

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.
- STARTING WORK ON THESE DRAWINGS:
 - MISS UTILITY: 1-800-257-7777
 - VERIZON: 1-800-743-0033
 - BUREAU OF UTILITIES: 1-800-743-0033
 - A&T: 1-800-262-1133
 - B.C.A.E. (CONSTRUCTION SERVICES): 410-685-0123
 - B.C.A.E. (EMERGENCY): 410-685-0123
 - STATE HIGHWAY ADMINISTRATION: 410-995-1590
 - COLUMBIA PIPELINE CO.: 410-995-1590
- SITE ANALYSIS:
 - WETLANDS ON SITE: 1.59 AC
 - PRESENT ZONING: B-1
 - USE: RETAIL COMMERCIAL
 - TOTAL BUILDING COVERAGE: 15,000 SF (0.34 AC, OR 21.63% OF GROSS AREA)
 - PAVED PARKING LOT/AREA ON SITE: 23,057 SF (0.53 AC, OR 33.33% OF GROSS AREA)
 - AREA OF LANDSCAPE ISLAND: 821 SF (0.01 AC, OR 0.63% OF GROSS AREA)
 - LIMIT OF DISTURBED AREA: 27 AC
 - CUT: 1509 CY FILL: 6571 CY
 - 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 PROBABLE SOILS: 0.37 AC
 - AREA MANAGED BY ESDV (*THIS PLAN*): 1.27 AC
 - *HUPERBODON AREA: 0.78 AC
 - *GREEN AREA: 0.49 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
 - DIST. REFERENCES: PLAT 22168 F 12-099, ECP 14-021, NP-15-040, PLAT 23480 (F-16-000)
- 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.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST HOWARD COUNTY STANDARDS AND SPECIFICATIONS. ALL WORK AND MATERIALS SHALL COMPLY WITH O.S.H.A. STANDARDS.
- EXISTING UTILITIES LOCATED FROM ROAD CONSTRUCTION PLANS, FIELD SURVEYS, PUBLIC WATER AND AND SEWER EXTENSION PLANS AND AVAILABLE RECORD DRAWINGS. APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN FOR THE CONTRACTORS INFORMATION. CONTRACTOR SHALL LOCATE EXISTING UTILITIES WELL IN ADVANCE OF CONSTRUCTION ACTIVITIES AND TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THEM AND 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 COMPACTION SPECIFICATIONS, 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 STATIONS 2444 AND 2485.
- THE PROJECT BOUNDARY SHOWN HEREON IS BASED ON A BOUNDARY SURVEY PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED JUNE 13, 2012.
- 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 KCS, MID-ATLANTIC, LLC DATED DECEMBER 13, 2013 FOR SUBSURFACE EXPLORATION TESTING AT BORINGS B-1 THROUGH B-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 THROUGH CURB, CONTRACTOR TO REVERSE 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.
- 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 FOREST CONSERVATION EASEMENT. A FOREST CONSERVATION EASEMENT WILL BE 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 SHALL BE POSTED WITH THE DEVELOPER'S AGREEMENT FOR THIS SITE PLAN, SDP-14-059.
- ALL STORMWATER PIPE BEDDING IS TO BE CLASS "C" AS REQUIRED BY AASHTO-190.
- 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 SPECIMEN TREES. THIS PLAN IS SUBJECT TO NP-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 POPLAR SPECIMEN TREE AND AS IDENTIFIED ON THE WAIVER PETITION EXHIBIT.
 - B. THE DEVELOPMENT PROPOSES THE PLACEMENT OF APPROXIMATELY 0.20 AC. OF EXISTING FOREST AND 0.07 AC. OF REFORESTATION IN TO 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 A 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, STREAM(S) 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 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 WITH THE REQUIREMENTS FOUND IN ZONING SECTION 134 OF THE HOWARD COUNTY ZONING REGULATIONS. LIGHTING WILL 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 THE DOOR. ITS LOCATION IS SHOWN ON THESE PLANS. THE BOX SHALL BE ELECTRONICALLY SUPERVISED TO NOTIFY THE OWNER THAT IT IS BEING ACCESSED (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 III (2006), SECTION 5.5.A. A MINIMUM OF 20" SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
- ALL EXTERIOR LIGHTING TO COMPLY WITH THE REQUIREMENTS FOUND IN ZONING SECTION 134 OF THE HOWARD COUNTY ZONING REGULATIONS.
- 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.
- SIGNAGE SHALL BE PROVIDED ON THE BUILDING IDENTIFYING THE BUILDING ADDRESS.
- NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE WETLANDS, STREAM(S) 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-BORRETENTION FACILITIES (M-6) AND DRY WELLS (M-9) TO ACCOMMODATE THE TOTAL ESD 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 \$7,000.00 FOR THE REQUIRED 16 SHADE TREES, AND 75 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.

BETHANY MARKETPLACE

ONE STORY COMMERCIAL BUILDING

ELLCOTT INVESTMENTS, LLC SUBDIVISION - PARCEL B

3240 BETHANY LANE

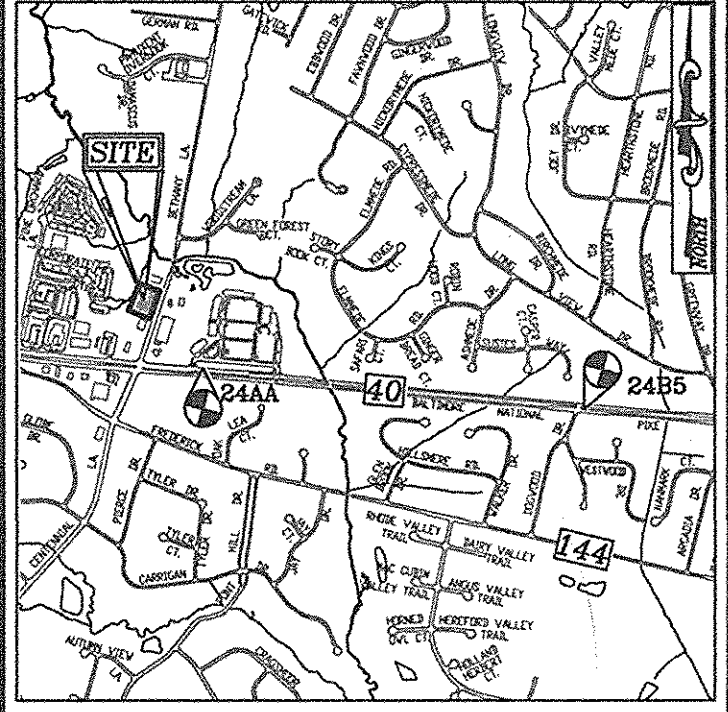
ELLCOTT CITY, MD

RETAIL SHOPPING CENTER

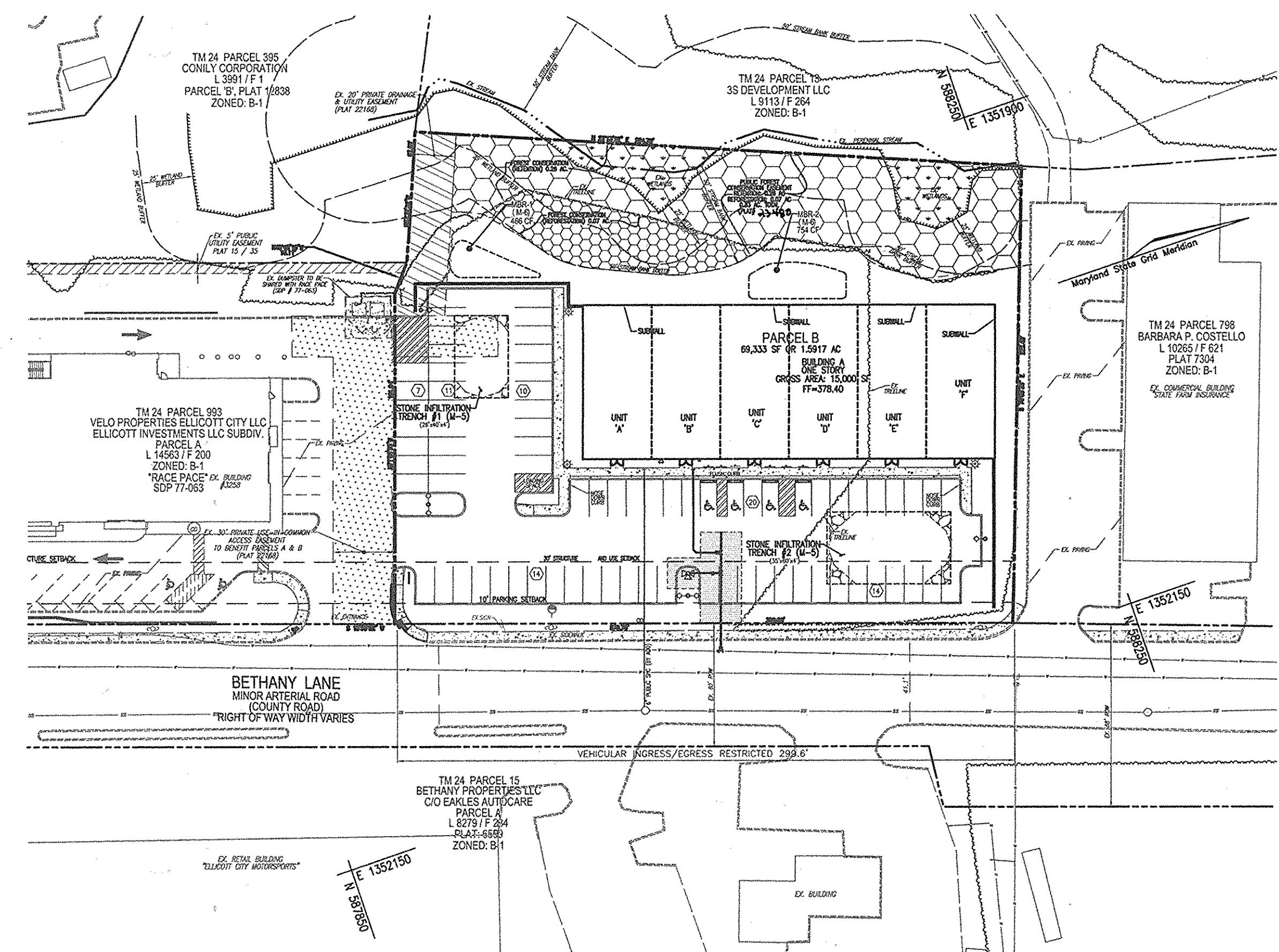
SITE DEVELOPMENT PLAN

BENCHMARKS
 HOWARD COUNTY STATION 2485
 N 586,956.2257 E 1,356,570.8028 ELEVATION 390.25
 HOWARD COUNTY STATION 244A
 N 587,360.458 E 1,352,603.488 ELEVATION 387.27

LEGEND
 EXISTING CONTOUR
 PROPOSED CONTOUR
 EXISTING SPOT ELEVATION
 PROPOSED SPOT ELEVATION
 DIRECTION OF FLOW
 EXISTING TREES TO REMAIN
 LIGHT POLES
 SOIL TYPE
 CONCRETE



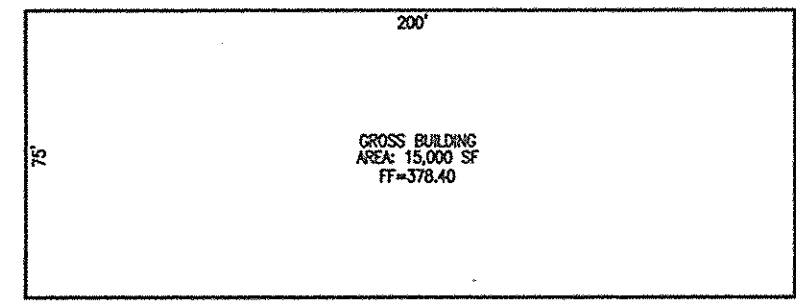
VICINITY MAP
 SCALE: 1"=2,000'
 ADC MAP: 11-67



LOCATION PLAN
 SCALE: 1" = 50'



BUILDING ELEVATION
 NOT TO SCALE



BUILDING FOOTPRINT
 NOT TO SCALE

SHEET INDEX

DESCRIPTION	SHEET NO.
COVER SHEET	1 OF 6
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GRADING AND SEDIMENT CONTROL PLAN, SOILS MAP AND UTILITY PROFILES	3 OF 6
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STORM DRAIN AND SWM DRAINAGE AREA MAP, SWM NOTES AND DETAILS	5 OF 6
LANDSCAPE AND FOREST CONSERVATION PLAN	6 OF 6

OWNER/DEVELOPER
 BETHANY MARKETPLACE, LLC
 8808-C PEAR TREE COURT
 ALEXANDRIA, VA 22303
 C/O CHARLES FAIRCHILD
 (703) 926-1812

NO.	REVISION	DATE

SITE DEVELOPMENT PLAN
COVER SHEET
BETHANY MARKETPLACE
 ONE STORY COMMERCIAL BUILDING
 ELLCOTT INVESTMENTS, LLC SUBDIVISION - PARCEL B
 3240 BETHANY LANE
 ELLCOTT CITY, MD
 RETAIL SHOPPING CENTER
 HOWARD COUNTY, MARYLAND

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

PARCEL 993, PARCEL B
 PLAT: 22168

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. 18193 EXPIRATION DATE: 09-27-2016

DESIGN BY: RHY
 DRAWN BY: KG/SER/CF/DZ
 CHECKED BY: RHY
 DATE: JULY 2015
 SCALE: AS SHOWN
 W.O. NO.: 12-08

1 SHEET OF 6

ADDRESS CHART

LOT NO.	STREET ADDRESS
PARCEL B	3240 BETHANY LANE

PERMIT INFORMATION CHART

SUBDIVISION NAME	SECTION/AREA	LOTS/PARCEL #
ELLCOTT INVESTMENTS, LLC SUBDIVISION	N/A	993

PLAT # OR L/F	BLOCK NO.	ZONE	TAX MAP No.	ELECT. DIST.	CENSUS TR.
PLAT 22168	2	B-1	24	2ND	6028.00
PLAT 23480					

WATER CODE: H08 SEWER CODE: 5440000

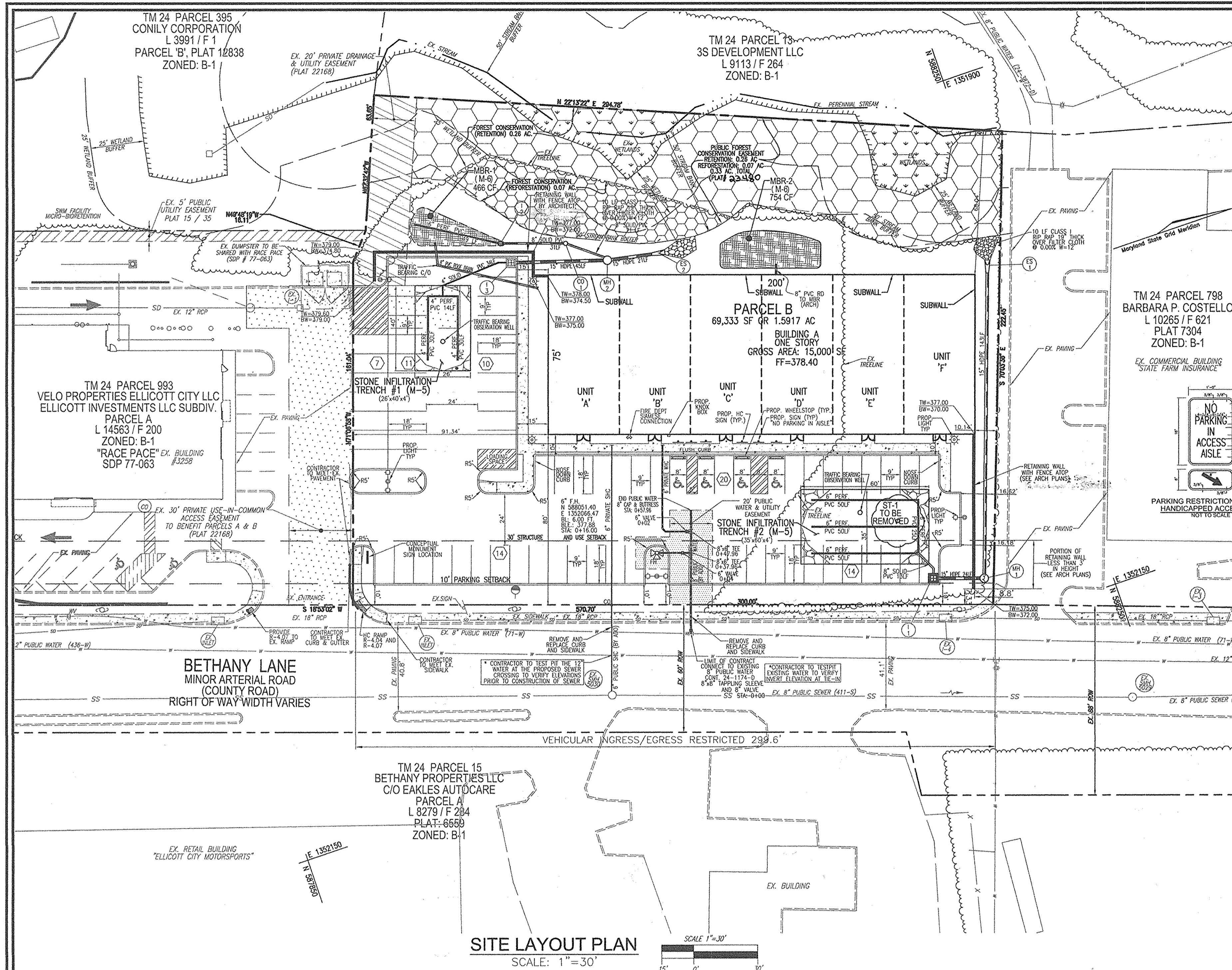
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 9/2/15

