

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 VOGEL ENGINEERING + TIMMONS GROUP, PERFORMED IN MARCH, 2019. OFFSITE TOPOGRAPHY IS FROM HOWARD COUNTY GIS.
3. THE PROJECT BOUNDARY IS BASED ON A BOUNDARY SURVEY PREPARED BY VOGEL ENGINEERING + TIMMONS GROUP, DATED MARCH, 2019.
4. THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 43GA AND 43GB WERE USED FOR THIS PROJECT.
5. THE SUBJECT PROPERTY IS ZONED "CE-CLI" IN ACCORDANCE WITH THE 10/6/2013 COMPREHENSIVE ZONING PLAN AND IS SUBJECT TO THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS EFFECTIVE 10/2/03 PER COUNCIL BILL 75-2003.
6. NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE WETLANDS, STREAMS OR THEIR REQUIRED BUFFERS. FOREST CONSERVATION EASEMENT AREAS AND 100-YEAR FLOODPLAIN, UNLESS ALTERNATIVE COMPLIANCE IS APPROVED. ALTERNATIVE COMPLIANCE APPROVAL WILL BE REQUIRED FOR THE PROPOSED IMPACTS TO THE WETLANDS AND 25' WETLAND BUFFER, IN ACCORDANCE WITH SECTION 16.116(d) OF THE SUBDIVISION & LAND DEVELOPMENT REGULATIONS.
7. THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT.
8. WATER SERVICE FOR THIS SITE WILL BE PROVIDED BY CONTRACT 76-W.
9. SEWER SERVICE FOR THIS SITE WILL BE PROVIDED BY CONTRACT 24-1641-D.
10. THERE IS A 100-YR FLOODPLAIN ON THE PROPERTY.
11. THERE ARE NO STEEP SLOPES OVER 20,000 CONTIGUOUS SQUARE FEET ON THE PROPERTY.
12. THE FOREST CONSERVATION OBLIGATION WILL BE ADDRESSED WITH THE SITE DEVELOPMENT PLAN IN ACCORDANCE WITH SECTION 16.1200 OF THE HOWARD COUNTY CODE.
13. WETLANDS DELINEATION AND FOREST STAND DELINEATION REPORT WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. ON JULY 18, 2019. THE REPORT WAS WRITTEN AS PART OF A JOINT FEDERAL/STATE PERMIT APPLICATION FOR THE ALTERATION OF A NON-TIDAL WETLAND. (AUTHORIZATION NUMBER 19-NT-3194/201961331, AUTHORIZATION DATE 9/17/19).
14. A GEOTECHNICAL STUDY WILL BE PROPOSED IN CONJUNCTION WITH THE SITE DEVELOPMENT PLAN.
15. US ROUTE 1 (WASHINGTON BOULEVARD) IS AN INTERMEDIATE ARTERIAL ROAD.
16. TO THE BEST OF THE OWNERS KNOWLEDGE, THERE ARE NO BURIAL GROUNDS OR CEMETERIES ON THIS PROPERTY. THERE IS ONE EXISTING STRUCTURE ON THIS SITE TO BE REMOVED. THE SITE IS NOT LISTED ON THE HISTORIC SITES INVENTORY.
17. STORMWATER MANAGEMENT FOR THE PROJECT IS PROVIDED BY THE USE OF FORTERRA MODULAR WETLANDS PRACTICE IN ACCORDANCE WITH ENVIRONMENTAL SITE DESIGN CRITERIA SYSTEM. A PIPE DETENTION SYSTEM WILL BE PROVIDED TO TREAT THE 100-YR STORM. THESE FACILITIES SHALL BE PRIVATELY OWNED AND MAINTAINED.
18. 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.
19. 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.

ENVIRONMENTAL SITE DESIGN NARRATIVE:

1. THE ENVIRONMENTAL AREAS FOR THIS SITE ARE A SMALL PATCH OF STEEP SLOPES GREATER THAN 25% AND A WETLAND AND WETLAND BUFFER IN THE CENTER OF THE PROPERTY EAST OF THE EXISTING DEVELOPMENT. THERE IS APPROXIMATELY 9.9 AC. OF FOREST ON SITE. THERE WILL BE 3,514 S.F. OF DISTURBANCE TO THE WETLAND AND 6,761 S.F. DISTURBANCE TO THE WETLAND BUFFER WITH THE PROPOSED DESIGN. THE NATURAL FOREST STAND WILL BE CONSERVED TO THE MAXIMUM EXTENT POSSIBLE.
2. THE SITE NATURALLY SLOPES FROM WEST TO EAST. THE SITE HAS BEEN DESIGNED TO MAINTAIN THE NATURAL DRAINAGE PATTERNS, WITH NO DRAMATIC CHANGES TO THE NATURAL DRAINAGE.
3. THE CONCEPTUAL REDUCTION IN IMPERVIOUS AREA THROUGH BETTER SITE DESIGN IS ACHIEVED THROUGH THE ENVIRONMENTAL SITE DESIGN (ESD) FOR THE PROJECT TO THE MAXIMUM EXTENT PRACTICABLE (MEP). THIS PROJECT QUALIFIES FOR REDEVELOPMENT. EXISTING IMPERVIOUS AREA ON SITE IS 53% WHICH IS ABOVE THE 40% THRESHOLD FOR REDEVELOPMENT. THE RESULTS OF THE ENVIRONMENTAL SITE DESIGN FOR THIS PROJECT WILL REFLECT "WOODS IN GOOD CONDITION". THE ESD CONCEPT INCLUDES THE USE OF FORTERRA MODULAR WETLANDS. A PIPE DETENTION SYSTEM HAS BEEN PROPOSED TO TREAT THE 100-YR STORM.
4. SEDIMENT CONTROL FOR THIS SPECIFIC SITE PLAN WILL BE PROVIDED THROUGH THE USE OF SUPER SILT FENCE PERIMETER CONTROLS AND INLET PROTECTION. SEDIMENT CONTROL SHALL BE IN ACCORDANCE WITH CURRENT REQUIREMENTS AND SHALL BE APPROVED BY THE HOWARD SOIL CONSERVATION DISTRICT DURING THE FUTURE SITE DEVELOPMENT PLAN PHASE OF THE PROJECT.
5. STORMWATER MANAGEMENT FOR THE PROJECT SHALL BE MET THROUGH THE USE OF FORTERRA MODULAR WETLANDS. THE PROPOSED PRACTICES HAVE BEEN MAXIMIZED TO THE EXTENT PRACTICAL. THE CALCULATED RAINFALL TARGET (PE) FOR THE EXISTING IMPERVIOUS AREA IS 1.0" FOR AN ESDv OF 639 CF. THE CALCULATED RAINFALL TARGET (PE) FOR THE PROPOSED IMPERVIOUS AREA IS 1.8" FOR AN ESDv OF 1094 CF. THE TOTAL RUNOFF VOLUME (ESDv) REQUIRED IS 1,733 CF.

