ENVIRONMENTAL CONCEPT PLAN

TOWNHOME LOTS 1-41 AND APARTMENT BUILDINGS A & B

GATHERINGS AT TAYLOR PLACE

AGE-RESTRICTED ADULT HOUSING

HOWARD COUNTY, MARYLAND

GENERAL NOTES

1. THE PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.

2. THE EXISTING TOPOGRAPHY SHOWN HEREON IS BASED ON A TOPOGRAPHIC SURVEY PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED MARCH 2010. OFFSITE TOPOGRAPHY FROM HOWARD COUNTY GIS.

3. THE PROJECT BOUNDARY IS BASED ON A BOUNDARY SURVEY PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED MARCH 26, 2010.

4. THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 2411 AND 2413 WERE USED FOR THIS PROJECT.

5. THE SUBJECT PROPERTY IS ZONED "POR" IN ACCORDANCE WITH THE 10/06/13 COMPREHENSIVE ZONING PLAN AND IS SUBJECT TO THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS EFFECTIVE 10/02/03 PER COUNCIL BILL 75-2003.

6. NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING OR NEW STRUCTURES SHALL BE PERMITTED WITHIN THE WETLANDS, STREAMS OR THEIR REQUIRED BUFFERS, FOREST CONSERVATION EASEMENT AREAS AND 100-YEAR FLOODPLAIN.

7. THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT.

8. WATER FOR THIS PROJECT IS TO BE PUBLIC EXTENSIONS OF CONTRACT NO. 266-W.

9. SEWER FOR THIS PROJECT IS TO BE PUBLIC EXTENSIONS OF CONTRACT NO. 661 W&S AND 14-3855-D.

10. EXISTING UTILITIES LOCATED FROM TOPOGRAPHIC SURVEY AND AS-BUILT DRAWINGS. CONTRACTOR SHALL LOCATE EXISTING UTILITIES WELL IN ADVANCE OF CONSTRUCTION ACTIVITIES AND TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND TO MAINTAIN UNINTERRUPTED SERVICE.

11. THERE ARE NO FLOODPLAINS WITHIN THE LIMIT OF THIS CONCEPT PLAN.

12. STEEP SLOPES ARE AS SHOWN HEREON.

13. WETLANDS, STREAMS AND THEIR REQUIRED BUFFERS SHOWN ON-SITE ARE BASED ON DELINEATION AND REPORT PREPARED BY ECOTONE, INC., SEAN McDONOUGH, ENVIRONMENTAL SCIENTIST, MAY 2016 AND APPROVED BY DPZ ON JUNE 15, 2016.

14. FOREST STAND DELINEATION AND SPECIMEN TREE INDETIFICATION PLAN PREPARED BY ECOTONE, INC. SEAN McDONOUGH, ENVIRONMENTAL SCIENTIST, MAY 2016 AND APPROVED BY DPZ ON JUNE 15, 2016.

15. FOREST CONSERVATION EASEMENTS WILL BE ESTABLISHED WITH THE FIRST PROJECT SUBMITTED WITHIN THE TAYLOR HIGHLANDS TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY 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. REFERENCE SP-16-013 FOR FOREST CONSERVATION OBLIGATIONS.

16. IN ACCORDANCE WITH SECTION 115.0.E.5 OF THE HOWARD COUNTY ZONING REGULATIONS, THE OPEN SPACE REQUIREMENTS FOR THIS POR PROJECT IS: TBD

17. GEOTECHNICAL INVESTIGATIONS SHALL COMPLETED AS PART OF THE FUTURE SITE DEVELOPMENT PLAN PACKAGE.

18. A NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT.

19. COLLEGE AVENUE IS CLASSIFIED AS A MINOR COLLECTOR - SCENIC ROAD.
THE PROPOSED STREETS ARE CLASSIFIED AS PRIVATE ACCESS STREETS.

20. TO THE BEST OF THE OWNERS KNOWLEDGE, THERE ARE NO BURIAL GROUNDS OR CEMETERIES LOCATED ON THIS PROPERTY.
THE TAYLOR MANOR HOSIPITAL ON PARCEL 73 IS LISTED AS A HISTORIC SITE (HO-975).

21. THE PROPOSED UNITS SHALL HAVE AN AUTOMATIC FIRE PROTECTION SPRINKLER SYSTEM.

22. STORMWATER MANAGEMENT FOR THE PROJECT IS PROVIDED BY THE USE OF ALTERNATIVE SURFACES, NON STRUCTURAL PRACTICES & MICRO-SCALE PRACTICES IN ACCORDANCE WITH ENVIRONMENTAL SITE DESIGN CRITERIA. MICRO-SCALE PRACTICES INCLUDE MICRO-BIORETENTION, BIO SWALES AND CONTECH FILTERRA STRUCTURES. THESE FACILITIES WILL BE PRIVATELY OWNED AND MAINTAINED.

23. APPROVAL OF THIS ENVIRONMENTAL CONCEPT PLAN (ECP) DOES NOT CONSTITUTE AN APPROVAL OF ANY SUBSEQUENT AND ASSOCIATED SUBDIVISION PLAN/PLAT AND/OR SITE DEVELOPMENT PLAN AND/OR RED-LINE REVISION PLAN. REVIEW OF THIS PROJECT FOR COMPLIANCE WITH THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND THE HOWARD COUNTY ZONING REGULATIONS SHALL OCCUR AT THE SUBDIVISION PLAN/PLAT AND/OR SITE DEVELOPMENT PLAN AND/OR RED-LINE REVISION PROCESS. THE APPLICANT AND CONSULTANT SHOULD EXPECT ADDITIONAL AND MORE DETAILED REVIEW COMMENTS (INCLUDING COMMENTS THAT MAY

ALTER THE OVERALL SITE DESIGN) AS THIS PROJECT PROGRESSES THROUGH THE PLAN REVIEW PROCESS.

24. THE LIMITS OF DISTURBANCE (LOD) IS SHOWN HEREON. ANY LETTERS OF PERMISSION FOR ANY REQUIRED OFFSITE GRADING WILL BE PROVIDED AS PART OF THE FINAL PLAN/SITE DEVELOPMENT PLAN SUBMISSION WHEN FINAL GRADING WILL BE APPROVED.

25. APPROVAL OF THIS ENVIRONMENTAL CONCEPT PLAN (ECP) BY THE HOWARD SOIL CONSERVATION DISTRICT DOES NOT GRANT APPROVAL OF THE PROPOSED SEDIMENT CONTROL SCHEME. THE FINAL PLAN SHALL INCLUDE A SEQUENCE OF CONSTRUCTION WHICH SHALL DETAIL SEDIMENT & EROSION CONTROLS AND PHASING AND ADDRESS THE PROJECT TEMPORARY STORMWATER MANAGEMENT REQUIREMENTS.

26. THE CONTRACTOR MUST TAKE PRECAUSIONS WHEN WORKING AROUND EXISTING STRUCTURES. DAMAGES TO EXISTING STRUCTURES WILL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

27. THERE ARE ELEVEN (11) SPECIMEN TREES LOCATED WITHIN THE LOD PER FSD FROM ECO-SCIENCE PROFESSIONALS DATED 6/24/2016. PER PROJECT PROPOSED, EIGHT (8) OF THOSE TREES SHALL BE REMOVED. THE REMOVAL OF SPECIMEN TREES WILL REQUIRE APPROVAL OF ALTERNATIVE COMPLIANCE TO SECTION 16.1205(a)(7). A 2:1 MITIGATION WILL BE REQUIRED FOR THE REMOVAL OF SPECIMEN TREES. ALTERNATIVE COMPLIANCE FOR SPECIMEN REMOVAL IS FILED UNDER WP-19-072.

ENVIRONMENTAL SITE DESIGN NARRATIVE:

IN ACCORDANCE WITH THE DEVELOPMENT ENGINEERING DIVISION ECP CHECKLIST ITEM III.K.

1. THE NATURAL AREAS ON THE TAYLOR PLACE PROJECT SITE ARE LOCATED TOWARD THE PROJECT BOUNDARIES. NO DISTURBANCE TO THE STREAM AND STREAM BUFFER, WETLAND AND WETLAND BUFFER OR THEIR WOODED RESOURCES IS PROPOSED UNLESS SHOWN HEREON.

