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SITE ANALYSIS DATA CHART

- GENERAL DATA
 - PRESENT ZONING: R-12, RA-15
 - APPLICABLE DPZ FILE REFERENCES: WP 14-010, ECP 13-076, F 14-131, WP 15-070
 - PROPOSED USE OF SITE OR STRUCTURE: VOLUNTEER FIRE STATION
 - PROPOSED WATER AND SEWER SYSTEMS: PUBLIC WATER AND SEWER
 - WATER AND SEWER CONTRACT NOS: S-346, 14-4827D
- AREA TABULATION:
 - TOTAL PARCEL AREA (GROSS AREA): 5.68 AC.
 - NET AREA: 5.68 AC.
 - AREA OF THIS PLAN SUBMISSION: (5.68 AC.)
 - LIMIT OF DISTURBED AREA: 4.73 AC (206,038 SF)
 - AREA OF 100 YEAR FLOODPLAIN: NA
 - AREA OF 25% & GREATER SLOPES: 0.45 AC.*
 - *These slopes do not meet parameters for regulated steep slopes.
 - BUILDING COVERAGE 28,085 SF 11% OF GROSS AREA
- OPEN SPACE: NONE REQUIRED
- PARKING ANALYSIS:
 - FLOOR 1: 11,217 SF
 - FLOOR 2: 11,925 SF * INCLUDES 2,901 SF HALL
 - APPARATUS BAYS: 10,940 SF
 - TOTAL: 34,052 SF

MAXIMUM NUMBER OF EMPLOYEES ON THE LARGEST SHIFT: 12

PARKING PROVIDED:

1 PER EMPLOYEE FOR LARGEST SHIFT	= 12 SPACES
10/1000 FOR HALL 2,901 S.F.	= 30 SPACES
TOTAL REQUIRED	= 42 SPACES

PARKING PROVIDED:

REGULAR PARKING SPACES:	= 85 SPACES
3 VAN ACCESSIBLE HC 2 REG HC:	= 5 SPACES
TOTAL PARKING SPACES PROVIDED:	= 90 SPACES

LOT/ PARCEL #	FACILITY NAME & NUMBER	PRACTICE TYPE	PUBLIC/ PRIVATE
PARCEL A	BIO RETENTION FACILITY #1	F-6	PUBLIC
PARCEL A	MICRO BIO RETENTION FACILITY #2	M-6	PUBLIC
PARCEL A	MICRO BIO RETENTION FACILITY #2	M-6	PUBLIC
PARCEL A	BIO RETENTION FACILITY #4	F-6	PUBLIC

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24' BY SILL ENGINEERING GROUP	09/28/2016

NO.	REVISIONS	DATE
1	FOR PRIVATE WATER AND PRIVATE SEWAGE SYSTEMS IN ACCORDANCE WITH THE MASTER PLAN OF HOWARD COUNTY	9-29-16
2		9-30-16
3		10-5-16

GENERAL NOTES

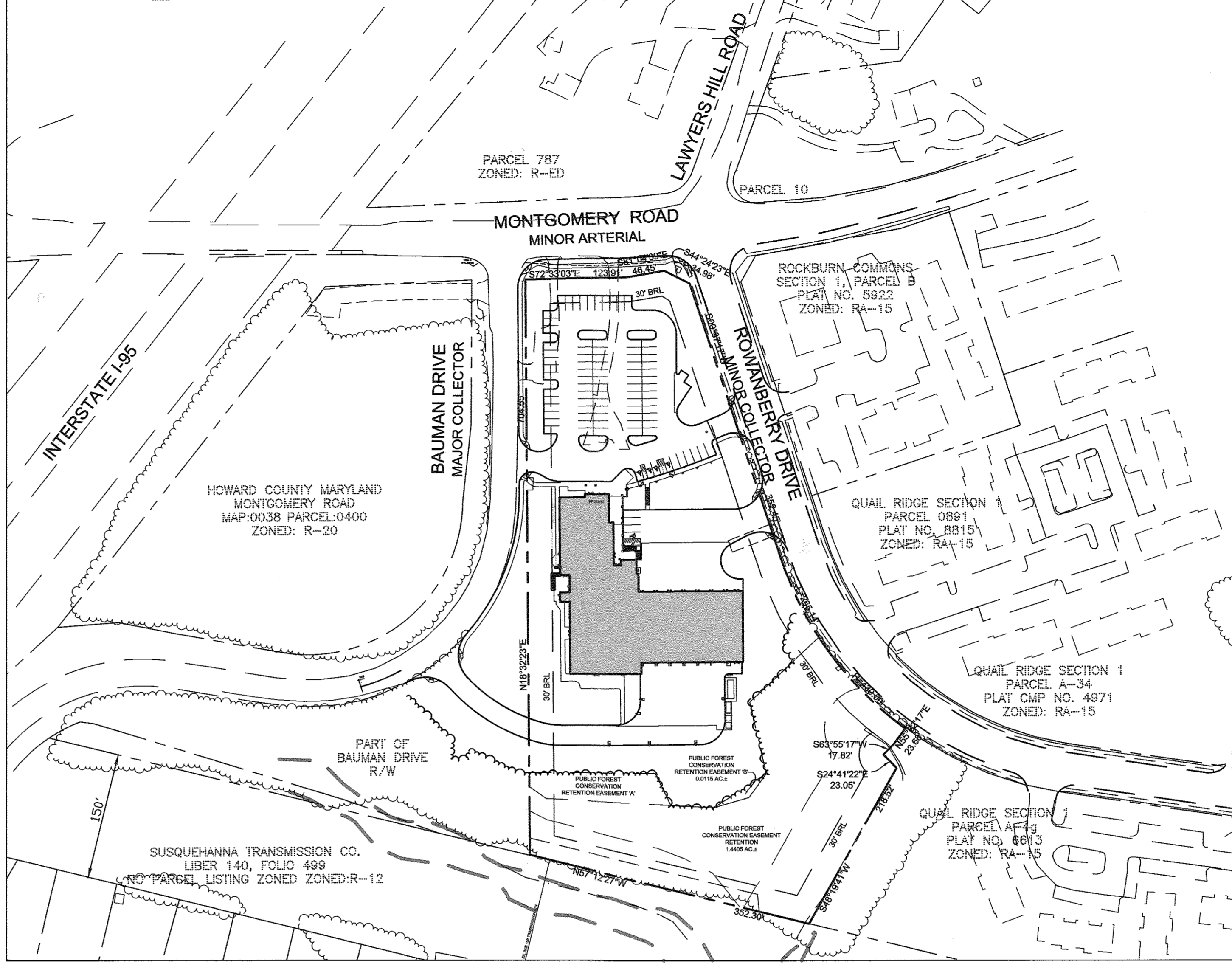
- ALL CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY, PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE OR AS SPECIFIED.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS / BUREAU OF ENGINEERING/ CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL NOTIFY MISS UTILITY AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE, AND 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 THE START OF WORK.
- THE CONTRACTOR SHALL TEST PIT EXISTING UTILITIES AT LEAST FIVE (5) DAYS BEFORE STARTING WORK SHOWN ON THESE DRAWINGS TO VERIFY THEIR LOCATION AND ELEVATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY IF LOCATION OF UTILITIES IS OTHER THAN SHOWN.
- APPROXIMATE LOCATIONS OF EXISTING UTILITIES ARE BASED SOLELY ON AVAILABLE RECORDS AND FIELD SURVEYS. CONTRACTOR SHALL VERIFY THE LOCATION OF ANY UTILITIES WHICH MAY BE IMPACTED BY THE WORK. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
- TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MARYLAND EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
- ALL PLAN DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED. NUMERICALLY WRITTEN DIMENSIONS TAKE PRECEDENCE OVER SCALE DIMENSIONS.
- ANY DAMAGE CAUSED BY THE CONTRACTOR, ANY SUBCONTRACTORS, OR ANY VENDOR TO THE EXISTING PUBLIC RIGHT-OF-WAY, OR ANY EXISTING PAVING, CURB & GUTTER, UTILITIES, SIDEWALKS, TREES, SHRUBS, LAWNS, OR ANY OTHER EXISTING CONDITIONS (NOT INDICATED TO BE DEMOLISHED), OR ANY NEWLY INSTALLED PROPOSED IMPROVEMENTS, SHALL BE REPAIRED OR REPLACED, TO OWNER'S SATISFACTION, AT CONTRACTOR'S SOLE COST AND EXPENSE.
- ALL FILL AREAS SHALL BE COMPACTED TO A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED AND VERIFIED IN ACCORDANCE WITH AASHTO T-99.
- THE PROJECT SITE IS LOCATED WITHIN THE METROPOLITAN DISTRICT.
- THE SUBJECT PROPERTY IS ZONED R-12 & RA-15 PER THE 2013 COMPREHENSIVE ZONING PLAN AND THE 02/02/04 COMP LITE ZONING AMENDMENTS.
- PUBLIC WATER TO BE UTILIZED. (CONTRACT NO. 14-4827D, PATAPSCO WATERSHED)
- PUBLIC SEWER IS TO BE UTILIZED. (CONTRACT NO. S-346, PATAPSCO WATERSHED)
- ALL HYDRAULIC DATA IS FOR THE 10-YEAR STORM UNLESS OTHERWISE NOTED.
- STORM WATER MANAGEMENT IS PROVIDED SITE DESIGN BIORETENTION (F-6), MICRO BIORETENTION (M-6), GREEN ROOF (A-1) AND IS PUBLICLY OWNED AND MAINTAINED BY HOWARD COUNTY.
- ELECTRIC, GAS, CABLE AND TELEPHONE LINES DESIGNED BY OTHERS.
- THE EXISTING TOPOGRAPHY WITHIN THE LIMIT OF DISTURBANCE IS BASED ON A FIELD RUN SURVEY BY SHANBERGER AND LANE, DATED JANUARY 2013. THE COURSES AND COORDINATES SHOWN THEREON ARE BASED ON THE FOLLOWING HOWARD COUNTY MONUMENTS:

POINT	NORTHING	EASTING	ELEVATION
3844	562977.6414	1386288.0606	223.372
0021	562745.8233	1386542.0529	226.190
- EXISTING WETLANDS ARE SHOWN WITH ASSOCIATED WETLAND BUFFER. WETLANDS DELINEATION WAS PERFORMED BY ECO-SCIENCE PROFESSIONALS, INC. ON FEB 22, 2013.
- THERE ARE NO KNOWN CEMETERIES OR BURIAL GROUNDS ON THIS SITE.
- A FOREST STAND DELINEATION WAS PREPARED BY ECO-SCIENCE PROFESSIONALS DATED FEBRUARY 22, 2013.
- FOREST CONSERVATION: THIS PROJECT COMPLIES WITH THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION BY PAYMENT OF A FEE-IN-LIEU IN THE AMOUNT OF \$7,840.84 AND RETAINING 1.58 AC. OF FOREST.
- THE LANDSCAPE PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND OF THE HOWARD COUNTY LANDSCAPE MANUAL. PROPOSED PLANTING CALCULATIONS CAN BE FOUND ON SHEET 35. THIS IS A COUNTY PROJECT; LANDSCAPING SURETY IS NOT REQUIRED.
- NO 100 YEAR FLOODPLANS OR REGULATED STEEP SLOPES EXIST ON SITE.
- NO GRADING, REMOVAL OF TREES, PLANTING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE REQUIRED WETLANDS, STREAMS, OR THEIR BUFFERS, FOREST CONSERVATION EASEMENT AREAS AND 100 YEAR FLOODPLAIN, EXCEPT AS APPROVED BY HOWARD COUNTY IN WP 14-010 AND THE MARYLAND DEPARTMENT OF THE ENVIRONMENT LETTER OF AUTHORIZATION.
- THE SUBSURFACE EXPLORATION AND GEOTECHNICAL ENGINEERING ANALYSIS FOR THIS PROJECT IS CONTAINED IN REPORTS PREPARED BY HERBST BENSON & ASSOCIATES DATED JULY 2015.
- THE PROPOSED BUILDING WILL HAVE AN AUTOMATIC SPRINKLER SYSTEM AND AN INSIDE WATER METER.
- SIGNAGE AT THE STREET AND ON THE BUILDING IDENTIFYING THE ADDRESS IS REQUIRED.
- ALL LANDSCAPING SHALL BE PLANTED WITHIN 7.5 FEET OF EACH SIDE OF THE FIRE DEPARTMENT CONNECTION (FDC)
- 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.
- ON-SITE PARKING LOT AND SIDEWALK LIGHTING SHALL BE AS SHOWN IN TABLES ON SHEETS 5 & 6. ALL EXTERIOR LIGHT FIXTURES SHALL BE ORIENTED TO DIRECT LIGHT INWARDS AND DOWNWARDS. ON-SITE AWAY FROM ALL ADJOINING PUBLIC ROADS IN ACCORDANCE WITH SECTION 134 OF THE HOWARD COUNTY ZONING REGULATIONS.
- WAIVER PETITION WP-14-010 WAS APPROVED ON 10/29/13
- THE DIRECTOR OF THE DEPARTMENT OF PLANNING AND ZONING CONSIDERED YOUR REQUEST FOR A WAIVER FROM THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AS OF THE DATE OF THIS LETTER. THE PLANNING DIRECTOR APPROVED YOUR REQUEST TO WAIVE:
 - SECTION 16.116 - RESTRICTING GRADING ACTIVITIES AND THE REMOVAL OF VEGETATION WITHIN WETLANDS AND STREAMS (AND ASSOCIATED BUFFERS), AS WELL AS ON STEEP SLOPES (25% OVER 10 VERTICAL FEET)
 - SECTION 16.117 - DESIGN IN ACCORDANCE WITH EXISTING TOPOGRAPHY AND TO MINIMIZE CLEARING
 - SECTION 16.1200(A) - AVOID FOREST REMOVAL IN PRIORITY RETENTION AREAS AND AVOID REMOVAL OF TREES WITH 30" OR GREATER (SPECIMEN TREES)

- APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:
- OBTAIN A PERMIT FROM MDE FOR THE WETLAND AND WETLAND BUFFER IMPACTS IN CONJUNCTION WITH THE JPA SUBMITTED ON 28.2013.
 - MAINTAIN GROUNDWATER FLOW TO THE EPHEMERAL STREAM AND REMAINING WETLANDS WITH THE INSTALLATION OF AN UNDERDRAIN TO PIPE TO THE GROUNDWATER THROUGH THE SITE TO MAINTAIN THE FLOW PATTERN.
 - FOR EACH OF THE SPECIMEN TREES REMOVED, 2 SHADE TREES OF THE SAME SPECIES (TULIP POPLAR) ARE TO BE PLANTED FOR A TOTAL OF 4 TREES. PLEASE SHOW THESE REPLACEMENT TREES ON THE LANDSCAPE PLAN AND INDICATE THEIR PURPOSE. SINCE TULIP POPLARS ARE NOT RECOMMENDED FOR LANDSCAPE TREES, PLEASE PLACE THESE TREES IN THE INTERIOR OF THE SITE OR WITHIN THE SOUTHWEST CORNER OF THE SITE. A SAFE PLANTING AREA CANNOT BE SELECTED. PLEASE PROVIDE ANOTHER LARGE SHADE TREE SPECIES WITHIN THE RECOMMENDED PLANT LIST OF THE LANDSCAPE MANUAL.
 - SUBMISSION OF A SITE DEVELOPMENT PLAN IN COMPLIANCE WITH THE ABOVE CONDITIONS.

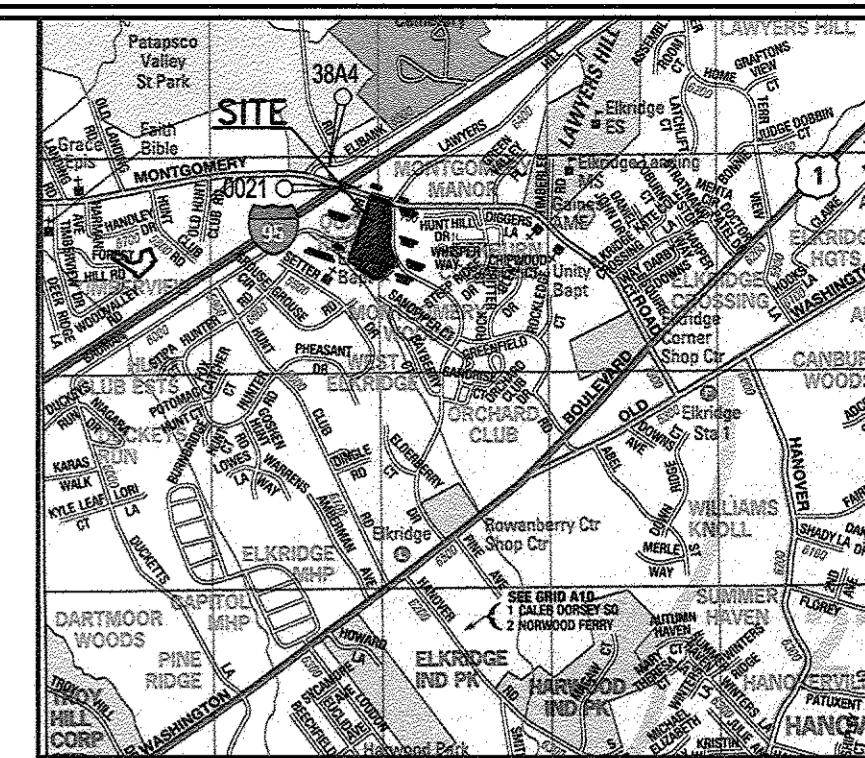
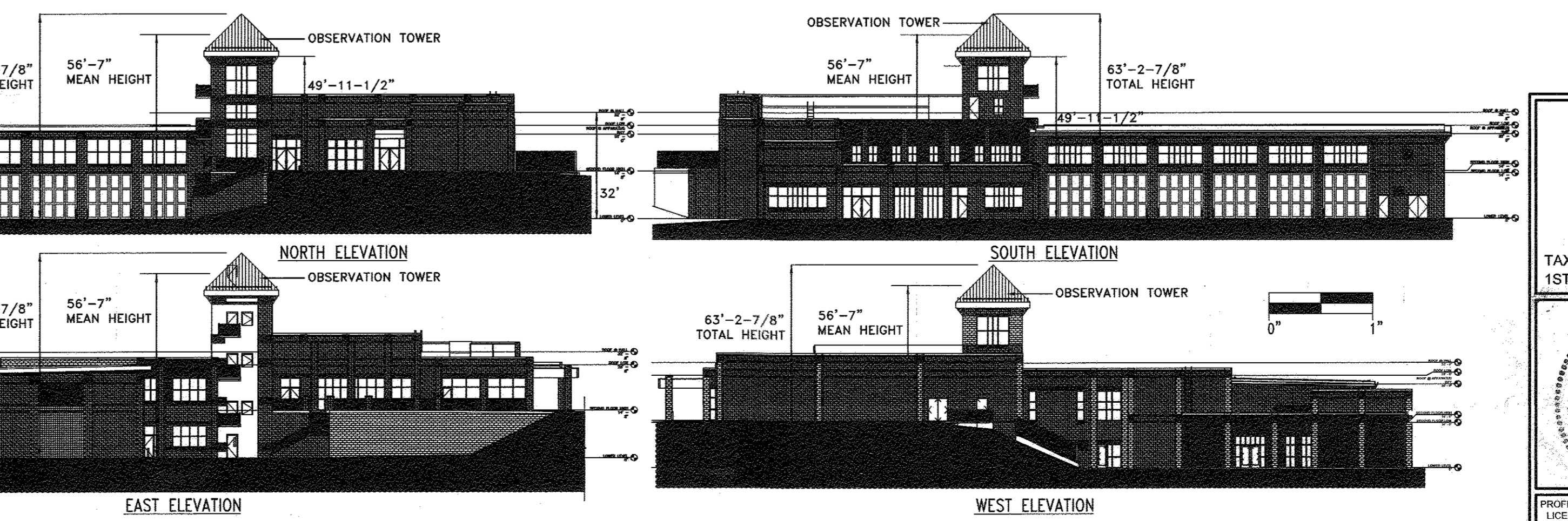
- THE FINAL APPEARANCE AND AESTHETICS OF ALL SITE IMPROVEMENTS ARE ESSENTIAL AND MATERIAL PARTS OF THE CONTRACT. SITE IMPROVEMENTS THAT ARE FULLY FUNCTIONAL, BUT WHICH DEVIATE FROM THE DESIGN AND THE AESTHETIC REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS DO NOT CONSTITUTE SUBSTANTIAL COMPLETION OF THE CONTRACT. ALL SITE IMPROVEMENTS SHALL COMPLY WITH GRAPHIC REPRESENTATIONS, NOTES AND SPECIFICATIONS REGARDING VERTICAL AND HORIZONTAL ALIGNMENT, SPACING, COLOR, AND FINISHES. SPECIFIC AESTHETIC REQUIREMENTS ARE SET FORTH ON THESE PLANS AND IN THE SPECIFICATIONS REGARDING GRADING, UTILITIES, RIP-RAP, PAVEMENTS, FENCINGS, WALLS, AND PLANTS.
- THIS PLAN IS SUBJECT TO CONDITIONS OF CLEANUP OR-INN (HOCO DPM / ELKDRIDGE FIRE STATION) 2013-61172-002 AND STATE OF MARYLAND DEPARTMENT OF THE ENVIRONMENT, WATER MANAGEMENT ADMINISTRATION, LETTER OF AUTHORIZATION, 13-WF-3213 / 201361172 EFFECTIVE 2/24/2014.
 - SPEED STUDY PREPARED BY TRAFFIC CONCEPTS DATED 3/8/13. NO TRAFFIC STUDY IS REQUIRED FOR THIS PROJECT.
 - A DESIGN MANUAL WAIVER TO HOWARD COUNTY DESIGN MANUAL VOLUME III, SECTIONS 2.5.2.H INTERSECTION SIGHT DISTANCE AND SECTION 2.3.3.A STOPPING SIGHT DISTANCE FOR THE ENTRANCE TO THE FIRE STATION WAS APPROVED 6/17/13 BY THE DIRECTOR OF PUBLIC WORKS.
 - A DESIGN MANUAL WAIVER TO HOWARD COUNTY DESIGN MANUAL VOL. 1 SECT. 5.2.1.A REQUIRING 10 YEAR AND 100 YEAR QUANTITY MANAGEMENT IN THE DEEP RUN WATERSHED WAS APPROVED BY THE DIRECTOR OF PUBLIC WORKS ON 5/29/14.
 - A DESIGN MANUAL WAIVER TO HOCO DESIGN MANUAL VOLUME IV STD. DETAIL R. 6.09 TO REDUCE THE MINIMUM RADIUS TO 15' FROM 25' AND TO REDUCE THE MINIMUM 2 WAY WIDTH FROM 24' TO 15' WAS APPROVED BY THE DIRECTOR OF PUBLIC WORKS ON 5/29/14.
 - STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL VOL. III (1993) AND AS MODIFIED BY "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 1993)". A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
 - THE TOWER IS CLASSIFIED AS AN OBSERVATION TOWER IN A LETTER DATED JUNE 6, 2014 FROM THE DEPARTMENT OF PLANNING AND ZONING AND IS THEREFORE EXEMPT FROM HEIGHT REQUIREMENTS.
 - IN ACCORDANCE WITH SECTION 134, LIGHTING WILL BE DIRECTED AWAY FROM PUBLIC RIGHTS OF WAY AND RESIDENTIAL LOTS.
 - ALL RECREATION TANKS AND OR WATER SEPARATORS ASSOCIATED WITH VEHICLE WASHING AND SERVICING MUST BE LICENSED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT.
 - HEALTH DEPARTMENT APPROVAL OF THIS SITE DEVELOPMENT PLAN (SDP) DOES NOT ENSURE APPROVAL OF BUILDING PERMIT APPLICATIONS ASSOCIATED WITH THIS PLAN. PERMIT PLANS FOR CERTAIN FACILITIES ARE TO BE CONSTRUCTED WITHIN THE LIMITS DESCRIBED BY THIS SDP. WILL REVIEW AND APPROVE PER THE HEALTH DEPARTMENT. SIGNATURES MAY NOT BE LIMITED TO THOSE WHICH HAVE SIGNING POWERS OR THAT SELL PREPARED OR PACKAGED FOODS, OR THAT MAY HAVE EQUIPMENT THAT EMITS RADIATION.
 - SHOULD THE CONTRACTOR DISCOVER A WELL DURING THE DEVELOPMENT OF THIS PROPERTY, WORK IN THE VICINITY OF THE WELL IS TO CEASE IMMEDIATELY AND THE HEALTH DEPARTMENT NOTIFIED. IT IS THE OWNER'S RESPONSIBILITY THAT THE HEALTH DEPARTMENT IS NOTIFIED. A LICENSED WELL DRILLER MUST SEAL THE WELL AND THE WELL ABANDONMENT REPORT SUBMITTED TO THE HEALTH DEPARTMENT.
 - PLAT TO ELIMINATE 200' PUBLIC UTILITY EASEMENT AND INCREASE THE FOREST CONSERVATION RETENTION EASEMENT RECORDED AS PLAT 23933-23934

Capital Project No. F-5964



Overall Plan 1" = 100'

SITE DEVELOPMENT PLAN FOR ELKDRIDGE FIRE STATION PARCEL A HOWARD COUNTY, MARYLAND

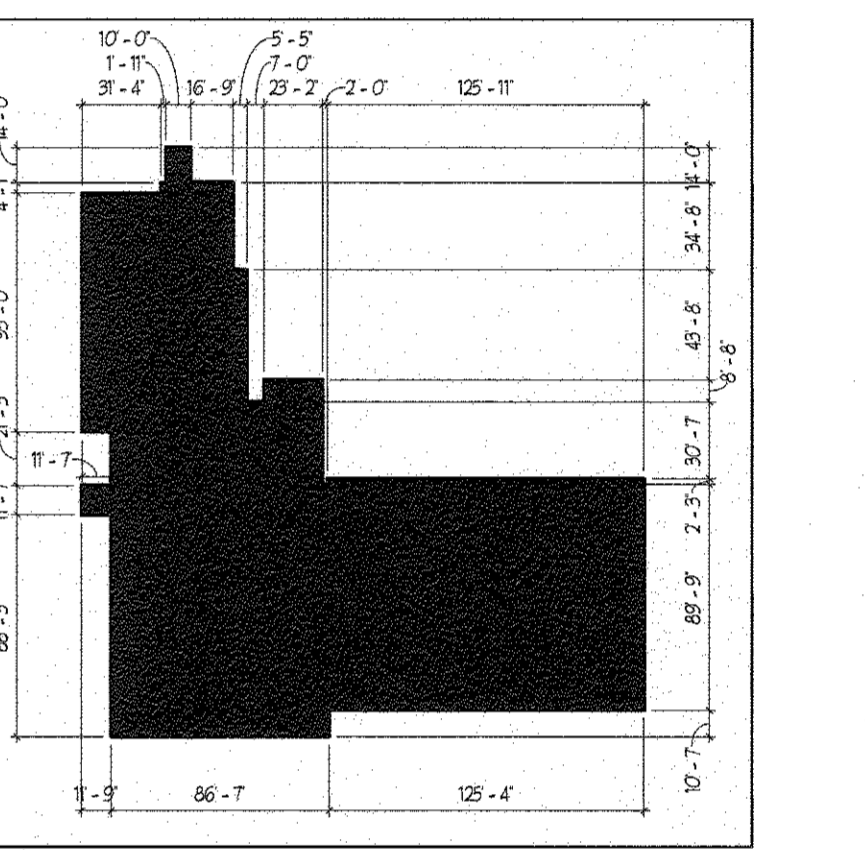


Vicinity Map - Scale: 1" = 2000'
ADC Map 4937-B7 & C7
ADC The Map People - Permitted Use # 20612205

BENCHMARK DESCRIPTIONS

The existing topography within the limit of disturbance is based on a field run survey by Shanberger and Lane, dated January 16, 2013. The courses and coordinates shown hereon are based on the following Howard County monuments:

Point	Northing	Easting
3844	562977.6414	1386288.0606
223.372		
0021	562745.8233	1386542.0529
226.190		



BUILDING PLAN VIEW

ADDRESS CHART

PARCEL	DESCRIPTION
402/403/A2	5700 ROWANBERRY AVENUE

GENERAL NOTES CONT.

- SHOULD THE CONTRACTOR ENCOUNTER A SEPTIC SYSTEM DURING THE DEVELOPMENT OF THE PROPERTY, WORK IN THE AREA OF THE SEPTIC SYSTEM MUST CEASE IMMEDIATELY AND THE HEALTH DEPARTMENT NOTIFIED. IT IS THE OWNER'S RESPONSIBILITY THAT THE HEALTH DEPARTMENT IS NOTIFIED. A SEPTIC SYSTEM DISCOVERED UNDER THESE CIRCUMSTANCES MUST BE PUMPED DRY AND PROPERLY ABANDONED. ONLY CLEAN EARTH MATERIALS MAY BE USED TO FILL VOIDS LEFT BY ABANDONED SEPTIC SYSTEM COMPONENTS. SHOULD THE CONTRACTOR ELECT TO ABANDON A DISCOVERED SEPTIC SYSTEM, A REPORT WITH ATTACHMENTS (I.E. PHOTOGRAPHS AND COPIES OF INVOICES) MUST BE SUBMITTED TO THE HEALTH DEPARTMENT.
- WAIVER PETITION WP-15-070: THE PLANNING DIRECTOR APPROVED THE REQUEST TO WAIVE SECTIONS 16.156(d), 16.156(m), 16.144(c) AND 16.144(g) IN ORDER TO EXTEND THE DEADLINE FOR FINALIZING THE DEED OF FOREST CONSERVATION EASEMENT AND THE SUBMISSION OF THE PLAT MYLAR ORIGINAL AND SITE DEVELOPMENT PLAN ORIGINAL.
- APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:
 - THE APPLICANT MUST EXECUTE A DEED OF FOREST CONSERVATION EASEMENT WITHIN 6 MONTHS OF THE CURRENT DEADLINE (ON OR BEFORE JULY 23, 2015).
 - THE APPLICANT MUST SUBMIT THE FINAL PLAN ORIGINAL MYLAR WITHIN 6 MONTHS OF THE CURRENT DEADLINE (ON OR BEFORE SEPTEMBER 20, 2015).
 - THE APPLICANT MUST SUBMIT THE SITE DEVELOPMENT PLAN ORIGINAL MYLAR WITHIN 10 MONTHS OF THE CURRENT DEADLINE (ON OR BEFORE OCTOBER 24, 2015).
 - PLEASE ADD A NOTE TO F-14-131 AND SDP-14-075 INDICATING THIS WAIVER PETITION, DECISION AND CONDITIONS OF APPROVAL.

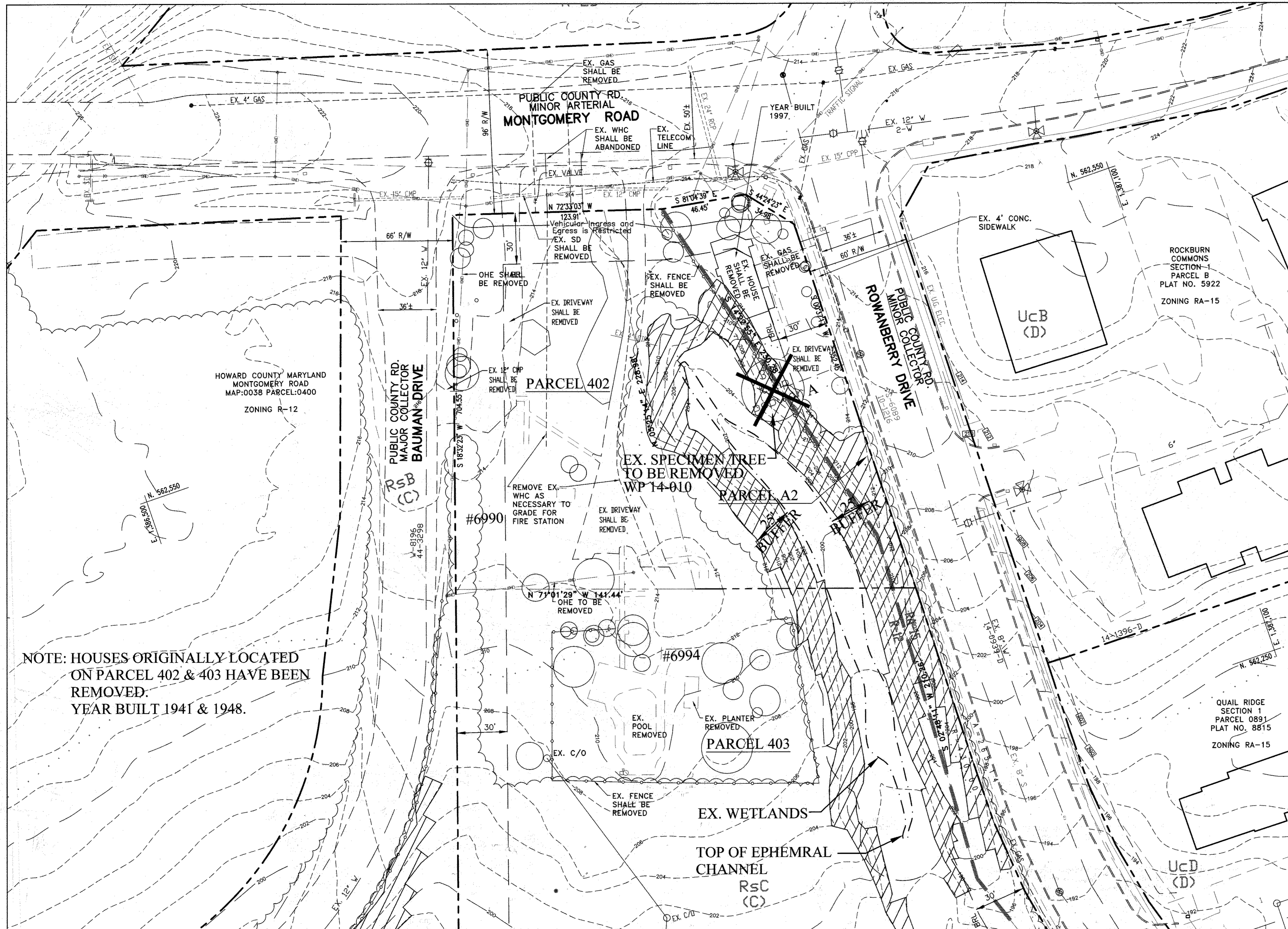
ENGINEER	OWNER/DEVELOPER
SILL ENGINEERING GROUP, LLC HOWARD COUNTY, MARYLAND 11130 DOVEDALE COURT, SUITE 200 MARRIOTTSVILLE, MARYLAND 21104 OFFICE: 443-325-5067 FAX: 410-696-2022 EMAIL: PAUL@SILLENGINEERING.COM	MARK STROMDAHL HOWARD COUNTY, MARYLAND 9250 BENEVOLENT ROAD COLUMBIA, MD 21045 PHONE: 410-313-5757 EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV

REVISED COVER SHEET
ELKDRIDGE FIRE STATION
PARCEL A
"GREEN BUILDING"

TAX MAP 38 GRID 12 1ST ELECTION DISTRICT	PARCEL 402 & 403 A2 HOWARD COUNTY, MARYLAND
DESIGN BY: JS	CHECKED BY: PS
DRAWN BY: AEA	SCALE: AS SHOWN
DATE: SEPTEMBER 28, 2016	PROJECT #: 16-020
SHEET #: 1 of 41	

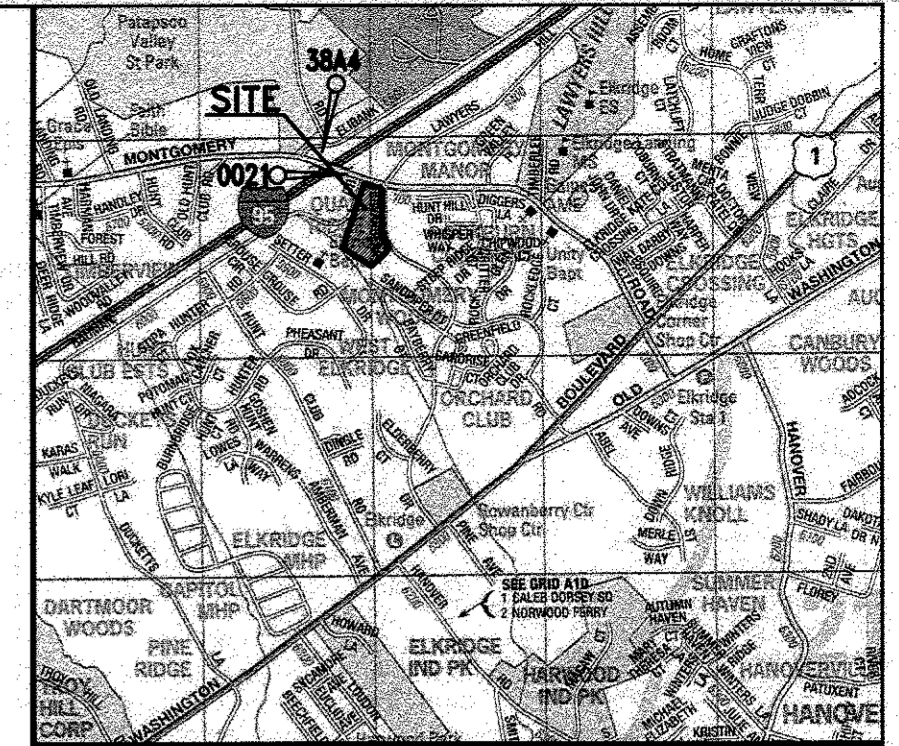
SILL ENGINEERING GROUP, LLC
11130 Dovedale Court, Suite 200
Marriottsville, Maryland 21104
Phone: 443-325-5076
Fax: 410-696-2022
Email: info@sillengineering.com
Civil Engineering for Land Development

PROFESSIONAL CERTIFICATION: 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. 38205, EXPIRATION DATE: JUNE 30, 2017



BENCHMARKS:
The existing topography within the limit of disturbance is based on a field run survey by Shanberger and Lane, dated January 16, 2013. The courses and coordinates shown hereon are based on the following Howard County monuments:

Point	Northing	Eastings	Elevation
38A4	562477.6414	1386288.0606	223.372
0021	562745.8233	1386542.0529	226.190



Vicinity Map - Scale: 1" = 2000'
ADC Map 4937-B7 & C7
ADC The Map People - Permitted Use # 20612205

LEGEND

- EXISTING**
- Boundary: - - - - -
 - Contour: --- 220 ---
 - Soils: Fa (D), RsC (C)
 - Nontidal Wetlands: - - - - -
 - 25' MDE NTW Buffer: - - - - -
 - Treeline: ~~~~~
 - Building: []
 - Road: - - - - -
 - Fence: - - - - -
 - Storm Drain: - - - - - EX. 24" RCP
 - Sanitary: - - - - -
 - Electric: - - - - -
 - Water: - - - - -
 - Utility Pole: ⊕
 - Deciduous Tree: ○
 - Steep Slopes (25+%): ▨

NOTE: HOUSES ORIGINALLY LOCATED ON PARCEL 402 & 403 HAVE BEEN REMOVED. YEAR BUILT 1941 & 1948.

MATCH LINE SHEET 3

No.	Description	REVISIONS	Date
1	Delete parking spaces, access drive, service drive, relocate dumpster, gen. add traffic sig. conf. plans, red. access drive from 30' to 24', by Sill		5/18/16

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Development Engineering Division 9-16-15

Chief, Division of Land Development 10-29-15

Director 10-30-15

EXISTING INFORMATION AND CONDITIONS NOT GUARANTEED. VERIFY CONDITIONS AND TEST PIT EXISTING UTILITIES. The correctness and completeness of the information showing existing conditions is not guaranteed. Before beginning construction, the contractor shall perform the following tasks:

- At least SEVEN DAYS prior to installing sediment control measures, mark/paint all utilities, and maintain markings throughout construction. This requirement includes marking of utilities by Miss Utility (1-800-257-7777) and the marking of on-site utilities that might not be marked by MISS Utility; the contractor shall either mark these on-site utilities himself or by subcontracting with a private utility locating firm.
- Verify the general accuracy of the existing conditions shown on the site drawings by visual inspection of the surface of the site and all existing structures, paving and utility appurtenances visible thereon;
- With regard to the structures and appurtenances observed as required per item (b) above, determine the type, size, location and elevation of all those existing utilities (including but not limited to all wells, storm drains, sanitary lines, water lines, gas lines, steam lines, electric lines, telephone lines, and communication ducts, and all manholes, inlets, clean-outs, valves, handholes, etc. related thereto) within the limits of construction in order to (i) avoid damaging or disrupting service, and (ii) to coordinate and facilitate construction of proposed utilities and other improvements. In addition to the Contractor's visual observation and the utility marking (as required above), the contractor

shall schedule and complete Test Pitting of all existing utilities (for the purposes set forth above) and shall do so in a timely manner in order to allow time for analysis and redesign by Tesseract and/or other consultants, without delaying the project schedule.

(a) Immediately report to Architect and Engineer the results of steps (a), (b), and (c) which might indicate any discrepancy between actual conditions and those shown on the plan, and any potential conflicts between proposed improvements and existing condition.

Test pitting defined: For the purposes of this contract, excavation of utility trenches does not constitute test pitting. Test pitting is a separate operation completed at least seven days before utility installation is scheduled to begin. Test pitting means excavation to expose existing utilities in two situations: (i) where proposed improvements cross existing utilities (pipes, lines, structures, appurtenances) whether shown on the plan or marked by MISS UTILITY and the contractor in the field (as required above), and (ii) where proposed utilities are designed to connect to existing utilities. Test pitting includes recording the type, size, location and elevation of the exposed utilities, and emailing the record to the Architect, Tesseract and the Owner. The record may be a legible hand-written field sketch.

COORDINATE WITH ELECTRIC, GAS, & TELECOMMUNICATIONS COMPANIES. In addition to the above requirements, the contractor shall coordinate with local private utility companies where temporary disconnection, relocation or removal of utilities is required for the contractor to construct the proposed buildings and site improvements.

ABBREVIATIONS (not alphabetical):

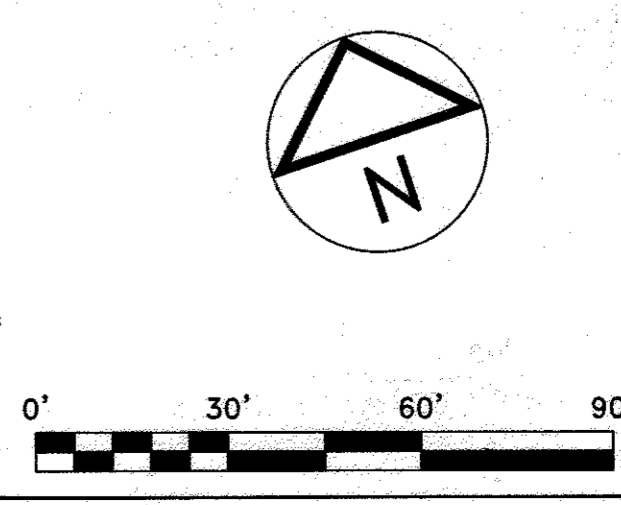
PROP	Proposed*	DIP	Ductile iron pipe, class 54**
EX	Existing	PVC	Polyvinyl chloride pipe, schedule 40**
BIT	Bituminous	HDPE	High Density Polyethylene Pipe, smooth interior ASTM F 2808**
CONC	Concrete	CMP	Corrugated Metal Pipe, aluminum**
MH	Manhole	RCP	Reinforced concrete pipe, class IV**
SD	Storm Drain	C&G	Concrete curb & gutter
		SNW	Storm Water Management
C/O	Clean-out	INV	Invert Elevation
SAN	Sanitary Sewer	FF	Finished floor elevation
FH	Fire Hydrant	BF	Basement floor elevation
TO	Top of curb	BC	Bottom of curb
TS	Top of step	BS	Bottom of step
TB	Top of Boulder	BB	Bottom of Boulder
TW	Top of Wall	BW	Bottom of Wall
PC	Point of Curvature	PS	Parking space
PT	Point of Tangency	HC	Handicapped parking space
PI	Point of Intersection	TYP	Typical

*Proposed means work included in the base contract unless accompanied by the phrases "N.I.C." or "By Others."

**Unless otherwise noted on these drawings.

ENGINEER
Tesseract Sites, Inc.
401 Washington Ave. Suite 303
Towson, Maryland, 21284
Contact: Jeffrey Schwab
ph: 410-321-7600
fax: 410-321-7601

OWNER AND DEVELOPER
Mark Stromdahl
Howard County Maryland
4250 Bendix Road
Columbia, MD 21045
ph: 410-313-5757
email: mstromdahl@howardcountymd.gov



Tesseract
JEFFREY SCHWAB
401 Washington Ave. Suite 303
Towson, Maryland, 21284
p 410.321.7600
f 410.321.7601

Existing Conditions Plan
North
Elkridge Fire Station
Parcel A
"Green Building"
Howard County, Maryland

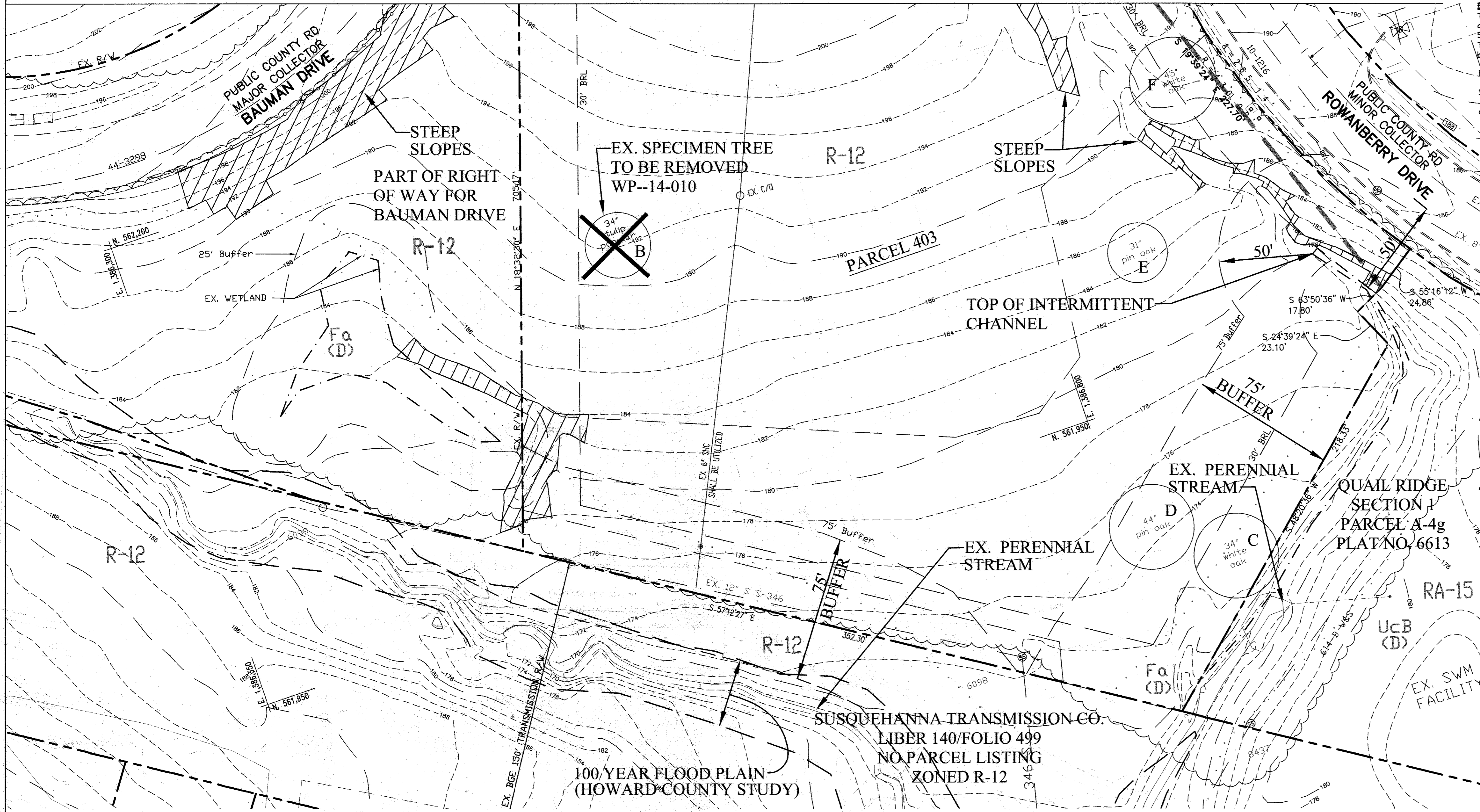
Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 14230, Expiration Date: 12/09/16.

LOT/Parcel	LIBRARY/PLANS	PLANS
402, 403 A2	14101/512 13842/358	N/A

DATE	DATE	DATE	DATE
12	R-12, RA15	38	1ST

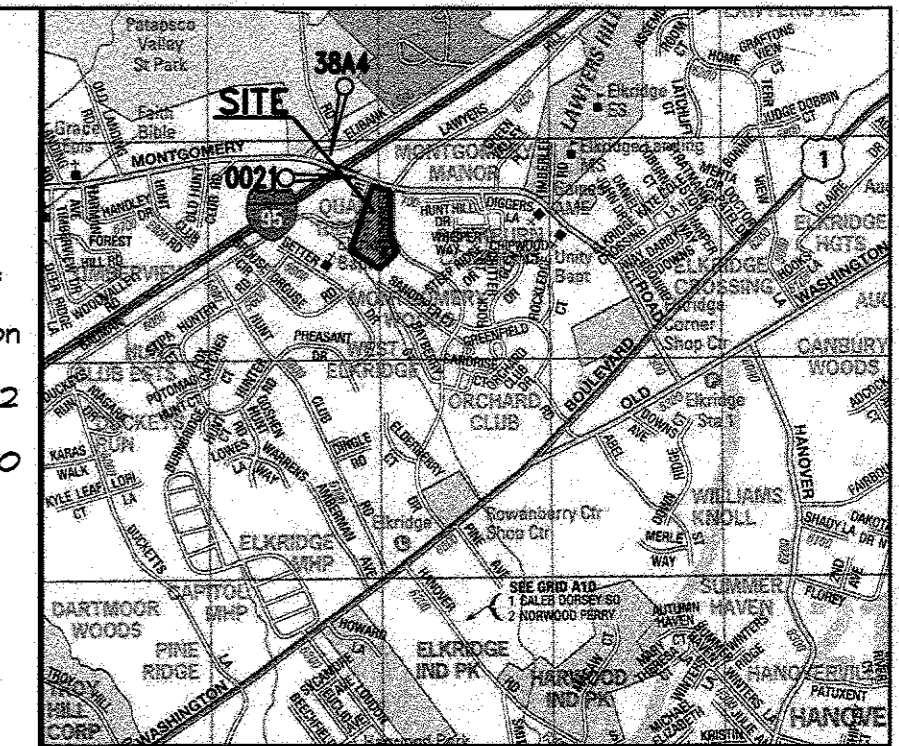
Date: 09/02/15
Proj. #: 12021
Scale: 1" = 30'
2 of 41

SDP 14-075



BENCHMARKS:
The existing topography within the limit of disturbance is based on a field run survey by Shanaberger and Lane, dated January 16, 2013. The courses and coordinates shown hereon are based on the following Howard County monuments:

Point	Northing	Easting	Elevation
38A4	562477.6414	1386288.0606	223.372
0021	562745.8233	1386542.0529	226.190



Vicinity Map - Scale: 1" = 2000'
ADC Map 4937-B7 & C7
ADC The Map People - Permitted Use # 20612205

PRE-DEMOLITION PROCEDURES AND ON-SITE MEETING. Before commencing site clearing or installation of sediment control measures, the Contractor shall:

- Field verify the coordinates and elevations of key boundary corners and topographic features;
- Field verify existing conditions, have MISS Utility and private utility locating services locate existing utilities, and confirm the status (live or abandoned) of all utilities;
- As required by the sediment control plans, install tree protection and delineate the limit of disturbance (with flagging or orange safety fence);
- Delineate the limits of demolition and clearing by marking pavement, curbs, walls, fences, utility structures and appurtenances, trees and vegetation, and other existing improvements to be removed, and pavement to be milled;
- Flag any other vegetation, improvements, or obstructions that the contractor believes are necessary to remove (in whole or part) in order to facilitate construction;
- Flag items to be salvaged (if any); and
- After completing the requirements listed above, arrange and conduct an on-site meeting with the Architect, Engineer, and Owner to observe the delineation, flagging, stake-out and other items required above. Request the meeting at least three days in advance of the desired meeting date.

PROTECTION OF EXISTING VEGETATION.
Protect existing trees and other vegetation (unless clearly shown to be removed) from: (i) cutting, breaking or skinning of branches and roots; (ii) skinning or bruising of bark and (iii) damage to roots and root environment. Do not use trees for surveying purposes.

Within the dripline of trees do not permit: grading; stockpiling of earth or construction debris; storage of materials or equipment; or vehicular traffic or parking of vehicles.

Install Tree Protection Fence in areas shown on plan.

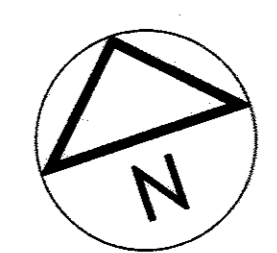
In the event a tree or shrub is damaged by construction, the Owner has the option of requiring the Contractor to employ a licensed arborist to repair damage to trees and shrubs; or of requiring the Contractor to remove the damaged plant and replace it with the same size and species. If the size of the plant cannot be matched, the Contractor shall be required to issue a credit of \$150 per inch of caliper not attained by the replacement plant. (For example, a 5" caliper replacement for a 15" caliper tree would also require a \$1,500 credit.) The contractor does not have the right to prune trees and shrubs merely to make construction more efficient or accessible.

STRIPING AND STOCKING TOPSOIL.
Strip topsoil in all areas beneath proposed buildings, structures, pavements and in all areas of cut. Where existing trees are indicated to remain, leave existing topsoil in place within drip lines to prevent damage to root system.

Strip topsoil to whatever depths are encountered in a manner to prevent intermingling with underlying subsoil or other objectionable material. Remove heavy growths of grass and weeds from areas before stripping.

The Contractor may elect to purchase topsoil in lieu of stripping and stockpiling topsoil (at no additional cost to the Owner), but in any case, shall stockpile and/or purchase sufficient topsoil to place topsoil on all disturbed areas not to be paved so that after fine grading there is a layer of topsoil no less than 4 inches thick.

Stockpile topsoil in storage piles in areas indicated on plans or as directed by a representative of the Owner. Construct storage piles to provide free drainage of surface water. Cover storage piles as required to prevent wind erosion.



No.	Description	DATE
1	Delete parking spaces, access drive, service drive, rel. dumpster, gen., add traffic signal control plans, reduce access drive from 30-24' by Soil Engineering Group.	5/16/16

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chf. Engineer 9-16-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION

10-29-15
CHIEF, DIVISION OF LAND DEVELOPMENT

10-30-15
DIRECTOR

PROTECTION AND OPERATION OF EXISTING UTILITIES. Existing utilities not designated to be demolished or abandoned shall be protected from damage, and utility service to facilities occupied by Owner or others shall not be interrupted without prior written authorization of the Owner, and provision of acceptable temporary utility services. Provide a minimum 48-hours notice to the Owner and receive written notice to proceed before interrupting any utility.

PROTECTION OF EXISTING IMPROVEMENTS: Provide protections necessary to prevent damage to existing improvements. Any damage to the existing public right-of-way, or any existing paving, curb & gutter, utilities, sidewalks, trees, shrubs, lawns, or any other existing conditions (not indicated to be demolished), or any newly installed proposed improvement, shall be repaired or replaced, to owner's satisfaction, at Contractor's sole cost and expense.

TRAFFIC: Conduct site-clearing operations to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Do not close or obstruct streets, walks, or other occupied or used facilities without permission from authorities having jurisdiction.

LAWN MAINTENANCE. Maintain lawns (existing to remain and newly established) within the limit of disturbance and within adjacent right-of-ways throughout construction; protect lawns from excessive foot traffic; fertilize and water lawns as required to establish a thick stand of turf; provide regular mowing to keep grass between 2 1/2" to 4" high.


MILLING AND SAW CUTTING OF ASPHALT PAVEMENT. Where the surface course of asphalt to be removed abuts existing asphalt to remain, removal shall be by milling done in areas and along lines approved by the Owner. Where asphalt to be removed will abut proposed concrete, saw cutting or milling is permitted. Where removal of non-surface asphalt layers is required, mill or saw cut those layers.

REMOVAL OF CONCRETE CURB, GUTTER, AND PAVEMENTS TO NEAREST JOINT. When removal of concrete curb, curb & gutter, sidewalk, and other concrete pavement is expressly required by the drawings or is required to construct or install utilities or any other site improvement, remove the entire section of concrete to the closest expansion joint beyond the required work. The base contract shall include said removal and replacement at no additional cost to the owner.

REMOVAL WASTE FROM OWNER'S PROPERTY: Remove all demolished materials, cleared vegetation, and construction debris from the Owner's property in a lawful manner and at no additional cost to the Owner.

Howard County, Maryland (MAP #27)	Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI	K Factor Rock Free	K Factor Whole Soil
	Fa	Fallsington sandy loam, 0 to 2 percent slopes	0.2	3.5%	.02	.02
	R5B	Russett fine sandy loam, 2 to 5 percent slopes (Highly Erodible)	0.8	14.1%	.28	.24
	R5C	Russett fine sandy loam, 5 to 10 percent slopes (Highly Erodible)	4.5	79.2%	.28	.24
	UcB	Urban land-Chillum-Beltsville complex, 0 to 5 percent slopes	0.1	1.8%		
	UcD	Urban land-Chillum-Beltsville complex, 5 to 15 percent slopes	0.1	1.8%		





Existing Conditions Plan
South
Elkridge Fire Station
Parcel A
"Green Building"
Howard County, Maryland

Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 14230, Expiration Date: 12/09/16.

PROJECT: 402 403 A2	DATE: 09/02/15
SCALE: 1" = 30'	PROJECT NO: 12021

3 of 41



LEGEND

EXISTING CONTOUR		382
PROPOSED CONTOUR		382
EXISTING SPOT ELEVATION		382.3
PROPOSED SPOT ELEVATION		+ 82.53
DIRECTION OF FLOW		
EXISTING TREELINE		
PROPOSED TREELINE		
FOREST CONSERVATION EASEMENT		
CONCRETE VEHICULAR PAVEMENT		
CONCRETE PEDESTRIAN PAVEMENT		

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	09/28/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Paul Chubb 9-29-16
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Veronica 9-30-16
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Nancy 10-3-16
 DIRECTOR DATE

ENGINEER SILL ENGINEERING GROUP, LLC
 HOWARD COUNTY, MARYLAND
 11130 DOVEDALE COURT, SUITE 200
 MARRIOTTSVILLE, MARYLAND 21104
 OFFICE: 410-696-2022
 FAX: 410-696-2022
 EMAIL: PAUL@SILLENGINEERING.COM

OWNER/DEVELOPER MARK STROMDAHL
 HOWARD COUNTY, MARYLAND
 9250 BENEK ROAD
 COLUMBIA, MD 21045
 PHONE: 410-313-5757
 EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV

REVISED OVERALL SITE PLAN
ELKRIDGE FIRE STATION
 PARCEL A
 "GREEN BUILDING"

TAX MAP 38 GRID 12
 1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
 HOWARD COUNTY, MARYLAND

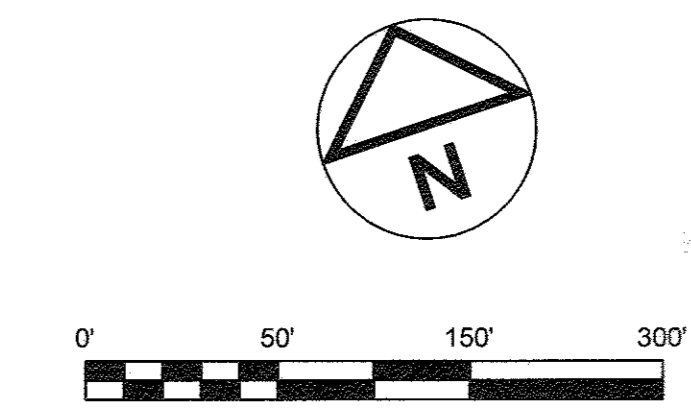
SILL ENGINEERING GROUP, LLC

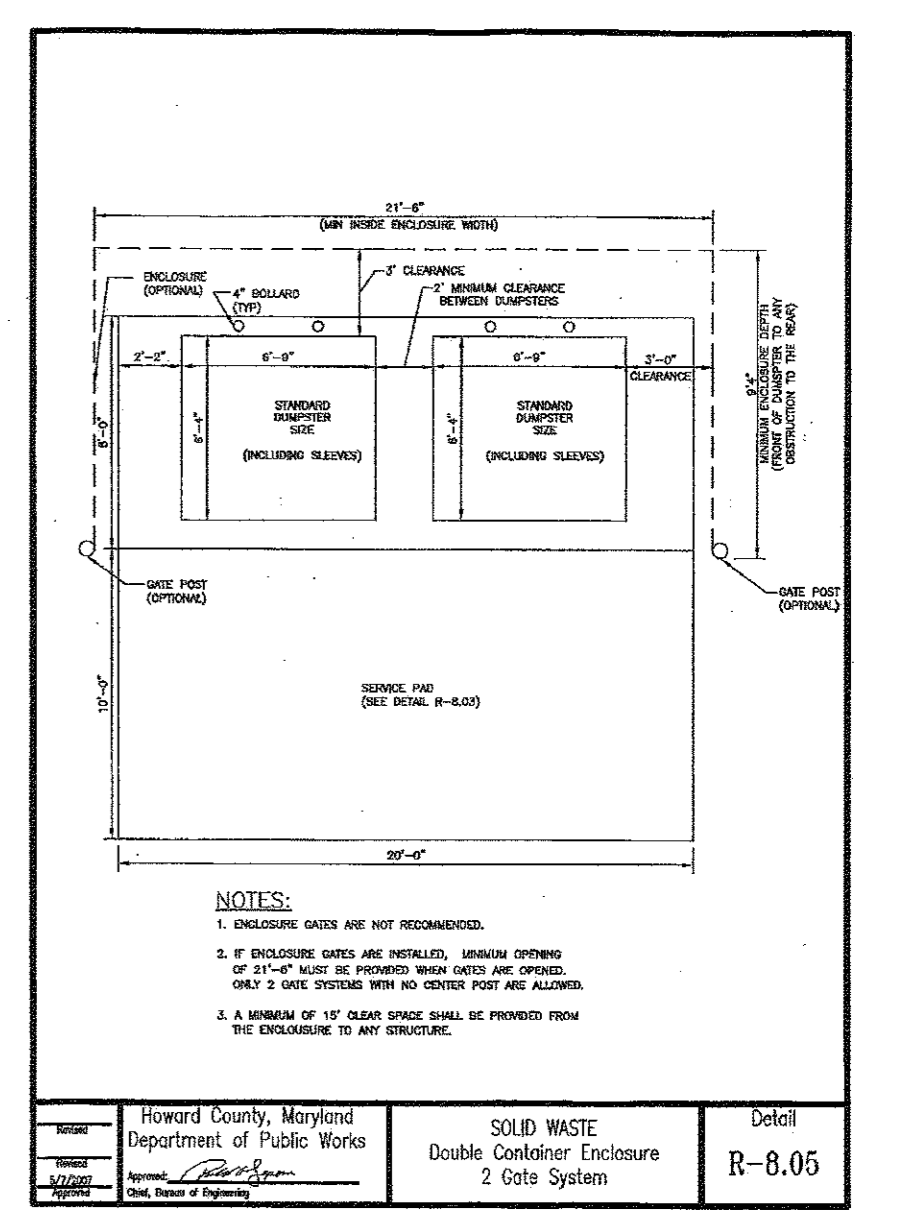
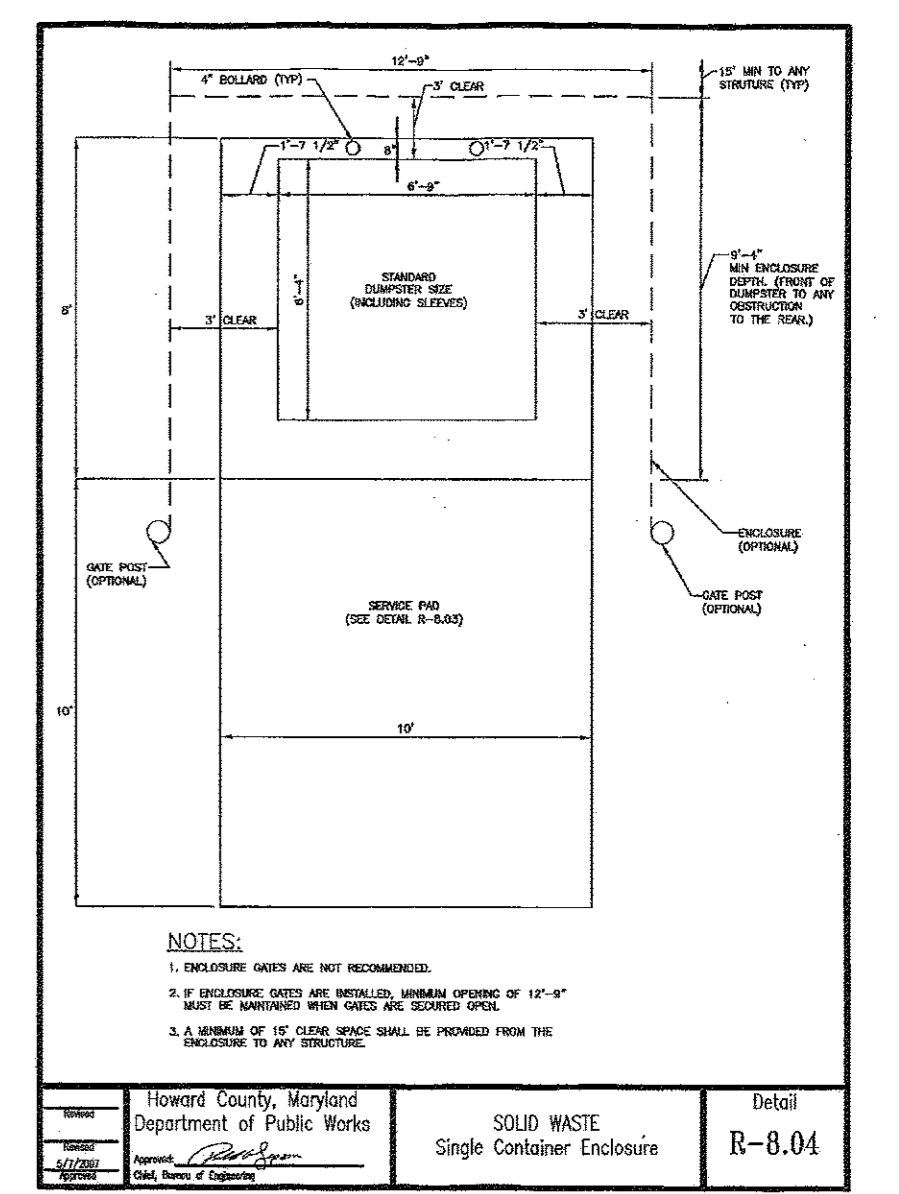
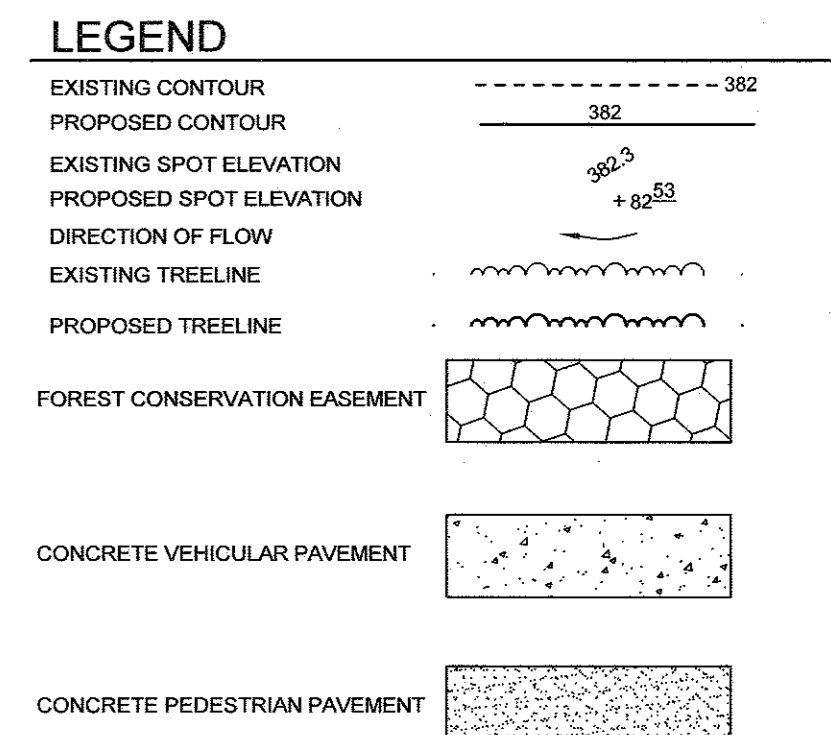
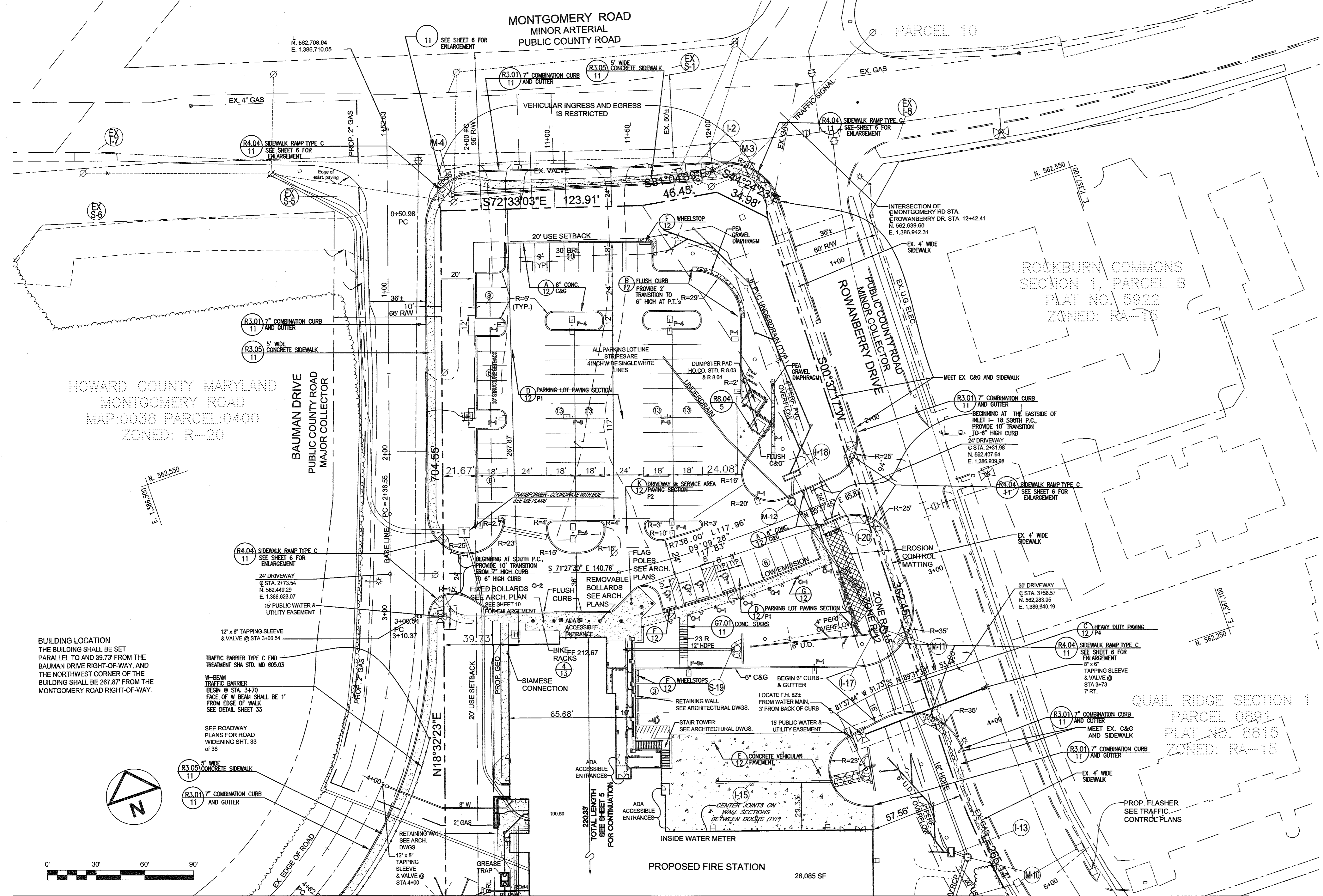
11130 Dovedale Court, Suite 200
 Marriottsville, Maryland 21104
 Phone: 410-696-2022
 Fax: 410-696-2022
 Email: info@sillengineering.com
 Civil Engineering for Land Development

DESIGN BY: JS
 DRAWN BY: AEA
 CHECKED BY: PS
 SCALE: 1"=50'
 DATE: SEPTEMBER 28, 2016
 PROJECT #: 16-020
 SHEET #: 4 of 41

STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 NO. 32025

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32025, EXPIRATION DATE: JUNE 20, 2017

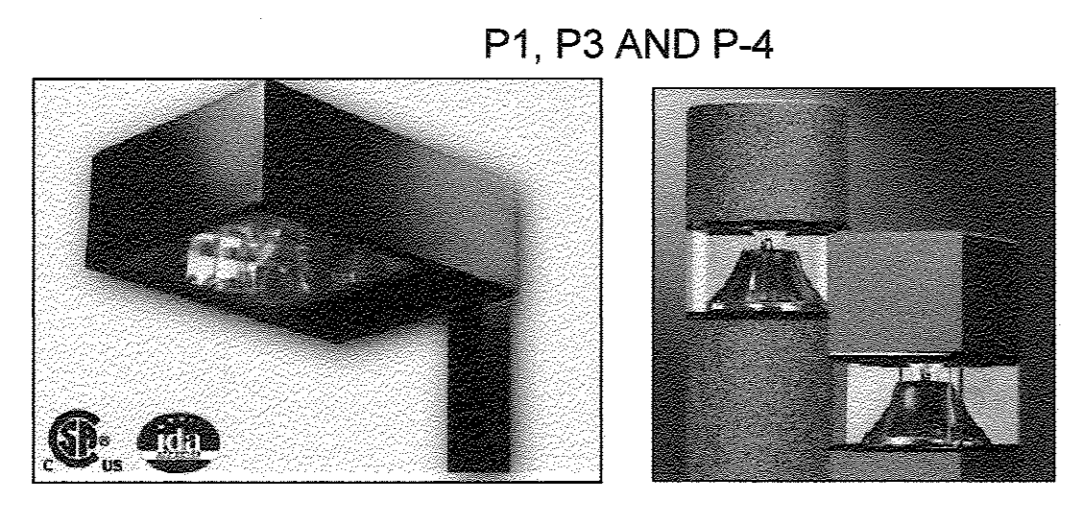




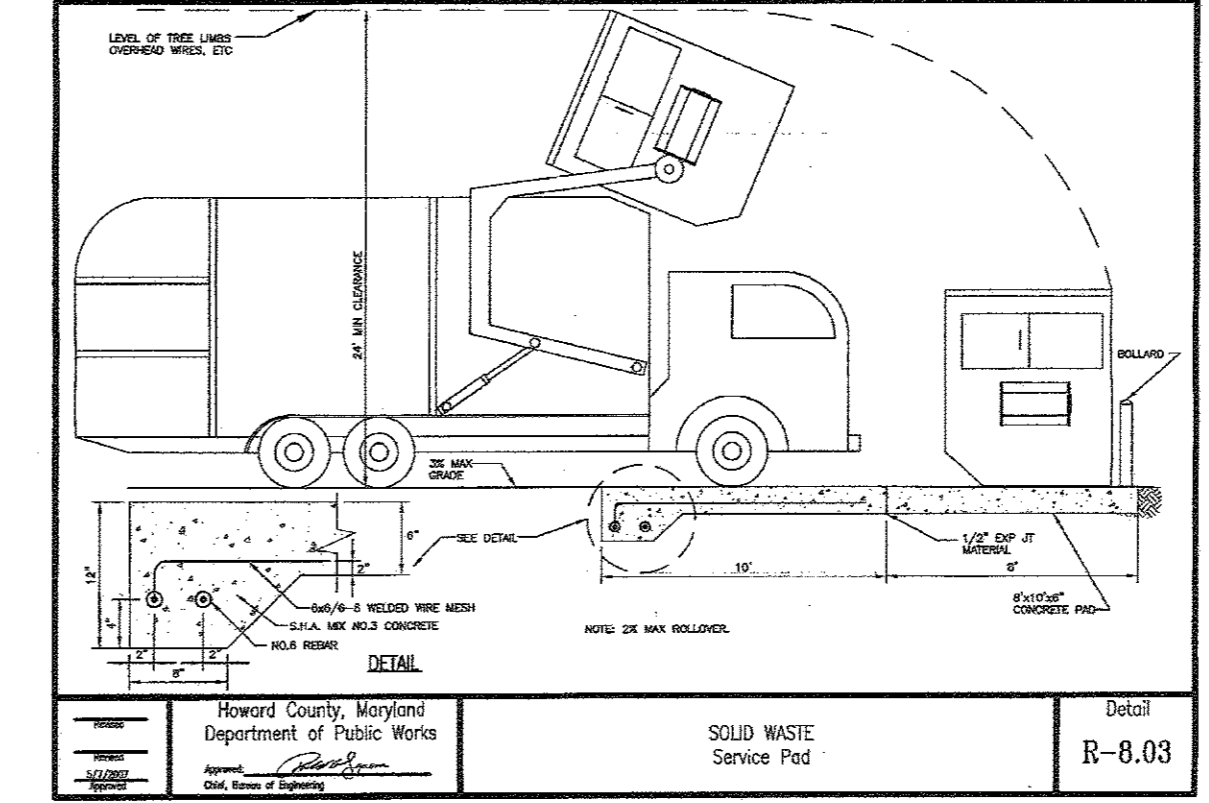
ENGINEER
SILL ENGINEERING GROUP, LLC
HOWARD COUNTY, MARYLAND
11130 DOVEDALE COURT, SUITE 200
MARIOTTESVILLE, MARYLAND 21104
OFFICE: 443-325-5077
FAX: 410-696-2022
EMAIL: PAUL@SILLENGINEERING.COM

OWNER/DEVELOPER
MARK STROMDAHL
HOWARD COUNTY, MARYLAND
9250 BENDIX ROAD
COLUMBIA, MD 21045
PHONE: 410-313-5757
EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	09/28/2016
REVISIONS		
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING		
<i>Paul Sill</i>	DATE	9-29-16
CHIEF, DEVELOPMENT ENGINEERING DIVISION		
<i>Kurt Schuler</i>	DATE	9-30-16
CHIEF, DIVISION OF LAND DEVELOPMENT		
<i>Nick W. Griffin</i>	DATE	10-3-16
DIRECTOR		



TYPE	FIXTURE TYPE / FUNCTION	MOUNTING	VOLTS	WATTS	LAMPS	BALLASTS	MANUFACTURER'S CATALOG #	ALTERNATIVE MANUFACTURERS
P1	SHROED LUMINAIRE, DARK SKY TYPE 1 OPTICS, HOUSE SHIELD, WET LOCATION, 90W/16, FULL CUTOFF, SQUARE STRAIGHT STEEL POLE, MATTE DARK BRONZE COLOR	POLE 16-0'	480	142	1X1100W FMH 4000K, T0CR1 9000 LUMENS	PULSE START	SPALDING LIGHTING RCS-10-110-114-F-5-DB-HS SSS-16-40-7-AK-DB & ARM-F-10-S-DB	HUBBELL GENERAL ELECTRIC
P2	SHROED LUMINAIRE, DARK SKY TYPE 2 OPTICS, HOUSE SHIELD, WET LOCATION, 90W/16, FULL CUTOFF, SQUARE STRAIGHT STEEL POLE, MATTE DARK BRONZE COLOR, DECORATIVE BASE	POLE 20-10'	480	142	1X1100W FMH 4000K, T0CR1 9000 LUMENS	PULSE START	SPALDING LIGHTING RCS-10-110-114-F-5-DB-HS SSS-16-40-7-AK-DB & ARM-F-10-S-DB	HUBBELL GENERAL ELECTRIC
P3	SHROED LUMINAIRE, DARK SKY TYPE 3 OPTICS, HOUSE SHIELD, WET LOCATION, 90W/16, FULL CUTOFF, SQUARE STRAIGHT STEEL POLE, MATTE DARK BRONZE COLOR, DECORATIVE BASE	POLE 16-10'	480	142	1X1100W FMH 4000K, T0CR1 9000 LUMENS	PULSE START	SPALDING LIGHTING RCS-10-110-114-F-5-DB-HS SSS-16-40-7-AK-DB & ARM-F-10-S-DB	HUBBELL GENERAL ELECTRIC
PA	SHROED LUMINAIRE, DARK SKY TYPE 4 OPTICS, HOUSE SHIELD, WET LOCATION, 90W/16, FULL CUTOFF, SQUARE STRAIGHT STEEL POLE, MATTE DARK BRONZE COLOR	POLE 20-0'	480	142	1X1100W FMH 4000K, T0CR1 9000 LUMENS	PULSE START	SPALDING LIGHTING RCS-10-110-114-F-5-DB-HS SSS-16-40-7-AK-DB & ARM-F-10-S-DB	HUBBELL GENERAL ELECTRIC
PA4	TWO SHROED LUMINAIRES, DARK SKY TYPE 4 OPTICS, HOUSE SHIELD, WET LOCATION, 90W/16, FULL CUTOFF, SQUARE STRAIGHT STEEL POLE, MATTE DARK BRONZE COLOR	POLE 20-10'	480	142	2X1100W FMH 4000K, T0CR1 9000 LUMENS	PULSE START	SPALDING LIGHTING RCS-10-110-114-F-5-DB-HS SSS-16-40-7-AK-DB & ARM-F-10-S-DB	HUBBELL GENERAL ELECTRIC
Q1	1/2" DIA X 3/4" TAPERED ALUMINUM BOLLARD, ROUNDED TOP, WET LOC., 28-21/16" TYPE 3 CUTOFF OPTICS, DARK PLATINUM COLOR	GRADE	277	124	1X100W FMH 4000K, T0CR1 3400 LUMENS	PULSE START	COOPER LIGHTING SBR-30M-1-2-7-38-0P-LA2	HUBBELL GENERAL ELECTRIC
Q2	1/2" DIA X 3/4" TAPERED ALUMINUM BOLLARD, ROUNDED TOP, WET LOC., 28-21/16" TYPE 3 CUTOFF OPTICS, DARK PLATINUM COLOR	GRADE	277	124	1X100W FMH 4000K, T0CR1 3400 LUMENS	PULSE START	COOPER LIGHTING SBR-30M-1-2-7-38-0P-LA2	HUBBELL GENERAL ELECTRIC



REVISED SITE AND LAYOUT PLAN NORTH

ELKRIDGE FIRE STATION

PARCEL A "GREEN BUILDING"

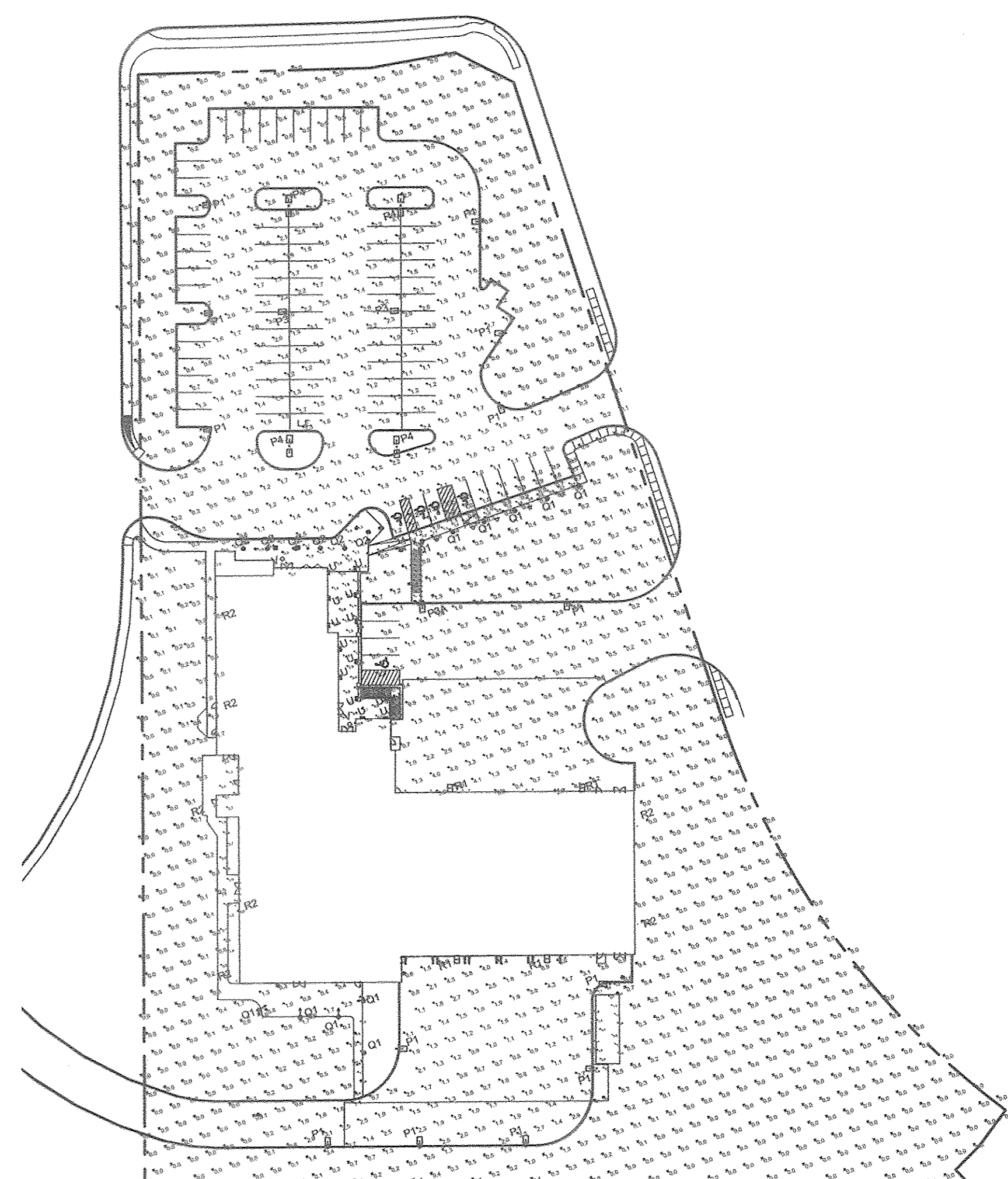
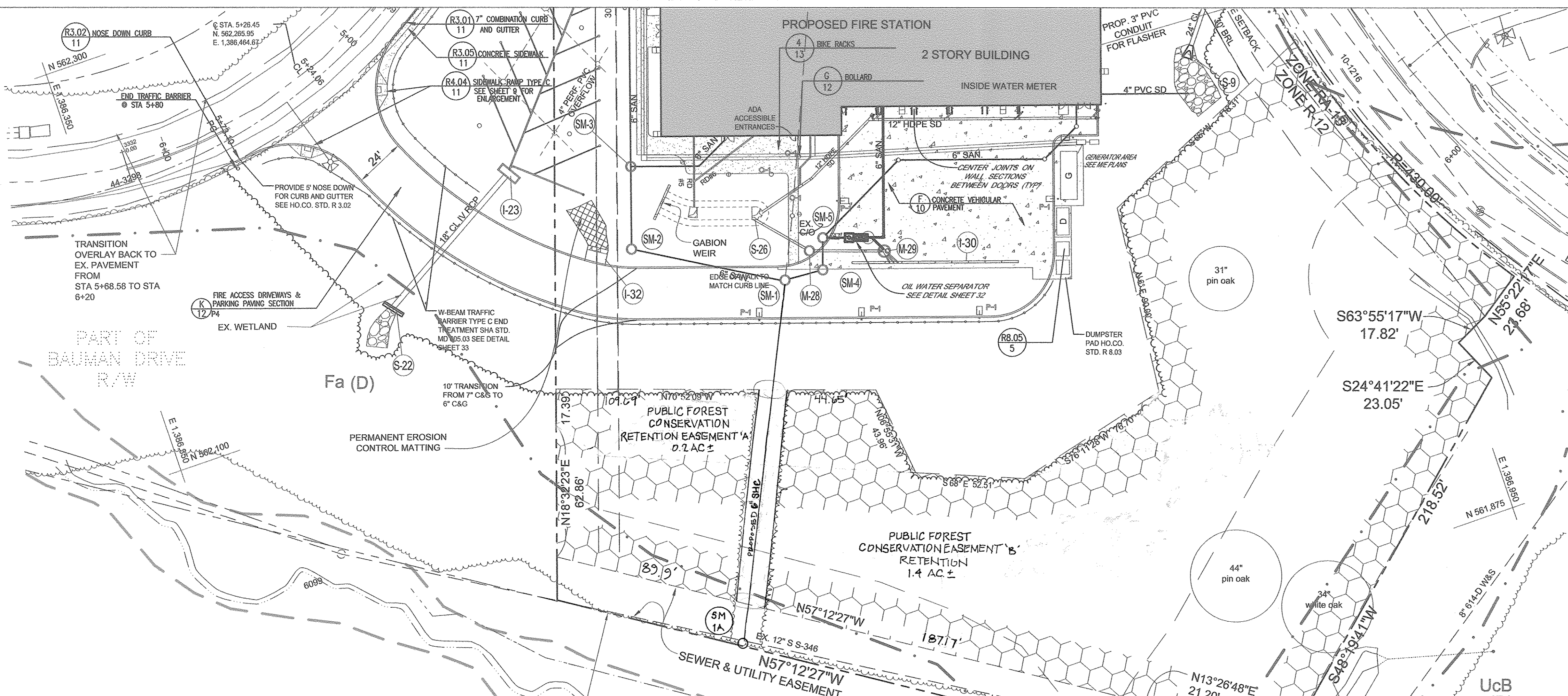
PARCEL 402 & 403 A2 HOWARD COUNTY, MARYLAND

TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

SILL ENGINEERING GROUP, LLC
11130 Dovedale Court, Suite 200
Marriottsville, Maryland 21104
Phone: 443-325-5077
Fax: 410-696-2022
Email: info@sillengineering.com
Sill Engineering for Land Development

DESIGN BY: JS
DRAWN BY: AEA
CHECKED BY: PS
SCALE: 1"=30'
DATE: SEPTEMBER 28, 2016
PROJECT #: 16-020
SHEET #: 5 of 41

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32025, EXPIRATION DATE: JUNE 30, 2017.



Site Lighting Calculations
COUNTY Light Trespass
Calculation @ 1.0 LLF

TYPE	FIXTURE TYPE/FUNCTION	MOUNTING	VOLTS	WATTS	MANUFACTURER'S CATALOG #	ALTERNATIVE MANUFACTURERS	
P1	SHROBBOX LUMINAIRE, DARK SKY TYPE 4 OPTICS, HOUSE SHIELD, WET LOCATION, SPATLE, FULL CUTOFF, SQUARE STRAIGHT STEEL POLE, MATTIE DARK BRONZE COLOR	POLE 16'0"	480	142	1X100W PAB1 4000K, 70CRI 9000 LUMENS	PULSE START SPALDING LIGHTING RCS-A10-P10-H4-F-5-DB-HS SSS-10-40-7-AX-DB & ARM-F-10-S-DB	HUBBELL GENERAL ELECTRIC
P2	SHROBBOX LUMINAIRE, DARK SKY TYPE 2 OPTICS, HOUSE SHIELD, WET LOCATION, SPATLE, FULL CUTOFF, SQUARE STRAIGHT STEEL POLE, MATTIE DARK BRONZE COLOR, DECORATIVE BASE	POLE 20'10"	480	142	1X100W PAB1 4000K, 70CRI 9000 LUMENS	PULSE START SPALDING LIGHTING RCS-A10-P10-H4-F-5-DB-HS SSS-10-40-7-AX-DB & ARM-F-10-S-DB ARTIFORMS NEWAVE-A-510R-34" HGH-BASE	HUBBELL GENERAL ELECTRIC
P3	SHROBBOX LUMINAIRE, DARK SKY TYPE 3 OPTICS, HOUSE SHIELD, WET LOCATION, SPATLE, FULL CUTOFF, SQUARE STRAIGHT STEEL POLE, MATTIE DARK BRONZE COLOR, DECORATIVE BASE	POLE 16'10"	480	142	1X100W PAB1 4000K, 70CRI 9000 LUMENS	PULSE START SPALDING LIGHTING RCS-A10-P10-H4-F-5-DB-HS SSS-10-40-7-AX-DB & ARM-F-10-S-DB	HUBBELL GENERAL ELECTRIC
P3A	SHROBBOX LUMINAIRE, DARK SKY TYPE 3 OPTICS, HOUSE SHIELD, WET LOCATION, SPATLE, FULL CUTOFF, SQUARE STRAIGHT STEEL POLE, MATTIE DARK BRONZE COLOR, DECORATIVE BASE	POLE 20'0"	480	142	1X100W PAB1 4000K, 70CRI 9000 LUMENS	PULSE START SPALDING LIGHTING RCS-A10-P10-H4-F-5-DB-HS SSS-10-40-7-AX-DB & ARM-F-10-S-DB	HUBBELL GENERAL ELECTRIC
P4	TWO SHROBBOX LUMINAIRE, DARK SKY TYPE 4 OPTICS, HOUSE SHIELD, WET LOCATION, SPATLE, FULL CUTOFF, SQUARE STRAIGHT STEEL POLE, MATTIE DARK BRONZE COLOR	POLE 16'0"	480	142	2X100W PAB1 4000K, 70CRI 9000 LUMENS	PULSE START SPALDING LIGHTING TWO, RCS-A10-P12-H4-F-5-DB-HS SSS-10-40-7-AX-DB	HUBBELL GENERAL ELECTRIC
P4A	TWO SHROBBOX LUMINAIRE, DARK SKY TYPE 4 OPTICS, HOUSE SHIELD, WET LOCATION, SPATLE, FULL CUTOFF, SQUARE STRAIGHT STEEL POLE, MATTIE DARK BRONZE COLOR, DECORATIVE BASE	POLE 20'10"	480	142	2X100W PAB1 4000K, 70CRI 9000 LUMENS	PULSE START SPALDING LIGHTING TWO, RCS-A10-P12-H4-F-5-DB-HS SSS-10-40-7-AX-DB ARTIFORMS NEWAVE-A-510R-34" HGH-BASE	HUBBELL GENERAL ELECTRIC
O1	ROUND TOP, WET LOC., 20'7 1/2" TYPE 3 CUTOFF OPTICS, DARK PLATINUM COLOR	GRADE	277	124	1X50W PAB1 4000K, 70CRI 3400 LUMENS	PULSE START COOPER LIGHTING SER-50M-1-2-7-98-DB-LA2	HUBBELL GENERAL ELECTRIC
O2	ROUND TOP, WET LOC., 20'7 1/2" TYPE 5 CUTOFF OPTICS, DARK PLATINUM COLOR	GRADE	277	124	1X50W PAB1 4000K, 70CRI 3400 LUMENS	PULSE START COOPER LIGHTING SER-50M-1-2-7-36-DB	HUBBELL GENERAL ELECTRIC

STAKE-OUT REQUIREMENTS AND AS-BUILT SURVEYS
STAKE-OUT BY LICENSED SURVEYOR. A PROFESSIONAL SURVEYOR LICENSED IN MARYLAND, WITH PROVEN CAPABILITY AND EXPERIENCE ON SIMILAR PROJECTS. SHALL STAKE-OUT ALL SEDIMENT CONTROL MEASURES, ROUGH GRADING, EXCAVATIONS, FILLS, FINISHED GRADING, BUILDINGS, STRUCTURES, GRADING, ROADS, CURBS, GUARDRAILS, HARDSCAPES, WALKS, WALLS, FENCES, AND UTILITIES (INCLUDING BUT NOT LIMITED TO: STORM DRAIN MANHOLES, INLETS, PIPES, BENDS, AND CLEAN-OUTS; SANITARY SEWER MANHOLES, CLEAN-OUTS, GRAVITY PIPES AND BENDS, AND FORCE MAINS; SEPTIC TANK LOCATIONS AND DRAIN FIELDS; WELLS; WATER METERS, WATER MAINS AND BENDS, FIRE HYDRANTS; GEOTHERMAL WELLS AND LINES; LIGHT POLES BASES; MECHANICAL EQUIPMENT; TANKS; ELECTRIC AND TELECOMMUNICATIONS LINES).

RECORD LOG AND AS-BUILT INFORMATION. MAINTAIN A LOG OF LAYOUT CONTROL WORK AND AN UPDATED SURVEY OF AS-BUILT CONDITIONS SHOWING THE SIZE, TYPE, LOCATION AND ELEVATION OF SITE IMPROVEMENTS INCLUDING BUILDING CORNERS AND SLAB ELEVATIONS, UTILITIES (INCLUDING THE SIZE, TYPE, SLOPE, AND INVERT ELEVATIONS OF PIPES), CURBS, PARKING LOT AND ROAD ELEVATIONS, WALK AND WALL ALIGNMENTS AND ELEVATIONS, AND THE LOCATION AND ELEVATION OF OTHER SITE AMENITIES AND IMPROVEMENTS. NOTIFY OWNER IMMEDIATELY WHEN DEVIATIONS FROM REQUIRED LINES AND LEVELS EXCEED ALLOWABLE TOLERANCES.

PROVIDE A COPY OF THE UPDATED AS-BUILT SURVEY EACH MONTH. BENCHMARKS, PRESERVE AND PROTECT PERMANENT BENCHMARKS AND CONTROL POINTS DURING CONSTRUCTION OPERATIONS. TEMPORARY BENCHMARKS AND CONTROL POINTS SHALL NOT BE CUT INTO OR PERMANENTLY MARKED ON SITE IMPROVEMENTS OR TREES.

NO.	DESCRIPTION	DATE
2	REPLACE EXISTING SEWER LINE	11/01/2017
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24'. BY SILL ENGINEERING GROUP	09/28/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION 9-29-16
 DATE

 CHIEF, DIVISION OF LAND DEVELOPMENT 9-30-16
 DATE

 DIRECTOR 10-3-16
 DATE

VERIFICATION OF CONDITIONS AND COMPUTATIONS. BEFORE BEGINNING STAKE-OUT COMPUTATIONS, FIELD-VERIFY THE COORDINATES AND ELEVATIONS OF KEY BOUNDARY CORNERS AND TOPOGRAPHIC FEATURES UPON WHICH THE LAYOUT OF PROPOSED IMPROVEMENTS IS BASED. COMPUTE THE LAYOUT OF ALL PROPOSED IMPROVEMENTS IN ACCORDANCE WITH THE DIMENSIONS AND GRAPHIC REPRESENTATIONS ON THE DRAWINGS. VERIFY EXISTING PAVEMENT ELEVATIONS AND CROSS SLOPE, AND COMPUTE PROPOSED ALIGNMENT AND ELEVATIONS FOR ROAD WIDENINGS AND WHERE THE PROPOSED IMPROVEMENTS TIE INTO EXISTING IMPROVEMENTS. BEFORE BEGINNING SITE CLEARING, PROVIDE A PRELIMINARY STAKEOUT OF BUILDINGS, ROADS, PARKING LOTS, AND LIMIT-OF-DISTURBANCE, AND PROVIDE THE OWNER WITH THE OPPORTUNITY TO OBSERVE THE COMPLETED PRELIMINARY STAKE-OUT BEFORE PROCEEDING WITH WORK.

