loading (based on soil pressures); and analysis of potential cracking
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 dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.

CONSTRUCTION SPECIFICATIONS FOR MICRO-BIORETENTION, RAIN GARDENS, LANDSCAPE INFILTRATION & INFILTRATION BERMS

1. Material specifications

The allowable materials to be used in these practices are detailed in Table B.4.1.

2. Filtering Media or Planting Soil

The soil shall be a uniform mix, free of stones, stumps, roots or other similar objects larger than two inches. No other materials or substances shall be mixed or dumped within the micro-bioretention practice that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations. The planting soil shall be free of Bermuda grass, Quackgrass, Johnson grass, or other noxious weeds as specified under COMAR 15.08.01.05.

The planting soil shall be tested and shall meet the following criteria:

-Soil Component - Loamy Sand or Sandy Loam (USDA Soil Textural Classification)
-Organic Content - Minimum 10% by dry weight (ASTM D 2974). In general, this can be met with a mixture of loamy sand (60%-65%) and compost (35% -40%) or sandy loam (30%), coarse sand (30%), and compost (40%).
-Clay Content - Media shall have a clay content of less than 5%.
-pH Range - Should be between 5.5 - 7.0. Amendments (e.g., lime, iron sulfate plus sulfur) may be mixed into the soil to increase or decrease pH.

There shall be at least one soil test per project. Each test shall consist of both the standard soil test for pH, and additional tests of organic matter, and soluble salts. A textural analysis is required from the site stockpiled topsoil. If topsoil is imported, then a texture analysis shall be performed for each location where the topsoil was excavated.

3. Compaction

It is very important to minimize compaction of both the base of bioretention practices and the required backfill. When possible, use excavation hoes to remove original soil. If practices are excavated using a loader, the contractor should use wide track or marsh track equipment, or light equipment with turf type tires. Use of equipment with narrow tracks or narrow tires, rubber tires with large lugs, or high pressure tires will cause excessive compaction resulting in reduced infiltration rates and is not acceptable. Compaction will significantly contribute to design failure.

Compaction can be alleviated at the base of the bioretention facility by using a primary tilling operation such as a chisel plow, ripper, or subsoiler. These tilling operations are to refracture the soil profile through the 12 inch compaction zone. Substitute methods must be approved by the engineer. Rototillers typically do not till deep enough to reduce the effects of compaction from heavy equipment.

Rototill 2 to 3 inches of sand into the base of the bioretention facility before backfilling the optional sand layer. Pump any ponded water before preparing (rototilling) base.

When backfilling the topsoil over the sand layer, first place 3 to 4 inches of topsoil over the sand, then rototill the sand/topsoil to create a gradation zone. Backfill the remainder of the topsoil to final grade.

When backfilling the bioretention facility, place soil in lifts 12" to 18". Do not use heavy equipment within the bioretention basin. Heavy equipment can be used around the perimeter of the basin to supply soils and sand. Grade bioretention materials with light equipment such as a compact loader or a dozer/loader with marsh tracks.

4. Plant Material

Recommended plant material for micro-bioretention practices can be found in Appendix A, Section A.2.3.

5. Plant Installation

Compost is a better organic material source, is less likely to float, and should be placed in the invert and other low areas. Mulch should be placed in surrounding to a uniform thickness of 2" to 3". Shredded or chipped hardwood mulch is the only accepted mulch. Pine mulch and wood chips will float and move to the perimeter of the bioretention area during a storm event and are not acceptable. Shredded mulch must be well aged (6 to 12 months) for acceptance.

Rootstock of the plant material shall be kept moist during transport and on-site storage. The plant root ball should be planted so 1/8th of the ball is above final grade surface. The diameter of the planting pit shall be at least six inches larger than the diameter of the planting process. Set and maintain the plant straight during the entire planting process. Thoroughly water ground bed cover after installation.

Trees shall be braced using 2" by 2" stakes only as necessary and for the first growing season only. Stakes are to be equally spaced on the outside of the tree ball.

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 planting specifications.

The topsoil specifications provide enough organic material to adequately supply nutrients from natural cycling. The primary function of the bioretention structure is to improve water quality. Adding fertilizer defeats, or at a minimum, impedes this goal. Only add fertilizer if wood chips or mulch are used to amend the soil. Rototill urea fertilizer at a rate of 2 pounds per 1000 square feet.

6. Underdrains

Underdrains should meet the following criteria:

-Pipe - Should be 4" to 6" diameter, slotted or perforated rigid plastic pipe (ASTMF 758, Type PS 28, or AASHTO-M-278) in a gravel layer. The preferred material is slotted, 4" rigid pipe (e.g., PVC or HDPE).
-Perforations - If perforated pipe is used, perforations should be 3/8" diameter located 6" on center with a minimum of four holes per row. Pipe shall be wrapped with a 1/4" (No. 4 or 4x4) galvanized hardware cloth.
-Gravel - The gravel layer (No. 57 stone preferred) shall be at least 3" thick above and below the underdrain.
-The main collector pipe shall be at a minimum 0.5% slope.
-A rigid, non-perforated observation well must be provided (one every 1,000 square feet) to provide a clean-out port and monitor performance of the filter.
-A 4" layer of pea gravel (1/8" to 3/8" stone) shall be located between the filter media and underdrain to prevent migration of fines into the underdrain. This layer may be considered part of the filter bed when bed thickness exceeds 24".

The main collector pipe for underdrain systems shall be constructed at a minimum slope of 0.5%. Observation wells and/or clean-out pipes must be provided (one minimum per every 1000 square feet of surface area).

7. Miscellaneous

These practices may not be constructed until all contributing drainage area has been stabilized.

BY THE DEVELOPER:

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

DEVELOPER — DATE 9/4/15

ENGINEER

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

Paul G. Cavanaugh Sept 4, 2015
ENGINEER — DATE

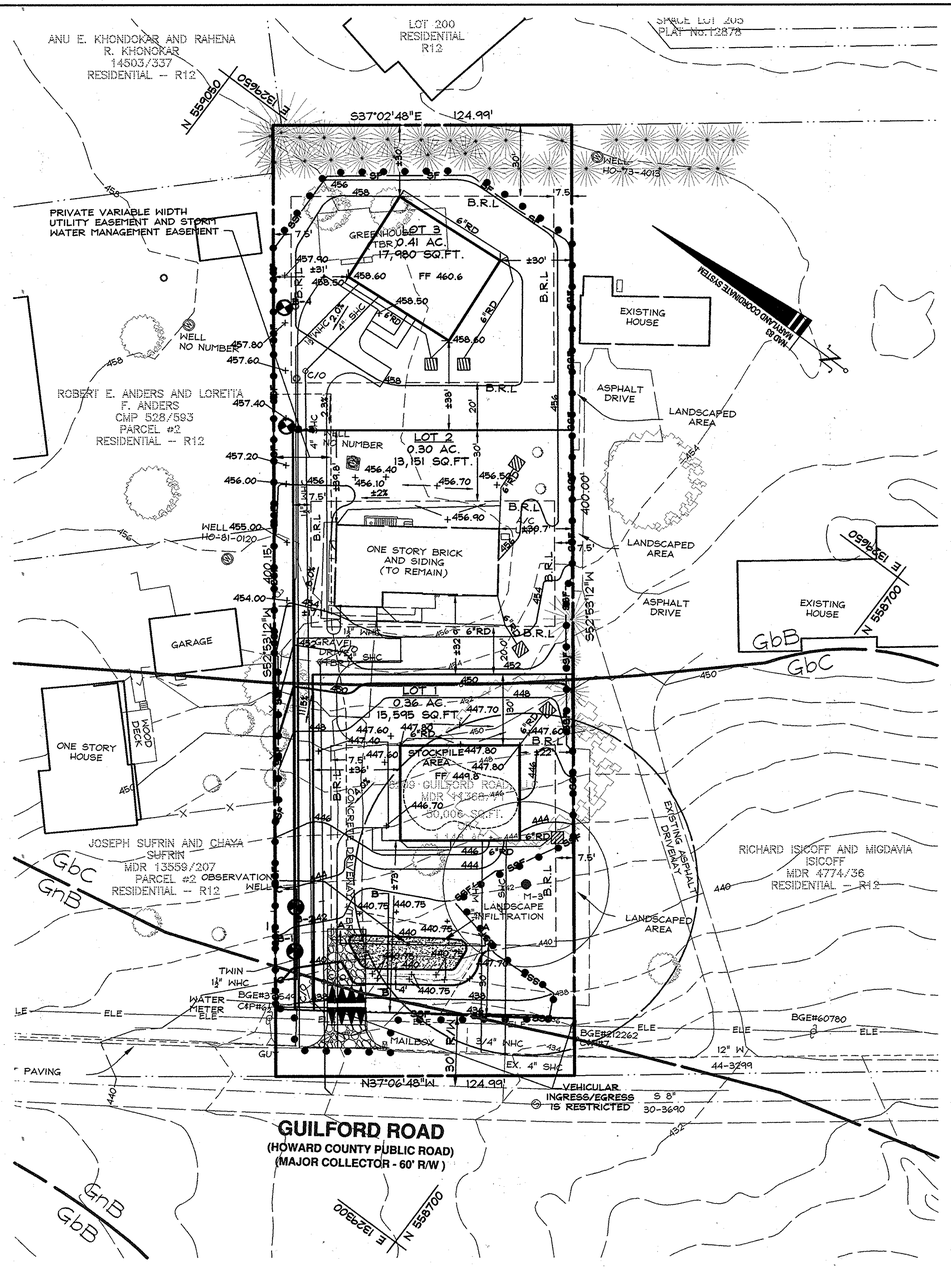
THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL AND CONSERVATION DISTRICT.

John R Robertson 9/15/15
HOWARD SOIL CONSERVATION DISTRICT — DATE

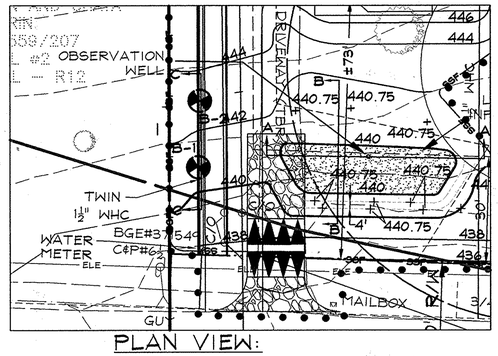
APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9/18/15

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9.22.15



PLAN VIEW:
SCALE: 1"=30'



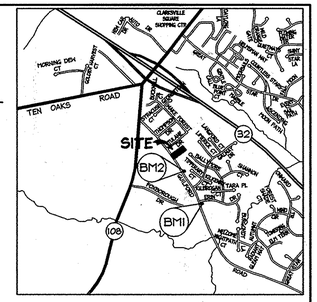
PLAN VIEW:
SCALE: 1"=20'

BENCHMARK

BENCHMARK #1
N. 557439.91
E. 1330191.32
B.M. 34FB - CONC MON
ELEV. 406.15

BENCHMARK #2
N. 558339.60
E. 1329709.02
B.M. 34FE - CONC MON
ELEV. 431.12

ADC MAP COORDINATES
MAP 14 E9
N 39°12'00", E 76°56'20"



VICINITY MAP
SCALE: 1"=2000'

DRAWING LEGEND

- 682 — EXISTING MINOR CONTOUR (2' INTERVAL)
- 680 — EXISTING MAJOR CONTOUR (10' INTERVAL)
- ADJACENT PROPERTY LINE
- N 06°45'45"W 120.00' — EXISTING PROPERTY BOUNDARY
- EX. ROAD / EDGE OF PAVING
- EX. SEWER LINE & MANHOLES, CLEAN-OUTS
- EX. OVERHEAD ELECTRIC & UTILITY POLES
- 682 — PROPOSED MINOR CONTOUR (2' INTERVAL)
- 680 — PROPOSED MAJOR CONTOUR (10' INTERVAL)
- PROPOSED PRIVATE ROAD/DRIVE CENTERLINE
- EX. BUILDING
- PROPOSED BUILDING EXPANSION
- + 665.5 — PROPOSED SPOT ELEVATION & FLOW ARROW
- EXISTING TREELINE
- MnE — SOIL DELINEATION LINE
- SF — SILT FENCE
- SSF — SUPER SILT FENCE
- PROPOSED LIMIT OF DISTURBANCE
- STABILIZED CONSTRUCTION ENTRANCE WITH MOUNTABLE BERM
- PROPOSED M-5 DRY WELLS
- PROPOSED M-3 LANDSCAPE INFILTRATION
- PROPOSED OBSERVATION WELL
- PROPOSED CLEANOUT

DATA SOURCES:
ONSITE BOUNDARY AND TOPOGRAPHY IS BASED UPON A FIELD RUN SURVEY PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC. IN APRIL, 2013. EXISTING SOILS SHOWN PER USDA WEB SOIL SURVEY.
EXISTING OFFSITE TOPOGRAPHY SHOWN PER HOWARD COUNTY OIT/GIS, BASED ON MARYLAND COORDINATE SYSTEM, NAD-83(1991), NAVD-88.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED STORMWATER MANAGEMENT BIORETENTION FACILITIES

A. The Owner shall maintain the plant material, mulch layer and soil layer annually. Maintenance of mulch and soil is limited to correcting areas of erosion or wash out. Any mulch replacement shall be done in the spring. Plant material shall be checked for disease and insect infestation and maintenance will address dead material and pruning. Acceptable replacement plant material is limited to the following: 2000 Maryland Stormwater Design Manual Volume II, Table A.4.1 and 2.