2. NO DRAMATIC DISTURBANCE TO THE NATURAL DRAINAGE PATTERNS ARE PROPOSED, PLEASE REFER TO THE PROPOSED GRADING SHEETS.

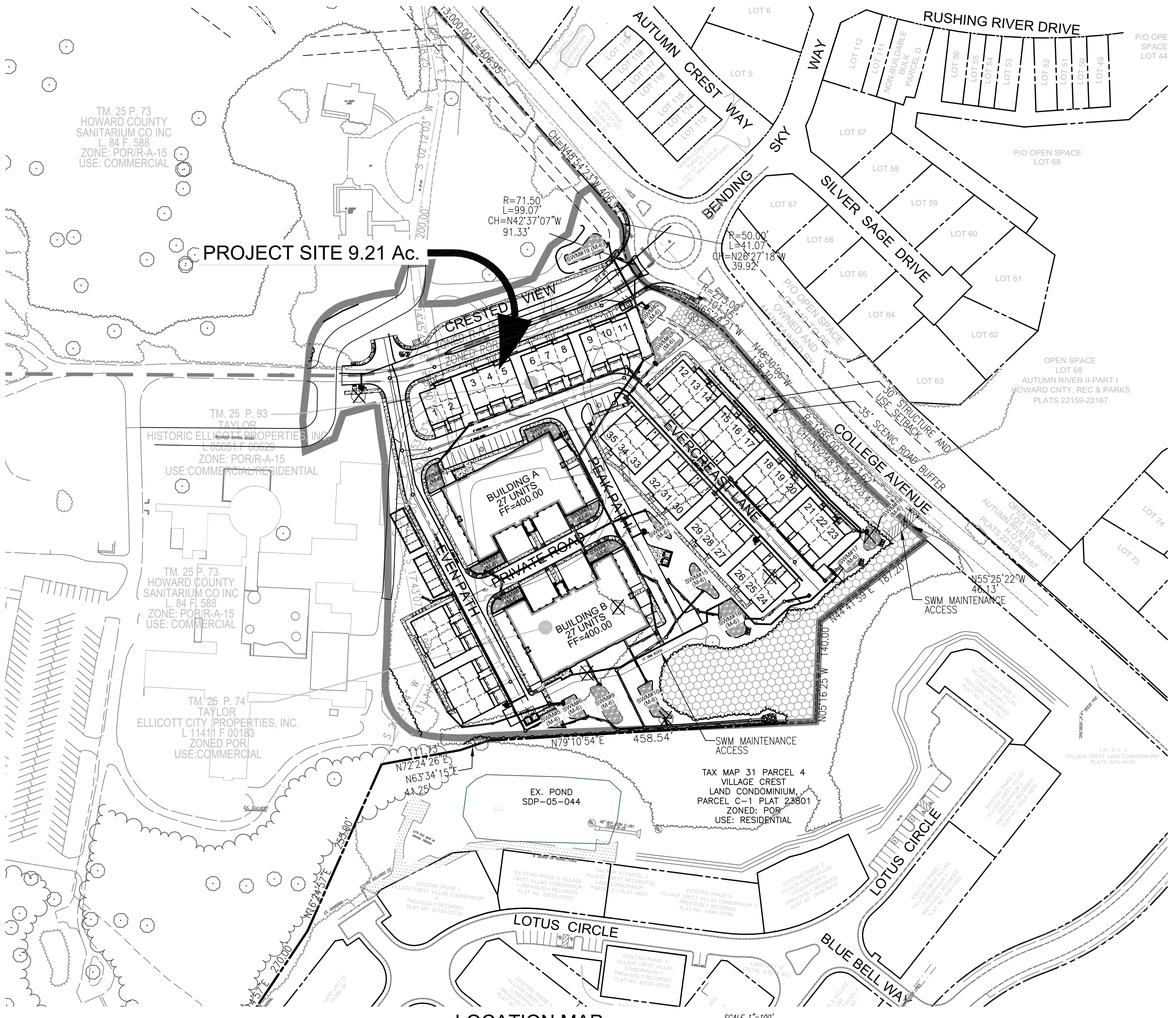
3. THE CONCEPTUAL REDUCTION IN IMPERVIOUS AREA THROUGH BETTER SITE DESIGN IS ACHIEVED THROUGH THE ENVIRONMENTAL SITE DESIGN (ESD) FOR THE PROJECT. THE ESD CONCEPT INCLUDES THE USE OF MICRO-SCALE PRACTICES TO INCLUDE MICRO-BIORETENTION FACILITIES AND BIO-SWALES AS WELL AS NON STRUCTURAL PRACTICES; PERMEABLE SURFACES, ROOFTOP DISCONNECTION.

4. SEDIMENT CONTROL FOR THIS SPECIFIC SITE PLAN WILL BE PROVIDED THROUGH THE USE A PROPOSED SEDIMENT TRAP (TO BE CONVERTED TO A MICRO-BIORETENTION FACILITY, EARTH DIKES, AND SILT FENCE PERIMETER CONTROLS. SEDIMENT CONTROL SHALL BE IN ACCORDANCE WITH CURRENT REQUIREMENTS AND SHALL BE APPROVED BY THE HOWARD SOIL CONSERVATION DISTRICT.

5. STORMWATER MANAGEMENT FOR THE PROJECT HAS BEEN CONCEPTUALLY MET THROUGH THE USE OF MICRO-BIORETENTION FACILITIES, A BIORETENTION FACILITY, BIO-SWALES, PERMEABLE SURFACES. THE RESULTS OF THE ENVIRONMENTAL SITE DESIGN FOR THIS PROJECT WILL REFLECT "WOODS IN GOOD CONDITION".

TARGET PE = 1.46" PROVIDED PE = 2.0"
TARGET ESDv = 33,460 CUFT PROVIDED = 33,502 CUFT

6. AT THIS CONCEPT STAGE OF DEVELOPMENT, NO WAIVER PETITIONS FOR THE STORMWATER MANAGEMENT DESIGN ARE REQUIRED. THE REMOVAL OF SPECIMEN TREES WILL REQUIRE APPROVAL OF ALTERATIVE COMPLIANCE TO SECTION 16.1205(a)(7).



LOCATION MAP

SCALE: 1"=100'

SCALE 1"=100'
50' 0' 100'

SITE ANALYSIS DATA CHART

A.	TOTAL TRACT AREA:	PARCEL 73: 55.04 AC. PARCEL 74: 6.72 AC. PARCEL 93: 2.87 AC.
	TOTAL:	64.63 AC.
A.	GROSS PROJECT AREA:	9.21 AC.
B.	AREA OF FLOODPLAIN:	0.00 AC.+/- (WITHIN LOD)
C.	AREA OF WETLANDS AND BUFFERS:	0.55 AC.+/-
C.	NET AREA:	8.66 AC.+/-
D.	AREA OF STEEP SLOPES (15% & GREATER):	0.34 Ac. (WITHIN LOD)
E.	LIMIT OF DISTURBED AREA:	8.24 AC.
F.	AREA OF FOREST:	3.09 Ac. (WITHIN THIS LOD, REFER TO FSD - STAND K)
G.	ERODIBLE SOILS WITHIN LOD:	1.59 AC. +/-
H.	PROPOSED IMPERVIOUS AREA WITHIN LOD:	4.31 AC.+/-
I.	PROPOSED USES FOR SITE AND STRUCTURES:	AGE RESTRICTED ADULT HOUSING
J.	TOTAL UNITS PROVIDED:	95 UNITS
K.	PRESENT ZONING DESIGNATION:	POR
L.	DPZ FILE REFERENCES:	ECP-15-076, SP16-013, WP-19-072
M.	MODERATE INCOME HOUSING UNITS REQUIRED:	10% OF DWELLING UNITS (10% X 95) = 10 UNITS
N.	MODERATE INCOME HOUSING UNITS PROVIDED:	10 UNITS
O.	COMMUNITY CENTER REQUIREMENT:	20 SF/DWELLING UNITS (MAX 99 UNITS) = 20 SF x 95 UNITS=1900 SF
P.	COMMUNITY CENTER WILL BE LOCATED IN:	BUILDING #1
Q.	OPEN SPACE REQUIRED:	TBD
R.	OPEN SPACE PROVIDED:	TBD
S.	TOTAL SPECIMAN TREES IN PROJECT SITE AREA:	11
T.	SPECIMAN TREES TO BE REMOVED:	8
U.	SPECIMAN TREES TO REMAIN:	3

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

CHIEF, DIVISION OF LAND DEVELOPMENT DATE

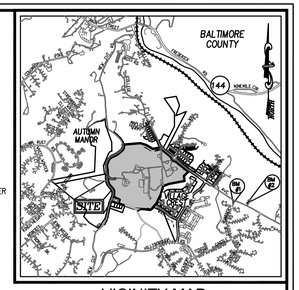
BENCHMARKS

HOWARD COUNTY BENCHMARK 2411 (CONC. MON.)
N 577298.65 E 1366075.16 ELEV. 437.12

HOWARD COUNTY BENCHMARK 2413 (CONC. MON.)
N 580648.90 E 1364974.47 ELEV. 463.77

LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER
- FUTURE CURB AND GUTTER
- ZONING LINE
- SPECIMAN TREES (TO BE REMOVED)



