

GENERAL NOTES

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY STANDARDS AND SPECIFICATIONS. ALL WORK AND MATERIALS SHALL COMPLY WITH O.S.H.A. STANDARDS.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
- THE CONTRACTOR IS TO NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE DAYS BEFORE STARTING WORK ON THESE DRAWINGS:
 MISS UTILITY: 1-800-257-7777
 VERIZON: 1-800-743-0033
 BUREAU OF UTILITIES: 410-313-6900
 AT&T: 1-800-252-1133
 B.G.&E. (CONSTRUCTION SERVICES): 410-637-8713
 B.G.&E. (EMERGENCY): 410-685-0123
 STATE HIGHWAY ADMINISTRATION: 410-531-5533
 COLONIA PIPELINE CO.: 410-795-1390
- SITE ANALYSIS:**
 PARCEL AREA: 1.59 AC.
 PRESENT ZONING: B-1
 USE OF STRUCTURE: DAY CARE FACILITY
 TOTAL BUILDING COVERAGE: 12,404 SF (0.28 AC. OR 17.61% OF GROSS AREA)
 PAVED PARKING LOT/AREA ON SITE: 1,172 SF (0.03 AC. OR 2.39% OF GROSS AREA)
 AREA OF LANDSCAPE ISLAND: 1,315 SF (0.03 AC. OR 1.89% OF GROSS AREA)
 LIMIT OF DISTURBED AREA: 1.26 AC.
 CUT: 942 CY FILL: 6,886
 WETLANDS ON SITE: 0.06 AC.
 WETLAND BUFFERS ON SITE: 0.19 AC.
 STREAMS AND THEIR BUFFERS ON SITE: 0.34 AC.
 AREA OF ON-SITE 100 YEAR FLOODPLAIN: 0.00 AC.
 AREA OF EXISTING FOREST ON SITE: 0.60 AC.
 AREA OF STEEP SLOPES: 0.00 AC.
 AREA OF ERODIBLE SOILS: 0.37 AC.
 AREA MANAGED BY ESDV (*THIS PLAN): 0.81 AC.
 *IMPERVIOUS AREA: 0.73 AC.
 *GREEN AREA: 0.08 AC.
- PROJECT BACKGROUND:**
 LOCATION: ELLICOTT CITY, MD, TAX MAP 24, BLOCK 2, PARCEL 993
 SUBDIVISION: ELLICOTT INVESTMENTS, LLC SUBDIVISION - PARCEL B
 SECTION/AREA: N/A
 SITE AREA: 1.59 AC.
 DPZ REFERENCES: PLAT 22168, F-12-099, ECP-14-021, WP-15-040, PLAT 23480 (F-16-006), SDP-04-089
- 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.
- ANY DAMAGE TO PUBLIC RIGHT-OF-WAY, PAVING, OR EXISTING UTILITIES WILL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
- EXISTING UTILITIES LOCATED FROM ROAD CONSTRUCTION PLANS, FIELD SURVEYS, PUBLIC WATER AND SEWER EXTENSION PLANS AND AVAILABLE RECORDS, APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN FOR THE CONTRACTOR'S INFORMATION. CONTRACTOR SHALL LOCATE EXISTING UTILITIES WELL IN ADVANCE OF CONSTRUCTION ACTIVITIES AND TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE UTILITIES AND TO MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
- ALL REINFORCED CONCRETE FOR STORM DRAIN STRUCTURES SHALL HAVE A MINIMUM OF 28 DAYS STRENGTH OF 3,500 P.S.I.
- 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.
- ESTIMATES OF EARTHWORK QUANTITIES ARE PROVIDED SOLELY FOR THE PURPOSE OF CALCULATING FEES.
- SOIL COMPOSITIONS, REQUIREMENTS, METHODS AND MATERIALS ARE TO BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE PROJECT GEOTECHNICAL ENGINEER. GEOTECHNICAL ENGINEER TO CONFIRM ACCEPTABILITY OF PROPOSED PAVING SECTION, BASED ON SOIL TEST PRIOR TO CONSTRUCTION.
- COORDINATES AND ELEVATIONS ARE BASED ON MARYLAND COORDINATE SYSTEM - NAD83(1991) AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 244A AND 2485.
- THE PROJECT TOPOGRAPHY SHOWN HEREON IS BASED ON A BOUNDARY SURVEY PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED JUNE 13, 2011.
- THE EXISTING TOPOGRAPHY SHOWN HEREON IS TAKEN FROM A FIELD RUN SURVEY BY ROBERT H. VOGEL ENGINEERING, INC., AND WAS PERFORMED ON 08/28/12, AND 11/12/13.
- REFERENCE GEOTECHNICAL REPORT PREPARED BY ECS MID-ATLANTIC, LLC DATED DECEMBER 13, 2013 FOR SUBSURFACE EXPLORATION TESTING AT BORINGS: H-1 THROUGH H-4.
- THE GEOTECHNICAL ENGINEER TO CONFIRM PAVING SECTION PRIOR TO CONSTRUCTION. ALL PAVING TO BE PAVING PER GEOTECHNICAL RECOMMENDATIONS.
- ALL CURB AND GUTTER TO BE HOWARD COUNTY STANDARD DETAIL 3.01 UNLESS OTHERWISE NOTED.
- WHERE DRAINAGE FLOWS AWAY FROM CURB, CONTRACTOR SHALL PROVIDE THE GUTTER PAN.
- ALL ELEVATIONS ARE TO FLOWLINE/BOTTOM OF CURB UNLESS OTHERWISE NOTED.
- ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
- CONTRACTOR RESPONSIBLE FOR CONSTRUCTING ALL HANDICAP RAMPS AND HANDICAP ACCESS IN ACCORDANCE WITH CURRENT ADA REQUIREMENTS.
- PUBLIC WATER AVAILABLE THROUGH CONTRACT NO. 71-W. PUBLIC SEWER AVAILABLE THROUGH CONTRACT NO. 411-S.
- TRAFFIC STUDY PREPARED BY THE MARS GROUP, DATED OCTOBER 11, 2013; APPROVED 08/28/14. TRAFFIC STUDY UPDATED APRIL 24, 2017 FOR YOUNG SCHOOL.
- THE SUBJECT PROPERTY IS ZONED B-1 IN ACCORDANCE WITH THE 10/06/13 COMPREHENSIVE ZONING PLAN.
- THERE IS NO 100-YEAR FLOODPLAIN LOCATED ON SITE.
- A NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT.
- THE FOREST CONSERVATION OBLIGATIONS FOR THIS PROJECT HAVE BEEN SATISFIED BY 0.26 ACRES OF FOREST RETENTION AND 0.07 ACRES OF REFORESTATION PLANTING UNDER F-16-006. A FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO ENCOMPASS THESE AREAS. SURETY IS NOT REQUIRED FOR ON-SITE RETENTION, FINANCIAL SURETY FOR THE REQUIRED REFORESTATION PLANTING (3,049 SF X 0.50 SF) IS \$1,525.00 AND HAS BEEN PREVIOUSLY POSTED.
- ALL STORMDRAIN PIPE BEDDING IS TO BE CLASS "C" AS REQUIRED BY AASHTO-180.
- PUBLIC WATER TO BE INSTALLED USING THE ADD PROCESS.
- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND THE LANDSCAPE MANUAL.
- THERE IS ONE SPECIMEN TREE LOCATED ON THE SUBJECT PROPERTY. ITS LOCATION IS SHOWN ON THE PLAN AND SHALL BE REMOVED FOR THE DEVELOPMENT OF THIS PROJECT. A WAIVER IS REQUIRED FOR THE REMOVAL OF ONE SPECIMEN TREE. THIS PLAN IS SUBJECT TO WP-15-040, APPROVED OCTOBER 21, 2014, TO REMOVE ONE SPECIMEN TREE. APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:
 A. APPROVAL IS GRANTED FOR THE REMOVAL OF ONE 30" TULIP POPULAR SPECIMEN TREE AND AS IDENTIFIED ON THE WAIVER PETITION EXHIBIT.
 B. THE DEVELOPER PROPOSES THE PLACEMENT OF APPROXIMATELY 0.20 AC. OF EXISTING FOREST AND 0.07 AC. OF REFORESTATION IN AN ON-SITE FOREST CONSERVATION EASEMENT. IN ADDITION PERIMETER LANDSCAPING, STORM WATER MANAGEMENT PLANTINGS AND STREET TREES WILL BE PROVIDED. ALL PROPOSED LANDSCAPE PLANTINGS AND CREATION OF FOREST CONSERVATION EASEMENT AREA WILL SERVE TO MITIGATE THE REMOVAL OF ONE SPECIMEN TREE.
- FOREST STAND DELINEATION PLAN WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC., DATED AUGUST 21, 2013.
- WETLANDS SHOWN ON-SITE ARE BASED ON FIELD INVESTIGATION PREPARED BY ECO-SCIENCE PROFESSIONALS, INC., DATED AUGUST 21, 2013. THERE ARE NO PROPOSED DISTURBANCES TO THE WETLANDS OR ASSOCIATED BUFFERS.
- NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE REQUIRED WETLANDS, STREAMS OR THEIR BUFFERS, AND FOREST CONSERVATION AREAS.
- ANY EXISTING STREET TREES DAMAGED OR DESTROYED DURING CONSTRUCTION WILL BE REPLACED BY THE CONTRACTOR.
- THIS PROJECT IS SUBJECT TO COMPLIANCE WITH THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. DEVELOPMENT OR CONSTRUCTION ON THIS PROPERTY MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, WAIVER PETITION APPLICATION OR BUILDING/GRADING PERMIT APPLICATIONS.
- EXISTING BETHANY LANE IS CLASSIFIED MINOR ARTERIAL ROAD.
- ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL PERFORATED SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL PERFORATED SQUARE TUBE SLEEVE (12 GAUGE) - 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
- THE PROPOSED BUILDING WILL HAVE AN AUTOMATIC FIRE PROTECTION SPRINKLER SYSTEM.
- ALL EXTERIOR LIGHTING TO COMPLY WITH THE REQUIREMENTS FOUND IN ZONING SECTION 134 OF THE HOWARD COUNTY ZONING REGULATIONS. LIGHTING SHALL BE DIRECTED DOWN AND AWAY FROM RESIDENTIAL PROPERTIES.
- A KNOX BOX IS REQUIRED TO BE PLACED ON THE FRONT OF THE BUILDING. IT SHALL BE PLACED TO THE RIGHT OF THE MAIN ENTRANCE AT A RANGE OF 4'-5' IN HEIGHT AND NO MORE THAN 6' LATERALLY FROM THE DOOR. ITS LOCATION IS SHOWN ON THESE PLANS. THE BOX SHALL BE ELECTRONICALLY SUPERVISED BY THE DOOR. ITS LOCATION IS SHOWN ON THESE PLANS. THE BOX SHALL BE ELECTRONICALLY SUPERVISED TO NOTIFY THE OWNER THAT IT IS BEING ACCESSSED (INTEGRATED WITH THE FIRE ALARM SYSTEM).
- LANDSCAPING NOT PERMITTED WITHIN 7'-1/2' OF EACH SIDE OF THE FIRE DEPARTMENT CONNECTION. PROVIDE A CLEAR UNOBSTRUCTED ACCESS PATH TO THE FIRE DEPARTMENT CONNECTION. NFPA-1 13.1.4.
- STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME II (2006), SECTION 5.5.A. A MINIMUM OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
- TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THERE ARE NO BURIAL GROUNDS, CEMETERIES, OR HISTORIC STRUCTURES LOCATED ON THIS PROPERTY.
- TRASH COLLECTION AND RECYCLABLES TO BE PRIVATE.
- NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE WETLANDS, STREAMS OR THEIR BUFFERS, AND FOREST CONSERVATION AREAS.
- 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.
- STORMWATER MANAGEMENT FOR THIS PROJECT IS BEING PROVIDED BY ENVIRONMENTAL SITE DESIGN UTILIZING MICRO-BIORETENTION FACILITIES (M-6) AND DRY WELLS (M-5) TO ACCOMMODATE THE TOTAL ESQ VOLUME REQUIRED. SWM FACILITIES TO BE PRIVATELY OWNED AND MAINTAINED.
- THIS SITE IS NOT LOCATED IN A HISTORIC DISTRICT.
- NO RARE, THREATENED OR ENDANGERED SPECIES WERE OBSERVED ON THE PROPERTY.
- FINANCIAL SURETY FOR REQUIRED LANDSCAPING FOR PERIMETER AND INTERNAL PARKING HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT FOR THIS SITE DEVELOPMENT PLAN IN THE AMOUNT OF \$6,630.00 FOR THE REQUIRED 15 SHADE TREES, 5 EVERGREEN TREES, AND 46 SHRUBS.
- A USE-IN-COMMON ACCESS EASEMENT HAS BEEN RECORDED UNDER PLAT 22168, AND THE ASSOCIATED DECLARATION OF EASEMENT HAS BEEN RECORDED AS L14494/F 319 ON 10/01/12.
- THE DESIGN ADVISORY PANEL MET ON THIS PROJECT AND ISSUED COMMENTS ON JUNE 12, 2013.
- ALL SIGNAGE SHALL OBTAIN APPROVAL FROM THE SIGN CODE ADMINISTRATOR.
- HEALTH DEPARTMENT APPROVAL OF THIS SITE DEVELOPMENT PLAN DOES NOT ENSURE APPROVAL OF BUILDING PERMIT APPLICATIONS ASSOCIATED WITH THIS PLAN. PLANS FOR CERTAIN FACILITIES TO BE CONSTRUCTED WITHIN THE LIMITS DESCRIBED BY THIS PLAN WILL REQUIRE REVIEW AND APPROVAL BY THE HEALTH DEPARTMENT. SUCH FACILITIES MAY INCLUDE BUT ARE NOT LIMITED TO THOSE WHICH HAVE SWIMMING POOLS, OR THAT SELL PREPARED OR PACKAGED FOODS, OR THAT MAY HAVE EQUIPMENT THAT EMITS RADIATION.

YOUNG SCHOOL - ELLICOTT CITY

DAY CARE CENTER

ELLICOTT INVESTMENTS INC., PARCEL B

3240 BETHANY LANE

ELLICOTT CITY, MD

SITE DEVELOPMENT PLAN

BENCHMARKS

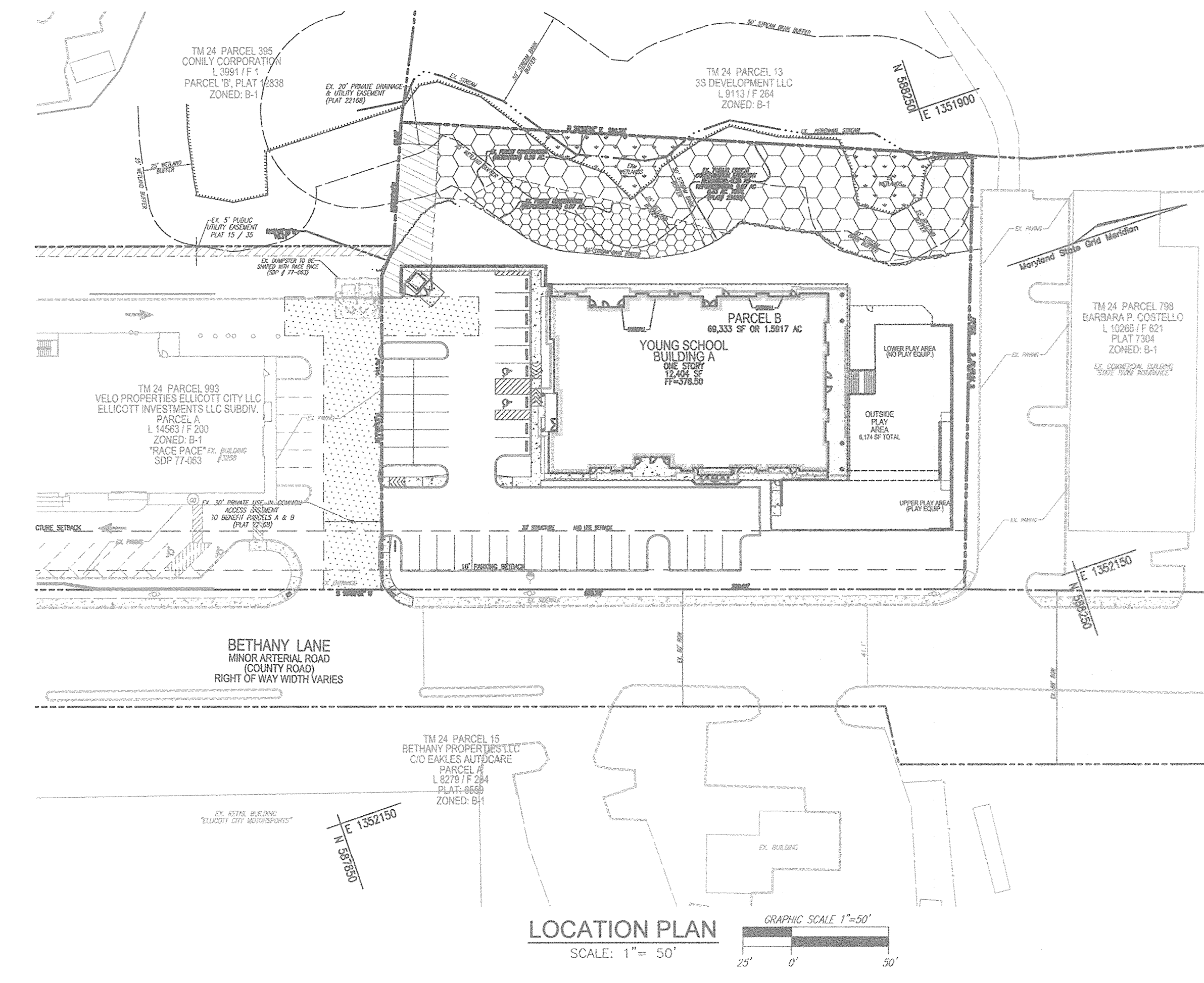
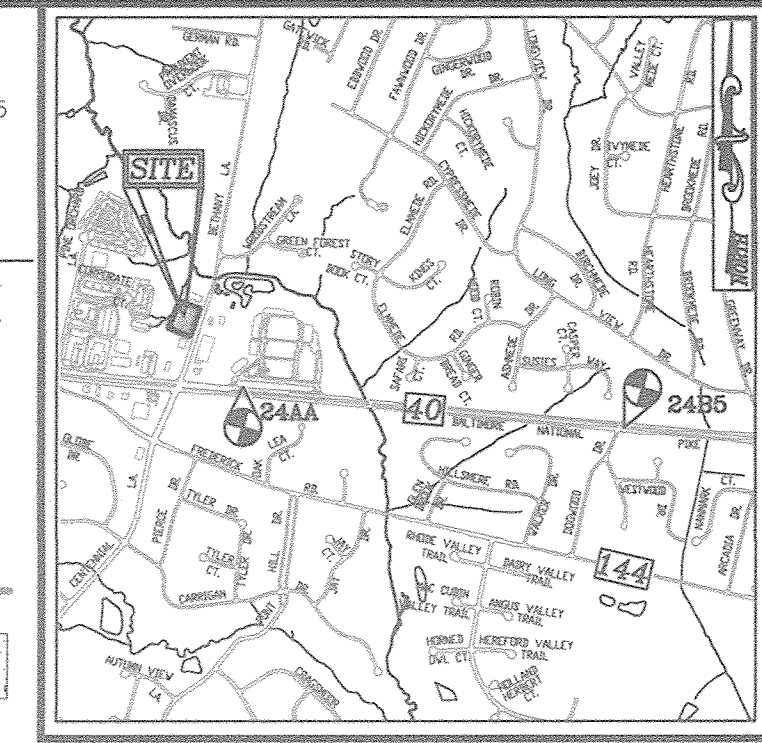
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HOWARD COUNTY STATION 244A
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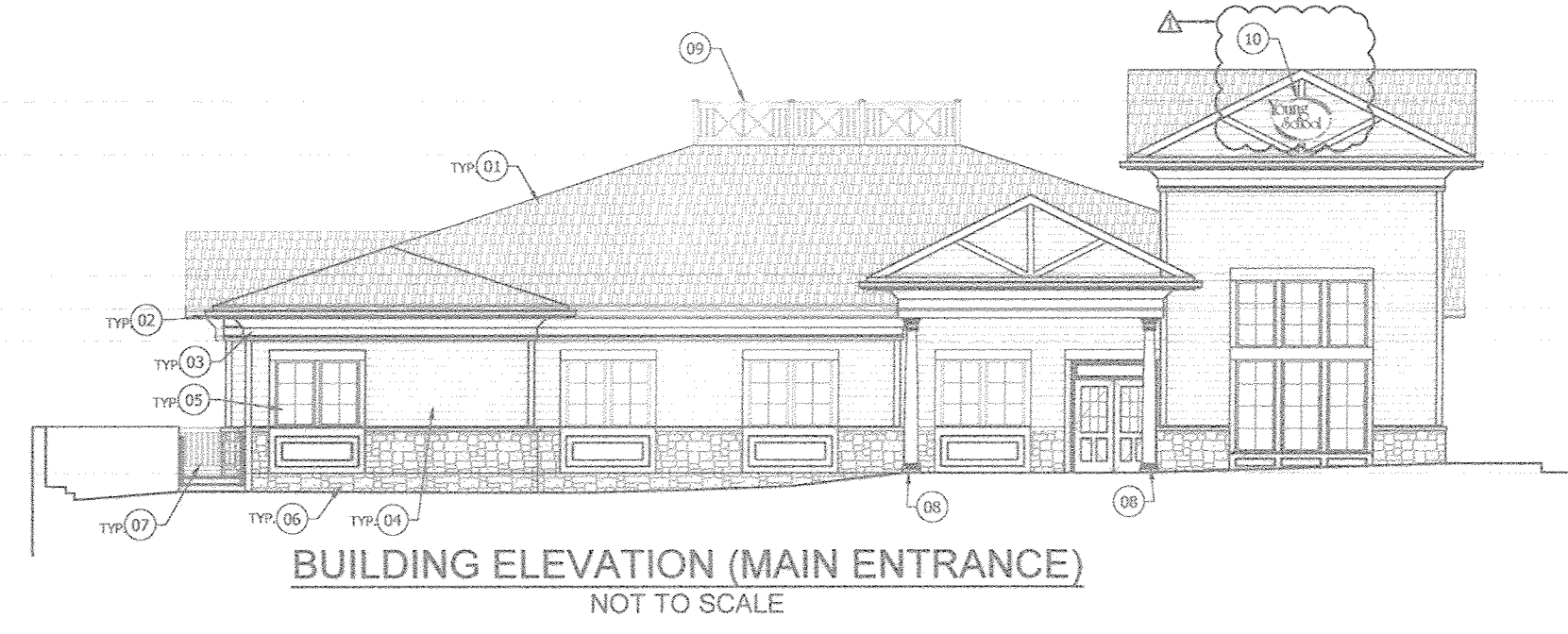
LEGEND

EXISTING CONTOUR
 PROPOSED CONTOUR
 EXISTING SPOT ELEVATION
 PROPOSED SPOT ELEVATION
 DIRECTION OF FLOW
 EXISTING TREES TO REMAIN

LIGHT POLES
 SOIL TYPE
 CONCRETE



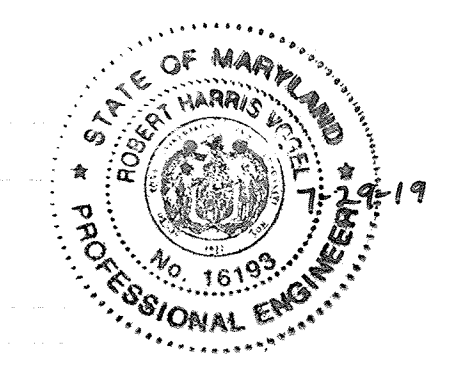
- 28" BLDG MAIN ROOF
- 27" 11-3/4" TRUSS BEARING TOWER ROOF
- 14-3/4" TRUSS BEARING ENTW & INT ROOMS
- 12" 4-1/2" TRUSS BEARING MAIN ROOF
- 10" 6" B.O. SORTE MAIN ROOF
- 0" 0" FIRST FLOOR
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SHEET INDEX

COVER SHEET	DESCRIPTION	SHEET NO.
1	LAYOUT SHEET AND SITE DETAILS	1 OF 9
2	GRADING AND SEDIMENT CONTROL PLAN; SOILS MAP AND UTILITY PROFILES	2 OF 9
3	SEDIMENT AND EROSION CONTROL NOTES AND DETAILS	3 OF 9
4	STORM DRAIN AND SWM DRAINAGE AREA MAP, SWM NOTES AND DETAILS	4 OF 9
5	LANDSCAPE AND FOREST CONSERVATION PLAN	5 OF 9
6	SITE RETAINING WALLS	6 OF 9
7		7-9 OF 9

OWNER/DEVELOPER
 JTY LLC
 8300 GUILFORD ROAD, SUITE A
 COLUMBIA, MD 21046
 C/O JOSH YOUNG
 (410) 290-7180



AS-BUILT CERTIFICATION FOR PSWM
 I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUBSTANTIALLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.