B. The Owner shall perform a plant inspection in the spring and in the fall of each year. During the inspection, the Owner shall remove dead and diseased vegetation considered beyond treatment, replace dead plant material with acceptable replacement plant material, treat diseased trees and shrubs, and replace all deficient stakes and wires.

C. The Owner shall inspect the mulch each spring. The mulch shall be replaced every two to three years. The previous mulch layer shall be removed before the new layer is applied.

D. The Owner shall correct soil erosion on an as needed basis, with a minimum of once per month and after every heavy storm.

NOTE:
STORMWATER MANAGEMENT FACILITIES ARE PRIVATELY OWNED AND THEREFORE MAINTENANCE IS THE RESPONSIBILITY OF THE OWNER.

GRAPHIC SCALE
30 0 30 60 90

09/04/15
DATE

Professional Certification.
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 27020 Expiration Date: 11-05-16

PAUL G. CAVANAUGH
P.E. 27020

DDC Development Design Consultants
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Surveyors
Engineers
Landscape Architects
192 East Main Street
Westminster, MD 21157
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410.386.0564 (Fax)
DDC@DDCinc.us
www.DDCinc.us

OWNER:
6209 GUILFORD ROAD, LLC
14325 HOWARD ROAD
DAYTON, MD 21036
410-489-5080

DEVELOPER:
SAME AS OWNER

SITE ADDRESS:
6209 GUILFORD ROAD
CLARKSVILLE, MD 21029

PRIMROSE PRESERVE
MINOR SUBDIVISION

GRADING, STORMWATER MANAGEMENT & SEDIMENT EROSION CONTROL PLAN

5TH ELECTION DISTRICT — HOWARD COUNTY, MD

REVISIONS				
NO.	DESCRIPTION OF CHANGES	DRN.	REV.	DATE

PLAT #:	DES. BY: BKC
TAX ACC. # 05363411	DRN. BY: TPM
TAX MAP: 34	CHK. BY: PGC
BLOCK / GRID: 12	DATE: 9/4/15
PARCEL #: 0226	DDC JOB#: 11102.1
ZONE / USE: R-12	SHEET NUMBER: 2 of 7
DWG. SCALE: 1"=30'	

F-14-113

STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

A. Adequate Vegetative Establishment

Inspect seeded areas for vegetative establishment and make necessary repairs, replacements, and reseedings within the planting season.

1. Adequate vegetative stabilization requires 95 percent groundcover.
2. If an area has less than 40 percent groundcover, restabilize following the original recommendations for lime, fertilizer, seedbed preparation, and seeding.
3. If an area has between 40 and 94 percent groundcover, over-seed and fertilize using half of the rates originally specified.
4. Maintenance fertilizer rates for permanent seeding are shown in Table B.6.

B. Soil Preparation

1. Temporary Stabilization
   a. Seedbed preparations 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 establishments 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 lovegrass 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.

A. 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, material 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. Manure 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.

D. 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.
   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; P205 (phosphorous), 200 pounds per acre; K20 (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.

E. 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 homogenous 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 per water.
3. Anchoring
   a. Perform mulch anchoring immediately following applications 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, Petroset, 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.

BY THE DEVELOPER:

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

DEVELOPER 9/4/15 DATE

ENGINEER

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

ENGINEER Sept 4, 2015 DATE

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

HOWARD SOIL CONSERVATION DISTRICT 9/15/15 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION 9/18/15 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT 9-22-15 DATE

B-4-4 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 Apply
Exposed soils where ground cover is needed for 6 months more

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 soils 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 include; 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 100 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 seedings 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 seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

Permanent Seeding Summary

Hardiness Zone (from Figure B.3): Seed Mixture (from Table B.1):					Fertilizer Rate (10-20-20)	Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths		
9	Tall Fescue	60	3/1-5/15 8/1-10/15	1/2 IN	436 lb/ac (10 lb/1000 sf)	2 tons/ac (90 lb/1000 sf)
	Perennial Ryegrass	20	3/1-5/15 8/1-10/15	1/2 IN		
	Kentucky Bluegrass	40	3/1-5/15 8/1-10/15	1/2 IN		

I. 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 3/4 inch, plus or minus 1/4 inch, at the time of cutting. Measurement for thickness mist 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 1/3 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.

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 Apply
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

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): 6b Seed Mixture (from Table B.3):					Fertilizer Rate (10-20-20)			Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	N	P_2O_5	K_2O	
1	Annual Ryegrass	40	3/1-5/15 8/1-10/15	1/2 in	45 lb/ac (1.0 lb/ 1000 sf)	90 lb/ac (2 lb/ 1000 sf)	90 lb/ac (2 lb/ 1000 sf)	2 tons/ac (90 lb/ 1000 sf)
	Foxtail Millet	30	5/16-7/31	1/2 in				

HOWARD SOIL CONSERVATION DISTRICT

PERMANENT SEEDING NOTES

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

Seedbed Preparation: Loosen upper three inches of soil by raking, disking 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/acre dolomitic limestone (92 lbs/1000 sq. ft.) and 600 lbs/acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.) before seeding. Harrow or disk into upper three inches of soil. At time of seeding, apply 400 lbs/acre 30-0-0 ureaform fertilizer (9 lbs/1000 sq. ft.)

2. Acceptable -- Apply 2 tons/acre dolomitic limestone (92 lbs/1000 sq. ft.) and 1000 lbs/acre 10-10-10 fertilizer (23 lbs/1000 sq. ft.) before seeding. Harrow or disk into upper three inches of soil.

Seeding -- For the periods March 1 -- April 30, and August 1 -- October 15, seed with 60 lbs/acre (1.4 lbs/1000 sq. ft.) of Kentucky 31 Tall Fescue. For the period May 1 -- July 31, seed with 60 lbs Kentucky 31 Tall Fescue per acre and 2 lbs/acre (.05 lbs/100() sq. ft.) of weeping lovegrass. During the period of October 16 -- February 28, protect site by:

Option 1 -- Two tons per acre of well anchored straw mulch and seed as soon as possible in the spring.

Option 2 --Use sod. Option 3 --- Seer: with 60 lbs/acre Kentucky 30 Tall Fescue and mulch with 2 tons/acre well anchored straw.

Mulching -- Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000 sq. ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slope 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq. ft.) for anchoring.

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

TEMPORARY SEEDING NOTES.

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

Seedbed preparation: -- Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, if not previously loosened.

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

Seeding: -- For periods March 1 -- April 30 and from August 15 -- October 15, seed with 2-1/2 bushel per acre of annual rye (3.2 lbs/1000 sq. ft.). For the period May 1 -- August 14, seed with 3 lbs/acre of weeping lovegrass (.07 lbs/1000 sq. ft.). For the period November 16 -- February 28, protect site by applying 2 tons/acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

Mulching: -- Apply 1-1/2 to 2 tons/acre (70 to 90 lbs/1000 sq. ft.) of unrotted weed-free, small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gal. per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slope 8 ft. or higher, use 348 gal. per acre (8 gal/1000 sq. ft.) for anchoring.

Refer to the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for additional rates and methods not covered.

HOWARD SOIL CONSERVATION DISTRICT 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 most current 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) 3 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 7 days as to all other disturbed or graded areas on the project site.
4. All disturbed areas must be stabilized within the time period specified above in accordance with the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding (Sec. B-4-5), temporary seeding (Sec. B-4-4) and mulching (Sec.B-4-3). Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
5. 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.
6. Site Analysis:
   Total Area of Site: 1.15 ± Ac.
   Area Disturbed: 0.97 Ac.
   Area to be roofed or paved: 0.31± Ac.
   Area to be vegetatively stabilized: 0.84± Ac.
   Total Cut: 180 CY
   Total Fill: 180 CY
   Offsite waste/borrow are location: N/A

   Silt Fence: 115 LF
   Super Silt Fence: 826 LF

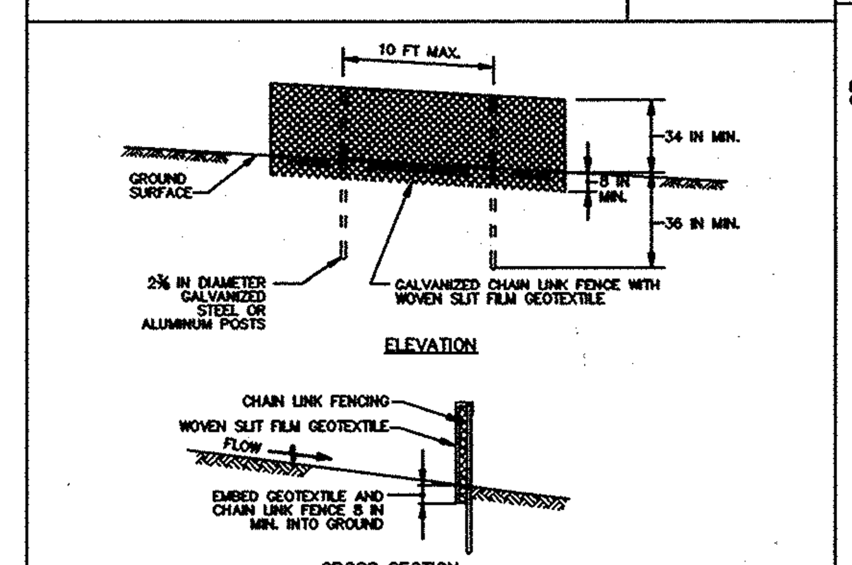
   All quantities shown on plans are for reviewing agency only. Contractor shall verify quantities for bidding.
7. Any sediment control practice that is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
8. Additional sediment control must be provided, if deemed necessary by the Howard County Sediment Control Inspector.
9. On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.
10. Trenches for the construction of utilities is limited to three pipe lengths or that which shall be back-filled and stabilized by the end of each workday, whichever is shorter.
11. Any changes or revisions to the sequence of construction must be reviewed and approved by the plan approval authority prior to proceeding with construction.
12. A project is to be sequenced so that grading activities begin on one grading unit (maximum acreage of 20 ac. per grading unit) at a time. Work may proceed to a subsequent grading unit when at least 50 percent of the disturbed area in the preceding grading unit has be stabilized and approved by the enforcement authority. Unless otherwise specified and approved by the approval authority, no more than 30 acres cumulatively may be disturbed at a given time.

Sequence of Construction

1. Obtain a Grading Permit. (1 day)
2. Notify "Miss Utility" at least 48 hours before beginning any work at 1-800-257-7777. Notify Howard County Department of Inspections,Licenses and Permits, Sediment Control Division at 410-313-1855 at least 24 hours before starting any work. (2 days)
3. Contractor shall install driveway culvert from I-2 to ES-2 and adjust roadside swale. Immediately stabilize swale with erosion control matting and permanently seed. Install stabilized construction entrance. (3 days)
4. Install perimeter silt fence, and super silt fence, (1 days)
5. With perimeter sediment control devices installed and with permission from the Sediment Control Inspector, Demo buildings and clear remaining lot for construction. (1 week)
6. Dust control will be provided for all disturbed areas. Refer to "2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control", pg H.22, for acceptable methods and specifications for dust control (ongoing) (18 to 24 weeks).
7. With all disturbed areas stabilized, and with permission from the sediment control inspector, remove sediment control devices. (1 week)
8. Notify Howard County Office of Inspections and Permits for a final inspection of the completed site. (2 days)

Either temporary or permanent seeding and stabilization are to be performed at the direction of the sediment control inspector or at the minimum timeframes required by the 2011 MD Standards & Specifications for Soil Erosion & Sediment Control whichever is more stringent.