SITE ANALYSIS DATA CHART

TOTAL PROJECT AREA:	14.24 AC.
NET AREA OF PROJECT:	14.24 AC.
AREA OF ROAD DEDICATION:	0.00 SF OR 0.00 AC.
AREA OF WETLANDS AND WETLAND BUFFERS:	425,058 S.F. OR 9.78 AC.
AREA OF FLOODPLAIN:	364,489.3 S.F. OR 8.37 AC.
AREA OF FOREST:	432,428.5 S.F. OR 9.927 AC.
AREA OF MODERATE SLOPES (15% TO 24.99%):	0.00 AC.
AREA OF STEEP SLOPES (25% OR GREATER):	4132.2 S.F. OR 0.095 AC.
ERODIBLE SOILS:	0.00 AC.
LIMIT OF DISTURBED AREA:	27,453 S.F. OR 0.63 AC.
PROPOSED USES FOR SITE AND STRUCTURES:	COMMERCIAL (STORAGE)
GREEN OPEN AREA:	484,658.6 S.F. OR 11.1 AC. (OPEN AND ENVIRONMENTAL)
PROPOSED IMPERVIOUS AREA:	0.18 AC.
PRESENT ZONING DESIGNATION:	CE-CLI
DPZ FILE REFERENCES:	SDP-87-153

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 6:22:21
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE

[Signature] 5/21/21
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE

ENVIRONMENTAL CONCEPT PLAN

LIFE STORAGE

8255 WASHINGTON BLVD, JESSUP, MD 20794

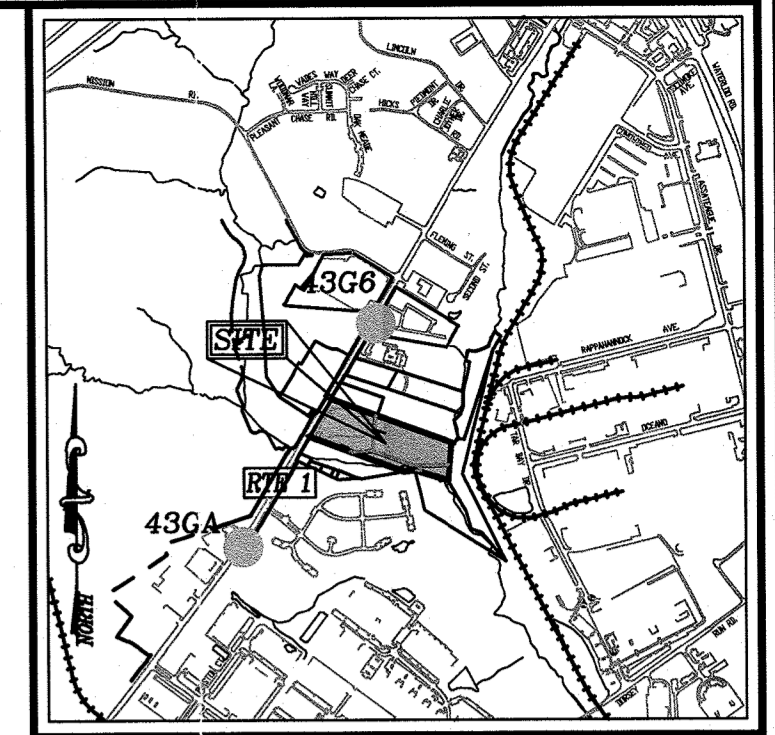
COORDINATE TABLE

NO.	NORTH	EAST
1	542943.02	1369856.23
2	543332.11	1370097.82
3	542871.17	1371359.20
4	542858.49	1371339.69
5	542487.25	1371304.09
6	542591.74	1370950.85
7	542577.42	1370836.70

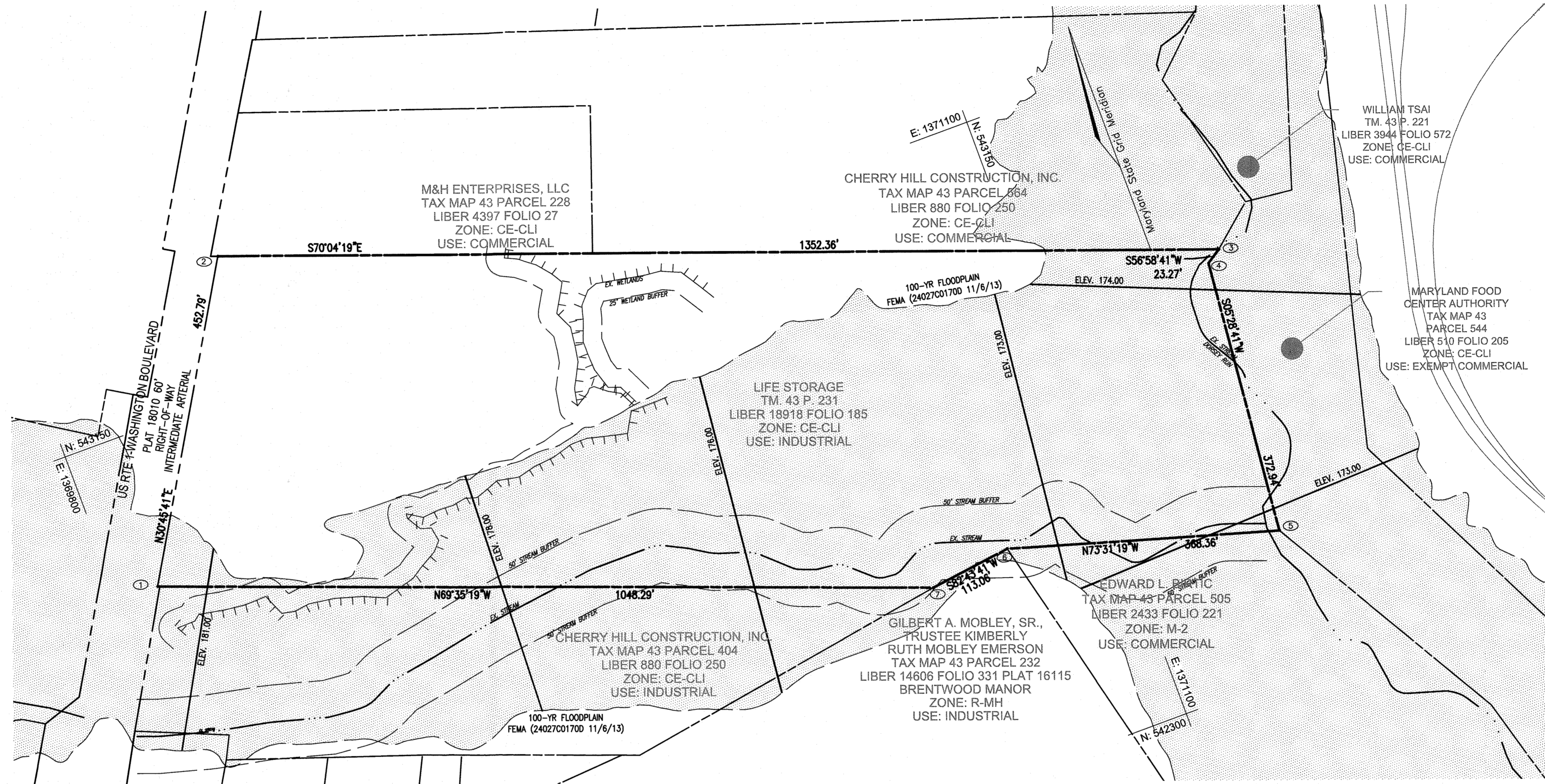
BENCHMARKS

HOWARD COUNTY BENCHMARK - 43GA
 N 541797.033 E 1369159.568 ELEV. 240.967
 ALONG EAST SIDE OF WASHINGTON BLVD
 470 FT SOUTH OF GATEWOOD DRIVE