"MEASURE TWICE, CUT ONCE". THROUGHOUT CONSTRUCTION, THE CONTRACTOR'S SUPERINTENDENT SHALL CONTINUALLY CHECK THE ACCURACY OF ALL STAKE-OUT, PROPOSED EXCAVATIONS, GRADING, STRUCTURES, UTILITIES, CONCRETE FORMS, STRING LINES, AND OTHER SITE IMPROVEMENTS BEFORE EACH COMPONENT OF THE WORK BEGINS.

DIMENSIONS, UNLESS OTHERWISE NOTED ON THE DRAWING, ALL DIMENSIONS SHOWN ON THE SITE DRAWINGS FOLLOW THESE CONVENTIONS:
 (a) DIMENSIONS TO A BUILDING OR RETAINING WALL ARE TO THE FACE OF THE WALL;
 (b) DIMENSIONS TO A CURB ARE TO THE BOTTOM FACE (NOT THE BACK) OF THE CURB;
 (c) DIMENSIONS TO A FENCE ARE TO THE CENTERLINE OF THE FENCE;
 (d) DIMENSIONS FOR SIDEWALKS ABUTTING A CURB ARE FROM THE BACK OF CURB TO THE BACK EDGE OF THE WALK;
 (e) DIMENSIONS FOR OTHER SIDEWALKS OR OPEN PAVING SECTIONS ARE MEASURED TO THE EDGE OF PAVING;
 (f) DIMENSIONS TO A MANHOLE, INLET, CLEANOUT, PIPE BEND, VALVE, FIRE HYDRANT OR OTHER UTILITY APPURTENANCE ARE TO THE CENTER OF THE STRUCTURE;
 (g) DIMENSIONS FOR STEPS ARE TO THE OUTER EDGE OF THE STAIRCASE AND THE NOSE OF THE TOP OR BOTTOM STEP.

IF A DISCREPANCY IS UNDETECTED PRIOR TO FORMATION OF THE CONSTRUCTION CONTRACT, NUMERICALLY WRITTEN DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALED DIMENSIONS OR THE PURPOSE OF THE CONTRACT; THE CONTRACTOR SHALL NOTIFY TESSERA OF ANY SUCH DISCREPANCY IMMEDIATELY UPON DISCOVERY AND SHALL WAIT FOR CLARIFICATION BEFORE PROCEEDING WITH CONSTRUCTION.

STORM DRAIN, SANITARY SEWER, WATER, AND UTILITIES
TEST FITTING, FOR THE PURPOSES OF THIS CONTRACT, EXCAVATION OF UTILITY TRENCHES DOES NOT CONSTITUTE TEST FITTING. SEE TEST FITTING NOTE ON SHEET.

APPEARANCE OF UTILITY STRUCTURES AN ESSENTIAL PART OF CONTRACT. THE FINISH, COLOR, LOCATION, ORIENTATION, AND ELEVATION OF UTILITY STRUCTURES AND APPURTENANCES ARE AN INTEGRAL PART OF THE DESIGN AND THE FINISHED SURFACE APPEARANCE IS AN ESSENTIAL PART OF THE CONSTRUCTION CONTRACT. FINISH AND COLOR SHALL BE AS SPECIFIED, OR IF NOT SPECIFIED AS IS CUSTOMARY BY INDUSTRY STANDARDS. VERTICAL ELEMENTS, SUCH AS FIRE HYDRANTS AND LIGHT POLES, SHALL BE PLUMB. UTILITY LOCATIONS SHALL BE AS SHOWN ON THE PLAN. THE BASE OF FIRE HYDRANTS AND LIGHT POLES, AS WELL AS THE TOP OF MANHOLES AND INLETS, SHALL BE FLUSH WITH FINISHED GRADE. SQUARE OR RECTANGULAR INLETS SHALL BE SET SQUARE WITH NEARBY STRAIGHT LINES, EXACTLY AS SHOWN IN PLAN VIEW. THE FACT THAT A UTILITY IS "FUNCTIONAL" DOES NOT SATISFY THESE AESTHETIC REQUIREMENTS.

STORM DRAIN STRUCTURES ALIGNMENTS SHALL MATCH CURBS & WALKS. BEFORE THE UTILITY CONTRACTOR INSTALLS STORM DRAIN STRUCTURES, THE CONTRACTOR SHALL SET STAKES ON BOTH SIDES OF THE CURB INLETS TO ESTABLISH FACE OF CURB AND TOP OF CURB, AND THE EDGE AND ELEVATION OF CURBS AND INLETS LOCATED WITHIN 10 FEET OF THE STRUCTURES. THE HORIZONTAL AND VERTICAL ALIGNMENT OF INLETS, INLET CURB PIECES AND MANHOLES SHALL MATCH ADJOINING CURBS AND WALKS.

DARK GRAY RIP RAP AND STONE REQUIRED. RIP RAP AND OTHER STONE THAT WILL REMAIN AS A PERMANENT SITE IMPROVEMENT SHALL BE DARK GRAY.
ADJUSTMENT FOR FINAL GRADE. ALL EXISTING AND PROPOSED UTILITY APPURTENANCES SHALL BE ADJUSTED FOR FINAL GRADE.

CLEAN OUTS. ALL CLEAN OUTS (SAN & S.D.) SHALL BE 4" FLUSH MOUNTED BRONZE TOP WITH RECESSED KEYWAY ON 4" D.I.P. PIPE SET VERTICALLY (2" MIN. LENGTH). IF IN LAWN AREAS, CLEAN-OUTS SHALL BE SET FLUSH WITH GRADE TO PREVENT DAMAGE FROM MOWERS. THERE SHALL BE A "BOOT-TYPE" CLEAN OUT FOR ROOF DRAINS AT THE BUILDING.

COMPLIANCE WITH CODES; UTILITY CERTIFICATION. THE CONTRACTOR SHALL SUPPLY ALL MATERIALS, EQUIPMENT AND LABOR NECESSARY TO COMPLETE THE PROPOSED WATER LINES, SANITARY SEWER SYSTEM, AND STORM DRAIN SYSTEM AS REQUIRED BY ALL APPLICABLE GOVERNMENTAL CODES AND MANUFACTURER'S REQUIREMENTS. THIS NOTE APPLIES WHETHER OR NOT THE PLANS SHOW EVERY FITTING, BEND, CLEAN-OUT, VALVE, BOX, VAULT, BUTTRESS, OR OTHER APPURTENANCE OR MEASURE WHICH IS REQUIRED BY GOVERNMENTAL LAWS AND REGULATIONS, OR MANUFACTURER'S REQUIREMENTS. THE CONTRACTOR SHALL EMPLOY A PROFESSIONAL ENGINEER, REGISTERED IN THE STATE OF MARYLAND, TO CERTIFY, ON A FORM PROVIDED BY THE OWNER, THAT ALL PROPOSED SANITARY SEWERS, WATER LINES AND STORM DRAINS SHOWN HEREIN WERE INSTALLED IN ACCORDANCE WITH THESE PLANS, AND ALL APPLICABLE BUILDING AND PLUMBING CODES.

SITE LIGHTING AND OTHER UTILITY SYSTEMS
SITE LIGHTING, ELECTRIC SERVICE, GAS OR PROPANE SERVICE, GEOTHERMAL, AND TELECOMMUNICATIONS SYSTEMS, AS WELL AS CHILLED WATER AND STEAM LINES, ARE NOT DESIGNED BY SILL ENGINEERING GROUP, LLC. THE PURPOSE OF SHOWING SUCH UTILITIES ON THE CIVIL DRAWINGS IS TO COORDINATE THEIR LOCATION WITH OTHER SITE IMPROVEMENTS IN ORDER TO AVOID CONFLICTS WITH WATER LINES, SANITARY SEWERS, STORM DRAINS, ROAD AND PARKING LOT LAYOUT, WALLS, FENCES, LANDSCAPING AND OTHER IMPROVEMENTS. THE CIVIL DRAWINGS SHALL BE THE CONTROLLING SOURCE FOR THE LAYOUT OF ALL UTILITY LINES AND APPURTENANCES. THE CONTRACTOR SHALL COORDINATE THE REQUIREMENTS OF THE ELECTRICAL AND TELECOMMUNICATION DRAWINGS, AND MECHANICAL AND PLUMBING DRAWINGS, WITH THE CIVIL DRAWINGS, AND SHALL LIKEWISE COORDINATE THE LOCATION AND TIMING OF INSTALLATION OF UTILITIES THAT ARE INSTALLED BY OTHER PRIVATE UTILITY COMPANIES OR VENDORS, WHETHER OR NOT SUCH UTILITIES ARE PART OF THE CONTRACT. BEFORE STAKING OUT ANY UTILITY IN A LOCATION DIFFERENT THAN IS SHOWN ON THE CIVIL DRAWINGS, SUBMIT AN RFI WITH A SKETCH SHOWING THE ALTERNATIVE ALIGNMENT FOR REVIEW AND COMMENT. UTILITIES AND UTILITY APPURTENANCES THAT ARE INSTALLED IN CONFLICT WITH THE PROPOSED LOCATION OF OTHER SITE IMPROVEMENTS (INCLUDING PARKING SPACES) SHALL BE REMOVED AND REINSTALLED IN THE CORRECT LOCATION. SITE LIGHTING SHALL BE INSTALLED AS SHOWN ON THE CIVIL DRAWINGS TO AVOID CONFLICTS WITH PARKING LOT LAYOUT AND OTHER SITE IMPROVEMENTS; LIGHTING IN THE PARKING LOT PAVEMENT SHALL BE INSTALLED AT THE INTERSECTION OF FOUR PARKING SPACES; LIGHTING LOCATED ADJACENT TO ROADS AND PARKING LOTS SHALL BE 3' FROM THE FACE OF CURBS; AND LIGHTING ALONG WALKS SHALL BE 2' FROM THE EDGE OF WALK.

ROADS, PARKING LOTS, AND PAVEMENTS
PAVEMENTS. CONCRETE AND MASONRY PAVEMENTS AND THE SURFACE COURSE OF ASPHALT PAVEMENTS SHALL NOT BE INSTALLED UNTIL SUCCESSFUL COMPLETION, TESTING AND APPROVAL OF THE SUBGRADE AND UNDERGROUND UTILITIES, AND COMPLETION OF ALL WORK THAT MIGHT DAMAGE THE FINISHED SURFACE OF THE PAVEMENT. FINAL PAVEMENT SURFACES SHALL BE UNIFORM IN COLOR AND FINISH, FREE OF DEFECTS, DISCOLORATION, AND PATCHES.

FENCES
Fence posts shall be plumb and the top of fence shall be a smooth line consisting of straight lines and transitions. Before digging fence post holes, each hole location shall be flagged in the field by the contractor and approved by the project landscape architect. After fence posts are installed but before they are cut and before any other fence materials are installed, the contractor shall indicate the top of fence with a string line which shall be approved by the project landscape architect.

ENGINEER	OWNER/DEVELOPER
SILL ENGINEERING GROUP, LLC 11130 Dovesdale Court, Suite 200 Marrriottsville, Maryland 21104 OFFICE: 443-325-5076 FAX: 410-696-2022 EMAIL: PAUL@SILLENGINEERING.COM	MARK STROMDAHL HOWARD COUNTY, MARYLAND 9250 BENDIX ROAD COLUMBIA, MD 21045 PHONE: 410-313-9757 EMAIL: MCTSTROMDAHL@HOWARDCOUNTYMD.GOV

REVISED SITE AND LAYOUT PLAN SOUTH
ELKCRIDGE FIRE STATION
PARCEL A
"GREEN BUILDING"

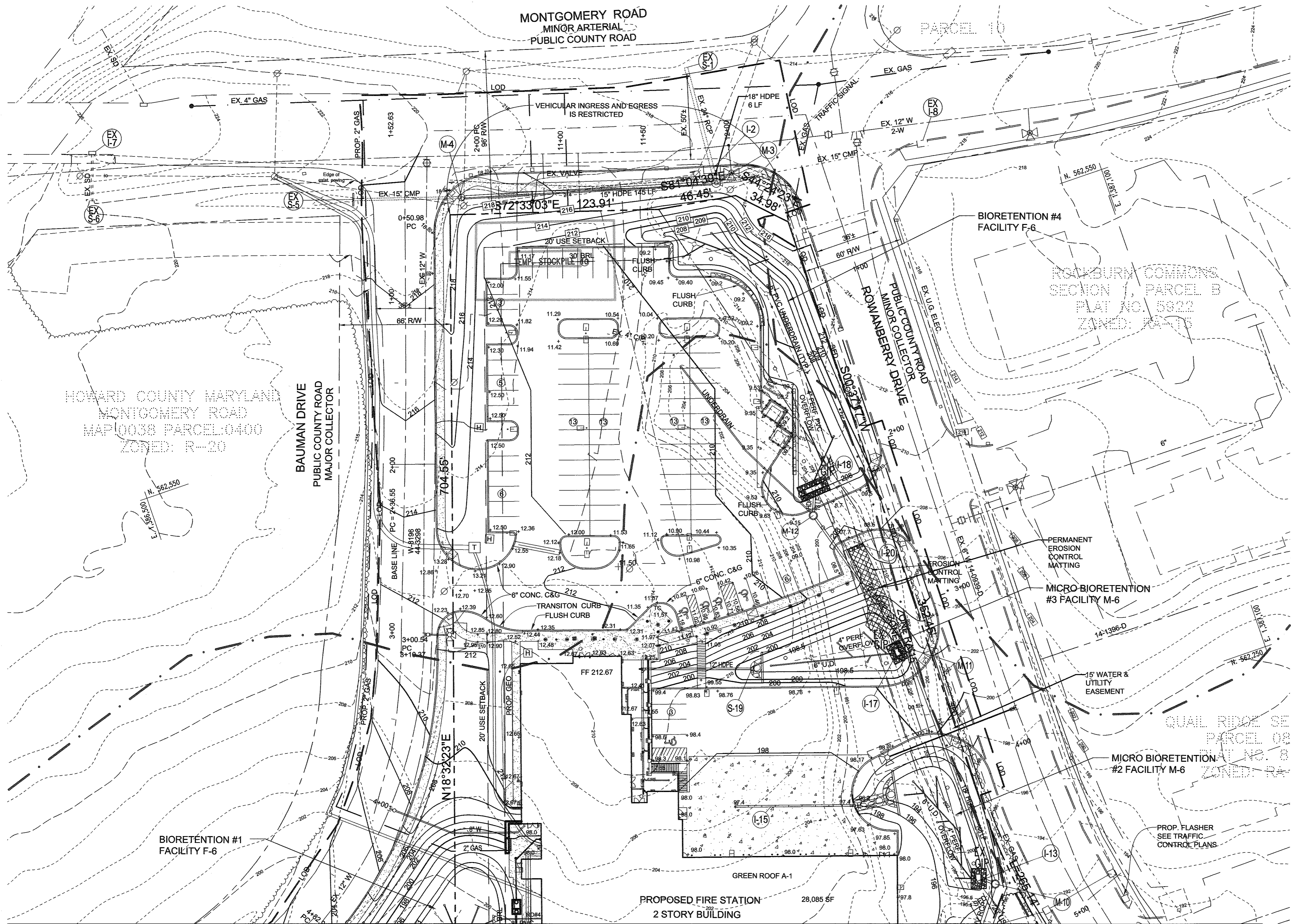
TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

DESIGN BY: JS
DRAWN BY: AEA
CHECKED BY: PS
SCALE: 1"=30'
DATE: SEPTEMBER 28, 2016
PROJECT #: 16-020
SHEET #: 6 of 41

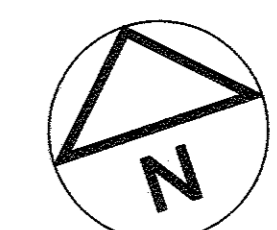
STATE OF MARYLAND
SILL ENGINEERING GROUP, LLC
11130 Dovesdale Court, Suite 200
Marrriottsville, Maryland 21104
Phone: 443.325.5076
Fax: 410.696.2022
Email: info@sillengineering.com
Civil Engineering for Land Development

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 35205, EXPIRATION DATE: JUNE 29, 2017



LEGEND

EXISTING CONTOUR	---
PROPOSED CONTOUR	---
EXISTING SPOT ELEVATION	392.3
PROPOSED SPOT ELEVATION	+82.52
DIRECTION OF FLOW	→
EXISTING TREELINE	~
PROPOSED TREELINE	~
WETLAND	W
WETLAND BUFFER	WB
EXISTING STORMDRAIN	---
PROPOSED STORMDRAIN	---
EXISTING SEWER	---
PROPOSED SEWER	---
EXISTING WATER	---
PROPOSED WATER	---
EXISTING ELECTRIC	---
UTILITY POLE	⊗
LIGHT POLES	⊕
FOREST CONSERVATION EASEMENT	[Pattern]
CONCRETE VEHICULAR PAVEMENT	[Pattern]
CONCRETE PEDESTRIAN PAVEMENT	[Pattern]



SEE SHEETS 9 AND 10 FOR ENLARGEMENTS AND SIDEWALK & RAMP DETAILS AND RETAINING WALL ELEVATIONS

ENGINEER
SILL ENGINEERING GROUP, LLC
HOWARD COUNTY, MARYLAND
11130 DOVEDALE COURT, SUITE 200
MARRIOTTVILLE, MARYLAND 21104
OFFICE: 443-325-5076
FAX: 410-696-2022
EMAIL: PAUL@SILLENGINEERING.COM

OWNER/DEVELOPER
MARK STROMDAHL
HOWARD COUNTY, MARYLAND
9250 BENDIX ROAD
COLUMBIA, MD 21045
PHONE: 410-313-5757
EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV

MATCH LINE SHEET 8

EARTHWORK & GRADING
EXCAVATION IS UNCLASSIFIED BUT INCLUDES PAYMENT FOR ROCK; ACHIEVING PROPOSED GRADES IS PART OF LUMP SUM CONTRACT PRICE INCLUDES: EXCAVATION TO REQUIRED SUBGRADE OF ALL MATERIALS, WHETHER WET OR DRY, NATURAL OR MAN-MADE, REGARDLESS OF CHARACTER EXCEPT FOR ROCK (SEE SPECIFICATIONS FOR TERMS AND CONDITIONS ALLOWING FOR PAYMENT OF ROCK REMOVAL); ALL STRIPPING AND STOCKPILING OF TOPSOIL; GRADING; HAUL-OFF OF EXCESS EARTH, TOPSOIL AND UNSUITABLE MATERIALS; ON-SITE AND OFF-SITE BORROW; PROTECTING SOILS FROM MOISTURE AND DRYING SOILS; AND PLACEMENT AND COMPACTION. ALL ASPECTS OF EARTHWORK SHALL BE COMPLETED AS NECESSARY TO ACHIEVE THE FINAL GRADES INDICATED BY THE CONTOURS AND SPOT ELEVATIONS SHOWN ON THE GRADING PLANS. ALL EARTHWORK AND WORK RELATED TO BALANCING THE SITE, PROVIDING BORROW OR MINING TO OBTAIN STRUCTURAL FILL, AND DISPOSING OF EXCESS TOPSOIL AND UNSUITABLE MATERIALS, ARE PART OF THE LUMP SUM PRICE.

GENERAL REQUIREMENTS. GRADING SHALL ACHIEVE POSITIVE DRAINAGE AWAY FROM BUILDINGS AND TOWARD DRAINAGE FACILITIES (INLETS, GUTTERS, SWALES, OR STORM WATER MANAGEMENT FACILITIES) OR SHEET-FLOW ACROSS PAVEMENTS AND LAWNS. GRADING SHALL BE AESTHETICALLY PLEASING WITH SMOOTH VERTICAL CURVES AND LINES. TRANSITIONS BETWEEN EXISTING AND PROPOSED PAVEMENTS SHALL BE SMOOTH AND JOINTS FLUSH. THE PROFILE SLOPE (LONGITUDINAL SLOPE) OF ROADS, CURBS, AND WALKS SHALL BE FORMED BY LINES AND PARABOLIC VERTICAL CURVES THAT TRANSITION SMOOTHLY INTO THE NEXT LINE. BROKEN TANGENTS (LINES WITH DIFFERING SLOPES) IS NOT AN ACCEPTABLE METHOD OF FORMING ROADS, CURBS OR WALKS. LIKEWISE, THE GRADED SLOPES SHALL BE ROUNDED AT TOP AND BOTTOM.

MINIMUM & MAXIMUM SLOPES ON UNPAVED AREAS. UNLESS EXPRESSLY NOTED OTHERWISE ON THE PLAN, UNPAVED AREAS SHALL HAVE A MINIMUM SLOPE OF 2% AND A MAXIMUM SLOPE OF 2:1.

MINIMUM SLOPES ON PAVEMENTS: UNLESS OTHERWISE EXPRESSLY NOTED ON THE PLAN (BY ARROW WITH THE PERCENT SLOPE LABELED), ALL PROPOSED ASPHALT PAVEMENT SHALL HAVE MINIMUM SLOPE OF 1.7% AND ALL CONCRETE PAVEMENT SHALL HAVE A MINIMUM SLOPE OF 1% IN THE DIRECTION INDICATED BY PROPOSED CONTOURS.

CURB & GUTTER: THE LONGITUDINAL (PROFILE) SLOPE OF CURB AND GUTTER SHALL BE A MINIMUM OF 1.0% EXCEPT WHERE ADJOINING PAVEMENT SLOPES AWAY FROM THE CURB. THE DIRECTION OF THE CROSS SLOPE OF GUTTER PANS SHALL MATCH THE DIRECTION OF THE ADJOINING PAVEMENT.

SLOPES FOR ON-SITE WALKS AND PEDESTRIAN PAVEMENTS: ON-SITE WALKS, PATIOS, AND ALL PEDESTRIAN PAVEMENTS SHALL BE ADA ACCESSIBLE AND SHALL COMPLY WITH THE FOLLOWING MAXIMUM SLOPES: LONGITUDINAL SLOPES SHALL NOT EXCEED 5.0% AND CROSS SLOPES SHALL NOT EXCEED 2.0%.

SLOPES OF HANDICAPPED RAMPS IN PUBLIC RIGHT-OF-WAY: HANDICAPPED RAMPS IN PUBLIC RIGHT-OF-WAYS SHALL COMPLY WITH HOWARD COUNTY STANDARD DETAILS, THE LONGITUDINAL SLOPE NOT EXCEEDING 8.33% AND THE CROSS SLOPE NOT EXCEEDING 2.0%.

DRAINAGE ACROSS WALKS AND PATHS: ALL UNPAVED SURFACES ADJACENT TO THE HIGH SIDE OF THE PAVED SURFACE SHALL BE 3/4" HIGHER THAN THE PAVED SURFACE TO PREVENT WATER FROM ACCUMULATING ALONG THE EDGE OF THE PATH AND ALL UNPAVED SURFACES ALONG THE LOWER SIDE OF A PAVED SURFACE SHALL BE 3/4" LOWER THAN THE PAVED SURFACE TO PERMIT FREE DRAINAGE OFF THE PAVED SURFACE.

ELEVATION TOLERANCES: WHILE ACHIEVING THE DESIGN INTENT (AESTHETIC AND FUNCTIONAL) OF THE GRADING REQUIRED BY THE GRADING PLANS AND THESE NOTES, AND THE MAXIMUM AND MINIMUM SLOPES REQUIRED ABOVE, THE GRADING TOLERANCE FOR LAWN AND OTHER UNPAVED AREAS IS 0.1' ELEVATION, FOR CURBS AND PAVEMENTS IS 0.05' ELEVATION.

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	09/28/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division: *Chad Johnson* 9-29-16
 Chief, Division of Land Development: *Wesley Lane* 9-30-16
 Director: *Nick Maggipoli* 10-3-16

CORRECT METHOD UNACCEPTABLE CORRECT METHOD UNACCEPTABLE

REVISED GRADING PLAN NORTH
ELKCRIDGE FIRE STATION
PARCEL A "GREEN BUILDING"

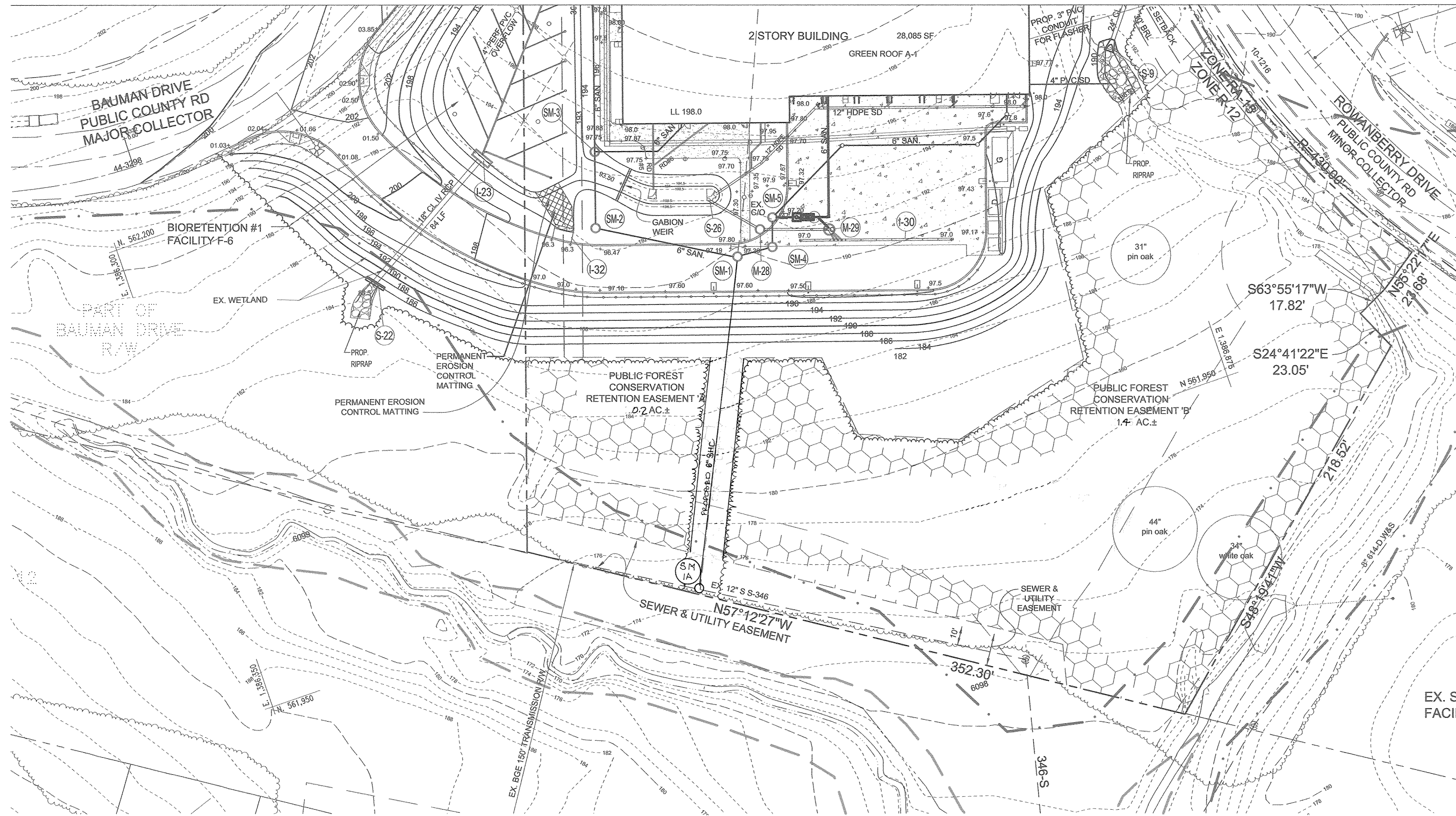
TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

SILL ENGINEERING GROUP, LLC
11130 Dovedale Court, Suite 200
Marriottville, Maryland 21104
Phone: 443-325-5076
Fax: 410-696-2022
Email: info@sillengineering.com
Civil Engineering for Land Development

DESIGN BY: JS
DRAWN BY: AEA
CHECKED BY: PS
SCALE: 1"=30'
DATE: SEPTEMBER 28, 2016
PROJECT #: 16-020
SHEET #: 7 of 41

PROFESSIONAL CERTIFICATION: 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. 32025, EXPIRATION DATE: JUNE 20, 2017.



LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- DIRECTION OF FLOW
- EXISTING TREELINE
- PROPOSED TREELINE
- WETLAND
- WETLAND BUFFER
- EXISTING STORMDRAIN
- PROPOSED STORMDRAIN
- EXISTING SEWER
- PROPOSED SEWER
- EXISTING WATER
- PROPOSED WATER
- EXISTING ELECTRIC
- UTILITY POLE
- LIGHT POLES
- FOREST CONSERVATION EASEMENT
- CONCRETE VEHICULAR PAVEMENT
- CONCRETE PEDESTRIAN PAVEMENT

NO.	DESCRIPTION	DATE
2	REPLACE EXISTING SEWER LINE	11/01/2011
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	09/28/2015

NO.	DESCRIPTION	DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Paul Sill 9-29-16
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Veronica 9-30-16
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Walter 10-3-10
 DIRECTOR DATE

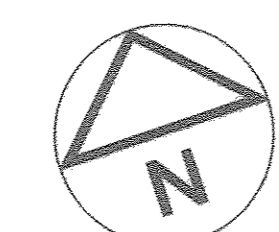
ENGINEER		OWNER/DEVELOPER	
SILL ENGINEERING GROUP, LLC HOWARD COUNTY, MARYLAND 11130 DOVEDALE COURT, SUITE 200 MARRIOTTSVILLE, MARYLAND 21104 OFFICE: 443-325-5067 FAX: 410-696-2022 EMAIL: PAUL@SILLENGINEERING.COM		MARK STROMDAHL HOWARD COUNTY, MARYLAND 9250 BENDIX ROAD COLUMBIA, MD 21045 PHONE: 410-315-5757 EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV	

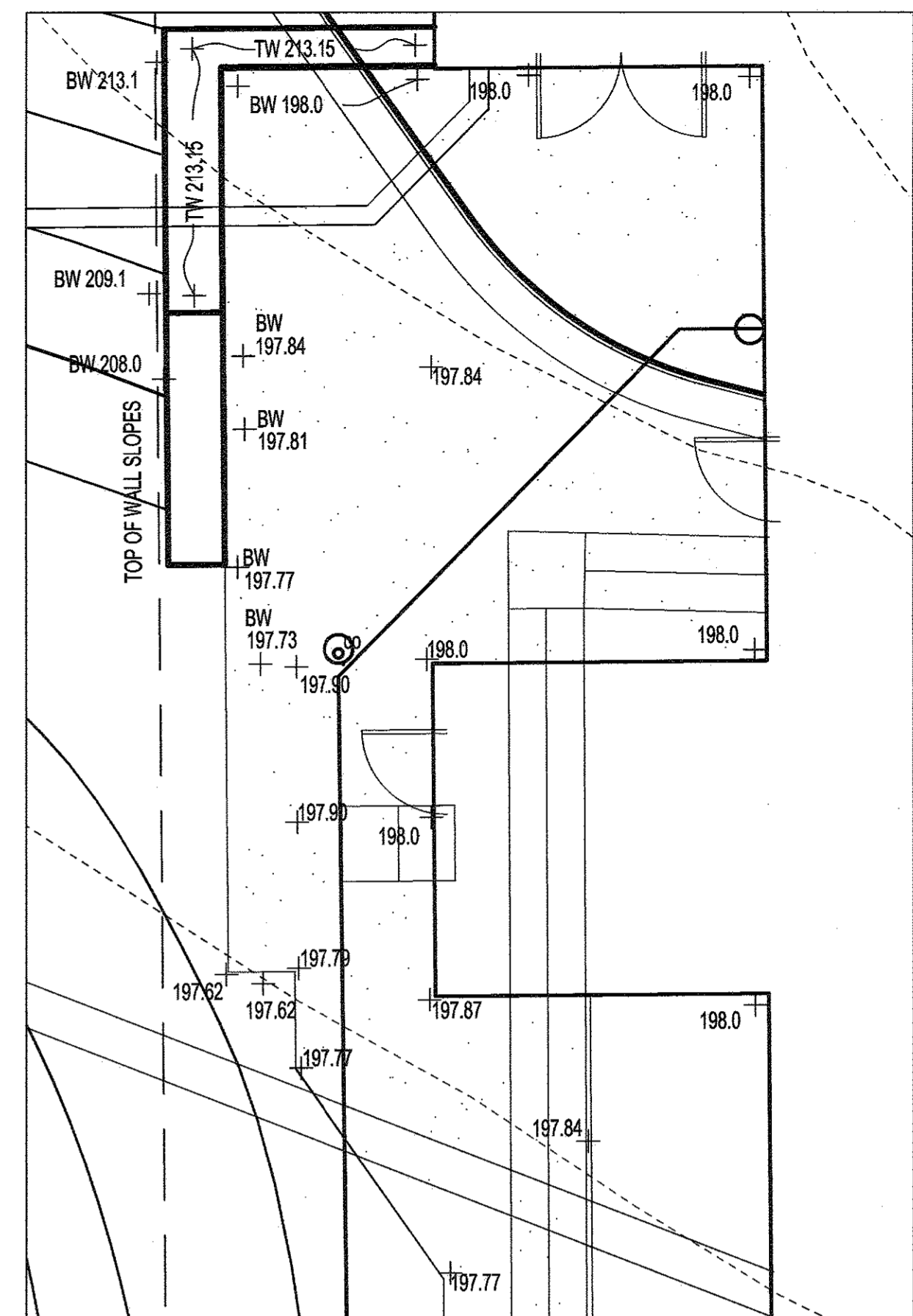
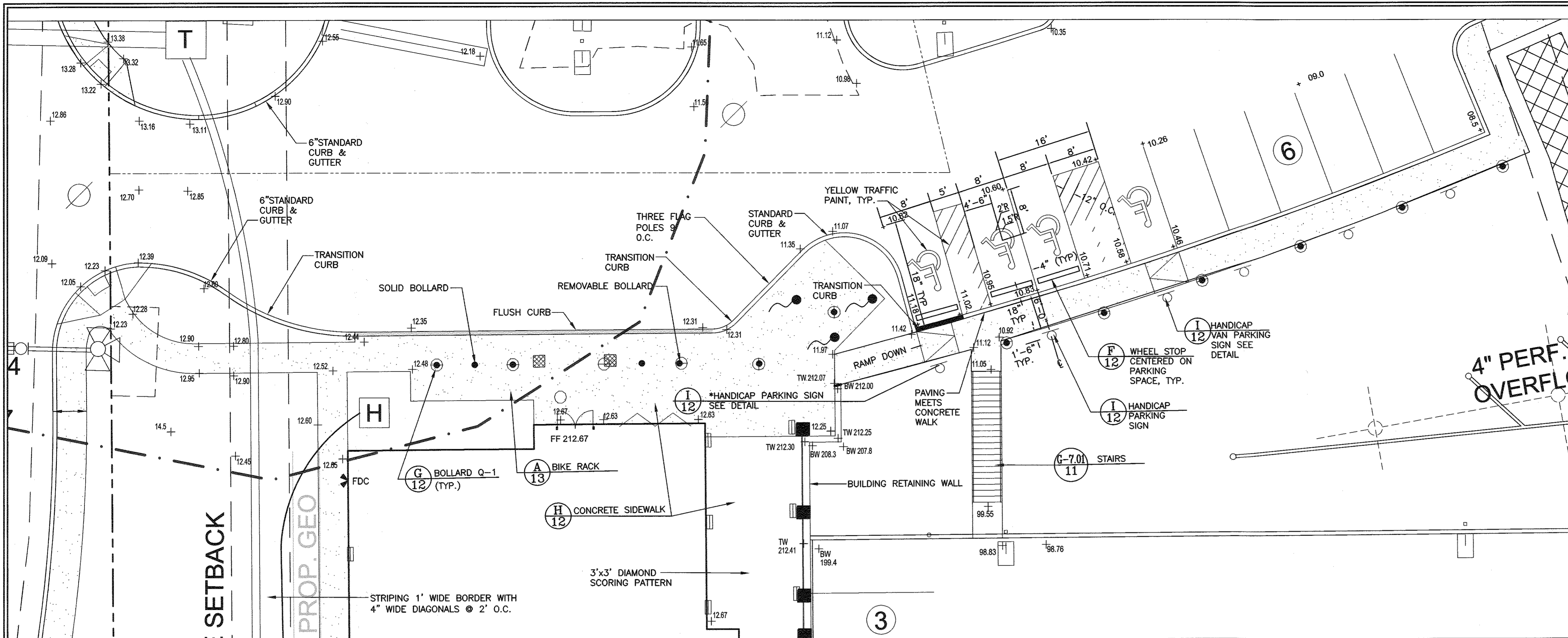
REVISED GRADING PLAN SOUTH
ELKRIDGE FIRE STATION
 PARCEL A
 "GREEN BUILDING"

TAX MAP 38 GRID 12 1ST ELECTION DISTRICT PARCEL 402 & 403 A2 HOWARD COUNTY, MARYLAND

	SILL ENGINEERING GROUP, LLC 11130 Dovedale Court, Suite 200 Marriottsville, Maryland 21104 Phone: 443.325.5076 Fax: 410.696.2022 Email: info@sillengineering.com Civil Engineering for Land Development	DESIGN BY: JS DRAWN BY: AEA CHECKED BY: PS SCALE: 1"=30' DATE: SEPTEMBER 28, 2016 PROJECT #: 16-020 SHEET #: 8 of 41
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PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32025, EXPIRATION DATE: JUNE 30, 2017

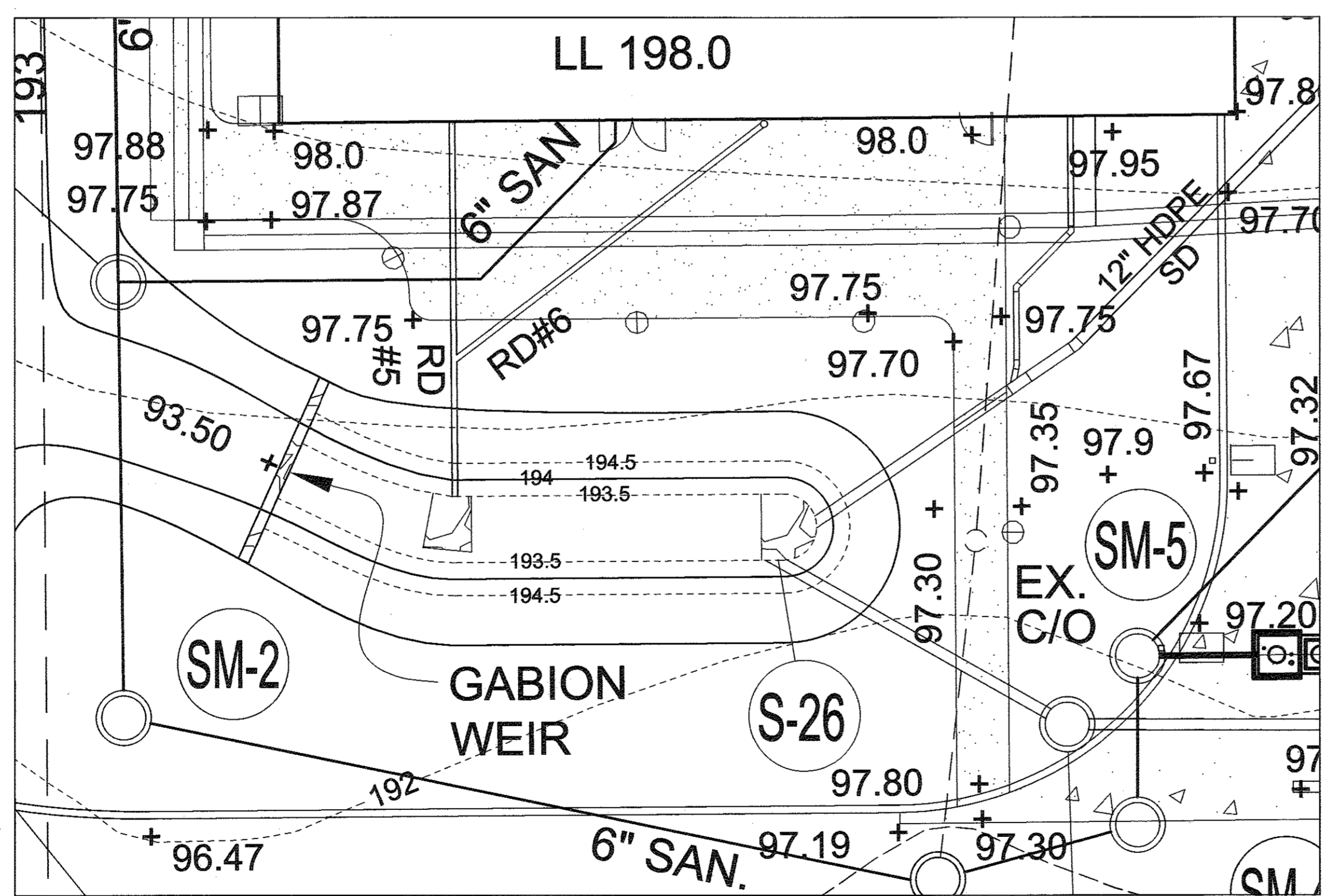
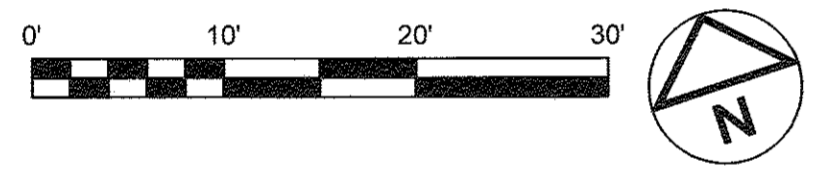




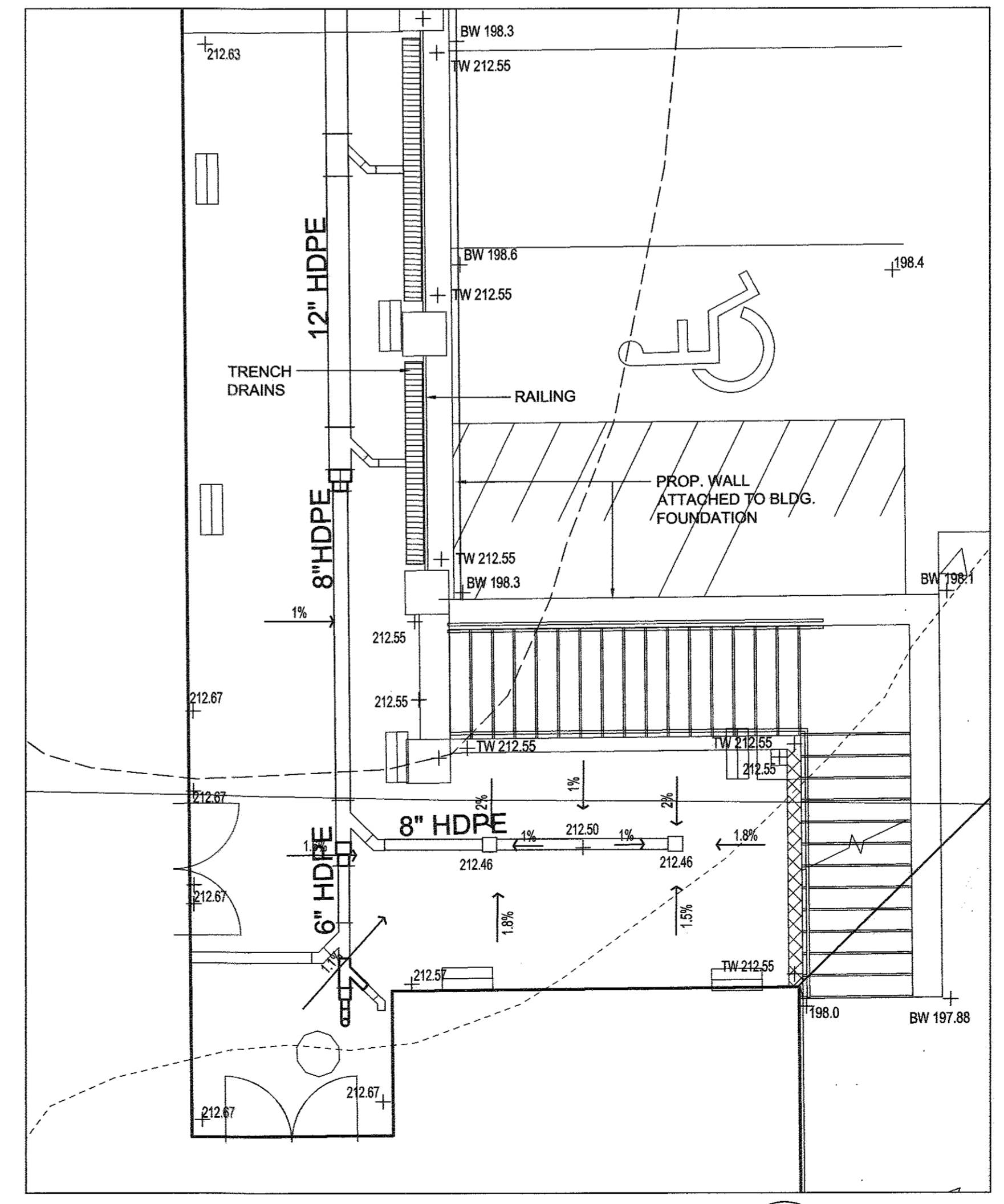
ENLARGEMENT OF WEST BASEMENT ENTRY AREA



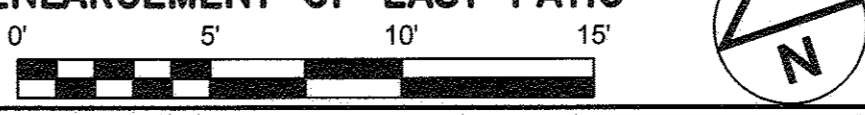
ENLARGEMENT OF FRONT ENTRANCE AND HANDICAPPED PARKING



ENLARGEMENT OF SOUTH PATIO



ENLARGEMENT OF EAST PATIO



1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	09/29/2016
NO.	DESCRIPTION	DATE
REVISIONS		
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING		
<i>Ed Blanton</i>	DATE: 9-30-16	
CHIEF, DEVELOPMENT ENGINEERING DIVISION		
<i>W. Schaefer</i>	DATE: 9-30-16	
CHIEF, DIVISION OF LAND DEVELOPMENT		
<i>Nathan J. J. J.</i>	DATE: 10-3-16	
DIRECTOR		

ENGINEER
SILL ENGINEERING GROUP, LLC
HOWARD COUNTY, MARYLAND
11130 DOVEDALE COURT, SUITE 200
MARRIOTTVILLE, MARYLAND 21104
OFFICE: 443-325-5067
FAX: 410-696-2022
EMAIL: PAUL@SILLENGINEERING.COM

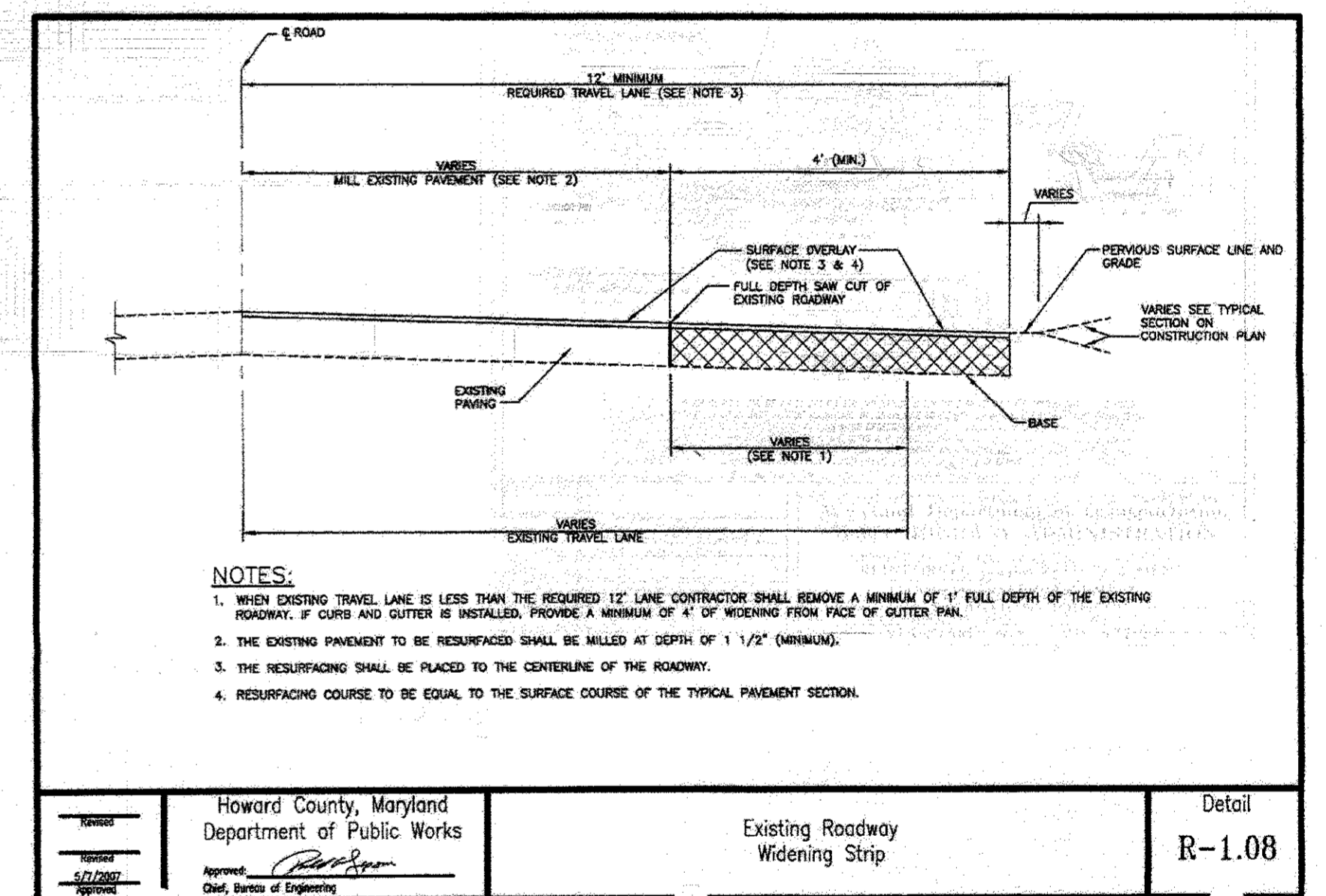
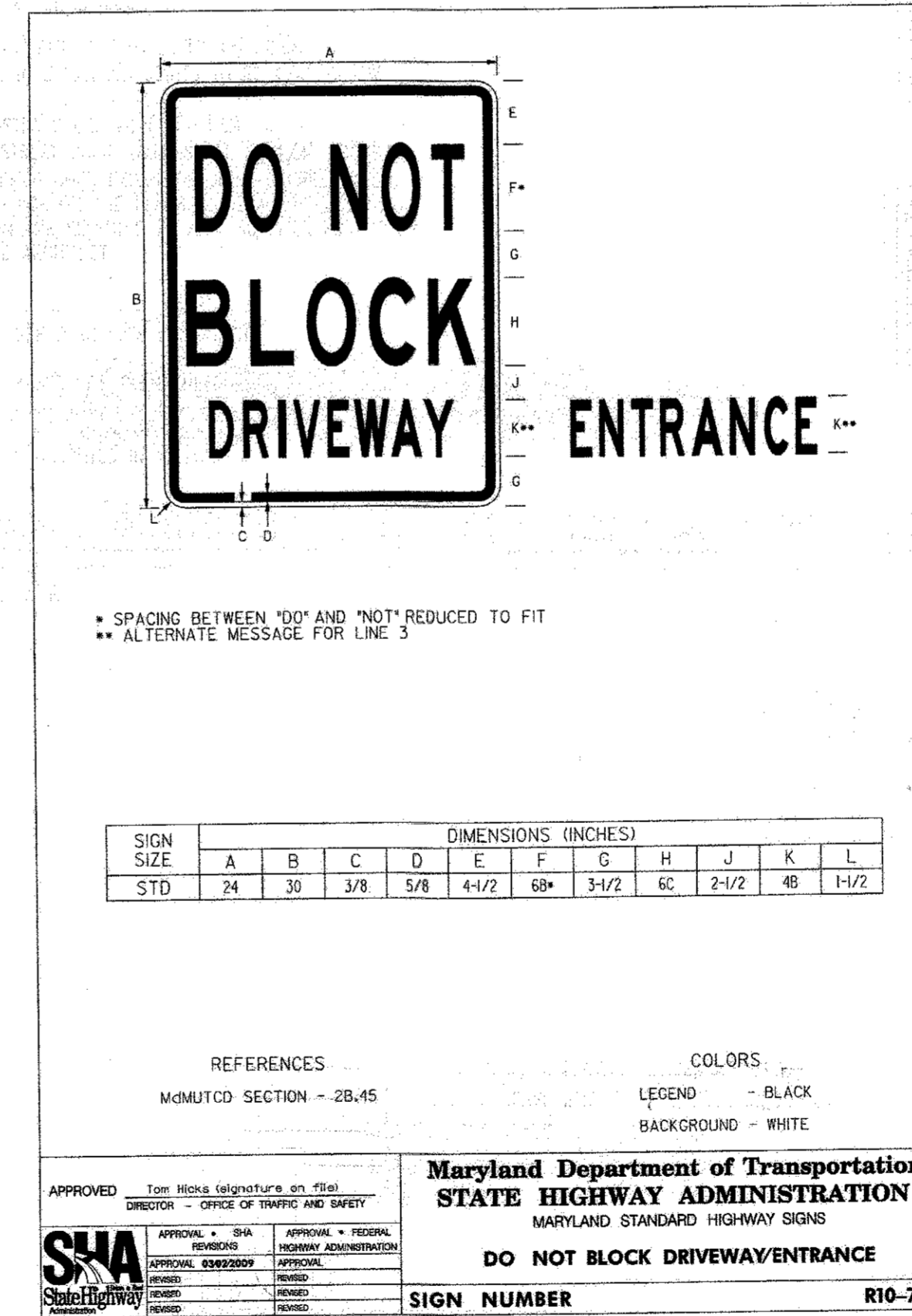
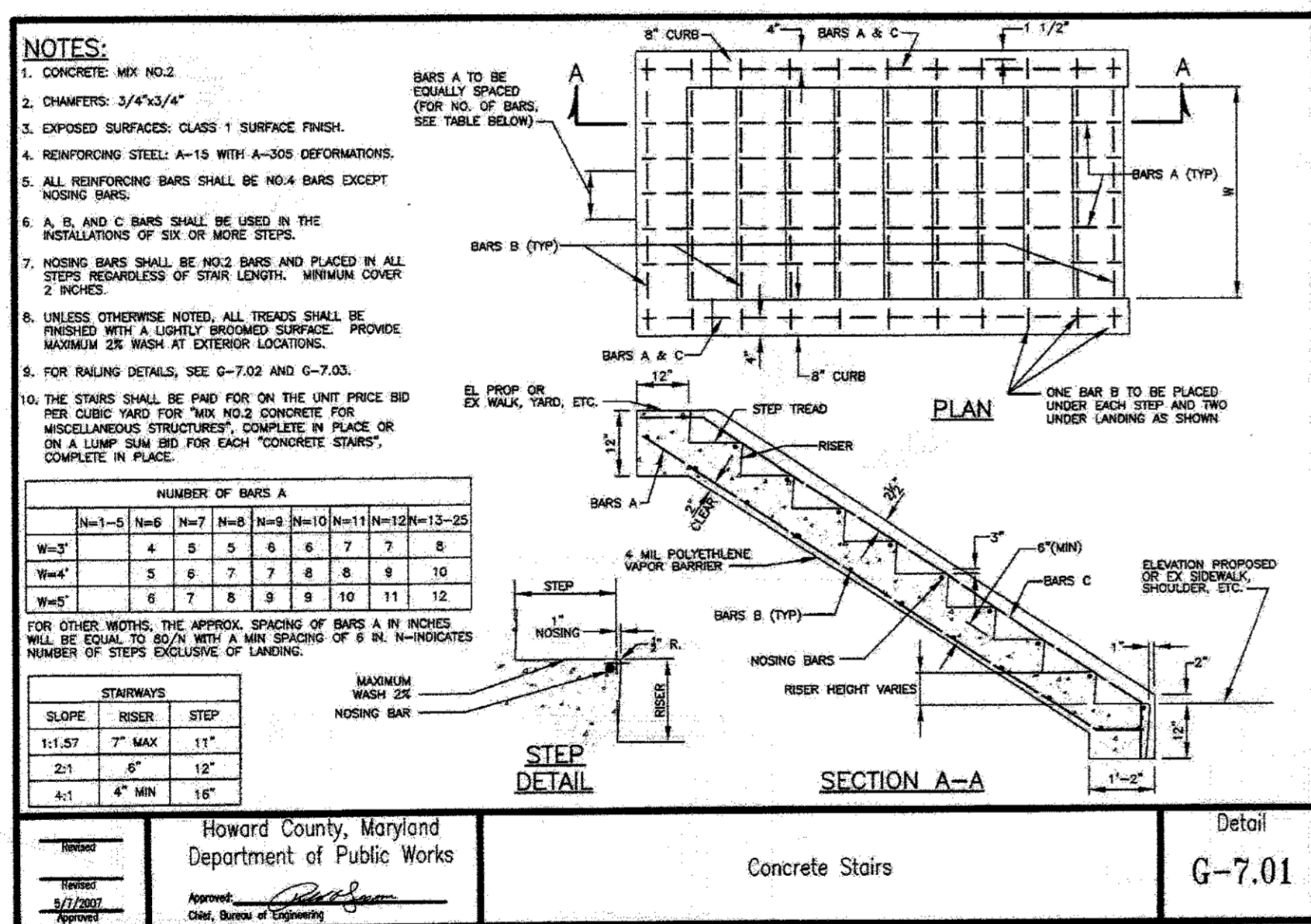
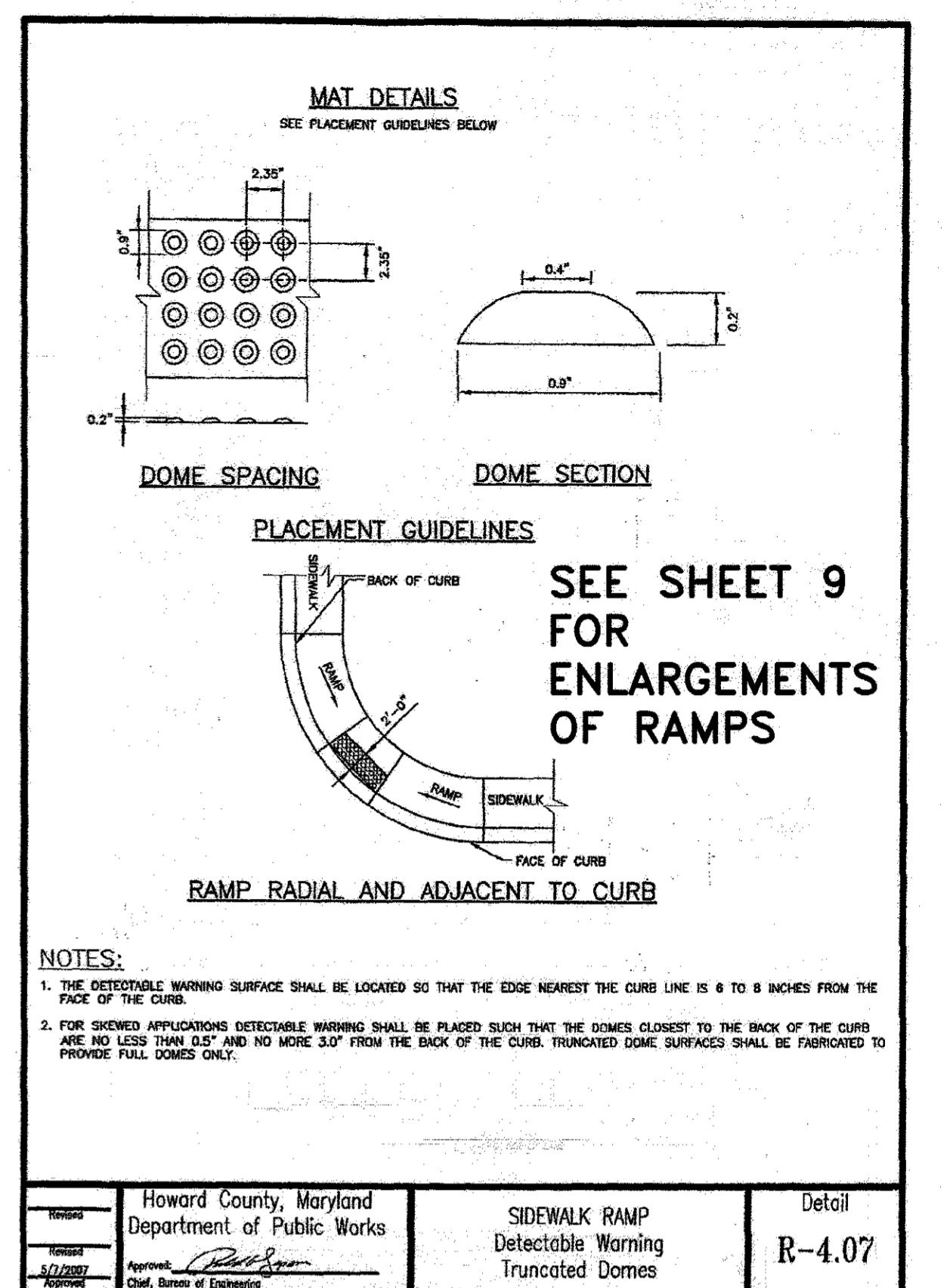
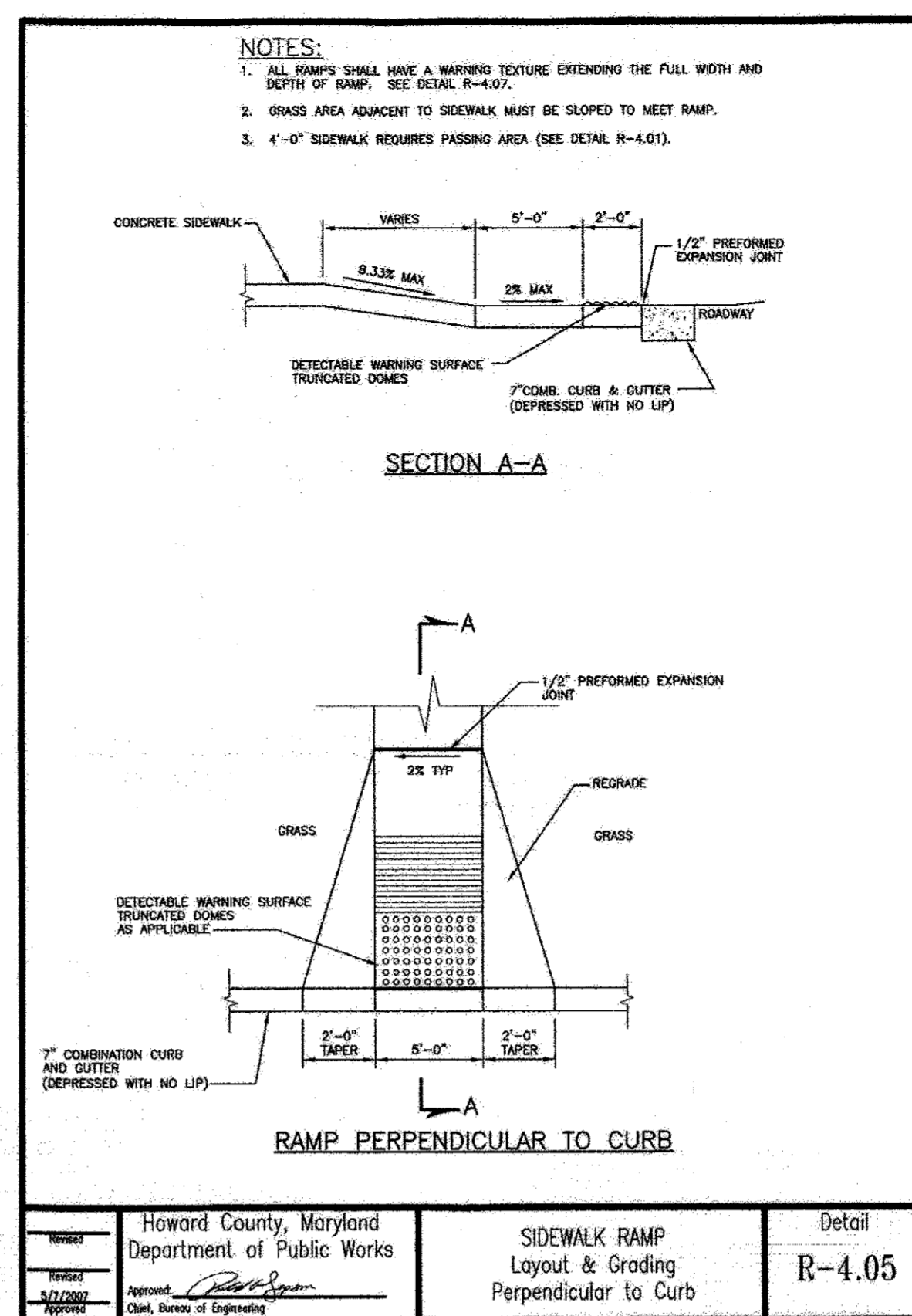
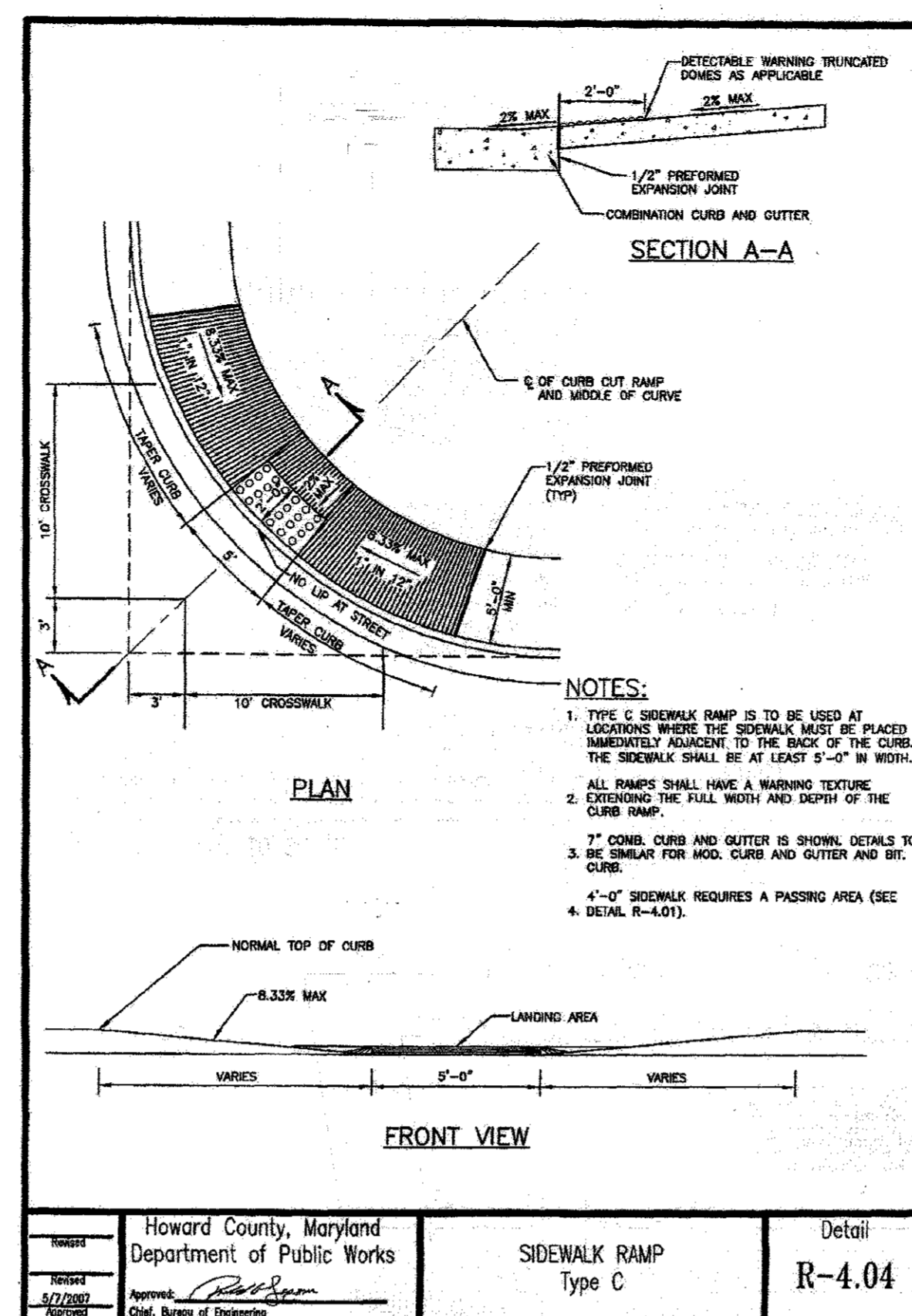
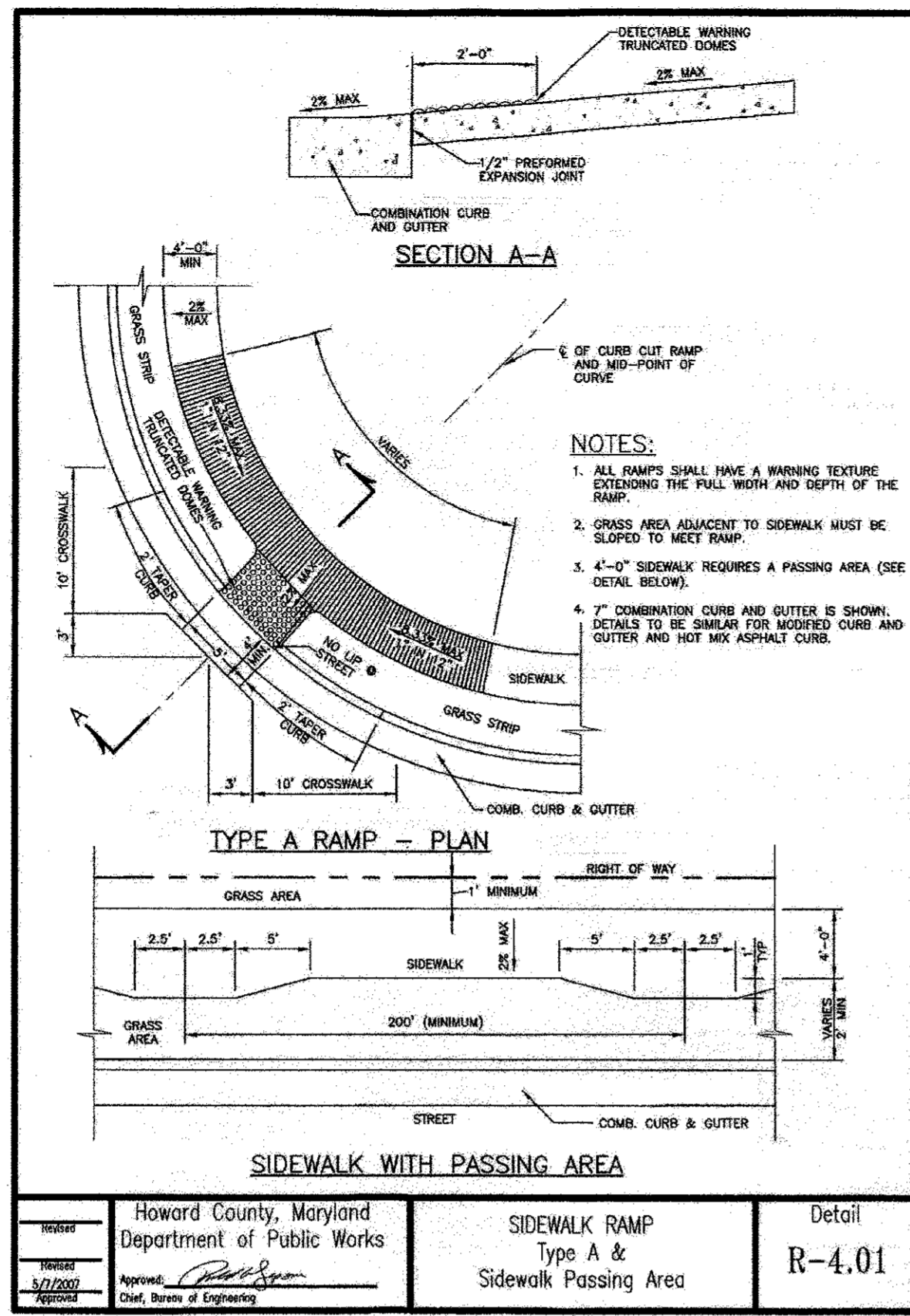
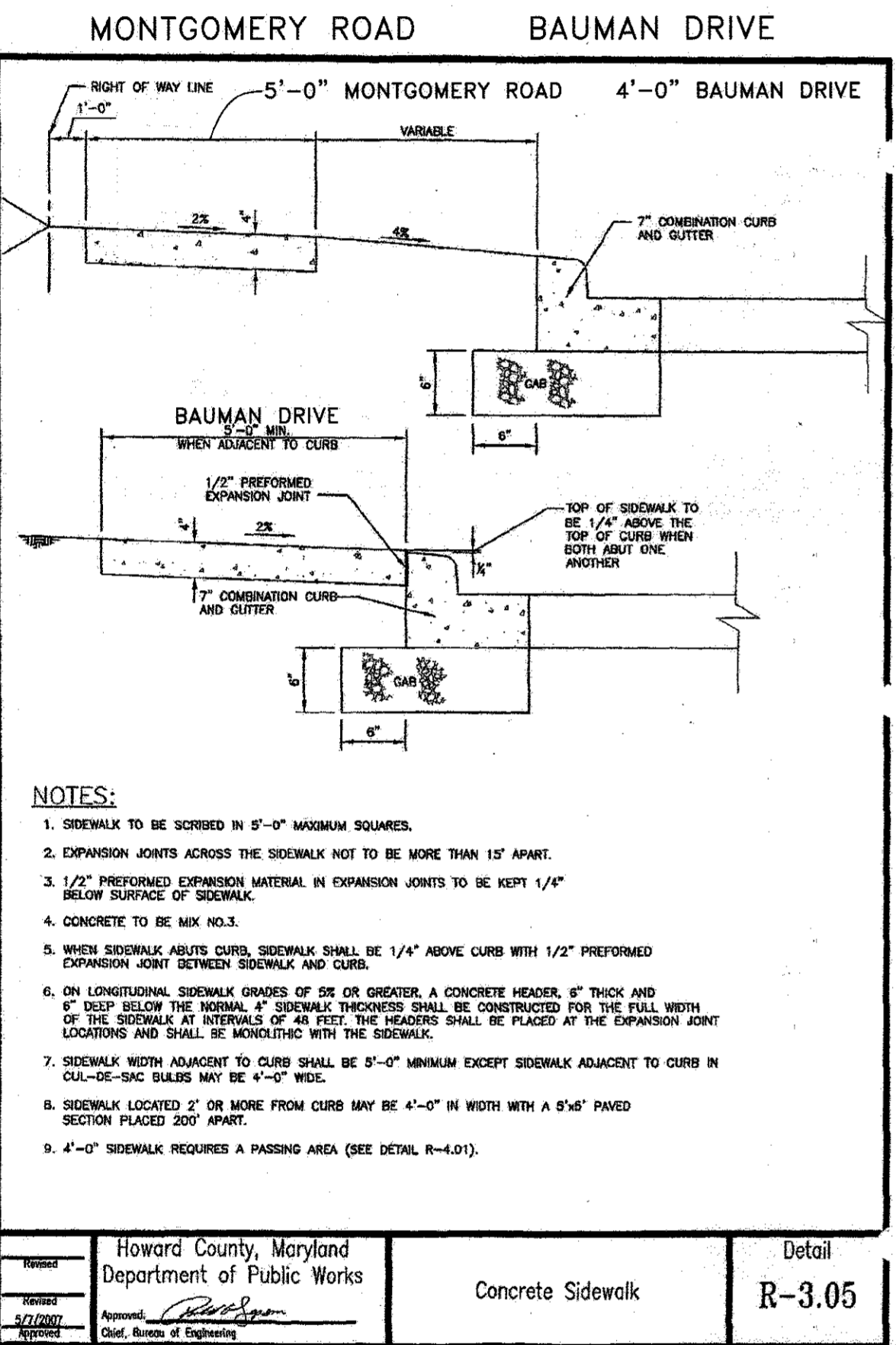
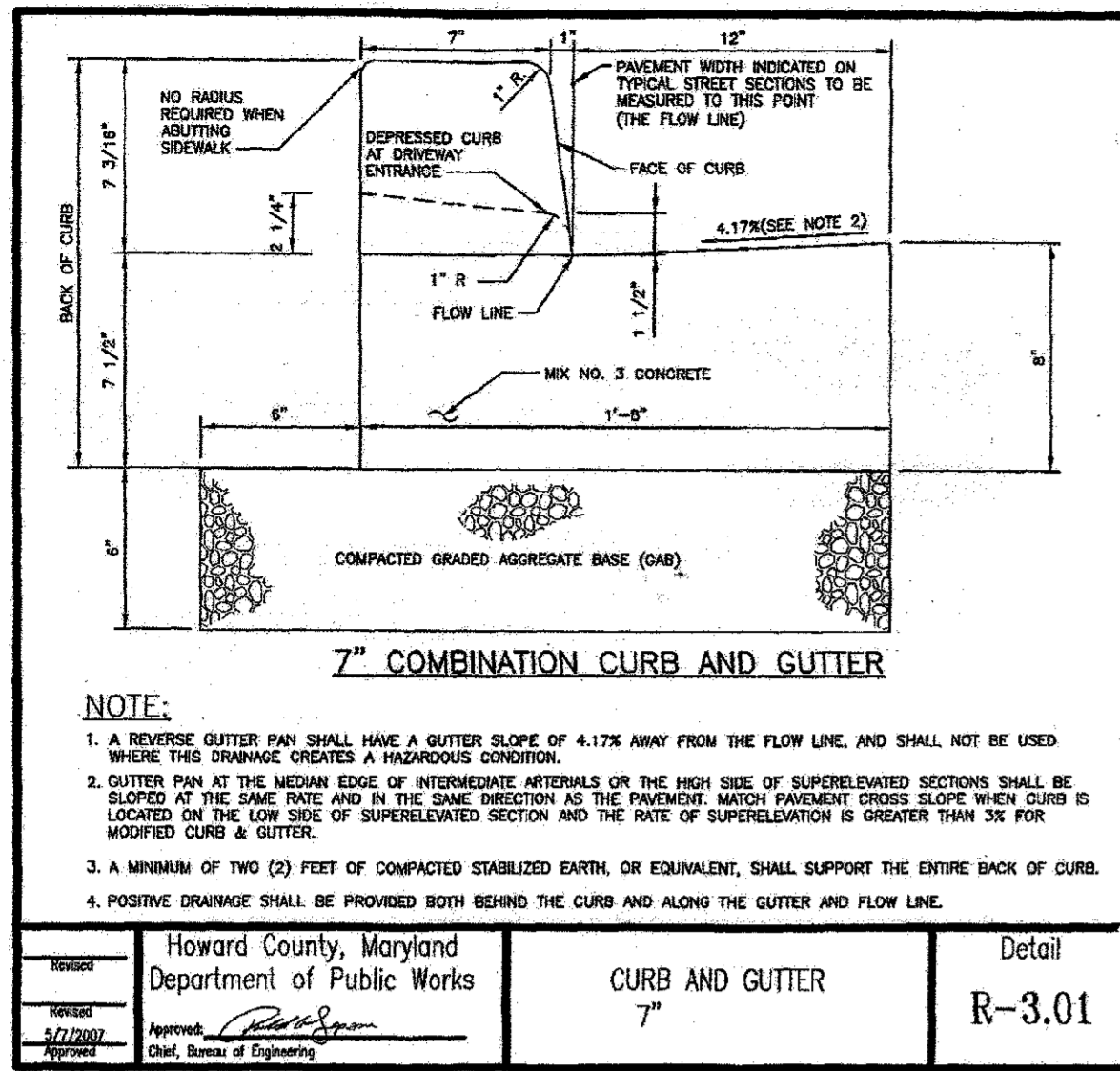
OWNER/DEVELOPER
MARK STROMDAHL
HOWARD COUNTY, MARYLAND
9250 BENDIX ROAD
COLLINSIA, MD 21045
PHONE: 410-313-5757
EMAIL: MCSTROMDAHL@HOWARDCOUNTYMID.GOV

REVISED ENLARGEMENTS PLAN
ELK RIDGE FIRE STATION
PARCEL A
"GREEN BUILDING"
TAX MAP 38 GRID 12
1ST ELECTION DISTRICT
PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

DESIGN BY: JS
DRAWN BY: AEA
CHECKED BY: PS
SCALE: AS SHOWN
DATE: SEPTEMBER 28, 2016
PROJECT #: 16-020
SHEET #: 10 OF 41

SILL ENGINEERING GROUP, LLC
11130 Dovedale Court, Suite 200
Marriottville, Maryland 21104
Phone: 443.325.5076
Fax: 410.696.2022
Email: info@sillengineering.com
Civil Engineering for Land Development

PROFESSIONAL CERTIFICATION I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DAILY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32025, EXPIRATION DATE, JUNE 20, 2017



SEE ARCHITECTURAL SHEET A04.7 FOR RAILING DETAIL

No.	Description	Date
1	Delete parking spaces, access to service dr., incl. dumpster, gen., & add traffic signal control plans, reduce access drive from 30'-24" by Sil Engineering Group.	5/16/12
	APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING	
	Chief, Development Engineering Division	9-16-15
	Chief, Division of Land Development	10-29-15
	Director	10-30-15

ENGINEER
Tesseract Sites, Inc.
401 Washington Ave.
Suite 303
Towson, MD 21202
Contact: Jeffrey Schwab
ph: 410-521-1600
fax: 410-521-1601

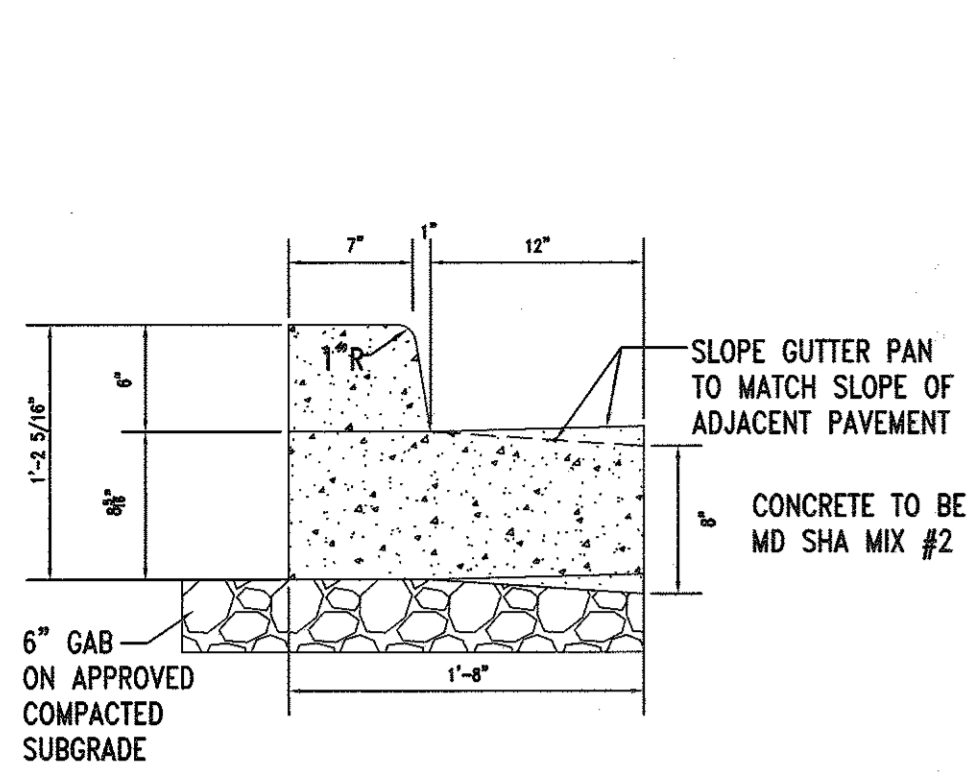
OWNER AND DEVELOPER
Mark Stromdahl
Howard County Maryland
9250 Bendix Road
Columbia, MD 21045
ph: 410-313-5757
email: MStromdahl@howardcountymd.gov

Tesseract
JEFFREY SCHWAB
Tesseract Sites, Inc.
401 Washington Ave., Suite 303
Towson, Maryland, 21204
p. 410.321.7800
f. 410.321.7801

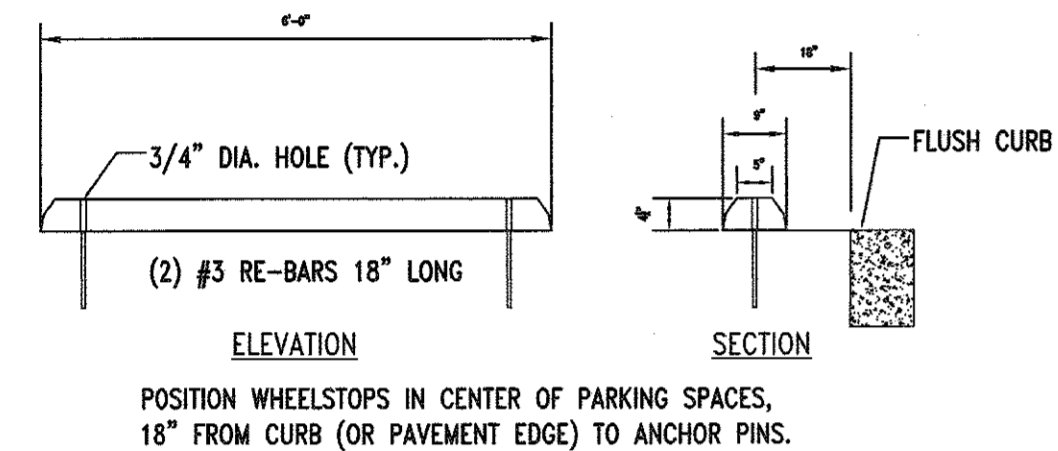
Site Details
Elkridge Fire Station
Parcel A
"Green Building"
Howard County, Maryland

Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 14230, Expiration Date: 12/09/16.

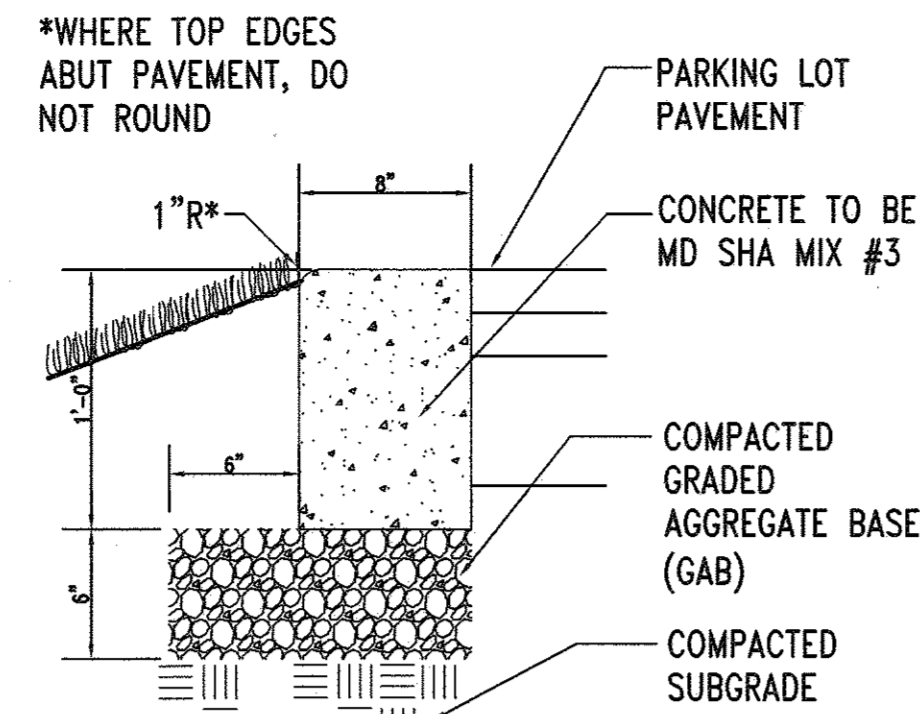
DATE: 09/02/15	PROJECT: 14609/20	SCALE: AS SHOWN
PROJ. #: 12021	DATE: 11/10/15	SCALE: AS SHOWN
11 of 41		



(A) 6" Curb and Gutter



(F) PreCast Concrete Wheelstop
NOT TO SCALE WHEELSTOPS SHALL BE ULTRALOCK WHEELSTOPS OR APPROVED EQUAL.



(B) Curb-Flush
PER HOWARD COUNTY DPW DETAIL R-3.07
NOT TO SCALE

STREETWORKS®

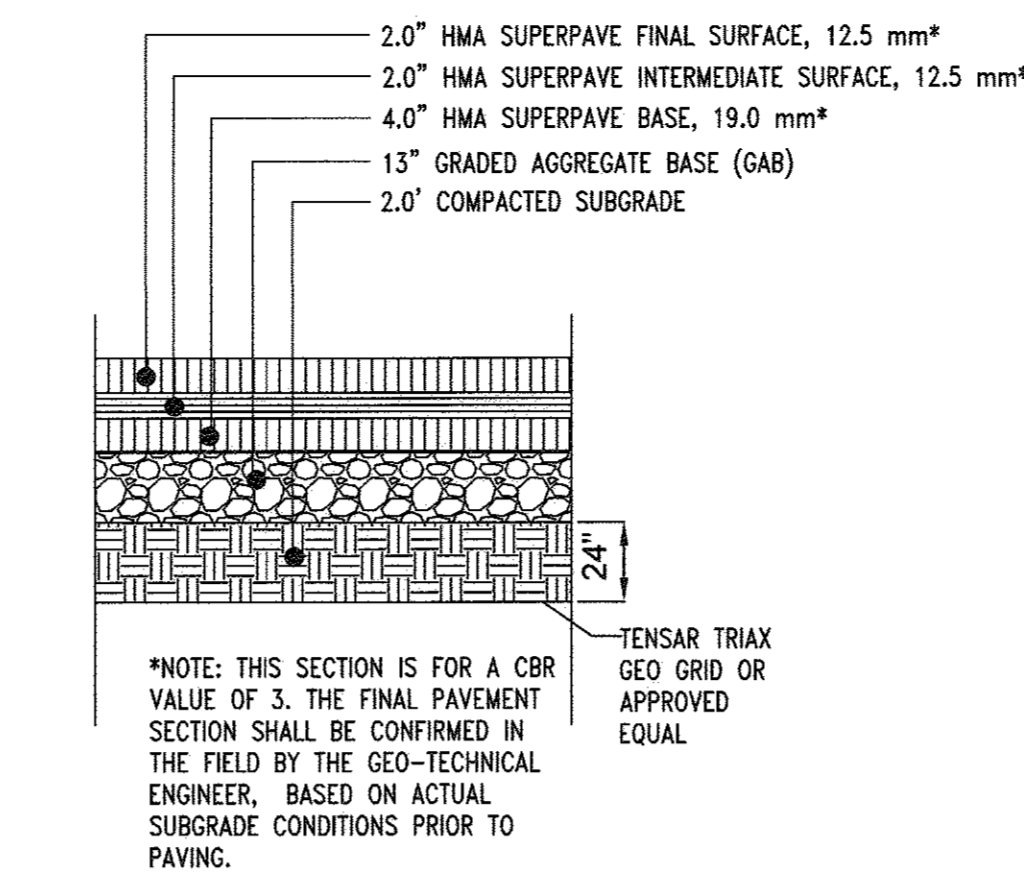
DESCRIPTION
Bollards are designed for walkways, enclosures, drives and other small area lighting applications where low mounting heights are desirable.

SPECIFICATION FEATURES

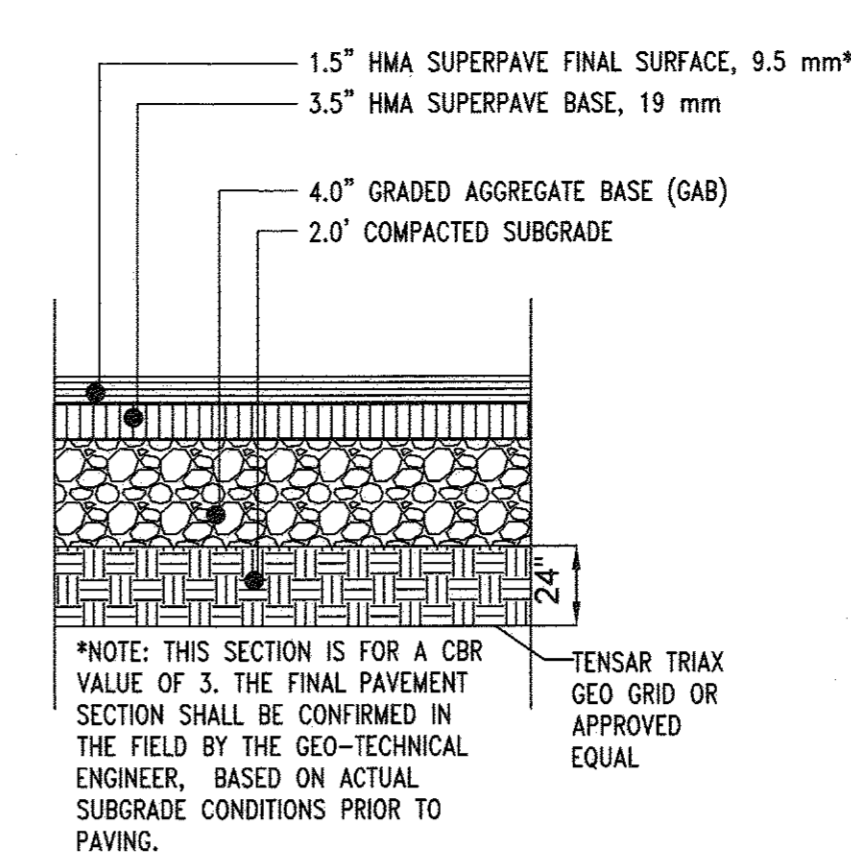
Category	Type
Project	Site
Comments	
Proposed by	

SBS/SBR BOLLARD
50-1759W
High Pressure Sodium
Medium Height
Length: 18" x 18" x 18" (TYP.)
FINISH: LUMINOUS

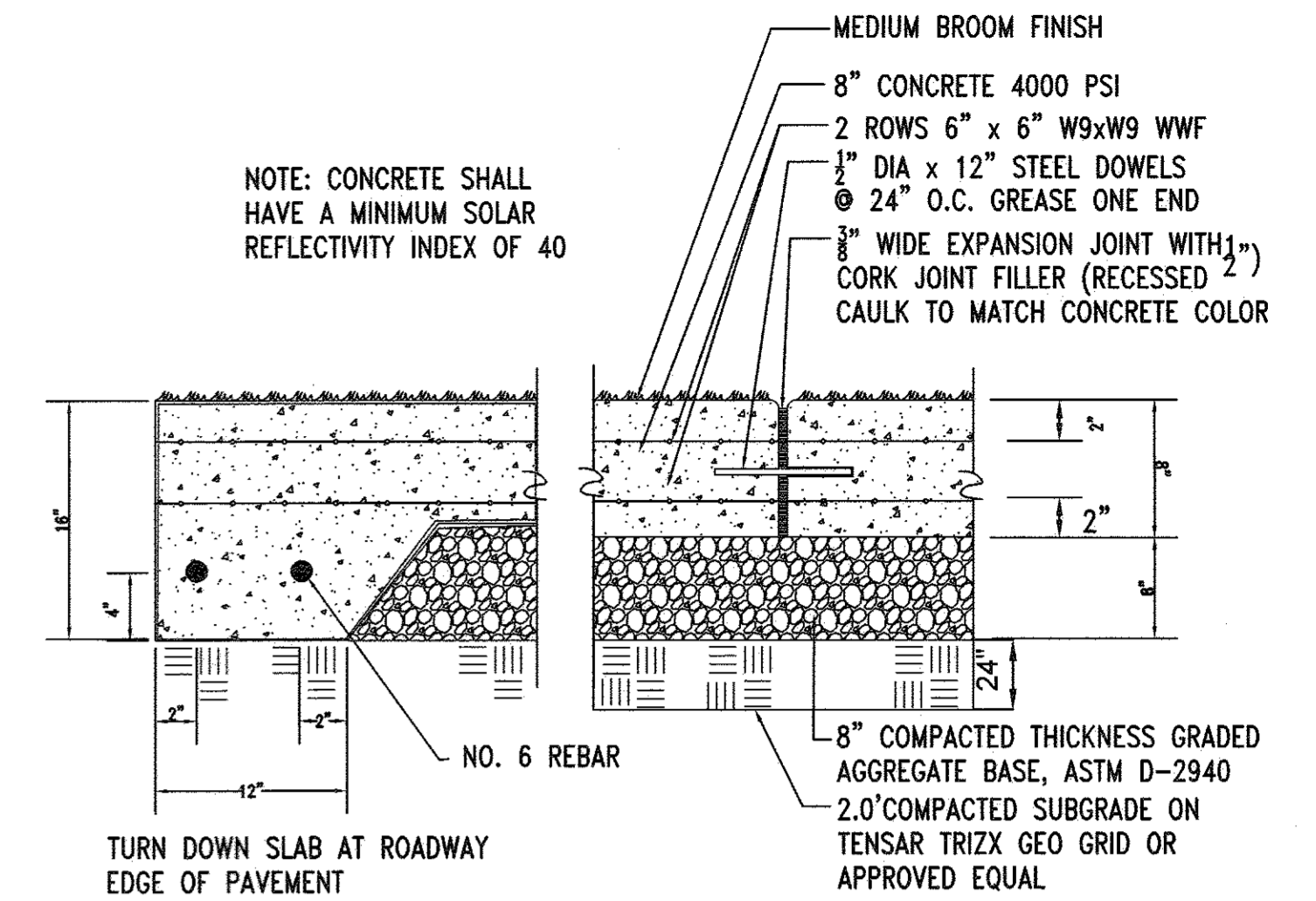
SHIPPING DATA
Approximate Weight: 15.0 lbs. (11.3 kg)
Approximate Volume: 0.015 cu. yd. (0.011 cu. m.)



