

GENERAL NOTES

- 1.) 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 ANY WORK.
2.) THE CONTRACTOR SHALL NOTIFY 'MISS UTILITY' AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
3.) THIS PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.
4.) THE SUBJECT PROPERTY IS ZONED FOR PER THE 10-06-2013 COMPREHENSIVE ZONING PLAN.
5.) COORDINATES BASED ON NAD '83, MARYLAND COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 3511 AND 3512.
6.) TRACT BOUNDARY IS BASED ON A FIELD ROUN SURVEY PERFORMED BY BENCHMARK ENGINEERING, INC. APRIL, 2015.
7.) THE EXISTING TOPOGRAPHY ON-SITE SHOWN WAS FIELD SURVEYED BY BENCHMARK ENGINEERING, INC. IN APRIL 15, 2015 WITH 2'-FOOT CONTOUR INTERVALS.
8.) A NOISE STUDY WAS PREPARED BY W.T. BALLARD, DATED MARCH, 2008 AND APPROVED ON JUNE 9, 2008. A REVISED STUDY WAS PREPARED BY MARS GROUP, INC. DATED APRIL 8, 2015. A SECOND REVISION WAS PREPARED BY MARS GROUP, INC. DATED AUGUST 4, 2015 AND APPROVED ON Sept. 24, 2015.
9.) AN APFO TRAFFIC STUDY WAS PREPARED BY LEE CUNNINGHAM & ASSOCIATES, INC. DATED FEBRUARY, 2005 AND APPROVED UNDER SP-05-008. IT WAS AMENDED BY TRAFFIC CONCEPTS IN JUNE, 2007 AND THE TRAFFIC GROUP ON JUNE 6, 2008 AND APPROVED ON JULY 29, 2008. A REVISED TRAFFIC IMPACT STUDY WAS PREPARED BY THE TRAFFIC GROUP IN JANUARY, 2012 AND SUBMITTED WITH SDP-12-015. THE REPORT WAS APPROVED ON JUNE 16, 2015.
10.) THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT.
11.) WATER IS PUBLIC. THE CONTRACT NUMBER FOR PHASE 1 IS 34-4373-D. THE CONTRACT NUMBER FOR PHASE 2 IS 34-4739-D. THE CONTRACT NUMBER FOR PHASE 3 IS 34-4927-D.
12.) SEWER IS PUBLIC. THE CONTRACT NUMBER FOR PHASE 1 IS 34-4373-D. THE CONTRACT NUMBER FOR PHASE 2 IS 34-4739-D. THE CONTRACT NUMBER FOR PHASE 3 IS 34-4927-D.
13.) THIS SUBDIVISION IS SUBJECT TO SECTION 18.122B OF THE HOWARD COUNTY CODE. PUBLIC WATER AND/OR SEWER SERVICE HAS BEEN GRANTED UNDER THE TERMS AND PROVISIONS, THEREOF, EFFECTIVE 2-23-2016, ON WHICH DATE DEVELOPER AGREEMENT #34-4927 WAS FILED AND ACCEPTED. WATER AND SEWER CONTRACT #34-4927-D WAS APPROVED ON AUGUST 24, 2015.
14.) WETLAND AND FOREST STAND DELINEATIONS WERE CONDUCTED BY AB CONSULTANTS, INC. AND WERE SUBMITTED AND APPROVED UNDER 5-05-008. BUILDABLE PARCEL 'A' CONTAINS NO WETLANDS, STREAMS, THEIR BUFFERS OR STEEP SLOPES.
15.) THE 100YR FLOODPLAIN STUDY WAS PREPARED BY KIDDIE CONSULTANTS, INC. DATED JUNE 23, 1978 FOR HOWARD COUNTY, MARYLAND AND UPGRADED BY AB CONSULTANTS, INC. FOR SP-08-002 AND APPROVED ON JUNE 9, 2008.
16.) NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING OR NEW STRUCTURES SHALL BE PERMITTED WITHIN THE REQUIRED WETLANDS, STREAM(S), THEIR BUFFERS, FOREST CONSERVATION EASEMENT AREAS OR 100YR FLOODPLAIN EXCEPT FOR THE CONSTRUCTION OF THE PATHWAY AS PERMITTED BY APPROVAL OF WP-12-029.
17.) TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO CEMETERY LOCATIONS ON THESE LOTS.
18.) THERE ARE NO HISTORIC SITES/FEATURES LOCATED ON THESE LOTS.
19.) THE 65 DBA NOISE CONTOUR LINE DRAWN ON THIS DEVELOPMENT PLAN IS ADVISORY AS REQUIRED BY THE HOWARD COUNTY DESIGN MANUAL, CHAPTER 5, REVISED FEBRUARY, 1992, AND CANNOT BE CONSIDERED TO EXACTLY LOCATE THE 65 DBA NOISE EXPOSURE. THE 65 DBA NOISE LINE WAS ESTABLISHED BY HOWARD COUNTY TO ALERT DEVELOPERS, BUILDERS AND FUTURE RESIDENTS THAT AREAS BEYOND THIS BOUNDARY MAY EXCEED GENERALLY ACCEPTED NOISE LEVELS ESTABLISHED BY THE U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT.
20.) STORMWATER MANAGEMENT WILL BE PROVIDED IN ACCORDANCE WITH THE STORMWATER MANAGEMENT ACT OF 2007, ENVIRONMENTAL DESIGN (ESD) HAS BEEN COMPLETED BY THE USE OF MICRO-BIORETENTION (M-6), LANDSCAPE INFILTRATION (M-3), DRY WELLS (M-5) POROUS PAVEMENT (A-2) AND GRASS SWALE (M-8) FACILITIES. ALL ECP PRACTICES SHALL BE PRIVATELY OWNED AND MAINTAINED BY THE H.O.A. ECP-11-058 WAS APPROVED FOR THIS PARCEL ON 6-21-11.
21.) FINANCIAL SURETY FOR THE PERIMETER LANDSCAPING, PRIVATE STREET TREES, SHM AND UNIT PLANTINGS IN ACCORDANCE WITH THE LANDSCAPE MANUAL SHALL BE POSTED WITH THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$27,450.00 FOR 78 SHADE TREES, 21 EVERGREENS, & 30 SHRUBS POSTED WITH THE DEVELOPER'S AGREEMENT FOR THIS SDP-15-057.
22.) THE TOTAL FOREST CONSERVATION OBLIGATION HAS BEEN MET BY SDP-12-015 BY THE ON-SITE RETENTION OF 4.51 AC. OF NET TRACT AREA FOREST WITHIN A FOREST CONSERVATION EASEMENT AND THE OFFSITE PLANTING OF 5.38 ACRES WITHIN THE FOREST MITIGATION BANK LOCATED WITHIN THE PRESERVE AT CHARLESVILLE SUBDIVISION (F-06-072). FINANCIAL SURETY FOR THE OFF-SITE PLANTING WAS POSTED AS PART OF THE DPW DEVELOPERS AGREEMENT FOR F-06-072.
23.) DRIVEWAYS SHALL BE PROVIDED PRIOR TO ISSUANCE OF A USE AND OCCUPANCY PERMIT FOR ANY NEW DWELLINGS TO INSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING MINIMUM REQUIREMENTS:
a) WIDTH - 12' (16' SERVING MORE THAN ONE RESIDENCE).
b) SURFACE - 6" OF COMPACT CRUSHER RUN BASE WITH TAR AND CHIP COATING (1 1/2" MIN. THICKNESS).
c) GEOMETRY - MAXIMUM 15% GRADE, MAXIMUM 10% GRADE CHANGE AND MINIMUM 45' TURNING RADIUS.
d) STRUCTURES (CULVERTS/BRIDGES) - CAPABLE OF SUPPORTING 25 GROSS TONS (H25 LOADINGS).
e) DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100 YEAR FLOODPLAIN WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY.
f) STRUCTURE CLEARANCES - MINIMUM 12 FEET.
g) MAINTENANCE - SUFFICIENT TO INSURE ALL WEATHER USE.
24.) IN ACCORDANCE WITH SECTION 128.0 OF THE HOWARD COUNTY ZONING REGULATIONS, BAY WINDOWS, CHIMNEYS OR EXTERIOR STAIRWAYS NOT MORE THAN 16 FEET IN WIDTH MAY PROJECT NOT MORE THAN 4 FEET INTO ANY SETBACKS, PORCHES OR DECKS, OPEN OR ENCLOSED MAY PROJECT NOT MORE THAN 4 FEET INTO THE FRONT OR REAR YARD SETBACK. ALSO PER SECTION 128.0.A.1 OF THE ZONING REGULATIONS, THE OPEN PORCH OF THE MODELS SHOWN ON LOTS 164 AND 165 CAN PROJECT INTO THE REQUIRED BUILDING TO BUILDING SETBACK OF 15'.
25.) ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
26.) THE PURPOSE OF OPEN SPACE LOT 175 IS FOR PRIVATE ACCESS TO THE LOTS AND FOR PRIVATE STORMWATER MANAGEMENT ESD PRACTICES AND FOR RECREATIONAL PURPOSES. THIS LOT IS PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION.
27.) WP-12-029, A REQUEST TO WAIVE SECTION 16.120(C)(4), TO NOT BE REQUIRED TO PROVIDE ANY OF THE REQUIRED MINIMUM 'SINGLE FAMILY ATTACHED' LOT FRONTAGE OF 15 FEET ON AN APPROVED PUBLIC ROAD, AND, TO BE PERMITTED TO HAVE THE 'SINGLE FAMILY ATTACHED' LOTS FRONT ON A PRIVATE ROAD EXCEEDING A LENGTH OF 200 FEET MEASURED FROM THE EDGE OF A PUBLIC ROAD RIGHT-OF-WAY WAS APPROVED ON OCTOBER 6, 2011 WITH THE FOLLOWING CONDITIONS:
1. A HOMEOWNERS ASSOCIATION SHALL BE CREATED FOR THIS DEVELOPMENT IN ACCORDANCE WITH SUBSECTION 16.121(C).
2. THE PRIVATE ROADS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE DED, DPW AND DFRS.
3. THE PRIVATE ROADS SHALL BE MAINTAINED BY THE HOA AND THE OWNERS OF BUILDABLE BULK PARCEL 'A'.
4. SIDEWALKS SHALL BE PROVIDED ALONG BOTH SIDES OF ALL PRIVATE STREETS, AND ALONG CEDAR LANE, IN ACCORDANCE WITH THE REQUIREMENTS OF SUBDIVISION SECTION 16.134.
5. STREET TREES SHALL BE PROVIDED ALONG BOTH SIDES OF ALL PRIVATE ROADS, AND CEDAR LANE, IN ACCORDANCE WITH THE REQUIREMENTS OF SUBDIVISION SECTION 16.124 AND THE LANDSCAPE MANUAL.
6. SUBJECT TO THE REPRODUCTION OF F-12-025.
28.) TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNS SHALL BE IN ACCORDANCE WITH THE LATEST 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.
29.) STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III (1993) AND AS MODIFIED BY 'GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 1993)'. A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN AND STREET LIGHT AND ANY TREE.
30.) 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 2.5" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) - 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
31.) ALL PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.

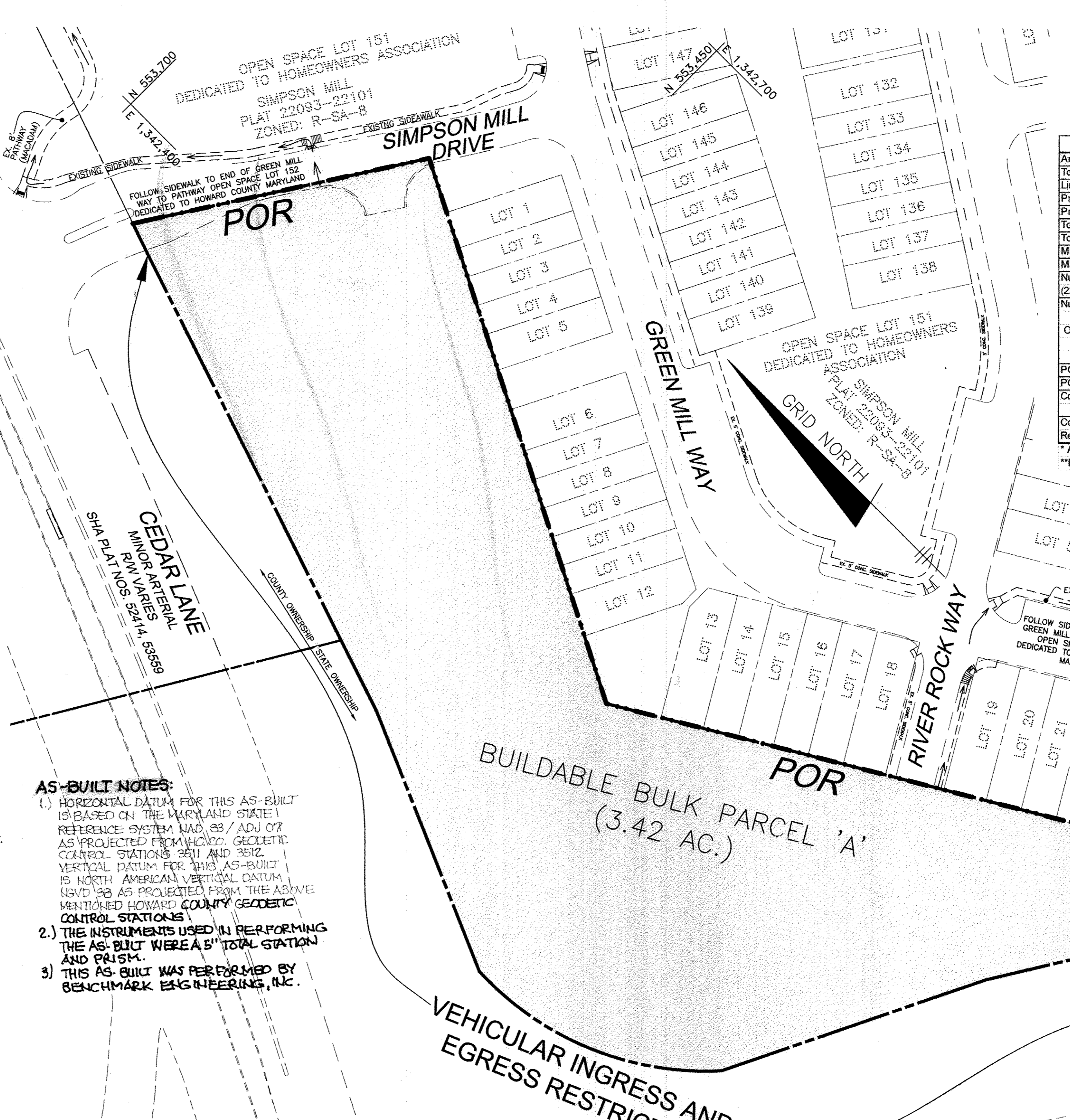
- 32.) PER ZONING, 10% OF ALL UNITS ON THIS PLAN, RESUBDIVISION OF BULK PARCEL 'A', MUST BE MODERATE INCOME HOUSING UNITS (MIHU). THE UNITS (10% OF 22) PER SECTION 115.0.E.3(C) OF THE HOWARD COUNTY ZONING REGULATIONS. THE DEVELOPER IS PROVIDING THE 3 REQUIRED MODERATE INCOME HOUSING UNITS THROUGH A CERTIFICATE APPROVED BY THE HOUSING DEPARTMENT PER HOWARD COUNTY CODE, SECTION 13.402(G), ALTERNATIVE OF PROVIDING REHABILITATED EXISTING MODERATE INCOME HOUSING UNITS. AT A RATIO OF 3 MODERATE INCOME HOUSING UNITS PER 1 LOW INCOME HOUSING UNIT. ONE LIHU WILL BE PROVIDED AT 10472 FAULKNER RIDGE CIRCLE, COLUMBIA MD, 21044. AGREEMENTS WITH THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION PLAT # 18-093.
33.) WP-12-029, A REQUEST TO WAIVE SECTIONS 16.155(A)(2)(ii), 16.120(C)(3) AND 16.120(C)(7) TO PROCESS AND USE AN APPROVED GRADING AND AN INSTRUMENT OF SITE DEVELOPMENT PLAN FOR THE MASS GRADING OF THE SITE, TO TEMPORARILY DEFER COMPLIANCE WITH THE REQUIREMENTS OF THE FOREST CONSERVATION ACT UNTIL THE SITE DEVELOPMENT PLAN STAGE, AND TO GRANT PERMISSION FOR THE REMOVAL OF 13 EXISTING SPECIMEN TREES WAS APPROVED ON SEPTEMBER 14, 2011 WITH THE FOLLOWING CONDITIONS:
1. COMPLIANCE WITH THE REQUIREMENT OF THE FOREST CONSERVATION ACT OF HOWARD COUNTY FOR THIS PROJECT SHALL BE DEFERRED TEMPORARILY TO THE FUTURE SITE DEVELOPMENT PLAN FOR THIS SITE.
2. COMPLIANCE WITH THE MSHA COMMENTS INCLUDED WITH THE DED COMMENTS DATED 08/26/2011.
3. COMPLIANCE WITH THE DRP COMMENTS DATED 09/09/2011.
4. THE SUBMISSION AND ISSUANCE OF ALL APPLICABLE PERMITS REQUIRED BY THE D.I.L.P.
34.) IN ACCORDANCE WITH SECTION 133.0.D.2.C. OF THE ZONING REGULATIONS, 2.3 PARKING SPACES PER UNIT ARE REQUIRED FOR A TOTAL OF 51 SPACES REQUIRED. EACH UNIT WILL PROVIDE A MINIMUM OF 2 GARAGE PARKING SPACES AND THE SITE WILL PROVIDE 7 OVERFLOW SPACES FOR A TOTAL OF 51 ON SITE SPACES PROVIDED.
35.) TRASH COLLECTION: TRASH COLLECTION FOR THIS SUBDIVISION SHALL BECOME PUBLIC ON THE JULY 1ST AFTER ALL CONSTRUCTION IS COMPLETE. UNTIL SUCH TIME, THE COLLECTION WILL BE PRIVATE.
36.) A REQUEST FOR RECONSIDERATION OF WP-12-029, A REQUEST TO WAIVE SECTION 16.115(C)(2), TO BE PERMITTED TO CONSTRUCT A PAVED PATHWAY WITHIN THE ONSITE FLOODPLAIN, AND, 16.115(C)(2)(ii), TO BE PERMITTED TO CONSTRUCT A PAVED PATHWAY WITHIN THE ONSITE 75' STREET BUFFER, AND, 16.120(C)(1), TO NOT BE REQUIRED TO PROVIDE ANY OF THE REQUIRED MINIMUM LOT FRONTAGE OF 60 FEET ON AN APPROVED PUBLIC ROAD WHICH PROVIDES ACCESS TO THE PROPERTY FOR THE PROPOSED BULK PARCEL 'A' (ZONING) WITH FRONTAGE ON THE EXISTING VEHICULAR ACCESS TO RESTRICTED PUBLIC ROADS, CEDAR LANE AND MARYLAND ROUTE 32, AND A PRIVATE ROAD THAT IS INTERNAL TO THE SUBDIVISION, AND, 16.134(a)(1), TO NOT BE REQUIRED TO CONSTRUCT SIDEWALKS ON BOTH SIDES OF ALL STREETS IN THE PROJECT AND ALONG THE PROJECT FRONTAGE WAS APPROVED ON DECEMBER 1, 2011 WITH THE FOLLOWING CONDITIONS:
1. THE PRIVATE ROADS SHALL BE MAINTAINED BY THE HOA AND THE OWNERS OF BUILDABLE BULK PARCEL 'A'.
2. THE SECTION OF PROPOSED PATHWAY SHOWN OUTSIDE OF THE 'EXISTING RIGHT-OF-WAY FOR INTERCEPTOR SEWER 1132/129' TO THE SOUTH OF THE 'EX. ROCK' TO BE UTILIZED FOR PROPOSED PATHWAY" ON THE EXHIBIT/PLAN SUBMITTED ON 11/04/2011 FOR THIS WAIVER PETITION RECONSIDERATION SHALL BE RELOCATED SOUTHWARD TO THE NON-FORESTED AREA OF THE 'EXISTING RIGHT-OF-WAY FOR INTERCEPTOR SEWER 1132/129'.
3. SIDEWALKS SHALL BE PROVIDED ALONG THE PRIVATE ROADS AS SHOWN ON THE EXHIBIT/PLAN SUBMITTED ON 11/04/2011 FOR THIS WAIVER PETITION RECONSIDERATION. WITH THE FOLLOWING ADDITIONAL CONNECTIONS:
A. THE PROPOSED SIDEWALK ALONG SOUTH SIDE OF RIVER ROCK WAY SHALL BE EXTENDED TO CONNECT WITH THE PROPOSED PATHWAY AT THE WEST END OF THE STREET.
B. THE PROPOSED SIDEWALK ALONG NORTH SIDE OF GREEN MILL WAY SHALL BE EXTENDED TO CONNECT WITH THE PROPOSED PATHWAY AT THE EAST END OF THE STREET.
4. THE PROPOSED PATHWAY FROM THE PROPOSED SIDEWALK ALONG THE NORTH SIDE OF PROPOSED SIMPSON MILL ROAD TO THE EXISTING ASPHALT AREA TO THE SOUTH OF HARRIET TUBMAN LANE BRIDGE SHALL BE PROVIDED AS SHOWN ON THE EXHIBIT/PLAN SUBMITTED ON 11/04/2011 FOR THIS WAIVER PETITION RECONSIDERATION.
5. ADD A DETAILED NOTE TO THE GENERAL NOTES ON SHEETS 1 OF F-12-025 AND SDP-12-015 THAT INDICATES THIS WAIVER PETITION FILE NUMBER, THE SECTIONS OF THE REGULATIONS, REQUESTS, ACTION, CONDITIONS OF APPROVAL, AND THE APPROVAL DATE.
37.) PER THE ZONING REGULATIONS SECTION 115.0.E.5(b) THE COMMUNITY SHALL INCLUDE RECREATION AND COMMON AREAS FOR RESIDENTS, INCLUDING AT LEAST PATHWAYS AND SEATING AREAS. THIS REGULATION IS COMPLIED WITH BY PROVIDING AN EXPANDED CLUB HOUSE (MINIMUM 200 PER UNIT), 3 BENCHES, A PATIO AND SIDEWALKS THAT LEAD TO THE RECREATION AREAS IN PHASE 2, AND PHASE 3. THE AGE RESTRICTED ADULT HOUSING HOA SHALL HAVE AN OBLIGATION TO MAINTAIN A PORTION OF THE PHASE 1 & 2 PATHWAYS AND RECREATION AREA. THE PATHWAY WITHIN OPEN SPACE LOT 152 IS AVAILABLE TO THE ARAH RESIDENTS FOR RECREATION.
38.) THE HOA DOCUMENTS OF INCORPORATION WERE FILED WITH THE MD STATE DEPARTMENT OF TAXATION ON 12/15/2011 UNDER PERMIT # D10763443.
39.) THE HOA COVENANTS AND RESTRICTIONS WERE RECORDED SIMULTANEOUSLY WITH THE FINAL PLAT, F-15-093, IN THE LAND RECORDS OF HOWARD COUNTY, MD PLAT NO. 23776-23778.
40.) THE HOA SHALL BE RESPONSIBLE FOR AGE ENFORCEMENT OF THIS AGE RESTRICTED ADULT COMMUNITY. AGE RESTRICTED COVENANTS AND RESTRICTIONS HAVE BEEN RECORDED IN THE LAND RECORDS OF HOWARD COUNTY, MD, F-15-093 PLAT NO. 23776-23778.
41.) THE HOA SHALL BE RESPONSIBLE FOR THE UPKEEP AND MAINTENANCE OF TRASH PADS, LANDSCAPING AND PRIVATE ROADWAYS, NOISE WALLS/FENCES AND RETAINING WALLS.
42.) THIS PLAN IS IN COMPLIANCE WITH THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.
43.) A PRESUMPTION COMMUNITY MEETING WAS HELD ON MAY 14, 2015 FOR THIS PROJECT.
44.) GARAGE PARKING MAY NOT BE CONVERTED TO LIVING SPACE.
45.) POR RESIDENTS CAN REACH CONSTRUCTED PATHWAY BY THE END OF GREEN MILL WAY OF SIMPSON MILL DRIVE PERPENDICULAR FROM RIVER ROCK WAY. THE PATHWAY PROVIDES A LOOP BETWEEN THESE TWO ACCESS POINTS.
46.) EXISTING UTILITIES ARE BASED ON A FIELD ROUN SURVEY PERFORMED BY BENCHMARK ENGINEERING, INC. DATED APRIL 2015; WATER/SEWER CONTRACTS 34-4373-D & 34-4739-D AND APPROVED WAY.
47.) ANY DAMAGES TO THE COUNTY'S RIGHT-OF-WAY SHALL BE CORRECTED AT THE BUILDERS EXPENSE.
48.) SHO ELEVATIONS SHOWN ARE LOCATED AT THE PROPERTY LINE OR EASEMENT LINE.
49.) FOR DRIVEWAY ENTRANCE DETAILS REFER TO THE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, STANDARD R-6.02.

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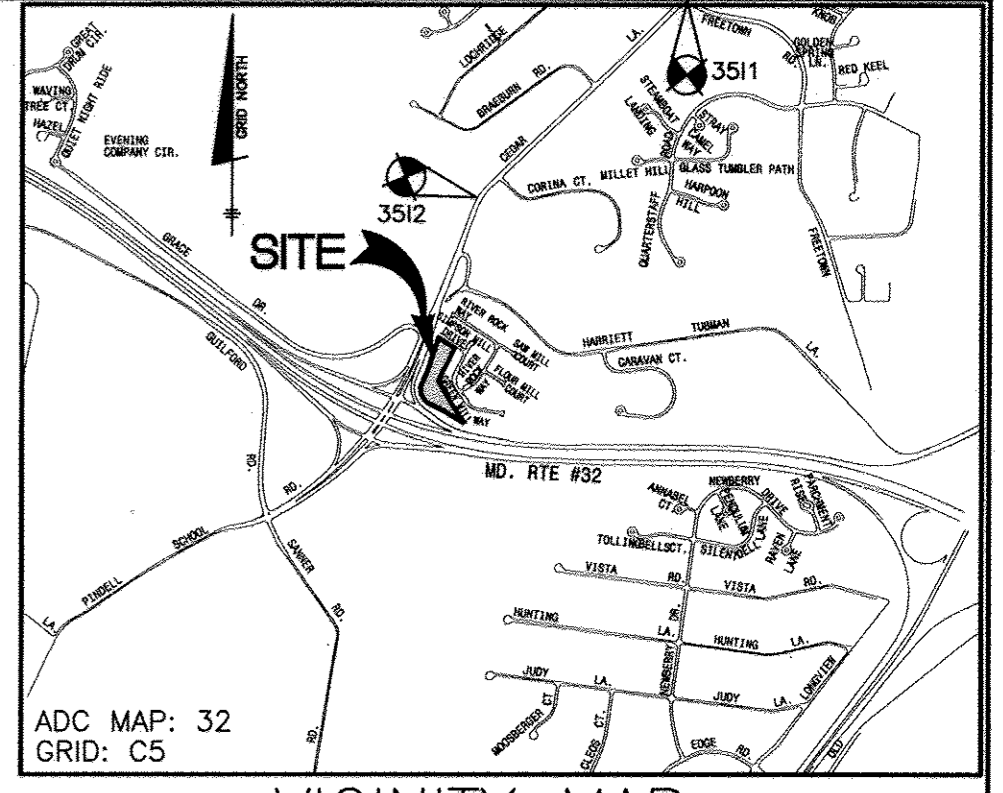
- 50.) IN ACCORDANCE WITH SECTION 128.0.H OF THE ZONING REGULATIONS, SETBACKS FROM DIFFERENT ZONING CLASSIFICATIONS DOES NOT APPLY TO THIS PARCEL BECAUSE IT IS PART OF THE OVERALL DEVELOPMENT AS INDICATED BY ZONING.
51.) IT HAS BEEN DETERMINED THAT A SETBACK FROM THE R-SA-B ZONING DISTRICT IS NOT APPLICABLE PER SECTION 128.0.A.10 OF THE ZONING REGULATIONS.
52.) THE CHIEF OF DEVELOPMENT APPROVED A DESIGN MANUAL WAIVER ON SEPT. 9, 2016. WAIVER WAS TO REDUCE FROM 10 FEET TO 8 FEET THE MINIMUM CONSTRUCTION SETBACK BETWEEN A WALL AND THE PATIOS ON LOTS 171-174.

UNIVERSAL DESIGN REQUIREMENTS FOR AGE-RESTRICTED ADULT HOUSING IN HOWARD COUNTY FOR MULTI-FAMILY APARTMENT OR CONDO DEVELOPMENTS, AN ACCESSIBLE PATH BETWEEN PARKING, DWELLING UNITS, AND COMMON AREAS THAT MEET ADA STANDARDS.
FOR SINGLE FAMILY ATTACHED DEVELOPMENTS, A "NO-STEP" ACCESS TO THE FRONT DOOR ENTRANCE TO ALL DWELLING UNITS AND COMMUNITY BUILDINGS, IF A NO-STEP ENTRANCE IS NOT FEASIBLE, AN ALTERNATE NO-STEP SIDE OR GARAGE ENTRY TO THE FIRST FLOOR MAY BE APPROVED. (A NO-STEP ENTRANCE IS DESIRABLE, BUT NOT REQUIRED AT OTHER ENTRANCES)
36" WIDE FRONT DOOR WITH EXTERIOR LIGHTING AT THE ENTRANCE (EXTERIOR DOORS SHALL BE PROVIDED WITH AN ARTIFICIAL LIGHT SOURCE LOCATED IN THE IMMEDIATE VICINITY OF THE EXTERIOR DOOR; THE ILLUMINATION OF THE EXTERIOR LIGHT SHALL BE CONTROLLED FROM INSIDE THE DWELLING UNIT. EXCEPTION: LIGHTS THAT ARE CONTINUOUSLY ILLUMINATED OR AUTOMATICALLY CONTROLLED).
ALL INTERIOR DOORWAYS AT LEAST 32" CLEAR WIDTH IN THE OPEN POSITION (3% DOORS OR 36" IS PREFERABLE).
36" WIDE FULLY ACCESSIBLE ROUTE MUST CONNECT THROUGH OUT THE FIRST FLOOR OF THE DWELLING UNIT. THE MAXIMUM VERTICAL FLOOR CHANGE IS 1/2" INCH, EXCEPT WHEN A TAPERED THRESHOLD IS USED, THE MAXIMUM HEIGHT IS 1 1/2" INCH. (40-42" IS PREFERABLE).
COMPLETE LIVING AREA INCLUDING MASTER BEDROOM & BATH ON FIRST LEVEL (OR ELEVATOR ACCESS IF MULTI-STORY APARTMENTS).
LEVER HANDLES ON EXTERIOR AND INTERIOR DOORS.
CLEAR FLOOR SPACE OF 30"x48" INCHES CENTERED ON THE APPLIANCE OR FIXTURE SHALL BE PROVIDED AT EACH FIXTURE IN THE KITCHEN. FLOOR SPACES CAN OVERLAP. (FAIR HOUSING ACT)
REINFORCED WALLS TO ALLOW FOR THE LATER INSTALLATION OF GRAB BARS AROUND THE TOILET, TUB, AND SHOWER STALL.
MANEUVERING SPACE WITHIN THE BATHROOM TO PERMIT A PERSON USING A MOBILITY AID TO ENTER THE ROOM, CLOSE AND OPEN THE DOOR, WITH A CLEAR FLOOR SPACE OF 30"x48" OUTSIDE OF THE DOOR SWING. IN ADDITION A CLEAR FLOOR SPACE OF 30"x48" SHOULD FLOOR SPACE BE PROVIDED AT EACH FIXTURE AND CENTERED ON EACH FIXTURE. THE 30"x48" FLOOR SPACE CAN OVERLAP EACH OTHER. (NOTE: THIS IS A REQUIREMENT IN THE FAIR HOUSING ACT GUIDELINES)
WALL MOUNTED LIGHT SWITCHES, ELECTRICAL OUTLETS, OR ENVIRONMENTAL CONTROL SHALL BE MOUNTED FOR A REACHING RANGE OF MINIMUM 15" OF THE FLOOR AND MAXIMUM 48" ABOVE THE FLOOR.

RESIDENTIAL SITE DEVELOPMENT PLAN SIMPSON MILL, PHASE 3 BUILDABLE BULK PARCEL 'A' AGE-RESTRICTED ADULT HOUSING



BENCH MARKS NAD'83 table with coordinates for HO. CO. #3511 and HO. CO. #3512.



Site Analysis Data Sheet table with columns for Area of POR zoned land, Total Project Area, Present Zoning Designation, etc.

ADDRESS CHART table with columns for LOT NUMBER and STREET ADDRESS, listing lots 153 through 174.

SHEET INDEX table with columns for SHEET, TITLE, and REVISION, listing sheets 1 through 17.

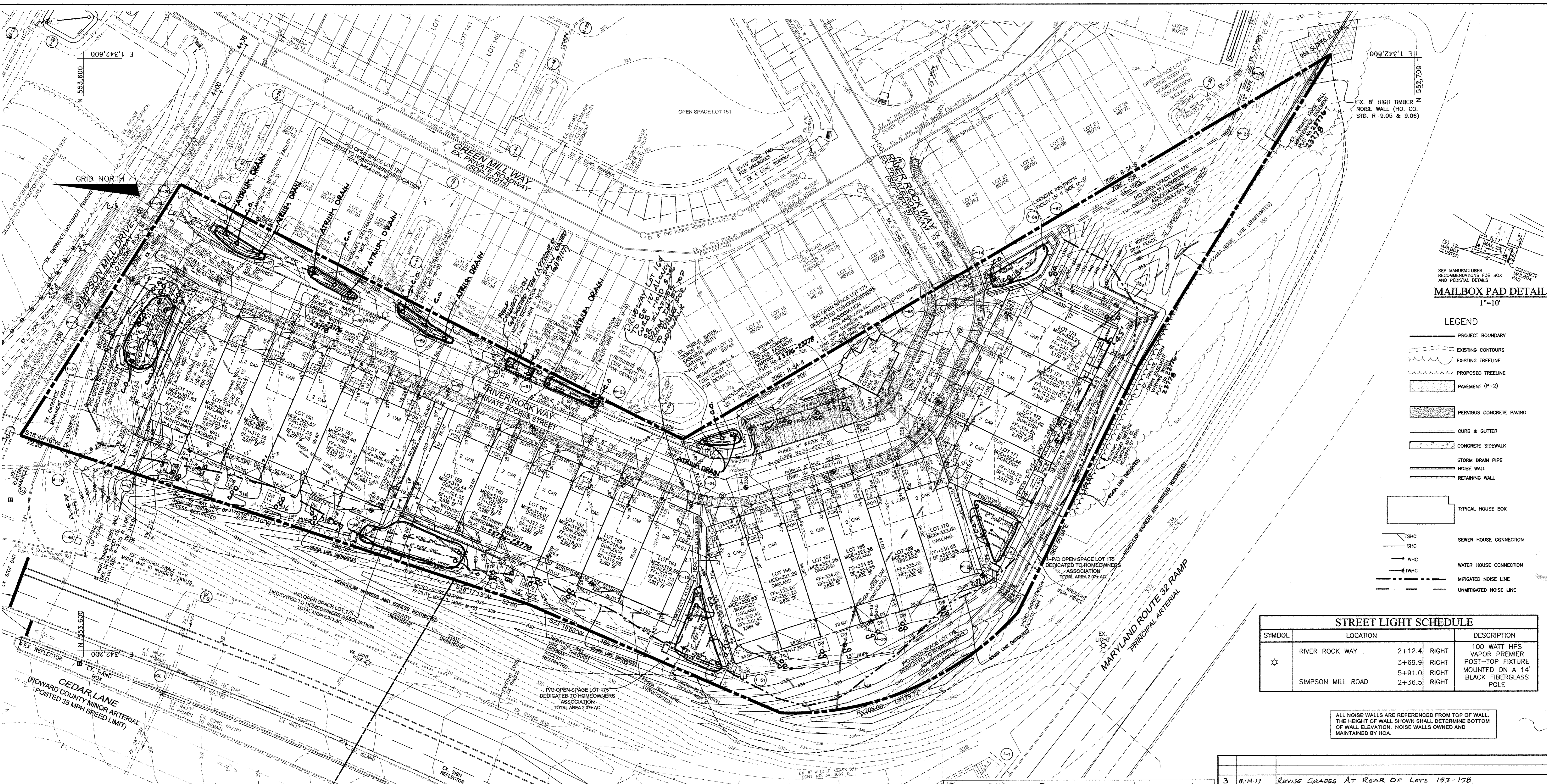
Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 21443, Expiration Date: 12-21-18.

PERMIT INFORMATION CHART and SIMPSON MILL PHASE 3 information including owner, developer, and permit details.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING. Includes signatures and dates for Chief, Development Engineering Division and Chief, Division of Land Development.

AREA TABULATION CHART - THIS SUBMISSION table showing counts for total number of lots, buildable lots, open space, etc.

PERMIT INFORMATION CHART table with columns for SUBDIVISION NAME, SECTION/AREA, LOT/PARCEL #, etc.

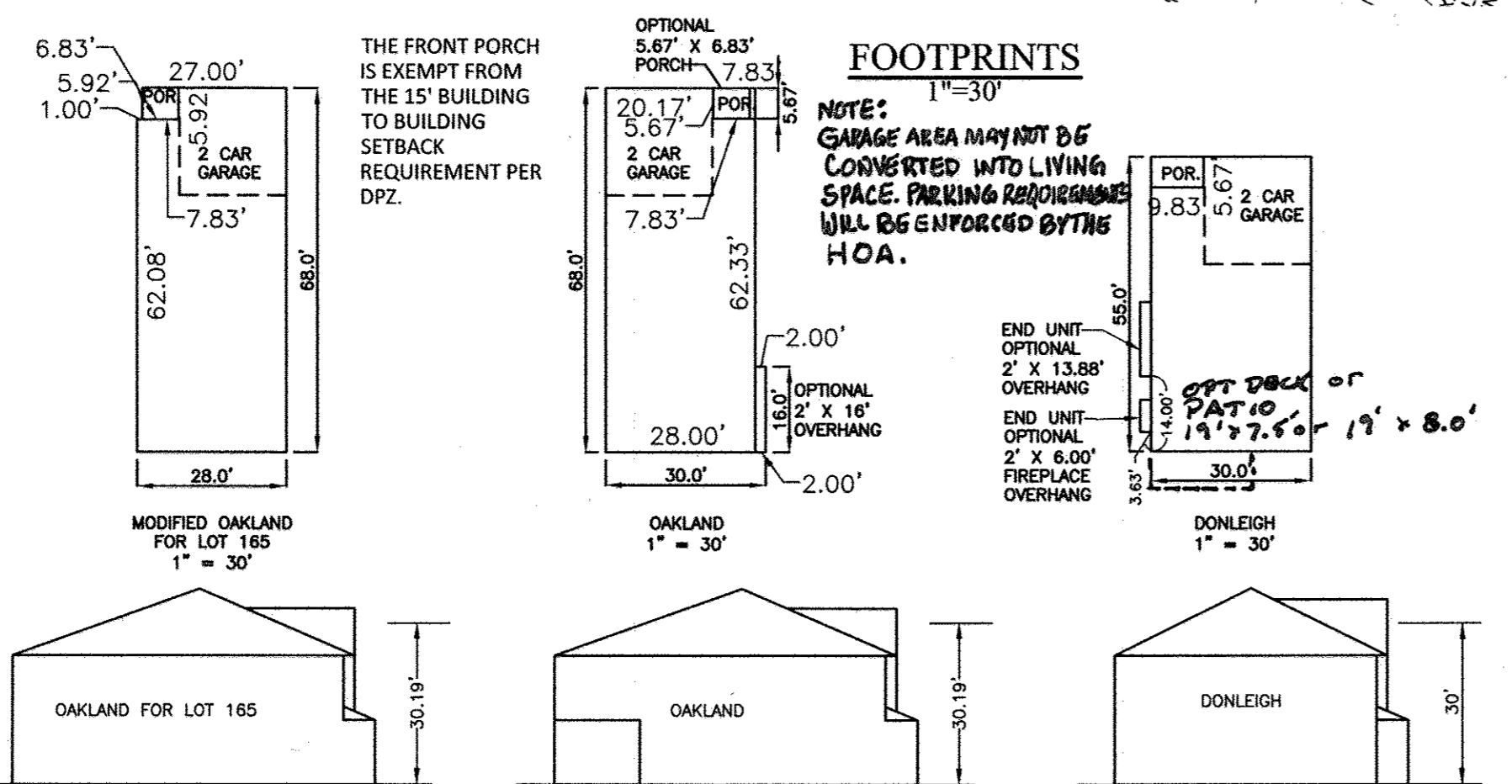
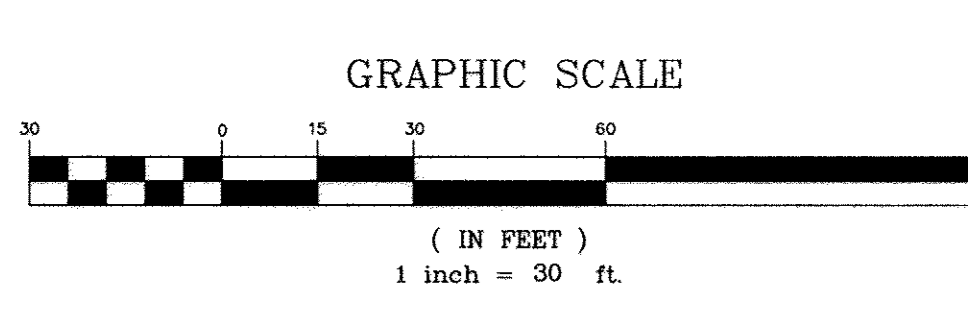


**MAILBOX PAD DETAIL**  
1"=10'

- LEGEND**
- PROJECT BOUNDARY
  - EXISTING CONTOURS
  - EXISTING TREELINE
  - PROPOSED TREELINE
  - PAVEMENT (P-2)
  - PERVIOUS CONCRETE PAVING
  - CURB & GUTTER
  - CONCRETE SIDEWALK
  - STORM DRAIN PIPE
  - NOISE WALL
  - RETAINING WALL
  - TYPICAL HOUSE BOX
  - TSHC SEWER HOUSE CONNECTION
  - SHC SEWER HOUSE CONNECTION
  - WHC WATER HOUSE CONNECTION
  - TWHC WATER HOUSE CONNECTION
  - MITIGATED NOISE LINE
  - UNMITIGATED NOISE LINE

STREET LIGHT SCHEDULE			
SYMBOL	LOCATION		DESCRIPTION
☆	RIVER ROCK WAY	2+12.4	RIGHT 100 WATT HPS VAPOR PREMIER
		3+69.9	RIGHT POST-TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE
	SIMPSON MILL ROAD	5+91.0	RIGHT
		2+36.5	RIGHT

ALL NOISE WALLS ARE REFERENCED FROM TOP OF WALL. THE HEIGHT OF WALL SHOWN SHALL DETERMINE BOTTOM OF WALL ELEVATION. NOISE WALLS OWNED AND MAINTAINED BY HOA.



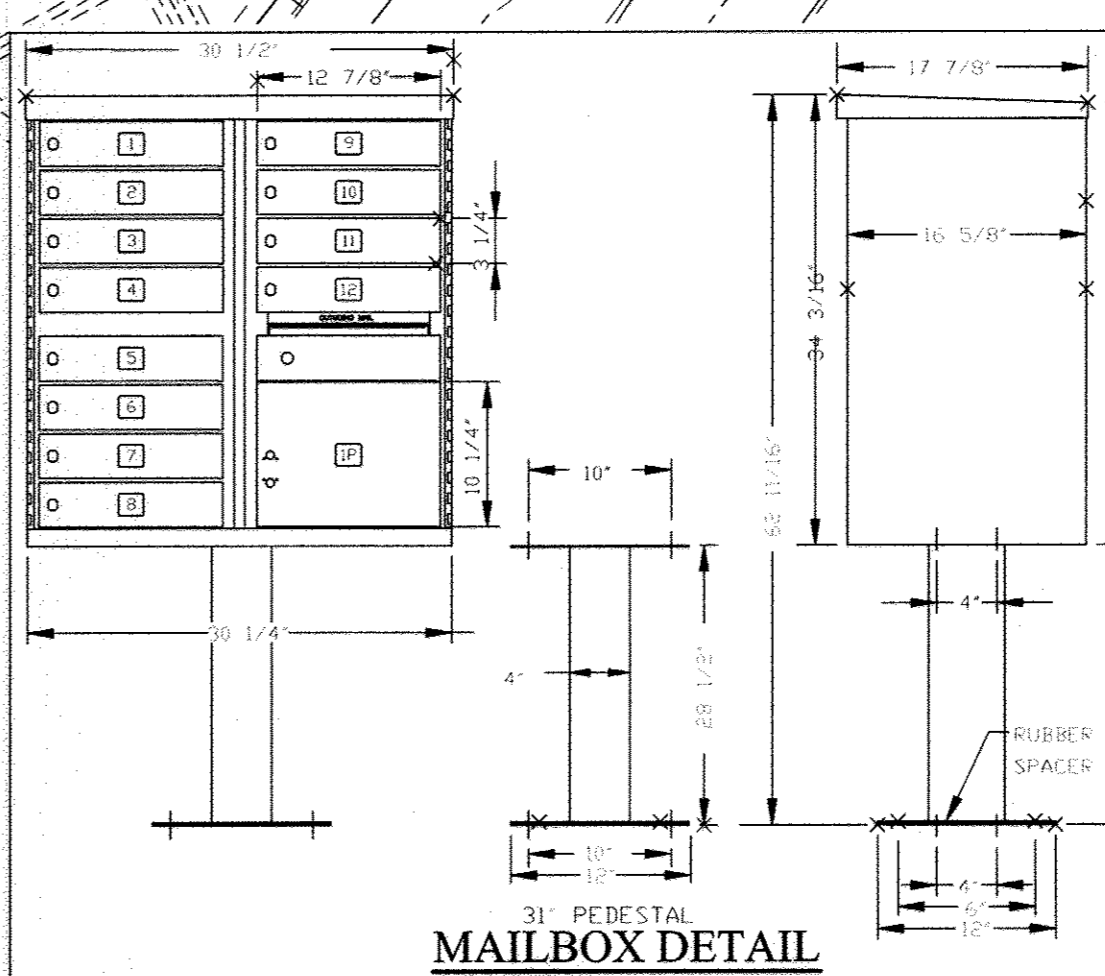
**AS-BUILT CERTIFICATION**  
I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications

Donald Mason, P.E.      Date: 1-9-16



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. 21443      Expiration Date: 12-21-19



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

4/15/16  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

5-16-16  
CHIEF, DIVISION OF LAND DEVELOPMENT

5-16-16  
DIRECTOR

NO.	DATE	REVISION
3	11-14-17	REVISE GRADES AT REAR OF LOTS 153-158.
2	7-24-17	REMOVE M-30, SHOW FIELD CONNECTION - MBR4 DRAINS
1	11-23-16	ADD optional Patio Deck to Donleigh Model + lots 171-174.

**BENCHMARK ENGINEERING, INC.**  
ENGINEERS • LAND SURVEYORS • PLANNERS

6480 BALTIMORE NATIONAL PIKE A SUITE 315 • ELLICOTT CITY, MARYLAND 21043  
(P) 410-465-6165 (F) 410-465-6664  
WWW.BEI-ENGINEERING.COM

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. 65573, Expiration Date: 06-06-2016.