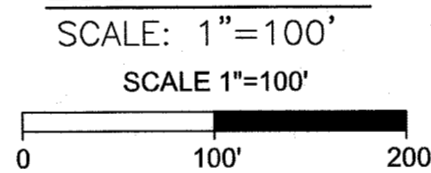
HOWARD COUNTY BENCHMARK - 43GB
 N 544117.488 E 1370550.920 ELEV. 219.402
 0.1 MILES SOUTH OF MISSION ROAD



VICINITY MAP
 SCALE: 1"=2000'
 ADC MAP COORDINATE: 41-01



LOCATION MAP



LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- EX. WETLANDS
- EX. WETLAND BUFFER
- EX. STREAM
- EX. STREAM BUFFER
- 100-YR FLOODPLAIN

OWNER

LIFE STORAGE
 6467 MAIN STREET
 WILLIAMSVILLE, NY 14221
 CONTACT: DANIEL SCHWANZ
 (716) 650-6056

NO.	REVISION	DATE

ENVIRONMENTAL CONCEPT PLAN

COVER SHEET

LIFE STORAGE

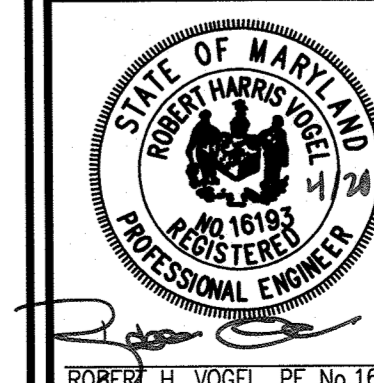
8255 WASHINGTON BLVD, JESSUP, MD 20794

TAX MAP 43 BLOCK 20 3RD ELECTION DISTRICT HOWARD COUNTY, MARYLAND ZONED CE-CLI PARCEL 231

VOGEL ENGINEERING

TIMMONS GROUP

3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
 P: 410.461.7666 F: 410.461.8961 www.timmons.com



