

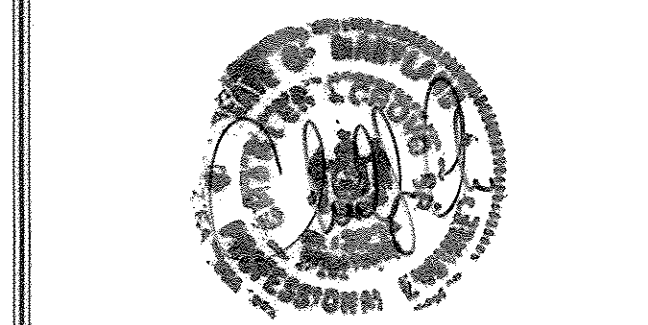
SHEET INDEX	
SHEET NO.	DESCRIPTION
1	TITLE SHEET
2-4	WELLFORD DRIVE PLAN & PROFILE
5	DEMO PLAN
6-7	GRADING AND SEDIMENT CONTROL PLAN
8-9	SEDIMENT AND EROSION CONTROL NOTES AND DETAILS
10-11	STREET TREE & LANDSCAPE PLAN
12	STREET TREE & LANDSCAPE NOTES & DETAILS
13-22	STORMWATER MANAGEMENT PLAN VIEWS & DETAILS
23-24	STORM DRAIN DRAINAGE AREA MAP & SOILS MAP
25	ROADWAY DETAILS
26-30	STORM DRAIN PROFILES
31	PRIVATE S.W.M. NOTES AND DETAILS & SEDIMENT CONTROL DETAILS
32	GENERAL PLAN AND CULVERT SECTION
33	BOX CULVERT SECTION (UNREINFORCED)
34	BOX CULVERT AND WINGWALL SECTION (REINFORCED)
35	BOX CULVERT AND WINGWALL DETAILS
36	HEADWALL PLAN AND ELEVATION
37	STANDARD DETAILS
38	BORING LOGS
39	GUARDRAIL DETAILS
40	RETAINING WALL CONSTRUCTION DETAILS

STREET LIGHT CHART			
STREET NAME	STATION	OFFSET	FIXTURE/POLE TYPE
WELLFORD DRIVE	0+31	28R	150-WATT H.P.S. PREMIER POST TOP MOUNTED ON A 14-FOOT BLACK FIBERGLASS POLE
	2+50	15R	
	5+12	15R	
	7+50	15L	
	11+30	15L	
WELLFORD DRIVE	13+80	22R	100-WATT H.P.S. PREMIER POST TOP MOUNTED ON A 14-FOOT BLACK FIBERGLASS POLE
	17+20	15L	
	19+48	15L	
	22+33	15L	
	24+85	15L	
	27+10	15L	
	29+85	15L	
	32+05	15R	

ROADWAY INFORMATION CHART			
ROAD NAME	CLASSIFICATION	DESIGN SPEED	R/W WIDTH
WELLFORD DRIVE	PUBLIC ACCESS STREET	30 M.P.H.	50'

TRAFFIC CONTROL SIGNS			
ROAD NAME	CENTERLINE STA.	POSTED SIGN	SIGN CODE
WELLFORD DRIVE	0+50 L	STOP	R1-1
WELLFORD DRIVE	2+00 R	SPEED LIMIT 25	R2-1
WELLFORD DRIVE	3+50 L	STOP AHEAD	R3-1
WELLFORD DRIVE	11+30 L	SPEED LIMIT 25	R2-1
WELLFORD DRIVE	33+98 R	STOP	R1-1

\* MOUNT TO STREET LIGHT POLE  
SEE SHEET 37 FOR "NO PARKING BETWEEN SIGNS" DETAIL AND CHART.



**AS-BUILT CERTIFICATION**  
I hereby certify, by my seal, that the facilities shown on this plan were constructed as shown on this "AS BUILT" plan in accordance with the approved plans and specifications.  
*Charles J. Orlov*, No. 12024, Date: 2/5/18

LEGEND	
SYMBOL	DESCRIPTION
---102---	EXISTING CONTOUR 2' INTERVAL
---100---	EXISTING CONTOUR 10' INTERVAL
---102---	PROPOSED CONTOUR 2' INTERVAL
---100---	PROPOSED CONTOUR 10' INTERVAL
-SF-SF-	SILT FENCE
---	DRAINAGE LIMITS
L.O.D.	LIMIT OF DISTURBANCE
---	EXISTING TREELINE
---	WETLANDS BUFFER
---	WETLANDS LIMITS
FP	FLOODPLAIN LIMITS
50' 421'	STORMWATER MANAGEMENT DEVICE
○	STORM DRAIN
○	STREET LIGHT (proposed)
○	STREET LIGHT (existing)
○	STREET TREE (proposed)
○	STREET TREE (existing)
○	PROPOSED MAILBOX BANK
○	BORING LOCATION
○	DRYWELL LOCATION
○	PROPOSED GABIONS

**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTENNIAL LAKE OVERLOOK PROJECT  
14101 461 - 2895

# FINAL ROAD CONSTRUCTION, GRADING AND STORMWATER MANAGEMENT PLANS

## CENTENNIAL LAKE OVERLOOK

(FORMERLY MASON PROPERTY)

### SECTION TWO

**BUILDABLE LOTS 29 - 98 AND OPEN SPACE LOTS 99 THRU 112**

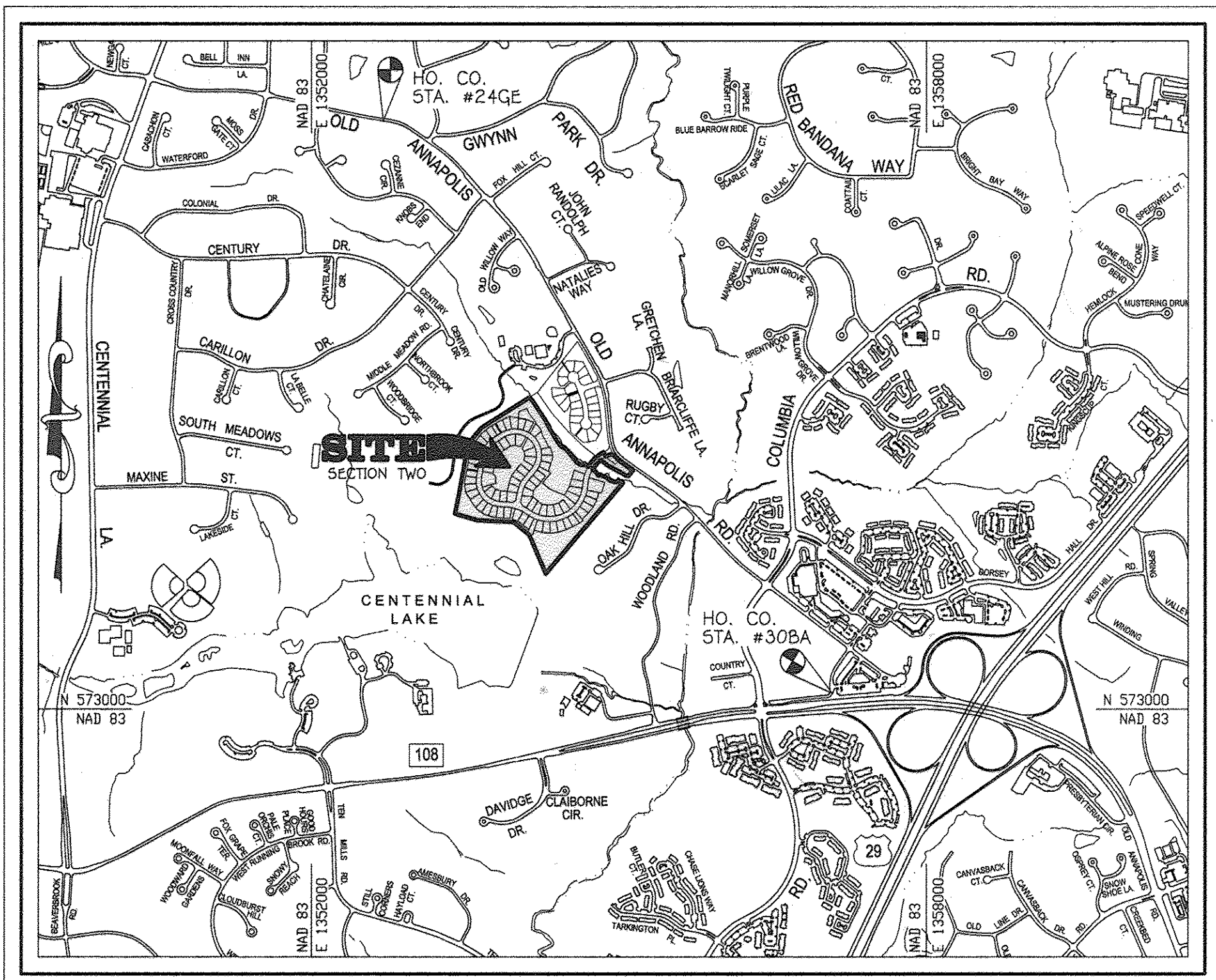
A RESUBDIVISION OF BUILDABLE BULK PARCELS 'A' & 'B'

**ZONING: R-20**

**TAX MAP No. 30, GRID No. 2  
PARCEL No. 86**

**GENERAL NOTES CONTINUED**  
30. ALTERNATIVE COMPLIANCE WP-17-099 CENTENNIAL LAKE OVERLOOK, SECT. 2 (APP. 15-006) WAS APPROVED BY LETTER DATED DECEMBER 1, 2016, WHICH WAS SUBJECT TO THE FOLLOWING THREE (3) CONDITIONS:  
1) THE REMOVAL OF THE TWO (2) SPECIMEN TREES WILL REQUIRE MITIGATION WITH THE PLANTING OF 21 REPLACEMENT TREES (1) TOTAL WITH A MINIMUM OF CALIBER THIRTY NINE (39) FEET OF THE ON-SITE RECONSTRUCTION OR LANDSCAPING AFFIRED UNDER THE FINAL P-14-081. A REQUIRING REMOVAL TO P-14-081 ROAD CONSTRUCTION DRAWINGS IS REQUIRED TO SHOW AND LABEL THE (A) NEW MITIGATION TREES.  
2) THE REMAINING ON-SITE SPECIMEN TREES SHALL BE SAVED AND PROTECTED DURING ANY AND ALL CONSTRUCTION ACTIVITY. ANY ADDITIONAL REMOVAL OF SPECIMEN TREES SHALL REQUIRE THE SUBMITTAL OF A NEW ALTERNATIVE COMPLIANCE PERICAL ATTACHMENT.  
3) PROVIDE A NOTE ON THE APPROVED ROAD CONSTRUCTION DRAWINGS AND THE SITE DEVELOPMENT PLAN REPERING THE ALTERNATIVE COMPLIANCE PERICAL ATTACHMENT. THIS NOTE SHALL INCLUDE THESE SUBMITTAL REVISION PERICAL ATTACHMENT, THE DATE OF THE ALTERNATIVE COMPLIANCE APPROVAL AND THE CONDITIONS OF APPROVAL. THIS NOTE MAY BE ADDED THROUGH A PLAN REVISION REQUIRE.

STORMWATER MANAGEMENT PRACTICES		
LOT No.	ADDRESS	DRY WELLS N-5 (NUMBER)
30	8619 WELLFORD DRIVE	2
31	8623 WELLFORD DRIVE	2
32	8627 WELLFORD DRIVE	2
36	8645 WELLFORD DRIVE	1
37	8649 WELLFORD DRIVE	2
38	8653 WELLFORD DRIVE	2
39	8659 WELLFORD DRIVE	2
40	8663 WELLFORD DRIVE	2
41	8667 WELLFORD DRIVE	2
42	8673 WELLFORD DRIVE	2
43	8677 WELLFORD DRIVE	2
44	8681 WELLFORD DRIVE	2
45	8685 WELLFORD DRIVE	2
46	8689 WELLFORD DRIVE	2
62	8765 WELLFORD DRIVE	2
63	8775 WELLFORD DRIVE	2
64	8779 WELLFORD DRIVE	2
65	8783 WELLFORD DRIVE	2
77	8618 WELLFORD DRIVE	2
78	8614 WELLFORD DRIVE	2
79	8610 WELLFORD DRIVE	1



**VICINITY MAP**  
SCALE: 1" = 1200'  
REFER TO HOWARD CO. ADC MAP 4935, D-1

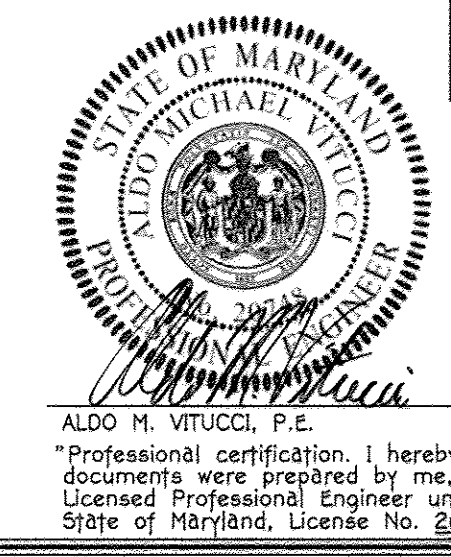
## SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

**GENERAL NOTES CONTINUED:**  
32. THIS PLAN IS SUBJECT TO WAIVER PETITION WP-13-096 TO ALLOW FOR THE REMOVAL OF 19 SPECIMEN TREES (NO. 1, 9, 10, 12-16, 19-20, 23, 24, 37 & 39) WITHIN THE PROJECT BOUNDARY AND FOR WAIVER TO THE FINAL PLAT TO ALLOW AN ADJOINER DEED TRANSFER BETWEEN PARCELS. THE WAIVER WAS APPROVED ON JANUARY 14, 2013 WITH THE FOLLOWING CONDITIONS:  
1. APPROVAL IS GIVEN FOR A READJUSTMENT OF THE PARCEL LOT LINE BETWEEN THE FIRST AND SECOND PARCELS OF LAND AS DESCRIBED IN DEEDS IDENTIFIED UNDER LIBER 0729.  
2. APPROVAL IS GIVEN FOR REMOVAL OF 15 SPECIMEN TREES AS SHOWN AND IDENTIFIED ON THE REVISED WAIVER PETITION EXHIBIT DATED JANUARY 9, 2013. PROPOSED PERIMETER LANDSCAPING, ON-SITE FOREST CONSERVATION RETENTION AND PLANTING EASEMENT AREAS, STREET TREE PLANTING AND RETENTION OF OVER HALF THE REMAINING SPECIMEN TREES WILL SERVE TO MITIGATE SPECIMEN TREE REMOVAL.  
33. THE HOMEOWNER'S ARTICLES OF INCORPORATION DOCUMENTS HAVE BEEN RECORDED WITH THE STATE DEPARTMENT OF ASSESSMENTS AND TAXATION.  
34. THE HOMEOWNER'S COVENANTS AND RESTRICTIONS ARE RECORDED SIMULTANEOUSLY WITH THE FINAL PLAT FOR F-14-081 IN THE LAND RECORDS OF HOWARD COUNTY, MD.  
35. PERIMETER LANDSCAPING AND SWM SCREENING SHALL BE PROVIDED IN ACCORDANCE WITH SECTION 16.124 OF THE LANDSCAPE MANUAL. SURETY IN THE AMOUNT OF \$16,650.00 FOR 52 SHADE TREES AND 7 EVERGREEN TREES SHALL BE PROVIDED WITH THE DEVELOPER'S AGREEMENT FOR THIS FINAL PLAN, F-14-081.

**METES AND BOUNDS**  
SCALE: 1" = 300'

**OWNER/DEVELOPER**  
BEAZER HOMES CORP  
6965 GUILFORD ROAD  
COLUMBIA, MARYLAND 21046  
(410-720-5071)

NO.	ADD GENERAL NOTE TO	REVISION	DATE
1	ADD GENERAL NOTE 98		4/9/17



**AS-BUILT**  
I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-17.  
ALDO H. VITUCCI, P.E. DATE: 4/15/18

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*M. Williams*, 4/30/2015  
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Kevin Shallock*, 5-7-15  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*W. J. ...*, 5-5-15  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

NO.	REVISION	DATE
1	REVISE LOTS, REMOVE PARCEL 'C', ADD LOTS AND REVISE ADDRESSES	4/3/15
2	REMOVE SHEET INDEX TO ADD SHEET 40	10/21/16

**GENERAL NOTES**

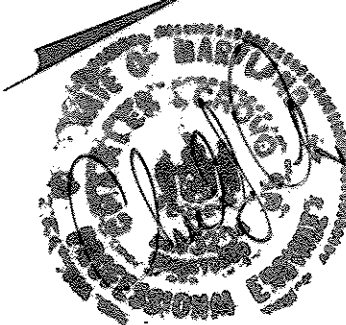
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE. THIS PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS OTHERWISE HAD BEEN APPROVED.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS / BUREAU OF ENGINEERING / CONSTRUCTION INSPECTION DIVISION AT 410-313-1800 AT LEAST 15 WORKING DAYS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- TRAFFIC CONTROL DEVICES:  
a. THE 24-1 (STOP) SIGN AND THE STREET SIGN (SANS) ASSEMBLY FOR THIS DEVELOPMENT MUST BE INSTALLED BEFORE THE BASE PAVING IS COMPLETED.  
b. THE TRAFFIC CONTROL DEVICE LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND MUST BE FIELD APPROVED BY HOWARD COUNTY TRAFFIC DIVISION (410-313-2430) PRIOR TO THE INSTALLATION OF ANY OF THE TRAFFIC CONTROL DEVICES.  
c. ALL TRAFFIC CONTROL DEVICES AND THEIR LOCATIONS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUMTUCD).  
d. ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED "QUICK PUNCH", SQUARE TUBE POST (1 1/2" GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED SQUARE TUBE (12" GAUGE) - 3" LONG. THE ANCHOR SHALL NOT EXTEND MORE THAN TWO "QUICK PUNCH" HOLES ABOVE LEVEL. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
- THIS SUBDIVISION PLAN IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND THE 10-06-13 ZONING REGULATIONS PER COUNCIL BILL NO. 32-2013. DEVELOPMENT OR CONSTRUCTION ON THESE LOTS OR PARCELS MUST COMPLY WITH SETBACKS AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF A BUILDING OR GRADING PERMIT APPLICATION.
- COORDINATES BASED ON NAVD83 MARYLAND COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 24GE AND NO. 30BA.  
Station No. 24GE N 578,708.5244 E 1,502,699.6880 Elev. = 445.695'  
Station No. 30BA N 573,149.0939 E 1,507,083.1729 Elev. = 397.140'
- SUBJECT PROPERTY ZONED R-20. USING THE R-ED REGULATIONS, THIS PROPERTY IS SUBJECT TO COUNCIL BILL NO. 2, "SECTION 12B.1.I OF THE ZONING REGULATIONS (CB-2-2012) WHICH ALLOWS SUNROOMS AND ROOM EXTENSIONS NOT MORE THAN 10 FEET INTO THE REAR SETBACK ALONG NOT MORE THAN 60% OF THE REAR FACE OF THE DWELLING ON A LOT WHICH ADJOINS OPEN SPACE ALONG A MAJORITY OF THE REAR LOT LINE FOR R-ED LOTS RECORDED AFTER THE EFFECTIVE DATE OF 5/13/12."
- BACKGROUND INFORMATION:  
a. SUBDIVISION NAME: CENTENNIAL LAKE OVERLOOK (FORMERLY MASON PROPERTY)  
b. TAX MAP NO.: 30  
c. PARCEL NO.: 86  
d. ZONING: R-20  
e. ELECTION DISTRICT: SECOND  
f. GROSS AREA OF TRACT = 46.487 ACRES  
g. NUMBER OF BUILDABLE LOTS: 70 (Section Two)  
h. NET DENSITY = 42.981 X 2 UNITS/ACRE = 85.962 UNITS/ACRE  
i. NUMBER OF OPEN SPACE LOTS: 14  
j. NUMBER OF NON-BUILDABLE BULK PARCELS: 0  
k. AREA OF BUILDABLE LOTS: 12,109 ACRES  
l. AREA OF OPEN SPACE LOTS: 16,245 ACRES  
m. AREA OF NON-BUILDABLE BULK PARCELS: 0.000 ACRES  
n. AREA OF PUBLIC ROADWAY TO BE DEDICATED: 3.805 ACRES  
o. AREA OF FLOODPLAIN = 3,046 ACRES  
p. AREA OF 25% OR GREATER SLOPES = 0.460 ACRES (outside floodplain)  
q. NET AREA OF TRACT = 42.981 ACRES  
r. PREVIOUS FILE NUMBERS: ECP-12-053, WP-13-096 (see note no. 32), SP-13-004, PB-399, F-14-002  
9. OPEN SPACE TABULATION:  
a. SEE CHART THIS SHEET  
b. RECREATIONAL OPEN SPACE REQUIRED FOR PROJECT TOTAL = (300 SQ.FT. PER UNIT) = 27,900 SQ.FT.  
c. PROVIDED RECREATIONAL OPEN SPACE (LOT 104) = 29,526 SQ.FT.  
10. THERE ARE AREAS OF STEEP SLOPES LOCATED ON THIS PROPERTY AS DEFINED BY THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, SECTION 16.116.b. (0.46 AC. outside of floodplain).  
11. NO NOISE STUDY IS REQUIRED FOR THIS PROJECT.  
12. EXISTING WATER IS PUBLIC (CONTRACT NO. 801 WAS & 24-4764-D)  
EXISTING SEWER IS PUBLIC (CONTRACT NO. 801 WAS, 521-5-1A & 24-4764-D)  
13. SOILS INFORMATION TAKEN FROM HOWARD COUNTY SOIL SURVEY ISSUED JULY 1968, MAP NO. 19.  
14. EXISTING PAVING AND/OR STRUCTURES LOCATED ON SITE ARE TO BE RAZED AS SHOWN ON PLAN (SHEET 5). THE EXISTING DWELLING ON PROPOSED LOT 84 IS TO REMAIN.  
15. BOUNDARY OUTLINE BASED ON FIELD SURVEY PERFORMED BY FISHER COLLINS AND CARTER, INC. DATED JANUARY, 2012.  
16. TOPOGRAPHIC CONTOURS BASED ON AERIAL SURVEY PERFORMED BY HARFORD AERIAL SURVEYS, INC. DATED DECEMBER, 2011 AND SUPPLEMENTED WITH FIELD SURVEY TOPOGRAPHY PREPARED BY FISHER, COLLINS AND CARTER, INC. DATED MARCH, 2012.  
17. ALL FILL AREAS WITHIN ROADWAYS AND UNDER STRUCTURES SHALL BE COMPACTED TO A MINIMUM OF 95% COMPACTION OF AASHTO T-180.  
18. STORMWATER MANAGEMENT WILL BE PROVIDED IN ACCORDANCE WITH THE 2010 MDE, CHAPTER 5 REGULATIONS AND THE LATEST HOWARD COUNTY DESIGN MANUAL, VOL. 1, CHAPTER 5 ADOPTED ON OR AROUND MAY 4, 2010. GROUNDWATER RECHARGE VOLUME WILL BE PROVIDED THROUGH THE USE OF STONE RESERVOIRS LOCATED BENEATH THE VARIOUS ESS FACILITIES. THE REQUIRED ESS VOLUMES WILL BE PROVIDED BY BIO-RETENTION (F-6), MICRO BIO-RETENTION (M-6), DRYWELLS (M-5) AND INFILTRATION BEAMS (M-4). OVERBANK FLOOD PROTECTION VOLUME AND EXTREME FLOOD VOLUMES ARE NOT REQUIRED FOR THIS SITE.  
THE STORMWATER MANAGEMENT FACILITIES (M-6 & F-6) WILL BE PRIVATELY OWNED BY H.O.A. AND JOINTLY MAINTAINED BY H.O.A. AND HOWARD COUNTY. HOWARD COUNTY'S MAINTENANCE RESPONSIBILITY ONLY PERTAINS TO THE INLET STRUCTURES AND STORM DRAIN PIPE FOR THE BIO-RETENTION FACILITIES (M-6 & F-6) ADJACENT TO ROADWAY. ALL LANDSCAPING, UNDERDRAINS, CLEAN-OUTS AND FILTER MEDIA IS THE RESPONSIBILITY OF THE HOMEOWNER'S ASSOCIATION. THE H.O.A. OR PRIVATE HOMEOWNER IS RESPONSIBLE FOR ALL OTHER FACILITIES (F-1), (M-5) AND (M-4).  
19. SEVERAL SPECIMEN TREES ARE LOCATED ON-SITE AND HAVE BEEN SHOWN ON THESE PLANS.  
20. FLOODPLAIN STUDY SHOWN HEREON WAS PREPARED BY FISHER, COLLINS & CARTER, INC. DATED MARCH, 2012 AND WAS APPROVED ON March 14, 2013.  
21. TRAFFIC STUDY WAS PREPARED BY THE TRAFFIC GROUP, INC. DATED JANUARY, 2012 AND WAS APPROVED MARCH 14, 2013.  
22. THE FOREST STAND DELINEATION AND WETLAND DELINEATION FOR THIS PROJECT WAS PREPARED BY MCCARTHY & ASSOCIATES, INC. DATED MARCH, 2012.  
23. THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT.  
24. NO KNOWN CEMETERIES EXIST WITHIN THIS SUBDIVISION. ONE HISTORIC STRUCTURE EXISTS ON-SITE, HO 401, SQUIRREL HILL, WHICH WILL REMAIN ON PROPOSED LOT 84. THIS PLAN CAME TO THE HISTORIC DISTRICT COMMISSION ON JUNE 7, 2012 FOR ADVISORY COMMENTS.  
25. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE WETLANDS, STREAMS OR THEIR REQUIRED BUFFERS, UNLESS THE ACTIVITIES ARE CONSIDERED NECESSARY OR WAIVERS ARE APPROVED BY THE DEPARTMENT OF PLANNING AND ZONING. ROAD CONSTRUCTION SHALL BE CONSIDERED ESSENTIAL INSTALLATION OF SEWER AND/OR STORM DRAINS IN THE FLOODPLAIN, STREAM BUFFER AND/OR WETLAND BUFFER SHALL BE CONSIDERED ESSENTIAL DISTURBANCE BY DPZ IN ACCORDANCE WITH SECTION 16.116(c) OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.  
26. THE GEOTECHNICAL REPORT FOR THIS PROJECT WAS PREPARED BY HILLIS-CARNES ENGINEERING ASSOCIATES, INC. DATED AUGUST, 2012 AND WAS APPROVED ON March 14, 2013.  
27. STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURES AND POLES SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL VOLUME III (2006), SECTION 5.5.A. A MINIMUM OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.  
28. TRASH AND RECYCLING COLLECTION WILL BE PROVIDED ALONG THE COUNTY ROADWAY WITHIN 5' OF THE ROAD.  
29. THE FOREST CONSERVATION REQUIREMENTS PER SECTION 16.120 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL FOR THIS SUBDIVISION HAS BEEN FULFILLED BY PROVIDING 3.81 ACRES OF ON-SITE FOREST RETENTION AND 5.28 ACRES OF ON-SITE REFORESTATION FOR A TOTAL OF 9.09 ACRES. THERE IS NO SURETY REQUIRED FOR ON-SITE FOREST RETENTION. SURETY FOR ON-SITE REFORESTATION @ \$0.50/SQ. FT. FOR 229,997 SQ. FT. = \$114,998.50 WAS POSTER UNDER F-14-002.  
30. DURING THE INSTALLATION PROCESS OF PUBLIC WATER AND SEWER, THE WELL AND SEPTIC AT 9725 ANNAPOLIS ROAD AND AT 9725-A ANNAPOLIS ROAD, ELLICOTT CITY, MARYLAND 21042 WILL BE PROPERLY ABANDONED/SEALED IN CENTENNIAL LAKE OVERLOOK. UNDER THIS SECTION TWO, CONTRACT NO. 24-4764-D AND THE HOWARD COUNTY HEALTH DEPARTMENT WILL BE NOTIFIED. DOCUMENTATION OF PROPER ABANDONMENT OF THE WELL BY A LICENSED WELL DRILLER AND PROPER ABANDONMENT OF THE SEPTIC SYSTEM WILL BE FORWARDED TO THE HOWARD COUNTY HEALTH DEPARTMENT.  
31. HISTORIC STRUCTURE EXISTS ON LOT 84. THE HISTORIC DISTRICT COMMISSION MET ON JUNE 7, 2012 FOR ADVISORY COMMENTS ON CASE NO. HO401, SQUIRREL HILL AND RECOMMENDED RETAINING THE EXISTING HOUSE. NO NEW BUILDING EXTENSIONS TO THE HOUSES ON LOT 84 ARE TO BE CONSTRUCTED AT A DISTANCE LESS THAN THE ZONING REGULATIONS ALLOW.

Description	Open Space Tabulation		
	Total Site	Section One	Section Two
Open Space Required (0.50 X 46,087 Ac.)	23,244 Ac. (0.50 X 46,487 Ac.)	18,080 Ac. (0.50 X 36,159 Ac.)	18,080 Ac. (0.50 X 36,159 Ac.)
Total Area of Open Space Provided:	23,287 Ac. (Lots 24 + 25 + 26 + 27 + 28) (10,899 Ac. + 2,454 Ac. + 8,089 Ac.)	7,282 Ac. + 16,245 Ac. (Lots 24 + 25 + 26 + 27 + 28) (10,899 Ac. + 2,454 Ac. + 3,131 Ac.)	16,245 Ac. + 16,245 Ac. (Lots 99 Thru 112)
Total Area of Non-Credited Open Space Provided:	0.276 Ac. (Lots 24 + 25 + 26 + 27 + 28) (10,899 Ac. + 2,454 Ac. + 3,131 Ac. + 0.004 Ac.)	0.097 Ac. + 0.194 Ac. (Lots 24 + 25 + 26 + 27 + 28) (10,899 Ac. + 2,454 Ac. + 3,131 Ac. + 0.004 Ac.)	0.194 Ac. (Lots 99 + 100 + 104 + 108) (3,194 Sq. Ft. + 2,190 Sq. Ft. + 2,368 Sq. Ft. + 692 Sq. Ft.)
Total Area of Credited Open Space Provided:	23,276 Ac. (Lots 24 + 25 + 26 + 27 + 28) (10,899 Ac. + 2,454 Ac. + 8,089 Ac.)	7,282 Ac. + 16,245 Ac. (Lots 24 + 25 + 26 + 27 + 28) (10,899 Ac. + 2,454 Ac. + 3,131 Ac.)	16,245 Ac. (Lots 99 Thru 112)

**REVISED CENTENNIAL LAKE OVERLOOK**  
(FORMERLY MASON PROPERTY)  
**SECTION TWO**  
**BUILDABLE LOTS 29 - 98 AND OPEN SPACE LOTS 99 THRU 112**  
A RESUBDIVISION OF BUILDABLE BULK PARCELS 'A' & 'B' ZONING: R-20  
TAX MAP No. 30 GRID No. 2 PARCEL No. 86  
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: APRIL 3, 2015  
SHEET 1 OF 40

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Dedicated To Howard County  
Department of  
Recreation And Parks  
P/O OPEN SPACE  
LOT 99

AS-BUILT CERTIFICATION (Total Area = 10.180 Ac.)

I hereby certify, by my seal, that the facilities shown on this plan were constructed as shown on this "AS BUILT" plan meet the approved plans and specifications.

*Charles J. O'Day, P.E.*  
Date: 2/15/18  
CHIEF, CIVIL DIVISION, NO. 13204

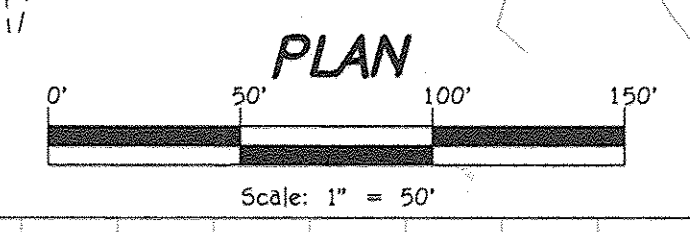
EXISTING FOREST CONSERVATION EASEMENT No. 6  
1.57 AC.  
(SECTION ONE)

2	REVERSE CURVING AND REBAR WALL & REVERSE SHEET NUMBER TO REFLECT AS-BUILT	10/2/16
1	REVISE LOT LINES	4/3/15
REVISIONS		
NO.	DESCRIPTION	DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING		
<i>W. St. ...</i>	CHIEF, DIVISION OF LAND DEVELOPMENT	5-7-15
<i>Ch. ...</i>	CHIEF, DEVELOPMENT ENGINEERING DIVISION	5-5-15
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS		
<i>M. ...</i>	CHIEF, BUREAU OF HIGHWAYS	4/6/2015

STEVE F. MCKAY  
MARY E. MCKAY  
LIBER 1840, FOLIO 687  
TAX MAP 30, PART OF PARCEL 368  
LOT 17  
OAK HILL ESTATES, LOTS 17 AND 18, A  
RESUBDIVISION OF LOTS 9 AND 10  
PLAT NO. 7419

STORM WATER MGMT AND  
UTILITY EJECT  
PART OF LOT 3  
PLAT NO. 9401

TAX MAP 30, PARCEL 368  
FELICIA F. BENNETT  
ROBERT L. BENNETT  
LIBER 11065, FOLIO 683  
LOT 15, PLAT NO. 4278  
ZONED: R-20



CURVE #	ROAD NAME	STATION	RADIUS	LENGTH	DELTA	TANGENT	CHORD
C1	WELLFORD DRIVE	STA 1+09.60 TO STA 4+74.01	350.00'	364.41'	016°22'13"	348.17'	532' 29" 14.62' W
C2	WELLFORD DRIVE	STA 4+74.01 TO STA 12+34.04	350.00'	760.04'	016°22'13"	619.26'	564' 52" 12.29' W
C3	WELLFORD DRIVE	STA 12+34.04 TO STA 14+43.08	350.00'	209.03'	016°22'13"	205.94'	N70° 01' 47.43" W
C4	WELLFORD DRIVE	STA 15+14.76 TO STA 18+96.89	225.00'	382.13'	025°27'53"	337.83'	N38° 29' 07.40" W
C5	WELLFORD DRIVE	STA 20+82.08 TO STA 22+88.46	250.00'	206.38'	022°55'06"	200.57'	N33° 49' 04.85" E
C6	WELLFORD DRIVE	STA 23+92.77 TO STA 30+44.14	230.00'	651.37'	024°54'40"	454.50'	S41° 24' 00.07" E
C7	WELLFORD DRIVE	STA 31+77.34 TO STA 32+81.49	210.00'	104.15'	027°17'01"	103.08'	S25° 31' 29.87" W

--- DENOTES NO PARKING ZONE

- NOTES:
- SEE SHEETS 13-22 FOR THE DETAILED 10 SCALE PLAN VIEWS FOR THE ESD FACILITIES.
  - SEE SHEET 37 FOR GUARDRAIL DETAILS AND "NO PARKING BETWEEN SIGNS" SIGN DETAIL.

### REVISED CENTENNIAL LAKE OVERLOOK SECTION TWO

(FORMERLY MASON PROPERTY)  
BULDABLE LOTS 29 - 30 AND  
OPEN SPACE LOTS 99 THRU 112  
A RESUBDIVISION OF BULDABLE BULK PARCELS 'A' & 'B'  
ZONING: R-20  
TAX MAP No. 30 GRID No. 2 PARCEL No. 86  
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

### WELLFORD DRIVE

PLAN AND PROFILE

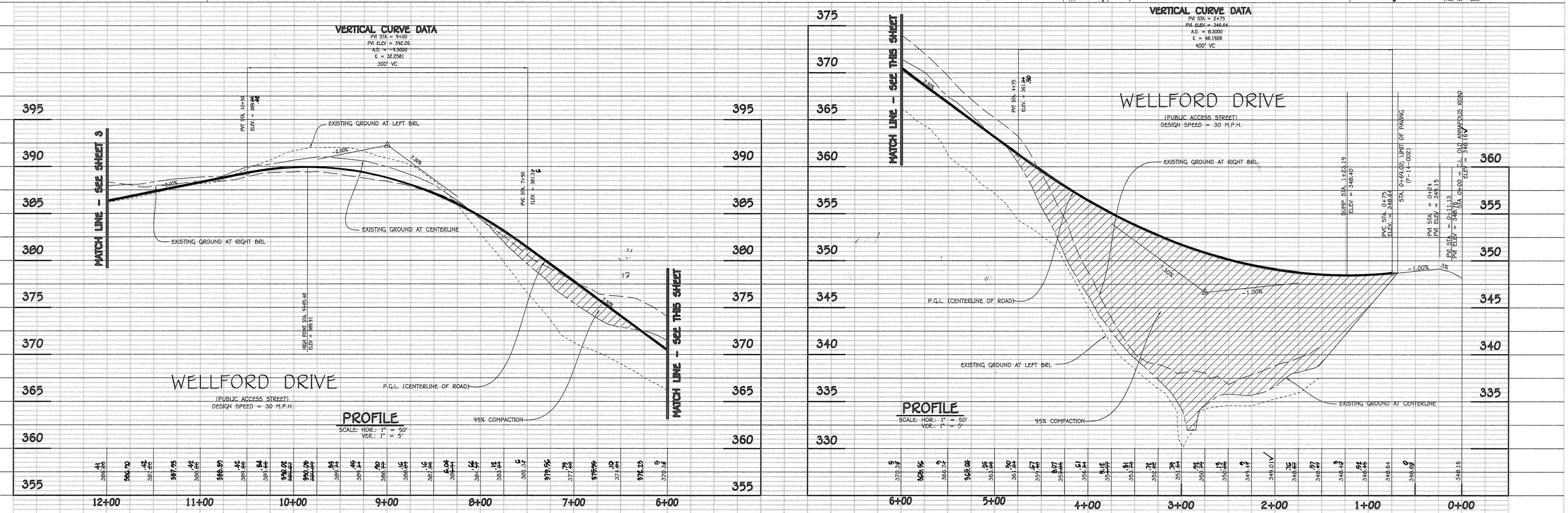
OWNER/DEVELOPER  
BEAZER HOMES CORP  
8955 GUILFORD ROAD  
COLUMBIA, MARYLAND 21046  
(410-720-5071)

SCALE: As Shown DATE: APRIL 3, 2015 DWG. NO. 2 OF 40  
DES. R.A.I./J.C.L. DRN. J.C.L. CHK. A.M.V.

FISHER, COLLINS & CARTER, INC.  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTENNIAL SQUARE OFFICE PARK - 10725 BALTIMORE NATIONAL PkE  
ELLSWORTH CITY, MARYLAND 21042  
(410) 481 - 8995

### VERTICAL CURVE DATA

PVI STA = 2475  
PVI ELEV = 346.64  
A.O. = 8.3000  
K = 48.1928  
400' VC

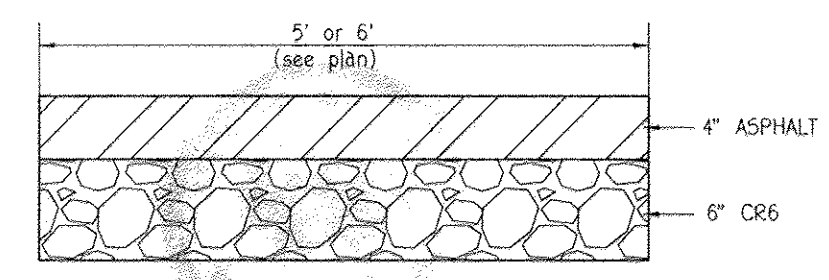


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**MACADAM PATHWAY DETAIL**  
NO SCALE

NOTE: FINAL PATHWAY LOCATIONS WITHIN CENTENNIAL PARK SHALL BE APPROVED IN THE FIELD BY A REPRESENTATIVE OF THE DEPARTMENT.

- NOTES:
- SEE SHEETS 13-22 FOR THE DETAILED 10 SCALE PLAN VIEWS FOR THE ESD FACILITIES.
  - SEE SHEET 37 FOR GUARDRAIL DETAILS AND "NO PARKING BETWEEN SIGNS" SIGN DETAIL.

**REVISED CENTENNIAL LAKE OVERLOOK SECTION TWO**

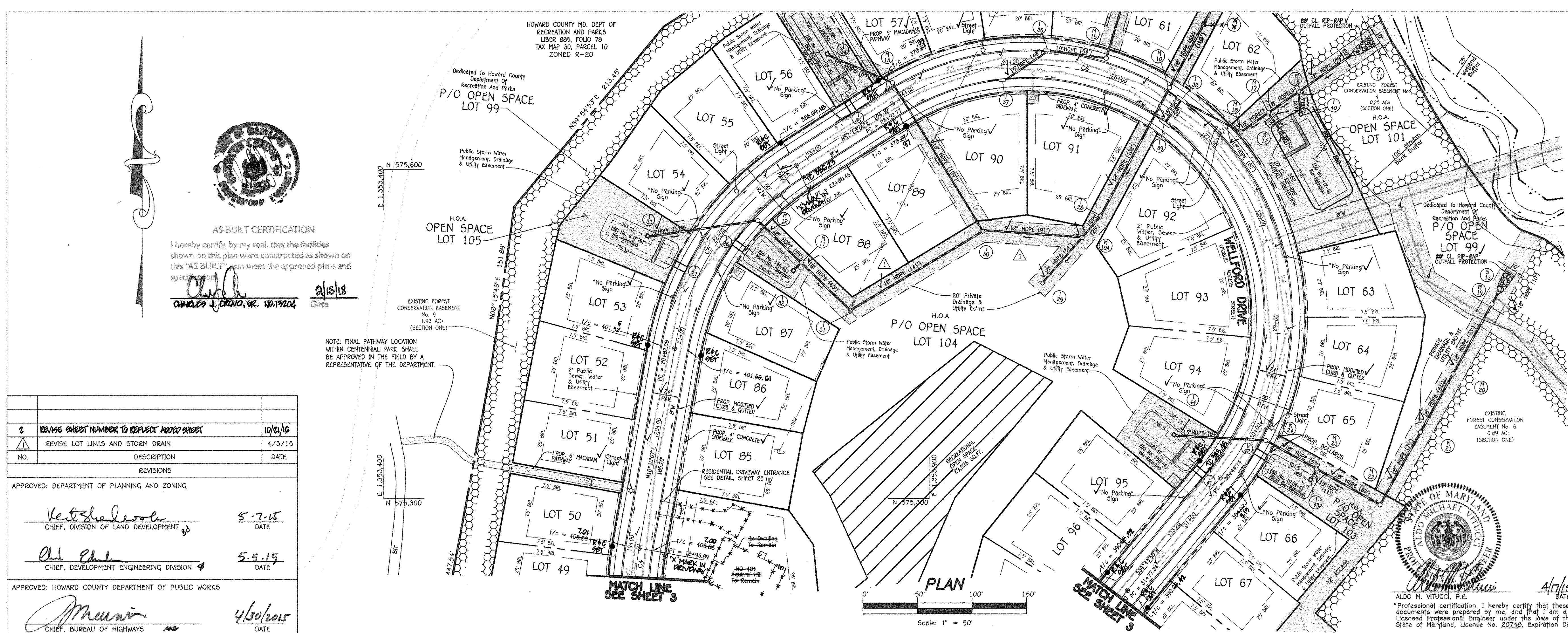
**BUILDABLE LOTS 29 - 99 AND OPEN SPACE LOTS 99 THRU 112**  
A RESUBDIVISION OF BUILDABLE BULK PARCELS 'A' & 'B' ZONING R-20 GRID No. 2 PARCEL No. 86 2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

**WELLFORD DRIVE PLAN AND PROFILE**

**OWNER/DEVELOPER**  
BEAZER HOMES CORP  
8965 GUILFORD ROAD  
COLUMBIA, MARYLAND 21046  
(410-720-5071)

SCALE: As Shown DATE: APRIL 3, 2015 DWG. NO. 4 OF 40  
DES. R.A.I./J.C.L. DRN. J.C.L. CHK. A.M.V.

**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
ELLSWORTH CITY, MARYLAND 21042  
(410) 461 - 2829



**AS-BUILT CERTIFICATION**  
I hereby certify, by my seal, that the facilities shown on this plan were constructed as shown on this "AS BUILT" plan meet the approved plans and specifications.

*Charles J. Cravo, Jr.* 4/30/15  
DATE

NOTE: FINAL PATHWAY LOCATION WITHIN CENTENNIAL PARK SHALL BE APPROVED IN THE FIELD BY A REPRESENTATIVE OF THE DEPARTMENT.

NO.	DESCRIPTION	DATE
2	REVISE SHEET NUMBER TO REFLECT ADD'D SHEET	10/21/16
1	REVISE LOT LINES AND STORM DRAIN	4/3/15

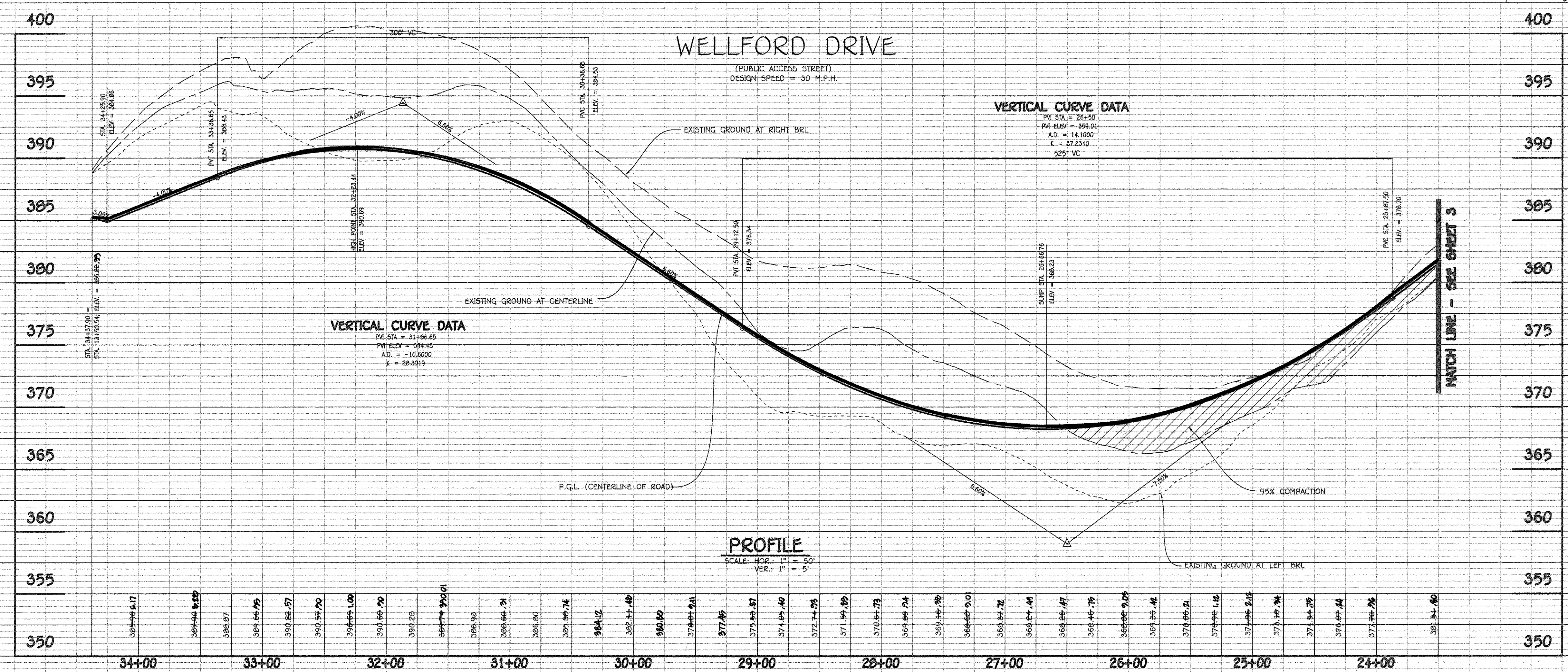
APPROVED: DEPARTMENT OF PLANNING AND ZONING

*K. J. Shalinski* 5-7-15  
CHIEF, DIVISION OF LAND DEVELOPMENT

*Ch. Cravo* 5-5-15  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

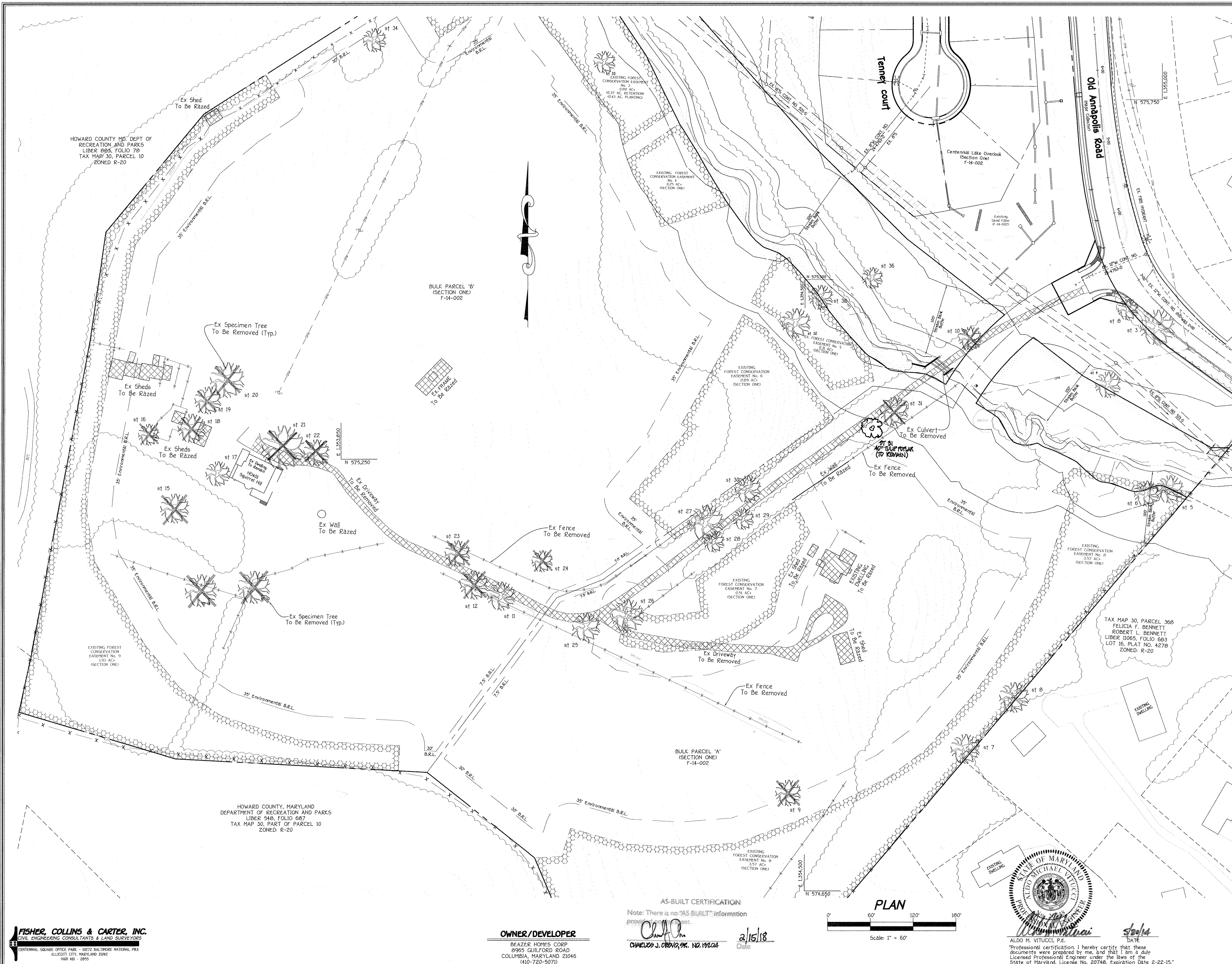
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

*M. Munn* 4/30/15  
CHIEF, BUREAU OF HIGHWAYS



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**ENGINEER'S CERTIFICATE**  
 I hereby certify that this Plan For Erosion And Sediment Control Represents a Feasible Plan Based On My Personal Knowledge of the Site Conditions and That It Was Prepared In Accordance With The Requirements of the Howard Soil Conservation District.  
 Signature: *[Signature]* Date: 5/30/14

**DEVELOPER'S CERTIFICATE**  
 "I/We Certify That All Development And Construction Will Be Done According To This Plan Of Development And Plan For Erosion And Sediment Control And That All Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of Natural Resources 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 Or Their Authorized Agents, As Are Deemed Necessary."  
 Signature Of Developer: *[Signature]* Date: 5/30/14

Approved: This Development Is Approved For Erosion And Sediment Control By The Howard Soil Conservation District.  
 District Howard Soil Conservation Dist. Date: \_\_\_\_\_  
 Approved: Department Of Planning And Zoning  
 Chief, Division Of Land Development: *[Signature]* Date: 6-24-14  
 Chief, Development Engineering Division: *[Signature]* Date: 6-16-14  
 Approved: Howard County Department Of Public Works  
 Chief, Bureau Of Highways: *[Signature]* Date: 6-10-14

NO.	DESCRIPTION	DATE
1	Revise Title Block.	4-3-15
2	REMOVE SHEET NUMBER TO REFLECT APPROV SHEET, AND NO "AS-BUILT" TREE TO REMAIN	10/21/16
3	INDICATE SPECIMEN TREES OF LAND ST TO BE REMOVED	4/19/17

**SPECIMEN TREES REMOVED IN SECTION ONE**

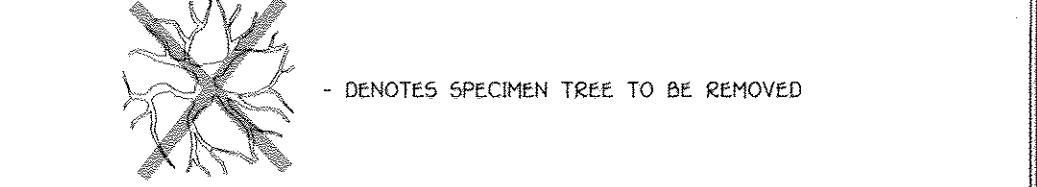
Number	Common Name	Species Name	DBH (inches)	Condition
1	sugar maple	Acer saccharum	31	Good
37	pin oak	Quercus palustris	30	Good
39	yellow-poplar	Liriodendron tulipifera	30	Fair-Good

**SPECIMEN TREES TO BE REMOVED**

Number	Common Name	Species Name	DBH (inches)	Condition
9	pin oak	Quercus palustris	35	Good
10	red maple	Acer rubrum	33	Fair
12	red maple	Acer rubrum	39	Good
13	black oak	Quercus velutina	46	Fair
14	black oak	Quercus velutina	46	Good
15	eastern white pine	Pinus strobus	39	Good
16	black walnut	Juglans nigra	32	Fair-Good
18	box-elder	Acer negundo	41	Fair
19	Norway maple	Acer platanoides	41	Good
20	black oak	Quercus velutina	51	Good
23	red maple	Acer rubrum	35	Fair-Good
24	yellow-poplar	Liriodendron tulipifera	33	Fair
28	white oak	Quercus alba	38	Good
32	princess tree	Balanococcus tomentosus	32	Fair

**SPECIMEN TREES TO REMAIN**

Number	Common Name	Species Name	DBH (inches)	Condition
2	white oak	Quercus alba	31	Good
3	white oak	Quercus alba	49	Good
4	yellow-poplar	Liriodendron tulipifera	36	Good
5	northern red oak	Quercus rubra	39	Fair
6	northern red oak	Quercus rubra	38	Good
7	scarlet oak	Quercus coccinea	43	Good
8	southern red oak	Quercus falcata	38	Good
11	red maple	Acer rubrum	39	Good
17	slippery elm	Ulmus rubra	35	Good
18	white oak	Quercus alba	59	Good
21	princess tree	Balanococcus tomentosus	36	Fair
25	red maple	Acer rubrum	39	Fair
26	red maple	Acer rubrum	47	Fair
27	red maple	Acer rubrum	50	Good
28	red maple	Acer rubrum	31	Fair
29	red maple	Acer rubrum	30	Poor-Fair
30	American sycamore	Platanus occidentalis	38	Fair
31	yellow-poplar	Liriodendron tulipifera	40	Good
32	yellow-poplar	Liriodendron tulipifera	39	Good
33	red maple	Acer rubrum	31	Fair
34	Norway maple	Acer platanoides	32	Fair
35	pin oak	Quercus palustris	31	Fair-Good
36	red maple	Acer rubrum	31	Fair
38	red maple	Acer rubrum	33	Fair



**SPECIMEN TREES TO REMAIN**

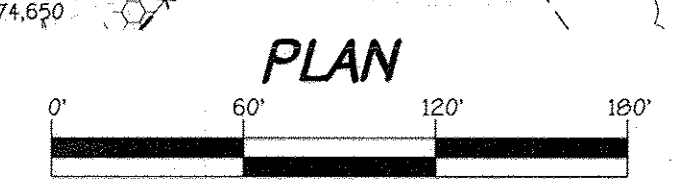
Number	Common Name	Species Name	DBH (inches)	Condition
2	white oak	Quercus alba	31	Good
3	white oak	Quercus alba	49	Good
4	yellow-poplar	Liriodendron tulipifera	36	Good
5	northern red oak	Quercus rubra	39	Fair
6	northern red oak	Quercus rubra	38	Good
7	scarlet oak	Quercus coccinea	43	Good
8	southern red oak	Quercus falcata	38	Good
11	red maple	Acer rubrum	39	Good
17	slippery elm	Ulmus rubra	35	Good
18	white oak	Quercus alba	59	Good
21	princess tree	Balanococcus tomentosus	36	Fair
25	red maple	Acer rubrum	39	Fair
26	red maple	Acer rubrum	47	Fair
27	red maple	Acer rubrum	50	Good
28	red maple	Acer rubrum	31	Fair
29	red maple	Acer rubrum	30	Poor-Fair
30	American sycamore	Platanus occidentalis	38	Fair
31	yellow-poplar	Liriodendron tulipifera	40	Good
32	yellow-poplar	Liriodendron tulipifera	39	Good
33	red maple	Acer rubrum	31	Fair
34	Norway maple	Acer platanoides	32	Fair
35	pin oak	Quercus palustris	31	Fair-Good
36	red maple	Acer rubrum	31	Fair
38	red maple	Acer rubrum	33	Fair

**REVISED DEMO PLAN CENTENNIAL LAKE OVERLOOK**  
 (FORMERLY MASON PROPERTY)  
**SECTION TWO**  
 BUILDABLE LOTS 29 - 98 & OPEN SPACE LOTS 99 THRU 112  
 A RESUBDIVISION OF BUILDABLE BULK PARCELS 'A' & 'B' ZONING R-20  
 TAX MAP NO. 30 GRID No. 2 PARCEL No. 86  
 2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN DATE: MAY 30, 2014  
 SHEET 5 OF 40

**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTENNIAL SQUARE OFFICE PARK - 10272 BALDWIN NATIONAL PARK  
 ELLICOTT CITY, MARYLAND 21117  
 (410) 461 - 2855

**OWNER/DEVELOPER**  
 BEAZER HOMES CORP  
 8965 GUILFORD ROAD  
 COLUMBIA, MARYLAND 21046  
 (410-720-5701)

**AS-BUILT CERTIFICATION**  
 Note: There is no "AS BUILT" information provided on this sheet.  
*[Signature]* 2/15/18  
 CHAMELON J. ORSINO, P.E., No. 19204  
 Date



**ALDO M. VITUCCI, P.E.**  
 PROFESSIONAL ENGINEER  
 STATE OF MARYLAND  
 License No. 20746, Expiration Date 2-22-15  
 Signature: *[Signature]* Date: 5/30/14

THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET F-14-081

1:2013111042.dwg final section two final with lots 80-83, 86-98 removed 11042 sheet 5 demo plan.dwg, C:\05\_F-14-081 sheet 5, 5/30/2014 9:06:52 AM, 1:1



**TEMPORARY STONE OUTLET SEDIMENT TRAP #3 DATA**  
 INITIAL D.A. = 0.26 AC.  
 FINAL D.A. = 0.73 AC.  
 STORAGE REQUIRED  
 WET = 1800 x 0.73 = 1,314 CUFT.  
 DRY = 1800 x 0.73 = 1,314 CUFT.  
 STORAGE PROVIDED  
 WET = 1,314 CUFT. @ ELEV. = 338.20  
 DRY = 1,314 CUFT. @ ELEV. = 336.95  
 BOTTOM ELEV. = 337.00  
 STORAGE DEPTH = 3'  
 TOP OF EMBANKMENT = 340.00  
 CLEAN OUT ELEV. = 337.62  
 BOTTOM L x W = 50' x 18'

**TEMPORARY STONE OUTLET SEDIMENT TRAP #4 DATA**  
 INITIAL D.A. = 2.41 AC.  
 FINAL D.A. = 2.68 AC.  
 STORAGE REQUIRED  
 WET = 1800 x 2.68 = 4,824 CUFT.  
 DRY = 1800 x 2.68 = 4,824 CUFT.  
 STORAGE PROVIDED  
 WET = 4,824 CUFT. @ ELEV. = 348.80  
 DRY = 4,824 CUFT. @ ELEV. = 349.67  
 BOTTOM ELEV. = 348.00  
 STORAGE DEPTH = 4'  
 TOP OF EMBANKMENT = 352.00  
 CLEAN OUT ELEV. = 348.41  
 BOTTOM L x W = 79' x 67'  
 WEIR CREST ELEV. = 350.00  
 WEIR CREST WIDTH = 12'  
 FOR 1-YR. TEMP. STORAGE REQ'D. = 0.15 AC.FT.  
 1-YR. TEMP. STORAGE PROVIDED @ 349.93 = 0.15 AC.FT.

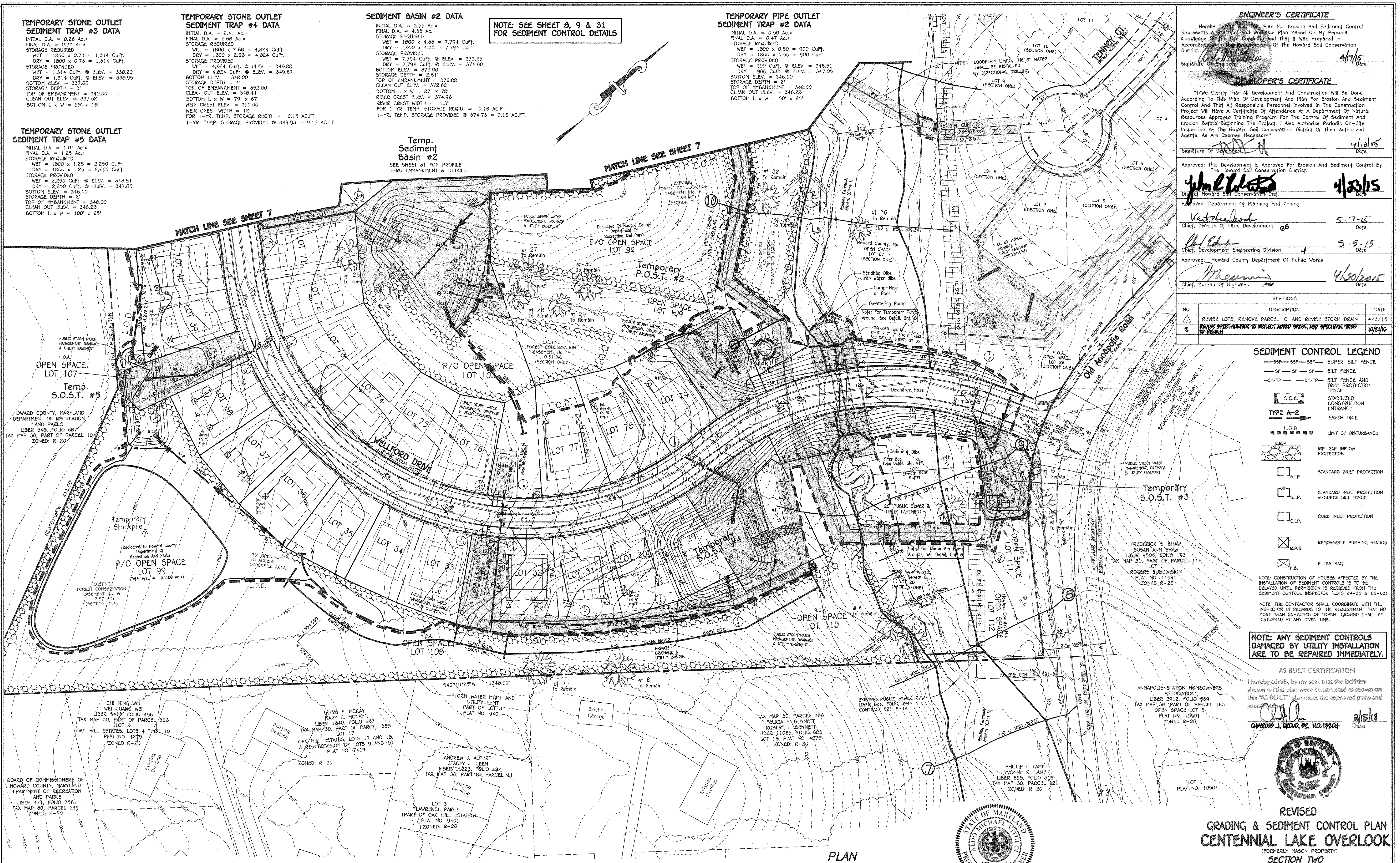
**SEDIMENT BASIN #2 DATA**  
 INITIAL D.A. = 3.55 AC.  
 FINAL D.A. = 4.33 AC.  
 STORAGE REQUIRED  
 WET = 1800 x 4.33 = 7,794 CUFT.  
 DRY = 1800 x 4.33 = 7,794 CUFT.  
 STORAGE PROVIDED  
 WET = 7,794 CUFT. @ ELEV. = 373.25  
 DRY = 7,794 CUFT. @ ELEV. = 374.80  
 BOTTOM ELEV. = 372.00  
 STORAGE DEPTH = 2.61'  
 TOP OF EMBANKMENT = 376.80  
 CLEAN OUT ELEV. = 372.62  
 BOTTOM L x W = 87' x 78'  
 RISER CREST ELEV. = 374.90  
 RISER CREST WIDTH = 11.3'  
 FOR 1-YR. TEMP. STORAGE REQ'D. = 0.16 AC.FT.  
 1-YR. TEMP. STORAGE PROVIDED @ 374.73 = 0.16 AC.FT.

**NOTE: SEE SHEET 8, 9 & 31 FOR SEDIMENT CONTROL DETAILS**

**TEMPORARY PIPE OUTLET SEDIMENT TRAP #2 DATA**  
 INITIAL D.A. = 0.50 AC.  
 FINAL D.A. = 0.47 AC.  
 STORAGE REQUIRED  
 WET = 1800 x 0.50 = 900 CUFT.  
 DRY = 1800 x 0.50 = 900 CUFT.  
 STORAGE PROVIDED  
 WET = 900 CUFT. @ ELEV. = 346.51  
 DRY = 900 CUFT. @ ELEV. = 347.05  
 BOTTOM ELEV. = 346.00  
 STORAGE DEPTH = 2'  
 TOP OF EMBANKMENT = 348.00  
 CLEAN OUT ELEV. = 346.28  
 BOTTOM L x W = 50' x 25'

**TEMPORARY STONE OUTLET SEDIMENT TRAP #5 DATA**  
 INITIAL D.A. = 1.04 AC.  
 FINAL D.A. = 1.25 AC.  
 STORAGE REQUIRED  
 WET = 1800 x 1.25 = 2,250 CUFT.  
 DRY = 1800 x 1.25 = 2,250 CUFT.  
 STORAGE PROVIDED  
 WET = 2,250 CUFT. @ ELEV. = 346.51  
 DRY = 2,250 CUFT. @ ELEV. = 347.05  
 BOTTOM ELEV. = 345.00  
 STORAGE DEPTH = 2'  
 TOP OF EMBANKMENT = 348.00  
 CLEAN OUT ELEV. = 346.28  
 BOTTOM L x W = 100' x 25'

**Temp. Sediment Basin #2**  
 SEE SHEET 31 FOR PROFILE THRU EMBANKMENT & DETAILS



**ENGINEER'S CERTIFICATE**  
 I hereby certify that this Plan for Erosion and Sediment Control Represents a Practical and Workable Plan Based On My Personal Knowledge of the Site Conditions and That It Was Prepared In Accordance With The Requirements of The Howard Soil Conservation District.  
 Signature of Engineer: *[Signature]* Date: 4/7/15

**DEVELOPER'S CERTIFICATE**  
 I/We Certify That All Development and Construction Will Be Done According To This Plan of Development And Plan For Erosion And Sediment Control And That All Responsible Personnel Involved In The Construction Project Will Have A Certificate of Attendance At A Department of Natural Resources 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 Or Their Authorized Agents, As Are Deemed Necessary.  
 Signature of Developer: *[Signature]* Date: 4/10/15

Approved: This Development is Approved For Erosion And Sediment Control By The Howard Soil Conservation District.  
*[Signature]* Date: 4/10/15  
 District Howard Soil Conservation Dist.

Approved: Department of Planning And Zoning  
*[Signature]* Date: 5-7-15  
 Chief, Division Of Land Development

Approved: Department of Public Works  
*[Signature]* Date: 5-5-15  
 Chief, Bureau Of Highways

NO.	DESCRIPTION	DATE
1	REVISE LOTS, REMOVE PARCEL "C" AND REVISE STORM DRAIN	4/3/15
2	REVISE SHEET NUMBER TO REFLECT ADDED AREA, ADD STORMWATER TRAP TO REMAIN	10/2/16

**SEDIMENT CONTROL LEGEND**

- S.F.---S.F.---S.F.--- SUPER-SILT FENCE
- S.F. S.F. S.F. SILT FENCE
- S.F./T.P.---S.F./T.P.--- SILT FENCE AND TREE PROTECTION FENCE
- S.C.E. STABILIZED CONSTRUCTION ENTRANCE
- TYPE A-2 EARTH DIKE
- L.O.D.--- LIMIT OF DISTURBANCE
- R.R.P. RIP-RAP INFLOW PROTECTION
- S.I.P. STANDARD INLET PROTECTION
- S.I.P. STANDARD INLET PROTECTION w/SUPER SILT FENCE
- C.I.P. CURB INLET PROTECTION
- R.P.S. REMOVEABLE PUMPING STATION
- F.B. FILTER BAG

NOTE: CONSTRUCTION OF HOUSES AFFECTED BY THE INSTALLATION OF SEDIMENT CONTROLS IS TO BE DELAYED UNTIL PERMISSION IS RECEIVED FROM THE SEDIMENT CONTROL INSPECTOR (LOTS 29-30 & 60-65).  
 NOTE: THE CONTRACTOR SHALL COORDINATE WITH THE INSPECTOR IN REGARDS TO THE REQUIREMENT THAT NO MORE THAN 20-ACRES OF "OPEN" GROUND SHALL BE DISTURBED AT ANY GIVEN TIME.

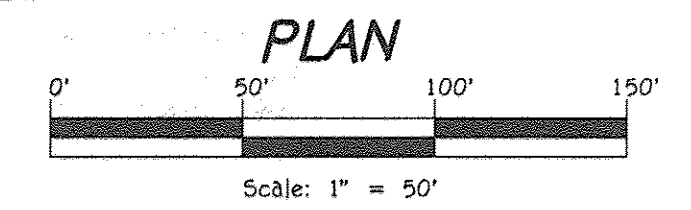
**NOTE: ANY SEDIMENT CONTROLS DAMAGED BY UTILITY INSTALLATION ARE TO BE REPAIRED IMMEDIATELY.**

**AS-BUILT CERTIFICATION**  
 I hereby certify, by my seal, that the facilities shown on this plan were constructed as shown on this "AS-BUILT" plan meet the approved plans and specifications.  
*[Signature]* Date: 4/15/15  
 CARLOS J. REARD, P.E. NO. 19204

**REVISED GRADING & SEDIMENT CONTROL PLAN CENTENNIAL LAKE OVERLOOK**  
 (FORMERLY MASON PROPERTY)  
**SECTION TWO**  
 BUILDABLE LOTS 29 - 98 AND OPEN SPACE LOTS 99 THRU 112  
 ZONING: R-20  
 TAX MAP NO. 30 GRID NO. 2 PARCEL NO. 86  
 2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN DATE: APRIL 3, 2015  
 SHEET 6 OF 40

**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTENIAL SQUARE OFFICE PARK - 10232 BALDWIN NATIONAL PIKE  
 ELLSWORTH CITY, MARYLAND 21042  
 (410) 461-2995

**OWNER/DEVELOPER**  
 BEAZER HOMES CORP  
 8965 GUILFORD ROAD  
 COLUMBIA, MARYLAND 21046  
 (410)-720-5071



ALDO V. VITUCI, P.E.  
 "Professional certification, I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 22748, Expiration Date 2-22-17."

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**TEMPORARY STONE OUTLET SEDIMENT TRAP #7 DATA**

INITIAL D.A. = 0.71 AC.  
 FINAL D.A. = 1.11 AC.  
 STORAGE REQUIRED  
 WET = 1800 x 1.11 = 1,998 CUFT.  
 DRY = 1800 x 1.11 = 1,998 CUFT.  
 STORAGE PROVIDED  
 WET = 1,998 CUFT. @ ELEV. = 388.43  
 DRY = 1,998 CUFT. @ ELEV. = 389.61  
 BOTTOM ELEV. = 387.00  
 STORAGE DEPTH = 2.61'  
 TOP OF EMBANKMENT = 392.00  
 CLEAN OUT ELEV. = 387.80  
 BOTTOM L x W = 48' x 24'

**ENGINEER'S CERTIFICATE**

I hereby certify that this Plan For Erosion and Sediment Control Represents a Feasible and Workable Plan Based on My Personal Knowledge of the Site Condition and That it was Prepared in Accordance with the Requirements of the Howard Soil Conservation District.

Signature: *[Signature]* Date: 4/1/15

**DEVELOPER'S CERTIFICATE**

"I/We Certify That All Development and Construction Will be Done According to This Plan of Development and Plan For Erosion and Sediment Control and That All Responsible Personnel Involved in the Construction Project Will Have a Certificate of Attendance at a Department of Natural Resources 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 or Their Authorized Agents, As Are Deemed Necessary."

Signature of Developer: *[Signature]* Date: 4/10/15

Approved: This Development is Approved For Erosion and Sediment Control By The Howard Soil Conservation District.

Signature: *[Signature]* Date: 4/23/15

Approved: Department of Planning and Zoning

Signature: *[Signature]* Date: 5-7-15

Approved: Department of Engineering Division

Signature: *[Signature]* Date: 5-5-15

Approved: Howard County Department of Public Works

Signature: *[Signature]* Date: 4/30/2015

NO.	DESCRIPTION	DATE
1	REVISE LOTS, REMOVE PARCEL 'C' AND REVISE STORM DRAIN	4/3/15
2	REMOVE SHEET NUMBER TO REFLECT ADDED SHEET	10/2/16
3	ADD TO REVISION NUMBER FROM NUMBER WT-17-075	4/19/17

**SEDIMENT CONTROL LEGEND**

- S/SF—S/SF— SUPER-SILT FENCE
- SF—SF—SF— SILT FENCE
- SF/TP—SF/TP— SILT FENCE AND TREE PROTECTION FENCE
- S.C.E. STABILIZED CONSTRUCTION ENTRANCE
- TYPE A-2 EARTH DIKE
- L.O.D. LIMIT OF DISTURBANCE
- R.P.P. RIP-RAP INFLOW PROTECTION
- S.I.P. STANDARD INLET PROTECTION
- S.I.P. STANDARD INLET PROTECTION w/SUPER SILT FENCE
- C.I.P. CURB INLET PROTECTION
- R.P.S. REMOVABLE PUMPING STATION
- F.B. FILTER BAG

**TEMPORARY STONE OUTLET SEDIMENT TRAP #6 DATA**

INITIAL D.A. = 2.08 AC.  
 FINAL D.A. = 1.32 AC.  
 STORAGE REQUIRED  
 WET = 1800 x 2.08 = 3,744 CUFT.  
 DRY = 1800 x 2.08 = 3,744 CUFT.  
 STORAGE PROVIDED  
 WET = 3,744 CUFT. @ ELEV. = 376.42  
 DRY = 3,744 CUFT. @ ELEV. = 377.98  
 BOTTOM ELEV. = 375.00  
 STORAGE DEPTH = 2.58'  
 TOP OF EMBANKMENT = 379.00  
 CLEAN OUT ELEV. = 375.80  
 BOTTOM L x W = 137' x 18'  
 WEIR CREST ELEV. = 377.60  
 WEIR CREST WIDTH = 6'  
 FOR 1-YR. TEMP. STORAGE REQ'D. = 0.10 AC.FT.  
 1-YR. TEMP. STORAGE PROVIDED @ 377.85 = 0.10 AC.FT.

**NOTE: ANY SEDIMENT CONTROLS DAMAGED BY UTILITY INSTALLATION ARE TO BE REPAIRED IMMEDIATELY.**

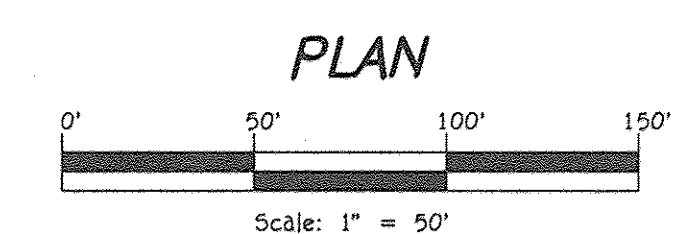
**TEMPORARY PIPE OUTLET SEDIMENT TRAP #1 DATA**

INITIAL D.A. = 2.42 AC.  
 FINAL D.A. = 3.52 AC.  
 STORAGE REQUIRED  
 WET = 1800 x 3.52 = 6,366 CUFT.  
 DRY = 1800 x 3.52 = 6,366 CUFT.  
 STORAGE PROVIDED  
 WET = 6,366 CUFT. @ ELEV. = 359.95  
 DRY = 6,366 CUFT. @ ELEV. = 361.15  
 BOTTOM ELEV. = 358.00  
 STORAGE DEPTH = 4.30'  
 TOP OF EMBANKMENT = 362.30  
 CLEAN OUT ELEV. = 359.40  
 BOTTOM L x W = 152' x 24'  
 RISER CREST ELEV. = 361.15  
 RISER CREST WIDTH = 2'  
 FOR 1-YR. TEMP. STORAGE REQ'D. = 0.17 AC.FT.  
 1-YR. TEMP. STORAGE PROVIDED @ 361.30 = 0.17 AC.FT.

**REVISED GRADING & SEDIMENT CONTROL PLAN CENTENNIAL LAKE OVERLOOK**

(FORMERLY MASON PROPERTY)  
**SECTION TWO**  
 BUILDABLE LOTS 29 - 99  
 AND OPEN SPACE LOTS 99 THRU 112  
 A RESUBDIVISION OF BUILDABLE BULK PARCELS 'A' & 'B' ZONING: R-20  
 TAX MAP NO. 30 GRID NO. 2 PARCEL NO. B6  
 2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN DATE: APRIL 3, 2015  
 SHEET 7 OF 40

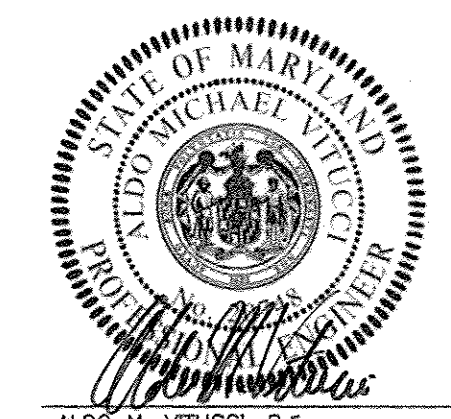
"AS-BUILT" F-14-081



**AS-BUILT CERTIFICATION**

I hereby certify, by my seal, that the facilities shown on this plan were constructed as shown on this "AS BUILT" plan meet the approved plans and specifications.

Signature: *[Signature]* Date: 4/15/18  
 CHARLES J. ORSICO, P.E. No. 192024

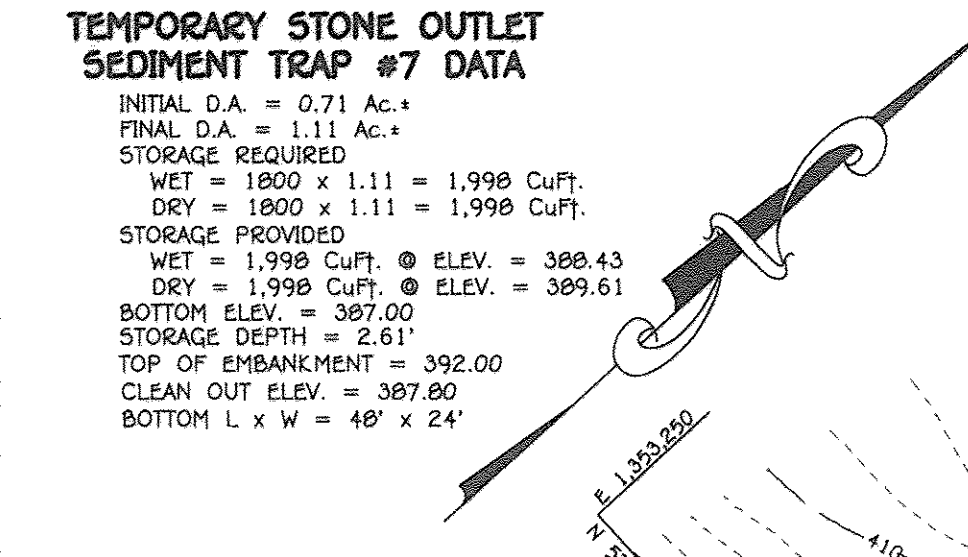


ALDO N. VIUCCI, P.E. Date: 4/15/18

**NOTE: SEE SHEET 8, 9 & 31 FOR SEDIMENT CONTROL DETAILS**

STA.	Q100 (F.S.)	M.S. ELEVATION	VELOCITY (F.P.S.)	Remarks
1	919.00	387.00	0.99	
2	919.00	387.00	0.41	Ex. 72" Culvert
3	---	---	---	
4	919.00	387.00	0.81	
5	919.00	387.00	0.91	
6	919.00	387.96	1.70	
7	919.00	388.85	3.03	
8	919.00	390.21	7.82	
9	919.00	394.64	4.29	
9.5	---	---	---	Twin Box Culverts
10	999.5	399.77	10.19	
11	999.5	383.13	2.28	
12	999.5	344.16	0.32	
13	999.5	347.80	4.59	

**OWNER/DEVELOPER**  
 BEAZER HOMES CORP  
 8965 CULFORD ROAD  
 COLUMBIA, MARYLAND 21046  
 (410-720-5071)



HOWARD COUNTY MD. DEPT OF RECREATION AND PARKS  
 LIBER 085, FOLIO 78  
 TAX MAP 30, PARCEL 10  
 ZONED R-20

EXISTING FOREST CONSERVATION EASEMENT NO. 9  
 1.53 AC.  
 (SECTION ONE)

HOWARD COUNTY MD. DEPT OF RECREATION AND PARKS  
 LIBER 548, FOLIO 687  
 TAX MAP 30, PART OF PARCEL 10  
 ZONED R-20

**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTENNIAL SQUARE OFFICE PARK - 10772 WALTHAM NATIONAL PKCE  
 ELLETTT CITY, MARYLAND 21042  
 (410) 461 - 2855

E:\2011\1042\dwg\Finals section two\Baseline Revision 1.13-1511042.sheet 6.7 grading.plan new njydr.dwg. 4/6/2015 8:26:57 AM 11



**SOIL PREPARATION, TOPSOILING AND SOIL AMENDMENTS (B-4-2)**

- A. Soil Preparation**
- Temporary Stabilization
    - Soil preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or ripper mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked with ridges running parallel to the contour of the slope.
    - Apply fertilizer and lime as prescribed on the plans.
    - Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means.
  - Permanent Stabilization
    - A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:
      - Soil pH between 6.0 and 7.0.
      - Soluble salts less than 500 parts per million (ppm).
      - Soil contains less than 40 percent clay but enough fine grained material (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception if loesslike soil will be planted, then a sandy soil less than 30 percent silt plus clay would be acceptable.
      - Soil contains 15 percent minimum organic matter by weight.
      - Soil contains sufficient pore space to permit adequate root penetration.
    - Application of amendments or topsoil is required if on-site soils do not meet the above conditions.
    - Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.
    - Soil amendments as specified on the approved plan or as indicated by the results of a soil test.
    - Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Rake lawn areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by disking or other equipment to roughen the surface where site conditions will not permit normal seeded preparation. Track slopes 3:1 or flatter with tracked equipment. The soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seeded loosening may be unnecessary on newly disturbed areas.

- B. Topsoiling**
- Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.
  - Topsoil salvaged from an existing site may be used provided it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-NRCS.
  - Topsoiling is limited to areas having 2:1 or flatter slopes where:
    - The texture of the exposed subsoil/parent material is not adequate to support vegetative growth.
    - The soil material is so shallow that the rooting zone is not deep enough to produce plants or furnish continuing supplies of moisture and plant nutrients.
    - The original soil to be vegetated contains material toxic to plant growth.
    - The soil is so acidic that treatment with limestone is not feasible.
  - Areas having slopes steeper than 2:1 require special consideration and design.
  - Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:
    - Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate authority.
    - Topsoil must not be a mixture of contrasting textural subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 1/2 inches in diameter.
    - Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, net sedge, poison ivy, whistler, or others as specified.
    - Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.
  - Topsoil Application
    - Erosion and sediment control practices must be maintained when applying topsoil.
    - Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets.
    - Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

- C. Soil Amendments (Fertilizer and Lime Specifications)**
- Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analysis.
  - Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Material may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must be all delivered to the site fully labeled according to the applicable laws and must bear the name, trade name or trademark and warranty of the producer.
  - Lime materials must be ground limestone (hydrated or hard lime may be substituted except when hydroxydizing which contains at least 50 percent total oxides calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh sieve and 90 to 100 percent will pass through a #20 mesh sieve.
  - Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disking or other suitable means.
  - Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4 to 6 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil.

**PERMANENT SEEDING NOTES (B-4-1)**

**A. Seed Mixtures**

- General Use
  - Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixtures, application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan.
  - Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 345 - Critical Area Planting.
  - For sites having disturbed area over 5 acres, use and show the rates recommended by the testing agency. For 4 to 5 acres receiving low maintenance, apply urea form fertilizer (46-0-0) at 1 1/2 pounds per 1000 square feet (50 pounds per acre) at the time of seeding in addition to the soil amendments shown in the Permanent Seeding Summary.
- Turfgrass Mixtures
  - Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance.
  - Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixtures, application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan.
- Kentucky Bluegrass/Perennial Ryegrass Full Sun Mixture For use in areas that receive intensive management, irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 15 to 20 pounds per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
- Kentucky Bluegrass/Perennial Ryegrass Full Sun Mixture For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
- Tall Fescue/Kentucky Bluegrass Full Sun Mixture For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 1 1/2 to 3 pounds per 1000 square feet. One or more cultivars may be blended.
- Kentucky Bluegrass/Fine Fescue Shade Mixture For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf. Mixture includes Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1 1/2 to 3 pounds per 1000 square feet.

**PERMANENT SEEDING NOTES (B-4-1)**

- A. Seed Mixtures**
- General Use
    - Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixtures, application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan.
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    - Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance.
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- B. Topsoiling**
- Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.
  - Topsoil salvaged from an existing site may be used provided it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-NRCS.
  - Topsoiling is limited to areas having 2:1 or flatter slopes where:
    - The texture of the exposed subsoil/parent material is not adequate to support vegetative growth.
    - The soil material is so shallow that the rooting zone is not deep enough to produce plants or furnish continuing supplies of moisture and plant nutrients.
    - The original soil to be vegetated contains material toxic to plant growth.
    - The soil is so acidic that treatment with limestone is not feasible.
  - Areas having slopes steeper than 2:1 require special consideration and design.
  - Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:
    - Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate authority.
    - Topsoil must not be a mixture of contrasting textural subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 1/2 inches in diameter.
    - Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, net sedge, poison ivy, whistler, or others as specified.
    - Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.
  - Topsoil Application
    - Erosion and sediment control practices must be maintained when applying topsoil.
    - Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets.
    - Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

**PERMANENT SEEDING SUMMARY**

No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depth	Fertilizer Rate (lb/100-20)			Lime Rate (tons/acre)
					N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	
1	TALL FESCUE	100	Mar. 1-May 15 Aug. 1-Oct. 15	1/4-1/2 in.	45 lbs. per 1000 sq ft	90 lb/ac (2 lb/1000 sq ft)	90 lb/ac (2 lb/1000 sq ft)	2 tons/acre (90 lb/1000 sq ft)

**STANDARD STABILIZATION NOTE**

FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN:

- THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, CHANNELS, PIERCEUR SLOPES AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND
- SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.

**B-4-2 STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREA**

**Definition**  
A mound or pile of soil protected by appropriately designed erosion and sediment control measures.

**Where Practice Applies**  
To provide a designated location for the temporary storage of soil that controls the potential for erosion, sedimentation and changes to drainage patterns.

**Criteria**  
Stockpile areas are utilized when it is necessary to salvage and store soil for later use.

- The stockpile location and all related sediment control practices must be clearly indicated on the erosion and sediment control plan.
- The footprint of the stockpile must be sized to accommodate the anticipated volume of material and based on a side slope ratio no steeper than 2:1. Benching must be provided in accordance with Section B-3 Land Grading.
- Runoff from the stockpile area must drain to a suitable sediment control practice.
- Access the stockpile area from the upgrade side.
- Clear water runoff into the stockpile area must be minimized by use of a diversion device such as an earth dike, temporary swale or diversion fence. Provisions must be made for discharging concentrated flow in a non-erosive manner.
- Stockpiles must be stabilized in accordance with the 3/7 day stabilization requirement as well as Standard B-4-1 Incremental Stabilization and Standard B-4-4 Temporary Stabilization.
- If the stockpile is located on an impervious surface, a liner should be provided below the stockpile to facilitate cleanup. Stockpiles containing contaminated material must be covered with impermeable sheeting.

**TEMPORARY SEEDING NOTES (B-4-4)**

**Definition**  
To use fast growing vegetation that provides cover on a disturbed soil.

**Where Practice Applies**  
Exposed soils where ground cover is needed for a period of 6 months or less. For longer duration of time, permanent stabilization practices are required.

**Criteria**  
Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant Hardness Zone (from Figure B.3) and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths. If this Summary is not put on the plan and completed, then Table B.1 and lime rates must be put on the plan.

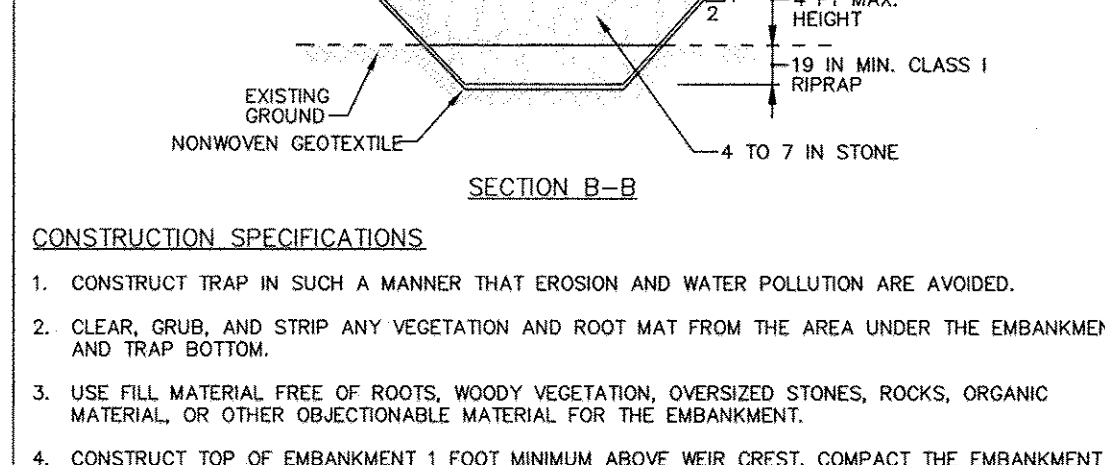
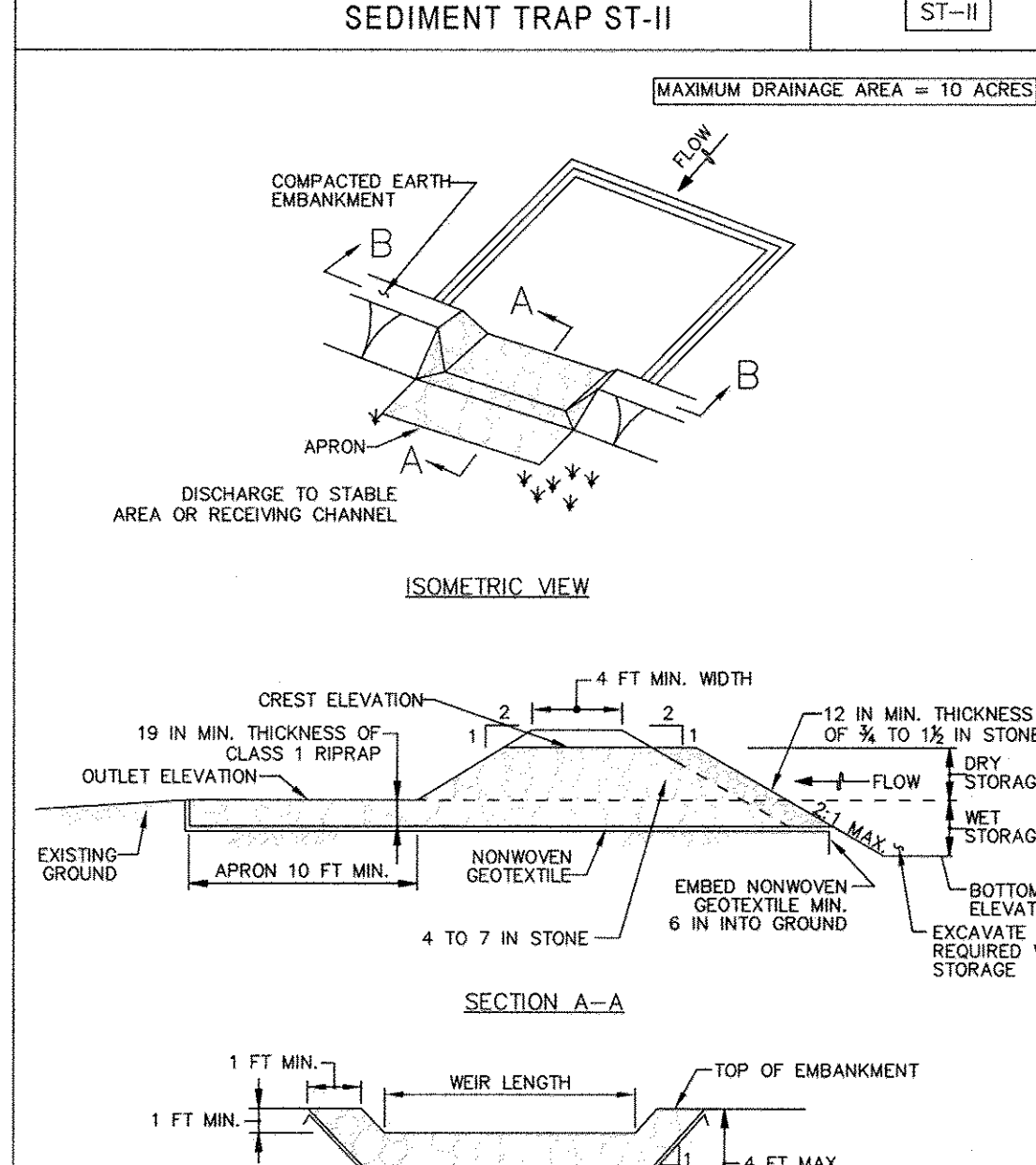
For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding.

When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch alone as prescribed in Section B-4-3A.1B and maintain until the next seeding season.

**TEMPORARY SEEDING SUMMARY**

Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depth	Fertilizer Rate (lb/100-20)		Lime Rate (tons/acre)
				N	P <sub>2</sub> O <sub>5</sub>	
BARLEY	96	3/1 - 5/15 8/15 - 10/15	1"	436 lb/ac (100 lb/1000 sq ft)	872 lb/ac (200 lb/1000 sq ft)	2 tons/acre (900 lb/1000 sq ft)
OATS	72	3/1 - 5/15 8/15 - 10/15	1"	327 lb/ac (80 lb/1000 sq ft)	654 lb/ac (160 lb/1000 sq ft)	2 tons/acre (900 lb/1000 sq ft)
RYE	112	3/1 - 5/15 8/15 - 10/15	1"	448 lb/ac (110 lb/1000 sq ft)	896 lb/ac (220 lb/1000 sq ft)	2 tons/acre (900 lb/1000 sq ft)

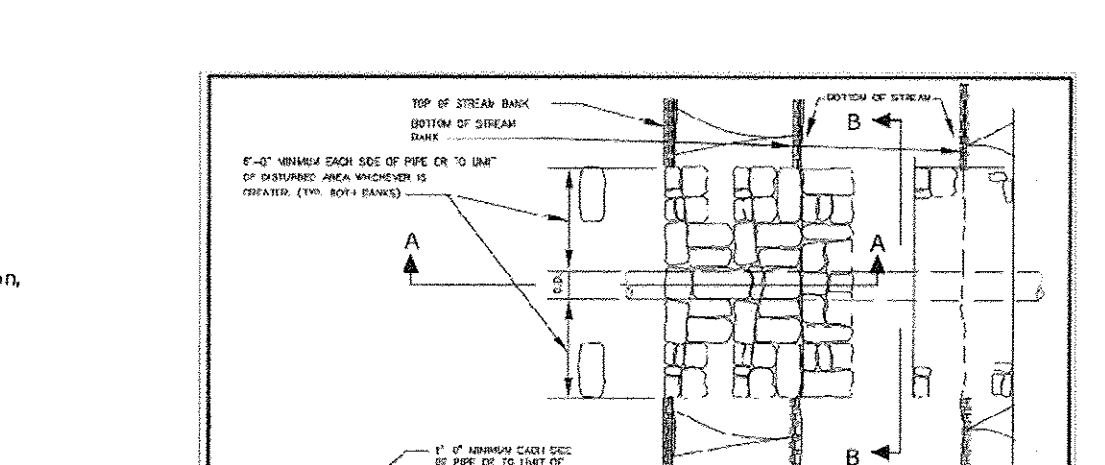
**DETAIL G-1-2 STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II**



- CONSTRUCTION SPECIFICATIONS**
- CONSTRUCT TRAP IN SUCH A MANNER THAT EROSION AND WATER POLLUTION ARE AVOIDED.
  - CLEAR, GRUB, AND STRIP ANY VEGETATION AND ROOT MAT FROM THE AREA UNDER THE EMBANKMENT AND TRAP BOTTOM.
  - USE FILL MATERIAL FREE OF ROOTS, WOODY VEGETATION, OVERSIZED STONES, ROCKS, ORGANIC MATERIAL, OR OTHER OBJECTIONABLE MATERIAL FOR THE EMBANKMENT.
  - CONSTRUCT TOP OF EMBANKMENT 1 FOOT MINIMUM ABOVE WEIR CREST. COMPACT THE EMBANKMENT BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED.
  - MAKE ALL CUT AND FILL SLOPES 2:1 OR FLATTER.
  - PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, OVER THE BOTTOM AND SIDES OF OUTLET AND APRON PRIOR TO PLACEMENT OF RIPRAP. OVERLAP SECTIONS OF GEOTEXTILE AT LEAST 1 FOOT WITH THE SECTION NEARER TO THE TRAP PLACED ON TOP. EMBED GEOTEXTILE AT LEAST 6 INCHES INTO EXISTING GROUND AT ENTRANCE OF OUTLET CHANNEL.
  - PLACE 1 FOOT OF CLEAN 3/4 TO 1 1/2 INCH STONE OR EQUIVALENT RECYCLED CONCRETE ON THE UPSTREAM FACE OF THE WEIR.
  - CONSTRUCT AND MAINTAIN THE OUTLET ACCORDING TO APPROVED PLAN, AND IN SUCH A MANNER THAT EROSION AT OR BELOW THE OUTLET DOES NOT OCCUR.
  - STABILIZE THE EMBANKMENT AND INTERIOR SLOPES WITH SEED AND MULCH. STABILIZE POINTS OF CONCENTRATED INFLOW AS SHOWN ON APPROVED PLAN.
  - REMOVE SEDIMENT AND RESTORE TRAP TO ORIGINAL DIMENSIONS WHEN SEDIMENT HAS ACCUMULATED TO CLEANOUT ELEVATION (50% OF WEIR STORAGE DEPTH). DEPOSIT REMOVED SEDIMENT IN AN APPROVED AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE. KEEP POINTS OF INFLOW AND OUTFLOW AS WELL AS INTERIOR OF THE TRAP FREE FROM DEPOSIT, AND REMOVE ACCUMULATED DEBRIS. MAINTAIN EMBANKMENTS TO CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION. REMOVE ANY TREES, BRUSH, OR OTHER WOODY VEGETATION GROWING ON EMBANKMENT OR NEAR PRINCIPAL SPILLWAY. MAINTAIN LIME, GRADE, AND CROSS SECTION.
  - WHEN DETERMINING TRAP, PASS REMOVED WATER THROUGH AN APPROVED SEDIMENT CONTROL PRACTICE.
  - UPON REMOVAL, GRADE AND STABILIZE THE AREA OCCUPIED BY TRAP.

**MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL**

U.S. DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



- MARYLAND'S GUIDELINES TO WATERWAY CONSTRUCTION**
- DETAIL 1.2: PUMP-AROUND PRACTICE**
- APPROVED DETERMINING DEVICE
  - DISCHARGE HOSES
  - INTAKE HOSE
  - INTAKE HOSE
  - SEEDING DIKE
  - CLEAN WATER DIKE
  - SUMP-HOLE (12" to 18" deep, 2' dia.)
  - WORK AREA
  - CROSS SECTION OF SANDBAG DIKE

**AS-BUILT CERTIFICATION**

Note: There is no "AS BUILT" information provided on this sheet.

APPROVED: SEP 12 2007

STREAM BANK PROTECTION AT UTILITY STREAM CROSSING

OWNER/DEVELOPER: BEAZER HOMES CORP, 8965 GULLFORD ROAD, COLUMBIA, MARYLAND 21046 (410-720-5077)

**SEQUENCE OF CONSTRUCTION**

- OBTAIN GRADING PERMITS (2 WEEKS)
- NOTIFY "MISSED UTILITY" AT LEAST 48 HOURS BEFORE BEGINNING ANY WORK AT 1-800-257-7777. NOTIFY HOWARD COUNTY OFFICE OF CONSTRUCTION/INSPECTION DIVISION AT 410-313-1870 AT LEAST 24 HOURS BEFORE STARTING ANY WORK. IN ADDITION, NOTIFY AT PRIOR TO ANY ACTIVITY WITHIN THEIR EASEMENT.
- CONSTRUCTION ON THIS PROJECT MAY NOT BEGIN UNTIL MATERIALS NEEDED TO CONSTRUCT THE BASINS ARE ON-SITE.
- INSTALL STABILIZED CONSTRUCTION ENTRANCE (1 DAY)
- INSTALL SUPER-SILT FENCE AND TREE PROTECTION WHERE SHOWN ON THE PLANS. 1-600-878-0000. ACCESSORY STRUCTURES, DRIVEWAY AND SPECIMEN TREES AS SHOWN ON SHEET.
- CLEAR AND GRUB WHERE PLANNED DISTURBANCE IS NECESSARY FOR INSTALLATION OF SEDIMENT CONTROL MEASURES, ROADWAY CONSTRUCTION AND LOT CONSTRUCTION (8 WEEKS)
- AFTER PERMISSION IS GRANTED BY THE SEDIMENT CONTROL INSPECTOR, BEGIN INSTREAM CONSTRUCTION OF CONCRETE BOX CULVERTS IN ACCORDANCE WITH MDE WATERWAY CONSTRUCTION MEASURES AND PERMIT CRITERIA (4 WEEKS)
- INSTALL SEDIMENT CONTROL TRAPS AND BASINS (4 WEEKS)
- INSTALL EARTH DIKES TO SEDIMENT TRAPS ALONG WITH THE PROPOSED BAFFLES AS SHOWN ON THE PLANS. ALL RUNOFF FROM THE ROADS WILL BE CONTINUALLY DIVERTED INTO TRAPS/BASINS VIA EARTH DIKES OR CONVERT TO MACADAM BERMS AS DIRECTED BY THE SEDIMENT CONTROL INSPECTOR. AFTER PERMISSION FROM INSPECTOR AFTER CONSTRUCTING THESE TRAPS AND EARTH DIKES (2 WEEKS)
- AFTER PERMISSION IS GRANTED BY THE SEDIMENT CONTROL INSPECTOR, GRADE SITE TO SUBGRADE AND STABILIZE USING TEMPORARY SEEDING NOTES (6 WEEKS)
- INSTALL STORM DRAIN SYSTEM AS SHOWN ON THE PLANS. BLOCK OFF M-1, M-5, I-24, M-15 & M-16 TO THE OUTFALL AND INSTALL 18" FLEXIBLE PIPE TO OUTFALL INTO THE PROPOSED TRAP OR BASIN. BLOCK OFF M-6 AND INSTALL 24" FLEXIBLE PIPE INTO THE PROPOSED SEDIMENT BASIN (6 WEEKS)
- DIVERT THE STORM DRAIN OUTFALLS BY PROVIDING TEMPORARY FLEXIBLE PIPE (2 WEEKS)
- INSTALL WATER MAIN AND SEWER MAIN AS SHOWN ON THE SEWER AND WATER PLANS (6 WEEKS)
- INSTALL ROADWAY BASE COURSE PAVING (6 WEEKS)
- STABILIZE ALL DISTURBED AREAS (5 DAYS)
- APPLY TACK COAT TO BASE COURSE PAVING AND LAY SURFACE COURSE (4 WEEKS)
- WHEN ALL CONTRIBUTING AREAS TO THE SEDIMENT CONTROL DEVICES HAVE BEEN STABILIZED AND WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, THE DEVICES MAY BE REMOVED AND/OR BACKFILLED AND THE REMAINING AREAS BROUGHT TO FINAL GRADE. THIS INCLUDES THE INSTALLATION OF BIO-RETENTION DEVICES (M-6 & M-6) TO TREAT THE ROADWAY RUNOFF. IN ADDITION, INSTALL THE PROPOSED INFILTRATION BERM (M-4) AND SURFACE SAND FILTER (F-1) (6 WEEKS)
- UPON COMPLETION OF ROADWAY CONSTRUCTION, STABILIZE AREAS AND REMOVE TEMPORARY DEVICES INCLUDING THE THREE (3) BULKHEADS LOCATED WITHIN M-1, M-5, M-6, I-24, M-15 & M-16 (3 DAYS)
- NOTIFY HOWARD COUNTY OFFICE OF INSPECTIONS AND PERMITS FOR A FINAL INSPECTION OF THE COMPLETED PROJECT.
- AFTER CONSTRUCTION OF THE FINAL STORMWATER FACILITY HAS BEEN COMPLETED, THE DEVELOPER MUST HAVE AN AS-BUILT PLAN PREPARED AND SUBMITTED TO HOWARD COUNTY BY THE PROJECT ENGINEER.
- CONTRACTOR SHALL COORDINATE WITH THE INSPECTOR IN REGARDS TO THE REQUIREMENT THAT NO MORE THAN 60% OF "OPEN" GROUND SHALL BE DISTURBED AT ANY GIVEN TIME. THIS MAY BE ACCOMPLISHED BY GRADING ONE PARCEL AT A TIME, IF REQUIRED.

- CONTRACTOR SHALL CLEAN AND RESTORE THE RECEIVING PONDS OF ANY AND ALL SEDIMENT, TO THEIR ORIGINALLY DESIGNED GRADE.**
- NOTE: THE CONTRACTOR SHALL INSPECT AND PROVIDE NECESSARY MAINTENANCE ON ALL SEDIMENT AND EROSION CONTROL STRUCTURES SHOWN HEREON AFTER EACH RAINFALL AND ON A DAILY BASIS. REMOVE SEDIMENT FROM SLOES, T. P.O.S.17.5 AND SEDIMENT BASINS WHEN CLEANOUT THE ELEVATIONS ARE REACHED. ALL SEDIMENT MUST BE PLACED UPSTREAM OF AN APPROVED BASIN DEVICE.**
- NOTE: ONCE EXCAVATION HAS BEGUN THE OPERATION SHOULD BE CONTINUOUS FROM GRUBBING THROUGH THE COMPLETION OF GRADING AND PLACEMENT OF TOPSOIL OF (REQUIRED) AND PERMANENT seed and mulch. ANY interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.**

- REVISIONS**
- | NO. | DESCRIPTION                                | DATE     |
|-----|--|----------|
| 1   | Revise Title Block                         | 4-3-15   |
| 2   | Revise SHEET NUMBER TO REFLECT ADDED SHEET | 10/21/16 |

**REVISIONS**

NO.	DESCRIPTION	DATE
1	Revise Title Block	4-3-15
2	Revise SHEET NUMBER TO REFLECT ADDED SHEET	10/21/16

**REVISIONS**

NO.	DESCRIPTION	DATE
1	Revise Title Block	4-3-15
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**REVISIONS**

NO.	DESCRIPTION	DATE
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**REVISIONS**

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1	Revise Title Block	4-3-15
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**REVISIONS**

NO.	DESCRIPTION	DATE
1	Revise Title Block	4-3-15
2	Revise SHEET NUMBER TO REFLECT ADDED SHEET	10/21/16

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

**ENGINEER'S CERTIFICATE**

I hereby certify that this Plan for Erosion and Sediment Control represents a reasonable plan based on my personal knowledge and experience and that it was prepared in accordance with the standards of the Howard Soil Conservation District.

Signature: *[Signature]* Date: 5/20/14

**DEVELOPER'S CERTIFICATE**

I/We Certify that All Development and Construction Will Be Done According to This Plan of Development and Plan for Erosion and Sediment Control and That All Responsible Personnel Involved in the Construction Project Will Have a Certificate of Attendance At A Department of Natural Resources 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 or Their Authorized Agents As Are Deemed Necessary.

Signature of Developer: *[Signature]* Date: 5/20/14

Approved: This Development Is Approved For Erosion And Sediment Control By The Howard Soil Conservation District.

Signature: *[Signature]* Date: 6/5/14

Approved: Department of Planning And Zoning

Signature: *[Signature]* Date: 6-29-14

Approved: Howard County Department of Public Works

Signature: *[Signature]* Date: 6-16-14

Approved: Chief, Bureau of Highways

Signature: *[Signature]* Date: 6-10-14

**REVISIONS**

NO.	DESCRIPTION	DATE
1	Revise Title Block	4-3-15
2	Revise SHEET NUMBER TO REFLECT ADDED SHEET	10/21/16

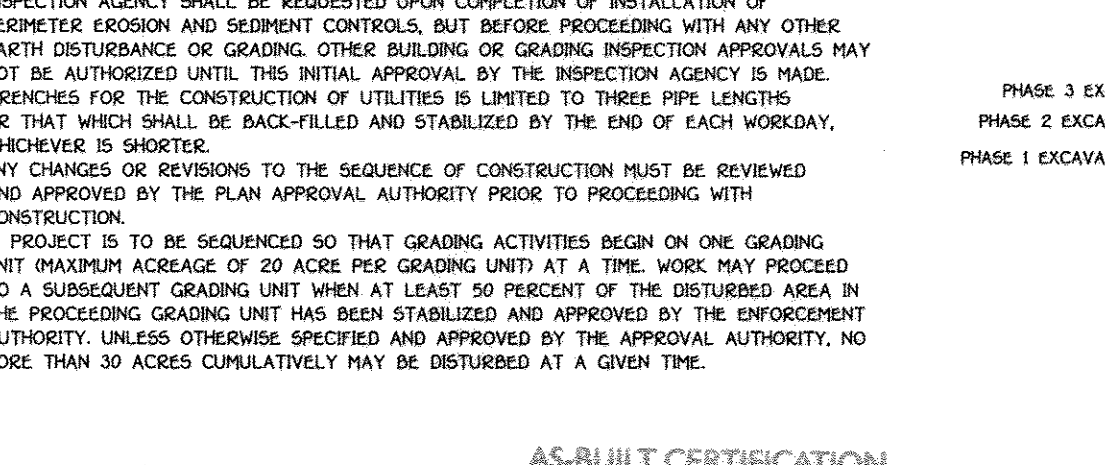
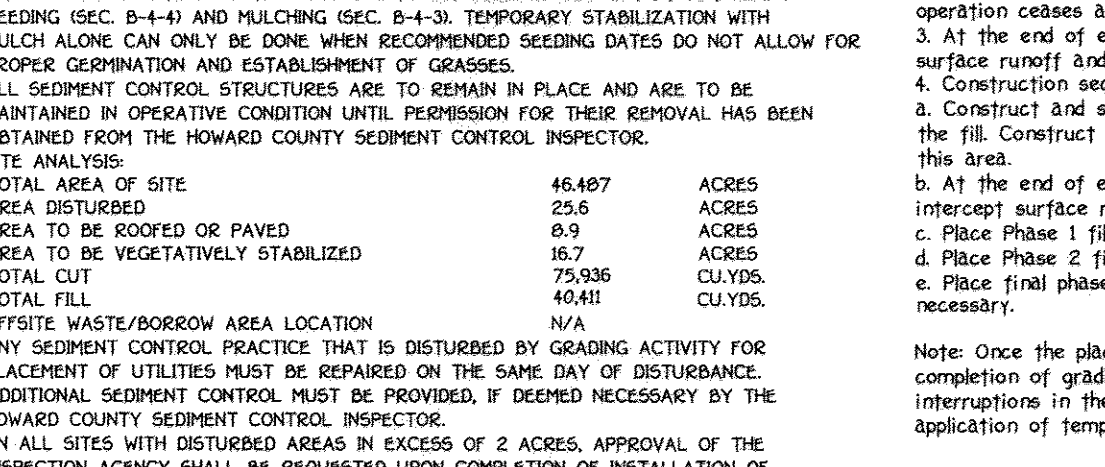
**B-4-1 STANDARDS AND SPECIFICATIONS FOR INCREMENTAL STABILIZATION**

**Definition**  
Establishment of vegetative cover on cut and fill slopes.

**Where Practice Applies**  
To provide timely vegetative cover on cut and fill slopes as work progresses. Conditions where Practice Applies: Any cut or fill slope greater than 15 feet in height. This practice also applies to stockpiles.

**Criteria**  
A. Incremental Stabilization - Cut Slopes  
1. Excavate and stabilize cut slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all cut slopes as the work progresses.  
2. Construction sequence example (refer to Figure B.1):  
a. Construct and stabilize all temporary swales or dikes that will be used to convey runoff around the excavation.  
b. Perform Phase 1 excavation, prepare seedbed, and stabilize.  
c. Perform Phase 2 excavation, prepare seedbed, and stabilize. Overseed Phase 1 areas as necessary.  
d. Perform final phase excavation, prepare seedbed, and stabilize. Overseed previously seeded areas as necessary.

**NOTE: ONCE EXCAVATION HAS BEGUN THE OPERATION SHOULD BE CONTINUOUS FROM GRUBBING THROUGH THE COMPLETION OF GRADING AND PLACEMENT OF TOPSOIL OF (REQUIRED) AND PERMANENT seed and mulch. ANY interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.**



**AS-BUILT CERTIFICATION**

Note: There is no "AS BUILT" information provided on this sheet.

APPROVED: 2/15/18

CHARLES J. GARDNER, P.E., NO. 19204

**SEDIMENT AND EROSION CONTROL NOTES & DETAILS**

**CENTENNIAL LAKE OVERLOOK**

(FORMERLY MASON PROPERTY)

**SECTION TWO**

**BUILDABLE LOTS 29 - 98 B**

**OPEN SPACE LOTS 99 THRU 112**

A RESUBDIVISION OF BUILDABLE BULK PARCELS 'A' & 'B'

TAX MAP NO. 30 GRID NO. 2 PARCEL NO. 86

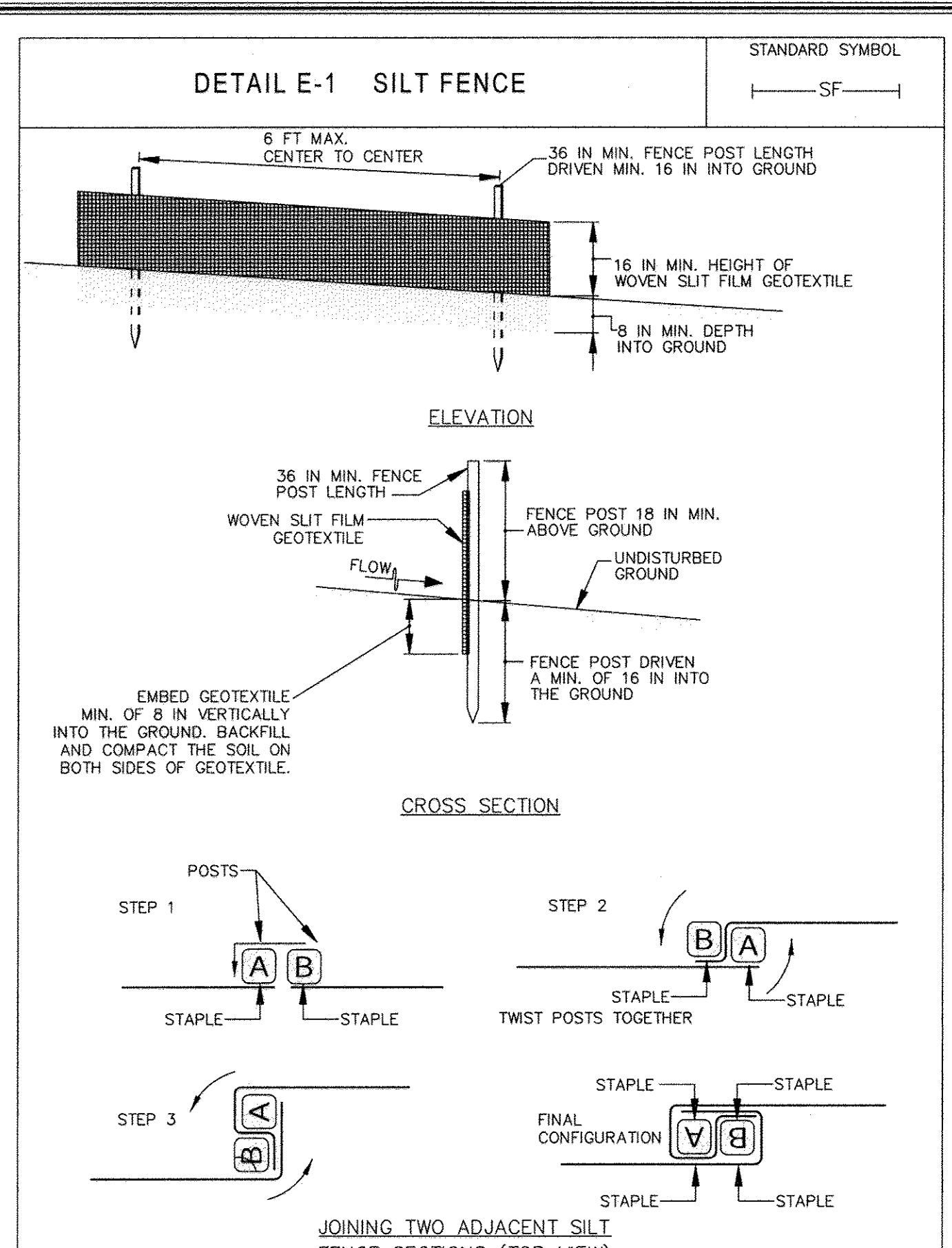
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN DATE: MAY 30, 2014

SHEET # OF 42

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



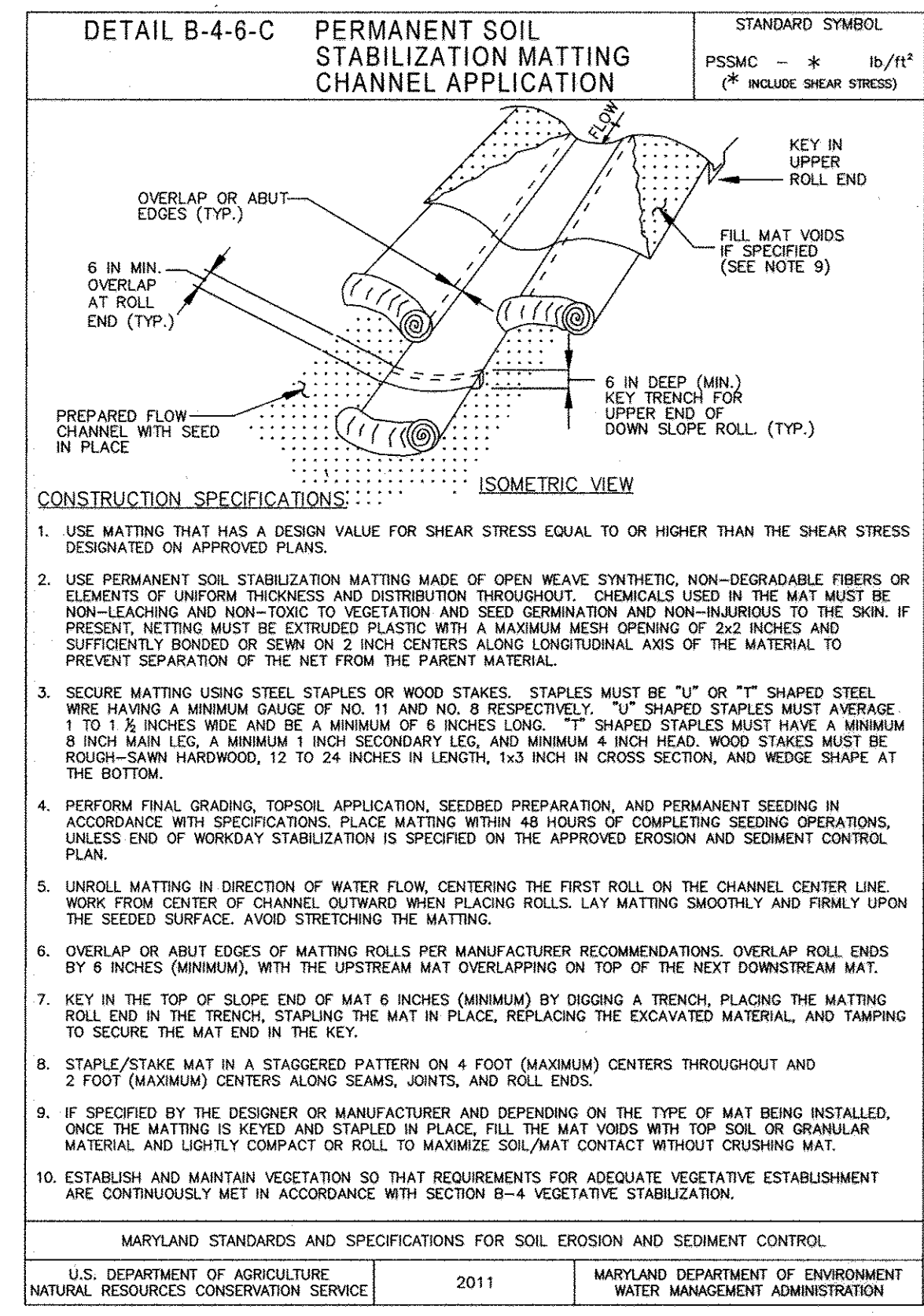
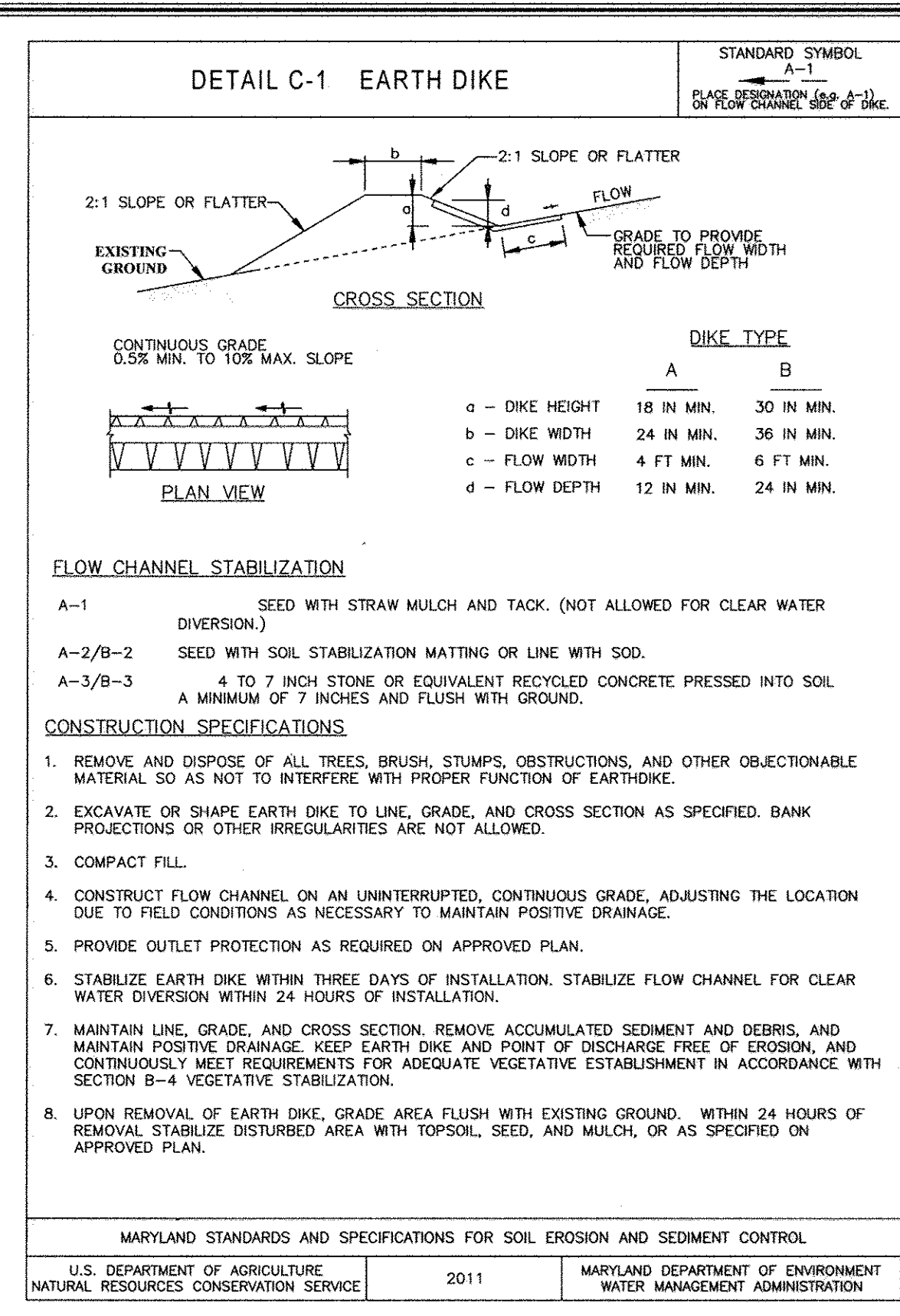
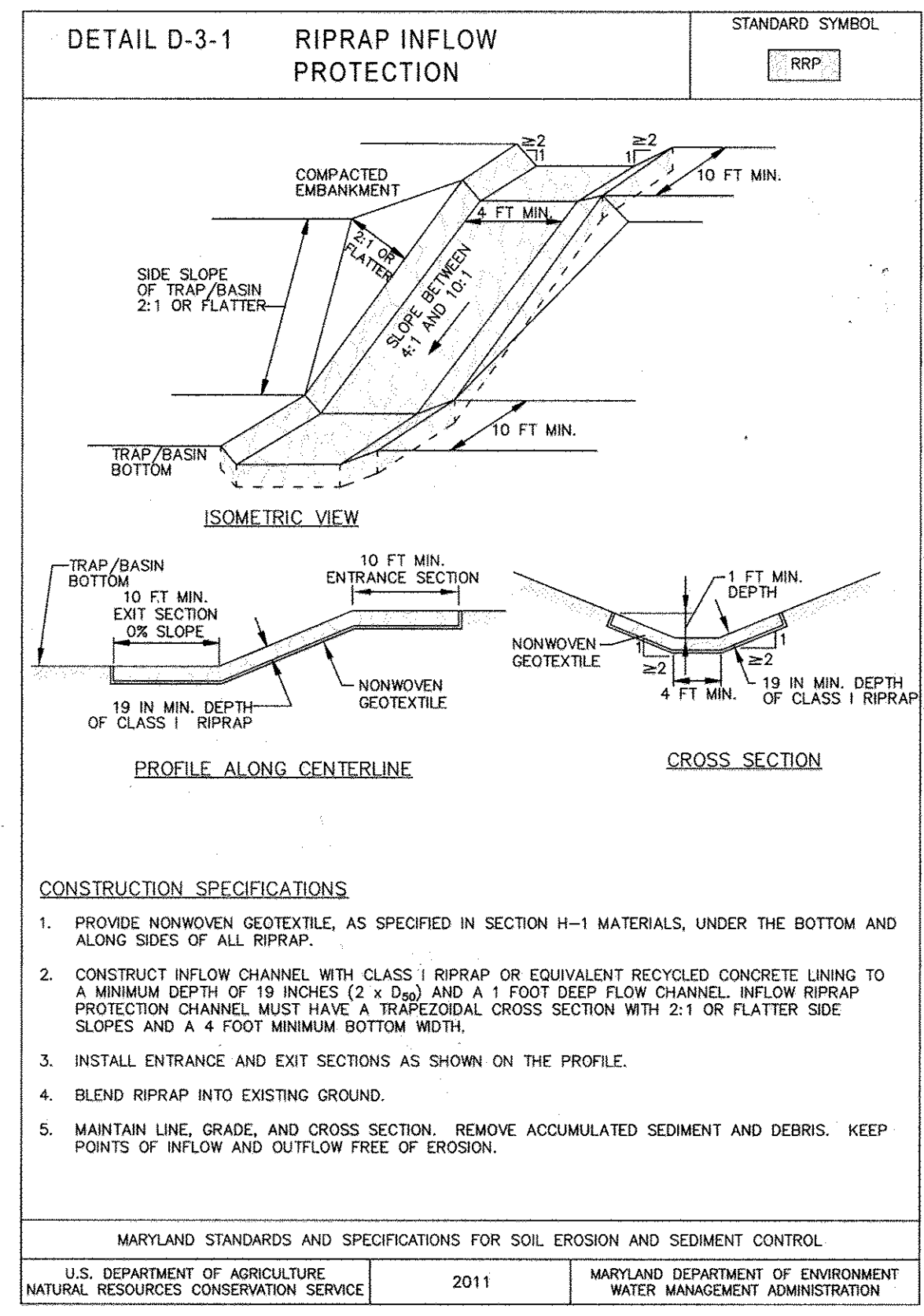
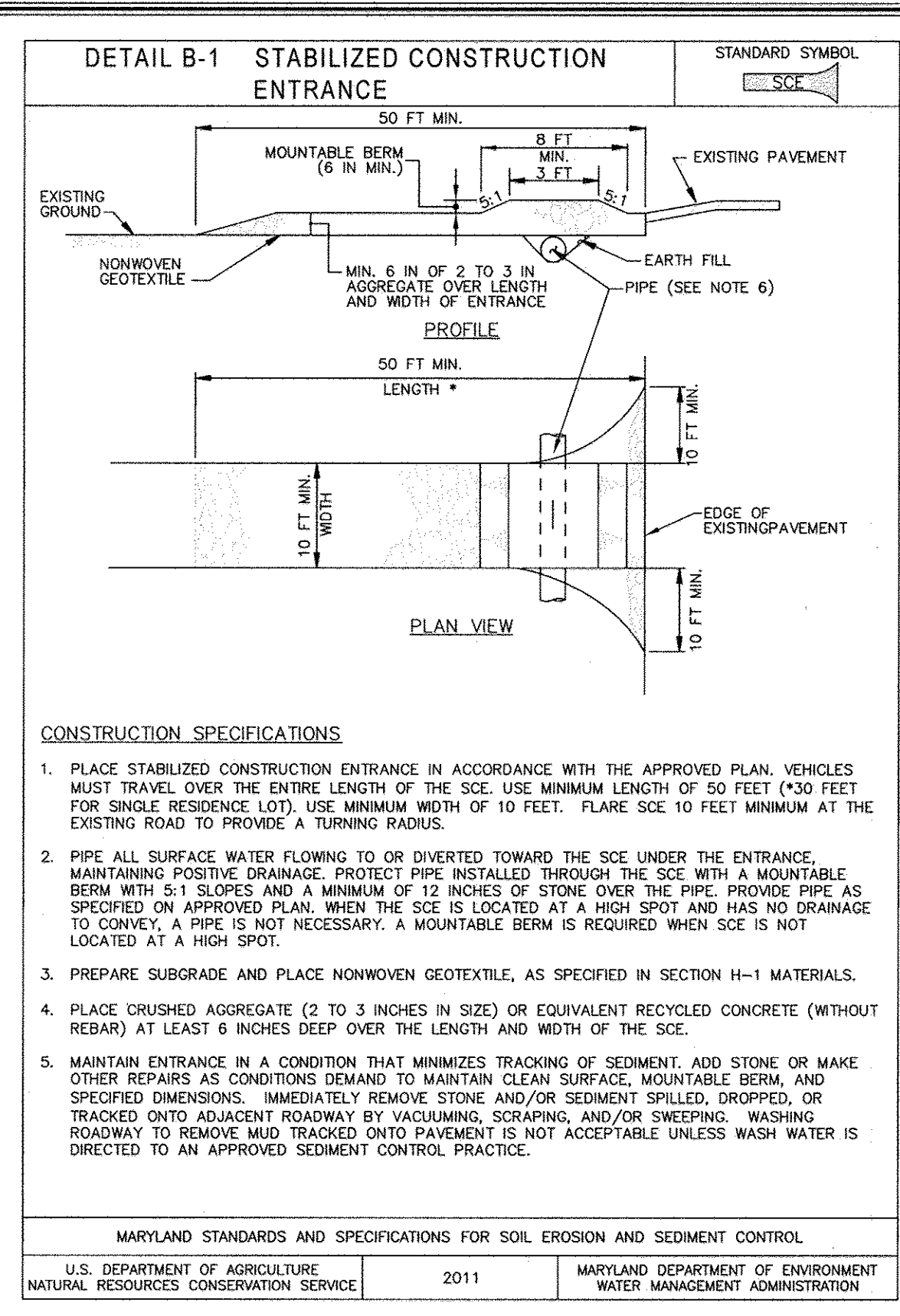
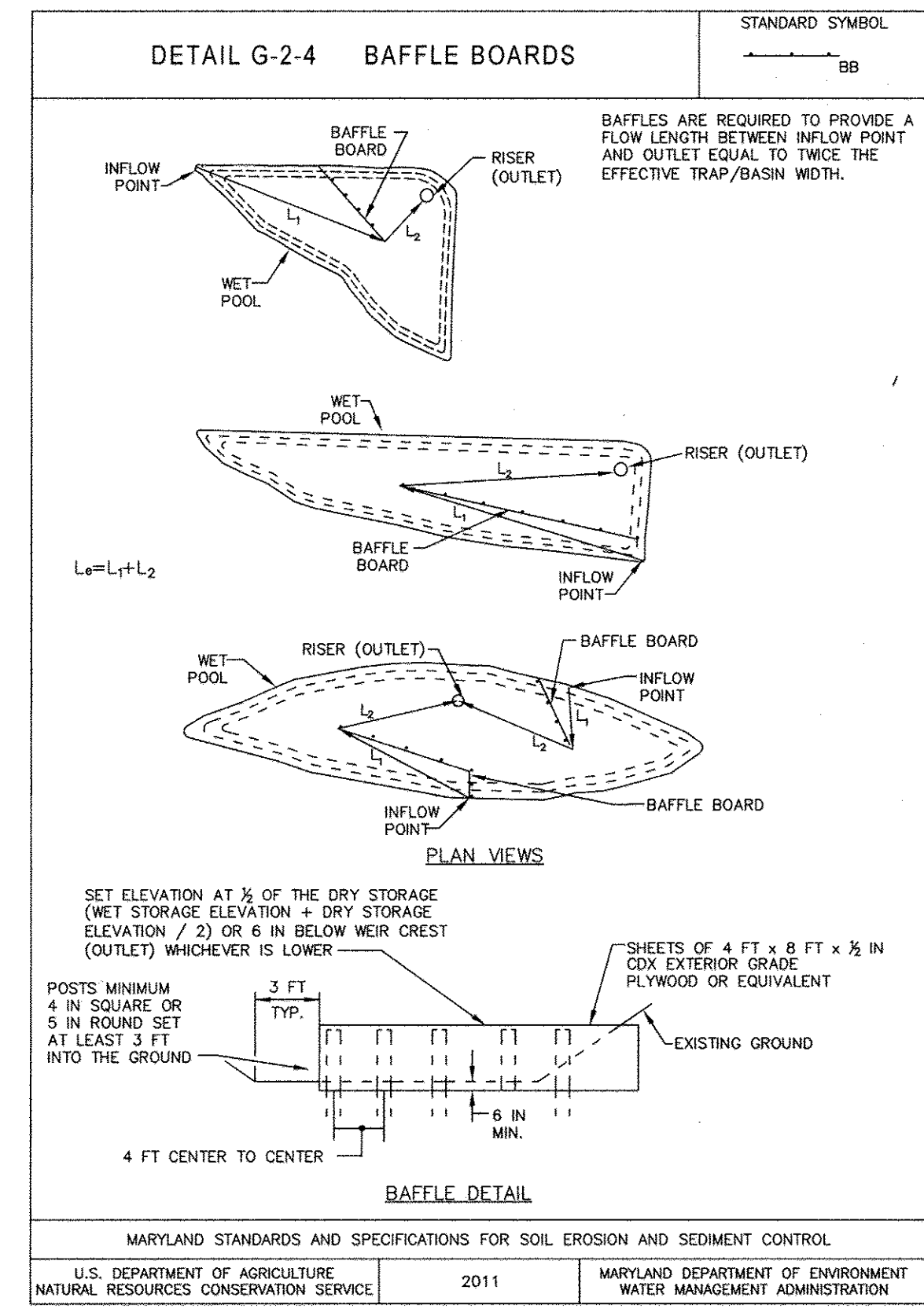
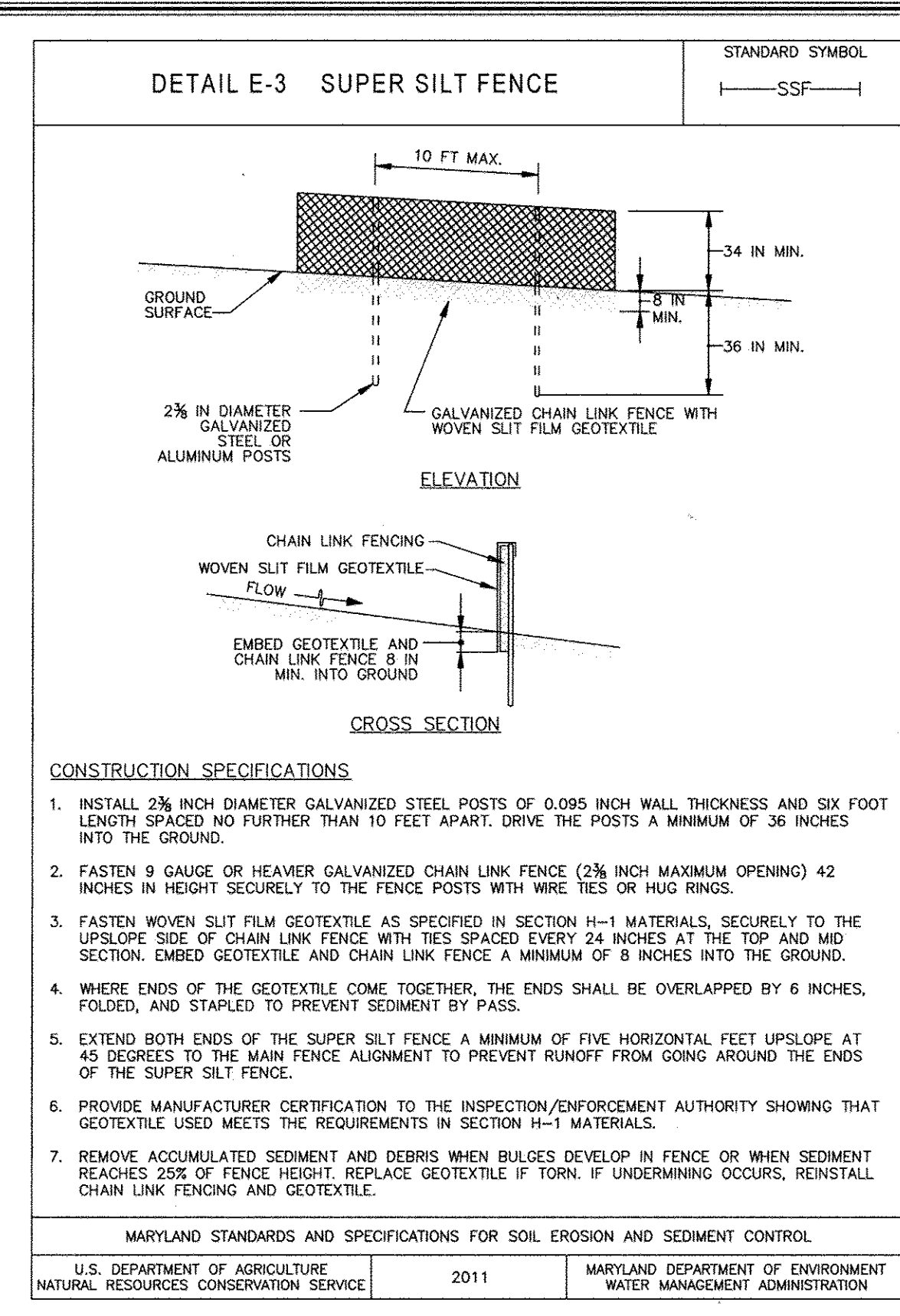


#### CONSTRUCTION SPECIFICATIONS

- USE WOOD POSTS 1 1/2 x 1 1/2 x 1/2 INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
- USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
- USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION.
- PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
- EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FENCE.
- WHERE TWO SECTIONS OF THIS DETAIL ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
- EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.
- REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



### ENGINEER'S CERTIFICATE

I hereby certify that this Plan for Erosion And Sediment Control Represents a Practical and Workable Plan Based On My Personal Knowledge of the Site Location and That It Was Prepared in Accordance With The Standards of the Howard Soil Conservation District.

Signature: *[Signature]* Date: 5/20/14

### DEVELOPER'S CERTIFICATE

I/We Certify That All Development And Construction Will Be Done According To This Plan Of Development And Erosion And Sediment Control And That All Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of Natural Resources 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 Or Their Authorized Agents, As Are Deemed Necessary.

Signature of Developer: *[Signature]* Date: 6/10/14

Approved: This Development Is Approved For Erosion And Sediment Control By The Howard Soil Conservation District.

Signature: *[Signature]* Date: 6/5/14

District: Howard Soil Conservation Dist.

Approved: Department Of Planning And Zoning

Signature: *[Signature]* Date: 6-29-14

Chief, Division Of Land Development

Signature: *[Signature]* Date: 6-16-14

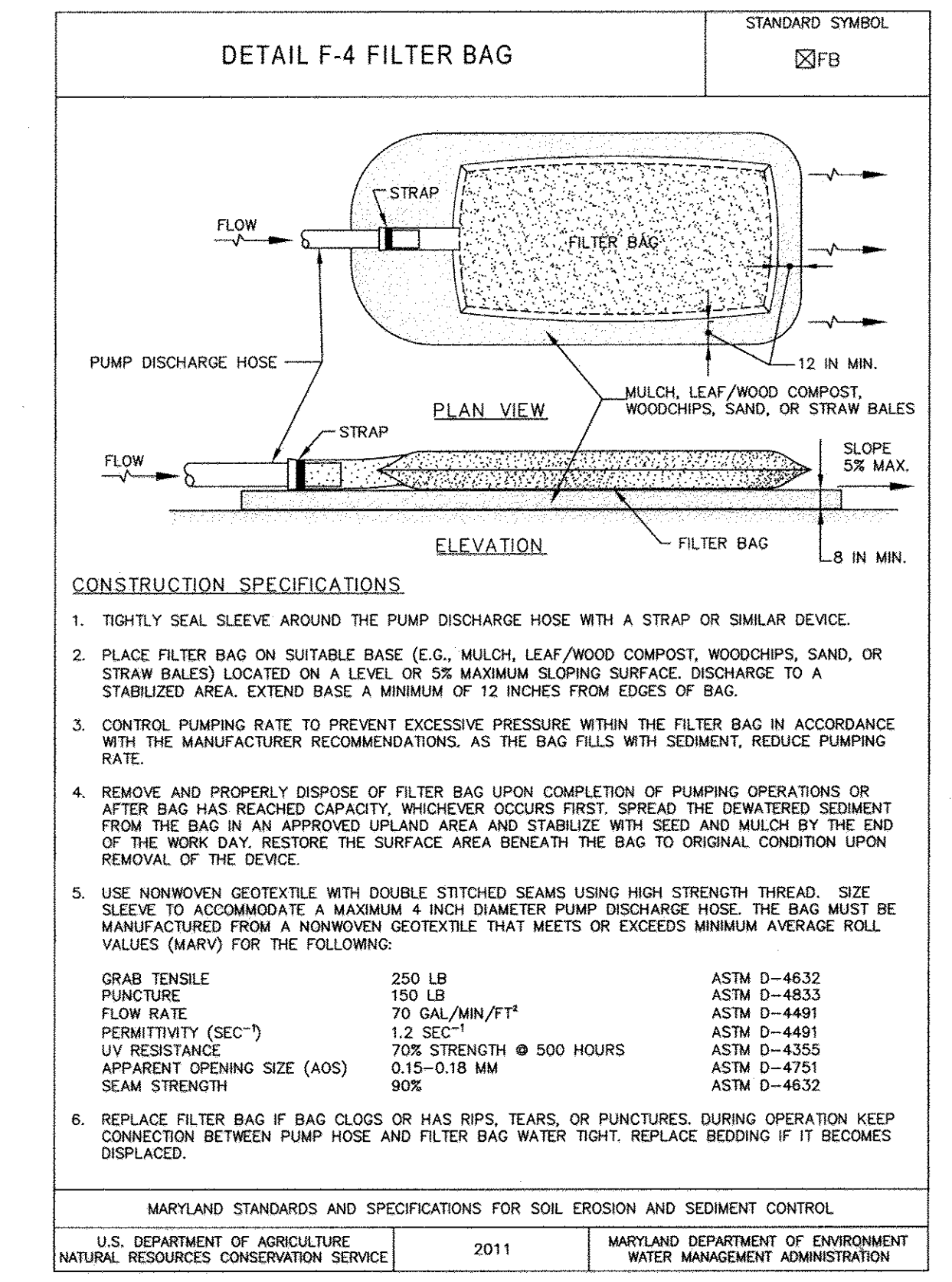
Chief, Development Engineering Division

Approved: Howard County Department Of Public Works

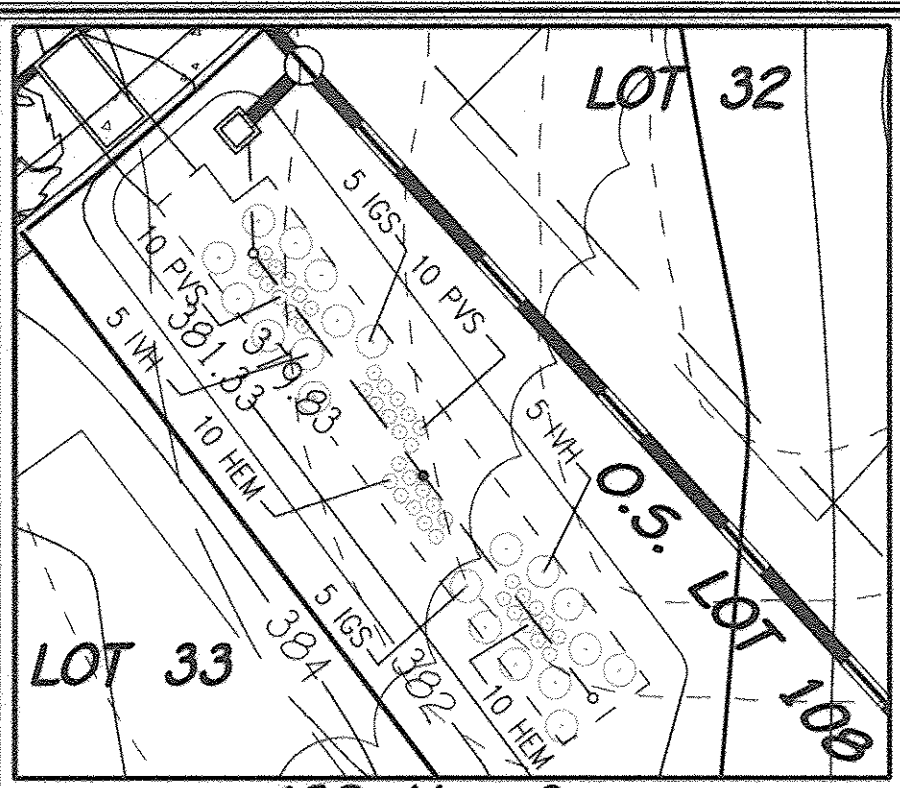
Signature: *[Signature]* Date: 6-10-14

Chief, Bureau Of Highways

NO.	DESCRIPTION	DATE
1	Revise Title Block	4-3-15
2	Revise Sheet Number To Reflect Added Sheet	10/2/16







**ESD No. 3  
MICRO BIO-RETENTION (M-6)**  
SCALE: 1" = 20'

Approved: Department Of Planning And Zoning

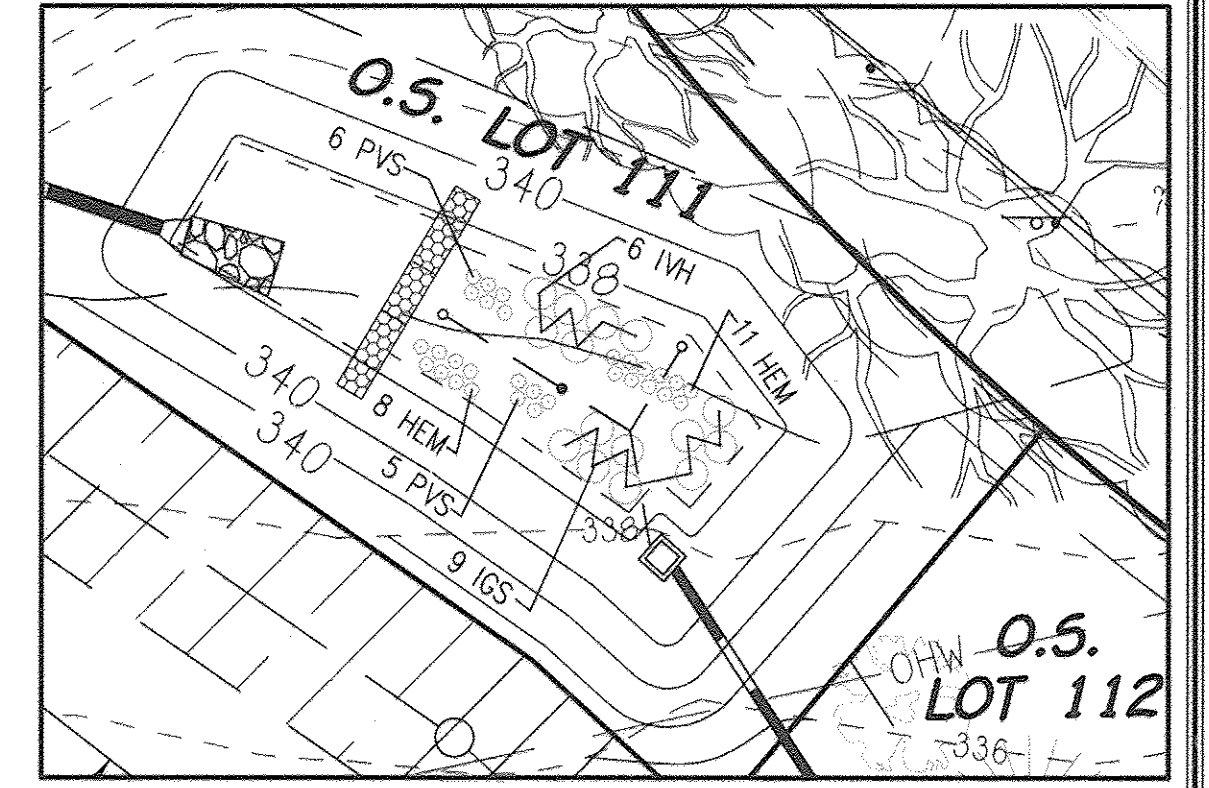
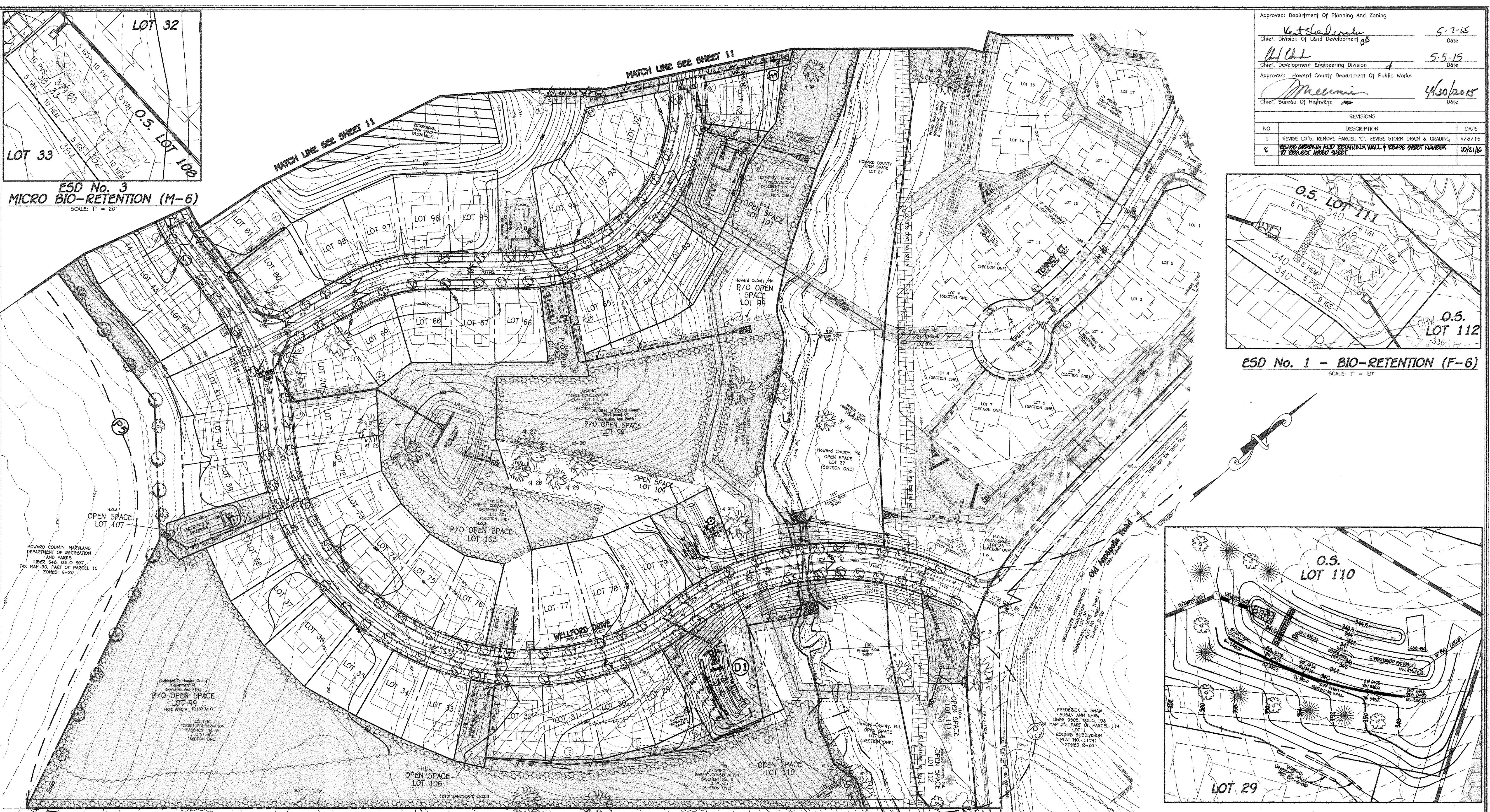
*K. T. Shalanda* 5-7-15  
Chief, Division Of Land Development 6B Date

*John Under* 5-5-15  
Chief, Development Engineering Division 1 Date

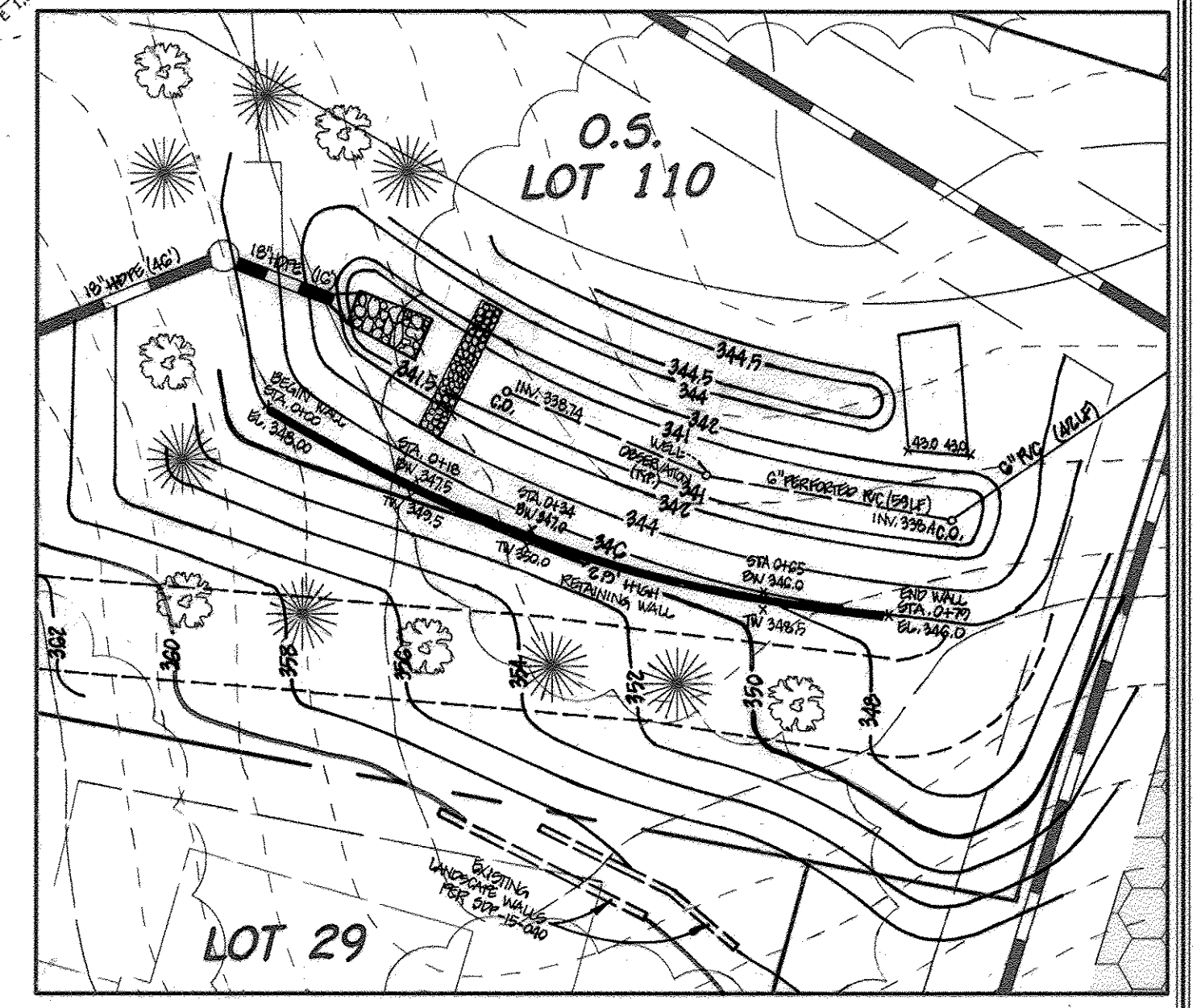
Approved: Howard County Department Of Public Works

*M. M. M. M.* 4/30/2015  
Chief, Bureau Of Highways 10 Date

REVISIONS		
NO.	DESCRIPTION	DATE
1	REVISE LOTS, REMOVE PARCEL 'C', REVISE STORM DRAIN & GRADING	4/3/15
2	REVISE PARCELS AND RECONSTRUCT WALL & REMOVE STREET NUMBER TO CORRECT ADDRESS 3/20/15	10/21/16



**ESD No. 1 - BIO-RETENTION (F-6)**  
SCALE: 1" = 20'



**ESD No. 2 - SANDFILTER (F-1)**  
SCALE: 1" = 20'

BOARD OF COMMISSIONERS OF HOWARD COUNTY, MARYLAND DEPARTMENT OF RECREATION AND PARKS  
LIBER 948, FOLIO 687  
TAX MAP 30, PART OF PARCEL 10  
ZONED: R-20

DEDICATED TO HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS  
LIBER 947, FOLIO 796  
TAX MAP 30, PARCEL 249  
ZONED: R-20

EXISTING FOREST CONSERVATION EASEMENT NO. 6  
1.57 AC (SECTION ONE)

ONE HING HILL WEI EUNGYE  
LIBER 947, FOLIO 456  
TAX MAP 30, PART OF PARCEL 360  
LOT 9  
OAK HILL ESTATES, LOTS 4 THRU 10  
PLAT NO. 14279  
ZONED: R-20

STEVE F. MCLEAY  
LIBER 1940, FOLIO 687  
TAX MAP 30, PART OF PARCEL 358  
LOT 7  
OAK HILL ESTATES, LOTS 17 AND 18,  
A RESUBDIVISION OF LOTS 9 AND 10  
PLAT NO. 7419  
ZONED: R-20

STORM WATER MGMT AND UTILITY ESN  
PART OF LOT 3  
PLAN NO. 9407

TAX MAP 30, PARCEL 368  
FELICH F. BENNETT  
ROBERT L. BENNETT  
LIBER 1106, FOLIO 665  
LOT 16, PART NO. 1878  
ZONED: R-20

ANNAPOLIS STATION HOMEOWNERS ASSOCIATION  
LIBER 2912, FOLIO 559  
TAX MAP 30, PART OF PARCEL 163  
LOT 1  
RODGES SUBDIVISION  
PLAT NO. 11991  
ZONED: R-20

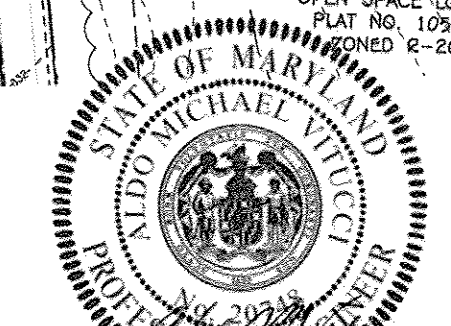
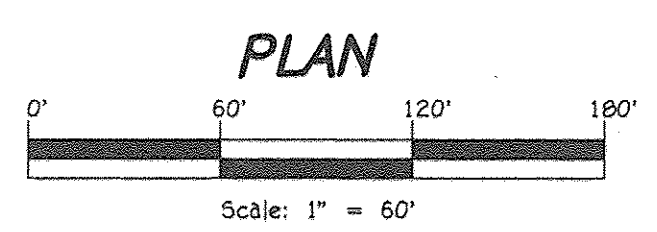
**LANDSCAPE DEVELOPER'S CERTIFICATE**  
I/We certify that the landscaping shown on this plan will be done according to the plan, Section 16.124 of the Howard County Code and the Howard County Landscape Manual. I/We further certify that upon completion a letter of landscape installation accompanied by an executed one year guarantee of plant materials will be submitted to the Department of Planning and Zoning.



**OWNER/DEVELOPER**  
BEAZER HOMES CORP  
6945 GUILFORD ROAD  
COLUMBIA, MARYLAND 21046  
(410-720-5071)

**AS-BUILT CERTIFICATION**  
I hereby certify, by my seal, that the facilities shown on this plan were constructed as shown on this "AS BUILT" plan meet the approved plans and specifications.

*Charles J. Cecio, Jr.*  
CHARLES J. CECIO, JR. NO. 19104  
4/15/18  
Date

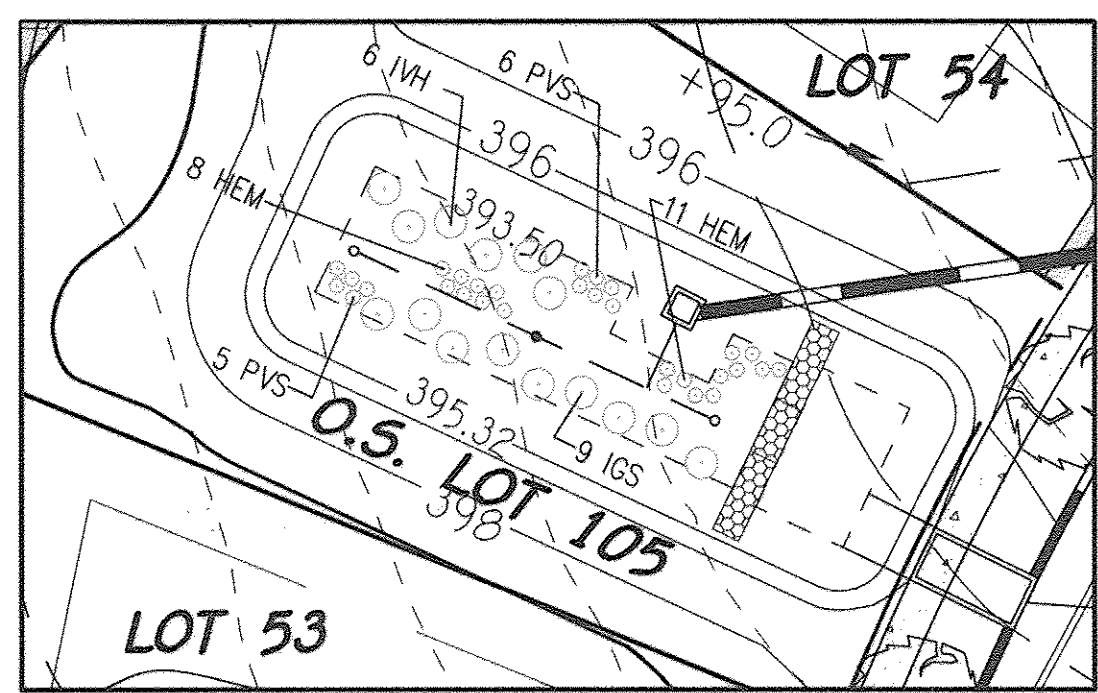


ALDO M. VITUCCI, P.E.  
DATE: 4/15/18  
Professional certification. I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20749, Expiration Date 2-22-17.

**REVISED  
STREET TREE & LANDSCAPE PLAN  
CENTENNIAL LAKE OVERLOOK**  
(FORMERLY MASON PROPERTY)  
**SECTION TWO  
BUILDABLE LOTS 89 - 99  
AND OPEN SPACE LOTS 99 THRU 112**  
A RESUBDIVISION OF BUILDABLE BULK PARCELS 'A' & 'B'  
ZONING: R-20  
TAX MAP NO. 30 GRID NO. 2 PARCEL NO. 86  
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: APRIL 3, 2015  
SHEET 10 OF 40

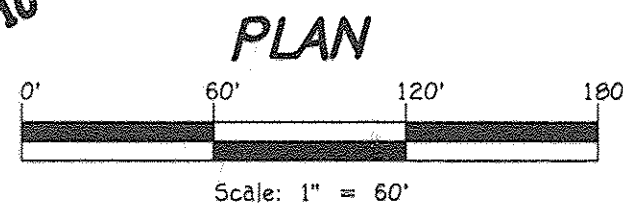
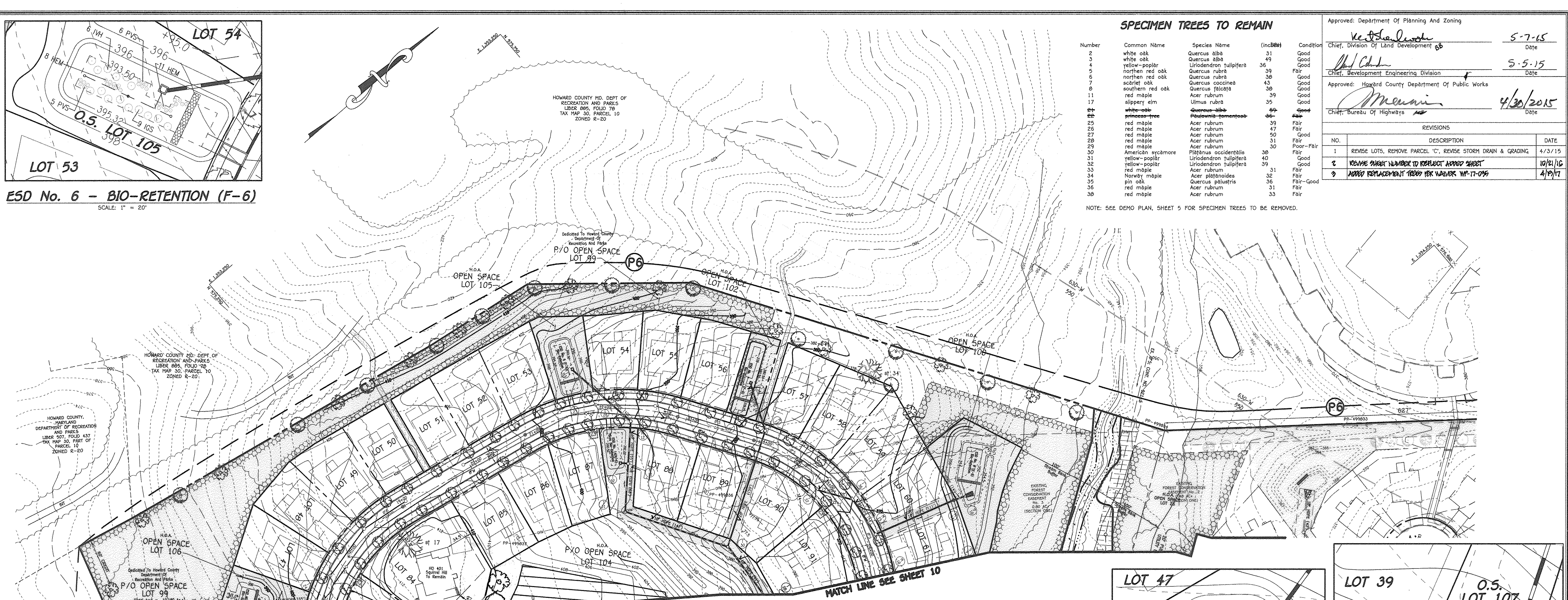
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**ESD No. 6 - BIO-RETENTION (F-6)**

SCALE: 1" = 20'



**SPECIMEN TREES TO REMAIN**

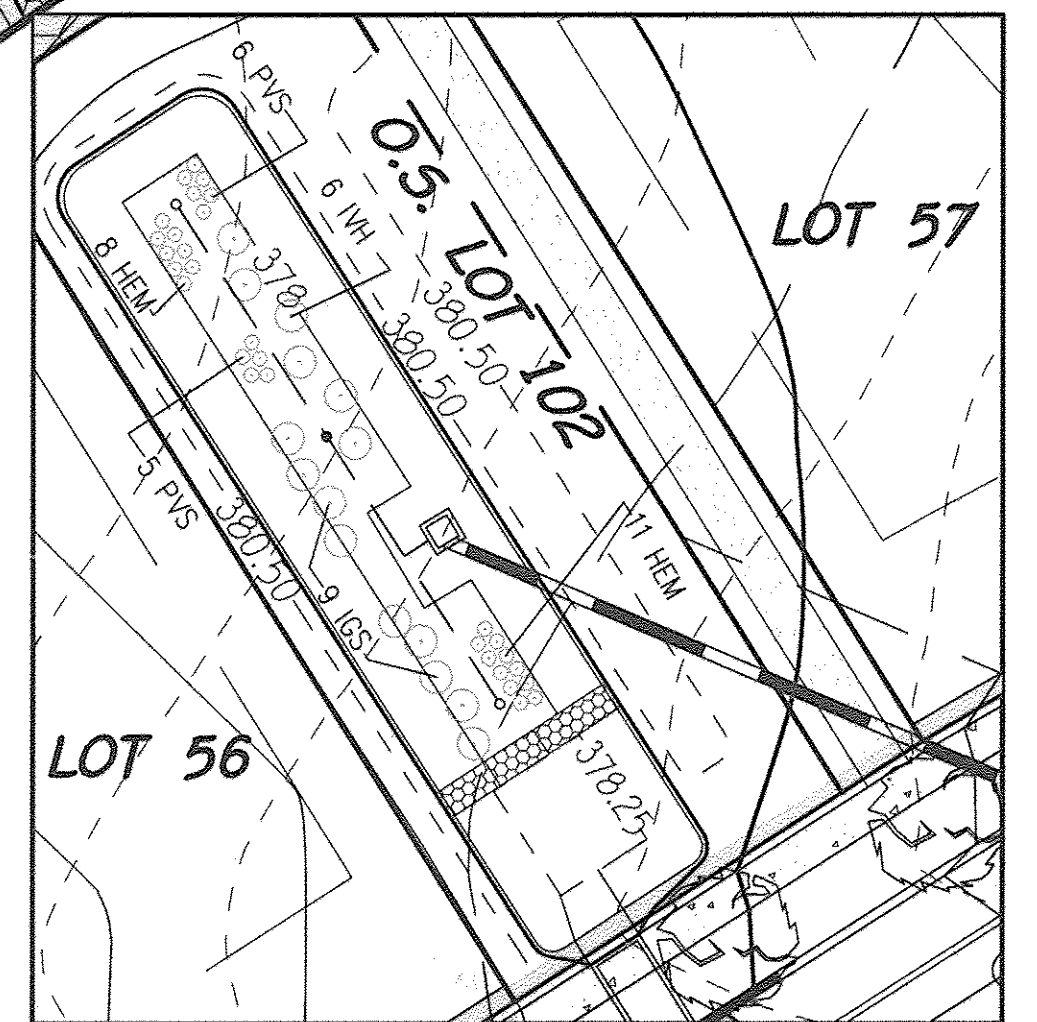
Number	Common Name	Species Name	(inches)	Condition
2	white oak	Quercus alba	31	Good
3	white oak	Quercus alba	49	Good
4	yellow-poplar	Liriodendron tulipifera	36	Fair
5	northern red oak	Quercus rubra	38	Good
6	northern red oak	Quercus rubra	38	Good
7	scarlet oak	Quercus coccinea	43	Good
8	southern red oak	Quercus falcata	38	Good
9	red maple	Acer rubrum	39	Good
11	red maple	Acer rubrum	35	Good
17	slippery elm	Ulmus rubra	35	Good
24	white-oak	Quercus alba	40	Good
25	red maple	Acer rubrum	39	Fair
26	red maple	Acer rubrum	47	Fair
27	red maple	Acer rubrum	50	Good
28	red maple	Acer rubrum	31	Fair
29	red maple	Acer rubrum	30	Poor-Fair
30	American sycamore	Platanus occidentalis	38	Fair
31	yellow-poplar	Liriodendron tulipifera	40	Good
32	yellow-poplar	Liriodendron tulipifera	39	Good
33	red maple	Acer rubrum	31	Fair
34	Norway maple	Acer platanoides	32	Fair
35	pin oak	Quercus palustris	36	Fair-Good
36	red maple	Acer rubrum	31	Fair
38	red maple	Acer rubrum	33	Fair

NOTE: SEE DEMO PLAN, SHEET 5 FOR SPECIMEN TREES TO BE REMOVED.

Approved: Department of Planning and Zoning  
 Chief, Division of Land Development *5-7-15*  
 Date  
 Chief, Development Engineering Division *5-5-15*  
 Date  
 Approved: Howard County Department of Public Works  
 Chief, Bureau of Highways *4/30/2015*  
 Date

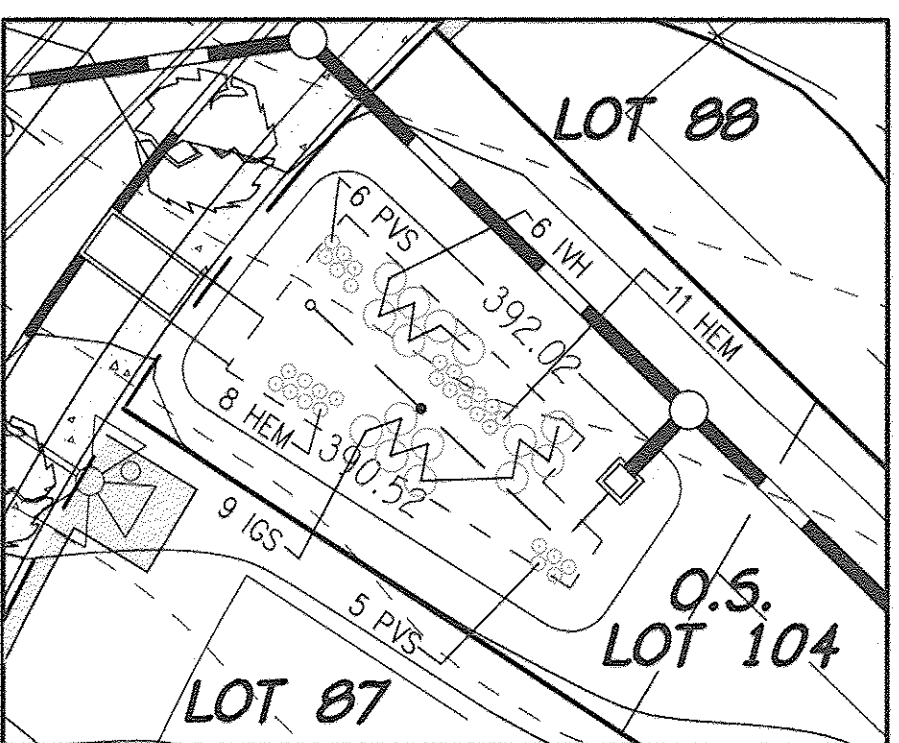
REVISIONS

NO.	DESCRIPTION	DATE
1	REVISE LOTS, REMOVE PARCEL 'C', REVISE STORM DRAIN & GRADING	4/3/15
2	REVISE SHEET NUMBER TO REFLECT APPROVED SHEET	10/21/16
3	ADD REPLACEMENT TREES PER NUMBER WP-17-096	4/19/17



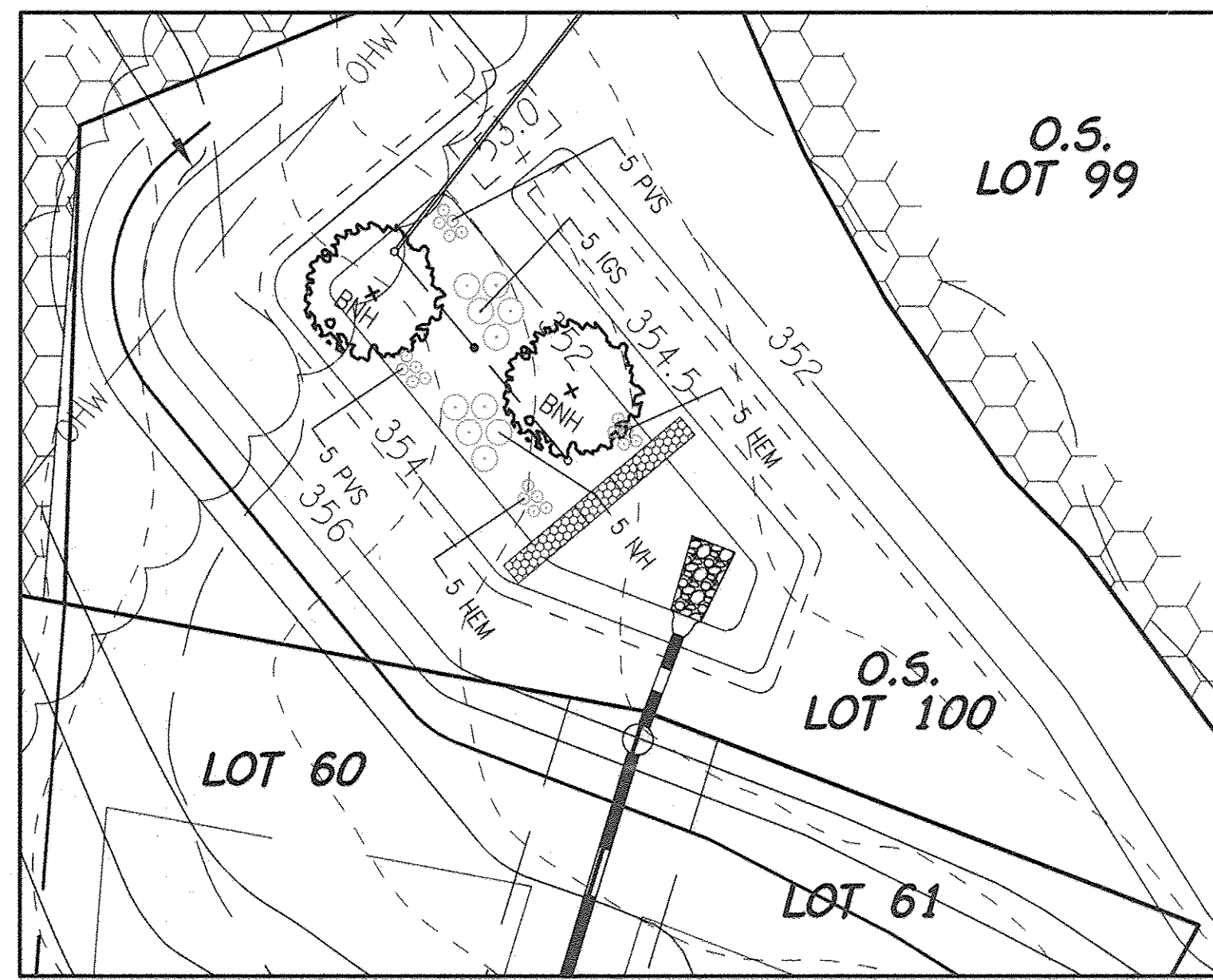
**ESD No. 7 - BIO-RETENTION (F-6)**

SCALE: 1" = 20'



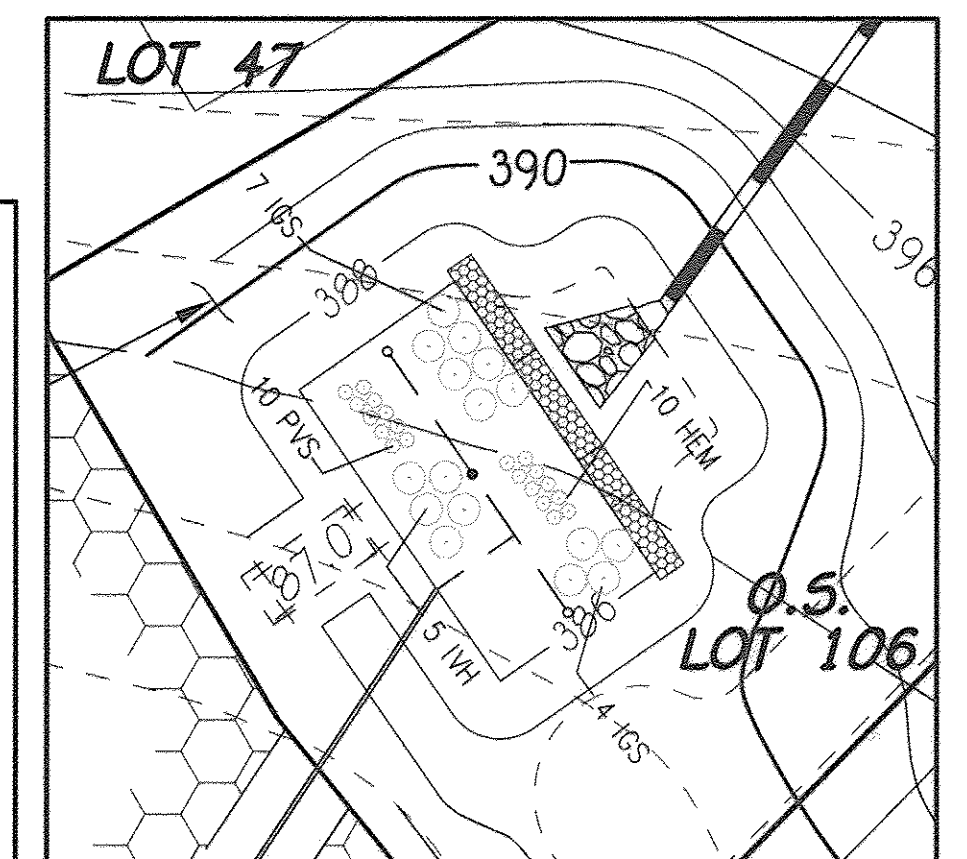
**ESD No. 14 MICRO BIO-RETENTION (M-6)**

SCALE: 1" = 20'



**ESD No. 8 - BIO-RETENTION (F-6)**

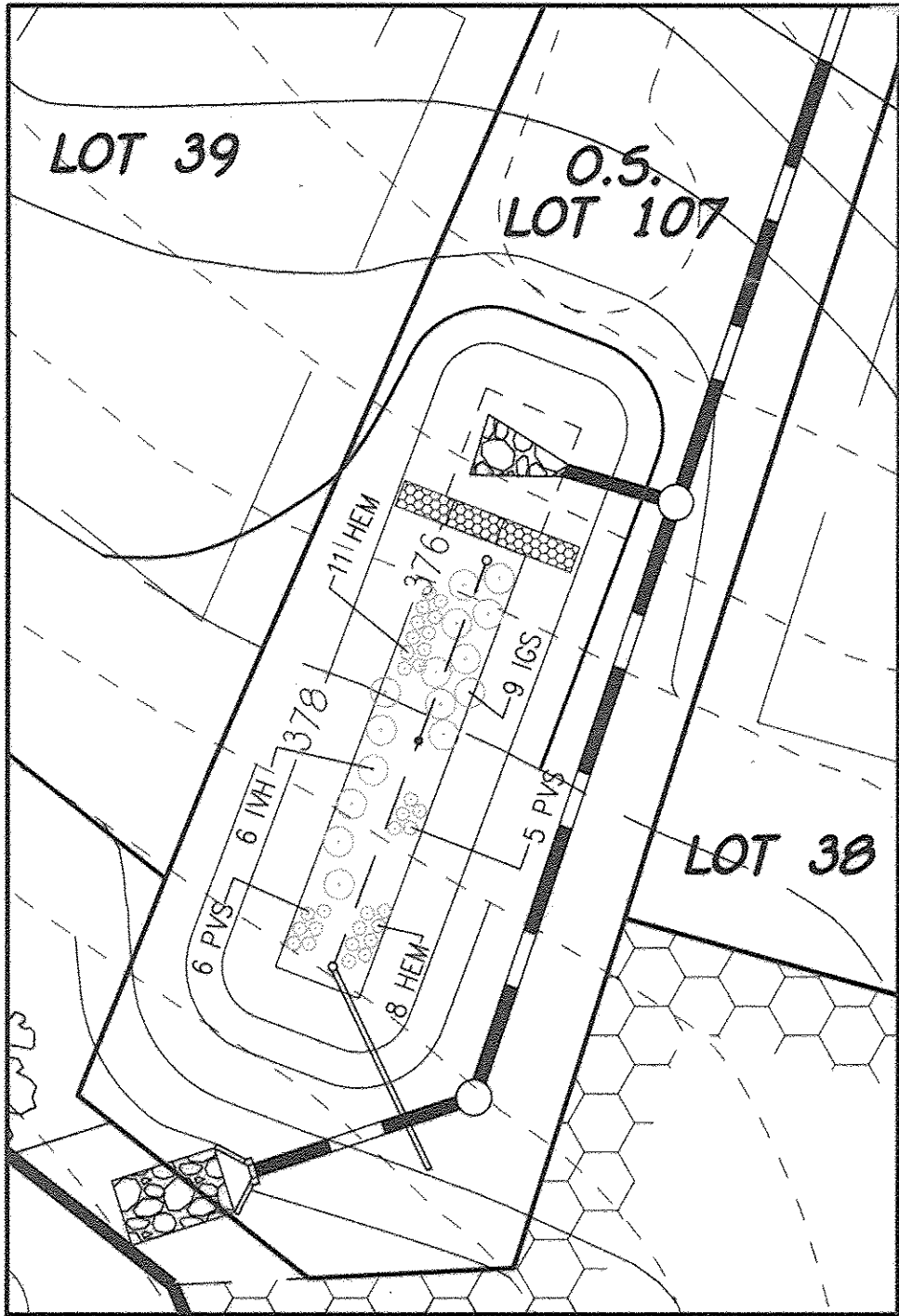
SCALE: 1" = 20'



**ESD No. 5 BIO-RETENTION (F-6)**

SCALE: 1" = 20'

AS-BUILT CERTIFICATION  
 I hereby certify, by my seal, that the facilities shown on this plan were constructed as shown on this "AS BUILT" plan meet the approved plans and specifications.  
*[Signature]* a/s/8  
 CHAPMAN, DEAN, INC. NO. 19204 Date



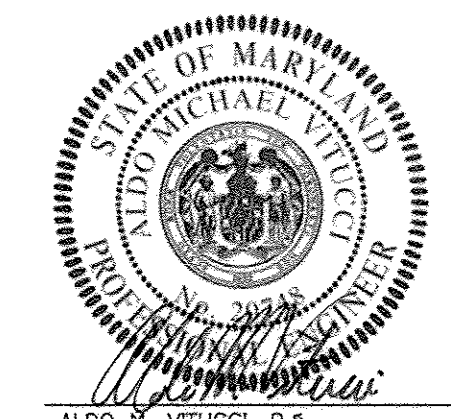
**ESD No. 4 BIO-RETENTION (F-6)**

SCALE: 1" = 20'

**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTENNIAL SQUARE OFFICE PARK - 10272 MULTIPLE NATIONAL PIKE  
 ELLSWORTH CITY, MARYLAND 21042  
 (410) 461-2895

**OWNER/DEVELOPER**  
 BEAZER HOMES CORP  
 8955 GUILFORD ROAD  
 COLUMBIA, MARYLAND 21046  
 (410-720-5071)

**LANDSCAPE DEVELOPER'S CERTIFICATE**  
 I/we certify that the landscaping shown on this plan will be done according to the plan, Section 16.124 of the Howard County Code and the Howard County Landscape Manual. I/we further certify that upon completion a letter of landscape installation accompanied by an executed one year guarantee of plant materials will be submitted to the Department of Planning and Zoning.  
*[Signature]* a/s/15  
 Name Date



ALDO H. VITULLI, P.E.  
 PROFESSIONAL CERTIFICATION. I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-17.



**REVISED STREET TREE & LANDSCAPE PLAN CENTENNIAL LAKE OVERLOOK**  
 (FORMERLY MASON PROPERTY)  
**SECTION TWO**  
 BUILDABLE LOTS 89 - 99 AND OPEN SPACE LOTS 99 THRU 112  
 A RESUBDIVISION OF BUILDABLE BULK PARCELS 'A' & 'B' ZONING R-20  
 TAX MAP No. 30 GRID No. 2 PARCEL No. B6  
 2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN DATE: APRIL 3, 2015  
 SHEET 11 OF 42

"AS-BUILT" F-14-081

E:\2011\11042\wp1\Finals\section two\Baseline Revision 1-13-15\11042 sheet 10-11 landscape plan new mylar.dwg 4/9/2015 9:01:03 AM, 11



Approved: Department of Public Works  
 Chief, Bureau of Highways  
 Date: 6-16-14

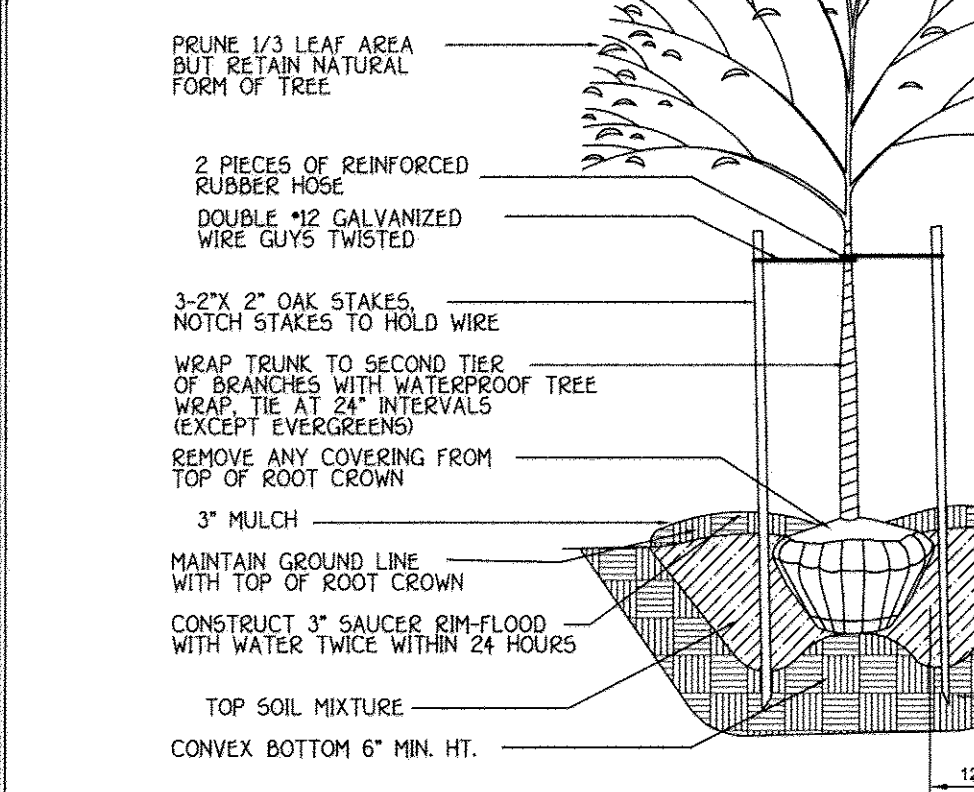
Approved: Department of Planning and Zoning  
 Chief, Division of Land Development  
 Date: 6-24-14

Chief, Development Engineering Division  
 Date: 6-16-14

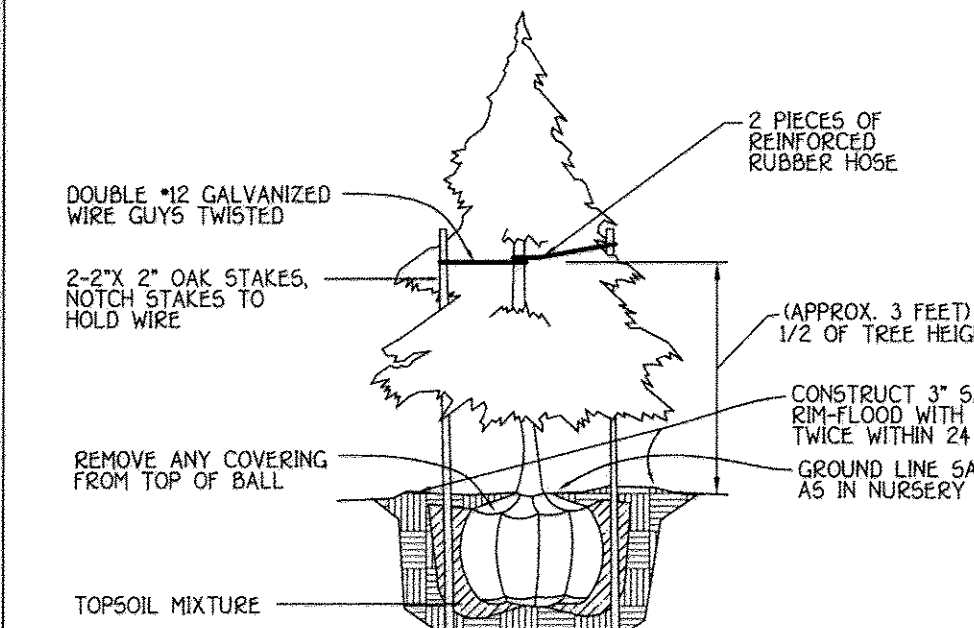
NO.	REVISIONS	DESCRIPTION	DATE
1	Revise Title Block		4-3-15
2	REVISE PERIMETER AND EXISTING WALL & CHANGE TREE NUMBER TO REFLECT		10/2/16
3	REVISE PERIMETER AND EXISTING WALL & CHANGE TREE NUMBER TO REFLECT		10/2/16
4	REVISE PERIMETER AND EXISTING WALL & CHANGE TREE NUMBER TO REFLECT		10/2/16
5	REVISE PERIMETER AND EXISTING WALL & CHANGE TREE NUMBER TO REFLECT		10/2/16

NOTE: CONTRACTOR TO REGRADE 500 OR HYDROSEED AND STRAW MULCH ALL AREAS DISTURBED AS A RESULT OF THEIR WORK.

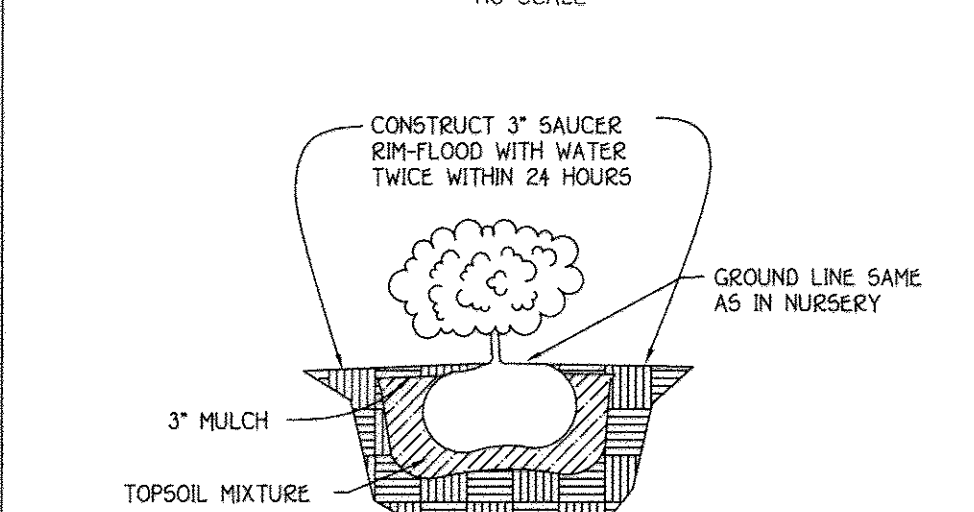
SPRAY WITH WILT-PROOF ACCORDING TO MANUFACTURERS STANDARDS



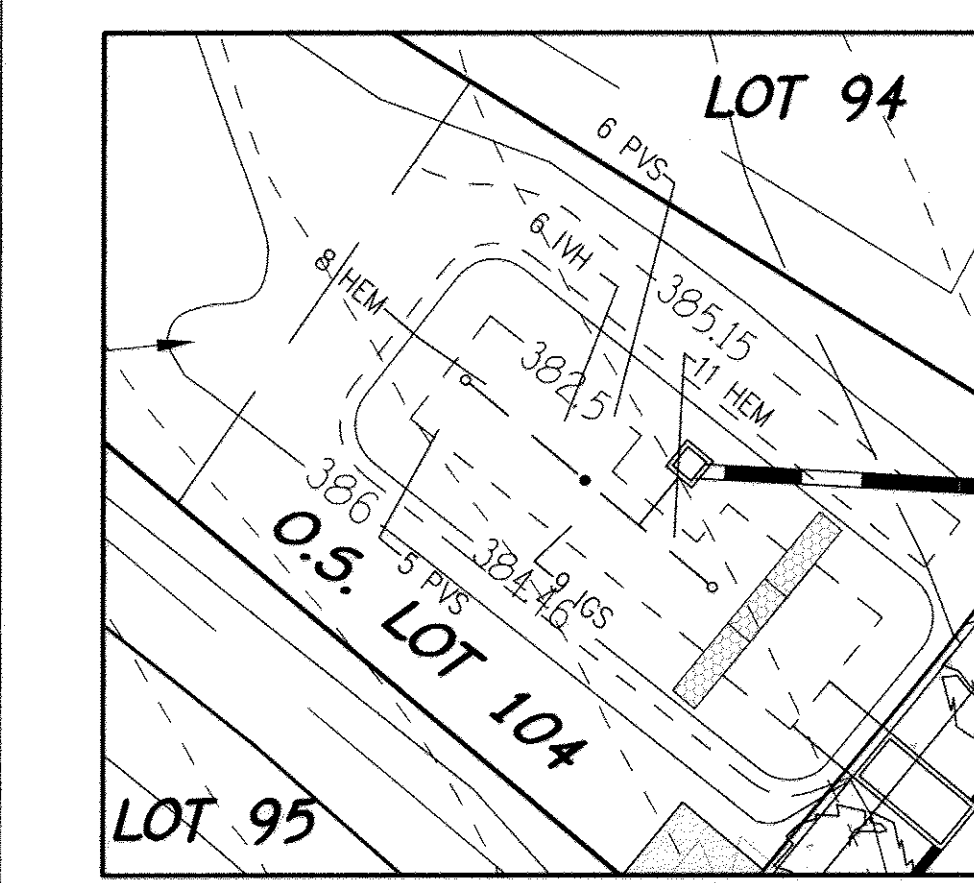
SHADE TREE PLANTING DETAIL  
NO SCALE



EVERGREEN TREE PLANTING DETAIL  
NO SCALE



SHRUB PLANTING DETAIL  
NO SCALE



ESD No. 15 - BIO-RETENTION (F-6)  
SCALE: 1" = 20'

FISHER, COLLINS & CARTER, INC.  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTENNIAL SQUARE, OFFICE PARK, 10722 BALTIMORE NATIONAL PIKE  
 ELLSWORTH CITY, MARYLAND 21042  
 (410) 461-2895

PLANTING SPECIFICATIONS

Plants, related material, and operations shall meet the detailed description as given on the plans and as described herein.

