SUPPLEMENTAL PLAN
STUDDARD PROPERTY
LOTS 1, 2, 3, AND 4

GENERAL NOTES

1. 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 START OF WORK.
2. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
3. THE PROJECT BOUNDARY IS BASED ON A FIELD RUN BOUNDARY SURVEY PREPARED BY ROBERT H. VOGEL ENGINEERING, INC. IN APRIL 2009.
4. COORDINATE BASED ON NAD 83, MARYLAND COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 21IB AND NO. 21IC.
5. THE TOPOGRAPHY SHOWN ON THIS PLAN IS TAKEN FROM HOWARD COUNTY GIS, AND IS VERIFIED TO ACCURATELY REPRESENT THE SUBJECT PROPERTY.
6. WATER AND SEWER WILL BE PROVIDED THROUGH PRIVATE WELL AND SEPTIC. THE HEALTH DEPARTMENT'S HEALTH OFFICER APPROVED THE PERCOLATION CERTIFICATION PLAN ON AUGUST 12, 2009.
7. ANY DAMAGE TO THE COUNTY'S RIGHT-OF-WAY SHALL BE CORRECTED AT THE DEVELOPER'S EXPENSE.
8. FLOODPLAIN LIMITS SHOWN HEREON ARE BASED ON "OBVIOUSLY NOT CRITICAL" ANALYSIS.
9. FOR DRIVEWAY ENTRANCE DETAIL REFER TO THE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, STANDARD DETAIL R-6.06.
10. THE CONTRACTOR IS TO NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE DAYS BEFORE STARTING WORK ON THESE DRAWINGS:

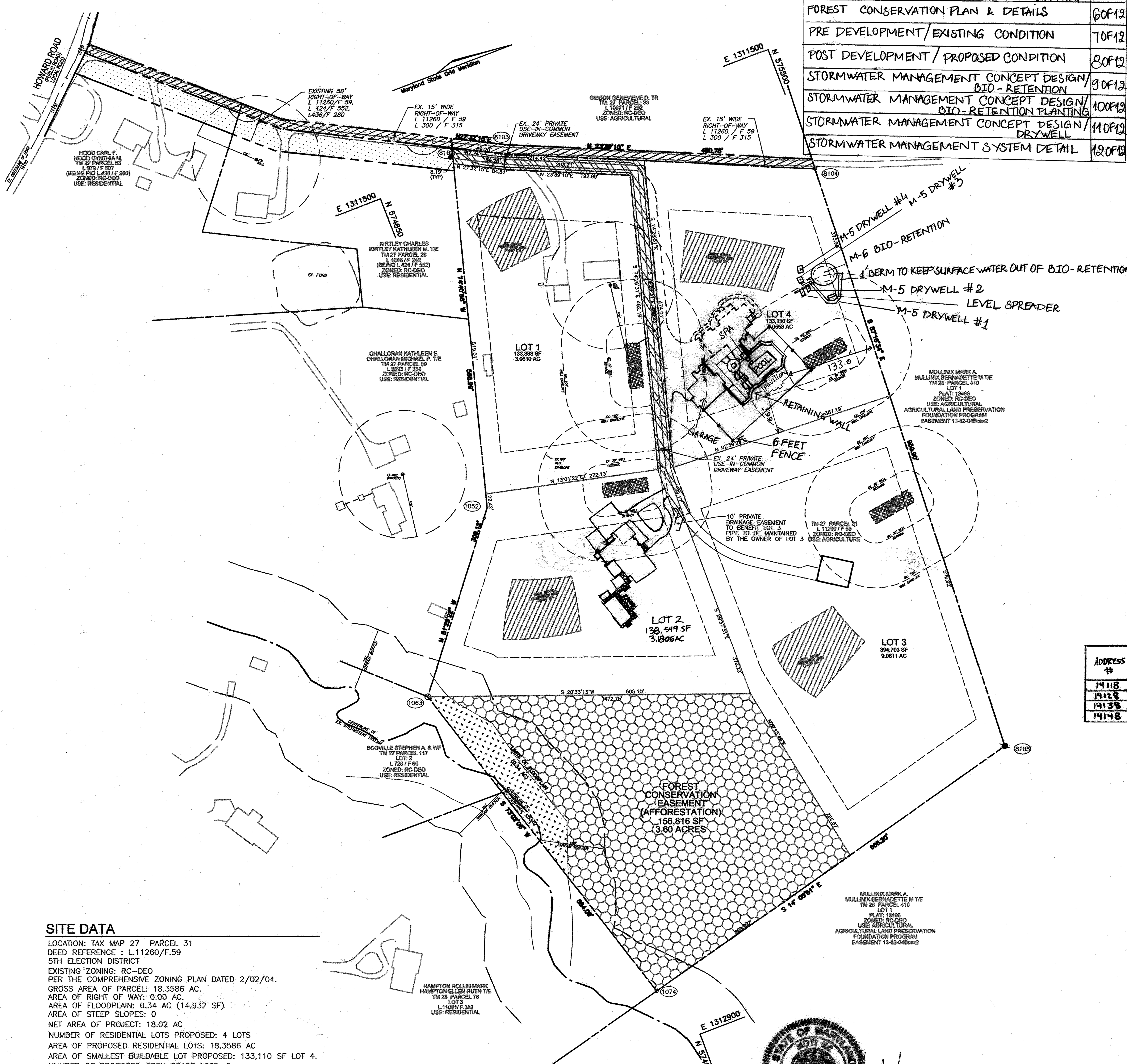
AT&T:	1-800-252-1133
BGE (CONSTRUCTION SERVICES):	410-850-4620
BGE (EMERGENCY):	410-685-1400
BUREAU OF UTILITIES:	410-313-4900
COLONIAL PIPELINE COMPANY:	410-795-1390
MISS UTILITY:	1-800-257-7777
STATE HIGHWAY ADMINISTRATION:	410-531-5533
VERIZON:	1-800-743-0033/410-224-9210

11. SUBJECT PROPERTY ZONED RC-DEO PER 2/02/04 COMPREHENSIVE ZONING PLAN AND AMENDED BY THE COMPREHENSIVE LITE AMENDMENT DATED 07/28/06.
12. IN ACCORDANCE WITH SECTION 128 OF THE HOWARD COUNTY ZONING REGULATIONS, BAY WINDOWS, CHIMNEYS, OR EXTERIOR STAIRWAYS NOT MORE THAN 16 FEET IN WIDTH MAY PROJECT NOT MORE THAN 4 FEET INTO ANY SETBACKS. PORCHES OR DECKS, OPEN OR ENCLOSED MAY PROJECT NOT MORE THAN 10 FEET INTO THE FRONT OR REAR YARD SETBACK.
13. 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.
14. "DRIVEWAY(S) SHALL BE PROVIDED PRIOR TO RESIDENTIAL OCCUPANCY TO INSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING MINIMUM REQUIREMENTS
    a) WIDTH- 12 FEET (16 FEET SERVING MORE THAN ONE RESIDENCE).
    b) SURFACE - 6 INCHES OF COMPACTED CRUSHER RUN BASE WITH TAR AND CLIP COATING.
    c) GEOMETRY - MAXIMUM 15% GRADE, MAXIMUM 10% CHANGE AND MINIMUM OF 45-FOOT DEPTH TURNING RADIUS.
    d) STRUCTURES (CULVERT/BRIDGES) - CAPABLE OF SUPPORTING 25 GROSS TONS (H25 LOADING).
    e) DRAINAGE ELEMENTS-CAPABLE OF SAFELY PASSING 100-YEAR FLOOD WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY SURFACE.
    f) STRUCTURE CLEARANCES-MINIMUM 12 FEET.
    g) MAINTENANCE - SUFFICIENT TO INSURE ALL WEATHER USE.
15. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
16. THIS PROJECT HAS 0.34 AC OF FLOODPLAIN LOCATED ON LOT 3.
17. THERE ARE NO WETLANDS OR WETLANDS BUFFERS ON THIS SITE AS CERTIFIED BY ECO-SCIENCE PROFESSIONALS, INC. ON APRIL 21, 2010. THERE IS A PERENNIAL USE IV STREAM LOCATED ON PROPOSED LOT 3.
18. NO STEEP SLOPES ARE LOCATED ONSITE.
19. TO THE BEST OF THE OWNERS KNOWLEDGE, THERE ARE NO BURIAL/CEMETERY LOCATIONS ON SITE.
20. THIS SITE IS NOT LOCATED IN A HISTORIC DISTRICT AND THERE ARE NO HISTORIC STRUCTURES ON SITE.
21. LANDSCAPING FOR THIS DEVELOPMENT IS PROVIDED IN ACCORDANCE WITH A CERTIFIED LANDSCAPE PLAN INCLUDED WITH THIS SUPPLEMENTAL PLAN SET IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. LANDSCAPE SURETY IN THE AMOUNT OF $13,800.00 FOR THE REQUIRED 46 SHADE TREES WILL BE REQUIRED. THE LANDSCAPE WAS CONCEPTUALLY PRESENTED ON ECP-11-005. THE SURETY WILL BE PAID THROUGH A GRADING PERMIT.
22. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
23. TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
24. STORM WATER MANAGEMENT WAS ADDRESSED FOR THIS SITE UNDER ECP-11-005 AND VIA VEGETATED SWALES (M-8), ROOFTOP DISCONNECTS (N-1), NON-ROOFTOP DISCONNECTS (N-2) AND MICRO BIORETENTION FACILITIES (M-6).
25. A USE-IN-COMMON DRIVEWAY MAINTENANCE AGREEMENT FOR LOTS 1-4 WILL BE RECORDED SIMULTANEOUSLY WITH THE PLAT TO ADDRESS THE EXISTING DRIVEWAY.
26. THIS PLAN IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS (COUNCIL BILL 45-2003).
27. FOREST CONSERVATION OBLIGATIONS FOR THIS PROJECT WERE CONCEPTUALLY PRESENTED ON ECP-11-005 PLAN.
28. WP-10-016, APPROVED SEPTEMBER 23, 2010 TO WAIVE;
    a. SECTION 16.120(b)(4)(iii)b TO ALLOW ENVIRONMENTAL FEATURES ON A LOT OR BUILDABLE PRESERVATION PARCEL LESS THAN 10 ACRES IN SIZE.
    b. SECTION 16.120(c)(2)(ii) REQUIRED ALL LOTS, PRESERVATION PARCELS OR BULK PARCELS FOR SINGLE FAMILY DETACHED DWELLINGS TO HAVE MINIMUM FRONTAGE ON AN APPROVED STREET WITHIN A PUBLIC RIGHT OF WAY WHICH PROVIDES ACCESS TO THE PROPERTY AS FOLLOWS:
    LOTS OR PRESERVATION PARCELS WHICH SHARE ACCESS SHALL HAVE SUFFICIENT FRONTAGE COLLECTIVELY TO MEET THE DRIVEWAY EASEMENT REQUIREMENTS IN THE DESIGN MANUAL.

    APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:
    1. A NOTE SHALL BE PROVIDED ON ANY AND ALL ASSOCIATED SUBDIVISION PLAT AND SITE DEVELOPMENT PLANS STATING NO FURTHER SUBDIVISION OF PARCEL 31 IS PERMITTED WITHOUT DIRECT ACCESS ON TO A COUNTY RECOGNIZED PUBLIC ROAD.
    2. IN ORDER TO MAINTAIN THE EXISTING TREELINE ALONG THE PROPERTY LINE OF PARCEL 83, THE EXISTING DRIVEWAY IS PERMITTED TO MAINTAIN A 12' WIDTH ONLY FOR THE EXTENT OF EXISTING PARCEL 83(270'). THE REMAINING DRIVEWAY SHALL BE IMPROVED TO A MINIMUM OF 16', FROM THE PROPERTY LINE OF PARCEL 83 UP TO AN INCLUDING ALL NEWLY PROPOSED LOTS ON PARCEL 31.
    3. A 24' USE IN COMMON DRIVEWAY EASEMENT (CONTAINING THE 16' DRIVEWAY) SHALL BE CREATED AT THE JUNCTURE OF PARCELS 28 AND 31. THIS EASEMENT SHALL CONTINUE UP TO NEWLY PROPOSED LOTS 2 AND 3.
    4. A MAINTENANCE AGREEMENT FOR THE IMPROVED DRIVEWAY SHALL BE RECORDED PRIOR TO OR CONCURRENTLY WITH THE ASSOCIATED SUBDIVISION PLAT. THE MAINTENANCE OF THE DRIVEWAY SHALL BE THE RESPONSIBILITY OF THE LOT OWNERS OF PROPOSED LOTS 1-4.
    5. ALL REQUIRED FOREST CONSERVATION SHALL BE MET ON SITE. REQUIRED FOREST CONSERVATION EASEMENT SHALL BE PLACED ADJACENT TO AND INCLUDE THE STREAM AND STREAM BUFFER AREAS.
    6. ALL DEVELOPMENT ENGINEERING DIVISION CONDITIONS OF APPROVAL MUST BE MET.
29. THE FOREST CONSERVATION EASEMENT WILL BE ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED. THE FOREST CONSERVATION OBLIGATION HAS BEEN FULFILLED BY THE AFFORESTATION OF 3.60 AC. WHICH MEETS THE BREAKEVEN POINT OBLIGATION OF 3.60 AC. FOR THE SITE. THE TOTAL FINANCIAL SURETY AMOUNT WAS $78,400.00 (156,816 X $0.50=$78,400.00) AS CONCEPTUALLY PRESENTED ON ECP-11-005.
30. LEGAL ACCESS RIGHTS FOR SHARED DRIVEWAY-EXISTING USERS FOR INGRESS/EGRESS : TAX MAP 27, PARCEL 28 (LIBER 3392, FOLIO 5)(15' & 35'); PARCEL 83 (LIBER 879, FOLIO 507)*(15' & 35'); TAX MAP 21, PARCEL 217 (LIBER 4616, FOLIO 1)(15'); PROPOSED ADDITIONAL USERS FOR INGRESS/EGRESS : TAX MAP 27, PARCEL 33 (LIBER 12137, FOLIO 123)(15' & 35') (PROPOSED SUBDIVISION); EXISTING USER FOR NON-INRESS/EGRESS; TAX MAP 27, PARCEL 33 (LIBER 300, FOLIO 315)(15') * - ALTERNATE ACCESS AVAILABLE
31. REFERENCE WAIVER : DESIGN MANUAL VOLUME 3, SECTIONS 2.6.A AND 2.6.B. APPROVAL DATED AUGUST 24, 2009, TO CONTINUE USING AN EXISTING PAVED DRIVEWAY TO FACILITATE A PROPOSED SUBDIVISION. CONDITIONS OF APPROVAL ARE AS FOLLOWS;
    1) A NEW DRIVEWAY AGREEMENT SHALL BE RECORDED AND SIGNED BY ALL CURRENT USERS.
    2) A RECORD PLAT SHALL BE RECORDED ILLUSTRATING THE NEW LOTS AND THE SHARED DRIVEWAY. A NOTE SHALL BE INCLUDED ON THE PLAT SPECIFYING THE ACCESS RIGHTS FOR CURRENT USERS FOR THE SHARED DRIVEWAY.
    3) THE MINIMUM RADIUS OF 45 FEET SHALL BE MET FOR ALL CURVES ALONG THE SHARED DRIVEWAY.
    4) THE EXISTING DRIVEWAY SHALL BE IMPROVED TO A MINIMUM WIDTH OF 16'. THE WAIVER SPECIFIED THAT "AN EXISTING USER OF THE SHARED DRIVEWAY HAS REQUESTED THAT THE DRIVEWAY REMAIN 12 FEET WIDE AS TO AVOID THE REMOVAL OF TREES. DED DOES NOT OBJECT TO THIS REQUEST, BUT ALL OTHER AREAS SHALL BE WIDENED TO 16 FEET.
32. EXISTING HOUSE ON LOT 1 TO REMAIN. NO NEW BUILDINGS, EXTENSIONS OR ADDITIONS TO THE EXISTING DWELLING(S) ARE TO BE CONSTRUCTED AT A DISTANCE LESS THAN THE ZONING REGULATIONS REQUIREMENTS.
33. THE LOTS SHOWN HEREON COMPLY WITH THE MINIMUM LOT AREA AND OWNERSHIP WIDTH AS REQUIRED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT.
34. AN ENVIRONMENTAL CONCEPT PLAN (ECP-11-005) WAS APPROVED BY THE DEVELOPMENT ENGINEERING DIVISION ON JANUARY 29, 2011.
35. REFERENCE DPZ FILES: W-10-016 AND ECP-11-005.
36. A FEE IN LIEU FOR THE REQUIRED OPEN SPACE SHALL BE PAID IN THE AMOUNT OF $4500.00 FOR 3 LOTS.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 8/10/11
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8/15/11



LOCATION PLAN

SCALE: 1"=100'

SITE DATA

LOCATION: TAX MAP 27 PARCEL 31
DEED REFERENCE : L.11260/F.59
5TH ELECTION DISTRICT
EXISTING ZONING: RC-DEO
PER THE COMPREHENSIVE ZONING PLAN DATED 2/02/04.
GROSS AREA OF PARCEL: 18.3586 AC.
AREA OF RIGHT OF WAY: 0.00 AC.
AREA OF FLOODPLAIN: 0.34 AC (14,932 SF)
AREA OF STEEP SLOPES: 0
NET AREA OF PROJECT: 18.02 AC
NUMBER OF RESIDENTIAL LOTS PROPOSED: 4 LOTS
AREA OF PROPOSED RESIDENTIAL LOTS: 18.3586 AC
AREA OF SMALLEST BUILDABLE LOT PROPOSED: 133,110 SF LOT 4.
NUMBER OF PROPOSED OPEN SPACE LOTS: 0
NUMBER OF NON-BUILDABLE BULK PARCELS: 0

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 NUMBER: 57809
EXPIRATION DATE: 10/6/2023
Just for Lot 4

STATE OF MARYLAND MOTI KC 57809 PROFESSIONAL ENGINEER
1/15/2022

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 NUMBER: 57809
EXPIRATION DATE: 10/6/2023
JUST FOR lot 4

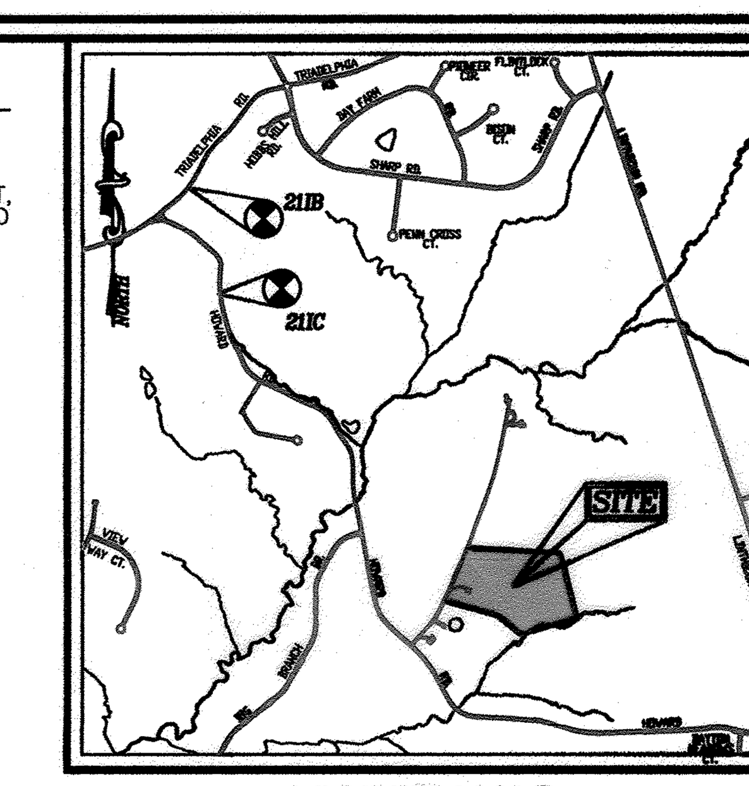
STATE OF MARYLAND MOTI KC 57809 PROFESSIONAL ENGINEER
9/23/2022

BENCHMARKS

HOWARD COUNTY BENCHMARK 21IB (CONC. MON.)
N 579255.46 E 1308799.16
*LOCATED 4.3' BACK FROM THE EDGE OF PAVEMENT, NORTHEAST OF THE INTERSECTION OF HOWARD ROAD AND TRIADELPHIA ROAD.
HOWARD COUNTY BENCHMARK 21IC (CONC. MON.)
N 578150.48 E 1309107.30
*LOCATED 2.2' BACK FROM EDGE OF PAVEMENT, SOUTH SIDE OF HOWARD ROAD.