DETAIL E-3 SUPER SILT FENCE — STANDARD SYMBOL: SSF

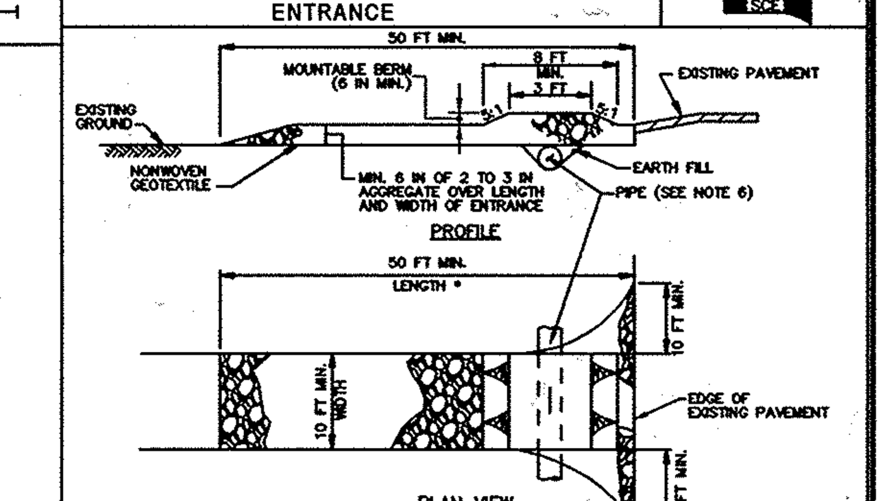


CONSTRUCTION SPECIFICATIONS

1. INSTALL 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
2. FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2⅜ INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.
3. FASTEN WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO THE UPSLOPE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND.
4. WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.
5. EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.
6. PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
7. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

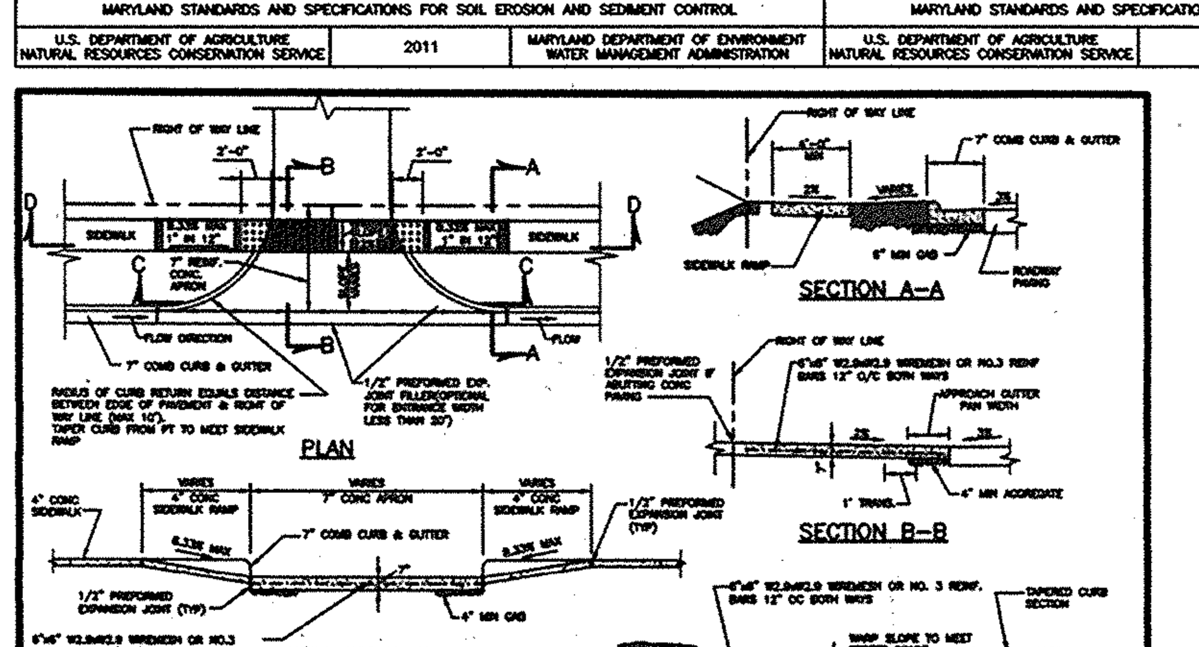
DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE — STANDARD SYMBOL: SCE



CONSTRUCTION SPECIFICATIONS

1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
2. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.
3. PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
4. PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
5. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

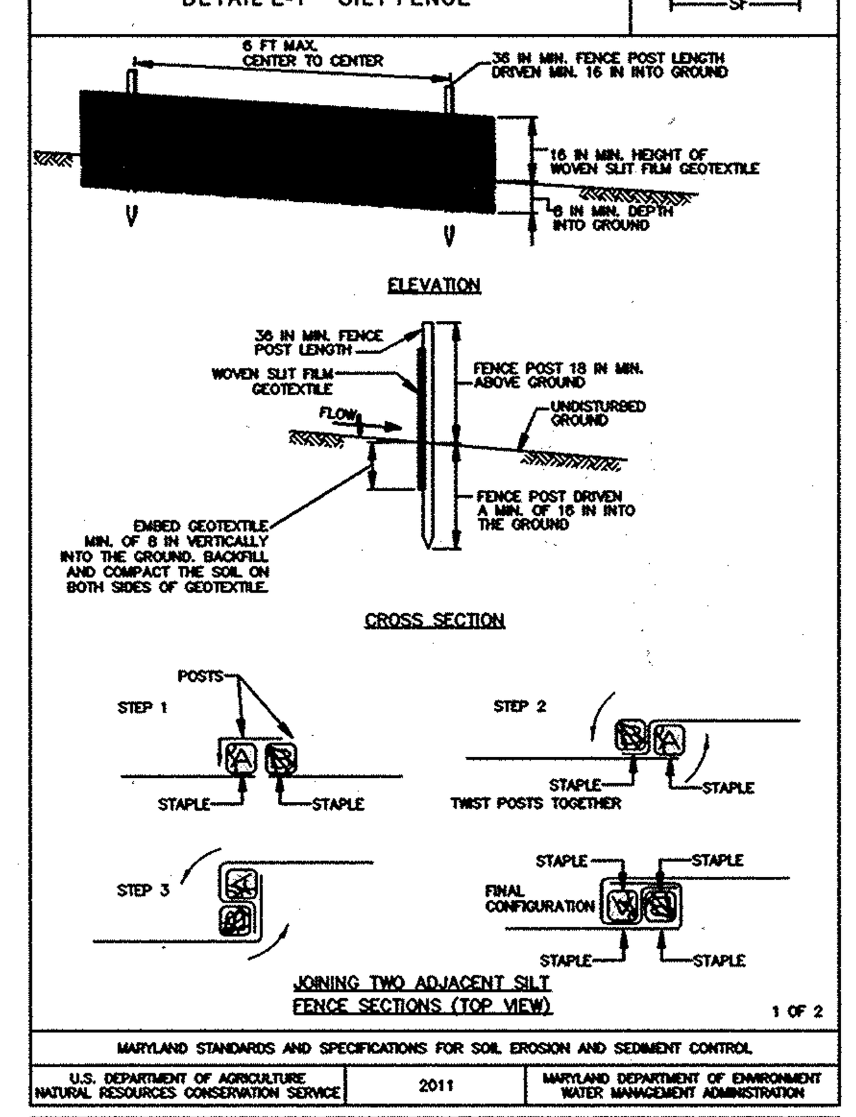
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



NOTES:
1. ALL RAMPS SHALL HAVE A WARNING TEXTURE EXTENDING THE FULL WIDTH OF THE RAMP.
2. GRASS AREA ADJACENT TO SIDEWALK MUST BE SLOPED TO MEET RAMP.
3. 4'-0" SIDEWALK REQUIRES PASSING AREA (SEE DETAIL R-4.01).

Howard County, Maryland Department of Public Works | COMMERICAL-INDUSTRIAL-APARTMENT Entrance Concrete Apron | Detail R-6.07

DETAIL E-1 SILT FENCE — STANDARD SYMBOL: SF



1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-1 SILT FENCE — STANDARD SYMBOL: SF

CONSTRUCTION SPECIFICATIONS

1. USE WOOD POSTS 1¾ X 1¾ ± ⅛ INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
2. USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
3. USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION.
4. PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
5. EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.
6. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
7. EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.
8. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

2 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DATA SOURCES:
ONSITE BOUNDARY AND TOPOGRAPHY IS BASED UPON A FIELD RUN SURVEY PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC. IN APRIL, 2013. EXISTING SOILS SHOWN PER USDA WEB SOIL SURVEY.
EXISTING OFFSITE TOPOGRAPHY SHOWN PER HOWARD COUNTY OIT/GIS, BASED ON MARYLAND COORDINATE SYSTEM, NAD-83(1991), NAVD-88.

DDC
Development Design Consultants
Planners
Surveyors
Engineers
Landscape Architects
192 East Main Street
Westminster, MD 21157
410.386.0560
410.386.0564 (Fax)
DDC@DDCinc.us
www.DDCinc.us

OWNER:
6209 GUILFORD ROAD, LLC
14325 HOWARD ROAD
DAYTON, MD 21036
410-489-5080

DEVELOPER:
SAME AS OWNER

SITE ADDRESS:
6209 GUILFORD ROAD
CLARKSVILLE, MD 21029

09/04/15
DATE
Professional Certification.
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 27020, Expiration Date: 6-25-16.

PAUL G. CAVANAUGH
P.E. 27020

PRIMROSE PRESERVE
MINOR SUBDIVISION

SEDIMENT & EROSION CONTROL NOTES & DETAILS

5TH ELECTION DISTRICT HOWARD COUNTY, MD

REVISIONS

NO.	DESCRIPTION OF CHANGES	DRN.	REV.	DATE

PLAT #:	DES. BY: TPM
TAX ACC. #: 05363411	DRN. BY: TPM
TAX MAP: 34	CHK. BY: BKC
BLOCK / GRID: 12	DATE: 9/4/15
PARCEL #: 0226	DDC JOB#: 11102.1
ZONE / USE: R-12	SHEET NUMBER:
DWG. SCALE: N/A	3 of 7

F-14-113

REQUIRED SEQUENCE OF CONSTRUCTION FOR M-3 LANDSCAPE INFILTRATION:

1. Notify engineer prior to beginning work on micro-bioretention facility.
2. Install site sediment control. Build site and stabilize with a minimum of 2" stand of dense grass. (2 months)
3. Excavate facilities, The Contractor shall inform the engineer prior to start of construction for inspection. (1 days)
4. Install 12" C-33 sand. (1 day)
5. Install 12" layer of #57 stone. (1 day)
6. Install 12" planting media, plant landscaping and stabilize. (1 day)
7. Once Engineer inspects facilities they can be put online. (1 day)
8. The engineer must submit signed and sealed stormwater management as-built mylars within 30 days of completion of these facilities to the Howard County Bureau of Resource Management.

REQUIRED SEQUENCE OF CONSTRUCTION FOR M-5 DRY WELL FACILITIES:

1. Notify engineer prior to beginning work on dry well facility.
2. Install site sediment control. Build site and stabilize with a minimum of 2" stand of dense grass. (2 months)
3. The Contractor shall inform the engineer Development Design Consultants, Inc(410) 386-0560 prior to start of construction.
4. Stakeout and excavate Dry Well facilities.
5. Install Geotextile filter fabric on sides.
6. Install Observation well (4" Perforated PVC,sch-40) along with down spout (4"PVC ,sch 40) extension in to facility.(1 day)
7. Install 12" C-33 Sand layer (1 day)
8. Install 4' layer of #57 or #2 stone. (1 day)
9. Cover top of stone with filter fabric. (1 day)
10. Install 12" cover to close facility. (1 day)
11. Fine grade, seed, mulch and stabilize. (1 Day)
12. Once Engineer inspects facilities they can be put online. (1 day)
13. The engineer must submit signed and sealed stormwater management as-built mylars within 30 days of completion of these facilities to the Howard County Bureau of Resource Management.

NOTE: ALL DOWNSPOUTS SHALL BE MANIFOLDED TOGETHER AND CONVEYED TO DRYWELLS.