All plant material, unless otherwise specified, shall be nursery grown, uniformly branched, have a vigorous root system, and shall conform to the species, size, root and shape shown on the plant list and the American Association of Nurserymen (AAN) standards. Plant material shall be healthy, vigorous, free from defects, decay, disfiguring roots, sun scald, injuries, diseases of the bark, plant disease, insect pest eggs, borers and all forms of insect infestations or objectionable disfigurements. Plant material that is weak or which has been cut back from larger grades to meet specified requirements will be rejected. Trees with forked leaders will not be accepted. All plants shall be frost-free and no holdover plants from cold storage will be accepted.

Unless otherwise specified, all general conditions, planting operations, details and planting specifications shall conform to "Landscape Specification Guidelines for Baltimore-Washington Metropolitan Area", hereinafter "Landscape Guidelines" approved by the Landscape Contractors Association of Metropolitan Washington and the National Chapter of the American Society of Landscape Architects, latest edition, including all legends.

Contractor shall be required to guarantee all plant material for a period of one year after date of acceptance in accordance with the appropriate section of the Landscape Guidelines. Contractor's attention is directed to the maintenance requirements found within the one year specifications including watering and replacement of specified plant material.

Contractor shall be responsible for notifying utility companies, utility contractors and "Miss Utility" a minimum of 48 hours prior to beginning any work. Contractor may make minor adjustments in spacing and location of plant material to avoid conflicts with utilities. Damage to existing structure and utilities shall be repaired at the expense of the Contractor.

Protection of existing vegetation to remain shall be accomplished by the temporary installation of 4 foot high snow fence or blaze orange safety fence at the dip line.

Contractor is responsible for installing all material in the proper planting season for each plant type. All planting is to be completed within the growing season of completion of site construction.

Soil shall be based on actual site conditions. No extra payment shall be made for work arising from site conditions differing from those indicated on drawings and specifications.

Plant quantities are provided for the convenience of the contractor only. If discrepancies exist between quantities shown on plan and those shown on the plant list, the quantities on the plan take precedence.

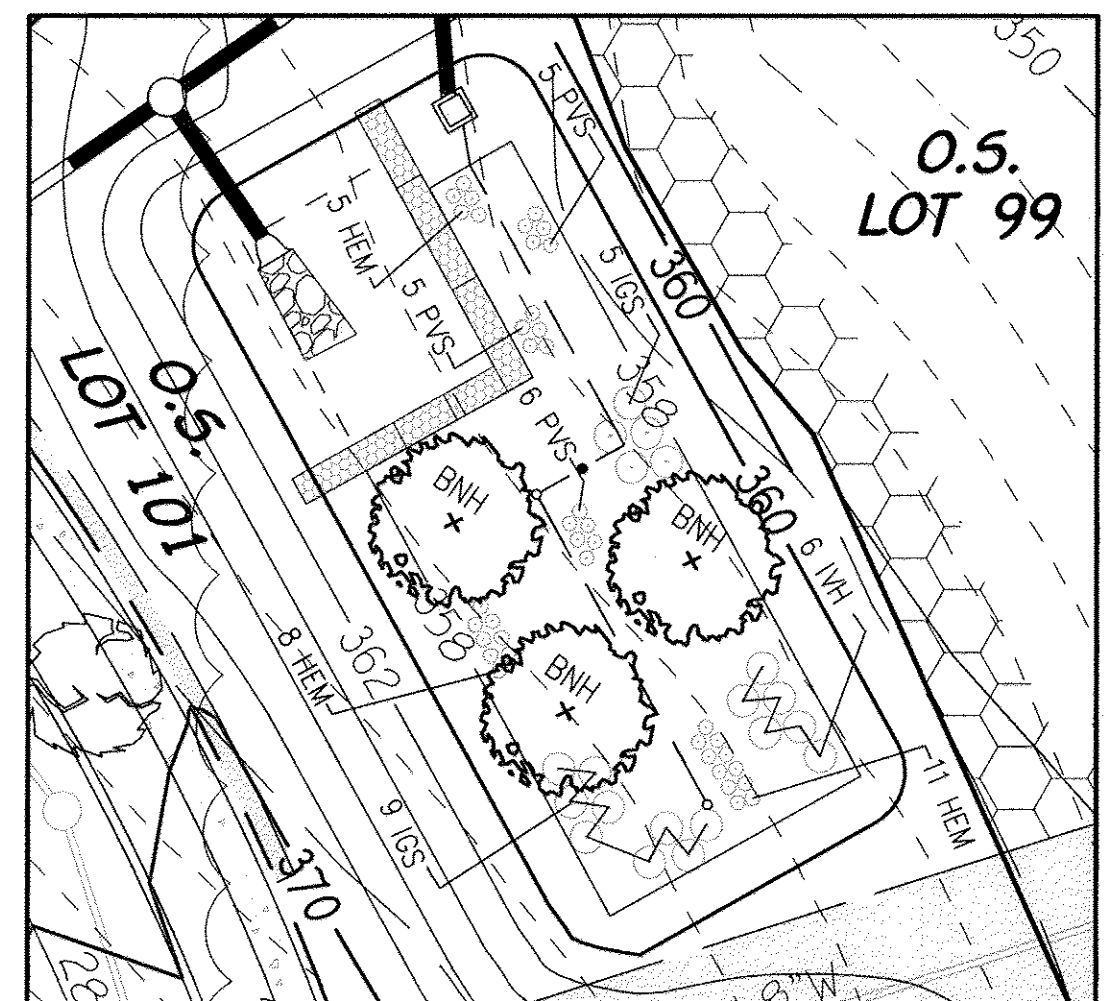
All shrubs shall be planted in continuous trenches or prepared planting beds and mulched with composted hardwood mulch as details and specified except where noted on plans.

Positive drainage shall be maintained in planting beds 2 percent slope.

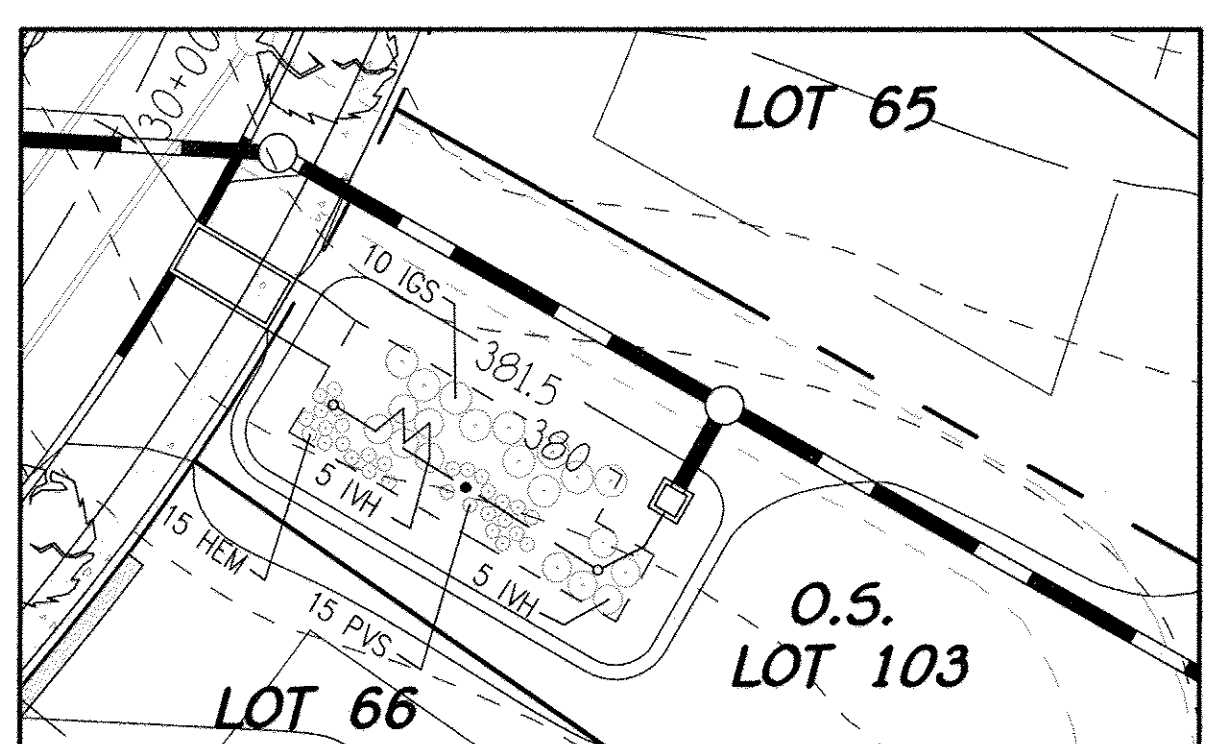
Planting mix shall be as follows: Deciduous Plants - Two parts topsoil, one part well-rotted cow or horse manure, Add 3 lbs. of standard fertilizer per cubic yard of planting mix. Evergreen Plants - Two parts topsoil, one part humus or other approved organic material, Add 3 lbs. of evergreen (acidic) fertilizer per cubic yard of planting mix. Topsoil shall conform to the Landscape Guidelines.

Weed Control: Incorporate a pre-emergent herbicide into the planting and following recommended rates on the label. Caution: Be sure to carefully check the chemical used to assure its adaptability to the specific ground cover to be treated.

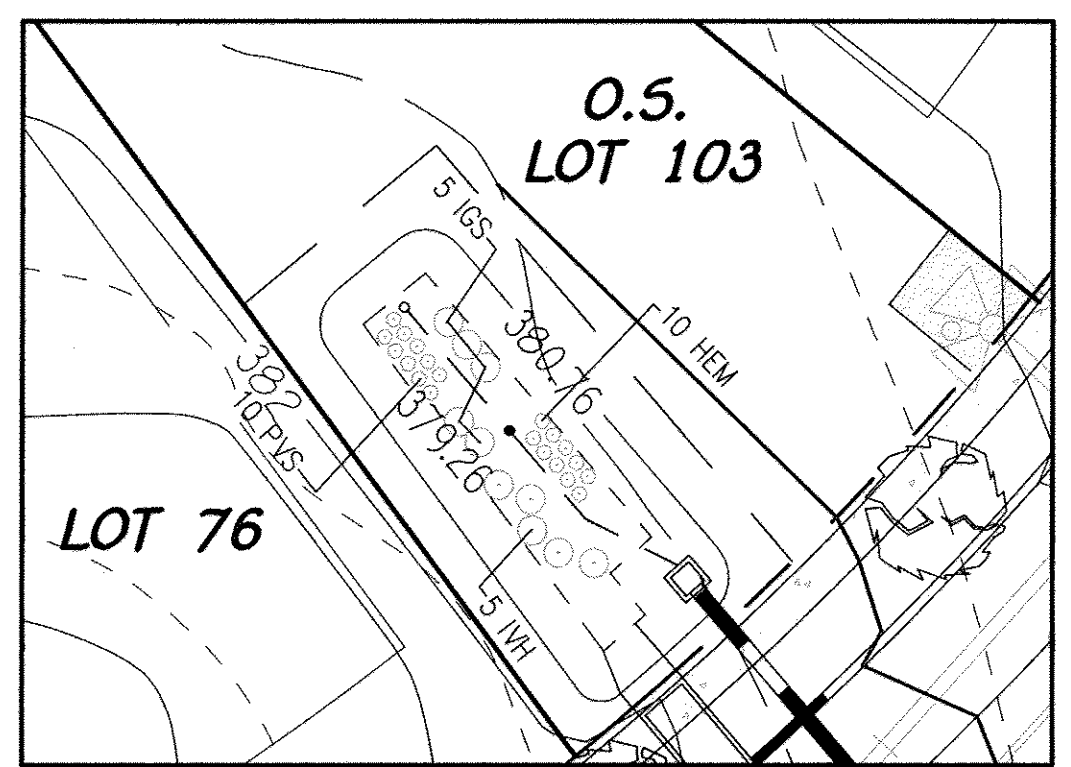
All areas within contract limits disturbed during or prior to construction not designated to receive plants and mulch shall be five graded and seeded. This plan is intended for landscape use only. See other plan sheets for more information on grading, sediment control, layout, etc.



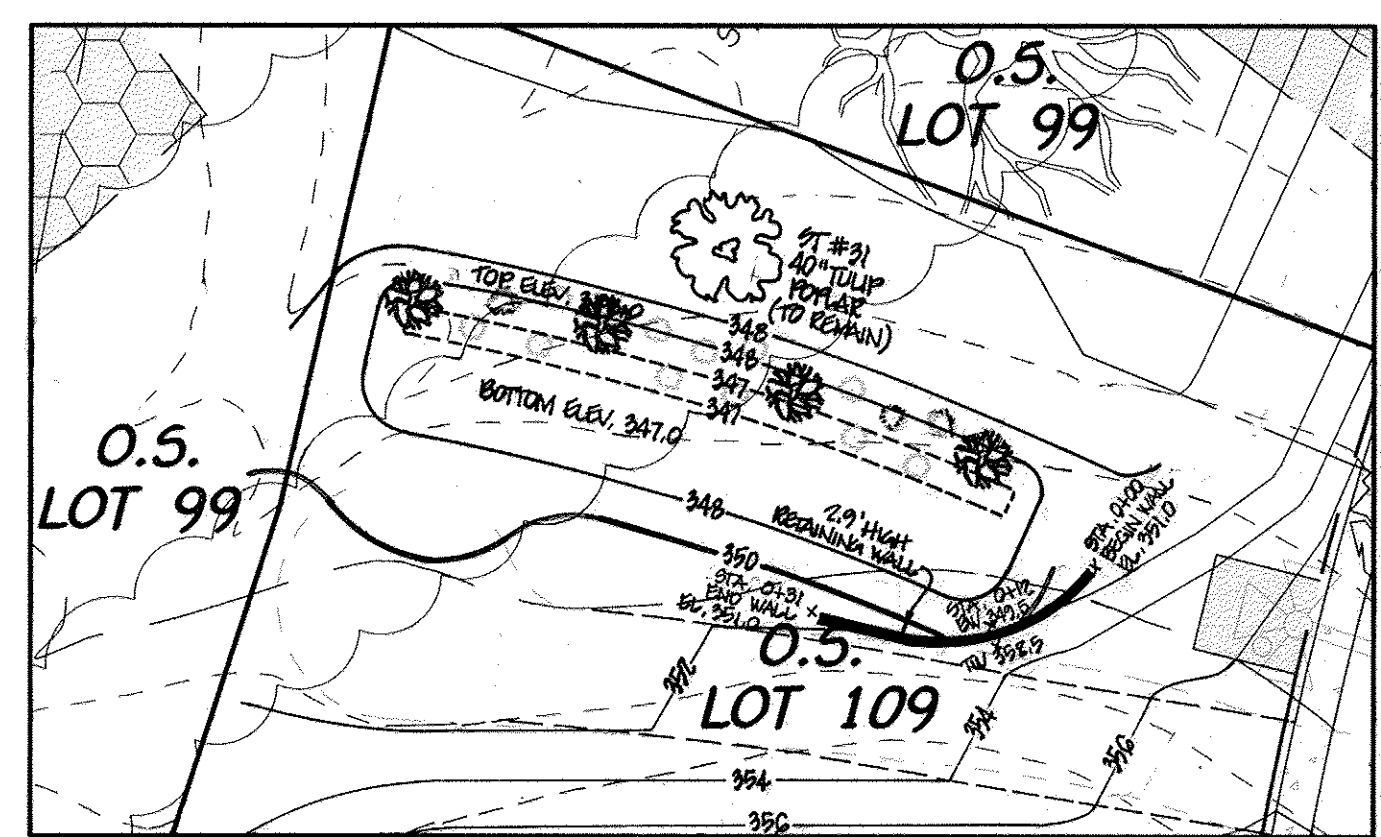
ESD No. 9 - BIO-RETENTION (F-6)  
SCALE: 1" = 20'



ESD No. 10 - MICRO BIO-RETENTION (M-6)  
SCALE: 1" = 20'



ESD No. 12 - MICRO BIO-RETENTION (M-6)  
SCALE: 1" = 20'



ESD No. 13 - INFILTRATION BERM (M-4)  
SCALE: 1" = 20'

PERIMETER	CATEGORY (PROPERTIES/ROADWAYS)	LANDSCAPE TYPE	LINEAR FEET OF ROADWAY FRONTAGE PERMETER	CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NUMBER OF PLANTS REQUIRED			NUMBER OF PLANTS PROVIDED		
						SHADE TREES	EVERGREEN TREES	SHRUBS	SHADE TREES	EVERGREEN TREES	SHRUBS
P-1	ADJACENT TO ROADWAY	B	404.77'	NO	NO	8	10	-	8	10	-
P-2	ADJACENT TO ROADWAY	B	572.22'	NO	NO	11	14	-	11	14	-
P-3	ADJACENT TO ROADWAY	B	240.35'	YES (ST-2, 3" White Oak & ST-3, 4" White Oak)	NO	3	6	-	3	6	-
P-4	ADJACENT TO PERIMETER	A	1313.37'	YES (1213')	NO	2	-	-	2	-	-
P-5	ADJACENT TO PERIMETER	A	1187.37'	YES (131')	NO	18	-	-	18	-	-
P-6	ADJACENT TO PERIMETER	A	2166.39'	YES (10 TREES PLANTED SECTION ONE)	NO	36	-	-	26	-	-
P-7	SIDE TO ROADWAY	B	57'	NO	NO	1	1	-	1	1	-
P-8	SIDE TO ROADWAY	B	57'	NO	NO	1	1	-	1	1	-

NOTE: P-1 THRU P-3, PART OF P-6, P-7 AND P-8 WERE PLANTED UNDER SECTION ONE. THE LANDSCAPE SURETY IN THE AMOUNT OF \$216,900.00 FOR PERIMETER LANDSCAPE REQUIREMENTS (40 SHADE TREES, 47 EVERGREEN TREES AND 8 SHRUBS) OF SECTION 16124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL WAS PROVIDED WITH THE DEVELOPER'S AGREEMENT UNDER THE SECTION ONE PLAN (4-14-2012).

\* REMOVAL OF 6 SPECIES TREES NO. 21 AND NO. 22 REQUIRE MITIGATION OF PROVIDING 4 NEW SHADE TREES (MIN. 24" CALIBER).

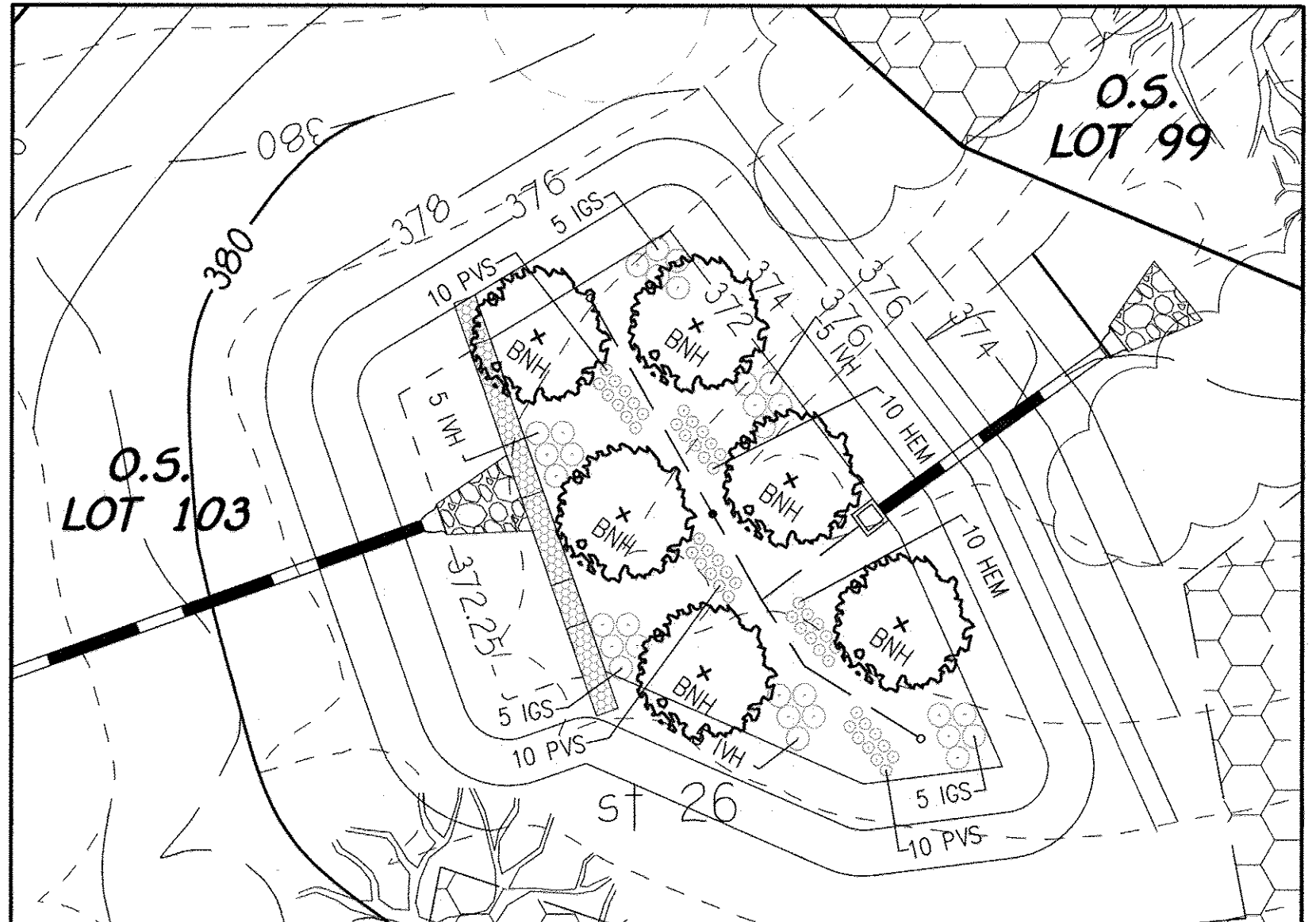
PLANT LIST (SCHEDULE 'A' & 'D')			
SYMBOL	QTY.	BOTANICAL AND COMMON NAME	SIZE
(Tree Symbol)	91	PRUNUS SARGENTII SARGENT CHERRY	2 1/2" - 3" CAL.
(Tree Symbol)	25	ACER GRiseum PAPERBARK MAPLE	2 1/2" - 3" CAL.
(Tree Symbol)	7	PINUS STROBUS EASTERN WHITE PINE	6" - 8" HT.

NOTE: TREE TYPES MAY BE SUBSTITUTED WITH A HOWARD COUNTY APPROVED SPECIES FROM THE HOWARD COUNTY LANDSCAPE MANUAL.

PERIMETER LANDSCAPING AND SWM SCREENING SHALL BE PROVIDED IN ACCORDANCE WITH SECTION 16124 OF THE LANDSCAPE MANUAL. FINANCIAL SURETY FOR THE REQUIRED 52 SHADE TREES & 7 EVERGREEN TREES SHALL BE PROVIDED WITH THE DEVELOPER'S AGREEMENT FOR THIS FINAL PLAN (4-14-2012) IN THE AMOUNT OF \$16,650.00.

NOTE: 4 AS-BUILT TREES PROVIDED NO MITIGATION FOR SPECIES TREES REMOVED FOR THIS PROJECT.

SCHEDULE D STORMWATER MANAGEMENT AREA LANDSCAPING	
LINEAR FEET OF PERIMETER	D-1 : 282'
NUMBER OF TREES REQUIRED & PROVIDED:	
SHADE TREES	6
EVERGREEN TREES	7
CREDIT FOR EXISTING VEGETATION (NO, YES AND X)	NO
CREDIT FOR OTHER LANDSCAPING (NO, YES AND X)	NO



ESD No. 11 - BIO-RETENTION (F-6)  
SCALE: 1" = 20'

PLANT MATERIAL- INFILTRATION BERM No. 13		
QUANTITY	NAME	MAXIMUM SPACING (FT.)
4	TREES	AS SHOWN
15	SHRUBS	24" - 36"

- TREES
- SARGENT CHERRY
  - AUTUMN FLAME RED MAPLE
  - EASTERN REDBUD
  - PN OAK
  - HEDGE MAPLE
  - RED FLOWERING DOGWOOD
- ANY OF THE TREES LISTED MAY BE USED
- SHRUBS
- BAYBERRY
  - SPOTTED ARROWWOOD
  - WINTERBERRY
  - INKEYBERRY
  - WITCH HAZEL
  - BUTTONBUSH BUCKEYE
  - BOTTLEBRUSH BUCKEYE
- ANY OF THE SHRUBS LISTED MAY BE USED

LANDSCAPE DEVELOPER'S CERTIFICATE

I/we certify that the landscaping shown on this plan will be done according to the plan, Section 16124 of the Howard County Code and the Howard County Landscape Manual. I/we further certify that upon completion 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.

Name: [Signature] Date: 4/30/14



NOTES:

Should any tree designated for preservation for which landscaping credit is given, die prior to release of bonds, the owner will be required to replace the tree with the equivalent species or with a tree which will obtain the same height, spread and growth characteristics. The replacement tree must be a minimum of 3 inches in caliper and installed as required in the Howard County Landscape Manual.

At the time of plant installation, all trees listed and approved on the Landscape Plan, shall comply with the proper height requirement in accordance with the Howard County Landscape Manual. In addition, no substitutions or relocations of the required plantings may be made without prior review and approval from the Department of Planning and Zoning. Any deviations from the approved Landscape Plan may result in denial or delay in the release of landscape surety until such time as all required materials are planted and/or revisions are made to the road drawing plans.

The Owner, tenants and/or their agents shall be responsible for maintenance of the required perimeter landscaping. 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 the other required landscaping shall be permanently maintained in good condition and when necessary, repaired or replaced.

STREET TREE SCHEDULE				
QTY. required	QTY. provided	BOTANICAL AND COMMON NAME	SIZE	COMMENTS
1/40 Lf. = 3438/40 = 85.95 85.95 x 2 = 172 trees	172 trees	CLADASTIS LUTEA YELLOWWOOD	2 1/2" - 3" CAL.	ALONG PUBLIC R/W WELLFORD DRIVE (SEE PLAN)

NOTES:

- FINAL PLACEMENT OF STREET TREES WILL OCCUR IN THE FIELD AND BE PLACED A MINIMUM OF 30 FEET FROM ALL SIGNS AND INTERSECTIONS WHEN PLANTED BETWEEN SIDEWALK AND CURB, BE LOCATED WITH CONSIDERATION OF UNDERGROUND UTILITIES AND STRUCTURES AND MAINTAIN A MINIMUM 5 FEET DISTANCE ON CENTER FROM A DRAIN INLET STRUCTURE, 5 FEET FROM AN OPEN SPACE ACCESS STRIP AND 10 FEET FROM A DRIVEWAY.
- FINANCIAL SURETY FOR THE REQUIRED 172 STREET TREES HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$51,600.00

PLANT MATERIAL- BIO-RETENTION No. 1		
QUANTITY	NAME	MAXIMUM SPACING (FT.)
30	MIKED PERENNIALS	36" o.c.
15	SHRUBS	36"-40" o.c.

PLANT MATERIAL- BIO-RETENTION No. 9		
QUANTITY	NAME	MAXIMUM SPACING (FT.)
40	MIKED PERENNIALS	36" o.c.
20	SHRUBS	36"-40" o.c.
3	TREE	AS SHOWN

PLANT MATERIAL- MICRO BIO-RETENTION No. 3		
QUANTITY	NAME	MAXIMUM SPACING (FT.)
40	MIKED PERENNIALS	36" o.c.
20	SHRUBS	36"-40" o.c.

PLANT MATERIAL- MICRO BIO-RETENTION No. 10		
QUANTITY	NAME	MAXIMUM SPACING (FT.)
30	MIKED PERENNIALS	36" o.c.
20	SHRUBS	36"-40" o.c.

PLANT MATERIAL- BIO-RETENTION No. 4		
QUANTITY	NAME	MAXIMUM SPACING (FT.)
30	MIKED PERENNIALS	36" o.c.
15	SHRUBS	36"-40" o.c.

PLANT MATERIAL- BIO-RETENTION No. 11		
QUANTITY	NAME	MAXIMUM SPACING (FT.)
50	MIKED PERENNIALS	36" o.c.
30	SHRUBS	36"-40" o.c.
6	TREE	AS SHOWN

PLANT MATERIAL- BIO-RETENTION No. 5		
QUANTITY	NAME	MAXIMUM SPACING (FT.)
20	MIKED PERENNIALS	36" o.c.
15	SHRUBS	36"-40" o.c.

PLANT MATERIAL- MICRO BIO-RETENTION No. 12		
QUANTITY	NAME	MAXIMUM SPACING (FT.)
20	MIKED PERENNIALS	36" o.c.
10	SHRUBS	36"-40" o.c.

PLANT MATERIAL- BIO-RETENTION No. 6		
QUANTITY	NAME	MAXIMUM SPACING (FT.)
30	MIKED PERENNIALS	36" o.c.
15	SHRUBS	36"-40" o.c.

PLANT MATERIAL- MICRO BIO-RETENTION No. 14		
QUANTITY	NAME	MAXIMUM SPACING (FT.)
30	MIKED PERENNIALS	36" o.c.
15	SHRUBS	36"-40" o.c.

PLANT MATERIAL- BIO-RETENTION No. 7		
QUANTITY	NAME	MAXIMUM SPACING (FT.)
30	MIKED PERENNIALS	36" o.c.
15	SHRUBS	36"-40" o.c.

PLANT MATERIAL- BIO-RETENTION No. 15		
QUANTITY	NAME	MAXIMUM SPACING (FT.)
30	MIKED PERENNIALS	36" o.c.
15	SHRUBS	36"-40" o.c.

PLANT MATERIAL- BIO-RETENTION No. 8		
QUANTITY	NAME	MAXIMUM SPACING (FT.)
20	MIKED PERENNIALS	36" o.c.
10	SHRUBS	36"-40" o.c.
2	TREE	AS SHOWN

NOTES:

Plant Material Must Cover At Least 50% Of The Surface Area Of The Bio-retention

See Plant Material Charts For Quantities And Spacing

- LEGEND
- HEM - Hemerocallis Mix
  - PVS - Panicum virgatum 'Shenandoah'
  - IVH - Itea Virginia 'Little Henry'
  - IGS - Ilex Glabra 'Shamrock'
  - BNH - Betula nigra 'Heritage'
- Variety for all season bloom  
 Red Switch Grass  
 Virginia Sweetgrass  
 Shamrock Inkberry  
 River Birch  
 2-1/2" cal. min.

AS-BUILT CERTIFICATION

Note: There is no "AS BUILT" information provided on this sheet.

[Signature] 4/15/14  
 CHARLES J. CROOK, P.E. No. 19204 Date

REVISED  
 LANDSCAPE NOTES & DETAILS  
 CENTENNIAL LAKE OVERLOOK  
 (FORMERLY MASON PROPERTY)  
 SECTION TWO  
 BUILDABLE LOTS 29 - 98 &  
 OPEN SPACE LOTS 99 THRU 112

A RESUBDIVISION OF BUILDABLE BULK PARCELS 'A' & 'B'  
 ZONING: R-20  
 TAX MAP NO. 30 GRID NO. 2 PARCEL NO. 86  
 2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN DATE: MAY 30, 2014  
 SHEET 12 OF 40

THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET F-14-081



**OPERATION AND MAINTENANCE SCHEDULE FOR BIO-RETENTION AREAS (F-6 & M-6) (FACILITY Nos. 1, 3-12, 14 & 15)**

- The owner shall maintain the plant material, mulch layer and soil layer annually. Maintenance of mulch and soil is limited to correcting areas of erosion or wash out. Any mulch replacement shall be done in the spring. Plant material shall be checked for disease and insect infestation and maintenance will address dead material and pruning. Acceptable replacement plant material is limited to the following 2000 Maryland stormwater design manual volume II, table A.4.1 and 2.
- The owner shall perform a plant in the spring and in the fall each year. During the inspection, the owner shall remove dead and diseased vegetation considered beyond treatment, replace dead plant material with acceptable replacement plant material. Treat diseased trees and shrubs and replace all deficient shrubs and vines.
- The owner shall inspect the mulch each spring. The mulch shall be replaced every two to three years. The previous mulch layer shall be removed before the new layer is applied.
- The owner shall correct soil erosion on an as needed basis, with a minimum of once per month and after each heavy storm.

**Infiltration and Filter System Construction Specifications**

Infiltration and filter systems either take advantage of existing permeable soils or create a permeable medium such as sand for infiltration. In some instances where permeability is great, these facilities may be used for topsoil storage. The most common systems include infiltration trenches, infiltration basins, sand filters, and organic filters.

When properly planted, vegetation will thrive and enhance the functioning of these systems. For example, pre-treatment buffers will trap sediments that often are bound with phosphorus and metals. Vegetation planted in the facility will aid in nutrient uptake and water storage. Additionally, plant roots will provide aeration for stormwater to promote soil for groundwater recharge. Finally, successful plantings provide aesthetic value and wildlife habitat making these facilities more desirable to the public.

- Design Constraints:**
- Planting filter strips of at least 20 feet will cause sediments to settle out before reaching the facility, thereby reducing the possibility of clogging.
  - Determine areas that will be subjected with water and water table depth so that appropriate plants may be selected.
  - Plants known to need deep drainage should be avoided in systems where filter fabric is used as part of facility design.
  - Test soil conditions to determine if soil amendments are necessary.
  - Plants shall be located so that access is possible for structure maintenance.
  - Stabilize heavy flow areas with erosion control mats or sod.
  - Temporary divert flows from needed areas until vegetation is established.
  - See Table A.5 for additional design considerations.

**Bio-retention**

**Soil Bed Characteristics**

The characteristics of the soil for the bio-retention facility are perhaps as important as the facility location, size, and treatment volume. The soil must be permeable enough to allow runoff to filter through the media, while having characteristics suitable to promote and sustain a robust vegetative cover crop. In addition, much of the nutrient pollutant uptake (nitrogen and phosphorus) is accomplished through absorption and microbial activity within the soil profile. Therefore, soils must balance their chemical and physical properties to support biotic communities above and below ground.

The planting soil should be a sandy loam, loamy sand, loam, or a loamy sand mix (should contain a minimum 35 to 60% sand, by volume). The clay content for these soils should be less than 25% by volume. Environmental Quality Resources (EQO), 1996, Engineering Technology Inc. and Biohabitats, Inc. (ETAB), 1992. Soils should fall within the US, M, SC classifications or the Unified Soil Classification System (USCS). A permeability of at least 10 feet per day (0.5"/hr) is required. A conservative value of 0.5 feet per day is used for design. The soil should be free of stones, stumps, roots, or other woody material over 1" in diameter. Bushes or weeds from previous sites (e.g., Johnson Grass, Mugwort, Nutgrass, and Canada Thistle) or other noxious weeds as specified under CORP# 15.00.00.05 should not be present in the soils. The planting soil should be 12 to 18 inch deep that is loosely compacted (tamped lightly with a backhoe bucket or traversed by dozer tracks). The specific characteristics are presented in Table A.3.

Table A.3 Planting Soil Characteristics

Parameter	Value
pH range	5.2 to 7.00
Organic matter	1.5 to 4.0% (by weight)
Phosphorus	35 lbs. per acre, minimum
Phosphorus (phosphate - P2O5)	75 lbs. per acre, minimum
Potassium (potash - K2O)	85 lbs. per acre, minimum
Soluble salts	500 ppm
Clay	10 to 25 %
Silt	30 to 55 %
Sand	35 to 60%

**Mulch Layer**

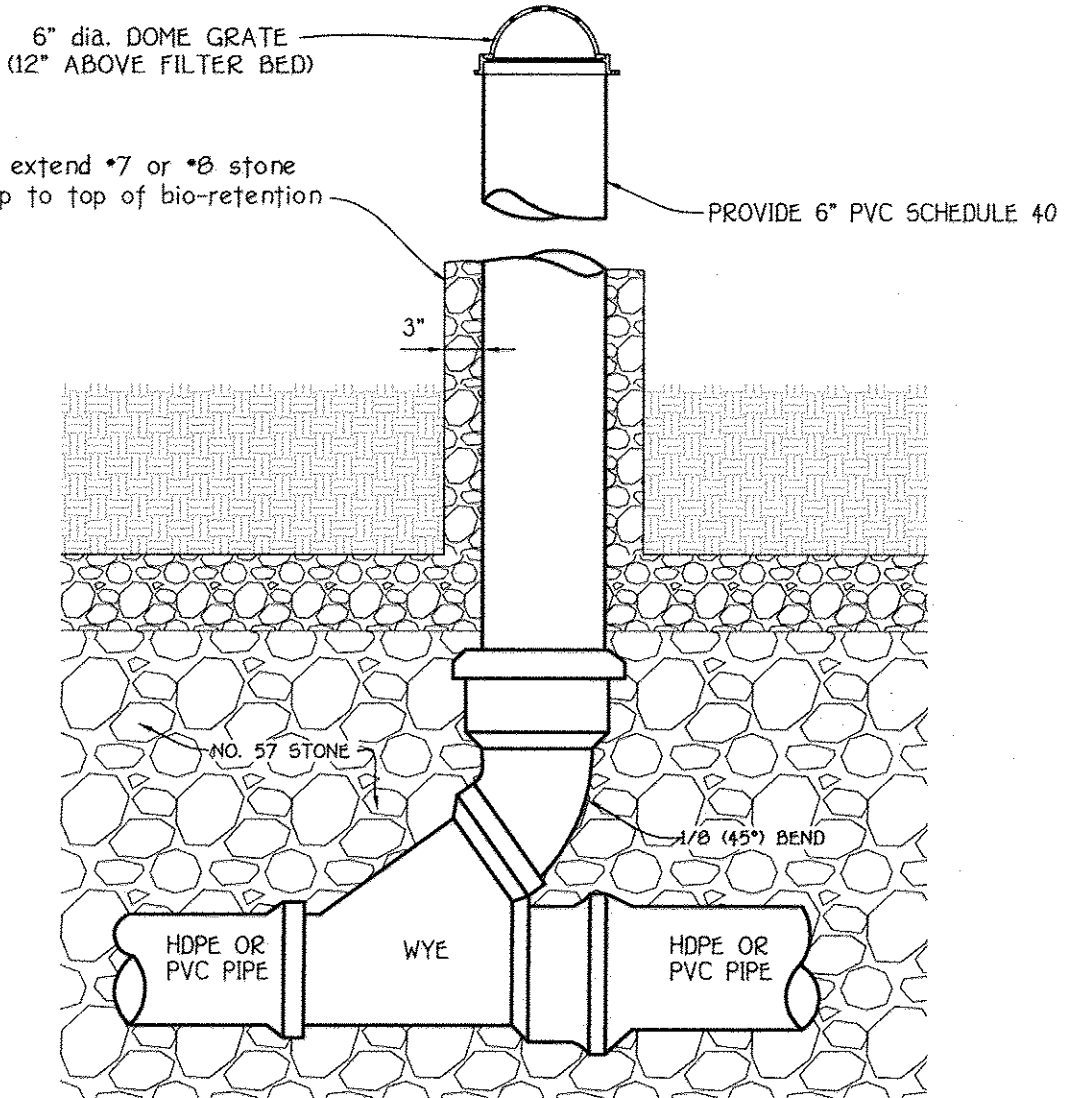
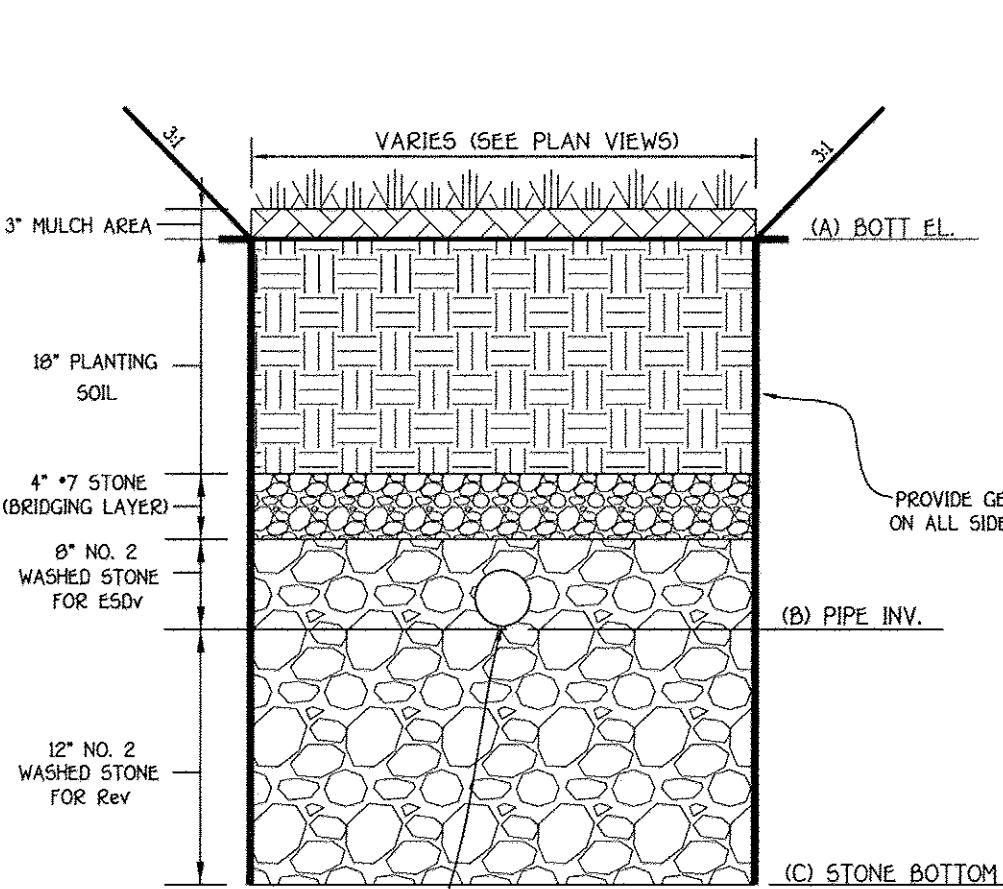
The mulch layer plays an important role in the performance of the bio-retention system. The mulch layer helps maintain soil moisture and avoids surface sealing, which reduces permeability. Mulch helps prevent erosion and provides a micro-environment suitable for soil biota at the mulch/soil interface. It also serves as a pretreatment layer, trapping the finer sediments, which remain suspended after the primary pretreatment.

The mulch layer should be standard landscape style, single or double shredded hardwood mulch or chips. The mulch layer should be well aged (stockpiled or stored for at least 12 months), uniform in color, and free of other materials, such as weed seeds, soil roots, etc. The mulch should be applied to a minimum depth of three inches. Grass clippings should not be used as a mulch material.

**Planting Guidance**

Plant material selection should be based on the goal of simulating a terrestrial forested community of native species. Bio-retention simulates an upland-species ecosystem. The community should be dominated by trees, but have a distinct community of understory trees, shrubs and herbaceous materials. By creating a diverse, dense plant cover, a bio-retention facility will be able to treat stormwater runoff and withstand urban stresses from insects, disease, drought, temperature, wind, and exposure.

The proper selection and installation of plant materials is key to a successful system. There are essentially three zones within a bio-retention facility (Figure A.3). The lowest elevation supports plant species adapted to standing and fluctuating water levels. The middle elevation supports plants that like drier soil conditions, but can still tolerate occasional inundation by water. The outer edge is the highest elevation and generally supports plants adapted to drier conditions. A sample of appropriate plant materials for bio-retention facilities are included in Table A.4. The layout of plant material should be flexible, but should follow the general principles described in Table A.2. The objective is to have a system, which resembles a random, natural plant forest, while maintaining optimal conditions for plant establishment and growth for a more extensive bio-retention plan, consult ETAB, 1993 or Chyler and Schaefer, 1997.



NOTES:  
UNDERDRAIN PIPE SHALL BE 4" TO 6" DIAMETER, SLOTTED OR PERFORATED RIGID PLASTIC PIPE (ASTM F 750, TYPE PS 2B OR AASHTO-M-270) IN A GRAVEL LAYER. THE PREFERRED MATERIAL IS SLOTTED 4" RIGID PIPE (E.G., PVC OR HDPE).

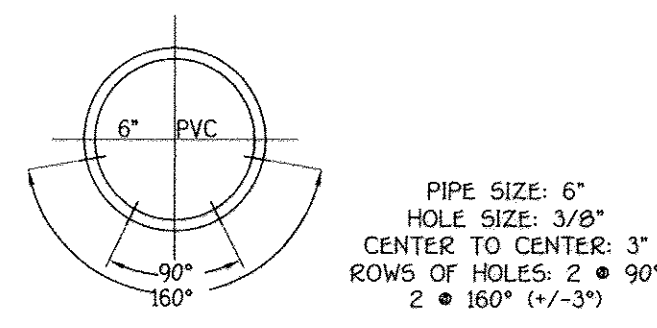
PERFORATIONS SHALL BE 3/8" DIAMETER LOCATED 6" ON CENTER WITH A MINIMUM OF FOUR HOLES PER ROW. PIPE SHALL BE WRAPPED WITH A 1/4" (NO. 4 OR 4 X 4) GALVANIZED HARDWARE CLOTH.

GRAVEL LAYER SHALL BE (NO. 57 STONE PREFERRED) AT LEAST 3" THICK ABOVE AND BELOW THE UNDERDRAIN.

THE MAIN COLLECTOR PIPE SHALL BE AT A MINIMUM 0.5% SLOPE.

A RIGID, NON PERFORATED OBSERVATION WELL MUST BE PROVIDED (ONE PER EVERY 1,000 SQ.FT.) TO PROVIDE A CLEANOUT PORT AND MONITOR PERFORMANCE OF THE FILTER.

A 4" LAYER OF PEA GRAVEL (1/8" TO 3/8" STONE) SHALL BE LOCATED BETWEEN THE FILTER MEDIA AND UNDERDRAIN TO PREVENT MIGRATION OF FINES INTO THE UNDERDRAIN. THIS LAYER MAY BE CONSIDERED PART OF THE FILTER BED WHEN BED THICKNESS EXCEEDS 24".

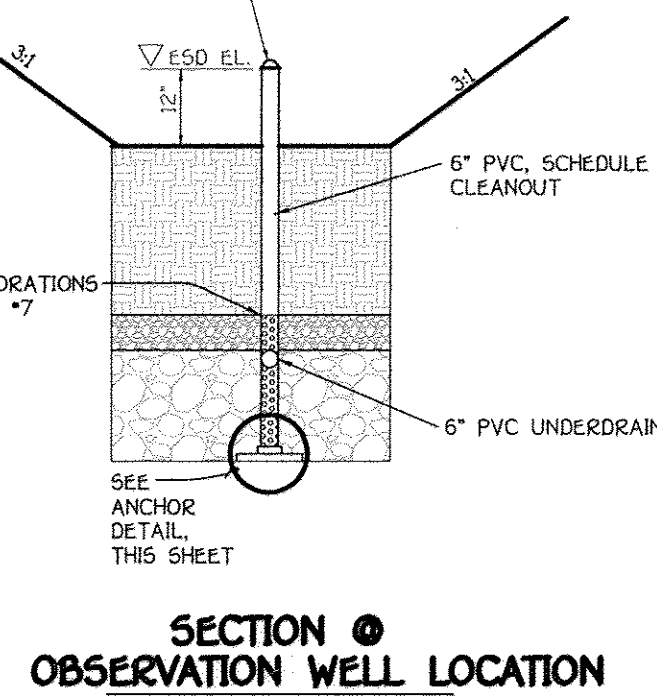


**(FACILITY Nos. 3, 10, 12 & 14) MICRO BIO-RETENTION (M-6) SECTION**

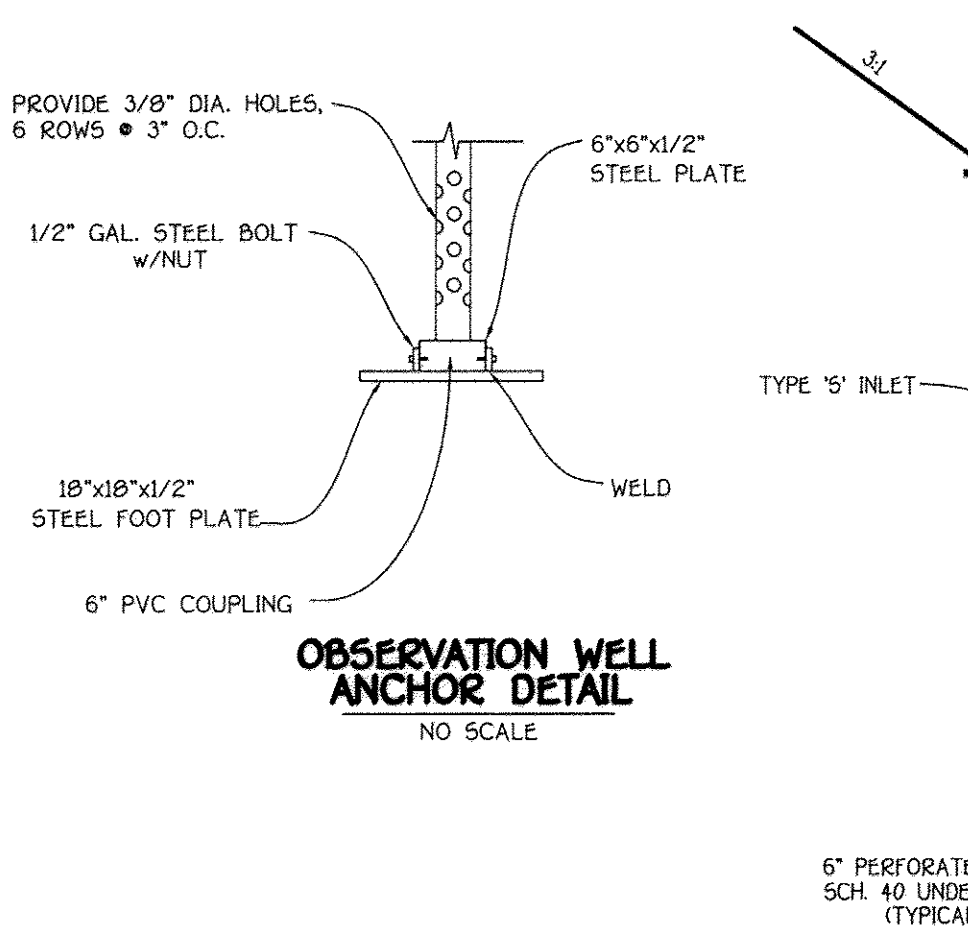
FACILITY NO.	A	B	C
BIO-RETENTION No. 3	379.83	377.33	376.33
BIO-RETENTION No. 10	380.00	377.50	376.50
BIO-RETENTION No. 12	379.26	376.76	375.76
BIO-RETENTION No. 14	390.52	388.02	387.02

Table B.3.1 Material Specifications for Sand filters

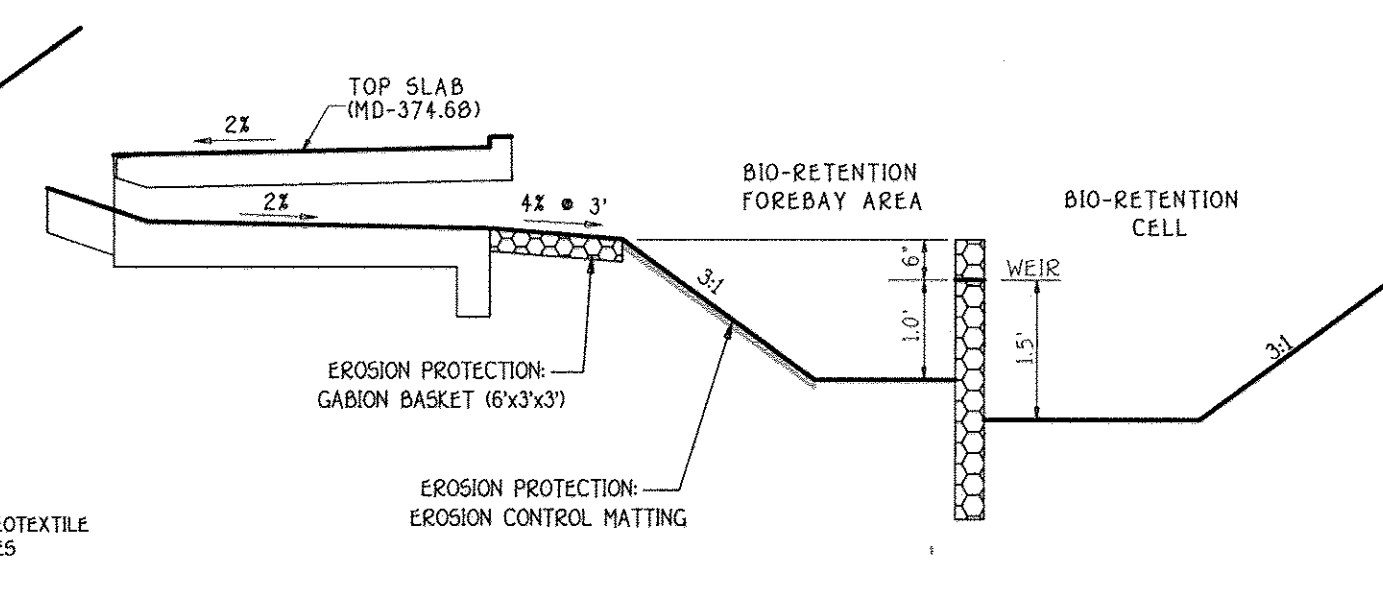
Material	Specifications/Test Method	Size	Notes
sand	clean AASHTO-M-6 of ASTM-Concrete sand	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone #10 are note acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.
peat	ash content < 10% pH range 5.2 to 4.9 loose bulk density 0.12 to 0.15 g/cc	N/A	The material must be reed-seed hemic peat, shredded, uncompacted, uniform, and clean.
leaf compost	AASHTO-M-43	N/A	
underdrain gravel	AASHTO-M-43	0.375" to 0.75"	Must maintain 125 gpm per sq. ft. flow rate. Note: a 4" pea gravel layer should be substituted for geotextiles meant to "separate" sand filter layers.
geotextile fabric (if required)	ASTM-D-4833 (puncture strength lb.) ASTM-D-4632 (Tensile Strength lb.)	0.08" thick equivalent opening size of #80 sieve	
impermeable liner (if required)	ASTM-D-4833 (thickness) ASTM-D-412 (tensile strength 1,000 lb., elongation 200%) ASTM-D-624 (Tear resistance - 150 lb./in) ASTM-D-471 (water adsorption - 0 to -2% mass)	30 mil thickness	Liner to be ultraviolet resistant. A geotextile fabric should be used to protect the liner from puncture.
underdrain piping	F 758, Type PS 2B or AASHTO-M-270	4" - 6" rigid perforated 40 PVC or SDR35	3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underdrain pipes
concrete (cast-in-place)	MHA Standards and Specs, Section 902, Mix No. 3, f'c = 3500 psi, normal weight, air-entrained, reinforcing to meet ASTM-615-60	N/A	on-site testing of poured-in-place concrete required 28 day strength and slump test. All concrete design (cast-in-place or precast) 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.
concrete (pre-cast)	per pre-cast manufacturer	N/A	SEE ABOVE NOTE
non-rebar steel	ASTM A-36	N/A	structural steel to be hot-dipped galvanized ASTM-A-123



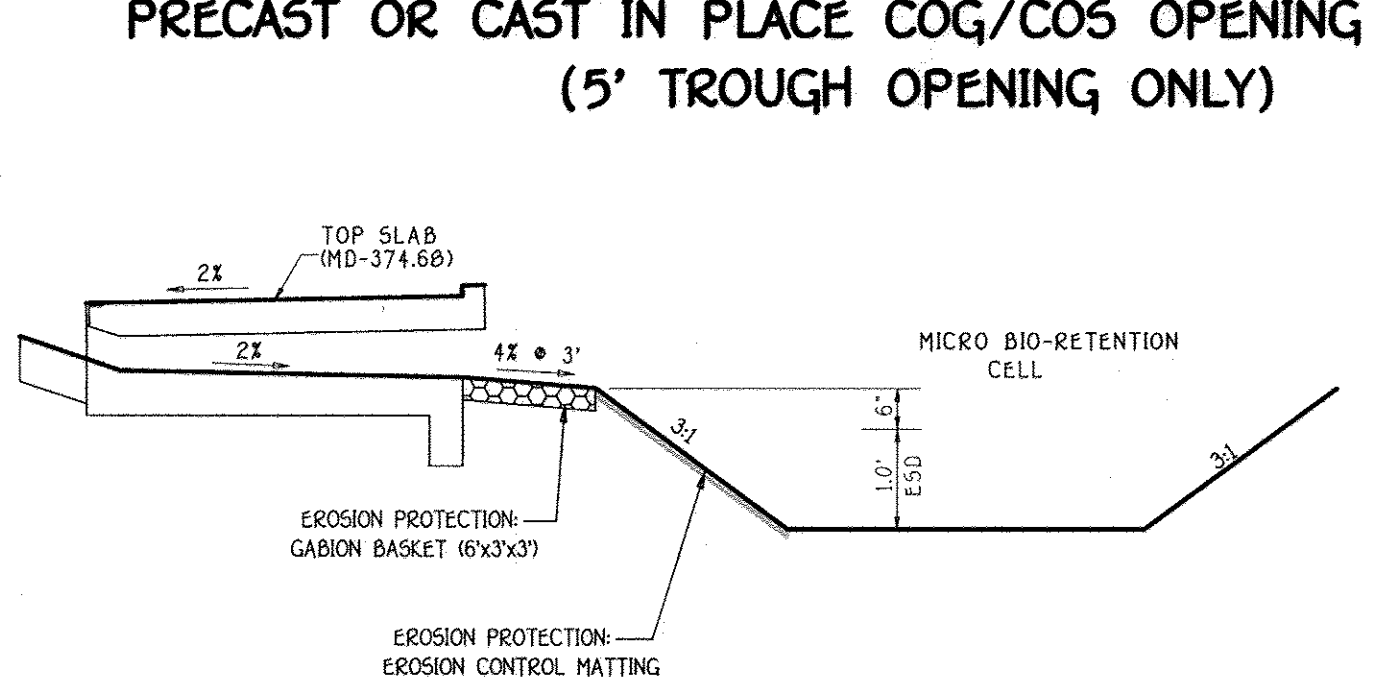
SECTION @ OBSERVATION WELL LOCATION



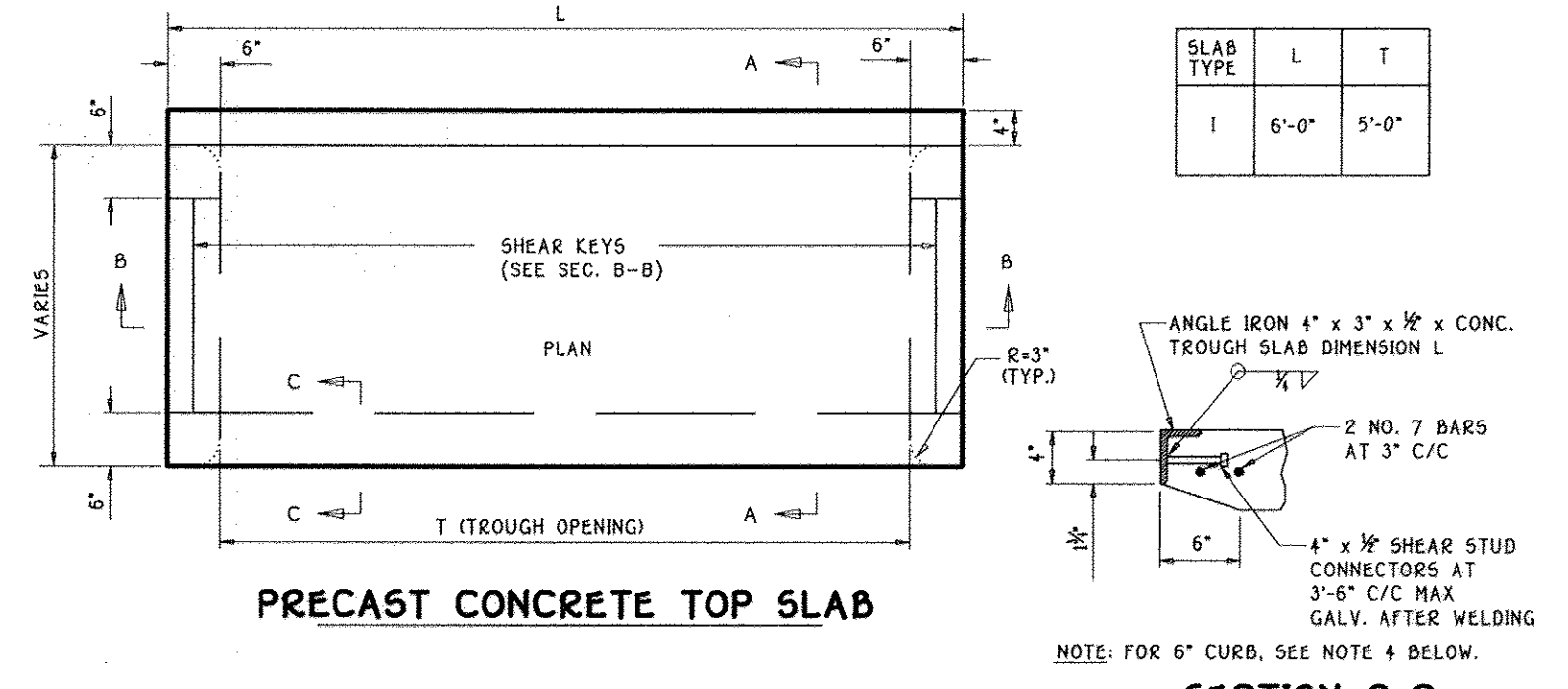
TYPICAL INLET STRUCTURE DETAIL @ BIO-RETENTION



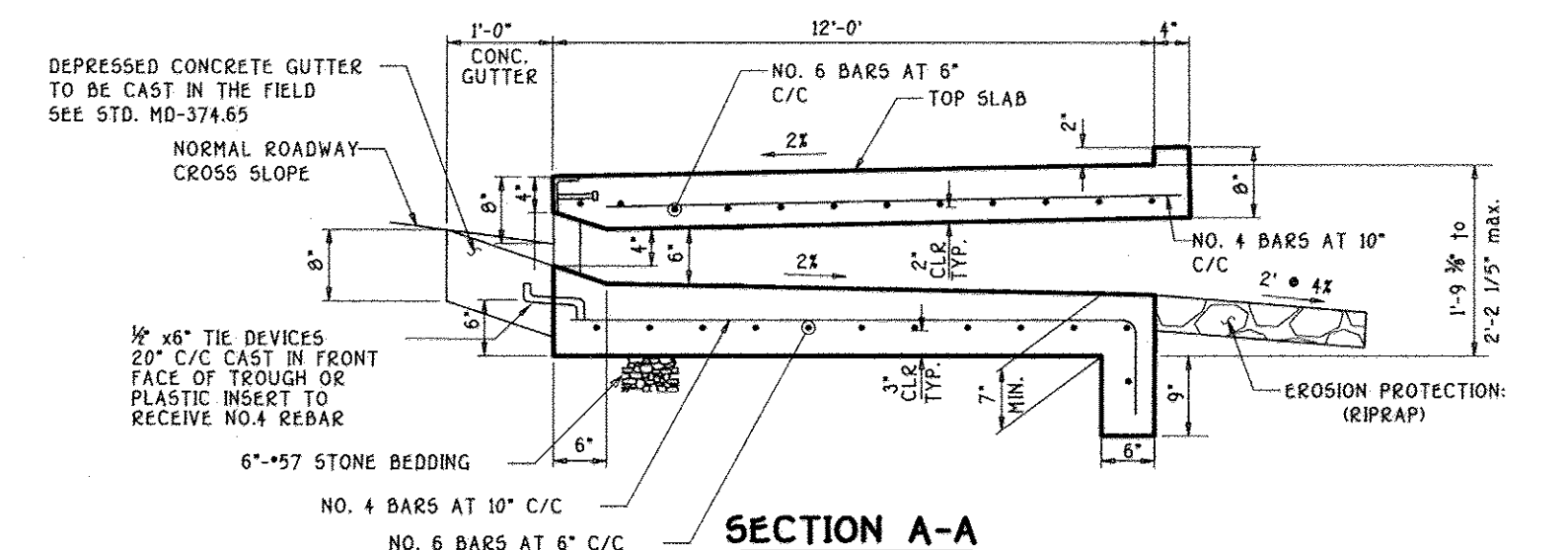
SCHEMATIC SECTION FLOW INLET INTO BIO-RETENTION FOREBAY



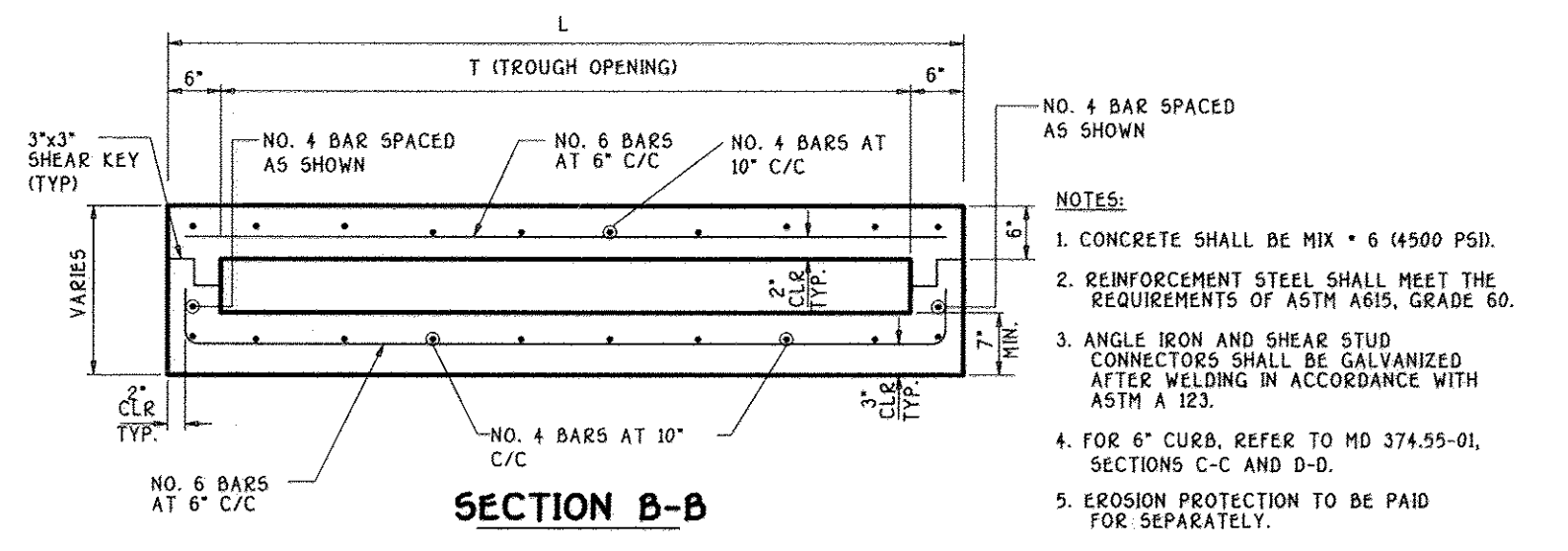
SCHEMATIC SECTION FLOW INLET INTO MICRO BIO-RETENTION



PRECAST CONCRETE TOP SLAB



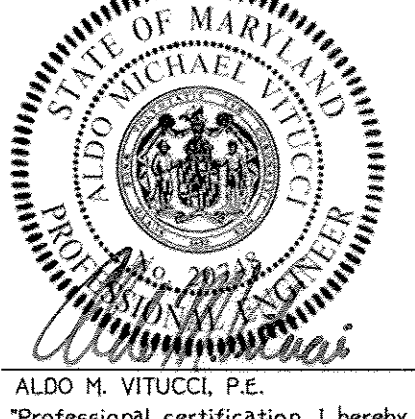
SECTION A-A



SECTION B-B

**PRECAST OR CAST IN PLACE COG/COS OPENING FOR 8" CURB (5' TROUGH OPENING ONLY)**

AS-BUILT CERTIFICATION  
Note: There is no "AS BUILT" information provided on this sheet.



CHARLES J. CROW, P.E. NO. 19924  
Date: 3/5/18

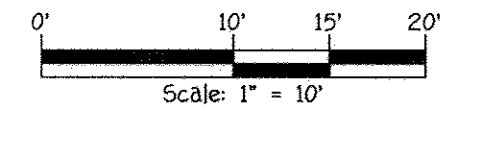
**STORMWATER MANAGEMENT PLANS**  
**CENTENNIAL LAKE OVERLOOK**  
(FORMERLY MASON PROPERTY)  
**SECTION TWO**  
BUILDABLE LOTS 29 - 98 B  
OPEN SPACE LOTS 99 THRU 112

A RESUBDIVISION OF BUILDABLE BULK PARCELS 'A' & 'B'  
ZONING: CO  
TAX MAP NO. 30 GRID NO. 2 PARCEL NO. 86  
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: MAY 30, 2014  
SHEET 13 OF 40

THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET F-14-081

FISHER, COLLINS & CARTER, INC.  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTENNIAL SQUARE OFFICE PARK - 10222 BALTIMORE NATIONAL FREE  
ELICOTT CITY, MARYLAND 21042  
(410) 481 - 2855

OWNER/DEVELOPER  
BEAZER HOMES CORP  
8965 GUILFORD ROAD  
COLUMBIA, MARYLAND 21046  
(410) 720-5070

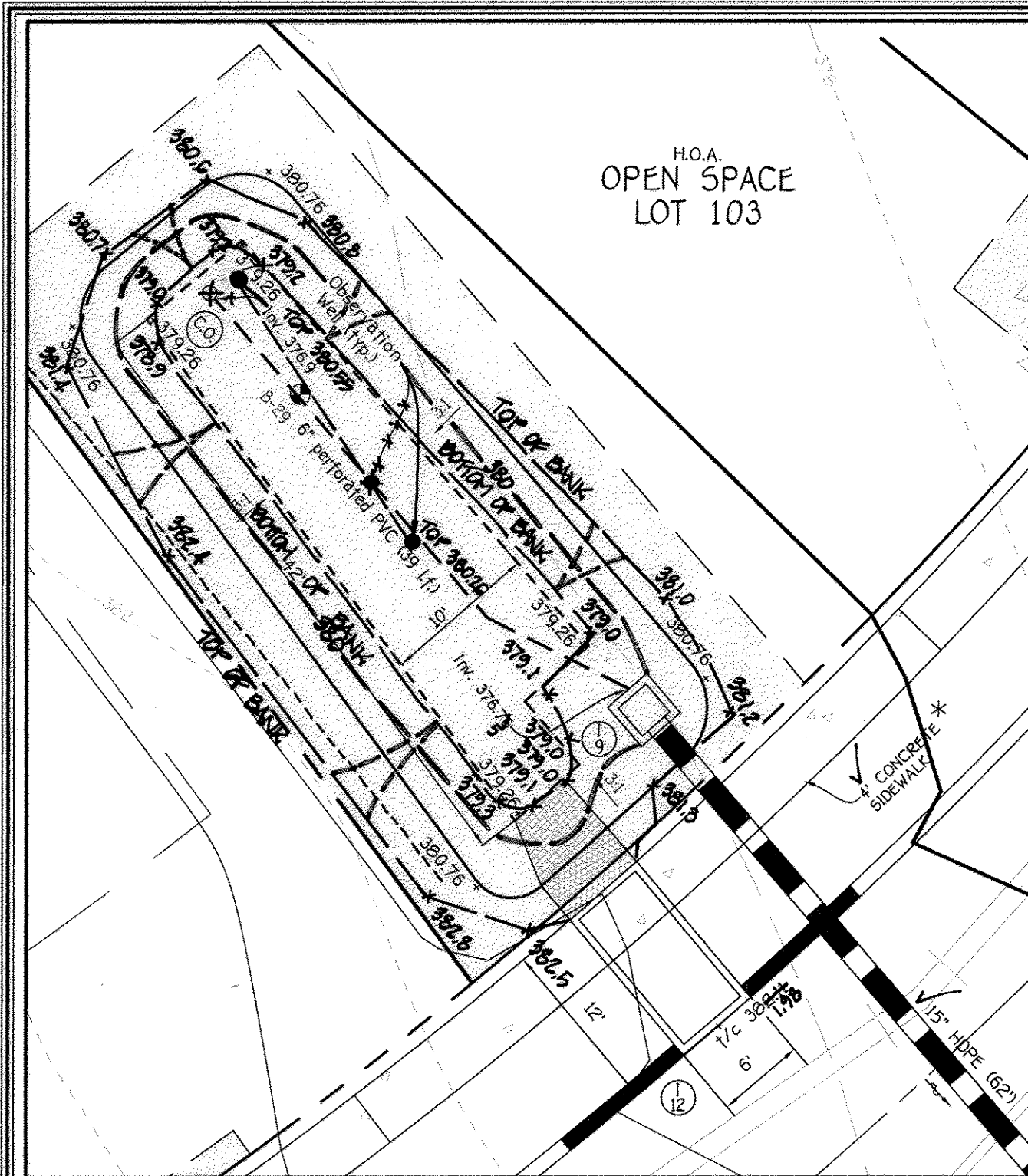


I:\2011\11\1042\dwg\Finals section two\Finals with lots 80-83, 86-98 removed\11042\_swm plans.dwg, C-13, F-14-081 sheet 13, 5/30/2014 9:13:12 AM, 1:1





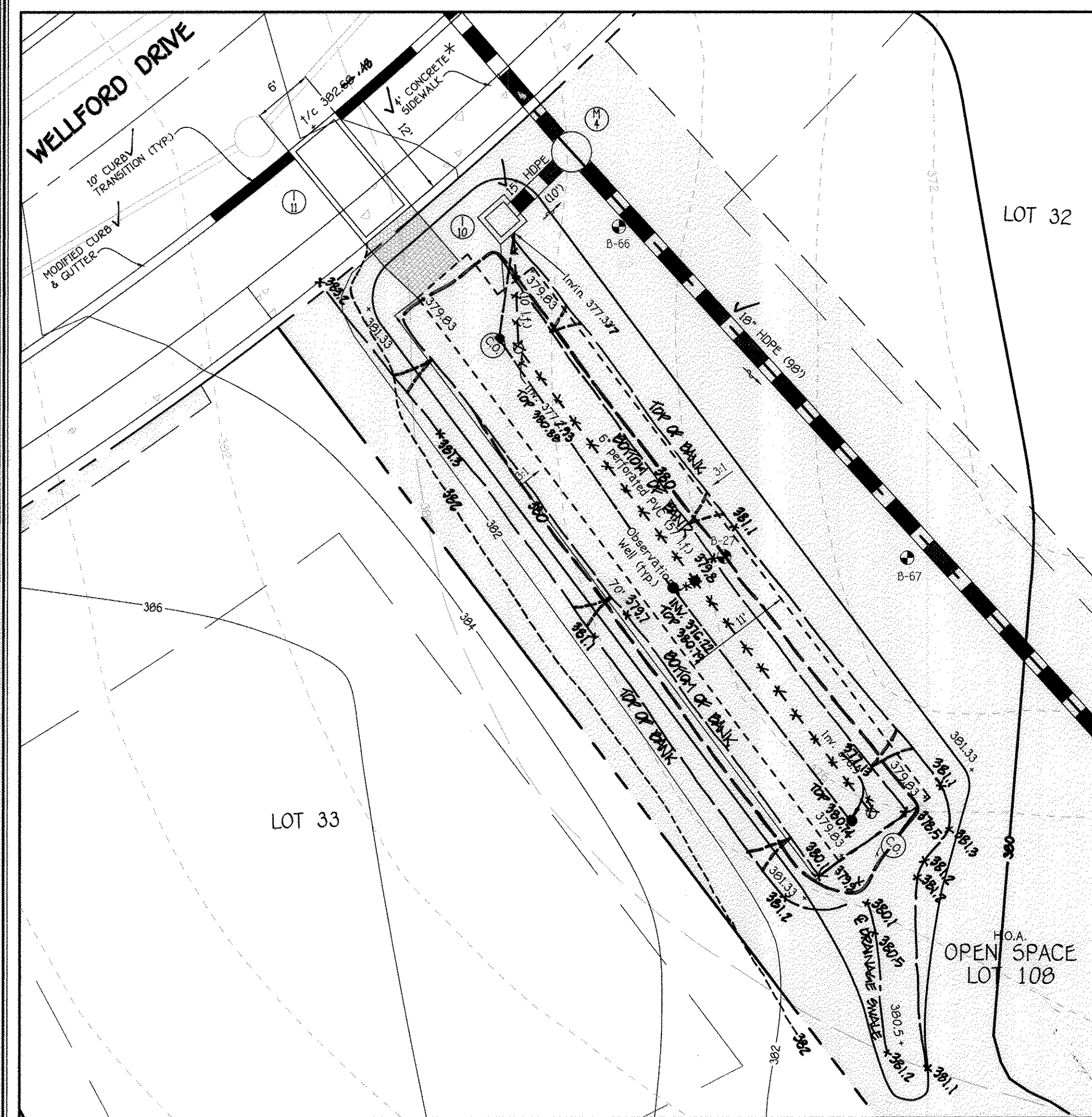




NOTE: THE PROPOSED 4' SIDEWALK SHALL BE TRAFFIC BEARING (7" REINFORCED CONCRETE) A MINIMUM OF 25' ON EITHER SIDE OF THE PROPOSED COG/COS INLET OPENING.

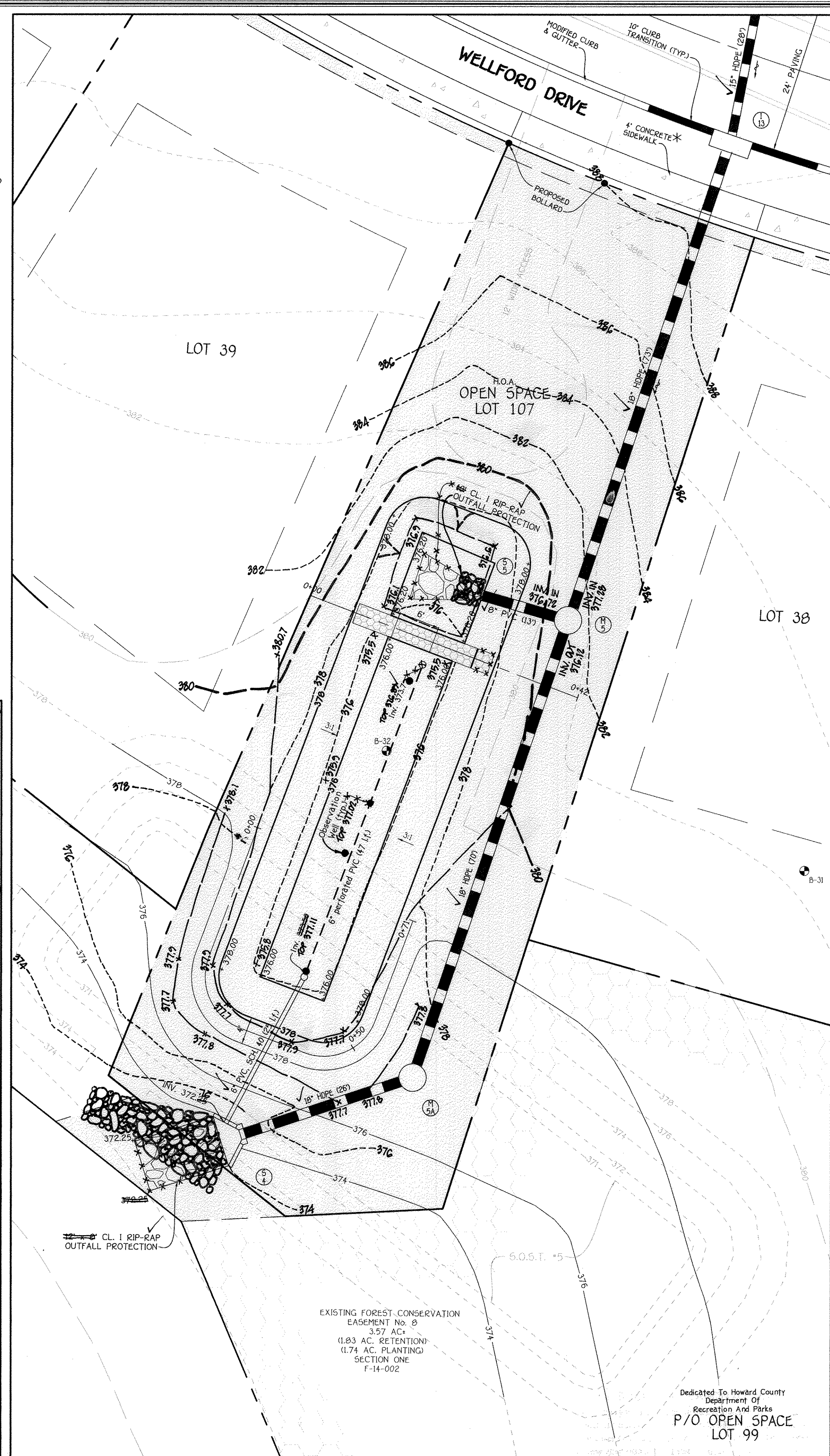
NOTE: SEE SHEET 13 FOR TYPICAL MICRO BIO-RETENTION (M-6) SECTION.

**ESD No. 12 (M-6)  
MICRO BIO-RETENTION PLAN**  
SCALE: 1" = 10'



NOTE: THE PROPOSED 4' SIDEWALK SHALL BE TRAFFIC BEARING (7" REINFORCED CONCRETE) ALONG THE FRONT OF OPEN SPACE LOT 108.

**ESD No. 3 (M-6)  
MICRO BIO-RETENTION PLAN**  
SCALE: 1" = 10'

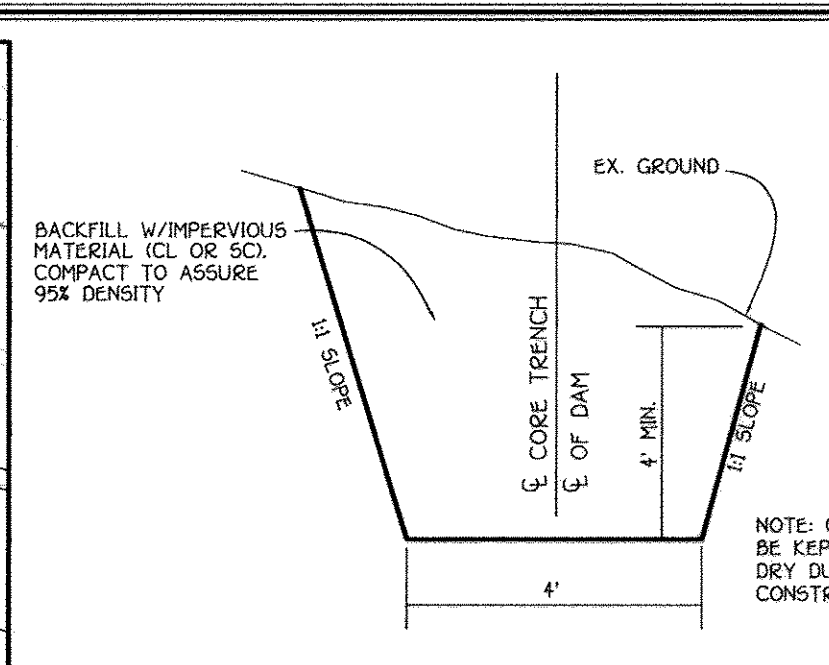


EXISTING FOREST CONSERVATION EASEMENT No. 8  
3.57 AC.  
(1.83 AC. RETENTION)  
(1.74 AC. PLANTING)  
SECTION ONE  
F-14-002

Dedicated To Howard County  
Department Of  
Recreation And Parks  
P/O OPEN SPACE  
LOT 99

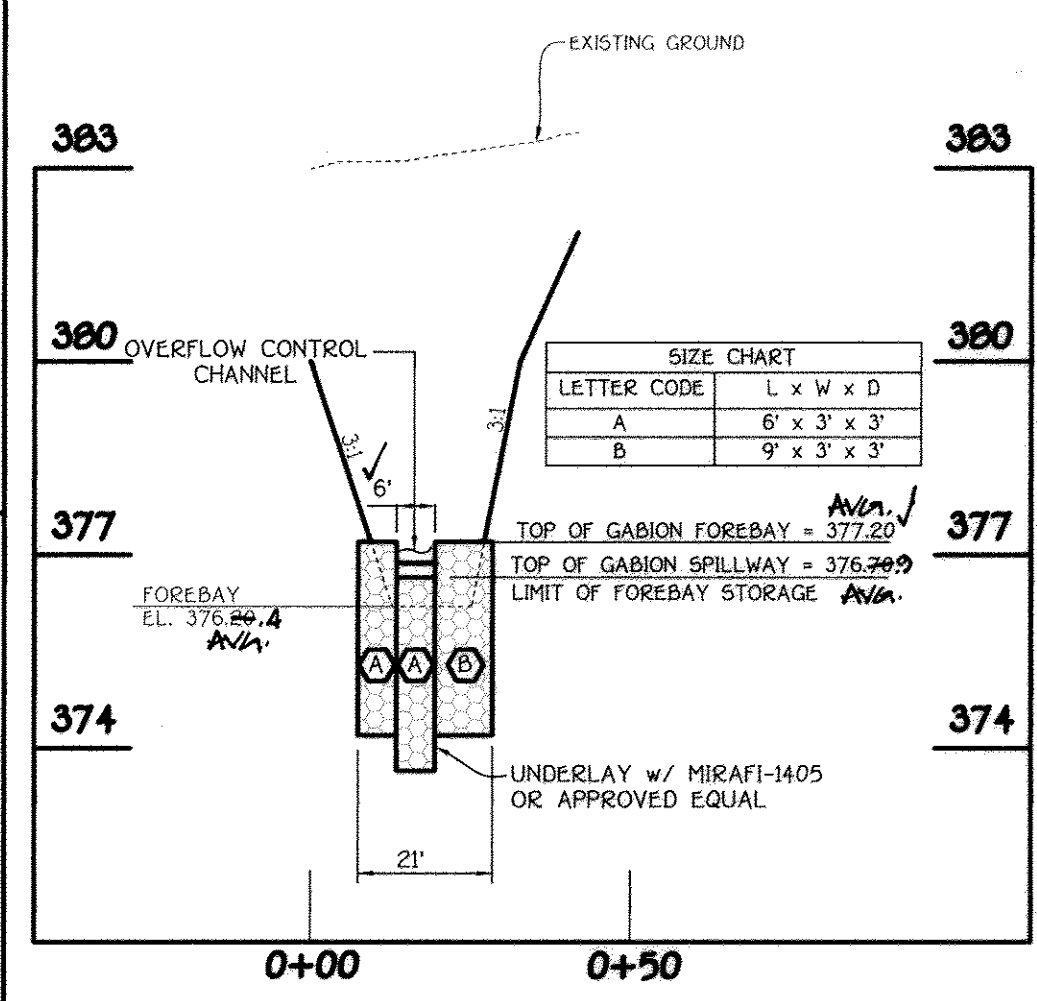
**ESD No. 4 (F-6)  
BIO-RETENTION PLAN**  
SCALE: 1" = 10'

**OWNER/DEVELOPER**  
BEAZER HOMES CORP  
8965 GUILFORD ROAD  
COLUMBIA, MARYLAND 21046  
(410-720-5071)



**CORE TRENCH DETAIL**  
NOT TO SCALE

NOTE: THE PROPOSED 4' SIDEWALK SHALL BE TRAFFIC BEARING (7" REINFORCED CONCRETE) ALONG THE FRONT OF OPEN SPACE LOT 107.

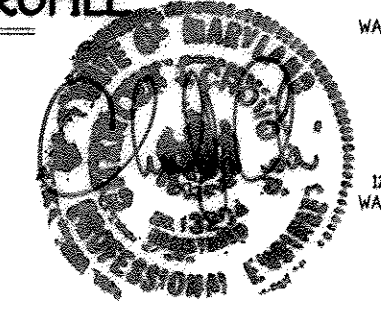


**(ESD No. 4) GABION FOREBAY PROFILE**  
SCALE: HORIZ. 1" = 30'  
VERT. 1" = 3'

NOTE: SEE SHEET 27 FOR STORM DRAIN PROFILES.



Professional certification I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-15.



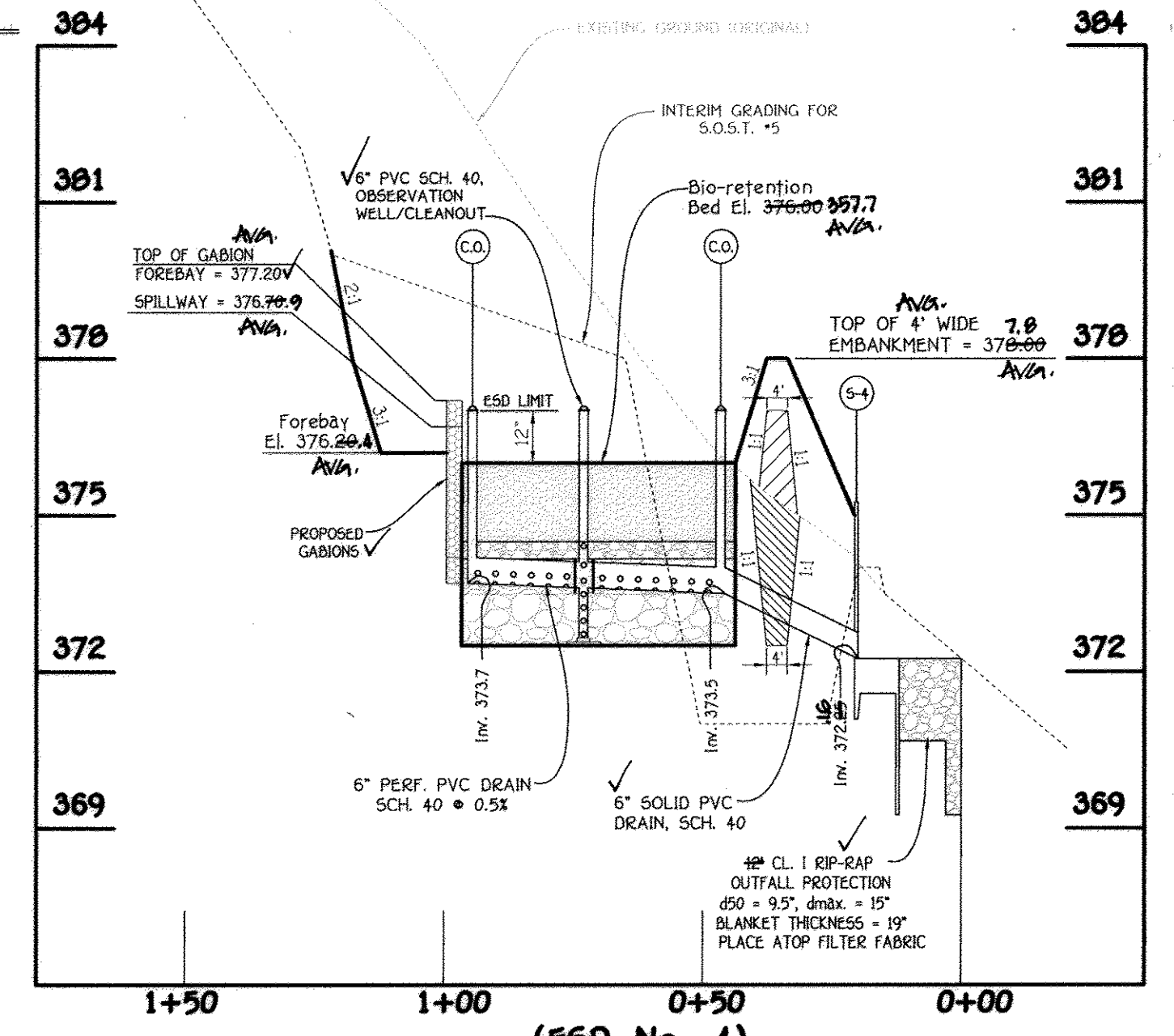
AS-BUILT CERTIFICATION FOR PSWM  
I hereby certify that the facility shown on the plan was constructed as shown on the "AS BUILT" plans and complies with the approved plans and specifications. I have verified that the contributing drainage area is sufficiently stabilized to prevent clogging of the undersoil SWM Facility.

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*John S. Williams* 6-10-14  
CHIEF, BUREAU OF HIGHWAYS DATE

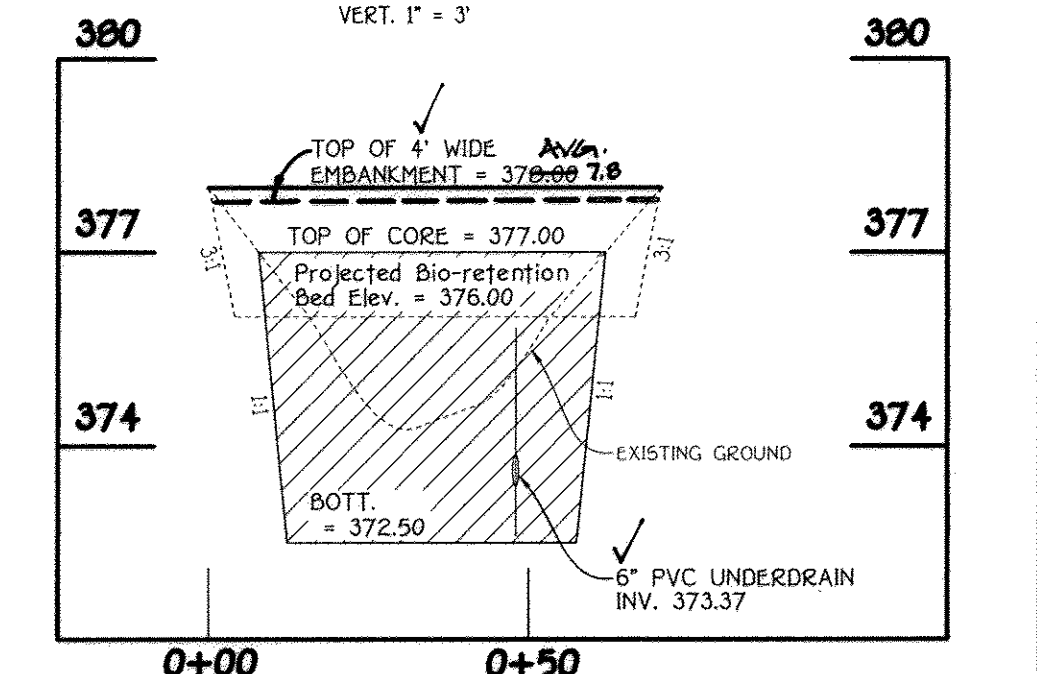
APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Robert J. ...* 6-24-14  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Chad ...* 6-16-14  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

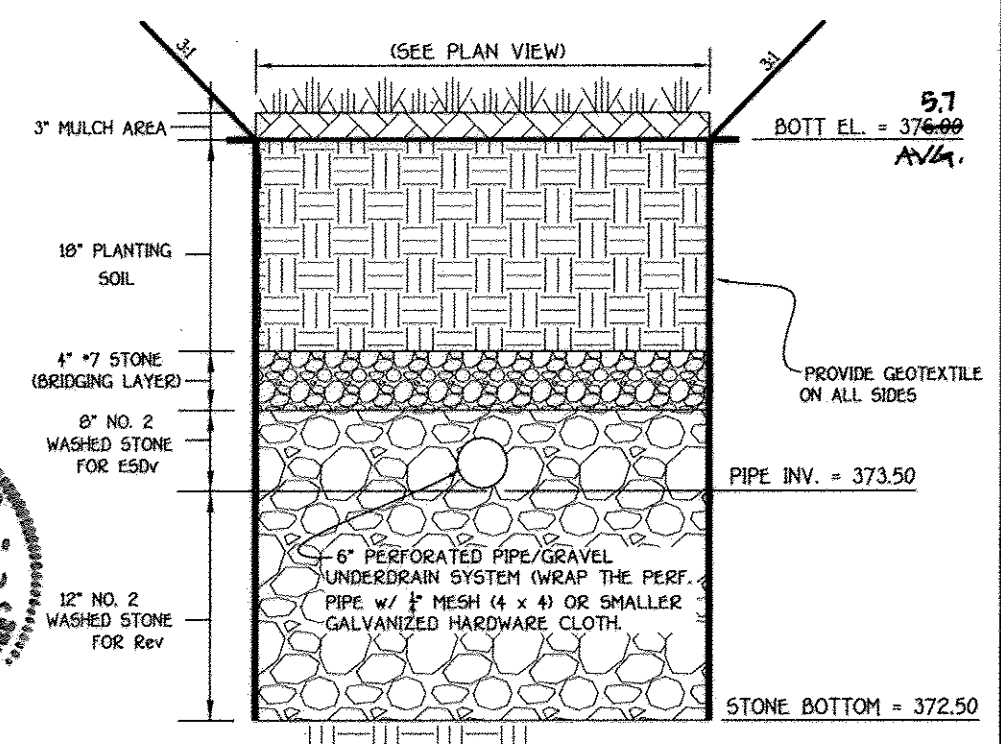
NO.	REVISIONS	DESCRIPTION	DATE
1	Revise Title Block		4-3-15
2	Revise Sheet Number to Reflect Added Sheet		10/2/16



**SECTION THRU BIO-RETENTION (F-6)**  
SCALE: HORIZ. 1" = 30'  
VERT. 1" = 3'



**ESD No. 4  
PROFILE ALONG TOP OF EMBANKMENT (F-6)**  
SCALE: HORIZ. 1" = 30'  
VERT. 1" = 3'



**(ESD No. 4) BIO-RETENTION (F-6) SECTION**  
NO SCALE

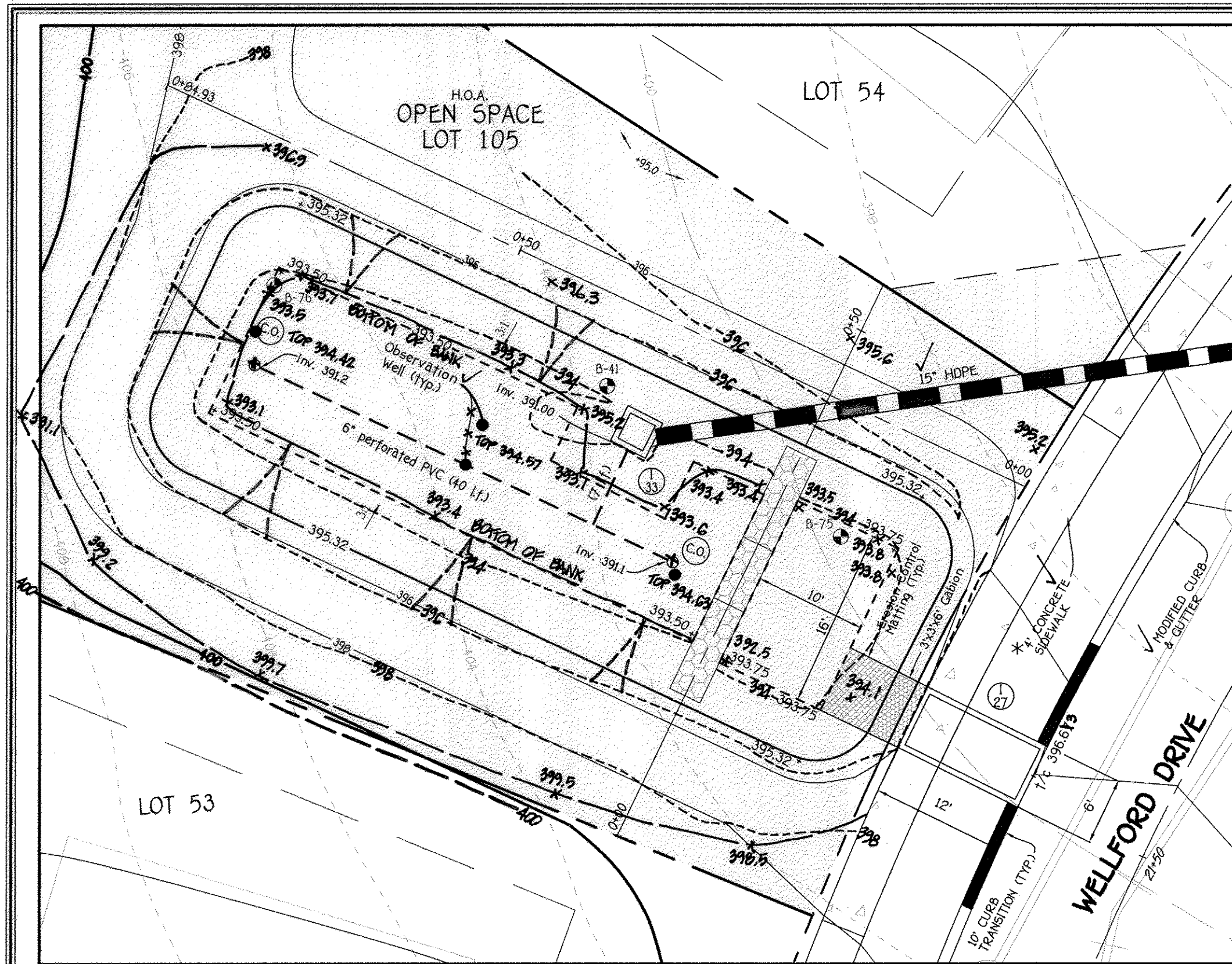
**STORMWATER MANAGEMENT PLANS**  
**ESD Nos. 3, 4 & 12**  
**CENTENNIAL LAKE OVERLOOK**  
(FORMERLY MASON PROPERTY)  
**SECTION TWO**  
BUILDABLE LOTS 29 - 98 &  
OPEN SPACE LOTS 99 THRU 112

A RESUBDIVISION OF BUILDABLE BULK PARCELS 'A' & 'B'  
ZONING: R-20  
TAX MAP No. 30 GRID No. 2 PARCEL No. 86  
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
DATE: MAY 30, 2014  
SCALE: AS SHOWN  
SHEET 15 OF 40

"AS-BUILT" F-14-081

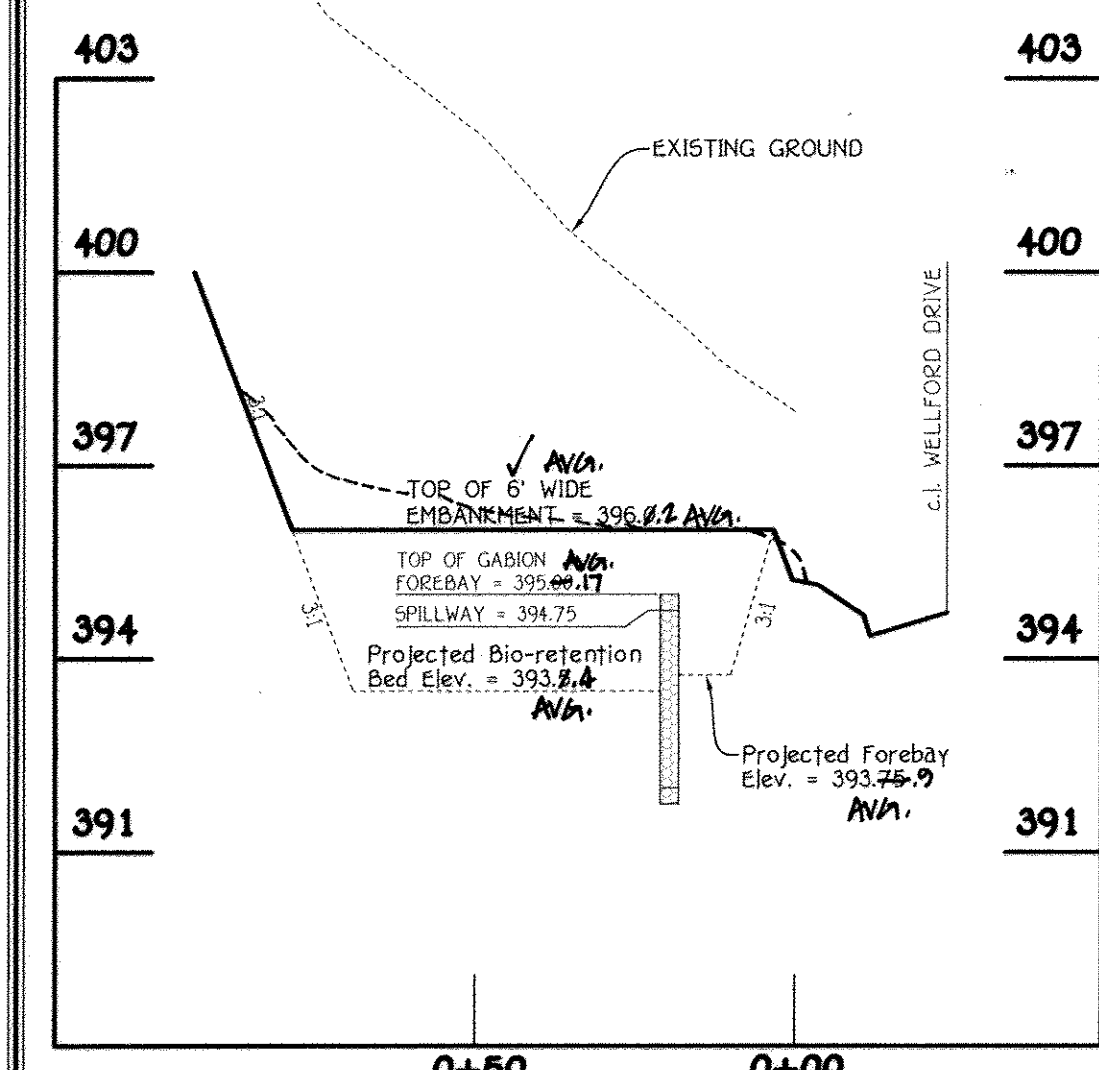
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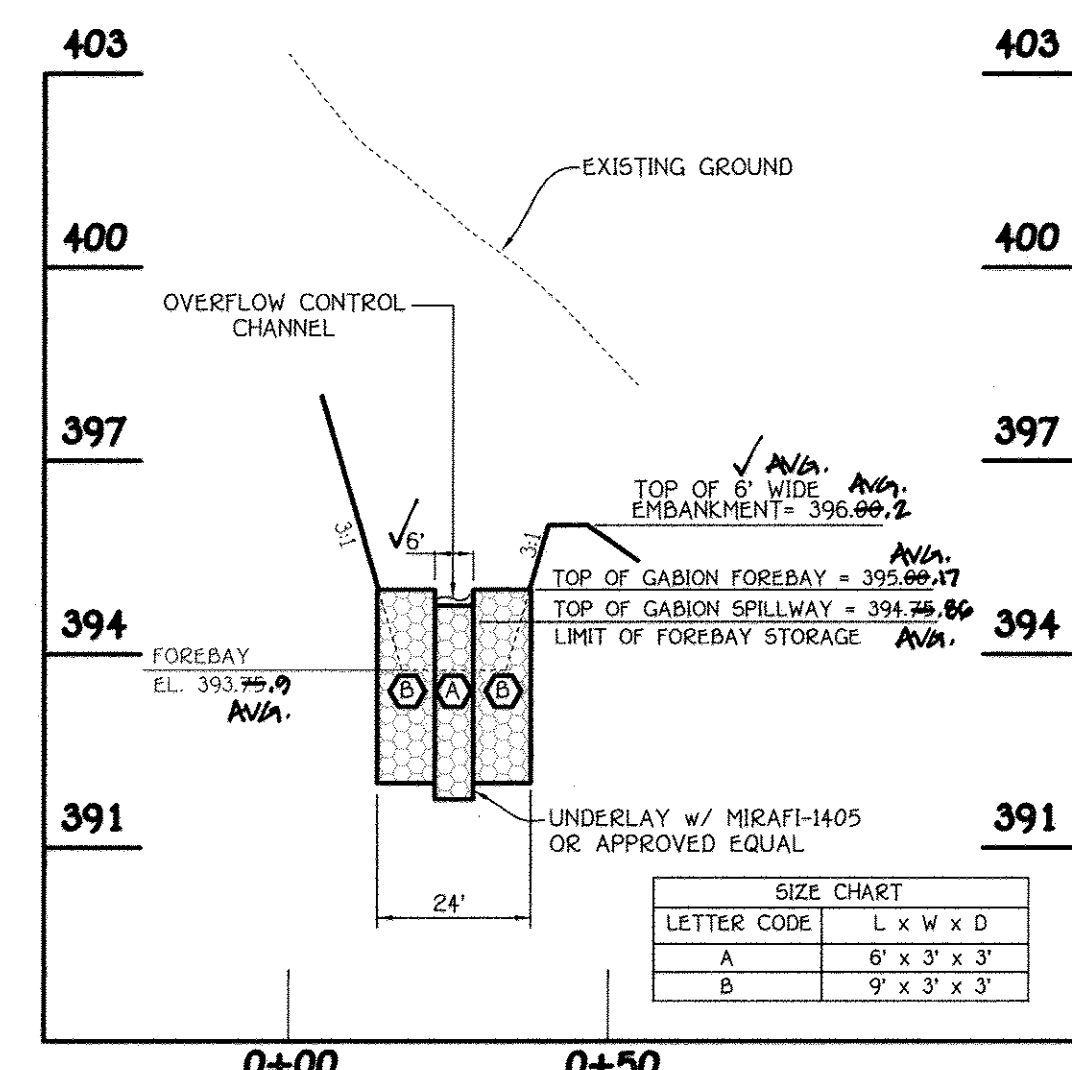


\* NOTE: THE PROPOSED 4' SIDEWALK SHALL BE TRAFFIC BEARING (7" REINFORCED CONCRETE) ALONG THE FRONT OF OPEN SPACE LOT 105.