LEGEND:

PROPERTY LINE
RIGHT-OF-WAY LINE
EXISTING UTILITY POLE
EXISTING LIGHT POLE
EXISTING MAILBOX
EXISTING SIGN
EXISTING SANITARY MANHOLE
EXISTING SANITARY LINE
EXISTING CLEANOUT
EXISTING FIRE HYDRANT
EXISTING WATER LINE
EXISTING FENCE
EXISTING WELL
EX. PRIVATE WELL AREA ECP-11-005
EXISTING 50' WIDE RIGHT OF WAY L.11260/F.59-L.424/F.552 L.436/F.280
EXISTING 15' WIDE RIGHT OF WAY L.11260/F.59-L.300/F.315
PROPOSED 24' PRIVATE USE-IN-COMMON DRIVEWAY EASEMENT
PROPOSED FOREST CONSERVATION EASEMENT (AFFORESTATION)
EXISTING FLOODPLAIN



VICINITY MAP

SCALE: 1"=2,000'
ADC MAP COORDINATE: 4932 K1

MINIMUM LOT SIZE CHART

LOT #	NET AREA SQ. FT.	PIPESTEM AREA SQ. FT.	TOTAL AREA SQ. FT.
2	3.00 AC	0.18 AC	3.18 AC
3	8.88 AC	0.18 AC	9.06 AC
4	3.00 AC	0.06 AC	3.06 AC

STORMWATER MANAGEMENT PRACTICES

ADDRESS #	LOT	ADDRESS	VEGETATED SWALES M-8	DISCONNECTION OF ROOFTOP RUNOFF N-1	DISCONNECTION OF NON-ROOFTOP RUNOFF N-2	MICRO BIO RETENTION RUNOFF M-6
14118	1	HOWARD ROAD	X	X	X	X
14128	2	HOWARD ROAD	X	1	X	1
14138	3	HOWARD ROAD	1	4	X	X
14148	4	HOWARD ROAD	X	4	X	X

X = NOT UTILIZED

OWNER/DEVELOPER
JONATHAN STUDDARD
AMY B. STUDDARD
14118 HOWARD ROAD
DAYTON MD, 21036
443-364-8075

NO.	REVISION	DATE
4	Adding pavilion to Lot 4	9-20-22
3	REVISE Lot 4 LAYOUT	1-15-22
2	REVISE LOT 2 LAYOUT	12-20-21

DEVELOPER'S BUILDER'S CERTIFICATE

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION, A CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE(1) YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

Jonathan Studdard 8/4/2011
SIGNATURE OF DEVELOPER DATE

SUPPLEMENTAL PLAN
COVER SHEET
STUDDARD PROPERTY
LOTS 1, 2, 3, AND 4

TAX MAP 27 BLOCK 6
5TH ELECTION DISTRICT
DPZ REF'S: ECP-11-005, WP-10-016

L. 11260/F. 59
PARCEL 31, ZONED RC-DEO
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELLICOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.8961

STATE OF MARYLAND JOHN T. DIGATE NO. 21438 REGISTERED PROFESSIONAL ENGINEER
JOHN THOMAS DIGATE, PE No.21438

DESIGN BY:	JTD
DRAWN BY:	KG
CHECKED BY:	JTD
DATE:	AUGUST 2011
SCALE:	AS SHOWN
W.O. NO.:	08-50

PROFESSIONAL CERTIFICATE
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. 21438 EXPIRATION DATE: 12-16-2012.

SHEET 1 OF 12

F-11-062

K:\Projects\08-50\ENGR\dwg\SUPPLEMENTAL PLAN\01-COVERSHEET.dwg, 8/4/2011 1:25:47 PM

24' PRIVATE USE-IN-COMMON EASEMENT

16' USE-IN-COMMON DRIVEWAY

SLOPE VARIES

* SEE PAVEMENT SECTION SHEET 1 GENERAL NOTE 14.

TYPICAL SECTION
NOT TO SCALE

GRADING PLAN
SCALE: 1"=50'

50' 0 50' 100' 150'

SOILS LEGEND		
SYMBOL	NAME / DESCRIPTION	GROUP
GaC	GAILA LOAM, 8 TO 15 PERCENT SLOPES	B
GaD	GAILA LOAM, 15 TO 25 PERCENT SLOPES	B
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B
GgC	GLENELG LOAM, 8 TO 15 PERCENT SLOPES	B
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C
GnB	GLENVILLE-BAILE SILT LOAMS, 0 TO 8 PERCENT SLOPES	C
LmB	LEGORE-MONTALTO SILT LOAMS, 3 TO 8 PERCENT SLOPES	C

LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING TREELINE (FIELD LOCATED)
- EXISTING STREET TREES
- EXISTING FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- PROPOSED TREES
- SOILS BOUNDARY
- SUPER SILT FENCE
- LIMIT OF DISTURBANCE
- EXISTING WELL
- EX. PRIVATE WELL AREA ECP-11-005
- EXISTING 50' WIDE RIGHT OF WAY L.11260/F.59-L.424/F.552 L.436/F.280
- EXISTING 15' WIDE RIGHT OF WAY L.11260/F.59-L.300/F.315
- EX. 24' PRIVATE USE-IN-COMMON DRIVEWAY EASEMENT
- EXISTING FOREST CONSERVATION EASEMENT (AFFORESTATION)
- EXISTING FLOODPLAIN
- PERC. TEST
- MODERATE SLOPES
- PROPOSED PAVEMENT
- NON-ROOF TOP DISCONNECTS

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 NUMBER: 57809
EXPIRATION DATE: 10/6/2023
STATE OF MARYLAND MOTI RG PROFESSIONAL ENGINEER 57809
1/23/2022

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 NUMBER: 57809
EXPIRATION DATE: 10/6/2023
Visit for Lot 4
STATE OF MARYLAND MOTI RG PROFESSIONAL ENGINEER 57809
1/15/2022

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 8/10/11

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/15/11

OWNER/DEVELOPER
JONATHAN STUDDARD
AMY B. STUDDARD
14118 HOWARD ROAD
DAYTON, MD. 21036
443-364-8075

NO.	REVISION	DATE
4	Adding Pavillion to Lot 4	9-20-12
3	REVISE LOT 4 LAYOUT	1/15/2012

SUPPLEMENTAL PLAN
SITE LAYOUT, GRADING, SEDIMENT, EROSION CONTROL PLAN, LANDSCAPE PLAN AND SOILS MAP
STUDDARD PROPERTY
LOTS 1, 2, 3, AND 4

TAX MAP 27 BLOCK 6 — L. 11260/F. 59
5TH ELECTION DISTRICT — PARCEL 31, ZONED RC-DEO
DPZ REF'S: ECP-11-005, WP-10-016 — HOWARD COUNTY, MARYLAND

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STATE OF MARYLAND JOHN THOMAS DIGATE 21438 PROFESSIONAL ENGINEER
JOHN THOMAS DIGATE, PE No.21438

PROFESSIONAL CERTIFICATE
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DESIGN BY: JTD
DRAWN BY: KG
CHECKED BY: JTD
DATE: AUGUST 2011
SCALE: AS SHOWN
W.O. NO.: 08-50

SHEET 2 OF 12

F-11-062

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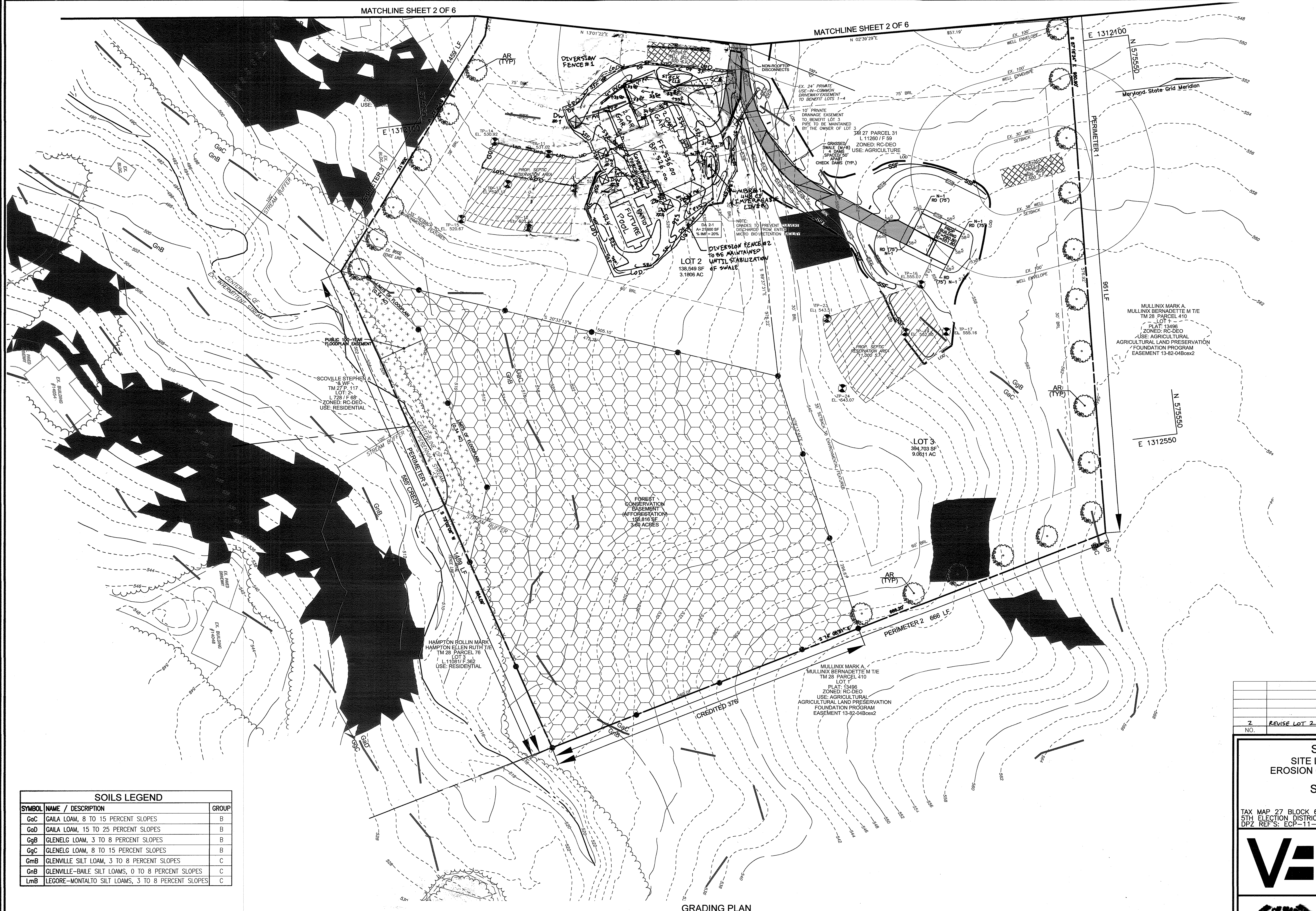

LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING TREELINE (FIELD LOCATED)
- EXISTING STREET TREES
- PROPOSED TREES
- EXISTING FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- CLEANWATER DIKE/SWALE
- FOREST CONSERVATION SIGN
- SOILS BOUNDARY
- SUPER SILT FENCE
- LIMIT OF DISTURBANCE
- EXISTING WELL
- EX. PRIVATE WELL AREA ECP-11-005
- EXISTING 50' WIDE RIGHT OF WAY L.11260/F.59-L.424/F.552 L.436/F.280
- EXISTING 15' WIDE RIGHT OF WAY L.11260/F.59-L.300/F.315
- EX. 24' PRIVATE USE-IN-COMMON DRIVEWAY EASEMENT
- EXISTING FOREST CONSERVATION EASEMENT (AFFORESTATION)
- EXISTING FLOODPLAIN
- ROOFTOP DISCONNECT (LENGTH)
- MICRO BIO RETENTION
- PERC. TEST
- MODERATE SLOPES
- PROPOSED PAVEMENT
- NON-ROOF TOP DISCONNECTS

SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	GROUP
GaC	GAILA LOAM, 8 TO 15 PERCENT SLOPES	B
GaD	GAILA LOAM, 15 TO 25 PERCENT SLOPES	B
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B
GgC	GLENELG LOAM, 8 TO 15 PERCENT SLOPES	B
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C
GnB	GLENVILLE-BAILE SILT LOAMS, 0 TO 8 PERCENT SLOPES	C
LmB	LEGORE-MONTALTO SILT LOAMS, 3 TO 8 PERCENT SLOPES	C

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[signature] 8/10/11
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

[signature] 8/15/11
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

OWNER/DEVELOPER
JONATHAN STUDDARD
AMY B. STUDDARD
14118 HOWARD ROAD
DAYTON MD, 21036
443-364-8075

NO.	REVISION	DATE
2	REVISE LOT 2 LAYOUT	12-20-21

SUPPLEMENTAL PLAN
SITE LAYOUT, GRADING, SEDIMENT, EROSION CONTROL PLAN, LANDSCAPE PLAN AND SOILS MAP
STUDDARD PROPERTY
LOTS 1, 2, 3, AND 4

TAX MAP 27 BLOCK 6
5TH ELECTION DISTRICT
DPZ REF'S: ECP-11-005, WP-10-016

L. 11260/F. 59
PARCEL 31, ZONED RC-DEO
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELLICOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.8961

DESIGN BY: JTD
DRAWN BY: KG
CHECKED BY: JTD
DATE: AUGUST 2011
SCALE: AS SHOWN
W.O. NO.: 08-50

PROFESSIONAL CERTIFICATE
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. 21438 EXPIRATION DATE: 12-16-2012.

JOHN THOMAS DIGATE, PE No.21438

F-11-062

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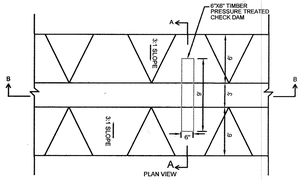
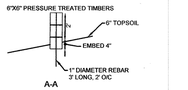
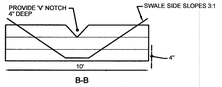
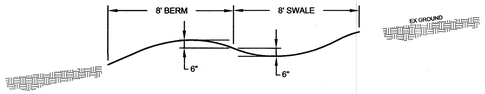






GRASSED SWALE DETAIL M-8
NOT TO SCALE

NOTE:
1. CHECK DAMS TO BE KEYED INTO THE EARTH 4" DEEP.



NOTES:

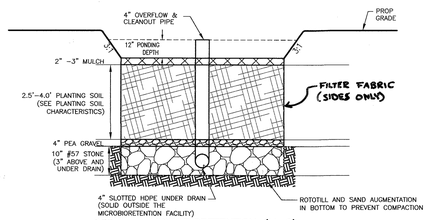
1. CLEANWATER DIVERSION DIKE/SWALE IS DESIGNED TO KEEP CLEAN STORMWATER RUNOFF FROM BEING TREATED IN PROPOSED FACILITIES.

2. THE DIKE/SWALE IS A PERMANENT FEATURE AND MUST BE MOUNTABLE FOR LAWN MOWING PURPOSES.

3. THE DIKE/SWALE WILL MAINTAIN POSITIVE DRAINAGE AT A MINIMUM OF 2% AND A MAXIMUM OF 5% TO AVOID EROSIVE VELOCITIES.

4. THE DIKE/SWALE WILL BE STABILIZED USING HOWARD COUNTY'S STANDARD PERMANENT SEEDING NOTES.

MOUNTABLE CLEAN WATER DIVERSION DIKE/SWALE
NOT TO SCALE



DETAIL – MICROBIORETENTION (M-6)
NOT TO SCALE

OPERATION AND MAINTENANCE
SCHEDULE FOR MICROBIORETENTION AREAS

1. ANNUAL MAINTENANCE OF PLANT MATERIAL, MULCH LAYER AND SOIL LAYER IS REQUIRED. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME II, TABLE A.4.1 AND 2.

2. SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL. THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, TREATMENT OF ALL DISEASED TREES AND SHRUBS AND REPLACEMENT OF ALL DEFICIENT STAKES AND WIRES.

3. MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.

4. SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED BASIS WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.

LANDSCAPE SCHEDULE				
KEY	QUAN.	BOTANICAL NAME	SIZE	REM.
AR	46	ACER RUBRUM AUTUMN FLAME RED MAPLE (SHADE TREES)	2 1/2"-3" Cal.	B & B

SPECIMEN TREES			
ID#	TREE NAME	DBH	T. B. R./ REMAIN
1	NORWAY MAPLE	34"	TO REMAIN
2	NORWAY MAPLE	41"	TO REMAIN

MICROBIORETENTION PLANTING SCHEDULE				
KEY	QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
AR	2	ACER RUBRUM 'AUTUMN FLAME' AUTUMN FLAME RED MAPLE	2 1/2"-3" CAL	B & B
IG	3	ILEX GLABRA INKBERRY	2 1/2'-3' HT	CONT
PV	90	SWITCH GRASS PANICUM VIRGATUM	1 GALLON	24" O.C.
MD	50	BEE BALM MONARDA DIDYMA	1 GALLON	24" O.C.
EP	50	JOE PYE WEED EUPATORIUM PURPUREUM	1 GALLON	48" O.C.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED DISCONNECTION OF ROOFTOP RUNOFF (N-1) DISCONNECTION OF NON-ROOFTOP RUNOFF (N-2)

1. MAINTENANCE OF AREAS RECEIVING DISCONNECTED RUNOFF IS GENERALLY NO DIFFERENT THAN THAT REQUIRED FOR OTHER LAWN OR LANDSCAPED AREAS. THE AREAS RECEIVING RUNOFF SHOULD BE PROTECTED FROM FUTURE COMPACTION OR DEVELOPMENT OF IMPERVIOUS AREA. IN COMMERCIAL AREAS, FOOT TRAFFIC SHOULD BE DISCOURAGED AS WELL.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED OPEN CHANNEL SYSTEM GRASS SWALES AND WET SWALES. (M-8)

1. THE OPEN CHANNEL SYSTEM SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE FACILITY IS FUNCTIONING PROPERLY.

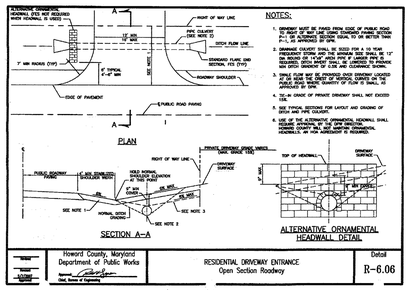
2. THE OPEN CHANNEL SHALL BE MOWED A MINIMUM OF AS NEEDED DURING THE GROWING SEASON TO MAINTAIN A MAXIMUM GRASS HEIGHT OF LESS THAN 6 INCHES.

