

General Notes

- All construction shall be in accordance with the latest standards and specifications of Howard County plus MSHA standards and specifications if applicable.
- The contractor shall notify the Department of Public Works/Bureau of Engineering/Construction Inspection Division at 410-313-1900 at least 48 hours 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, markings and signing shall be in accordance with the latest edition of the Manual of Uniform Traffic Control Devices (MUTCD). All street and regulatory signs shall be in place prior to the placement of any asphalt.
- Street light placement and the type of fixture and pole shall be in accordance with the Howard County Design Manual, Volume III (1993) and as modified by "Guidelines for Street Lights in Residential Developments (June 1993)". A minimum 20' feet spacing shall be between the light and any tree.
- The existing on-site topography was flown by Virginia Resource Mapping, Inc., dated March 7, 2002. Supplemental field survey by DMW, Inc. October, 2006, July 2006
- The coordinates shown hereon are based upon the Howard County Geodetic Control which is based upon the Maryland State Plane Coordinate System, Howard County Monument #4FB and #3IC were used for this project.
- Site Data
 - Subdivision Name: Belle Haven Estates
 - Total Area 98.2 Acres
 - Tax Map: 14 Grid 20
 - Parcel: 66
 - Zoning: RC-DEO per Comp. Zoning Plan dated 2004
 - Election District: 5
 - Preliminary Plan Approval Date: Aug 28, 2006
 - File Numbers: F-89-155, S-02-08, P-06-03, WP-89-61
- Street trees shall be planted at least 5' from any inlet structure & 20' from any street light.
- Stormwater Management for this project will be provided in six facilities as shown on the stormwater management plan sheets. Quantity and quality stormwater management requirements are met by applying the Non-Structural BMP Credits in accordance with Chapter 5 of the 2000 Maryland Stormwater Design Manual (the Manual) and with four Wet Extended Detention Ponds (P-3) and two Boretenation facilities designed in accordance with Chapter 3 of the Manual. Recharge will be provided by roadside swales. Water quality will be provided with Credits and the Wet Extended Detention Ponds. CIP will be provided in the ponds above the water quality volume. The four Extended Detention Facilities shall be jointly owned (see sheet this sheet). The two Boretenation Facilities shall be privately owned and maintained. On-lot gravel level spreaders proposed to qualify for sheet flow to buffer credits will be owned and maintained by the individual lot owners.
- Routine maintenance shall be performed by the Home Owner's Association, and non-routine maintenance SWM shall performed by Howard County. The routine and non-routine schedules are shown on each pond sheet for the 4 micro pond extended detention ponds (SWMF #1, #2A, #2B and #3B). The 2 Boretenation facilities (SWMF #3A and #4). Level spreaders will be privately owned and maintained.
- There will be no Howard County services provided onto the flag or pipelstem lots.
- Boundary and existing easements were taken from a boundary survey prepared by Daft, McCune - Walker, Inc. dated Sept. 2003.
- A noise study is not required for this project.
- Financial surety for the required landscaping in the amount of \$95,550.00 (244 shade, 449 evergreen) must be posted as part of the developer's agreement.
- This project complies with the requirements of Section 16.1200 of the Howard County Code for Forest Conservation, with a total Forest Conservation obligation of 54,512 Acres provided by 14,409 Acres (627,657 SF) of on-site retention and 20,203 Acres (880,043 SF) of on-site reforestation. Planting Surety in the amount of \$655,240.00 (\$25,532.00 for retention x \$0.20 per sq. ft. and \$400,022.00 for planting x \$0.50 per sq. ft.) is to be provided with the DPW Developer's Agreement.
- 95% compaction in fill areas to be per AASHTO T-190 standards.
- All sign posts used for traffic control signs installed in the County Right of Way shall be mounted on a 2" galvanized steel, perforated, square tube post (14 gauge) inserted into 2 1/2" galvanized steel, perforated, square tube sleeve (2 gauge), 3' long. A galvanized steel pole cap shall be mounted on top of each post.
- The septic reserve area designation shown in the legend designates a private sewerage easement of at least 10,000 SF as required by the Maryland Department of the Environment for individual sewerage disposal. Improvements of any nature in this area are restricted until public sewerage is available. These easements shall become null and void upon connection to a public sewerage system. The county health officer shall have the authority to grant adjustments to the public sewerage easement. Recordation of a modified sewerage easement shall not be necessary.
- All wells to be drilled prior to submittal of final plan for signature. It is the developer's responsibility to schedule the well drilling prior to final plan submission. It will not be considered "governmental delay" if the well drilling holds-up the Health Department signature of the record plan. If well success rate is accomplished at various locations within the site, the developer shall have the option to request relief from drilling the remaining wells prior to plan recordation.
- The floodplain study was prepared by JayFar, Inc. dated January 2006 and approved in connection with P-06-03
- Existing utilities shown are based on plans of record and field surveys
- Water and Sewer shall be privately owned and maintained by wells and septic fields.
- The wetlands delineation study was prepared by DMW and was approved in connection with Jurisdiction Delineation Plan (CENAP-OP-RMS) 03-05273.11 dated October 3, 2003.
- The Traffic study was approved September 13, 2001 and amended on November 8, 2001 per memo from Charles Dammers.
- There are no known cemeteries on this site.
- Percolation certification plan was approved by the Health Dept. dated 8/21/06
- The property is not located in the metropolitan district.
- Union Chapel Road is a scenic road.
- The existing well has been capped and the existing septic system has been abandoned
- No grading, removal of vegetative cover and trees, paving and new structures shall be permitted within wetlands, streams or regulated buffers
- Groundwater Appropriation Permit #H02007G002(01) Approved on January 30, 2007.

PRESERVATION PARCEL/ BULK PARCEL CHART

PARCEL NO.	ACREAGE	OWNERSHIP	EASEMENT HOLDER	PURPOSE
A	1.031 AC.	BELLE HAVEN PRESERVATION, LLC	H.O.A. HOWARD COUNTY, MARYLAND	ENVIRONMENTAL
B	0.881 AC.	BELLE HAVEN PRESERVATION, LLC	H.O.A. HOWARD COUNTY, MARYLAND	ENVIRONMENTAL
C	1.840 AC.	H.O.A.	HOWARD COUNTY, MARYLAND	SWM
D	3.643 AC.	BELLE HAVEN PRESERVATION, LLC	H.O.A. HOWARD COUNTY, MARYLAND	ENVIRONMENTAL
E	1.039 AC.	BELLE HAVEN PRESERVATION, LLC	H.O.A. HOWARD COUNTY, MARYLAND	ENVIRONMENTAL
F	.896 AC.	H.O.A.	HOWARD COUNTY, MARYLAND	SWM
G	22.543 AC.	BELLE HAVEN PRESERVATION, LLC	H.O.A. HOWARD COUNTY, MARYLAND	ENVIRONMENTAL
H	1.062 AC.	H.O.A.	HOWARD COUNTY, MARYLAND	SWM
I	1.546 AC.	BELLE HAVEN PRESERVATION, LLC	H.O.A. HOWARD COUNTY, MARYLAND	ENVIRONMENTAL
J	.427 AC.	H.O.A.	HOWARD COUNTY, MARYLAND	SWM
K	1.331 AC.	H.O.A.	HOWARD COUNTY, MARYLAND	SWM
L	3.387 AC.	BELLE HAVEN PRESERVATION, LLC	H.O.A. HOWARD COUNTY, MARYLAND	ENVIRONMENTAL
M	.40 AC.	H.O.A.	HOWARD COUNTY, MARYLAND	SWM
N	1.06 AC.	BELLE HAVEN PRESERVATION, LLC	H.O.A. HOWARD COUNTY, MARYLAND	ENVIRONMENTAL
O	0.882 AC.	BELLE HAVEN PRESERVATION, LLC	H.O.A. HOWARD COUNTY, MARYLAND	ENVIRONMENTAL
P	.684 AC.	HOWARD COUNTY MARYLAND	H.O.A. HOWARD COUNTY, MARYLAND	ENVIRONMENTAL
	42.701 AC.			

Sheet Index

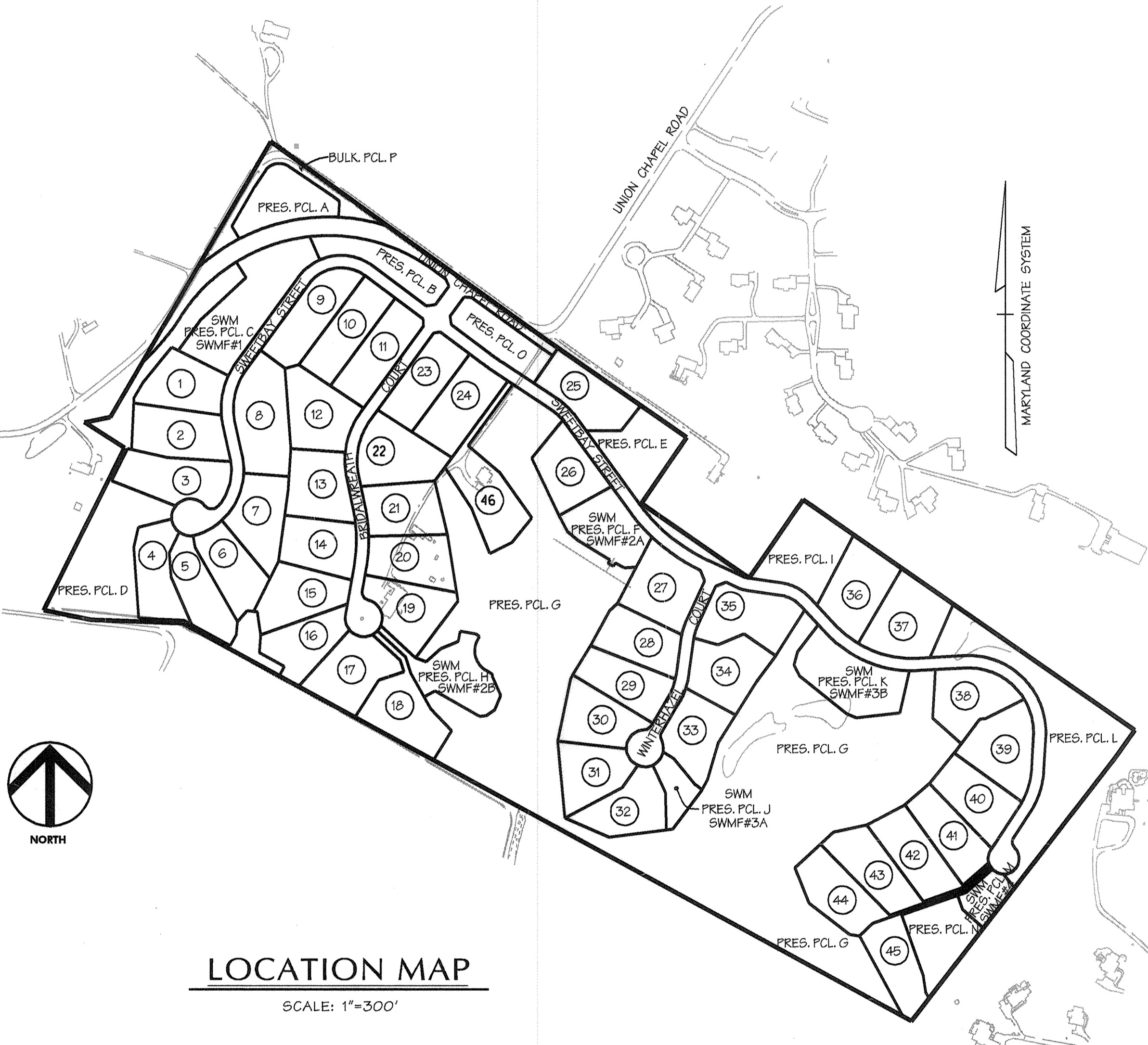
SHEET	DESCRIPTION
1	COVER SHEET
2	UNION CHAPEL ROAD (0+00 TO 4+00)
3	UNION CHAPEL ROAD (4+00 TO 4+62.32)
4	SWEETBAY STREET (5+75 TO -7+25)
5	SWEETBAY STREET (5+75 TO 17+81.28)
6	SWEETBAY STREET (-7+25 TO -18+25)
7	SWEETBAY STREET (-18+25 TO CUL-DE-SAC)
8	BRIDALWREATH COURT (0+00 TO 1+58.83)
9	WINTERHAZEL COURT (0+00 TO CUL-DE-SAC)
10	BORING LOGS
11	UNION CHAPEL TRAFFIC ROAD MAINTENANCE OF TRAFFIC
12	BRIDALWREATH COURT (0+00 TO 1+58.84)
13	ROAD DETAILS & SECTIONS
14	STORM DRAIN PROFILES
15	STORM DRAIN PROFILES
16	STORM DRAIN DRAINAGE AREA MAP
17	STORM DRAIN DRAINAGE AREA MAP
18	SOIL BORINGS PLAN
19	SOIL BORINGS PLAN
20	SWM FACILITY #1 (PLAN)
21	SWM FACILITY #1 (PROFILE)
22	SWM FACILITY #1 (DETAILS)
23	SWM FACILITY #2A (PLAN)
24	SWM FACILITY #2A (PROFILE)
25	SWM FACILITY #2A (DETAILS)
26	SWM FACILITY #2B (PLAN)
27	SWM FACILITY #2B (PROFILE)
28	SWM FACILITY #2B (DETAILS)
29	SWM FACILITY #3A (PLAN)
30	SWM FACILITY #3A (PROFILE & DETAILS)
31	SWM FACILITY #3B (PLAN)
32	SWM FACILITY #3B (PROFILE)
33	SWM FACILITY #3B (DETAILS)
34	SWM FACILITY #4 (PLAN)
35	SWM FACILITY #4 (PROFILE & DETAILS)
36	SWM LEVEL SPREADER LOCATIONS & DETAILS
37	SWM LEVEL SPREADER LOCATIONS
38	SWM LEVEL SPREADER LOCATIONS
39	SWM SPECIFICATIONS
40	SWM DRAINAGE AREA MAP-EXISTING
41	SWM DRAINAGE AREA MAP-EXISTING
42	SWM DRAINAGE AREA MAP-PROPOSED
43	SWM DRAINAGE AREA MAP-PROPOSED
44	FINAL SWM CREDITS AND DRAINAGE AREA MAP
45	FINAL SWM CREDITS AND DRAINAGE AREA MAP
46	SEC DRAINAGE AREA MAP
47	SEDIMENT BASIN #1 (SWM FACILITY #1)
48	SEDIMENT BASIN #2A (SWM FACILITY #2A)
49	SEDIMENT BASIN #3B (SWM FACILITY #3B)
50	SEC PLAN
51	SEC BASIN #2B AND TRAP #3A
52	SEC SWM FACILITY #4
53	SEC SPECIFICATIONS & DETAILS
54	SEC DETAILS
55	SEC DETAILS
56	LANDSCAPE AND STREET TREE PLAN
57	LANDSCAPE AND STREET TREE PLAN
58	LANDSCAPE AND STREET TREE PLAN
59	LANDSCAPE AND STREET TREE PLAN
60	LANDSCAPE AND STREET TREE PLAN
61	LANDSCAPE AND STREET TREE PLAN
62	SWM POND #1 PLANTING PLAN
63	SWM POND #2A PLANTING PLAN
64	SWM POND #2B PLANTING PLAN
65	SWM POND #3A PLANTING PLAN
66	SWM POND #3B PLANTING PLAN
67	SWM POND #4 PLANTING PLAN
68	FOREST CONSERVATION PLAN
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70	FOREST CONSERVATION PLAN
71	FOREST CONSERVATION PLAN
72	FOREST CONSERVATION PLAN
73	FOREST CONSERVATION PLAN
74	FOREST CONSERVATION PLAN SPECIFICATIONS & DETAILS

Final Plan

Belle Haven Estates

Lots 1-46, Non-Buildable Preservation Parcels A-O, Non-Buildable Bulk Parcel P

Woodbine, Howard County, Maryland



LOCATION MAP
SCALE: 1"=300'

SWM FACILITY OWNERSHIP AND MAINTENANCE CHART

SWM FACILITY NUMBER	TYPE	OWNERSHIP	MAINTENANCE RESPONSIBILITY
1	MICROPOND (P-3)	H.O.A.	H.O.A./HOWARD COUNTY
2A	MICROPOND (P-3)	H.O.A.	H.O.A./HOWARD COUNTY
2B	MICROPOND (P-3)	H.O.A.	H.O.A./HOWARD COUNTY
3A	BIORETENTION (F-6)	PRIVATE	HOME OWNERS ASSOCIATION
3B	MICROPOND (P-3)	H.O.A.	H.O.A./HOWARD COUNTY
4	BIORETENTION (F-6)	PRIVATE	HOME OWNERS ASSOCIATION

FOR SPECIFIC OWNERSHIP/MAINTENANCE RESPONSIBILITIES SEE SWM FACILITY PLAN SHEETS AND GENERAL NOTE NO. 11 THIS SHEET.

BENCHMARK

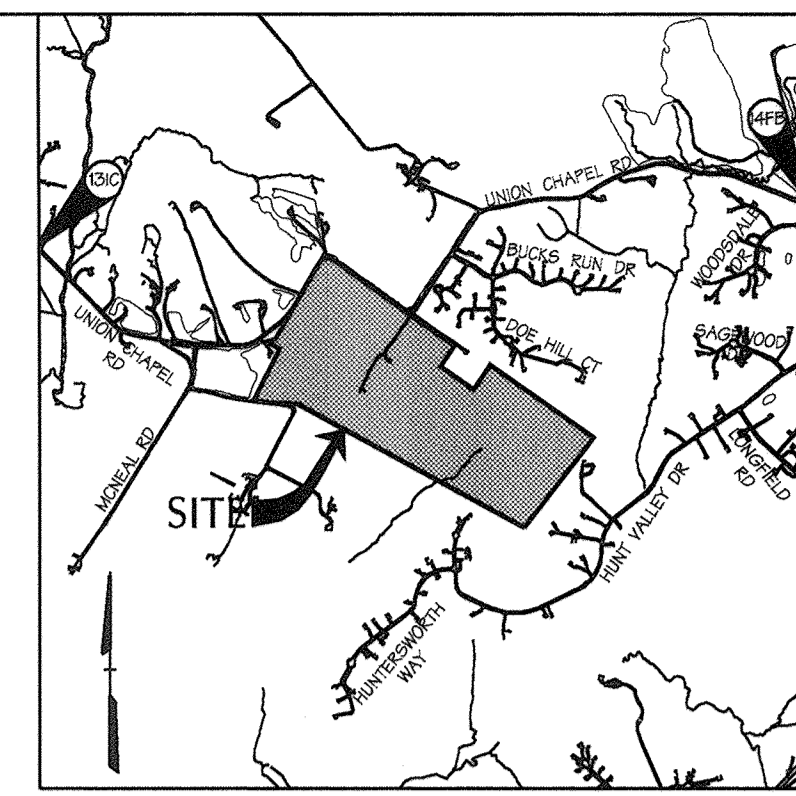
DESCRIPTION

THE COURSES AND COORDINATES SHOWN HEREON ARE REFERRED TO THE SYSTEM OF COORDINATES ESTABLISHED IN THE MARYLAND COORDINATE SYSTEM NAD 83 (1991) HORIZONTAL AND NAVD 88 VERTICAL AND ARE BASED UPON THE FOLLOWING: HOWARD COUNTY GEODETIC SURVEY CONTROL STATIONS PROVIDED BY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, SURVEY DIVISION:

DESIGNATION	NORTH (FT)	EAST (FT)	ELEV. (FT.)
14FB	595657.268	1306552.158	619.717
13IC	592525.747	1292640.104	645.904

BENCHMARK#14FB ELEV. 619.72 FT.
STANDARD HOWARD COUNTY STAMPED ALUMINUM DISC SET ON A CONCRETE MONUMENT SET OUTSIDE THE PAVING 38 FEET SOUTH OF THE CENTERLINE P.I. OF ROUTE 17 AND CAR'S MILL ROAD AT A DISTANCE OF 3.6 FEET FROM THE EDGE OF ROUTE 97.

BENCHMARK#13IC ELEV. 545.90 FT.
STANDARD HOWARD COUNTY STAMPED ALUMINUM DISC SET ON A CONCRETE MONUMENT SET OUTSIDE THE PAVING 35.5 FEET SOUTH OF THE CENTERLINE OF ED WARFIELD ROAD OPPOSITE EX-06/06/10/06 #6002 ED WARFIELD ROAD.



VICINITY MAP
SCALE: 1"=2000'

ADC COORDINATES
MAP 8, J5

Site Analysis Data Chart

- General Site Data**
 - Present Zoning: RCDEO
 - Applicable DFZ File References: See general note 8h
 - Proposed Use of Site or Structure(s): 46 Single Family detached Homes
 - Proposed Water and Sewer Systems: Private Well and Septic
- Area Tabulation**
 - Gross site area: 98.2 Acres
 - Approximate Area of Steep Slopes (25% or Greater): 1.7 Acres ±
 - Approximate Area of 100 Year Floodplain: 0.8 Acres ±
 - Net Site Area: 95.7 Acres ±
 - Area of Proposed Buildable Preservation Parcels: 0 Acres ±
 - Area of Proposed Non-Buildable Preservation Parcel: 42.037 Acres ±
 - Area of Proposed Non-Buildable Bulk Parcel: 0.664 Acres ±
 - Area of Proposed SFD Lots: 47.437 Acres ±
 - Proposed Open Space Lots: N/A
 - Area of Proposed Public Roads: 0.079 Acres ±
 - Area of Proposed Private Roads: N/A
 - Area of Proposed SWM Parcels: N/A
- Residential Unit/Lot Tabulation**
 - Total Number of Residential Units/Lots Allowed for Overall Project: 47 (0)
 - Approximate of Lots allowed by right: 22
 - Number of SFD Residential Units/Lots proposed: 46
 - DEO/CEO units to be acquired: 23
 - Number of Non Buildable Preservation Parcels proposed: 15
 - Number of Buildable Preservation Parcel proposed: 0
 - Number of SWM Parcels proposed: N/A
 - Number of Open Space Lots proposed: 0
 - Total Number of Lots/Parcel proposed: 62
 - Number of Non-buildable Parcels: 1

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
William J. McCall
 CHIEF, BUREAU OF HIGHWAYS 12-7-07
 DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Cindy Harris
 CHIEF, DIVISION OF LAND DEVELOPMENT 12/11/07
 DATE

John J. Cavanaugh
 CHIEF, DEVELOPMENT ENGINEERING DIVISION 12/11/07
 DATE

Date	No.	Revision Description

COVER SHEET
BELLE HAVEN ESTATES

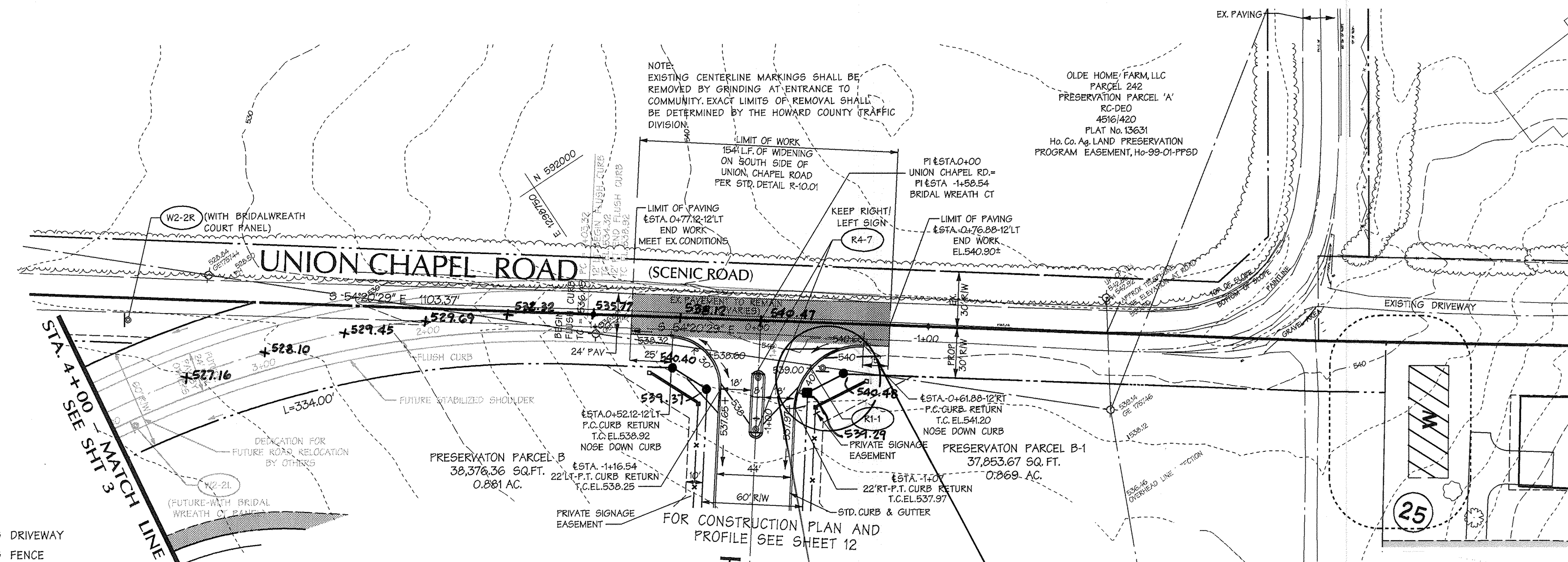
LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O, NON-BUILDABLE BULK PARCEL P
 TAX MAP 14 GRID 20 PARCELS 66, ZONE RC-DEO
 ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER:
 Union Chapel Road, LLC
 9025 Chevrolet Drive
 Suite K
 Elliotts City, MD 21042
 Phone: (410) 461-5900

DMW
 Daft-McCune-Walker, Inc.
 200 East Pennsylvania Avenue
 Towson, Maryland 21286
 (410) 296-3333
 Fax: 296-4705
 A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

TITLE:
BELLE HAVEN ESTATES
COVER SHEET

Des By	Scale	AS SHOWN	Proj. No.
Dm By	MDT	Date 10/16/07	01067F
Chk By	ATB	Approved ATB	1 of 74



- LEGEND**
- EXISTING DRIVEWAY
 - EXISTING FENCE
 - EXISTING PAVEMENT
 - EXISTING TREELINE
 - - - PROPOSED EASEMENT
 - - - PROPOSED PROPERTY LINE
 - - - PROPOSED EDGE OF PAVEMENT
 - - - PROPOSED CENTER LINE & STATIONING
 - PROPOSED HOUSE
 - ▨ PROPOSED WELL AREA
 - ⊙ PROPOSED LOT NUMBER
 - LIMIT OF WORK

- NOTES:**
- PAVING WIDTH SHOWN IS FOR FUTURE RELOCATION OF UNION CHAPEL ROAD BY OTHERS.
 - UNDER THESE PLANS, THE FUTURE RIGHT OF WAY FOR UNION CHAPEL ROAD WILL BE GRADED WITHIN ONE FOOT OF FINAL GRADE (WITHOUT INTERFERING WITH THE EXISTING UNION CHAPEL ROAD) AND STABILIZED.
 - ALL STORM DRAIN SYSTEMS CROSSING THE RIGHT OF WAY FOR THE FUTURE RELOCATION OF UNION CHAPEL ROAD WILL BE CONSTRUCTED UNDER THESE PLANS.
 - IMPROVEMENTS TO UNION CHAPEL ROAD UNDER THIS PLAN SPECIFICALLY LIMITED TO IMPROVEMENTS SHOWN ON PLAN AT INTERSECTION WITH BRIDALWREATH COURT. REMAINING AREA OF FUTURE ROAD RELOCATION IS TO BE GRADED PER NOTE #2 ABOVE.
 - FOR FLUSH CURB DETAIL SEE SHEET 13.
 - FOR STANDARD CURB AND GUTTER DETAIL SEE SHEET 13.
 - FOR NOSE DOWN CURB DETAIL SEE SHEET 13.

A5-BUILT CERTIFICATION

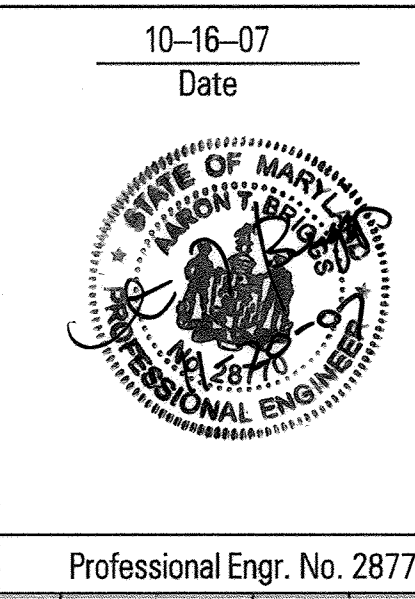
I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "A5-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

SIGNED: PAUL G. CAVANAUGH DATE: 8/11/2018
 LICENSE NO: 27020 EXPIRATION DATE: 1/25/2020

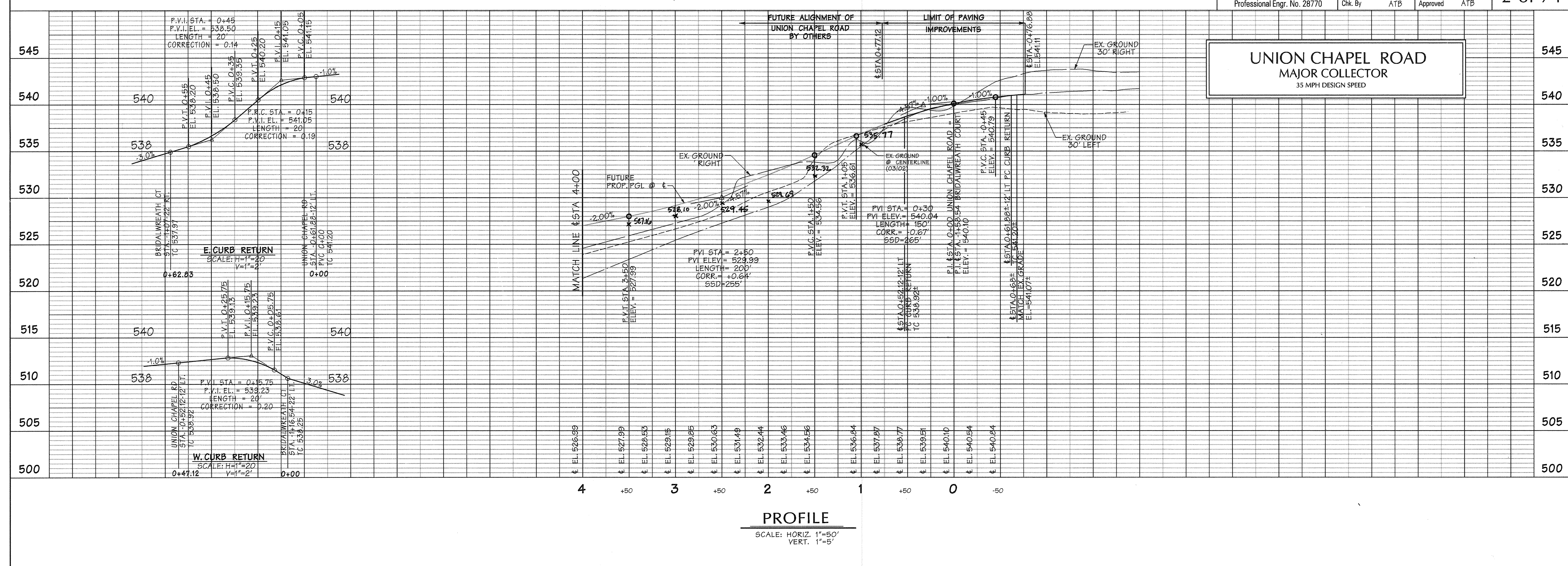
HORIZONTAL DATUM FOR THIS A5-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD '83/2011' AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 14FB

VERTICAL DATUM FOR THIS A5-BUILT SURVEY IS NORTH AMERICAN VERTICAL DATUM (NAVD) 1988 AS PROJECTED BY THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATION OR HOWARD CONTROL BENCH MARKS 14FB

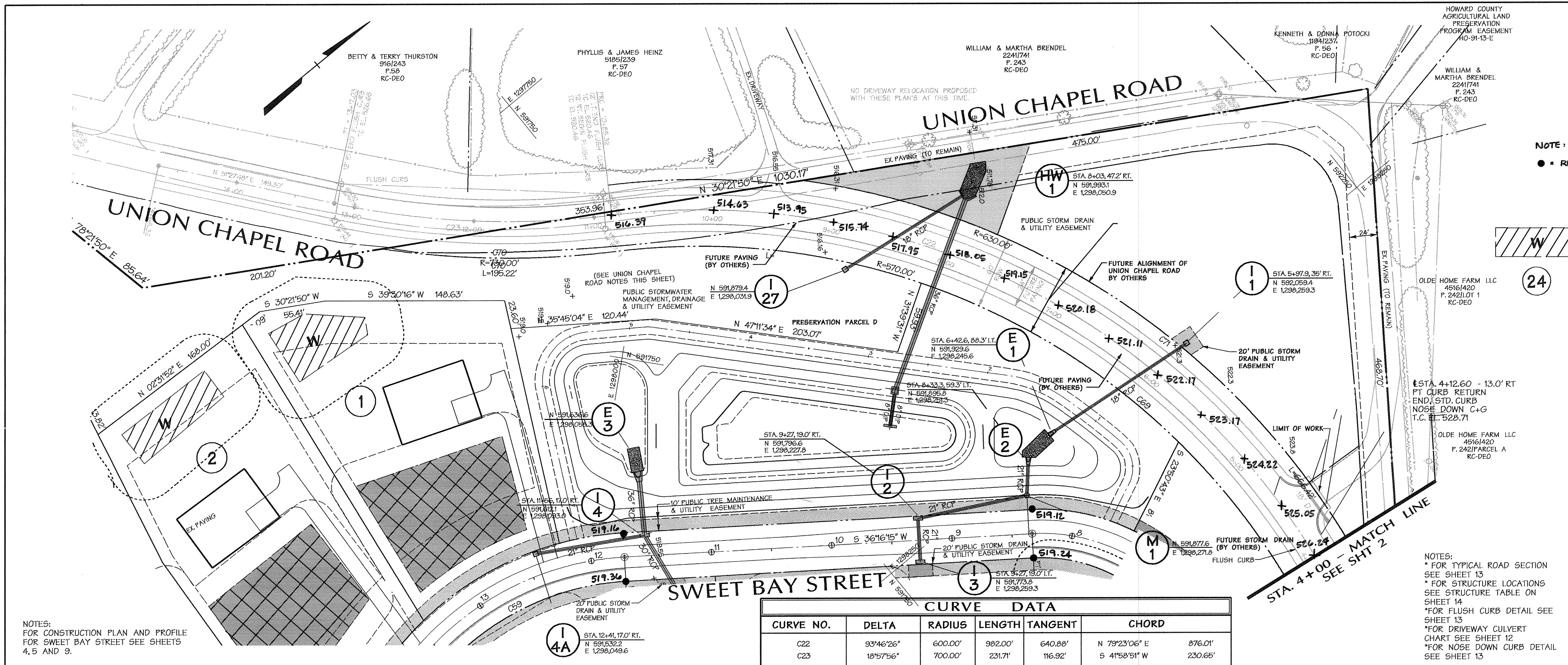
THIS A5-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS	
<i>Walter Z. Wall</i>	12-7-07
CHIEF, BUREAU OF HIGHWAYS	DATE
APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING	
<i>Cindy Harris</i>	12/16/07
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
<i>John D. ...</i>	12/16/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
Date	Revision Description
BELLE HAVEN ESTATES	
LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O, NON-BUILDABLE BULK PARCEL P, TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO, ELECTION DISTRICT NO.3, HOWARD COUNTY, MARYLAND	
OWNER/DEVELOPER: Union Chapel Road, LLC, 9028 Cherokee Drive, Suite K, Ellicott City, MD 21042, Phone: (410) 485-5000	
DMW	
DRAFT: McConan-Walker, Inc., 200 East Pennsylvania Avenue, Towson, Maryland 21286, (410) 286-3333, Fax: 298-4705	
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals	
AREA: TAX MAP 14, PARCEL 66, 3rd ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND	
TITLE: FINAL ROAD PLAN AND PROFILE UNION CHAPEL ROAD STA 0+00 TO STA 4+00	
Des. By: MAT	Scale: 1" = 50'
Dm. By: MDT	Date: 10/16/07
Chk. By: ATB	Approved: ATB
Professional Engr. No. 28770	Proj. No. 01067F
	2 of 74



10/067/01067F/BelleHaven/01067F02.RDW Nov 19 09:35:05 2007



NOTE:
● = REBAR/CAP SET

CURVE DATA						
CURVE NO.	DELTA	RADIUS	LENGTH	TANGENT	CHORD	
C22	93°46'26"	600.00'	982.00'	640.88'	N 79°23'06" E	876.01'
C23	18°57'56"	700.00'	231.71'	116.92'	S 41°58'51" W	230.65'

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
Walter Z. M... 12-7-07
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
... 12/11/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

... 12/11/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

BELLE HAVEN ESTATES
 LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O
 NON-BUILDABLE BULK PARCEL P
 TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
 ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER:
 Union Chapel Road, LLC
 9025 Chantrelle Drive
 Suite K
 Ellicott City, MD 21042
 Phone (410) 461-5900
 Fax 296-4705

DMW
 Dean McCune-Walker, Inc.
 200 East Pennsylvania Avenue
 Towson, Maryland 21286
 (410) 296-3553
 Fax 296-4705

A Team of Land Planners,
 Landscape Architects,
 Engineers, Surveyors &
 Environmental Professionals

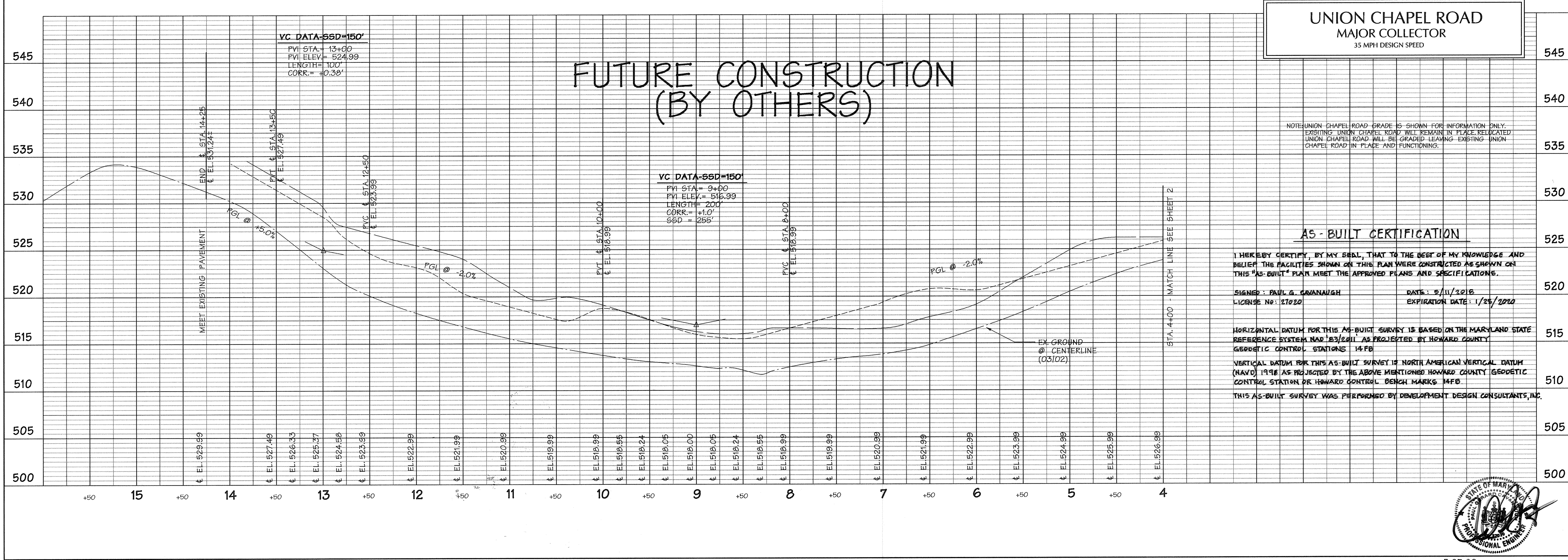
10-16-07
 Date

Professional Engr. No. 28770

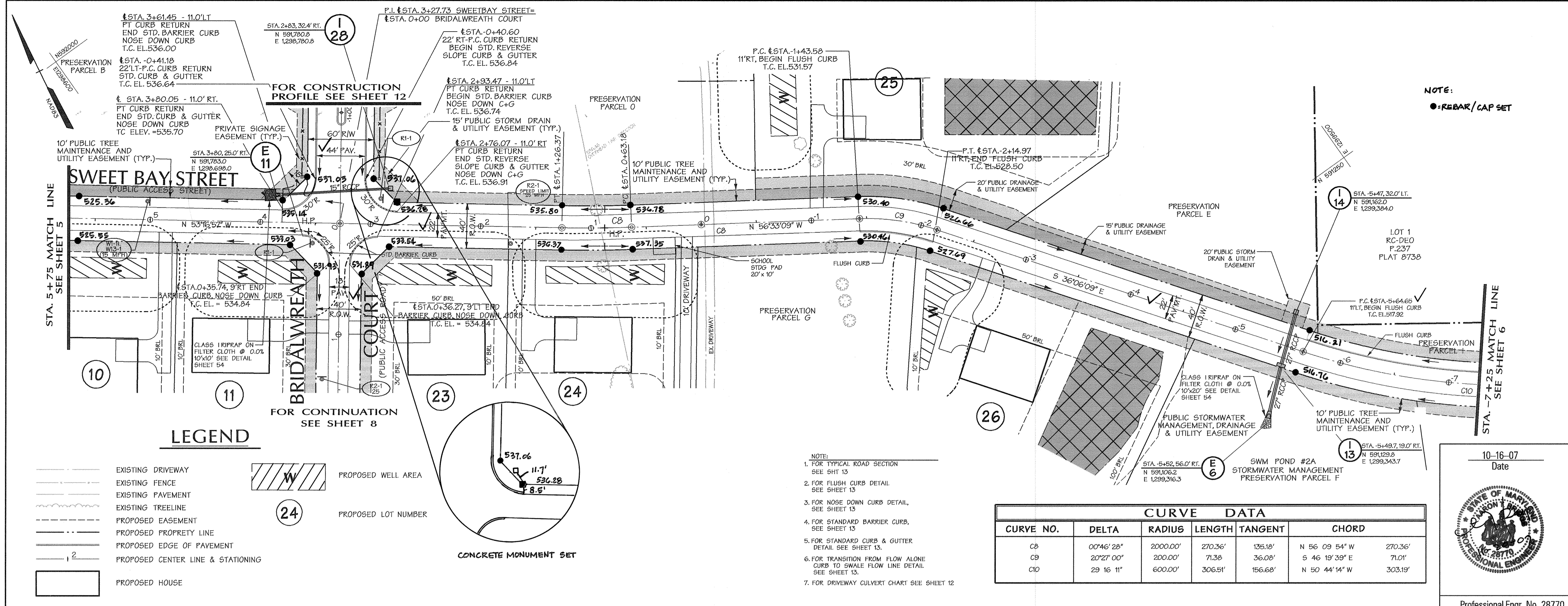
AREA: TAX MAP 14 PARCEL 66
 3rd ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE: **FINAL ROAD PLAN AND PROFILE
 UNION CHAPEL ROAD
 STA 4+00 TO STA 14+62.32**

Des. By: KPE Scale: 1" = 50' Proj. No.: 01067F
 Dwn. By: MDT Date: 10/16/07
 Chk. By: ATB Approved: ATB 3 of 74



STATE OF MARYLAND
 PAUL G. KAVANAUGH
 PROFESSIONAL ENGINEER



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
William J. McNeil 12-7-07
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Cynthia H. Harts 12/11/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

John J. ... 12/11/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date No. Revision Description

BELLE HAVEN ESTATES

LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O, NON-BUILDABLE BULK PARCEL P
 TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
 ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER
 Union Chapel Road, LLC
 9055 Chambers Drive
 Suite 1
 Ellicott City, MD 21042
 Phone: (410) 461-6600

DMW
 Data/McCune-Walkers, Inc.
 200 East Pennsylvania Avenue
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A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

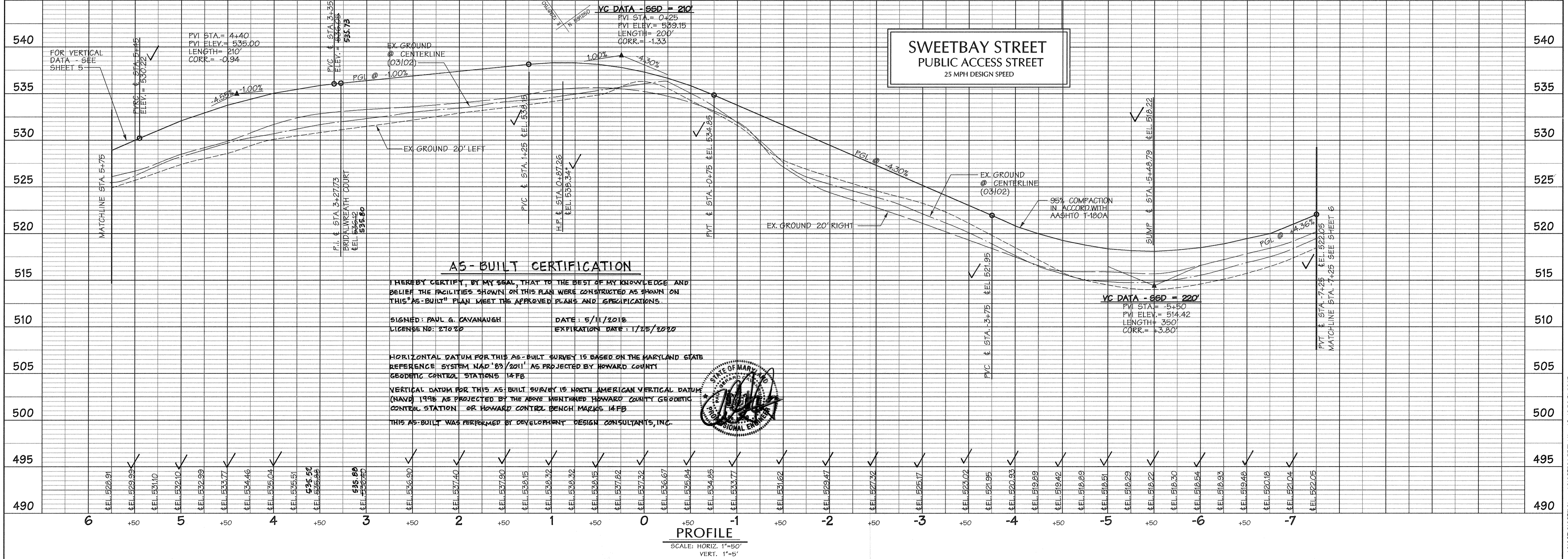
AREA
 TAX MAP 14 PARCEL 66
 3rd ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE
FINAL ROAD PLAN AND PROFILE
SWEET BAY STREET
 STA. 5+75 TO STA. -7+25

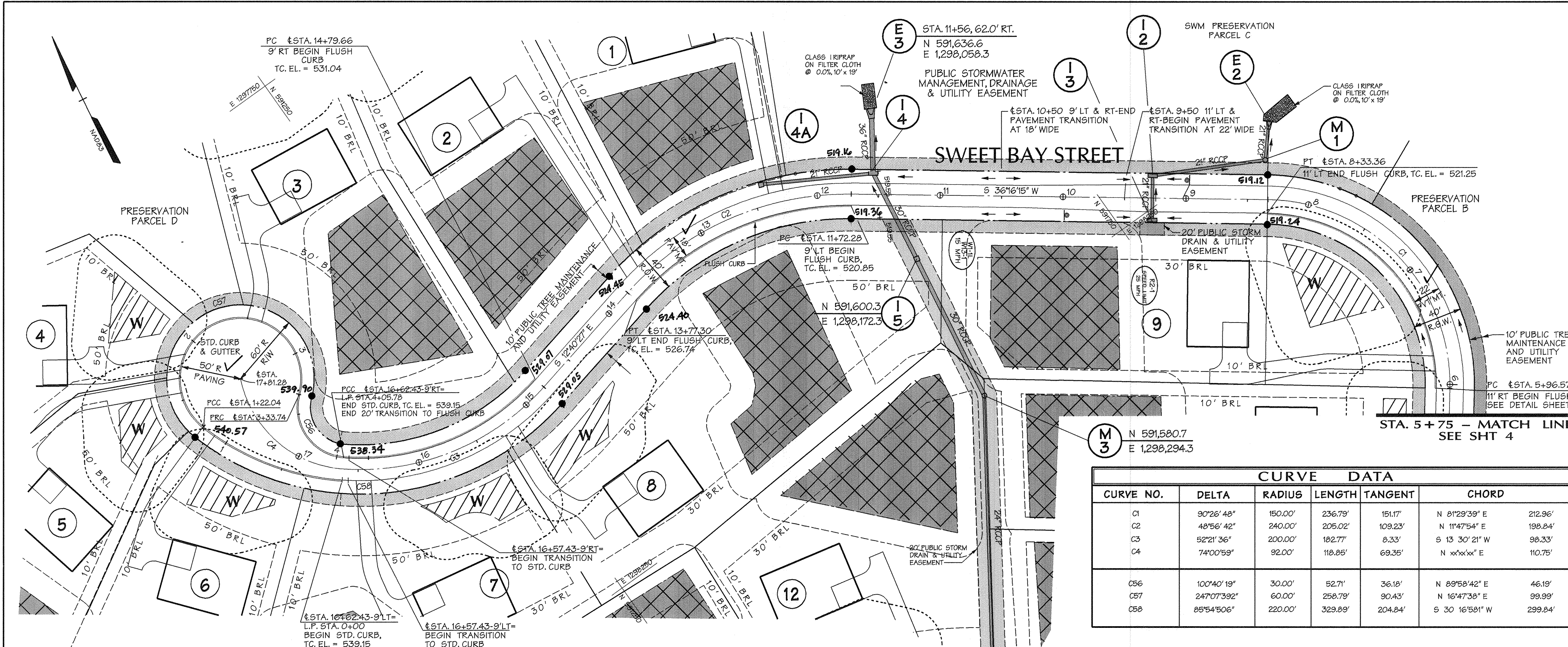
Des. By MAT Scale 1" = 50' Proj. No. 01067F
 Dwn. By MDT Date 10/16/07
 Chk. By ATB Approved ATB 4 of 74

CURVE DATA

CURVE NO.	DELTA	RADIUS	LENGTH	TANGENT	CHORD
CB	00°46'28"	2000.00'	270.36'	135.18'	N 56°09'54" W 270.36'
C9	20°27'00"	200.00'	71.38'	36.08'	S 46°19'39" E 71.01'
C10	29°16'11"	600.00'	306.61'	156.68'	N 50°44'14" W 303.19'



M:\01067F\01067F\01067F.dwg, 10/16/07, 10:30:51 AM



NOTE:
● = REBAR / CAP SET

NOTE:
* FOR TYPICAL ROAD SECTION SEE SHT 13
* FOR STRUCTURE LOCATION SEE STRUCTURE TABLE ON SHT 14
* FOR FLUSH CURB DETAIL SEE SHEET 13
* FOR TRANSITION FROM FLOW ALONG CURB TO SWALE FLOW LINE DETAIL SEE SHEET 13
* FOR DRIVEWAY CULVERT CHART SEE SHEET 12

* FOR NOSE DOWN CURB DETAIL SEE SHEET 13
* FOR TRANSITION FROM STANDARD CURB TO FLUSH CURB DETAIL, SEE SHEET 13

CURVE DATA					
CURVE NO.	DELTA	RADIUS	LENGTH	TANGENT	CHORD
C1	90°26'48"	150.00'	236.79'	151.17'	N 81°29'39" E 212.96'
C2	48°56'42"	240.00'	205.02'	109.23'	N 11°47'54" E 198.84'
C3	52°21'36"	200.00'	182.77'	8.33'	S 13°30'21" W 98.33'
C4	74°00'59"	92.00'	118.85'	69.35'	N xx°xx' E 110.75'
C56	100°40'19"	30.00'	52.71'	36.18'	N 89°58'42" E 46.19'
C57	247°07'39"	60.00'	258.79'	90.43'	N 16°47'38" E 99.99'
C58	85°54'06"	220.00'	329.89'	204.84'	S 30°16'58" W 299.84'

10-16-07
Date

Professional Engr. No. 28770

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
Willa J. Whall 12-7-07
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Cindy Harter 12/11/07
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Dr. Dennis 12/11/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date	No.	Revision Description

BELLE HAVEN ESTATES
LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-C,
NON-BUILDABLE BULK PARCEL 4,
TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
ELECTION DISTRICT NO. 3 HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER
Union Chapel Road, LLC
8029 Chambers Drive
Gulfton, MD 20642
Phone: (410) 468-6500

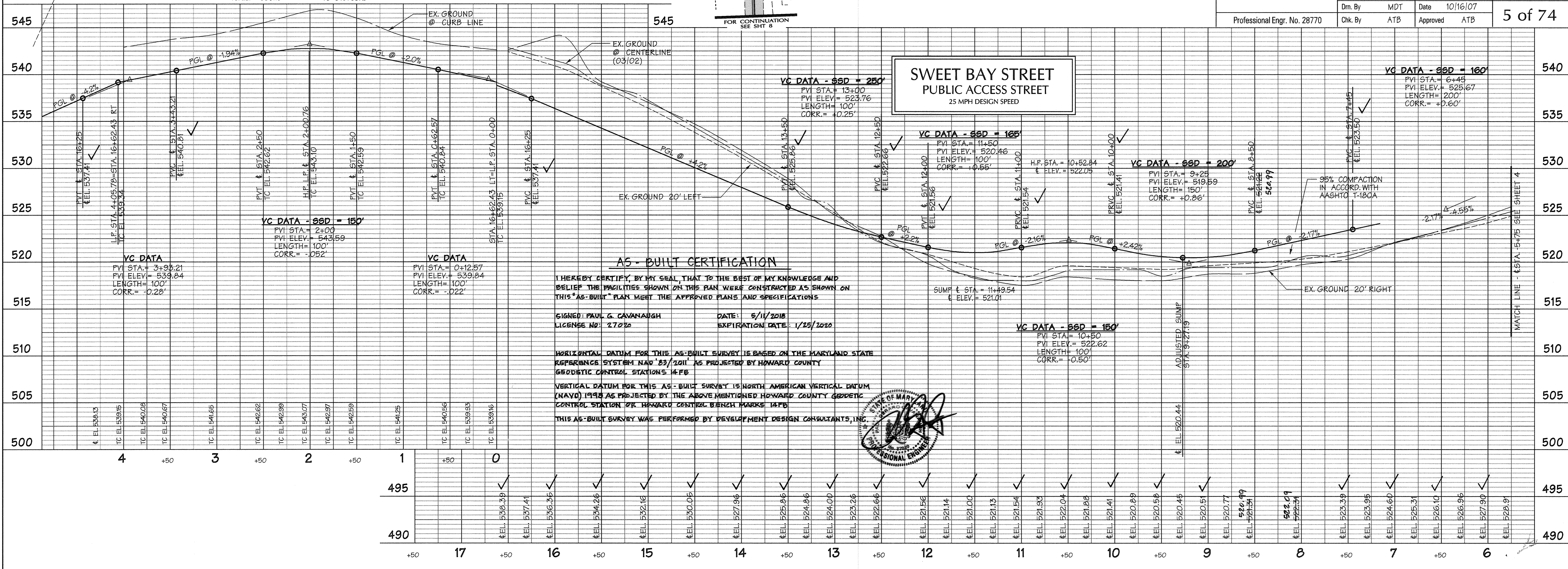
DMW
Darrin McCune-Walker, Inc.
200 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 286-3838
Fax 286-4705

A Team of Land Planners,
Landscape Architects,
Engineers, Surveyors &
Environmental Professionals

AREA TAX MAP 14 PARCEL 66
3rd ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE **FINAL ROAD PLAN AND PROFILE SWEETBAY STREET**
§ STA. 5+75 TO § STA. 17+81.28

Des. By	MAT	Scale	1" = 50'	Proj. No.	01067F
Drn. By	MDT	Date	10/16/07		5 of 74
Chk. By	ATB	Approved	ATB		



AS-BUILT CERTIFICATION

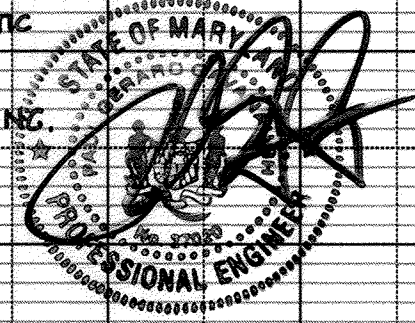
I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

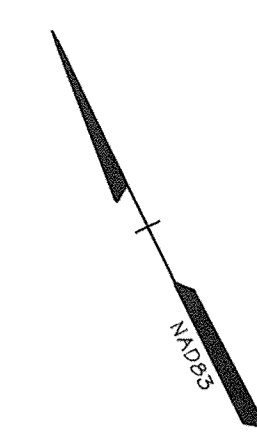
SIGNED: PAUL G. CAVANAUGH DATE: 5/11/2018
LICENSE NO: 27870 EXPIRATION DATE: 1/28/2020

HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD 83/2011 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 14FB

VERTICAL DATUM FOR THIS AS-BUILT SURVEY IS NORTH AMERICAN VERTICAL DATUM (NAVD) 1988 AS PROJECTED BY THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATION OR HOWARD COUNTY BENCH MARKS 14FB

THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.





LOT 1
RC-DEO
P. 237
PLAT 8738

STA. -7+25 - MATCH LINE
SEE SHT. 4

STA. -7+25 - MATCH LINE
SEE SHT. 4

STA. -7+25 - MATCH LINE
SEE SHT. 4

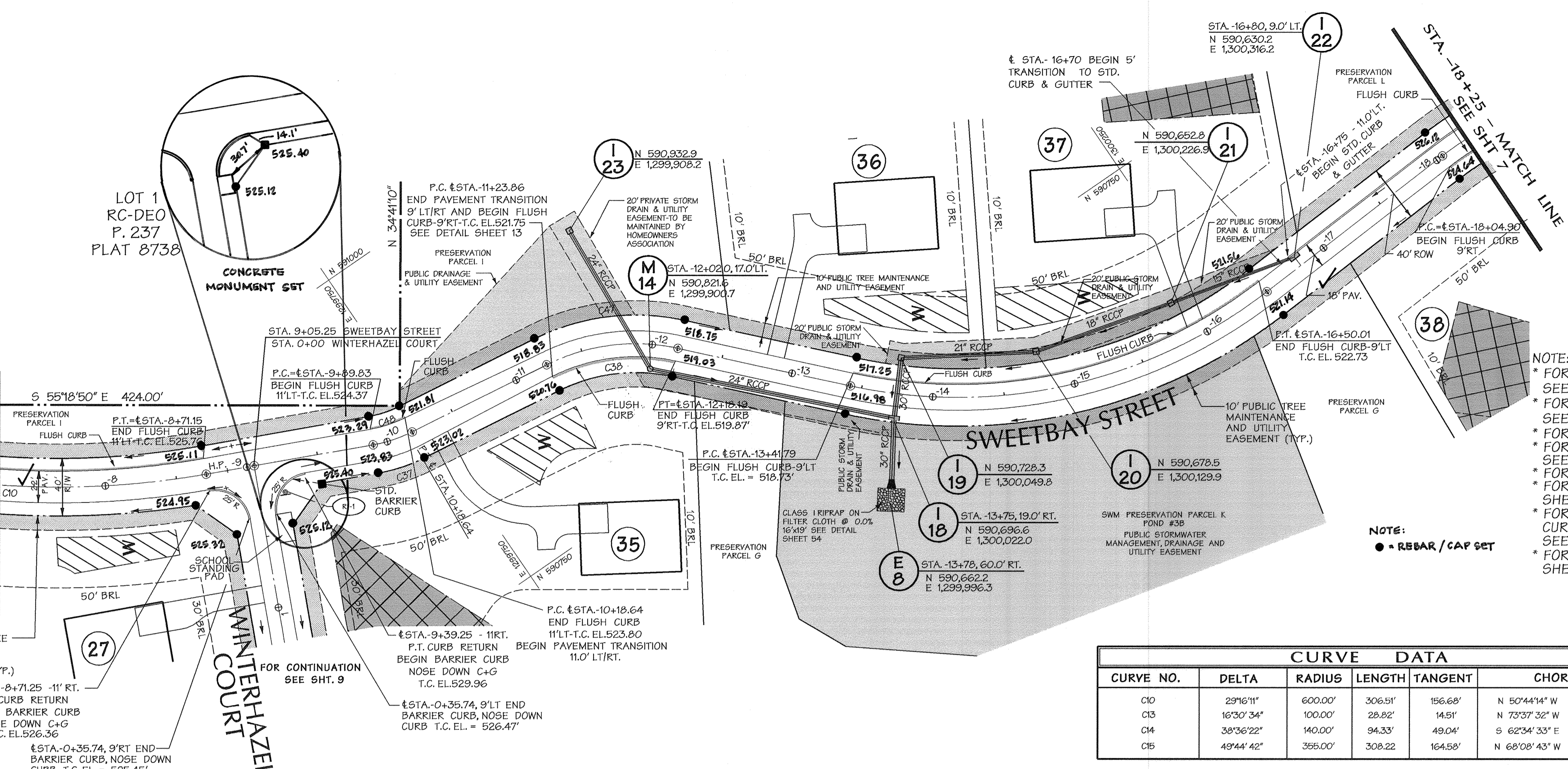
STA. -7+25 - MATCH LINE
SEE SHT. 4

STA. -7+25 - MATCH LINE
SEE SHT. 4

STA. -7+25 - MATCH LINE
SEE SHT. 4

STA. -7+25 - MATCH LINE
SEE SHT. 4

STA. -7+25 - MATCH LINE
SEE SHT. 4



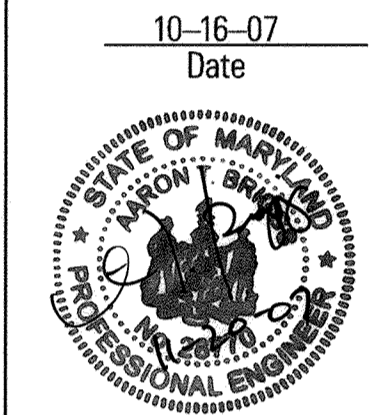
LEGEND

- EXISTING DRIVEWAY
- EXISTING FENCE
- EXISTING PAVEMENT
- EXISTING TRELINE
- PROPOSED EASEMENT
- PROPOSED PROPERTY LINE
- PROPOSED EDGE OF PAVEMENT
- PROPOSED CENTER LINE & STATIONING
- PROPOSED HOUSE
- ▨ PROPOSED WELL AREA
- PROPOSED LOT NUMBER

NOTE:
 * FOR TYPICAL ROAD SECTION SEE SHT 11
 * FOR STRUCTURE LOCATION SEE STRUCTURE TABLE ON SHT 14
 * FOR FLUSH CURB AND GUTTER DETAIL SEE SHEET 13
 * FOR STANDARD CURB AND GUTTER DETAIL SEE SHEET 13
 * FOR BARRIER CURB DETAIL SEE SHEET 13
 * FOR NOSE DOWN CURB DETAIL SEE SHEET 13
 * FOR TRANSITION FROM FLOW ALONG CURB TO SWALE FLOW LINE DETAIL SEE SHEET 13
 * FOR DRIVEWAY CULVERT CHART SEE SHEET 12

NOTE:
● = REBAR / CAP SET

CURVE DATA						
CURVE NO.	DELTA	RADIUS	LENGTH	TANGENT	CHORD	
C10	29°16'11"	600.00'	306.51'	156.68'	N 50°44'14" W 303.19'	
C13	16°30'34"	100.00'	28.82'	14.51'	N 73°37'32" W 28.71'	
C14	38°36'22"	140.00'	94.33'	49.04'	S 62°34'33" E 92.56'	
C15	49°44'42"	355.00'	308.22'	164.58'	N 68°08'43" W 164.58'	



Professional Engr. No. 28770

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
Walter J. Marshall 12-7-07
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Cindy Hunter 12/11/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Paul G. Cavanaugh 12/11/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date	No.	Revision Description

BELLE HAVEN ESTATES

LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O,
 NON-BUILDABLE BULK PARCEL P
 TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
 ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER
 Urban Chapel Road, LLC
 3025 Cherrills Drive
 Suite 5
 Ellicott City, MD 21042
 Phone: (410) 469-5800

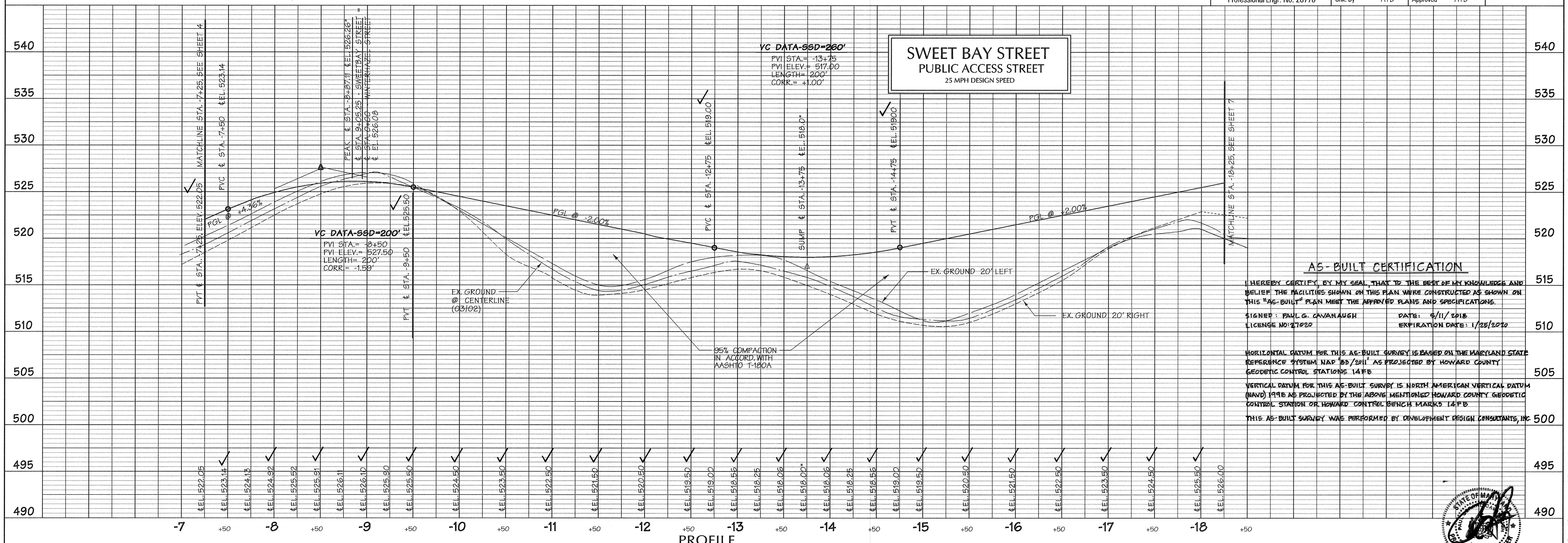
DMW
 Darr-McCune-Walker, Inc.
 200 East Pennsylvania Avenue
 Towson, Maryland 21286
 (410) 296-3333
 Fax 296-4705

A Team of Land Planners,
 Landscape Architects,
 Engineers, Surveyors &
 Environmental Professionals

AREA
 TAX MAP 14 PARCEL 66
 3rd ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

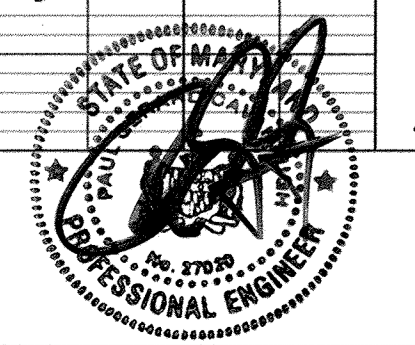
FINAL ROAD PLAN AND PROFILE SWEETBAY STREET STA -7+25 TO STA -18+25

Des. By	MAT	Scale	1" = 50'	Proj. No.	01067F
Drn. By	MDT	Date	10/16/07	6 of 74	
Chk. By	ATB	Approved	ATB		



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

AS-BUILT CERTIFICATION
 I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.
 SIGNED: PAUL G. CAVANAUGH DATE: 9/11/2018
 LICENSE NO: 21702 EXPIRATION DATE: 1/25/2020
 HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD 83/2011 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 14FB
 VERTICAL DATUM FOR THIS AS-BUILT SURVEY IS NORTH AMERICAN VERTICAL DATUM (NAVD) 1998 AS PROJECTED BY THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATION OR HOWARD CONTROL BENCH MARKS 14FB
 THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC



AS - BUILT CERTIFICATION

I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS AS-BUILT PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

SIGNED: PAUL G. CAVANAUGH
LICENSE NO.: 27020

DATE: 5/11/2018
EXPIRATION DATE: 1/25/2020

HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD '83/2011' AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 14FB

VERTICAL DATUM FOR THIS AS-BUILT SURVEY IS NORTH AMERICAN VERTICAL DATUM (NAVD) 1988 AS PROJECTED BY THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATION OR HOWARD COUNTY CONTROL BENCH MARKS 14FB

THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.