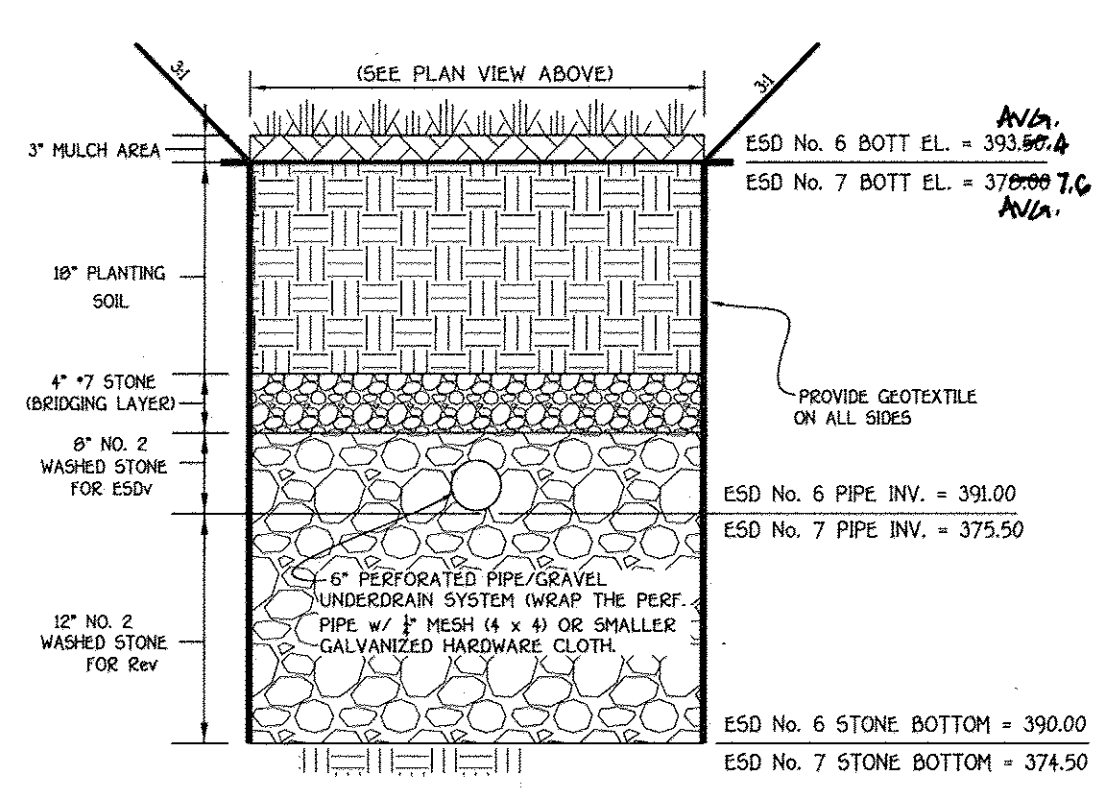
**ESD No. 6 (F-6) BIO-RETENTION PLAN**  
SCALE: 1" = 10'



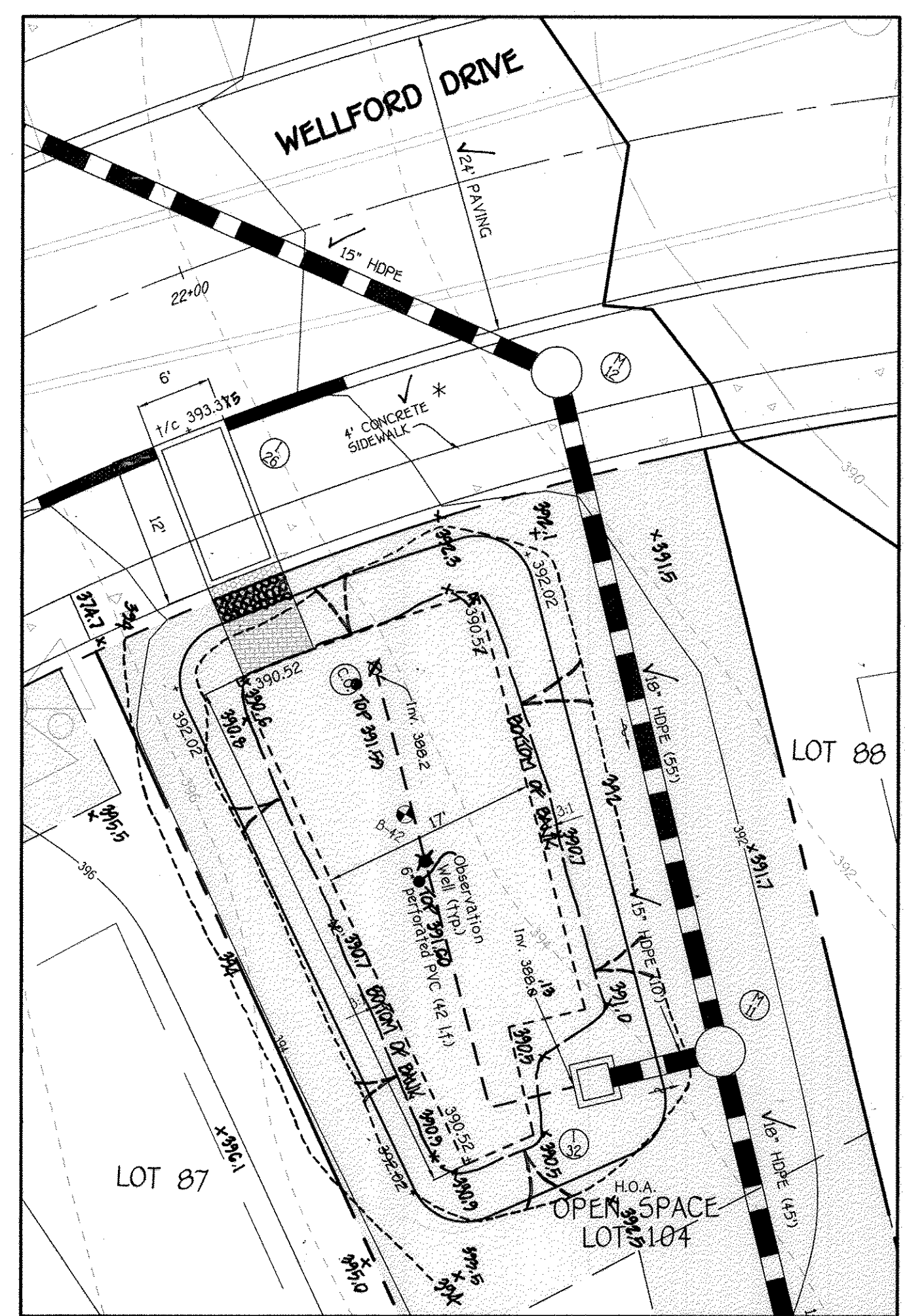
**ESD No. 6 PROFILE ALONG TOP OF EMBANKMENT (F-6)**  
SCALE: HORIZ. 1" = 30'  
VERT. 1" = 3'



**(ESD No. 6) GABION FOREBAY PROFILE**  
SCALE: HORIZ. 1" = 30'  
VERT. 1" = 3'

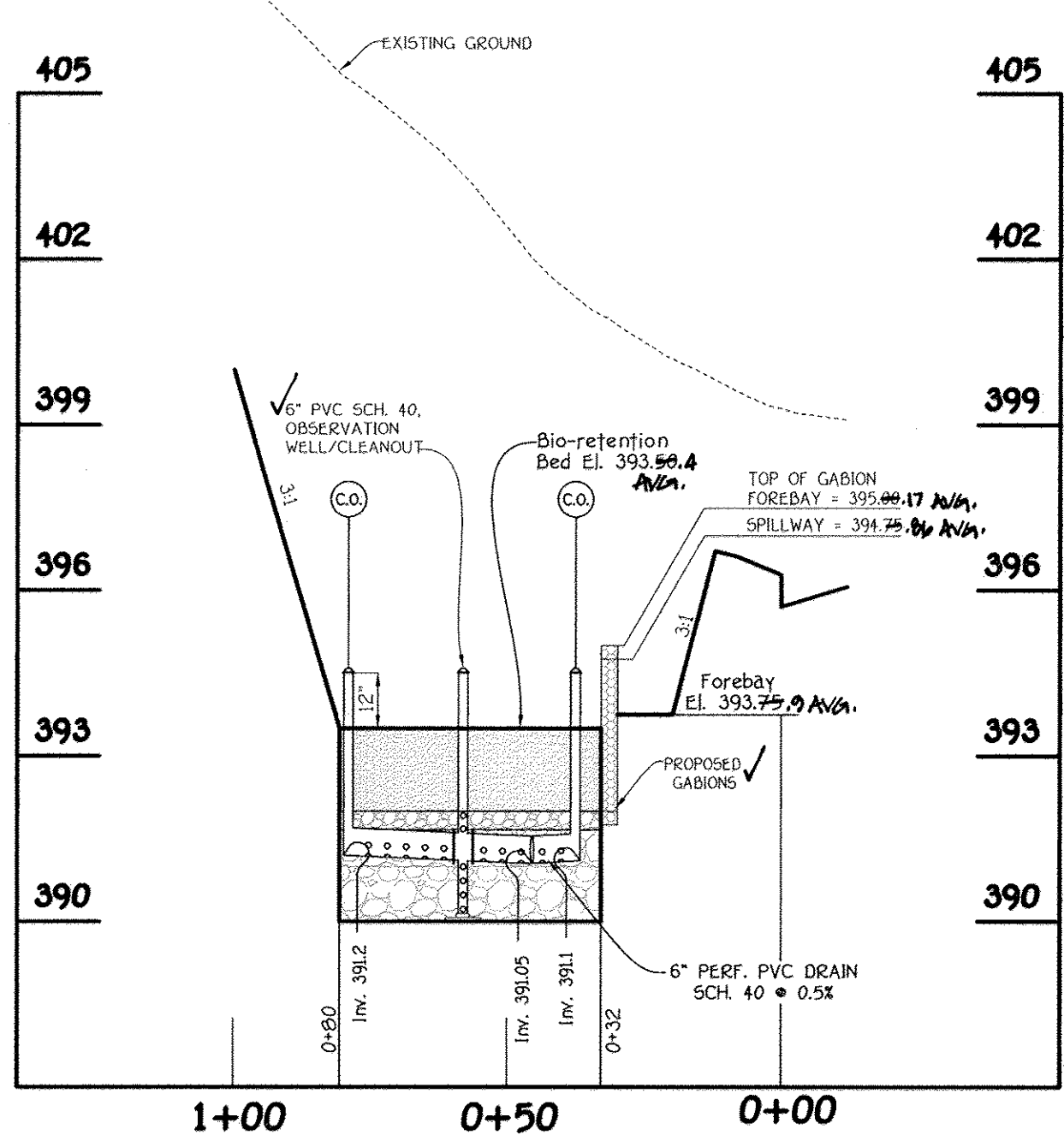


**ESD No. 6 & 7 BIO-RETENTION (F-6) SECTION**  
NO SCALE

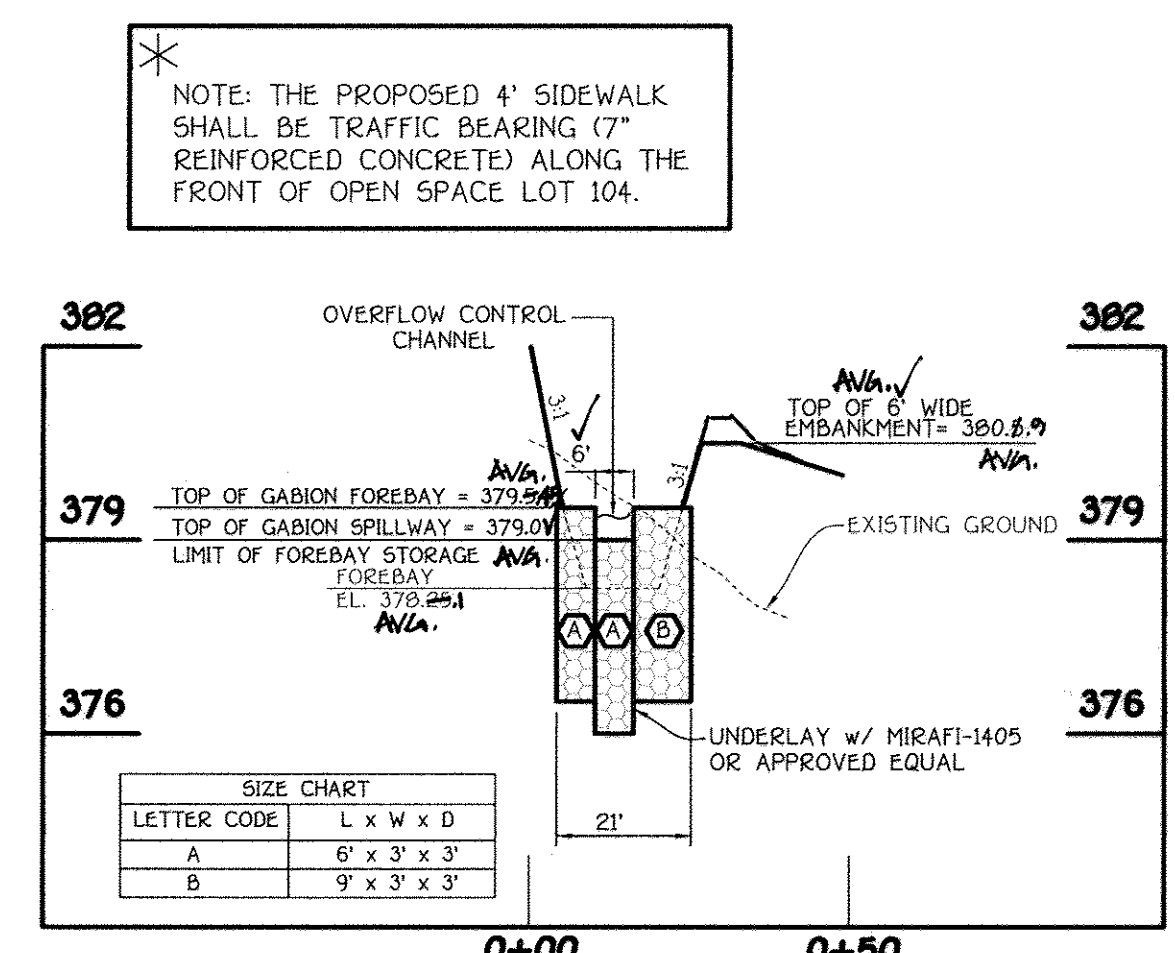


**ESD No. 14 (M-6) MICRO BIO-RETENTION PLAN**  
SCALE: 1" = 10'

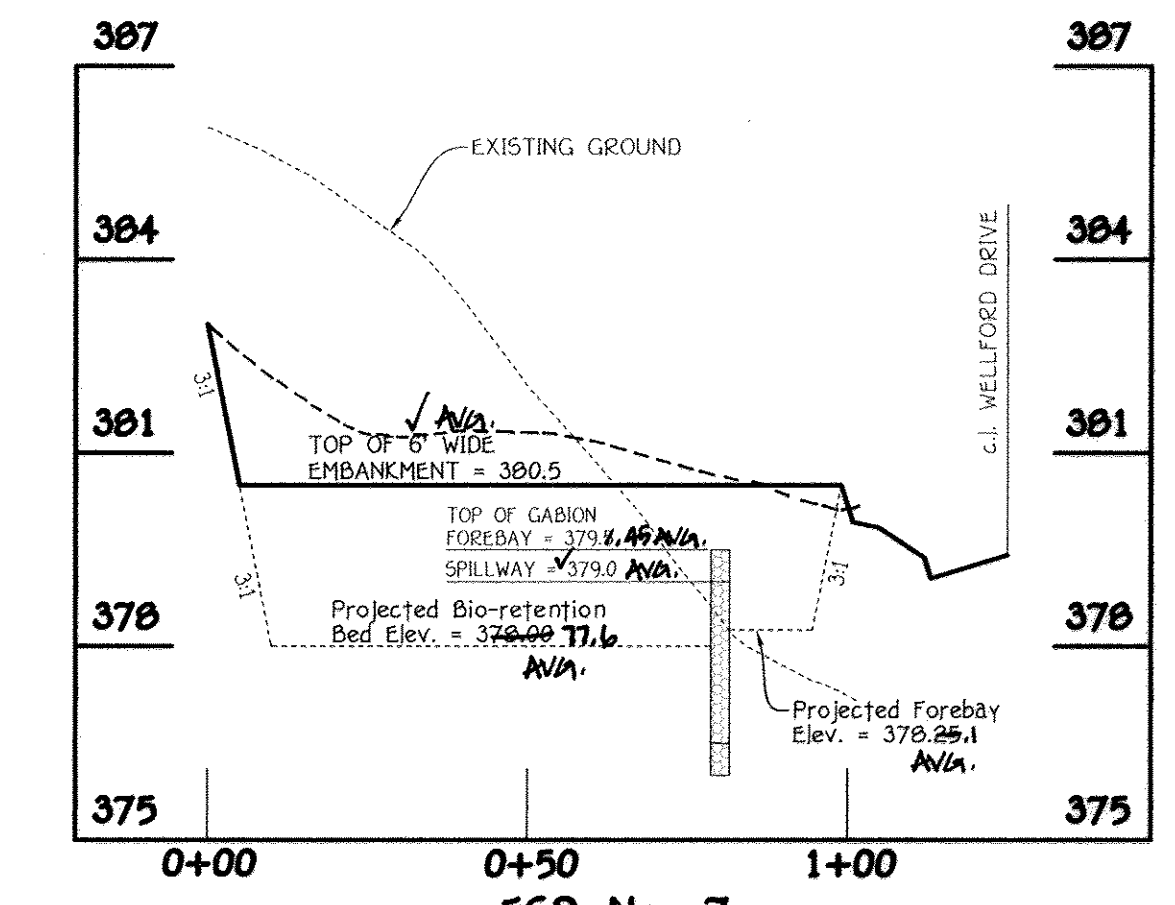
NOTE: SEE SHEET 13 FOR TYPICAL MICRO BIO-RETENTION (M-6) SECTION.  
NOTE: SEE SHEET 29 FOR STORM DRAIN PROFILES.



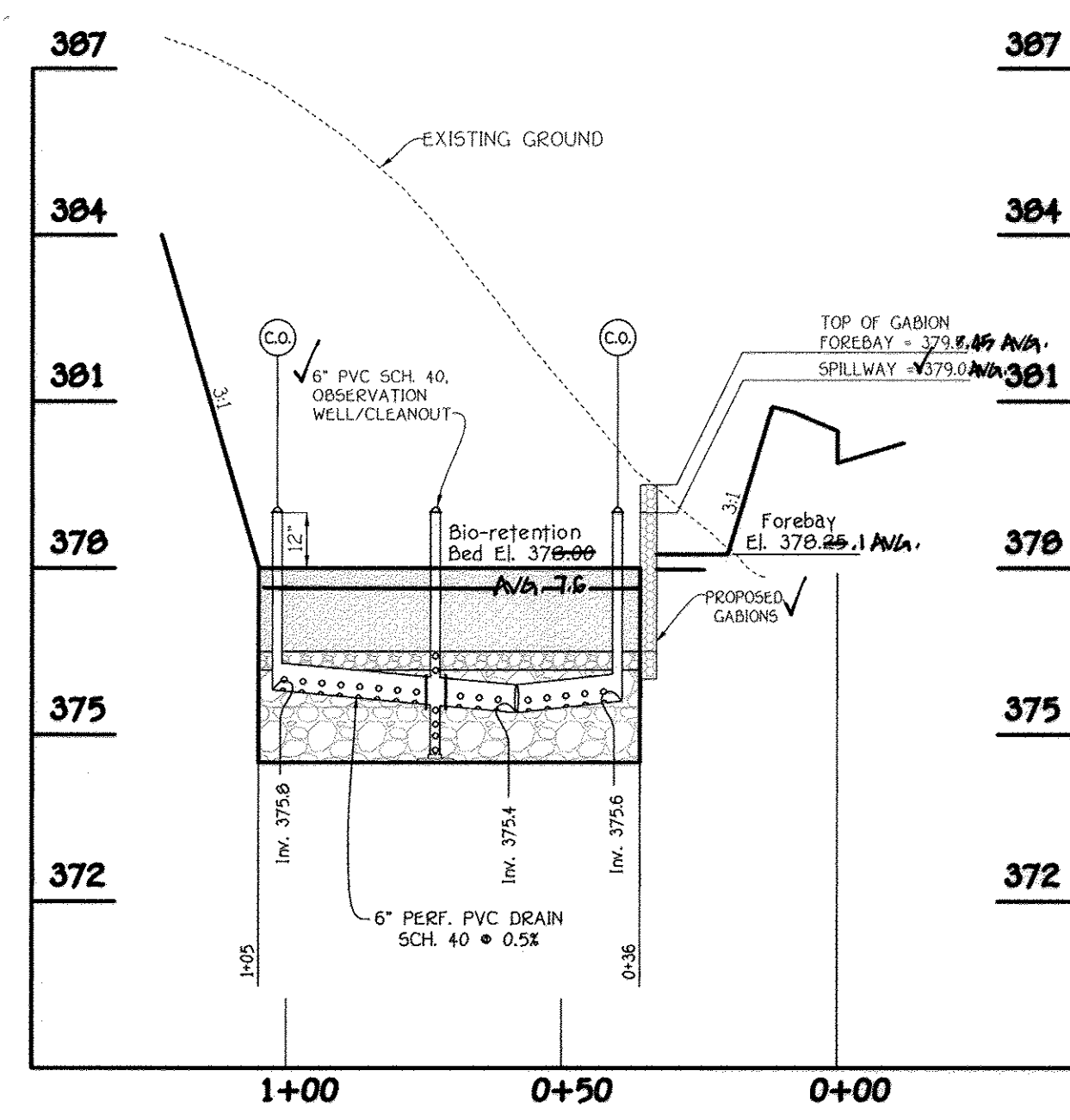
**ESD No. 6 SECTION THRU BIO-RETENTION (F-6)**  
SCALE: HORIZ. 1" = 30'  
VERT. 1" = 3'



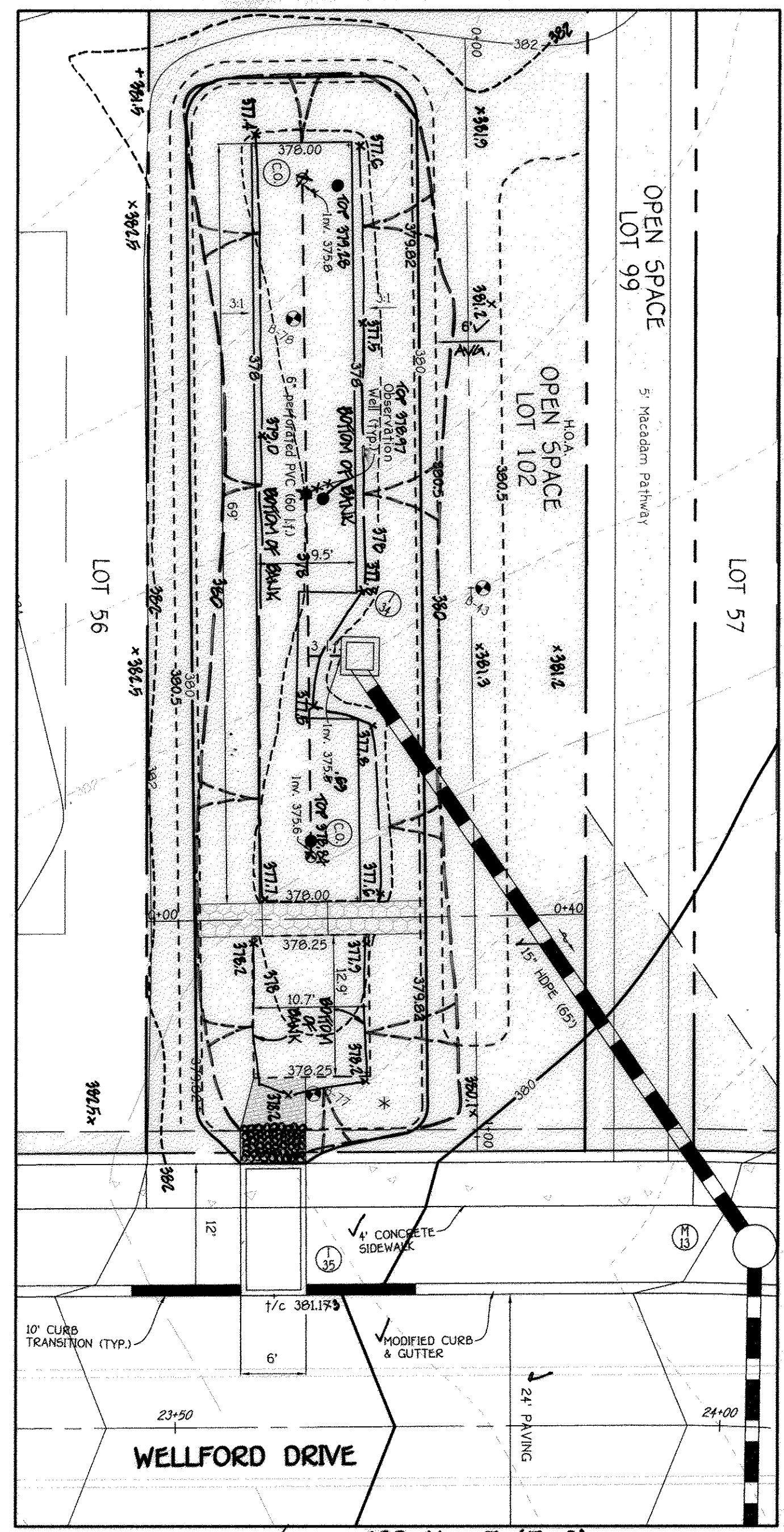
**(ESD No. 7) GABION FOREBAY PROFILE**  
SCALE: HORIZ. 1" = 30'  
VERT. 1" = 3'



**ESD No. 7 PROFILE ALONG TOP OF EMBANKMENT (F-6)**  
SCALE: HORIZ. 1" = 30'  
VERT. 1" = 3'



**ESD No. 7 SECTION THRU BIO-RETENTION (F-6)**  
SCALE: HORIZ. 1" = 30'  
VERT. 1" = 3'



**ESD No. 7 (F-6) BIO-RETENTION PLAN**  
SCALE: 1" = 10'

\* NOTE: THE PROPOSED 4' SIDEWALK SHALL BE TRAFFIC BEARING (7" REINFORCED CONCRETE) ALONG THE FRONT OF OPEN SPACE LOT 99 & 102.

**STORMWATER MANAGEMENT PLANS**  
**ESD Nos. 6, 7 & 14**  
**CENTENNIAL LAKE OVERLOOK**  
(FORMERLY MASON PROPERTY)  
**SECTION TWO**  
BUILDABLE LOTS 29 - 98 &  
OPEN SPACE LOTS 99 THRU 112  
A RESUBDIVISION OF BUILDABLE BULK PARCELS 'A' & 'B'  
ZONING: R-20  
TAX MAP No. 30 GRID No. 2 PARCEL No. 86  
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
DATE: MAY 30, 2014  
SCALE: AS SHOWN  
SHEET 16 OF 40

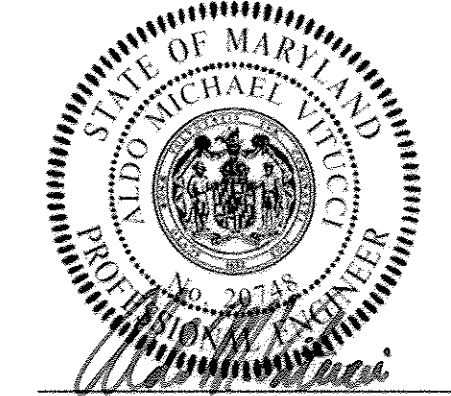
APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Holger Seccano* 6-10-14  
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Keat Shaddock* 6-24-14  
CHIEF, DIVISION OF LAND DEVELOPMENT 68 DATE

*Chadler* 6-16-14  
CHIEF, DEVELOPMENT ENGINEERING DIVISION 4 DATE

NO.	REVISIONS	DESCRIPTION	DATE
1	Revise Title Block		4-3-15
2	Change sheet number to reflect add sheet		10/2/16

AS-BUILT CERTIFICATION FOR PSWIM  
I hereby certify that the facility shown on the plan was constructed as shown on the "AS BUILT" plans and complies with the approved plans and specifications. I have verified that the contributing drainage area is sufficiently stabilized to prevent clogging of the underdrain and facility.  
*Charles J. Kravitz, P.E.* 6/15/18  
DATE



ALDO N. VITUCCI, P.E.  
Professional certification I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 22748, Expiration Date 2-22-15.



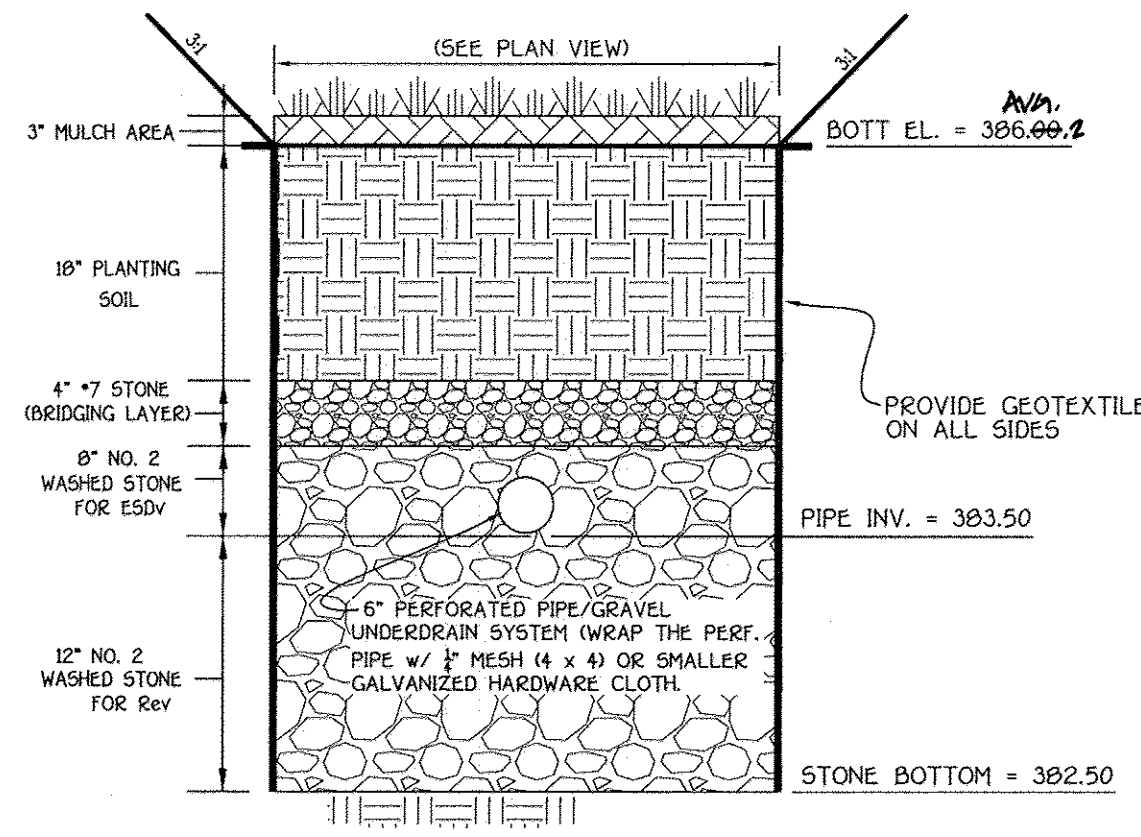


APPROVED: DEPARTMENT OF PUBLIC WORKS	6-18-14	
CHIEF, BUREAU OF HIGHWAYS	DATE	
APPROVED: DEPARTMENT OF PLANNING AND ZONING	6-24-14	
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE	
CHIEF, DEVELOPMENT ENGINEERING DIVISION	6-16-14	
DATE		
REVISIONS		
NO.	DESCRIPTION	DATE
1	Revise Title Block	4-3-15
2	Revise Sheet Number to Reflect Added Pages	10/21/16

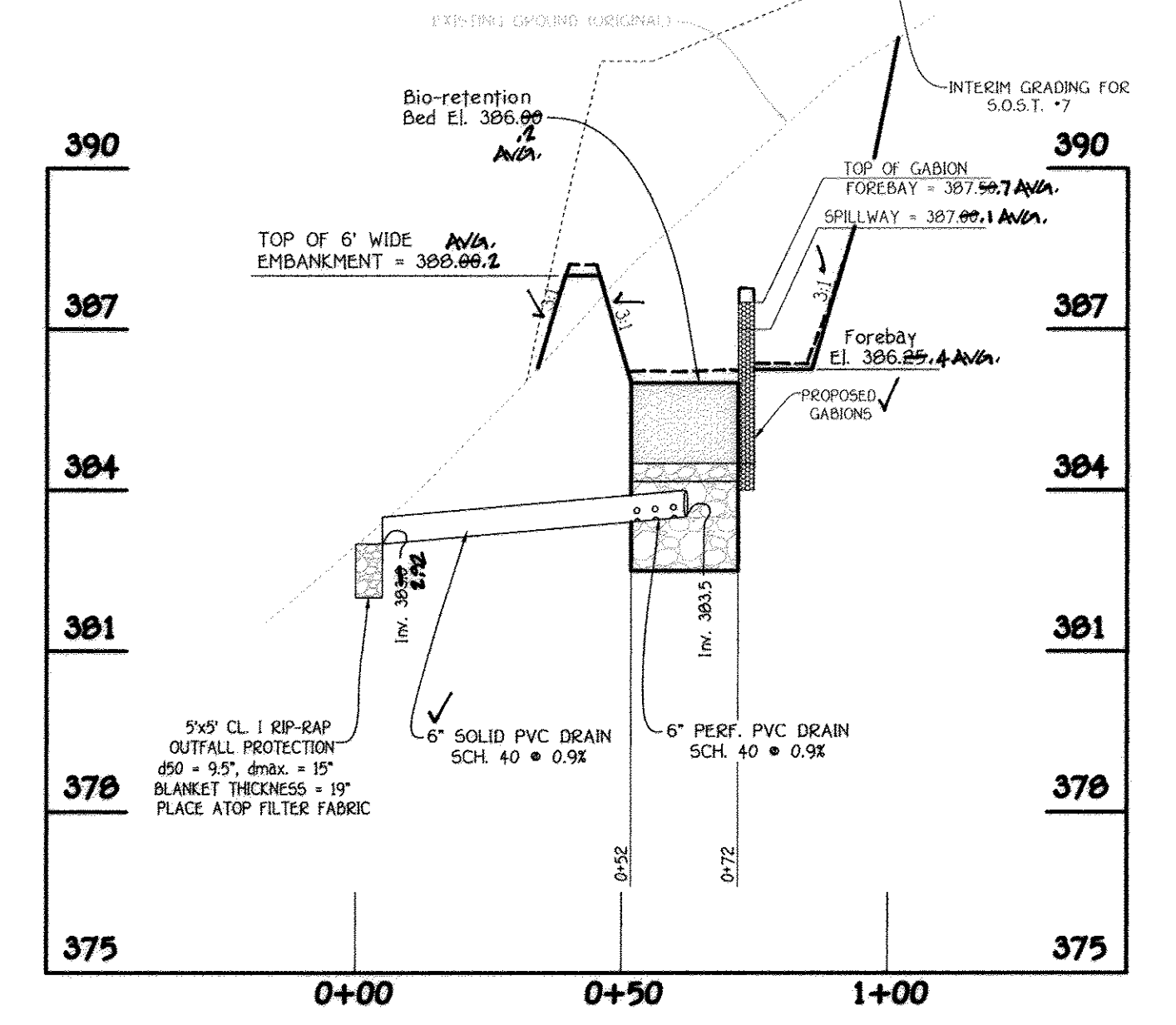
**OPERATION AND MAINTENANCE SCHEDULE FOR BIO-RETENTION AREAS (F-6)**

- The owner shall maintain the plant material, mulch layer and soil layer annually. Maintenance of mulch and soil is limited to correcting areas of erosion or wash out. Any mulch replacement shall be done in the spring. Plant material shall be checked for disease and insect infestation and maintenance will address dead material and pruning. Acceptable replacement plant material is limited to the following 2000 Maryland stormwater design manual volume II, Table A.4.1 and C.
- The owner shall perform a plant in the spring and in the fall each year. During the inspection, the owner shall remove dead and diseased vegetation considered beyond treatment, replace dead plant material with acceptable replacement plant material. Treat diseased trees and shrubs and replace all deficient stakes and wires.
- The owner shall inspect the mulch each spring. The mulch shall be replaced every two to three years. The previous mulch layer shall be removed before the new layer is applied.
- The owner shall correct soil erosion on an as needed basis, with a minimum of once per month and after each heavy storm.

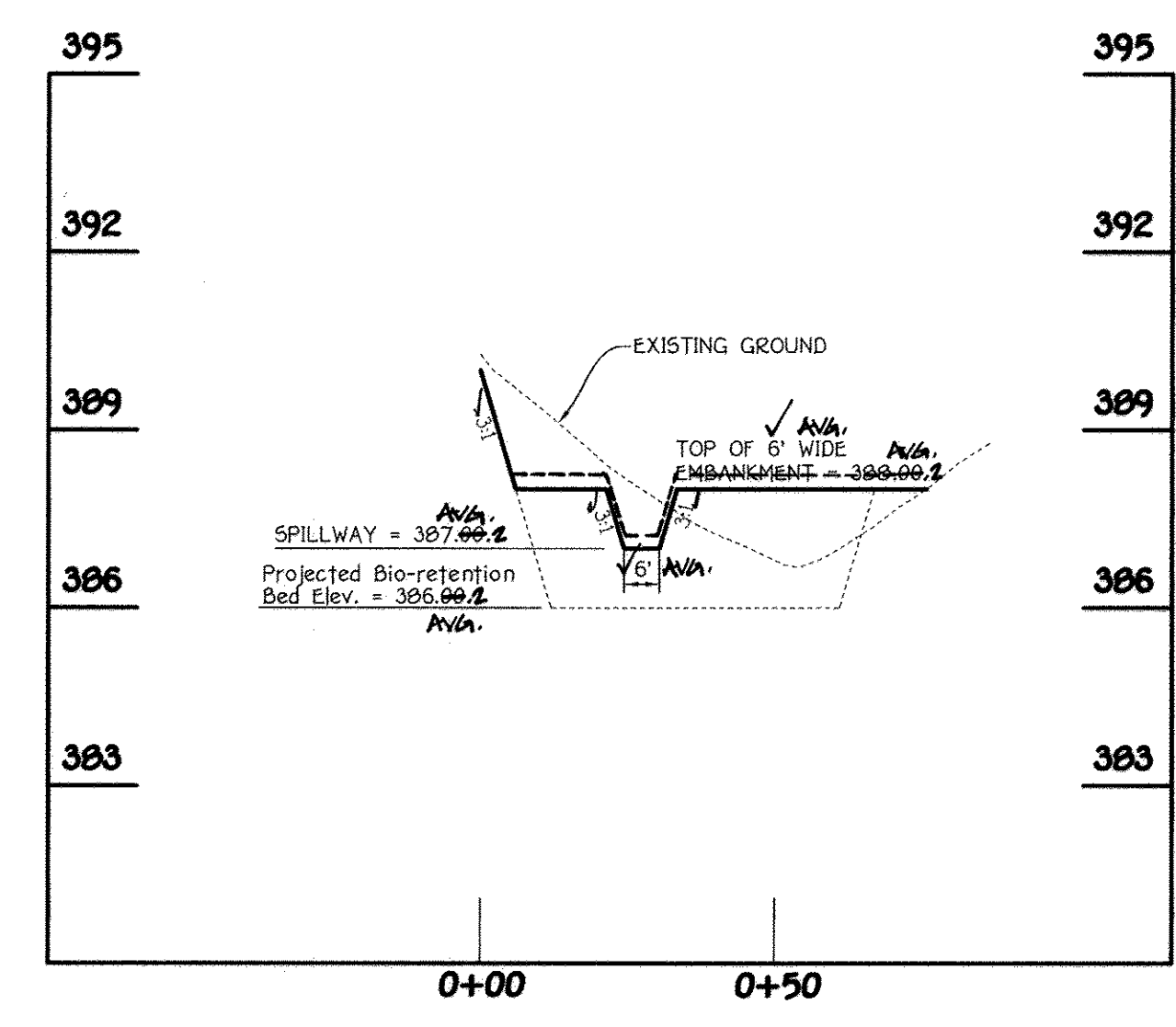
\* NOTE: THE PROPOSED 4" SIDEWALK SHALL BE TRAFFIC BEARING (7" REINFORCED CONCRETE) ALONG THE FRONT OF OPEN SPACE LOT 106.



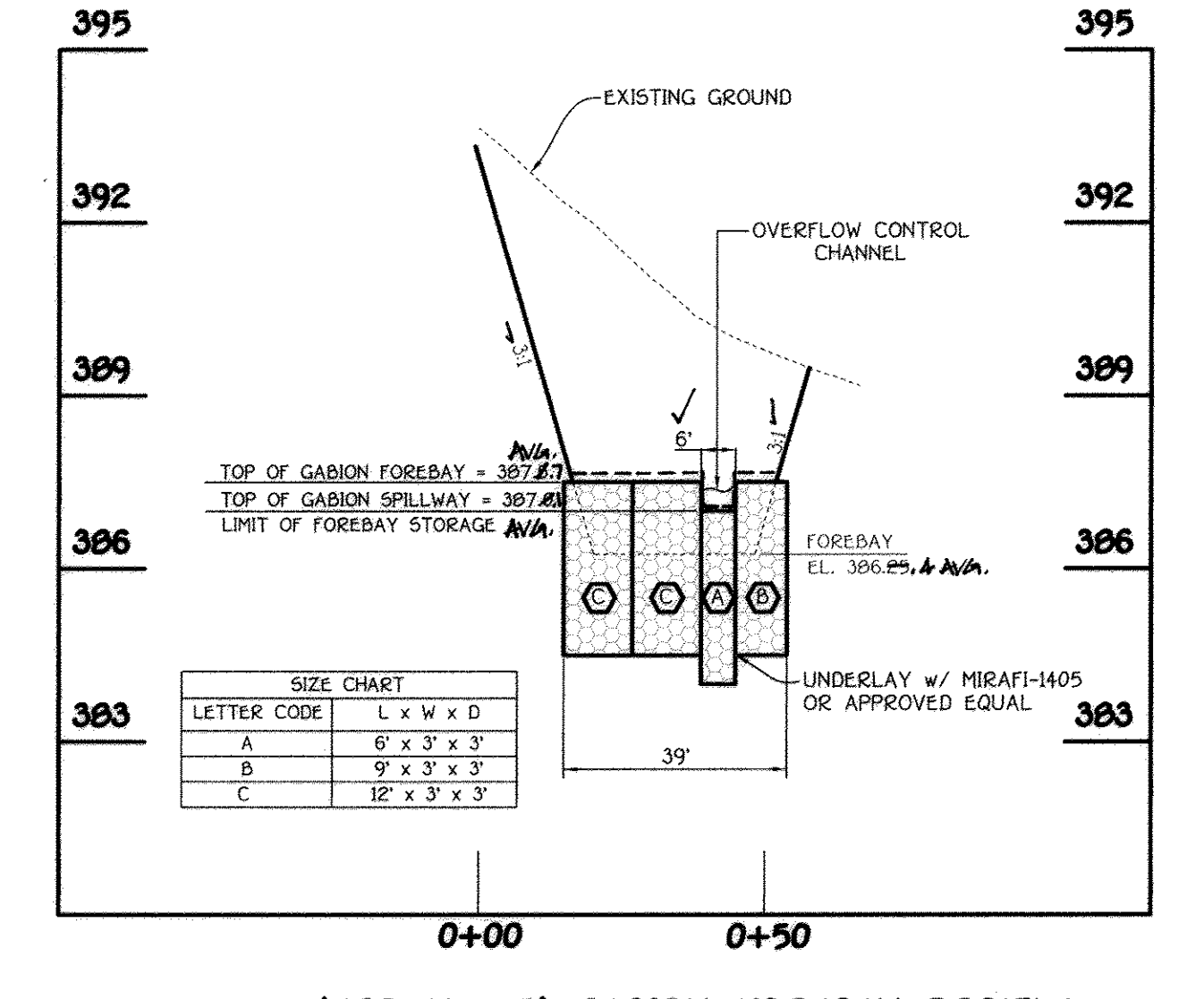
**ESD No. 5 BIO-RETENTION (F-6) SECTION**  
NO SCALE



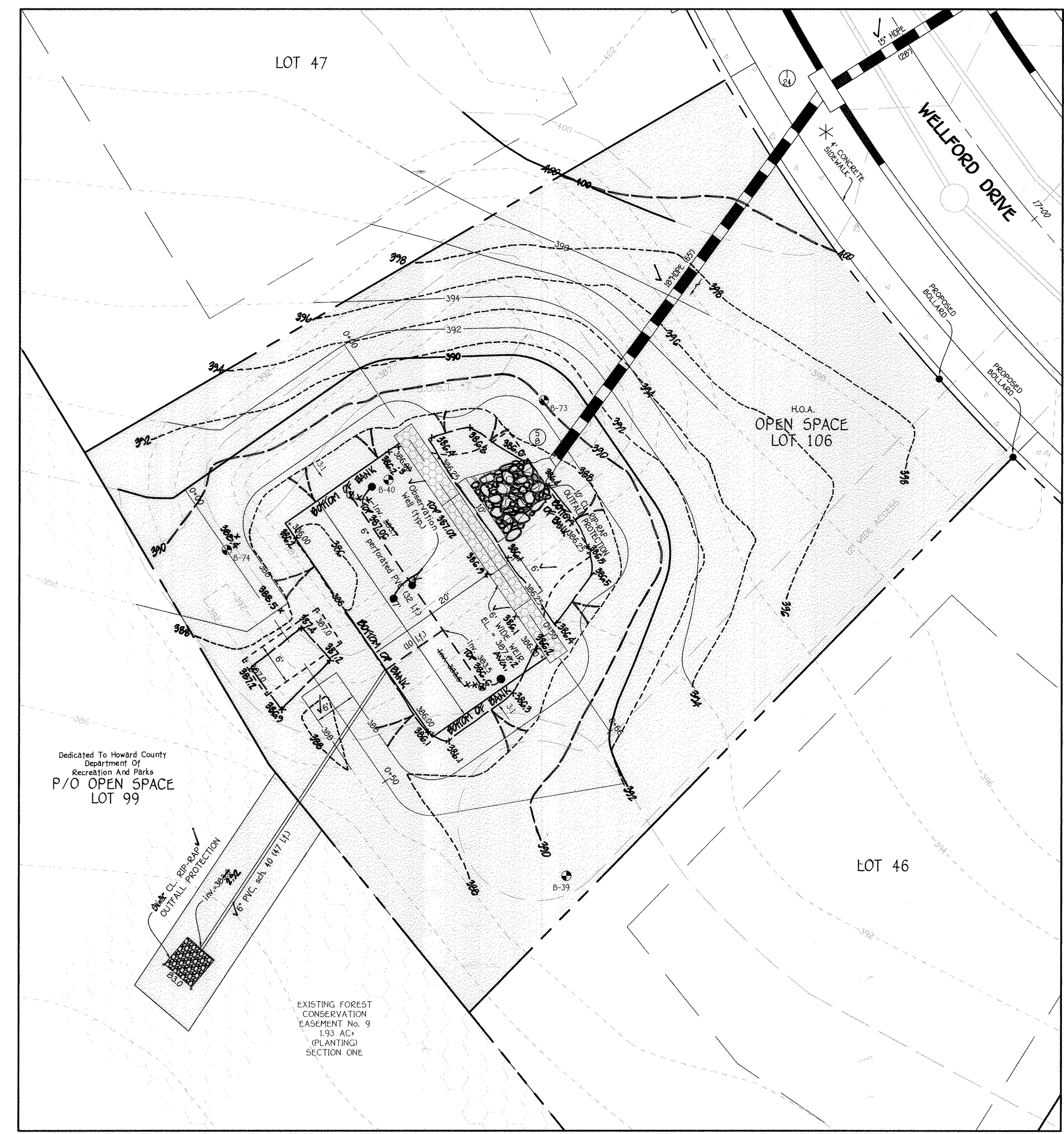
**SECTION THRU BIO-RETENTION (F-6)**  
SCALE: HORIZ. 1" = 30'  
VERT. 1" = 3'



**ESD No. 5 PROFILE ALONG TOP OF EMBANKMENT (F-6)**  
SCALE: HORIZ. 1" = 30'  
VERT. 1" = 3'



**(ESD No. 5) GABION FOREBAY PROFILE**  
SCALE: HORIZ. 1" = 30'  
VERT. 1" = 3'

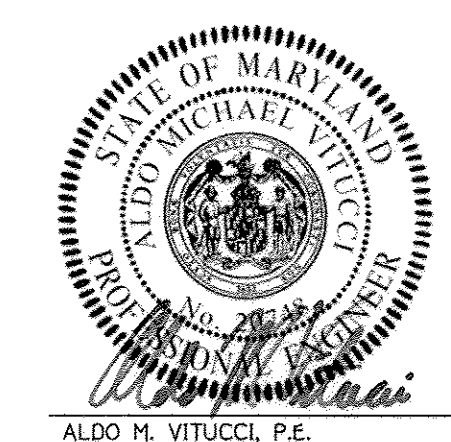


**ESD No. 5 (F-6) BIO-RETENTION PLAN**  
SCALE: 1" = 10'

NOTE: SEE SHEET 28 FOR STORM DRAIN PROFILE.



**AS-BUILT CERTIFICATION FOR PSWM**  
I hereby certify that the facility shown on the plan was constructed as shown on the "AS BUILT" plans and complies with the approved plans and specifications. I have verified that the contributing drainage area is sufficiently stabilized to prevent clogging of the underdrain facility.  
Charles J. Cravo, P.E. No. 191204 Date 2/15/18



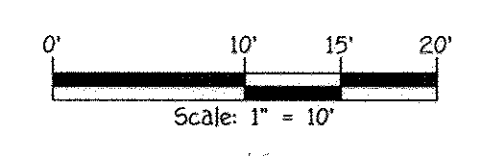
Aldo M. Vitucci, P.E. Date 2/22/15  
Professional certification I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-15.

**STORMWATER MANAGEMENT PLANS**  
**ESD No. 5**  
**CENTENNIAL LAKE OVERLOOK**  
(FORMERLY MASON PROPERTY)  
**SECTION TWO**  
BUILDABLE LOTS 29 - 98 B  
OPEN SPACE LOTS 99 THRU 112

A RESUBDIVISION OF BUILDABLE BULK PARCELS 'A' & 'B'  
ZONING: R-20  
TAX MAP No. 30 GRID No. 2 PARCEL No. 86  
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: MAY 30, 2014  
SHEET 17 OF 42

**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTENNIAL SQUARE OFFICE PARK - 10272 SALTPODE NATIONAL PIKE  
ELLSWORTH CITY, MARYLAND 21042  
(410) 461-2895

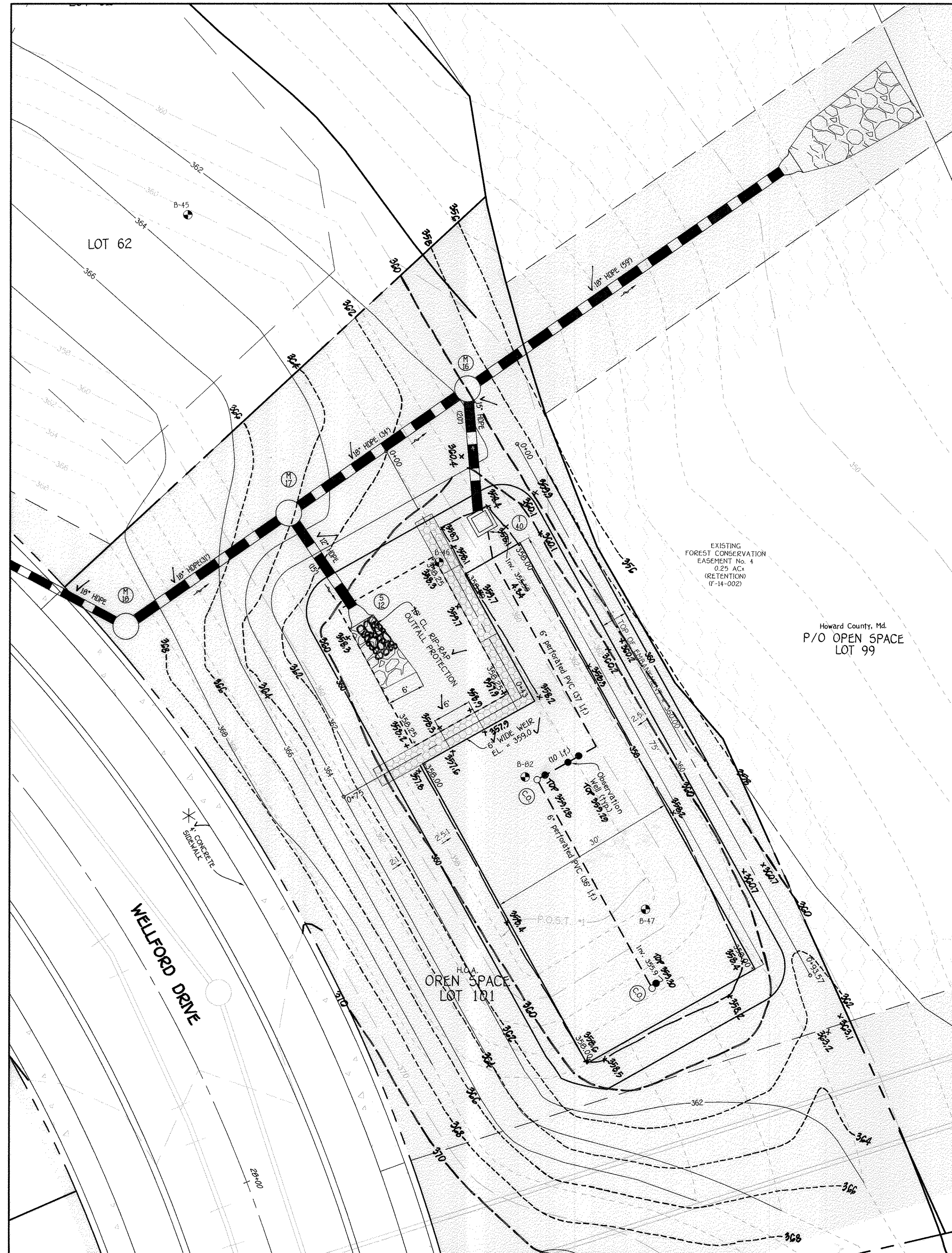
**OWNER/DEVELOPER**  
BEAZER HOMES CORP  
8965 GUILFORD ROAD  
COLUMBIA, MARYLAND 21046  
(410) 720-5071



I:\2011\11042\dwg\Finals section two\Finals with lots 80-83, 86-98 removed\11042 sheet 17\_5\30\2014 9:19:46 AM, 1:1

"AS-BUILT" F-14-081

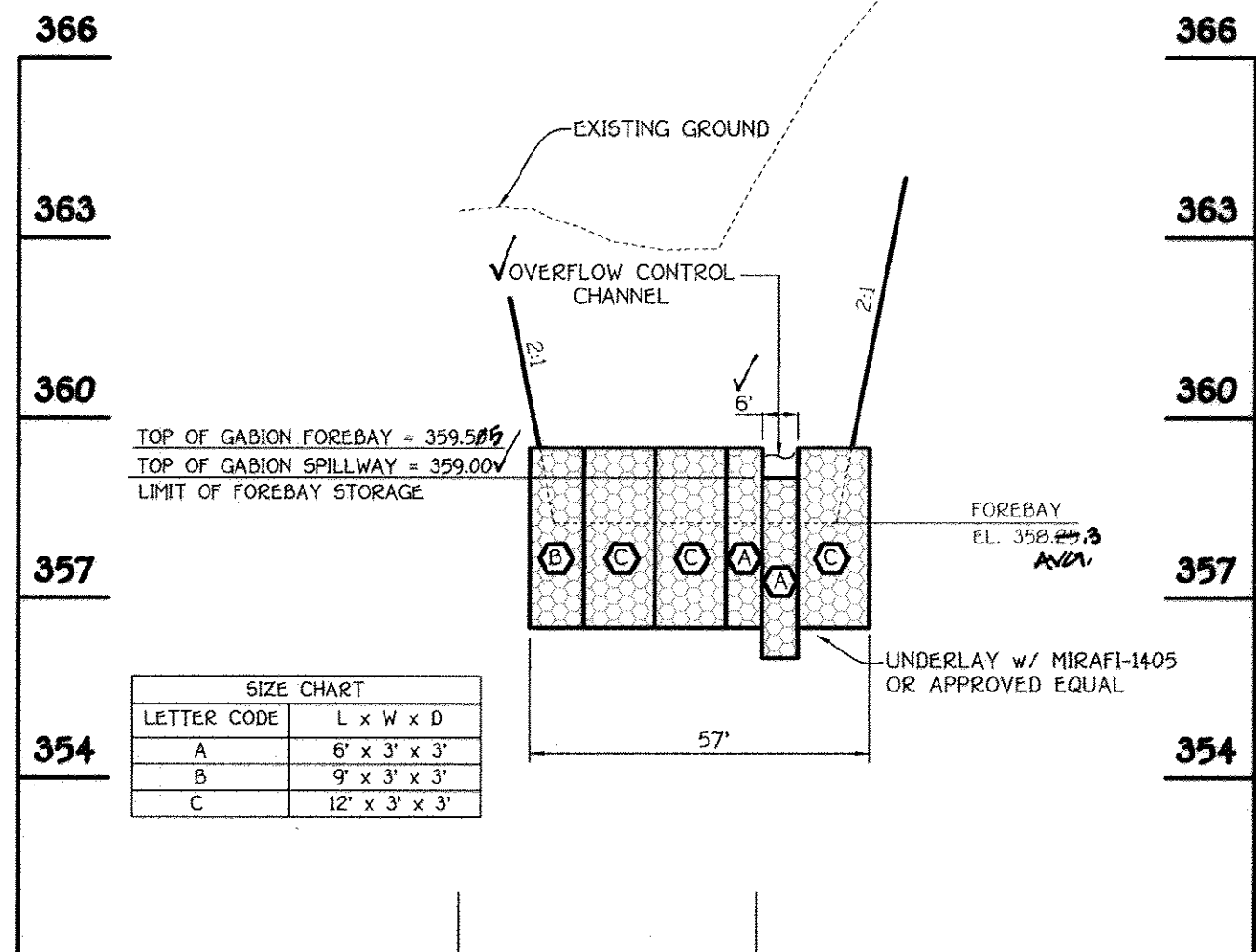




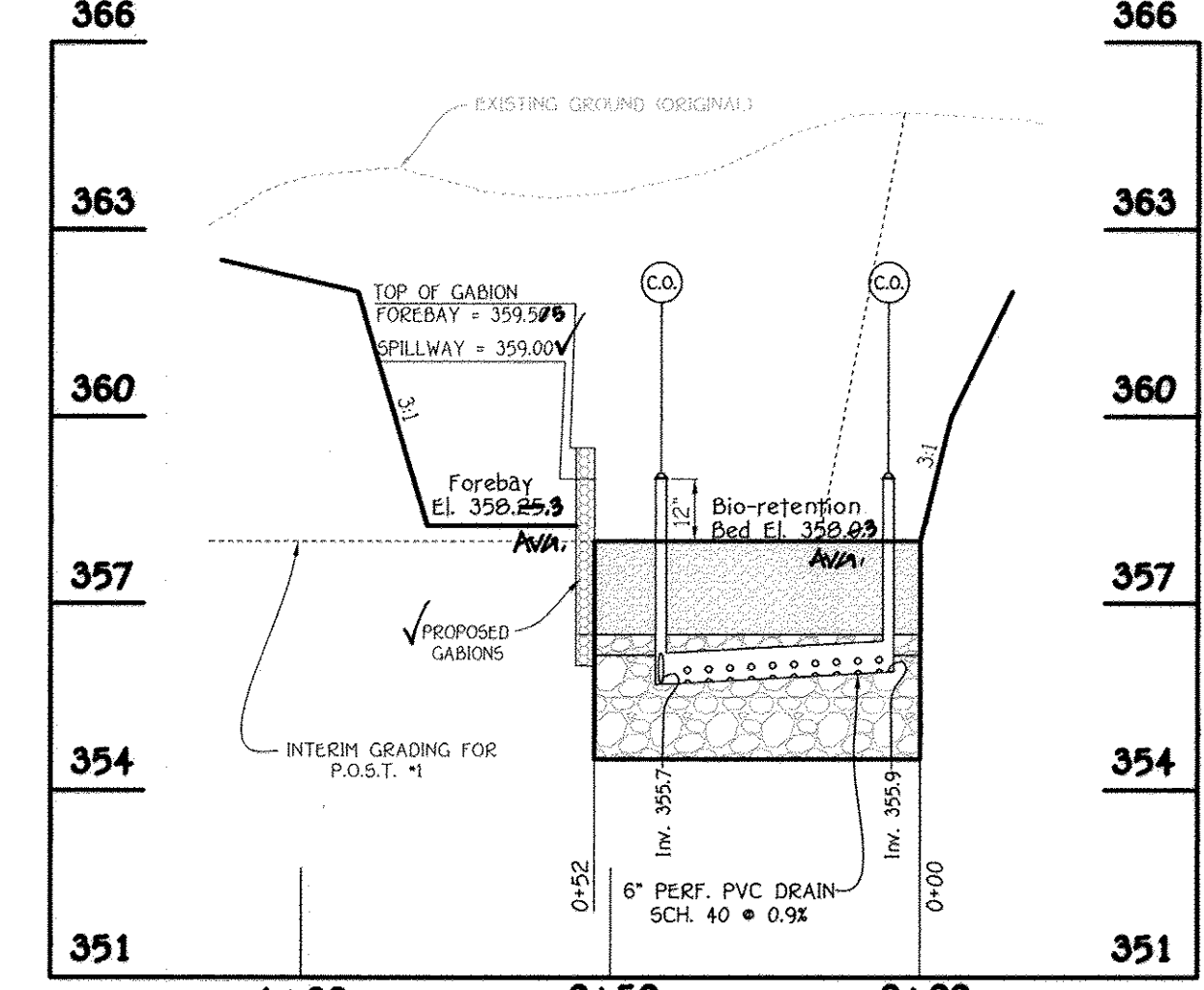
**ESD No. 9 (F-6)  
BIO-RETENTION PLAN**  
SCALE: 1" = 10'

\* NOTE: THE PROPOSED 4' SIDEWALK SHALL BE TRAFFIC BEARING (7" REINFORCED CONCRETE) ALONG THE FRONT OF OPEN SPACE LOT 101.

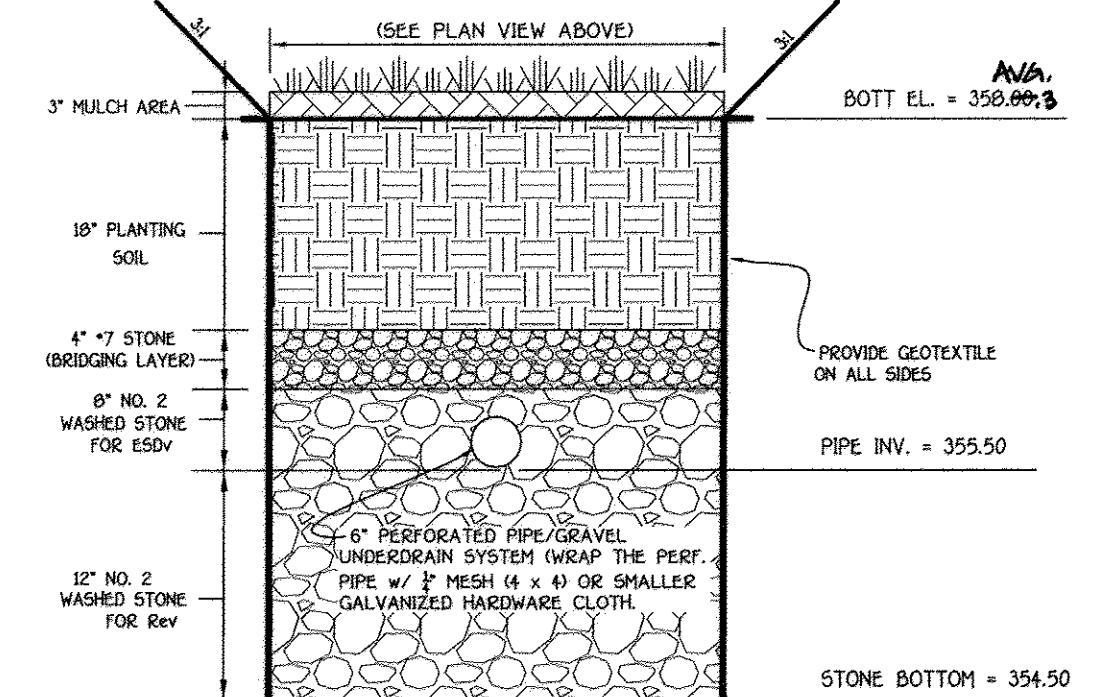
NOTE: SEE SHEET 30 FOR PROFILE (I-40 TO M-6 & I-39 TO 5-11)



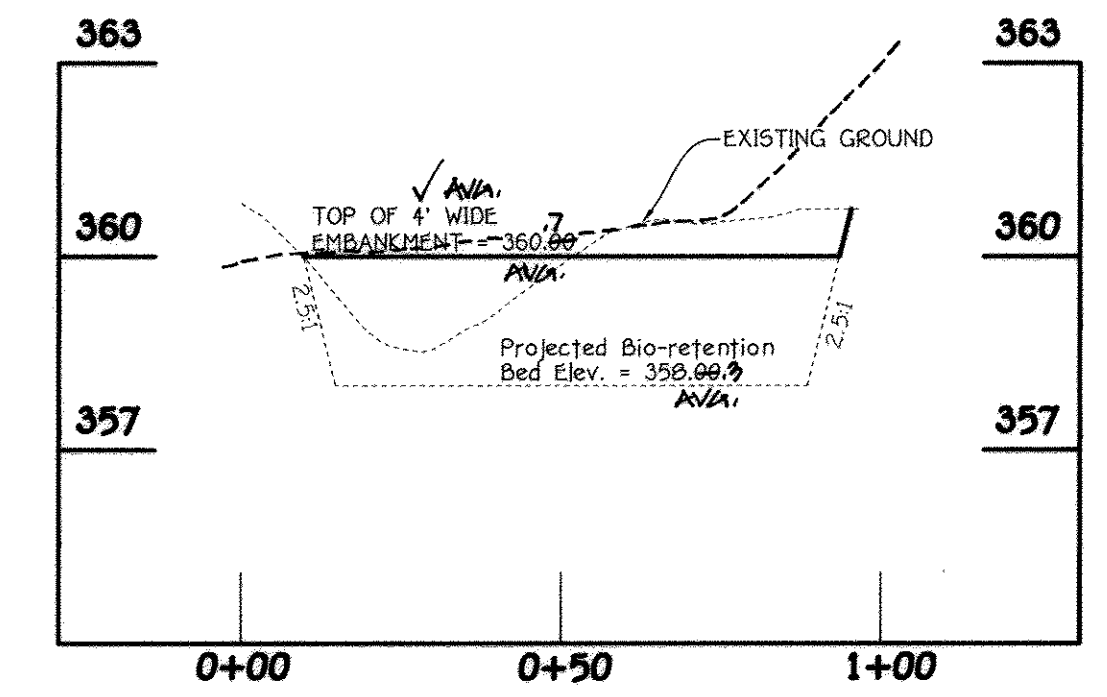
**(ESD No. 9) GABION FOREBAY PROFILE**  
SCALE: HORIZ. 1" = 30'  
VERT. 1" = 3'



**SECTION THRU BIO-RETENTION (F-6)**  
SCALE: HORIZ. 1" = 30'  
VERT. 1" = 3'



**ESD No. 9  
BIO-RETENTION (F-6) SECTION**  
NO SCALE



**ESD No. 9  
PROFILE ALONG TOP OF EMBANKMENT (F-6)**  
SCALE: HORIZ. 1" = 30'  
VERT. 1" = 3'

APPROVED: DEPARTMENT OF PUBLIC WORKS	6.18.14	
APPROVED: DEPARTMENT OF PLANNING AND ZONING	6.24.14	
REVISIONS		
NO.	DESCRIPTION	DATE
1	Revise Title Block	4.3.15
2	REVISE SHEET NUMBER TO REFLECT MISC SHEET	10/21/16

**OPERATION AND MAINTENANCE SCHEDULE FOR BIO-RETENTION AREAS (F-6)**

- The owner shall maintain the plant material, mulch layer and soil layer annually; maintenance of mulch and soil is limited to correcting areas of erosion or wash out. Any mulch replacement shall be done in the spring. Plant material shall be checked for disease and insect infestation and maintenance will address dead material and pruning. Acceptable replacement plant material is limited to the following 2000 Maryland stormwater design manual volume II, table A.4.1 and 2.
- The owner shall perform a plant in the spring and in the fall each year. During the inspection, the owner shall remove dead and diseased vegetation considered beyond treatment, replace dead plant material with acceptable replacement plant material. Treat diseased trees and shrubs and replace all deficient stakes and wires.
- The owner shall inspect the mulch each spring. The mulch shall be replaced every two to three years. The previous mulch layer shall be removed before the new layer is applied.
- The owner shall correct soil erosion on an as needed basis, with a minimum of once per month and after each heavy storm.

**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTENNIAL SQUARE, OFFICE PARK - 30272 BALTIMORE NATIONAL PIKE  
ELLSWORTH CITY, MARYLAND 21042  
(410) 461-2855

**OWNER/DEVELOPER**  
BEAZER HOMES CORP  
8965 GUILFORD ROAD  
COLUMBIA, MARYLAND 21046  
(410) 720-5071



AS-BUILT CERTIFICATION FOR PSWM  
I hereby certify that the facility shown on the plan was constructed as shown on the "AS BUILT" plans and complies with the approved plans and specifications. I have verified that the contributing drainage area is sufficiently stabilized to prevent clogging of the underdrain system.  
Date: 6/15/18  
CHARLES J. GRODZ, P.E., NO. 19104



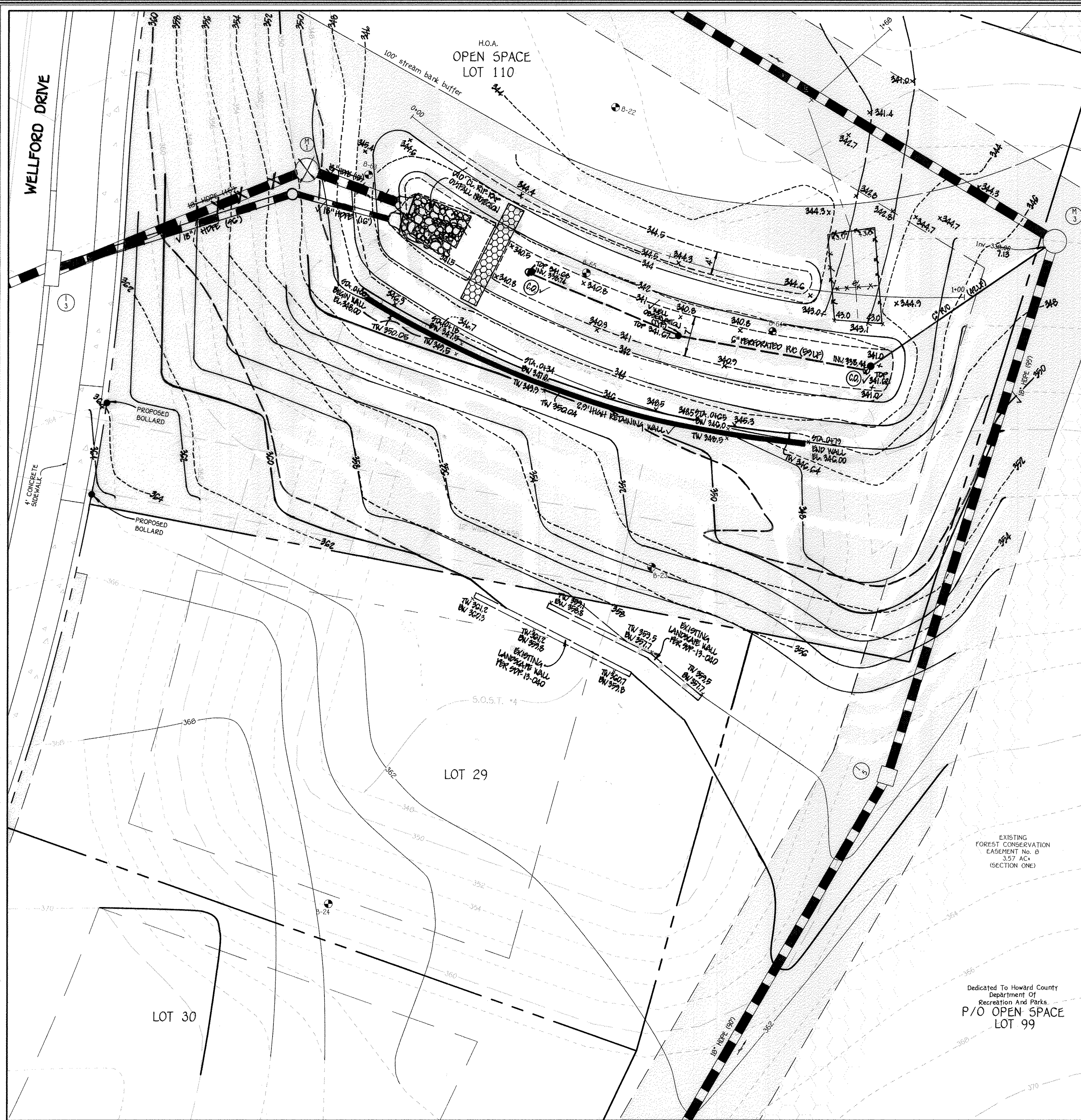
ALDO H. VITUCCI, P.E.  
DATE: 6/16/14  
Professional certification I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-15.

**STORMWATER MANAGEMENT PLANS**  
**ESD No. 9**  
**CENTENNIAL LAKE OVERLOOK**  
(FORMERLY MASON PROPERTY)  
**SECTION TWO**  
BUILDABLE LOTS 29 - 98 &  
OPEN SPACE LOTS 99 THRU 112  
A RESUBDIVISION OF BUILDABLE BULK PARCELS 'A' & 'B'  
ZONING: R-20  
TAX MAP No. 30 GRID No. 2 PARCEL No. 06  
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
DATE: MAY 30, 2014  
SCALE: AS SHOWN  
SHEET 18 OF 40

"AS-BUILT" F-14-001

I:\2011\11042\dwg\finals section two\finals section two\plans.dwg, C-18, F-14-001, sheet: 18, 5/30/2014 9:20:49 AM, 1:1





PRIVATELY OWNED & MAINTAINED BY H.O.A.  
**ESD No. 2**  
**SAND FILTER (F-1) PLAN**  
 SCALE: 1" = 10'

NOTE: SEE SHEET 26 FOR STORM DRAIN PROFILE.

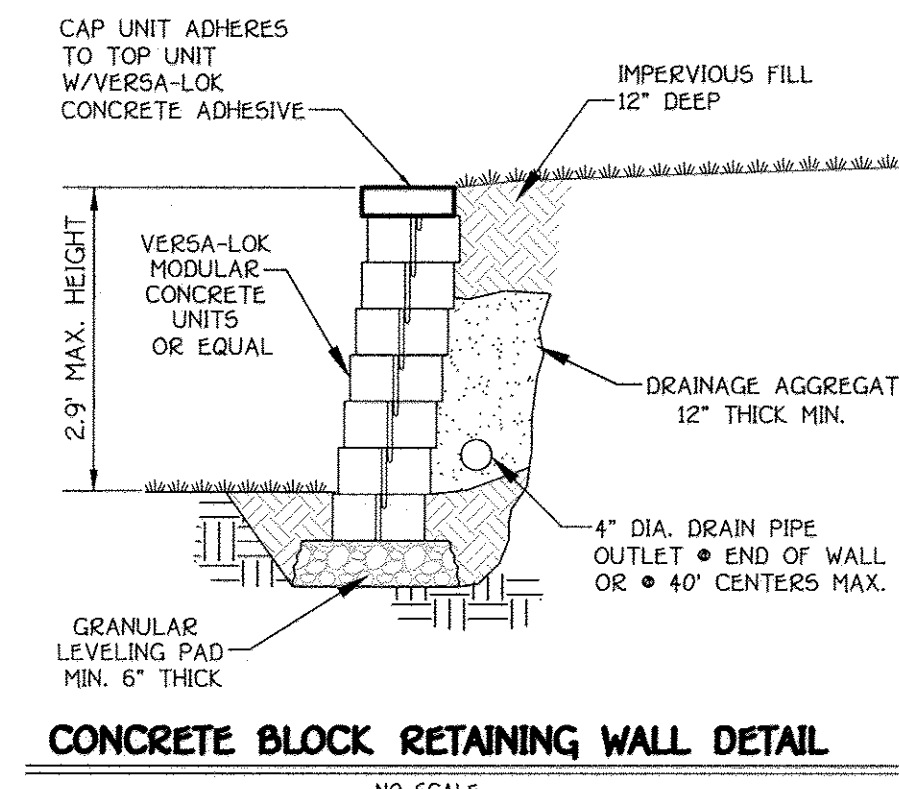


**OWNER/DEVELOPER**  
 BEAZER HOMES CORP  
 8965 GUILFORD ROAD  
 COLUMBIA, MARYLAND 21046  
 (410) 720-5071

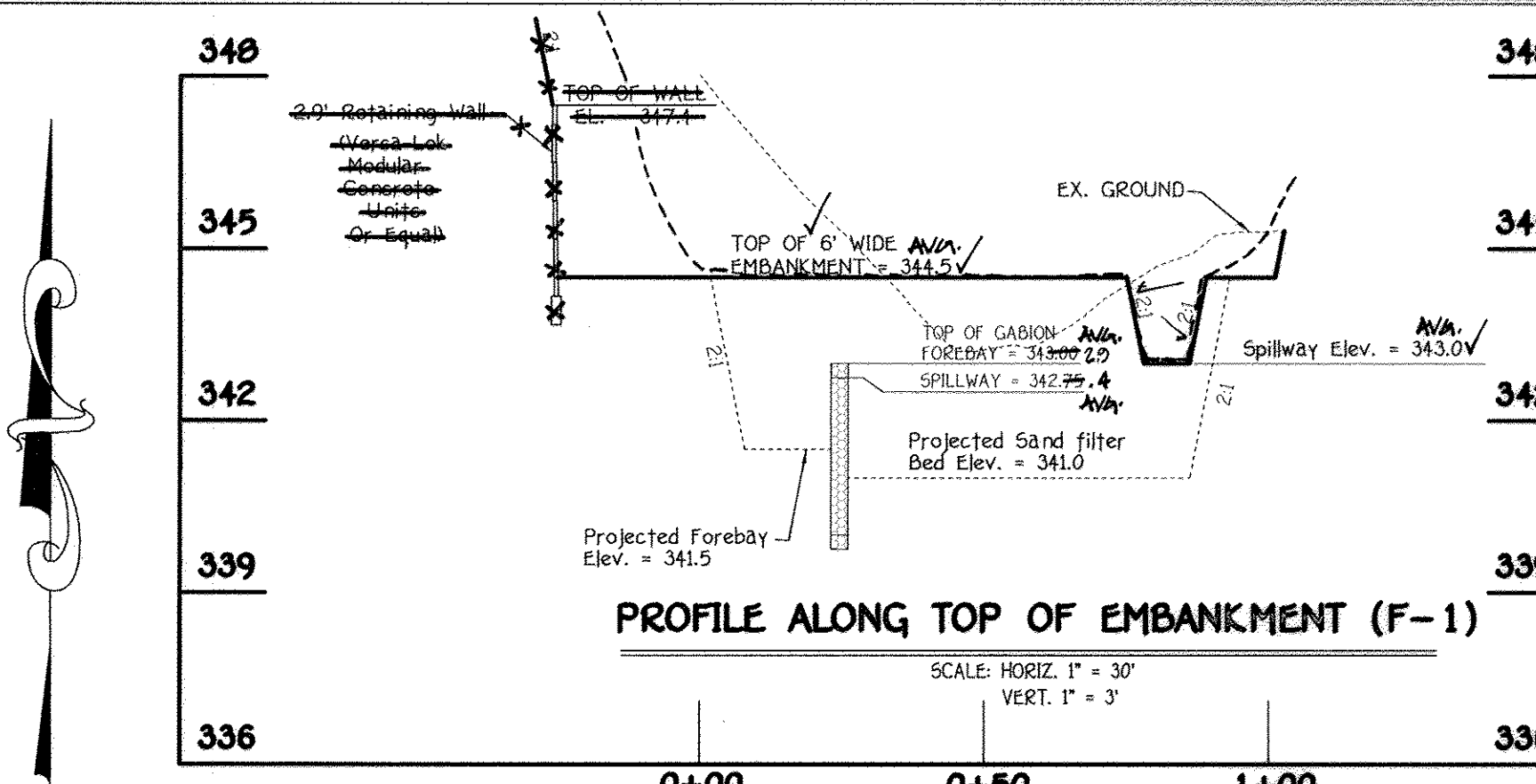
AS-BUILT CERTIFICATION FOR PSWM  
 I hereby certify that the facility shown on the plan was constructed as shown on the "AS BUILT" plans and complies with the approved plans and specifications. I have verified that the contributing drainage area is sufficiently stabilized to prevent clogging of the underdrain facility.  
 DATE: 4/15/18  
 CHARLES J. ORLOFF, P.E. NO. 19210A

**Sand Filter Specifications**

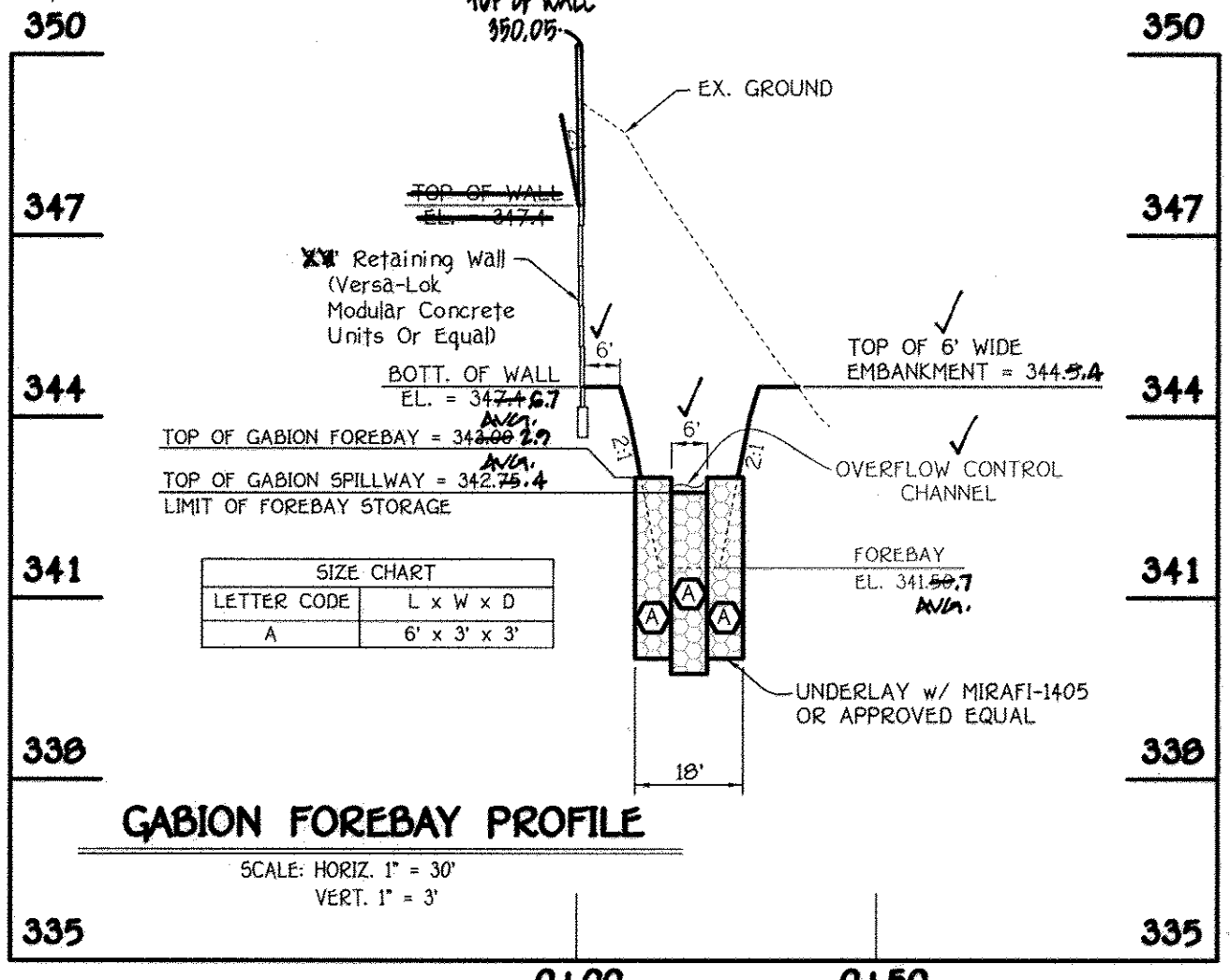
1. Material Specifications for Sand Filters  
 The allowable materials for sand filter construction are detailed in Table B.31.
2. Sand Filter Testing Specifications  
 Underdrain sand filters, facilities within sensitive groundwater aquifers, and filters designed to serve urban hot spots are to be tested for water tightness prior to placement of filter media. Entrances and exits should be plugged and the system completely filled with water to demonstrate water tightness. Water tightness means no leakage for a period of 9 hours.
3. Sand Filter Construction Specifications  
 Provide sufficient maintenance access (i.e., 12-foot-wide road with legally recorded easement). Vegetated access slopes are to be a maximum of 10% ; gravel slopes to 15% ; paved slopes to 25%. Absolutely no runoff is to enter the filter until all contributing drainage areas have been stabilized. Surface of filter bed is to be level.
4. All underground sand filters should be clearly delineated with signs so that they may be located when maintenance is due.
5. Surface sand filters may be planted with appropriate grasses; see MAA Approved Species List.
6. "Pocket" sand filters and residential bio-retention facilities treating areas larger than an acre shall be sited with 5' stone "windows" that covers approximately 10% of the filter area. This "window" shall be filled pea gravel (3/4 inch stone).



**CONCRETE BLOCK RETAINING WALL DETAIL**  
 NO SCALE



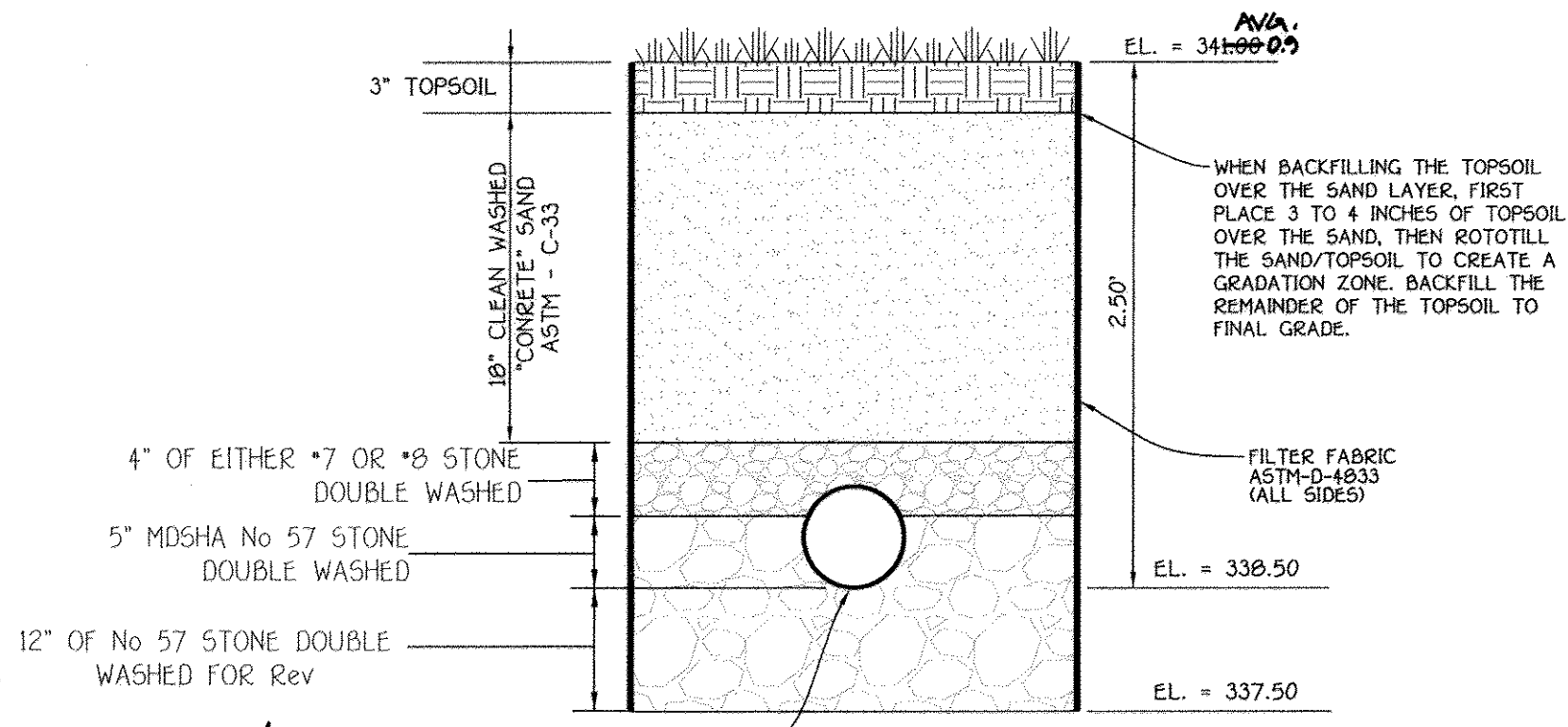
**PROFILE ALONG TOP OF EMBANKMENT (F-1)**  
 SCALE: HORIZ. 1" = 30'  
 VERT. 1" = 3'



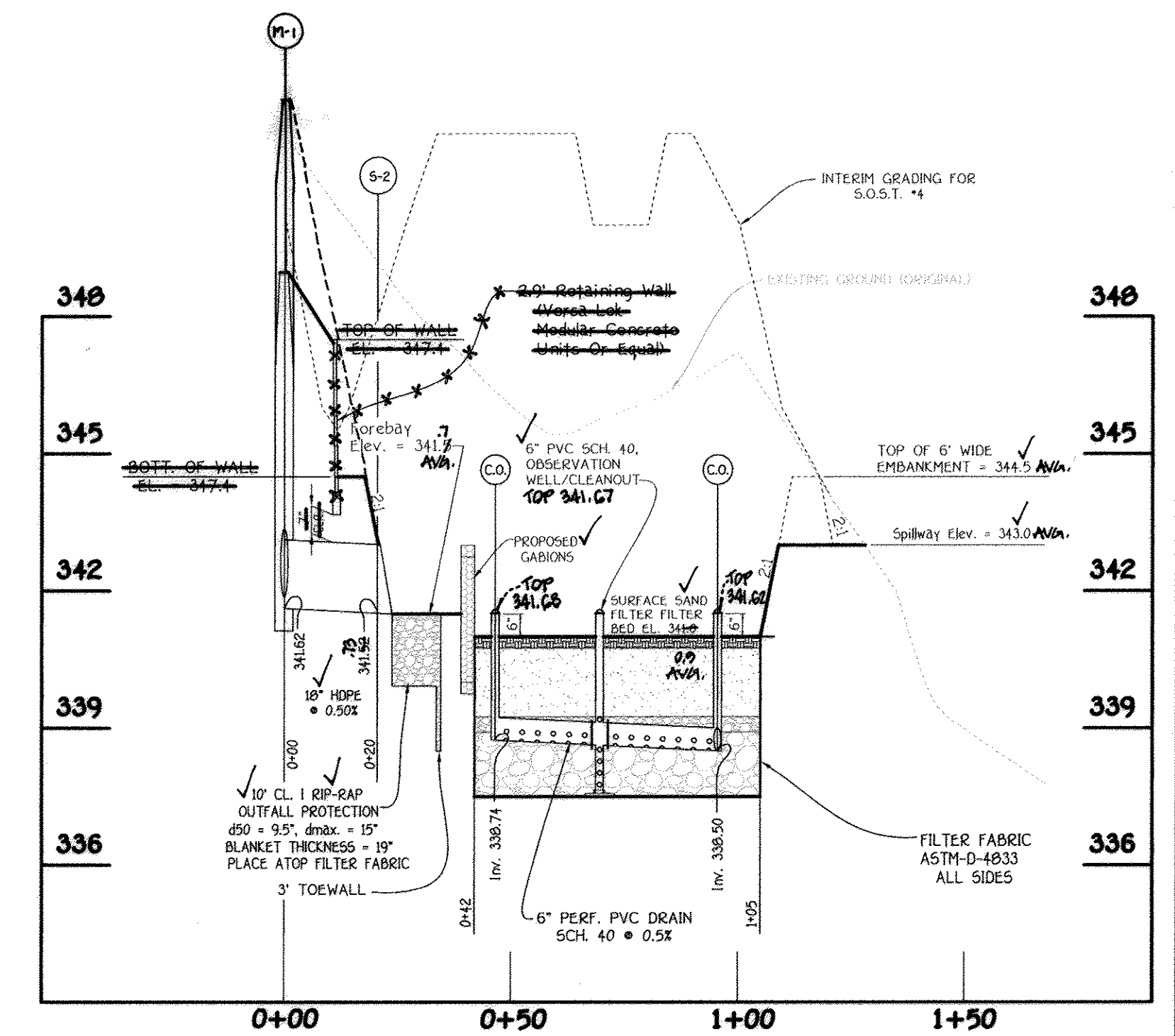
**GABION FOREBAY PROFILE**  
 SCALE: HORIZ. 1" = 30'  
 VERT. 1" = 3'

**OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED SURFACE STORMWATER FILTRATION SYSTEMS (F-1)**

1. THE STORMWATER WETLAND FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE FACILITY IS FUNCTIONING PROPERLY.
2. THE TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF ONCE PER YEAR, WHEN VEGETATION REACHES 18" IN HEIGHT OR AS NEEDED.
3. FILTERS THAT HAVE A GRASS COVER SHALL BE MOWED A MINIMUM OF THREE (3) TIMES PER GROWING SEASON TO MAINTAIN A MAXIMUM GRASS HEIGHT OF LESS THAN 12 INCHES.
4. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
5. VISIBLE SIGNS OF EROSION IN THE FACILITY SHALL BE REPAIRED AS SOON AS IT IS NOTICED.
6. REMOVE SILT WHEN IT EXCEEDS FOUR (4) INCHES DEEP IN THE FOREBAY.
7. FILTER MATERIAL MUST BE REPLACED WHEN WATER REMAINS ON THE SURFACE OF THE FILTER BED FOR MORE THAN 24 HOURS FOLLOWING A 1 OR 2 YEAR STORM EVENT OR MORE THAN 48 HOURS AFTER A 10 YEAR STORM EVENT.
8. A LOGBOOK SHALL BE MAINTAINED TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
9. THE MAINTENANCE LOGBOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
10. ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION SYSTEM HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.