Robert H. Vogel 10/19/18 P.E. # 7-29-17 DATE

NO AS-BUILT INFORMATION ON THIS SHEET

PARKING TABULATION

BUILDING A PROPOSED DAY CAR FACILITY	REQUIRED
12,404 SF @ 3 SPACES/1000 SF	38 SPACES
TOTAL PARKING REQUIRED:	38 SPACES
TOTAL PARKING PROVIDED:	39 SPACES (INCLUDING 2 HC SPACES)

ADDRESS CHART

LOT NO.	STREET ADDRESS
PARCEL B	3240 BETHANY LANE

PERMIT INFORMATION CHART

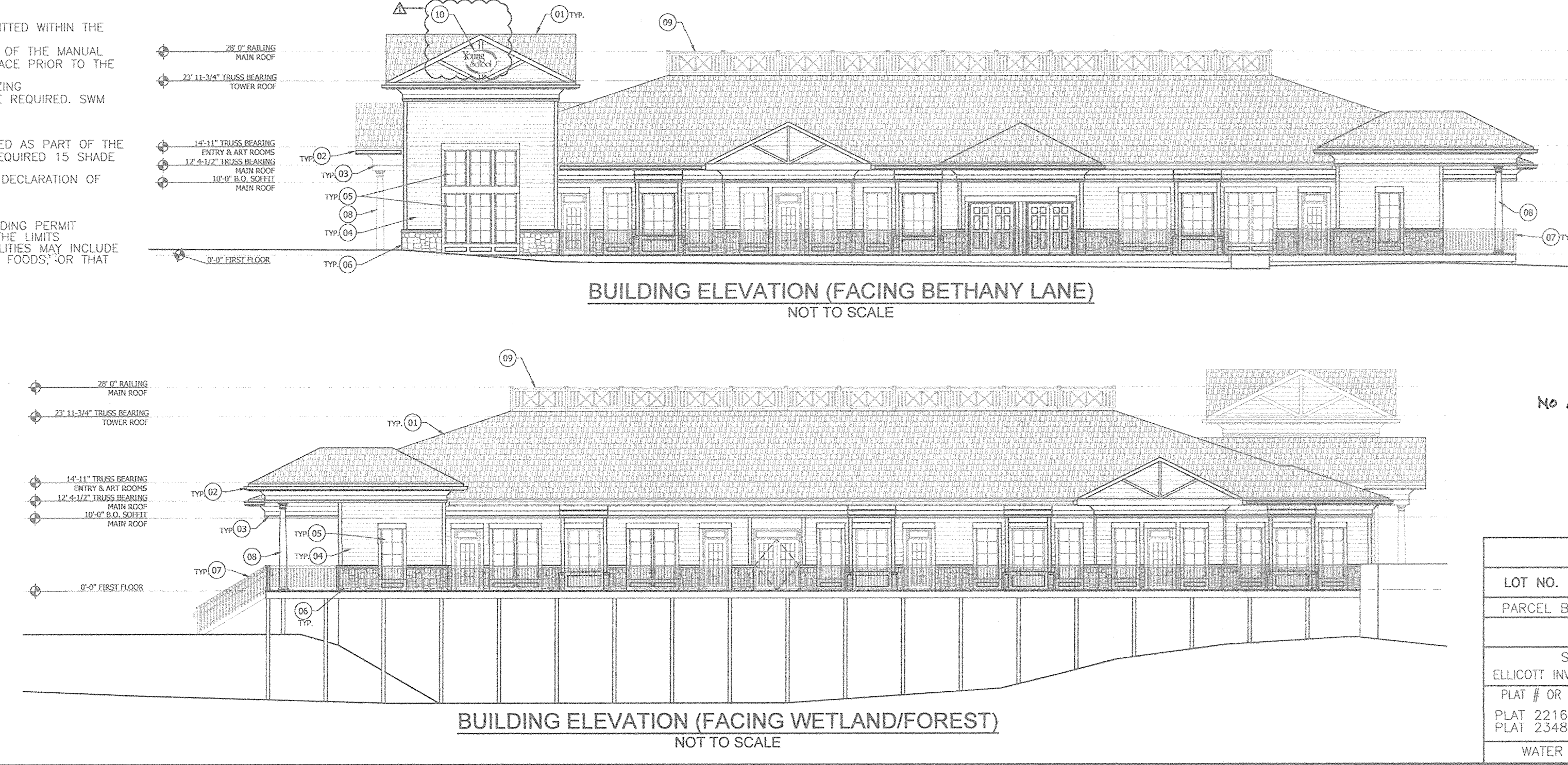
SUBDIVISION NAME	SECTION/AREA	LOTS/PARCEL #
ELLICOTT INVESTMENTS, LLC SUBDIVISION	N/A	993
PLAT # OR L/F BLOCK NO.	TAX MAP No.	ELECT. DIST.
PLAT 22168	2	2ND
PLAT 23480	B-1	6028.00
WATER CODE:	SEWER CODE:	
H08	5440000	

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS
William J. Moore 10/25/2018 DATE
 COUNTY HEALTH OFFICER
 HOWARD COUNTY HEALTH DEPARTMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Paul Chubb 10-17-17 DATE
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

Walter J. Land 10-31-17 DATE
 CHIEF, DIVISION OF LAND DEVELOPMENT

William J. Moore 10-31-17 DATE
 DIRECTOR



REVISION

NO.	REVISION	DATE
1	REVISE PLAN TO ADD GABION BASKET AT MBR#2	3-19

SITE DEVELOPMENT PLAN

COVER SHEET

YOUNG SCHOOL - ELLICOTT CITY
 DAY CARE CENTER
 ELLICOTT INVESTMENTS INC. PARCEL B PARCEL 993, PARCEL B
 TAX MAP 24 BLOCK 2 PLAT 22168 & 23480
 3240 BETHANY LANE ELLICOTT CITY, MD HOWARD COUNTY, MARYLAND
 2ND ELECTION DISTRICT

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

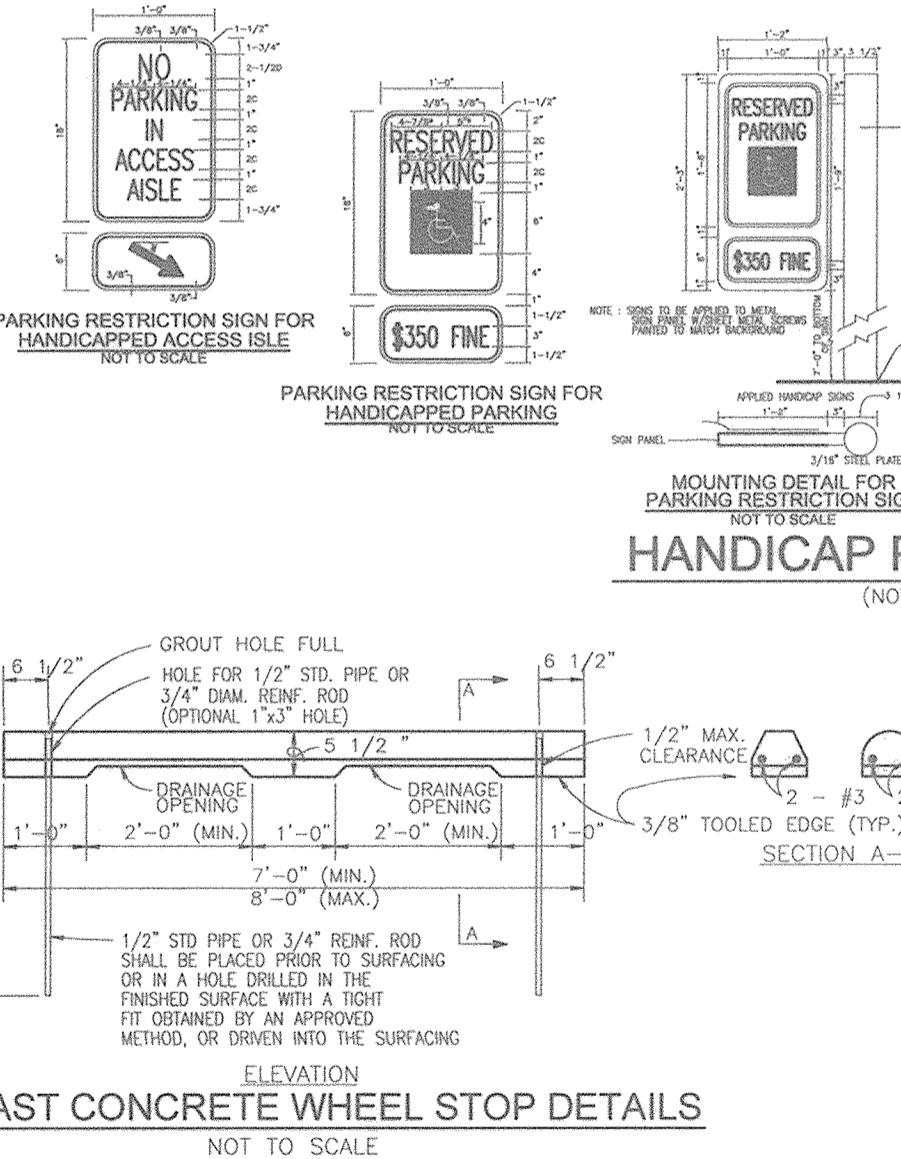
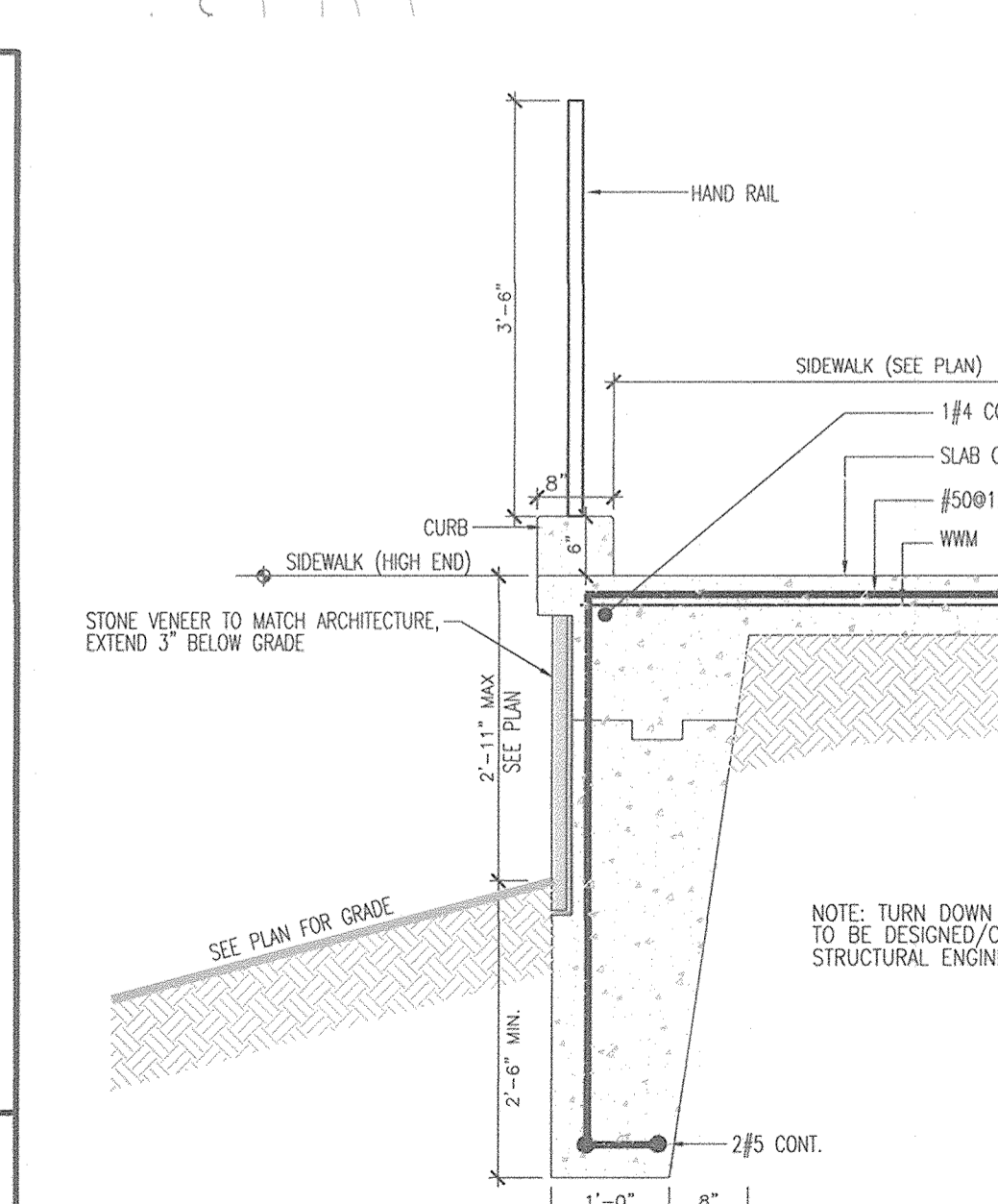
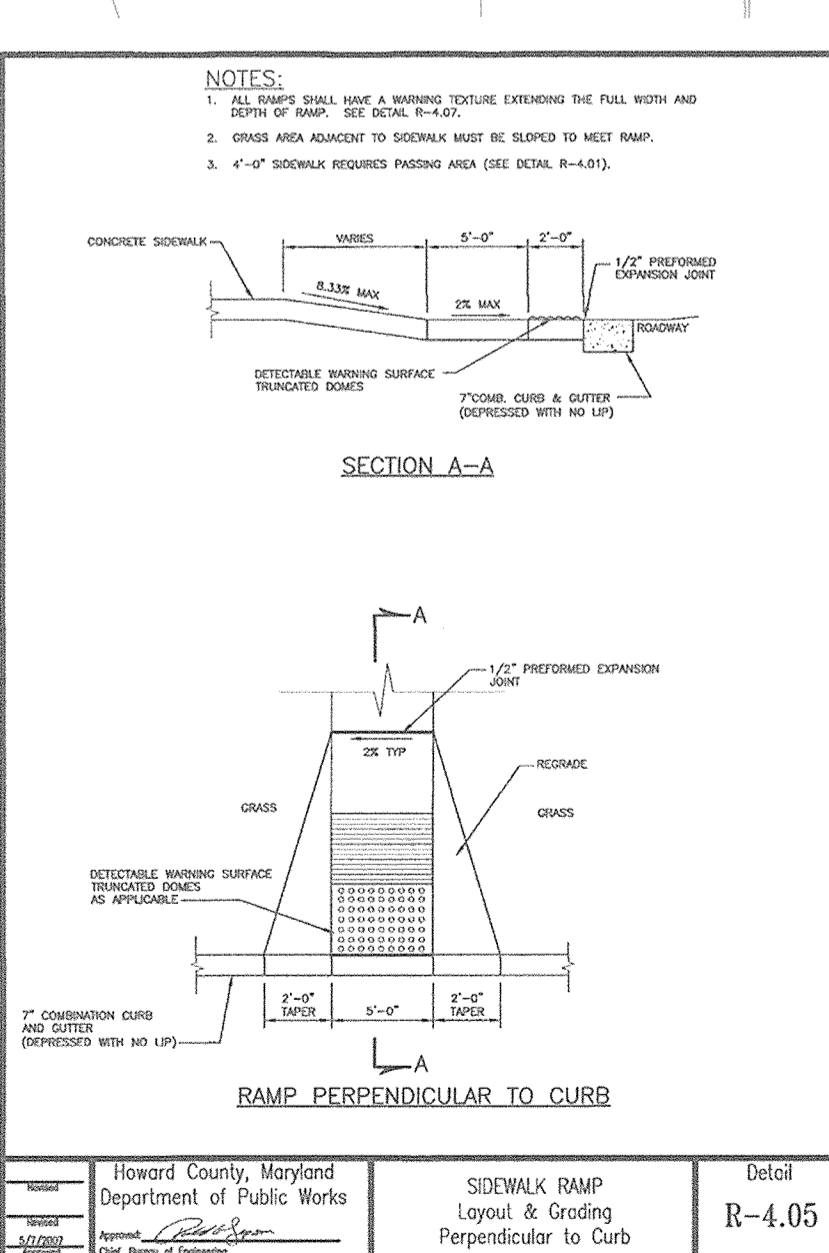
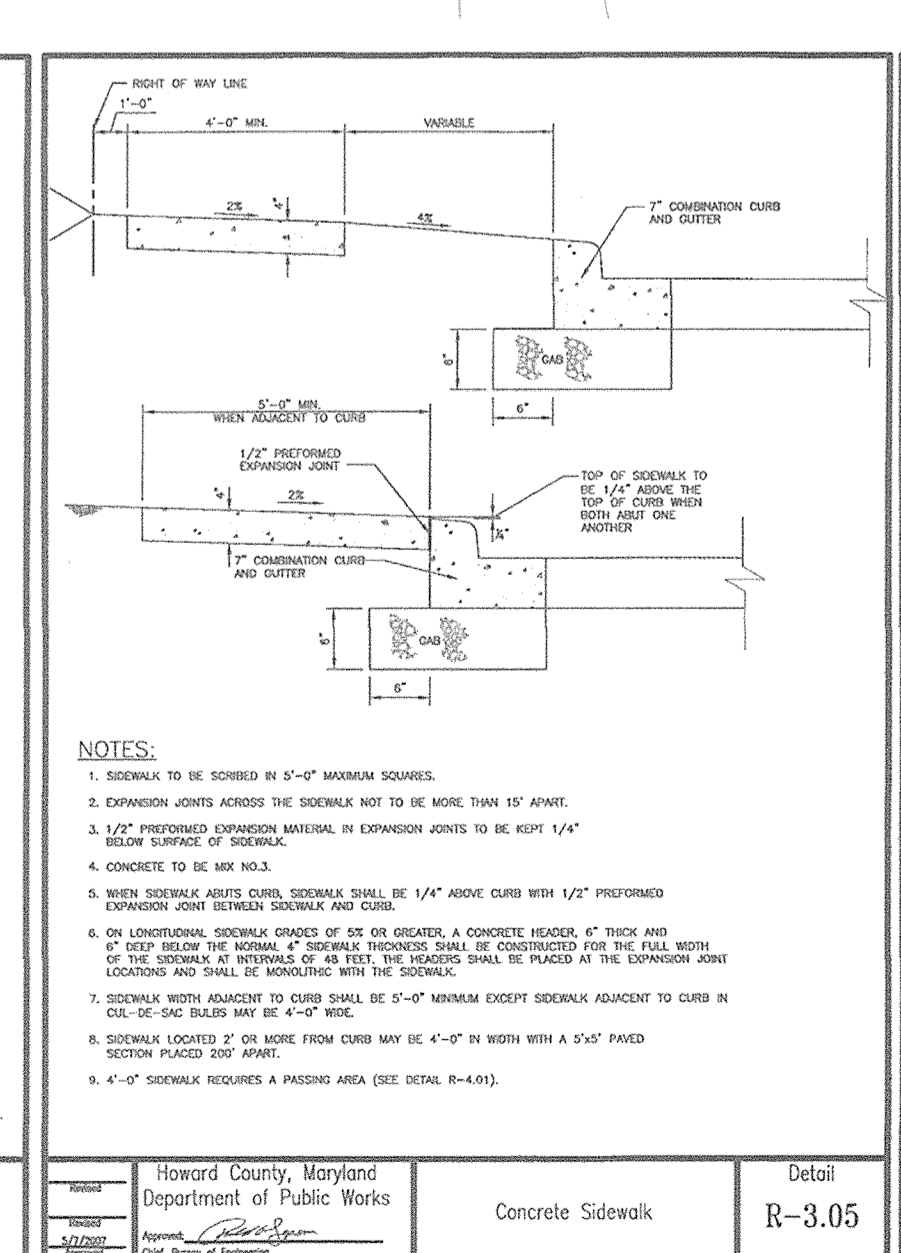
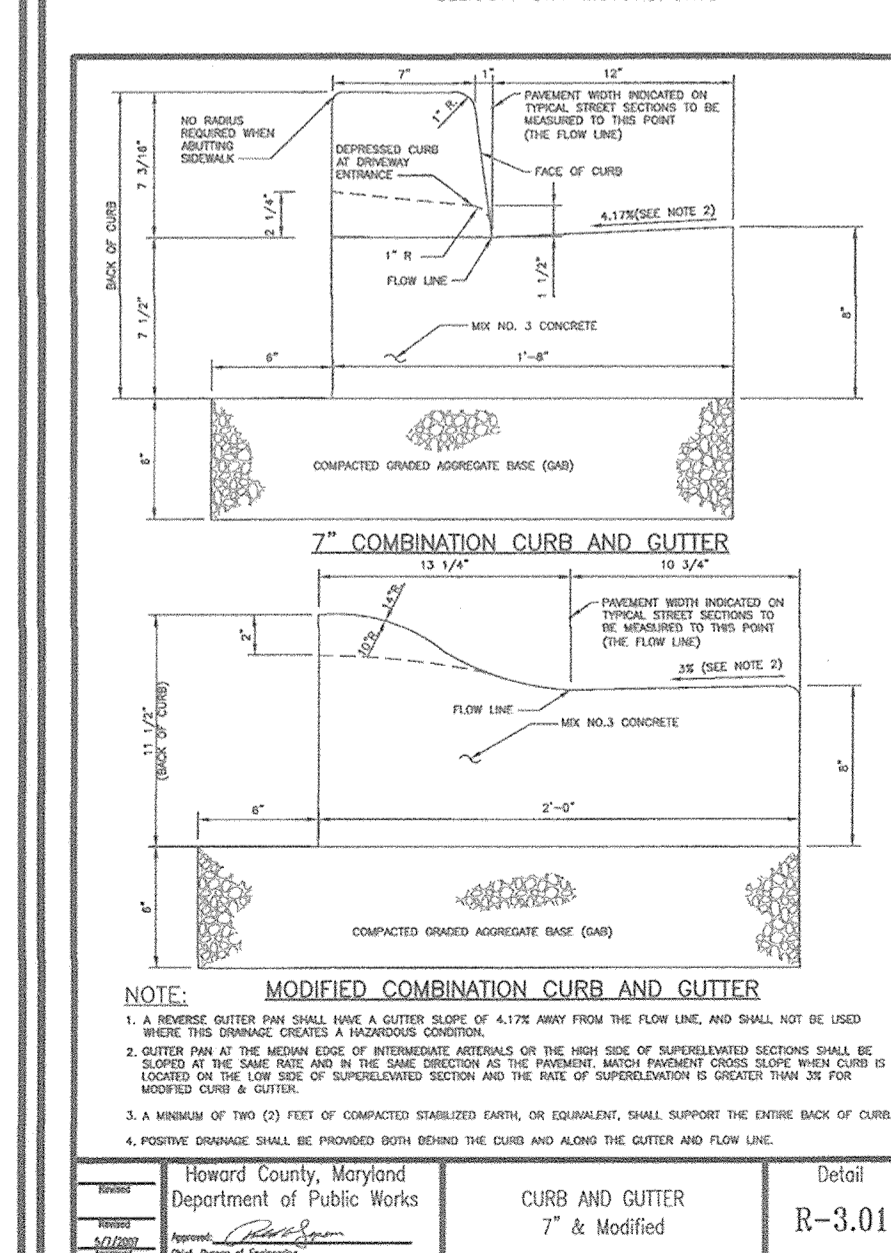
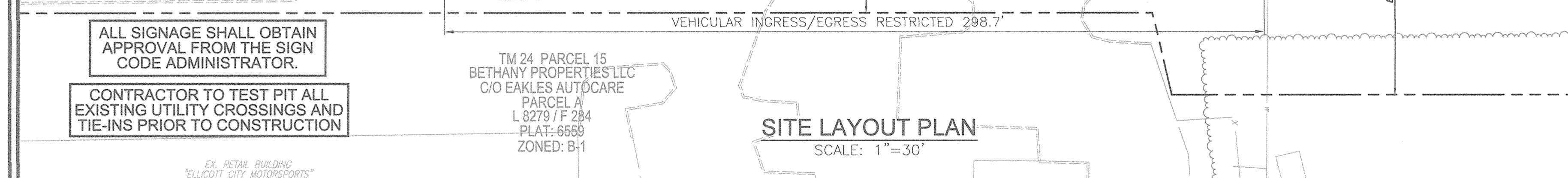
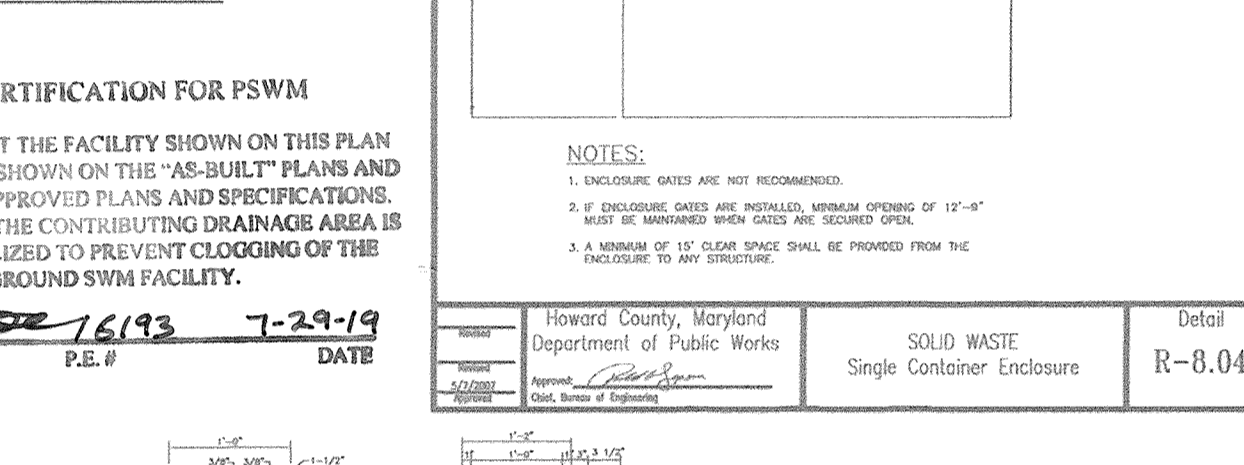
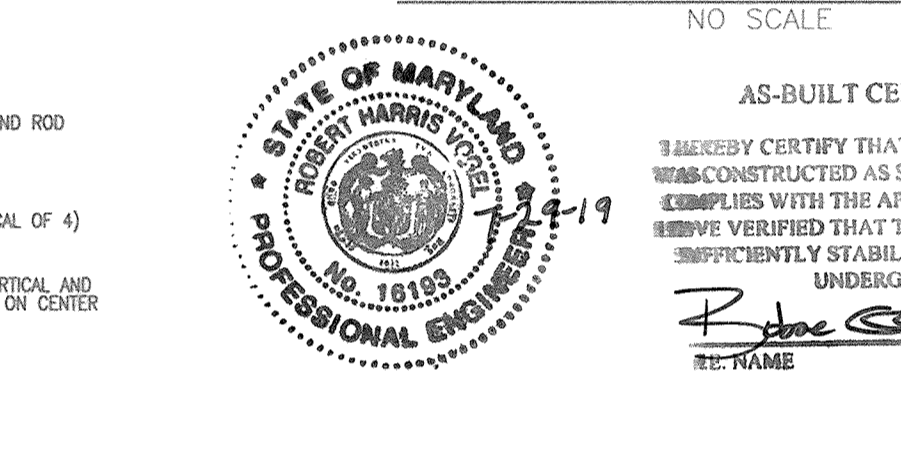
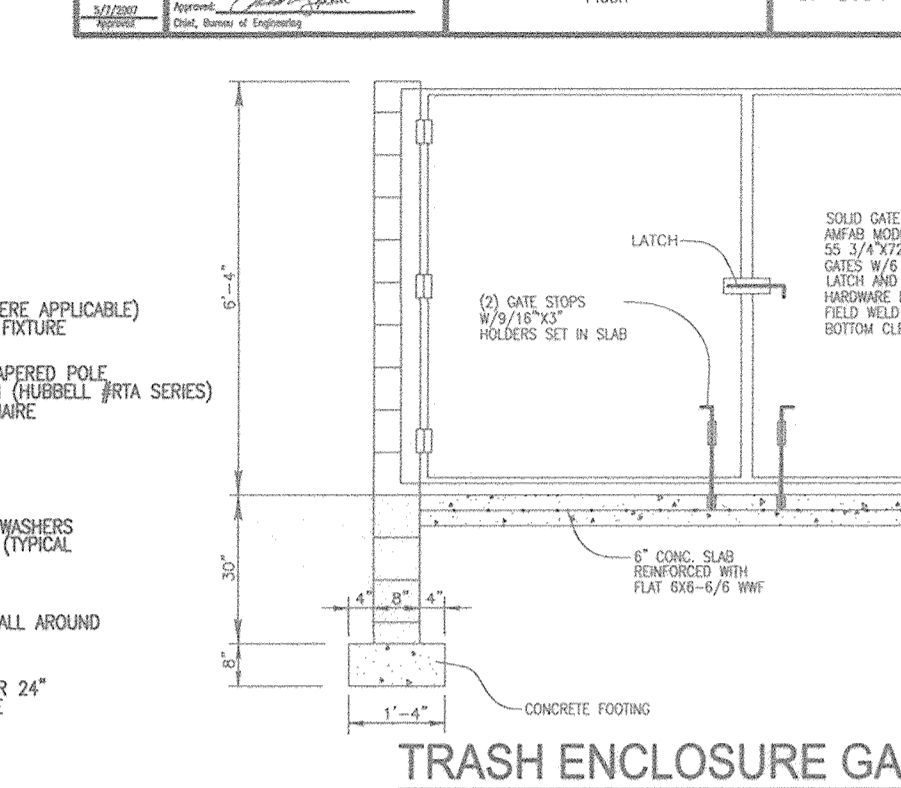
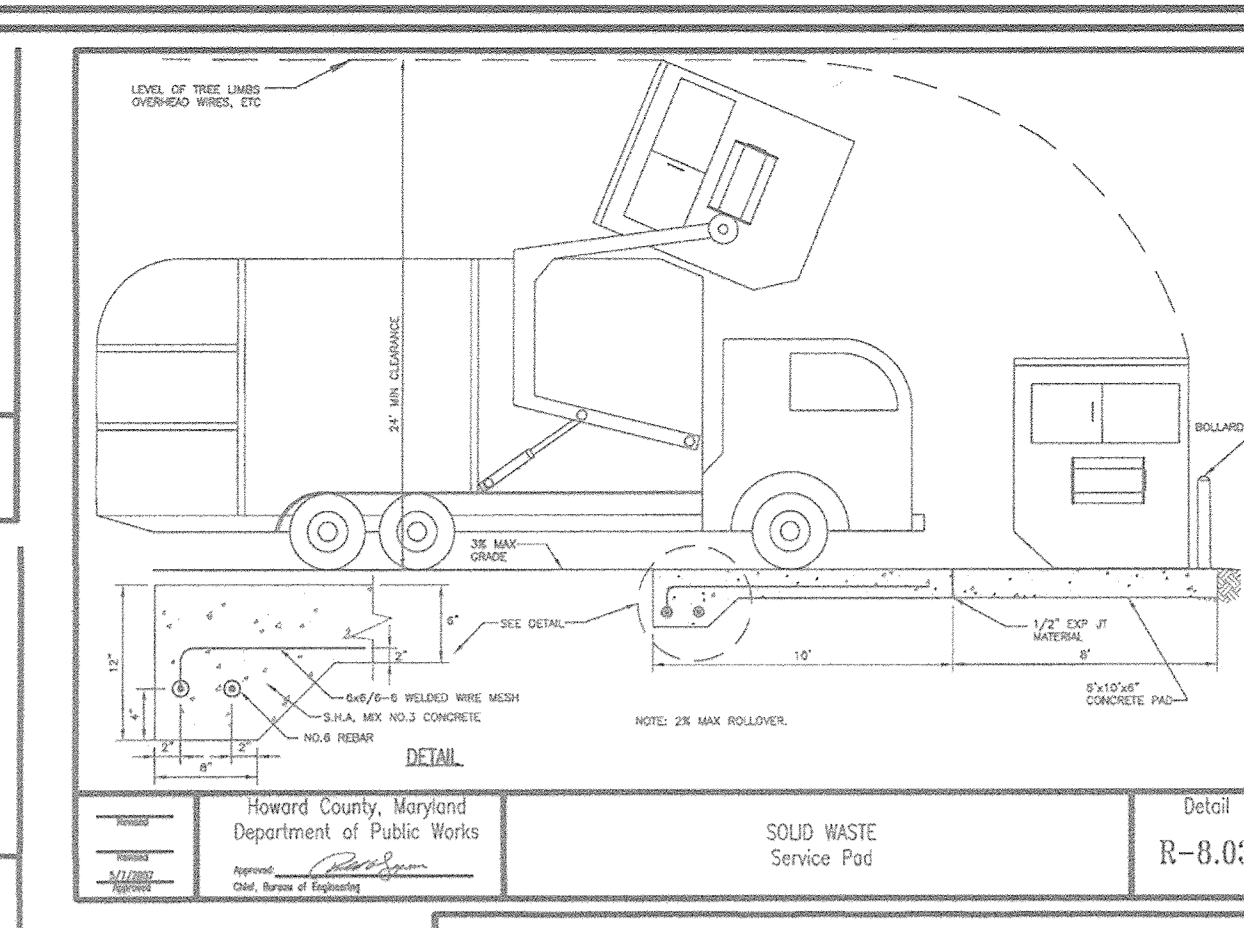
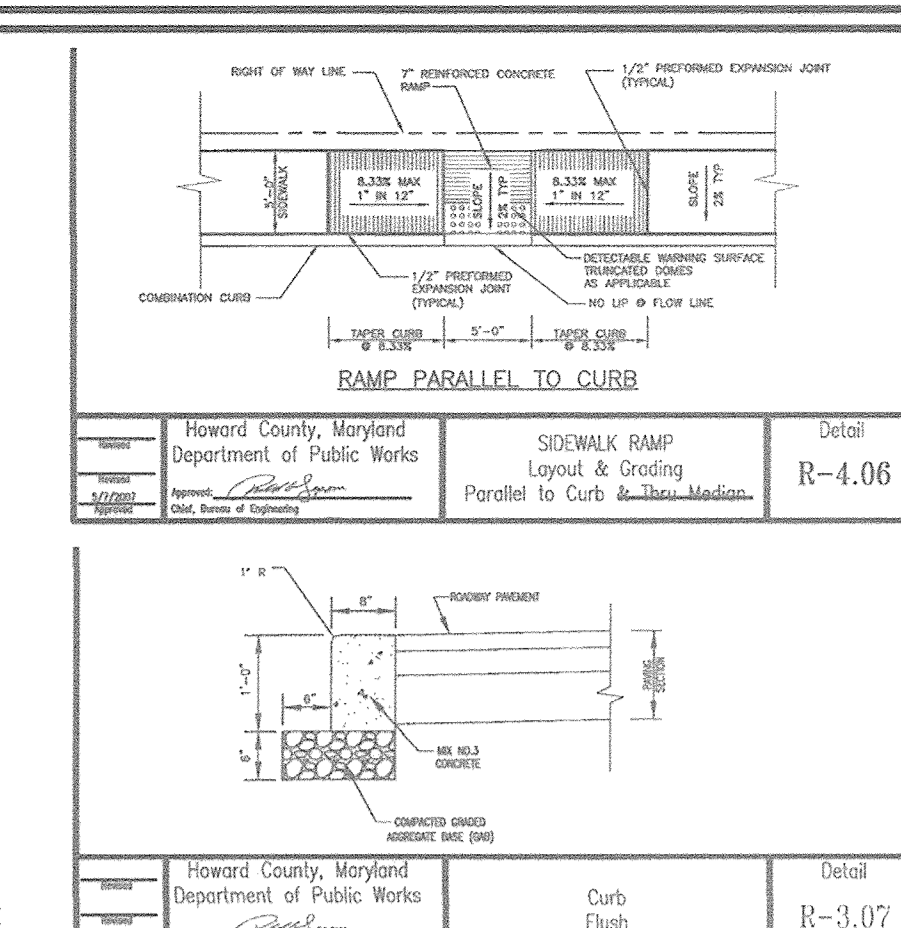
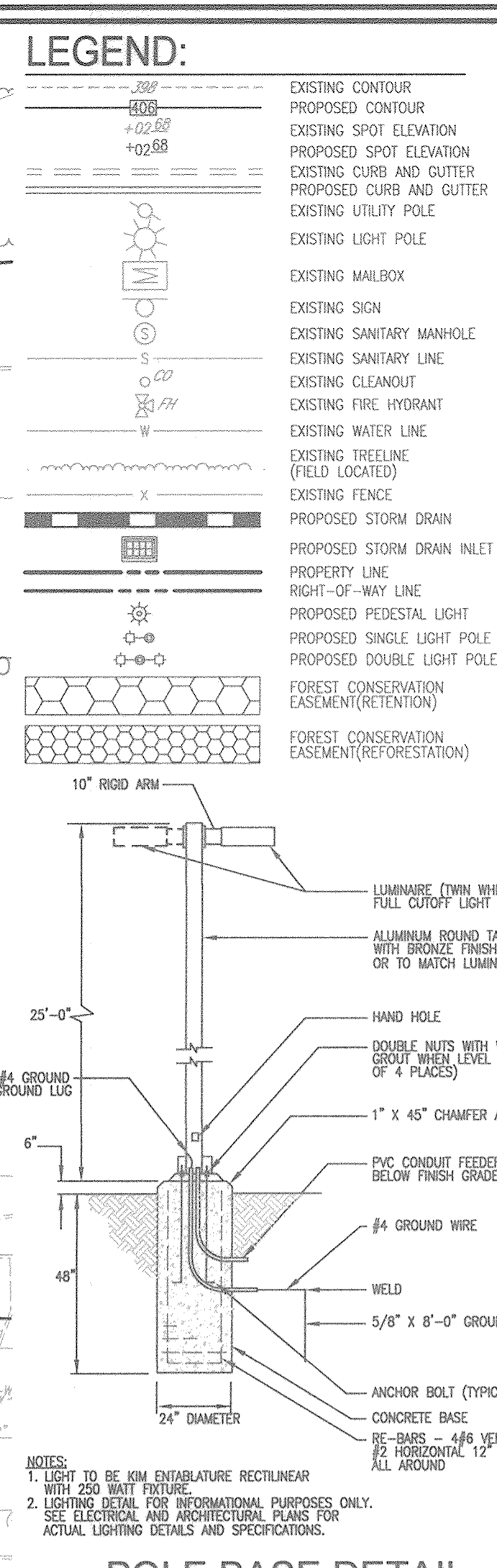
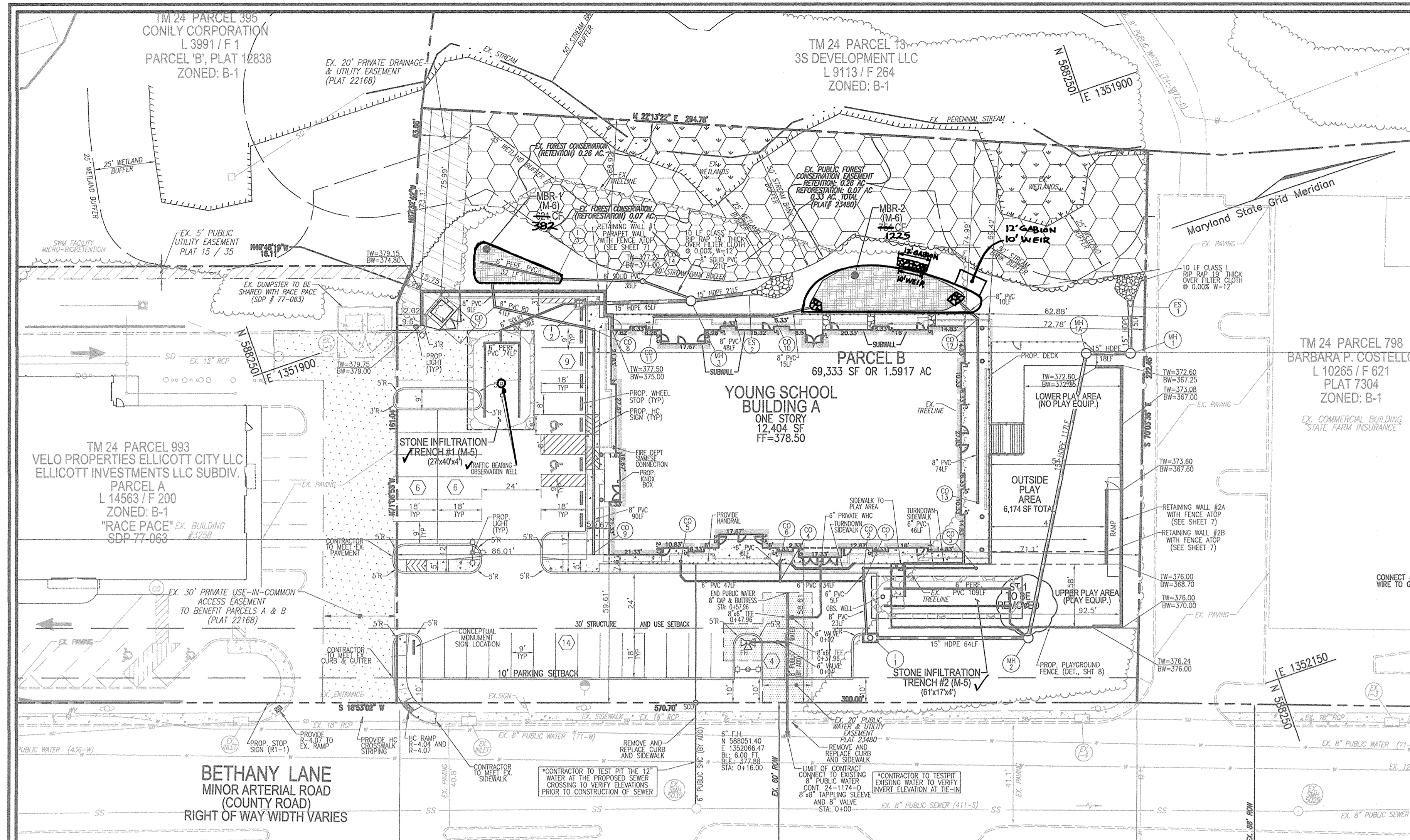
PROFESSIONAL CERTIFICATE