VICINITY MAP

SCALE 1"=2000'
ADC MAP COORDINATE: 28, A2-3 & B2-3

SHEET INDEX

OWNER

TAYLOR ELLICOTT CITY PROPERTIES, INC.
8 PARK CENTER COURT, SUITE 200
OWINGS MILLS, MD 21117
PHONE: 410-465-3500

DEVELOPER

TAYLOR PLACE DEVELOPMENT CORPORATION
8 PARK CENTER COURT, SUITE 200
OWINGS MILLS, MD 21117
PHONE: 410-465-3500

NO.	REVISION	DATE

ENVIRONMENTAL CONCEPT PLAN

COVER SHEET

GATHERINGS AT TAYLOR PLACE

AGE-RESTRICTED ADULT HOUSING
TOWNHOME LOTS 1-41 AND APARTMENT BUILDINGS A & B

TAX MAP: 25, BLOCK: 20 PARCEL: 73, 74 & 93
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

Robert H. Vogel Engineering, Inc.
Engineers • Surveyors • Planners
3300 N. Ridge Road, Suite 110, Ellicott City, MD 21043
Tel: 410.461.7666 Fax: 410.461.8961

STATE OF MARYLAND ROBERT HARRIS VOGEL NO.16193 REGISTERED PROFESSIONAL ENGINEER

ROBERT H. VOGEL, PE No.16193

DESIGN BY:	LRC
DRAWN BY:	LRC
CHECKED BY:	RHV
DATE:	JULY, 2019
SCALE:	AS SHOWN
W.O. NO.:	09-39

PROFESSIONAL CERTIFICATE

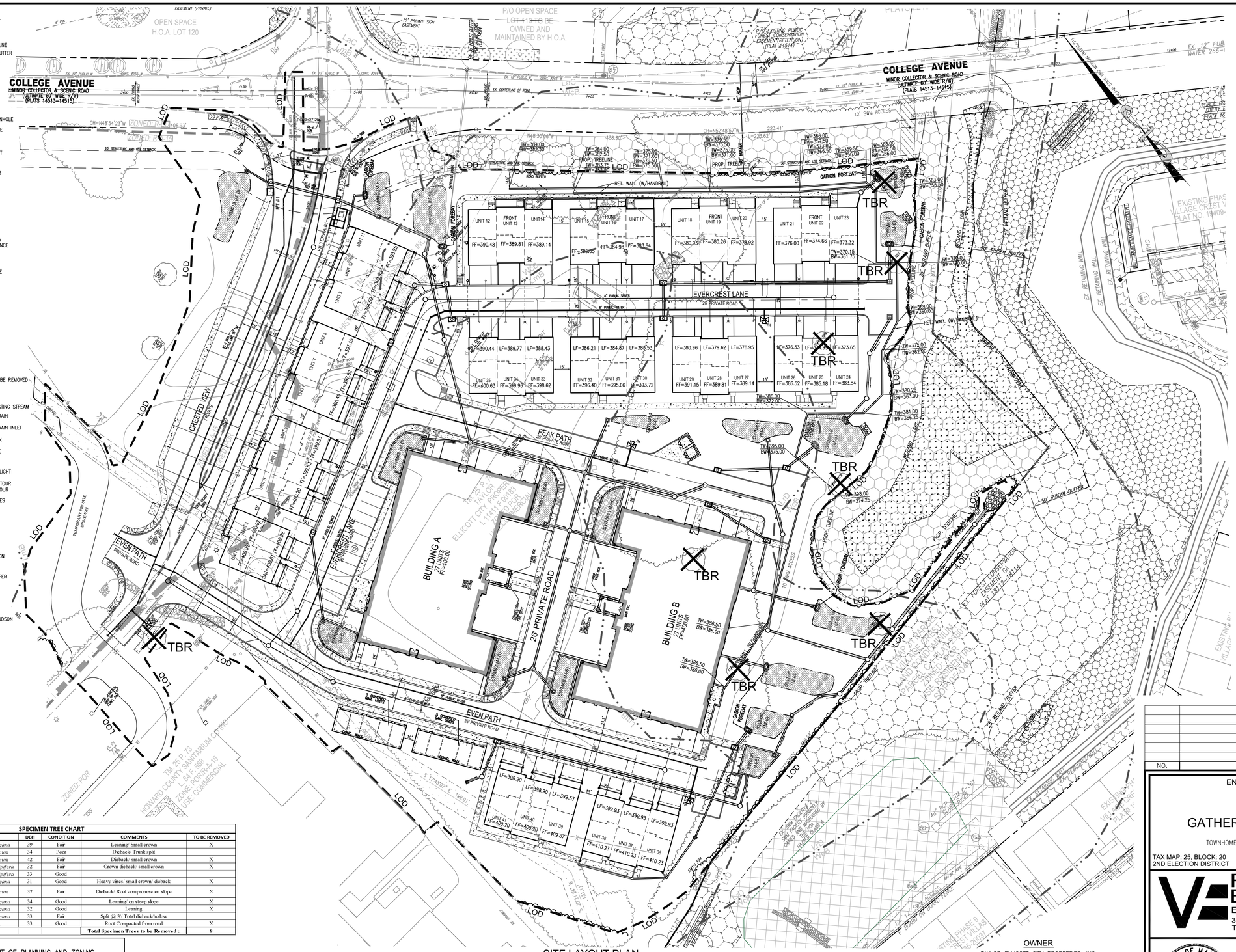
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2020

1 SHEET OF 5

ECP-18-028

LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING CURB AND GUTTER
- 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 10' CONTOUR
- EXISTING 2' CONTOUR
- SUPER SILT FENCE
- DRAINAGE DIVIDE
- EARTH DIKE
- PROPOSED STABILIZED CONSTRUCTION ENTRANCE
- LIMIT OF DISTURBANCE
- SOILS
- EXISTING TREELINE (FIELD LOCATED)
- EXISTING TREES (FIELD LOCATED)
- SPECIMAN TREE
- SPECIMAN TREE TO BE REMOVED
- EXISTING FENCE
- CENTERLINE OF EXISTING STREAM
- PROPOSED STORMDRAIN
- PROPOSED STORMDRAIN INLET
- PROPOSED SIDEWALK
- PROPOSED TREELINE
- PROPOSED CURB
- PROPOSED STREET LIGHT
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- EX MODERATE SLOPES
- EX STEEP SLOPES
- EX. WETLAND
- MICRO BIORETENTION (MBR) (M-6)
- EX. WETLAND BUFFER
- OPEN SPACE
- EXISTING TIBER/HUDSON DRAINAGE DIVIDE



SITE LAYOUT PLAN
SCALE: 1"=40'

NOTE:

ALL WATER CONNECTIONS SHALL BE 1-½" WITH 1" OUTSIDE METER SETTINGS UNLESS OTHERWISE NOTED REFER TO HOWARD COUNTY DETAILS W-3.28 OUTSIDE METER SETTINGS

NOTE:

1. ALL WATER CONNECTIONS SHALL BE 1-½" WITH 1" OUTSIDE METER SETTINGS UNLESS OTHERWISE NOTED REFER TO HOWARD COUNTY DETAILS W-3.28 OUTSIDE METER SETTINGS
2. REVIEW OF THIS PLAN FOR COMPLIANCE WITH ZONING AND SUBDIVISION AND LAND DEVELOPMENT REGULATIONS SHALL OCCUR AT THE SDP STAGES AND THEREFORE THIS PLAN IS SUBJECT TO ADDITIONAL AND MORE DETAILED COMMENTS AS THE SITE DEVELOPMENT PLAN STAGE.