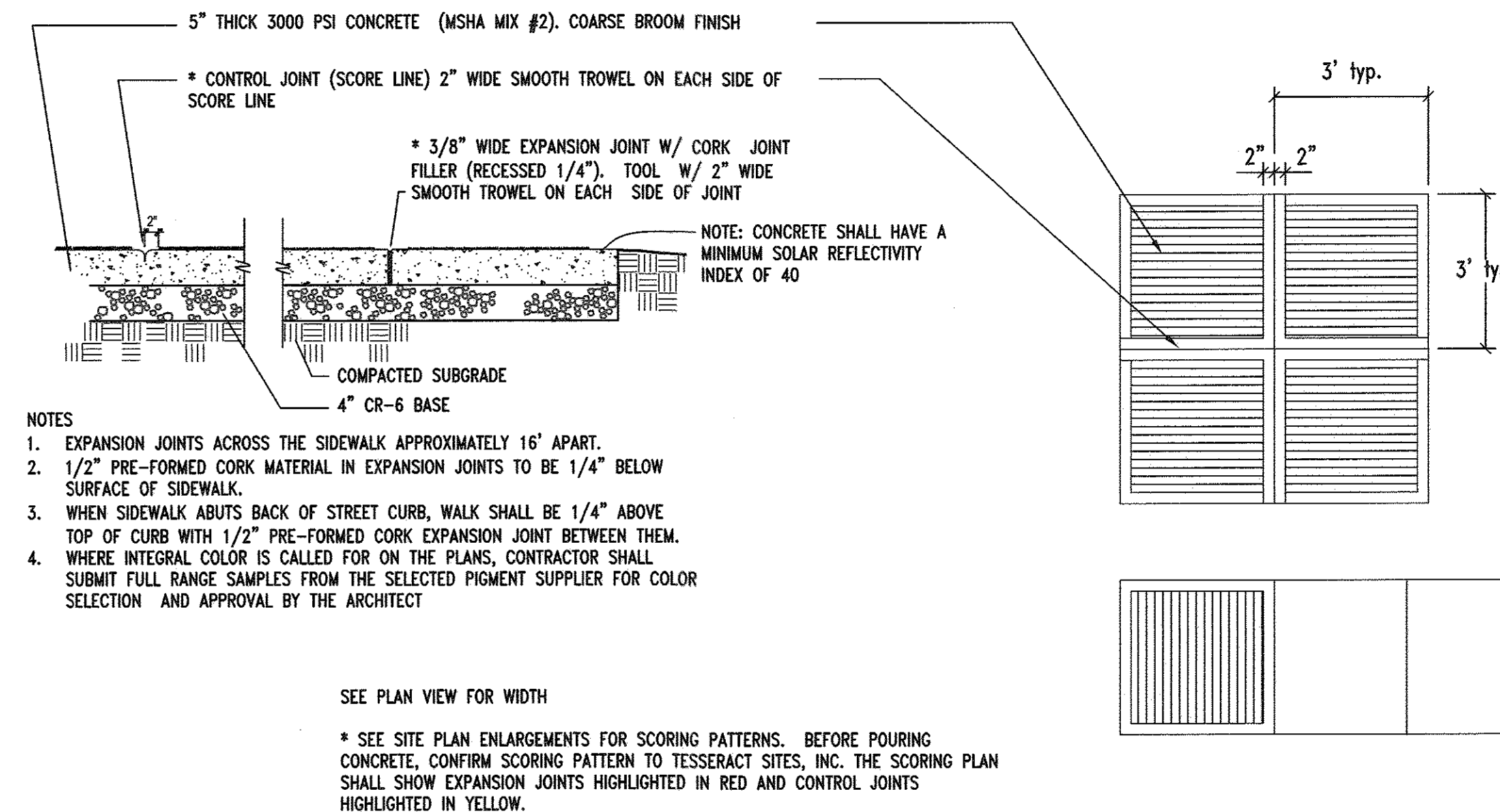
(C) Fire Access Driveways & Parking Paving Section (P4)
NOT TO SCALE
COMPACTION LEVEL 1
BINDER TYPE PG 64-22



(D) Parking Lot Paving Section (P1)
NOT TO SCALE
COMPACTION LEVEL 1
BINDER TYPE PG 64-22



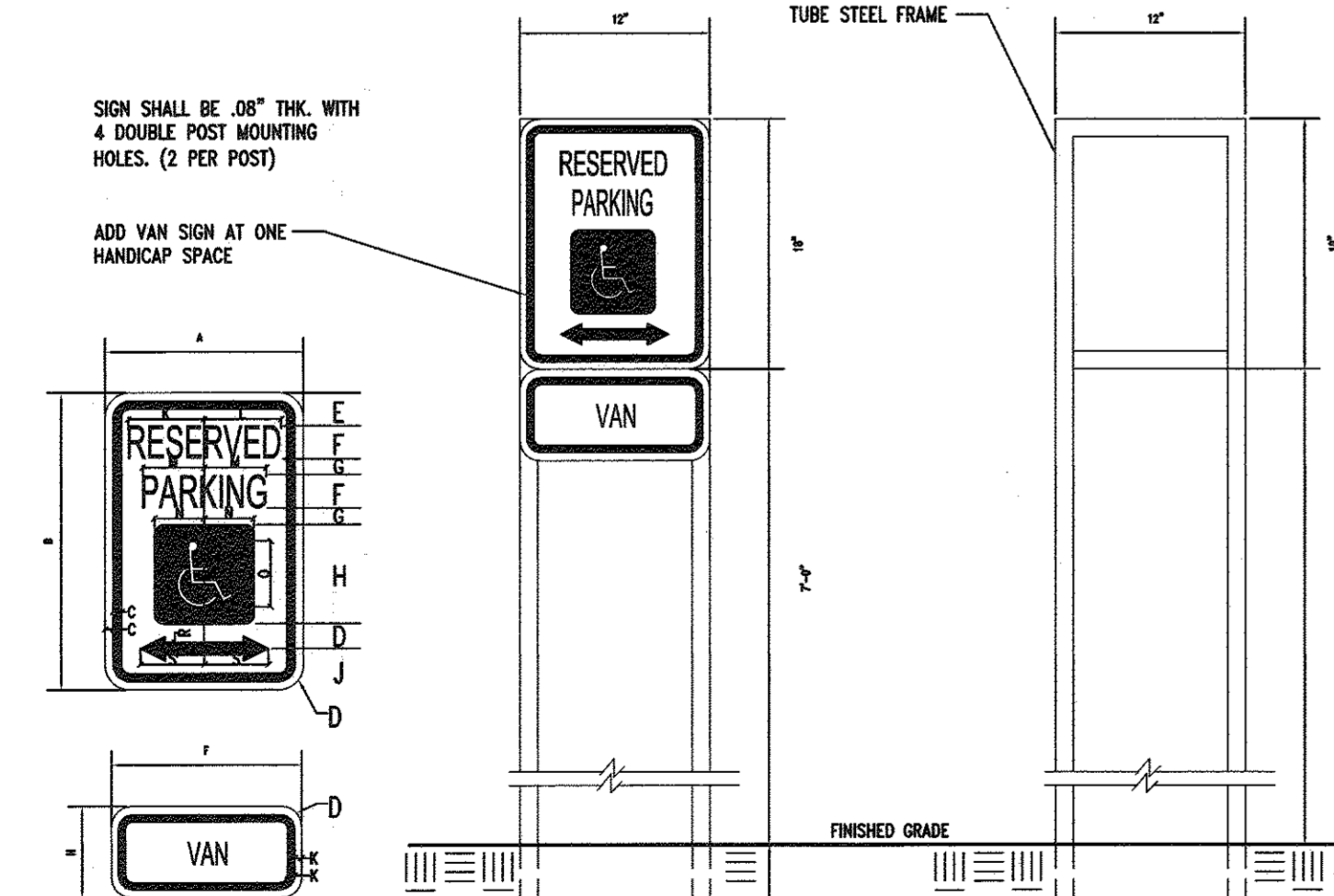
(E) Concrete Vehicular Pavement
NOT TO SCALE
NOTE: REFER TO MD 572.22 DETAIL FOR DOWEL INSTALLATION, TYP.



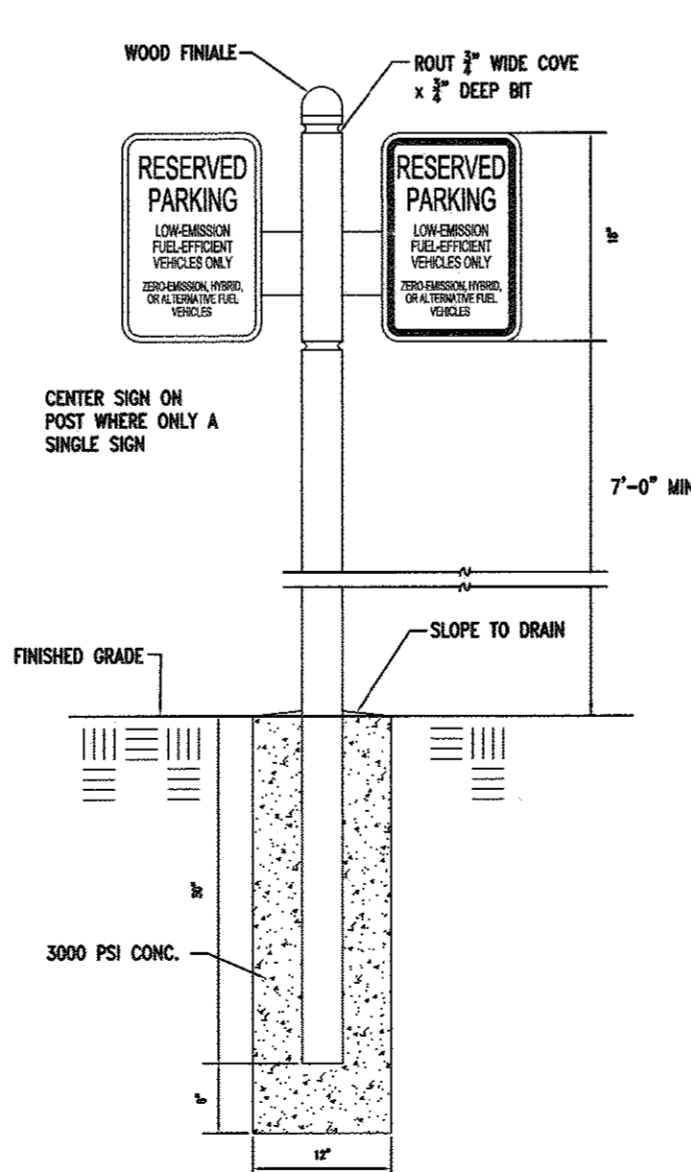
(H) Concrete Sidewalk - Windowpane (on site only)
NOT TO SCALE

<p>APPROVED: <i>[Signature]</i></p> <p>DATE: 10-30-16</p>	<p>APPROVED: <i>[Signature]</i></p> <p>DATE: 10-30-16</p>
---	---

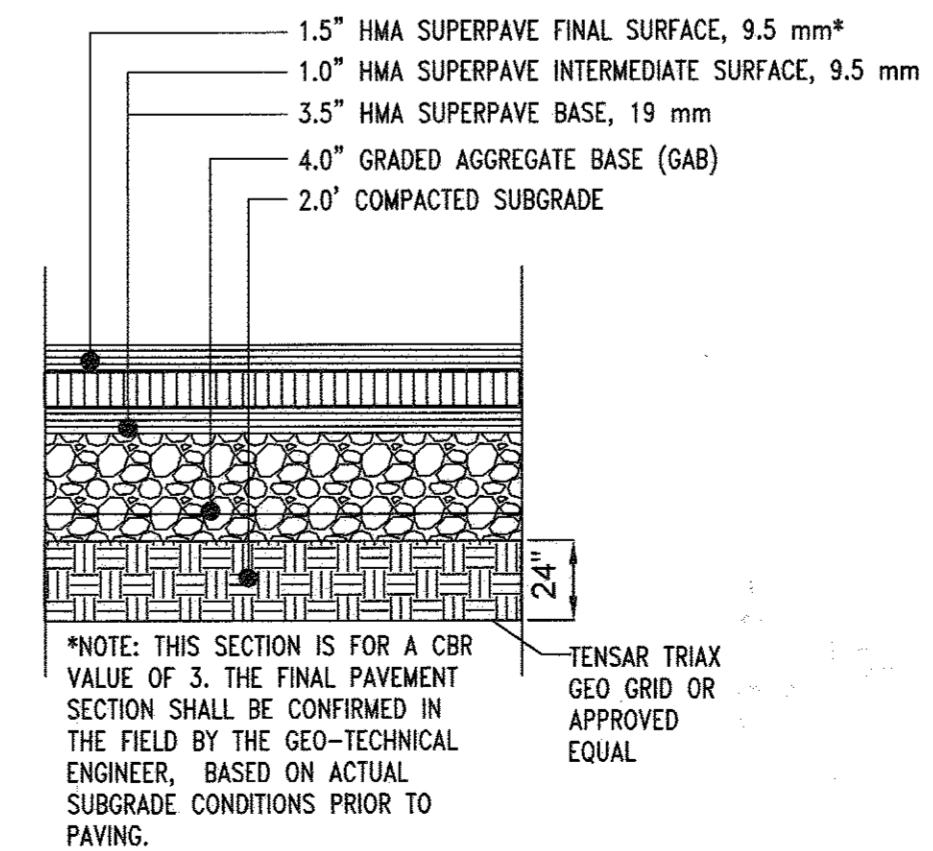
Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
REINFORCED CONCRETE PAVEMENT
LOAD TRANSFER ASSEMBLY -
EXPANSION JOINTS
STANDARD NO. MD 572.22



(G) Bollard Q-1
NOT TO SCALE



(J) Reserved Parking Signs
Low Emission Vehicles
NOT TO SCALE



(K) Driveway Paving Section (P2)
NOT TO SCALE
COMPACTION LEVEL 1
BINDER TYPE PG 64-22

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	09/28/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] Chief, Development Engineering Division
[Signature] Chief, Division of Land Development

COLORS - HANDICAP AND FINE SIGN
LEGEND AND BORDER - GREEN
WHITE SYMBOL ON BLUE BACKGROUND
BACKGROUND - WHITE

SIGN SIZE	DIMENSIONS (INCHES)																
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
STD.	12	18	1/2	1/2	2	2	1	6	3	4	5	4	3	1	4	1	3

LEGEND AND BORDER - GREEN
WHITE SYMBOL ON BLUE BACKGROUND
BACKGROUND - WHITE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] Chief, Development Engineering Division
[Signature] Chief, Division of Land Development

(I) Handicap Parking Signs
NOT TO SCALE

CONTRACTOR SHALL INSTALL TEST PANEL OF CONCRETE PAVING AND SHALL MEASURE SRI 6 MONTHS AFTER INSTALLATION. A MINIMUM SRI OF 40 SHALL BE OBTAINED.

ENGINEER: SILL ENGINEERING GROUP, LLC
11130 DOVEDALE COURT, SUITE 200
MARRIOTTVILLE, MARYLAND 21104
OFFICE: 443-325-5067
FAX: 410-696-2022
EMAIL: PAUL@SILLENGINEERING.COM

OWNER/DEVELOPER: MARK STROMDAHL
HOWARD COUNTY, MARYLAND
2550 BENDIX ROAD
COLUMBIA, MD 21045
PHONE: 410-313-5757
EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV

REVISED SITE DETAILS
ELKCRIDGE FIRE STATION

PARCEL A
"GREEN BUILDING"

TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

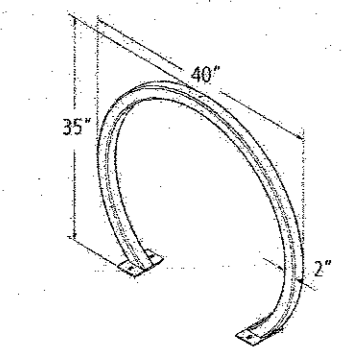
PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

DESIGN BY: *[Signature]*
DRAWN BY: *[Signature]*
CHECKED BY: *[Signature]*
SCALE: AS SHOWN
DATE: SEPTEMBER 28, 2016
PROJECT #: 16-020
SHEET #: 12 OF 41

STATE OF MARYLAND
SILL ENGINEERING GROUP, LLC
11130 Dovedale Court, Suite 200
Marriottville, Maryland 21104
Phone: 443.325.5075
Fax: 410.696.2022
Email: info@sillengineering.com
Civil Engineering for Land Development

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32025, EXPIRATION DATE: JUNE 20, 2017.

ARC RACK Specifications and Space Use



Product: Dero Arc Rack
As manufactured by Dero Bike Racks

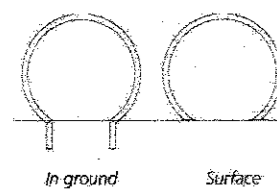
Capacity: 2 Bikes

Materials: 2" x 2" x 1/8" square tube

Finishes:
An after fabrication hot dipped galvanized finish is our standard option. 255 TCC powder coat colors, thermoplastic coating, PVC dip, and stainless steel finishes are also available as alternate options.

Our powder coat finish assures a high level of adhesion and durability by following these steps:
1. Sandblast
2. Epoxy primer electrostatically applied
3. Final thick TGIC polyester powder coat

Stainless Steel: 304 grade stainless steel material finished in either a high polished mirror or a satin finish.



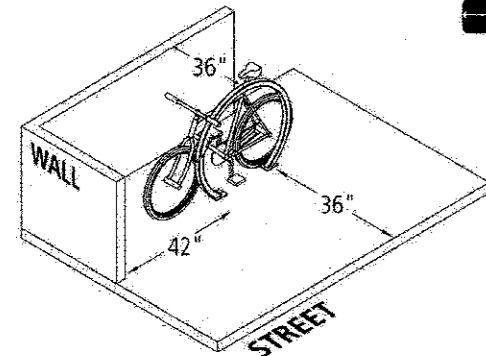
Installation Methods:
In ground mount is embedded into concrete base. Specify in ground mount for this option.
Foot Mount has two 3.5" x 5" x .25" feet with two anchors per foot. Specify foot mount for this option.

Space Use and Setbacks:
For racks set parallel to a wall:
Minimum: 24"
Recommended: 36"

For racks set perpendicular to a wall:
Minimum: 38"
Recommended: 42"

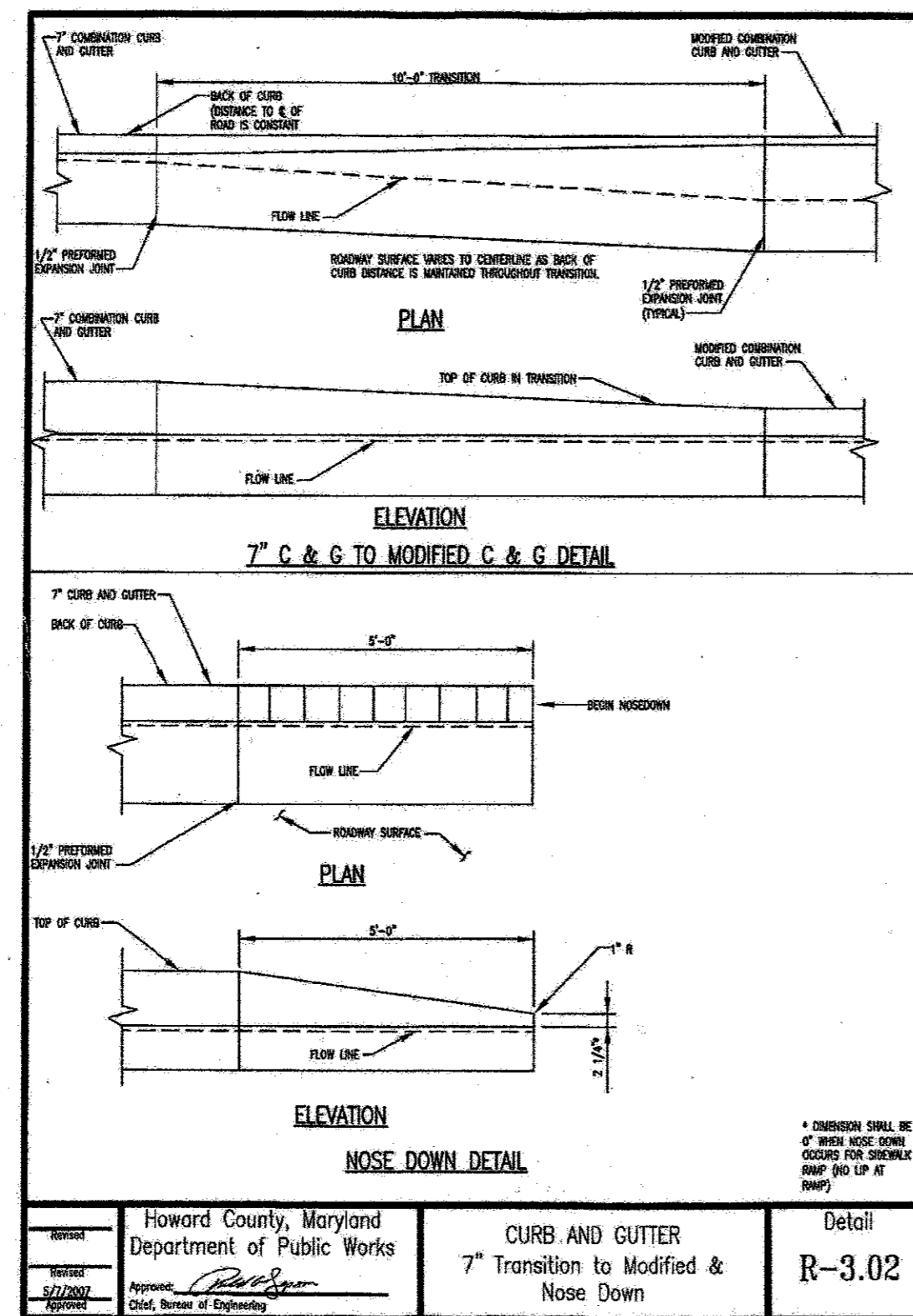
Distance Between Racks:
Minimum: 24"
Recommended: 36"

Street Setbacks:
Minimum: 24"
Recommended: 36"

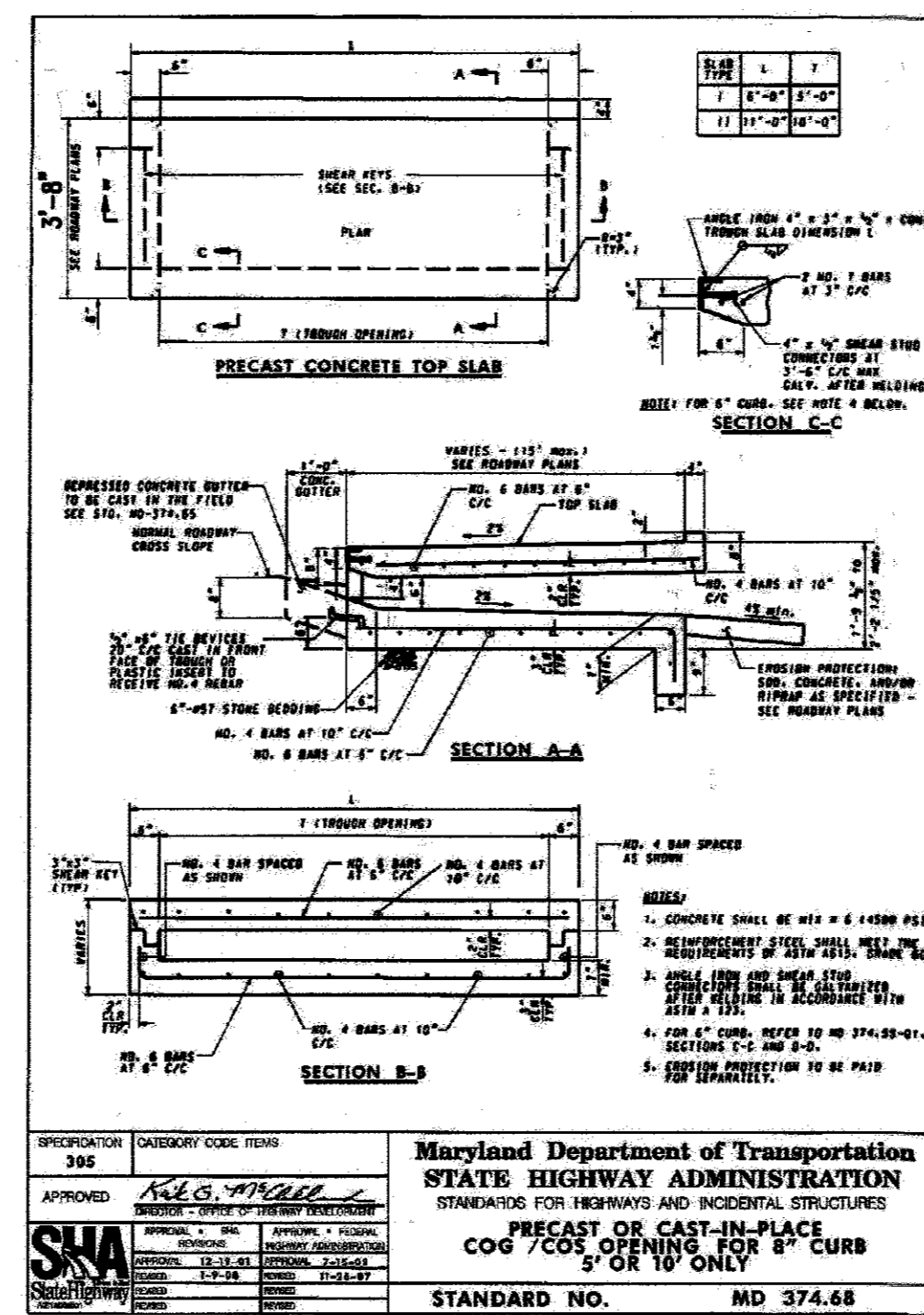


www.dero.com 1-800-957-6720

(A)



(B)



(C)

1	Delete parking spaces, grass etc. service drive, rel. dumpster, gen. add traffic signal control plans, reduce access drive from 30-20' by 20' Engineering Group	5/10/16
No.	Revisions	DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chad Ecker 9-16-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION & DATE

Kate Calver 10-28-15
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Vonnie Jaffe 10-30-15
DIRECTOR DATE

ENGINEER:
Tesseract Sites, Inc.
401 Washington Ave.
Suite 303
Towson, MD 21202
Contact: Jeffrey Schwab
ph: 410-321-1600
Fax: 410-321-1601

OWNER AND DEVELOPER:
Mark Stromdahl
Howard County Maryland
4250 Bendix Road
Columbia, MD 21045
ph: 410-313-5151
email: mstromdahl@howardcountymd.gov

Tesseract
JEFFREY SCHWAB
Tesseract Sites, Inc.
401 Washington Ave. Suite 303
Towson, Maryland, 21204
p. 410.321.7800
f. 410.321.7801

Site Details
Elkridge Fire Station
Parcel A
"Green Building"
Howard County, Maryland

Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 14230, Expiration Date: 12/09/16.

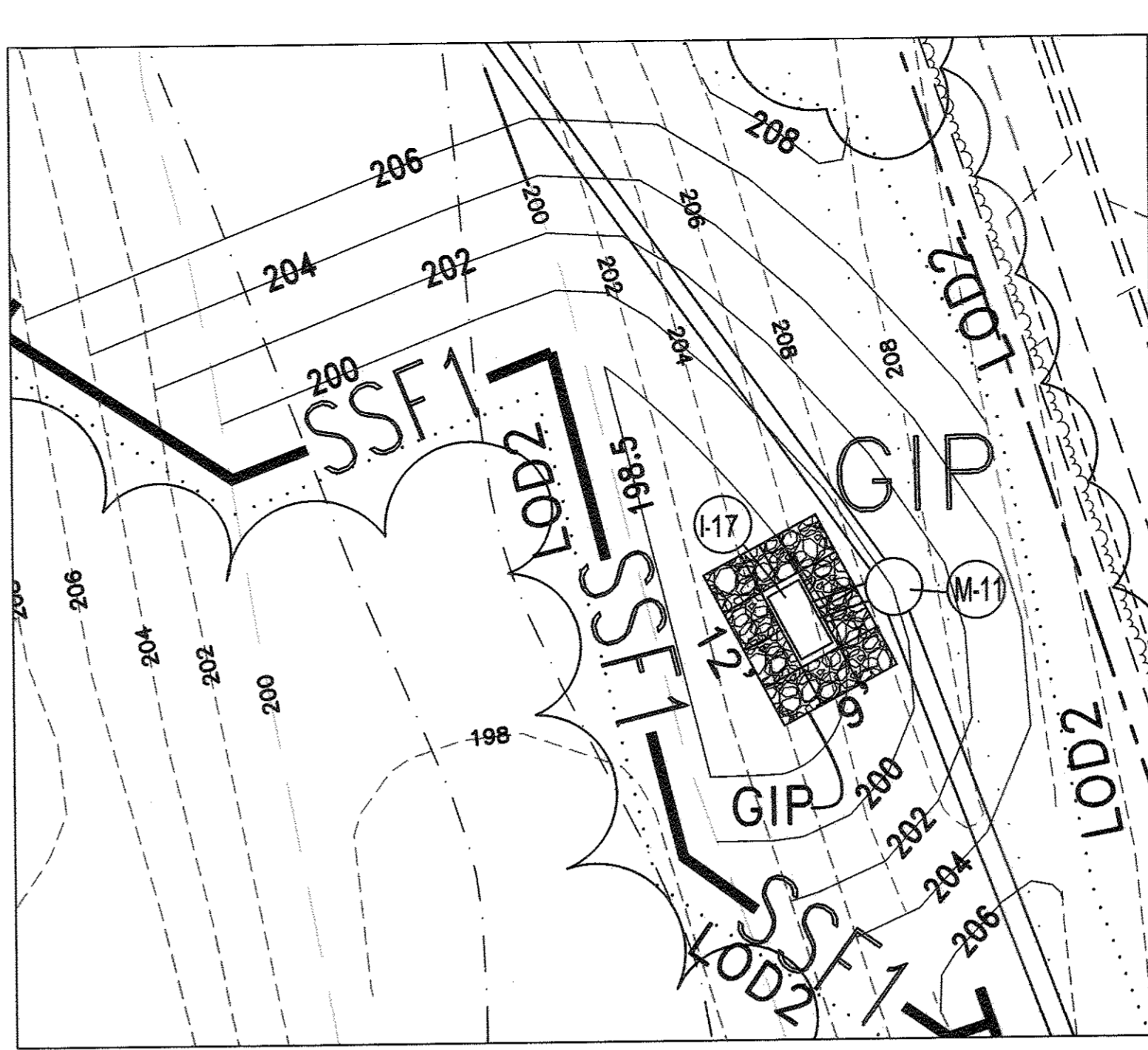
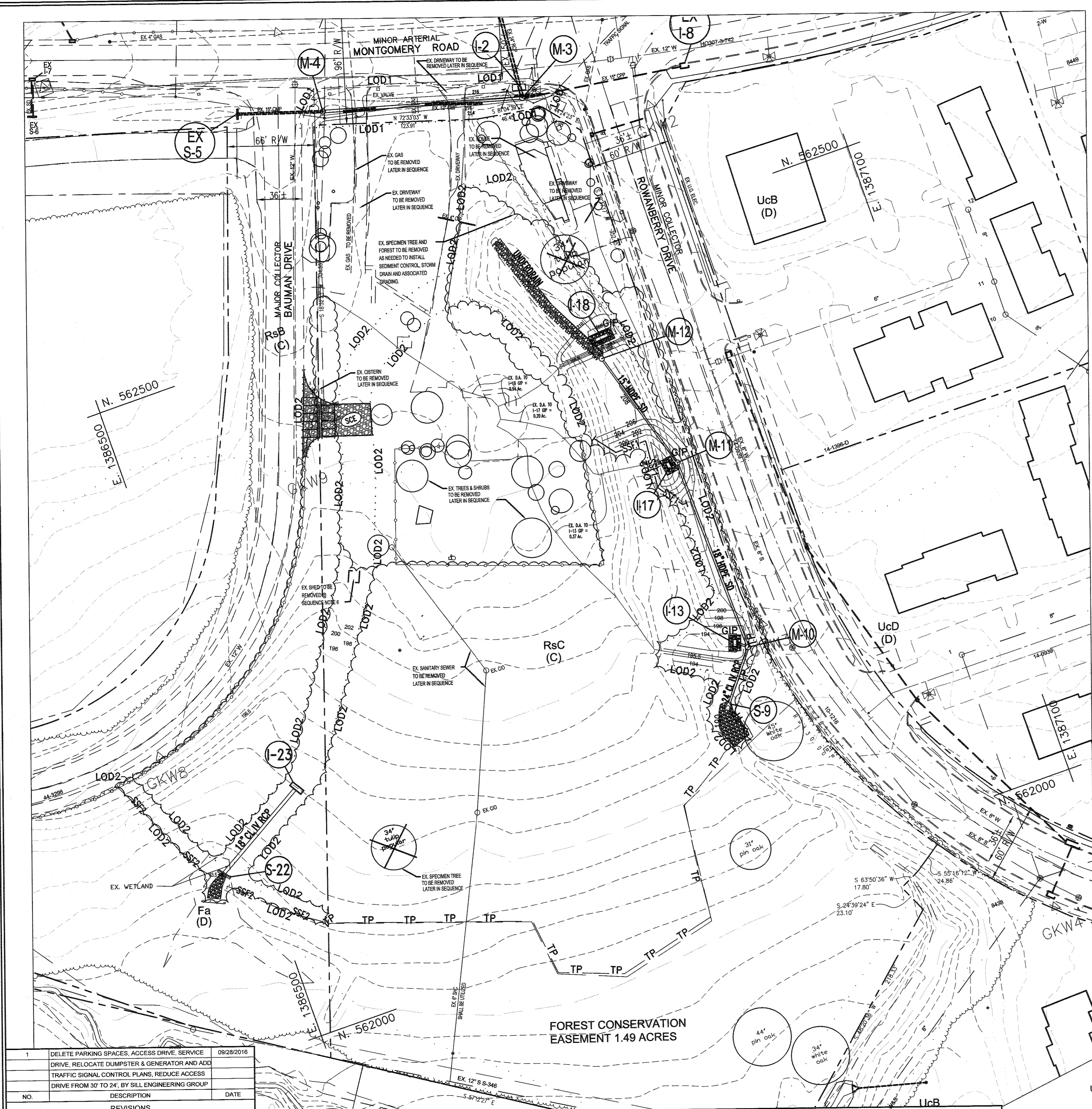
LOT/PARCEL:	402 403 A2	LIBRARY/FILE:	14609/20	14101/512 13842/358	N/A
CD#	12	ZONE	RA-12, RA15	EX/ZONE MAP	38
ELECTRICAL	157	SEWER TRAC			

Date: 09/02/15
Proj. #: 12021
Scale: AS SHOWN

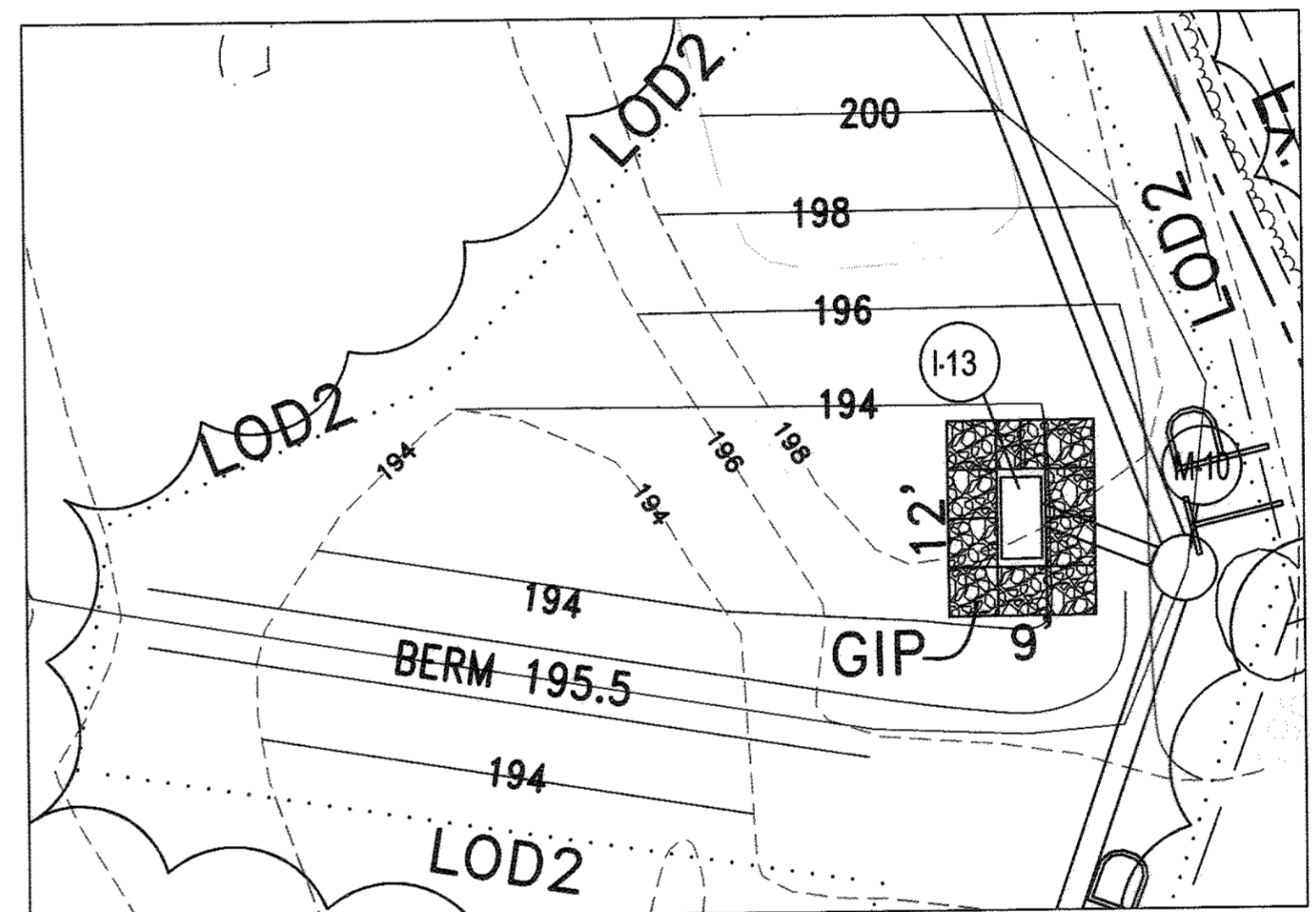
13 of 41

DESIGN: [] DRAWN: [] CHECKED: []

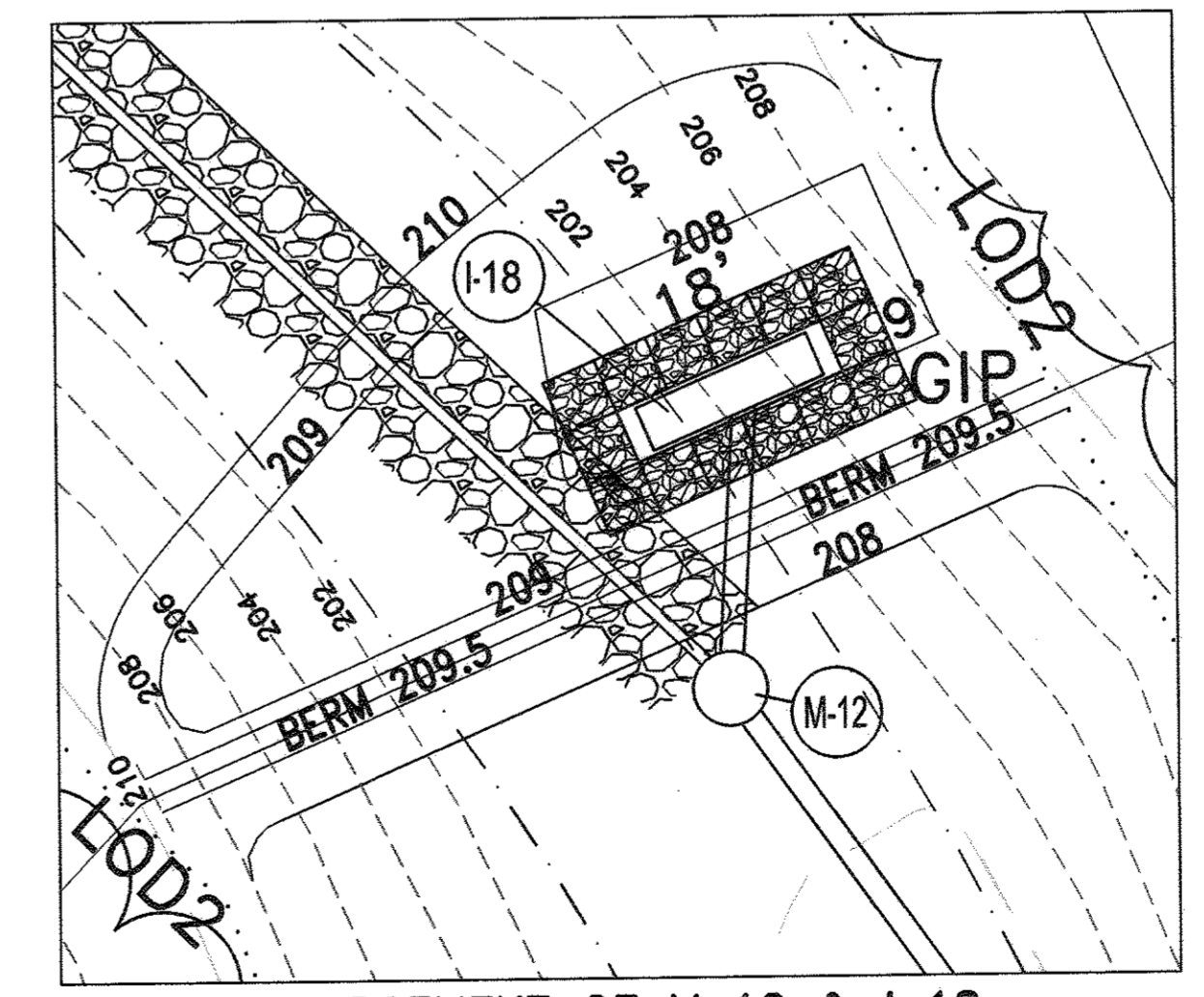




ENLARGEMENT OF M-11 & I-17
Scale: 1" = 10'



ENLARGEMENT OF M-10 & I-13
Scale: 1" = 10'



ENLARGEMENT OF M-12 & I-18
Scale: 1" = 10'

LEGEND

Super Silt Fence	SSF
Tree Protection Fence	TP
Limit of Disturbance	LOD
Stabilized Construction Entrance w/ Mountable Berm	SCD
Gabion Inlet Protection	GIP
Ex. Contours	180
Prop. Contour	180
Ex. Specimen Tree To Be Removed	(Symbol)

SEE NOTES ON SHEET 2 FOR PRE-CONSTRUCTION REQUIREMENTS INCLUDING:

1. VERIFICATION OF EXISTING CONDITIONS;
2. MARKING UNDERGROUND UTILITIES (MISS UTILITY & PRIVATE LOCATING SERVICES);
3. COORDINATING WITH HOWARD COUNTY AND UTILITY COMPANIES TO CONFIRM THE STATUS OF EXISTING UTILITIES (ACTIVE/LIVE or ABANDONED), AND TO COORDINATE REMOVAL, AND/OR RELOCATION; AND
4. TEST PITTING & REPORTING RESULTS.

SEQUENCE OF CONSTRUCTION (Initial Clearing, SEC & Grading)

1. Obtain grading permit and joint federal state permit and request preconstruction meeting with sediment control inspector. 7 days
 2. Install Tree Protection Fence. 1 day
- SEC & STORM DRAIN CONSTRUCTION ALONG MONTGOMERY ROAD - L.O.D.1
3. Clear and grub for and install storm drainage M-4 through I-2 and grade to provide cover and to direct runoff from existing Montgomery Road to I-2 7 days
 4. Stabilize disturbed area with seed and mulch 1 day
- STORM DRAIN FROM S-9 TO M-12 & UNDERDRAIN AND PIPE OUTLET S-22 TO I-23 - LOD2
5. Clear & grub for and install SCE, SSF1, and SSF2. 3 days
 6. With the approval of the sediment control inspector clear and grub remaining area within LOD2 and remove existing shed. 12 days
 7. Install S-22, 18" CL IV RCP and I-23 structure in accordance with utility note; same day stabilization. * Installation necessary prior to grading Trap 1 to achieve needed volume. 5 days
 8. Install storm drainage S-9 through M-12 (including inlets 13, 17, and 18 and GIP for each inlet) and underdrain in accordance with utility note; stabilize area daily. 21 days
- Proceed to Sequence Sheet 15.

NOTE: IF THE STOCKPILE SHOULD EXCEED 15 FT. IN HEIGHT, IT MUST BE BENCHED.

ENGINEER	OWNER/DEVELOPER
SILL ENGINEERING GROUP, LLC HOWARD COUNTY, MARYLAND 11130 DOVEDALE COURT, SUITE 200 MARRIOTTSVILLE, MARYLAND 21104 OFFICE: 410-696-2022 FAX: 410-696-2022 EMAIL: PAUL@SILLENGINEERING.COM	MARK STROMDAHL HOWARD COUNTY, MARYLAND 16250 BENDIX ROAD COLUMBIA, MD 21045 PHONE: 410-313-5757 EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV

REVISED INITIAL GRADING & SEDIMENT & EROSION CONTROL PLAN ELKRIDGE FIRE STATION
PARCEL A
"GREEN BUILDING"
TAX MAP 38 GRID 12
1ST ELECTION DISTRICT
PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

	SILL ENGINEERING GROUP, LLC 11130 Dovedale Court, Suite 200 Marriottsville, Maryland 21104 Phone: 410.696.2022 Fax: 410.696.2022 Email: info@sillengineering.com Civil Engineering for Land Development	DESIGN BY: JS DRAWN BY: AEA CHECKED BY: PS SCALE: 1"=40' DATE: SEPTEMBER 28, 2016 PROJECT #: 16-020 SHEET #: 14 of 41
	PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 35205, EXPIRATION DATE: JUNE 30, 2017	

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	09/28/2016
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING CHIEF, DEVELOPMENT ENGINEERING DIVISION CHIEF, DIVISION OF LAND DEVELOPMENT DIRECTOR		

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

DATE: 9-30-16
DATE: 9-30-16
DATE: 10-3-16

ENGINEERS CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION 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."

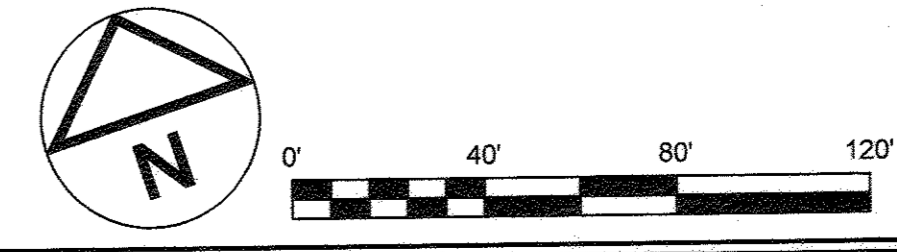
DATE: 9/29/16

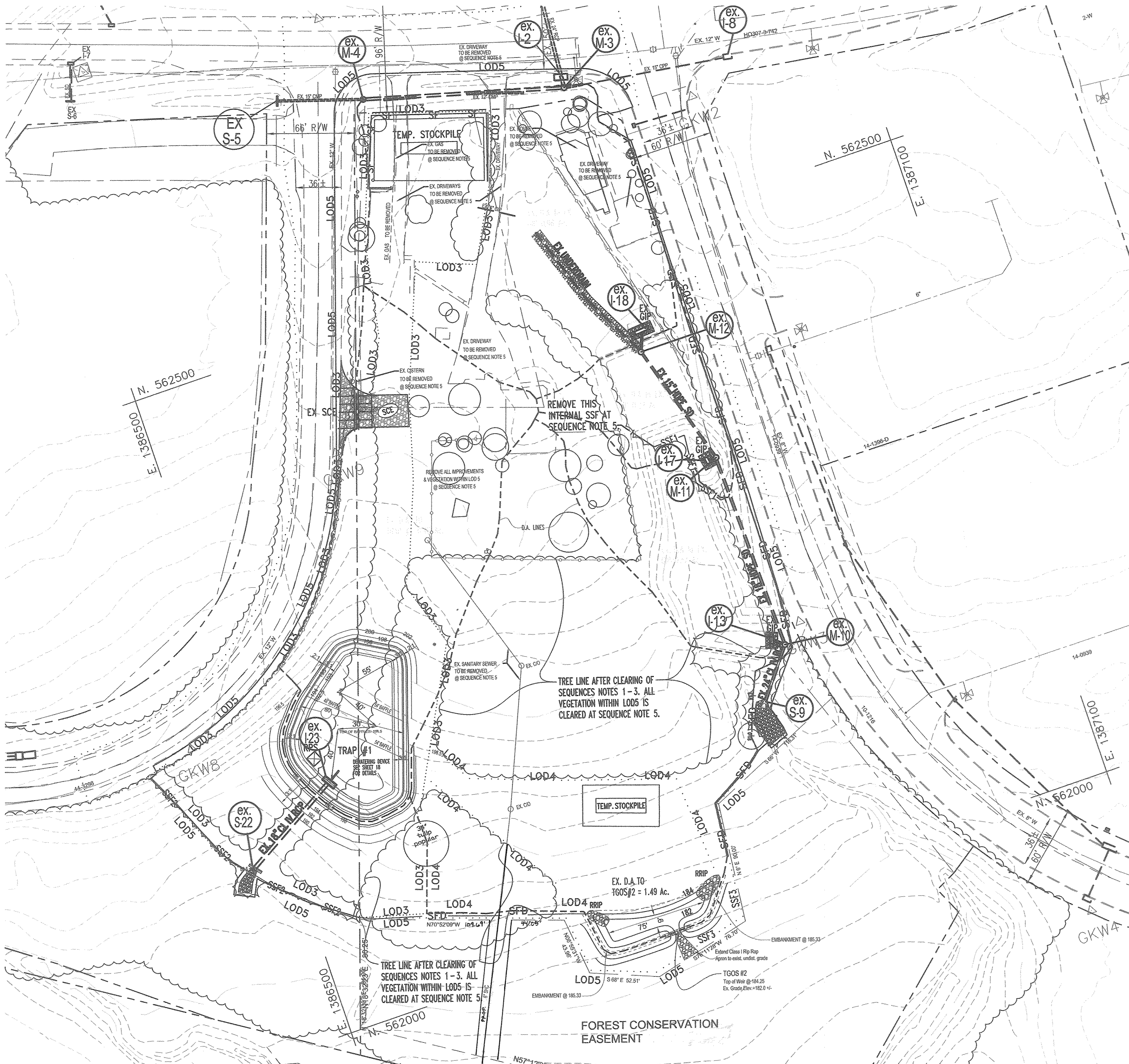
DEVELOPER'S CERTIFICATE

"I HEREBY 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: 9/29/16

- UTILITY NOTE:**
1. THE CONTRACTOR SHOULD ONLY OPEN THAT SECTION OF TRENCH THAT CAN BE BACKFILLED AND STABILIZED EACH DAY. IF TRENCH MUST REMAIN OPEN LONGER THAN ONE DAY, SILT FENCE SHALL BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH.
 2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH.
 3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.





LEGEND

- Super Fence Diversion — SFD
- Super Silt Fence — SSF
- Silt Fence — SF
- Tree Protection Fence — TP
- Limit of Disturbance — LOD
- Stabilized Construction Entrance w/ Mountable Berm — SCE
- Ex. Contours — 10'
- Prop. Contour — 10'
- Gabion Inlet Protection — GIP
- Gabion Mattress Inflow Protection — GMP
- Removable Pumping Station — RPS
- Baffle — W/ NBE
- RipRap Inflow Protection — RRP
- GABION —
- DRAINAGE DIVIDE —

TRAP #1 : Modified Pipe Outlet ST-1

EXISTING DRAINAGE AREA: ACRES	0.92
INTERIM DRAINAGE AREA: ACRES	1.61
PROPOSED DRAINAGE AREA: ACRES	1.61
STORAGE REQUIRED: CUBIC FEET	
CLEAN OUT	1,449
WET	2,898
DRY	2,898
TOTAL	5,796
STORAGE PROVIDED: CUBIC FEET	
CLEAN OUT	4,726
WET	9,804
DRY	7,748
TOTAL	17,552
EXISTING GROUND ELEVATION	191.0
TOP EMBANKMENT ELEVATION	196.5
EMERGENCY SPILLWAY CREST ELEVATION	N/A
DRY STORAGE / RISER CREST ELEVATION	195.0
WET STORAGE ELEVATION	194.0
CLEANOUT ELEVATION	193.25
BOTTOM ELEVATION	192.5
TRAP DEPTH	
WET	1.5
DRY	1.0
TOTAL	2.5
SIDE SLOPES	
DESIGN HIGH WATER (10 YR WSEL)	3:1
FREEBOARD PROVIDED	1.23
BARREL DIAMETER	18" RCP
RISER DIMENSIONS RCP	10' x 2.5'
EMERGENCY SPILLWAY WIDTH	N/A
WET STORAGE ZONE	192.5-194.0
DRY STORAGE ZONE	194.0-195.0
BOTTOM DIMENSIONS (TWO SECTIONS)	155' x 60' (trap)
RAFFLE-ELEVATION OF TOP	194.5

TGOS # 2 : Temporary Gabion Outlet Structure#2

EXISTING DRAINAGE AREA: ACRES	1.49
INTERIM DRAINAGE AREA: ACRES	1.49
PROPOSED DRAINAGE AREA: ACRES	0.46
STORAGE REQUIRED	2,682 CF
STORAGE PROVIDED	3,158 CF
DEPTH	183.0
WEIR CREST	184.25
TOP GABION MATTRESS	185.00
LENGTH OF WEIR CREST	6
BOTTOM ELEVATION	182.0
SIDE SLOPES	2:1
BOTTOM DIMENSIONS	75' x 9'
TOP OF EARTH BERM	185.33

NO.	DESCRIPTION	DATE
2	REPLACE EXISTING SEWER LINE	11/01/2017
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	09/29/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 9-30-16
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

[Signature] 9-30-16
 CHIEF, DIVISION OF LAND DEVELOPMENT

[Signature] 10-3-16
 DIRECTOR

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

[Signature] 9/29/16
 JOHN K. ROBERTSON
 HOWARD SCD

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION 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.

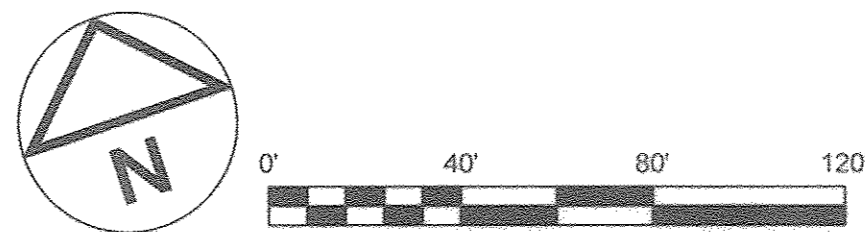
[Signature] 9/29/16
 PAUL M. SILL, P.E.

DEVELOPER'S CERTIFICATE

"I ME 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.

[Signature] 9/29/16
 SIGNATURE OF DEVELOPER

NOTE: IF THE STOCKPILE SHOULD EXCEED 15 FT. IN HEIGHT, IT MUST BE BENCHED.



SEE SHEET 14 FOR PRIOR SEQUENCE OF CONSTRUCTION

SEQUENCE OF CONSTRUCTION (Trap Construction)

SEDIMENT TRAP 1 - LOD3

1. With the approval of the sediment control inspector clear and grub area within LOD3 and install sediment trap 1, including gabion inflow protection and baffles. Stockpile cut. 7 days

TEMPORARY GABION OUTLET STRUCTURE- TGOS # 2 - LOD4

2. With the approval of the sediment control inspector, clear & grub for and install SSF3 with LOD4 (do NOT install SFD at this time). 3 days
3. With the approval of the sediment control inspector clear and grub the remaining area within LOD4 and install TGOS #2 including riprap inflow protection. Stockpile cut. 7 days

SUPER FENCE DIVERSION (SFD), REMAINING CLEARING GRUBBING & DEMOLITION, ROUGH GRADING - LOD5

4. With the approval of the sediment control inspector, clear & grub for and install SFD within LOD5. 3 days
5. With the approval of the sediment control inspector clear and grub and complete demolition of the remaining area within LOD5. Remove internal SSF west of ex. M-11. 7 days
6. Strip & stockpile topsoil and rough grade site within LOD5. 30 days

NOTE REGARDING LOD 5
 After installation of the SCE, SSF, Trap # 1 & TGOS # 2, and SFD the perimeter sediment control measures are complete (additional SCE's will be installed later) and the site is ready clearing, grubbing, demolition and grading. LOD5 is the ultimate limit of disturbance, except for public road improvements which will be done later in the sequence of construction.

Proceed to Sequence on Sheet 16.

<p>ENGINEER</p> <p>SILL ENGINEERING GROUP, LLC HOWARD COUNTY, MARYLAND 11130 DOVEDALE COURT, SUITE 200 MARROTTSVILLE, MARYLAND 21104 OFFICE: 443-325-5077 FAX: 410-696-2022 EMAIL: PAUL@SILLENGINEERING.COM</p>	<p>OWNER/DEVELOPER</p> <p>MARK STROMDAHL HOWARD COUNTY, MARYLAND 9250 BENDIX ROAD COLUMBIA, MD 21045 PHONE: 410-513-5757 EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV</p>
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REVISED INITIAL 2 GRADING & SEDIMENT & EROSION CONTROL PLAN ELKRIDGE FIRE STATION

PARCEL A "GREEN BUILDING"

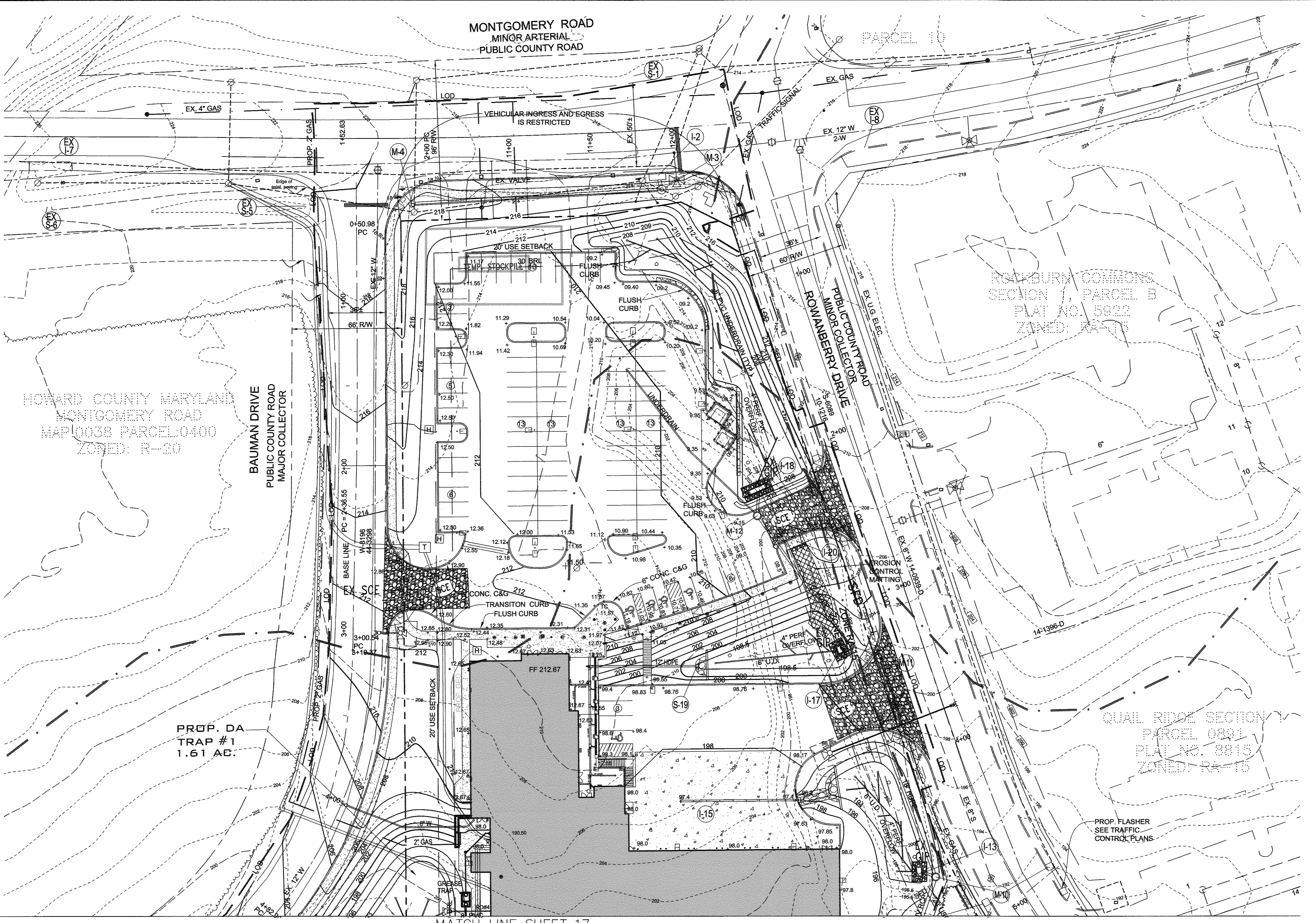
TAX MAP 38 GRID 12 1ST ELECTION DISTRICT

PARCEL 402 & 403 A2 HOWARD COUNTY, MARYLAND

	<p>SILL ENGINEERING GROUP, LLC</p> <p>11130 Dovedale Court, Suite 200 Marriottsville, Maryland 21104 Phone: 443.325.5076 Fax: 410.696.2022 Email: info@sillengineering.com Civil Engineering for Land Development</p>	<p>DESIGN BY: JS DRAWN BY: AEA CHECKED BY: PS SCALE: 1"=40' DATE: SEPTEMBER 28, 2016 PROJECT #: 16-020 SHEET #: 15 of 41</p>
--	---	--

PROFESSIONAL ENGINEER. 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. 30225, EXPIRATION DATE: JUNE 20, 2017

MONTGOMERY ROAD
MINOR ARTERIAL
PUBLIC COUNTY ROAD



LEGEND

EXISTING CONTOUR	---	382
PROPOSED CONTOUR	---	382
EXISTING SPOT ELEVATION	+	382.3
PROPOSED SPOT ELEVATION	+	82.25
DIRECTION OF FLOW	→	
EXISTING TREELINE	~	
PROPOSED TREELINE	~	
LIMIT OF DISTURBANCE	LOD	
CONCRETE VEHICULAR PAVEMENT	[Pattern]	
CONCRETE PEDESTRIAN PAVEMENT	[Pattern]	
SUPER FENCE DIVERSION	SFD	
SUPER SILT FENCE	SSF	
SILT FENCE	SF	
TREE PROTECTION FENCE	TP	
Stabilized Construction Entrance w/ Mountable Berm	[Symbol]	
GABION INLET PROTECTION	[Symbol]	
GABION MATTRESS INFLOW PROTECTION	GMIP	
REMOVABLE PUMPING STATION	RPS	
BAFFLE	30' BAFFLE	

SEE SHEET 15 FOR PRIOR SEQUENCE OF CONSTRUCTION SEQUENCE OF CONSTRUCTION (Building & Site Work)

- Once site has been rough graded, excavate for foundations and construct proposed building. 180 Days
- Install remaining storm drainage and utilities. Brick shut slots on inlets draining bioretention/micro bioretention facilities. 60 Days
- Fine grade and construct paving except in the area of trap #2. Stabilize disturbed areas on Bauman Drive and Montgomery Road the same day. 60 Days
- Stabilize all remaining disturbed areas on site with seed and mulch. 14 Days
- Upon the establishment of vegetation and with the approval of the sediment erosion control inspector, construct micro bio retention facilities and bio retention facility #4 and stabilize and remove inlet protection. With permission of the sediment control inspector remove trap #1 and convert to bio retention facility #1 and stabilize. Remove temporary brick and install trash racks. 60 Days
- With the permission of the sediment control inspector, remove trap #2 and install SSF, place fill, and construct the remaining concrete pad. (See Trap #2 Inset) 60 Days
- Stabilize all remaining disturbed areas with seed and mulch. 14 Days
- With permission of the sediment/erosion control inspector remove remaining sediment and erosion control measures and stabilize areas disturbed by this process. 14 Days

ENGINEER
SILL ENGINEERING GROUP, LLC
HOWARD COUNTY, MARYLAND
11130 DOVEDALE COURT, SUITE 200
MARRIOTTSVILLE, MARYLAND 21104
OFFICE: 443-325-5076
FAX: 410-696-2022
EMAIL: PAUL@SILLENGINEERING.COM

OWNER/DEVELOPER
MARK STROMDAHL
HOWARD COUNTY, MARYLAND
9250 BENOIX ROAD
COLUMBIA, MD 21045
PHONE: 410-313-5757
EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV

NOTE: IF THE STOCKPILE SHOULD EXCEED 15 FT. IN HEIGHT, IT MUST BE BENCHED.

- UTILITY NOTE**
- Contractor should open only that section of trench that can be backfilled and stabilized each day. If trench must remain open longer than one day, silt fence shall be placed below (downslope of) the trench.
 - Place all excavated material on uphill side of trench.
 - Any sediment controls disturbed by utility construction are to be repaired immediately.

REVISIONS

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24'. BY SILL ENGINEERING GROUP	09/28/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad E. ... 9-30-16
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Kate ... 9-30-16
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Nadine ... 10-3-16
DIRECTOR DATE

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

John R. ... 9/29/16
HOWARD SCD DATE

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION 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."

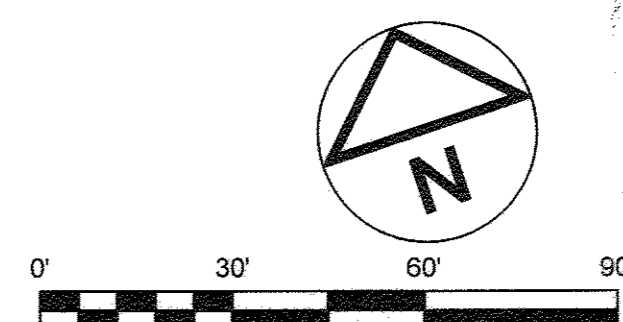
Paul M. Sill, P.E. 9/29/16
SIGNATURE OF ENGINEER DATE
PAUL M. SILL, P.E.

DEVELOPER'S CERTIFICATE

"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."

Mark Stromdahl 9/29/16
SIGNATURE OF DEVELOPER DATE

Limit of Disturbance: 206,039 SF = 4.73 Ac.



REVISED SEDIMENT & EROSION CONTROL PLAN - NORTH ELK RIDGE FIRE STATION PARCEL A "GREEN BUILDING"

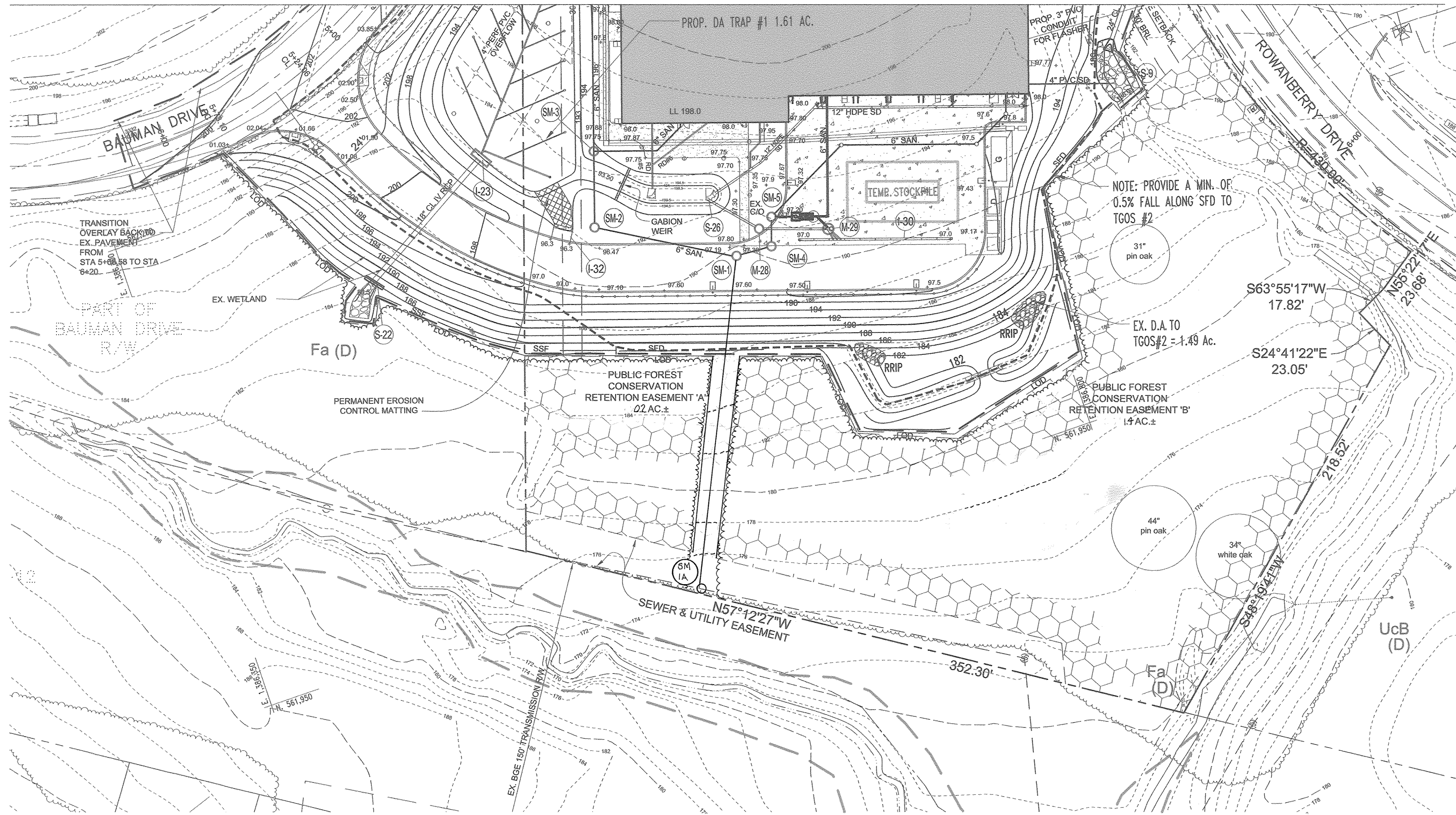
TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

SILL ENGINEERING GROUP, LLC
11130 Dovedale Court, Suite 200
Marriottsville, Maryland 21104
Phone: 443-325-5076
Fax: 410-696-2022
Email: info@sillengineering.com
Civil Engineering for Land Development

DESIGN BY: JS
DRAWN BY: AEA
CHECKED BY: PS
SCALE: 1"=30'
DATE: SEPTEMBER 28, 2016
PROJECT #: 16-020
SHEET #: 16 of 41

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32025, EXPIRATION DATE: JUNE 30, 2017



LEGEND

- Super Fence Diversion — SFD
- Super Silt Fence — SSF
- Silt Fence — SF
- Tree Protection Fence — TP
- Limit of Disturbance — LOD
- Stabilized Construction Entrance w/ Movable Berm
- Ex. Contours
- Prop. Contour
- Gabion Inlet Protection
- Gabion Mattress Inflow Protection
- Removable Pumping Station
- Baffle
- RipRap
- Inflow Protection
- TGOS

NO.	DESCRIPTION	DATE
2	REPLACE EXISTING SEWER LINE	11/01/2017
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	09/28/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad Clark 9-30-16
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Kathalove 9-30-16
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Nancy Janc 10-3-16
 DIRECTOR DATE

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

John K. Roberts 9/29/16
 HOWARD SCD DATE

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION 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."

Paul M. Sill 9/29/16
 SIGNATURE OF ENGINEER DATE
 PAUL M. SILL, P.E.

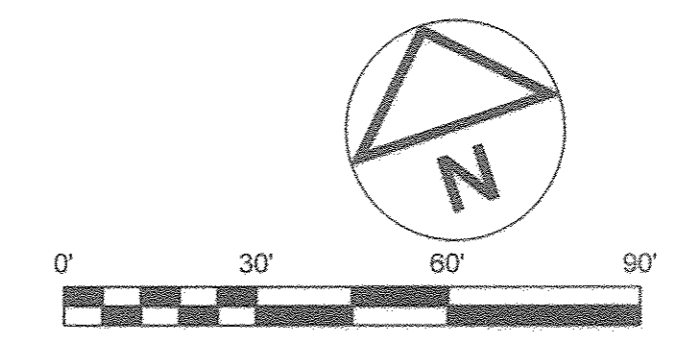
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Paul M. Sill 9/29/16
 SIGNATURE OF DEVELOPER DATE

NOTE: IF THE STOCKPILE SHOULD EXCEED 15 FT. IN HEIGHT, IT MUST BE BENCHED.

Limit of Disturbance: 213,880 SF = 4.91 Ac.



ENGINEER
 SILL ENGINEERING GROUP, LLC
 HOWARD COUNTY, MARYLAND
 11130 DOVEDALE COURT, SUITE 200
 MARIOTTSVILLE, MARYLAND 21104
 OFFICE: 443-325-5076
 FAX: 410-698-2022
 EMAIL: PAUL@SILLENGINEERING.COM

OWNER/DEVELOPER
 MARK STROMDAHL
 HOWARD COUNTY, MARYLAND
 9250 BENDIX ROAD
 COLUMBIA, MD 21045
 PHONE: 410-315-5757
 EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV

REVISED SEDIMENT & EROSION CONTROL PLAN - NORTH
ELKRIDGE FIRE STATION
 PARCEL A
 "GREEN BUILDING"