CURVE DATA						
CURVE NO.	DELTA	RADIUS	LENGTH	TANGENT	CHORD	
C16	96°41'33"	230.00'	388.15'	258.57'	S 44°40'17" E	343.70'
C17	27°25'40"	250.00'	128.40'	65.65'	S 18°23'20" W	127.00'
C18	270°00'00"	30.00'	141.37'	30.00'	S 78°06'10" W	42.43'
C42	258°27'47"	50.00'	255.95'	61.24'	S 83°52'16" W	77.46'
C43	78°27'47"	25.00'	34.24'	20.41'	N 06°07'44" W	31.62'

LEGEND

- EXISTING DRIVEWAY
- EXISTING FENCE
- EXISTING PAVEMENT
- EXISTING FREELINE
- PROPOSED EASEMENT
- PROPOSED PROPERTY LINE
- PROPOSED EDGE OF PAVEMENT
- PROPOSED CENTER LINE & STATIONING
- PROPOSED HOUSE
- PROPOSED WELL AREA
- PROPOSED LOT NUMBER

NOTE:
● = REBAR/CAP SET

- NOTES:
- * FOR TYPICAL ROAD SECTION SEE SHT 13
 - * FOR STRUCTURE LOCATIONS SEE STRUCTURE TABLE ON SHT 14
 - * FOR FLUSH CURB DETAIL SEE SHT 13
 - * FOR STANDARD CURB AND GUTTER DETAIL, SEE SHT 13
 - * FOR NOSE DOWN CURB DETAIL, SEE SHT 13
 - * FOR TRANSITION FROM FLOW ALONG CURB TO SWALE FLOW LINE DETAIL SEE SHEET 13
 - * FOR DRIVEWAY CULVERT CHART SEE SHEET 12

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
Walter R. Williams 12-7-07
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Candy Hunter 12/1/07
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Chris Dunning 12/1/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date No. Revision Description

BELLE HAVEN ESTATES

LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O,
NON-BUILDABLE BULK PARCEL P
TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER
Urban Chapel Road, LLC
8029 Charlevoix Drive
Suite K
Elkridge City, MD 21042
Phone: (410) 449-8800

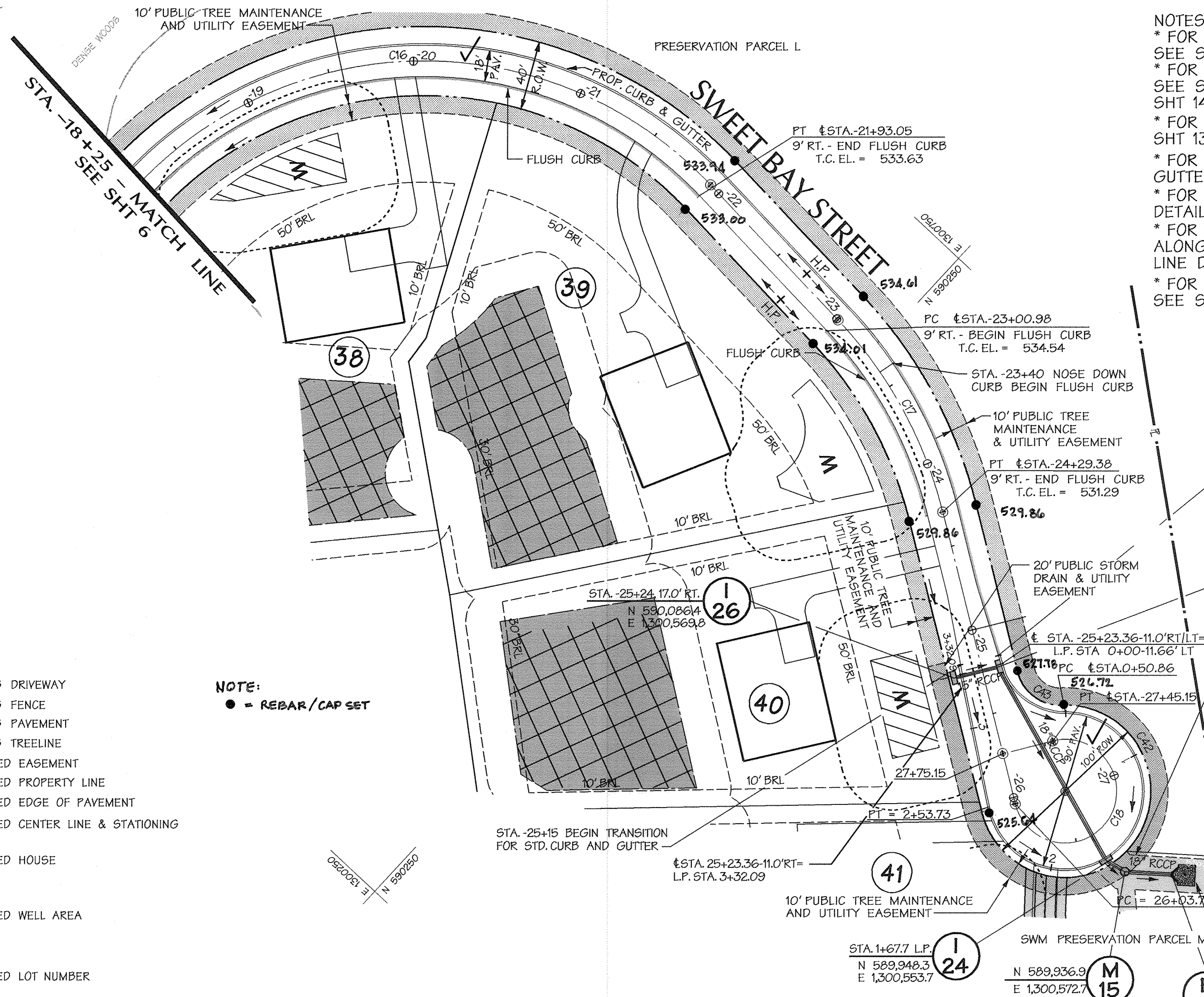
DMW
Duff-MacCune-Walker, Inc.
200 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 296-3333
Fax 296-4705

A Team of Land Planners,
Landscape Architects,
Engineers, Surveyors &
Environmental Professionals

AREA
TAX MAP 14 PARCEL 66
3rd ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE
FINAL ROAD PLAN AND PROFILE
SWEETBAY STREET
STATIONING: STA. -18+25 TO CUL-DE-SAC

Des. By MAT Scale 1" = 50' Proj. No. 01067F
Drn. By MDT Date 10/16/07
Chk. By ATB Approved ATB 7 of 74

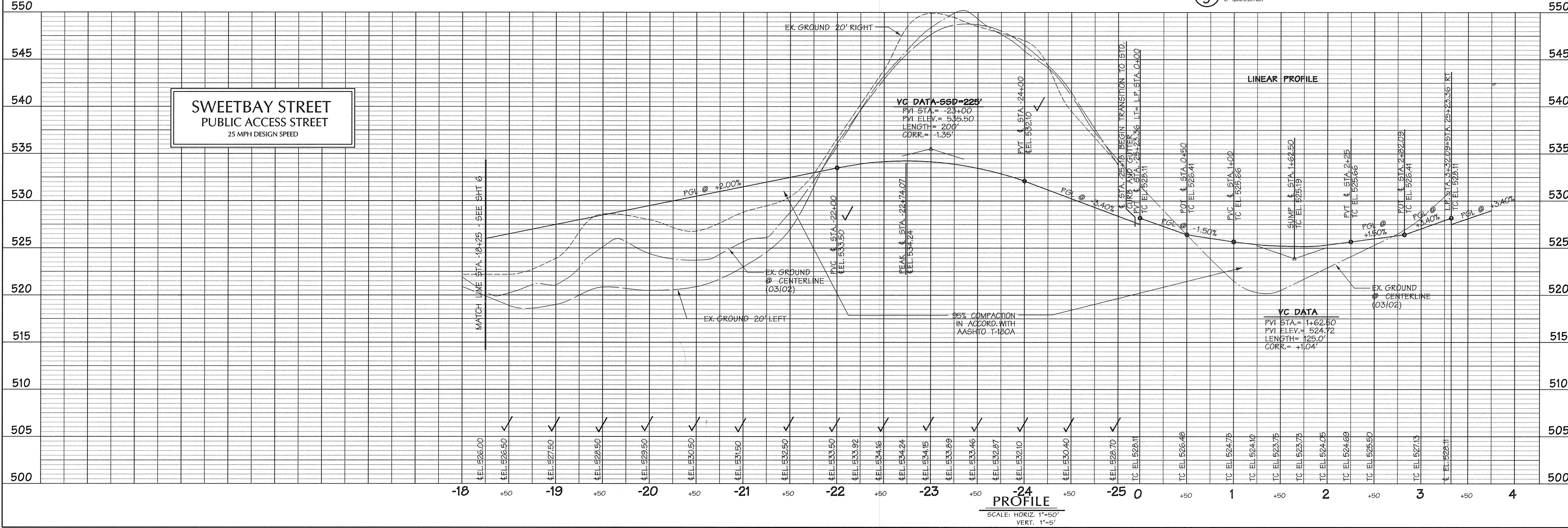


ROBERT & CONNIE BOWMAN
44121
P.12206
RC-DEO

DATE 10-16-07
DATE 12/1/07
DATE 12/1/07

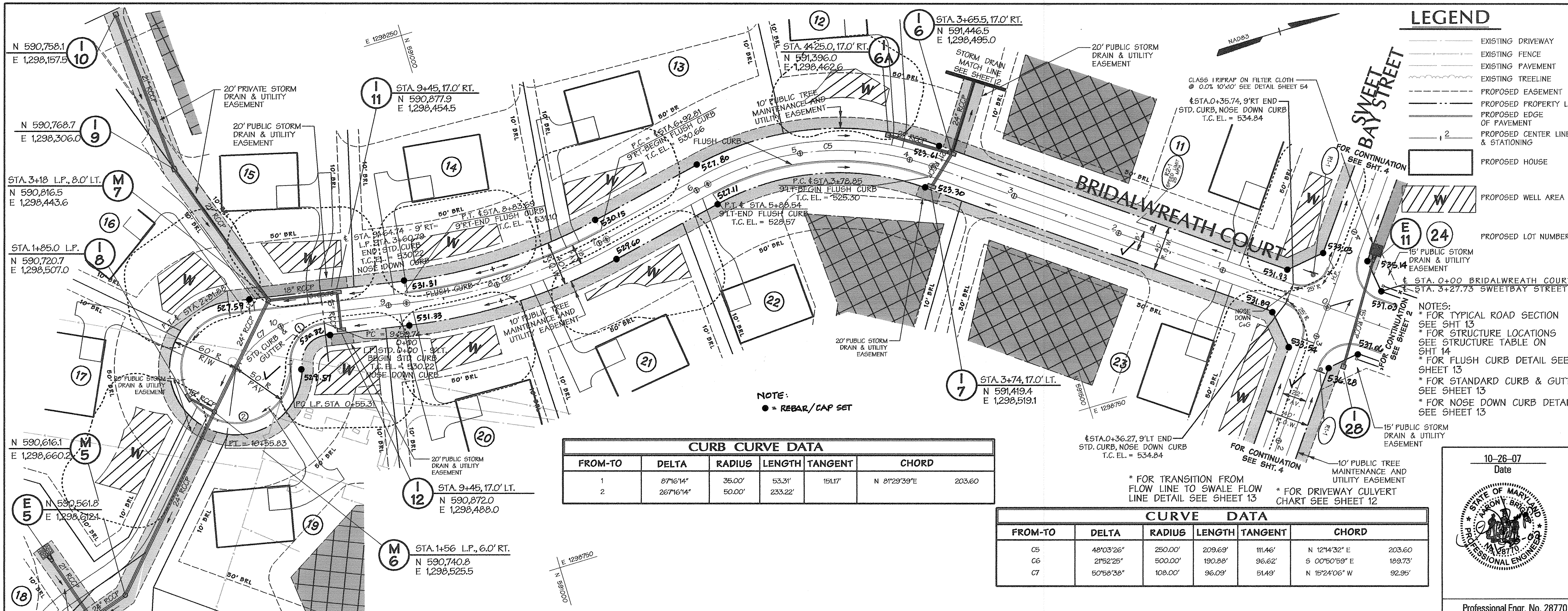
Professional Engr. No. 28770

CLASS 1 RIP RAP ON FILTER CLOTH
@0.0% 10' x 12' FOR DETAIL SEE SHEET 54



SWEETBAY STREET
PUBLIC ACCESS STREET
25 MPH DESIGN SPEED

m:\01067f\01067f\chessie\01067f07.dwg, Rev. 16 10-1-2017



LEGEND

- EXISTING DRIVEWAY
- EXISTING FENCE
- EXISTING PAVEMENT
- EXISTING TREELINE
- PROPOSED EASEMENT
- PROPOSED PROPERTY LINE
- PROPOSED EDGE OF PAVEMENT
- PROPOSED CENTER LINE & STATIONING
- PROPOSED HOUSE
- PROPOSED WELL AREA
- PROPOSED LOT NUMBER

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
With 2 Mod's 12-7-07
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Chris Shantz 12/11/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Mr. [Signature] 12/11/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date	No.	Revision Description

BELLE HAVEN ESTATES

LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O,
 NON-BUILDABLE BULK PARCEL P
 TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
 ELECTION DISTRICT NO. 3 HOWARD COUNTY, MARYLAND

DMW
 Darby-McCune-Walker, Inc.
 200 West Pennsylvania Avenue
 Towson, Maryland 21286
 (410) 296-3333
 Fax 296-4703

A Team of Land Planners,
 Landscape Architects,
 Engineers, Surveyors &
 Environmental Professionals

10-26-07
 Date

Professional Engr. No. 28770

CURB CURVE DATA

FROM-TO	DELTA	RADIUS	LENGTH	TANGENT	CHORD
1	87°16'14"	35.00'	53.31'	151.17'	N 01°29'39"E 203.60'
2	267°16'14"	50.00'	233.22'		

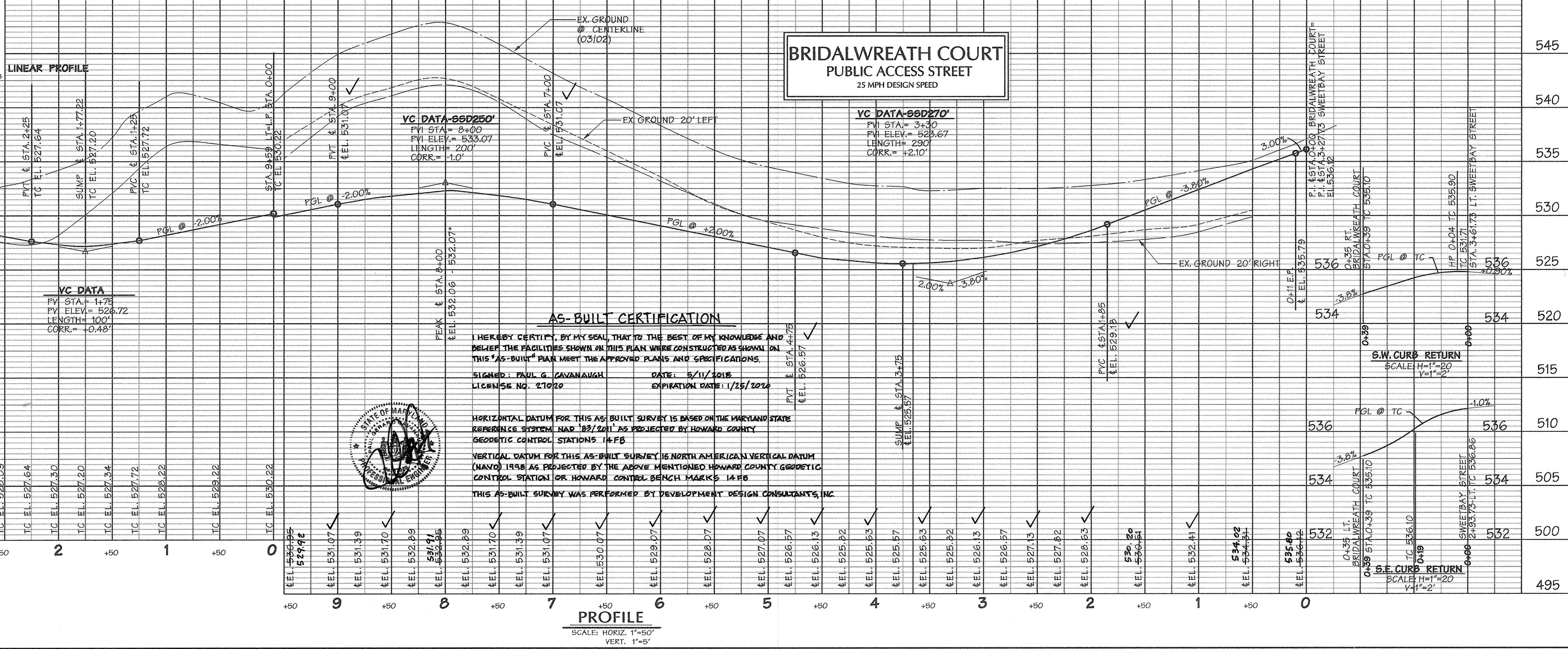
CURVE DATA

FROM-TO	DELTA	RADIUS	LENGTH	TANGENT	CHORD
C5	48°03'26"	250.00'	209.69'	111.46'	N 12°14'32" E 203.60'
C6	2°52'25"	500.00'	190.88'	96.62'	S 00°50'59" E 189.73'
C7	50°58'38"	108.00'	96.09'	51.49'	N 15°24'06" W 92.95'

NOTE:
 ● = REBAR/CAP SET

* FOR TRANSITION FROM FLOW LINE TO SWALE FLOW LINE DETAIL SEE SHEET 13

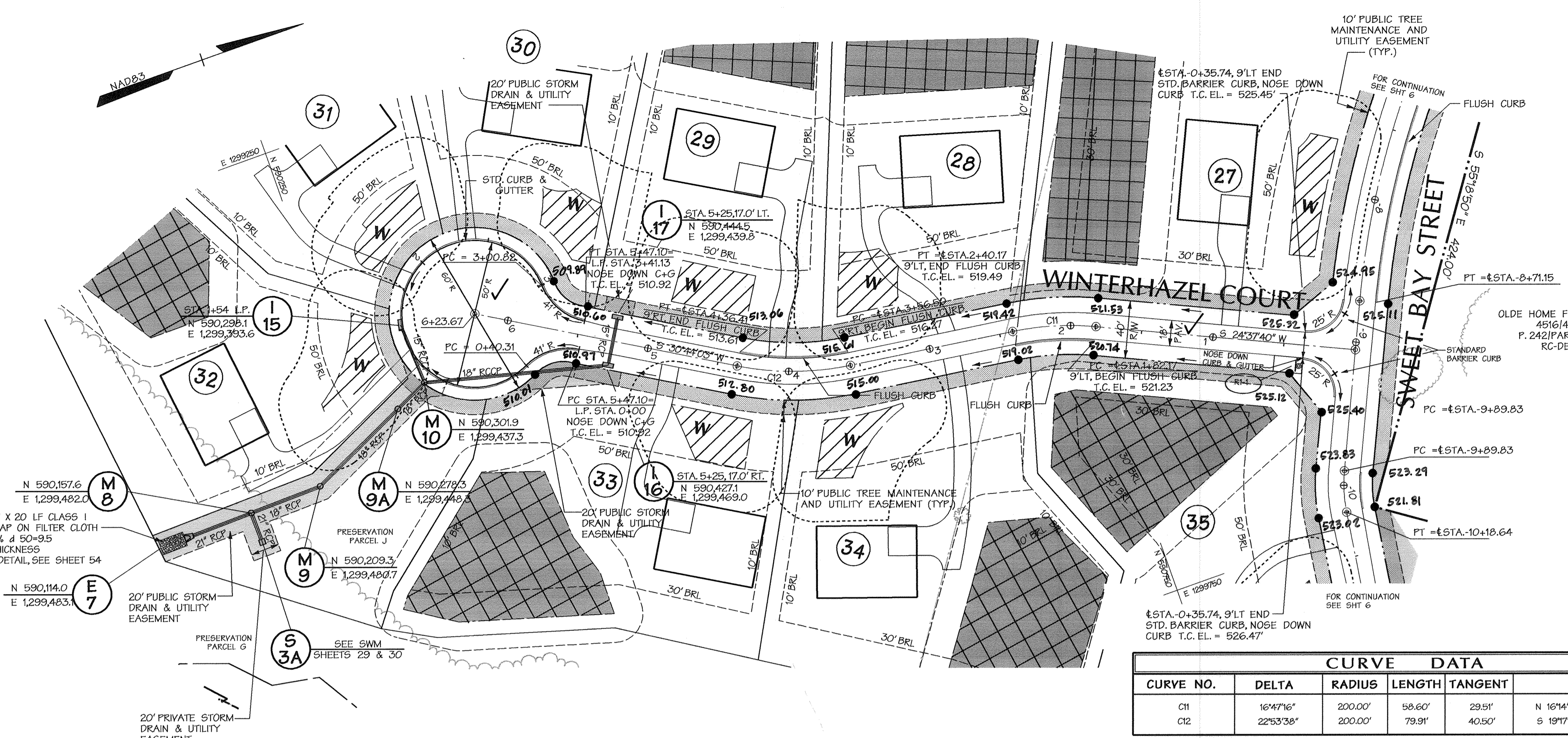
* FOR DRIVEWAY CULVERT CHART SEE SHEET 12



AREA	TAX MAP 14	PARCEL 66
TITLE	FINAL ROAD PLAN AND PROFILE BRIDALWREATH COURT STA. 0+00 TO STA 10+55.83	
Des. By	MAT	Scale 1" = 50'
Drn. By	MDT	Date 10/16/07
Proj. No.	01067F	8 of 74
Chk. By	ATB	Approved ATB

LINEAR PROFILE

Station	Elevation
4+50	529.92
3+50	529.01
2+50	527.64
1+50	527.30
0+50	527.22
0+00	527.22
1+00	527.72
2+00	527.72
3+00	527.72
4+00	527.72
5+00	527.72
6+00	527.72
7+00	527.72
8+00	527.72
9+00	527.72



NOTE:
● = REBAR / CAP SET

NOTES:
* FOR TYPICAL ROAD SECTION SEE SHT 13
* FOR STRUCTURE LOCATIONS SEE STRUCTURE TABLE ON SHT 14
* FOR FLUSH CURB DETAIL SEE SHEET 13
* FOR STANDARD CURB & GUTTER DETAIL SEE SHEET 13
* FOR TRANSITION FROM FLOW ALONG CURB TO SWALE FLOWING DETAIL SEE SHEET 13
* FOR NOSE DOWN CURB DETAIL SEE SHEET 13
* FOR DRIVEWAY CULVERT CHART SEE SHEET 12

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
William Z. Mott 12-7-07
CHIEF, BUREAU OF HIGHWAYS MS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Quincy Harris 12/16/07
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Older DeMunn 12/11/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date No. Revision Description

BELLE HAVEN ESTATES
LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O, NON-BUILDABLE BULK PARCEL P
TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER
Union Chapel Road, LLC
8025 Chantrelle Drive
Beltzville, MD 21042
Phone: (410) 468-5800

DMW
Darr McCreary-Walkers, Inc.
200 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 296-3333
Fax 296-4705

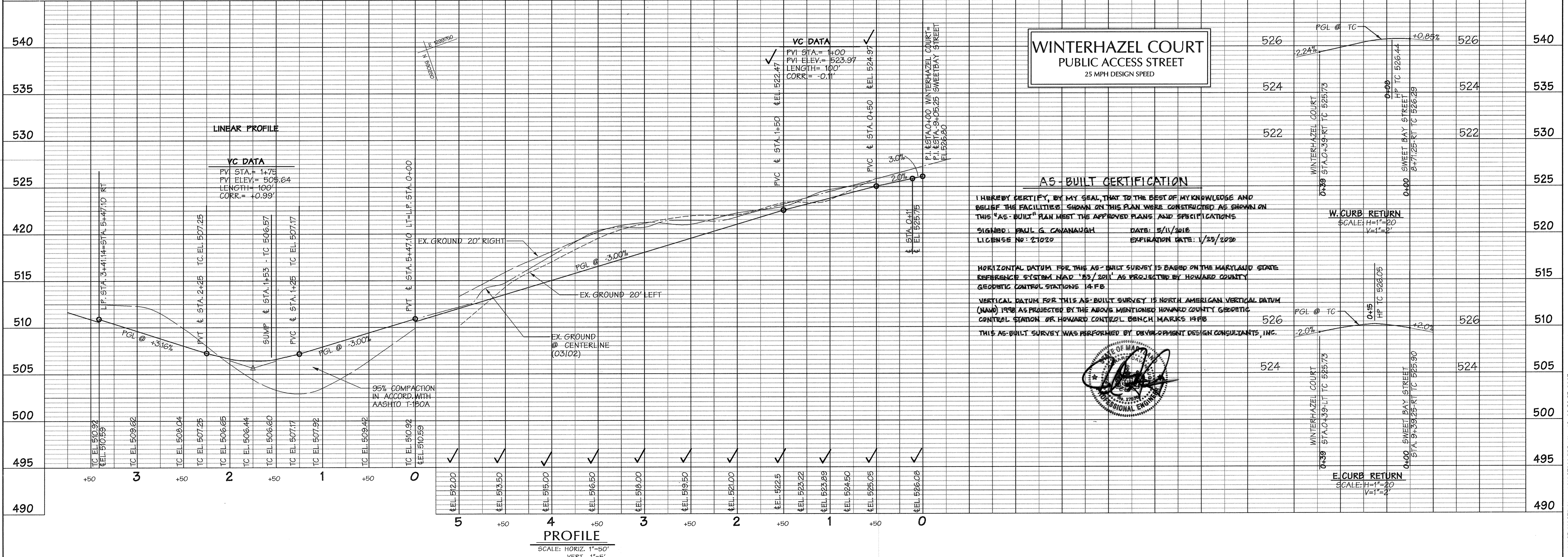
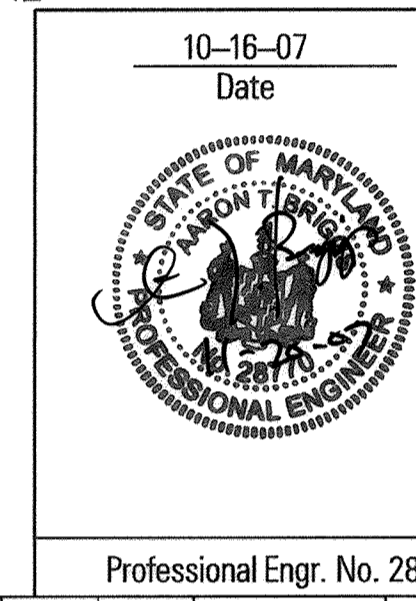
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

AREA
TAX MAP 14 PARCEL 66
3rd ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

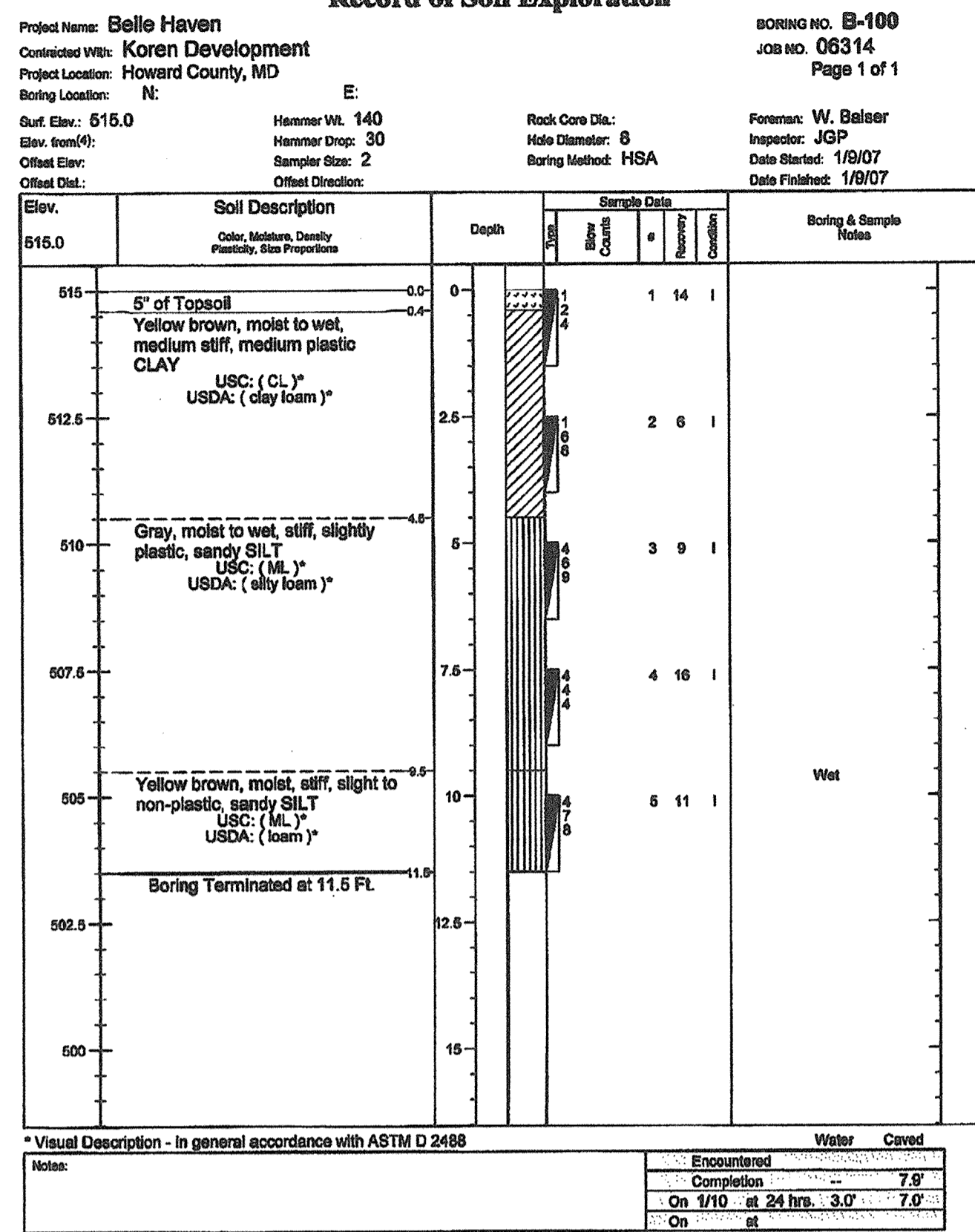
TITLE
**FINAL ROAD PLAN AND PROFILE
WINTERHAZEL COURT
STA 0+00 TO CUL-DE-SAC**

Des. By MAT Scale 1" = 50' Proj. No. 01067F
Dwn. By MDT Date 10/16/07
Chk. By ATB Approved ATB 9 of 74

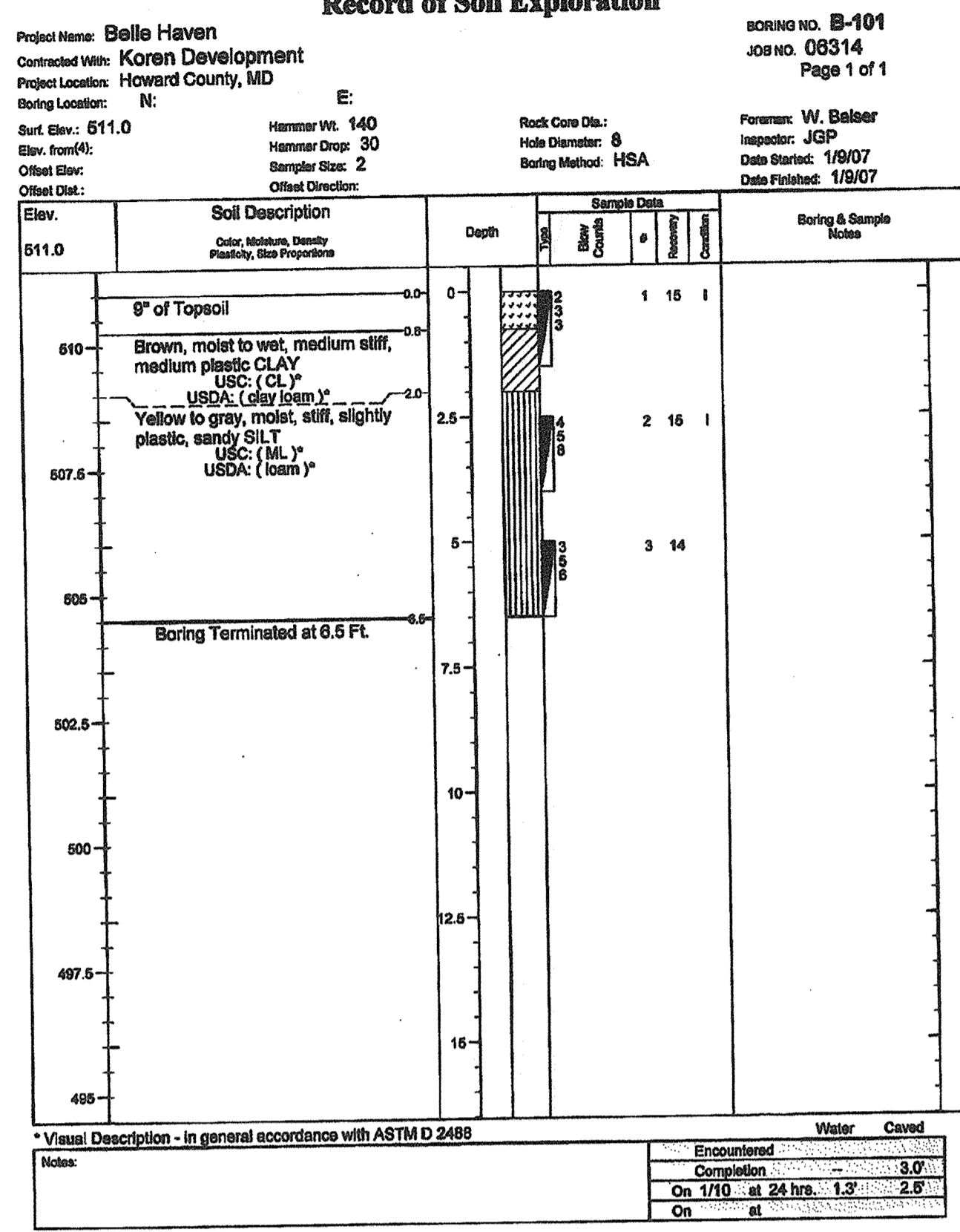
CURVE DATA					
CURVE NO.	DELTA	RADIUS	LENGTH	TANGENT	CHORD
C11	16°47'16"	200.00'	58.60'	29.51'	N 16°14'02" E 58.39'
C12	22°53'38"	200.00'	79.91'	40.50'	S 19°17'14" W 79.36'



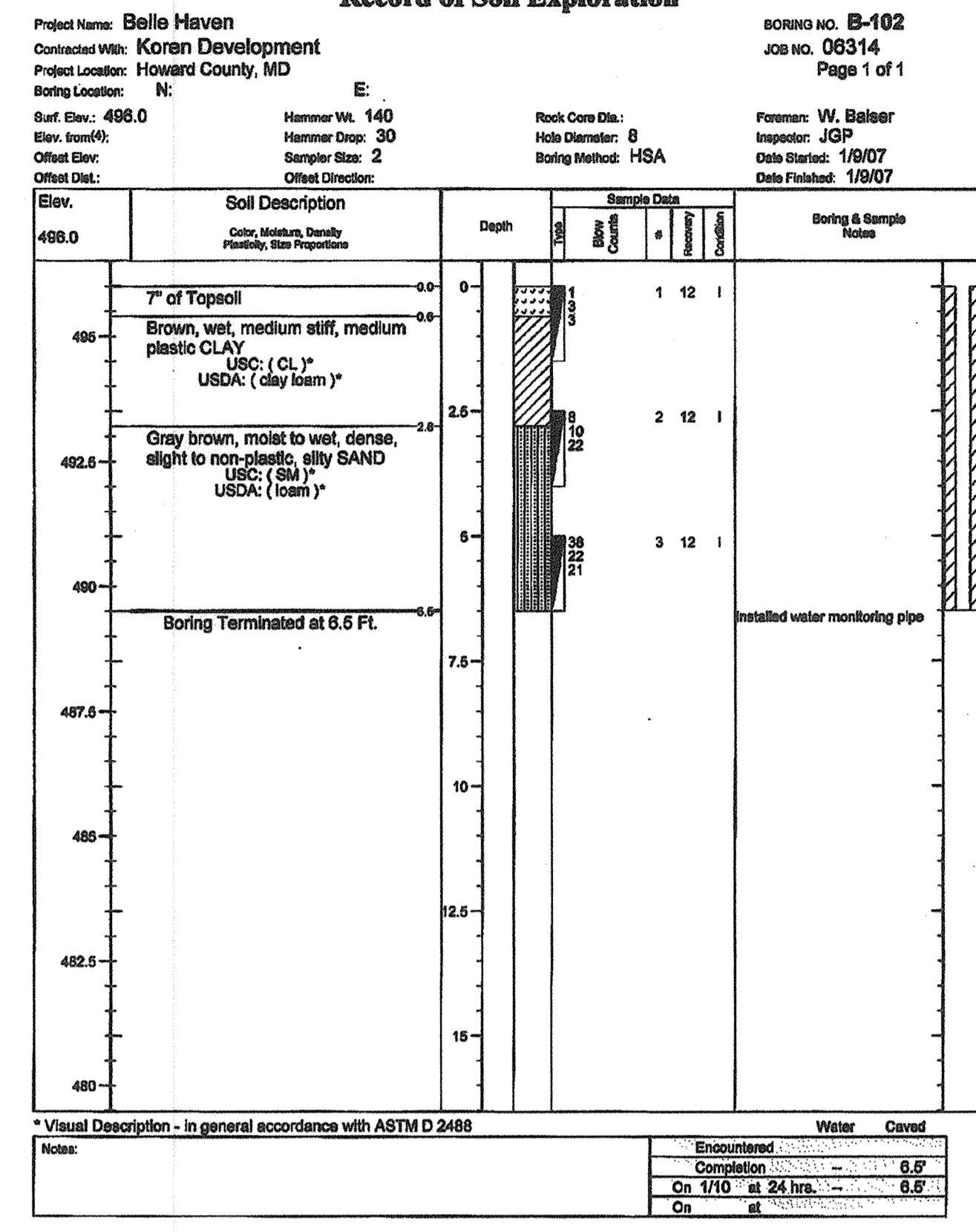
Record of Soil Exploration



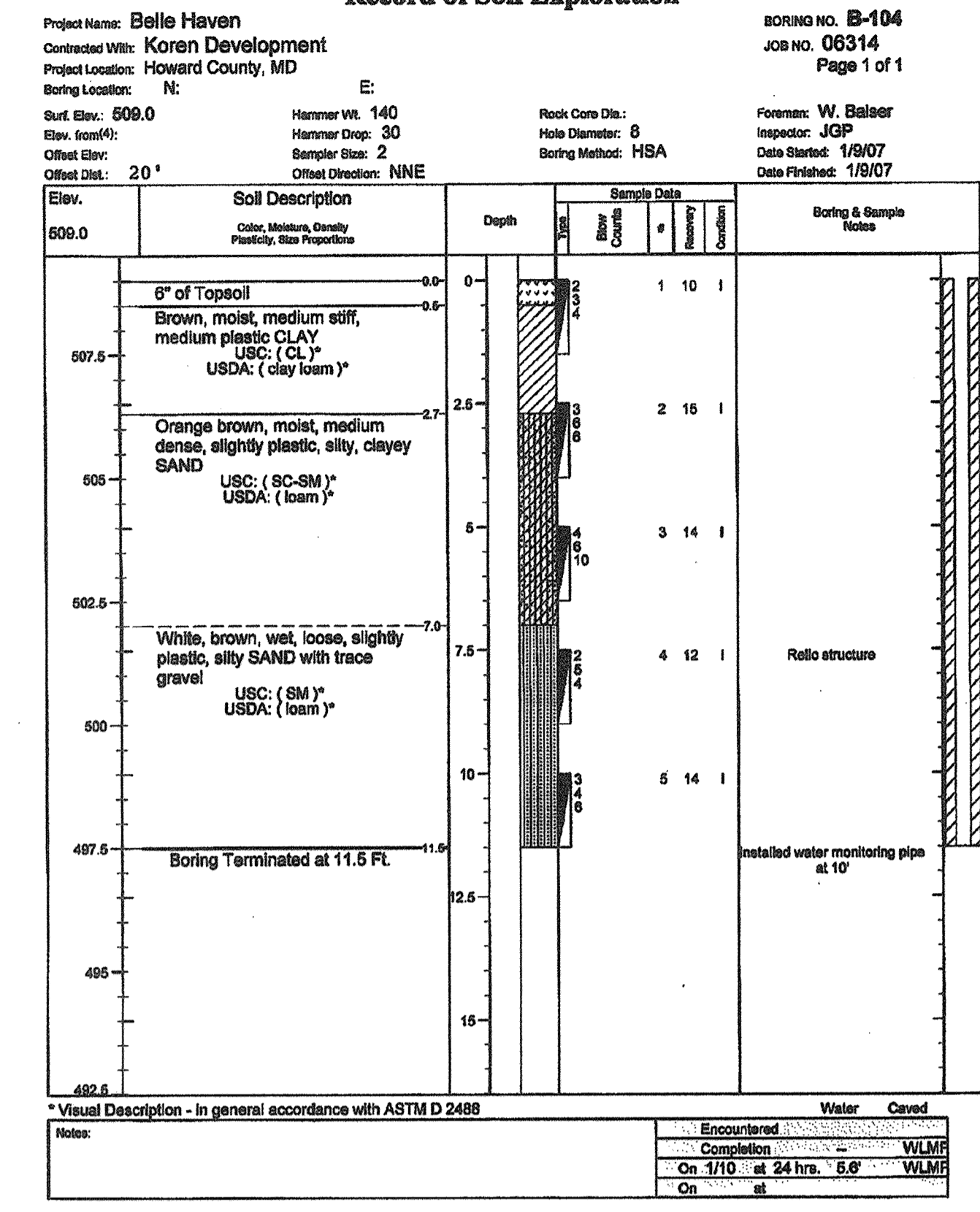
Record of Soil Exploration



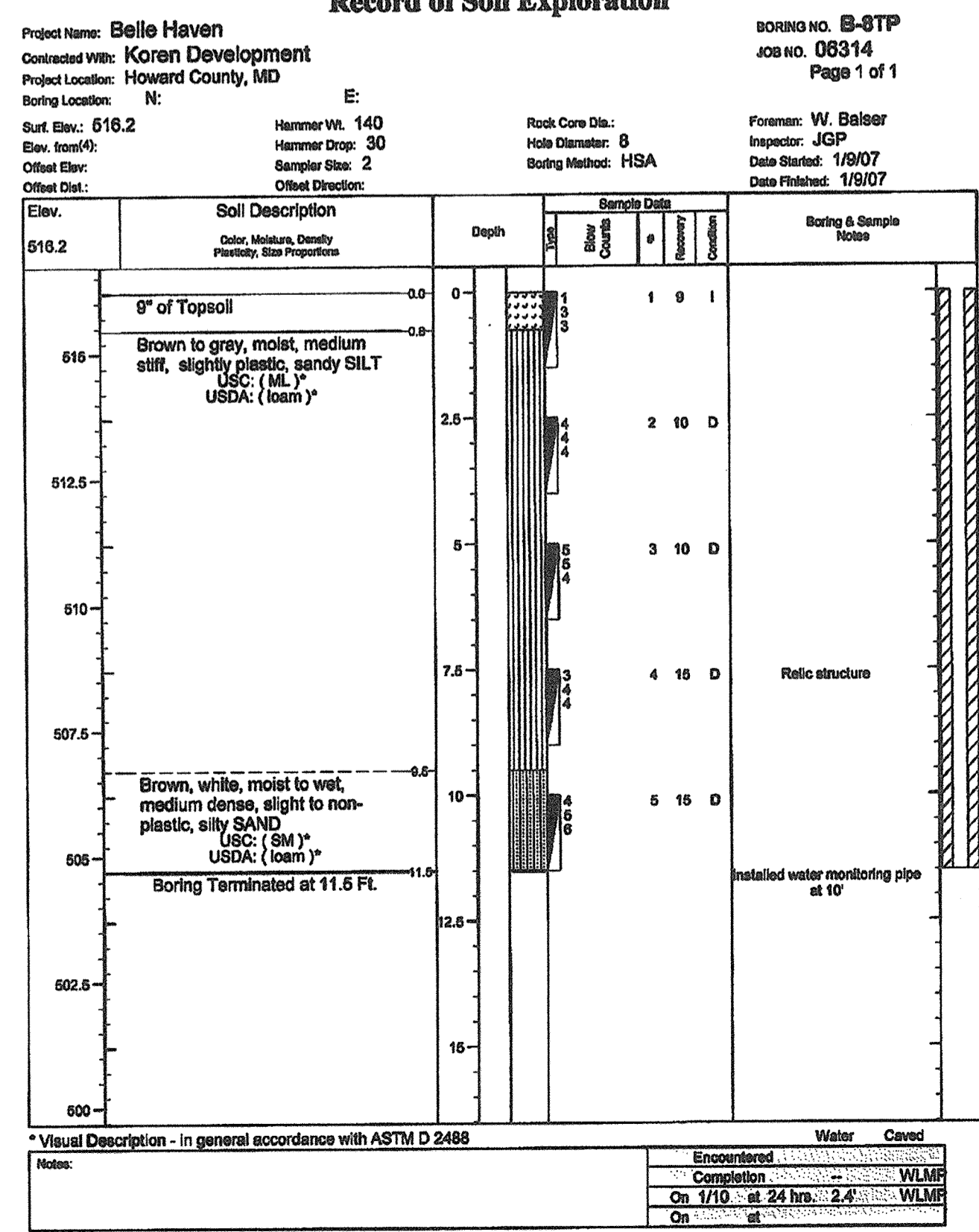
Record of Soil Exploration



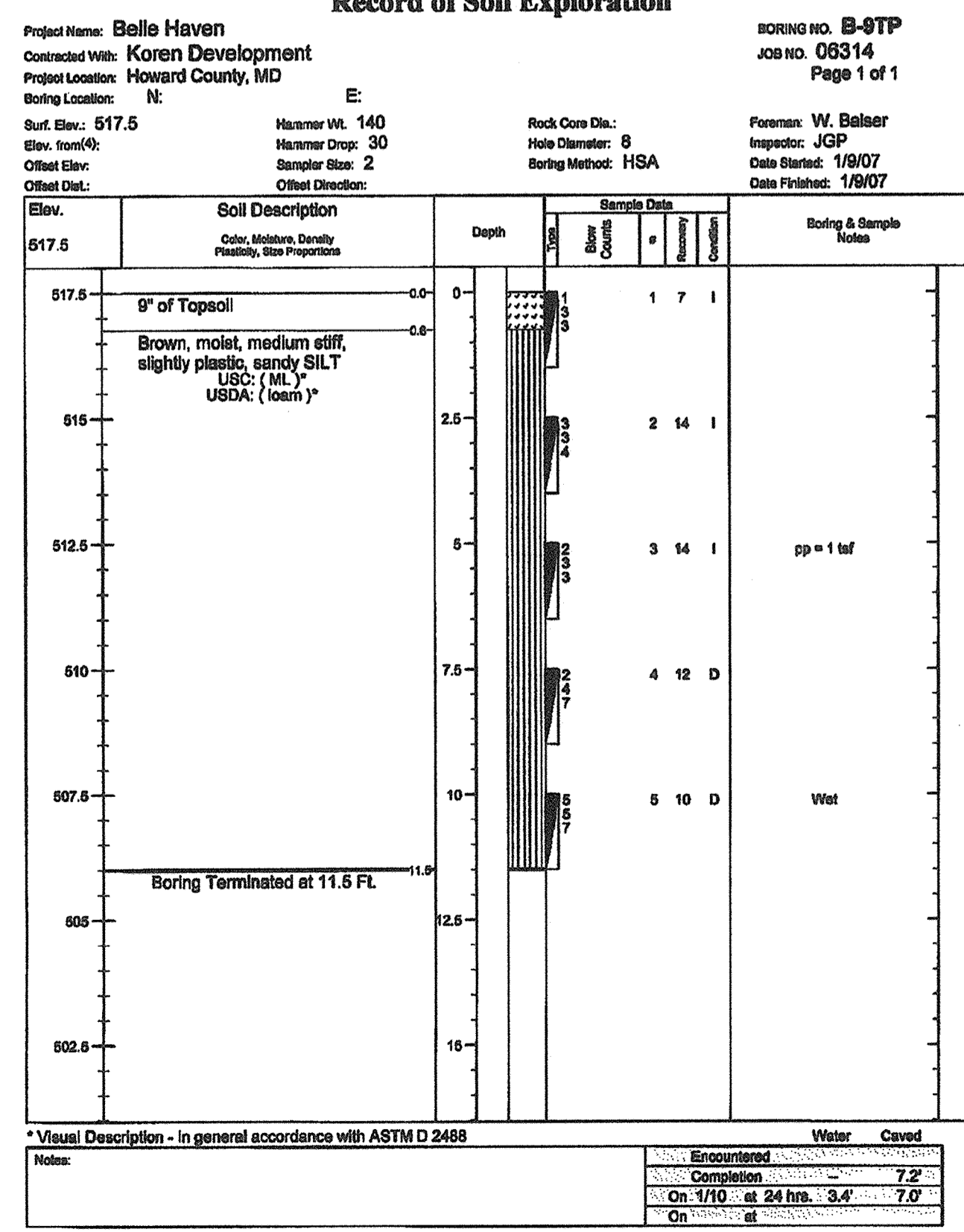
Record of Soil Exploration



Record of Soil Exploration



Record of Soil Exploration



"NO AS-BUILT INFORMATION IN THIS SHEET"
 DATE: 5/11/2018

KEY TO SYMBOLS

AS-BUILT CERTIFICATION

I HEREBY CERTIFY, BY THIS SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

SIGNED: PAUL G. CAVANAUGH
 LICENSE NO: 27020

DATE: 5/11/2018
 EXPIRATION DATE: 1/25/2020

HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD '83/2011' AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 14FB.

VERTICAL DATUM FOR THIS AS-BUILT SURVEY IS NORTH AMERICAN VERTICAL DATUM (NAVD) 1988 AS PROJECTED BY THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATION OR HOWARD COUNTY BENCH MARKS 14FB.

THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.

Symbol Description

Strata symbols

- Topsoil
- Low plasticity clay
- Silt
- Silty sand
- Poorly graded clayey silty sand

Soil Samplers

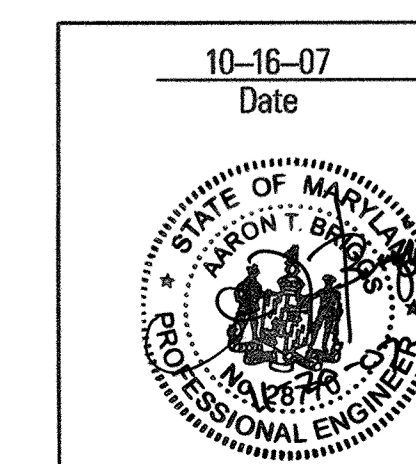
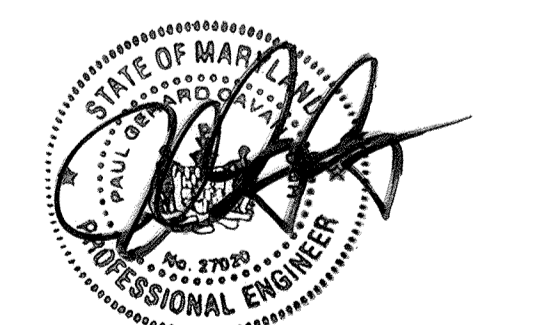
- Standard penetration test

Monitor Well Details

- assorted cuttings

Notes:

- Exploratory borings were drilled on 1/9/07 using a 4-inch diameter continuous flight power auger.
- No free water was encountered at the time of drilling or when re-checked the following day.
- Boring locations were taped from existing features and elevations extrapolated from the final design schematic plan.
- These logs are subject to the limitations, conclusions, and recommendations in this report.
- Results of tests conducted on samples recovered are reported on the logs.



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
 [Signature] 12-7-07
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
 [Signature] 12/11/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
 [Signature] 12/11/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date No. Revision Description

BELLE HAVEN ESTATES

LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O,
 NON-BUILDABLE BULK PARCEL P
 TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
 ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND

DMW
 DeWitt McCune-Walkers, Inc.
 202 East Pennsylvania Avenue
 Towson, Maryland 21286
 (410) 296-3333
 Fax: 396-4702

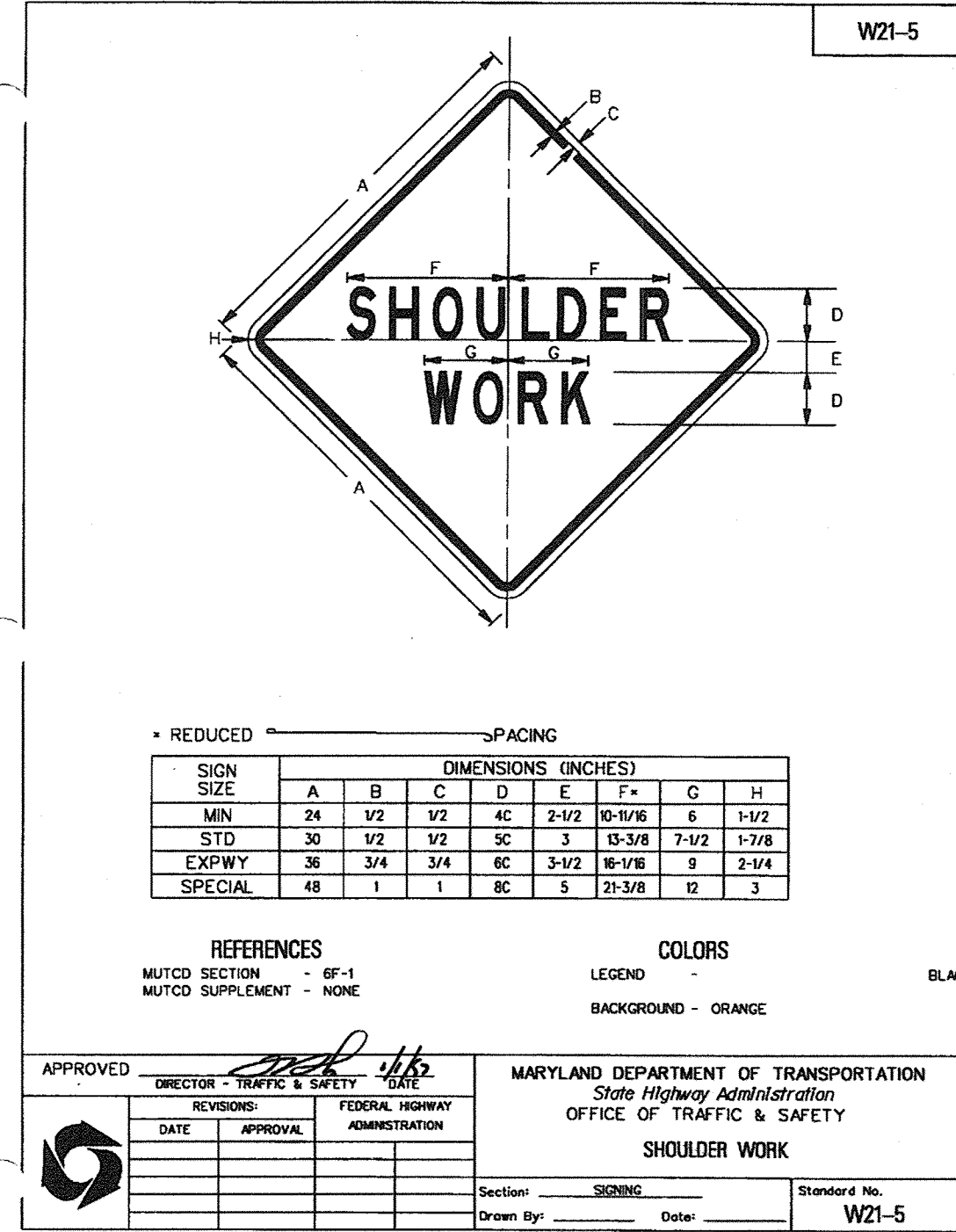
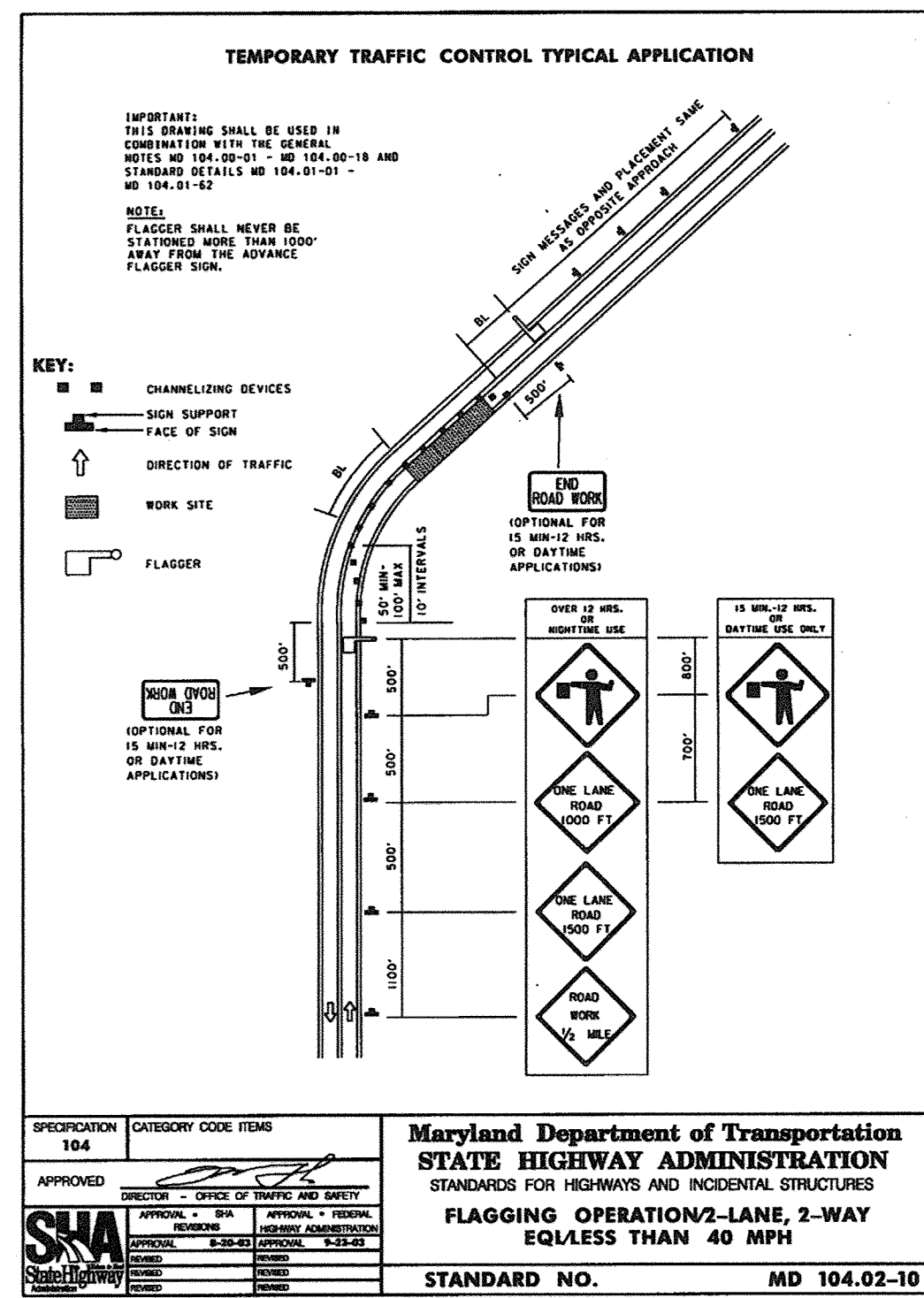
A Team of Land Planners,
 Landscape Architects,
 Engineers, Surveyors &
 Environmental Professionals

AREA TAX MAP 14 PARCEL 66
 3rd ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE **BORING LOGS**

Des. By	MAT	Scale	NTS	Proj. No.	01067F
Dwn. By	MDT	Date	10/16/07		
Chk. By	ATB	Approved	ATB		10 of 74

Professional Engr. No. 28770



"NO AS-BUILT INFORMATION IN THIS SHEET"
DATE: 5/11/2018

AS-BUILT CERTIFICATION

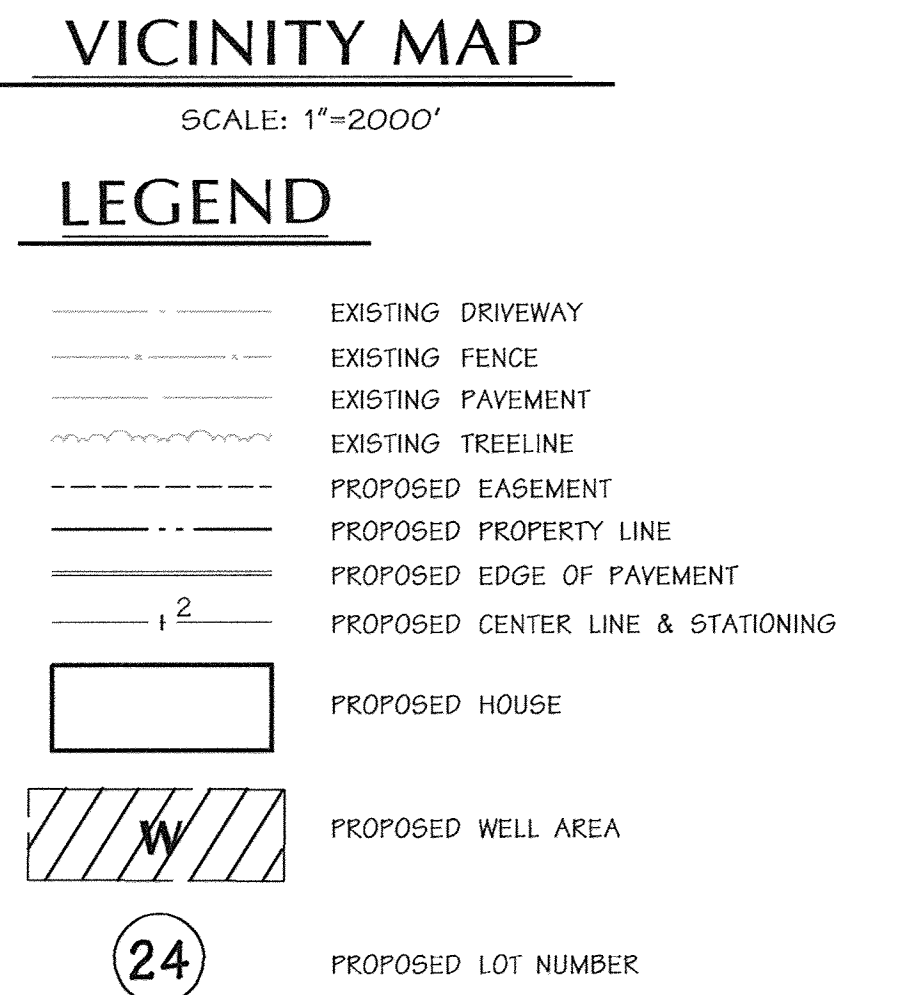
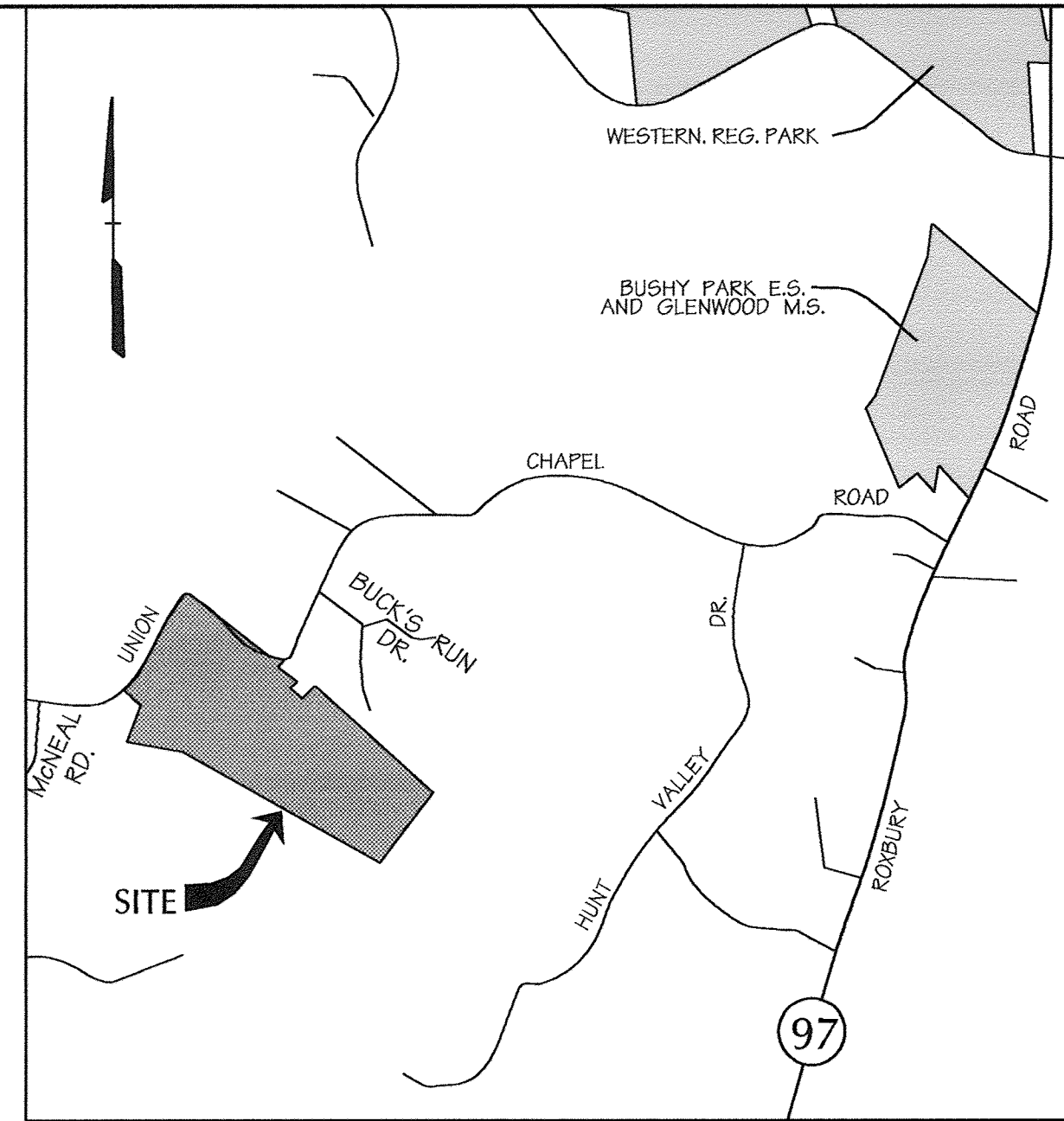
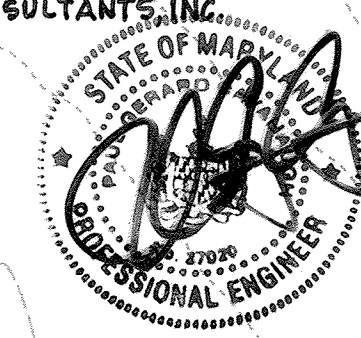
I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

SIGNED: PAUL G. CAVANAUGH DATE: 5/11/2018
LICENSE NO: 27020 EXPIRATION DATE: 1/25/2020

HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD '83/2011' AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 14FB

VERTICAL DATUM FOR THIS AS-BUILT SURVEY IS NORTH AMERICAN VERTICAL DATUM (NAVD) 1988 AS PROJECTED BY THE ABOVE REFERENCED HOWARD COUNTY GEODETIC CONTROL STATION OR HOWARD COUNTY BENCH MARKS 14FB.

THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.



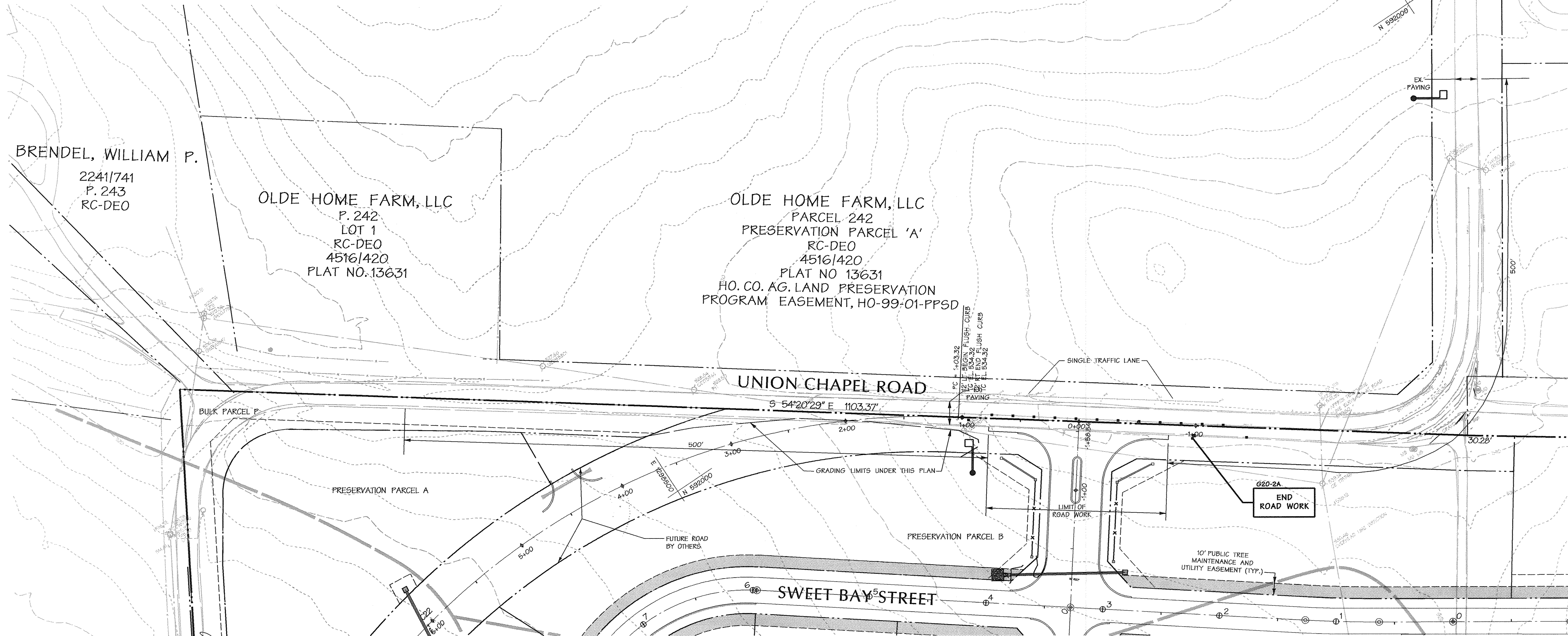
DATA SOURCES:

Boundary per existing deeds.
Topo taken from Howard County topo CD, 1999.
Septics approximated from adjacent plats and DMW field visits, July, 2001.
Approximate wetland limits from DMW field visits, July, 2001.
Soils taken from Howard County Soil Survey, 1968.