DRY WELL SPECIFICATIONS:
(CHAPTER 5 2009 MDE ENVIRONMENTAL SITE DESIGN)

1. PRETREATMENT MEASURES SHALL BE INSTALLED TO ALLOW FILTERING OF SEDIMENT, LEAVES OR OTHER DEBRIS. THIS MAY BE DONE BY PROVIDING GUTTER SCREENS AND A REMOVABLE FILTER SCREEN INSTALLED WITHIN THE DOWNSPOUT OR OTHER LOCALLY APPROVED METHOD. THE REMOVABLE FILTER SCREEN SHOULD BE INSTALLED BELOW THE OVERFLOW OUTLET AND EASILY REMOVED SO THAT HOMEOWNERS CAN CLEAN THE FILTER.
2. A ONE-FOOT LAYER OF CLEAN SAND SHALL BE PROVIDED ON THE BOTTOM OF THE DRY WELL TO ALLOW FOR BRIDGING BETWEEN THE EXISTING SOILS AND TRENCH GRAVEL.
3. CLASS 'C' GEOTEXTILE FILTER FABRIC, 125 GPM/SQ-FT, SHALL BE PLACED ON TOP, BOTTOM AND SIDES OF SWM FACILITIES AND BETWEEN PLANTING MEDIA AND STONE LAYERS. WHERE PIECES OF FABRIC MEET, THERE SHALL BE A MINIMUM 12" OVERLAP.
4. DISCHARGE FROM THE OVERFLOW PIPE SHALL BE DIRECTED TO AN ABOVE GROUND SPLASH PAD.
5. AN OBSERVATION WELL CONSISTING OF AN ANCHORED, 4 TO 6-INCH DIAMETER PERFORATED PIPE SHALL BE INSTALLED IN EACH DRY WELL. THE TOP OF THE OBSERVATION WELL SHALL BE ATLEAST SIX INCHES ABOVE GRADE.
6. THE BOTTOM OF THE DRY WELL SHALL BE LEVEL.
7. A MINIMUM OF ONE-FOOT OF SOIL COVER SHALL BE PROVIDED FROM THE TOP OF THE TRENCH TO THE GROUND SURFACE ELEVATION.

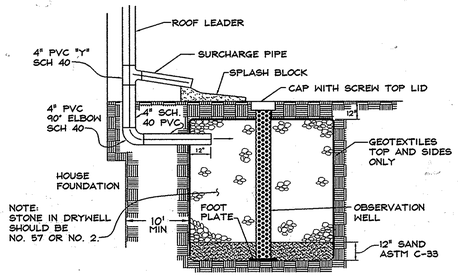


FIGURE 5.1 SCHEMATIC OF DRY WELL

SEQUENCE OF CONSTRUCTION

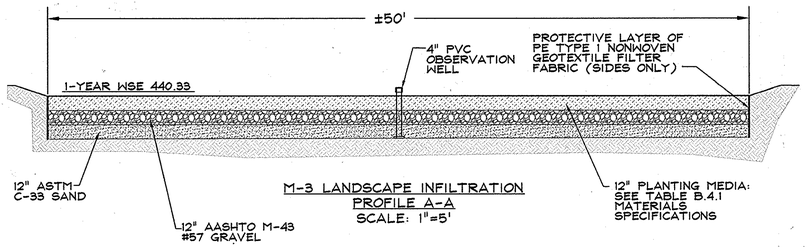
1. ONCE THE INDIVIDUAL HOUSE HAS BEEN CONSTRUCTED AND THE FINAL LOT GRADING IS COMPLETE CONTACT THE CERTIFYING PROFESSIONAL ENGINEER/ PROFESSIONAL LAND SURVEYOR (DEVELOPMENT DESIGN CONSULTANTS, INC., 410-386-0560). ONCE THE CERTIFYING PROFESSIONAL HAS GIVEN THEIR APPROVAL, PROCEED AS FOLLOWS:
2. CONSTRUCT DRYWELL AND CONNECT TO DOWNSPOUT PER STANDARD DETAILS UNDER SUPERVISION OF CERTIFYING PROFESSIONAL. WITH THE CONSTRUCTION OF THE FIRST NEW HOUSE, THE EXISTING RESIDENCE SHALL HAVE ALL DOWN SPOUTS MANIFOLDED AND CONVEYED TO DRYWELLS ON LOT 2.
3. DRYWELLS SHALL BE STAKED OUT TO ENSURE FACILITIES ARE LOCATED GREATER THAN 100 FEET FROM ANY EXISTING WELL. ALL DOWNSPOUTS SHALL BE MANIFOLDED TOGETHER AND CONVEYED TO DRYWELLS.
4. SUBMIT AS-BUILT CERTIFICATION FOR BOND RELEASE.

DRYWELL DIMENSIONS:

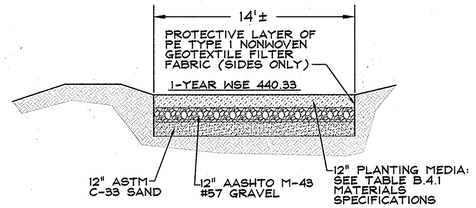
ALL DRYWELLS SHALL BE 6'X6'X5' (2 EACH PER LOT)

MATERIAL SPECIFICATIONS FOR DRY WELLS

MATERIAL	SPECIFICATION	SIZE	NOTES
BANK RUN GRAVEL	AASHTO-M-43	No. 57	
GEOTEXTILE FABRIC	ASTM-D-4833 (PUNCTURE STRENGTH-125 LB.) ASTM-D-4632 (TENSILE STRENGTH-300LB.)	0.08" THICK EQUIVLENT OPENING SIZE OF #80 SIEVE	CLASS 'C' OR BETTER WASHED
SAND LAYER	ASTM C-33	12" THICK LAYER	



M-3 LANDSCAPE INFILTRATION
PROFILE A-A
SCALE: 1"=5'



M-3 LANDSCAPE INFILTRATION
PROFILE B-B
SCALE: 1"=5'

OPERATION AND MAINTENANCE SCHEDULE FOR
PRIVATELY OWNED AND MAINTAINED
STORMWATER MANAGEMENT BIORETENTION FACILITIES

A. The Owner shall maintain the plant material, mulch layer and soil layer annually. Maintenance of mulch and soil is limited to correcting areas of erosion or wash out. Any mulch replacement shall be done in the spring. Plant material shall be checked for disease and insect infestation and maintenance will address dead material and pruning. Acceptable replacement plant material is limited to the following: 2000 Maryland Stormwater Design Manual Volume II, Table A.4.1 and 2.

B. The Owner shall perform a plant inspection in the spring and in the fall of each year. During the inspection, the Owner shall remove dead and diseased vegetation considered beyond treatment, replace dead plant material with acceptable replacement plant material, treat diseased trees and shrubs, and replace all deficient stakes and wires.

C. The Owner shall inspect the mulch each spring. The mulch shall be replaced every two to three years. The previous mulch layer shall be removed before the new layer is applied.

D. The Owner shall correct soil erosion on an as needed basis, with a minimum of once per month and after every heavy storm.

DATA SOURCES:
ONSITE BOUNDARY AND TOPOGRAPHY IS BASED UPON A FIELD RUN SURVEY PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC. IN APRIL, 2013. EXISTING SOILS SHOWN PER USDA WEB SOIL SURVEY
EXISTING OFFSITE TOPOGRAPHY SHOWN PER HOWARD COUNTY OIT/GIS, BASED ON MARYLAND COORDINATE SYSTEM, NAD-83(1991), NAVD-88.

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

Project Name: Guilford Road SWM — Boring No.: B-1
Location: Infiltration Area 1 — Job #: 02714A
SAMPLER — Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: — Foreman: Jon Balk
Surf. Elev.: 441 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector: Rajesh Goel
Date Started: 4-2-14 — Pipe Size: in. — Boring Method: HSA — Date Completed: 4-2-14

ELEVATION / DEPTH	SOIL SYMBOLS / SAMPLE CONFIGURATIONS	Description	Boring and Sampling Notes	Rec.	N/M	SPT	SPT Blows Foot CURVE 10 30 50
440		Brown and gray micaceous silty clay with rock fragments, moist, very soft, FILL	2" topsoil	10"		1-1-1	2
435		Brown and gray micaceous sandy SILT with rock fragments, moist, medium dense, (ML)		10"		5-8-7	15
430		Brown and gray micaceous silty SAND, moist, medium dense, (SM)		15"		5-7-7	14
425		Brown micaceous sandy SILT, moist, loose, (ML)		12"		2-2-4	6
420		Light gray silty ROCK FRAGMENTS, moist, very dense (GM)		12"		11-50/0.4"	78+
415		End of Boring at 15.0'					

SAMPLER TYPE: SPT: SPLIT SPOON UNLESS OTHERWISE NOTED; PT: PRESSED SHELBY TUBE; DA: CONTINUOUS FLIGHT AUGER; OC: PUSH CORE
SAMPLE CONDITIONS: D: DISAGITATED; I: INTACT; U: UNDISTURBED; L: LOST
GROUND WATER: AT COMPLETION 11.5' ft; AFTER 24 HRS 8.5' ft; AFTER ___ HRS ___ ft
CAVE IN DEPTH: AT COMPLETION 12.0' ft; AFTER 24 HRS 9.8' ft; AFTER ___ HRS ___ ft
BORING METHOD: HSA: HOLLOW STEM AUGERS; CFA: CONTINUOUS FLIGHT AUGERS; DC: DRIVING CASING; MD: MUD DRILLING
STANDARD PENETRATION TEST (DRIVING (I.D. SAMPLER 1 WITH 140 HAMMER FALLING 30" COUNT MADE AT 6" INTERVALS.

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

Project Name: Guilford Road SWM — Boring No.: B-2
Location: Infiltration Area 1 — Job #: 02714A
SAMPLER — Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: — Foreman: Jon Balk
Surf. Elev.: 442 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector: Rajesh Goel
Date Started: 4-2-14 — Pipe Size: in. — Boring Method: HSA — Date Completed: 4-2-14

ELEVATION / DEPTH	SOIL SYMBOLS / SAMPLE CONFIGURATIONS	Description	Boring and Sampling Notes	Rec.	N/M	SPT	SPT Blows Foot CURVE 10 30 50
440		Brown and gray micaceous clayey sand with rock fragments, moist, soft, FILL	2" topsoil	12"		1-2-2	4
435		Reddish brown micaceous sandy SILT, trace rock fragments, moist, loose (ML)		13"		2-4-6	10
430				15"		2-3-4	7
425		Brown and gray micaceous silty SAND, moist, loose, (SM)		15"		2-2-3	5
420				15"		2-3-4	7
415		End of Boring at 15.0'					

SAMPLER TYPE: SPT: SPLIT SPOON UNLESS OTHERWISE NOTED; PT: PRESSED SHELBY TUBE; DA: CONTINUOUS FLIGHT AUGER; OC: PUSH CORE
SAMPLE CONDITIONS: D: DISAGITATED; I: INTACT; U: UNDISTURBED; L: LOST
GROUND WATER: AT COMPLETION Dry ft; AFTER 24 HRS 10.5' ft; AFTER ___ HRS ___ ft
CAVE IN DEPTH: AT COMPLETION 12.5' ft; AFTER 24 HRS 12.5' ft; AFTER ___ HRS ___ ft
BORING METHOD: HSA: HOLLOW STEM AUGERS; CFA: CONTINUOUS FLIGHT AUGERS; DC: DRIVING CASING; MD: MUD DRILLING
STANDARD PENETRATION TEST (DRIVING (I.D. SAMPLER 1 WITH 140 HAMMER FALLING 30" COUNT MADE AT 6" INTERVALS.

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

Project Name: Guilford Road SWM — Boring No.: B-3
Location: Infiltration Area 2 — Job #: 02714A
SAMPLER — Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: — Foreman: Jon Balk
Surf. Elev.: 457 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector: Rajesh Goel
Date Started: 4-2-14 — Pipe Size: in. — Boring Method: HSA — Date Completed: 4-2-14

ELEVATION / DEPTH	SOIL SYMBOLS / SAMPLE CONFIGURATIONS	Description	Boring and Sampling Notes	Rec.	N/M	SPT	SPT Blows Foot CURVE 10 30 50
455		Brown and gray micaceous clayey sand with rock fragments, moist, soft, FILL	2" topsoil	15"		1-2-3	5
450		Reddish brown micaceous sandy SILT, trace rock fragments, moist, medium dense (ML)		18"		5-7-13	20
445				15"		5-8-9	17
440		Brown and gray micaceous silty SAND, moist, loose, (SM)		15"		1-3-4	7
435		-medium dense		15"		2-7-8	15
430		End of Boring at 15.0'					

SAMPLER TYPE: SPT: SPLIT SPOON UNLESS OTHERWISE NOTED; PT: PRESSED SHELBY TUBE; DA: CONTINUOUS FLIGHT AUGER; OC: PUSH CORE
SAMPLE CONDITIONS: D: DISAGITATED; I: INTACT; U: UNDISTURBED; L: LOST
GROUND WATER: AT COMPLETION Dry ft; AFTER 24 HRS Dry ft; AFTER ___ HRS ___ ft
CAVE IN DEPTH: AT COMPLETION 12.0' ft; AFTER 24 HRS 12.0' ft; AFTER ___ HRS ___ ft
BORING METHOD: HSA: HOLLOW STEM AUGERS; CFA: CONTINUOUS FLIGHT AUGERS; DC: DRIVING CASING; MD: MUD DRILLING
STANDARD PENETRATION TEST (DRIVING (I.D. SAMPLER 1 WITH 140 HAMMER FALLING 30" COUNT MADE AT 6" INTERVALS.