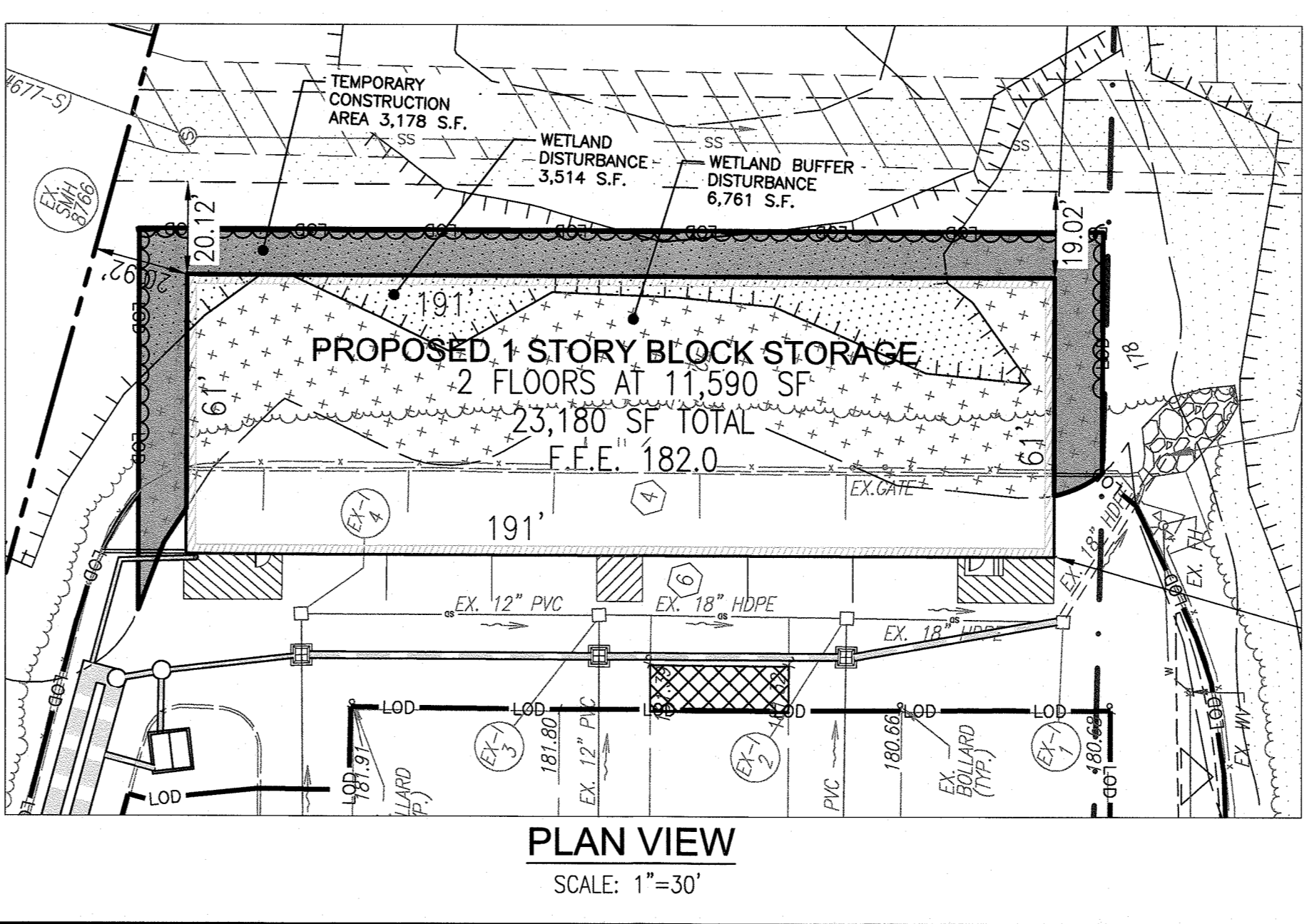
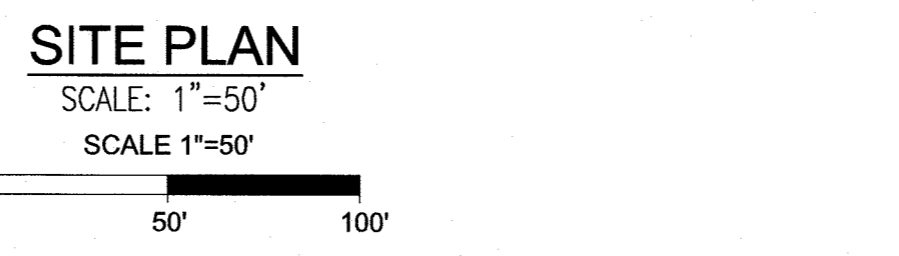
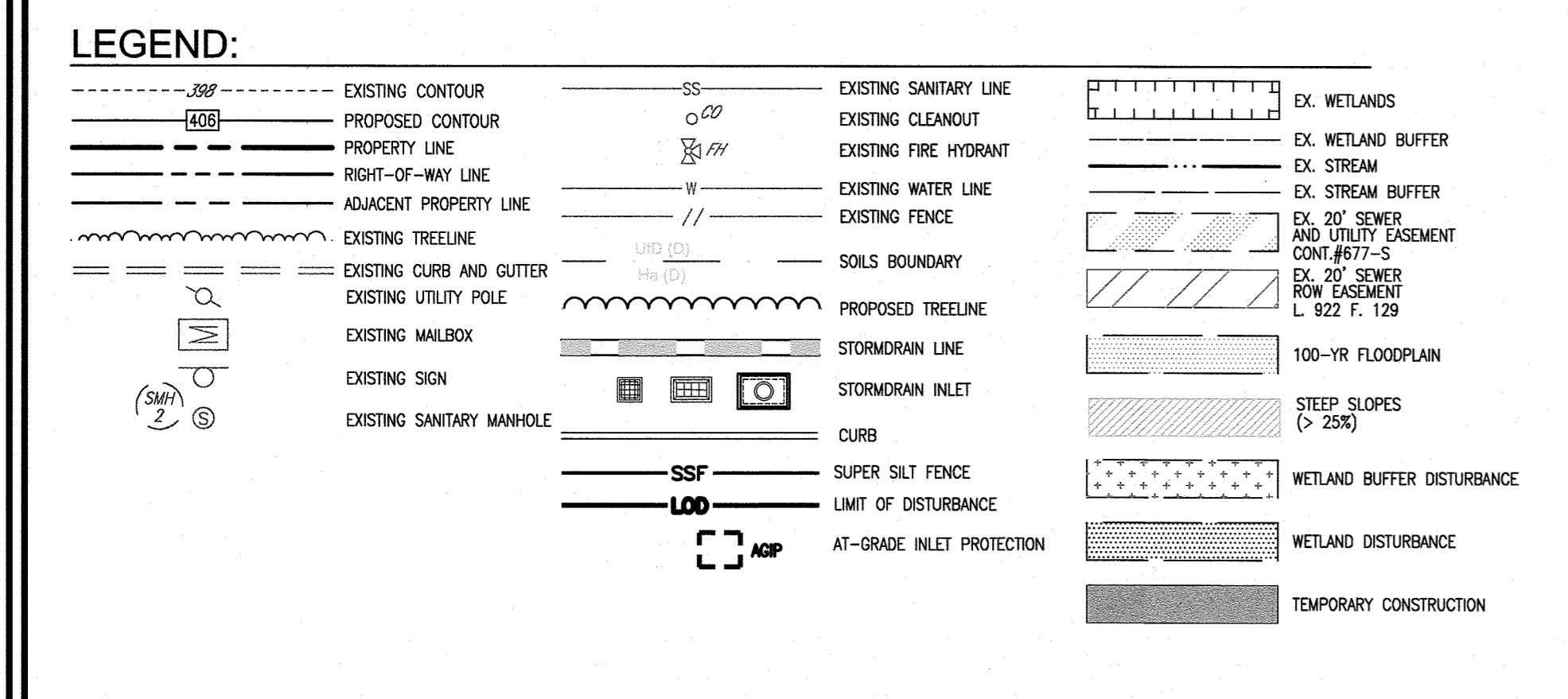
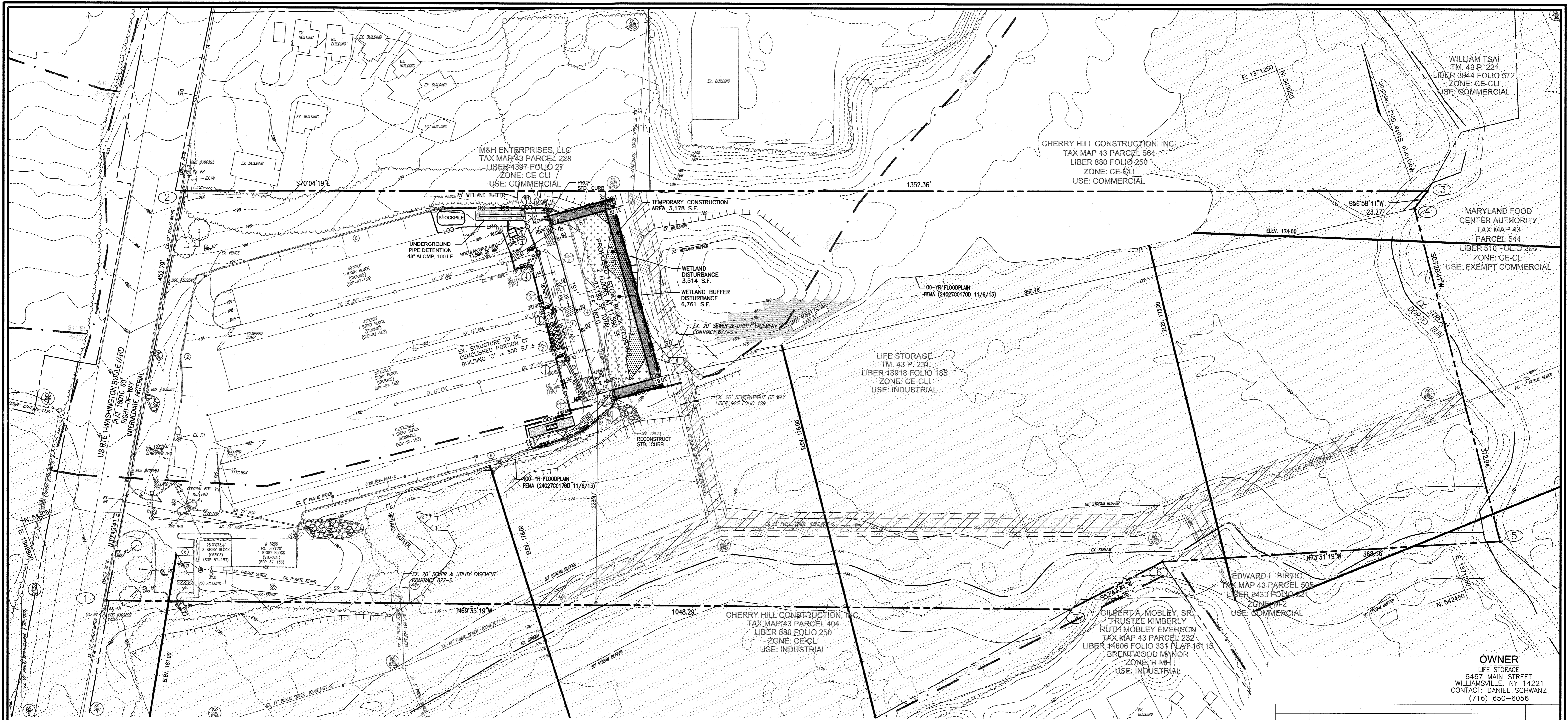
PROFESSIONAL CERTIFICATE
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 09-27-2022.