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

DESIGN BY: RHV/DZE
 DRAWN BY: DZE/KG
 CHECKED BY: RHV
 DATE: SEPTEMBER 2017
 SCALE: AS SHOWN
 W.O. NO.: 16-55

1 SHEET OF 9

AS-BUILT - OCTOBER 2018 SDP-17-062



SECTION	ROAD AND STREET CLASSIFICATION	MINIMUM WIDTHS (SHOULDER)	MIN WITH CURB	MIN WITH CONCRETED SIDE
P-1	PRINCIPAL ARTERIAL	5.5 MIN TO 6.5-7.5 (LEVEL 1, 2, 3)	1.5	1.5
P-2	PRINCIPAL ARTERIAL	5.5 MIN TO 6.5-7.5 (LEVEL 1, 2, 3)	2.0	2.0
P-3	PRINCIPAL ARTERIAL	5.5 MIN TO 6.5-7.5 (LEVEL 1, 2, 3)	2.0	2.0
P-4	PRINCIPAL ARTERIAL	5.5 MIN TO 6.5-7.5 (LEVEL 1, 2, 3)	2.0	2.0

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

10-17-17
10-31-17
10-31-17

CHIEF, DEVELOPMENT ENGINEERING DIVISION
CHIEF, DIVISION OF LAND DEVELOPMENT
DIRECTOR

HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS

CONCRETE SIDEWALK
SIDEWALK RAMP
LAYOUT & GRADING
PERPENDICULAR TO CURB

HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS

CONCRETE SIDEWALK
SIDEWALK RAMP
LAYOUT & GRADING
PERPENDICULAR TO CURB

HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS

CONCRETE SIDEWALK
SIDEWALK RAMP
LAYOUT & GRADING
PERPENDICULAR TO CURB

OWNER/DEVELOPER
JAY LLC
8300 GUILFORD ROAD, SUITE A
COLUMBIA, MD 21046
C/O JOSH YOUNG
(410) 290-7180

REVISION: REVISE PLAN TO ADD GARBAGE BASKET AT MBR#2
DATE: 3-1-19

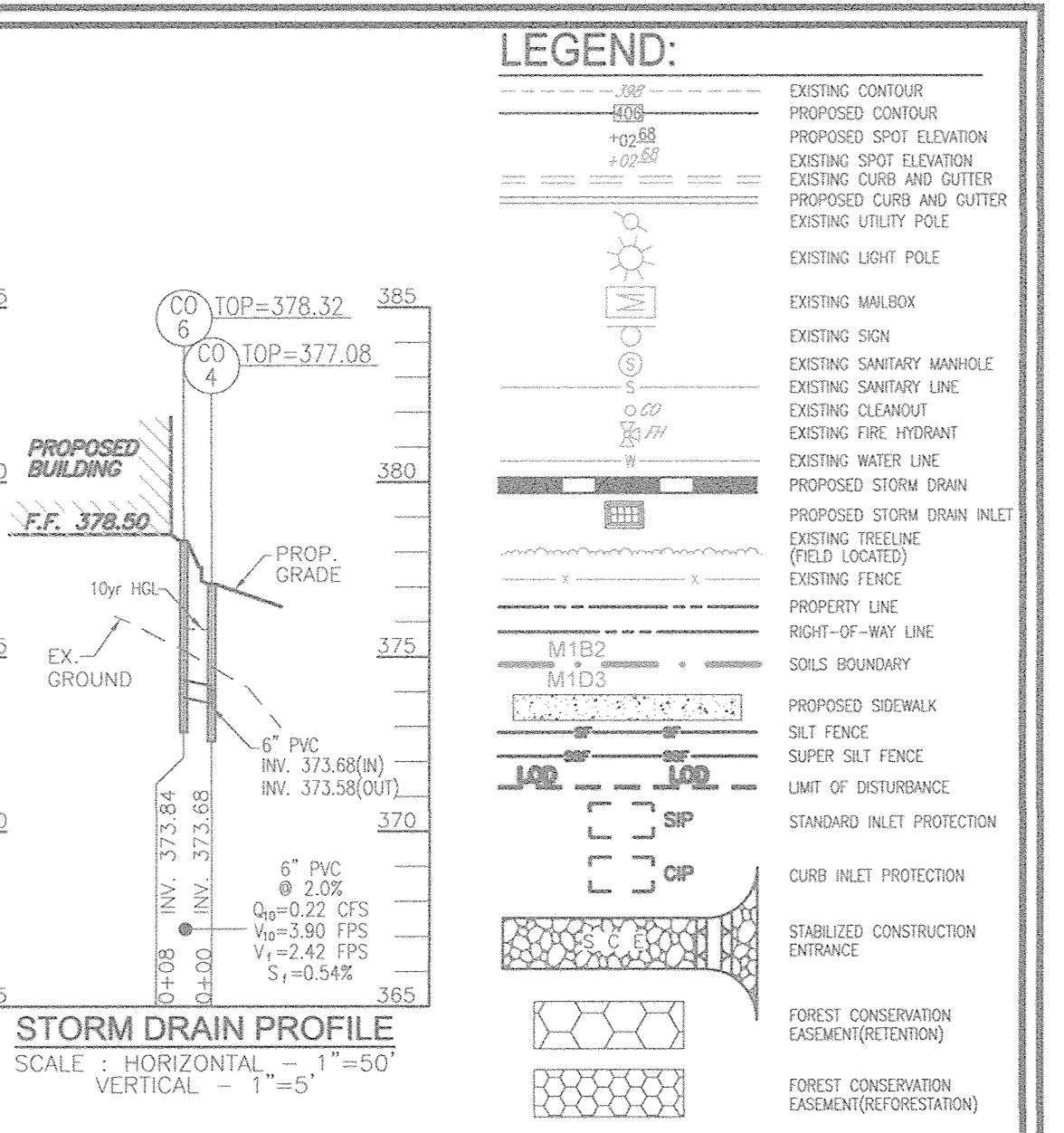
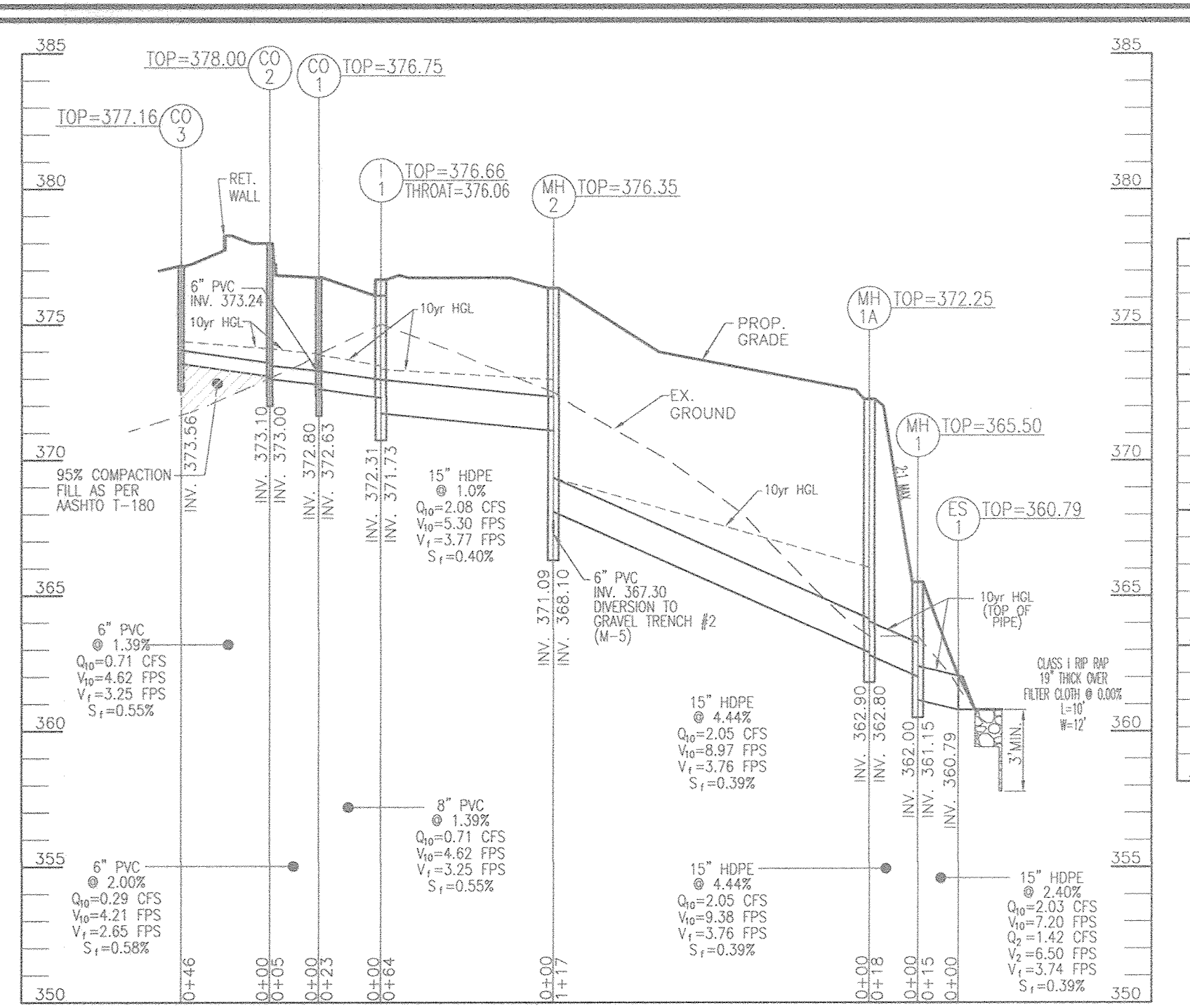
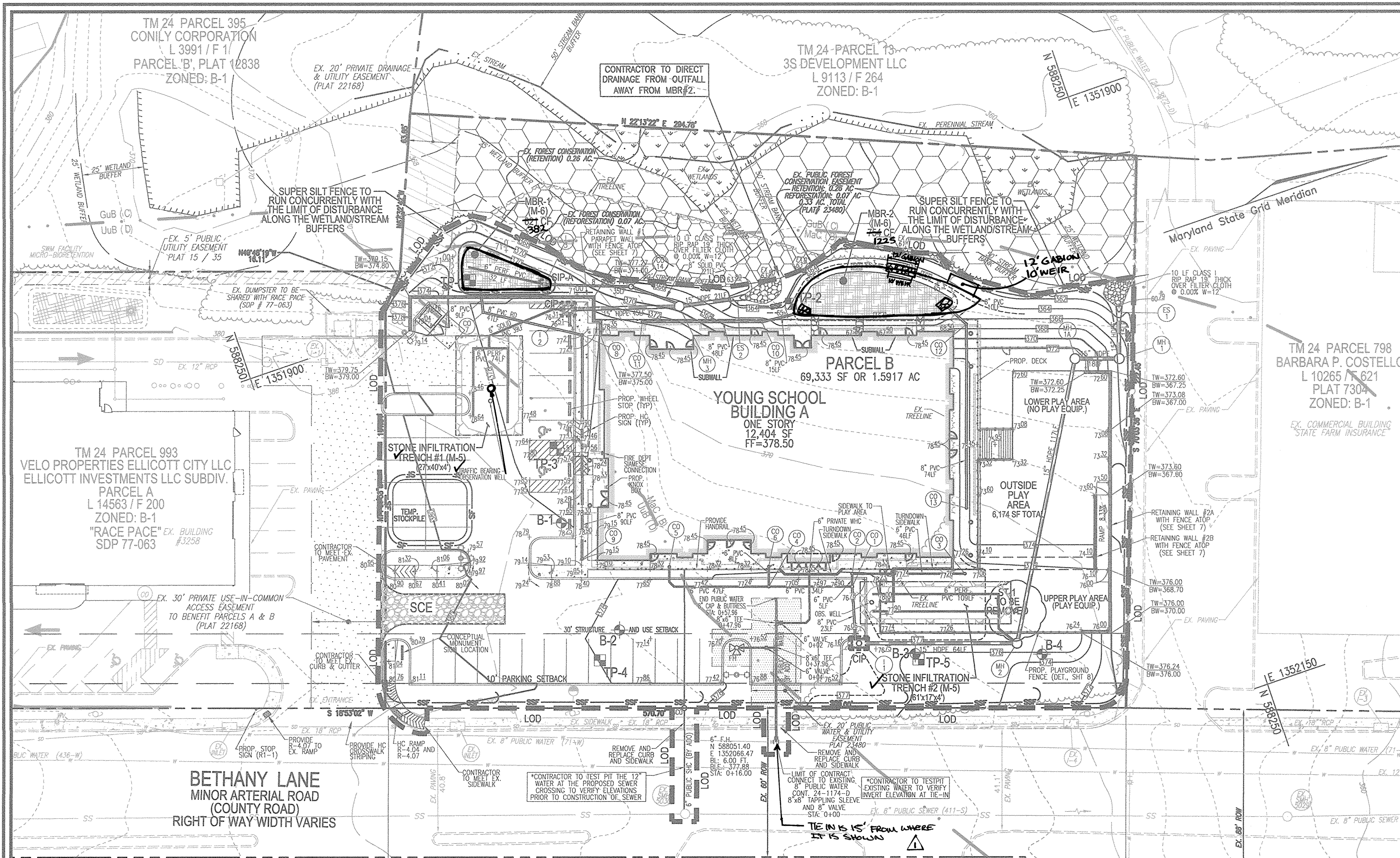
SITE DEVELOPMENT PLAN
SITE LAYOUT PLAN AND SITE DETAILS
YOUNG SCHOOL - ELLICOTT CITY
DAY CARE CENTER
ELLICOTT INVESTMENTS INC., PARCEL B
PARCEL 993, PARCEL B
COLUMBIA, MD 21046
PLAT: 22168 & 23480
ELLICOTT CITY, MD
HOWARD COUNTY, MARYLAND

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: RHV/DZE
DRAWN BY: DZE/KG
CHECKED BY: RHV
DATE: SEPTEMBER 2017
SCALE: AS SHOWN
W.O. NO.: 16-55

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

2 SHEET OF 9



PIPE SCHEDULE

SIZE	TYPE/CLASS	TOTAL LENGTH'
15"	HDPE (SD)	267
8"	SOLID PVC (SD)	385
6"	PVC (SD)	179
6"	PERF. PVC (SWM)	183
8"	DIP (WATER - PUBLIC BY ADD)	68
6"	DIP (WATER - PUBLIC BY ADD)	16
6"	DIP (PRIVATE WHC)	22
6"	PVC (SEWER - PUBLIC BY ADD)	41
6"	PVC (PRIVATE SHO)	56

* The total length of pipe is linear feet only.
 HDPE is to be smooth interior. Contractor shall install pipe in accordance with manufacturer's specifications.