**TYPICAL SECTION - SURFACE SAND FILTER No. 2 (F-1)**  
 NO SCALE



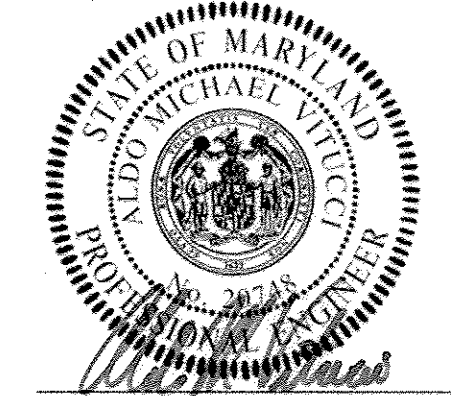
**SECTION THRU SAND FILTER (F-1)**  
 SCALE: HORIZ. 1" = 30'  
 VERT. 1" = 3'

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Holger Seewans* 6-10-14  
 CHIEF, BUREAU OF HIGHWAYS DATE  
 APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Neil Sealwood* 6-24-14  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE  
*Chad Clark* 6-16-14  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

NO.	REVISIONS	DESCRIPTION	DATE
1	Revise Title Block		4.3.15
2	REMOVE (REMOVE) ANY RETAINING WALL, OPEN SPACE LOT 110 AND REMOVE SHED NUMBER TO REFLECT ADDED SHEET		10/2/16

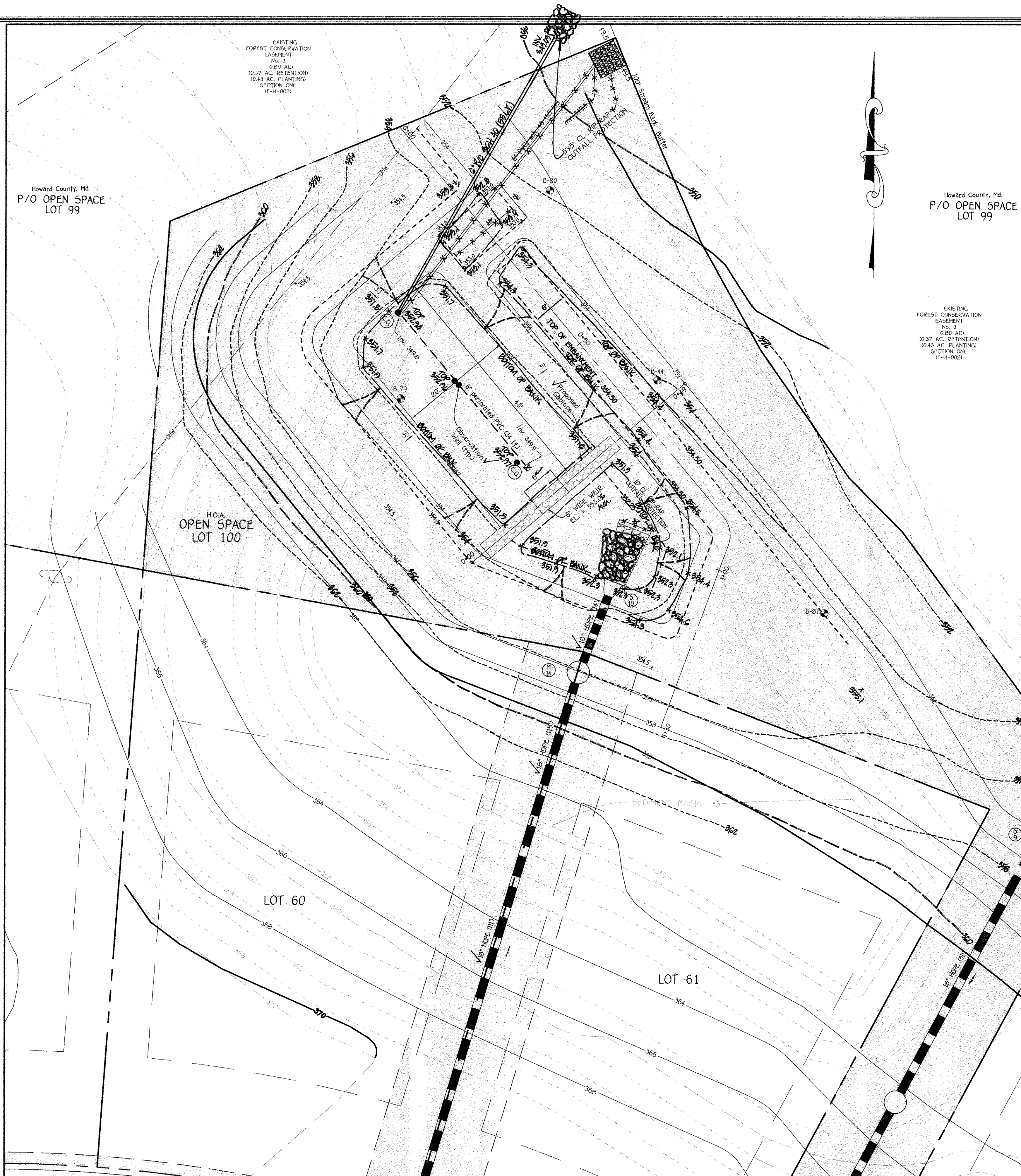
NOTE: THE STORMWATER MANAGEMENT FACILITIES (M-6) WILL BE PRIVATELY OWNED BY H.O.A. AND JOINTLY MAINTAINED BY H.O.A. AND HOWARD COUNTY. HOWARD COUNTY'S MAINTENANCE RESPONSIBILITY ONLY PERTAINS TO THE INLET STRUCTURES AND STORM DRAIN PIPE FOR THE MICRO BIO-RETENTION FACILITIES (M-6), ALL LANDSCAPING, UNDERDRAINS, CLEAN-OUTS AND FILTER MEDIA IS THE RESPONSIBILITY OF THE HOMEOWNER'S ASSOCIATION. THE H.O.A. OR PRIVATE HOMEOWNER IS RESPONSIBLE FOR ALL OTHER FACILITIES (F-1), (F-6), (M-5) AND (M-4).

**STORMWATER MANAGEMENT PLANS**  
**ESD No. 2**  
**CENTENNIAL LAKE OVERLOOK**  
 (FORMERLY MASON PROPERTY)  
**SECTION TWO**  
 BUILDABLE LOTS 29 - 98 B  
 OPEN SPACE LOTS 99 THRU 112  
 A RESUBDIVISION OF BUILDABLE BULK PARCELS 'A' & 'B'  
 ZONING: S-20  
 TAX MAP No. 30 GRID No. 2 PARCEL No. 86  
 2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN  
 SHEET 19 OF 40



ALDO N. VITUCCI, P.E.  
 "Professional certification I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 22748, Expiration Date 2-22-15."





**ESD No. 8 (F-6)  
BIO-RETENTION PLAN**  
SCALE: 1" = 10'

**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTENNIAL LAKE OFFICE: 3272 BALTIMORE NATIONAL PIKE  
ELICOTT CITY, MARYLAND 21042  
(410) 461-2895

**OWNER/DEVELOPER**  
BEAZER HOMES CORP  
8965 GUILFORD ROAD  
COLUMBIA, MARYLAND 21046  
(410) 720-5070



**AS-BUILT CERTIFICATION FOR PSWM**  
I hereby certify that the facility shown on the plan was constructed as shown on the "AS BUILT" plans and complies with the approved plans and specifications. I have verified that the contributing drainage area is sufficiently stabilized to prevent clogging of the underground facility.  
*Charles J. Croft*  
2/15/18  
Date

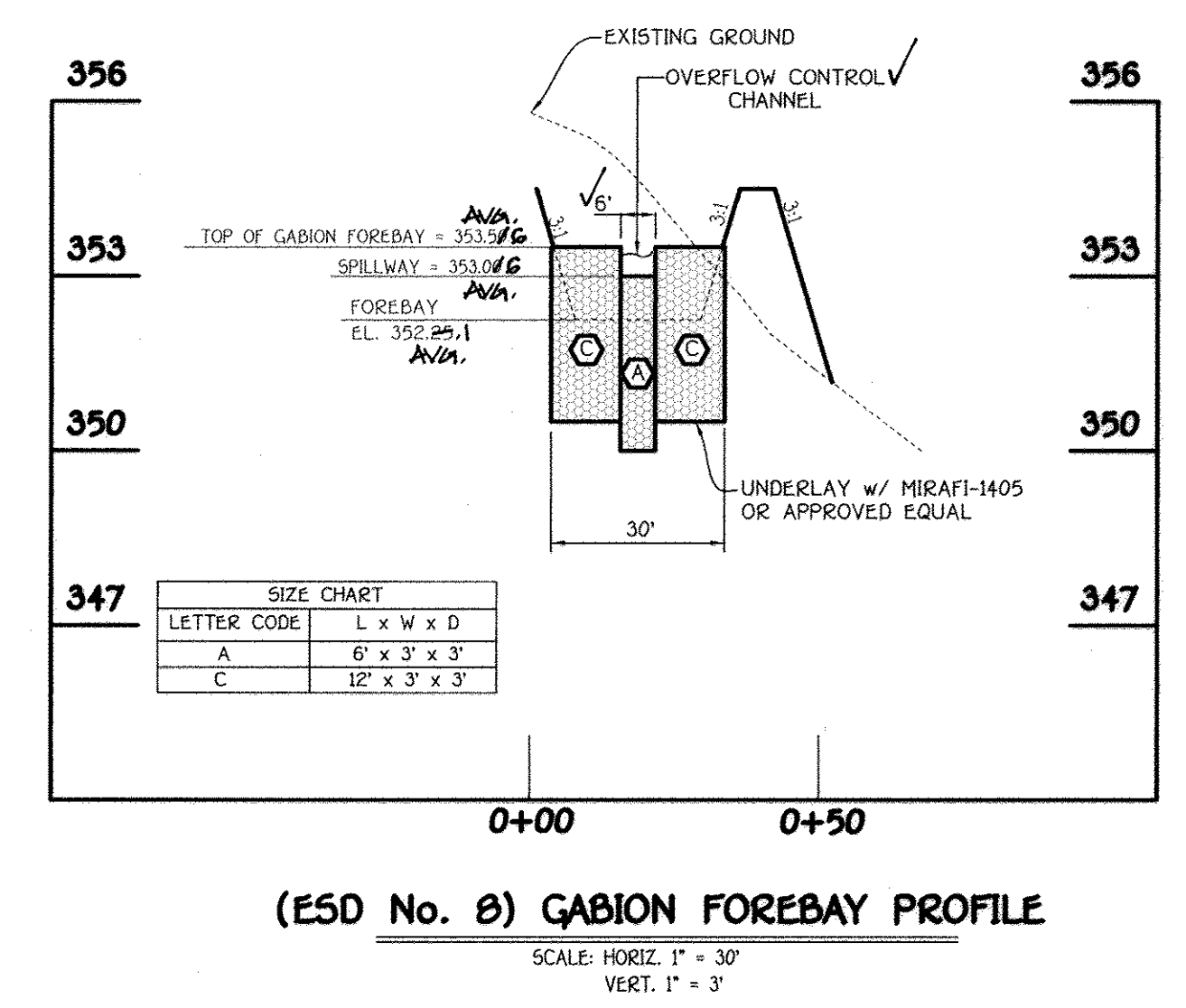


ALDO M. VITUCCI, P.E.  
Professional certification I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-15.

APPROVED: DEPARTMENT OF PUBLIC WORKS		
<i>H. J. ...</i>	6-10-14	
CHIEF, BUREAU OF HIGHWAYS	DATE	
APPROVED: DEPARTMENT OF PLANNING AND ZONING		
<i>K. J. ...</i>	6-24-14	
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE	
<i>D. J. ...</i>	6-16-14	
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE	
REVISIONS		
NO.	DESCRIPTION	DATE
1	Revise Title Block	4-3-15
2	REVISE SHEET NUMBER TO REFLECT ADDED SHEET	10/2/16

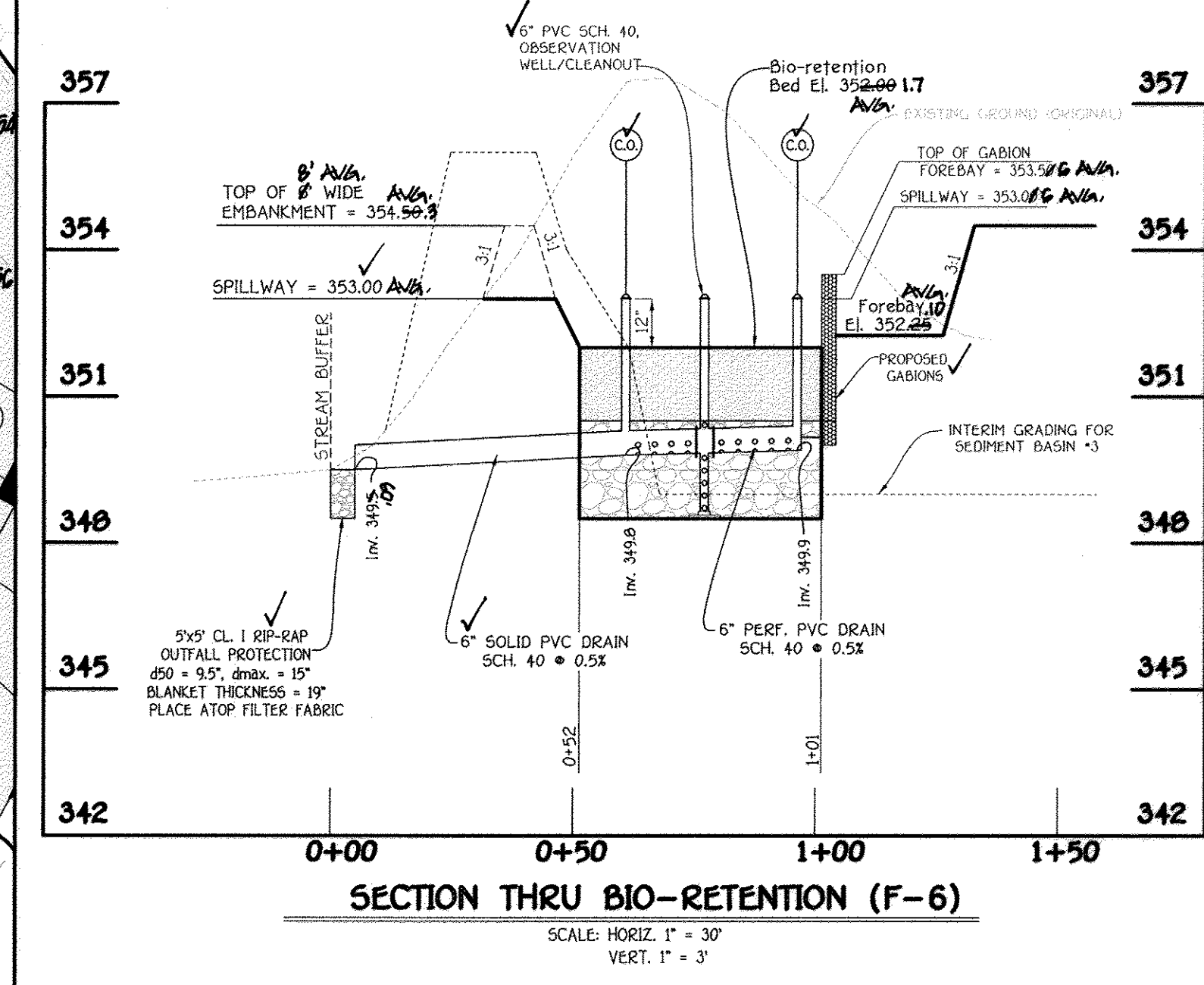
**OPERATION AND MAINTENANCE SCHEDULE FOR BIO-RETENTION AREAS (F-6)**

- The owner shall maintain the plant material, mulch layer and soil layer annually; maintenance of mulch and soil is limited to correcting areas of erosion or wash out. Any mulch replacement shall be done in the spring. Plant material shall be checked for disease and insect infestation and maintenance will address dead material and pruning. Acceptable replacement plant material is limited to the following 2009 Maryland stormwater design manual volume II, Table A.4.1 and 2.
- The owner shall perform a plant in the spring and in the fall each year. During the inspection, the owner shall remove dead and diseased vegetation considered beyond treatment, replace dead plant material with acceptable replacement plant material. Treat diseased trees and shrubs and replace all deficient stakes and wires.
- The owner shall inspect the mulch each spring. The mulch shall be replaced every two to three years. The previous mulch layer shall be removed before the new layer is applied.
- The owner shall correct soil erosion on an as needed basis, with a minimum of once per month and after each heavy storm.

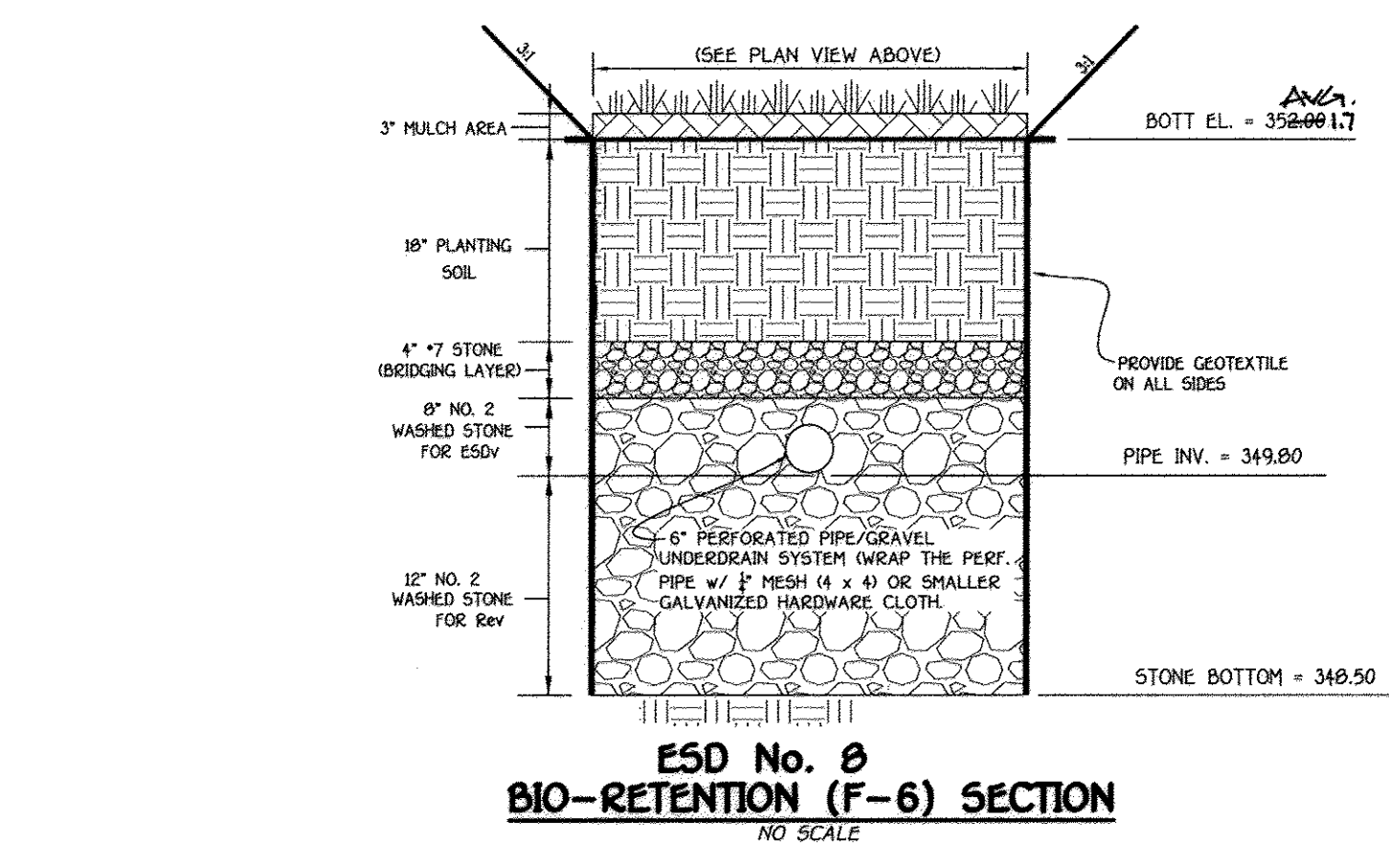


**(ESD No. 8) GABION FOREBAY PROFILE**  
SCALE: HORIZ. 1" = 30'  
VERT. 1" = 3'

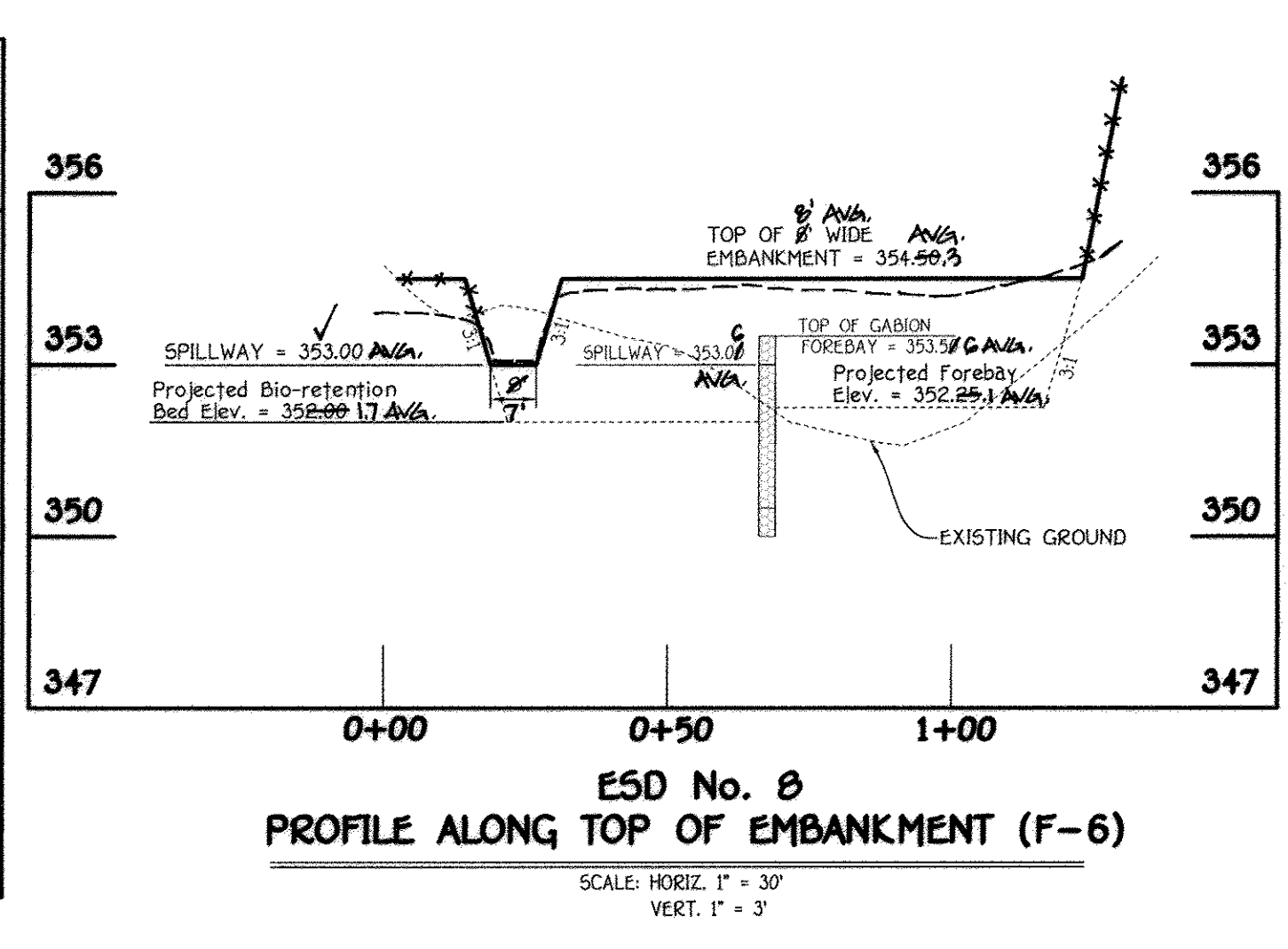
NOTE: SEE SHEET 30 FOR STORM DRAIN PROFILE.



**SECTION THRU BIO-RETENTION (F-6)**  
SCALE: HORIZ. 1" = 30'  
VERT. 1" = 3'



**ESD No. 8  
BIO-RETENTION (F-6) SECTION**  
NO SCALE



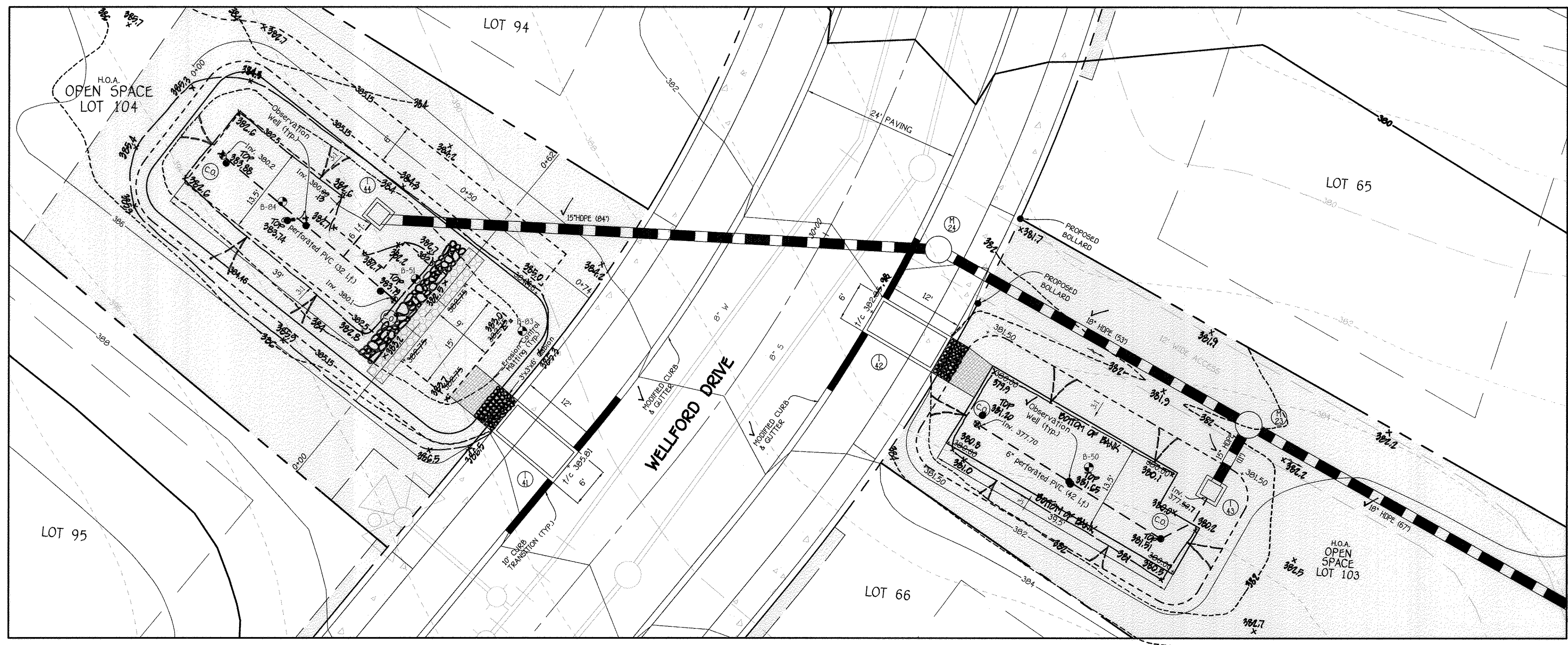
**ESD No. 8  
PROFILE ALONG TOP OF EMBANKMENT (F-6)**  
SCALE: HORIZ. 1" = 30'  
VERT. 1" = 3'

**STORMWATER MANAGEMENT PLANS**  
ESD No. 8  
**CENTENNIAL LAKE OVERLOOK**  
(FORMERLY MASON PROPERTY)  
**SECTION TWO**  
BUILDABLE LOTS 29 - 98 B  
OPEN SPACE LOTS 99 THRU 112  
A RESUBDIVISION OF BUILDABLE BULK PARCELS 'A' & 'B'  
ZONING: R-20  
TAX MAP No. 30 GRID No. 2 PARCEL No. 06  
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: MAY 30, 2014  
SHEET 20 OF 40

I:\2011\11042\dwg\finals section two\finals section two\plans.dwg, C:\0\_F-14-081 sheet 20, 5/30/2014 9:30:34 AM, 1:1



APPROVED: DEPARTMENT OF PUBLIC WORKS	<i>Hugo Selvano</i>	6-10-14
CHIEF, BUREAU OF HIGHWAYS		DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING	<i>Ne J. Ch. O...</i>	6-24-14
CHIEF, DIVISION OF LAND DEVELOPMENT		DATE
<i>...</i>		6-16-14
CHIEF, DEVELOPMENT ENGINEERING DIVISION		DATE
REVISIONS		
NO.	DESCRIPTION	DATE
1	Revise Title Block	4-3-15
2	REVISE SHEET NUMBER TO REFLECT APPROV SHEET	10/21/16



\* NOTE: THE PROPOSED 4' SIDEWALK SHALL BE TRAFFIC BEARING (7" REINFORCED CONCRETE) ALONG THE FRONT OF OPEN SPACE LOT 103.

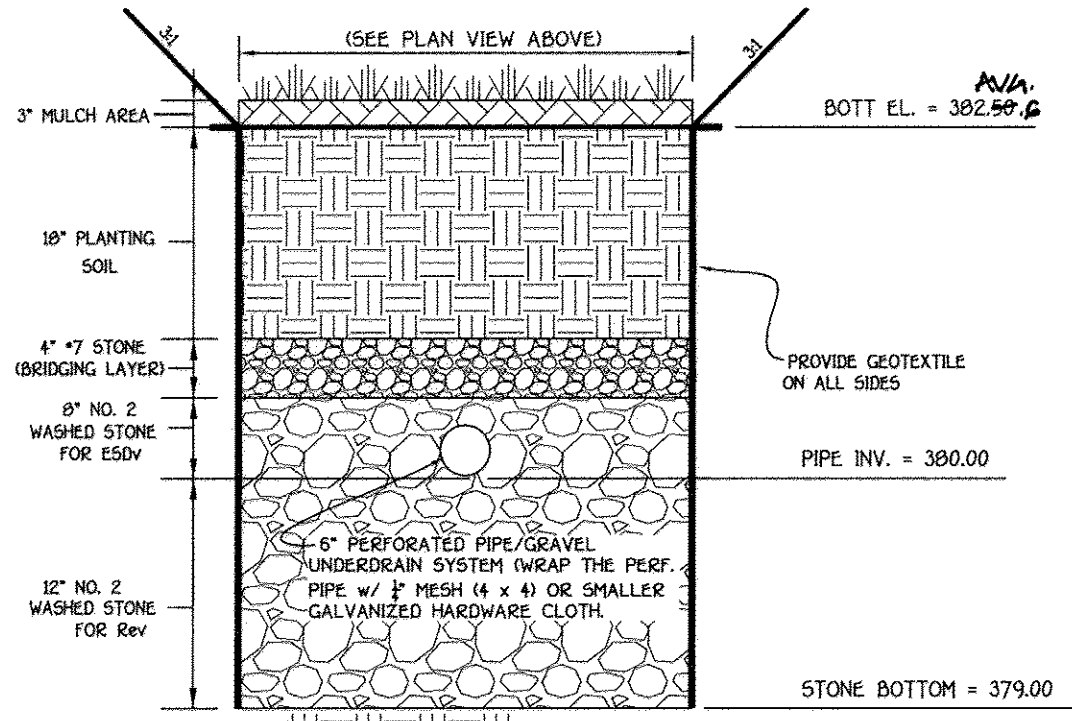
NOTE: SEE SHEET 13 FOR TYPICAL MICRO BIO-RETENTION (M-6) SECTION.

\* NOTE: THE PROPOSED 4' SIDEWALK SHALL BE TRAFFIC BEARING (7" REINFORCED CONCRETE) ALONG THE FRONT OF OPEN SPACE LOT 104.

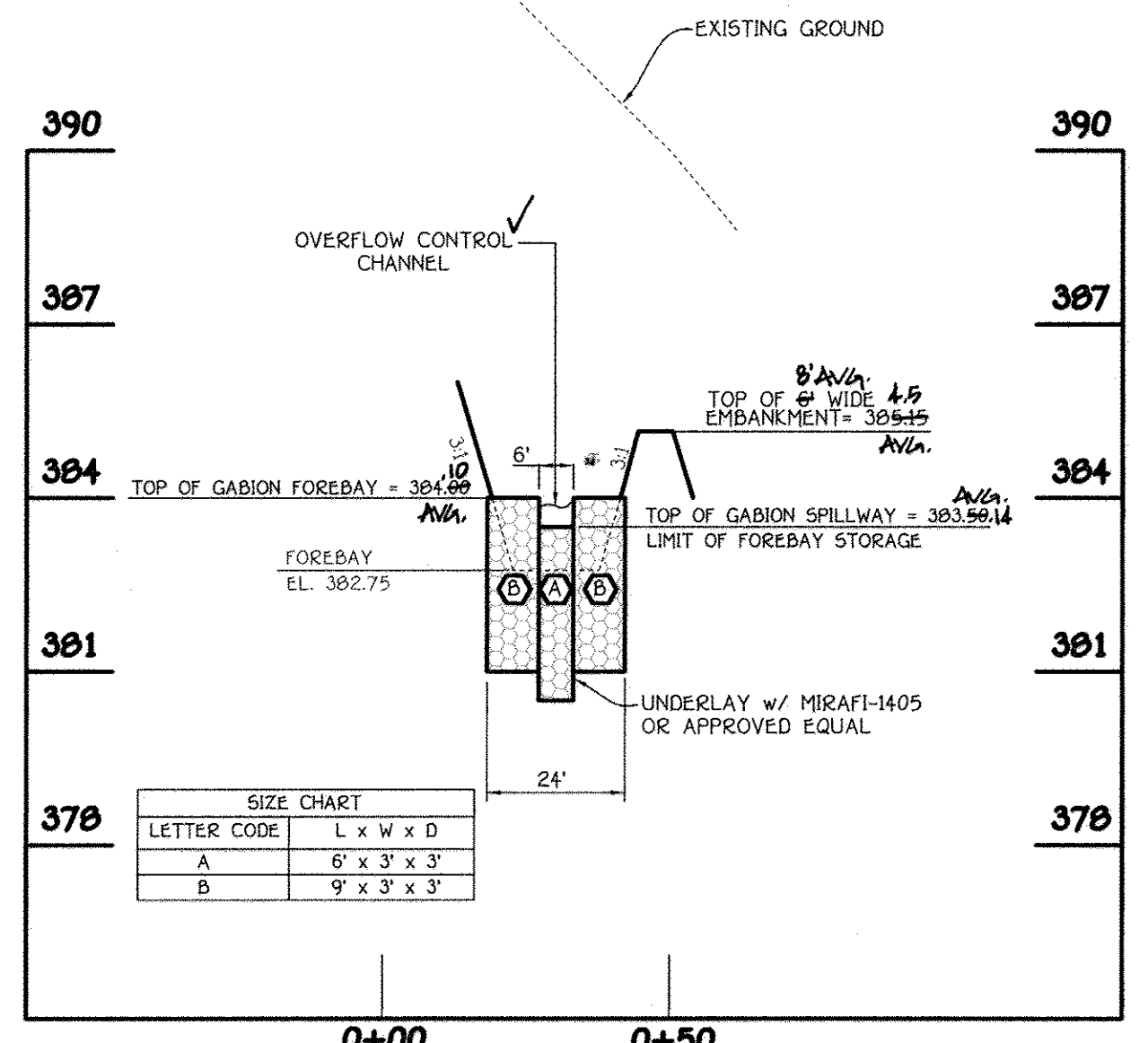
ESD No. 15 (F-6)  
BIO-RETENTION PLAN  
SCALE: 1" = 10'

ESD No. 10 (M-6)  
MICRO BIO-RETENTION PLAN  
SCALE: 1" = 10'

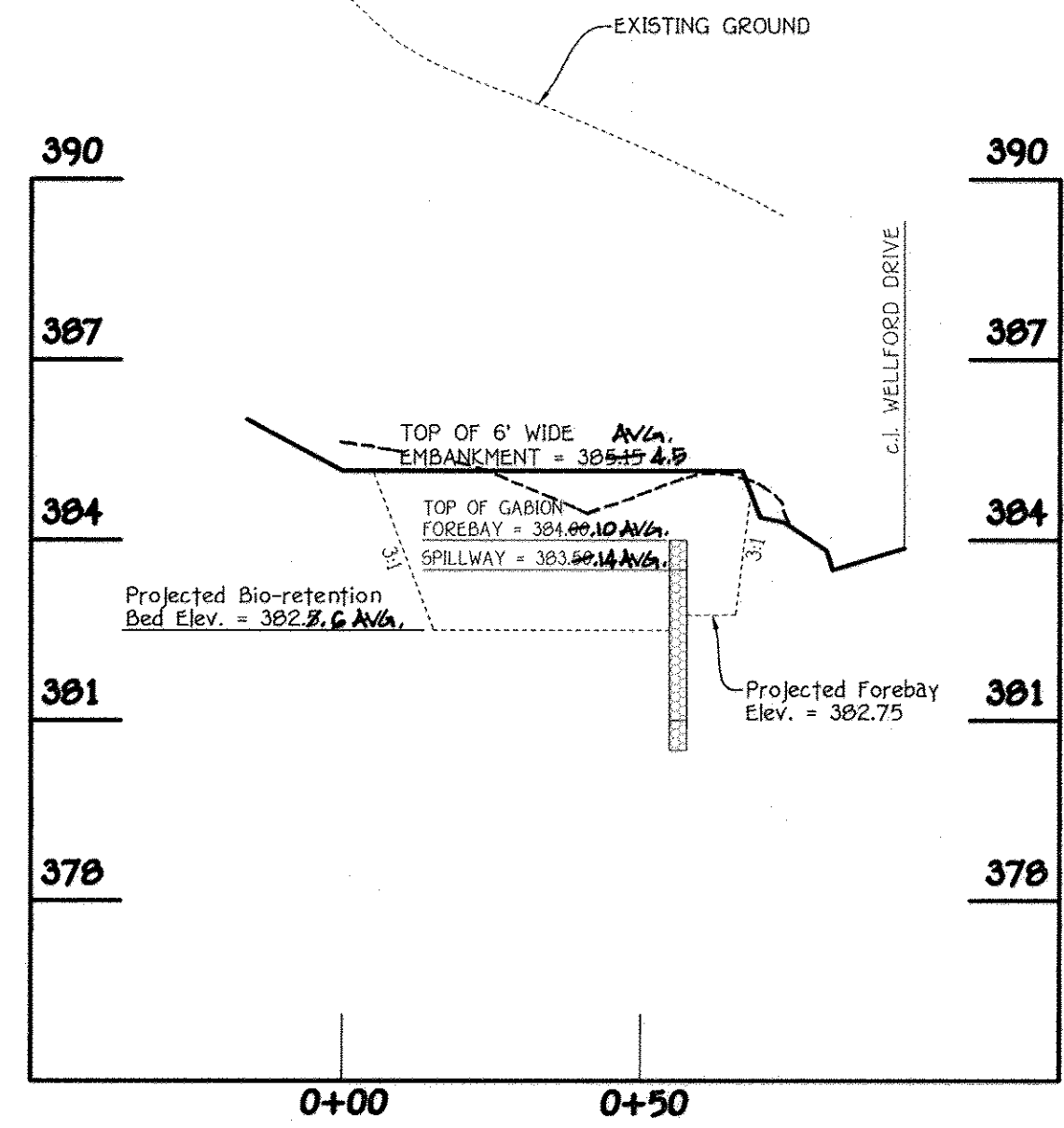
NOTE: SEE SHEET 30 FOR PROFILE (I-44 TO S-13 & I-43 TO M-23)



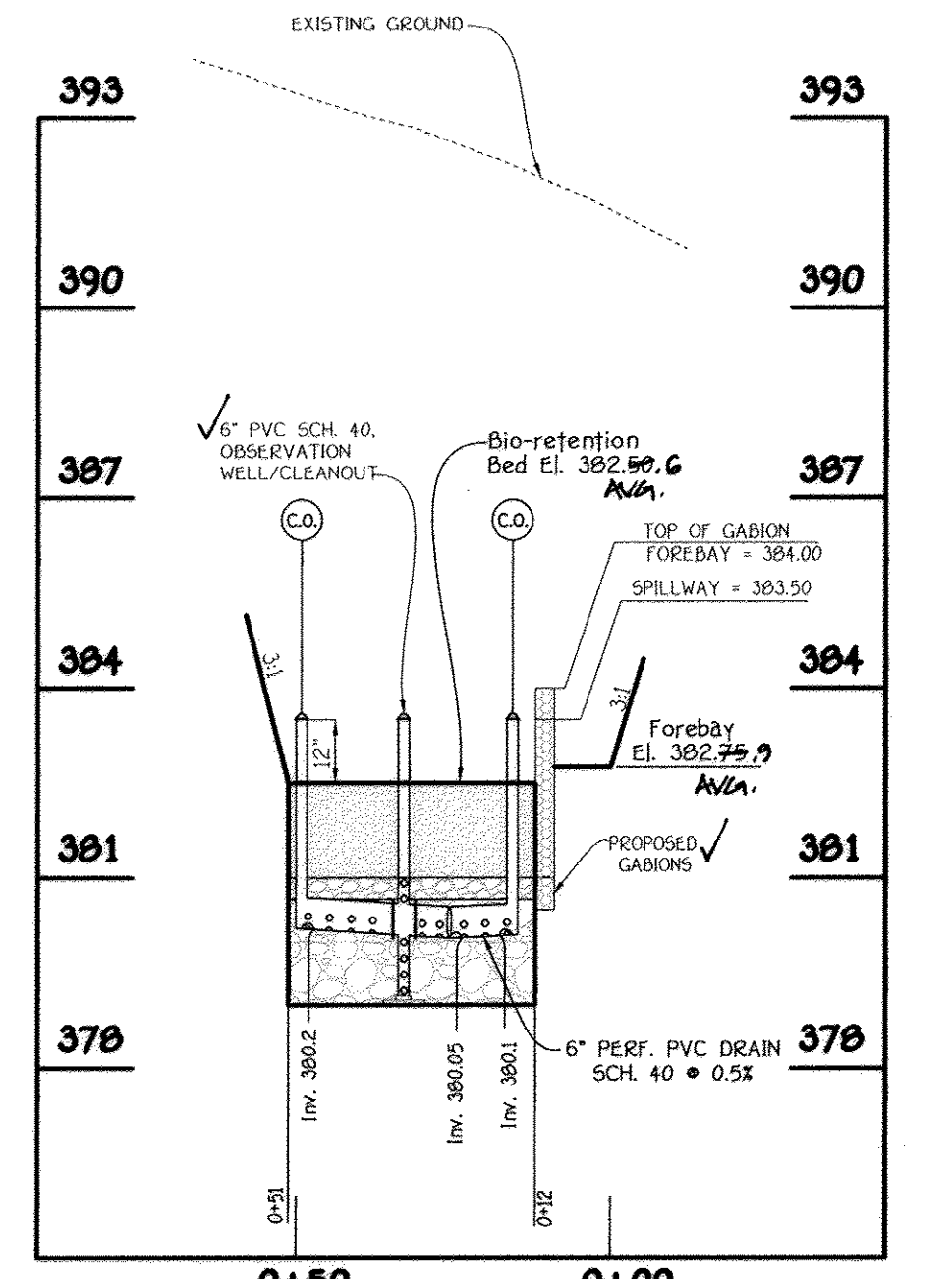
ESD No. 15  
BIO-RETENTION (F-6) SECTION  
NO SCALE



(ESD No. 15) GABIION FOREBAY PROFILE  
SCALE: HORIZ. 1" = 30'  
VERT. 1" = 3'



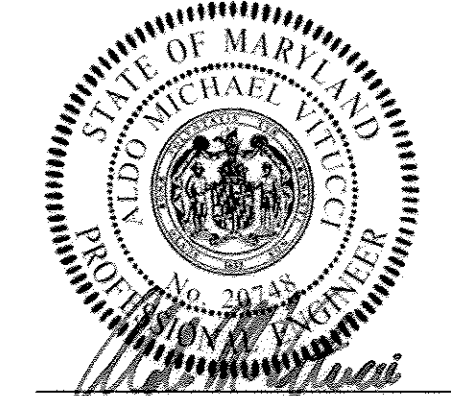
ESD No. 15  
PROFILE ALONG TOP OF EMBANKMENT (F-6)  
SCALE: HORIZ. 1" = 30'  
VERT. 1" = 3'



ESD No. 15  
SECTION THRU BIO-RETENTION (F-6)  
SCALE: HORIZ. 1" = 30'  
VERT. 1" = 3'

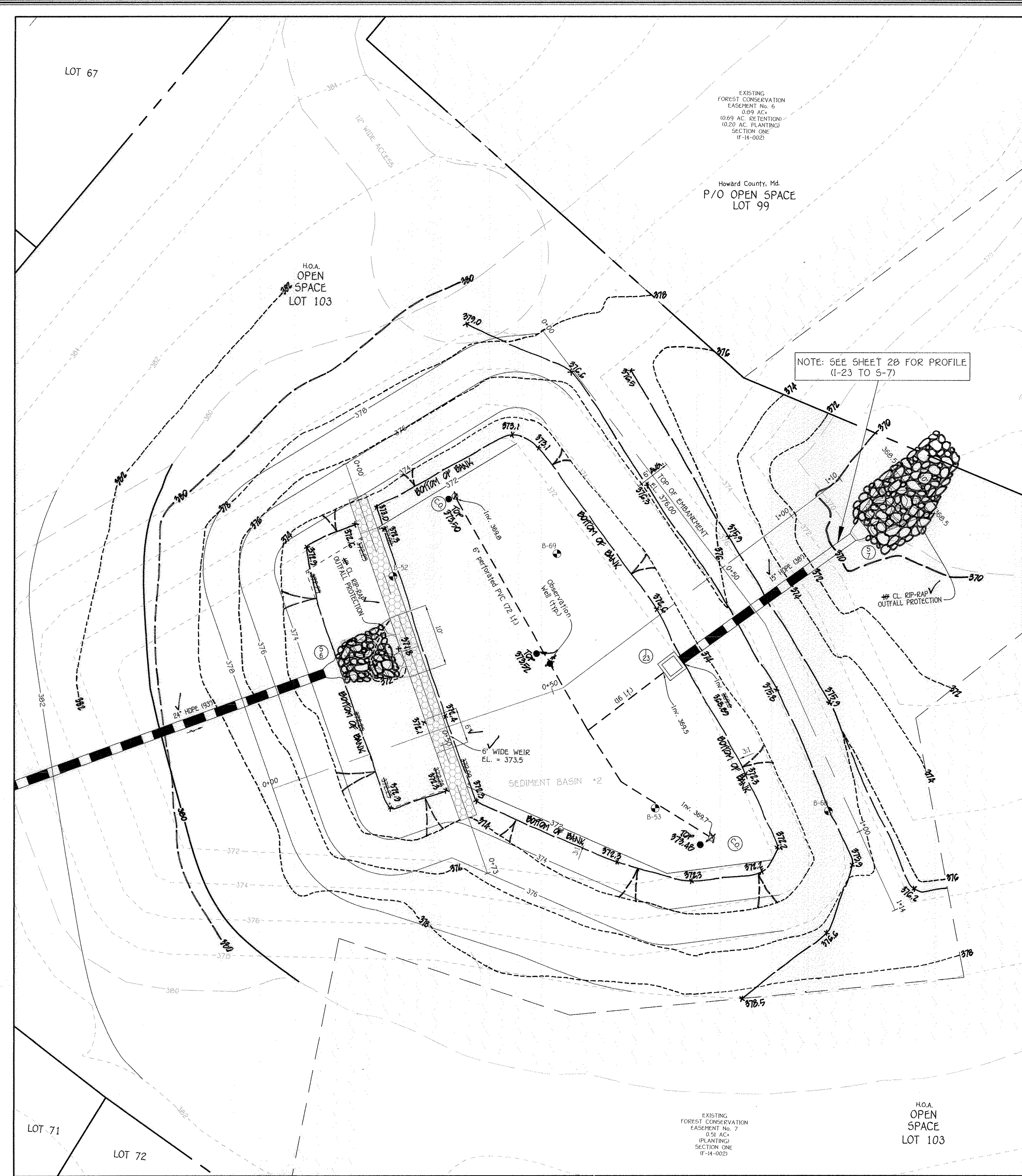


AS-BUILT CERTIFICATION FOR PSWM  
I hereby certify that the facility shown on the plan was constructed as shown on the "AS BUILT" plans and complies with the approved plans and specifications. I have verified that the contributing drainage area is sufficiently stabilized to prevent clogging of the underground SWM Facility.  
*Charles J. Cheno*  
CHARLES J. CHENO, PE, NO. 19204 Date: 2/15/18



ALDO H. VITUCCI, P.E.  
DATE: 2/22/15  
Professional certification I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20245, Expiration Date 2-22-15.





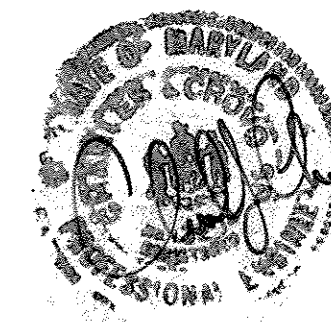
**ESD No. 11 (F-6)  
BIO-RETENTION PLAN**

SCALE: 1" = 10'

**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTENNIAL SQUARE OFFICE PARK 10727 BALTIMORE NATIONAL PARK  
ELLCOTT CITY, MARYLAND 21042  
(410) 461-2995

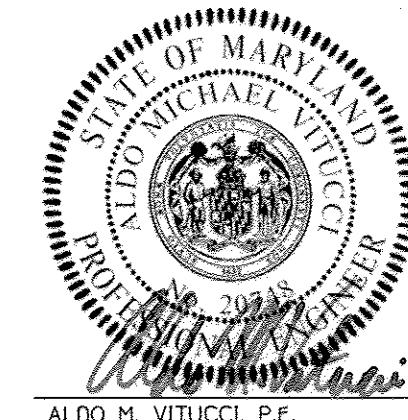
**OWNER/DEVELOPER**

BEAZER HOMES CORP  
8965 GUILFORD ROAD  
COLUMBIA, MARYLAND 21046  
(410) 720-5071



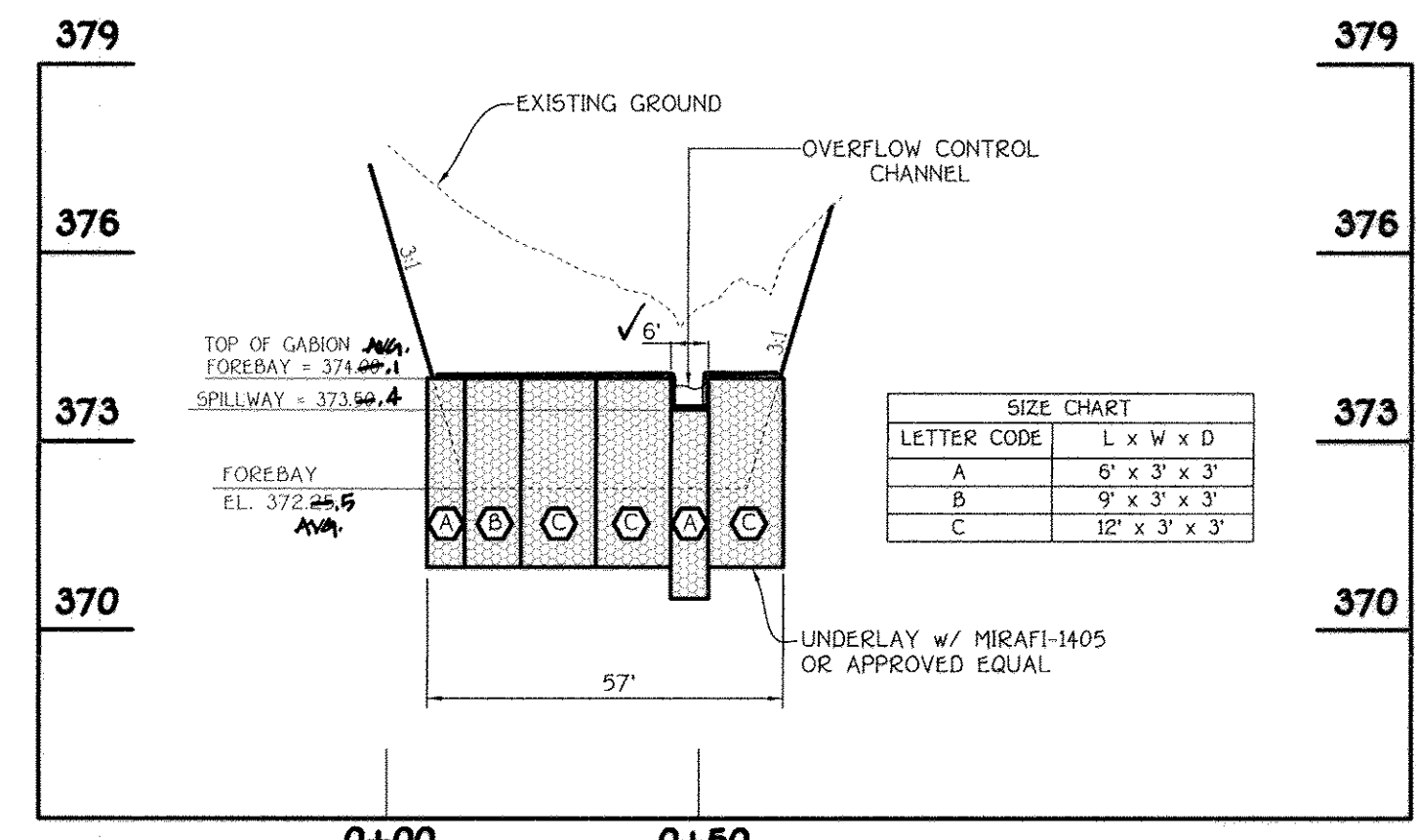
**AS-BUILT CERTIFICATION FOR PSWM**  
I hereby certify that the facility shown on the plan was constructed as shown on the "AS BUILT" plans and complies with the approved plans and specifications. I have verified that the contributing drainage area is sufficiently stabilized to prevent clogging of the underground S.W.M. Facility.

CHARLES J. BROWN, P.E. NO. 19204 Date 2/15/18



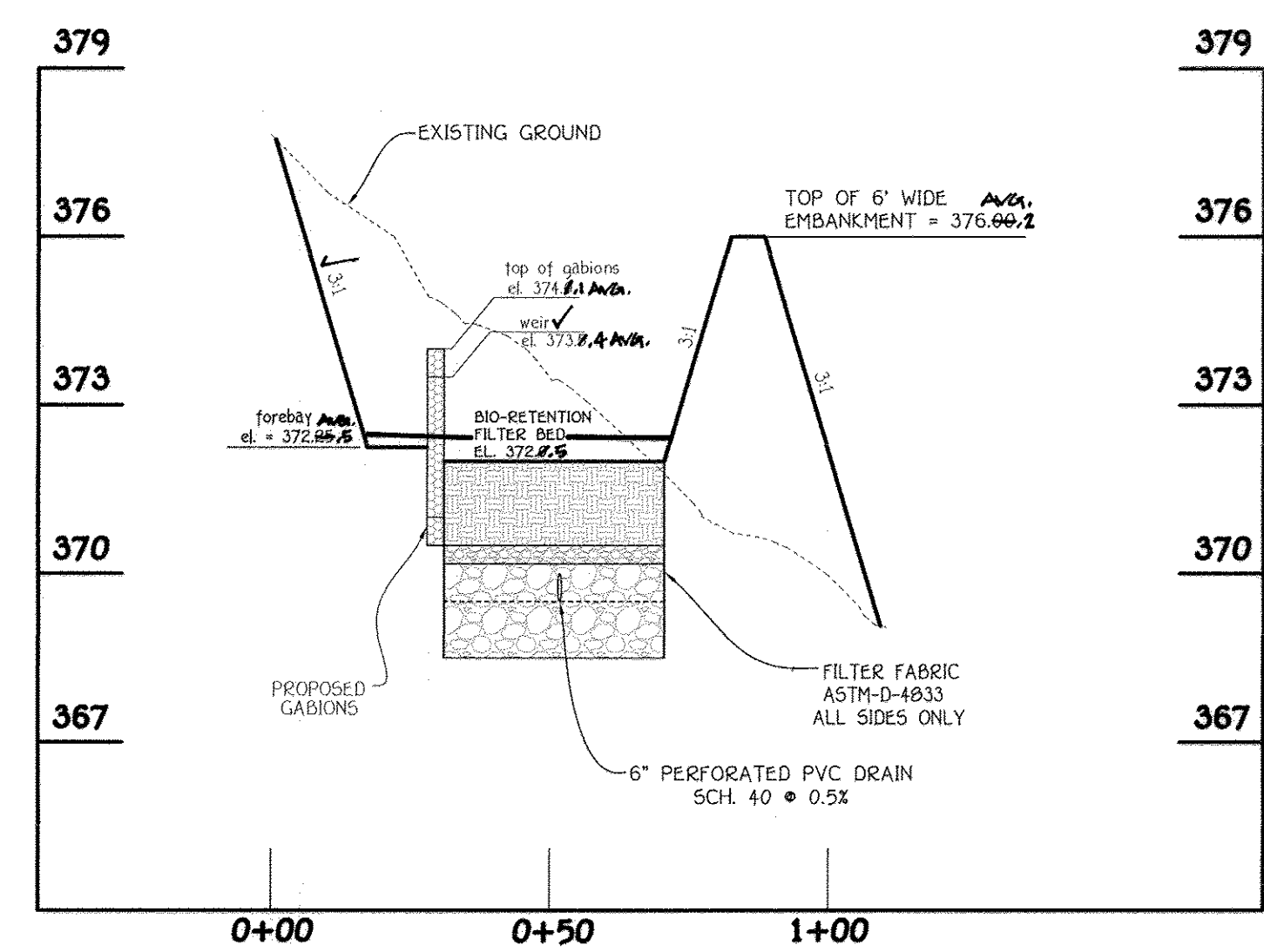
ALDO M. VITUCCI, P.E. Date 2/15/18  
Professional certification. I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-15.

APPROVED: DEPARTMENT OF PUBLIC WORKS	<i>Holger Seemann</i>	6.10.14
CHIEF, BUREAU OF HIGHWAYS		DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING	<i>Ke T. Shih</i>	6-24-14
CHIEF, DIVISION OF LAND DEVELOPMENT		DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING	<i>Shel Edm</i>	6/6/14
CHIEF, DEVELOPMENT ENGINEERING DIVISION		DATE
REVISIONS		
NO.	DESCRIPTION	DATE
1	Revise Title Block	4.3.15
2	REMOVE SHEET NUMBER TO REFLECT ADDED SHEET	10/21/16



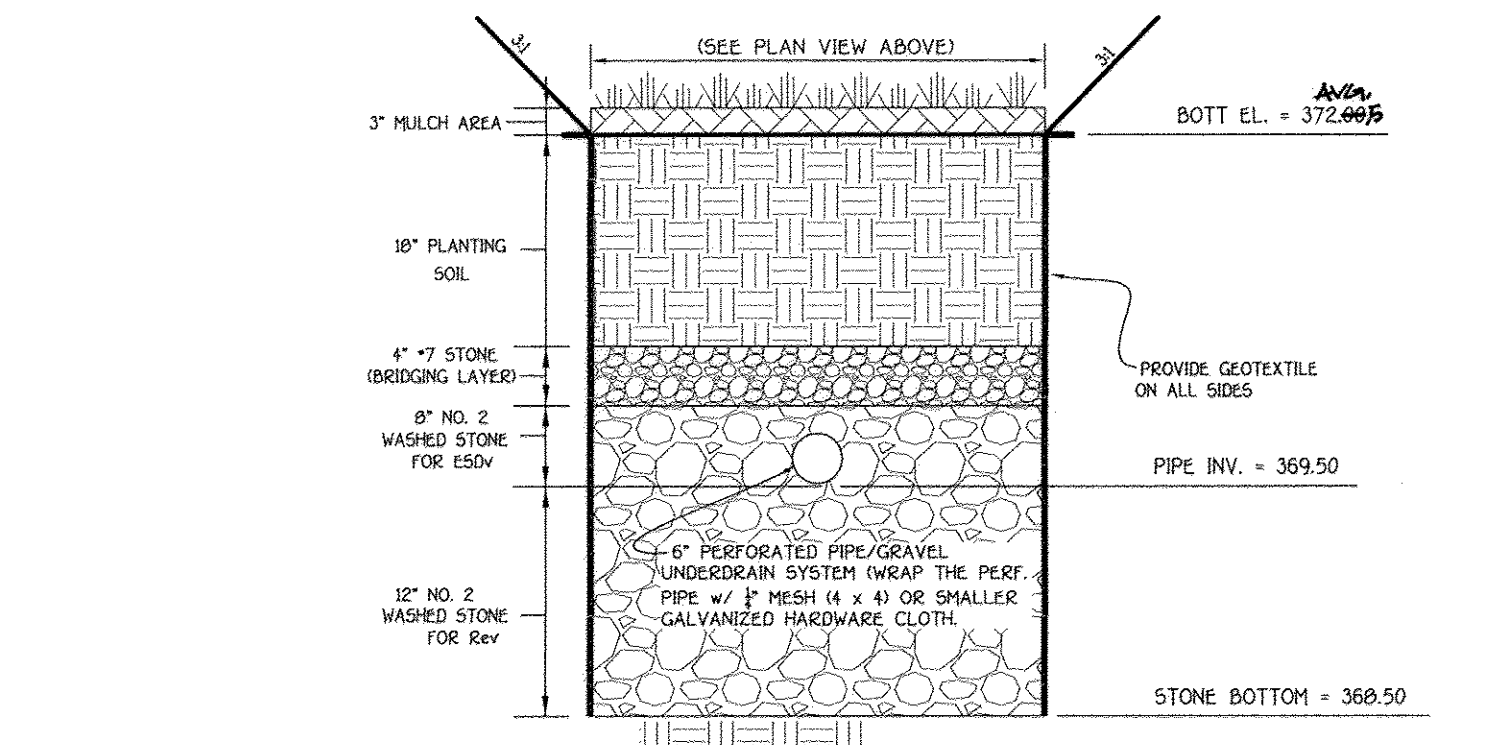
**(E5D No. 11) GABION FOREBAY PROFILE**

SCALE: HORIZ. 1" = 30'  
VERT. 1" = 3'



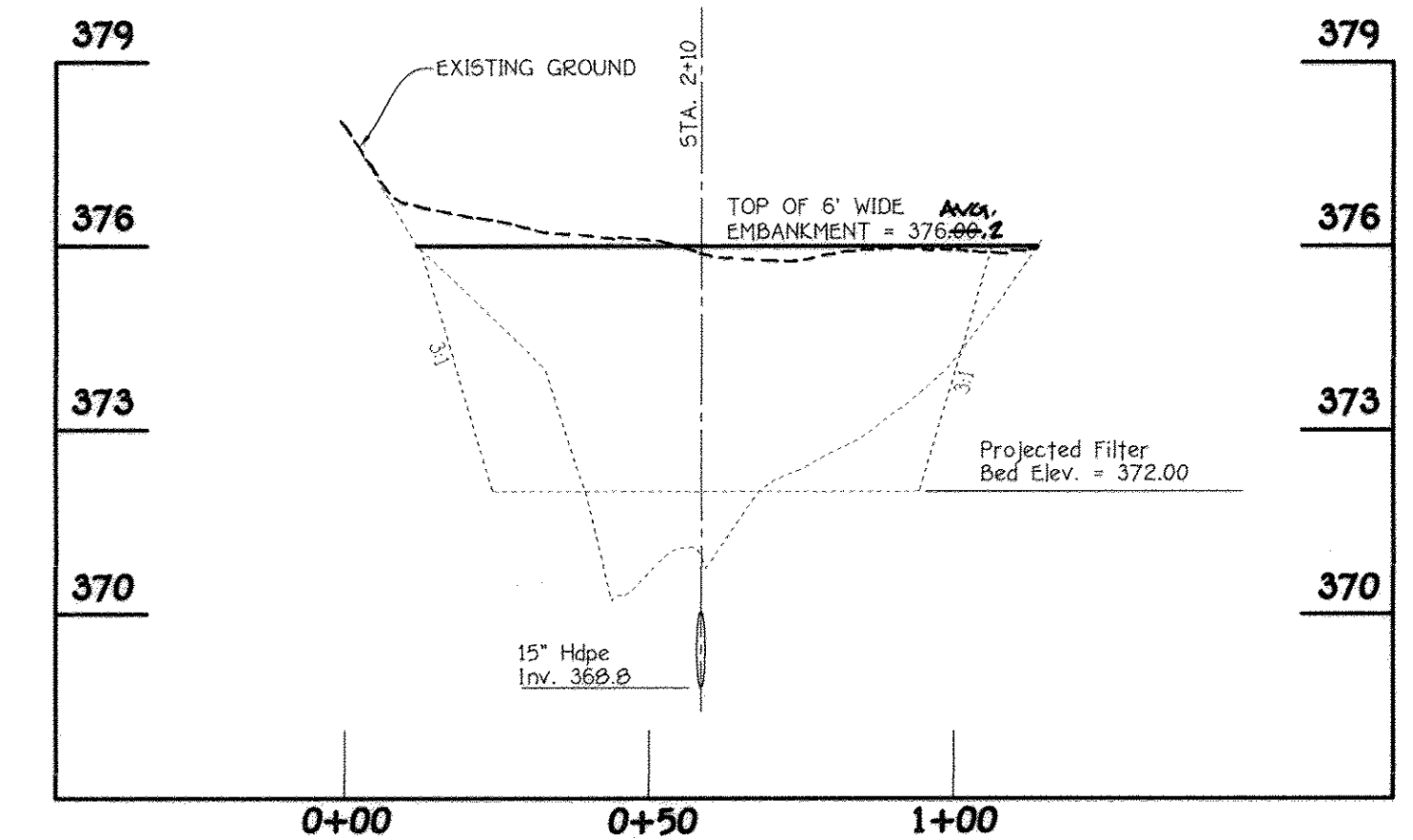
**SECTION THRU S.W.M. FACILITY**

SCALE: HORIZ. 1" = 30'  
VERT. 1" = 3'



**E5D No. 11  
BIO-RETENTION (F-6) SECTION**

NO SCALE



**E5D No. 11  
PROFILE ALONG TOP OF EMBANKMENT (F-6)**

SCALE: HORIZ. 1" = 30'  
VERT. 1" = 3'

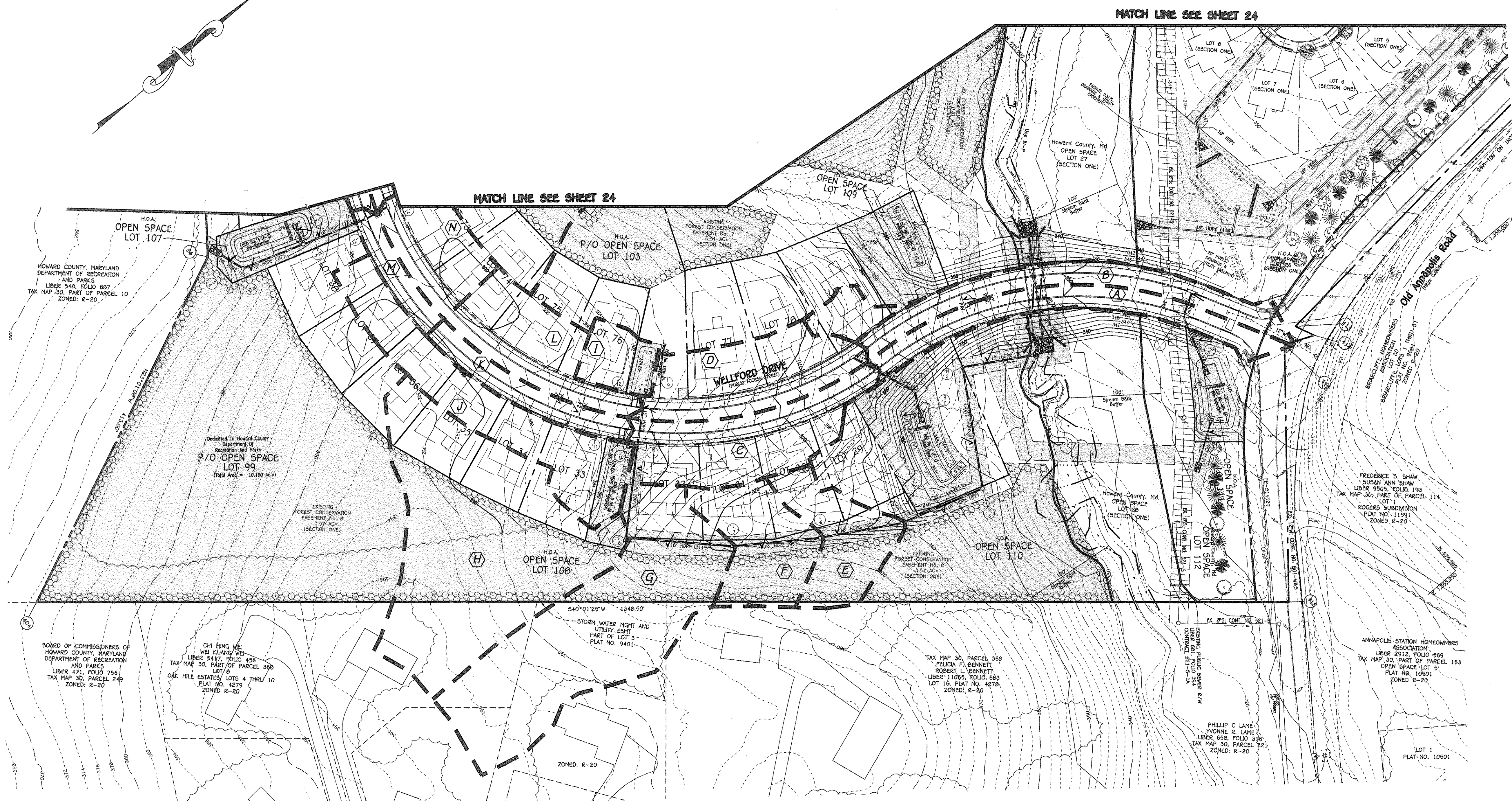
**STORMWATER MANAGEMENT PLANS**  
ESD No. 11  
**CENTENNIAL LAKE OVERLOOK**  
(FORMERLY MASON PROPERTY)  
**SECTION TWO**  
BUILDABLE LOTS 29 - 98 &  
OPEN SPACE LOTS 99 THRU 112  
A RESUBDIVISION OF BUILDABLE BULK PARCELS 'A' & 'B'  
ZONING R-20  
TAX MAP No. 30 GRID No. 2 PARCEL No. 96  
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: MAY 30, 2014  
SHEET 22 OF 40

I:\2011\11042.dwg\finals section two\finals with lots 80-83, 86-96 removed\11042 sheet 22\_F-14-081 sheet 22\_5/30/2014 10:42:12 AM, 1:1



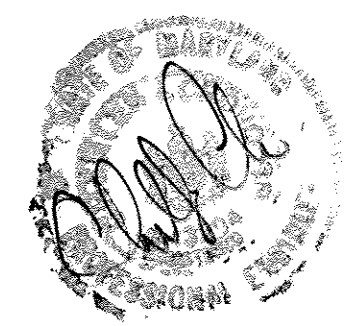
Approved: Department Of Planning And Zoning  
 Chief, Division Of Land Development 5-7-15 Date  
 Chief, Development Engineering Division 5-5-15 Date  
 Approved: Howard County Department Of Public Works  
 Chief, Bureau Of Highways 4/30/2015 Date

REVISIONS		
NO.	DESCRIPTION	DATE
1	REVISE LOTS, REMOVE PARCEL 'C', REVISE STORM DRAIN AND GRADING	4/3/15
2	REVISE SHEET NUMBER TO REFLECT ADDED SHEET	10/21/15

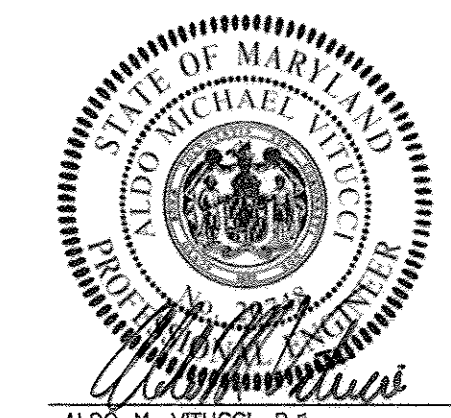
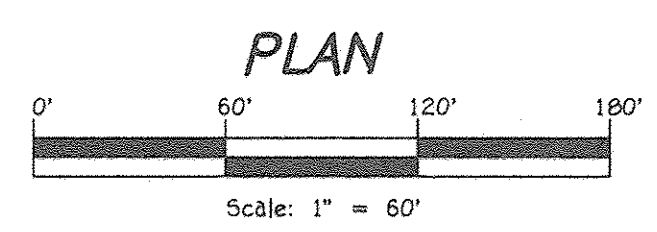


DRAINAGE AREA DATA					
STRUCTURE NO.	DRAINAGE AREA	AREA	'C'	ZONED	% IMP.
1-1	A	0.26 AC.	0.66	R-20	58
1-2	B	0.27 AC.	0.67		60
1-3	C	0.39 AC.	0.67		60
1-4	D	0.47 AC.	0.50		36
1-5	E	0.23 AC.	0.27		3
1-6	F	0.27 AC.	0.30		7
1-7	G	0.83 AC.	0.29		5
1-8	H	1.27 AC.	0.29		5
1-9	I	0.10 AC.	0.37		18
1-10	J	0.11 AC.	0.35		14
1-11	K	0.30 AC.	0.61		52
1-12	L	0.29 AC.	0.59		49
1-13	M	0.24 AC.	0.67		60
1-14	N	0.19 AC.	0.67		59
1-15	O	0.40 AC.	0.63		55
1-16	P	0.20 AC.	0.58		47
1-17	Q	0.72 AC.	0.40		22
1-18	R	0.24 AC.	0.62		52
1-19	S	0.24 AC.	0.62		52
1-20	T	0.34 AC.	0.61		51
1-21	U	0.61 AC.	0.64		56
1-22	V	0.55 AC.	0.37		17
1-23	W	1.36 AC.	0.33		11
1-24	X	0.29 AC.	0.36		38
1-25	Y	0.25 AC.	0.56		44
1-26	Z	0.35 AC.	0.64		56
1-27	AA	0.31 AC.	0.72		67
1-28	BB	0.67 AC.	0.25		2
1-29	CC	0.51 AC.	0.25		0
1-30	DD	1.59 AC.	0.26		1
1-31	EE	0.47 AC.	0.40		21
1-32	FF	0.09 AC.	0.45		28
1-33	GG	1.29 AC.	0.29		5
1-34	HH	0.99 AC.	0.30		7
1-35	II	0.27 AC.	0.88		62
1-36	JJ	0.28 AC.	0.67		59
1-37	KK	0.47 AC.	0.64		55
1-38	LL	0.61 AC.	0.71		66
1-39	MM	0.90 AC.	0.56		45
1-40	NN	0.19 AC.	0.25		0
1-41	OO				
1-42	PP				
1-43	QQ				
1-44	RR				

SOILS LEGEND			
SOIL	NAME	CLASS	EROSION FACTOR (K <sub>w</sub> )
Co	Codorus and Harboro silt loams, 0 to 3 percent slopes	C	.37
GgB	Glenelg loam, 3 to 8 percent slopes	B	.20
GgC	Glenelg loam, 8 to 15 percent slopes	B	.20
GhB	Glenelg-Urban land complex, 0 to 8 percent slopes	B	.20
GmC	Glenville silt loam, 8 to 15 percent slopes	C	.37
GoB	Glenville-Codorus silt loams, 0 to 8 percent slopes	C	.37
MaC	Manor loam, 8 to 15 percent slopes	B	.28
MaD	Manor loam, 15 to 25 percent slopes	B	.24



AS-BUILT CERTIFICATION  
 I hereby certify, by my seal, that the facilities shown on this plan were constructed as shown on this "AS BUILT" plan meet the approved plans and specifications.  
 James J. Grant, No. 19104 Date 2/15/18



Aldo M. Vitucci, P.E. Date 4/7/15  
 Professional certification. I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-17.

REVISED DRAINAGE AREA MAP CENTENNIAL LAKE OVERLOOK (FORMERLY MASON PROPERTY) SECTION TWO BUILDABLE LOTS 29 - 98 AND OPEN SPACE LOTS 99 THRU 112 A RESUBDIVISION OF BUILDABLE BULK PARCELS 'A' & 'B' ZONING: R-20 TAX MAP No. 30 GRID No. 2 PARCEL No. 86 2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND SCALE: AS SHOWN DATE: APRIL 3, 2015 SHEET 23 OF 42

FISHER, COLLINS & CARTER, INC. CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTENNIAL SOURCE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE ELLICOTT CITY, MARYLAND 21042 (410) 461-2899

OWNER/DEVELOPER  
 BEAZER HOMES CORP  
 8045 GUILFORD ROAD  
 COLUMBIA, MARYLAND 21046 (410-720-5071)

E:\2011\11042\Map\Final section two\headline Revision 1.13.15\11042 sheet 23 of map new mylar.dwg 4/3/2015 9:40:17 AM. 11

"AS-BUILT" F-14-081



SOILS LEGEND			
SOIL	NAME	CLASS	EROSION FACTOR (K <sub>w</sub> )
Co	Codorus and Hartsboro silt loams, 0 to 3 percent slopes	C	.37
GgB	Glenelg loam, 3 to 8 percent slopes	B	.20
GgC	Glenelg loam, 8 to 15 percent slopes	B	.20
QhB	Glenelg-Urban land complex, 0 to 8 percent slopes	B	.20
GmC	Glenville silt loam, 8 to 15 percent slopes	C	.37
GoB	Glenville-Codorus silt loams, 0 to 8 percent slopes	C	.37
MaC	Manor loam, 8 to 15 percent slopes	B	.20
MaD	Manor loam, 15 to 25 percent slopes	B	.24

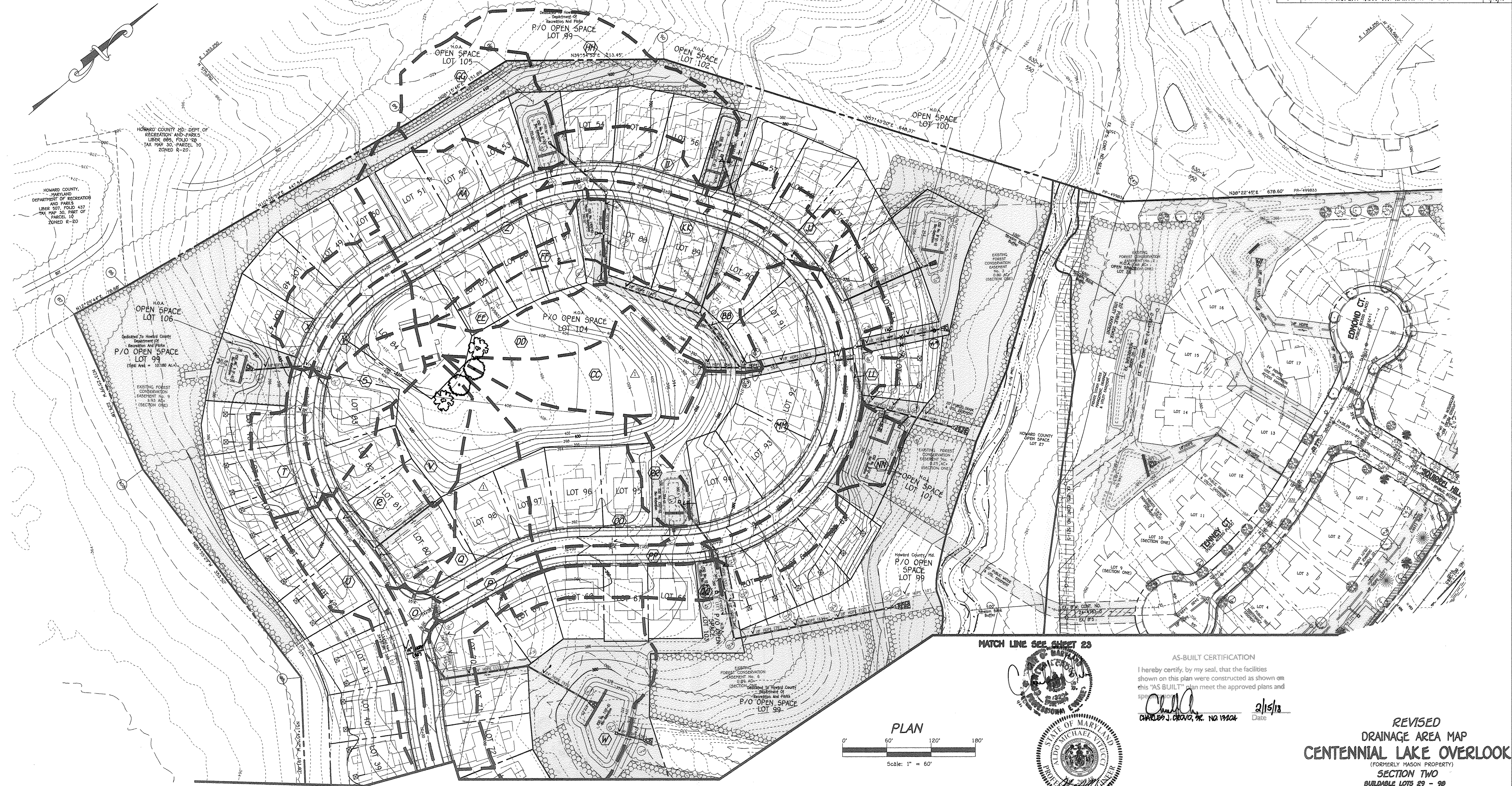
HOWARD COUNTY MD. DEPT OF RECREATION AND PARKS  
 UNDER 80% FLOOD 437  
 TAX MAP 30, PARCEL 10  
 ZONED R-20

Approved: Department of Planning And Zoning  
*Neil Blodgett* 5-7-15  
 Chief, Division of Land Development  
 Date

Approved: Howard County Department of Public Works  
*John A. ...* 5-5-15  
 Chief, Development Engineering Division  
 Date

Approved: *M. ...* 4/30/2015  
 Chief, Bureau Of Highways  
 Date

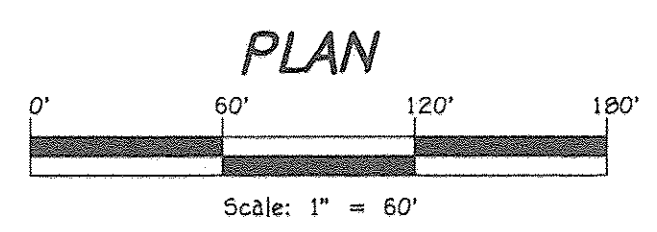
REVISIONS		
NO.	DESCRIPTION	DATE
1	REVISE LOTS, REMOVE PARCEL 'C', REVISE STORM DRAIN AND GRADING	4/3/15
2	REVISE SHEET NUMBER TO REFLECT ADDED SHEET	10/21/16
3	ADDED REPLACEMENT TREES FOR WALKER WP-17-099	4/19/17



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**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTENNIAL SQUARE OFFICE PARK - 10772 BALTIMORE NATIONAL PIKE  
 ELICOTT CITY, MARYLAND 21042  
 (410) 461-2995

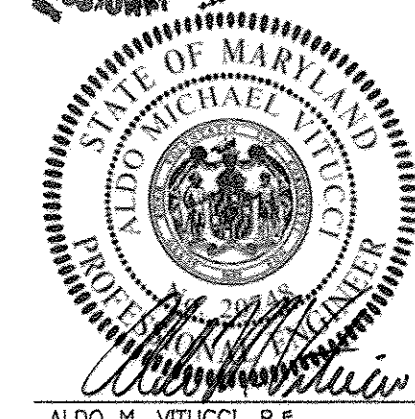
**OWNER/DEVELOPER**  
 BEAZER HOMES CORP  
 8915 GUILFORD ROAD  
 COLUMBIA, MARYLAND 21046  
 (410-720-5071)



MATCH LINE SEE SHEET 23



**AS-BUILT CERTIFICATION**  
 I hereby certify, by my seal, that the facilities shown on this plan were constructed as shown on this "AS BUILT" plan meet the approved plans and specifications.  
*John J. ...* 2/15/18  
 JOHN J. ... P.E., NO. 17324  
 Date

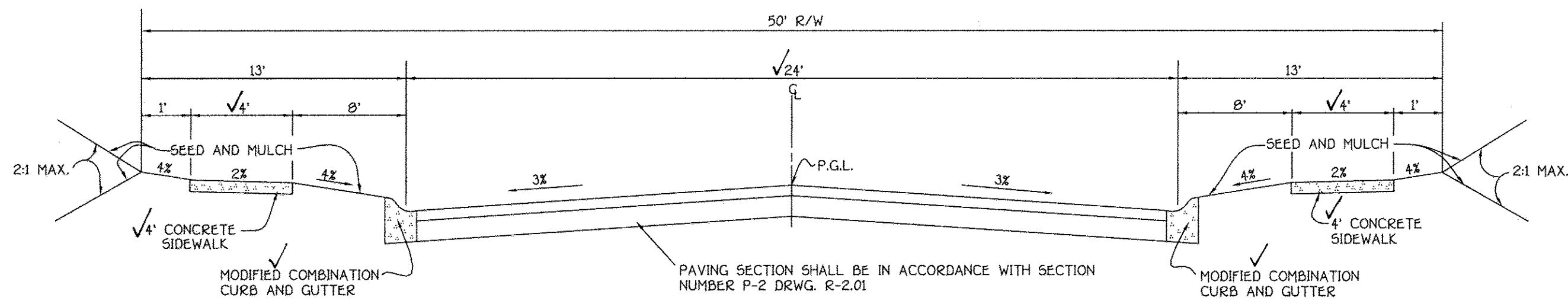


**ALDO M. VITUCCI, P.E.**  
 4/17/15  
 DATE  
 "Professional certification, I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-17."

**REVISED DRAINAGE AREA MAP CENTENNIAL LAKE OVERLOOK**  
 (FORMERLY MASON PROPERTY)  
**SECTION TWO**  
 BUILDABLE LOTS 29 - 99 AND OPEN SPACE LOTS 99 THRU 112  
 A RESUBDIVISION OF BUILDABLE BULK PARCELS 'A' & 'B' ZONING: R-20  
 TAX MAP NO. 30 GRID NO. 2 PARCEL NO. 86  
 2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN DATE: APRIL 3, 2015  
 SHEET 24 OF 40

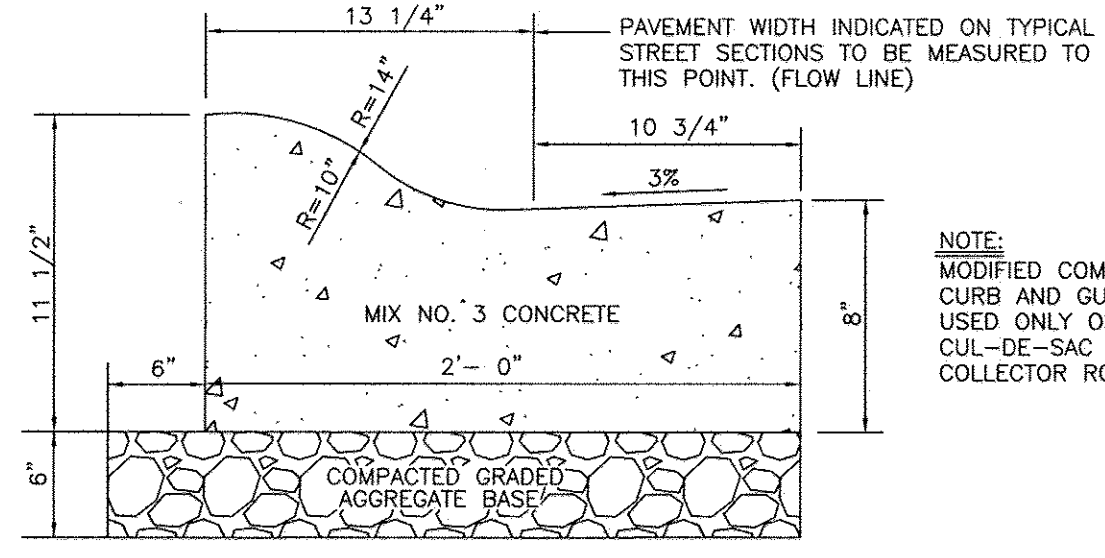
"AS-BUILT" F-14-081



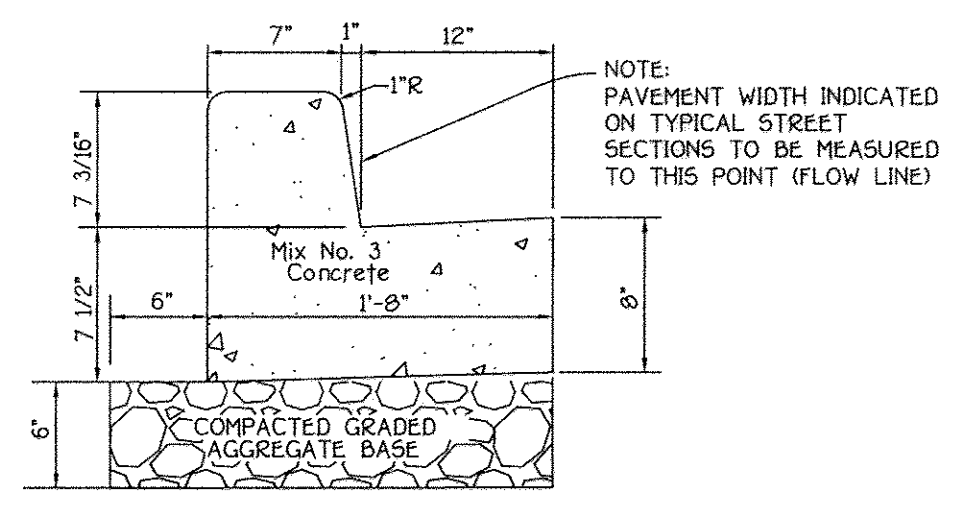


NOTE:  
ALL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH HOWARD COUNTY DESIGN MANUAL VOLUME IV, STANDARD SPECIFICATION AND DETAILS FOR CONSTRUCTION.

**TYPICAL ROADWAY SECTION**  
NO SCALE



**MODIFIED COMBINATION CURB AND GUTTER**  
NO SCALE DETAIL R-3.01

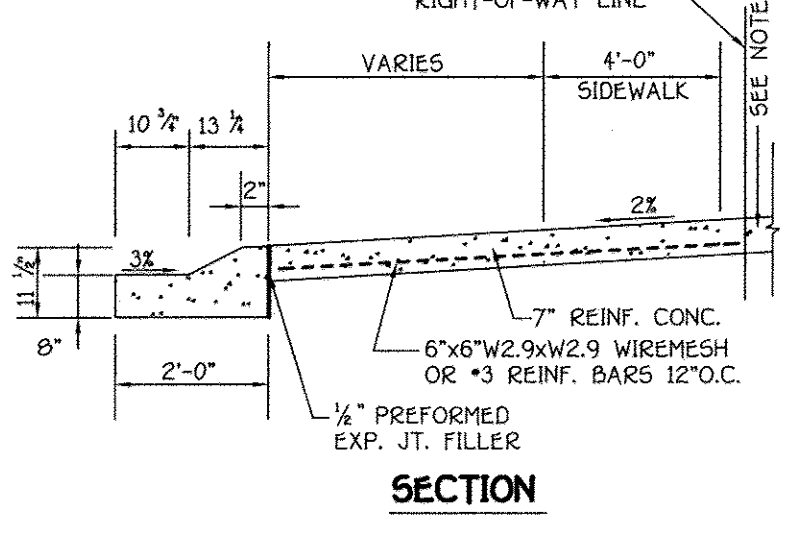
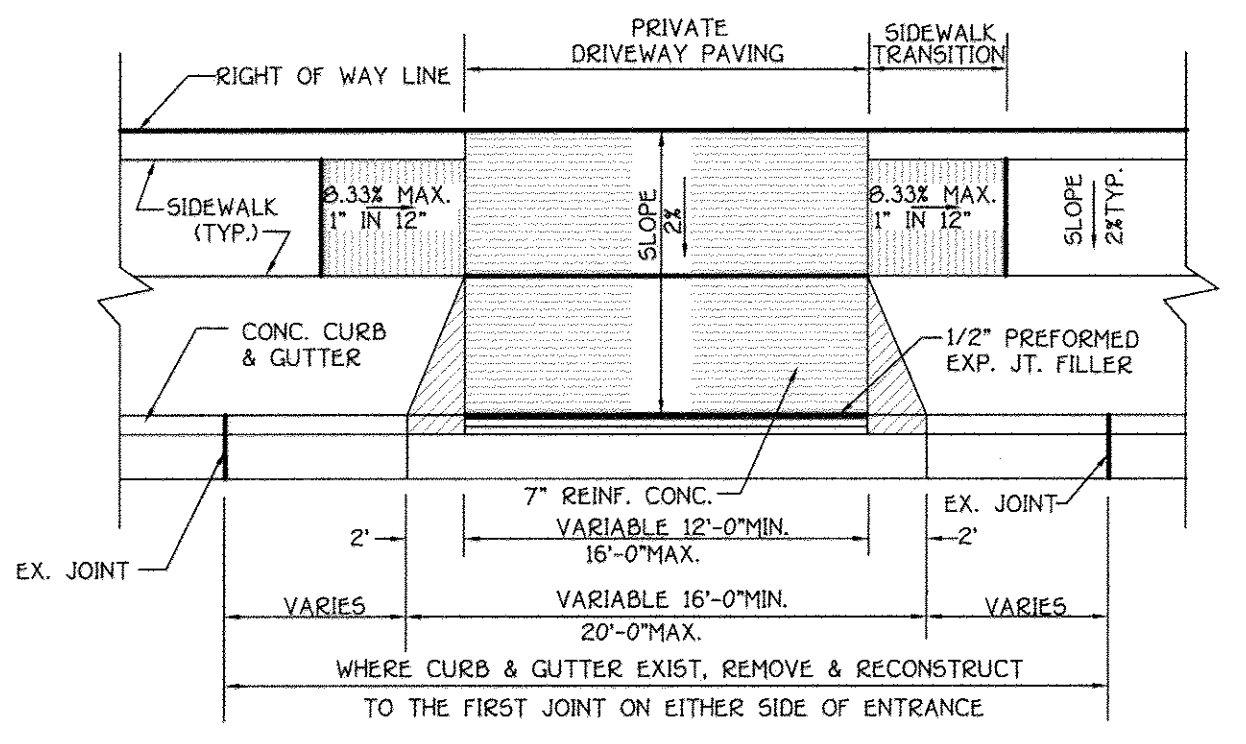


**STD. 7' CONC. CURB AND GUTTER**  
NO SCALE DETAIL R-3.01

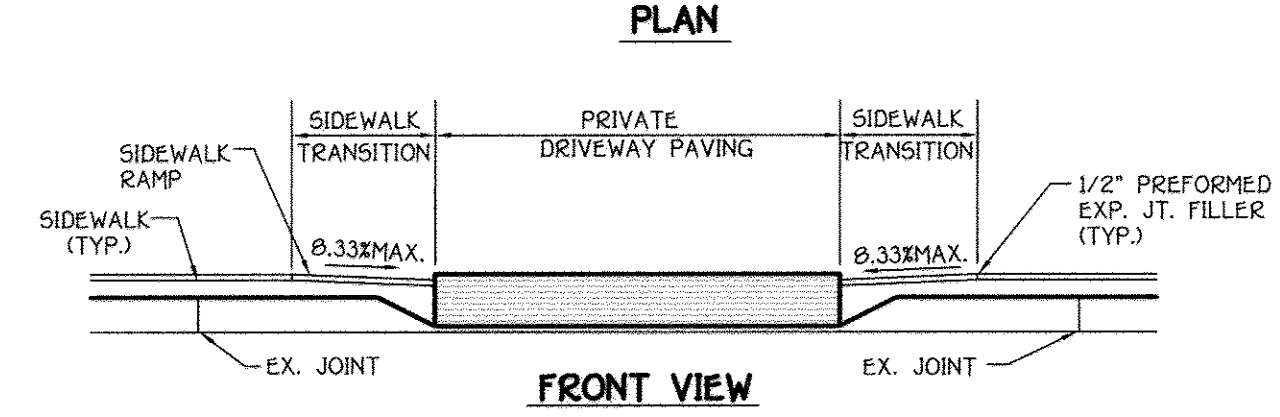
ROADWAY INFORMATION CHART					
ROAD NAME	CLASSIFICATION	DESIGN SPEED	ZONING	STATION LIMITS	PAVING SECTION
WELLFORD DRIVE	PUBLIC ACCESS STREET	30 MPH.	R-20	0+69.02 TO 34+37.89	P-2

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

DETAIL R-2.01



- NOTES**
- ALL RAMP SHALL HAVE TEXTILE WARNING TEXTURE EXTENDING THE FULL WIDTH AND DEPTH OF THE RAMP.
  - PRIVATE DRIVEWAY PAVING (IF CONC. 1/2" PREFORMED EXP. JOINT FILLER IS TO BE PROVIDED AT THE RIGHT OF WAY LINE).
  - TIE-IN GRADE OF PRIVATE DRIVEWAY SHALL NOT EXCEED 1/4".