DESIGN BY: RHV
 DRAWN BY: IMH
 CHECKED BY: RHV
 DATE: JANUARY 2021
 SCALE: AS SHOWN
 W.O. NO.: 42948

1 SHEET OF 4

SHEET INDEX

DESCRIPTION	SHEET NO.
COVER SHEET	1 OF 4
SITE PLAN	2 OF 4
STORMWATER MANAGEMENT DRAINAGE AREA MAP	3 OF 4
STORMWATER MANAGEMENT NOTES AND DETAILS	4 OF 4



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 6/22/21
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 5/3/21
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

MAPPED SOILS TYPES - HOWARD COUNTY, MARYLAND			
SYMBOL NAME / DESCRIPTION	GROUP	HYDRO K _w RANGE	HIGHLY ERODIBLE
U ₁ WATER-ORGANIC SILT LOAMS, 0 TO 1% SLOPES	D	YES 0.4-2	NO
U ₂ URBAN LAND-WOODPHEASANTS COMPLEX, 0 TO 1% SLOPES	D	NO 0.5-2	NO

NOTE:
 TAKEN FROM: USDA, SCS-WEB SOIL SURVEY, AND HOWARD COUNTY SOIL CONSERVATION DISTRICT WEBSITE DOCUMENTS
 HTS://WWW.HOWARDSCD.ORG/DOCUMENTS

HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR K_w GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT

NO.	REVISION	DATE

ENVIRONMENTAL CONCEPT PLAN
SITE PLAN

LIFE STORAGE
 8255 WASHINGTON BLVD, JESSUP, MD 20794

TAX MAP 43 BLOCK 20 ZONED CE-CL1
 3RD ELECTION DISTRICT HOWARD COUNTY, MARYLAND

VOGEL ENGINEERING

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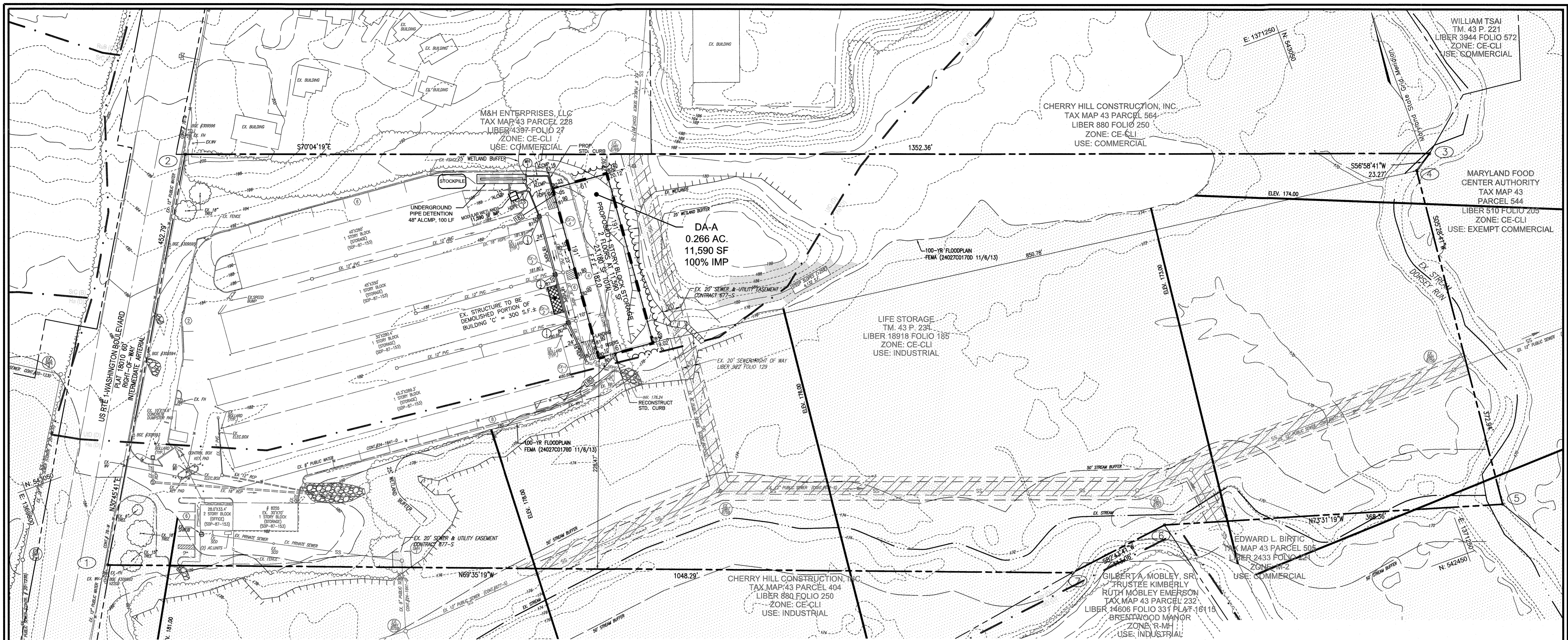
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STATE OF MARYLAND
 ROBERT H. VOGEL
 PROFESSIONAL ENGINEER
 16193

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2 SHEET OF 4



STORMWATER MANAGEMENT DRAINAGE AREA MAP

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

OWNER
LIFE STORAGE
6467 MAIN STREET
WILLIAMSVILLE, NY 14221
CONTACT: DANIEL SCHWANZ
(716) 650-6056

LEGEND:

--- 389 ---	EXISTING CONTOUR	(SM)	EXISTING SANITARY MANHOLE	[Hatched]	EX. WETLANDS
--- 409 ---	PROPOSED CONTOUR	SS	EXISTING SANITARY LINE	[Hatched]	EX. WETLAND BUFFER
---	PROPERTY LINE	CD	EXISTING CLEANOUT	[Hatched]	EX. STREAM
---	RIGHT-OF-WAY LINE	FW	EXISTING FIRE HYDRANT	[Hatched]	EX. STREAM BUFFER
---	ADJACENT PROPERTY LINE	W	EXISTING WATER LINE	[Hatched]	EX. 20" SEWER AND UTILITY EASEMENT
---	EXISTING TREETRINE	///	EXISTING FENCE	[Hatched]	EX. 20" SEWER ROW EASEMENT
---	EXISTING CURB AND GUTTER	URD (S)	SOILS BOUNDARY	[Hatched]	100-YR FLOODPLAIN
---	EXISTING UTILITY POLE	[Hatched]	PROPOSED TREETRINE	[Hatched]	STEEP SLOPES (> 25%)
---	EXISTING MAILBOX	[Hatched]	STORMDRAIN LINE	[Hatched]	
---	EXISTING SIGN	[Hatched]	CURB	[Hatched]	
		[Hatched]	DRAINAGE DIVIDE	[Hatched]	

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature]
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 6-22-21

[Signature]
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 5-2-21

MAPPED SOILS TYPES - HOWARD COUNTY, MARYLAND

SYMBOL NAME / DESCRIPTION	GROUP	HYDRC	Kw RANGE	HIDEY ERODIBLE
Ug	D	YES	0-33	NO
Ud	D	NO	-	NO

NOTE: TAKEN FROM: USDA, SCS-WEBSOIL SURVEY, AND HOWARD COUNTY SOIL CONSERVATION DISTRICT WEBSITE DOCUMENTS
HTPS://WWW.HOWARDCSD.ORG/DOCUMENTS
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

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ENVIRONMENTAL CONCEPT PLAN
STORMWATER MANAGEMENT DRAINAGE AREA MAP
LIFE STORAGE
8255 WASHINGTON BLVD, JESSUP, MD 20794
TAX MAP 43 BLOCK 20 3RD ELECTION DISTRICT
ZONED CE-CL1
PARCEL 231
HOWARD COUNTY, MARYLAND

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ROBERT H. VOGEL, PE No. 16193