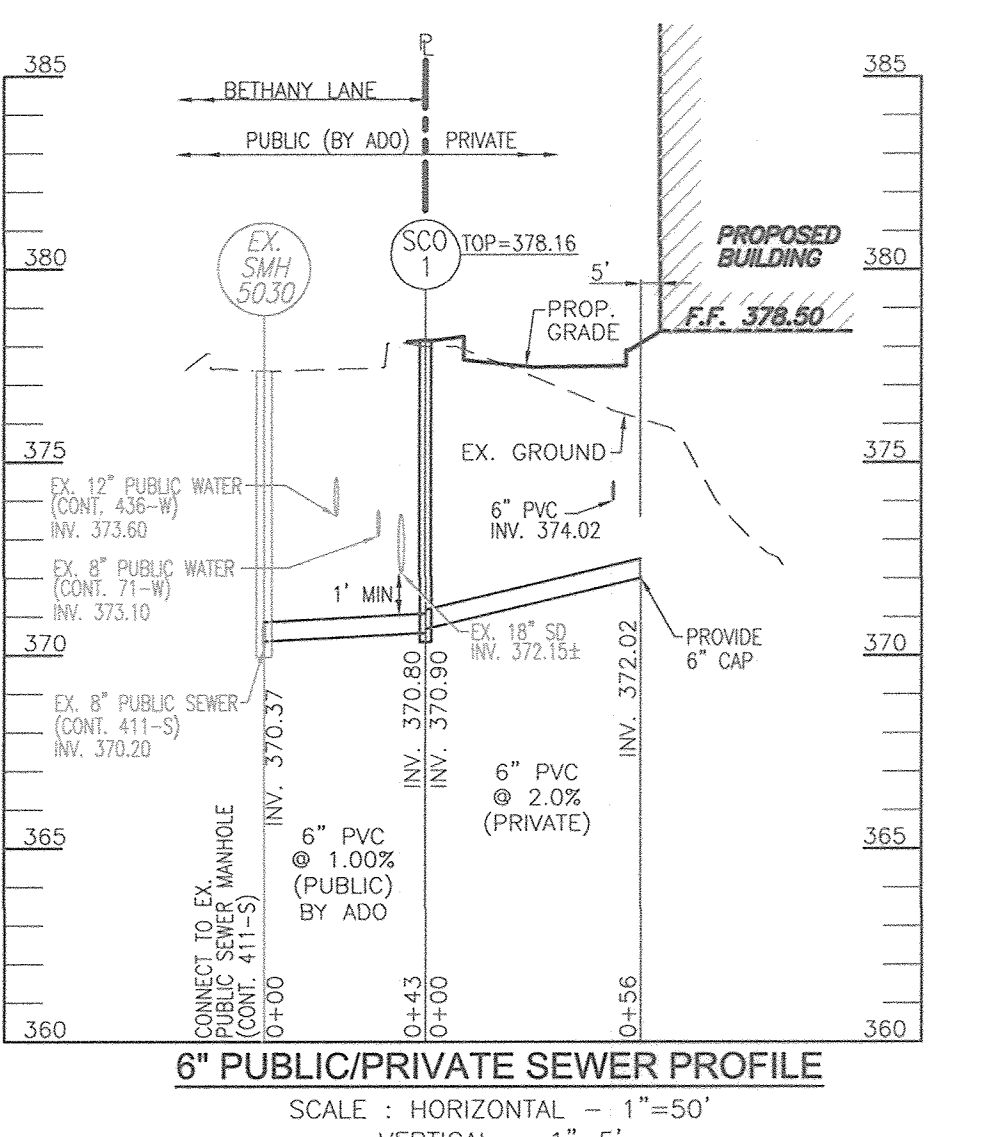
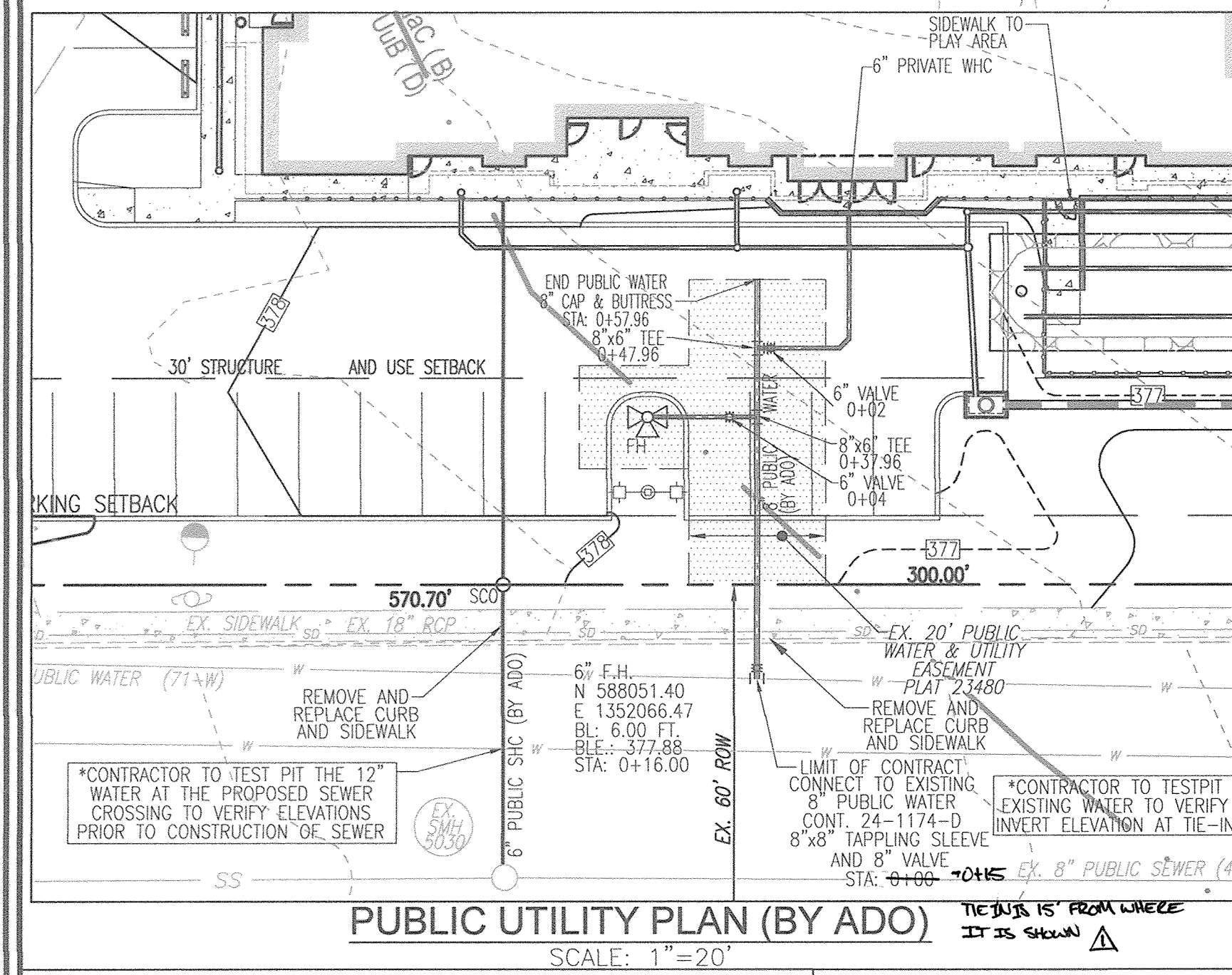
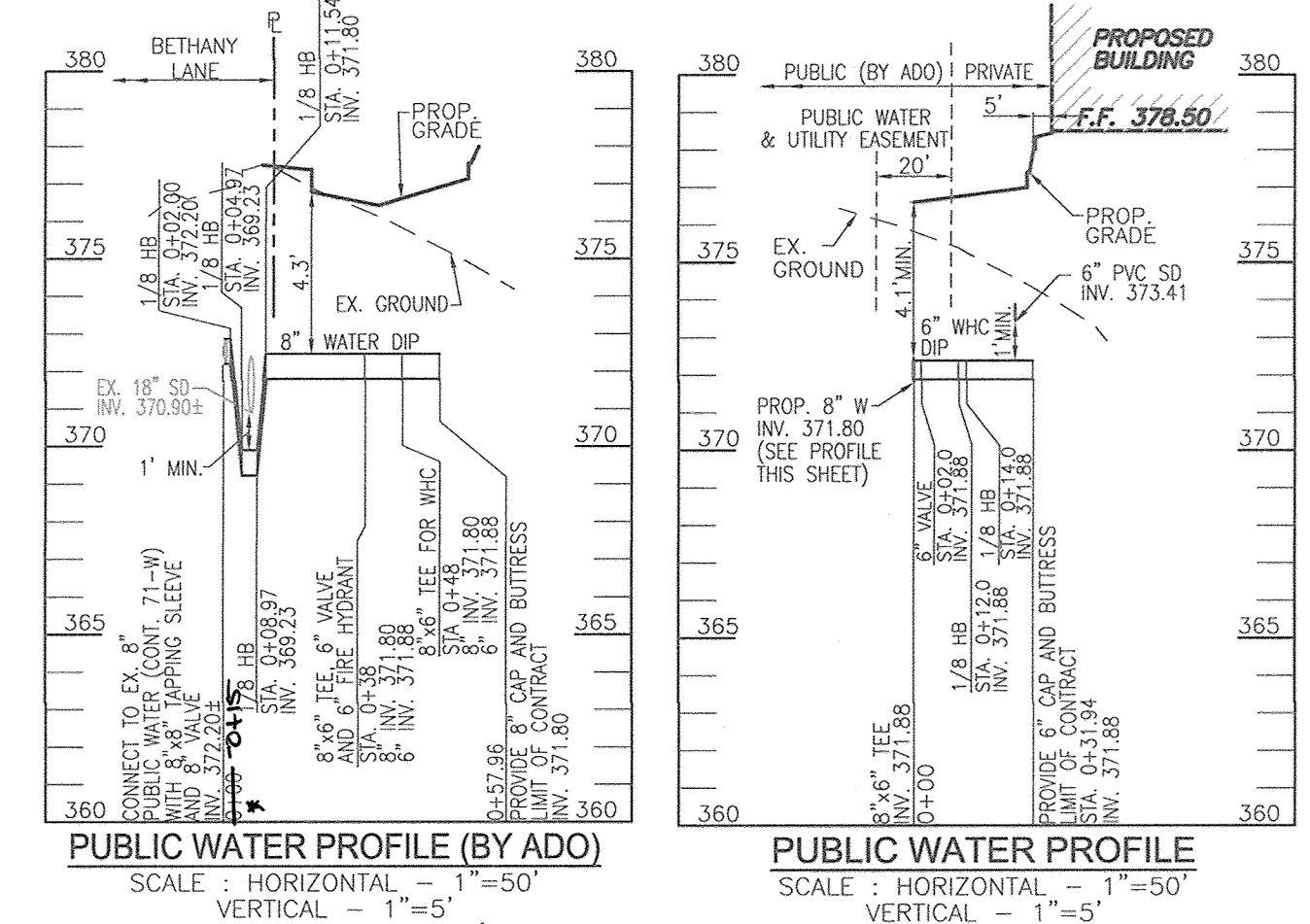
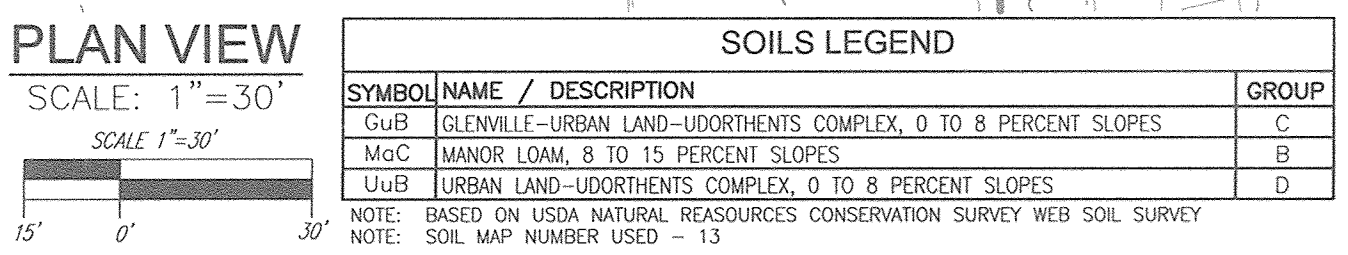
STRUCTURE SCHEDULE

STR #	TYPE	LOCATION	NORTHING	EASTING	TOP	THROAT	INV. IN	INV. OUT	DETAIL/COMMENTS
I-1	TYPE A-5	589298.83	1352080.63	376.66	376.06	372.31	371.73	D-4.01	
I-2	TYPE 'S'	588030.90	1351915.32	376.31	-	368.75	368.25	D-4.22	
I-3	ADS-15 CATCHBASIN	588026.18	1351902.78	370.00	-	365.67	365.24	ADS 2815AG	
M-1	STD. 4' PRECAST MANHOLE	588235.49	1352009.48	365.50	-	362.00	361.15	G-5.12	
M-2	STD. 4' PRECAST MANHOLE	588148.49	1352008.18	377.18	-	371.09	369.30	G-5.12	
M-3	STD. 4' PRECAST MANHOLE	588073.88	1351928.61	369.00	-	365.75	364.58	364.00	G-5.12
CO-1	CLEANOUT	588103.63	1352058.29	376.75	-	373.24	372.80	372.63	G-5.12
CO-2	CLEANOUT	588105.30	1352053.41	378.00	-	373.10	373.00	G-5.12	
CO-3	CLEANOUT	588148.49	1352008.18	377.18	-	373.81	373.71	G-5.12	
CO-4	CLEANOUT	588071.72	1352047.37	377.08	-	373.68	373.58	G-5.12	
CO-5	CLEANOUT	588036.17	1352026.76	378.32	-	374.15	374.05	G-5.12	
CO-6	CLEANOUT	588074.34	1352039.71	378.32	-	373.84	373.74	G-5.12	
CO-7	CLEANOUT	587997.95	1351905.32	377.83	-	373.30	369.19	G-5.12	
CO-8	CLEANOUT	588032.89	1351928.96	377.21	-	373.81	373.71	G-5.12	
CO-9	CLEANOUT	588003.72	1352012.28	378.15	-	374.61	374.71	G-5.12	
CO-10	CLEANOUT	588003.72	1351945.54	368.50	-	364.25	364.15	G-5.12	
CO-11	CLEANOUT	588057.78	1351929.90	373.50	-	368.69	368.59	G-5.12	
CO-12	CLEANOUT	588181.52	1351973.30	367.00	-	364.30	364.20	G-5.12	
CO-13	CLEANOUT	588157.57	1352043.33	374.50	-	368.00	368.00	G-5.12	
CO-14	CLEANOUT	588057.94	1351914.97	367.00	-	364.89	364.79	G-5.12	
ES-1	END SECTION	588240.34	1351982.30	360.79	-	360.79	-	D-5.51	
ES-2	END SECTION	588094.48	1351932.81	363.60	-	363.60	-	D-5.51	

STRUCTURE SCHEDULE NOTES:
 1. TOP ELEVATIONS ARE TO TOP OF CURB FOR ALL TYPE 'S' INLETS; CENTER TOP OF GRADE FOR TYPE 'S' INLETS; AND CENTER TOP OF MANHOLE FOR PRECAST MANHOLES.
 2. FOR TOP SLAB SPICES, SEE GRADING PLAN.

NOTE: ANY SEDIMENT CONTROLS INTERRUPTED BY THE INSTALLATION OF UTILITY LINES ARE TO BE REPAIRED IMMEDIATELY.

TM 24 PARCEL 15 BETHANY PROPERTIES LLC C/O EAKLES AUTOCARE PARCEL A L 8279 / F 284 PLAT: 6558 ZONED: B-1



CONTRACTOR TO TEST PIT ALL EXISTING UTILITY CROSSINGS AND TIE-INS PRIOR TO CONSTRUCTION

AS-BUILT CERTIFICATION FOR PSWM
 I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE AS-BUILT PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.

DATE: 7-29-19

OWNER/DEVELOPER
 JOSH YOUNG LLC
 8300 GUILFORD ROAD, SUITE A
 COLUMBIA, MD 21046
 C/O JOSH YOUNG
 (410) 290-7180

REVISION PLAN TO ADD GABON BASKET AT MBR#2

NO.	REVISION	DATE
1	AS-BUILT	8/5/2018

SITE DEVELOPMENT PLAN
GRADING, SEDIMENT CONTROL PLAN; SOILS MAP AND UTILITY PROFILES
YOUNG SCHOOL - ELLICOTT CITY
 DAY CARE CENTER
 ELLICOTT INVESTMENTS INC. PARCEL B PLAT: 22168 & 23480
 340 BETHANY LANE ELLICOTT CITY, MD
 PARCEL 993, PARCEL B PLAT: 22168 & 23480
 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: RHV/DZE
 DRAWN BY: DZE/XG
 CHECKED BY: RHV
 DATE: SEPTEMBER 2017
 SCALE: AS SHOWN
 W.O. NO.: 16-55

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.

3 SHEET OF 9

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division
 DATE: 10-17-17

Chief, Division of Land Development
 DATE: 10-31-17

Director
 DATE: 10-31-17

OWNER/DEVELOPER CERTIFICATION:
 I HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL ON EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT-OF-WAY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE.

OWNER/DEVELOPER SIGNATURE: Josh Young
 DATE: 9/26/17

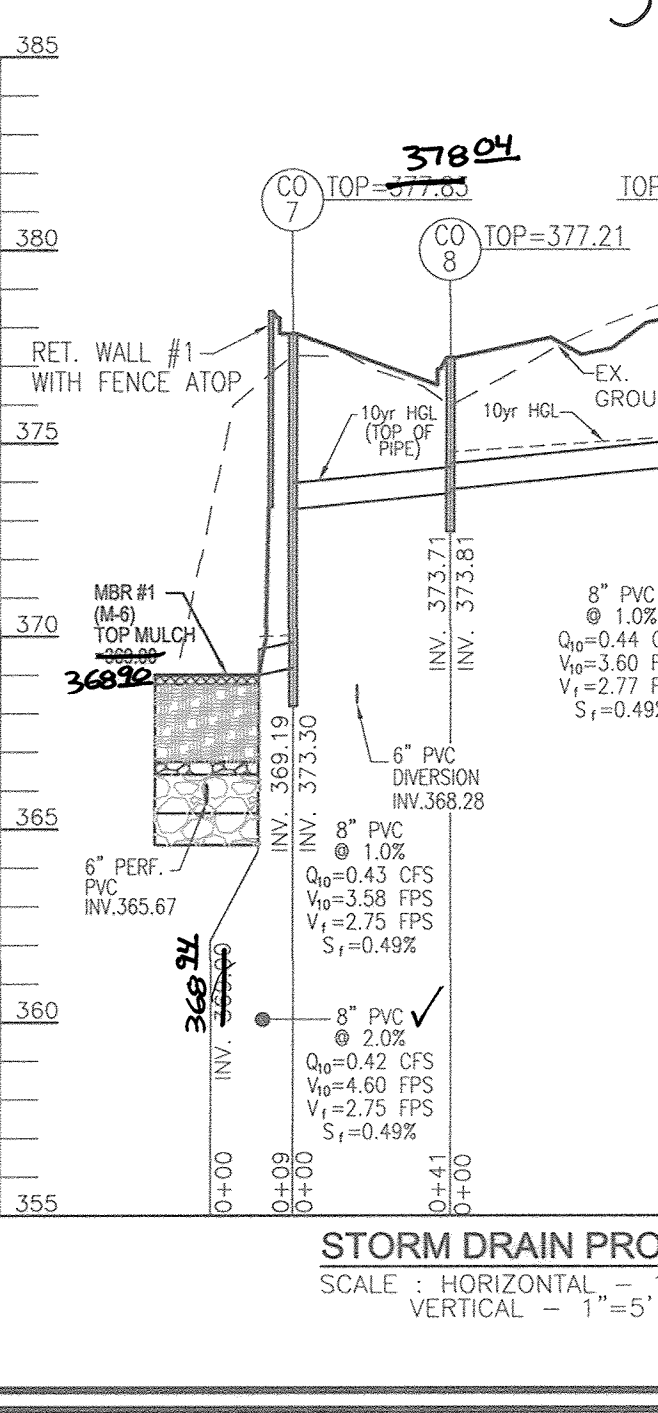
DESIGN CERTIFICATION:
 I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AND STANDARDS, THAT IT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

DESIGNER'S SIGNATURE: Robert H. Vogel
 DATE: 9/26/17

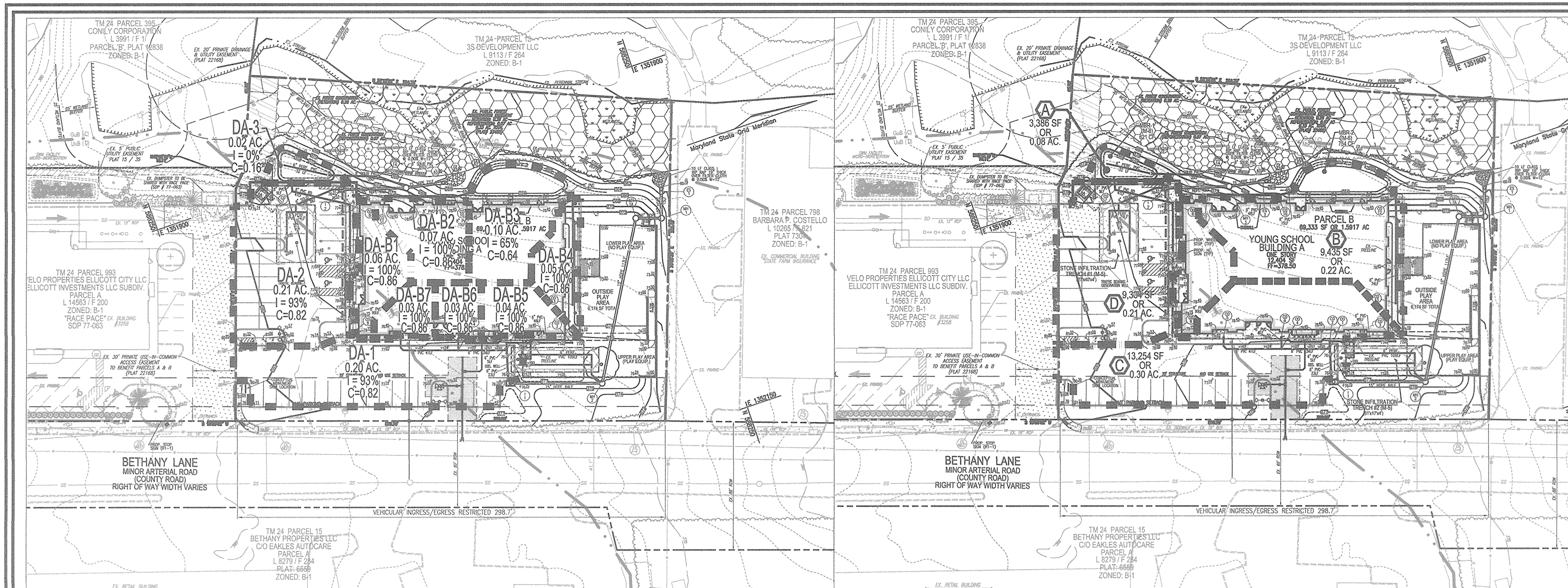
MD REGISTRATION NO. 16193
 R.L.S., OR R.L.A. (circle one)

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

DATE: 10/5/17



AS-BUILT-OCTOBER 2018



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

1. MATERIAL SPECIFICATIONS

THE ALL AVAILABLE 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 SUBSTANCES THAT A HINDERANCE 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 MEET THE FOLLOWING CRITERIA AND SHALL MEET THE FOLLOWING CRITERIA:

- SOIL COMPONENT - LOAMY SAND OR SANDY LOAM (USDA SOIL TEXTURAL CLASSIFICATION).
- ORGANIC CONTENT - MINIMUM 10% BY DRY WEIGHT (ASTM D 2974). IN GENERAL, THIS CAN BE MET WITH A MIXTURE OF LOAMY SAND (50%-85%) AND COMPOST (25% TO 40%) OR SANDY LOAM (60%-70%) AND COMPOST (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 SUFFUR) MAY BE MIXED IN TO THE SOIL TO INCREASE PH 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 GEOLOGICAL TOPSOIL. COMPACTION CAN BE AVOIDED AT THE BASE OF THE BIORETENTION FACILITY BY USING A PRIMARY FILLING OPERATION SUCH AS CHISEL PLOW, RIPPER, OR SUBSOILER. THESE FILLING 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.

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 TIRE TREADS. 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 AVOIDED AT THE BASE OF THE BIORETENTION FACILITY BY USING A PRIMARY FILLING OPERATION SUCH AS CHISEL PLOW, RIPPER, OR SUBSOILER. THESE FILLING 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.

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. IT IS LESS LIKELY TO FLOAT, AND SHOULD BE PLACED IN THE INVERT AND OTHER LOW AREAS. MULCH SHOULD BE PLACED IN SURROUNDING TO AN OPTIMAL 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 ACID (6 TO 12 MONTHS) FOR ACCEPTANCE. 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.

6. UNDERDRAINS

UNDERDRAINS SHOULD MEET THE FOLLOWING CRITERIA:

- PIPES SHOULD BE 4" TO 6" DIAMETER, SLOTTED OR PERFORATED RIGID PLASTIC PIPE (ASTM 758, TYPE PS 28, OR ASTHO-M-278) IN A GRAVEL LAYER. THE PREFERRED METHOD 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. PER ROW PIPE SHALL BE WRAPPED WITH 1/4" (NO. 4 OR 4-4) 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 1000 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 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.

STORM DRAIN DRAINAGE AREA MAP SCALE: 1"=50'

CONTRACTOR TO TEST PIT ALL EXISTING UTILITY CROSSINGS AND TIE-INS PRIOR TO CONSTRUCTION

SWM DRAINAGE AREA MAP SCALE: 1"=50'

APPENDIX B.2. CONSTRUCTION SPECIFICATIONS FOR INFILTRATION PRACTICES

B.2.1 INFILTRATION TRENCH GENERAL NOTES AND SPECIFICATIONS

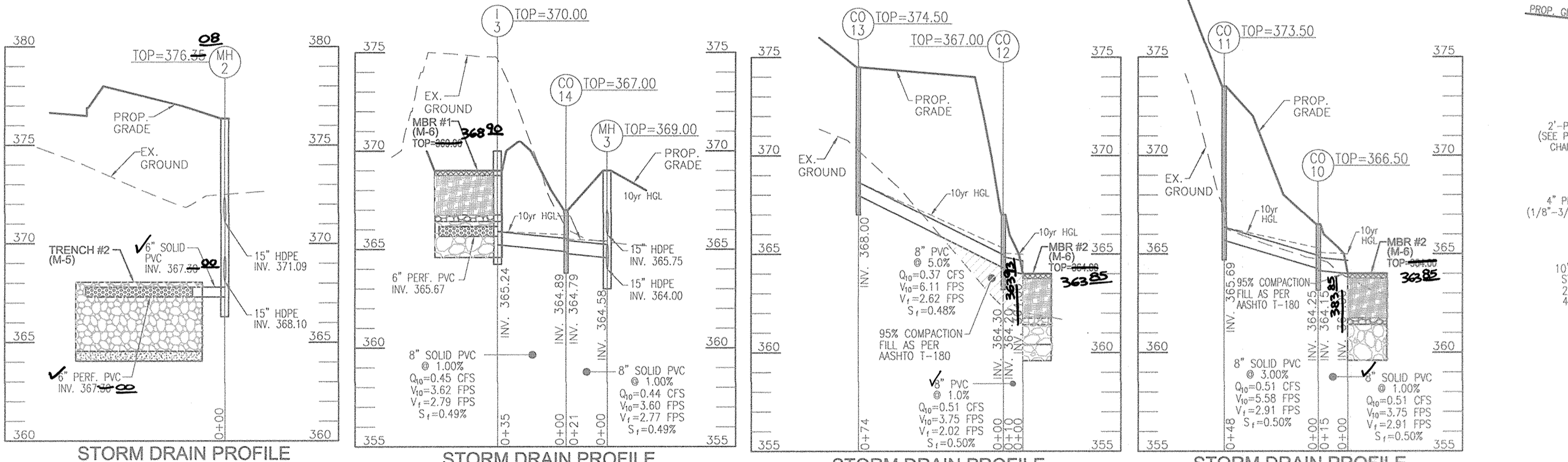
AN INFILTRATION TRENCH MAY NOT RECEIVE RUN-OFF UNTIL THE ENTIRE CONTRIBUTING DRAINAGE AREA TO THE INFILTRATION TRENCH HAS BEEN STABILIZED.

1. HEAVY EQUIPMENT AND TRAFFIC SHALL BE RESTRICTED FROM TRAVELING OVER THE PROPOSED LOCATION OF THE INFILTRATION TRENCH TO MINIMIZE COMPACTION OF THE SOIL.
2. EXCAVATE THE INFILTRATION TRENCH TO THE DESIGN DIMENSIONS. EXCAVATED MATERIALS SHALL BE PLACED AT LEAST 2 FEET FROM THE INFILTRATION TRENCH. STABILIZED LARGER TREE ROOTS MUST BE TRIMMED FLUSH WITH THE TRENCH SIDES IN ORDER TO PREVENT FABRIC PUNCTURES OR TEARINGS OF FABRIC. EXCAVATED MATERIALS SHALL BE REFRACTURED TO A MINIMUM OF 12" DEPTH. THE SIDE WALLS OF THE TRENCH SHALL BE SMOOTHED WHERE SHEARED AND SEALED BY HEAVY EQUIPMENT.
3. A CLASS "TY" SEQUESTITE OR BETTER SOIL CONDITIONER SHALL BE USED AT THE RATES AND DIRECTIONS FOR SOIL EROSION AND SEDIMENT CONTROL. MDE 1894 STANDARDS AND REGULATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. MDE 1894 SHALL APPLY TO ALL INFILTRATION TRENCHES. THE CONTRACTOR SHALL OBTAIN A LIST OF THE INFILTRATION TRENCH LAYERS. A PARTIAL LIST OF HIGH-WHISKER FILTER FABRICS THAT MEET THE CLASS "TY" CRITERIA FOLLOWS:

AMOOD 4552 CARTRIDGE TX-805 WESTEC N07 MBR#1 180-4

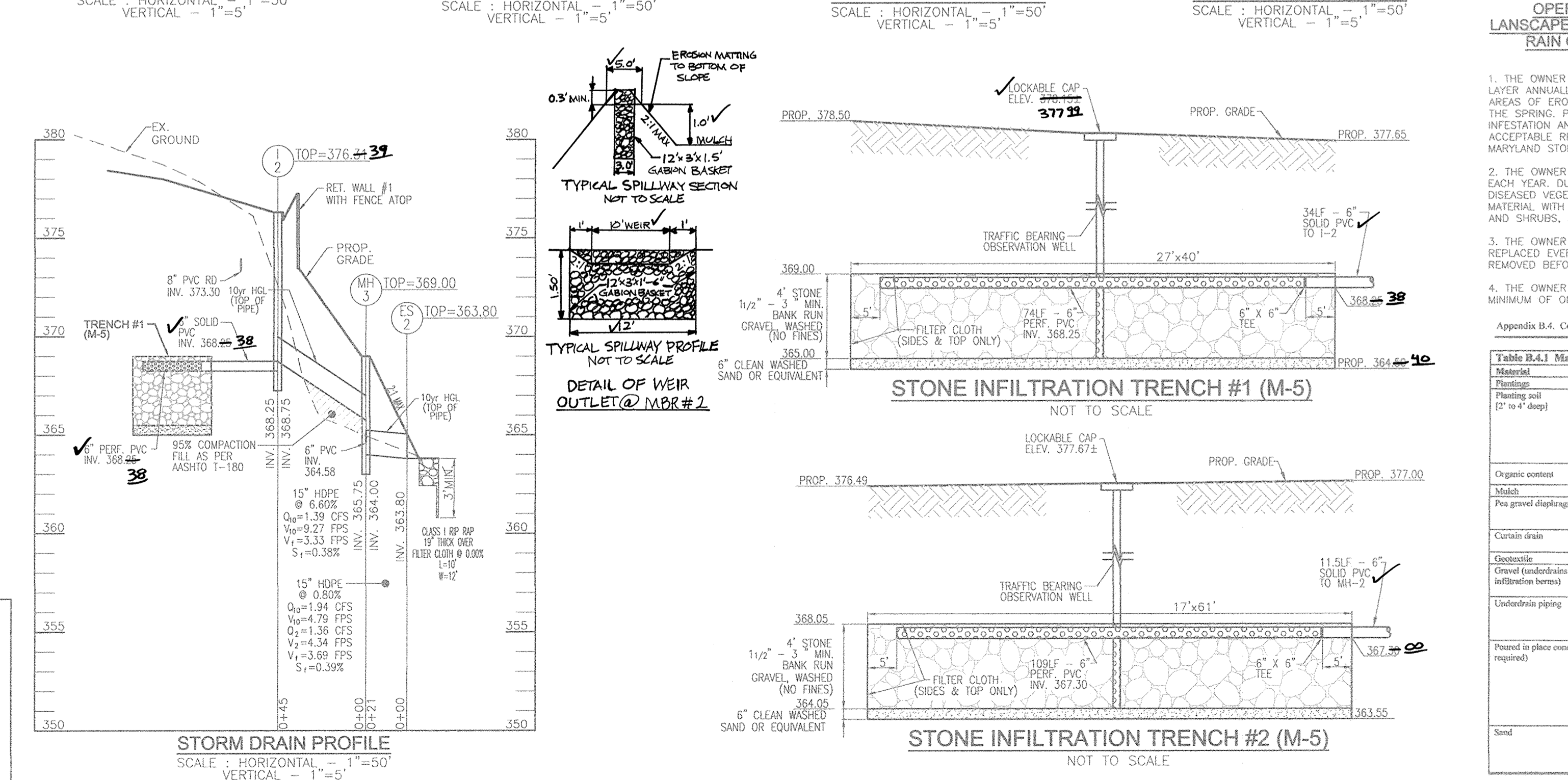
THE WIDTH OF THE GEOTEXTILE MUST INCLUDE SUFFICIENT MATERIAL TO CONFORM TO TRENCH PERIMETER PROPORTIONS, AND FOR A MINIMUM, THE FABRIC SHALL BE TUCKED UNDER THE SAND LAYER ON THE BOTTOM OF THE INFILTRATION TRENCH FOR A DISTANCE OF 6 TO 12 INCHES. TUCKING MUST BE SECURED AT 6" INTERVALS ALONG THE ENTIRE PERIMETER OF THE INFILTRATION TRENCH. THE FABRIC SHALL BE TUCKED UNDER THE SAND LAYER ON THE BOTTOM OF THE INFILTRATION TRENCH FOR A DISTANCE OF 6 TO 12 INCHES. TUCKING MUST BE SECURED AT 6" INTERVALS ALONG THE ENTIRE PERIMETER OF THE INFILTRATION TRENCH. THE FABRIC SHALL BE TUCKED UNDER THE SAND LAYER ON THE BOTTOM OF THE INFILTRATION TRENCH FOR A DISTANCE OF 6 TO 12 INCHES. TUCKING MUST BE SECURED AT 6" INTERVALS ALONG THE ENTIRE PERIMETER OF THE INFILTRATION TRENCH.