SPECIMEN TREE CHART

NUMBER	COMMON NAME	SPECIES	DBH	CONDITION	COMMENTS	TO BE REMOVED
61	White ash	*Fraxinus americana*	39	Fair	Leaning/ Small crown	X
62	Silver maple	*Acer saccharinum*	34	Poor	Dieback/ Trunk split	
63	Silver maple	*Acer saccharinum*	42	Fair	Dieback/ small crown	X
64	Tulip poplar	*Liriodendron tulipifera*	32	Fair	Crown dieback/ small crown	X
65	Tulip poplar	*Liriodendron tulipifera*	33	Good		
66	White ash	*Fraxinus americana*	31	Good	Heavy vines/ small crown/ dieback	X
67	Silver maple	*Acer saccharinum*	37	Fair	Dieback/ Root compromise on slope	X
68	White ash	*Fraxinus americana*	34	Good	Leaning/ on steep slope	X
69	White ash	*Fraxinus americana*	32	Good	Leaning	X
113	White ash	*Fraxinus americana*	33	Fair	Split @ 3'/ Total dieback/hollow	
146	Poplar	*Populus sp.*	33	Good	Root Compacted from road	X
					Total Specimen Trees to be Removed :	**8**

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

CHIEF, DIVISION OF LAND DEVELOPMENT DATE

NO.	REVISION	DATE

OWNER

TAYLOR ELLICOTT CITY PROPERTIES, INC.
8 PARK CENTER COURT, SUITE 200
OWINGS MILLS, MD 21117
PHONE: 410-465-3500

DEVELOPER

TAYLOR PLACE DEVELOPMENT CORPORATION
8 PARK CENTER COURT, SUITE 200
OWINGS MILLS, MD 21117
PHONE: 410-465-3500

ENVIRONMENTAL CONCEPT PLAN

SITE OVERLAY

GATHERINGS AT TAYLOR PLACE

AGE-RESTRICTED ADULT HOUSING
TOWNHOME LOTS 1-41 AND APARTMENT BUILDINGS A & B

TAX MAP: 25, BLOCK: 20
2ND ELECTION DISTRICT

PARCEL: 73, 74 & 93
HOWARD COUNTY, MARYLAND

Robert H. Vogel Engineering, Inc.
Engineers • Surveyors • Planners
3300 N. Ridge Road, Suite 110, Ellicott City, MD 21043
Tel: 410.461.7666 Fax: 410.461.8961

STATE OF MARYLAND — ROBERT HARRIS VOGEL — NO. 16193 — REGISTERED PROFESSIONAL ENGINEER

ROBERT H. VOGEL, PE No.16193

DESIGN BY:	LRC
DRAWN BY:	LRC
CHECKED BY:	RHV
DATE:	JULY, 2019
SCALE:	AS SHOWN
W.O. NO.:	09-39

PROFESSIONAL CERTIFICATE

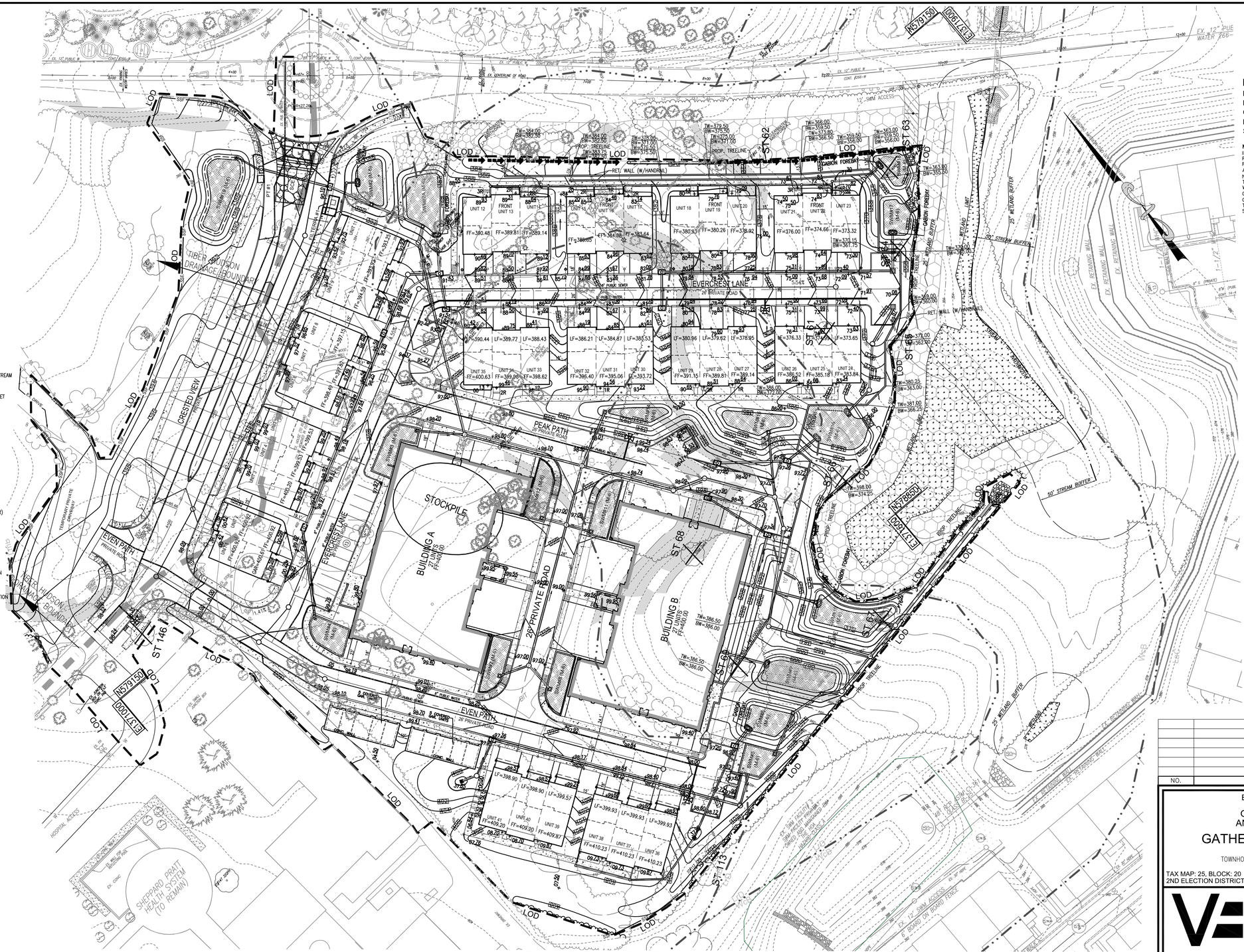
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2020

SHEET 2 OF 5

ECP-18-028

LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING CURB AND GUTTER
- 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 10' CONTOUR
- EXISTING 2' CONTOUR
- SUPER SILT FENCE
- DRAINAGE DIVIDE
- EARTH DIKE
- PROPOSED BAFFLES
- PROPOSED STABILIZED CONSTRUCTION ENTRANCE
- LIMIT OF DISTURBANCE
- SOILS
- EXISTING TREELINE (FIELD LOCATED)
- EXISTING TREES (FIELD LOCATED)
- EXISTING FENCE
- CENTERLINE OF EXISTING STREAM
- PROPOSED STORMDRAIN
- PROPOSED STORMDRAIN INLET
- PROPOSED SIDEWALK
- PROPOSED TREELINE
- PROPOSED CURB
- PROPOSED STREET LIGHT
- PROPOSED 10' CONTOUR / PROPOSED 2' CONTOUR
- EX. WETLAND
- EX. WETLAND BUFFER
- MICRO BIORETENTION (MBR) (M-6)
- OPEN SPACE
- EX. FOREST CONSERVATION AREA RETAINED
- PROP. FOREST CONSERVATION AREA REFORESTATION
- EXISTING TIBER/HUDSON DRAINAGE DIVIDE
- CLEAR WATER DIVERSION DIKE
- CLEAR WATER DIVERSION SWALE
- EX. STEEP SLOPES



LAYOUT AND GRADING & SOIL EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1"=40'

NOTE:
EITHER PERMANENT OR TEMPORARY STABILIZATION IS TO BE APPLIED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR REGARDLESS OF DAYS/DATES IN THE STANDARD SEDIMENT CONTROL NOTES AND/OR SEEDING SPECIFICATIONS.

NOTE:
IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL SECTION A–3; FOR THE PURPOSES OF EROSION AND SEDIMENT CONTROL, STEEP SLOPES ARE DEFINED AS THOSE WITH GRADIENTS OF 20 PERCENT OR MORE (USDA NRCS SOIL SURVEY MANUAL, OCTOBER, 1993). HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR K GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT. CERTAIN PROJECTS (E.G. THOSE LOCATED IN THE CHESAPEAKE AND ATLANTIC COASTAL BAYS CRITICAL AREA) MAY BE SUBJECT TO A MORE RESTRICTIVE DEFINITION FOR STEEP SLOPES OR HIGHLY ERODIBLE SOILS.

NOTE: LOCATE STOCKPILE AS DIRECTED BY THE SEDIMENT CONTROL INSPECTOR. STOCKPILES EXCEEDING 15 FEET IN HEIGHT SHALL BE BENCHED.