*Signature*  
3/10/16

**SIMPSON MILL**  
PHASE 3 - LOTS 153 THRU 174 AND OPEN SPACE LOT 175  
A RESUBDIVISION OF BUILDABLE BULK PARCEL "A" AS SHOWN ON PLATS 22093 THRU 22101

TAX MAP: 35    GRID: 23    PARCEL: 116    ZONE: POR  
ELECTION DISTRICT NO. 5  
SIMPSON MILL DRIVE, COLUMBIA MD 21044  
HOWARD COUNTY, MARYLAND

**SITE DEVELOPMENT PLAN**

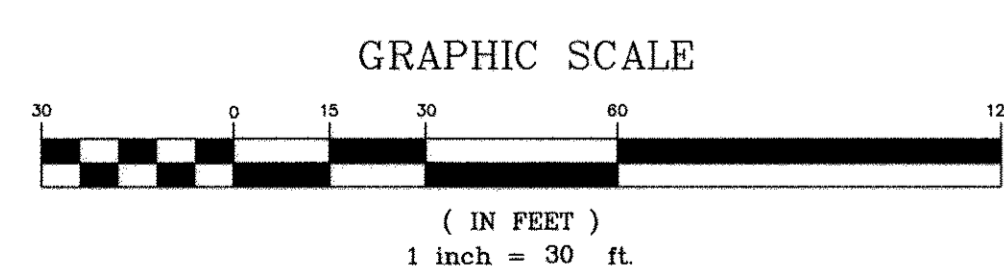
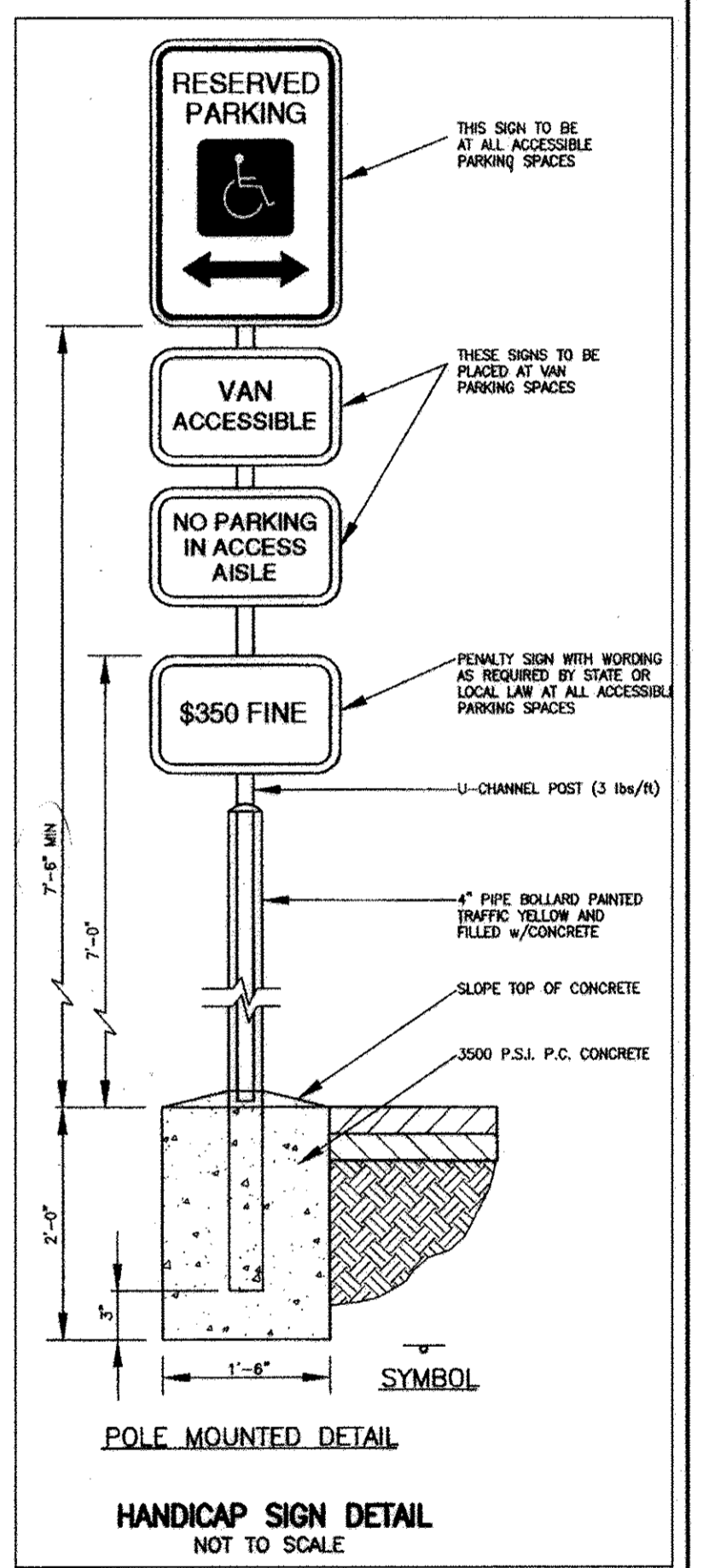
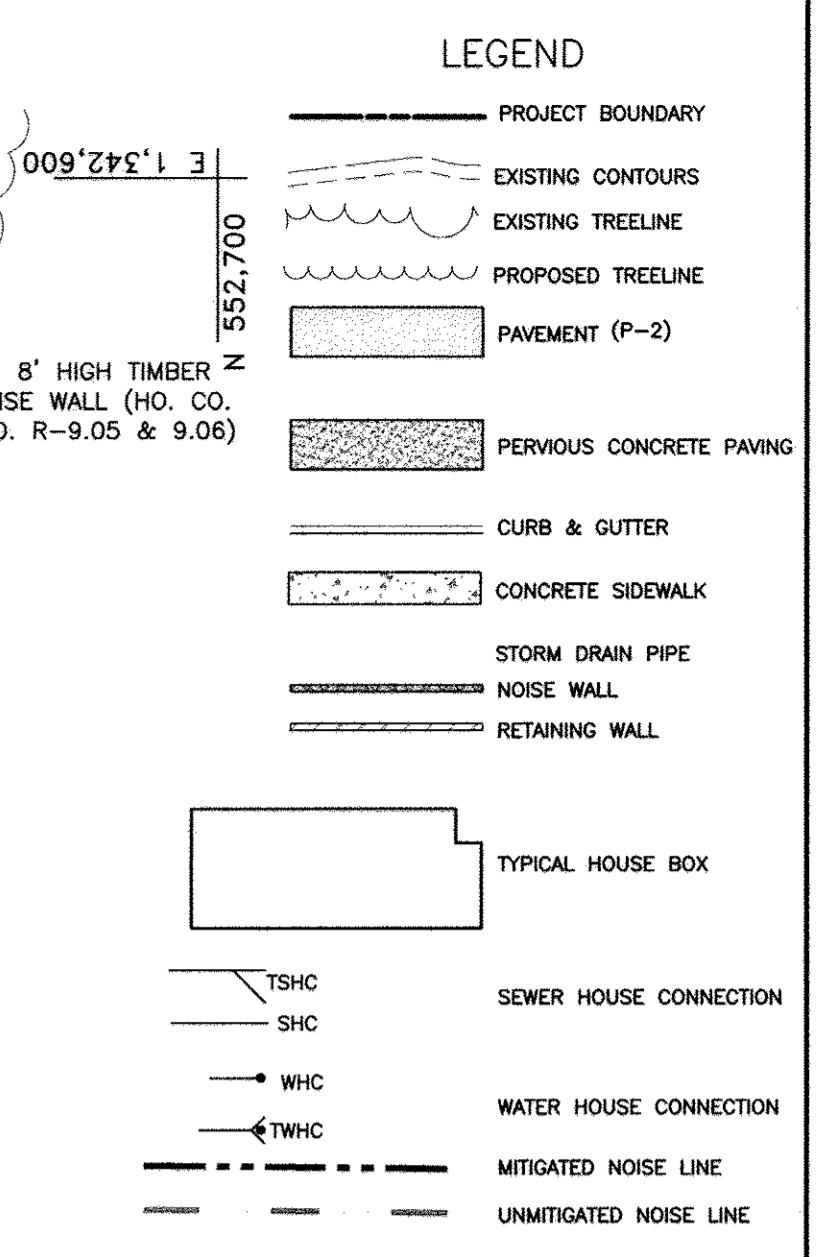
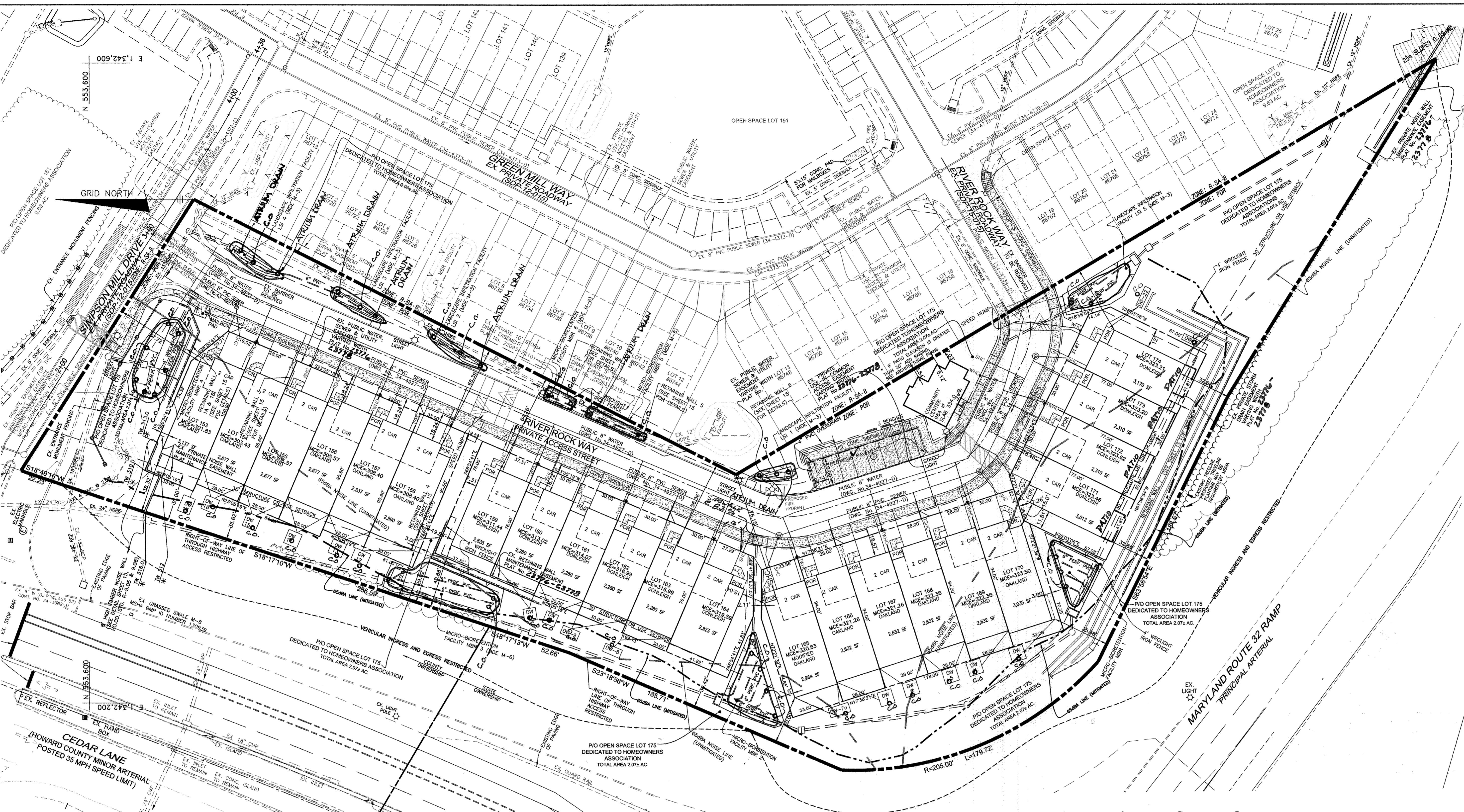
OWNER: SIMPSON MILL LLC, P.O. BOX 417, ELLICOTT CITY, MARYLAND 21041, 410-465-4244

DEVELOPER: SIMPSON MILL LLC, P.O. BOX 417, ELLICOTT CITY, MARYLAND 21041, 410-465-4244

DATE: MARCH, 2015      BEI PROJECT NO: 2634

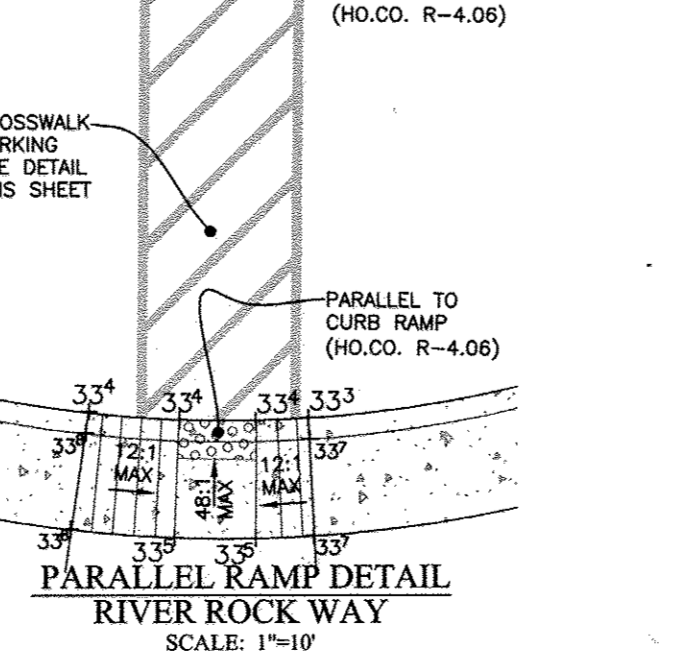
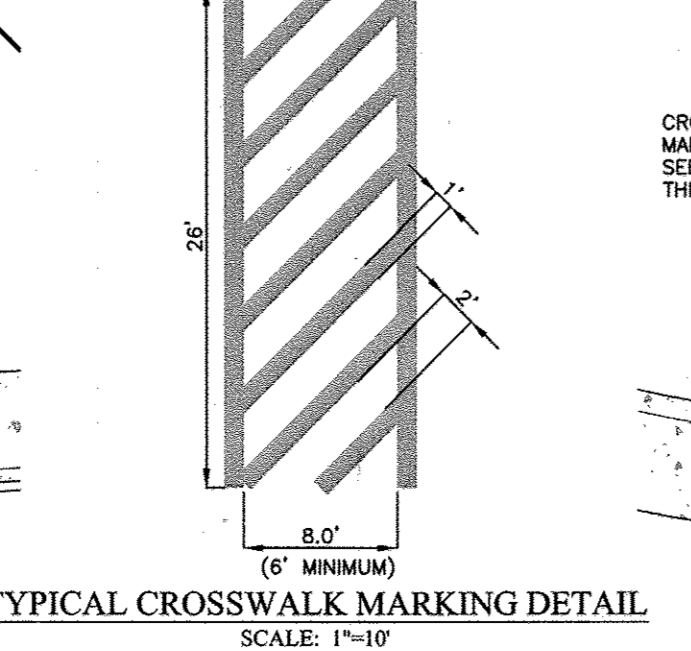
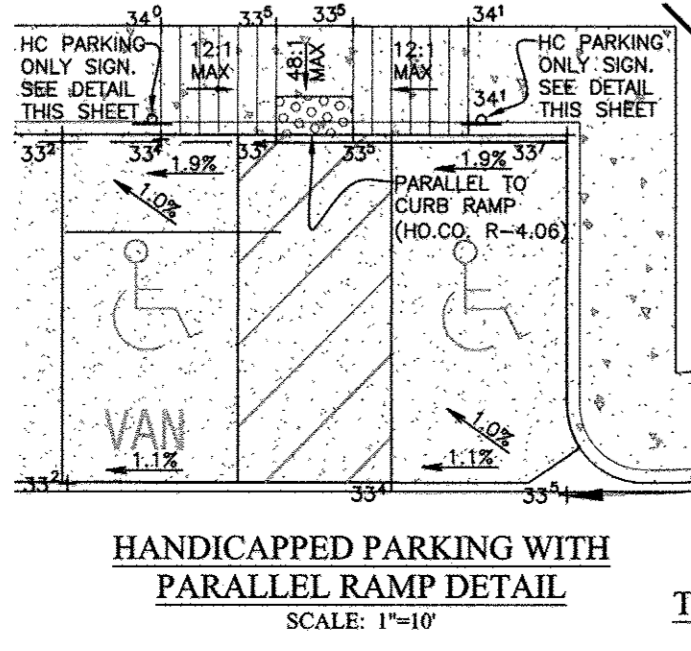
SCALE: 1" = 30'      SHEET 2 OF 17

DESIGN: JMC      DRAWN: JMC



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 Chief, Development Engineering Division  
 Chief, Division of Land Development  
 Director

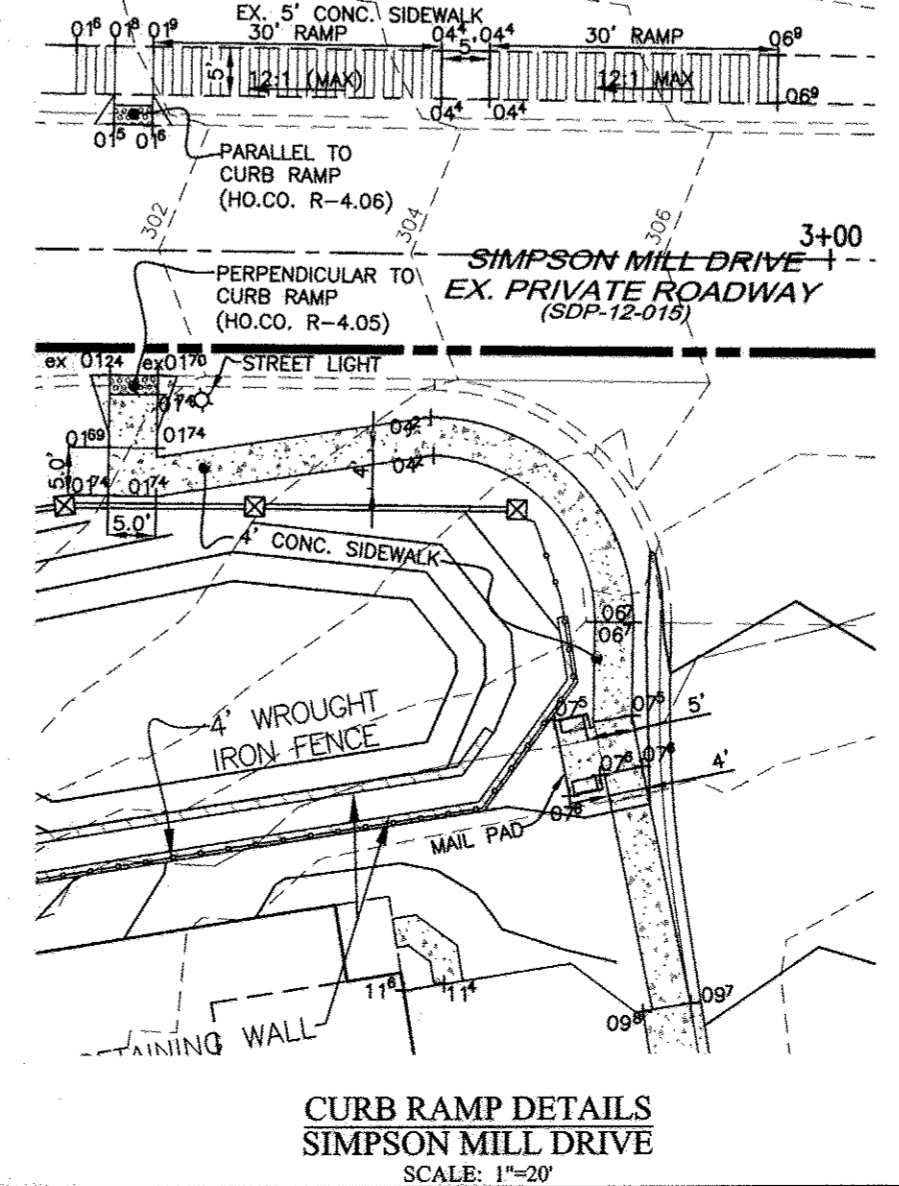
4/5/16  
 5-16-16  
 5/16/16



AS-BUILT CERTIFICATION  
 I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan are at the Approved Plans and Specifications  
 Donald Mason, P.E. Date: 1-11-18

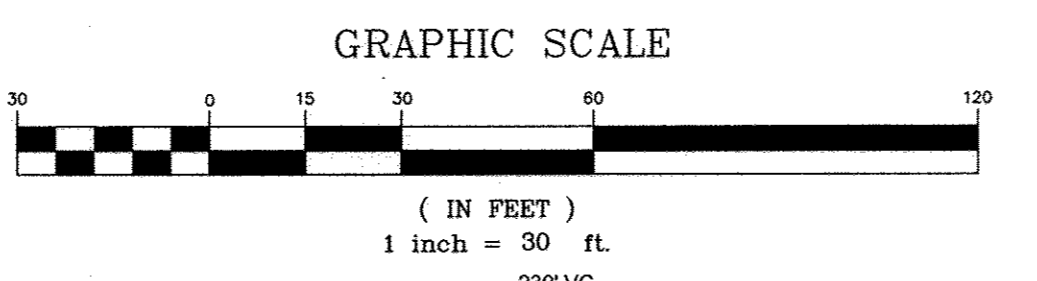
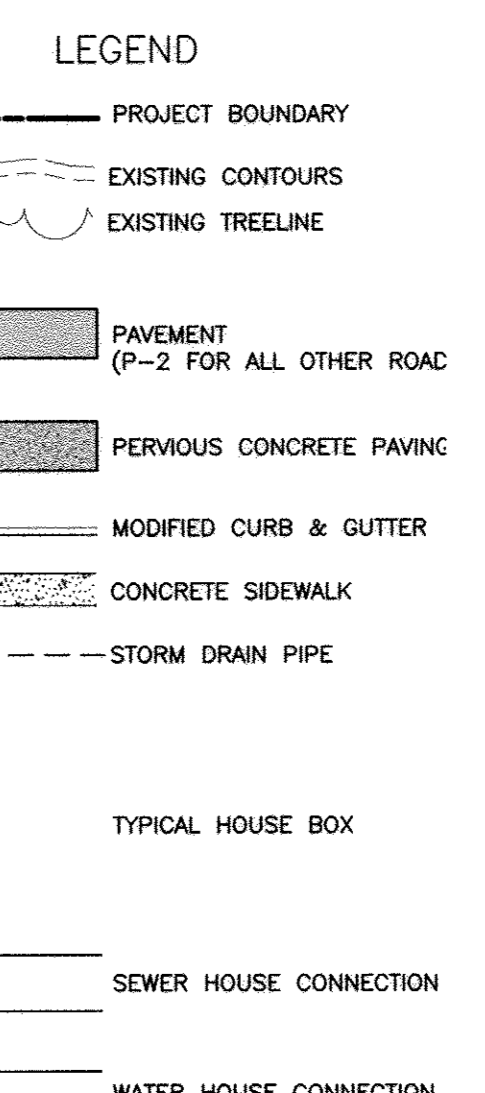
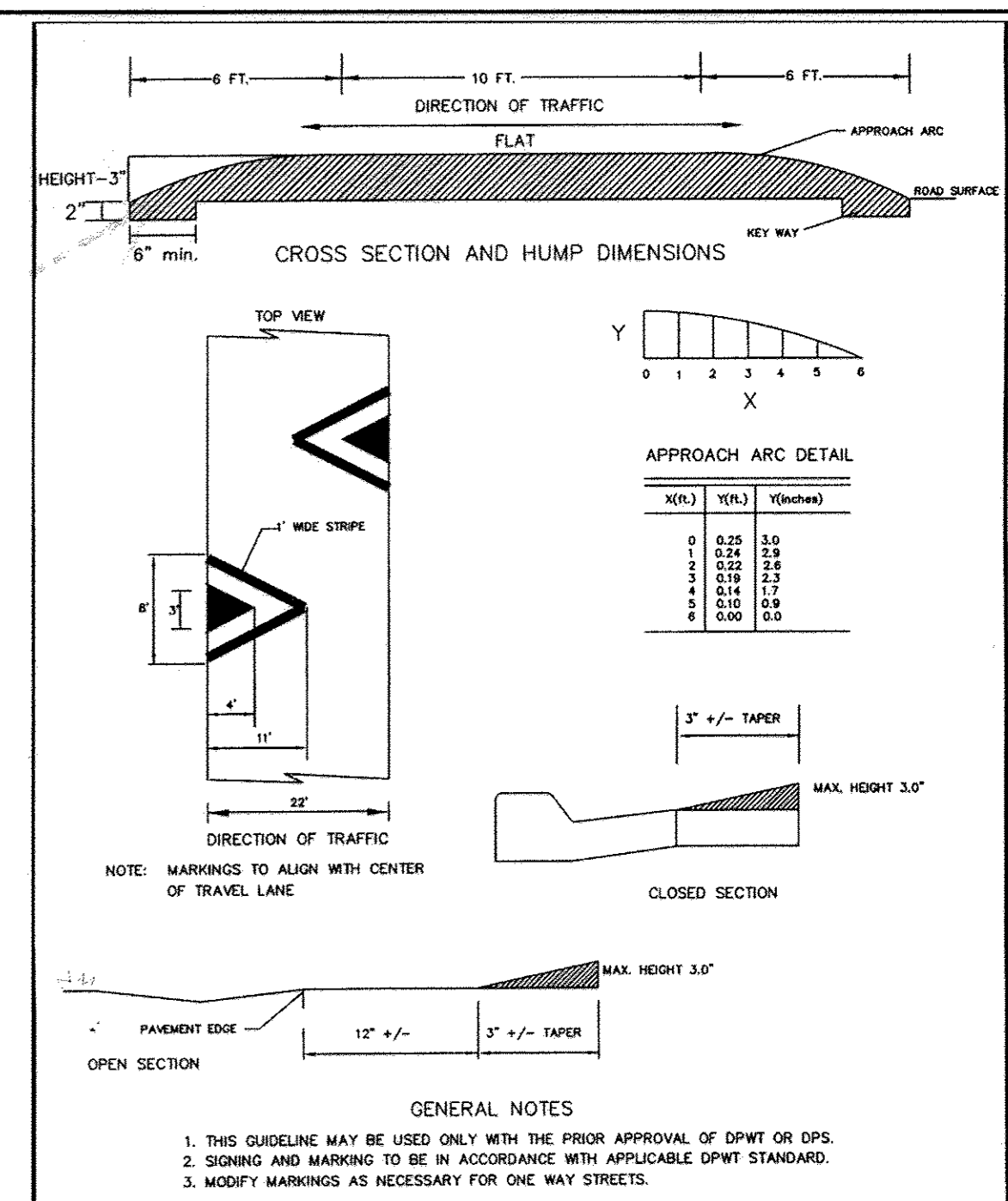
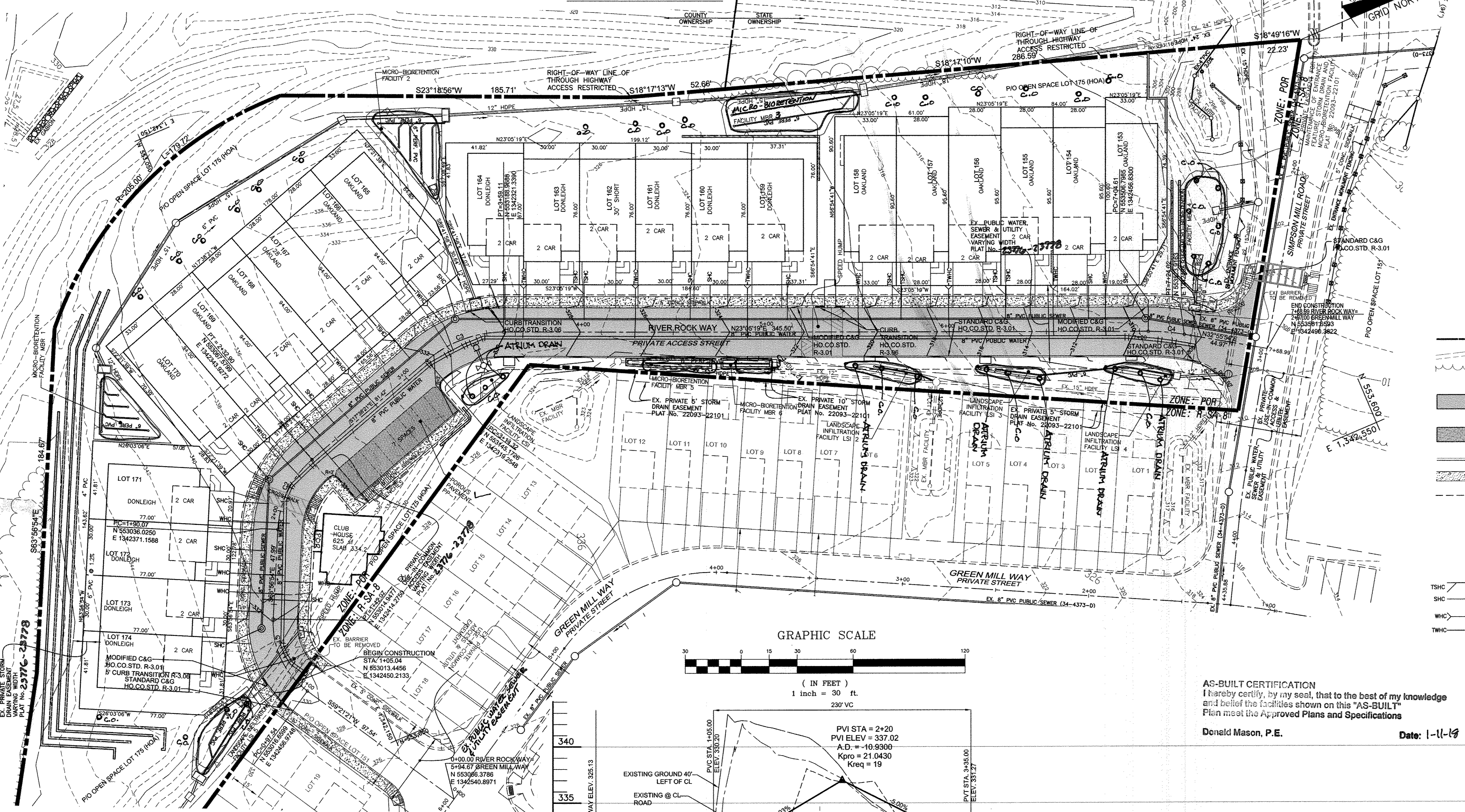
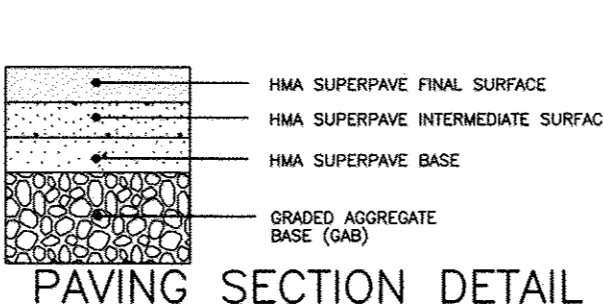


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 License No. 21443 Expiration Date: 12-21-18

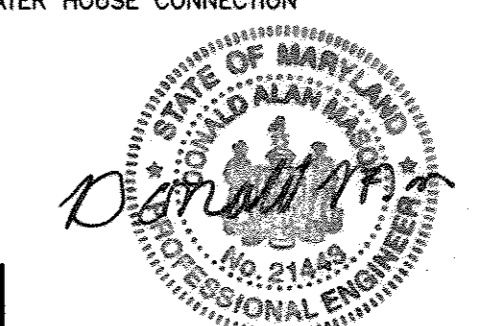


2	7-24-17	REMOVE MANHOLE SHOW FIELD CONNECTION & MGR 4 DRAINS.
1	11-28-16	Add Ratios to units 171-174.
NO.	DATE	REVISION
<b>BENCHMARK ENGINEERING, INC.</b> ENGINEERS • LAND SURVEYORS • PLANNERS 8480 BALTIMORE NATIONAL PIKE A SUITE 315 • ELLICOTT CITY, MARYLAND 21043 (P) 410-465-8103 (F) 410-465-8844 WWW.BEI-CIVILENGINEERING.COM		
OWNER: SIMPSON MILL LLC P.O. BOX 417 ELLICOTT CITY, MARYLAND 21041 410-465-4244		<b>SIMPSON MILL</b> PHASE 3 - LOTS 153 THRU 174 AND OPEN SPACE LOT 175 A RESUBDIVISION OF BUILDABLE BULK PARCEL "A" AS SHOWN ON PLATS 22093 THRU 22101 TAX MAP: 35 GRID: 23 PARCEL: 116 ZONED: POR SIMPSON MILL DRIVE, COLUMBIA MD 21044 ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND
DEVELOPER: SIMPSON MILL LLC P.O. BOX 417 ELLICOTT CITY, MARYLAND 21041 410-465-4244		
DATE: MARCH, 2016 SCALE: AS SHOWN		SHEET PROJECT NO: 2634 3 OF 17

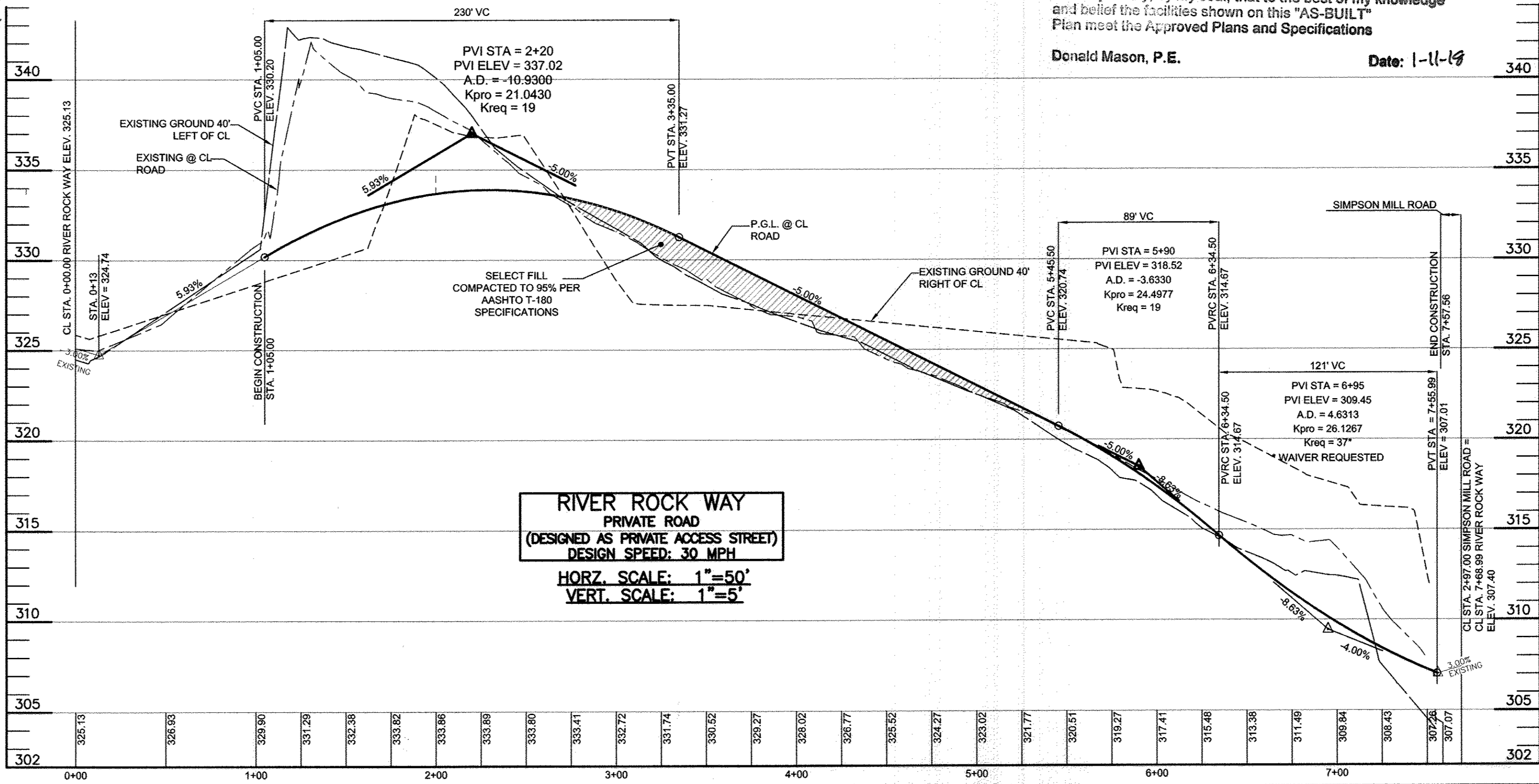
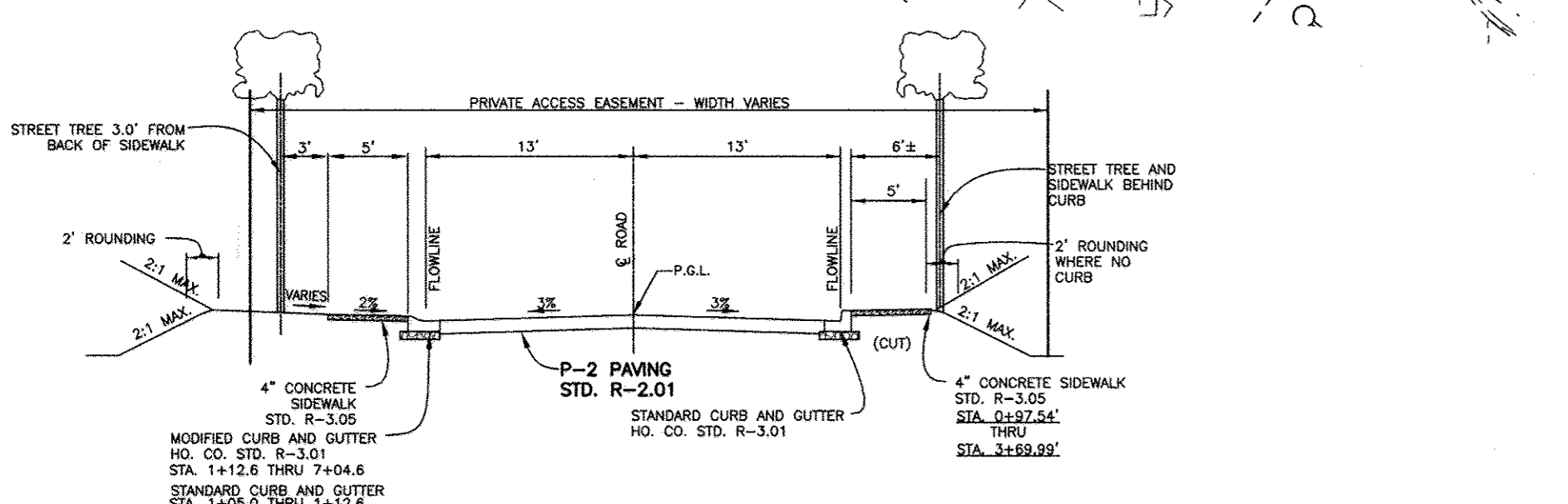
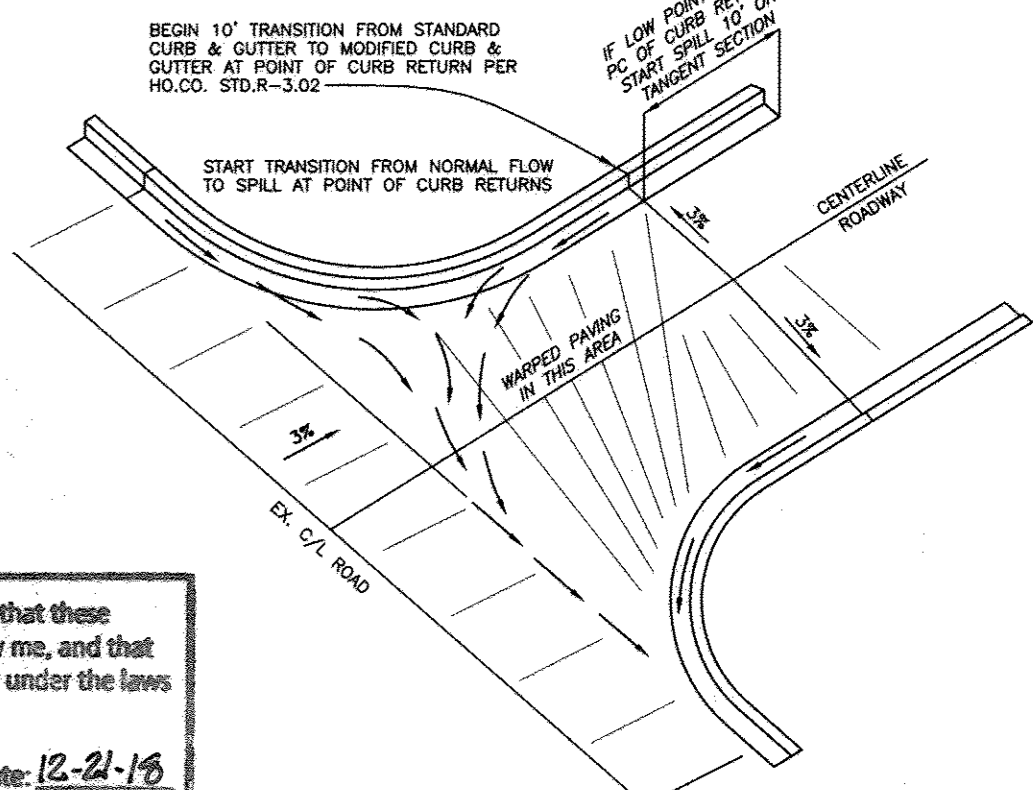
SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR)		3 TO <5		5 TO <7		7 TO <9	
		PAVEMENT MATERIAL (INCHES)	MIN	HMA WITH GAB	HMA WITH CONSTANT GAB	MIN	HMA WITH GAB	HMA WITH CONSTANT GAB	MIN
P-2	PARKING DRIVE AISLES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS PER DAY	HMA SUPERPAVE FINAL SURFACE 9.5 MM PG 64-22, LEVEL 1 (LOW ESAL)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
	LOCAL ROADS: ACCESS PLACE, ACCESS STREET	HMA SUPERPAVE INTERMEDIATE SURFACE 9.5 MM PG 64-22, LEVEL 1 (LOW ESAL)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	CUL-DE-SAC, RESIDENTIAL	HMA SUPERPAVE BASE 19.0 MM PG 64-22, LEVEL 1 (LOW ESAL)	2.0	2.0	2.0	3.5	2.0	2.0	2.0
		GRADED AGGREGATE BASE (GAB)	8.0	4.0	3.0	4.0	4.0	4.0	4.0



**AS-BUILT CERTIFICATION**  
I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications  
**Donald Mason, P.E.** Date: 1-11-16



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. 21443, Expiration Date: 12-21-16



**TYPICAL ROADWAY SECTION**  
(DESIGNED AS A PUBLIC ACCESS STREET)  
DESIGN SPEED: 30 MPH  
SCALE: 1"=10'

**RIVER ROCK WAY**

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
4/15/16  
5-16-16  
5-16-16

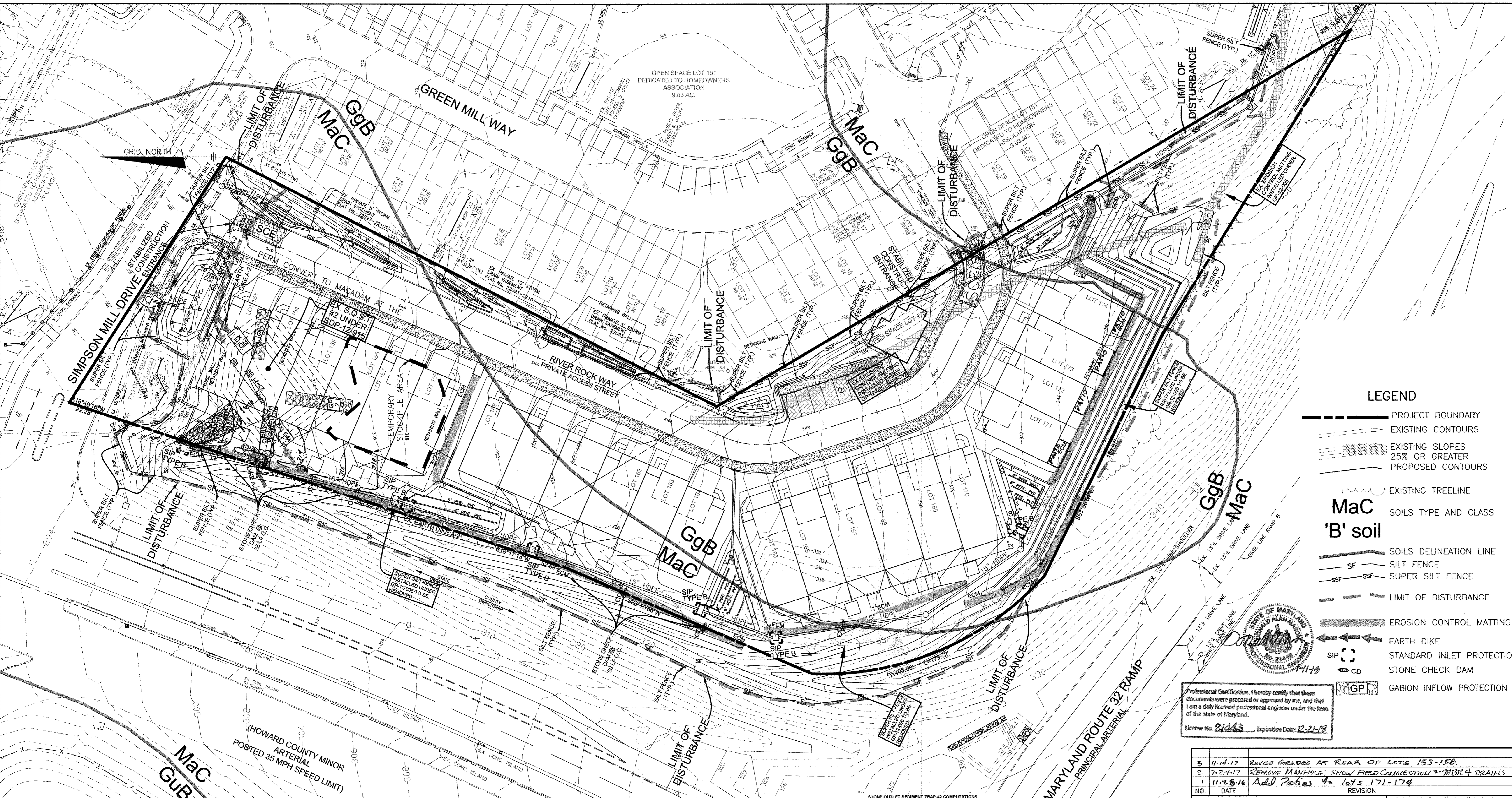
FOR CONTINUATION OF CONTOURS OUTSIDE OF ACCESS EASEMENT SEE SHEET 2

CURVE	RADIUS	ARC LENGTH	DELTA	TANGENT CHORD BEARING	DISTANCE
C1	45.00'	44.53'	56°41'44"	24.28'	N87°42'14"E 42.72'
C2	53.00'	42.84'	46°18'33"	22.67'	S48°47'38"E 41.68'
C3	63.00'	44.78'	40°43'49"	23.38'	S02°43'29"W 43.85'
C4	113.00'	19.41'	9°59'35"	9.73'	S28°09'36"W 19.39'

**BENCHMARK ENGINEERING, INC.**  
8480 BALTIMORE NATIONAL PIKE SUITE 315 & ELLICOTT CITY, MARYLAND 21043  
(7) 410-465-8105 (F) 410-465-8644  
WWW.BEI-ENGINEERING.COM

**SIMPSON MILL**  
PHASE 3 - LOTS 153 THRU 174 AND OPEN SPACE LOT 175  
A RESUBDIVISION OF BUILDABLE BULK PARCEL "A" AS SHOWN ON PLATS 22093 THRU 22101  
TAX MAP: 35 GRID: 23 PARCEL: 116 ZONED: POR  
SIMPSON MILL DRIVE, COLUMBIA MD 21044  
ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

**ROAD PROFILE AND DETAILS**  
DATE: MARCH, 2016 BEI PROJECT NO: 2634  
SCALE: AS SHOWN SHEET 4 OF 17



- LEGEND**
- PROJECT BOUNDARY
  - EXISTING CONTOURS
  - EXISTING SLOPES 25% OR GREATER
  - PROPOSED CONTOURS
  - EXISTING TREELINE
  - MaC** SOILS TYPE AND CLASS
  - 'B' soil**
  - SOILS DELINEATION LINE
  - SILT FENCE
  - SUPER SILT FENCE
  - LIMIT OF DISTURBANCE
  - EROSION CONTROL MATTING
  - EARTH DIKE
  - STANDARD INLET PROTECTION
  - STONE CHECK DAM
  - GABION INFLOW PROTECTION

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. **21443** Expiration Date: **12-21-18**

3	11-14-17	REVISE GRADES AT REAR OF LOTS 153-158.
2	7-24-17	REMOVE MANHOLE, SHOW FIELD CONNECTION & MUSIC4 DRAINS
1	11-28-16	Add Retain to lots 171-174
NO.	DATE	REVISION

**BENCHMARK ENGINEERING, INC.**  
 ENGINEERS & LAND SURVEYORS & PLANNERS  
 6480 BALTIMORE NATIONAL PIKE & SUITE 315 • ELLICOTT CITY, MARYLAND 21043  
 (P) 410-465-8105 (F) 410-465-6844  
 WWW.BEI-CIVILENGINEERING.COM

**OWNER:**  
 SIMPSON MILL LLC  
 P.O. BOX 417  
 ELLICOTT CITY, MARYLAND 21041  
 410-465-4244

**DEVELOPER:**  
 SIMPSON MILL LLC  
 P.O. BOX 417  
 ELLICOTT CITY, MARYLAND 21041  
 410-465-4244

**DESIGN:** JMC **DRAWN:** JMC

**DATE:** MARCH, 2016 **BEI PROJECT NO.:** 2634

**SCALE:** AS SHOWN **SHEET:** 5 OF 17

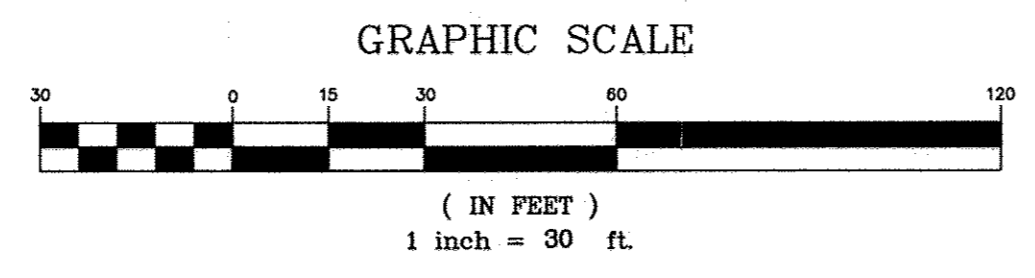
**ENGINEER'S CERTIFICATE**  
 I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

*John M. Curran* 3/19/16  
 ENGINEER **John M. Curran #45577** DATE

**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."

*Steven K. Brecken* 3-18-16  
 DEVELOPER **STEVEN K. BRECKEN** DATE

*John K. Robertson* 4/5/16  
 HOWARD SOIL CONSERVATION DISTRICT DATE



**Stone Outlet Sediment Trap #1**

Type	SI-II
Existing D.A.	3.4 Ac
Proposed D.A.	3.4 Ac
Storage Required	
Wet	6174 cf
Dry	6174 cf
Storage Provided	
Wet	11685 cf
Dry	12475 cf
Wet Storage Elev.	305.03
Dry Storage Elev.	308.00
Embankment Elev.	310.00
Embankment width	4 ft
Weir crest Elev.	308.00
Weir Crest Length	13.7
Cleanout Elev.	303.73
Bottom Elev.	302.00

**SOST #2 STAGE-STORAGE**

Elevation (ft)	Area (sq ft)	Area (ac)	Contour Interval (ft)	Volume (cu ft)	Volume (cu yd)	Total Volume (cu yd)
302	1450	.61	2.00	3578	0	0
304	2128	.96	2.00	6056	0	0.08214
306	2928	1.27	2.00	6779	8634	0.19821
308	3851	1.68	2.00	8747	15413	0.35383
310	4896	2.13	2.00	8747	24160	0.55464

Bottom of stone (top of wet storage) at elev. 305.03

Storage Provided		
Wet	11685 CF	Elev. 305.03
Dry	12475 CF	
Cleanout volume =	3087 CF	Elev. 303.73
weir length =	13.72 ft.	