4. A 6 INCH SAND FILTER LAYER IS PLACED ON THE BOTTOM OF THE INFILTRATION TRENCH. THE SAND FOR THE INFILTRATION TRENCH SHALL BE WASHED AND MEET ASTM-M-43, SIZE NO. 20 OR NO. 10. AN ALTERNATE SAND GRAVEL MEDIUM APPROVED BY THE PLAN APPROVAL AUTHORITY.
5. THE SAND AGGREGATE SHOULD BE PLACED IN A MAXIMUM LOOSE LIFT THICKNESS OF 12 INCHES. THE TRENCH (UNDERDRAIN) SHALL BE COVERED WITH A MINIMUM OF 2 INCHES OF SAND. THE SAND SHOULD BE COMPACTED TO A MINIMUM OF 95% COMPACTION (ASTM D-1557) AT THE MOST CONVENIENT TIME DURING CONSTRUCTION TO PREVENT FUTURE SETTLEMENTS.
6. FOLLOWING THE SAND AGGREGATE PLACEMENT, THE FILTER FABRIC SHALL BE FOLDED OVER THE STONE AGGREGATE TO FORM A 6-INCH MINIMUM CONVECTION LAP. THE DESIRED FITS SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION AND THROUGHOUT THE LIFE OF THE INFILTRATION TRENCH. THE LAP SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION AND THROUGHOUT THE LIFE OF THE INFILTRATION TRENCH.
7. CARE SHALL BE EXERCISED TO PREVENT NATURAL OR FILL SOILS FROM INTERFERING WITH THE STONE AGGREGATE. CONTAMINATED STONE AGGREGATE SHALL BE REMOVED AND REPLACED WITH UNCONTAMINATED STONE AGGREGATE.
8. VOIDS MAY OCCUR BETWEEN THE FABRIC AND THE EXCAVATION SIDES SHALL BE AVOIDED. REMOVING BOLLERS OR OTHER OBSTACLES FROM THE TRENCH WALLS IS ONE SOURCE OF SUCH VOIDS. THEREFORE, NATURAL SOILS SHALL BE PLACED IN THE TRENCH AS THE MOST CONVENIENT TIME DURING CONSTRUCTION TO PREVENT FUTURE SETTLEMENTS.
9. VERTICALLY EXCAVATED WALLS MAY BE INEFECTIVE TO MAINTAIN AN AREAS WHERE SOIL MOISTURE IS HIGH OR WHERE SOILS ARE HEAVY OR CONSOLIDATED. SOILS ARE DOMINANT. THESE CONDITIONS MAY REQUIRE LAPPING BACK OF THE SIDE SLOPE TO MAINTAIN STABILITY.
10. PVC DISTRIBUTION PIPES SHALL BE SCHEDULE 40 AND MEET ASTM-D-1785. ALL FITTINGS SHALL MEET ASTM-D-2779. PERFORATIONS SHALL BE 3/8" INCH DIAMETER. A PERFORATED PIPE SHALL BE PROVIDED ONLY WITHIN THE INFILTRATION TRENCH. THE PERFORATED PIPE SHALL BE PROVIDED ONLY WITHIN THE INFILTRATION TRENCH. THE PERFORATED PIPE SHALL BE PROVIDED ONLY WITHIN THE INFILTRATION TRENCH.
11. THE OBSERVATION WELL IS TO CONSIST OF 6-INCH DIAMETER PERFORATED PVC SCHEDULE 40 PIPE (M 279 OR M 278) WITH A CAP AND A 6 INCHES ABOVE GROUND LEVEL AND IS TO BE LOCATED NEAR THE LONGITUDINAL CENTER OF THE INFILTRATION TRENCH. THE WELL SHALL HAVE A PLASTIC COLLAR WITH RIBS TO PREVENT SOIL FROM FALLING INTO THE WELL. THE COLLAR SHALL BE A CLAY COLLAR WITH RIBS OR MEDIUM OR SPECIAL BELL TO DISCOURAGE WINDLUMPS. THE DEPTH TO THE INVERT SHALL BE MARKED ON THE COLLAR. THE COLLAR SHALL BE MARKED TO INDICATE THE DEPTH TO THE INVERT. THE COLLAR SHALL BE MARKED TO INDICATE THE DEPTH TO THE INVERT. THE COLLAR SHALL BE MARKED TO INDICATE THE DEPTH TO THE INVERT.
12. CORRODED METAL DISTRIBUTION PIPES SHALL CONFORM TO ASTM-A-36 AND SHALL BE ALUMINIZED IN A QUARTERLY BASIS AND AFTER EVERY LARGE STORM EVENT.
13. A DISTRIBUTION STRUCTURE WITH A MET WELLS USED, A 4-INCH DRAIN PIPE SHALL BE PROVIDED AT OPPOSITE ENDS OF THE INFILTRATION TRENCH DISTRIBUTION STRUCTURE TWO (2) CUBIC FEET OF POROUS CARTRIDGE MEDIA (NO. 57 STONE OR EQUIVALENT) SHALL BE PROVIDED AT EACH END OF THE INFILTRATION TRENCH.
14. IF A DISTRIBUTION STRUCTURE IS USED, THE MANHOLE COVER SHALL BE BOLTED TO THE FRAME.



OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED STORMWATER INFILTRATION TRENCHES

1. THE MONITORING WELLS AND STRUCTURES SHALL BE INSPECTED ON A QUARTERLY BASIS AND AFTER EVERY LARGE STORM EVENT.
2. WATER LEVELS AND SEDIMENT BUILD UP IN THE MONITORING WELLS SHALL BE RECORDED OVER A PERIOD OF SEVERAL DAYS TO INSURE TRENCH DRAINAGE.
3. A LOGBOOK SHALL BE MAINTAINED TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
4. WHEN THE FACILITY BECOMES CLOGGED SO THAT IT DOES NOT DRAIN DOWN WITHIN THE HOUR TIME PERIOD, CORRECTIVE ACTION SHALL BE TAKEN.
5. THE MAINTENANCE LOGBOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
6. 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.

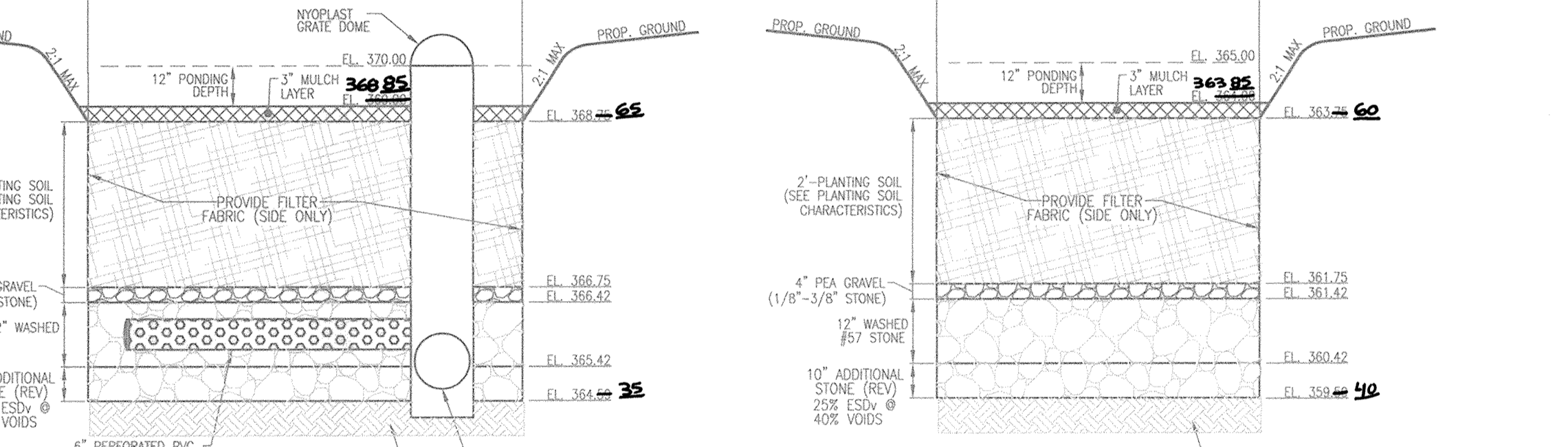


APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division 10-31-17

Chief, Division of Land Development 10-31-17

Director 10-31-17



AS-BUILT CERTIFICATION FOR PSWM

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

MICRO-BIORETENTION NOTES:

1. ONLY THE SIDES OF MICROBIORETENTION ARE TO BE WRAPPED IN FILTER FABRIC. FILTER FABRIC BETWEEN LAYER OR AT THE BOTTOM OF THE MICROBIORETENTION WILL CAUSE THE MBR TO FAIL AND THEREFORE SHALL NOT BE INSTALLED.
2. WRAP THE PERFORATED MBR UNDERDRAIN PIPE WITH 1/4" MESH (4"x4") OR SMALLER GALVANIZED HARDWARE CLOTH.
3. PROVIDE 5" MINIMUM SPACING BETWEEN UNDER DRAIN AND PERFORATED PIPE THROUGH STONE RESERVUOR OR SPACE PIPE EQUALLY ACROSS BOTTOM FOR SMALL BIOES. (SEE PLANS)

OPERATION AND MAINTENANCE SCHEDULE FOR LANDSCAPE 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, 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 EACH MATERIAL REPAIRING ACCEPTABLE REPLACEMENT MATERIAL 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 EXCESSIVE 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.

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

Material	Specification	Notes
Plantings	see Appendix A, Table A.4	plantings are site-specific
Filtering media (2" to 6" deep)	see Appendix A, Table A.4 & 5 sandy loam (19%), coarse sand (90%) & compost (40%)	1/4" and type 100 sand or sandy loam; clay content < 5%
Organic content	Min. 10% by dry weight (ASTM D-2974)	aged 6 months, minimum on pipe or wood chips
Pea gravel diaphragm	see Appendix A, Table A.4 No. 20 or No. 10	
Curtain drains	geomembrane/sand/washed cobble	stone: 2" to 5"
Geotextile	see Appendix A, Table A.4	PE Type 1 minimum
Gravel (underdrains and infiltration berms)	AASHTO M-43 No. 57 or No. 6	
Underdrain piping	1.78" Type PS 28 or AASHTO M-278 4" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe 3/8" perf. @ 6" on center. 1/4" hole per row. minimum of 3" of gravel over pipe; not necessary with 1/2" thick sand underdrain cloth. Perforated pipe shall be wrapped with 1/4" mesh.
Placed in place concrete (if required)	MSEA Min. No. 3, f'c = 3500 min. 28 days normal weight, air-entrained, reinforcing to meet ASTM-A-615-40	on-site testing of poured-in-place concrete required: 28 day strength, air content, slump, temperature, curing, and moisture. Design drawings shall be approved by professional engineer licensed in the State of Maryland - design to include meeting ACT Code 350.09; vertical loading (15' or 14' high, allowable horizontal loading based on soil pressure); and analysis of potential cracking.
Sand	AASHTO-M-6 or ASTM-C-33 0/10" to 0/40"	Sand substitutions such as Dolomite and Dolomitic Sand (ASTM-D-39) are not acceptable. No "frost dust" can be used for sand.

OWNER/DEVELOPER

JYI LLC
8300 GULF OAK ROAD, SUITE A
COLUMBIA, MD 21046
C/O JOSH YOUNG
(410) 290-7180

Professional Engineer Seal: JOSH YOUNG, No. 16193, State of Maryland

SITE DEVELOPMENT PLAN

STORM DRAIN AND SWM DRAINAGE AREA MAPS; SWM NOTES AND DETAILS

YOUNG SCHOOL - ELLICOTT CITY

DAY CARE CENTER
ELLICOTT INVESTMENTS INC. PARCEL B PLAT: 2216B & 23-400
3240 BETHANY LANE, ELLICOTT CITY, MD
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

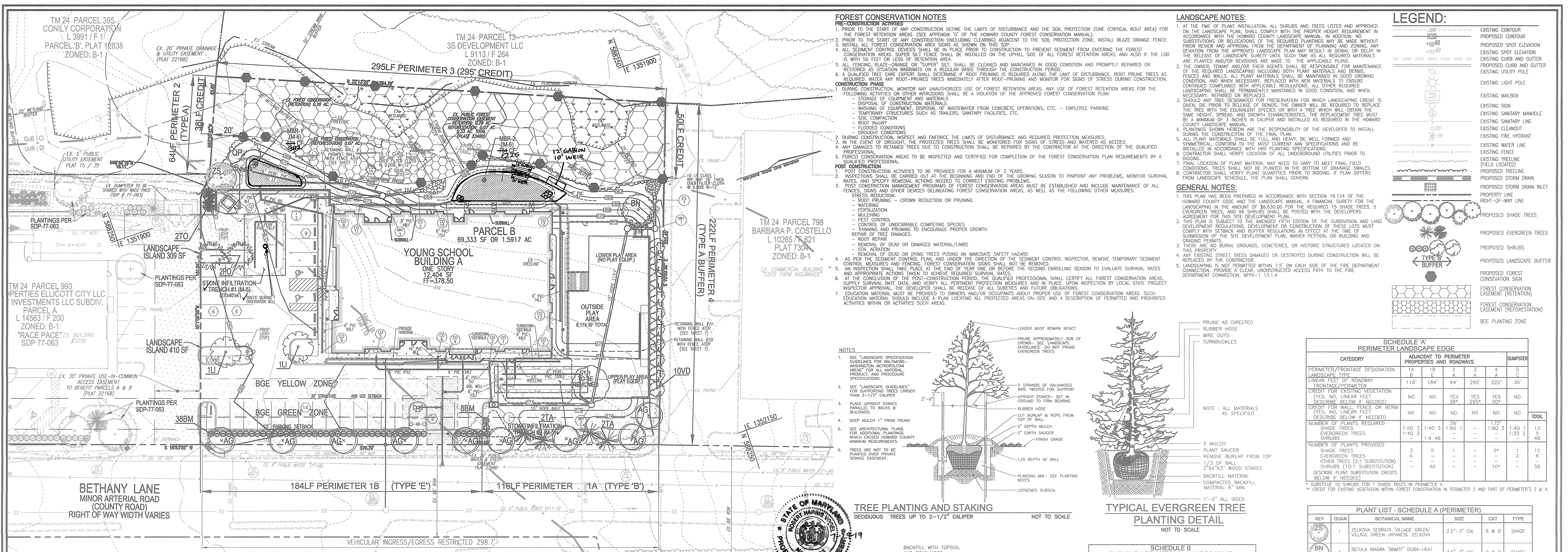
DESIGN BY: RHY/DZE
DRAWN BY: DZE/KG
CHECKED BY: RHY
DATE: SEPTEMBER 2017
SCALE: AS SHOWN
W.D. NO.: 16-55

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

5 SHEET OF 9

SDP-17-052

AS-BUILT - OCTOBER 2018



FOREST CONSERVATION NOTES

PRE-CONSTRUCTION (WITHIN THE FOREST RETENTION AREA)

- PRIOR TO THE START OF ANY CONSTRUCTION DEFINE THE LIMITS OF DISTURBANCE AND THE SOIL PROTECTION ZONE (CRITICAL ROUTE AREA) FOR THE FOREST RETENTION AREAS. (SEE APPENDIX "C" OF THE HOWARD COUNTY FOREST CONSERVATION MANUAL.)
- PRIOR TO THE START OF ANY CONSTRUCTION (INCLUDING CLEARING) ADJACENT TO THE SOIL PROTECTION ZONE, INSTALL BLAZE ORANGE FENCE.
- INSTALL ALL FOREST CONSERVATION AREA SIGNS AS SHOWN ON THIS SCHEDULE.
- ALL SOIL PROTECTION DEVICES SHALL BE IN PLACE PRIOR TO CONSTRUCTION TO PREVENT SEDIMENT FROM ENTERING THE FOREST CONSERVATION AREAS. SUPER SILT FENCE SHALL BE INSTALLED ON THE UPHILL SIDE OF ALL FOREST RETENTION AREAS, AND ALSO IF THE LOT IS WITHIN 50 FEET OR LESS OF RETENTION AREA.
- ALL FENCING, BLAZE ORANGE OR "SUPER" SILT SHALL BE CLEANED AND MAINTAINED IN GOOD CONDITION AND PROMPTLY REPAIRED OR RESTORED AS SITUATION WARRANTS ON A REGULAR BASIS THROUGHOUT THE CONSTRUCTION PERIOD.
- A QUALIFIED TREE CARE EXPERT SHALL DETERMINE IF ROOT PRUNING IS REQUIRED ALONG THE LIMIT OF DISTURBANCE. ROOT PRUNE TREES AS REQUIRED. WATER ANY ROOT-PRUNED TREES IMMEDIATELY AFTER ROOT-PRUNING AND MONITOR FOR SIGNS OF STRESS DURING CONSTRUCTION.

CONSTRUCTION PHASE

DURING CONSTRUCTION, MONITOR ANY UNAUTHORIZED USE OF FOREST RETENTION AREAS. ANY USE OF FOREST RETENTION AREAS FOR THE FOLLOWING ACTIVITIES OR OTHER INTRUSIONS SHALL BE A VIOLATION OF THE APPROVED FOREST CONSERVATION PLAN:

- DISPOSAL OF CONSTRUCTION MATERIALS
- WASHING OF EQUIPMENT, DISPOSAL OF WASTEWATER FROM CONCRETE OPERATIONS, ETC. - EMPLOYEE PARKING
- TEMPORARY STRUCTURES SUCH AS TRAILERS, SANITARY FACILITIES, ETC.
- COMPACTION
- ROOT INJURY
- FLOODED CONDITIONS
- DROUGHT CONDITIONS

POST CONSTRUCTION

POST CONSTRUCTION ACTIVITIES TO BE PROVIDED FOR A MINIMUM OF 2 YEARS.

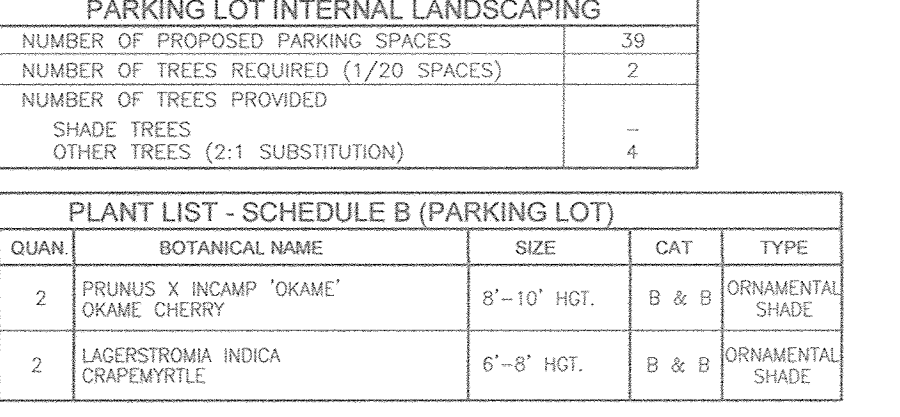
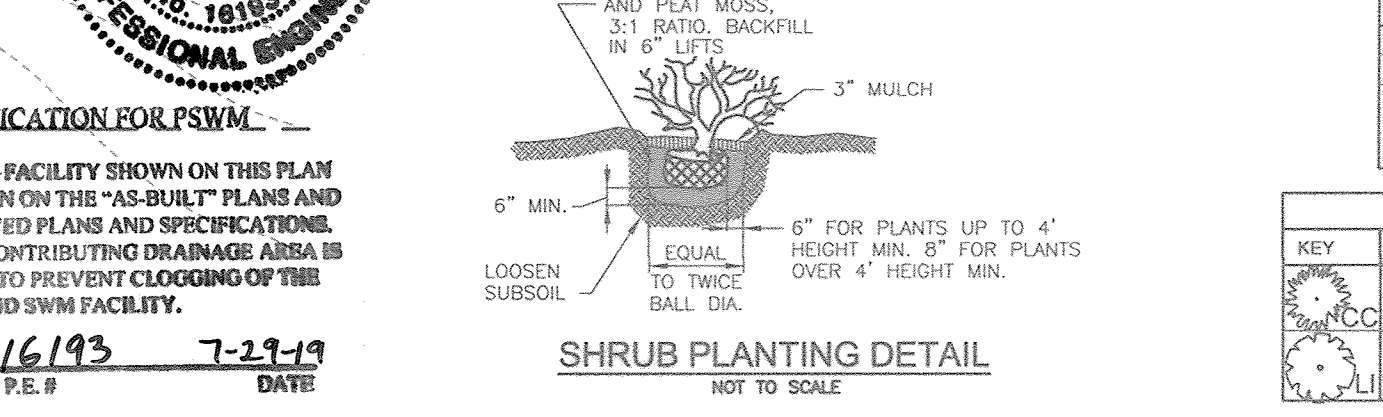
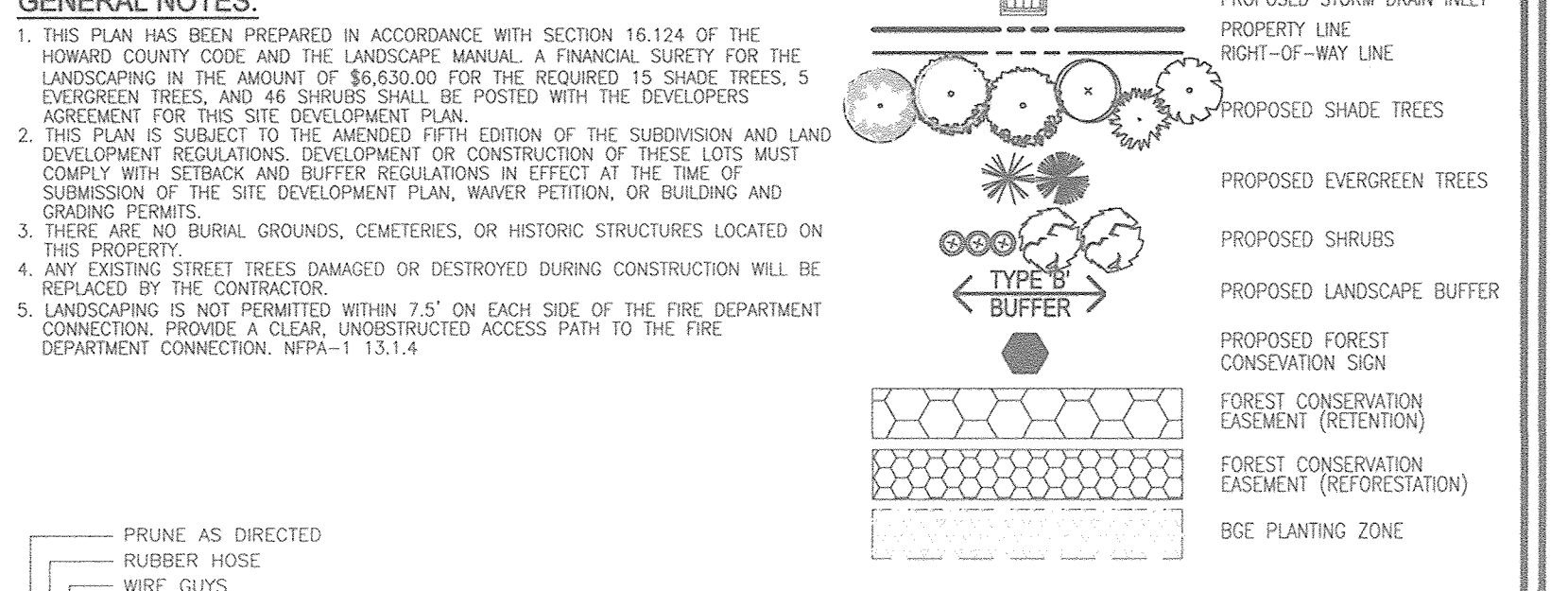
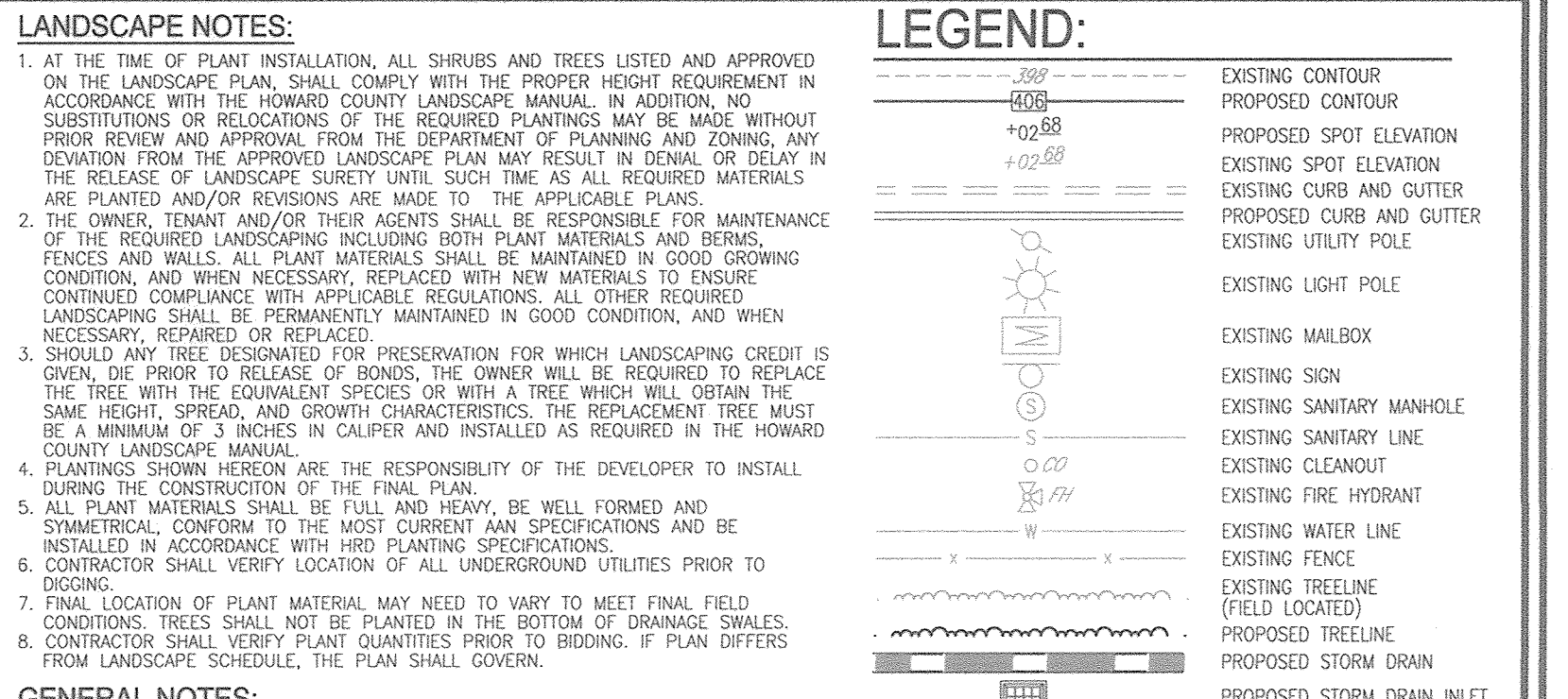
- INSPECTIONS SHALL BE CARRIED OUT AT THE BEGINNING AND END OF THE GROWING SEASON TO PINPOINT ANY PROBLEMS, MONITOR SURVIVAL RATES, AND SPECIFY REMEDIAL ACTIONS NEEDED TO CORRECT EXISTING PROBLEMS.
- POST CONSTRUCTION MANAGEMENT PROGRAMS FOR FOREST CONSERVATION AREAS MUST BE ESTABLISHED AND INCLUDE MAINTENANCE OF ALL STRESS REDUCTION:
- CONTROL OF UNDESIRABLE COMPETING SPECIES
- THINNING AND PRUNING TO ENCOURAGE PROPER GROWTH
- REPAIR OF TREE DAMAGES:
- ROOT REPAIR
- REMOVAL OF DEAD OR DAMAGED MATERIAL/LIMBS
- REMOVAL OF DEAD OR DYING TREES POSING AN IMMEDIATE SAFETY HAZARD

AS PER THE SEDIMENT CONTROL PLAN, UNDER THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE TEMPORARY SEDIMENT CONTROL MEASURES AND FENCING. FOREST CONSERVATION SIGNS SHALL NOT BE REMOVED.