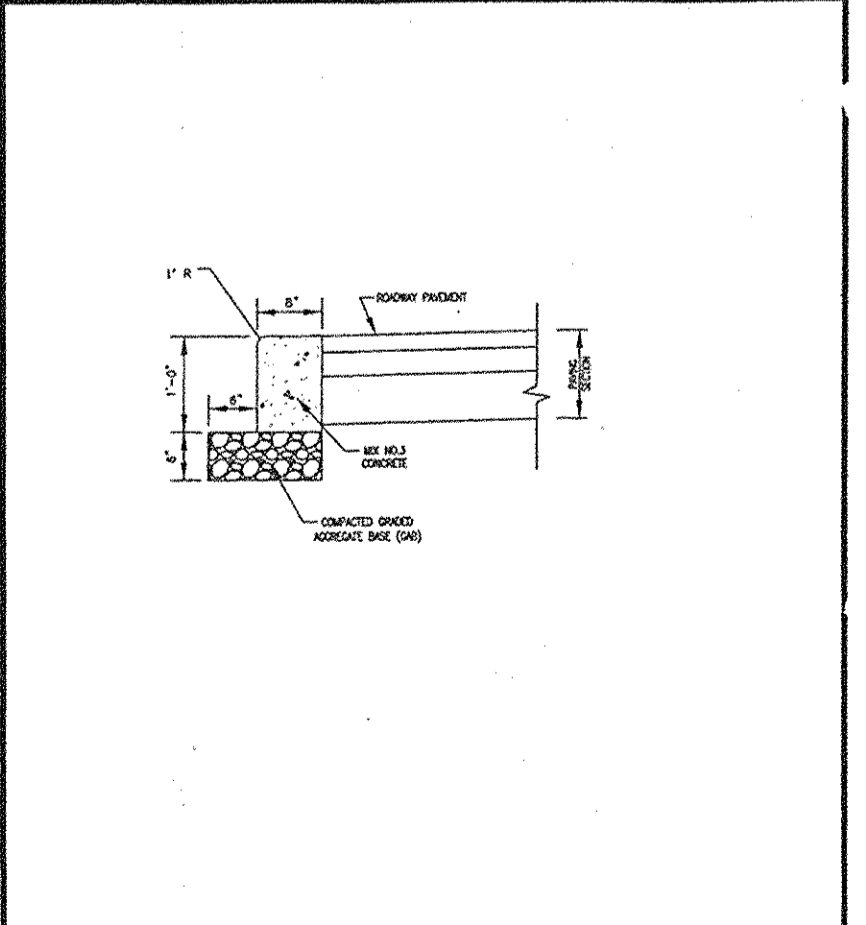
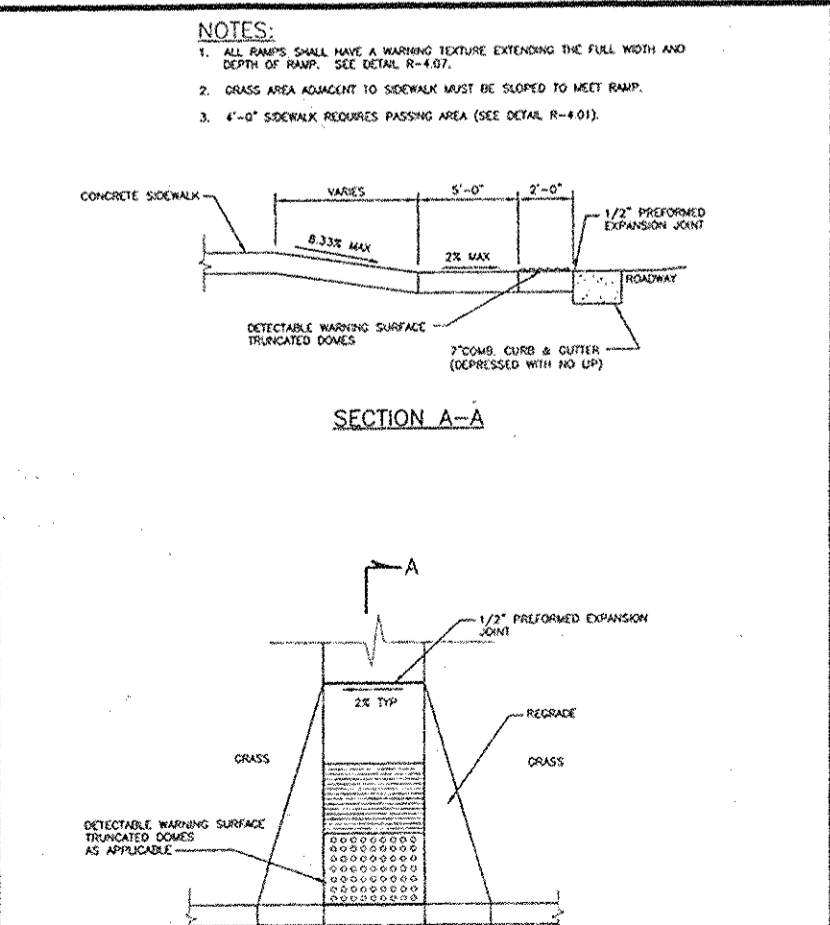
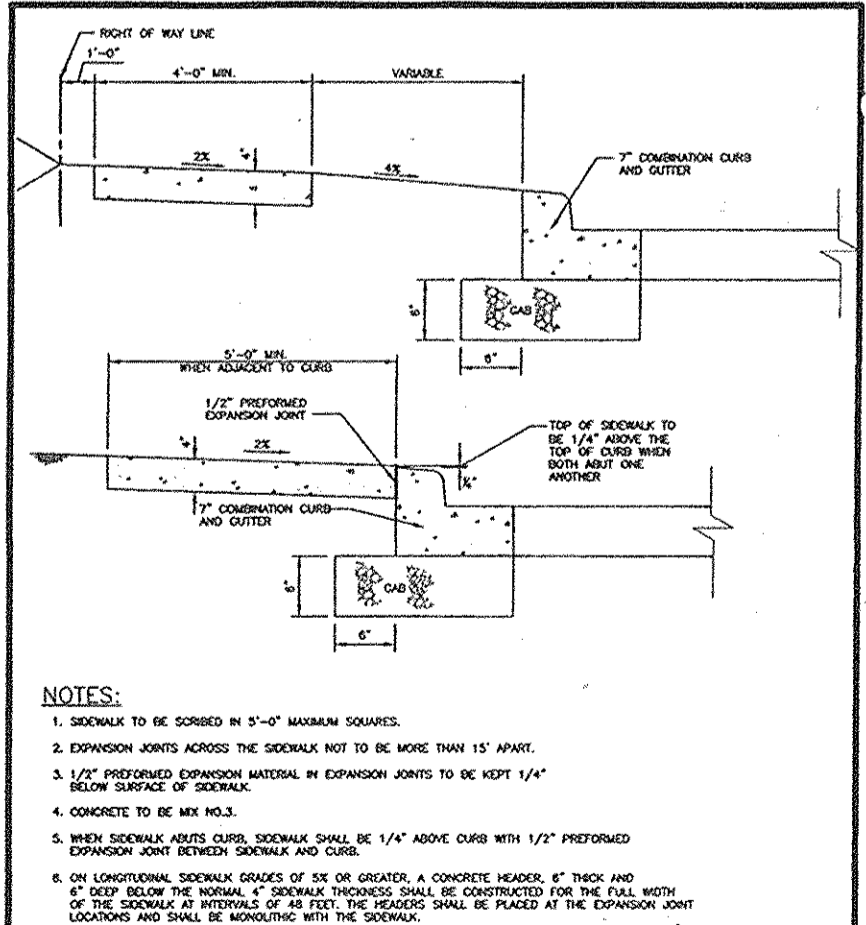
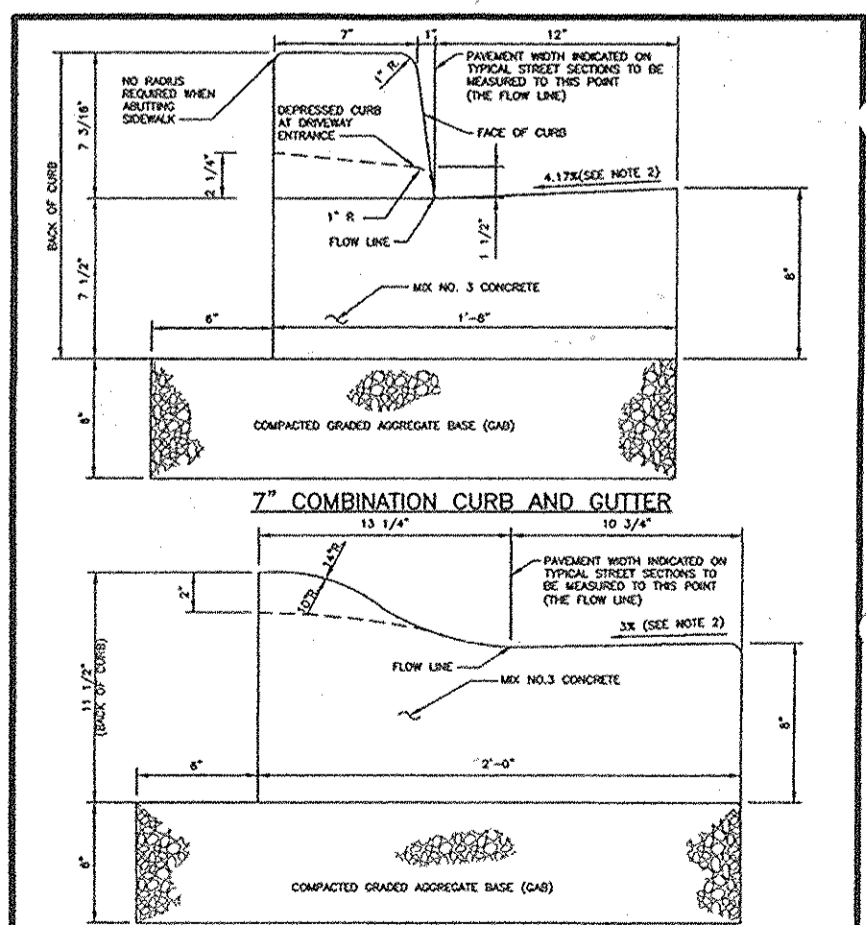
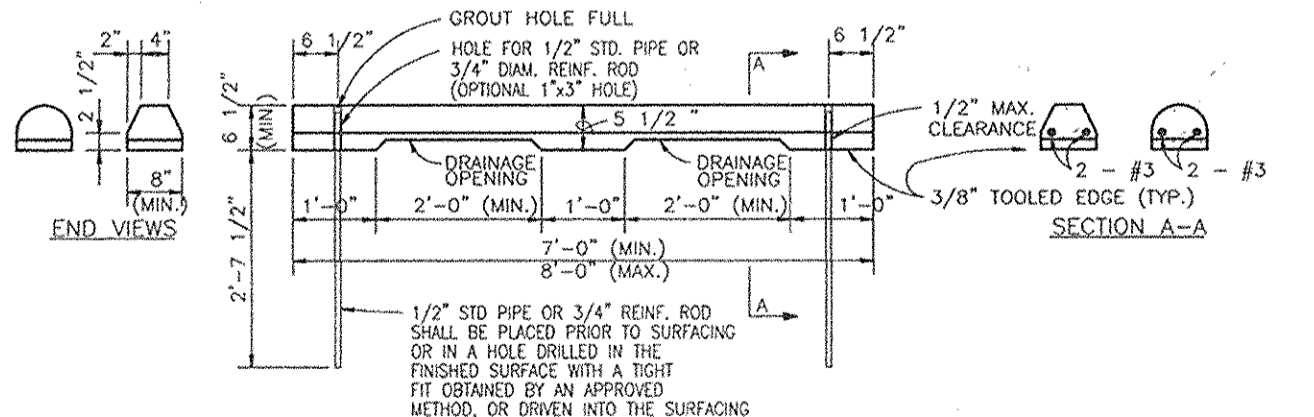
CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 9-8-15

PARKING TABULATION

PROPOSED RETAIL BUILDING A (GROSS AREA = 15,000 SF)	REQUIRED
RETAIL (15,000 SF @ 5 SPACES/1,000 SF)	75 SPACES
TOTAL PARKING REQUIRED:	75 SPACES
TOTAL PARKING PROVIDED:	76 SPACES
	(INCLUDING 4 HC SPACES)



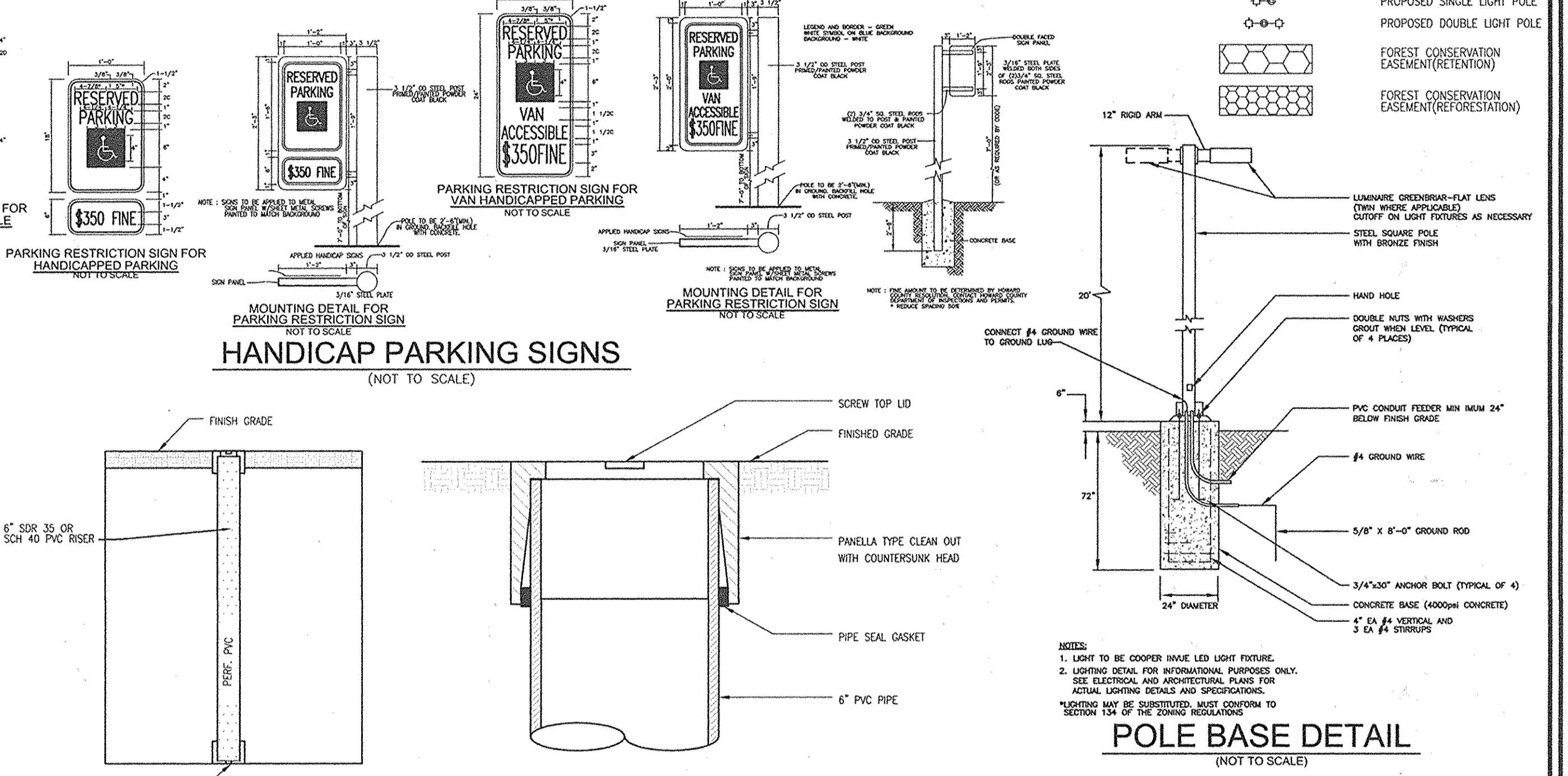
SITE LAYOUT PLAN
SCALE: 1"=30'



SECTION	ROAD AND STREET CLASSIFICATION	CALIFORNIA MIXING RATIO (C/M)	3 TO 4.5 TO 4.7	4.7	5 TO 4.5 TO 4.7	4.7
P-1	PARKING DRIVEWAY AND SIDEWALK	1.5% MIN. MIN. C/M	1.5	1.5	1.5	1.5
		1.5% MIN. MIN. C/M	1.5	1.5	1.5	1.5
P-2	PARKING DRIVEWAY AND SIDEWALK	1.5% MIN. MIN. C/M	1.5	1.5	1.5	1.5
		1.5% MIN. MIN. C/M	1.5	1.5	1.5	1.5
P-3	PARKING DRIVEWAY AND SIDEWALK	1.5% MIN. MIN. C/M	1.5	1.5	1.5	1.5
		1.5% MIN. MIN. C/M	1.5	1.5	1.5	1.5
P-4	PARKING DRIVEWAY AND SIDEWALK	1.5% MIN. MIN. C/M	1.5	1.5	1.5	1.5
		1.5% MIN. MIN. C/M	1.5	1.5	1.5	1.5

LEGEND:

- 20' --- EXISTING CONTOUR
- 02.68 --- PROPOSED CONTOUR
- +02.68 --- PROPOSED SPOT ELEVATION
- --- EXISTING SPOT ELEVATION
- --- EXISTING CURB AND GUTTER
- --- PROPOSED CURB AND GUTTER
- --- EXISTING UTILITY POLE
- --- EXISTING LIGHT POLE
- --- EXISTING MAILBOX
- --- EXISTING SIGN
- --- EXISTING SANITARY MANHOLE
- --- EXISTING SANITARY LINE
- --- EXISTING CLEANOUT
- --- EXISTING FIRE HYDRANT
- --- EXISTING WATER LINE
- --- EXISTING TREE LINE (FIELD LOCATED)
- --- EXISTING FENCE
- --- PROPOSED STORM DRAIN INLET
- --- PROPERTY LINE
- --- RIGHT-OF-WAY LINE
- --- PROPOSED PEDESTAL LIGHT
- --- PROPOSED SINGLE LIGHT POLE
- --- PROPOSED DOUBLE LIGHT POLE
- --- FOREST CONSERVATION EASEMENT (REFORESTATION)
- --- FOREST CONSERVATION EASEMENT (REFORESTATION)



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

OWNER/DEVELOPER
BETHANY MARKETPLACE, LLC
8808-C PEAR TREE COURT
ALEXANDRIA, VA 22309
C/O CHARLES FAIRCHILD
(703) 926-1812

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION
[Signature]
DATE: 9-2-15

CHIEF, DIVISION OF LAND DEVELOPMENT
[Signature]
DATE: 9-8-15

DIRECTOR

Howard County, Maryland
Department of Public Works
Curb and Gutter
7' & Modified
Detail
R-3.01

Howard County, Maryland
Department of Public Works
Concrete Sidewalk
Detail
R-3.05

Howard County, Maryland
Department of Public Works
Sidewalk Ramp
Layout & Grading
Perpendicular to Curb
Detail
R-4.05

Howard County, Maryland
Department of Public Works
Curb
Flush
Detail
R-3.07

NO. REVISION DATE

SITE DEVELOPMENT PLAN
SITE LAYOUT PLAN
AND SITE DETAILS

BETHANY MARKETPLACE
ONE STORY COMMERCIAL BUILDING
ELLICOTT INVESTMENTS, LLC SUBDIVISION - PARCEL B
3240 BETHANY LANE ELLICOTT CITY, MD 21117
RETAIL SHOPPING CENTER HOWARD COUNTY, MARYLAND