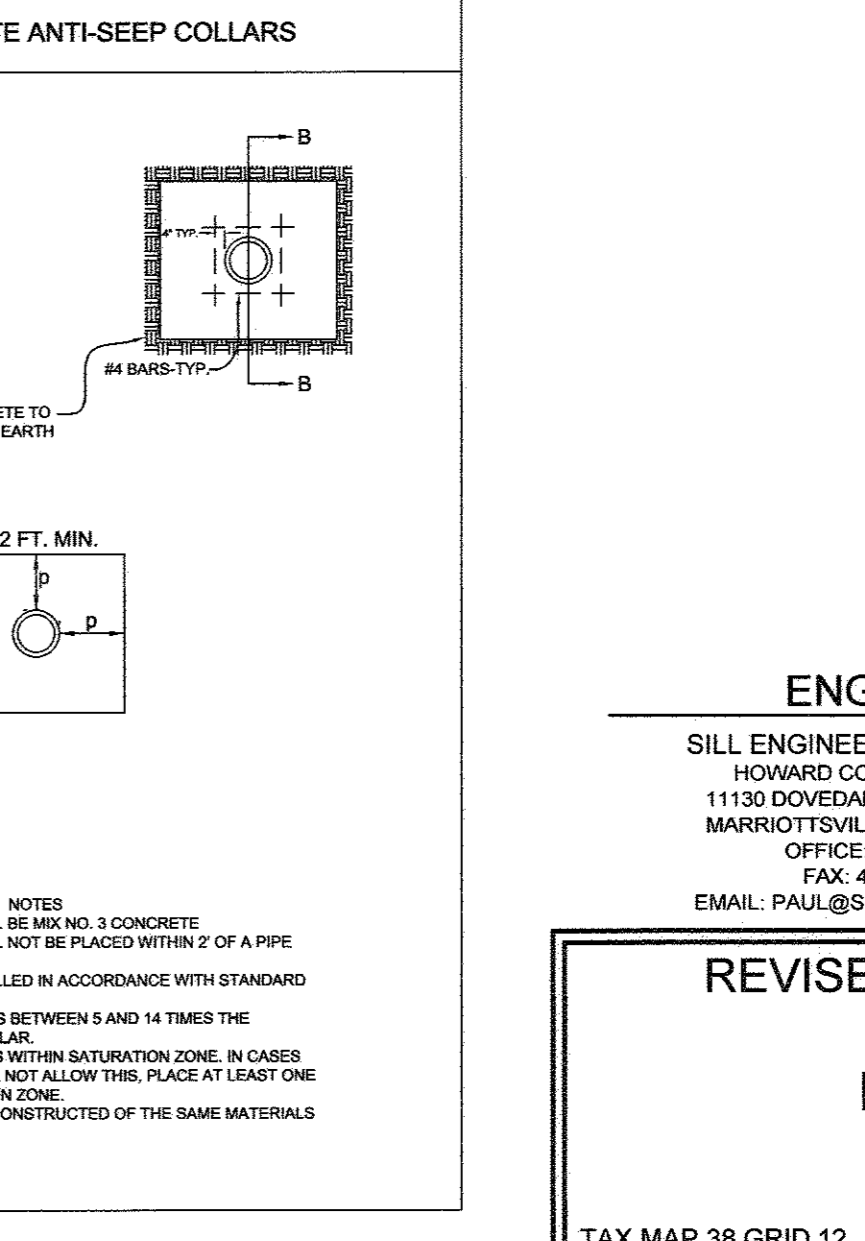
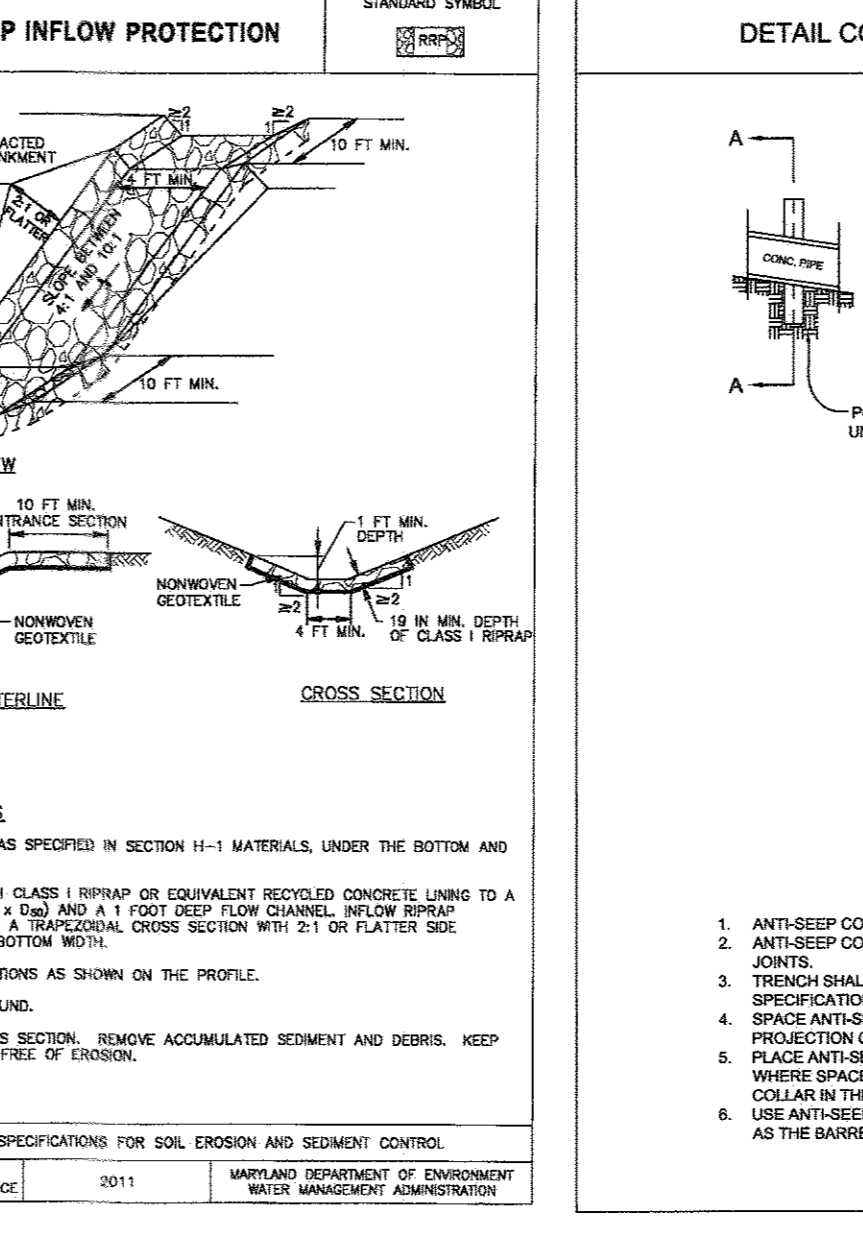
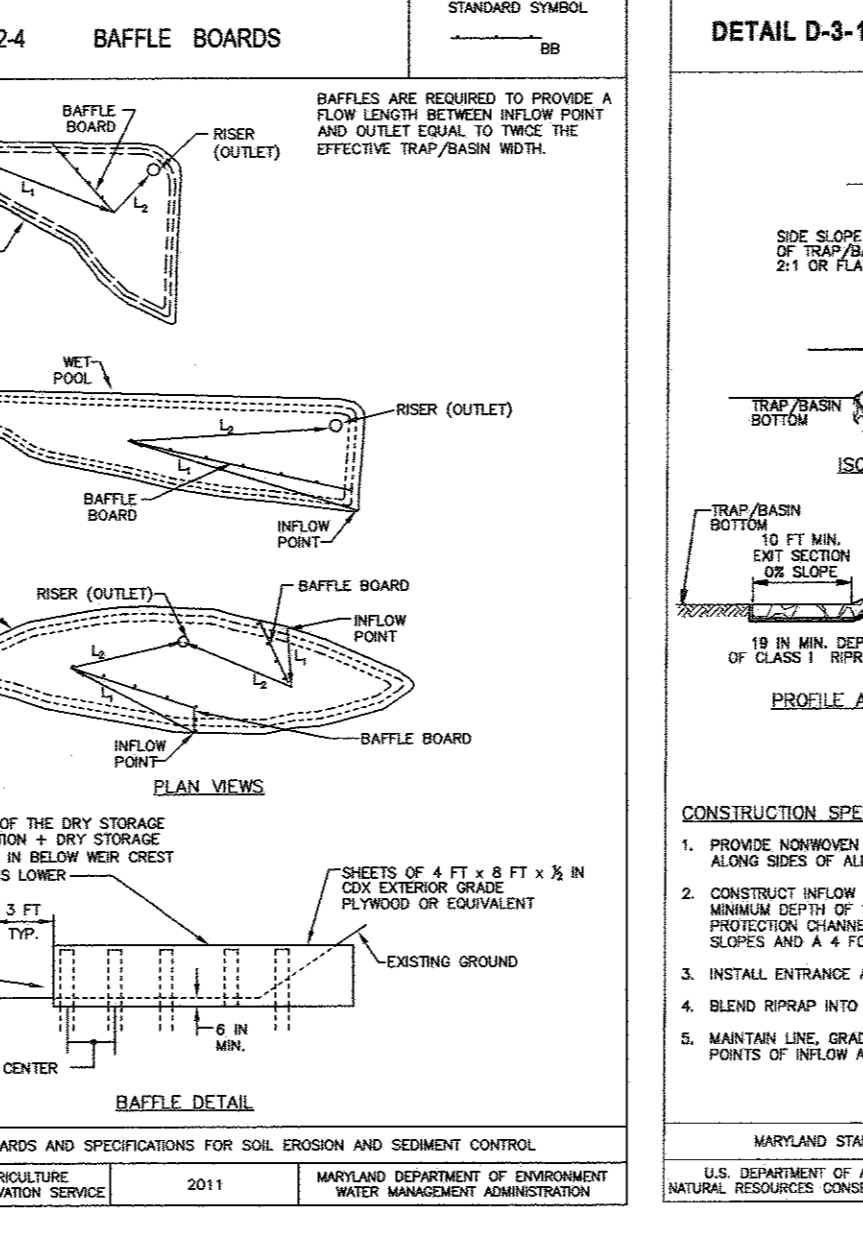
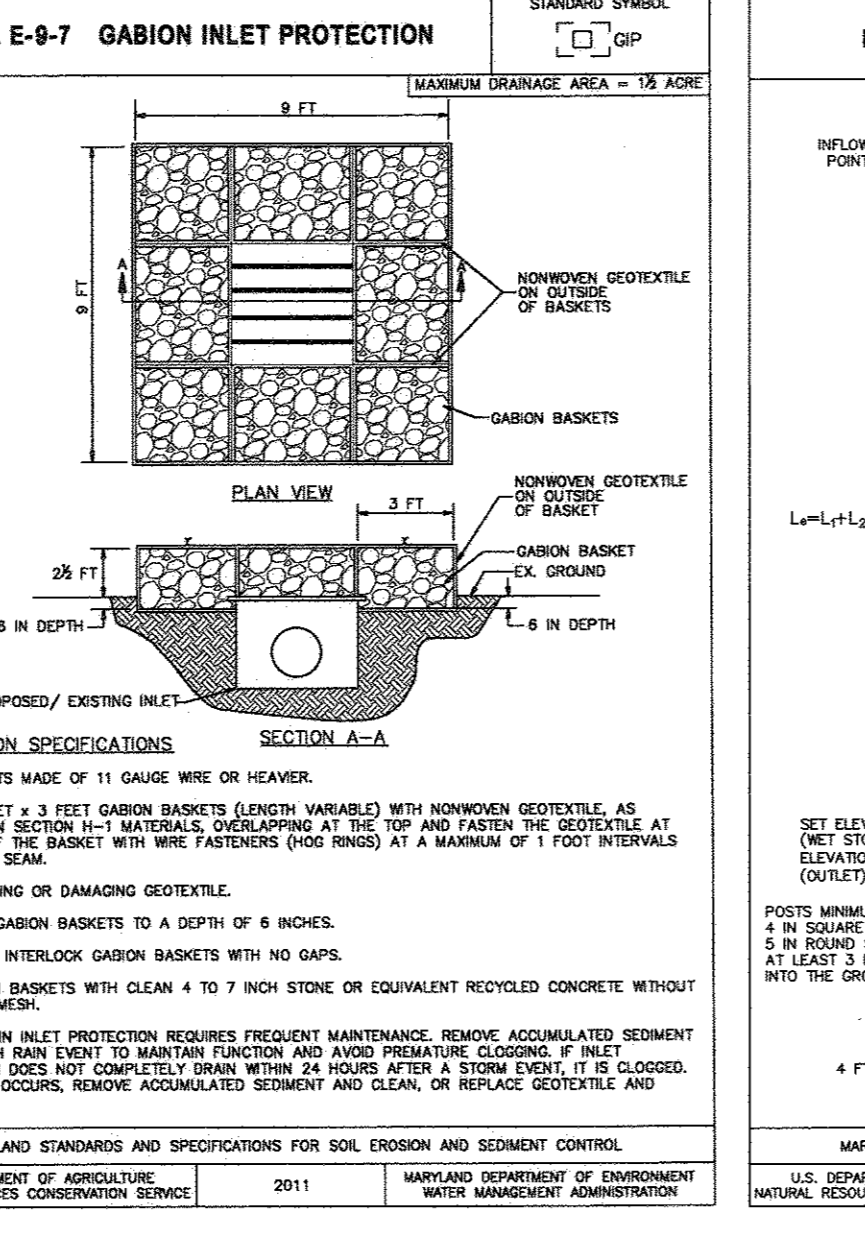
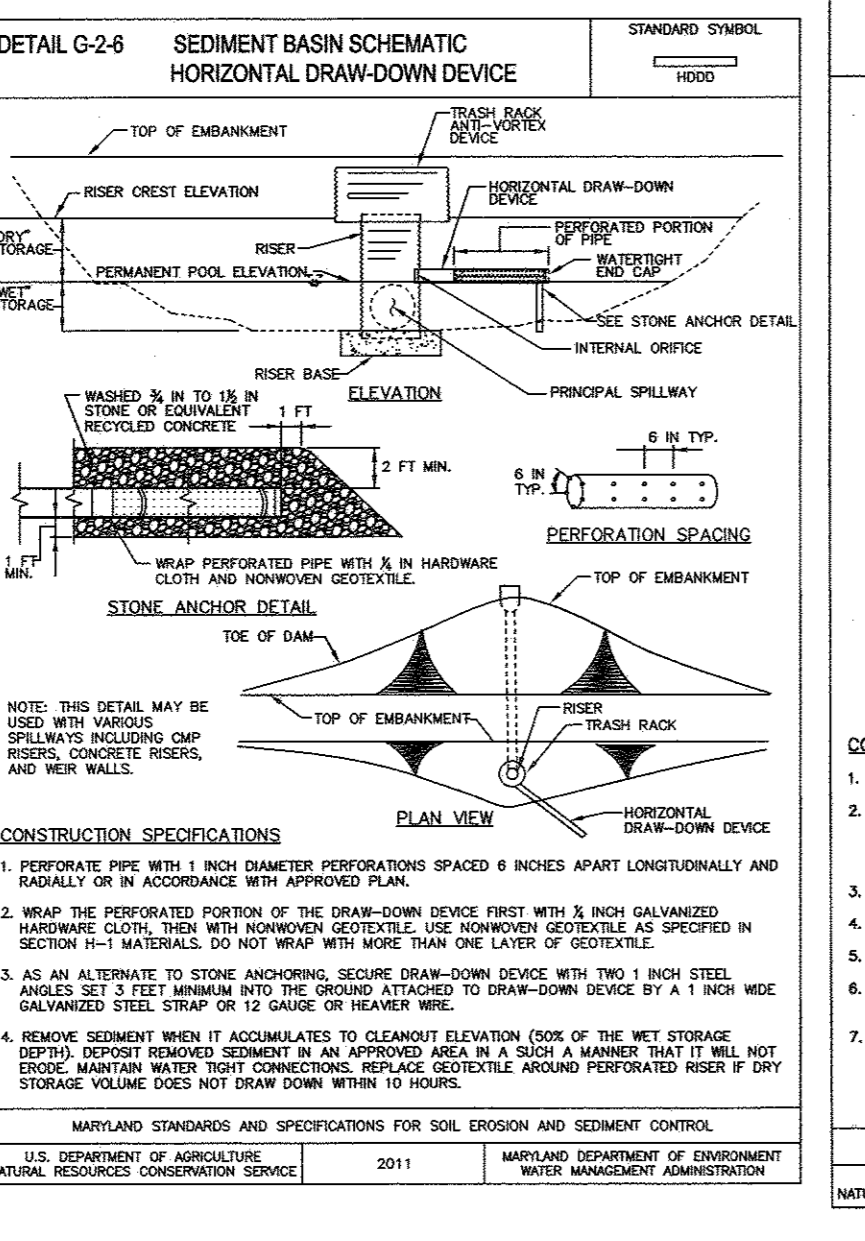
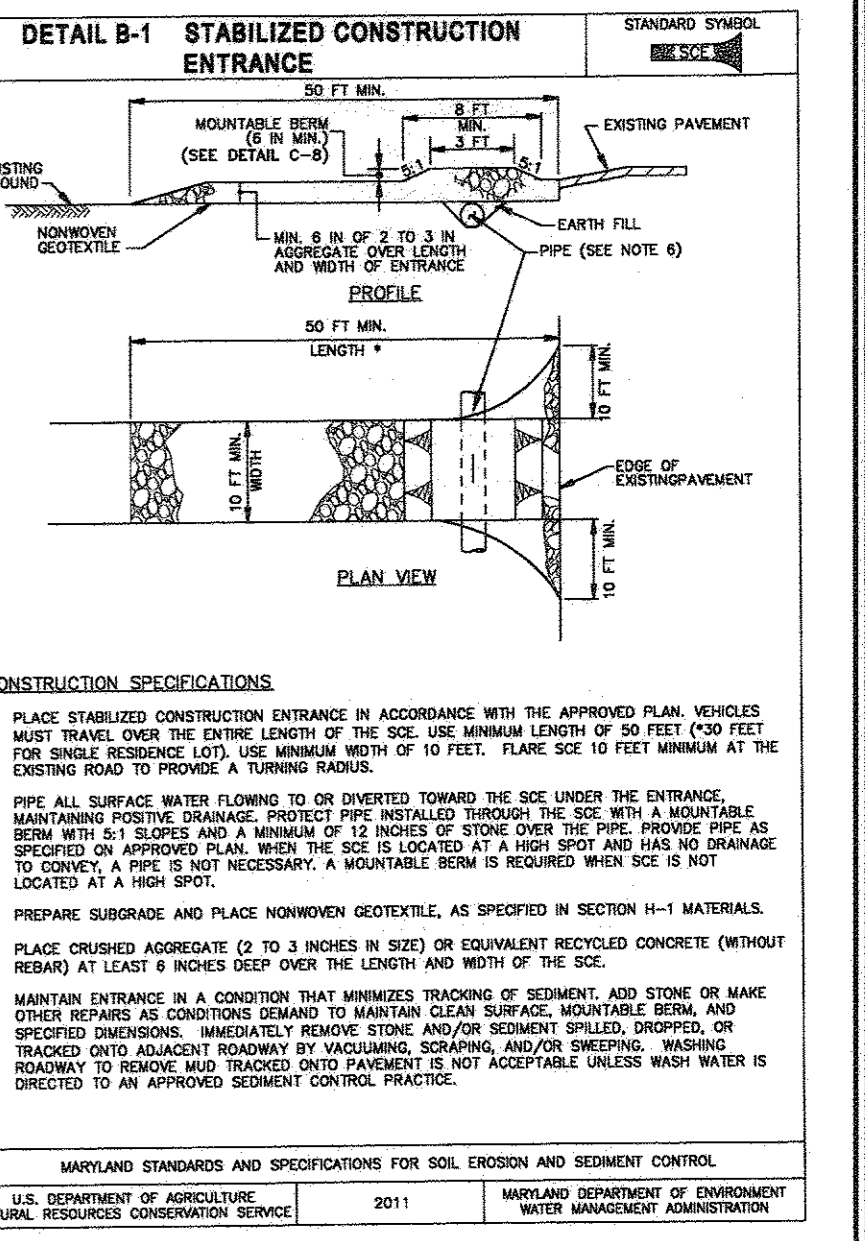
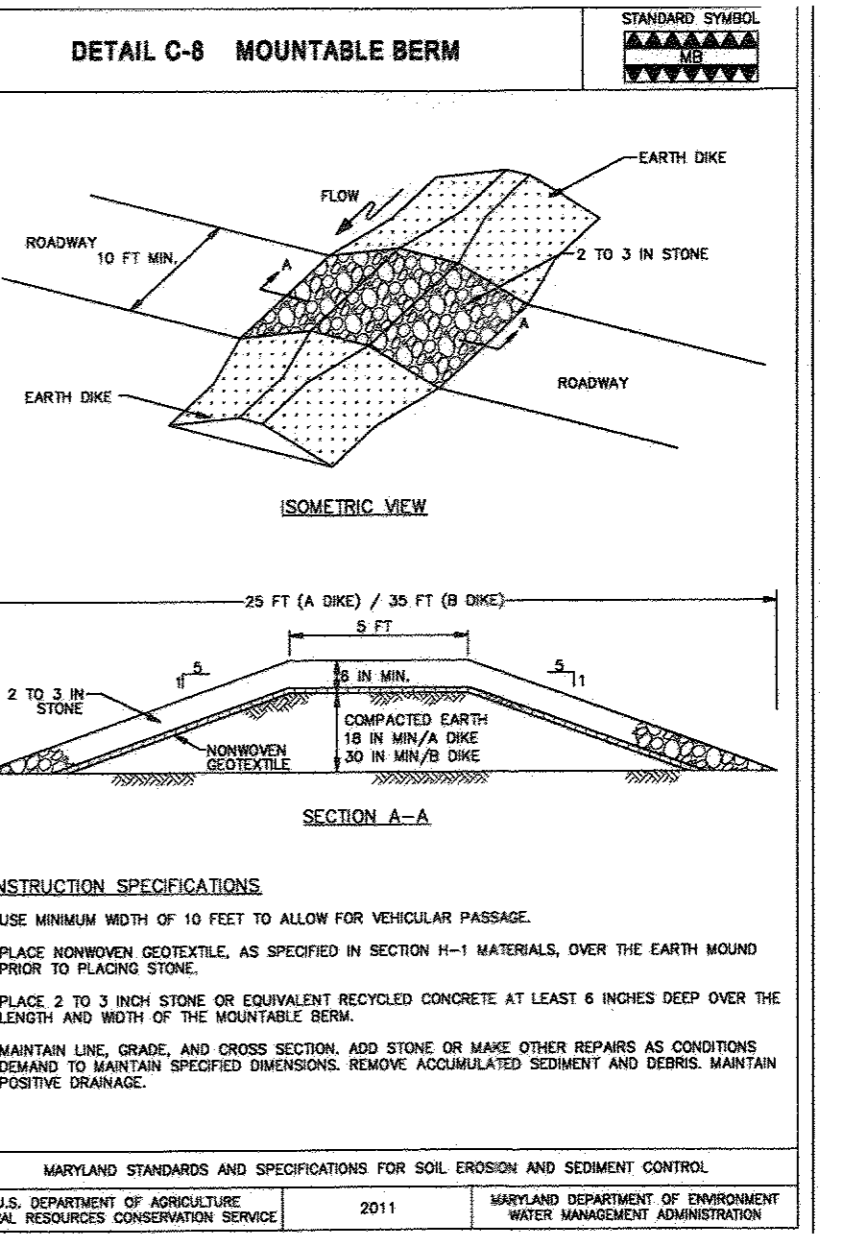
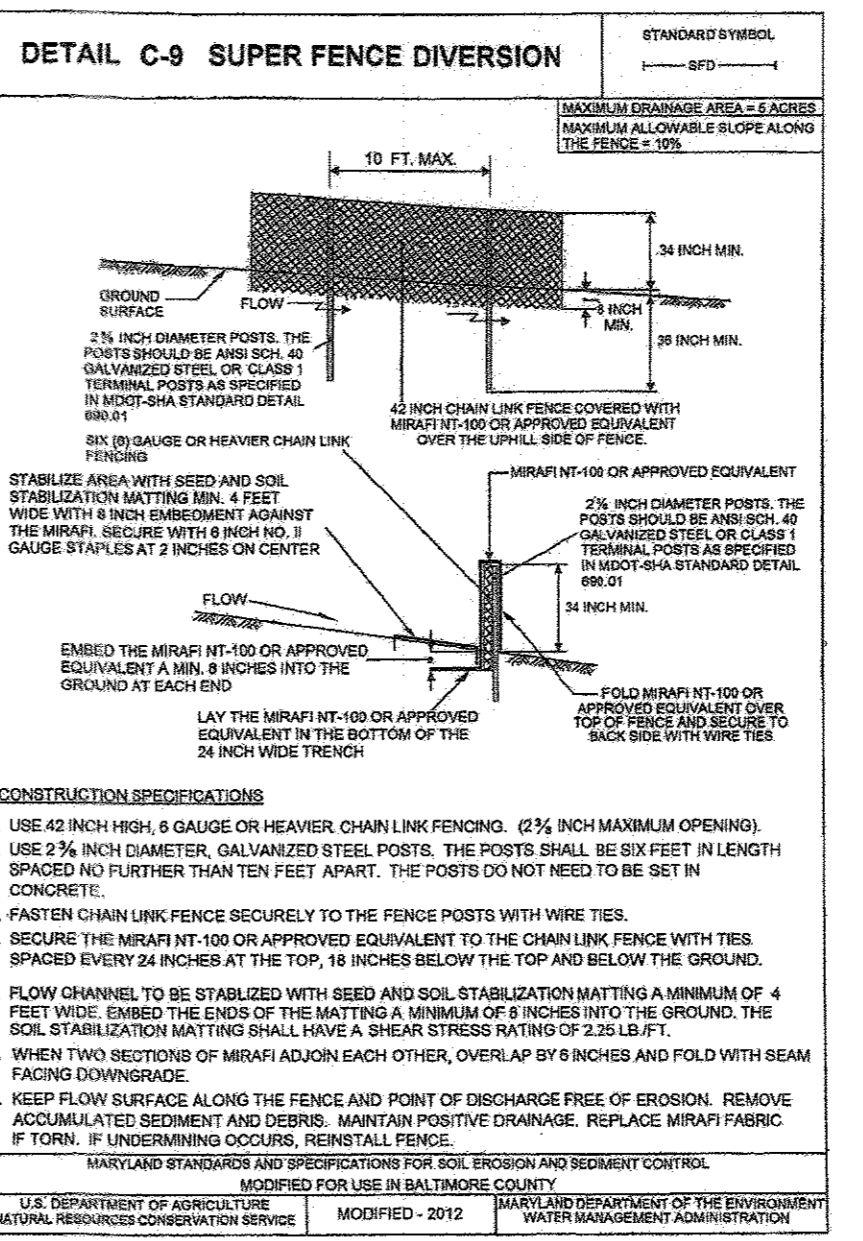
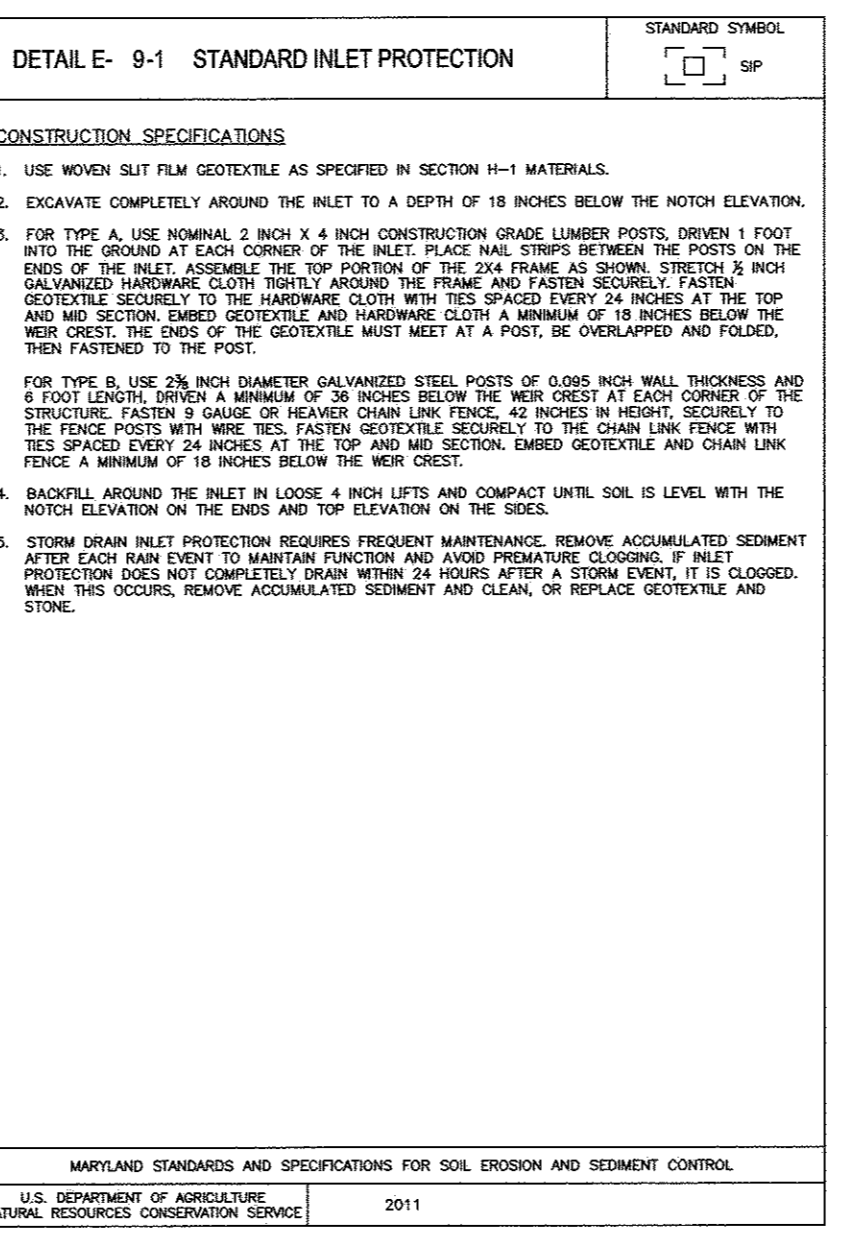
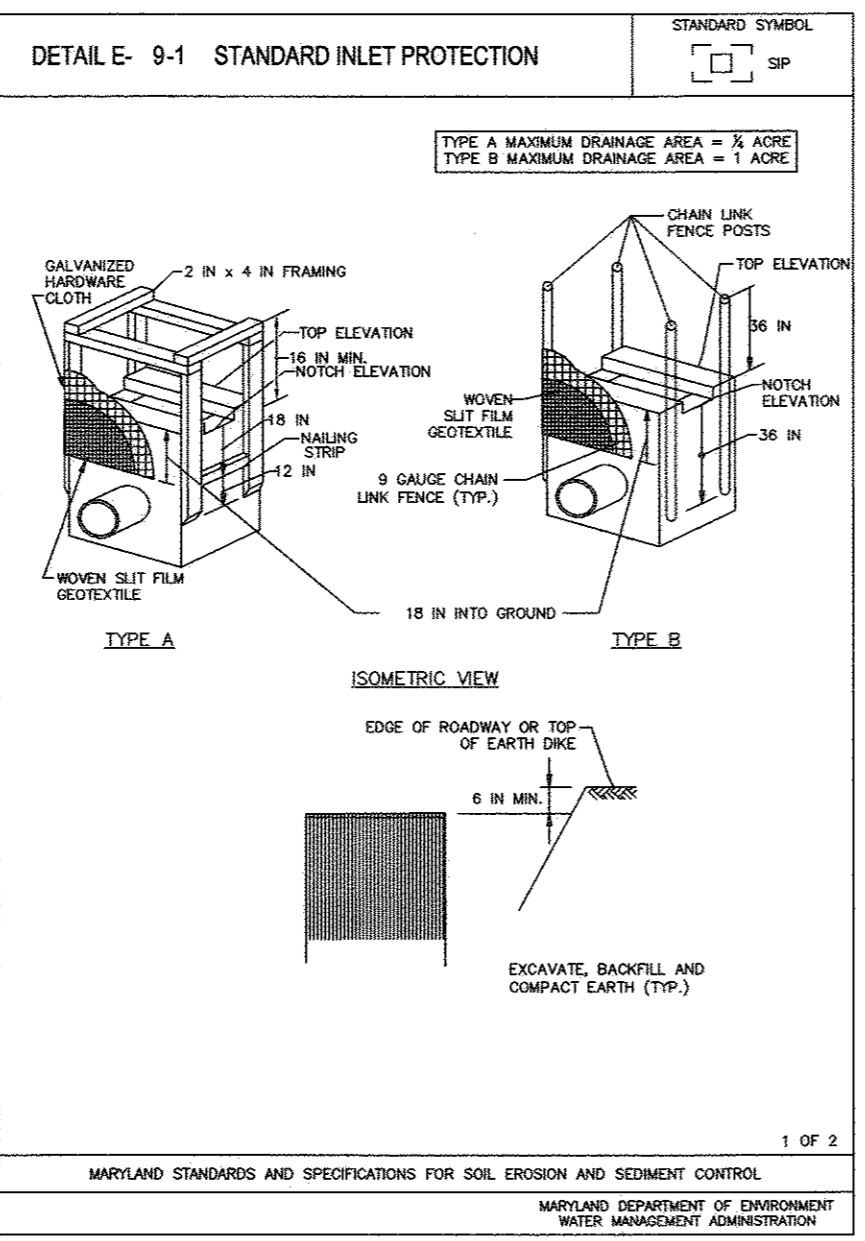
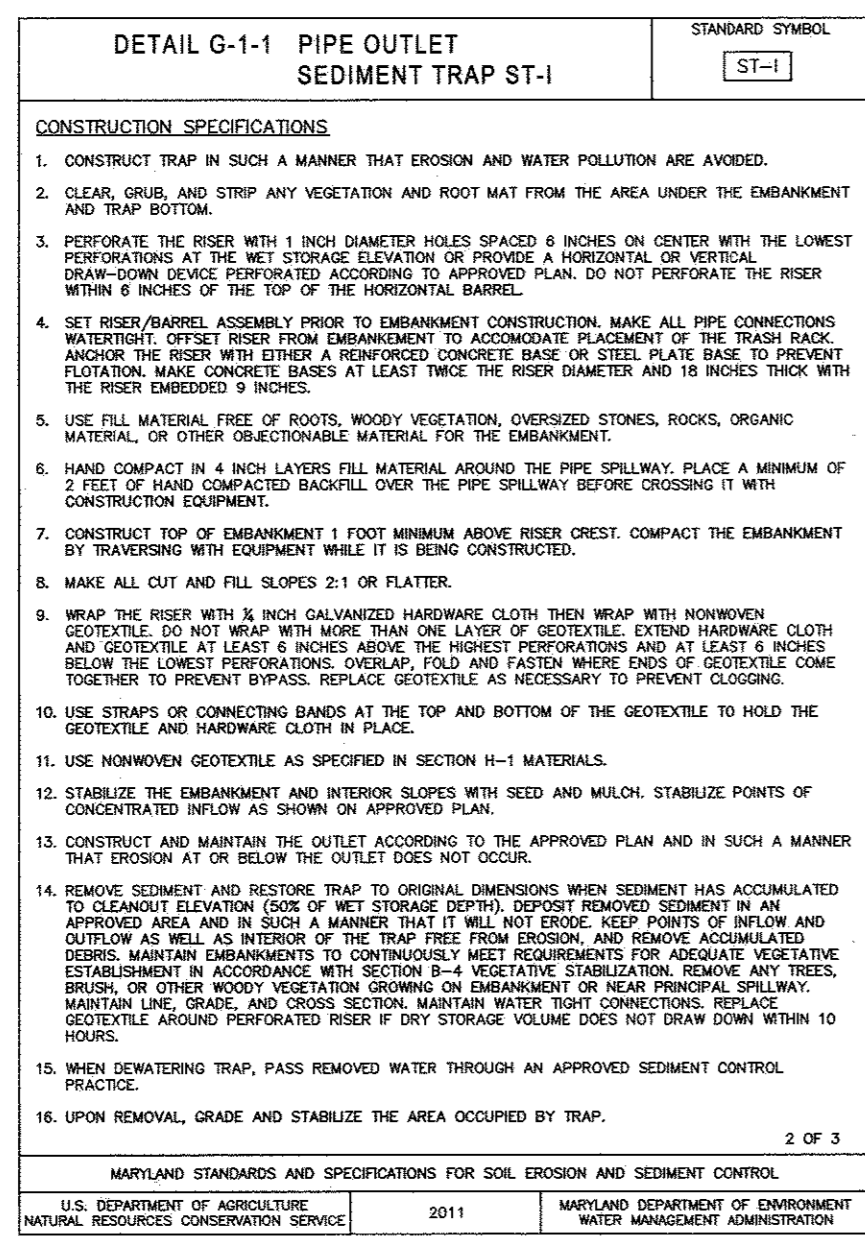
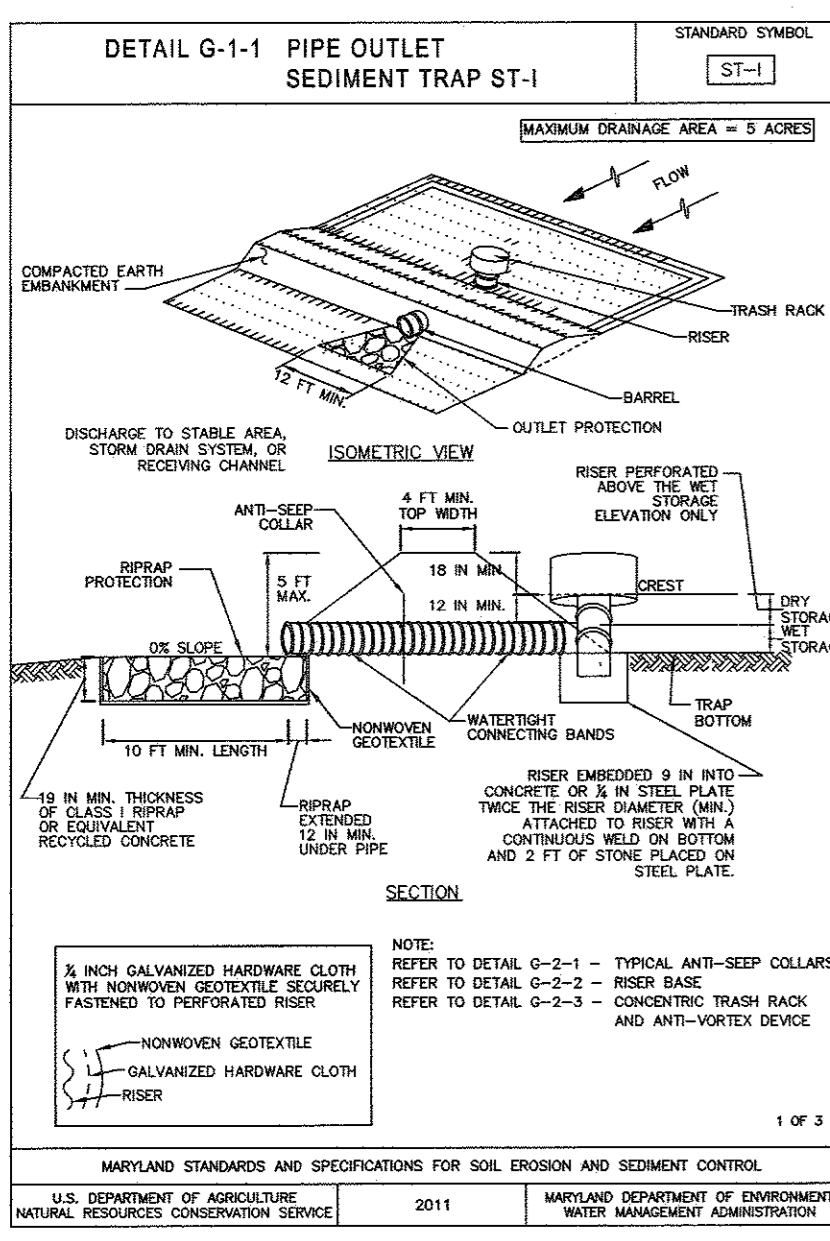
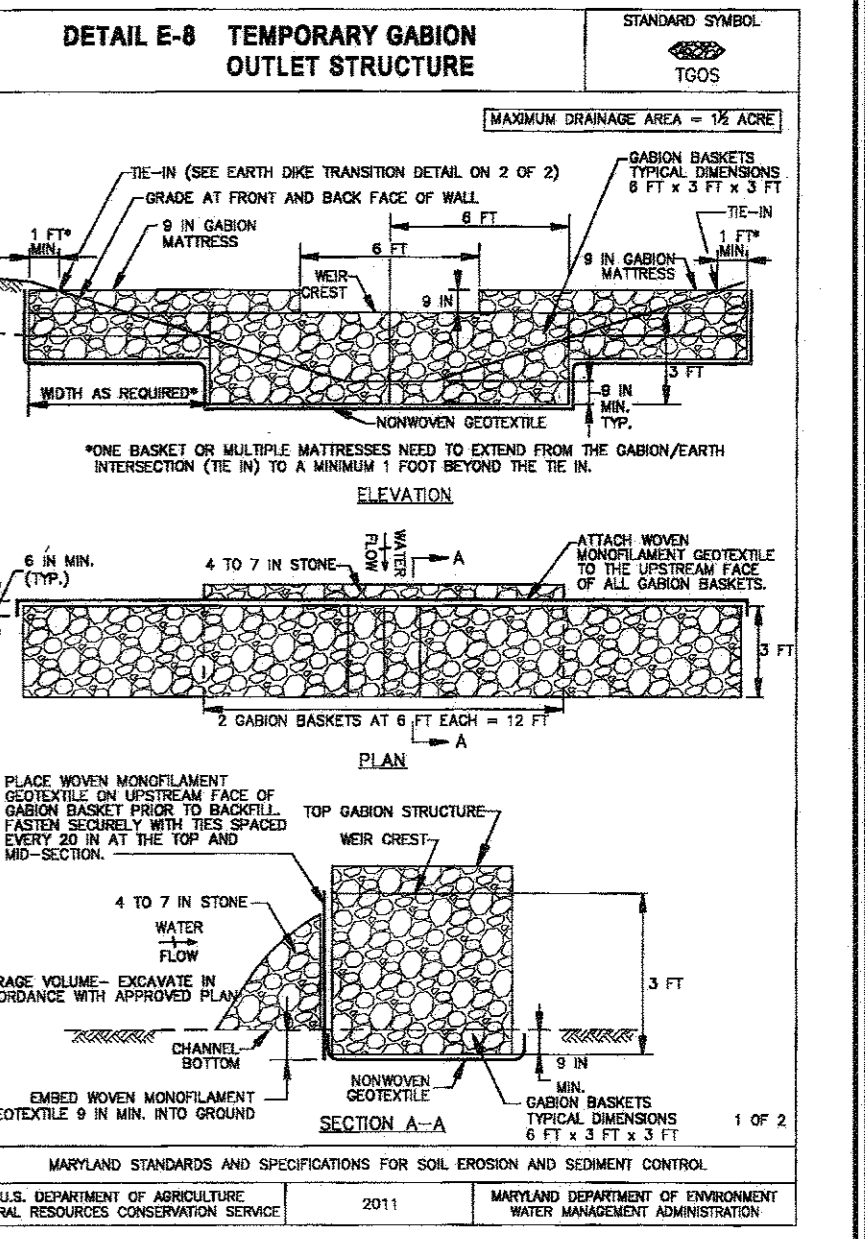
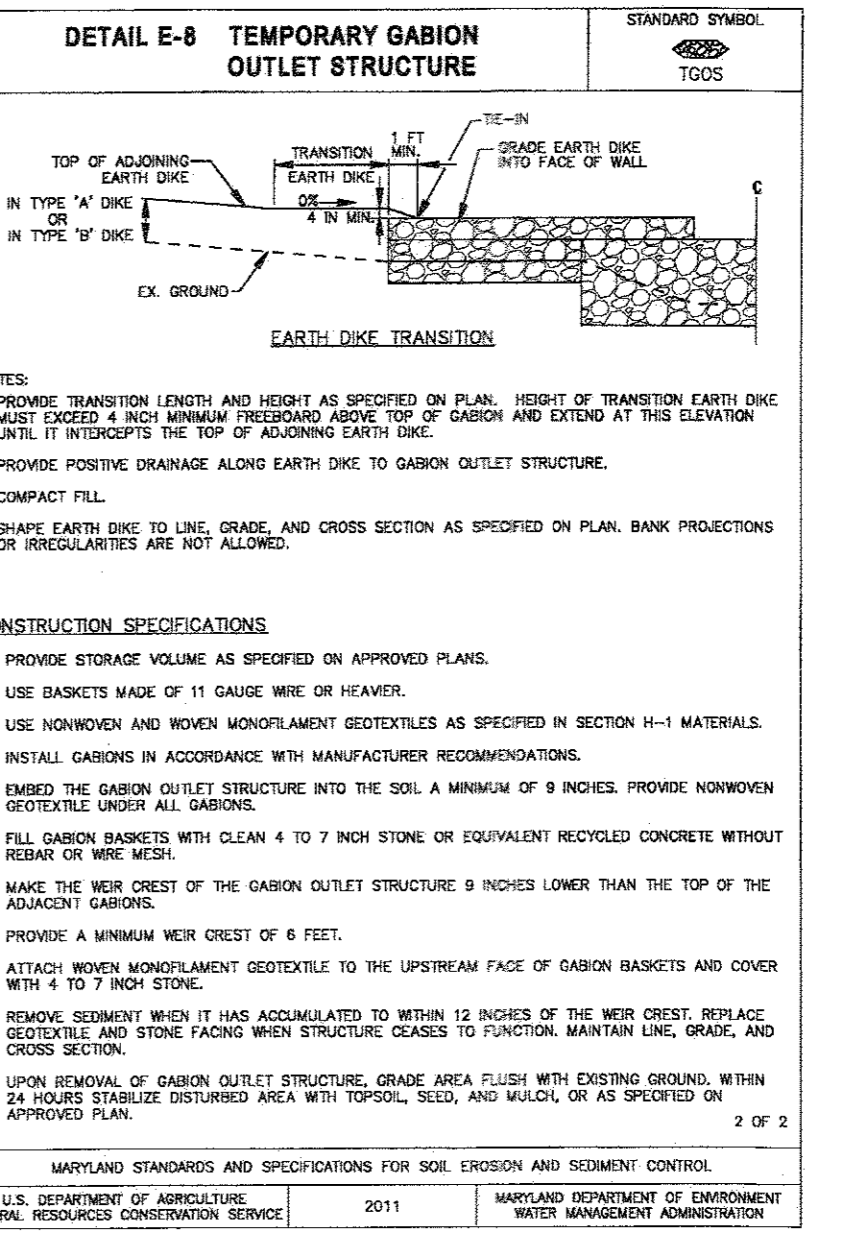
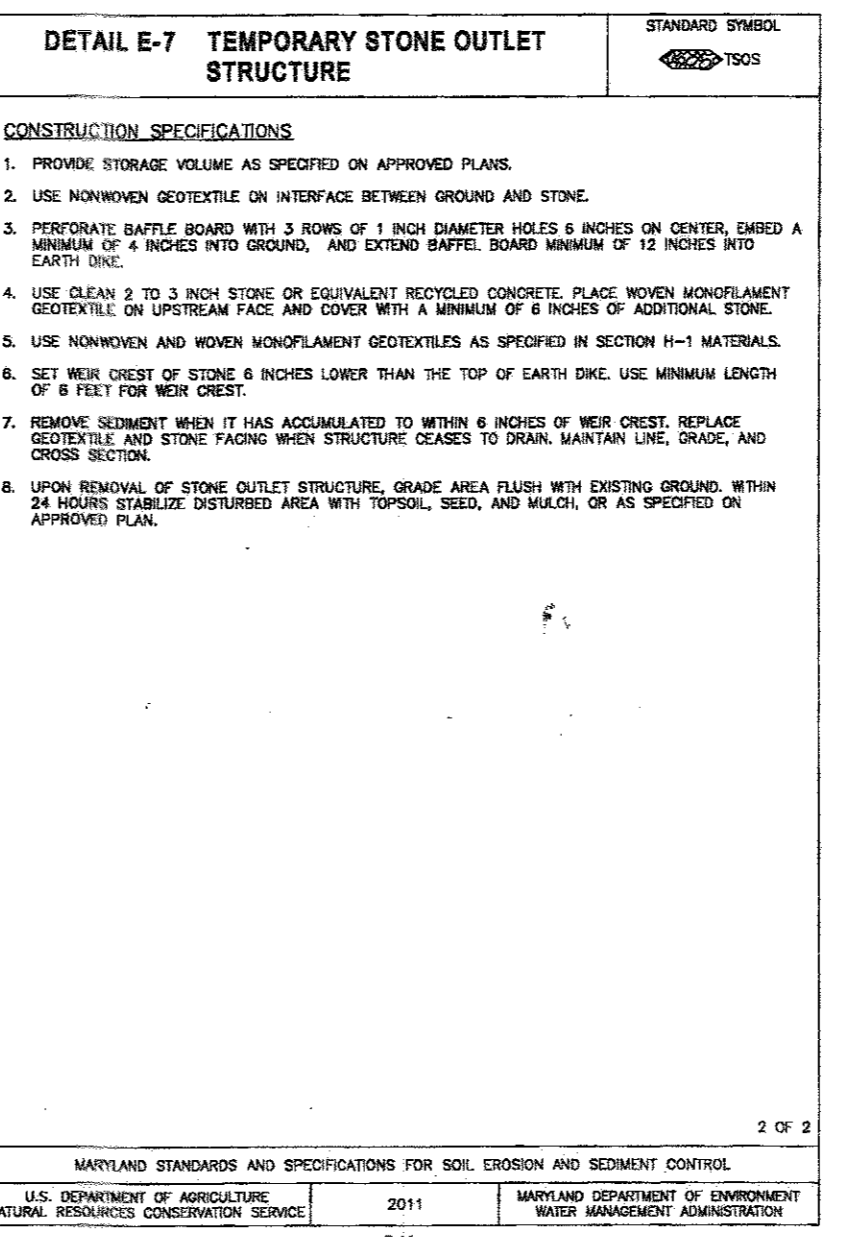
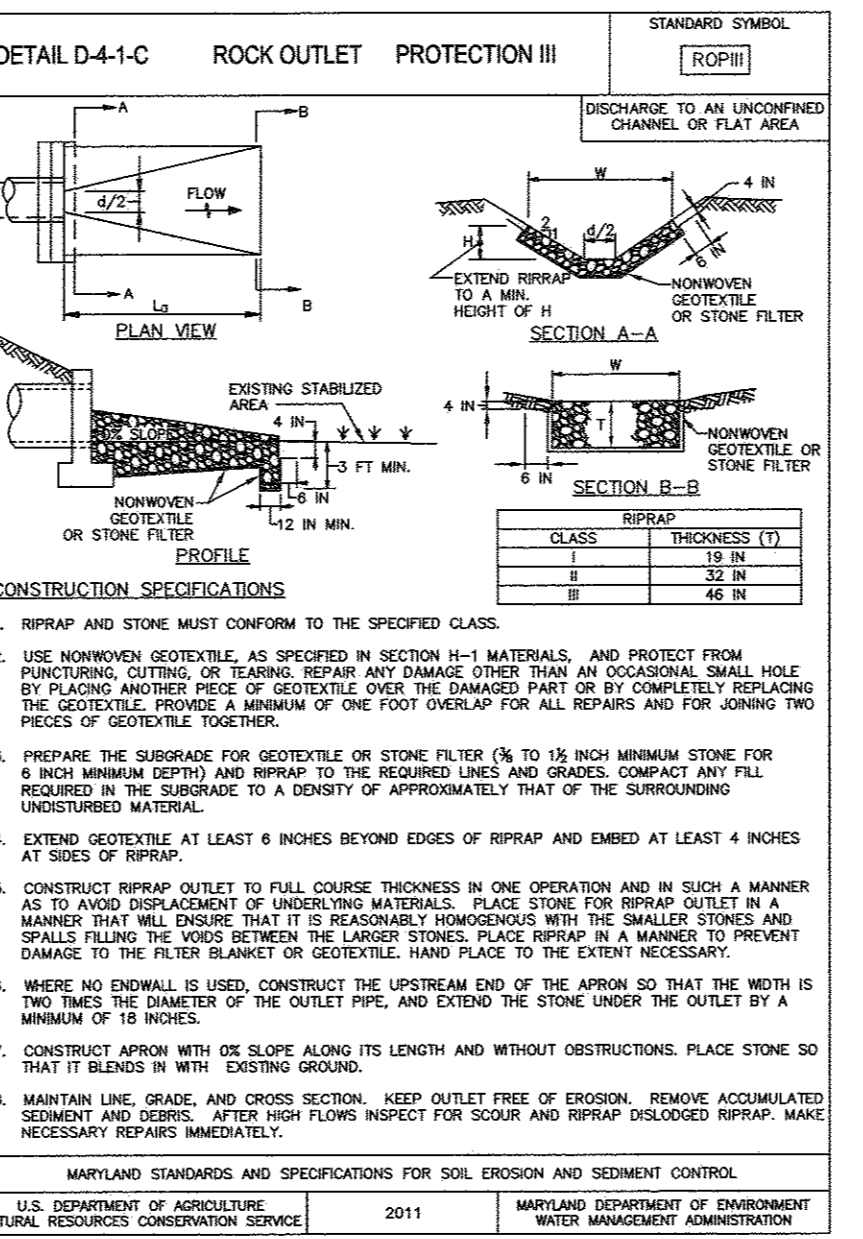
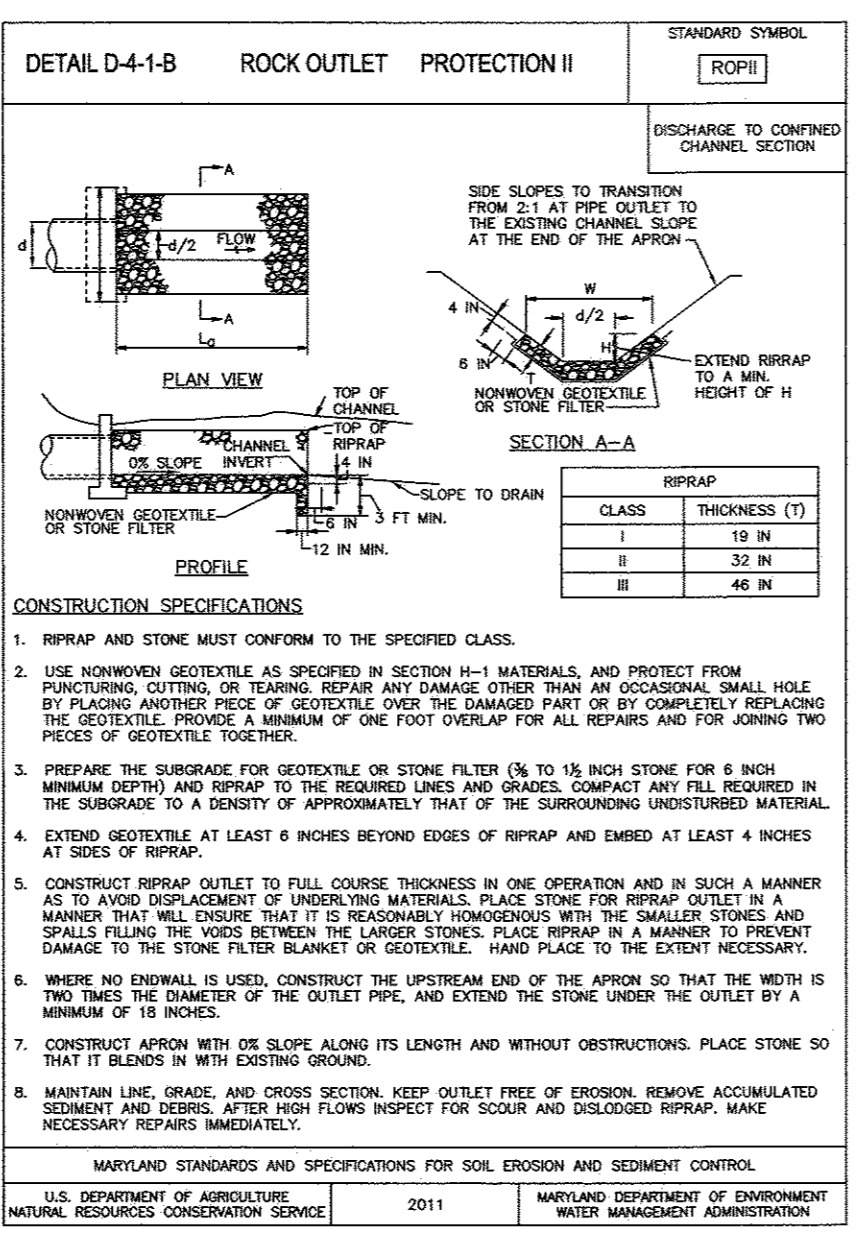
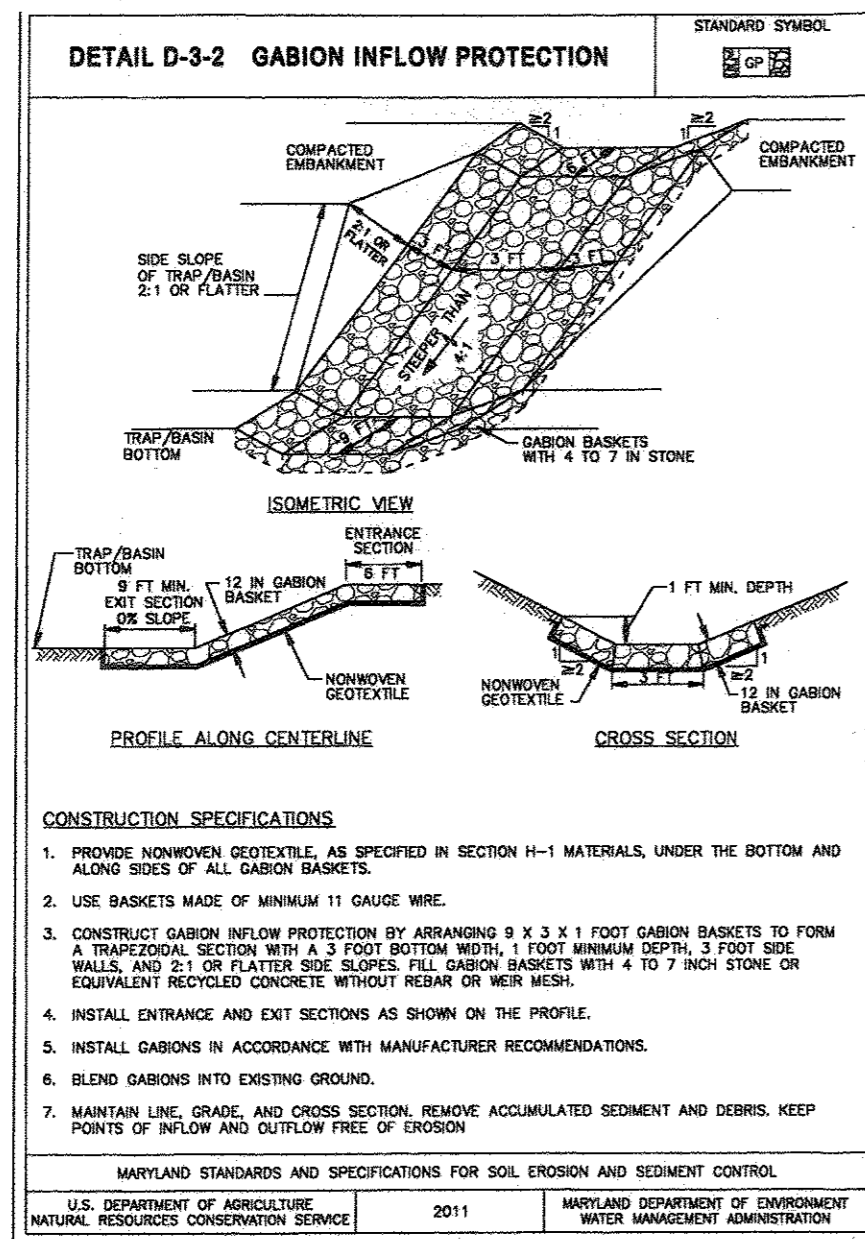
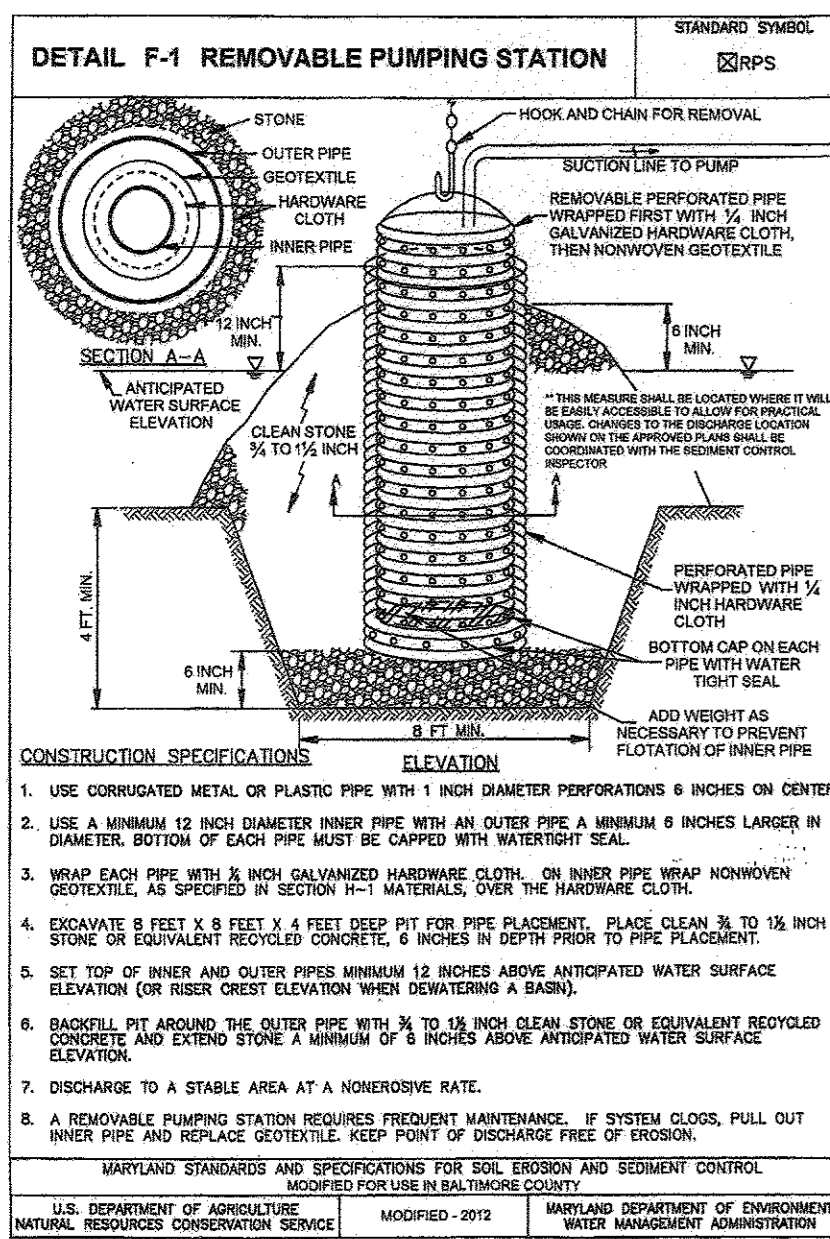
TAX MAP 38 GRID 12
 1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
 HOWARD COUNTY, MARYLAND

DESIGN BY: JS
 DRAWN BY: AEA
 CHECKED BY: PS
 SCALE: 1"=30'
 DATE: SEPTEMBER 28, 2016
 PROJECT #: 16-020
 SHEET #: 17 of 41

SILL ENGINEERING GROUP, LLC
 11130 Dovedale Court, Suite 200
 Mariottsville, Maryland 21104
 Phone: 443.325.5076
 Fax: 410.698.2022
 Email: info@sillengineering.com
 Civil Engineering for Land Development

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32005, EXPIRATION DATE: JUNE 20, 2017.



NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24' BY SILL ENGINEERING GROUP	09/28/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 9-30-16

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 9-30-16

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 DIRECTOR
 DATE: 10-3-16

ENGINEERS CERTIFICATE
 I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN AND DESIGN AND THAT I HAVE PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
 DATE: 9/29/16

DEVELOPER'S CERTIFICATE
 I HAVE CERTIFIED 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 FURTHER ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.
 DATE: 9/29/16

ENGINEER: SILL ENGINEERING GROUP, LLC
 OWNER/DEVELOPER: MARK STROMDAHL

11130 Dovelde Court, Suite 200
 Marriottsville, Maryland 21104
 Phone: 410.696.2022
 Fax: 410.696.2022
 Email: info@sillengineering.com

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 Fax: 410.696.2022
 Email: info@sillengineering.com

DESIGN BY: JS
 DRAWN BY: AEA
 CHECKED BY: PS
 SCALE: AS SHOWN
 DATE: SEPTEMBER 28, 2016
 PROJECT #: 16-020
 SHEET #: 18 of 41

REVISED SEDIMENT & EROSION CONTROL DETAILS
 ELKRIDGE FIRE STATION
 PARCEL A
 "GREEN BUILDING"
 PARCEL 402 & 403 A2
 HOWARD COUNTY, MARYLAND

TAX MAP 38 GRID 12
 1ST ELECTION DISTRICT

STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 No. 32025
 PAUL SILL

STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 No. 32025
 PAUL SILL

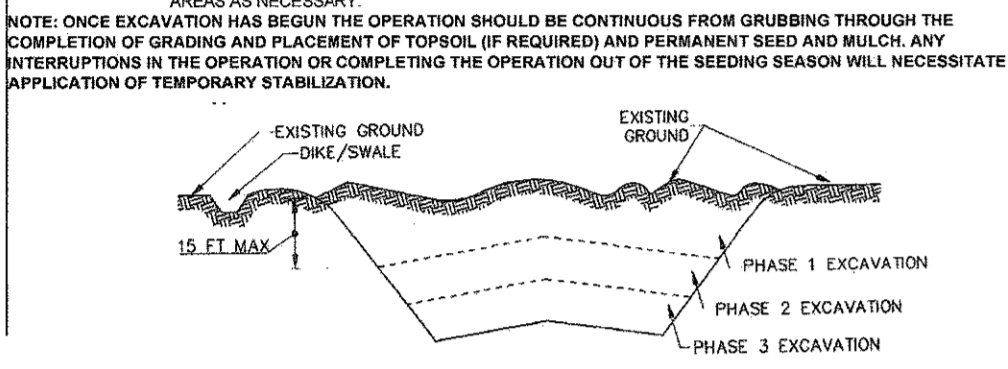
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B-4 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

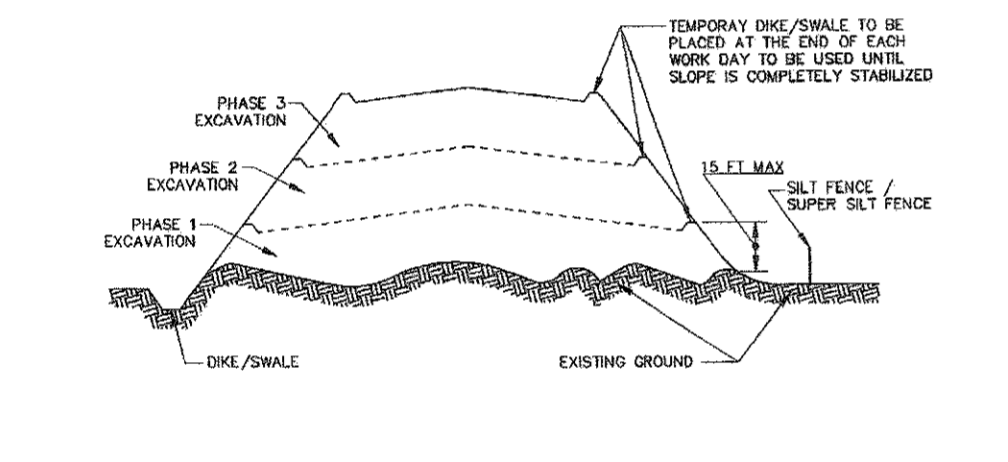
USING VEGETATION AS COVER TO PROTECT EXPOSED SOIL FROM EROSION.
PURPOSE: TO PROMOTE THE ESTABLISHMENT OF VEGETATION ON EXPOSED SOIL.
CONDITIONS WHERE PRACTICE APPLIES: ON ALL DISTURBED AREAS NOT STABILIZED BY OTHER METHODS...

B-4-1 STANDARDS AND SPECIFICATIONS FOR INCREMENTAL STABILIZATION

DEFINITION: TO PROVIDE TIMELY VEGETATIVE COVER ON CUT AND FILL SLOPES AS WORK PROGRESSES.
PURPOSE: TO PROVIDE TIMELY VEGETATIVE COVER ON CUT AND FILL SLOPES AS WORK PROGRESSES.
CONDITIONS WHERE PRACTICE APPLIES: ON ANY CUT OR FILL SLOPE GREATER THAN 15 FEET IN HEIGHT...



INCREMENTAL STABILIZATION - FILL SLOPES
CONSTRUCT AND STABILIZE FILL SLOPES IN INCREMENTS NOT TO EXCEED 15 FEET IN HEIGHT.
STABILIZE SLOPES IMMEDIATELY UPON THE VERTICAL HEIGHT OF A LIFT REACHES 15 FT.
CONSTRUCT AND STABILIZE ALL TEMPORARY SWALES OR DRESKS THAT WILL BE USED TO DIVERT RUNOFF...

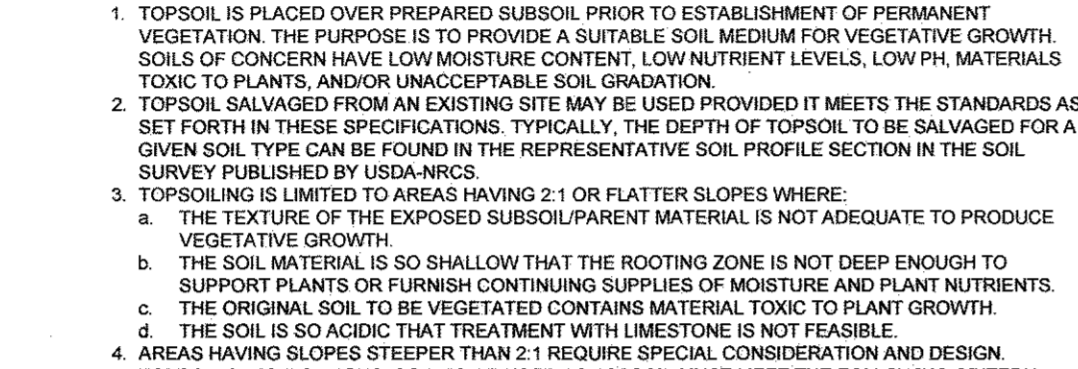


B-4-2 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

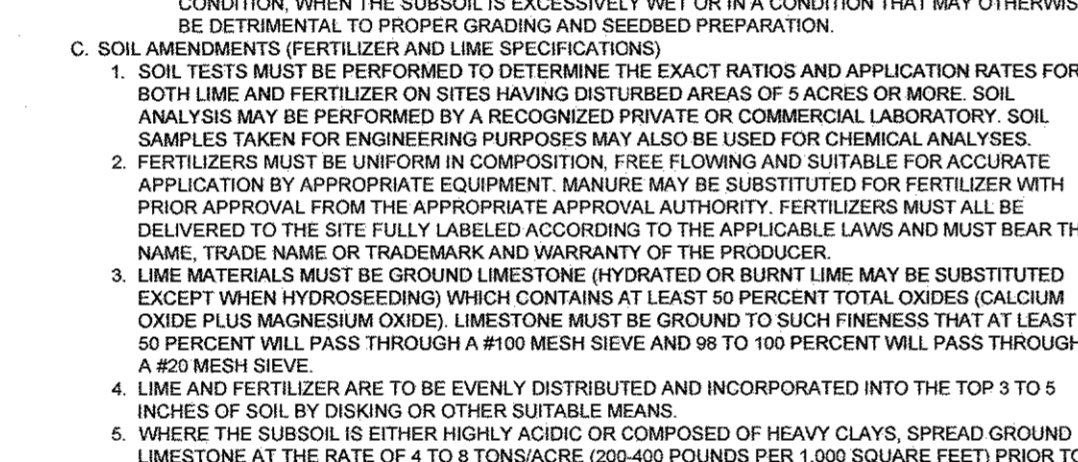
DEFINITION: THE PROCESS OF PREPARING THE SOILS TO SUSTAIN ADEQUATE VEGETATIVE STABILIZATION.
PURPOSE: TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH.
CONDITIONS WHERE PRACTICE APPLIES: WHERE VEGETATIVE STABILIZATION IS TO BE ESTABLISHED.

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 PERIMETER CONTROLS, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE CONSTRUCTION...



TOPSOILING
TOPSOIL IS PLACED OVER PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION.
PURPOSE: TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH.
CONDITIONS WHERE PRACTICE APPLIES: TO AREAS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW pH, MATERIALS TOXIC TO PLANTS...

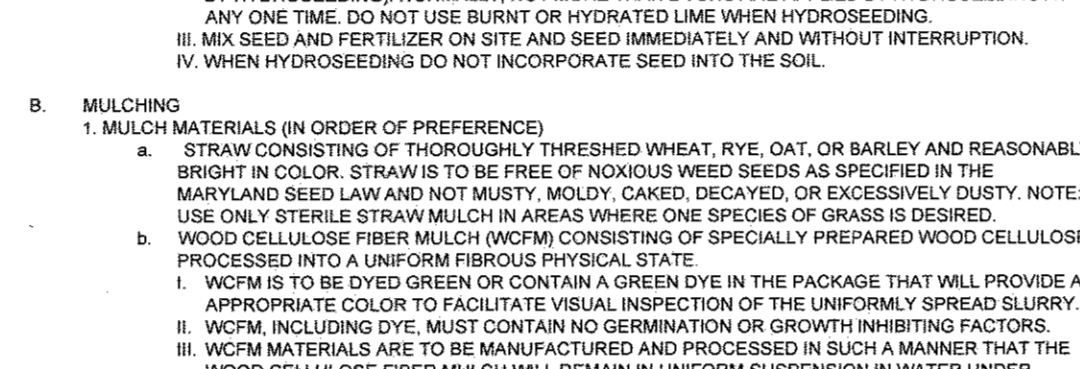


B-4-4 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

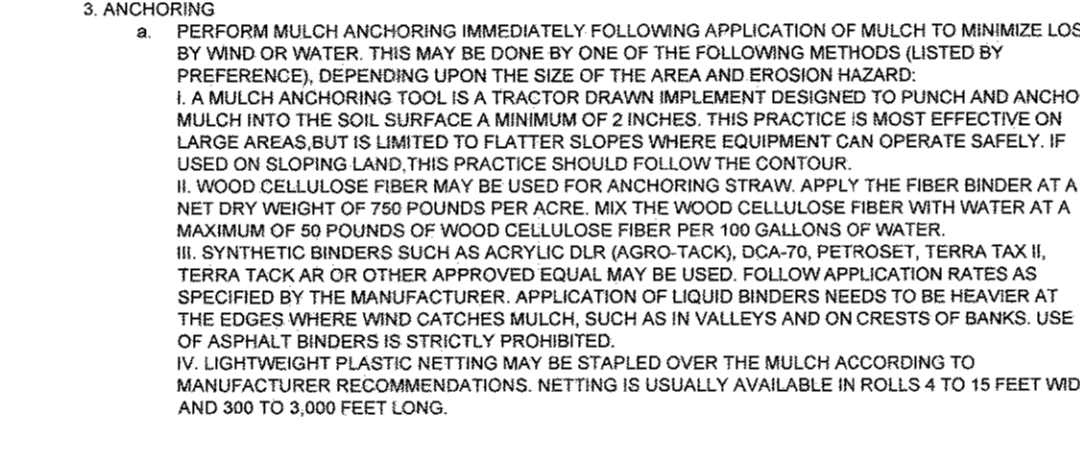
DEFINITION: THE APPLICATION OF SEED AND MULCH TO ESTABLISH VEGETATIVE COVER.
PURPOSE: TO PROTECT DISTURBED SOILS FROM EROSION DURING AND AT THE END OF CONSTRUCTION.
CONDITIONS WHERE PRACTICE APPLIES: TO THE SURFACE OF ALL PERIMETER CONTROLS, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE CONSTRUCTION...

B-4-5 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

DEFINITION: TO STABILIZE DISTURBED SOILS WITH VEGETATION FOR UP TO 6 MONTHS.
PURPOSE: TO USE FAST-GROWING VEGETATION THAT PROVIDES COVER ON DISTURBED SOILS.
CONDITIONS WHERE PRACTICE APPLIES: EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR A PERIOD OF 6 MONTHS OR LESS...



TEMPORARY SEEDING FOR SITE STABILIZATION
PLANT SPECIES: COOL-SEASON GRASSES, WARM-SEASON GRASSES.
SEEDING RATE: 40 LBS/AC FOR COOL-SEASON GRASSES, 20 LBS/AC FOR WARM-SEASON GRASSES.
SEEDING DEPTH: 0.5 INCHES.

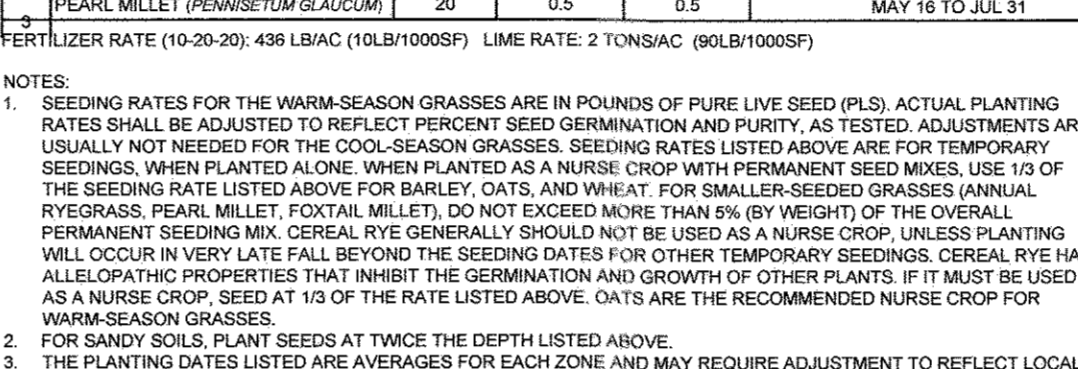


B-4-6 STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREA

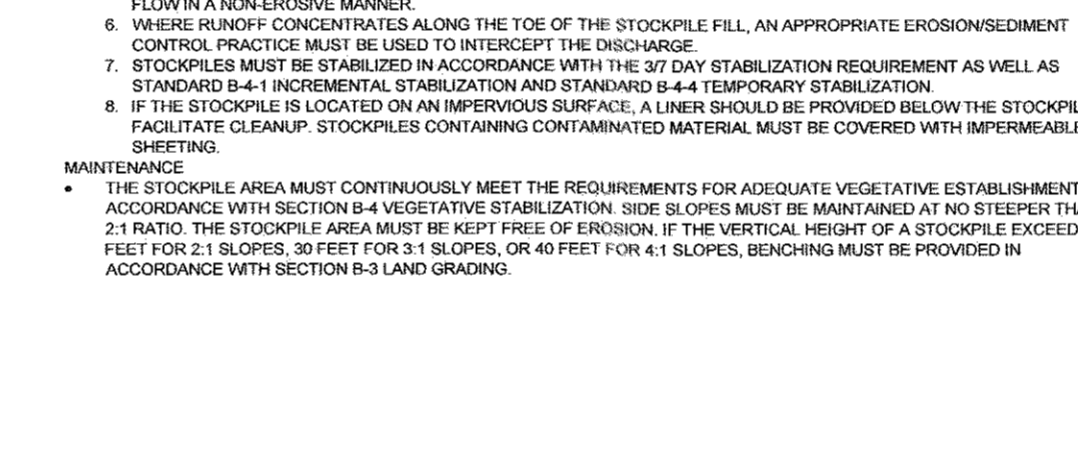
DEFINITION: A MOUND OR PILE OF SOIL PROTECTED BY APPROPRIATELY DESIGNED EROSION AND SEDIMENT CONTROL MEASURES.
PURPOSE: TO PROVIDE A DESIGNATED LOCATION FOR THE TEMPORARY STORAGE OF SOIL THAT CONTROLS THE POTENTIAL FOR EROSION, SEDIMENTATION, AND CHANGES TO DRAINAGE PATTERNS.
CONDITIONS WHERE PRACTICE APPLIES: STOCKPILE AREAS ARE UTILIZED WHEN IT IS NECESSARY TO SALVAGE AND STORE SOIL FOR LATER USE...

B-4-7 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.



PERMANENT SEEDING
SEED MIXTURE (FOR HARDNESS ZONE 6): Creeping Red Fescue, Kentucky Bluegrass.
SEEDING RATE: 30 LBS/AC FOR CREeping Red Fescue, 20 LBS/AC FOR KENTucky Bluegrass.
SEEDING DEPTH: 0.5 INCHES.

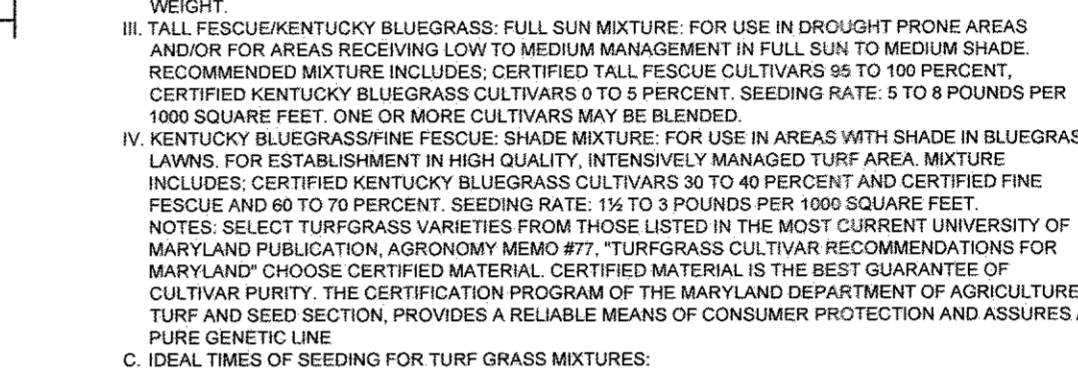


B-4-8 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

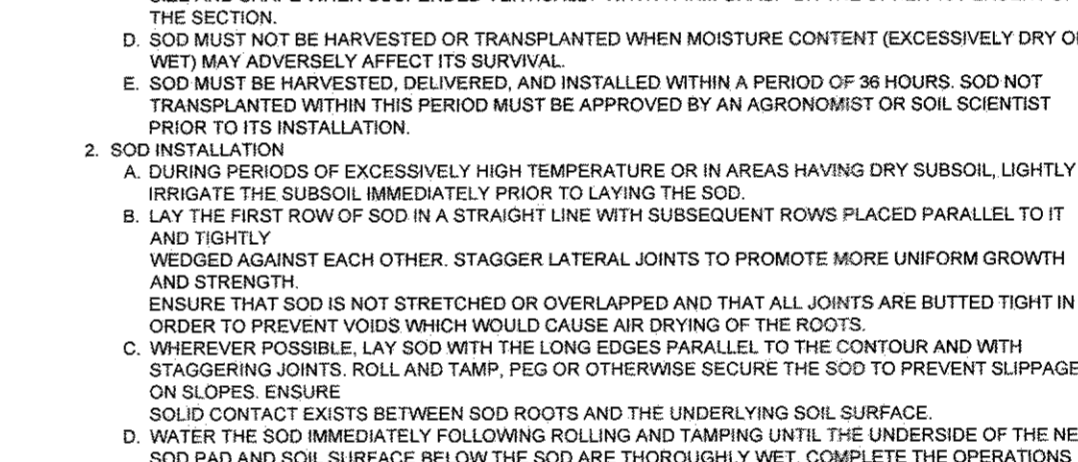
DEFINITION: TO STABILIZE DISTURBED SOILS WITH PERMANENT VEGETATION.
PURPOSE: TO USE LONG-LIVED PERENNIAL GRASSES AND LEGUMES TO ESTABLISH PERMANENT GROUND COVER ON DISTURBED SOILS.
CONDITIONS WHERE PRACTICE APPLIES: EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR 6 MONTHS OR MORE.

B-4-9 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.



PERMANENT SEEDING NOTES
APPLY TO GRADED OR CLEARED AREAS NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT LONG-LEIVED VEGETATIVE COVER IS NEEDED.
SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING...

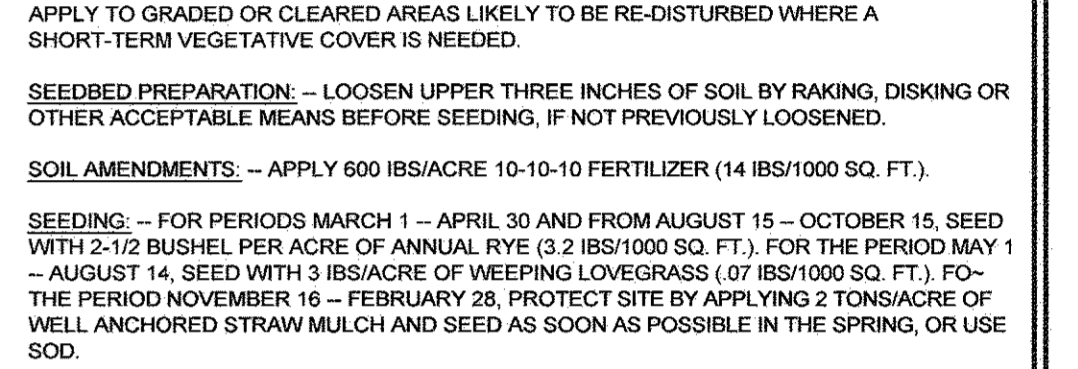


B-4-10 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

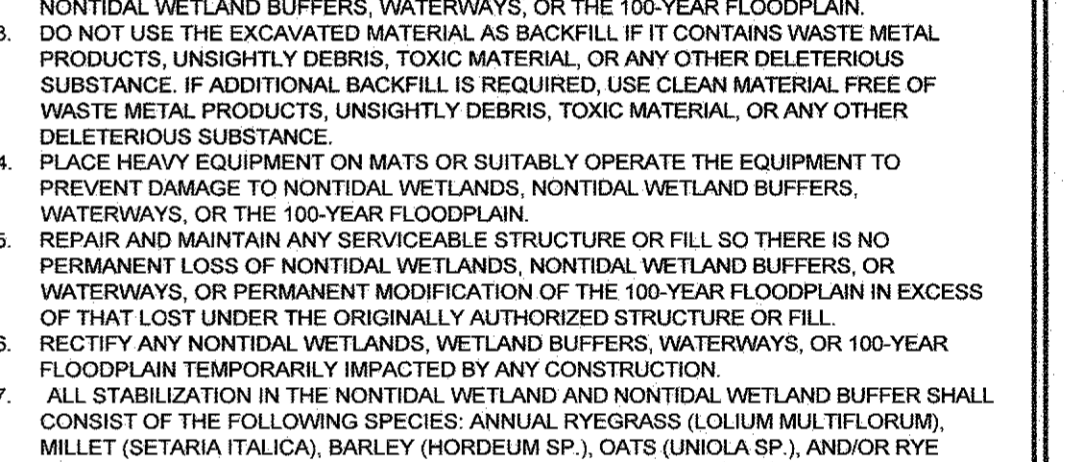
DEFINITION: TO STABILIZE DISTURBED SOILS WITH PERMANENT VEGETATION.
PURPOSE: TO USE LONG-LIVED PERENNIAL GRASSES AND LEGUMES TO ESTABLISH PERMANENT GROUND COVER ON DISTURBED SOILS.
CONDITIONS WHERE PRACTICE APPLIES: EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR 6 MONTHS OR MORE.

B-4-11 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.

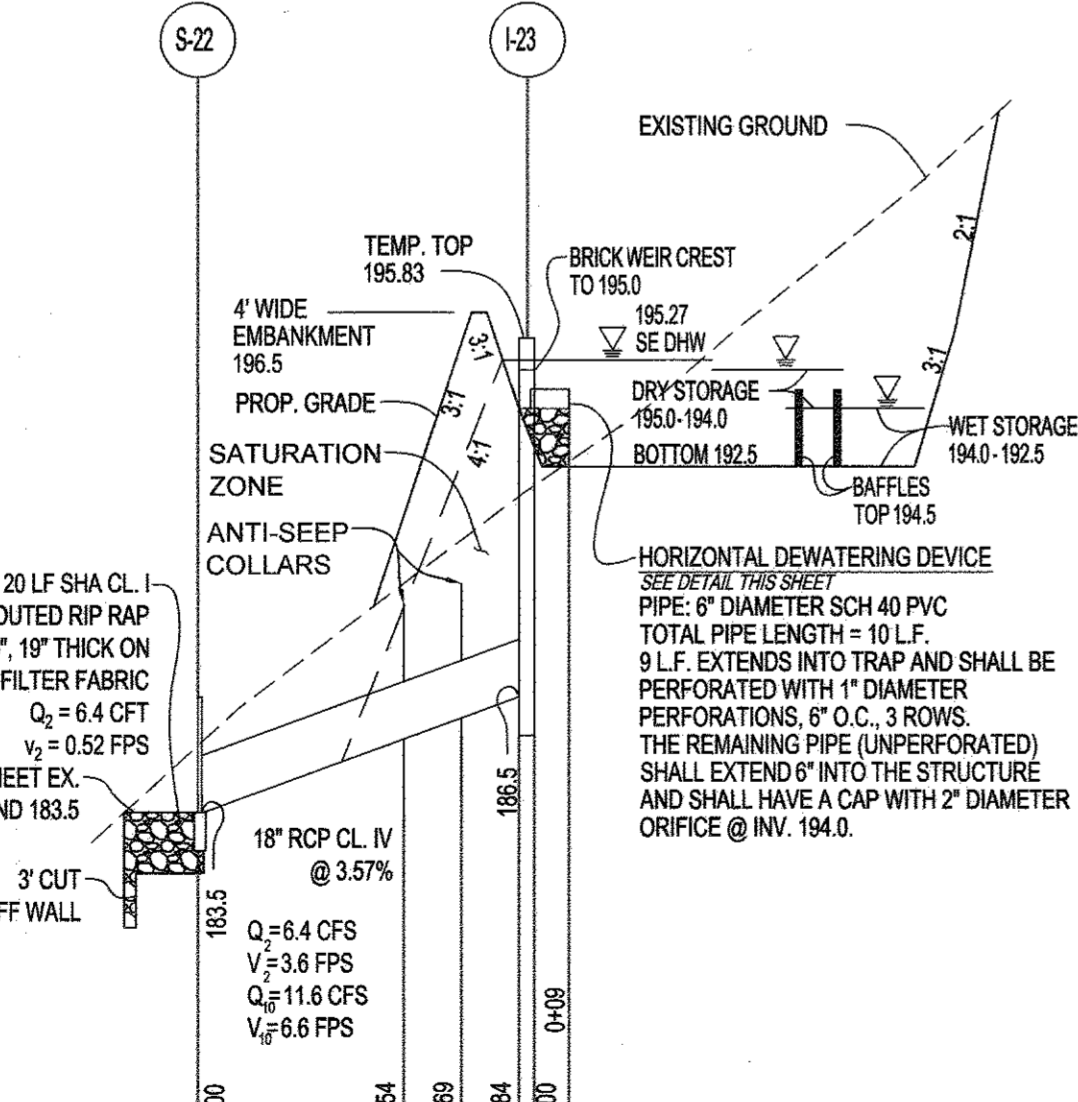


PERMANENT SEEDING NOTES
APPLY TO GRADED OR CLEARED AREAS NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT LONG-LEIVED VEGETATIVE COVER IS NEEDED.
SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING...



REVISIONS
1. DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24'. BY SILL ENGINEERING GROUP

TEMP. TOP 195.83
PROP. GRADE 195.27
SATURATION ZONE 195.04
ANTI-SEEP COLLARS 194.15
BOTTOM 192.5



PROFILE OF SEDIMENT TRAP 1
SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'

PERMANENT SEEDING
SEED MIXTURE (FOR HARDNESS ZONE 6): Creeping Red Fescue, Kentucky Bluegrass.
SEEDING RATE: 30 LBS/AC FOR CREeping Red Fescue, 20 LBS/AC FOR KENTucky Bluegrass.
SEEDING DEPTH: 0.5 INCHES.

SEEDING GRASS AND LEGUMES TO ESTABLISH GROUND COVER FOR A MINIMUM PERIOD OF 6 MONTHS OR MORE ON DISTURBED AREAS GENERALLY RECEIVING LOW MAINTENANCE.

HOWARD SOIL CONSERVATION DISTRICT
STANDARD SEDIMENT CONTROL NOTES
1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS...

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 9-30-16

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 9-30-16

ENGINEER'S CERTIFICATE
I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON THE PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DEVELOPER'S CERTIFICATE
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.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 9-30-16

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 9-30-16

REVISIONS
1. DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24'. BY SILL ENGINEERING GROUP

REVISIONS
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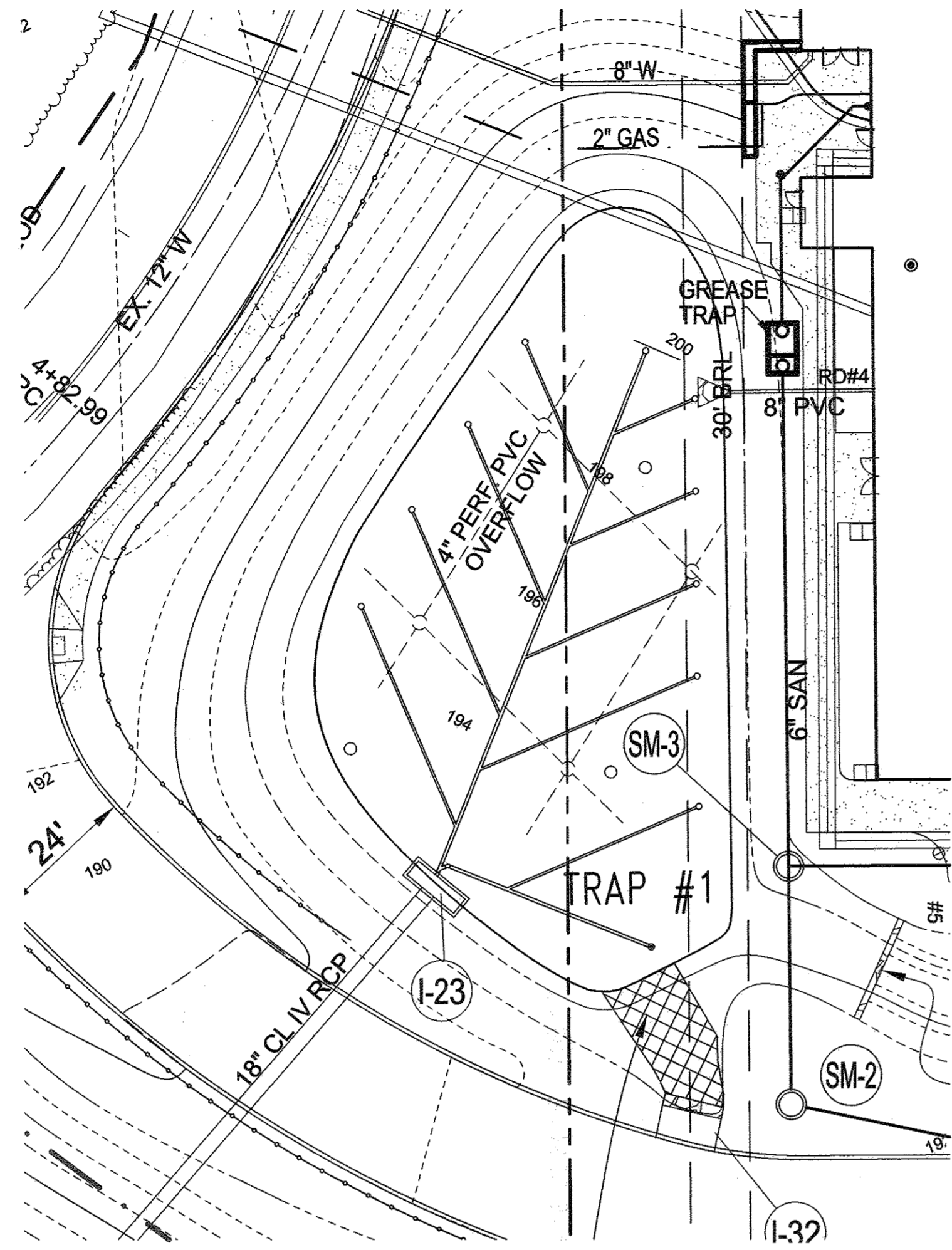
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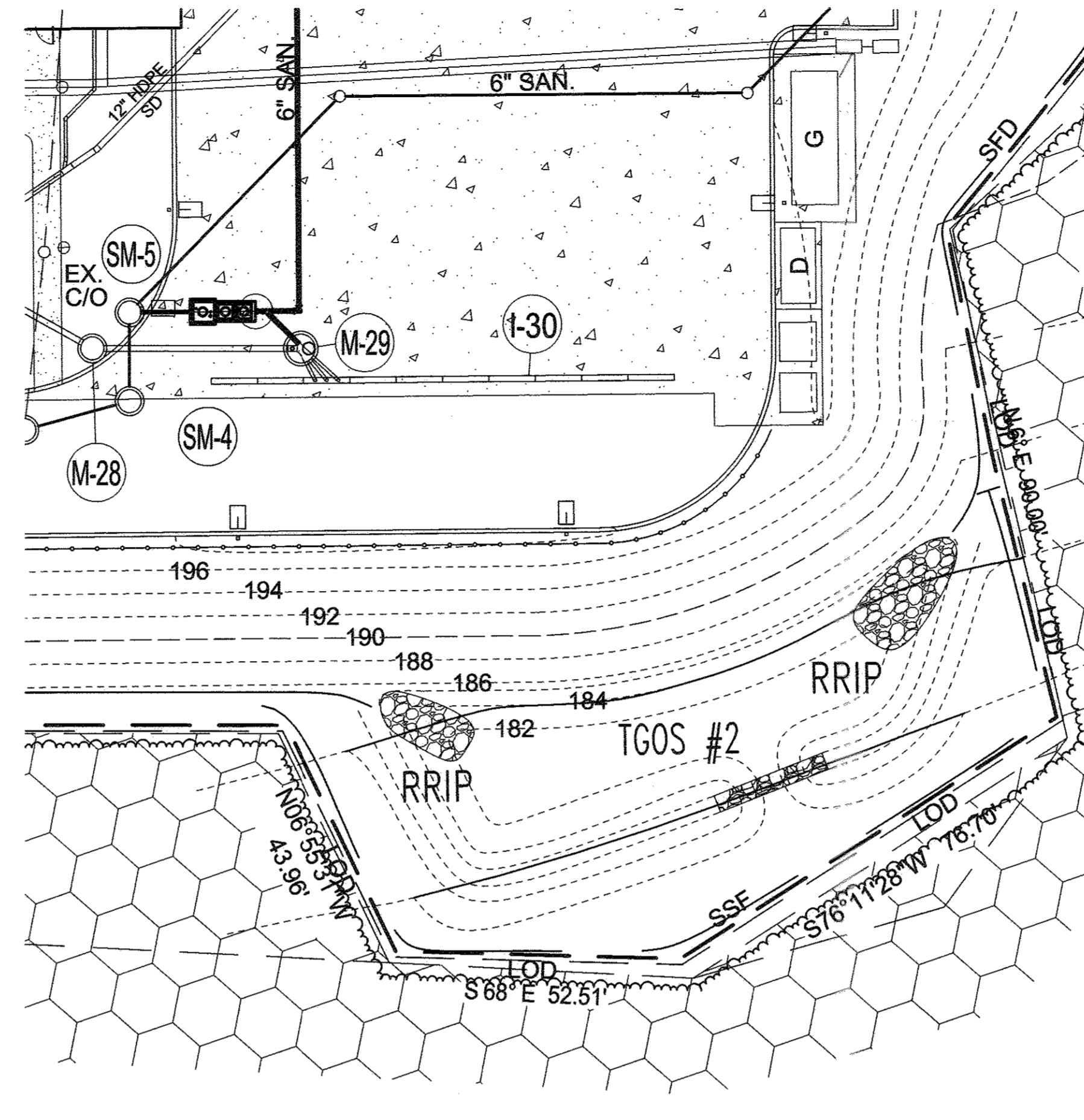
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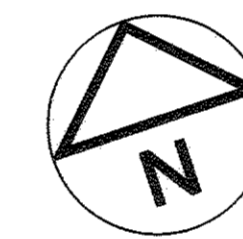
REVISIONS
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INSET TRAP #1 CONVERSION



INSET TGOS #2 CONVERSION



NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24'. BY SILL ENGINEERING GROUP	09/28/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Ed J. Kelly 9-30-16
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

West 9-30-16
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Valerio 10-3-16
 DIRECTOR DATE

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

John K. Robertson 9/29/16
 HOWARD SOIL CONSERVATION DISTRICT DATE

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION 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."

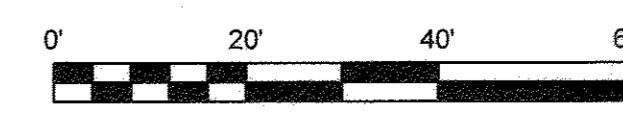
Paul M. Sill, P.E. 9/29/16
 SIGNATURE OF ENGINEER DATE
 PAUL M. SILL, P.E.

DEVELOPER'S CERTIFICATE

"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."

Mark Stromdahl 9/29/16
 SIGNATURE OF DEVELOPER DATE

NOTE: IF THE STOCKPILE SHOULD EXCEED 15 FT. IN HEIGHT, IT MUST BE BENCHED.



ENGINEER: SILL ENGINEERING GROUP, LLC
 11130 DOVEDALE COURT, SUITE 200
 MARRIOTTSTVILLE, MARYLAND 21104
 OFFICE: 443-325-5076
 FAX: 410-696-2022
 EMAIL: PAUL@SILLENGINEERING.COM

OWNER/DEVELOPER: MARK STROMDAHL
 HOWARD COUNTY, MARYLAND
 9250 BENDIX ROAD
 COLUMBIA, MD 21045
 PHONE: 410-313-5757
 EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV

REVISED SEDIMENT & EROSION CONTROL DETAILS

ELKCRIDGE FIRE STATION

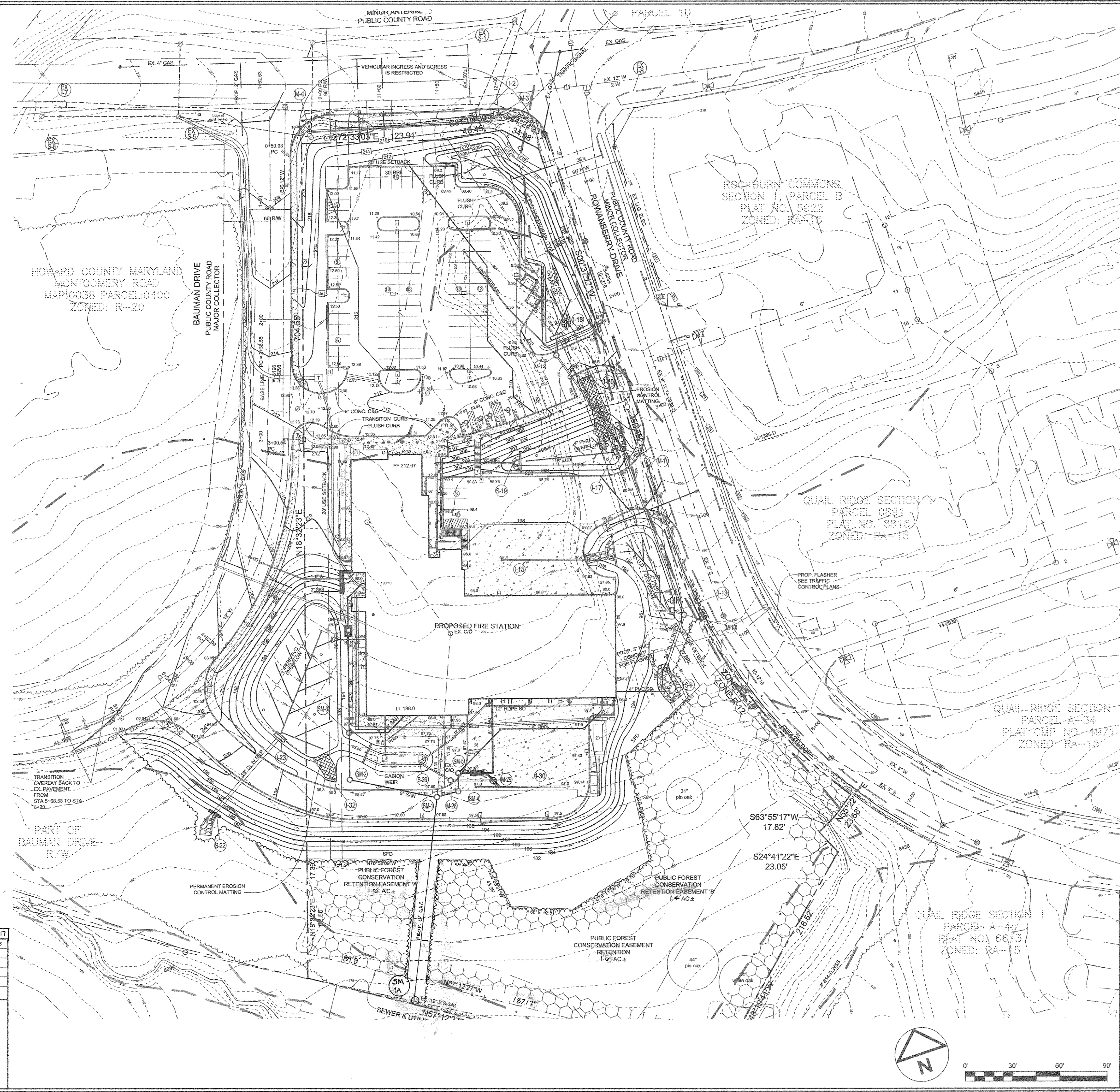
PARCEL A
 "GREEN BUILDING"

TAX MAP 38 GRID 12
 1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
 HOWARD COUNTY, MARYLAND

	<p>SILL ENGINEERING GROUP, LLC 11130 Dovedale Court, Suite 200 Marriottsville, Maryland 21104 Phone: 443-325-5076 Fax: 410-696-2022 Email: info@sillengineering.com Civil Engineering for Land Development</p>	DESIGN BY: JS
		DRAWN BY: AEA
		CHECKED BY: PS
		SCALE: 1"=20'
		DATE: SEPTEMBER 28, 2016
		PROJECT #: 16-020
		SHEET #: 20 of 41

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32025, EXPIRATION DATE: JUNE 20, 2017



NO.	DESCRIPTION	DATE
2	REPLACE EXISTING DRAIN LINE	11/01/2017
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	09/28/2016

REVISIONS	
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING	
<i>Paul Elmer</i> CHIEF, DEVELOPMENT ENGINEERING DIVISION	9-30-16 DATE
<i>Katherine</i> CHIEF, DIVISION OF LAND DEVELOPMENT	9-30-16 DATE
<i>Natalie</i> DIRECTOR	10-3-16 DATE

ENGINEER	OWNER/DEVELOPER
SILL ENGINEERING GROUP, LLC HOWARD COUNTY, MARYLAND 11130 DOVEDALE COURT, SUITE 200 MARRIOTTVILLE, MARYLAND 21104 OFFICE: 443-325-5087 FAX: 410-556-2022 EMAIL: PAUL@SILLENGINEERING.COM	MARK STROMDAHL HOWARD COUNTY, MARYLAND 6250 BENDIX ROAD COLUMBIA, MD 21045 PHONE: 410-313-5157 EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV

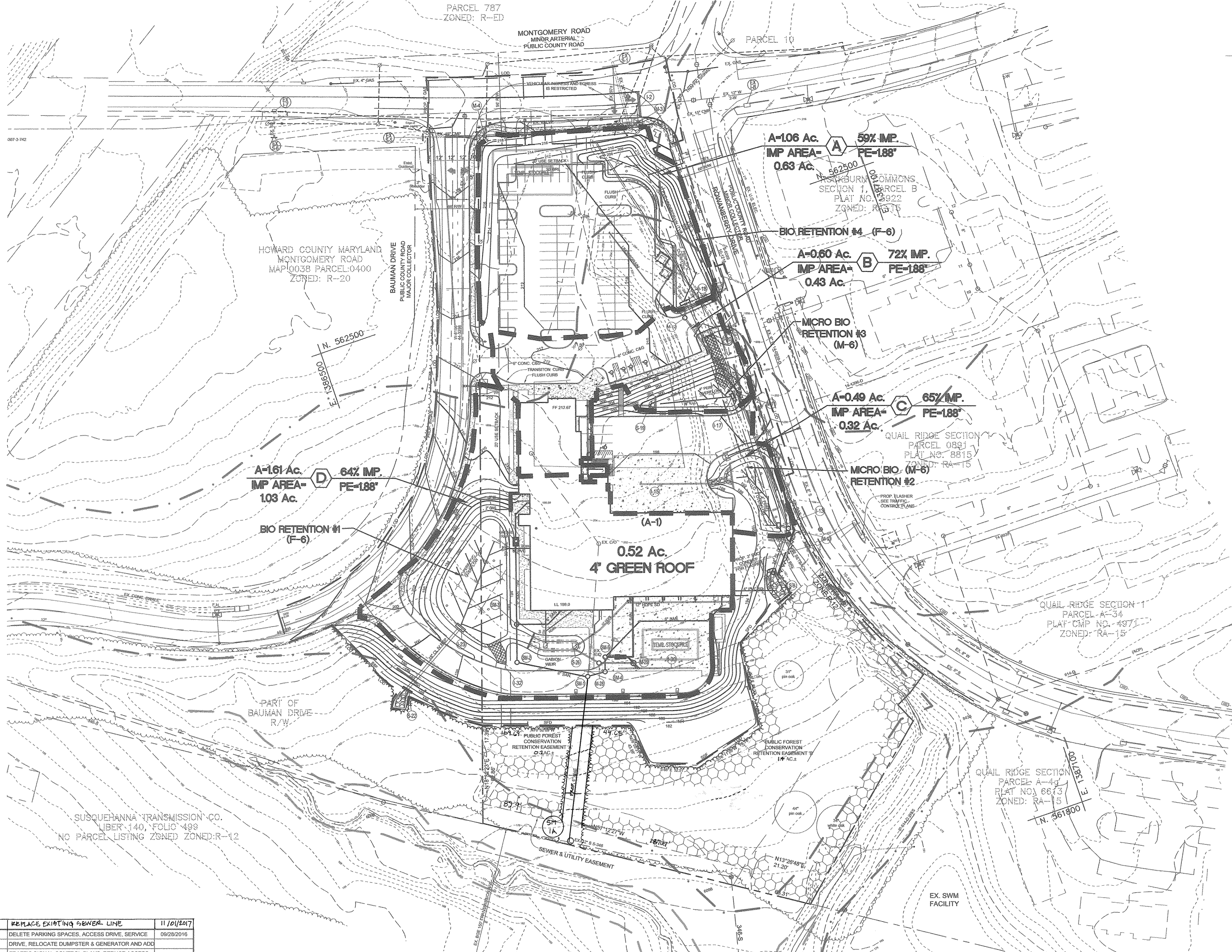
**REVISED OVERALL
STORMWATER MANAGEMENT PLAN
ELKRIDGE FIRE STATION**

PARCEL A
"GREEN BUILDING"

TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

	SILL ENGINEERING GROUP, LLC 11130 Dovedale Court, Suite 200 Marriottville, Maryland 21104 Phone: 443.325.5076 Fax: 410.696.2022 Email: info@sillengineering.com Civil Engineering for Land Development	DESIGN BY: JS DRAWN BY: AEA CHECKED BY: PS SCALE: 1"=30' DATE: SEPTEMBER 28, 2016 PROJECT #: 16-020 SHEET #: 21 of 41
	PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32023, EXPIRATION DATE: JUNE 28, 2017.	



FACILITY AND DESIGN SUMMARIES

DESIGN SUMMARY

Req	Site LOI	Imp Area	ESDv	Temp Storage	Pc	Recharge	forebay
	4.73 ac	2.69 ac	18077 CF	13558 CF	1.88"	1250cf	123 cf
Prov	N/A	N/A	22332 CF	15569 CF	1.88"	1686 cf	441 cf

FACILITY SUMMARY

Facility	Pc	DA	ESD elev	Bottom elev	ESDv req	ESDv Prov	Temp Storage req	Temp Storage prov	Af req	Af prov	Rec req	Rec prov	Fore bay req	Fore bay prov
Bio Ret #1 F-6	1.88"	1.61 acs	194.0	193.0	5446 cf [#]	9027 cf	4085 cf	6770 cf	4538 sf	6267 sf	1250 cf	1686 cf	123 cf	441 cf
Mic Bio #2 M-6	1.88"	0.49 acs	195.0	194.0	2139 cf	2967 cf	1604 cf	2225 cf	427 sf	1900 sf	**	**	N/A	N/A
Mic Bio #3 M-6	1.88"	0.60 acs	199.5	198.5	2598 cf [#]	2792 cf	1949 cf	2094cf	523 sf	1576 sf	**	**	N/A	N/A
Bio Ret #4 F-6	1.88"	1.06a cs	209.0	208.0	4195 cf	5802 cf	3146 cf	4480 cf	3496 sf	3746 sf	**	**	N/A	N/A
Green Roof A-1		0.52 acs	N/A	N/A	N/A	1744 cf	N/A	N/A	N/A	N/A	**	**	N/A	N/A
Totals	1.88 "	3.76 ac	N/A	N/A	14378 cf	22332 cf	12746 cf	15569 cf	N/A	N/A	1250 of	1686 of	123 of	441 of

* Adjusted from 6922 cf for green roof storage of 1476 cf
 # Adjusted from 2866 cf for green roof storage of 268 cf
 ** recharge provided for site in stone under facility #1

NO.	DESCRIPTION	DATE
2	REPLACE EXISTING SEWER LINE	11/01/2017
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24'. BY SILL ENGINEERING GROUP	09/28/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION 9-30-16
 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING 9-30-16
 DATE

DIRECTOR 10-3-16
 DATE

ENGINEER
 SILL ENGINEERING GROUP, LLC
 HOWARD COUNTY, MARYLAND
 11130 DOVEDALE COURT, SUITE 200
 MARRIOTTSVILLE, MARYLAND 21104
 OFFICE: 443-325-5057
 FAX: 410-696-2022
 EMAIL: PAUL@SILLENGINEERING.COM

OWNER/DEVELOPER
 MARK STROMDAHL
 HOWARD COUNTY, MARYLAND
 9250 BENDIX ROAD
 COLUMBIA, MD 21045
 PHONE: 410-313-9757
 EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV

REVISED SWM FACILITY DRAINAGE AREA MAP

ELKRIDGE FIRE STATION

PARCEL A
 "GREEN BUILDING"

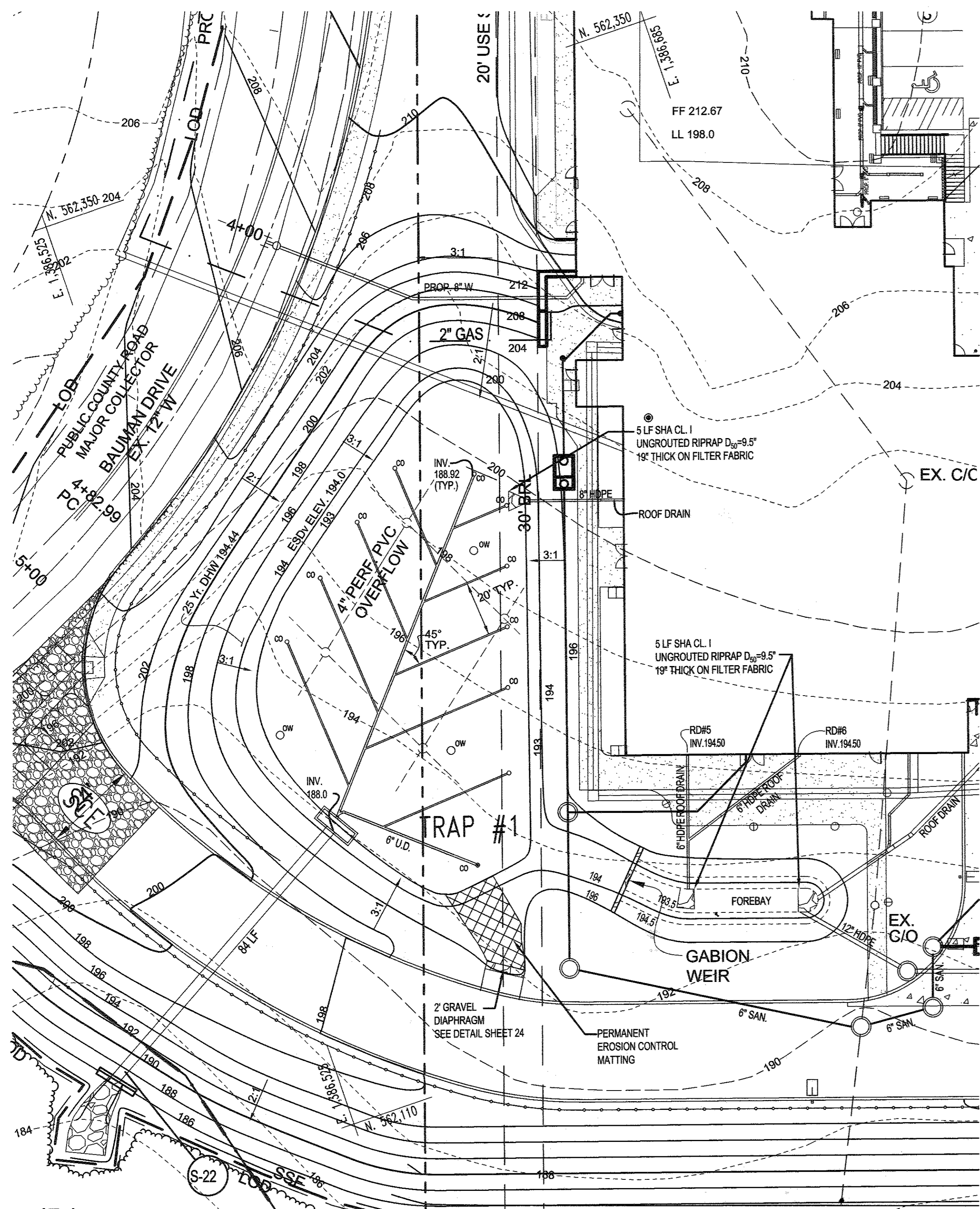
TAX MAP 38 GRID 12
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PARCEL 402 & 403 A2
 HOWARD COUNTY, MARYLAND

DESIGN BY: JS
 DRAWN BY: AEA
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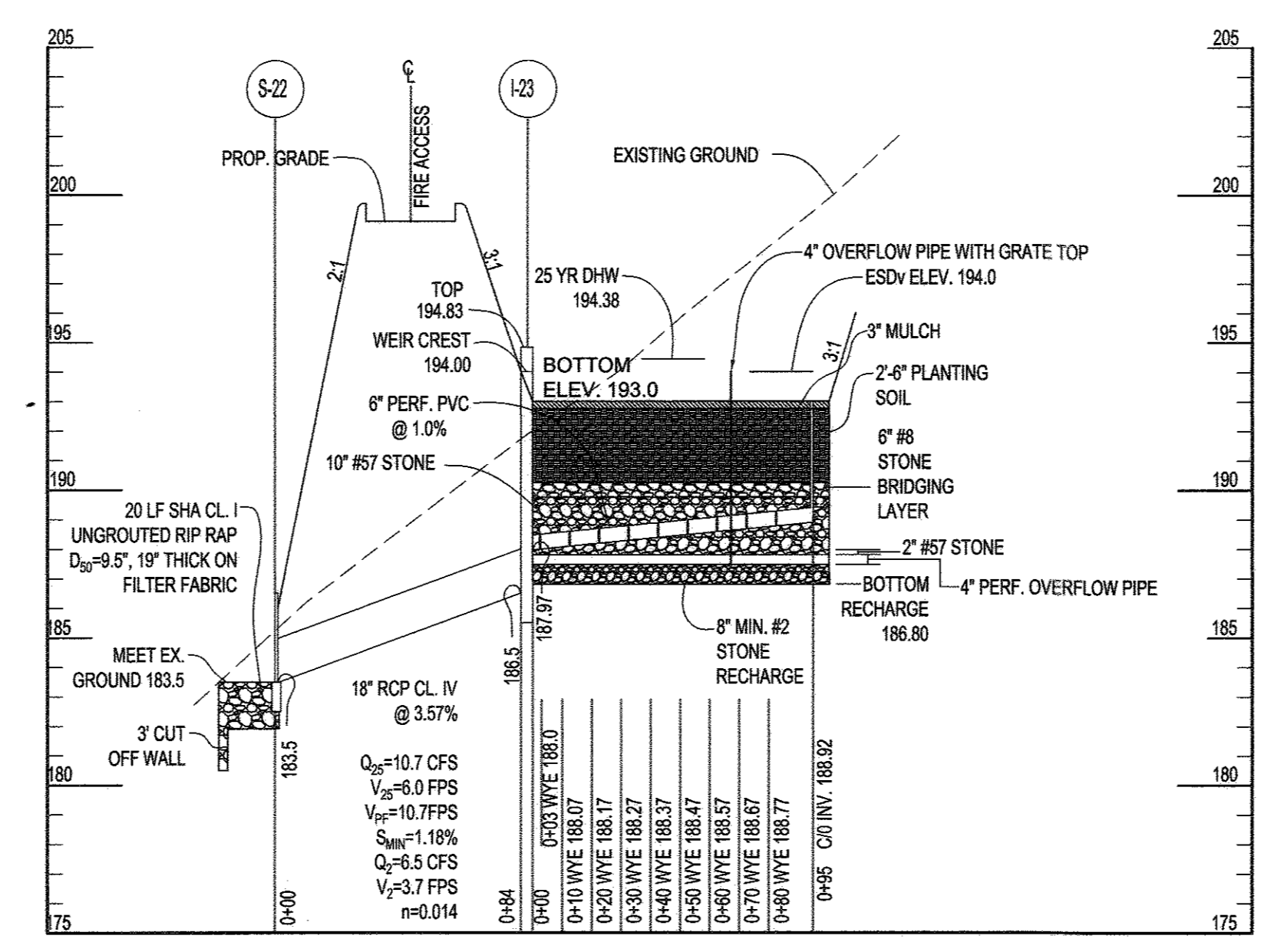
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 Civil Engineering for Land Development

PROFESSIONAL CERTIFICATION: 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. 32025, EXPIRATION DATE: JUNE 30, 2017.