AN INSPECTION SHALL TAKE PLACE AT THE END OF YEAR ONE OR BEFORE THE SECOND ENROLLING SEASON TO EVALUATE SURVIVAL RATES AND APPROPRIATE ACTIONS TO ACHIEVE FOREST CONSERVATION SURVIVAL RATES.

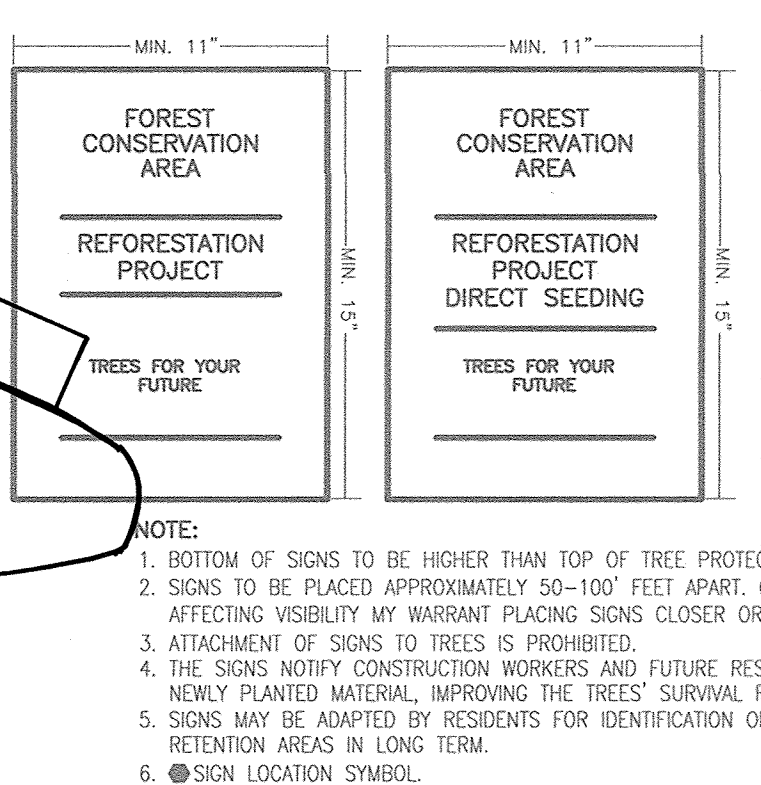
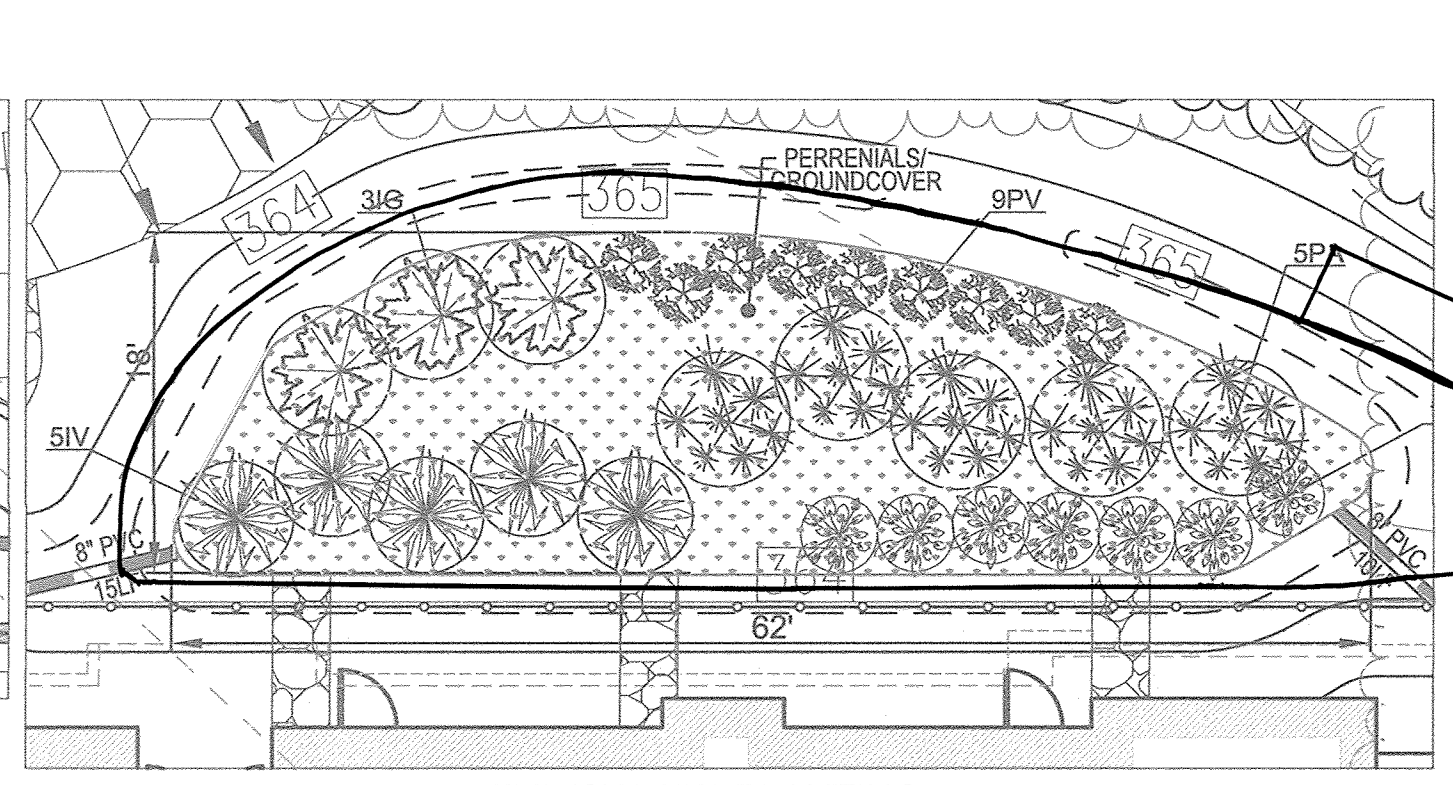
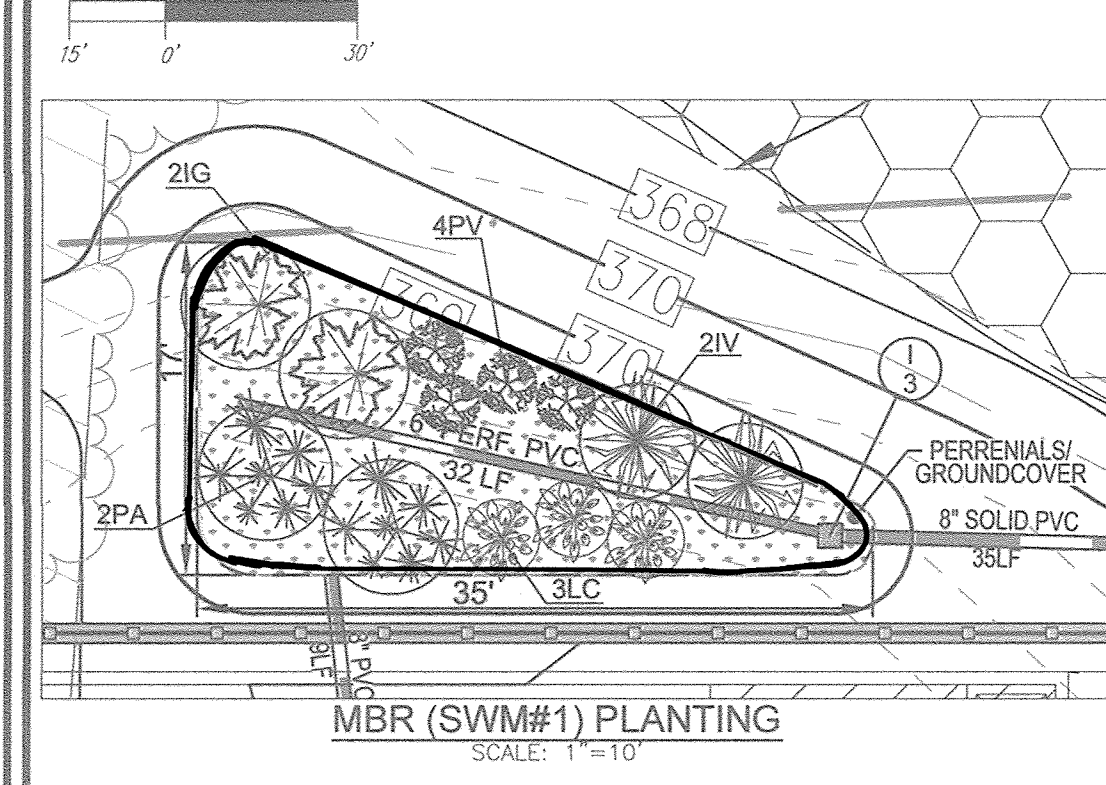
AT THE CONCLUSION OF THE POST-CONSTRUCTION PERIOD, THE QUALIFIED PROFESSIONAL SHALL CERTIFY ALL FOREST CONSERVATION AREAS, SUPPLY SURVIVAL RATE DATA, AND VERIFY ALL PERTINENT PROTECTION MEASURES AND IN PLACE UPON INSPECTION BY LOCAL STATE PROJECT INSPECTOR APPROVAL. THE DEVELOPER SHALL BE RELEASED OF ALL SURETIES AND FUTURE OBLIGATIONS.

EDUCATION MATERIAL MUST BE PROVIDED TO OWNERS AND/OR OCCUPANTS ABOUT PROPER USE OF FOREST CONSERVATION AREAS. SUCH EDUCATION MATERIAL SHOULD INCLUDE A PLAN LOCATING ALL PROTECTED AREAS ON-SITE AND A DESCRIPTION OF PERMITTED AND PROHIBITED ACTIVITIES WITHIN OR ACTIVITIES SUCH AS:



SCHEDULE 'A' PERIMETER LANDSCAPE EDGE

CATEGORY	ADJACENT TO PERIMETER PROPERTIES AND ROADWAYS	DUMPSTER
PERIMETER/FRONTAGE DESIGNATION	1A, 1B, 2A, 2B, 3A, 3B, 4A, 4B, 5A, 5B	
LINEAR FEET OF ROADWAY	116', 184', 64', 295', 222', 36'	
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	NO, NO, YES, YES, YES, YES	NO
CREDIT FOR WALL, FENCE OR BERM (NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	NO, NO, NO, NO, NO, NO	NO
NUMBER OF PLANTS REQUIRED	1:50, 1:40, 1:60, 1:60, 1:60, 3	1:40, 1:13
SHRUBS	1:40, 3	5, 5
NUMBER OF PLANTS PROVIDED	1:40, 3	5, 5
SHRUBS	1:40, 3	5, 5
SHADE TREES	3, 5, 1, 1, 2*	1, 12, 6
EVERGREEN TREES	4, 1, 1, 1, 1, 1	2, 6, 2, 2, 2
OTHER TREES (2:1 SUBSTITUTION)	1, 1, 1, 1, 1, 1	1, 1, 1, 1, 1, 1
SHRUBS (10:1 SUBSTITUTION)	1, 1, 1, 1, 1, 1	1, 1, 1, 1, 1, 1
DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED		
* SUBSTITUTE 10 SHRUBS FOR 1 SHADE TREES IN PERIMETER 4		
** CREDIT FOR EXISTING VEGETATION WITHIN FOREST CONSERVATION IN PERIMETER 3 AND PART OF PERIMETER'S 2 & 4.		



FOREST CONSERVATION SEQUENCE OF CONSTRUCTION

- PRE-CONSTRUCTION MEETING: VISIT WALK WITH CONTRACTORS AND OTHER RELEVANT PARTIES TO DEFINE PROTECTION MEASURES AND TO POINT OUT PARTICULAR TREES TO BE SAVED.
- THREE (3) LIMITS OF DISTURBANCE AND TREE PROTECTION FENCING LOCATIONS. 3. INSTALL TREE PROTECTION FENCING TO BE INSPECTED BY THE PROJECT ENGINEER OR THE PROJECT ECOLOGIST AND HOWARD COUNTY CID AND/OR DRP.
- PROCEED WITH TREE REMOVAL AND SITE IMPROVEMENTS AS PER APPROVED SEDIMENT CONTROL PLAN - TO BE INSPECTED BY HOWARD COUNTY CID AND/OR DRP.
- TEMPORARY TREE PROTECTION DEVICES SHALL BE REMOVED AFTER ALL FINISHED GRADING AND UTILITY CONSTRUCTION HAS OCCURRED AND WITH APPROVAL FROM THE HOWARD COUNTY OFFICE OF PLANNING AND ZONING.

PLANT LIST - SCHEDULE B (PARKING LOT)

KEY	QUAN	BOTANICAL NAME	SIZE	CAT	TYPE
1	2	PRUNUS X INCAPI 'OKAME'	8'-10" HGT.	B & B	ORNAMENTAL SHADE
2	2	LACINSTRONIA INDICA CRANEMTYLLE	6'-8" HGT.	B & B	ORNAMENTAL SHADE

OWNER/DEVELOPER

JUY LLC
8300 GULFORD ROAD, SUITE A
COLUMBIA, MD 21046
C/O JOSH YOUNG
(410) 290-7180

BIORETENTION PLANTING SCHEDULE (SHRUB/ORNAMENTAL GRASSES)

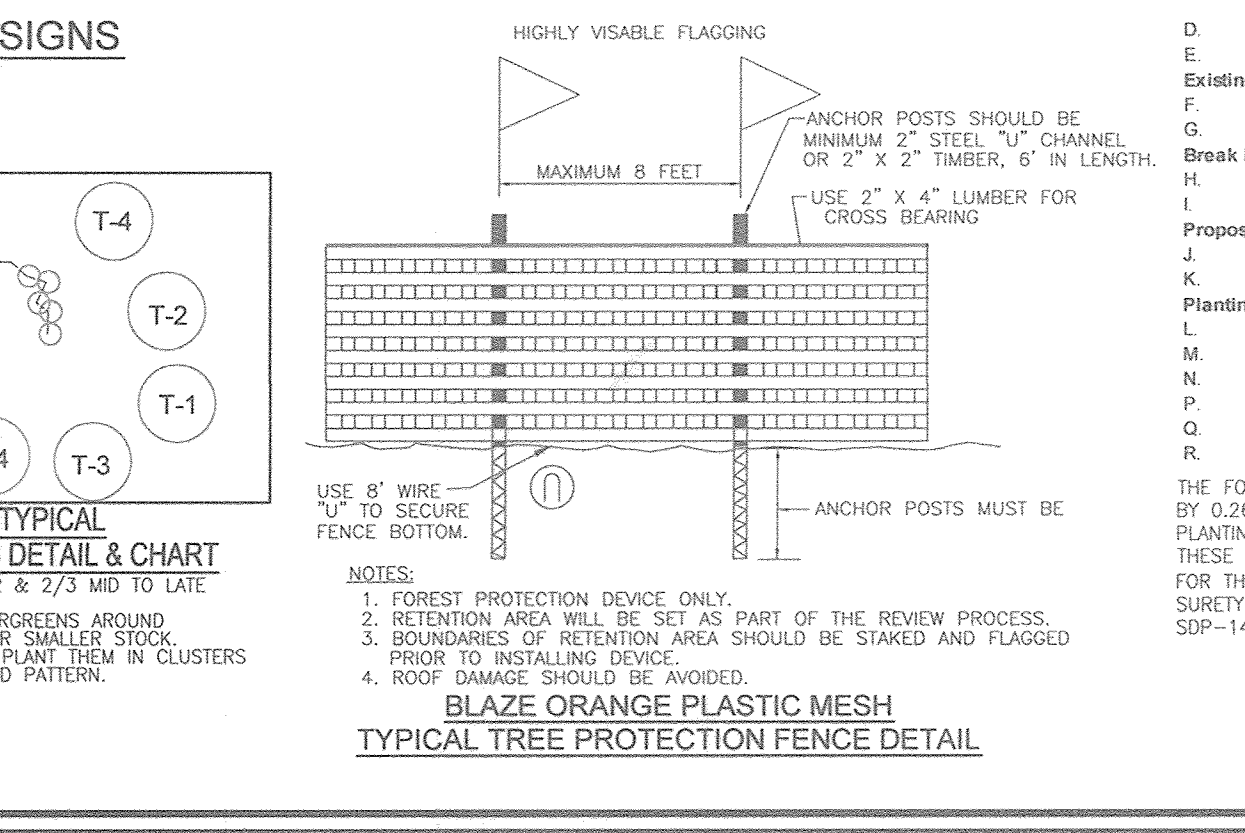
LEGEND/KEY	QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
IS	5	ILEX GLABRA 'SHAMROCK'	1 GALLON	18" O.C.
IV	7	IRIS VIRGINICA 'HENRY'S GARNETT'	1 GALLON	18" O.C.
PA	7	PANICUM ALOPECUROIDES 'NAMEL'	1 GALLON	30" O.C.
LC	10	LOBELIA CARDINALIS	1 GAL.	30" O.C.
PV	13	PANICUM VIRIDITUM 'PIRENE FIRE'	1 GAL.	36" O.C.

PERENNIALS/GROUNDCOVER PLANTING SCHEDULE

LEGEND	QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
43	1	BAPTISIA AUSTRALIS FALSE INDIGO	4" POT	12"-15" O.C. FOR SITES AND BOTTOM OF MBR. MIX ALL VARIETIES IN A NATURALIZED BANDING PATTERN THROUGHOUT. PLANT IN GROUPS OF NO LESS THAN 9 PLANTS PER CLUMP.
43	1	ACCURUS GRAMINEUS 'SODEN'	1 QT.	GROUND COVER

BIORETENTION PLANTING REQUIREMENTS

MBR	AREA	STEMS REQUIRED	STEMS PROVIDED
1	363 SF	9	13
2	871 SF	20	29



FOREST CONSERVATION WORKSHEET 2.2

Net Tract Area	A = 1.60
Deductions	B = 0.00
Net Tract Area	C = 1.60
Allocation Threshold (Net Tract Area x 15%)	D = 0.24
Conservation Threshold (Net Tract Area x 15%)	E = 0.24
Existing Forest Cover	F = 0.60
Area of Forest Above Conservation Threshold	G = 0.36
Break Even Point	H = 0.31
Forest Clearing Permitted Without Mitigation	I = 0.29
Proposed Forest Clearing	J = 0.34
Total Area of Forest to be Cleared	K = 0.28
Total Area of Forest to be Retained	L = 0.09
Reforestation for Clearing Above the Conservation Threshold	M = 0.09
Reforestation for Clearing Below the Conservation Threshold	N = 0.02
Credit for Retention Above the Conservation Threshold	P = 0.07
Total Reforestation Required	Q = 0.05
Total Afforestation Required	R = 0.07

SITE DEVELOPMENT PLAN

LANDSCAPE AND FOREST CONSERVATION PLAN

YOUNG SCHOOL - ELLICOTT CITY DAY CARE CENTER

ZONED: B-1
2ND MAP, 24 BLOCK 2
2ND ELECTION DISTRICT

ELLICOTT CITY, MD
HOWARD COUNTY, MARYLAND

DESIGN BY: RHW/DZE
DRAWN BY: DZE/KG
CHECKED BY: RHW
DATE: SEPTEMBER 2017
SCALE: AS SHOWN
W.O. NO.: 18-55

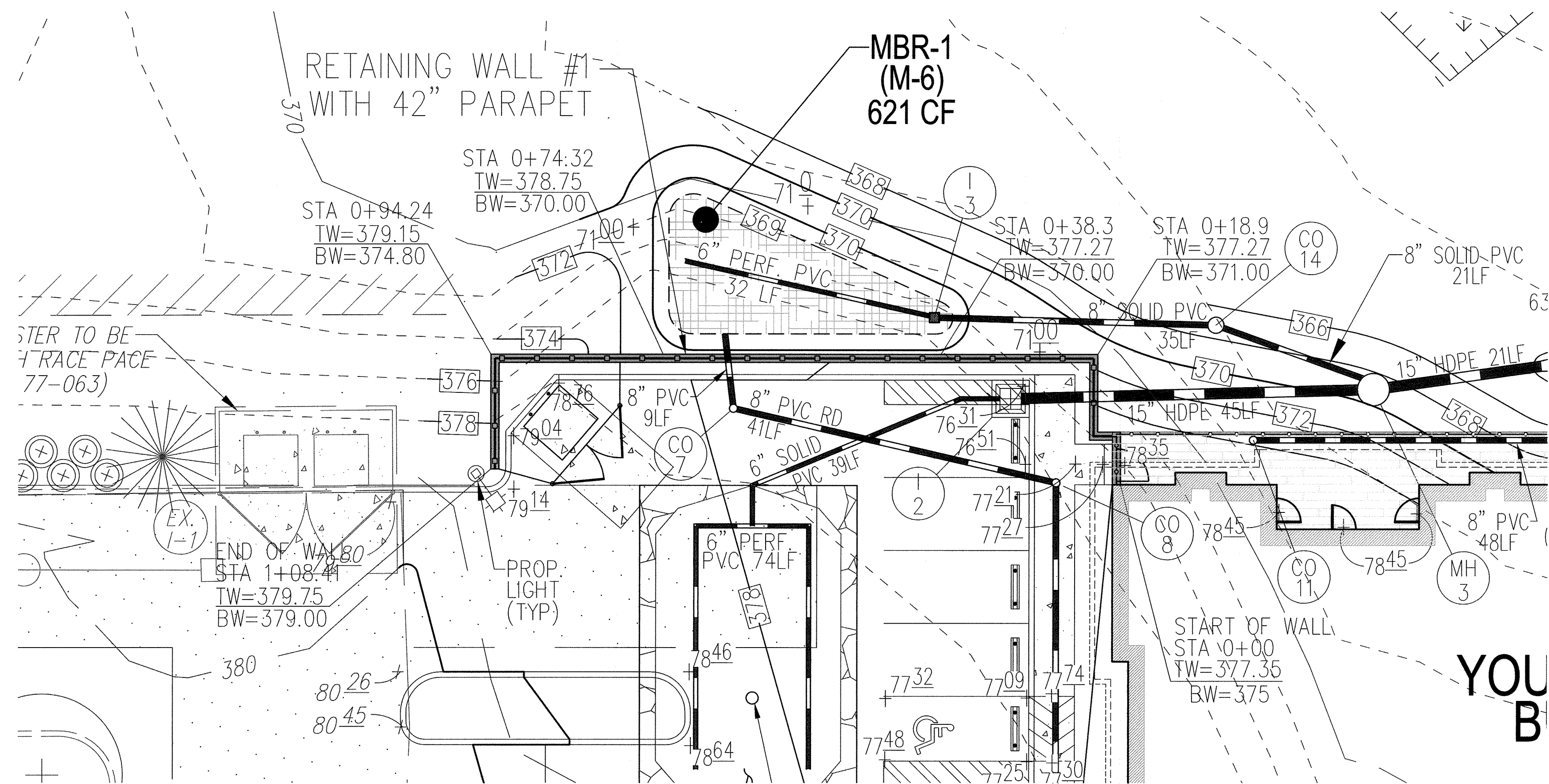
PROFESSIONAL CERTIFICATE

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.

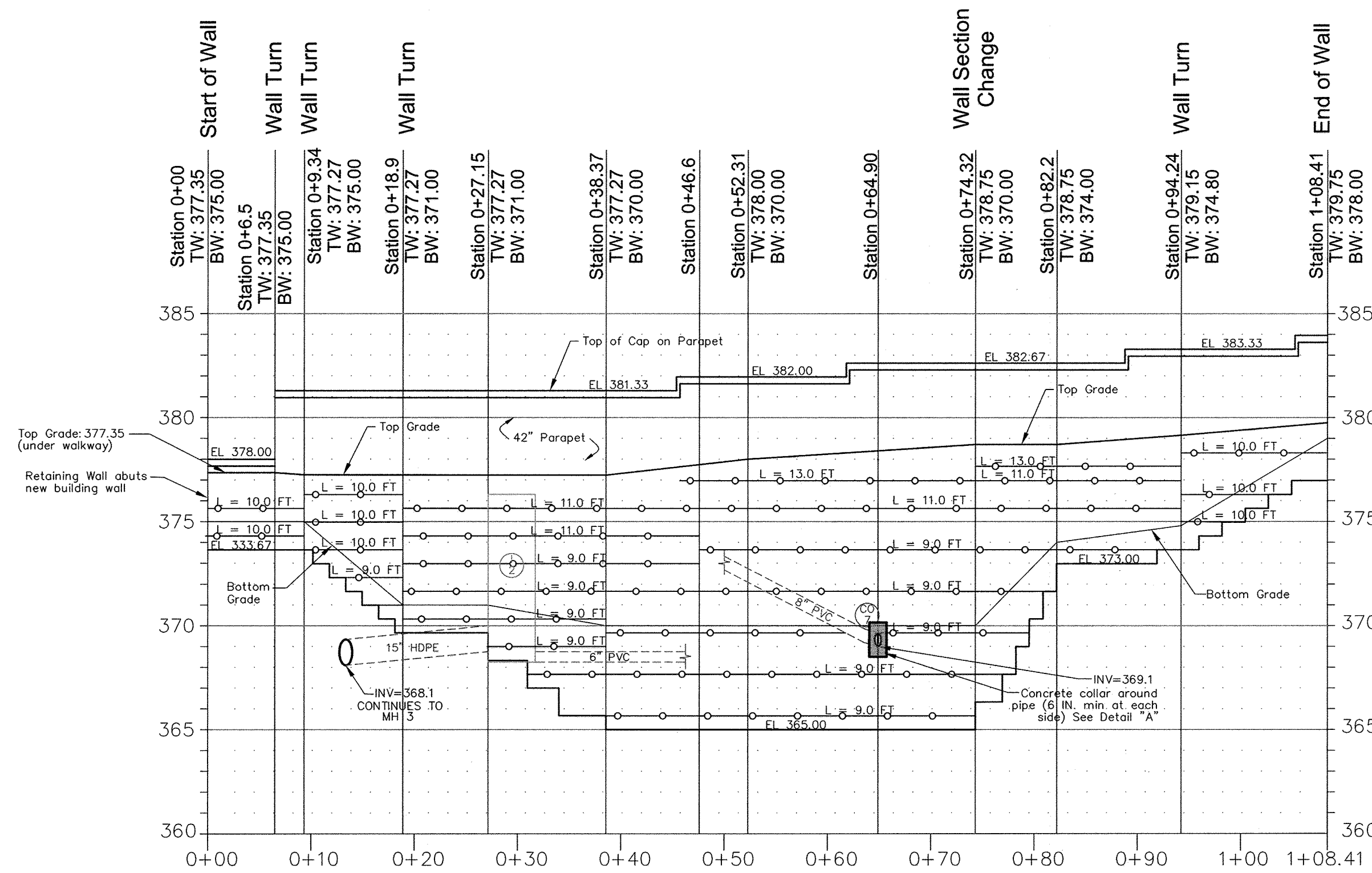
STATE OF MARYLAND PROFESSIONAL ENGINEER

ROBERT H. VOGEL, P.E. No. 16193

6 SHEET OF 9



RETAINING WALL #1 PLAN
SCALE: 1"=10'



RETAINING WALL #1 PROFILE
HORIZONTAL SCALE: 1"=10'
VERTICAL SCALE: 1"=5'

NOTE: ALL GEOGRIDS CONSIST OF MIRAFI 5XT
TW: TOP FINISHED GRADE
BW: BOTTOM FINISHED GRADE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 10-17-17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 [Signature] 10-21-17
 CHIEF, DIVISION OF LAND DEVELOPMENT
 [Signature] 10-31-17
 DIRECTOR