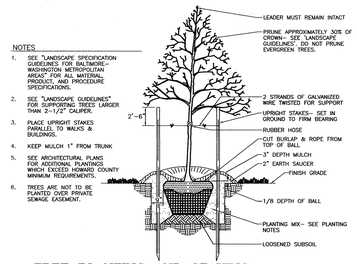
3. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.

4. VISIBLE SIGNS OF EROSION IN THE OPEN CHANNEL SYSTEM SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

5. REMOVE SILT IN THE OPEN CHANNEL SYSTEM WHEN IT EXCEEDS 25% OF THE ORIGINAL WQv.

6. INSPECT CHECK DAMS TWICE A YEAR FOR STRUCTURAL INTEGRITY. RESTORE CHECK DAMS TO ORIGINAL CONDITION AS APPLICABLE.





TREE PLANTING AND STAKING
DECIDUOUS TREES UP TO 2-1/2" CALIPER NOT TO SCALE

SCHEDULE 'A' PERIMETER LANDSCAPE EDGE					
CATEGORY	ADJACENT TO PERIMETER PROPERTIES				
	1	2	3	4	TOTAL
PERIMETER/FRONTAGE DESIGNATION LANDSCAPE TYPE	A	A	A	A	
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	951'	666'	1459'	570'	
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	YES* 376'	YES* 585'	NO	
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO –	NO –	NO –	NO –	
NUMBER OF PLANTS REQUIRED SHADE TREES EVERGREEN TREES SHRUBS	951' 1:60 16 –	290' 1:60 5 –	874' 1:60 15 –	570' 1:60 10 –	
NUMBER OF PLANTS PROVIDED SHADE TREES EVERGREEN TREES OTHER TREES (2:1 SUBSTITUTION) SHRUBS (10:1 SUBSTITUTION) (DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)	16 – – – –	5 – – – –	15 – – – –	10 – – – –	46

* EXISITING WOODS TO REMAIN

LANDSCAPE NOTES

1. AT THE TIME OF PLANT INSTALLATION, ALL SHRUBS AND TREES LISTED AND APPROVED ON THE LANDSCAPE PLAN, SHALL COMPLY WITH THE PROPER HEIGHT REQUIREMENT IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATIONS OF THE REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THE APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN THE RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO THE APPLICABLE PLANS.
2. 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.
3. SHOULD ANY TREE DESIGNATED FOR PRESERVATION FOR WHICH LANDSCAPING CREDIT IS GIVEN, DIE PRIOR TO RELEASE OF BONDS, THE OWNER WILL BE REQUIRED TO REPLACE THE TREE WITH THE EQUIVALENT SPECIES OR WITH A TREE WHICH WILL OBTAIN THE SAME HEIGHT, SPREAD, AND GROWTH CHARACTERISTICS. THE REPLACEMENT TREE MUST BE A MINIMUM OF 3 INCHES IN CALIPER AND INSTALLED AS REQUIRED IN THE HOWARD COUNTY LANDSCAPE MANUAL.
4. PERIMETER LANDSCAPING IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL. LANDSCAPE SURETY IN THE AMOUNT OF $13,800.00 FOR THE REQUIRED 46 SHADE TREES WAS PROVIDED UNDER THIS.
5. NO LANDSCAPING TO BE INSTALLED WITHIN ANY PUBLIC EASEMENT FOR WATER, SEWER, OR STORMDRAIN.
6. NO SPECIMEN TREES OVER 30" DBH WILL BE REMOVED DURING THE DEVELOPMENT OF THESE LOTS.
7. NO CLEARING OF EXISTING VEGETATION IS PERMITTED WITHIN THE LANDSCAPE EDGE FOR WHICH CREDIT IS TAKEN. HOWEVER, LANDSCAPE MAINTENANCE IS AUTHORIZED.
8. ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT AAN SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH LCAMW PLANTING SPECIFICATIONS.
9. CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
10. FINAL LOCATION OF PLANT MATERIAL MAY NEED TO VARY TO MEET FINAL FIELD CONDITIONS. TREES SHALL NOT BE PLANTED IN THE BOTTOM OF DRAINAGE SWALES.
11. CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO BIDDING. IF PLAN DIFFERS FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN.
12. THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED. THE FOREST CONSERVATION OBLIGATION HAS BEEN FULFILLED BY THE AFFORESTATION OF 3.60 AC. WHICH MEETS THE BREAK-EVEN POINT OBLIGATION OF 3.60 AC. FOR THE SITE. THE TOTAL FINANCIAL SURETY AMOUNT WAS $78,400.00 (156,816 X $0.50=$78,400.00).
13. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
14. NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING, AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE LIMITS OF WETLANDS, STREAMS, OR THEIR REQUIRED BUFFERS, FLOODPLAIN, AND FOREST CONSERVATION EASEMENT AREAS.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 8/10/11

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/15/11

OWNER/DEVELOPER
JONATHAN STUDDARD
AMY B. STUDDARD
14118 HOWARD ROAD
DAYTON MD, 21036
443-364-8075

NO.	REVISION	DATE

SUPPLEMENTAL PLAN
SEDIMENT, EROSION CONTROL, LANDSCAPE AND SITE DETAILS
STUDDARD PROPERTY
LOTS 1, 2, 3, AND 4

TAX MAP 27 BLOCK 6 — L. 11260/F. 59
5TH ELECTION DISTRICT — PARCEL 31, ZONED RC-DEO
DPZ REF'S: ECP-11-005, WP-10-016 — HOWARD COUNTY, MARYLAND

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JOHN THOMAS DIGATE, PE No. 24338

PROFESSIONAL CERTIFICATE
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DESIGN BY: JTD
DRAWN BY: KG
CHECKED BY: JTD
DATE: AUGUST 2011
SCALE: AS SHOWN
W.O. NO.: 08-50

SHEET 4 OF 12

F-11-062

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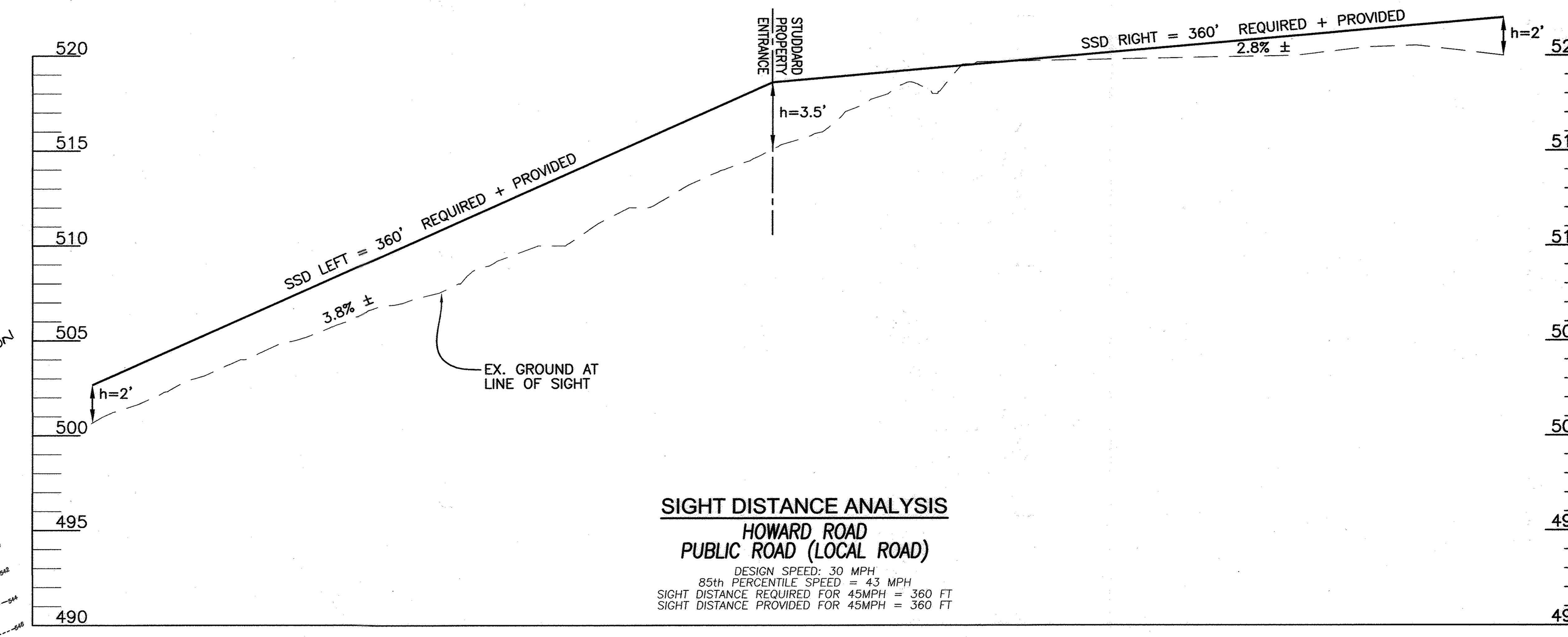
SWM DRAINAGE AREA MAP

SCALE 1" = 80'

80' 0 80' 160' 240'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

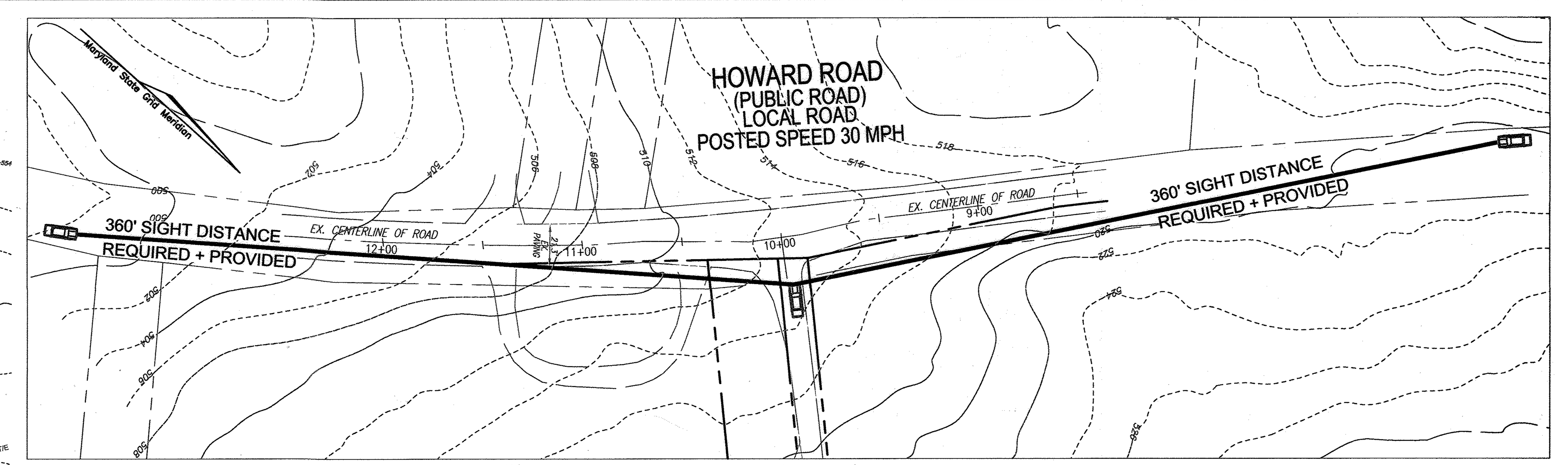
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 8/10/11
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8/15/11



SIGHT DISTANCE ANALYSIS

HOWARD ROAD
PUBLIC ROAD (LOCAL ROAD)

DESIGN SPEED: 30 MPH
85th PERCENTILE SPEED = 43 MPH
SIGHT DISTANCE REQUIRED FOR 45MPH = 360 FT
SIGHT DISTANCE PROVIDED FOR 45MPH = 360 FT



STOPPING SIGHT DISTANCE PLAN VIEW

SCALE: 1"=50'

50' 0 50' 100' 150'

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. 57809
LICENSE NUMBER: 57809 Just for Lot 4
EXPIRATION DATE: 10/6/2023

STATE OF MARYLAND MOTI KC 57809 PROFESSIONAL ENGINEER 9/23/2022

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 NUMBER: 57809
EXPIRATION DATE: 10/6/2023
JUST FOR LOT 4

STATE OF MARYLAND MOTI KC 57809 PROFESSIONAL ENGINEER 11/15/2022

SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	GROUP
GaC	GAILA LOAM, 8 TO 15 PERCENT SLOPES	B
GaD	GAILA LOAM, 15 TO 25 PERCENT SLOPES	B
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B
GgC	GLENELG LOAM, 8 TO 15 PERCENT SLOPES	B
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C
GnB	GLENVILLE-BAILE SILT LOAMS, 0 TO 8 PERCENT SLOPES	C
LmB	LEGORE-MONTALTO SILT LOAMS, 3 TO 8 PERCENT SLOPES	C

LEGEND:

- EXISTING CONTOUR (398)
- PROPOSED CONTOUR (406)
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE (S)
- EXISTING CLEANOUT (CO)
- EXISTING FIRE HYDRANT (FH)
- EXISTING WATER LINE (W)
- EXISTING TREELINE (FIELD LOCATED)
- EXISTING STREET TREES
- EXISTING FENCE (x)
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- SOILS BOUNDARY (M1B2 / M1D3)
- SUPER SILT FENCE (SSF)
- LIMIT OF DISTURBANCE (LOD)
- EXISTING WELL
- EX. PRIVATE WELL AREA ECP-11-005
- EXISTING 50' WIDE RIGHT OF WAY L.11260/F.59-L.424/F.552 L.436/F.280
- EXISTING 15' WIDE RIGHT OF WAY L.11260/F.59-L.300/F.315
- EX. 24' PRIVATE USE-IN-COMMON DRIVEWAY EASEMENT
- EXISTING FOREST CONSERVATION EASEMENT (AFFORESTATION)
- EXISTING FLOODPLAIN
- MODERATE SLOPES
- PROPOSED PAVEMENT
- NON-ROOF TOP DISCONNECTS

OWNER/DEVELOPER

JONATHAN STUDDARD
AMY B. STUDDARD
14118 HOWARD ROAD
DAYTON MD, 21036
443-364-8075

NO.	REVISION	DATE
4	Adding pavilion To LOT 4	9-20-22
3	REVISE LOT 4 LAYOUT	1-15-22
2	REVISE LOT 2 LAYOUT	12-20-21

SUPPLEMENTAL PLAN
SIGHT DISTANCE, AND STORMWATER MANAGEMENT DA MAP
STUDDARD PROPERTY
LOTS 1, 2, 3, AND 4

TAX MAP 27 BLOCK 6 — L. 11260/F. 59
5TH ELECTION DISTRICT — PARCEL 31, ZONED RC-DEO
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STATE OF MARYLAND JOHN T. DIGATE REGISTERED PROFESSIONAL ENGINEER
JOHN THOMAS DIGATE, PE No.21438

DESIGN BY:	JTD
DRAWN BY:	KG
CHECKED BY:	JTD
DATE:	AUGUST 2011
SCALE:	AS SHOWN
W.O. NO.:	08-50

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F-11-062

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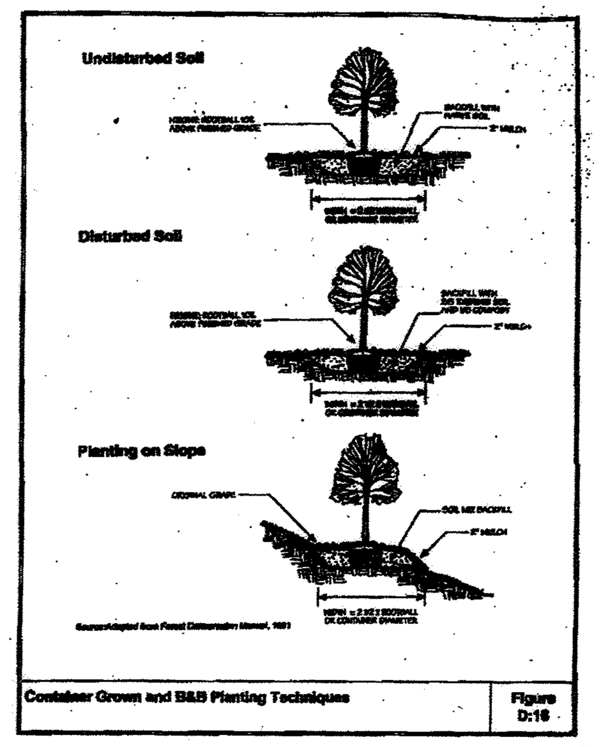
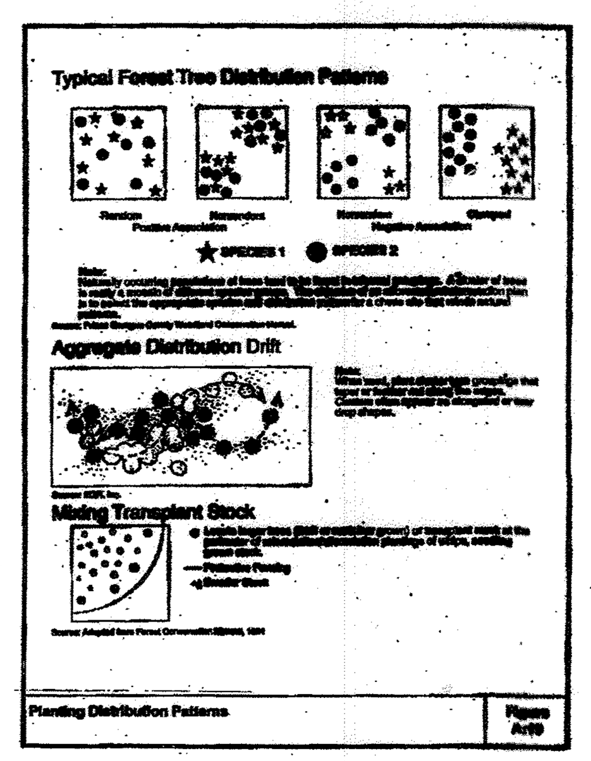
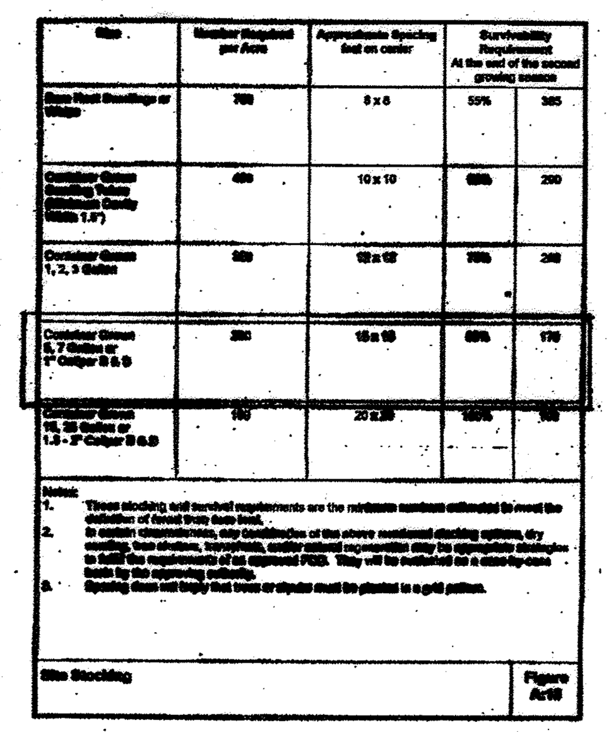






Construction Period Planting Procedures

The measures to protect forest retention areas emphasize isolating them from development impacts. Reforestation or afforestation, in contrast, will often occur on land already disturbed by development activities or may be located on land which will require substantial preparation to enable forest plantings to survive and thrive. Reforestation and afforestation plantings may also require a great deal of management once they are installed. *Appendix H* provides guideline specifications for proper planting, including techniques for site preparation and management. The following issues are of particular concern.