NOTE:
- SILT FENCE IS TO BE REPLACED WITH SUPER SILT FENCE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
- SILT FENCE SHALL BE CURLED UPHILL NO MORE THAN 35 FEET APART
- DOUBLE ROWS OF SUPER SILT FENCE SHALL BE INSTALLED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

CHIEF, DIVISION OF LAND DEVELOPMENT DATE

MAPPED SOILS TYPES - ELLICOTT CITY SE MAP #14

SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	HYDRIC INCLUSIONS	K FACTOR	PRIME FARMLAND	FLOW SLOPE W/ EROSION POTENTIAL
LeC	LEGORE – SILT LOAM, 15 PERCENT SLOPES, STONY	B	NO	NO	0.02	NO	NO
LmB	LEGORE–MONTALTO – SILT LOAMS, 3 TO 8 PERCENT SLOPES	B	NO	NO	0.02	YES	NO
LrD*	LEGORE–RELAY – GRAVELLY LOAMS, 15 TO 25 PERCENT SLOPES, VERY STONY	B	NO	NO	0.02	NO	YES
WcB	WATCHUNG – SILT LOAM, 3 TO 15 PERCENT SLOPES, STONY	D	YES	YES	0.28	NO	NO

TAKEN FROM: USDA, SCS–WEB SOIL SURVEY, HOWARD COUNTY
* HIGHLY ERODIBLE SOIL

NOTE:
APPROVAL OF THIS ENVIRONMENTAL CONCEPT PLAN (ECP) BY THE HOWARD SOIL CONSERVATION DISTRICT DOES NOT GRANT APPROVAL OF THE PROPOSED SEDIMENT CONTROL SCHEME. THE FINAL PLAN SHALL INCLUDE A SEQUENCE OF CONSTRUCTION WHICH SHALL DETAIL SEDIMENT & EROSION CONTROLS AND PHASING AND ADDRESS THE PROJECT TEMPORARY STORMWATER MANAGEMENT REQUIREMENTS.

NOTE:
CONTRACTOR TO PROVIDE IMMEDIATE REPAIR OF ANY EARTH DIKES INTERRUPTED DURING CONSTRUCTION.

OWNER
TAYLOR ELLICOTT CITY PROPERTIES, INC.
8 PARK CENTER COURT, SUITE 200
OWINGS MILLS, MD 21117
PHONE: 410–465–3500

DEVELOPER
TAYLOR PLACE DEVELOPMENT CORPORATION
8 PARK CENTER COURT, SUITE 200
OWINGS MILLS, MD 21117
PHONE: 410–465–3500

NO.	REVISION	DATE

ENVIRONMENTAL CONCEPT PLAN

GRADING AND SOIL EROSION AND SEDIMENT CONTROL PLAN

GATHERINGS AT TAYLOR PLACE

AGE–RESTRICTED ADULT HOUSING
TOWNHOME LOTS 1–41 AND APARTMENT BUILDINGS A & B

TAX MAP: 25, BLOCK: 20 — PARCEL: 73, 74 & 93
2ND ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

Robert H. Vogel Engineering, Inc.
Engineers · Surveyors · Planners
3300 N. Ridge Road, Suite 110, Ellicott City, MD 21043
Tel: 410.461.7666 Fax: 410.461.8961

STATE OF MARYLAND — ROBERT HARRIS VOGEL — NO.16193 — REGISTERED PROFESSIONAL ENGINEER

ROBERT H. VOGEL, PE No.16193

DESIGN BY:	LRC
DRAWN BY:	LRC
CHECKED BY:	RHV
DATE:	JULY, 2019
SCALE:	AS SHOWN
W.O. NO.:	09-39

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. 16193 EXPIRATION DATE: 09–27–2020

SHEET 3 OF 5

ECP-18-028

LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING CURB AND GUTTER
- 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 10' CONTOUR
- EXISTING 2' CONTOUR
- SUPER SILT FENCE
- DRAINAGE DIVIDE
- SOILS
- EXISTING TREELINE (FIELD LOCATED)
- EXISTING TREES (FIELD LOCATED)
- EXISTING FENCE
- CENTERLINE OF EXISTING STREAM
- PROPOSED STORMDRAIN
- PROPOSED STORMDRAIN INLET
- PROPOSED SIDEWALK
- PROPOSED TREELINE
- PROPOSED CURB
- PROPOSED STREET LIGHT
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- EX. WETLAND
- EX. WETLAND BUFFER
- MICRO BIORETENTION (MBR) (M-6)
- OPEN SPACE
- EX. FOREST CONSERVATION AREA RETAINED
- EXISTING TIBER/HUDSON DRAINAGE DIVIDE

STORMWATER MANAGEMENT DRAINAGE AREA MAP
SCALE: 1"=50'

VOGEL ENGINEERING + TIMMONS GROUP
3300 North Ridge Road, Suite 210, Ellicott City, MD 21043

Pe=	2.00	PROJECT:	THE GATHERINGS AT TAYLOR PLACE
ESDv=(PexRvxA)/12		DESIGNER:	LRC
Rv=0.05+0.009xI		DATE:	01/14/19
V min=1.0" rainfall	(1.0xRvxA)/12		
Vmax= 1yr rainfall=2.6"	(2.6xRvxA)/12		

DA	% IMPERV	Rv	DA	ESDv REQ	MINIMUM VOLUME	MAXIMUM VOLUME	VOLUME PROVIDED *	AREA SF	PERV AREA	IMP AREA
1	60.41	0.59	0.41	1770	885	2302	1997	17894	7085	10809
2	70.04	0.68	0.83	4083	2042	5308	5183	36007	10786	25221
3	77.00	0.74	0.34	1826	913	2374	2051	14749	3392	11357
4	76.89	0.74	0.30	1600	800	2080	1497	12938	2990	9948
5	60.65	0.60	0.40	1726	863	2243	1248	17378	6839	10539
6	47.69	0.48	0.47	1626	813	2114	1989	20363	10652	9711
7	83.25	0.80	0.28	1601	800	2081	1589	12018	2013	10005
8	85.99	0.82	0.19	1116	558	1451	1472	8130	1139	6991
9	64.41	0.63	0.29	1348	674	1753	1791	12846	4572	8274
10	57.90	0.57	0.53	2187	1093	2843	2749	22975	9672	13303
11	81.03	0.78	0.14	771	385	1002	1041	5935	1126	4809
12	90.64	0.87	0.26	1652	826	2147	1687	11446	1071	10375
13	52.19	0.52	0.09	321	160	417	417	3704	1771	1933
14	32.58	0.34	0.17	415	207	539	527	7247	4886	2361
15	25.96	0.28	0.21	436	218	567	564	9227	6832	2395
16	64.30	0.63	0.52	2380	1190	3094	2990	22714	8108	14606
17	82.66	0.79	0.72	4165	2082	5414	1497	31472	5456	26016
18	52.31	0.52	0.41	1536	768	1997	951	17694	8438	9256
19	47.68	0.48	0.42	1462	731	1900	951	18308	9579	8729
	TOTAL ESDv BY SUBAREA				16011	41627	32191	303045	106407	196638

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

MAPPED SOILS TYPES - ELLICOTT CITY SE MAP #14

SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	HYDRIC INCLUSIONS	K FACTOR	PRIME FARMLAND	<15% SLOPE W/ EROSION POTENTIAL
LeC	LEGORE – SILT LOAN, 15 PERCENT SLOPES, STONY	B	NO	NO	0.02	NO	NO
LmB	LEGORE-MONTALTO – SILT LOAMS, 3 TO 8 PERCENT SLOPES	B	NO	NO	0.02	YES	NO
LrD*	LEGORE-RELAY – GRAVELLY LOAMS, 15 TO 25 PERCENT SLOPES, VERY STONY	B	NO	NO	0.02	NO	YES
WcB	WATCHUNG – SILT LOAM, 3 TO 15 PERCENT SLOPES, STONY	D	YES	YES	0.28	NO	NO

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

NOTE:

APPROVAL OF THIS ENVIRONMENTAL CONCEPT PLAN (ECP) BY THE HOWARD SOIL CONSERVATION DISTRICT DOES NOT GRANT APPROVAL OF THE PROPOSED SEDIMENT CONTROL SCHEME. THE FINAL PLAN SHALL INCLUDE A SEQUENCE OF CONSTRUCTION WHICH SHALL DETAIL SEDIMENT & EROSION CONTROLS AND PHASING AND ADDRESS THE PROJECT TEMPORARY STORMWATER MANAGEMENT REQUIREMENTS.