SEE SHEET 11 OF 17 FOR SEDIMENT TRAP DETAILS, NOTES AND COMPS

\*CONTRACTOR SHALL STAKE EACH CORNER OF LANDSCAPE INFILTRATION BEFORE CONSTRUCTION BETWEEN CL ROAD STATION 6+50 & 7+00

"NO AS-BUILT INFORMATION" IS PROVIDED ON THIS SHEET

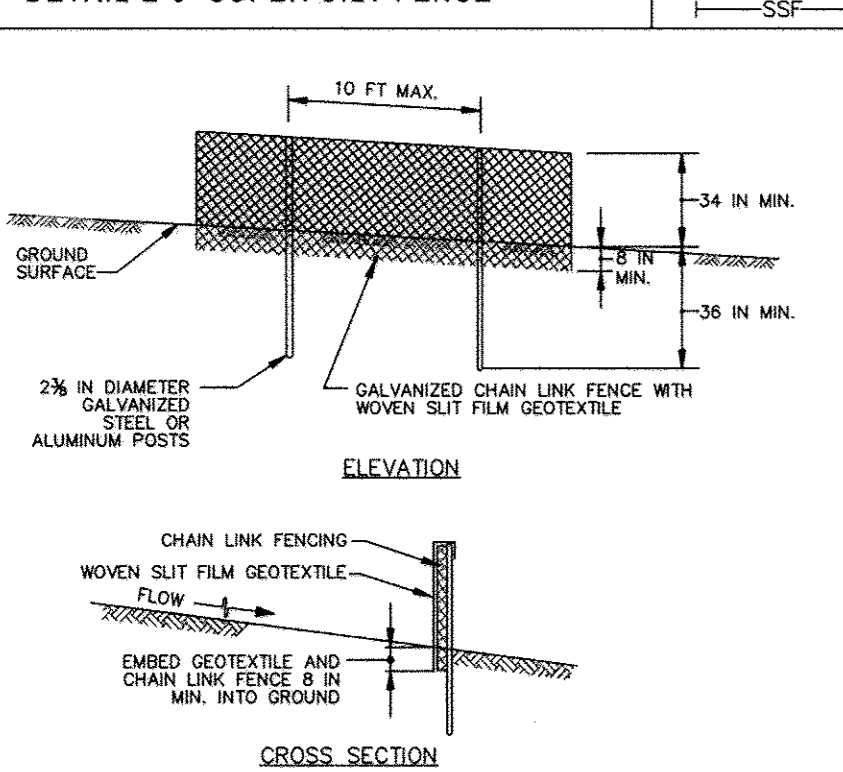
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*John M. Curran* 4/5/16  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

*Neil S. DeLoach* 5-16-16  
 CHIEF, DIVISION OF LAND DEVELOPMENT

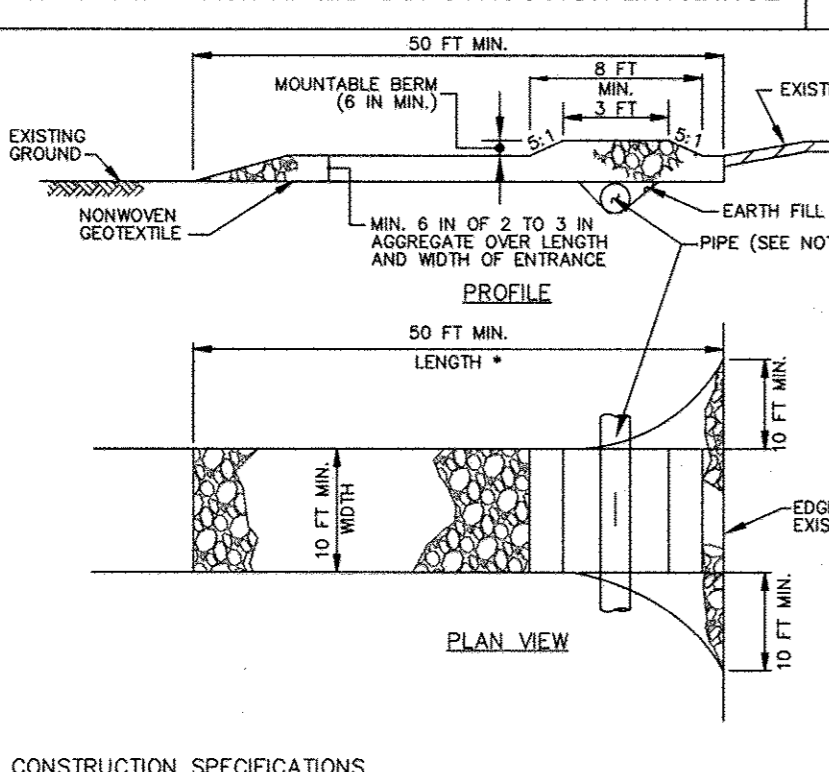
*Valentino J. J. J.* 5-16-16  
 DIRECTOR

DETAIL E-3 SUPER SILT FENCE



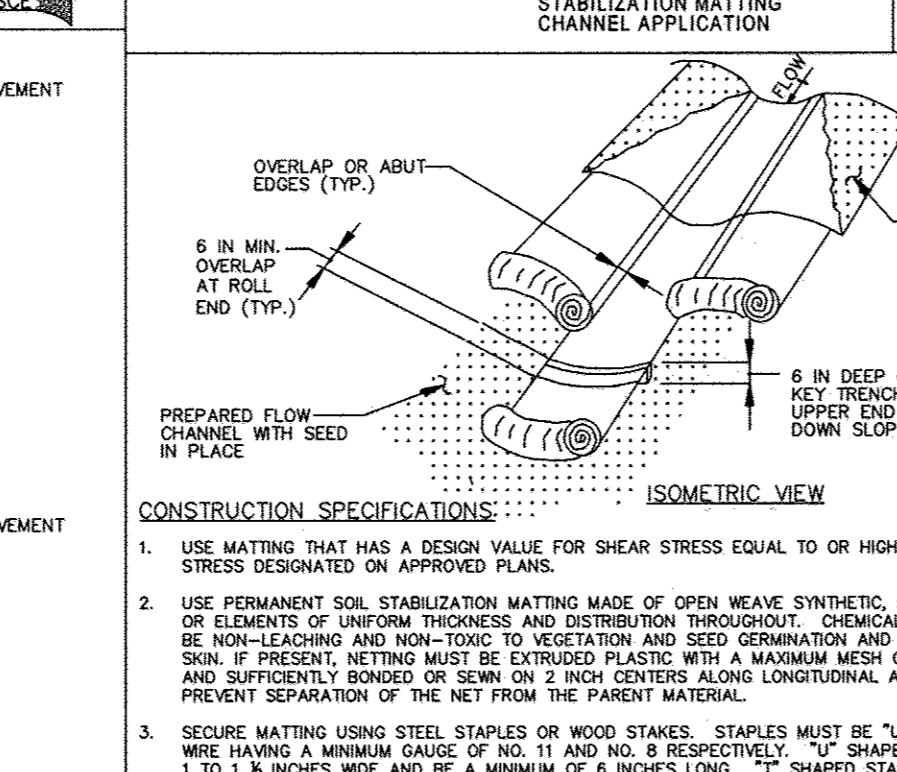
CONSTRUCTION SPECIFICATIONS
1. INSTALL 2 1/2 INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART.

DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE



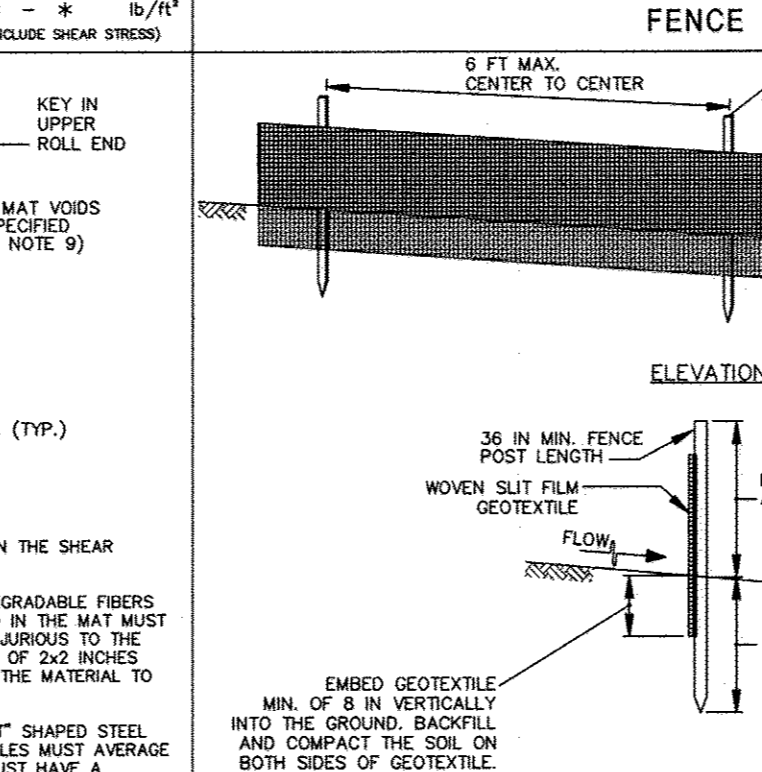
CONSTRUCTION SPECIFICATIONS
1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE ENTRANCE.

DETAIL B-4-C VEGETATION SOIL STABILIZATION MATTING CHANNEL APPLICATION



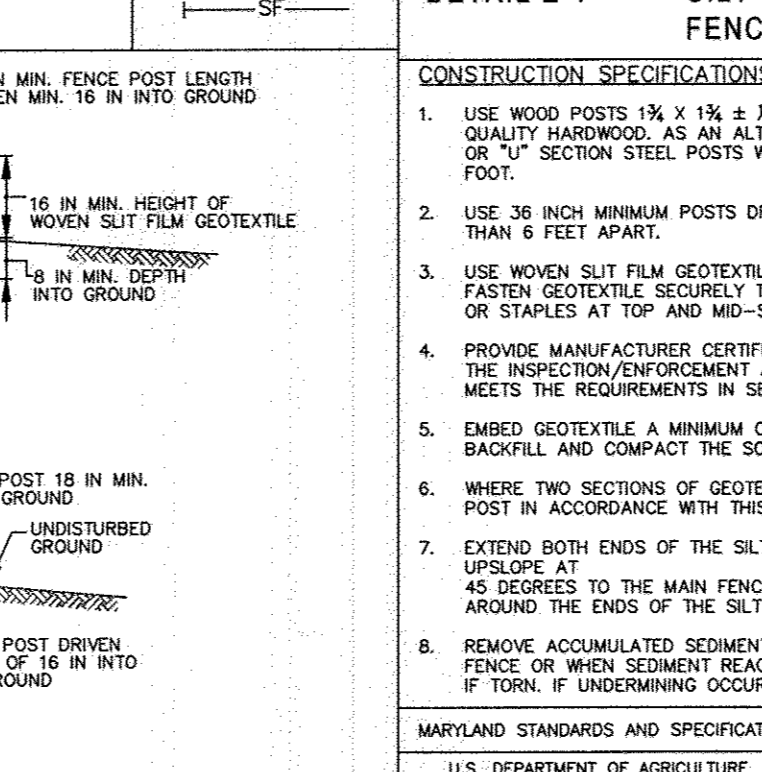
CONSTRUCTION SPECIFICATIONS
1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR GREATER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLAN.

DETAIL E-1 SILT FENCE



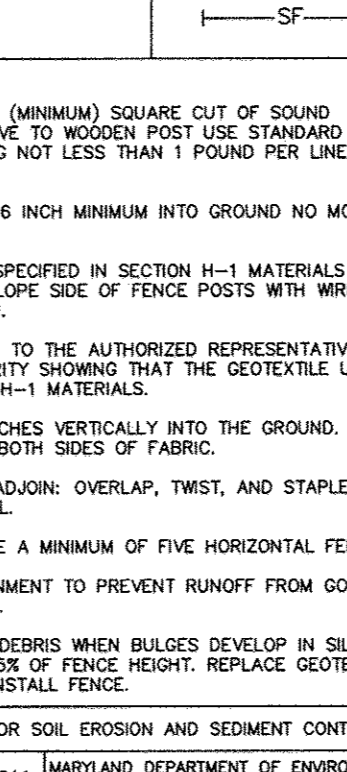
CONSTRUCTION SPECIFICATIONS
1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR GREATER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLAN.

DETAIL E-1 SILT FENCE



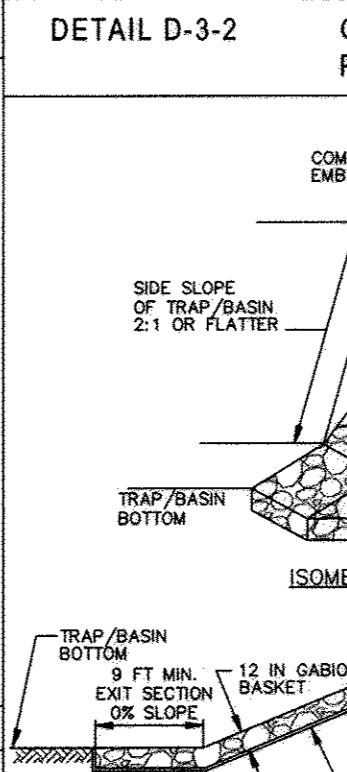
CONSTRUCTION SPECIFICATIONS
1. USE WOOD POSTS 1 1/2 x 1 1/2 x 1/2 INCH (MINIMUM) SQUARE CUT OF SOUND OAK OR HARDWOOD.

DETAIL D-3-2 GABION INFLOW PROTECTION



CONSTRUCTION SPECIFICATIONS
1. PROVIDE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS UNDER THE BOTTOM AND ALONG SIDES OF ALL GABION BASKETS.

DETAIL E-9-1 STANDARD INLET PROTECTION



CONSTRUCTION SPECIFICATIONS
1. USE WOVEN SILT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE, 2011

B-4 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

Definition: Using vegetation as cover to protect exposed soil from erosion. Purpose: To promote the establishment of vegetation on exposed soil.

CONSTRUCTION SPECIFICATIONS

- 1. TOPSOILING: a. Limit: Use only ground agricultural limestone (not more than 3 tons per acre...)

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE, 2011

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CONSTRUCTION SPECIFICATIONS

- 2. TOPSOILING: a. Limit: Use only ground agricultural limestone (not more than 3 tons per acre...)

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- 3. TOPSOILING: a. Limit: Use only ground agricultural limestone (not more than 3 tons per acre...)

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U.S. DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE, 2011

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U.S. DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE, 2011

B-4 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

Definition: Using vegetation as cover to protect exposed soil from erosion. Purpose: To promote the establishment of vegetation on exposed soil.

CONSTRUCTION SPECIFICATIONS

- 3. TOPSOILING: a. Limit: Use only ground agricultural limestone (not more than 3 tons per acre...)

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE, 2011

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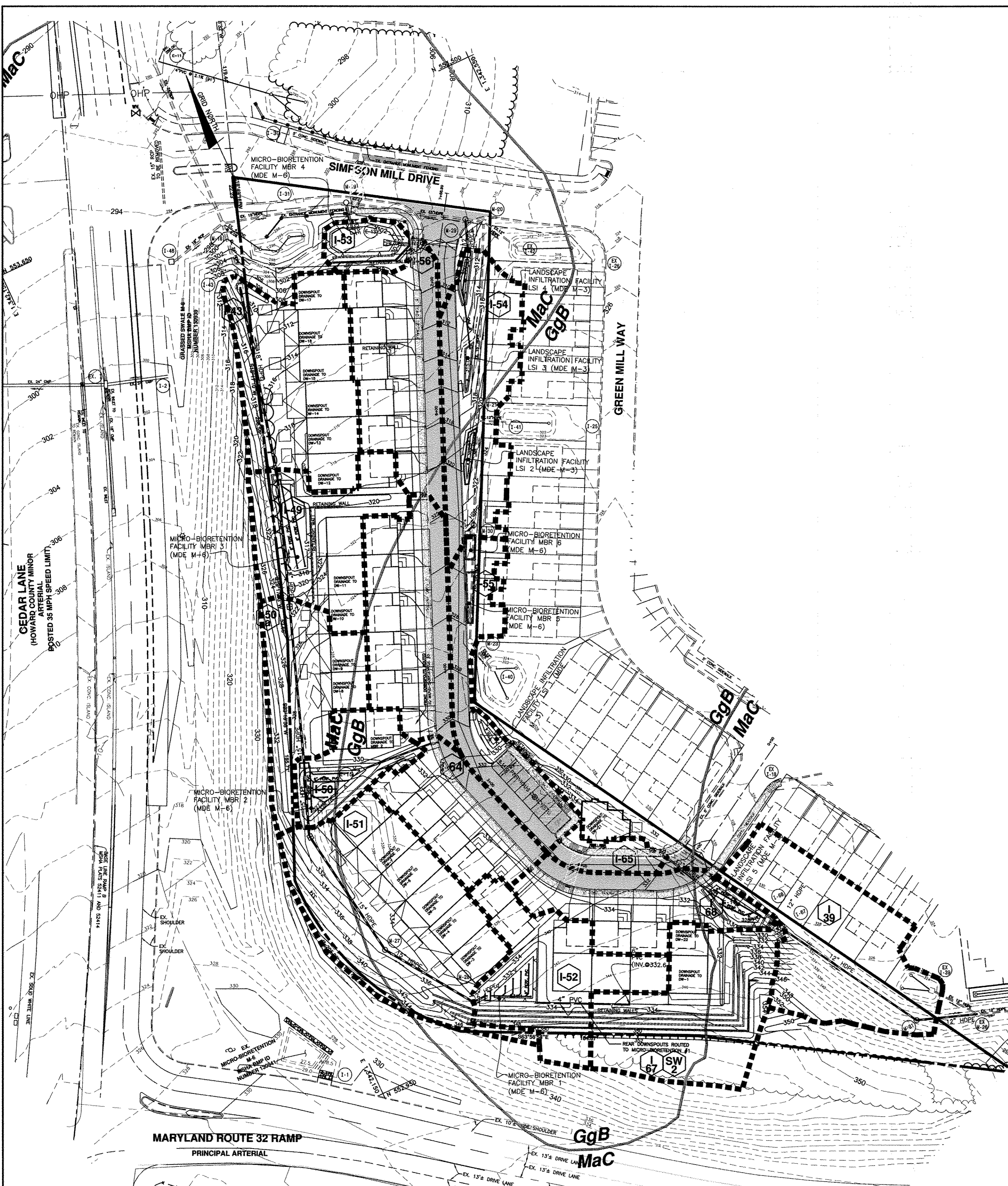
- 3. TOPSOILING: a. Limit: Use only ground agricultural limestone (not more than 3 tons per acre...)

AREA AND "C" FACTOR TABULATION

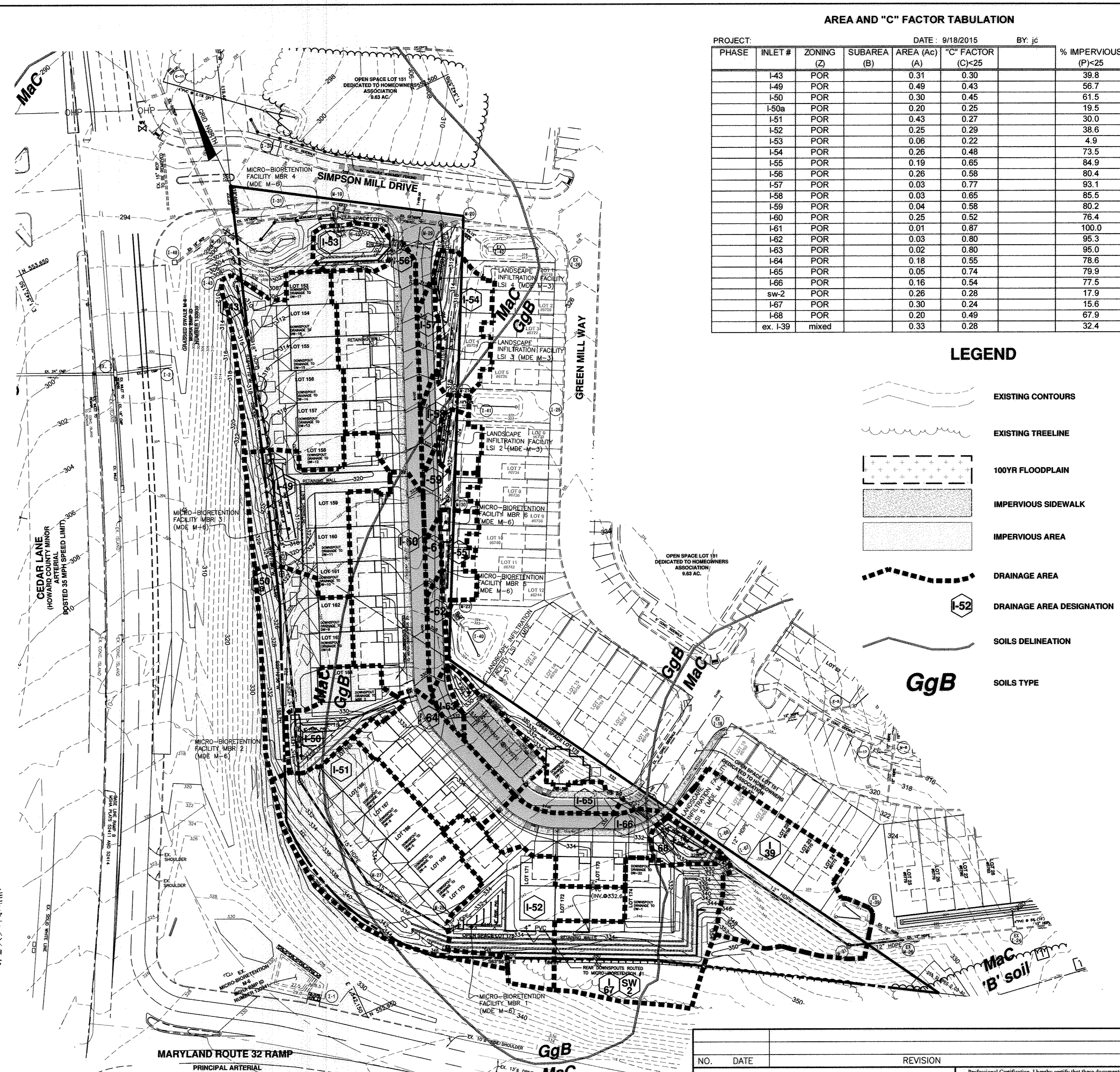
PHASE	INLET #	ZONING	SUBAREA (B)	AREA (Ac) (A)	"C" FACTOR (C)<25	% IMPERVIOUS (P)<25
	I-43	POR		0.31	0.30	39.8
	I-49	POR		0.49	0.43	56.7
	I-50	POR		0.30	0.45	61.5
	I-50a	POR		0.20	0.25	19.5
	I-51	POR		0.43	0.27	30.0
	I-52	POR		0.25	0.29	38.6
	I-53	POR		0.06	0.22	4.9
	I-54	POR		0.26	0.48	73.5
	I-55	POR		0.19	0.65	84.9
	I-56	POR		0.26	0.58	80.4
	I-57	POR		0.03	0.77	93.1
	I-58	POR		0.03	0.65	85.5
	I-59	POR		0.04	0.58	80.2
	I-60	POR		0.25	0.52	76.4
	I-61	POR		0.01	0.87	100.0
	I-62	POR		0.03	0.80	95.3
	I-63	POR		0.02	0.80	95.0
	I-64	POR		0.18	0.55	78.6
	I-65	POR		0.05	0.74	79.9
	I-66	POR		0.16	0.54	77.5
	sw-2	POR		0.26	0.28	17.9
	I-67	POR		0.30	0.24	15.6
	I-68	POR		0.20	0.49	67.9
	ex. I-39	mixed		0.33	0.28	32.4

LEGEND

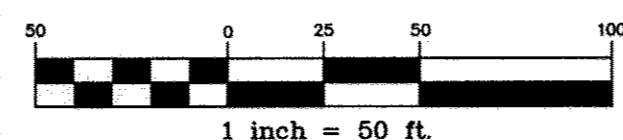
- EXISTING CONTOURS
- EXISTING TREELINE
- 100YR FLOODPLAIN
- IMPERVIOUS SIDEWALK
- IMPERVIOUS AREA
- DRAINAGE AREA
- DRAINAGE AREA DESIGNATION
- SOILS DELINEATION
- SOILS TYPE



DRAINAGE AREA MAP TO PIPED INLETS



DRAINAGE AREA MAP WITH FLOW-THRU INLET SUB-AREAS



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

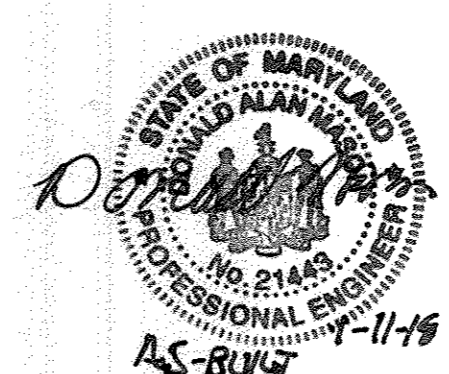
*[Signature]* 4/15/16  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

*[Signature]* 5-16-16  
CHIEF, DIVISION OF LAND DEVELOPMENT

*[Signature]* 5-16-16  
DIRECTOR

SOIL SURVEY PAGE NUMBER 17

Symbol	Soils Group	Map Unit Name
GgB	B	Glenelg loam, 3 to 8 percent slopes
MaC	B	Manor loam, 8 to 15 percent slopes



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. 21443 Expiration Date: 12-31-16

"NO AS-BUILT INFORMATION" IS PROVIDED ON THIS SHEET

NO.	DATE	REVISION

**BENCHMARK ENGINEERING, INC.**  
ENGINEERS & LAND SURVEYORS & PLANNERS  
8480 BALTIMORE NATIONAL PIKE & SUITE 315 ELLICOTT CITY, MARYLAND 21043  
(P) 410-465-6105 (F) 410-465-6644  
WWW.BE-CIVLENGINEERING.COM

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. 45797, Expiration Date: 06-30-2016.

*[Signature]* 7/8/16

OWNER: SIMPSON MILL LLC, P.O. BOX 417, ELLICOTT CITY, MARYLAND 21041, 410-465-4244

DEVELOPER: SIMPSON MILL LLC, P.O. BOX 417, ELLICOTT CITY, MARYLAND 21041, 410-465-4244

**SIMPSON MILL**  
PHASE 3 - LOTS 153 THRU 174 AND OPEN SPACE LOT 175  
A RESUBDIVISION OF BUILDABLE BULK PARCEL "A" AS SHOWN ON PLATS 22093 THRU 22101

TAX MAP: 35 GRID: 23 PARCEL: 116 ZONED: POR  
SIMPSON MILL DRIVE, COLUMBIA MD 21044  
ELECTION DISTRICT NO. 5  
HOWARD COUNTY, MARYLAND

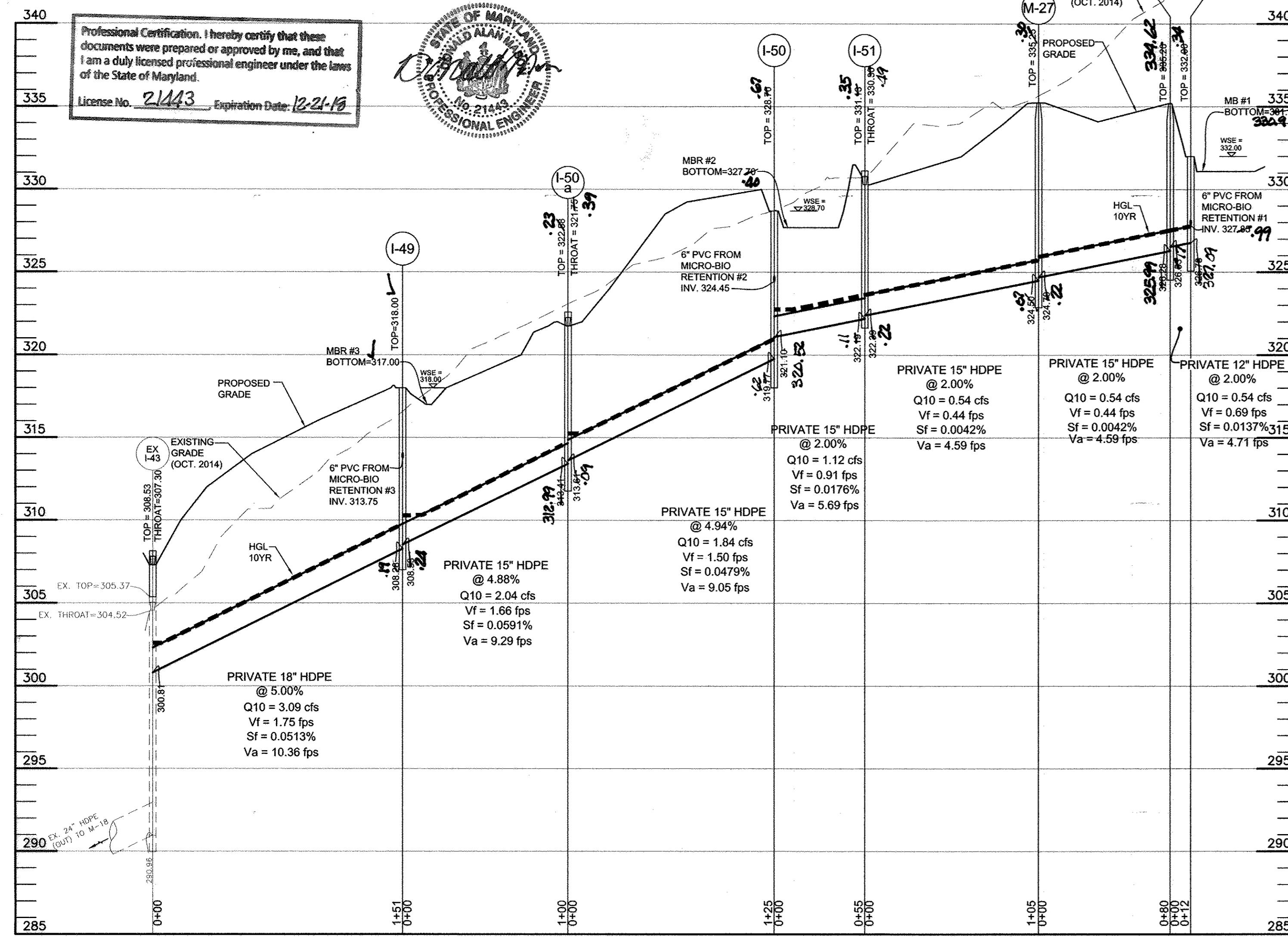
**STORM DRAIN DRAINAGE AREA MAP**

DATE: MARCH, 2016 BEI PROJECT NO: 2634  
SCALE: 1"=50' SHEET 7 OF 17

DESIGN: JMC DRAWN: JMC

AS-BUILT CERTIFICATION  
I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications

Donald Mason, P.E. Date: 1-11-16

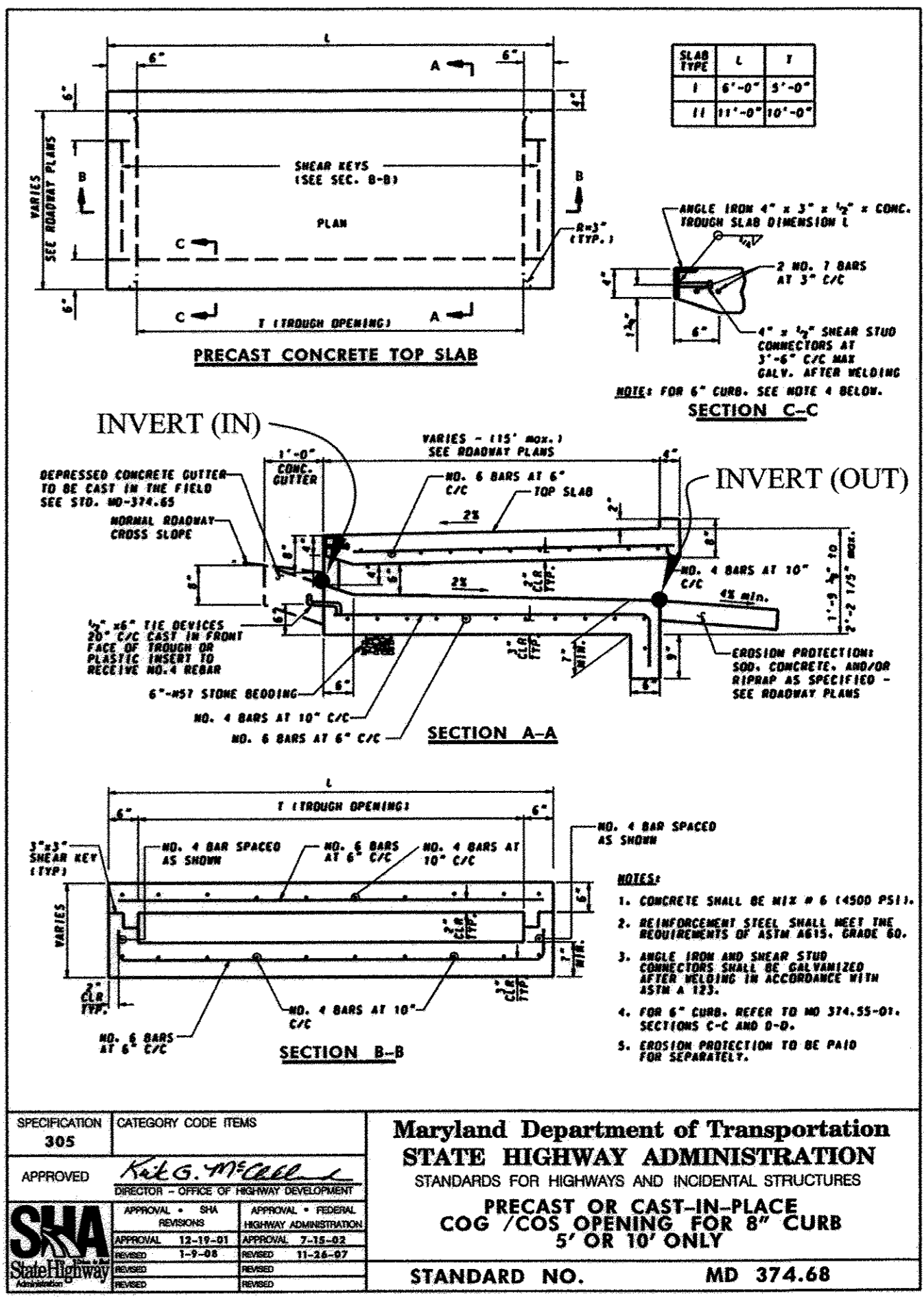
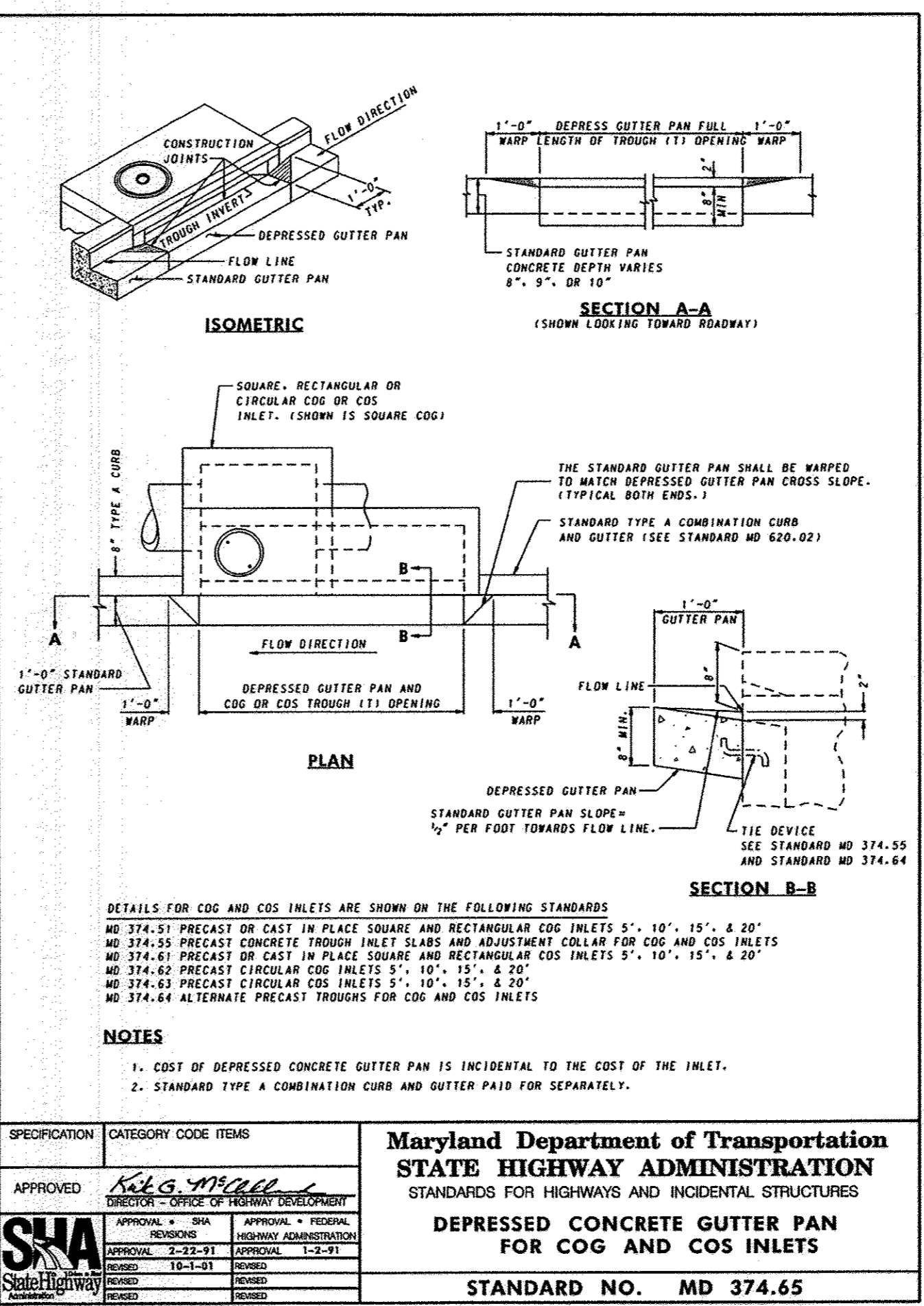
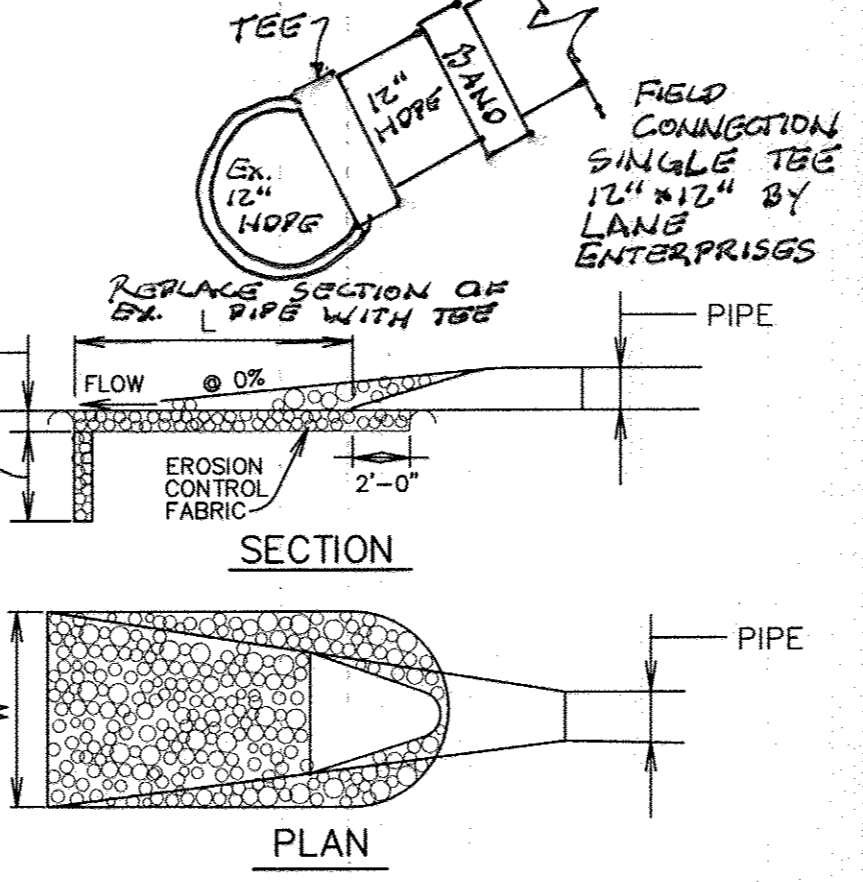


**CONSTRUCTION SPECIFICATIONS**

- THE SUBGRADE FOR THE FILTER, RIP-RAP, OR GABION SHALL BE PREPARED TO THE REQUIRED LINES AND GRADES. ANY FILL REQUIRED IN THE SUBGRADE SHALL BE COMPACTED TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
- THE ROCK OR GRAVEL SHALL CONFORM TO THE SPECIFIED GRADING LIMITS WHEN INSTALLED RESPECTIVELY IN THE RIP-RAP OR FILTER.
- GEOTEXTILE CLASS C28 OR BETTER SHALL BE PROTECTED FROM PUNCHING, CUTTING, OR TEARING. ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE SHALL BE REPAIRED BY PLACING ANOTHER PIECE OF GEOTEXTILE FABRIC OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE FABRIC. ALL OVERLAYS WHETHER FOR REPAIRS OR FOR JOINING TWO PIECES OF GEOTEXTILE FABRIC SHALL BE A MINIMUM OF ONE FOOT.
- STONE FOR THE RIP-RAP OR GABION OUTLETS MAY BE PLACED BY EQUIPMENT. THEY SHALL BE CONSTRUCTED TO THE FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. THE STONE FOR THE RIP-RAP OR GABION OUTLETS SHALL BE DELIVERED AND PLACED IN A MANNER THAT WILL INSURE THAT IT IS REASONABLY HOMOGENEOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. RIP-RAP SHALL BE PLACED IN A MANNER TO PREVENT DAMAGE TO THE FILTER BLANKET OR GEOTEXTILE FABRIC. HAND PLACEMENT WILL BE REQUIRED TO THE EXTENT NECESSARY TO PREVENT DAMAGE TO THE PERMANENT WORKS.
- THE STONE SHALL BE PLACED SO THAT IT BLENDS IN WITH THE EXISTING GROUND. IF THE STONE IS PLACED TOO HIGH THEN THE FLOW WILL BE FORCED OUT OF THE CHANNEL AND SCOUR ADJACENT TO THE STONE WILL OCCUR.

STRUCTURE	D-50	LENGTH (L)	WIDTH (W)	THICKNESS (T)	SHA CLASS
E-13	9.5"	4'	5'	18"	I
E-14	9.5"	4'	5'	18"	I
E-15	9.5"	4'	5'	18"	I

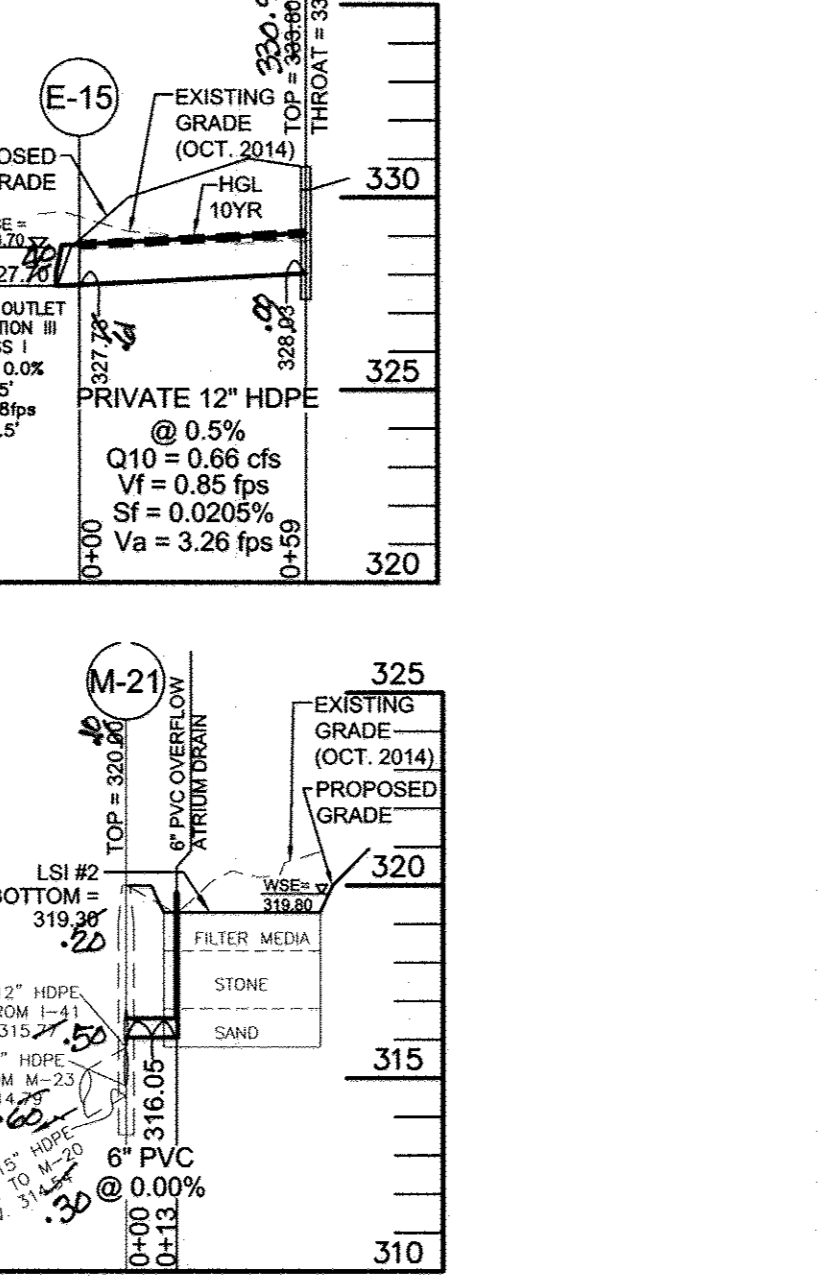
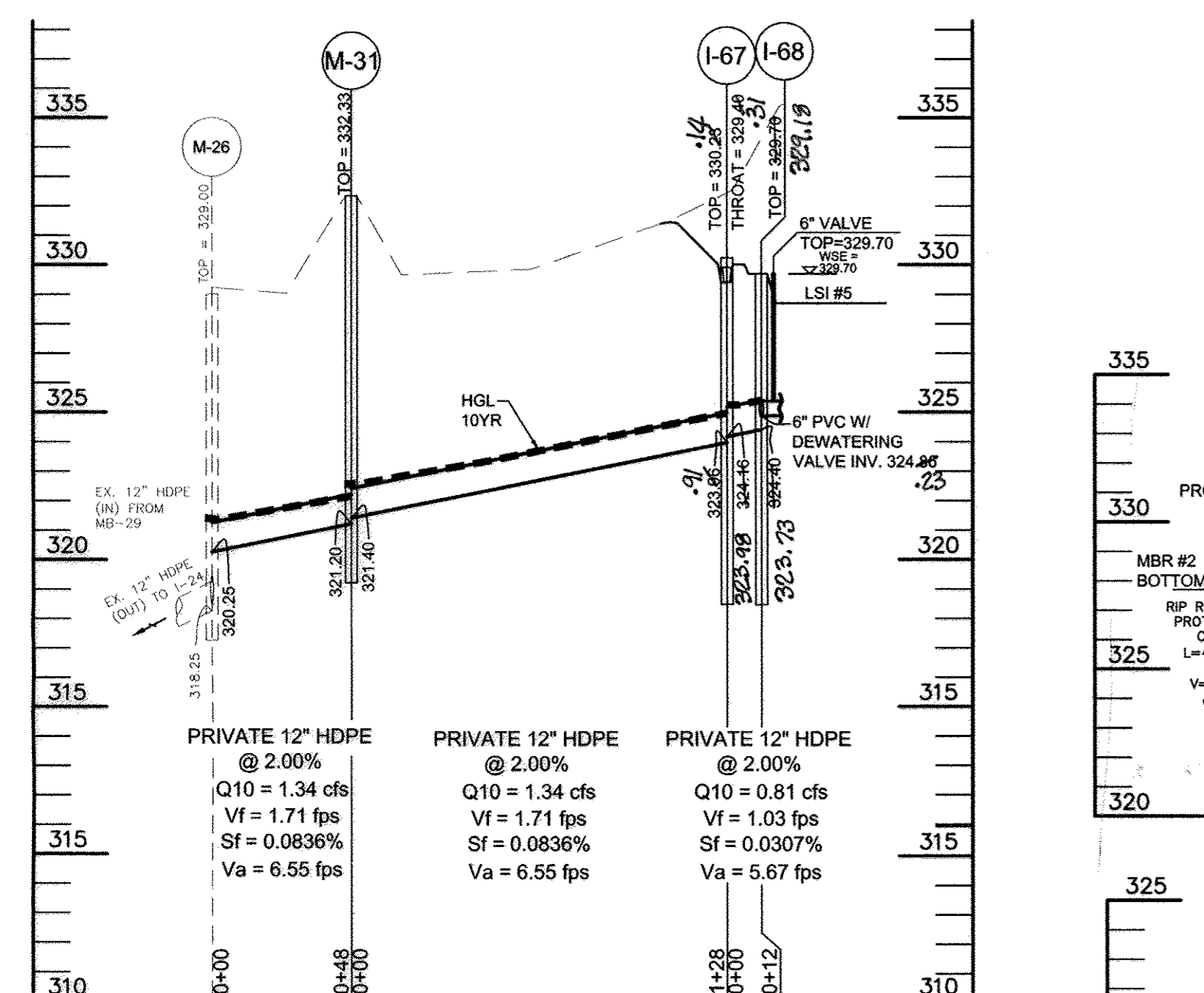
**OUTLET PROTECTION DETAIL**  
NOT TO SCALE



**PIPE SCHEDULE**

SIZE	TYPE	LENGTH (L.F.)	MAINTENANCE
12"	RCCP	40	PRIVATE
12"	HDPEP	336	PRIVATE
15"	HDPEP	465	PRIVATE
18"	HDPEP	151	PRIVATE

All HDPE pipes shall have smooth interior. No interior corrugations.