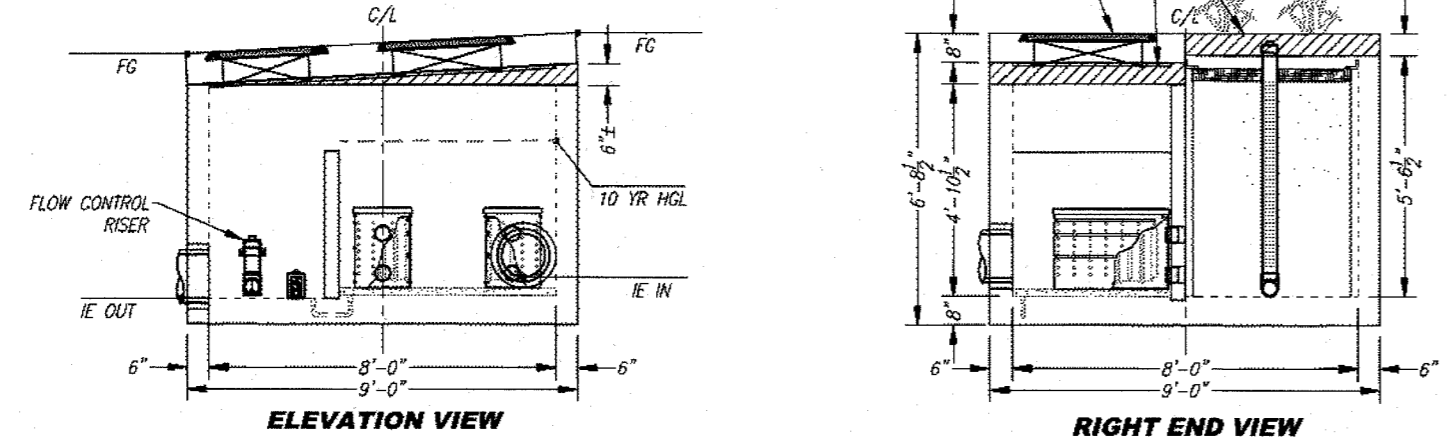
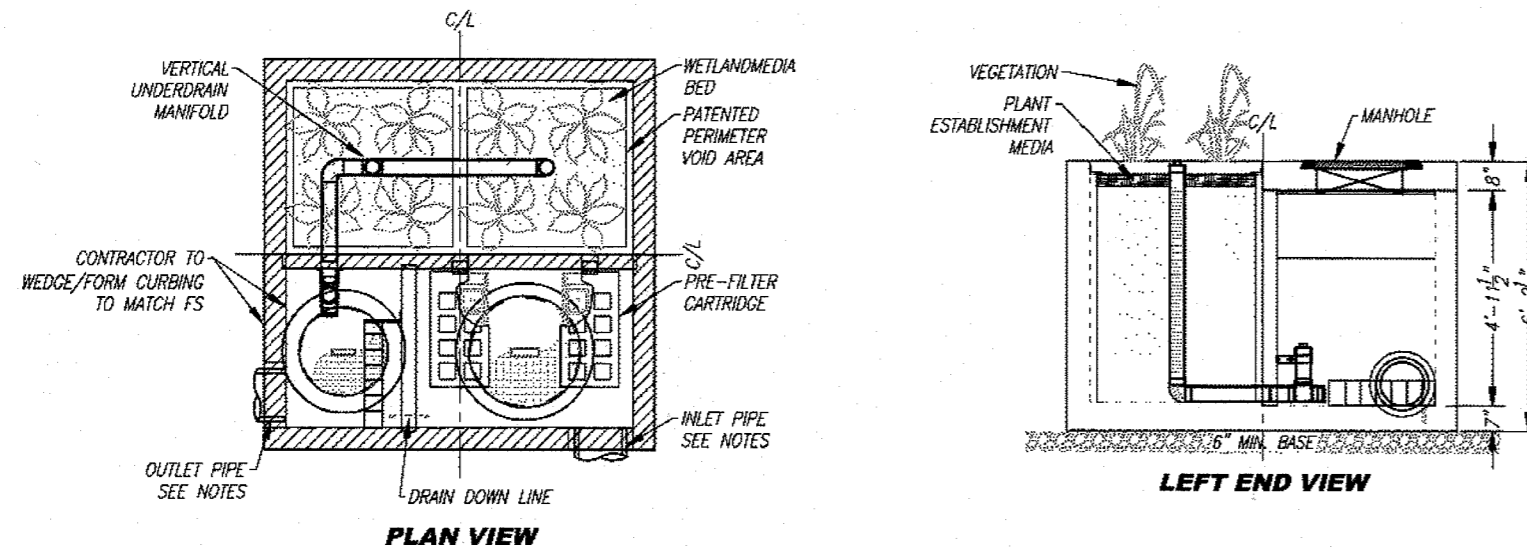
SITE SPECIFIC DATA	
PROJECT NUMBER	---
PROJECT NAME	LIFE STORAGE
PROJECT LOCATION	HOWARD COUNTY, MD
STRUCTURE ID	MW - 1
TREATMENT REQUIRED	
VOLUME BASED (CF)	FLOW BASED (CFS)
1789	N/A
TREATMENT HGS AVAILABLE (FT)	N/A
PEAK BYPASS REQUIRED (CFS) - IF APPLICABLE	1.39
PIPE DATA	L.C. MATERIAL DIAMETER
INLET PIPE 1	177.90 ALCOMP 15"
INLET PIPE 2	N/A N/A N/A
OUTLET PIPE	177.90 HDPE 15"
PRE-TREATMENT	BIOFILTRATION DISCHARGE
RIM ELEVATION	185.86 185.86 185.86
SURFACE LOAD	PEDESTRIAN N/A PEDESTRIAN
FRAME & COVER	N/A* OPEN PLANTER #24*
WETLAND MEDIA VOLUME (CY)	5.62
ORBIT SIZE (DIA. INCHES)	#2.12
NOTES:	

INSTALLATION NOTES

- CONTRACTOR TO PROVIDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS REQUIRED TO ORDER AND INSTALL THE SYSTEM AND APPOINTMENTS IN ACCORDANCE WITH THIS DRAWING AND THE MANUFACTURER'S SPECIFICATIONS, UNLESS OTHERWISE STATED IN MANUFACTURER'S CONTRACT.
- UNIT MUST BE INSTALLED ON LEVEL BASE. MANUFACTURER RECOMMENDS A MINIMUM 6" LEVEL ROCK BASE UNLESS SPECIFIED BY THE PROJECT ENGINEER. CONTRACTOR IS RESPONSIBLE FOR VERIFYING PROJECT ENGINEER'S RECOMMENDED BASE SPECIFICATIONS.
- CONTRACTOR TO SUPPLY AND INSTALL ALL EXTERNAL CONNECTING PIPES. ALL PIPES MUST BE FLUSH WITH INSIDE SURFACE OF CONCRETE. PIPES CANNOT INGRESS (EXTEND FLUSH) INLET OF OUTFLOW PIPE. MUST BE FLUSH WITH DISCHARGE CHAMBER FLOOR. ALL PIPES SHALL BE SEALED WATER-TIGHT PER MANUFACTURER'S STANDARD CONNECTION DETAILS.
- CONTRACTOR RESPONSIBLE FOR INSTALLATION OF ALL PIPES, RISERS, MANHOLES, AND HATCHES. CONTRACTOR TO GROUT ALL MANHOLES AND HATCHES TO MATCH FINISHED SURFACE UNLESS SPECIFIED OTHERWISE.
- VEGETATION SUPPLIED AND INSTALLED BY MANUFACTURER.
- CONTRACTOR RESPONSIBLE FOR CONTRACTING BIO CLEAN FOR ACTIVATION OF UNIT. MANUFACTURER'S WARRANTY IS VOID WITHOUT PROPER ACTIVATION BY A BIO CLEAN REPRESENTATIVE.