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

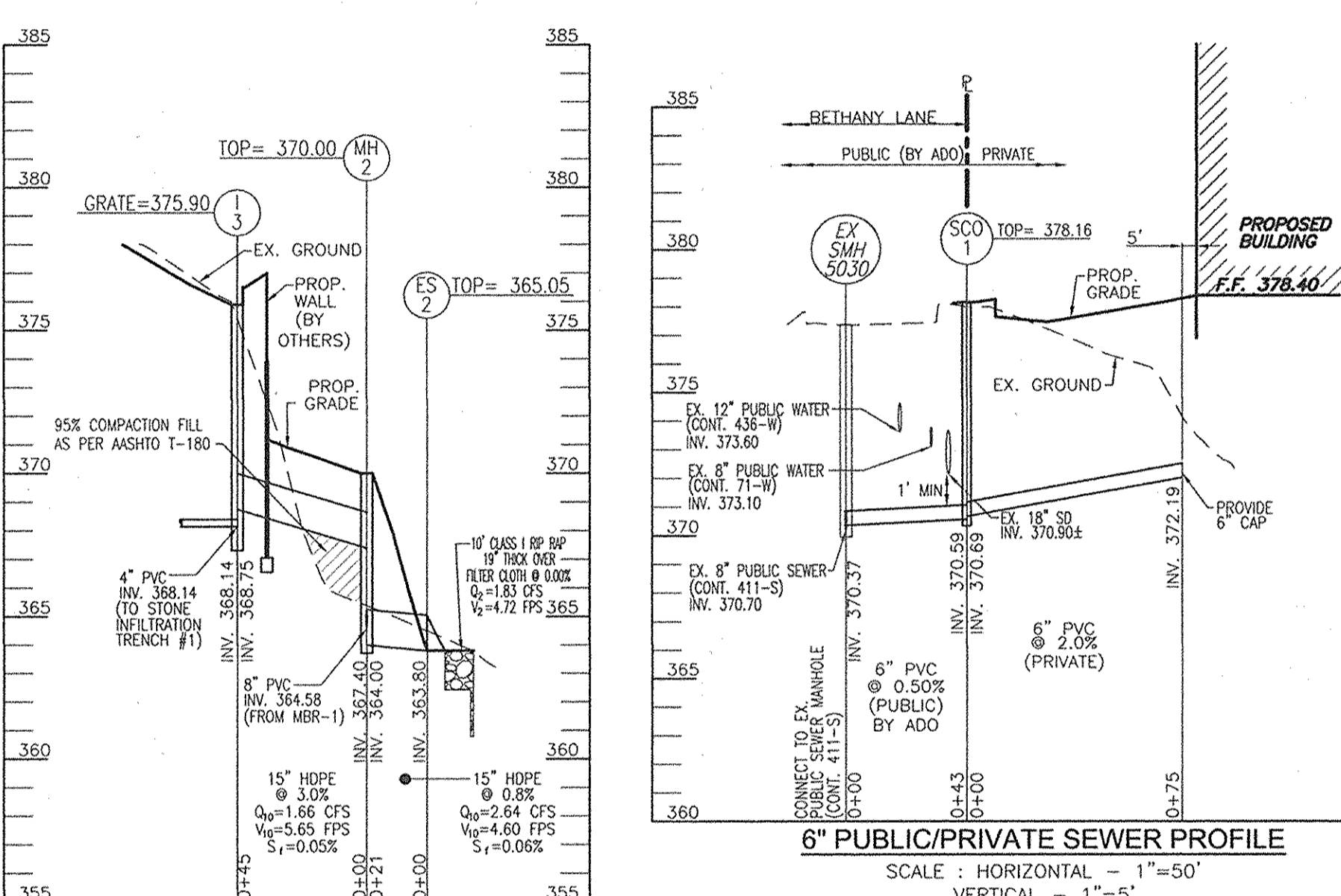
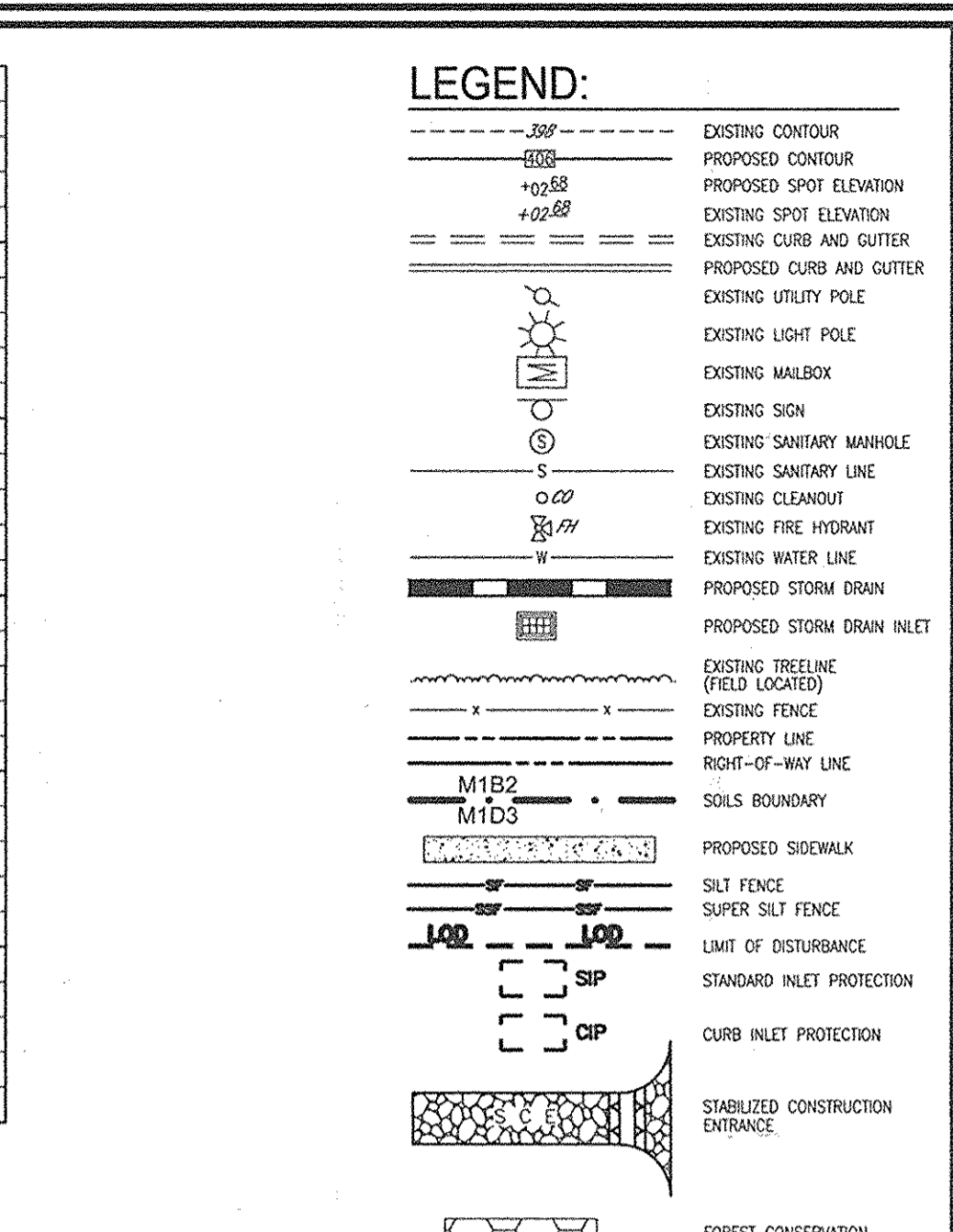
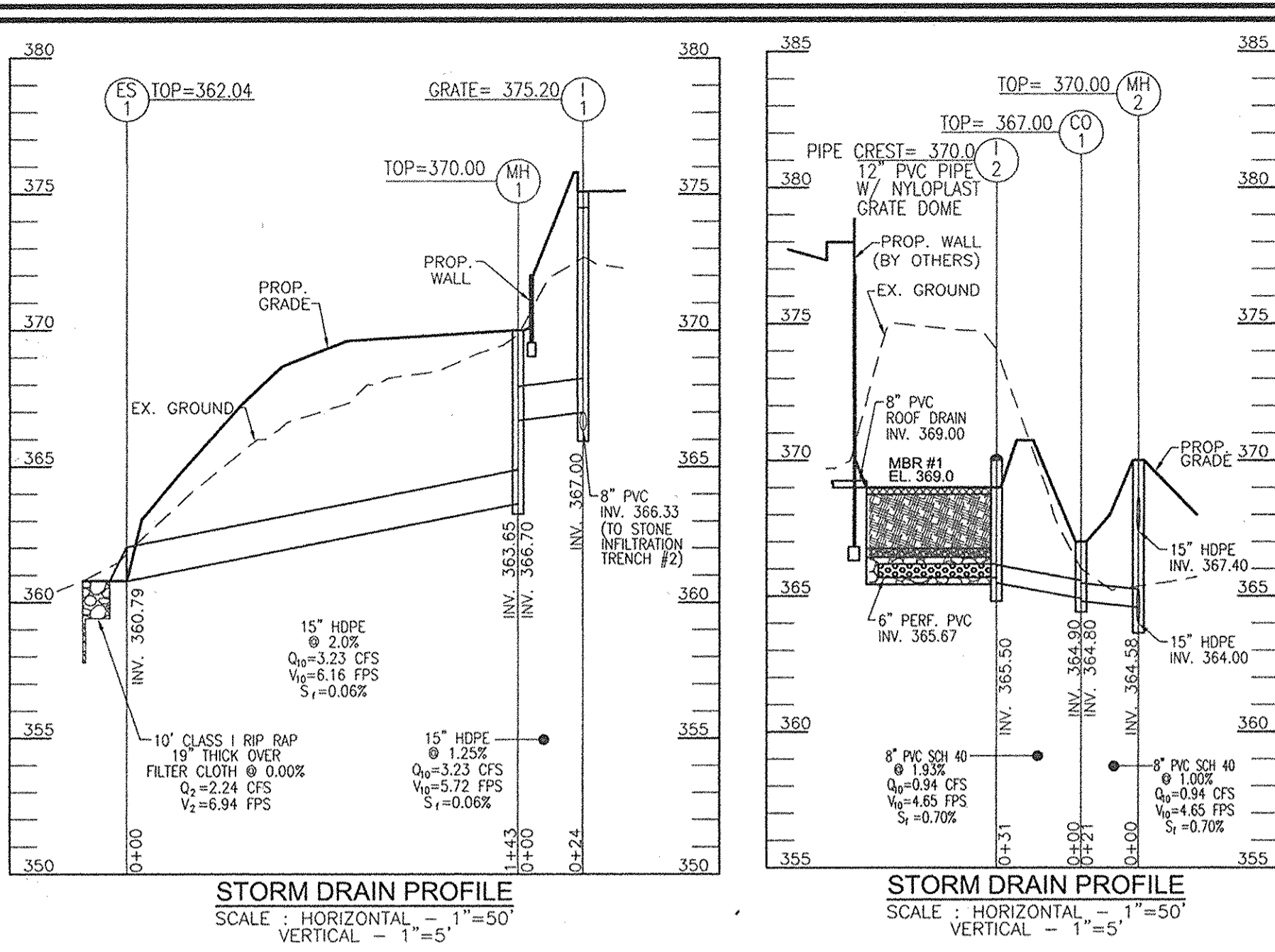
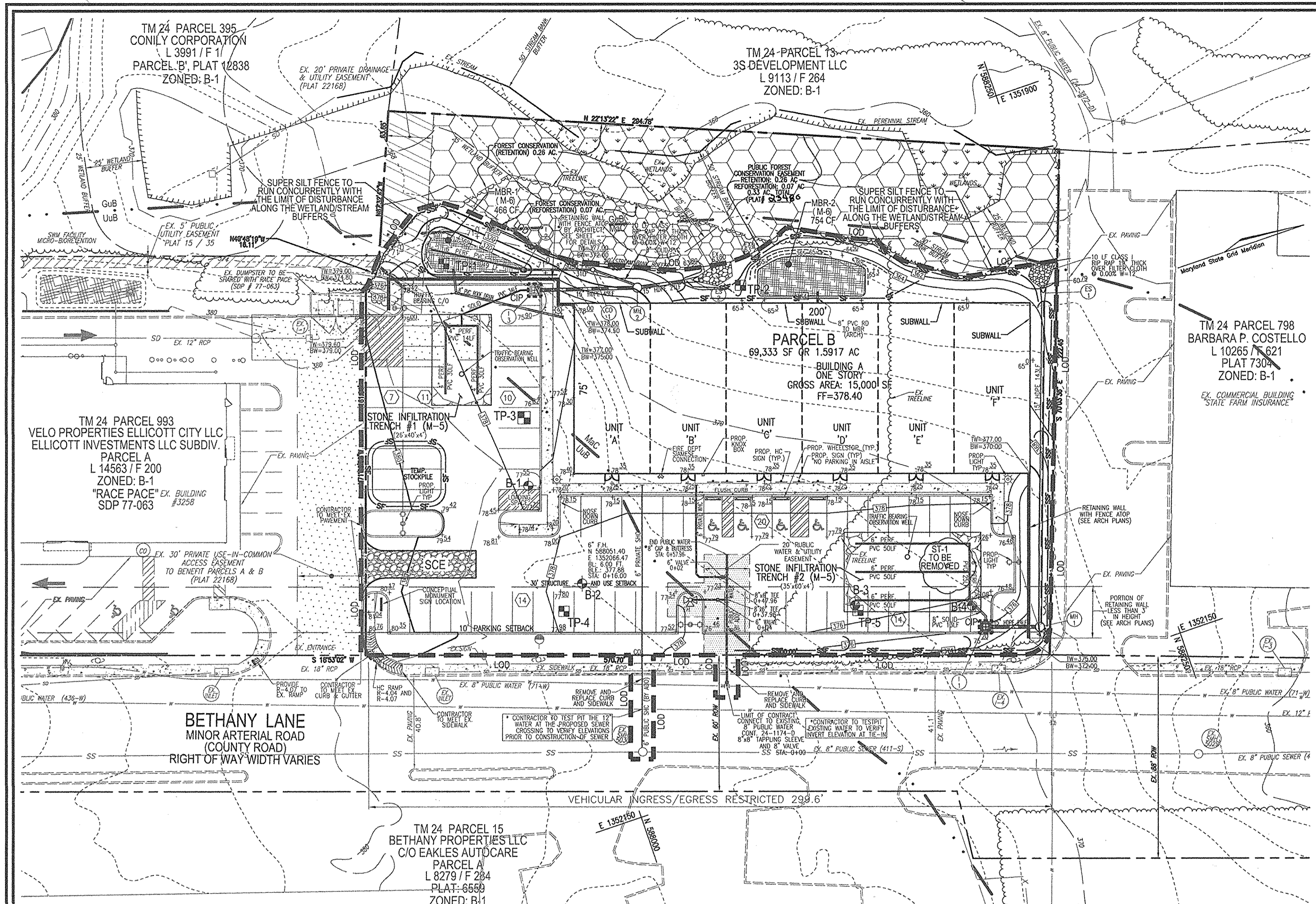
PARCEL 993, PARCEL B
ELLICOTT CITY, MD
PLAT: 22168

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET FARMERSVILLE, MD 21043
TEL: 410.461.2666 FAX: 410.461.8911

DESIGN BY: RHY
DRAWN BY: KG/ER/CF/DZ
CHECKED BY: RHY
DATE: JULY 2015
SCALE: AS SHOWN
W.O. NO.: 12-08

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: 09-27-2016.

2 SHEET OF 6

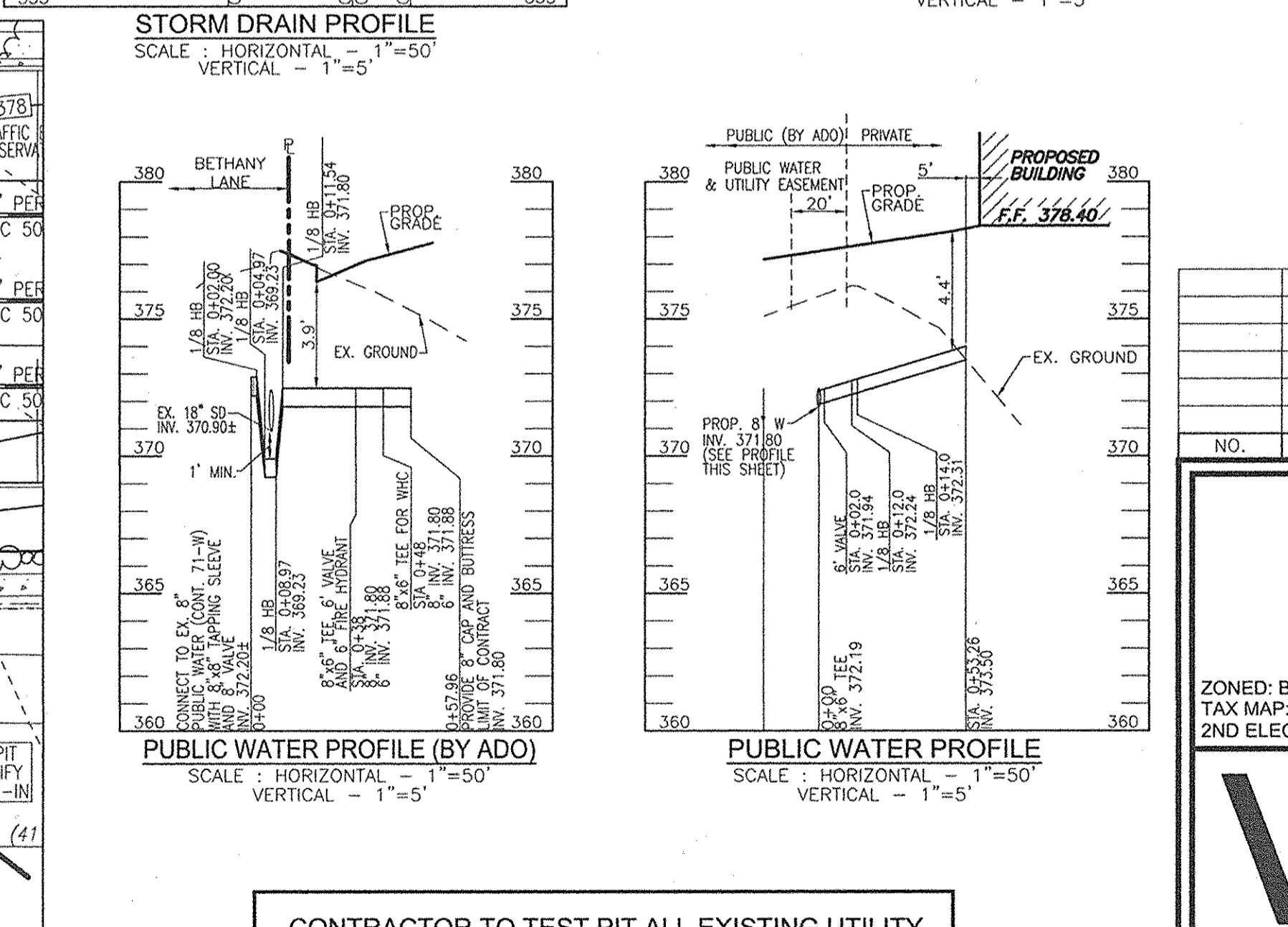
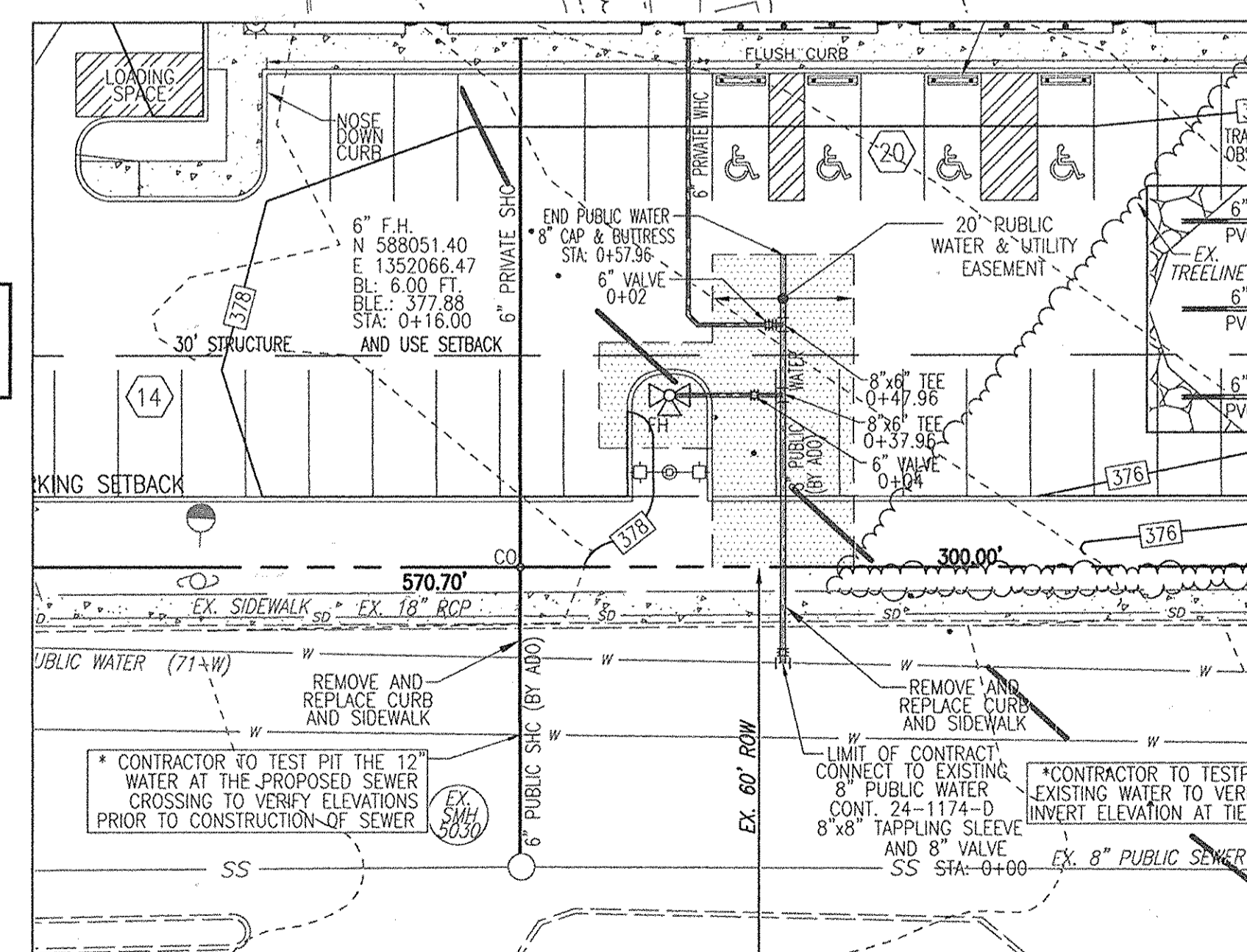


SIZE	TYPE	LENGTH
4"	PVC (SD)	34 LF
8"	PVC (SD)	124 LF
15"	HDPE (SD)	233 LF
4"	PERF. PVC (SWM)	74 LF
6"	PERF. PVC (SWM)	224 LF
6"	PVC (SS PUBLIC - BY ADO)	43 LF
6"	PVC (SS PRIVATE)	73 LF
6"	DIP (W PRIVATE)	53 LF
6"	DIP (W PUBLIC - BY ADO)	26 LF
8"	DIP (W PUBLIC - BY ADO)	58 LF

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

NO.	TYPE	LOCATION	TOP	THROAT	INV. IN	INV. OUT	COMMENTS
I-1	TYPE 'S' INLET	N 588170.21 E 1352119.83	375.20	-	367.00	-	HO. CO. STD D-4.22
I-2	12" PVC W/ NYLOPLAST GRATE DOME	N 588029.05 E 1351905.09	370.00	-	365.67	-	
I-3	TYPE 'S' INLET	N 588030.90 E 1351915.32	375.90	-	368.72	-	HO. CO. STD D-4.22
MH-1	4'-0" STANDARD PRECAST MANHOLE	N 588192.09 E 1352127.52	370.00	377.89	373.55	373.45	HO. CO. STD G-5.12
MH-2	4'-0" STANDARD PRECAST MANHOLE	N 588073.89 E 1351928.81	370.00	-	362.43	-	HO. CO. STD G-5.12
ES-1	15" END SECTION HDPE	N 588240.34 E 1351992.30	364.04	-	360.79	-	ADS HDPE END SECTION
ES-2	15" END SECTION HDPE	N 588094.48 E 1351932.81	365.05	-	363.80	-	ADS HDPE END SECTION
CO-1	SD CLEANOUT	N 588057.94 E 1351914.97	367.00	-	364.90	364.80	ADS HDPE END SECTION

NOTE: 1. TOP ELEVATIONS ARE AT TOP MANHOLE OF COVER FOR ALL TYPE 'D' INLETS AND MANHOLES.
 2. FOR TOP SLAB SLOPES SEE GRADING PLAN.
 3. FOR 'S' CONC. INLET, TOP IS TOP OF GRATE.