**STRUCTURE TABLE**

NUMBER	TYPE	LOCATION	INVERT IN **	INVERT OUT	TOP ELEV.	THROAT ELEV.	STD. DETAIL	INLET WIDTH	MAINTENANCE
EX-143	D (EXISTING)	N 553563 3250 E 1342314 0548	300.81	300.81	308.53	307.70	HO CO. STD. D-4.23	N/A	PUBLIC
I-49	DOUBLE 'S'	N 553417 3603 E 1342277 7284	313.75(6')	308.58(2)	318.00	318.00	HO CO. STD. D-4.23	NA	PRIVATE
I-50	DOUBLE 'S'	N 553205 7913 E 1342202 2124	324.45 (6')	321.17(2)	328.70	328.70	HO CO. STD. D-4.23	NA	PRIVATE
I-50a	D	N 553322 4898 E 1342244 0057	313.81(1)	313.81(1)	321.75	321.75	HO CO. STD. D-4.10	NA	PRIVATE
I-51	D	N 553153 7831 E 1342182 9871	322.88(2)	322.88(2)	331.28	330.30	HO CO. STD. D-4.10	NA	PRIVATE
I-52	DOUBLE 'S'	N 552984 0361 E 1342255 8223	327.88(6')	327.88(6')	332.00	332.00	HO CO. STD. D-4.23	NA	PRIVATE
I-53	D	N 553565 6559 E 1342411 0610	297.17(2)	297.17(2)	303.88	303.00	HO CO. STD. D-4.10	NA	PRIVATE
I-54	S	CL STA: 7+23.91 RIVER ROCK WAY, OFFSET 22.62' RIGHT	304.64(16')	304.64(16')	309.28	309.70	HO CO. STD. D-4.22	NA	PRIVATE
I-55	D	CL STA: 5+03.84 RIVER ROCK WAY, OFFSET 16.67' RIGHT	318.24(6')	318.00	322.58	322.58	HO CO. STD. D-4.10	NA	PRIVATE
I-56	A-5	CL STA: 7+27.02 RIVER ROCK WAY, OFFSET: 13.43' LEFT	302.84(6')	302.84(6')	308.28	308.28	HO CO. STD. D-4.01	3.0'	PRIVATE
I-57	Flow-thru Inlet	CL STA: 6+55.61 RIVER ROCK WAY, OFFSET 13.00' RIGHT	309.69	309.46	309.86	309.86	SHA MD 374-68	2.5'	PRIVATE
I-58	Flow-thru Inlet	CL STA: 6+17.37 RIVER ROCK WAY, OFFSET 13.00' RIGHT	315.70	315.45	315.87	315.87	SHA MD 374-68	4.0'	PRIVATE
I-59	Flow-thru Inlet	CL STA: 5+55.29 RIVER ROCK WAY, OFFSET 13.00' RIGHT	319.84	319.61	320.01	320.01	SHA MD 374-68	2.5'	PRIVATE
I-60	Flow-thru Inlet	CL STA: 5+33.12 RIVER ROCK WAY, OFFSET 13.00' LEFT	321.02	320.79	321.79	321.19	SHA MD 374-68	15.0'	PRIVATE
I-61	Flow-thru Inlet	CL STA: 4+92.83 RIVER ROCK WAY, OFFSET 13.00' RIGHT	322.98	322.75	323.75	323.15	SHA MD 374-68	2.0'	PRIVATE
I-62	Flow-thru Inlet	CL STA: 4+46.14 RIVER ROCK WAY, OFFSET 13.00' RIGHT	325.32	325.09	325.49	325.49	SHA MD 374-68	2.0'	PRIVATE
I-63	Flow-thru Inlet	CL STA: 3+62.11 RIVER ROCK WAY, OFFSET 13.00' RIGHT	329.62	329.39	329.69	329.69	SHA MD 374-68	5.0'	PRIVATE
I-64	A-5	CL STA: 3+47.29 RIVER ROCK WAY, OFFSET: 13.44' LEFT	328.20	328.20	330.88	330.88	HO CO. STD. D-4.01	2.5'	PRIVATE
I-65	A-5	CL STA: 1+32.62 RIVER ROCK WAY, OFFSET: 17.00' RIGHT	329.74	329.74	331.28	331.28	HO CO. STD. D-4.01	2.5'	PRIVATE
I-66	Flow-thru Inlet	CL STA: 1+10.28 RIVER ROCK WAY, OFFSET: 12.92' LEFT	330.11	330.88	330.28	330.28	SHA MD 374-68	10.0'	PRIVATE
I-67	D	N 552596 4120 E 1342484 2277	324.48(6')	324.48(6')	329.70	329.70	HO CO. STD. D-4.10	NA	PRIVATE
I-68	DOUBLE 'S'	N 552945 1642 E 1342476 5293	324.88(6')	324.88(6')	329.70	329.70	HO CO. STD. D-4.23	NA	PRIVATE

\*\*INVERT IN on Flow-Thru inlets refers to the gutter pan elevation at throat

STRUCTURE LOCATION FOR MANHOLES IS AT THE CENTER OF THE MANHOLE RIM  
STRUCTURE LOCATION FOR INLETS IS AT THE CENTER OF THE INLET FACE  
STRUCTURE LOCATION FOR THE END-SECTIONS IS AT THE MIDDLE OF THE END OF THE STRUCTURE  
ALL INLET WIDTHS SPECIFIED REFLECT INTERIOR DIMENSIONS  
PRECAST STRUCTURES MEETING HS-20 LOADING MAY BE USED  
PRECAST STRUCTURES MEETING HS-20 LOADING MAY BE USED

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
DATE: 4/15/16  
CHIEF, DIVISION OF LAND DEVELOPMENT  
DATE: 5-16-16  
DIRECTOR  
DATE: 5-16-16

**BENCHMARK ENGINEERING, INC.**  
3480 BALTIMORE NATIONAL PIKE SUITE 315 ELLICOTT CITY, MARYLAND 21043  
(P) 410-465-8105 (F) 410-465-8644

**Maryland Department of Transportation STATE HIGHWAY ADMINISTRATION**  
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES  
**DEPRESSED CONCRETE GUTTER PAN FOR COG AND COS INLETS**  
STANDARD NO. MD 374.65

**Maryland Department of Transportation STATE HIGHWAY ADMINISTRATION**  
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES  
**PRECAST OR CAST-IN-PLACE COG / COS OPENING FOR 5' OR 10' ONLY**  
STANDARD NO. MD 374.68

**SIMPSON MILL**  
PHASE 3 - LOTS 153 THRU 174 AND OPEN SPACE LOT 175  
A RESUBDIVISION OF BUILDABLE BULK PARCEL "A" AS SHOWN ON PLATS 22093 THRU 22101  
TAX MAP: 35 GRID: 23 PARCEL: 116 ZONED: POR  
SIMPSON MILL DRIVE, COLUMBIA MD 21044  
ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

OWNER: SIMPSON MILL LLC  
P.O. BOX 417  
ELLICOTT CITY, MARYLAND 21041  
410-465-4244

DEVELOPER: SIMPSON MILL LLC  
P.O. BOX 417  
ELLICOTT CITY, MARYLAND 21041  
410-465-4244

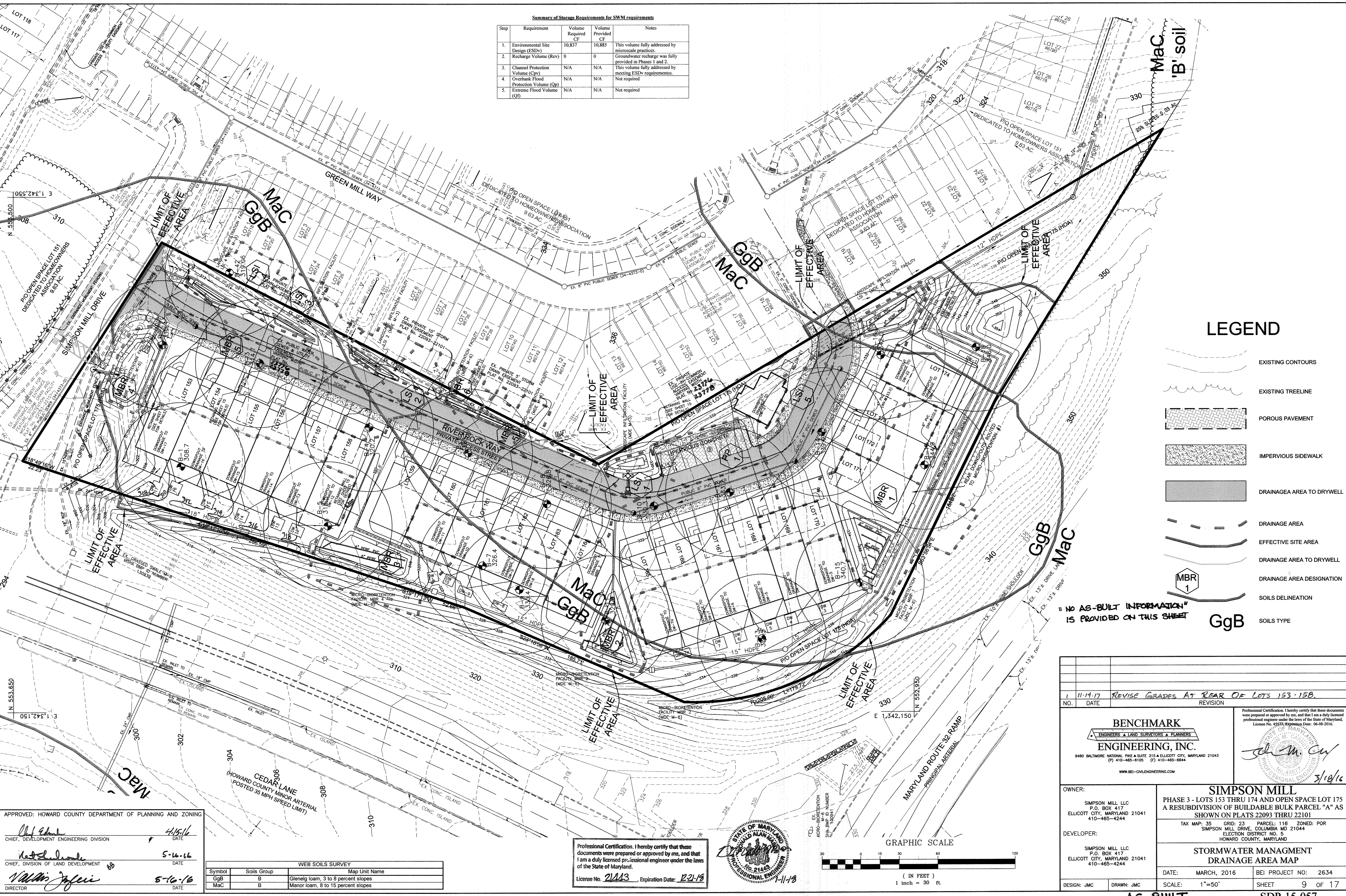
DESIGN: JMC DRAWN: JMC

DATE: MARCH, 2016 SHEET: 8 OF 17  
BEI PROJECT NO: 2634



**Summary of Storage Requirements for SWM requirements**

Step	Requirement	Volume Required CF	Volume Provided CF	Notes
1.	Environmental Site Design (ESDv)	10,837	10,885	This volume fully addressed by microscale practices.
2.	Recharge Volume (Rev)	0	0	Groundwater recharge was fully provided in Phases 1 and 2.
3.	Channel Protection Volume (Cpv)	N/A	N/A	This volume fully addressed by meeting ESDv requirements.
4.	Overbank Flood Protection Volume (Op)	N/A	N/A	Not required
5.	Extreme Flood Volume (QD)	N/A	N/A	Not required



**LEGEND**

- EXISTING CONTOURS
- EXISTING TREELINE
- POROUS PAVEMENT
- IMPERVIOUS SIDEWALK
- DRAINAGE AREA TO DRYWELL
- DRAINAGE AREA
- EFFECTIVE SITE AREA
- DRAINAGE AREA TO DRYWELL
- DRAINAGE AREA DESIGNATION
- SOILS DELINEATION
- SOILS TYPE

"NO AS-BUILT INFORMATION" IS PROVIDED ON THIS SHEET

1 11-14-17 REVISE GRADES AT REAR OF LOTS 153-158.	
NO.	DATE
REVISION	
<b>BENCHMARK</b> ENGINEERS & LAND SURVEYORS & PLANNERS <b>ENGINEERING, INC.</b> 6480 BALTIMORE NATIONAL PIKE & SUITE 315 & ELLICOTT CITY, MARYLAND 21045 (7) 410-465-8105 (F) 410-465-8644 WWW.BEI-CIVILENGINEERING.COM	
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. 45570, Expiration Date: 06-08-2016.	
OWNER:	<b>SIMPSON MILL</b> PHASE 3 - LOTS 153 THRU 174 AND OPEN SPACE LOT 175 A RESUBDIVISION OF BUILDABLE BULK PARCEL "A" AS SHOWN ON PLATS 22093 THRU 22101
DEVELOPER:	SIMPSON MILL LLC P.O. BOX 417 ELLICOTT CITY, MARYLAND 21044 ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND
DATE:	MARCH, 2016
BEI PROJECT NO:	2634
DESIGN:	JMC
DRAWN:	JMC
SCALE:	1"=50'
SHEET:	9 OF 17

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*[Signature]* 4-15-16  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*[Signature]* 5-16-16  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

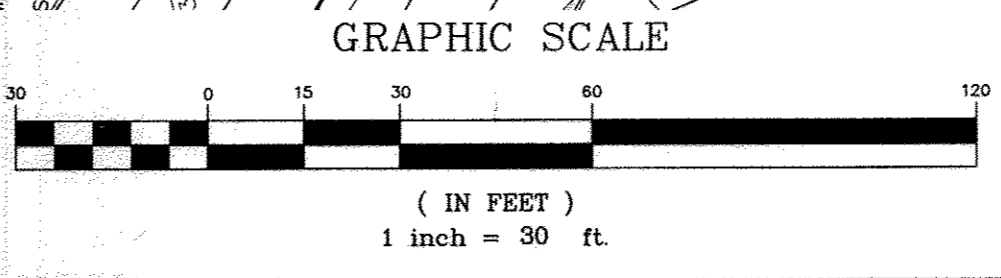
*[Signature]* 5-16-16  
 DIRECTOR DATE

**WEB SOILS SURVEY**

Symbol	Soils Group	Map Unit Name
GgB	B	Glenelg loam, 3 to 8 percent slopes
Mac	B	Manor loam, 8 to 15 percent slopes

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. 21443 Expiration Date: 12-21-18



**MICRO-BIORETENTION (M-6) DESIGN TABLES**

#	ELEV. 1	ELEV. 2	ELEV. 3	ELEV. 4	ELEV. 5	ELEV. 6	ELEV. 7	ELEV. 8	DIMENSIONS	TOTAL SF
#1	334.8	332.00	331.10	330.93	328.93	328.60	327.85	327.60	'A' varies 'B' varies	547
#2	328.70	328.70	327.70	327.53	325.53	325.20	324.49	324.20	'A' varies 'B' varies	808
#3	318.00	318.00	317.00	316.83	314.83	314.50	313.75	313.50	'A' varies 'B' varies	1048
#4	303.00	303.00	302.00	301.83	299.83	299.50	298.75	298.50	'A' varies 'B' varies	859
#5	324.90	234.70	323.80	323.63	321.63	321.30	320.72	320.47	'A' varies 'B' varies	148
#6	322.50	322.50	321.70	321.61	319.61	319.28	318.20	317.94	'A' varies 'B' varies	125

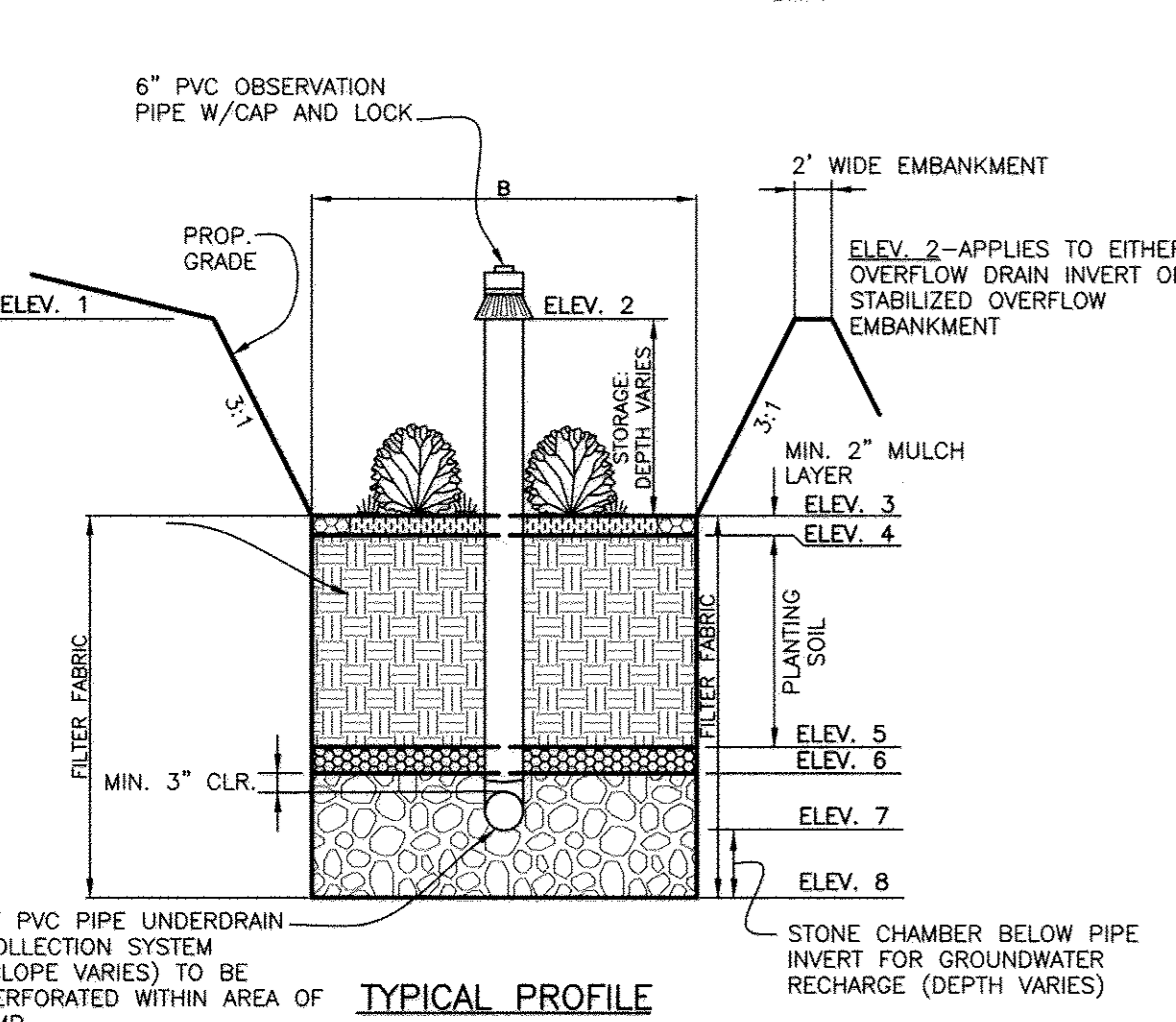
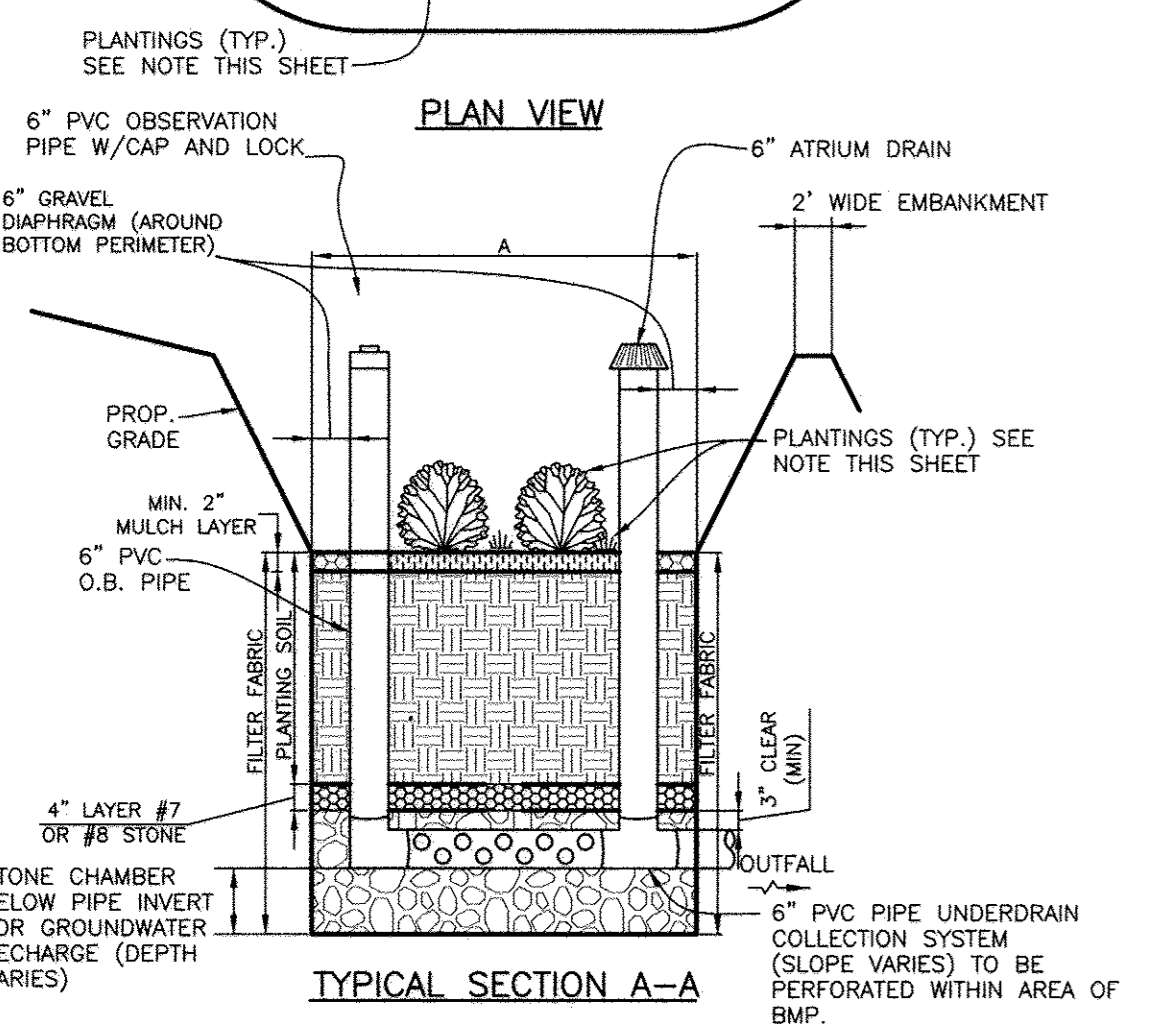
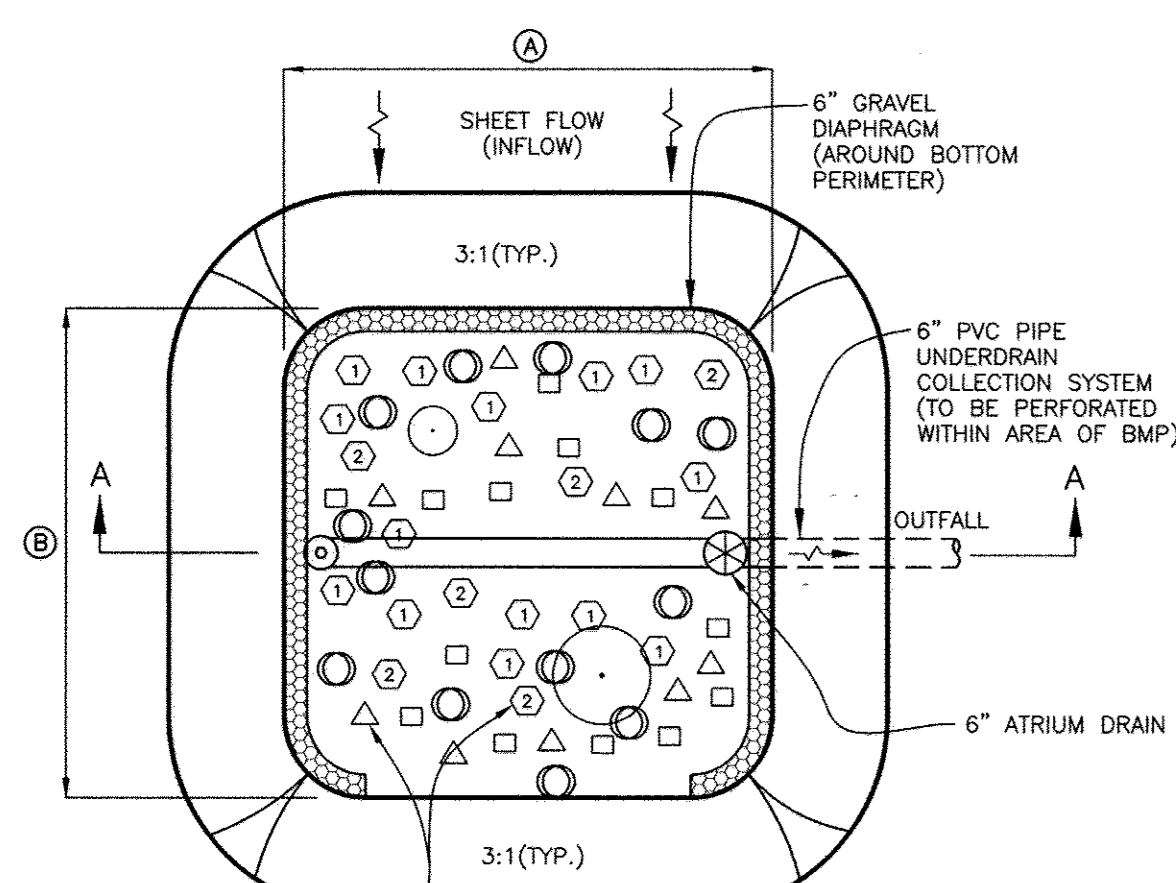
**LANDSCAPE INFILTRATION (M-3) DESIGN TABLES**

\* - INDICATES FACILITIES WITH 'D' TYPE INLET

#	ELEV. 1	ELEV. 2	ELEV. 3	ELEV. 4	ELEV. 5	ELEV. 6	DIMENSIONS	TOTAL SF
#1	328.80	328.40	328.23	327.40	325.57	324.57	'A' varies 'B' varies	118
#2	319.80	319.30	319.13	318.30	316.80	315.80	'A' varies 'B' varies	106
#3	315.30	315.00	314.83	314.00	312.50	311.50	'A' varies 'B' varies	130
#4	309.70	309.20	309.03	308.20	305.87	304.87	'A' varies 'B' varies	141
#5 *	329.70	328.70	328.53	327.70	325.70	324.70	'A' varies 'B' varies	485

**DRY WELL (M-5) DESIGN TABLES**

Drywell Designation	Length (ft)	Width (ft)	Depth (ft)	Grade	Top of Stone	Bottom of Stone
DW-1	4.00	15.80	5.00	332.0	331.0	328.0
DW-2	Removed from design					
DW-3	9.08	9.08	5.00	334.0	333.0	328.0
DW-4	9.00	9.00	5.00	334.0	333.0	328.0
DW-5	9.00	9.00	5.00	334.0	333.0	328.0
DW-6	9.00	9.00	5.00	332.6	331.6	326.6
DW-7	9.00	9.00	5.00	332.0	331.0	326.0
DW-7a	6.00	13.00	5.00	332.0	331.0	326.0
DW-8	5.40	11.40	5.00	327.5	326.5	321.5
DW-9	5.40	11.40	5.00	325.3	324.3	319.3
DW-10	7.83	7.83	5.00	324.1	323.1	318.1
DW-11	7.83	7.83	5.00	321.2	320.2	315.2
DW-12	7.83	10.50	5.00	318.3	316.0	311.0
DW-13	9.00	9.00	5.00	316.8	315.3	310.3
DW-14	9.00	9.00	5.00	315.9	312.8	307.8
DW-15	9.00	9.00	5.00	312.7	311.0	306.0
DW-16	9.00	9.00	5.00	306.6	308.2	303.2
DW-17	7.83	10.50	5.00	307.6	306.0	301.0
DW-18	Removed from design					
DW-19	Removed from design					
DW-20	Removed from design					
DW-21	7.58	7.33	5.00	331.0	330.0	325.0
DW-22	4.00	13.33	5.00	333.0	332.0	327.0



**TYPICAL MICRO-BIORETENTION DETAILS**  
NOT TO SCALE

**UNDERDRAIN, OVERFLOW AND OUTFALL NOTES**

1. THE LAST CLEAN-OUT LOCATION WITHIN EACH MICRO-BIORETENTION FACILITY SHALL BE FITTED WITH A NON-CLOGGING SURFACE DRAIN (EXAMPLE: 4" ABS ROOF DRAIN W/CAST ALUMINUM DOME) AT THE POND SURFACE ELEVATION INDICATED IN THE CORRESPONDING TABLE ELEV. 2.
2. THE PVC WITHIN THE FACILITY SHALL BE PERFORATED.
3. THE UNDER-DRAIN AND PIPE TO OUTFALL SHALL BE INSTALLED TO A MINIMUM DEPTH OF 2' BELOW FINISHED GRADE AND SHALL MAINTAIN A MINIMUM 0.5% SLOPE AND MAINTAIN A MINIMUM OF 1' OF SEPARATION AT ALL CROSSINGS.

**MICRO-BIORETENTION (M-6) PLANTING DATA**

1. PLANTINGS WITHIN THE PONDING AREA OF THE INFILTRATION ARE TO BE OF A MEDIUM TO HIGH WATER TOLERANCE. SUGGESTED SPECIES: CREEPING BLUEWEDGE (AJUGA REPTANS), COMMON PERIWINKLE (VINCA MINOR), LELY-TURF (LIRIOPE SP.).

2. PLANTINGS ALONG THE PERIMETER (BERM) AREA OF THE INFILTRATION ARE TO BE OF A LOW TO MEDIUM WATER TOLERANCE. SUGGESTED SPECIES: IRIS (IRIS VERSICOLOR), IRIS (IRIS VERSICOLOR), IRIS (IRIS VERSICOLOR), IRIS (IRIS VERSICOLOR), IRIS (IRIS VERSICOLOR), IRIS (IRIS VERSICOLOR), IRIS (IRIS VERSICOLOR), IRIS (IRIS VERSICOLOR), IRIS (IRIS VERSICOLOR), IRIS (IRIS VERSICOLOR).

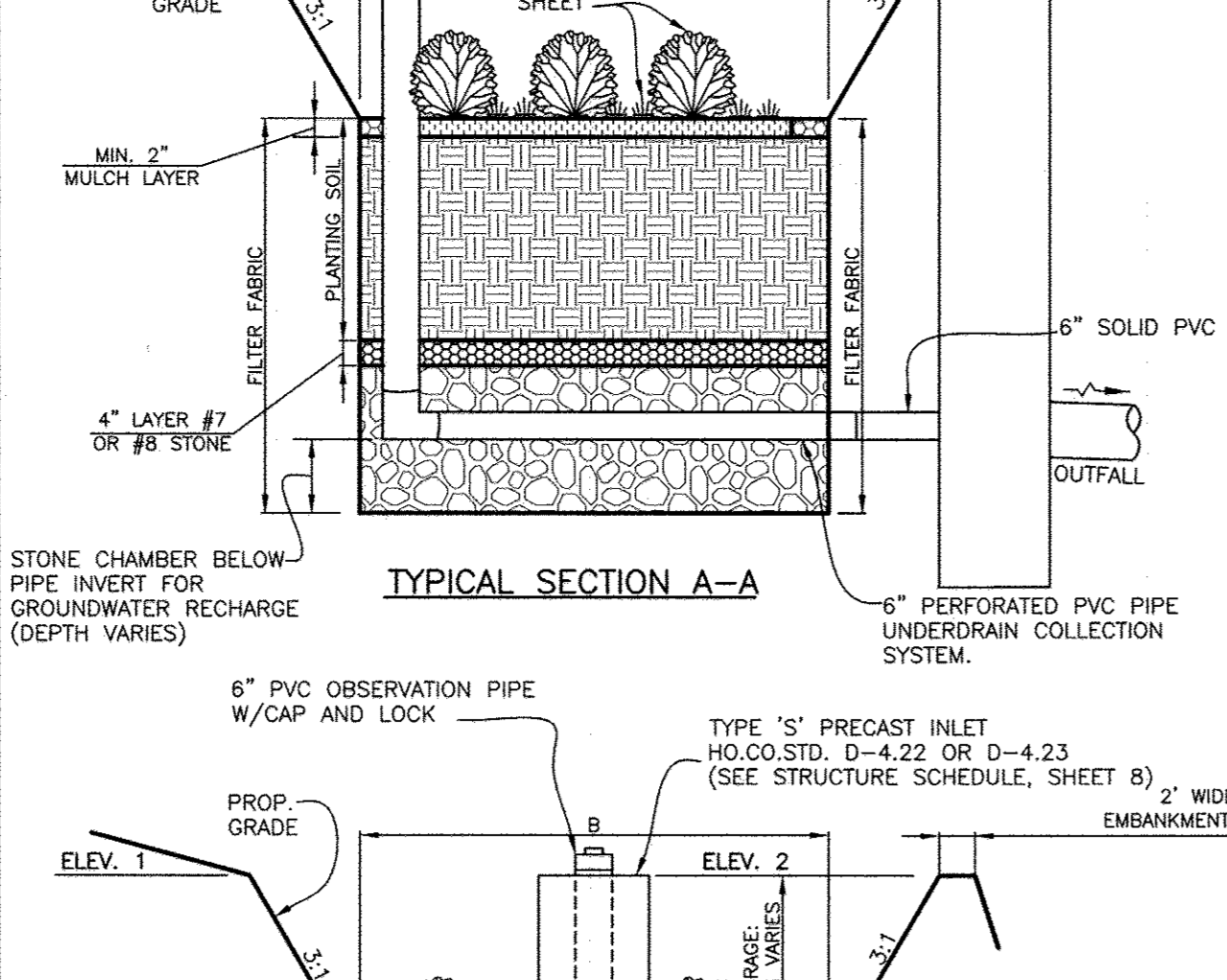
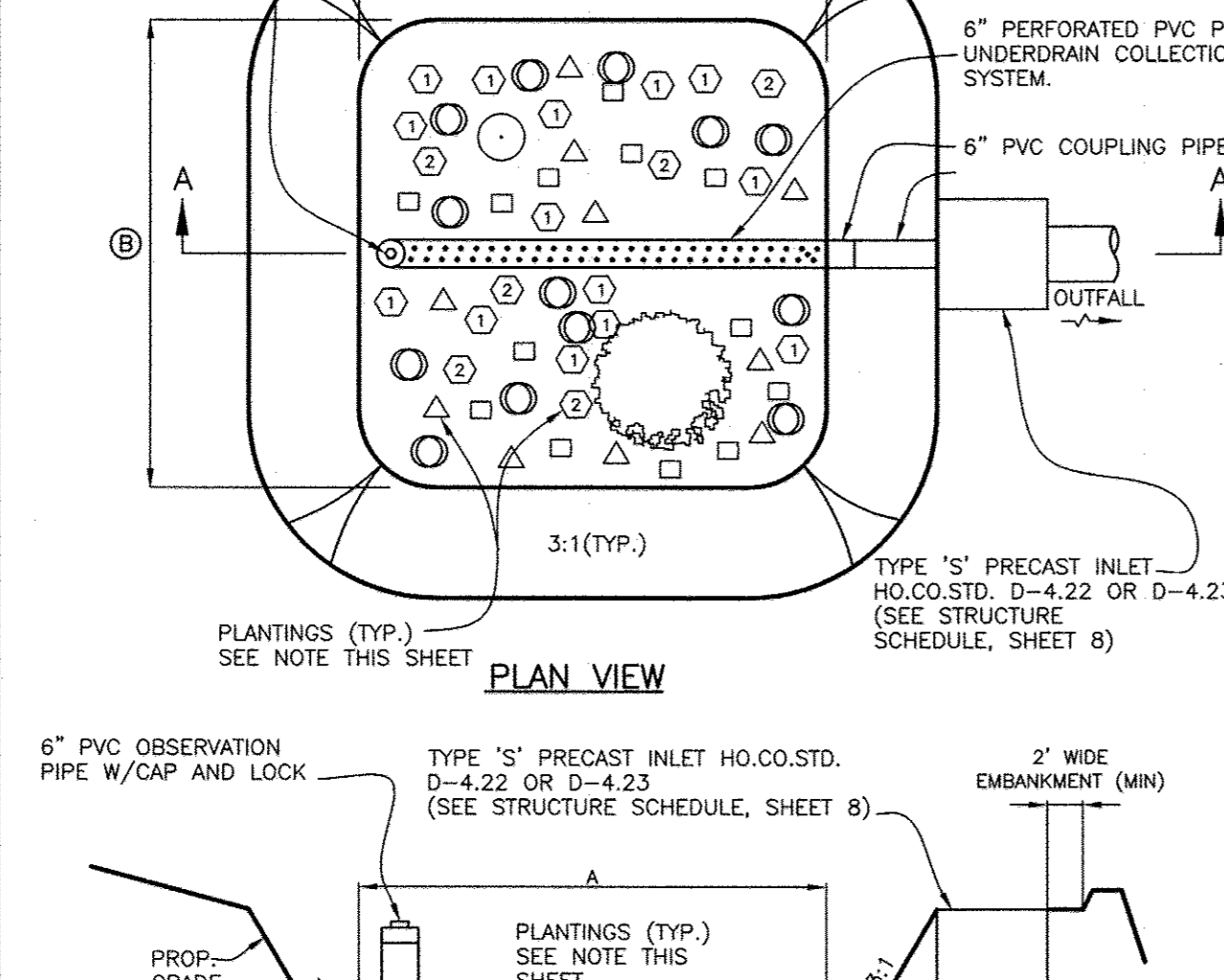
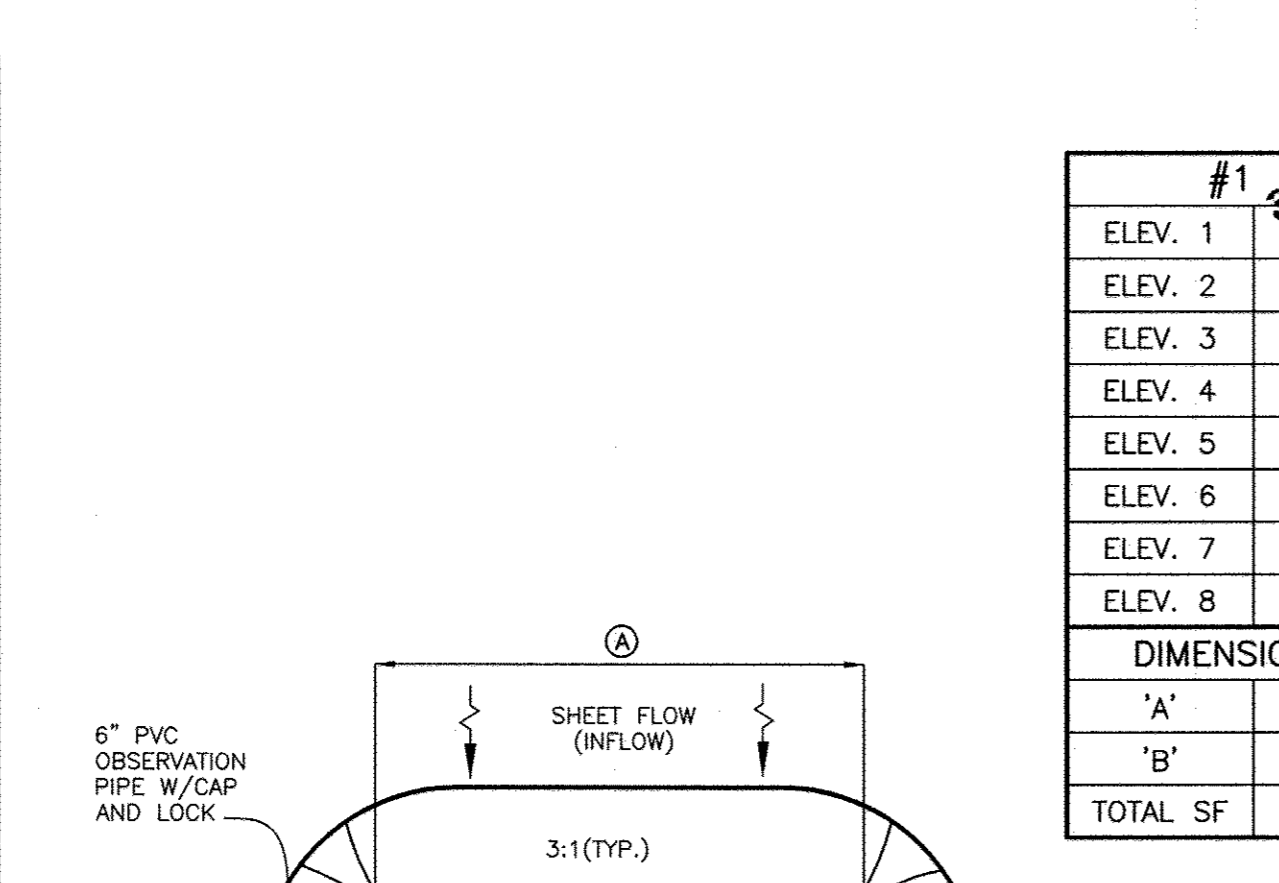
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APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION: *[Signature]* 4/15/16

CHIEF, DIVISION OF LAND DEVELOPMENT: *[Signature]* 5-16-16

DIRECTOR: *[Signature]* 5-16-16



**TYPICAL LANDSCAPE INFILTRATION DETAILS**  
NOT TO SCALE

**OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED & MAINTAINED PERMEABLE PAVEMENT (A-2)**

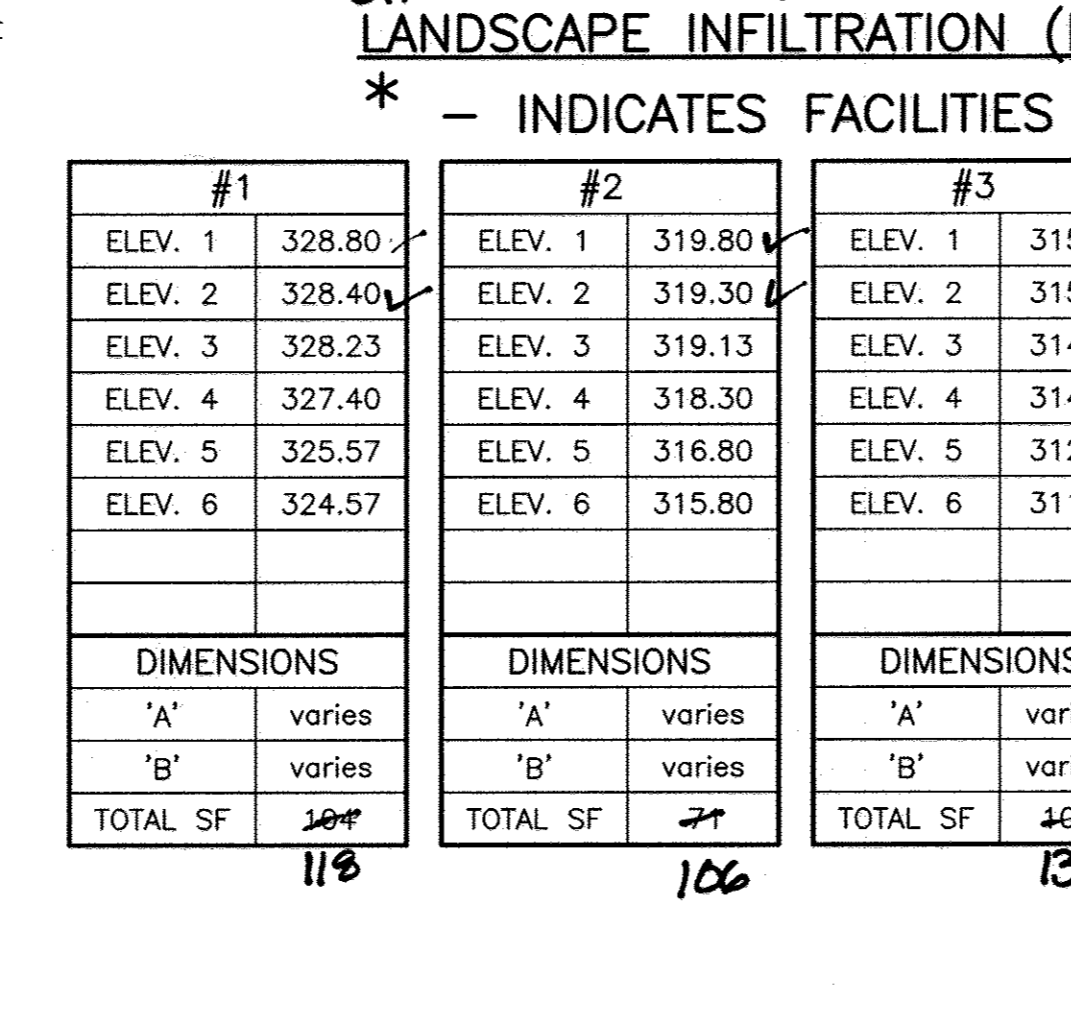
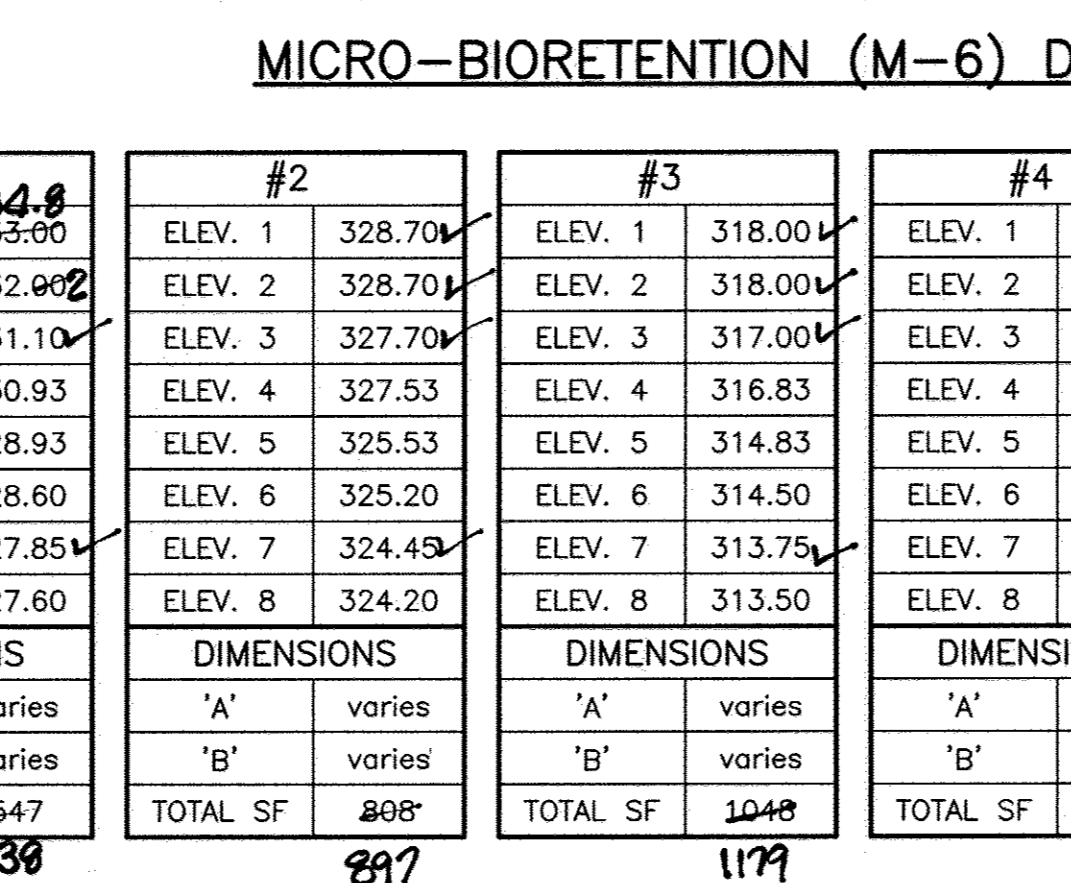
1. Pavement surfaces should be swept and vacuumed (if porous concrete) to reduce sediment accumulation and ensure continued surface porosity. Sweeping should be performed at least twice annually with a commercial cleaning unit. Washing or compressed air units should not be used to perform surface cleaning.
2. Drainage pipes, inlets, stone edge drains and other structures within or draining to the subbase should be cleaned out at regular intervals.
3. Deicers should be used in moderation. Deicers should be non-toxic and be applied either as calcium magnesium acetate or as pretreated salt. Snow plowing should be done carefully with blades set one-inch above the surface. Plowed snow piles and snowmelt should not be directed to permeable pavement.