NOTE:

CONTRACTOR TO PROVIDE IMMEDIATE REPAIR OF ANY EARTH DIKES INTERRUPTED DURING CONSTRUCTION.

OWNER

TAYLOR ELLICOTT CITY PROPERTIES, INC.
8 PARK CENTER COURT, SUITE 200
OWINGS MILLS, MD 21117
PHONE: 410-465-3500

DEVELOPER

TAYLOR PLACE DEVELOPMENT CORPORATION
8 PARK CENTER COURT, SUITE 200
OWINGS MILLS, MD 21117
PHONE: 410-465-3500

SCALE 1"=50'
25' 0' 50'

NO.	REVISION	DATE

ENVIRONMENTAL CONCEPT PLAN

STORMWATER MANAGEMENT
DRAINAGE AREA MAP

GATHERINGS AT TAYLOR PLACE

AGE-RESTRICTED ADULT HOUSING
TOWNHOME LOTS 1-41 AND APARTMENT BUILDINGS A & B

TAX MAP: 25, BLOCK: 20
2ND ELECTION DISTRICT

PARCEL: 73, 74 & 93
HOWARD COUNTY, MARYLAND

Robert H. Vogel Engineering, Inc.
Engineers • Surveyors • Planners
3300 N. Ridge Road, Suite 110, Ellicott City, MD 21043
Tel: 410.461.7666 Fax: 410.461.8961

STATE OF MARYLAND · ROBERT HARRIS VOGEL · NO. 16193 · REGISTERED · PROFESSIONAL ENGINEER

ROBERT H. VOGEL, PE No.16193

DESIGN BY: LRC
DRAWN BY: LRC
CHECKED BY: RHV
DATE: JAN, 2019
SCALE: AS SHOWN
W.O. NO.: 09-39

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. 16193
EXPIRATION DATE: 09-27-2020

ECP-18-028

APPENDIX B.4.C SPECIFICATIONS FOR MICRO-BIORETENTION. RAIN GARDEN, LANDSCAPE INFILTRATION & INFILTRATION BERMS

1. MATERIAL SPECIFICATIONS

THE ALLOWABLE MATERIALS TO BE USED IN THESE PRACTICES ARE DETAILED IN TABLE B.4.1.

2. FILTERING MEDIA OR PLANTING SOIL

THE SOIL SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR DUMPED WITHIN THE MICRO-BIORETENTION PRACTICE THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE A HINDRANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERMUDA GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMAR 15.08.01.05. THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA:

* SOIL COMPONENT - LOAMY SAND OR SANDY LOAM (USDA SOIL TEXTURAL CLASSIFICATION).
* ORGANIC CONTEN - MINIMUM 10% BY DRY WEIGHT (ASTM D 2974). IN GENERAL, THIS CAN BE MET WITH A MIXTURE OF LOAMY SAND (60%-65%) AND COMPOST (35% TO 40%) OR SANDY LOAM (30%), COARSE SAND (30%), AND COMPOST (40%).
* CLAY CONTENT - MEDIA SHALL HAVE A CLAY CONTENT OF LESS THAN 5%.
* PH RANGE - SHOULD BE BETWEEN 5.5 - 7.0. AMENDMENTS (E.G., LIME, IRON SULFATE PLUS SULFUR) MAY BE MIXED IN TO THE SOIL TO INCREASE OR DECREASE PH.

THERE SHALL BE AT LEAST ONE SOIL TEST PER PROJECT. EACH TEST SHALL CONSIST OF BOTH THE STANDARD SOIL TEST FOR PH, AND ADDITIONAL TESTS OF ORGANIC MATTER, AND SOLUBLE SALTS. A TEXTURAL ANALYSIS IS REQUIRED FROM THE SITE STOCKPILED TOPSOIL. IF TOPSOIL IS IMPORTED, THEN A TEXTURE ANALYSIS SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOPSOIL WAS EXCAVATED.

3. COMPACTION

IT IS VERY IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF BIORETENTION PRACTICES AND THE REQUIRED BACKFILL. WHEN POSSIBLE, USE EXCAVATION HOES TO REMOVE ORIGINAL SOIL. IF PRACTICES ARE EXCAVATED USING 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 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 BIORETENION FACILITY BEFORE BACKFILLING THE OPTIONAL SAND LAYER. PUMP ANY PONDED WATER BEFORE PREPARING (ROTOTILLING) BASE. WHEN BACKFILLING THE TOPSOIL OVER THE SAND LAYER, FIRST PLACE 3 TO 4 INCHES OF TOPSOIL OVER THE SAND, THEN ROTOTILL THE SAND/TOPSOIL TO CREATE A GRADATION ZONE. BACKFILL THE REMAINDER OF THE TOPSOIL TO FINAL GRADE. WHEN BACKFILLING THE BIORETENTION FACILITY, PLACE SOIL IN LIFTS 12" TO 18". DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION BASIN. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF THE BASIN TO SUPPLY SOILS AND SAND. GRADE BIORETENTION MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH MARSH TRACKS.

4. PLANT MATERIAL

RECOMMENDED PLANT MATERIAL FOR MICRO-BIORETENTION PRACTICES CAN BE FOUND IN APPENDIX A, SECTION A.2.3.

5. PLANT INSTALLATION

COMPOST IS A BETTER ORGANIC MATERIAL SOURCE, IS LESS LIKELY TO FLOAT, AND SHOULD BE PLACED IN THE INVERT AND OTHER LOW AREAS. MULCH SHOULD BE PLACED IN SURROUNDING TO A UNIFORM THICKNESS OF 2" TO 3". SHREDDED OR CHIPPED HARDWOOD MULCH IS THE ONLY ACCEPTED MULCH. PINE MULCH AND WOOD CHIPS WILL FLOAT AND MOVE TO THE PERIMETER OF THE BIORETENTION AREA DURING A STORM EVENT AND ARE NOT ACCEPTABLE. SHREDDED MULCH MUST BE WELL AGED (6 TO 12 MONTHS) FOR ACCEPTANCE.
ROOTSTOCK OF THE PLANT MATERIAL SHALL BE KEPT MOIST DURING TRANSPORT AND ON-SITE STORAGE. THE PLANT ROOT BALL SHOULD BE PLANTED SO 1/8TH OF THE BALL IS ABOVE FINAL GRADE SURFACE. THE DIAMETER OF THE PLANTING PIT SHALL BE AT LEAST SIX INCHES LARGER THAN THE DIAMETER OF THE PLANTING 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 SHOULD MEET THE FOLLOWING CRITERIA:

* PIPE - SHOULD BE 4" TO 6" DIAMETER, SLOTTED OR PERFORATED RIGID PLASTIC PIPE (ASTMF 758, TYPE PS 28, OR AASHTO-M-278) IN A GRAVEL LAYER. THE PREFERRED MATERIAL IS SLOTTED, 4" RIGID PIPE (E.G., PVC OF HDPE).
* PERFORATIONS - IF PERFORATED PIPE IS USED, PERFORATIONS SHOULD BE 3/8" DIAMETER LOCATED 6" ON CENTER WITH A MINIMUM OF FOUR HOLES PER ROW. PIPE SHALL BE WRAPPED WITH A 1/4" (NO. 4 OR 4x4) GALVANIZED HARDWARE CLOTH.
* GRAVEL - THE GRAVEL LAYER (NO. 57 STONE PREFERRED) SHALL BE AT LEAST 3" THICK ABOVE AND BELOW THE UNDERDRAIN.
* THE MAIN COLLECTOR PIPE SHALL BE AT A MINIMUM 0.5% SLOPE.
* A RIGID, NON-PERFORATED OBSERVATION WELL MUST BE PROVIDED (ONE PER EVERY 1,0000 SQUARE FEET) TO PROVIDE A CLEAN-OUT PORT AND MONITOR PERFORMANCE OF THE FILTER.
* A 4" LAYER OF PEA GRAVEL (1/8" TO 3/8" STONE) SHALL BE LOCATED BETWEEN THE FILTER MEDIA AND UNDERDRAIN TO PREVENT MIGRATION OF FINES IN TO THE UNDERDRAIN. THIS LAYER MAY BE CONSIDERED PART OF THE FILTER BED WHEN BED THICKNESS EXCEEDS 24".

THIS MAIN COLLECTOR PIPE FOR UNDERDRAIN SYSTEMS SHALL BE CONSTRUCTED AT A MINIMUM SLOPE OF 0.5%. OBSERVATION WELLS AND/OR CLEAN-OUT PIPES MUST BE PROVIDED (ONE MINIMUM PER EVERY 1000 SQUARE FEET OF SURFACE AREA).

7. MISCELLANEOUS

THESE PRACTICES MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.