**RESIDENTIAL DRIVEWAY ENTRANCE  
CLOSED SECTION W/MODIFIED COMBINATION  
CURB AND GUTTER AND SIDEWALK**  
NOT TO SCALE

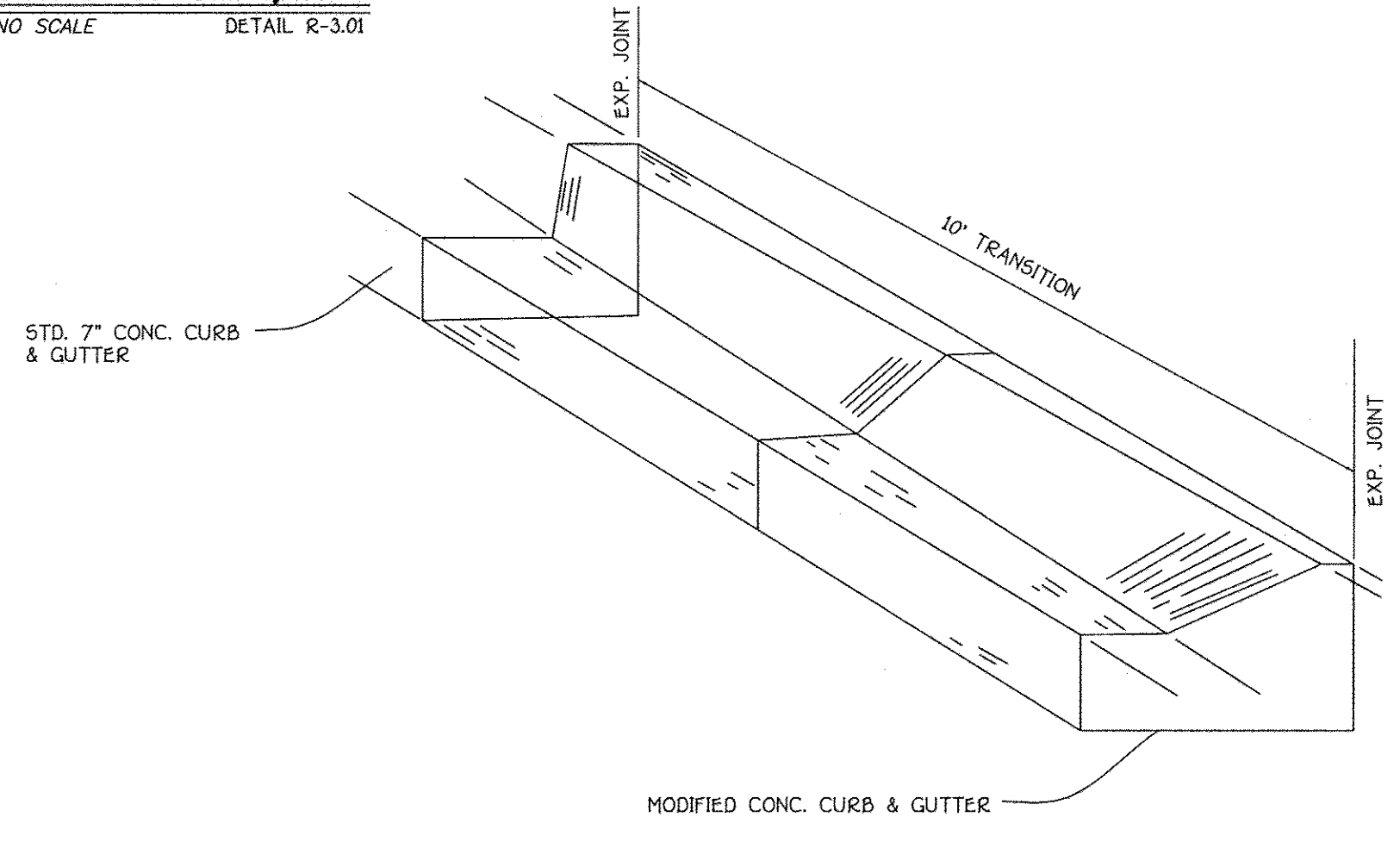


**OWNER/DEVELOPER**  
BEAZER HOMES CORP  
8965 GUILFORD ROAD  
COLUMBIA, MARYLAND 21046  
(410-720-5071)

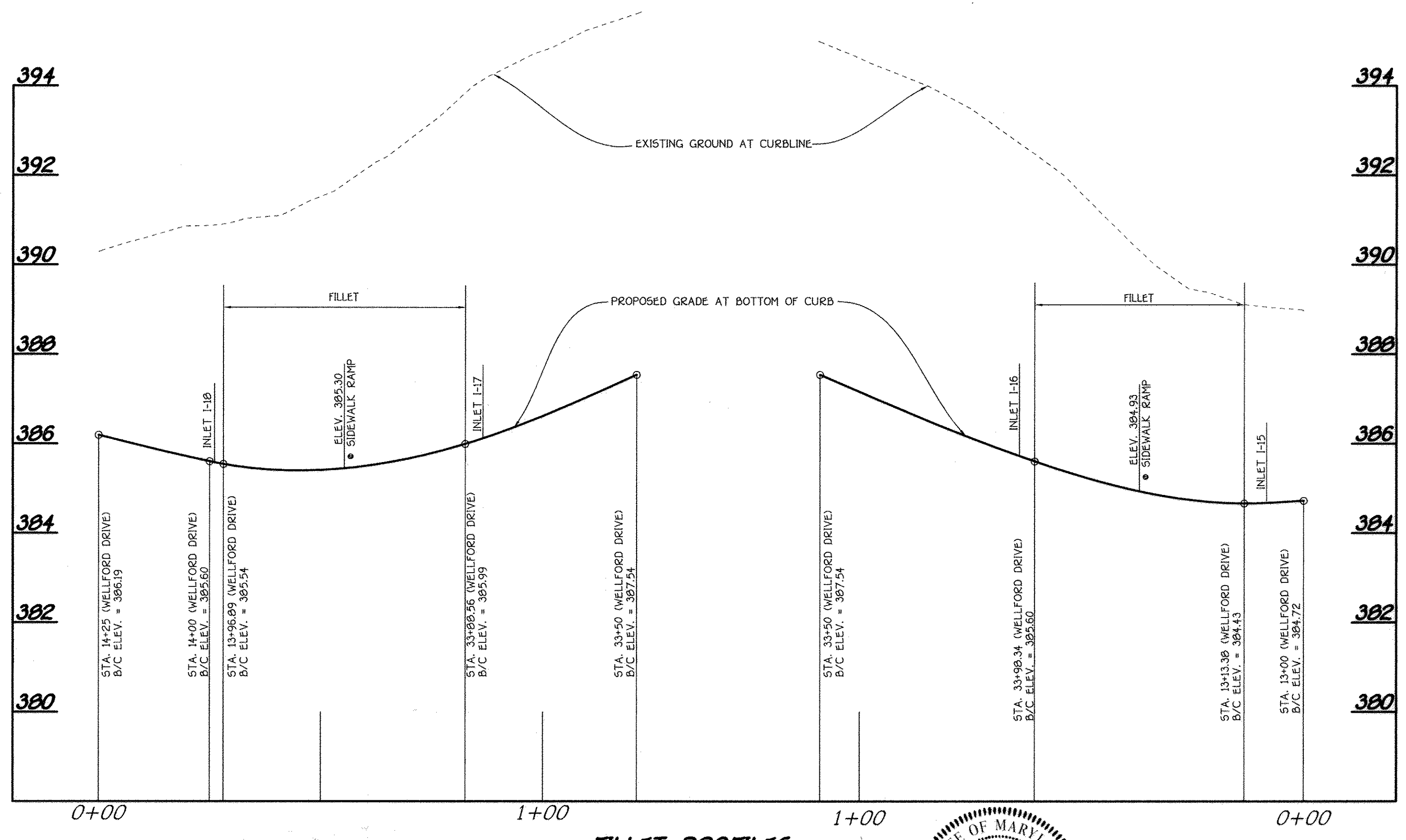
AS-BUILT CERTIFICATION

I hereby certify, by my seal, that the facilities shown on this plan were constructed as shown on this "AS BUILT" plan meet the approved plans and specifications.

Charles J. Orlov, No. 191204 Date: 1/15/17



**CONCRETE CURB & GUTTER TRANSITION**  
NO SCALE



**FILLET PROFILES**  
SCALE: HOR. : 1" = 20'  
VER. : 1" = 2'



Professional certification I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-15.

Aldo M. Vitocci, P.E. Date: 1/15/17

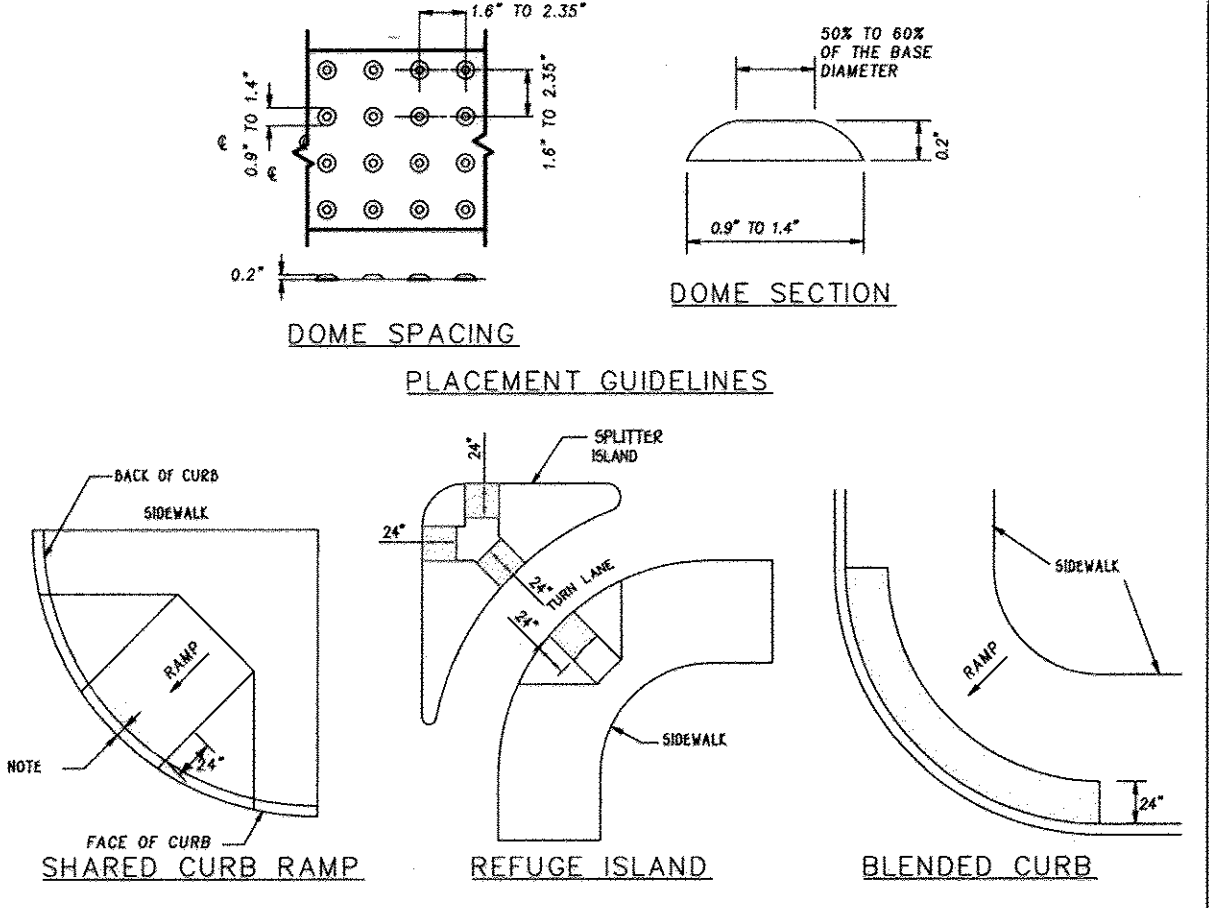
APPROVED: DEPARTMENT OF PUBLIC WORKS  
*John S. ...* 6.10.14  
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Neil ...* 6-24-14  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Paul ...* 6-16-14  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

REVISIONS		
NO.	DESCRIPTION	DATE
1	Revise Title Block	4-3-15
2	REVISE SHEET NUMBER TO REFLECT APPROV SHEET	10/21/16

(MATT DETAILS OR OPTIONAL 12"x12" TILE TECH PAVERS(RED))



- NOTES**
- THE DETECTABLE WARNING SURFACE SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS 6 TO 8 INCHES FROM THE FACE OF CURB.
  - FOR SKEWED APPLICATIONS DETECTABLE WARNING SHALL BE PLACED SUCH THAT THE DOMES CLOSEST TO THE BACK OF CURB ARE NO LESS THAN 0.5' AND NO MORE THAN 3.0' FROM THE BACK OF CURB. TRUNCATED DOME SURFACES SHALL BE FABRICATED TO PROVIDE FULL DOMES ONLY.
  - DETECTABLE WARNING SURFACES SHALL BE PAID FOR IN ACCORDANCE WITH SECTION 616 OF THE SPECIFICATIONS.
  - DETECTABLE WARNING SURFACES ARE REQUIRED AT STREET CROSSING & SIGNALIZED INTERSECTIONS.

**DETECTABLE WARNING SURFACE GUIDELINES**  
STD. DETAIL NO. 655-40

**ROADWAY DETAILS  
CENTENNIAL LAKE OVERLOOK**  
(FORMERLY MASON PROPERTY)  
**SECTION TWO**  
BUILDABLE LOTS 29 - 98 &  
OPEN SPACE LOTS 99 THRU 112

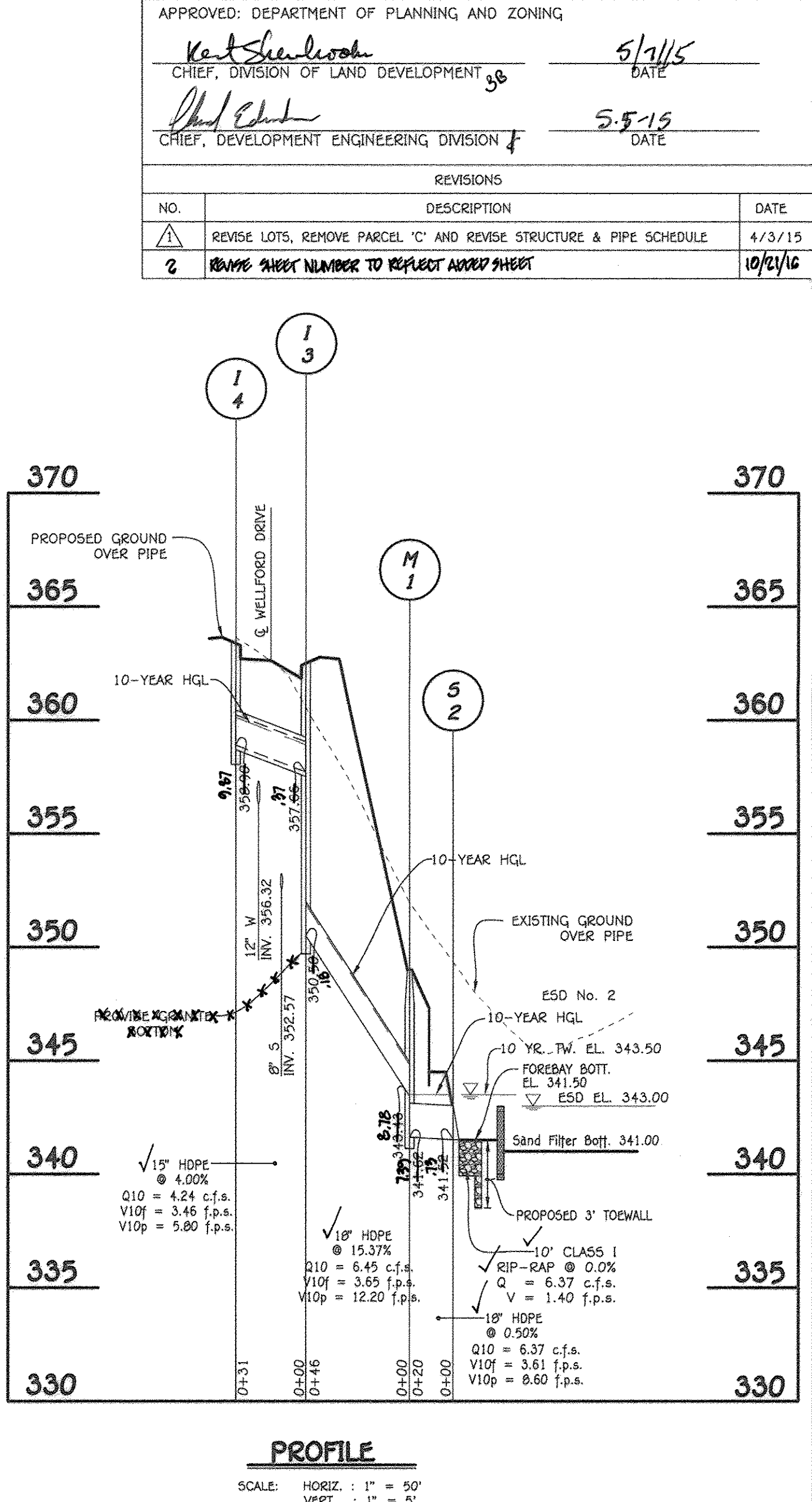
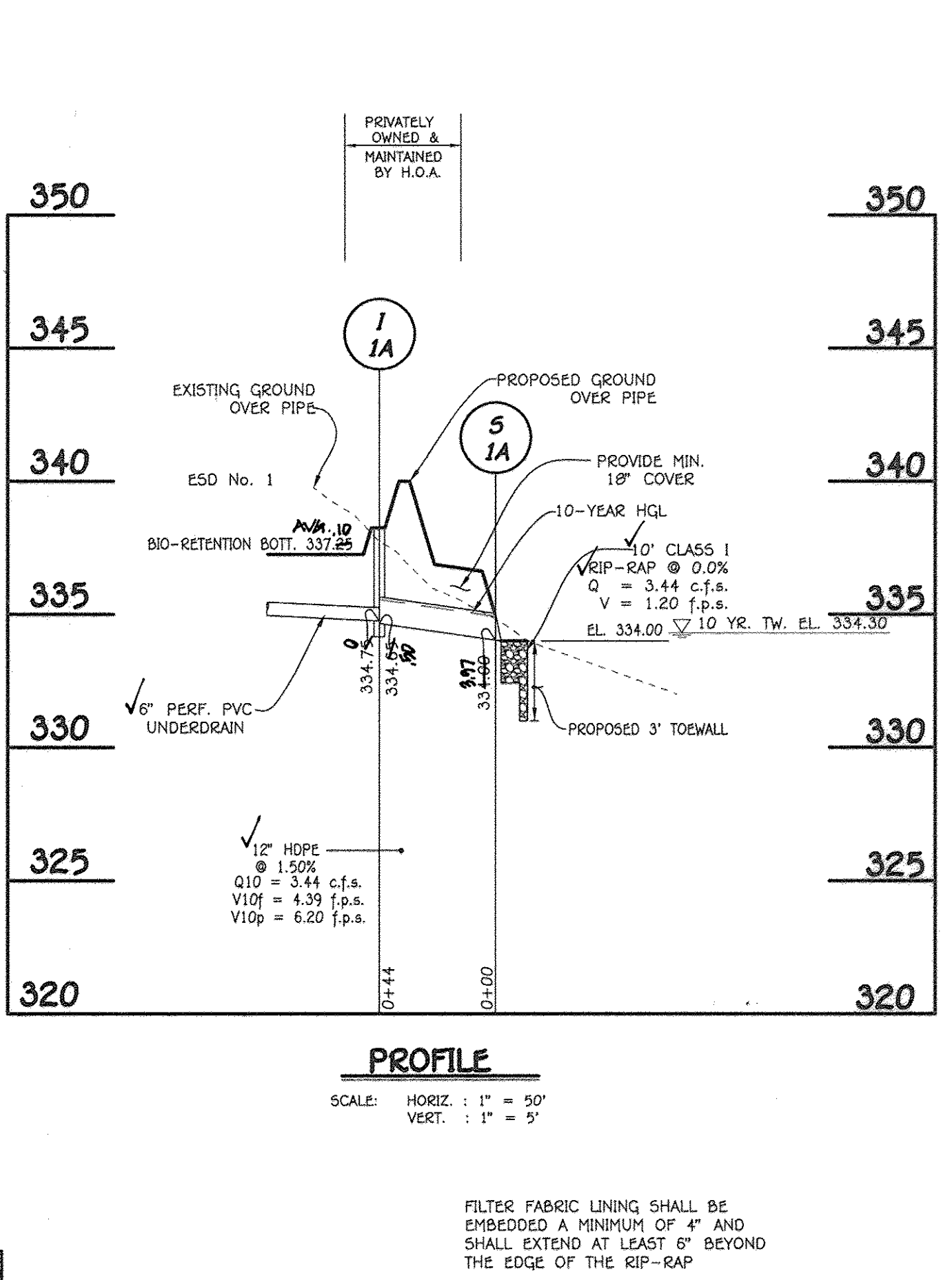
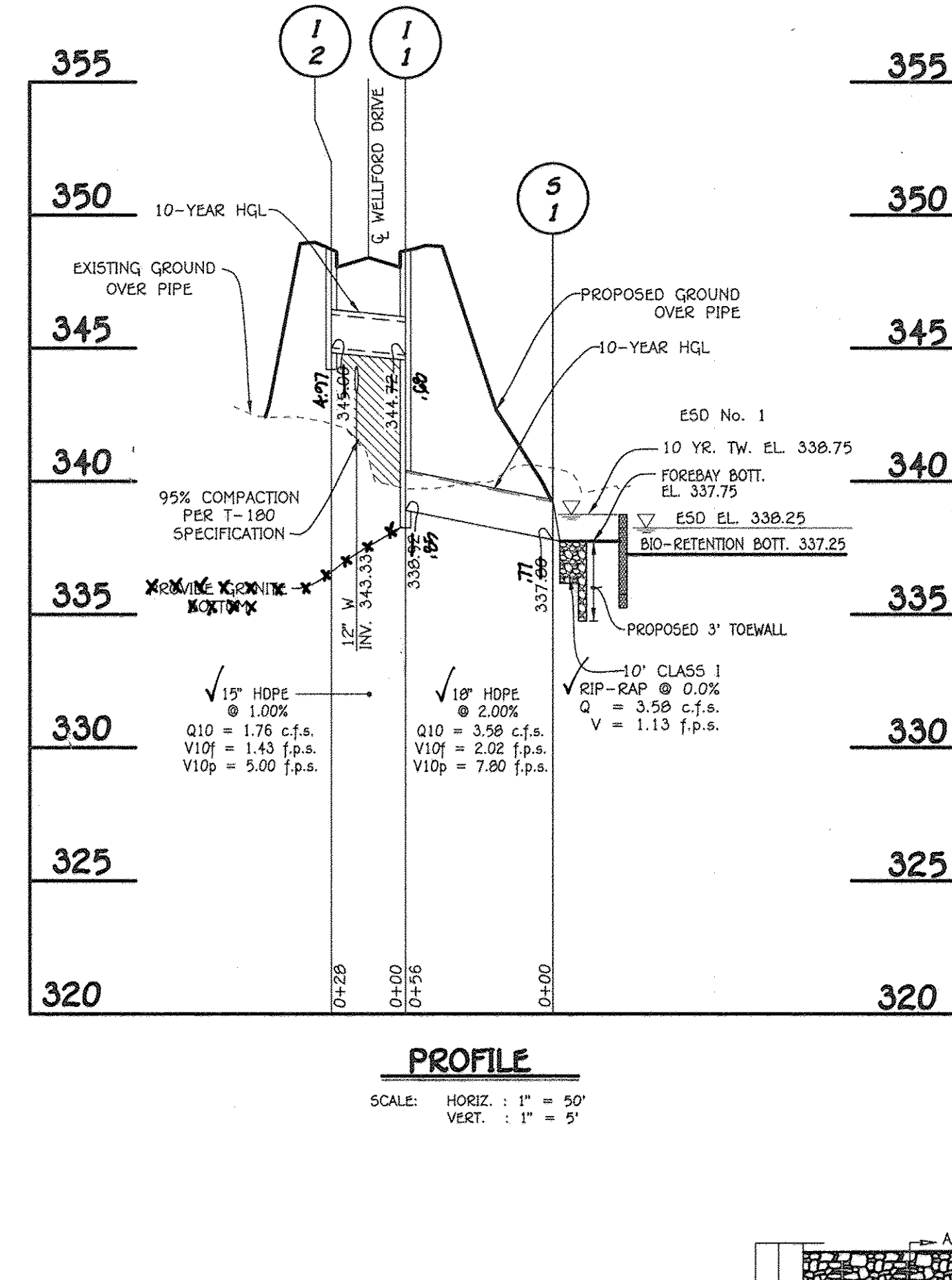
A RESUBDIVISION OF BUILDABLE BULK PARCELS 'A' & 'B'  
ZONING: R-20  
TAX MAP No. 30 GRID No. 2 PARCEL No. 86  
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: MAY 30, 2014  
SHEET 25 OF 40



**STRUCTURE SCHEDULE**

STRUCTURE NO.	TOP ELEVATION	INV. IN	INV. OUT	LOCATION (ROAD NAME/COORDINATE)	ROAD STA.	OFFSET	TYPE AND WIDTH	REMARKS
# 1-1	348.62	344.62	344.62	WELLFORD DRIVE	1+24+9.40	12' LV	A-10 (2.5') ✓	D - 4.03
# 1-1A	338.25	334.77 (6' V)	334.77	WELLFORD DRIVE	1+24+9.40	12' RV	'5' INLET ✓	D - 4.22
# 1-2	348.62	344.62	344.62	WELLFORD DRIVE	1+23+9.99	12' RV	A-10 (2.5') ✓	D - 4.03
# 1-3	362.41	357.66	357.66	WELLFORD DRIVE	4+87+6.00	12' LV	A-5 (2.5') ✓	D - 4.01
# 1-4	368.88	358.88	358.88	WELLFORD DRIVE	5+07+1.00	12' RV	A-5 (2.5') ✓	D - 4.01
# 1-5	THROAT = 357.07	346.84	346.84	WELLFORD DRIVE	---	---	'0' INLET ✓	D - 4.10
# 1-6	THROAT = 368.00	358.00	358.00	WELLFORD DRIVE	---	---	'0' INLET ✓	D - 4.10
# 1-7	THROAT = 369.00	360.00	360.00	WELLFORD DRIVE	---	---	'0' INLET ✓	D - 4.10
# 1-8	THROAT = 377.00	371.00	371.00	WELLFORD DRIVE	---	---	'0' INLET ✓	D - 4.10
# 1-9	380.00	376.00	376.00	WELLFORD DRIVE	7+45+5.00	31.2' R	'5' INLET ✓	D - 4.22
# 1-10	380.00	377.37	377.37	WELLFORD DRIVE	7+56+7.00	31.2' R	'5' INLET ✓	D - 4.22
# 1-11	382.00	377.37	377.37	WELLFORD DRIVE	7+56+7.00	31.2' R	COG/COS OPENING ✓	MD - 374.68
# 1-12	382.00	377.37	377.37	WELLFORD DRIVE	7+56+7.00	31.2' R	COG/COS OPENING ✓	MD - 374.68
# 1-13	380.00	384.00	384.00	WELLFORD DRIVE	11+23+6.70	12' LV	A-5 (2.5') ✓	D - 4.01
# 1-14	387.00	384.00	384.00	WELLFORD DRIVE	11+23+6.70	12' RV	A-5 (2.5') ✓	D - 4.01
# 1-15	385.00	380.00	380.00	WELLFORD DRIVE	13+07+6.85	12' RV	A-10 (2.5') ✓	D - 4.03
# 1-16	386.00	381.00	381.00	WELLFORD DRIVE	33+95+6.00	12' LV	A-5 (2.5') ✓	D - 4.01
# 1-17	386.00	381.00	381.00	WELLFORD DRIVE	33+95+6.00	12' RV	A-5 (2.5') ✓	D - 4.01
# 1-18	386.00	382.00	382.00	WELLFORD DRIVE	13+00+14.00	12' RV	A-5 (2.5') ✓	D - 4.01
# 1-19	391.00	387.00	387.00	WELLFORD DRIVE	15+50+7.00	12' RV	A-5 (2.5') ✓	D - 4.01
# 1-20	391.00	387.00	387.00	WELLFORD DRIVE	15+50+7.00	12' LV	A-5 (2.5') ✓	D - 4.01
# 1-21	385.00	380.00	380.00	WELLFORD DRIVE	13+07+6.85	12' LV	A-10 (2.5') ✓	D - 4.03
# 1-22	THROAT = 389.00	386.00	386.00	WELLFORD DRIVE	14+55+7.40	114.7' R	'0' INLET ✓	D - 4.10
# 1-23	373.00	369.00	369.00	WELLFORD DRIVE	17+37+0.00	12' LV	'5' INLET ✓	D - 4.22
# 1-24	400.00	396.00	396.00	WELLFORD DRIVE	17+37+0.00	12' RV	A-5 (2.5') ✓	D - 4.01
# 1-25	400.00	396.00	396.00	WELLFORD DRIVE	17+37+0.00	12' RV	A-5 (2.5') ✓	D - 4.01
# 1-26	393.37	389.37	389.37	WELLFORD DRIVE	21+95+7.00	12' RV	COG/COS OPENING ✓	MD - 374.68
# 1-27	396.63	392.63	392.63	WELLFORD DRIVE	21+95+7.00	12' LV	COG/COS OPENING ✓	MD - 374.68
# 1-28	THROAT = 374.00	367.00	367.00	WELLFORD DRIVE	---	---	'0' INLET ✓	D - 4.10
# 1-29	THROAT = 389.75	380.00	380.00	WELLFORD DRIVE	---	---	'0' INLET ✓	D - 4.10
# 1-30	THROAT = 377.00	370.00	370.00	WELLFORD DRIVE	---	---	'0' INLET ✓	D - 4.10
# 1-31	THROAT = 391.00	382.00	382.00	WELLFORD DRIVE	---	---	'0' INLET ✓	D - 4.10
# 1-32	391.00	387.00	387.00	WELLFORD DRIVE	22+11+7.14	71.4' R	'5' INLET ✓	D - 4.22
# 1-33	394.00	390.00	390.00	WELLFORD DRIVE	21+61+9.40	57.7' LV	'5' INLET ✓	D - 4.22
# 1-34	375.00	374.00	374.00	WELLFORD DRIVE	23+66+9.87	50.8' LV	'5' INLET ✓	D - 4.22
# 1-35	381.13	379.00	379.00	WELLFORD DRIVE	23+66+9.87	50.8' LV	COG/COS OPENING ✓	MD - 374.68
# 1-36	370.00	366.00	366.00	WELLFORD DRIVE	25+10+2.40	12' LV	A-5 (2.5') ✓	D - 4.01
# 1-37	372.00	366.00	366.00	WELLFORD DRIVE	24+99+7.00	12' RV	A-5 (2.5') ✓	D - 4.01
# 1-38	368.00	364.00	364.00	WELLFORD DRIVE	26+66+7.70	12' LV	A-10 (2.5') ✓	D - 4.03
# 1-39	368.00	364.00	364.00	WELLFORD DRIVE	26+66+7.70	12' RV	A-10 (2.5') ✓	D - 4.03
# 1-40	359.00	355.00	355.00	WELLFORD DRIVE	27+80+7.40	81.2' LV	'5' INLET ✓	D - 4.22
# 1-41	385.81	381.81	381.81	WELLFORD DRIVE	30+51+7.00	12' RV	COG/COS OPENING ✓	MD - 374.68
# 1-42	382.00	378.00	378.00	WELLFORD DRIVE	30+06+5.90	12' LV	COG/COS OPENING ✓	MD - 374.68
# 1-43	381.00	377.00	377.00	WELLFORD DRIVE	30+06+5.90	12' LV	'5' INLET ✓	D - 4.22
# 1-44	383.00	379.00	379.00	WELLFORD DRIVE	30+39+7.10	66.8' R	'5' INLET ✓	D - 4.22
# M-1	444.00	344.00	344.00	WELLFORD DRIVE	4+60+7.20	66.8' L	4" DIA. MANHOLE ✓	G - 5.12
# M-2	344.00	331.00	331.00	WELLFORD DRIVE	33+40+0.71	---	4" DIA. MANHOLE ✓	G - 5.12
# M-3	344.00	338.00	338.00	WELLFORD DRIVE	33+40+0.71	---	4" DIA. MANHOLE ✓	G - 5.12
# M-4	381.00	375.00	375.00	WELLFORD DRIVE	7+44+5.80	28.6' L	4" DIA. MANHOLE ✓	G - 5.12
# M-5	381.00	377.00	377.00	WELLFORD DRIVE	11+23+4.90	86.8' L	4" DIA. MANHOLE ✓	G - 5.12
# M-5A	374.00	374.00	374.00	WELLFORD DRIVE	37+80+4.02	---	4" DIA. MANHOLE ✓	G - 5.12
# M-6	387.00	376.00	376.00	WELLFORD DRIVE	37+46.00	---	4" DIA. MANHOLE ✓	G - 5.12
# M-7	389.75	379.00	379.00	WELLFORD DRIVE	12+66+5.50	32.30' L	4" DIA. MANHOLE ✓	G - 5.12
# M-8	387.00	384.00	384.00	WELLFORD DRIVE	14+55+7.40	15.6' R	4" DIA. MANHOLE ✓	G - 5.12
# M-9	386.00	385.00	385.00	WELLFORD DRIVE	26+40+7.80	12.8' L	4" DIA. MANHOLE ✓	G - 5.12
# M-10	368.00	368.00	368.00	WELLFORD DRIVE	26+51+7.10	12.8' L	4" DIA. MANHOLE ✓	G - 5.12
# M-11	392.00	389.00	389.00	WELLFORD DRIVE	22+86+9.40	11.8' R	4" DIA. MANHOLE ✓	G - 5.12
# M-12	390.00	386.00	386.00	WELLFORD DRIVE	22+26+7.00	16.4' R	4" DIA. MANHOLE ✓	G - 5.12
# M-13	377.00	374.00	374.00	WELLFORD DRIVE	24+02+7.00	16.4' LV	4" DIA. MANHOLE ✓	G - 5.12
# M-14	356.00	352.00	352.00	WELLFORD DRIVE	24+02+7.00	16.4' LV	4" DIA. MANHOLE ✓	G - 5.12
# M-15	369.00	368.00	368.00	WELLFORD DRIVE	25+90+4.00	17.3' L	4" DIA. MANHOLE ✓	G - 5.12
# M-16	368.00	368.00	368.00	WELLFORD DRIVE	27+28+0.00	82.8' L	4" DIA. MANHOLE ✓	G - 5.12
# M-17	368.00	359.00	359.00	WELLFORD DRIVE	27+28+4.50	76.2' L	4" DIA. MANHOLE ✓	G - 5.12
# M-18	369.00	360.00	360.00	WELLFORD DRIVE	27+28+4.50	28.8' L	4" DIA. MANHOLE ✓	G - 5.12
# M-19	349.00	344.00	344.00	WELLFORD DRIVE	---	---	4" DIA. MANHOLE ✓	G - 5.12
# M-20	367.00	368.00	368.00	WELLFORD DRIVE	351+42.23	---	4" DIA. MANHOLE ✓	G - 5.12
# M-21	372.00	369.00	369.00	WELLFORD DRIVE	365+43.92	---	4" DIA. MANHOLE ✓	G - 5.12
# M-22	383.00	379.00	379.00	WELLFORD DRIVE	375+04.91	---	4" DIA. MANHOLE ✓	G - 5.12
# M-23	381.00	377.00	377.00	WELLFORD DRIVE	378.05	---	4" DIA. MANHOLE ✓	G - 5.12
# M-24	384.00	378.00	378.00	WELLFORD DRIVE	29+92.40	---	4" DIA. MANHOLE ✓	G - 5.12
M-10A	376.77	368.88	368.88	WELLFORD DRIVE	368.00	---	4" DIA. MANHOLE ✓	G - 5.12
S-1	339.27	337.00	337.00	WELLFORD DRIVE	0+87+6.20	55.6' L	18" FLARED END SECTION ✓	**
# S-1A	338.00	336.00	336.00	WELLFORD DRIVE	4+75+8.82	75.6' L	12" FLARED END SECTION ✓	**
S-2	343.00	341.00	341.00	WELLFORD DRIVE	4+75+8.82	75.6' L	18" FLARED END SECTION ✓	**
S-3	331.00	329.00	329.00	WELLFORD DRIVE	3+00+10.30	71.3' LV	18" FLARED END SECTION ✓	**
S-4	375.00	372.00	372.00	WELLFORD DRIVE	---	---	TYPE 'X' HEADWALL ✓	D - 5.11
# S-5	376.00	376.00	376.00	WELLFORD DRIVE	11+33+8.7	82.4' L	18" FLARED END SECTION ✓	**
S-6	374.00	372.00	372.00	WELLFORD DRIVE	---	---	18" FLARED END SECTION ✓	**
# S-7	369.75	368.00	368.00	WELLFORD DRIVE	---	---	18" FLARED END SECTION ✓	**
S-8	387.00	386.00	386.00	WELLFORD DRIVE	---	---	18" FLARED END SECTION ✓	**
S-9	352.00	350.00	350.00	WELLFORD DRIVE	---	---	18" FLARED END SECTION ✓	**
S-10	353.00	352.00	352.00	WELLFORD DRIVE	---	---	18" FLARED END SECTION ✓	**
# S-11	346.00	344.00	344.00	WELLFORD DRIVE	---	---	18" FLARED END SECTION ✓	**
S-12	359.00	358.00	358.00	WELLFORD DRIVE	27+33+7.10	16.4' L	12" FLARED END SECTION ✓	**
S-13	346.00	344.00	344.00	WELLFORD DRIVE	---	---	18" FLARED END SECTION ✓	**

NOTE: TOP ELEVATION OF COG/COS OPENING IS AT 12" OFFSET FROM CENTERLINE ALONG WELLFORD DRIVE  
 \* DENOTES 3" SEDIMENT CHAMBER BELOW 8" PVC INVERT  
 # DENOTES STRUCTURE TO BE PRIVATELY OWNED AND MAINTAINED BY H.O.A.

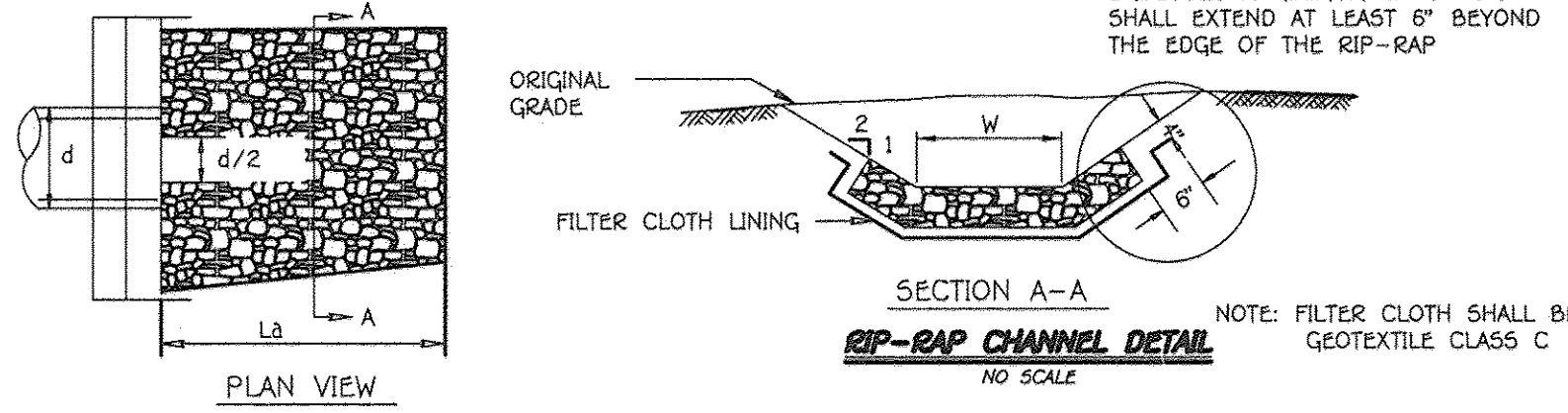
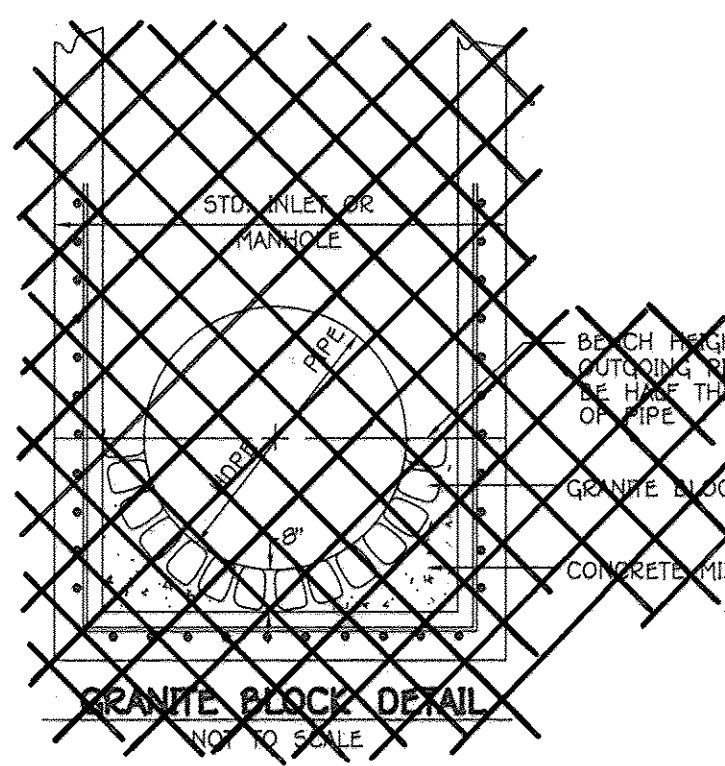


**PIPE SCHEDULE (PUBLIC)**

SIZE	CLASS	LENGTH
8"	PVC, SCH. 40	13 LF.
12"	HDPE	15 LF.
15"	HDPE	679 LF.
18"	HDPE	1,278 LF.
24"	HDPE	255 LF.

**PIPE SCHEDULE (PRIVATE)**

SIZE	CLASS	LENGTH
12"	HDPE	44 LF.
15"	HDPE	119 LF.
18"	HDPE	1,538 LF.



**CONSTRUCTION SPECIFICATIONS FOR RIP-RAP OUTFALLS**

- 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.
- Filter cloth shall be protected from punching, cutting or tearing. Any damage other than the damaged part or by completely replacing the cloth. All overlaps whether for repairs or for joining two pieces of cloth shall be a minimum of one foot.
- Stone for the rip-rap or gabion outlets may be placed by equipment, both shall each 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 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 spall filling the voids between the larger stones. Rip-rap shall be placed in a manner to prevent damage to the filter blanket or filter cloth. Hand placement will be required to the extent necessary to prevent damage to the permanent works.

**RIP-RAP CHANNEL DESIGN DATA**

STRUCTURE	AREA (S.F.)	WETTED PERIMETER	R	R 2/3	S	S 1/2	W	d	n	V (f.p.s.)	Q (c.f.s.)	RIP-RAP SIZE	BLANKET THICKNESS	PIPE SIZE	LA
S-1	3.18	11.34	0.2804	0.4266	0.005	0.0707	10'	0.30'	0.04	1.13	3.58	9.5"	15"	19"	10'
S-2	4.11	11.90	0.3974	0.5927	0.005	0.0707	10'	0.425'	0.04	1.40	6.37	9.5"	15"	19"	10'
# S-3	6.11	12.46	0.4904	0.6204	0.005	0.0707	10'	0.55'	0.04	1.63	9.92	9.5"	15"	19"	10'
S-4	2.41	11.03	0.2185	0.3609	0.005	0.0707	10'	0.23'	0.04	0.95	2.24	9.5"	15"	19"	10'
S-5	1.21	6.85	0.1766	0.3129	0.005	0.0707	6'	0.19'	0.04	0.83	0.97	9.5"	15"	19"	8"
S-6	7.21	14.46	0.4986	0.6273	0.005	0.0707	12'	0.55'	0.04	1.65	11.81	9.5"	15"	19"	24"
# S-7	2.98	10.39	0.2868	0.4331	0.005	0.0707	9'	0.31'	0.04	1.14	3.36	9.5"	15"	19"	10'
S-8	2.52														

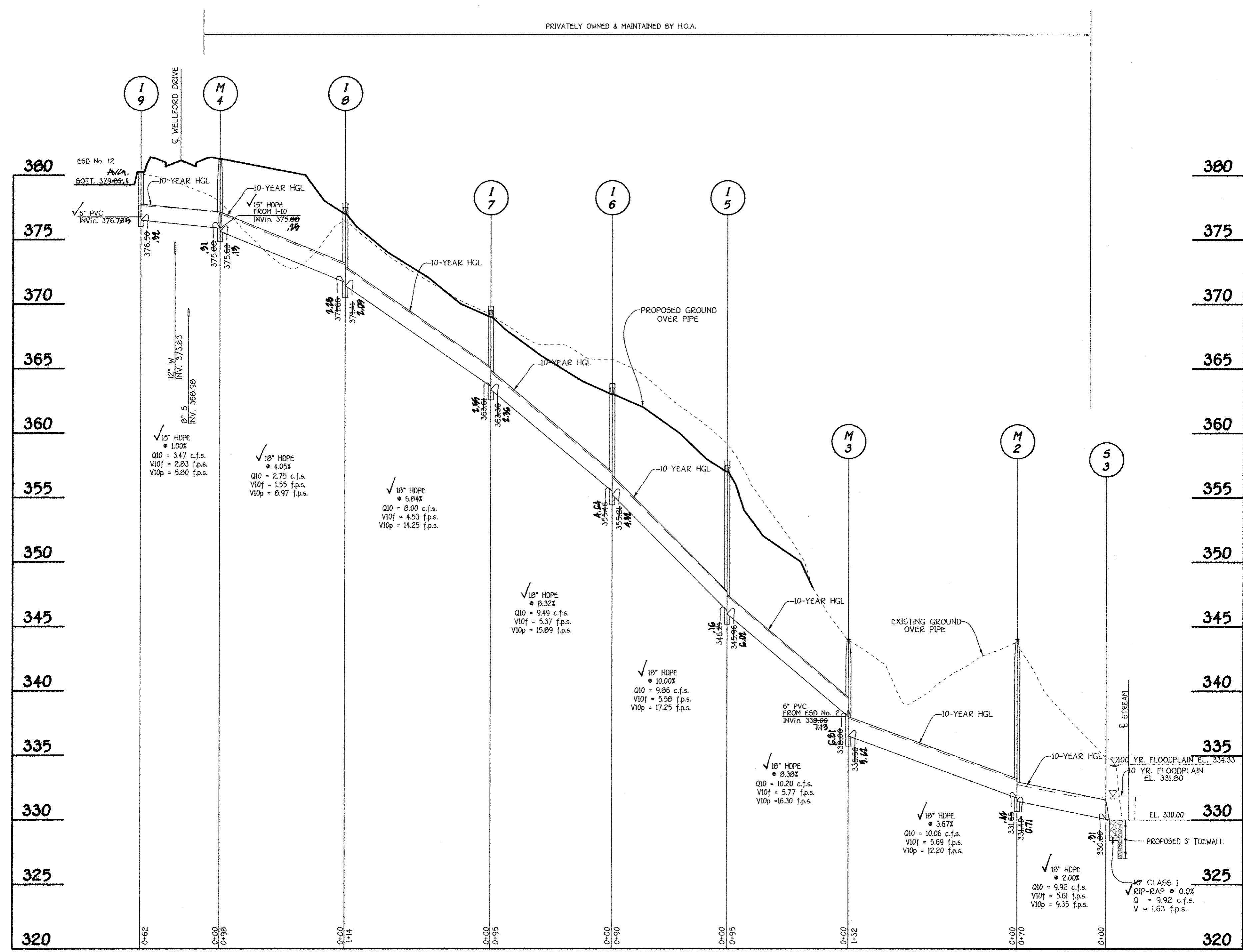


APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Holger Seemann* 6-19-14  
 CHIEF, BUREAU OF HIGHWAYS DATE

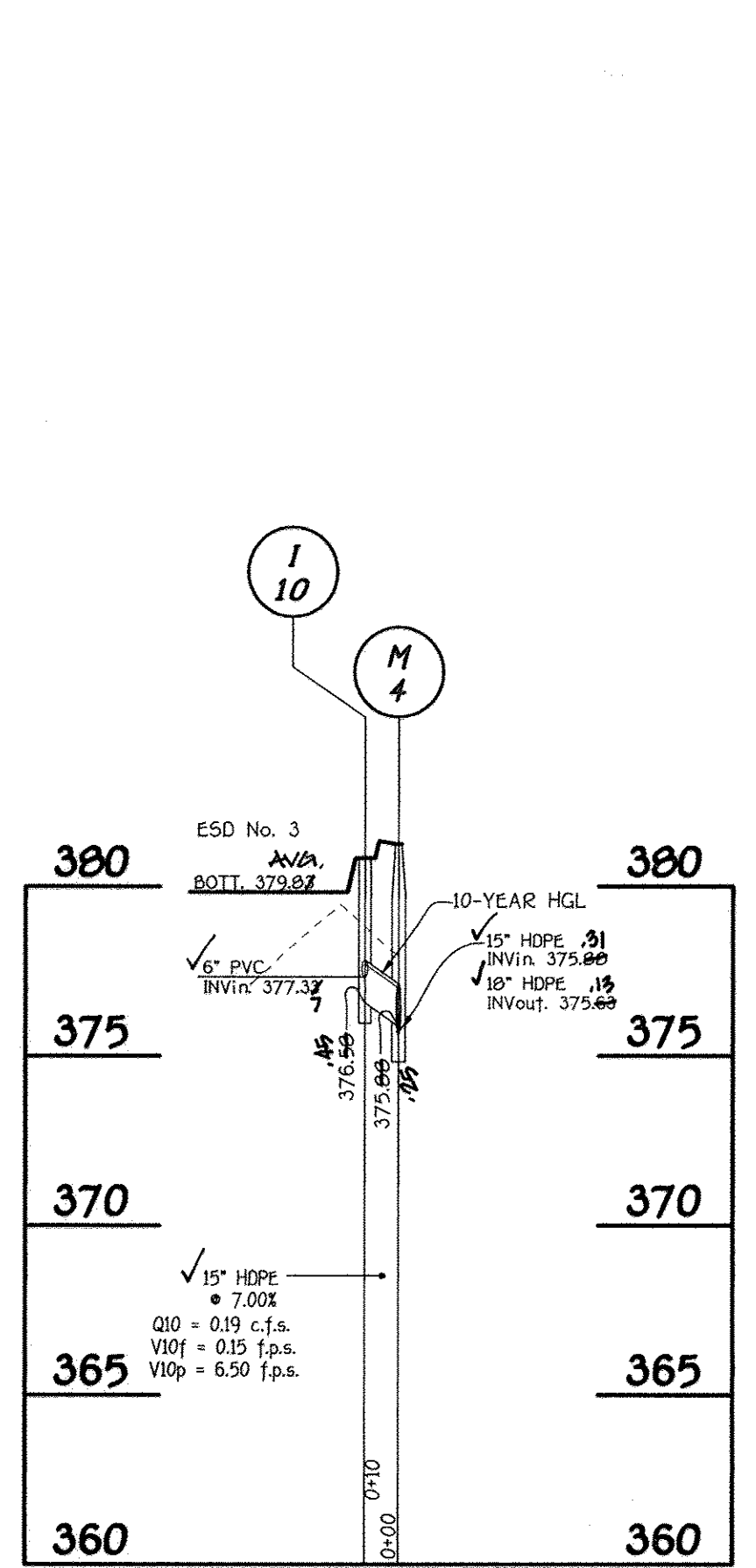
APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*V. J. Sealman* 6-24-14  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Paul G. Clark* 6-16-14  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

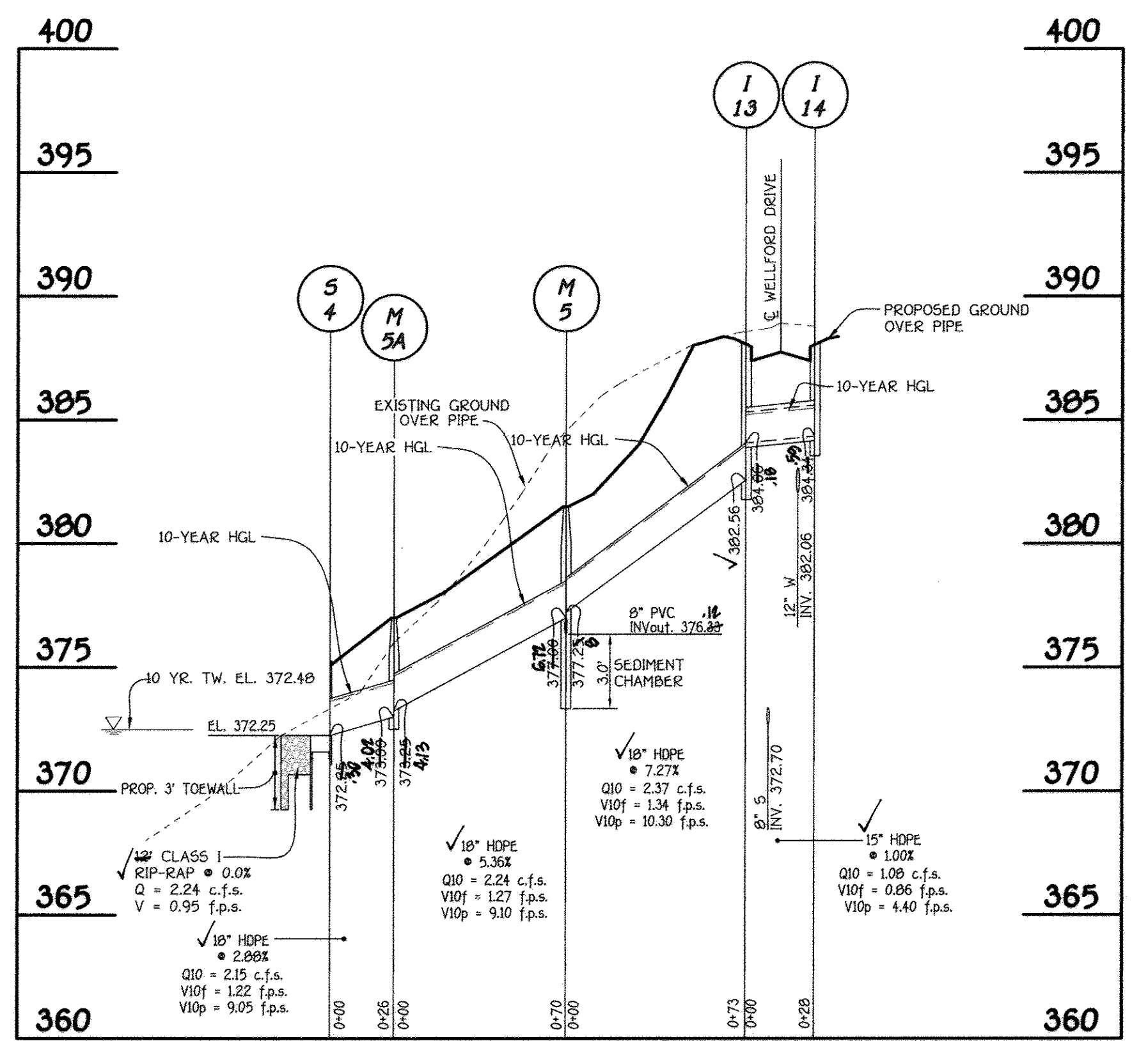
REVISIONS		
NO.	DESCRIPTION	DATE
1	Revise Title Block	4-3-15
2	REVISE SHEET NUMBER TO REFLECT ADDED SHEET	10/2/16



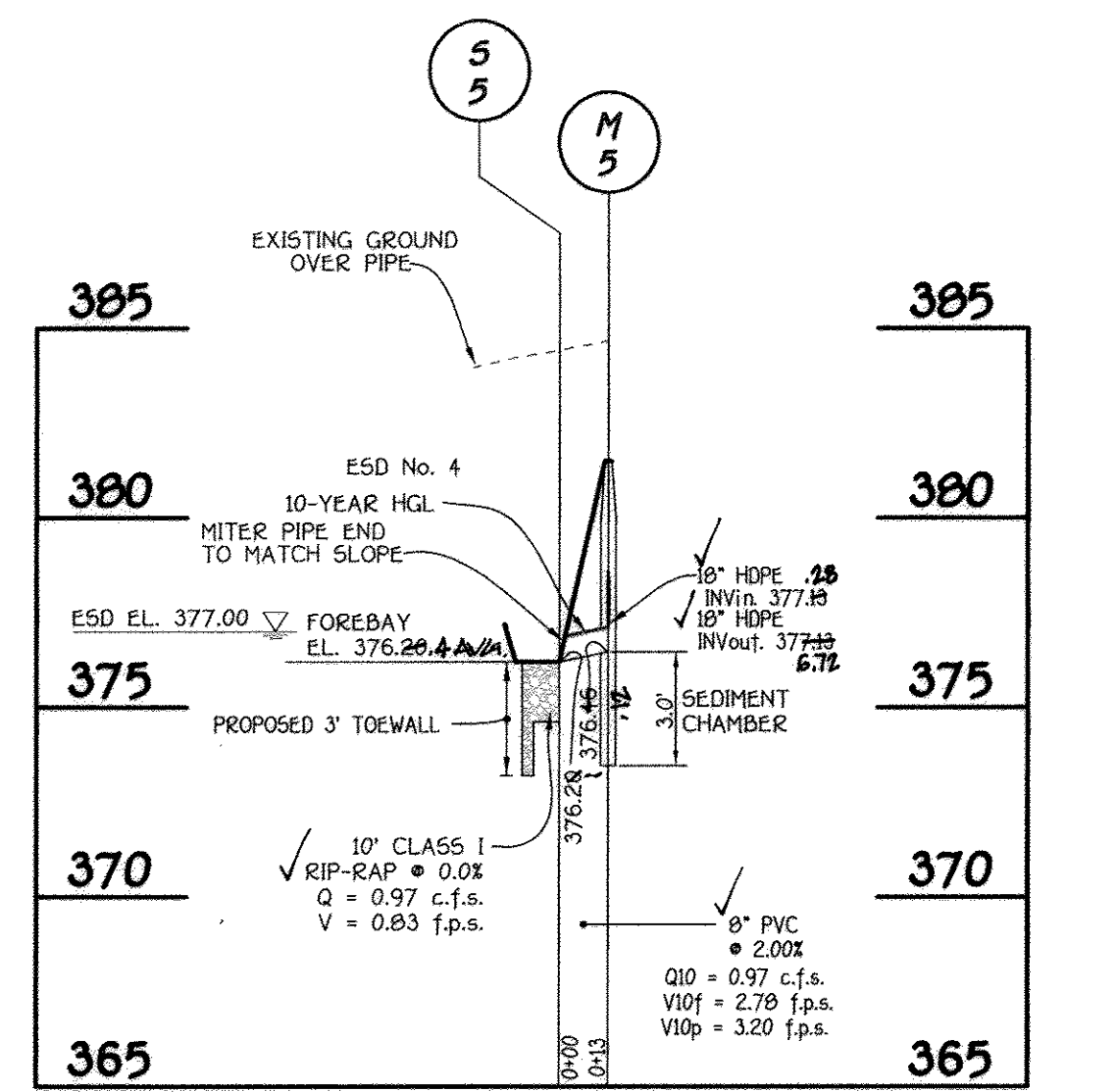
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 SCALE: HORIZ. : 1" = 50'  
 VERT. : 1" = 5'



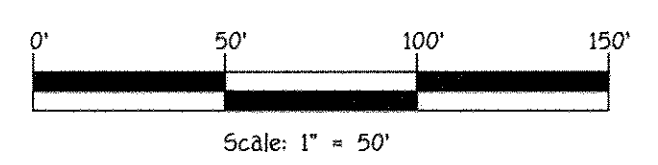
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 SCALE: HORIZ. : 1" = 50'  
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**PROFILE**  
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 VERT. : 1" = 5'



**PROFILE**  
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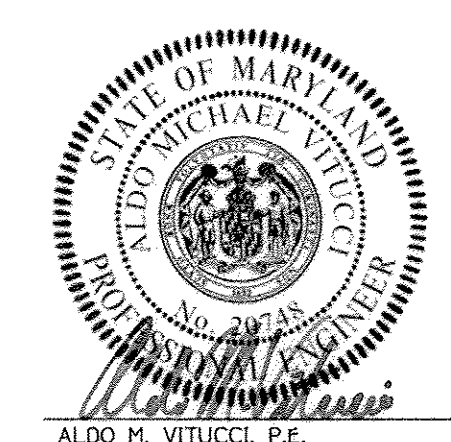


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 ELICOTT CITY, MARYLAND 21042  
 (410) 461-2855

**OWNER/DEVELOPER**  
 BEAZER HOMES CORP  
 8965 GUILFORD ROAD  
 COLUMBIA, MARYLAND 21046  
 (410) 720-5071



**AS-BUILT CERTIFICATION**  
 I hereby certify, by my seal, that the facilities shown on this plan were constructed as shown on this "AS BUILT" plan, meet the approved plans and specifications.  
*Charles J. Crow*  
 CHARLES J. CROW, P.E. NO. 191204 Date: 6/18/18



**AS-BUILT CERTIFICATION**  
 I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20246, Expiration Date 2-22-15.  
*Aldo M. Vitucci*  
 ALDO M. VITUCCI, P.E. DATE: 6/18/18

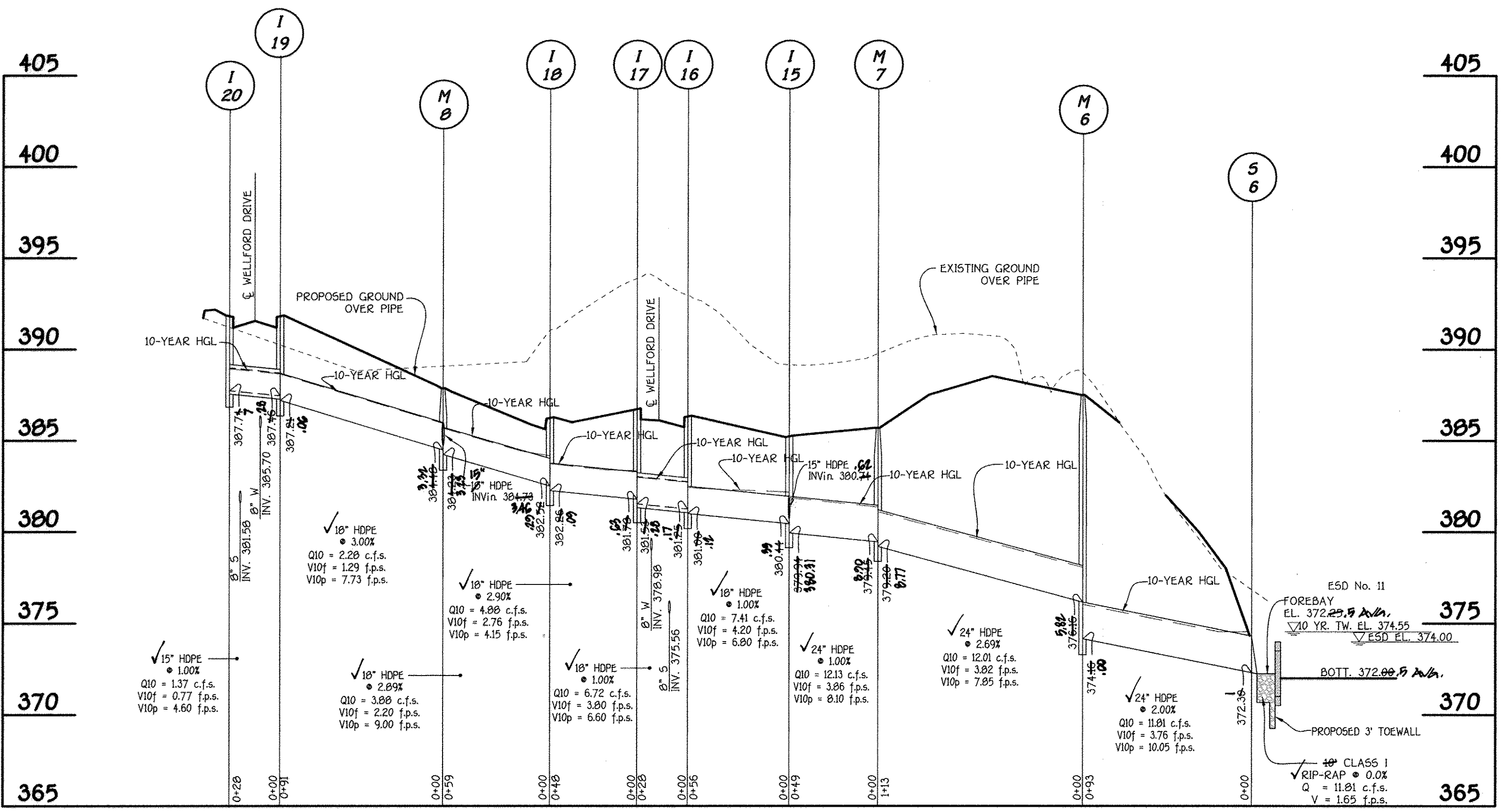
**STORM DRAIN PROFILES**  
**CENTENNIAL LAKE OVERLOOK**  
 (FORMERLY MASON PROPERTY)  
**SECTION TWO**  
 BUILDABLE LOTS 29 - 98 &  
 OPEN SPACE LOTS 99 THRU 112  
 A RESUBDIVISION OF BUILDABLE BULK PARCELS 'A' & 'B'  
 ZONING: R-20  
 TAX MAP No. 30 GRID No. 2 PARCEL No. B6  
 2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 DATE: MAY 30, 2014  
 SCALE: AS SHOWN  
 SHEET 27 OF 40

"AS-BUILT" F-14-081

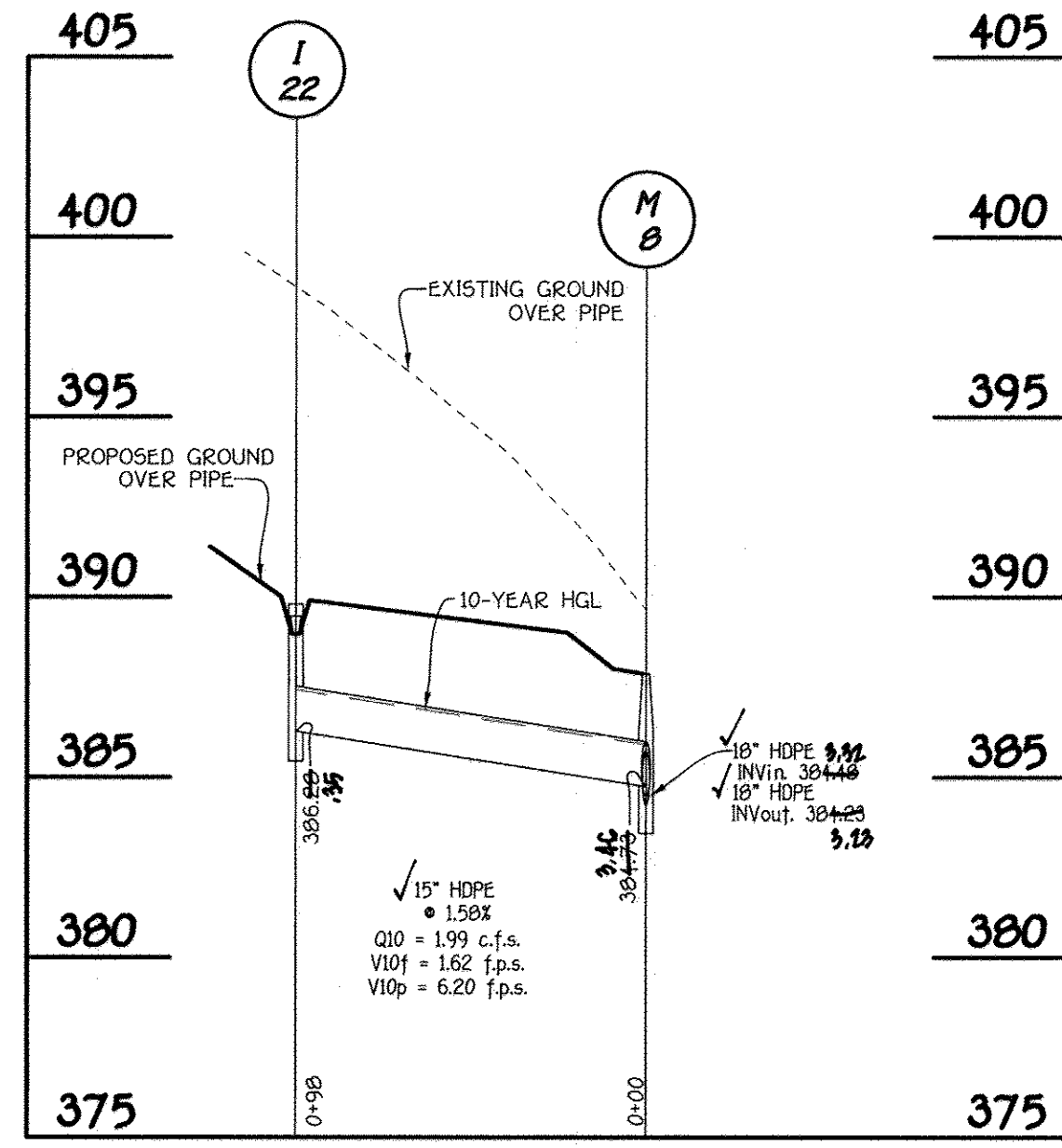
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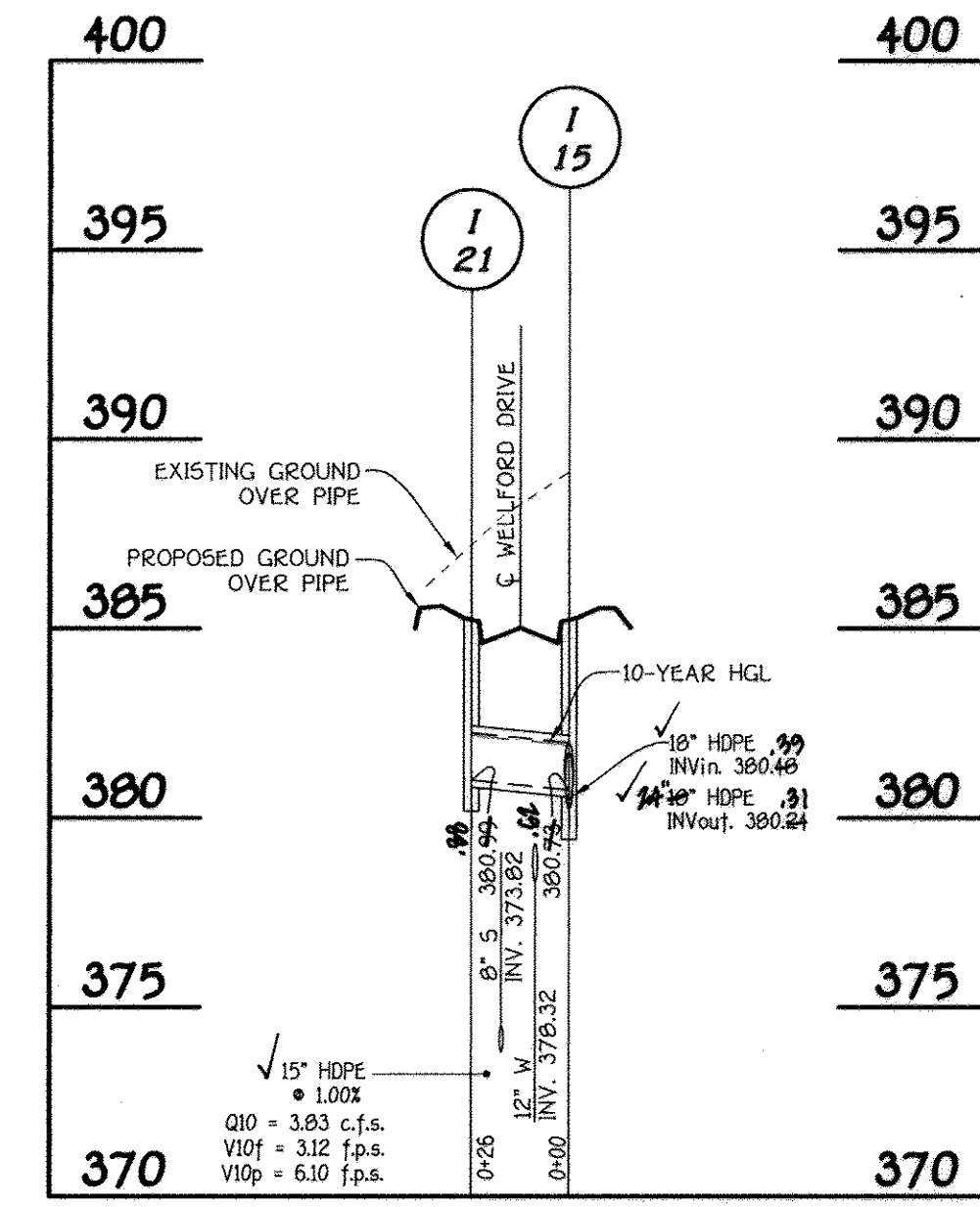
APPROVED: DEPARTMENT OF PUBLIC WORKS		
<i>Holger Seeman</i>	6.10.14	DATE
CHIEF, BUREAU OF HIGHWAYS		
APPROVED: DEPARTMENT OF PLANNING AND ZONING		
<i>Vest Schmalz</i>	6.24.14	DATE
CHIEF, DIVISION OF LAND DEVELOPMENT		
<i>Chad Eshel</i>	6.16.14	DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION		
REVISIONS		
NO.	DESCRIPTION	DATE
1	Revise Title Block	4.3.15
2	Revise Sheet Number to Reflect Added Sheet	10/21/16



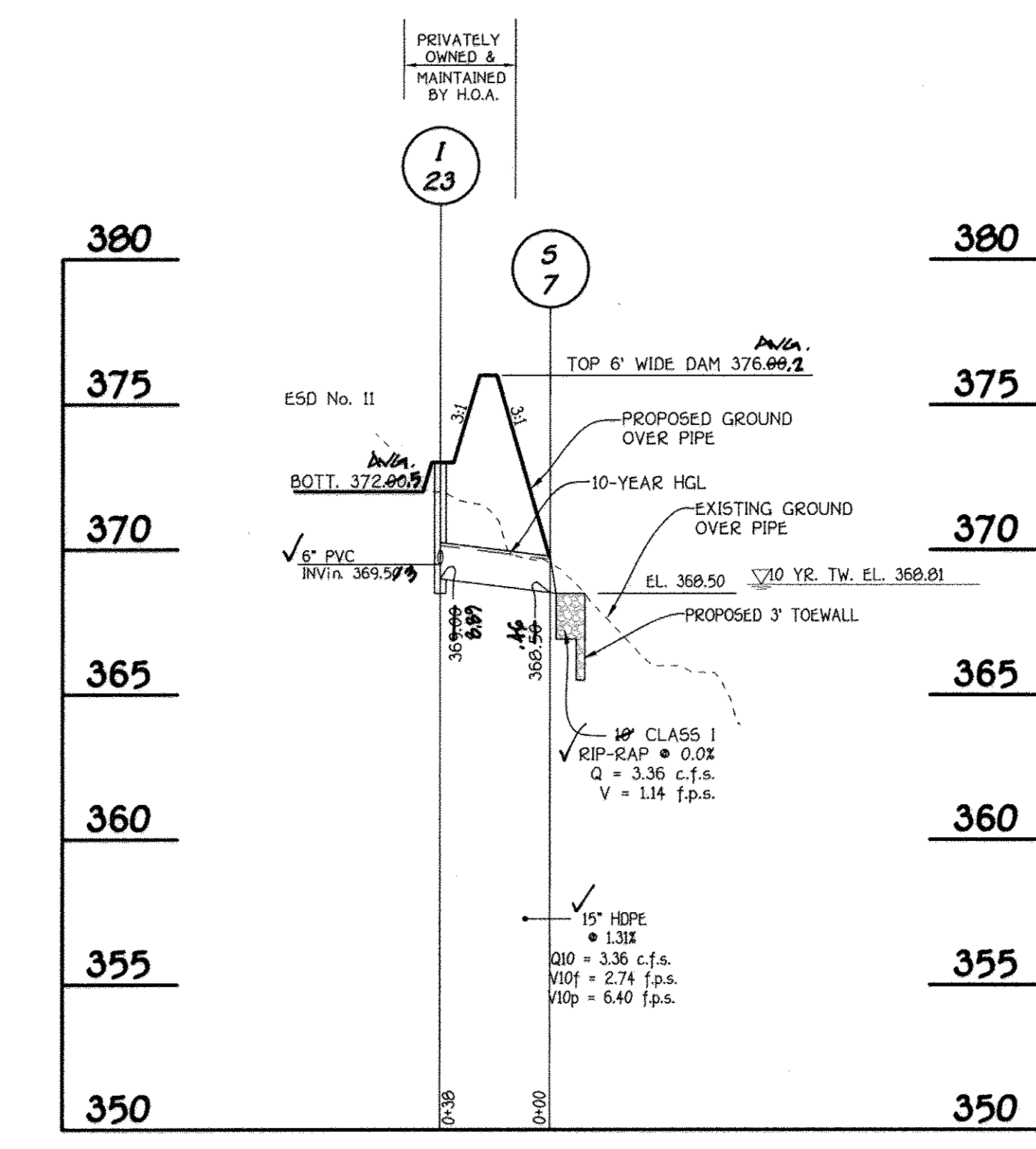
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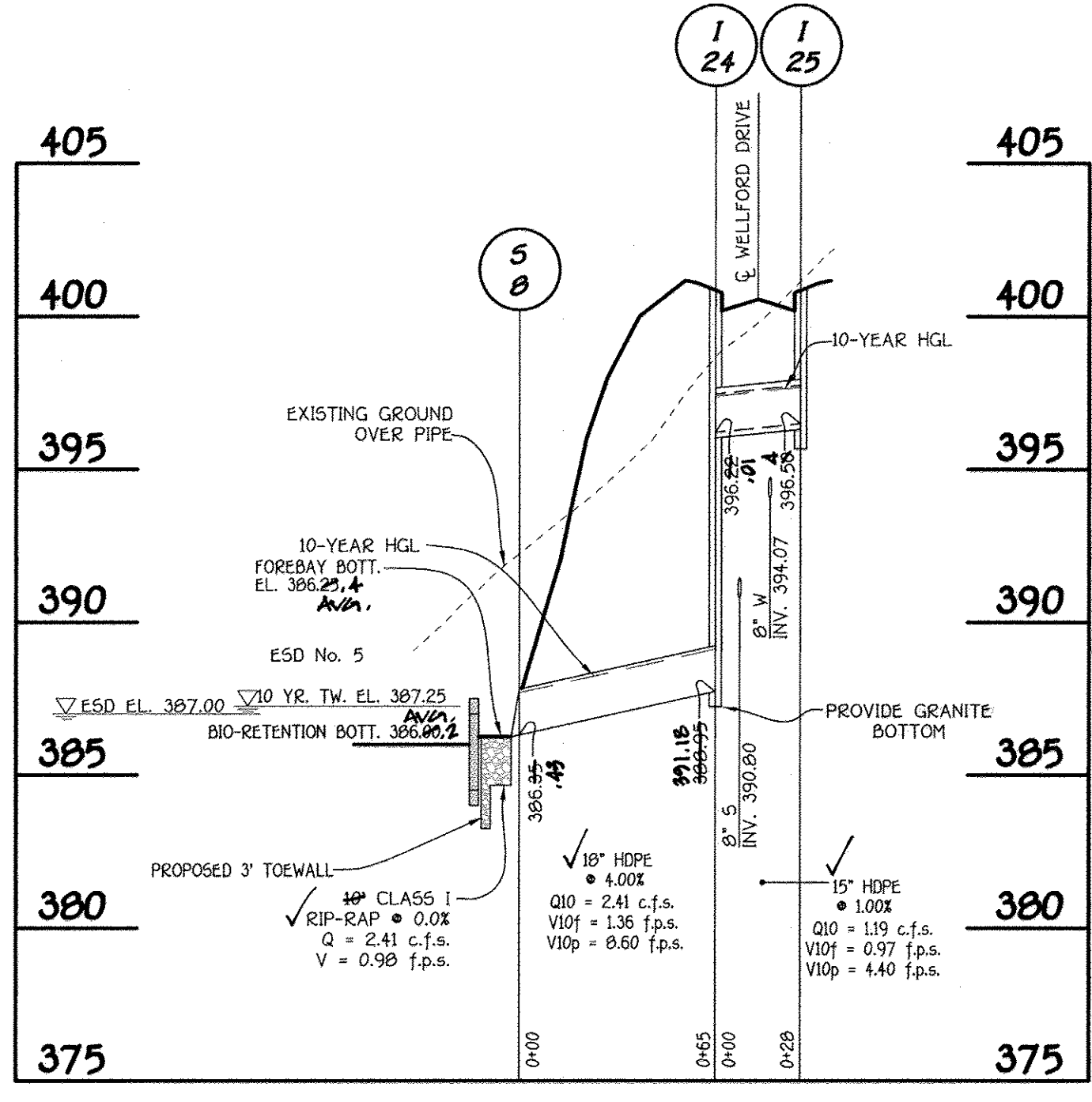
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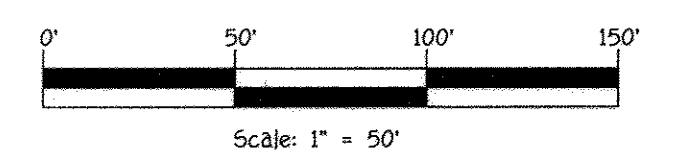
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**PROFILE**  
SCALE: HORIZ. : 1" = 50'  
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**PROFILE**  
SCALE: HORIZ. : 1" = 50'  
VERT. : 1" = 5'



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(410) 461-2855

**OWNER/DEVELOPER**  
BEAZER HOMES CORP  
8955 GUILFORD ROAD  
COLUMBIA, MARYLAND 21046  
(410) 720-5071



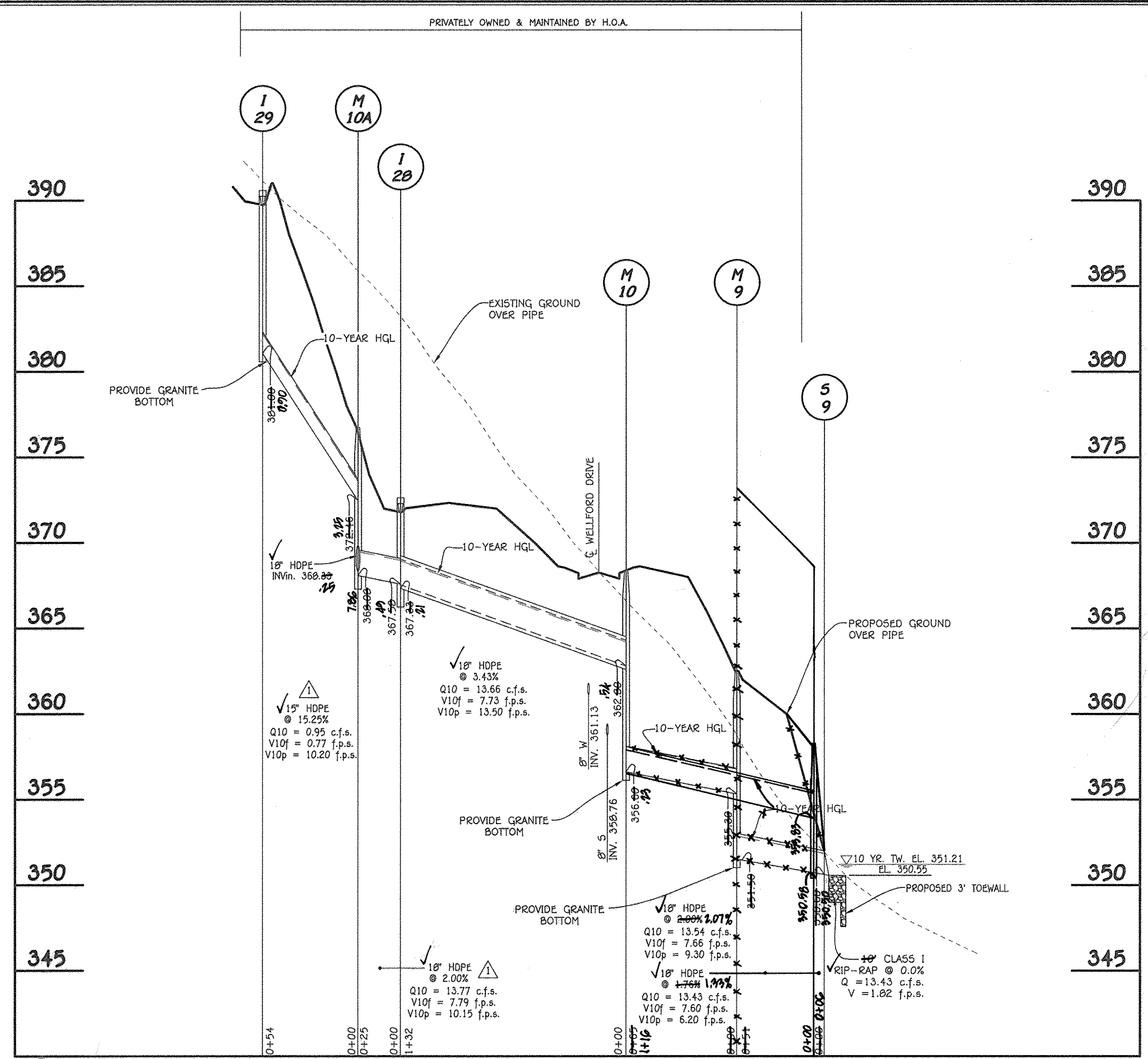
**AS-BUILT CERTIFICATION**  
I hereby certify, by my seal, that the facilities shown on this plan were constructed as shown on this "AS BUILT" plan meet the approved plans and specifications.  
*Charles J. Ordo*  
CHARLES J. ORDO, P.E. NO. 19204  
Date: 2/15/18



ALDO M. VITUCCI, P.E.  
DATE: 2/15/18  
Professional certification I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-15.