- General site preparation for planting: For undisturbed sites, disturbance of soils should be limited to the planting field for each plant. For disturbed areas, soils should be treated by incorporating natural mulch within the top 12 inches, or with needed amendments as determined by a soils analysis. Natural amendments such as organic mulch or leaf mold compost are preferred.
- Stream buffer planting: Borders of streams and other waterways may have been damaged before reforestation and afforestation and therefore may need more extensive restoration work before reforestation or afforestation can be successful. The following are guidelines for any work within a riparian zone.
  - Correct any erosion problems
  - Minimize or eliminate any chemical use
  - Maintain an undisturbed leaf layer and understory
  - Eliminate exotics
- Steep slope planting: In areas of steep slopes or erodible soils, the preferred method of reforestation or afforestation is the use of seedlings to minimize disturbance. Planting on open or disturbed steep slopes eventually will stabilize them. Until the roots become established, however, there may still be erosion problems. Monitoring the stability of the soil will be important to the survival of the trees.
- Post-planting Considerations: For areas of large-scale disturbance, soils must be stabilized using a non-turf-building ground cover or engineering fabric. To protect against intrusion and to prevent damage of planted areas, all reforestation and afforestation sites must be posted with appropriate signs and fenced.

Certification of Completion

At the end of the construction period, the designated qualified professional shall convey to the Department of Planning And Zoning certification that all forest retention areas have been preserved, all reforestation and afforestation plantings have been installed as required by the forest conservation plan, and that all protection measures required for the post-construction period have been put in place. *Appendix J* contains a sample format for such certification. Planting must occur before June 30th to be credited toward the current growing season.

Upon review of the certification document for completeness and accuracy, the Department will notify the developer of the beginning of the post-construction management period.

POST-CONSTRUCTION MANAGEMENT PRACTICES

Many of the protection and management practices for the construction period must be continued for at least 2 growing seasons following official notification of completion of the development (or a specific phase of the overall development if phasing has been approved). The responsibility to meet the survival standards requires adequate watering, replanting, thinning or other appropriate measures. Also, inappropriate uses or intrusions must not occur, a responsibility that requires the knowledge and cooperation of the new occupants of the development.

Minimum Two Growing Season Post-Construction Management Program

A post-construction management program must be approved as part of the original forest conservation plan and remain in effect for a minimum of two growing seasons. A longer period may be required for specific strategies (e.g. natural regeneration near high use areas whose long-term viability may take longer to confirm.)

Implementation of the post-construction management program must be supervised by a qualified professional who should inspect the status of all forest retention, reforestation and afforestation areas at specified times during the life of the post construction agreement and who must certify that the required survival rates have been achieved in accordance with the agreement prior to release of bonds.

There are five primary components of the post-construction program: inspection, management of retained or new plantings, replacement of dead or damaged material when necessary, education of new occupants of the development and final inspection and release of developer from additional responsibilities.

Inspection

Inspections should be carried out at the beginning and end of the growing season to pinpoint any problems, monitor survival rates, and specify remedial actions needed to correct existing problems. *Appendix J* has an example of an inspection report checklist.

Management of Forest Conservation Areas

Post construction management includes: maintenance of all fences, signs or other devices delineating forest conservation areas and other measures. Such other measures include: needed watering; removal of dead or damaged material and control of undesirable competing species; thinning or pruning to encourage proper growth; fertilizing, if necessary; and control of pests. Specific practices will depend on the weather prevailing during the post construction period, the types of plant material and planting methods used, and specific site conditions such as proximity to high use areas. It is the responsibility of the post-construction plan supervisor to take appropriate actions as needed. This manual, therefore, does not cite required measures. Survival success, not fulfillment of a given series of tasks, will be the measure of conformance to the needs of the post-construction program.

Newly planted trees, whether they are seedlings or 4" caliper transplants, have basic needs. Some of these needs can be met by nature alone; others may require human intervention. (The three most likely causes of death for newly planted trees are drought, competing vegetation and deer.) The basic maintenance regime should be determined by on-site environmental conditions, structure and nutrient content of soil, and rainfall. Understanding these factors and the specific needs of the species and size of plants used will result in a healthy forested area at the end of the maintenance period. *Appendix H* contains guideline specifications for maintenance of forest conservation areas and focuses on the following critical needs:

- watering
- fertilizing
- control of competing vegetation
- protection from pests, diseases and mechanical injury.

Replacement of Plant Material

An inspection shall take place at the end of year one or before the second growing season to evaluate survival rates with reference to the survival required at the end of the two year period. This is an opportunity to avoid the penalty for violating survival rate standards. This inspection should estimate survival potential based on the following:

- vigor and threat of competing vegetation (i.e. if seedlings are free to grow)
- structure
- growth rate
- crown development
- trunk health

If, after one year, the possibility exists that the original planting will not meet survival standards, the applicant may choose to establish reinforcement plantings. If plant mortality of reforestation or afforestation exceeds 10% of planted material at the end of the first growing season, such material should be replaced to bring the total number of trees to 90% of the original total. Such material shall be installed by the beginning of the second growing season. If at the end of the second growing season, survival rate drops below 75%, such material as needed to guarantee an 75% survival rate by the end of the third growing season shall be installed.

Education of New Occupants

The occupants of a new development, whether owners or tenants, must avoid activities that destroy or degrade protected forest resources. The post-construction management program must therefore include steps to educate the new occupants about the proper use of forest conservation areas, about the need for the developer to carry out the post-construction management program, and the eventual transfer of long-term responsibilities to the owners or occupants. Such educational material should include a plan locating all protected areas on the site and a description of permitted and prohibited activities within or affecting such areas. The format and method of conveying such information is left to the discretion of the developer.

Final Inspection and Release of Obligations

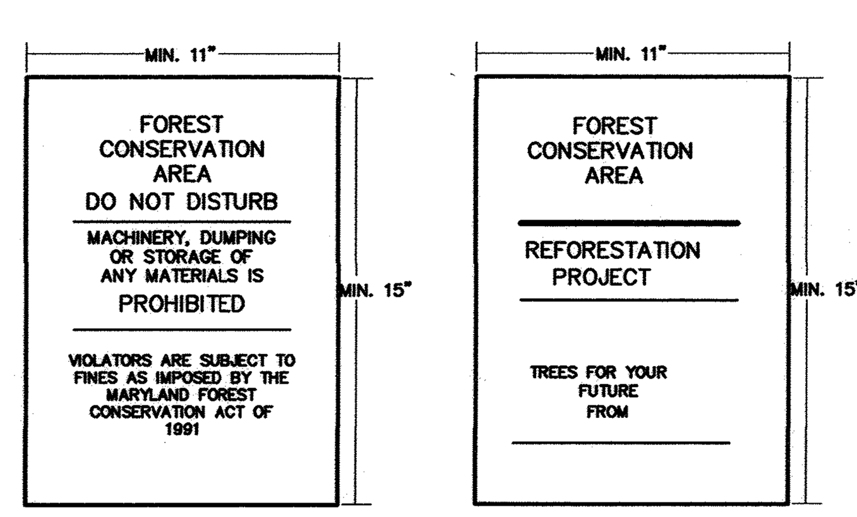
At the end of the post-construction management and protection period, the designated responsible professional shall convey to the Department of Planning and Zoning certification that all forest conservation areas have remained intact or have been restored to the appropriate condition, that the stipulated survival rates have been achieved, and that any permanent protection measures required by the plan are in place. *Appendix J* contains a sample format for such certification.

Upon review of the final certification document for completeness and accuracy, the County will notify the developer of release of surety and all future obligations. The developer's last official responsibility will be to transmit a copy of this notification to the owner(s) of the property(ies). Such transmittal will serve as official notice to owners of their assumption of full responsibility for all future forest conservation obligations.

LONG-TERM MANAGEMENT RESPONSIBILITIES

To maintain the integrity of forest conservation areas, the owners must refrain from any activities that would diminish the viability and environmental integrity of forest retention areas or hinder the growth and maturing of new forest plantings. When the site is occupied by tenants, the owner must insure that the tenants do not, willfully or out of ignorance, use the site in ways that violate forest conservation restrictions or damage protected forest resources. Depending on the location, as well as the size and type of plant material, some maintenance is very beneficial, particularly in the early years. In all instances, State law requires that noxious weeds be controlled.

In many developments a homeowners association, tenants association or other management organization will maintain the site. Such a group is well suited to assume explicit responsibility for protecting the integrity of forest conservation areas and performing any desired maintenance after the initial developer guarantees and obligations have expired. Responsibility for ensuring that all provisions of the conservation easement are adhered to, however, ultimately belong to the property owner(s).



NOTE:
1. BOTTOM OF SIGNS TO BE HIGHER THAN TOP OF TREE PROTECTION FENCE.
2. SIGNS TO BE PLACED AT A MAXIMUM SPACING OF 50–100 FEET. CONDITIONS ON-SITE AFFECTING VISIBILITY MAY WARRANT PLACING SIGNS CLOSER OR FARTHER APART.
3. ATTACHMENT OF SIGNS TO TREES IS PROHIBITED.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 8/10/11

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/15/11

FOREST CONSERVATION PLAN
SCALE: 1"=80'

80' 0 80' 160' 240'

LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING TREELINE (FIELD LOCATED)
- EXISTING STREET TREES
- EXISTING FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- PROPOSED TREES
- SOILS BOUNDARY
- SUPER SILT FENCE
- LIMIT OF DISTURBANCE
- EXISTING WELL
- EX. PRIVATE WELL AREA ECP-11-005
- EXISTING 50' WIDE RIGHT OF WAY L.11260/F.59–L.424/F.552 L.436/F.280
- EXISTING 15' WIDE RIGHT OF WAY L.11260/F.59–L.300/F.315
- EX. 24' PRIVATE USE-IN-COMMON DRIVEWAY EASEMENT
- EXISTING FOREST CONSERVATION EASEMENT (AFFORESTATION)
- EXISTING FLOODPLAIN
- PERC. TEST
- MODERATE SLOPES
- PROPOSED PAVEMENT
- NON-ROOF TOP DISCONNECTS

PLANT SCHEDULE FOR ONSITE AFFORESTATION

QUAN.	BOTANICAL NAME	CONTAINER GROWN SIZE	APPROXIMATE SPACE SPACING(FEET ON CENTER)
144	Acer rubrum 'Autumn flame' Autumn flame red maple	2 1/2"-3" CAL. B & B	15 x 15
144	Platanus occidentalis Sycamore	1" caliper B & B	15 x 15
144	Quercus coccinea Scarlet Oak	1" caliper B & B	15 x 15
144	American sweetgum Liquidambar straciflua	1" caliper B & B	15 x 15
144	Cercis Canadensis Redbud	1" caliper B & B	15 x 15

AFFORESTATION PROVIDED - FCE1

3.60 ACRES OR 156,8161 SF

1" CALIPER TREES
720 TREES @ 200 TREES PER ACRE

NOTE:
THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED. THE FOREST CONSERVATION OBLIGATION HAS BEEN FULFILLED BY THE AFFORESTATION OF 3.60 AC. WHICH MEETS THE BREAK-EVEN POINT OBLIGATION OF 3.60 AC. FOR THE SITE. THE TOTAL FINANCIAL SURETY AMOUNT WAS $78,400.00 (156,816 X $0.50=$78,400.00).

FOREST CONSERVATION WORKSHEET 2.2

NET TRACT AREA
A. TOTAL TRACT AREA — A = 18.36
B. DEDUCTIONS(FLOODPLAIN) — B = 0.34
C. NET TRACT AREA — C = 18.02
LAND USE CATEGORY
INPUT THE NUMBER "1" UNDER THE APPROPRIATE LAND USE ZONING, AND LIMIT TO ONLY ONE ENTRY

ARA	MDR	IDA	HDR	MPD	CIA
0	1	0	0	0	0

D. AFFORESTATION THRESHOLD (NET TRACT AREA X 20%) — D = 3.60
E. CONSERVATION THRESHOLD (NET TRACT AREA X25%) — E = 4.51
EXISTING FOREST COVER
F. EXISTING FOREST COVER WITHIN THE NET TRACT AREA — F = 0.00
G. AREA OF FOREST ABOVE CONSERVATION THRESHOLD — G = 0.00
BREAK EVEN POINT
H. BREAK EVEN POINT — H = 0.00
I. FOREST CLEARING PERMITTED WITHOUT MITIGATION — I = 0.00
PROPOSED FOREST CLEARING
J. TOTAL AREA OF FOREST TO BE CLEARED — J = 0.00
K. TOTAL AREA OF FOREST TO BE RETAINED — K = 0.00
PLANTING REQUIREMENTS
L. REFORESTATION FOR CLEARING ABOVE THE CONSERVATION THRESHOLD — L = 0.00
M. REFORESTATION FOR CLEARING BELOW THE CONSERVATION THRESHOLD — M = 0.00
N. CREDIT FOR RETENTION ABOVE THE CONSERVATION THRESHOLD — N = 0.00
P. TOTAL REFORESTATION REQUIRED — P = 0.00
Q. TOTAL AFFORESTATION REQUIRED — Q = 3.60
R. TOTAL PLANTING REQUIREMENT — R = 3.60

DNR QUALIFIED FOREST PROFESSIONAL
J. CHRIS OGLE

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 NUMBER: 57809
EXPIRATION DATE: 10/6/2023
just for Lot 4

STATE OF MARYLAND — MOTI KC — 57809 — PROFESSIONAL ENGINEER
9/23/2022

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 NUMBER: 57809
EXPIRATION DATE: 10/6/2023
JUST FOR LOT 4

STATE OF MARYLAND — MOTI KC — 57809 — PROFESSIONAL ENGINEER
1/15/2022

OWNER/DEVELOPER

JONATHAN STUDDARD
AMY B. STUDDARD
14118 HOWARD ROAD
DAYTON MD, 21036
443-364-8075

NO.	REVISION	DATE
4	Adding Pavilion to Lot 4	9-20-22
3	REVISE LOT 4 LAYOUT	1-15-22
2	REVISE LOT 2 LAYOUT	12-20-21

SUPPLEMENTAL PLAN

FOREST CONSERVATION PLAN AND DETAILS

STUDDARD PROPERTY
LOTS 1, 2, 3, AND 4

TAX MAP 27 BLOCK 6
5TH ELECTION DISTRICT
DPZ REF'S: ECP-11-005, WP-10-016

L. 11260/F. 59
PARCEL 31, ZONED RC-DEO
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELLICOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.8961

DESIGN BY: JTD
DRAWN BY: KG
CHECKED BY: JTD
DATE: AUGUST 2011
SCALE: AS SHOWN
W.O. NO.: 08-50

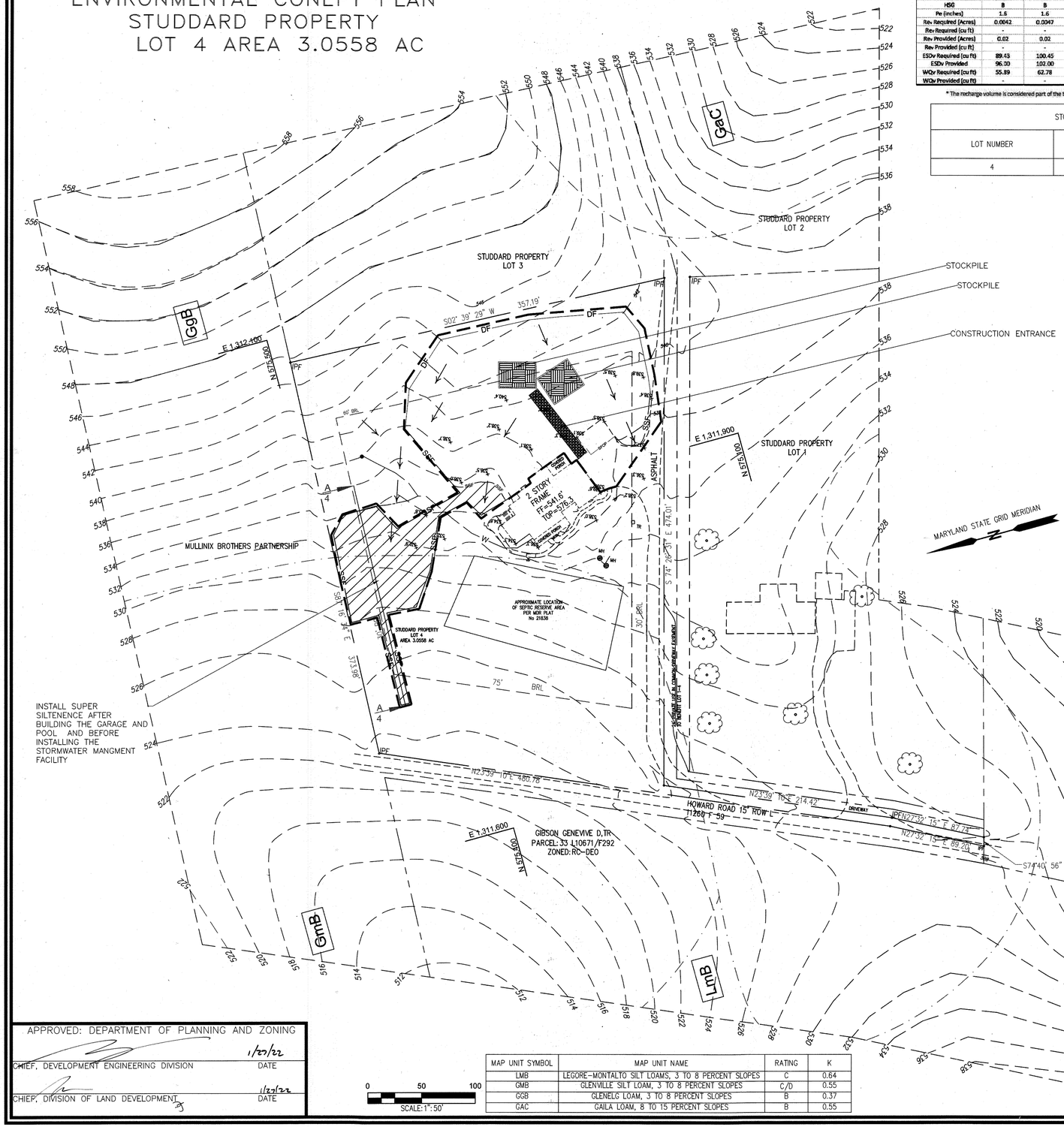
PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21438 EXPIRATION DATE: 12-16-2012.