**MICRO-BIORETENTION PLANTING LEGEND**

SYMBOL	NAME
①	AJUGA REPTANS (CREEPING BLUEWEDGE)
②	IRIS VERSICOLOR (IRIS)
□	CLETHRA (COMMON PERIWINKLE)
△	ELYMUS VIRGINICUS (VIRGINIA WILD RYE)
○	VACCINIUM ATROCCOCCUM (HIGHBUSH BLUEBERRY)
●	BETULA NIGRA (RIVER BIRCH)

**PLANTING SCHEDULE**

FACILITY	MB 1	MB 2	MB 3	MB 4	MB 5	MB 6	LS1 1	LS1 2	LS1 3	LS1 4	LS1 5
AREA (SF)	547	808	1,048	859	148	112	104	71	101	96	485
PLANTINGS											
AJUGA REPTANS (CREEPING BLUEWEDGE)	17	25	32	26	5	4	4	3	4	3	15
IRIS VERSICOLOR (IRIS)	17	25	32	26	5	4	4	3	4	3	15
CLETHRA (COMMON PERIWINKLE)	6	9	11	9	2	2	2	1	2	1	5
ELYMUS VIRGINICUS (VIRGINIA WILD RYE)	6	9	11	9	2	2	2	1	2	1	5
VACCINIUM ATROCCOCCUM (HIGHBUSH BLUEBERRY)	6	9	11	9	2	2	2	1	2	1	5
BETULA NIGRA (RIVER BIRCH)	1	1	1	1	1	1	1	1	1	1	1



**TYPICAL LANDSCAPE INFILTRATION DETAILS**  
NOT TO SCALE

**OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED & MAINTAINED PERMEABLE PAVEMENT (A-2)**

1. Pavement surfaces should be swept and vacuumed (if porous concrete) to reduce sediment accumulation and ensure continued surface porosity. Sweeping should be performed at least twice annually with a commercial cleaning unit. Washing or compressed air units should not be used to perform surface cleaning.
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**AS-BUILT CERTIFICATION**

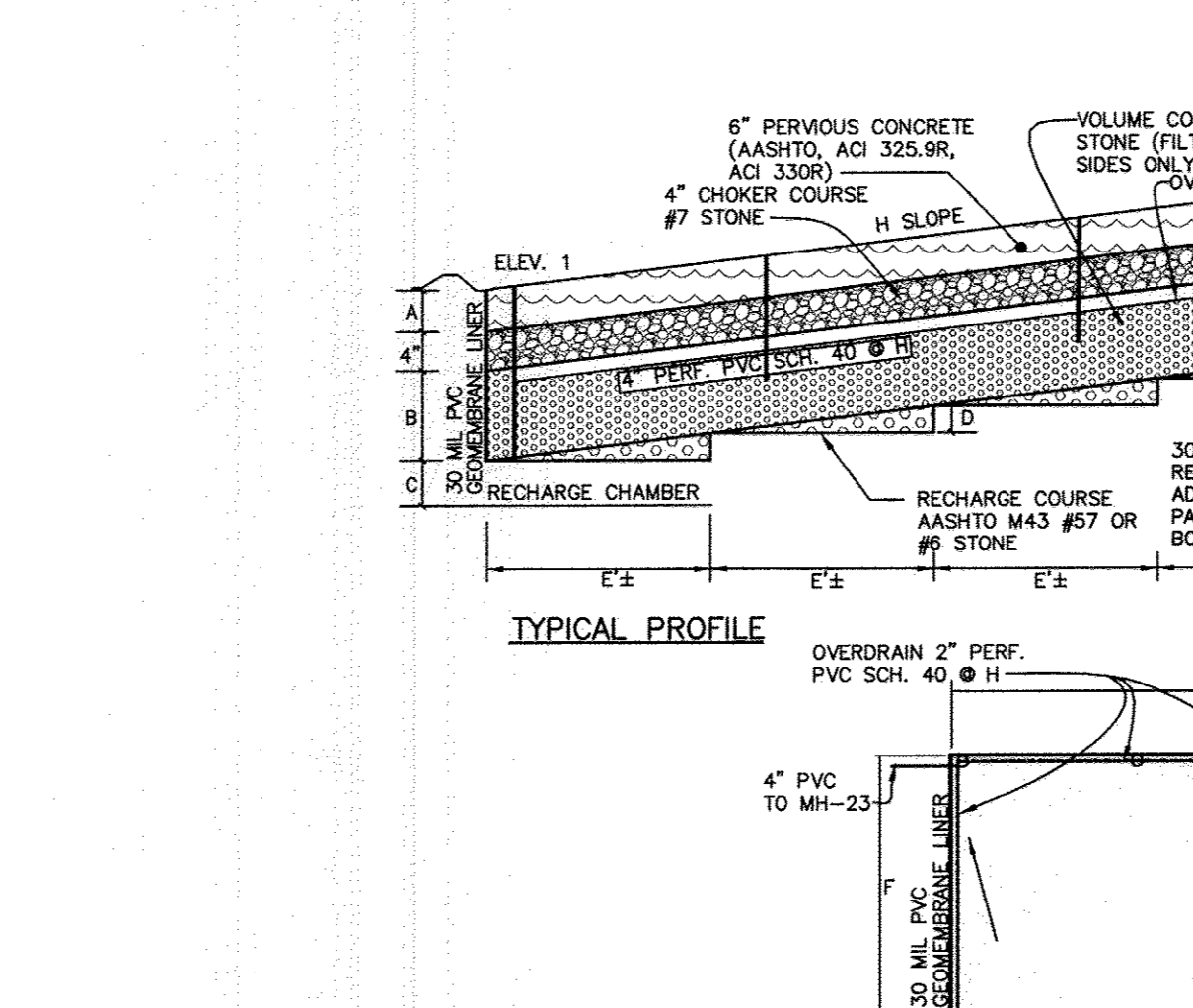
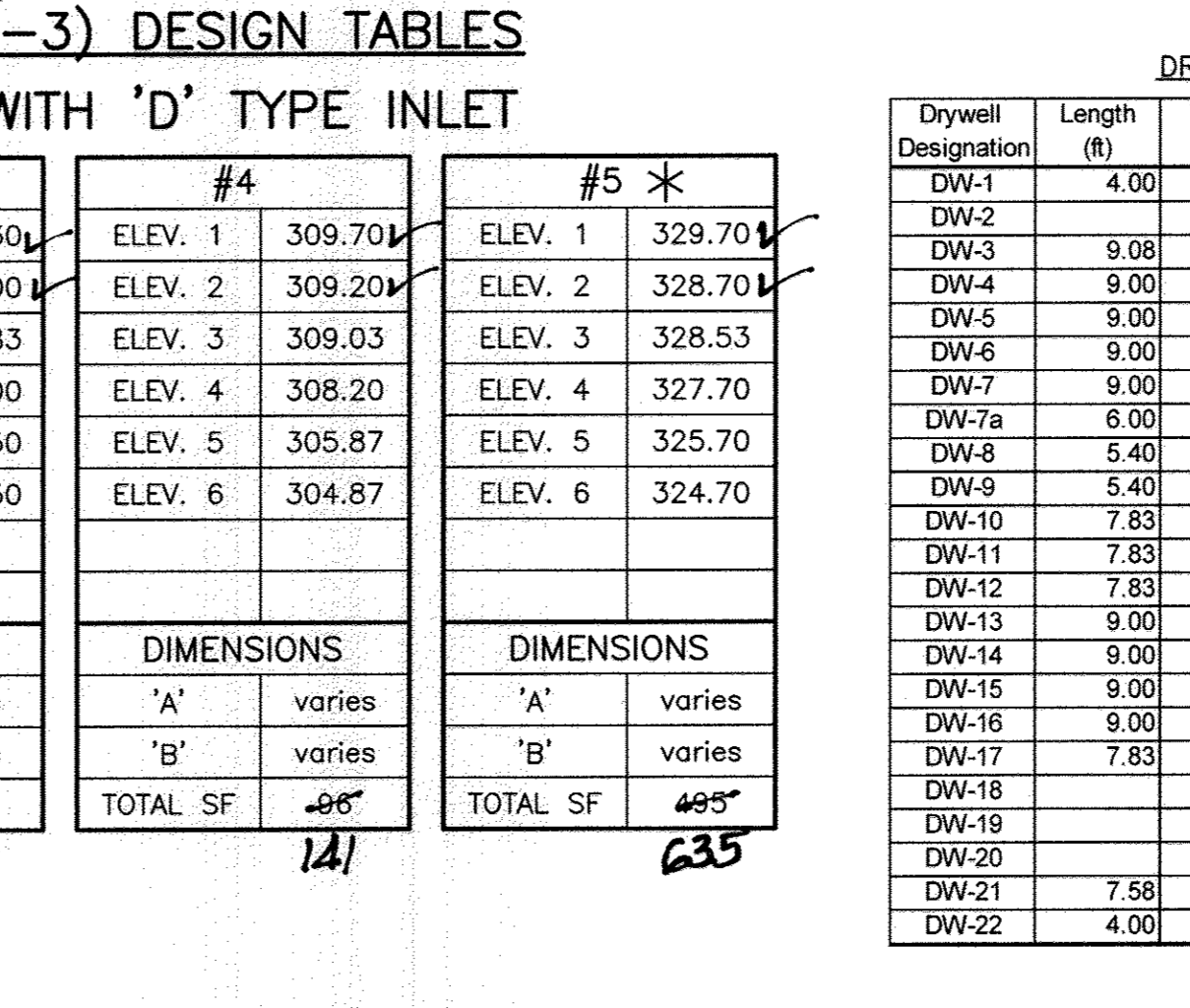
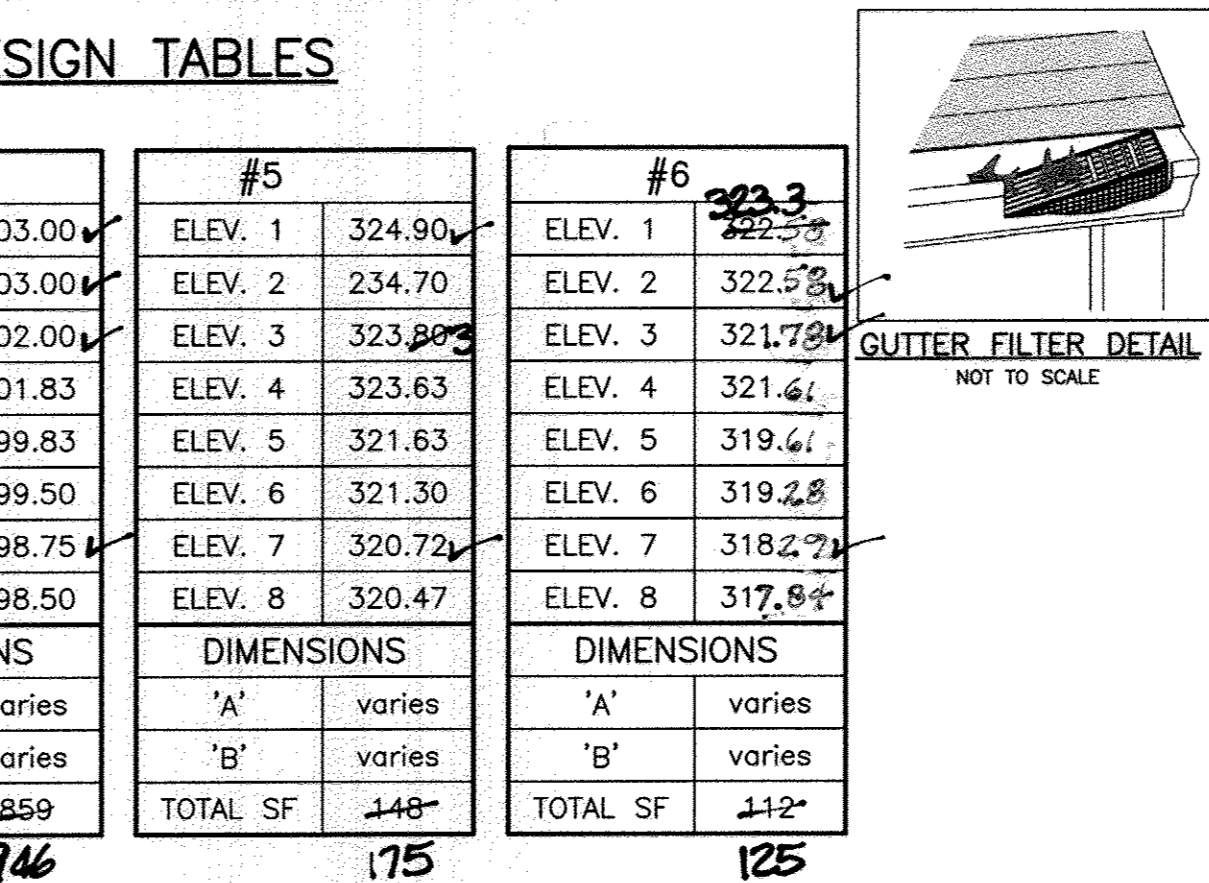
I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications

Donald Mason, P.E. Date: 1-1-18

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. 21443, Expiration Date: 12-21-18

STATE OF MARYLAND PROFESSIONAL ENGINEER



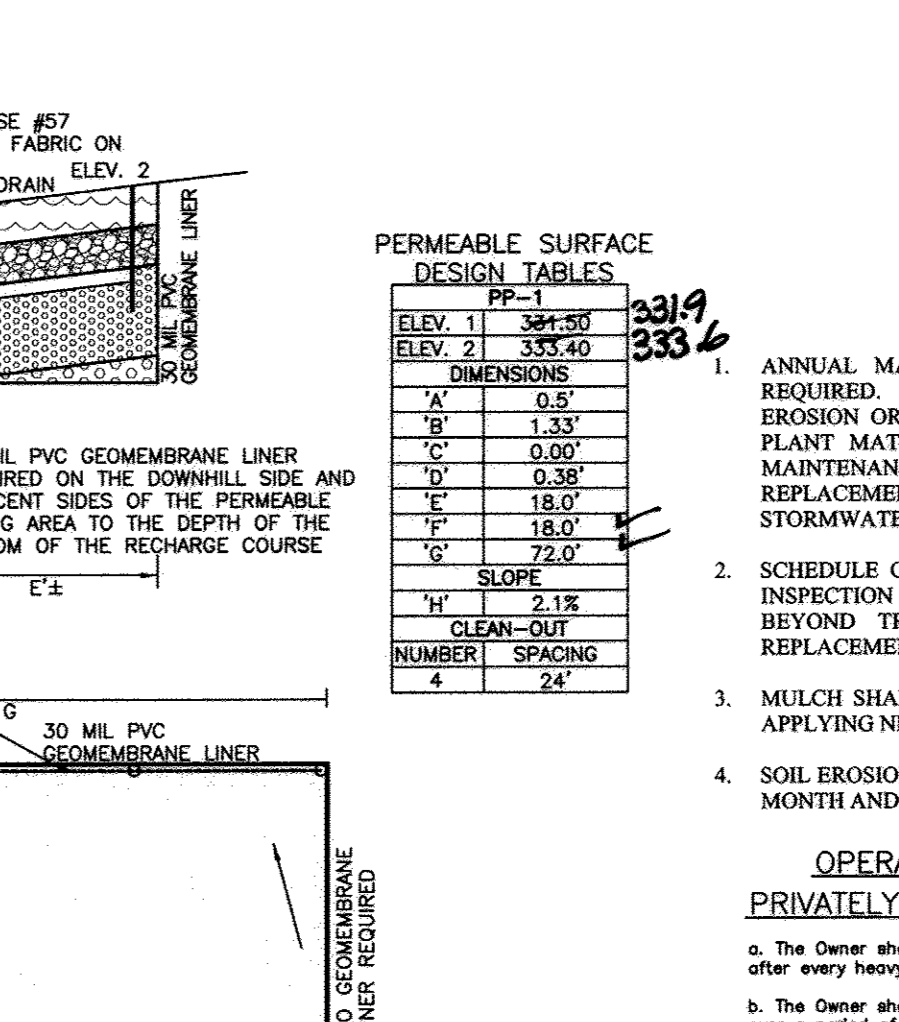
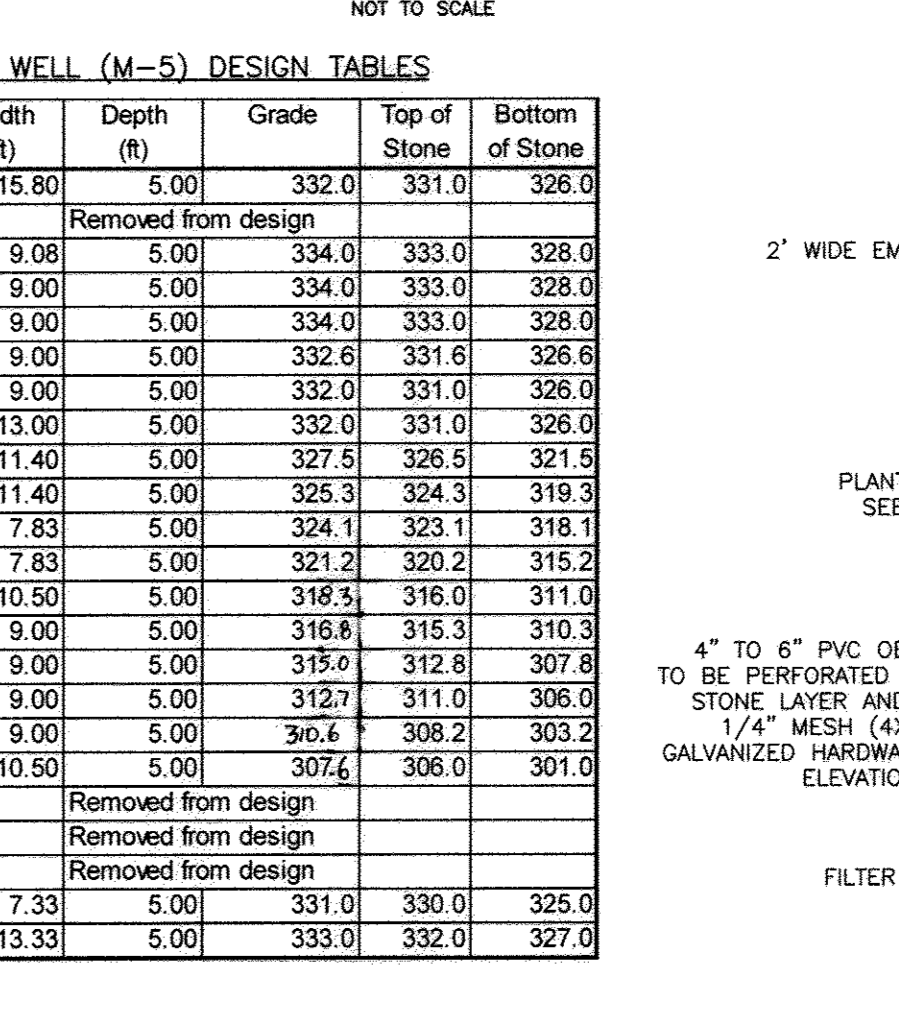
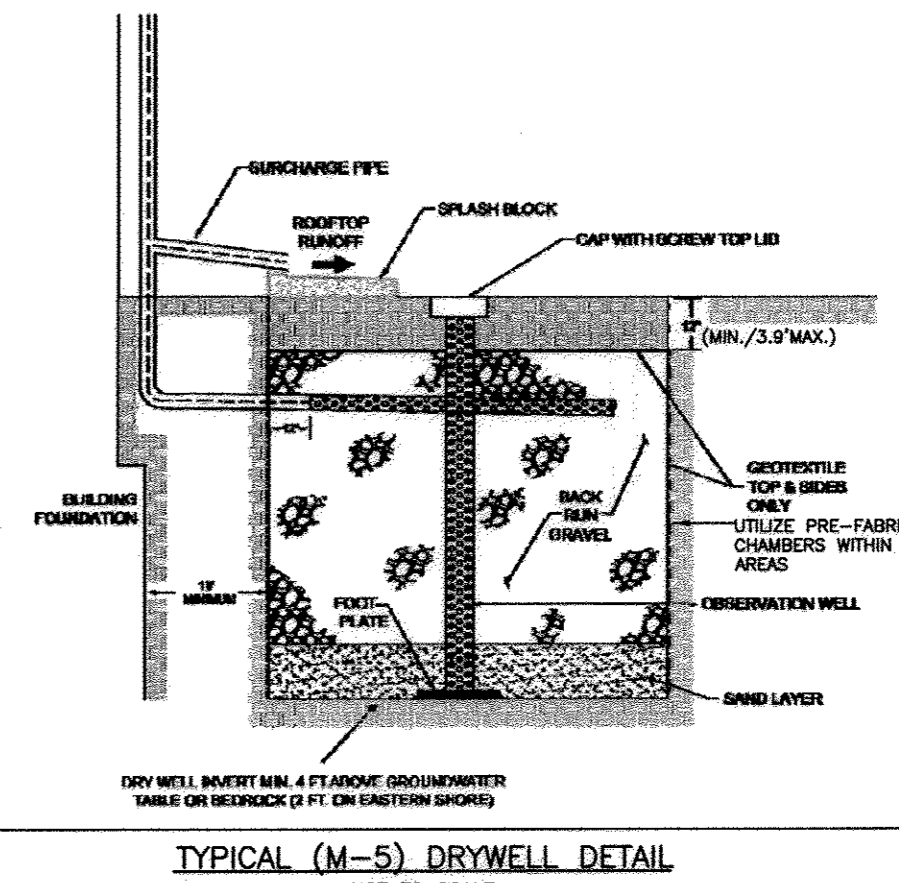
**TYPICAL LANDSCAPE INFILTRATION DETAILS**  
NOT TO SCALE

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**TABLE B.4.1 MATERIALS AND SPECIFICATIONS FOR (M-6) MICRO-BIORETENTION**

MATERIAL	SPECIFICATION	SIZE	NOTES:
PLANTINGS (IF REQUIRED)	SEE APPENDIX A; TABLE A.4	N/A	PLANTINGS ARE SITE SPECIFIC
PLANTING SOIL (2.0' TO 4.0' DEEP)	LOAMY SAND (60-65%) & COMPOST (35-40%) OR LOAMY SAND (30%) COARSE SAND (50%) & COMPOST (20-40%)	N/A	USDA SOIL TYPES: LOAMY SAND, SANDY LOAM; CLAY CONTENT <5%
ORGANIC CONTENT	MIN. 10% BY DRY WEIGHT (ASTM D2974)	N/A	
MULCH	SHREDED HARDWOOD	N/A	AGED 6 MONTHS, MINIMUM
PEA GRAVEL DIAPHRAGM	PEA GRAVEL ASTM D-448	#8 OR #9 (3/8" TO 3/4")	
GEOTEXTILE		N/A	PE TYPE 1 - NONWOVEN
GRAVEL (UNDERDRAINS & BERMS)	ASHTO M-43	#57 OR #6 AGGREGATE (3/8" TO 3/4")	#8 STONE
UNDERDRAIN PIPING	F788; TYPE PR28 OR ASHTO M-278	4" TO 6" RIGID SCH-40 PVC OR SDR35	SLOTTED OR PERFORATED: 3/8" PERFS. @ 6" O/C. 4 HOLES PER ROW; MINIMUM OF 3' OF GRAVEL OVER PIPES, NOT NECESSARY UNDERNEATH PIPES. PERFORATED PIPE SHALL BE WRAPPED WITH 1/4" GALVANIZED HARDWARE CLOTH
POURED-IN-PLACE CONC. (IF REQUIRED)	MSHA MIX NO. 3 (f'c=3500psi @ 28 DAYS, NORMAL WEIGHT, AIR ENTRAINED; REINFORCING TO MEET ASTM 615-60	N/A	ON-SITE TESTING OF POURED-IN-PLACE CONC. REQUIRED: 28 DAY STRENGTH TEST AND SLUMP TEST; ALL CONC. 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 AIC CODE 350.4/89; VERTICAL LOADING (H-10 or H-20) ALLOWABLE HORIZONTAL LOADING (BASED ON SOIL PRESSURES); AND ANALYSIS OF POTENTIAL CRACKING
SAND (1.0' DEEP)	ASHTO M-6 OR ASTM C-33	0.02" TO 0.04"	SAND SUBSTITUTIONS SUCH AS DIABASE AND GRAYSTONE (ASHTO #10) ARE NOT ACCEPTABLE. NO CALCIUM CARBONATE OR DOLOMITE SAND SUBSTITUTIONS ARE ACCEPTABLE. NO "ROCK DUST" CAN BE USED FOR SAND



**OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED & MAINTAINED DRY WELLS (M-5)**

1. 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. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME II, TABLE A.4.1 AND 2.
2. 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.
3. MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.
4. SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.

**BENCHMARK ENGINEERING, INC.**

8480 BALTIMORE NATIONAL PIKE & SUITE 315A ELICOTT CITY, MARYLAND 21043 (P) 410-465-6103 (F) 410-465-6844

WWW.BE-CIVILENGINEERING.COM

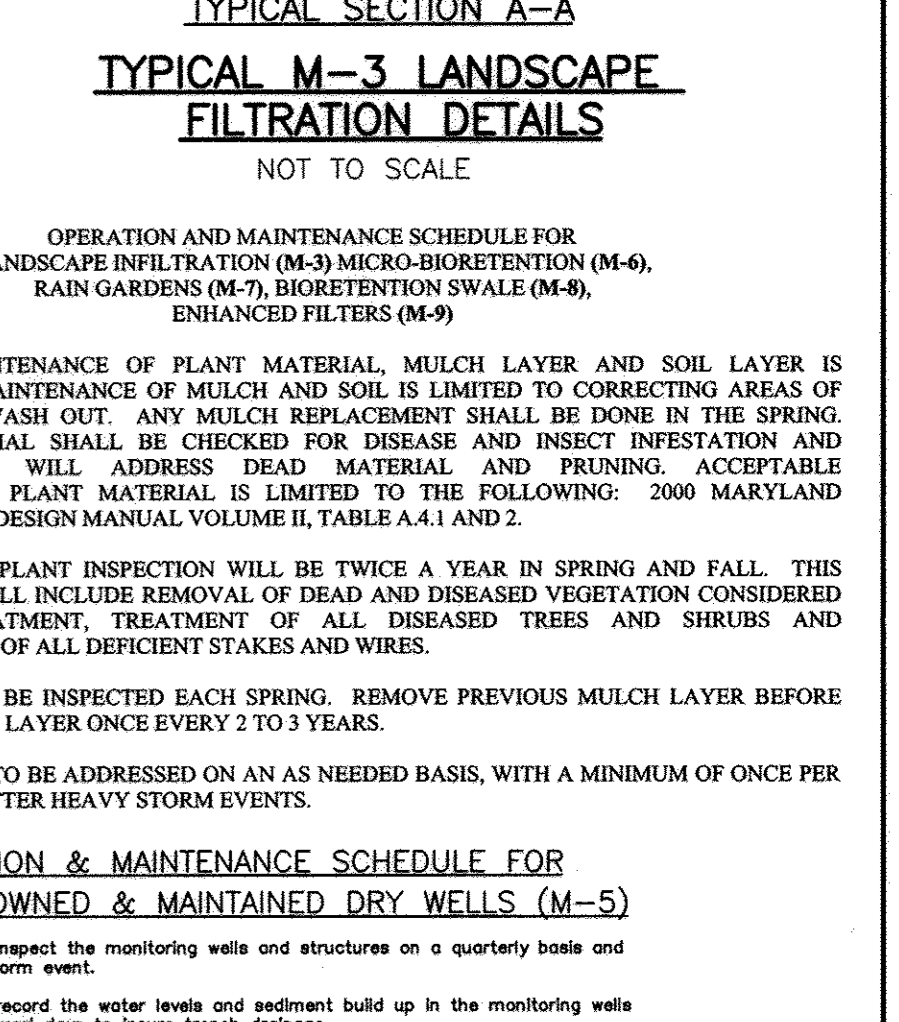
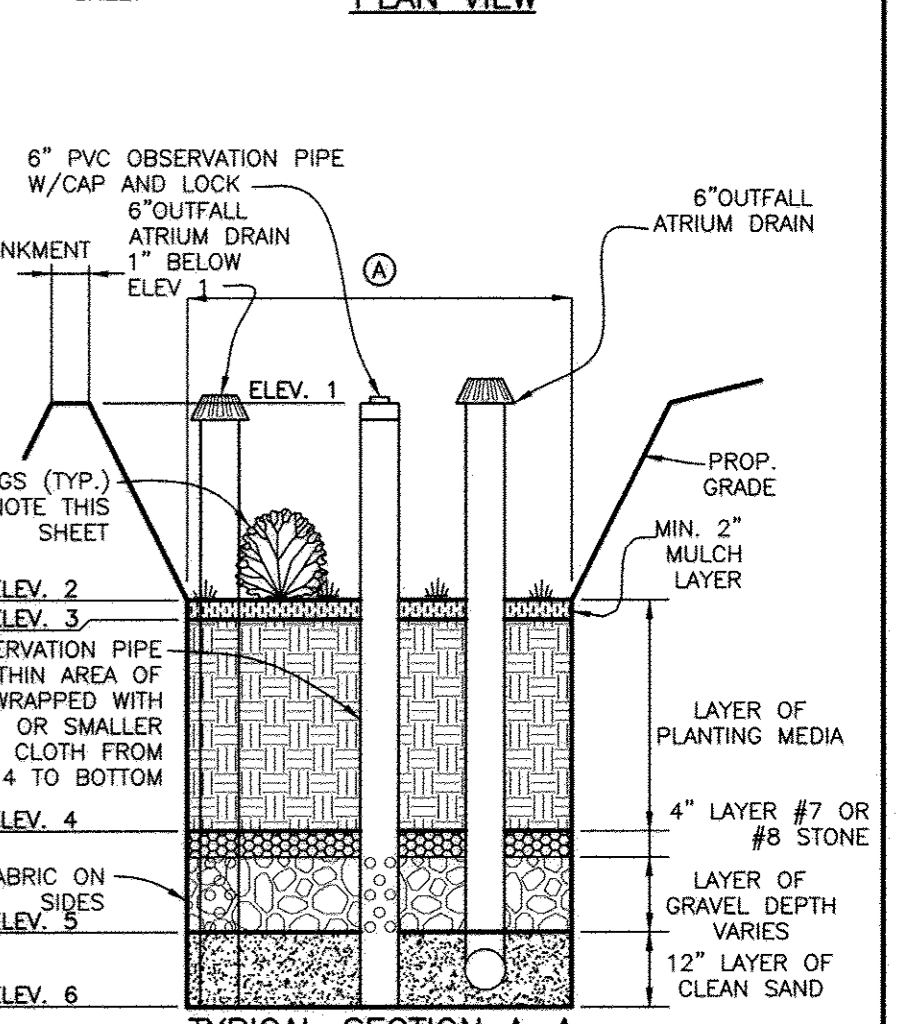
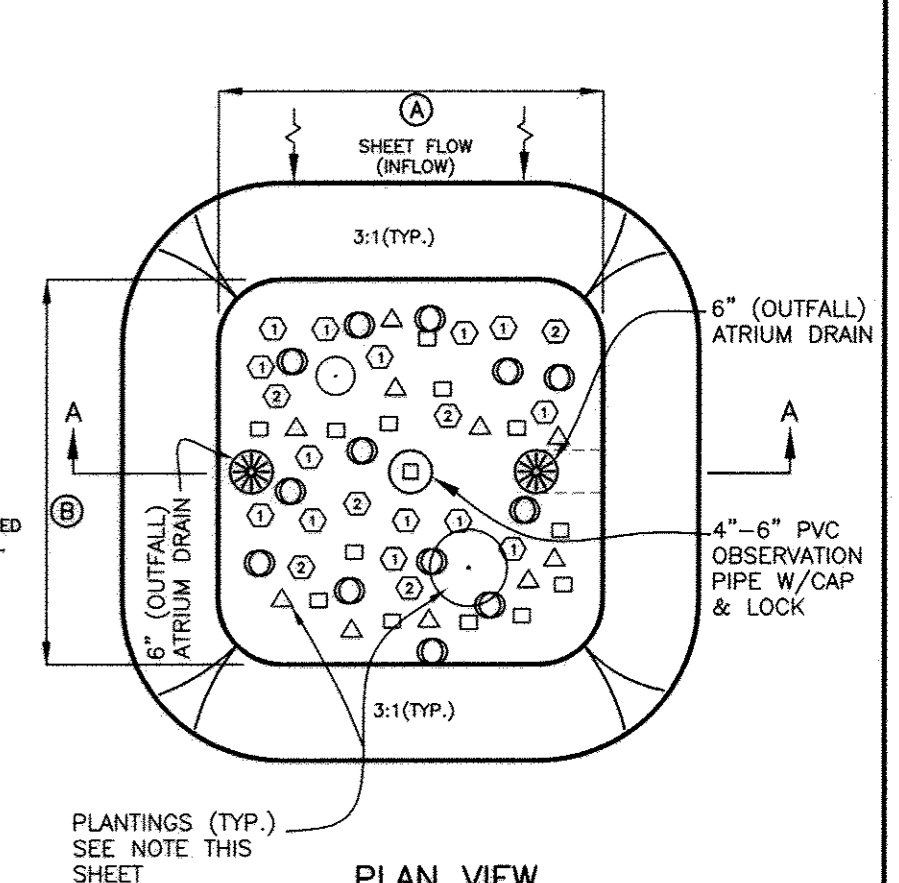
OWNER: SIMPSON MILL LLC P.O. BOX 417 ELICOTT CITY, MARYLAND 21041 410-465-4244

DEVELOPER: SIMPSON MILL LLC P.O. BOX 417 ELICOTT CITY, MARYLAND 21041 410-465-4244

DATE: MARCH, 2016 SHEET PROJECT NO.: 2634

SCALE: AS SHOWN BEI PROJECT NO.: 10 OF 17

AS-BUILT SDP-15-057



**TYPICAL LANDSCAPE INFILTRATION DETAILS**  
NOT TO SCALE

**OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED & MAINTAINED DRY WELLS (M-5)**

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**SIMPSON MILL**

PHASE 3 - LOTS 153 THRU 174 AND OPEN SPACE LOT 175 A RESUBDIVISION OF BUILDABLE BULK PARCEL "A" AS SHOWN ON PLATS 22093 THRU 22101

TAX MAP: 35 GRID: 23 PARCEL: 116 ZONED: POR

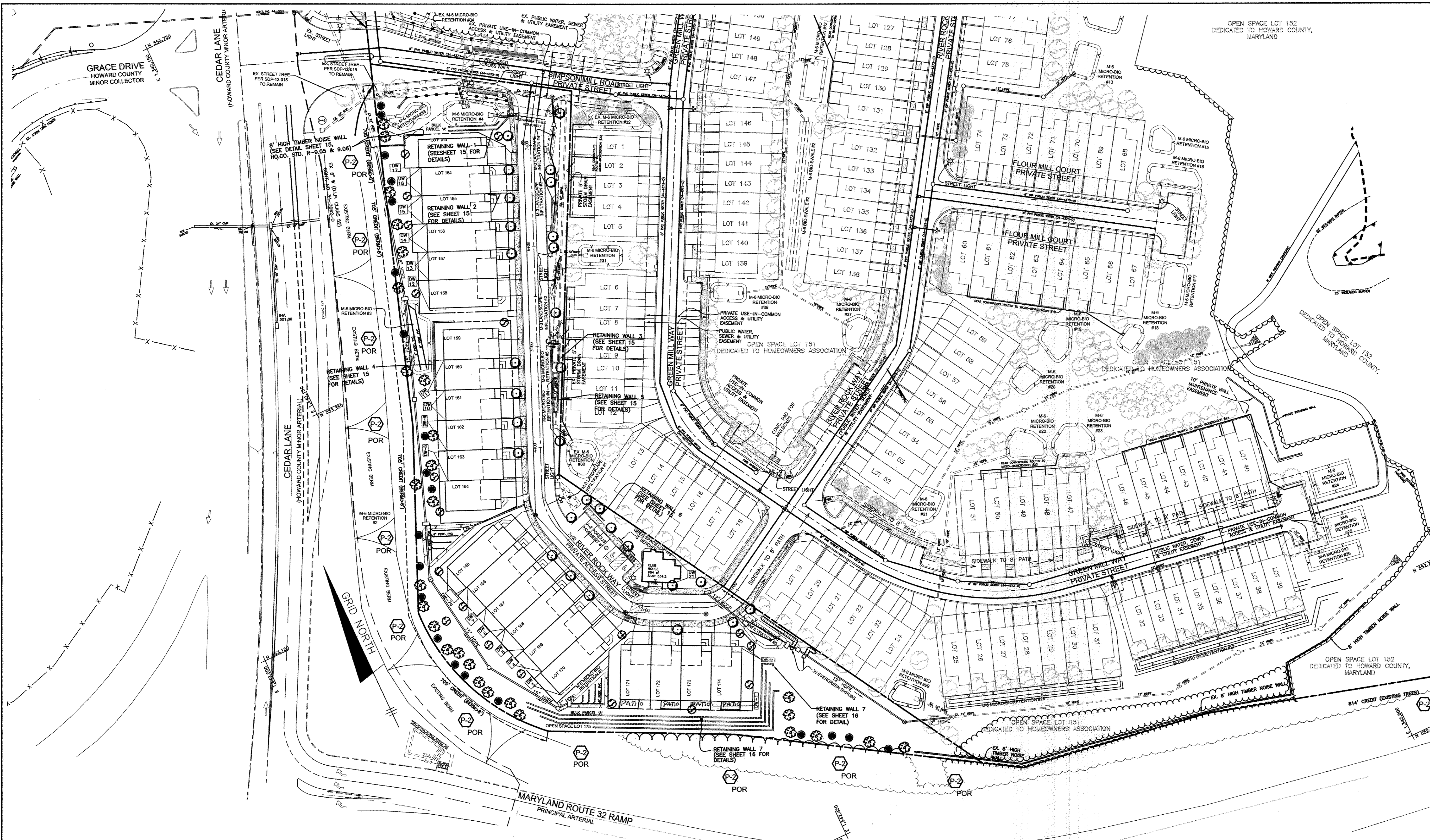
STORMWATER MANAGEMENT DETAILS

DATE: MARCH, 2016 SHEET PROJECT NO.: 2634

SCALE: AS SHOWN BEI PROJECT NO.: 10 OF 17

AS-BUILT SDP-15-057



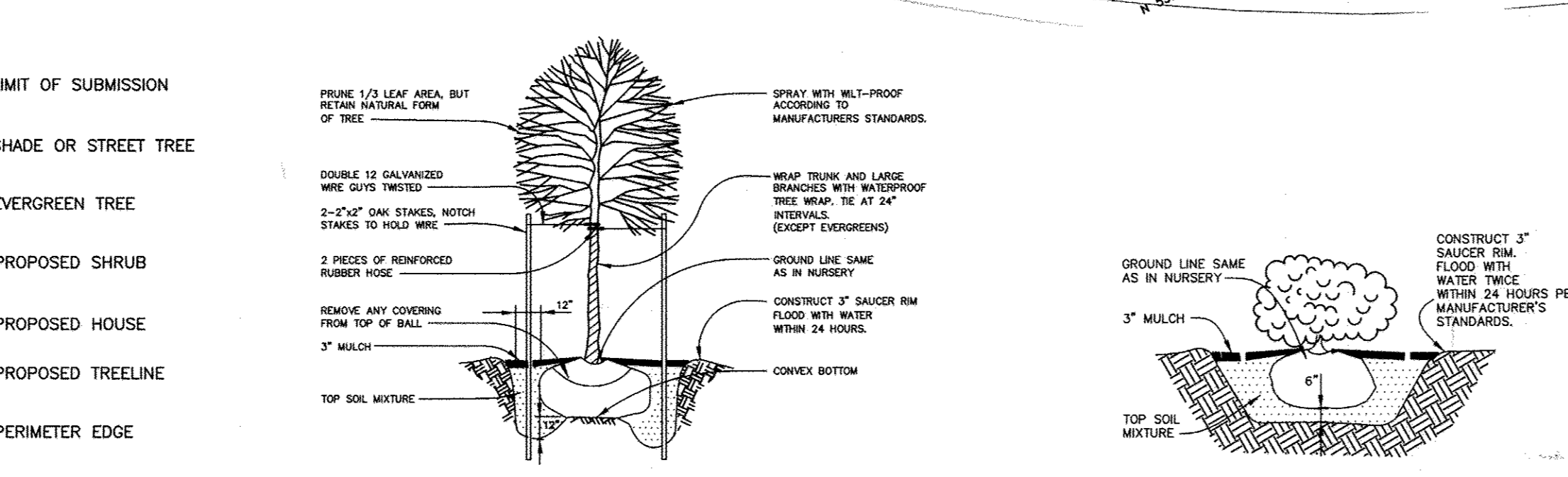
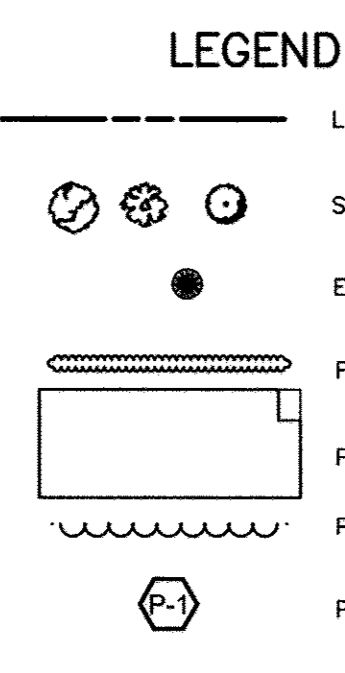


SCHEDULE A PERIMETER LANDSCAPE EDGE	
CATEGORY	ADJACENT TO ROADS P-2
LANDSCAPE TYPE	C 1:40 shade 1:20 evergreen
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	1,112 LF TOTALS
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	YES * 705 LF
CREDIT FOR EXISTING WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO
NUMBER OF PLANTS REQUIRED	407 LF
SHADE TREES	28
EVERGREEN TREES	21
OTHER TREES (2:1 SUBSTITUTE)	0
SHRUBS	0
NUMBER OF PLANTS PROVIDED	28
SHADE TREES	28
EVERGREEN TREES	21
OTHER TREES (2:1 SUBSTITUTE)	0
SHRUBS (10:1 SUBSTITUTE)	0

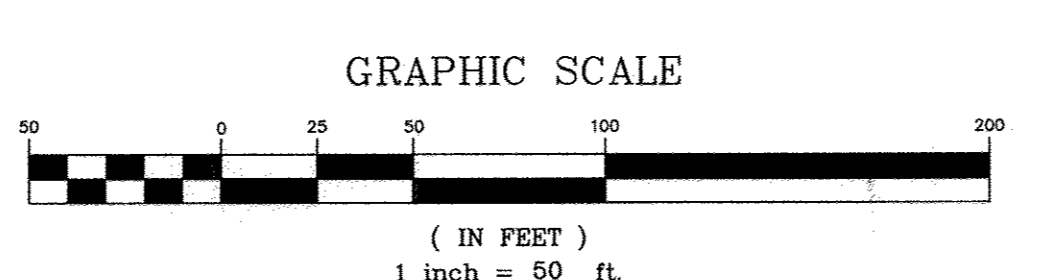
LANDSCAPE PLANTING LIST				
SYMBOL	QUANTITY	NAME	REMARKS	DESCRIPTION
☉	19	Acer rubrum 'OCTOBER GLORY' (October Glory red maple)	2.5" - 3" cal.	SHADE TREES FOR INTERNAL LANDSCAPING REQUIREMENT TO BE PROVIDED BY THE BUILDER (SCHEDULE C)
☉	28	Fagus grandifolia (American Beech)	2 1/2" - 3" cal.	SHADE TREES ALONG PERIMETER EDGES TO BE PROVIDED BY THE DEVELOPER (SCHEDULE A)
●	21	Ilex opaca (American Holly)	5' - 6' hgt.	EVERGREEN TREES ALONG PERIMETER EDGES TO BE PROVIDED BY THE DEVELOPER (SCHEDULE A)
☉	31	Tilia cordata 'GREENSPICE' (Greenspire Littleleaf Linden)	2.5" - 3" cal.	TO BE PLANTED ALONG RIVER ROCK WAY TO BE PROVIDED BY THE DEVELOPER (PRIVATE STREET TREES)
☉	30	Prunus laurocerasus 'Schlipkaensis' (Skip Cherrylaurae)	2.5"-3" hgt.	TO BE PLANTED ALONG RIVER ROCK WAY TO BE PROVIDED BY THE DEVELOPER (SCHEDULE C)

SCHEDULE C RESIDENTIAL DEVELOPMENT INTERNAL LANDSCAPING	
NUMBER OF DWELLING UNITS	22
NUMBER OF TREES REQUIRED (1:DU SFA; 1:3 DU APTS)	22
NUMBER OF TREES PROVIDED	
SHADE TREES	19*
OTHER (10:1 RATIO)	30*

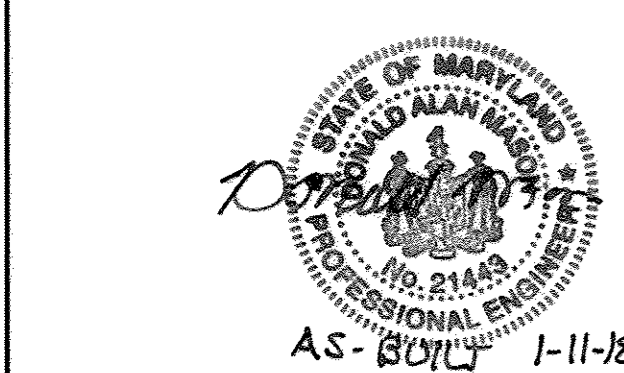
PRIVATE STREET TREE SCHEDULE	
LINEAR FEET OF RIGHT-OF-WAY	RIVER ROCK WAY TOTAL
LINEAR FEET OF CREDIT	1252'
LINEAR FEET OF REQUIRED PLANTING	1252'
TREE SIZE	LARGE 1:40 LF
TREES REQUIRED	31
TREES PROVIDED	31
SHADE TREES	31



- LANDSCAPE NOTES:**
- STREET TREES TO BE PLANTED 3 FEET BEHIND SIDEWALK IF THE DISTANCE BETWEEN SIDEWALK AND CURB IS LESS THAN 6 FEET. STREET TREES TO BE PLANTED 6 FEET BEHIND BACK OF CURB WHEN THERE IS NO SIDEWALK. TREES MAY NOT BE PLANTED WITHIN 5 FEET OF A DRAIN INLET, 5 FEET OF AN OPEN SPACE ACCESS STRIP, OR 10 FEET OF A DRIVEWAY.
  - THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL.
  - AT THE TIME OF INSTALLMENT, ALL SHRUBS AND OTHER PLANTINGS HEREWITH LISTED AND APPROVED FOR THIS SITE, SHALL BE OF THE PROPER HEIGHT REQUIREMENTS IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATION OF REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THIS APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO APPLICABLE PLANS AND CERTIFICATIONS.
  - THE OWNER, TENANTS AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.
  - FINANCIAL SURETY FOR THE PERIMETER LANDSCAPING, PRIVATE STREET TREES, SWM AND UNIT PLANTINGS IN ACCORDANCE WITH THE LANDSCAPE MANUAL SHALL BE POSTED WITH THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$27,450.00 FOR 78 SHADE TREES, 21 EVERGREENS, & 30 SHRUBS POSTED WITH THE DEVELOPER'S AGREEMENT FOR THIS SDP-15-057.



"NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET"