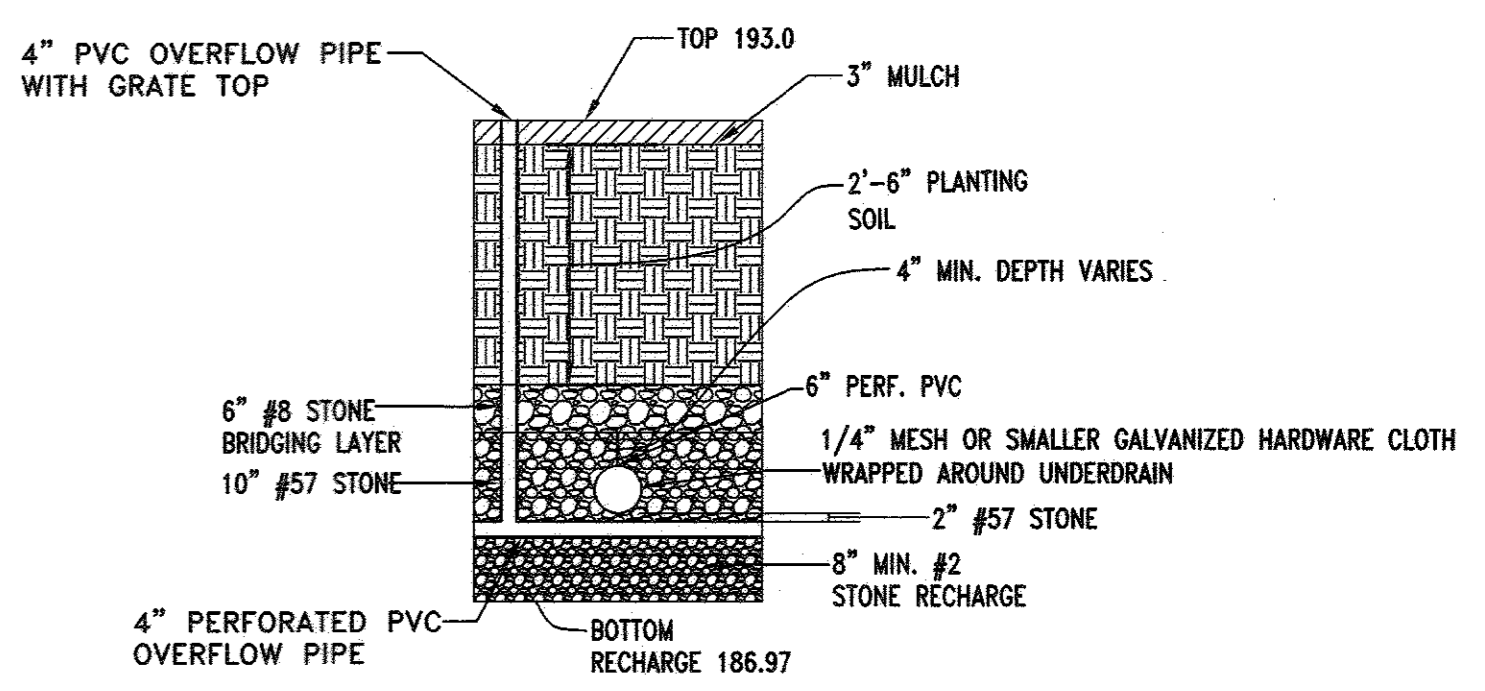
**BIO RETENTION (F-6)
FACILITY #1 PLAN**

Scale: 1" = 20'

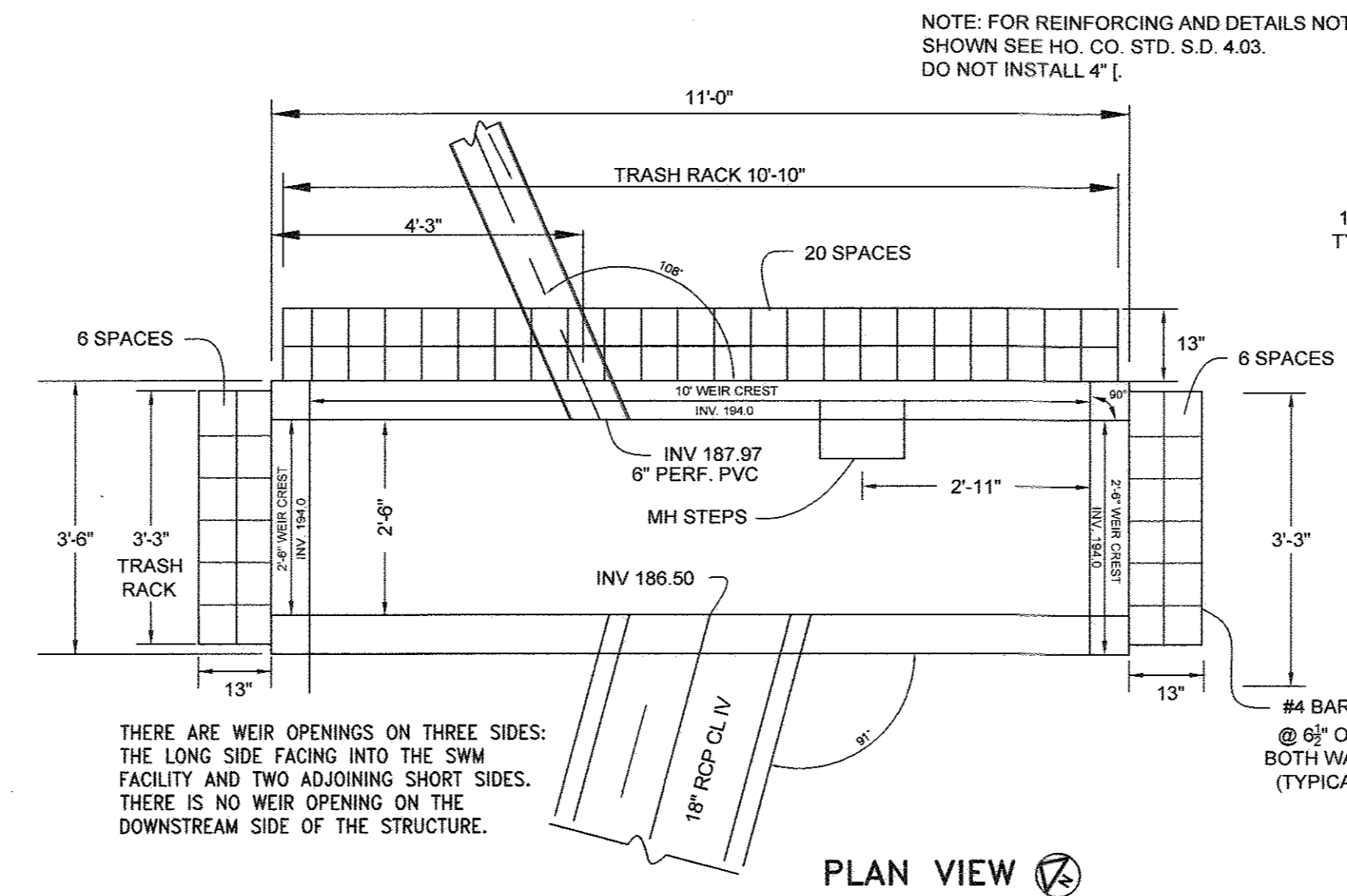


S-22 TO I-23

SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'

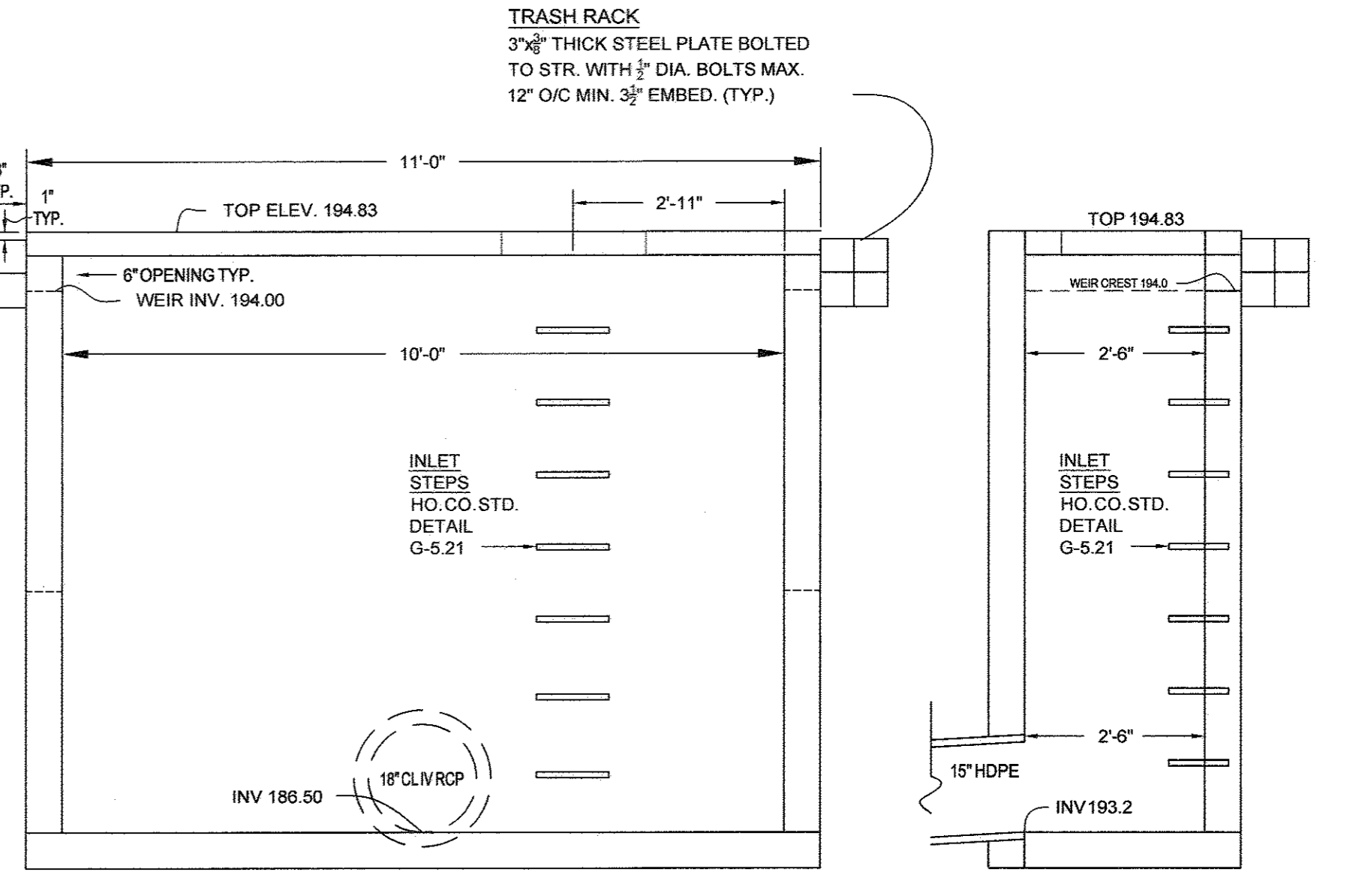


TYPICAL SECTION BIORETENTION #1 (F-6)
NOT TO SCALE



THERE ARE WEIR OPENINGS ON THREE SIDES: THE LONG SIDE FACING INTO THE SWM FACILITY AND TWO ADJOINING SHORT SIDES. THERE IS NO WEIR OPENING ON THE DOWNSTREAM SIDE OF THE STRUCTURE.

PLAN VIEW

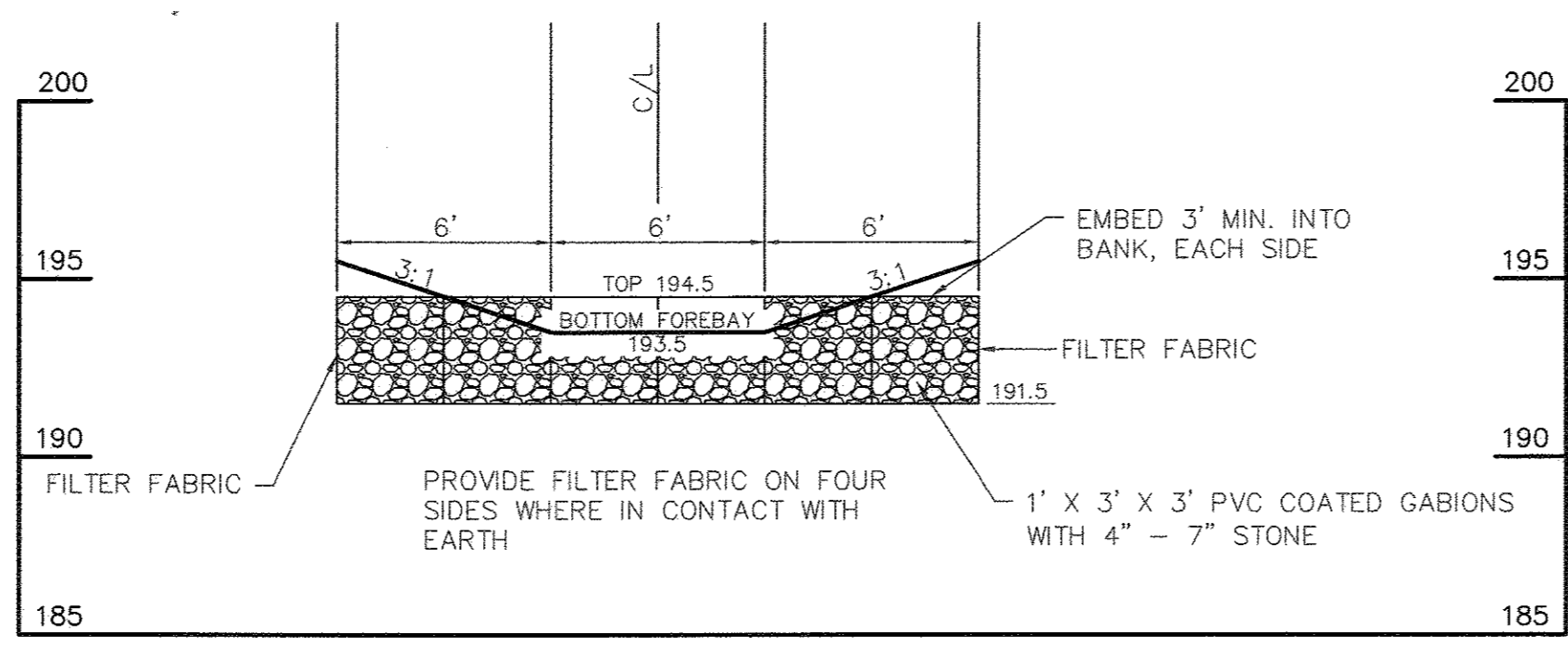


LONGITUDINAL SECTIONAL VIEW

CROSS SECTIONAL VIEW

STRUCTURE I-23 MODIFIED A-10 INLET

MODIFIED HOWARD COUNTY STD. DETAIL D-4.03. NOT TO SCALE



GABION WEIR AT FOREBAY

SCALE: 1" = 5'

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24'. BY SILL ENGINEERING GROUP	09/28/2016
REVISIONS		
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING		
<i>Paul E. Sill</i>	9-30-16	DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION		
<i>Kathleen</i>	9-30-16	DATE
CHIEF, DIVISION OF LAND DEVELOPMENT		
<i>Walter J. Joffe</i>	10-3-16	DATE
DIRECTOR		

- TRASH RACK NOTES**
- ALL MATERIALS SHALL BE HOT DIPPED GALVANIZED.
 - #4 BARS SHALL BE WELDED AT CROSS-POINTS AND WHERE BAR MEETS STEEL CONNECTION PLATE.
 - TRASH RACK SHALL BE PAINTED BATTLESHIP GREY.
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR PRECAST INLET FOR REVIEW AND APPROVAL BY HOWARD COUNTY PRIOR TO FABRICATION OF I-25

ENGINEER
SILL ENGINEERING GROUP, LLC
HOWARD COUNTY, MARYLAND
1130 DOVEDALE COURT, SUITE 200
MARRIOTTSTOWN, MARYLAND 21104
OFFICE: 443-325-5076
FAX: 410-696-2022
EMAIL: PAUL@SILLENGINEERING.COM

OWNER/DEVELOPER
MARK STROMDAHL
HOWARD COUNTY, MARYLAND
9250 BENDIX ROAD
COLUMBIA, MD 21045
PHONE: 410-313-5757
EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV

REVISED SWM FACILITY #1 PLAN
ELKRIDGE FIRE STATION
PARCEL A
"GREEN BUILDING"

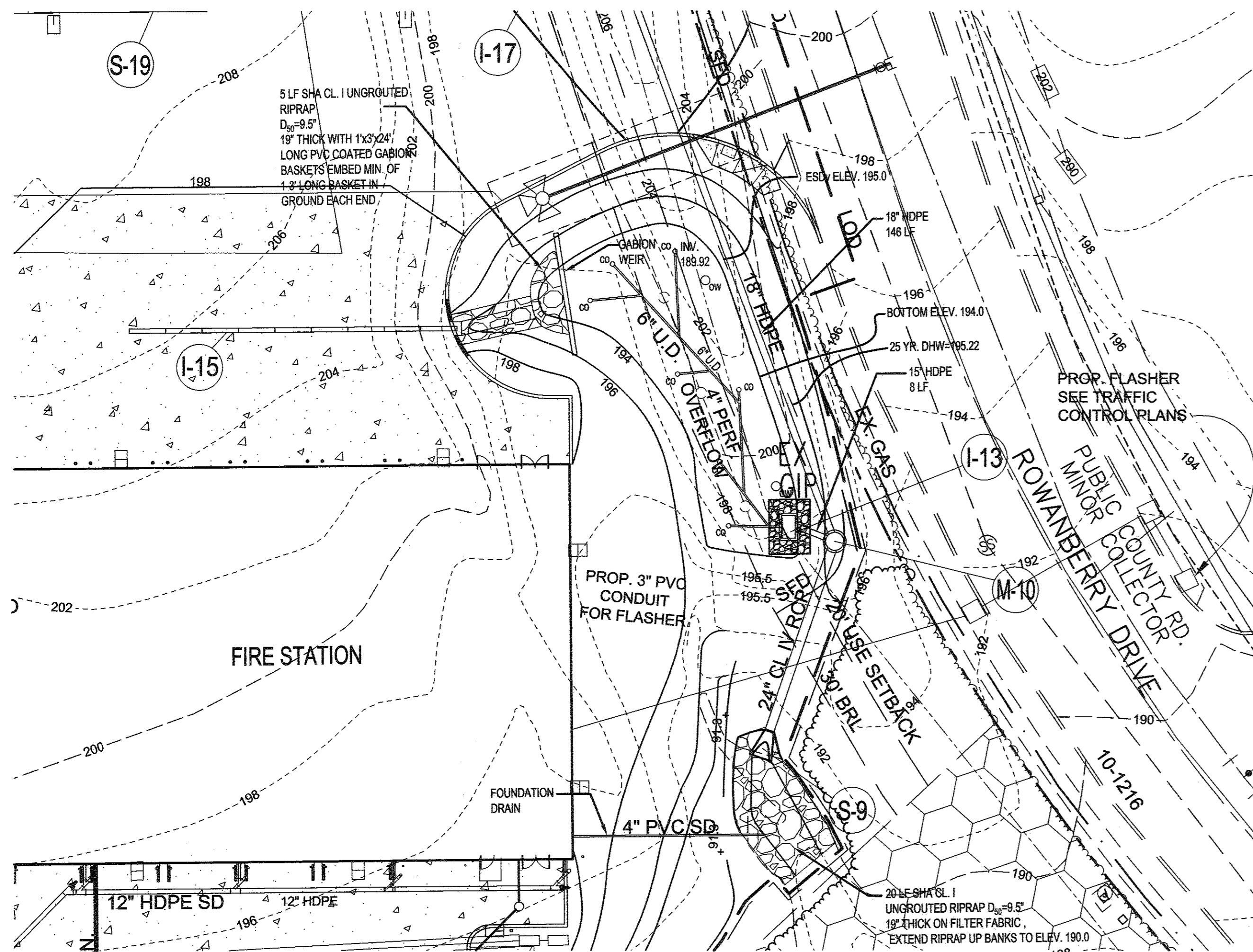
TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

SILL ENGINEERING GROUP, LLC
1130 Dovedale Court, Suite 200
Marriottsville, Maryland 21104
Phone: 443.325.5076
Fax: 410.696.2022
Email: info@sillengineering.com
Civil Engineering for Land Development

DESIGN BY: JS
DRAWN BY: AEA
CHECKED BY: PS
SCALE: AS SHOWN
DATE: SEPTEMBER 28, 2016
PROJECT #: 16-020
SHEET #: 23 of 41

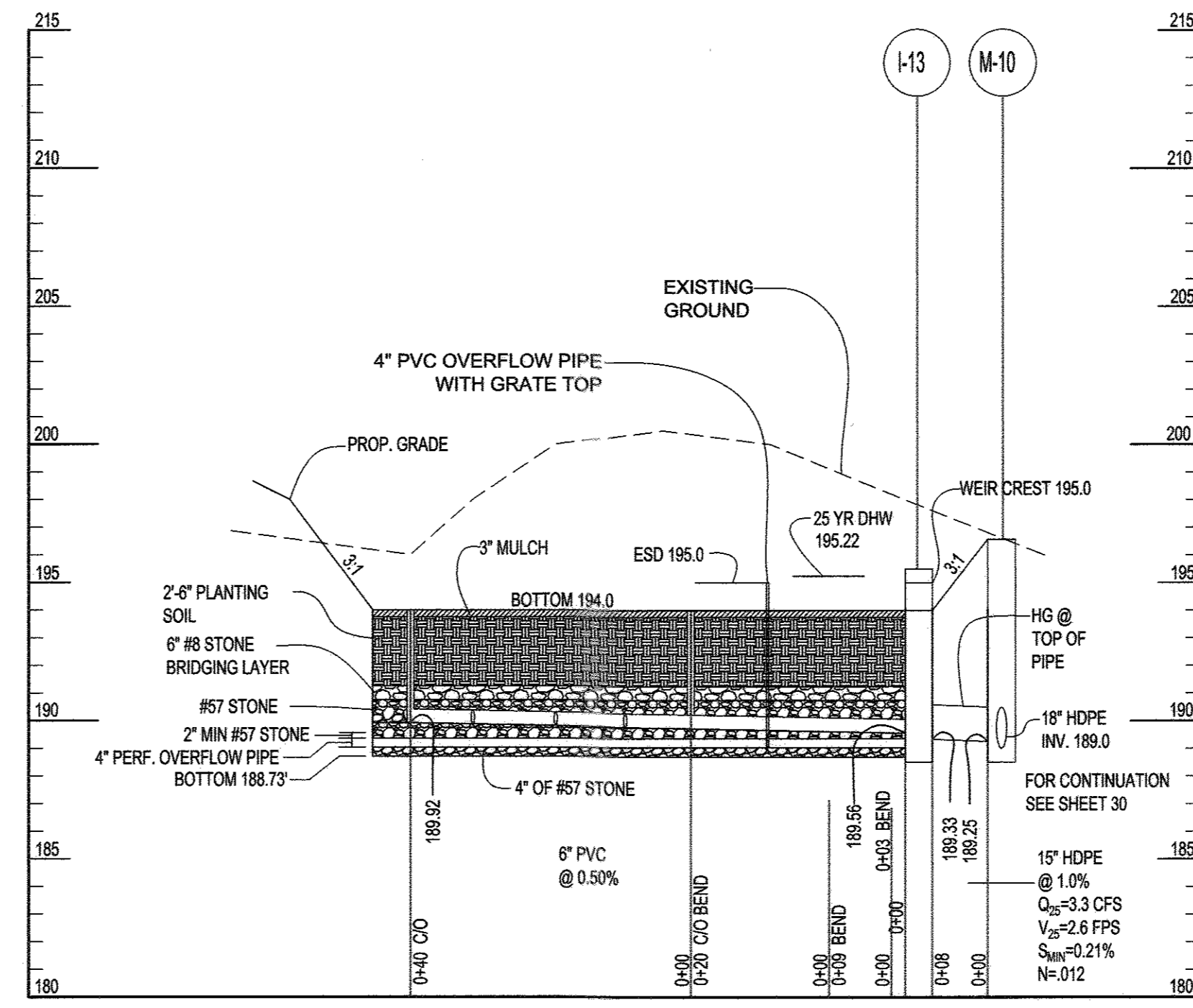
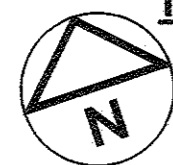
PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 30225, EXPIRATION DATE: JUNE 20, 2017



MICRO BIO RETENTION M-6

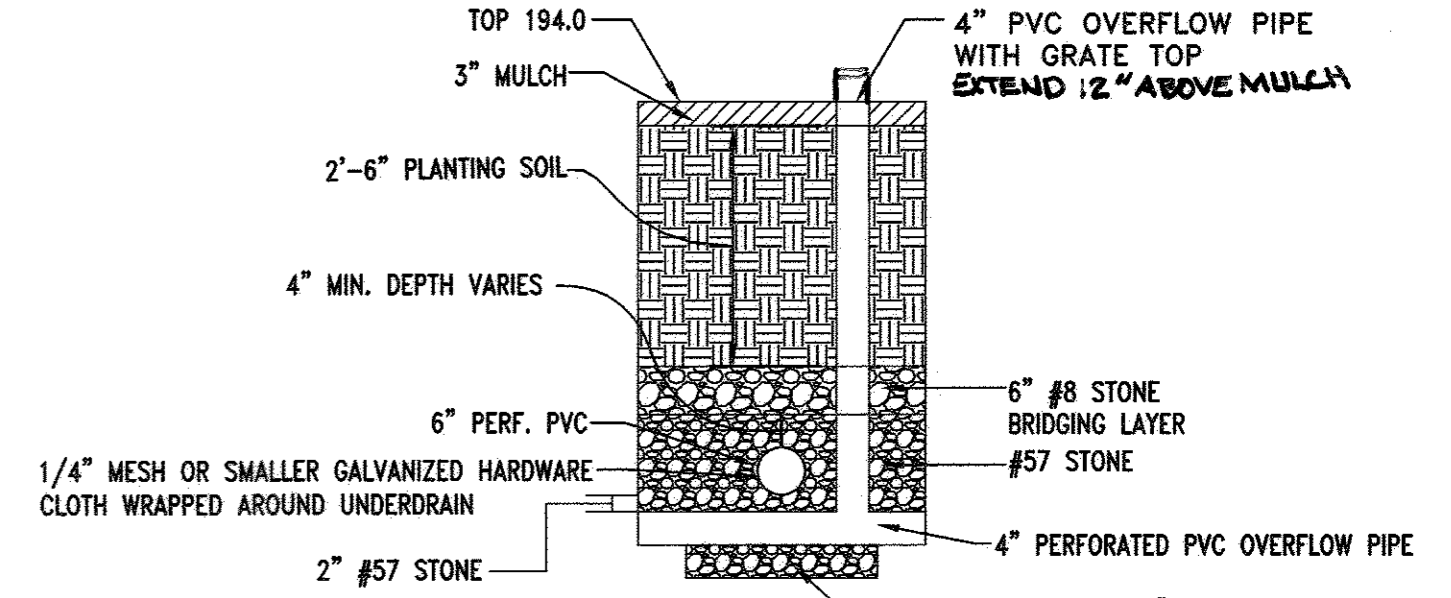
FACILITY #2 PLAN

Scale: 1" = 20'



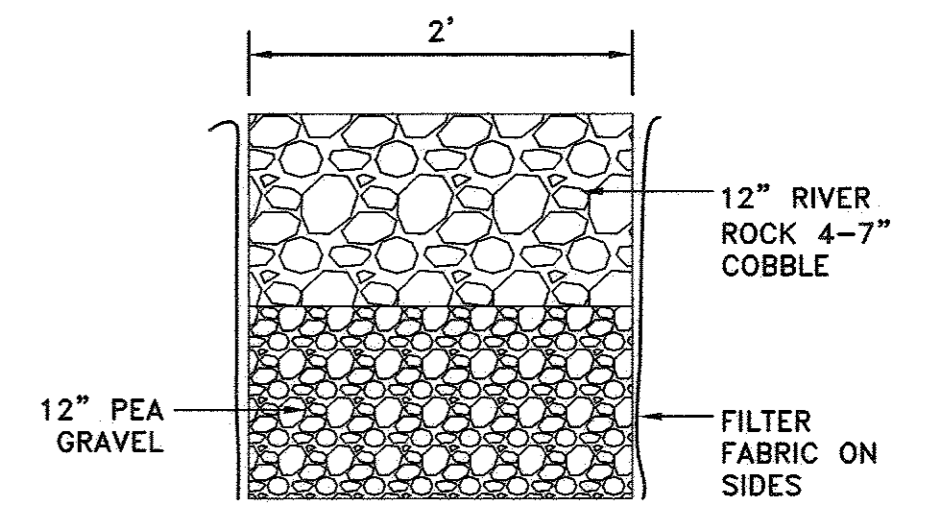
FACILITY #2 TO M-10

SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'



TYPICAL SECTION MICRO BIORETENTION #2

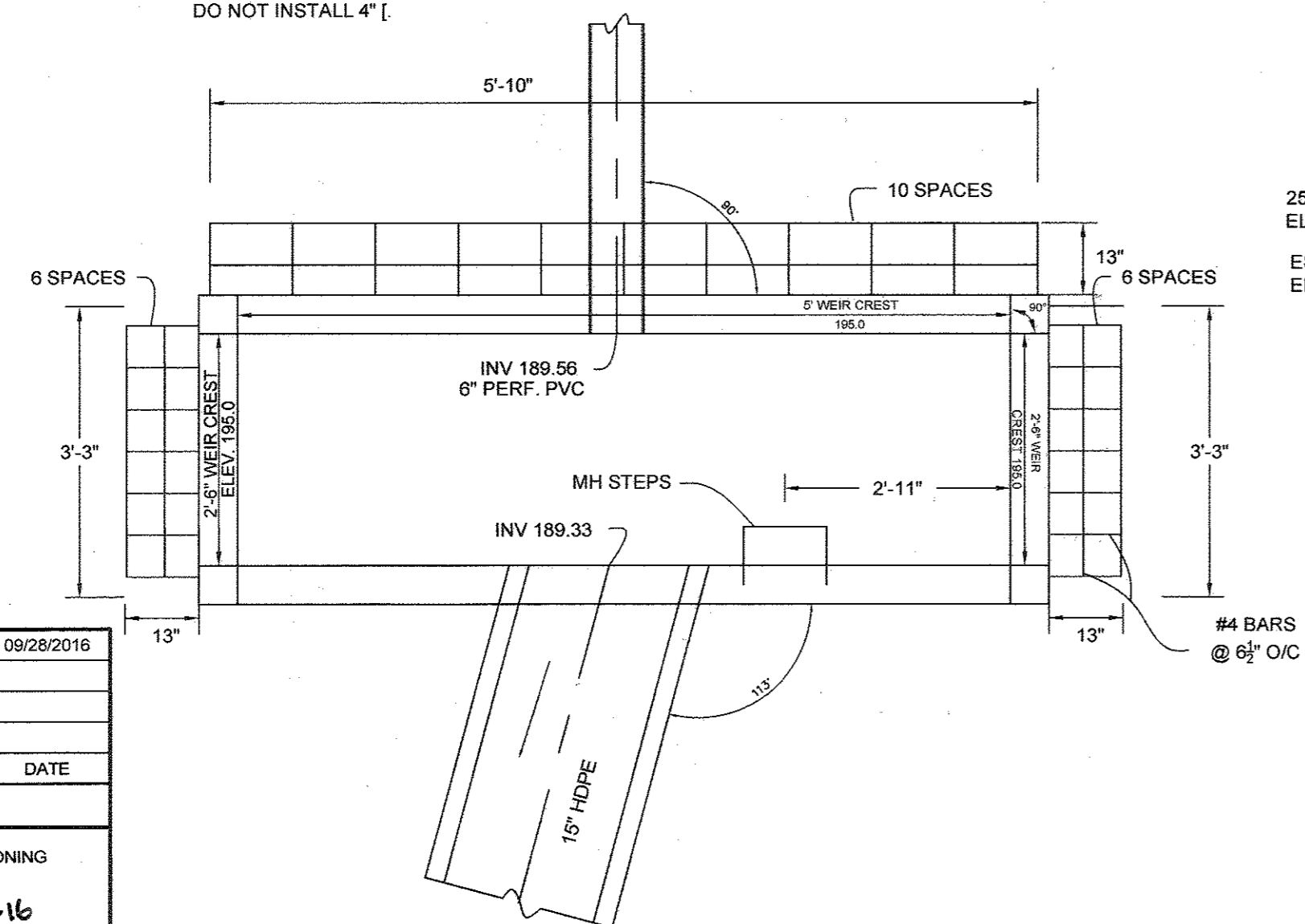
Scale: 1" = 2'



GRAVEL DIAPHRAGM

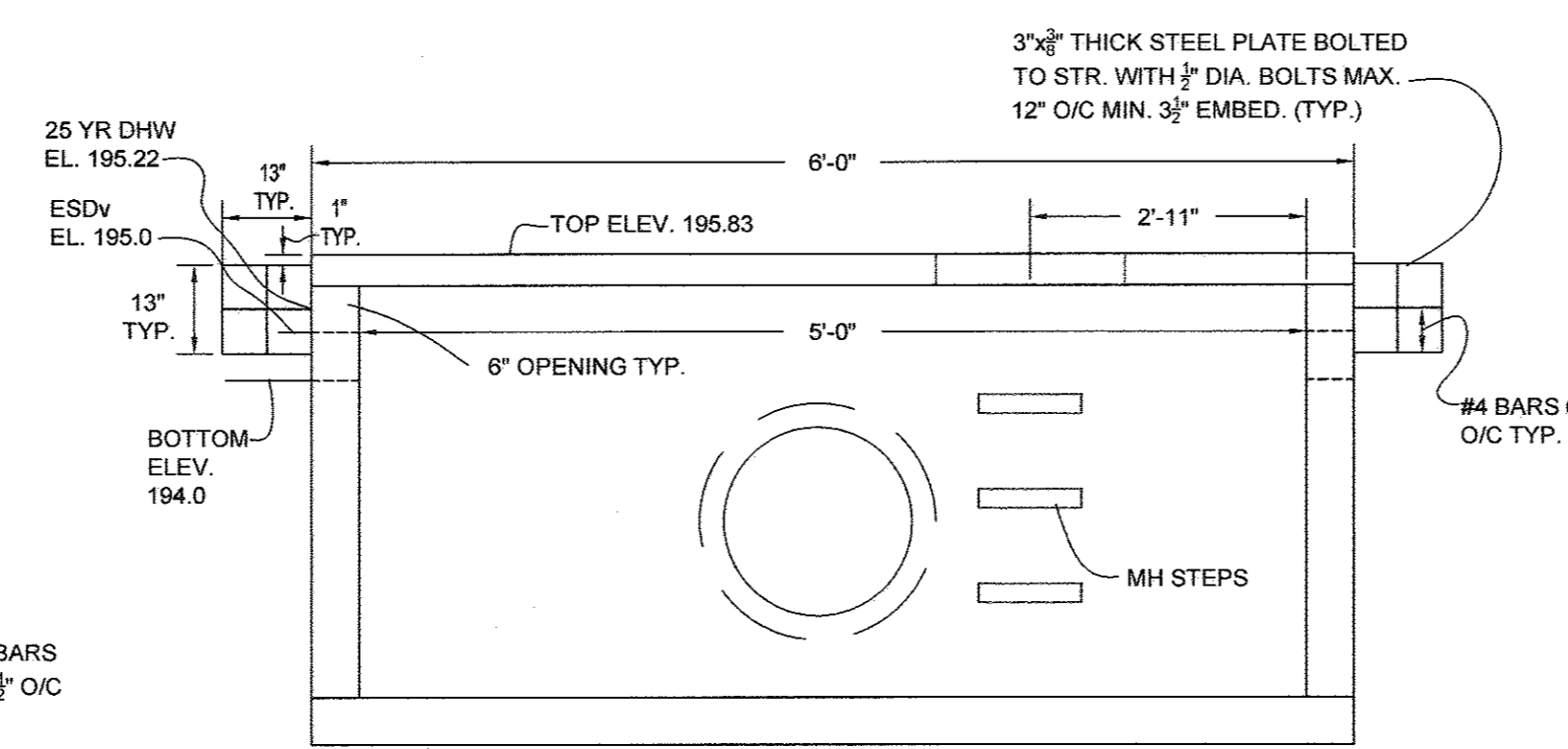
Scale: 1" = 1'

NOTE: FOR REINFORCING AND DETAILS NOT SHOWN SEE HO. CO. STD. D. 4.01. DO NOT INSTALL 4" I



STRUCTURE I-13 MODIFIED A-5 INLET

NOT TO SCALE



STRUCTURE I-13 MODIFIED A-5 INLET

NOT TO SCALE

TRASH RACK NOTES

- ALL MATERIALS SHALL BE HOT DIPPED GALVANIZED.
- #4 BARS SHALL BE WELDED AT CROSS-POINTS AND WHERE BAR MEETS STEEL CONNECTION PLATE.
- TRASH RACK SHALL BE PAINTED BATTLESHIP GREY.

NOTE: CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR PRECAST INLET FOR REVIEW AND APPROVAL BY HOWARD COUNTY PRIOR TO FABRICATION OF I-13

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	09/28/2016
REVISIONS		
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING		
<i>Paul J. Sill</i>	CHIEF, DEVELOPMENT ENGINEERING DIVISION	9-30-16
<i>Walter J. Sill</i>	CHIEF, DIVISION OF LAND DEVELOPMENT	9-30-16
<i>Valerie J. Sill</i>	DIRECTOR	10-3-16

ENGINEER
SILL ENGINEERING GROUP, LLC
HOWARD COUNTY, MARYLAND
11130 DOVEDALE COURT, SUITE 200
MARRIOTTVILLE, MARYLAND 21104
OFFICE: 443-325-5076
FAX: 410-696-2022
EMAIL: PAUL@SILLENGINEERING.COM

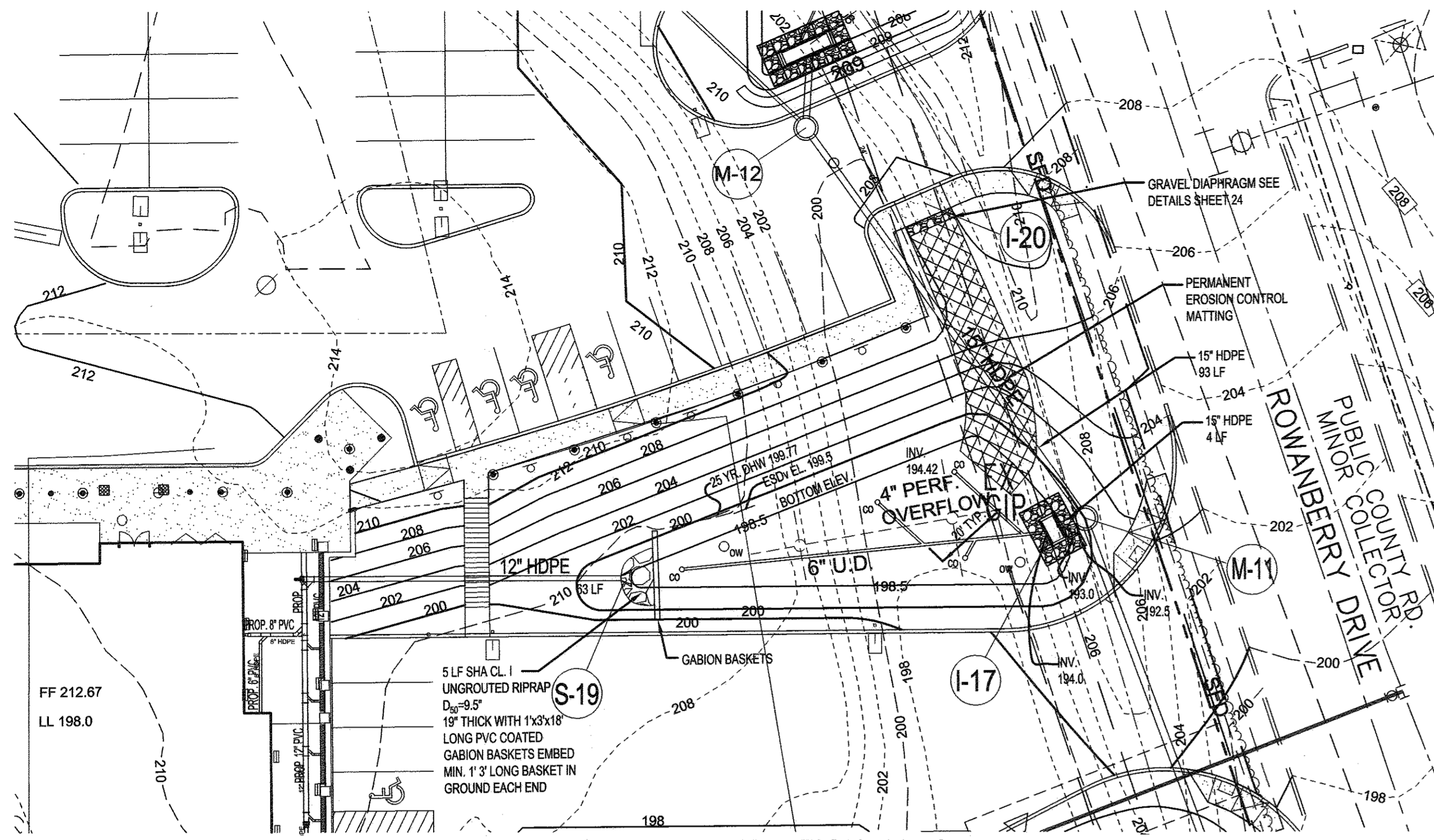
OWNER/DEVELOPER
MARK STROMDAHL
HOWARD COUNTY, MARYLAND
9250 BENDIX ROAD
COLUMBIA, MD 21045
PHONE: 410-313-5757
EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV

REVISED SWM FACILITY #2 PLAN
ELK RIDGE FIRE STATION
PARCEL A
"GREEN BUILDING"
TAX MAP 38 GRID 12
1ST ELECTION DISTRICT
PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

DESIGN BY: JS
DRAWN BY: AEA
CHECKED BY: PS
SCALE: 1"=20'
DATE: SEPTEMBER 28, 2016
PROJECT #: 18-020
SHEET #: 24 of 41

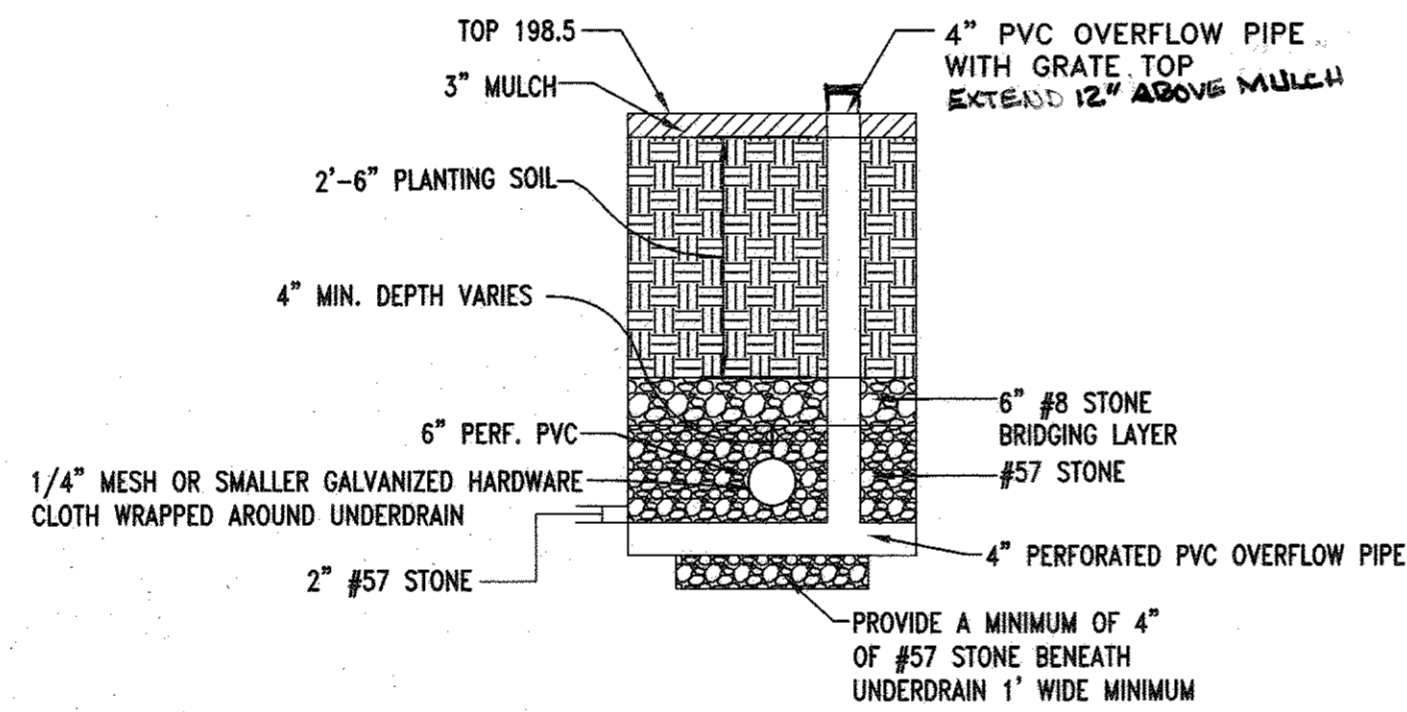
SILL ENGINEERING GROUP, LLC
11130 Dovedale Court, Suite 200
Marriottsville, Maryland 21104
Phone: 443-325-5076
Fax: 410-696-2022
Email: info@sillengineering.com
Civil Engineering for Land Development

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MICRO BIO RETENTION M-6 FACILITY #3 PLAN

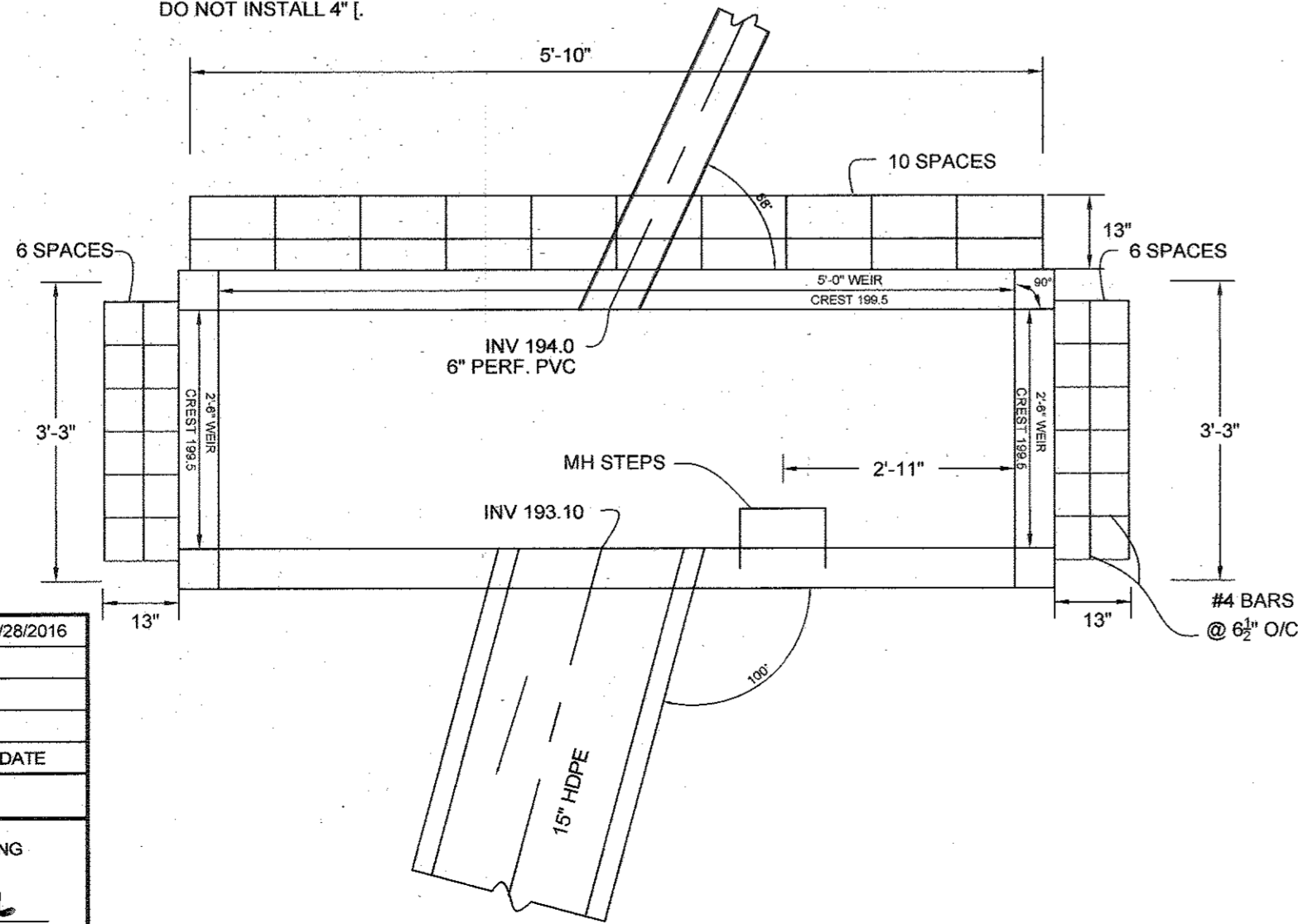
Scale: 1" = 20'



TYPICAL SECTION MICRO BIORETENTION #3 M-6

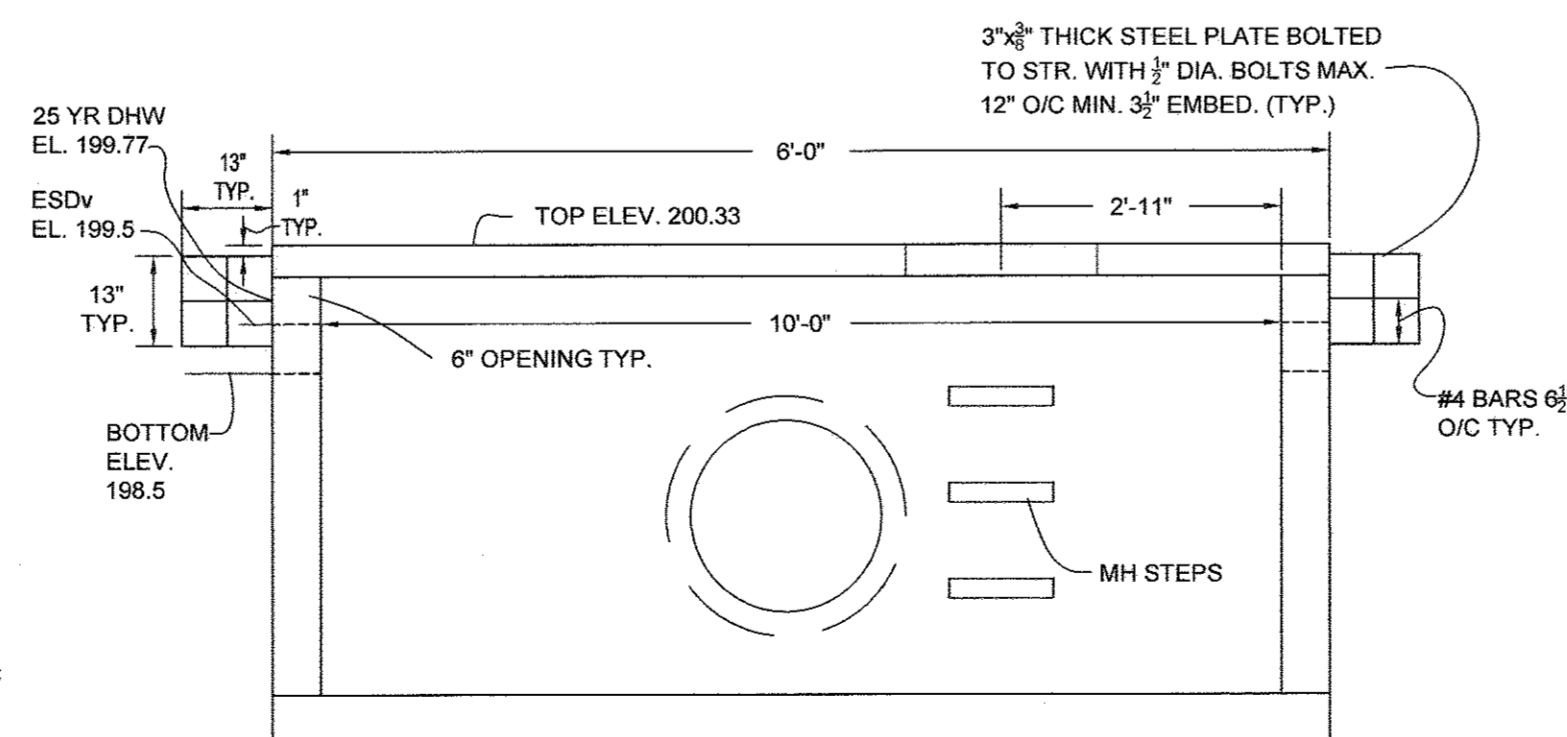
Scale: 1" = 2'

NOTE: FOR REINFORCING AND DETAILS NOT SHOWN SEE HO. CO. STD. D. 4.01. DO NOT INSTALL 4\"/>



STRUCTURE I-17 MODIFIED A-5 INLET

NOT TO SCALE



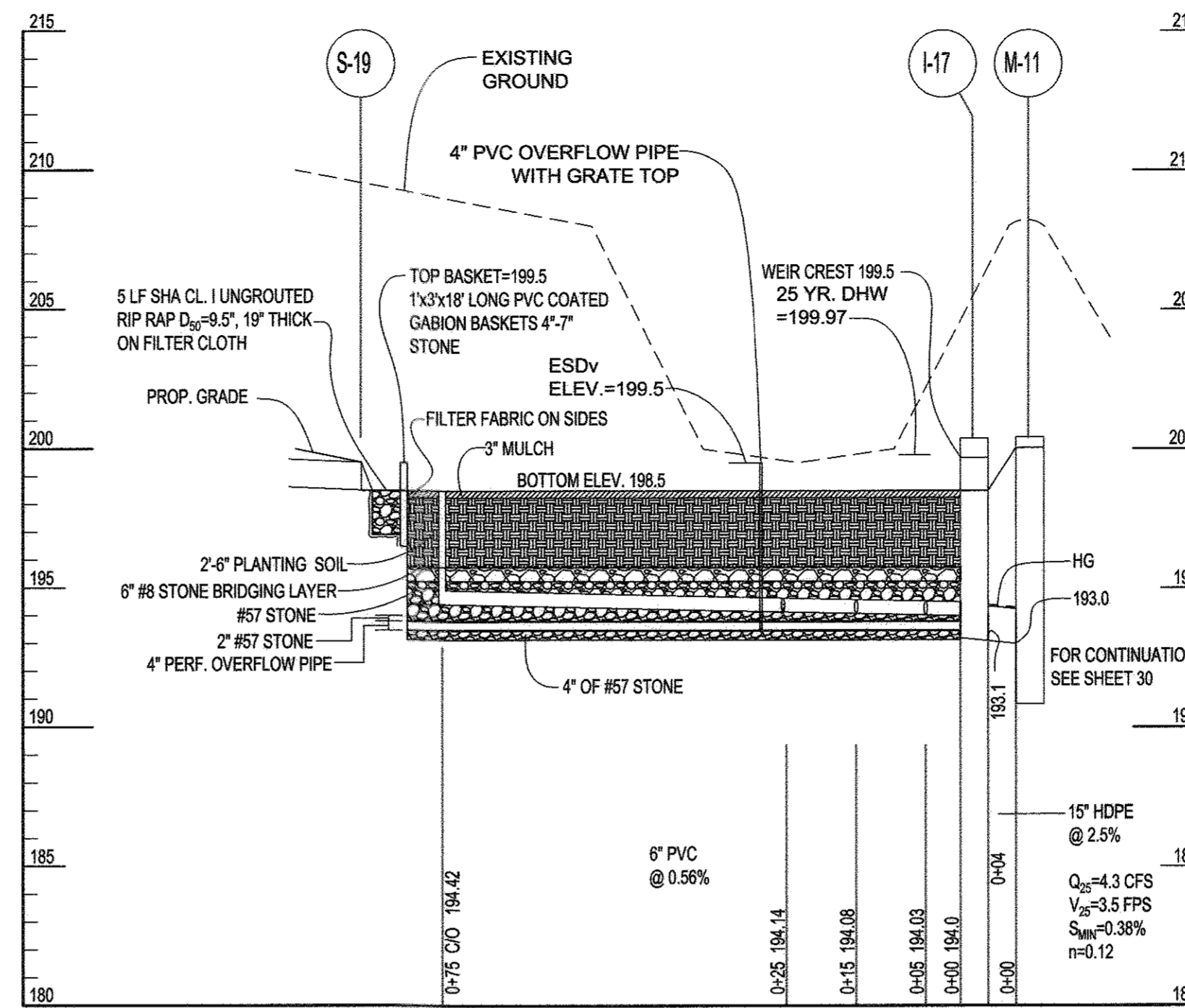
STRUCTURE I-17 MODIFIED A-5 INLET

NOT TO SCALE

TRASH RACK NOTES

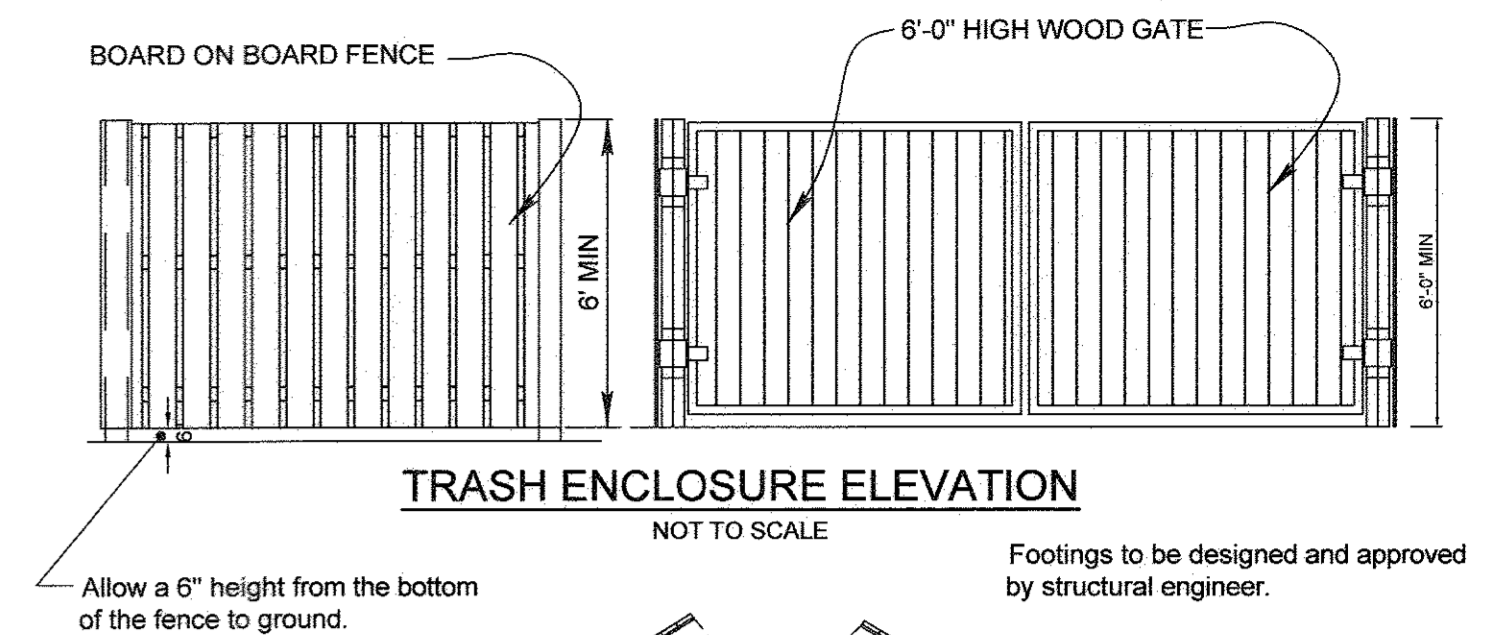
1. ALL MATERIALS SHALL BE HOT DIPPED GALVANIZED.
2. #4 BARS SHALL BE WELDED AT CROSS-POINTS AND WHERE BAR MEETS STEEL CONNECTION PLATE.
3. TRASH RACK SHALL BE PAINTED BATTLESHIP GREY.

NOTE: CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR PRECAST INLET FOR REVIEW AND APPROVAL BY HOWARD COUNTY PRIOR TO FABRICATION OF I-17



FACILITY #3 TO M-11

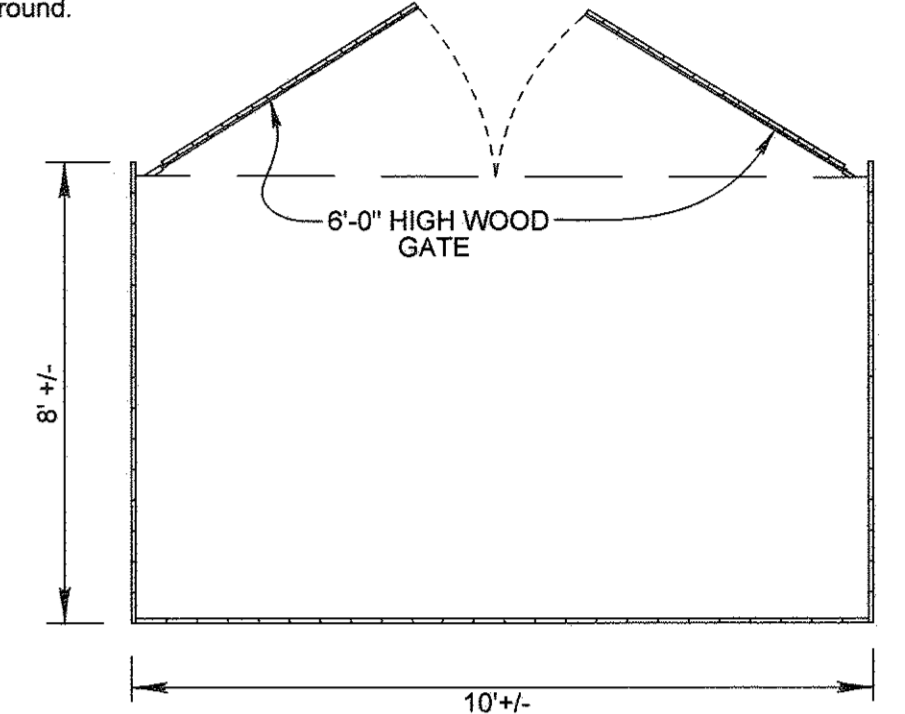
SCALE: HORIZ. 1" = 20' VERT. 1" = 5'



TRASH ENCLOSURE ELEVATION

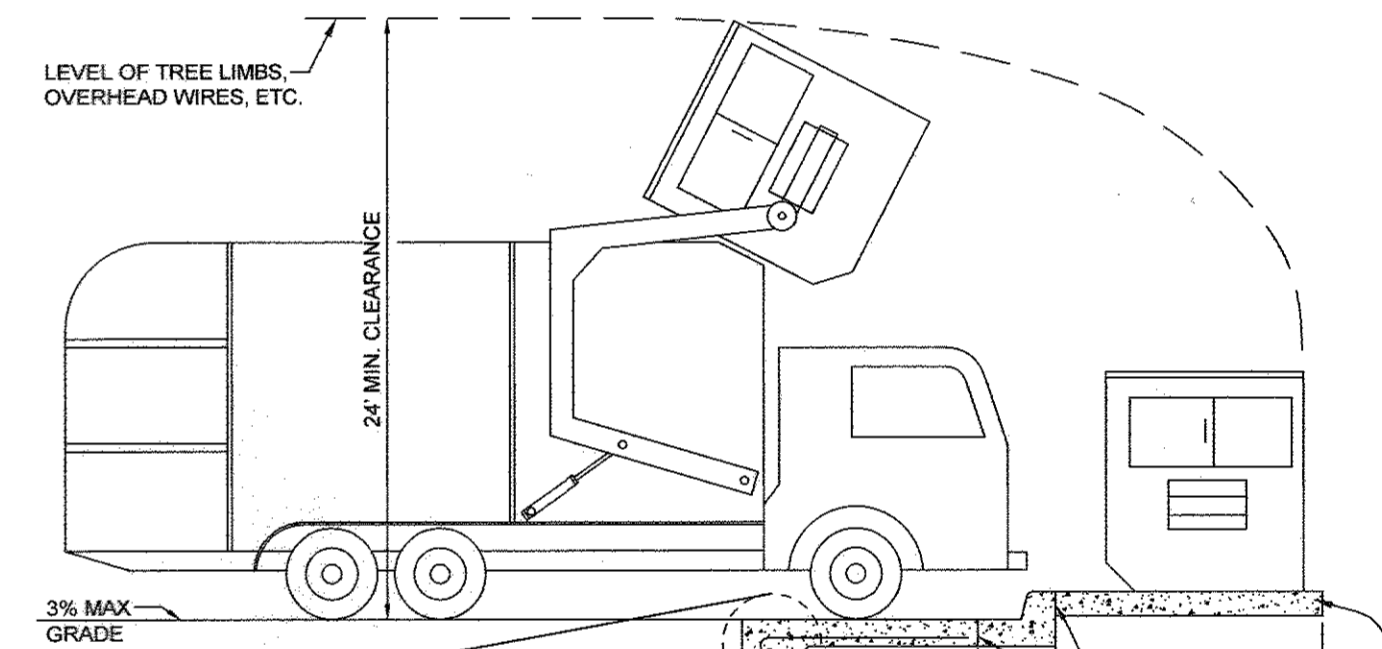
NOT TO SCALE

Footings to be designed and approved by structural engineer.



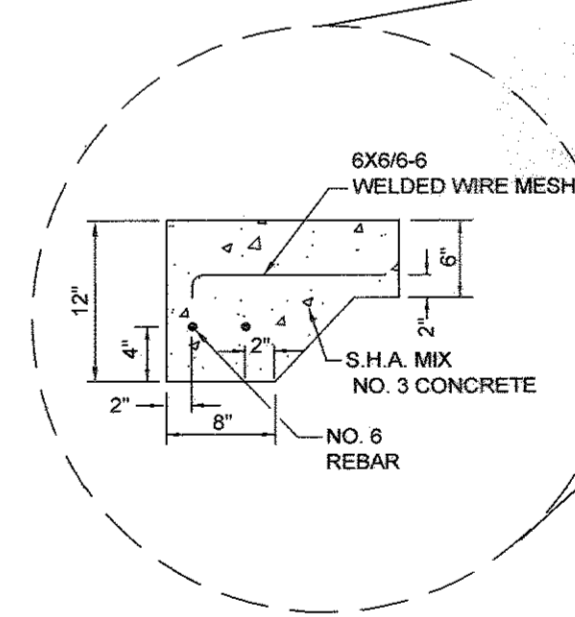
TRASH ENCLOSURE PLAN

NOT TO SCALE



SOLID WASTE SERVICE PAD

HOWARD COUNTY STD. R-8.03 NOT TO SCALE



ENGINEER

SILL ENGINEERING GROUP, LLC
HOWARD COUNTY, MARYLAND
11130 DOVEDALE COURT, SUITE 200
MARRIOTTVILLE, MARYLAND 21104
OFFICE: 443-325-5067
FAX: 410-696-2022
EMAIL: PAUL@SILLENGINEERING.COM

OWNER/DEVELOPER

MARK STROMDAHL
HOWARD COUNTY, MARYLAND
3250 BENDIX ROAD
COLUMBIA, MD 21045
PHONE: 410-313-5757
EMAIL: MCSTROMDAHL@HOWARDCOUNTYMID.GOV

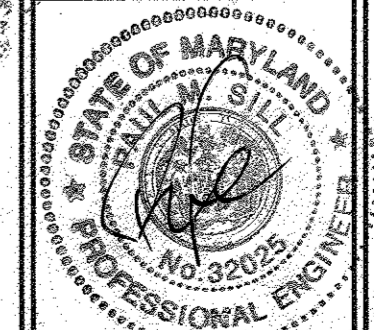
REVISED SWM FACILITY #3 PLAN

ELK RIDGE FIRE STATION

PARCEL A "GREEN BUILDING"

TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND



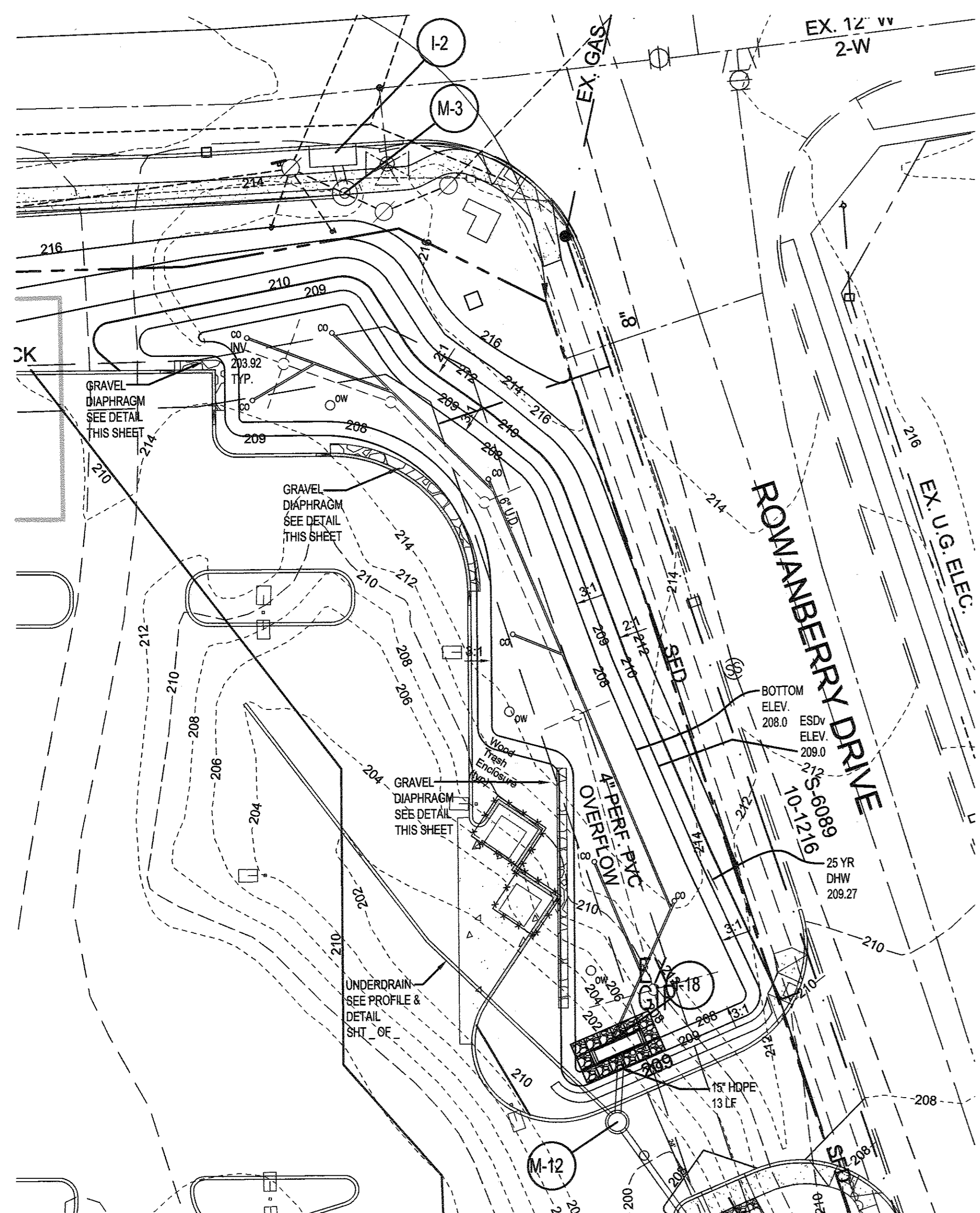
SILL ENGINEERING GROUP, LLC
11130 Dovedale Court, Suite 200
Marriottsville, Maryland 21104
Phone: 443.325.5076
Fax: 410.696.2022
Email: info@sillengineering.com
Civil Engineering for Land Development

DESIGN BY: JS
DRAWN BY: AEA
CHECKED BY: PS
SCALE: 1"=20'
DATE: SEPTEMBER 28, 2016
PROJECT #: 16-020
SHEET #: 25 of 41

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32024, EXPIRATION DATE: JUNE 20, 2017

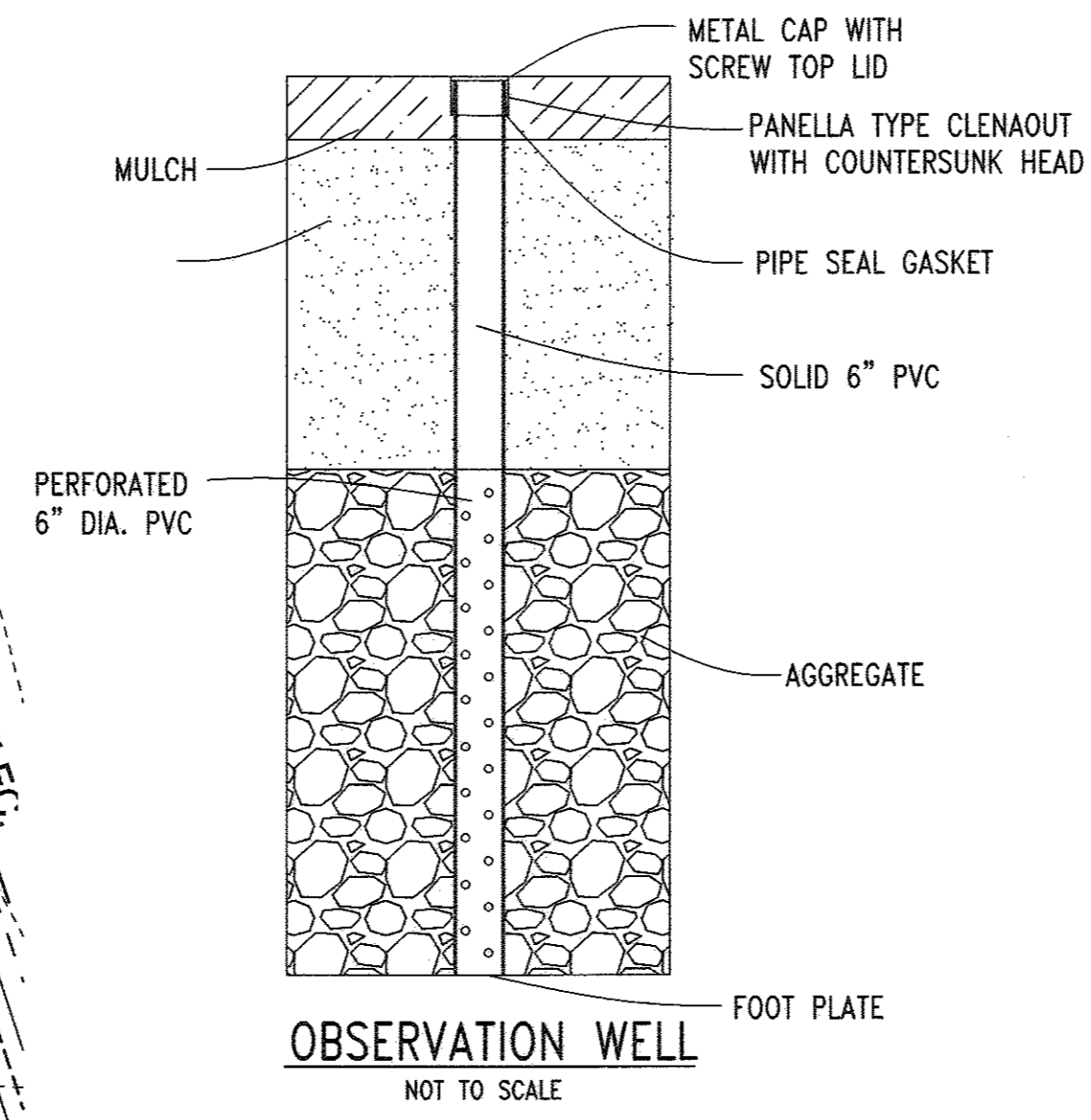


NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24' BY SILL ENGINEERING GROUP	09/28/2016
REVISIONS		
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING		
<i>Chad Clark</i>	DATE: 9-30-16	
CHIEF, DEVELOPMENT ENGINEERING DIVISION		
<i>Kate Calabrese</i>	DATE: 9-30-16	
CHIEF, DIVISION OF LAND DEVELOPMENT		
<i>Walter J. Joffe</i>	DATE: 10-3-16	
DIRECTOR		

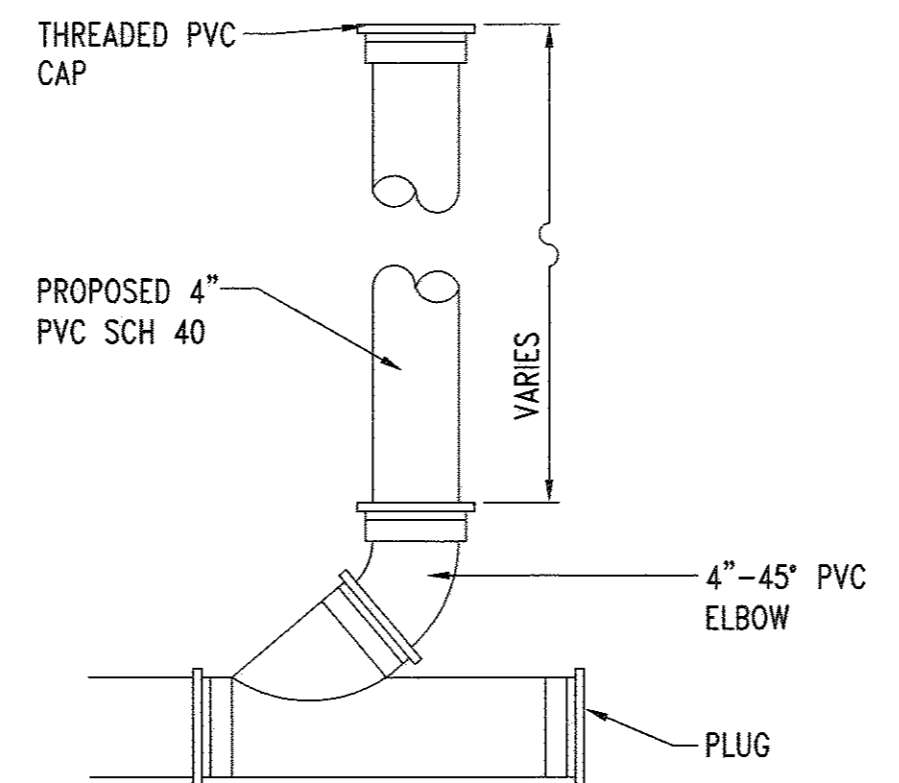


**BIO RETENTION FACILITY F-6
FACILITY #4 PLAN**

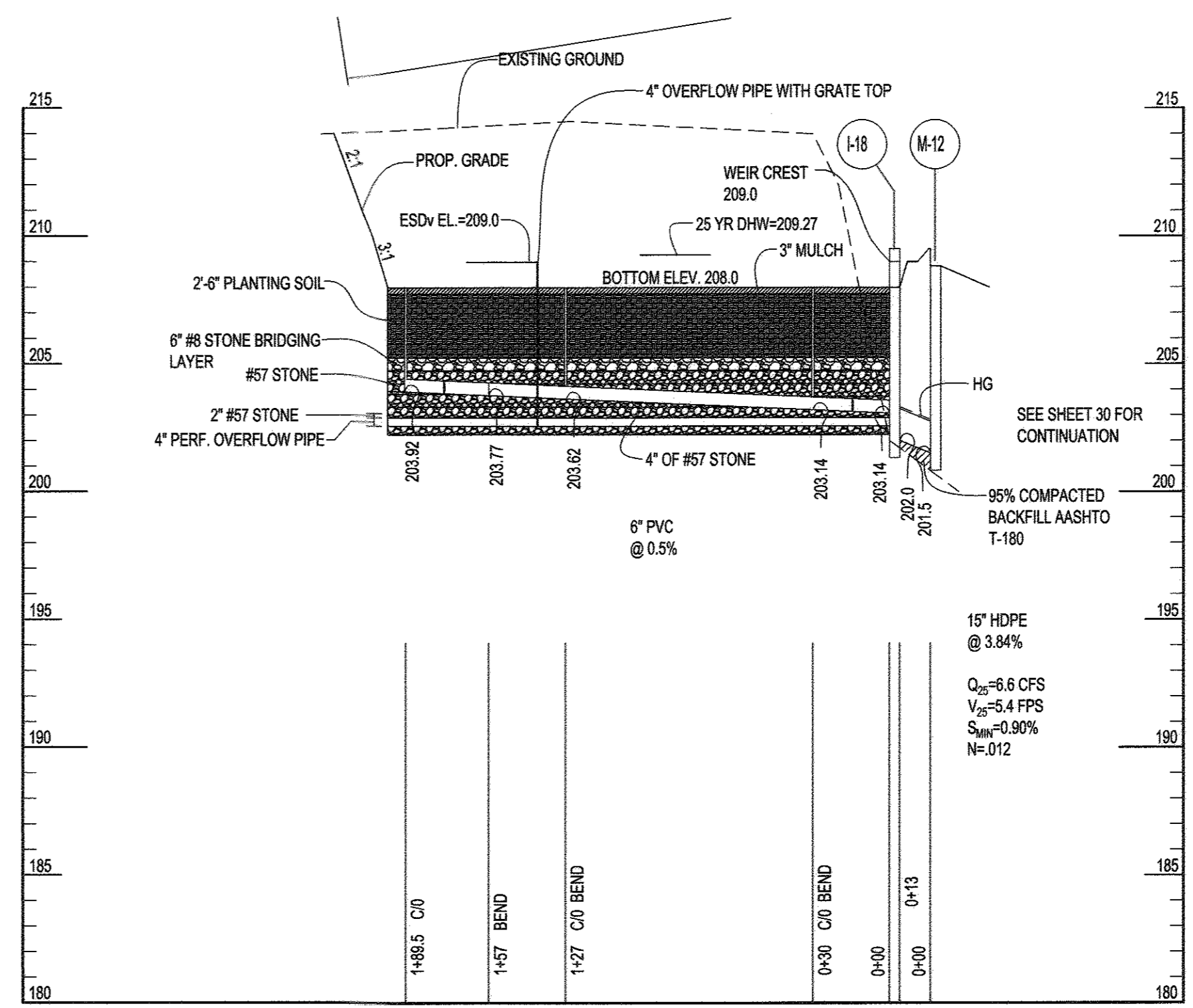
Scale: 1" = 20'



OBSERVATION WELL
NOT TO SCALE

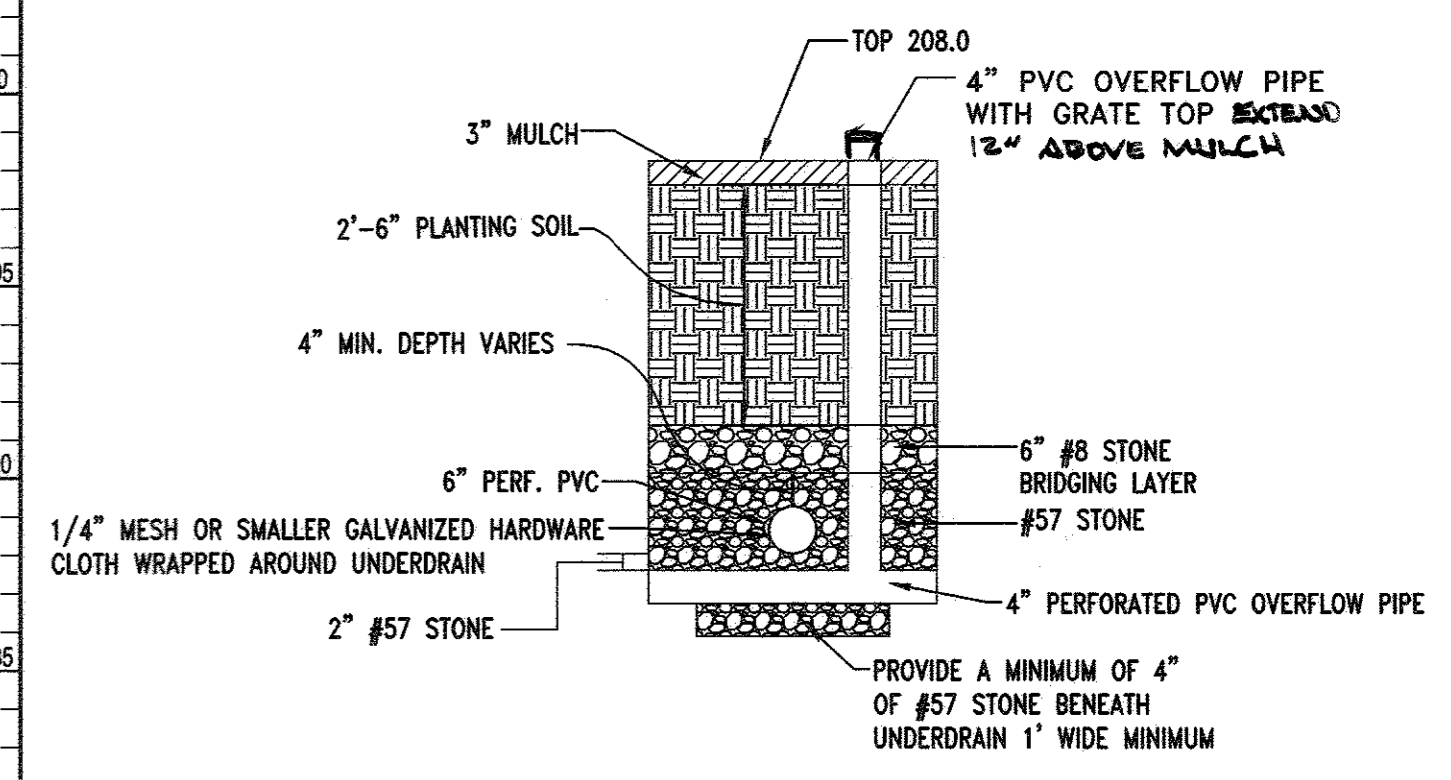


CLEANOUT DETAIL
NOT TO SCALE



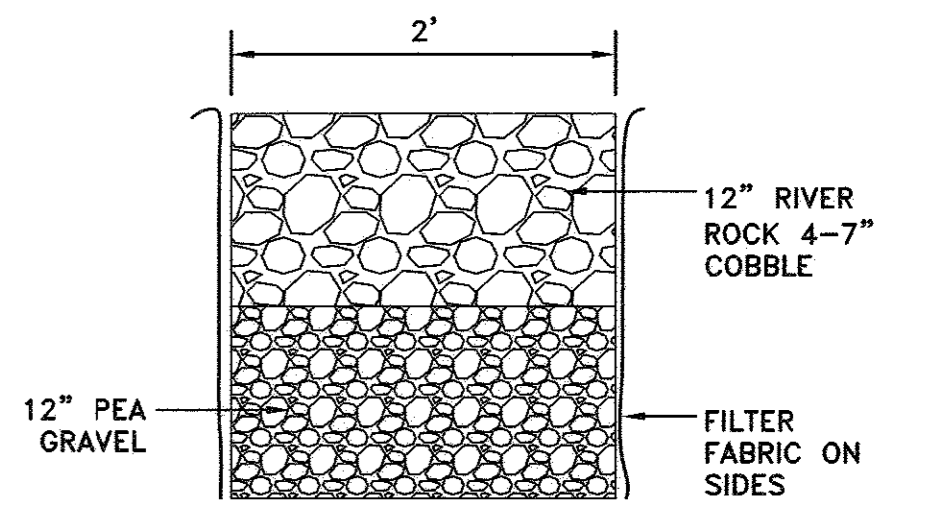
FACILITY #4 TO M-12

SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'



TYPICAL SECTION BIORETENTION #4 F-6

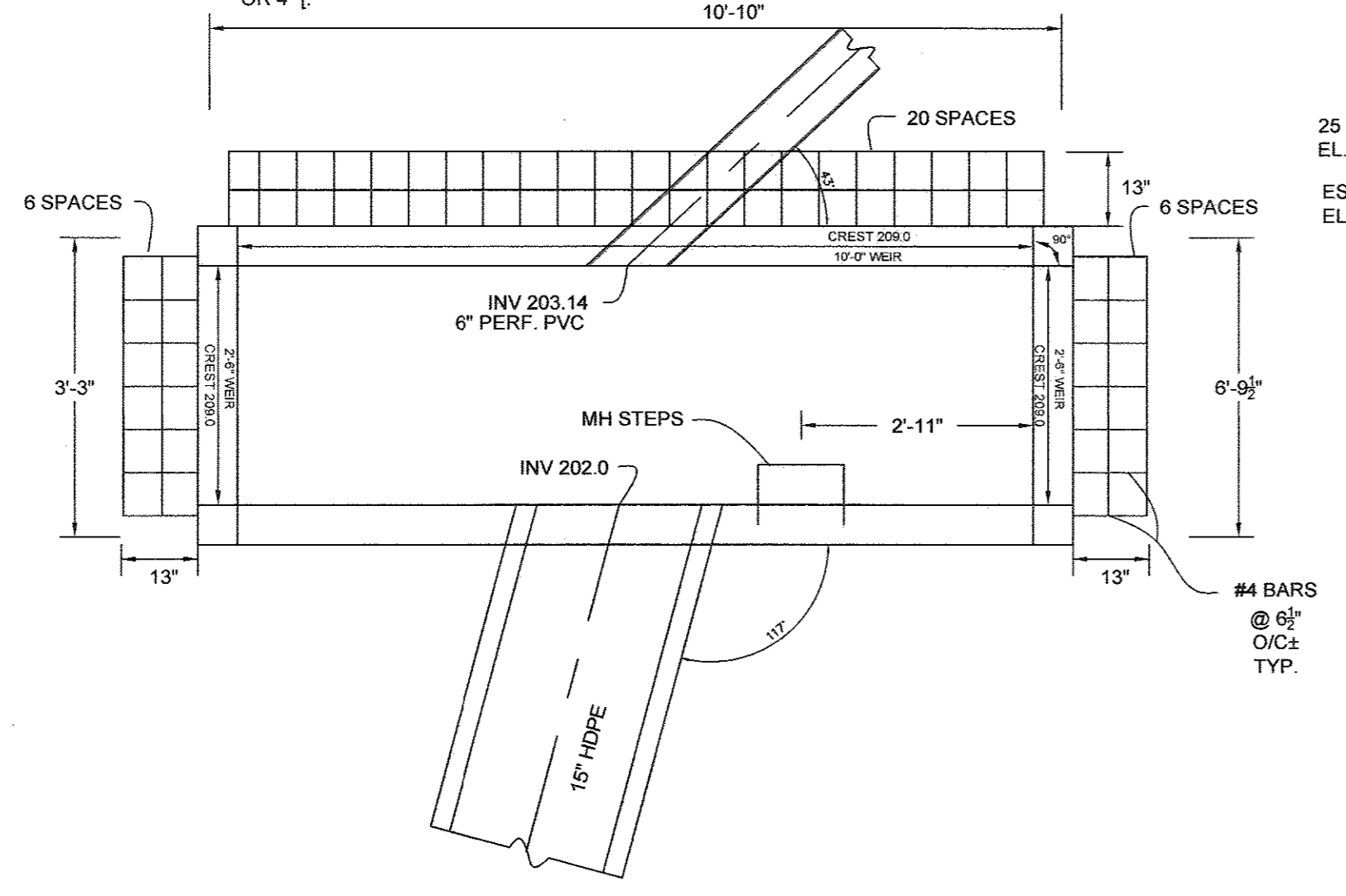
SCALE: 1" = 2'



GRAVEL DIAPHRAGM

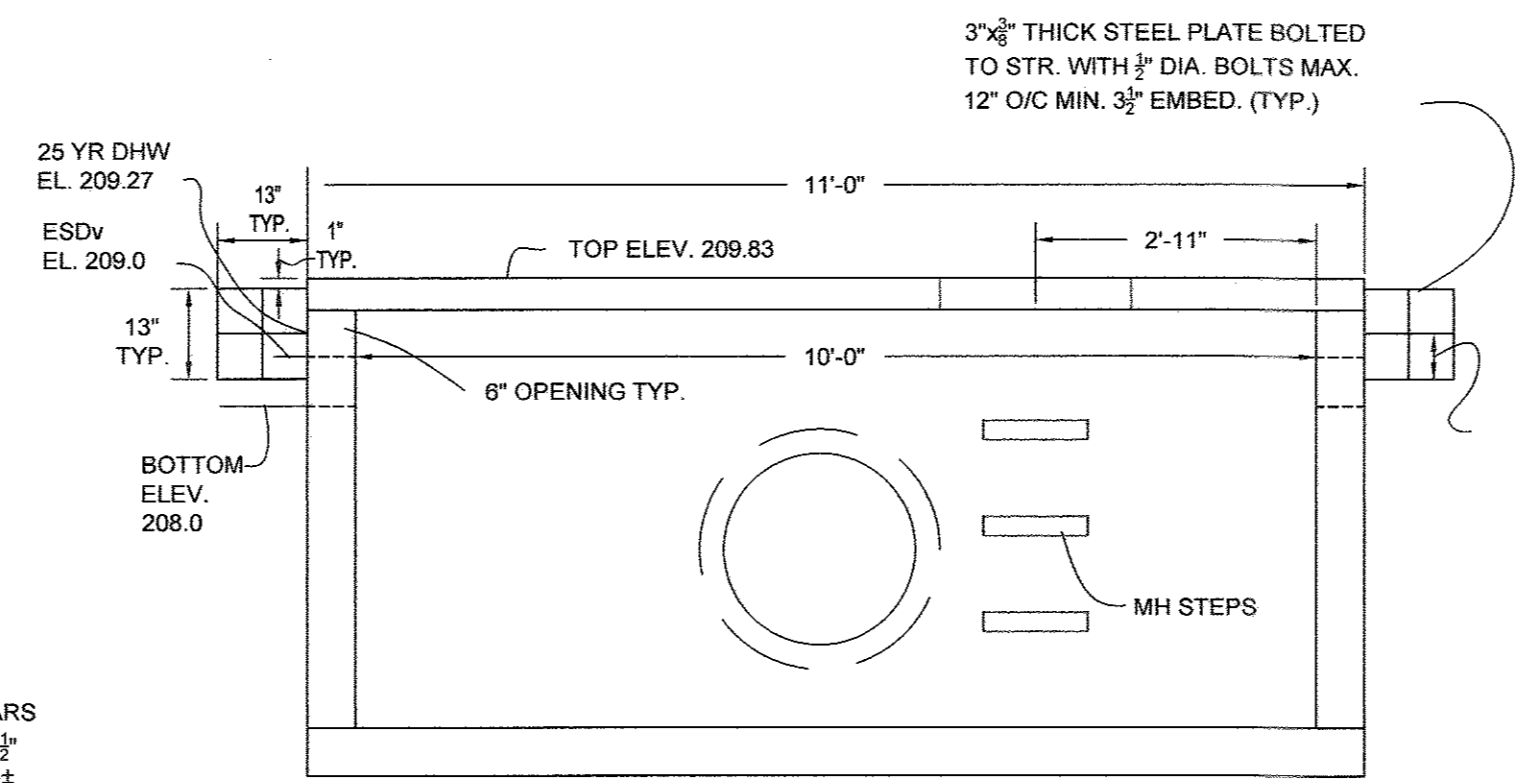
SCALE: 1" = 1'

NOTE: FOR REINFORCING AND DETAILS NOT SHOWN SEE HO. CO. STD. D. 4.03. DO NOT INSTALL DETAIL A, CENTER SUPPORT PIPE, OR 4".



STRUCTURE I-18 MODIFIED A-10 INLET

NOT TO SCALE



STRUCTURE I-18 MODIFIED A-10 INLET

NOT TO SCALE

TRASH RACK NOTES

1. ALL MATERIALS SHALL BE HOT DIPPED GALVANIZED.
2. #4 BARS SHALL BE WELDED AT CROSS-POINTS AND WHERE BAR MEETS STEEL CONNECTION PLATE.
3. TRASH RACK SHALL BE PAINTED BATTLESHIP GREY.

NOTE: CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR PRECAST INLET FOR REVIEW AND APPROVAL BY HOWARD COUNTY PRIOR TO FABRICATION OF I-18

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	09/28/2016
REVISIONS		
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING		
<i>[Signature]</i>	DATE	9-30-16
CHIEF, DEVELOPMENT ENGINEERING DIVISION		
<i>[Signature]</i>	DATE	9-30-16
CHIEF, DIVISION OF LAND DEVELOPMENT		
<i>[Signature]</i>	DATE	10-3-16
DIRECTOR		

<p>ENGINEER</p> <p>SILL ENGINEERING GROUP, LLC HOWARD COUNTY, MARYLAND 11130 DOVEDALE COURT, SUITE 200 MARRIOTTSTOWN, MARYLAND 21104 OFFICE: 443-325-5967 FAX: 410-696-2022 EMAIL: PAUL@SILLENGINEERING.COM</p>	<p>OWNER/DEVELOPER</p> <p>MARK STROMDAHL HOWARD COUNTY, MARYLAND 9250 BENDIX ROAD COLUMBIA, MD 21045 PHONE: 410-313-5757 EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV</p>
--	---

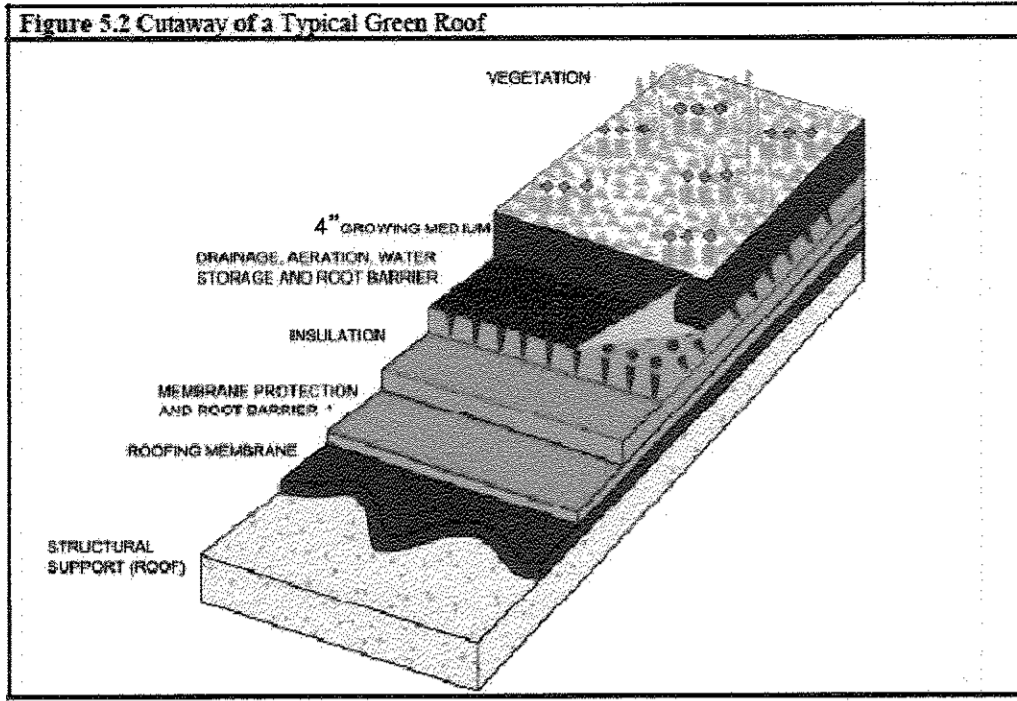
REVISED SWM FACILITY #4 PLAN
ELKCRIDGE FIRE STATION
PARCEL A
"GREEN BUILDING"
TAX MAP 38 GRID 12
1ST ELECTION DISTRICT
PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

	<p>SILL ENGINEERING GROUP, LLC</p> <p>11130 Dovedale Court, Suite 200 Marriottsville, Maryland 21104 Phone: 443.325.5976 Fax: 410.696.2022 Email: info@sillengineering.com Civil Engineering for Land Development</p>	<p>DESIGN BY: JS DRAWN BY: AEA CHECKED BY: PS SCALE: 1"=20' DATE: SEPTEMBER 28, 2016 PROJECT #: 16-020 SHEET #: 28 of 41</p>
--	--	--



PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 22025, EXPIRATION DATE: JUNE 30, 2017

- **Treatment:** Green roof systems shall meet the following conditions:
- Planting media shall be non-soil engineered mixes conforming to the specifications found in Appendix B.4. Media layers should be between two to six inches thick. Dual media systems may be applied where green roof assemblies are four inches or thicker.
 - Individual layers (e.g., root barriers, drainage mats, separation geotextiles) shall conform to the specifications found in Appendix B.4.



- **Structure:**
- The roof structure shall be capable of bearing the maximum predicted dead and live loads associated with green roof systems. Standardized media weights and procedures (e.g., ASTM E-2397-05, E-2399-05) shall be used to establish the dead load bearing capacity of the roof.
 - Green roofs with pitches steeper than 2:12 shall include supplemental measures (e.g., slope bars, rigid stabilization panels, reinforcing mesh) to enhance stability and prevent media sliding.

Construction Criteria:

- The following items should be addressed during construction of projects with green roofs:
- Waterproofing Installation:** Measures shall be taken to prevent membrane damage during green roof installation. Any flaws, irregularities, or conditions that may cause leaks or roof damage shall be identified and repaired. The waterproofing membrane should be visually inspected and tested for water tightness prior to installation of the planting mix.
 - Slope Stabilization Measures:** Where required, slope stabilization measures should be placed prior to green roof installation. In some situations, slope stabilization may be integrated into the roof structure.
 - Green Roof Installation:** Green roof systems should be installed according to the manufacturer's instructions. Generally, root-barrier layers, walkways, and irrigation systems should be installed first.
 - Inspection:**
 - The following certifications shall be required during construction:
 - Prior to placement of the waterproofing, drainage, and treatment materials, certification that the constructed roof meets the load bearing capacity specified on the approved plans.
 - After its installation and prior to placement of the planting media and stock, certification regarding the water tightness of the waterproofing membrane.
 - Regular inspections shall be made during the following stages of construction:
 - During placement of the waterproofing membrane.
 - During placement of the drainage system.
 - During placement of the planting media.
 - Upon installation of the plant material.
 - Before issuing use and occupancy approvals (new construction only).
 - During the second growing season to ensure adequate vegetation survival.