OWNER/DEVELOPER
 BETHANY MARKETPLACE, LLC
 8808-C PEAR TREE COURT
 ALEXANDRIA, VA 22309
 C/O CHARLES FAIRCHILD
 (703) 926-1812

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 9-8-15

BY THE DEVELOPER:
 I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.
 DATE: 7/14/15

BY THE ENGINEER:
 I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
 DATE: 7/22/15

PUBLIC UTILITY PLAN (BY ADO)
 SCALE: 1"=20'
 THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 DATE: 7/22/15

SYMBOL	NAME / DESCRIPTION	GROUP
U/MB	URBAN LAND-UDORMENTS COMPLEX, 0 TO 8 PERCENT SLOPES	D

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

NO.	REVISION	DATE

SITE DEVELOPMENT PLAN
 GRADING, SEDIMENT CONTROL PLAN;
 SOILS MAP AND UTILITY PROFILES
 BETHANY MARKETPLACE
 ONE STORY COMMERCIAL BUILDING
 ELLICOTT INVESTMENTS, LLC SUBDIVISION - PARCEL B
 3240 BETHANY LANE
 ELLICOTT CITY, MD 21114
 RETAIL SHOPPING CENTER
 HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
 ENGINEERS • SURVEYORS • PLANNERS
 8407 MAIN STREET
 ELLICOTT CITY, MD 21043
 TEL: 410.461.7666
 FAX: 410.461.8911

DESIGN BY: RHY
 DRAWN BY: KG/JSR/CF/DZ
 CHECKED BY: RHY
 DATE: JULY 2015
 SCALE: AS SHOWN
 W.O. NO.: 12-08

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 09-27-2016.

3 SHEET OF 6

B-4-2 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING AND SOIL AMENDMENTS

DEFINITION
THE PROCESS OF PREPARING THE SOILS TO SUSTAIN ADEQUATE VEGETATIVE STABILIZATION.

PURPOSE
TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH.

CONDITIONS WHERE PRACTICE APPLIES
WHERE VEGETATIVE STABILIZATION IS TO BE ESTABLISHED.

CRITERIA

A. SOIL PREPARATION

- TEMPORARY STABILIZATION
 - SEEDING PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISCHARRIOWS OR CHISEL PLOWERS OR ROLLERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED, IT MUST NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHENED CONDITION. SLOPES 1:1 OR FLATTER MAY BE TRACKED WITH ROLLERS RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.
 - APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.
 - INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
- PERMANENT STABILIZATION
 - A SOIL TEST IS REQUIRED FOR ANY PART DISTURBANCE OF 5 ACRES OR MORE. THE MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE:
 - I. SOIL PH BETWEEN 6.0 AND 7.0.
 - II. SOLUBLE SALTS LESS THAN 500 PARTS PER MILLION (PPM).
 - III. SOIL CONTAINS LESS THAN 40 PERCENT CLAY BUT ENOUGH FINE GRAINED MATERIAL (GREATER THAN 30 PERCENT SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION IF LONGER LINES WILL BE PLANTED, THEN A SANDY SOIL (LESS THAN 30 PERCENT SILT PLUS CLAY) WOULD BE ACCEPTABLE.
 - IV. SOIL CONTAINS 1.5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT.
 - V. SOIL CONTAINS SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
 - SOILS CONTAINING 20 PERCENT OR MORE SAND DO NOT MEET THE ABOVE CONDITIONS.
- GRADED AREAS MUST BE MAINTAINED IN A TRUE AND EVEN GRADE AS SPECIFIED ON THE APPROVED PLAN, THEN SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3 TO 5 INCHES.
- APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN OR AS INDICATED BY THE RESULTS OF A SOIL TEST.
- MIX SOIL AMENDMENTS INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. REAR LAWN RAKES TO SMOOTH THE SURFACE, REMOVE LARGE OBJECTS SUCH AS STONES AND BRANCHES, AND REAR THE AREA FOR SEED APPLICATION. LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDING PREPARATION. TRACK SLOPES 2:1 OR FLATTER WITH TRACKED EQUIPMENT LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. LEAVE THE TOP 1 TO 3 INCHES OF SOIL FRESH AND FRAGILE. SEEDING LOOSENING MAY BE NECESSARY ON NEWLY DISTURBED AREAS.

B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

DEFINITION
THE APPLICATION OF SEED AND MULCH TO ESTABLISH VEGETATIVE COVER.

PURPOSE
TO PROTECT DISTURBED SOILS FROM EROSION DURING AND AT THE END OF CONSTRUCTION.

CONDITIONS WHERE PRACTICE APPLIES
TO THE SURFACE OF ALL PERMETER CONTROLS, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE GRADING.

CRITERIA

A. SEEDING

- SPECIFICATIONS
 - ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO RE-TESTING BY A RECOGNIZED LABORATORY. ALL SEED WHICH HAS BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON ANY PROJECT REFER TO TABLE B-4. REGARDING THE QUALITY OF SEED TAGS MUST BE AVAILABLE UPON REQUEST TO THE INSPECTOR TO VERIFY TYPE OF SEED AND SEEDING RATE.
 - MULCH SHALL BE APPLIED TO ALL AREAS WHERE SEEDING IS TO BE PERFORMED. IF THE GROUND IS FROZEN, THE APPROPRIATE SEEDING MIXTURE MUST BE APPLIED WHEN THE GROUND THAWS.
 - INOCULANTS: THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURE MUST BE A PURE CULTURE. NITROGEN FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS MUST NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANTS AS DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANTS AS COOL AS POSSIBLE UNTIL USE. TEMPERATURES ABOVE 75 TO 80 DEGREES FAHRENHEIT CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE. SOIL OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.
- SEEDING
 - DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.
 - I. INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE B.1.
 - II. PERMANENT SEEDING TABLE B.3, OR SITE-SPECIFIC SEEDING SUMMARIES.
 - APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDED AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD CONTACT OF SEED TO THE SUBSOIL.
 - DRILL OR CULTRIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.
 - I. CULTRIPACKERS ARE REQUIRED TO BURY SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF COVER. SEEDING MUST BE FIRM AFTER APPLYING.
 - II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
 - HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER).
 - I. FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES SHOULD NOT EXCEED THE FOLLOWING: NITROGEN, 100 POUNDS PER ACRE; TOTAL OF SOLUBLE NITROGEN, 2000 (PHOSPHORUS), 200 POUNDS PER ACRE; K₂O (POTASSIUM), 200 POUNDS PER ACRE.
 - II. LIME IS ONLY REQUIRED IN IRREGULAR LINES (UP TO 3 PERCENT). THIS INOCULANT IS MOST EFFECTIVE ON HYDROSEEDING. NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.
 - III. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.
 - IV. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

DEFINITION
TO STABILIZE DISTURBED SOILS WITH PERMANENT VEGETATION.

PURPOSE
TO USE LONG-LIVED PERENNIAL GRASSES AND LEGUMES TO ESTABLISH PERMANENT GROUND COVER ON DISTURBED SOILS.

CONDITIONS WHERE PRACTICE APPLIES
EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR 6 MONTHS OR MORE.

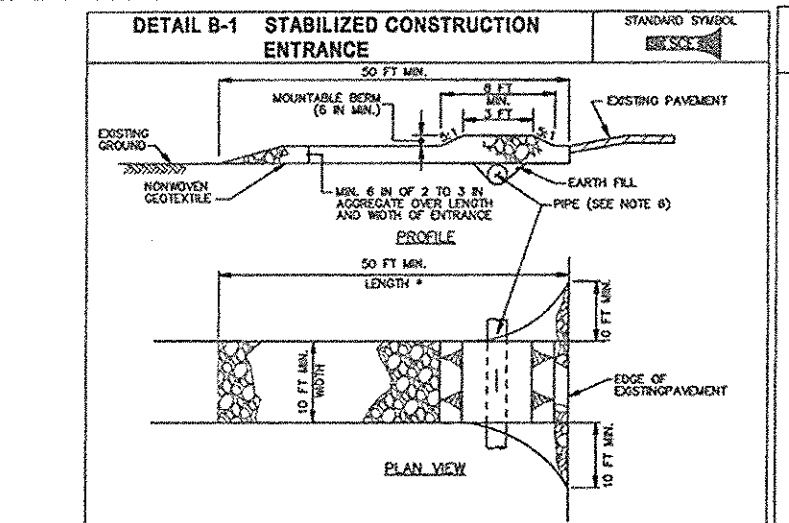
CRITERIA

A. SEED MIXTURES

- GENERAL USE
 - SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE B.3 FOR THE APPROPRIATE PLANT HARDNESS ZONE (FROM FIGURE B.3) AND BASED ON THE SITE CONDITION OR PURPOSE. FOCUS ON TABLE B.4 REGARDING THE QUALITY OF SEED TAGS AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.
 - ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES: SLOPES, STREAM BANKS, OR DITCHES OR FOR SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-NRCS TECHNICAL FIELD OFFICE GUIDE, SECTION 342 - CRITICAL AREA PLANTING.
 - FOR SITES HAVING DISTURBED AREA OVER 2 ACRES, APPLY THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY.
- TURFGRASSES MIXTURES
 - AREAS WHERE TURFGRASS MAY BE DESIRED INCLUDE LAWNS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES WHICH WILL RECEIVE A MEDIUM TO HIGH LEVEL OF MAINTENANCE.
 - SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED BELOW ON THE SITE CONDITIONS OR PURPOSE. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.
 - I. KENTUCKY BLUEGRASS: FULL SUN MIXTURE FOR USE IN AREAS THAT RECEIVE INTENSIVE MAINTENANCE. RECOMMENDED CERTIFIED KENTUCKY BLUEGRASS CULTIVARS SEEDING RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 30 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
 - II. KENTUCKY BLUEGRASS/PERENNIAL RYE: FULL SUN MIXTURE. FOR USE IN FULL SUN AREAS WHERE RATES OF ESTABLISHMENT IS NECESSARY AND WHERE TURF WILL RECEIVE MEDIUM TO INTENSIVE MAINTENANCE. CERTIFIED PERENNIAL RYEGRASS/CERTIFIED KENTUCKY BLUEGRASS SEEDING RATE: 2.0 POUNDS MIXTURE PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 30 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
 - III. FESCUE/KENTUCKY BLUEGRASS: FULL SUN MIXTURE. FOR USE IN DROUGHT PRONE AREAS AND/OR FOR AREAS RECEIVING LOW TO MEDIUM MAINTENANCE IN FULL SUN TO MEDIUM SHADE. RECOMMENDED MIXTURE INCLUDES: CERTIFIED TALL FESCUE CULTIVARS 50 TO 100 PERCENT, CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 0 TO 3 PERCENT. SEEDING RATE: 3 TO 8 POUNDS PER 1000 SQUARE FEET. ONE OR MORE CULTIVARS MAY BE BLENDED.
 - IV. LIME: LIME ONLY REQUIRED IN IRREGULAR LINES (UP TO 3 PERCENT). THIS INOCULANT IS MOST EFFECTIVE ON HYDROSEEDING. NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.
 - V. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.
 - VI. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.

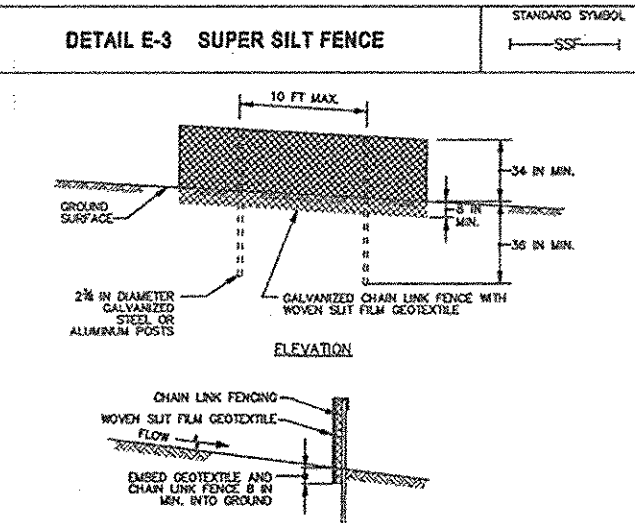
SEQUENCE OF CONSTRUCTION

- OBTAIN HOWARD COUNTY GRADING PERMIT (WEEK 1)
- NOTIFY HOWARD COUNTY AT LEAST 48 HOURS PRIOR TO START OF CONSTRUCTION (WEEK 1)
- CONDUCT A PRE-CONSTRUCTION MEETING WITH THE SEDIMENT CONTROL INSPECTOR PRIOR TO ANY LAND DISTURBANCE (WEEK 1)
- INSTALL STABILIZED CONSTRUCTION ENTRANCE WITH MOUNTABLE CURB (WEEK 2)
- INSTALL ALL PERMETER CONTROLS INCLUDING SILT FENCE AND SUPER SILT FENCE, AS INDICATED ON PLANS (WEEK 2)
- APPROVAL OF SEDIMENT CONTROL INSPECTOR, CLEAR AND GRUB SITE (WEEK 3)
- PREPARE SITE GRADINGS, RETAINING WALL, AND UTILITY CONSTRUCTION INCLUDING MICRO BOREHOLET AREA. PROVIDE INLET PROTECTION AS SHOWN ON THESE PLANS (WEEK 3)
- BEGIN CONSTRUCTION OF BUILDING ADDITION (WEEK 2)
- BEGIN CONSTRUCTION OF ON-SITE CURB AND GUTTER (WEEK 11)
- COMPLETE ALL CURB & GUTTER AND PAVEMENT CONSTRUCTION (WEEK 12)
- INSTALL ALL PAVING SURFACE COURSE (WEEK 13)
- INSTALL SIDEWALK FOR SITE (WEEK 13)
- FINE GRADE AND STABILIZE ALL AREAS OF PARCEL INCLUDING ANY EXPOSED EARTH AREAS OUTSIDE THE LOD. REMOVE ALL TRASH, JUNK AND DEBRIS FROM INTERIOR PARCEL (WEEK 14)
- INSTALL SITE LANDSCAPING (WEEK 15)
- REMOVE ALL SEDIMENT CONTROL MEASURES AFTER RECEIVING APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR (WEEK 15)



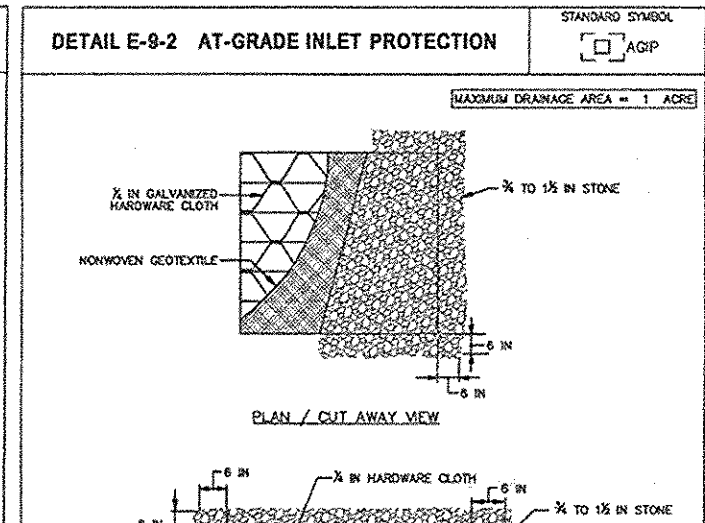
CONSTRUCTION SPECIFICATIONS

- PLAN STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN VEHICLES MUST TRAVEL ONLY ON EITHER SIDE OF THE LOD. THE MINIMUM WIDTH OF THE LOD SHALL BE 10 FEET FOR ROAD TRUCKS AND 6 FEET FOR PASSENGER VEHICLES.
- PLACE CURB AND GUTTER WITH A MINIMUM OF 2" TO 3" SLOPE TO THE DRAINAGE DITCH. THE CURB SHALL BE 4" HIGH AND 6" WIDE. THE GUTTER SHALL BE 2" HIGH AND 6" WIDE. THE DRAINAGE DITCH SHALL BE 6" DEEP AND 12" WIDE. THE DRAINAGE DITCH SHALL BE LOCATED AT A HIGH SPOT.
- PREPARE SIDEWALK AND PLACE WALKING SURFACE, AS SHOWN IN SECTION B-1 MATERIALS. THE SIDEWALK SHALL BE 4" HIGH AND 6" WIDE. THE WALKING SURFACE SHALL BE 4" HIGH AND 6" WIDE. THE SIDEWALK SHALL BE LOCATED AT A HIGH SPOT.
- REMOVE ALL SEDIMENT CONTROL MEASURES AFTER RECEIVING APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR (WEEK 15)



CONSTRUCTION SPECIFICATIONS

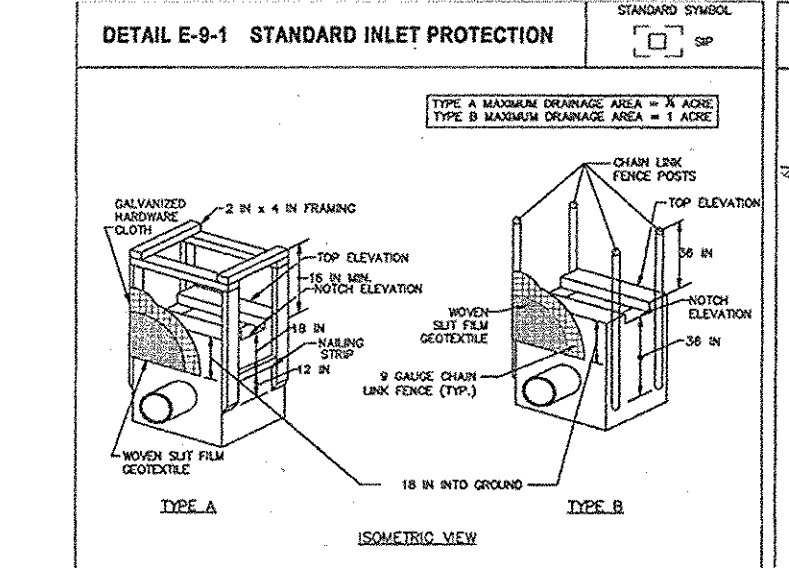
- INSTALL A 10" HIGH SUPER SILT FENCE WITH A 10" WIDE TOP AND 24" HIGH SIDES. THE FENCE SHALL BE 10' WIDE AND 24" HIGH. THE FENCE SHALL BE LOCATED AT A HIGH SPOT.
- REMOVE ALL SEDIMENT CONTROL MEASURES AFTER RECEIVING APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR (WEEK 15)



CONSTRUCTION SPECIFICATIONS

- USE HORNWORM GUTTER AS SHOWN IN SECTION B-1 MATERIALS.
- REMOVE ALL SEDIMENT CONTROL MEASURES AFTER RECEIVING APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR (WEEK 15)