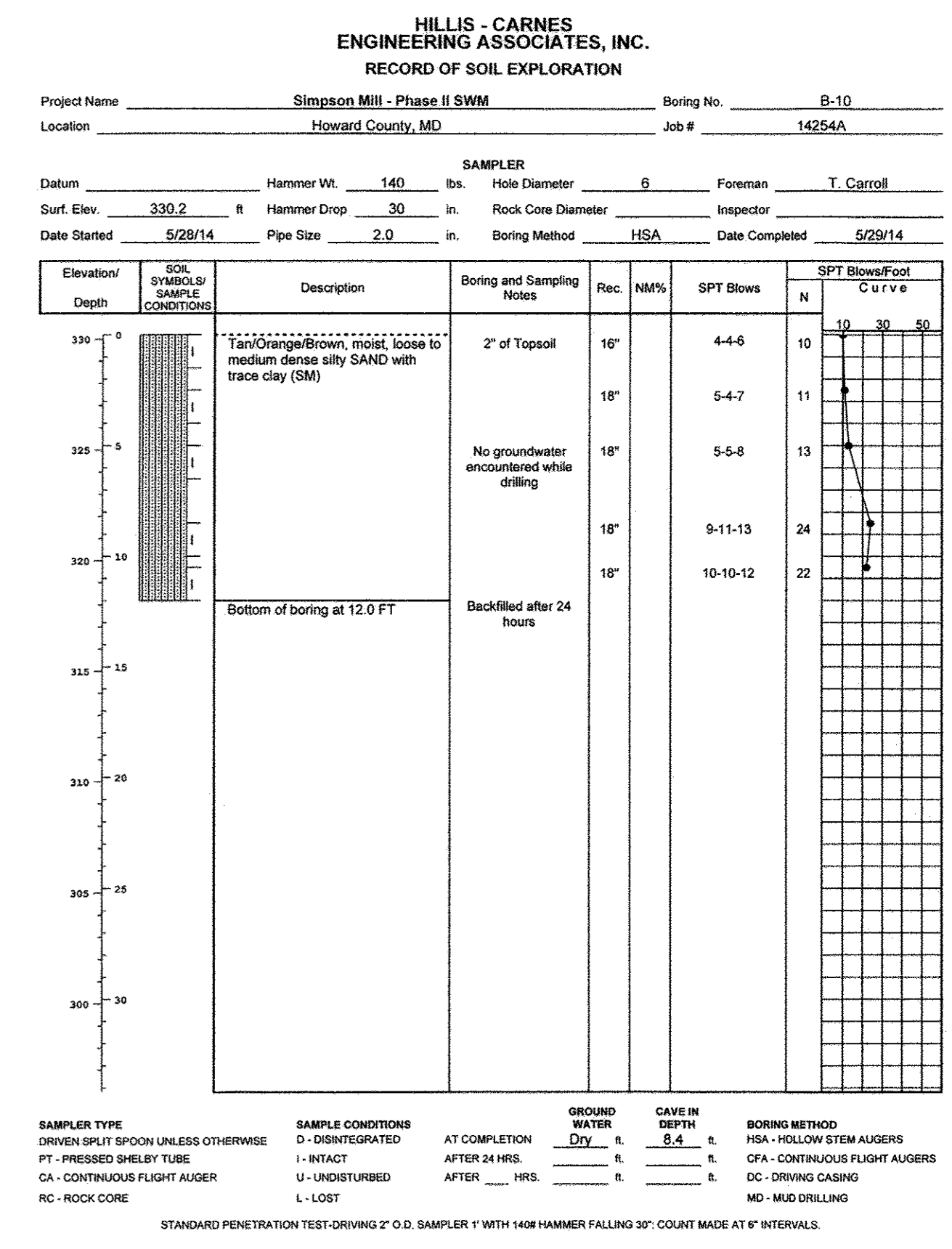
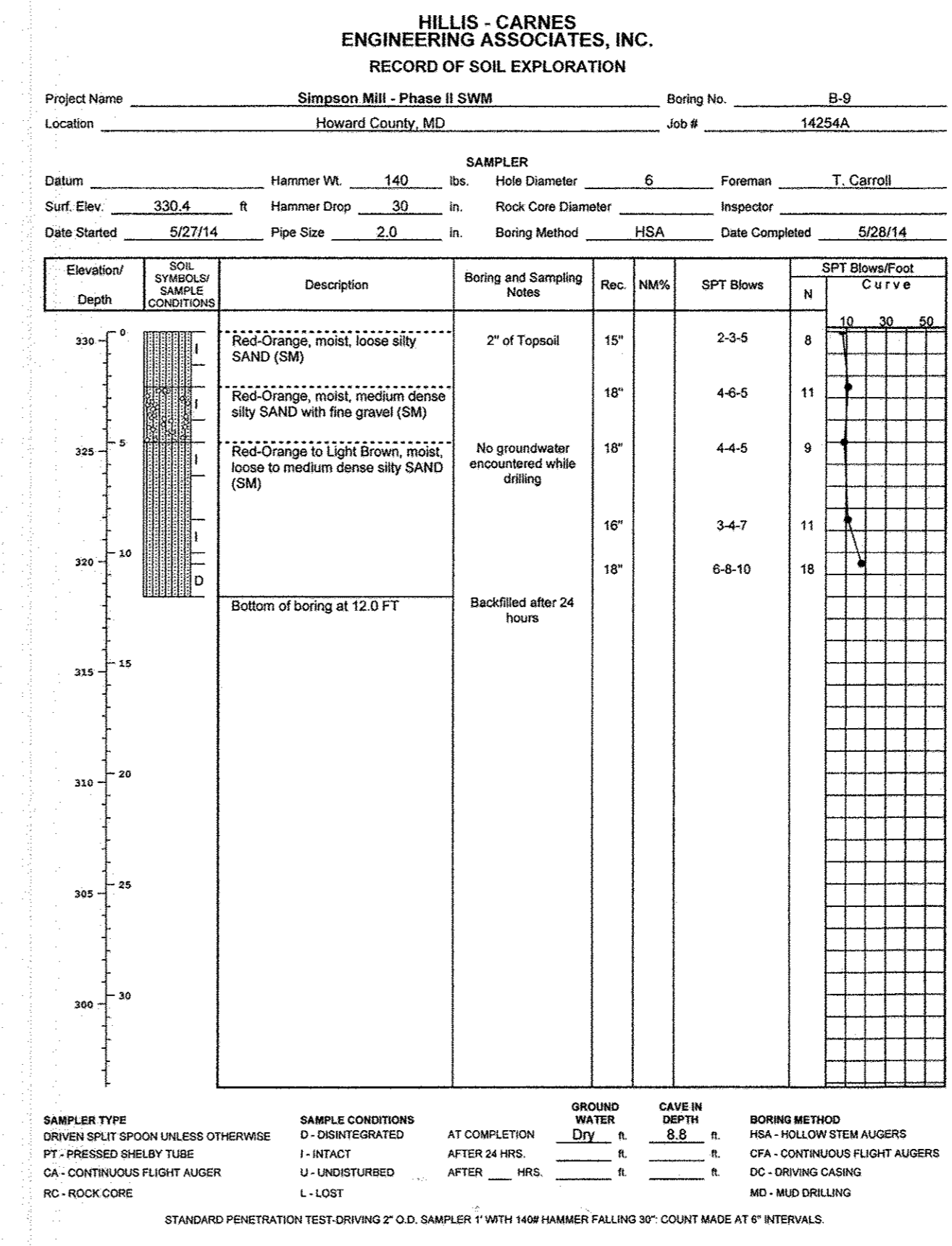
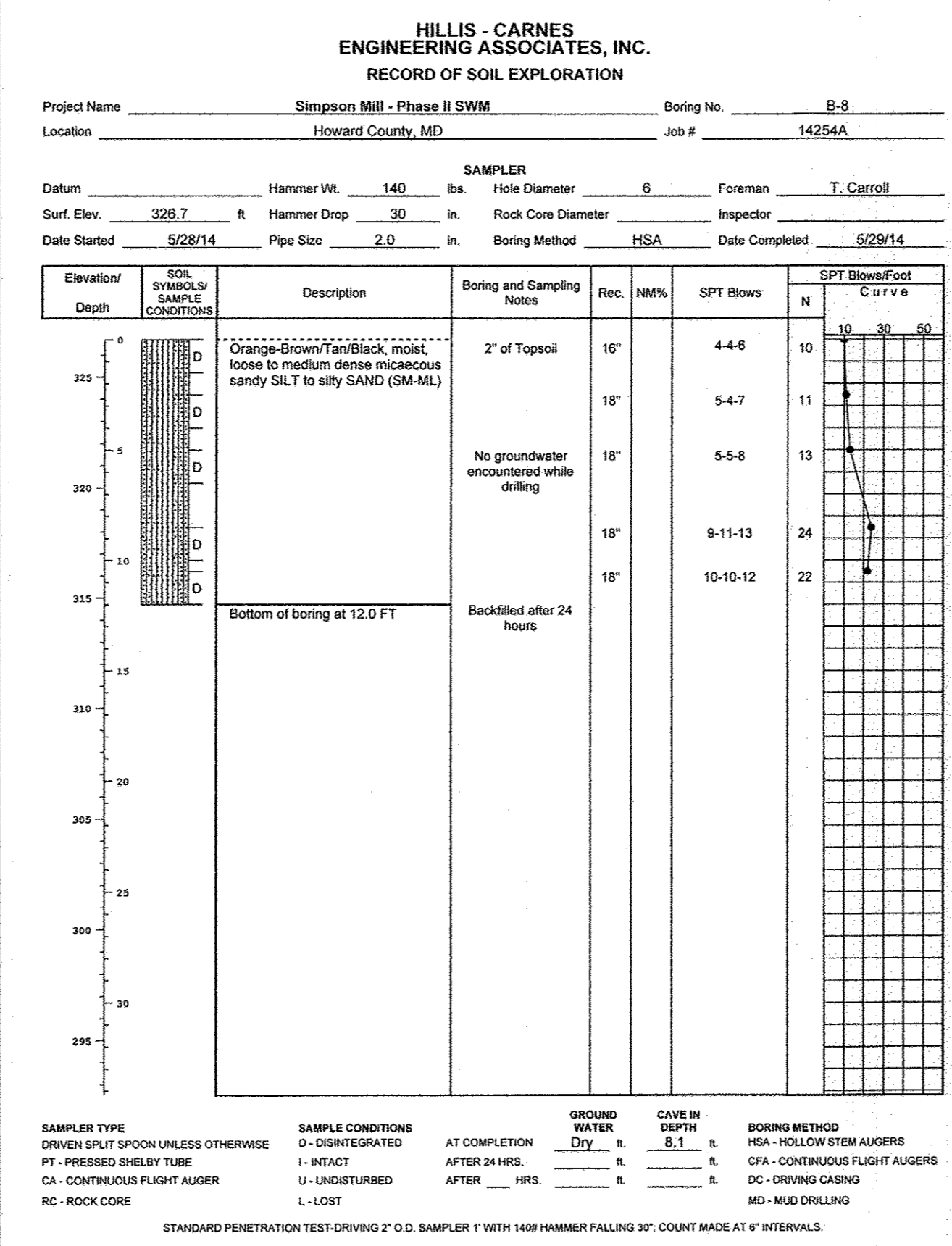
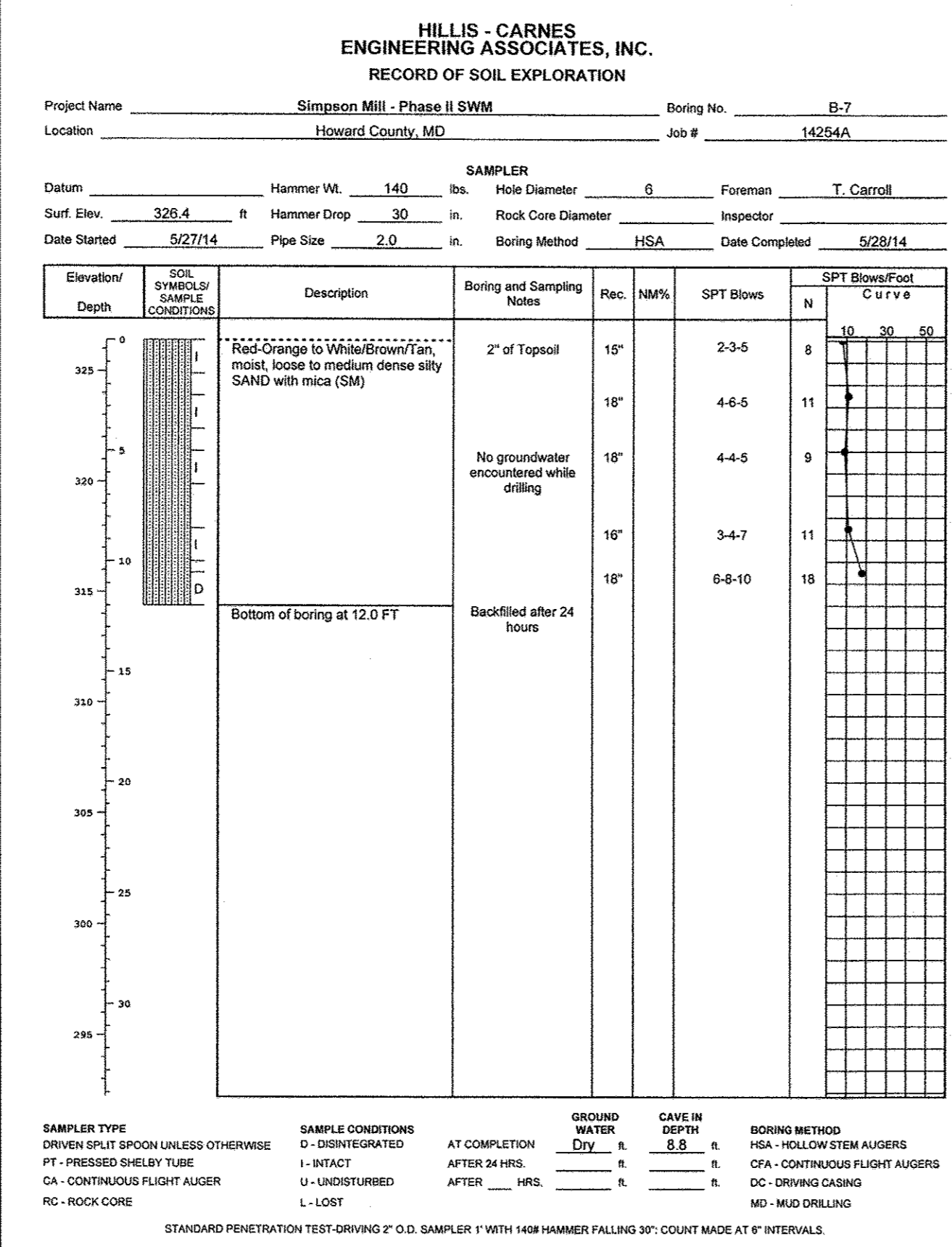
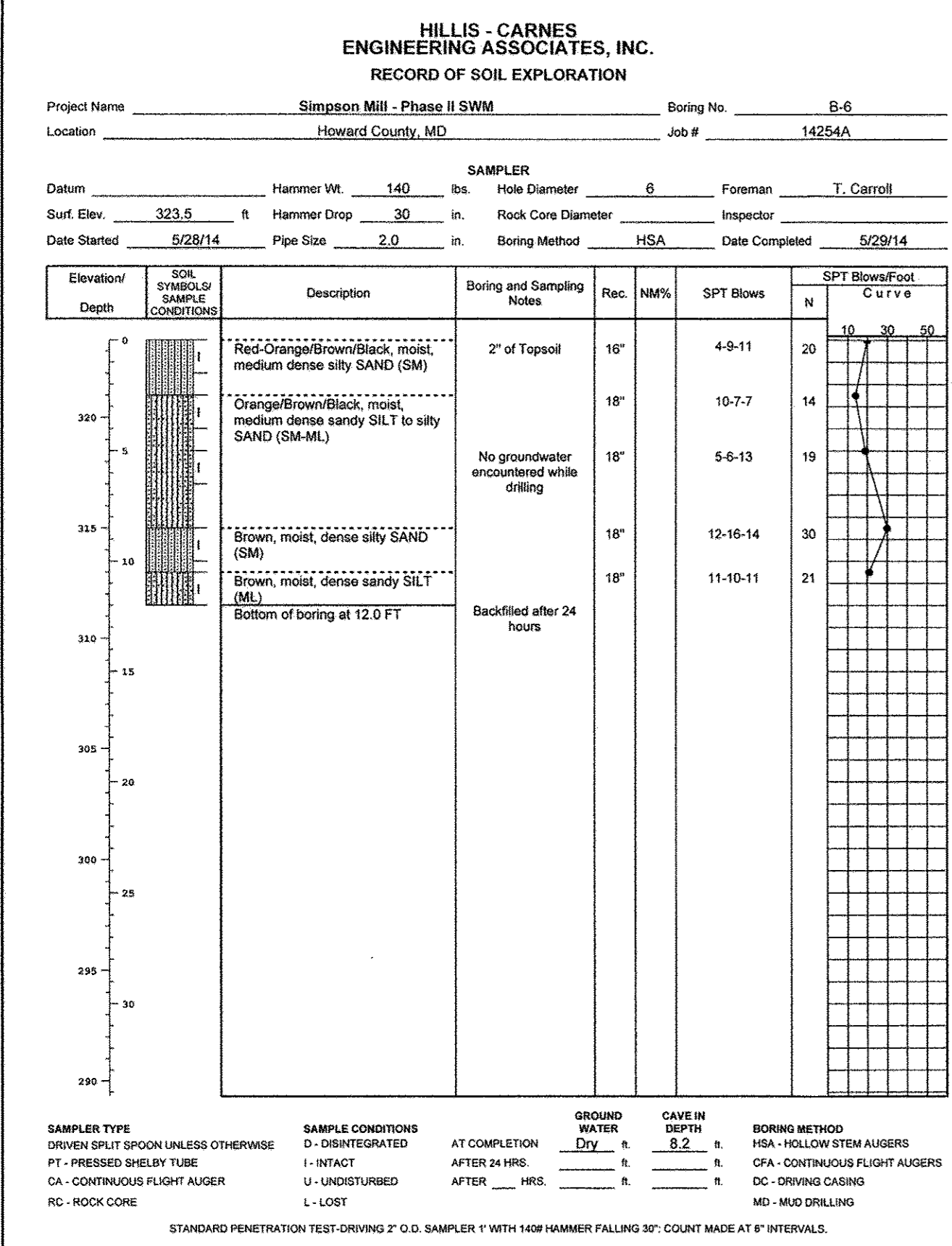
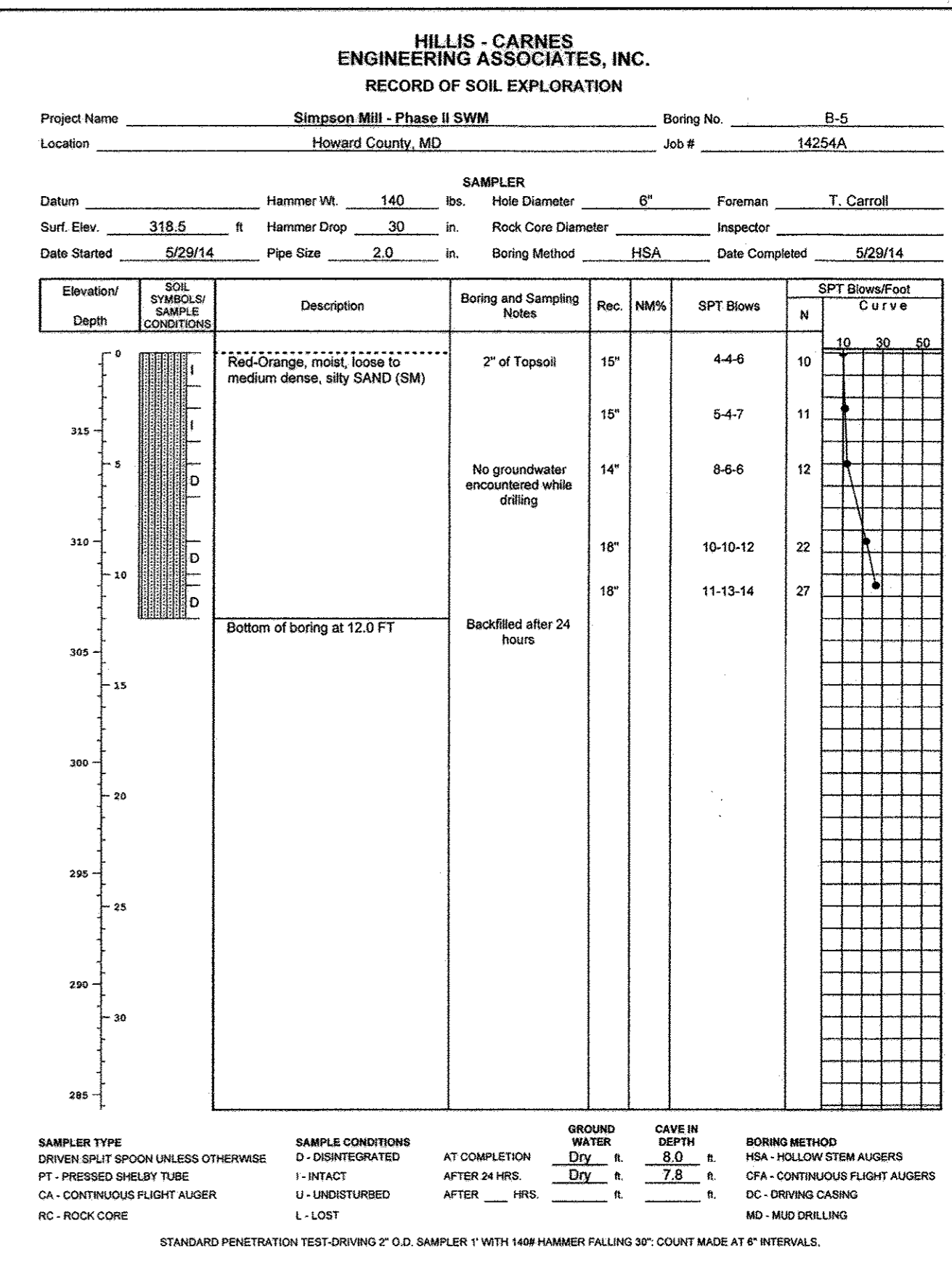
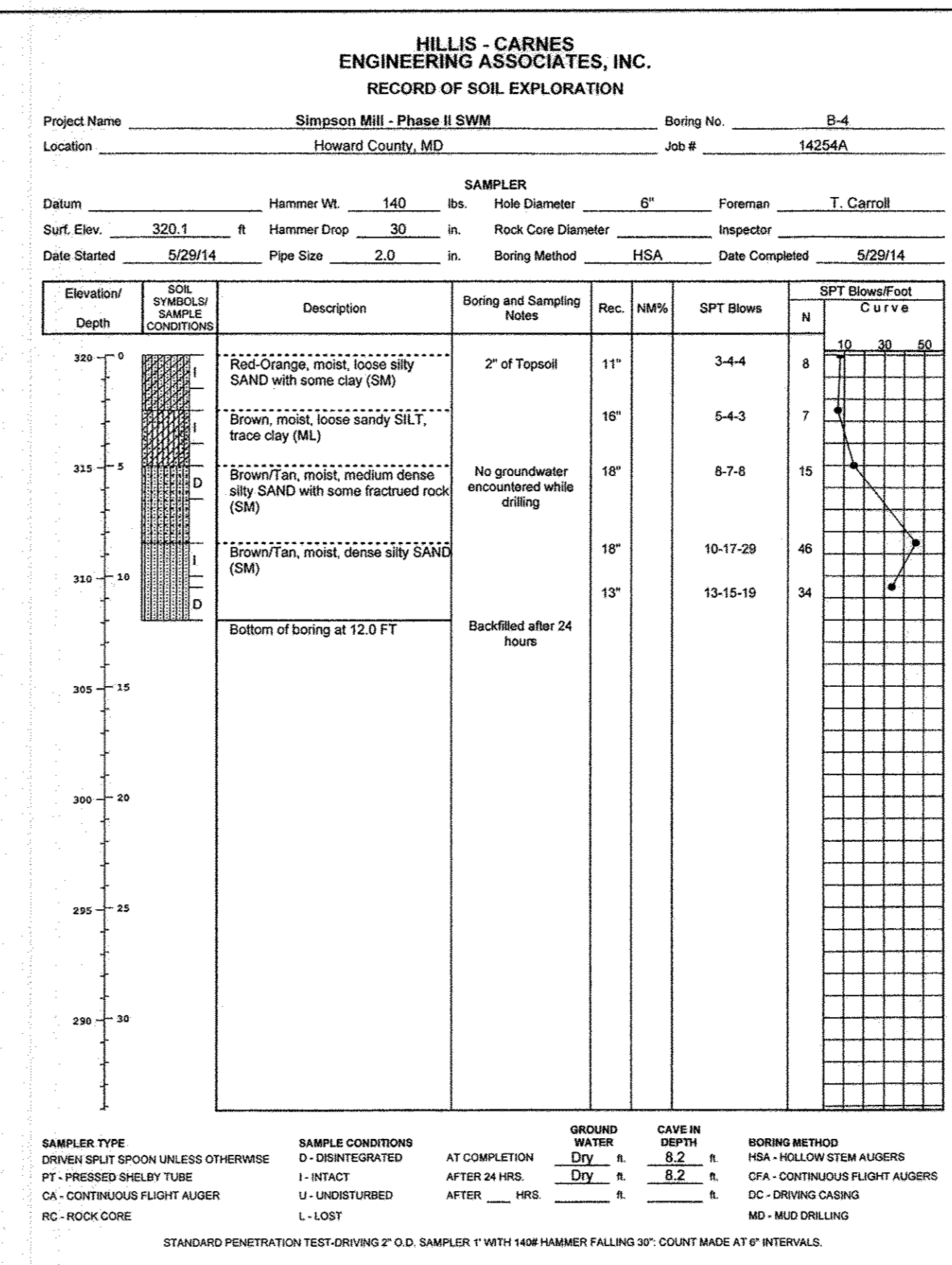
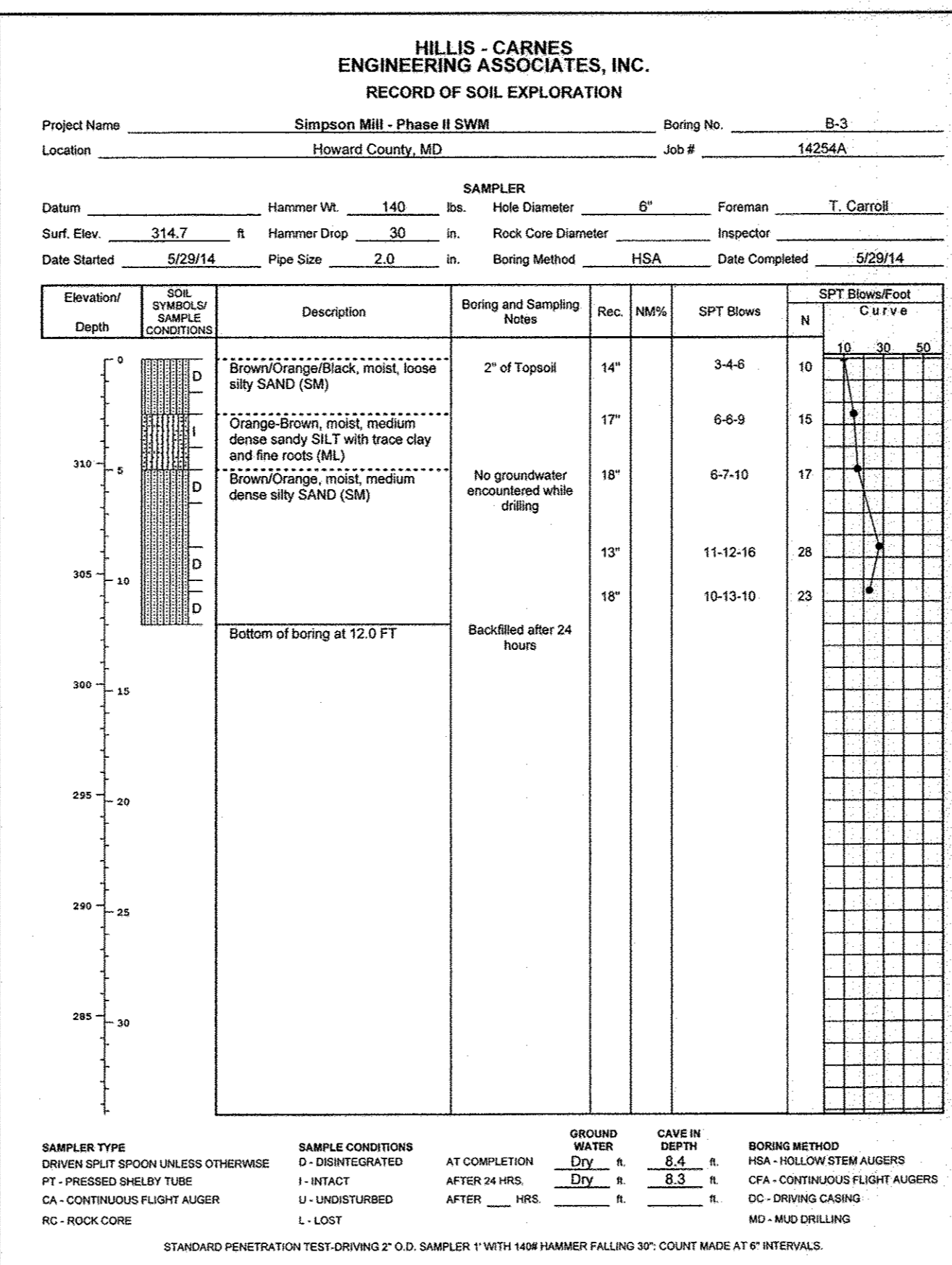
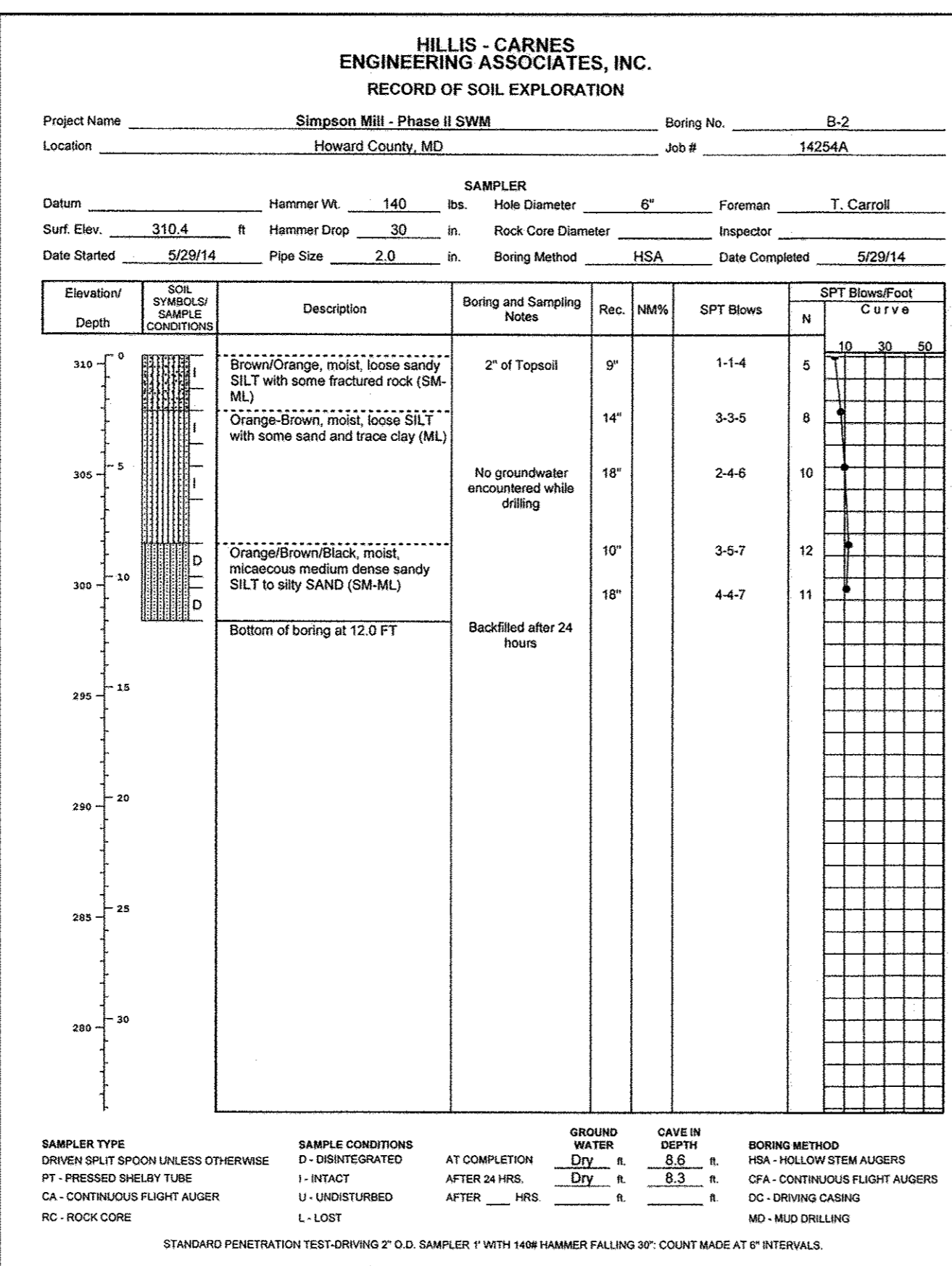
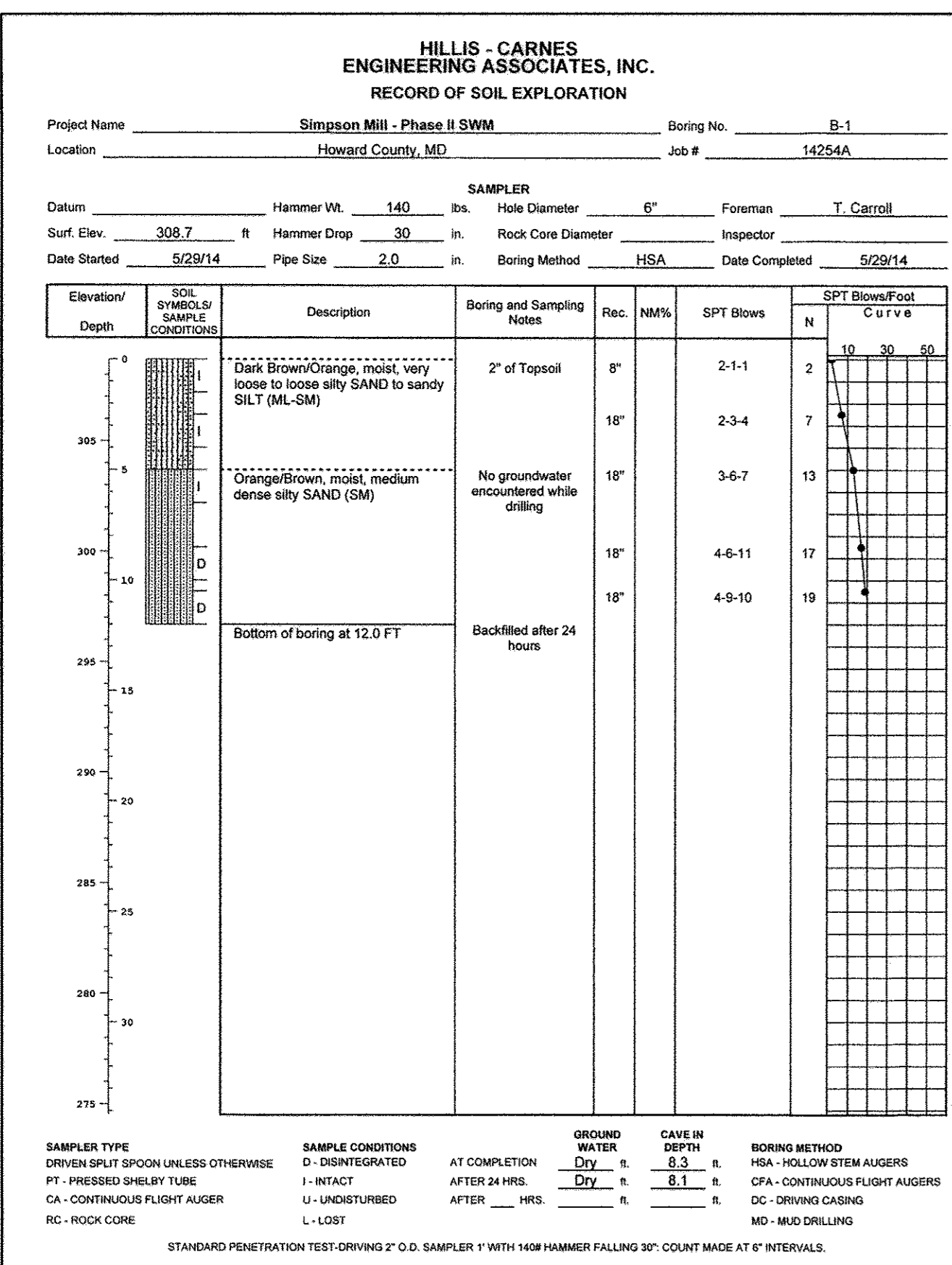


Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.  
License No. 21443, Expiration Date: 12-21-19

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
Chief, Development Engineering Division  
4/15/16  
5-16-16  
5-16-16

DEVELOPER'S/BUILDER'S CERTIFICATE  
I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION OF A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE-YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.  
Simpson Mill LLC  
By: [Signature] 3/15/16  
Developer: [Signature]

<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. 45372, Expiration Date: 06-28-2016.</p> <p><b>BENCHMARK ENGINEERING, INC.</b> 8480 BALTIMORE NATIONAL PIKE &amp; SUITE 315A ELLICOTT CITY, MARYLAND 21043 (P) 410-465-6105 (F) 410-465-6644 WWW.BEI-CIVILENGINEERING.COM</p>	<p><b>SIMPSON MILL</b> PHASE 3 - LOTS 153 THRU 174 AND OPEN SPACE LOT 175 A RESUBDIVISION OF BUILDABLE BULK PARCEL "A" AS SHOWN ON PLATS 22093 THRU 22101 TAX MAP: 35 GRID: 23 PARCEL: 116 ZONING: POR SIMPSON MILL DRIVE, COLUMBIA MD 21044 ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND</p>
<p>OWNER: SIMPSON MILL LLC P.O. BOX 417 ELLICOTT CITY, MARYLAND 21041 410-465-4244</p>	<p>DEVELOPER: SIMPSON MILL LLC P.O. BOX 417 ELLICOTT CITY, MARYLAND 21041 410-465-4244</p>
<p>DATE: MARCH, 2016 SCALE: 1"=50'</p>	<p>BEI PROJECT NO: 2634 SHEET 12 OF 17</p>



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Shelley P. ...* 4/15/16  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

*Valerie J. ...* 5-16-16  
CHIEF, DIVISION OF LAND DEVELOPMENT

*Valerie J. ...* 5-16-16  
DIRECTOR

Boring	Approximate Depth of Test (ft)	Measured In-situ Infiltration Rate (in/hr)
B-1	4	2.8
B-2	4	0.4
B-3	4	2.6
B-4	4	3.9
B-5	4	1.0
B-6	4	1.3
B-7	4	2.1
B-8	4	5.0
B-9	4	0.8
B-10	4	6.8
B-11	4	5.4
B-12	4	1.9
B-13	4	3.5
B-14	4	16.7
B-15	4	5.5
B-16	4	6.5
B-17	4	11.3
B-18	4	22.4
B-42	ASSUMED	YES

LOCATION B-42 WAS NOT TESTED FOR INFILTRATION DURING PHASE 1. THIS TEST PROFILE IS SIMILAR TO TESTS 5, 7, 8, 10, 11, 14, 15 AND 17. ADEQUATE INFILTRATION RATES ARE ASSUMED.

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. 21443, Expiration Date: 12-21-18

NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET

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. 45571, Expiration Date: 06-09-2016.

Professional Engineer Seal: STATE OF MARYLAND, CIVIL ENGINEER, No. 45571, Exp. 06-09-2016

**BENCHMARK ENGINEERING, INC.**  
ENGINEERS & LAND SURVEYORS & PLANNERS  
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WWW.BE-CIVILENGINEERING.COM

OWNER: SIMPSON MILL LLC  
P.O. BOX 417  
ELLICOTT CITY, MARYLAND 21041  
410-465-4244

DEVELOPER: SIMPSON MILL LLC  
P.O. BOX 417  
ELLICOTT CITY, MARYLAND 21041  
410-465-4244

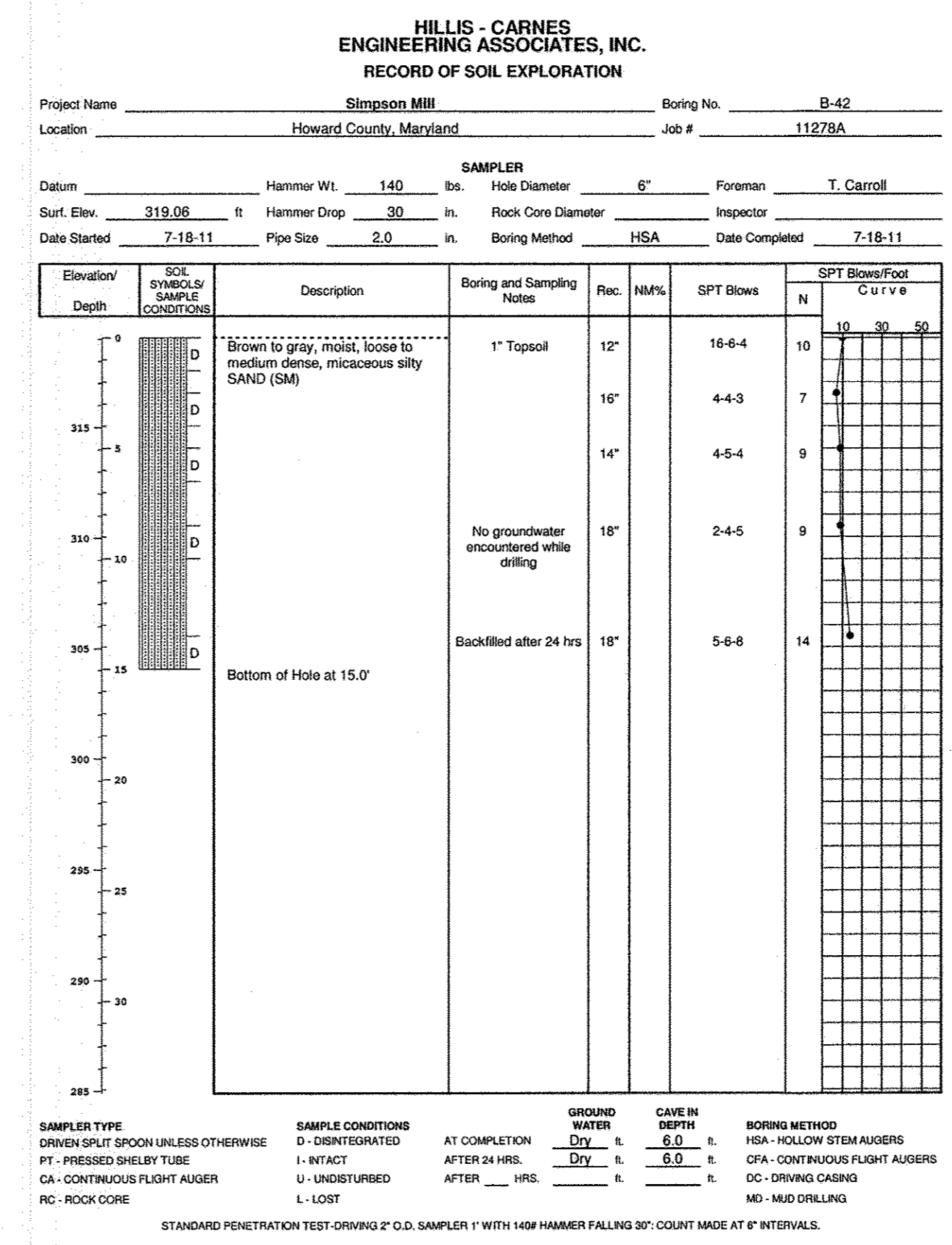
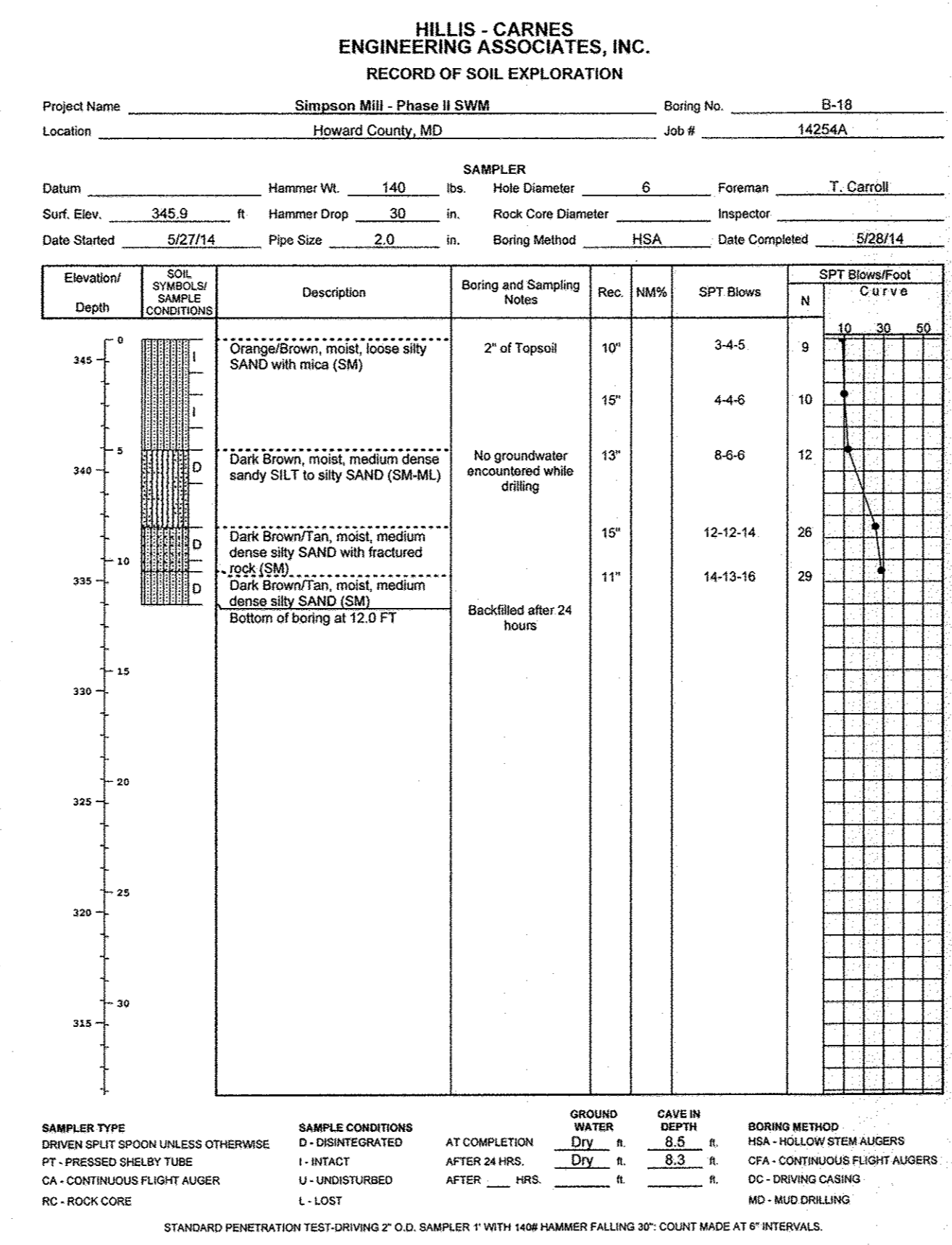
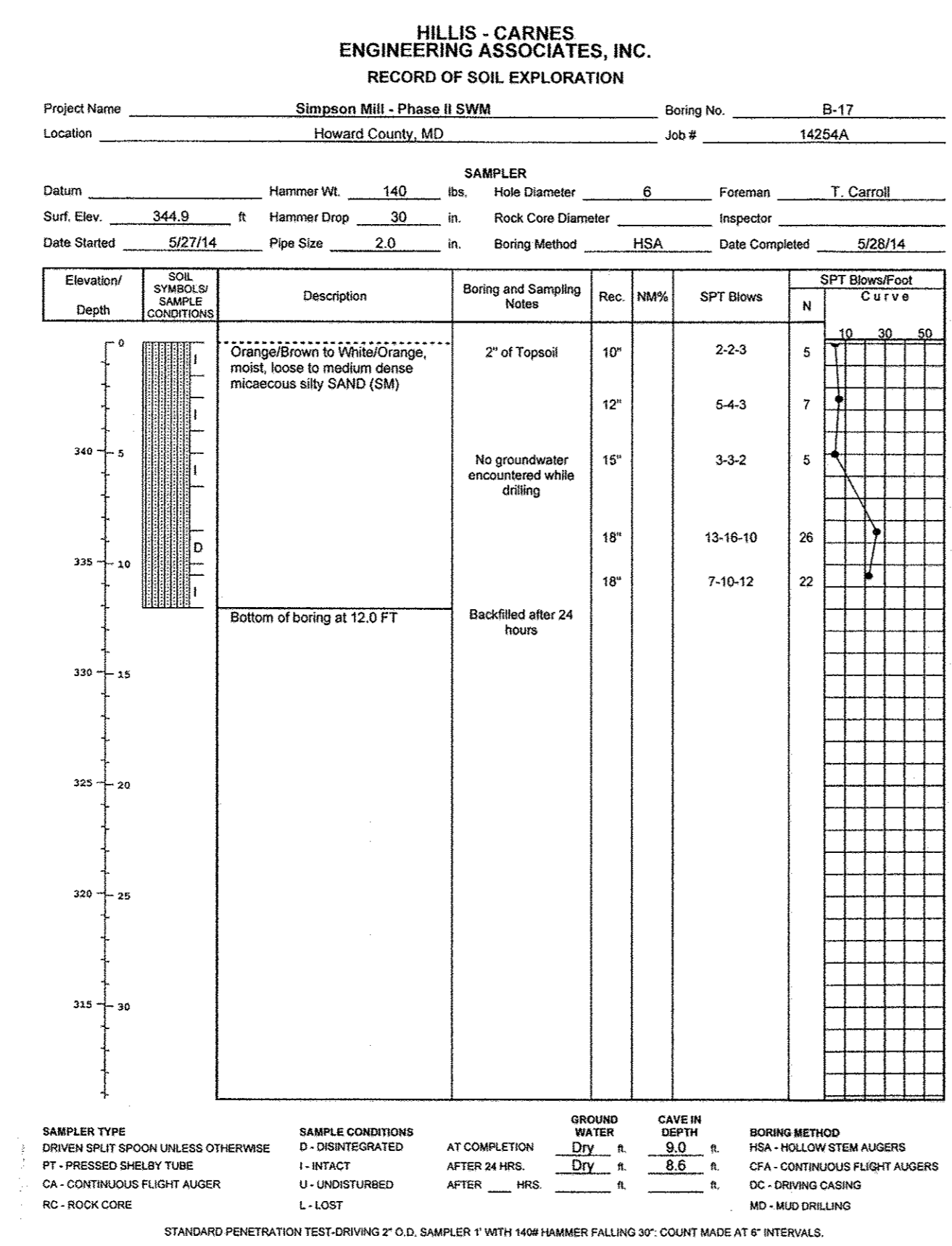
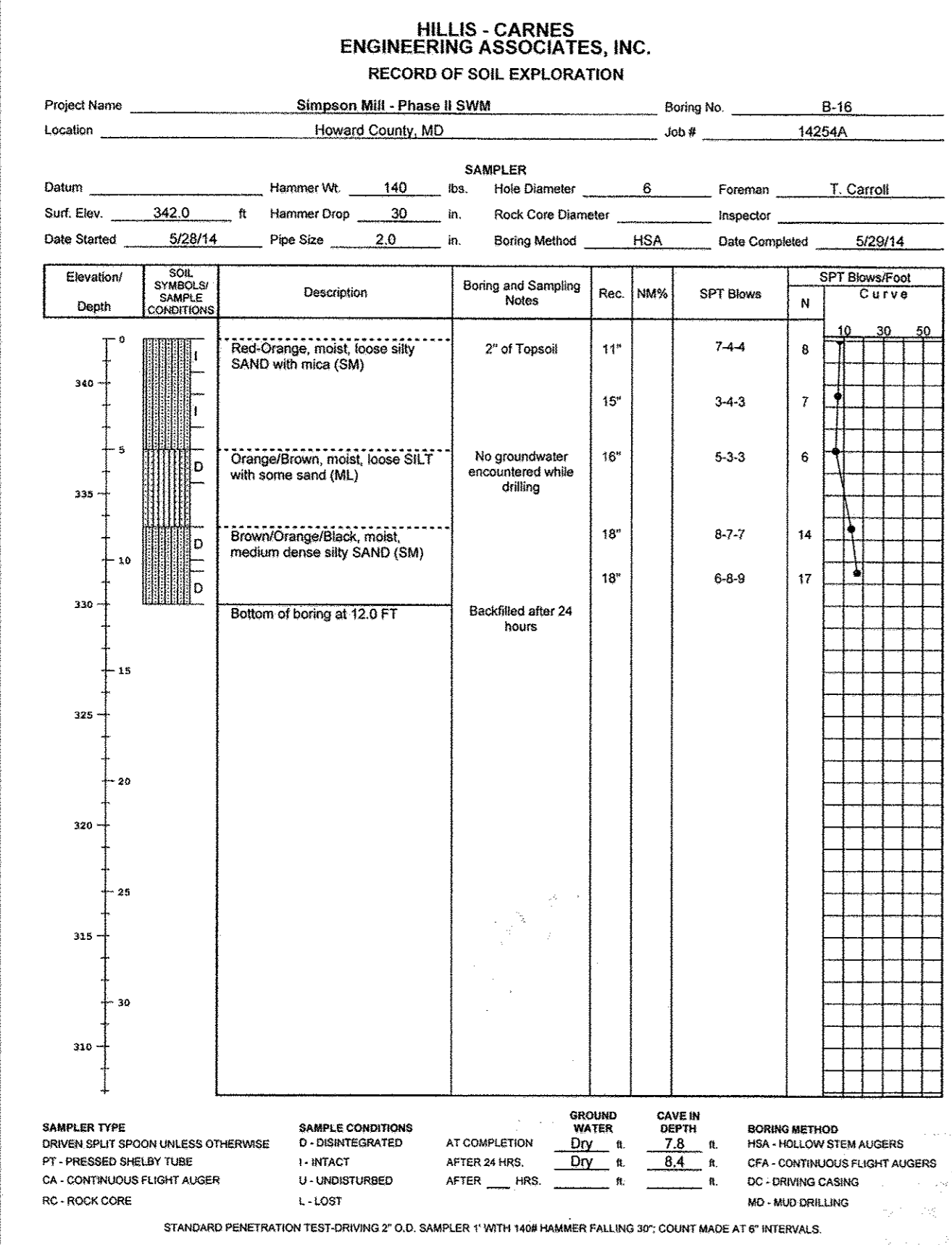
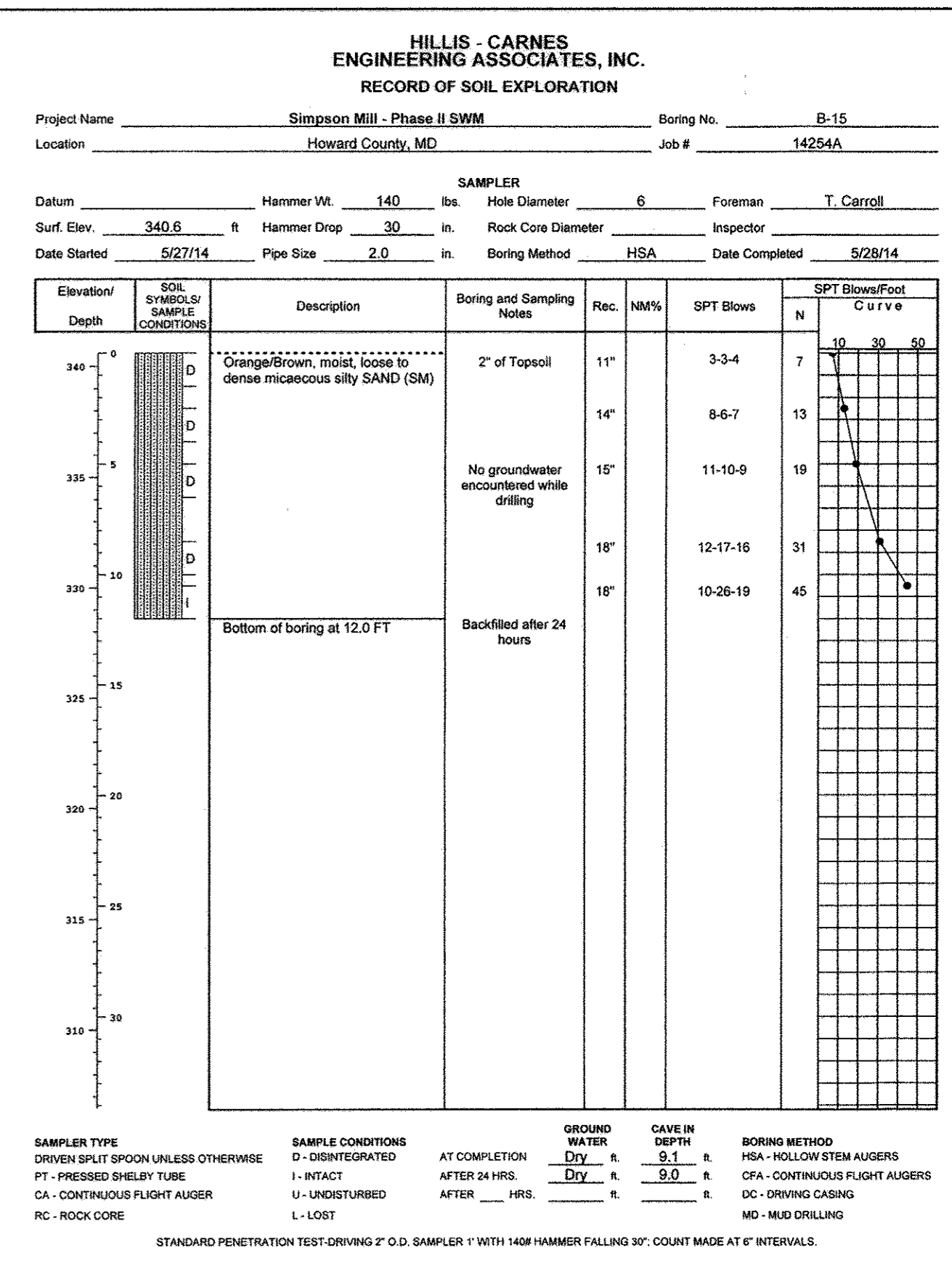
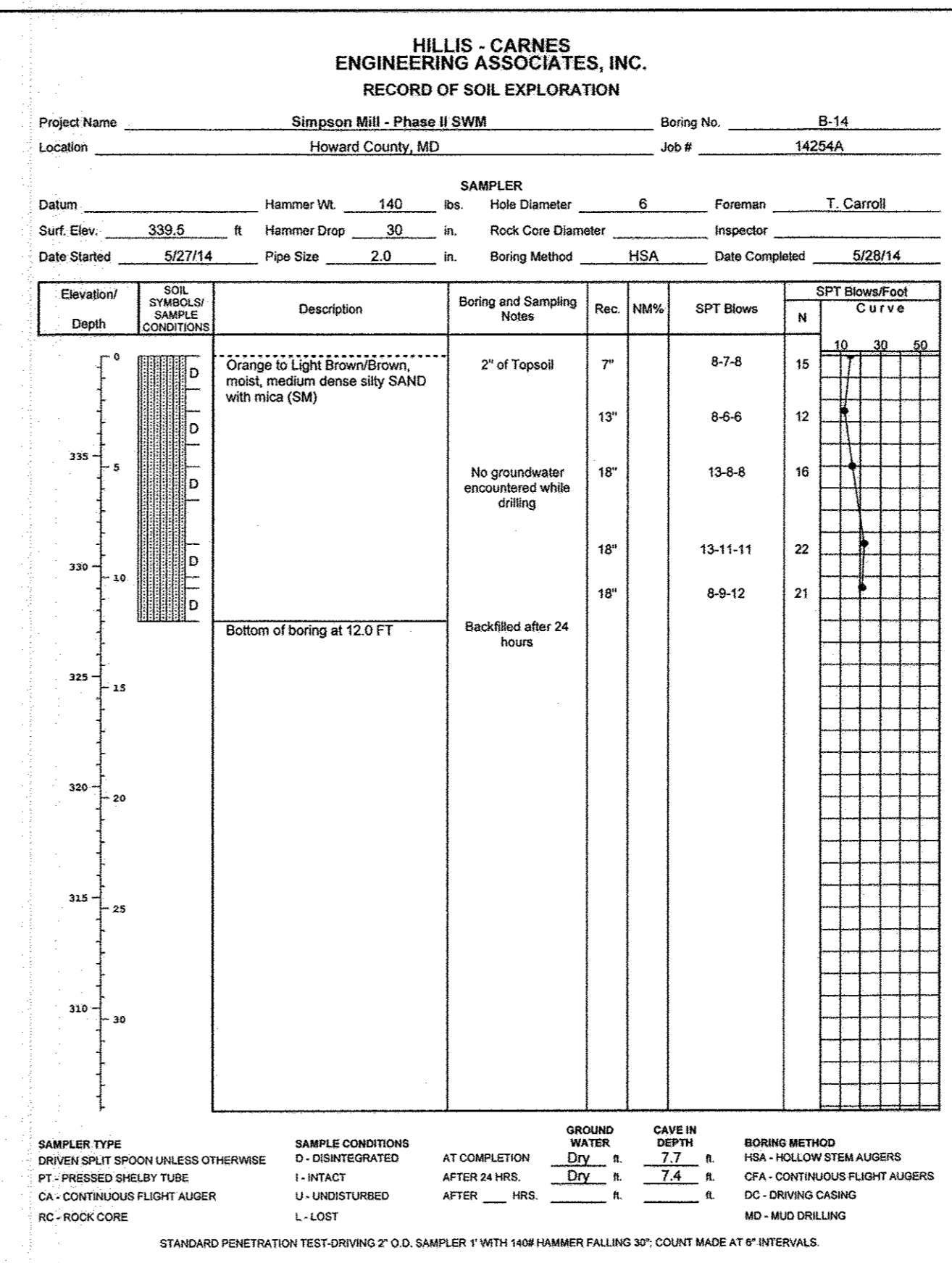
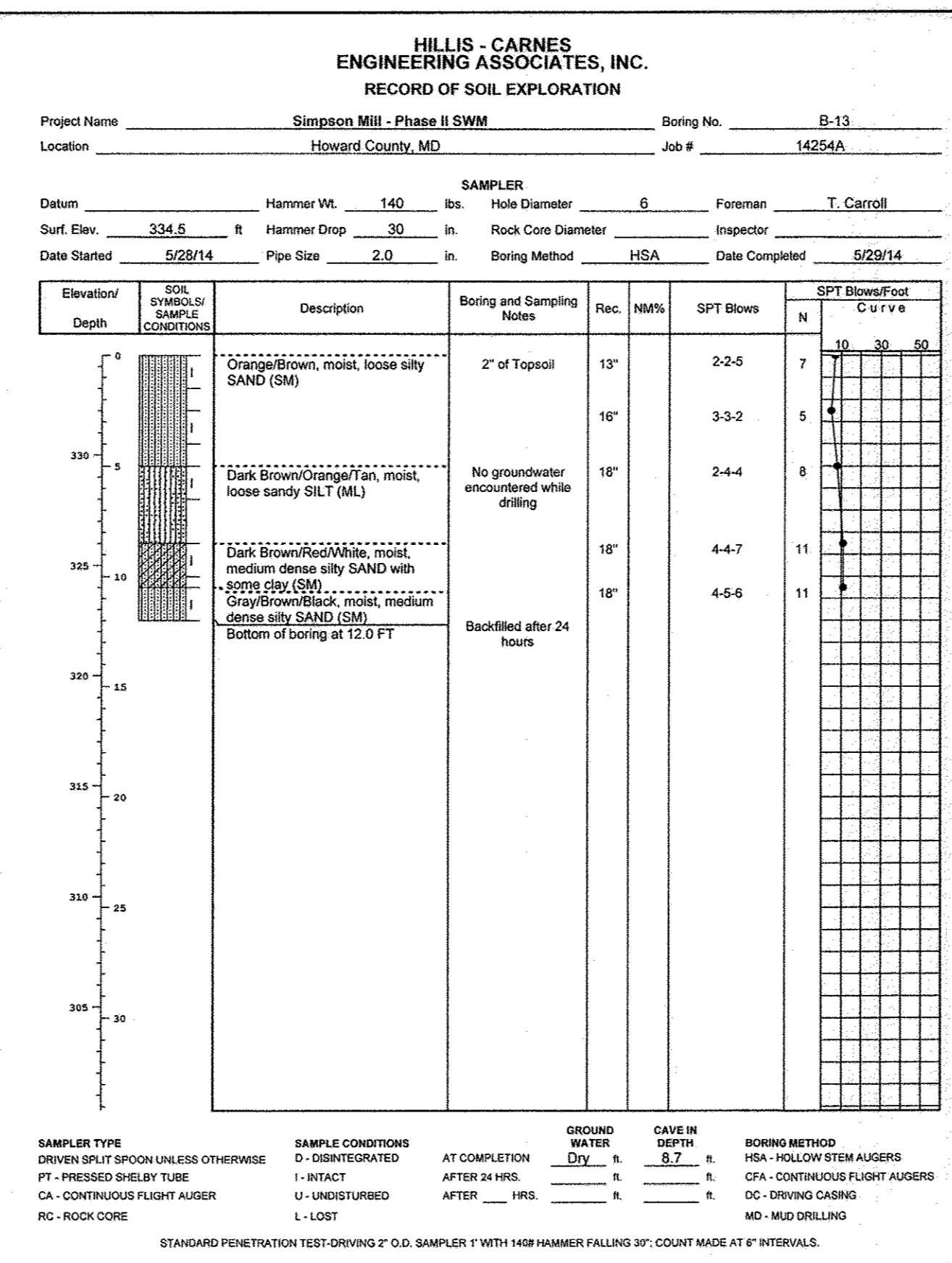
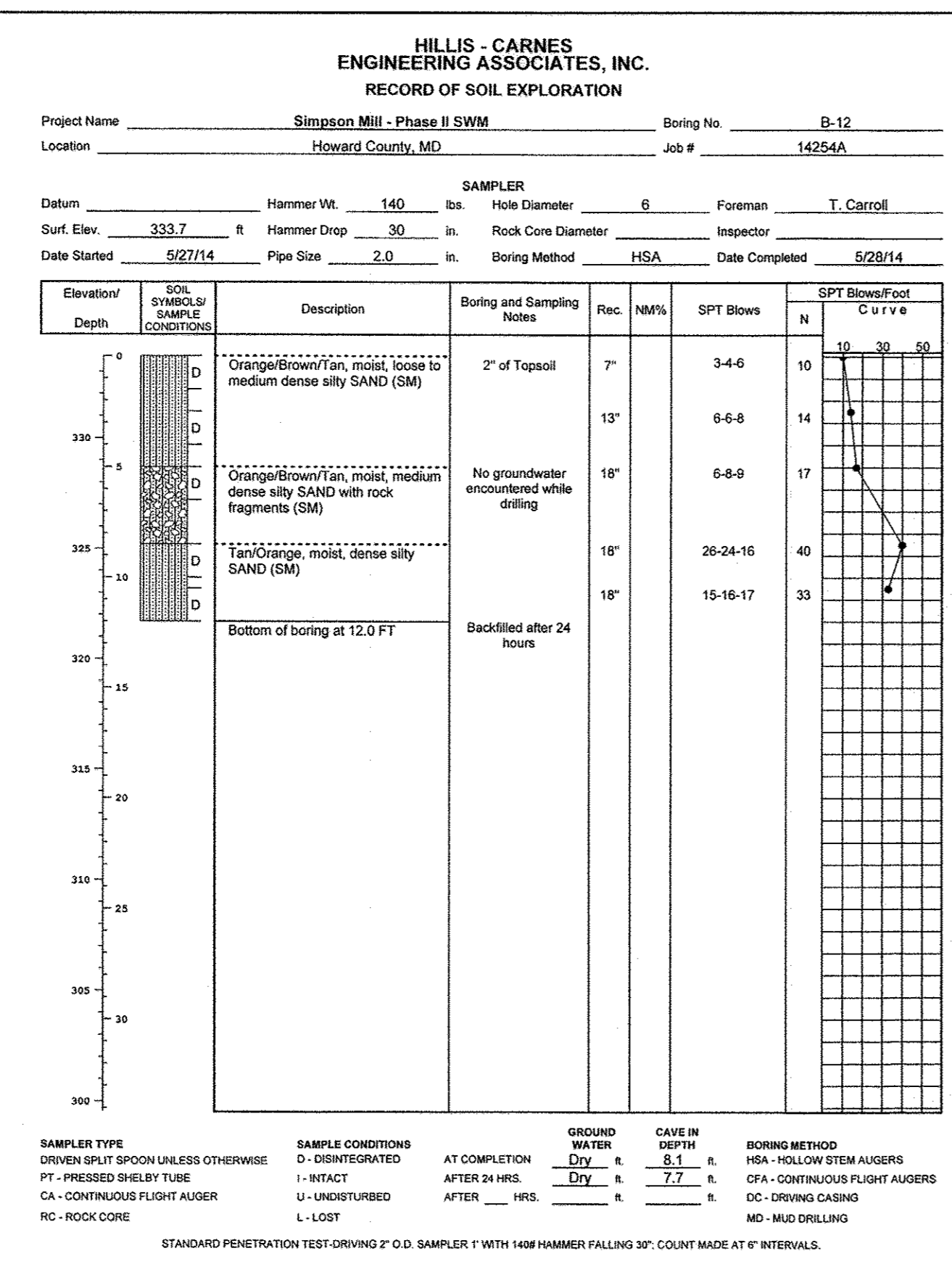
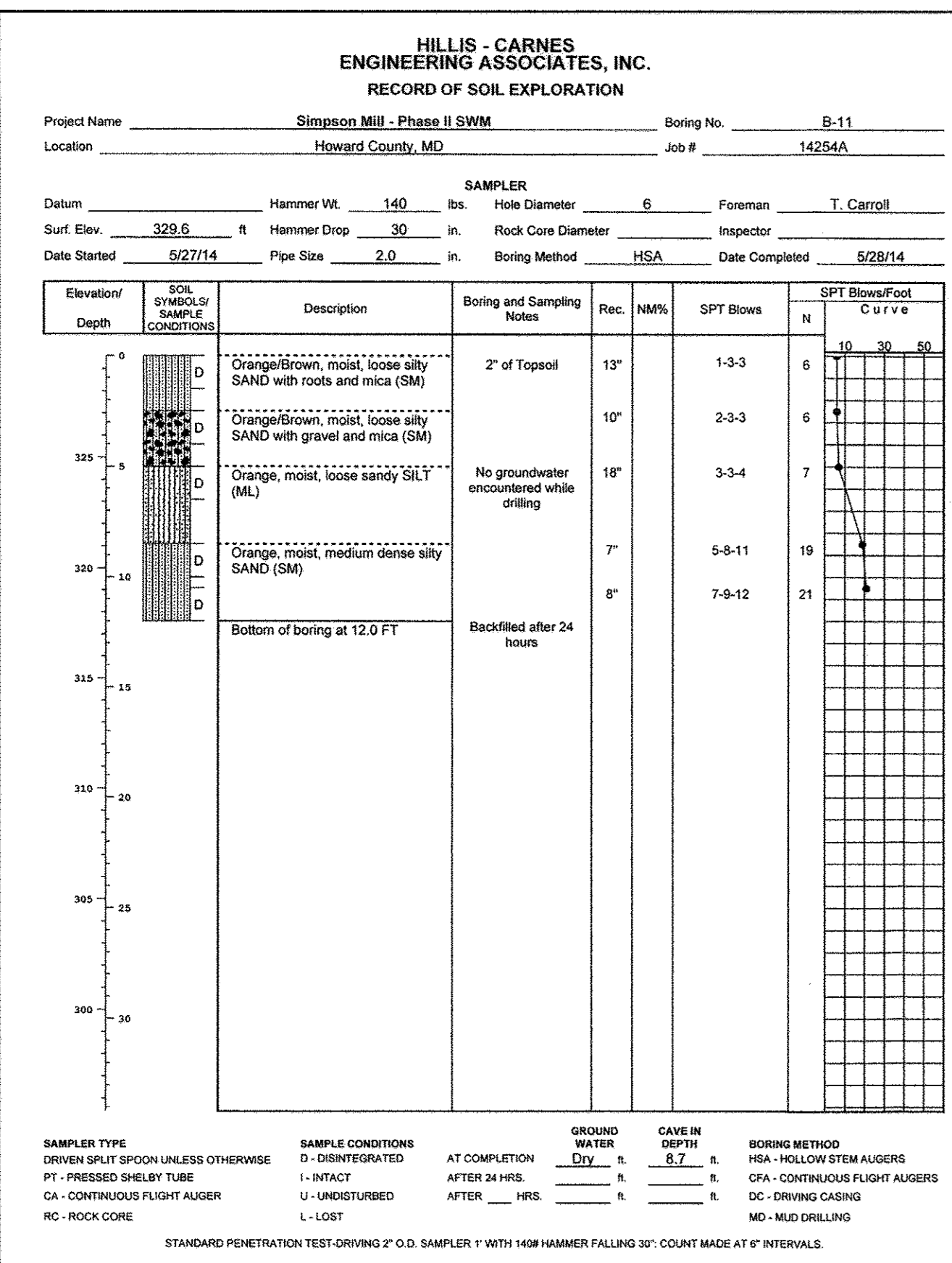
**SIMPSON MILL**  
PHASE 3 - LOTS 153 THRU 174 AND OPEN SPACE LOT 175  
A RESUBDIVISION OF BUILDABLE BULK PARCEL "A" AS SHOWN ON PLATS 22093 THRU 22101