Maintenance Criteria:

- Green roofs require annual maintenance to ensure optimum performance. Typically, eighteen months are needed to establish adequate initial plant growth. Periodic irrigation may be needed during this time and basic weeding, fertilizing, and in-fill planting may be required as well. After plants are established, the roof should be inspected and light weeding performed once or twice per year.
- Schedule Green Roof**
- The green roof system shall be operated and maintained in accordance with the recommendations of the green roof system distributor, and the information provided herein.
- Weeding** - At a minimum, remove unwanted plant material on an annual basis. Replace failed plant material - Replace failed plant material when the affected area exceeds five percent (5%) of the planted roof area.
 - Irrigation** - At a minimum, newly installed plant material shall be irrigated for the first growing season. Saturate the green roof at least once a week. After vegetation is established and following the first growing season, irrigation should be provided periodically during dry periods.
 - Fertilization** - Slow release fertilizer shall be applied in the spring on an annual basis.
 - Drainage Inspections** - Inspect downspouts and drainage channels and courses for clogs and other problems after each significant rainfall.
 - Inspection for Leaks** - Inspect the green roof area for leaks after each significant rainfall.

B.4 Green Roof Specifications

1. Material Specifications

Because there is significant variation in green roof assemblies and methods, providing comprehensive specifications is not feasible. Material specifications for green roofs will vary based on each roofing system and specific information should be obtained from the appropriate manufacturer or retailer. The following information and specifications, which include acceptable materials for generic applications, is not exclusive or limiting.

2. Planting Media

Planting media should be a soil-like mixture with an organic content of 15% or less. The grain size distribution is necessary for to attain proper moisture content, permeability, nutrient management and non-capillary porosity, and soil structure. Grain size guidelines vary for single and dual media green roof assemblies.

The planting media shall be tested and meet the following criteria:

- Non-Capillary Pore Space at Field Capacity, 0.333 bar (TMECC 03.01, A) ≥ 15% (volume)
- Moisture Content at Field Capacity (TMECC 03.01, A) ≥ 12% (volume)
- Maximum Water Retention (FLL) ≥ 30% (volume)
- Alkalinity, CaCO₃ equivalents (MSA) ≤ 2.5%
- Total Organic Matter by Wet Combustion (MSA) ≤ 3-15% (dry wt.)
- pH (RCSTP) 6.5 - 8.0
- Soluble Salts (DTPA saturated media extraction - RCSTP) ≤ 6 mhos/cm
- Cation Exchange Capacity (MSA) ≥ 10 meq/100 g
- Saturated Hydraulic Conductivity (FLL):
 - Single Media Assemblies ≥ 0.05 in/min
 - Dual Media Assemblies ≥ 0.30 in/min
- Mineral Fraction Grain Size Distribution (ASTM D422):

	Single Media	Dual Media
Clay Fraction (2 micron)	0	0
% Passing #20 Sieve	≤ 5%	5 - 15%
% Passing #60 Sieve	≤ 10%	10 - 25%
% Passing #18 Sieve	5 - 50%	20 - 50%
% Passing #1/8 inch Sieve	20 - 70%	55 - 90%
% Passing 3/8 inch Sieve	75 - 100%	90 - 100%

3. Green Roof Layers

Root Barriers - should be thermoplastic membranes with minimum thickness of 30 mils. Membranes certified for use as root barriers are recommended. However, only FLL currently offers a recognized certification test. Many FLL-certified materials are locally available.

Granular Drainage Media - should be a non-carbonate mineral aggregate meeting the following specifications:

- Saturated Hydraulic Conductivity ≥ 25 inches/minute
- Total Organic Matter (by wet combustion) ≤ 1%
- Abrasion Resistance (ASTM C131-96) ≤ 25% loss
- Soundness (ASTM C88 or T103 or T103-91) ≤ 5% loss
- Porosity (ASTM C29) ≥ 25%
- Alkalinity, CaCO₃ equivalents (MSA) ≤ 1%
- Grain Size Distribution (ASTM C136)
 - Percent Passing #18 Sieve ≤ 1%
 - Percent Passing 1/8 inch Sieve ≤ 30%
 - Percent Passing 3/8 inch Sieve ≤ 80%

Separation Fabric - should be a lightweight, non-woven geotextile that is easily penetrated by roots while providing a durable separation between drainage and growth media layers. Separation fabrics should meet the following:

- Unit Weight (ASTM D3776) ≤ 4.25 ounces per square yard
- Grab Tensile Strength (ASTM D4632) ≤ 90 lbs.
- Mullen Burst Strength (ASTM D4632) ≥ 185 lbs/inch
- Permeability (ASTM D4491) ≥ 2 sec-1

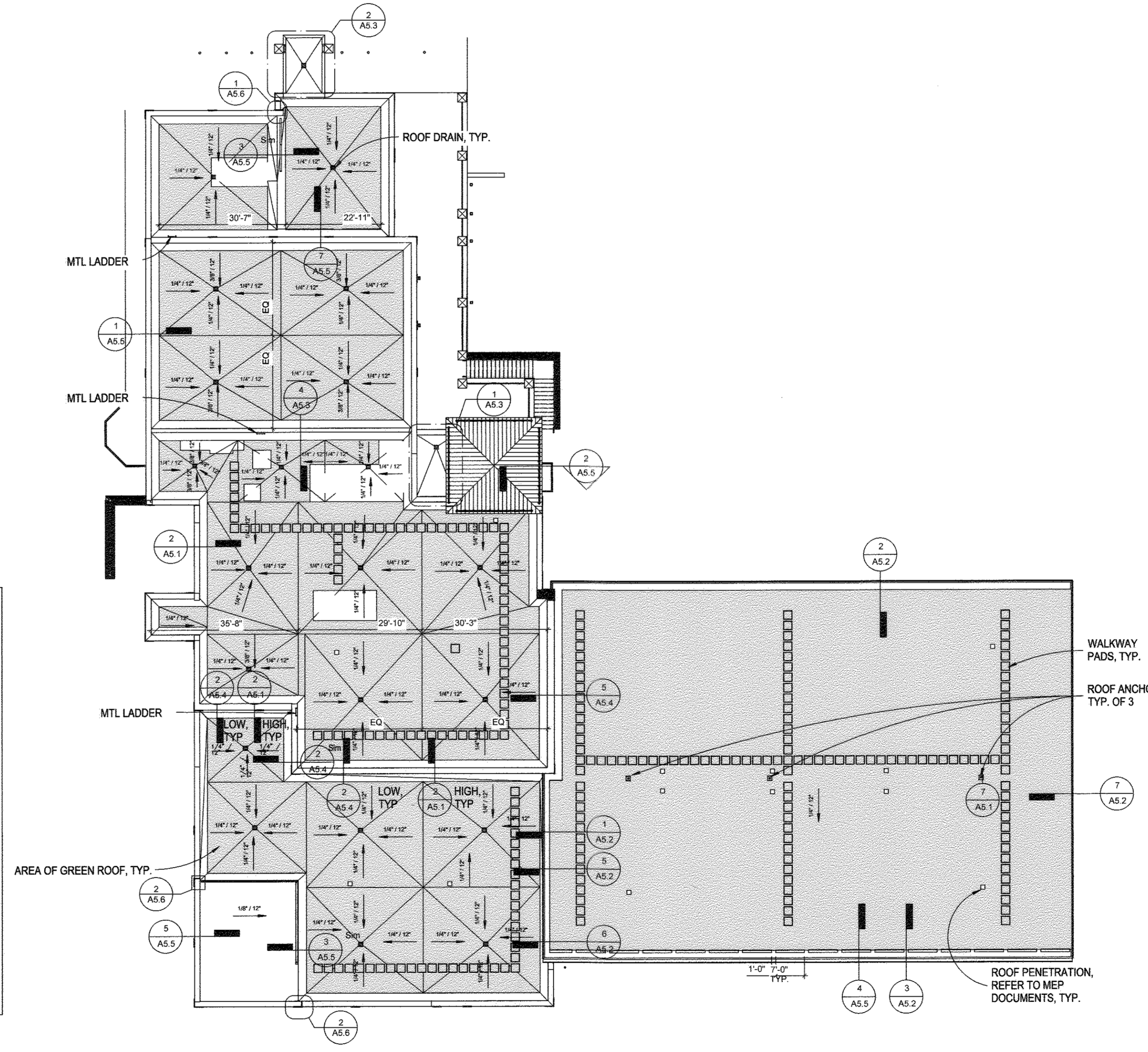
OPERATION AND MAINTENANCE SCHEDULE FOR Green Roof (A-1)

The following Operation and Maintenance Schedule shall be implemented to the function of the Green Roof System in accordance with the recommendations of the "Green Roof System Distributor":

- Weed** - On an annual basis remove unwanted plant material.
- Replace** - Replace failed plant material when the failed plant area exceeds five percent (5%) of the roof area.
- Irrigate** - A newly installed roof should be irrigated during the first growing season. Saturate the Green Roof at least once a week during this first growing season. After vegetation is established, irrigation may be required periodically during dry periods.
- Nutrient** - The application of a slow-release fertilizer in the spring is recommended on an annual basis.
- Inspect for Drainage** - After each significant rainfall inspect downspouts or drainage channels/courses for clogs.
- Inspect for Leaks** - After each significant rainfall inspect the Green Roof for leaks.

QUAN	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	COND.
280		Allium schoenoprasum	Chives	quart	12" oc.
1470		Delosperma nubigenum 'Basutoland'	Delosperma	plug	6" oc.
224		Dianthus carthusianorum	Garden Pink	plug	12" oc.
2055		Festuca ovina 'Glaucia'	Dwarf Blue Fescue	plug	12" oc.
4530		Sedum acre 'Aureum'	---	plug	6" oc.
7060		Sedum album 'Murale'	---	plug	6" oc.
6110		Sedum floriferum 'Weihenstephaner Gold'	---	plug	6" oc.
3130		Sedum kamtschaticum	---	plug	6" oc.
3450		Sedum reflexum	---	plug	6" oc.
5050		Sedum spurium 'Fudaglut'	---	plug	6" oc.
4720		Sedum spurium 'Roseum'	---	plug	6" oc.

Plugs shall be a minimum 2 inches deep x 1 1/2 inches square. Planting configuration and quantities may be adjusted to accommodate pre-planted tray modules, as necessary. Sedum may be blended rather than planted as individual plant areas.



GREEN ROOF (A-1) PLANTING PLAN
SCALE: 1"=20'
0.52 AC GREEN ROOF, 4 INCHES THICK



April 17, 2014

Howard County Department of Public Works
ATTN: Mr. David Loudermilk
Engineering Specialist
9520 Bendix Road
Columbia, MD 21045

RE: ElkrIDGE Volunteer Fire Station - Preliminary LEED Scorecard

Dear Mr. Loudermilk:

Please find the attached LEED scorecard dated 04/17/14 for the ElkrIDGE Volunteer Fire Department project.

The goal of the project team is silver certification which requires a total of 50 points for certification. Currently the team anticipated credit level is 58 with another possible point pending.

We appreciate silver certification and are carrying additional credits above the 50 minimum to allow for changes in the approach. Although identified, the results are not guaranteed for the credits submitted and reduction often occurs.

If you have any questions or concerns, I can be reached at my direct line 443-221-7037.

Very truly yours,
COMPLETE COMMISSIONING, INC.

Jimmy C. Cachola
Jimmy C. Cachola, P.E., LEED A.P.
GC/PC, CBCP, EBCP, NCP
Principal

Attachment: ElkrIDGE Volunteer Fire Station LEED 2009 for NC Project Checklist 4/17/14

CC: Andy Towne - Edmeades and Stromdahl, LTD
Paul Edmeades - Edmeades and Stromdahl, LTD
Jeff Schwab - Tesseract Sites

Building Systems Commissioning & Retro-Commissioning • LEED Services • Sound & Vibration Measurement • Building Envelope Testing
IAQ Testing • Energy Modeling • Measurement & Verification Services • Thermal Imaging • Energy Audits • Testing & Balancing

ENGINEER SILL ENGINEERING GROUP, LLC
HOWARD COUNTY, MARYLAND
11130 DOVEDALE COURT, SUITE 200
MARRIOTTVILLE, MARYLAND 21104
OFFICE: 443-325-5076
FAX: 410-696-2022
EMAIL: PAUL@SILLENGINEERING.COM

OWNER/DEVELOPER MARK STROMDAHL
HOWARD COUNTY, MARYLAND
9250 BENDIX ROAD
COLUMBIA, MD 21045
PHONE: 410-313-5757
EMAIL: MCSTROMDAHL@HOWARDCOUNTYMMD.GOV

REVISED SWM GREEN ROOF
ELKRIDGE FIRE STATION
PARCEL A
"GREEN BUILDING"
TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

DESIGN BY: JS
DRAWN BY: AEA
CHECKED BY: PS
SCALE: 1"=20'
DATE: SEPTEMBER 28, 2016
PROJECT #: 16-020
SHEET #: 27 of 41

SILL ENGINEERING GROUP, LLC
11130 Dovedale Court, Suite 200
Marriottsville, Maryland 21104
Phone: 443.325.5076
Fax: 410.696.2022
Email: info@sillengineering.com
Civil Engineering for Land Development

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33205, EXPIRATION DATE: JUNE 20, 2017

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	09/28/2016
REVISIONS		
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING		
<i>Paul J. Sill</i>	DATE: 9-30-16	
CHIEF, DEVELOPMENT ENGINEERING DIVISION		
<i>Kate Scholten</i>	DATE: 9-30-16	
CHIEF, DIVISION OF LAND DEVELOPMENT		
<i>Nancy J. Jaffe</i>	DATE: 10-3-16	
DIRECTOR		

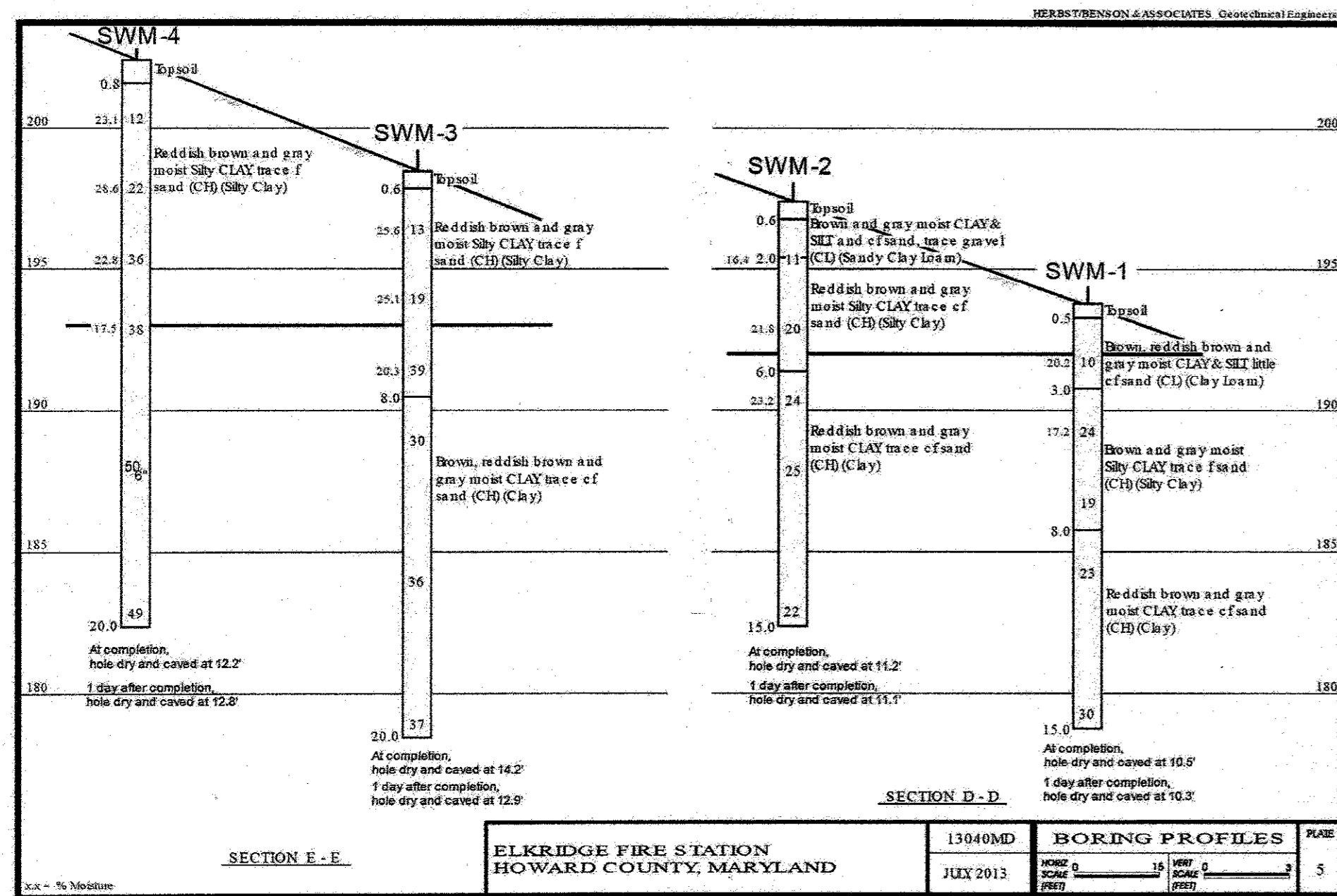


Table B.4.1 Materials Specifications for Micro-Bioretenation, Rain Gardens & Landscape Infiltration-

Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
Planting soil (2' to 4' deep)	loamy sand (60-65%) & compost (35-40%) or sandy loam (20%), coarse sand (10%) & compost (40%)	n/a	USDA soil types loamy sand or sandy loam; clay content < 5%
Organic content	Min. 10% by dry weight (ASTM D 2974)		
Mulch	shredded hardwood		aged 6 months, minimum; no pine or wood chips
Pes gravel diaphragm	pes gravel: ASTM-D-445	NO. 8 OR NO. 9 (1/8" TO 3/8")	
Curtain drain	ornamental stone: washed cobbles	stone: 2" to 5"	
Geotextile	n/a		PE Type 1 nonwovens
Gravel (underdrains and infiltration basins)	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE (S&W or S&T)	
Underdrain piping	F 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe; 3/8" perf. @ 6" on center; 4 holes per row; minimum of 3" of gravel over pipe; not necessary underdrain pipes. Perforated pipe shall be wrapped with 1/2-inch polyurethane cloth
Poured in place concrete (if required)	MSHA Mix No. 3; f'c = 3000 psi @ 28 days; normal weight; air-entrained; reinforcing to meet ASTM-615-60	n/a	on-site testing of poured-in-place concrete required; 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) not using previously approved State or local standards requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 309.8/89; vertical loading (1:1 to 1:2); allowable horizontal loading (based on soil pressure); and analysis of potential cracking
Sand	AASHTO-M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone (AASHTO #10) are not acceptable. No calcium carbide or dolomite sand substitutions are acceptable. No "rock dust" can be used for sand.

B.3.B Specifications for Bioretention & Micro Bioretention

1. Material Specifications

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

2. Planting Soil

The soil shall be a uniform mix, free of stones, stumps, roots or other similar objects larger than two inches. No other materials or substances shall be mixed or dumped within the bioretention area that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations. The planting soil shall be free of Bermuda grass, Quackgrass, Johnson grass, or other noxious weeds as specified under COMAR 15.08.01.05.

The planting soil shall be tested and shall meet the following criteria:

pH range	5.2 - 7.0
organic matter	1.5 - 4% (by weight)
magnesium	35lb./ac
phosphorus (phosphate - P2O5)	75 lb./ac
potassium (potash - K2O)	85 lb./ac
soluble salts	not to exceed 500 ppm

All bioretention areas shall have a minimum of one test. Each test shall consist of both the standard soil test for pH, phosphorus, and potassium and additional testes of organic matter, and soluble salts. A textural analysis is required from the site stockpiled topsoil. If topsoil is imported, then a texture analysis shall be performed for each location where the top soil was excavated.

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

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

3. Compaction

It is very important to minimize compaction of both the base of the bioretention area and the required backfill. When possible, use excavation hoes to remove original soil. If bioretention rubber tires with large lugs or high pressure tires will cause excessive compaction resulting in reduced infiltration rates and is not acceptable. Compaction will significantly contribute to design failure.

Compaction can be alleviated at the base of the bioretention facility by using a primary tilling operation such as a chisel plow, ripper, or subsoiler. These tilling operations are to restructure the soil profile through the 12 inch compaction zone. Substitute methods must be approved by the engineer. Rototillers typically do not till deep enough to reduce the effects of compaction from heavy equipment.

Rototill 2 to 3 inches of sand into the base of the bioretention facility backfilling the optional sand layer. Pump any ponded water before preparing (rototilling) base.

When backfilling the bioretention facility, place soil in lifts 12" to 18". Do not use heavy equipment within the bioretention basin. Heavy equipment can be used around the perimeter of the basin to supply soils and sand. Grade bioretention materials with light equipment such as a compact loader or a dozer/loader with marsh tracks.

4. Plant Material

Recommended plant material for bioretention areas can be found in Appendix A, Section A.2.3.

5. Plant Installation

Mulch should be placed to a uniform thickness of 2" to 3". Shredded hardwood mulch is the only accepted mulch. Pine mulch and wood chips will float and move to the perimeter of the bioretention areas during a storm event and are not acceptable. Shredded mulch must be well aged (6 to 12 months) for acceptance.

Root stock of the plant material shall be kept moist during transport and on-site storage. The plant root ball should be planted so 1/8th of the ball is above final grading surface. The diameter of the planting pit shall be at least six inches larger than the diameter of the planting ball. Set and maintain the plant straight during the entire planting process. Thoroughly water ground bed cover after installation.

Trees shall be braced using 2" by 2" stakes only as necessary and for the first growing season only. Stakes are to be easily spaced on the outside of the tree ball.

Grasses and legume seed should be drilled into the soil to a depth of at least one inch. Grass and legume plugs shall be planted following the non-grass ground cover planting specifications.

The topsoil specifications provide enough organic material to adequately supply nutrients from natural cycling. The primary function of the bioretention structure is to improve water quality. Adding fertilizers defeats, or at a minimum, impedes this goal. Only add fertilizer if wood chips or mulch are used to amend soil. Rototill urea fertilizer at a rate of 2 pounds per 100 square feet.

6. Underdrains

Underdrains are to be placed on a 3'-0" wide section of filter cloth. Pipe is placed next, followed by the gravel bedding. The ends of underdrain pipes are not terminating in an observation well shall be capped.

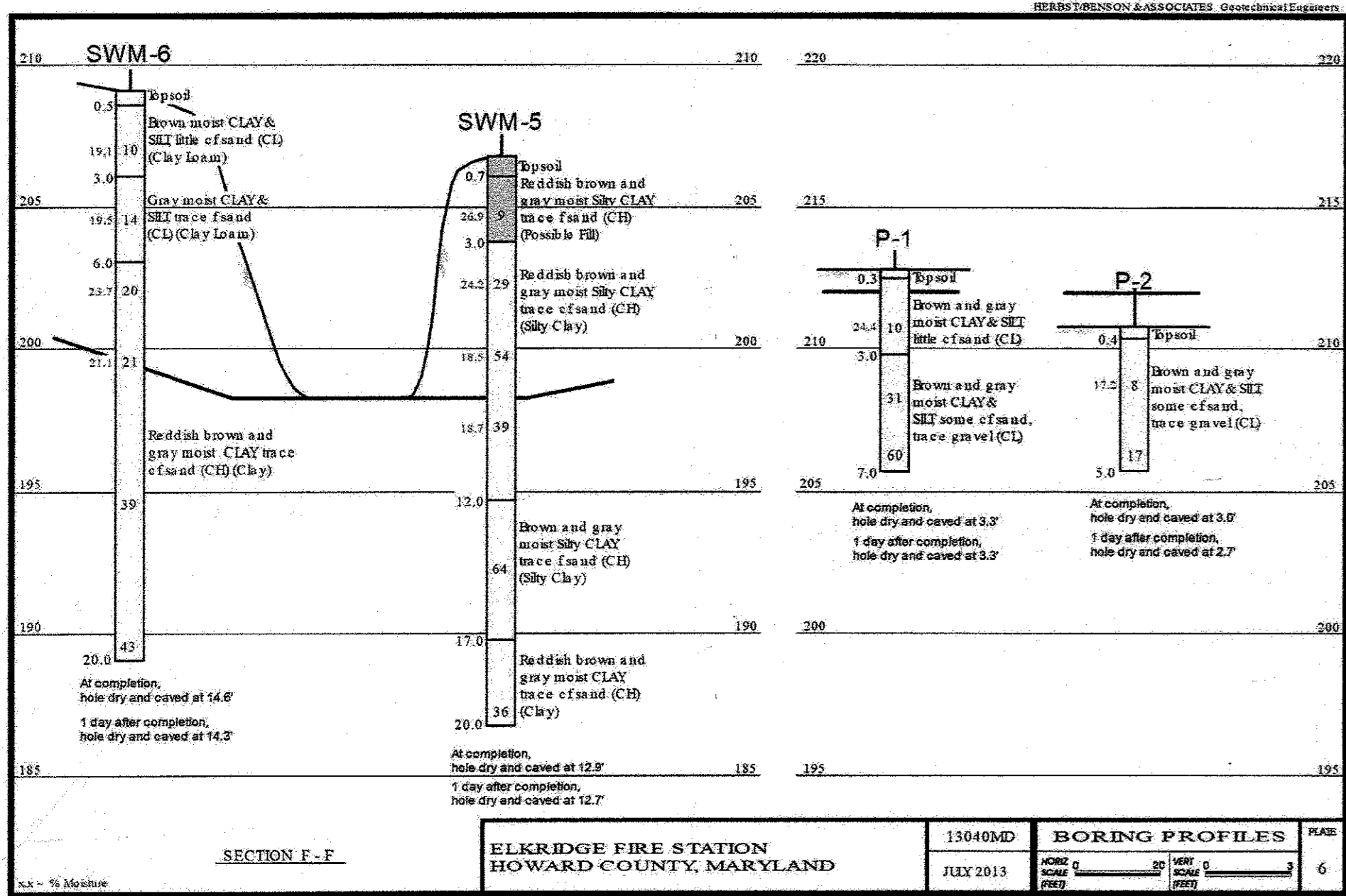
The main collector pipe for underdrain systems shall be constructed at a minimum slope of 0.5%.

7. Miscellaneous

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

OPERATION AND MAINTENANCE SCHEDULE FOR BIO-RETENTION AREAS & MICRO BIORETENTION (F-6) (M-6)

- Annual maintenance of plant material, mulch layer and soil layer is required. Maintenance of mulch and soil is limited to correcting areas of erosion or wash out. Any mulch replacement shall be done in the spring. Plant material shall be checked for disease and insect infestation and maintenance will address dead material and pruning.
- Schedule of plant inspection will be twice a year in spring and fall. This inspection will include removal of dead and diseased vegetation considered beyond treatment, treatment of all diseased trees and shrubs and replacement of all deficient stakes and wires.
- Mulch shall be inspected each spring. Remove previous mulch layer before applying new layer once every 2 to 3 years.
- Soil erosion to be addressed on an as needed basis, with a minimum of once per month and after heavy storm events.



No.	Description	Date
1	Delete parking spaces, access to service drive, rel. dumpster, gen. add traffic signal control plans reduce access to from 35' to 24' by Soil Engineering group	5/18/16

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Development Engineering Division: 9-16-15

Chief, Division of Land Development: 10-20-15

Director: 10-30-15

Tesseract
TESSERACT SITES, INC.
Jeffrey Schwab
401 Washington Ave. Suite 303
Towson, Maryland, 21284
p. 410-321-7800
f. 410-321-7601

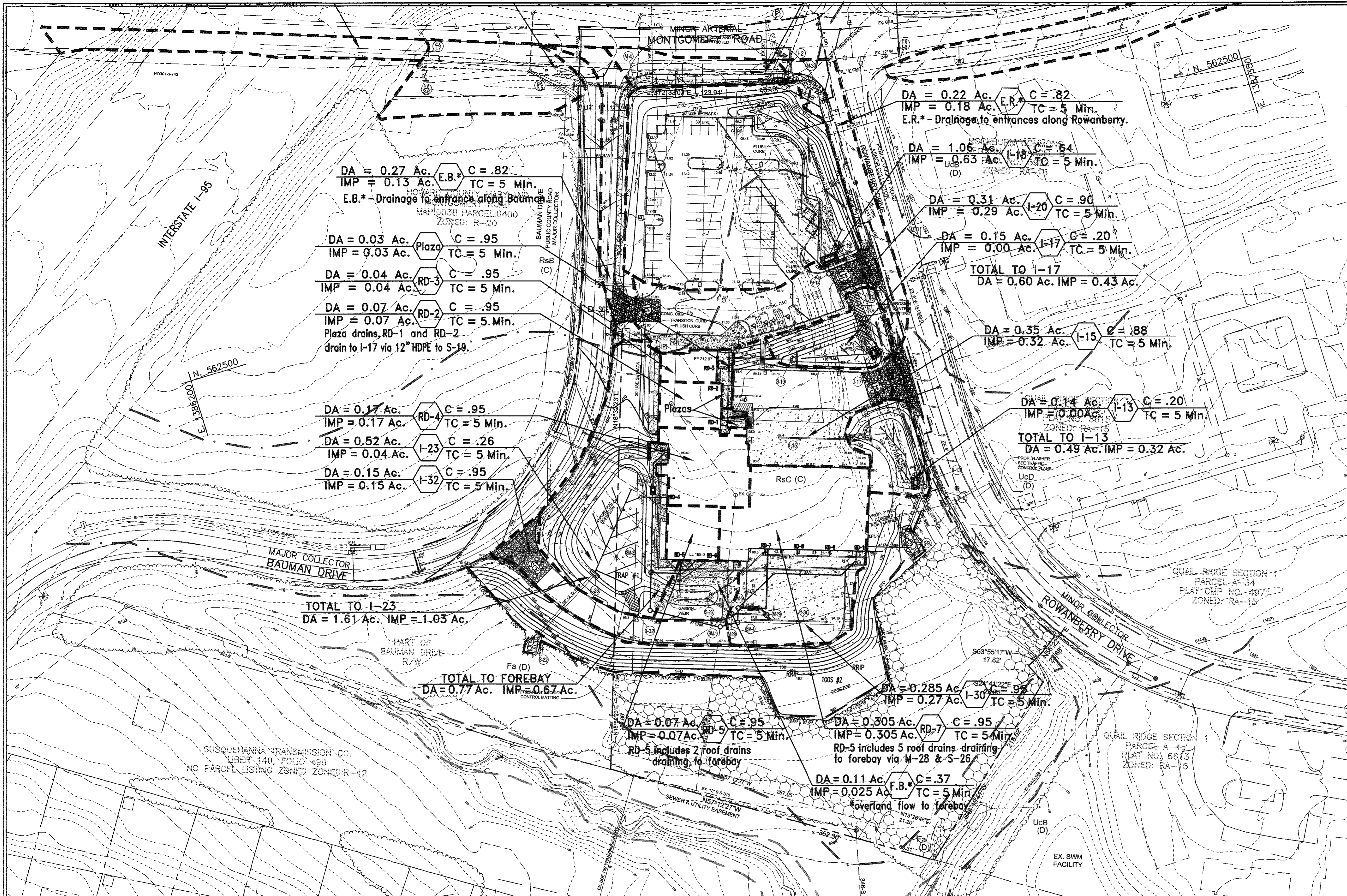
SWM Notes
Elkridge Fire Station
Parcel A
"Green Building"
Howard County, Maryland

Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 14250, Expiration Date: 12/09/16.

DATE/PROJECT:	402-403-A2	DATE/PROJECT:	14101/512-13842/358	SCALE:	N/A
DATE/PROJECT:	12-R-12, RA15	DATE/PROJECT:	38	SCALE:	1:57

OWNER AND DEVELOPER:
Mark Stromdahl
Howard County Maryland
9250 Bendix Road
Columbia, MD 21045
ph: 410-313-5757
email: mstromdahl@howardcountymd.gov

DATE: 09/02/15
Proj. #: 12021
Scale: n/a
28 of 41



NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	09/28/2016
REVISIONS		
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING		
<i>Chad Clark</i>	9-30-16	DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION		
<i>Walter Johnson</i>	9-30-16	DATE
CHIEF, DIVISION OF LAND DEVELOPMENT		
<i>Nathan Joffe</i>	10-3-16	DATE
DIRECTOR		

ENGINEER
SILL ENGINEERING GROUP, LLC
HOWARD COUNTY, MARYLAND
11130 DOVEDALE COURT, SUITE 200
MARRIOTTVILLE, MARYLAND 21104
OFFICE: 410-696-2022
FAX: 410-696-2022
EMAIL: PAUL@SILLENGINEERING.COM

OWNER/DEVELOPER
MARK STROMDAHL
HOWARD COUNTY, MARYLAND
9250 BENDIX ROAD
COLUMBIA, MD 21045
PHONE: 410-313-5757
EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV

REVISED STORM DRAIN DRAINAGE AREA MAP
ELKRIDGE FIRE STATION
PARCEL A
"GREEN BUILDING"

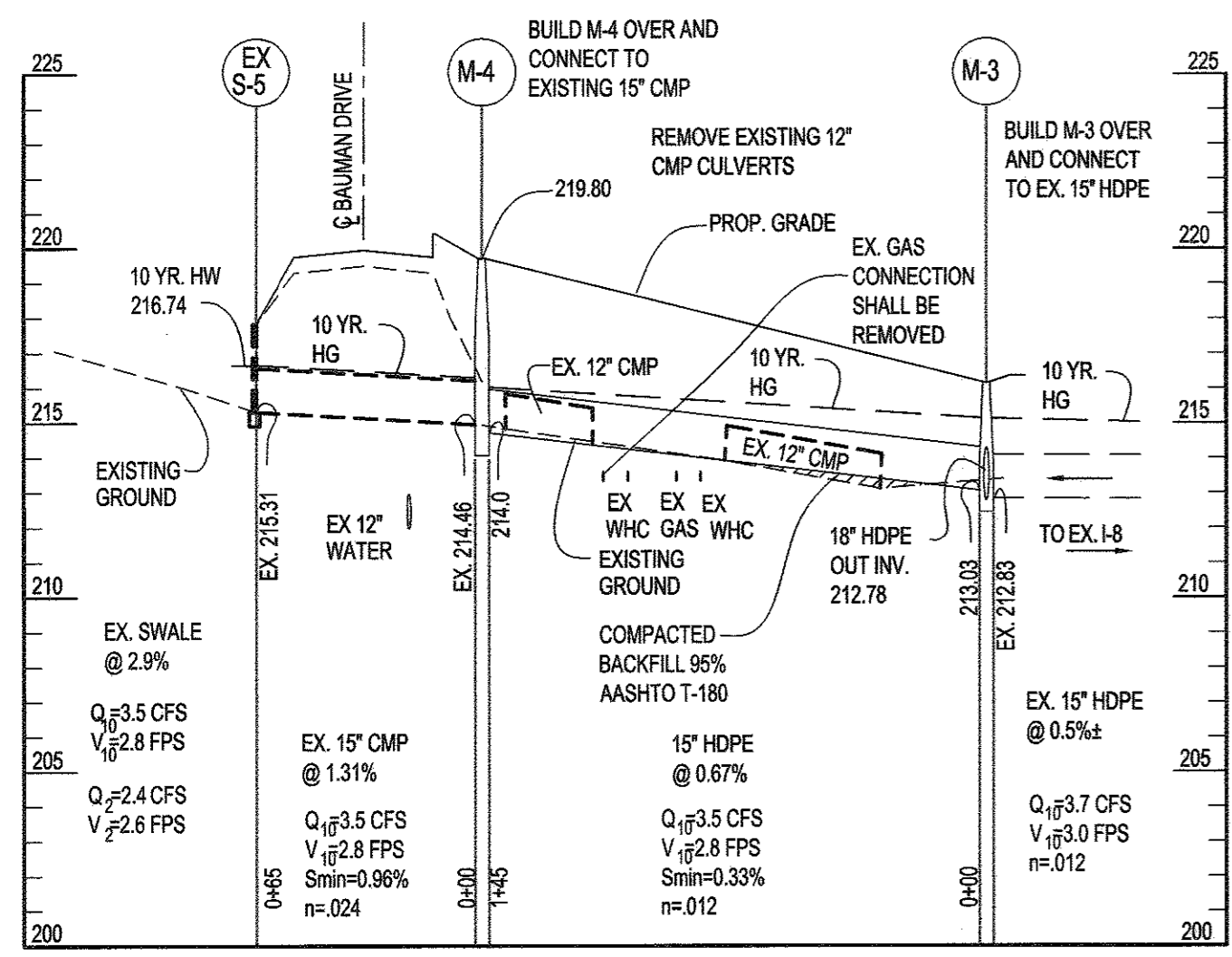
TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

SILL ENGINEERING GROUP, LLC
21130 Dovedale Court, Suite 200
Marriottsville, Maryland 21104
Phone: 410-696-2022
Fax: 410-696-2022
Email: info@sillengineering.com
Civil Engineering for Land Development

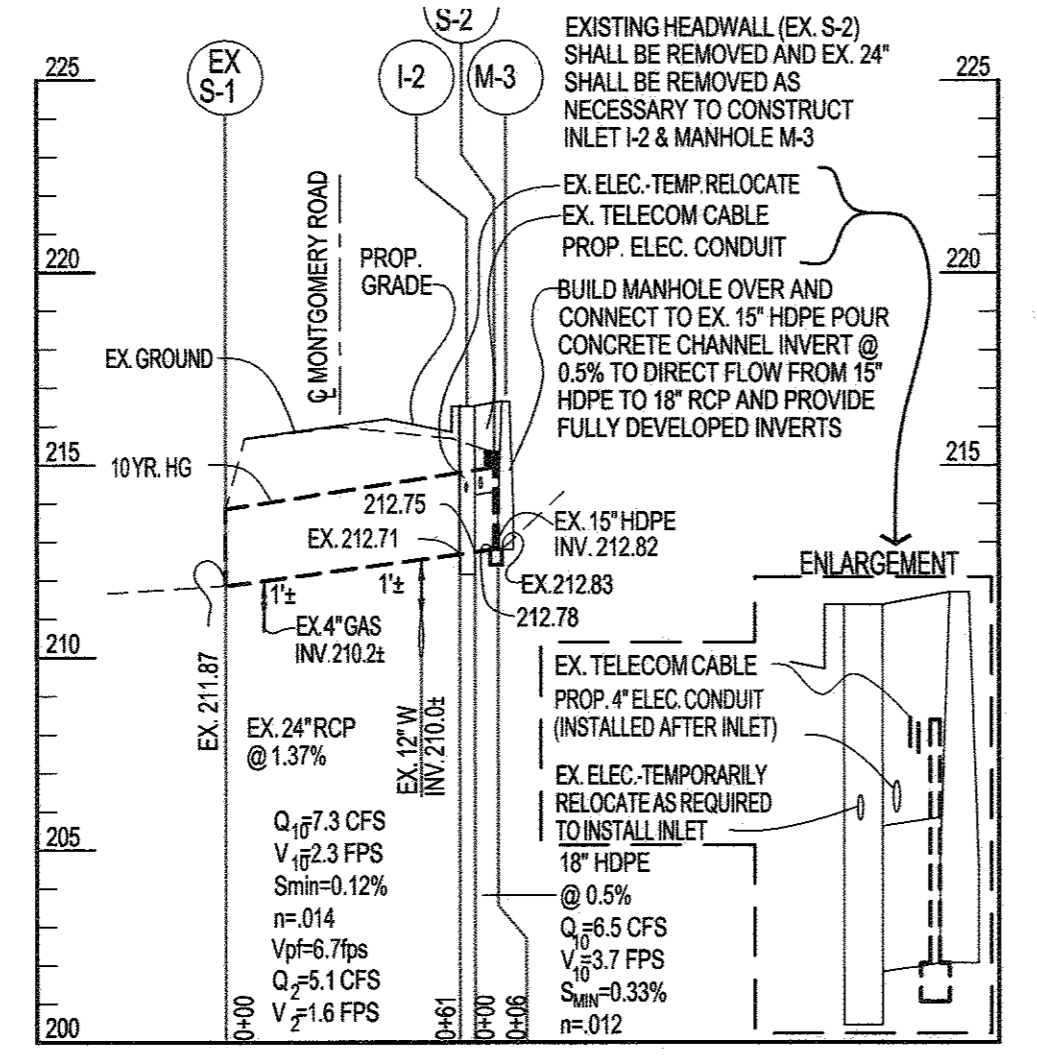
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DRAWN BY: AEA
CHECKED BY: PS
SCALE: 1" = 50'
DATE: SEPTEMBER 28, 2016
PROJECT #: 16-020
SHEET #: 29 of 41

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32025, EXPIRATION DATE: JUNE 20, 2017



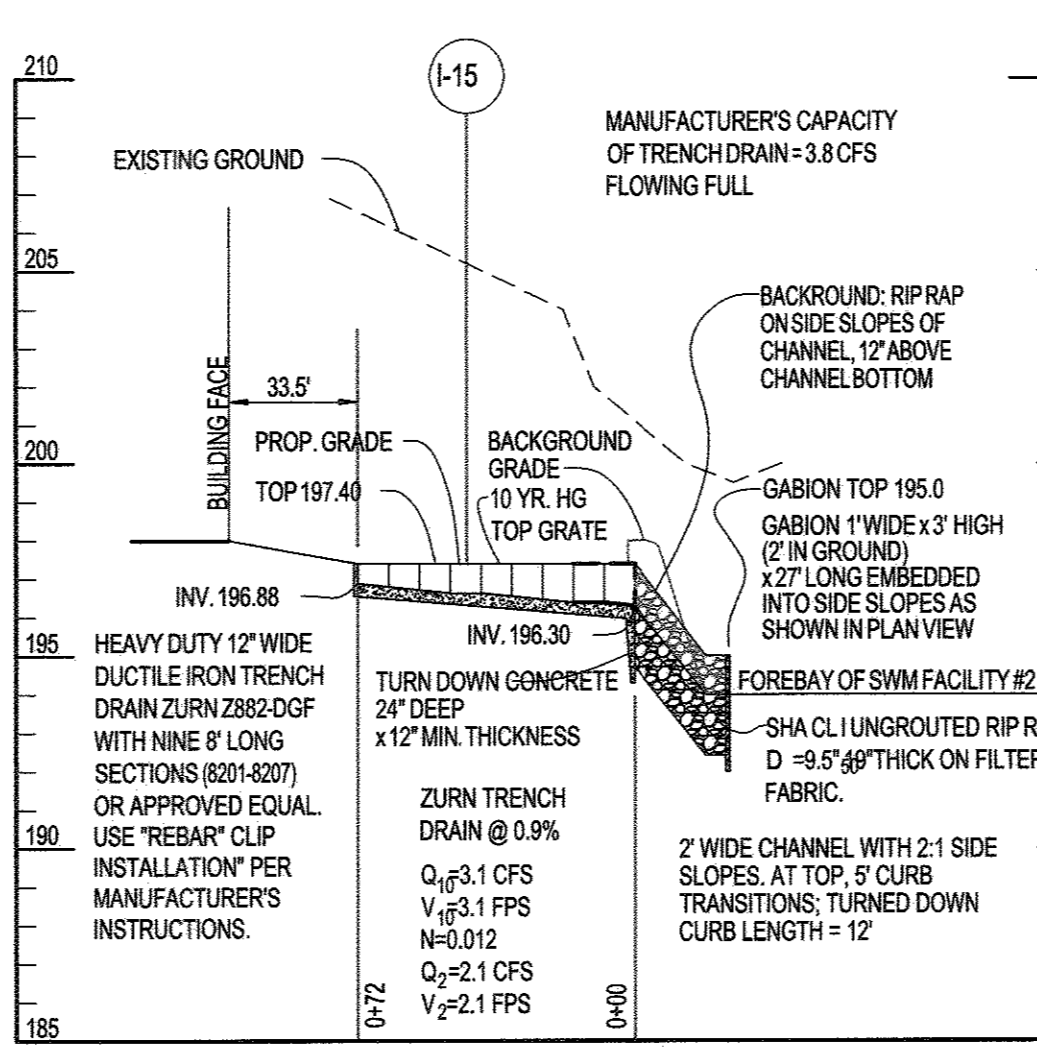
M-3 TO EX. S-5

SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'



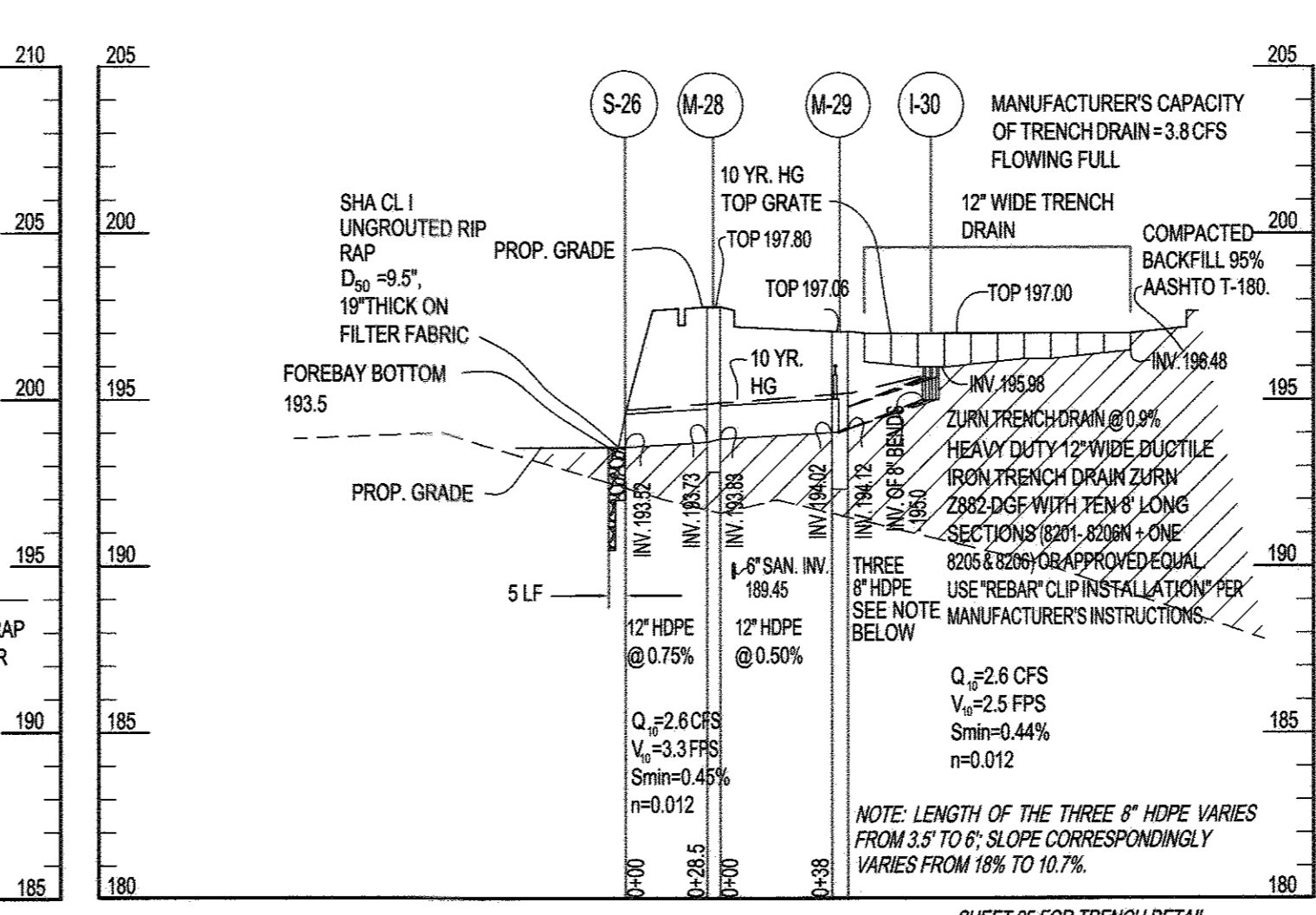
EX. S-1 TO M-3

SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'



I-15 INTO FOREBAY

SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'



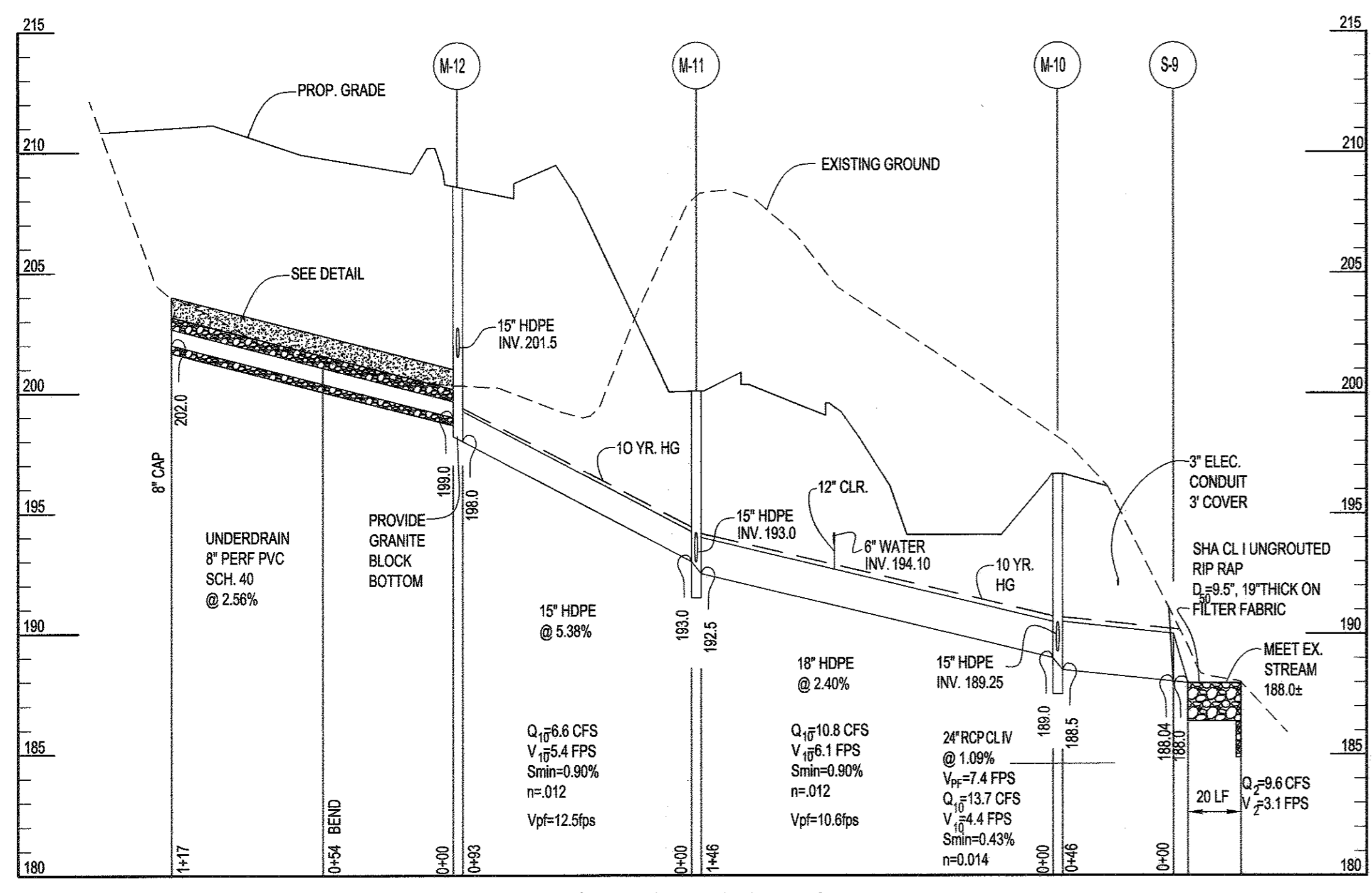
S-26 TO I-30

SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'

STRUCTURE SCHEDULE

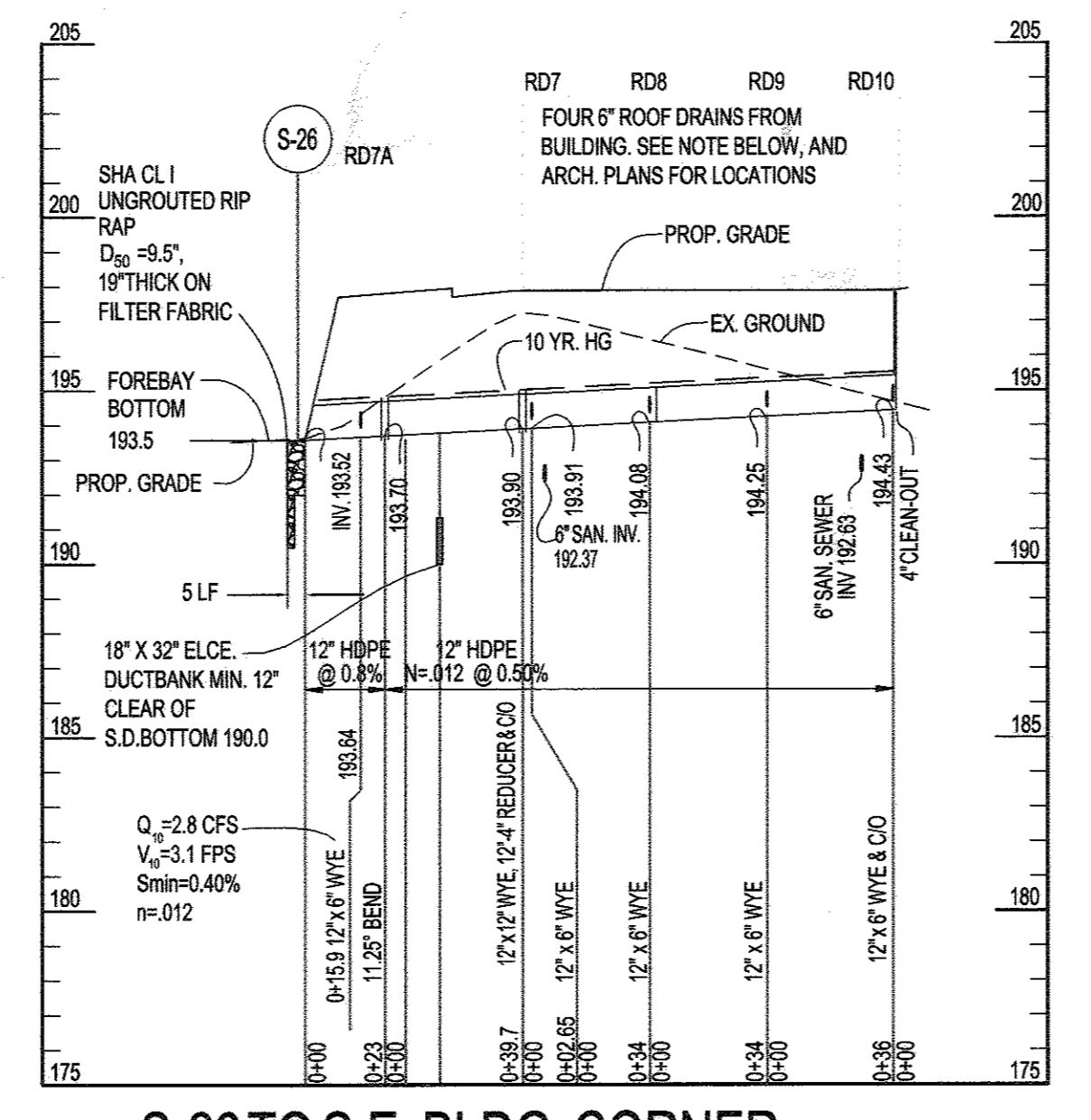
NO.	TYPE	TOP ELEV.	INV. IN	INV. OUT	LOCATION	REMARKS
I-2	PRECAST A-5 INLET	216.50/216.42	212.75	EX. 212.71	STA. 2+90.6 MONT. RD. 26.3' RT.	HO. CO. STD. D4.01 W=3'-0"
M-3	PRECAST SHALLOW MH	216.77	EX. 212.83	212.78	STA. 2+95 MONT. RD. 38.7' RT.	HO. CO. STD. G5.12 48" DIA.
M-4	PRECAST SHALLOW MH	219.80	EX. 214.46	214.0	STA. 1+92.5 MONT. RD. 40.0' RT.	HO. CO. STD. G5.12 48" DIA.
S-9	CONCRETE END SECTION	-	188.04	188.0	SEE PLAN	HO. CO. STD. D5.51 24" DIA.
M-10	STANDARD PRECAST MH	196.50	189.0	188.5	SEE PLAN	HO. CO. STD. G5.12 48" DIA.
M-11	STANDARD PRECAST MH	200.10	193.0	192.5	SEE PLAN	HO. CO. STD. G5.12 48" DIA.
M-12	STANDARD PRECAST MH	208.50	199.0	198.0	SEE PLAN	HO. CO. STD. G5.12 48" DIA.
I-13	MOD. PRECAST A-5 INLET	195.83	189.56	189.33	SEE PLAN	HO. CO. STD. D4.01 W=2'-6"
I-15	TRENCH DRAIN	197.40	196.88	196.3	SEE PLAN	PER MANUFACTURER SEE PROFILE
I-17	MOD. PRECAST A-5 INLET	200.33	194.0	193.0	SEE PLAN	HO. CO. STD. D4.01 W=2'-6"
I-18	MOD. PRECAST A-10 INLET	209.83	203.14	202.0	SEE PLAN	HO. CO. STD. D4.03 W=2'-6"
S-19	HDPE END SECTION	-	-	198.5	SEE PLAN	PER MANUFACTURER DIA=12"
I-20	CURB OPENING	208.30	-	-	SEE PLAN	MSHA 374.68 10' OPENING
PLAZA DRAINS						
S-22	C ENDWALL	-	-	183.50	SEE PLAN	HO. CO. STD. G6.21 DIA=18"
I-23	MOD. PRECAST A-10 INLET	194.83	187.97	186.50	SEE PLAN	HO. CO. STD. D4.03 W=2'-6"
S-26	HDPE END SECTION	-	193.52	193.5	SEE PLAN	PER MANUFACTURER DIA=12"
M-28	PRECAST SHALLOW MH	197.8	193.83	193.73	SEE PLAN	HO. CO. STD. G5.12 48" DIA.
M-29	PRECAST SHALLOW MH	197.06	194.02	194.02	SEE PLAN	SEE DETAIL
I-30	TRENCH DRAIN	197.0	-	195.00	SEE PLAN	PER MANUFACTURER
I-32	CURB OPENING	196.80	-	-	SEE PLAN	MSHA 374.68 10' OPENING

△ INVERTS SHALL BE FULLY DEVELOPED
SEE DETAIL FOR MODIFICATIONS TO OPENINGS
□ PROVIDE GRANITE BLOCK BOTTOM - NOT DEVELOPED
▽ INVERT SLOPED TO OUTLET
* PROVIDE END SECTION ON EACH 12" HDPE @ S-26
** MODIFY TO MEET 6" C&G



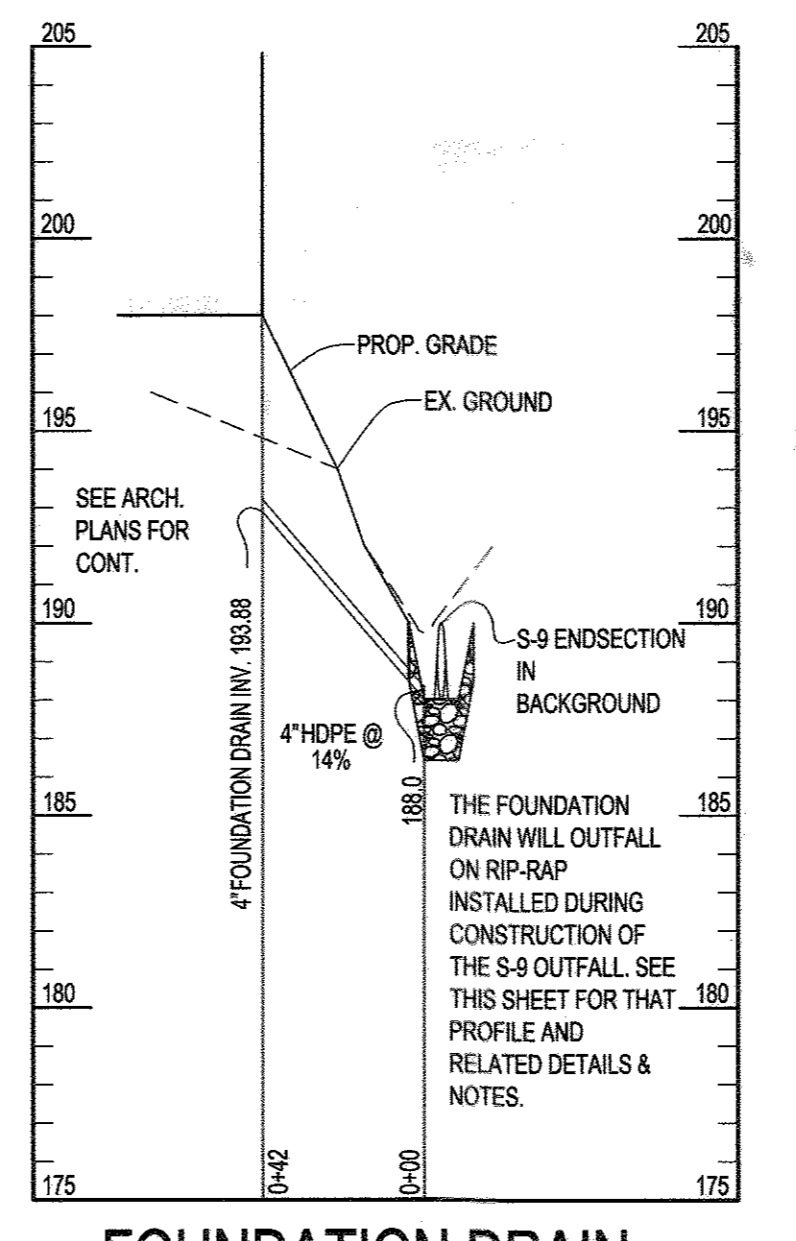
S-9 TO M-12 & UNDERDRAIN

SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'



S-26 TO S.E. BLDG. CORNER

SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'



FOUNDATION DRAIN

SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'

PIPE SCHEDULE

SIZE	TYPE	LF
4"	HDPE FOUNDATION	42
6"	PVC UNDERDRAIN	400
6"	HDPE	83
8"	PVC UNDERDRAIN	117
8"	HDPE	69
12"	HDPE	341
15"	HDPE	263
18"	RCP CL. IV	84
24"	RCP CL. IV	46

LF IS ROUNDED UP TO NEAREST FOOT.

THE TWO PLAZA AREA DRAIN INLETS SHALL BE 8" SQUARE CAST IRON GRATES NEENAH R-4401 PER DETAIL ON SHEET 31



REVISIONS

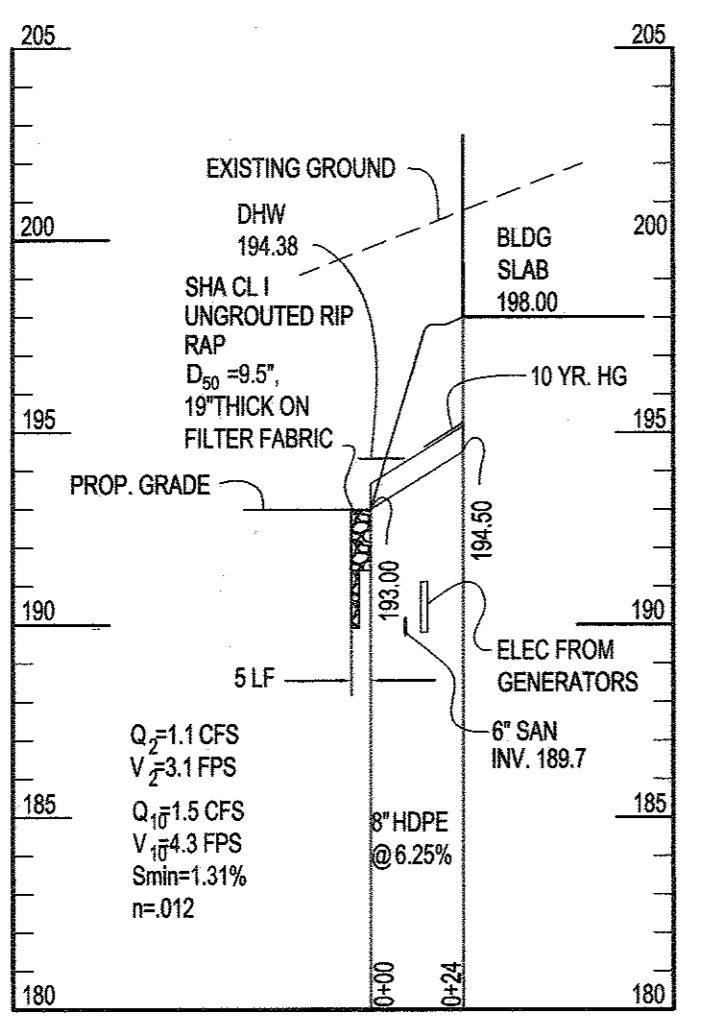
NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24' BY SILL ENGINEERING GROUP	09/28/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION: *[Signature]* DATE: 9-3-16

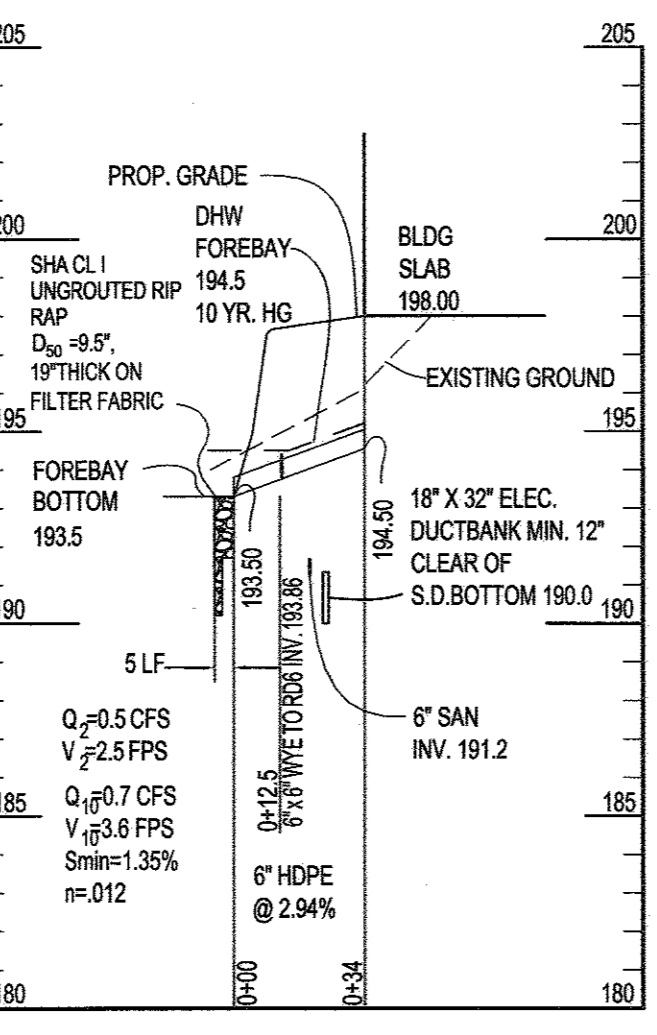
CHIEF, DIVISION OF LAND DEVELOPMENT: *[Signature]* DATE: 9-3-16

DIRECTOR: *[Signature]* DATE: 10-3-16



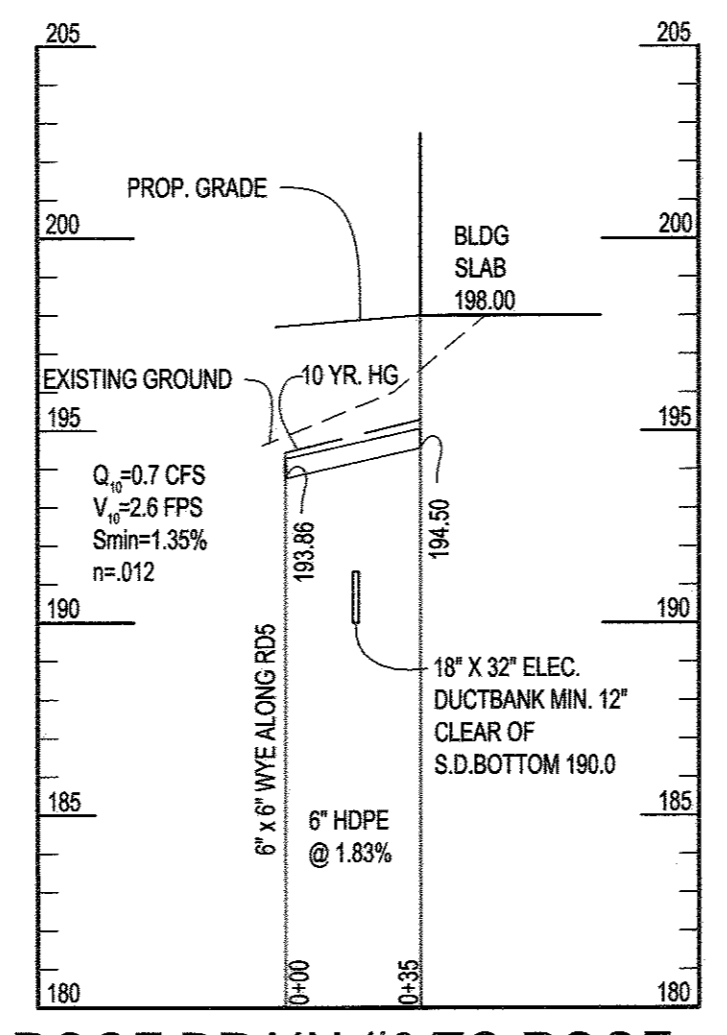
ROOF DRAIN #4 TO FACILITY #1

SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'



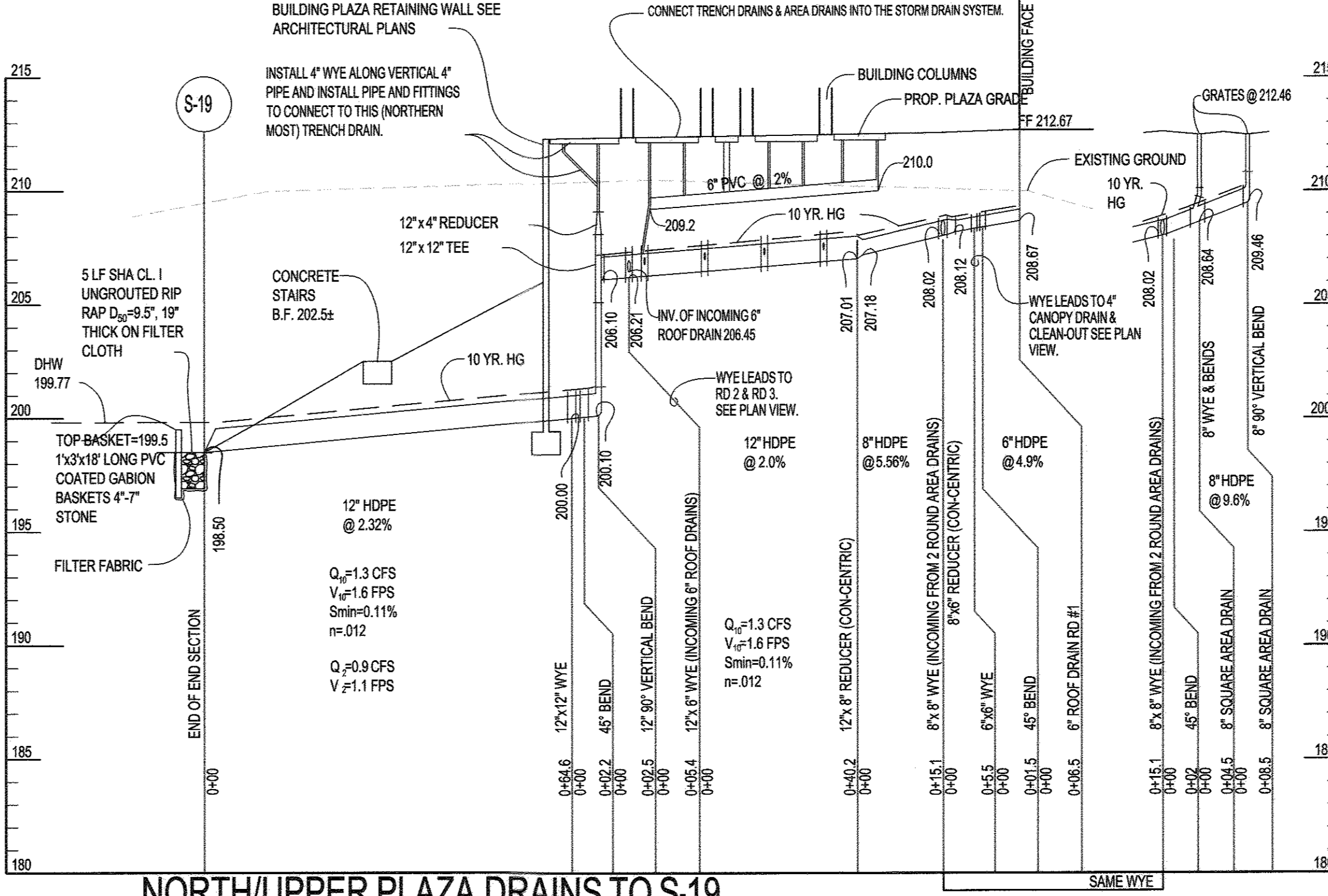
ROOF DRAIN #5 TO FOREBAY

SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'



ROOF DRAIN #6 TO ROOF DRAIN #5

SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'



NORTH/UPPER PLAZA DRAINS TO S-19

SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'

ENGINEER SILL ENGINEERING GROUP, LLC
HOWARD COUNTY, MARYLAND
11130 DOVEDALE COURT, SUITE 200
MARRIOTTSTVILLE, MARYLAND 21104
OFFICE: 443-325-5076
FAX: 410-696-2022
EMAIL: PAUL@SILLENGINEERING.COM

OWNER/DEVELOPER MARK STROMDAHL
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9250 BENDIX ROAD
COLUMBIA, MD 21045
PHONE: 410-313-6757
EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV

REVISED STORM DRAIN PROFILES

ELKRIDGE FIRE STATION

PARCEL A "GREEN BUILDING"

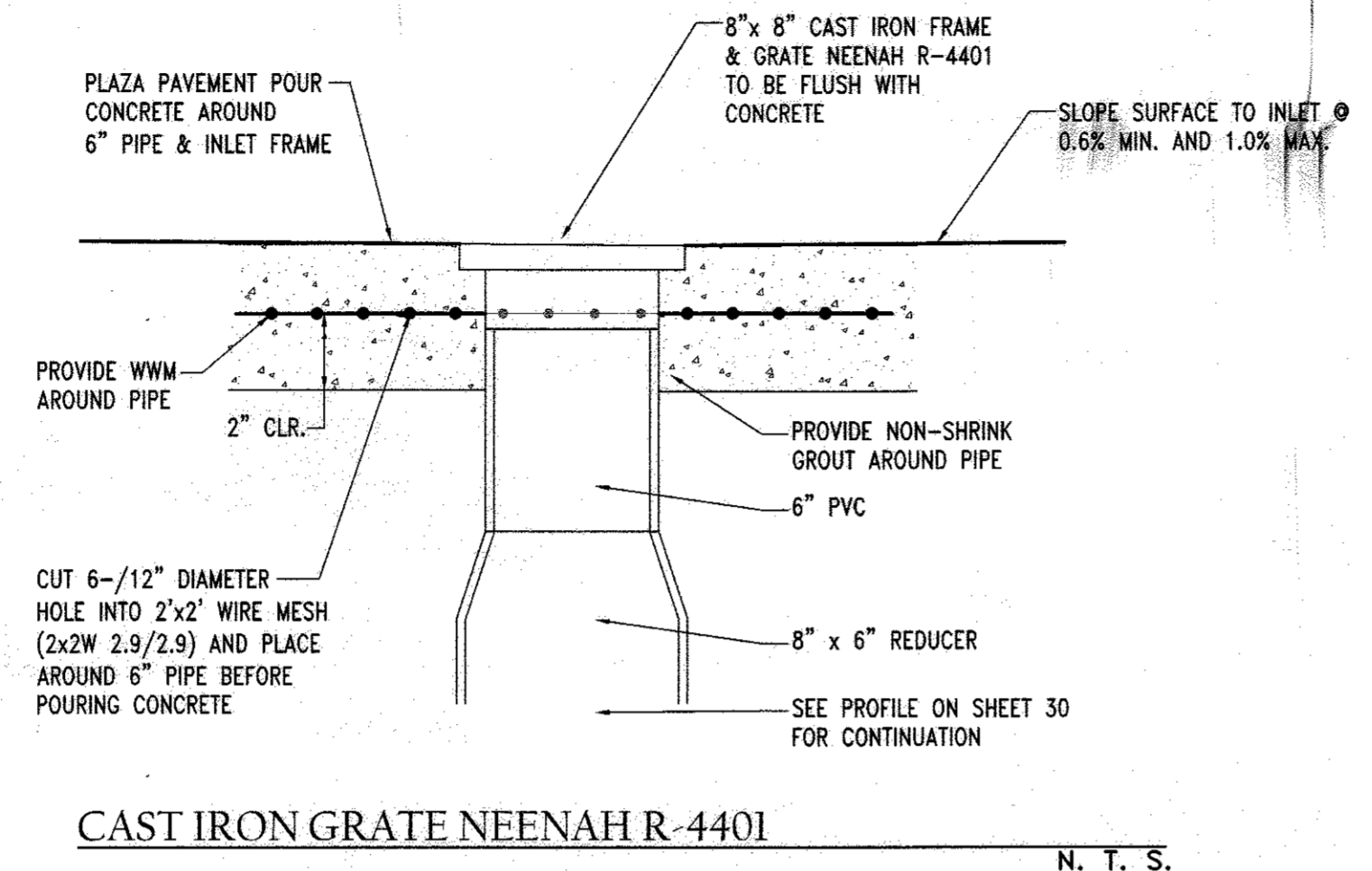
TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

SILL ENGINEERING GROUP, LLC
11130 Dovedale Court, Suite 200
Marristville, Maryland 21104
Phone: 443.325.5076
Fax: 410.696.2022
Email: info@sillengineering.com
Civil Engineering for Land Development

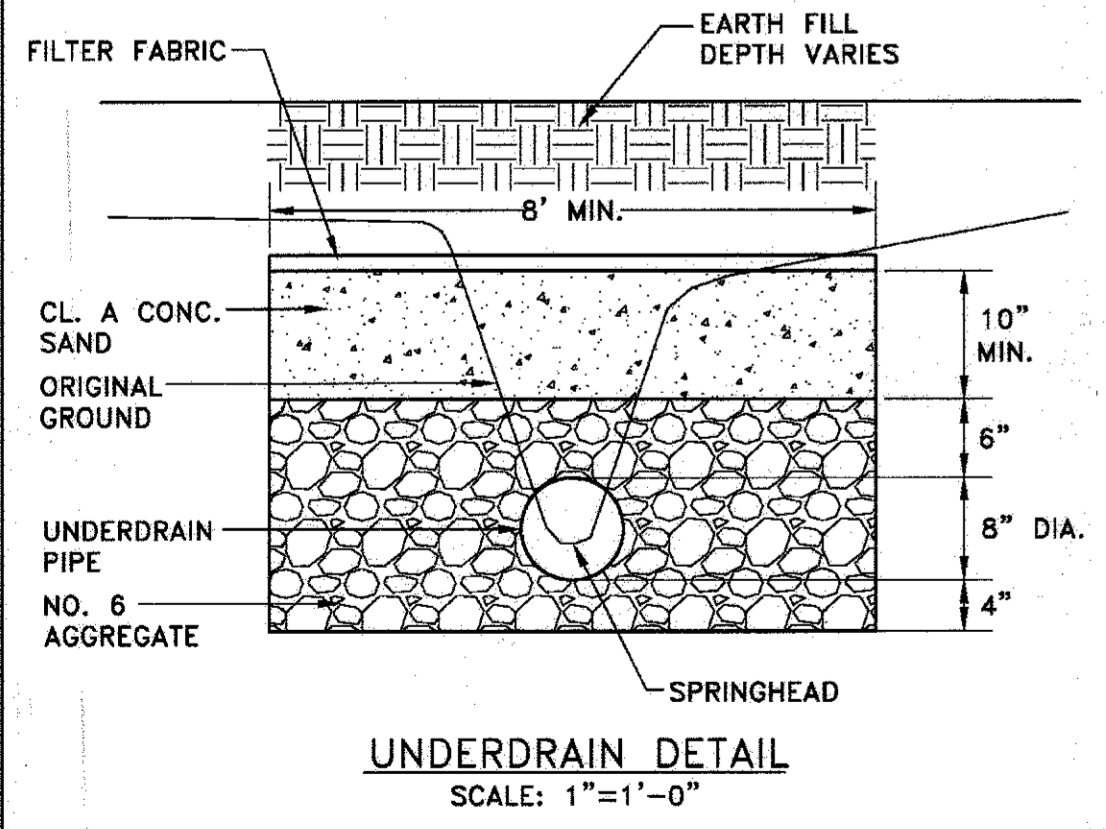
DESIGN BY: JS
DRAWN BY: AEA
CHECKED BY: PS
SCALE: 1" = 50'
DATE: SEPTEMBER 28, 2016
PROJECT #: 16-020
SHEET #: 30 of 41

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 30225, EXPIRATION DATE: JUNE 20, 2017

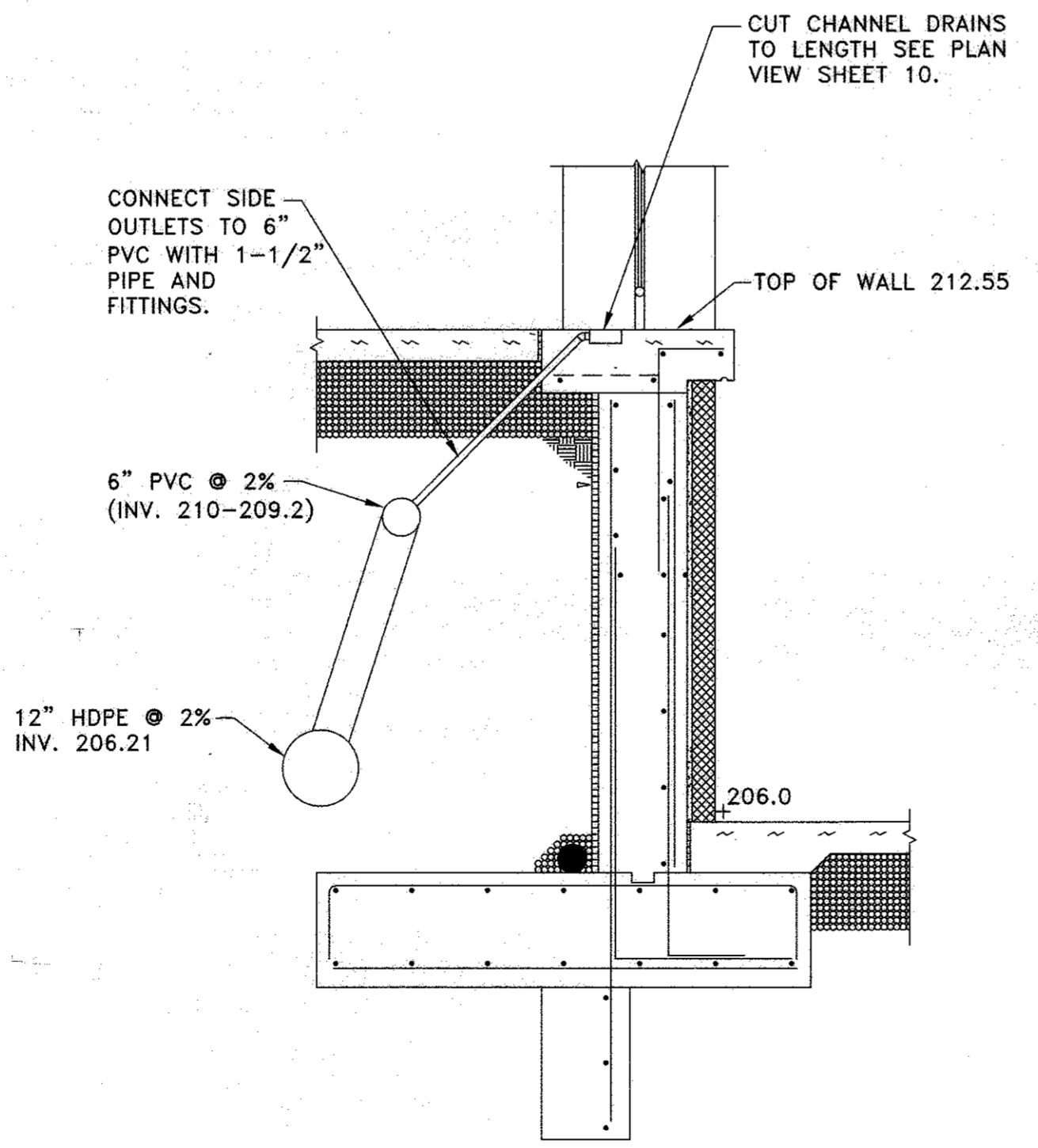


CAST IRON GRATE NEENAH R-4401
N. T. S.

PART NO.	DESCRIPTION	FINISH
814	5' X 20' CHANNEL GRATE	LIGHT GRAY
820	5' X 20' SHALLOW PROFILE CHANNEL DRAIN	" "
821	5' SHALLOW PROFILE END CAPS	" "
822	5' SHALLOW PROFILE SIDE OUTLET	" "



UNDERDRAIN DETAIL
SCALE: 1" = 1'-0"



PLAZA TRENCH DRAIN
SCALE: 1" = 2'

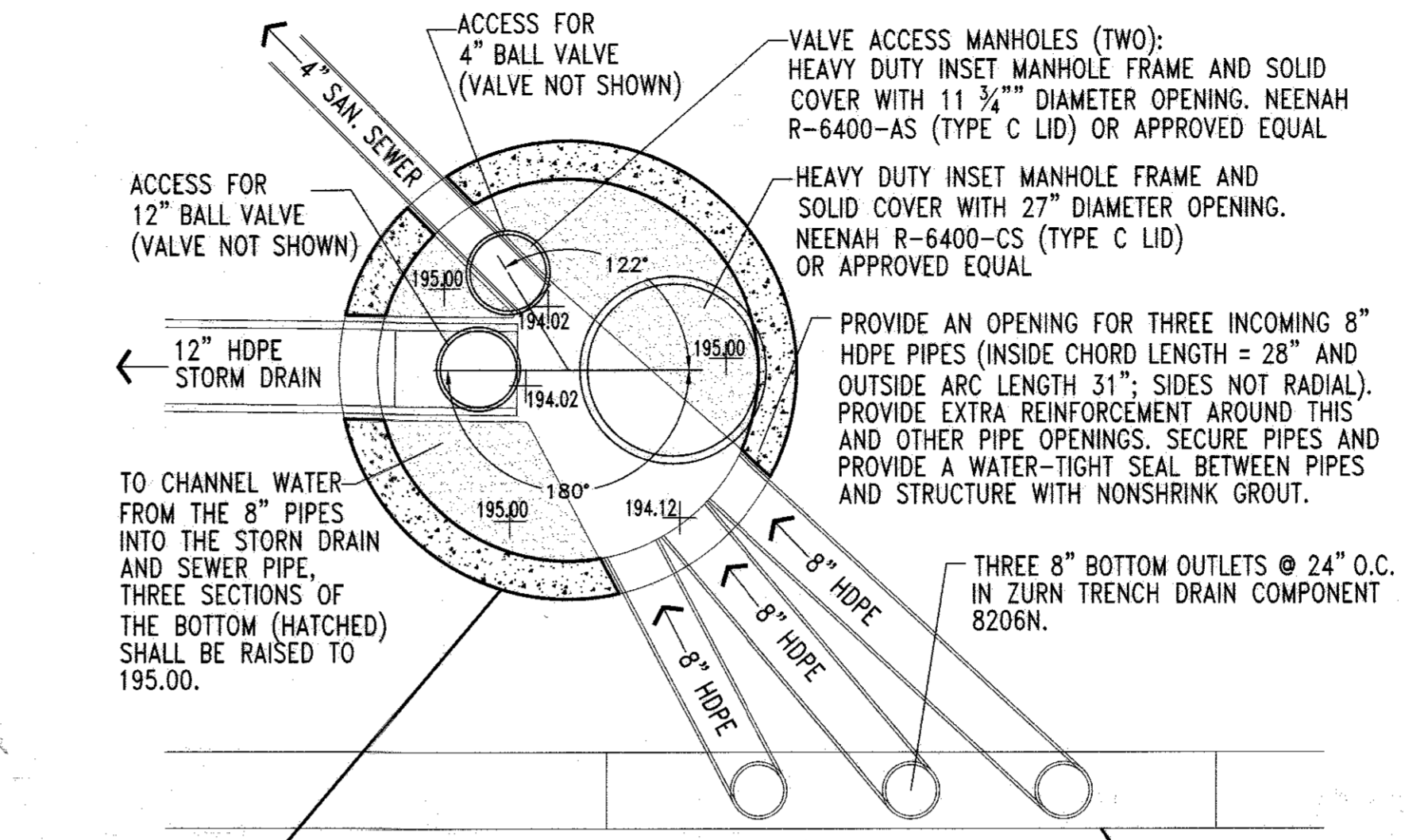
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
 Chief, Development Engineering Division
 9.16.15
 8 DATE

Chief, Division of Land Development
 10-29-15
 DATE

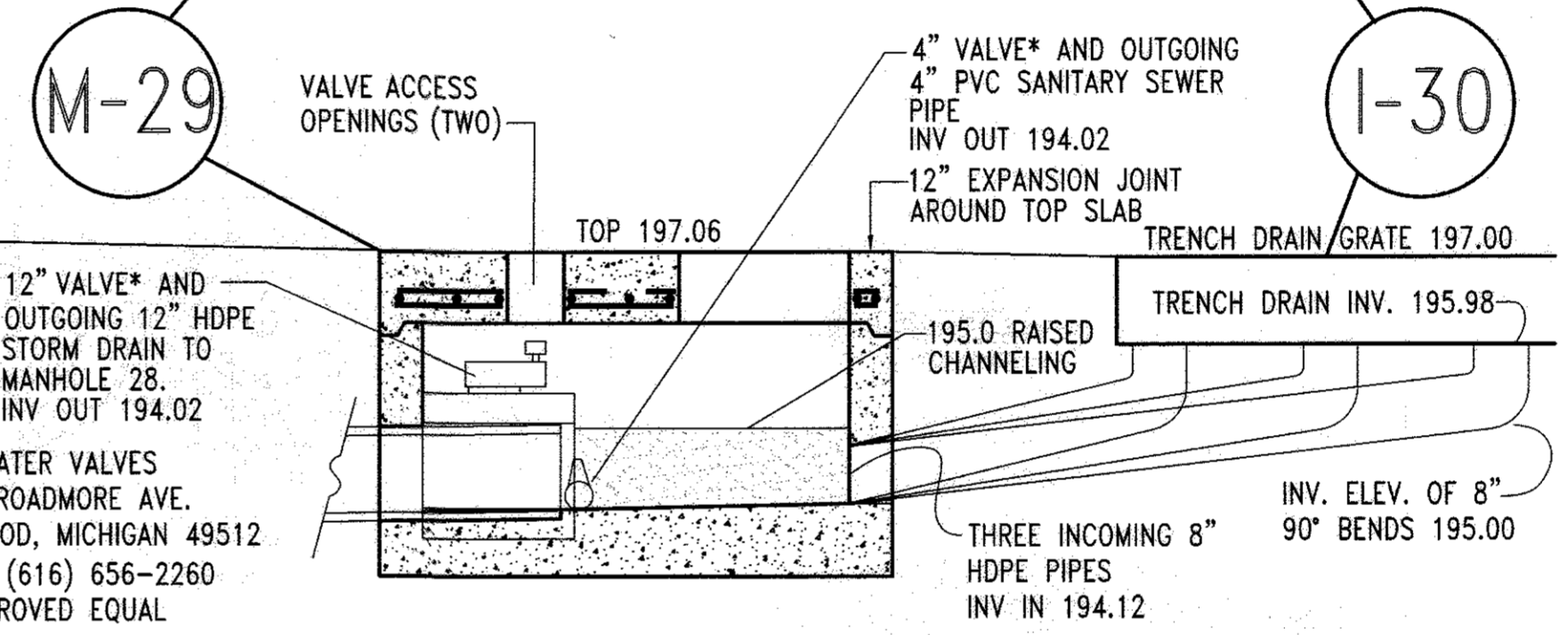
Director
 10-30-15
 DATE

No.	Description	Date
1	Delete parking spaces, access dr, service dr, rec dumpster, add traffic control plans, rec access drive from 21-21, by Sill Engineering Group	5/18/16
	Revisions	

COORDINATE THE LOCATION OF THE VALVE-ACCESS OPENINGS WITH PLACEMENT OF THE 12" AND 4" VALVES. THE SUBMITTAL FOR THE STRUCTURE AND THE VALVES SHALL BE A UNIFIED SUBMITTAL WITH DETAILED AND DIMENSIONED SHOP DRAWINGS DRAWN TO SCALE SHOWING, IN PLAN VIEW AND SECTIONS, THE ACTUAL VALVE MODELS AND THEIR LOCATIONS AND ELEVATIONS WITHIN THE STRUCTURE, THEIR RELATIONSHIP TO THE VALVE-ACCESS OPENING, AND THE PLANNED SEQUENCE OF CONSTRUCTION/INSTALLATION OF THE VALVES INTO THE INSTALLED MANHOLE.



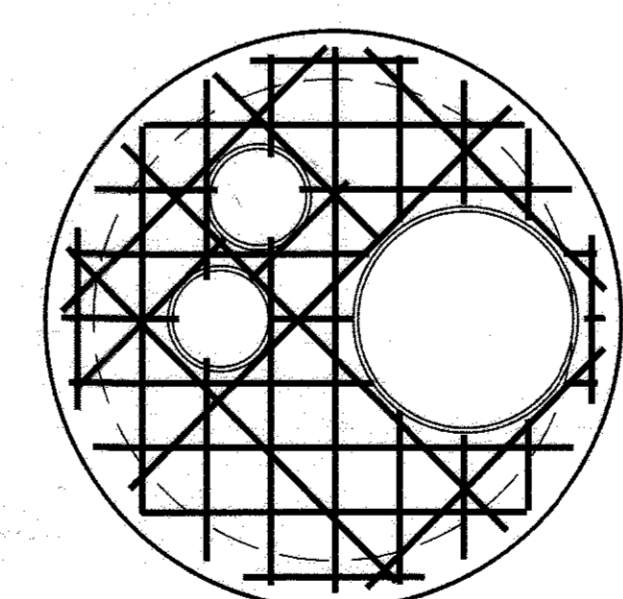
PLAN VIEW OF I-30 TO MANHOLE 29



* POLY-WATER VALVES
 4855 BROADMORE AVE.
 KENTWOOD, MICHIGAN 49512
 PHONE: (616) 656-2260
 OR APPROVED EQUAL

5' INSIDE DIAMETER SHALLOW PRECAST CONCRETE MANHOLE. THE WALLS, BASE, AND RAISED CHANNELING BOTTOM SHALL BE MONOLITHIC. WALLS SHALL BE A MINIMUM OF 6" THICK AND THE BOTTOM SLAB A MINIMUM OF 8" THICK. ALL CONCRETE SHALL BE 4,500 PSI. WALLS AND BASE (INCLUDING RAISED CHANNEL BOTTOM) SHALL BE REINFORCED (BARS OR WWF) WITH A MINIMUM OF 0.15 SQ. IN./FT. MINIMUM CIRCUMFERENTIAL REINFORCEMENT PER A.S.T.M. C 478. PROVIDE A 12" HIGH AND 30" WIDE OPENING TO RECEIVE THE THREE 8" PIPES. THE MANUFACTURER SHALL FORM MALE & FEMALE ENDS OF JOINTS FOR THE CONNECTION BETWEEN THE TOP SLAB AND WALLS USING THEIR OWN DESIGN; JOINTS SHALL BE SEALED BY CONTRACTOR AND MADE WATER-TIGHT USING MANUFACTURER'S RECOMMENDED ASTM OR AASHTO-APPROVED SEALANT.

SECTION OF I-30 TO MANHOLE 29



PLAN VIEW OF TOP SLAB

FLAT SLAB TOP. 6'-0" OUTSIDE DIAMETER X 10" THICK REINFORCED WITH #5 BARS @ 8" O.C. EACH WAY (ALL BARS SHALL BE FULL LENGTH TO SPAN THE SLAB; DO NOT JOIN CUT BARS). FOR EACH OPENING, ADD #5 BARS PLACED DIAGONALLY AROUND OPENINGS, EXTENDING THE DIAGONAL BARS THE FULL WIDTH OF THE SLAB WHERE POSSIBLE AS SHOWN IN THE "PLAN VIEW OF TOP SLAB." USE 4,500 PSI CONCRETE; MEDIUM BROOM FINISH.

INSTALL 3/8" EXPANSION JOINT AND JOINT SEALANT BETWEEN THE TOP SLAB AND THE ADJOINING CONCRETE PAVEMENT.

STORM DRAIN MANHOLE 29

Scale: 1/2" = 1'-0"

UNDER NORMAL CONDITIONS, THE VALVE TO SANITARY SEWER SHALL BE SHUT AND VALVE TO THE STORM DRAIN SHALL BE OPEN.

WHEN VEHICLES ARE BEING WASHED, THE VALVE TO THE STORM DRAIN SHALL BE SHUT AND THE VALVE TO THE SANITARY SEWER SHALL BE OPENED.

WHEN WASHING IS COMPLETE, RETURN THE VALVES TO NORMAL CONDITIONS POSITIONS.