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

Project Name: Guilford Road SWM — Boring No.: B-4
Location: Infiltration Area 2 — Job #: 02714A
SAMPLER — Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: — Foreman: Jon Balk
Surf. Elev.: 458 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector: Rajesh Goel
Date Started: 4-2-14 — Pipe Size: in. — Boring Method: HSA — Date Completed: 4-2-14

ELEVATION / DEPTH	SOIL SYMBOLS / SAMPLE CONFIGURATIONS	Description	Boring and Sampling Notes	Rec.	N/M	SPT	SPT Blows Foot CURVE 10 30 50
455		Brown and gray micaceous sandy silt with rock fragments, moist, soft, FILL	2" topsoil	7"		1-2-4	6
450		Brown silty ROCK FRAGMENTS with sand, moist, dense (GM)		15"		11-25-22	47
445				15"		11-17-46	63
440		Brown poorly graded SAND with rock fragments, moist, very dense (SP)		16"		3-3-50	53+
435		Brown and gray micaceous silty SAND, moist, medium dense (SM)		12"		3-7-10	17
430		End of Boring at 15.0'					

SAMPLER TYPE: SPT: SPLIT SPOON UNLESS OTHERWISE NOTED; PT: PRESSED SHELBY TUBE; DA: CONTINUOUS FLIGHT AUGER; OC: PUSH CORE
SAMPLE CONDITIONS: D: DISAGITATED; I: INTACT; U: UNDISTURBED; L: LOST
GROUND WATER: AT COMPLETION Dry ft; AFTER 24 HRS 13.0' ft; AFTER ___ HRS 13.7' ft; AFTER ___ HRS ___ ft
CAVE IN DEPTH: AT COMPLETION 13.0' ft; AFTER 24 HRS 13.7' ft; AFTER ___ HRS ___ ft
BORING METHOD: HSA: HOLLOW STEM AUGERS; CFA: CONTINUOUS FLIGHT AUGERS; DC: DRIVING CASING; MD: MUD DRILLING
STANDARD PENETRATION TEST (DRIVING (I.D. SAMPLER 1 WITH 140 HAMMER FALLING 30" COUNT MADE AT 6" INTERVALS.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9/18/15

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9-22-15

09/04/15
DATE

Professional Certification.
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 27020, Expiration Date: 7-29-16.

PAUL G. CAVANAUGH
P.E. 27020

DDC inc.
Development Design Consultants
Planners
Surveyors
Engineers
Landscape Architects
192 East Main Street
Westminster, MD 21157
410.386.0560
410.386.0564 (Fax)
DDC@DDCinc.us
www.DDCinc.us

OWNER:
6209 GUILFORD ROAD, LLC
14325 HOWARD ROAD
DAYTON, MD 21036
410-489-5080

DEVELOPER:
SAME AS OWNER

SITE ADDRESS:
6209 GUILFORD ROAD
CLARKSVILLE, MD 21029

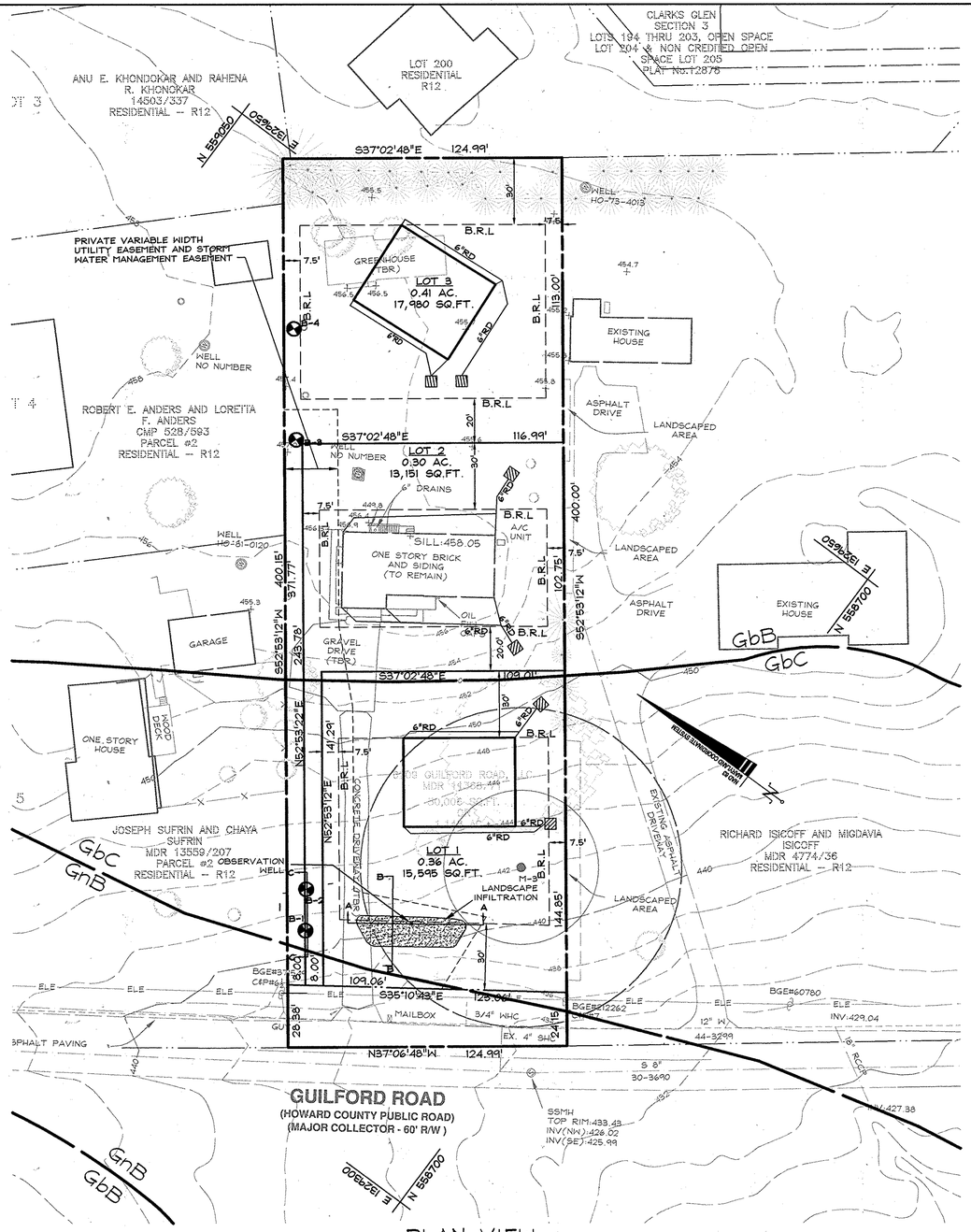
PRIMROSE PRESERVE
MINOR SUBDIVISION
STORMWATER MANAGEMENT PROFILES, NOTES & DETAILS

5TH ELECTION DISTRICT — HOWARD COUNTY, MD

NO.	REVISIONS / DESCRIPTION OF CHANGES	DRN.	REV.	DATE

PLAT #:	DES. BY: PGC
TAX ACC. #: 05363411	DRN. BY: TPM
TAX MAP: 34	CHK. BY: PGC
BLOCK / GRID: 12	DATE: 9/4/15
PARCEL #: 0226	DDC JOB#: 11102.1
ZONE / USE: R-12	SHEET NUMBER: 4 of 7
DWG. SCALE: AS SHOWN	

F-14-113



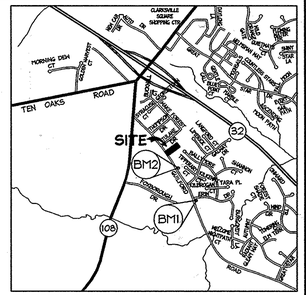
PLAN VIEW:
SCALE: 1"=30'

BENCHMARK

BENCHMARK #1
N. 557439.91
E. 1330918.32
B.M. 3/4"PB - CONC MON
ELEV. 406.15

BENCHMARK #2
N. 558339.60
E. 1329709.02
B.M. 3/4"E - CONC MON
ELEV. 431.12

ADC MAP COORDINATES
MAP 14 E8
N 39°12'00", E 76°56'20"



VICINITY MAP
SCALE: 1"=2000'

DRAWING LEGEND

- 682 — EXISTING MINOR CONTOUR (2' INTERVAL)
- 680 — EXISTING MAJOR CONTOUR (10' INTERVAL)
- ADJACENT PROPERTY LINE
- N 06°45'45"W 120.00' — EXISTING PROPERTY BOUNDARY
- EX. ROAD / EDGE OF PAVING
- EX. 8" S — EX. SEWER LINE & MANHOLES, CLEAN-OUTS
- EX. 15" R — EX. SEWER LINE & MANHOLES, CLEAN-OUTS
- EX. OVERHEAD ELECTRIC & UTILITY POLES
- 682 — PROPOSED MINOR CONTOUR (2' INTERVAL)
- 680 — PROPOSED MAJOR CONTOUR (10' INTERVAL)
- PROPOSED PRIVATE ROAD/DRIVE CENTERLINE
- EX. BUILDING
- PROPOSED BUILDING EXPANSION
- + 665.5 — PROPOSED SPOT ELEVATION & FLOW ARROW
- MnF / NcA — EXISTING TREELINE / SOIL DELINEATION LINE
- 4" SHC — PROPOSED SEWER HOUSE CONNECTION
- 1½" WHC — PROPOSED WATER HOUSE CONNECTION
- STEEP SLOPES 15%-25% (0.27± Ac.)
- STEEP SLOPES 25%+ (0.04± Ac.)
- EXISTING TREES
- EXISTING SPECIMEN TREE
- SPECIMEN CRITICAL ROOT ZONE
- PROPOSED ORNAMENTAL TREE
- PROPOSED SHADE TREE
- PROPOSED EVERGREEN TREE
- B-1 — PROPOSED BORING LOCATIONS

ESD FACILITY LEGEND

- PROPOSED M-5 DRY WELLS
- PROPOSED M-3 LANDSCAPE INFILITRATION

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9/17/15

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9-22-15

SOILS CHART — SOIL MAP NUMBER 23

CODE (CLASS)	NAME	HYDRIC (Y/N/INCL.)	K VALUE
GbB (B)	Gladstone Loam - 3 to 8 Percent Slopes	N	0.20
GbC (B)	Gladstone Loam - 8 to 15 Percent Slopes	N	0.20
GnB (C)	Glenville-Baile Silt Loams - 0 to 8 Percent Slopes	Y	0.37

STORM WATER MANAGEMENT BORING CHART

NAME	NORTHING / EASTING	P / F
B-1	N=558807 E=1329372	P
B-2	N=558818 E=1329388	P
B-3	N=558943 E=1329547	P
B-4	N=558973 E=1329586	P

GRAPHIC SCALE
30 0 30 60 90

DATA SOURCES:
ONSITE BOUNDARY AND TOPOGRAPHY IS BASED UPON A FIELD RUN SURVEY PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC. IN APRIL, 2013. EXISTING SOILS SHOWN PER USDA WEB SOIL SURVEY.
EXISTING OFFSITE TOPOGRAPHY SHOWN PER HOWARD COUNTY OIT/GIS, BASED ON MARYLAND COORDINATE SYSTEM, NAD-83(1991), NAVD-88.

09/04/15
DATE

Professional Certification.
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 27020 Expiration Date: 1-25-16.

STATE OF MARYLAND — PAUL G. CAVANAUGH — No. 27020 — PROFESSIONAL ENGINEER

PAUL G. CAVANAUGH
P.E. 27020

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CLARKSVILLE, MD 21029

PRIMROSE PRESERVE
MINOR SUBDIVISION

SOILS & SWM BORING PLAN

5TH ELECTION DISTRICT — HOWARD COUNTY, MD

NO.	DESCRIPTION OF CHANGES	DRN.	REV.	DATE
	REVISIONS			

PLAT #:	DES. BY: BKC
TAX ACC. # 05363411	DRN. BY: TPM
TAX MAP: 34	CHK. BY: PGC
BLOCK / GRID: 12	DATE: 9/4/15
PARCEL #: 0226	DDC JOB#: 11102.1
ZONE / USE: R-12	SHEET NUMBER: 5 of 7
DWG. SCALE: 1"=30'	

F-14-113

SCHEDULE A - PERIMETER LANDSCAPE EDGE

CATEGORY	ADJACENT TO ROADWAYS	ADJACENT TO PERIMETER PROPERTIES		
	P-1	P-2	P-3	P-4
LANDSCAPE TYPE 'A'				
LINEAR FEET OF PERIMETER	125 LF.	362 LF.	125 LF.	366 LF.
LANDSCAPE TYPE 'C'				
LINEAR FEET OF PERIMETER				
LANDSCAPE TYPE 'D'				
LINEAR FEET OF PERIMETER				
LANDSCAPE TYPE 'E'				
LINEAR FEET OF PERIMETER				
CREDIT FOR EXISTING VEGETATION (DESCRIBE BELOW IF NEEDED)	N/A	3 SHADE	18 EVERGREEN	4 EVERGREEN
CREDIT FOR BERM (DESCRIBE BELOW IF NEEDED)	N/A	N/A	N/A	N/A
NUMBER OF PLANTS REQUIRED SHADE TREES EVERGREEN TREES SHRUBS	 0 0 0	 7 0 0	 3 0 0	 7 0 0
NUMBER OF PLANTS PROVIDED SHADE TREES EVERGREEN TREES OTHER TREES (2:1 SUBSTITUTION) SHRUBS (DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)	 0 0 0 0	 2 3 1 0	 0 0 0 0	 2 6 0 0

NOTE:
P-1 SINGLE FAMILY DETACHED FRONTING ON A PUBLIC RIGHT-OF-WAY DOES NOT REQUIRE PERIMETER PLANTINGS.
P-2 SUBSTITUTED 1 ORNAMENTAL TREE AND 3 EVERGREEN TREES FOR 2 SHADE TREES.
P-4 SUBSTITUTED 6 EVERGREEN TREES FOR 3 SHADE TREES.