TAX MAP: 35 GRID: 23 PARCEL: 116 ZONED: POR  
SIMPSON MILL DRIVE, COLUMBIA MD 21044  
ELECTION DISTRICT NO. 5  
HOWARD COUNTY, MARYLAND

**STORMWATER MANAGEMENT BORINGS**

DATE: MARCH, 2016 SHEET PROJECT NO: 2634  
SCALE: AS SHOWN SHEET 13 OF 17

DESIGN: JMC DRAWN: JMC



Boring	Approximate Depth of Test (ft)	Measured In-situ Infiltration Rate (in/hr)
B-1	4	2.8
B-2	4	0.4
B-3	4	2.6
B-4	4	3.9
B-5	4	1.0
B-6	4	1.3
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B-8	4	5.0
B-9	4	0.8
B-10	4	6.8
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B-15	4	5.5
B-16	4	6.5
B-17	4	11.3
B-18	4	22.4
B-42	ASSUMED	YES

LOCATION B-42 WAS NOT TESTED FOR INFILTRATION DURING PHASE I. THIS TEST PROFILE IS SIMILAR TO TESTS 5, 7, 8, 10, 11, 14, 15 AND 17. ADEQUATE INFILTRATION RATES ARE ASSUMED.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Chad Elwood* 4/15/16  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

*Neil Stuchlik* 5-16-16  
CHIEF, DIVISION OF LAND DEVELOPMENT

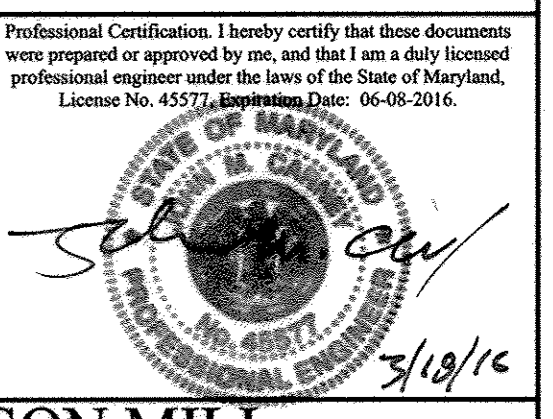
*Nathan J. Jovic* 5-16-16  
DIRECTOR



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. 21423, Expiration Date: 12-31-19

"NO AS-BUILT INFORMATION" IS PROVIDED ON THIS SHEET

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WWW.BE-CIVILENGINEERING.COM



OWNER: SIMPSON MILL LLC  
P.O. BOX 417  
ELLICOTT CITY, MARYLAND 21041  
410-465-4244

DEVELOPER: SIMPSON MILL LLC  
P.O. BOX 417  
ELLICOTT CITY, MARYLAND 21041  
410-465-4244

DESIGN: JMC DRAWN: JMC

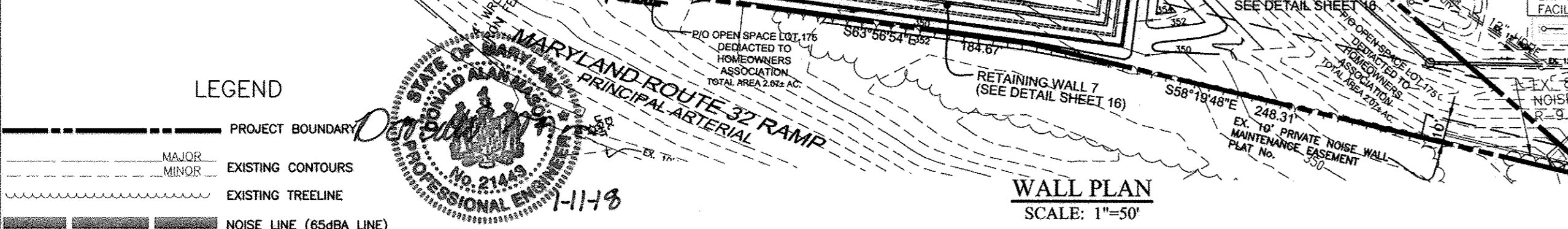
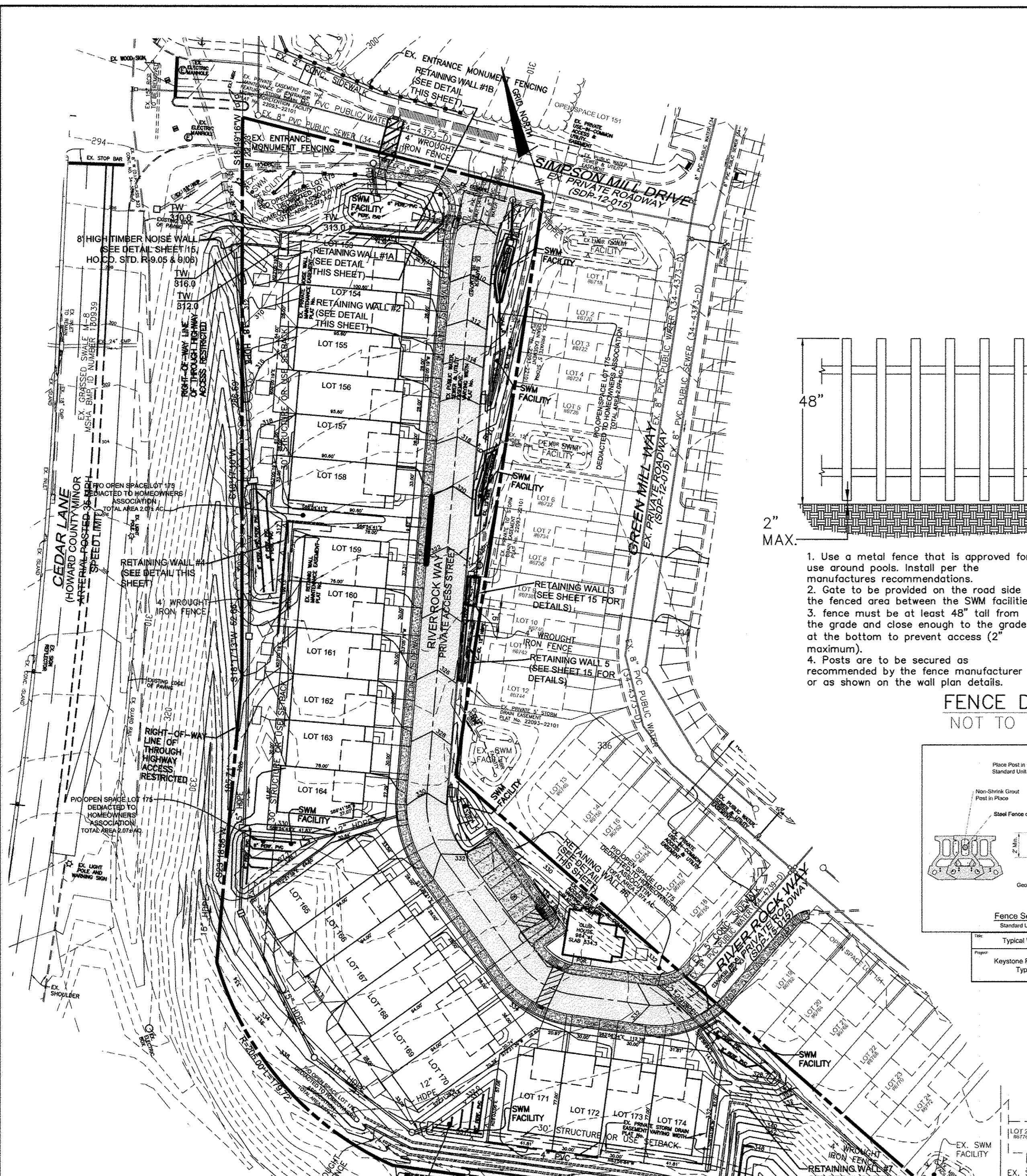
**SIMPSON MILL**  
PHASE 3 - LOTS 153 THRU 174 AND OPEN SPACE LOT 175  
A RESUBDIVISION OF BUILDABLE BULK PARCEL "A" AS SHOWN ON PLATS 22093 THRU 22101

TAX MAP: 35 GRID: 23 PARCEL: 116 ZONED: POR  
SIMPSON MILL DRIVE, COLUMBIA MD 21044  
ELECTION DISTRICT NO. 5  
HOWARD COUNTY, MARYLAND

**STORMWATER MANAGEMENT BORINGS**

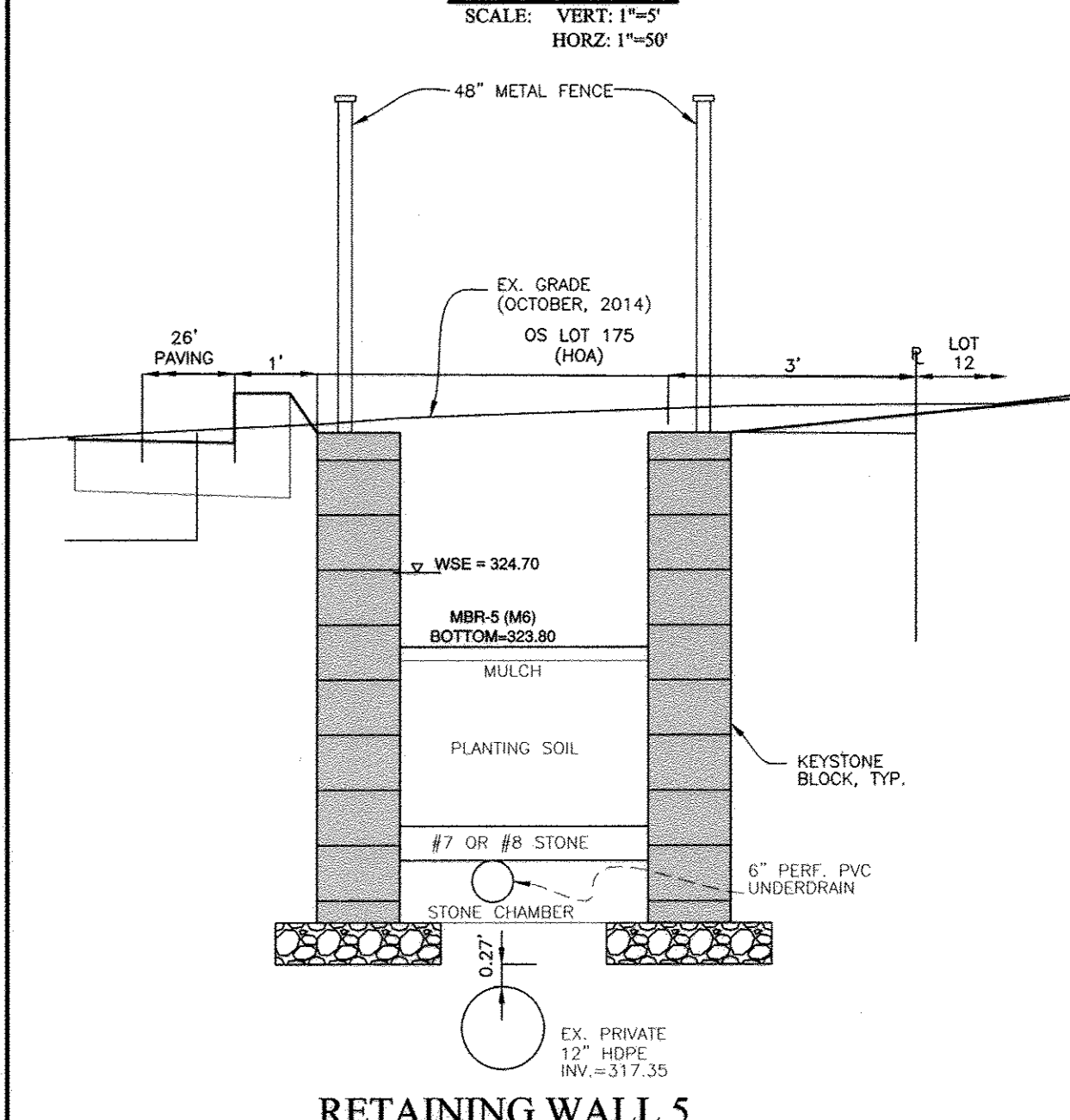
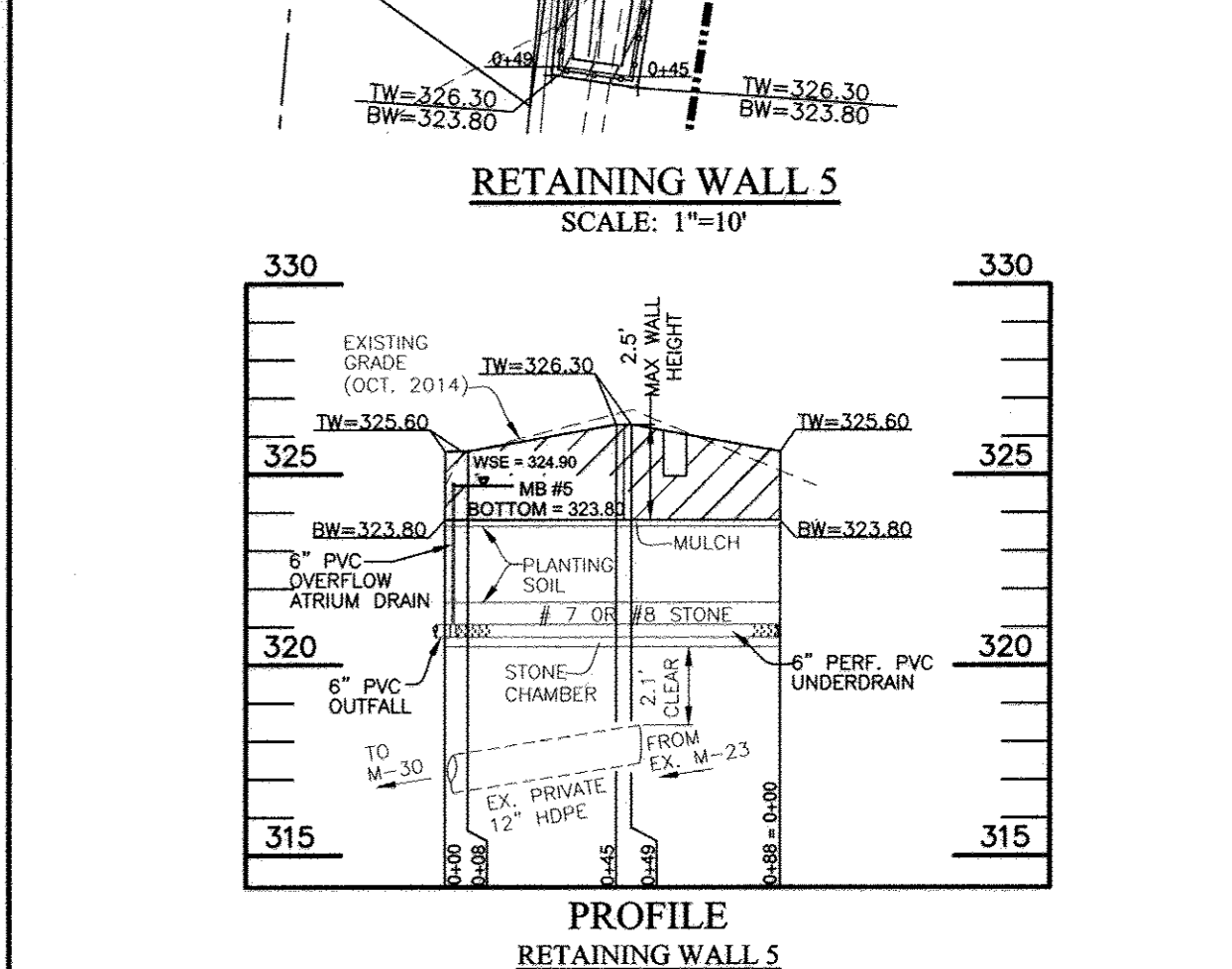
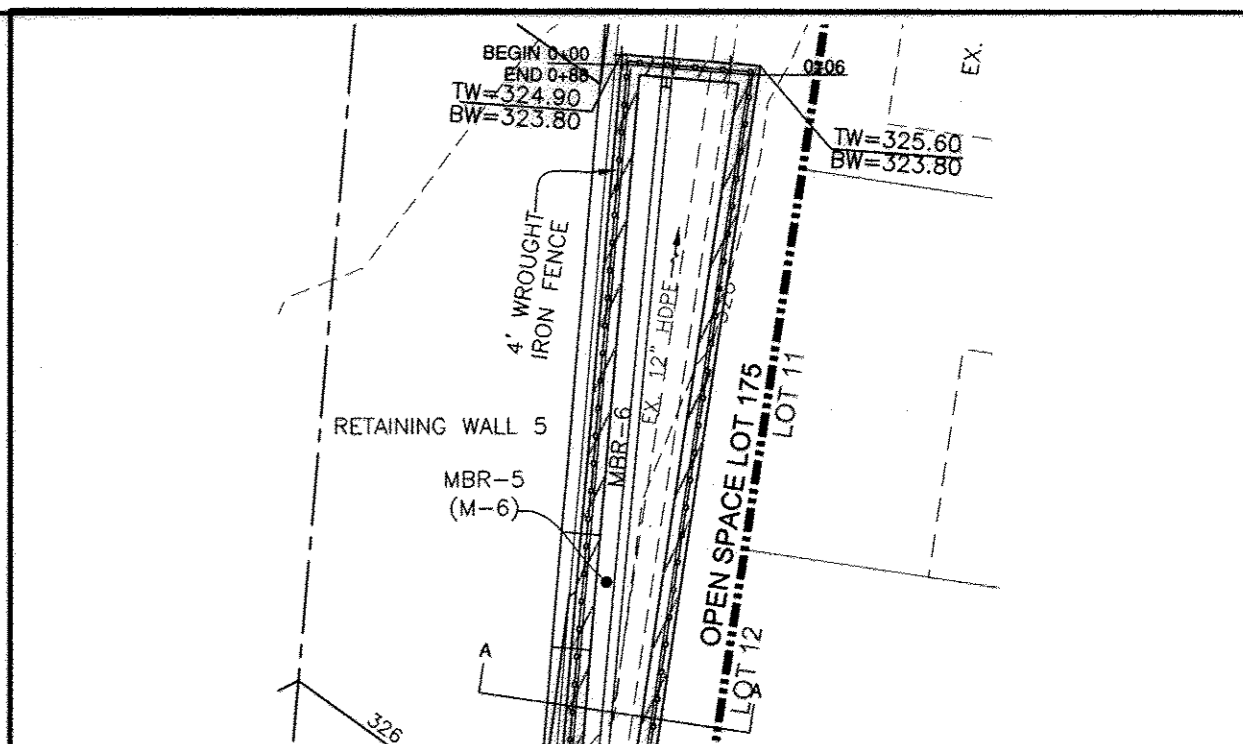
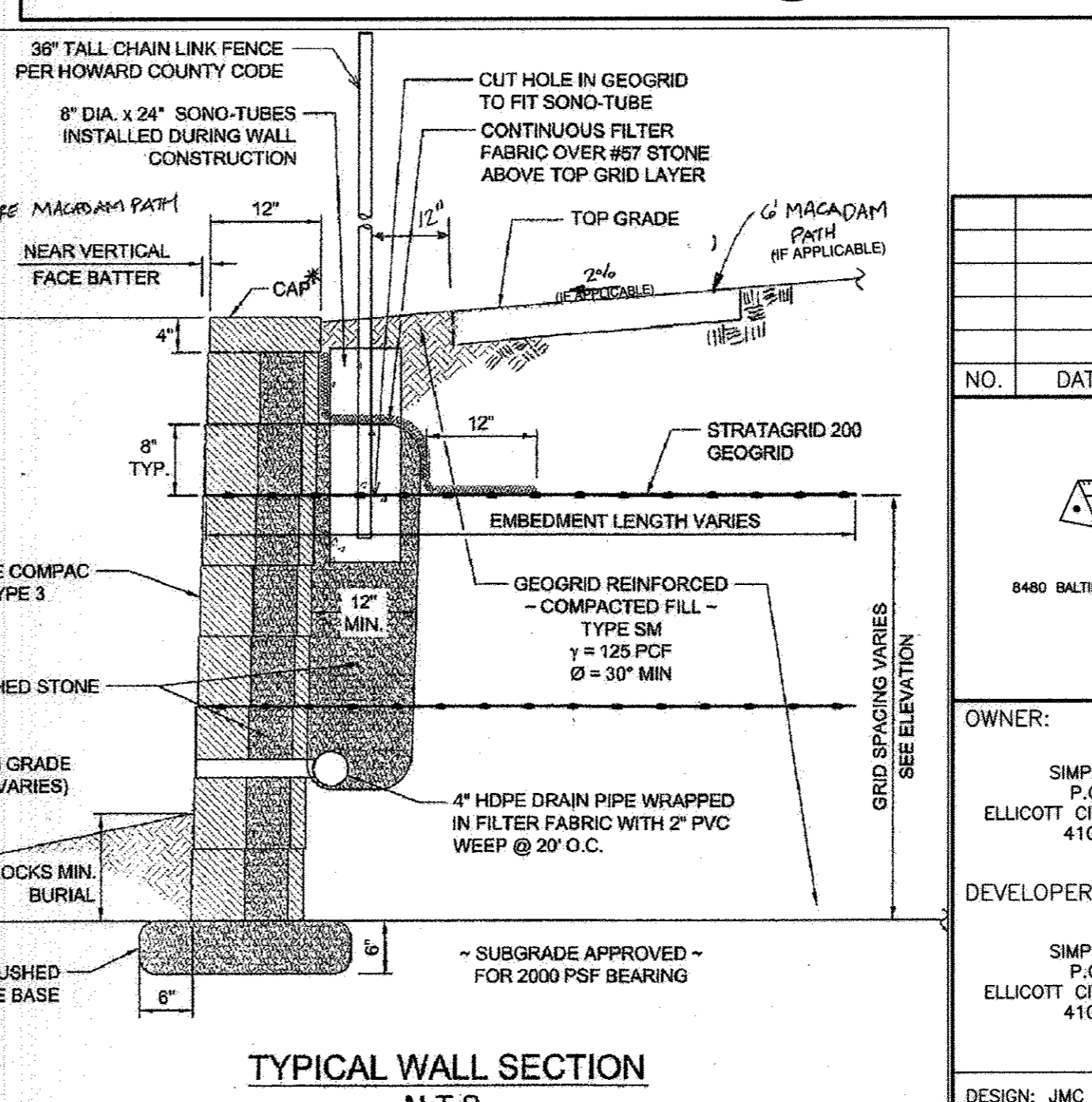
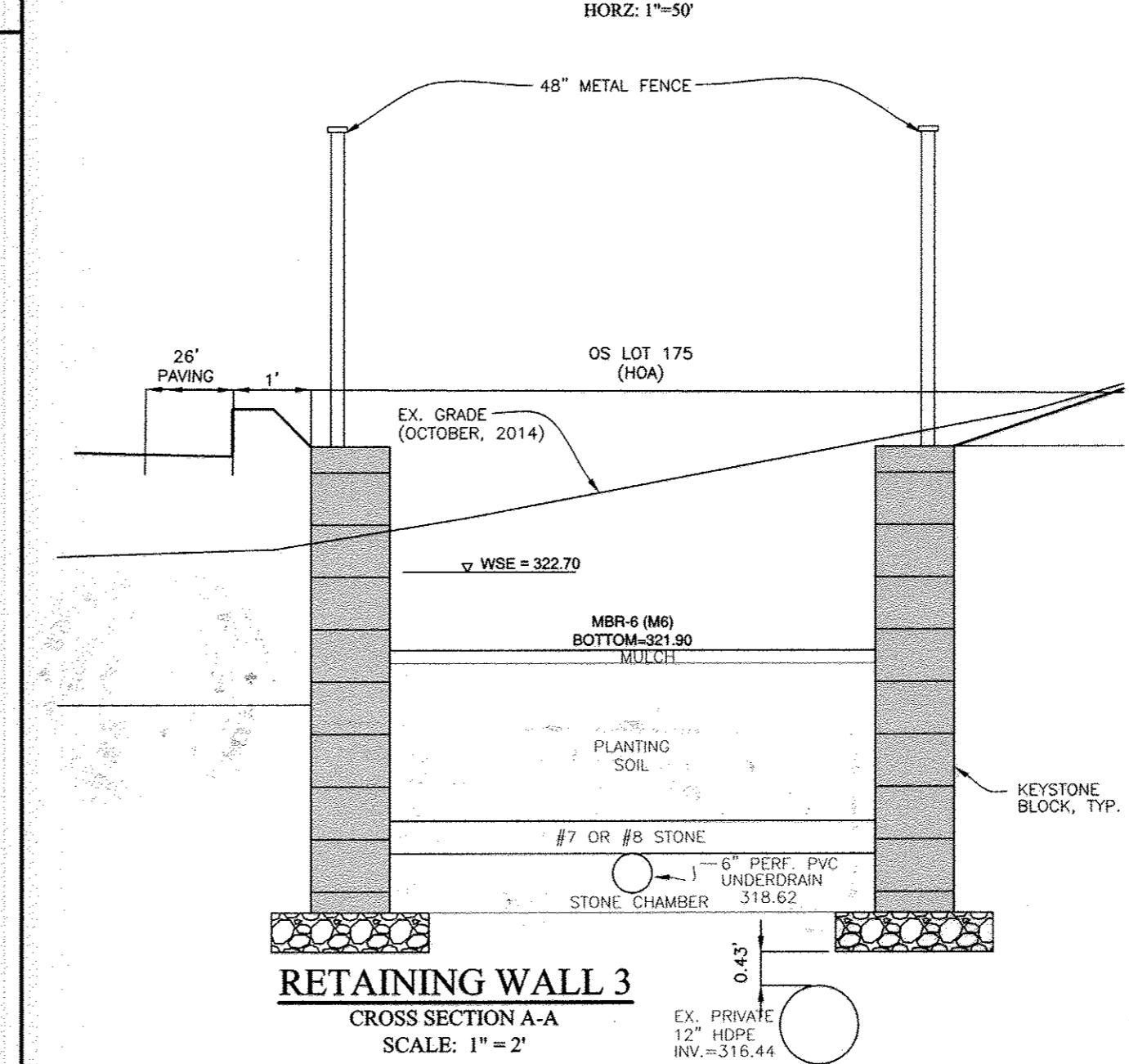
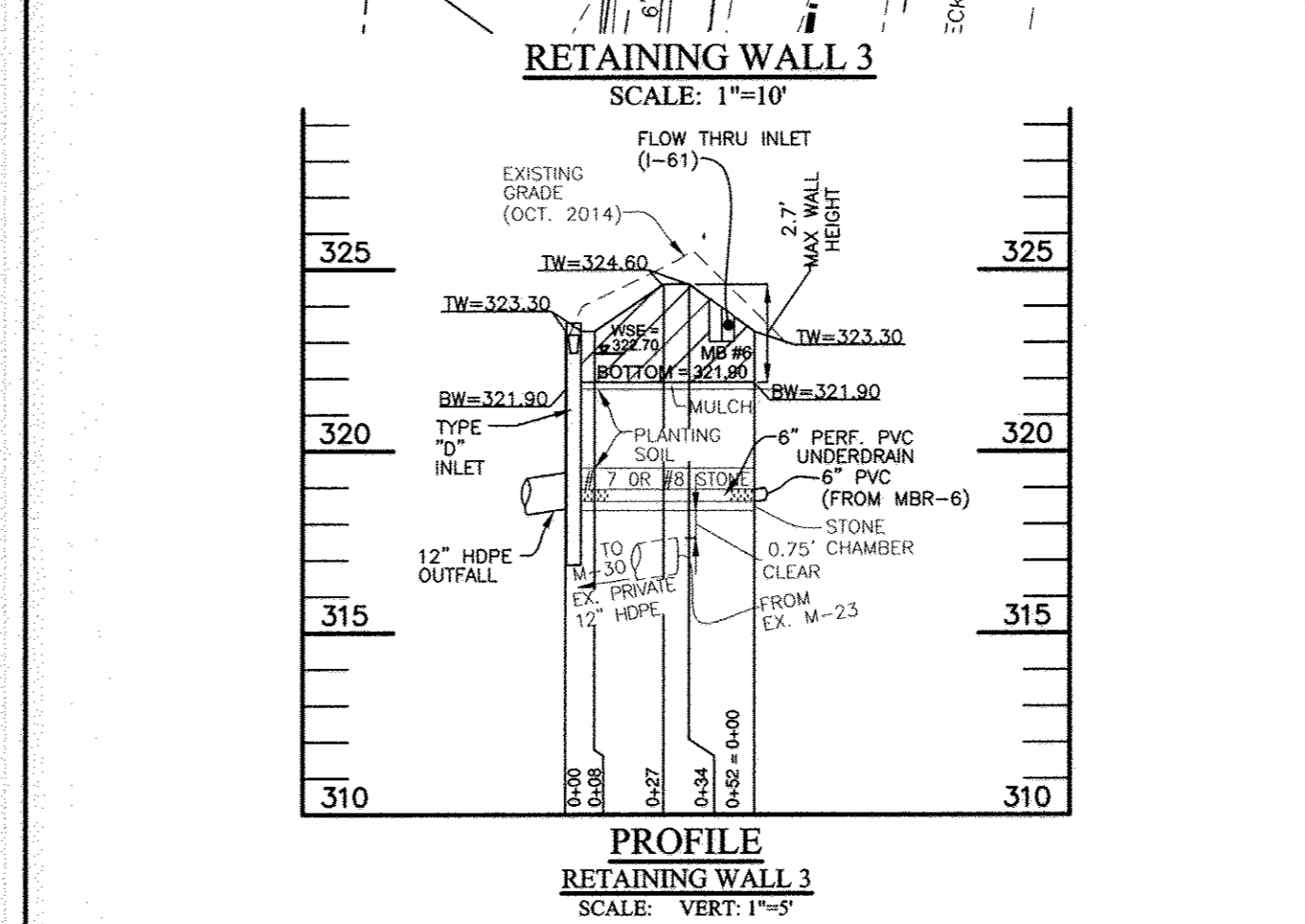
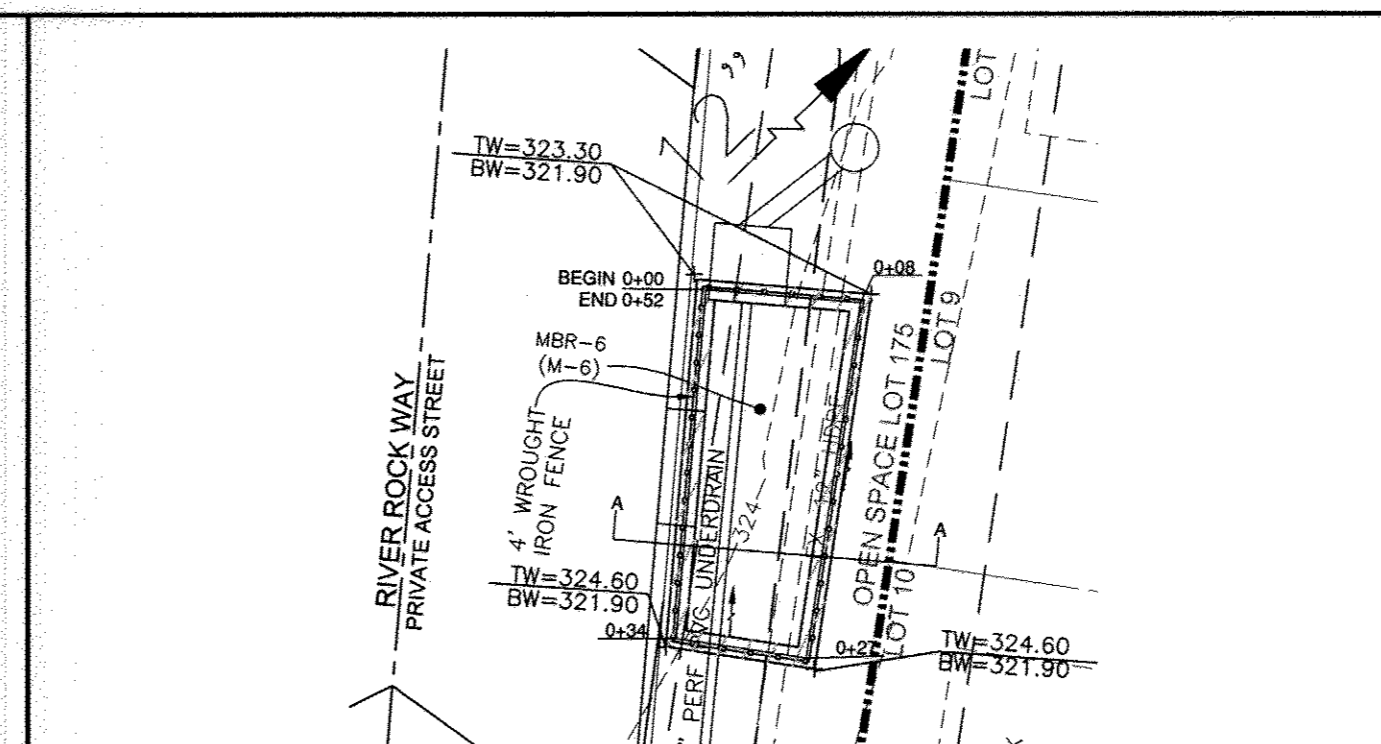
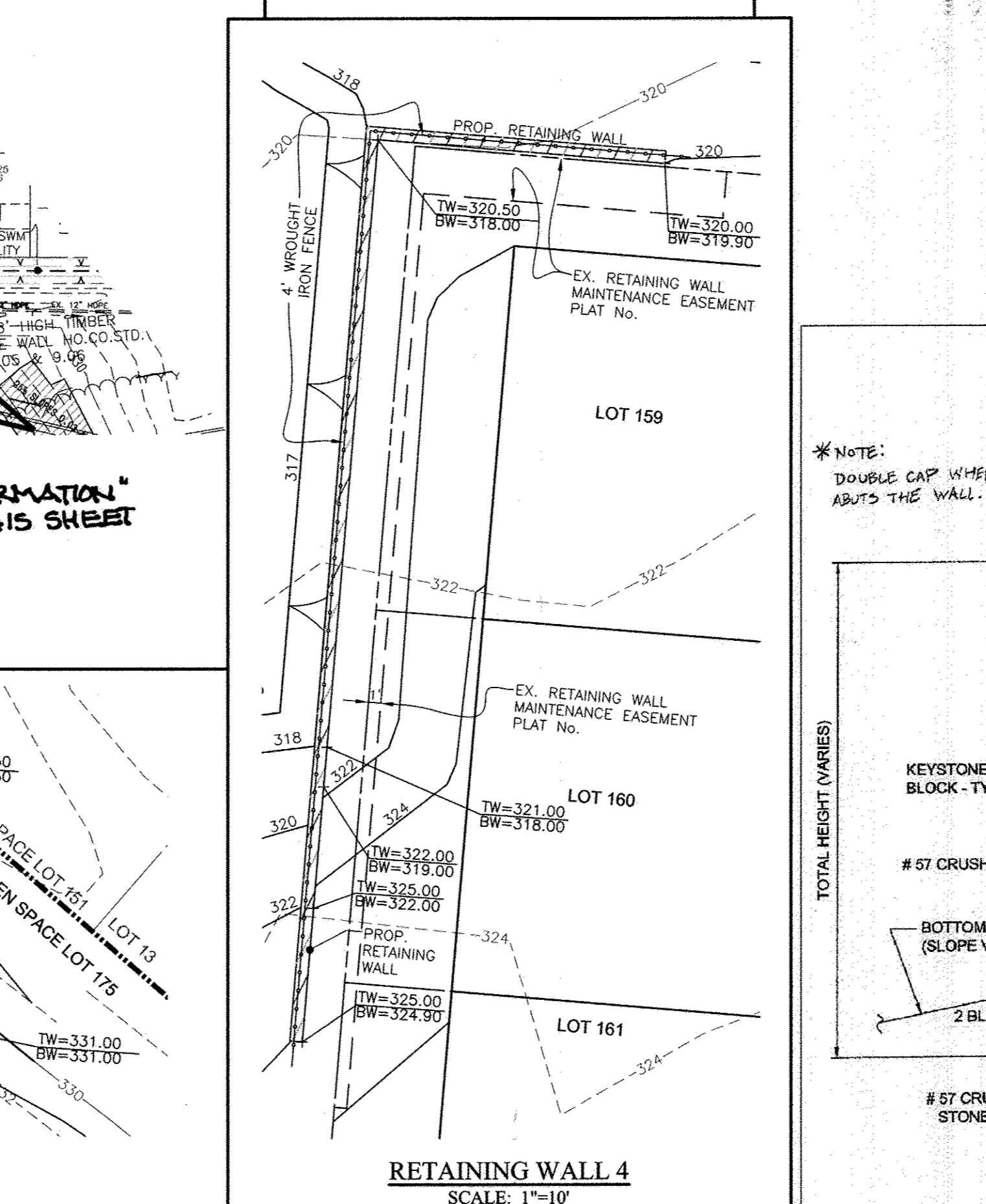
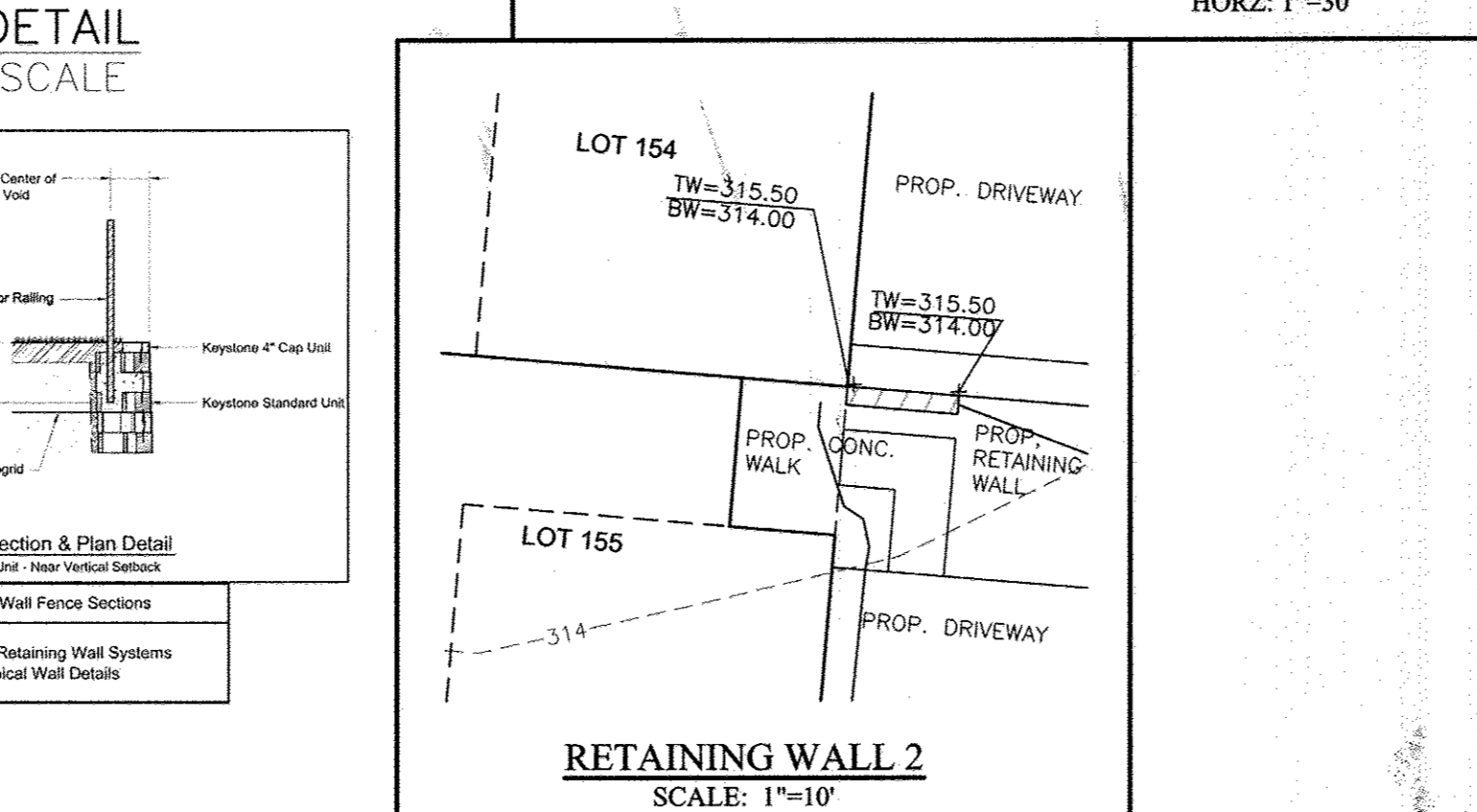
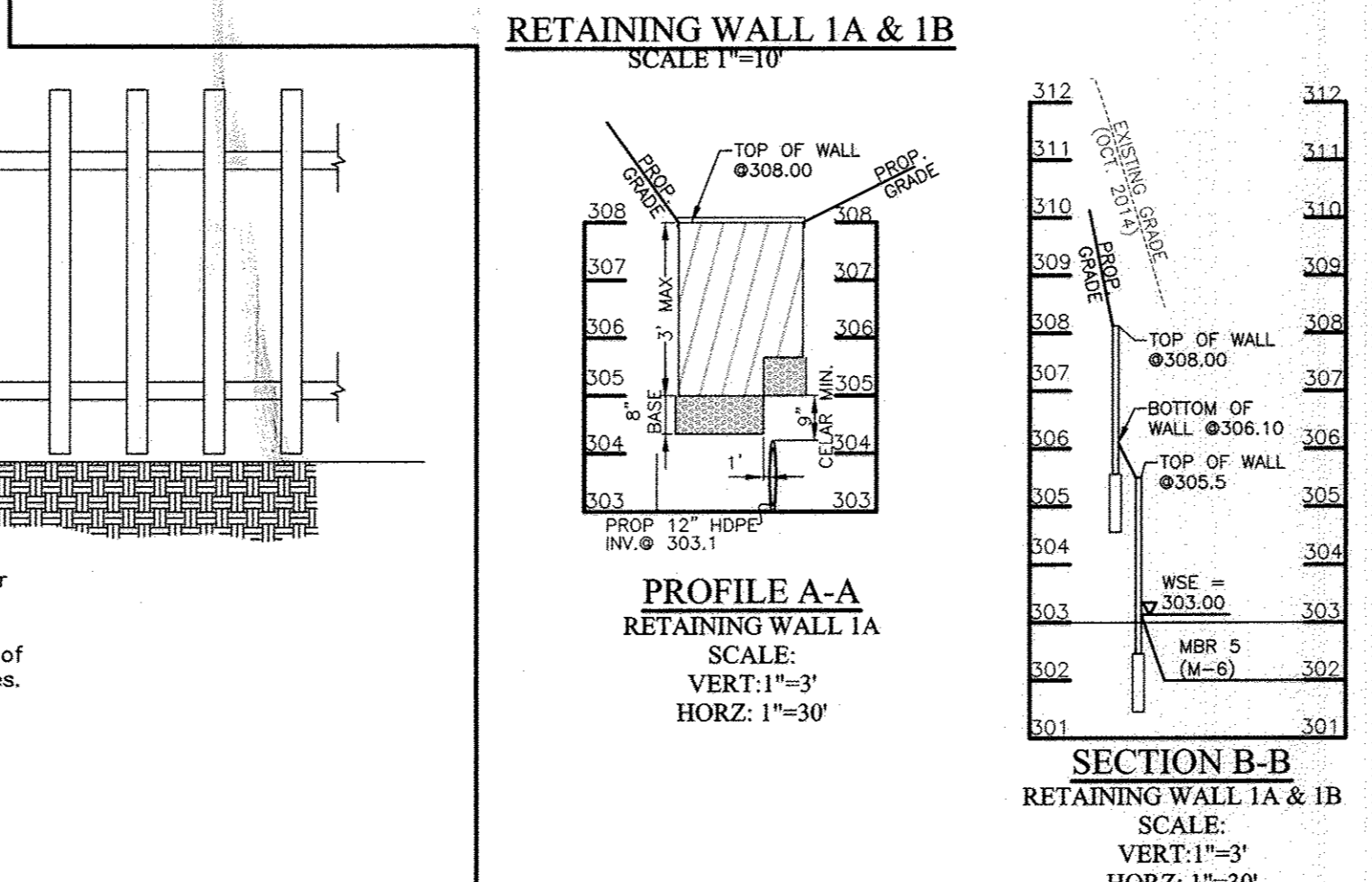
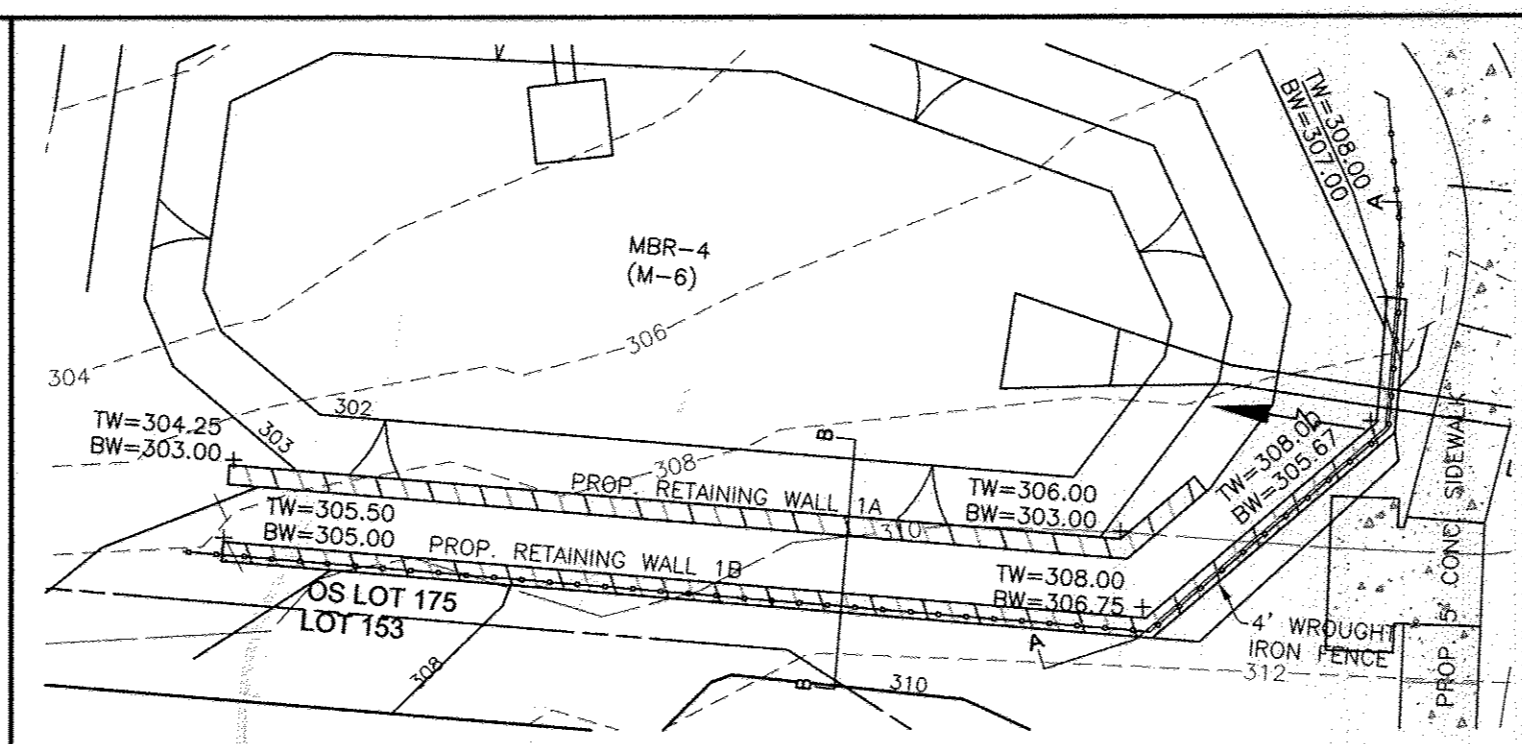
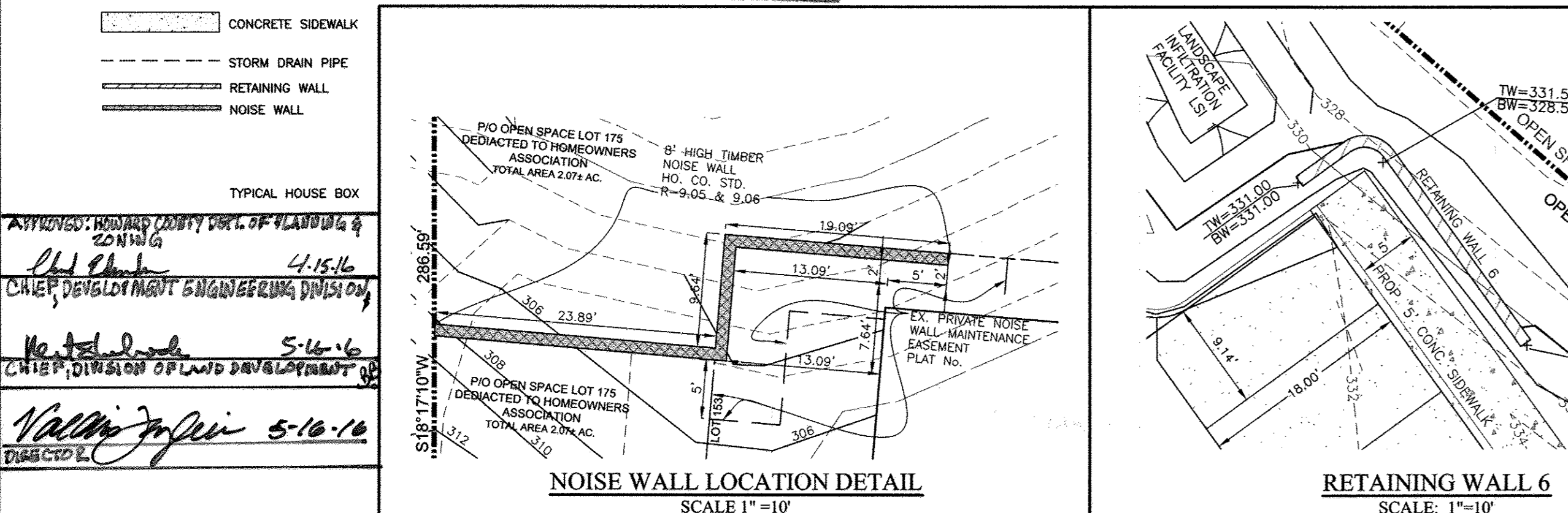
DATE: MARCH, 2016 BEI PROJECT NO: 2634  
SCALE: SHEET 14 OF 17