GENERAL NOTES

- MANUFACTURER TO PROVIDE ALL MATERIALS UNLESS OTHERWISE NOTED.
- ALL DIMENSIONS, ELEVATIONS, SPECIFICATIONS AND QUANTITIES ARE SUBJECT TO CHANGE. FOR PROJECT SPECIFIC DIMENSIONS, WEIGHTS AND ACCESSORIES PLEASE CONTACT BIO CLEAN.

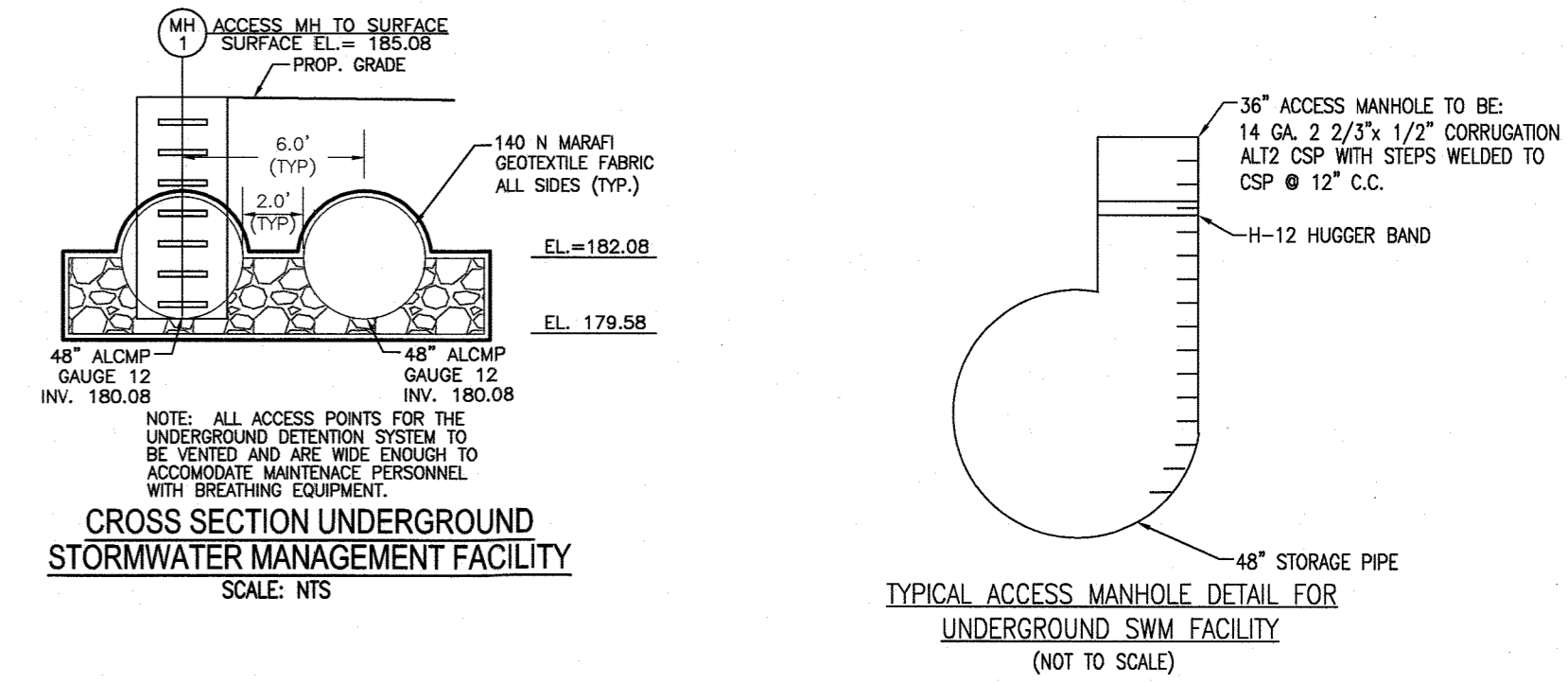


TREATMENT FLOW (CFS)	OPERATING HEAD (FT)	PRE-TREATMENT LOADING RATE (GPM/SF)	WETLAND MEDIA LOADING RATE (GPM/SF)
10-YR FLOW: 1.3 CFS	10-YR FLOW: 1.7 CFS	10-YR FLOW: 1.2 CFS	10-YR FLOW: 1.2 CFS
100-YR FLOW: 2.6 CFS	100-YR FLOW: 2.9 CFS	100-YR FLOW: 2.1 CFS	100-YR FLOW: 2.1 CFS

BioClean
MWS-L-8-8-5'-6.5"-V
STORMWATER BIOFILTRATION SYSTEM
STANDARD DETAIL

OPERATION AND MAINTAINANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED UNDERGROUND FACILITIES

- THE UNDERGROUND STORMWATER MANAGEMENT FACILITY IS PRIVATELY OWNED AND IT SHALL BE THE RESPONSIBILITY OF THE OWNER TO PERIODICALLY INSPECT AND CLEAN THE FACILITY TO MAINTAIN ITS OPERATION AND FUNCTION.
- THE UNDERGROUND STORMWATER MANAGEMENT FACILITY SHALL BE INSPECTED YEARLY AT A MINIMUM AND AFTER ESPECIALLY SEVERE STORM EVENTS.
- WHEN SEDIMENT ACCUMULATION OF MORE THAN 2" IS OBSERVED OR ANY DEBRIS THAT MIGHT OBSTRUCT THE OUTFALL IS OBSERVED, THE FACILITY SHALL BE CLEANED.
- THE FACILITY SHALL BE CLEANED IMMEDIATELY AFTER PETROLEUM SPILLS. THE OWNER SHALL CONTACT THE APPROPRIATE REGULATORY AGENCIES NOTIFYING THEM OF THE SPILL AND CLEANUP OPERATION.
- THE SEDIMENT AND DEBRIS SHALL BE REMOVED FROM THE UNDERGROUND STORMWATER MANAGEMENT FACILITY BY VACUUM TRUCK OR OTHER MANUAL MEANS. THE OWNER SHALL FOLLOW PROPER CLEANING AND DISPOSAL OF THE REMOVED MATERIAL AND LIQUID.
- THE INLET AND OUTLET PIPES SHALL BE CHECKED FOR ANY OBSTRUCTIONS AT LEAST ONCE EVERY SIX (6) MONTHS. IF OBSTRUCTIONS ARE FOUND, THE OWNER SHALL HAVE THEM REMOVED AND PROPERLY DISPOSED OF.