BRENDEL, WILLIAM P.
2241/741
P. 243
RC-DEO

OLDE HOME FARM, LLC
P. 242
LOT 1
RC-DEO
4516/420
PLAT NO. 13631

OLDE HOME FARM, LLC
PARCEL 242
PRESERVATION PARCEL 'A'
RC-DEO
4516/420
PLAT NO 13631
HO. CO. AG. LAND PRESERVATION
PROGRAM EASEMENT, HO-99-01-PPSD



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
[Signature] 12-7-07
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
[Signature] 12/1/09
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 12/1/05
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date	No.	Revision Description

BELLE HAVEN ESTATES

LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O,
NON-BUILDABLE BULK PARCEL P
TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
ELECTION DISTRICT NO. 3 HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER
Union Chapel Road, LLC
8025 Charolles Drive
Suite K
Ellicott City, MD 21042
Phone (410) 461-0900

DMW
Daft-McCune-Walker, Inc.
200 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 296-3333
Fax 296-4706

A Team of Land Planners,
Landscape Architects,
Engineers, Surveyors &
Environmental Professionals

10-16-07
Date

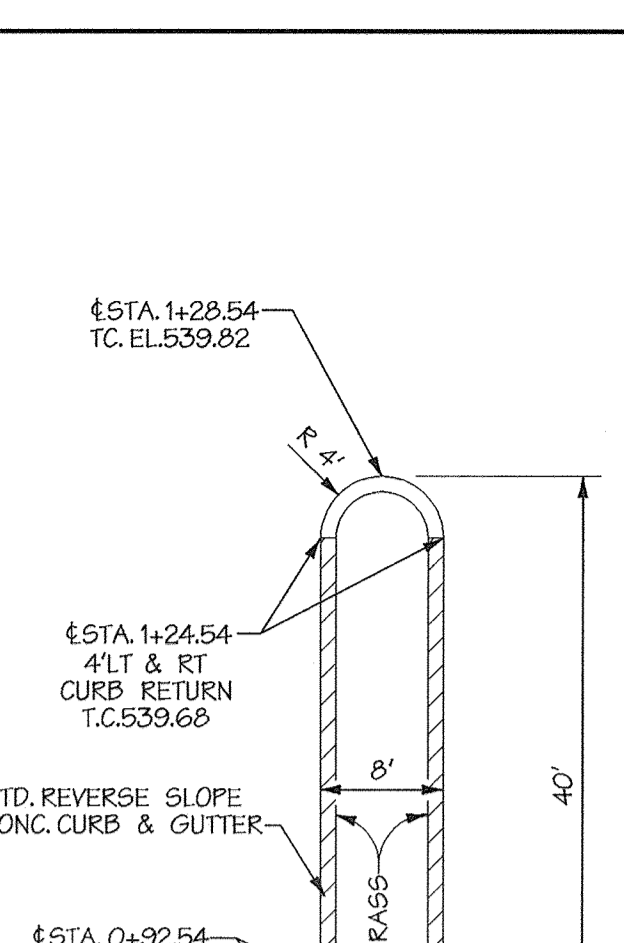
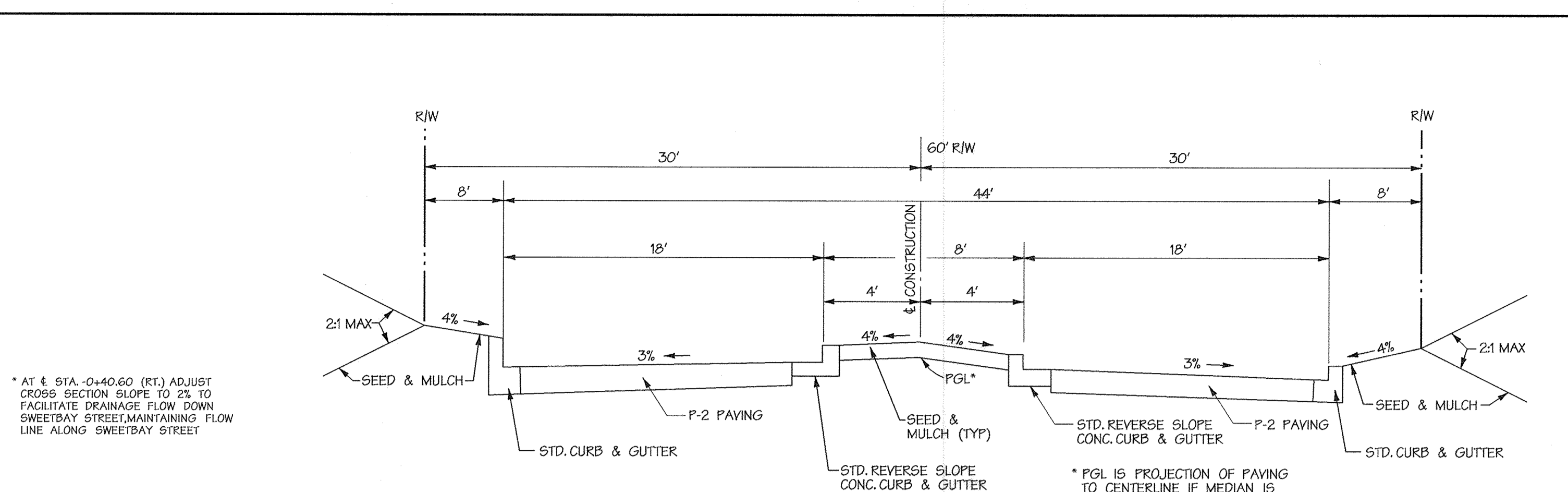
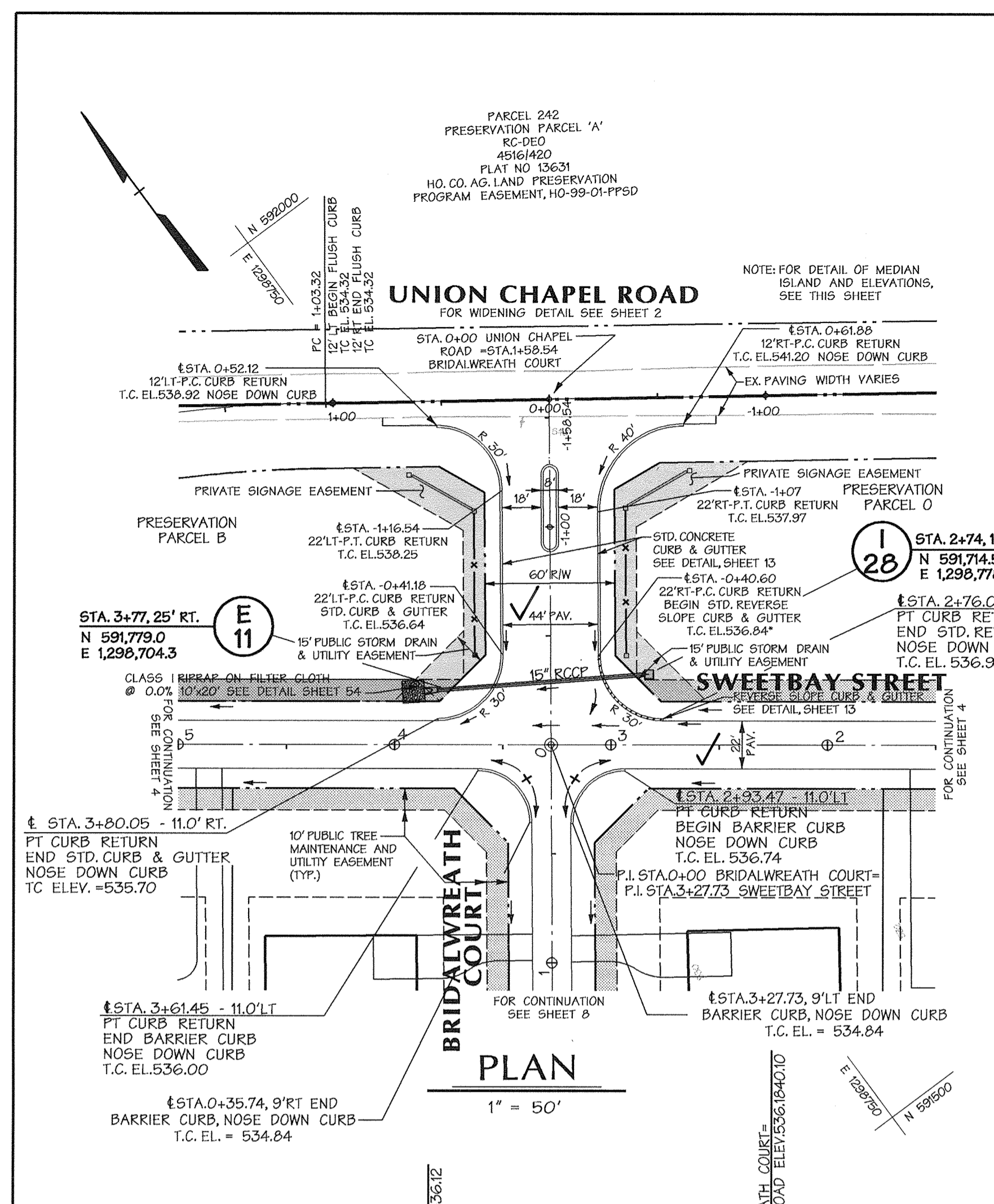
Professional Engr. No. 28770

AREA
TAX MAP 14 PARCEL 66
3rd ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

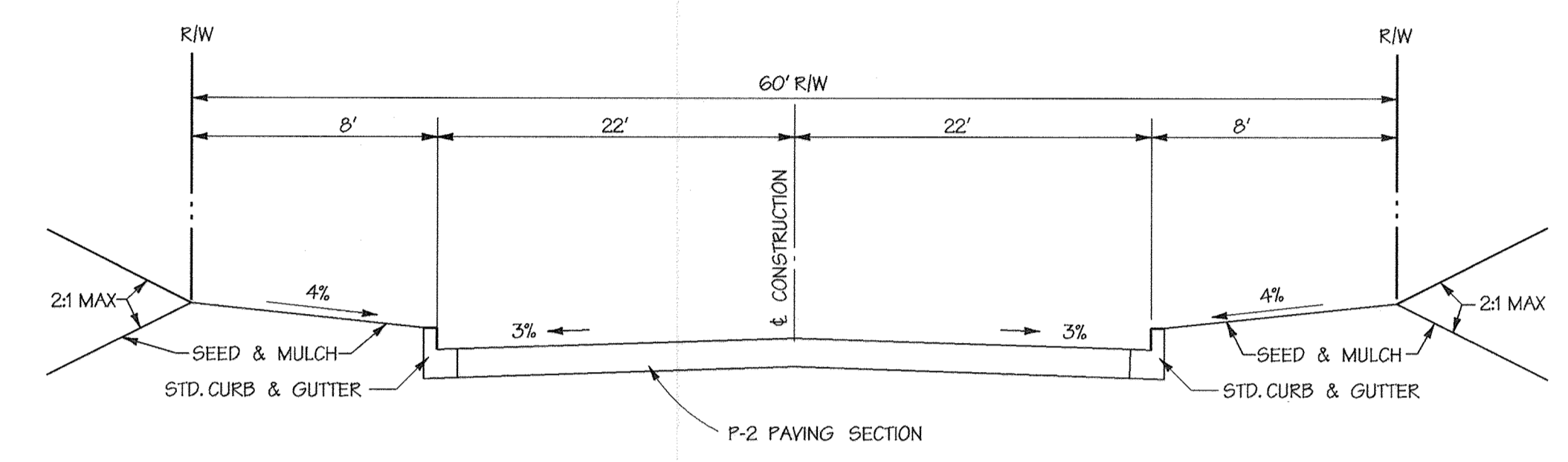
TITLE
**UNION CHAPEL ROAD
MAINTENANCE OF TRAFFIC PLAN**

Des. By	MAT	Scale	1" = 50'	Proj. No.	01067F
Drn. By	GMO	Date	10/16/07	11 of 74	
Chk. By	ATB	Approved	ATB		

m:\01067F\01067F\Bshes101067F11.KPDu Rev. 06 1054-40 2007



TYPICAL SECTION - BRIDALWREATH COURT PUBLIC STREET ACCESS
(25 MPH DESIGN SPEED)
FROM STA. 0+88.54 TO STA. -1+28.54
NOT TO SCALE



TYPICAL SECTION - BRIDALWREATH COURT
(25 MPH DESIGN SPEED)
FROM STA. 0+00 TO STA. -0+88.54
NOT TO SCALE

LEGEND

- EXISTING DRIVEWAY
- EXISTING FENCE
- EXISTING PAVEMENT
- EXISTING TREELINE
- PROPOSED EASEMENT
- PROPOSED PROPERTY LINE
- PROPOSED EDGE OF PAVEMENT
- PROPOSED CENTER LINE & STATIONING
- PROPOSED HOUSE

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
Walter J. ... 12-7-07
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Cathy ... 12/11/07
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

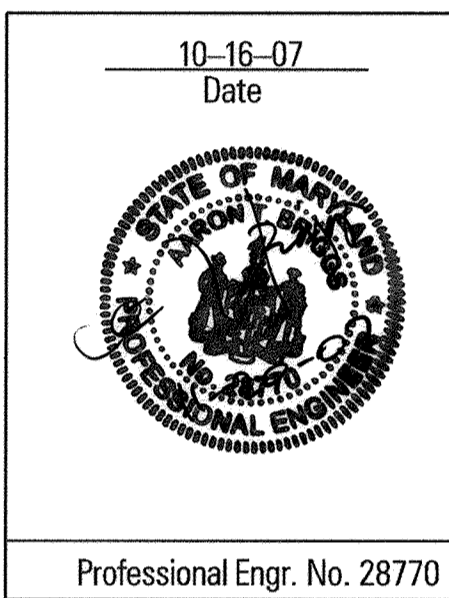
... 12/11/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

BELLE HAVEN ESTATES
LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O,
NON-BUILDABLE BULK PARCEL
TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND

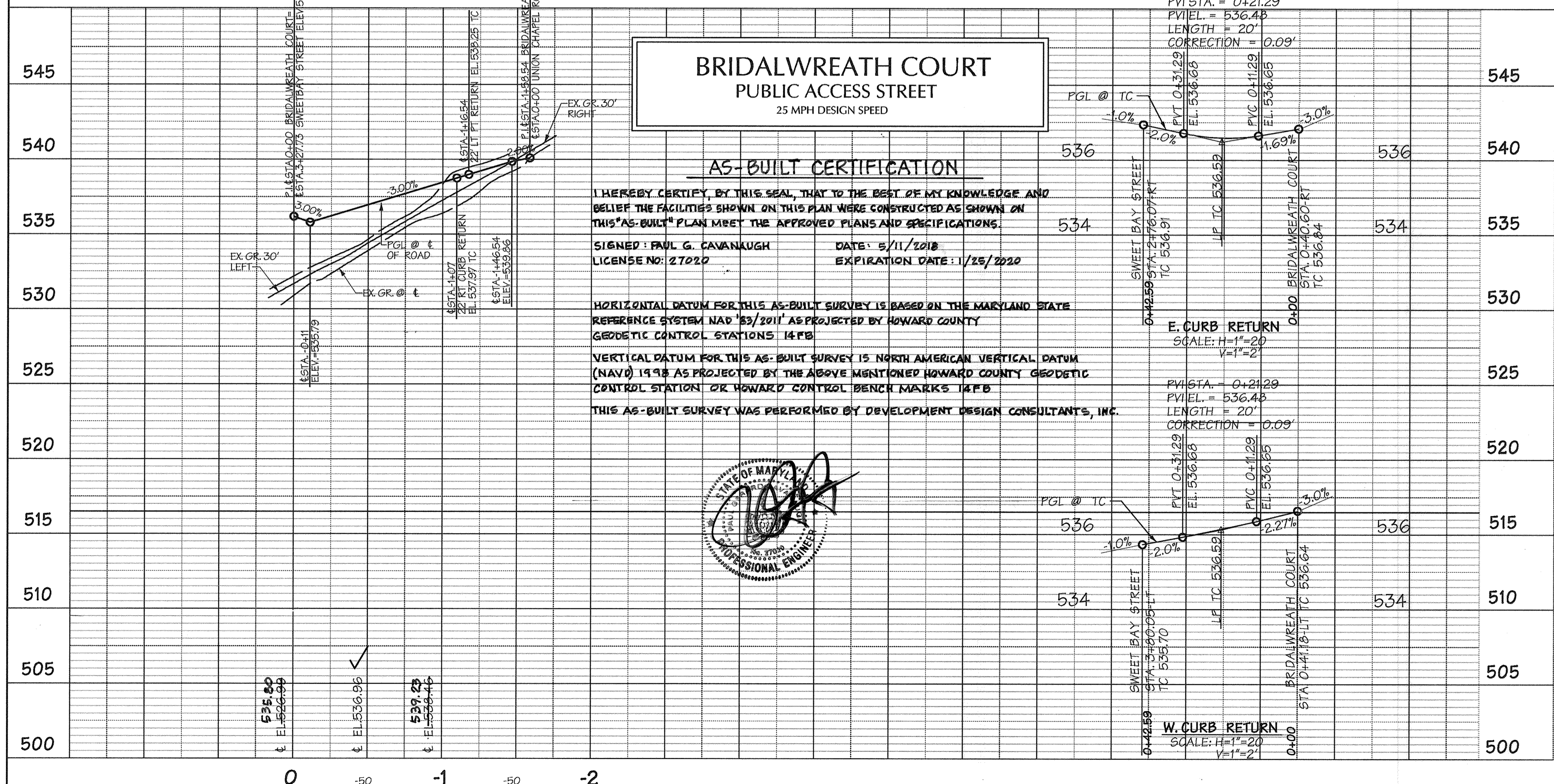
OWNER/DEVELOPER
Union Chapel Road, LLC
8022 Chevrolet Drive
Suite 6
Ellicott City, MD 21042
Phone (410) 461-0900

DMW
Darr McCann-Walkers, Inc.
300 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 296-3333

A Team of Land Planners,
Landscape Architects,
Engineers, Surveyors &
Environmental Professionals



AREA	TAX MAP 14	PARCEL 66
	3rd ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND	
TITLE	FINAL ROAD PLAN AND PROFILE BRIDALWREATH COURT STA 0+00 TO STA -1+58.54	
Des. By	KAD	Scale 1" = 50'
Drn. By	MDT	Date 10/16/07
Chk. By	ATB	Approved ATB
Proj. No.	01067F	
	12 of 74	



**BRIDALWREATH COURT
PUBLIC ACCESS STREET**
25 MPH DESIGN SPEED

AS-BUILT CERTIFICATION

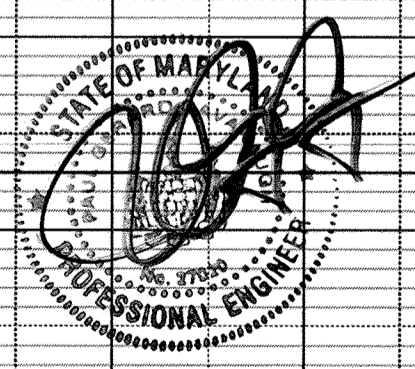
I HEREBY CERTIFY, BY THIS SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS AS-BUILT PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

SIGNED: PAUL G. CAVANUGH DATE: 6/11/2018
LICENSE NO: 27020 EXPIRATION DATE: 1/25/2020

HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD 83/2011 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 14FB

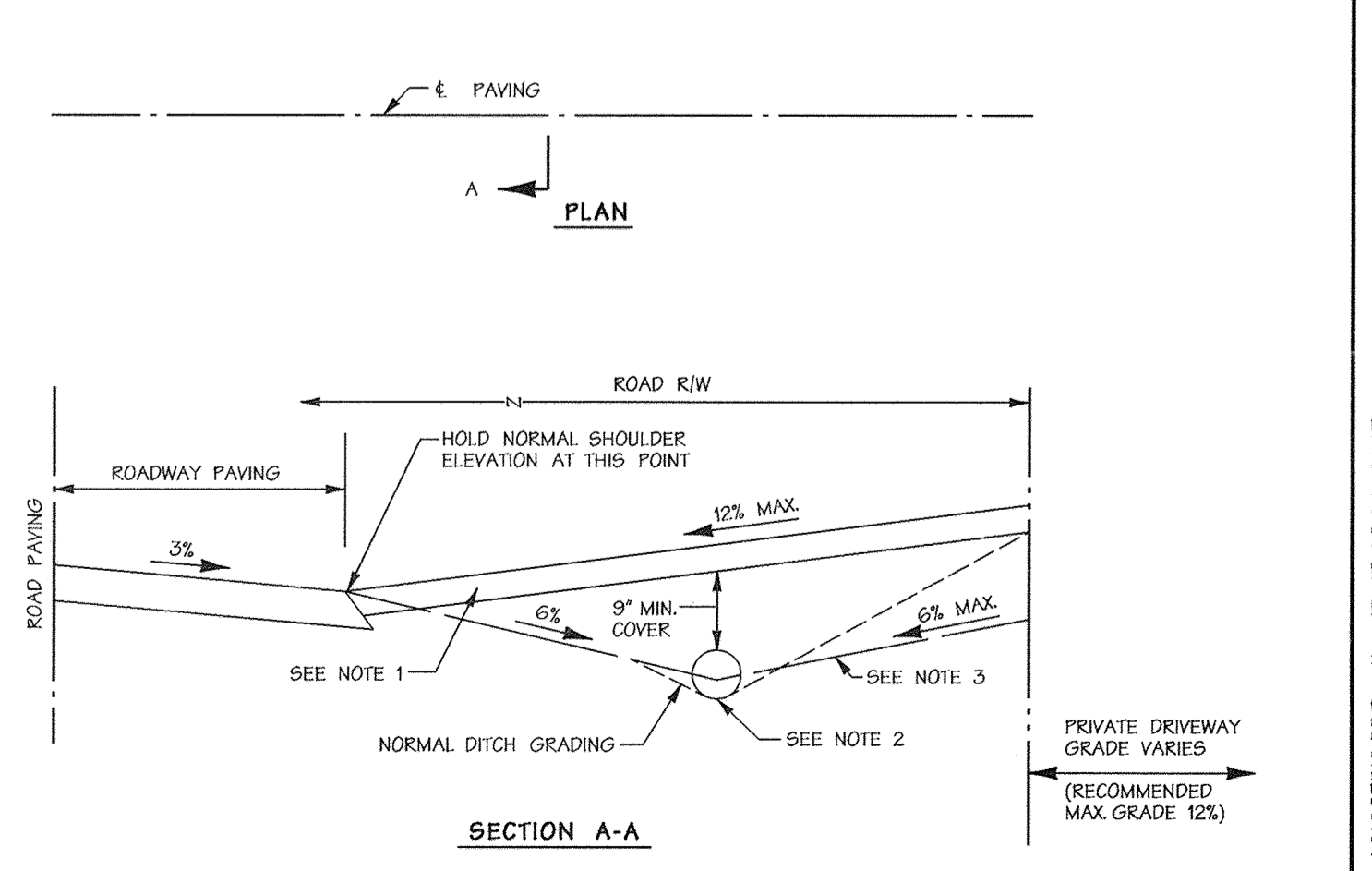
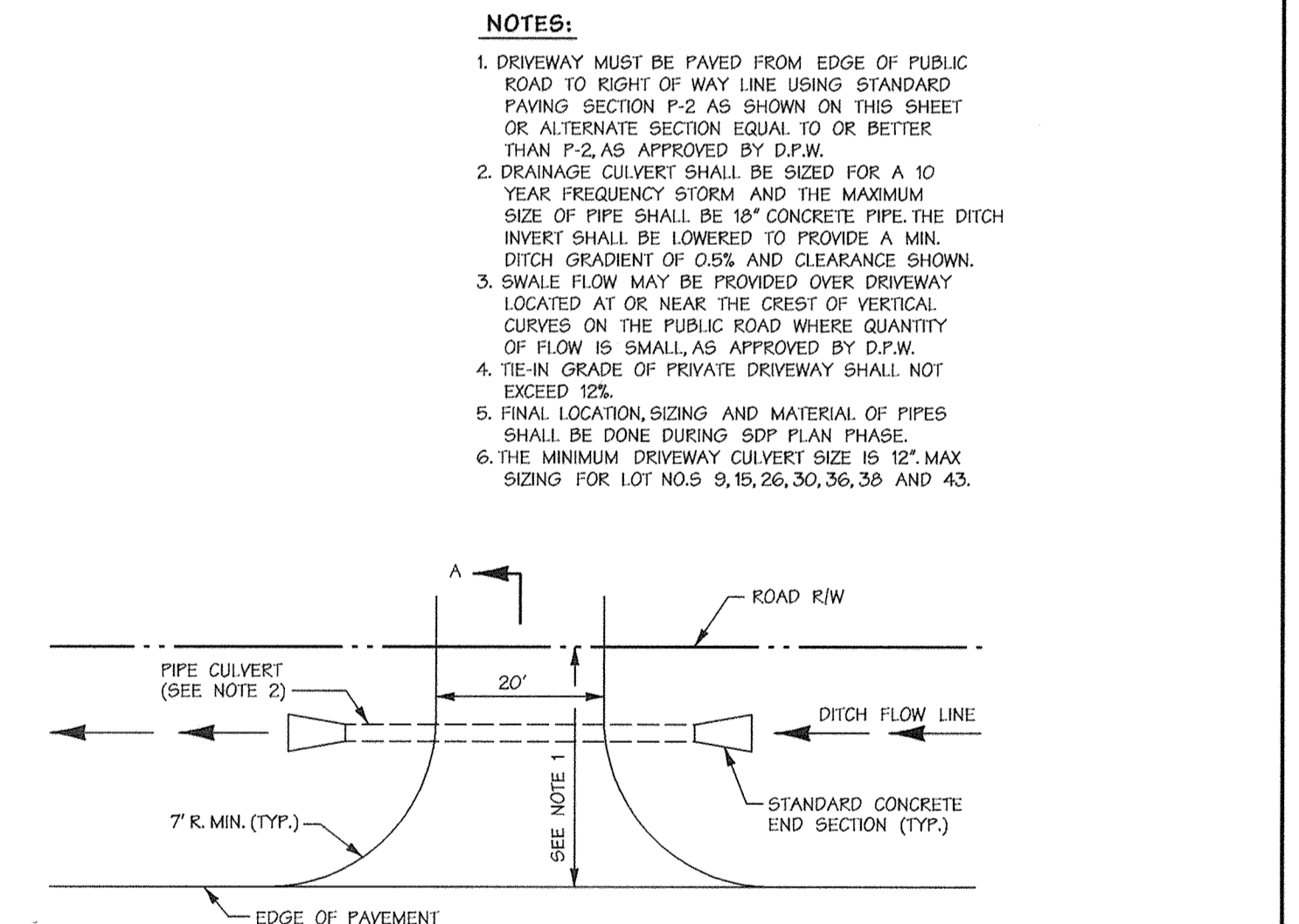
VERTICAL DATUM FOR THIS AS-BUILT SURVEY IS NORTH AMERICAN VERTICAL DATUM (NAVD) 1998 AS PROJECTED BY THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATION OR HOWARD CONTROL BENCH MARKS 14FB

THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.



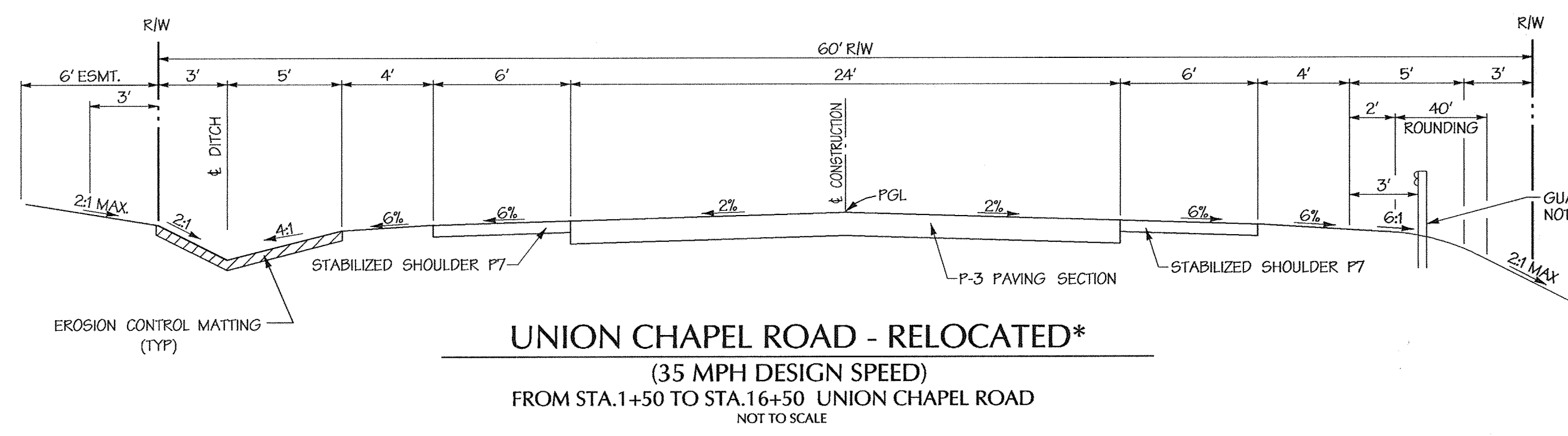
- NOTE:
1. FOR NOSE DOWN CURB, SEE SHEET 13
 2. FOR TRANSITION FROM CURB FLOW LINE TO SWALE FLOW LINE SEE SHEET 13.
 3. FOR DRIVEWAY CULVERT CHART SEE THIS SHEET
 4. FOR CONCRETE BARRIER CURB DETAIL SEE SHEET 13

LOT#	PIPE SIZE	MATERIAL
1	N/A	N/A
2	8" (12")	SMOOTH LINED (CORRUGATED)
3	N/A	N/A
4	N/A	N/A
5	N/A	N/A
6	N/A	N/A
7	N/A	N/A
8	10" (12")	SMOOTH LINED (CORRUGATED)
9	8"	SMOOTH LINED
10	8"	SMOOTH LINED OR CORRUGATED
11	18"	RCCP
12	N/A	N/A
13	N/A	N/A
14	N/A	N/A
15	N/A	N/A
16	N/A	N/A
17	N/A	N/A
18	N/A	N/A
19	N/A	N/A
20	N/A	N/A
21	N/A	N/A
22	10"	SMOOTH LINED
23	8" (12")	SMOOTH LINED (CORRUGATED)
24	N/A	N/A
25	8"	SMOOTH LINED OR CORRUGATED
26	8"	SMOOTH LINED OR CORRUGATED
27	N/A	N/A
28	N/A	N/A
29	8" (12")	SMOOTH LINED (CORRUGATED)
30	N/A	N/A
31	N/A	N/A
32	N/A	N/A
33	8" (12")	SMOOTH LINED (CORRUGATED)
34	8" (12")	SMOOTH LINED (CORRUGATED)
35	8"	SMOOTH LINED OR CORRUGATED
36	N/A	N/A
37	N/A	N/A
38	8" (12")	SMOOTH LINED (CORRUGATED)
39	8" (12")	SMOOTH LINED (CORRUGATED)
40	8"	SMOOTH LINED OR CORRUGATED
41	N/A	N/A
42	N/A	N/A
43	N/A	N/A
44	N/A	N/A
45	N/A	N/A

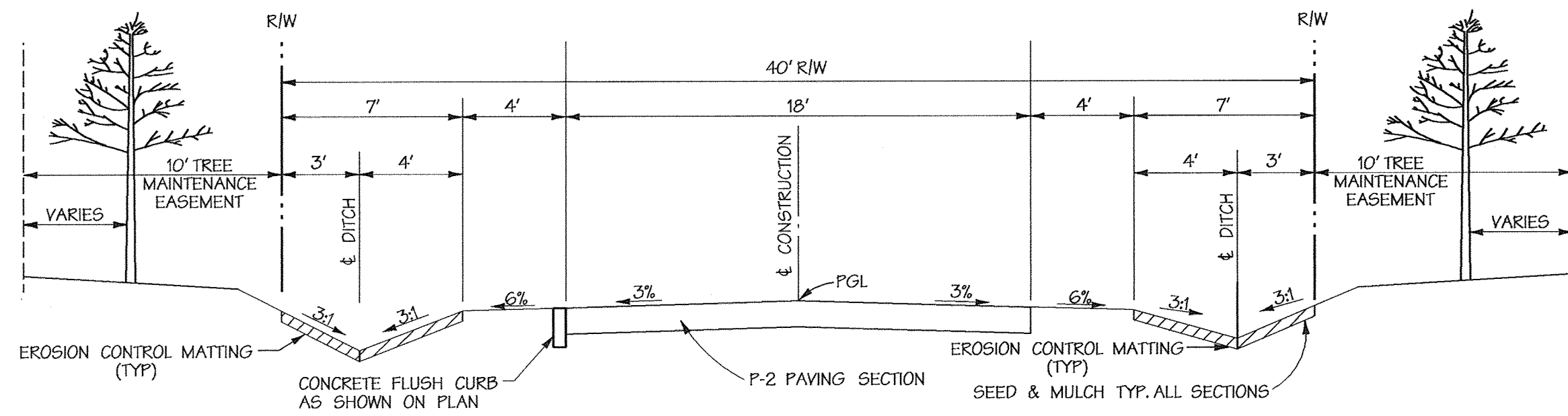


TYPICAL RESIDENTIAL DRIVEWAY ENTRANCE CONNECTION TO OPEN SECTION ROADWAY
NOT TO SCALE

NOTE: DRIVEWAYS WITH AN 'N/A' DESIGNATION ARE EITHER AT A CURBED SECTION OR DO NOT HAVE A SIGNIFICANT SWALE AT THE ROADWAY INTERSECTION.

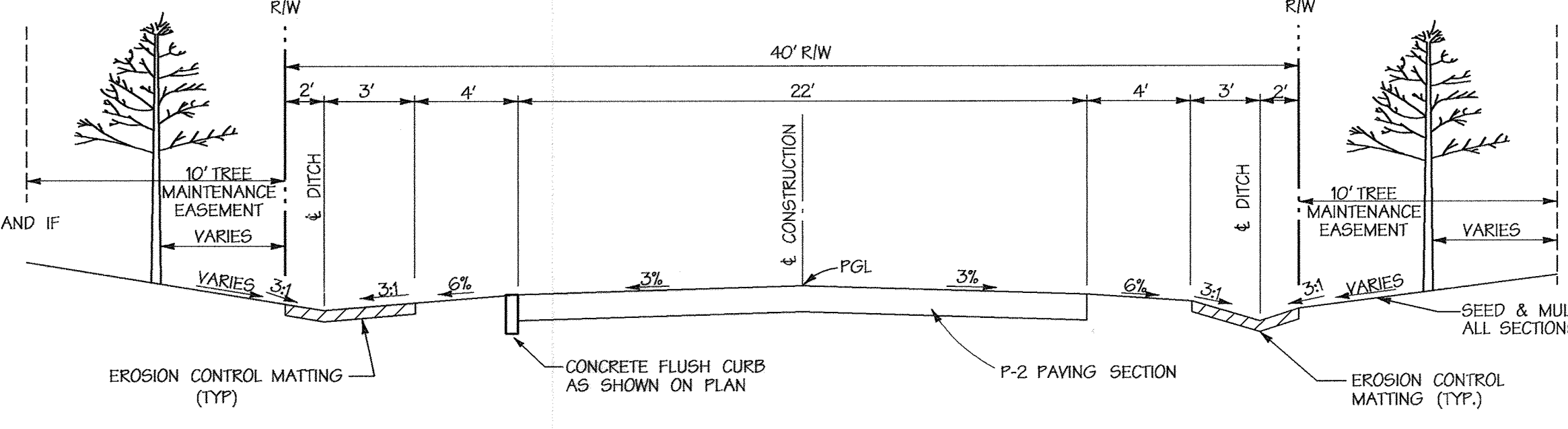


* ULTIMATE DESIGN FOR RELOCATION BY OTHERS



TYPICAL SECTION - 18' PUBLIC ACCESS STREET

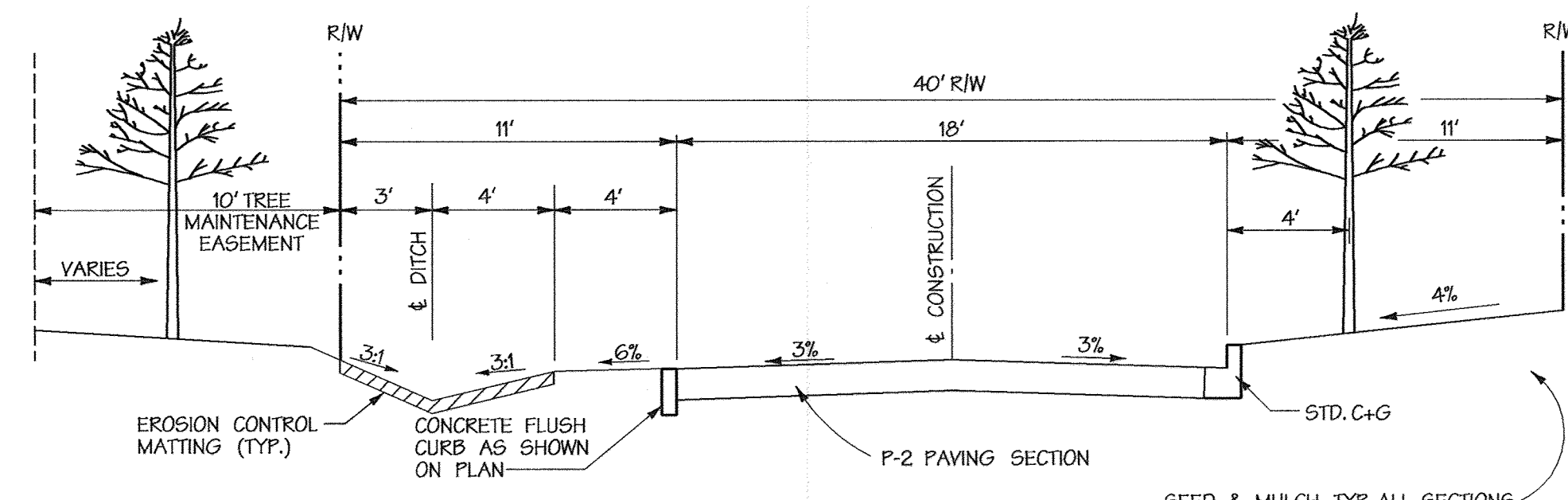
(30 MPH DESIGN SPEED)
FROM STA. -11+23.86 TO -16+75 SWEET BAY STREET
AND STA. 10+50 TO 17+81.28 SWEET BAY STREET
FROM STA. 0+00 TO 9+59.74 BRIDALWREATH COURT
FROM STA. 0+00 TO 5+47.10 WINTERHAZEL COURT



TYPICAL SECTION - 22' PUBLIC ACCESS STREET

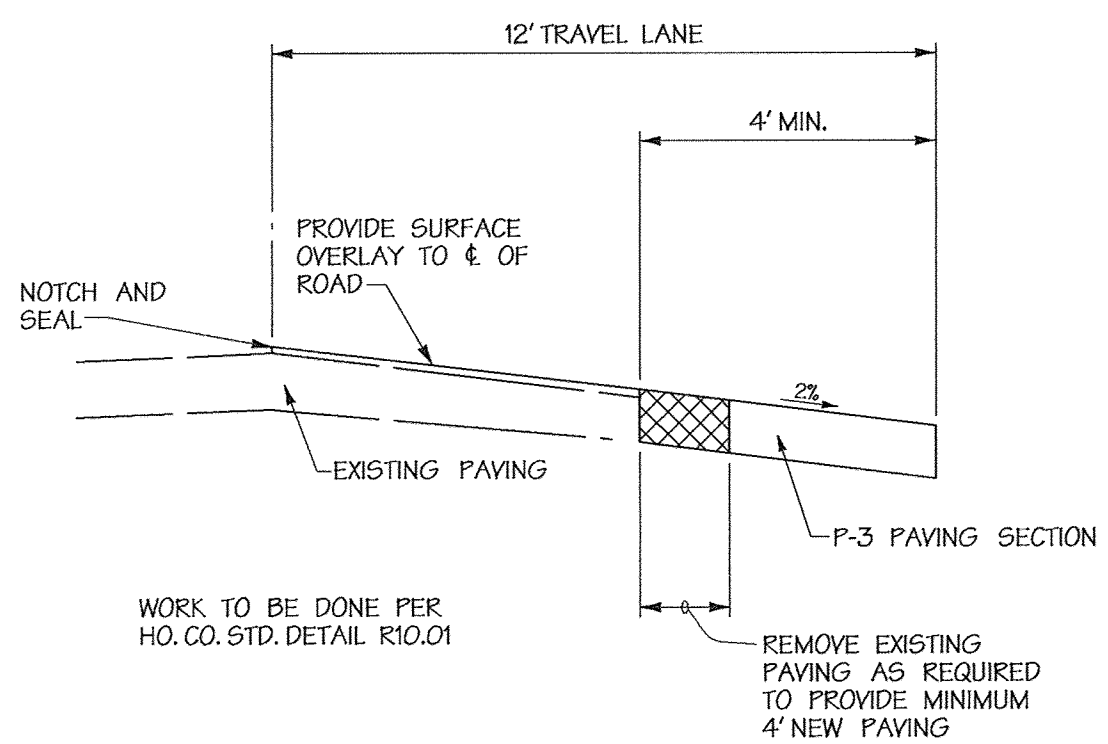
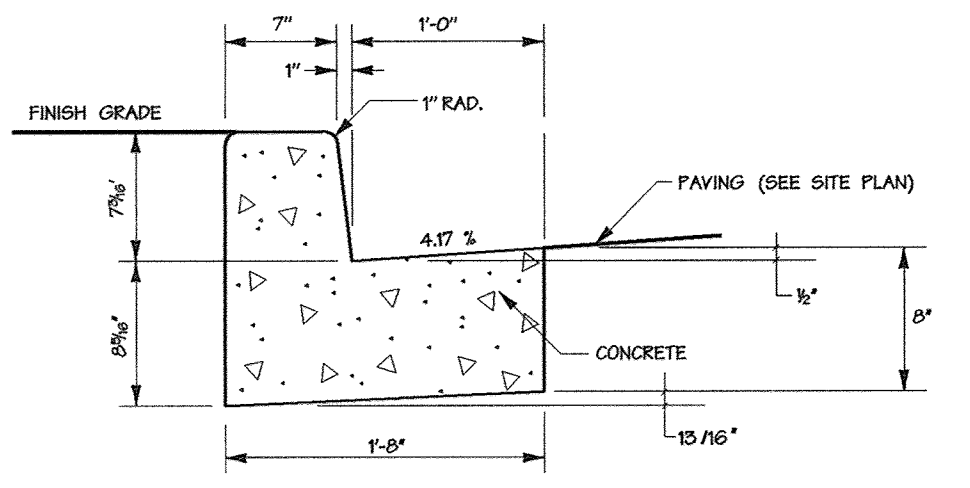
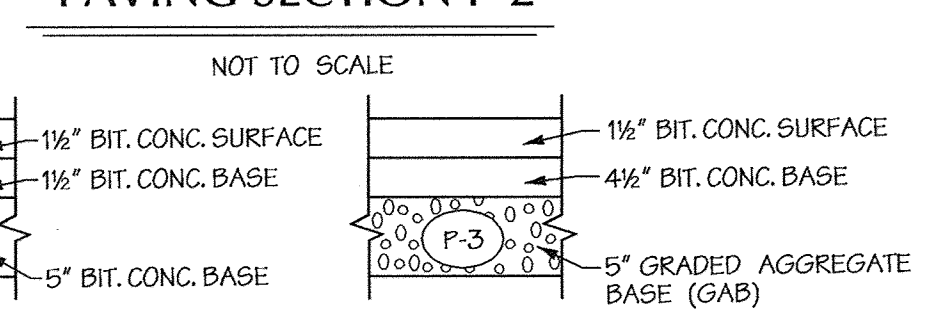
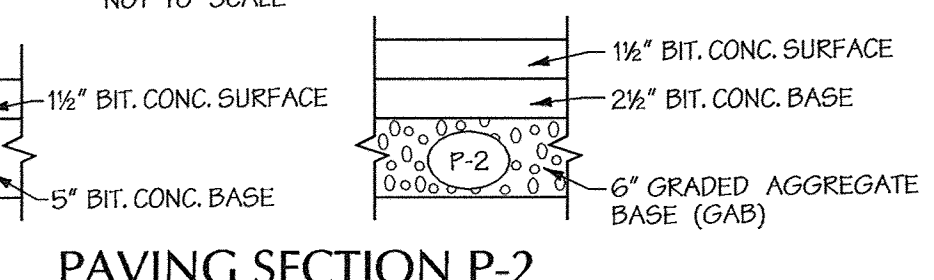
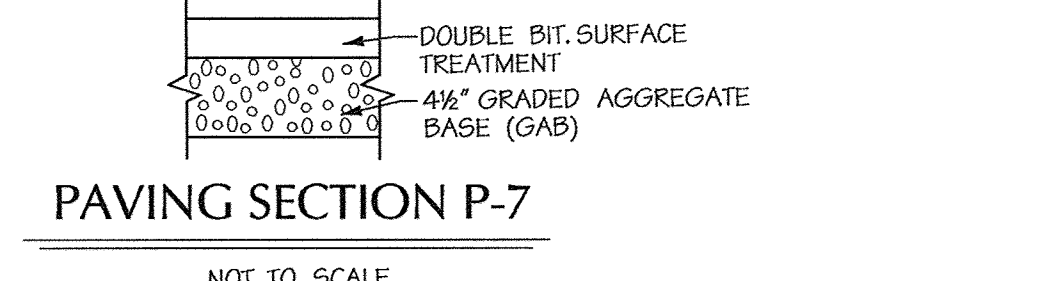
(25 MPH DESIGN SPEED)
FROM STA. 10+50 TO -11+23.86 SWEETBAY STREET
NOT TO SCALE

NOTE: ALL DITCHES TO BE STABILIZED WITH ECM

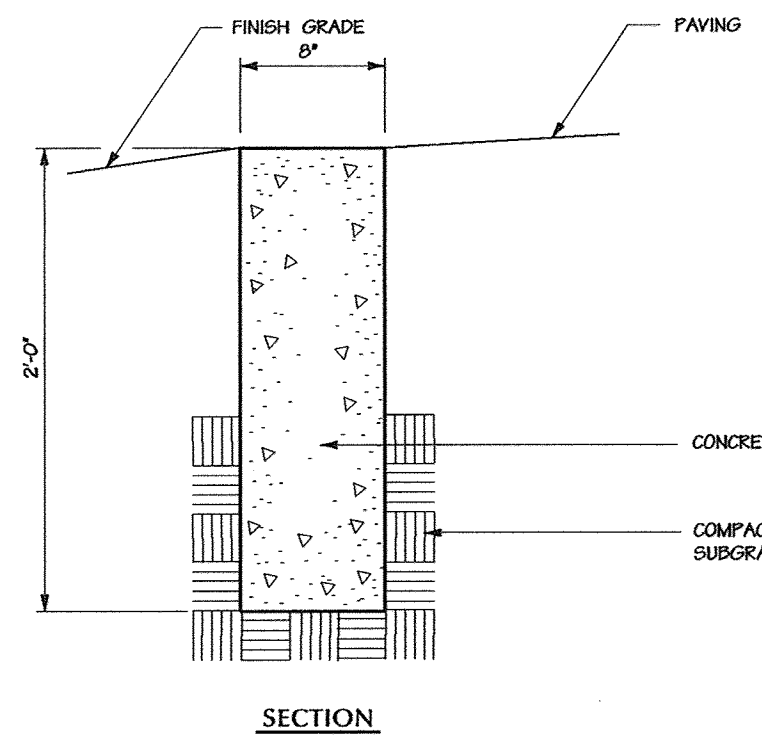


TYPICAL SECTION - 18' PUBLIC ACCESS STREET - CLOSED SECTION

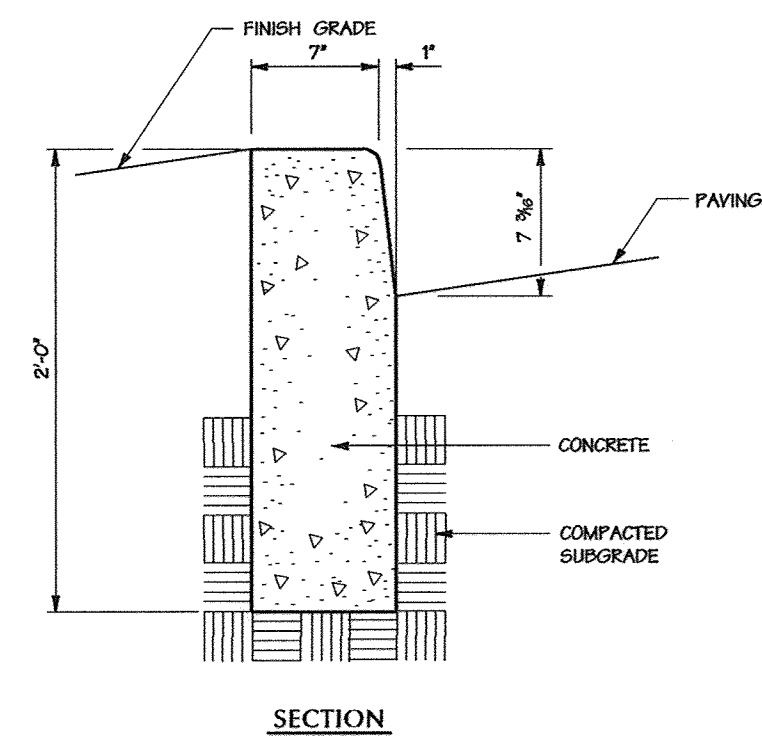
(25 MPH DESIGN SPEED)
FROM -16+75 TO -25+23.36 SWEETBAY STREET
NOT TO SCALE



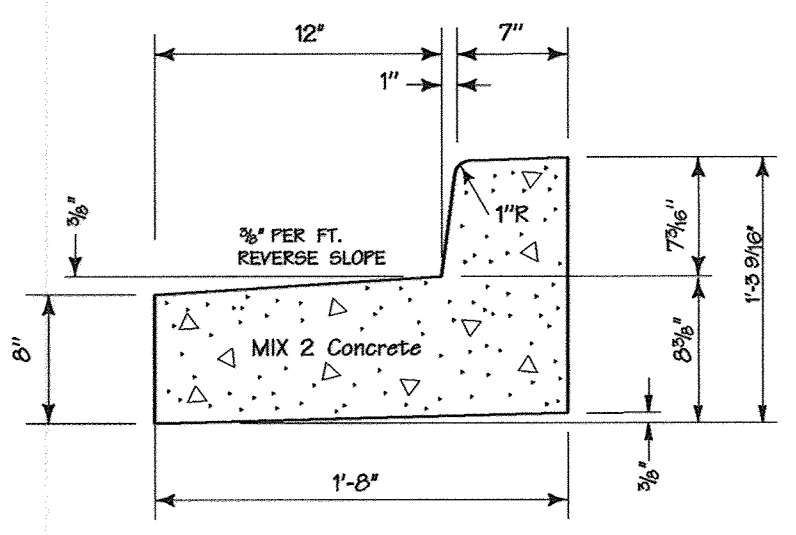
ROAD WIDENING DETAIL UNION CHAPEL ROAD



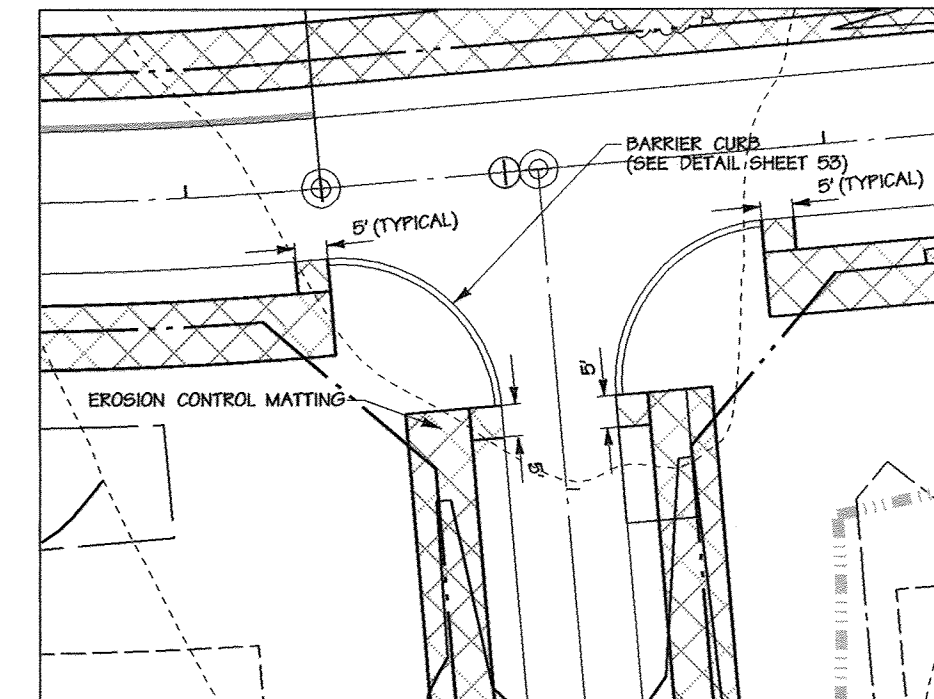
SECTION FLUSH CURB



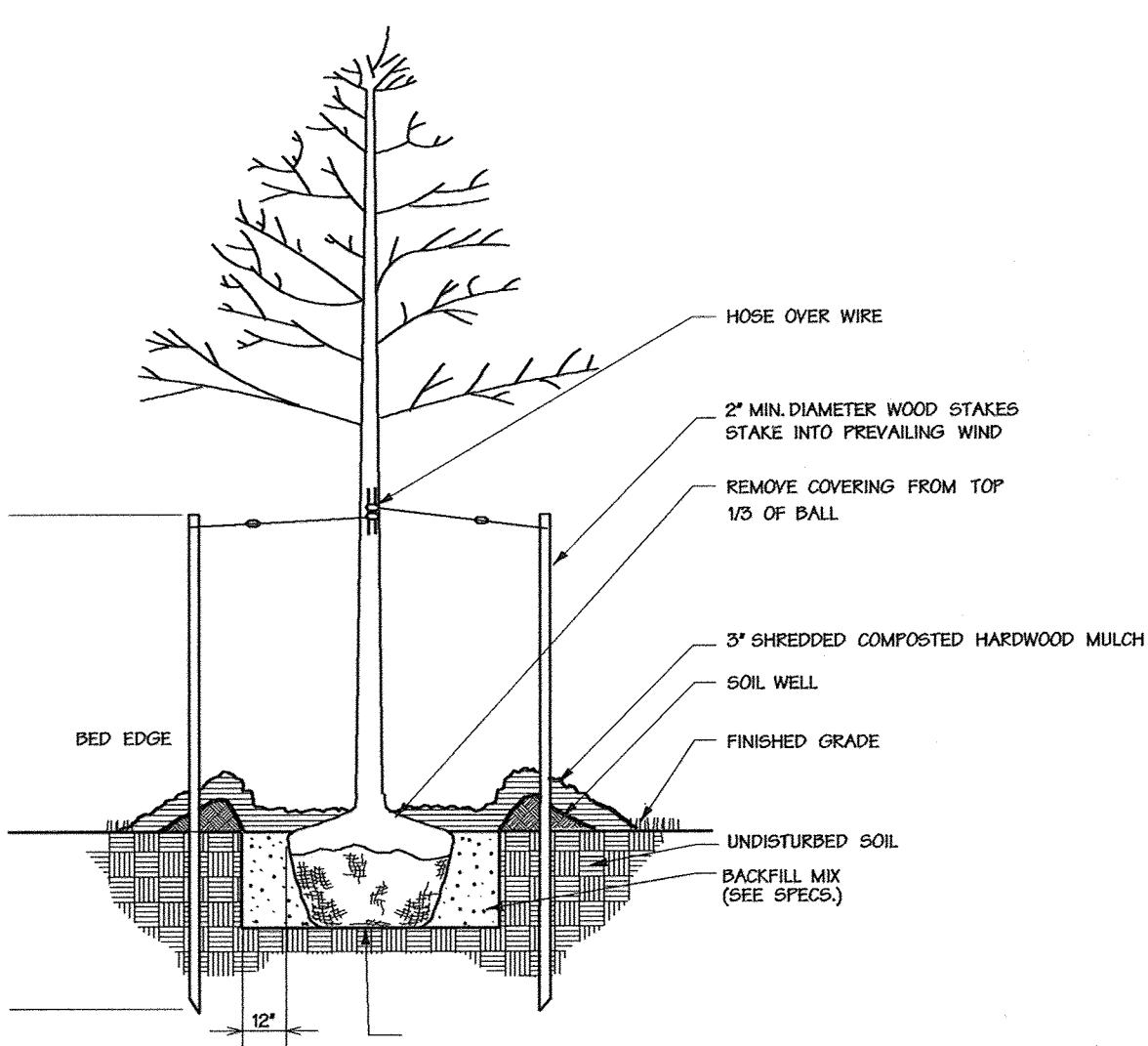
SECTION CONCRETE BARRIER CURB



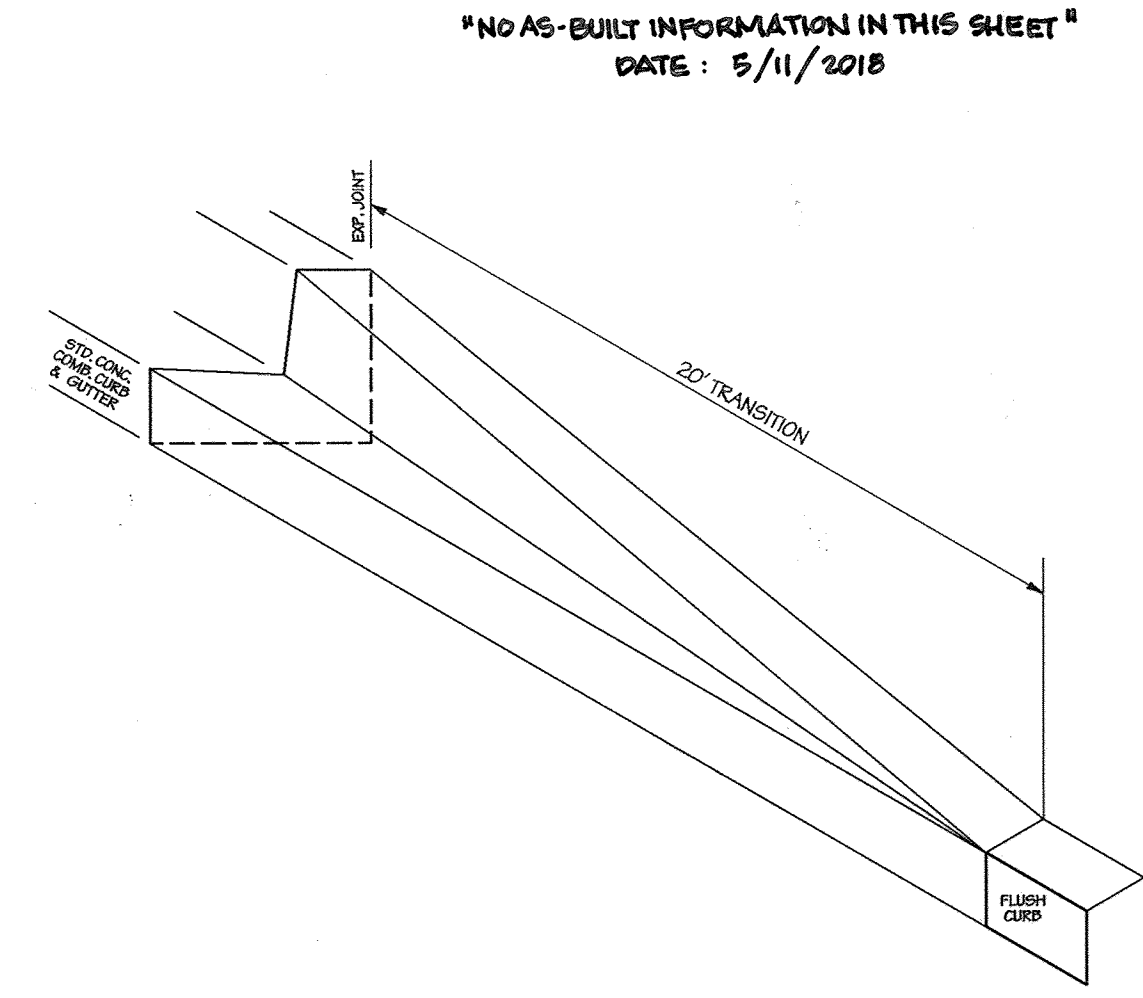
REVERSE 7" COMBINATION CURB & GUTTER R-3.01



TRANSITION DETAIL END OF CURB FLOW LINE TO DITCH FLOW LINE



DECIDUOUS TREE DETAIL (TO 3" CALIPER)

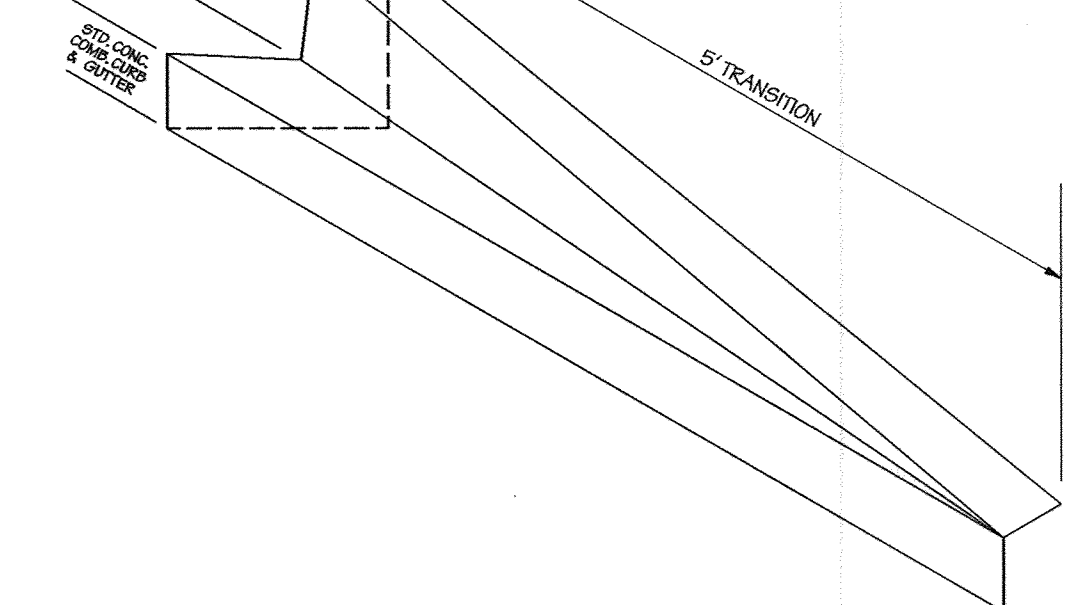
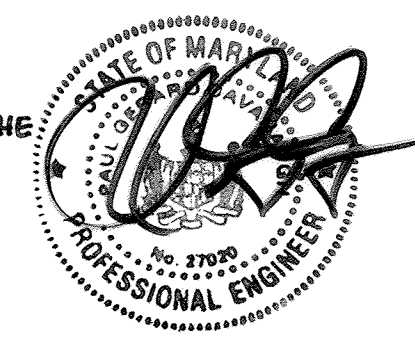


STANDARD CURB TO FLUSH CURB TRANSITION DETAIL

AS-BUILT CERTIFICATION
I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.
SIGNED: PAUL G. CAVANAUGH DATE: 5/11/2018 LICENSE NO: 27020 EXPIRATION DATE: 1/25/2020

HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD 83/2011 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 14FB
VERTICAL DATUM FOR THIS AS-BUILT SURVEY IS NORTH AMERICAN VERTICAL DATUM (NAVD) 1988 AS PROJECTED BY THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATION OR HOWARD CONTROL BENCH MARKS 14FB

THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.



STANDARD CURB & GUTTER NOSE DOWN CURB TRANSITION DETAIL

BARRIER CURB NOSE DOWN CURB TRANSITION DETAIL

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
Walter J. Smith 12-7-07
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Chris Hanna 12/14/07
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Paul Cavanaugh 12/11/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date	No.	Revision Description

BELLE HAVEN ESTATES
LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O,
NON-BUILDABLE BULK PARCEL P
TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER
Union Chapel Road, LLC
9025 Chevrolet Drive
Suite K
Elkton City, MD 21042
Phone: (410) 461-6800

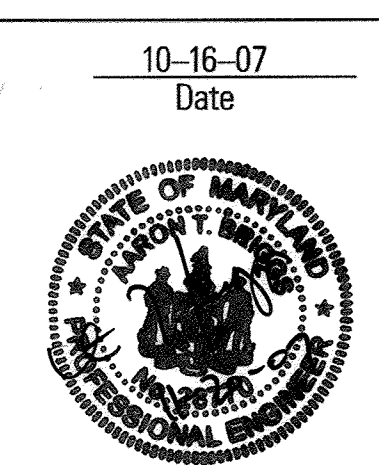
DMW
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200 East Pennsylvania Avenue
Towson, Maryland 21286
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Fax 296-4706

A Team of Land Planners,
Landscape Architects,
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Environmental Professionals

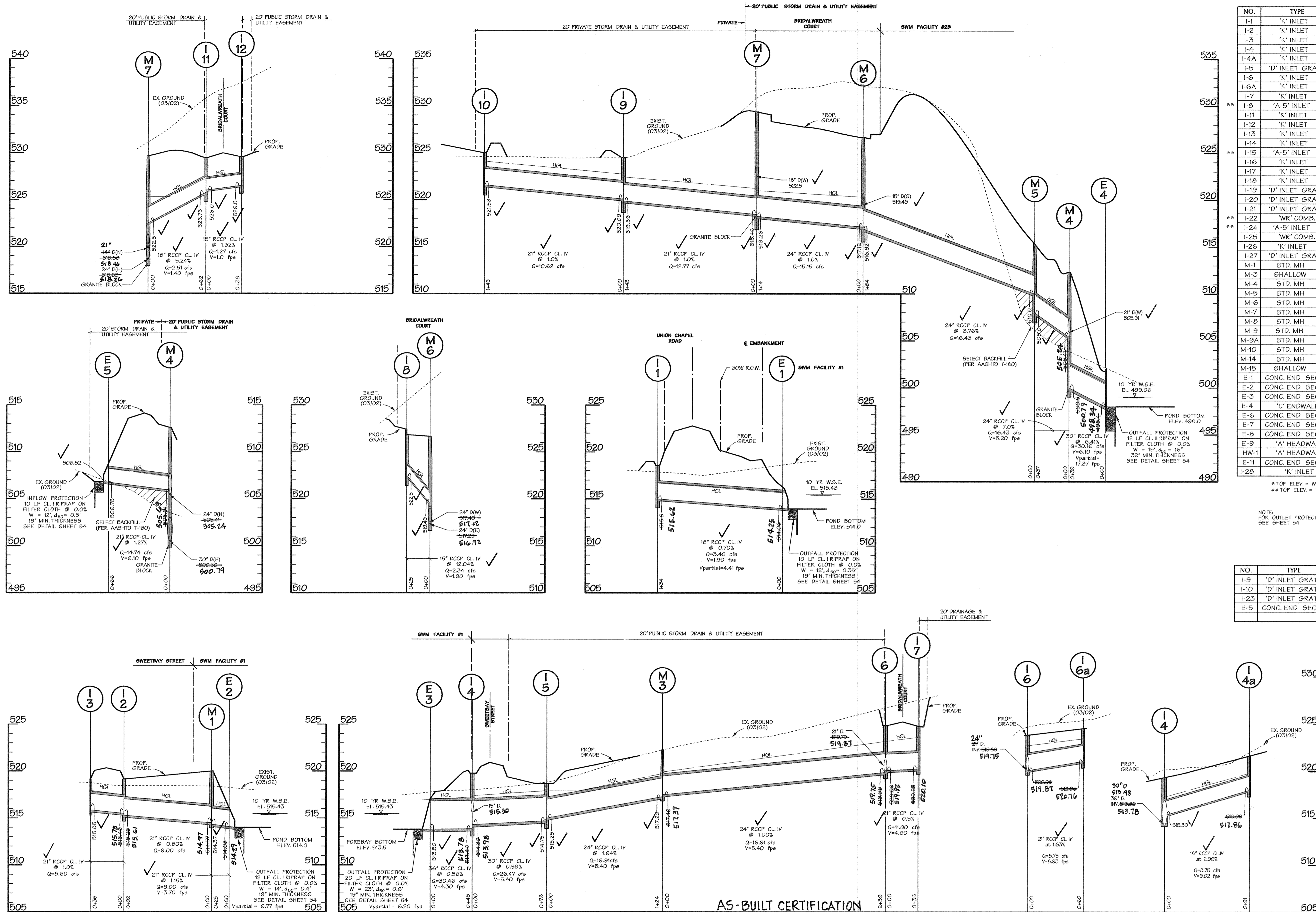
AREA TAX MAP 14 PARCEL 66
3rd ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE **ROAD DETAILS & SECTIONS**

Des. By	MAT	Scale	AS SHOWN	Proj. No.	01067F
Dn. By	MDT	Date	10/16/07	13 of 74	
Chk. By	ATB	Approved	ATB	Professional Engr. No. 28770	



10-16-07
Date
Professional Engr. No. 28770



PUBLIC STRUCTURE SCHEDULE

NO.	TYPE	SIZE	LOCATION	INV. OUT	TOP ELEV.	REMARKS
I-1	'K' INLET		5+97.9, 35.0' RT.	515.00	518.0	SD-4.12
I-2	'K' INLET		9+27, 19.0' RT.	515.25	519.27	SD-4.12
I-3	'K' INLET		9+27, 19.0' LT.	515.85	519.27	SD-4.12
I-4	'K' INLET		11+56, 19.0' RT.	514.32	519.56	SD-4.12
I-4A	'K' INLET		12+41, 17.0' RT.	515.00	521.50	SD-4.12
I-5	'D' INLET GRATE		SEE PLAN	515.00	518.7	SD-4.39
I-6	'K' INLET		3+65.5, 17.0' RT.	515.00	523.75	SD-4.12
I-6A	'K' INLET		4+25, 17.0' RT.	514.25	524.31	SD-4.12
I-7	'K' INLET		3+74, 17.0' LT.	514.05	523.75	SD-4.12
I-8	'A-5' INLET		L.P. 1+85.0	522.50	527.2	SD-4.40
I-11	'K' INLET		9+45, 17.0' RT.	525.75	528.5	SD-4.12
I-12	'K' INLET		9+45, 17.0' LT.	526.50	528.5	SD-4.12
I-13	'K' INLET		-5+49.6, 19.0' RT.	515.00	516.6	SD-4.12
I-14	'K' INLET		-5+47, 32.0' LT.	515.24	516.16	SD-4.12
I-15	'A-5' INLET		L.P. 1+54.0	502.50	506.57	SD-4.40
I-16	'K' INLET		5+25, 17.0' RT.	507.25	510.91	SD-4.12
I-17	'K' INLET		5+25, 17.0' LT.	508.00	510.91	SD-4.12
I-18	'K' INLET		-13+75, 17.0' RT.	506.33	523.25	SD-4.12
I-19	'D' INLET GRATE		SEE PLAN	512.40	517.0	SD-4.39
I-20	'D' INLET GRATE		SEE PLAN	513.16	517.0	SD-4.39
I-21	'D' INLET GRATE		SEE PLAN	514.01	517.0	SD-4.39
I-22	'WR' COMB.		-16+80, 9.0' LT.	518.00	523.43	SD-5.23
I-24	'A-5' INLET		L.P. 1+67.70	521.00	525.19	SD-4.40
I-25	'WR' COMB.		-25+24, 11.67' RT.	523.75	528.10	SD-5.23
I-26	'K' INLET		-25+24, 17.0' LT.	524.50	526.4	SD-4.12
I-27	'D' INLET GRATE		SEE SHEET	512.17	517.0	SD-4.39
M-1	STD. MH	48"	SEE SHEET	514.37	521.30	SD-5.12
M-3	SHALLOW	48"	SEE PLAN	517.49	522.40	SD-5.12
M-4	STD. MH	60"	SEE PLAN	508.50	515.20	SD-5.13
M-5	STD. MH	48"	SEE PLAN	508.00	515.20	SD-5.12
M-6	STD. MH	48"	L.P. 1+56, 6.0' RT.	516.92	526.83	SD-5.12
M-7	STD. MH	48"	L.P. 3+18, 8.0' LT.	518.26	529.78	SD-5.12
M-8	STD. MH	48"	SEE PLAN	488.29	495.80	SD-5.12
M-9	STD. MH	48"	SEE PLAN	492.55	500.00	SD-5.12
M-9A	STD. MH	48"	SEE PLAN	496.50	504.00	SD-5.12
M-10	STD. MH	48"	SEE PLAN	500.30	507.72	SD-5.12
M-14	STD. MH	48"	-12+02.0, 17.0' LT.	512.92	520.59	SD-5.12
M-15	SHALLOW	48"	SEE SHEET	510.50	521.50	SD-5.12
E-1	CONC. END SECTION	18"	6+42.6, 88.3' LT.	511.06	N/A	SD-5.52
E-2	CONC. END SECTION	21"	8+33.3, 59.3' RT.	511.06	N/A	SD-5.52
E-3	CONC. END SECTION	36"	SEE SHEET	511.06	N/A	SD-5.52
E-4	'C' ENDWALL	30"	SEE PLAN	498.48	502.45	SD-5.21
E-6	CONC. END SECTION	27"	-5+52, 56.0' RT.	511.06	N/A	SD-5.52
E-7	CONC. END SECTION	30"	SEE PLAN	488.00	N/A	SD-5.52
E-8	CONC. END SECTION	30"	-13+78, 60.0' RT.	511.06	N/A	SD-5.52
E-9	'A' HEADWALL	18"	SEE PLAN	516.17	N/A	SD-5.11
HW-1	'A' HEADWALL	36"	8+03, 47.2' RT.	511.06	N/A	SD-5.11
E-11	CONC. END SECTION	15"	3+80, 25' RT.	513.01	N/A	SD-5.52
I-28	'K' INLET		2+83, 32' RT.	513.50	534.76	SD-5.23

* TOP ELEV. = WEIR CREST + = MODIFIED - SEE SHEET 13
 ** TOP ELEV. = T.C.
 NOTE: FOR OUTLET PROTECTION DETAIL SEE SHEET 54

PRIVATE STRUCTURE SCHEDULE

NO.	TYPE	SIZE	LOCATION	INV. OUT	TOP ELEV.	REMARKS
I-9	'D' INLET GRATE		SEE PLAN	519.89	524.5	SD-4.39
I-10	'D' INLET GRATE		SEE PLAN	521.58	525.0	SD-4.39
I-23	'E' INLET GRATE		SEE SHEET	513.81	516.5	SD-4.39
E-5	CONC. END SECTION	18"	SEE PLAN	506.75	N/A	SD-5.52

+ = MODIFIED - SEE SHEET 13

AS-BUILT CERTIFICATION

I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

SIGNED: PAUL G. GAVANAUGH DATE: 5/11/2018
 LICENSE NO: 27020 EXPIRATION DATE: 1/25/2020

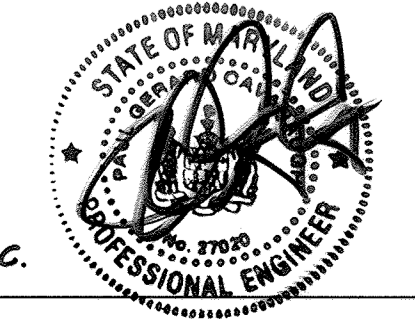
STORM DRAIN PROFILES

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

HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD '83/2111 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 14FB

VERTICAL DATUM FOR THIS AS-BUILT SURVEY IS NORTH AMERICAN VERTICAL DATUM (NAVD) 1988 AS PROJECTED BY THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATION OR HOWARD CONTROL BENCH MARKS 14FB

THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
 With 2 mod. 12-7-07
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
 Cindy Hester 12/11/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
 Development Engineering Division 12/11/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

BELLE HAVEN ESTATES
 LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O,
 NON-BUILDABLE BULK PARCEL P
 TAX MAP 14, GRID 20, PARCEL 86, ZONE RC-DEO
 ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER
 Union Chapel Road, LLC.
 3025 Chevrolet Drive
 Suite K
 Ellicott City, MD 21042
 Phone: (410) 461-5800

DMW
 Draft-McCune-Walkers, Inc.
 200 East Pennsylvania Avenue
 Towson, Maryland 21286
 (410) 296-3333
 Fax: 296-4706

A Team of Land Planners,
 Landscape Architects,
 Engineers, Surveyors &
 Environmental Professionals

TITLE: **STORM DRAIN PROFILES**

Des. By	KAD	Scale	1" = 50'	Proj. No.	01067F
Drn. By	GMO	Date	10/16/07	14 of 74	
Chk. By	ATB	Approved	ATB		