ENGINEER
 Tesseract Sites, Inc.
 401 Washington Ave.
 Suite 305
 Towson, MD 21202
 Contact: Jeffrey Schwab
 ph: 410-321-7600
 fax: 410-321-7601

OWNER AND DEVELOPER
 Mark Stromdahl
 Howard County Maryland
 9250 Bendix Road
 Columbia, MD 21045
 ph: 410-313-5757
 email: MStromdahl@howardcountymd.gov



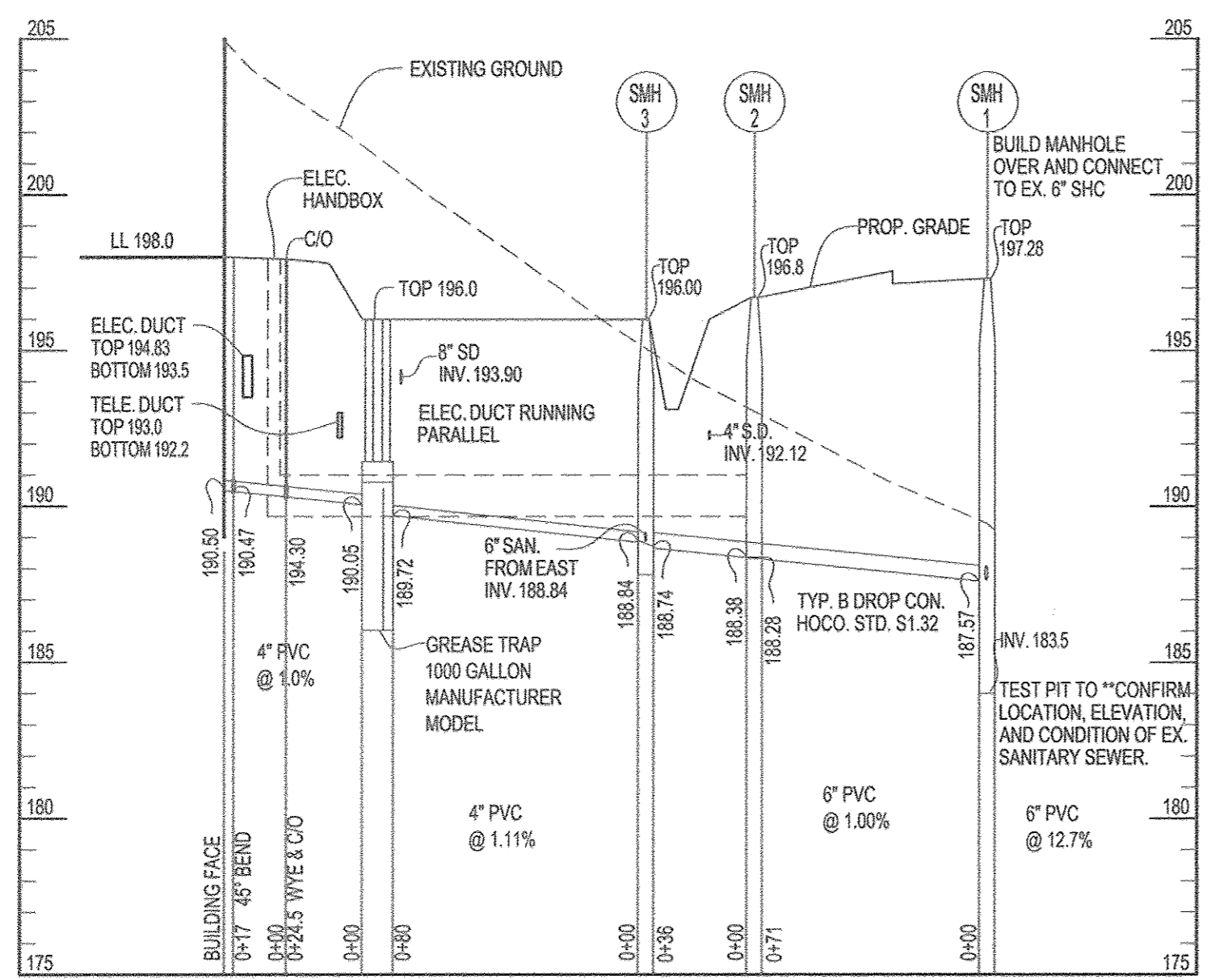
Storm Drainage Details
 Elkridge Fire Station
 Parcel A
 "Green Building"
 Howard County, Maryland

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 14230, Expiration Date: 12/09/16.

DATE	NO.	DESCRIPTION	DATE
402 403 A2	14101/512 13042/358	N/A	

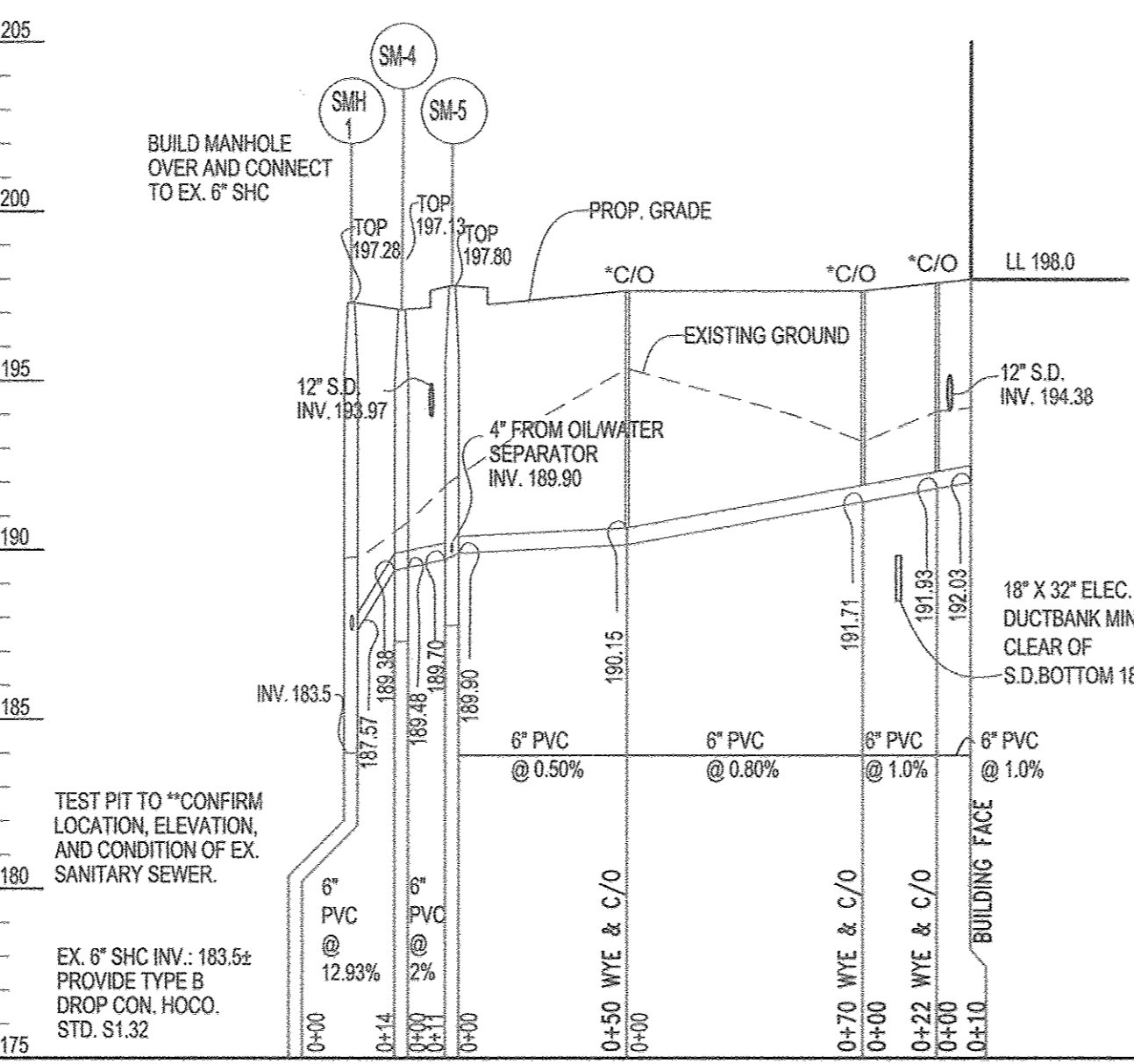
DATE	TIME	DATE/TIME	DATE/TIME
12	R-12, RA15	38	157

Date: 09/02/15
 Proj. #: 12021
 Scale: AS SHOWN



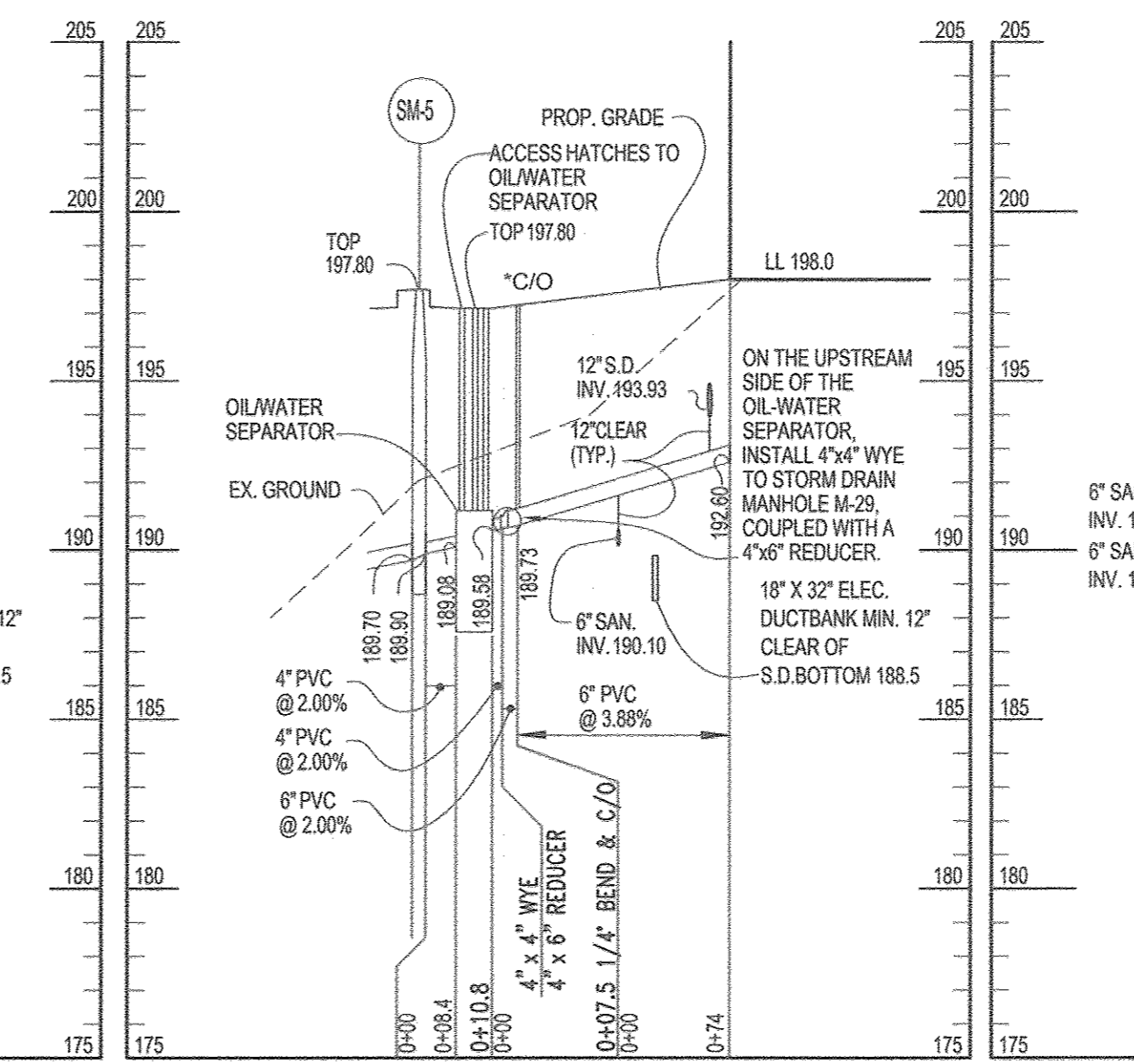
PROFILE OF SANITARY SEWER FROM SM1 TO SM3 TO WEST SIDE OF BLDG.

SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'



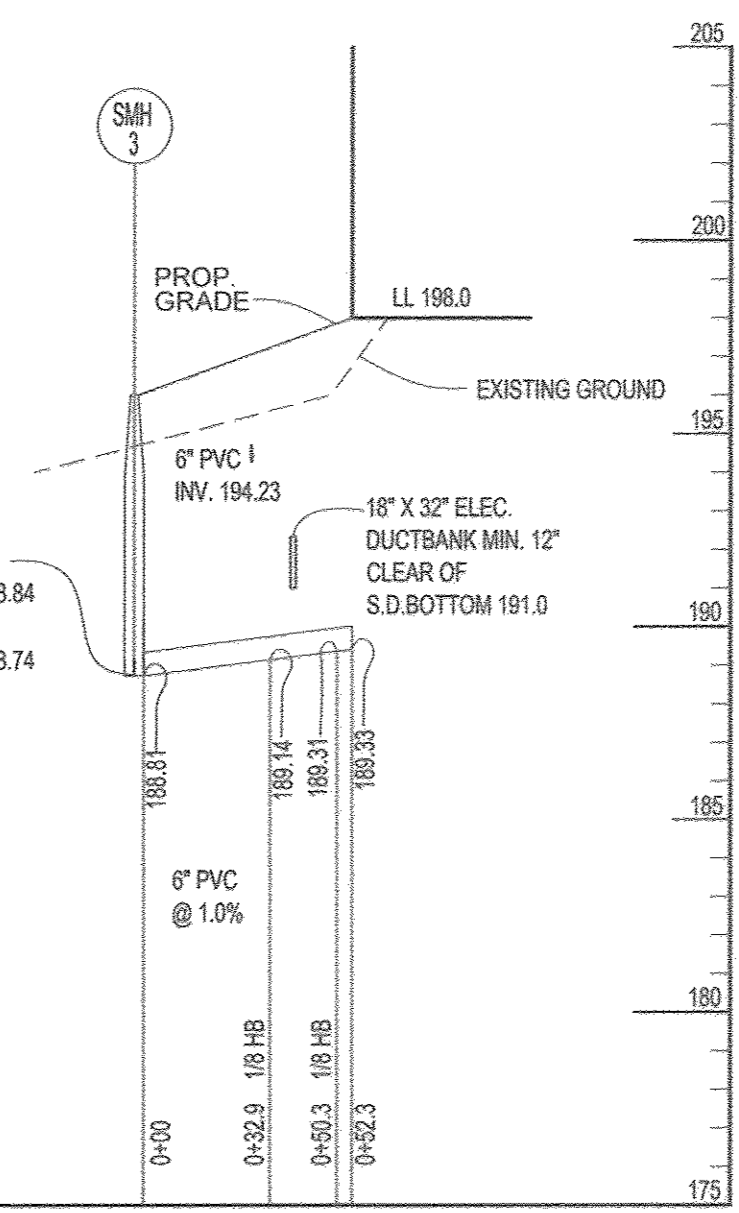
PROFILE OF SANITARY SEWER FROM SM1 TO SM5, TO SOUTHEAST BLDG CORNER.

SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'



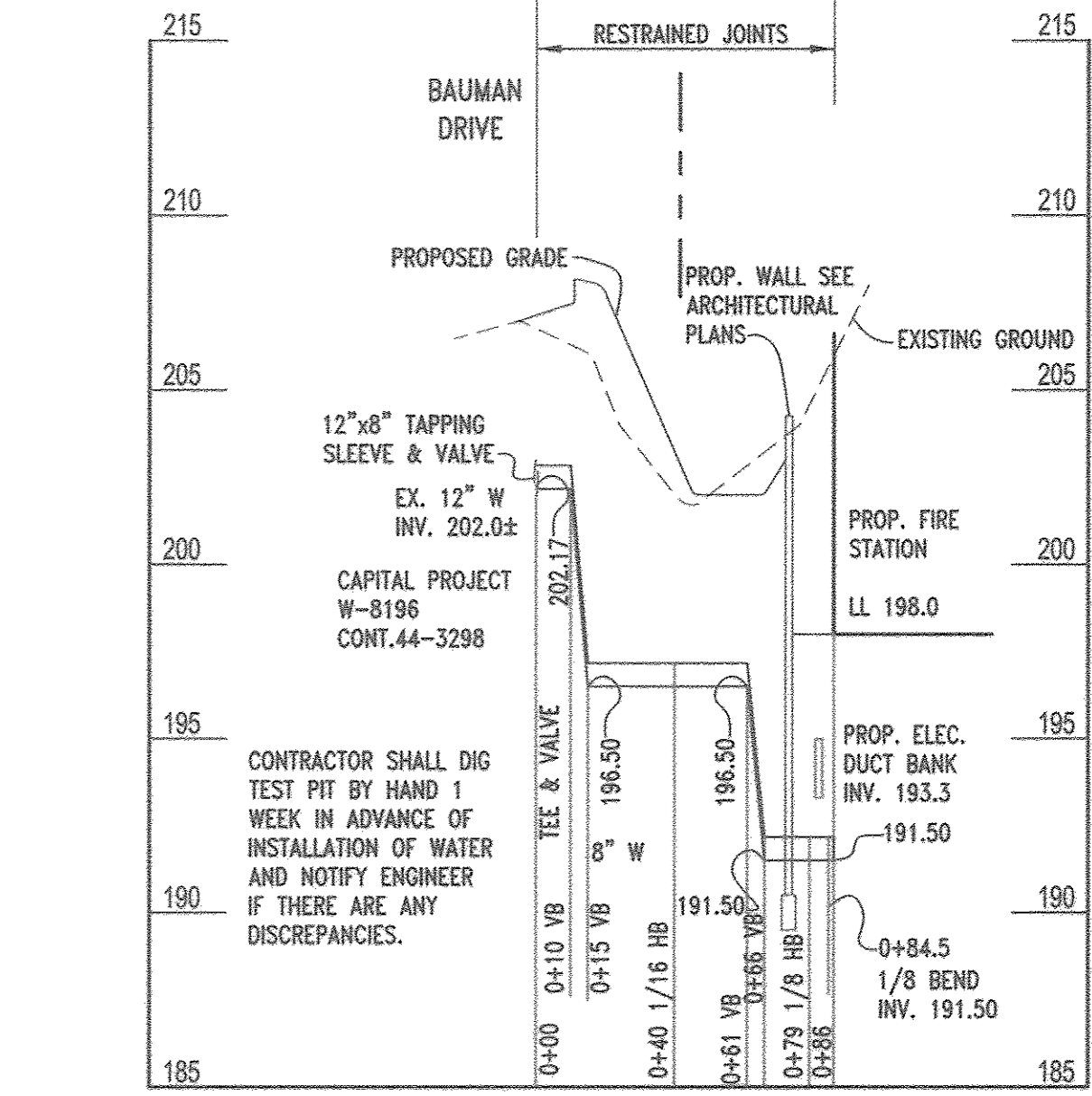
PROFILE OF SANITARY SEWER FROM SM5 TO OIL-WATER SEPARATOR TO SOUTH SIDE OF BLDG.

SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'



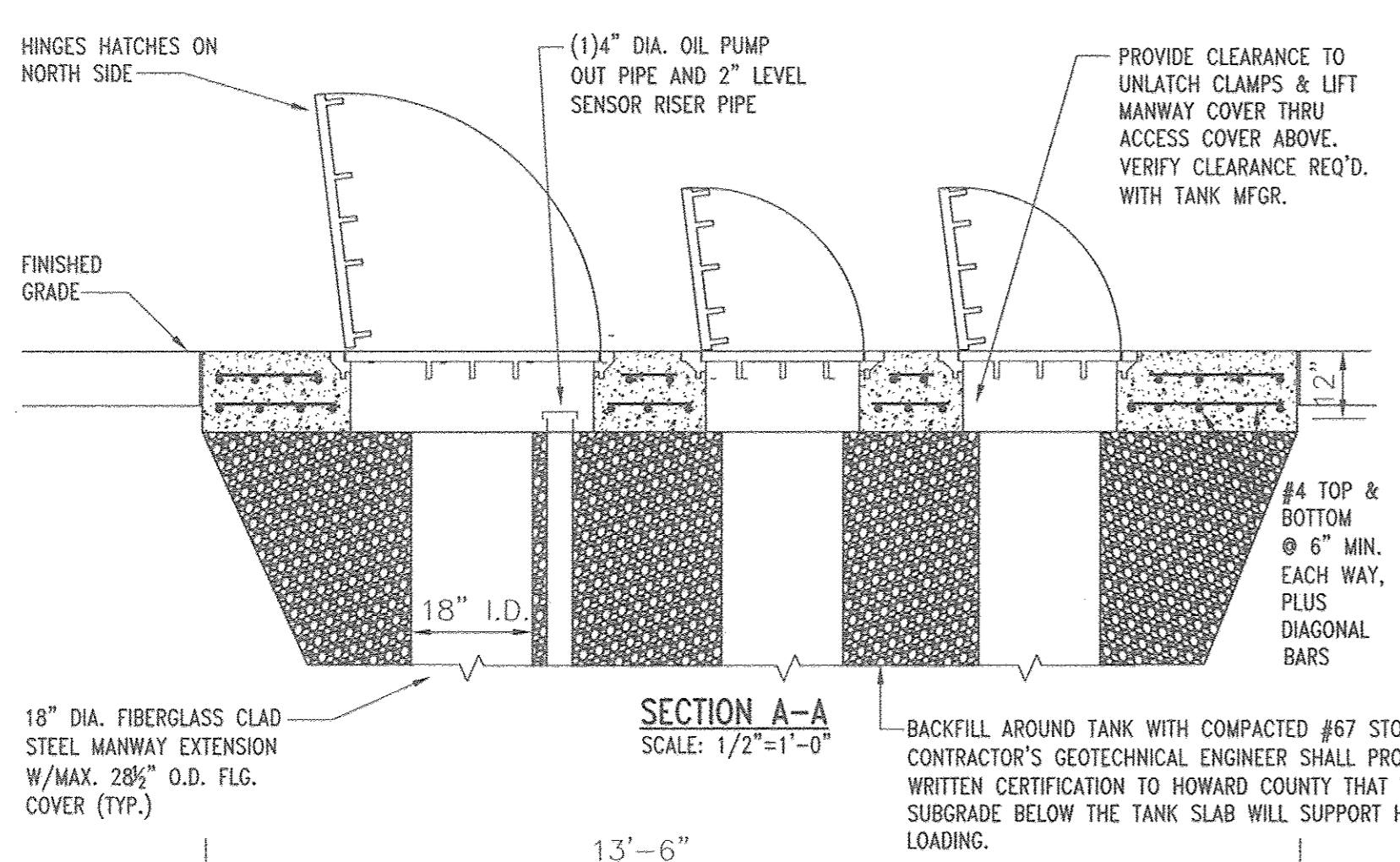
SANITARY PROFILE

SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'



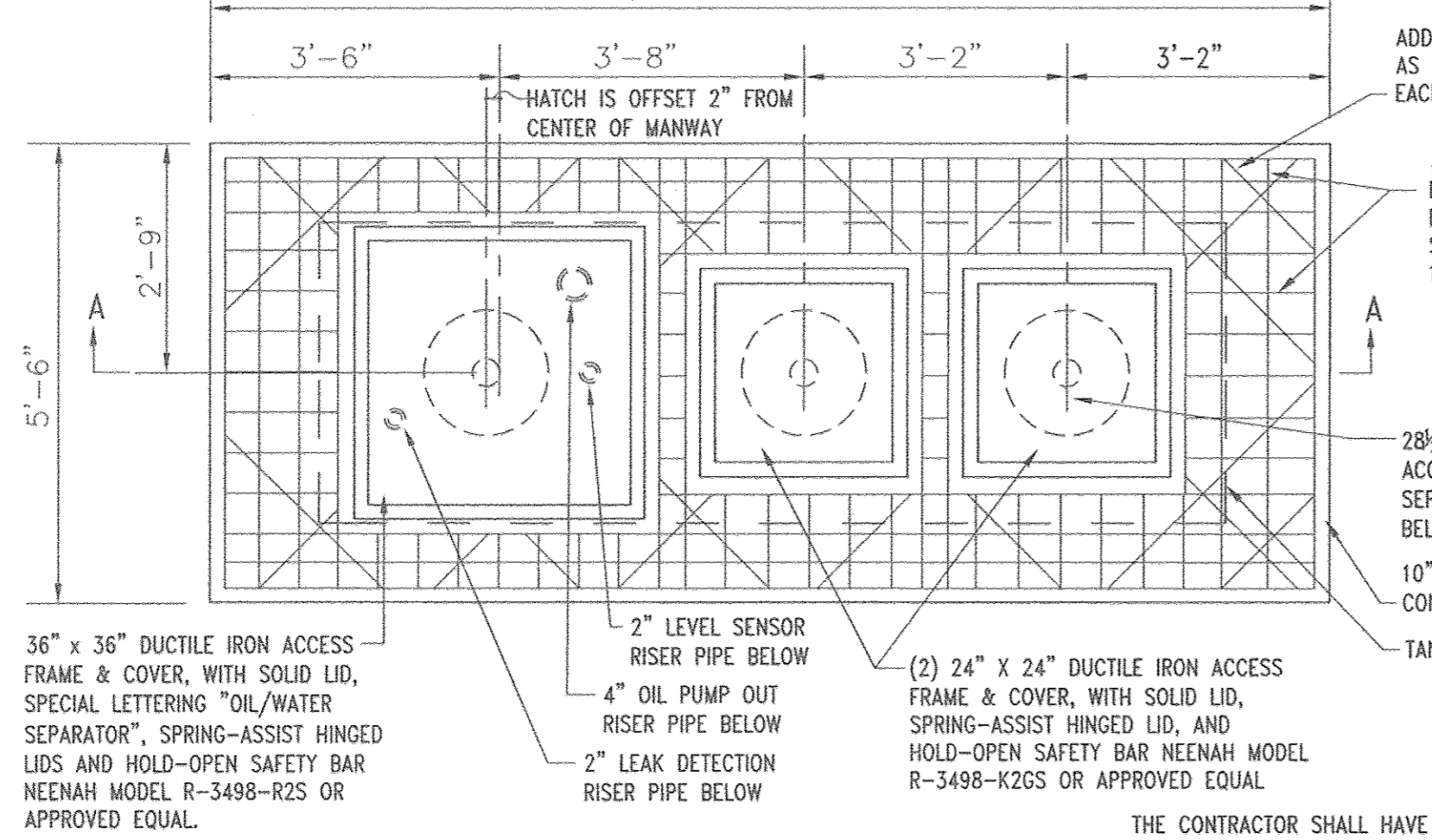
8" WHC PROFILE

SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'



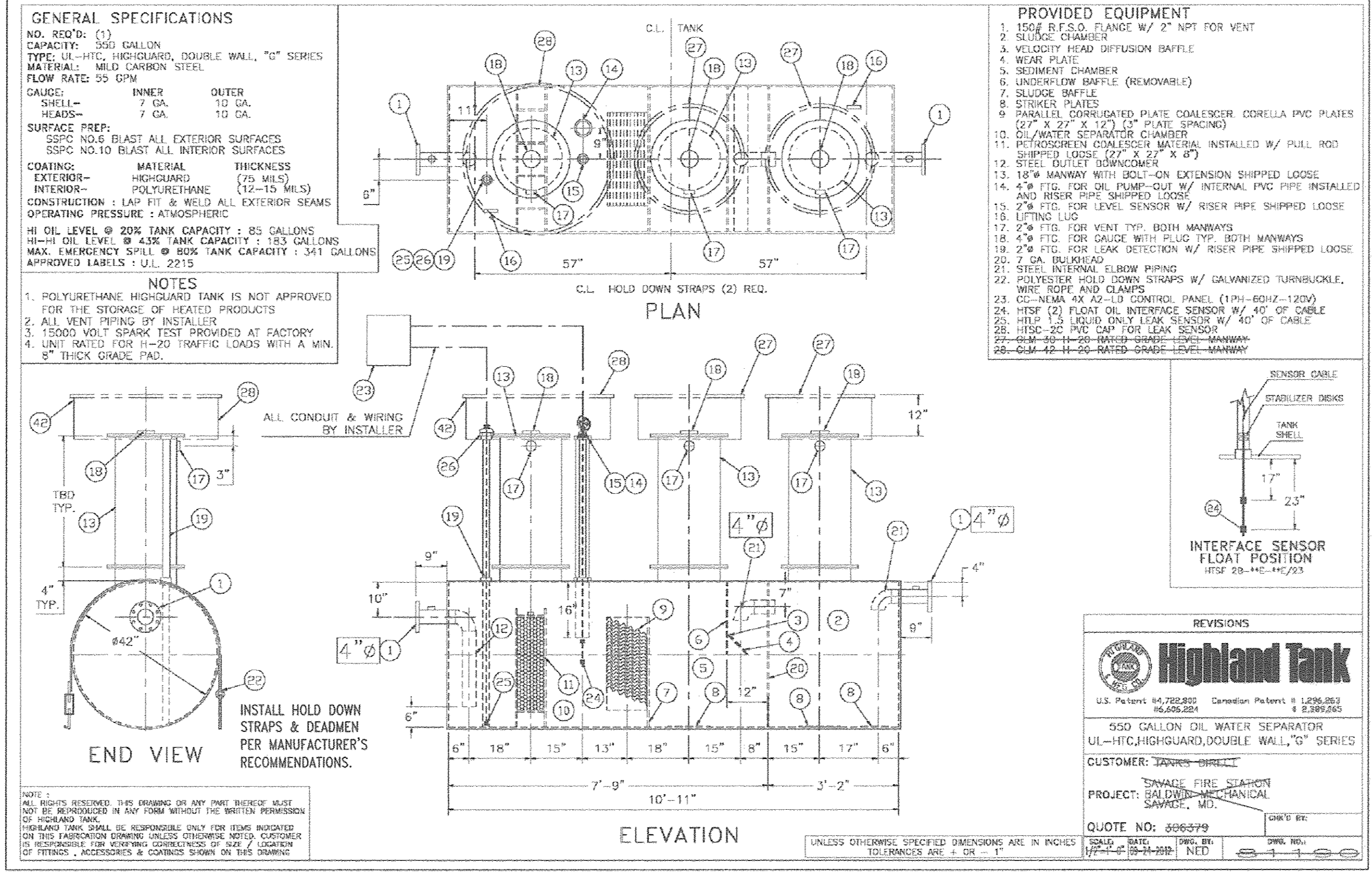
SECTION A-A

SCALE: 1/2" = 1'-0"



TOP SLAB DETAIL - PLAN VIEW

SCALE: 1/2" = 1'-0"



OIL/WATER SEPARATOR

DESIGN DATA & GENERAL NOTES

- CONCRETE STRENGTH 4000 p.s.i. @ 28 DAYS. DENSITY = 150 pcf.
- CEMENT - PORTLAND TYPE I PER ASTM C 150-02.
- AD MIXTURES & PLASTIC TAPERS PER ASTM C 260-06 & C 264-32.
- REINFORCING PER ASTM A 193, MIN. 1/2" COVER.
- TOP SLAB SEALED WITH BUTYL ROPE MASTICS.
- MAXIMUM 6" OF EARTH COVER OVER TOP SLAB.
- 4" WALLS & BASE, 6" TOP SLAB.
- DEPENDENT ON USE OF TANK INLET & OUTLET BAFFLE MAY BE REQUIRED BY CODE.

STRUCTURAL NOTES:

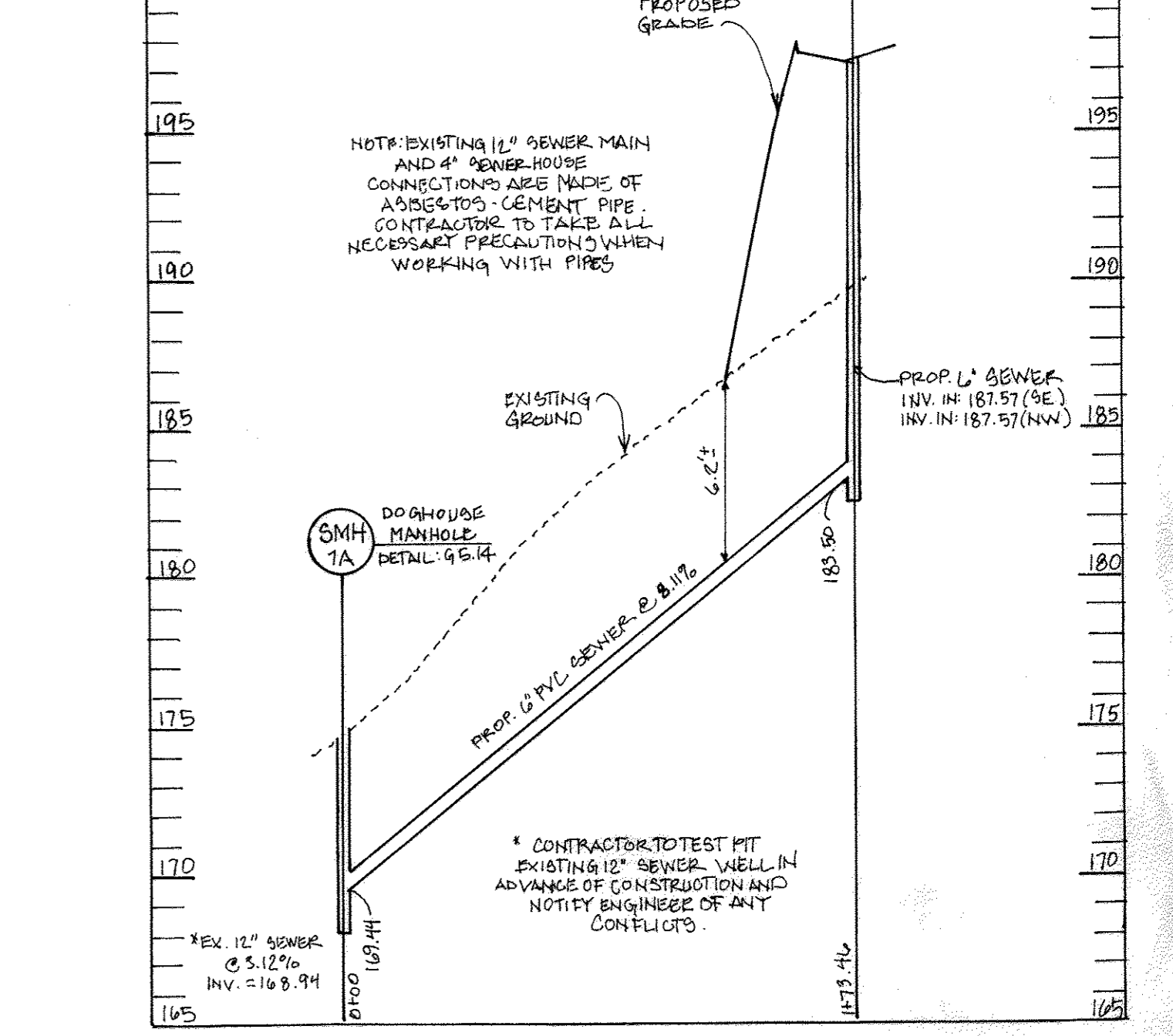
- CONCRETE SHALL BE NORMAL WEIGHT CONCRETE WITH 28 DAYS STRENGTH OF 4000 PSI.
- REINFORCING STEEL SHALL CONFORM TO ASTM A 615 GRADE 60.
- ALL STEEL REINFORCEMENT SHALL BE #4 BARS.

PLAN VIEW

SECTION A-A

1,000 GALLON TANK HEAVY-TRAFFIC RELATED - H20

GREASE TRAP



SANITARY PROFILE

SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'

PRIVATE ON-SITE WATER MAIN GENERAL NOTES:

- ALL WATER MAINS SHALL BE 3" OR 4" UNLESS OTHERWISE NOTED.
- TOPS OF ALL WATER MAINS SHALL HAVE A MINIMUM OF 5' OF COVER UNLESS OTHERWISE NOTED.
- VALVES AND FITTINGS TO BE INSTALLED SHALL BE STRAPPED TO TIES.
- ALL PIPES AND FITTINGS SHALL HAVE RESTRAINED JOINTS, TYP.
- THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING PUBLIC WATER SYSTEM.
- ALL WATER MAIN CONNECTIONS SHALL BE FOR IN-SIDE METER SETTING UNLESS OTHERWISE NOTED ON THE DRAWINGS OR IN THE SPECIFICATIONS.

ENGINEER SILL ENGINEERING GROUP, LLC
HOWARD COUNTY, MARYLAND
11130 DOVEDALE COURT, SUITE 200
MARRIOTTSVILLE, MARYLAND 21104
OFFICE: 410-325-5057
FAX: 410-696-2022
EMAIL: PAUL@SILLENGINEERING.COM

OWNER/DEVELOPER MARK STROMDAHL
HOWARD COUNTY, MARYLAND
8250 BENDIX ROAD
COLUMBIA, MD 21045
PHONE: 410-313-5757
EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV

REVISED SANITARY DETAILS & PROFILES

ELKCRIDGE FIRE STATION

PARCEL A "GREEN BUILDING"
TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

DESIGN BY: JS
DRAWN BY: AEA
CHECKED BY: PS
SCALE: AS SHOWN
DATE: SEPTEMBER 28, 2018
PROJECT #: 16-020
SHEET #: 32 OF 41

SILL ENGINEERING GROUP, LLC
11130 Dovedale Court, Suite 200
Marriottsville, Maryland 21104
Phone: 410-325-5076
Fax: 410-696-2022
Email: info@sillengineering.com
Civil Engineering for Land Development

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 20025, EXPIRATION DATE: JUNE 30, 2017.

NO.	DESCRIPTION	DATE
2	REPLACE EXISTING SEWER LINE	11/01/2017
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	09/28/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Old Ed... 9-30-16
K... 9-30-16
W... 10-3-16

RIGHT SIDE OF ROADWAY

LEFT SIDE OF ROADWAY

NOTES

- TYPE 'B' OR 'C' REFLECTIVE SHEETING, 4" STRIPES, BLACK ON FLUORESCENT YELLOW, ORANGE BROWN THROUGH HOLES AT 90 DEGREE ANGLE.
- WHEN PLACING SHEETING ON DARK METAL, METAL SHOULD BE CLEANED BY PROHIBITIVE RECOMMENDATIONS PRIOR TO APPLICATION OF SHEETING.
- SHEETING SHOULD BE LEFT TO TOP AND BOTTOM AND FULL WIDTH OF TERMINAL. 5/16" GAPS ARE ALLOWED AT NECESSARY TO FIT DIFFERENT MANUFACTURERS' TERMINALS.
- REFER TO APPROPRIATE AASHTO STANDARD FOR DETAILS ASSOCIATED WITH SPECIFIC TRAFFIC BARRIER END TREATMENT.
- SEE SPECIFICATION FOR INSTALLATION TO THE APPROPRIATE TRAFFIC BARRIER END TREATMENT.

SPECIFICATION	CATEGORY CODE	STANDARD NO.
605	MD 605.02-01	MD 605.02-01

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
TYPE 'B' AND TYPE 'C' TRAFFIC BARRIER END TREATMENT DELINEATION

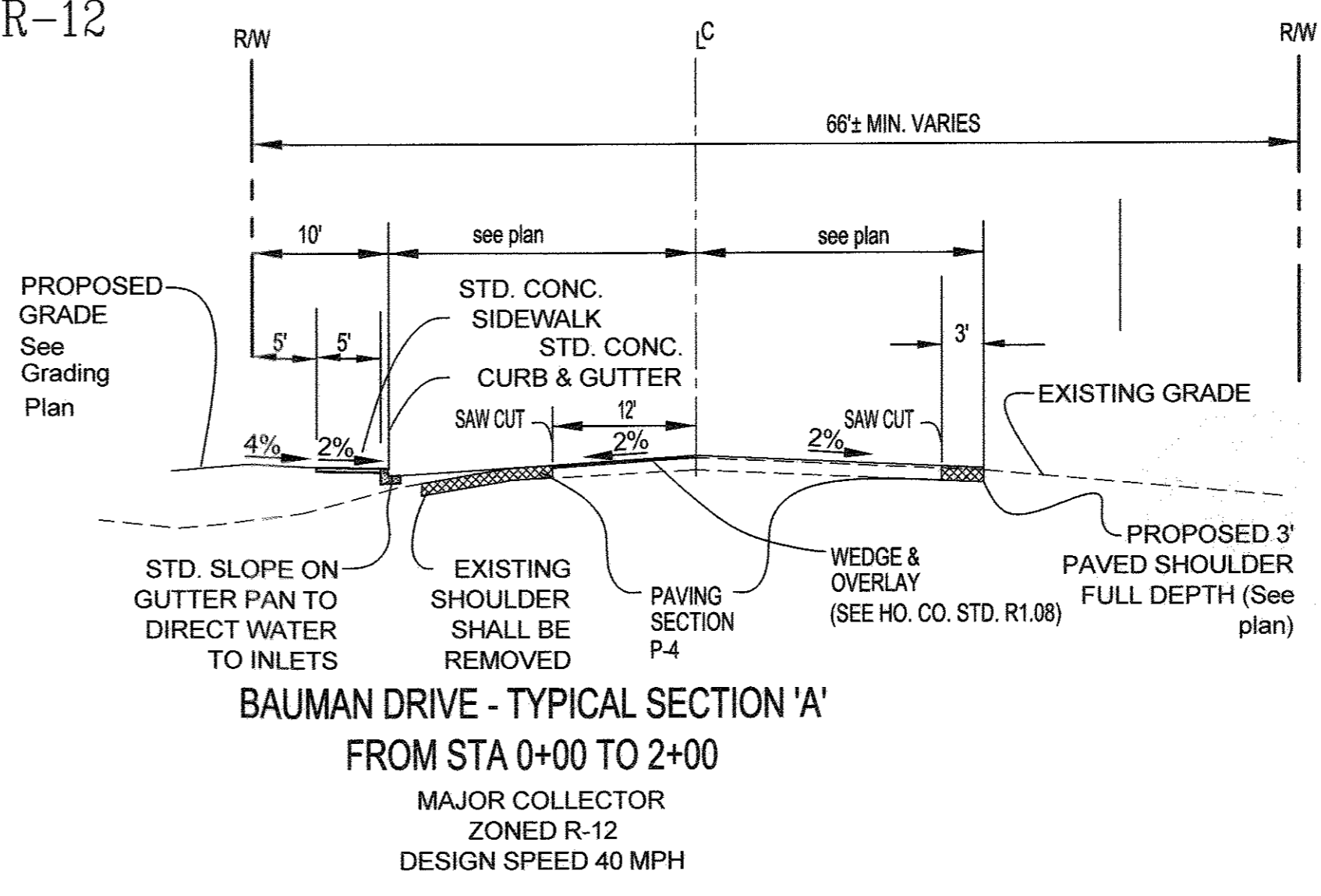
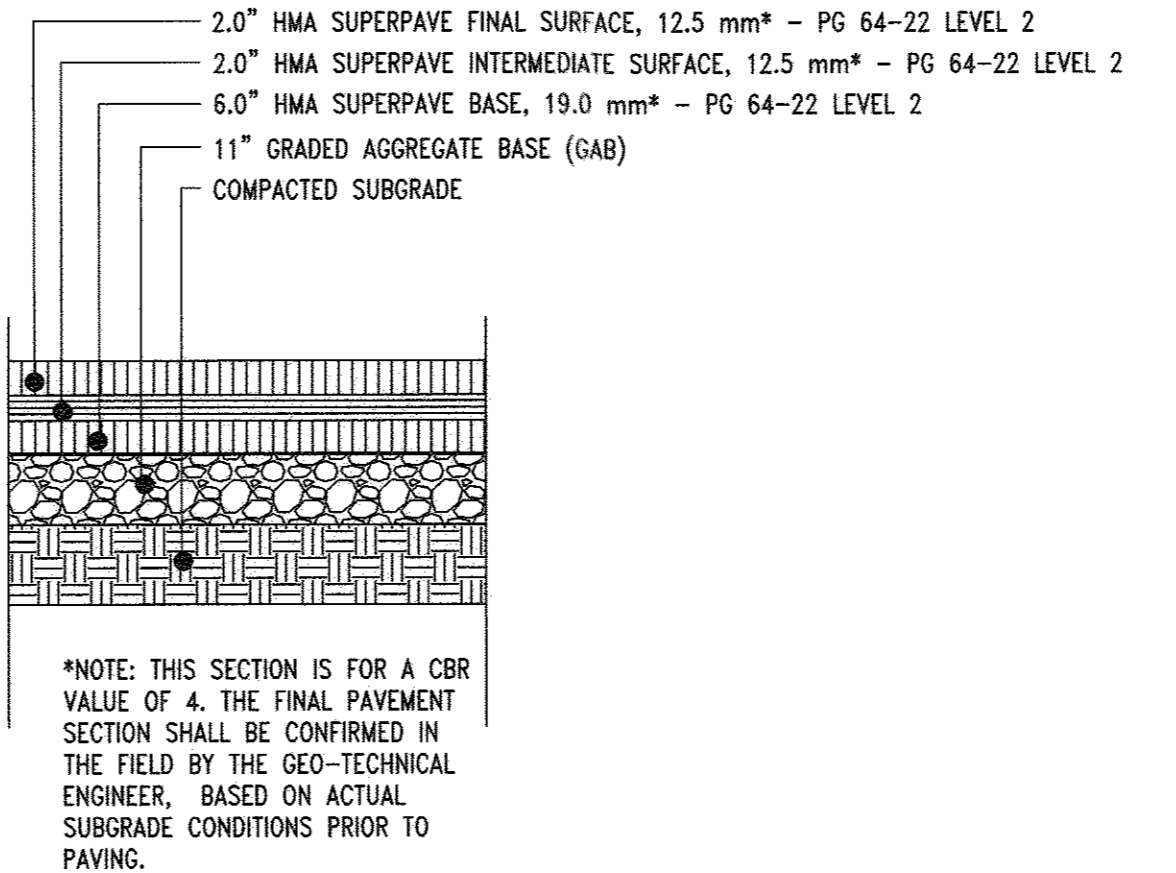
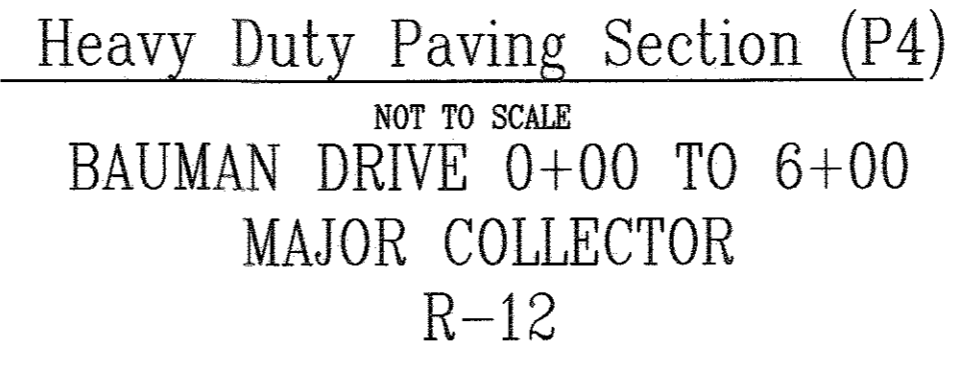
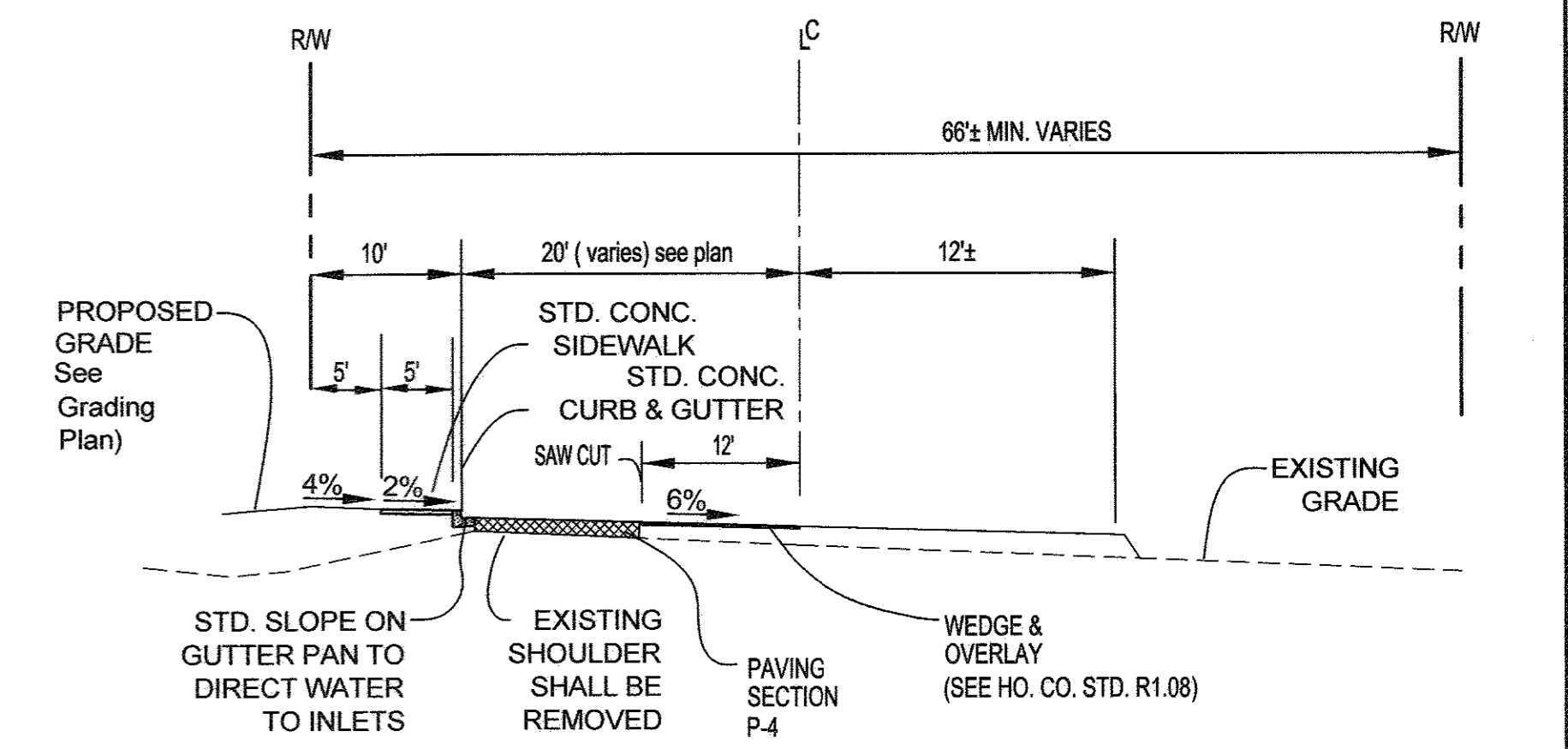
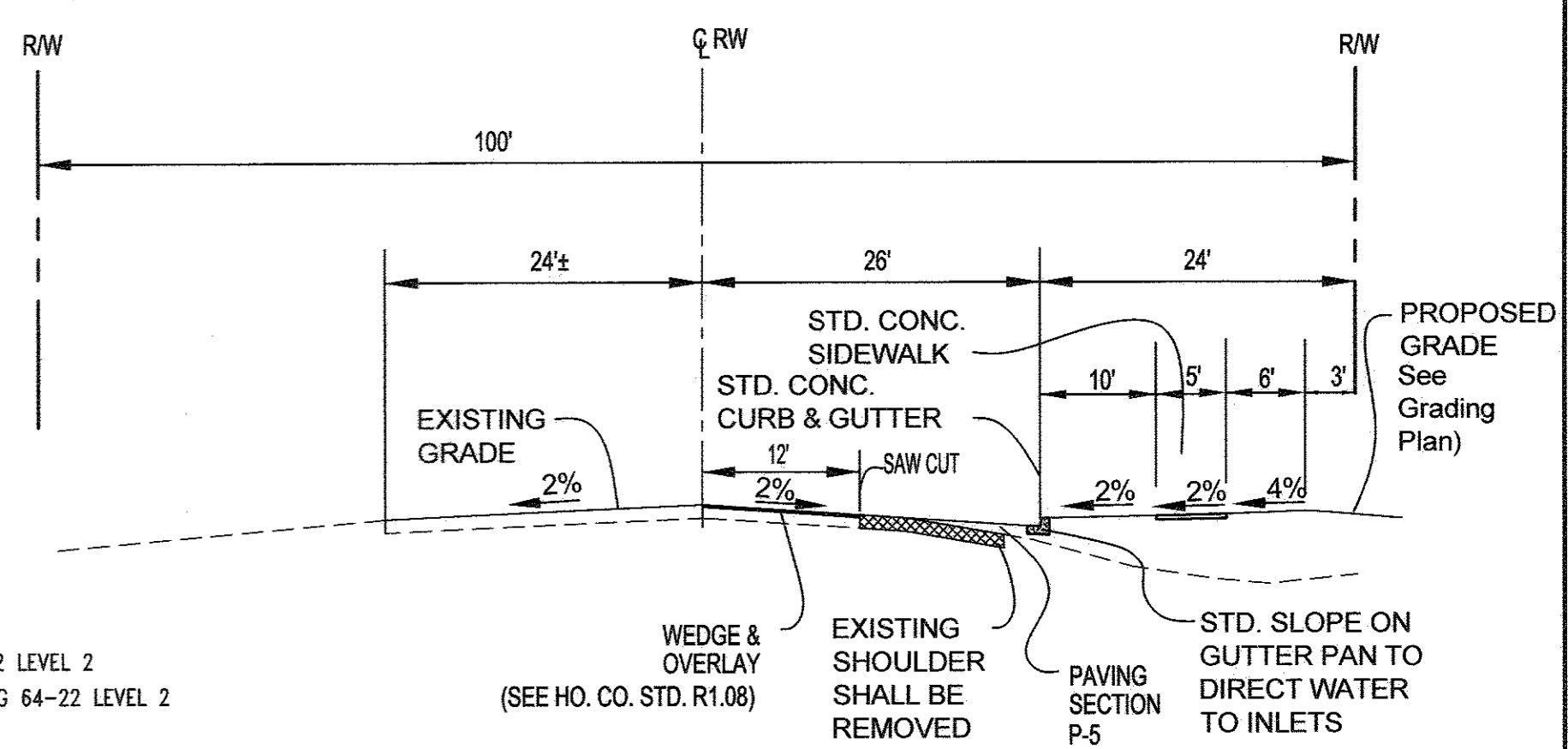
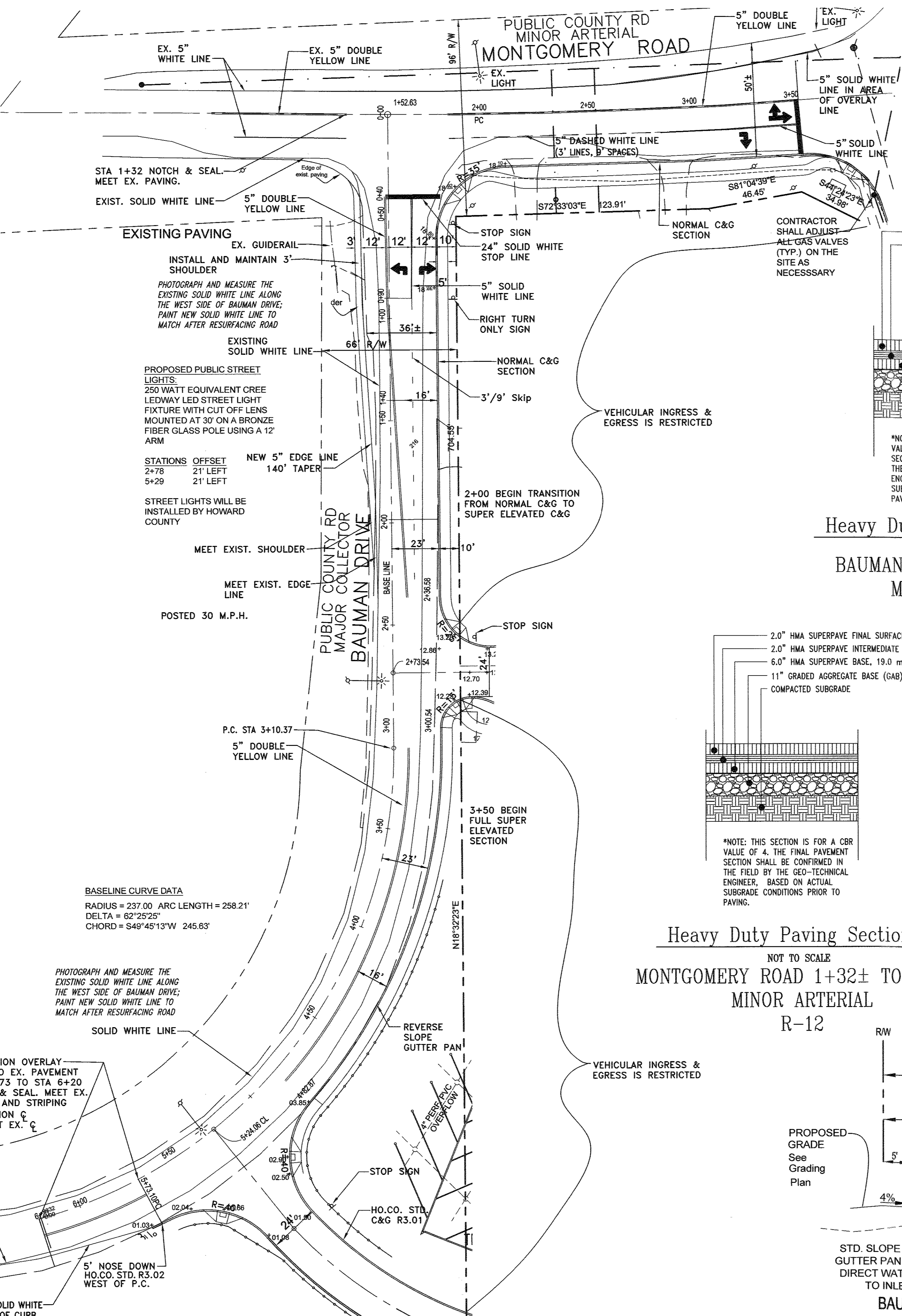
SECTION A-A

NOTES

- ALL TYPE 'C' TERMINALS
- 5/16" MAX GRADING IS ALLOWABLE WITH THE BARRIER IS LOCATED TO 1 FT. OR MORE FROM THE OUTSIDE EDGE OF SHOULDER.
- FROM THE TRAFFIC BARRIER TO 15 FEET LESS THAN 4' FROM THE EDGE OF SHOULDER/PAVEMENT THE END TREATMENT SHALL BE PLACED AT A RATE OF 50:1.
- SHOULDER SHALL BE 15 FEET MIN. WIDE.
- END TREATMENT DELINEATION SHALL BE PLACED IN ACCORDANCE WITH STD. NO. 605.02-01.

SPECIFICATION	CATEGORY CODE	STANDARD NO.
605	MD 605.03	MD 605.03

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
TYPE 'C' TRAFFIC BARRIER END TREATMENT



ENGINEER
SILL ENGINEERING GROUP, LLC
HOWARD COUNTY, MARYLAND
11130 DOVEDALE COURT, SUITE 200
MARRIOTTSTOWN, MARYLAND 21104
OFFICE: 443-325-5067
FAX: 410-696-2022
EMAIL: PAUL@SILLENGINEERING.COM

OWNER/DEVELOPER
MARK STROMDAHL
HOWARD COUNTY, MARYLAND
9250 BENDIX ROAD
COLUMBIA, MD 21045
PHONE: 410-313-5757
EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV

REVISED SITE AND LAYOUT PLAN NORTH
ELKRIDGE FIRE STATION
PARCEL A
"GREEN BUILDING"

TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

SILL ENGINEERING GROUP, LLC
11130 Dovedale Court, Suite 200
Marrriottsville, Maryland 21104
Phone: 443.325.5076
Fax: 410.696.2022
Email: info@sillengineering.com
Civil Engineering for Land Development

DESIGN BY: JS
DRAWN BY: AEA
CHECKED BY: PS
SCALE: 1"=30'
DATE: SEPTEMBER 28, 2016
PROJECT #: 16-020
SHEET #: 33 of 41

PROFESSIONAL CERTIFICATION: 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. 32026, EXPIRATION DATE: JUNE 20, 2017

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AMB-ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	09/29/2016

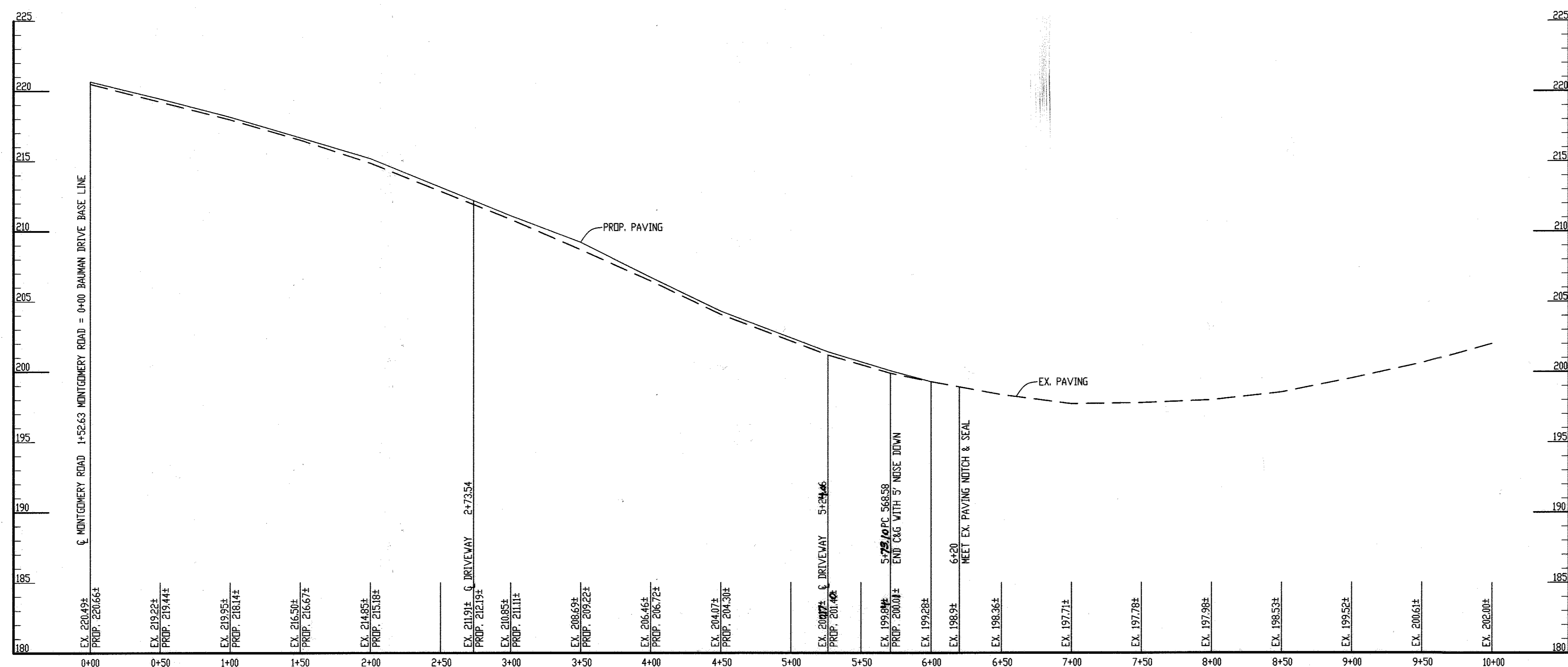
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Paul Chubb 9-30-16
CHIEF, DEVELOPMENT ENGINEERING DIVISION 1 DATE

Walter D. Smith 9-30-16
CHIEF, DIVISION OF LAND DEVELOPMENT 1A DATE

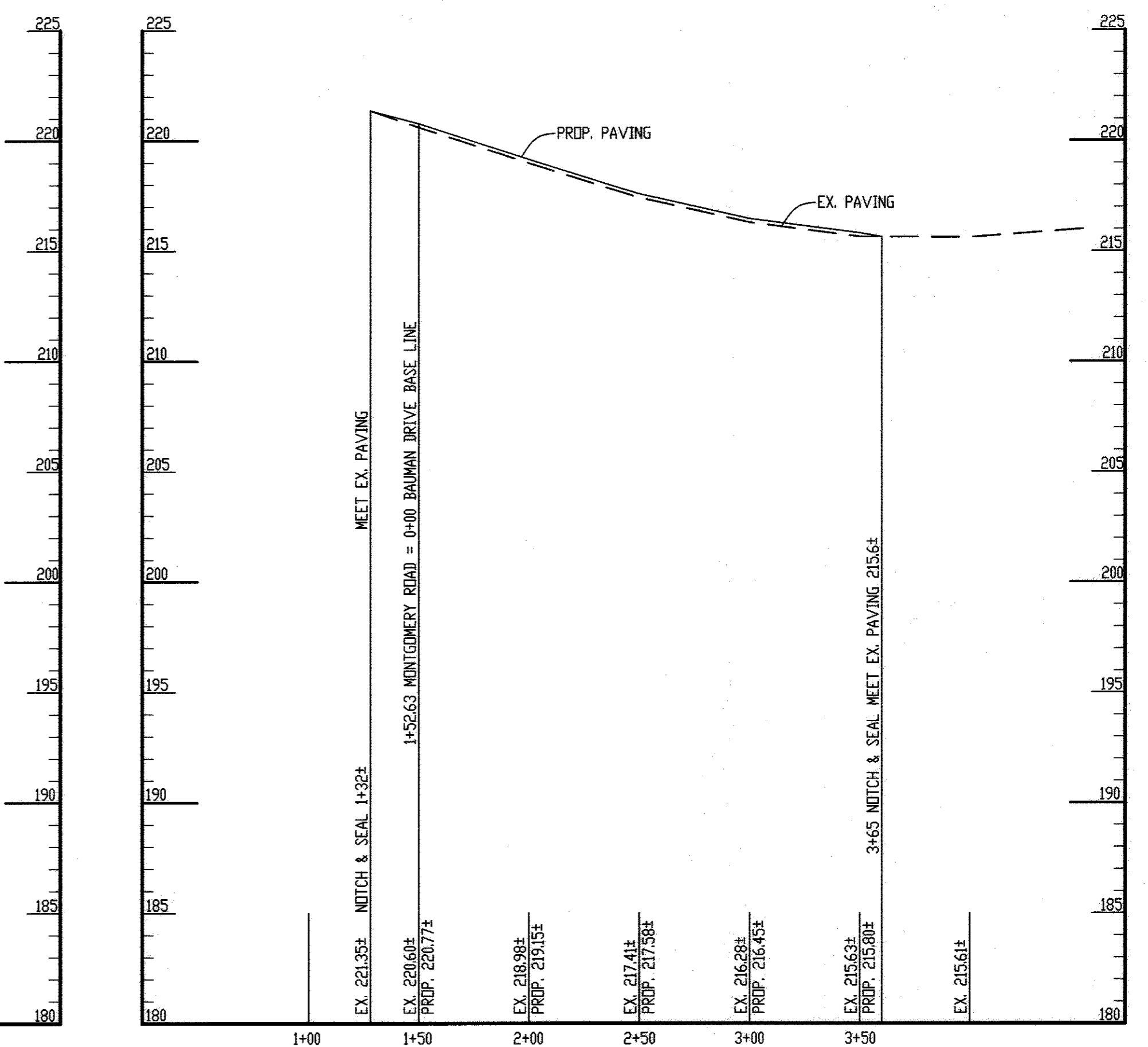
Walter D. Smith 10-3-16
DIRECTOR DATE

Road Striping Plan
SCALE: 1"=30'



CENTERLINE PROFILE BAUMAN DRIVE

SCALE: HORIZ. 1" = 50'
 VERT. 1" = 5'
 MAJOR COLLECTOR
 ZONED R-12
 DESIGN SPEED 40 MPH

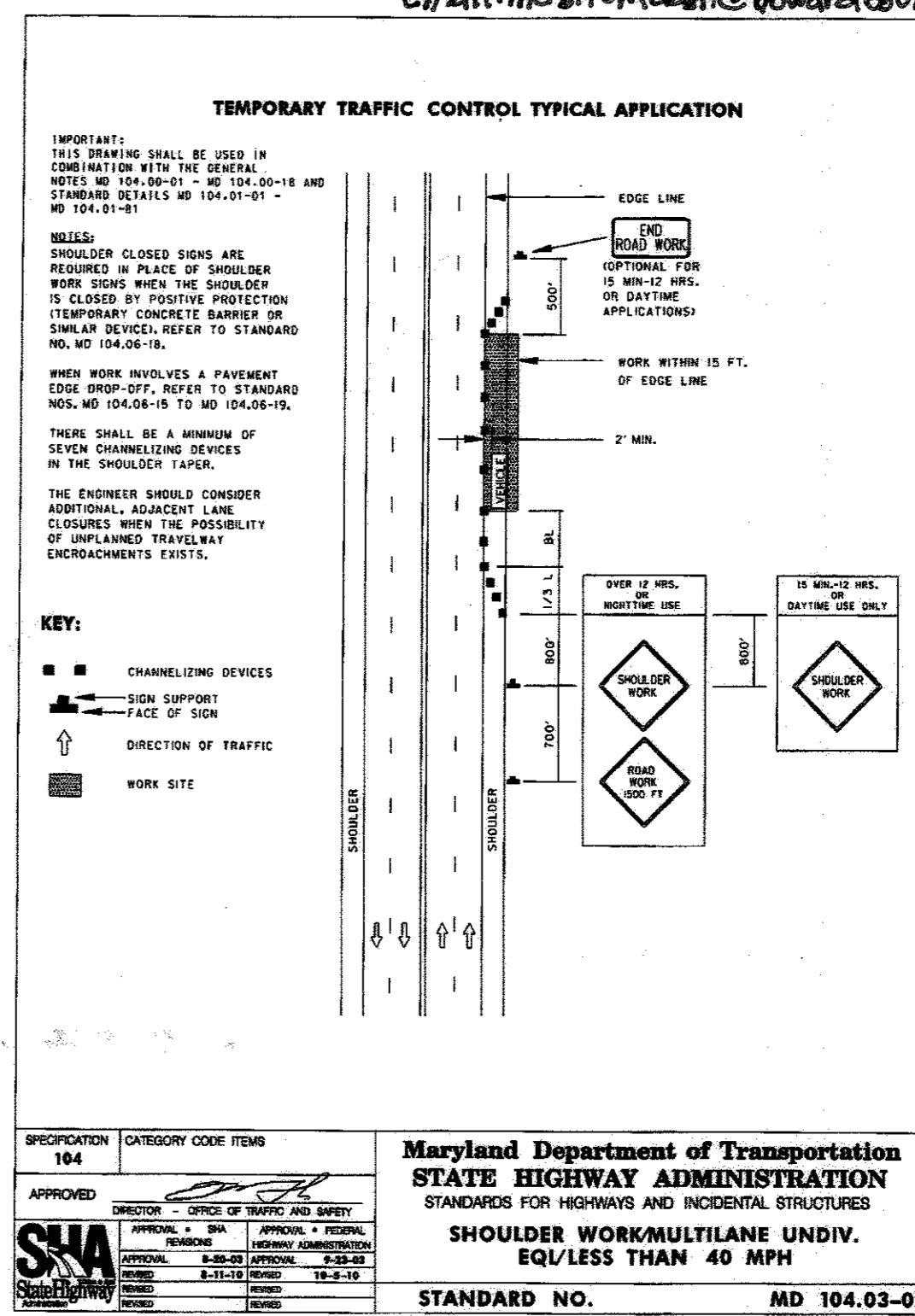
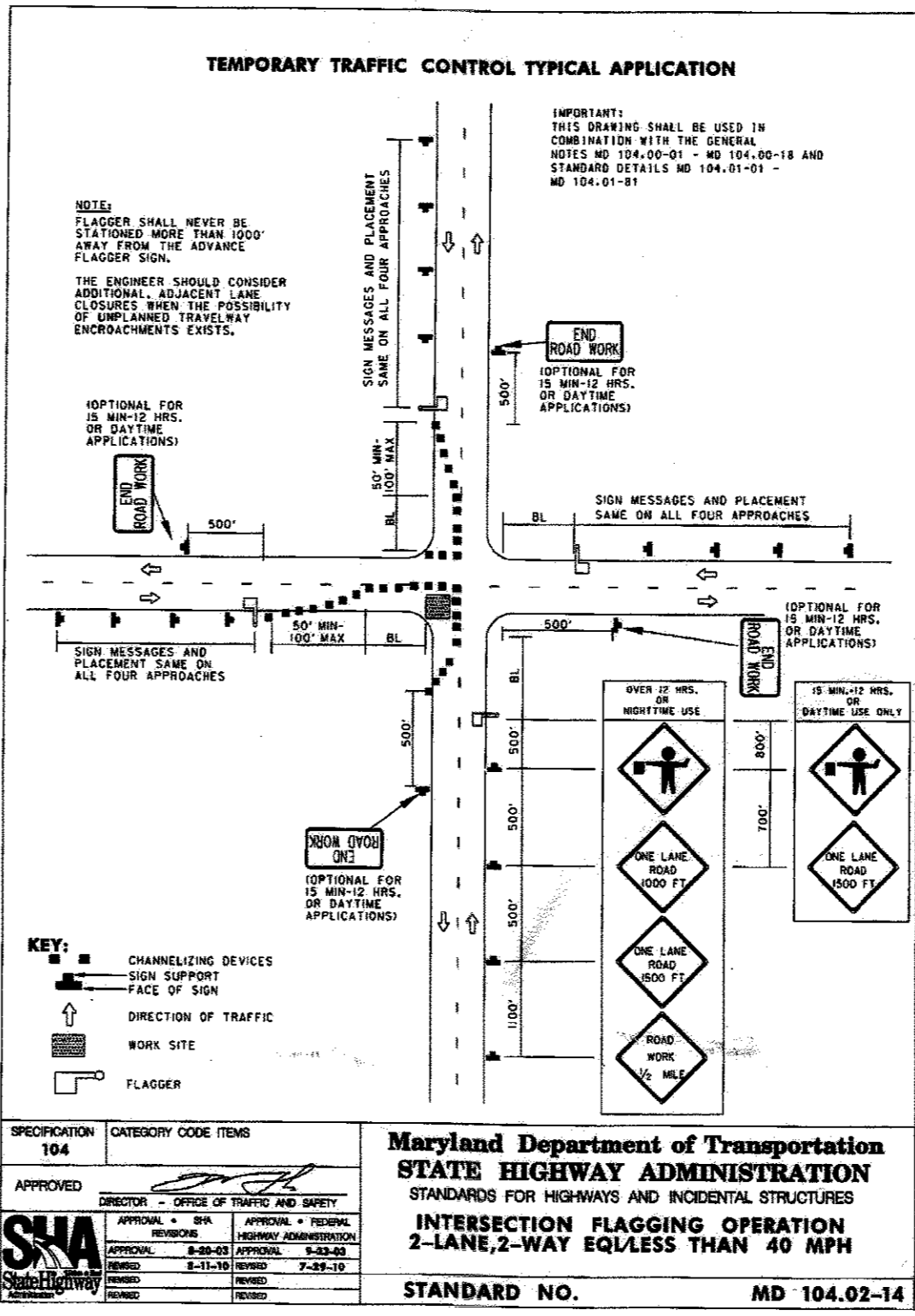
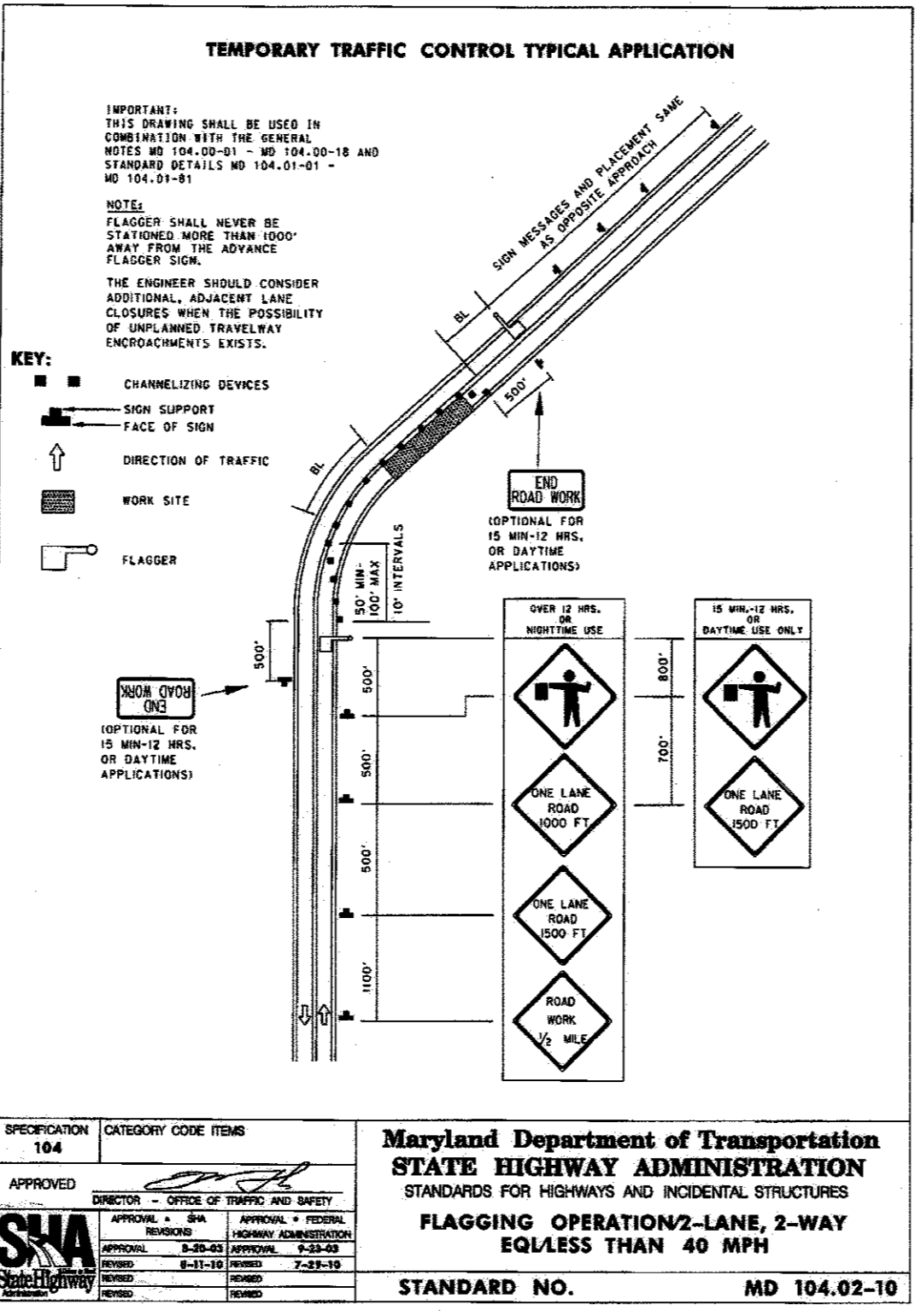
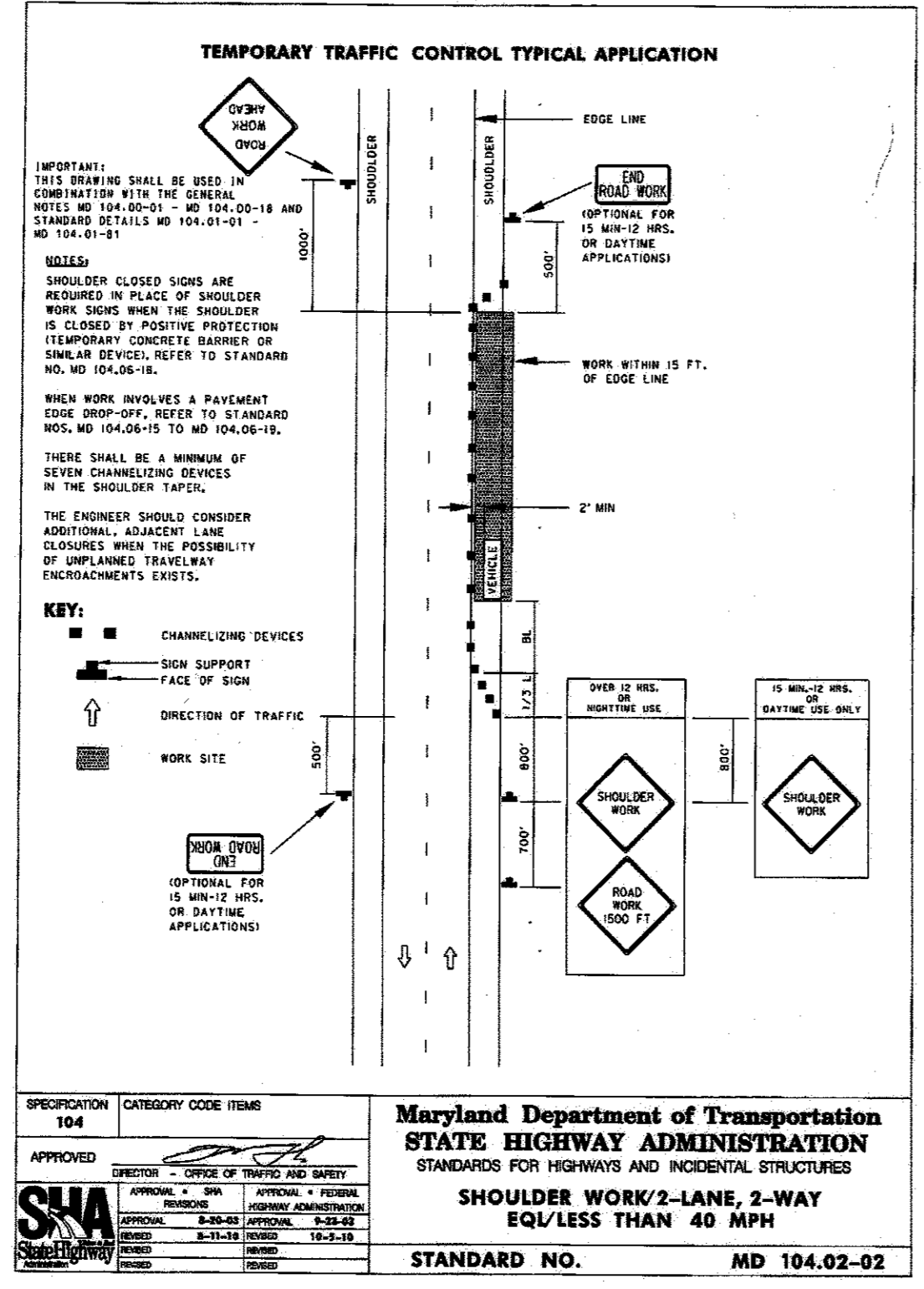
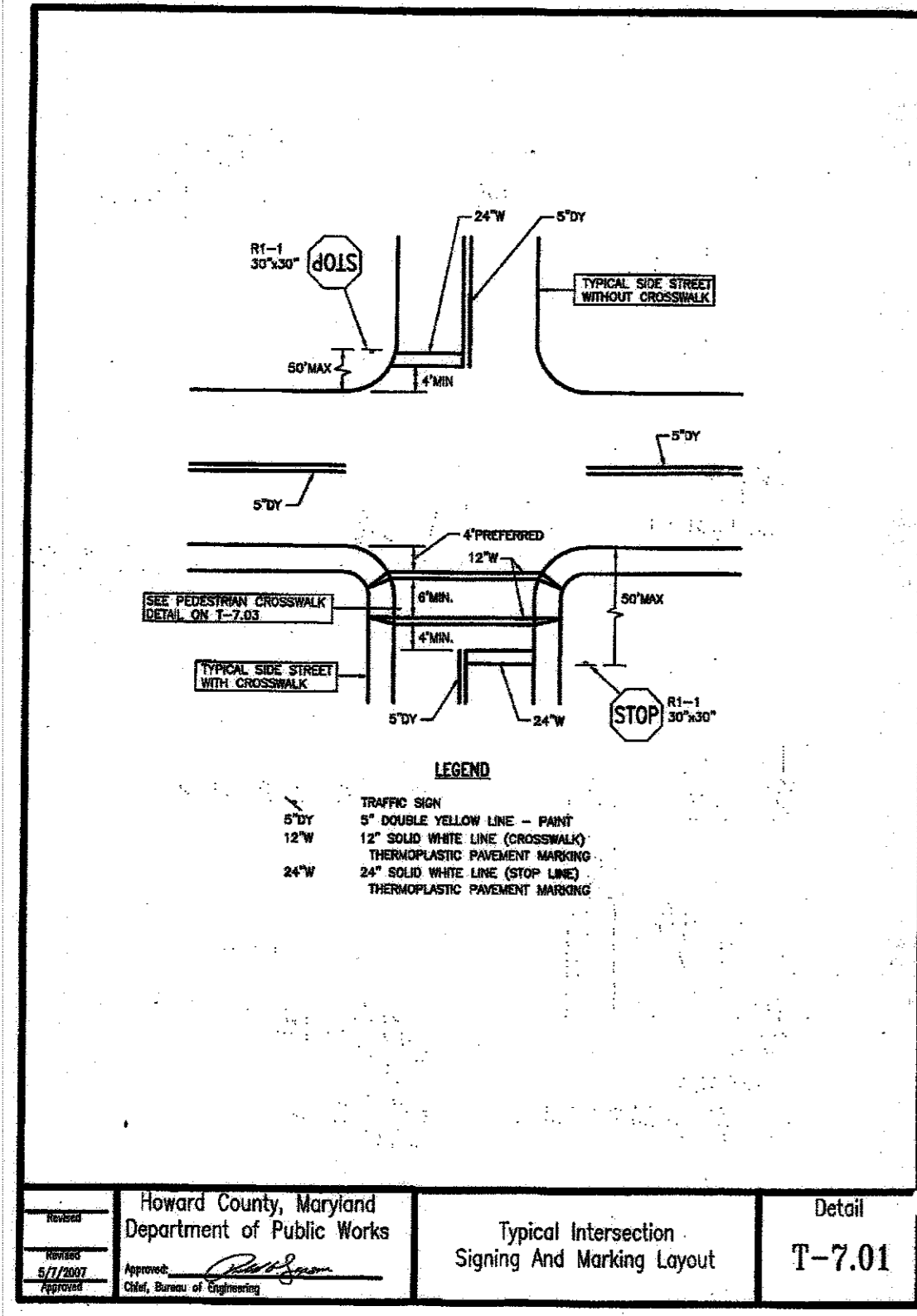


CENTERLINE PROFILE MONTGOMERY ROAD

SCALE: HORIZ. 1" = 50'
 VERT. 1" = 5'
 MINOR ARTERIAL
 ZONED R-12
 DESIGN SPEED 40 MPH

OWNER/DEVELOPER
 Mark Stronach
 Howard County, MD
 2250 Bendix Rd.
 Columbia, MD 21045
 Phone: 410-343-5757
 Email: mstronach@howardcountymd.gov

ENGINEER
 Sill Engineering Group, LLC
 Howard County, Maryland
 11130 Potomac Ct., Suite 200
 Marriottsville, MD 21104
 Office: 410-325-5067
 Fax: 410-696-2022
 Email: paul@sillengineering.com



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
 9-16-15
 10-29-14
 10-30-15

Maryland Department of Transportation
 STATE HIGHWAY ADMINISTRATION
 STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
 SHOULDER WORK/2-LANE, 2-WAY
 EQ/LESS THAN 40 MPH
 STANDARD NO. MD 104.02-02

Maryland Department of Transportation
 STATE HIGHWAY ADMINISTRATION
 STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
 FLAGGING OPERATION/2-LANE, 2-WAY
 EQ/LESS THAN 40 MPH
 STANDARD NO. MD 104.02-10

Maryland Department of Transportation
 STATE HIGHWAY ADMINISTRATION
 STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
 INTERSECTION FLAGGING OPERATION
 2-LANE, 2-WAY EQ/LESS THAN 40 MPH
 STANDARD NO. MD 104.02-14

Maryland Department of Transportation
 STATE HIGHWAY ADMINISTRATION
 STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
 SHOULDER WORK/MULTILANE UNDIV.
 EQ/LESS THAN 40 MPH
 STANDARD NO. MD 104.03-02

No.	Description	Date
1	Delete parking spaces, access driveway, re-landscaping, add traffic signal control plans, reduce access drive from 30' to 15' by SIA Engineering Group	5/18/16

Tesseract
 TESSERACT SITES, INC.
 Jeffrey Schwab
 401 Washington Ave, Suite 303
 Towson, Maryland, 21284
 P: 410.321.7800
 F: 410.321.7801

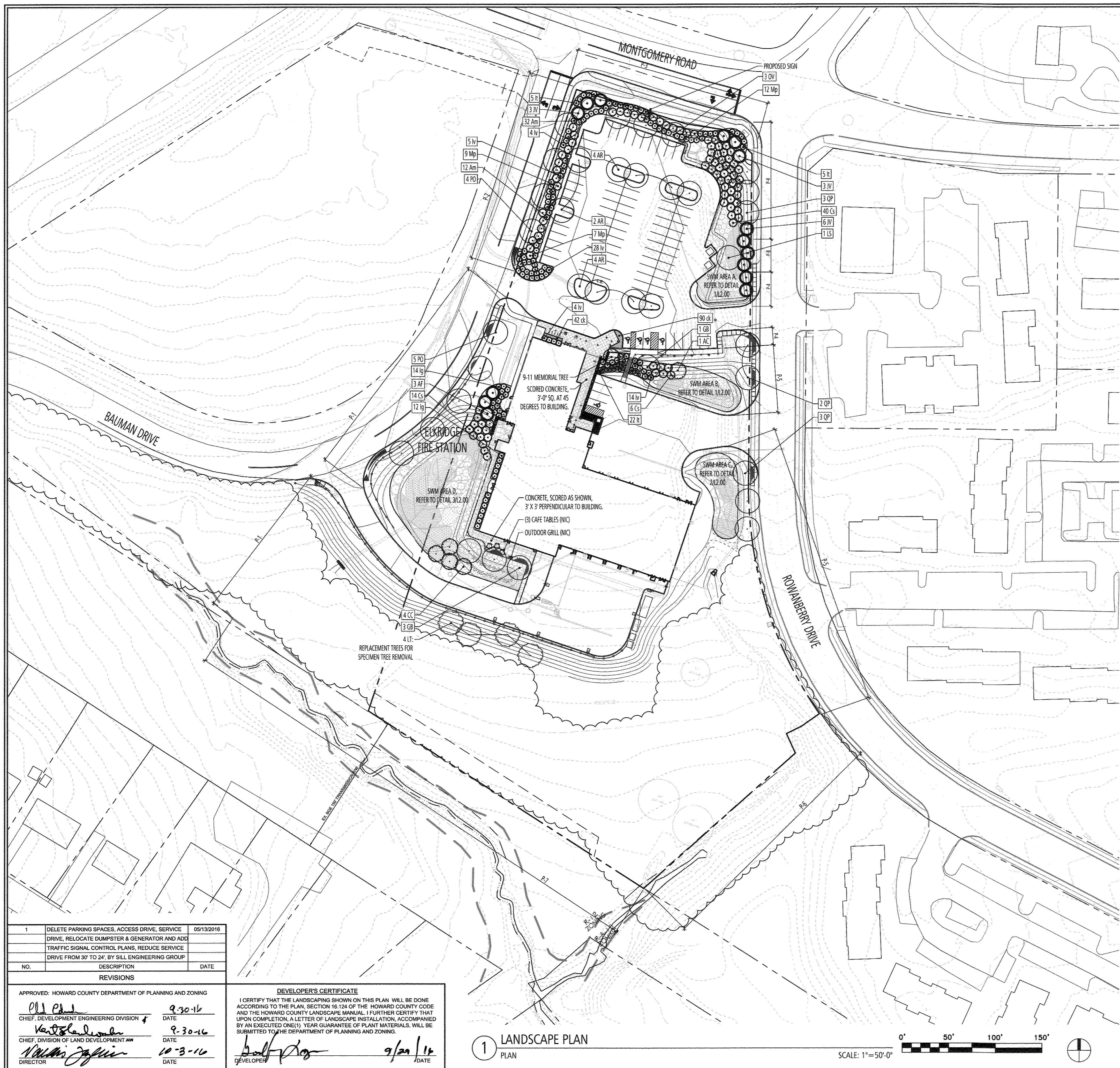
Road Widening Details
Elkridge Fire Station
 Parcel A
 "Green Building"
 Howard County, Maryland

Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 14230, Expiration Date: 12/09/16.

LOT/PARCEL	LIBRARY/ROLL	PLANS
402 403 A2	14101/512 13842/358	N/A
ZONE	DATE/ZONE MAP	ELECTRICAL DISTRICT
12	R-12, RA15	1ST

Date: 09/02/15
 Proj. #: 12021
 Scale: 1" = 30'

34 of 41



PLANTING CALCULATIONS

SCHEDULE A - Perimeter Landscape Edge									
Perimeter	1	2	3	4	5	6	7	8	TOTAL
Landscape Type	B	E	E	E	B	B	B	D	
Linear Feet to Roadway Frontage/Perimeter	435	215	210	200	365	280	350	25	
Credit for Existing Vegetation	Yes	No	No	No	Yes	Yes	Yes	No	
Credit for Wall, Fence, or Berm	No	No	No	No	No	No	No	No	
Linear Feet after Credits	300	215	210	200	167	0	0	25	
Number of Plants Required									
Shade Trees	6	5	5	5	3	0	0	1	26
Evergreen Trees	8	0	0	0	4	0	0	3	15
Shrubs	0	54	53	50	0	0	0	0	156
Number of Plants Provided									
Shade Trees	8	6	3	3	5	0	0	1	26
Evergreen Trees	3	0	6	3	0	0	0	3	15
Shrubs	0	65	54	40	0	0	0	0	159

SCHEDULE B - Parking Lot Internal Landscaping	
Number of Parking Spaces	79
Number of Trees Required	4
Number of Trees Provided	8

NOTE: THESE SCHEDULES DO NOT INCLUDE PLANTINGS WITHIN STORMWATER MANAGEMENT FACILITIES, SPECIMEN TREE MITIGATION, AND BUILDING FOOTPRINT PLANTING. FOR TOTAL PLANT QUANTITIES, REFER TO 11.3.00

PLANT SCHEDULE

MAJOR TREES					
Symbol	Quantity	Botanical Name	Common Name	Size	Note
AR	10	Acer rubrum 'Red Sunset'	Red Sunset Maple	2.5" Cal.	B&B
GB	4	Ginkgo biloba 'Autumn Gold'	Ginkgo	2.5" Cal.	B&B / Male Only
LS	1	Liquidambar styraciflua 'Rotundiloba'	Rotundiloba Sweetgum	2.5" Cal.	B&B
LT	4	Liriodendron tulipifera	Tulip Poplar	2.5" Cal.	B&B
OV	3	Ostrya virginiana	Eastern Hophornbeam	2" Cal.	B&B
PO	9	Platanus occidentalis	American Sycamore	2.5" Cal.	B&B
QP	8	Quercus phellos	Willow Oak	2.5" Cal.	B&B
MINOR TREES					
Symbol	Quantity	Botanical Name	Common Name	Size	Note
AC	1	Amelanchier canadensis	Shadblow Serviceberry	8" Ht.	B&B / 3-5 Stems
CC	4	Cercis canadensis	Eastern Redbud	8" Ht.	B&B / 3-5 Stems
EVERGREEN TREES					
Symbol	Quantity	Botanical Name	Common Name	Size	Note
AF	3	Picea pungens	Blue Spruce	8" Ht.	B&B
JV	12	Juniperus virginiana 'Burkii'	Eastern Red Cedar	8" Ht.	B&B
SHRUBS					
Symbol	Quantity	Botanical Name	Common Name	Size	Note
Am	44	Aronia melanocarpa	Black Chokeberry	36" Ht.	B&B/CG
Cs	60	Cornus sericea 'Baileyi'	Red Twig Dogwood	36" Ht.	B&B/CG
Ig	26	Hex glabra 'Shamrock'	Shamrock Inkberry	24" Ht.	B&B/CG
It	32	Itea virginica 'Henry's Garnet'	Virginia Sweetpire	24" Ht.	B&B/CG
Iv	55	Ilex verticillata 'Winter Red'	Winter Red Winterberry	36" Ht.	B&B/CG
Mp	28	Myrica pennsylvanica 'Morton'	Northern Bayberry	36" Ht.	B&B/CG
PERENNIALS AND GRASSES					
Symbol	Quantity	Botanical Name	Common Name	Size	Note
ck	132	Calamagrostis x acutiflora 'Karl Foerster'	Feather Reed Grass	1 Qt.	15" OC

GENERAL NOTES

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- REFER TO 11.3.00 FOR MASTER PLANT SCHEDULE.
- NO SURETY IS REQUIRED BECAUSE THIS IS A COUNTY OWNED PROJECT.
- THIS PROJECT INCLUDES SPECIMEN TREE MITIGATION OF 2.1. TWO TULIP POPLARS (LIRIODENDRON TULIPIFERA) ARE TO BE REMOVED AND REPLACED WITH FOUR TREES OF THE SAME SPECIES.