PLANT LIST

QTY	SYM	BOTANICAL NAME/ COMMON NAME	SIZE	REMARKS
SHADE TREES				
4	GTS	GLEDITSIA TRIACANTHOS INERMIS 'SHADE MASTER' SHADE MASTER THORNLESS HONEYLOCUST	2 1/2" CAL. 12' - 14' HT.	B & B
ORNAMENTAL TREES				
1	CC	CERCIS CANADENSIS EASTERN REDBUD	2" CAL. 6' - 8' HT.	B & B
EVERGREEN TREES				
3	JV	JUNIPERUS VIRGINIANA 'BURKII' BURKII REDCEDAR	6' HT.	B & B UNIFORM, UNSHEARED
6	IO	ILEX OPACA AMERICAN HOLLY	6' HT.	B & B

General Planting Notes

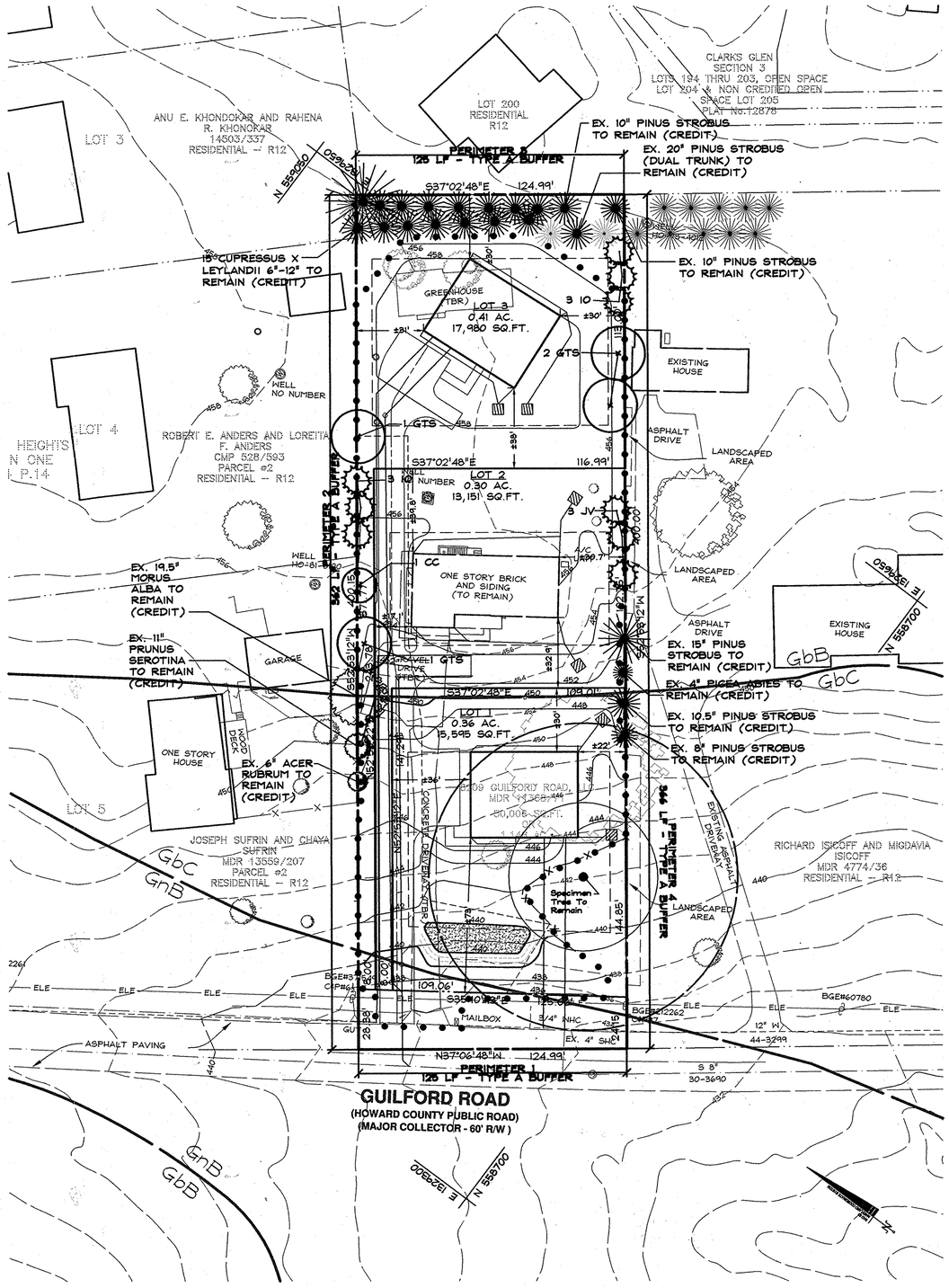
1. All plant material (nursery stock) to conform to American Nursery & Landscape Association's (A.N.L.A.) latest edition of "American Standard for Nursery Stock" (ANSI Z60.1), particularly with regard to size, growth, size of ball, and density of branch structure.
2. The Contractor is to follow specification guidelines for Baltimore & Washington Metropolitan Area as approved by the L.C.A. of Maryland, Washington D.C., & Virginia and described in the latest edition of "Landscape Specification Guidelines."
3. No substitutions are to be made without the consent of the Landscape Architect and/or the Owner.
4. All trees and shrub planting beds are to be topped with three inches of hardwood mulch. No mulch shall be placed against the trunks and/or stems. All groundcovers and seedlings should be mulched to a depth of one to two inches.
5. Contractor shall notify Miss Utility at, 1 (800) 257-7777, at least 72 hours prior to construction and verify the location of all utilities with the Owner before planting.
6. Landscape Architect/Owner shall select, verify, and/or approve all plant material. At the Owner's discretion, specimen and other plant material may be selected.
7. The Landscape Contractor shall coordinate with the general, lighting, & irrigation contractors regarding timing and installation of plant material. At the time of final inspection with acceptance, all electric, water & drainage utilities, as well as plant material, shall remain undamaged. Likewise, the Landscape Contractor and utilities contractors shall coordinate efforts to ensure that surface utilities are at the proper elevation relative to final grades.
8. 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.
9. This plan has been prepared in accordance with the provisions of Section 16.124 of the Ho. Co. Code. Financial surety for the required landscaping in the amount of $2,700.00 will be deferred until the Site Development Plan Phase (4 shade trees, 9 Evergreen Trees and 1 Ornamental Trees).
10. At the time of plant installation, all shrubs and other plantings herewith listed and approved for this site, shall be of the proper height requirements in accordance with the Howard County Landscaping Manual. In addition, no substitutions or relocation of required plantings may be made without prior review and approval from the Department of Planning & Zoning. Any deviation from this approved Landscape Plan may result in denial or delay in the release of landscape surety until such time as all required materials are planted and/or revisions are made to applicable plans and certificates.
11. Provision of landscaping will be deferred to the Site Development Plan stage because physical improvements to the property (i.e. vegetative clearing and grading) will not be required until the SDP stage.
13. A Forest Stand Delineation was completed by DDC, Inc. on December 17, 2013.
14. Developer/Builder's Certificate

I/We certify that the landscaping shown on this plan will be done according to the plan, Section 16.124 of the Howard County Code and the Howard County Landscape Manual. I/We further certify that, upon completion, a letter of landscape installation, accompanied by an executed one-year guarantee of the plant materials, will be submitted to the Department of Planning and Zoning.

NAME — DATE 9/4/15

Tree Protection Note:

No equipment, machinery, vehicle, materials or excessive pedestrian traffic will be allowed in the Critical Root Zone Area. Therefore, no openings through the fence will be allowed. Entrance to the protected area will occur only if necessary for repair of accidental injury to the tree. This protective tree device will remain in place and will be maintained throughout the life of the construction project.



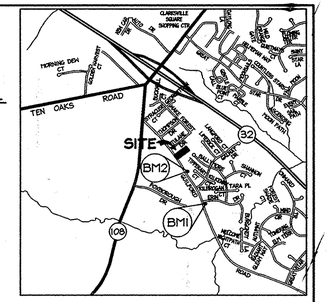
PLAN VIEW:
SCALE: 1"=30'

BENCHMARK

BENCHMARK #1
N. 557494.91
E. 1350191.32
B.M. 34FB - CONC MON
ELEV. 406.15

BENCHMARK #2
N. 556339.60
E. 1329709.02
B.M. 34FE - CONC MON
ELEV. 481.12

ADC MAP COORDINATES
MAP 14 E9
N 39°12'00", E 76°56'20"



VICINITY MAP
SCALE: 1"=2000'

DRAWING LEGEND

- 682 — EXISTING MINOR CONTOUR (2' INTERVAL)
- 680 — EXISTING MAJOR CONTOUR (10' INTERVAL)
- ADJACENT PROPERTY LINE
- N 06°45'45"W 120.00' — EXISTING PROPERTY BOUNDARY
- EX. ROAD / EDGE OF PAVING
- EX. SEWER LINE & MANHOLES, CLEAN-OUTS
- EX. OVERHEAD ELECTRIC & UTILITY POLES
- 682 — PROPOSED MINOR CONTOUR (2' INTERVAL)
- 680 — PROPOSED MAJOR CONTOUR (10' INTERVAL)
- PROPOSED PRIVATE ROAD/DRIVE CENTERLINE
- EX. BUILDING
- PROPOSED BUILDING EXPANSION
- EXISTING TREELINE
- MnF / NcA — SOIL DELINEATION LINE
- EXISTING TREES TO BE REMOVED
- EXISTING TREES TO REMAIN
- PROPOSED TEMPORARY TREE PROTECTION FENCE (SEE DETAIL, THIS SHEET)
- PROPOSED ORNAMENTAL TREE
- PROPOSED SHADE TREE
- PROPOSED EVERGREEN TREE
- SPECIMEN TREE AND CRITICAL ROOT ZONE

HOWARD COUNTY FOREST CONSERVATION WORKSHEET

I. BASIC SITE DATA	ACRES
Gross Site Area	01.15
Area Within 100 Year Floodplain	00.00
Area Within Agricultural Use or Preservation Parcel (if Applicable)	00.00
Net Tract Area	01.15
Land Use Category (R-RLD, R-RMD, R-S, C/IO, I)	R-S

II. INFORMATION FOR CALCULATIONS	
A. Net tract area	01.15
B. Reforestation Threshold (20% x A)	00.23
C. Afforestation Minimum (15% x A)	00.17
D. Existing Forest on Net Tract Area	00.00
E. Forest Areas to be Cleared	00.00
F. Forest Areas to be Retained	00.00

V. AFFORESTATION CALCULATIONS	
A. Net Tract Area	01.15
B. Afforestation Minimum (15% x A)	00.17
C. Existing Forest on Net Tract Area	00.00
D. Forest to Be Cleared	00.00
E. Forest to Be Retained	00.00

No clearing below the Minimum

If existing forests are less than the afforestation minimum (if D is less than C) and no clearing is proposed, the following calculations apply:

Total Afforestation required
C - D — 00.17 ACRES

NOTE: FOREST CONSERVATION OBLIGATIONS OF 0.17 ACRES WILL BE FULFILLED THROUGH THE PAYMENT OF A FEE-IN-LIEU TOTALING $5,554.50 FOR A TOTAL OBLIGATION OF 7,406 S.F. OF AFFORESTATION.

DATA SOURCES:
ONSITE BOUNDARY AND TOPOGRAPHY IS BASED UPON A FIELD RUN SURVEY PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC. IN APRIL, 2013. EXISTING SOILS SHOWN PER USDA WEB SOIL SURVEY.
EXISTING OFFSITE TOPOGRAPHY SHOWN PER HOWARD COUNTY GIT/GIS, BASED ON MARYLAND COORDINATE SYSTEM, NAD-83(1991), NAVD-88.