Professional Engr. No. 28770

AS-BUILT CERTIFICATION

I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

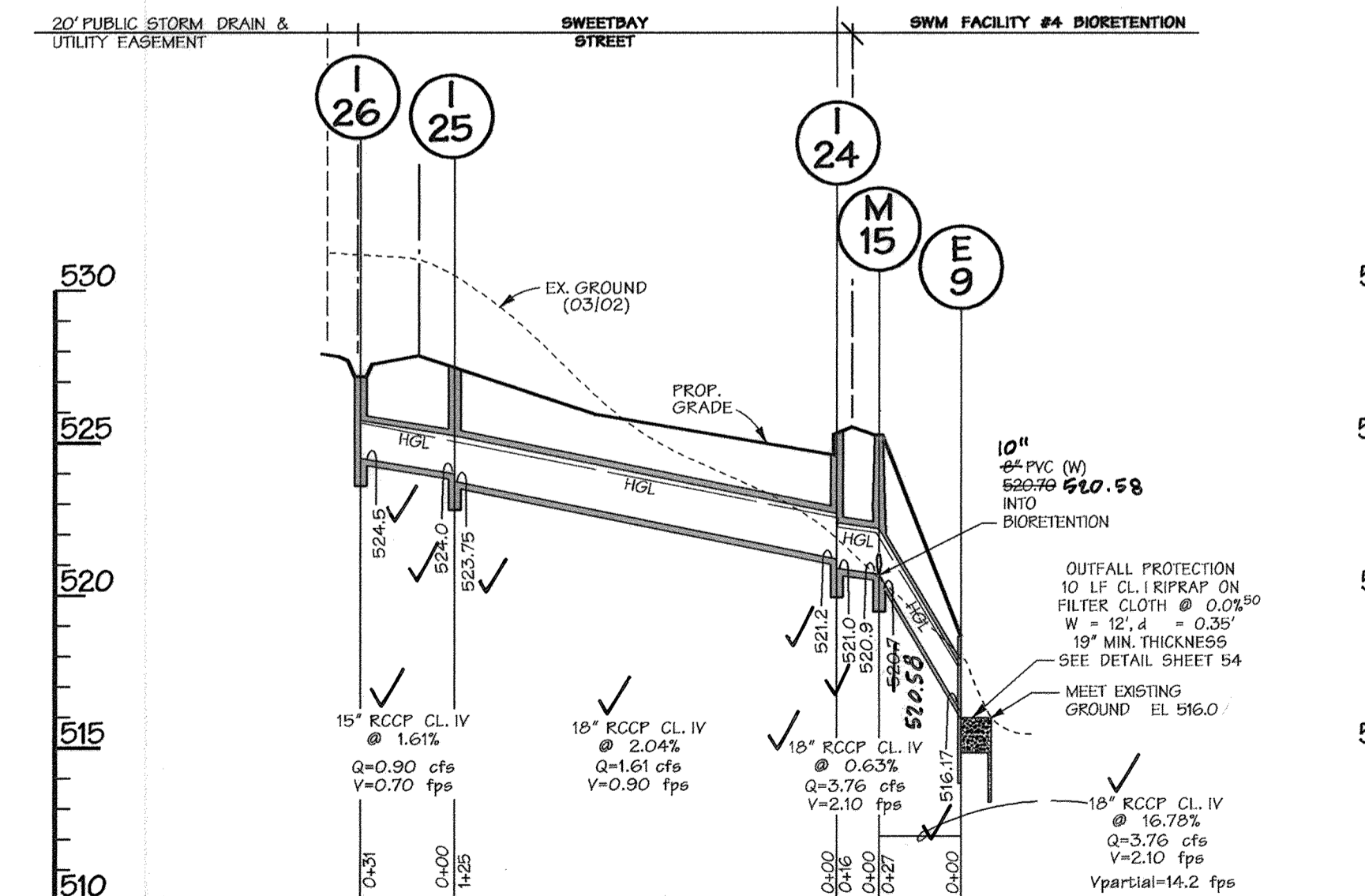
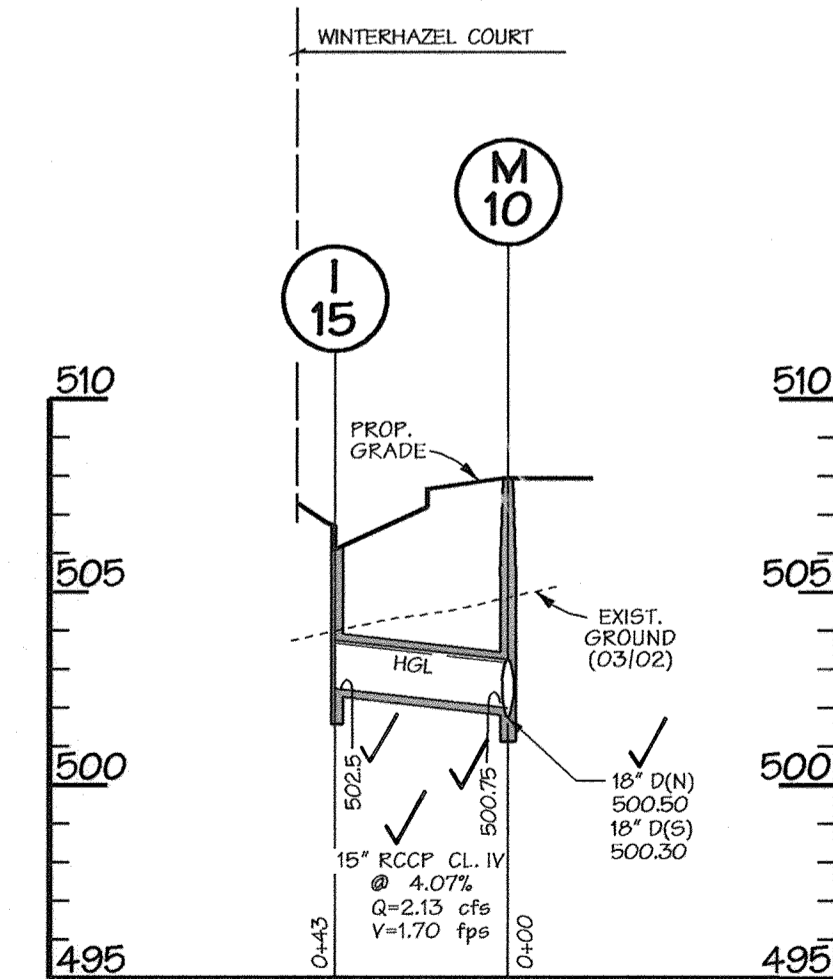
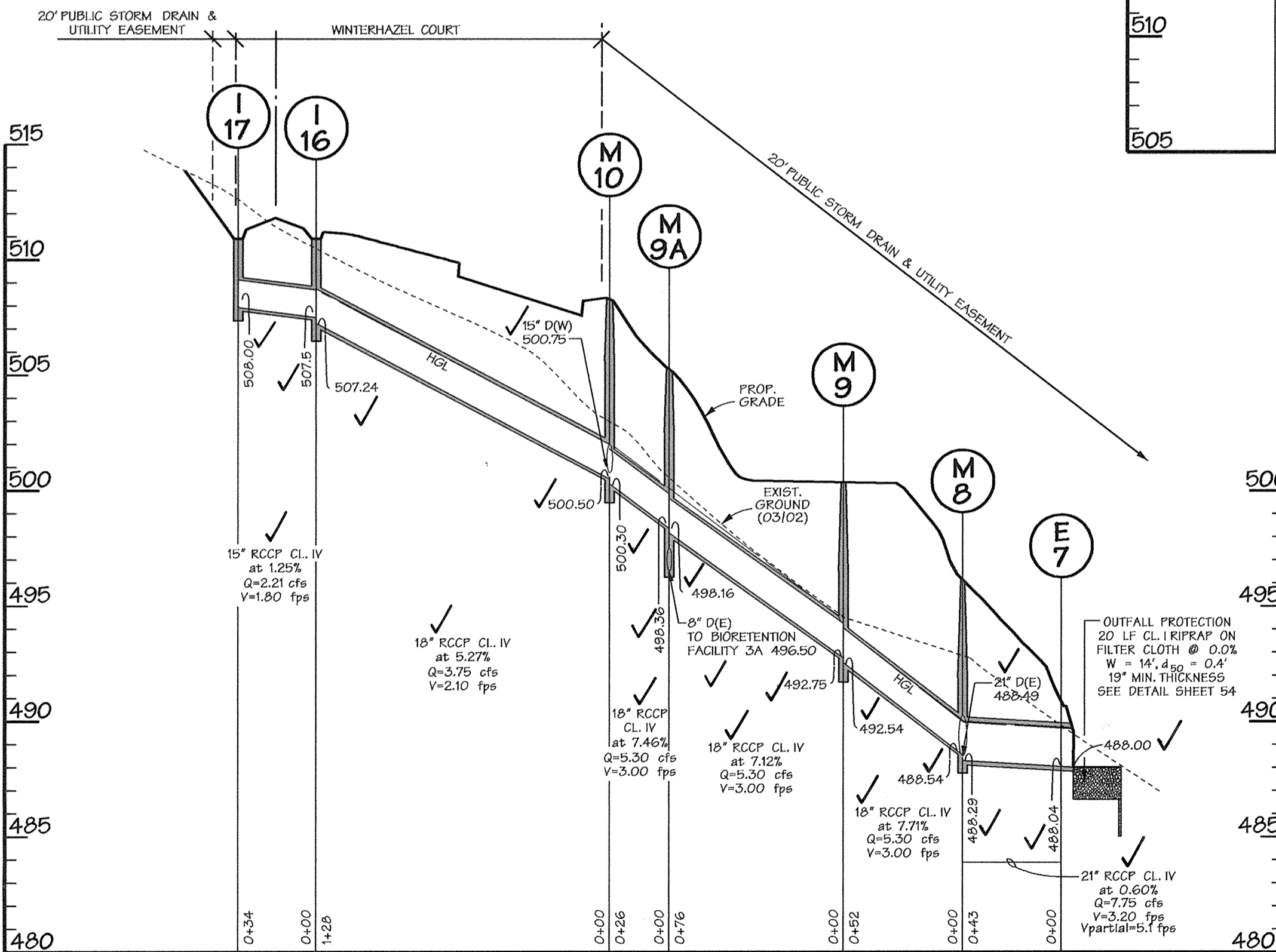
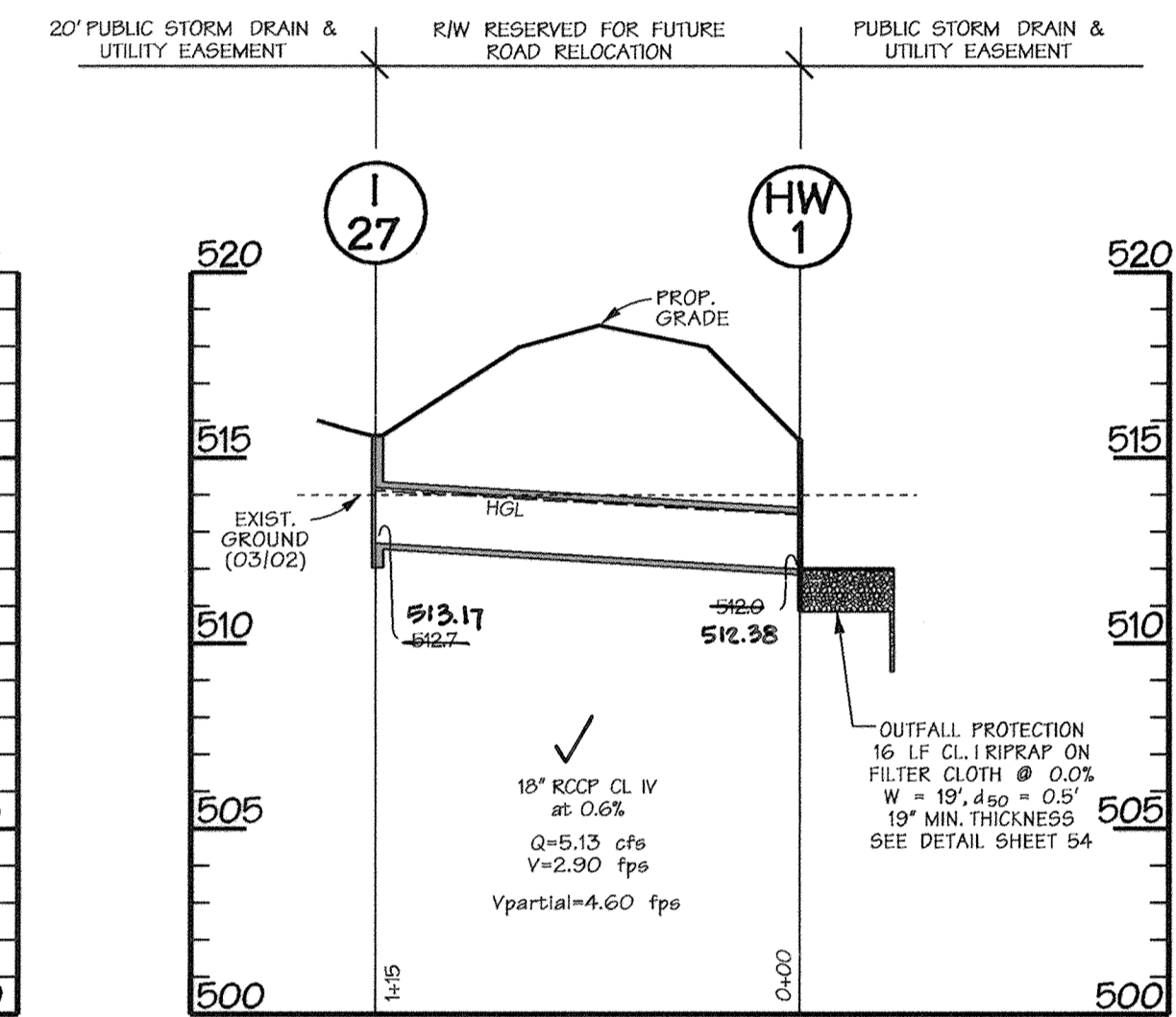
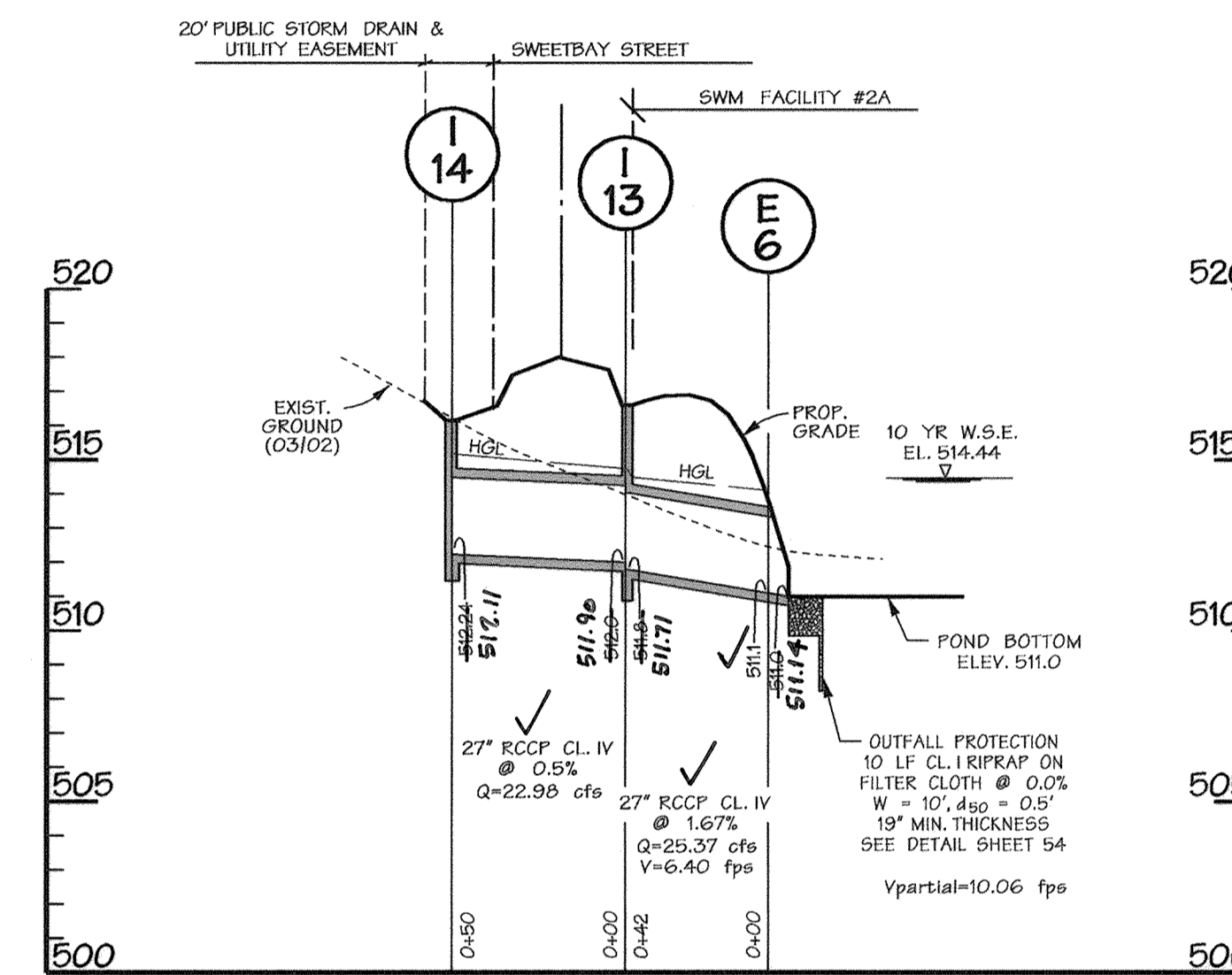
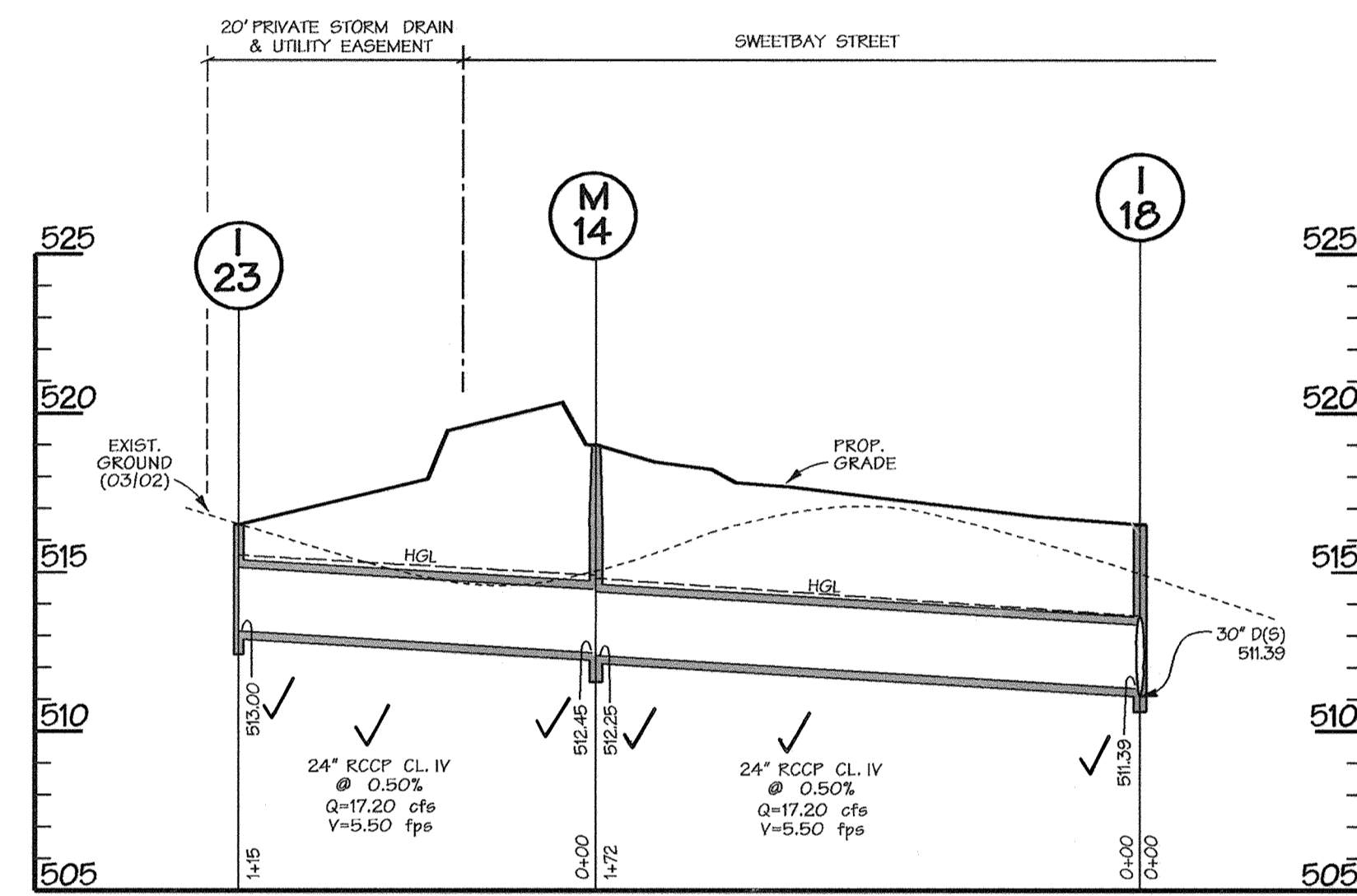
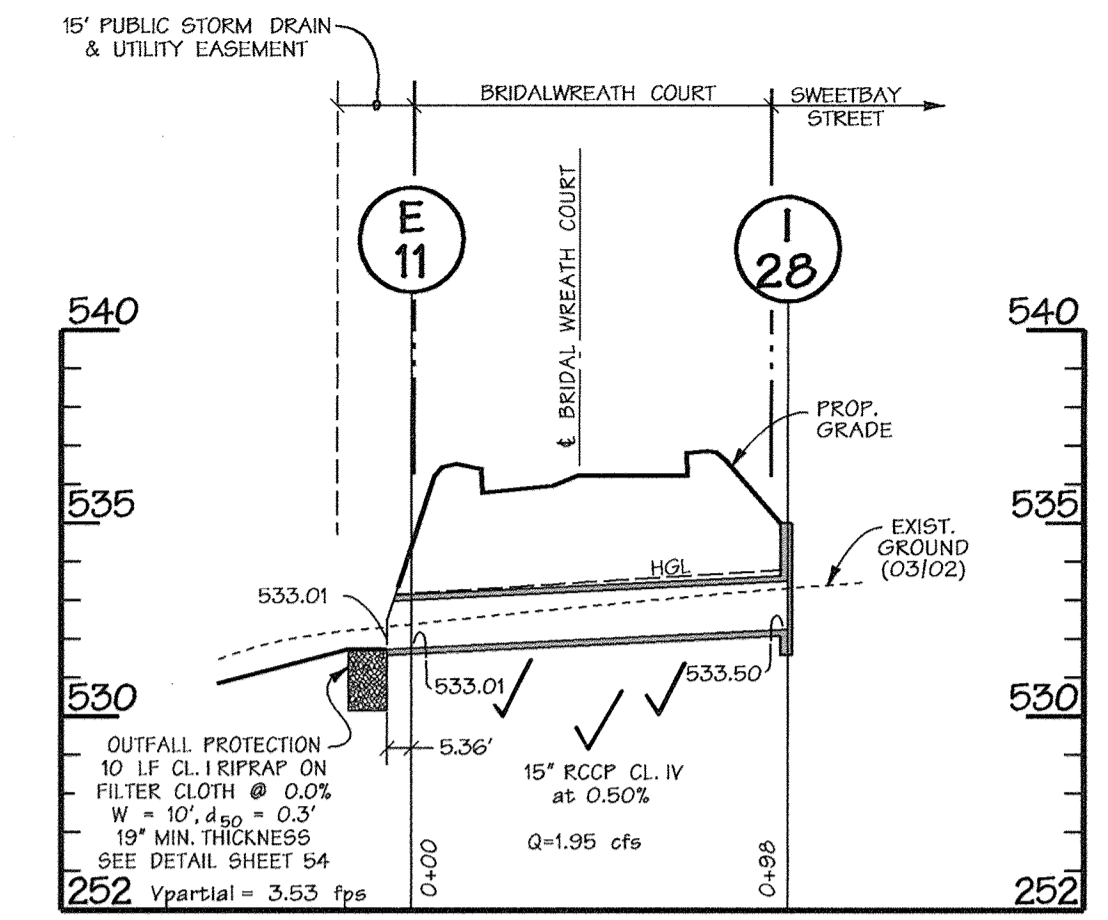
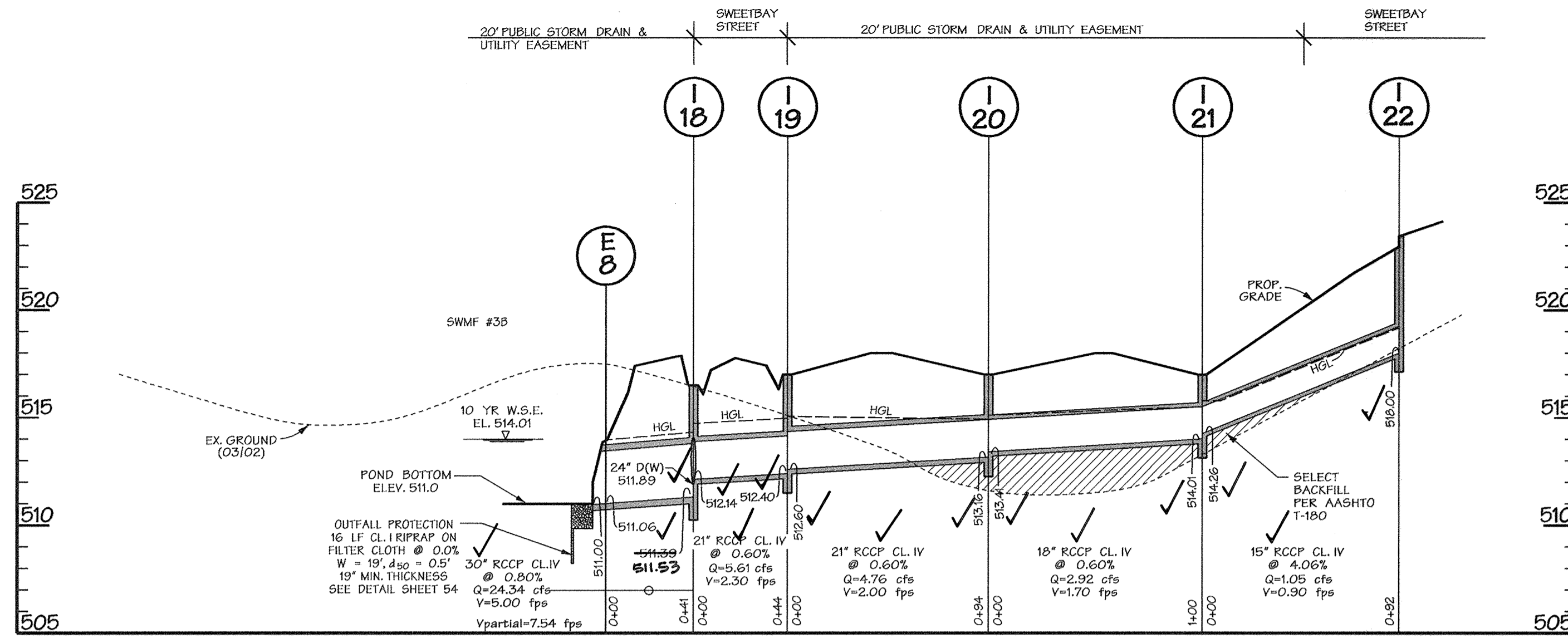
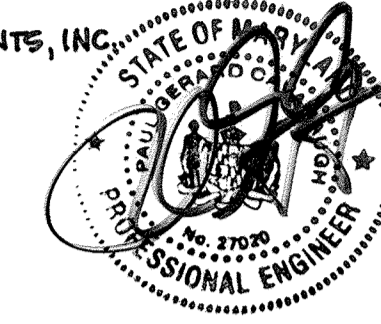
SIGNED: PAUL G. CAVANAUGH
LICENSE NO.: 27020

DATE: 5/11/2018
EXPIRATION DATE: 1/25/2020

HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD '83/2011' AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 14FB

VERTICAL DATUM FOR THIS AS-BUILT SURVEY IS NORTH AMERICAN VERTICAL DATUM (NAVD) 1988 AS PROJECTED BY THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATION OR HOWARD CONTROL BENCH MARKS 14FB

THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.



PRIVATE PIPE SCHEDULE

SIZE	TYPE & CLASS	LENGTH*
21"	RCCP CL. IV	292'
24"	RCCP CL. IV	115'

PUBLIC PIPE SCHEDULE

SIZE	TYPE & CLASS	LENGTH*
15"	RCCP CL. IV	367'
18"	RCCP CL. IV	927'
21"	RCCP CL. IV	374'
24"	RCCP CL. IV	870'
27"	RCCP CL. IV	93'
30"	RCCP CL. IV	160'
36"	RCCP CL. IV	55'

STORM DRAIN PROFILES

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

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
Wade R. Hall 12-7-07
CHIEF, BUREAU OF HIGHWAYS DATE

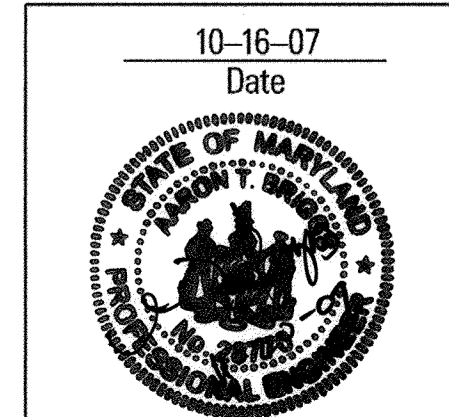
APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Andy Chant 12/11/07
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Michael J. ... 12/11/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date	No.	Revision Description

BELLE HAVEN ESTATES
LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O,
NON-BUILDABLE BULK PARCEL P
TAX MAP 14, GRID 20, PARCEL 68, ZONE RC-DEO
ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER
Union Chapel Road, LLC
9025 Chevrolet Drive
Suite K
Ellicott City, MD 21042
Phone: (410) 461-5800

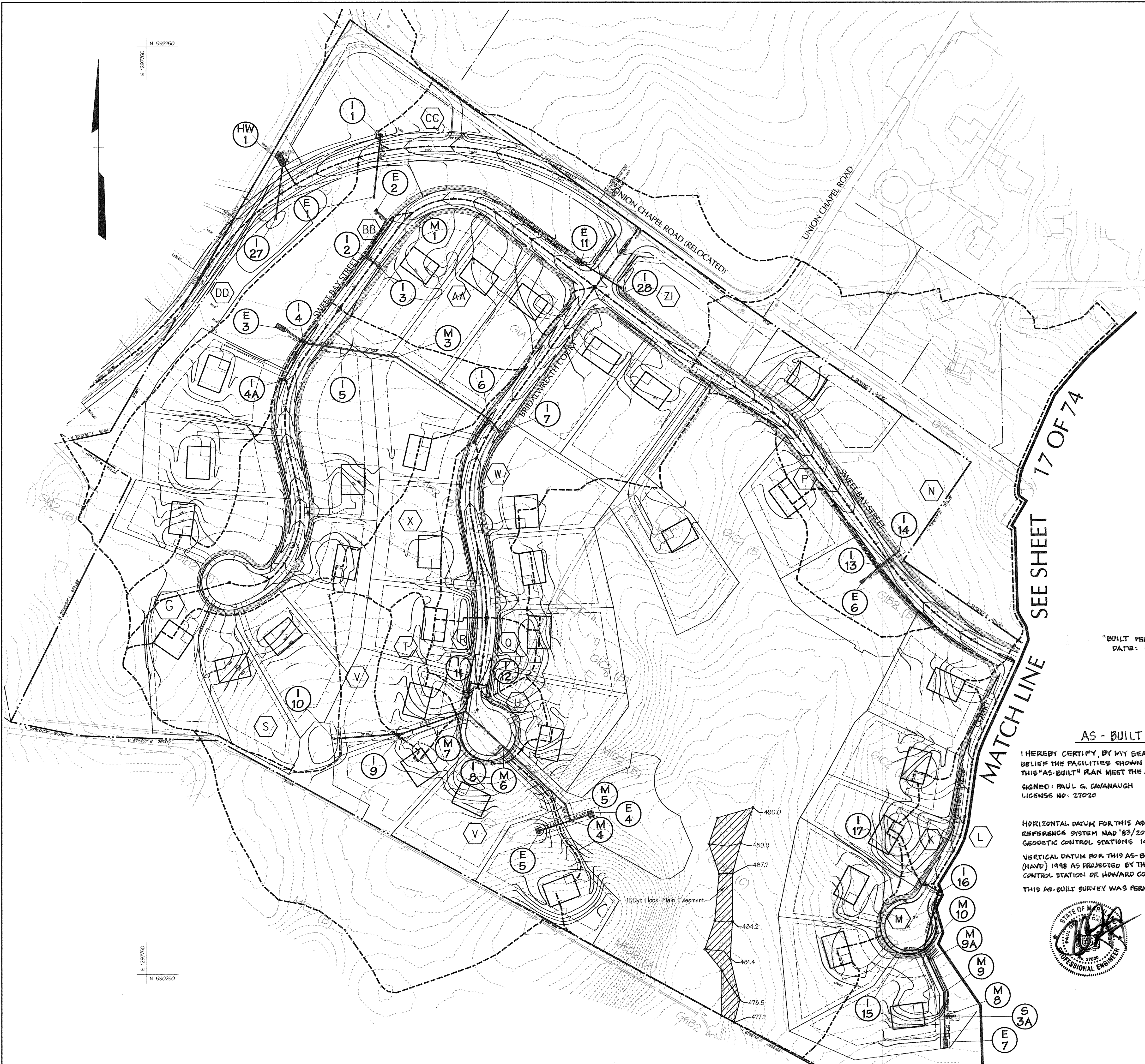


DMW
Duff-McCune-Walker, Inc.
300 East Pennsylvania Avenue
Towson, Maryland 21286
Phone: 286-3333
Fax: 286-4706

A Team of Land Planners,
Landscape Architects,
Engineers, Surveyors &
Environmental Professionals

STORM DRAIN PROFILES

Des. By	KAD	Scale	AS SHOWN	Proj. No.	01067F
Dwn. By	GMO	Date	10/16/07	15 of 74	
Chk. By	ATB	Approved	ATB		



N 592250
E 1000000

A= 1.35± C= 0.33	CC ZONING= RC-DEO 17% IMP	A= 3.95± C= 0.58	S ZONING= RC-DEO 24% IMP
A= 0.40± C= 0.44	BB ZONING= RC-DEO 0% IMP	A= 0.40± C= 0.44	R ZONING= RC-DEO 33% IMP
A= 2.80± C= 0.46	AA ZONING= RC-DEO 32% IMP	A= 0.40± C= 0.43	Q ZONING= RC-DEO 30% IMP
A= 1.60± C= 0.44	Z ZONING= RC-DEO 32% IMP	A= 0.70± C= 0.52	P ZONING= RC-DEO 43% IMP
A= 3.95± C= 0.44	Y ZONING= RC-DEO 32% IMP	A= 8.30± C= 0.59	N ZONING= RC-DEO 25% IMP
A= 2.10± C= 0.43	X ZONING= RC-DEO 30% IMP	A= 0.41± C= 0.61	M ZONING= RC-DEO 29% IMP
A= 3.85± C= 0.42	W ZONING= RC-DEO 30% IMP	A= 0.43± C= 0.57	L ZONING= RC-DEO 49% IMP
A= 7.15± C= 0.31	V ZONING= RC-DEO 15% IMP	A= 0.76± C= 0.45	K ZONING= RC-DEO 33% IMP
A= 0.65± C= 0.55	U ZONING= RC-DEO 46% IMP	A= 0.77± C= 0.35	ZI ZONING= RC-DEO 20% IMP
A= 0.84± C= 0.41	T ZONING= RC-DEO 29% IMP	A= 2.01± C= 0.34	DD ZONING= RC-DEO 19% IMP

DATA SOURCES:
 Boundary per existing deeds.
 Topo taken from Howard County topo CD, 1999.
 Septics approximated from adjacent plats and DMW field visits, July, 2001.
 Approximate wetland limits from DMW field visits, July, 2001.
 Soils taken from Howard County Soil Survey, 1968.

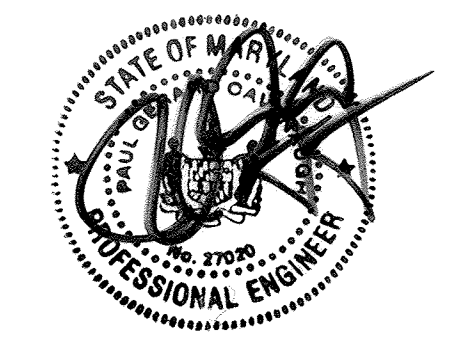
"BUILT PER PLAN"
DATE: 5/11/2018

MATCH LINE SEE SHEET 17 OF 74

AS - BUILT CERTIFICATION

I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.
 SIGNOR: PAUL G. CAVANAUGH DATE: 5/11/18
 LICENSE NO: 27020 EXPIRATION DATE: 1/25/2020

HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD '83/2011 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 14FB
 VERTICAL DATUM FOR THIS AS-BUILT SURVEY IS NORTH AMERICAN VERTICAL DATUM (NAVD) 1988 AS PROJECTED BY THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATION OR HOWARD CONTROL BENCH MARKS 14FB
 THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.



10-16-07
Date

Professional Engr. No. 28770

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	
<i>Will J. Hall</i>	12-7-07
CHIEF, BUREAU OF HIGHWAYS	DATE
APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING	
<i>Paul G. Cavanaugh</i>	12/11/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
<i>Andy Christ</i>	12/11/07
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE

Date	No.	Revision Description

BELLE HAVEN ESTATES
 LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O,
 NON-BUILDABLE BULK PARCEL P
 TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
 ELECTION DISTRICT NO. 3 HOWARD COUNTY, MARYLAND
 OWNER/DEVELOPER
 Union Chapel Road, LLC
 3025 Chevrolet Drive
 Suite K
 Ellicott City, MD 21042
 Phone: (410) 461-5900

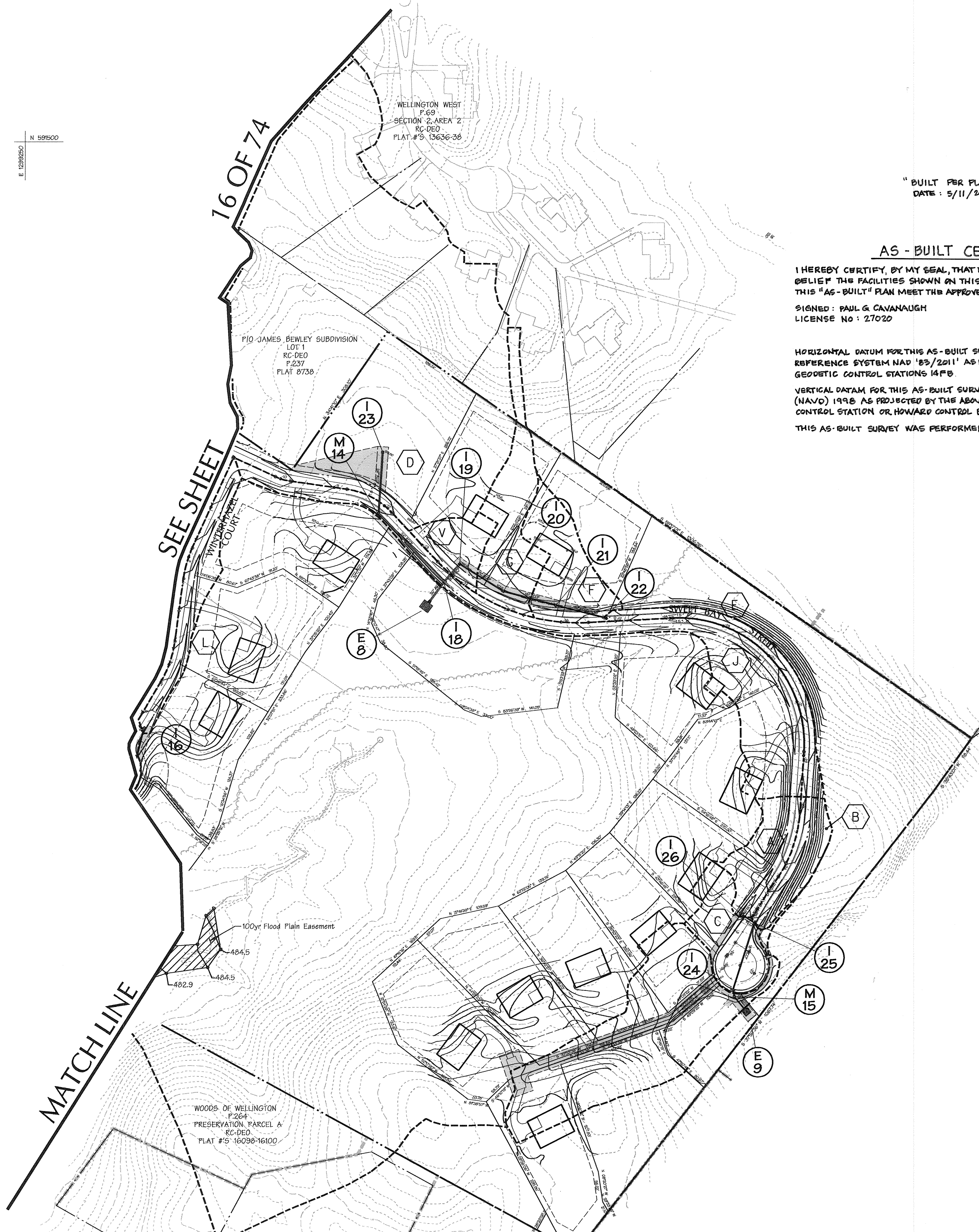
DMW
 Dan-McCune-Walker, Inc.
 200 East Pennsylvania Avenue
 Towson, Maryland 21286
 (410) 396-3333
 Fax: 396-4706

A Team of Land Planners,
 Landscape Architects,
 Golf Course Architects,
 Engineers, Surveyors &
 Environmental Professionals

TITLE:
STORM DRAIN DRAINAGE AREA MAP

Election District No. 3 • Parcel 66, Zone RC-DEO • Howard County, Maryland

Des. By:	Scale: 1"=100'	Proj. No. 01067F
Drn. By:	Date: 10/16/07	16 of 74
Chk. By: ATB	Approved: ATB	



"BUILT PER PLAN"
DATE: 5/11/2018

AS-BUILT CERTIFICATION

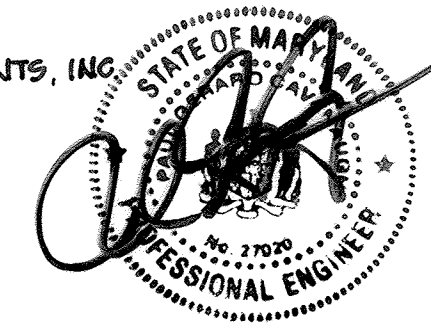
I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

SIGNED: PAUL G. CAVANAUGH DATE: 5/11/2018
LICENSE NO: 27020 EXPIRATION DATE: 1/25/2020

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THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.



- A=1.36±AC
C= 0.44 J ZONING= RC-DEO
16% IMP
- A=0.27±AC
C= 0.51 H ZONING= RC-DEO
40% IMP
- A=0.29±AC
C= 0.48 G ZONING= RC-DEO
38% IMP
- A=0.93±AC
C= 0.59 F ZONING= RC-DEO
28% IMP
- A=0.31±AC
C= 0.52 E ZONING= RC-DEO
42% IMP
- A=6.80±AC
C= 0.34 D ZONING= RC-DEO
19% IMP
- A=0.46±AC
C= 0.61 C ZONING= RC-DEO
54% IMP
- A=0.30±AC
C= 0.35 B ZONING= RC-DEO
20% IMP
- A=0.27±AC
C= 0.42 A ZONING= RC-DEO
30% IMP

DATA SOURCES:

- Boundary per existing deeds.
- Topo taken from Howard County topo CD, 1999.
- Septics approximated from adjacent plats and DMW field visits, July, 2001.
- Approximate wetland limits from DMW field visits, July, 2001.
- Soils taken from Howard County Soil Survey, 1968.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	
<i>with 2 sheets</i>	12-7-07
CHIEF, BUREAU OF HIGHWAYS	DATE
APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING	
<i>Paul G. Cavanaugh</i>	12/11/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
<i>Andy Hunt</i>	12/11/07
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
DATE	BY

Date	No.	Revision Description

BELLE HAVEN ESTATES
 LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O,
 NON-BUILDABLE BULK PARCEL P
 TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
 ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND
 OWNER/DEVELOPER
 Union Chapel Road, LLC
 9025 Chevrolet Drive
 Suite K
 Ellicott City, MD 21042
 Phone: (410) 461-6900

DMW
 Date: 10-16-07
 Title: STORM DRAIN DRAINAGE AREA MAP
 A Team of Land Planners, Landscape Architects, Golf Course Architects, Engineers, Surveyors & Environmental Professionals

10-16-07	Date	10/16/07	Proj. No. 01067F
Professional Engr. No. 28770	Drn. By: ATB	Date: 10/16/07	17 of 74
	Chk. By: ATB	Approved: ATB	

Record of Soil Exploration

Contracted With: KOREN DEVELOPMENT
 Projects Name: BEWLEY PROPERTY
 Location: HOWARD COUNTY, MD

Test Pit: TP-1
 Job #: 04148

Elev.	Soil Description* Color, Moisture, Density Plasticity, Soil Properties	Stems Depth	Depth Scale	Boring & Sample Notes	*Visual
	Medium brown, orange brown, moist, slightly plastic, micaceous SILT trace fine sand USC: (ML)* USDA: (sandy loam)*		2.5	9" Dark brown Topsoil	
491.0	Light gray and orange brown, very moist, soft, low plastic, micaceous SILT USC: (ML)* USDA: (sandy loam)*		7.0		
489.0	Bottom of Test Pit at 9.0'		9.0		

Sampler Type: DS - DRIVEN SPLIT SPOON
 Sample Conditions: D - DISINTEGRATED
 Ground Water Depth: AT COMPLETION DATE
 Boring Method: HSA - HOLLOW STEM AUGERS

STANDARD PENETRATION TEST - DRIVING 2" OD SAMPLER WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

Record of Soil Exploration

Contracted With: KOREN DEVELOPMENT
 Projects Name: BEWLEY PROPERTY
 Location: HOWARD COUNTY, MD

Test Pit: TP-2
 Job #: 04148

Elev.	Soil Description* Color, Moisture, Density Plasticity, Soil Properties	Stems Depth	Depth Scale	Boring & Sample Notes	*Visual
	Light brown, light orange brown, moist, fine to medium, sandy, low plastic, micaceous SILT with rock fragments USC: (ML)* USDA: (sandy loam)		2.5	16" Dark brown Topsoil Layer of boulders and soil 16"-26"	
490.0	Bottom of Test Pit at 9.0'		9.0	Encountered water at 8.0'	

Sampler Type: DS - DRIVEN SPLIT SPOON
 Sample Conditions: D - DISINTEGRATED
 Ground Water Depth: AT COMPLETION DATE
 Boring Method: HSA - HOLLOW STEM AUGERS

STANDARD PENETRATION TEST - DRIVING 2" OD SAMPLER WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

Record of Soil Exploration

Contracted With: KOREN DEVELOPMENT
 Projects Name: BEWLEY PROPERTY
 Location: HOWARD COUNTY, MD

Test Pit: TP-3
 Job #: 04148

Elev.	Soil Description* Color, Moisture, Density Plasticity, Soil Properties	Stems Depth	Depth Scale	Boring & Sample Notes	*Visual
	Medium brown, dark orange brown, moist, micaceous, non-plastic fine to med, sandy, micaceous SILT with rock fragments USC: (ML)* USDA: (sandy loam)		2.5	14" Dark brown Topsoil	
490.5	Bottom of Test Pit at 8.0'		8.0	More rock @ 4' Very rocky @ 6-8'	

Sampler Type: DS - DRIVEN SPLIT SPOON
 Sample Conditions: D - DISINTEGRATED
 Ground Water Depth: AT COMPLETION DATE
 Boring Method: HSA - HOLLOW STEM AUGERS

STANDARD PENETRATION TEST - DRIVING 2" OD SAMPLER WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

Record of Soil Exploration

Contracted With: KOREN DEVELOPMENT
 Projects Name: BEWLEY PROPERTY
 Location: HOWARD COUNTY, MD

Test Pit: TP-4
 Job #: 04148

Elev.	Soil Description* Color, Moisture, Density Plasticity, Soil Properties	Stems Depth	Depth Scale	Boring & Sample Notes	*Visual
	Mottled medium brown, orange brown, very moist, soft, medium plastic micaceous SILT USC: (ML)* USDA: (sandy loam)*		2.5	10" - 12" Topsoil	
507.5	Orange brown, gray white, moist, very stiff, medium plastic SILT USC: (ML)* USDA: (sandy loam)*		4.0	Encountered water @ 2.5'	
503.5	Bottom of Test Pit at 8.0'		8.0		

Sampler Type: DS - DRIVEN SPLIT SPOON
 Sample Conditions: D - DISINTEGRATED
 Ground Water Depth: AT COMPLETION DATE
 Boring Method: HSA - HOLLOW STEM AUGERS

STANDARD PENETRATION TEST - DRIVING 2" OD SAMPLER WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

Record of Soil Exploration

Contracted With: KOREN DEVELOPMENT
 Projects Name: BEWLEY PROPERTY
 Location: HOWARD COUNTY, MD

Test Pit: TP-5
 Job #: 04148

Elev.	Soil Description* Color, Moisture, Density Plasticity, Soil Properties	Stems Depth	Depth Scale	Boring & Sample Notes	*Visual
	Mottled medium brown, orange brown, gray brown, very moist, soft, medium plastic micaceous SILT USC: (ML)* USDA: (sandy loam)*		2.5	12" of Topsoil	
506.0	Medium brown, white, dry, very stiff, plastic, micaceous SILT USC: (ML)* USDA: (sandy loam)*		4.0	Encountered water @ 3.5'	
504.0	Bottom of Test Pit at 6.0'		6.0		

Sampler Type: DS - DRIVEN SPLIT SPOON
 Sample Conditions: D - DISINTEGRATED
 Ground Water Depth: AT COMPLETION DATE
 Boring Method: HSA - HOLLOW STEM AUGERS

STANDARD PENETRATION TEST - DRIVING 2" OD SAMPLER WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

Record of Soil Exploration

Contracted With: KOREN DEVELOPMENT
 Projects Name: BEWLEY PROPERTY
 Location: HOWARD COUNTY, MD

Test Pit: TP-6
 Job #: 04148

Elev.	Soil Description* Color, Moisture, Density Plasticity, Soil Properties	Stems Depth	Depth Scale	Boring & Sample Notes	*Visual
	Orange brown, moist, med plastic, micaceous SILT trace fine sand USC: (ML)* USDA: (sandy loam)*		2.5	11" of Topsoil	
507.5	Medium brown, moist to very moist, dense, non-plastic, silty, fine to med micaceous SAND w/ rock fragments USC: (SM)* USDA: (sandy loam)*		4.0	Encountered water at 5.0'	
503.5	Bottom of Test Pit at 8.0'		8.0	More rock with depth	

Sampler Type: DS - DRIVEN SPLIT SPOON
 Sample Conditions: D - DISINTEGRATED
 Ground Water Depth: AT COMPLETION DATE
 Boring Method: HSA - HOLLOW STEM AUGERS

STANDARD PENETRATION TEST - DRIVING 2" OD SAMPLER WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

Record of Soil Exploration

Contracted With: KOREN DEVELOPMENT
 Projects Name: BEWLEY PROPERTY
 Location: HOWARD COUNTY, MD

Test Pit: TP-7
 Job #: 04148

Elev.	Soil Description* Color, Moisture, Density Plasticity, Soil Properties	Stems Depth	Depth Scale	Boring & Sample Notes	*Visual
	Mottled orange brown, moist, soft, medium plastic, micaceous SILT trace fine sand USC: (ML)* USDA: (sandy loam)*		2.5	9" of Topsoil	
515.0	Orange brown, gray brown, red brown, moist, medium dense, non-plastic, silty, fine to medium, micaceous SAND with rock fragments USC: (SM)* USDA: (sandy loam)*		3.0	Encountered water at 5.0'	
508.0	Bottom of Test Pit at 10.0'		10.0	More rock with depth	

Sampler Type: DS - DRIVEN SPLIT SPOON
 Sample Conditions: D - DISINTEGRATED
 Ground Water Depth: AT COMPLETION DATE
 Boring Method: HSA - HOLLOW STEM AUGERS

STANDARD PENETRATION TEST - DRIVING 2" OD SAMPLER WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

Record of Soil Exploration

Contracted With: KOREN DEVELOPMENT
 Projects Name: BEWLEY PROPERTY
 Location: HOWARD COUNTY, MD

Test Pit: TP-8
 Job #: 04148

Elev.	Soil Description* Color, Moisture, Density Plasticity, Soil Properties	Stems Depth	Depth Scale	Boring & Sample Notes	*Visual
	Light orange brown, moist to very moist, soft, med plastic, micaceous SILT USC: (ML)* USDA: (sandy loam)*		2.5	8" of Topsoil	
512.0	Gray brown, moist, silty, fine to medium, micaceous SAND USC: (SM)* USDA: (sandy loam)*		3.0	Some relic structure visible at 3.0'	
507.0	White and orange, moist, fine, low plastic, sandy SILT USC: (ML)* USDA: (sandy loam)*		8.0	Encountered water @ 8.0'	
502.0	Bottom of Test Pit at 13.0'		13.0	Stiff digging 10.0' - 13.0'	

Sampler Type: DS - DRIVEN SPLIT SPOON
 Sample Conditions: D - DISINTEGRATED
 Ground Water Depth: AT COMPLETION DATE
 Boring Method: HSA - HOLLOW STEM AUGERS

STANDARD PENETRATION TEST - DRIVING 2" OD SAMPLER WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

Record of Soil Exploration

Contracted With: KOREN DEVELOPMENT
 Projects Name: BEWLEY PROPERTY
 Location: HOWARD COUNTY, MD

Test Pit: TP-9
 Job #: 04148

Elev.	Soil Description* Color, Moisture, Density Plasticity, Soil Properties	Stems Depth	Depth Scale	Boring & Sample Notes	*Visual
	Light orange brown, moist, medium plastic, micaceous SILT USC: (ML)* USDA: (sandy loam)*		2.5	9" of Topsoil	
512.5	Light brown, orange brown, gray, moist, soft, low plastic, micaceous SILT trace fine sand USC: (ML)* USDA: (sandy loam)*		3.5	Encountered water @ 11.5'	
504.0	Bottom of Test Pit at 12.0'		12.0		

Sampler Type: DS - DRIVEN SPLIT SPOON
 Sample Conditions: D - DISINTEGRATED
 Ground Water Depth: AT COMPLETION DATE
 Boring Method: HSA - HOLLOW STEM AUGERS

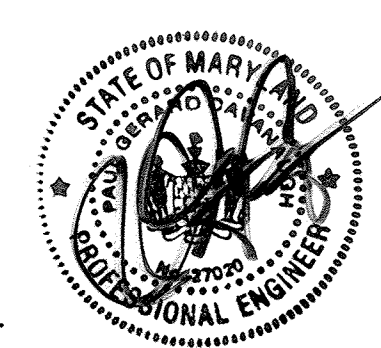
STANDARD PENETRATION TEST - DRIVING 2" OD SAMPLER WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

"BUILT PER PLAN"
 DATE: 5/11/2018

AS-BUILT CERTIFICATION

I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS
 SIGNED: PAUL G. CAVANAUGH DATE: 5/11/2018
 LICENSE NO: 27030 EXPIRATION DATE: 1/25/2020

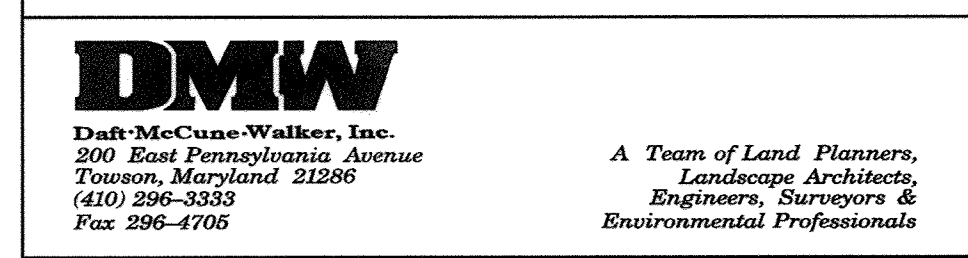
HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD 83/2011 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 14FB
 VERTICAL DATUM FOR THIS AS-BUILT SURVEY IS NORTH AMERICAN VERTICAL DATUM (NAVD) 1988 AS PROJECTED BY THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATION OR HOWARD COUNTY BENCH MARKS 14FB
 THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
 Chief, Bureau of Highways
 APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
 Chief, Division of Land Development
 Chief, Development Engineering Division

Date	No.	Revision	Description
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BELLE HAVEN ESTATES
 LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O,
 NON-BUILDABLE BULK PARCEL P
 TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
 ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND
 OWNER/DEVELOPER
 Union Chapel Road, LLC
 9025 Chevrolet Drive
 Suite K
 Ellicott City, MD 21042
 Phone: (410) 461-6800



TITLE			
SOIL BORINGS			
PLAN (1-9)			
Des. By	NA	Scale	NTS
Drn. By	MDT	Date	10/16/07
Chk. By	ATB	Approved	ATB
			18 of 74

Record of Soil Exploration

Contracted With: KOREN DEVELOPMENT BEWLEY PROPERTY HOWARD COUNTY, MD

TOPO 495.0 4/14/04 D. Spampinato J. Daiger 4/14/04

Table with columns: Elev., Soil Description*, Strain Depth, Depth, Boring & Sample Notes, *Visual. Includes soil descriptions like 'Light orange brown, moist, fine, sandy, low plastic, micaceous SILT USC: (ML)* USDA: (sandy loam)*' and 'Bottom of Test Pit at 10.0\''.

Sampler Type: D8 - DRIVEN SPLIT SPOON, D - DISINTEGRATED, AT COMPLETION, DAY... Boring Method: HSA - HOLLOW STEM AUGERS, CPA - CONTINUOUS FLIGHT AUGERS...

STANDARD PENETRATION TEST - DRIVING 2" OD SAMPLER WITH 140# HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS

Record of Soil Exploration

Contracted With: KOREN DEVELOPMENT BEWLEY PROPERTY HOWARD COUNTY, MD

TOPO 495.0 4/14/04 D. Spampinato J. Daiger 4/14/04

Table with columns: Elev., Soil Description*, Strain Depth, Depth, Boring & Sample Notes, *Visual. Includes soil descriptions like 'Light yellow brown, moist, fine to medium, sandy, low plastic, micaceous SILT USC: (ML)* USDA: (sandy loam)*' and 'MD SWM in place infiltration test with 24 hour pre soak run at 6 on 5/20/04'.

Sampler Type: D8 - DRIVEN SPLIT SPOON, D - DISINTEGRATED, AT COMPLETION, DAY... Boring Method: HSA - HOLLOW STEM AUGERS, CPA - CONTINUOUS FLIGHT AUGERS...

STANDARD PENETRATION TEST - DRIVING 2" OD SAMPLER WITH 140# HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS

Record of Soil Exploration

Contracted With: KOREN DEVELOPMENT BEWLEY PROPERTY HOWARD COUNTY, MD

TOPO 492.2 4/14/04 D. Spampinato J. Daiger 4/14/04

Table with columns: Elev., Soil Description*, Strain Depth, Depth, Boring & Sample Notes, *Visual. Includes soil descriptions like 'Medium brown, moist, low plasticity, fine, sandy micaceous SILT USC: (ML)* USDA: (sandy loam)*' and 'Bottom of Test Pit at 9.0\''.

Sampler Type: D8 - DRIVEN SPLIT SPOON, D - DISINTEGRATED, AT COMPLETION, DAY... Boring Method: HSA - HOLLOW STEM AUGERS, CPA - CONTINUOUS FLIGHT AUGERS...

STANDARD PENETRATION TEST - DRIVING 2" OD SAMPLER WITH 140# HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS

Record of Soil Exploration

Contracted With: KOREN DEVELOPMENT BEWLEY PROPERTY HOWARD COUNTY, MD

TOPO 510.5 4/14/04 D. Spampinato J. Daiger 4/14/04

Table with columns: Elev., Soil Description*, Strain Depth, Depth, Boring & Sample Notes, *Visual. Includes soil descriptions like 'Mottled medium brown, dark brown, orange brown, moist, dense, medium plastic, fine, sandy, micaceous SILT USC: (ML)* USDA: (sandy loam)*' and 'Bottom of Test Pit at 5.0\''.

Sampler Type: D8 - DRIVEN SPLIT SPOON, D - DISINTEGRATED, AT COMPLETION, DAY... Boring Method: HSA - HOLLOW STEM AUGERS, CPA - CONTINUOUS FLIGHT AUGERS...

STANDARD PENETRATION TEST - DRIVING 2" OD SAMPLER WITH 140# HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS

Record of Soil Exploration

Contracted With: KOREN DEVELOPMENT BEWLEY PROPERTY HOWARD COUNTY, MD

TOPO 509.0 4/16/04 D. Spampinato J. Daiger 4/16/04

Table with columns: Elev., Soil Description*, Strain Depth, Depth, Boring & Sample Notes, *Visual. Includes soil descriptions like 'Medium brown, orange brown, moist, micaceous, med plastic, fine to med, sandy, micaceous SILT USC: (ML)* USDA: (sandy loam)*' and 'Bottom of Test Pit at 3.0\''.

Sampler Type: D8 - DRIVEN SPLIT SPOON, D - DISINTEGRATED, AT COMPLETION, DAY... Boring Method: HSA - HOLLOW STEM AUGERS, CPA - CONTINUOUS FLIGHT AUGERS...

STANDARD PENETRATION TEST - DRIVING 2" OD SAMPLER WITH 140# HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS

Record of Soil Exploration

Contracted With: KOREN DEVELOPMENT BEWLEY PROPERTY HOWARD COUNTY, MD

TOPO 511.8 4/16/04 D. Spampinato J. Daiger 4/16/04

Table with columns: Elev., Soil Description*, Strain Depth, Depth, Boring & Sample Notes, *Visual. Includes soil descriptions like 'Medium brown, moist, medium, stiff, fine, sandy, medium plastic, micaceous SILT USC: (ML)* USDA: (sandy loam)*' and 'Bottom of Hole at 6.0\''.

Sampler Type: D8 - DRIVEN SPLIT SPOON, D - DISINTEGRATED, AT COMPLETION, DAY... Boring Method: HSA - HOLLOW STEM AUGERS, CPA - CONTINUOUS FLIGHT AUGERS...

STANDARD PENETRATION TEST - DRIVING 2" OD SAMPLER WITH 140# HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS

Record of Soil Exploration

Contracted With: KOREN DEVELOPMENT BEWLEY PROPERTY HOWARD COUNTY, MD

TOPO 518.0 4/16/04 D. Spampinato J. Daiger 4/16/04

Table with columns: Elev., Soil Description*, Strain Depth, Depth, Boring & Sample Notes, *Visual. Includes soil descriptions like 'Light to medium brown, orange brown, med plastic, moist, micaceous SILT with rock fragments USC: (ML)* USDA: (sandy loam)*' and 'Bottom of Test Pit at 7.0\''.

Sampler Type: D8 - DRIVEN SPLIT SPOON, D - DISINTEGRATED, AT COMPLETION, DAY... Boring Method: HSA - HOLLOW STEM AUGERS, CPA - CONTINUOUS FLIGHT AUGERS...

STANDARD PENETRATION TEST - DRIVING 2" OD SAMPLER WITH 140# HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS

Record of Soil Exploration

Contracted With: KOREN DEVELOPMENT BEWLEY PROPERTY HOWARD COUNTY, MD

TOPO 520.0 4/16/04 D. Spampinato J. Daiger 4/16/04

Table with columns: Elev., Soil Description*, Strain Depth, Depth, Boring & Sample Notes, *Visual. Includes soil descriptions like 'Light medium brown, moist, medium plastic, micaceous SILT, trace fine rock fragments USC: (ML)* USDA: (sandy loam)*' and 'MD SWM in-place infiltration test with 24 hour pre soak run at 5 on 5/20/04'.

Sampler Type: D8 - DRIVEN SPLIT SPOON, D - DISINTEGRATED, AT COMPLETION, DAY... Boring Method: HSA - HOLLOW STEM AUGERS, CPA - CONTINUOUS FLIGHT AUGERS...

STANDARD PENETRATION TEST - DRIVING 2" OD SAMPLER WITH 140# HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS

Record of Soil Exploration

Contracted With: KOREN DEVELOPMENT BEWLEY PROPERTY HOWARD COUNTY, MD

TOPO 520.0 4/16/04 D. Spampinato J. Daiger 4/16/04

Table with columns: Elev., Soil Description*, Strain Depth, Depth, Boring & Sample Notes, *Visual. Includes soil descriptions like 'Light to medium brown, moist, fine, sandy, medium plastic, mica SILT USC: (ML)* USDA: (sandy loam)*' and 'Bottom of Test Pit at 9.0\''.

Sampler Type: D8 - DRIVEN SPLIT SPOON, D - DISINTEGRATED, AT COMPLETION, DAY... Boring Method: HSA - HOLLOW STEM AUGERS, CPA - CONTINUOUS FLIGHT AUGERS...

STANDARD PENETRATION TEST - DRIVING 2" OD SAMPLER WITH 140# HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS, CHIEF, BUREAU OF HIGHWAYS, DATE 12-7-07. APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING, CHIEF, DIVISION OF LAND DEVELOPMENT, DATE 12/11/07. APPROVED: CHIEF, DEVELOPMENT ENGINEERING DIVISION, DATE 12/11/07.

Date No. Revision Description

BELLE HAVEN ESTATES

LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O, NON-BUILDABLE BULK PARCEL P, TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND. OWNER/DEVELOPER: Union Chapel Road, LLC, 9025 Chevrolet Drive Suite K, Elkoots City, MD 21042 Phone: (410) 461-6900.

DMW Draft-McCune-Walkers, Inc. 200 East Pennsylvania Avenue Towson, Maryland 21286 (410) 296-3833 Fax: 296-4706. A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals.

TITLE: SOIL BORINGS, PLAN (10-18), Des. By NA, Scale NT5, Proj. No. 01067F, Dwn. By MDT, Date 10/16/07, Chk. By ATB, Approved ATB, 19 of 74.

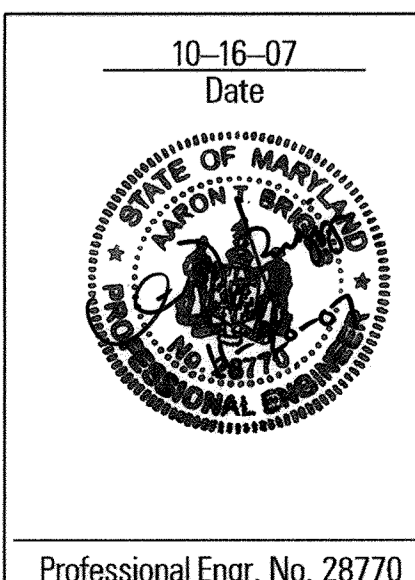
AS-BUILT CERTIFICATION

I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

SIGNED: PAUL G. GAVANAUGH LICENSE NO: 27020

DATE: 5/11/2018 EXPIRATION DATE: 1/25/2020

HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD '83/2011' AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 14FB. VERTICAL DATUM FOR THIS AS-BUILT SURVEY IS NORTH AMERICAN GEODATIC DATUM (NAVD) 1998 AS PROJECTED BY THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATION OR HOWARD CONTROL BENCH MARKS 14FB. THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.



LEGEND

- STREAM CENTERLINE
75' STREAM BUFFER
WETLAND
25' WETLAND BUFFER
100 YR WSE + 1' FREEBOARD (I.E. FLOODPLAIN EASEMENT)
EX TREELINE
EX MINOR CONTOUR
EX MAJOR CONTOUR
EX STRUCTURE
PROP. TREELINE (F SHOWN)
PROPERTY BOUNDARY
RIGHT OF WAY LINE
ROADWAY CENTERLINE
400
300
PROPOSED MAJOR CONTOUR
PROPOSED MINOR CONTOUR
PROP. LOT NUMBER
ADJACENT LOT LINE
PROP. LOT LINE
PROPOSED PUBLIC DRAINAGE AND UTILITY EASEMENT
FOREST CONSERVATION EASEMENT
SWM NATURAL CONSERVATION EASEMENT
NON-WOODY VEGETATION LIMIT
BORING LOCATION AND NUMBER
CLASS 1 RIP-RAP
GABION MATRESS

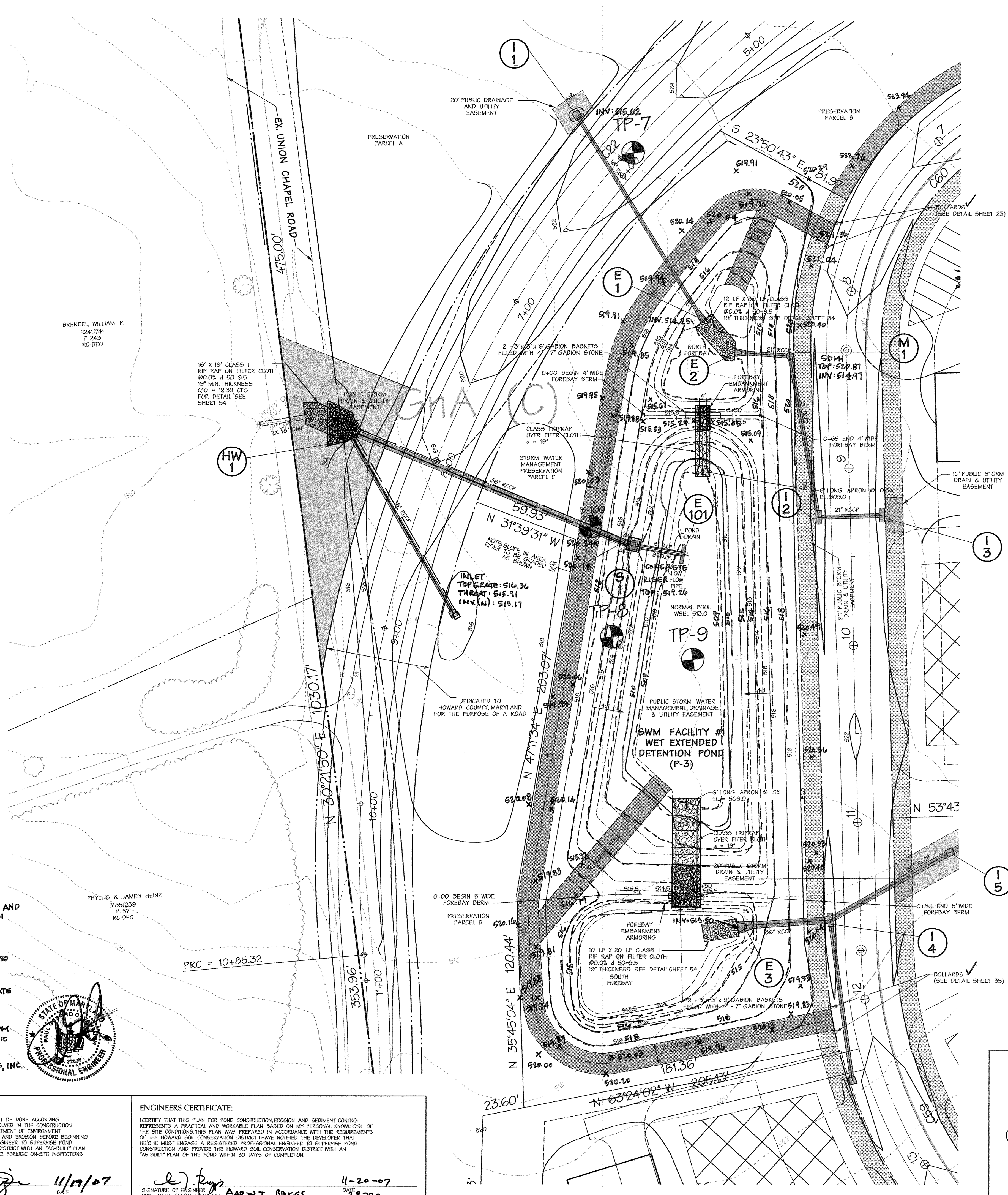
STORMWATER MANAGEMENT FACILITY OPERATION AND MAINTENANCE SCHEDULE

- ROUTINE MAINTENANCE: (HOME OWNERS ASSOCIATION)
1. FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF FACILITY IS FUNCTIONING PROPERLY.
2. TOP AND SIDE SLOPES OF EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES PER YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHALL BE MOWED AS NEEDED. VEGETATION SHALL NOT EXCEED 18" NOR SHALL IT BE LESS THAN 4" IN HEIGHT.
3. DEBRIS & LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
4. VISIBLE SIGNS OF EROSION IN THE FACILITY SHALL BE REPAIRED AS SOON AS IT IS NOTICED.
NON-ROUTINE MAINTENANCE: (HOWARD COUNTY)
1. STRUCTURAL COMPONENTS OF THE FACILITY SUCH AS THE DAM, THE RISER AND THE PIPES SHALL BE REPAIRED UPON THE DETECTION OF ANY DAMAGE. THE COMPONENTS SHALL BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
2. SEDIMENT SHALL BE REMOVED FROM FACILITY AND FOREBAY NO LATER THAN WHEN CAPACITY OF THE POND OR FOREBAY IS HALF FULL OF SEDIMENT OR WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, UPON APPROVAL FROM THE DEPARTMENT OF PUBLIC WORKS.
3. VISIBLE SIGNS OF EROSION IN THE RIP-RAP OR GABION OUTLET AREA SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

SWM FACILITY #1 DESIGN FLOW SUMMARY PROPOSED CONDITIONS

Table with columns: STRUCTURE TYPE, WATER QUALITY TYPE, STRUCTURE CLASSIFICATION, WATERSHED AREA TO FACILITY (SWM), LEVEL OF MANAGEMENT REQUIRED, LEVEL OF MANAGEMENT PROVIDED, TOP WIDTH PROVIDED, MAXIMUM HEIGHT OF FILL, FREEBOARD REQUIRED, FREEBOARD PROVIDED, WATER QUALITY VOL. WQV REQUIRED (Ac-ft), WATER QUALITY VOL. WQV PROVIDED (Ac-ft), RECHARGE REQUIRED (% AREA METHOD, Rch) (Ac), RECHARGE PROVIDED (Ac-ft), CHANNEL PROTECTION VOL. Cpw REQUIRED (Ac-ft), CHANNEL PROTECTION VOL. Cpw PROVIDED (Ac-ft), EXISTING 1-YR STORM Q AT DESIGN POINT (cfs), PROPOSED 1-YR STORM Q AT DESIGN POINT (cfs), EXISTING 10-YR STORM Q AT DESIGN POINT (cfs), PROPOSED 10-YR STORM Q AT DESIGN POINT (cfs), EXISTING 100-YR STORM Q AT DESIGN POINT (cfs), PROPOSED 100-YR STORM Q AT DESIGN POINT (cfs), WQV WATER SURFACE ELEV. - NORMAL POOL, Cpw WATER SURFACE ELEV. (Cpw), 10-YR WATER SURFACE ELEV., 100-YR WATER SURFACE ELEV., RISER CREST ELEV., 100 YR CLOGGED WATER SURFACE ELEV., POND VOLUME BELOW 100 YR CLOGGED WSE (Ac-ft), FOREBAY VOLUME REQUIRED (Ac-ft), FOREBAY VOLUME PROVIDED (Ac-ft).

- NOTES
1. TREES, SHRUBS AND OTHER WOODY VEGETATION NOT ALLOWED WITHIN TWENTY-FIVE (25) FEET OF THE RISER STRUCTURE AND NOT ALLOWED WITHIN FIFTEEN (15) FEET OF ANY PORTION OF THE EMBANKMENT
2. SWM FACILITY #1 SHALL BE OWNED BY THE HOME OWNERS ASSOCIATION (H.O.A.). THE H.O.A. SHALL PERFORM MOWING/TRASH REMOVAL MAINTENANCE. ALL OTHER MAINTENANCE SHALL BE PERFORMED BY HOWARD COUNTY. THE SWM EASEMENT IS OWNED BY HOWARD COUNTY.
3. FOR BORING LOGS SEE SHEETS 10, 18 AND 19.



AS-BUILT CERTIFICATION

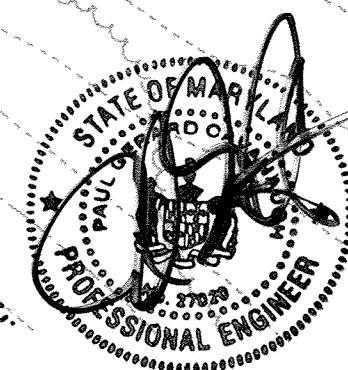
I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

SIGNED: PAUL G. CAVANAUGH DATE: 5/11/2018
LICENSE NO: 27020 EXPIRATION DATE: 1/25/2020

HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD '83/2011' AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 14 FB

VERTICAL DATUM FOR THIS AS-BUILT SURVEY IS NORTH AMERICAN VERTICAL DATUM (NAVD) 1988 AS PROJECTED BY THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATION OR HOWARD COUNTY BENCH MARKS 14 FB

THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.