STATE OF MARYLAND — JOHN T. DIGATE — NO. 21438 — REGISTERED PROFESSIONAL ENGINEER
JOHN THOMAS DIGATE, PE No. 21438

F-11-062

K:\Projects\08-50\ENGR\dwg\SUPPLEMENTAL PLAN\06-FORESTCON DETAILS.dwg, 8/2/2011 11:13:35 AM

ENVIRONMENTAL CONEPT PLAN
STUDDARD PROPERTY
LOT 4 AREA 3.0558 AC



MAP UNIT SYMBOL	MAP UNIT NAME	RATING	K
LMB	LEGORE-MONTALTO SILT LOAMS, 3 TO 8 PERCENT SLOPES	C	0.64
GMB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C/D	0.55
GGB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	0.37
GAC	GAILA LOAM, 8 TO 15 PERCENT SLOPES	B	0.55

ESD SUMMARY TABLE

	DRY WELL 1	DRY WELL 2	DRY WELL 3	DRY WELL 4	MICRO-BIORETENTION	Total	Limits of Disturbance
Acreage Treated	0.015	0.018	0.022	0.019	0.162	0.238	0.992033976
Percent impervious	100	100	100	100.00	80.20	-	25.61
HSG	B	B	B	B	B,C/D	-	B,C/D
Pe (inches)	1.6	1.6	1.6	1.6	2.56	-	1.6
Rev. Required (Acres)	0.0042	0.0047	0.0058	0.0050	-	0.02	0.26
Rev Required (cu ft)	-	-	-	-	118.2653	118.27	262.64
Rev Provided (Acres)	0.02	0.02	0.02	0.02	-	0.08	0.08
Rev Provided (cu ft)	-	-	-	-	118.2653	262.4*	262.4*
ESDv Required (cu ft)	89.43	100.45	122.61	105.77	1227.46	1645.72	1616.25
ESDv Provided	96.00	102.00	126.00	108.00	1263.55	1695.55	1695.55
WQv Required (cu ft)	55.89	62.78	76.63	66.10	454.87	716.28	996.98
WQv Provided (cu ft)	-	-	-	-	1263.55	1263.55	-

* The recharge volume is considered part of the total WQv .Rev and WQv are inclusive. as WQV is met, Rev is met.

STORMWATER MANAGEMENT PRACTICE

LOT NUMBER	ADDRESS	DRY WELLS M-5 (NUMBER)	MICRO-BIORETENTION M-6 (NUMBER)
4	14148 HOWARDRD DAYTON MD 21036	4	1

BENCHMARKS

HOWARD COUNTY BENCHMARK 27CA (CONC. MON.)

N 575270.050 E 1307150.365

LOCATED 2.8' NORTH FROM EDGE OF PAVEMENT NORTHEAST OF INTERSECTION BETWEEN SAPLING WAY AND TRIADELPHIA RD.

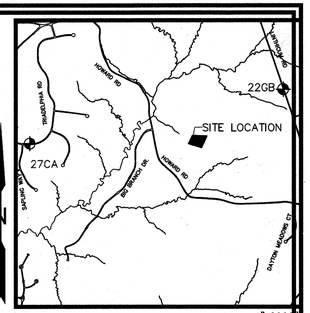
HOWARD COUNTY BENCHMARK 22GB

N 576784.171 E 1314248.096

LOCATED 1.25' WEST FROM EDGE OF PAVEMENT SOUTHWEST OF INTERSECTION BETWEEN MAC DR. AND LINTHICUM RD.

ADC MAP COORDINATE
4932-K1

THE WHOLE DISTURBED AREA IS HIGHLEY ERODIBLE SOIL.



1": 2000'

GENERAL NOTE:

1. PROJECT DESCRIPTION

CONSTRUCTION OF A NEW POOL ANEW GARAGE AND POOL HOUSE, PATIO AND INSTALLATION OF A BMP.THE TOTAL DISTURBED AREA DUE TO PROPOSED REDEVELOPMENT OF THE SITE WILL BE 40050 SF OR 0.919 ACRE.

2. EXISTING SITE CONDITIONS: THE SITE IS DEVELOPED WITH A SINGLE FAMILY 2-STORY DWELLING WITH ASPHALT DRIVEWAY. THE SITE INCLUDES NO TREES. THE TOPOGRAPHY OF THE SITE RANGES FROM 558 TO 524. THE DISTURBED AREA CONTAINS ONE DRAINAGE AREA WHICH DRAINS TO RIGHT OF WAY IN THE WEST OF THE LOT.

3. ADJACENT AREA: THE LOT IS AN INTERIOR LOT AND SURROUNDED BY SIMILAR SIZE SINGLE LOTS

4. OFFSITE AREAS:NO BORROW, WASTE, OR SURPLUS AREAS WILL BE USED.NO OFFSITE AND NEIGHBOR PROPERTY WILL BE DISTURBED DR PROPOSED TO GRADE. THE EXISTING DRIVEWAY ENTRANCE WILL BE USED

5. CRITICAL AREAS: THE SITE DOES NOT APPEAR TO HAVE ANY SERIOUS EROSION PROBLEM. NO CRITICAL SLOPES EXISTS PROPOSED ON THE SITE. THE SITE HAS GENTLE SLOPE THERE IS NOT ANY RIVER/CREEK OR UNDERGROUND DRAINAGE ACROSS THE LOT.

6. TO THE BEST OF THE OWNER'S KNOWLEDGE, THERE ARE NO BURIAL/CEMETERY LOCATIONS ON SITE.

7. THIS LOT IS NOT LOCATED IN THE HISTORIC DISTRICT AND NO HISTORIC STRUCTURE IS EXIST IN THIS LOT.

8. EROSION AND SEDIMENT CONTROL MEASURES

ALL SILTATION CONTROL MEASURES WILL BE INSTALLED ALONG PERIMETER OF DISTURBED AREA. PARTICULARLY LOW LAND AREA AS SHOWN ON THE GRADING PLAN IN PHASE I STAGE OF THE PROJECT. OWNER WILL SET UP PRE-CONSTRUCTION MEETING WITH THE COUNTY INSPECTOR 24 HOURS PRIOR TO THE START OF ANY CONSTRUCTION WORKS.

9. STORMWATER MANAGMENT IS ADDRESSES VIA INSTALLATION OF 3 DRYWALL (M-5) TO RECIVE RUNOFF FROM THE ROOF OF THE PROPOSED GARAGE AND A BIORETENTION WHICH RECIVE WATER FROM THE PROPOSE COVERED WALKWAY , POOL AND PATIO . A GRAVEL DIAPHRAGM AND 20' OF A GRASS STRIPS WITH 5%SLOPE HAVE BEEN PROVIDED AS TWO MEANS OF PRETREMENT FOR BIO-RETENTION PRACTICE, LEAF GUARD WILL BE INSTALLED IN THE NEW GUTTER AS PRETREATMENT FOR DRYWELL.

10. THIS PROJECT IS EXEMPT FROM THE REQUIRMENTS OF SECTION 16.124 OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS BECAUSE LOT 4 IS NOT UNDERGOING A RESUBDIVISION NOR REQUIRES A SITE DEVELOPMENT PLAN, SO NO NEW LANDSACAPING IS REQUIRED.

11. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKINGDAYS PRIOR TO THE START OF WORK.

12. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.

13. THE EXISTING TOPOGRAPHY IS TAKEN FROM FILD RUN TOPOGRAPHIC SURVEY WITH (2' CONTOUR INTERVALS PREPARED BY (AV SURVEYING LLC) DATED (2/10/2021). (OUTSIDE OF THE LOT IS TAKEN FROM COUNTY GIS)

14. 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 27CA AND WERE USED FOR THIS PROJECT.

15. TOTAL ESDV REQUIRED IS 1332.60 AND TOTAL ESDV PROVIDED IS 1624.

16. EXISTING UTILITIES ARE BASED ON PRIVATE UTILITY MARKER OR MISS UTILITY MARKS.

17. ANY DAMAGE TO THE COUNTY'S RIGHT-OF-WAY SHALL BE CORRECTED AT THE DEVELOPER'S EXPENSE.

18. PROJECT BACKGROUND INFORMATION: (UNLESS INCLUDED IN TITLE BLOCK):

SUBDIVISION NAME: STUDDARD PROPERTY, TAX MAP 27, GRID 6, PARCEL 31, AREA: 3.0558, LOT: 4 , ZONING: RC-DEO - RURAL RESIDENTIAL.PLAT NO. 21838

19. FOREST CONSERVATION WAS PREVIOUSLY SATISFIED WITH THE APPROVAL OF THE STUDDARD PROPERTY SUBDIVISION, PLAT NO. 21838".

20. THERE ARE NO WETLANDS, STREAMS, STEEP LAND OR REGULATED FORESTED AREAS ON LOT 4.

21. THIS SUBJECT PROPERTY IS WITHIN A RECORDED SUBDIVISION, LOT 4 OF THE STUDDARD PROPERTY SUBDIVISION. THE PROPOSED SITE IMPROVEMENTS/STRUCTURES MUST COMPLY WITH ALL ZONING REGULATIONS (THAT ARE CURRENTLY IN EFFECT) AND THE HEALTH DEPARTMENT AND THE SOIL CONSERVATION DISTRICT REQUIREMENTS.

STATE OF MARYLAND MOTI KC 57809 PROFESSIONAL ENGINEER 11/15/2022

SITE ANALYSIS	
ACREAGE OF THE GROSS AREA	3.0558
ACREAGE OF THE FLOODPLAIN	0
ACREAGE OF THE STEEP SLOPES	0
ACREAGE OF THE WETLAND	0
ACREAGE OF THE STREAM	0
ACREAGE OF FORESTED AREA	0
ACREAGE OF ERODIBLE SOIL	0.980877
ACREAGE OF LIMIT OF DISTURBANCE	0.980877
ACREAGE OF THE IMPERVIOUS AREA	0.20386
ACREAGE OF THE GREEN SPACE	0.77702

PRE DEVELOPMENT		
AREA	SF	ACRE
TOTAL DISTURBED AREA	42727	0.980877
PART OF ASPHALT	2188	0.050230
TOTAL	2188	0.050230
POST DEVELOPMENT		
TOTAL DISTURBED AREA	42727	0.980877
ASPHALT	2929	0.067241
NEW GARAGE AND POOL CHANGING AREA	2467	0.056635
POOL AND HOT TUB	900	0.020661
FIRE PIT AREA	368	0.008448
COVERED PORCH	549	0.012603
STAIRS PATIO AND WALLS	3855	0.088499
TOTAL	11068	0.254086
TOTAL EXTRA IMPERVIOUS AREA	8880	0.203857

INDEX	
PRE DEVELOPMENT/ EXISTING CONDITION	SECP 001
POST DEVELOPMENT/ PROPOSED CONDITION	SECP 002
STORMWATER MANAGEMENT CONCEPT DESIGN /BIO-RETENTION	SECP 003
STORMWATER MANAGEMENT CONCEPT DESIGN /BIO-RETENTION	SECP 004
STORMWATER MANAGEMENT CONCEPT DESIGN /DRYWELL	SECP 005
STORMWATER MANAGEMENT SYSTEM DETAIL	SECP 006

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 1/20/22

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 1/27/22

NO	DATE	DESCRIPTION	BY
03	9/13/21	COMMENTS	MK
02	8/24/21	COMMENTS	MK
01	7/27/21	COMMENTS	MK

REVISIONS

OWNER/ DEVELOPER
ANTHONY K PULSIRISAROTH AND CRYSTAL M PULSIRISAROTH
14148 HOWARD RD DAYTON MD 21036
PHONE NUMBER: (301) 362-9303

EQUAGEN® ENGINEERS
121 EDINBURGH SOUTH DR, SUITE 103
CARY, NC 27511
:703 594 7992
: INFO@EQUAGEN.COM

ARCILL ENGINEERING
1629 K ST. Suite 300
Washington D.C 2006
:703 594 7992
: ENG@ARCILL.COM

PRE DEVELOPMENT/ EXISTING CONDITION

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.57809, EXPIRATION DATE 10/06/2023

ENGINEER: MOTI KC

PE LICENSE # 57809

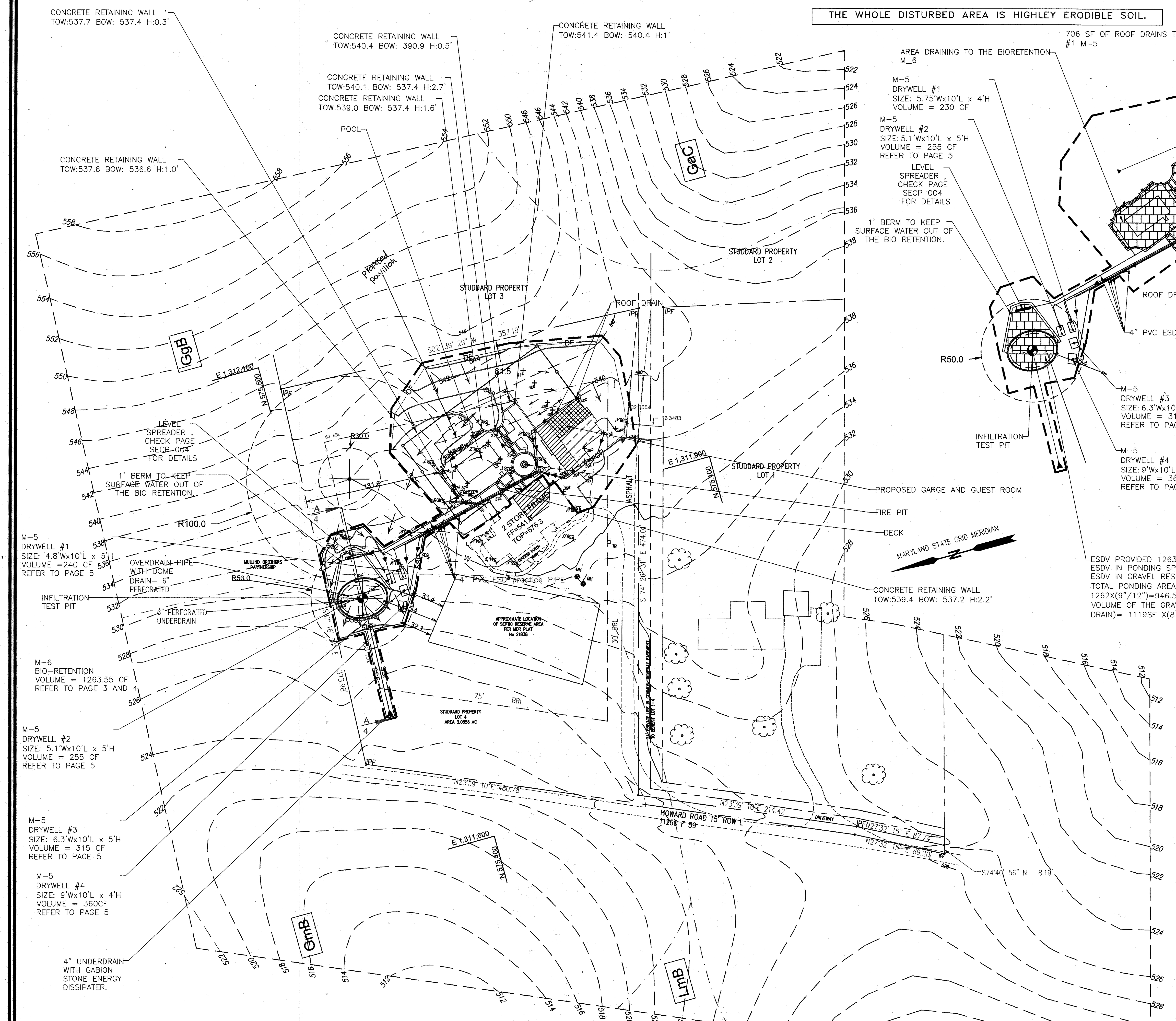
PROFESSIONAL SEAL

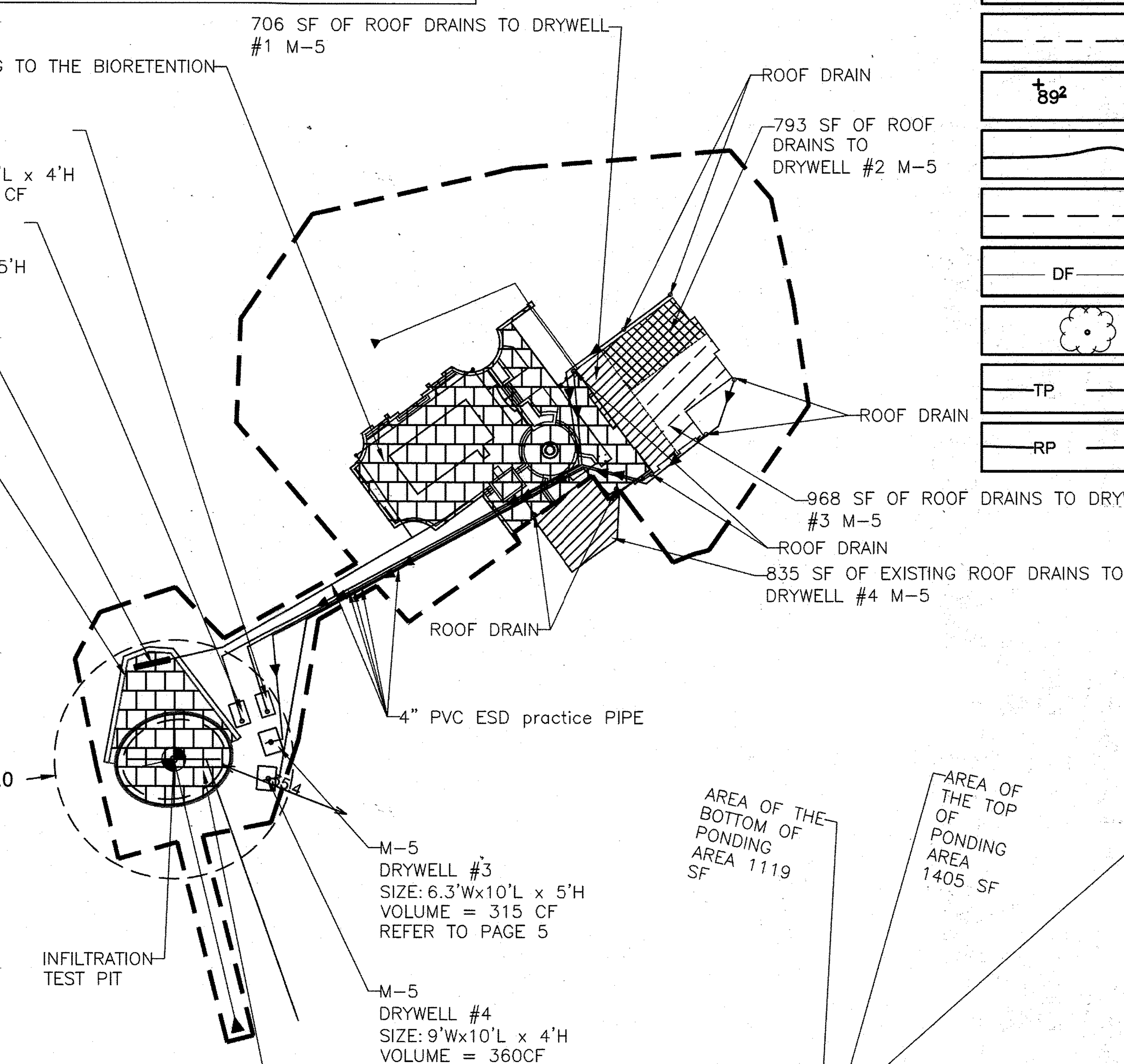
STATE OF MARYLAND MOTI KC 57809 PROFESSIONAL ENGINEER 11/15/2022
09.13.21

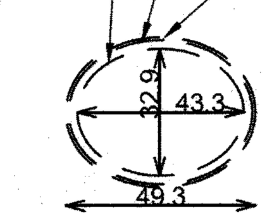
ADDRESS:	14148 HOWARDRD DAYTON 21036
PROJECT NAME:	STUDDARD PROPERTY, LOT 4
ZONING:	RC-DEO-RURALRESIDENTIAL
TAX MAP 27, GRID 6, PARCEL 3	
ELECTION DISTRICT: 5	
PARCEL ID 05593799	
DESIGNED BY:	AR
CHECKED BY:	MK
DATE:	7-5-2021
SCALE:	1":50'

SECP 001

THE WHOLE DISTURBED AREA IS HIGHLEY ERODIBLE SOIL.