GRAPHIC SCALE
50 0 50 100 150

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9/18/15

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9.22.15

09/04/15
DATE

STATE OF MARYLAND BRIAN KEITH COLLINS NO. 3171 REGISTERED LANDSCAPE ARCHITECT

DDC Development Design Consultants
Planners
Surveyors
Engineers
Landscape Architects
192 East Main Street
Westminster, MD 21157
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CLARKSVILLE, MD 21029

PRIMROSE PRESERVE
MINOR SUBDIVISION

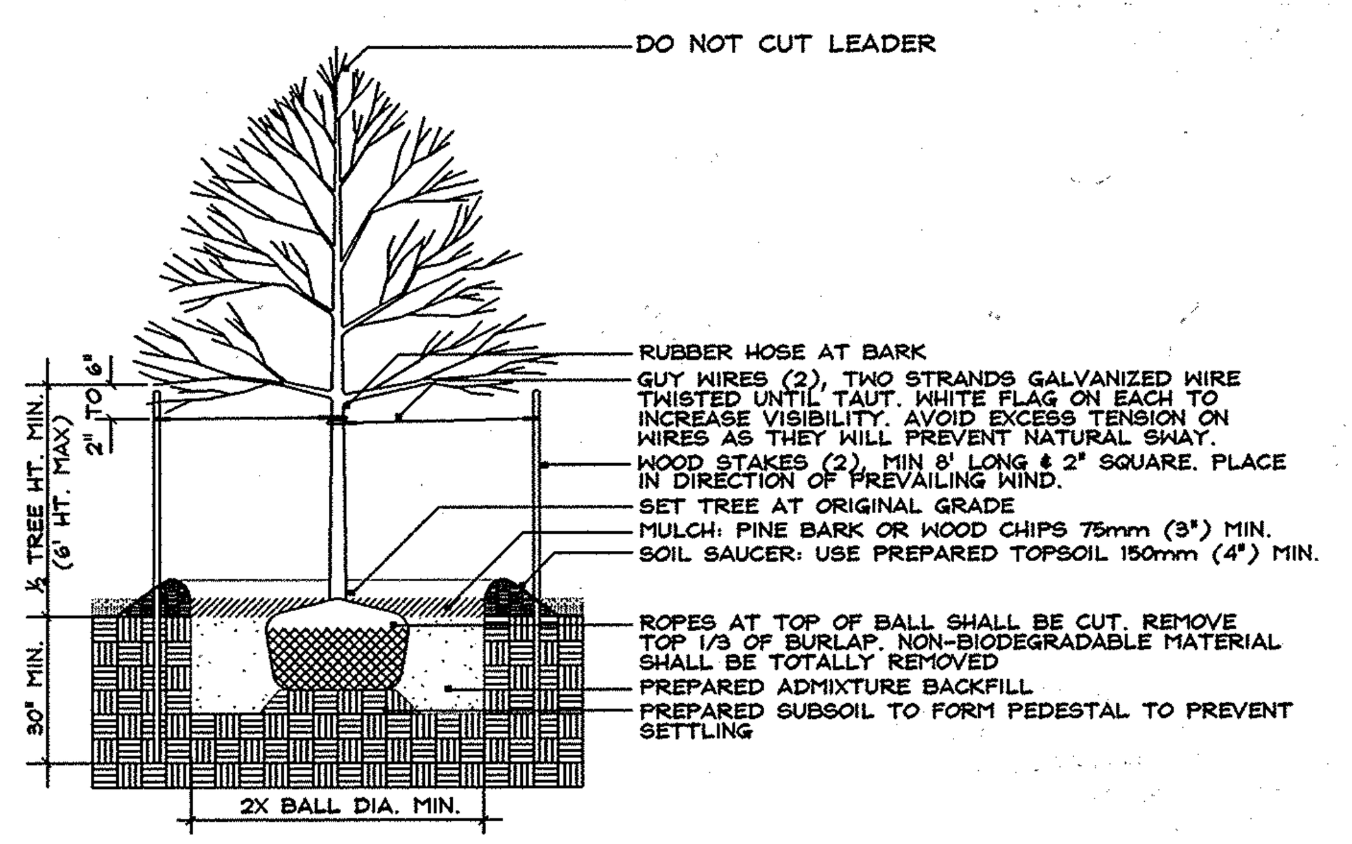
LANDSCAPE/FOREST CONSERVATION PLAN

5TH ELECTION DISTRICT HOWARD COUNTY, MD

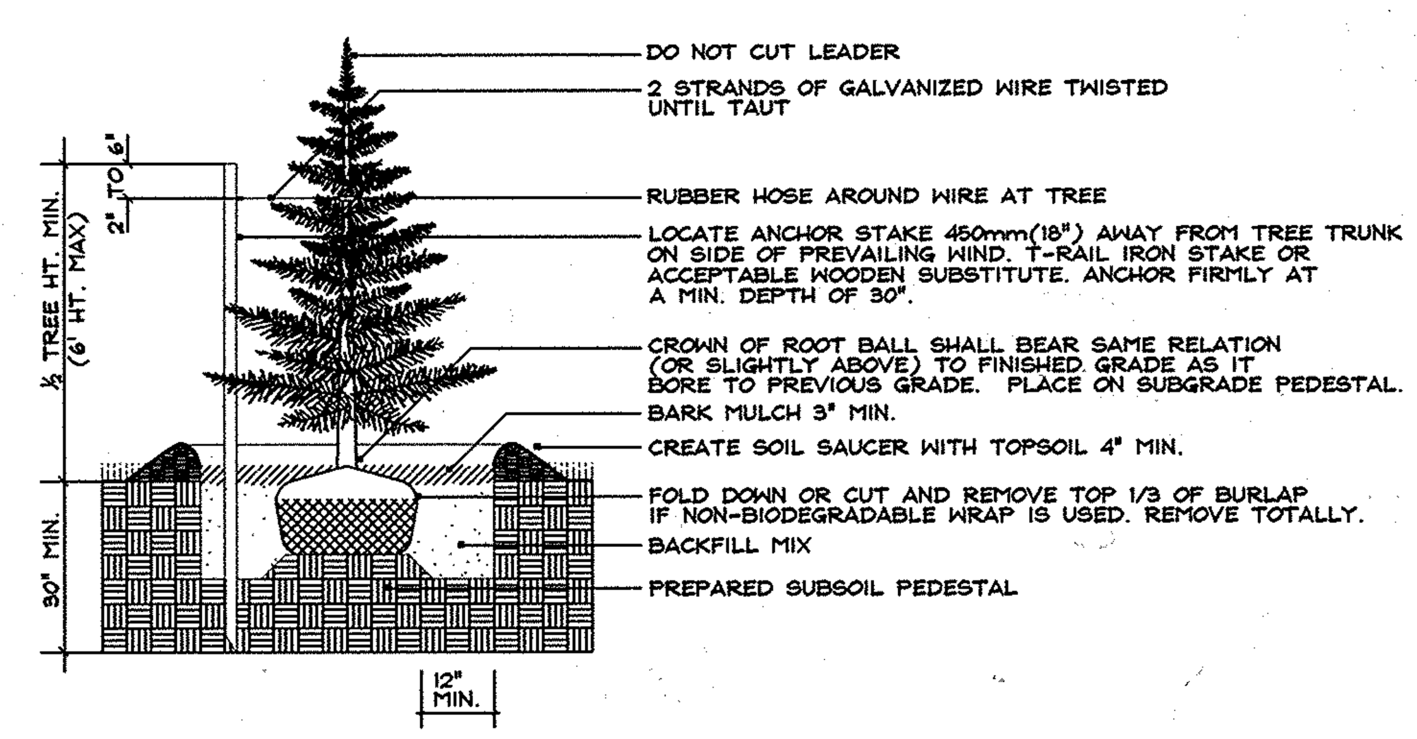
NO.	DESCRIPTION OF CHANGES	DRN.	REV.	DATE
	REVISIONS			

PLAT #:	DES. BY: BKC
TAX ACC. #: 05363411	DRN. BY: BKC
TAX MAP: 34	CHK. BY: BKC
BLOCK / GRID: 12	DATE: 9/4/15
PARCEL #: 0226	DDC JOB#: 11102.1
ZONE / USE: R-12	SHEET NUMBER: 6 of 7
DWG. SCALE: 1"=30'	

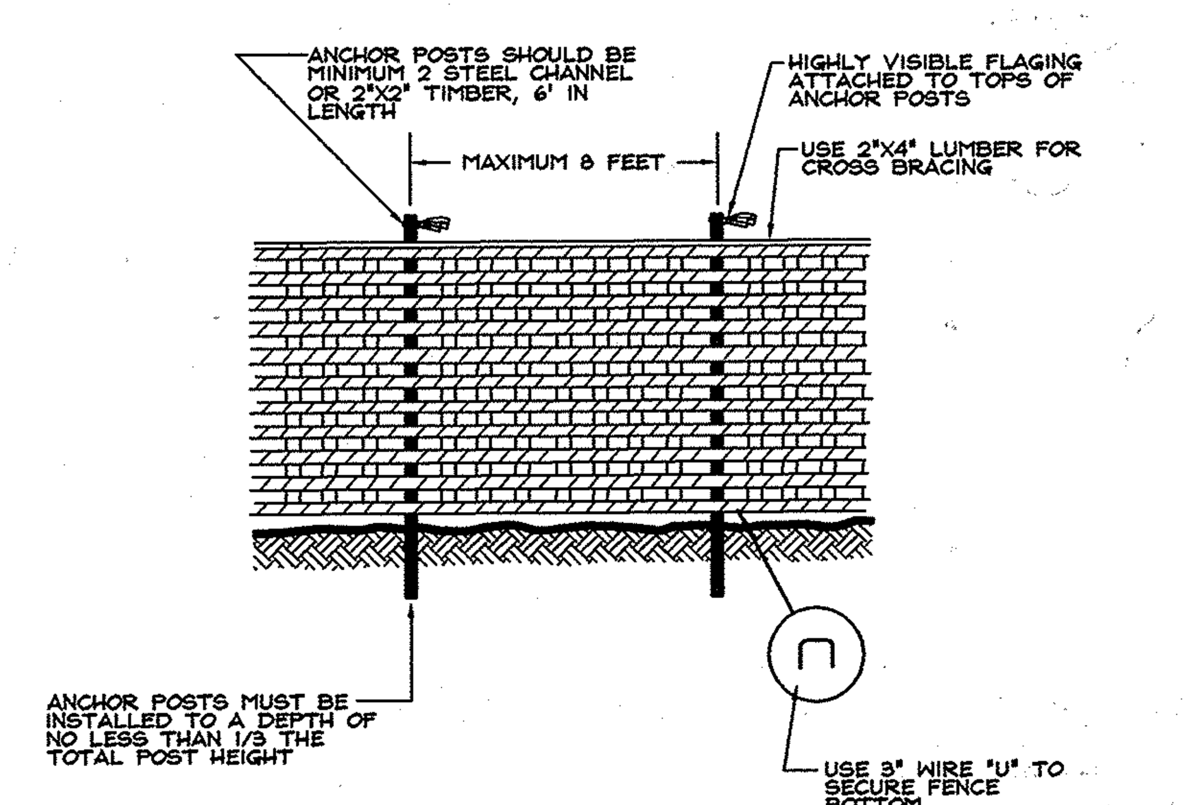
F-14-113



DECIDUOUS TREE PLANTING (LESS THAN 3" CAL.)
N.T.S.



EVERGREEN TREE PLANTING
N.T.S.



NOTES:
1. BLAZE ORANGE OR BLUE PLASTIC MESH FENCE FOR FOREST/TREE PROTECTION DEVICE ONLY.
2. BOUNDARIES OF RETENTION/PROTECTION AREA WILL BE EXTABLISHED AS PART OF THE FOREST/LANDSCAPE PLAN REVIEW PROCESS.
3. BOUNDARIES OF THE RETENTION/PROTECTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE POSTS.
4. AVOID DAMAGE TO CRITICAL ROOT ZONE. DO NOT DAMAGE OR SEVER LARGE ROOTS WHEN INSTALLING POSTS.
5. PROTECTION SIGNS ARE REQUIRED FOR FOREST RETENTION AREAS.
6. DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

SOURCE: FIGURE D-5, CARROLL COUNTY FOREST CONSERVATION MANUAL, SECOND EDITION. DATED MAY 16, 2002.