DEVELOPERS CERTIFICATE:

I HEREBY CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Cynthia M. McArthur 11/19/07
SIGNATURE OF DEVELOPER: CYNTHIA M. McARTHUR DATE: 11/19/07
PRINT NAME BELOW SIGNATURE

ENGINEERS CERTIFICATE:

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTICED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

Robert T. Boggs 4-20-07
SIGNATURE OF ENGINEER: ROBERT T. BOGGS DATE: 4-20-07
PRINT NAME BELOW SIGNATURE

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
Walter R. Hall 12-7-07
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Cynthia M. McArthur 10/16/07
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Cynthia M. McArthur 12/11/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Table with columns: Date, No., Revision, Description

BELLE HAVEN ESTATES
LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O, NON-BUILDABLE BULK PARCEL P
TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
ELECTION DISTRICT NO. 3 HOWARD COUNTY, MARYLAND
OWNER/DEVELOPER:
Union Chapel Road, LLC
3025 Chevrolet Drive
Suite 1
Ellicott City, MD 21042
Phone: (410) 461-6800

DMW
Daft-McCune-Walker, Inc.
200 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 296-3333
Fax 296-4706
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

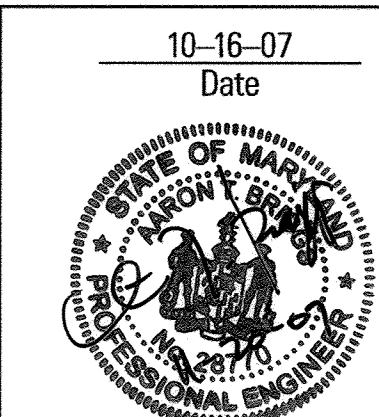
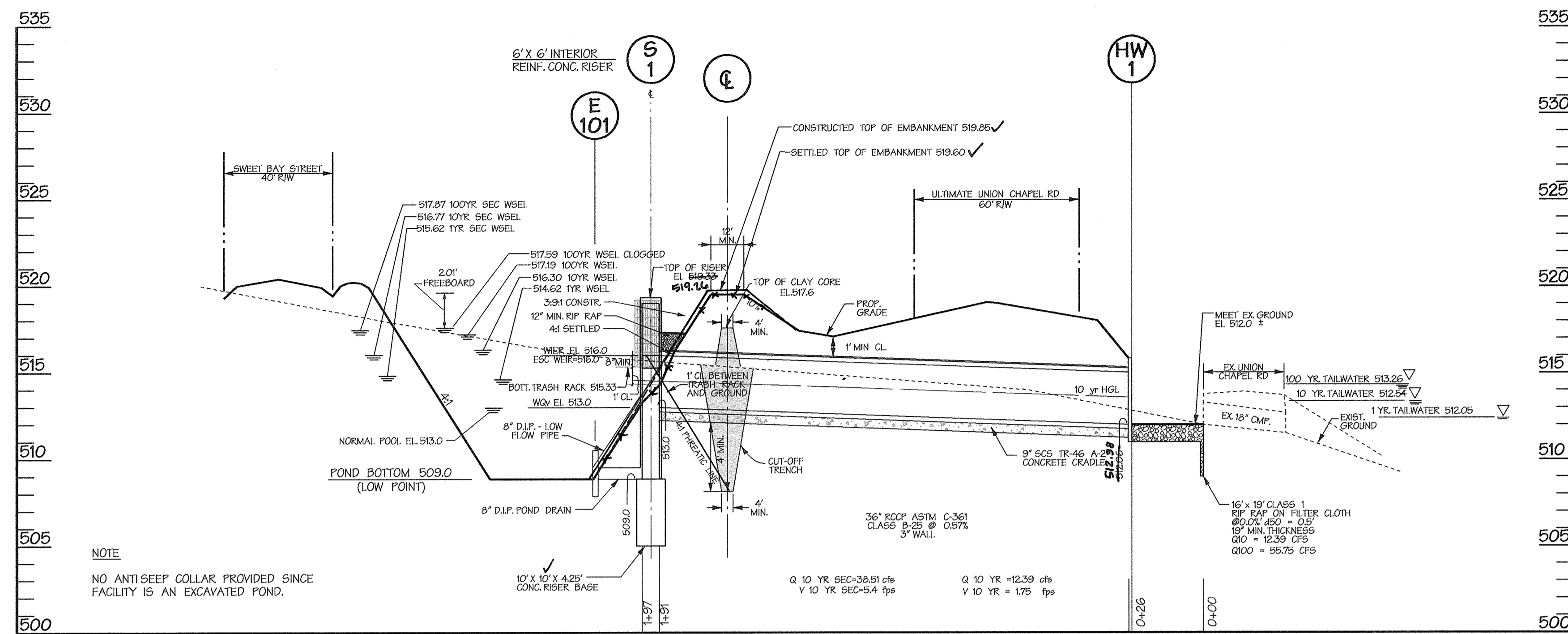


Table with columns: TITLE, Des. By, Dm. By, Chk. By, Scale, Date, Approved, Proj. No., Page No.
TITLE: STORMWATER MANAGEMENT PLAN SWM FACILITY #1
Des. By: MDT Date: 10/16/07
Dm. By: ATB Approved: ATB
Scale: 1" = 30' Proj. No.: 01067F
Page No.: 20 of 74



PROFILE THROUGH RISER AND PRINCIPLE SPILLWAY SWM FACILITY #1

SCALE: HORIZ. 1" = 30'
VERT. 1" = 5'

AS-BUILT CERTIFICATION

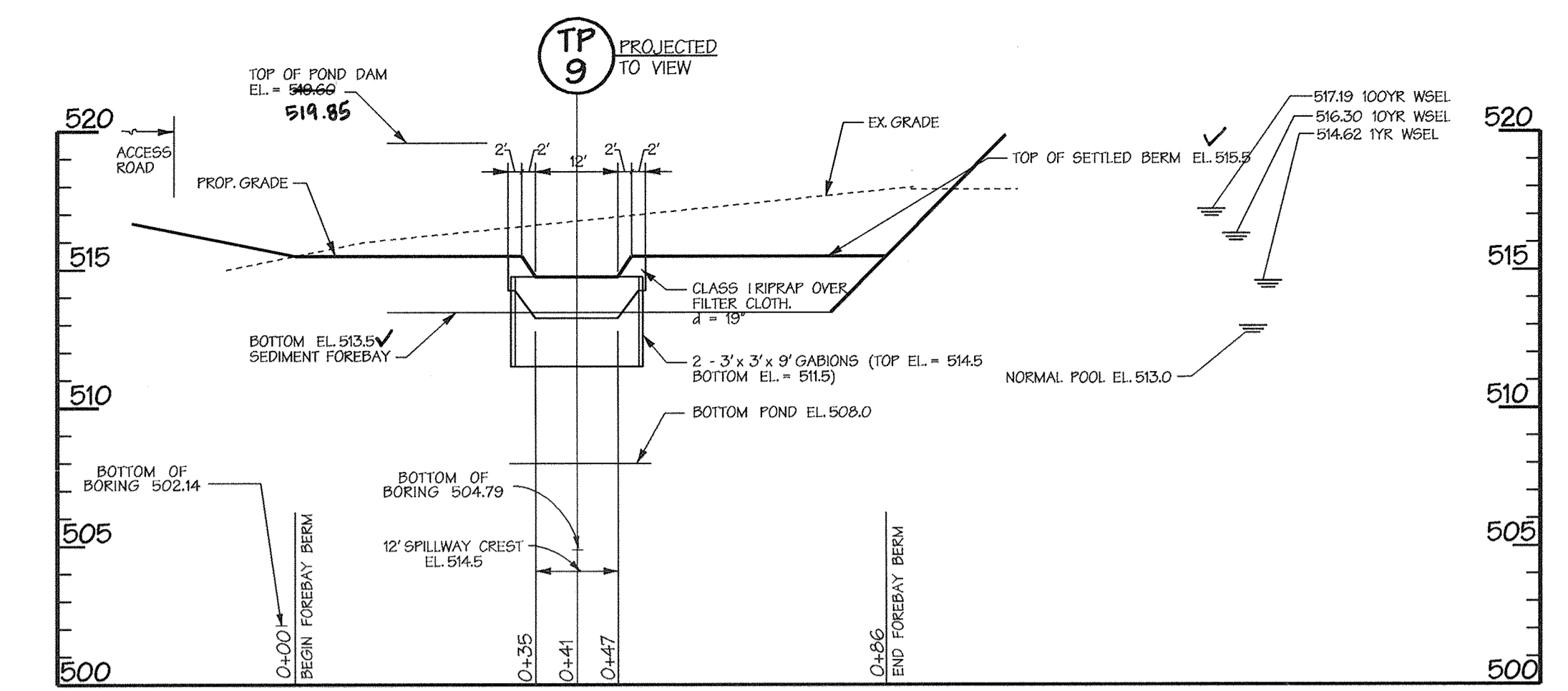
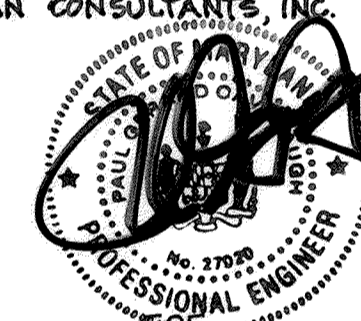
I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS AS-BUILT PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

SIGNED: PAUL G. CAVANAUGH DATE: 5/11/2018
LICENSE NO: 27020 EXPIRATION DATE: 1/25/2020

HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD'83/2011 AS PROJECTED BY HOWARD COUNTY GEODESIC CONTROL STATIONS 14-FB

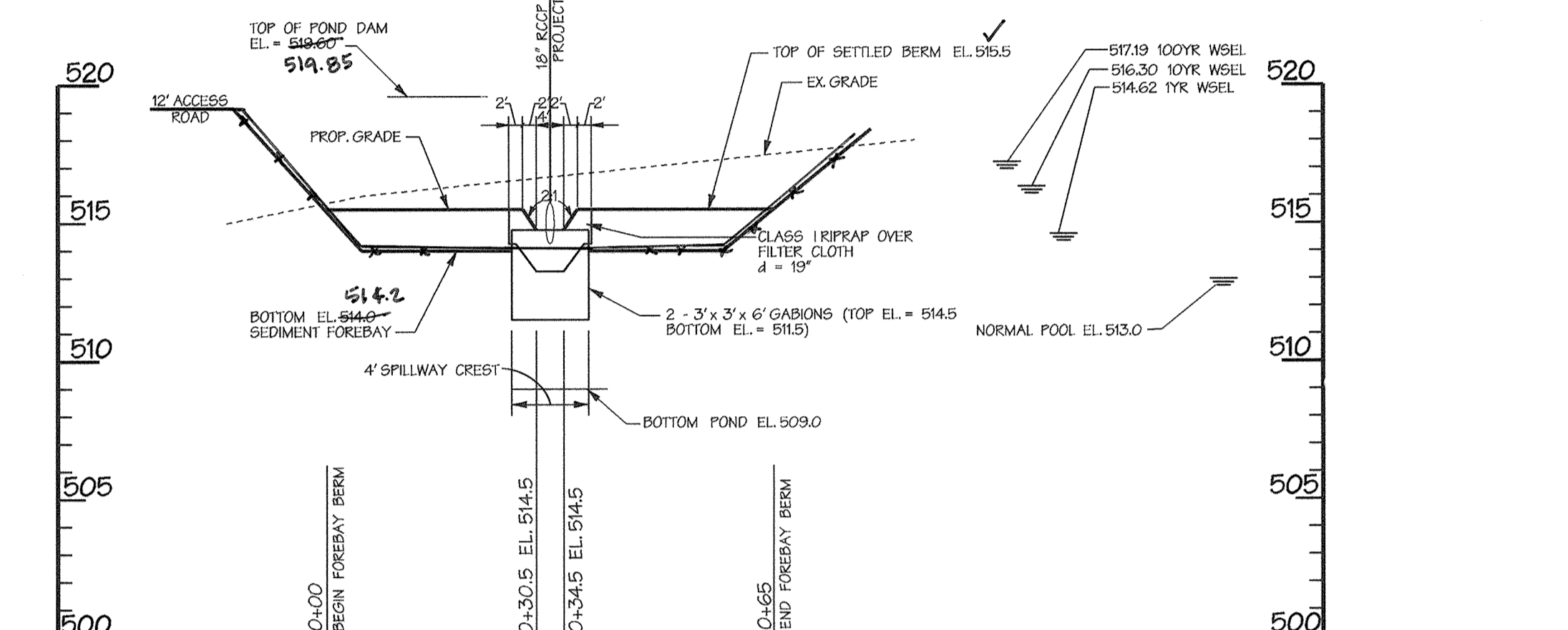
VERTICAL DATUM FOR THIS AS-BUILT SURVEY IS NORTH AMERICAN VERTICAL DATUM (NAVD) 1988 AS PROJECTED BY THE ABOVE MENTIONED HOWARD COUNTY GEODESIC CONTROL STATION OR HOWARD CONTROL BENCH MARKS 14-FB

THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.



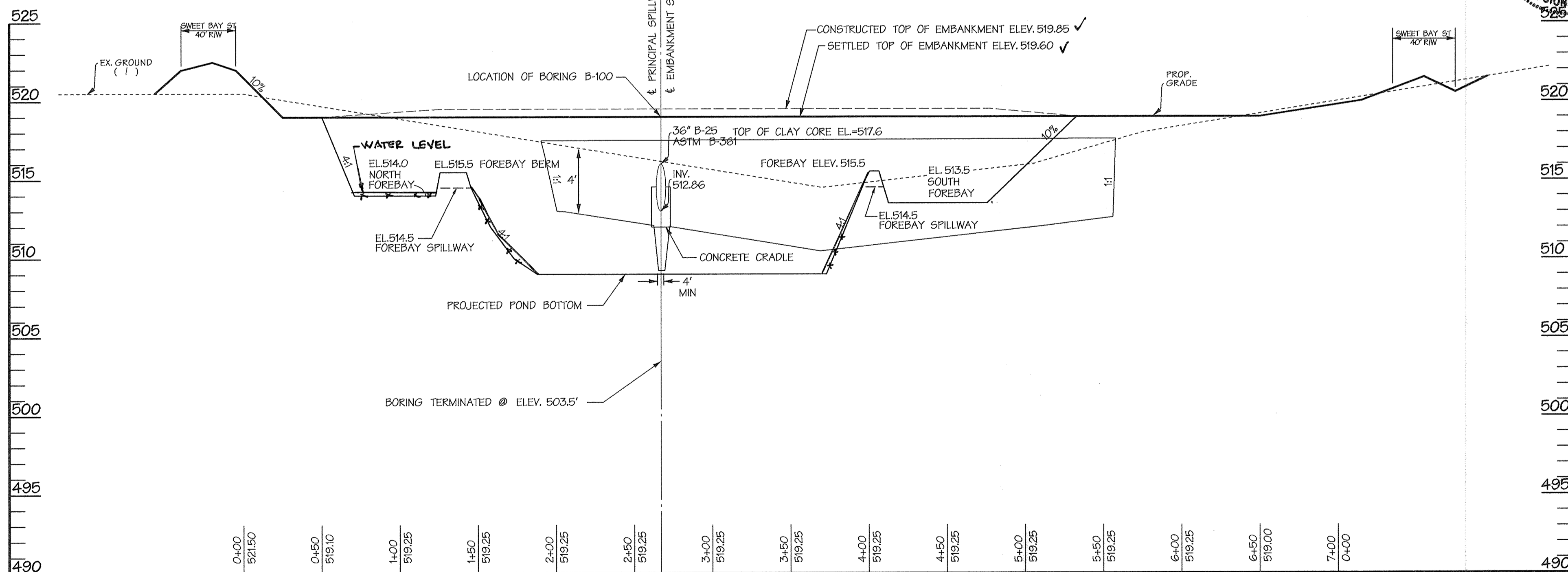
CROSS SECTION OF SOUTH FOREBAY DAM ALONG CENTERLINE - SWM FACILITY #1

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



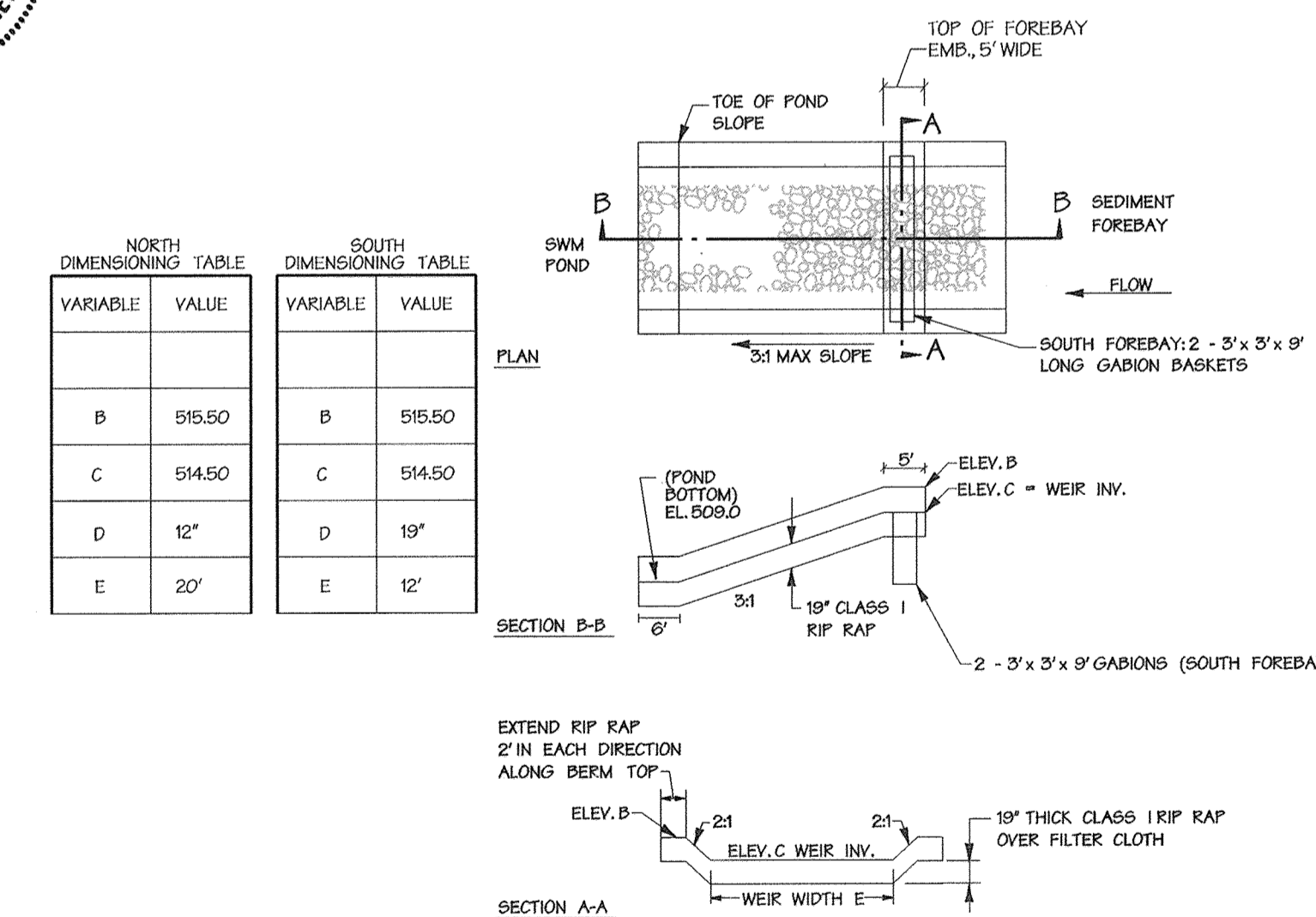
CROSS SECTION OF NORTH FOREBAY DAM ALONG CENTERLINE - SWM FACILITY #1

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



PROFILE ALONG CENTERLINE OF EMBANKMENT SWM FACILITY #1

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



SWM FOREBAY EMBANKMENT ARMORING DETAIL

NOT TO SCALE

NOTE: ACTUAL LENGTH AND DEPTH OF CUT-OFF TRENCH SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER IN THE FIELD. FILL MATERIAL FOR THE CUT-OFF TRENCH 1' CLAY CORE SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION CL-5, CH. OR SC. CONSIDERATION MAY BE GIVEN TO THE USE OF OTHER MATERIALS IN THE EMBANKMENT IF DESIGN AND CONSTRUCTION ARE SUPERVISED BY A GEOTECHNICAL ENGINEER.

- NOTES
1. TREES, SHRUBS, AND OTHER WOODY VEGETATION NOT ALLOWED WITHIN TWENTY-FIVE (25) FEET OF THE RISER STRUCTURE AND NOT ALLOWED WITHIN FIFTEEN (15) FEET OF ANY PORTION OF THE EMBANKMENT
 2. SWM FACILITY 1 SHALL BE OWNED BY THE HOME OWNERS ASSOCIATION (H.O.A.). THE H.O.A. SHALL PERFORM MOWING/ TRASH REMOVAL MAINTENANCE. ALL OTHER MAINTENANCE SHALL BE PERFORMED BY HOWARD COUNTY. THE SWM EASEMENT IS OWNED BY HOWARD COUNTY.

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
Walter R. ... 12-7-07
CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Cynthia M. ... 12/11/07
CHIEF, DIVISION OF LAND DEVELOPMENT

APPROVED: HOWARD COUNTY DEPT. OF ENGINEERING
Paul G. Cavanaugh 12/11/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION

Date	No.	Revision Description

BELLE HAVEN ESTATES
LOTS 1-48, NON-BUILDABLE PRESERVATION PARCELS A-O,
NON-BUILDABLE BULK PARCEL P
TAX MAP 14, GRID 20, PARCEL 68, ZONE RC-DEO
ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND
OWNER/DEVELOPER
Union Chapel Road, LLC
9025 Chevrolet Drive
Suite K
Ellicott City, MD 21042
Phone (410) 491-5900

DMW
Duff McEwen Walker, Inc.
301 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 286-3333
Fax 296-4705
A Team of Land Planners,
Landscape Architects,
Engineers, Surveyors &
Environmental Professionals

TITLE
STORMWATER MANAGEMENT PROFILES

SWM FACILITY #1

Des. By	KAD	Scale	AS SHOWN	Proj. No.	01067F
Drn. By	GMO	Date	10/16/07	21 of 74	
Chk. By	ATB	Approved	ATB		

DEVELOPERS CERTIFICATE:

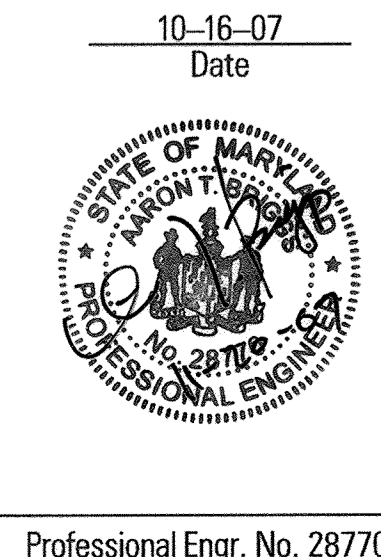
I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN AS-BUILT PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Cynthia M. McAuliffe 11/17/07
SIGNATURE OF DEVELOPER
PRINT NAME BELOW SIGNATURE

ENGINEERS CERTIFICATE:

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTICED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN AS-BUILT PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

Paul G. Cavanaugh 11-20-07
SIGNATURE OF ENGINEER
PRINT NAME BELOW SIGNATURE



AS-BUILT CERTIFICATION

I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

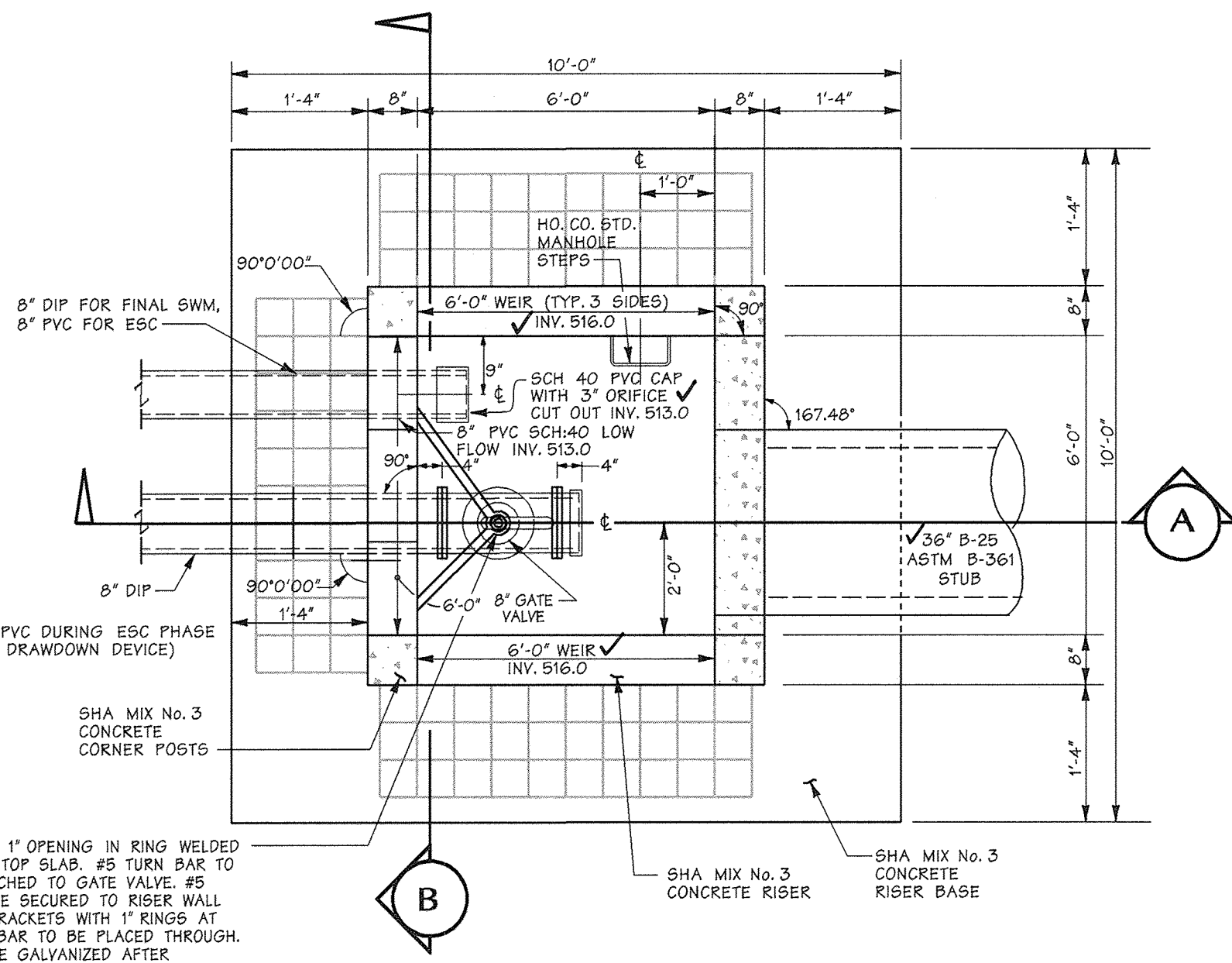
SIGNED: PAUL G. CAVANAUGH
LICENSE NO: 27020

DATE: 5/11/2018
EXPIRATION DATE: 1/25/2020

HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD 83/2011 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 14 FB

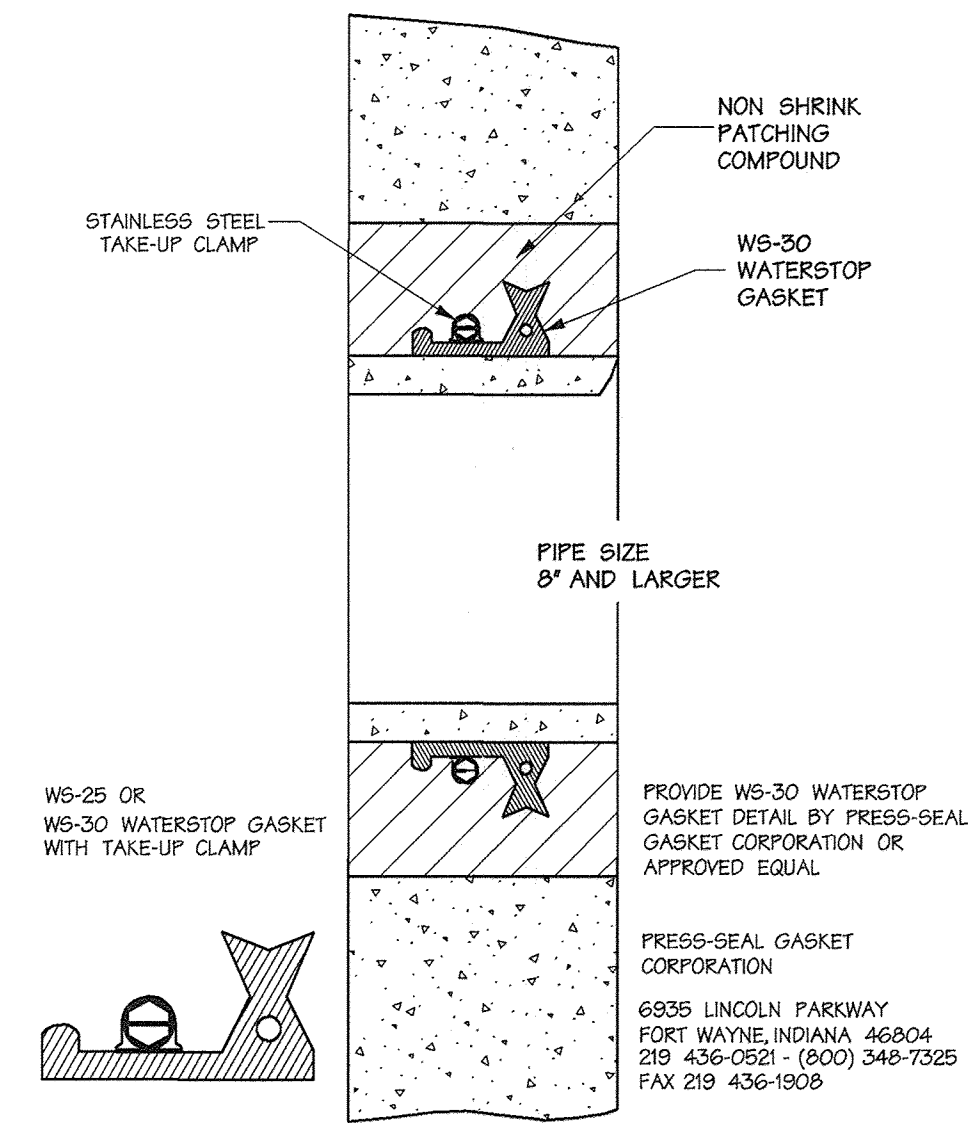
VERTICAL DATUM FOR THIS AS-BUILT SURVEY IS NORTH AMERICAN VERTICAL DATUM (NAVD) 1988 AS PROJECTED BY THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATION OR HOWARD COUNTY BENCH MARKS 14 FB

THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.



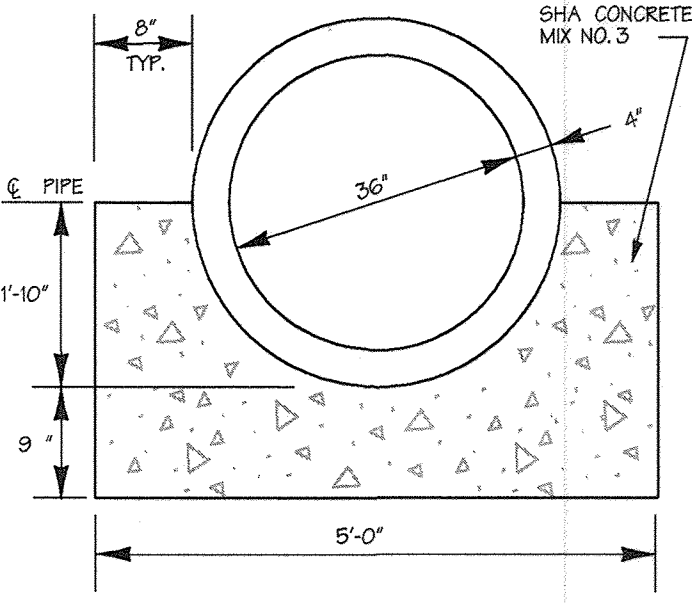
RISER PLAN (TOP SLAB REMOVED) - SWM POND 1

NOT TO SCALE



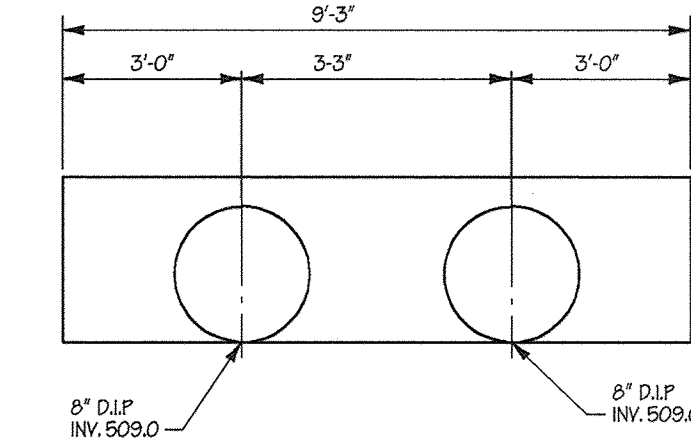
PIPE WATER STOP DETAIL

NOT TO SCALE



CONCRETE CRADLE DETAIL

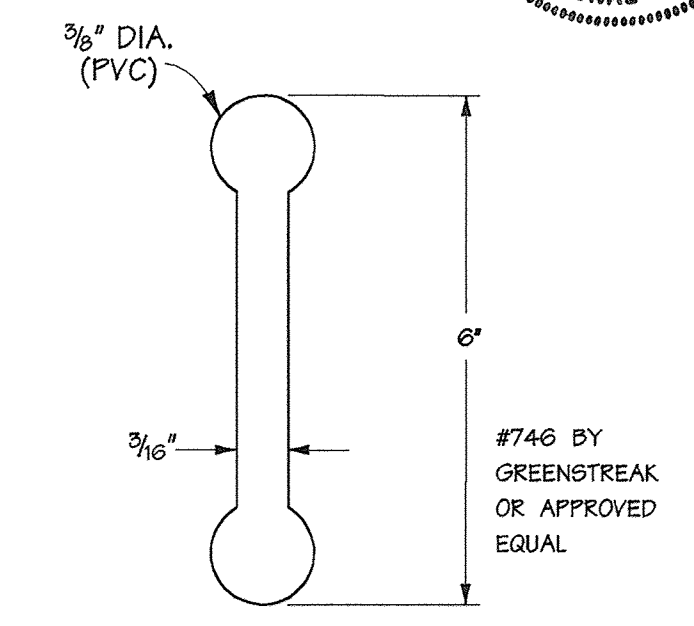
NOT TO SCALE



E-101 DETAIL

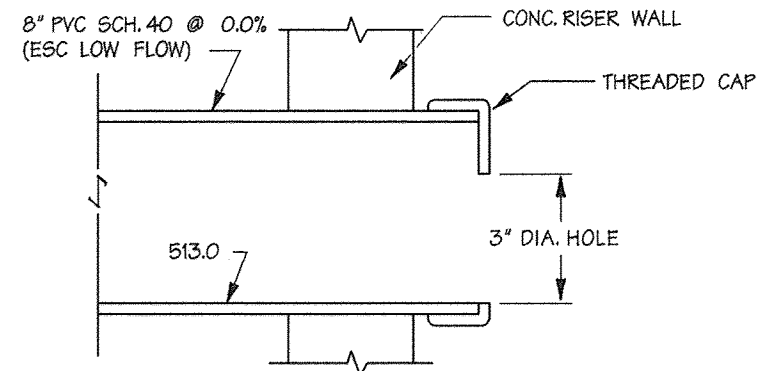
NOT TO SCALE

SEE STD. HO. CO. ENDWALL
SD-5.21 FOR REINFORCING & DIMENSIONS
USE 12" DIA. PIPE FROM CHART



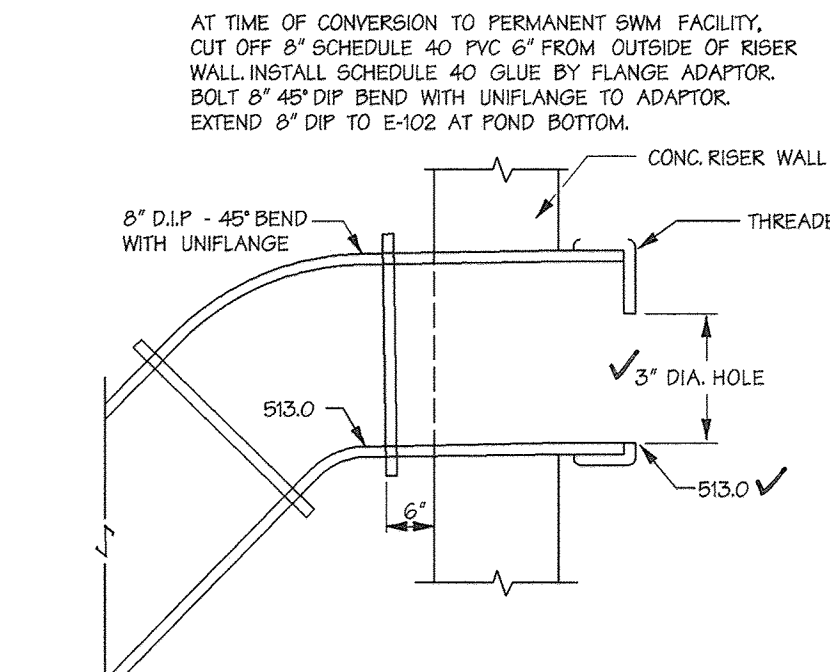
6" WATERSTOP

NOT TO SCALE



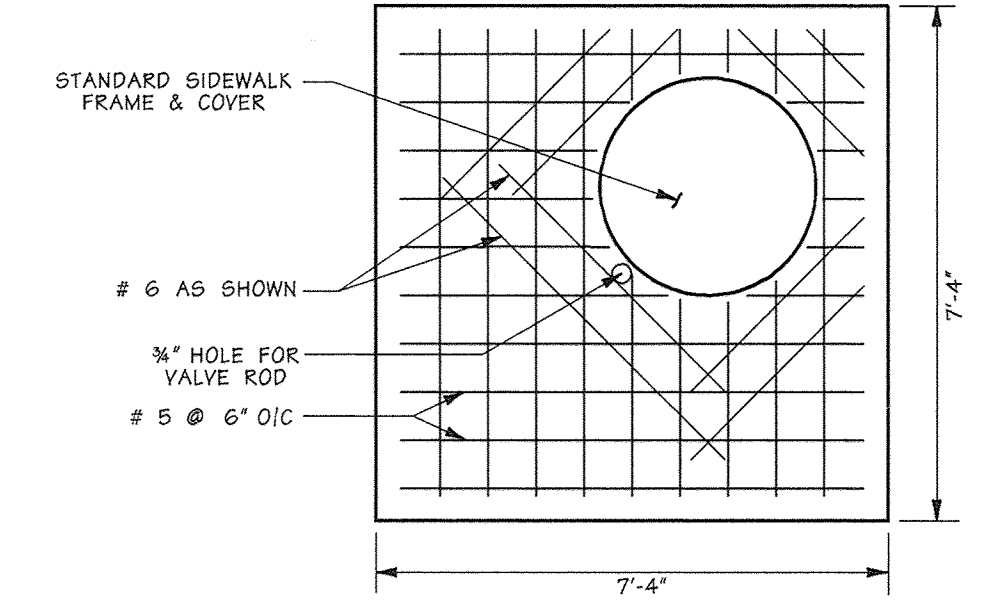
ESC CONTROL PLATE DETAIL

NOT TO SCALE



SWM LOW FLOW CONTROL PLATE DETAIL

NOT TO SCALE

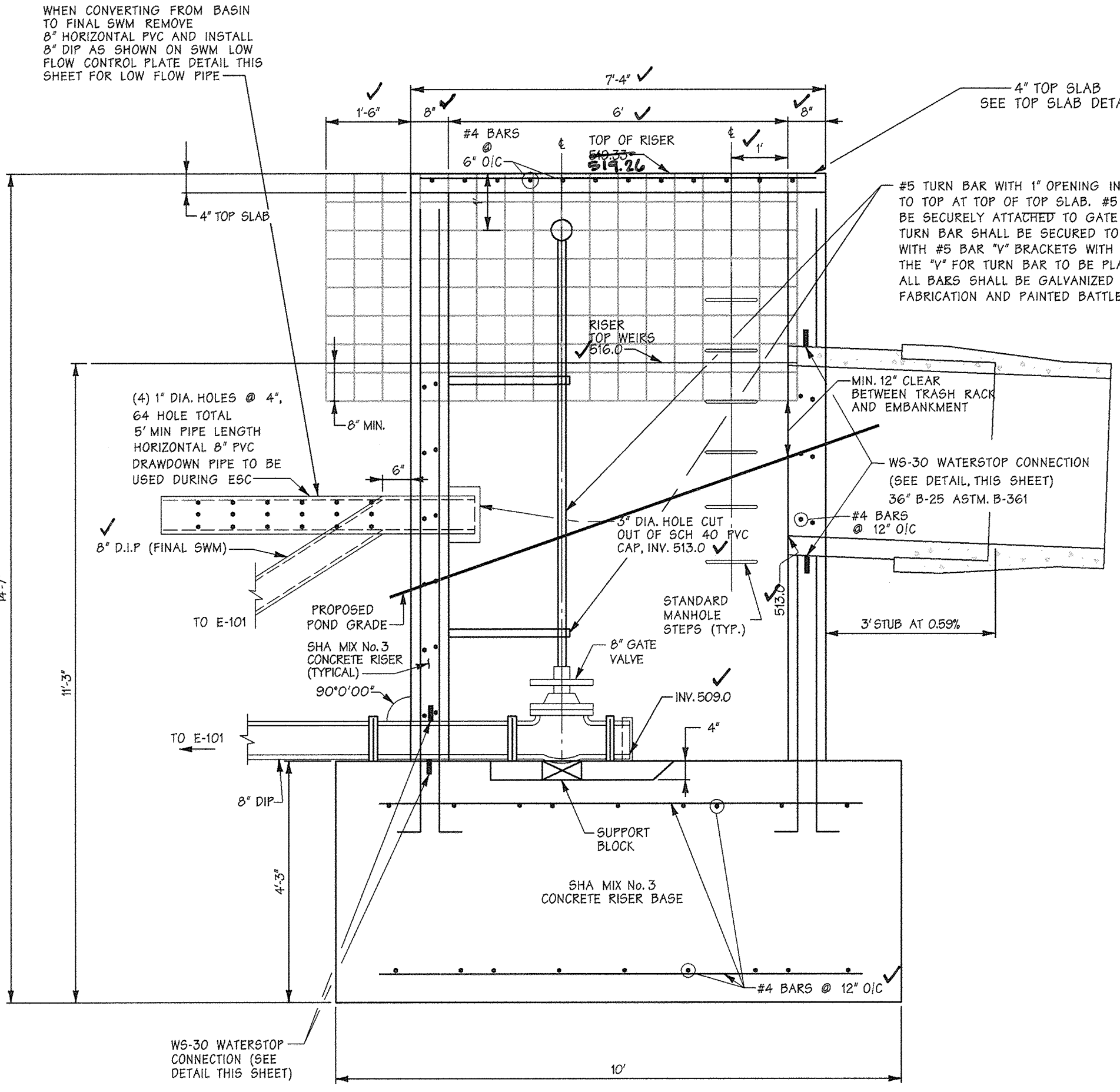


TOP SLAB

NOT TO SCALE

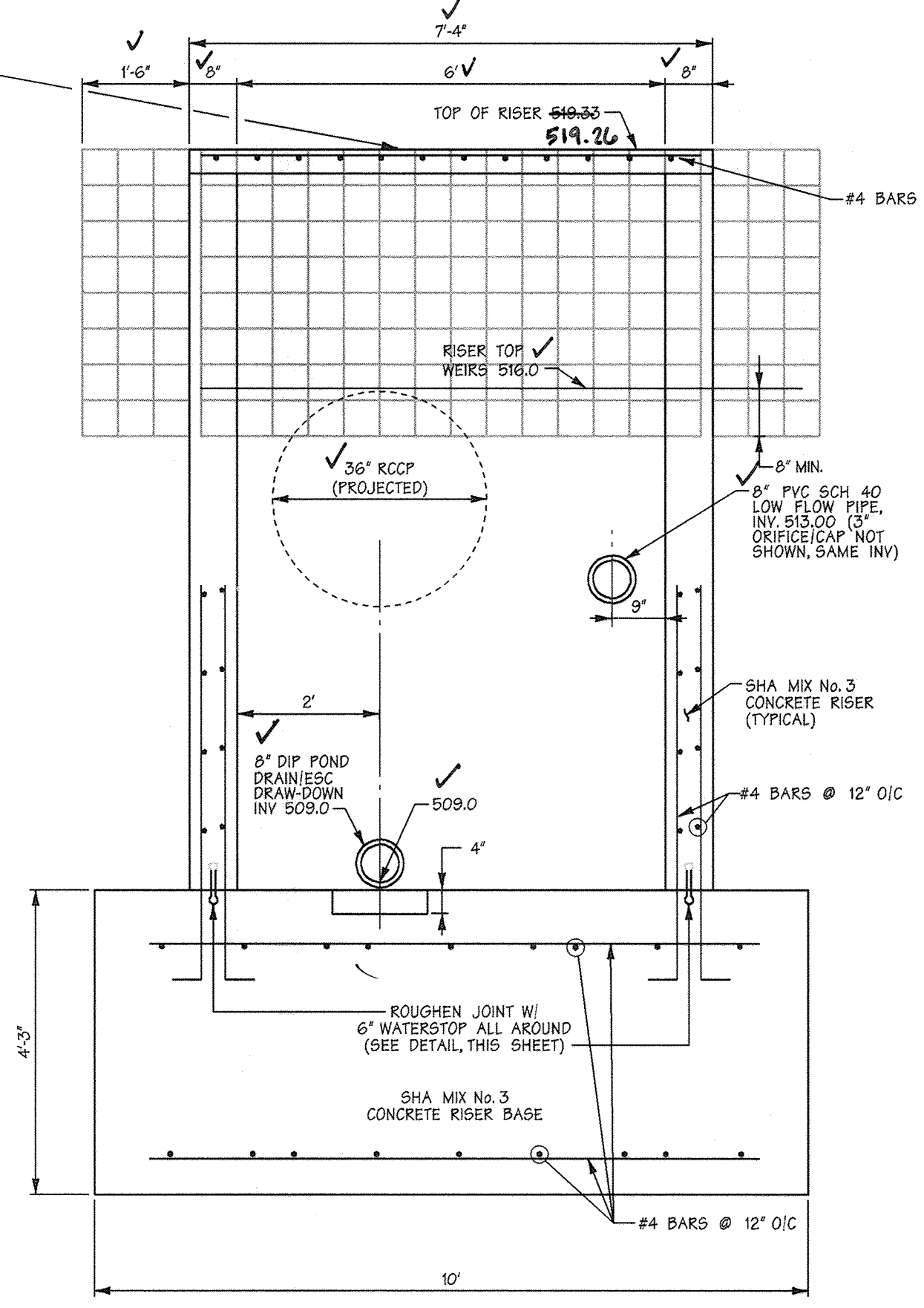
CAST IN PLACE

- NOTES:
- BOLT TOP SLAB TO RISER WITH (4) 1/2" x 6" LG. HEX. HEAD GALVANIZED BOLTS.
 - THE SIDE OF THE SLAB CLOSEST TO THE FRAME AND COVER WILL LINE UP WITH THE SIDE OF THE RISER WITH STANDARD MANHOLE STEPS.
 - SEE RISER DETAIL FOR GATE VALVE LOCATION



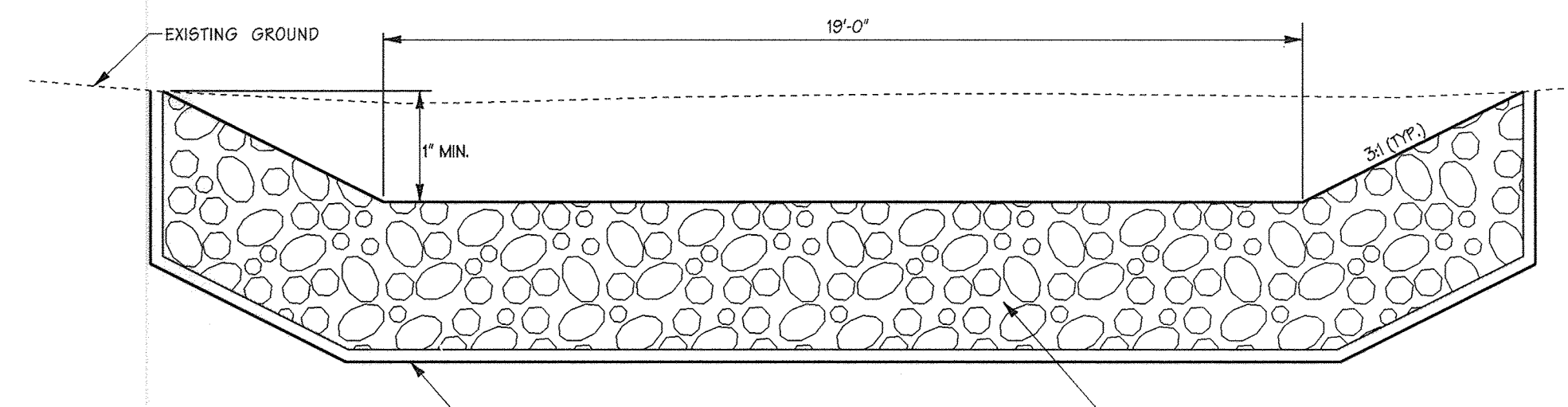
RISER DETAIL FOR SWM POND #1

SCALE: 1/2" = 1'-0"
CAST IN PLACE



OUTLET CHANNEL DETAIL

NTS



ENGINEERS CERTIFICATE:

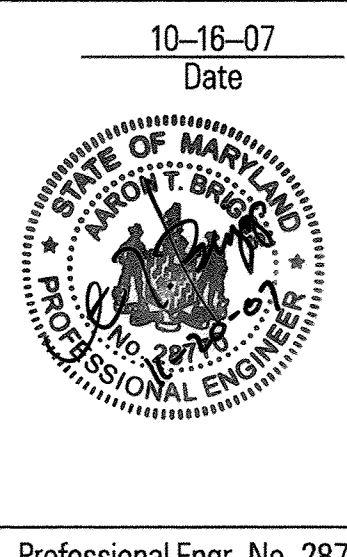
I/WE CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTICED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

Signature: *Paul G. Cavanaugh*
PRINT NAME: PAUL G. CAVANAUGH
REG. NO. 27020
DATE: 11-20-07

DEVELOPERS CERTIFICATE:

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Signature: *Charles M. McLaughlin*
PRINT NAME: CHARLES M. MCLAUGHLIN
DATE: 11/19/07



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
William J. Smith 12-7-07
CHIEF, BUREAU OF HIGHWAYS MS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Chris Harris 12/14/07
CHIEF, DIVISION OF LAND DEVELOPMENT MS DATE

William J. Smith 12/14/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION MS DATE

Date	No.	Revision Description

BELLE HAVEN ESTATES

LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O,
NON-BUILDABLE BULK PARCEL P
TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEQ
ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER
Union Chapel Road, LLC
9025 Chesoles Drive
Suite K
Ellicott City, MD 21042
Phone: (410) 461-6900

DMW
Darr-McCune-Walkers, Inc.
200 East Pennsylvania Avenue
Towson, Maryland 21286
Phone: 286-3333
Fax: 286-4708

A Team of Land Planners,
Landscape Architects,
Engineers, Surveyors &
Environmental Professionals

TITLE
STORMWATER MANAGEMENT DETAILS

SWM FACILITY #1

Des. By	CYS	Scale	AS SHOWN	Proj. No.	01067F
Drn. By	GMO	Date	10/16/07		
Chk. By	ATB	Approved	ATB		22 of 74

Professional Engr. No. 28770

PRESERVATION PARCEL 'E'

LOT 1
P.237
PLAT 8738

STORMWATER MANAGEMENT FACILITY
OPERATION AND MAINTENANCE SCHEDULE

LEGEND

- STREAM CENTERLINE
- 75' STREAM BUFFER
- WETLAND
- 25' WETLAND BUFFER
- 100 YR WSE + 1' FREEBOARD (I.E. FLOODPLAIN EASEMENT)
- EX TREELINE
- EX MINOR CONTOUR
- EX MAJOR CONTOUR
- EX STRUCTURE
- PROP. TREELINE (IF SHOWN)
- PROPERTY BOUNDARY
- RIGHT OF WAY LINE
- ROADWAY CENTERLINE
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROP. LOT NUMBER
- ADJACENT LOT LINE
- PROP. LOT LINE
- PROPOSED PUBLIC DRAINAGE AND UTILITY EASEMENT
- FOREST CONSERVATION EASEMENT
- SWM NATURAL CONSERVATION EASEMENT
- NON-WOODY VEGETATION LIMIT
- B-102 BORING LOCATION AND NUMBER
- CLASS 1 RIP-RAP
- GABION MATTRESS

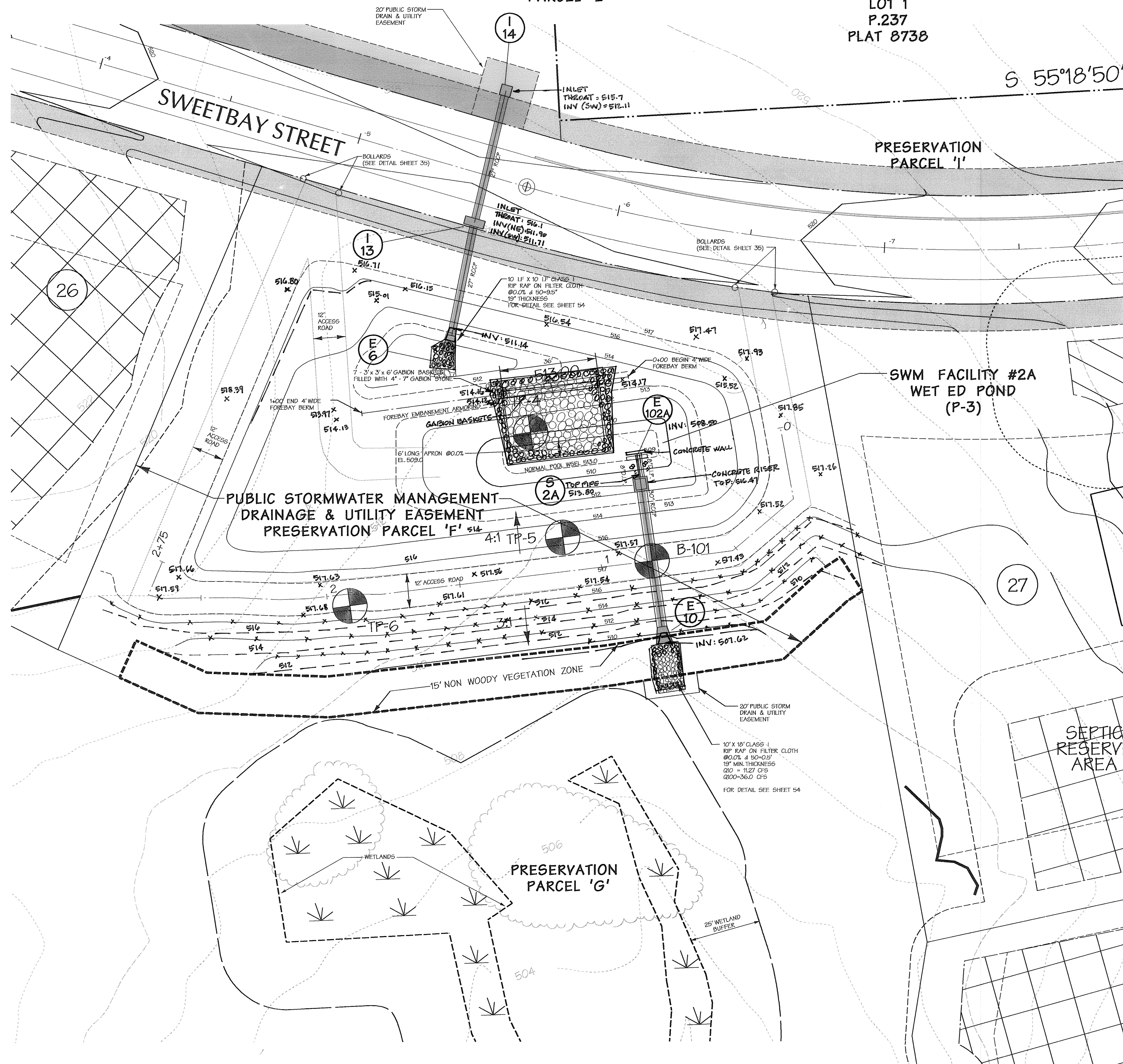
- ROUTINE MAINTENANCE: (HOME OWNERS ASSOCIATION)
- FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF FACILITY IS FUNCTIONING PROPERLY.
 - TOP AND SIDE SLOPES OF EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES PER YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHALL BE MOWED AS NEEDED. VEGETATION SHALL NOT EXCEED 18", NOR SHALL IT BE LESS THAN 4" IN HEIGHT.
 - DEBRIS & LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
 - VISIBLE SIGNS OF EROSION IN THE FACILITY SHALL BE REPAIRED AS SOON AS IT IS NOTICED.
- NON-ROUTINE MAINTENANCE: (HOWARD COUNTY)
- STRUCTURAL COMPONENTS OF THE FACILITY SUCH AS THE DAM, THE RISER AND THE PIPES SHALL BE REPAIRED UPON THE DETECTION OF ANY DAMAGE. THE COMPONENTS SHALL BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
 - SEDIMENT SHALL BE REMOVED FROM FACILITY AND FOREBAY NO LATER THAN WHEN CAPACITY OF THE POND OR FOREBAY IS HALF FULL OF SEDIMENT OR WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, UPON APPROVAL FROM THE DEPARTMENT OF PUBLIC WORKS.
 - VISIBLE SIGNS OF EROSION IN THE RIP-RAP OR GABION OUTLET AREA SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

POND 2A DESIGN FLOW SUMMARY PROPOSED CONDITIONS

STRUCTURE TYPE	EXTENDED DETENTION (P-3)
WATER QUALITY TYPE	WET POOL
STRUCTURE CLASSIFICATION	"A"
WATERSHED AREA TO FACILITY (SWM)	0.0298 SQ. MI.
LEVEL OF MANAGEMENT REQUIRED	1-YR
LEVEL OF MANAGEMENT PROVIDED	1-YR
PROPOSED 1-YR STORM Q AT DESIGN POINT (cfs)	12'
EXISTING 10-YR STORM Q AT DESIGN POINT (cfs)	72'
MAXIMUM HEIGHT OF FILL	2.07'
FREEBOARD REQUIRED	2.07'
FREEBOARD PROVIDED	2.19'
WATER QUALITY VOL. WQV REQUIRED (Ac-Ft)	0.10
WATER QUALITY VOL. WQV PROVIDED (Ac-Ft)	0.23
RECHARGE REQUIRED "A" AREA METHOD, Rev (Ac)	0.22
RECHARGE PROVIDED (Ac)**	0.29
CHANNEL PROTECTION VOL. CWP REQUIRED (Ac-Ft)	0.17
CHANNEL PROTECTION VOL. CWP PROVIDED (Ac-Ft)	0.19
EXISTING 1-YR STORM Q AT DESIGN POINT (cfs)	279
PROPOSED 1-YR STORM Q AT DESIGN POINT (cfs)	0.29
EXISTING 10-YR STORM Q AT DESIGN POINT (cfs)	5149
PROPOSED 10-YR STORM Q AT DESIGN POINT (cfs)	6359
EXISTING 100-YR STORM Q AT DESIGN POINT (cfs)	13359
PROPOSED 100-YR STORM Q AT DESIGN POINT (cfs)	13426
WQV WATER SURFACE ELEV. - NORMAL POOL	53.00
CWP WATER SURFACE ELEV.	54.00
10 YR WATER SURFACE ELEV.	54.47
100 YR WATER SURFACE ELEV.	54.80
RISER CREST ELEV.	54.00
100 YR CLOGGED WATER SURFACE ELEV.	54.81
POND VOLUME BELOW 100 YR CLOGGED WSE (Ac-Ft)**	0.12
FOREBAY VOLUME REQUIRED (Ac-Ft)	0.01
FOREBAY VOLUME PROVIDED (Ac-Ft)	0.03

* WQV IS PROVIDED IN THE WET-POD PORTION OF THE FACILITY.
CWP IS PROVIDED IN THE FACILITY (AS MANAGEMENT OF THE 1-YEAR STORAGE ABOVE THE NON-STORAGE VOLUME. THE 10-YEAR AND 100-YEAR STORMS ARE PASSED THROUGH THE FACILITY.
** RECHARGE REQUIRED/PROVIDED IS BASED ON ENTIRE SITE (PHASE I AND PHASE II) AND IS TREATED COMPLETELY BY SWM NON-STRUCTURAL CREDITS
*** ABOVE WET POOL ELEVATION

- NOTES
- TREES, SHRUBS AND OTHER WOODY VEGETATION NOT ALLOWED WITHIN TWENTY-FIVE (25) FEET OF THE RISER STRUCTURE AND NOT ALLOWED WITHIN FIFTEEN (15) FEET OF ANY PORTION OF THE EMBANKMENT.
 - SWM FACILITY 2A SHALL BE OWNED BY THE HOME OWNERS ASSOCIATION (H.O.A.). THE H.O.A. SHALL PERFORM MOWING/TRASH REMOVAL MAINTENANCE. ALL OTHER MAINTENANCE SHALL BE PERFORMED BY HOWARD COUNTY. THE SWM EASEMENT IS OWNED BY HOWARD COUNTY.
 - SEE SHEET 25 FOR RIP-RAP OUTLET DETAIL.
 - FOR BORING LOGS SEE SHEETS 10, 18 AND 19.



DEVELOPERS CERTIFICATE:
I HEREBY CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERSEDE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

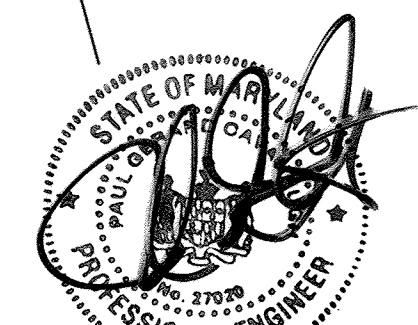
Signature: Cynthia M. McLaughlin
Date: 11/19/07

ENGINEERS CERTIFICATE:
I HEREBY CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTICED THE DEVELOPER THAT THESE ARE THE REQUIREMENTS OF A REGISTERED PROFESSIONAL ENGINEER TO SUPERSEDE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

Signature: Paul G. Gavanaugh
Date: 11-20-07
License No: 2720

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED RANS AND SPECIFICATIONS.

Signature: Paul G. Gavanaugh
Date: 5/11/19
Expiration Date: 1/25/2020
License No: 2720



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

Signature: [Signature]
Date: 12-7-07
Chief, Bureau of Highways

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

Signature: [Signature]
Date: 12/14/07
Chief, Division of Land Development

Signature: [Signature]
Date: 12/11/07
Chief, Development Engineering Division

BELLE HAVEN ESTATES
LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O,
NON-BUILDABLE BULK PARCEL P
TAX MAP 14, GRID 20, PARCEL 68, ZONE RC-DEO
ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER
Union Chapel Road, LLC
9025 Chevrolet Drive
Suite K
Ellicott City, MD 21042
Phone: (410) 461-5800

10-16-07
Date

Professional Eng. No. 28770

DMW
Draft McCune-Walker, Inc.
200 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 296-3333
Fax: 296-4705

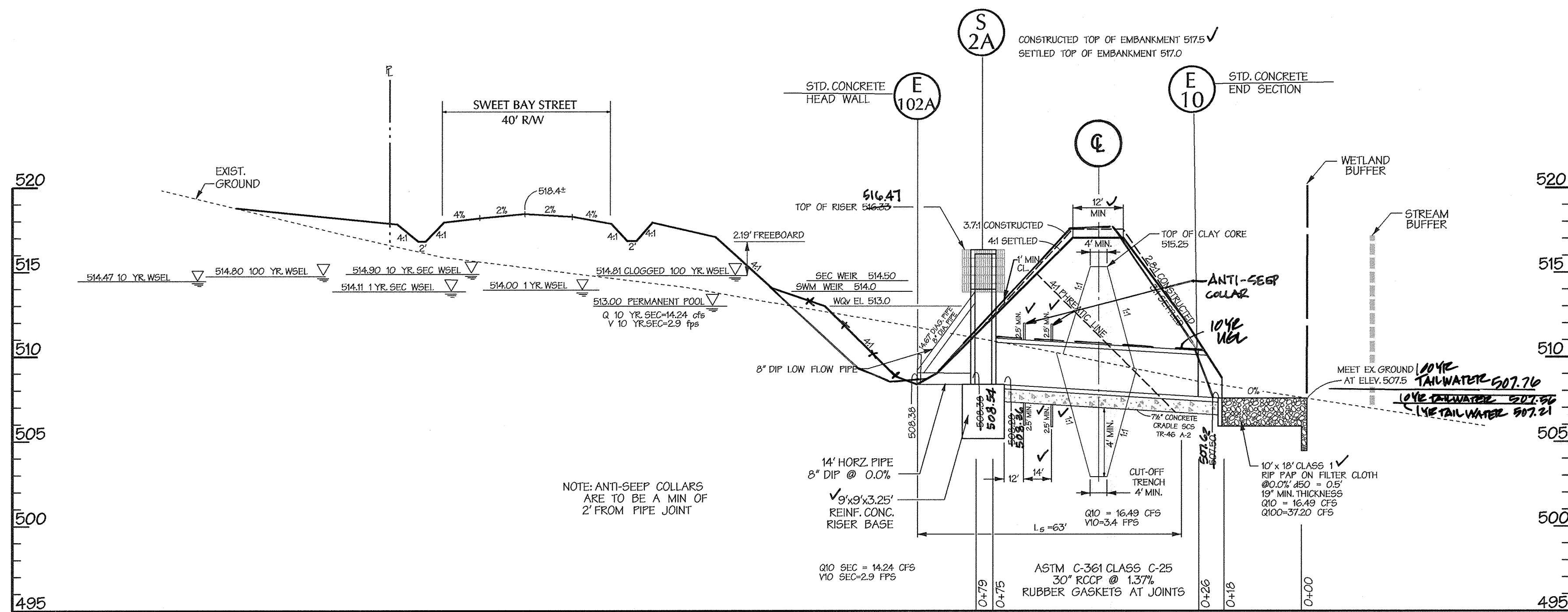
A Team of Land Planners,
Landscape Architects,
Engineers, Surveyors &
Environmental Professionals

TITLE
STORMWATER MANAGEMENT PLAN

SWM FACILITY #2A

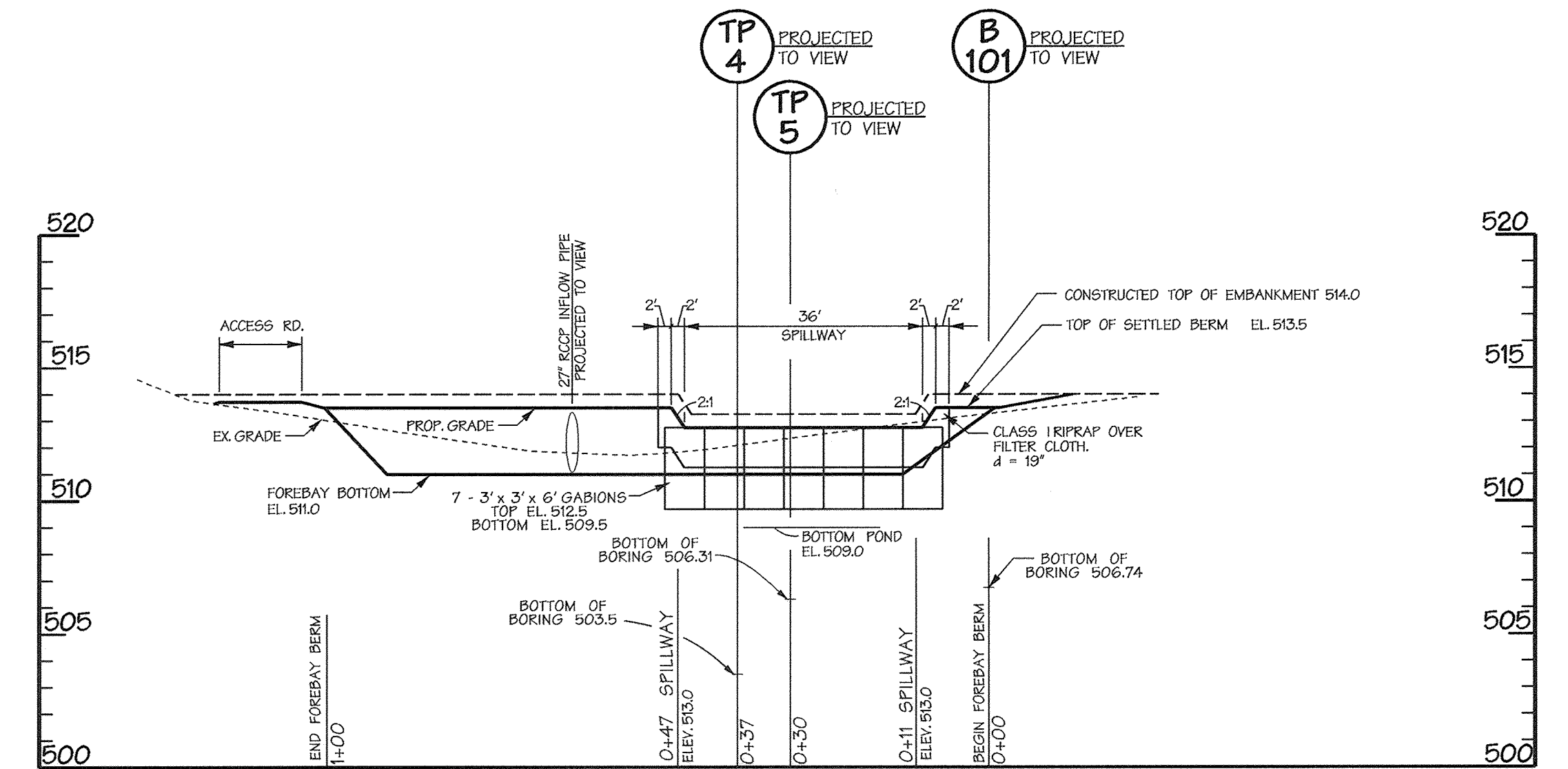
Des. By	Scale	1" = 20'	Proj. No.	01067F
Dn. By	MDT	Date	10/16/07	23 of 74
Chk. By	ATB	Approved	ATB	

WATER CODE



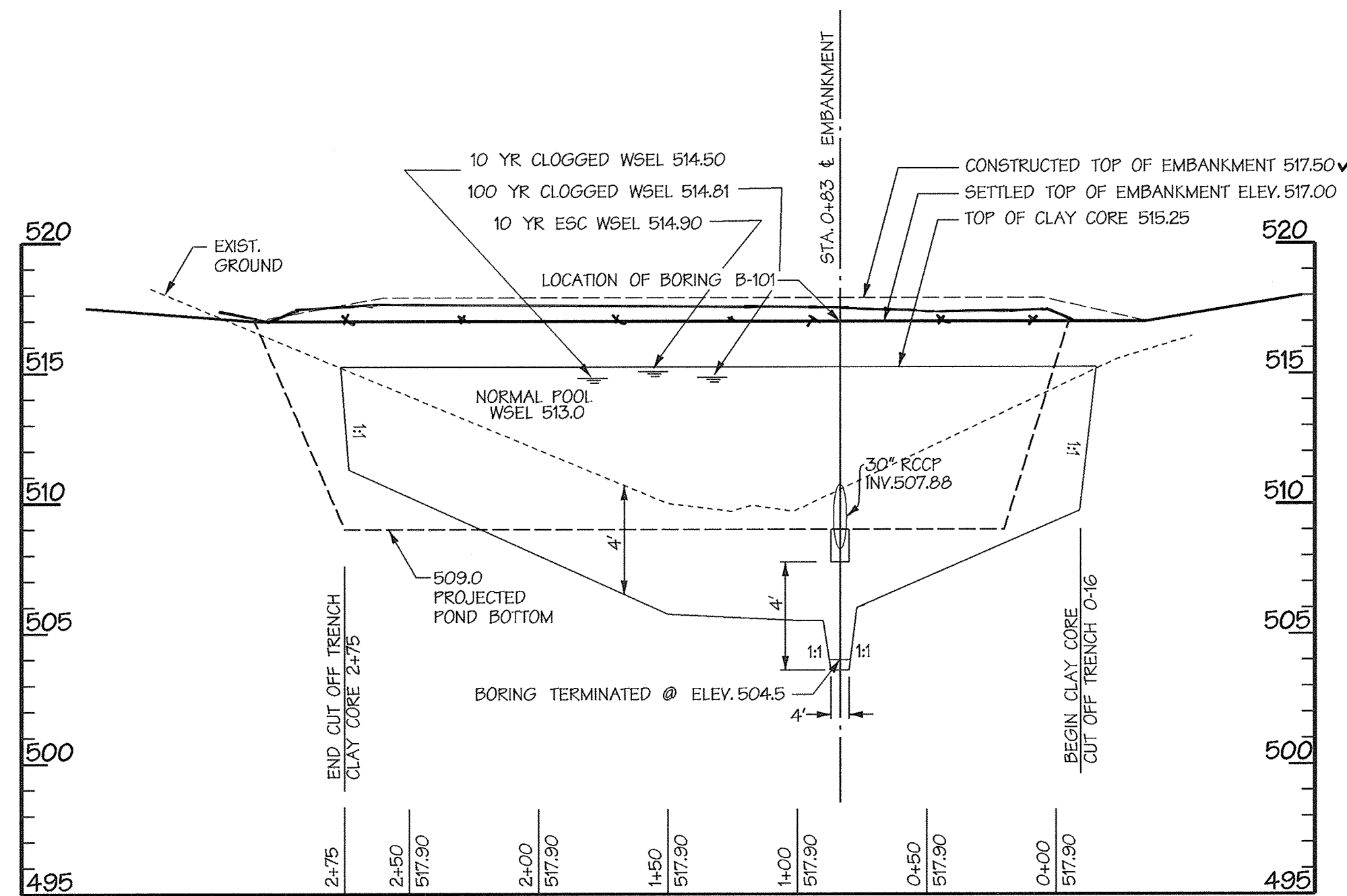
PROFILE THROUGH RISER/BARREL SWM FACILITY # 2A

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



CROSS SECTION OF FOREBAY DAM ALONG CENTERLINE - SWM FACILITY # 2A

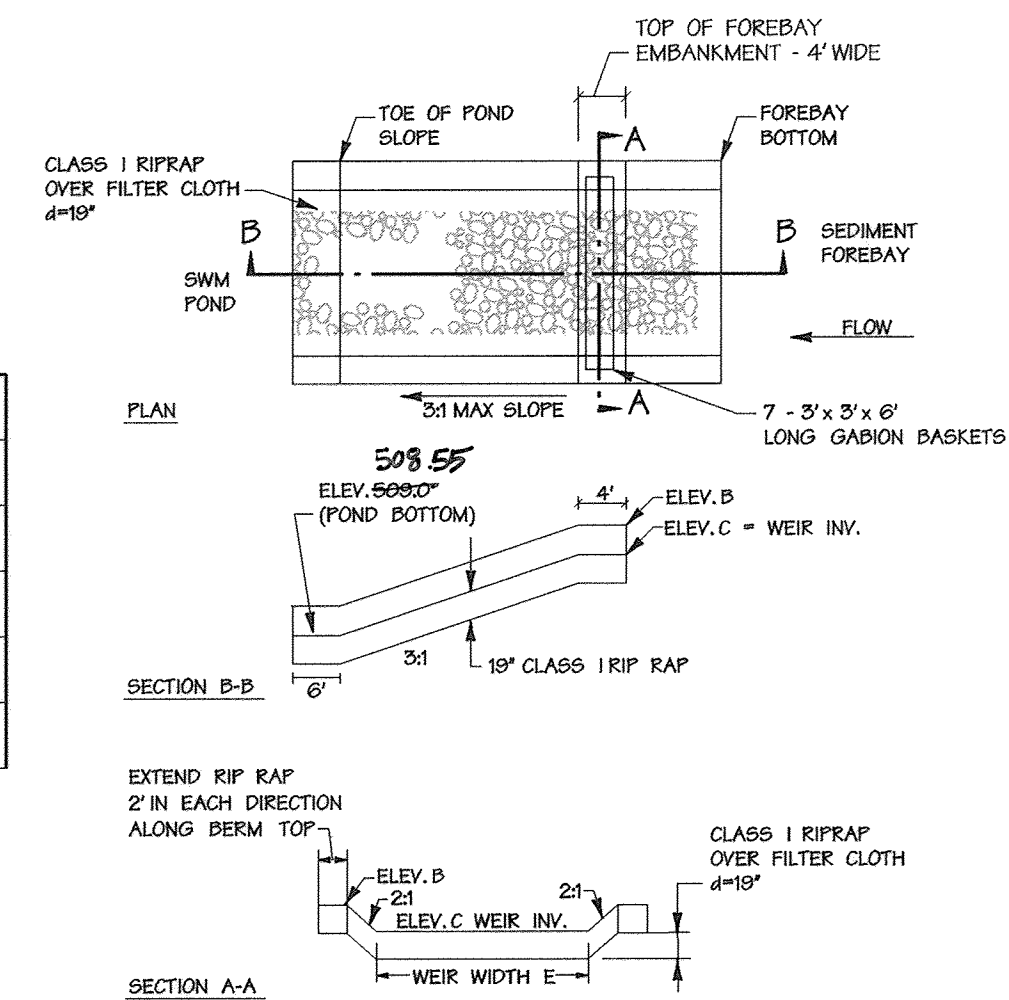
SCALE: HORZ. 1" = 20'
VERT. 1" = 5'



PROFILE ALONG CENTERLINE OF DAM SWM FACILITY # 2A

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

VARIABLE	VALUE
B	513.5
C	513.0
D	19'
E	36'



SWM FOREBAY EMBANKMENT ARMORING DETAIL

NOT TO SCALE

NOTES

- TREES, SHRUBS AND OTHER WOODY VEGETATION NOT ALLOWED WITHIN TWENTY-FIVE (25) FEET OF THE RISER STRUCTURE AND NOT ALLOWED WITHIN FIFTEEN (15) FEET OF ANY PORTION OF THE EMBANKMENT
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NOTE: ACTUAL LENGTH AND DEPTH OF CUT-OFF TRENCH SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER IN THE FIELD. FILL MATERIAL FOR THE CUT-OFF TRENCH / CLAY CORE SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION CL. CL. OR SC. CONSIDERATION MAY BE GIVEN TO THE USE OF OTHER MATERIALS IN THE EMBANKMENT IF DESIGN AND CONSTRUCTION ARE SUPERVISED BY A GEOTECHNICAL ENGINEER.