QUANTITY CONTROL DATA

EXISTING CONDITIONS:	
TOTAL AREA	= 11,590 S.F. OR 0.27 AC.
IMPERVIOUS AREA	= 3,598 S.F. OR 0.083 AC.
CN	= 84
10-YR FLOW:	1.3 CFS
100-YR FLOW:	2.6 CFS
PROPOSED CONDITIONS:	
TOTAL AREA	= 11,590 S.F. OR 0.27 AC.
IMPERVIOUS AREA	= 11,590 S.F. OR 0.27 AC.
CN	= 98
10-YR FLOW:	1.7 CFS
100-YR FLOW:	2.9 CFS
PROPOSED CONDITIONS (WITH DETENTION):	
10-YR FLOW:	1.2 CFS
100-YR FLOW:	2.1 CFS

LIFE STORAGE - MEASURED SUBAREA - ESDv COMPUTATIONS

LOD	0.62	AC
SITE IMPERVIOUS:	88	PERCENT
SITE Rv:	0.95	
Target ESDv Required:	1733	CF

$R_v = 0.05 + 0.009X_1$
 $V_{min} = 1.0'' \text{ rainfall} [1.0 \times 0.95 \times A] / 12$
 $V_{max} = 1 \text{ yr rainfall} = 2.6'' [2.6 \times 0.95 \times A] / 12$

DA #	% IMPERV	Rv	DA (SF)	DA (AC)	1.0" MIN. VOLUME	2.6" MAX VOLUME	VOLUME PROVIDED*	IMPERV (SF)	IMPERV (AC)	GREEN AREA	REMARKS
A	100.0	0.9500	11590	0.27	918	2386	1789	11590	0.27	0.00	MODULAR WETLAND (MWS-L-8-8)
											103 sf Required Surface Area 1.95 in PE
											1,342 cf Required Prestorage Area 48 IN pipe
											704 cf Provided Prestorage Area (Pipe Storage) 56 LF pipe
PROJECT TOTALS	100.0	0.9500	11590	0.27	918	2386	1789	11590	0.27	0.00	

Maintenance Notes

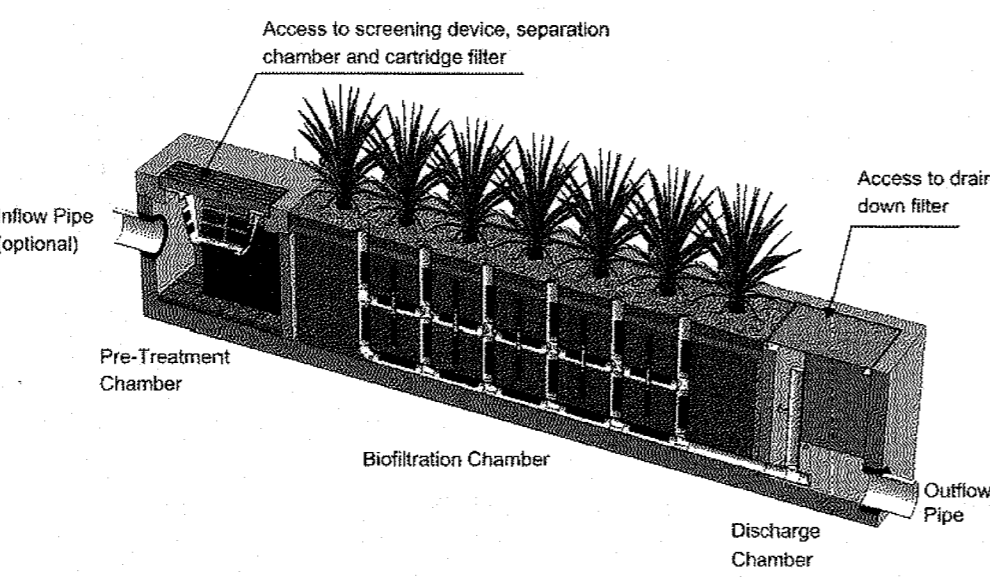
- Following maintenance and/or inspection, it is recommended the maintenance operator prepare a maintenance/inspection record. The record should include any maintenance activities performed, amount and description of debris collected, and condition of the system and its various filter mechanisms.
- The owner should keep maintenance/inspection record(s) for a minimum of five years from the date of maintenance. These records should be made available to the governing municipality for inspection upon request at any time.
- Transport all debris, trash, organics and sediments to approved facility for disposal in accordance with local and state requirements.
- Entry into chambers may require confined space training based on state and local regulations.
- No fertilizer shall be used in the Biofiltration Chamber.
- Irrigation should be provided as recommended by manufacturer and/or landscape architect. Amount of irrigation required is dependent on plant species. Some plants may require irrigation.

Maintenance Guidelines for Modular Wetland System - Linear

Maintenance Summary

- Remove Trash from Screening Device - average maintenance interval is 6 to 12 months. (5 minute average service time)
- Remove Sediment from Separation Chamber - average maintenance interval is 12 to 24 months. (10 minute average service time)
- Replace Cartridge Filter Media - average maintenance interval 12 to 24 months. (10-15 minute per cartridge average service time)
- Replace Drain Down Filter Media - average maintenance interval is 12 to 24 months. (5 minute average service time)
- Trim Vegetation - average maintenance interval is 6 to 12 months. (Service time varies)

System Diagram



Maintenance Procedures

Screening Device

- Remove grate or manhole cover to gain access to the screening device in the Pre-Treatment Chamber. Vault type units do not have screening device. Maintenance can be performed without entry.
- Remove all pollutants collected by the screening device. Removal can be done manually or with the use of a vacuum truck. The hose of the vacuum truck will not damage the screening device.
- Screening device can easily be removed from the Pre-Treatment Chamber to gain access to separation chamber and media filters below. Replace grate or manhole cover when completed.

Separation Chamber

- Perform maintenance procedures of screening device listed above before maintaining the separation chamber.
- With a pressure washer spray down pollutants accumulated on walls and cartridge filters.
- Vacuum out Separation Chamber and remove all accumulated pollutants. Replace screening device, grate or manhole cover when completed.

Cartridge Filters

- Perform maintenance procedures on screening device and separation chamber before maintaining cartridge filters.
- Enter separation chamber.
- Unscrew the two bolts holding the lid on each cartridge filter and remove lid.
- Remove each of 4 to 8 media cages holding the media in place.
- Spray down the cartridge filter to remove any accumulated pollutants.
- Vacuum out old media and accumulated pollutants.
- Reinstall media cages and fill with new media from manufacturer or outside supplier. Manufacturer will provide specification of media and sources to purchase.
- Replace the lid and tighten down bolts. Replace screening device, grate or manhole cover when completed.

Drain Down Filter

- Remove hatch or manhole cover over discharge chamber and enter chamber.
- Unlock and lift drain down filter housing and remove old media block. Replace with new media block. Lower drain down filter housing and lock into place.
- Exit chamber and replace hatch or manhole cover.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE 6/22/21

 CHIEF, DIVISION OF LAND DEVELOPMENT DATE 6/21/21

www.modularwetlands.com

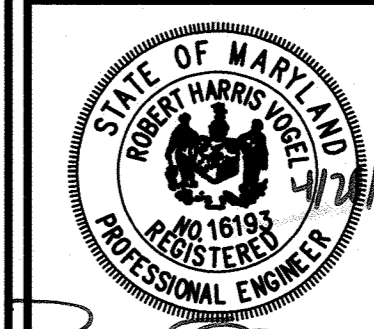
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DESIGN BY: RHV
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 CHECKED BY: RHV
 DATE: JANUARY 2021
 SCALE: AS SHOWN
 W.O. NO.: 4294B

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: 09-27-2022.

4 SHEET OF 4