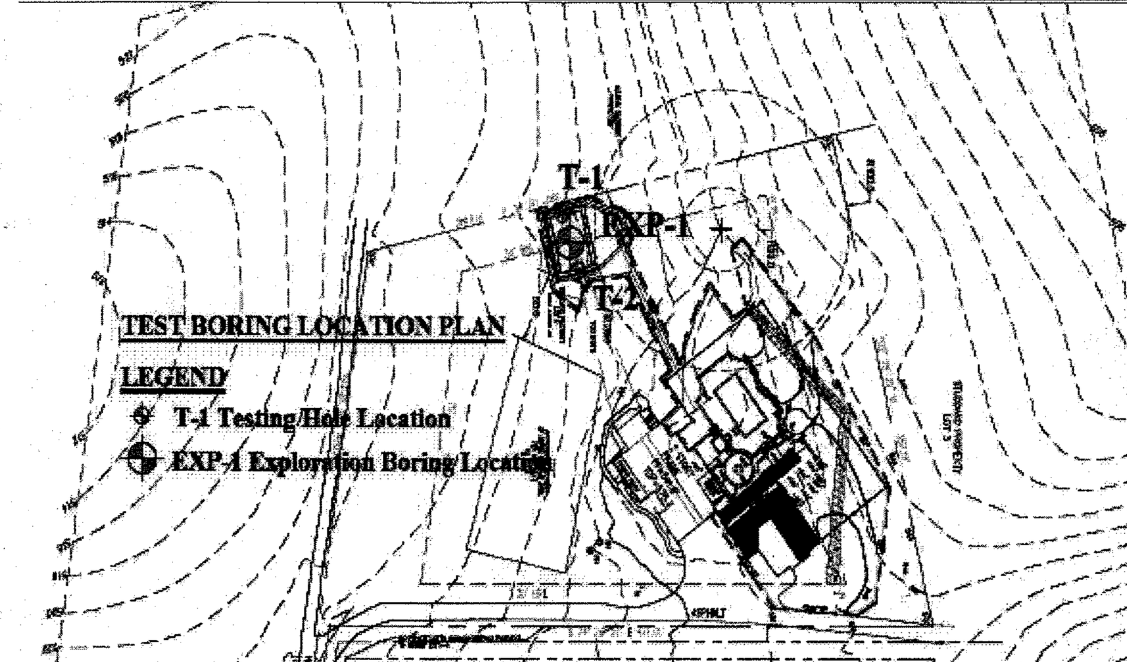




ESDV PROVIDED 1263.55
ESDV IN PONDING SPACE: 0.75X1263.55=920.6 CF
ESDV IN GRAVEL RESERVOIR : 0.25X1263.55=317.05 CF
TOTAL PONDING AREA VOLUME:(1119+1405)/2X (9"/12")= 1262X(9"/12")=946.5 CF>920.6 CF
VOLUME OF THE GRAVEL RESERVOIR(BELOW THE UNDER DRAIN)= 1119SF X(8.5"/12")X.4(VOID)=317.05

A-1	EARTH DIKE		SOIL TYPE LIMIT
	PROPERTY LINE		NEIGHBORING PROPERTY LINE
+89²	PROPOSED SPOT ELEVATION	CE	CONSTRUCTION ENTRANCE
	PROPOSED CONTOUR	SF	SILT FENCE
	EXISTING CONTOUR	SSF	SUPER SILT FENCE
DF	DIVERSION FENCE		CRITICAL ROOT ZONE
	EXISTING TREE		PROPOSED PLANTING TREE
TP	TREE PROTECTION,		STOCKPILE
RP	ROOT PRUNING		LIMIT OF DISTURBANCE

LOCATION:	Site Total			
SITE AREA (LIMITS OF DISTURBANCE):	0.992033976	ACRES	43213	SQ FT
DRAINAGE AREA:	0.992033976	ACRES	43213	SQ FT
SOILS	0	A		
	0.978	B		
	0.007	C		
	0.007	D		
Target RCN	55			
PROPOSED IMPERVIOUS AREA	0.254086318	ACRES		
%IMPERVIOUS	25.61	%		
Site Rv	0.28			
From Soil Data Tab Pe	1.6	inch		
Site Rev Required	0.01	acre-ft		
	262.64	cu ft		
or				
	0.26	Acres		
Qe	0.45	inches		
ESD targets				
Qe	0.45	inches		
Pe	1.6	inch		
ESDv Required	1616.25	cu ft		



For Rev 4
9/23/2022

NO	DATE	DESCRIPTION	BY
04	9/20/22	Adding pavillion	MK
03	9/13/21	COMMENTS	MK
02	8/24/21	COMMENTS	MK
01	7/27/21	COMMENTS	MK

REVISIONS

OWNER/ DEVELOPER
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Washington D.C 2006
:703 594 7992
: ENG@ARCILL.COM

POST DEVELOPMENT/ PROPOSED CONDITION

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.57809, EXPIRATION DATE 10/06/2023

ADDRESS: 14148 HOWARDRD DAYTON 21036

PROJECT NAME: STUDDARD PROPERTY, LOT 4

ZONING: RC-DEO-RURALRESIDENTIAL

ENGINEER: MOTI KC

TAX MAP 27, GRID 6, PARCEL 3

PE LICENSE # 57809

ELECTION DISTRICT: 5

PARCEL ID 05593799

PROFESSIONAL SEAL

STATE OF MARYLAND MOTI KC 57809 PROFESSIONAL ENGINEER

DESIGNED BY:	AR
CHECKED BY:	MK
DATE:	7-5-2021
SCALE:	1":50'

SECP 002

HAND AUGER LOG
HAND AUGER NO.: EXP-1

PROJECT: 14148 Howard Road, Dayton, Maryland	PROJECT NO.: E21033
CLIENT: Crystal & Anthony Pulsirisaroth	DATE: 5-19-2021
LOCATION: See Test Boring Location Plan	ELEV.: 530
EXCAVATION METHOD: Hand Augers	LOGGED BY: M. Abu-Kassem, PE
DEPTH TO WATER: Dry	

Elevation/DEPTH	USCS	DESCRIPTION
530 — 0		4 inches of topsoil
	ML	Brown sandy silt (ML) with mica- moist
527.5 — 2.5	SM	Brown, gray brown & light brown micaceous silty sand (SM) - moist
525 — 5		
522.5 — 7.5		
520 — 10		Boring terminated at 11 feet and backfilled
517.5 — 12.5		

Notes:

Geo Design & Engineering, Inc.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	1/27/22 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT	1/27/22 DATE

0 50 100
SCALE:1":50'

MAP UNIT SYMBOL	MAP UNIT NAME	RATING	K
LMB	LEGORE-MONTALTO SILT LOAMS, 3 TO 8 PERCENT SLOPES	C	0.64
GMB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C/D	0.55
GGB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	0.37
GAC	GAILA LOAM, 8 TO 15 PERCENT SLOPES	B	0.55

B.3.B Specifications for Bioretention

1. Material Specifications

The allowable materials to be used in bioretention area are detailed in Table B.3.2.

2. 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 bioretention area 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:

pH range	5.2 - 7.0
organic matter	1.5 - 4% (by weight)
magnesium	35 lb./ac
phosphorus (phosphate - P_2O_5	75 lb./ac
potassium (potash - K_2O)	85 lb./ac
soluble salts	not to exceed 500 ppm

All bioretention areas shall have a minimum of one test. Each test shall consist of both the standard soil test for pH, phosphorus, and potassium 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 top soil was excavated.

Since different labs calibrate their testing equipment differently, all testing results shall come from the same testing facility.

Should the pH fall out of the acceptable range, it may be modified (higher) with lime or (lower) with iron sulfate plus sulfur.

3. Compaction

It is very important to minimize compaction of both the base of the bioretention area and the required backfill. When possible, use excavation hoes to remove original soil. If bioretention

areas 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 bioretention areas can be found in Appendix A, Section A.2.3.

5. Plant Installation

Mulch should be placed to a uniform thickness of 2" to 3". Shredded 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.

Root stock of the plant material shall be kept moist during transport and on-site storage. The plant root ball should be planted so 1/8" 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 ball. 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 fertilizers 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 are to be placed on a 3'-0" wide section of filter cloth. Pipe is placed next, followed by the gravel bedding. The ends of underdrain pipes not terminating in an observation well shall be capped.

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

The bioretention facility may not be constructed until all contributing drainage area has been stabilized.

Table B.3.2 Materials Specifications for Bioretention

Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
planting soil [2.5' to 4' deep]	sand 35 - 60% silt 30 - 55% clay 10 - 25%	n/a	USDA soil types loamy sand, sandy loam or loam
mulch	shredded hardwood		aged 6 *months, minimum*
pea gravel diaphragm and curtain drain	pea gravel: ASTM-D-448 ornamental stone: washed cobbles	pea gravel: No. 6 stone: 2" to 5"	
geotextile	Class "C" - apparent opening size (ASTM-D-4751), grab tensile strength (ASTM-D-4632), puncture resistance (ASTM-D-4833)	n/a	for use as necessary beneath underdrains only
underdrain gravel	AASHTO M-43	0.375" to 0.75"	
underdrain piping	F 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes
poured in place concrete (if required)	MSHA Mix No. 3: f'c = 3500 psi @ 28 days, normal weight, air-entrained; reinforcing to meet ASTM-615-60	n/a	on-site testing of poured-in-place concrete required: 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) *not using previously approved State or local standards* requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 350.R/89; vertical loading [H-10 or H-20]; allowable horizontal loading (based on soil pressures); and analysis of potential cracking
sand [1' deep]	AASHTO-M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.

MICRO-BIORETENTION:

LOCATION:	MICRO-BIORETENTION			
SITE AREA:	0.992033976	ACRES	43213	SQ.FT
DRAINAGE AREA:	0.162350781	ACRES	7072.	SQ.FT
SOILS	0	A		
	0.148	B		
	0.007	C		
	0.007	D		
Target RCN	57			
PROPOSED IMPERVIOUS AREA	0.130211203	ACRES		
%IMPERVIOUS	80.20	%		
From Soil Data Tab Pe	1.6	inch		
Qe	1.23	inches		
ESD targets	1184.25			
Pe that must be captured	2.60	inch		
Surface Area Required	1227.46	cu ft		

MICRO-BIORETENTION:

STORM WATER MANAGEMENT					
LOCATION:	MICRO-BIORETENTION				
SITE AREA:	0.992033976	ACRES	43213	SQ.FT	
DRAINAGE AREA:	0.162350781	ACRES	7072.	SQ.FT	
SOILS	0	A			
	0.162350781	B			
Target RCN	57				
PROPOSED IMPERVIOUS AREA	0.130211203	ACRES			
%IMPERVIOUS	80.20	%			
ESDv MAX (Pe)	2.6	inch			
ESDV MIN (Pe)	1	inch			
Qe Max	2.01	inches			
Qe Min	0.77	inches			
Re- Treated	0.00 118.27	acre-ft cu ft			
ESDv STORAGE MAX	1182.65	CU FT			
ESDv STORAGE MIN	454.87	CU FT			
Bioretention Width	32.9	FT			
Bioretention Length	43.3	FT			
Top of Ponding Area	1405.00	SQ.FT			
Bottom of Ponding Area	1119.00	SQ.FT			
ESDv in Ponding Area (ft³)	920.5986106	CU FT			
ESDv in Gravel Resevoir	900.8662035	CU FT			
Total Ponding Area Volume	946.5	CU FT			
Total Gravel Area Volume (Below Underdrain)	317.05	CU FT			
TOTAL STORAGE	1263.55	CU FT			

CONSTRUCTION CRITERIA:

THE FOLLOWING ITEMS SHOULD BE ADDRESSED DURING CONSTRUCTION OF PROJECTS WITH MICRO– BIORETENTION:

- ►EROSION AND SEDIMENT CONTROL: MICRO–BIORETENTION PRACTICES SHOULD NOT BE CONSTRUCTED UNTIL THE CONTRIBUTING DRAINAGE AREA IS STABILIZED. IF THIS IS IMPRACTICAL, RUNOFF FROM DISTURBED AREAS SHALL BE DIVERTED AWAY AND NO SEDIMENT CONTROL PRACTICES SHALL BE USED NEAR THE PROPOSED LOCATION.
- ►SOIL COMPACTION: EXCAVATION SHOULD BE CONDUCTED IN DRY CONDITIONS WITH EQUIPMENT LOCATED OUTSIDE OF THE PRACTICE TO MINIMIZE BOTTOM AND SIDEWALL COMPACTION. ONLY LIGHTWEIGHT, LOW GROUND–CONTACT EQUIPMENT SHOULD BE USED WITHIN MICRO–BIORETENTION PRACTICES AND THE BOTTOM SCARIFIED BEFORE INSTALLING UNDERDRAINS AND FILTERING MEDIA.
- ►UNDERDRAIN INSTALLATION: GRAVEL FOR THE UNDERDRAIN SYSTEM SHOULD BE CLEAN, WASHED, AND FREE OF FINES. UNDERDRAIN PIPES SHOULD BE CHECKED TO ENSURE THAT BOTH THE MATERIAL AND PERFORATIONS MEET SPECIFICATIONS. THE UPSTREAM ENDS OF THE UNDERDRAIN PIPE SHOULD BE CAPPED PRIOR TO INSTALLATION.
- ►FILTER MEDIA INSTALLATION: BIORETENTION SOILS MAY BE MIXED ON–SITE BEFORE PLACEMENT. HOWEVER, SOILS SHOULD NOT BE PLACED UNDER SATURATED CONDITIONS. THE FILTER MEDIA SHOULD BE PLACED AND GRADED USING EXCAVATORS OR BACKHOES OPERATING ADJACENT TO THE PRACTICE AND BE PLACED IN HORIZONTAL LAYERS (12 INCHES PER LIFT MAXIMUM). PROPER COMPACTION OF THE MEDIA WILL OCCUR NATURALLY. SPRAYING OR SPRINKLING WATER ON EACH LIFT UNTIL SATURATED MAY QUICKEN SETTLING TIMES.
- ►LANDSCAPE INSTALLATION: THE OPTIMUM PLANTING TIME IS DURING THE FALL. SPRING PLANTING IS ALSO ACCEPTABLE BUT MAY REQUIRE WATERING.

INSPECTION:

- ►REGULAR INSPECTIONS SHALL BE MADE DURING THE FOLLOWING STAGES OF CONSTRUCTION:
  - O DURING EXCAVATION TO SUBGRADE AND PLACEMENT AND BACKFILL OF UNDERDRAIN SYSTEMS.
  - O DURING PLACEMENT OF FILTER MEDIA.
  - O DURING CONSTRUCTION OF APPURTENANT CONVEYANCE.
  - O UPON COMPLETION OF FINAL GRADING AND ESTABLISHMENT OF PERMANENT STABILIZATION.

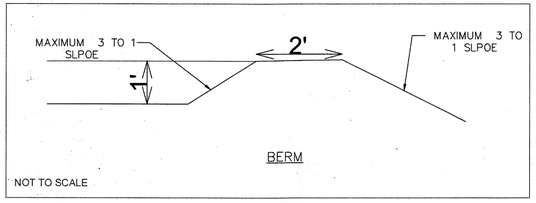
MAINTENANCE CRITERIA:

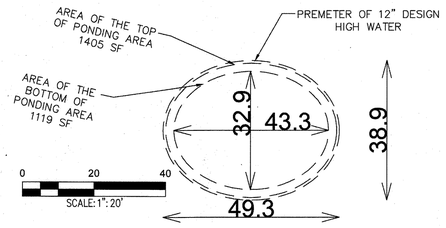
THE FOLLOWING ITEMS SHOULD BE ADDRESSED TO ENSURE PROPER MAINTENANCE AND LONG–TERM PERFORMANCE OF MICRO–BIORETENTION PRACTICES:

- ►PRIVATELY OWNED PRACTICES SHALL HAVE A MAINTENANCE PLAN AND SHALL BE PROTECTED BY EASEMENT, DEED RESTRICTION, ORDINANCE, OR OTHER LEGAL MEASURES PREVENTING ITS NEGLECT, ADVERSE ALTERATION, AND REMOVAL.
- ►THE TOP FEW INCHES OF FILTER MEDIA SHOULD BE REMOVED AND REPLACED WHEN WATER PONDS FOR MORE THAN 48 HOURS. SILTS AND SEDIMENT SHOULD BE REMOVED FROM THE SURFACE OF THE FILTER BED WHEN ACCUMULATION EXCEEDS ONE INCH.
- ►WHERE PRACTICES ARE USED TO TREAT AREAS WITH HIGHER CONCENTRATIONS OF HEAVY METALS (E.G., PARKING LOTS, ROADS), MULCH SHOULD BE REPLACED ANNUALLY. OTHERWISE, THE TOP TWO TO THREE INCHES SHOULD BE REPLACED AS NECESSARY.
- ►OCCASIONAL PRUNING AND REPLACEMENT OF DEAD VEGETATION IS NECESSARY. IF SPECIFIC PLANTS ARE NOT SURVIVING, MORE APPROPRIATE SPECIES SHOULD BE USED. WATERING MAY BE REQUIRED DURING PROLONGED DRY PERIODS.