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

Will R. ...
CHIEF, BUREAU OF HIGHWAYS 12-7-07
DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

Cindy ...
CHIEF, DIVISION OF LAND DEVELOPMENT 12/11/07
DATE

...
CHIEF, DEVELOPMENT ENGINEERING DIVISION 12/11/07
DATE

Date No. Revision Description

BELLE HAVEN ESTATES

LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O,
NON-BUILDABLE BULK PARCEL P
TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER
Union Chapel Road, LLC.
9025 Chevrolet Drive
Suite K
Ellicott City, MD 21042
Phone: (410) 461-5800

DMW
Darr McCaskey-Walkers, Inc.
300 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 296-3833
Fax: 296-4705

A Team of Land Planners,
Landscape Architects,
Engineers, Surveyors &
Environmental Professionals

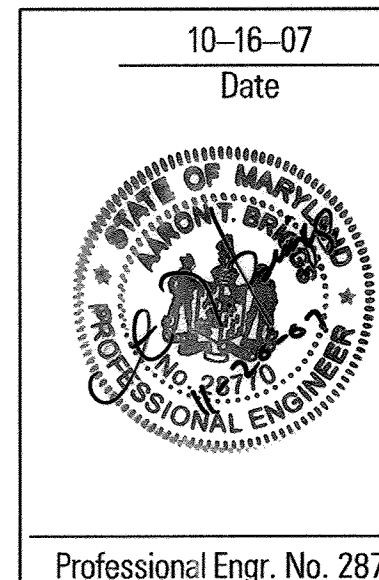
TITLE
STORMWATER MANAGEMENT PROFILES

SWM FACILITY #2A

Des. By KAD Scale AS SHOWN Proj. No. 01067F

Drn. By GMO Date 10/16/07

Chk. By ATB Approved ATB 24 of 74



Professional Engr. No. 28770

DEVELOPERS CERTIFICATE:

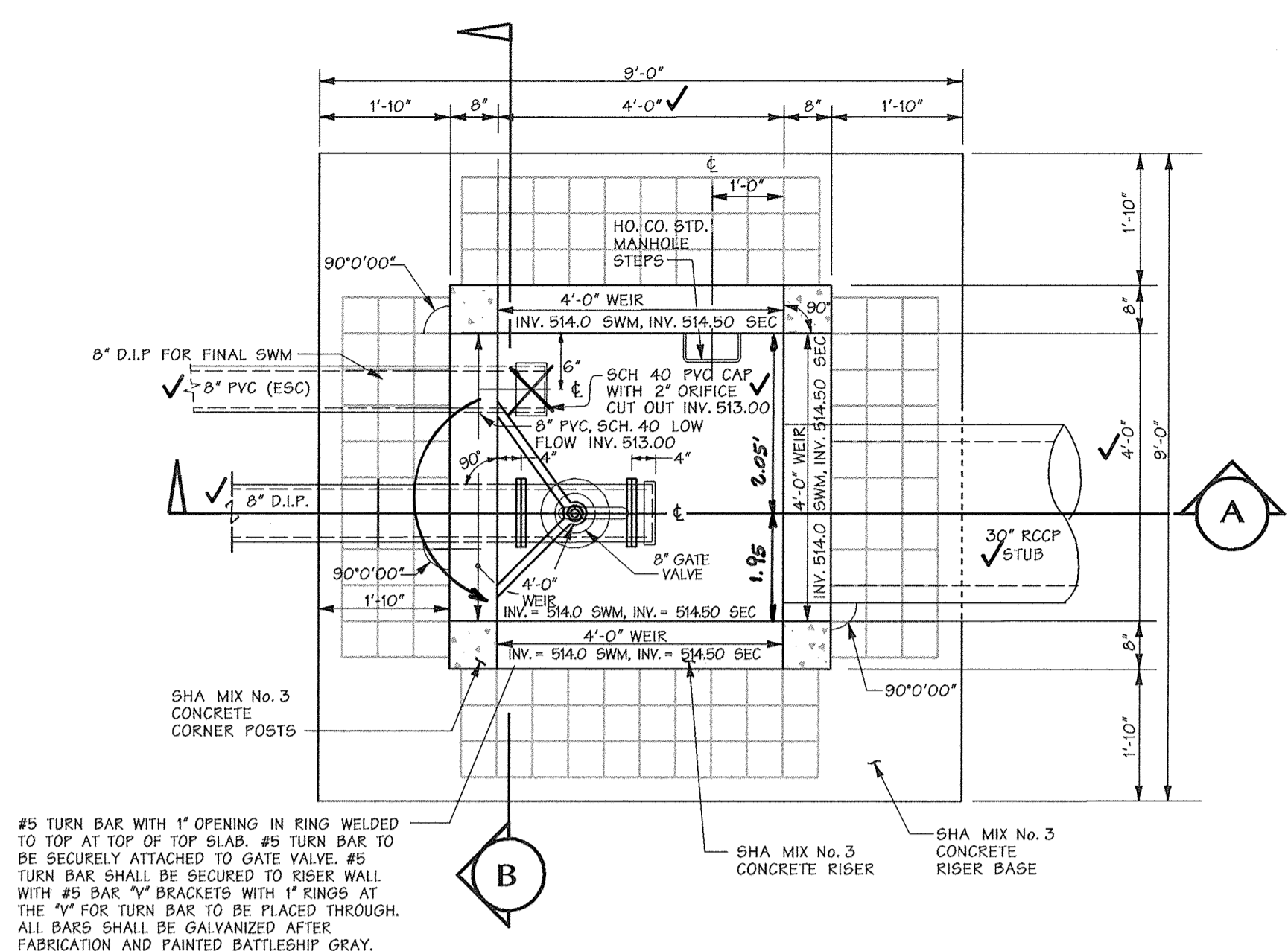
I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I/WE SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I/WE ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Cynthia M. McLaughlin
SIGNATURE OF DEVELOPER CYNTHIA M. MCLAUGHLIN DATE 11/19/07

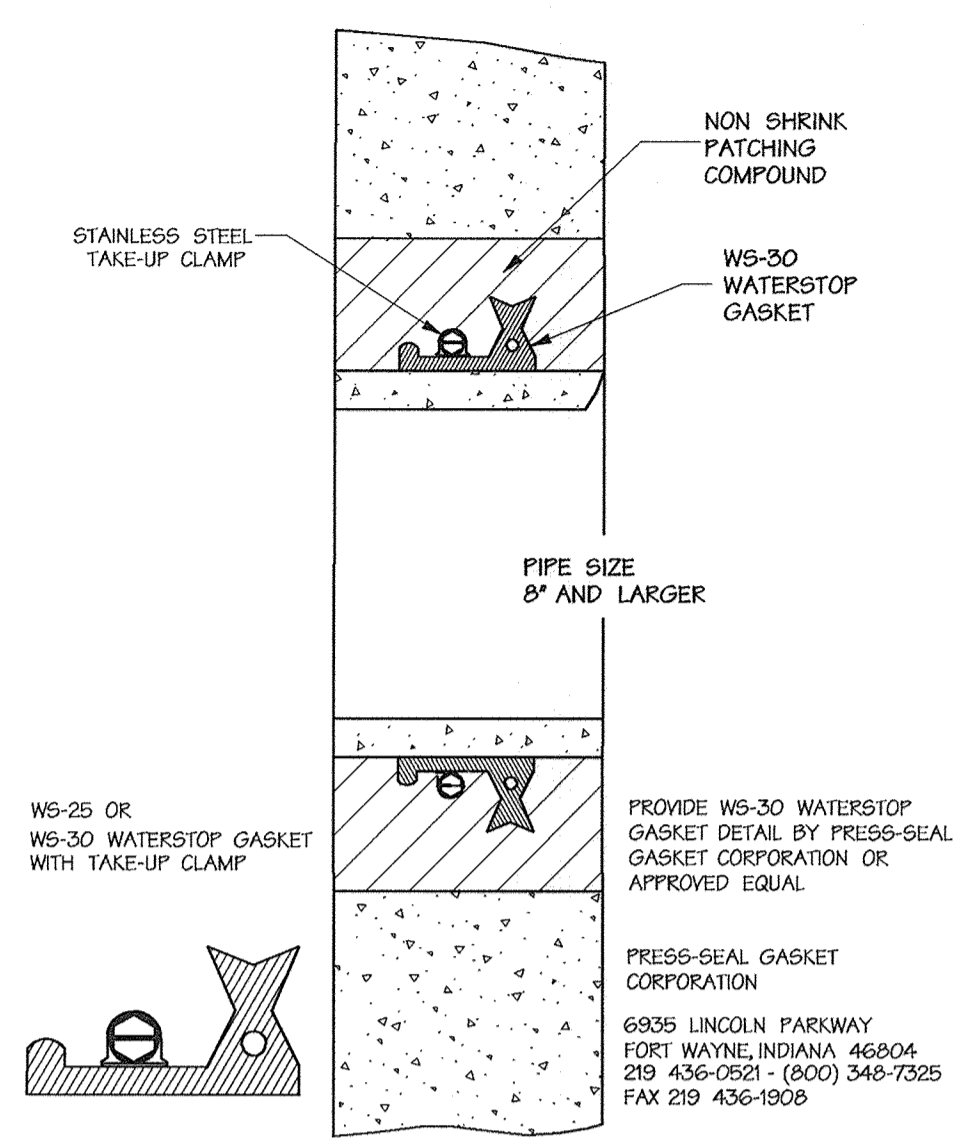
ENGINEERS CERTIFICATE:

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTICED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

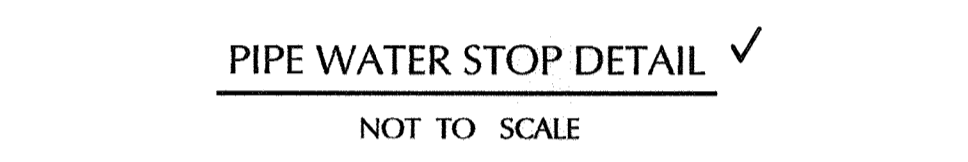
Aaron Briggs
SIGNATURE OF ENGINEER AARON BRIGGS DATE 11-20-07
PRINT NAME: AARON BRIGGS 28770



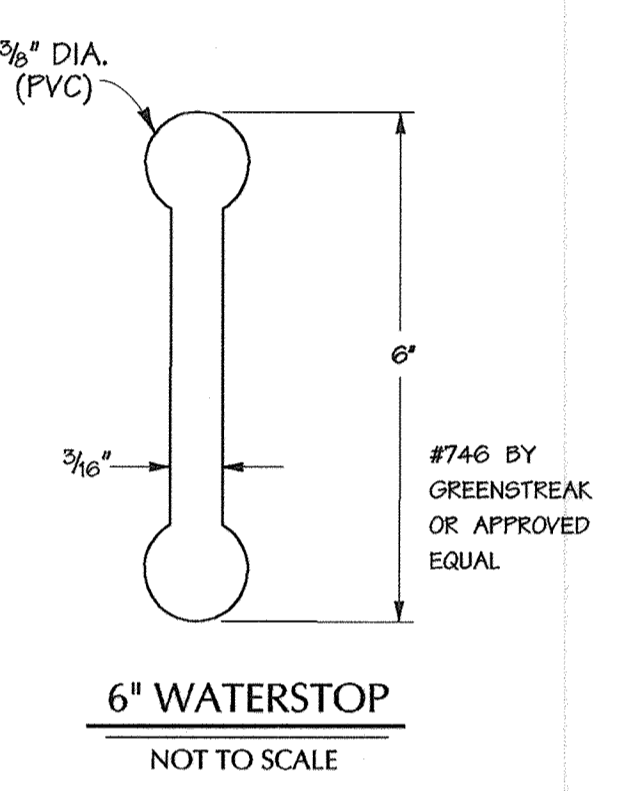
RISER PLAN (TOP SLAB REMOVED) - SWM POND 2A
Scale: 1/2" = 1'-0"



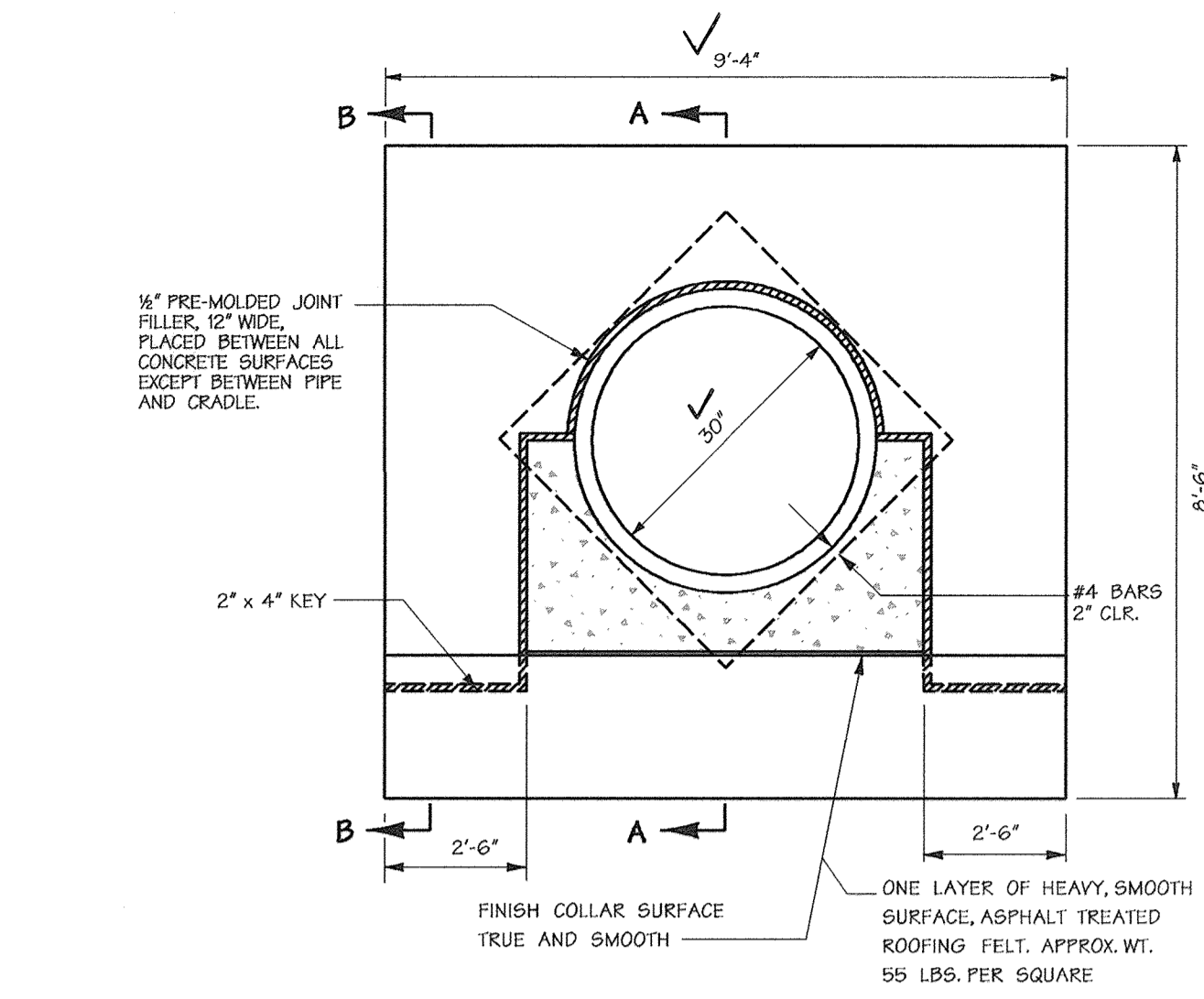
CONCRETE CRADLE DETAIL
NTS



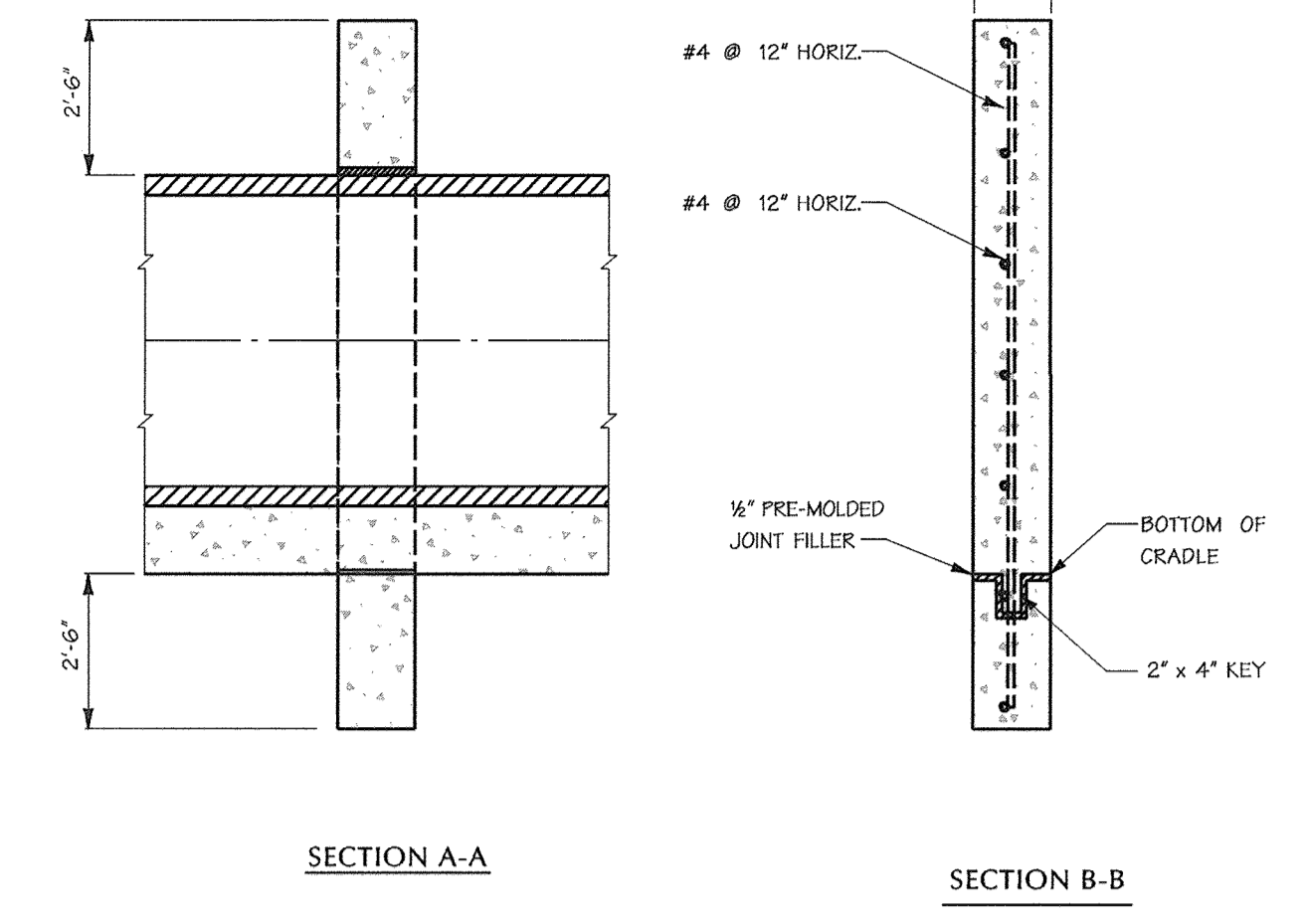
PIPE WATER STOP DETAIL
NOT TO SCALE



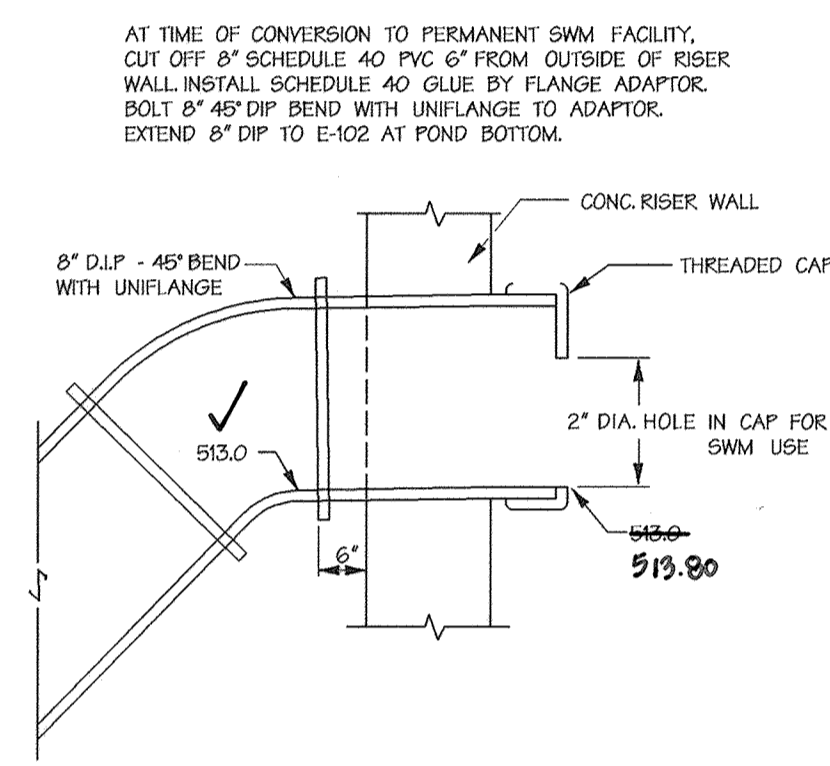
6" WATERSTOP
NOT TO SCALE



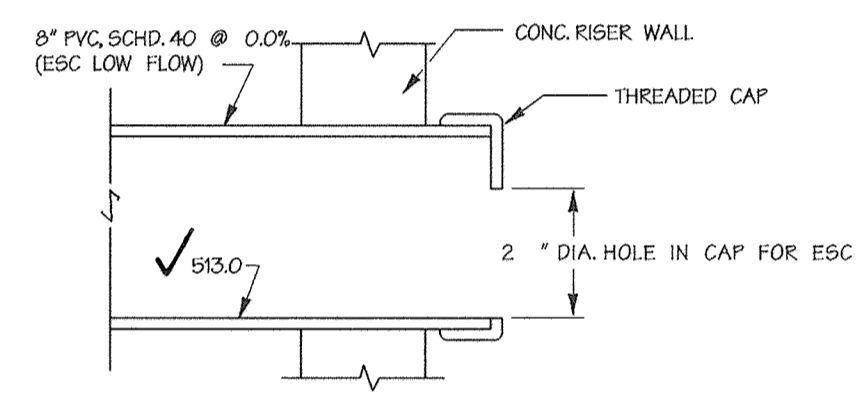
ANTI-SEEP COLLAR DETAIL - POND 2A (2EA)
CAST IN PLACE - NOT TO SCALE



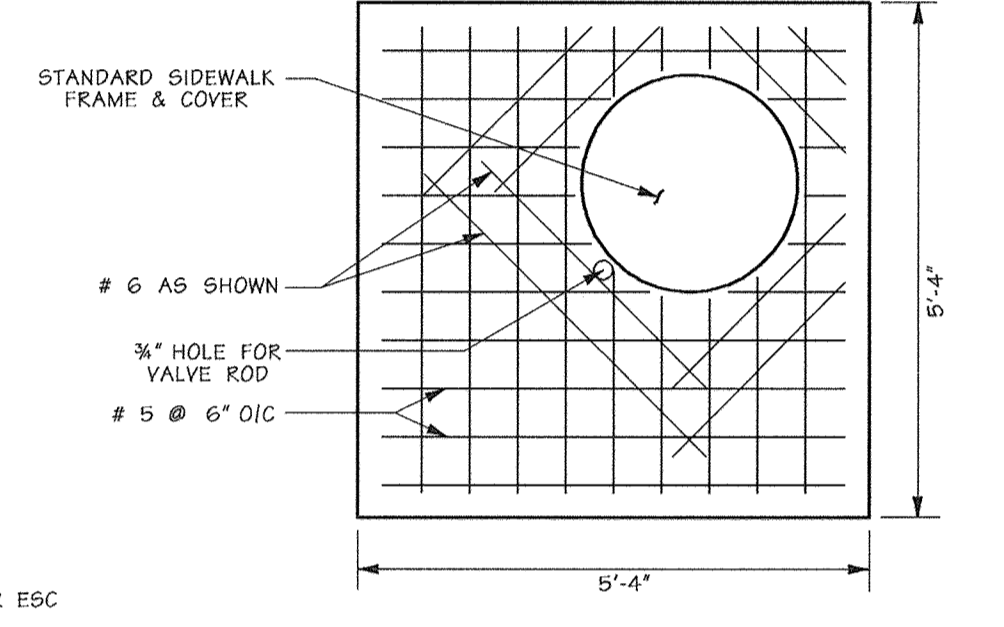
SECTION A-A
SECTION B-B



SWM LOW FLOW CONTROL PLATE DETAIL
NOT TO SCALE

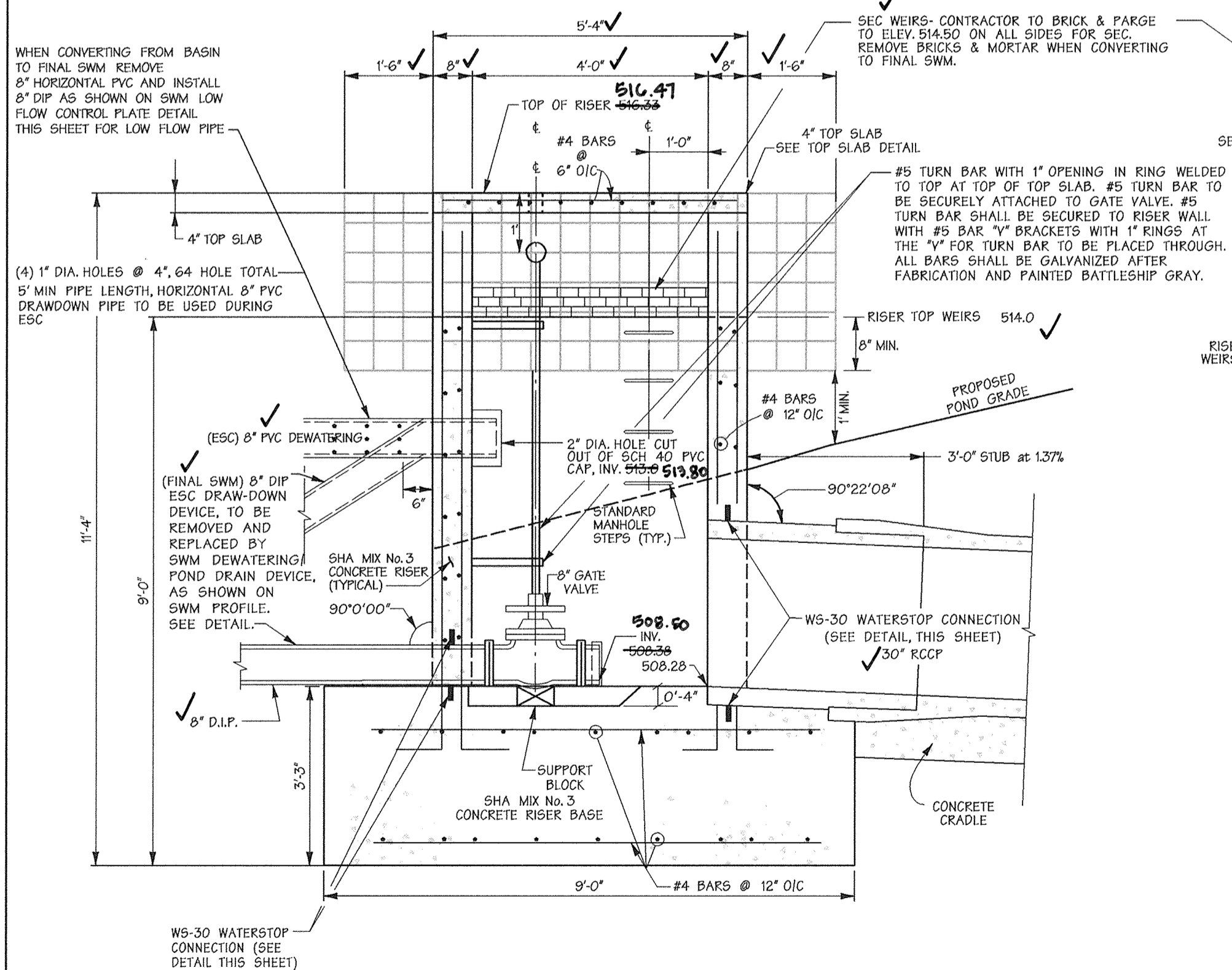


ESC CONTROL PLATE DETAIL
NOT TO SCALE

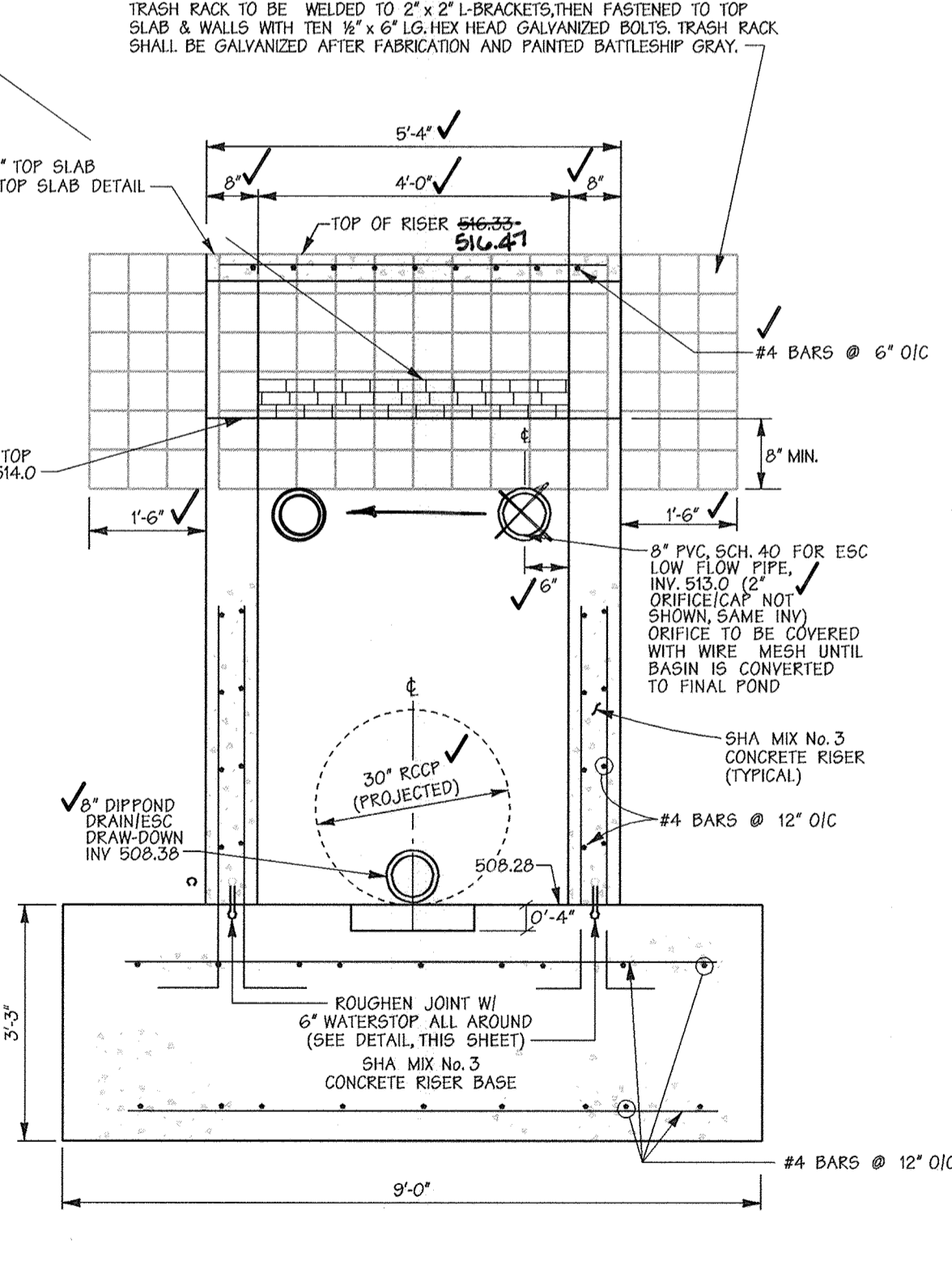


TOP SLAB
Scale: 1/2" = 1'-0"
CAST IN PLACE

- NOTES:
- BOLT TOP SLAB TO RISER WITH (4) 3/8" x 6" LG. HEX HEAD GALVANIZED BOLTS.
 - THE SIDE OF THE SLAB CLOSEST TO THE FRAME AND COVER WILL LINE UP WITH THE SIDE OF THE RISER WITH STANDARD MANHOLE STEPS.

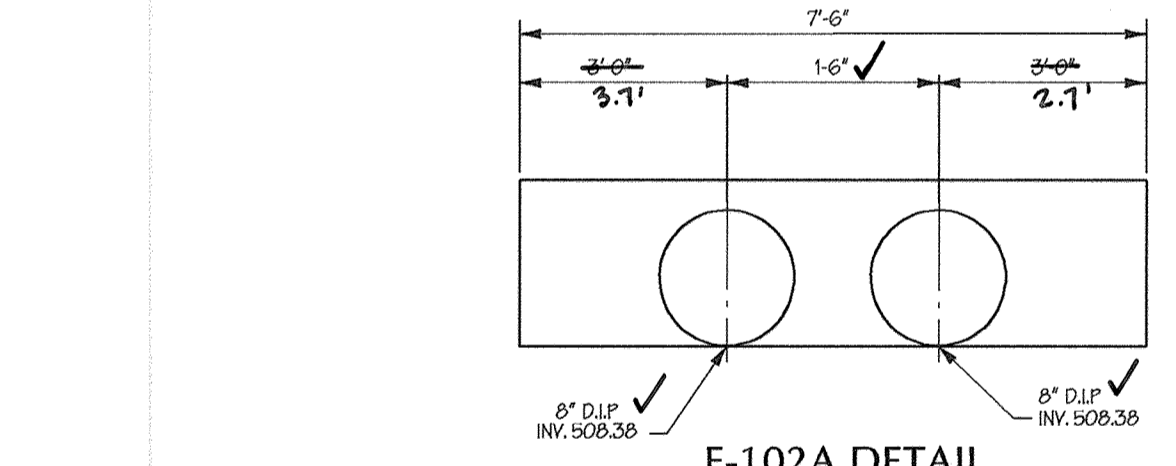


SECTION A

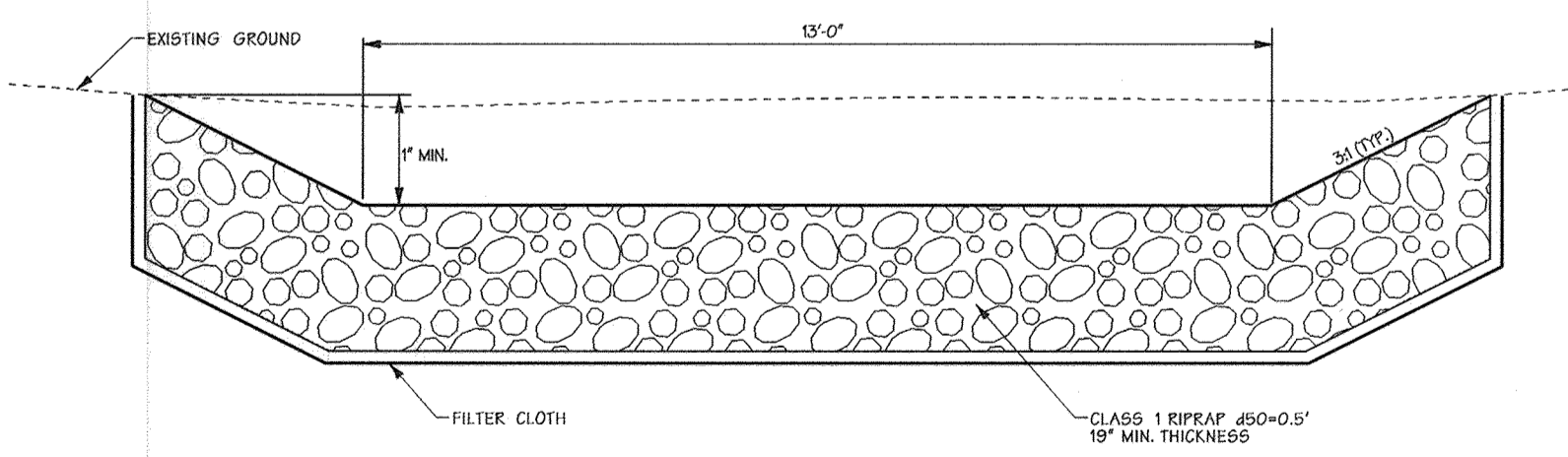


SECTION B

S-2A
RISER DETAIL FOR SWM POND 2A
Scale: 1/2" = 1'-0"
CAST IN PLACE



E-102A DETAIL
N.T.S.
SEE STD. Ho. Co. ENDWALL SD-5.21 FOR REINFORCING & DIMENSIONS USE 12" DIA. PIPE FROM CHART



OUTLET CHANNEL DETAIL
10' X 13' OUTLET FROM SWM FACILITY #2A
NTS
* FOR DETAIL SEE SHEET 54

ENGINEERS CERTIFICATE:

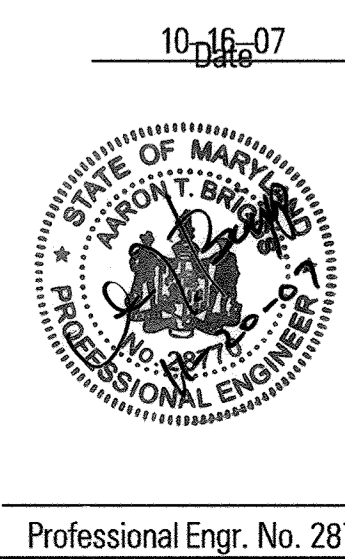
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Signature: *[Signature]*
PRINT NAME: **ARON BRIGGS**
REG. NO. **28770**
DATE: **11-20-07**

DEVELOPERS CERTIFICATE:

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Signature: *[Signature]*
PRINT NAME: **CYNTHIA M. HARRIS**
DATE: **11/17/07**



Professional Engr. No. 28770

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
[Signature] 12-7-07
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
[Signature] 12/11/07
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 12/11/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date	No.	Revision Description

BELLE HAVEN ESTATES
LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O,
NON-BUILDABLE BULK PARCEL P
TAX MAP 14, GRID 20, PARCEL 86, ZONE RC-DEO
ELECTION DISTRICT NO. 3 HOWARD COUNTY, MARYLAND

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Professional Engineers & Surveyors
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

TITLE
STORMWATER MANAGEMENT DETAILS
SWM FACILITY #2A

Des. By	CVS	Scale	AS SHOWN	Proj. No.	010677
Drn. By	GMO	Date	10/16/07		
Chk. By	ATB	Approved	ATB		25 of 74

**STORMWATER MANAGEMENT FACILITY
OPERATION AND MAINTENANCE SCHEDULE**

ROUTINE MAINTENANCE: (HOME OWNERS ASSOCIATION)

1. FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF FACILITY IS FUNCTIONING PROPERLY.
2. TOP AND SIDE SLOPES OF EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES PER YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHALL BE MOWED AS NEEDED. VEGETATION SHALL NOT EXCEED 18" NOR SHALL IT BE LESS THAN 4" IN HEIGHT.
3. DEBRIS & LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
4. VISIBLE SIGNS OF EROSION IN THE FACILITY SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

NON-ROUTINE MAINTENANCE: (HOWARD COUNTY)

1. STRUCTURAL COMPONENTS OF THE FACILITY SUCH AS THE DAM, THE RISER AND THE PIPES SHALL BE REPAIRED UPON THE DETECTION OF ANY DAMAGE. THE COMPONENTS SHALL BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
2. SEDIMENT SHALL BE REMOVED FROM FACILITY AND FOREBAY NO LATER THAN WHEN CAPACITY OF THE POND OR FOREBAY IS HALF FULL OF SEDIMENT OR WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, UPON APPROVAL FROM THE DEPARTMENT OF PUBLIC WORKS.
3. VISIBLE SIGNS OF EROSION IN THE RIP-RAP OR GABION OUTLET AREA SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

POND 2B DESIGN FLOW SUMMARY PROPOSED CONDITIONS	
STRUCTURE TYPE	EXTENDED DETENTION (P-3)
WATER QUALITY TYPE	WET POOL
STRUCTURE CLASSIFICATION	1"
WATERSHED AREA TO FACILITY (SQM)	0.0296 SQ. MI.
LEVEL OF MANAGEMENT REQUIRED	
LEVEL OF MANAGEMENT PROVIDED	1-YR.
TOP WIDTH PROVIDED	12'
MAXIMUM HEIGHT OF FILL	2.0'
FREEBOARD REQUIRED	2.0'
FREEBOARD PROVIDED	2.32'
WATER QUALITY VOL. WQV REQUIRED (Ac-ft)	
WATER QUALITY VOL. WQV PROVIDED (Ac-ft)	0.24
RECHARGE REQUIRED (% AREA METHOD, Rev) (Ac)	N/A
RECHARGE PROVIDED (Ac)	N/A
CHANNEL PROTECTION VOL. CVR REQUIRED (Ac-ft)	
CHANNEL PROTECTION VOL. CVR PROVIDED (Ac-ft)	0.24
EXISTING 1-YR. STORM Q AT DESIGN POINT (cfs)	0.37
PROPOSED 1-YR. STORM Q AT DESIGN POINT (cfs)	2.79
EXISTING 10-YR. STORM Q AT DESIGN POINT (cfs)	0.78
PROPOSED 10-YR. STORM Q AT DESIGN POINT (cfs)	63.59
EXISTING 100-YR. STORM Q AT DESIGN POINT (cfs)	13.55
PROPOSED 100-YR. STORM Q AT DESIGN POINT (cfs)	134.28
WQV WATER SURFACE ELEV. - NORMAL POOL	498.00
CVR WATER SURFACE ELEV.	499.26
10-YR. WATER SURFACE ELEV.	500.07
100-YR. WATER SURFACE ELEV.	500.65
WATER CREST ELEV.	499.50
100-YR. CLOGGED WATER SURFACE ELEV.	500.68
POND VOLUME BELOW 100-YR. CLOGGED WSE (Ac-ft)	0.61
FOREBAY VOLUME REQUIRED (Ac-ft)	0.021
FOREBAY VOLUME PROVIDED (Ac-ft)	0.056

* WQV IS PROVIDED IN THE WET-POD PORTION OF THE FACILITY.
CVR IS PROVIDED IN THE FACILITY (AS MANAGEMENT OF THE 1-YEAR STORM) ABOVE THE WQV STORAGE VOLUME. THE 10-YEAR AND 100-YR STORMS ARE PASSED THROUGH THE FACILITY.
** RECHARGE REQUIRED/PROVIDED IS BASED ON ENTIRE SITE (PHASE I AND PHASE II) AND IS TREATED COMPLETELY BY SWM NON-STRUCTURAL CREDITS.
*** ABOVE WET POOL ELEVATION

LEGEND

- STREAM CENTERLINE
- 75' STREAM BUFFER
- WETLAND
- 25' WETLAND BUFFER
- 100' YR. WSE + 1' FREEBOARD (I.E. FLOODPLAIN EASEMENT)
- EX. TREE LINE
- EX. MINOR CONTOUR
- EX. MAJOR CONTOUR
- EX. STRUCTURE
- PROP. TREE LINE (IF SHOWN)
- PROPERTY BOUNDARY
- RIGHT OF WAY LINE
- ROADWAY CENTERLINE
- 400' PROPOSED MAJOR CONTOUR
- 398' PROPOSED MINOR CONTOUR
- (4) PROP. LOT NUMBER
- ADJACENT LOT LINE
- PROP. LOT LINE
- PROPOSED PUBLIC DRAINAGE AND UTILITY EASEMENT
- FOREST CONSERVATION EASEMENT
- SWM NATURAL CONSERVATION EASEMENT
- NON-WOODY VEGETATION LIMIT
- B-102 BORING LOCATION AND NUMBER
- CLASS RIP-RAP
- GABION MATTRESS

- NOTES**
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 3. FOR BORING LOGS SEE SHEETS 10, 18 AND 19.

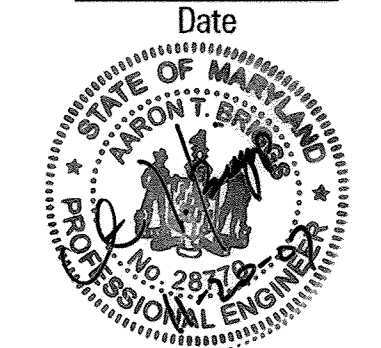
APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
Willa J. Mahall 12-7-07
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Andy Hunt 12/11/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Chris Dummer 12/11/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

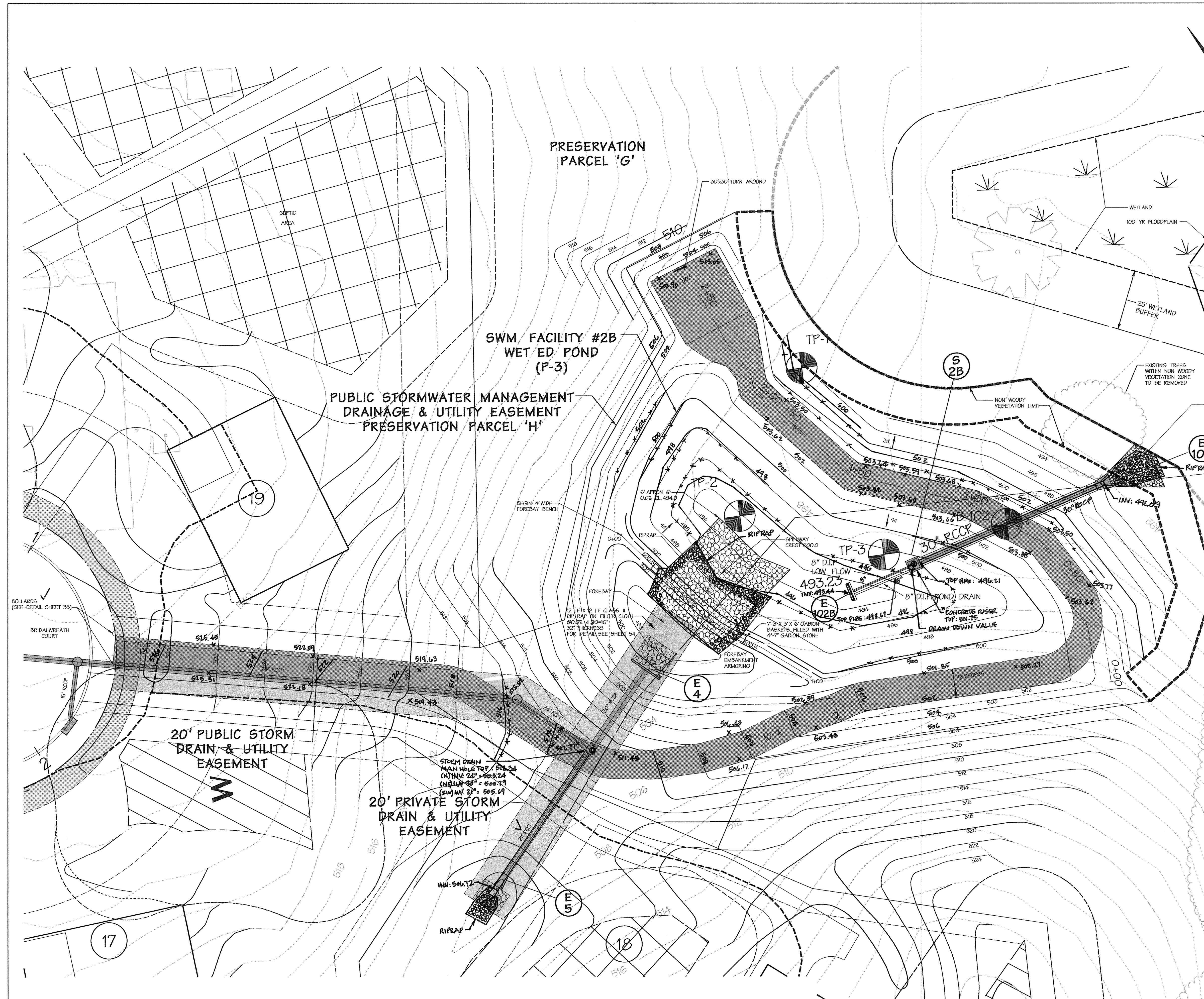
Date No. Revision Description

BELLE HAVEN ESTATES
 LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O,
 NON-BUILDABLE BULK PARCEL P
 TAX MAP 14, GRID 20, PARCEL 88, ZONE RC-DEO
 ELECTION DISTRICT NO. 3 HOWARD COUNTY, MARYLAND
OWNER/DEVELOPER
 Union Chapel Road, LLC
 9025 Chevrolet Drive
 Suite K
 Ellicott City, MD 21042
 Phone: (410) 461-5900

10-16-07
 Date

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TITLE			
STORMWATER MANAGEMENT PLAN			
SWM FACILITY #2B			
Des. By	KAD	Scale	1" = 20'
Proj. No.	01067F	Date	10/16/07
Drn. By	MDT	Approved	ATB
Chk. By	ATB	Approved	ATB
		26 of 74	



DEVELOPERS CERTIFICATE:
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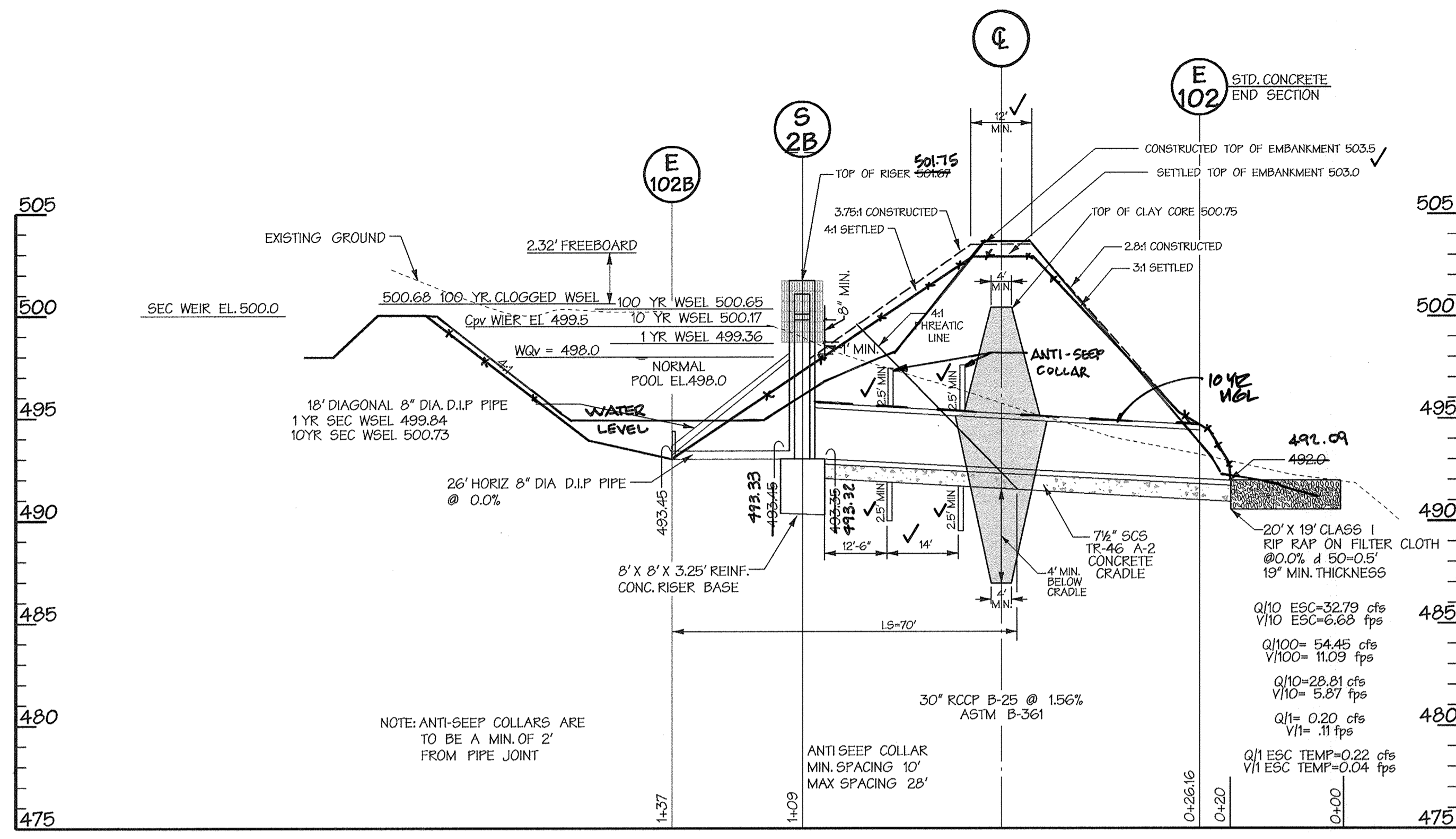
Cynthia M. McLaughlin 11/19/07
 SIGNATURE OF DEVELOPER DATE
 PRINT NAME BELOW SIGNATURE CYNTHIA M. McLAUGHLIN

ENGINEERS CERTIFICATE:
 I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

Paul G. Cavanaugh 11-20-07
 SIGNATURE OF ENGINEER DATE
 PRINT NAME BELOW SIGNATURE PAUL G. CAVANAUGH

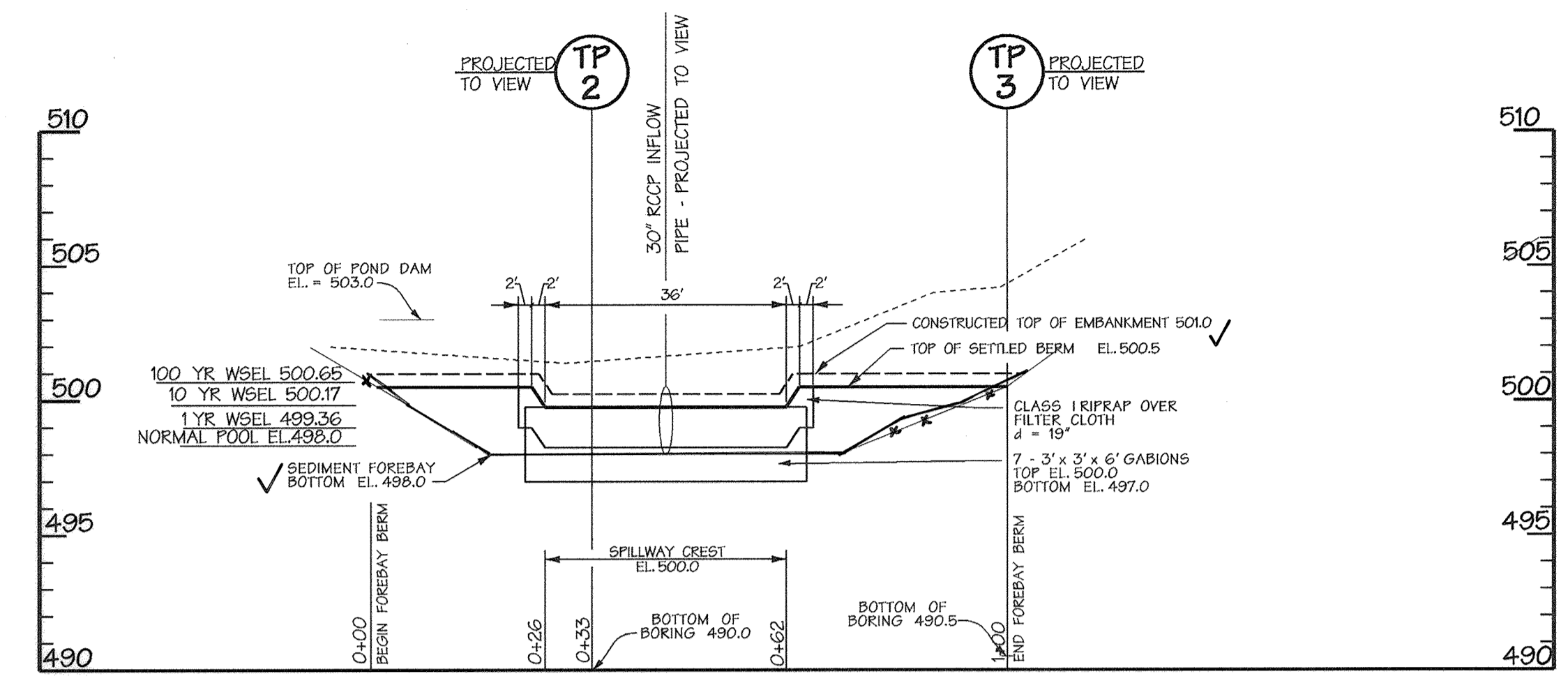
PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THE FACILITY SHOWN THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

SIGNED: PAUL G. CAVANAUGH DATE: 11-20-07
 LICENSE NO: 27020 EXPIRATION DATE: 1/29/2010



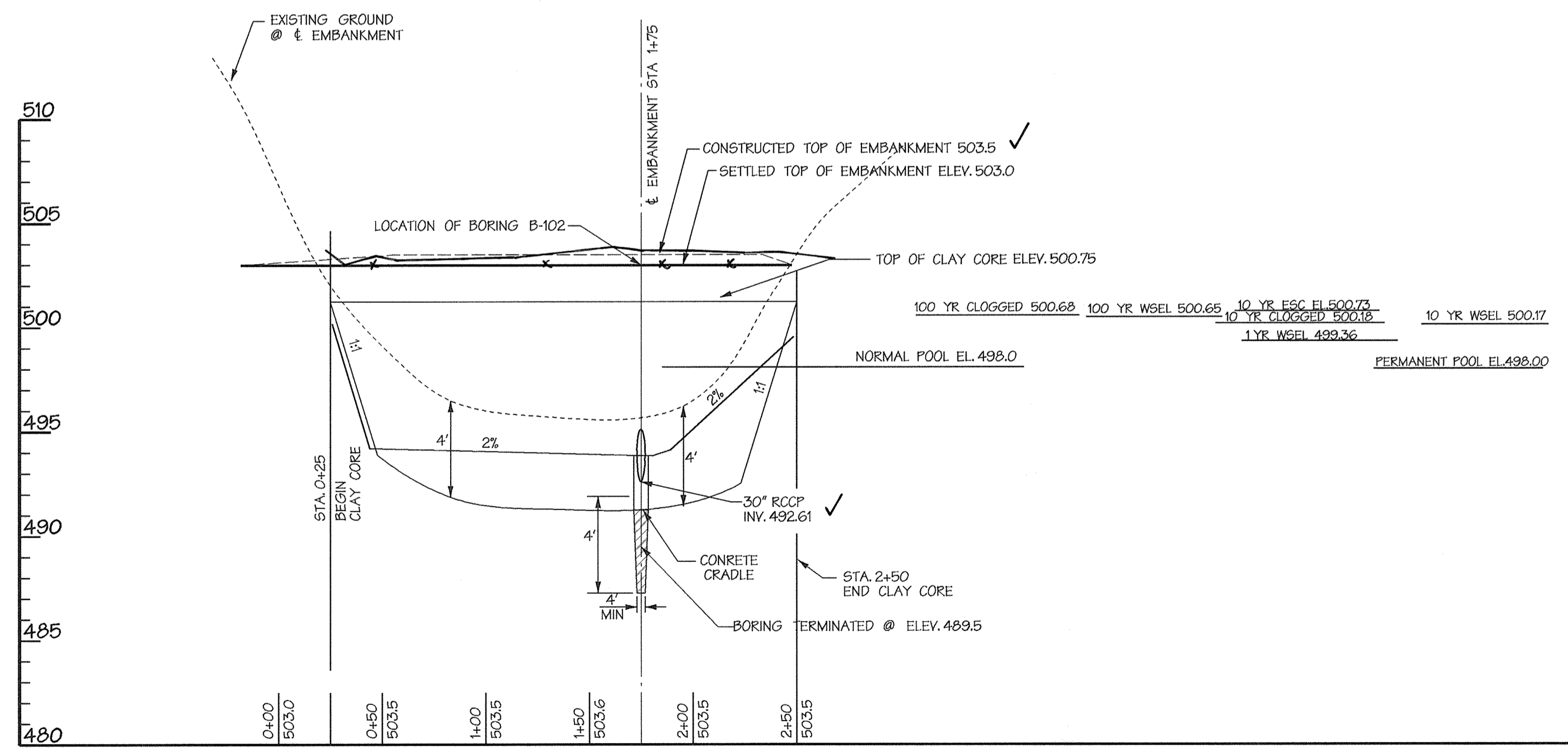
PROFILE THROUGH RISER AND PRINCIPLE SPILLWAY FACILITY #2B

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



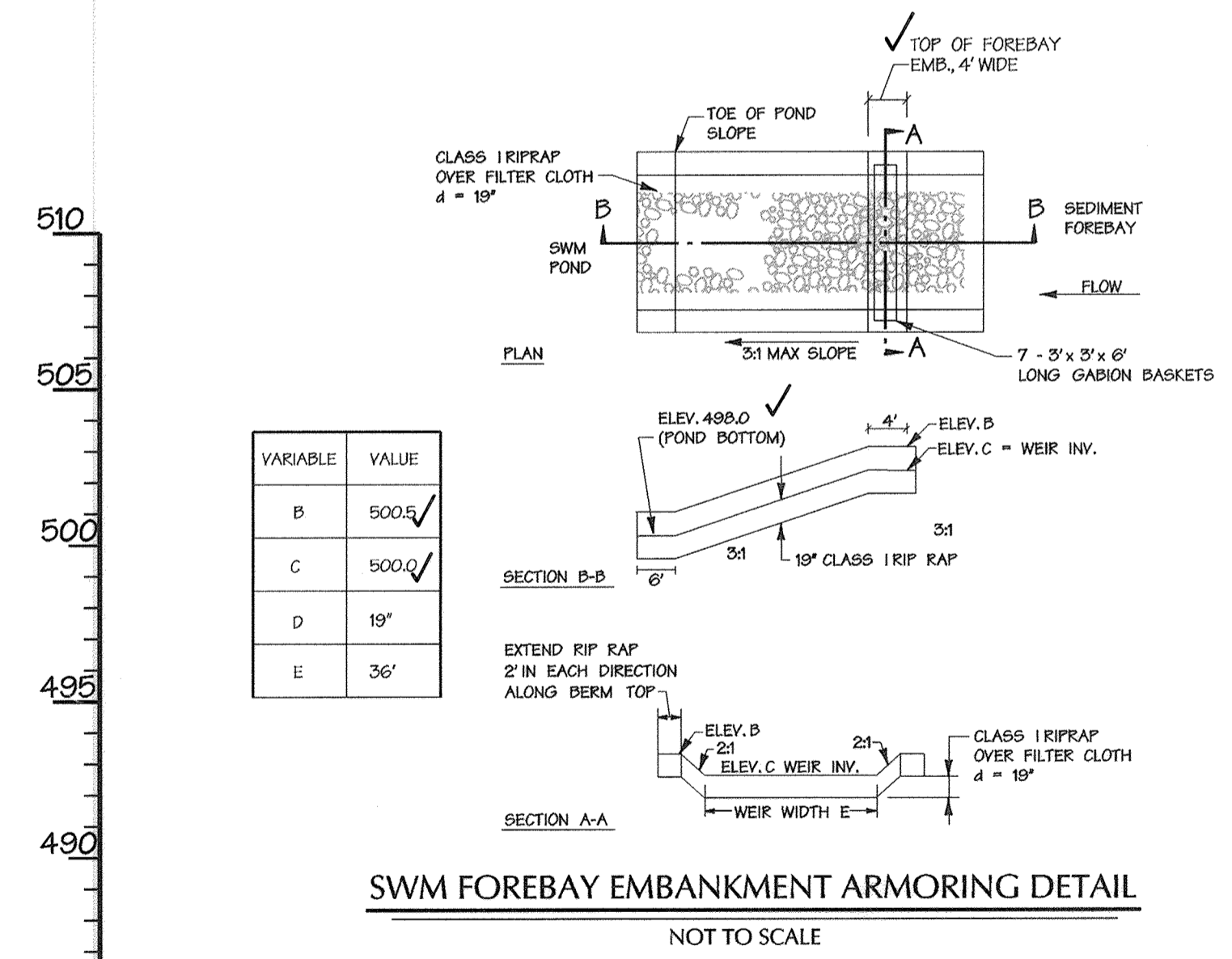
CROSS SECTION OF FOREBAY DAM ALONG CENTERLINE - SWM FACILITY #2B

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



PROFILE ALONG CENTERLINE OF EMBANKMENT FACILITY #2B

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



SWM FOREBAY EMBANKMENT ARMORING DETAIL

NOT TO SCALE

VARIABLE	VALUE
B	500.4
C	500.0
D	19"
E	36"

- NOTES
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W. R. ... 12-7-07
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
... 12/1/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

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... 12/1/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

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A Team of Land Planners,
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TITLE
STORMWATER MANAGEMENT PROFILES
 SWM FACILITY #2B

Des. By	KAD	Scale	AS SHOWN	Proj. No.	01067F
Dwn. By	GMO	Date	10/16/07		
Chk. By	ATB	Approved	CVM		27 of 74

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Cynthia M. McAniff 11/19/07
 SIGNATURE OF DEVELOPER DATE
 PRINT NAME BELOW SIGNATURE

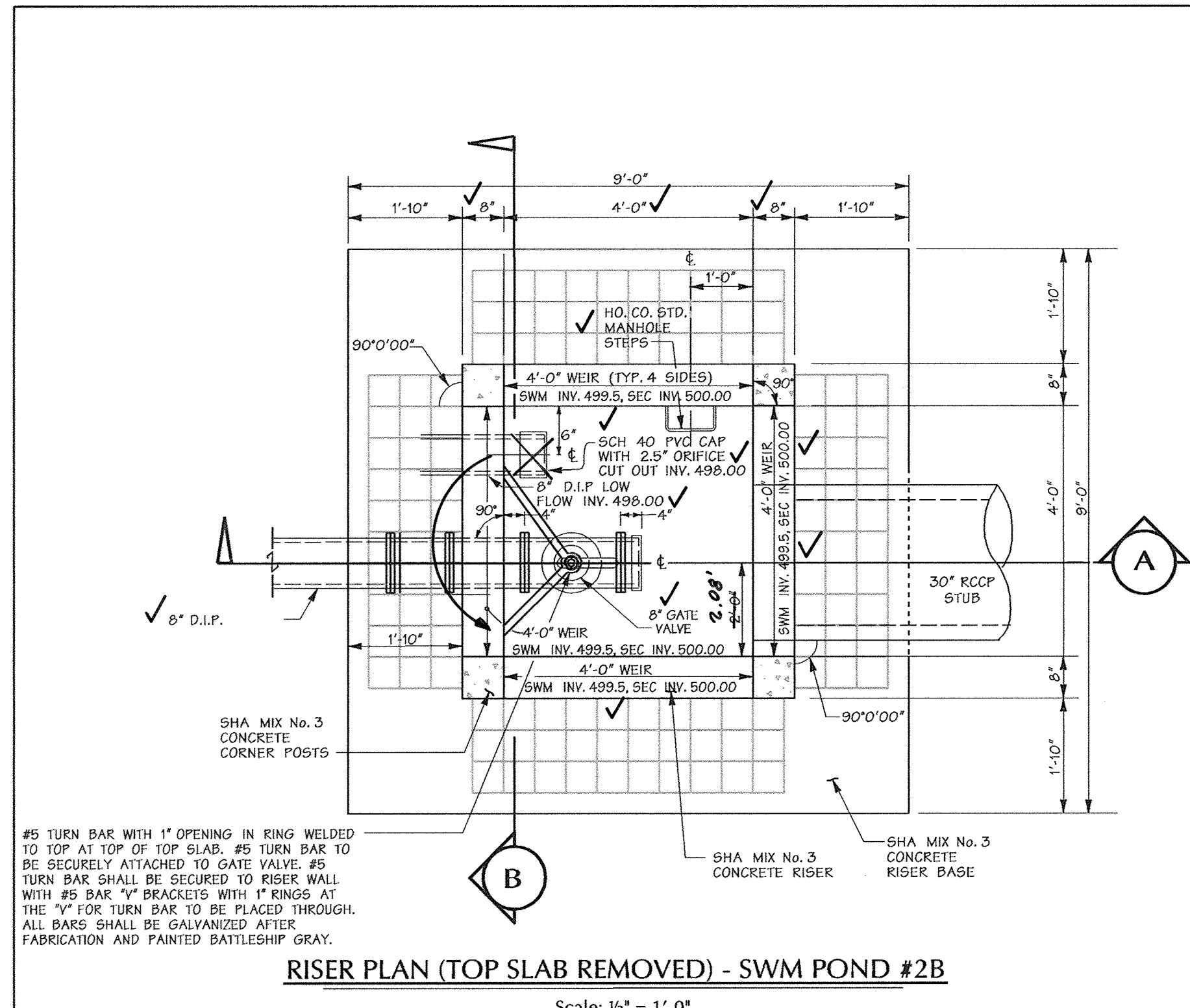
ENGINEERS CERTIFICATE:
 I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