OPERATION AND MAINTENANCE SCHEDULE FOR LANSCAPE INFILTRATION (M-3), MICRO-BIORETENTION (M-6), RAIN GARDENS (M-7), BIORETENTION SWALE (M-8), AND ENHANCED FILTERS (M-9)

1. THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULTCH 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 PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL, VOLUME II, TABLE A.4.1 AND 2.

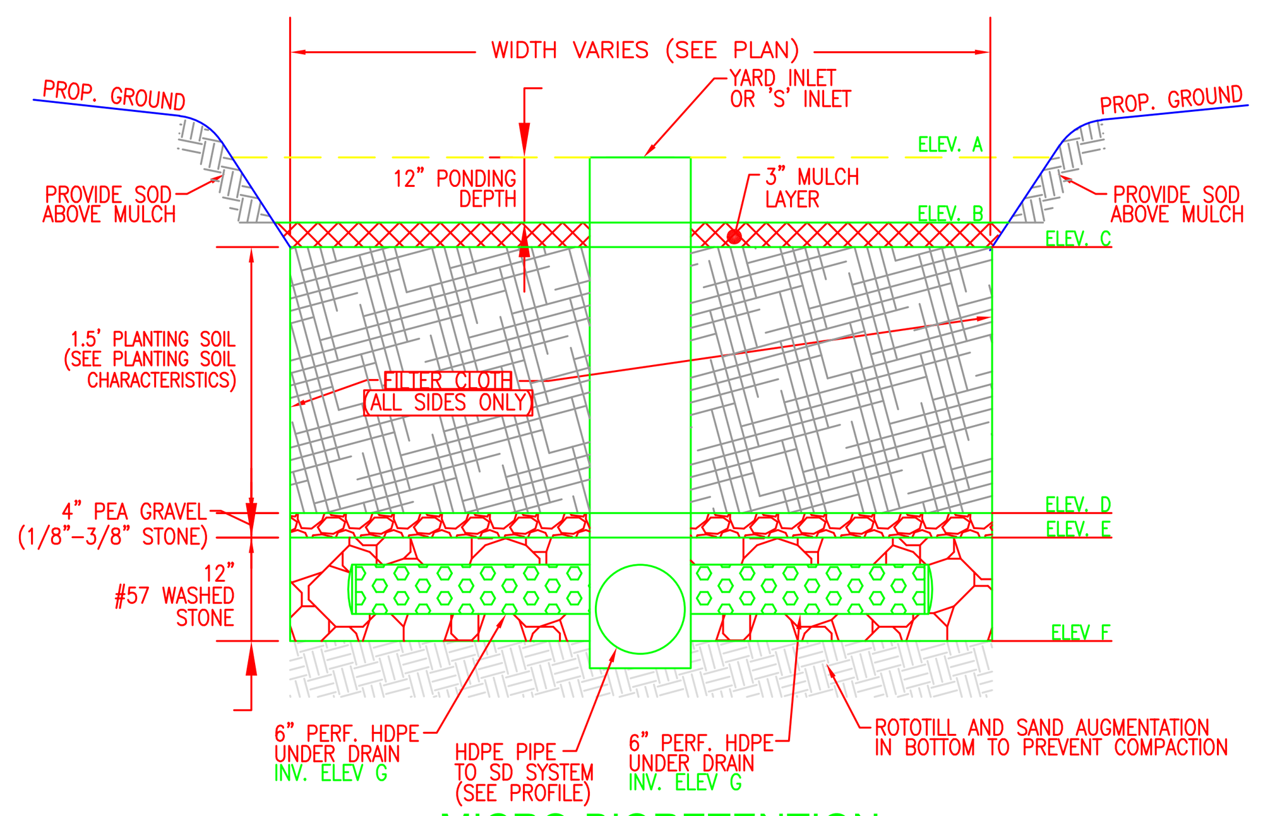
2. THE OWNER SHALL PERFORM A PLANT IN THE SPRING AND IN THE FALL OF EACH YEAR. DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, REPLACE DEAD PLANT MATERIAL WITH ACCEPTABLE REPLACEMENT PLANT MATERIAL, TREAT DISEASED TREES AND SHRUBS, AND REPLACE ALL DEFICIENT STAKES AND WIRES.

3. 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.

4. THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.

NOTE

1. SAME DAY STABILIZATION IS REQUIRED FOR GRADING AREAS ADJACENT TO ENVIRONMENTAL AREAS.



MICRO-BIORETENTION

NOT TO SCALE

MICROBIORETENTION NOTES:

1. ONLY THE SIDES OF MICROBIORETENTION ARE TO BE WRAPPED IN FILTER FABRIC. FILTER FABRIC BETWEEN LAYER OR AT THE BOTTOM OF THE MICROBIORETNTION WILL CAUSE THE MBR TO FAIL, AND THERFORE SHALL NOT BE INSTALLED.
2. WRAP THE PERFORATED MBR UNDERDRAIN PIPE WITH 1/4" MESH (4x4) OR SMALLER GALVANIZED HARDWARE CLOTH.

Appendix B.4. Construction Specifications for Environmental Site Design Practices

Table B.4.1 Materials Specifications for Micro-Bioretention, Rain Gardens & Landscape Infiltration-

Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
Planting soil [2' to 4' deep]	loamy sand (60 - 65%) & compost (35 – 40%) or sandy loam (30%), coarse sand (30%) & compost (40%)	n/a	USDA soil types loamy sand or sandy loam; clay content < 5%
Organic content	Min. 10% by dry weight (ASTM D 2974)		
Mulch	shredded hardwood		aged 6 months, minimum; no pine or wood chips
Pea gravel diaphragm	pea gravel: ASTM-D-448	NO. 8 OR NO. 9 (1/8" TO 3/8")	
Curtain drain	ornamental stone: washed cobbles	stone: 2" to 5"	
Geotextile		n/a	PE Type 1 nonwoven
Gravel (underdrains and infiltration berms)	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE (3/8" to 3/4")	
Underdrain piping	F 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe; 3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes. Perforated pipe shall be wrapped with ¼-inch galvanized hardware cloth
Poured in place concrete (if required)	MSHA Mix No. 3; f'_c = 3500 psi @ 28 days, normal weight, air-entrained; reinforcing to meet ASTM-615-60	n/a	on-site testing of poured-in-place concrete required: 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) *not using previously approved State or local standards* requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 350.R/89; vertical loading [H-10 or H-20]; allowable horizontal loading (based on soil pressures); and analysis of potential cracking
Sand	AASHTO-M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone (**AASHTO**) #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