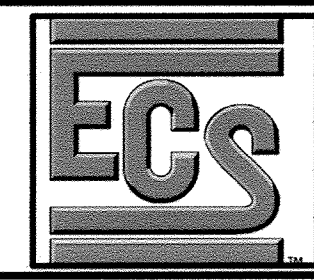
AS-BUILT CERTIFICATION FOR PSWM
 I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.
 [Signature] 16193 7-29-19
 P.E. # DATE

NO AS-BUILT INFORMATION ON THIS SHEET

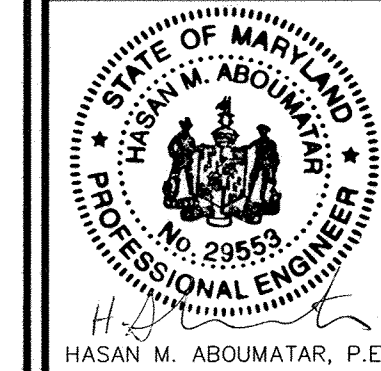
OWNER/DEVELOPER
 JUY LLC
 8300 GUILFORD ROAD, SUITE A
 COLUMBIA, MD 21046
 C/O JOSH YOUNG
 (410) 290-7180

NO.	REVISION	DATE

SITE DEVELOPMENT PLAN
RETAINING WALL #1
PLAN & PROFILE
YOUNG SCHOOL - ELLICOTT CITY
 DAY CARE CENTER
 ELLICOTT INVESTMENTS INC. PARCEL B
 3240 BETHANY LANE
 ELLICOTT CITY, MD
 HOWARD COUNTY, MARYLAND
 ZONED: B-1
 TAX MAP: 24 BLOCK: 2
 2ND ELECTION DISTRICT
 PARCEL 993, PARCEL B
 PLAT: 22168 & 22480

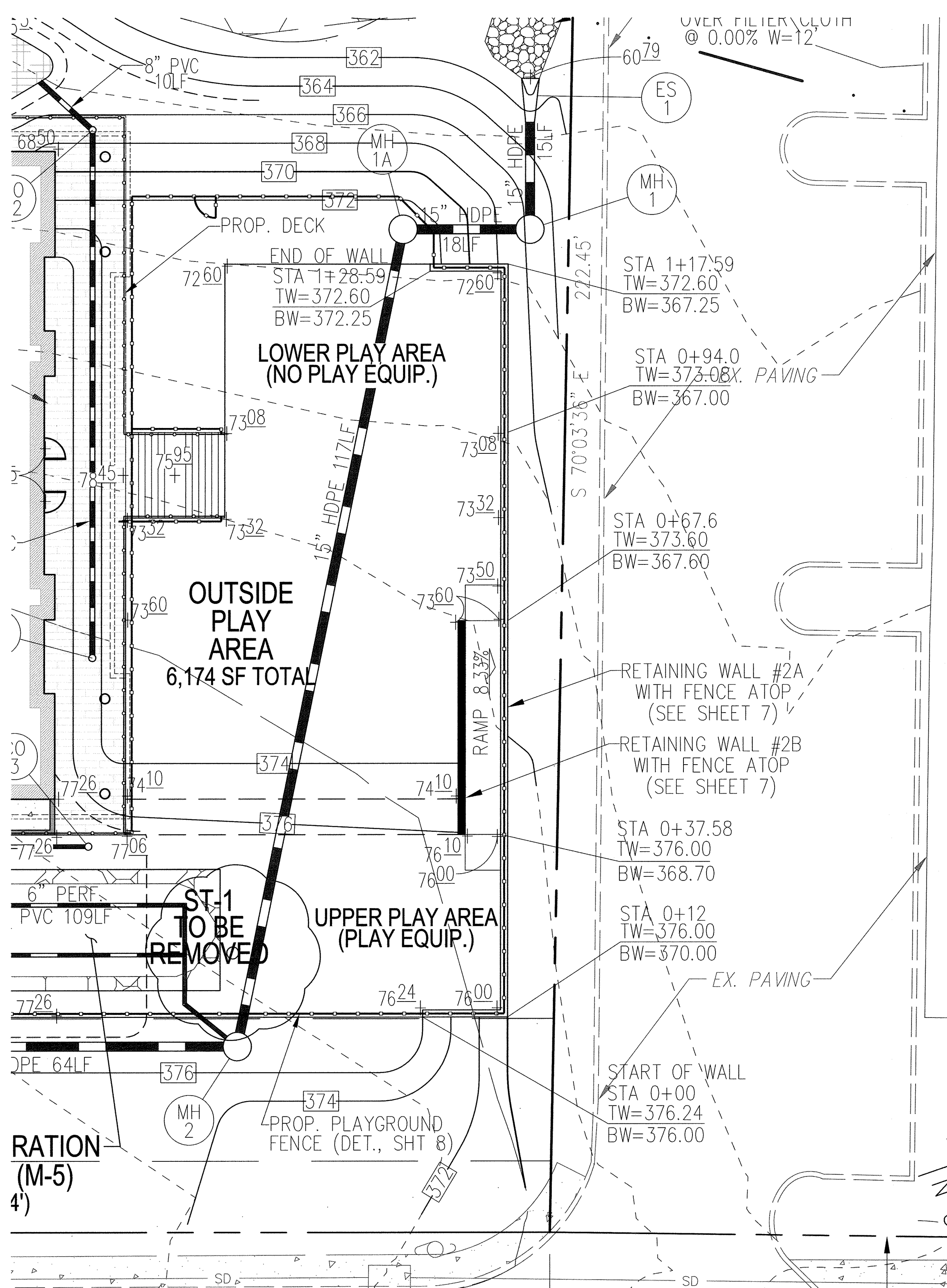


1340 CHARWOOD ROAD
 SUITE A
 HANOVER, MARYLAND 21076
 PHONE: (410) 859-4300
 FAX: (410) 859-4324



DESIGN BY: DMA
 DRAWN BY: KH
 CHECKED BY: HMA
 DATE: SEPTEMBER 2017
 SCALE: AS SHOWN
 W.O. NO.: 7015-B
 PROFESSIONAL CERTIFICATE
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A QUALIFIED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 29553, EXPIRATION DATE: 12-31-2017
 7 SHEET OF 9

AS-BUILT-OCTOBER 2018



RETAINING WALL #2 PLAN
SCALE: 1"=10'

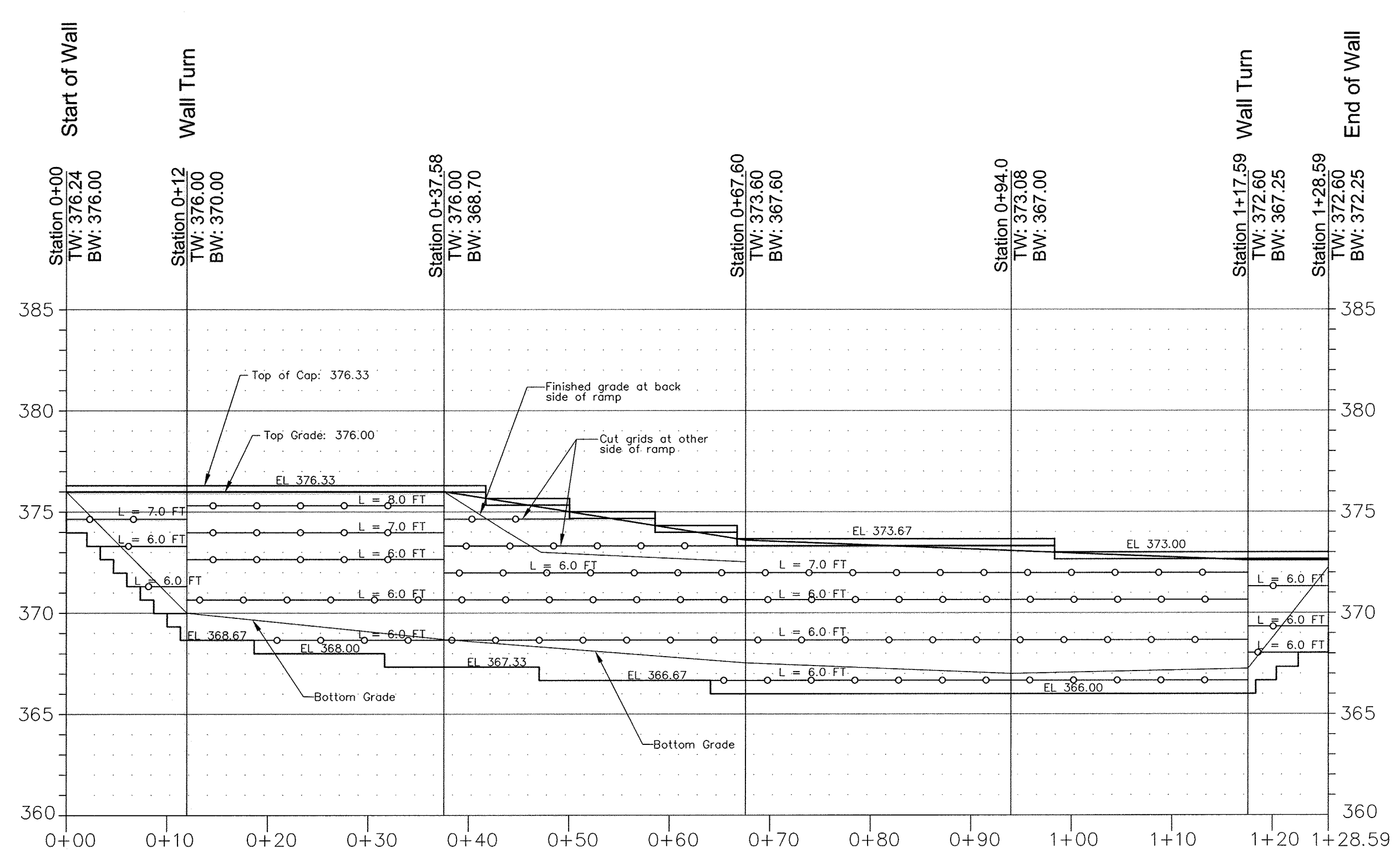
NOTE: ALL GEOGRIDS CONSIST OF MIRAFI 5XT
TW: TOP FINISHED GRADE
BW: BOTTOM FINISHED GRADE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad Clark 10-17-17
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Kentley D. Smith 10-31-17
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Walter J. Smith 10-31-17
DIRECTOR DATE

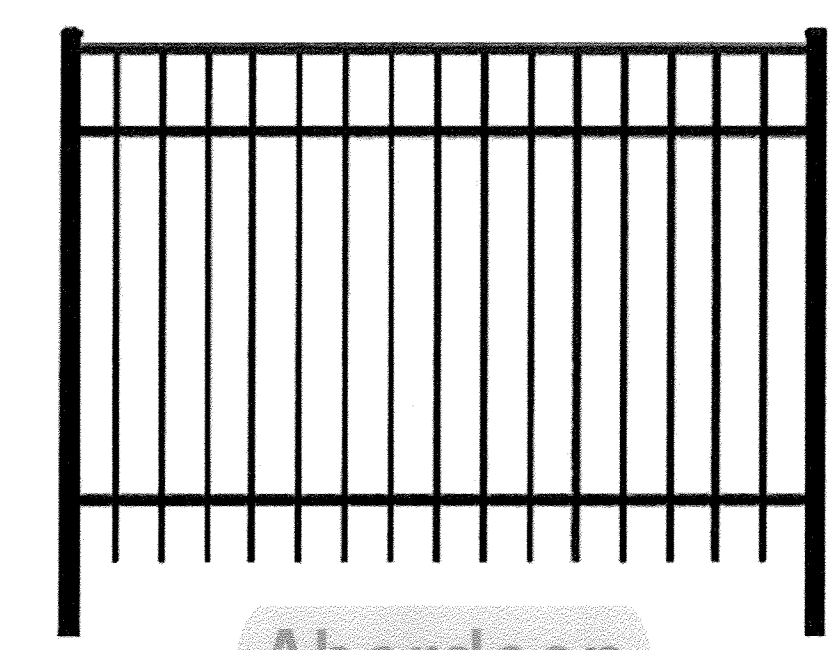


RETAINING WALL #2 PROFILE
HORIZONTAL SCALE: 1"=10'
VERTICAL SCALE: 1"=5'

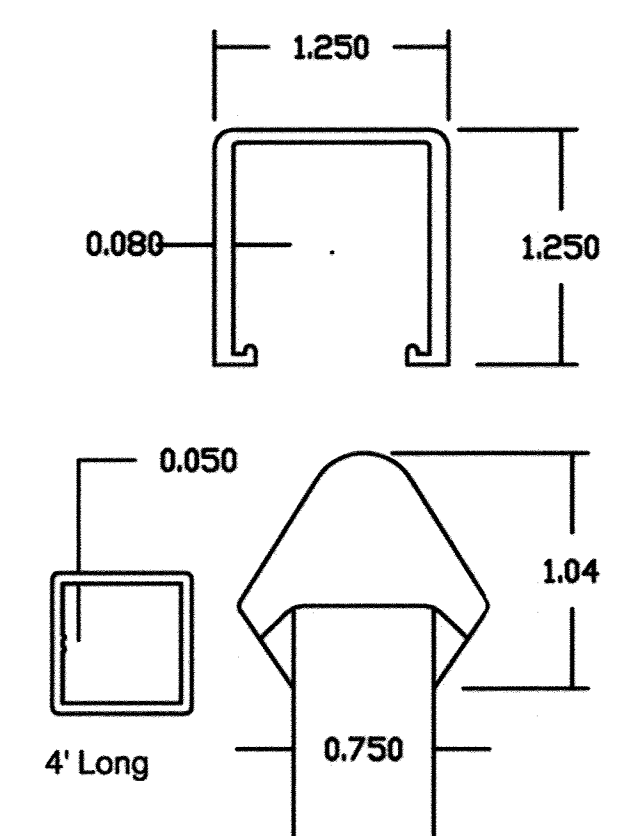
COMMERCIAL

- POSTS
- 2" x 2" .060 wall
- 2" x 2" .080 wall
- 2 1/2" x 2 1/2" .080 wall
- 2 1/2" x 2 1/2" .125 wall

- RAILS
- 1 1/4" x 1 1/4" Rail .080 wall
- PICKET SIZE
- 3/4" x 3/4" Picket .050 wall
- PICKET SPACING
- 3 13/16"



TYPICAL FENCE DETAILS (NTS)



TYPICAL FENCE DETAILS (NTS)

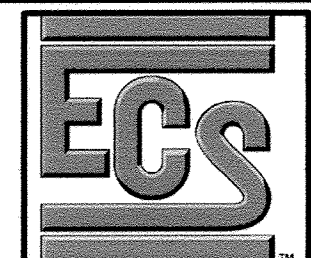
OWNER/DEVELOPER
JUY LLC
8300 GULFORD ROAD, SUITE A
COLUMBIA, MD 21046
C/O JOSH YOUNG
(410) 290-7180

NO.	REVISION	DATE

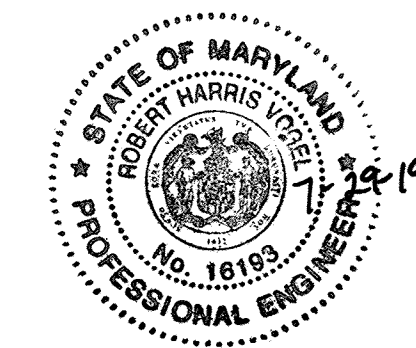
SITE DEVELOPMENT PLAN
RETAINING WALL #2 PLAN & PROFILE
YOUNG SCHOOL - ELLICOTT CITY
DAY CARE CENTER

ZONED: B-1
TAX MAP: 24 BLOCK: 2
2ND ELECTION DISTRICT

PARCEL 993, PARCEL B
PLAT: 22168 & 23480
HOWARD COUNTY, MARYLAND



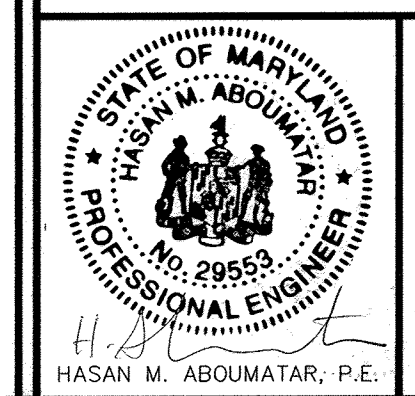
1340 CHARWOOD ROAD
SUITE A
HANOVER, MARYLAND 21076
PHONE: (410) 859-4300
FAX: (410) 859-4324



AS-BUILT CERTIFICATION FOR PSWM *

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.

Hasnan M. Aboumatar 16193 7-29-19
P.E. NAME P.E.# DATE



PROFESSIONAL CERTIFICATE

DESIGN BY: DMA
DRAWN BY: KH
CHECKED BY: HMA
DATE: SEPTEMBER 2017
SCALE: AS SHOWN
W.O. NO.: 7015-B

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 29553, EXPIRATION DATE: 12-31-2017.

8 SHEET OF 9

* NO AS-BUILT INFORMATION ON THIS SHEET

AS-BUILT-OCTOBER 2018

RETAINING WALL SPECIFICATION GUIDELINES

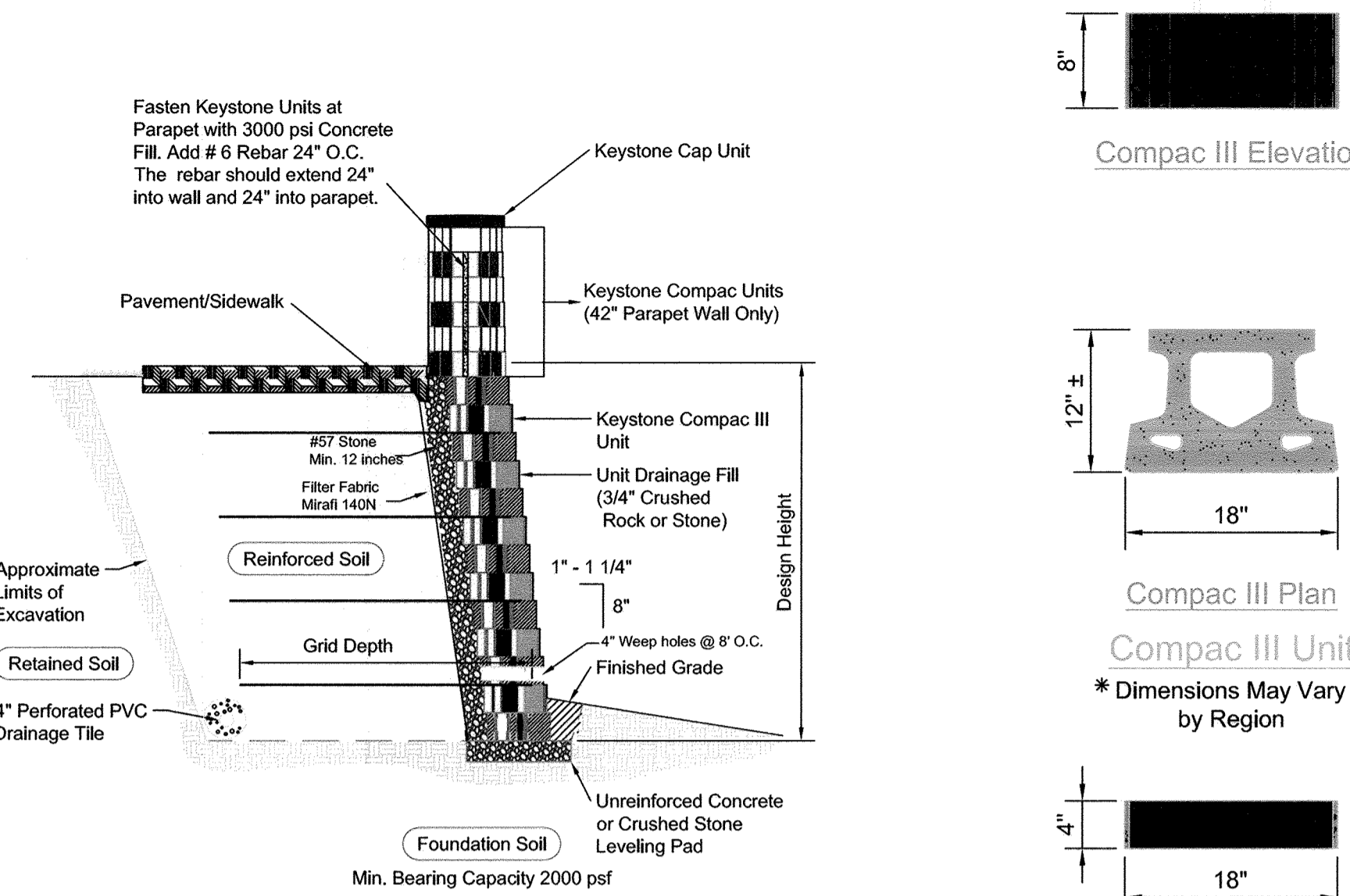
- PART 1: GENERAL**
- 1.01 Description
- Retaining walls must be constructed under the supervision of a Maryland Registered Professional Engineer.
 - Work includes furnishing and installing concrete modular block retaining wall units to the lines and grades shown on the construction drawings and as specified herein.
 - Work includes preparing foundation soil, furnishing and installing leveling pad, unit fill and reinforced backfill to the lines and grades shown on the construction drawings.
 - Work includes furnishing and installing all related materials required for construction of the retaining wall as shown on the construction drawings.
- 1.02 Reference Standards
- ASTM C 90 Load Bearing Concrete Masonry Units.
 - ASTM C 140 Sampling and Testing Concrete Masonry Units.
 - ASTM D 4448 Sizes of Aggregate for Road and Bridge Construction.
 - ASTM D 698 Laboratory Compaction Characteristics using Standard Effort.
- 1.03 Delivery, Storage and Handling
- Contractor shall check the materials upon delivery to ensure that proper materials have been received.
 - Contractor shall prevent excessive mud, wet cement, epoxy, and similar materials (which may offx themselves) from coming in contact with the materials.
 - Contractor shall protect the materials from damage and exposure to sunlight. Damaged materials shall not be incorporated into the retaining wall structure and backfill.
- 1.04 Quality Assurance
- Owner will be responsible for soil testing and construction observations for quality control during earthwork and retaining wall construction operations.

- PART 2: MATERIALS**
- 2.01 Definitions
- Modular Wall Units - KEYSTONE modular concrete facing and corner units, machine made from portland cement, water, and mineral aggregates.
 - Structural Geogrid - a structural geogrid formed by a regular network of integrity connected tensile elements with openings of sufficient size to allow interlocking with surrounding soil, rock, or earth and function primarily as reinforcement.
 - Unit Fill/Drainage Aggregate - drainage aggregate, such as No. 57 Stone, which is placed within the cells of the modular concrete units and immediately behind the units to a width of at least 12 inches.
 - Reinforced Backfill - compacted soil which is within the reinforced soil volume as shown on the plans.
 - Excavation Face - The interface between the reinforced backfill and the retained fill. During construction, measures shall be taken to avoid developing a shear plane at this interface.
 - Retained Backfill - On-site material located behind the reinforced zone of soil.
- 2.02 Concrete Units
- Concrete segmental units shall conform to the requirements of NMA TEK 2-4 and have a minimum 28-day compression strength of 4,000 psi. The units shall also pass 150 freeze thaw cycles in water with less than 1% weight loss for samples tested in accordance with ASTM C-1202.
 - Wall Face Units for general wall construction shall be KEYSTONE Compac III units. Sculptured face or straight (flat) face may be used.
 - Top of wall Cap Units shall be KEYSTONE Cap Units with fiberglass connecting pins.
 - KEYSTONE Compac III Units shall be tan in color, based on manufacturer's availability.
- 2.03 Fiberglass Connecting Pins
- Connecting pins shall be 1/2" diameter thermoset isophthalic polyester resin-pultruded fiberglass reinforcement rods supplied by the unit manufacturer.
- 2.04 Construction Adhesive
- Construction adhesive for top of wall cap blocks shall be KEYSTONE KapSealTM. Material shall conform to ASTM 2339 and shall be supplied by the block unit supplier.
- 2.06 Soil Fill Materials
- Base Leveling and Pod Material
 - Material shall consist of crushed stone (GA S/B) as shown on the construction drawing. The leveling pad shall be, at a minimum, 6-inches thick. MSHA No. 57 Stone or pea gravel is not permitted.
 - Unit Fill/Drainage Aggregate
 - Fill for units shall be free draining crushed stone or gravel, with a maximum aggregate size of 1/2" to 3/4" and no more than 5% passing the No. 50 sieve and conforming to ASTM D 448. Gradation of the unit fill shall be approved by the Geotechnical Engineer. Pea gravel shall not be used. MSHA No. 57 stone may be used.
 - Reinforced Backfill
 - Material shall consist of soil classified as SM or more granular soils per USCS with minimum soil parameters as indicated under design parameters. The backfill material shall contain no particles greater than 2.5 inches in diameter. The backfill material shall contain no more than 30 percent by weight passing the US Standard No. 200 sieve. Other backfill materials may be approved by the Geotechnical Engineer.
 - Impervious Soil
 - Material may be imported or site excavated soils exhibiting a USCS designation of a lean clay (CL) or clayey sand (SC). The material shall contain no less than 40 percent by weight passing the US Standard No. 200 sieve and exhibit a plasticity index no less than 4 and no greater than 20. Other materials may be approved by the Geotechnical Engineer.
 - Sample Submital
 - The contractor shall submit samples and material specifications of the proposed backfill soils (unit fill, pod material, reinforced backfill) to the Geotechnical Engineer for approval.
 - Soil must meet or exceed the friction angle specified in design parameters.
- 2.07 Structural Geogrid
- The geogrid identified for the retaining wall consists of the following:
 - Mirafi 5XTc.
 - The material shall be protected from sunlight and weather while stored on site in accordance with the manufacturer's recommendation.
- 2.08 Geotextile
- A non-woven geotextile shall be utilized as shown on the plans to provide a filter between the unit fill/drainage aggregate and the reinforced backfill.
 - The geotextile shall consist of a Mirafi 140N.
 - Where geogrids are located, the geotextile shall be placed as illustrated on the plans. At junctions and ends, the geotextile shall be overlapped at least 12 inches. The geotextile shall be placed so that intimate contact is made between the geotextile and the backfill material.
 - Ripped or otherwise damaged material shall not be used. The material shall be protected from sunlight and weather while stored on site in accordance with the manufacturer's recommendation.