AS-BUILT SDP-15-057



**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. **21463**, Expiration Date: **12-21-16**



**BENCHMARK ENGINEERING, INC.**  
8480 BALTIMORE NATIONAL PIKE & SUITE 315 & ELLICOTT CITY, MARYLAND 21043  
(7) 410-465-8105 (F) 410-465-8644  
WWW.BE-CVLENGINEERING.COM

**SIMPSON MILL**  
PHASE 3 - LOTS 153 THRU 174 AND OPEN SPACE LOT 175  
A RESUBDIVISION OF BUILDABLE BULK PARCEL "A" AS SHOWN ON PLATS 22093 THRU 22101

**NOISE WALL AND RETAINING WALL PLAN AND DETAILS**

DATE: MARCH, 2016 BEI PROJECT NO: 2634  
SCALE: AS SHOWN SHEET 15 OF 17

**"NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET"**

SEE SHEET 16 FOR WALL No. 7 DETAIL  
ALL WALLS LOCATED ON OPEN SPACE LOT 175 SHALL BE OWNED AND MAINTAINED BY HOA

**SPECIFICATIONS  
MODULAR CONCRETE BLOCK RETAINING WALL**

**PART 1: GENERAL**

**1.01 DESCRIPTION**

- A. WORK SHALL CONSIST OF FURNISHING AND CONSTRUCTION OF A MODULAR RETAINING WALL SYSTEM IN ACCORDANCE WITH THESE SPECIFICATIONS AND IN REASONABLE CLOSE CONFORMITY WITH THE LINES, GRADES, DESIGN, AND DIMENSIONS SHOWN ON THE PLANS.
- B. WORK INCLUDES PREPARING FOUNDATION SOIL, FURNISHING AND INSTALLING LEVELING PAD, UNIT DRAINAGE FILL AND BACKFILL TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS.
- C. WORK INCLUDES FURNISHING AND INSTALLING GEOGRID SOIL REINFORCEMENT OF THE TYPE, SIZE, LOCATION, AND LENGTHS DESIGNATED ON THE CONSTRUCTION DRAWINGS.

**1.02 DELIVERY, STORAGE AND HANDLING**

- A. CONTRACTOR SHALL CHECK ALL MATERIALS UPON DELIVERY TO ASSURE THAT THE PROPER TYPE, GRADE, COLOR, AND CERTIFICATION HAS BEEN RECEIVED.
- B. CONTRACTOR SHALL PROTECT ALL MATERIALS FROM DAMAGE DUE TO JOB SITE CONDITIONS AND IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. DAMAGED MATERIALS SHALL NOT BE INCORPORATED INTO THE WORK.

**PART 2: PRODUCTS**

**2.01 MODULAR CONCRETE RETAINING WALL UNITS**

- A. MODULAR CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING ARCHITECTURAL REQUIREMENTS:  
FACE COLOR - COLOR MAY BE SPECIFIED BY THE OWNER.  
FACE FINISH - SCULPTURED ROCK FACE IN ANGULAR TRI-PLANNER OR FLAT CONFIGURATION. OTHER FACE FINISHES WILL NOT BE ALLOWED WITHOUT WRITTEN APPROVAL OF OWNER.

- B. BOND CONFIGURATION - RUNNING WITH BONDS NOMINALLY LOCATED AT MIDPOINT VERTICALLY ADJACENT

- UNITS, IN BOTH STRAIGHT AND CURVED ALIGNMENTS. EXPOSED SURFACES OF UNITS SHALL BE FREE OF CHIPS, CRACKS OR OTHER IMPERFECTIONS WHEN VIEWED FROM A DISTANCE OF 10 FEET UNDER DIFFUSED LIGHTING.

- B. MODULAR CONCRETE MATERIALS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C1372 - STANDARD SPECIFICATIONS FOR SEGMENTAL RETAINING WALL UNITS.

- C. MODULAR CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING STRUCTURAL AND GEOMETRIC REQUIREMENTS MEASURED IN ACCORDANCE WITH APPROPRIATE REFERENCES:  
COMPRESSIVE STRENGTH = 3000 PSI MINIMUM.  
ABSORPTION = 8% MAXIMUM (6% IN NORTHERN STATES) FOR STANDARD WEIGHT AGGREGATES;  
DIMENSIONAL TOLERANCES = ±1/8" FROM NOMINAL UNIT DIMENSIONS NOT INCLUDING ROUGH SPLIT FACE, ±1/16" UNIT HEIGHT - TOP AND BOTTOM PLANES; UNIT SIZE - 8" (H) X 18" (W) X 12 (D) MINIMUM;  
UNIT WEIGHT - 75 LBS/UNIT MINIMUM FOR STANDARD WEIGHT AGGREGATES;

- D. MODULAR CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING CONSTRUCTABILITY REQUIREMENTS (IF APPLICABLE):  
VERTICAL SETBACK = 1/8" PER COURSE (NEAR VERTICAL) OR 1" PER COURSE PER THE DESIGN ALIGNMENT AND GRID POSITIONING MECHANISM - FIBERGLASS PINS, TWO PER UNIT MINIMUM;  
MAXIMUM HORIZONTAL GAP BETWEEN ERECTED UNITS SHALL BE - 1/2 INCH.

- 2.02 SHEAR CONNECTORS (IF APPLICABLE)  
A. SHEAR CONNECTORS SHALL BE 1/2 INCH DIAMETER THERMOSET ISOPHTHALIC POLYESTER RESIN-PROTRUDED

- FIBERGLASS REINFORCEMENT RODS OR EQUIVALENT TO PROVIDE CONNECTION BETWEEN VERTICALLY AND HORIZONTALLY ADJACENT UNITS. STRENGTH OF SHEAR CONNECTORS BETWEEN VERTICAL ADJACENT UNITS SHALL BE APPLICABLE OVER A DESIGN TEMPERATURE OF 10 DEGREES F TO +100 DEGREES F. B. SHEAR CONNECTORS SHALL BE CAPABLE OF HOLDING THE GEOGRID IN THE PROPER DESIGN POSITION DURING GRID PRE-TENSIONING AND BACKFILLING.

**2.03 BASE LEVELING PAD MATERIAL**

- A. MATERIAL SHALL CONSIST OF A COMPACTED #57 CRUSHED STONE BASE AS SHOWN ON THE CONSTRUCTION DRAWINGS.

**2.04 UNIT DRAINAGE FILL**

- A. UNIT DRAINAGE FILL SHALL CONSIST OF #57 CRUSHED STONE

**2.05 REINFORCED BACKFILL**

- A. REINFORCED BACKFILL SHALL TYPE SM, BE FREE OF DEBRIS AND MEET THE FOLLOWING GRADATION TESTED IN ACCORDANCE WITH ASTM D-422 AND MEET OTHER PROPERTIES SHOWN ON THE PLAN:  
SIEVE SIZE PERCENT PASSING  
2 INCH 100-75  
3/4 INCH 100-75  
NO. 40 0-60  
NO. 200 0-35

- B. MATERIAL CAN BE SITE EXCAVATED SOILS WHERE THE ABOVE REQUIREMENTS CAN BE MET. UNSUITABLE SOILS FOR BACKFILL (HIGH PLASTIC CLAYS OR ORGANIC SOILS) SHALL NOT BE USED IN THE REINFORCED SOIL MASS.

**2.06 GEOGRID SOIL REINFORCEMENT**

- A. GEOSYNTHETIC REINFORCEMENT SHALL CONSIST OF GEOGRIDS MANUFACTURED SPECIFICALLY FOR SOIL

- REINFORCEMENT APPLICATIONS AND SHALL BE MANUFACTURED FROM HIGH TENACITY POLYESTER YARN.

**2.07 DRAINAGE PIPE**

- A. THE DRAINAGE PIPE SHALL BE PERFORATED CORRUGATED HDPE PIPE MANUFACTURED IN ACCORDANCE WITH ASTM D-1248.

**PART 3: EXECUTION**

**3.01 EXCAVATION**

- A. CONTRACTOR SHALL EXCAVATE TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS. OWNER'S REPRESENTATIVE SHALL BE RESPONSIBLE FOR INSPECTING AND APPROVING THE EXCAVATION PRIOR TO PLACEMENT OF LEVELING MATERIAL OR FILL SOILS.

**3.02 BASE LEVELING PAD**

- A. LEVELING PAD MATERIAL SHALL BE PLACED TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS, TO A MINIMUM THICKNESS OF 6 INCHES AND EXTEND LATERALLY A MINIMUM OF 6" IN FRONT AND BEHIND THE MODULAR WALL UNIT.

- B. LEVELING PAD SHALL BE PREPARED TO INSURE FULL CONTACT TO THE BASE SURFACE OF THE CONCRETE UNITS.

**3.03 MODULAR UNIT INSTALLATION**

- A. FIRST COURSE OF UNITS SHALL BE PLACED ON THE LEVELING PAD AT THE APPROPRIATE LINE AND GRADE. ALIGNMENT AND LEVEL SHALL BE CHECKED IN ALL DIRECTIONS AND INSURE THAT ALL UNITS ARE IN FULL CONTACT WITH THE BASE AND PROPERLY SEATED.

- B. PLACE THE FRONT OF UNITS SIDE-BY-SIDE. DO NOT LEAVE GAPS BETWEEN ADJACENT UNITS. LAYOUT OF CORNERS AND CURVES SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

- C. INSTALL SHEAR/CONNECTING DEVICES PER MANUFACTURER'S RECOMMENDATIONS.

- D. PLACE AND COMPACT DRAINAGE FILL WITHIN AND BEHIND WALL UNITS. PLACE AND COMPACT BACKFILL SOIL BEHIND DRAINAGE FILL. FOLLOW WALL ERECTION AND DRAINAGE

- FILL CLOSELY WITH STRUCTURE BACKFILL.

- E. MAXIMUM STACKED VERTICAL HEIGHT OF WALL UNITS, PRIOR TO UNIT DRAINAGE FILL AND BACKFILL PLACEMENT AND COMPACTION, SHALL NOT EXCEED THREE COURSES.

**3.04 STRUCTURAL GEOGRID INSTALLATION**

- A. GEOGRID SHALL BE ORIENTED WITH THE HIGHEST STRENGTH AXIS PERPENDICULAR TO THE WALL ALIGNMENT.
- B. GEOGRID REINFORCEMENT SHALL BE PLACED AT THE STRENGTHS, LENGTHS, AND ELEVATIONS SHOWN ON THE CONSTRUCTION DESIGN DRAWINGS OR AS DIRECTED BY THE ENGINEER.

- C. THE GEOGRID SHALL BE LAID HORIZONTALLY ON COMPACTED BACKFILL AND ATTACHED TO THE MODULAR WALL UNITS. PLACE THE NEXT COURSE OF MODULAR CONCRETE UNITS OVER THE GEOGRID. THE GEOGRID SHALL BE PULLED TAUT, AND ANCHORED PRIOR TO BACKFILL PLACEMENT ON THE GEOGRID.

- D. GEOGRID REINFORCEMENTS SHALL BE CONTINUOUS THROUGHOUT THEIR EMBEDMENT LENGTHS AND PLACED SIDE-BY-SIDE TO PROVIDE 100% COVERAGE AT EACH LEVEL. SPICED CONNECTIONS BETWEEN SHORTER PIECES OF GEOGRID OR GAPS BETWEEN ADJACENT PIECES OF GEOGRID ARE NOT PERMITTED.

**3.05 REINFORCED BACKFILL PLACEMENT**

- A. REINFORCED BACKFILL SHALL BE PLACED, SPREAD, AND COMPACTION IN SUCH A MANNER THAT MINIMIZES THE DEVELOPMENT OF SLACK IN THE GEOGRID AND INSTALLATION DAMAGE.

- B. REINFORCED BACKFILL SHALL BE PLACED AND COMPACTION IN LIFTS NOT TO EXCEED 8 INCHES WHERE HAND COMPACTION IS USED, OR 8 - 10 INCHES WHERE HEAVY COMPACTION EQUIPMENT IS USED. LIFT THICKNESS SHALL BE DECREASED TO ACHIEVE THE REQUIRED DENSITY AS REQUIRED.

- C. REINFORCED BACKFILL SHALL BE COMPACTION TO 99% OF THE MAXIMUM DENSITY AS DETERMINED BY ASTM D698. THE MOISTURE CONTENT OF THE BACKFILL MATERIAL PRIOR TO AND DURING COMPACTION SHALL BE

- UNIFORMLY DISTRIBUTED THROUGHOUT EACH LAYER AND SHALL BE + 3% TO - 3% OF OPTIMUM.

- D. ONLY LIGHTWEIGHT HAND-OPERATED EQUIPMENT SHALL BE ALLOWED WITHIN 3 FEET FROM THE TAIL OF THE MODULAR CONCRETE UNIT.

- E. TRACKED CONSTRUCTION EQUIPMENT SHALL NOT BE OPERATED DIRECTLY UPON THE GEOGRID REINFORCEMENT. A MINIMUM FILL THICKNESS OF 6 INCHES IS REQUIRED PRIOR TO OPERATION OF TRACKED VEHICLES OVER THE GEOGRID. TRACKED VEHICLE TURNING SHOULD BE KEPT TO A MINIMUM TO PREVENT TRACKS FROM DISPLACING THE FILL AND DAMAGING THE GEOGRID.

- F. RUBBER TIERED EQUIPMENT MAY PASS OVER GEOGRID REINFORCEMENT AT SLOW SPEEDS, LESS THAN 10 MPH. SUDDEN BRAKING AND SHARP TURNING SHALL BE AVOIDED.

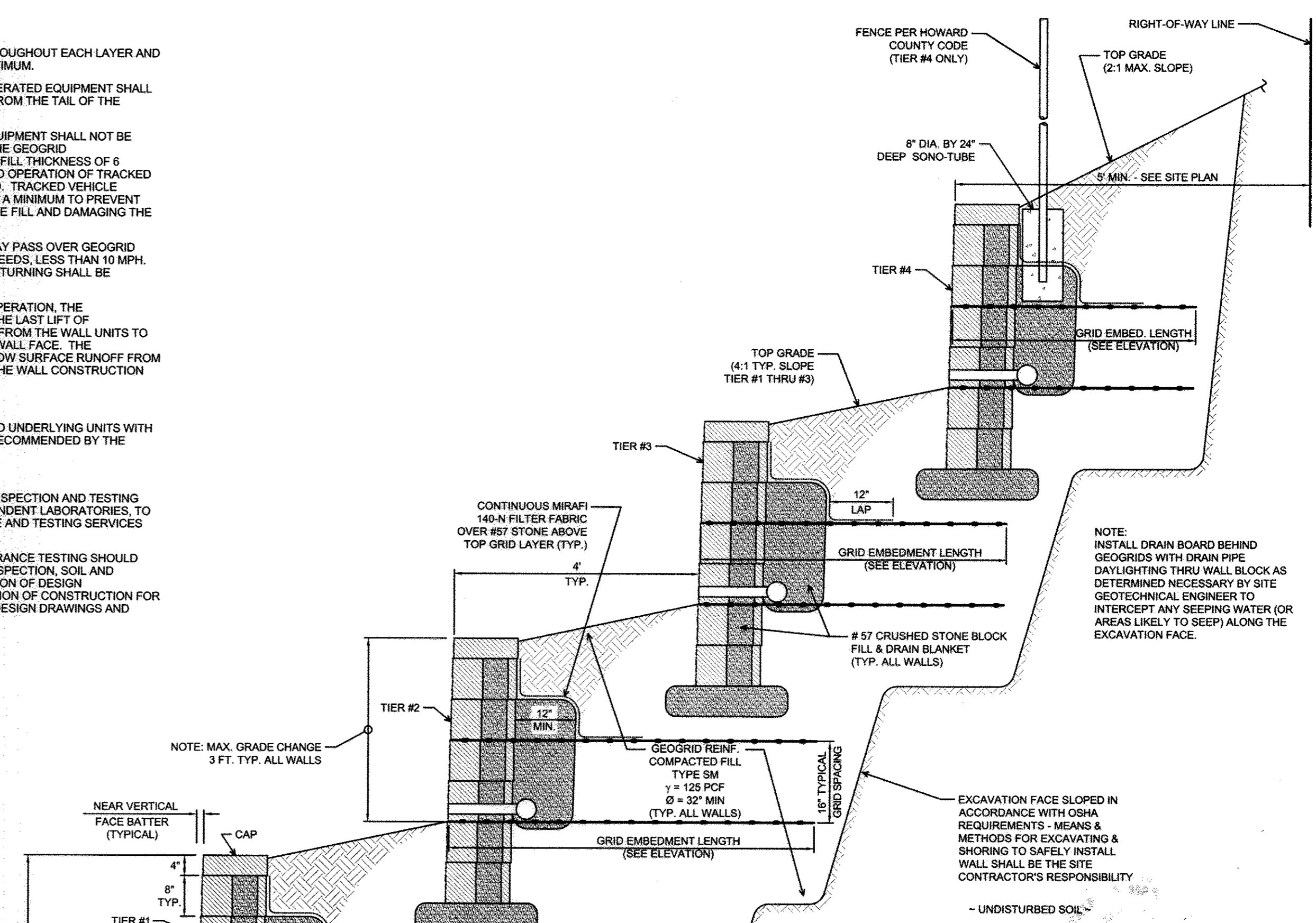
- G. AT THE END OF EACH DAY'S OPERATION, THE CONTRACTOR SHALL SLOPE THE LAST LIFT OF REINFORCED BACKFILL AWAY FROM THE WALL UNITS TO DIRECT RUNOFF AWAY FROM WALL FACE. THE CONTRACTOR SHALL NOT ALLOW SURFACE RUNOFF FROM ADJACENT AREAS TO ENTER THE WALL CONSTRUCTION SITE.

**3.06 CAP INSTALLATION**

- A. CAP UNITS SHALL BE GLUED TO UNDERLYING UNITS WITH AN ALL-WEATHER ADHESIVE RECOMMENDED BY THE MANUFACTURER.

**3.07 FIELD QUALITY CONTROL**

- A. THE OWNER SHALL ENGAGE INSPECTION AND TESTING SERVICES, INCLUDING INDEPENDENT LABORATORIES, TO PROVIDE QUALITY ASSURANCE AND TESTING SERVICES DURING CONSTRUCTION.
- B. AS A MINIMUM, QUALITY ASSURANCE TESTING SHOULD INCLUDE FOUNDATION SOIL INSPECTION, SOIL AND BACKFILL TESTING, VERIFICATION OF DESIGN PARAMETERS, AND OBSERVATION OF CONSTRUCTION FOR GENERAL COMPLIANCE WITH DESIGN DRAWINGS AND SPECIFICATIONS.

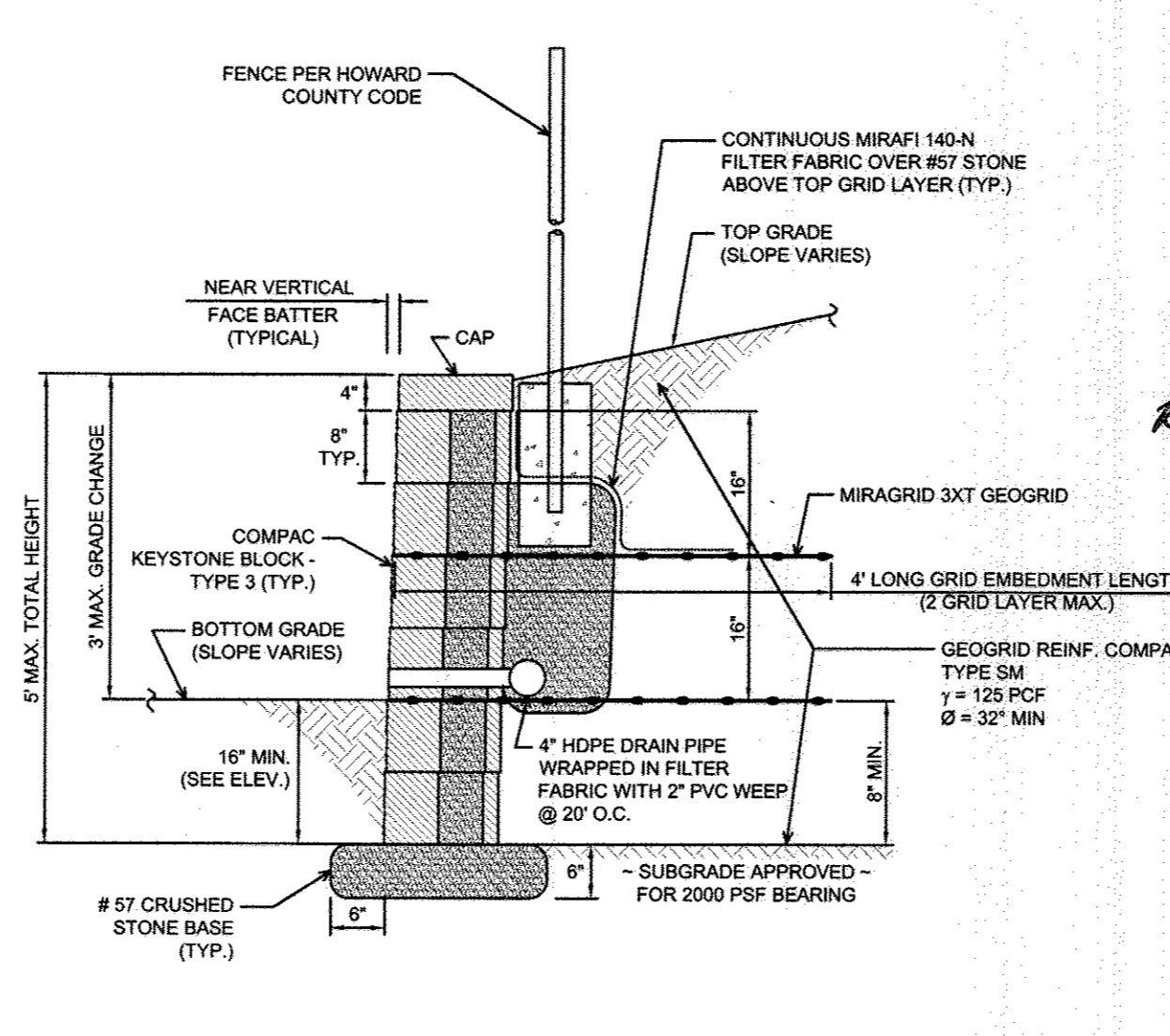


**TYPICAL WALL #7 SECTION**

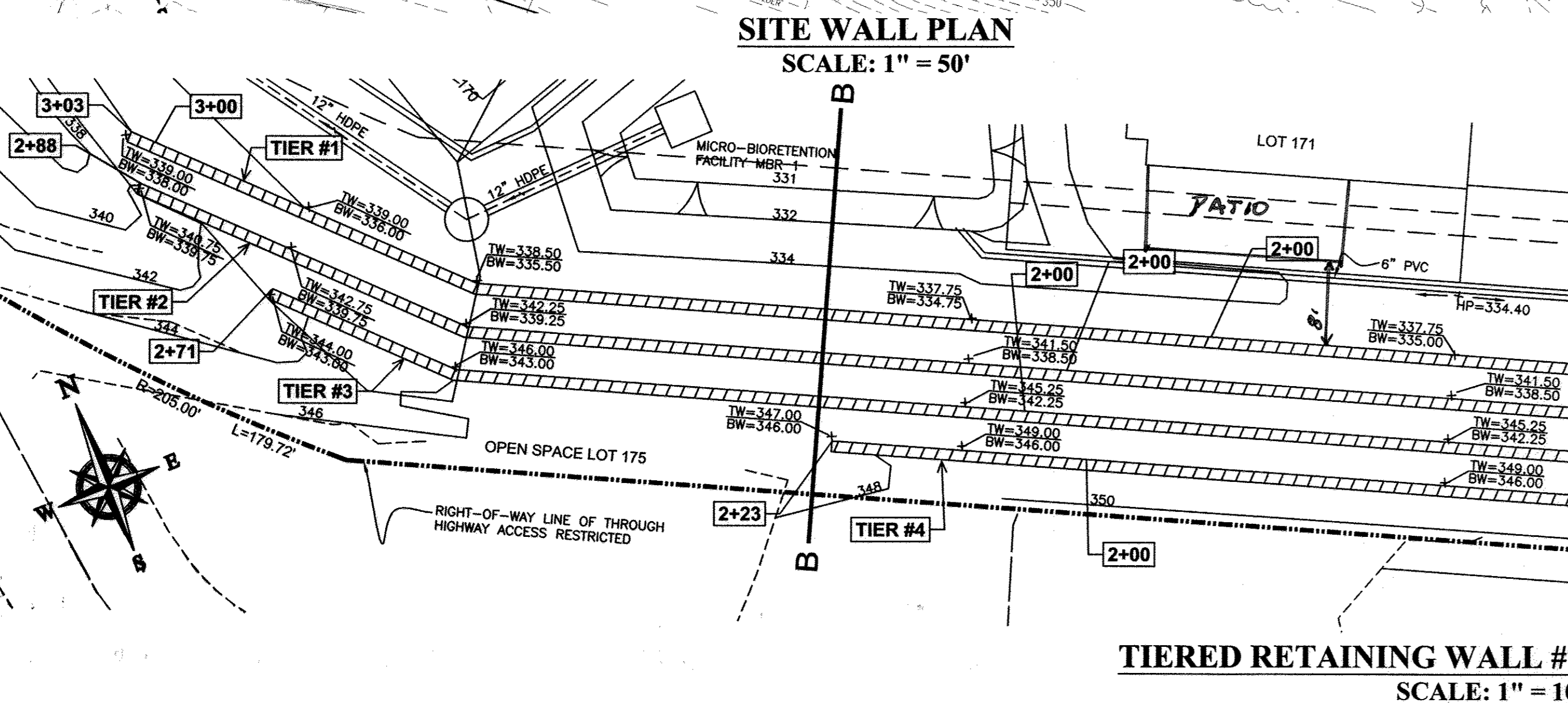
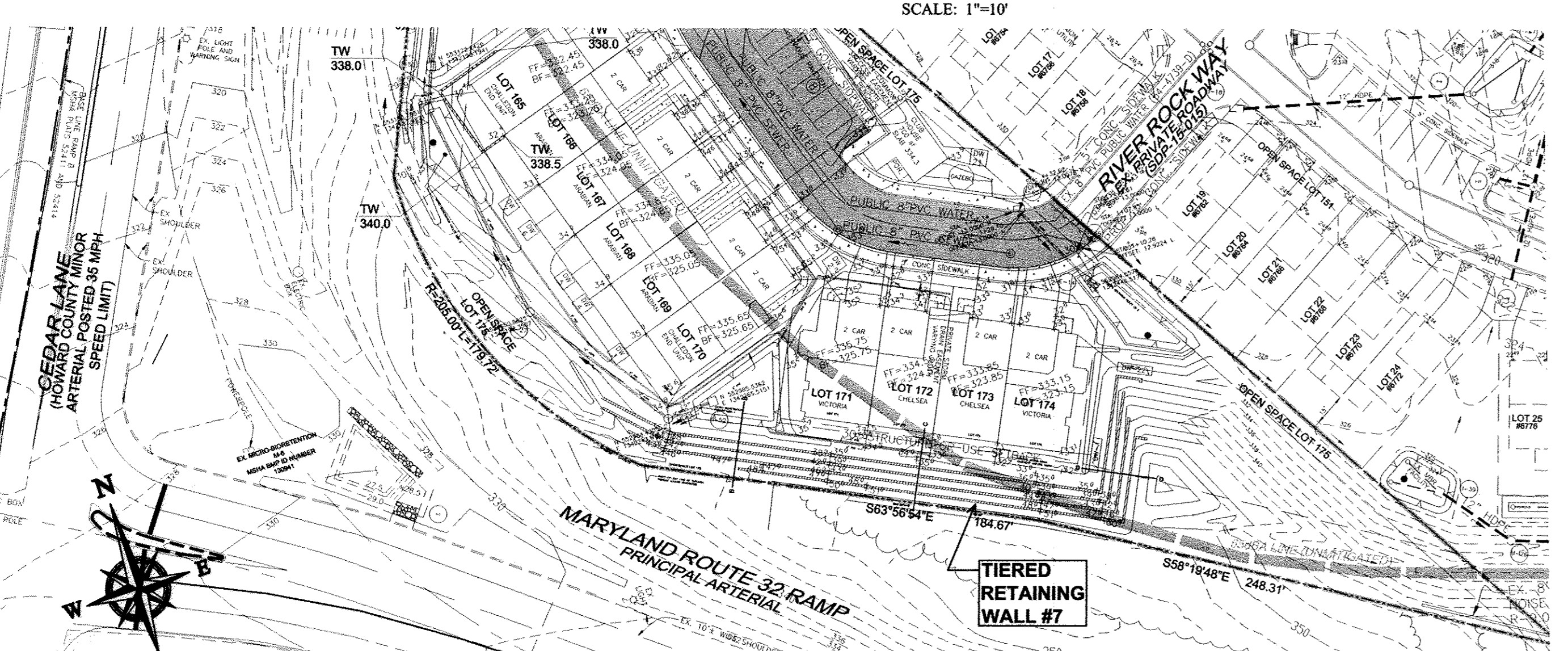
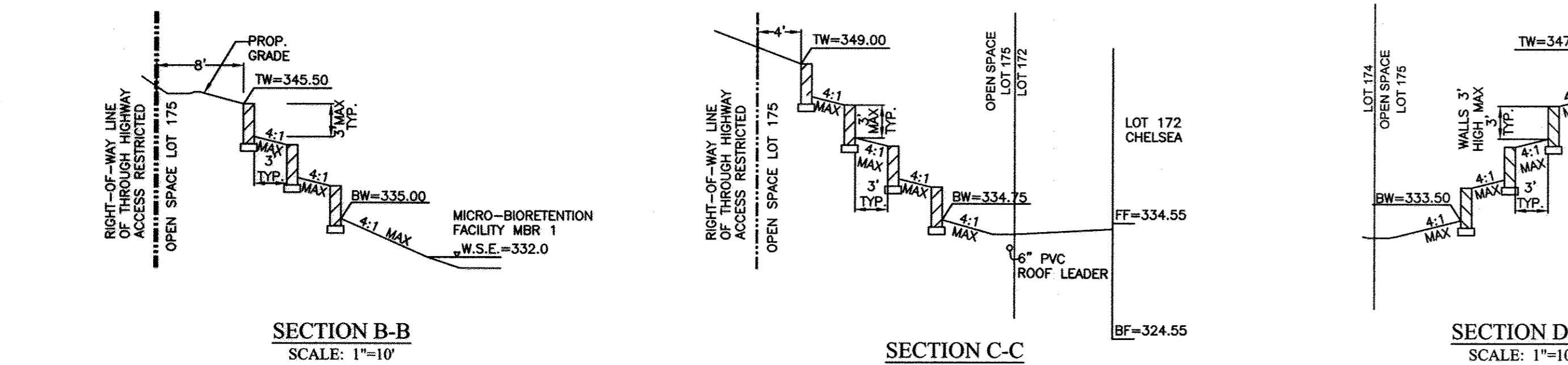
N.T.S.  
NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET

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. 21443 Expiration Date: 12-21-18

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
4-15-16  
CHIEF DEVELOPMENT ENGINEERING DIVISION  
5-16-16  
5-16-16  
DIRECTOR



**TYPICAL WALL SECTION - NON TIERED**  
N.T.S.



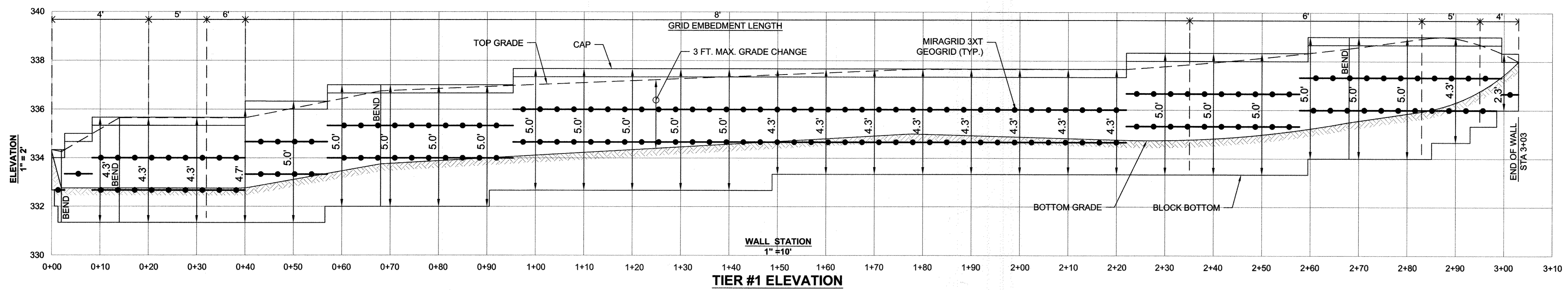
**TIERED RETAINING WALL #7 LOCATION PLAN**  
SCALE: 1" = 10'

**HILLIS-CARNES ENGINEERING ASSOCIATES**  
10975 Guilford Road, Suite A Annapolis Junction, Maryland (410) 880-4788 WWW.HCEA.COM Fax: (410) 880-4098

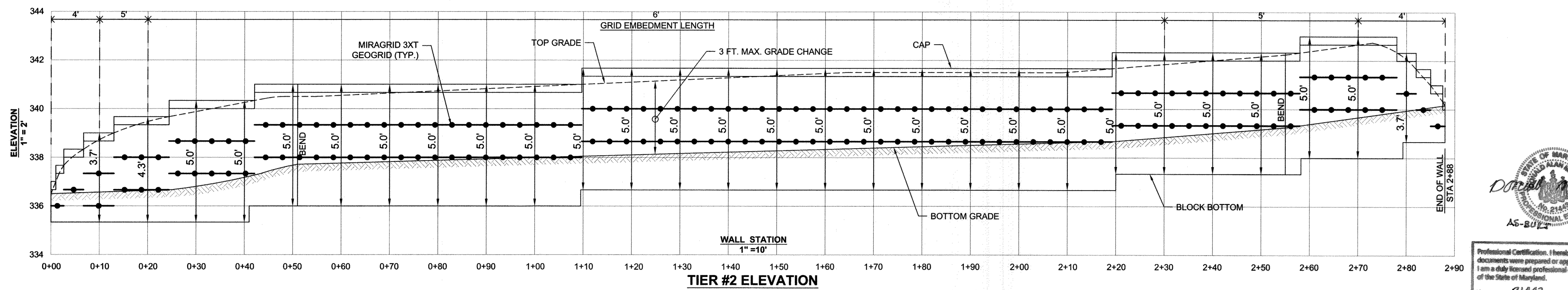
**SIMPSON MILL**  
PHASE 3 - LOTS 153 THRU 175 AND OPEN SPACE LOT 175 A RESUBDIVISION OF BUILDABLE BULK PARCEL "A" AS SHOWN ON PLATS 22093 THRU 22101  
TAX MAP: 35 GRID: 23 PARCELS: 116 ZONED: POR  
SIMPSON MILL DRIVE, COLUMBIA MD 21044 ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

TIERED RETAINING WALL #7 LOCATION PLAN & TYPICAL WALL CONSTRUCTION DETAILS  
DATE: MARCH, 2016 HCEA PROJECT NO: 11278-B  
DESIGN: RWS DRAWN: HM SCALE: AS SHOWN SHEET 16 OF 17

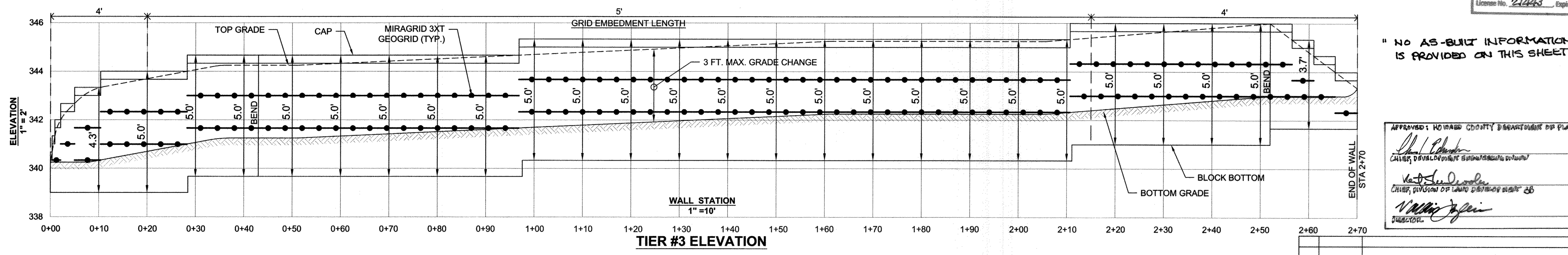




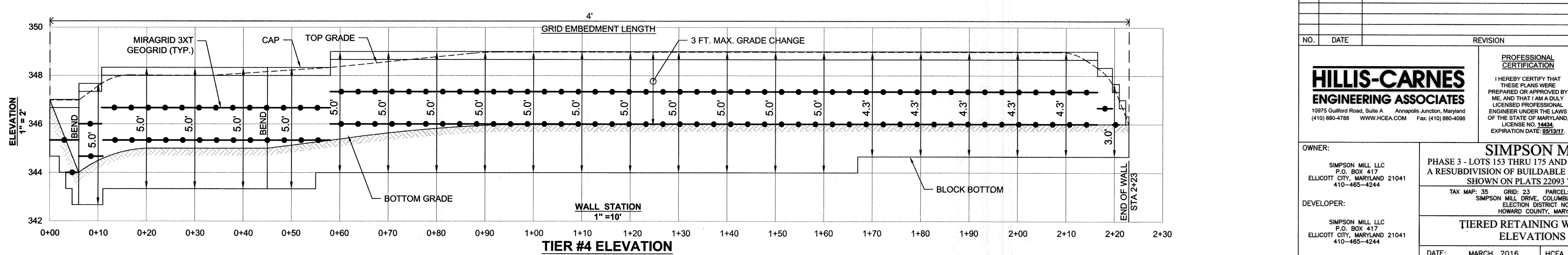
**TIER #1 ELEVATION**



**TIER #2 ELEVATION**



**TIER #3 ELEVATION**



**TIER #4 ELEVATION**



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. 21443, Expiration Date: 2-2-18

"NO AS-BUILT INFORMATION" IS PROVIDED ON THIS SHEET

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 Chief, Development & Subdivisions Division  
 DATE: 4-15-16  
 Chief, Division of Land & District Survey  
 DATE: 5-16-16  
 SUBJECT: SDP-15-057  
 DATE: 5-16-16

NO.	DATE	REVISION

<b>HILLIS-CARNES</b> <b>ENGINEERING ASSOCIATES</b> 10975 Gullford Road, Suite A Annapolis Junction, Maryland (410) 880-4788 WWW.HCEA.COM Fax: (410) 880-4098	I HEREBY CERTIFY THAT THESE PLANS 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. 14334, EXPIRATION DATE: 05/31/17.	
OWNER: SIMPSON MILL LLC P.O. BOX 417 ELLICOTT CITY, MARYLAND 21041 410-465-4244	<b>SIMPSON MILL</b> PHASE 3 - LOTS 153 THRU 175 AND OPEN SPACE LOT 175 A RESUBDIVISION OF BUILDABLE BULK PARCEL "A" AS SHOWN ON PLATS 22093 THRU 22101 TAX MAP: 35 GRID: 23 PARCEL: 116 ZONED: POR SIMPSON MILL DRIVE, COLUMBIA MD 21044 ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND	
DEVELOPER: SIMPSON MILL LLC P.O. BOX 417 ELLICOTT CITY, MARYLAND 21041 410-465-4244	<b>TIERED RETAINING WALL #7</b> <b>ELEVATIONS</b>	
DESIGN: RWS DRAWN: HM	DATE: MARCH, 2016 SCALE: AS SHOWN	HCEA PROJECT NO: 11278-B SHEET 17 OF 17