LEGEND:

- SPECIMEN TREE - TO REMAIN
- MAJOR TREE
- SPECIMEN TREE REPLACEMENT
- MINOR TREE
- EVERGREEN TREE
- SHRUBS
- PERENNIALS AND ORNAMENTAL GRASSES
- PLANTING BED LIMITS
- SCORED CONCRETE

ENGINEER SILL ENGINEERING GROUP, LLC HOWARD COUNTY, MARYLAND 11130 DOVEDALE COURT, SUITE 200 MARRIOTTVILLE, MARYLAND 21104 OFFICE: 443-325-5067 FAX: 410-696-2022 EMAIL: PAUL@SILLENGINEERING.COM	OWNER/DEVELOPER MARK STROMDAHL HOWARD COUNTY, MARYLAND 9250 BENDIX ROAD COLUMBIA, MD 21045 PHONE: 410-313-6757 EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV
---	---

L1.00 - REVISED LANDSCAPE PLAN
ELK RIDGE FIRE STATION
PARCEL A
"GREEN BUILDING"

TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

PAUL SILL
PROFESSIONAL ENGINEER

SILL ENGINEERING GROUP, LLC
11130 Dovedale Court, Suite 200
Marriottville, Maryland 21104
Phone: 443.325.5076
Fax: 410.696.2022
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200 North Charles St. Ste. 300
Baltimore, Maryland 21201
Phone: 410.528.8395
Fax: 410.528.8455

DESIGN BY: ZMB
DRAWN BY: ZMB
CHECKED BY: JAF
SCALE: 1" = 50'-0"
DATE: MAY 25, 2016
PROJECT #: 16-020
SHEET #: 35 of 41

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32025, EXPIRATION DATE: JUNE 20, 2017

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE SERVICE DRIVE FROM 30' TO 24'. BY SILL ENGINEERING GROUP	05/13/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 9-30-16
CHIEF, DEVELOPMENT ENGINEERING DIVISION

[Signature] 9-30-16
CHIEF, DIVISION OF LAND DEVELOPMENT

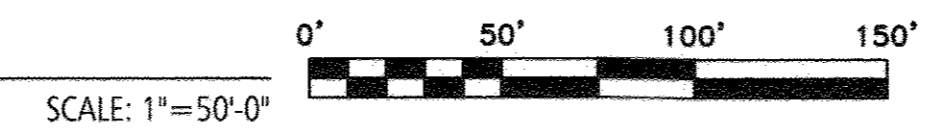
[Signature] 10-3-16
DIRECTOR

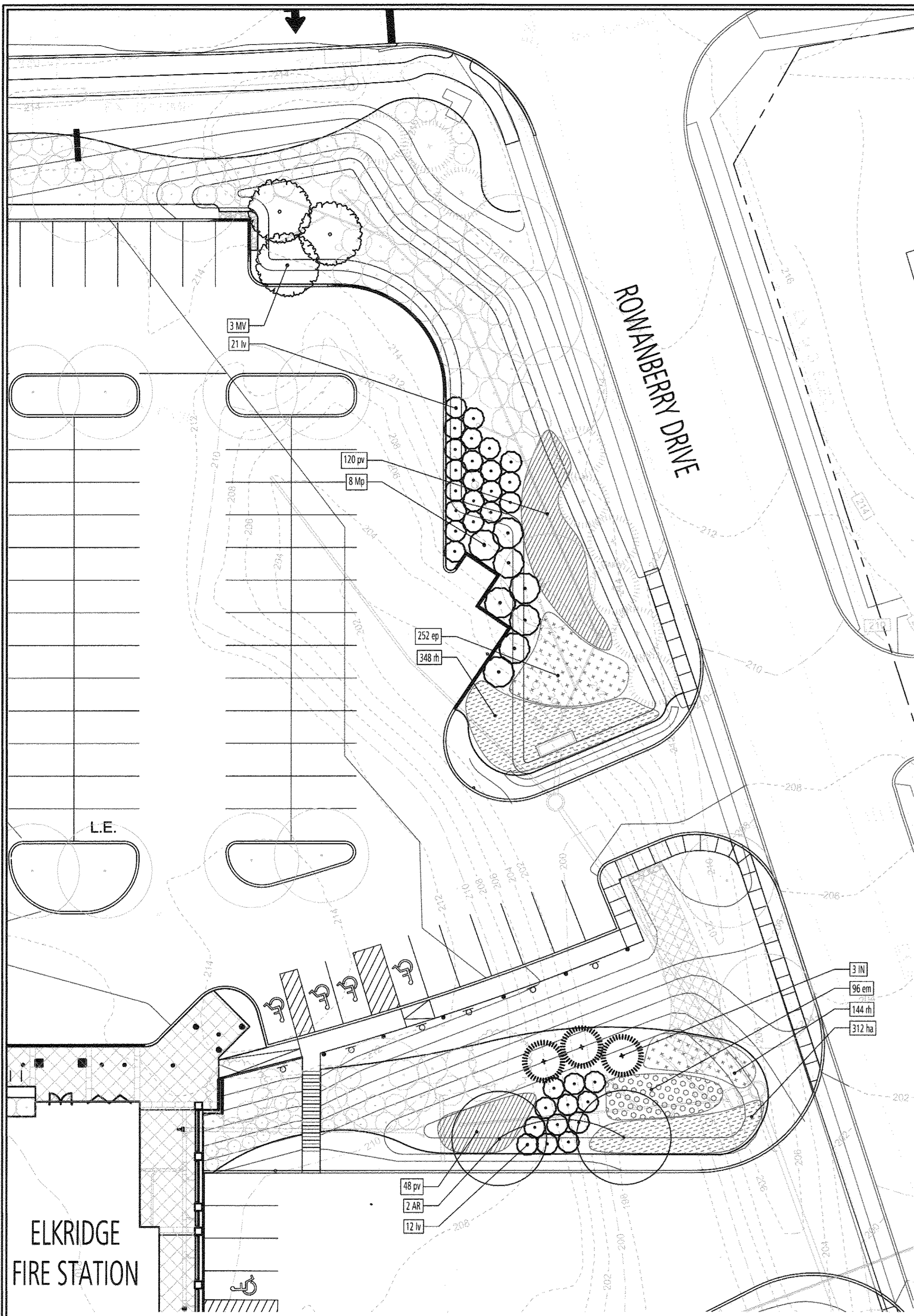
DEVELOPER'S CERTIFICATE

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[Signature] 9/29/16
DEVELOPER

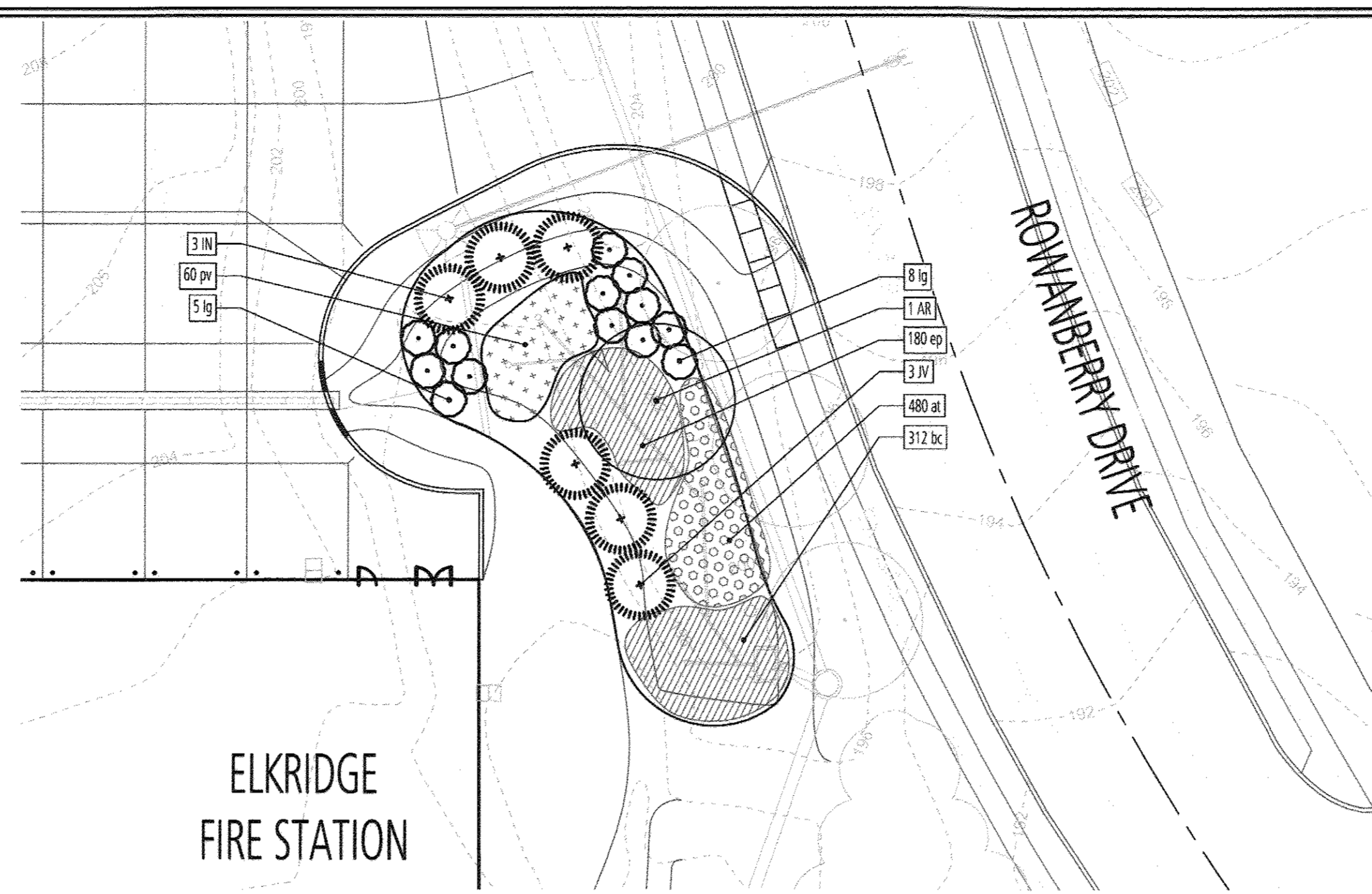
1 LANDSCAPE PLAN





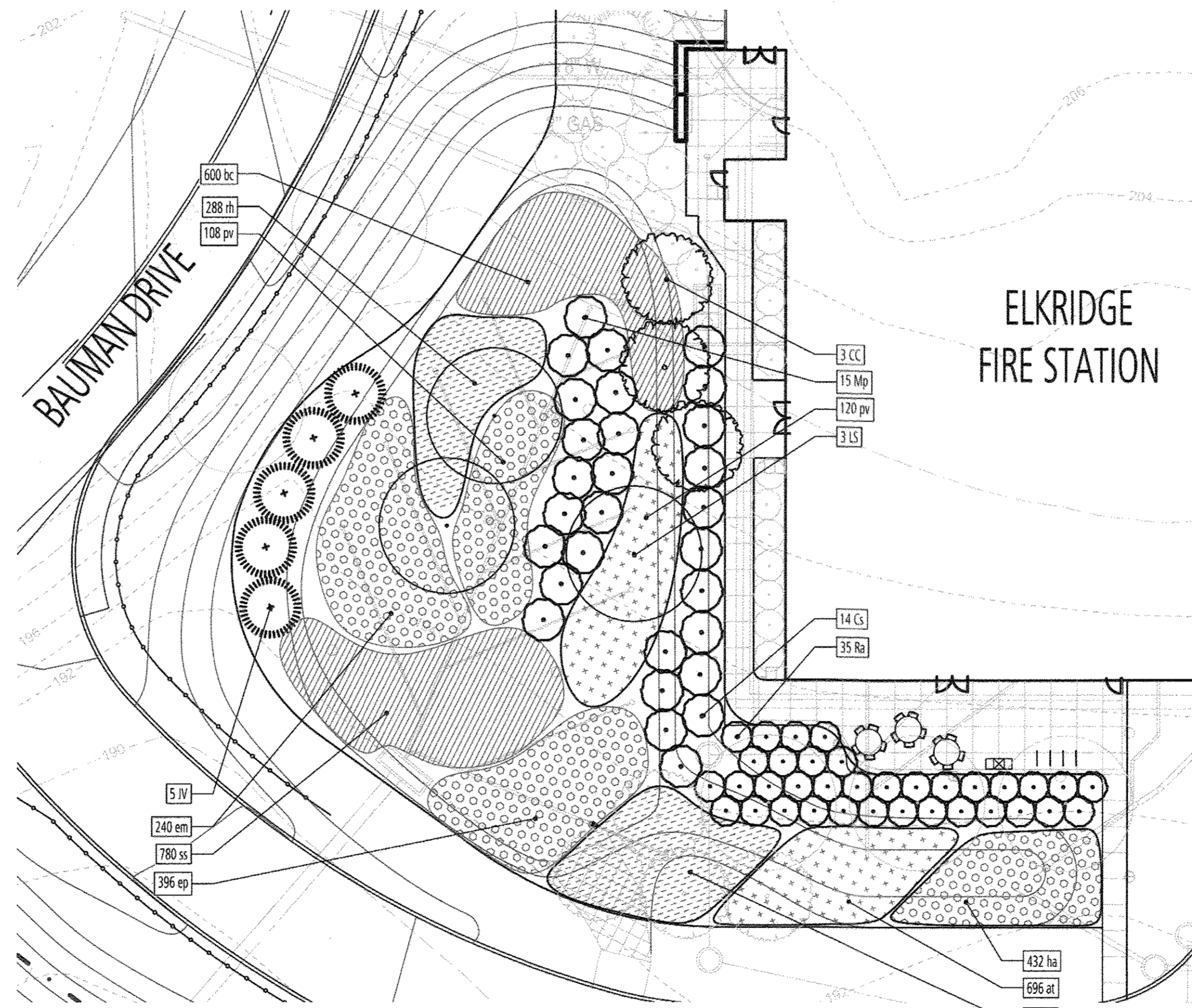
1 SWM AREAS A AND B
PLAN

SCALE: 1"=20'-0"



2 SWM AREA C
PLAN

SCALE: 1"=20'-0"



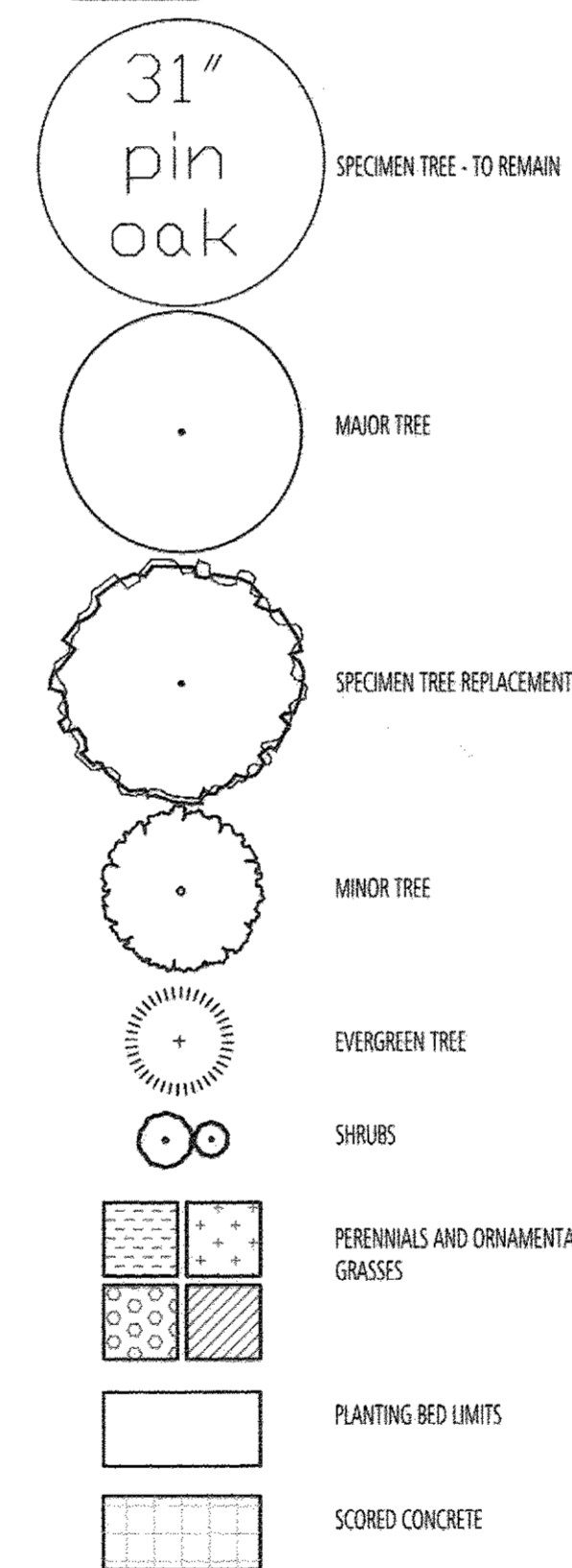
3 SWM AREA D
PLAN

SCALE: 1"=20'-0"

SWM PLANT SCHEDULE:

Symbol	Quantity	Botanical Name	Common Name	Size	Note
AR	3	Acer rubrum 'Red Sunset'	Red Sunset Maple	2.5" Cal.	B&B
LS	3	Liquidambar styraciflua 'Rotundiloba'	Rotundiloba Sweetgum	2.5" Cal.	B&B
MINOR TREES					
Symbol	Quantity	Botanical Name	Common Name	Size	Note
CC	3	Cercis canadensis	Eastern Redbud	8' Ht.	B&B / 3-5 Stems
MV	3	Magnolia virginiana	Sweetbay Magnolia	8' Ht.	B&B / 3-5 Stems
EVERGREEN TREES					
Symbol	Quantity	Botanical Name	Common Name	Size	Note
IN	6	Ilex x 'Nellie R. Stevens'	Nellie Stevens Holly	8' Ht.	B&B
JV	8	Juniperus virginiana 'Burkii'	Eastern Red Cedar	8' Ht.	B&B
SHRUBS					
Symbol	Quantity	Botanical Name	Common Name	Size	Note
Cs	14	Cornus sericea 'Bailey'	Red Twig Dogwood	36" Ht.	B&B/CG
Ig	13	Ilex glabra 'Shamrock'	Shamrock Inkberry	24" Ht.	B&B/CG
Iv	33	Ilex verticillata 'Winter Red'	Winter Red Winterberry	36" Ht.	B&B/CG
Mp	23	Myrica pennsylvanica 'Morton'	Northern Bayberry	36" Ht.	B&B/CG
Ra	35	Rhus aromatica 'Gro Low'	Fragrant Sumac	24" Ht.	B&B/CG
PERENNIALS AND GRASSES					
Symbol	Quantity	Botanical Name	Common Name	Size	Note
at	1176	Asclepias tuberosa	Butterfly Weed	1 Qt.	12" OC
bc	912	Bouteloua curtipendula	Sideoats Grama	1 Qt.	15" OC
em	336	Eupatorium dubium 'Little Joe'	Joe Pye Weed	1 Qt.	24" OC
ep	828	Echinacea purpurea	Purple Coneflower	1 Qt.	18" OC
ha	744	Heuchera americana 'Dale's Strain'	American Alumroot	1 Qt.	15" OC
pv	456	Panicum virgatum 'Cape Breeze'	Switchgrass	1 Qt.	30" OC
rh	780	Rudbeckia fulgida var. fulgida	Black-eye Susan	1 Qt.	18" OC
ss	1296	Schizachyrium scoparium 'Standing Ovation'	Little Bluestem	1 Qt.	15" OC

LEGEND:



GENERAL NOTES:

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3. REFER TO 1/13.00 FOR MASTER PLANT SCHEDULE AND PLANTING SCHEDULE.
4. NO SURETY IS REQUIRED BECAUSE THIS IS A COUNTY OWNED PROJECT.
5. THIS PROJECT INCLUDES SPECIMEN TREE MITIGATION OF 2:1. TWO TULIP POPLARS (LIRIODENDRON TULIPIFERA) ARE TO BE REMOVED AND REPLACED WITH FOUR TREES OF THE SAME SPECIES.

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE SERVICE DRIVE FROM 30' TO 24'. BY SILL ENGINEERING GROUP	05/13/2016

REVISIONS

APPROVED:	HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
<i>[Signature]</i>	DATE: 9-30-16
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE: 9-30-16
<i>[Signature]</i>	DATE: 10-3-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE: 10-3-16
<i>[Signature]</i>	DATE: 10-3-16
DIRECTOR	DATE: 10-3-16

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[Signature] DATE: 9/29/16
DEVELOPER



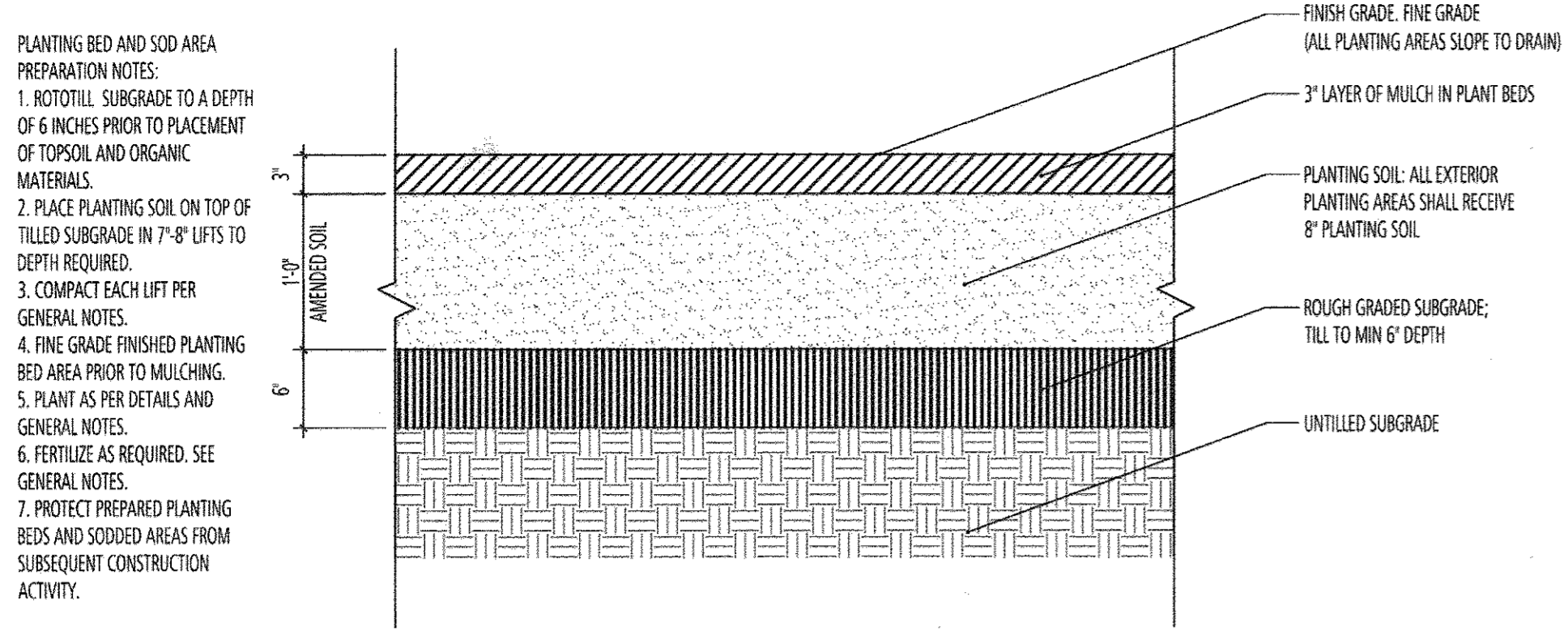
ENGINEER
SILL ENGINEERING GROUP, LLC
HOWARD COUNTY, MARYLAND
11130 DOVEDALE COURT, SUITE 200
MARRIOTTVILLE, MARYLAND 21104
OFFICE: 443-325-5067
FAX: 410-696-2022
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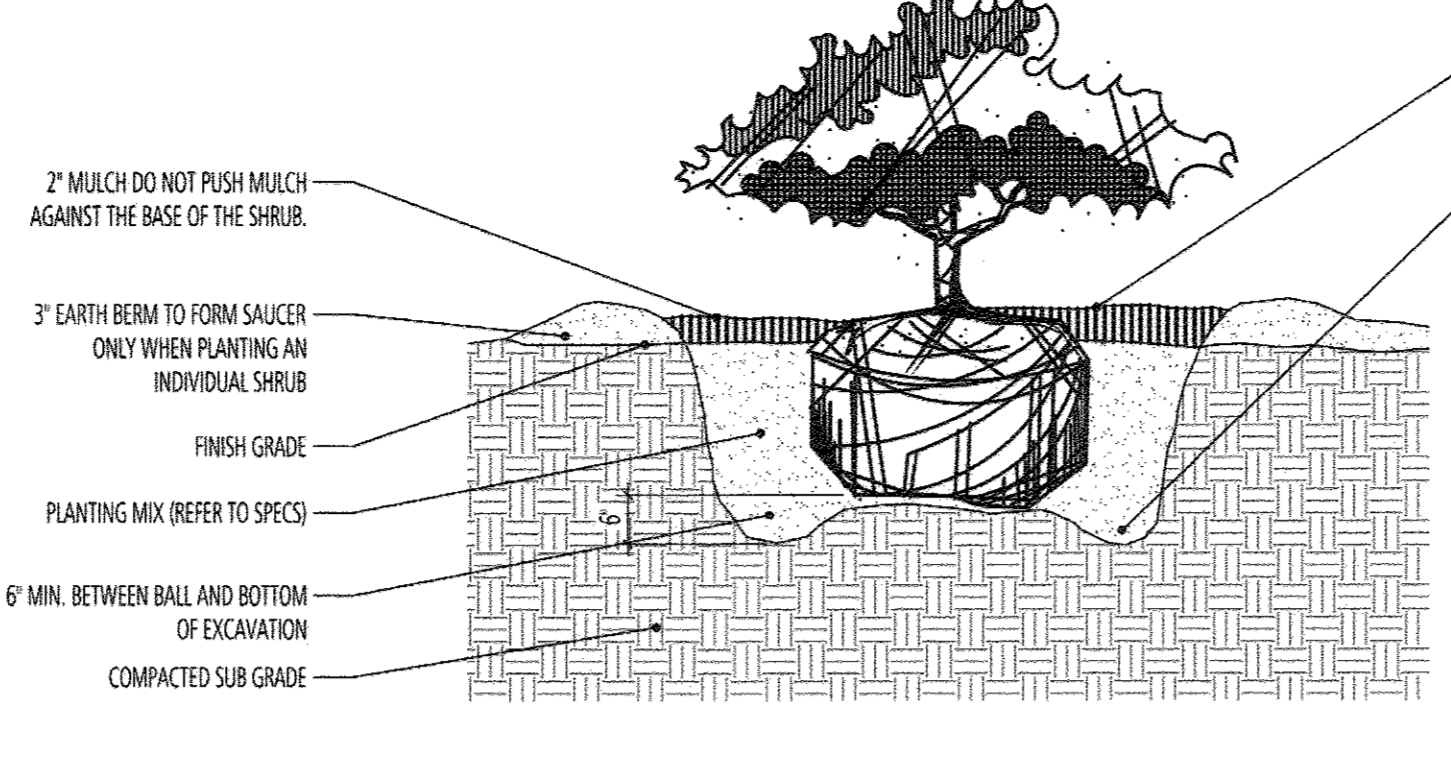
L2.00 - REVISED STORMWATER MANAGEMENT PLANTING PLANS

ELKRIDGE FIRE STATION
PARCEL A
"GREEN BUILDING"
TAX MAP 38 GRID 12
1ST ELECTION DISTRICT
PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

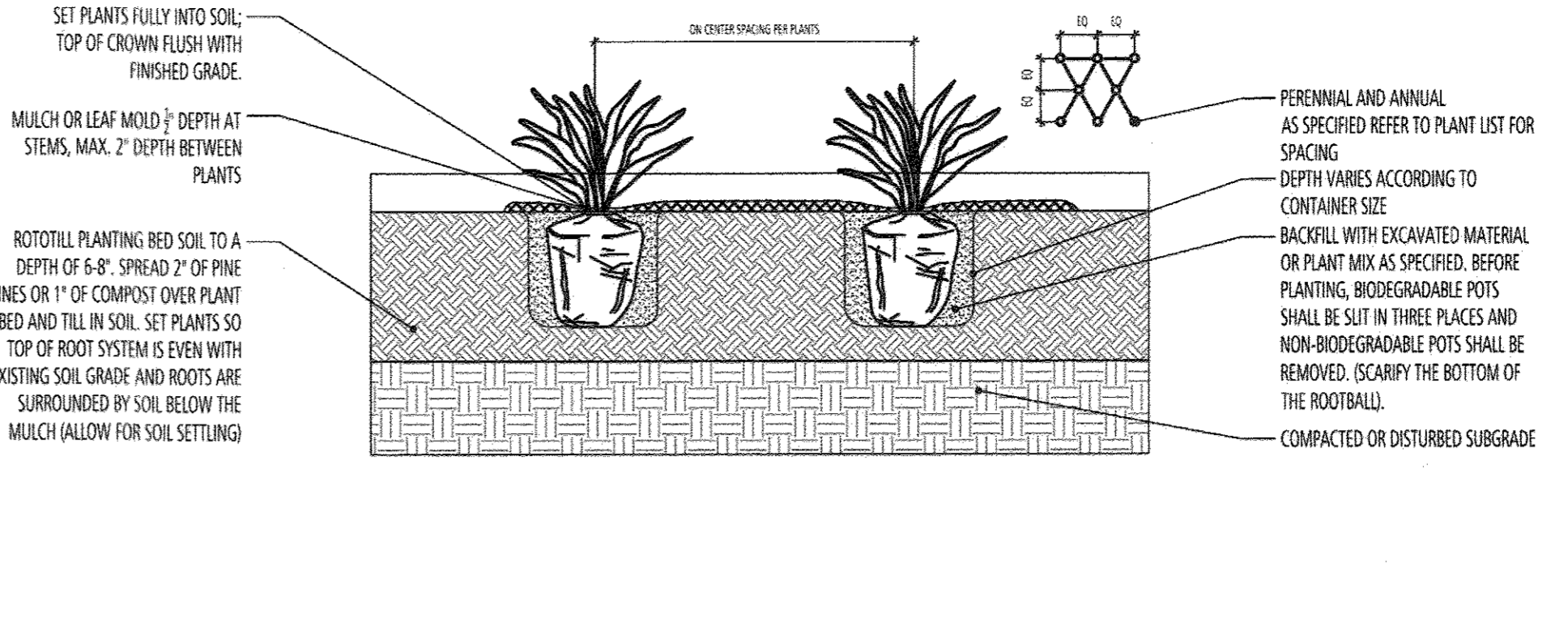
 FLORA TEETER landscape architects 800 North Charles St. Ste. 300 Baltimore, Maryland 21201 Phone: 410.528.8335 Fax: 410.528.8425	 SILL ENGINEERING GROUP, LLC 11130 Dovedale Court, Suite 200 Marriottville, Maryland 21104 Phone: 443.325.5076 Fax: 410.696.2022 Email: info@sillengineering.com Civil Engineering for Land Development	DESIGN BY: ZMB DRAWN BY: ZMB CHECKED BY: JAF SCALE: 1" = 20'-0" DATE: MAY 25, 2016 PROJECT #: 16-020 SHEET #: 36 of 41
		PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 32025. EXPIRATION DATE: JUNE 20, 2017



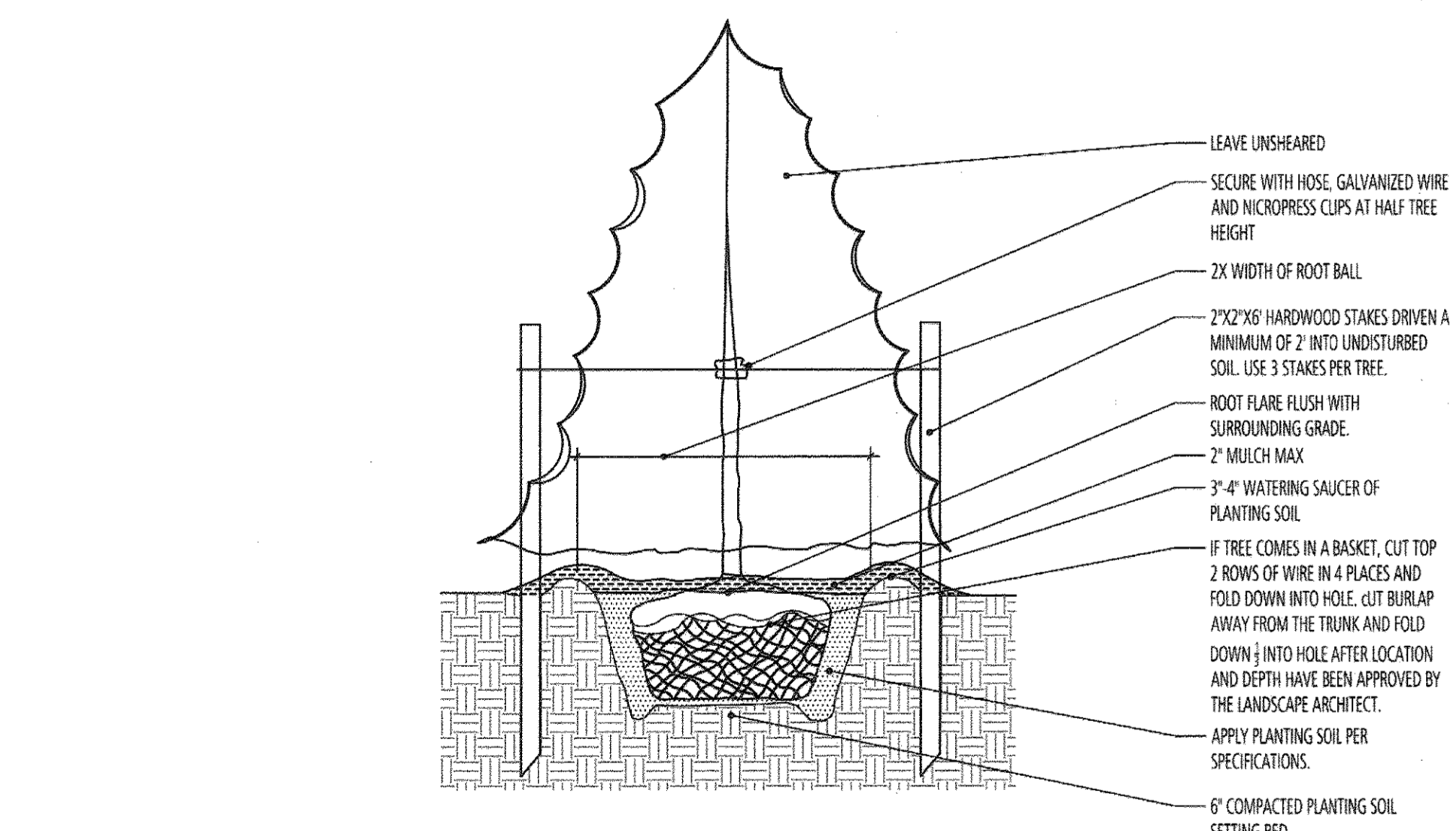
1 PLANTING BED PREPARATION DETAIL SECTION SCALE: 1" = 1'-0" d-planting bed prep.dwg



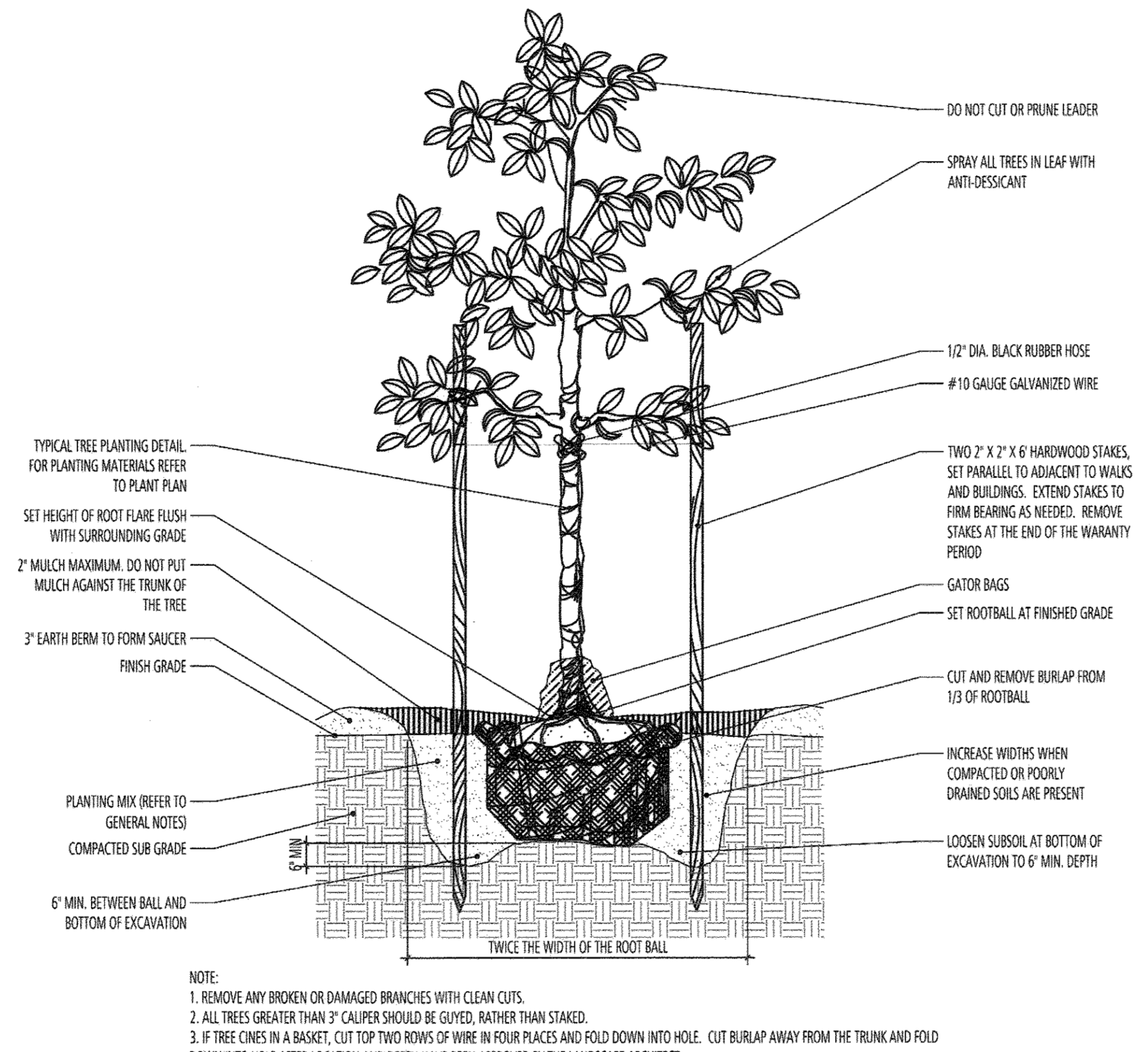
2 SHRUB PLANTING DETAIL SECTION SCALE: 1/2" = 1'-0" d-shrub_planting.dwg



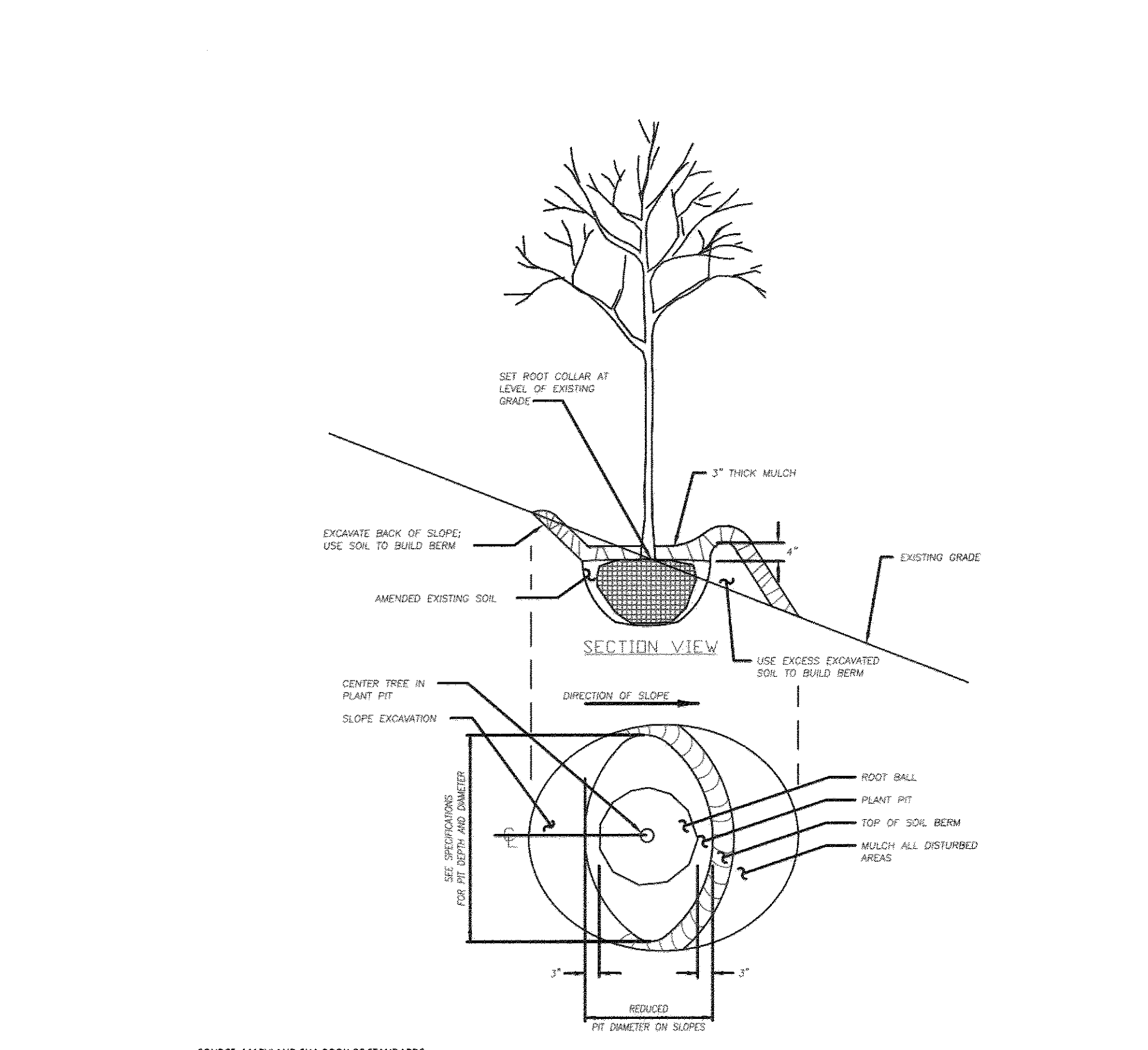
3 PERENNIAL PLANTING DETAIL SECTION SCALE: 1/2" = 1'-0" d-grndcover_planting.dwg



4 EVERGREEN TREE PLANTING DETAIL SECTION SCALE: 1/2" = 1'-0" d-ever-tree.dwg



5 TREE PLANTING DETAIL SECTION SCALE: 1/2" = 1'-0" d-tree_planting.dwg



6 PLANTING TREES ON SLOPES FROM 3:1 TO 2:1 PLAN/SECTION N.T.S. SOURCE: MARYLAND SHA BOOK OF STANDARDS

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE SERVICE DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	05/13/2016
REVISIONS		
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING		
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 9-30-16		
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE: 9-30-16		
 DIRECTOR DATE: 10-3-16		

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DEVELOPER DATE: 9/29/16

GENERAL PLANTING NOTES:

- ALL PLANT MATERIAL SHALL CONFORM TO THE SIZES GIVEN IN THE PLANT SCHEDULE AND SHALL BE NURSERY GROWN IN ACCORDANCE WITH THE "AMERICAN STANDARDS FOR NURSERY STOCK, ANSI Z60.1-2004" LATEST EDITION PREPARED BY THE AMERICAN ASSOCIATION OF NURSERYMEN, 230 SOUTHERN BUILDING, WASHINGTON, D.C. 20005.
- CONTRACTOR MUST VERIFY THE CORRECT LOCATION OF ANY EXISTING UTILITIES WHICH ARE UNDERGROUND, PRIOR TO PLANT INSTALLATION. THE CONTRACTOR SHALL CALL MISS UTILITY (1-800-257-7777) A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS AND REQUIREMENTS FOR CONSTRUCTION.
- ALL PLANT BEDS SHALL BE MULCHED WITH A MINIMUM OF 2" AND A MAXIMUM OF 3" LAYER OF MULCH WITHIN TWO DAYS AFTER PLANTING. THIS SHALL BE SHREDDED HARDWOOD BARK, AND SHALL COVER ENTIRELY THE PLANTING BED.
- ALL PLANTS SHALL BE GUARANTEED TO REMAIN ALIVE AND HEALTHY FOR A PERIOD OF TWO FULL YEARS AFTER INITIAL ACCEPTANCE. ANY REPLACEMENT PLANTS, REQUIREMENTS, ETC. AND METHOD OF PLACING SHALL COMPLY WITH THE REQUIREMENTS SPECIFIED HEREIN, WITHIN THE SPECIFICATIONS, AND ON THE DRAWINGS.
- EXISTING SOIL IN PLANTING BED AREAS SHALL BE AMENDED TO A MINIMUM DEPTH OF 12" AND SOIL MIX IN ALL PLANTING BEDS SHALL BE ONE THIRD EXISTING SOIL, ONE THIRD FURNISHED SOIL, AND ONE THIRD ORGANIC MATERIAL SUCH AS LEAFGRO. SEE DETAIL FOR TREE PITS.
- PLANT MATERIAL AVAILABILITY MAY VARY AT THE TIME OF CONSTRUCTION. ANY SUBSTITUTIONS ARE TO BE OF EQUIVALENT TYPE AND SIZE (OR LARGER), AND MUST BE APPROVED BY LANDSCAPE ARCHITECT BEFORE INSTALLATION.
- WHERE THE CONDITION EXISTS THAT THE BALLED AND BURLAPPED TREES ARE DELIVERED IN WIRE BASKETS, THE WIRE BASKETS SHALL BE CUT DOWN THE SIDE OF EACH MESH AND PEELLED AWAY FROM THE ROOTBALL OR REMOVED ENTIRELY. NO PORTION OF THE WIRE BASKET SHALL REMAIN INTACT AROUND THE SIDES OF THE ROOTBALL OR EXTEND ABOVE FINISHED GRADE.
- ANY DAMAGE TO THE EXISTING UTILITIES, BUILDINGS, PAVING, CURBS, WALLS, VEGETATION AND ANY OTHER EXISTING FEATURES NOT DESIGNATED FOR REMOVAL ON THESE PLANS, SHALL BE REPAIRED TO PREVIOUS CONDITION OR REPLACED BY THE CONTRACTOR AT HIS OR HER EXPENSE. ALL AREAS DISTURBED DURING CONSTRUCTION ARE TO BE SEEDED PER THE PLANS AND SPECIFICATION UNLESS OTHERWISE NOTED.
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L3.00 - REVISED LANDSCAPE NOTES AND DETAILS

ELKRIDGE FIRE STATION
 PARCEL A
 "GREEN BUILDING"

TAX MAP 38 GRID 12
 1ST ELECTION DISTRICT

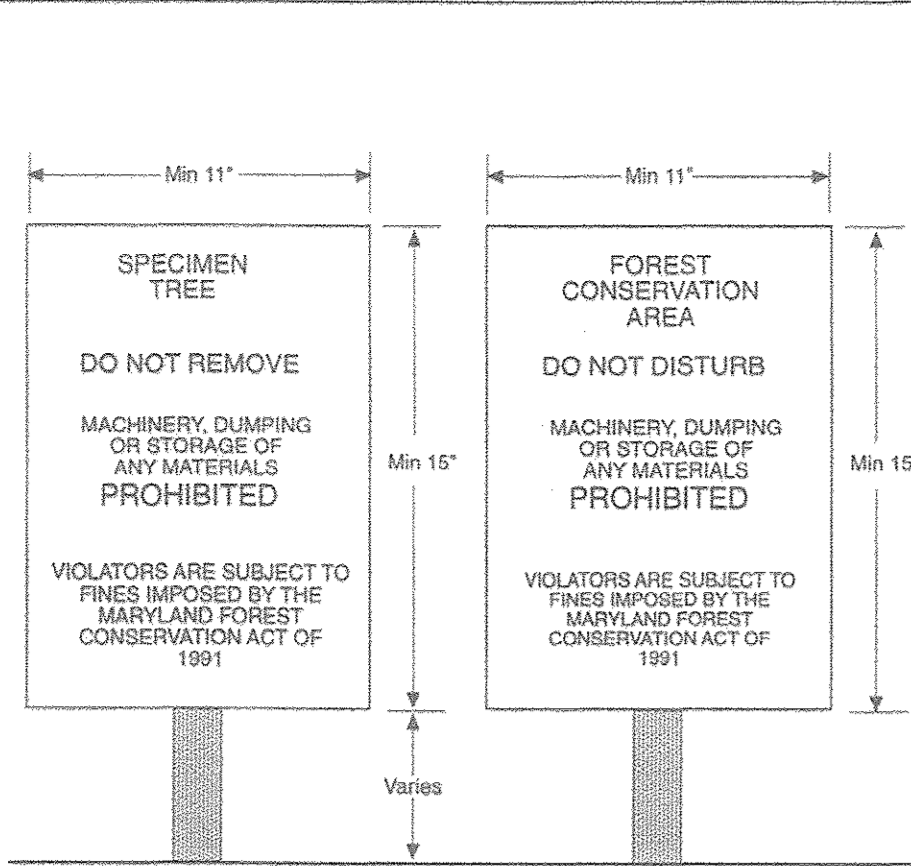
PARCEL 402 & 403 A2
 HOWARD COUNTY, MARYLAND

DESIGN BY: ZMB
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- Notes:
- Bottom of signs to be higher than top of tree protection fence.
 - Signs to be placed approximately 50 feet apart. Conditions on site affecting visibility may warrant placing signs closer or further apart.
 - Attachment of signs to trees is prohibited.

Source: Adapted from Forest Conservation Manual, 1991

Construction Signs Figure C-4

Forest Stand Descriptions

Key	Community Type	Acreage	Dominant Vegetation	General Condition	Priority 1 Acreage
F1	Mixed oak-pine-poplar	4.30 ac. ±	Pinus virginiana, Liriodendron tulipifera, Quercus alba, Quercus falcata, Acer rubrum, Nyssa sylvatica, Acer rubrum, Fagus grandifolia, Viburnum dentatum, Vaccinium angustifolium	Fair	4.30 ac. ± structure wetland/buffer

Key	Species Name	Size	Cond.
A	Tulip poplar	37"	Fair
B	Tulip poplar	34"	Fair
C	White oak	34"	Good
D	Pin oak	44"	V. Poor
E	Pin oak	31"	F. Good
F	White oak	45"	Fair

* TREES REMOVED BY WP 14-010

SOILS NOTES

- Soils onsite include:
 - Fa - Fallsington sandy loam, 0-2% slopes
 - RaC - Russett fine sandy loam, 2-5% slopes
 - RaD - Russett fine sandy loam, 5-10% slopes
 - UcB - Urban land-Chillum-Beltsville complex, 0-5% slopes
 - UcD - Urban land-Chillum-Beltsville complex, 5-15% slopes
- Fallsington soils are identified as hydric soils.

WATERSHED NOTE

- The site drains to an unnamed tributary to Deep Run. Deep Run and its tributaries are classified as Use I - Water Contact Recreation - by the Maryland Department of the Environment (MDE). Deep Run is located in Sub-Basin 02-13-09 - Patapsco River Area.

100 YEAR FLOODPLAIN NOTE

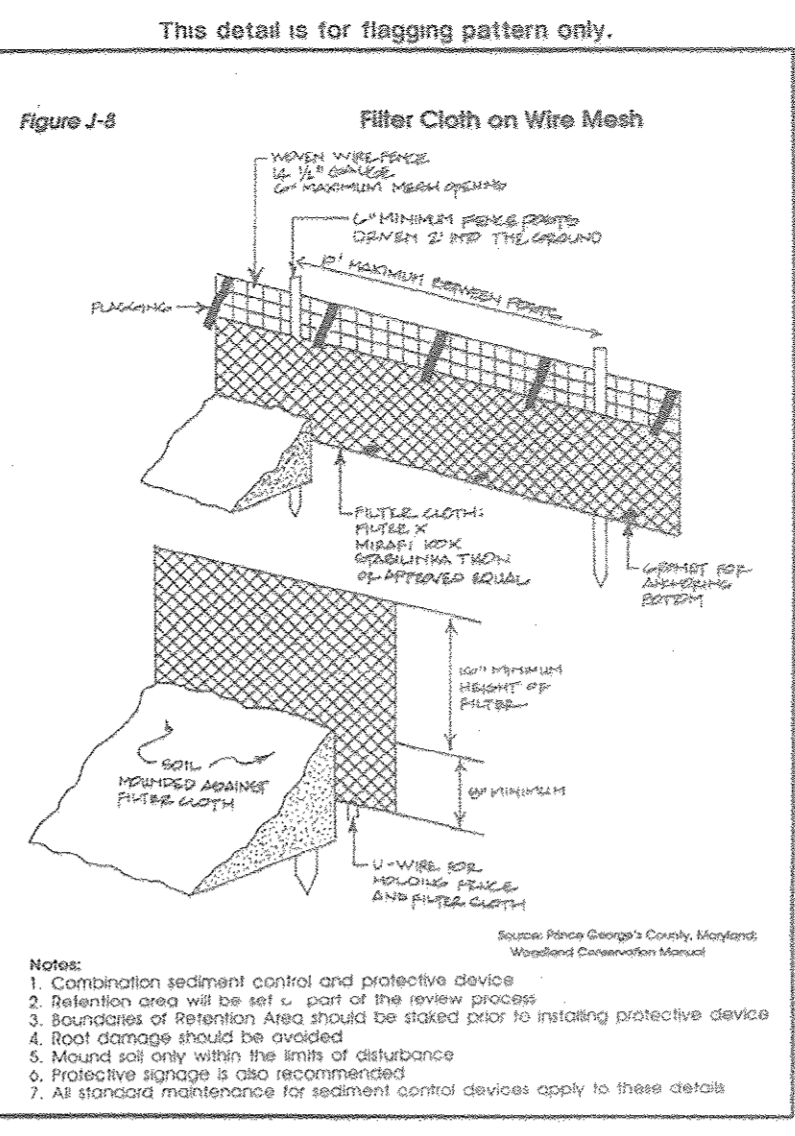
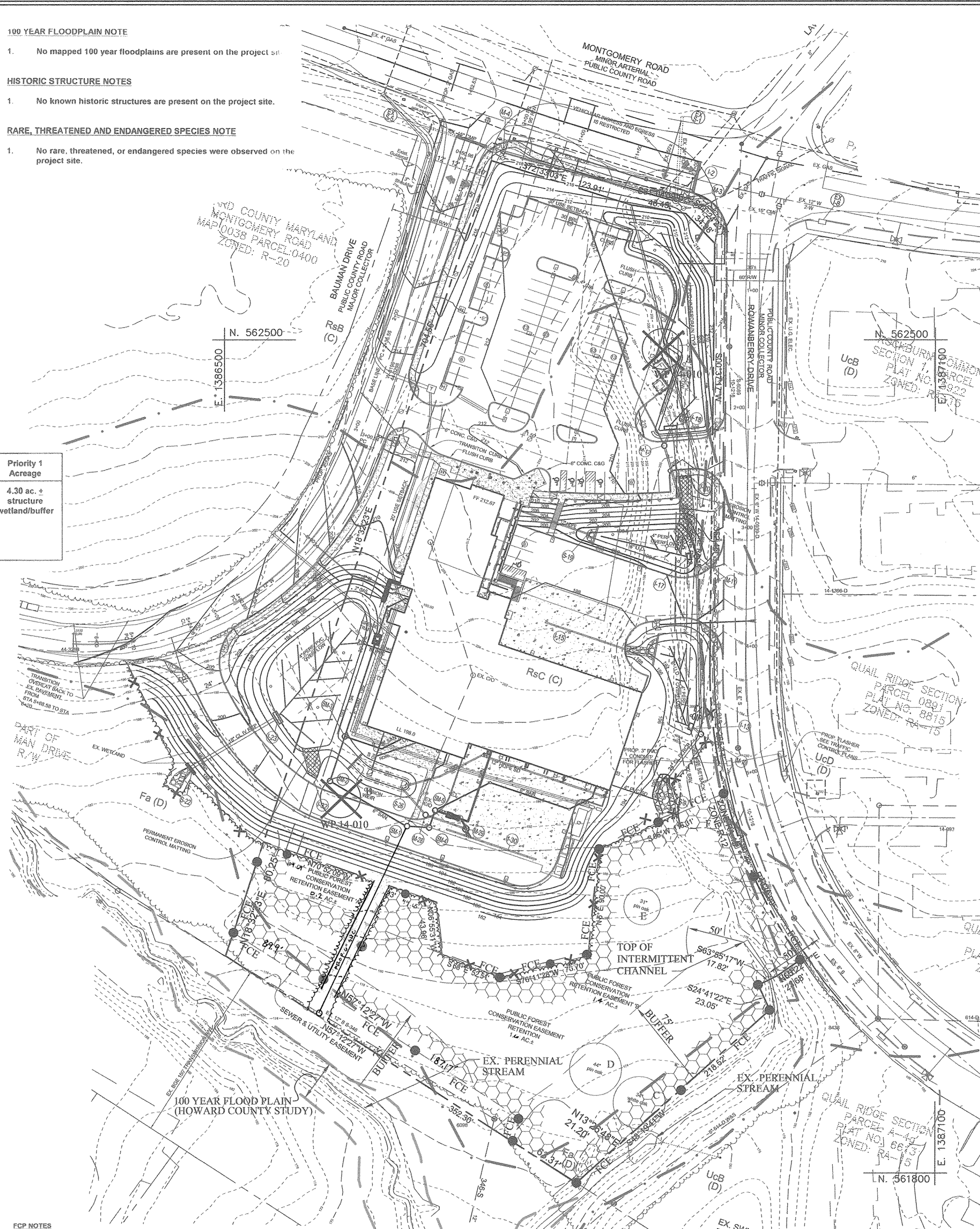
- No mapped 100 year floodplains are present on the project site.

HISTORIC STRUCTURE NOTES

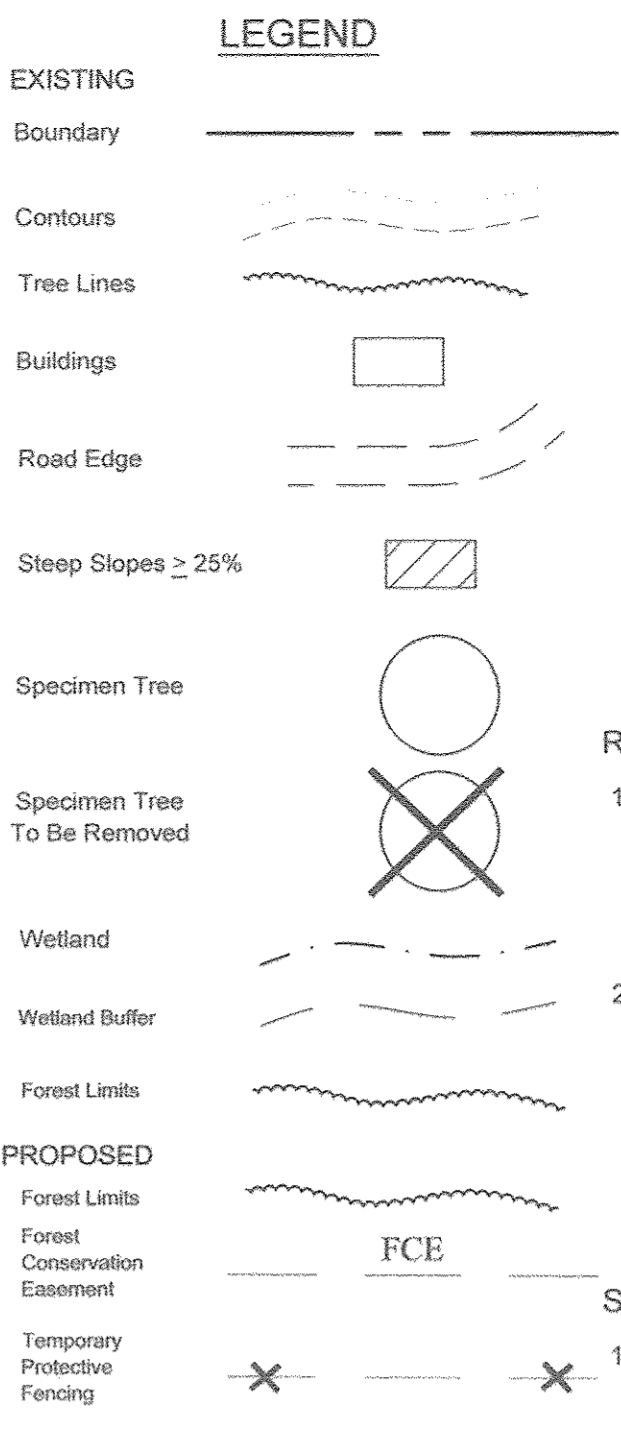
- No known historic structures are present on the project site.

RARE, THREATENED AND ENDANGERED SPECIES NOTE

- No rare, threatened, or endangered species were observed on the project site.



- Notes:
- Retention areas will be set in part of the review process.
 - Locations of Retention Areas should be indicated prior to existing protective device.
 - Boat damage should be avoided.
 - Mounds are only within the limits of disturbance.
 - Protective signage is also recommended.
 - As specified maintenance for sediment control devices apply to these details.



GROSS TRACT AREA - 5.70 ACRES
NET TRACT AREA - 5.70 ACRES
LAND USE - INSTITUTIONAL
FOREST CLEARING
EXISTING FOREST - 4.30 ACRES
FOREST TO BE CLEARED - 2.72 ACRES
FOREST RETAINED IN FCE - 1.58 ACRES

REFORESTATION NOTE:

- THE DEVELOPER PROPOSES TO PAY A FEE-IN-LIEU INTO THE HOWARD COUNTY FOREST CONSERVATION FUND IN THE AMOUNT OF \$7,840.80 TO MEET THE 0.24 ACRE REFORESTATION OBLIGATION FOR THE PROJECT.
- THE DEVELOPER WILL HAVE MET THE FOREST CONSERVATION OBLIGATION FOR THE PROPERTY UPON PAYMENT OF THE FEE TO HOWARD COUNTY AND RETENTION OF REMAINING 1.58 ACRES OF ONSITE FOREST IN A FOREST CONSERVATION EASEMENT.

SEDIMENT CONTROL NOTE:

- SEDIMENT CONTROL SHALL BE INSTALLED IN ACCORDANCE WITH THE GRADING PLAN FOR THE SITE.

FOREST CONSERVATION WORKSHEET

Project: Elkridge Fire Station
Date: April 18, 2014 Revised May 13, 2016 REVISED JULY 2017

NET TRACT AREA	Acres
A. Total tract area	5.70
B. Area within 100 Year Floodplain	0.00
C. Area of lot previously developed	0.00
D. Net Tract Area	5.70

LAND USE CATEGORY: (from table 3.2.1, page 40, Manual)
ARA: MDR, IDA, HDR, MFD, CIA, Institutional

	(1%)	(20%)
E. Afforestation Threshold	0.9	1.1
F. Conservation Threshold		

EXISTING FOREST COVER:

	Acres
G. Existing forest cover (excluding floodplain)	4.30
H. Area of forest above afforestation threshold	3.4
I. Area of forest above conservation threshold	3.2

BREAK EVEN POINT:

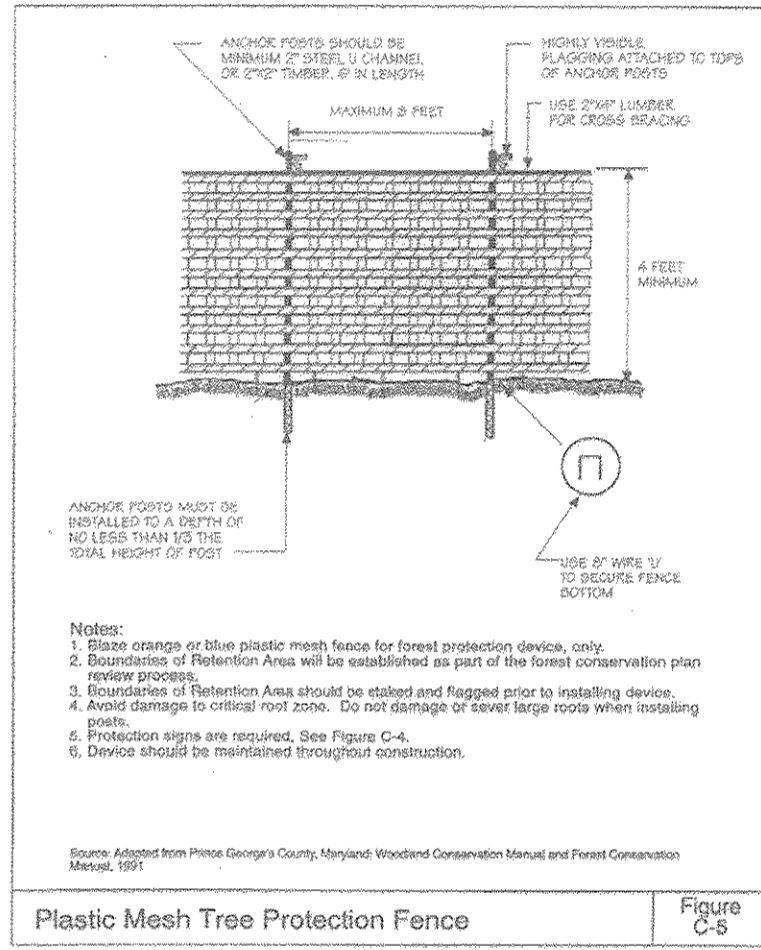
	Break-Even Point
J. Forest retention above threshold with no mitigation	0.0
K. Clearing permitted without mitigation	1.1
	0.0

PROPOSED FOREST CLEARING

	Acres
L. Total area of forest to be Cleared or Retained Outside FCE	2.7
M. Total area of forest to be Retained in FCE	1.1

PLANTING REQUIREMENTS

	Acres
N. Reforestation for clearing above Conservation Threshold	0.7
O. Reforestation for clearing below Conservation Threshold	0.0
P. Credits for retention above conservation threshold	0.6
R. Total reforestation required	0.2
S. Total afforestation required	0.0
T. Total reforestation and afforestation required	0.2



Plastic Mesh Tree Protection Fence Figure C-5

Eco-Science Professionals, Inc. Consulting Ecologists
P.O. Box 1904 Glen Arde, Maryland 21087 Telephone: (410) 832-2400 Fax: (410) 832-2498

OPTION 5: ON-SITE/OFF-SITE PLANTING AND RETENTION	FOREST CONSERVATION DATA SUMMARY
File Number: SDP 14-075	Elkridge Volunteer Fire
Net Tract Area: 5.7 Ac	Existing Forest: 4.3 Ac
Retained Forest: 1.6 Ac	Cleared Forest: 2.7 Ac
Planted Forest: 0.0 Ac	Surplus Acreage: 0.00
Forest Conservation Easement: 1.4 Ac	
Forest Conservation Easement: 1.4 Ac	
Forest Conservation Easement: 1.4 Ac	

ENGINEER: SILL ENGINEERING GROUP, LLC
OWNER/DEVELOPER: MARK STROMDAHL

REVISED FOREST CONSERVATION PLAN
ELKRIDGE FIRE STATION
PARCEL A "GREEN BUILDING"

SILL ENGINEERING GROUP, LLC
DESIGN BY: JS
DRAWN BY: AEA
CHECKED BY: PS
SCALE: 1"=50'
DATE: SEPTEMBER 28, 2016
PROJECT #: 16-020
SHEET #: 38 of 41

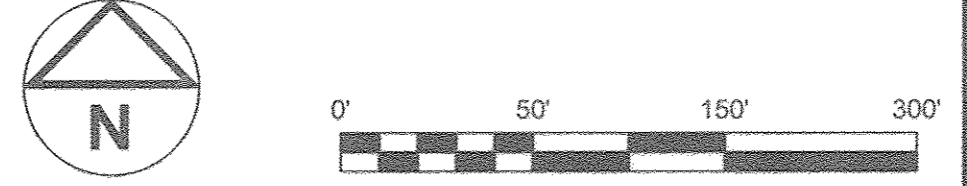
FCP NOTES

- Any Forest Conservation Easement (FCE) area shown hereon is subject to protective covenants which may be found in the Land Records of Howard County and which restrict the disturbance and use of these areas.
- There shall be no clearing, grading, construction or disturbance of vegetation in the Forest Conservation Easement except as permitted by Howard County.
- No stockpiles, parking areas, equipment cleaning areas, etc. shall occur within areas designated as Forest Conservation Easements.
- Permanent signage shall be placed 100' apart along the boundaries of all areas included in Forest Conservation Easements.

FOA COMPLIANCE NOTES - JULY 19 2017 UPDATE
1. DUE TO IMPROVEMENTS REQUIRED TO IMPROVE THE EXISTING SEWER HOUSE CONNECTION, 4040 SQ. FT. OF THE PREVIOUSLY DEFINED FCE WILL BE REMOVED FROM THE EASEMENT AND MAINTAINED AS A DRAINAGE HOUSE CONNECTION AREA.
2. THE PROJECT WILL COMPLY WITH THE FOREST CONSERVATION ACT REQUIREMENTS BY PLACING 1.0 ACRES OF ONSITE FOREST INTO A CONSERVATION EASEMENT AND REFORESTATION OF 0.2 ACRES. THE REFORESTATION OBLIGATION WILL BE MET THROUGH PAYMENT INTO THE COUNTY FEE-IN-LIEU FUND.

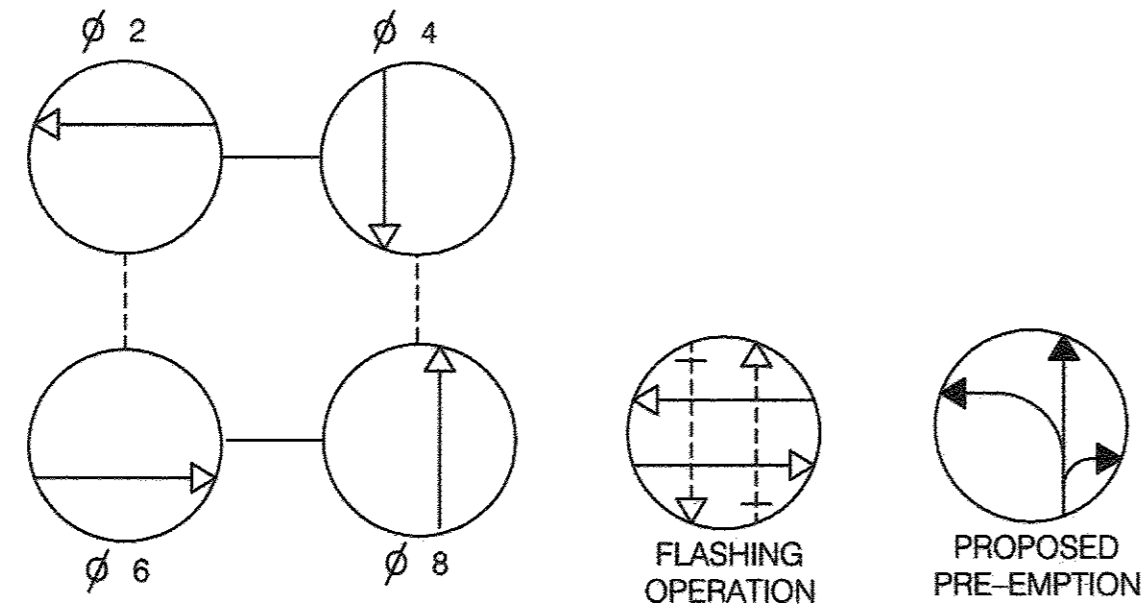
NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	09/28/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
DATE: 9-30-16
DATE: 10-3-16



PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 30026, EXPIRATION DATE: JUNE 28, 2017

NEMA PHASING



PHASING NOTES:
 1.) PHASES ASSOCIATED BY A SOLID LINE WILL NOT OPERATE CONCURRENTLY.
 2.) PHASES ASSOCIATED BY A DASHED LINE MAY OPERATE CONCURRENTLY.

EXISTING VIDEO DETECTION CAMERAS

A/B
C/D

EXISTING SIGN



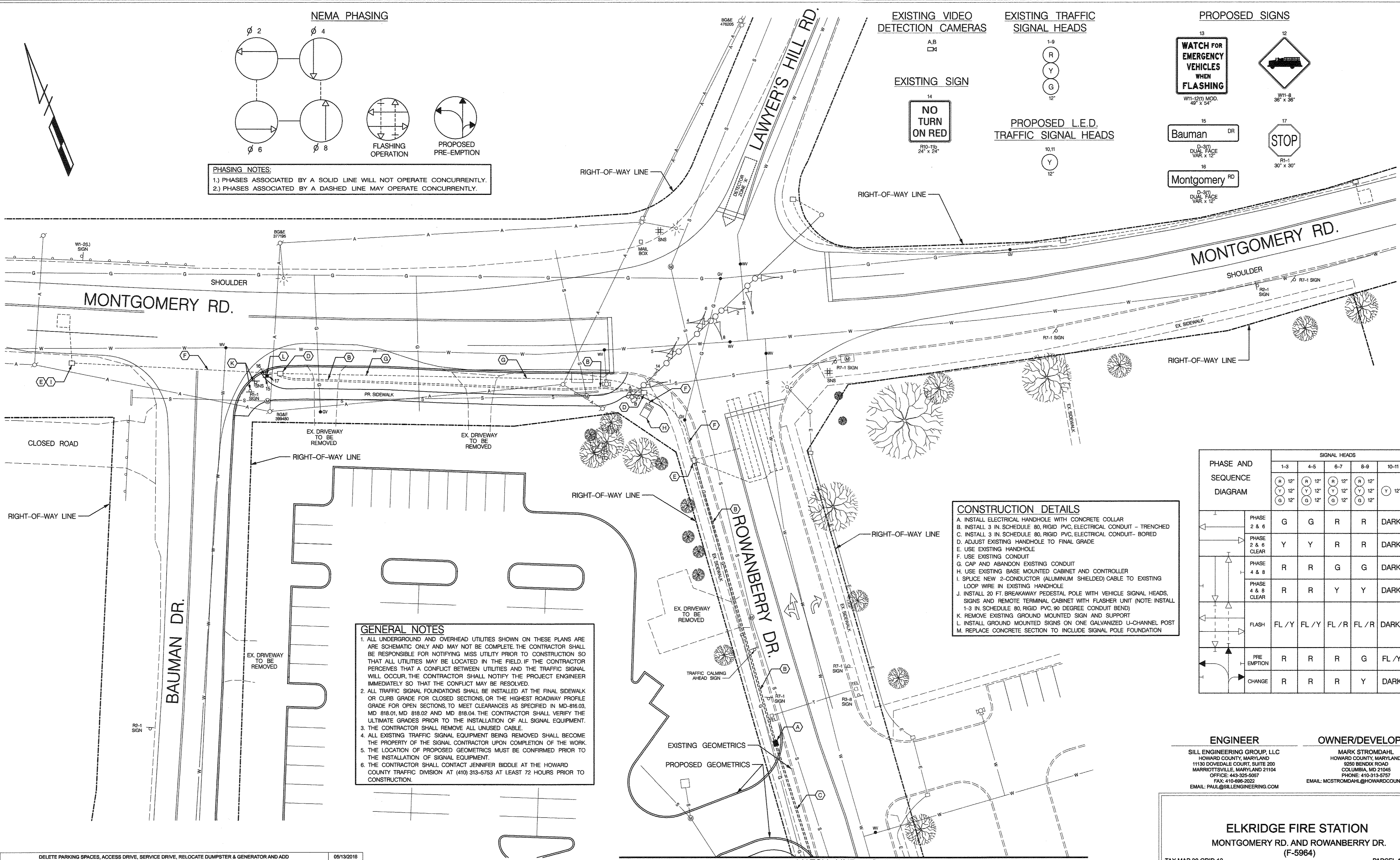
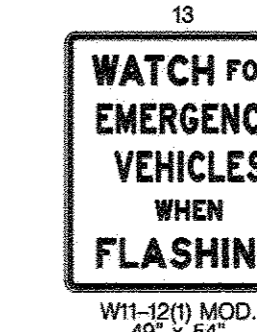
EXISTING TRAFFIC SIGNAL HEADS



PROPOSED L.E.D. TRAFFIC SIGNAL HEADS



PROPOSED SIGNS



CONSTRUCTION DETAILS

- A. INSTALL ELECTRICAL HANDHOLE WITH CONCRETE COLLAR
- B. INSTALL 3 IN. SCHEDULE 80, RIGID PVC, ELECTRICAL CONDUIT - TRENCHED
- C. INSTALL 3 IN. SCHEDULE 80, RIGID PVC, ELECTRICAL CONDUIT- BORED
- D. ADJUST EXISTING HANDHOLE TO FINAL GRADE
- E. USE EXISTING HANDHOLE
- F. USE EXISTING CONDUIT
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- K. REMOVE EXISTING GROUND MOUNTED SIGN AND SUPPORT
- L. INSTALL GROUND MOUNTED SIGNS ON ONE GALVANIZED U-CHANNEL POST
- M. REPLACE CONCRETE SECTION TO INCLUDE SIGNAL POLE FOUNDATION

GENERAL NOTES

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2. ALL TRAFFIC SIGNAL FOUNDATIONS SHALL BE INSTALLED AT THE FINAL SIDEWALK OR CURB GRADE FOR CLOSED SECTIONS, OR THE HIGHEST ROADWAY PROFILE GRADE FOR OPEN SECTIONS, TO MEET CLEARANCES AS SPECIFIED IN MD-816.03, MD 818.01, MD 818.02 AND MD 818.04. THE CONTRACTOR SHALL VERIFY THE ULTIMATE GRADES PRIOR TO THE INSTALLATION OF ALL SIGNAL EQUIPMENT.
3. THE CONTRACTOR SHALL REMOVE ALL UNUSED CABLE.
4. ALL EXISTING TRAFFIC SIGNAL EQUIPMENT BEING REMOVED SHALL BECOME THE PROPERTY OF THE SIGNAL CONTRACTOR UPON COMPLETION OF THE WORK.
5. THE LOCATION OF PROPOSED GEOMETRICS MUST BE CONFIRMED PRIOR TO THE INSTALLATION OF SIGNAL EQUIPMENT.
6. THE CONTRACTOR SHALL CONTACT JENNIFER BIDDLE AT THE HOWARD COUNTY TRAFFIC DIVISION AT (410) 313-5753 AT LEAST 72 HOURS PRIOR TO CONSTRUCTION.

PHASE AND SEQUENCE DIAGRAM	SIGNAL HEADS				
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	R 12"	Y 12"	G 12"	R 12"	Y 12"

ENGINEER OWNER/DEVELOPER

SILL ENGINEERING GROUP, LLC
 HOWARD COUNTY, MARYLAND
 1130 DOVEDALE COURT, SUITE 200
 MARRIOTTVILLE, MARYLAND 21104
 OFFICE: 443-325-5067
 FAX: 410-698-3022
 EMAIL: PAUL@SILLENGINEERING.COM

MARK STROMDAHL
 HOWARD COUNTY, MARYLAND
 5250 BENDIX ROAD
 COLUMBIA, MD 21045
 PHONE: 410-313-8757
 EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV

ELKCRIDGE FIRE STATION
 MONTGOMERY RD. AND ROWANBERRY DR.
 (F-5964)

TAX MAP 38 GRID 12 1ST ELECTION DISTRICT PARCEL 402 & 403 A2 HOWARD COUNTY, MARYLAND

5/26/2016

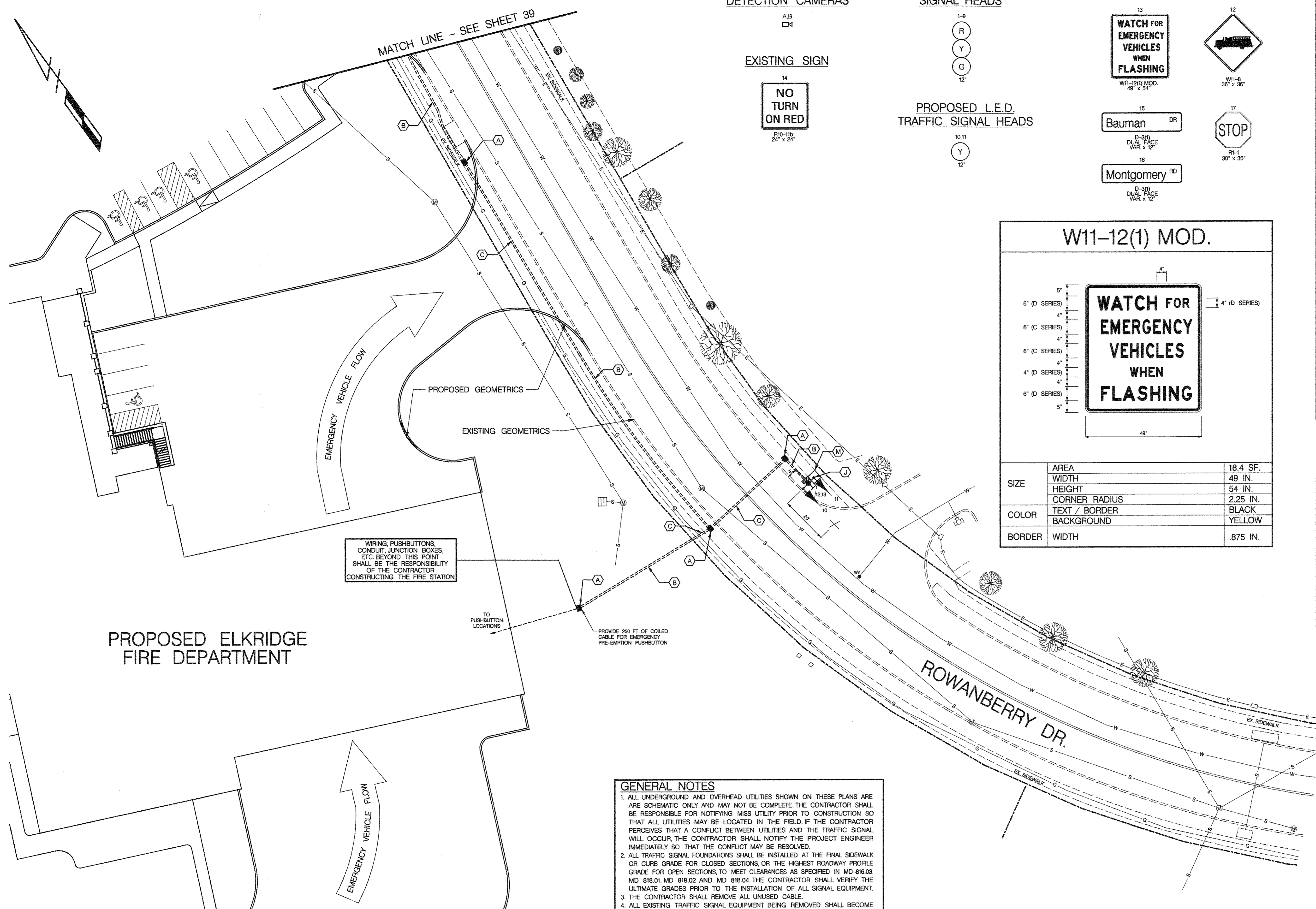
TRAFFIC CONCEPTS, INC.
 7525 Connelley Drive
 Suite B
 Hanover, MD 21076
 (410) 760-2911
 FAX: (410) 760-2915
 EMAIL: TRAFFIC@TRAFFIC-CONCEPTS.COM

DESIGN BY: A.M.R.
 DRAWN BY: A.M.R.
 CHECKED BY: J.K.S.
 SCALE: 1" = 20'
 DATE: MAY 26, 2016
 PROJECT #: 16-020
 SHEET #: 39 of 41

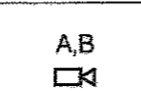
PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 42413, EXPIRATION DATE: JUNE 6, 2016

1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE SERVICE DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	05/19/2016
NO.	DESCRIPTION	DATE
REVISIONS		
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING		
	DATE: 9-30-16	
CHIEF, DEVELOPMENT ENGINEERING DIVISION		
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS		
	DATE: 9/29/16	
DIRECTOR OF PUBLIC WORKS		
APPROVED: CHIEF, BUREAU OF UTILITIES		
	DATE: 9/29/16	
CHIEF, BUREAU OF UTILITIES		
APPROVED: CHIEF, BUREAU OF HIGHWAYS, TRAFFIC DIVISION		
	DATE: 10-3-16	
DIRECTOR		

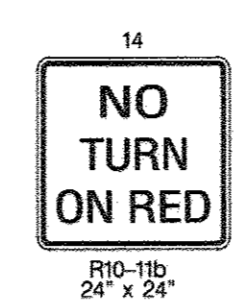
MATCH LINE - SHEET 40



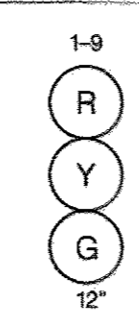
EXISTING VIDEO DETECTION CAMERAS



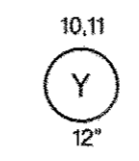
EXISTING SIGN



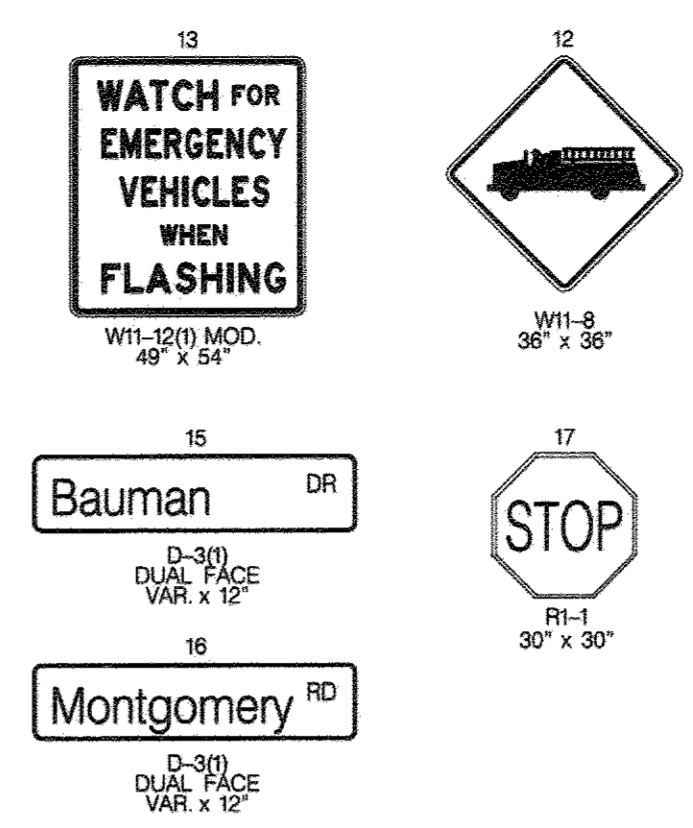
EXISTING TRAFFIC SIGNAL HEADS



PROPOSED L.E.D. TRAFFIC SIGNAL HEADS



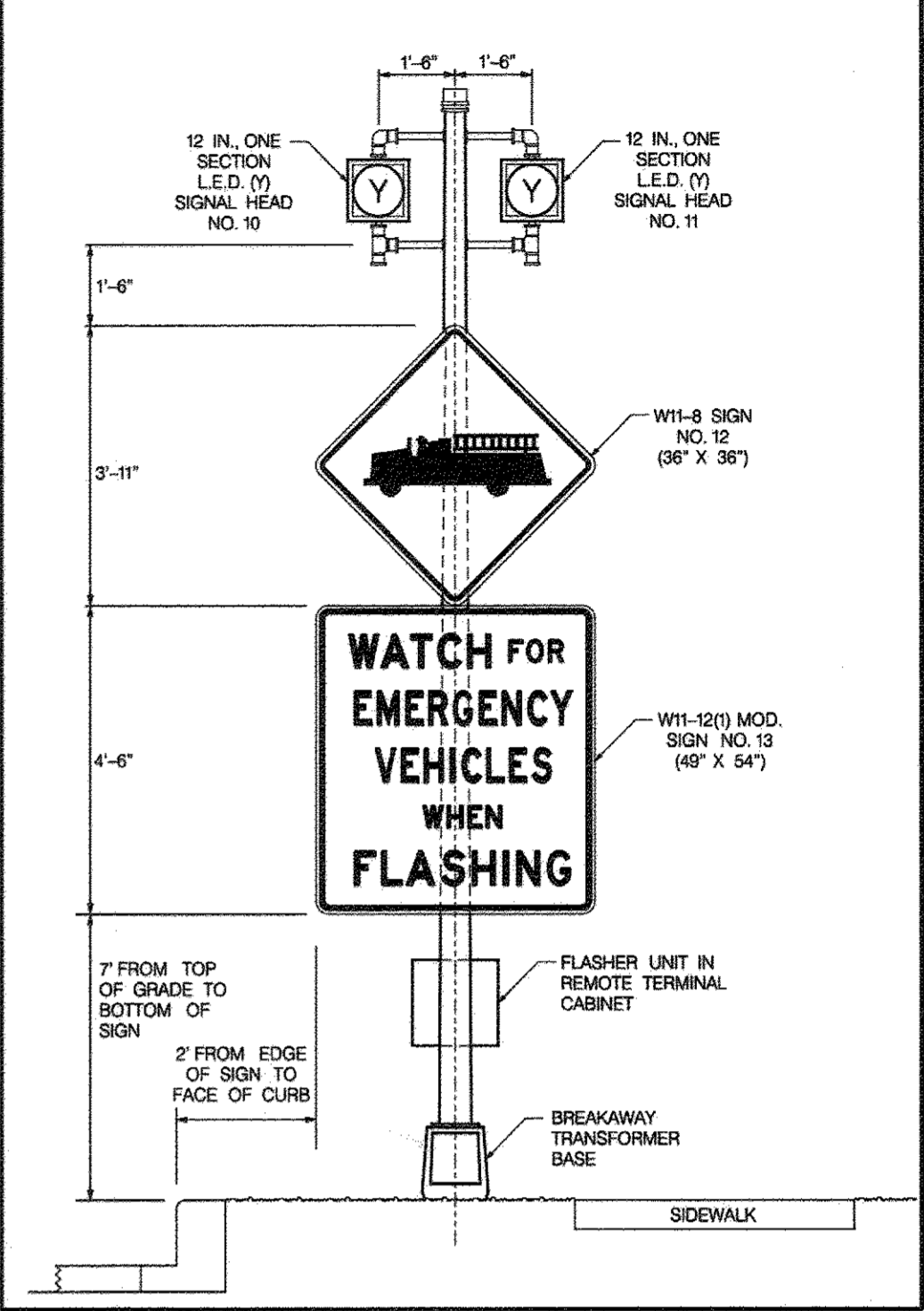
PROPOSED SIGNS



W11-12(1) MOD.

SIZE	AREA	18.4 SF.
	WIDTH	49 IN.
	HEIGHT	54 IN.
	CORNER RADIUS	2.25 IN.
COLOR	TEXT / BORDER	BLACK
	BACKGROUND	YELLOW
BORDER	WIDTH	.875 IN.

HAZARD IDENTIFICATION BEACON DETAIL



CONSTRUCTION DETAILS

- INSTALL ELECTRICAL HANDHOLE WITH CONCRETE COLLAR
- INSTALL 3 IN. SCHEDULE 80, RIGID PVC, ELECTRICAL CONDUIT - TRENCHED
- INSTALL 3 IN. SCHEDULE 80, RIGID PVC, ELECTRICAL CONDUIT - BORED
- ADJUST EXISTING HANDHOLE TO FINAL GRADE
- USE EXISTING HANDHOLE
- USE EXISTING CONDUIT
- CAP AND ABANDON EXISTING CONDUIT
- USE EXISTING BASE MOUNTED CABINET AND CONTROLLER
- SPLICE NEW 2-CONDUCTOR (ALUMINUM SHIELDED) CABLE TO EXISTING LOOP WIRE IN EXISTING HANDHOLE
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NO.	DESCRIPTION	DATE
REVISIONS		
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING		
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS		
<i>Paul Edwards</i> CHIEF, DEVELOPMENT ENGINEERING DIVISION	9-30-16	DATE
<i>Kurtis J. J. J.</i> CHIEF, DIVISION OF LAND DEVELOPMENT	9-30-16	DATE
<i>William J. J.</i> DIRECTOR	10-3-16	DATE
<i>John J. J.</i> DIRECTOR OF PUBLIC WORKS	9/29/16	DATE
<i>James J. J.</i> CHIEF, BUREAU OF UTILITIES	9/29/16	DATE
<i>Michael J. J.</i> CHIEF, BUREAU OF HIGHWAYS, TRAFFIC DIVISION	9/29/2016	DATE

ENGINEER
SILL ENGINEERING GROUP, LLC
HOWARD COUNTY, MARYLAND
1130 DOVEDALE COURT, SUITE 200
MARRIOTTSVILLE, MARYLAND 21104
OFFICE: 443-325-5087
FAX: 410-999-2022
EMAIL: PAUL@SILLENGINEERING.COM

OWNER/DEVELOPER
MARK STROMDAHL
HOWARD COUNTY, MARYLAND
5250 BENDIX ROAD
COLUMBIA, MD 21045
PHONE: 410-313-5757
EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV

ELKRIDGE FIRE STATION
MONTGOMERY RD. AND ROWANBERRY DR.
(F-5964)

TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

5/26/2016

TRAFFIC CONCEPTS, INC.
7525 Connelley Drive
Suite B
Hanover, MD 21076
(410) 760-2911
FAX: (410) 760-2915
EMAIL: TRAFFIC@TRAFFIC-CONCEPTS.COM

DESIGN BY: A.M.R.
DRAWN BY: A.M.R.
CHECKED BY: J.K.S.
SCALE: 1" = 20'
DATE: MAY 26, 2016
PROJECT #: 16-020
SHEET #: 40 of 41

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 42413, EXPIRATION DATE: JUNE 6, 2018

PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE INSTALLATION OF A NORTHBOUND ROWANBERRY DR. EMERGENCY PRE-EMPTION PHASE AND A HAZARD IDENTIFICATION BEACON (H.I.B.) FOR THE PROPOSED ELKCRIDGE FIRE DEPARTMENT. THE STATION WILL BE LOCATED IN THE SOUTH-WEST CORNER OF THE INTERSECTION OF MONTGOMERY ROAD AND ROWANBERRY DR./LAWYER'S HILL RD. IN HOWARD COUNTY. MONTGOMERY RD. IS ASSUMED TO RUN IN AN EAST-WEST DIRECTION.

INTERSECTION OPERATION

THE INTERSECTION CURRENTLY OPERATES IN A NEMA FOUR-PHASE, FULLY-ACTUATED MODE. THIS OPERATION WILL NOT CHANGE EXCEPT FOR THE INSTALLATION OF THE NEW PRE-EMPTION PHASE.

CONTROLLER REQUIREMENTS

THE PROPOSED H.I.B. WILL REQUIRE A REMOTE TERMINAL CABINET WITH A FLASHER UNIT.

EQUIPMENT LIST "A"

A. EQUIPMENT TO BE FURNISHED BY HOWARD COUNTY AND INSTALLED BY THE CONTRACTOR

QUANTITY	DESCRIPTION
NONE	

EQUIPMENT LIST "B"

B. EQUIPMENT TO BE FURNISHED AND/OR INSTALLED BY CONTRACTOR. ALL EQUIPMENT SHALL HAVE CATALOG CUTS SUBMITTED TO HOWARD COUNTY FOR APPROVAL PRIOR TO INSTALLATION.

QUANTITY	DESCRIPTION
1 LS	MAINTENANCE OF TRAFFIC
1 CY	TEST PIT EXCAVATION
1 EA	REMOTE TERMINAL CABINET - POLE MOUNT
16 SF	5 IN. CONCRETE SIDEWALK
2 EA	12 IN. L.E.D. SIGNAL HEAD SECTION
1 CY	CONCRETE FOUNDATION FOR SIGNAL
1 EA	20 FT. BREAKAWAY PEDESTAL POLE
5 EA	ELECTRICAL HANDHOLE WITH CONCRETE COLLAR
2 EA	ADJUST EXISTING HANDHOLE TO GRADE
540 LF	3 IN. SCHEDULE 80 RIGID PVC ELECTRICAL CONDUIT - TRENCHED
220 LF	3 IN. SCHEDULE 80 RIGID PVC ELECTRICAL CONDUIT - BORED
320 LF	ELECTRICAL CABLE 2 - CONDUCTOR (ALUMINUM SHIELDED)
875 LF	ELECTRICAL CABLE 3 - CONDUCTOR (NO. 14 A.W.G.)
625 LF	ELECTRICAL CABLE 5 - CONDUCTOR (NO. 14 A.W.G.)
730 LF	STRANDED BARE COPPER GROUND WIRE (NO. 6 A.W.G.)
2 EA	3/4 IN. X 10 FT. GROUND ROD
1 EA	W11-8 (36" X 36") SIGN - POLE MOUNT
1 EA	W11-12(1) MOD. (49" X 54") SIGN - POLE MOUNT
2 EA	D-3(1) (VAR. X 12") DUAL FACE SIGN - GROUND MOUNT
1 EA	R1-1 (30" X 30") SIGN - GROUND MOUNT
20 LF	GALVANIZED STEEL SUPPORT FOR GROUND MOUNTED SIGN
3 EA	REMOVE EXISTING SIGN - GROUND MOUNT

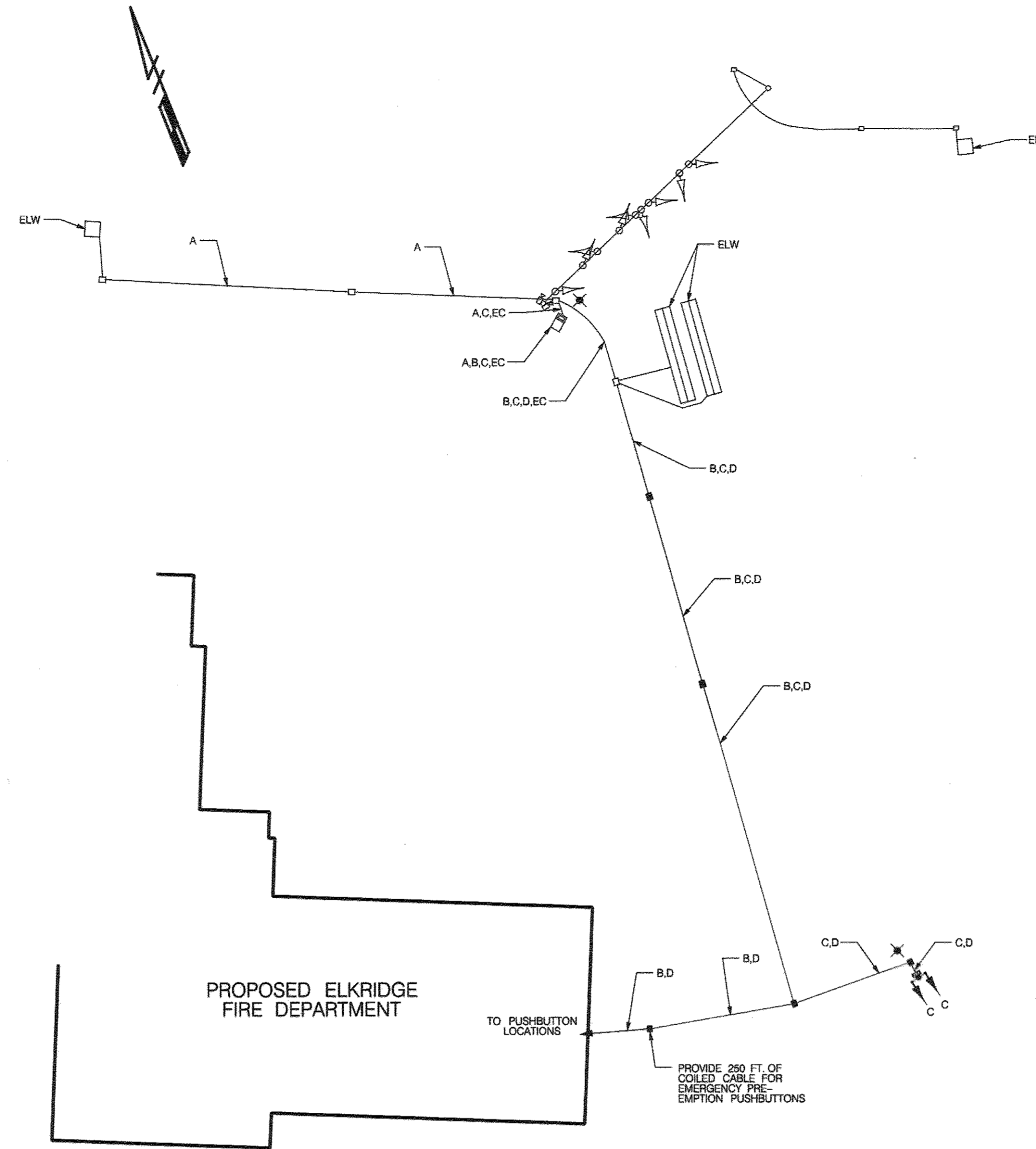
EQUIPMENT LIST "C"

C. EXISTING EQUIPMENT TO BE REMOVED BY THE CONTRACTOR AND DELIVERED TO HOWARD COUNTY. THE CONTRACTOR SHALL NOTIFY THE COUNTY AT LEAST THREE DAYS IN ADVANCE OF DELIVERY.

QUANTITY	DESCRIPTION
NONE	

ALL SIGNAL EQUIPMENT TO BE REMOVED AND NOT RETURNED TO THE SHA SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

WIRING DIAGRAM



- WIRING KEY**
- A 2-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.) ALUMINUM SHIELDED
 - B 3-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
 - C 5-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
 - D STRANDED BARE COPPER GROUND WIRE (NO. 6 A.W.G.)
 - ELW EXISTING LOOP WIRE (NO. 14 A.W.G.)
 - EC EXISTING CABLE
 - X GROUND ROD

ENGINEER OWNER/DEVELOPER

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NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE SERVICE DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	09/13/2016

REVISIONS

APPROVED:	DATE	APPROVED:	DATE
	9-30-16		9/25/16
CHIEF, DEVELOPMENT ENGINEERING DIVISION		DIRECTOR OF PUBLIC WORKS	
	9-30-16		9/29/16
CHIEF, DIVISION OF LAND DEVELOPMENT		CHIEF, BUREAU OF UTILITIES	
	10-3-16		9/27/2016
DIRECTOR		CHIEF, BUREAU OF HIGHWAYS, TRAFFIC DIVISION	