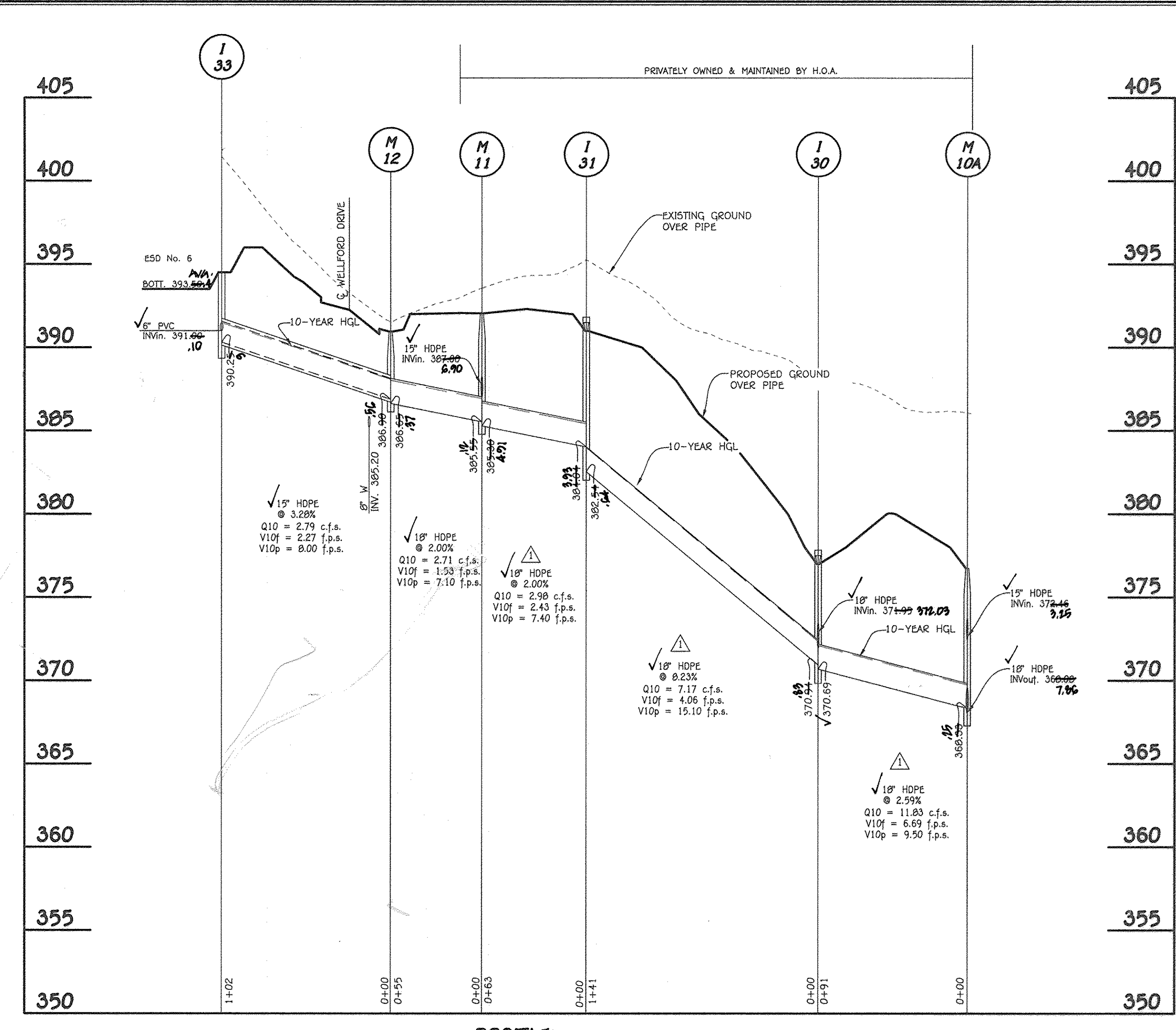
**STORM DRAIN PROFILES**  
**CENTENNIAL LAKE OVERLOOK**  
(FORMERLY MASON PROPERTY)  
**SECTION TWO**  
**BUILDABLE LOTS 99 - 98 B**  
**OPEN SPACE LOTS 99 THRU 112**  
A RESUBDIVISION OF BUILDABLE BULK PARCELS 'A' & 'B'  
ZONING: R-20  
TAX MAP No. 30 GRID No. 2 PARCEL No. 86  
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: MAY 30, 2014  
SHEET 28 OF 40





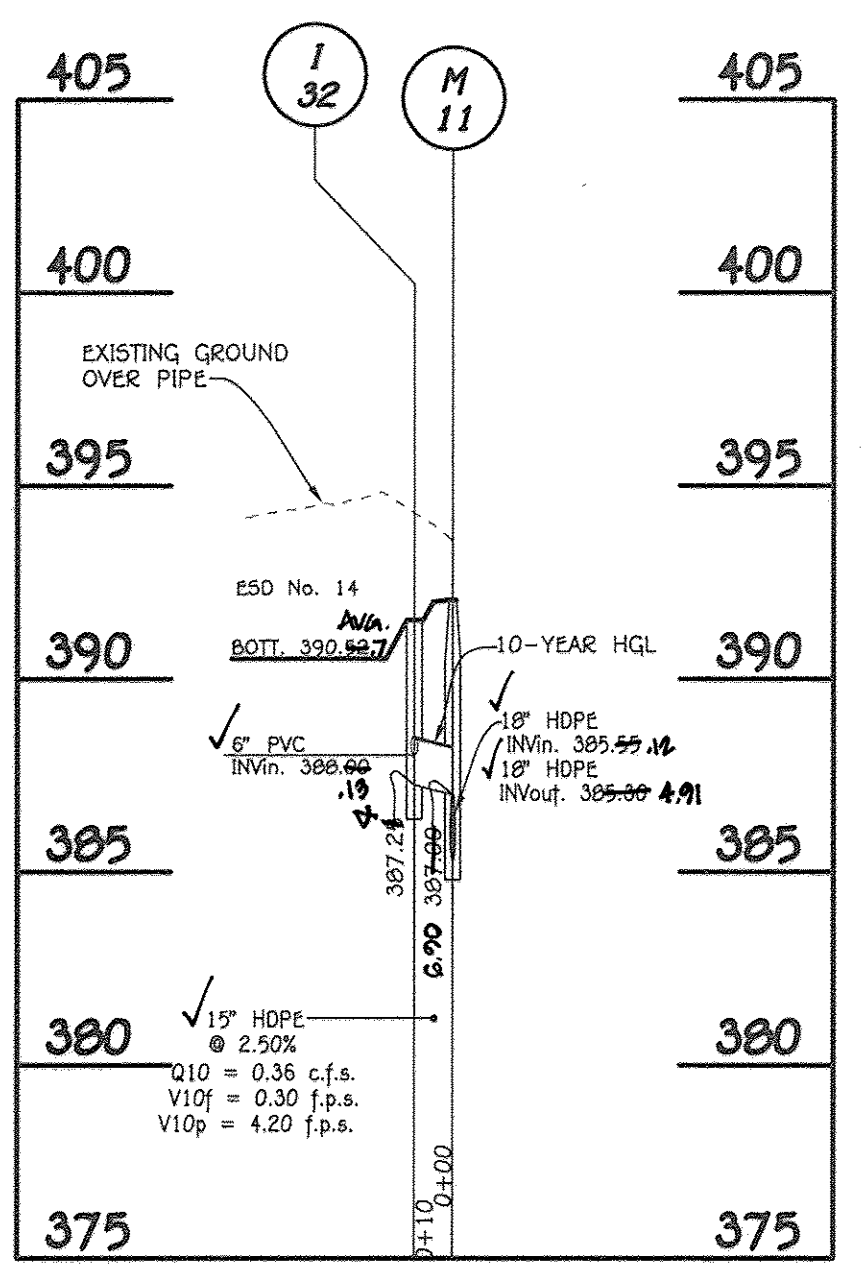
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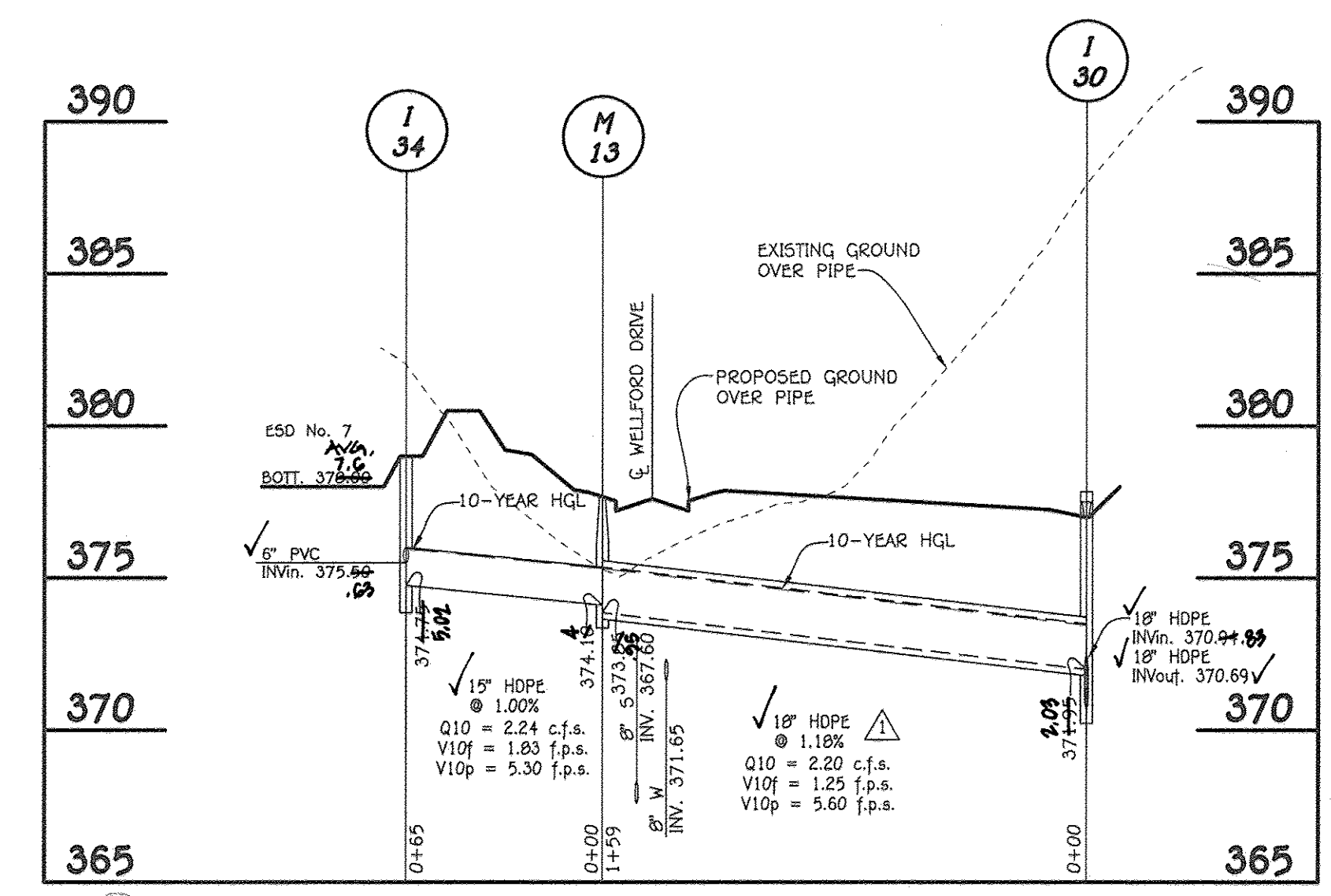
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SCALE: HORIZ. : 1" = 50'  
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**PROFILE**

SCALE: HORIZ. : 1" = 50'  
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**PROFILE**

SCALE: HORIZ. : 1" = 50'  
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APPROVED: DEPARTMENT OF PUBLIC WORKS

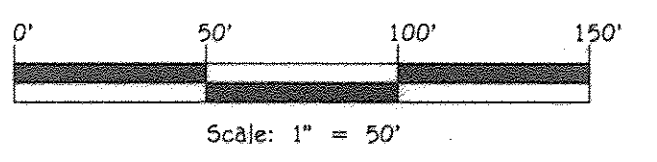
DATE: 4/30/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

DATE: 5/9/15

REVISIONS

NO.	DESCRIPTION	DATE
1	REVISE LOTS, REMOVE PARCEL 'C' AND REVISE STRUCTURE & PIPE SCHEDULE	2/4/15
2	REVISE SHEET NUMBER TO REFLECT ADDED SHEET	10/21/16



**REVISED STORM DRAIN PROFILES**  
**CENTENNIAL LAKE OVERLOOK**  
(FORMERLY MASON PROPERTY)

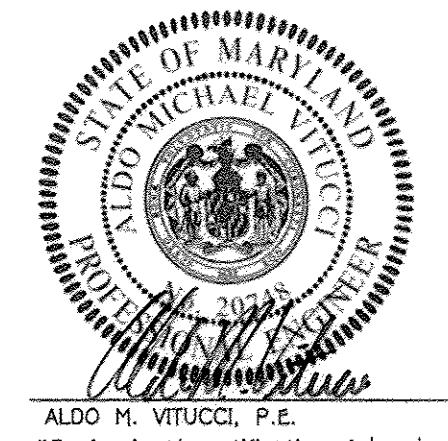
**SECTION TWO**  
**BUILDABLE LOTS 29 - 30**  
**AND OPEN SPACE LOTS 99 THRU 112**  
A RESUBDIVISION OF BUILDABLE BULK PARCELS 'A' & 'B'  
ZONING: R-20  
TAX MAP No. 30 GRID No. 2 PARCEL No. 85  
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: APRIL 3, 2015  
SHEET 29 OF 40

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CENTENNIAL SQUARE OFFICE PARK - 10772 BALTIMORE NATIONAL PIKE  
ELLSWORTH CITY, MARYLAND 21046  
(410) 461-2295

**OWNER/DEVELOPER**  
BEAZER HOMES CORP  
8965 GUILFORD ROAD  
COLUMBIA, MARYLAND 21046  
(410) 720-5071



**AS-BUILT CERTIFICATION**  
I hereby certify, by my seal, that the facilities shown on this plan were constructed as shown on this "AS BUILT" plan meet the approved plans and specifications.  
Date: 2/15/18  
CHARLES J. BEAZER, No. 19104

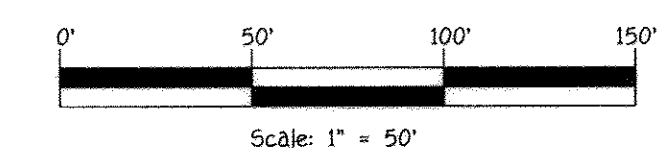
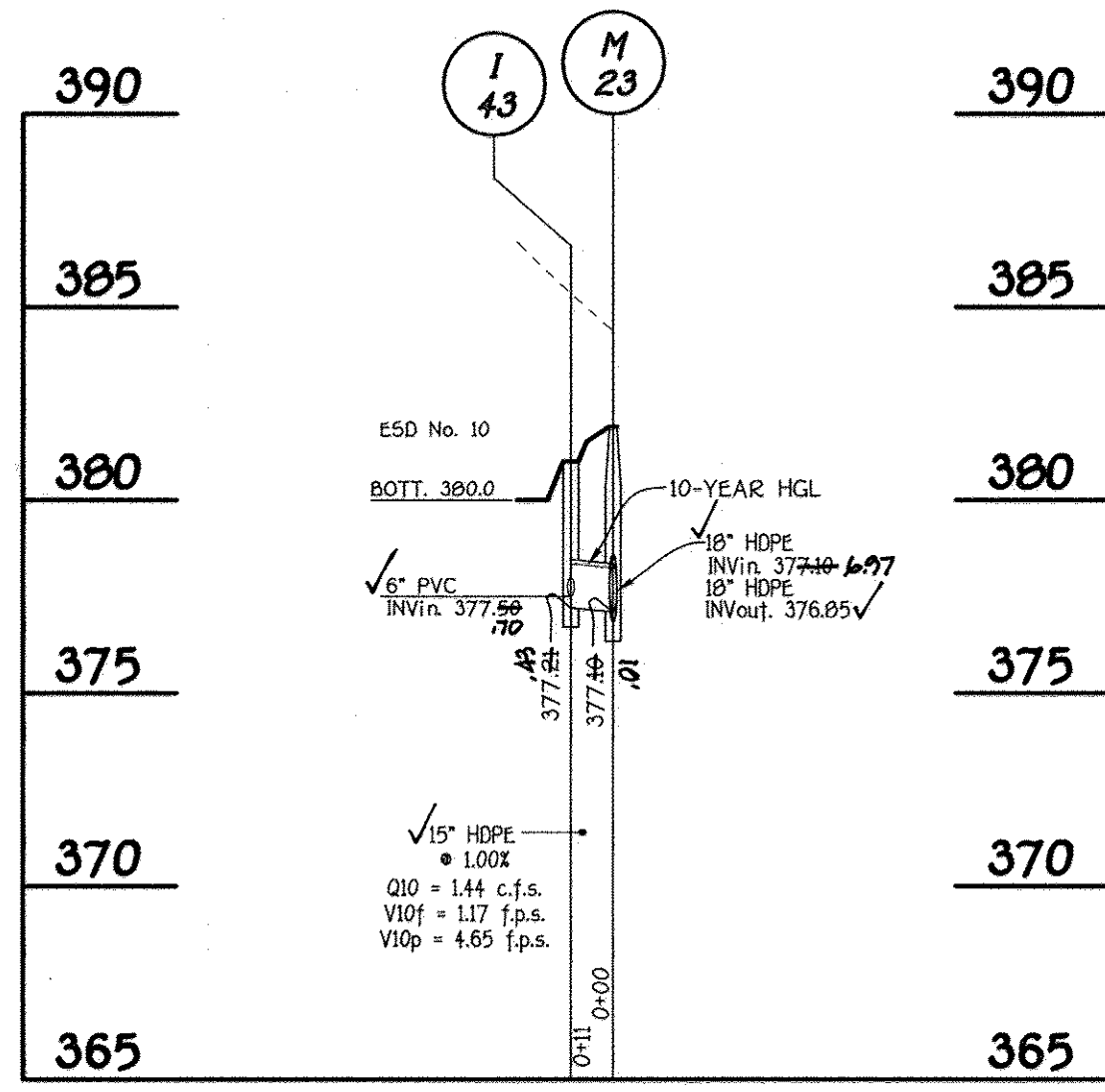
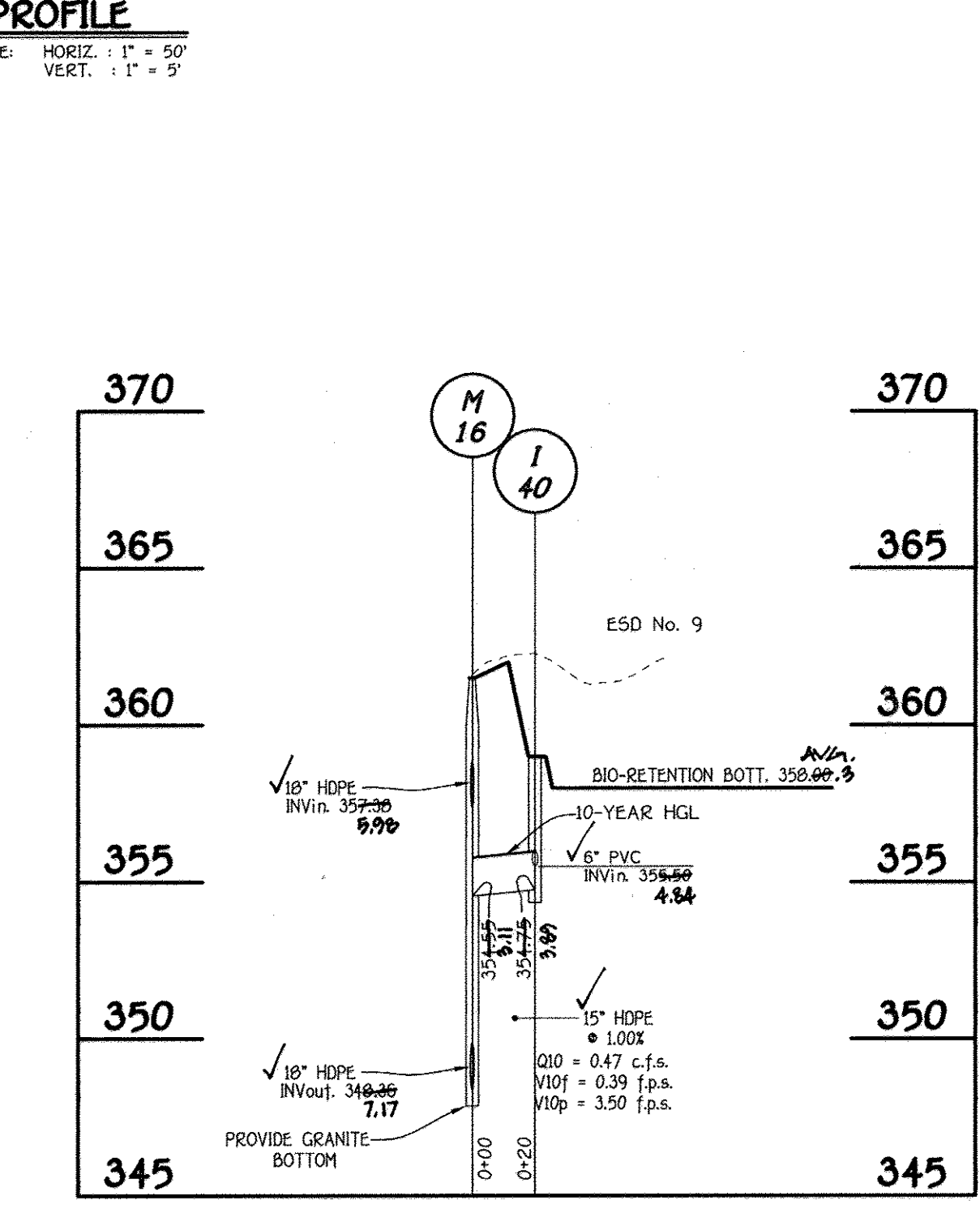
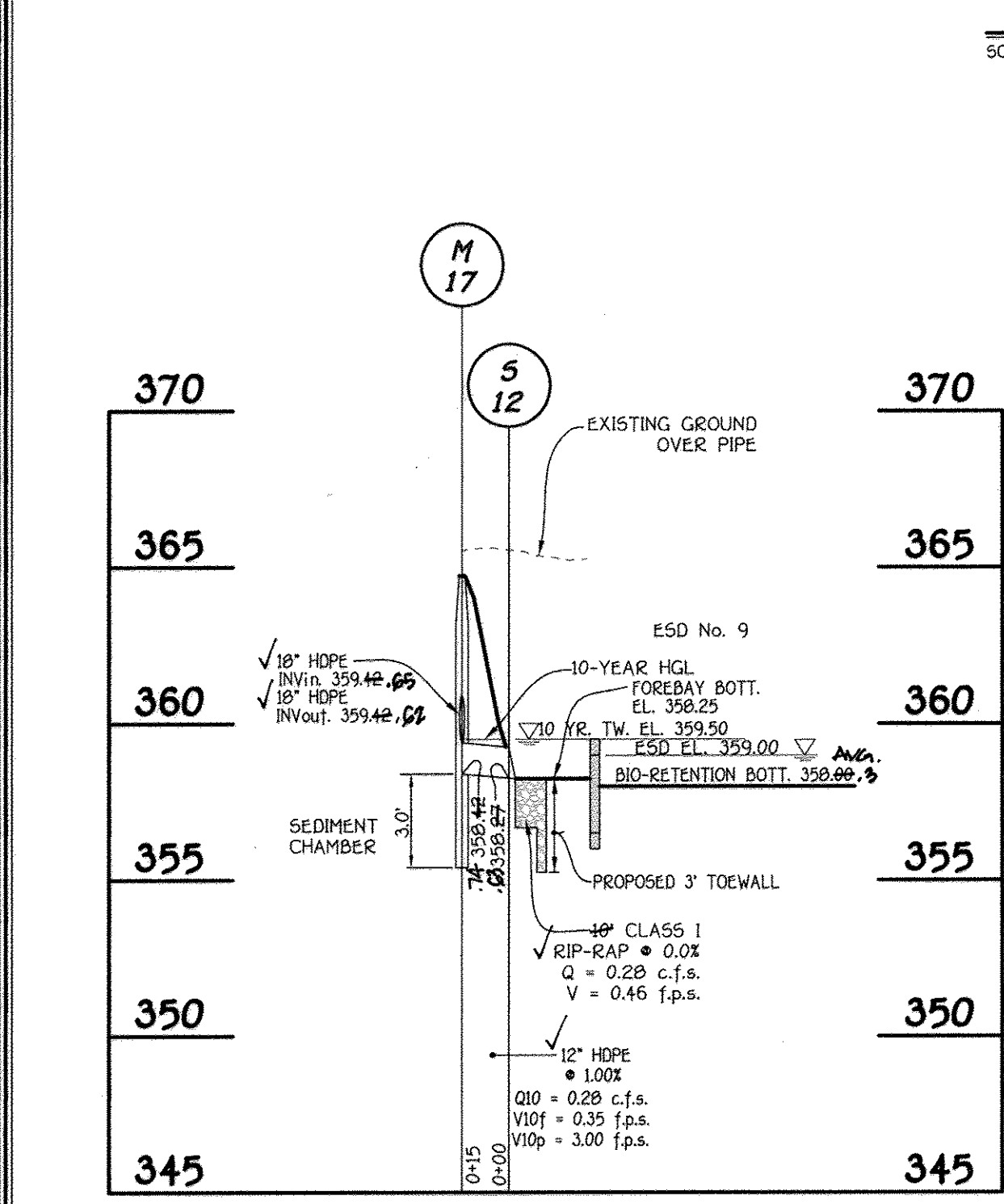
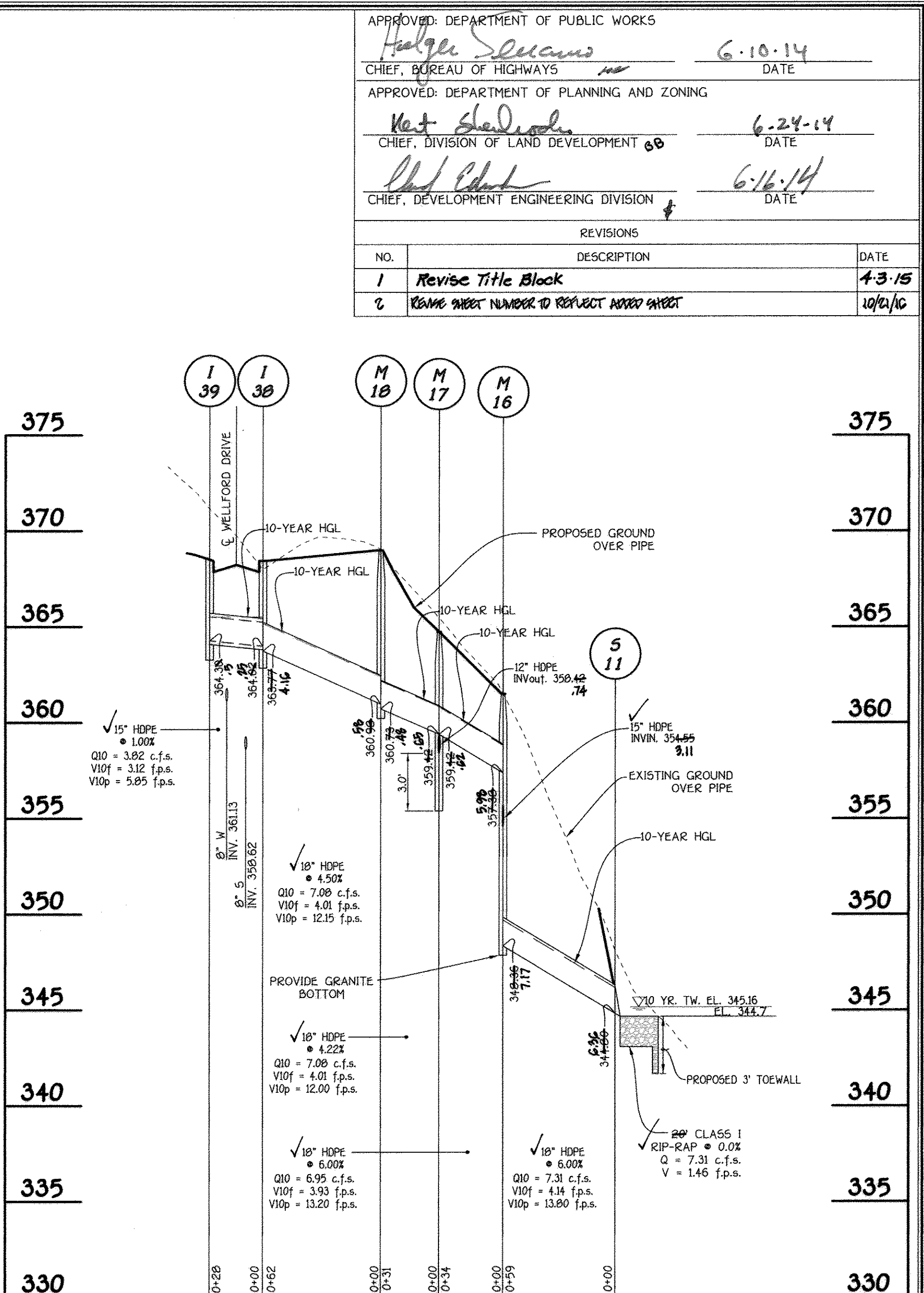
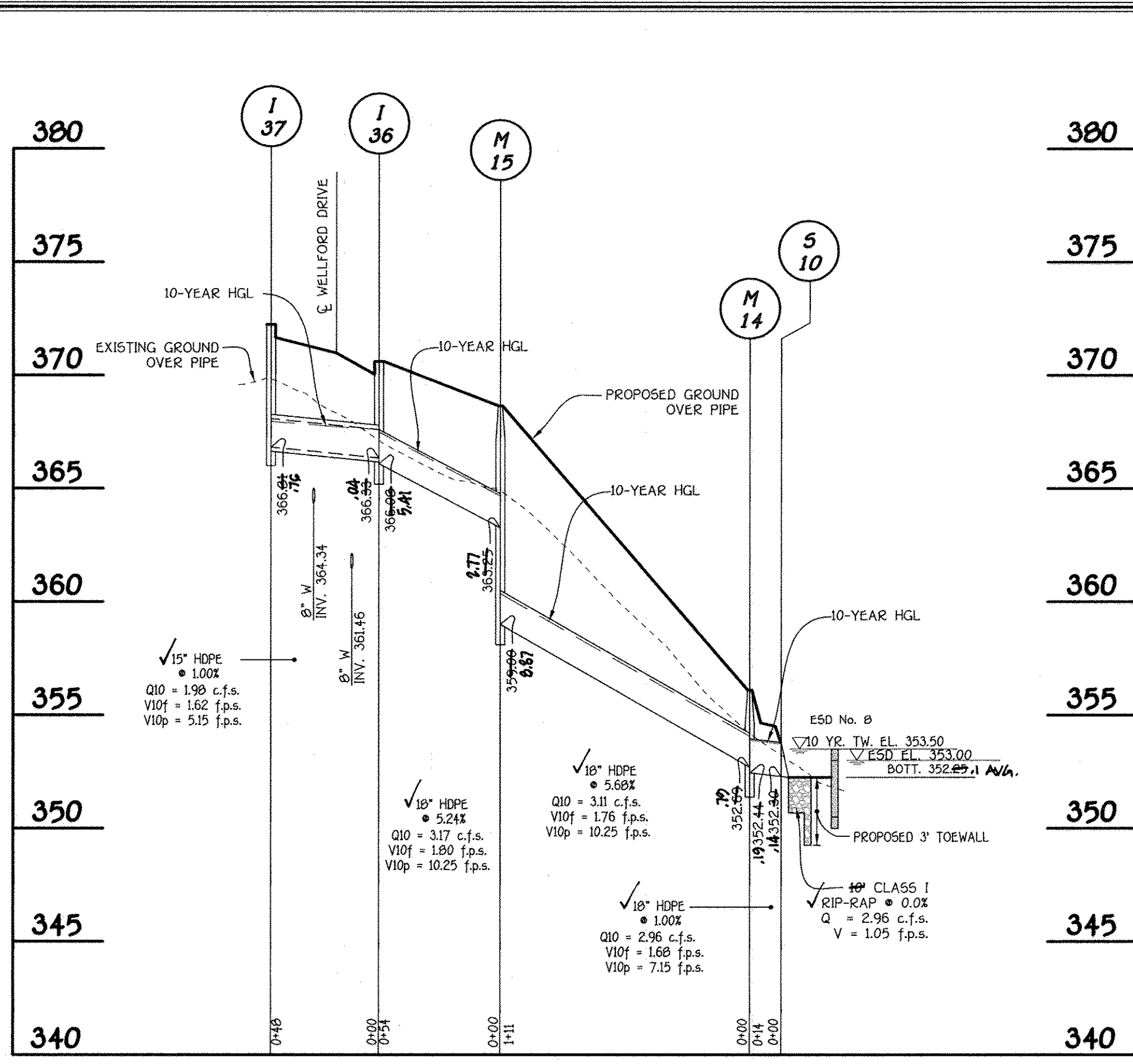
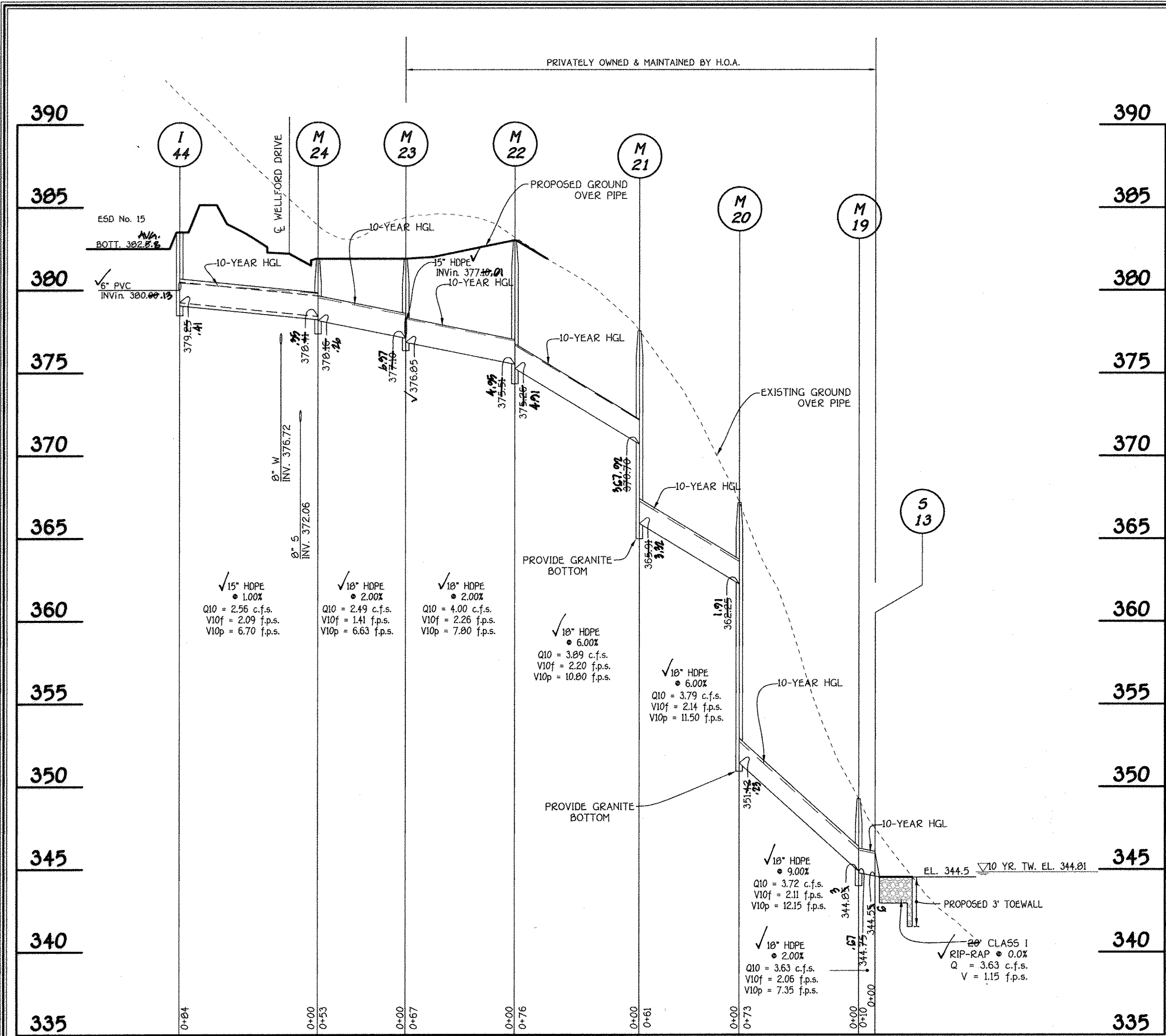


ALDO M. VITUCCI, P.E.  
DATE: 2/15/18

"Professional certification, I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20710, Expiration Date 2-22-17."



APPROVED: DEPARTMENT OF PUBLIC WORKS		
Healge Seaman		6-10-14
CHIEF, BUREAU OF HIGHWAYS		DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING		
Karl Stedman		6-24-14
CHIEF, DIVISION OF LAND DEVELOPMENT		DATE
Chris Clark		6-16-14
CHIEF, DEVELOPMENT ENGINEERING DIVISION		DATE
REVISIONS		
NO.	DESCRIPTION	DATE
1	Revise Title Block	4-3-15
2	REMOVE SHEET NUMBER TO REFLECT ADDED SHEET	10/2/16



**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTENNIAL SQUARE OFFICE PARK - 10772 BALTIMORE NATIONAL PIKE  
 ELLICOTT CITY, MARYLAND 21044  
 (410) 481-2855

**OWNER/DEVELOPER**  
 BEAZER HOMES CORP  
 8965 GULLFORD ROAD  
 COLUMBIA, MARYLAND 21046  
 (410) 720-5073



**AS-BUILT CERTIFICATION**  
 I hereby certify, by my seal, that the facilities shown on this plan were constructed as shown on this "AS BUILT" plan meet the approved plans and specifications.  
 Date: 10/15/16



**DATE**  
 Aldo H. Vitucci, P.E.  
 Professional certification I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 22748, Expiration Date 2-22-15"

**STORM DRAIN PROFILES**  
**CENTENNIAL LAKE OVERLOOK**  
 (FORMERLY MASON PROPERTY)  
**SECTION TWO**  
**BUILDABLE LOTS 29 - 98 &**  
**OPEN SPACE LOTS 99 THRU 112**  
 A RESUBDIVISION OF BUILDABLE BULK PARCELS 'A' & 'B'  
 ZONING: R-20 PARCEL No. 86  
 TAX MAP No. 30 GRID No. 2  
 2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN DATE: MAY 30, 2014  
 SHEET 30 OF 40

AS-BUILT F-14-081







APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Holger Serrano* 6.10.14  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*V. J. Stanek* 6.24.14  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Phil Egan* 6.16.14  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

REVISIONS		
NO.	DESCRIPTION	DATE
1	Revise Title Block	4-3-15
2	CHANGE SHEET NUMBER TO REFLECT APPROPRIATE	10/2/16

**GENERAL NOTES**

**SPECIFICATIONS:** SHA SPECIFICATIONS DATED JANUARY, 2001, REVISIONS THEREOF AND ADDITION THERETO AND SPECIAL PROVISIONS FOR MATERIALS AND CONSTRUCTION.

HOWARD COUNTY STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (VOLUME IV DESIGN MANUAL).

AASHTO SPECIFICATIONS FOR HIGHWAY BRIDGES DATED 2002. FOR DESIGN, DIVISION I, SECTION 17.

**LOADING:** HS-27 AND MD TYPE 3 TRUCK.

**CONCRETE:** ALL PRECAST CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,500 PSI AT 28 DAYS. ALL CAST-IN-PLACE CONCRETE SHALL BE MIX NO. 3 (3,500 PSI).

**REINFORCING STEEL:** REINFORCING STEEL SHALL CONFORM TO ASTM A-615, GRADE 60. ALL SPLICES NOT SHOWN SHALL BE LAPPED AS PER BAR LAP CHARTS. MINIMUM COVER FOR ANY BAR SHALL BE 2", UNLESS OTHERWISE NOTED. THE BOTTOM AND SIDES OF ALL FOOTINGS SHALL HAVE 3" MINIMUM COVER.

FOR TIES AND STIRRUPS; STANDARD ACI BENDING TOLERANCES ARE MODIFIED TO PLUS (+) ZERO INCHES, MINUS (-) NORMAL ACI BENDING TOLERANCES.

ONLY GRADE 60 CAN BE USED ON THIS PROJECT.

**KEYS:** ALL KEYS NOMINAL SIZE.

**PRECAST CULVERT DESIGN:** SHOULD THE CONTRACTOR SUBMIT AN ALTERNATE PRECAST CULVERT, THE DESIGN AND DETAILS OF THE ALTERNATE PRECAST CULVERT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND ARE SUBJECT TO REVIEW, COMMENTS AND APPROVAL BY THE ENGINEER. SUBMIT TWO SETS OF DETAILED PLANS FOR REVIEW. INCLUDE ALL DETAILS IN THE PLANS, INCLUDING THE SIZE AND SPACING OF THE REQUIRED REINFORCEMENT NECESSARY TO BUILD THE PRECAST BOX CULVERT. INCLUDE CHECKED DESIGN CALCULATIONS FOR THE PRECAST MEMBERS COMPLYING WITH THE LATEST AASHTO STANDARD SPECIFICATIONS AND REQUIREMENTS DETAILED HEREIN. HAVE A MARYLAND REGISTERED PROFESSIONAL ENGINEER CHECK AND SEAL THE PLANS AND DESIGN CALCULATIONS. AFTER THE PLANS ARE REVIEWED AND, IF NECESSARY, THE CORRECTIONS MADE, SUBMIT ONE SET OF REPRODUCIBLE TRACINGS ON FULL SIZE SHEETS TO BECOME THE REVISED CONTRACT PLANS.

**JOINTS BETWEEN PRECAST UNITS:** PRODUCE THE PRECAST REINFORCED CONCRETE BOX SECTIONS WITH MALE AND FEMALE ENDS. DESIGN AND FORM THESE ENDS OF THE BOX SECTION SO, WHEN THE SECTIONS ARE LAID TOGETHER, THEY MAKE A CONTINUOUS LINE OF BOX SECTIONS WITH A SMOOTH INTERIOR FREE OF APPRECIABLE IRREGULARITIES IN THE FLOWLINE. THE INTERNAL JOINT FORMED AT THE MALE AND FEMALE ENDS OF THE PRECAST UNITS SHALL BE SEALED WITH EITHER BITUMEN/BUTYL SEALANT OR CLOSED-CELL NEOPRENE MATERIAL. THE INTERNAL JOINT MATERIAL SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. THE MATERIAL SHALL BE SHOWN ON THE SHOP DRAWINGS WHEN THEY ARE SUBMITTED FOR REVIEW.

SEAL THE EXTERNAL JOINT WITH AN OUTSIDE SEALER WRAP THAT IS AT LEAST 12 INCHES (300 MM) WIDE AND COVERS THE JOINT ON BOTH SIDES AND THE TOP OF THE BOX SECTION. USE CONWRAP CS-212 FROM CONCRETE SEALANTS, INC., E2-WRAP FROM PRESS-SEAL GASKET CORPORATION, SEAL WRAP FROM MAR-MAC MANUFACTURING CO., INC., CADILLOC EXTERNAL PIPE JOINT FROM CADILLOC, OR AN APPROVED EQUAL FOR THE OUTSIDE SEALER WRAP. PLACE SEALER WRAP ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

FOR HYDROLOGIC AND HYDRAULIC DATA, SEE CIVIL DRAWINGS.

WORKING POINT COORDINATES

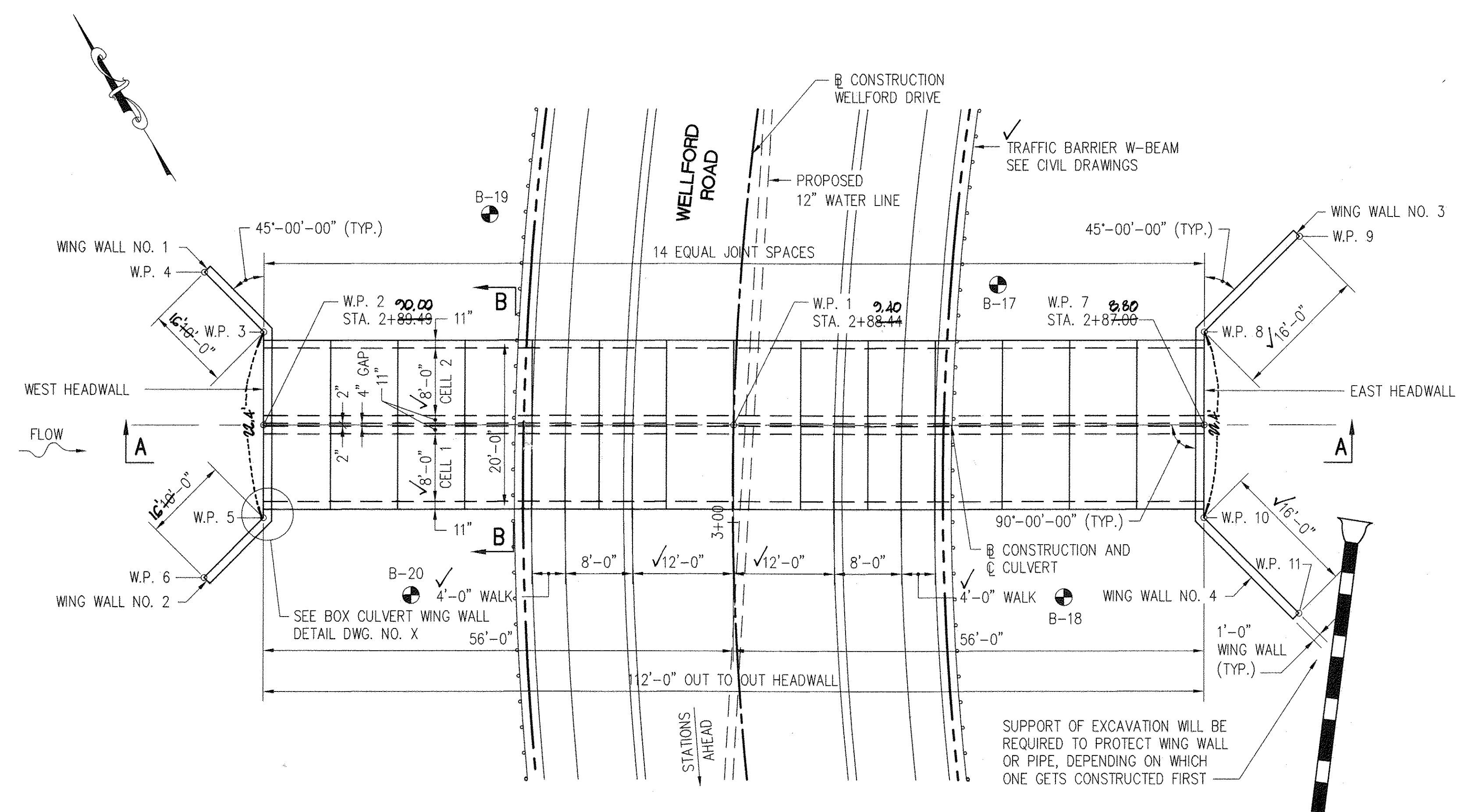
WORKING POINTS	NORTHING	EASTING
W.P. 1	575,353.8467	1,354,726.1583
W.P. 2	575,383.3528	1,354,678.5624
W.P. 3	575,392.7020	1,354,684.3584
W.P. 4	575,402.4376	1,354,682.0741
W.P. 5	575,374.0036	1,354,672.7665
W.P. 6	575,371.7194	1,354,663.0309
W.P. 7	575,324.3405	1,354,773.7545
W.P. 8	575,333.6897	1,354,779.5504
W.P. 9	575,337.3444	1,354,795.1274
W.P. 10	575,314.9912	1,354,767.9587
W.P. 11	575,299.4142	1,354,771.6134

AS-BUILT CERTIFICATION

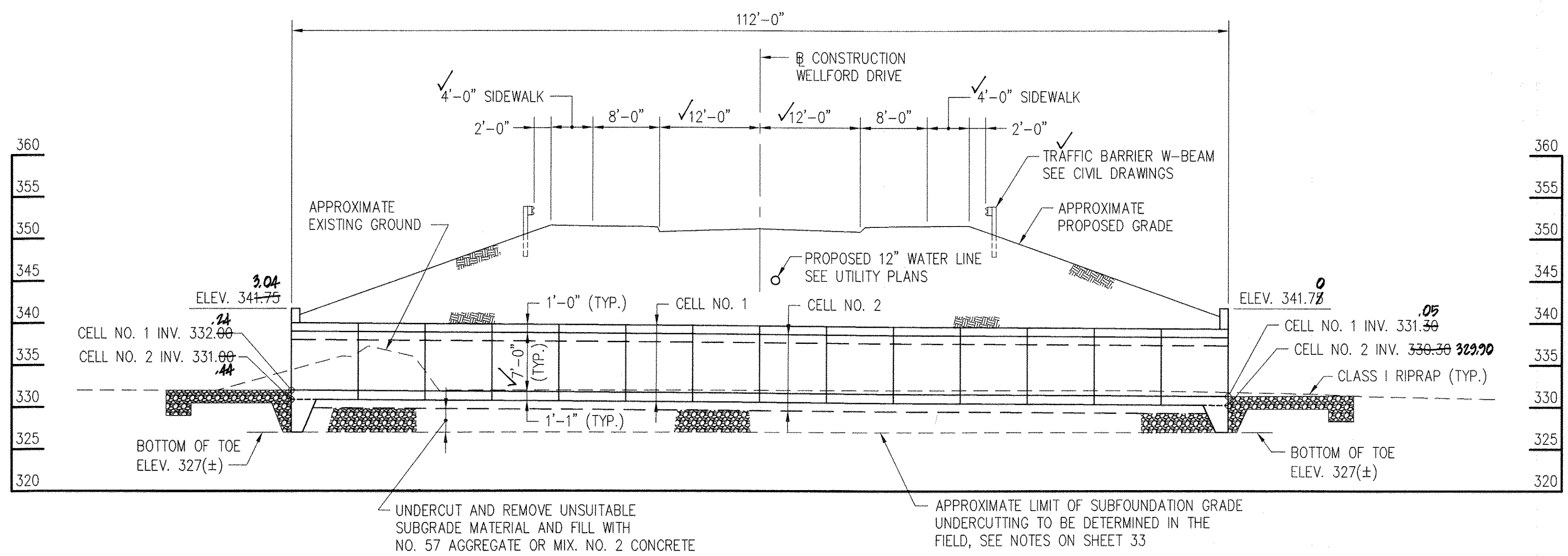
I hereby certify, by my seal, that the facilities shown on this plan were constructed as shown on this "AS BUILT" plan meet the approved plans and specifications.

*Charles J. D'Amico, P.E.* 2/15/18  
 DATE

CHARLES J. D'AMICO, P.E. NO. 12204  
 PAPER, COLLINS & CARTER, INC.



**GENERAL PLAN**  
 SCALE: 1" = 10'



**SECTION A-A**  
 (CELL NO. 1 SHOWN)  
 (CELL NO. 2 BEYOND)  
 SCALE: 1" = 10'

NOTE:  
 EXISTING CULVERT, HEADWALLS, UTILITY POLES AND OVERHEAD LINES (NOT SHOWN FOR CLARITY), SHALL BE REMOVED PRIOR TO BEGINNING NEW CULVERT EXCAVATION AND CONSTRUCTION. SEE CIVIL DRAWINGS.

**GREENMAN-PEDERSEN, INC.**  
 ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS  
 10977 GUILFORD ROAD ANNAPOLIS JUNCTION, MD 20701  
 WASH. (301) 470-2772 BALT. (410) 880-3055  
 FAX: (301) 490-2649 www.gpinet.com

**OWNER/DEVELOPER**  
 BEAZER HOMES CORP.  
 8005 GUILFORD ROAD  
 COLUMBIA, MARYLAND 21046  
 (410-720-9071)

REVISIONS		
NO.	DESCRIPTION	DATE
1	ADDED TRAFFIC BARRIER AND UTILITY REFERENCES	5/20/14

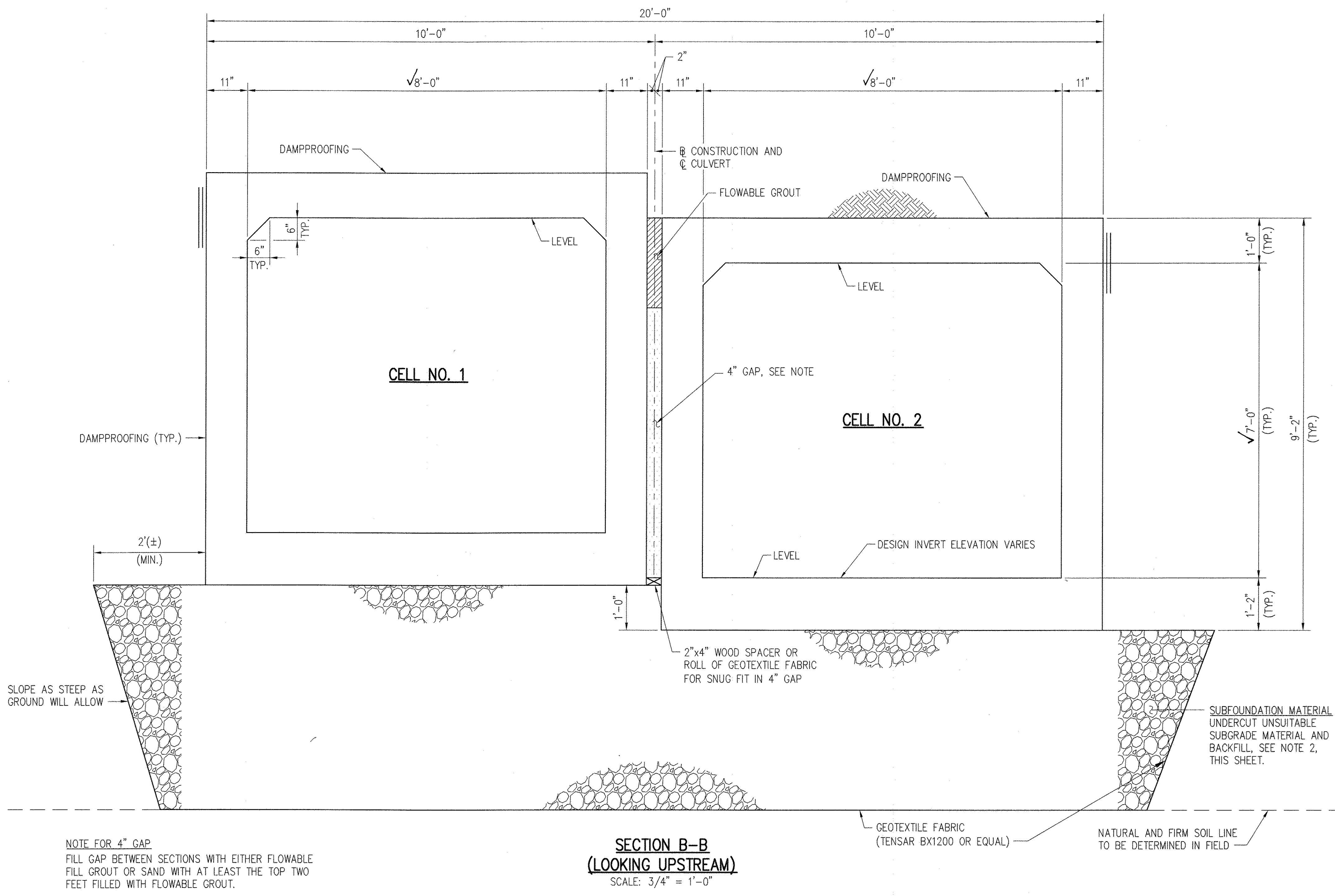
*Charles S. Nolan, P.E.*  
 PROFESSIONAL ENGINEER

DATE: 1/7/14  
 "Professional certification. I hereby certify that these documents are prepared or approved by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 15212, Expiration Date 12-24-14."

GENERAL PLAN AND CULVERT PROFILE  
**CENTENNIAL LAKE OVERLOOK**  
 (FORMERLY MASON PROPERTY)  
 SECTION TWO  
 BUILDABLE LOTS 29 - 98 &  
 OPEN SPACE LOTS 99 THRU 112  
 A RESUBDIVISION OF BUILDABLE BULK PARCELS 'A' & 'B'  
 ZONING: R-20  
 TAX MAP NO. 30 GRID NO. 2 PARCEL NO. 86  
 2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN DATE: MARCH 10, 2014  
 SHEET 32 OF 40



APPROVED: DEPARTMENT OF PUBLIC WORKS	<i>Holger Seccano</i>	6-10-14
CHIEF, BUREAU OF HIGHWAYS		DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING	<i>K. J. Seidman</i>	6-24-14
CHIEF, DIVISION OF LAND DEVELOPMENT		DATE
APPROVED: DEPARTMENT OF ENGINEERING	<i>David E. Clark</i>	6-16-14
CHIEF, DEVELOPMENT ENGINEERING DIVISION		DATE
REVISIONS		
NO.	DESCRIPTION	DATE
1	Revise Title Block	4-3-15



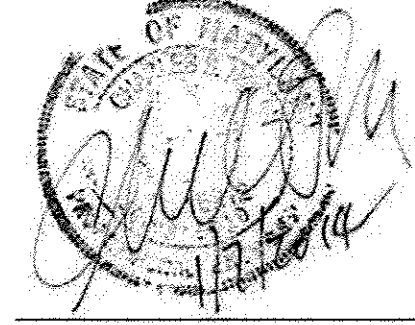
SLOPE AS STEEP AS GROUND WILL ALLOW

NOTE FOR 4" GAP  
FILL GAP BETWEEN SECTIONS WITH EITHER FLOWABLE GROUT OR SAND WITH AT LEAST THE TOP TWO FEET FILLED WITH FLOWABLE GROUT.

SECTION B-B  
(LOOKING UPSTREAM)  
SCALE: 3/4" = 1'-0"

- NOTES:
1. THE BOX CULVERT AND WING WALLS HAVE BEEN DESIGNED FOR A MAXIMUM BEARING PRESSURE OF 3,200 LBS/SQ. FT. VERIFICATION OF ADEQUATE BEARING CAPACITY WILL BE REQUIRED BY A GEOTECHNICAL ENGINEER PRIOR TO INSTALLING CULVERTS. THE FOLLOWING LATERAL PRESSURE PARAMETERS WERE USED FOR DESIGN THE CULVERT:  
EQUIVALENT FLUID PRESSURE: 45 (H) PSF FOR CULVERT AND 42 (H) PSF FOR WING WALLS, WHERE H IS THE HEIGHT OF THE PORTION OF WALL RETAINING SOIL IN FEET.
  2. BASED ON THE "GEOTECHNICAL ENGINEERING STUDY" DATED SEPTEMBER 4, 2012 IT IS ANTICIPATED THAT SIGNIFICANT DEWATERING WILL BE REQUIRED AND THAT UNSUITABLE MATERIALS REQUIRING MODIFICATION OR REMOVAL WILL BE ENCOUNTERED AT OR NEAR FOUNDATION BEARING LEVELS. AS DEEMED NECESSARY BY THE ENGINEER, WHERE SOFT OR LOOSE MATERIAL IS ENCOUNTERED IN THE FOOTING EXCAVATIONS, THE UNSUITABLE MATERIALS SHOULD BE REMOVED AND REPLACED WITH LEAN (2000 PSI) CONCRETE OR WITH A CLEAN, WASHED #57 STONE OR OTHER APPROVED FREELY DRAINING COARSE-GRANULAR MATERIAL BACK TO THE PROPOSED CULVERT BEARING LEVEL.
  3. IF THE LIMIT OF UNDER CUTTING OF UNSUITABLE MATERIAL IS LESS THAN 3'-0" FROM THE LOWEST CULVERT INVERT ELEVATION THE INVERT TOE WALL AND BOTTOM OF ADJACENT WING WALL FOOTING SHALL BE SET 3'-0" FROM THE LOWEST INVERT ELEVATION AT EACH END OF CULVERT CELL NO. 2.
  4. FOR BORINGS, BACKFILL REQUIREMENTS AND MATERIALS AROUND THE CULVERT, ADDITIONAL CONSTRUCTION CONSIDERATIONS INCLUDING SITE PREPARATION DETERMINATION AND/OR CLASSIFICATION OF SUITABLE BACKFILL MATERIAL, REFER TO "GEOTECHNICAL ENGINEERING STUDY" DATED SEPTEMBER 4, 2012 AS COMPLETED BY HILLS-CARNES ENGINEERING ASSOCIATES, INC.
  5. REINFORCEMENT NOT SHOWN. SEE SHEET 34 FOR DETAILS OF REINFORCEMENT.

AS-BUILT CERTIFICATION  
I hereby certify, by my seal, that the facilities shown on this plan were constructed as shown on this "AS BUILT" plan meet the approved plans and specifications.  
*Charles S. Nolan*  
CHARLES S. NOLAN, P.E., NO. 19824  
DATE: 2/15/18  
HARRIS, COLLINS & CHASE, INC.



REVISIONS		
NO.	DESCRIPTION	DATE
1	ADDED CONSTRUCTION RELATED NOTES	5/20/14
2	REVISE SHEET NUMBER TO REFLECT ADDED SHEET	10/21/16

OWNER/DEVELOPER  
WENZEL HANSEN CORP.  
8925 GUILFORD ROAD  
COLUMBIA, MARYLAND 21046  
(410-720-5071)

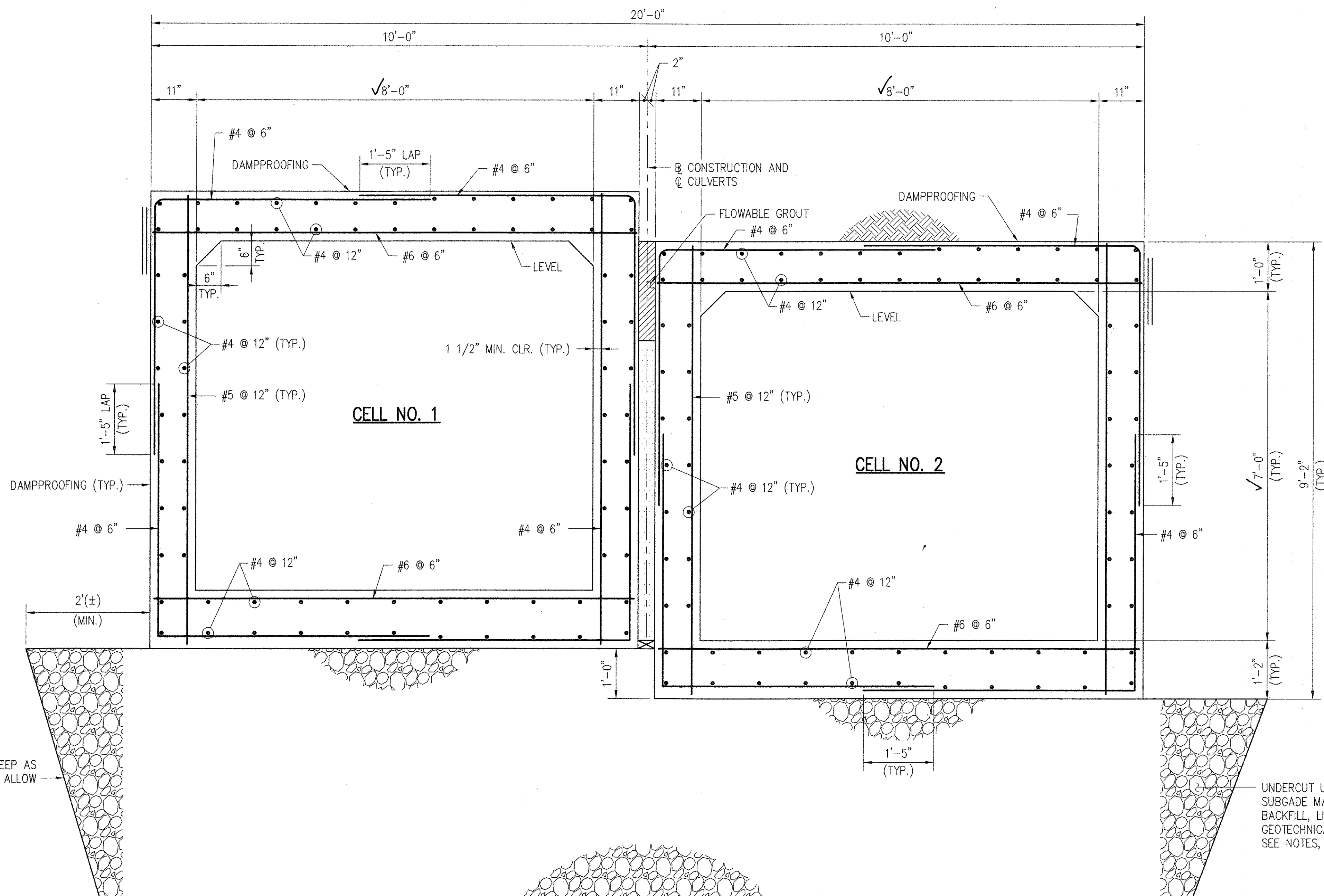
GREENMAN-PEDERSEN, INC.  
ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS  
10977 GUILFORD ROAD ANNAPOLIS JUNCTION, MD 20701  
WASH. (301) 470-2772 BALT. (410) 880-3055  
FAX: (301) 490-2849 www.gpinet.com

TYPICAL CULVERT SECTION  
CENTENNIAL LAKE OVERLOOK  
(FORMERLY MASON PROPERTY)  
SECTION TWO  
BUILDABLE LOTS 29 - 98 &  
OPEN SPACE LOTS 99 - 112  
A RESUBDIVISION OF BUILDABLE BULK PARCELS 'A' & 'B'  
ZONING: R-20  
TAX MAP No. 30 GRID No. 2 PARCEL No. 86  
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: MARCH 10, 2014  
SHEET 33 OF 40

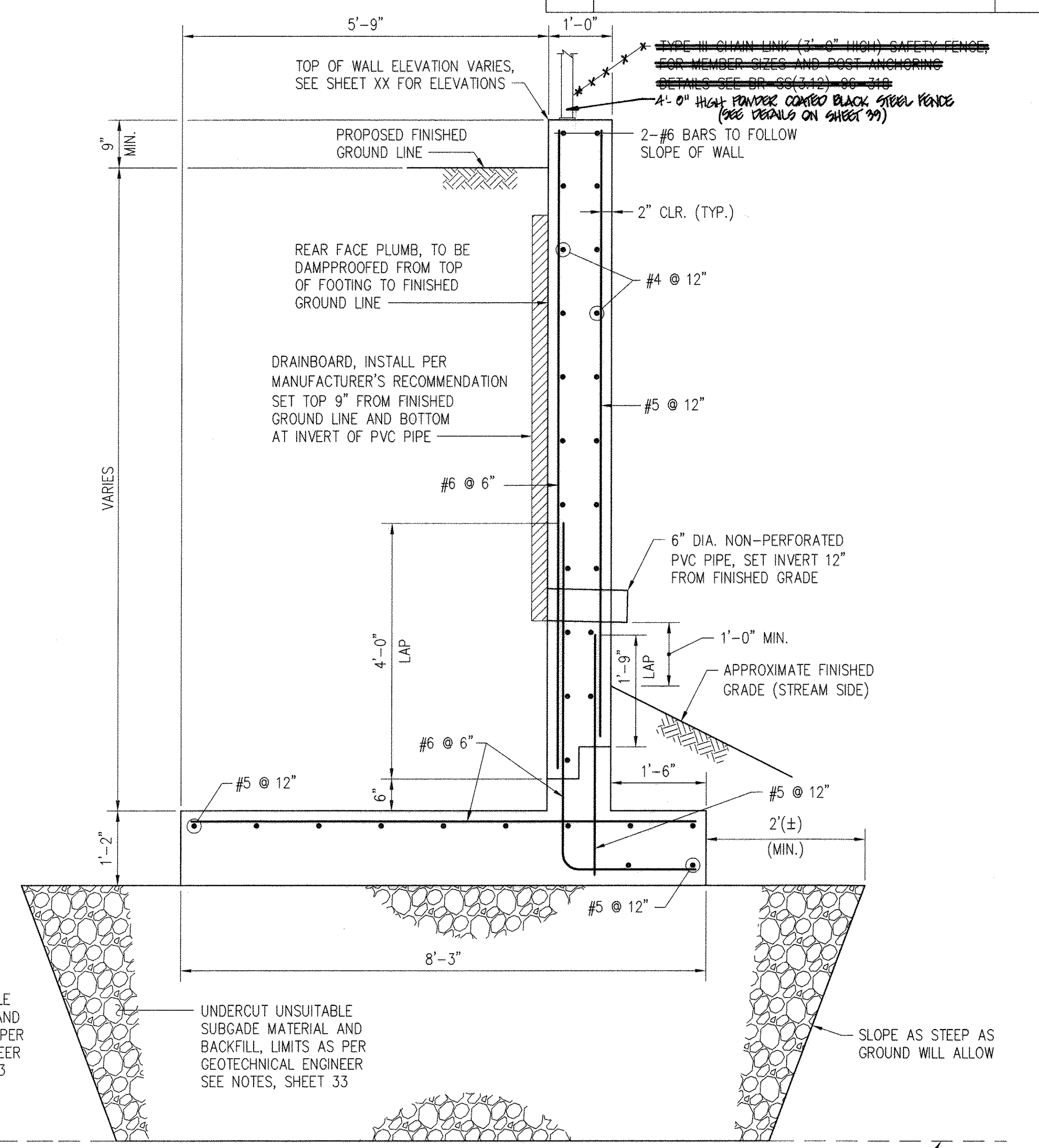
"AS-BUILT" F-14-081



APPROVED: DEPARTMENT OF PUBLIC WORKS		6-10-14
HOLGER SEICHAUS CHIEF, BUREAU OF HIGHWAYS		DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING		6-24-14
KATE ST. JOHN CHIEF, DIVISION OF LAND DEVELOPMENT		DATE
APPROVED: DEPARTMENT OF ENGINEERING		6-16-14
CHIEF, DEVELOPMENT ENGINEERING DIVISION		DATE
REVISIONS		
NO.	DESCRIPTION	DATE
1	Revise Title Block	4-3-15



**SECTION B-B - REINFORCEMENT**  
(LOOKING UPSTREAM)  
SCALE: 3/4" = 1'-0"



**TYPICAL WING WALL SECTION**  
SCALE: 3/4" = 1'-0"

NATURAL AND FIRM SOIL LINE TO BE DETERMINED IN FIELD SEE NOTES, SHEET 33

NOTE:  
COVER FOR BAR IN FOOTING  
2" AT TOP AND SIDES, 3" AT BOTTOM

NATURAL AND FIRM SOIL LINE TO BE DETERMINED IN FIELD SEE NOTES, SHEET 33

**AS-BUILT CERTIFICATION**  
I hereby certify, by my seal, that the facilities shown on this plan were constructed as shown on this "AS BUILT" plan meet the approved plans and specifications.  
CHARLES J. ORODO, P.E. NO. 19204  
PRINCE, COLLINS & CARTER, INC.  
Date: 2/15/18

NOTE:  
FOR MAXIMUM DESIGN BEARING PRESSURE SEE NOTES ON SHEET 33.

**AS-BUILT CERTIFICATION**  
I hereby certify that these documents are prepared or approved by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 15212, Expiration Date 12-24-14.  
CHARLES S. NOLAN, P.E.  
Date: 1/7/14

**CENTENNIAL LAKE OVERLOOK**  
(FORMERLY MASON PROPERTY)  
SECTION TWO  
BUILDABLE LOTS 29 - 99 &  
OPEN SPACE LOTS 99 THRU 112  
A RESUBDIVISION OF BUILDABLE BULK PARCELS 'A' & 'B'  
ZONING: R-20  
TAX MAP No. 30 GRID No. 2 PARCEL No. 86  
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATES: MARCH 10, 2014  
SHEET 34 OF 40

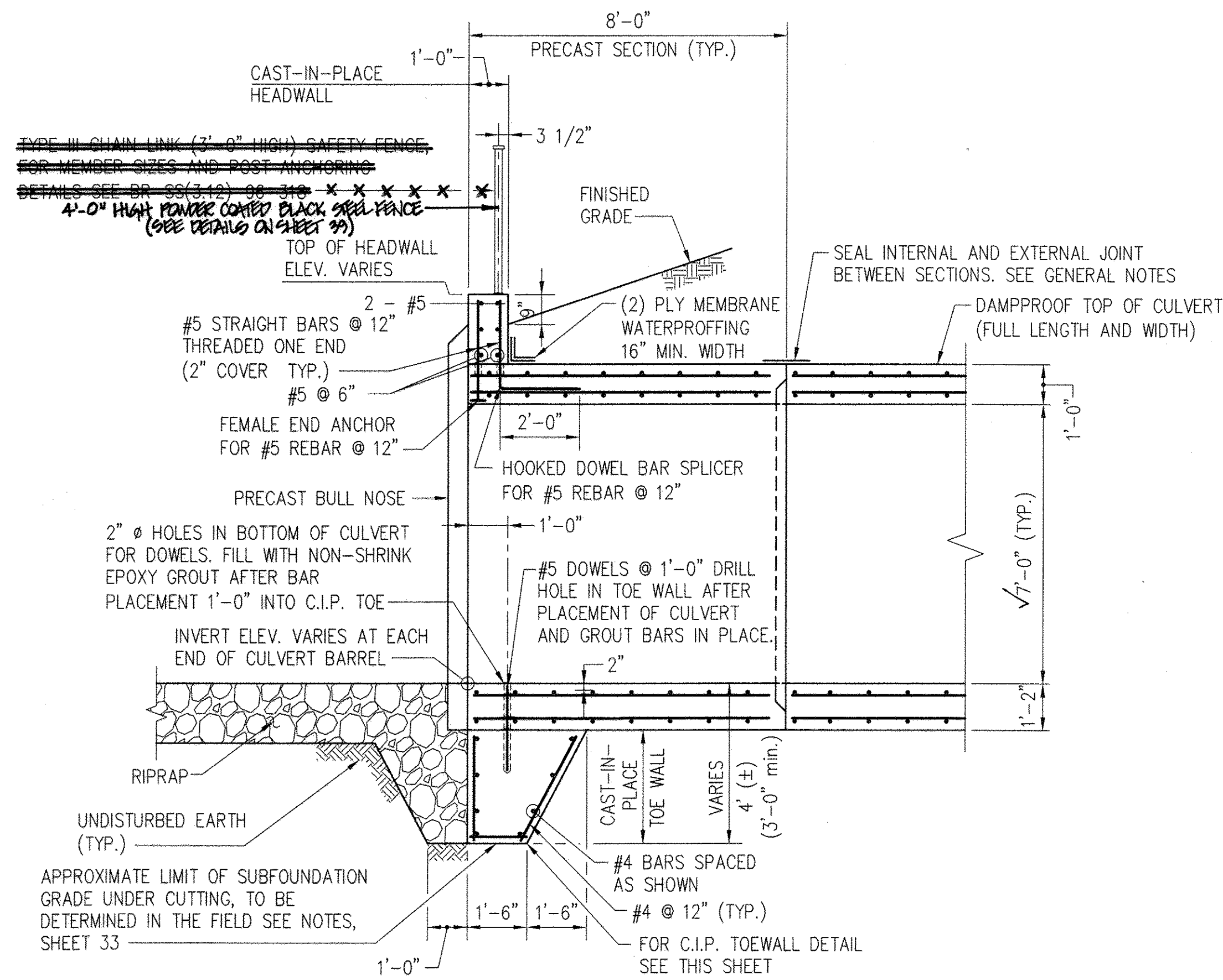
**GREENMAN-PEDERSEN, INC.**  
ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS  
10977 GUILFORD ROAD ANNAPOLIS JUNCTION, MD 20701  
WASH. (301) 470-2772 BALT. (410) 880-3055  
FAX: (301) 490-2649 www.gpinet.com

**OWNER/DEVELOPER**  
BEAZER HANCOCK CORP.  
8925 GUILFORD ROAD  
COLUMBIA, MARYLAND 21046  
(410-720-8071)

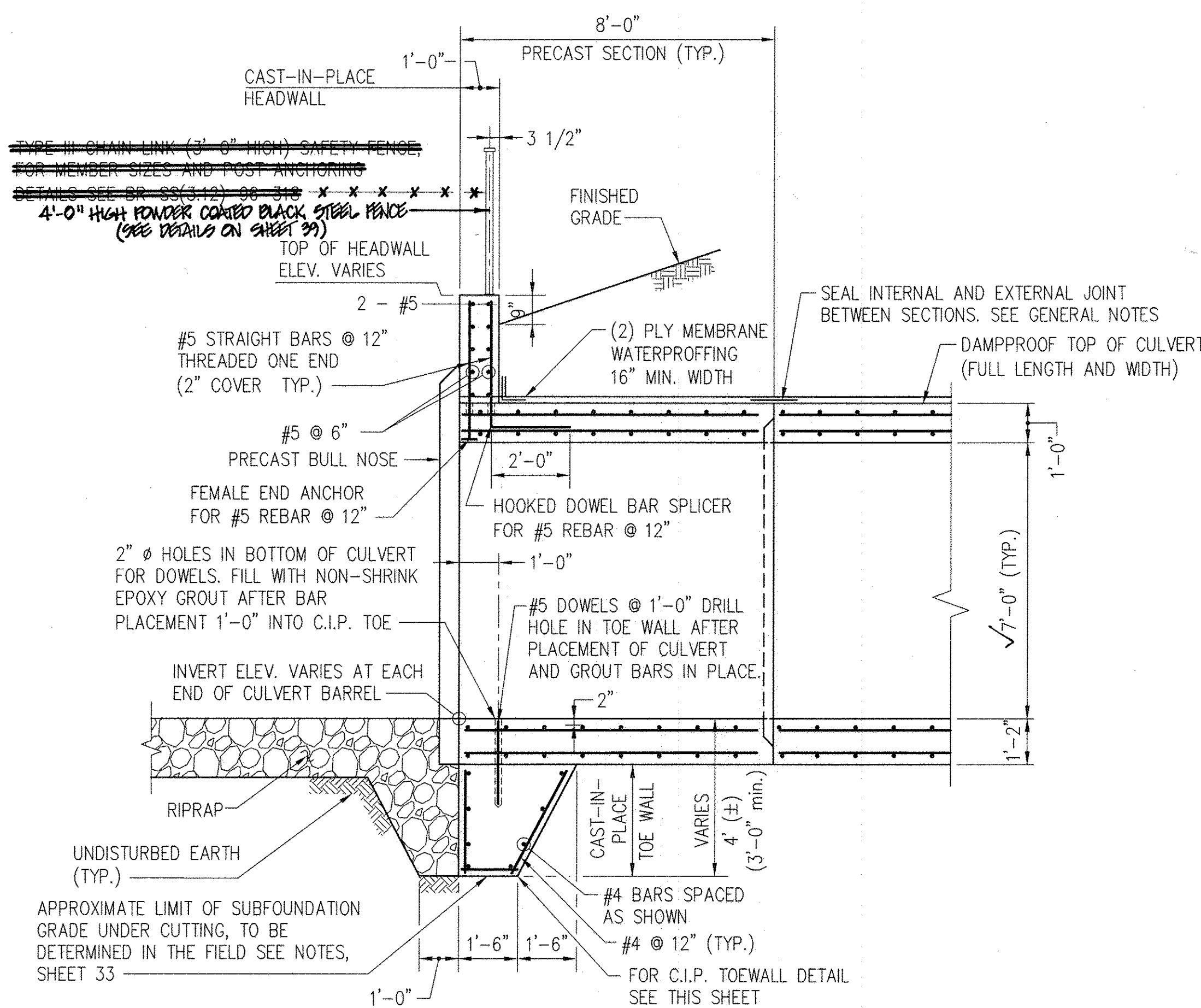
REVISIONS		
NO.	DESCRIPTION	DATE
1	ADDED REINFORCEMENT DETAILS	5/20/14
2	REVISE SHEET NUMBER TO REFLECT APPROV SHEET	10/21/16



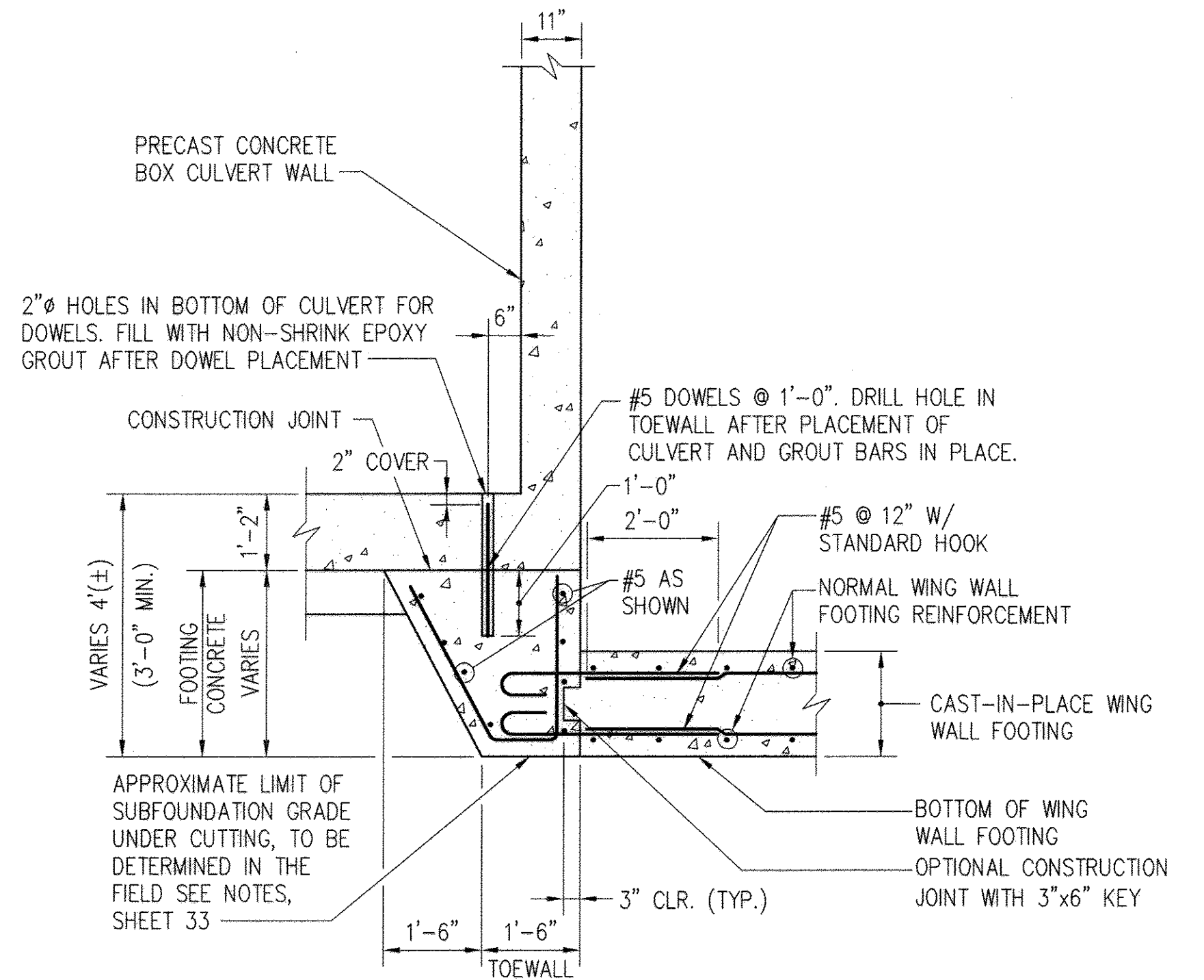
APPROVED: DEPARTMENT OF PUBLIC WORKS		
<i>Hugo Serrano</i>	6-10-14	DATE
CHIEF, BUREAU OF HIGHWAYS		
APPROVED: DEPARTMENT OF PLANNING AND ZONING		
<i>Victor S. ...</i>	6-24-14	DATE
CHIEF, DIVISION OF LAND DEVELOPMENT		
<i>Shel ...</i>	6/16/14	DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION		
REVISIONS		
NO.	DESCRIPTION	DATE
1	Revise Title Block	4-3-15



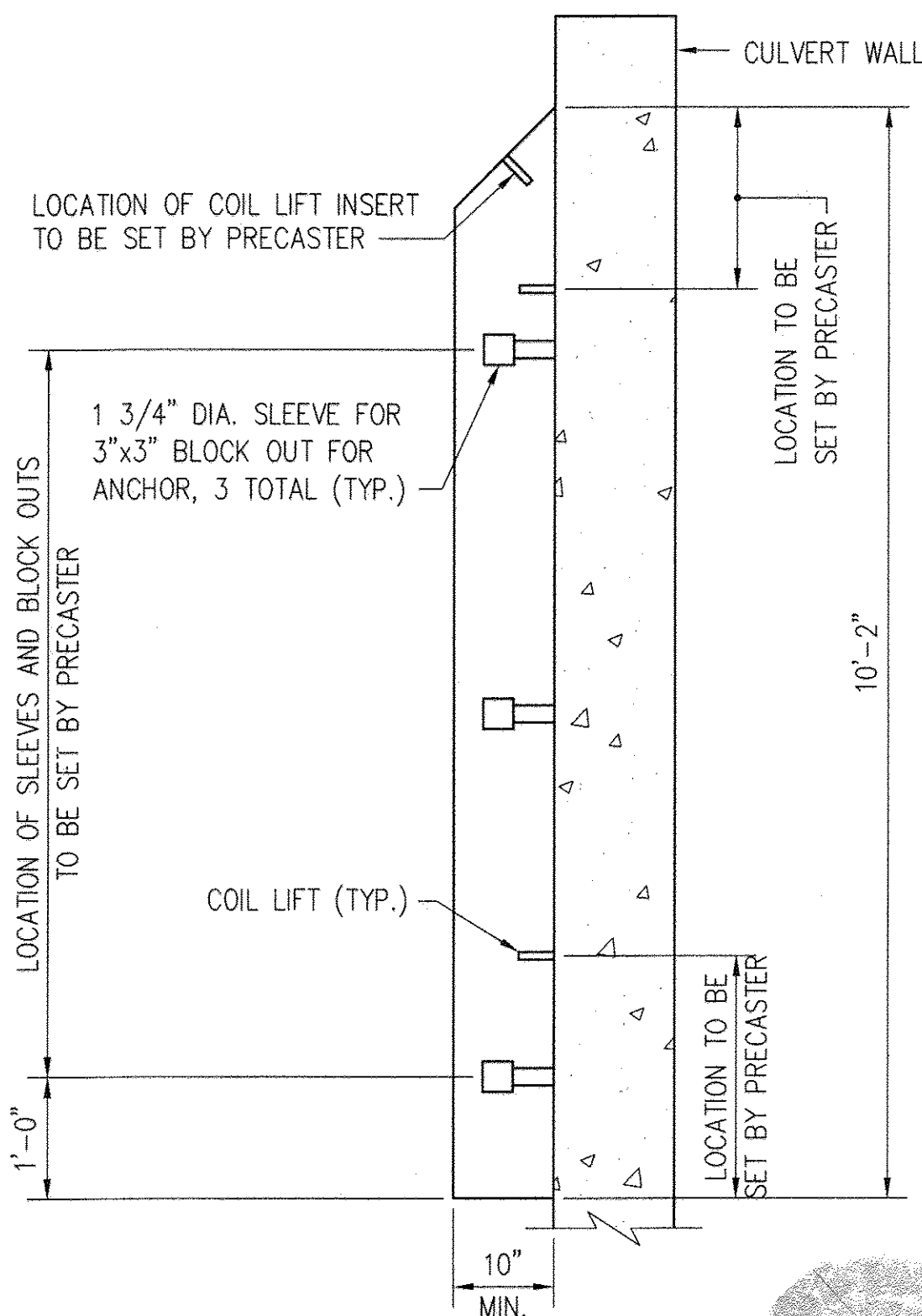
**SECTION AT END OF CULVERT  
CELL NO. 1**  
SCALE: 3/8" = 1'-0"



**SECTION AT END OF CULVERT  
CELL NO. 2**  
SCALE: 3/8" = 1'-0"

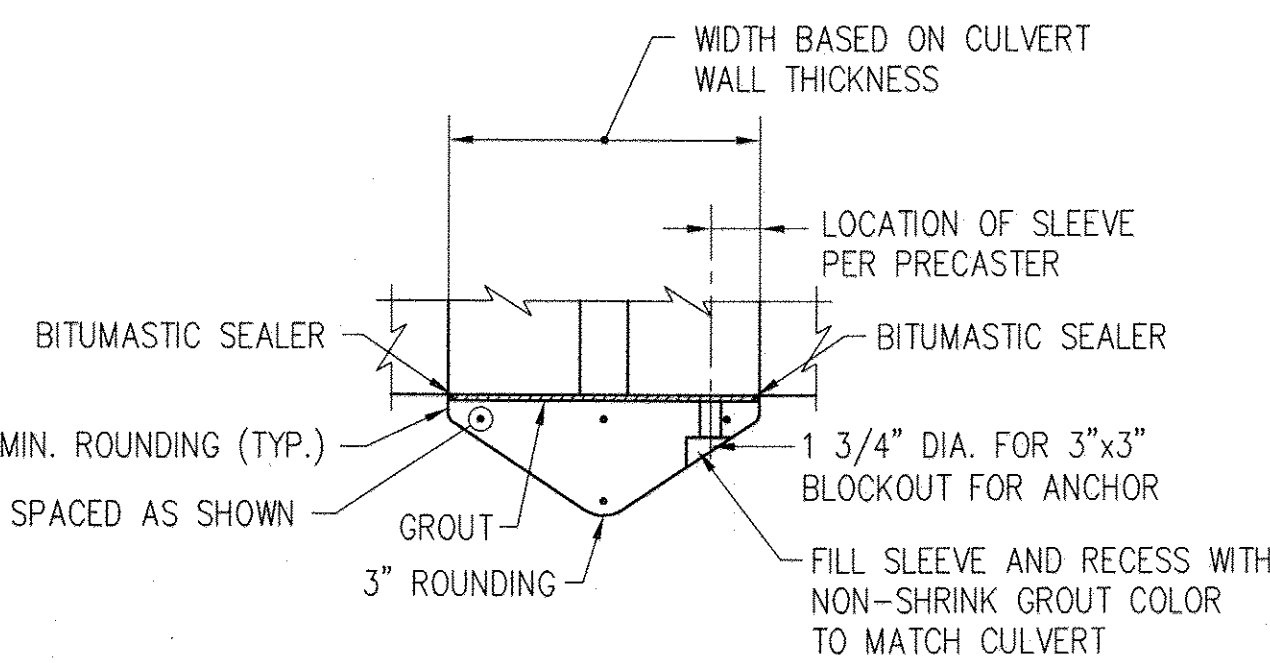


**TYPICAL WINGWALL/CULVERT FOOTING CONNECTION**  
SCALE: 1/2" = 1'-0"



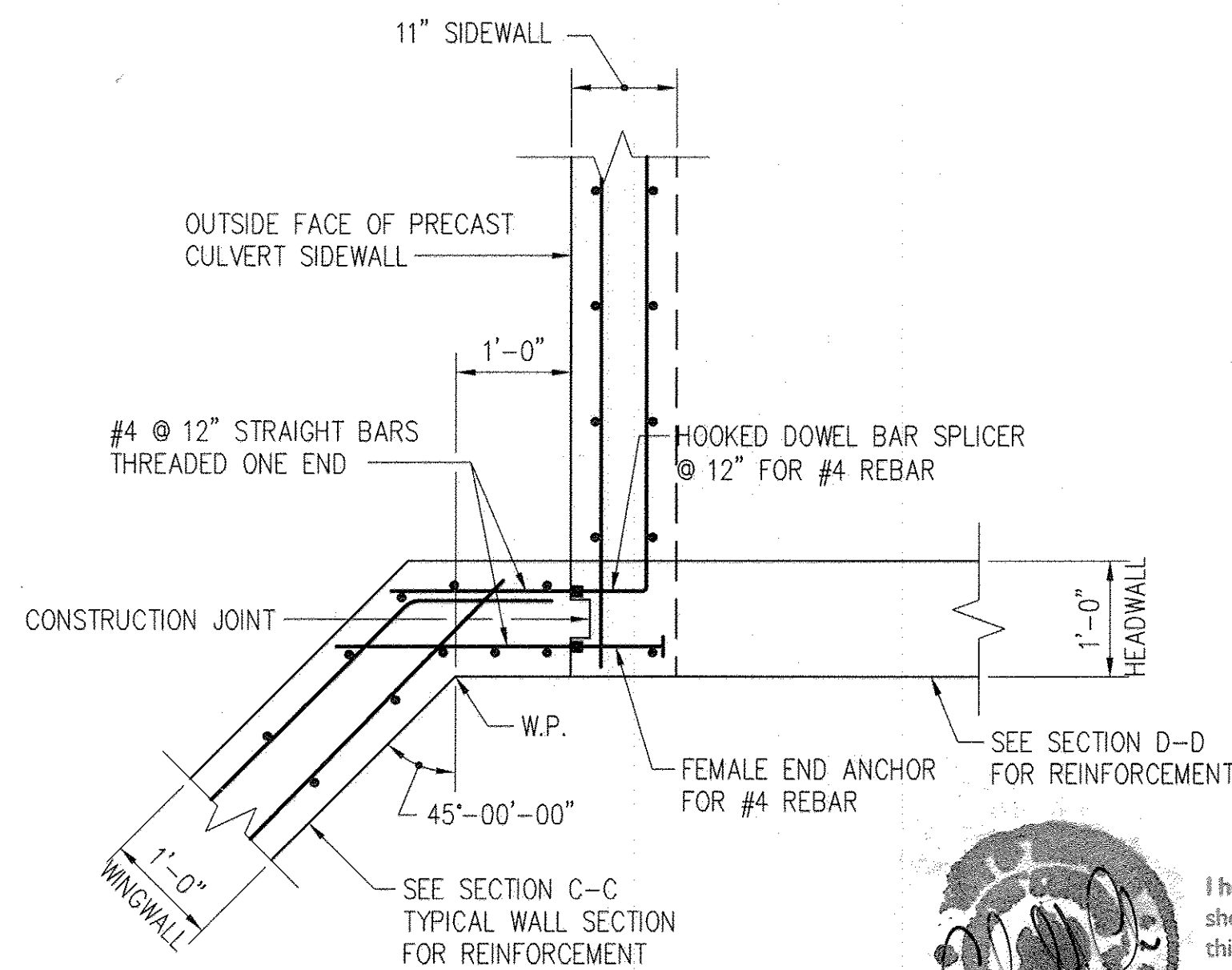
**SIDE VIEW**

- NOTES:**
1. USE 3/4" DIA. x 6 5/8" EPOXY ADHESIVE ANCHORS.
  2. USE HIGH STRENGTH NON-SHRINK GROUT.
  3. SEAL JOINT WITH A BITUMASTIC JOINT SEALER.



**SECTION AT ANCHOR**

**SUGGESTED  
PRECAST BULL NOSE DETAILS**  
NOT TO SCALE



**DETAIL A - WING WALL TO CULVERT  
SIDEWALL CONNECTION**  
SCALE: 3/4" = 1'-0"

**AS-BUILT CERTIFICATION**

I hereby certify, by my seal, that the facilities shown on this plan were constructed as shown on this "AS BUILT" plan meet the approved plans and specifications.

*Charles S. Nolan* 3/15/18  
DATE

CHARLES S. NOLAN, P.E. NO. 19222  
PATER, COLLINS & CASER, INC.



NO.	REVISIONS	DATE
1	ADDED REINFORCEMENT AND BULL NOSE DETAILS	5/20/14
2	REVISE SHEET NUMBER TO REFLECT ADDED SHEET	10/21/16

1/7/14 DATE

CHARLES S. NOLAN, P.E.  
Professional certification. I hereby certify that these documents are prepared or approved by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 15212, Expiration Date 12-24-14."

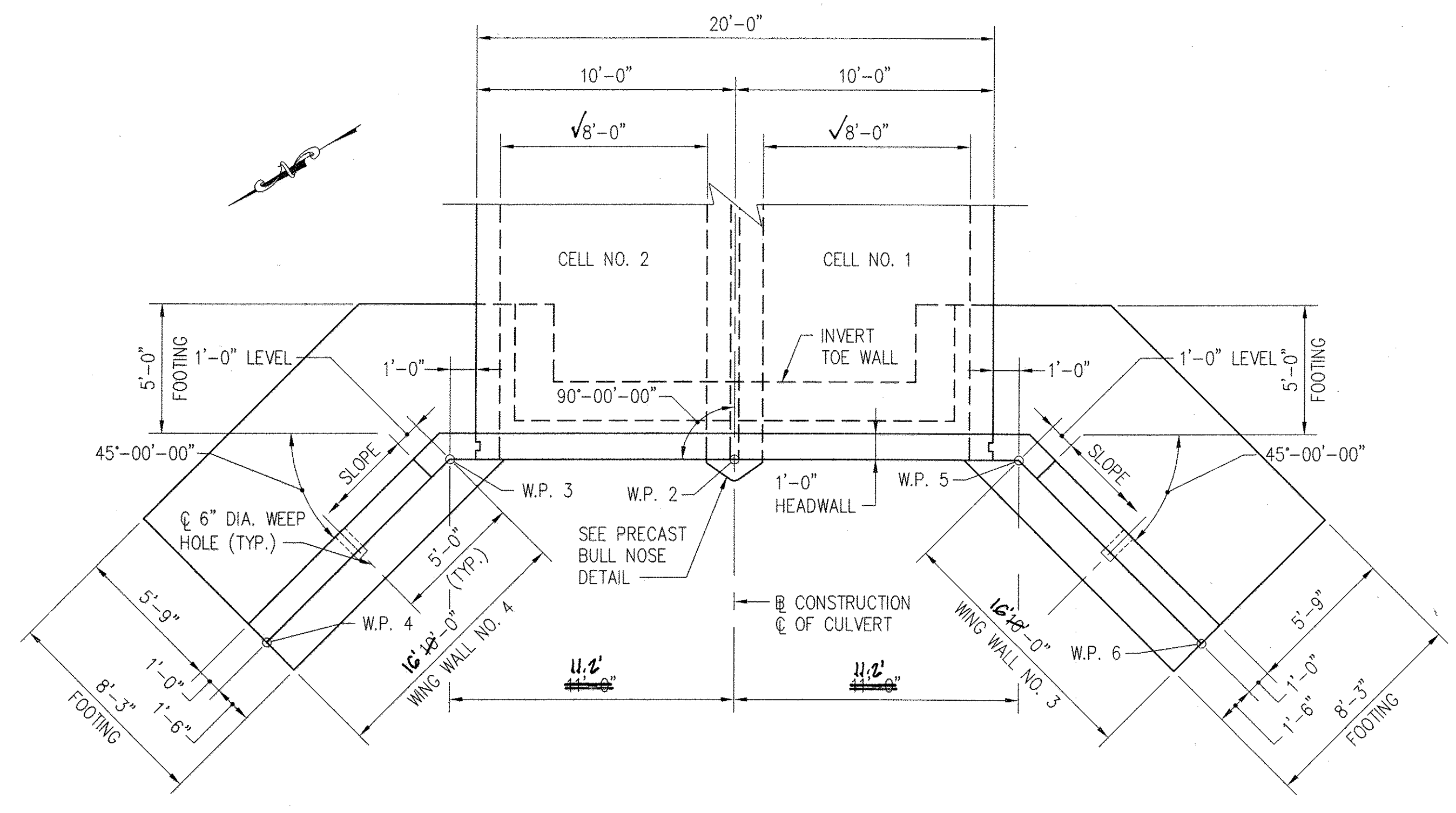
BOX CULVERT AND WING WALL DETAILS  
**CENTENNIAL LAKE OVERLOOK**  
(FORMERLY MASON PROPERTY)  
SECTION TWO  
BUILDABLE LOTS 29 - 98 &  
OPEN SPACE LOTS 99 THRU 112  
A RESUBDIVISION OF BUILDABLE BULK PARCELS 'A' & 'B'  
ZONING: R-20  
TAX MAP No. 30 GRID No. 2 PARCEL No. 86  
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: MARCH 10, 2014  
SHEET 35 OF 40

**GPI** GREENMAN-PEDERSEN, INC.  
ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS  
10977 GUILFORD ROAD ANNAPOLIS JUNCTION, MD 20701  
WASH. (301) 470-2772 BALT. (410) 880-3055  
FAX: (301) 490-2649 www.gpinet.com

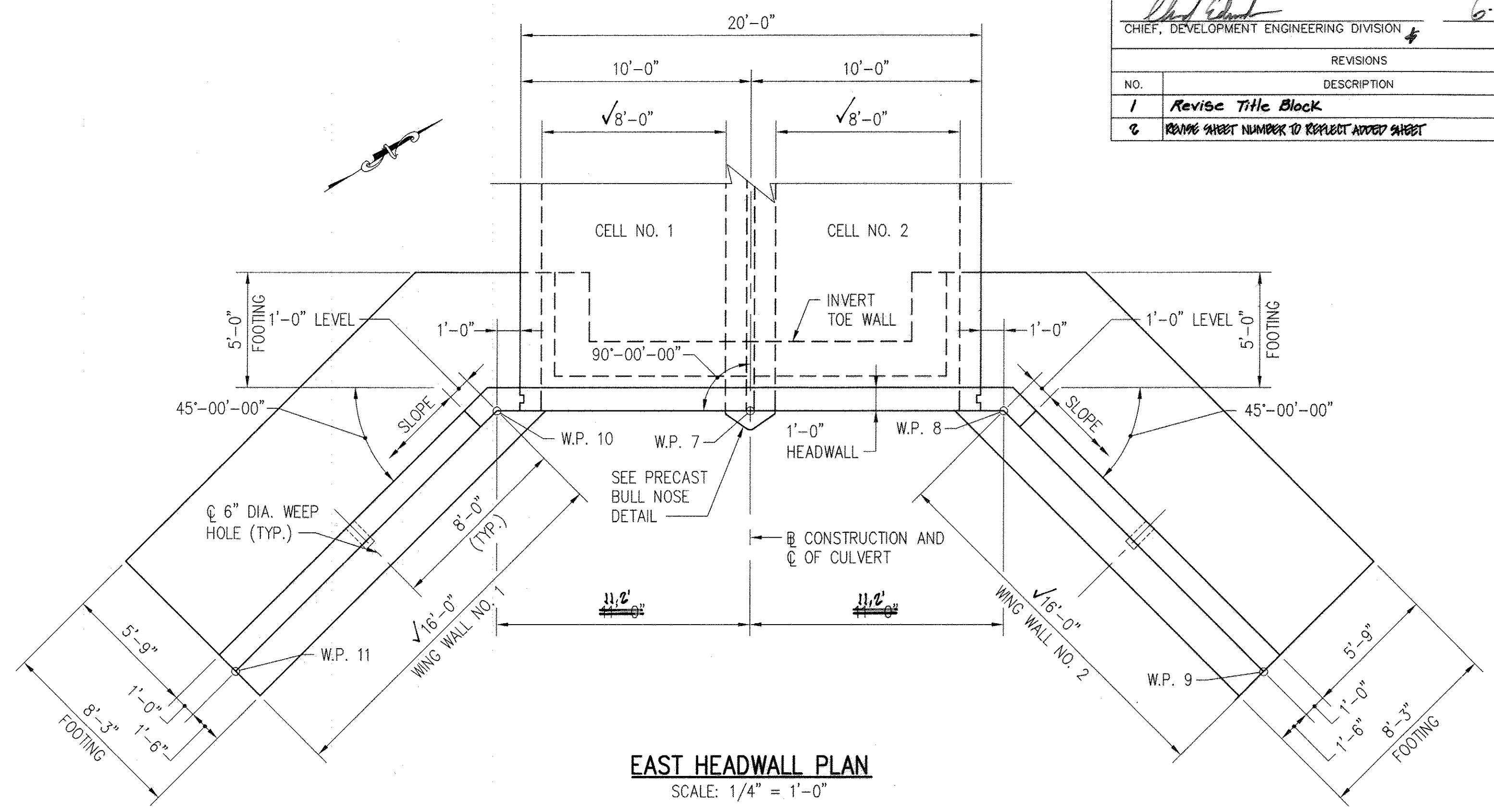
**OWNER/DEVELOPER**  
BECKER HONES CORP.  
8705 GUILFORD ROAD  
COLUMBIA, MARYLAND 21046  
(410-760-8071)



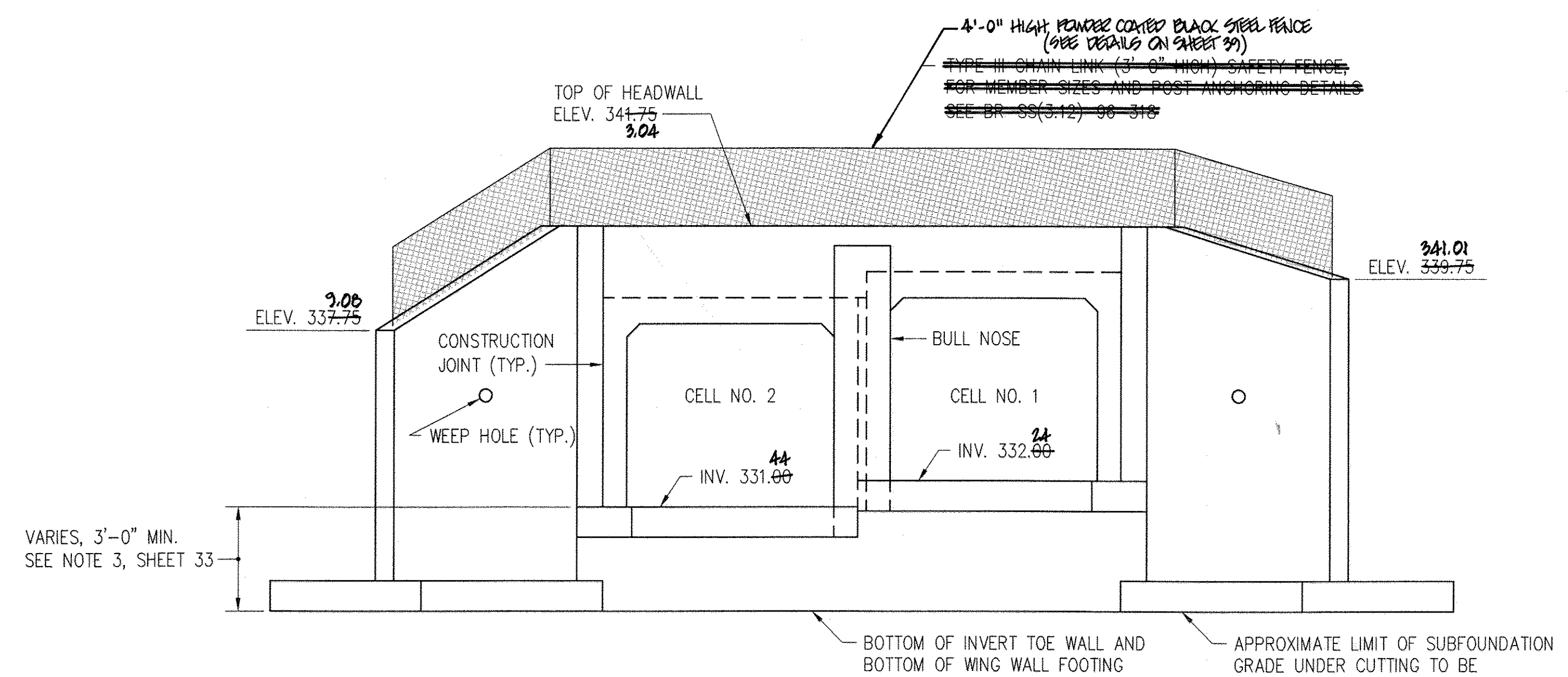
APPROVED: DEPARTMENT OF PUBLIC WORKS		
<i>Holger Serrano</i>	6-10-14	DATE
CHIEF, BUREAU OF HIGHWAYS		
APPROVED: DEPARTMENT OF PLANNING AND ZONING		
<i>West Johnson</i>	6-24-14	DATE
CHIEF, DIVISION OF LAND DEVELOPMENT		
<i>Paul Smith</i>	6-16-14	DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION		
REVISIONS		
NO.	DESCRIPTION	DATE
1	Revise Title Block	4-3-15
2	Revise Sheet Number to Reflect Added Sheet	10/2/16



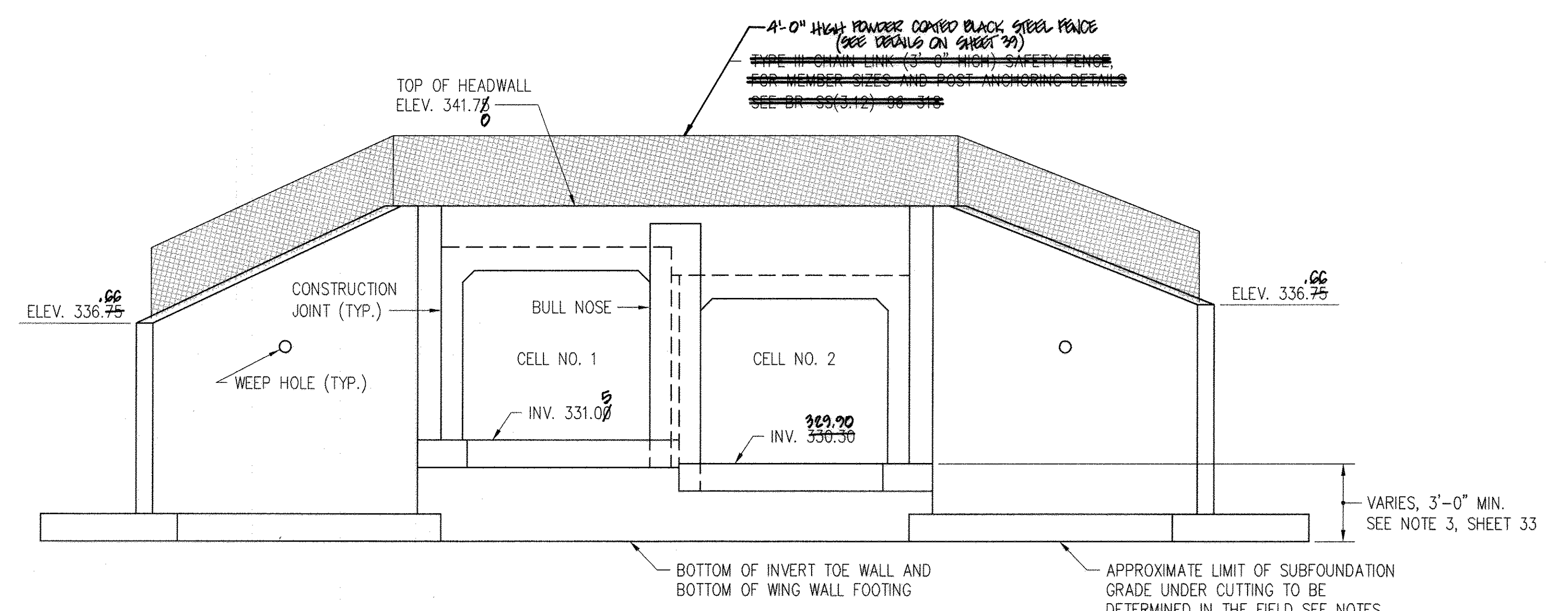
**WEST HEADWALL PLAN**  
SCALE: 1/4" = 1'-0"



**EAST HEADWALL PLAN**  
SCALE: 1/4" = 1'-0"



**WEST HEADWALL ELEVATION**  
SCALE: 1/4" = 1'-0"



**EAST HEADWALL ELEVATION**  
SCALE: 1/4" = 1'-0"



**AS-BUILT CERTIFICATION**  
I hereby certify, by my seal, that the facilities shown on this plan were constructed as shown on this "AS BUILT" plan meet the approved plans and specifications.  
*Charles S. Nolan*  
Date: 5/20/14  
CHARLES S. NOLAN, P.E. NO. 15212  
PUNYER, COLLINS & CHASE, INC.

**OWNER/DEVELOPER**  
BOJER HOMES LLC  
9905 GUILFORD ROAD  
COLUMBIA, MARYLAND 21046  
(410-720-5071)

NO.	REVISIONS	DATE
1	ADDED NEW SHEET	5/20/14



CHARLES S. NOLAN, P.E.  
Professional certification. I hereby certify that these documents are prepared or approved by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 15212, Expiration Date 12-24-14.  
DATE: 5/20/14

**GREENMAN-PEDERSEN, INC.**  
ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS  
10977 GUILFORD ROAD ANNAPOLIS JUNCTION, MD 20701  
WASH. (301) 470-2772 BALT. (410) 880-3055  
FAX: (301) 490-2649 www.gpinet.com

HEADWALL PLAN AND ELEVATION  
**CENTENNIAL LAKE OVERLOOK**  
(FORMERLY MASON PROPERTY)  
SECTION TWO  
BUILDABLE LOTS 29 - 98 &  
OPEN SPACE LOTS 99 THRU 112  
A RESUBDIVISION OF BUILDABLE BULK PARCELS 'A' & 'B'  
ZONING: R-20  
TAX MAP No. 30 GRID No. 2 PARCEL No. 86  
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: MARCH 10, 2014  
SHEET 36 OF 40



**GENERAL NOTES**

Specifications: Latest SHA Specifications and Special Provisions for materials and construction, Latest AASHTO Standard Specifications for Highway Bridges for design.

Materials: Posts and rolls shall conform to ASTM F-1083, Schedule 80. Fabric shall be 6 gauge, 2" PVC coated mesh conforming to 914.01.

All posts, braces, fittings and hardware shall be PVC coated. Coating shall conform to 914.03 except that nuts, bolts and washers shall also be PVC coated and touched up after installation.

All plates shall be steel conforming to ASTM A36 Grade 36.

Anchor studs or anchor bolts shall conform to ASTM A276, Type 430 or type 304 stainless steel unless otherwise specified. Posts may be rolled or cut.

Expansion for anchor studs in concrete shall conform to 902.01.

PVC coating for all elements of fence shall be black unless otherwise stated.

Construction: All longitudinal rolls shall be parallel to top of parapet.

All posts shall be set normal to top of parapet for roadway grades 6% or less. For grades over 6% posts shall be set plumb.

The chain link fence shall be true to line, taut, tight fit to top of parapet, with 1/2" max. gap, and shall comply with the best practice for fence construction of this type.

Post and rolls shall be permanently positioned before fabric is placed.

For post spacing see pertinent structure sheets.

Precedent in vertical rolls, posts, shall have the cut end coated with paint, touch up materials, supplied by the manufacturer prior to installation.

If contractor elects to place anchor studs after placing concrete parapet, newly placed rebar shall be located so that curing does not damage, all holes shall be covered by drilled cap, the diameter of the covered holes for the anchor studs shall be 1/2".

Furnishing, fabricating, erecting, etc. of all new chain link fence on the bridges, complete in place, will not be measured and paid for. All costs thereof shall be included in the Contract lump sum prices for the pertinent Chain Link Safety Fence For Bridge Items.

Furnishing, fabricating, erecting, etc. of all new chain link fence anti-climb shields, complete in place, will be measured and paid for at the Contract unit prices per each of the pertinent Chain Link Safety Fence Anti-Climb Shield For Bridge Items.

Any defects uncovered by the inspection of welds on plates and poles shall be repaired or replaced by new members, no additional cost to the Administration.

APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
DATE: 6/2/16	DATE: 6/2/16
REVISIONS	
NO.	DESCRIPTION
1	Revise Title Block
2	REMOVE SHEET NUMBER TO REFLECT ADDED SHEET

STANDARD NO. BR-SS13.01-75-21 SHEET 1 OF 1

**\* LOCATION CATEGORY**

BAR SIZE	* LOCATION CATEGORY		
	A	B	C
#4	2'-5"	1'-9"	1'-5"
#5	3'-0"	2'-2"	1'-9"
#6	3'-7"	2'-7"	2'-1"
#7	4'-4"	3'-1"	2'-6"
#8	5'-8"	4'-1"	3'-3"
#9	7'-2"	5'-1"	4'-1"
#10	9'-1"	6'-6"	5'-2"
#11	11'-1"	7'-11"	6'-4"

**\* LOCATION CATEGORY**

A - Bars in horizontal layers in top of pour with 12" or more of concrete below them such as in footings, pier caps, etc.  
 B - All bars not in Category A spaced less than 6' apart.  
 C - All bars not in Category A spaced 6' or more apart.