... 11-20-07
 SIGNATURE OF REGISTERED PROFESSIONAL ENGINEER DATE
 PRINT NAME BELOW SIGNATURE

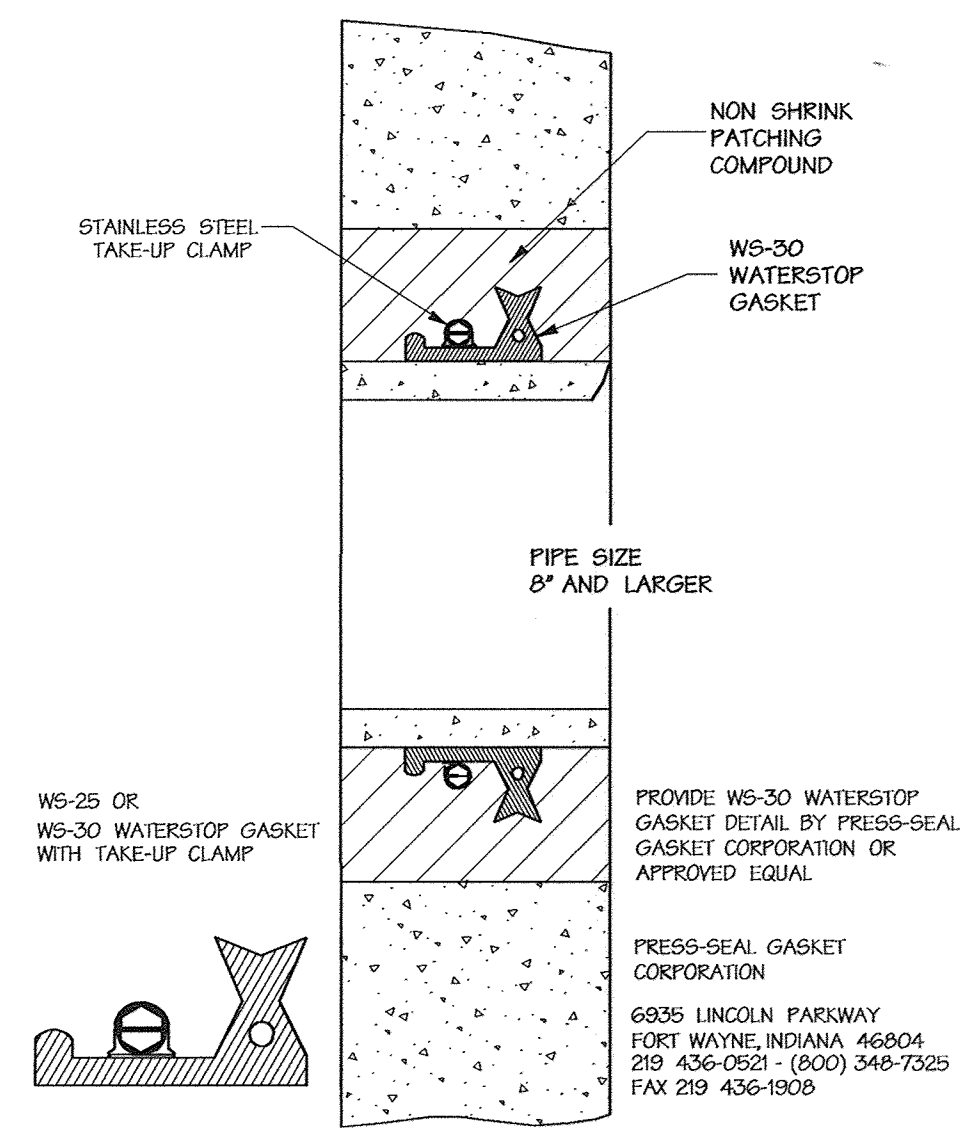
10-16-07
 Date

STATE OF MARYLAND
 PROFESSIONAL ENGINEER

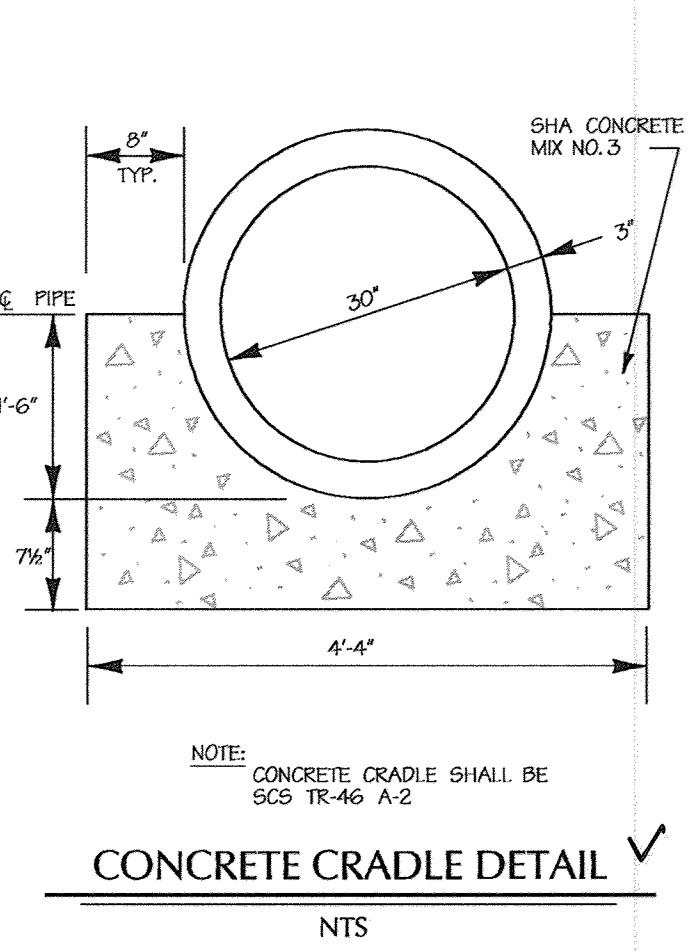
Professional Engr. No. 28770



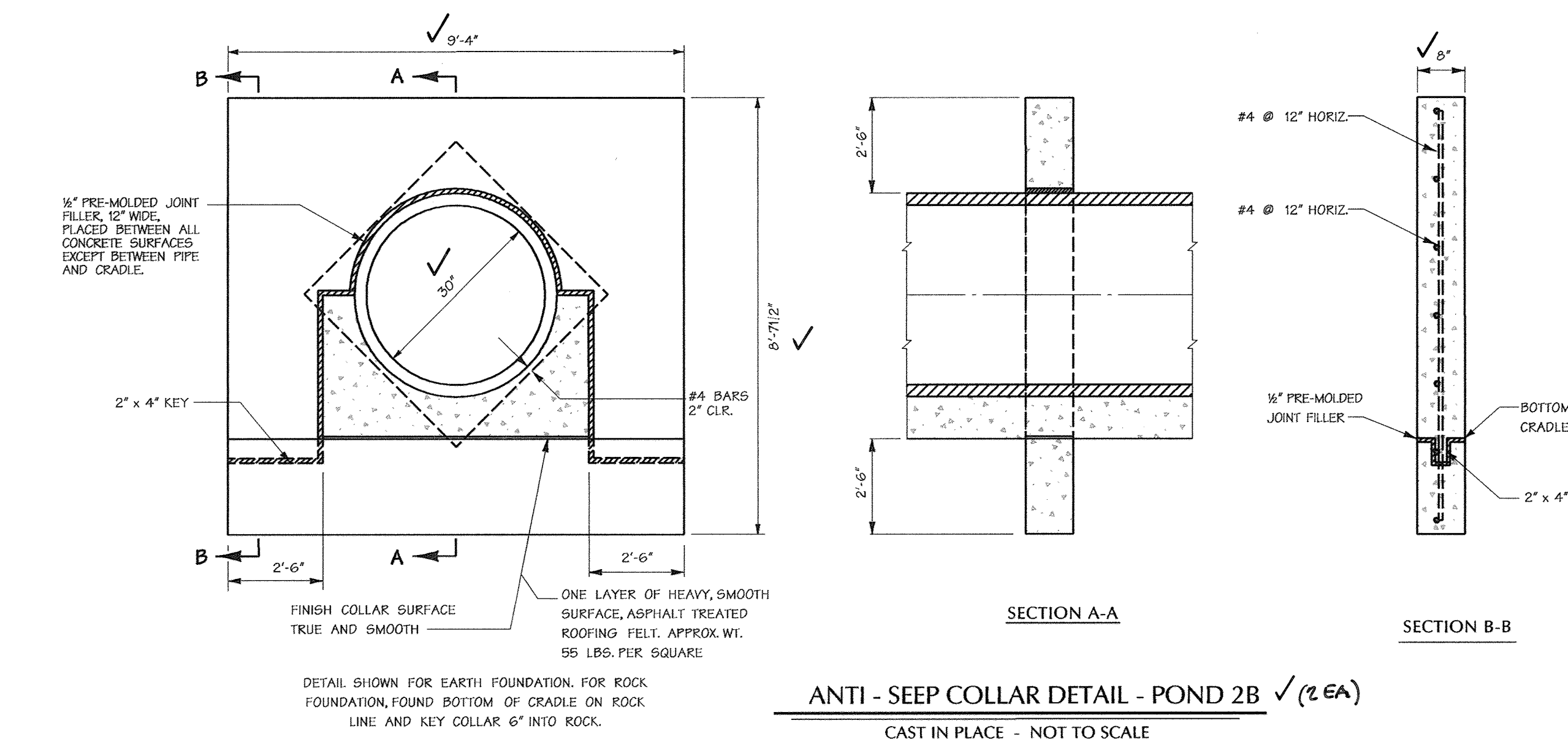
RISER PLAN (TOP SLAB REMOVED) - SWM POND #2B
Scale: 1/2" = 1'-0"



PIPE WATER STOP DETAIL
NOT TO SCALE



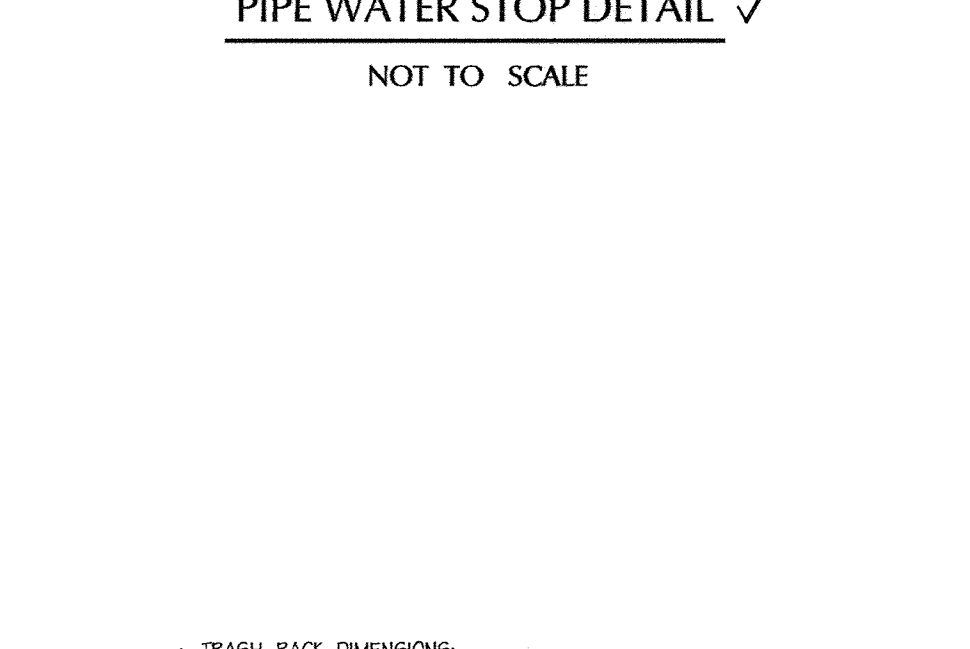
CONCRETE CRADLE DETAIL
NTS



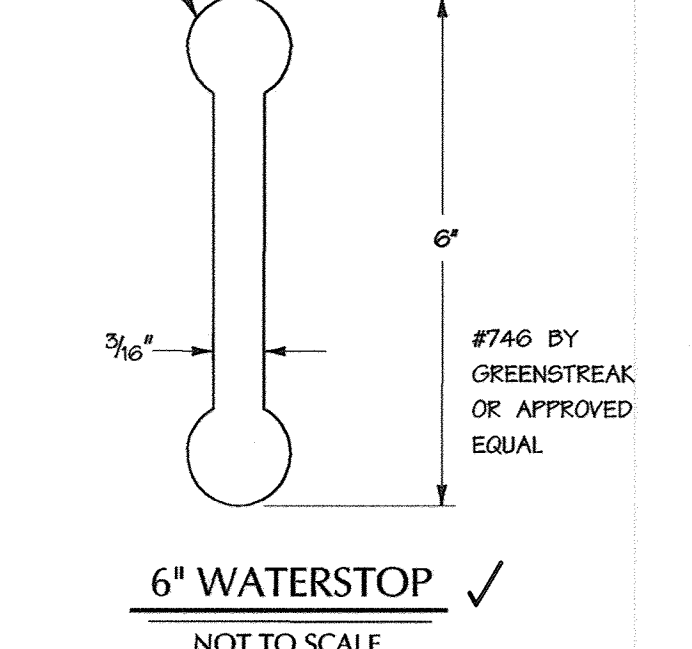
ANTI-SEEP COLLAR DETAIL - POND 2B
CAST IN PLACE - NOT TO SCALE



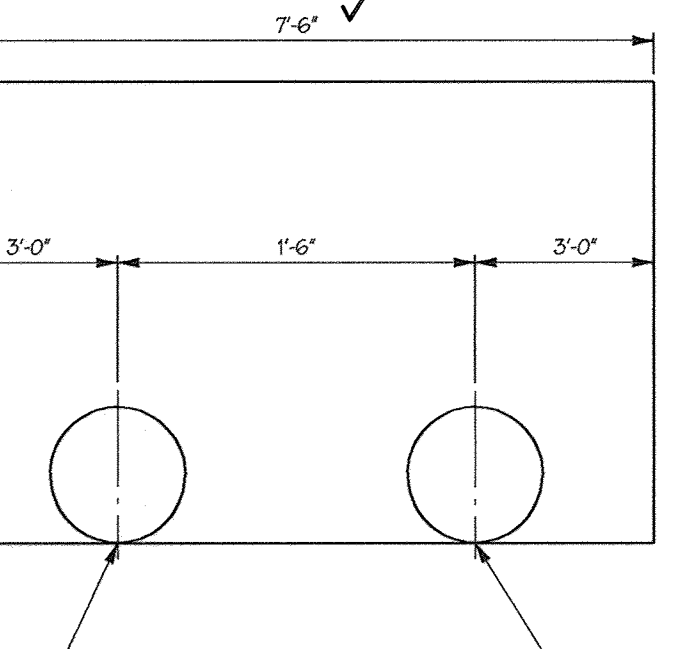
SECTION A
RISER DETAIL FOR SWM POND #2B
Scale: 1/2" = 1'-0"
CAST IN PLACE



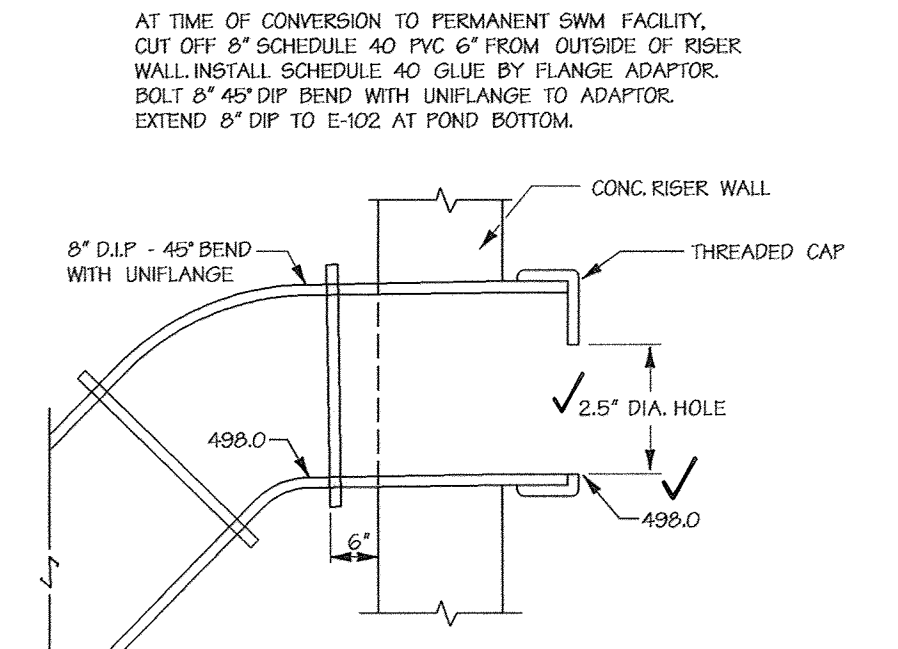
SECTION B
RISER DETAIL FOR SWM POND #2B
Scale: 1/2" = 1'-0"
CAST IN PLACE



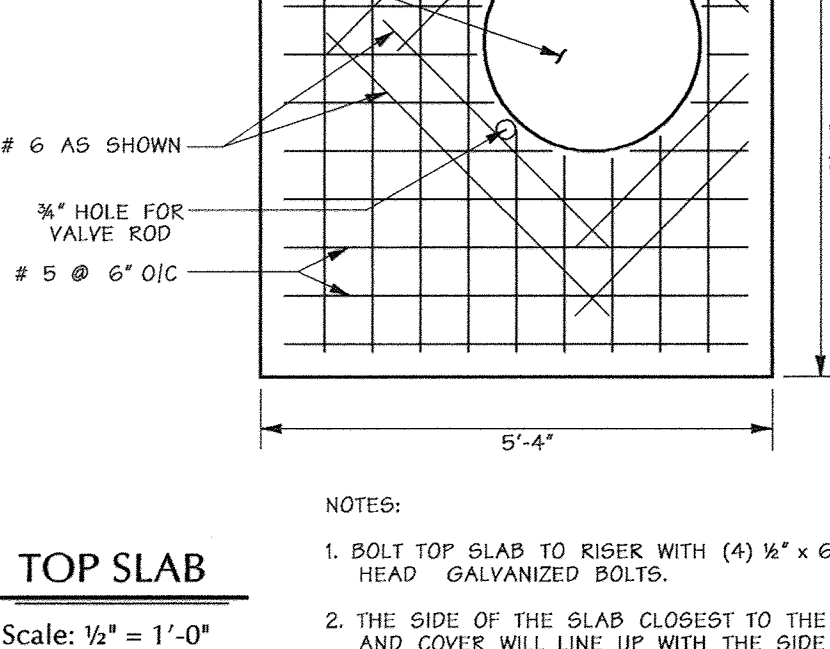
6" WATERSTOP
NOT TO SCALE



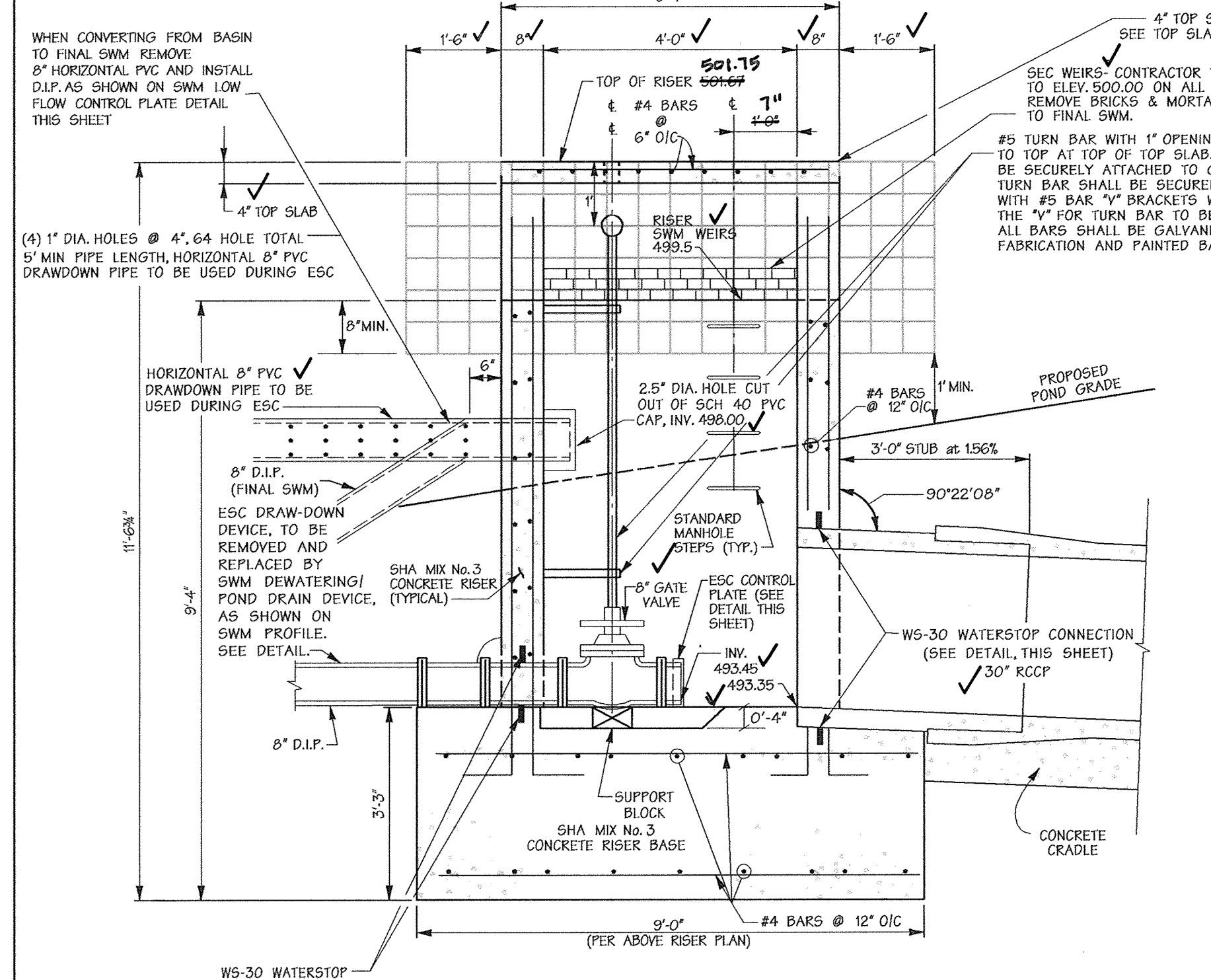
E-102-B DETAIL
N.T.S.



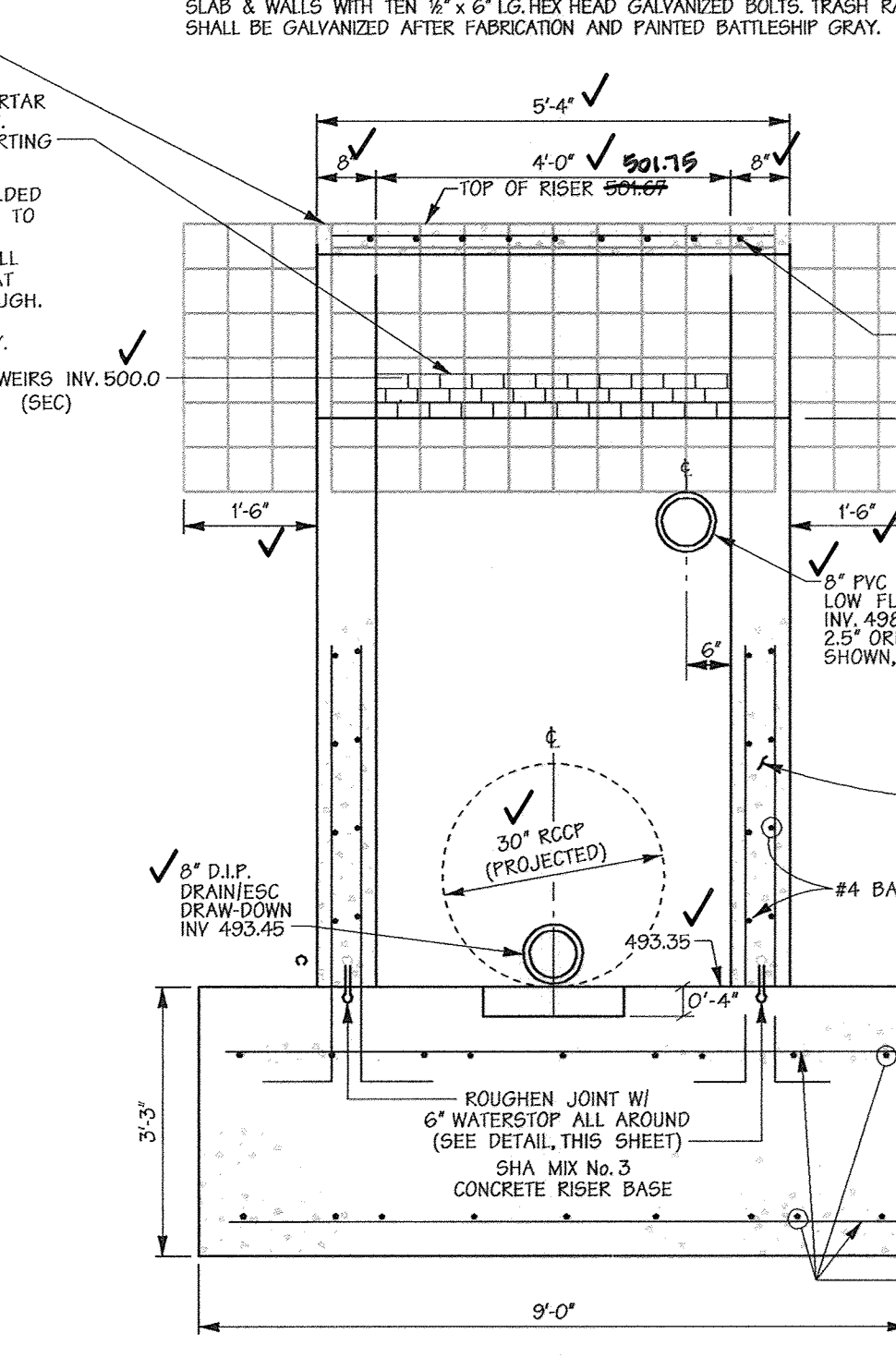
SWM LOW FLOW CONTROL PLATE DETAIL
NOT TO SCALE



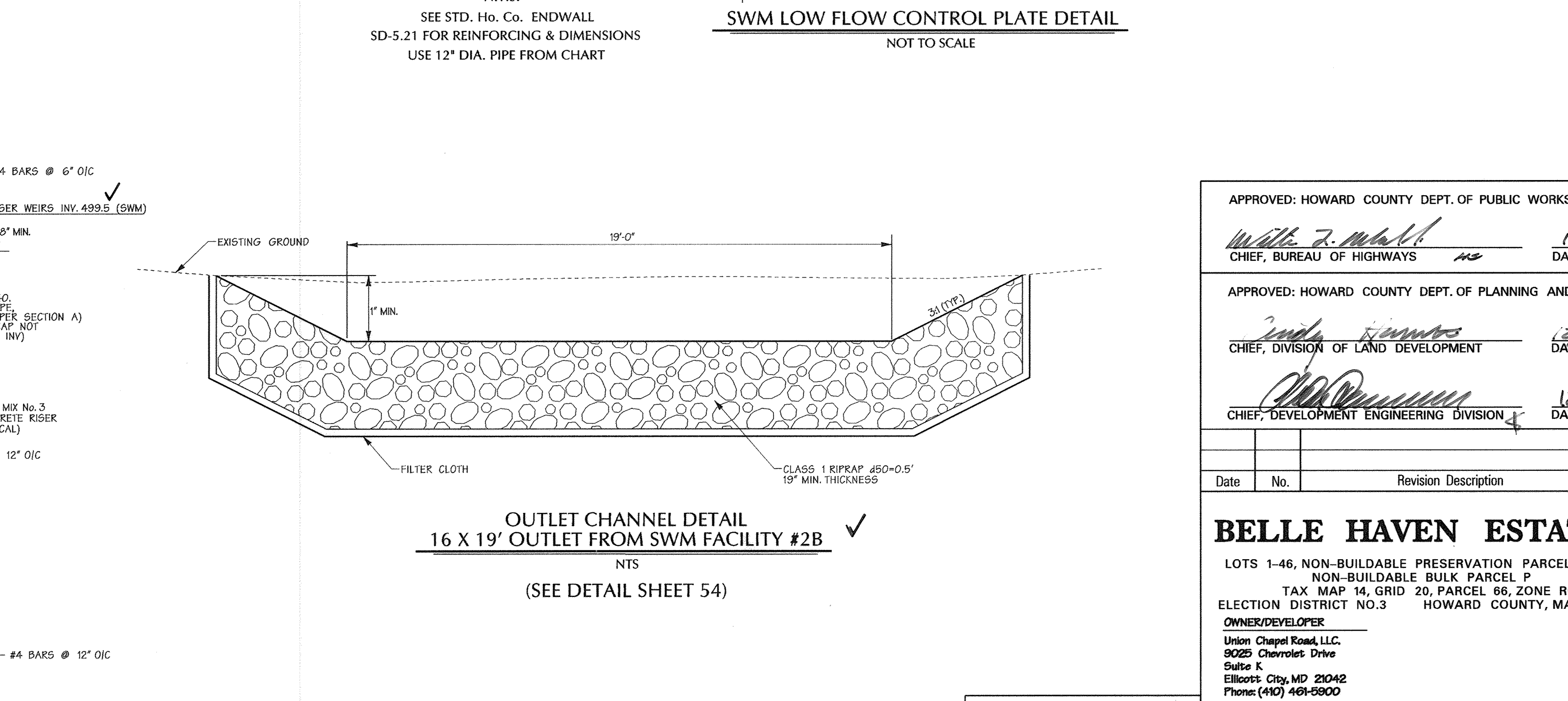
TOP SLAB
Scale: 1/2" = 1'-0"
CAST IN PLACE



SECTION A
RISER DETAIL FOR SWM POND #2B
Scale: 1/2" = 1'-0"
CAST IN PLACE



SECTION B
RISER DETAIL FOR SWM POND #2B
Scale: 1/2" = 1'-0"
CAST IN PLACE



OUTLET CHANNEL DETAIL 16 X 19' OUTLET FROM SWM FACILITY #2B
NTS
(SEE DETAIL SHEET 54)

ENGINEERS CERTIFICATE:
I/WE CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I/HAVE NOTICED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

Signature: *Arnell R. Riggs*
PRINT NAME: ARNELL RIGGS
REG. NO. 28770
DATE 11-20-07

DEVELOPERS CERTIFICATE:
I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I/SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Signature: *Cynthia H. McCalliffe*
PRINT NAME: CYNTHIA H. MCCALLIFFE
DATE 11/17/07

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
Walter J. Wall
CHIEF, BUREAU OF HIGHWAYS
DATE 12-7-07

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Andy Summers
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE 12/1/07

John P. ...
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE 12/1/07

Date No. Revision Description

BELLE HAVEN ESTATES
LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O,
NON-BUILDABLE BULK PARCEL 1
TAX MAP 14, GRID 20, PARCEL 86, ZONE RC-DEO
ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND
OWNER/DEVELOPER
Union Chapel Road, LLC
9025 Chevrolet Drive
Suite K
Ellicott City, MD 21042
Phone: (410) 461-5900

DMW
Duff-McCune-Walker, Inc.
200 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 296-3333
Fax: 296-4705

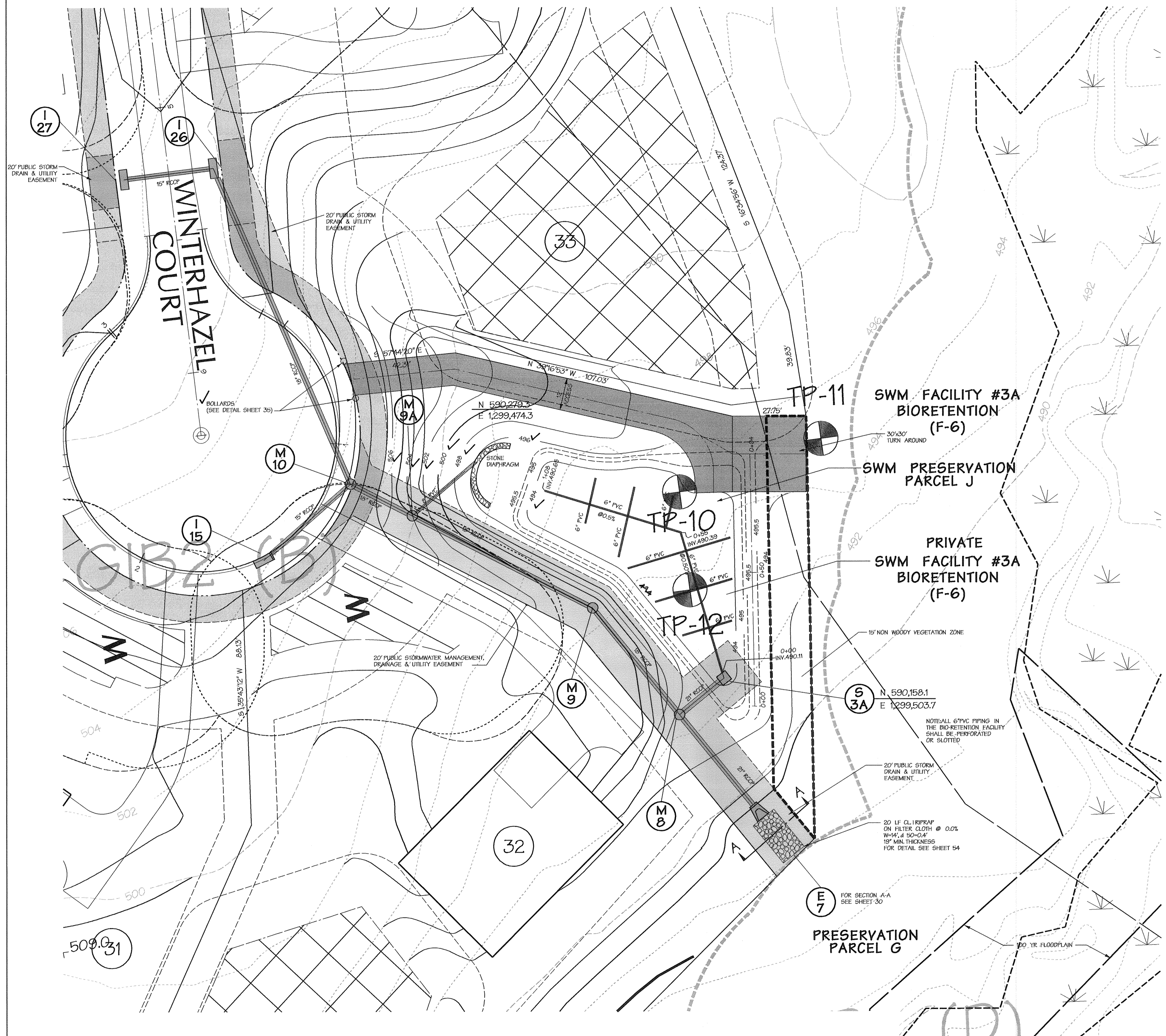
A Team of Land Planners,
Landscape Architects,
Engineers, Surveyors &
Environmental Professionals

TITLE
STORMWATER MANAGEMENT DETAILS
SWM FACILITY #2B

Des. By KAD Scale AS SHOWN Proj. No. 01067F
Dm. By GMD Date 10/16/07
Chk. By ATB Approved ATB

Professional Engr. No. 28770

28 of 74



LEGEND

- STREAM CENTERLINE
- 75' STREAM BUFFER
- WETLAND
- 25' WETLAND BUFFER
- 100 YR RISE + 1' FREEBOARD (I.E. FLOODPLAIN EASEMENT)
- EX. TREE LINE
- EX. MINOR CONTOUR
- EX. MAJOR CONTOUR
- EX. STRUCTURE
- PROP. TREE LINE (IF SHOWN)
- PROPERTY BOUNDARY
- RIGHT OF WAY LINE
- ROADWAY CENTERLINE
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROP. LOT NUMBER
- ADJACENT LOT LINE
- PROP. LOT LINE
- PROPOSED PUBLIC DRAINAGE AND UTILITY EASEMENT
- FOREST CONSERVATION EASEMENT
- SWM NATURAL CONSERVATION EASEMENT
- NON-WOODY VEGETATION LIMIT
- BORING LOCATION AND NUMBER
- CLASS 1 RIP-RAP
- GABION MATTRESS

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

1. ANNUAL MAINTENANCE OF PLANT MATERIAL, MULCH LAYER AND SOIL LAYER IS REQUIRED. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING.
2. SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL. THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, TREATMENT OF ALL DISEASED TREES AND SHRUBS AND REPLACEMENT OF ALL DEFICIENT STAKES AND WIRES.
3. MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.
4. SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.

SWM FACILITY No. 3A

DESIGN FLOW	SUMMARY PROPOSED CONDITIONS
Structure Type	BIORETENTION (F-6)
Water Quality Type	BIORETENTION (F-6)
Stream Classification	USE III
MD 378	NO
Water Quality Storage Required (Ac-ft)	0.080
Water Quality Storage Provided (Ac-ft)	0.140
Temporary Storage Required (75% WQv) (Ac-ft)	0.060
Watershed Area to Facility	2.8 AC.
Level of Management Required	WQv
Level of Management Provided	WQv
Minimum Top Width Provided	4'
Maximum Height of Fill	3.0'
Freeboard Provided, WQv	0.50'
Recharge Required (Ac-ft)	0.020
Recharge Provided (Ac-ft)	0.020

WATER QUALITY IS MET BY THE BIORETENTION FACILITY WITH 1.0' OF PONDING.
RECHARGE IS MET BY CREDITS (SEE DRAINAGE AREA MAP, SHEET 45 OF 74).

- NOTES**
1. TREES, SHRUBS AND OTHER WOODY VEGETATION NOT ALLOWED WITHIN TWENTY-FIVE (25) FEET OF THE RISER STRUCTURE AND NOT ALLOWED WITHIN FIFTEEN (15) FEET OF ANY PORTION OF THE EMBANKMENT
 2. SWM FACILITY 3A SHALL BE OWNED BY THE HOME OWNERS ASSOCIATION (H.O.A.). THE H.O.A. SHALL PERFORM MOWING/ TRASH REMOVAL AND ALL OTHER MAINTENANCE.
 3. FOR BORING LOGS SEE SHEETS 10, 18 AND 19.

AS-BUILT CERTIFICATION

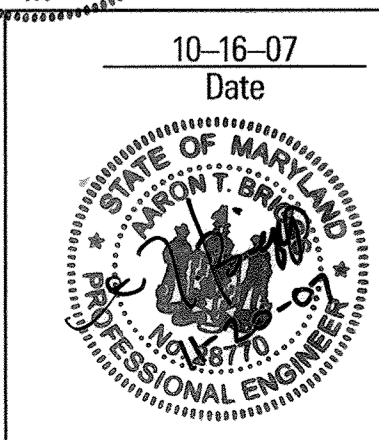
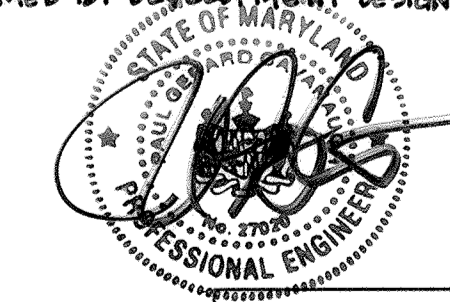
I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN SHEET IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS.

SIGNED: PAUL G. CAVANAUGH DATE: 6/11/2018
LICENSE NO.: 27020 EXPIRATION DATE: 1/25/2020

HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD 83-2011 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 14-FB

VERTICAL DATUM FOR THIS AS-BUILT SURVEY IS NORTH AMERICAN VERTICAL DATUM (NAVD) 1988 AS PROJECTED BY THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATION OR HOWARD CONTROL BENCH MARKS 14-FB

THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.



DEVELOPERS CERTIFICATE:

I HEREBY CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERSONS ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Signature of Developer: *Cynthia M. McAuliffe* DATE: 11/19/07
FRONT NAME BELOW SIGNATURE: CYNTHIA M. MCAULIFFE

ENGINEERS CERTIFICATE:

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND MODIFIABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

Signature of Engineer: *Paul G. Cavanaugh* DATE: 11-20-07
FRONT NAME BELOW SIGNATURE: PAUL G. CAVANAUGH

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
Walter Z. Hall 12-7-07
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Cindy Harris 12/11/07
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Paul G. Cavanaugh 12/11/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date	No.	Revision Description

BELLE HAVEN ESTATES

LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O, NON-BUILDABLE BULK PARCEL P
TAX MAP 14, GRID 20, PARCEL 86, ZONE RC-DEO
ELECTION DISTRICT NO. 3 HOWARD COUNTY, MARYLAND
OWNER/DEVELOPER
Union Chapel Road, LLC
9025 Chevrolet Drive
Suite K
Ellicott City, MD 21042
Phone: (410) 461-5900

DMW
Duff-McCune-Walker, Inc.
200 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 296-3333
Fax: 296-4706
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

STORMWATER MANAGEMENT PLAN
SWM FACILITY #3A

Des. By	CV5	Scale	1" = 20'	Proj. No.	01067F
Drn. By	MDT	Date	10/16/07	29 of 74	
Chk. By	ATB	Approved	ATB		

Professional Engr. No. 28770

B.3.B Specifications for Bioretention

1. Material Specifications

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

2. Planting Soil

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

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

pH range	5.2 - 7.0
organic matter	1.5 - 4% (by weight)
magnesium	35 lb./ac
phosphorus (phosphate - P ₂ O ₅)	75 lb./ac
potassium (potash - K ₂ O)	85 lb./ac
soluble salts	not to exceed 500 ppm

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

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

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

3. Compaction

It is very important to minimize compaction of both the base of the bioretention area and the required backfill. When possible, use excavation hoes to remove original soil. If bioretention

B.3.4

rubber tires with large lugs, or high pressure tires will cause excessive compaction resulting in reduced infiltration rates and is not acceptable. Compaction will significantly contribute to design failure.

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

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

When backfilling the topsoil over the sand layer, first place 3 to 4 inches of topsoil over the sand, then rototill the sand/topsoil to create a gradation zone. Backfill the remainder of the topsoil to final grade.

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

4. Plant Material

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

5. Plant Installation

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

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

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

B.3.5

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

The topsoil specifications provide enough organic material to adequately supply nutrients from natural cycling. The primary function of the bioretention structure is to improve water quality. Adding fertilizers defeats, or at a minimum, impedes this goal. Only add fertilizer if wood chips or mulch are used to amend the soil. Rototill urea fertilizer at a rate of 2 pounds per 1000 square feet.

6. Underdrains

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

The main collector pipe for underdrain systems shall be constructed at a minimum slope of 0.5%. Observation wells and/or clean-out pipes must be provided (one minimum per every 1000 square feet of surface area).

7. Miscellaneous

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

B.3.6

AS-BUILT CERTIFICATION

I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

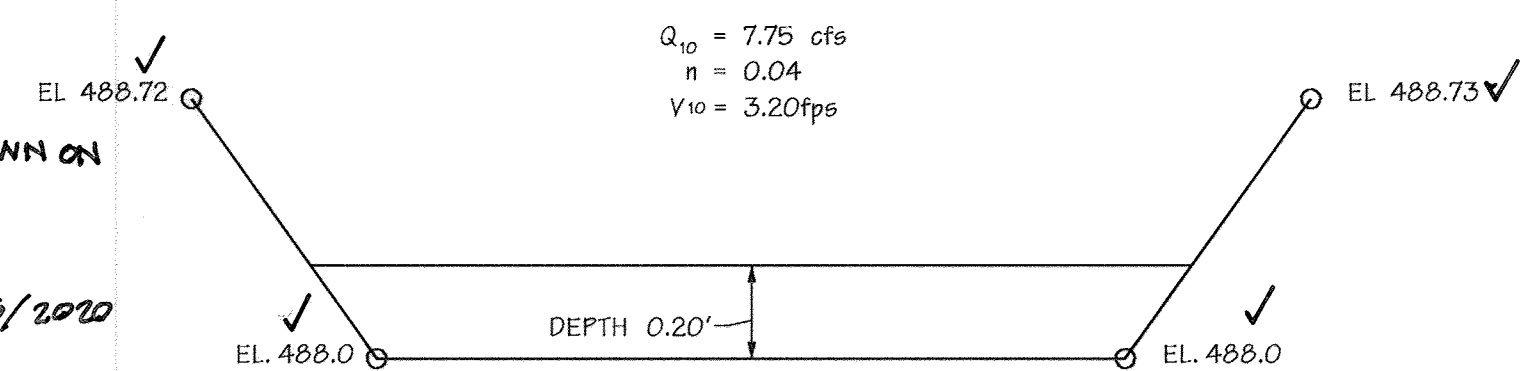
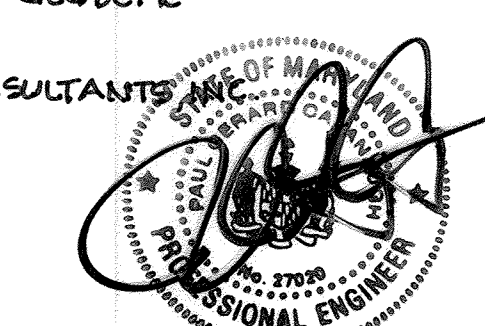
SIGNED: PAUL G. CAVANAUGH
LICENSE NO.: 27020

DATE: 5/11/2018
EXPIRATION DATE: 1/25/2020

HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD '83 / 2011 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 14 FB

VERTICAL DATUM FOR THIS AS-BUILT SURVEY IS NORTH AMERICAN VERTICAL DATUM (NAVD) 1988 AS PROJECTED BY THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATION OR HOWARD CONTROL BENCH MARKS 14 FB

THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS



SECTION A-A

NOT TO SCALE

**(M-9A) Diversion Structure for SWM Facility No. 3A
5'-0" STANDARD MANHOLE**

Scale: 1/4" = 1'-0"

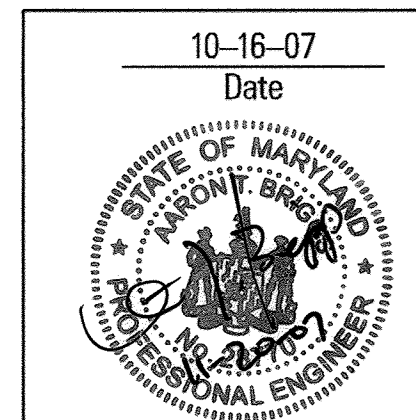
NOTE: ACTUAL LENGTH AND DEPTH OF CUT-OFF TRENCH SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER IN THE FIELD. FILL MATERIAL FOR THE CUT-OFF TRENCH / CLAY CORE SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION CL, GL, CH OR SC. CONSIDERATION MAY BE GIVEN TO THE USE OF OTHER MATERIALS IN THE EMBANKMENT IF DESIGN AND CONSTRUCTION ARE SUPERVISED BY A GEOTECHNICAL ENGINEER.

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS	12-7-07
<i>Matthew J. ...</i> CHIEF, BUREAU OF HIGHWAYS	DATE
APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING	12/11/07
<i>Cindy ...</i> CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
<i>...</i> CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE

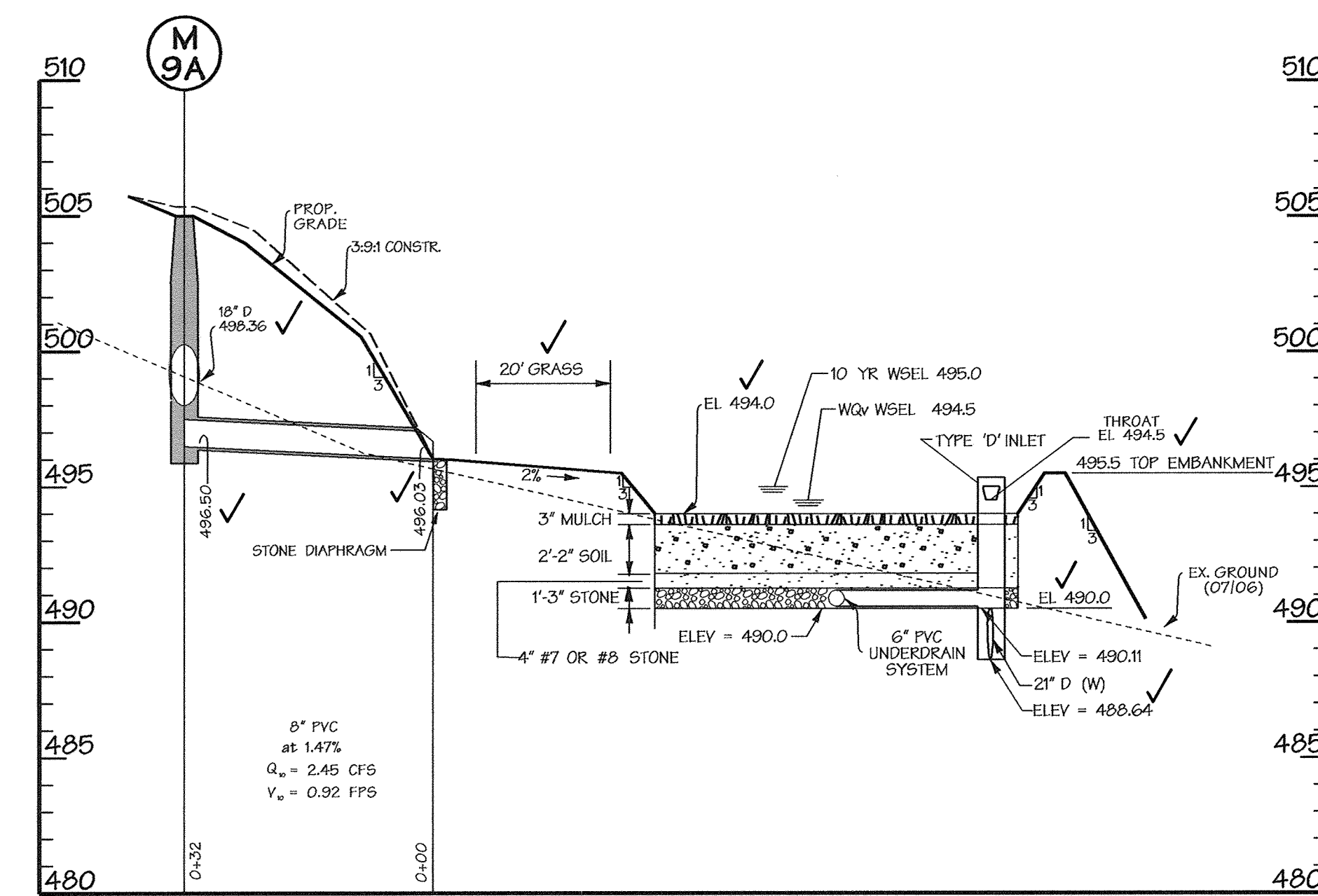
BELLE HAVEN ESTATES
LOTS 1-48, NON-BUILDABLE PRESERVATION PARCELS A-O,
NON-BUILDABLE BULK PARCEL P
TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND
OWNER/DEVELOPER
Union Chapel Road, LLC
9025 Chevrolet Drive
Suite K
Ellicott City, MD 21042
Phone: (410) 461-5800

DMW
Date: 10-16-07
200 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 586-5255
Fax 296-4705
A Team of Land Planners,
Landscape Architects,
Engineers, Surveyors &
Environmental Professionals

TITLE STORMWATER MANAGEMENT PROFILES & DETAILS SWM FACILITY #3A			
Des. By	CVS	Scale	AS SHOWN
Drn. By	GMO	Date	10/16/07
Chk. By	ATB	Approved	ATB
Proj. No.		01067F	
		30 of 74	

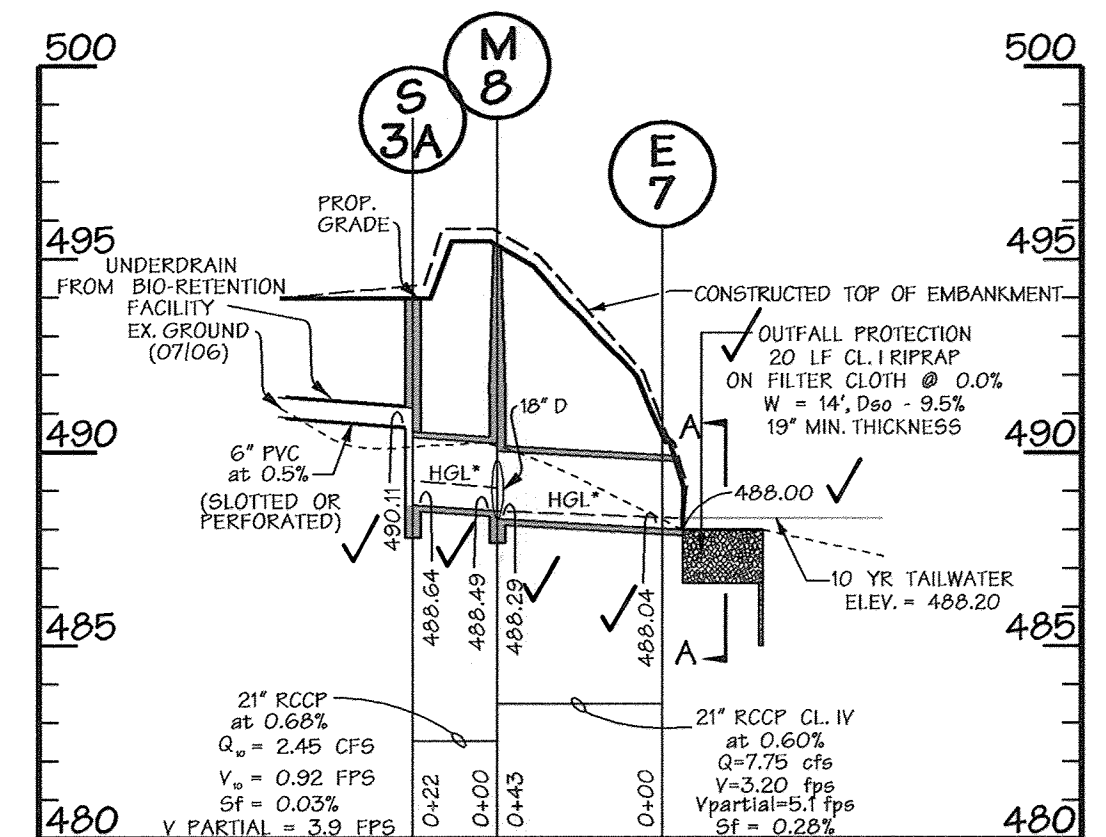


Professional Engr. No. 28770



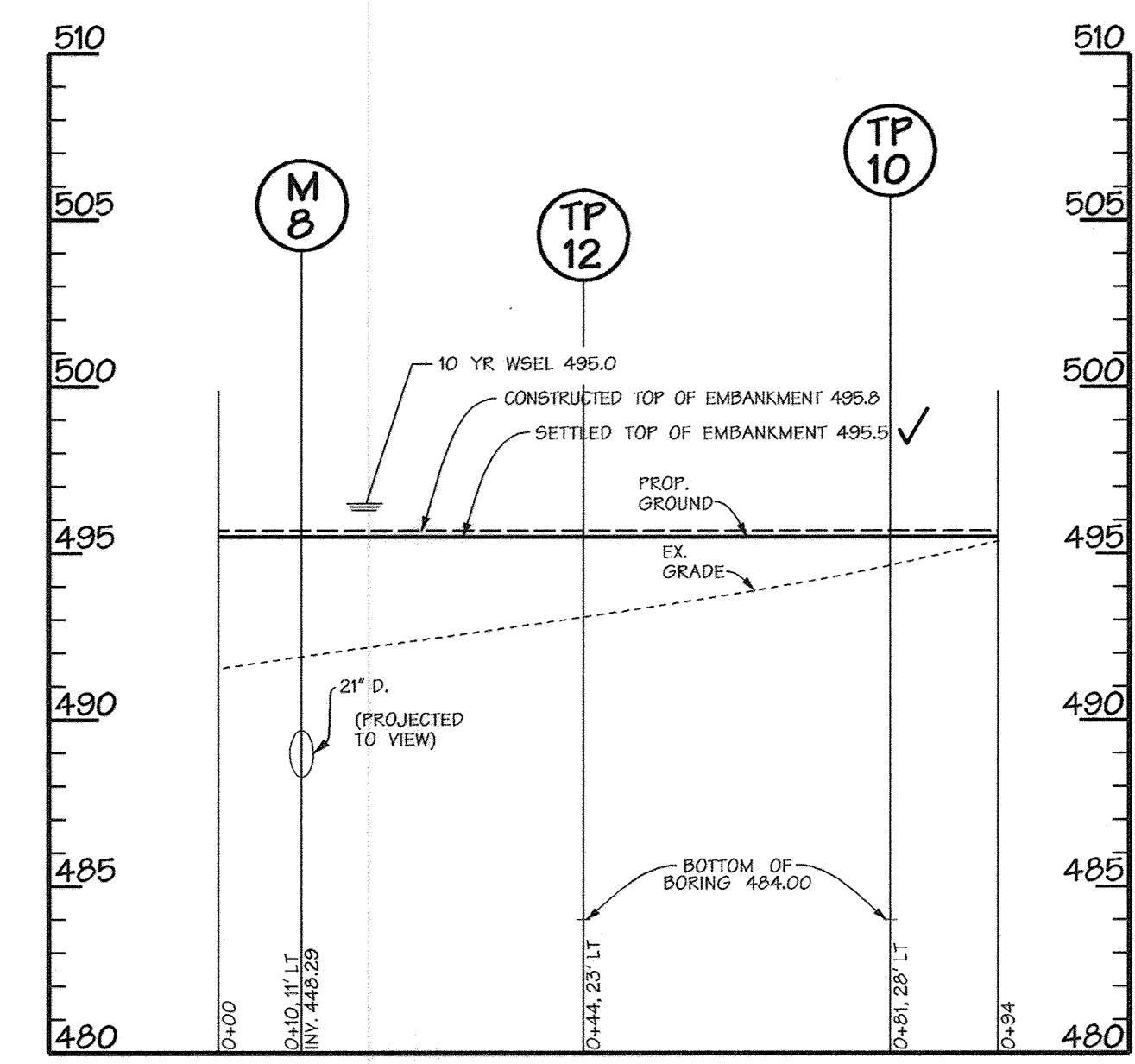
PROFILE OF BIORETENTION FACILITY # 3A

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



STORM DRAIN PROFILES

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



CENTERLINE OF EMBANKMENT PROFILE

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

DEVELOPERS CERTIFICATE:
I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I/WE SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I/WE ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.
Cynthia K. McAuliffe
SIGNATURE OF DEVELOPER
CYNTHIA K. MCAULIFFE
DATE: 11/19/07

ENGINEERS CERTIFICATE:
I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTICED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.
Aaron Briggs
SIGNATURE OF ENGINEER
AARON BRIGGS
DATE: 11-20-07
28770

STORMWATER MANAGEMENT FACILITY OPERATION AND MAINTENANCE SCHEDULE

ROUTINE MAINTENANCE (HOME OWNERS ASSOCIATION)

1. FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF FACILITY IS FUNCTIONING PROPERLY.
2. TOP AND SIDE SLOPES OF EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES PER YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHALL BE MOWED AS NEEDED. VEGETATION SHALL NOT EXCEED 18" NOR SHALL IT BE LESS THAN 4" IN HEIGHT.
3. DEBRIS & LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
4. VISIBLE SIGNS OF EROSION IN THE FACILITY SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

NON-ROUTINE MAINTENANCE (HOWARD COUNTY)

1. STRUCTURAL COMPONENTS OF THE FACILITY SUCH AS THE DAM, THE RISER AND THE PIPES SHALL BE REPAIRED UPON THE DETECTION OF ANY DAMAGE. THE COMPONENTS SHALL BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
2. SEDIMENT SHALL BE REMOVED FROM FACILITY AND FOREBAY NO LATER THAN WHEN CAPACITY OF THE POND OR FOREBAY IS HALF FULL OF SEDIMENT OR WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, UPON APPROVAL FROM THE DEPARTMENT OF PUBLIC WORKS.
3. VISIBLE SIGNS OF EROSION IN THE RIP-RAP OR GABION OUTLET AREA SHALL BE REPAIRED AS SOON AS IT IS NOTED.

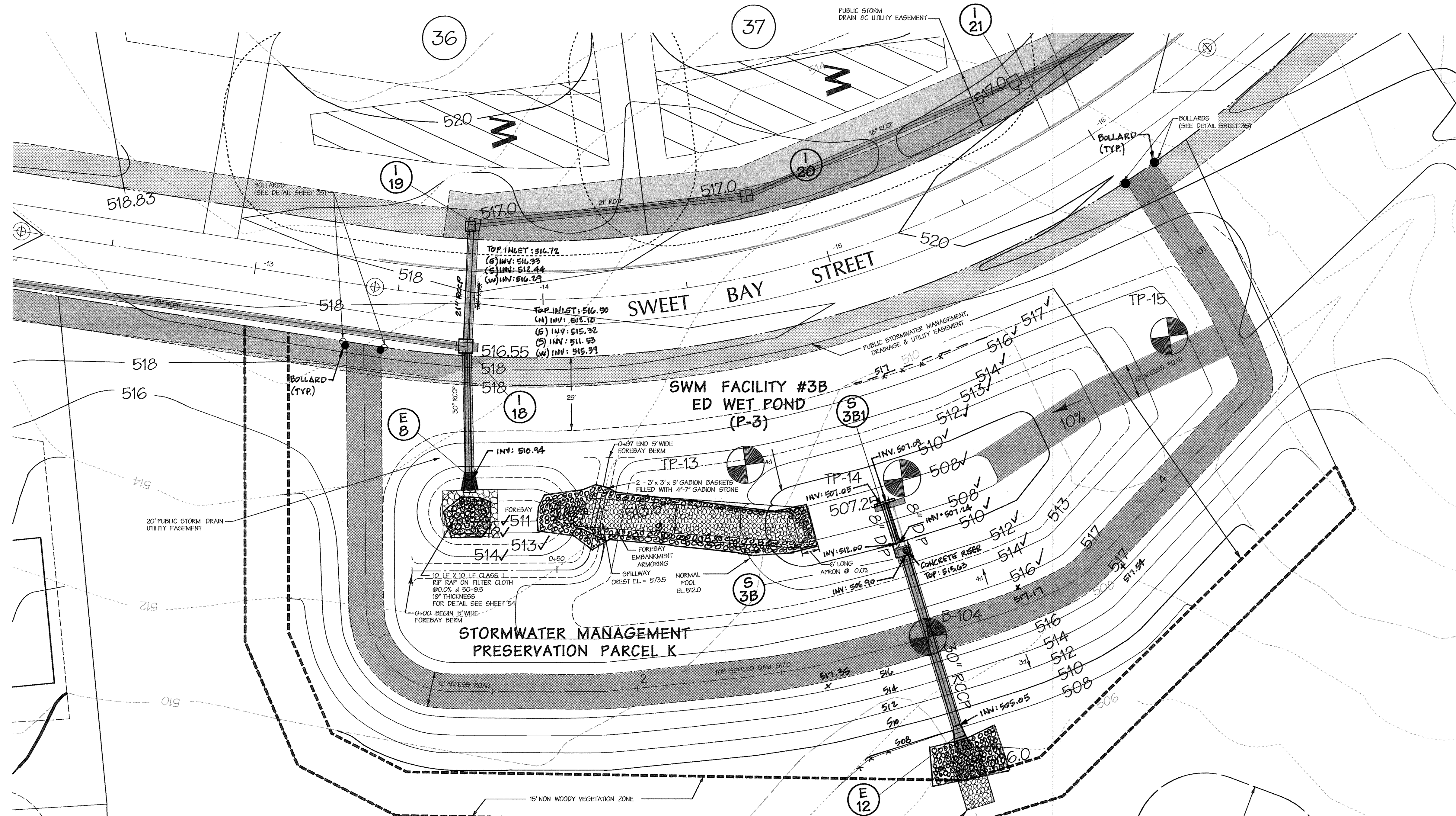
POND 3B DESIGN FLOW SUMMARY PROPOSED CONDITIONS

STRUCTURE TYPE	EXTENDED DETENTION (P-3)
WATER QUALITY TYPE	WET POOL (P-3)
STRUCTURE CLASSIFICATION	"A"
WATERSHED AREA TO FACILITY (SWM)	0.0173 SQ. MI.
LEVEL OF MANAGEMENT REQUIRED	1-YR.
LEVEL OF MANAGEMENT PROVIDED	1-YR.
TOP WIDTH PROVIDED	12'
MAXIMUM HEIGHT OF FILL	8.5'
FREEDBOARD REQUIRED	2.0'
FREEDBOARD PROVIDED	2.54'
WATER QUALITY VOL. WQV REQUIRED (Ac-Ft)	0.16
WATER QUALITY VOL. WQV PROVIDED (Ac-Ft)	0.27
RECHARGE REQUIRED (% AREA METHOD, K _{av}) (Ac)	0.59
RECHARGE PROVIDED (Ac)**	0.86
CHANNEL PROTECTION VOL. C _{pv} REQUIRED (Ac-Ft)	0.27
CHANNEL PROTECTION VOL. C _{pv} PROVIDED (Ac-Ft)	0.27
EXISTING 1-YR. STORM Q AT DESIGN POINT (cfs)	4.61
PROPOSED 1-YR. STORM Q AT DESIGN POINT (cfs)	3.46
EXISTING 10-YR. STORM Q AT DESIGN POINT (cfs)	50.04
PROPOSED 10-YR. STORM Q AT DESIGN POINT (cfs)	61.06
EXISTING 100-YR. STORM Q AT DESIGN POINT (cfs)	146.06
PROPOSED 100-YR. STORM Q AT DESIGN POINT (cfs)	134.59
MOW WATER SURFACE ELEV. = NORMAL POOL	512.0
10-YR. WATER SURFACE ELEV.	513.29
100-YR. WATER SURFACE ELEV.	514.49
RISER CREST ELEV.	513.50
100 YR. CLOGGED WATER SURFACE ELEV.	514.46
POND VOLUME BELOW 100 YR. CLOGGED WSE (Ac-Ft)***	0.50
FOREBAY VOLUME REQUIRED (Ac-Ft)	0.02
FOREBAY VOLUME PROVIDED (Ac-Ft)	0.05

* WQV IS PROVIDED IN THE WET-POND PORTION OF THE FACILITY.
 ** C_{pv} IS PROVIDED IN THE FACILITY (AS MANAGEMENT OF THE 1-YEAR STORM ABOVE THE MOW STORAGE VOLUME, THE 10-YEAR AND 100-YR STORMS ARE PASSED THROUGH THE FACILITY)
 *** RECHARGE REQUIRED/PROVIDED IS BASED ON ENTIRE SITE (PHASE I AND PHASE II) AND IS TREATED COMPLETELY BY SWM NON-STRUCTURAL CREDITS
 **** ABOVE WET POOL ELEVATION

NOTES

1. TREES, SHRUBS AND OTHER WOODY VEGETATION NOT ALLOWED WITHIN TWENTY-FIVE (25) FEET OF THE RISER STRUCTURE AND NOT ALLOWED WITHIN FIFTEEN (15) FEET OF ANY PORTION OF THE EMBANKMENT
2. SWM FACILITY 3B SHALL BE OWNED BY THE HOME OWNERS ASSOCIATION (H.O.A.). THE H.O.A. SHALL PERFORM MOWING/TRASH REMOVAL MAINTENANCE. ALL OTHER MAINTENANCE SHALL BE PERFORMED BY HOWARD COUNTY, THE SWM EASEMENT IS OWNED BY HOWARD COUNTY.
3. FOR BORING LOGS SEE SHEETS 10, 18 AND 19.

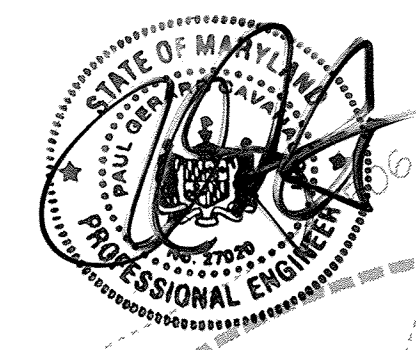


PRESERVATION PARCEL G

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS MEET THE APPROVED PLANS AND SPECIFICATIONS.