PLASTIC MESH TREE PROTECTION FENCE
N.T.S.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9/18/15

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9-22-15

Supplemental Landscape Notes & Specifications

1. The Contractor shall review architectural/engineering plans to become thoroughly familiar with the grading and surface utilities.
2. The Contractor shall insure that his work does not interrupt established or projected drainage patterns.
3. During planting operations, excess waste materials shall be promptly and frequently removed from the site.
4. All equipment and tools shall be placed so as not to interfere or hinder the pedestrian and/or vehicular traffic flow. No vehicles, equipment, tools, etc. shall be placed on or within any indicated tree protection zone. No staging, storing or stockpiling of supplies or material within indicated tree protection zones.
5. The contractor is responsible for verifying the location of all existing utilities. If utility lines are encountered in the excavation of tree pits, other locations for trees shall be made by the contractor without additional compensation. No changes of location shall be made without the approval of the Landscape Architect.
6. Every possible safeguard shall be taken to protect building surfaces, equipment, and furnishings. The Contractor shall be responsible for any damage or injury to persons or property which may occur as a result of negligence in the execution of the work.
7. In the event of a variation between quantities shown on the plant list and the plans, the plans shall govern. The Contractor is responsible for verifying all plant quantities prior to the commencement of work. Sod quantity takeoffs are the responsibility of the Contractor. All discrepancies shall be reported to the Landscape Architect for clarification prior to bidding. The Contractor shall furnish plant material in sizes specified in the plant list.
8. Transport and handle plants so that foliage, roots, or root balls are protected from breakage, sun, and winds. Root stock of the plant material shall be kept moist during transport from the source to the job site and until planted. Tops or roots of plants allowed to dry out or which have been damaged and/or disturbed root balls will be rejected.
9. The Contractor shall stake all material located on the site for review and/or adjustment by the Landscape Architect or the Owner prior to planting. All locations are to be approved by the Landscape Architect or Owner's Representative before excavation.
10. The Contractor is responsible for testing project soils. The Contractor is to provide a certified soils report to the owner. The contractor shall verify that the soils on site are acceptable for the proper growth of the proposed plant material. Should the Contractor find poor soil conditions, the contractor shall be required to provide soil amendments as necessary. These amendments shall include, but not be limited to, fertilizers, lime and topsoil. Proper planting soils must be verified prior to planting materials.
11. All plants shall be identified in accordance with "Hortus Third, by the Staff of the L. H. Bailey Hortorium, Cornell University, 1976.
12. Plants shall have normal, well developed branches and vigorous, fibrous root systems. They shall be healthy and free from disease, decay, sun scald, abrasions, insect pests or infestations and other damage.
13. The Landscape Architect or Owner shall have the right, at any stage of the operations, to reject any and all work and materials which, in his or her opinion, does not meet the requirements of these plans and specifications. All rejected material shall be removed from the site by the Contractor.
14. All plant material should be backfilled with soil (amended as necessary) in layers to two-thirds of the depth of the planting pit. Soil should then be tamped and watered thoroughly at low pressure before being backfilled to proper grade. The planting pit should be flooded again, once backfilling is completed, so that backfill is thoroughly saturated and settled.
15. If the soil is wet or compacted, all containerized and balled nursery stock should be planted such that the top one-third of the ball is above the existing grade.
16. The top two-thirds of wire baskets on root balls should be removed.
17. All soils disturbed during installation of plant material shall be treated by incorporating composted organic material within the top four to six (4 - 6) inches.
18. All planting beds adjacent to lawn, sod, or seeded areas shall be spade edged to a depth of three inches.
19. The Contractor shall dispose of stumps and major roots of all plants to be removed. Any depressions caused by removal operations shall be refilled with fertile, friable, soil placed and compacted so as to reestablish proper grade for new planting and/or lawn areas.
20. The Contractor shall insure adequate vertical drainage in all plant beds and planters.
21. Upon completion of all landscaping, an acceptance of the work shall be held. The Contractor shall notify the Landscape Architect or the Owner for scheduling of the inspection at least seven (7) days prior to the anticipated inspection date.
22. Maintenance shall begin after each plant has been installed and shall continue 90 days after initial acceptance by the Landscape Architect or the Owner's Representative. Maintenance shall include mowing of turf, watering, pruning, weeding, fertilizing, mulching, replacement of sick or dead plants, and other care necessary for the proper growth of the plant material. The Contractor shall be responsible for the use of all equipment, labor and material necessary to perform maintenance operations and any injury to plant material caused by such equipment, labor and material shall be corrected and repaired by the Contractor at no additional expense to the owner.
23. All trees shall be guaranteed for twelve (12) months from the date of acceptance. All shrubs and ground covers shall be guaranteed for twelve (12) months from the date of acceptance.
24. All disturbed areas on the site not planted with shrubs or ground cover shall be fine graded and seeded or sodded as noted on landscape plan.
25. All sod shall be obtained from areas having growing conditions familiar to areas to be covered. Areas to be sodded shall be raked of stones and debris. Debris and stones over one inch (1") shall be removed from the site. All damaged sod will be rejected. All sod must be placed with staggered joints, tightly butted, with no inequalities in grade. Place all sod rows at right angle to slope (where applicable).

Tree Protection Notes/Sequence:

Pre-Construction

1. An on-site pre-construction meeting is required after the limits of disturbance have been staked and flagged, but before any clearing or grading begins. The developer's representative, construction superintendent, ISA certified arborist or Maryland-licensed tree expert that will implement the tree protection measures, should attend this pre-construction meeting.

2. No clearing or grading shall begin before stress-reduction measures have been implemented. Appropriate measures may include, but are not limited to:

a. Root pruning
b. Crown reduction or pruning
c. Watering
d. Fertilizing
e. Vertical mulching
f. Root aeration matting

3. A Maryland-licensed tree expert or an International Society of Arboriculture-certified arborist must perform all stress reduction measures.

4. Temporary tree protection devices shall be installed per the Forest Conservation Plan/Tree Save Plan and prior to any construction activities. Tree protection fencing locations should be staked prior to the pre-construction meeting.

5. Temporary protection devices shall be maintained and installed by the contractor for the duration of construction project and must not be altered without prior approval. No equipment, trucks, materials, or debris may be stored within the tree protection fence areas during the entire construction project. No vehicle or equipment access to the fenced area will be permitted. Tree protection shall not be removed without prior approval from the ISA certified arborist or Maryland-licensed tree expert.

Post-Construction

9. After construction is completed Corrective measures may include:

a. Stress reduction ("Mitigation for Unanticipated and Unauthorized Injury to Trees").
b. Pruning of dead or declining limbs
c. Soil aeration
d. Fertilization
e. Watering
f. Wound repair

10. After inspection and completion of corrective measures have been undertaken, all temporary protection devices shall be removed from the site. Removal of tree protection devices that also operate for erosion and sediment control must be coordinated with the sediment control inspector. No additional grading, sodding, or burial may take place after the tree protection fencing is removed.

Mitigation Measures for Unanticipated and Unauthorized Injury to Trees

Disturbance within the forest protection areas is not proposed at this time; however, if unauthorized impacts within the forest protection areas were to occur, the following corrective measures will be required, as appropriate, to insure tree health and survival:

Root Injury
If an increase in grade within an identified forest protection area occurs, this may result in root injury. The use of a porous topsoil will be used to allow for exchange of oxygen through the soil. The opposite of this, lowering if the grade within the protected area, shall be mitigated by covering the roots with a fine wood chip or organic mulch material. This will help retain moisture and therefore, stimulate root re-growth into the disturbed area.

Soil Compaction
Soil compaction is a problem on most construction sites; however, the highly visible orange blaze plastic mesh fence should eliminate the compaction problem. If heavy equipment did come in contact with a critical root zone, a fiber mat should be laid down to increase the weight bearing capacity and minimize soil compaction.

Soil pH Change
Since designated areas have been established for cement truck wash out and vehicle fueling, little to no change in the soil pH should be seen. Cement and fuel spills are the two main causes of soil pH change.

Tree Wounds
Wounds to the tree trunk are unlikely to occur, due to the mesh fence protection device; however, crown branching structures may be damaged by vehicular movement. If this should occur, proper pruning will be initiated, "Crown Reduction".

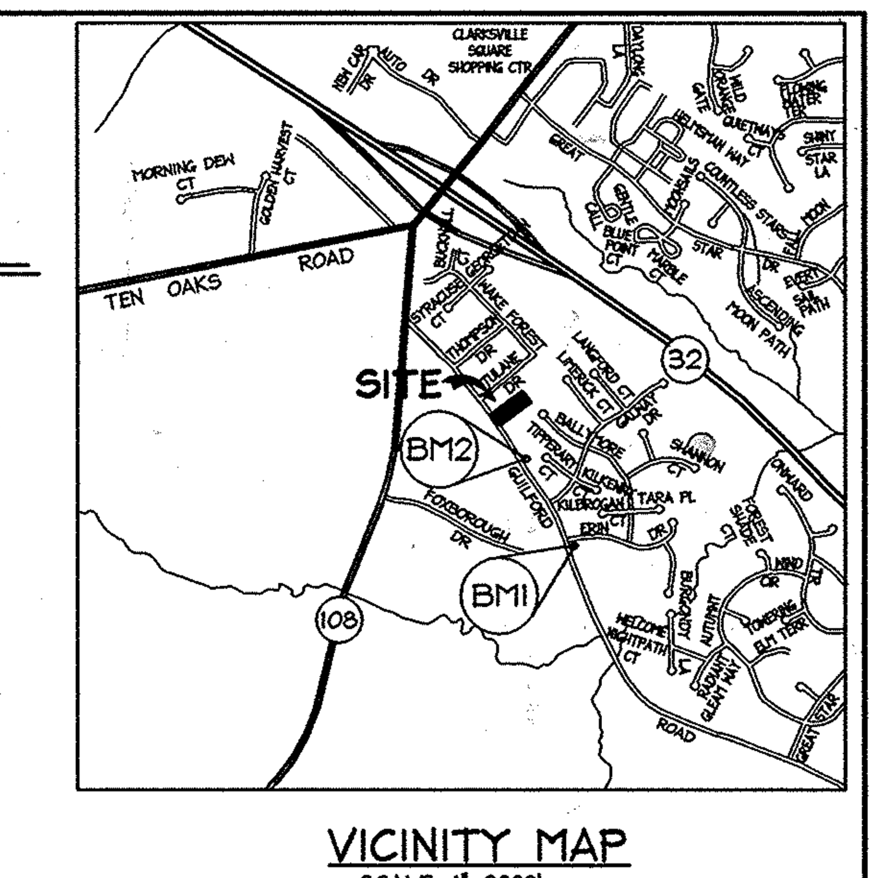
Application of Fertilizers by Injection
As mentioned above, trees inside the protection area shall not be damaged due to the establishment of Forest Protection Devices. If trees are damaged and show signs of stress, they will receive liquid fertilizer injections. Fertilizer injections will improve the health and vigor of the damaged tree and increase the survival potential. For recommended rates and time of application, contact a licensed tree expert.

BENCHMARK

BENCHMARK #1
N. 557439.91
E. 1330191.32
B.M. 34FB - CONC MON
ELEV. 406.15

BENCHMARK #2
N. 558339.60
E. 1329709.02
B.M. 34FE - CONC MON
ELEV. 431.12

ADC MAP COORDINATES
MAP 14 E8
N 39°12'00", E 76°56'20"



VICINITY MAP
SCALE: 1"=2000'

DATA SOURCES:
ONSITE BOUNDARY AND TOPOGRAPHY IS BASED UPON A FIELD RUN SURVEY PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC. IN APRIL, 2013. EXISTING SOILS SHOWN PER USDA WEB SOIL SURVEY.
EXISTING OFFSITE TOPOGRAPHY SHOWN PER HOWARD COUNTY OIT/GIS, BASED ON MARYLAND COORDINATE SYSTEM, NAD-83(1991), NAVD-88.

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14325 HOWARD ROAD
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410-489-5080

DEVELOPER:
SAME AS OWNER

SITE ADDRESS:
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CLARKSVILLE, MD 21029

PRIMROSE PRESERVE
MINOR SUBDIVISION

LANDSCAPE
NOTES AND DETAILS

5TH ELECTION DISTRICT — HOWARD COUNTY, MD

09/04/15
DATE

STATE OF MARYLAND — BRIAN KEITH COLLINS — REGISTERED LANDSCAPE ARCHITECT — NO. 3171

REVISIONS				
NO.	DESCRIPTION OF CHANGES	DRN.	REV.	DATE

PLAT #:	DES. BY: BKC
TAX ACC. #: 05363411	DRN. BY: BKC
TAX MAP: 34	CHK. BY: BKC
BLOCK / GRID: 12	DATE: 9/4/15
PARCEL #: 0226	DDC JOB#: 11102.1
ZONE / USE: R-12	SHEET NUMBER: 7 of 7
DWG. SCALE: 1"=30'	

F-14-113