Note:  
 1. When bar lap is not specified on the Plans, the above dimensions shall be used.  
 2. These bar laps do not apply when bars in lightweight concrete. Greater lengths are required for this material.  
 3. These bar laps only apply where the General Notes indicate "Reinforcing Steel Design, for 24,000 p.s.i."

APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
DATE: 6/30/16	DATE: 6/30/16
REVISIONS	
NO.	DESCRIPTION
1	Revise Title Block
2	REMOVE SHEET NUMBER TO REFLECT ADDED SHEET

STANDARD NO. M6.051-80-122 SHEET 1 OF 1

**\* LOCATION CATEGORY**

BAR SIZE	* LOCATION CATEGORY		
	A	B	C
#4	2'-5"	1'-9"	1'-5"
#5	3'-0"	2'-2"	1'-9"
#6	3'-7"	2'-7"	2'-1"
#7	4'-4"	3'-1"	2'-6"
#8	5'-8"	4'-1"	3'-3"
#9	7'-2"	5'-1"	4'-1"
#10	9'-1"	6'-6"	5'-2"
#11	12'-7"	9'-0"	7'-3"

**\* LOCATION CATEGORY**

A - Bars in horizontal layers in top of pour with 12" or more of concrete below them such as in footings, pier caps, etc.  
 B - All bars not in Category A spaced less than 6' apart.  
 C - All bars not in Category A spaced 6' or more apart.

Note:  
 1. When bar lap is not specified on the Plans, the above dimensions shall be used.  
 2. These bar laps do not apply when bars in lightweight concrete. Greater lengths are required for this material.  
 3. These bar laps only apply where the General Notes indicate "Reinforcing Steel Design, for 24,000 p.s.i."

APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
DATE: 6/30/16	DATE: 6/30/16
REVISIONS	
NO.	DESCRIPTION
1	Revise Title Block
2	REMOVE SHEET NUMBER TO REFLECT ADDED SHEET

STANDARD NO. M6.071-81-127 SHEET 1 OF 1

APPROVED: DEPARTMENT OF PUBLIC WORKS  
 Halger Seliars, 6.10.14  
 CHIEF, BUREAU OF HIGHWAYS, DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 Keith Deane, 6.24.14  
 CHIEF, DIVISION OF LAND DEVELOPMENT, DATE

APPROVED: DEVELOPMENT ENGINEERING DIVISION  
 Ed Ed, 6.16.14  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION, DATE

REVISIONS

NO.	DESCRIPTION	DATE
1	Revise Title Block	4-3-15
2	REMOVE SHEET NUMBER TO REFLECT ADDED SHEET	10/11/16

**ELEVATION**  
Scale: 3/8" = 1'-0"

Note:  
 For additional details see Std. No. BR-SS13.01-75-24.

APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
DATE: 6/16/16	DATE: 6/16/16
REVISIONS	
NO.	DESCRIPTION
1	Revise Title Block
2	REMOVE SHEET NUMBER TO REFLECT ADDED SHEET

STANDARD NO. BR-SS13.01-75-24 SHEET 2 OF 2

**HOOKS**  
TABLE I  
REFERENCES

1. ACI Types I thru 26  
 2. SHA Standard Pin Bending  
 3. SHA Rods Bending

BAR SIZE	Finished bend diameter D, in.	180 - deg hook		90 - deg hook	
		A or G, in.	J, in.	A or G, in.	J, in.
#3	2 1/4	5	3	5	3
#4	3	6	4	6	4
#5	3 3/4	7	5	7	5
#6	4 1/2	8	6	8	6
#7	5 1/4	10	7	10	7
#8	6	11	8	11	8
#9	6 3/4	13	10	13	10
#10	7 1/2	15	11	15	11
#11	8 1/2	17	13	17	13
#14	10 1/4	21	16	21	16
#18	14	28	21	28	21

APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
DATE: 6/17/16	DATE: 6/17/16
REVISIONS	
NO.	DESCRIPTION
1	Revise Title Block
2	REMOVE SHEET NUMBER TO REFLECT ADDED SHEET

STANDARD NO. REBAR-BD9.051-97-320 SHEET 1 OF 2

**HOOKS**  
TABLE II  
REFERENCES

1. ACI Types SI thru S11  
 2. ACI Types II thru 18  
 3. SHA Ties and Stirrups

Note: Tie and stirrup types supplied in sizes #3-#8

**STIRRUP AND TIE HOOKS**

BAR SIZE	D, in.	90 - deg hook		135 - deg hook	
		A or G	J, approx	A or G	J, approx
#3	3/8	4	4	4	2 1/2
#4	1/2	5	5	5	3
#5	5/8	6	6	6	3 1/2
#6	3/4	7	7	7	4
#7	7/8	8	8	8	4 1/2
#8	1	9	9	9	5

BAR SIZE	Finished bend diameter D, in.	180 - deg hook	
		A or G, in.	J, in.
#3	3/8	5	3
#4	1/2	6	4
#5	5/8	7	5
#6	3/4	8	6
#7	7/8	10	7
#8	1	11	8

APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
DATE: 6/17/16	DATE: 6/17/16
REVISIONS	
NO.	DESCRIPTION
1	Revise Title Block
2	REMOVE SHEET NUMBER TO REFLECT ADDED SHEET

STANDARD NO. REBAR-BD9.051-97-320 SHEET 2 OF 2

**DETAIL A**  
Scale: 1/2" = 1'-0"

Note:  
 This fence shall be used on box culverts where the bottom of fill slopes.

APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES
DATE: 6/17/16	DATE: 6/17/16
REVISIONS	
NO.	DESCRIPTION
1	Revise Title Block
2	REMOVE SHEET NUMBER TO REFLECT ADDED SHEET

STANDARD NO. BR-SS13.01-96-318 SHEET 1 OF 1

**AS-BUILT CERTIFICATION**

Note: There is no "AS BUILT" information provided on this sheet.

Charles J. Crolo, P.E., No. 19104  
 Pinner, Collins & Carter, Inc. Date: 6/15/18

5/20/14

CHARLES S. NOLAN, P.E. DATE: 5/20/14

"Professional certification. I hereby certify that these documents are prepared or approved by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 15212, Expiration Date 12-24-14."

STANDARD DETAILS  
**CENTENNIAL LAKE OVERLOOK**  
 (FORMERLY MASON PROPERTY)  
 SECTION TWO  
 BUILDABLE LOTS 29 - 98 &  
 OPEN SPACE LOTS 99 THRU 112

A RESUBDIVISION OF BUILDABLE BULK PARCELS 'A' & 'B'  
 ZONING: R-20  
 TAX MAP NO. 30 GRID NO. 2 PARCEL NO. 86  
 2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN DATE: MARCH 10, 2014  
 SHEET 37 OF 40

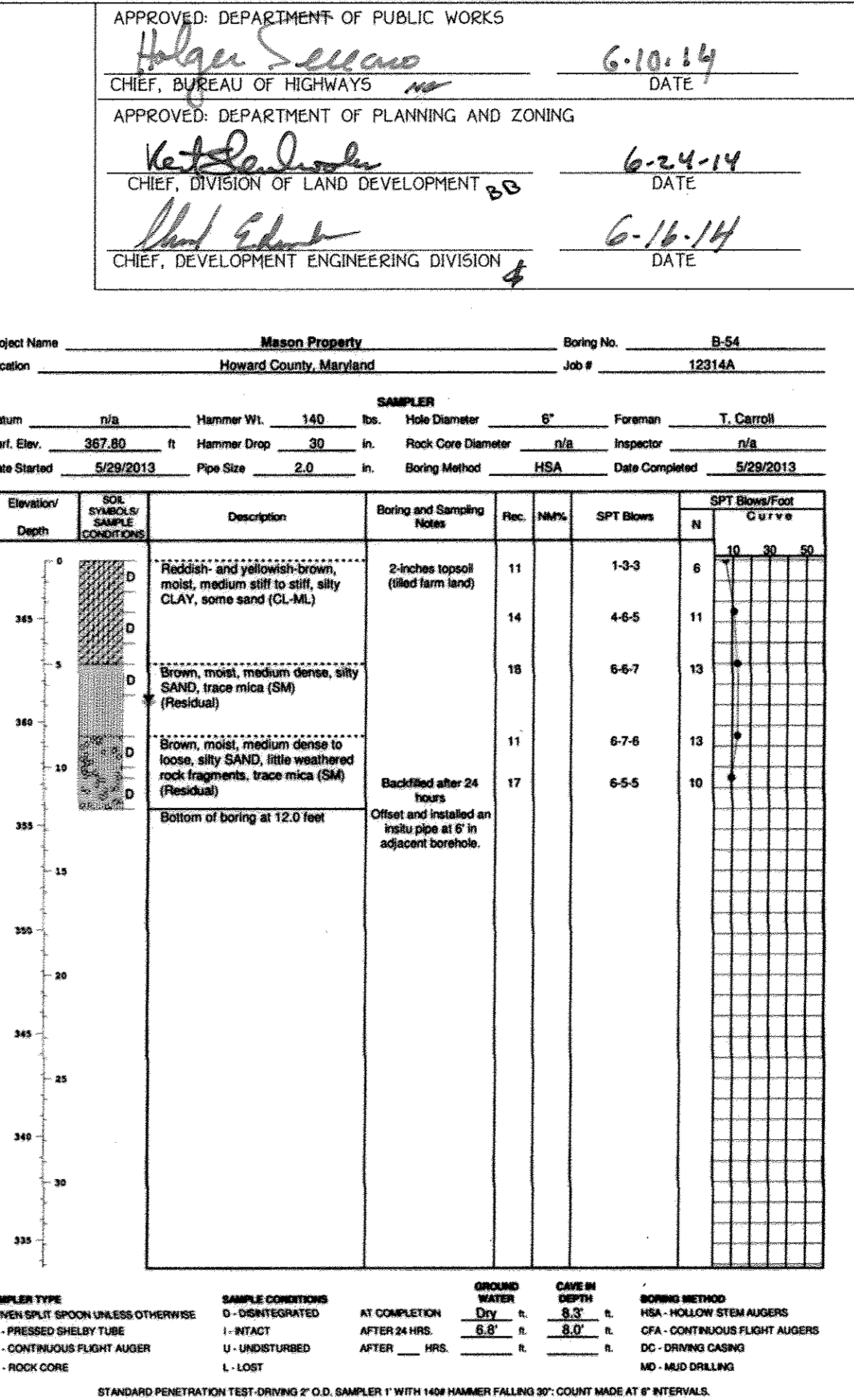
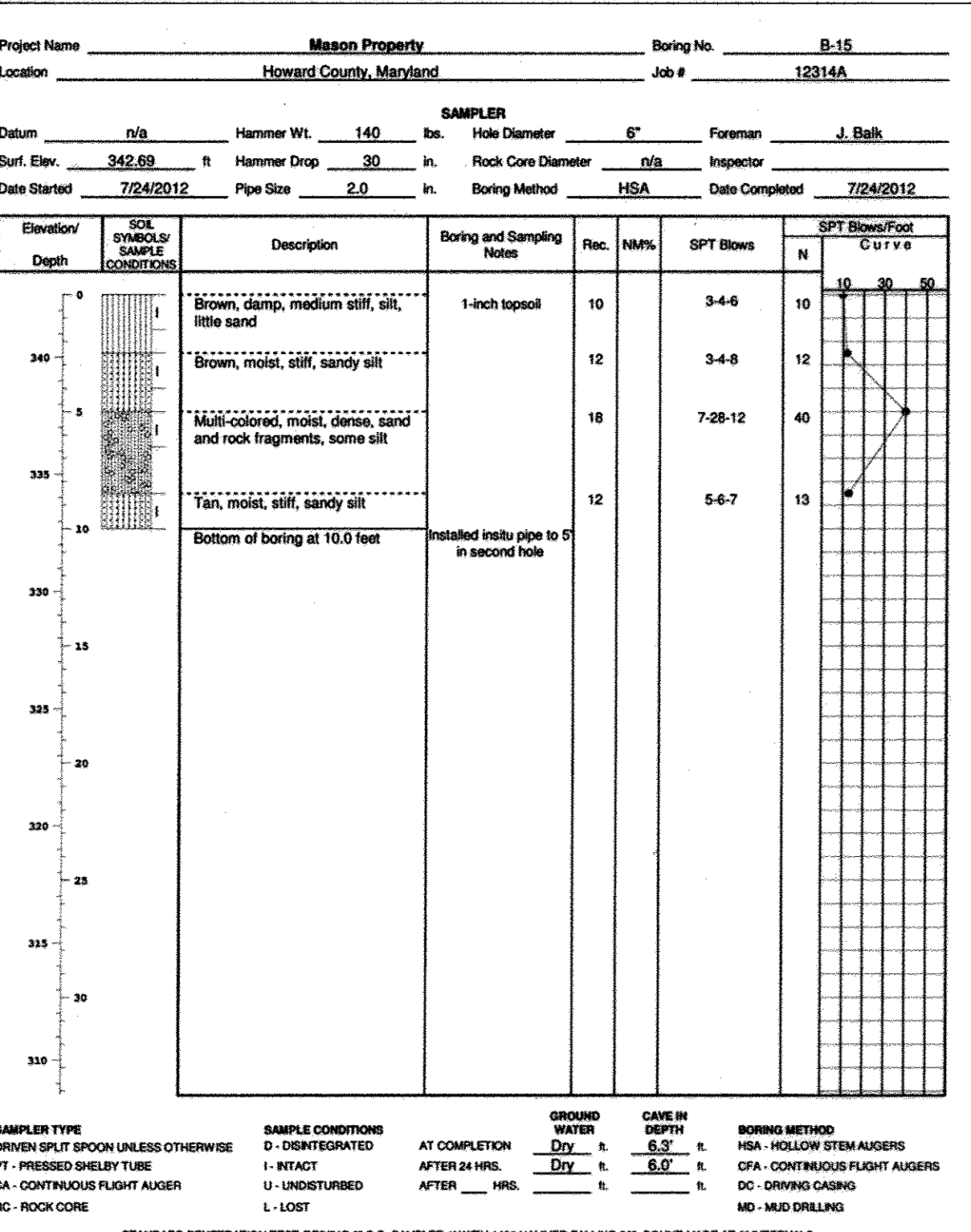
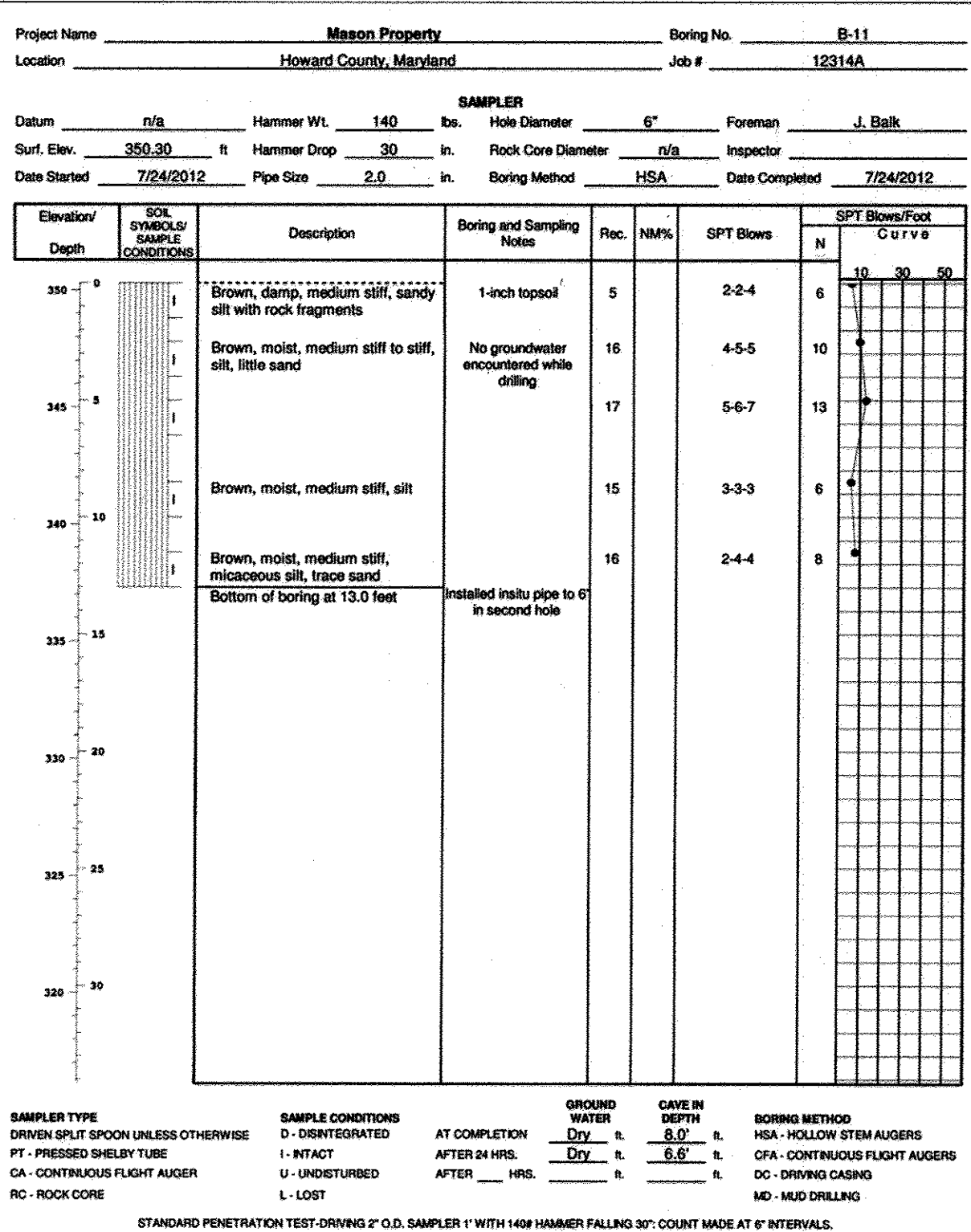
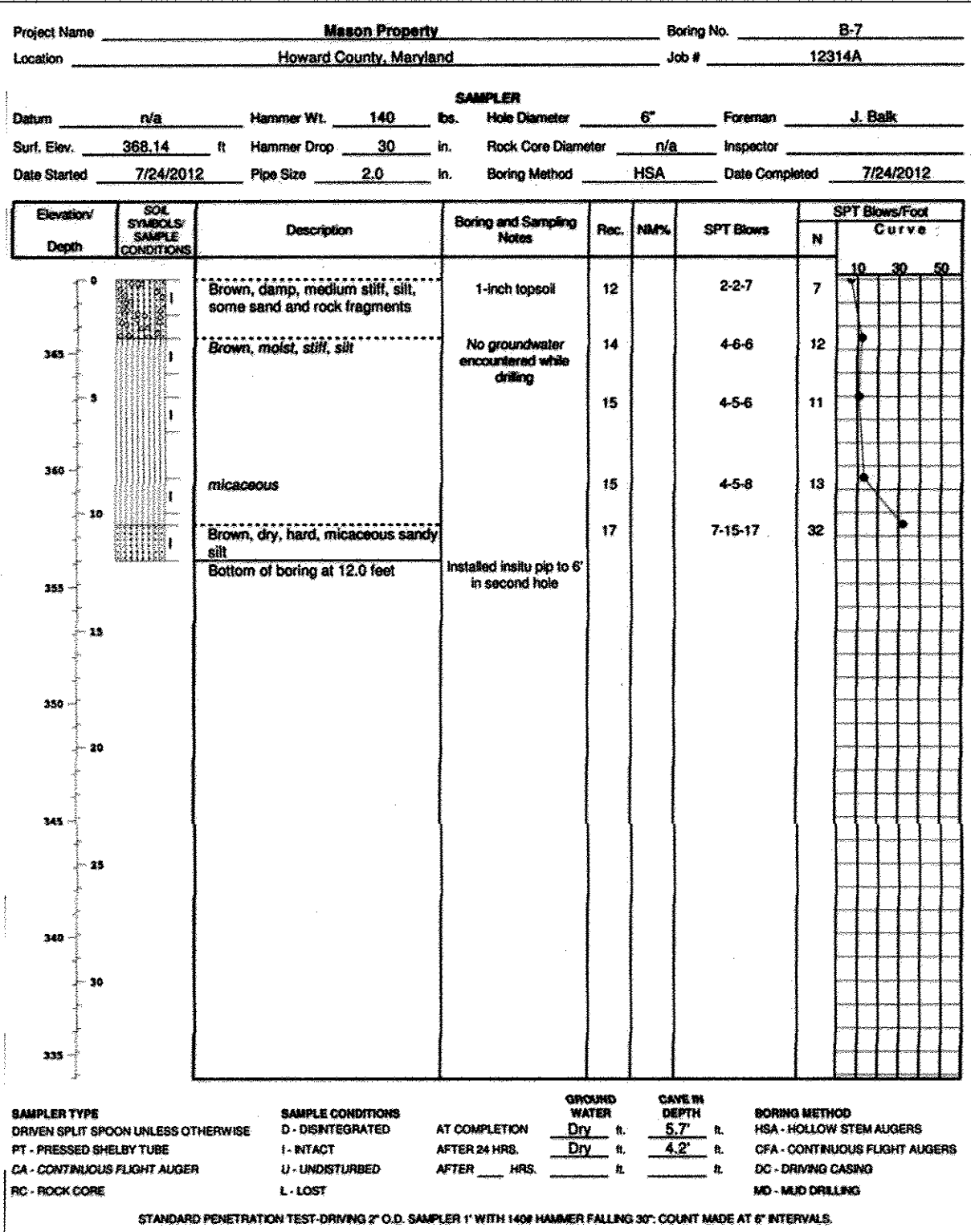
THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET



Table 1. Auger Probe Summary					Table 1. Auger Probe Summary						
Boring	Surface Elevation	Proposed	Drilled	At Completion	Boring	Surface Elevation	Proposed	Drilled	Depth to Water (ft)		
B-1	384.99	12	12	Dry	8.5	B-54	387.80	12	12	6.8	8.0
B-2	382.91	13	13	Dry	10.0	B-55	386.25	12	12	Dry	7.7
B-3	387.50	8	8	Dry	6.0	B-56	347.52	12	12	5.2	6.3
B-4	356.86	8	8	Dry	5.0	B-57	357.89	13	13	5.4	7.7
B-5	350.74	8	8	Dry	5.5	B-58	349.76	13	13	7.8	8.2
B-6	333.13	8	8	Dry	8.8	B-59	344.89	10	10	7.5	7.6
B-7	368.14	12	12	Dry	8.0	B-60	342.43	10	10	5.0	6.3
B-8	364.42	10	10	Dry	8.0	B-61	339.96	10	10	Dry	7.1
B-9	340.58	12	12	Dry	---	B-62	338.19	10	10	Dry	7.0
B-10	346.77	12	12	Dry	---	B-63	349.68	12	12	Dry	7.0
B-11	360.30	13	13	Dry	8.0	B-64	365.03	12	12	Dry	6.3
B-12	355.40	8	8	Dry	6.5	B-65	344.07	12	12	6.6	9.3
B-13	350.15	8	8	Dry	6.0	B-66	375.86	10	10	Dry	7.3
B-14	341.69	8	8	Dry	6.0	B-67	372.86	10	10	Dry	7.2
B-15	342.69	10	10	Dry	6.3	B-68	373.54	12	12	Dry	8.3
B-16	336.33	10	10	Dry	7.5	B-69	374.57	12	12	Dry	8.3
B-17	334.68	20	20	6.0	10.0	B-70	387.96	12	12	Dry	9.3
B-18	334.79	20	20	6.0	8.0	B-71	382.46	12	12	Dry	8.3
B-19	337.39	20	20	6.5	8.0	B-72	337.39	10	10	Dry	8.0
B-20	337.66	20	20	8.5	9.0	B-73	393.82	12	12	Dry	8.3
B-21	342.70	11	11	Dry	7.3	B-74	389.82	10	10	Dry	7.9
B-22	342.65	10	10	Dry	6.8	B-75	399.86	12	12	Dry	8.5
B-23	349.30	10	10	Dry	6.8	B-76	404.68	18	18	Dry	14.9
B-24	357.62	10	10	Dry	2.0	B-77	378.15	12	12	Dry	8.7
B-25	362.96	10	10	Dry	7.8	B-78	385.62	16	16	Dry	11.7
B-26	369.02	10	10	Dry	7.2	B-79	388.42	20	19.3	8.0	14.5
B-27	375.68	10	10	Dry	7.3	B-80	351.76	15	15	8.0	10.9
B-28	362.00	8	8	Dry	---	B-81	351.43	16	13.8	4.0	10.8
B-29	380.55	12	12	Dry	8.0	B-82	383.35	10	10	Dry	6.3
B-30	389.38	10	10	Dry	8.0	B-83	390.35	18	18	Dry	14.3
B-31	382.45	8	8	Dry	6.3	B-84	392.65	20	20	Dry	18.0
B-32	386.71	10	10	Dry	7.8	B-85	371.54	14	14	4.3	6.8
B-33	380.93	10	10	Dry	8.7	B-86	369.05	14	14	7.5	10.0
B-34	374.98	8	8	Dry	6.8	B-87	363.35	12	12	Dry	7.0
B-35	376.51	8	8	Dry	6.0	B-88	355.62	12	12	2.1	8.5
B-36	378.77	8	8	Dry	6.8						
B-37	379.07	10	10	Dry	8.1						
B-38	363.24	10	10	Dry	6.9						
B-39	387.87	10	10	Dry	7.5						
B-40	391.47	10	10	Dry	6.0						
B-41	401.83	14	14	Dry	11.0						
B-42	394.45	10	10	Dry	8.8						
B-43	381.98	12	12	Dry	10.5						
B-44	351.82	15	9	Dry	6.0						
B-45	361.34	10	10	Dry	8.5						
B-46	363.38	10	10	Dry	6.2						
B-47	363.80	10	10	Dry	6.5						
B-48	353.07	12	12	Dry	7.5						
B-49	375.29	10	10	Dry	7.0						
B-50	385.56	12	12	Dry	9.0						
B-51	391.80	18	18	Dry	14.0						
B-52	378.14	12	12	Dry	7.5						
B-53	374.48	12	12	Dry	8.0						

\* Groundwater encountered at 8.5 ft while drilling in Boring B-44

Auger Refusal encountered at depth shallower than proposed



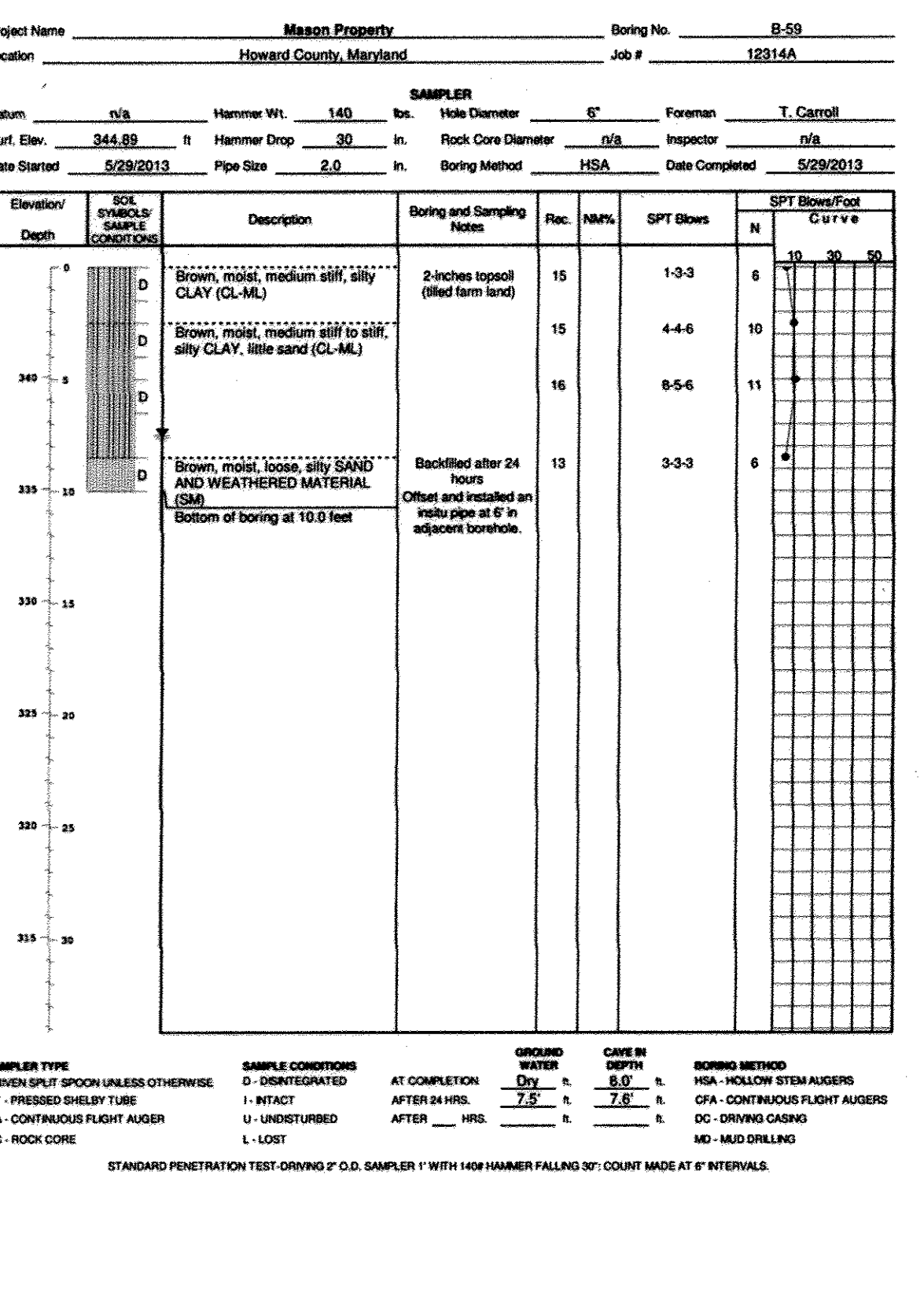
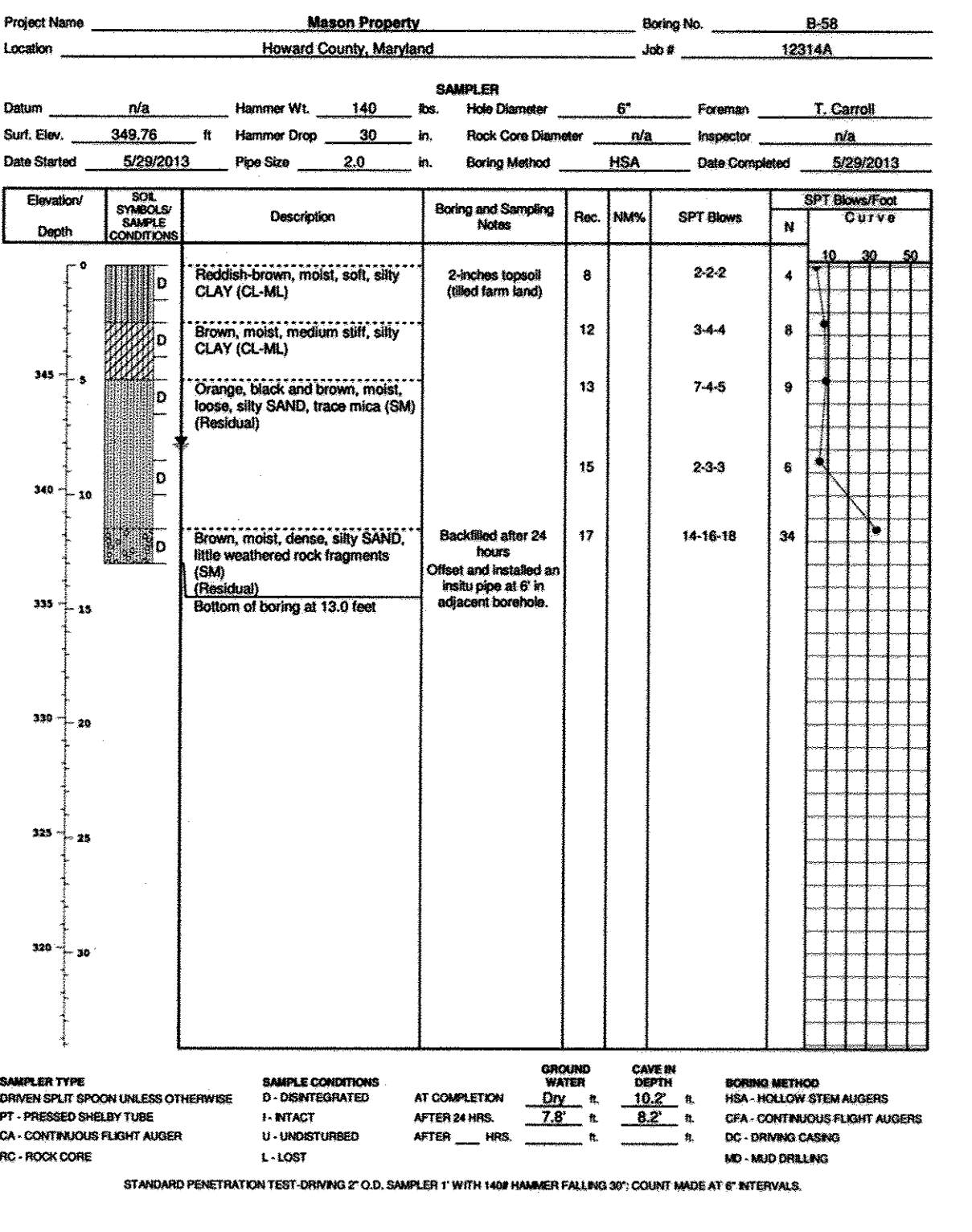
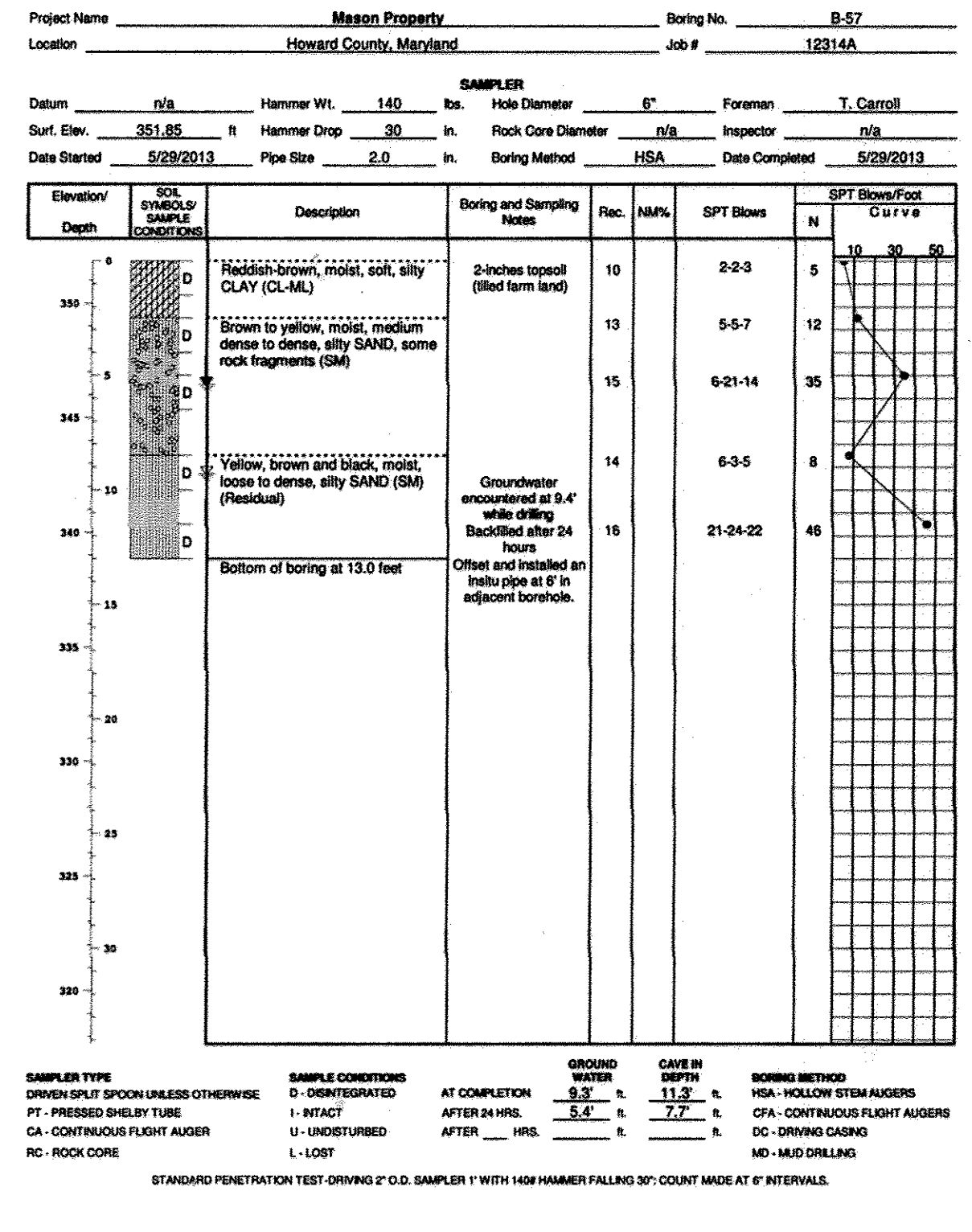
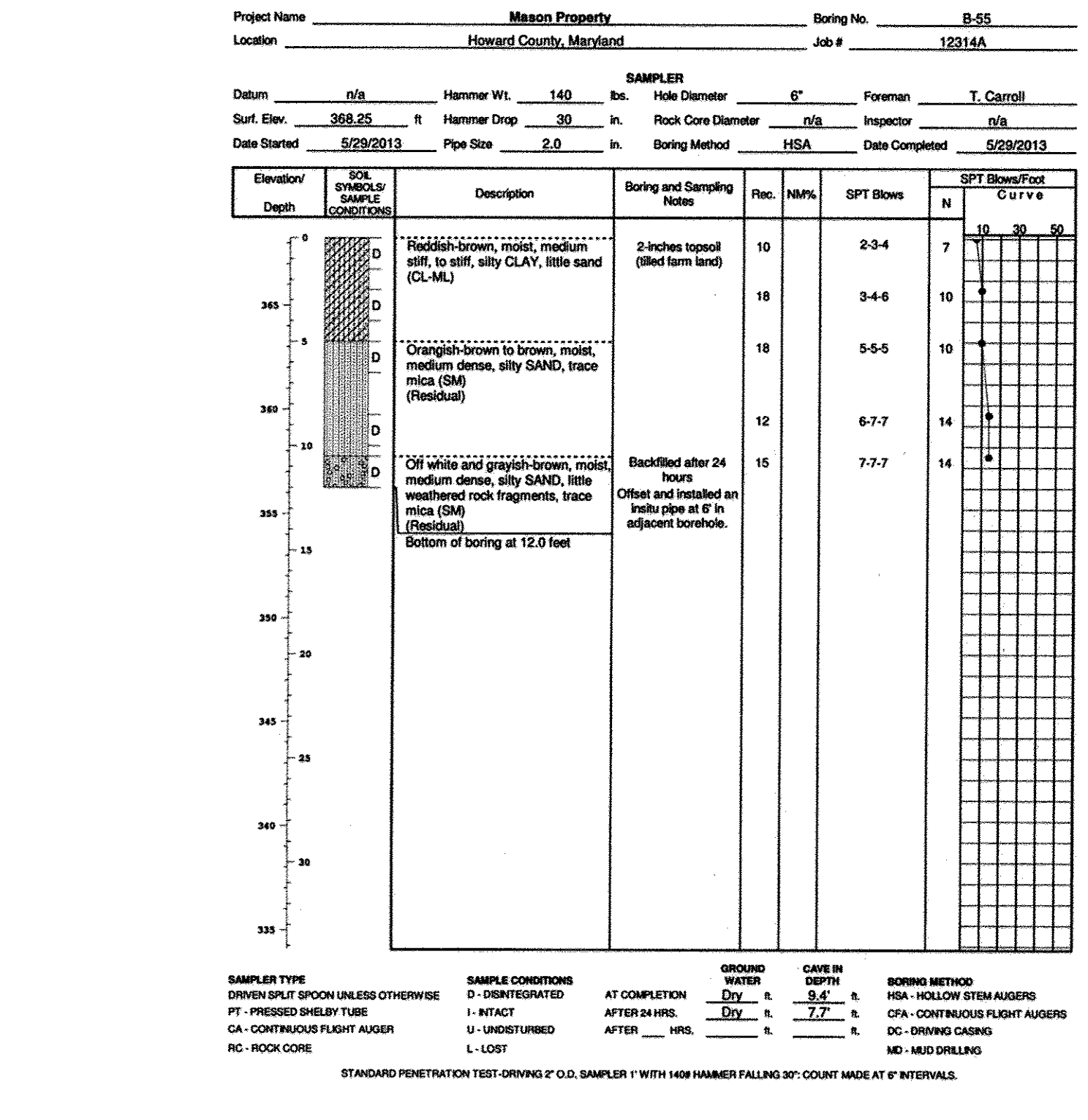
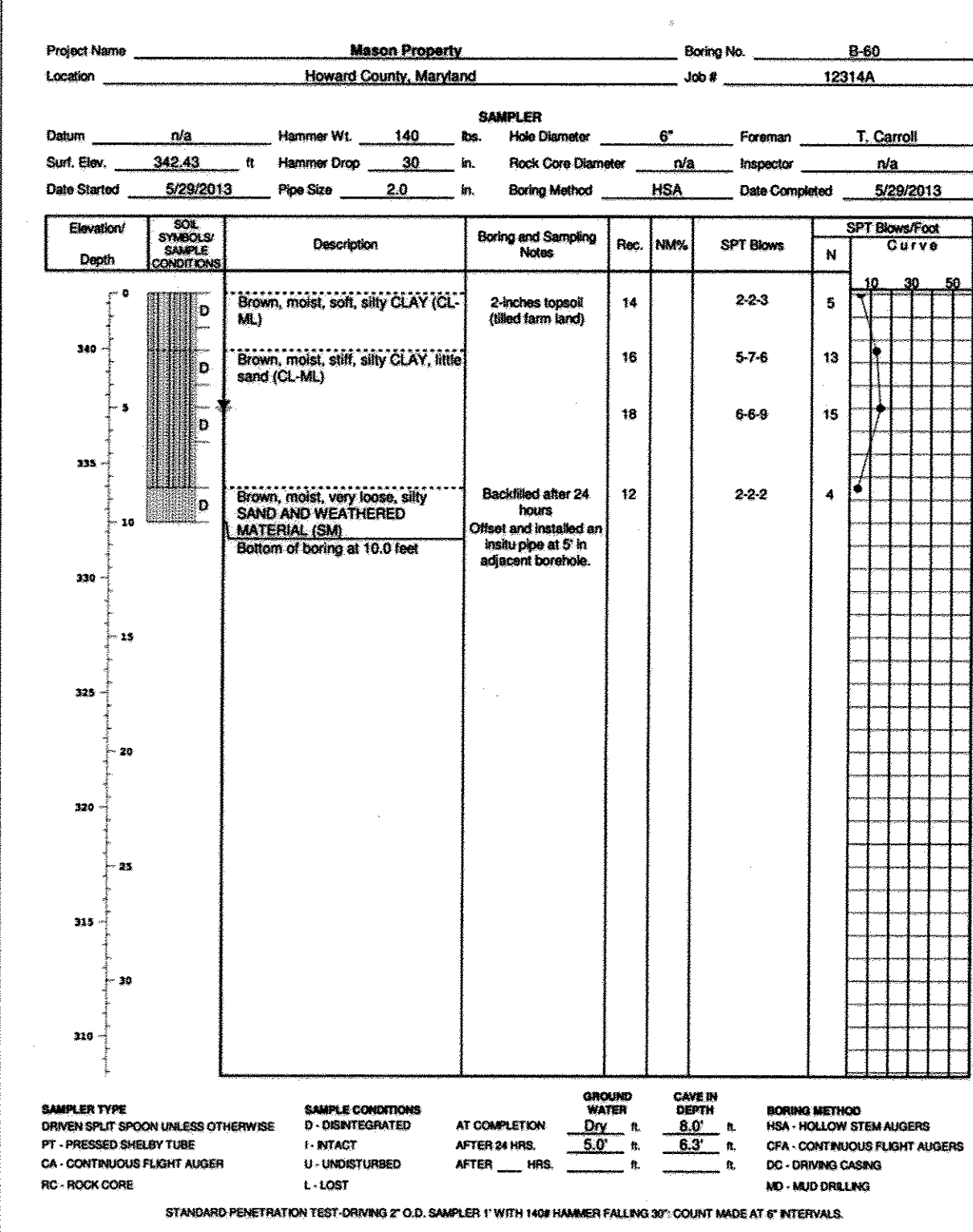
SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED  
 SAMPLE CONDITIONS: D - DISTURBED, I - INTACT, U - UNDISTURBED, L - LOST  
 AT COMPLETION: AFTER 24 HRS.  
 GROUND WATER: Dry, 8.5 ft  
 CASE IN DEPTH: 8.5 ft  
 BORING METHOD: HSA - HOLLOW STEM AUGERS, CFA - CONTINUOUS FLIGHT AUGERS, DC - DRIVING CASING, MD - MUD DRILLING

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED  
 SAMPLE CONDITIONS: D - DISTURBED, I - INTACT, U - UNDISTURBED, L - LOST  
 AT COMPLETION: AFTER 24 HRS.  
 GROUND WATER: Dry, 8.0 ft  
 CASE IN DEPTH: 8.0 ft  
 BORING METHOD: HSA - HOLLOW STEM AUGERS, CFA - CONTINUOUS FLIGHT AUGERS, DC - DRIVING CASING, MD - MUD DRILLING

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED  
 SAMPLE CONDITIONS: D - DISTURBED, I - INTACT, U - UNDISTURBED, L - LOST  
 AT COMPLETION: AFTER 24 HRS.  
 GROUND WATER: Dry, 6.0 ft  
 CASE IN DEPTH: 6.0 ft  
 BORING METHOD: HSA - HOLLOW STEM AUGERS, CFA - CONTINUOUS FLIGHT AUGERS, DC - DRIVING CASING, MD - MUD DRILLING

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED  
 SAMPLE CONDITIONS: D - DISTURBED, I - INTACT, U - UNDISTURBED, L - LOST  
 AT COMPLETION: AFTER 24 HRS.  
 GROUND WATER: Dry, 8.0 ft  
 CASE IN DEPTH: 8.0 ft  
 BORING METHOD: HSA - HOLLOW STEM AUGERS, CFA - CONTINUOUS FLIGHT AUGERS, DC - DRIVING CASING, MD - MUD DRILLING

BORING LOGS SHOWN HEREON REQUIRED INSITU TESTING.



SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED  
 SAMPLE CONDITIONS: D - DISTURBED, I - INTACT, U - UNDISTURBED, L - LOST  
 AT COMPLETION: AFTER 24 HRS.  
 GROUND WATER: Dry, 8.0 ft  
 CASE IN DEPTH: 8.0 ft  
 BORING METHOD: HSA - HOLLOW STEM AUGERS, CFA - CONTINUOUS FLIGHT AUGERS, DC - DRIVING CASING, MD - MUD DRILLING

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED  
 SAMPLE CONDITIONS: D - DISTURBED, I - INTACT, U - UNDISTURBED, L - LOST  
 AT COMPLETION: AFTER 24 HRS.  
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 CASE IN DEPTH: 8.5 ft  
 BORING METHOD: HSA - HOLLOW STEM AUGERS, CFA - CONTINUOUS FLIGHT AUGERS, DC - DRIVING CASING, MD - MUD DRILLING

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 SAMPLE CONDITIONS: D - DISTURBED, I - INTACT, U - UNDISTURBED, L - LOST  
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SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED  
 SAMPLE CONDITIONS: D - DISTURBED, I - INTACT, U - UNDISTURBED, L - LOST  
 AT COMPLETION: AFTER 24 HRS.  
 GROUND WATER: Dry, 8.0 ft  
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 CASE IN DEPTH: 8.0 ft  
 BORING METHOD: HSA - HOLLOW STEM AUGERS, CFA - CONTINUOUS FLIGHT AUGERS, DC - DRIVING CASING, MD - MUD DRILLING

FISHER, COLLINS & CARTER, INC.  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 10272 BALTIMORE NATIONAL PIKE  
 ELICOTT CITY, MARYLAND 21042

AS-BUILT CERTIFICATION  
 Note: There is no "AS BUILT" information provided on this sheet.  
 Date: 2/15/18

OWNER/DEVELOPER  
 BEAZER HOMES CORP  
 8965 GULFORD ROAD  
 COLUMBIA, MARYLAND 21046  
 (410-720-5071)

No.	Revisions	Date
1	Revise Title Block	4-3-15
2	CHANGE SHEET NUMBER TO REFLECT ADDED SHEET	10/2/16



Professional certification I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-15.

BORING LOGS  
 CENTENNIAL LAKE OVERLOOK  
 (FORMERLY MASON PROPERTY)  
 SECTION TWO  
 BUILDABLE LOTS 29 - 98 &  
 OPEN SPACE LOTS 99 THRU 112  
 A RESUBDIVISION OF BUILDABLE BULK PARCELS 'A' & 'B'  
 ZONING: R-20  
 TAX MAP No. 30 GRID No. 2 PARCEL No. 86  
 2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN DATE: MAY 30, 2014  
 SHEET 38 OF 40

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

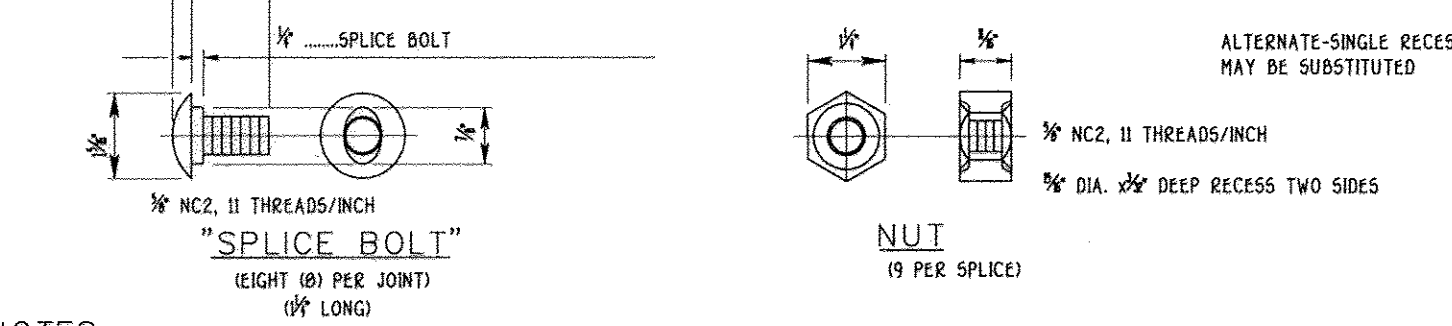
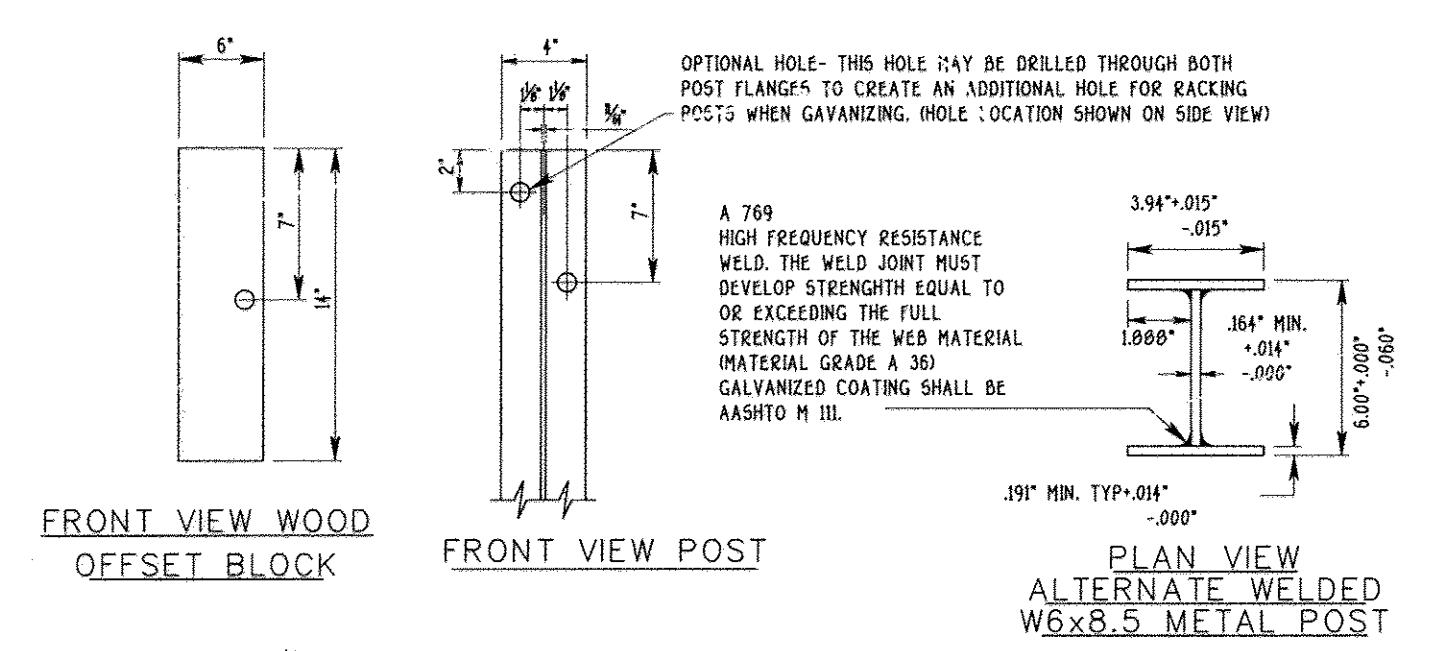
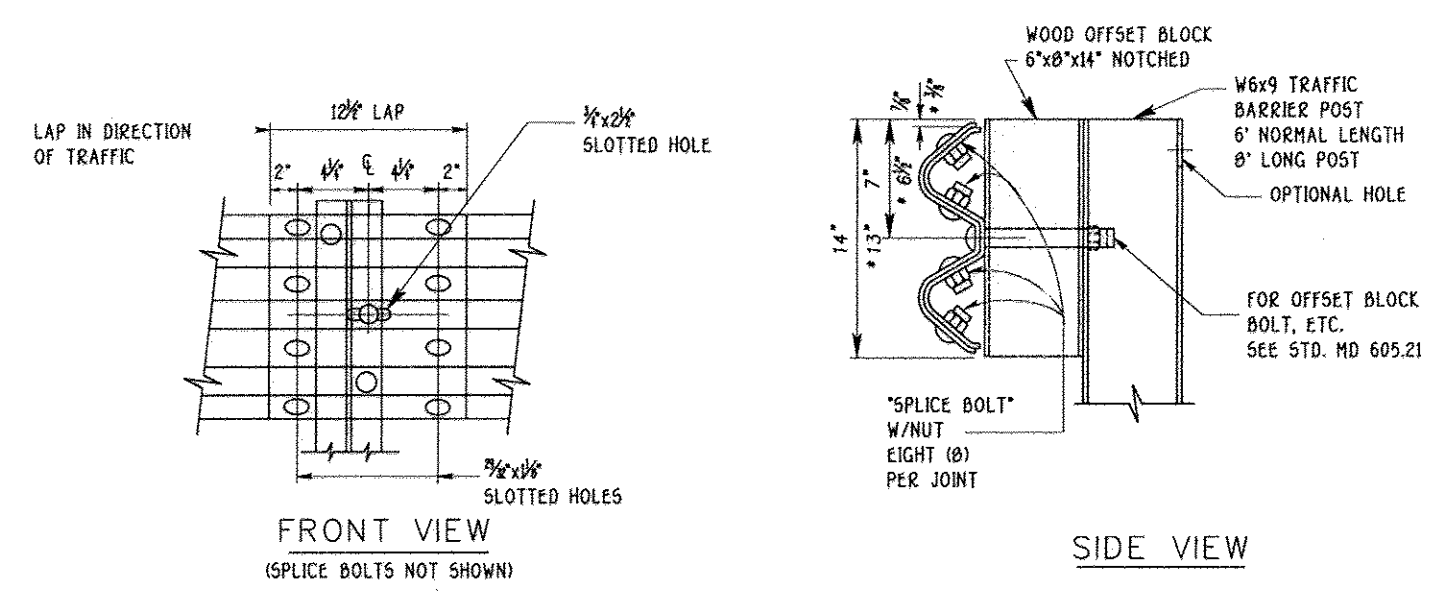


APPROVED: DEPARTMENT OF PUBLIC WORKS  
 H. J. S. [Signature] 6-10-14  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 V. J. [Signature] 6-24-14  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 6-16-14  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

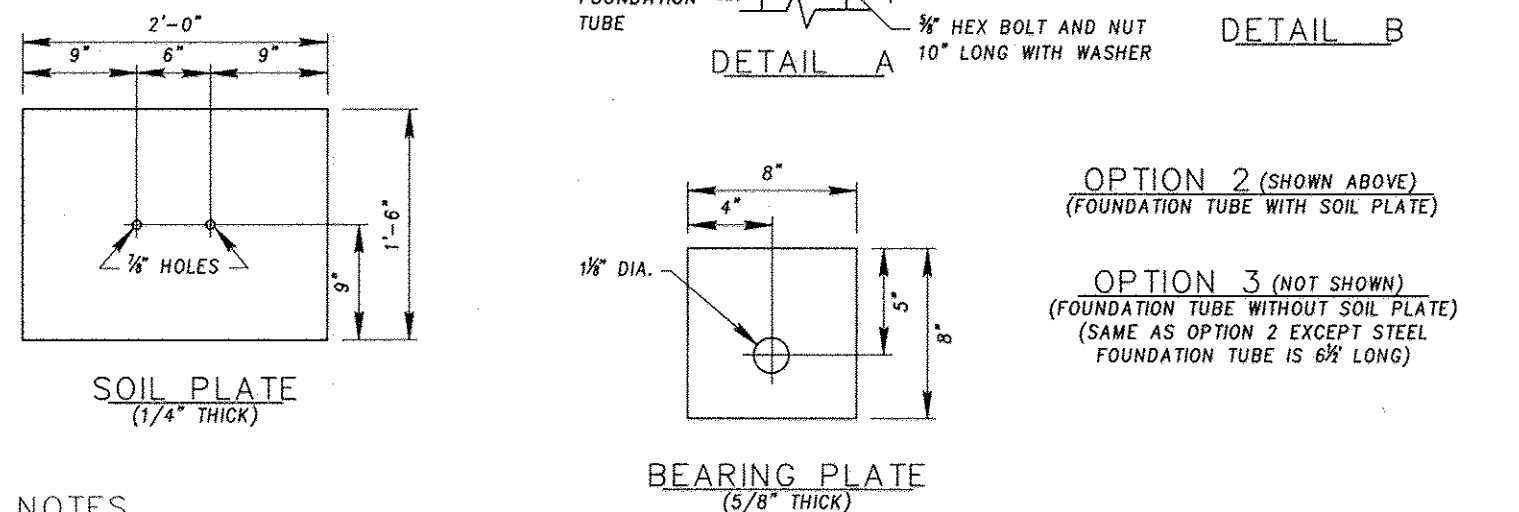
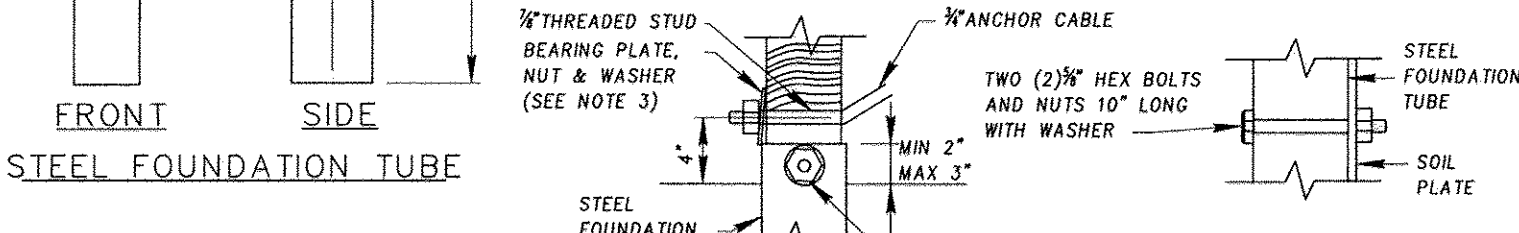
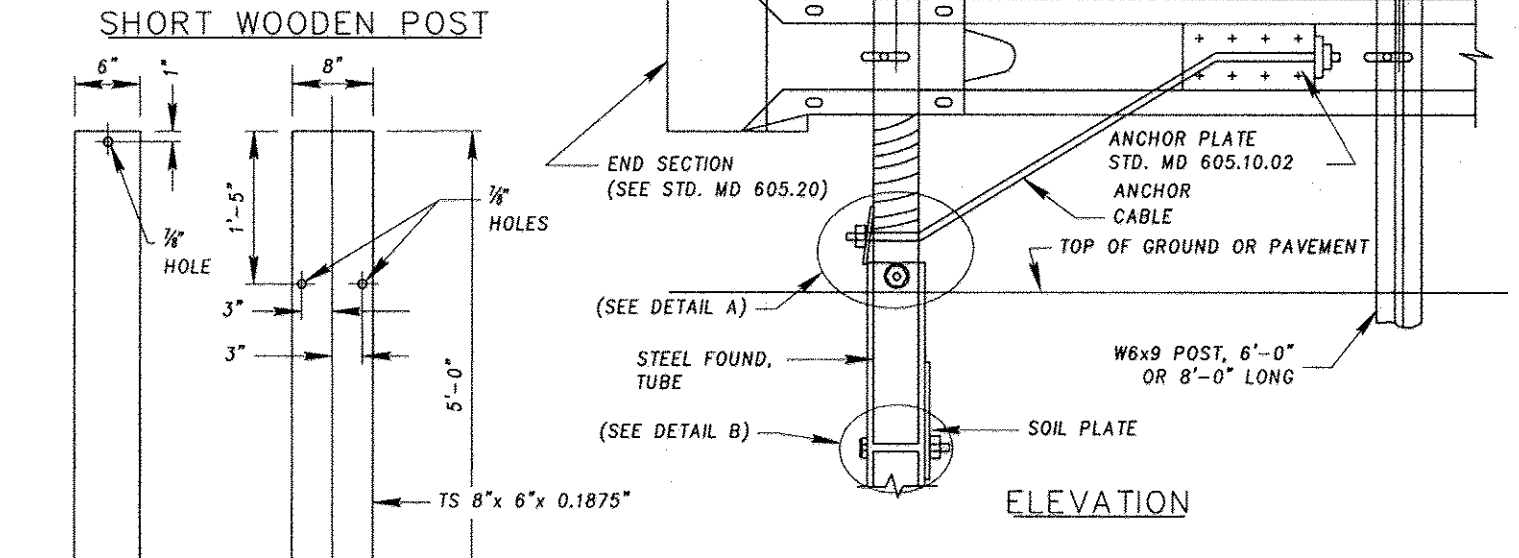
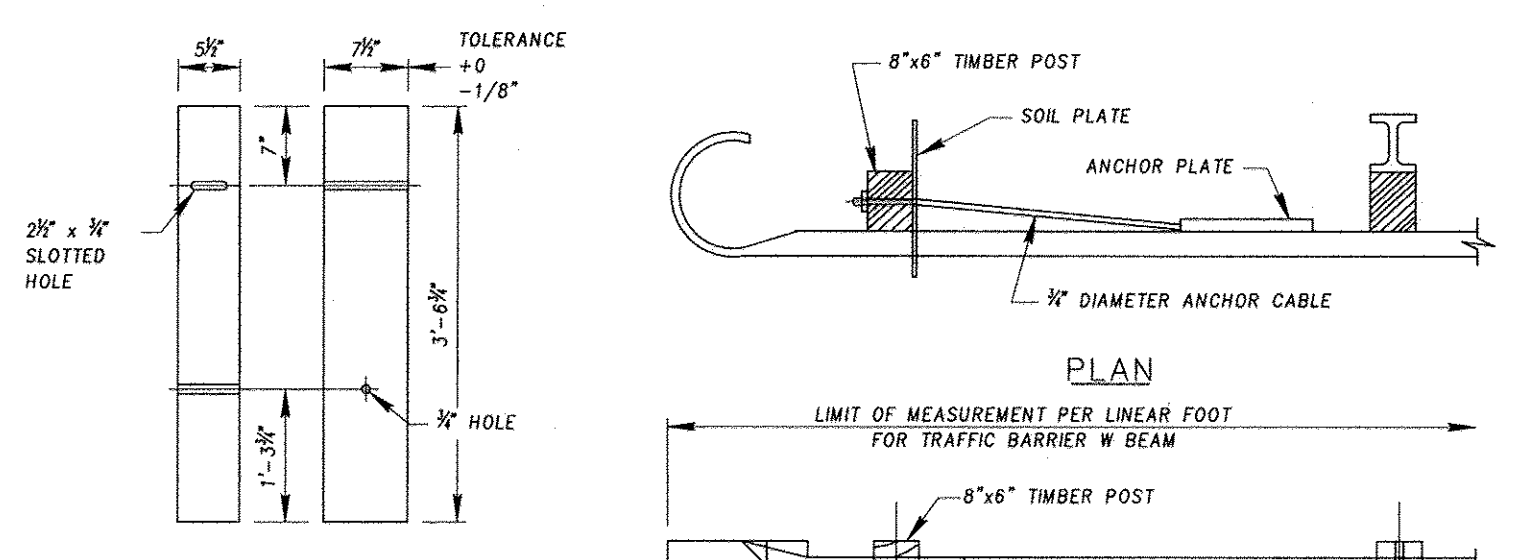
NO.	REVISIONS	DATE
1	Revise Title Block	4-3-15
2	Revise Sheet Number to Reflect Approved Sheet	10/1/16



**NOTES**

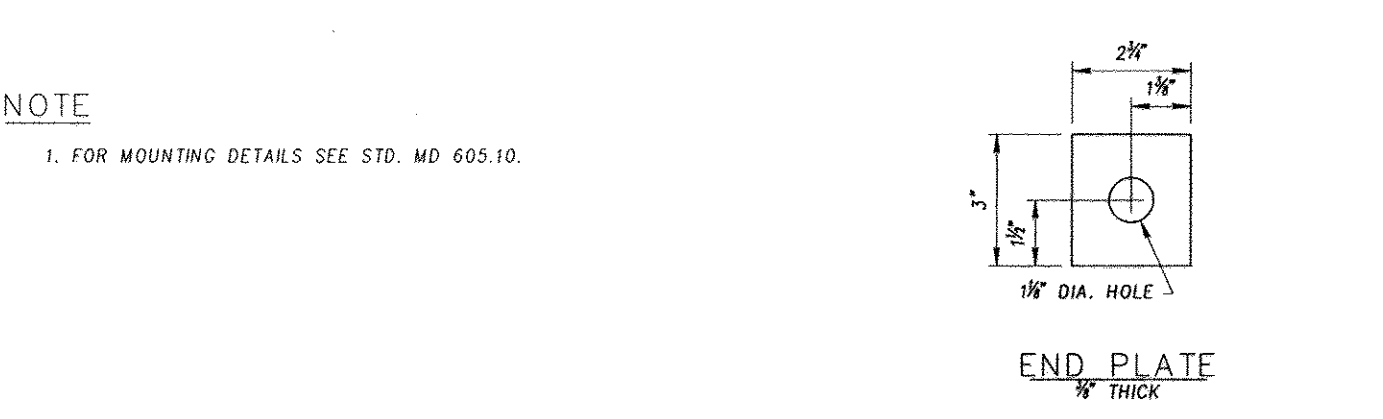
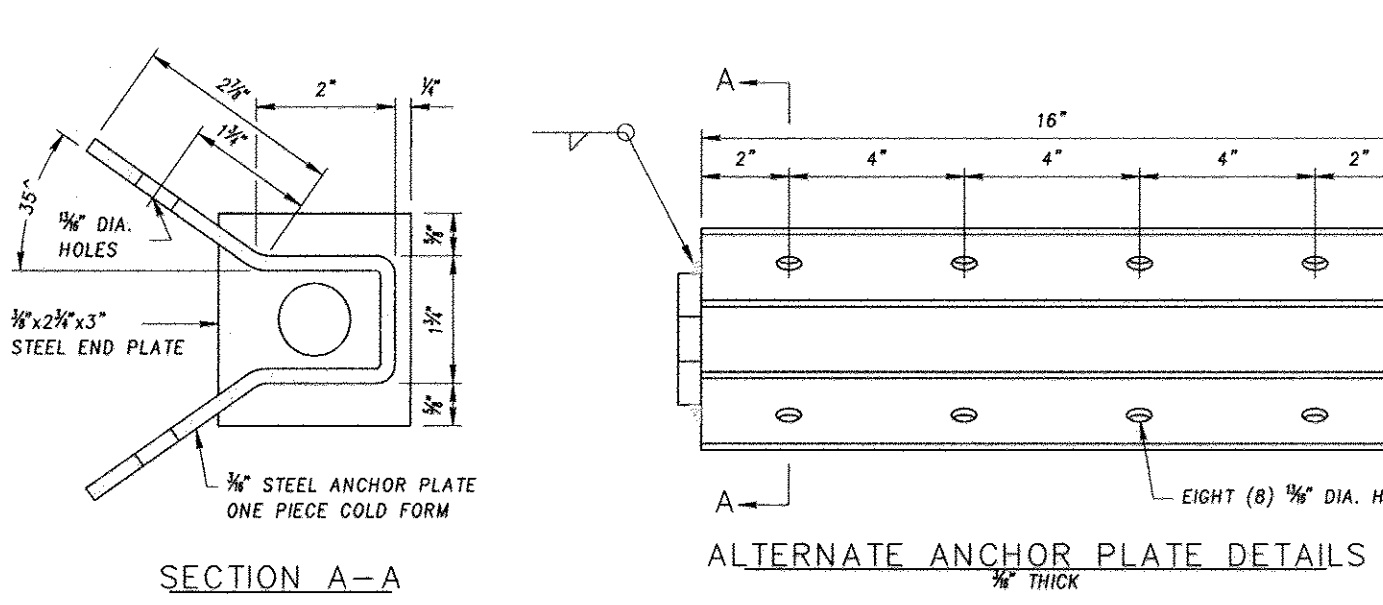
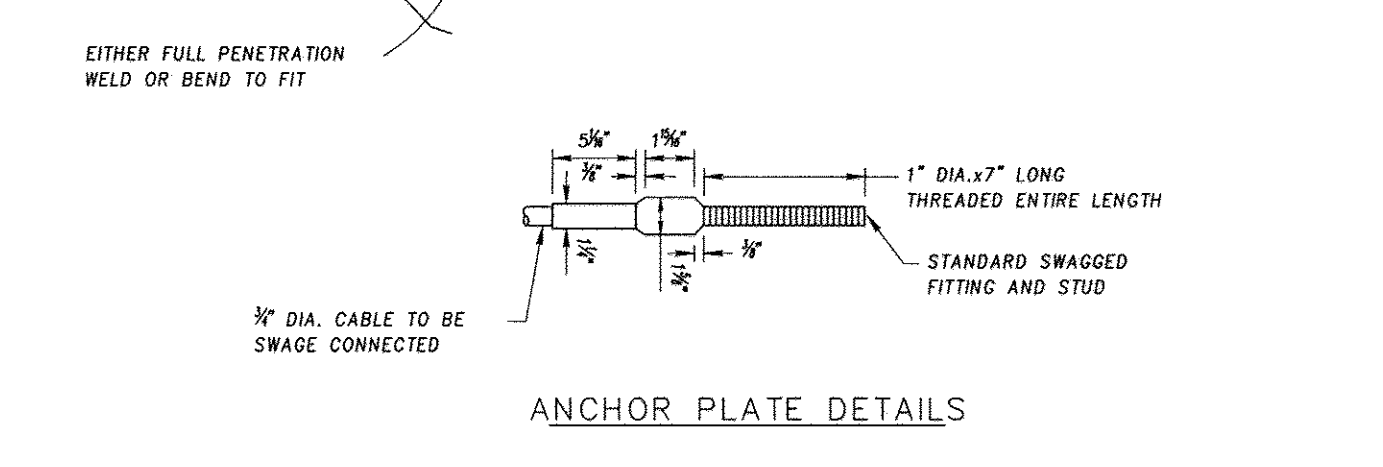
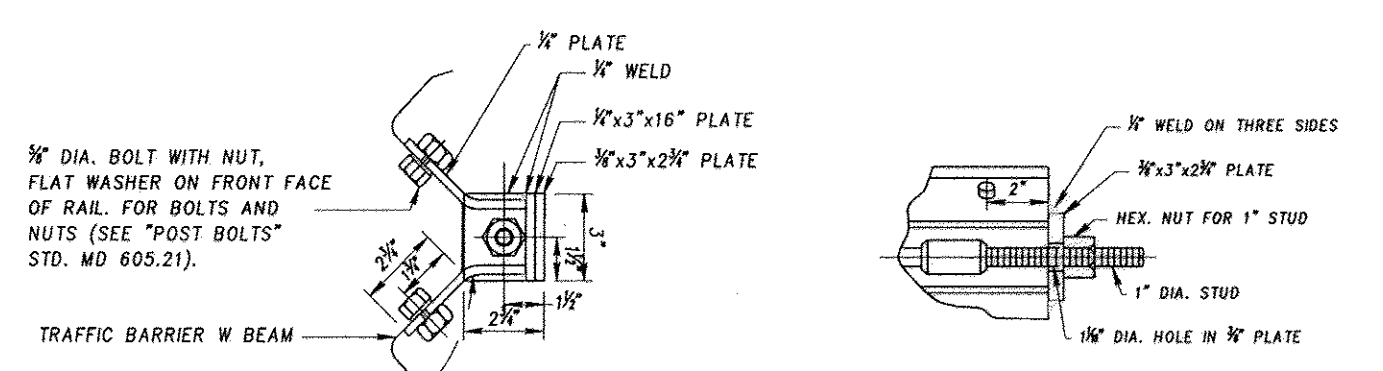
- EXCEPT FOR THE DIMENSIONS SHOWN ON THE ALTERNATE WELDED W6x8.5 PLAN VIEW, ALL DIMENSIONS FOR HOLES, HOLE SPACING, LENGTHS, ETC. WILL REMAIN THE SAME AS THEY ARE FOR THE W6x9 POSTS AND WOOD OFFSET BLOCKS.
- FOR COMPOSITE OFFSET BLOCKS SEE NOTE 5 ON MD 605.21
- POSTS SHALL BE SPACED 6'-3\"/>

**TRAFFIC BARRIER W BEAM METAL POST, W BEAM SPLICE AND WOOD OFFSET BLOCK**  
 NOT TO SCALE MD 605.23



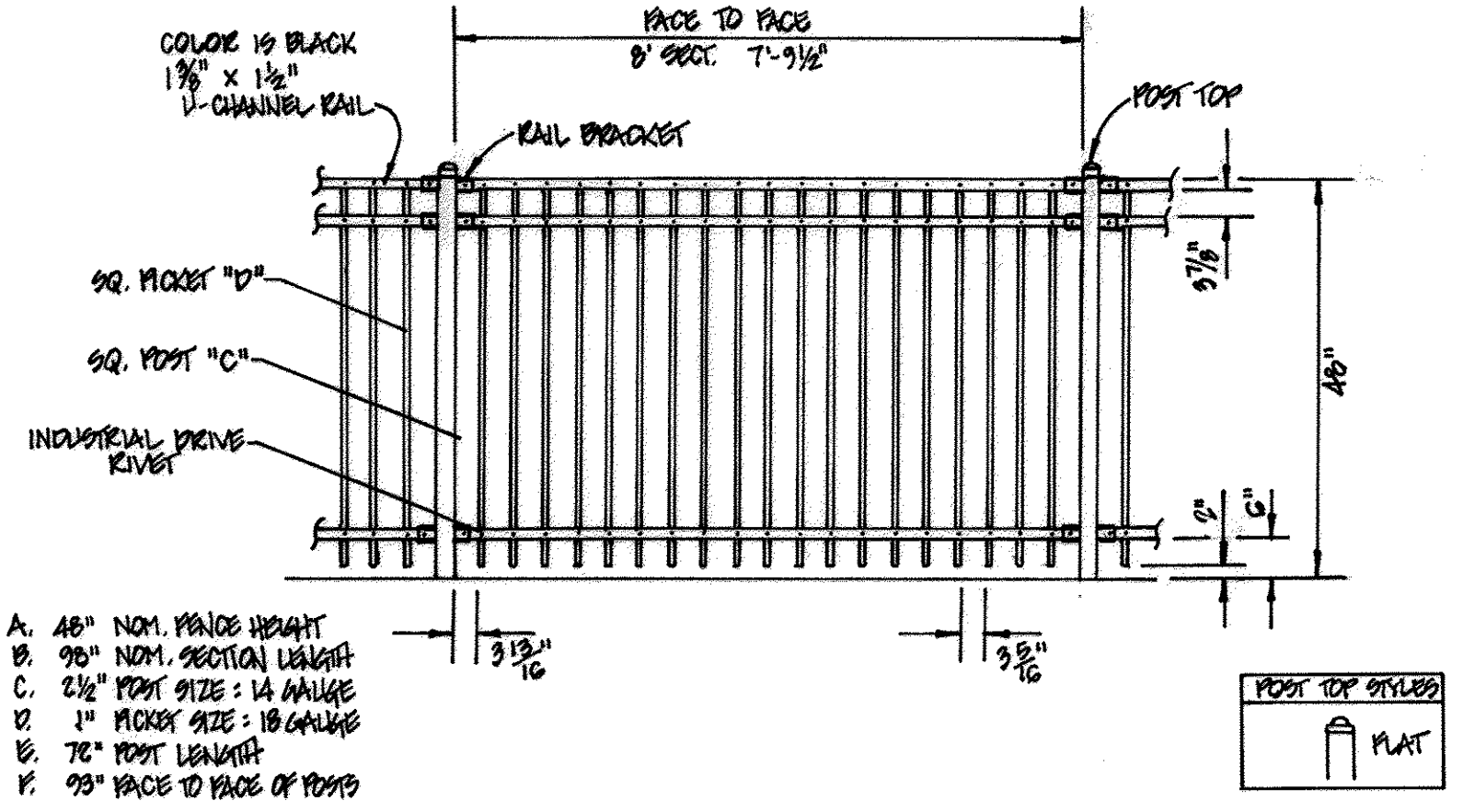
**NOTES**

- NOTES ON STD. MD 605.10 APPLY TO OPTION 2 & 3.
- IF THE FOUNDATION TUBE AND SOIL PLATE (OPTION 2) ARE DRIVEN INTO THE SOIL, PROPER CARE SHOULD BE TAKEN TO ENSURE THAT THE SOIL PLATE FASTENERS ARE NOT BROKEN DURING THE DRIVING PROCESS.
- SECURE BEARING PLATE WITH 16 PENNY GALVANIZED NAIL TO PREVENT ROTATION OF PLATE.
- SAME AS MD 605.01 NOTE 6



**NOTE**

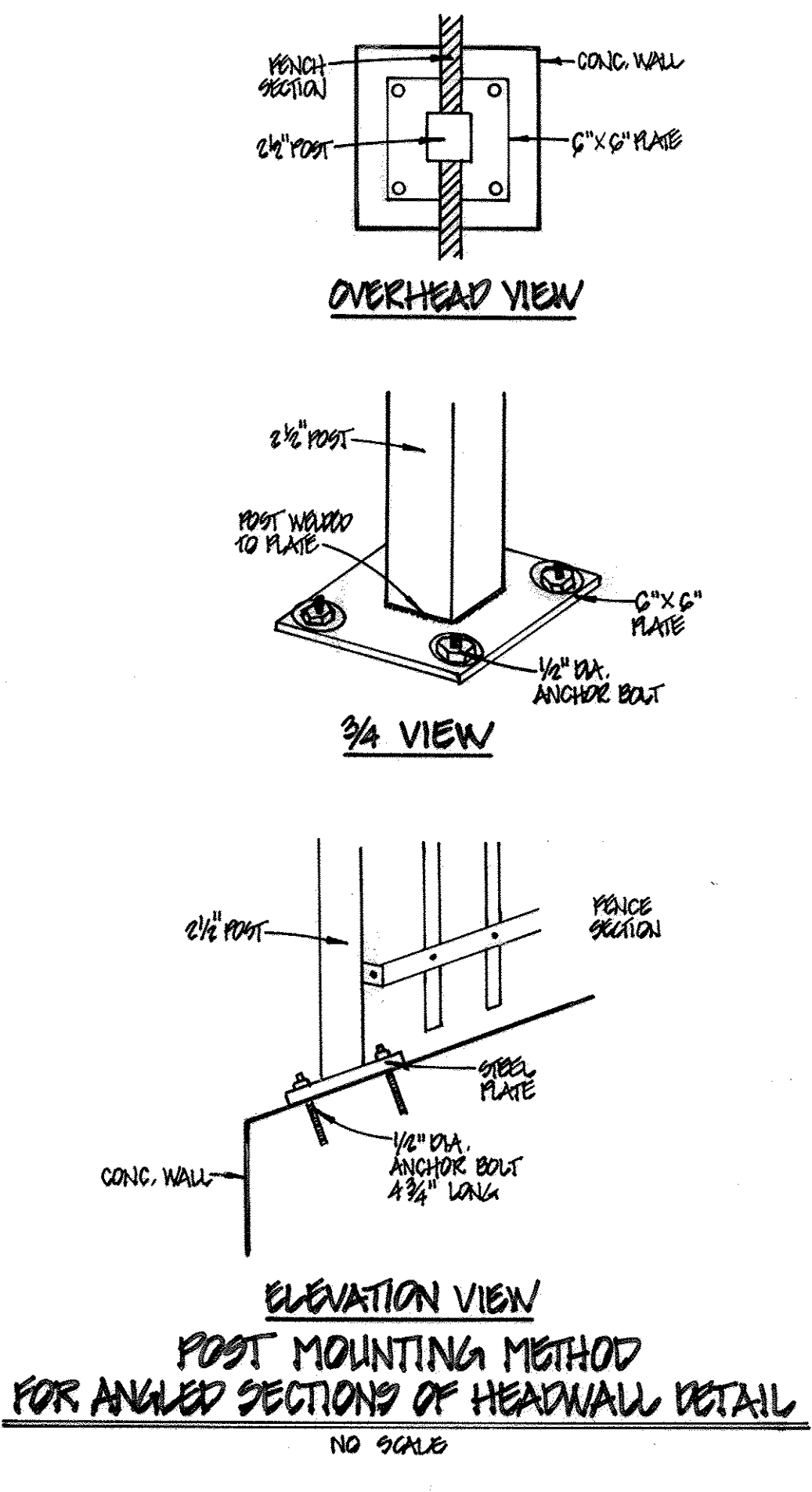
- FOR MOUNTING DETAILS SEE STD. MD 605.10.



**NOTES:**

- SPECIFICATIONS SHOWN CAN BE CHANGED BY THE MANUFACTURER ONLY.
- POSTING WIDTH TO BE (A) X POST WIDTH.
- POST SECTION WITH 1\"/>

**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTENNIAL SQUARE OFFICE PARK - 18275 BALTIMORE NATIONAL PIKE  
 ELLICOTT CITY, MARYLAND 21042  
 (410) 481-2055



**OWNER/DEVELOPER**  
 BEAZER HOMES CORP  
 9965 GUILFORD ROAD  
 COLUMBIA, MARYLAND 21046  
 (410-720-5071)

**NO PARKING SIGN LOCATION**

ROAD NAME	CENTERLINE STA.	OFFSET
WELLFORD DRIVE	0+83	15' L
WELLFORD DRIVE	0+83	15' R
WELLFORD DRIVE	4+10	15' R
WELLFORD DRIVE	5+23	15' L
WELLFORD DRIVE	6+95	15' R
WELLFORD DRIVE	7+38	15' L
WELLFORD DRIVE	7+87	15' R
WELLFORD DRIVE	7+87	15' L
WELLFORD DRIVE	13+19	15' R
WELLFORD DRIVE	13+19	15' L
WELLFORD DRIVE	14+10	15' R
WELLFORD DRIVE	14+10	15' L
WELLFORD DRIVE	16+75	15' R
WELLFORD DRIVE	16+75	15' L
WELLFORD DRIVE	17+44	15' L
WELLFORD DRIVE	18+09	15' R
WELLFORD DRIVE	21+25	15' L
WELLFORD DRIVE	21+64	15' R
WELLFORD DRIVE	21+84	15' L
WELLFORD DRIVE	22+60	15' R
WELLFORD DRIVE	23+45	15' L
WELLFORD DRIVE	23+98	15' L
WELLFORD DRIVE	26+00	15' R
WELLFORD DRIVE	27+00	15' R
WELLFORD DRIVE	27+00	15' L
WELLFORD DRIVE	28+32	15' L
WELLFORD DRIVE	29+78	15' L
WELLFORD DRIVE	29+78	15' R
WELLFORD DRIVE	30+30	15' L
WELLFORD DRIVE	30+80	15' R
WELLFORD DRIVE	33+58	15' L
WELLFORD DRIVE	33+58	15' R



**"NO PARKING" SIGN DETAIL**  
 NOT TO SCALE

**AS-BUILT CERTIFICATION**  
 Note: There is no "AS BUILT" information provided on this sheet.  
 [Signature] 2/15/18  
 CHARLES J. ORDO, P.E. No. 19104 Date



ALDO M. VITUCCI, P.E.  
 [Signature] 2/15/18  
 "Professional certification I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-15."

**AND FENCE GUARDRAIL DETAILS**  
**CENTENNIAL LAKE OVERLOOK**  
 (FORMERLY MASON PROPERTY)  
**SECTION TWO**  
 BUILDABLE LOTS 29 - 98 &  
 OPEN SPACE LOTS 99 THRU 112  
 A RESUBDIVISION OF BUILDABLE BULK PARCELS 'A' & 'B'  
 ZONING: R-20  
 TAX MAP No. 30 GRID No. 2 PARCEL No. 86  
 2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN DATE: MAY 30, 2014  
 SHEET 39 OF 40

THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET F-14-081



# 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 REASONABLY 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.  
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" x 18" (W) x 12" (D) MINIMUM;

- UNIT WEIGHT - 75 LBS/UNIT MINIMUM FOR STANDARD WEIGHT AGGREGATES;  
INTER-UNIT SHEAR STRENGTH - 1000 PLF MINIMUM AT 2 PSI NORMAL PRESSURE; AT 2 PSI NORMAL FORCE.  
GEOGRID/UNIT PEAK CONNECTION STRENGTH - 1000 PLF MINIMUM
- 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 BE 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:  

SIET SIZE	PERCENT PASSING
2 INCH	100-75
3/4 INCH	100-75
NO. 40	0-60
NO. 200	0-35

  
 PLASTICITY INDEX (PI) <10 AND LIQUID LIMIT <35 PER ASTM D-4318.  
 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. SPLICED 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 COMPACTED IN SUCH A MANNER THAT MINIMIZES THE DEVELOPMENT OF SLACK IN THE GEOGRID AND INSTALLATION DAMAGE.

- B. REINFORCED BACKFILL SHALL BE PLACED AND COMPACTED IN LIFTS NOT TO EXCEED 6 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 COMPACTED TO 95% 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 Tired 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.

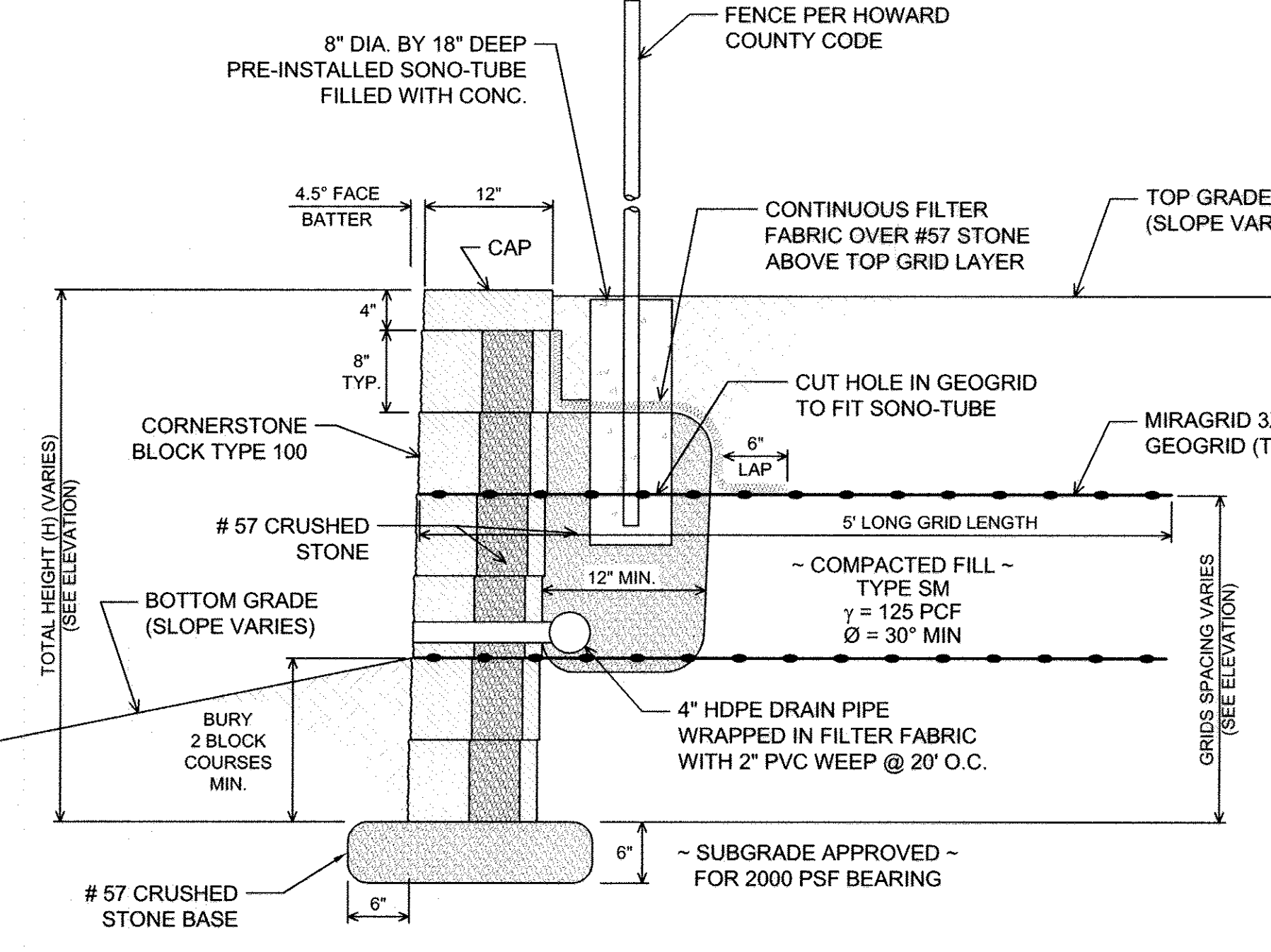
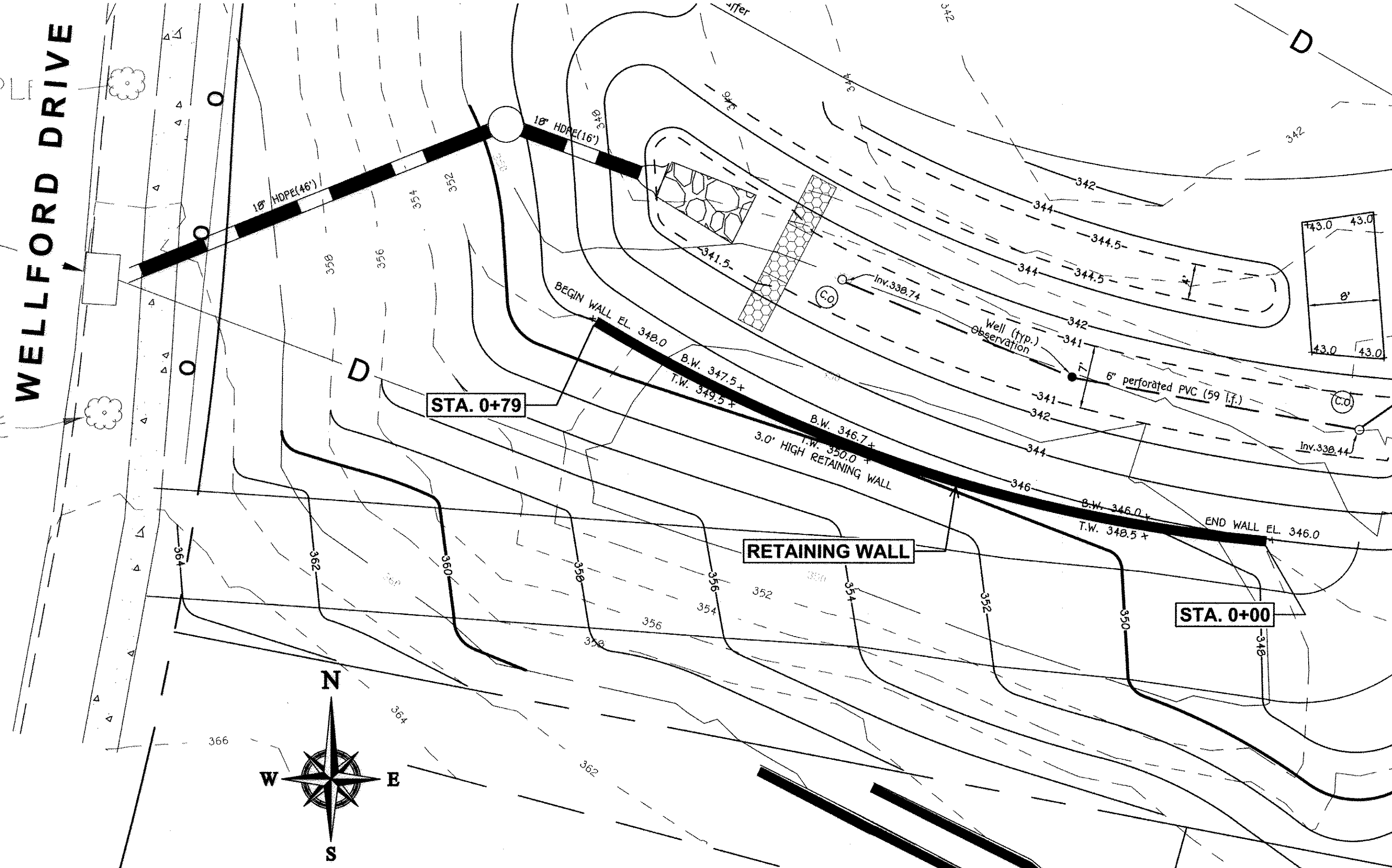
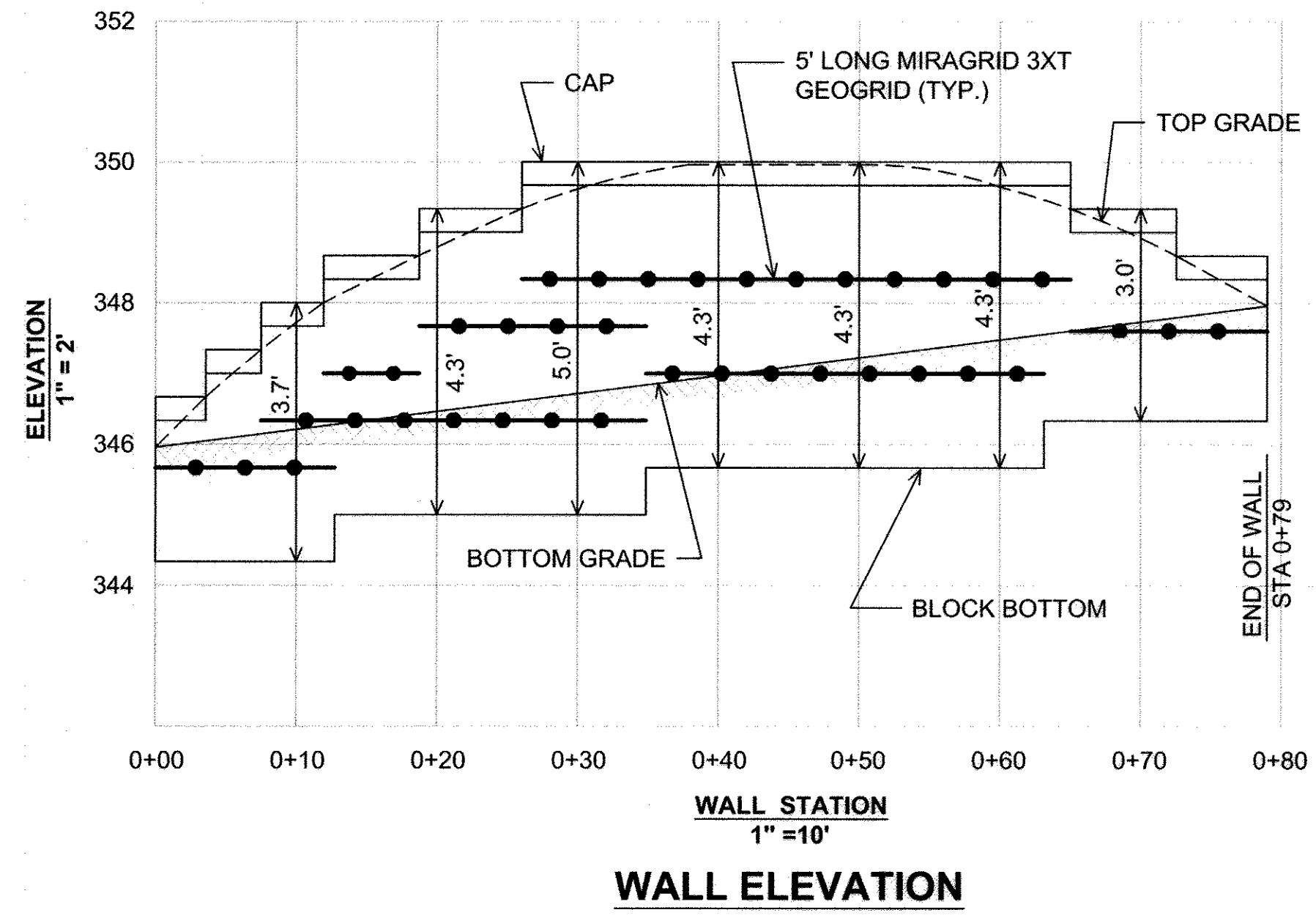
### 3.06 CAP INSTALLATION

- 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.



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

*[Signature]* 11/28/2018  
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

*[Signature]* 12/5/16  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*[Signature]* 12.1.16  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

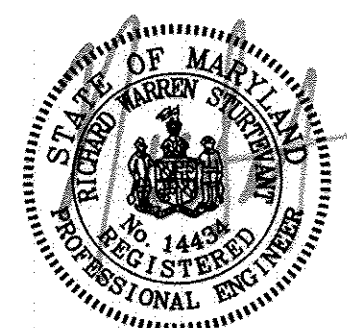
NO.	DESCRIPTION	DATE

**HILLIS-CARNES**  
ENGINEERING ASSOCIATES  
10975 Guilford Road, Suite A Annapolis Junction, Maryland  
(410) 880-4788 WWW.HCEA.COM Fax: (410) 880-4098 HCEA JOB NO.: 16074-X

**WALL LOCATION PLAN**  
1" = 10'

OWNER/DEVELOPER  
BEAZER HOMES CORP  
8965 GUILFORD ROAD  
COLUMBIA, MARYLAND 21046  
(410)-720-5071

PROFESSIONAL CERTIFICATION  
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. 14436, EXPIRATION DATE: 09/30/17.



AS-BUILT CERTIFICATION  
Note: There is no "AS BUILT" information provided on this sheet.  
*[Signature]* 2/15/18  
Date  
CHARLES J. CARUSO, PE, NO. 14436  
PATER, COLLINS & CARVER, INC.

NOTE: THE PURPOSE OF THIS PLAN IS TO ADD A RETAINING WALL TO ESD NO. 2 ON OPEN SPACE LOT 110

REVISED  
FINAL ROAD CONSTRUCTION PLAN  
CENTENNIAL LAKE OVERLOOK  
(FORMERLY MASON PROPERTY)  
SECTION TWO  
BUILDABLE LOTS 29 THRU 98  
AND OPEN SPACE LOTS 99 THRU 112  
A RESUBDIVISION OF BUILDABLE BULK PARCELS 'A' & 'B'  
ZONING: R-20  
TAX MAP No. 30 GRID No. 2 PARCEL No. 86  
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: NOVEMBER 7, 2016  
SHEET 40 OF 40