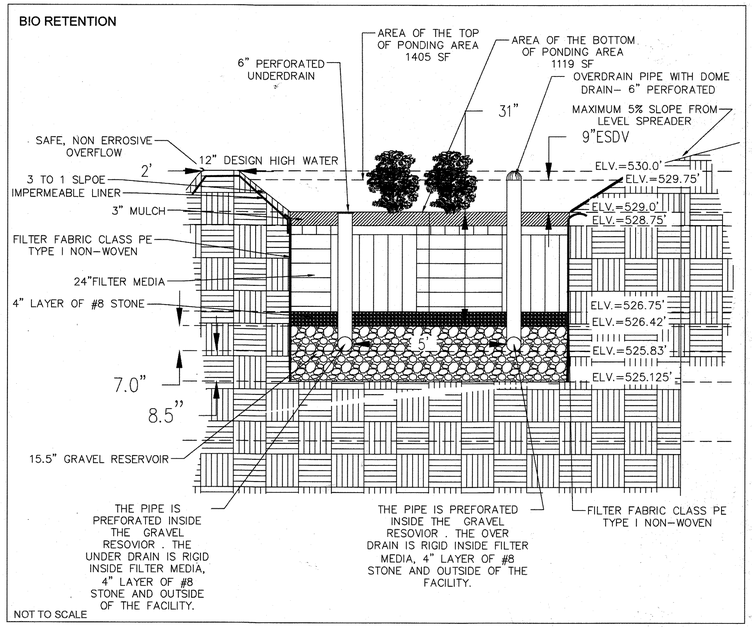
BIORETENTION CONSTRUCTION NOTES:

- UNDERDRAIN AND OVER DRAIN SHALL BE PARALELL AND SHOULD BE INSTALLED 5' AWAY.
- UNDERDRAIN AND OVER DRAIN ARE 6" PVC PREFRATED INSIDE THE GRAVEL RESOVIOR AND RIGID INSIDE THE FILTER MEDIA, 4" LAYER OF #8 STONE AND OUTSIDE OF THE FACILITY.
- INSTALL IMPERMEABLE LINER WHER THE EMBANKMENT IS IN FILL.(REFER TO PAGE 6 FOR DETAIL)





BIO RETENTION



APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	1/27/22 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT	1/27/22 DATE

ESDV PROVIDED 1263.55
ESDV IN PONDING SPACE: 0.75X1263.55=920.6 CF
ESDV IN GRAVEL RESERVOIR : 0.25X1263.55=317.05 CF
TOTAL PONDING AREA VOLUME:(1119+1405)/2X (9"/12")= 1262X(9"/12")=946.5 CF>920.6 CF
VOLUME OF THE GRAVEL RESERVOIR(BELOW THE UNDER DRAIN)= 1119SF X(8.5"/12")X.4(VOID)=317.05

NO	DATE	DESCRIPTION	BY
03	9/13/21	COMMENTS	MK
02	8/24/21	COMMENTS	MK
01	7/27/21	COMMENTS	MK

REVISIONS

OWNER/ DEVELOPER
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STORMWATER MANAGEMENT CONCEPT DESIGN
/BIO–RETENTION

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.57809, EXPIRATION DATE 10/06/2023

ENGINEER: MOTI KC

PE LICENSE # 57809

PROFESSIONAL SEAL

STATE OF MARYLAND · MOTI KC · 57809 · PROFESSIONAL ENGINEER — 11/5/2021

ADDRESS:
14148 HOWARDRD
DAYTON 21036

PROJECT NAME:
STUDDARD PROPERTY, LOT 4

ZONING:
RC–DEO–RURALRESIDENTIAL

TAX MAP 27, GRID 6, PARCEL 3

ELECTION DISTRICT: 5

PARCEL ID 05593799

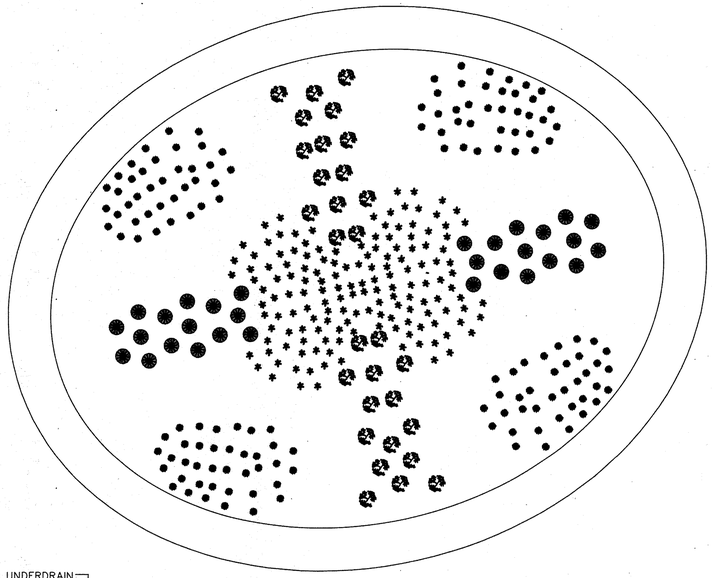
DESIGNED BY:	AR
CHECKED BY:	MK
DATE:	7–5–2021
SCALE:	AS SHOWN

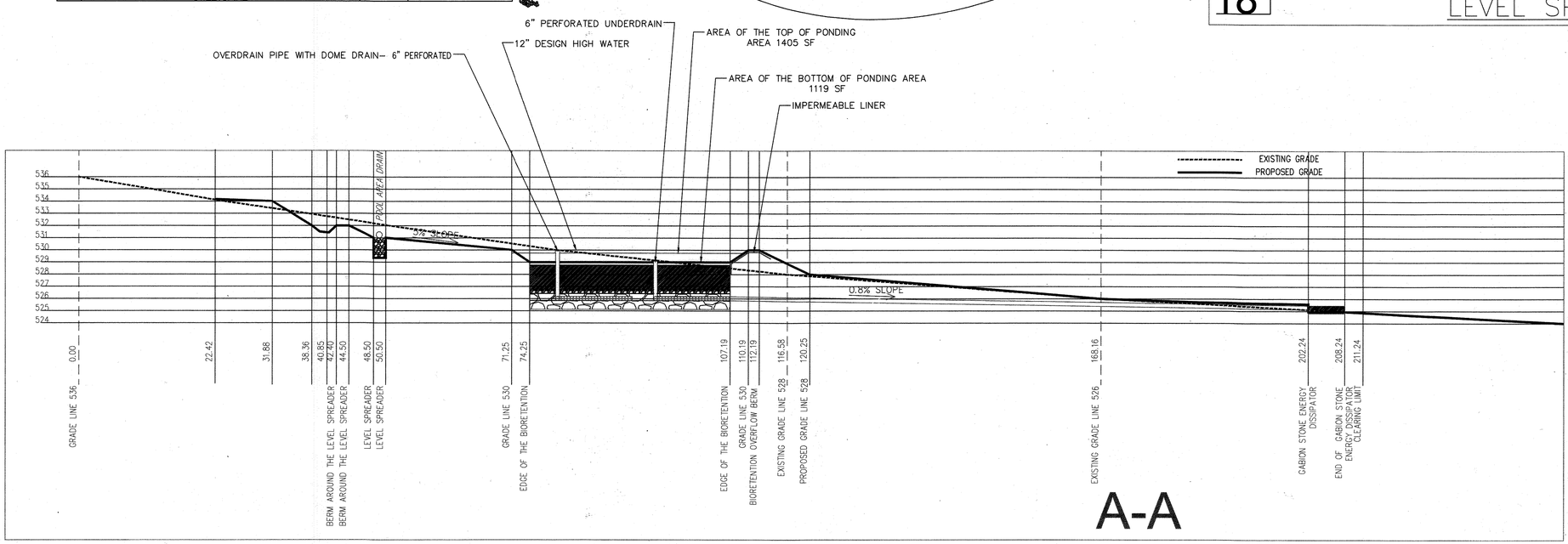
SECP 003

Table A.3 Planting Soil Characteristics
(Adapted from EQR, 1996; ETAB, 1993)

Parameter	Value
pH range	5.2 to 7.00
Organic matter	1.5 to 4.0% (by weight)
Magnesium	35 lbs. per acre, minimum
Phosphorus (phosphate - P_2O_5)	75 lbs. per acre, minimum
Potassium (potash - K_2O)	85 lbs. per acre, minimum
Soluble salts	≤ 500 ppm
Clay	10 to 25%
Silt	30 to 55%
Sand	35 to 60%

PLANT LIST PLANTER BOX #1			
	NAME	NUMBER	CONTAINER MINIMUM SIZE
1	PANICUM VIRGATUM –SWITCH GRASS	150	1–QUARTE
2	ILEX GLABRA – INKBERRY	30	3 GALLON
3	EUPATORIUM DUBIUM –JOE–PYE WEED	150	1–QUARTE
4	ITEA VIRGINIANA (CHOOSE A DWARF) –VIRGINIA SWEETSPIRE	30	3 GALLON





A-A

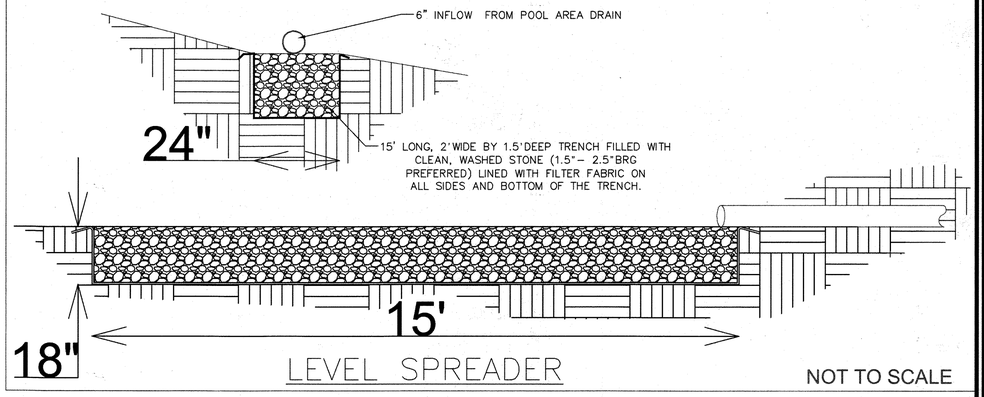
0 10 20
HORIZANTAL SCALE:1":10'

0 5 10
VERTICAL SCALE:1":5'

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

- 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.
- THE OWNER SHALL PERFORM A PLANT IN THE SPRING AND IN THE FALL OF EACH YEAR. DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, REPLACE DEAD PLANT MATERIAL WITH ACCEPTABLE REPLACEMENT PLANT MATERIAL, TREAT DISEASED TREES AND SHRUBS, AND REPLACE ALL DEFICIENT STAKES AND WIRES.
- 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.
- THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.

LEVEL SPREADER: 2' W X 18" D X 15' L



NOT TO SCALE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 1/27/22

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 1/27/22

NO	DATE	DESCRIPTION	BY
03	8/13/21	COMMENTS	MK
02	8/24/21	COMMENTS	MK
01	7/27/21	COMMENTS	MK

REVISIONS

OWNER/ DEVELOPER
ANTHONY K PULSIRISAROTH AND CRYSTAL M PULSIRISAROTH
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STORMWATER MANAGEMENT CONCEPT DESIGN /BIO–RETENTION PLANTING

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ENGINEER: MOTI KC

PE LICENSE # 57809

PROFESSIONAL SEAL

STATE OF MARYLAND · MOTI K. CHETTRI · 37809 · PROFESSIONAL ENGINEER — 1/5/2022

ADDRESS: 14148 HOWARDRD DAYTON 21036

PROJECT NAME: STUDDARD PROPERTY, LOT 4

ZONING: RC–DEO–RURALRESIDENTIAL

TAX MAP 27, GRID 6, PARCEL 3

ELECTION DISTRICT: 5

PARCEL ID 05593799

DESIGNED BY:	AR
CHECKED BY:	MK
DATE:	7–5–2021
SCALE:	AS SHOWN

SECP 004

Drywell General note

1. HEAVY EQUIPMENT AND TRAFFIC SHALL BE RESTRICTED FROM TRAVELING OVER THE PROPOSED LOCATION OF THE DRYWELL TO MINIMIZE COMPACTION OF THE SOIL.

2. EXCAVATE THE DRYWELL TO THE DESIGN DIMENSIONS. EXCAVATED MATERIALS SHALL BE PLACED AWAY FROM THE TRENCH SIDES TO ENHANCE TRENCH WALL STABILITY. LARGE TREE ROOTS MUST BE TRIMMED FLUSH WITH THE TRENCH SIDES IN ORDER TO PREVENT FABRIC PUNCTURING OR TEARING OF THE FILTER FABRIC DURING SUBSEQUENT INSTALLATION PROCEDURES. THE SIDE WALLS OF THE TRENCH SHALL BE ROUGHENED WHERE SHEARED AND SEALED BY HEAVY EQUIPMENT.

3. A CLASS "C" GEOTEXTILE OR BETTER (SEE SECTION 24.0, MATERIAL SPECIFICATIONS, 1994 STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, MDE, 1994) SHALL INTERFACE BETWEEN THE TRENCH SIDE WALLS AND BETWEEN THE STONE RESERVOIR AND GRAVEL FILTER LAYERS. A PARTIAL LIST OF NON-WOVEN FILTER FABRICS THAT MEET THE CLASS "C" CRITERIA FOLLOWS. ANY ALTERNATIVE FILTER FABRIC MUST BE APPROVED BY THE PLAN APPROVAL AUTHORITY.

AMOCO 4552 CARTHAGE FX-80S

GEOLON N70 MIRAFI 180-N

WEBTEC N07

THE WIDTH OF THE GEOTEXTILE MUST INCLUDE SUFFICIENT MATERIAL TO CONFORM TO TRENCH PERIMETER IRREGULARITIES AND FOR A 6-INCH MINIMUM TOP OVERLAP. THE FILTER FABRIC SHALL BE TUCKED UNDER THE SAND LAYER ON THE BOTTOM OF THE DRYWELL FOR A DISTANCE OF 6 TO 12 INCHES. STONES OR OTHER ANCHORING OBJECTS SHOULD BE PLACED ON THE FABRIC AT THE EDGE OF THE

TRENCH TO KEEP THE TRENCH OPEN DURING WINDY PERIODS. WHEN OVERLAPS ARE REQUIRED BETWEEN ROLLS, THE UPHILL ROLL SHOULD LAP A MINIMUM OF 2 FEET OVER THE DOWNHILL ROLL IN ORDER TO PROVIDE A SHINGLED EFFECT.

4. IF A 12 INCH SAND FILTER LAYER IS PLACED ON THE BOTTOM OF THE DRYWELL, THE SAND FOR THE DRYWELL SHALL BE WASHED AND MEET AASHTO-M-43, SIZE NO. 9 OR NO. 10. ANY ALTERNATIVE SAND GRADATION MUST BE APPROVED BY THE PLAN APPROVAL AUTHORITY.

5. THE STONE AGGREGATE SHOULD BE PLACED IN A MAXIMUM LOOSE LIFT THICKNESS OF 12 INCHES. THE GRAVEL (ROUNDED "BANK RUN" GRAVEL IS PREFERRED) FOR THE DRYWELL SHALL BE WASHED AND MEET ONE OF THE FOLLOWING AASHTO-M-43, SIZE NO. 2 OR NO. 3.

6. FOLLOWING THE STONE AGGREGATE PLACEMENT, THE FILTER FABRIC SHALL BE FOLDED OVER THE STONE AGGREGATE TO FORM A 6-INCH MINIMUM LONGITUDINAL LAP. THE DESIRED FILL SOIL OR STONE AGGREGATE SHALL BE PLACED OVER THE LAP AT SUFFICIENT INTERVALS TO MAINTAIN THE LAP DURING

SUBSEQUENT BACKFILLING.

7. CARE SHALL BE EXERCISED TO PREVENT NATURAL OR FILL SOILS FROM INTERMIXING WITH THE STONE AGGREGATE. ALL CONTAMINATED STONE AGGREGATE SHALL BE REMOVED AND REPLACED WITH UNCONTAMINATED STONE AGGREGATE. VOIDS MAY OCCUR BETWEEN THE FABRIC AND THE EXCAVATION SIDES SHALL BE AVOIDED. REMOVING BOULDERS OR OTHER OBSTACLES FROM THE TRENCH WALLS IS ONE SOURCE OF SUCH VOIDS. THEREFORE, NATURAL SOILS SHOULD BE PLACED IN THESE VOIDS AT THE MOST CONVENIENT TIME DURING CONSTRUCTION TO ENSURE FABRIC CONFORMITY TO THE EXCAVATION SIDES.

8. VERTICALLY EXCAVATED WALLS MAY BE DIFFICULT TO MAINTAIN IN AREAS WHERE SOIL MOISTURE IS HIGH OR WHERE SOFT COHESIVE OR COHESIONLESS SOILS ARE DOMINANT. THESE CONDITIONS MAY REQUIRE LAYING BACK OF THE SIDE SLOPES TO MAINTAIN STABILITY.

9. PVC DISTRIBUTION PIPES SHALL BE SCHEDULE 40 AND MEET ASTM-D-1785. ALL FITTINGS SHALL MEET ASTM-D-2729. PERFORATIONS SHALL BE 3/8 INCH IN DIAMETER. A PERFORATED PIPE SHALL BE PROVIDED ONLY WITHIN THE DRYWELL AND SHALL TERMINATE 1 FOOT SHORT OF THE DRYWELL WALL. THE END OF THE PVC PIPE SHALL BE CAPPED. NOTE: PVC PIPE WITH A WALL THICKNESS CLASSIFICATION OF SDR-35 MEETING ASTM-D-3034 IS AN ACCEPTABLE SUBSTITUTE FOR THE SCHEDULE 40 PIPE.

10. THE OBSERVATION WELL IS TO CONSIST OF 6-INCH DIAMETER PERFORATED PVC SCHEDULE 40 PIPE (M 278 OR F758, TYPE PS 28) WITH A CAP SET 6 INCHES ABOVE GROUND LEVEL AND IS TO BE LOCATED NEAR THE LONGITUDINAL CENTER OF THE DRYWELL. THE PIPE SHALL HAVE A PLASTIC COLLAR WITH RIBS TO PREVENT ROTATION WHEN REMOVING THE CAP. THE SCREW TOP LID SHALL BE A CLEANOUT WITH A LOCKING MECHANISM OR SPECIAL BOLT TO DISCOURAGE VANDALISM. THE DEPTH TO THE INVERT SHALL BE MARKED ON THE LID. THE PIPE SHALL BE PLACED VERTICALLY WITHIN THE GRAVEL PORTION OF THE DRYWELL AND A CAP PROVIDED AT THE BOTTOM OF THE PIPE. THE BOTTOM OF THE CAP SHALL REST ON THE DRYWELL BOTTOM.