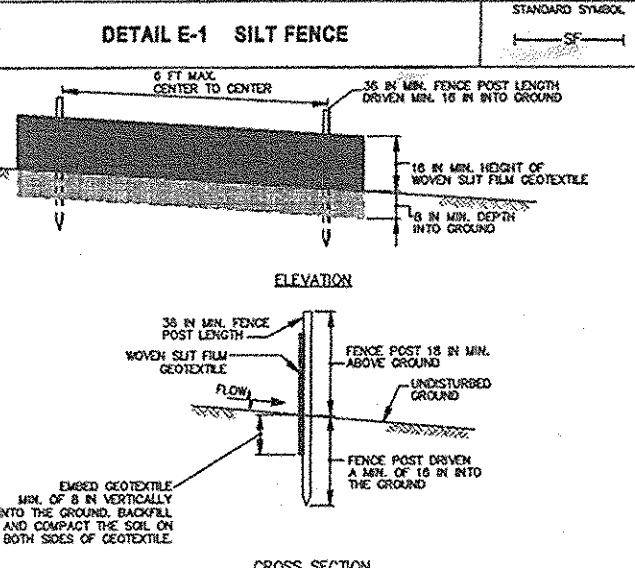
DETAIL E-1-1 STANDARD INLET PROTECTION



CONSTRUCTION SPECIFICATIONS

- REMOVE ALL SEDIMENT CONTROL MEASURES AFTER RECEIVING APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR (WEEK 15)

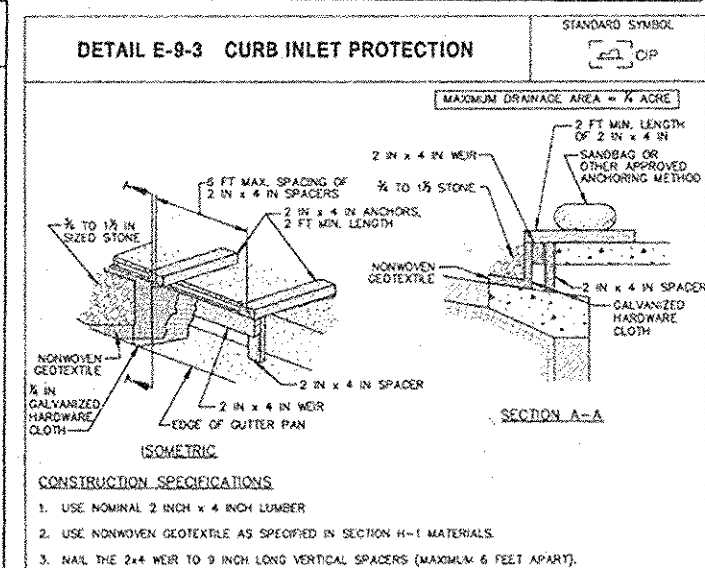
DETAIL E-1 SILT FENCE



CONSTRUCTION SPECIFICATIONS

- INSTALL A 10" HIGH SILT FENCE WITH A 10" WIDE TOP AND 24" HIGH SIDES. THE FENCE SHALL BE 10' WIDE AND 24" HIGH. THE FENCE SHALL BE LOCATED AT A HIGH SPOT.
- REMOVE ALL SEDIMENT CONTROL MEASURES AFTER RECEIVING APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR (WEEK 15)

DETAIL E-3 CURB INLET PROTECTION

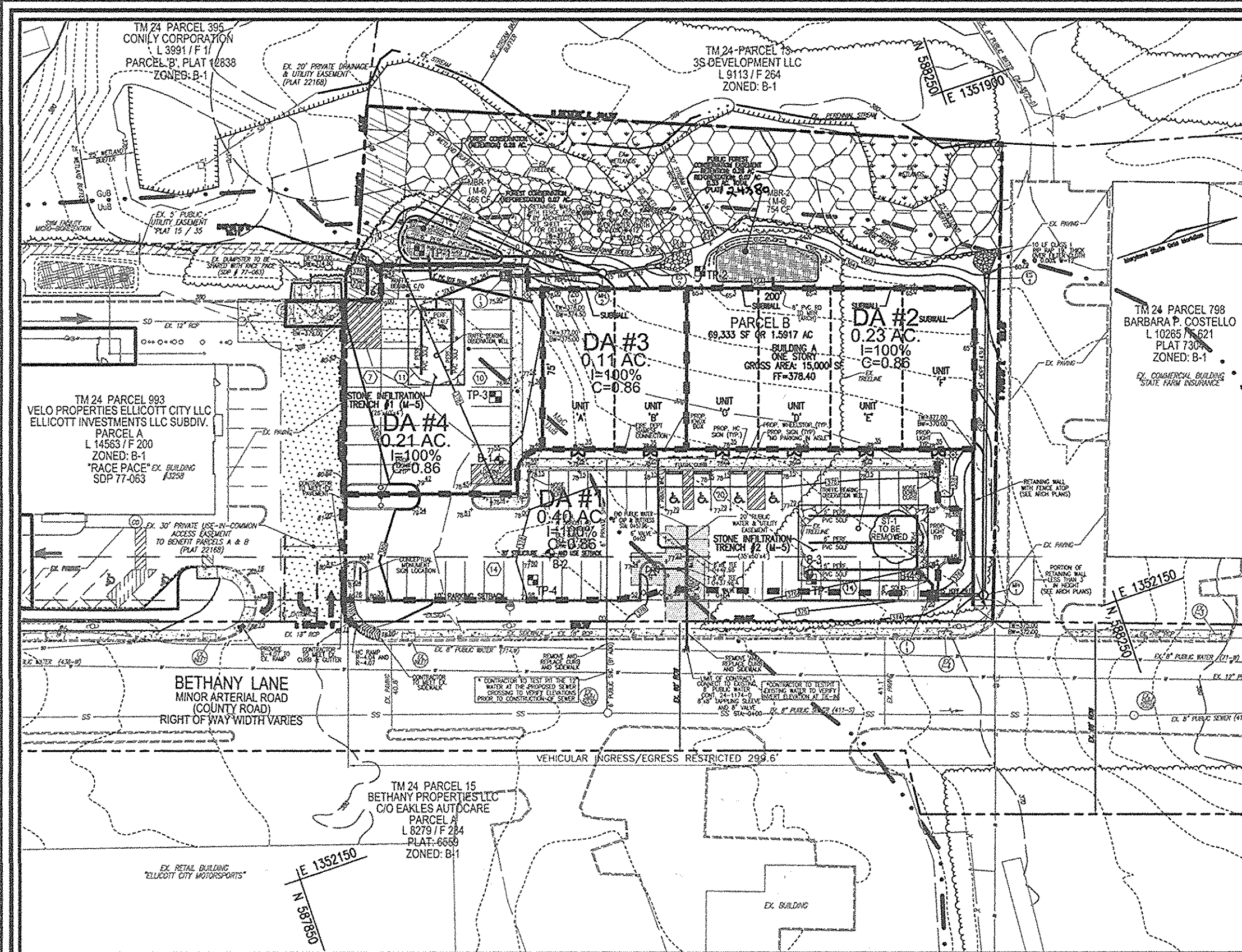


CONSTRUCTION SPECIFICATIONS

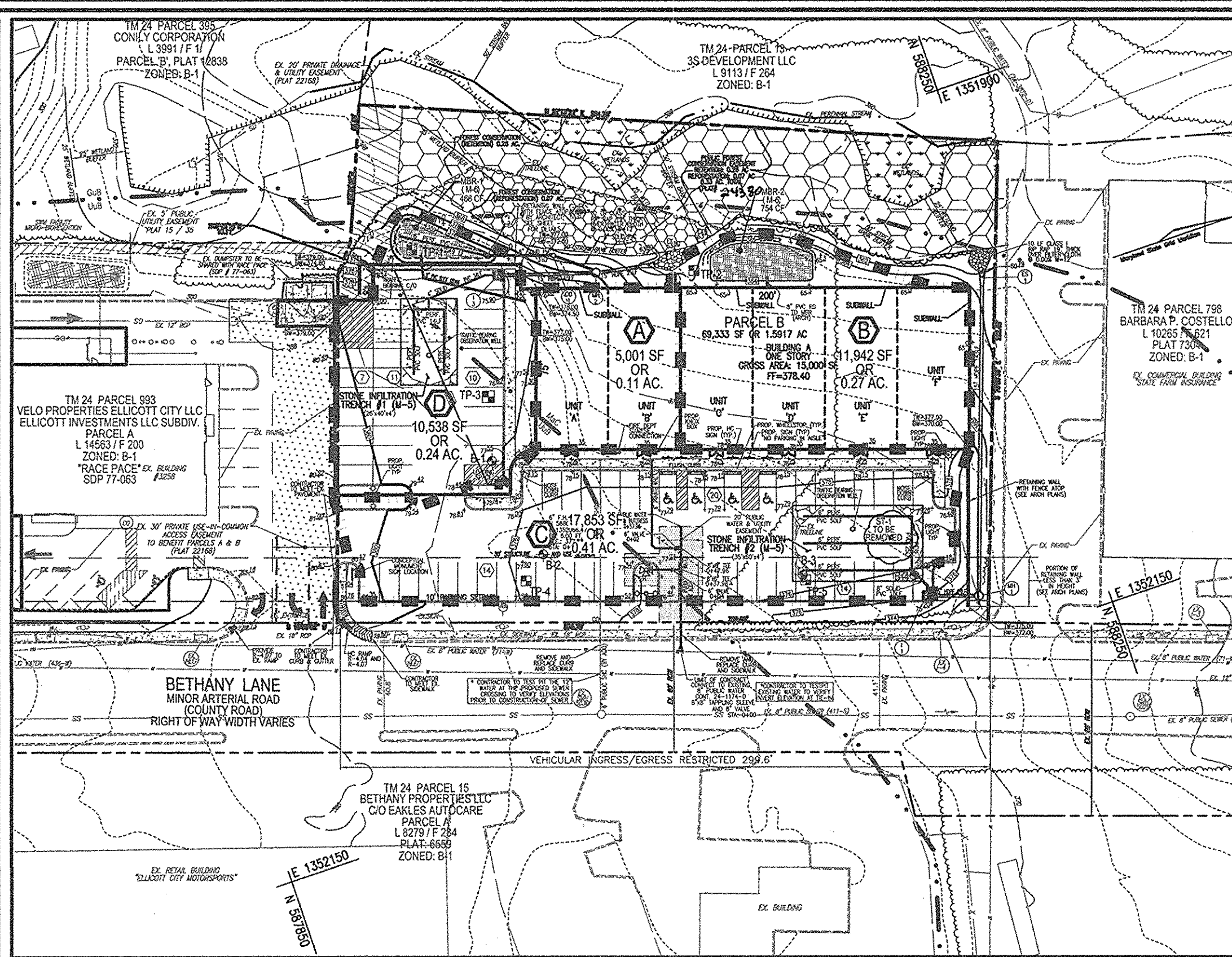
- INSTALL AND GRADE A MINIMUM OF 1 FOOT BEYOND THE ENDS OF THE TYPICAL DRAWING.
- REMOVE ALL SEDIMENT CONTROL MEASURES AFTER RECEIVING APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR (WEEK 15)

B. MULCHING

- MULCH MATERIALS (IN ORDER OF PREFERENCE)
 - I. MULCH CONSISTING OF THOROUGHLY THRESHED WHEAT, RYE, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR. STRAW IS TO BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW AND NOT MUSTY, MOIST, OR EXCESSIVE DIRT.
 - NOTE: USE ONLY STEERLE STRAW MULCH IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.
 - II. WOOD CELLULOSE FIBER MULCH. WOOD CELLULOSE FIBER MULCH IS TO BE SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.
 - III. WCFM IS TO BE DYED GREEN OR COLORED A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE THE IDENTIFICATION OF THE MULCH. SLURRY.
 - IV. WCFM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
 - V. WCFM MATERIALS ARE TO BE MANUFACTURED AND PROCESSED IN A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND AND ADHERE TO THE SUBSTRATE. WCFM IS TO BE MANUFACTURED IN A MANNER THAT THE MULCH MATERIAL MUST FORM A BUTTER-LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND MUST COVER AND HOLD GRASS SEEDS IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS.
 - VI. WCFM MATERIALS MUST NOT CONTAIN ELEMENTS OR COMPOUNDS THAT ACCUMULATE AT LEVELS THAT MAY BE PHYTO-TOXIC TO PLANTS.
 - VII. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH OF APPROXIMATELY 10 MILLIMETERS (DIAMETER OF APPROXIMATELY 1 MILLIMETER); 4.0 TO 8.5 PERCENT OF 1.6 PERCENT MAXIMUM WATER HOLDING CAPACITY OF 90 PERCENT MINIMUM.
- APPLICATION
 - APPLY MULCH TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.
 - IF STRAW MULCH IS USED, SPREAD IT OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS PER ACRE TO A UNIFORM LOOSE DEPTH OF 1 TO 2 INCHES. APPLY MULCH TO ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. WHEN USING A MULCH ANCHORING TOOL, APPLY MULCH TO ACHIEVE THE APPLICATION RATE. APPLY MULCH TO ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. WHEN USING A MULCH ANCHORING TOOL, APPLY MULCH TO ACHIEVE THE APPLICATION RATE. APPLY MULCH TO ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. WHEN USING A MULCH ANCHORING TOOL, APPLY MULCH TO ACHIEVE THE APPLICATION RATE.
 - WOOD CELLULOSE FIBER USED AS MULCH MUST BE APPLIED AT A NET DRY WEIGHT OF 1500 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER TO ATTAIN A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
- PERMANENT STABILIZATION
 - PERFORM MULCH ANCHORING IMMEDIATELY FOLLOWING APPLICATION OF MULCH TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), WHICH SHOULD BE USED UPON THE SIZE OF THE AREA AND EROSION HAZARD.
 - I. A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE. THE ANCHORING TOOL IS TO BE USED ON ALL AREAS WHERE MULCH IS APPLIED TO A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. WHEN USING A MULCH ANCHORING TOOL, APPLY MULCH TO ACHIEVE THE APPLICATION RATE.
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STORM DRAIN DRAINAGE AREA MAP
SCALE: 1"=50'



SWM DRAINAGE AREA MAP

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

APPENDIX B.2. CONSTRUCTION SPECIFICATIONS FOR INFILTRATION PRACTICES
B.2.A INFILTRATION TRENCH GENERAL NOTES AND SPECIFICATIONS

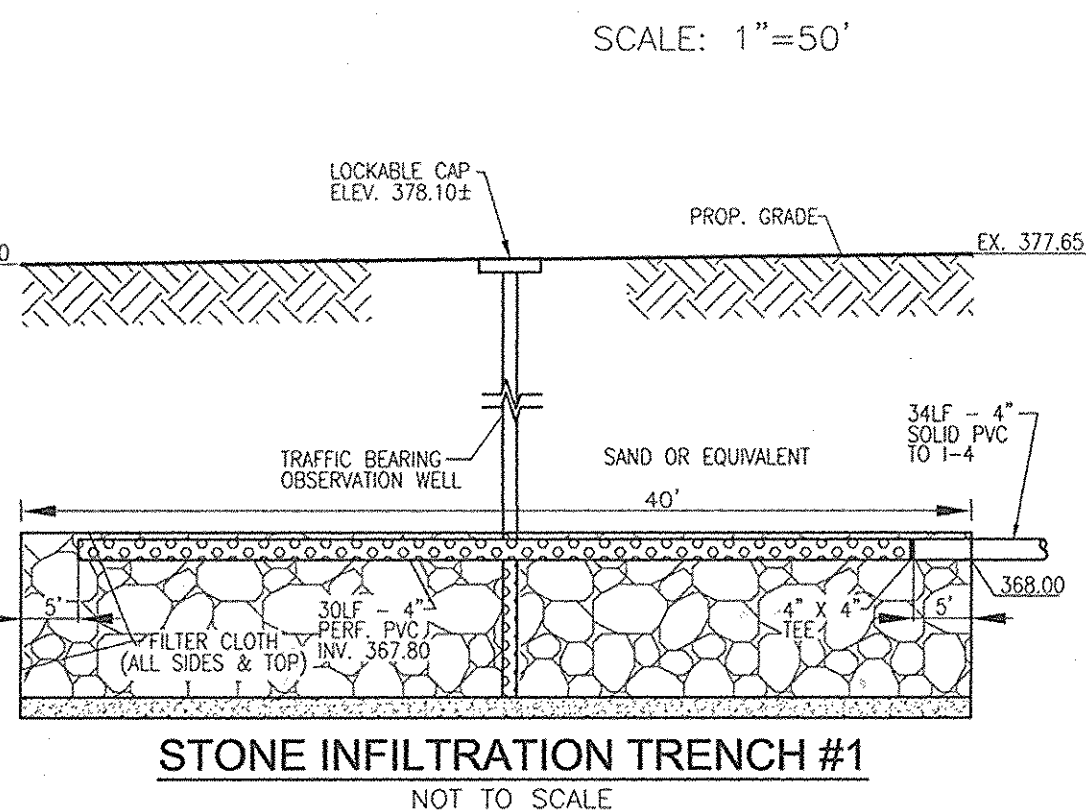
- HEAVY EQUIPMENT AND TRAFFIC SHALL BE RESTRICTED FROM TRAVELING OVER THE PROPOSED LOCATION OF THE INFILTRATION TRENCH TO MINIMIZE COMPACTION OF THE SOIL.
- EXCAVATE THE INFILTRATION TRENCH TO THE DESIGN DIMENSIONS. EXCAVATED MATERIALS SHALL BE PLACED AWAY FROM THE TRENCH SIDES TO ENHANCE TRENCH WALL STABILITY. LARGE TREE ROOTS MUST BE TRIMMED FLUSH WITH THE TRENCH SIDES IN ORDER TO PREVENT FURTHER GROWTH OR TRIMMING OF THE FILTER FABRIC. SUBSEQUENT INSTALLATION PROCEDURES SHALL BE APPROVED BY THE PLAN APPROVAL AUTHORITY.
- A CLASS "C" GEOTEXTILE OR BETTER (SEE SECTION 24.0 MATERIAL SPECIFICATIONS, 1994 STANDARD AND SPECIFICATIONS FOR SOILS AND SOIL CONTROL, MDT 1004) SHALL INTERLOCK BETWEEN THE TRENCH SIDE WALLS AND BETWEEN THE STONE RESERVOIR AND GRAVEL FILTER LAYER. THE TRENCH SIDE WALLS SHALL BE CONSTRUCTED TO THE CLASS "C" GEOTEXTILE PER THE FOLLOWING: ANY ALTERNATIVE FILTER FABRIC MUST BE APPROVED BY THE PLAN APPROVAL AUTHORITY.
- THE WIDTH OF THE GEOTEXTILE MUST INCLUDE SUFFICIENT MATERIAL TO CONFORM TO TRENCH PERIMETER IRREGULARITIES AND FROM A MINIMUM FOR OVERLAP THE FILTER FABRIC SHALL BE TUCKED UNDER THE SAND LAYER ON THE BOTTOM OF THE INFILTRATION TRENCH FOR A DISTANCE OF 6 TO 12 INCHES. STONES OR OTHER MATERIALS SHALL BE PLACED TO PREVENT FURTHER GROWTH OR TRIMMING OF THE FILTER FABRIC. SUBSEQUENT INSTALLATION PROCEDURES SHALL BE APPROVED BY THE PLAN APPROVAL AUTHORITY.
- IF 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 ASHTO M-28, SIZE NO. 20 OR NO. 10, TO ANY ALTERNATIVE SAND FILTER LAYER MUST BE APPROVED BY THE PLAN APPROVAL AUTHORITY.
- THE STONE AGGREGATE SHOULD BE PLACED IN A MAXIMUM LOOSE LIFT THICKNESS OF 12 INCHES. THE GRAVEL TROUGHED "BANK RUN" GRAVEL IS PREFERRED FOR THE INFILTRATION TRENCH SHALL BE WASHED AND MEET ASHTO M-28, SIZE NO. 20 OR NO. 10, TO ANY ALTERNATIVE SAND FILTER LAYER MUST BE APPROVED BY THE PLAN APPROVAL AUTHORITY.
- FOLLOWING THE STONE AGGREGATE PLACEMENT, THE FILTER FABRIC SHALL BE FOLDED OVER THE STONE AGGREGATE SHALL BE PLACED OVER THE LAP AT SUFFICIENT INTERVALS TO MAINTAIN THE LAP DURING SUBSEQUENT CONSTRUCTION.
- CARE SHALL BE EXERCISED TO PREVENT NATURAL OR FILLSOILS FROM INTERMIXING WITH THE STONE AGGREGATE. ALL CORNER STONE AGGREGATE SHALL BE REMOVED AND REPLACED WITH UNCONTAMINATED STONE AGGREGATE.
- VOIDS MAY OCCUR BETWEEN THE FABRIC AND THE EXCAVATION SIDES SHALL BE WASHED, REMOVING BUILDERS OR OTHER DEBRIS FROM THE TRENCH WALLS IS ONE SOURCE OF SUCH VOIDS. THEREFORE, INSPECTORS SHALL BE ADVISED OF THE LOCATION OF SUCH VOIDS. MOST CONVENIENT TIME DURING CONSTRUCTION TO ENSURE FABRIC CONFORMITY TO THE EXCAVATION SIDES.
- VERTICALLY EXCAVATED WALLS MAY BE DIFFICULT TO MAINTAIN IN AREAS WHERE SOIL MOISTURE IS HIGH OR WHERE SOILS ARE HEAVILY SANDY. THESE CONDITIONS MAY REQUIRE LAYING BACK OF THE SIDE SLOPE TO MAINTAIN STABILITY.
- PVC DISTRIBUTION PIPES SHALL BE SCHEDULE 40 AND MEET ASTM-D-1785. ALL FITTINGS SHALL MEET ASTM-D-2775. PERFORATIONS SHALL BE 3/8" INCH IN DIAMETER. A PERFORATED PIPE SHALL BE PROVIDED ONLY WITHIN THE INFILTRATION TRENCH AND SHALL BE LOCATED TO THE CENTER OF THE INFILTRATION TRENCH. THE END OF THE PVC PIPE SHALL BE CARVED NOT TO EXCEED THE WALL THICKNESS CLASSIFICATION OF SOILS MEETING ASTM-D-1785 AS AN ACCEPTABLE SUBSTITUTE FOR THE SCHEDULE 40 PIPE.
- THE OBSERVATION WELL IS TO CONSIST OF 6-INCH DIAMETER PERFORATED PVC SCHEDULE 40 PIPE (M-278) LOCATED TO THE CENTER OF THE INFILTRATION TRENCH. THE PIPE SHALL HAVE A PLASTIC COLLAR WITH RISE TO THE CONDITIONAL CENTER OF THE INFILTRATION TRENCH. THE COLLAR SHALL BE PLACED TO THE CENTER OF THE INFILTRATION TRENCH. THE COLLAR SHALL BE PLACED TO THE CENTER OF THE INFILTRATION TRENCH. THE COLLAR SHALL BE PLACED TO THE CENTER OF THE INFILTRATION TRENCH.
- CORRUGATED METAL DISTRIBUTION PIPES SHALL CONFORM TO ASHTO-M-36, AND SHALL BE ALUMINIZED IN ACCORDANCE WITH ASHTO-M-274. ALUMINIZED PIPE CONTACT WITH CONCRETE SHALL BE COATED WITH AND MUST BE PROTECTED FROM THE CORROSION EFFECT OF ALUMINUM ON THE CONCRETE. PERFORATED DISTRIBUTION PIPES SHALL CONFORM TO ASHTO-M-36, AND SHALL BE PROVIDED ONLY WITHIN THE INFILTRATION TRENCH AND SHALL BE LOCATED TO THE CENTER OF THE INFILTRATION TRENCH.
- IF A DISTRIBUTION STRUCTURE WITH A WET WELL USED, A 4-INCH DRAIN PIPE SHALL BE PROVIDED AT OPPOSITE ENDS OF THE INFILTRATION TRENCH DISTRIBUTION STRUCTURE. TWO (2) FEET OF POROUS BLOCK FILLING ASHTO-M-43, SIZE NO. 57 SHALL BE PROVIDED AT EACH DRAIN.
- 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