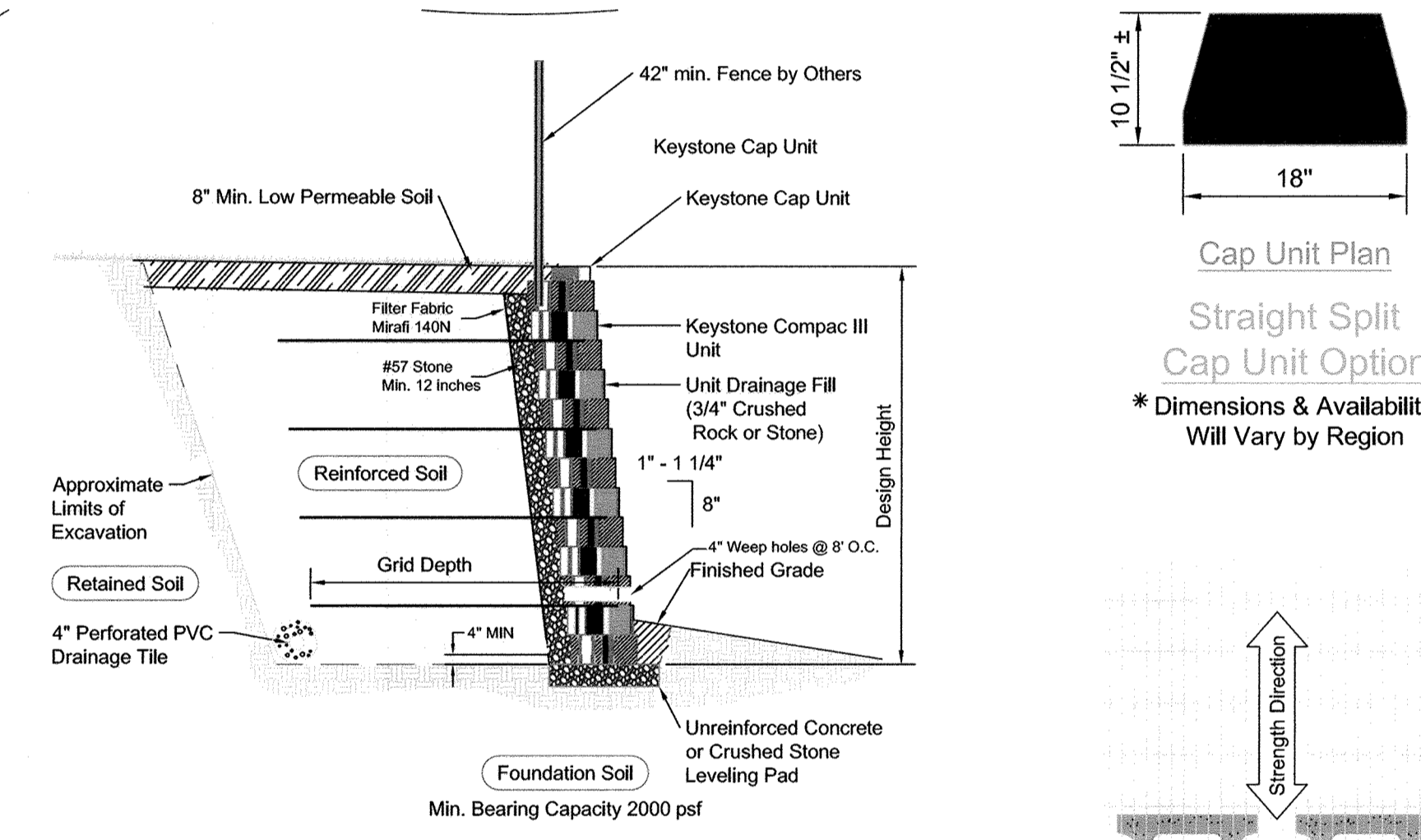
- PART 3: INSTALLATION**
- 3.01 Excavation
- Contractor shall excavate to the lines and grades shown on the construction drawings. Contractor shall be careful not to disturb foundation materials beyond lines shown.
 - All existing topsoil, rootstock and other soft or unsuitable materials shall, at a minimum, be removed from the footprint of the retained soil mass.
 - If groundwater is encountered during the excavation of the backslope, a backslope drainage system shall be utilized. The system shall tie into the internal wall drainage system to provide adequate release of any water which accumulates behind the reinforced zone.
- 3.02 Foundation Preparation
- Foundation shall be excavated as required for leveling pad dimensions shown on the construction drawings, or as directed by the Geotechnical Engineer.
 - The required bearing pressure beneath the footing of the wall must be verified in the field by a Geotechnical Engineer.
 - Unsuitable soils shall be removed and replaced with approved material.
 - Over-excavated areas shall be backfilled with approved, compacted backfill material or as approved by the Geotechnical Engineer.
- 3.03 Base Leveling Pad
- Leveling pad materials shall be placed upon an approved foundation as shown on the construction drawings to a minimum thickness of 6 inches.
 - Aggregate material shall be compacted to provide a dense, level surface on which to place the first course of modular units. Compaction shall be to at least 95% of the maximum dry density as determined by the Standard Proctor Compaction Test (ASTM D 698). Leveling pad shall be prepared and leveled to ensure complete contact of retaining wall unit with base.
- 3.04 Unit Installation
- The first course of concrete modular units shall be carefully placed on the base leveling pad. Each unit shall be checked for level (in both directions) and alignment.
 - Install fiberglass connecting pins and fill all voids in and around the modular units with unit fill material. Tamp or rod unit fill to ensure that all voids are completely filled.
 - Sweep excess material from top of units and install the next course. Ensure that the units of each course are completely filled, backfilled and compacted prior to proceeding to next course.
 - Place each subsequent course, ensuring that pins protrude into adjoining courses a minimum of 1 inch. Two pins are required per unit. Pull each unit forward to obtain the desired offset (as noted on the plans) away from the fill zone, locking the pins in the previous course and backfill as the course is completed.
 - Repeat procedure to the extent of wall height. Wall construction shall not exceed 2 courses in height before reinforced backfill is placed.
 - Follow wall erection and unit placement closely with any other backfilling required. Compaction of all soils shall be to 95% of the maximum dry density as determined in accordance with ASTM D 698.
 - As appropriate where the wall changes elevation, units can be stepped with the grade or turned into the embankment with a convex return end. Provide appropriate buried units on compacted leveling pad in area of convex return end.
- 3.05 Geogrid Installation
- The geogrid type and length (direction perpendicular to the wall face) shall conform to those indicated on the construction drawings. Geogrid shall be laid continuously at the proper elevations/orientation as shown on the construction drawings or as directed by the Geotechnical Engineer.
 - Correct orientation (roll direction) of the geogrid shall be verified by the Contractor.
 - The geogrid shall be connected to the modular wall units by placing the geogrid over fiberglass pins and tying the grid back to the side.
 - A filtering, non-woven geotextile shall be located between the drainage aggregate/unit fill and the reinforced backfill. The geotextile shall be folded back parallel, above and below the geogrid as necessary to ensure continuous grid placement.
 - The geogrid shall be pulled taut to set the geogrid against the fiberglass pins and to eliminate loose folds in the material. The fill surface shall be level to tension the geogrid; backfill shall be placed over the grid immediately behind the wall to the back end of the geogrid.
 - No geogrid overlaps will be allowed in any length of geogrid perpendicular to the wall face except at corners or angled locations. The geogrid shall overlap rather than provide no coverage. A minimum of 4 inches of soil cover is required between overlapping layers of geogrid.
- 3.06 Drainage Installation
- Provide 4-inch weep holes every 8 feet along the wall at 4 in. above low grade level.
- 3.07 Fill Placement
- Backfill material shall be placed in 8 inch loose lifts and compacted to at least 95% of the maximum dry density as determined by ASTM D 698. The in-place moisture content shall be in the range of at the optimum moisture content to 2 percentage points higher than the optimum moisture content, as determined in accordance with ASTM D 698.
 - Backfill shall be placed, spread and compacted in such a manner that minimizes the development of slack or loss of pretension of the geogrid. Backfill shall be placed in horizontal layers. The excavation face shall be stepped or notched to provide compaction of backfill on a level surface and to increase the interlock between the retained soils and the reinforced backfill.
 - Only hand-operated compaction equipment shall be allowed within 5 feet of the back surface of the KEYSTONE or equivalent units.
 - Backfill shall be placed from immediately behind the wall towards the excavation face/retained soils and compacted to the specifications presented herein with appropriate compaction equipment.
 - Tracked construction equipment shall not be operated directly on the geogrid. A minimum backfill thickness of 6 inches is required prior to operation of tracked vehicles over the geogrid. Turning of tracked vehicles shall not be permitted overtop the geogrid.
 - Rubber-tired equipment may pass over the geogrid reinforcement at slow speeds (less than 10 mph). Avoid sudden braking and sharp turning.
 - The suitability of the fill material must be confirmed by a Geotechnical Engineer.
 - The upper 8 inches of wall backfill shall consist of impervious soil, compacted to at least 95% of the maximum dry density as determined by ASTM D 698. The in-place moisture content shall be in the range of at the optimum moisture content to 2 percentage points higher than the optimum moisture content, as determined in accordance with ASTM D 698.
- 3.08 Cap Installation
- Provide permanent mechanical connection to wall units with KEYSTONE KapSealTM. Apply adhesive to top surface of lower unit and place cap unit atop adhesive.
 - Place Cap Units over projecting pins from the units below. Pull forward to setback position.
 - Backfill and compact to finished grade.

DESIGN PARAMETERS

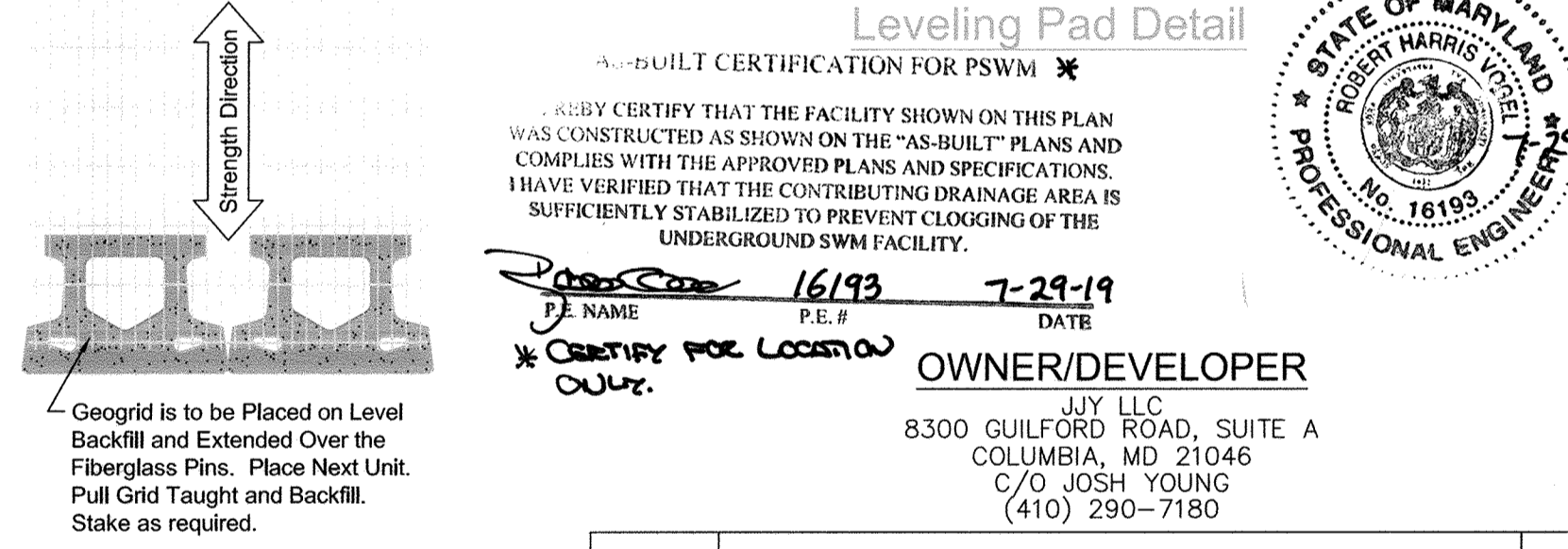
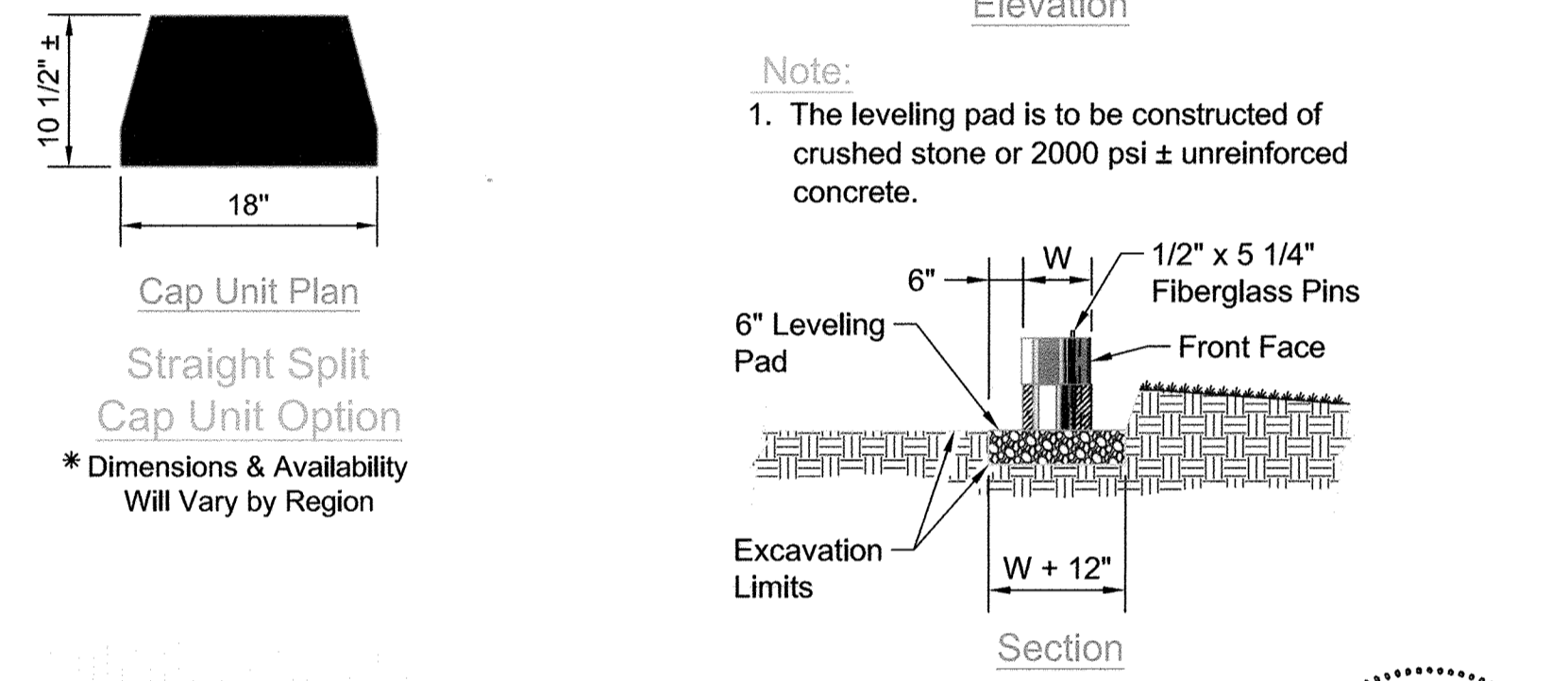
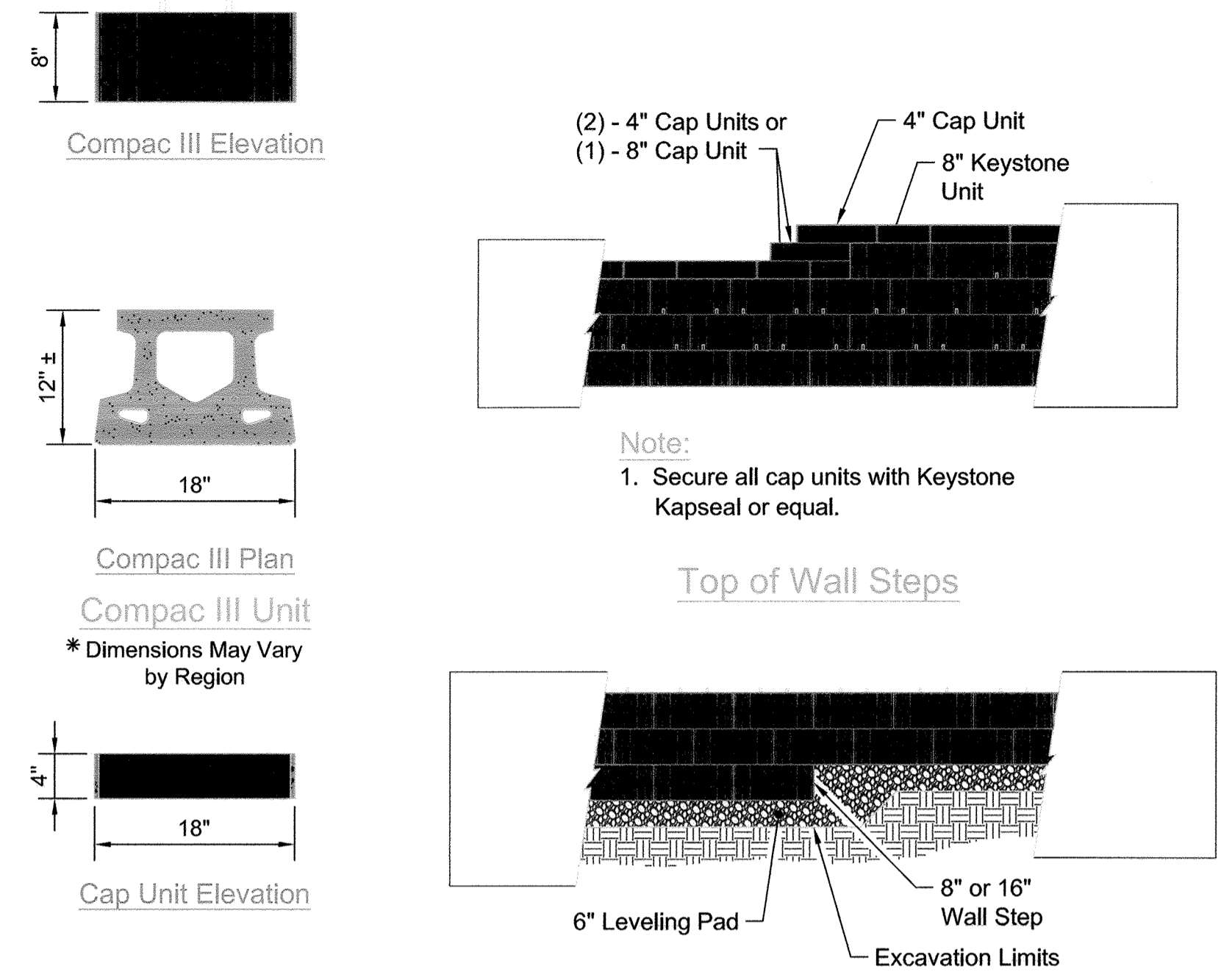
Configuration	Soil Type	Minimum Friction Angle	Minimum Unit Weight (pcf)
Battered face wall (4 DEG.)	Reinforced fill (OK to use more granular)	28	120
Maximum Exposed Wall Height / Minimum Allowable Bearing Pressure (psf):	Retained soils	28	120
Backslope Angle: Varies (10H:1V maximum)	Foundation soils	28	120
Toe Slope Angle: Varies (10H:1V maximum)			
Wall Embedment: Varies (12 inches minimum) (See Profile)			



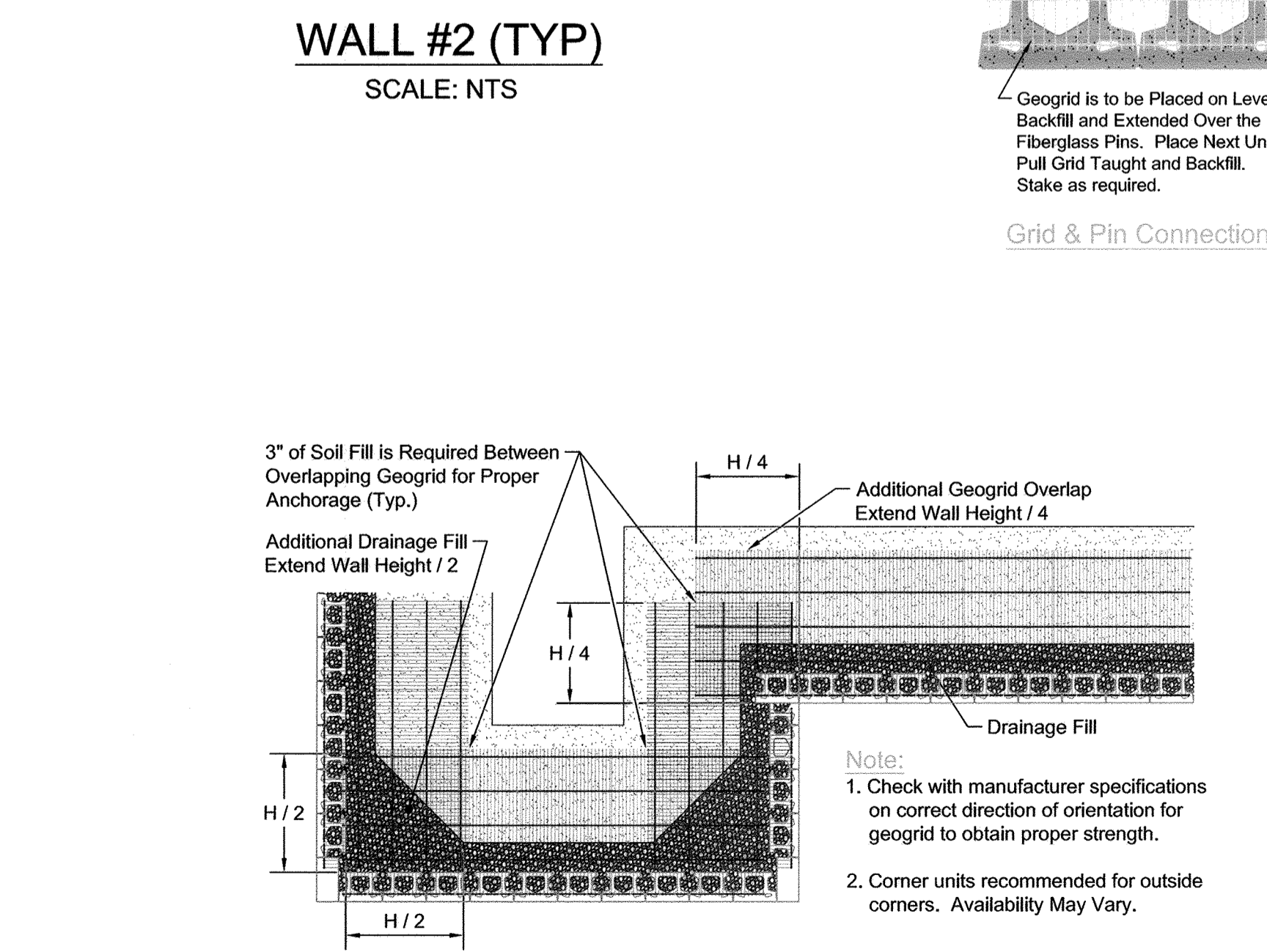
WALL #1 WITH PARAPET (TYP)
SCALE: NTS



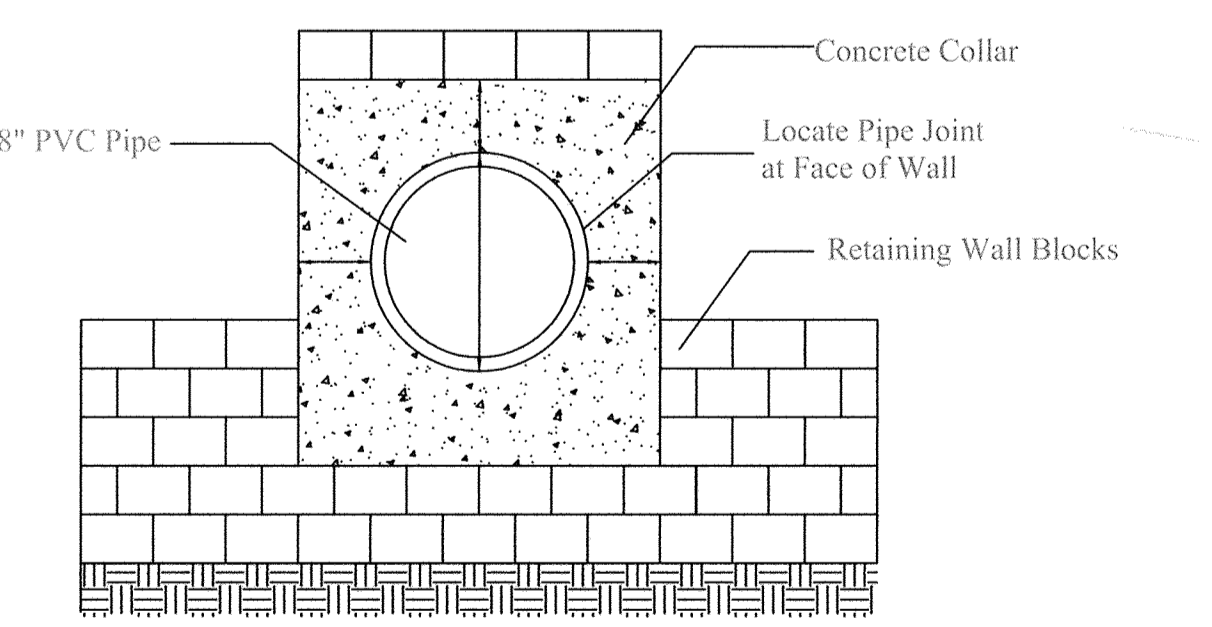
WALL #2 (TYP)
SCALE: NTS



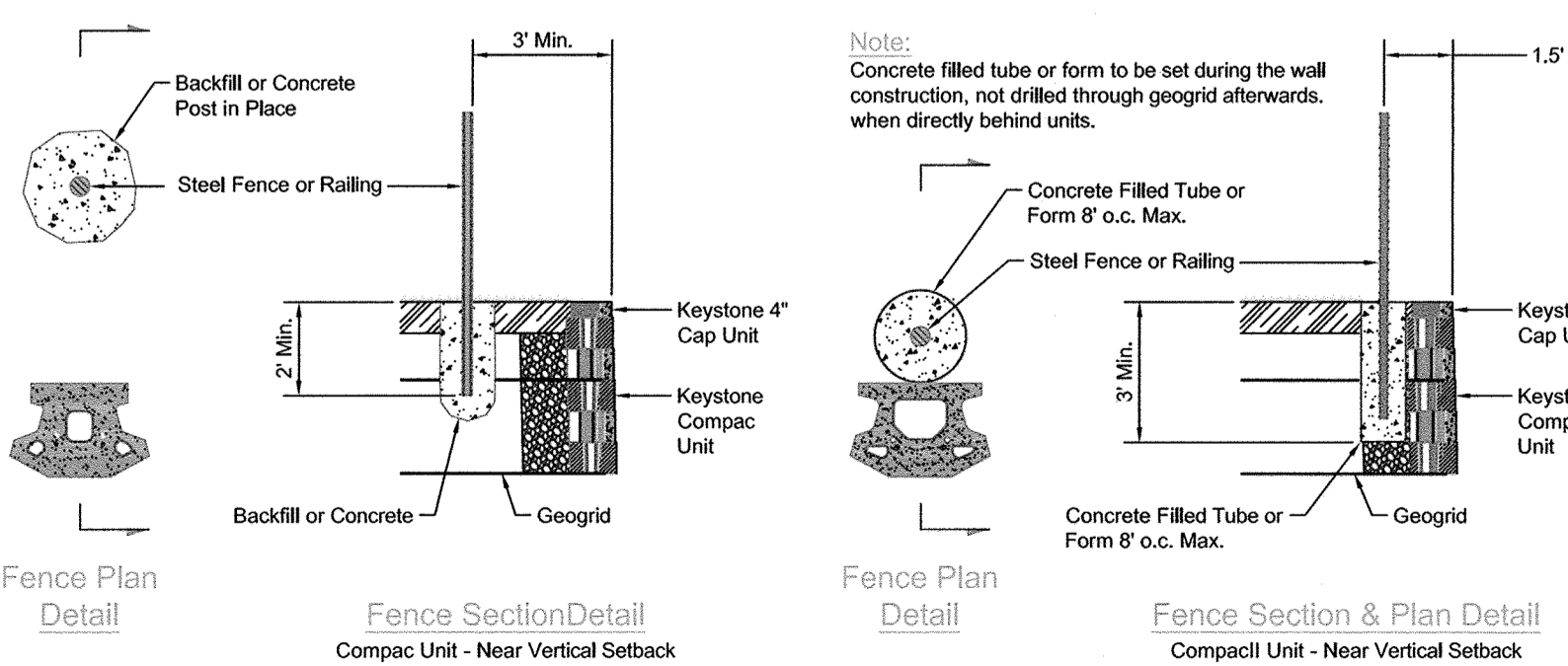
Grid & Pin Connection



Geogrid Installation at Corners



Detail "A" (NTS)
8" PVC Pipe



Fence Section Detail
Compac Unit - Near Vertical Setback

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 10-17-17
CHIEF, DEVELOPMENT ENGINEERING DIVISION

[Signature] 10-31-17
CHIEF, DIVISION OF LAND DEVELOPMENT

[Signature] 10-31-17
DIRECTOR

AS-BUILT CERTIFICATION FOR PSWM

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.

[Signature] 16193 7-29-19
NAME P.E.# DATE

*** CERTIFY FOR LOCATION ONLY ***

OWNER/DEVELOPER
JUY LLC
8300 GUILFORD ROAD, SUITE A
COLUMBIA, MD 21046
C/O JOSH YOUNG
(410) 290-7180

STATE OF MARYLAND
HASAN M. ABUAMAR, P.E.
PROFESSIONAL ENGINEER
NO. 16193

NO.	REVISION	DATE

SITE DEVELOPMENT PLAN

RETAINING WALL DETAILS & SECTIONS

YOUNG SCHOOL - ELLICOTT CITY

DAY CARE CENTER

ZONED: B-1 ELLICOTT INVESTMENTS INC. PARCEL B PARCEL 968, PARCEL B
TAX MAP: 24 BLOCK: 2 3240 BETHANY LANE PLAT: 22168 & 23480
2ND ELECTION DISTRICT ELLICOTT CITY, MD HOWARD COUNTY, MARYLAND

EGS

1340 CHARWOOD ROAD
SUITE A
HANOVER, MARYLAND 21076
PHONE: (410) 859-4300
FAX: (410) 859-4324

PROFESSIONAL CERTIFICATE

DESIGN BY: DMA
DRAWN BY: KH
CHECKED BY: HM
DATE: SEPTEMBER 2017
SCALE: AS SHOWN
W.O. NO.: 7015-B

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. 29553, EXPIRATION DATE: 12-31-2017

9 SHEET OF 9

* NO AS-BUILT INFORMATION ON THIS SHEET

AS-BUILT-OCTOBER 2018