11. CORRUGATED METAL DISTRIBUTION PIPES SHALL CONFORM TO AASHTO-M-36 AND SHALL BE ALUMINIZED IN ACCORDANCE WITH AASHTO-M-274. ALUMINIZED PIPE IN CONTACT WITH CONCRETE SHALL BE COATED WITH AN INERT COMPOUND CAPABLE OF PREVENTING THE DELETERIOUS EFFECT OF THE ALUMINUM ON THE CONCRETE. PERFORATED DISTRIBUTION PIPES SHALL CONFORM TO AASHTO-M-36, CLASS 2 AND SHALL BE PROVIDED ONLY WITHIN THE DRYWELL AND SHALL TERMINATE 1 FOOT SHORT OF THE DRYWELL WALL. AN ALUMINIZED METAL PLATE SHALL BE WELDED TO THE END OF THE PIPE.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED DRY WELLS (M-5)]

a. THE OWNER SHALL INSPECT THE MONITORING WELLS AND STRUCTURES ON A QUARTERLY BASIS AND AFTER EVERY HEAVY STORM EVENT.
b. THE OWNER SHALL RECORD THE WATER LEVELS AND SEDIMENT BUILD UP IN THE MONITORING WELLS OVER A PERIOD OF SEVERAL DAYS TO INSURE TRENCH DRAINAGE.
c. THE OWNER SHALL MAINTAIN A LOG BOOK TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
d. WHEN THE FACILITY BECOMES CLOGGED SO THAT IT DOES NOT DRAIN DOWN WITHIN A SEVENTY-TWO (72) HOUR TIME PERIOD, CORRECTIVE ACTION SHALL BE TAKEN.
e. THE MAINTENANCE LOG BOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
f. ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION FACILITY HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.

DRYWELL 1:

LOCATION:	DRY WELL 1			
SITE AREA:	0.992033976	ACRES	43213	SQ.FT
DRAINAGE AREA:	0.01820753	ACRES	706	SQ.FT
SOILS	0	A		
	0.167	B		
	0	C		
		D		
Target RCN	55			
PROPOSED IMPERVIOUS AREA	0.01620753	ACRES		
%IMPERVIOUS	100.00	%		
From Soil Data Tab Pe	1.6	Inch		
Qa	2.52	Inches		
ESD targets				
Qa	1.52	Inches		
Pe	1.6	Inch		
ESDv	89.43	cu ft		
ESDv - with Porosity	223.57	cu ft		

DRYWELL 2:

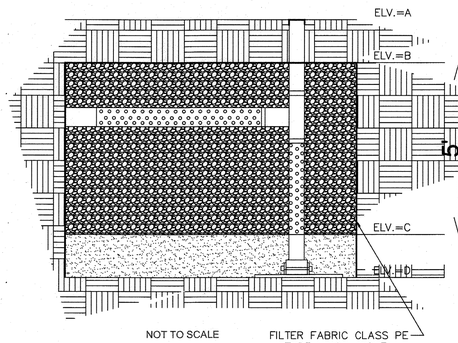
LOCATION:	DRY WELL 2			
SITE AREA:	0.992033976	ACRES	43213	SQ.FT
DRAINAGE AREA:	0.018204775	ACRES	793	SQ.FT
SOILS	0	A		
	0.018204775	B		
	0	C		
		D		
Target RCN	55			
PROPOSED IMPERVIOUS AREA	0.018204775	ACRES		
%IMPERVIOUS	100.00	%		
From Soil Data Tab Pe	1.6	Inch		
Qa	2.52	Inches		
ESD targets				
Qa	1.52	Inches		
Pe	1.6	Inch		
ESDv	100.45	cu ft		
ESDv - w/ Porosity	251.12	cu ft		

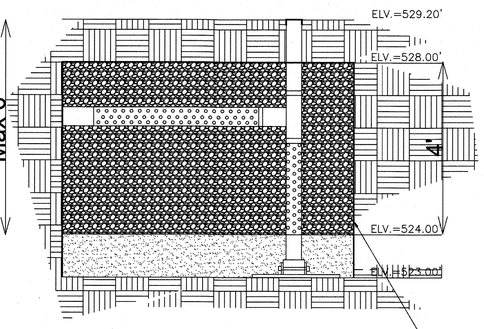
DRYWELL 3:

LOCATION:	DRY WELL 3			
SITE AREA:	0.99	ACRES	43213	SQ.FT
DRAINAGE AREA:	0.02	ACRES	968	SQ.FT
SOILS	0.00	A		
	0.02	B		
	0.00	C		
	0.00	D		
Target RCN	55.00			
PROPOSED IMPERVIOUS AREA	0.02	ACRES		
%IMPERVIOUS	100.00	%		
From Soil Data Tab Pe	1.60	Inch		
Qa	1.52	Inches		
ESD targets				
Qa	1.52	Inches		
Pe	1.60	Inch		
ESDv - Required	122.61	cu ft		
ESDv - w/ Porosity	306.53	cu ft		

DRY WELL 4:

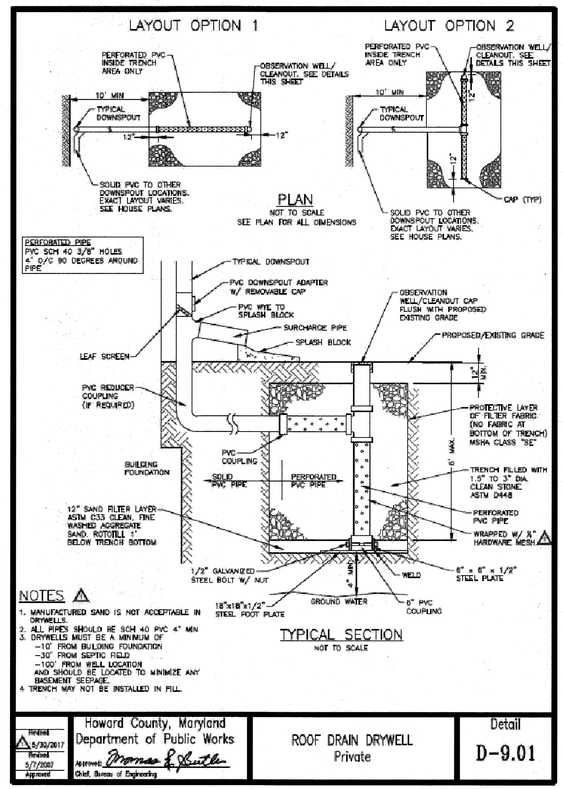
LOCATION:	DRY WELL 4			
SITE AREA:	0.99	ACRES	43213	SQ.FT
DRAINAGE AREA:	0.019	ACRES	835	SQ.FT
SOILS	0.00	A		
	0.02	B		
	0.00	C		
	0.00	D		
Target RCN	55.00			
PROPOSED IMPERVIOUS AREA	0.019	ACRES		
%IMPERVIOUS	100.00	%		
From Soil Data Tab Pe	1.60	Inch		
Qa	1.52	Inches		
ESD targets				
Qa	1.52	Inches		
Pe	1.60	Inch		
ESDv - Required	105.77	cu ft		
ESDv - w/ Porosity	264.42	cu ft		





DRYWALL 1,2,3			
IOCATION	DRYWELL #1	DRYWELL #2	DRYWELL #3
A	530.5	531.0	530.2
B	529.5	530.0	529.2
C	524.5	525.0	524.2
D	523.5	524.0	523.2

Drywell 4



Revised 5/30/2017	Howard County, Maryland Department of Public Works	ROOF DRAIN DRYWELL Private	Detail D-9.01
Revised 5/7/2020 Approved	Administrator: Thomas E. Butler, Chief, Bureau of Engineering		

DRY WELL 1:

STORM WATER MANAGEMENT				
LOCATION:	DRY WELL 1			
SITE AREA:	0.992033976	ACRES	43213	SQ FT
DRAINAGE AREA:	0.01820753	ACRES	706	SQ FT
SOILS	0	A		
	0.167	B		
Target RCN	55			
PROPOSED IMPERVIOUS AREA	0.01620753	ACRES		
%IMPERVIOUS	100.00	%		
ESDv MAX (Pe)	2.6	Inch		
ESDV MIN(Pe)	1	Inch		
Qe Max	2.47	Inches		
Qe Min	0.95	Inches		
ESDv STORAGE MAX	145.92	CU FT		
ESDv STORAGE MIN	55.89	CU FT		
Rev.Acres Treated	0.02			
DRY WELL LENGTH	6	FT		
DRY WELL WIDTH	8.00	FT		
ESDv DESIGN	48.00	SQ.FT		
PONDING DEPTH	0	FT		
MEDIA DEPTH (POROSITY VALUE .4)	5	FT		
TOTAL STORAGE	240.00	CU FT		

DRY WELL 2:

STORM WATER MANAGEMENT				
LOCATION:	DRY WELL 2			
SITE AREA:	0.992033976	ACRES	43213	SQ FT
DRAINAGE AREA:	0.018204775	ACRES	793	SQ FT
SOILS	0	A		
	0.018204775	B		
Target RCN	55			
PROPOSED IMPERVIOUS AREA	0.018204775	ACRES		
%IMPERVIOUS	100.00	%		
ESDv MAX (Pe)	2.6	INCHES		
ESDV MIN(Pe)	1	INCH		
Qe Max	2.47	INCHES		
Qe Min	0.95	INCH		
ESDv STORAGE MAX	162.61	CU FT		
ESDv STORAGE MIN	62.54	CU FT		
Rev.Acres Treated	0.02	Acres		
DRY WELL WIDTH	6	FT		
DRY WELL LENGTH	8.50	FT		
ESDv DESIGN	51.00	SQ.FT		
PONDING DEPTH	0	FT		
MEDIA DEPTH (POROSITY VALUE .4)	5	FT		
TOTAL STORAGE	255.00	CU FT		

DRY WELL 3:

STORM WATER MANAGEMENT				
LOCATION:	DRY WELL 3			
SITE AREA:	0.99	ACRES	43213	SQ FT
DRAINAGE AREA:	0.022	ACRES	968	SQ FT
SOILS	0.00	A		
	0.02	B		
Target RCN	55.00			
PROPOSED IMPERVIOUS AREA	0.02	ACRES		
%IMPERVIOUS	100.00	%		
ESDv MAX (Pe)	2.60	INCHES		
ESDV MIN(Pe)	1.00	INCH		
Qe Max	2.47	INCHES		
Qe Min	0.95	INCH		
Rev.Acres Treated	0.02	CU FT		
ESDv STORAGE MAX	199.25	CU FT		
ESDv STORAGE MIN	76.63	CU FT		
DRY WELL WIDTH	7.00	FT		
DRY WELL LENGTH	9.00	FT		
ESDv DESIGN	63.00	SQ.FT		
PONDING DEPTH	0.00	FT		
MEDIA DEPTH (POROSITY VALUE .4)	5.00	FT		
TOTAL STORAGE	315.00	CU FT		

DRY WELL 4:

STORM WATER MANAGEMENT				
LOCATION:	DRY WELL 4			
SITE AREA:	0.99203	ACRES	43213	SQ FT
DRAINAGE AREA:	0.01917	ACRES	835	SQ FT
SOILS	0.00	A		
	0.02	B		
Target RCN	55.00			
PROPOSED IMPERVIOUS AREA	0.02	ACRES		
%IMPERVIOUS	100.00	%		
ESDv MAX (Pe)	2.60	INCHES		
ESDV MIN(Pe)	1.00	INCH		
Qe Max	2.47	INCHES		
Qe Min	0.95	INCH		
Rv Acres Treated	0.02	CU FT		
ESDv STORAGE MAX	171.87	CU FT		
ESDV STORAGE MIN	66.10	CU FT		
DRY WELL WIDTH	9.00	FT		
DRY WELL LENGTH	10.00	FT		
ESDv DESIGN	90.00	SQ.FT		
PONDING DEPTH	0.00	FT		
MEDIA DEPTH (POROSITY VALUE .4)	4.00	FT		
TOTAL STORAGE	360.00	CU FT		

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 1/27/22

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 1/27/22

DRYWELL DESIGN CONSIDERATION
1- INFILTRATION RATE IS 2"/HR .FOR THIS DESIGN THE INFILTRATION RATE IS CONSIDERED 1"
2- THE DEPTH OF THE DRYWELL IS 48" WHICH MEANS THE DEPTH OF THE WATER IS 19.2(CONSIDERING 40%VOIDE OF THE GRAVEL)
3- THE WATER INFILTRATE FULLY AFTER 19.2 HOURS.
4- THE LOCATION OF THE PROPOSED DRYWELL IS IN 50' RADIOUS OF THE INFILTRATION RATE TEST

NO	DATE	DESCRIPTION	BY
03	9/13/21	COMMENTS	MK
02	8/24/21	COMMENTS	MK
01	7/27/21	COMMENTS	MK

REVISIONS

OWNER/ DEVELOPER
ANTHONY K PULSIRISAROTH AND CRYSTAL M PULSIRISAROTH
14148 HOWARD RD DAYTON MD 21036
PHONE NUMBER: (301) 362-9303

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ARCILL ENGINEERING
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Washington D.C 2006
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STORMWATER MANAGEMENT CONCEPT DESIGN /DRYWELL

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.57809, EXPIRATION DATE 10/06/2023

ENGINEER: MOTI KC

PE LICENSE # 57809

PROFESSIONAL SEAL

STATE OF MARYLAND 57809 PROFESSIONAL ENGINEER

ADDRESS: 14148 HOWARDRD DAYTON 21036

PROJECT NAME: STUDDARD PROPERTY, LOT 4

ZONING: RC-DEO-RURALRESIDENTIAL

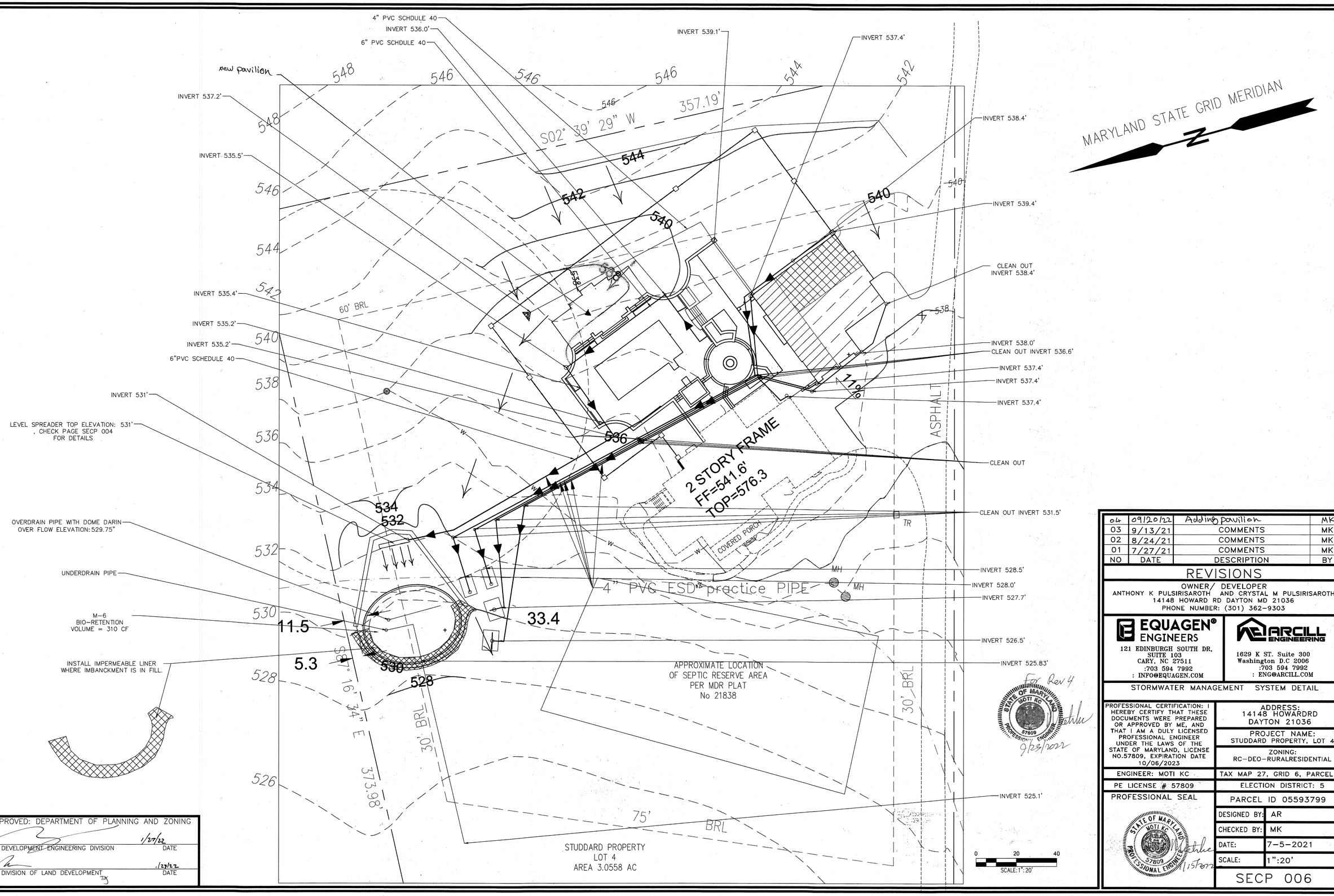
TAX MAP 27, GRID 6, PARCEL 3

ELECTION DISTRICT: 5

PARCEL ID 05593799

DESIGNED BY:	AR
CHECKED BY:	MK
DATE:	7-5-2021
SCALE:	NTS

SECP. 005



APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 1/27/22

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 1/27/22

NO	DATE	DESCRIPTION	BY
04	09/20/22	Adding pavilion	MK
03	9/13/21	COMMENTS	MK
02	8/24/21	COMMENTS	MK
01	7/27/21	COMMENTS	MK

REVISIONS

OWNER/ DEVELOPER
ANTHONY K PULSIRISAROTH AND CRYSTAL M PULSIRISAROTH
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PHONE NUMBER: (301) 362-9303

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STORMWATER MANAGEMENT SYSTEM DETAIL

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.57809, EXPIRATION DATE 10/06/2023

ENGINEER: MOTI KC

PE LICENSE # 57809

PROFESSIONAL SEAL

STATE OF MARYLAND · MOTI KC · 57809 · PROFESSIONAL ENGINEER

For Rev 4

9/28/2022

1/27/22

ADDRESS:
14148 HOWARDRD
DAYTON 21036

PROJECT NAME:
STUDDARD PROPERTY, LOT 4

ZONING:
RC-DEO-RURALRESIDENTIAL

TAX MAP 27, GRID 6, PARCEL 3

ELECTION DISTRICT: 5

PARCEL ID 05593799

DESIGNED BY:	AR
CHECKED BY:	MK
DATE:	7-5-2021
SCALE:	1":20'

SECP 006

F-11-062