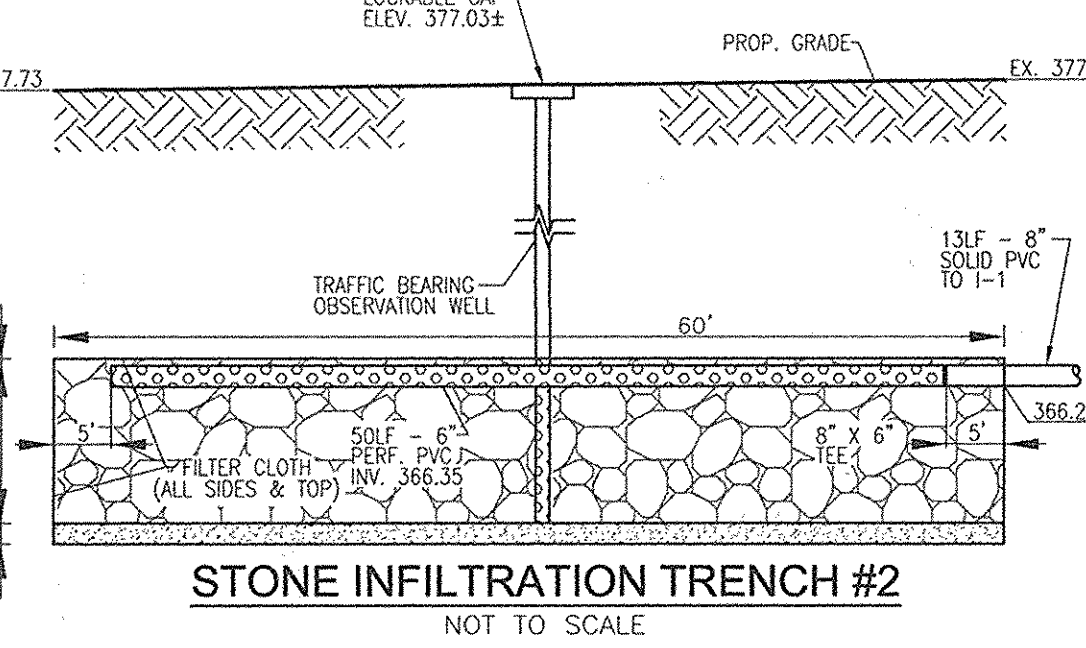
- THE MONITORING WELLS AND STRUCTURES SHALL BE INSPECTED ON A QUARTERLY BASIS AND AFTER EVERY LARGE STORM EVENT.
- WATER LEVELS AND SEDIMENT BUILD UP IN THE MONITORING WELLS SHALL BE RECORDED OVER A PERIOD OF SEVERAL DAYS TO INSURE TRENCH DRAINAGE.
- A LOGBOOK SHALL BE MAINTAINED TO DETERMINE THE RATE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

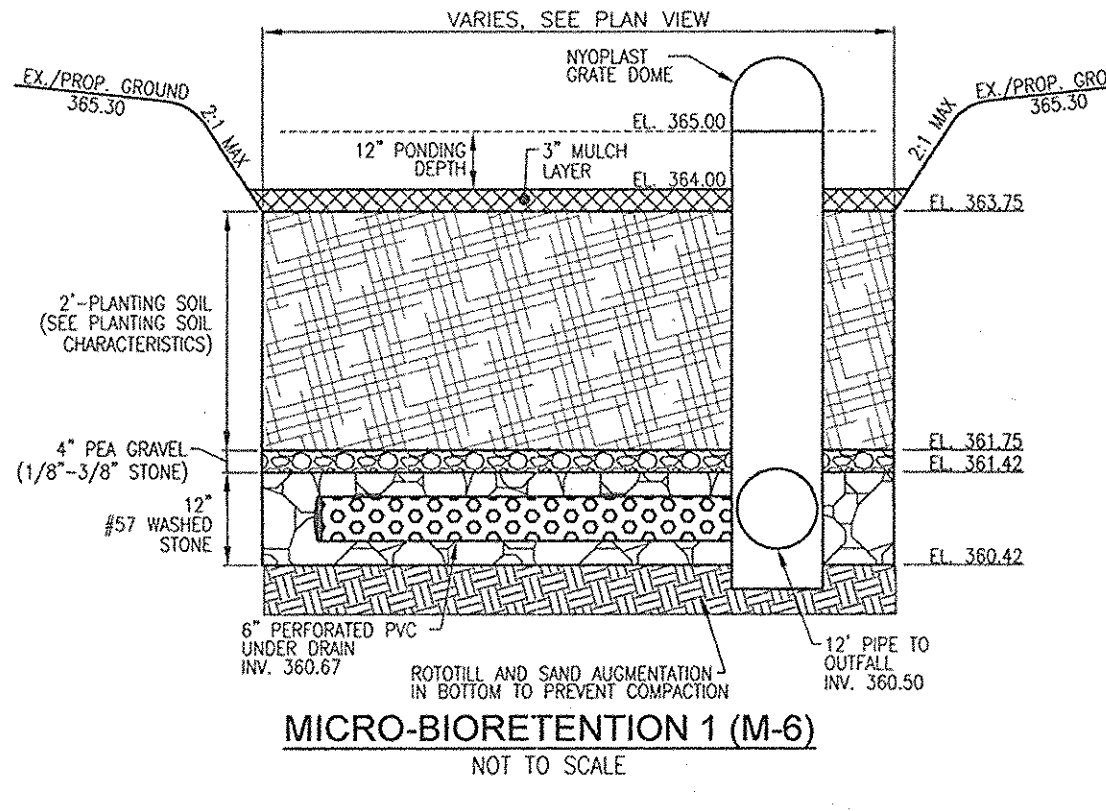
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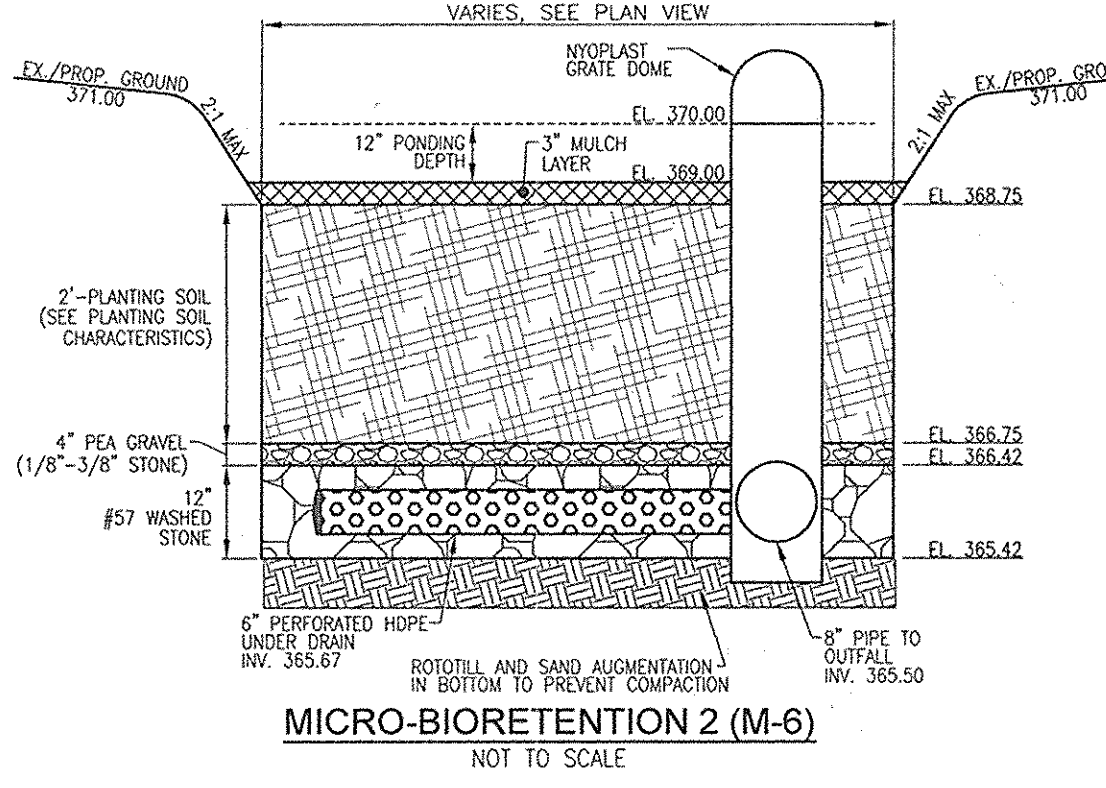
STONE INFILTRATION TRENCH #1
NOT TO SCALE



STONE INFILTRATION TRENCH #2
NOT TO SCALE



MICRO-BIORETENTMENT 1 (M-6)
NOT TO SCALE



MICRO-BIORETENTMENT 2 (M-6)
NOT TO SCALE

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

- MATERIAL SPECIFICATIONS**
THE ALLOWABLE MATERIALS TO BE USED IN THESE PRACTICES ARE DETAILED IN TABLE B.4.1.
- 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 BLENDED WITH THE MICRO-BIORETENTMENT PRACTICE THAT MAY BE HARMFUL TO PLANT GROWTH OR PROVE A HINDERANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERMIUDA GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMAR 15.08.01.05.
THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA:
• SOIL COMPONENT - LOAMY SAND OR SANDY LOAM (USDA SOIL TEXTURAL CLASSIFICATION)
• ORGANIC CONTENT - MINIMUM 10% BY DRY WEIGHT (ASTM D 2874). IN GENERAL, THIS CAN BE MET WITH A MIXTURE OF LOAMY SAND (60%-85%) AND COMPOST (35% TO 40%) OR SANDY LOAM (20%), COMPOST SAND (30%), AND COMPOST (40%).
• CLAY CONTENT - MEDIA SHALL HAVE A CLAY CONTENT OF LESS THAN 10%.
• PH RANGE - SHOULD BE BETWEEN 5.5 - 7.0. AMENDMENTS (E.G., LIME, IRON SULFATE PLUS SULFUR) MAY BE MIXED IN TO THE SOIL TO INCREASE OR DECREASE PH.
TRENCH SHALL BE AT LEAST ONE SOIL TEST PER PROJECT. EACH TEST SHALL CONSIST OF BOTH THE STANDARD SOIL TEST FOR PH AND ADDITIONAL TESTS OF ORGANIC MATTER AND SOLUBLE SALTS. A TEXTURAL ANALYSIS IS REQUIRED FROM THE SITE STOCKPILED TOPSOIL. IF TOPSOIL IS IMPORTED, THEN A TEXTURE ANALYSIS SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOPSOIL WAS EXCAVATED.
- COMPACTION**
IT IS VERY IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF BIORETENTMENT PRACTICES AND THE REQUIRED BACKFILL. WHEN POSSIBLE, USE EXCAVATION HOES TO REMOVE ORIGINAL SOIL. IF PRACTICES ARE EXCAVATED USING LOADERS, THE CONTRACTOR SHOULD USE WIDE TRACK OR MASH TRACK EQUIPMENT, OR LIGHT EQUIPMENT WITH TURF TIRE TIRES. USE OF EQUIPMENT WITH NARROW TRACKS OR NARROW TIRES, RUBBER TIRES WITH LARGE LUGS, OR HIGH-PRESSURE TIRES WILL CAUSE EXCESSIVE COMPACTION RESULTING IN REDUCED INFILTRATION RATES AND IS NOT ACCEPTABLE. COMPACTION WILL SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE.
COMPACTION CAN BE AVOIDED AT THE BASE OF THE BIORETENTMENT FACILITY BY USING A PRIMARY TILLING OPERATION SUCH AS CHISEL FLOW, RIPPER, OR SUBSOILER. THESE TILLING OPERATIONS ARE TO REPAIR THE SOIL PROFILE THROUGHOUT THE 12 INCH COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROTOTILLERS TYPICALLY DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT.
ROTOTILL 2 TO 3 INCHES OF SAND INTO THE BASE OF THE BIORETENTMENT FACILITY BEFORE BACKFILLING THE OPTIONAL SAND LAYER. PUMP UP PONDED WATER BEFORE PREPARING (ROTOTILLING) BASE.
WHEN BACKFILLING THE TOPSOIL OVER SAND LAYER, FIRST PLACE 3 TO 4 INCHES OF TOPSOIL OVER THE SAND, THEN ROTOTILL THE SAND/TOPSOIL TO CREATE A GRADATION ZONE. BACKFILL THE REMAINDER OF THE TOPSOIL TO FINAL GRADE.
WHEN BACKFILLING THE BIORETENTMENT FACILITY, PLACE SOIL IN LIFTS 12" TO 16". DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTMENT BASIN. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF THE BASIN TO SUPPLY SOILS AND SAND. GRADE BIORETENTMENT MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH MARSH TRACKS.
- PLANT MATERIAL**
RECOMMENDED PLANT MATERIAL FOR MICRO-BIORETENTMENT PRACTICES CAN BE FOUND IN APPENDIX A, SECTION A.2.3.
- PLANT INSTALLATION**
COMPOST IS A BETTER ORGANIC MATERIAL SOURCE, IS LESS LIKELY TO FLOAT, AND SHOULD BE PLACED IN THE INVERT AND OTHER LOW AREAS. MULCH SHOULD BE PLACED IN SUBORDINATE TO A UNIFORM THICKNESS OF 2" TO 3" SHREDED OR CHIPPED HARDWOOD MULCH IS THE ONLY ACCEPTED MULCH. PINE MULCH AND WOOD CHIPS WILL FLOAT AND MOVE TO THE PERIMETER OF THE BIORETENTMENT AREA DURING A STORM EVENT AND ARE NOT ACCEPTABLE. SHREDED MULCH MUST BE WELL AGED (6 TO 12 MONTHS) FOR ACCEPTANCE.
ROOTSOFT OF THE PLANT MATERIAL SHALL BE KEPT MOIST DURING TRANSPORT AND ON-SITE STORAGE. THE PLANT ROOT BALL SHOULD BE PLANTED SO 1/8TH OF THE BALL IS ABOVE FINAL GRADE SURFACE. THE DIAMETER OF THE PLANTING PIT SHALL BE AT LEAST SIX INCHES LARGER THAN THE DIAMETER OF THE PLANTING BALL. SET AND MAINTAIN THE PLANT STRAIGHT DURING THE ENTIRE PLANTING PROCESS. THOROUGHLY WATER GROUND BED COVER AFTER INSTALLATION. TREES SHALL BE GRADED 12" BY 2" STAKES ONLY AS NECESSARY AND FOR THE FIRST GROWING SEASON ONLY. STAKES ARE TO BE EQUALLY SPACED ON THE OUTSIDE OF THE TREE BALL.
GRASSES AND LEGUME SEED SHOULD BE DRILLED INTO THE SOIL TO A DEPTH OF AT LEAST ONE INCH. GRASS AND LEGUME PLUS SHALL BE PLANTED FOLLOWING THE SOIL-GRADE COVER PLANTING SPECIFICATIONS.
THE TOPSOIL SPECIFICATIONS PROVIDE ENOUGH ORGANIC MATERIAL TO ADEQUATELY SUPPLY NUTRIENTS FROM NATURAL CYCLING. THE PRIMARY FUNCTION OF THE BIORETENTMENT STRUCTURE IS TO IMPROVE WATER QUALITY, ADDING FERTILIZERS, DEFEATS, OR AT A MINIMUM, IMPROVES THIS GOAL. ONLY ADD FERTILIZER IF WOOD CHIPS OR MULCH ARE USED TO AMEND THE SOIL. ROTOTILL UREA FERTILIZER AT A RATE OF 2 POUNDS PER 1000 SQUARE FEET.
- UNDERDRAINS**
UNDERDRAINS SHOULD MEET THE FOLLOWING CRITERIA:
• PIPE - SHOULD BE 4" TO 6" DIAMETER, SLOTTED OR PERFORATED RIGID PLASTIC PIPE (ASTM 758, TYPE PS 28, OR ASHTO-M-278) IN A GRAVEL LAYER. THE PREFERRED MATERIAL IS SLOTTED 4" RIGID PIPE (E.G. PVC OF HDPE).
• PERFORATIONS - IF PERFORATED PIPE IS USED, PERFORATIONS SHOULD BE 3/8" DIAMETER LOCATED 6" ON CENTER WITH A MINIMUM OF FOUR HOLES PER ROW. PIPE SHALL BE WRAPPED WITH A 7/4" (NO. 4 OR 44) GALVANIZED HARBORNE CLOTH.
• GRAVEL - THE GRAVEL LAYER (NO. 57 STONE PREFERRED) SHALL BE AT LEAST 3" THICK ABOVE AND BELOW THE UNDERDRAIN.
• THE MAIN COLLECTOR PIPE SHALL BE AT A MINIMUM 0.5% SLOPE.
• A RIGID, NON-PERFORATED OBSERVATION WELL MUST BE PROVIDED (ONE PER EVERY 1,000 SQUARE FEET) TO PROVIDE A CLEAN-OUT PORT AND MONITOR PERFORMANCE OF THE FILTER.
• A 4" LAYER OF PEA GRAVEL (1/8" TO 3/8" STONE) SHALL BE LOCATED BETWEEN THE FILTER MEDIA AND UNDERDRAIN TO PREVENT MIGRATION OF FINES IN TO THE UNDERDRAIN. THIS LAYER MAY BE CONSIDERED PART OF THE FILTER BED WITH BED THICKNESS EXCEEDS 2".
THE MAIN COLLECTOR PIPE FOR UNDERDRAIN SYSTEMS SHALL BE CONSTRUCTED AT A MINIMUM SLOPE OF 0.5%. OBSERVATION WELLS AND/OR CLEAN-OUT PIPES MUST BE PROVIDED (ONE MINIMUM PER EVERY 1000 SQUARE FEET OF SURFACE AREA).
- MISCELLANEOUS**
THESE PRACTICES MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.