CHIEF, DIVISION OF LAND DEVELOPMENT DATE

BAFFLE BOARD CALCULATIONS TRAP 1

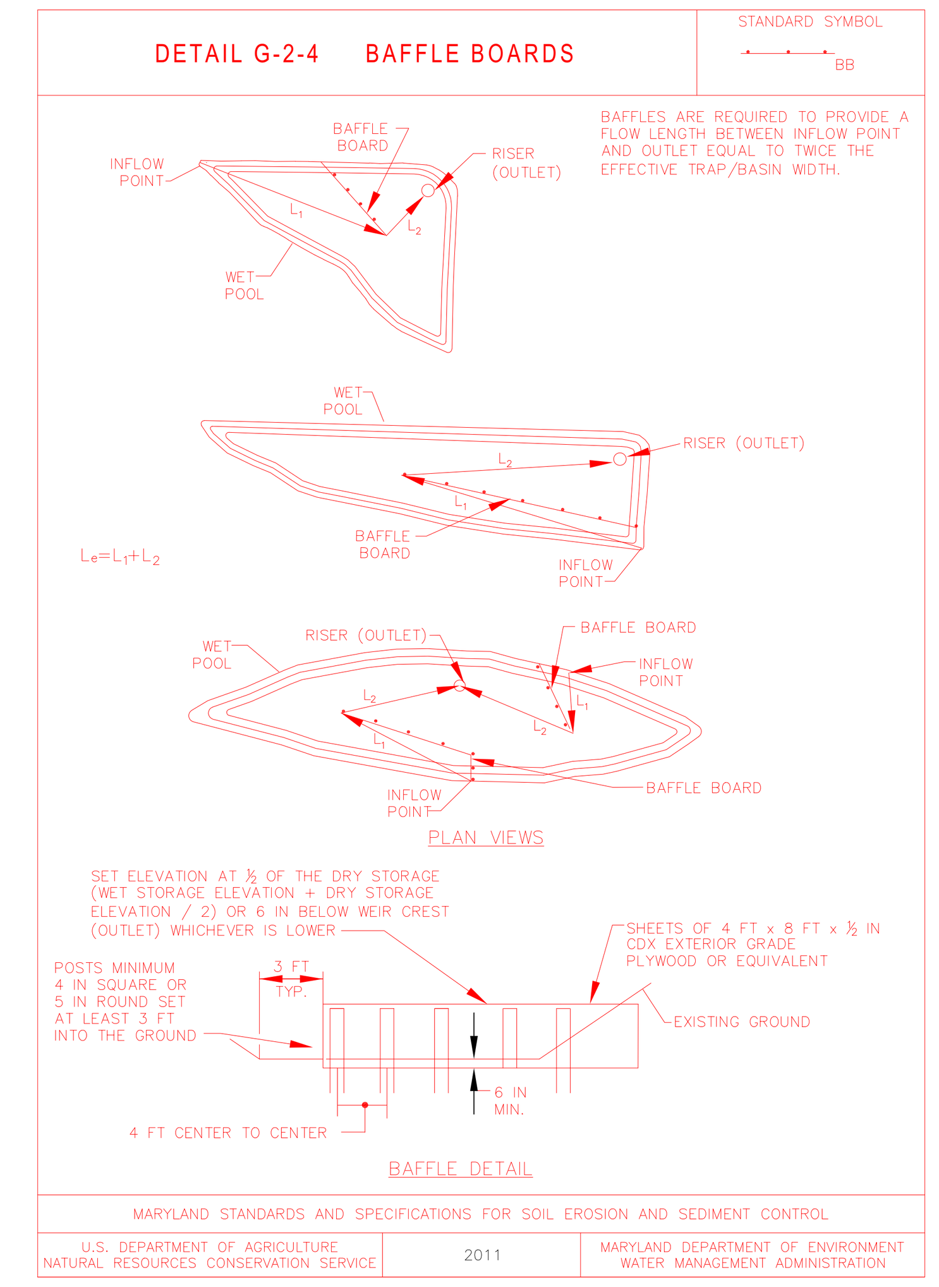
A= SUFACE AREA AT WET STORAGE ELEVATION =	2028	S.F.
EFFECTIVE WIDTH, We = (A/2)^1/2=	32	FT.
MIN Le = We x 2 =	64	FT.
INFLOW WEST		
L1=	46	FT.
L2=	22	FT.
PROVIDED Le =	68	FT.
INFLOW EAST		
L1=	50	FT.
L2=	16	FT.
PROVIDED Le =	66	FT.

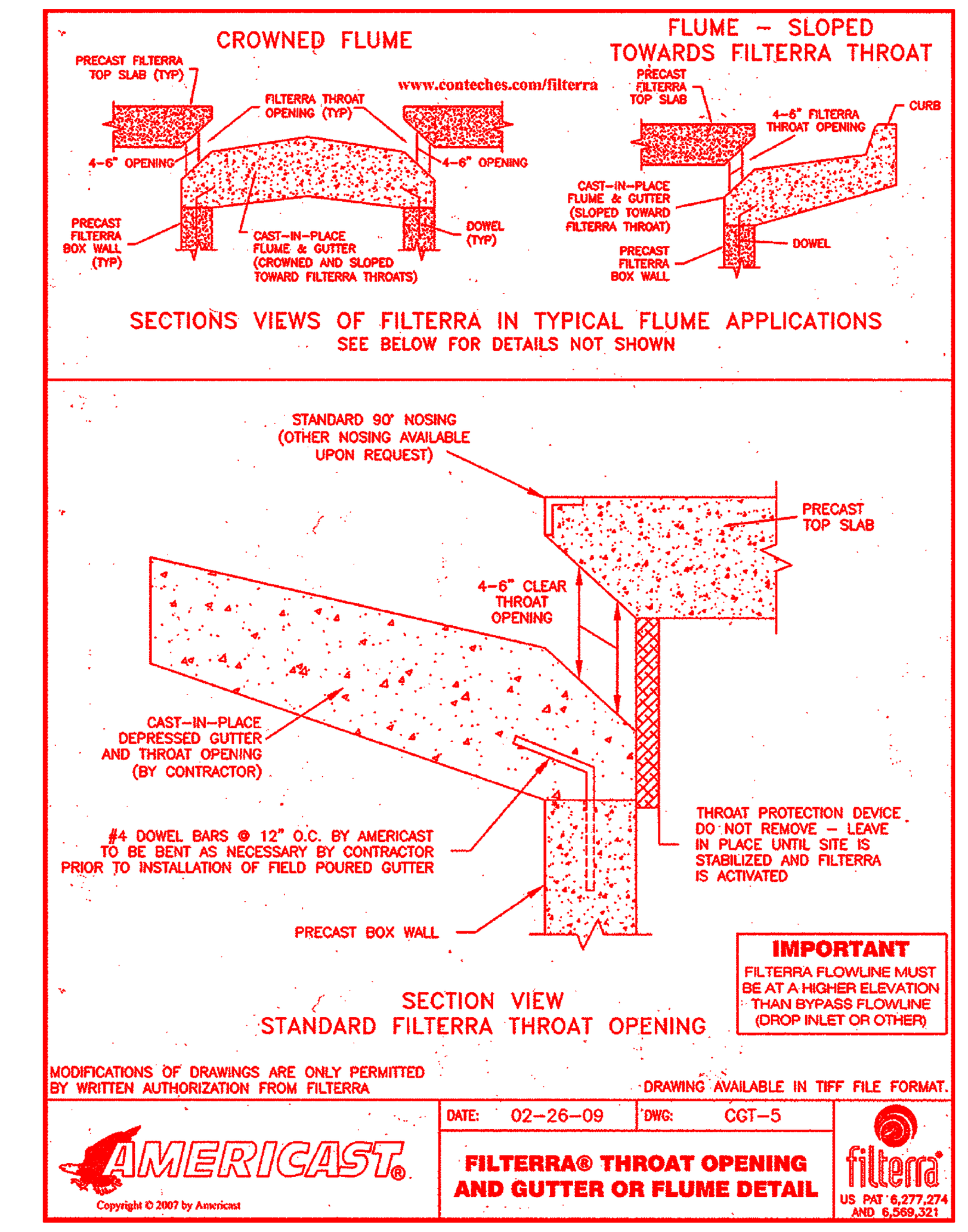
BAFFLE BOARD CALCULATIONS TRAP 2

A= SUFACE AREA AT WET STORAGE ELEVATION =	4488	S.F.
EFFECTIVE WIDTH, We = (A/2)^1/2=	47	FT.
MIN Le = We x 2 =	94	FT.
INFLOW NORTH		
L1=	71	FT.
L2=	26	FT.
PROVIDED Le =	97	FT.
INFLOW SOUTH		
L1=	70	FT.
L2=	27	FT.
L3=	26	FT.
PROVIDED Le =	123	FT.

BAFFLE BOARD CALCULATIONS TRAP 3

A= SUFACE AREA AT WET STORAGE ELEVATION =	4488	S.F.
EFFECTIVE WIDTH, We = (A/2)^1/2=	47	FT.
MIN Le = We x 2 =	94	FT.
INFLOW NORTH		
L1=	71	FT.
L2=	26	FT.
PROVIDED Le =	97	FT.
INFLOW SOUTH		
L1=	70	FT.
L2=	27	FT.
L3=	26	FT.
PROVIDED Le =	123	FT.





NO.	REVISION	DATE

OWNER

TAYLOR ELLICOTT CITY PROPERTIES, INC.
8 PARK CENTER COURT, SUITE 200
OWNINGS MILLS, MD 21117
PHONE: 410-465-3500

DEVELOPER

TAYLOR PLACE DEVELOPMENT CORPORATION
8 PARK CENTER COURT, SUITE 200
OWNINGS MILLS, MD 21117
PHONE: 410-465-3500

ENVIRONMENTAL CONCEPT PLAN

STORMWATER MANAGEMENT
NOTES AND DETAILS

GATHERINGS AT TAYLOR PLACE

AGE-RESTRICTED ADULT HOUSING
TOWNHOME LOTS 1-41 AND APARTMENT BUILDINGS A & B

TAX MAP: 25, BLOCK: 20
2ND ELECTION DISTRICT

PARCEL: 73, 74 & 93
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
ROBERT HARRIS VOGEL
No. 16193
REGISTERED
PROFESSIONAL ENGINEER

ROBERT H. VOGEL, PE No.16193

DESIGN BY: LRC
DRAWN BY: LRC
CHECKED BY: RHV
DATE: JULY 6, 2018
SCALE: AS SHOWN
W.O. NO.: 09-39

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. 16193 EXPIRATION DATE: 09-27-2018

ECP-18-028