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

- THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL, VOLUME II, TABLE A.4.1 AND 2.
- THE OWNER SHALL PERFORM A PLANT IN THE SPRING AND IN THE FALL OF EACH YEAR. DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT. REPLACE DEAD PLANT MATERIAL WITH ACCEPTABLE REPLACEMENT PLANT MATERIAL. TREAT DISEASED TREES AND SHRUBS, AND REPLACE ALL DEFICIENT STAKES AND WIRES.
- THE OWNER SHALL INSPECT THE MULCH EACH SPRING. THE MULCH SHALL BE REPLACED EVERY TWO TO THREE YEARS. THE PREVIOUS MULCH LAYER SHALL BE REMOVED BEFORE THE NEW LAYER IS APPLIED.
- THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.

OWNER/DEVELOPER
BETHANY MARKETPLACE, LLC
8808-C PEAR TREE COURT
ALEXANDRIA, VA 22309
C/O CHARLES FAIRCHILD
(703) 926-1812

NO.	REVISION	DATE

SITE DEVELOPMENT PLAN
STORM DRAIN AND SWM DRAINAGE AREA MAPS; SWM NOTES AND DETAILS
BETHANY MARKETPLACE
ONE STORY COMMERCIAL BUILDING
ELLICOTT INVESTMENTS - SUBDIVISION - PARCEL B
3240 BETHANY LANE
ELLICOTT CITY, MD
RETAIL SHOPPING CENTER
PARCEL 993, PARCEL B
ELLICOTT CITY, MD
PLAT: 22168
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERS, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELLICOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.1996

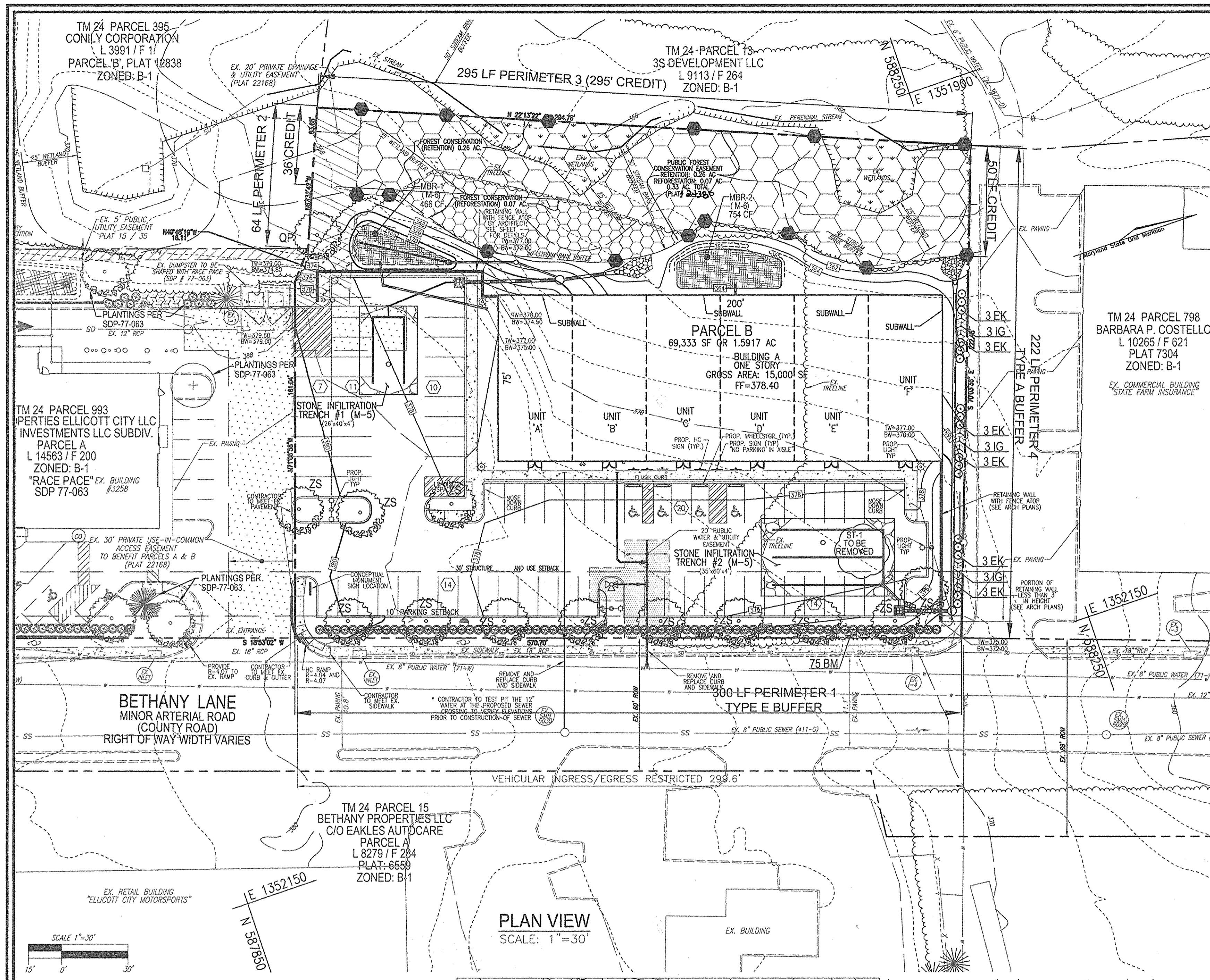
PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2016

DESIGN BY: RHY
DRAWN BY: KG/ER/DF
CHECKED BY: RHY
DATE: JULY 2015
SCALE: AS SHOWN
W.D. NO.: 12-08

5 SHEET OF 6

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

Table B.4.1 Materials Specifications for Micro-Bioretentment, Rain Gardens & Landscape Infiltration.	Material	Specifications	Notes
Plantings	Plantings	see Appendix A, Table A.4	plantings are site-specific
	Planting soil	loamy sand (60-65%) & compost (35-40%) or sandy loam (30%), coarse sand (30%) & compost (40%)	USDA soil types loamy sand or sandy loam; clay content < 3% (4% TO 5%)
Mulch	Pea gravel/diaphragm	see Appendix A, Table A.4	aged 6 months, minimum no pine or wood chips
	Mulch	MSHA Min No. 31, F = 3500 psi @ 28 days, normal weight, all materials, retaining to meet ASTM 415-60	
Curtain drain	Geotextile	nonwoven, stone, washed cobbles	stone: 7" to 5"
	Gravel (underdrain and infiltration berms)	AAASHTO M-43	PI Type 1 nonwoven
Underdrain piping	Underdrain piping	F 758, Type PS 28 or ASHTO M-278	4" to 6" rigid schedule 40 PVC or HDPE
	Perforated pipe	perforated pipe, 3/8" perft. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipe; no necessary underdrain pipes; perforated pipe shall be wrapped with 1/4 inch galvanized hardware cloth	
Poured in place concrete (if required)	Poured in place concrete (if required)	MSHA Min No. 31, F = 3500 psi @ 28 days, normal weight, all materials, retaining to meet ASTM 415-60	
	Soil	AAASHTO M-6 or ASTM-D-33	0.02" to 0.04"



FOREST CONSERVATION NOTES

PRE-CONSTRUCTION ACTIVITIES

- PRIOR TO THE START OF ANY CONSTRUCTION DEFINE THE LIMITS OF DISTURBANCE AND THE SOIL PROTECTION ZONE (CRITICAL ROOT 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 SDP.
- ALL SEDIMENT CONTROL 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 THE LOD IS WITH 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 PRUNING SHALL BE PERFORMED 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 VIOLATIONS SHALL BE A VIOLATION OF THE APPROVED FOREST CONSERVATION PLAN:
 - STORAGE OF EQUIPMENT AND MATERIALS
 - DISPOSITION OF CONSTRUCTION MATERIALS
 - WASHING OF EQUIPMENT, DISPOSAL OF WASTEWATER FROM CONCRETE OPERATIONS, ETC. - EMPLOYEE PARKING
 - TEMPORARY STRUCTURES SUCH AS TRAILERS, SANITARY FACILITIES, ETC.
 - SOIL COMPACTION
 - FLOODED CONDITIONS
 - DROUGHT CONDITIONS
- DURING CONSTRUCTION, INSPECT AND ENFORCE THE LIMITS OF DISTURBANCE AND REQUIRED PROTECTION MEASURES.
- ANY DAMAGES TO RETAINED TREES DUE TO CONSTRUCTION SHALL BE REPAIRED BY THE CONTRACTOR AT THE DIRECTION OF THE QUALIFIED PROFESSIONAL.
- FOREST CONSERVATION AREAS TO BE INSPECTED AND CERTIFIED FOR COMPLETION OF THE FOREST CONSERVATION PLAN REQUIREMENTS BY A QUALIFIED PROFESSIONAL.

POST CONSTRUCTION

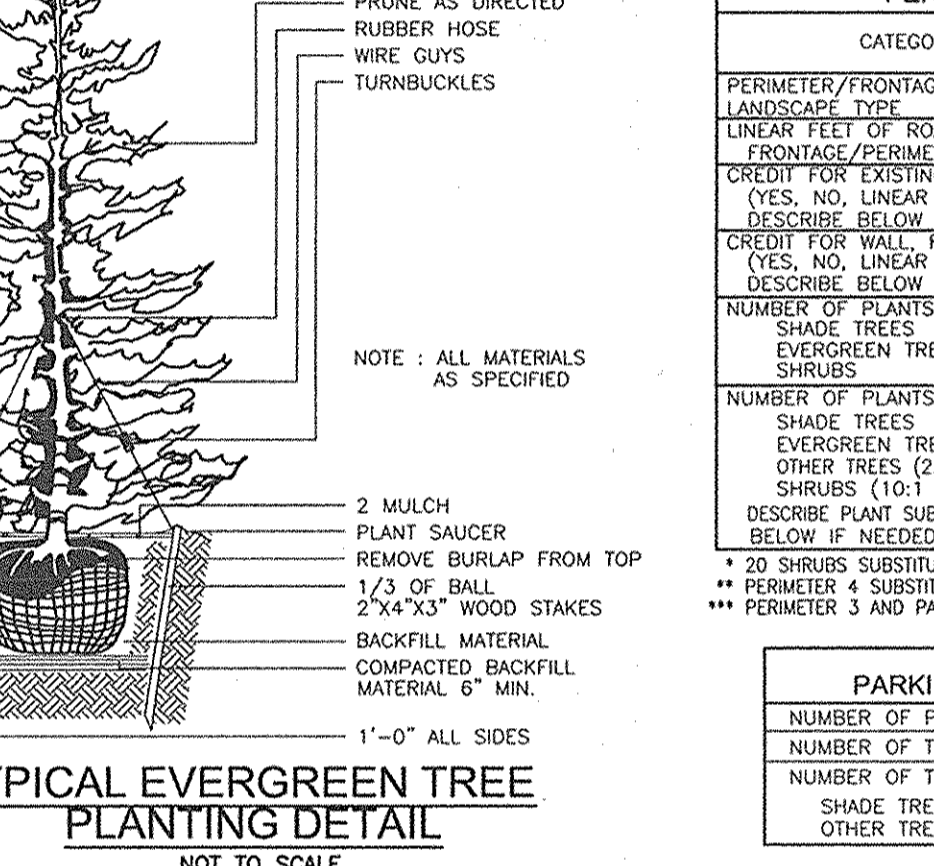
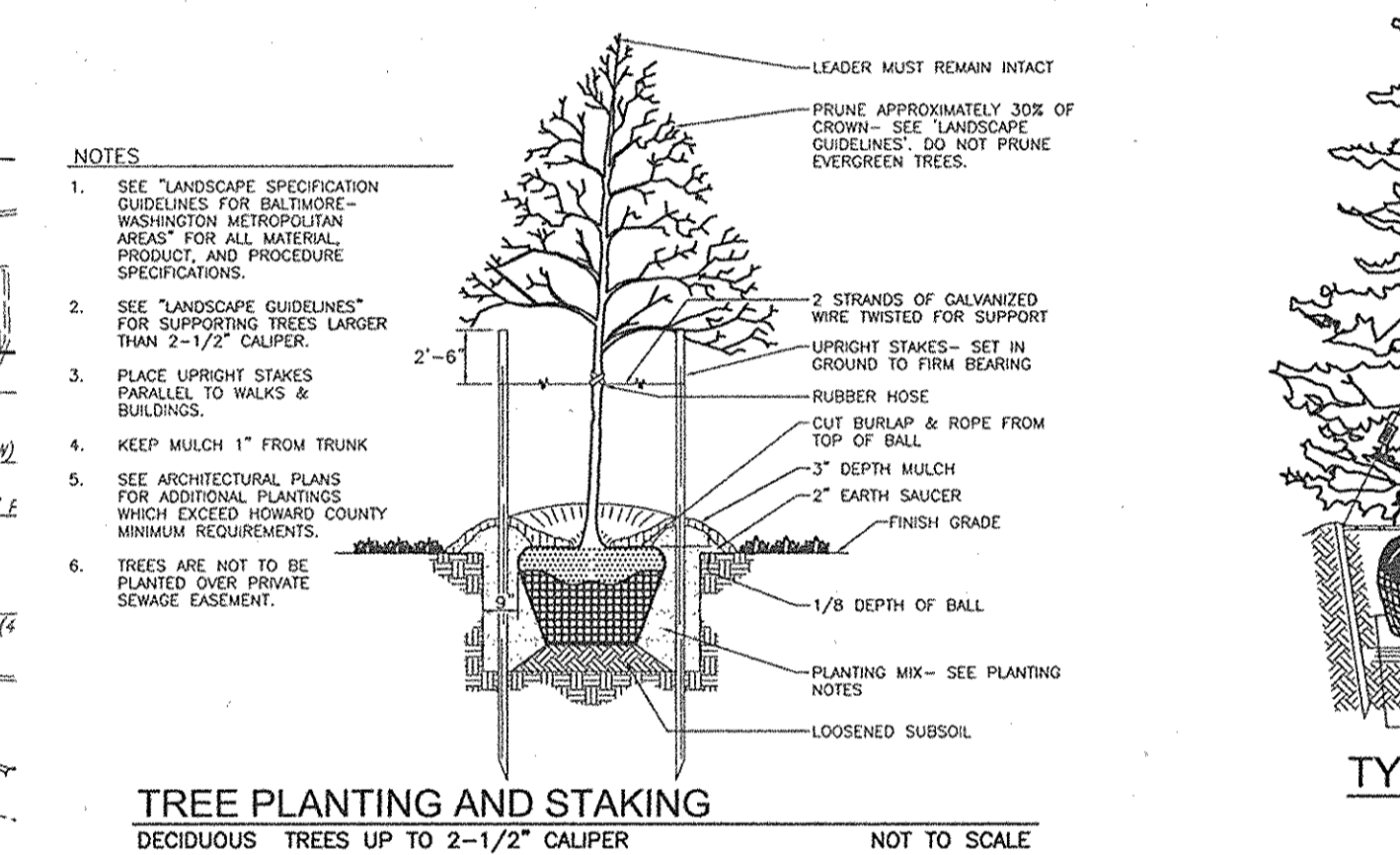
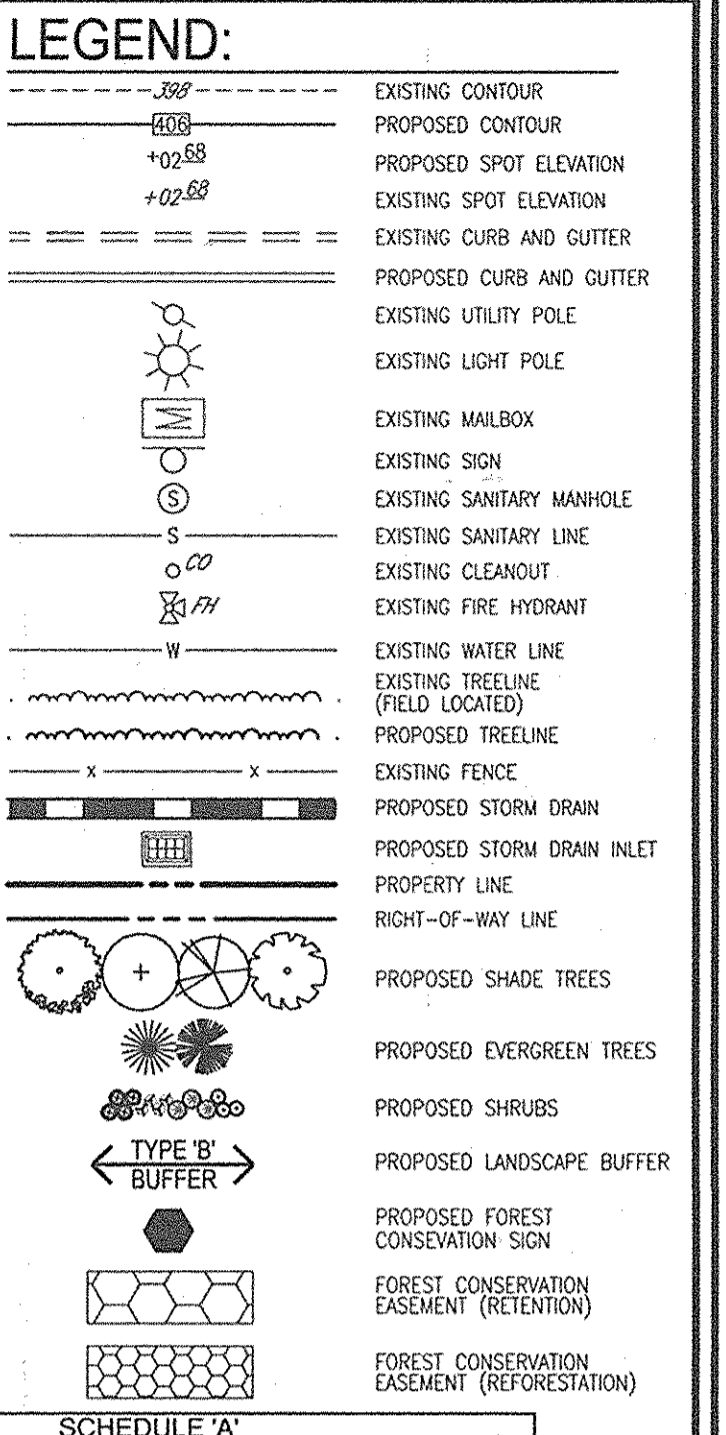
- POST CONSTRUCTION ACTIVITIES TO BE PROVIDED FOR A MINIMUM OF 2 YEARS.
- INSPECTIONS SHALL BE CARRIED OUT AT THE BEGINNING AND END OF THE GROWING SEASON TO PINPOINT ANY PROBLEMS. MONITOR SURVIVAL RATES, AND SPECIFY REMEDIAL ACTIONS NEEDED TO CORRECT EXISTING PROBLEMS.
- POST CONSTRUCTION MANAGEMENT PROGRAMS OF FOREST CONSERVATION AREAS MUST BE ESTABLISHED AND INCLUDE MAINTENANCE OF ALL FENCES, SIGNS AND OTHER DEVICES DELINEATING FOREST CONSERVATION AREAS, AS WELL AS THE FOLLOWING OTHER MEASURES:
 - STRESS REDUCTION:
 - ROOT PRUNING - CROWN REDUCTION OR PRUNING
 - WATERING
 - FERTILIZATION
 - PEST CONTROL
 - CONTROL OF UNDESIRABLE COMPETING SPECIES
 - THINNING AND PRUNING TO ENCOURAGE PROPER GROWTH
 - REPAIR OF TREE DAMAGES:
 - ROOT REPAIR
 - REMOVAL OF DEAD OR DYING BRANCHES/LEAVES
 - SOIL AERATION
 - REMOVAL OF DEAD OR DYING TREES POSING AN IMMEDIATE SAFETY HAZARD
- AS PER THE SEDIMENT CONTROL PLAN, AND 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 TAKEN TO ACHIEVE REQUIRED 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 ADJACENT TO SUCH AREAS.

LANDSCAPE NOTES:

- AT THE TIME OF PLANT INSTALLATION, ALL SHRUBS AND TREES LISTED AND APPROVED ON THE LANDSCAPE PLAN, SHALL COMPLY WITH THE LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATIONS OF THE REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THE APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN THE RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO THE APPLICABLE PLANS.
- THE OWNER, TENANT AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE LANDSCAPE INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION AND WHEN NECESSARY, REPAIRED OR REPLACED.
- ANY TREE DESIGNATED FOR PRESERVATION FOR WHICH LANDSCAPING CREDIT IS GIVEN, DIE PRIOR TO RELEASE OF BONDS, THE OWNER WILL BE REQUIRED TO REPLACE THE TREE WITH THE EQUIVALENT SPECIES OR WITH A TREE WHICH WILL OBTAIN THE SAME HEIGHT, SPREAD, AND GROWTH CHARACTERISTICS. THE REPLACEMENT TREE MUST BE A MINIMUM OF 3 INCHES IN CALIPER AND INSTALLED AS REQUIRED IN THE HOWARD COUNTY LANDSCAPE MANUAL.
- PLANTINGS SHOWN HEREON ARE THE RESPONSIBILITY OF THE DEVELOPER TO INSTALL DURING THE CONSTRUCTION OF THE FINAL PLAN.
- ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL CONFORM TO THE MOST CURRENT AN SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HROD PLANTING SPECIFICATIONS.
- CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
- LOCATION OF PLANT MATERIAL MAY NEED TO VARY TO MEET FINAL FIELD CONDITIONS. TREES SHALL NOT BE PLANTED IN THE BOTTOM OF DRAINAGE SWALES.
- CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO BIDDING. IF PLANT DIFFERS FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN.

GENERAL NOTES:

- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. A FINANCIAL SURETY FOR THE LANDSCAPING IN THE AMOUNT OF \$7,000.00 FOR THE REQUIRED 16 SHADE TREES, AND 75 SHRUBS SHALL BE POSTED WITH THE DEVELOPER'S AGREEMENT FOR FOREST CONSERVATION PLAN.
- THIS PLAN IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. DEVELOPMENT OR CONSTRUCTION OF THESE LOTS MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, WAIVER PERMITTED OR BUILDING AND ZONING DEPARTMENT PERMITS.
- THERE ARE NO BURIAL GROUNDS, CEMETERIES, OR HISTORIC STRUCTURES LOCATED ON THIS PROPERTY.
- ANY EXISTING STREET TREES DAMAGED OR DESTROYED DURING CONSTRUCTION WILL BE REPLACED BY THE CONTRACTOR.
- LANDSCAPING IS NOT PERMITTED WITHIN 7.5' ON EACH SIDE OF THE FIRE DEPARTMENT CONVEYOR, PROVIDE A CLEAR, UNOBSTRUCTED ACCESS PATH TO THE FIRE DEPARTMENT CONVEYOR. NFPA-11.3.1.4



SCHEDULE A PERIMETER LANDSCAPE EDGE

CATEGORY	ADJACENT TO PERIMETER PROPERTIES AND ROADWAYS			
	1	2	3	4
PERIMETER/FRONTAGE DESIGNATION	1	2	3	4
LANDSCAPE TYPE	1	2	3	4
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	300'	64'	295'	22'
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	NO	YES 36'	YES 295'	NO
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	NO	NO	NO	NO
NUMBER OF PLANTS REQUIRED	1,40	28	1,160	12
SHADE TREES	1,4	75	1,160	3
EVERGREEN TREES	1,4	75	1,160	3
SHRUBS	1,4	75	1,160	3
NUMBER OF PLANTS PROVIDED	8	1	75	9
SHADE TREES	8	1	75	9
EVERGREEN TREES	8	1	75	9
SHRUBS (1:01 SUBSTITUTION)	75	1	75	158
DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED:				
* 20 SHRUBS SUBSTITUTED FOR 1 SHADE TREES AND 1 EVERGREEN TREES IN PERIMETER 4				
** PERIMETER 3 SUBSTITUTED FOR 3 SHADE TREES				
*** PERIMETER 3 AND PART OF PERIMETER 2 & 4 CREDIT FOR FOREST CONSERVATION				

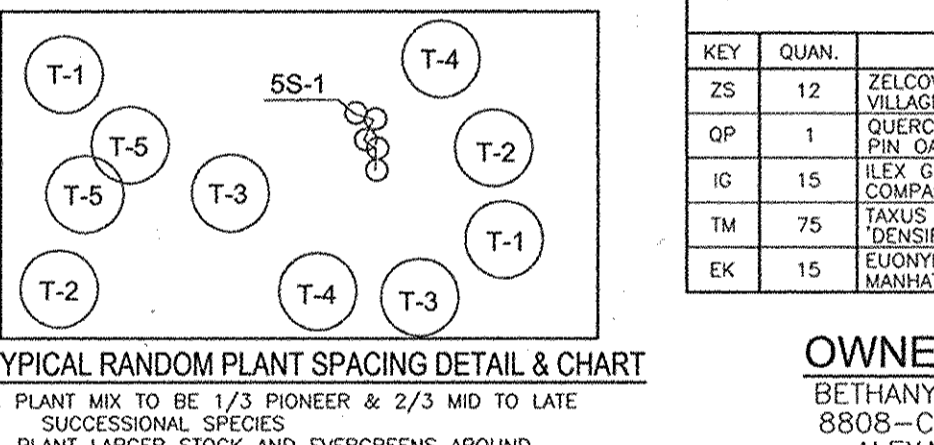
SCHEDULE B PARKING LOT INTERNAL LANDSCAPING

NUMBER OF PROPOSED PARKING SPACES	77
NUMBER OF TREES REQUIRED (1/20 SPACES)	4
NUMBER OF TREES PROVIDED	4
SHADE TREES	4
OTHER TREES (2:1 SUBSTITUTION)	4

DENSITY CHART

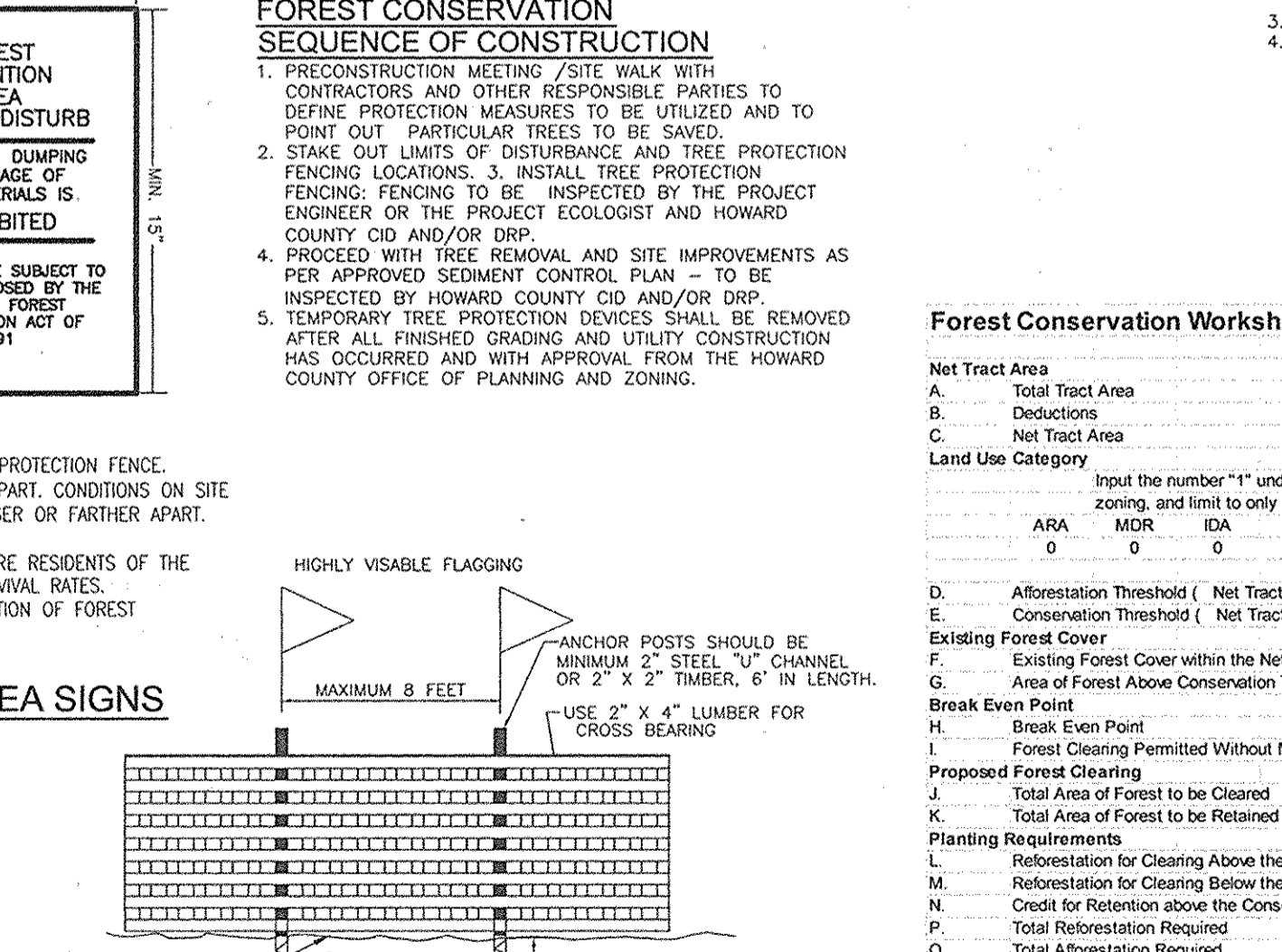
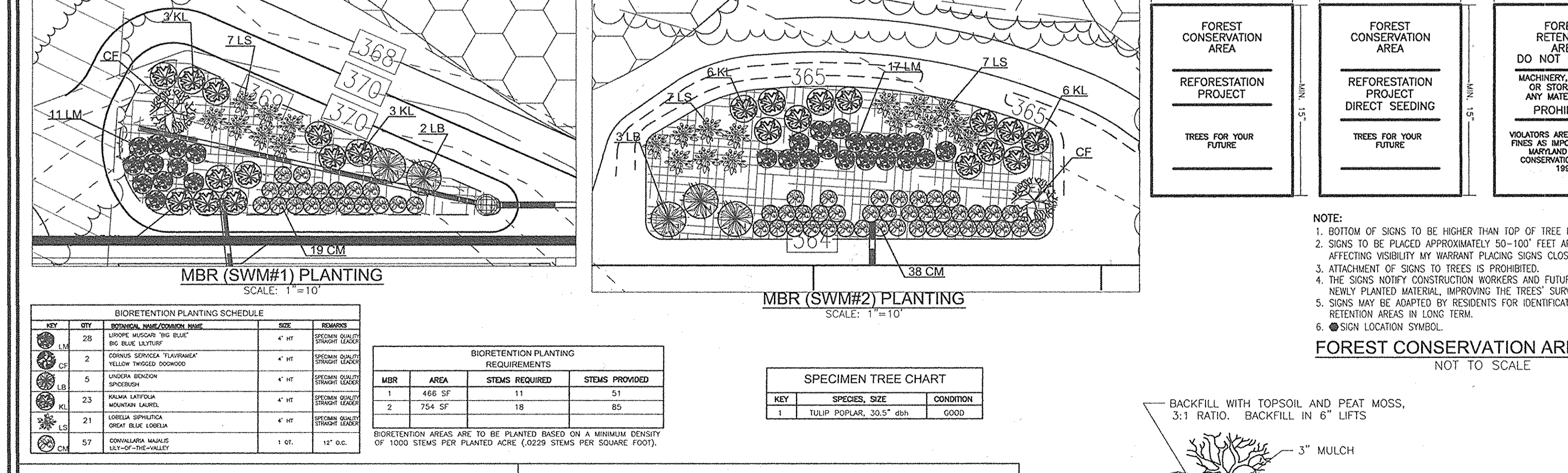
SIZE	QTY. PER ACRE	AVERAGE SPACING
2" CALIPER	100	30'x30'
1" CALIPER	200	15'x15'
WIPES	300	11'x11'
SEEDINGS	700	6'x6'

FOREST CONSERVATION AFFORESTATION REQUIREMENT:
 14 TREES @ 200 TREES PER ACRE



LANDSCAPE SCHEDULE

KEY	QUAN.	BOTANICAL NAME	SIZE	CAT
ZS	12	ZELECOVA SERRATA 'VILLAGE GREEN'	2 1/2" - 3" CAL.	B & B
GP	1	QUERCUS PALUSTRIS PIN OAK	2 1/2" - 3" CAL.	B & B
IG	15	FLEX GLABRA 'COMPACTA'	2 1/2" - 3" HT.	B & B
TM	75	TAXUS MEDIA 'DENIFORMIS' / DENIFORMIS YEW	2' - 2 1/2" HT.	B & B
EK	15	EUNONYMUS ALATUS 'MANNHATTAN MANNHATTAN EUNONYMUS'	2 1/2" - 3" HT.	B & B



Forest Conservation Worksheet 2.2

Net Tract Area	A = 1.60		
A. Total Tract Area	B = 0.00		
B. Deductions	C = 1.60		
C. Net Tract Area			
Land Use Category			
ARA	IDA	MPO	CA
0	0	0	1
D. Afforestation Threshold (Net Tract Area x 15%)	D = 0.24		
E. Conservation Threshold (Net Tract Area x 15%)	E = 0.24		
F. Existing Forest Cover	F = 0.60		
G. Area of Forest Above Conservation Threshold	G = 0.36		
H. Break Even Point	H = 0.31		
I. Forest Clearing Permitted Without Mitigation	I = 0.29		
J. Proposed Forest Clearing	J = 0.34		
K. Total Area of Forest to be Cleared	K = 0.28		
L. Reforestation for Clearing Above the Conservation Threshold	L = 0.09		
M. Reforestation for Clearing Below the Conservation Threshold	M = 0.00		
N. Credit for Retention above the Conservation Threshold	N = 0.02		
O. Total Reforestation Required	O = 0.07		
P. Total Afforestation Required	P = 0.00		
Q. Total Planting Requirement	Q = 0.07		

OWNER/DEVELOPER

BETHANY MARKETPLACE LLC
 8805-C PEAR TREE COURT
 ALEXANDRIA, VA 22309
 C/O CHARLES FAIRCHILD
 (703) 926-1812

SITE DEVELOPMENT PLAN

LANDSCAPE AND FOREST CONSERVATION PLAN

BETHANY MARKETPLACE
 ONE STORY COMMERCIAL BUILDING
 ELLICOTT INVESTMENTS, LLC SUBDIVISION - PARCEL B
 3240 BETHANY LANE
 ELLICOTT CITY, MD
 RETAIL SHOPPING CENTER
 PARCEL 993, PARCEL B
 HOWARD COUNTY, MARYLAND

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

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 8/31/15

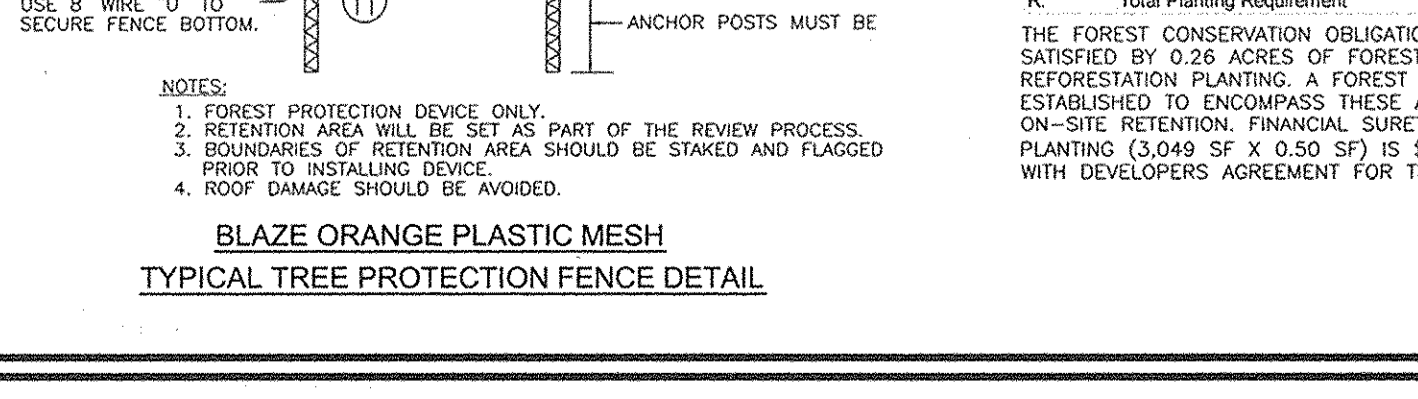
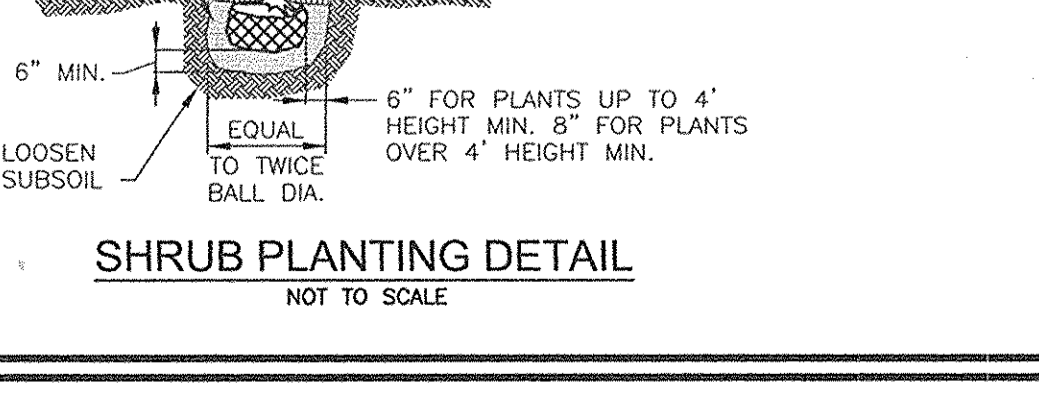
CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 9-08-15

DIRECTOR
 DATE: 9-8-15

DEVELOPER'S/BUILDER'S CERTIFICATE

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

SIGNATURE OF DEVELOPER
 DATE: 7-14-15



THE FOREST CONSERVATION OBLIGATIONS FOR THIS PROJECT HAVE BEEN SATISFIED BY 0.26 ACRES OF FOREST RETENTION AND 0.07 ACRES OF REFORESTATION PLANTING. A FOREST CONSERVATION EASEMENT WILL BE ESTABLISHED TO ENCOMPASS THESE AREAS. SURETY IS NOT REQUIRED FOR ON-SITE RETENTION. FINANCIAL SURETY FOR THE REFORESTATION OF PLANTING (3,049 SF X 0.30 SF) IS \$1,525.00. SURETY HAS BEEN POSTED WITH DEVELOPER'S AGREEMENT FOR THIS SITE PLAN, SDP-14-059.

Robert H. Vogel
 PROFESSIONAL ENGINEER
 M.D. DNR Qualified Professional
 USACE Wetland Delimitator
 Certification # W02-F93008104452

PROFESSIONAL CERTIFICATE

DESIGN BY: RHV
 DRAWN BY: KG/ER/CF/DJ
 CHECKED BY: RHV
 DATE: JULY 2015
 SCALE: AS SHOWN
 W.O. NO.: 12-08

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: 09-27-2016

6 SHEET OF 6