SIGNED: PAUL G. CAVANAUGH DATE: 5/11/19
 LICENSE NO: 27020 EXPIRATION DATE: 1/25/2020



DEVELOPERS CERTIFICATE:

I HEREBY CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I SHALL AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

SIGNATURE OF DEVELOPER: Cynthia M. McAuliffe DATE: 11/19/07
 PRINT NAME: BELOW SIGNATURE

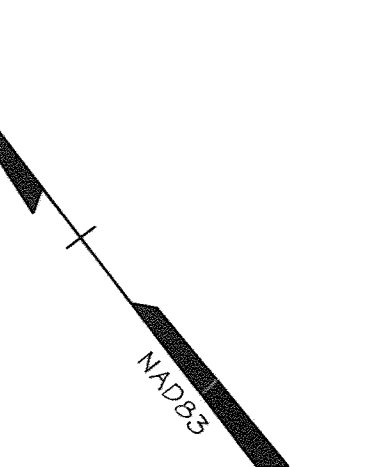
ENGINEERS CERTIFICATE:

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTICED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

SIGNATURE OF ENGINEER: [Signature] DATE: 11-20-07
 PRINT NAME: BELOW SIGNATURE: Arnel Burgess 28770

LEGEND

STREAM CENTERLINE	400	PROPOSED MAJOR CONTOUR
75' STREAM BUFFER	300	PROPOSED MINOR CONTOUR
WETLAND	(41)	PROP. LOT NUMBER
25' WETLAND BUFFER		ADJACENT LOT LINE
100 YR WSE + 1' FREEDBOARD (I.E. FLOODPLAIN EASEMENT)		PROP. LOT LINE
EX. TREELINE		PROPOSED PUBLIC DRAINAGE AND UTILITY EASEMENT
EX. MINOR CONTOUR		FOREST CONSERVATION EASEMENT
EX. MAJOR CONTOUR		SWM NATURAL CONSERVATION EASEMENT
EX. STRUCTURE		NON-WOODY VEGETATION LIMIT
PROP. TREELINE (IF SHOWN)		BORING LOCATION AND NUMBER
PROPERTY BOUNDARY		
RIGHT OF WAY LINE		
ROADWAY CENTERLINE		
GABION MATRESS		



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

With: 2. [Signature] DATE: 12-7-07
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

[Signature] DATE: 12/14/07
 CHIEF, DIVISION OF LAND DEVELOPMENT

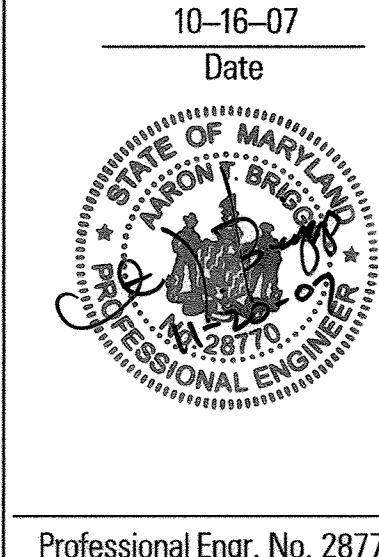
[Signature] DATE: 12/14/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

Date	No.	Revision Description

BELLE HAVEN ESTATES

LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O, NON-BUILDABLE BULK PARCEL P
 TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
 ELECTION DISTRICT NO. 3 HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER
 Union Chapel Road, LLC
 9025 Chevrolet Drive
 Suite K
 Ellicott City, MD 21042
 Phone: (410) 461-5800



10-16-07
 Date

DMW
 Draft-McCune-Walkers, Inc.
 200 East Pennsylvania Avenue
 Towson, Maryland 21286
 (410) 296-3833
 Fax: 296-4705

A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

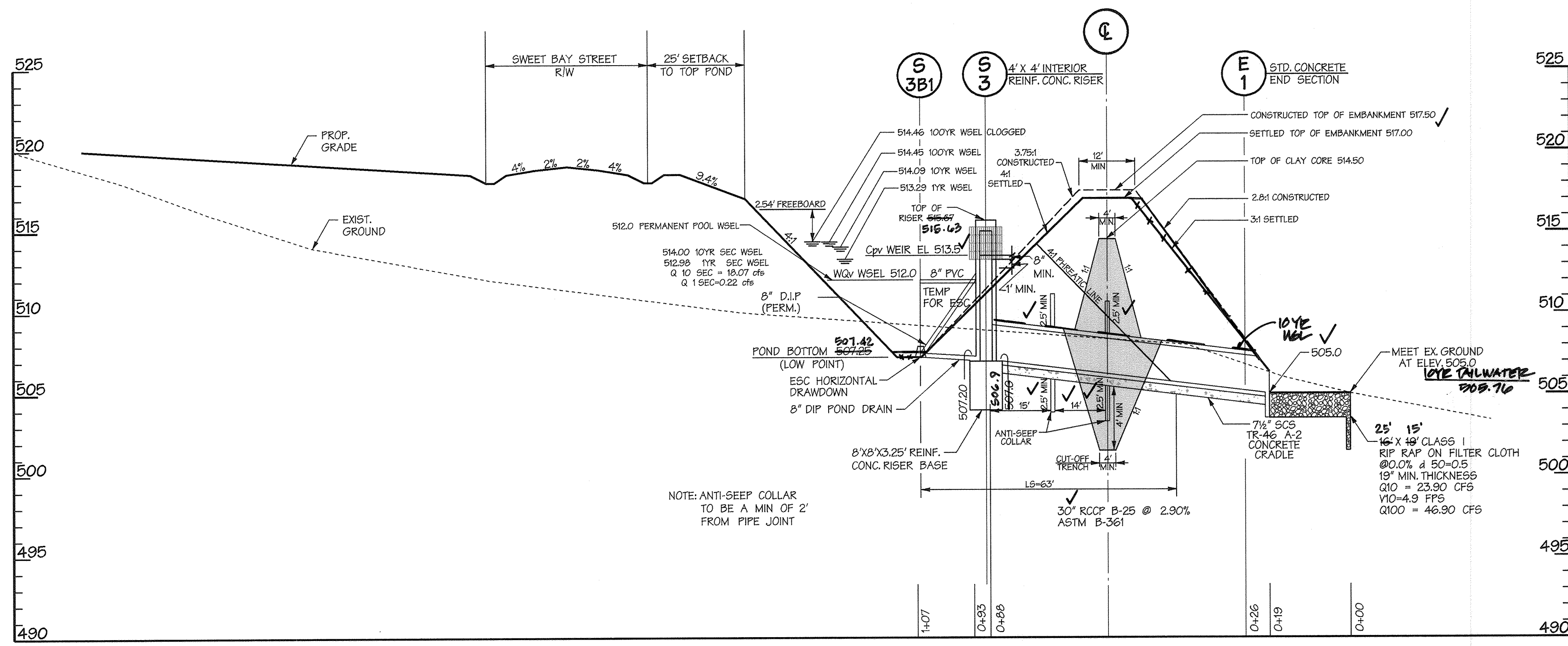
TITLE

STORMWATER MANAGEMENT PLAN

SWM FACILITY #3B

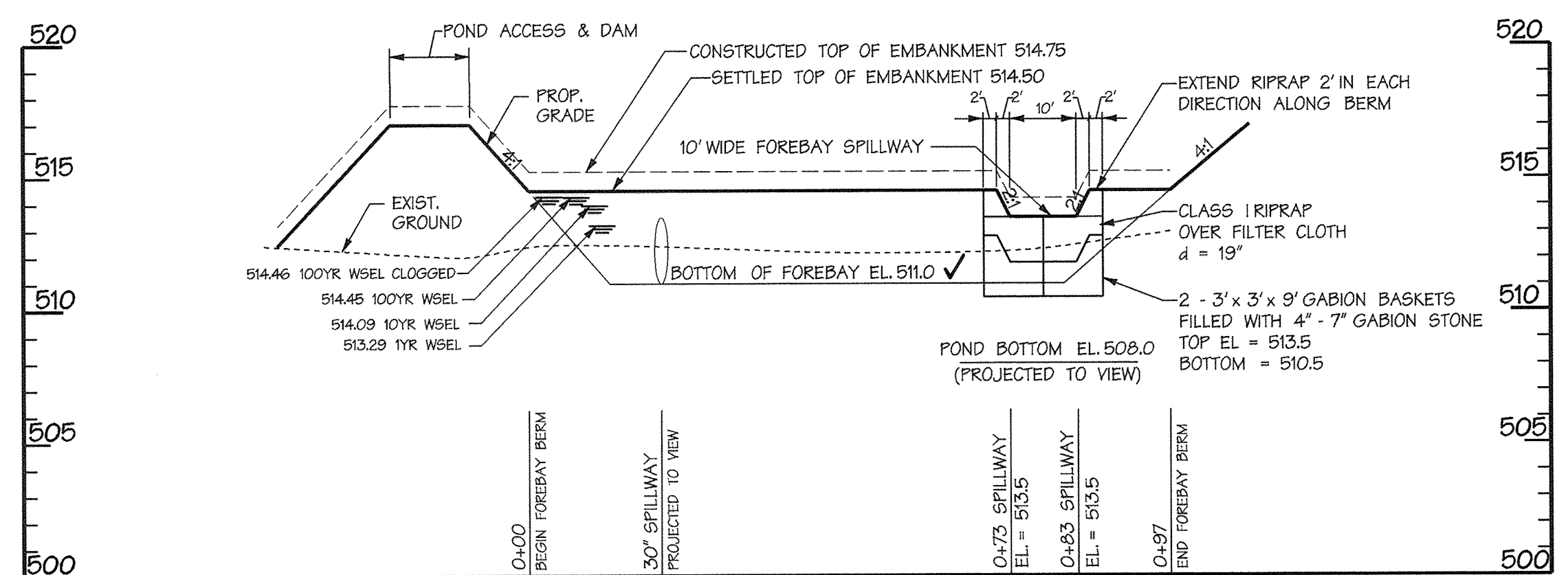
Des. By	CVS	Scale	1" = 20'	Proj. No.	01067F
Dwn. By	MDT	Date	10/16/07		
Clk. By	ATB	Approved	CVM		31 of 74

Professional Engr. No. 28770



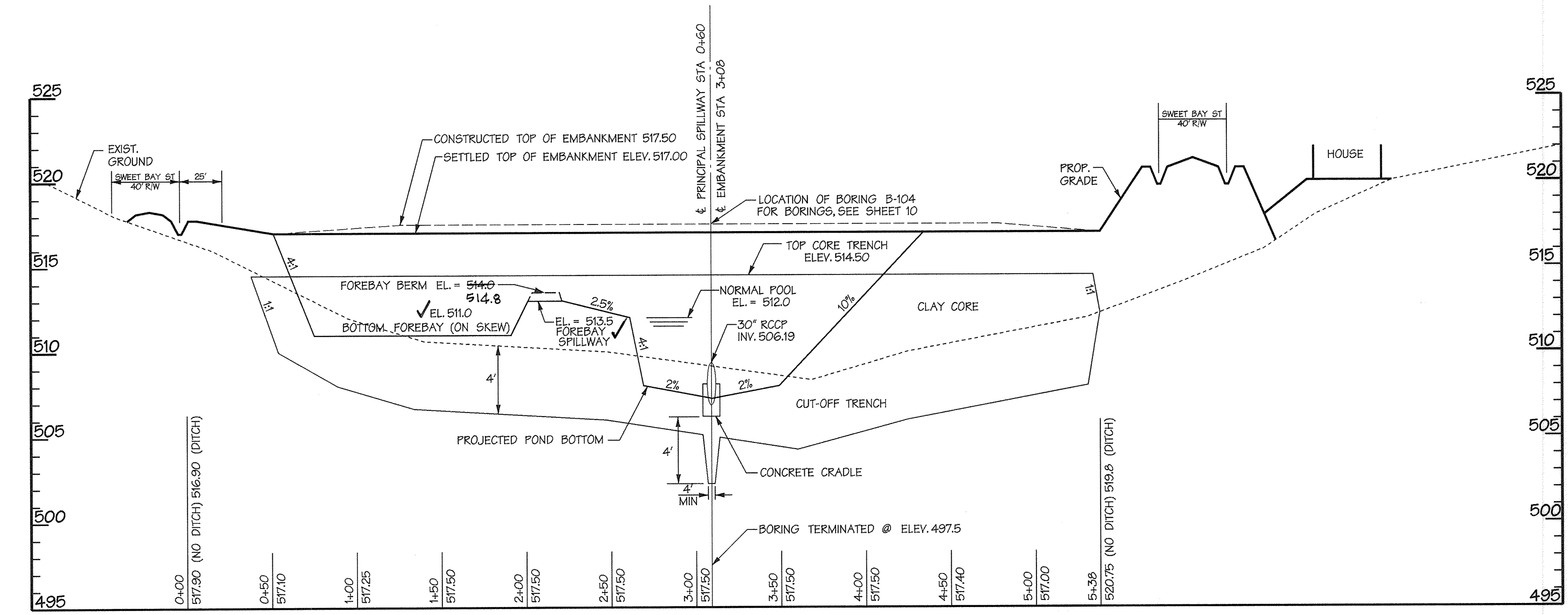
PROFILE THROUGH RISER AND PRINCIPLE SPILLWAY SWM FACILITY # 3B

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



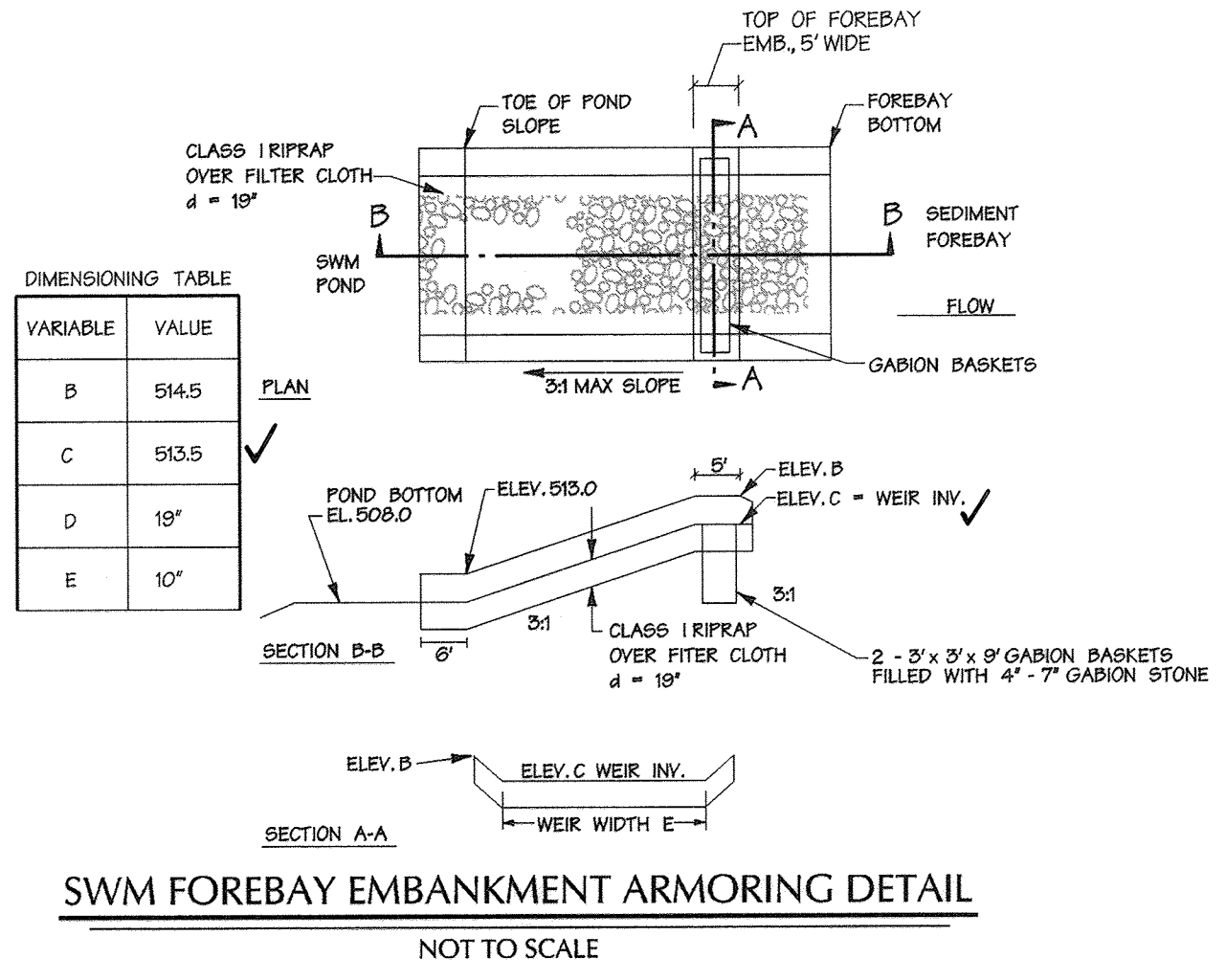
CROSS SECTION OF FOREBAY DAM ALONG CENTERLINE - SWM FACILITY # 3B

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



PROFILE ALONG CENTERLINE OF EMBANKMENT SWM FACILITY # 3B

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



SWM FOREBAY EMBANKMENT ARMORING DETAIL

NOT TO SCALE

- NOTES
- TREES, SHRUBS AND OTHER WOODY VEGETATION NOT ALLOWED WITHIN TWENTY-FIVE (25) FEET OF THE RISER STRUCTURE AND NOT ALLOWED WITHIN FIFTEEN (15) FEET OF ANY PORTION OF THE EMBANKMENT
 - SWM FACILITY 3B SHALL BE OWNED BY THE HOME OWNERS ASSOCIATION (H.O.A.). THE H.O.A. SHALL PERFORM MAINTENANCE TRASH REMOVAL MAINTENANCE ALL OTHER MAINTENANCE SHALL BE PERFORMED BY HOWARD COUNTY, THE SWM EASEMENT IS OWNED BY HOWARD COUNTY.

NOTE: ACTUAL LENGTH AND DEPTH OF CUT-OFF TRENCH SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER IN THE FIELD. FILL MATERIAL FOR THE CUT-OFF TRENCH / CLAY CORE SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION CL, CL, CL OR SC. CONSIDERATION MAY BE GIVEN TO THE USE OF OTHER MATERIALS IN THE EMBANKMENT IF DESIGN AND CONSTRUCTION ARE SUPERVISED BY A GEOTECHNICAL ENGINEER.

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
Walter R. ...
 CHIEF, BUREAU OF HIGHWAYS DATE 12-7-07

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
... ..
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE 12/11/07

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
... ..
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE 12/11/07

Date	No.	Revision Description

BELLE HAVEN ESTATES
 LOTS 1-48, NON-BUILDABLE PRESERVATION PARCELS A-O, NON-BUILDABLE BULK PARCEL P
 TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND
 OWNER/DEVELOPER
 Union Chapel Road, LLC
 9025 Chevrolet Drive
 Suite K
 Ellicott City, MD 21042
 Phone: (410) 461-6900

DMW
 Draft-McCune-Walker, Inc.
 300 East Pennsylvania Avenue
 Towson, Maryland 21286
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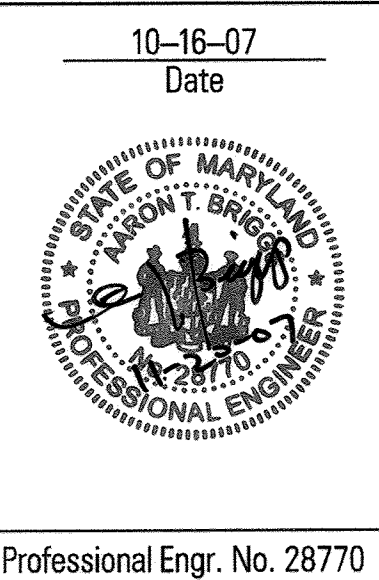
TITLE			
STORMWATER MANAGEMENT PROFILES			
SWM FACILITY #3B			
Des. By	KAD	Scale	AS SHOWN
Dwn. By	GMO	Date	10/16/07
Chk. By	ATB	Approved	ATB
Proj. No.	01067F	32 of 74	

DEVELOPERS CERTIFICATE:
 I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I/WE SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I/WE ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

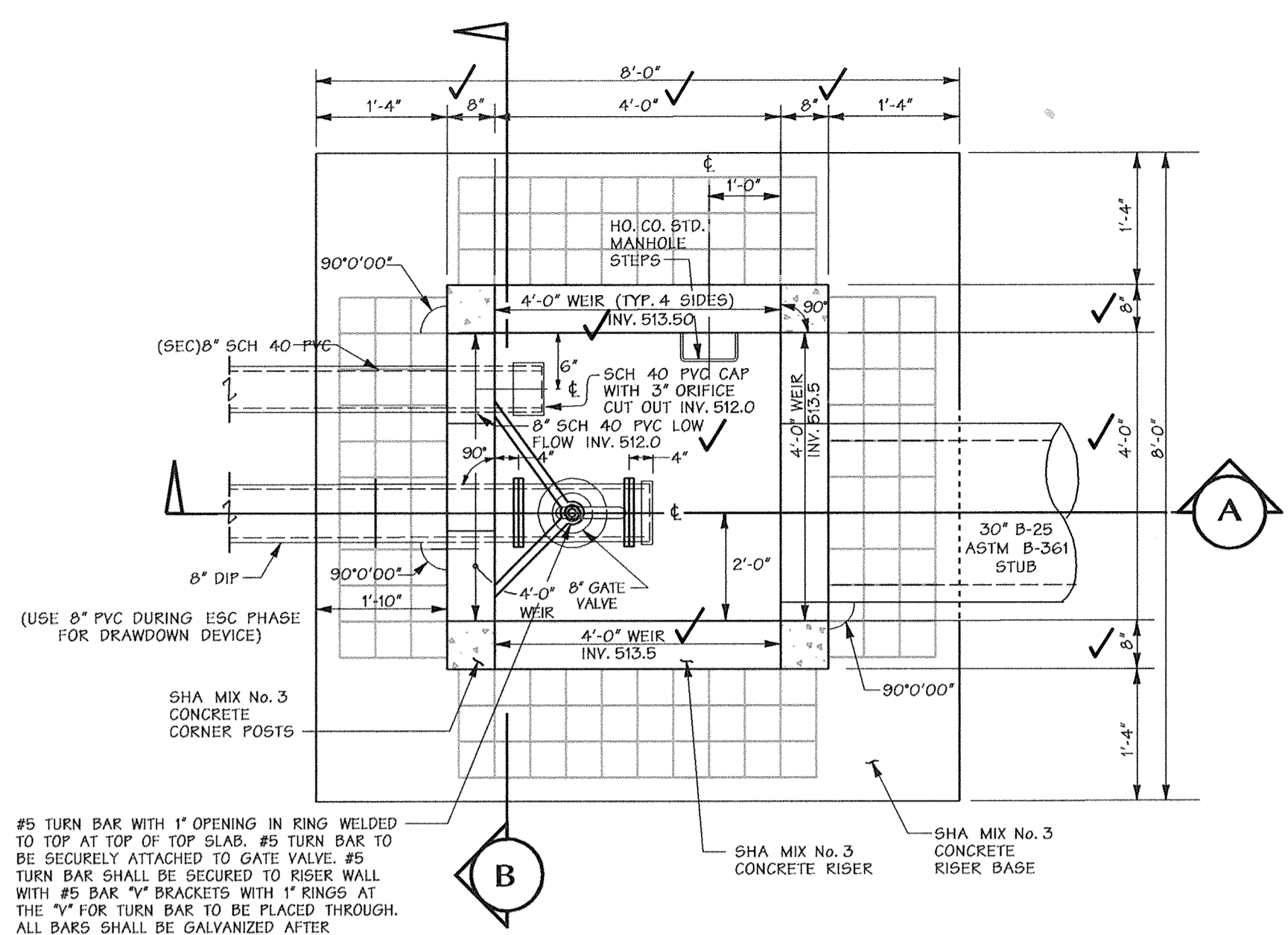
Cynthia M. McAuliffe
 SIGNATURE OF DEVELOPER CYNTHIA M. MCAULIFFE DATE 11/17/07

ENGINEERS CERTIFICATE:
 I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

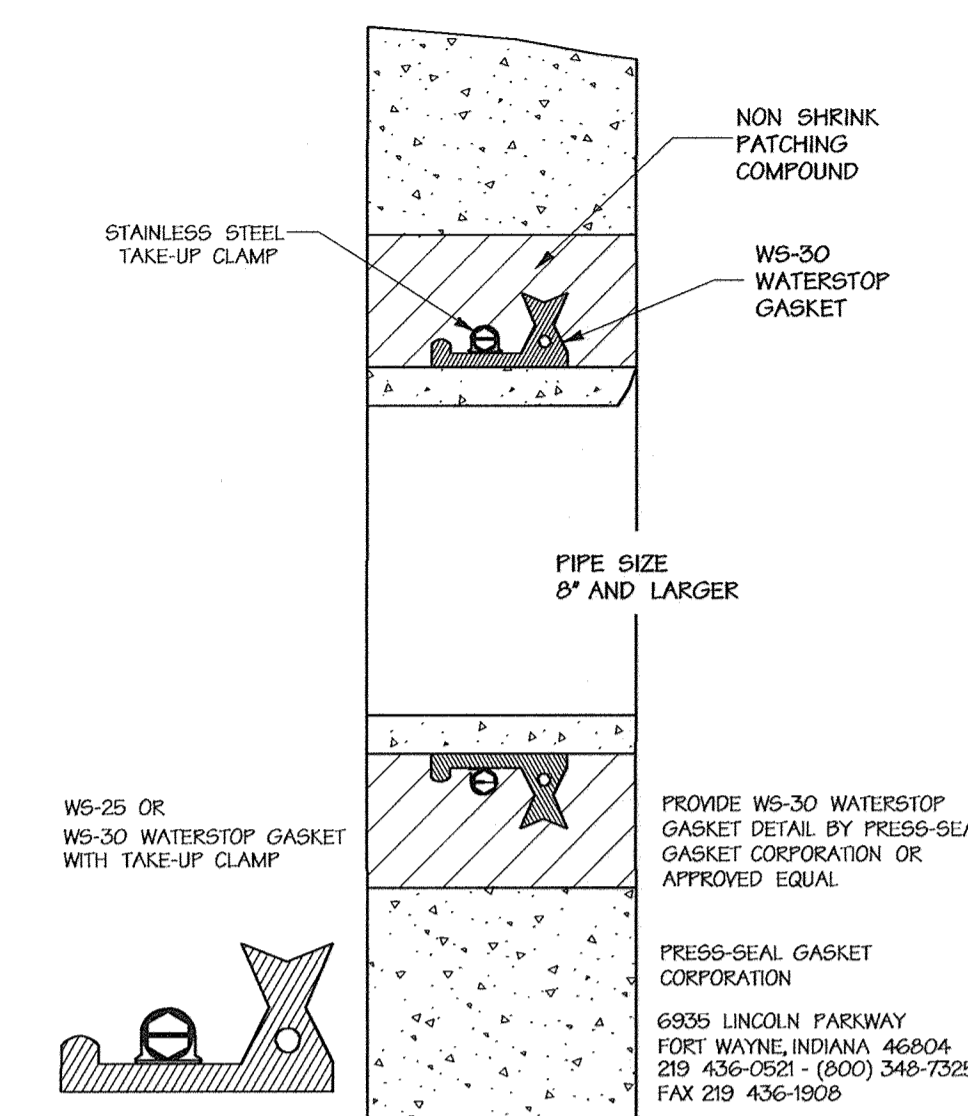
Arnon Bous
 SIGNATURE OF ENGINEER ARNON BOUS DATE 11-20-07
 22770



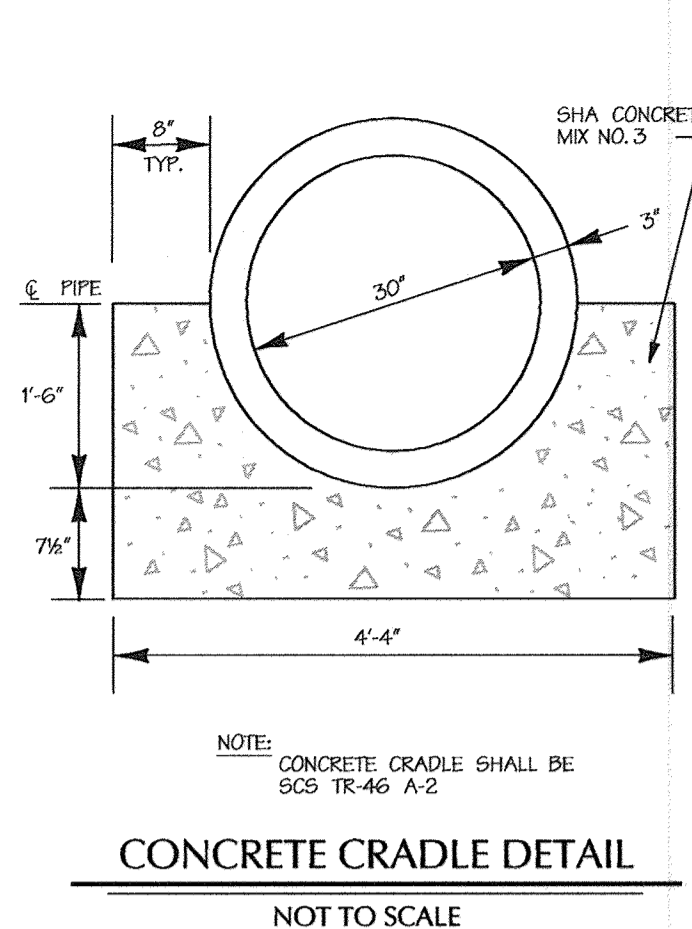
Professional Engr. No. 26770



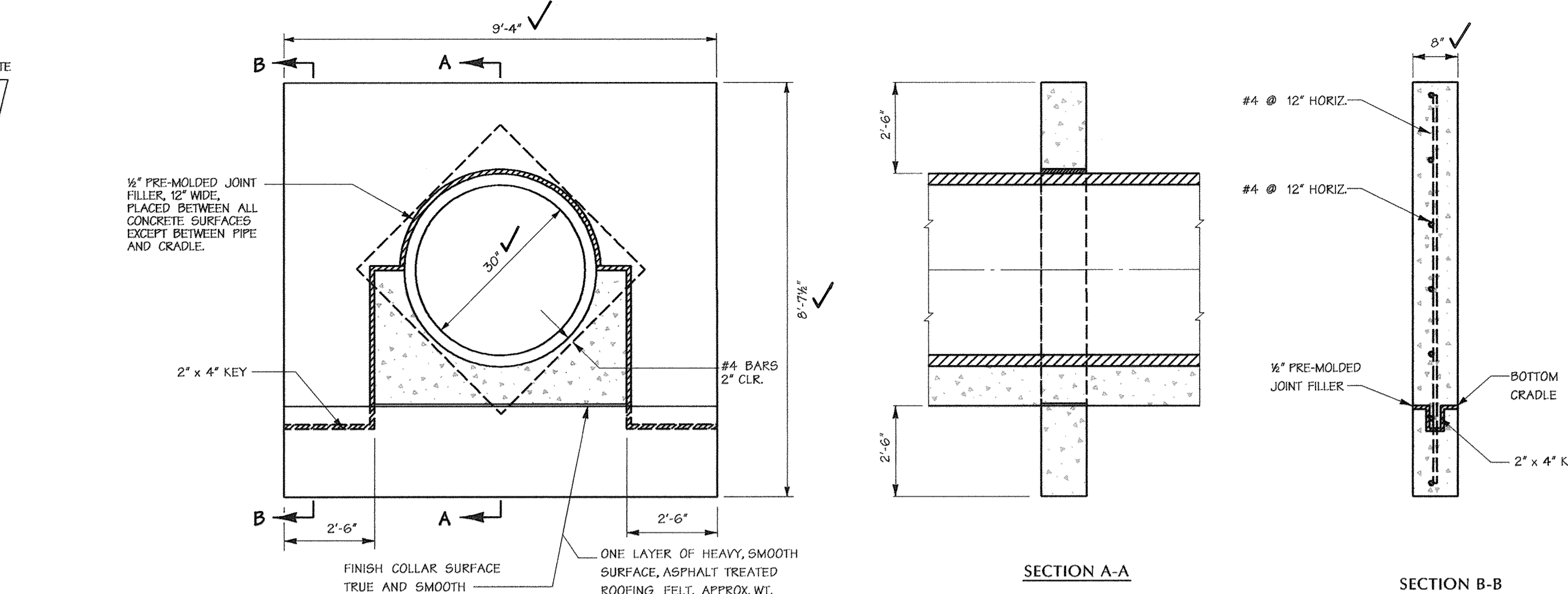
RISER PLAN (TOP SLAB REMOVED) - SWM POND 3B
NOT TO SCALE



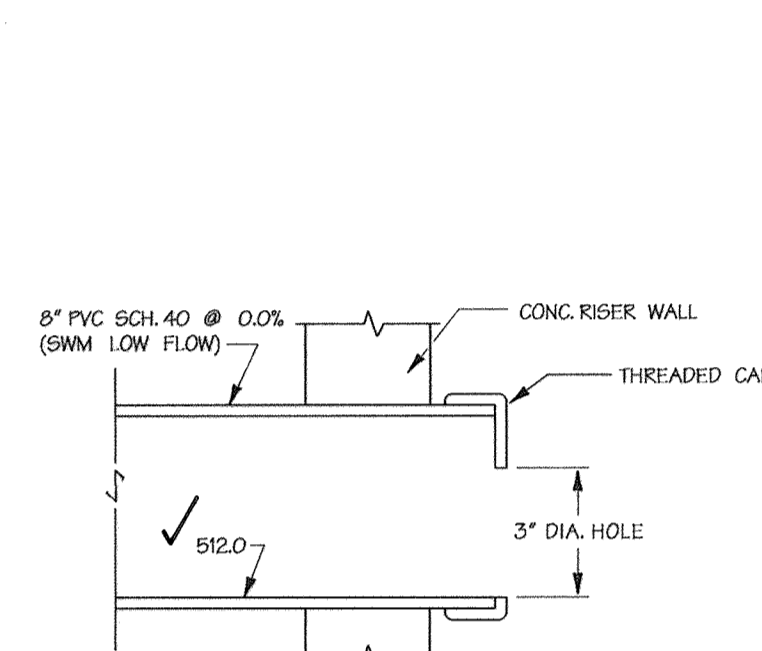
PIPE WATER STOP DETAIL
NOT TO SCALE



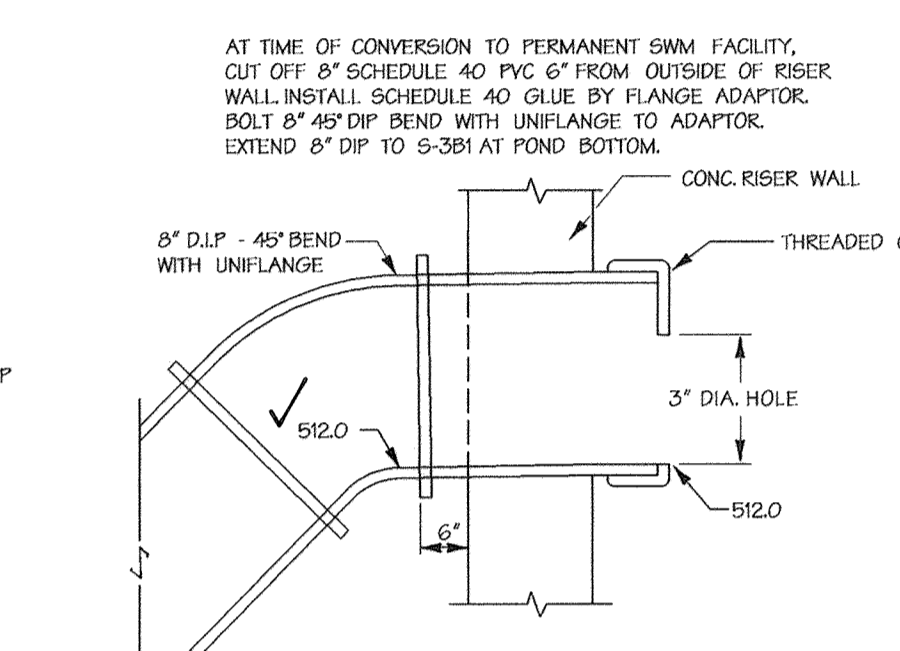
CONCRETE CRADLE DETAIL
NOT TO SCALE



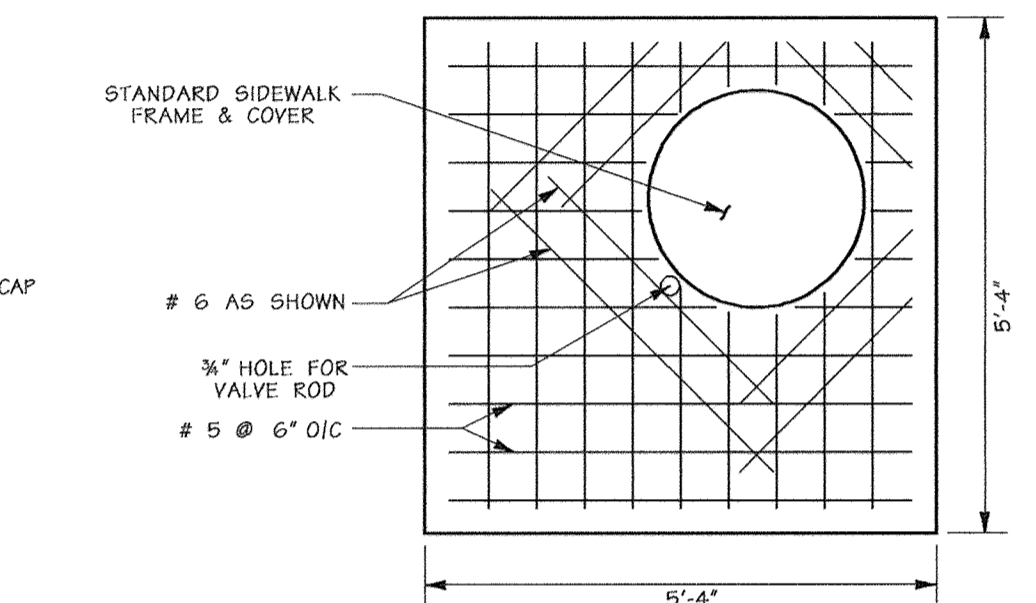
ANTI - SEEP COLLAR DETAIL - POND 3B (2 EA)
CAST IN PLACE - NOT TO SCALE



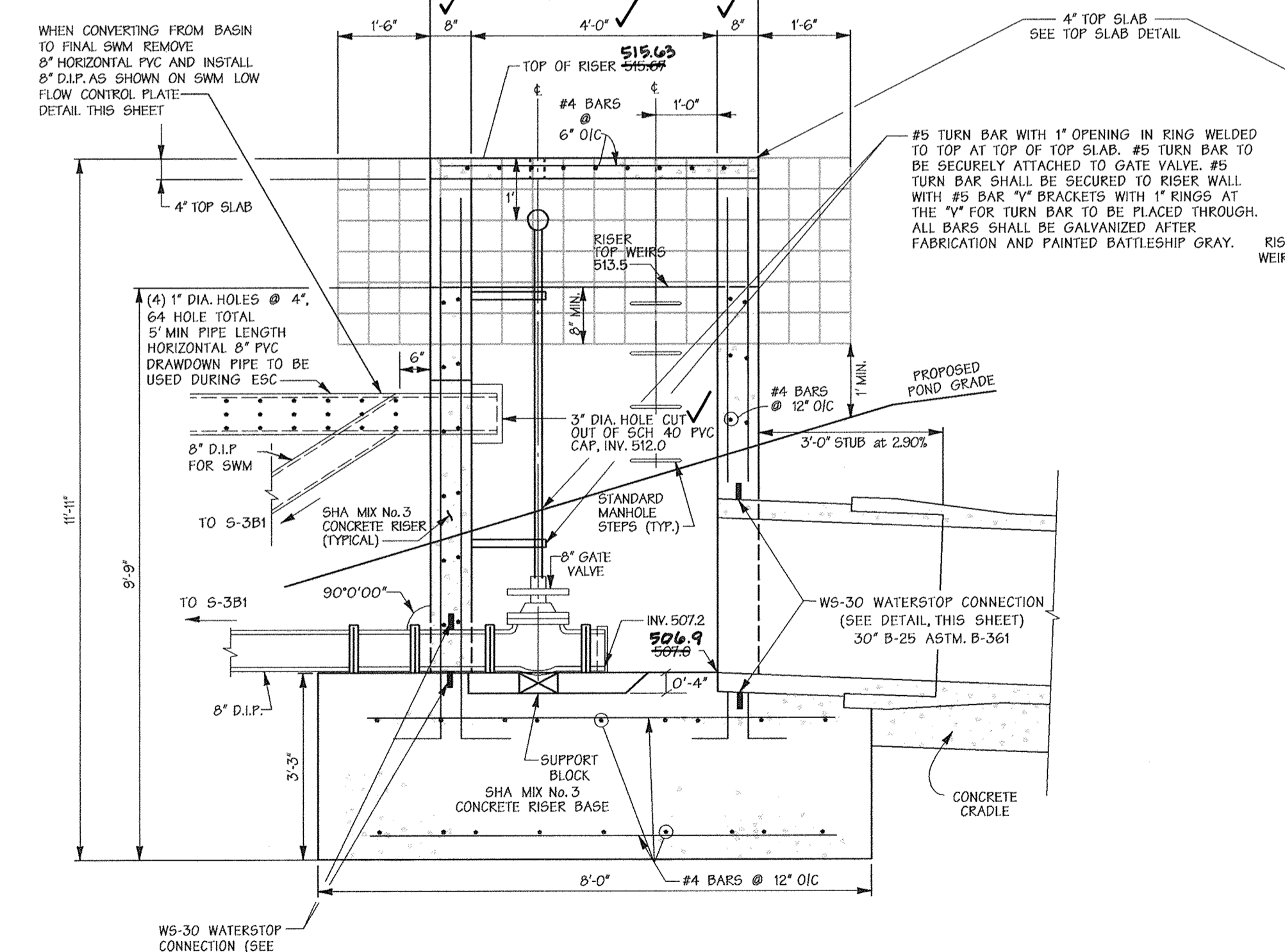
ESC CONTROL PLATE DETAIL
NOT TO SCALE



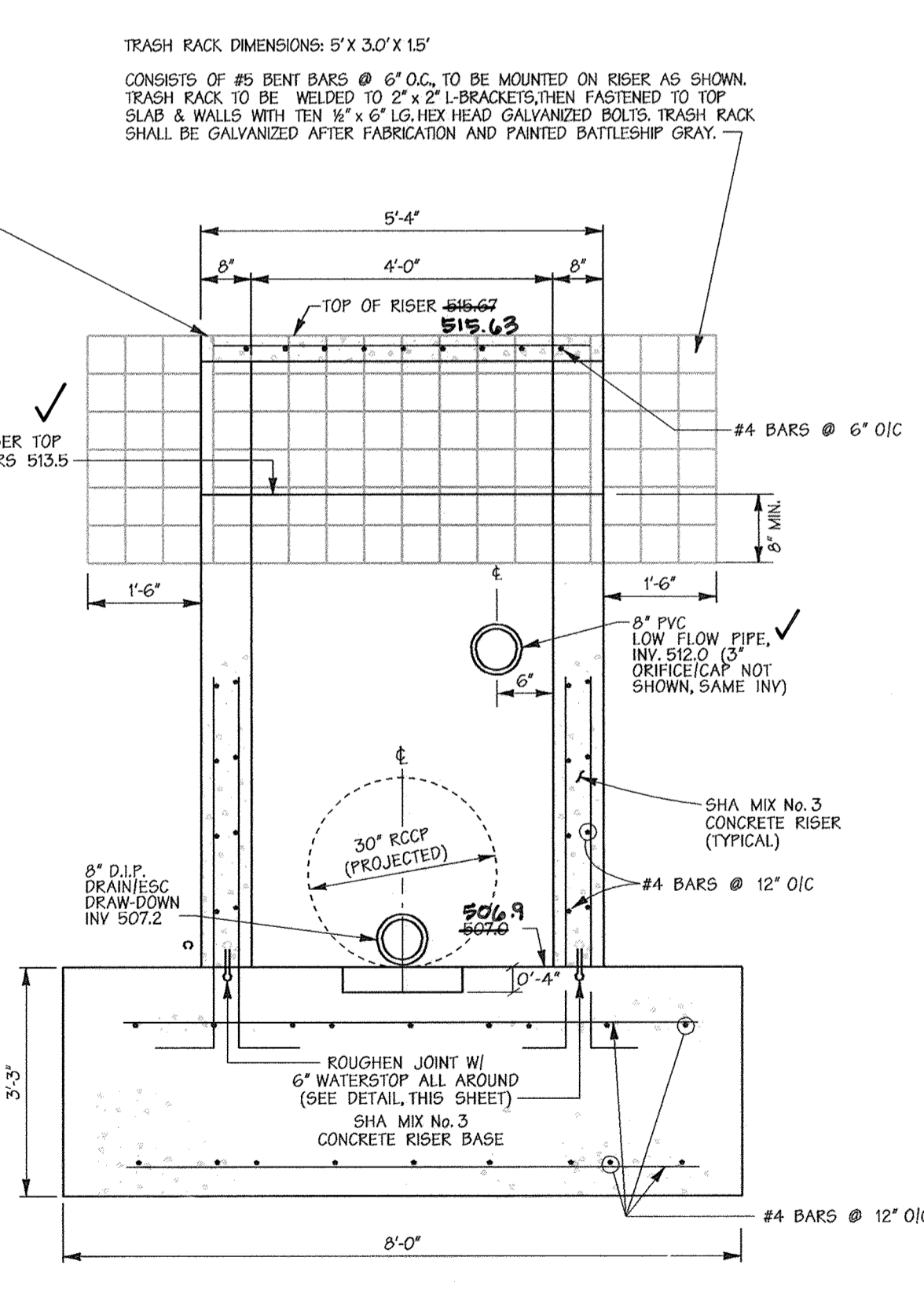
SWM LOW FLOW CONTROL PLATE DETAIL
NOT TO SCALE



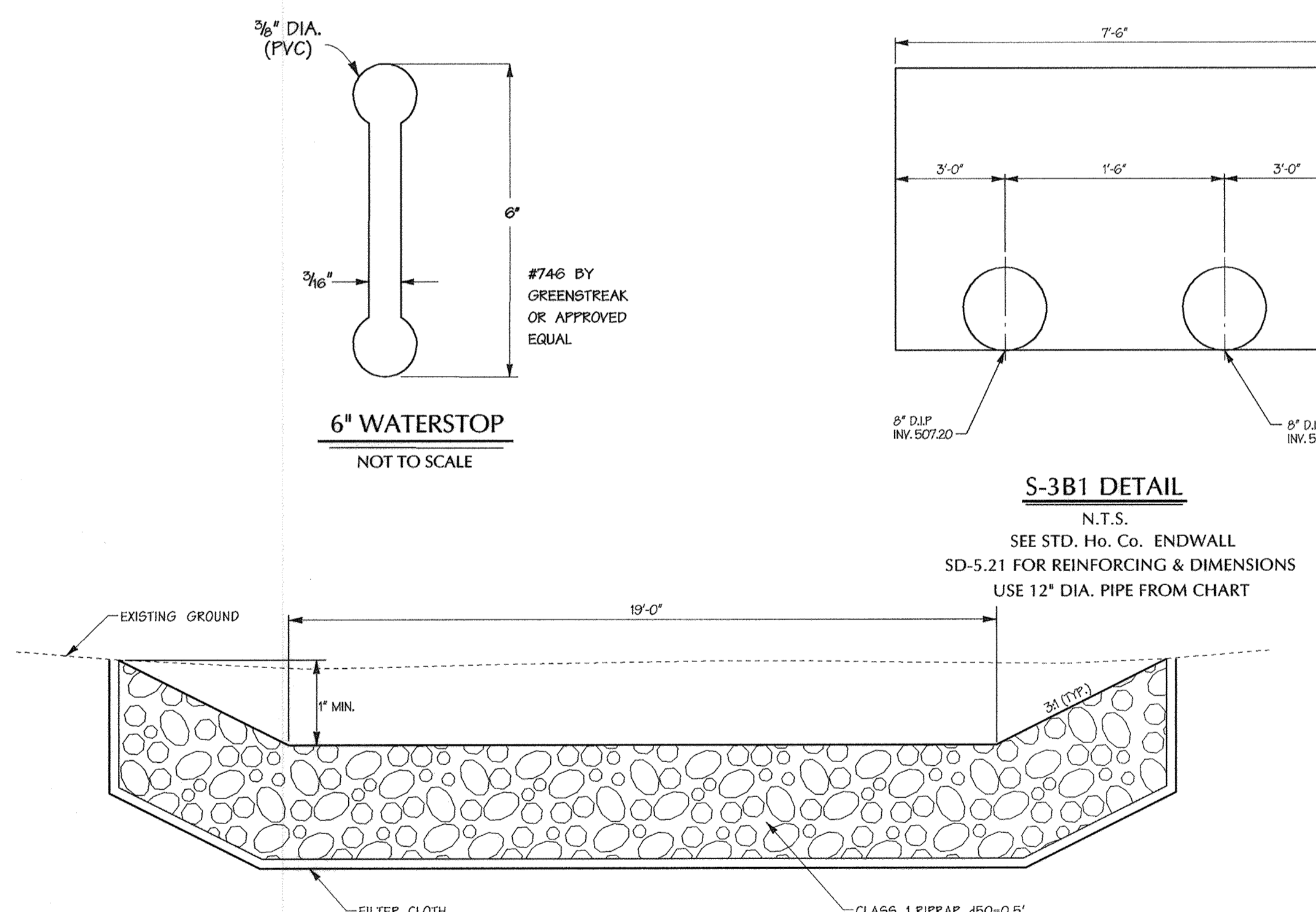
TOP SLAB
NOT TO SCALE
CAST IN PLACE



SECTION A
S-1
RISER DETAIL FOR SWM POND 3B
NOT TO SCALE
CAST IN PLACE



SECTION B
RISER DETAIL FOR SWM POND 3B
NOT TO SCALE
CAST IN PLACE



OUTLET CHANNEL DETAIL
16\"/>

ENGINEERS CERTIFICATE:
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Signature: *[Signature]*
PRINT NAME BELOW SIGNATURE: **Aaron Briggs**
REG. NO.: **28770**
DATE: **11-20-07**

DEVELOPERS CERTIFICATE:
I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Signature: *[Signature]*
PRINT NAME BELOW SIGNATURE: **Cynthia M. McLaughlin**
DATE: **11/20/07**

10-16-07
Date

STATE OF MARYLAND
PROFESSIONAL ENGINEER

Professional Engr. No. 28770

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
[Signature]
CHIEF, BUREAU OF HIGHWAYS
DATE: **12-7-07**

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
[Signature]
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: **11/17/07**

[Signature]
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: **12/11/07**

Date: No. Revision Description

BELLE HAVEN ESTATES
LOTS 1-48, NON-BUILDABLE PRESERVATION PARCELS A-O,
NON-BUILDABLE BULK PARCEL P
TAX MAP 14, GRID 20, PARCEL 86, ZONE RC-DEO
ELECTION DISTRICT NO. 3 HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER
Union Chapel Road, LLC.
3025 Chevrolet Drive
Suite 1
Ellicott City, MD 21042
Phone: (410) 461-5900

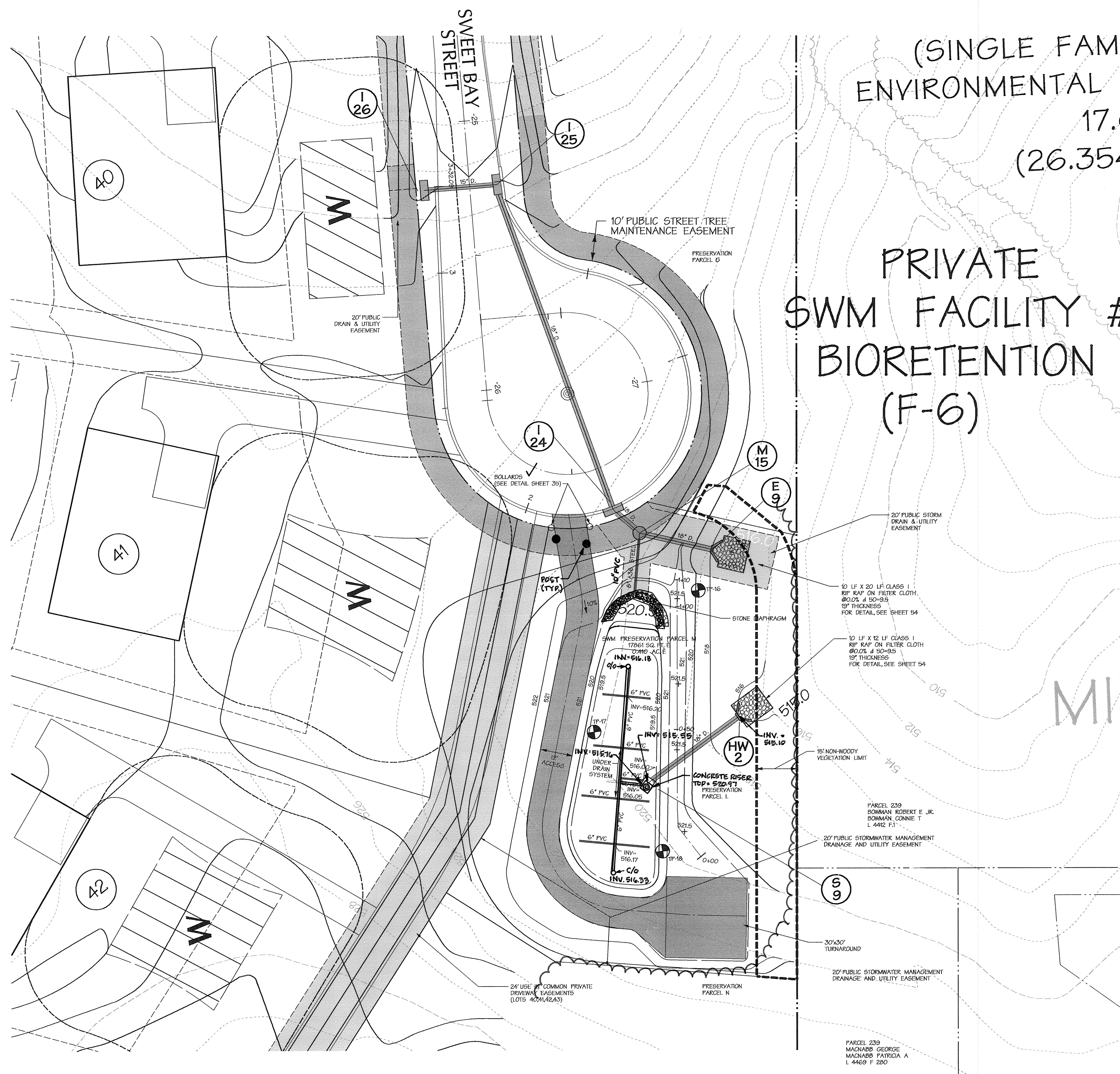
DMW
Duff-McCune-Walker, Inc.
200 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 596-3353
Fax: 296-4706

A Team of Land Planners,
Landscape Architects,
Engineers, Surveyors &
Environmental Professionals

TITLE
STORMWATER MANAGEMENT DETAILS
SWM FACILITY #3B

Des. By	CVS	Scale	AS SHOWN	Proj. No.	01067F
Dm. By	GM0	Date	10/16/07		
Chk. By	ATB	Approved	ATB		33 of 74

F-07-38



(SINGLE FAM ENVIRONMENTAL 17.1 (26.35)

PRIVATE SWM FACILITY #4 BIORETENTION (F-6)

LEGEND

- STREAM CENTERLINE
- 75' STREAM BUFFER
- WETLAND
- 25' WETLAND BUFFER
- 100 YR WSE + 1' FREEBOARD (I.E. FLOODPLAIN EASEMENT)
- EX. TREELINE
- EX. MINOR CONTOUR
- EX. MAJOR CONTOUR
- EX. STRUCTURE
- PROP. TREELINE (IF SHOWN)
- PROPERTY BOUNDARY
- RIGHT OF WAY LINE
- ROADWAY CENTERLINE
- 400
- 398
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- ① PROP. LOT NUMBER
- ADJACENT LOT LINE
- PROP. LOT LINE
- PROPOSED PUBLIC DRAINAGE AND UTILITY EASEMENT
- FOREST CONSERVATION EASEMENT
- SWM NATURAL CONSERVATION EASEMENT
- NON-WOODY VEGETATION LIMIT
- ⊙ B-102 BORING LOCATION AND NUMBER
- CLASS 1 RIP-RAP
- GABION MATTRESS

- OPERATION AND MAINTENANCE SCHEDULE FOR BIO-RETENTION AREAS (F-6) (PRIVATELY MAINTAINED)**
- ANNUAL MAINTENANCE OF PLANT MATERIAL, MULCH LAYER AND SOIL LAYER IS REQUIRED. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING.
 - SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL. THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT. TREATMENT OF ALL DISEASED TREES AND SHRUBS AND REPLACEMENT OF ALL DEFICIENT STAKES AND WIRES.
 - MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.
 - SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.

SWM FACILITY No. 4
DESIGN FLOW SUMMARY PROPOSED CONDITIONS

Structure Type	BIORETENTION (F-6)
Water Quality Type	BIORETENTION (F-6)
Stream Classification	USE III
MD 37B	NO
Water Quality Storage Required (Ac-ft)	0.060
Water Quality Storage Provided (Ac-ft)	0.090
Temporary Storage Required (75% WQv) (Ac-ft)	0.045
Temporary Storage Provided (75% WQv) (Ac-ft)	0.090
Watershed Area to Facility	2.9 AC.
Level of Management Required	WQv
Level of Management Provided	WQv
Minimum Top Width Provided	--
Maximum Height of Fill	--
Freeboard Provided, WQv	--
Recharge Required (Ac-ft)	0.19
Recharge Provided (Ac-ft)	0.028

WATER QUALITY IS MET BY THE BIORETENTION FACILITY WITH 10' OF PONDING. RECHARGE IS MET BY CREDITS (SEE DRAINAGE AREA MAP, SHEET 1 OF 7).

- NOTES**
- TREES, SHRUBS AND OTHER WOODY VEGETATION NOT ALLOWED WITHIN TWENTY-FIVE (25) FEET OF THE RISER STRUCTURE AND NOT ALLOWED WITHIN FIFTEEN (15) FEET OF ANY PORTION OF THE EMBANKMENT.
 - SWM FACILITY #4 SHALL BE OWNED BY THE HOME OWNERS ASSOCIATION (H.O.A.). THE H.O.A. SHALL PERFORM MOWING/TRASH REMOVAL AND ALL OTHER MAINTENANCE.
 - FOR BORING LOGS SEE SHEETS 10, 18 AND 19.

AS-BUILT CERTIFICATION

I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

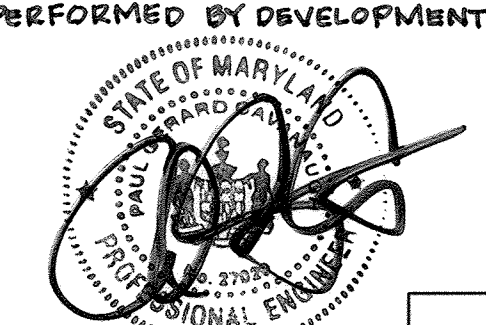
SIGNED: PAUL G. CAVANAUGH
LICENSE NO: 21020

DATE: 5/11/2018
EXPIRATION DATE: 1/25/2020

HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD '83/2011' AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 14-FB

VERTICAL DATUM FOR THIS AS-BUILT SURVEY IS NORTH AMERICAN VERTICAL DATUM (NAVD) 1988 AS PROJECTED BY THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATION OR HOWARD COUNTY BENCH MARKS 14-FB

THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS		
<i>Paul G. Cavanaugh</i>	12-7-07	DATE
CHIEF, BUREAU OF HIGHWAYS		
APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING		
<i>Cynthia H. Hays</i>	12/14/07	DATE
CHIEF, DIVISION OF LAND DEVELOPMENT		
<i>John P. ...</i>	12/11/07	DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION		

BELLE HAVEN ESTATES
LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O, NON-BUILDABLE BULK PARCEL P

TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO ELECTION DISTRICT NO. 3 HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER
Union Chapel Road, LLC
3025 Chevrolet Drive
Suite K
Ellicott City, MD 21042
Phone: (410) 461-5900

10-16-07
Date

Professional Engr. No. 28770

DEVELOPERS CERTIFICATE:
I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I/WE SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I/WE ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Cynthia M. McAviff
SIGNATURE OF DEVELOPER: CYNTHIA M. MCAVIFF
DATE: 11/19/07

ENGINEERS CERTIFICATE:
I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL, REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

Paul G. Cavanaugh
SIGNATURE OF ENGINEER: PAUL G. CAVANAUGH
DATE: 11-20-07
PRINT NAME BELOW SIGNATURE: Anew Briggs
28770

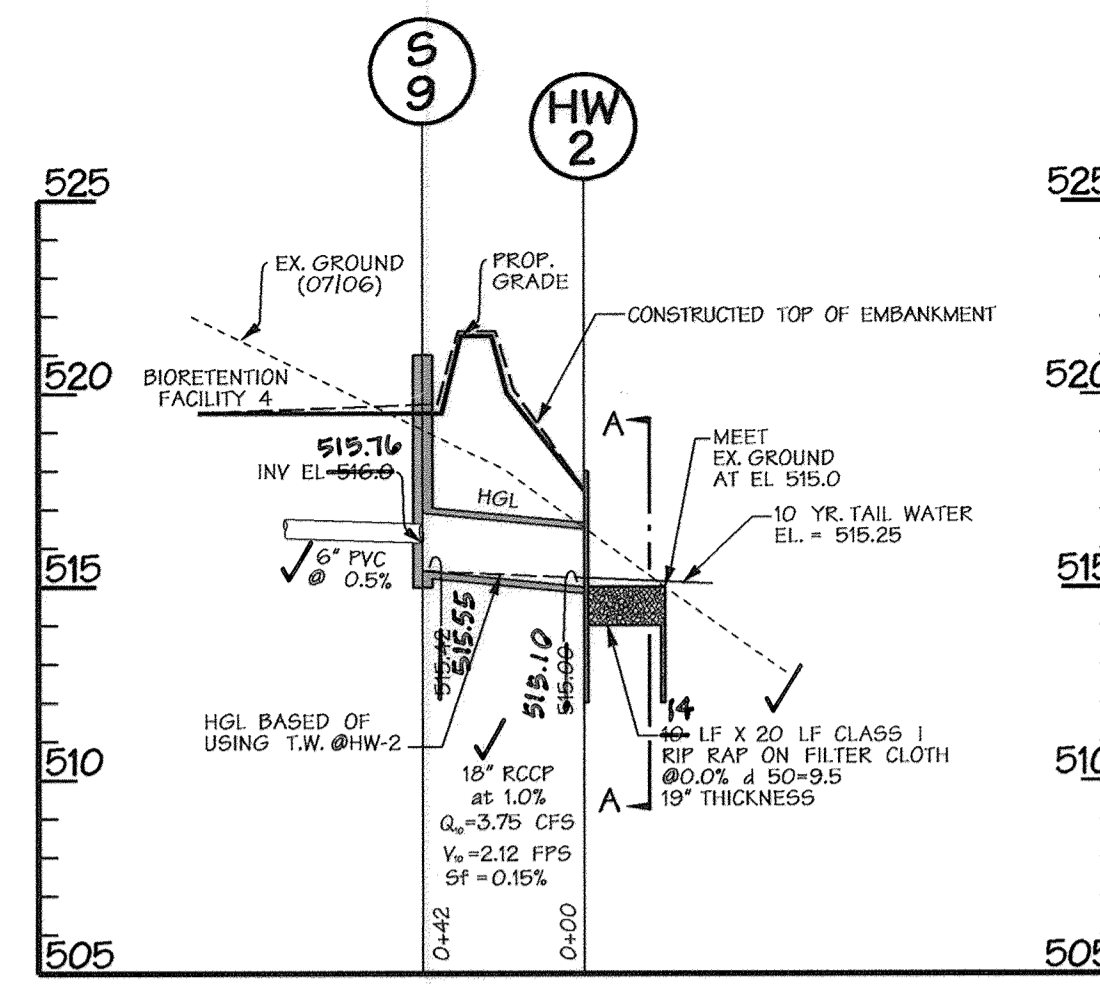
TITLE
STORMWATER MANAGEMENT PLAN

Des. By	CVS	Scale	1" = 20'	Proj. No.	01067F
Dwn. By	MDT	Date	10/16/07		
Chk. By	ATB	Approved	ATB		34 of 74

Table B.3.2 Materials Specifications for Bioretention

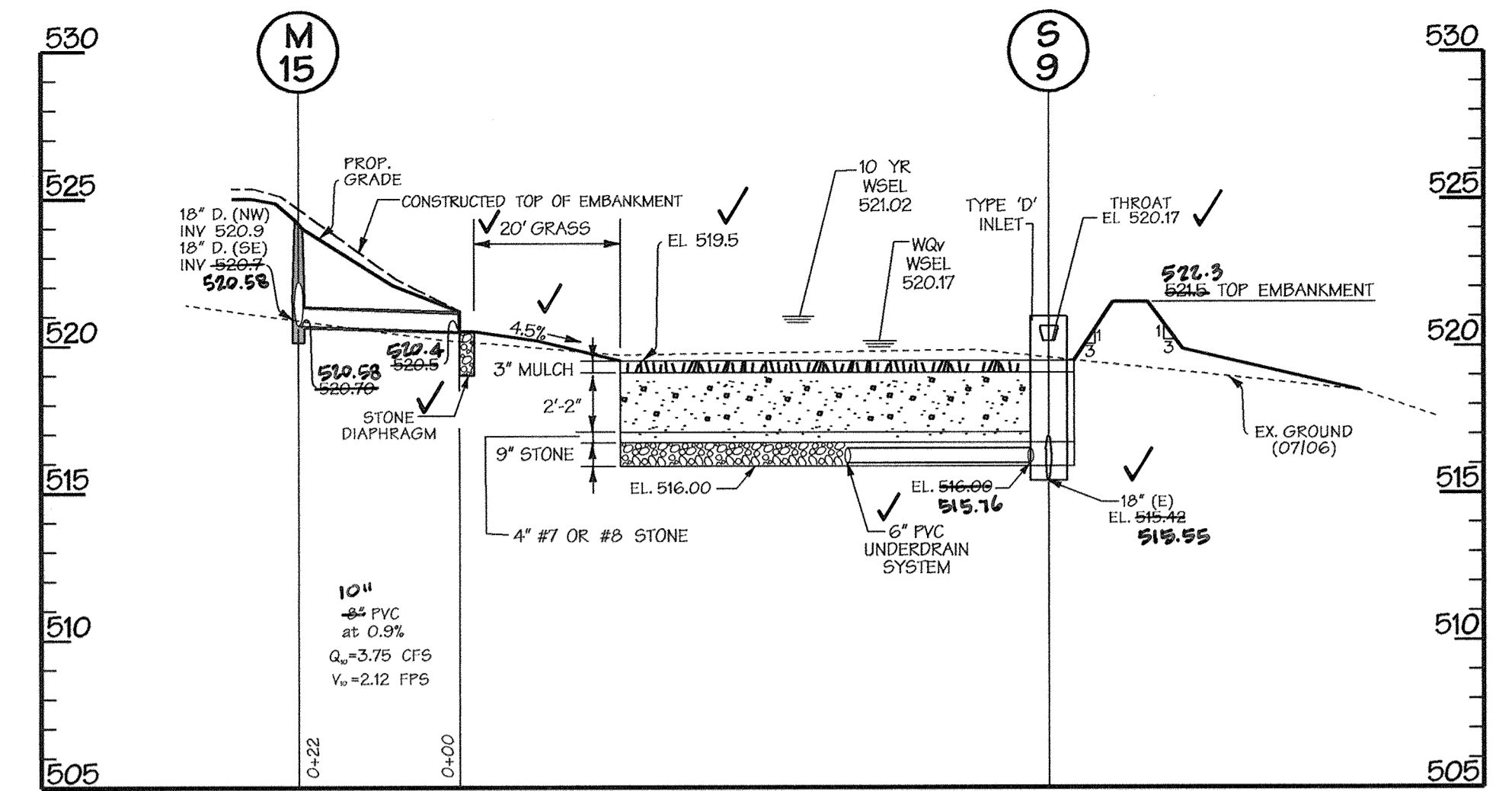
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
planting soil (2.5' to 4' deep)	sand 35-60% silt 30-50% clay 10-25%	n/a	USDA soil types loamy sand, sandy loam or loam
mulch	shredded hardwood	n/a	aged 6 months, minimum
pea gravel diaphragm and curtain drains	pea gravel: ASTM-D-448	pea gravel: No. 6 stone: 2' to 5"	
geotextile	Class "C" - apparent opening size (ASTM-D-4753), grab tensile strength (ASTM-D-4832), puncture resistance (ASTM-D-4853)	n/a	for use as necessary beneath underdrains only
underdrain gravel	AASHTO M-43	0.375" to 0.75"	
underdrain piping	F 758, Type PS 28 or AASHTO M-478	4" to 6" rigid schedule 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
poored in place concrete (if required)	MSHA Mix No. 3; F _c = 3500 psi @ 28 days, normal weight, air-entrained; reinforcing to meet ASTM-A615-60	n/a	on-site testing of poored-in-place concrete required: 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) not using previously approved State or local standards requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 350.8/89; vertical loading (H-10 or H-20); allowable horizontal loading (based on soil pressures); and analysis of potential cracking
sand (1' deep)	AASHTO-M-6 or ASTM-C-33	0.062" to 0.04"	Sand substitutions such as Diabase and Graystone #10 are not acceptable. No calcium carbonate or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.

Appendix B.3 Construction Specifications for Sand Filters, Bioretention and Open Channels



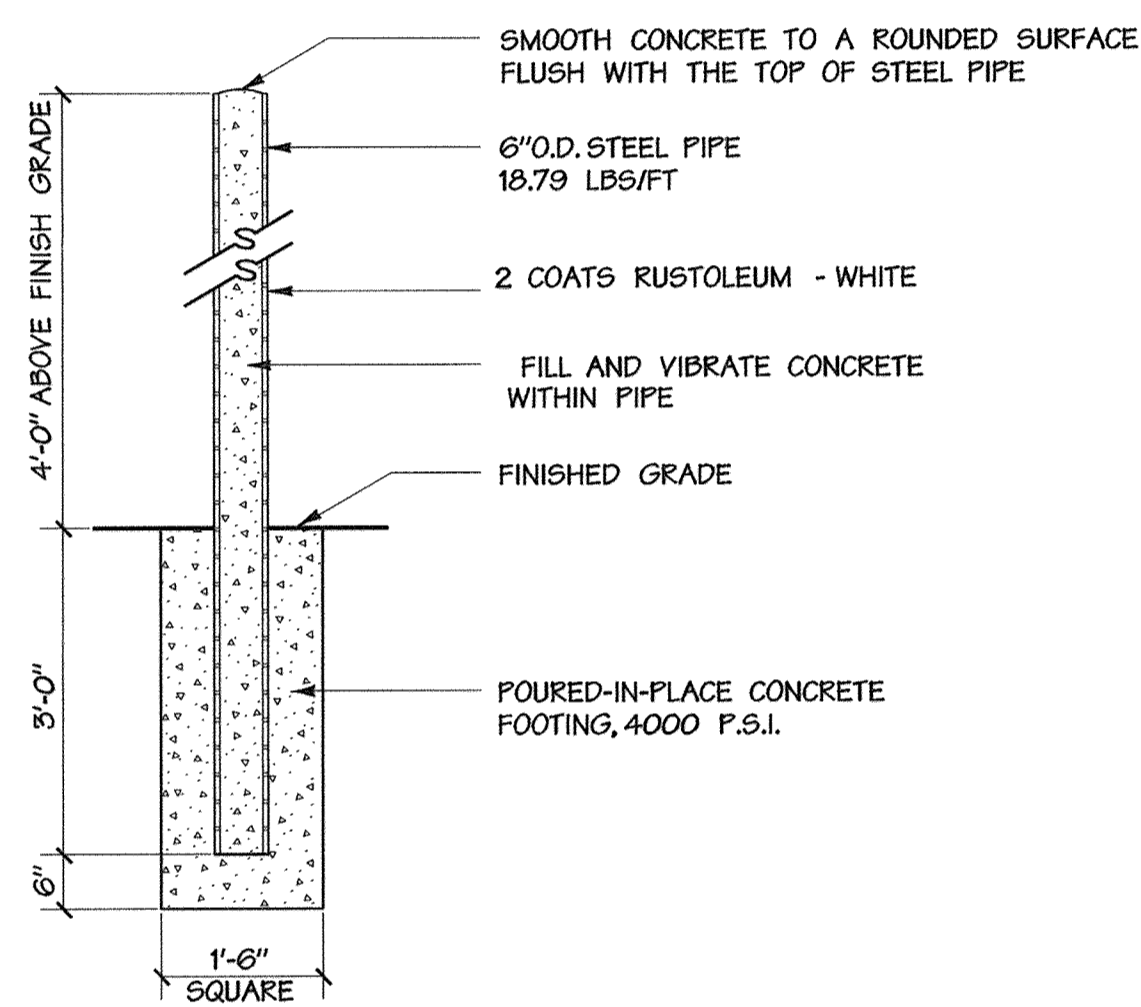
STORM DRAIN PROFILES

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

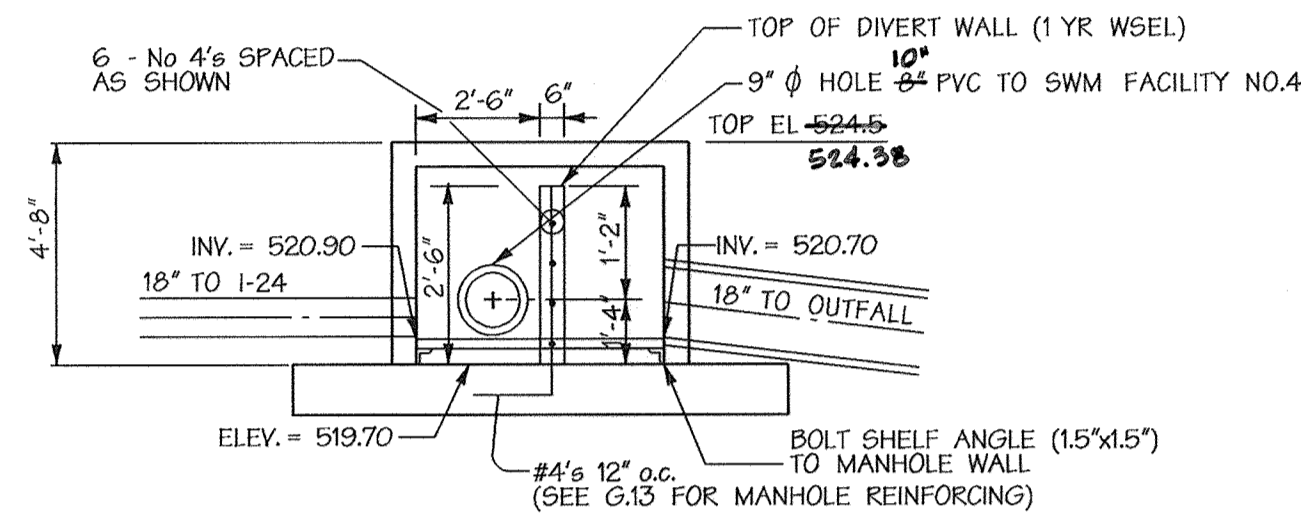


PROFILE OF BIORETENTION FACILITY # 4

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

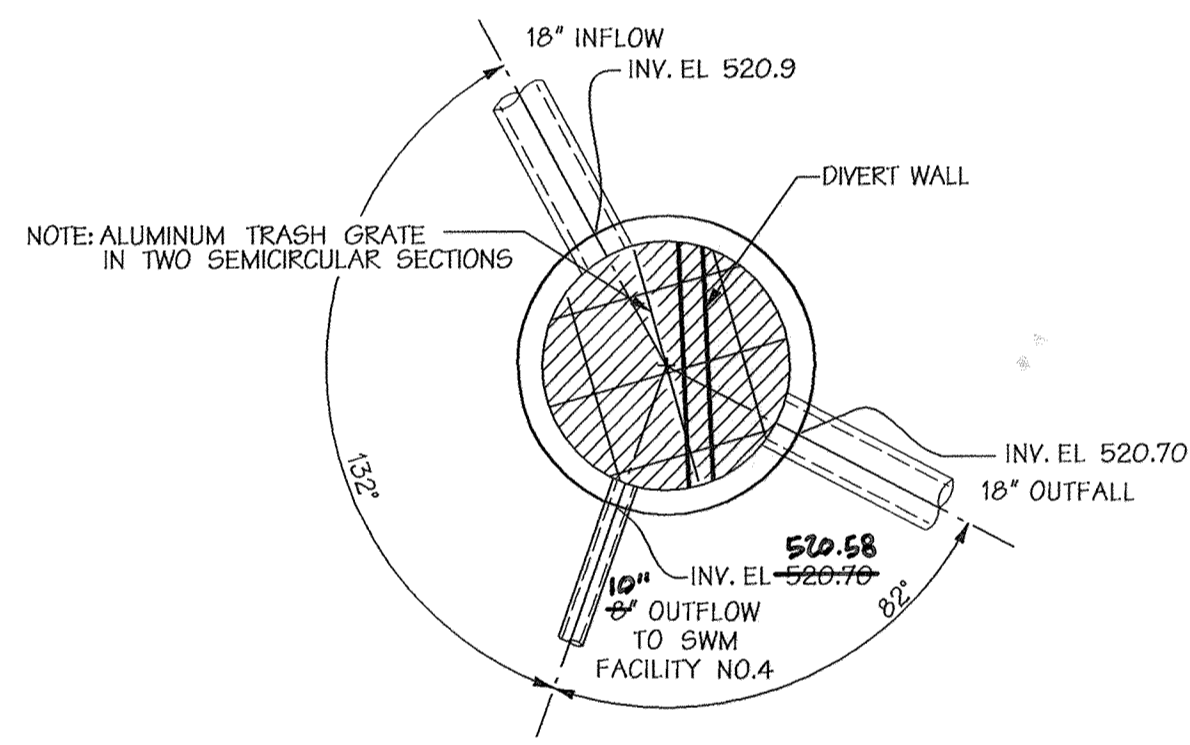


L Bollard
NOT TO SCALE



Elevation

NOT TO SCALE
Q 10 = 3.76 CFS

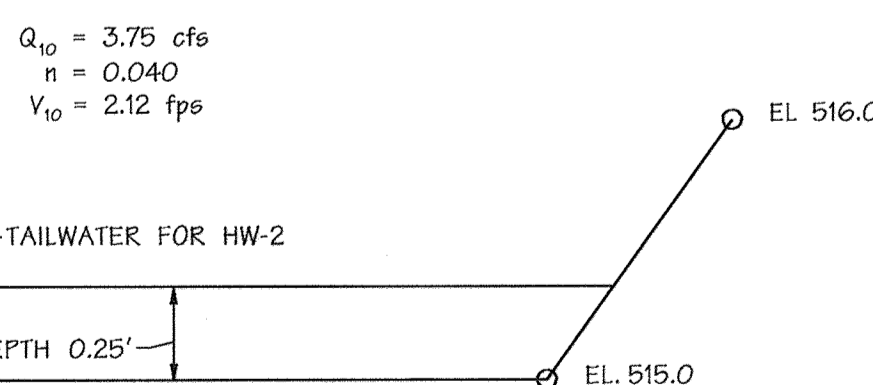


Plan

Scale: 1/4" = 1'-0"

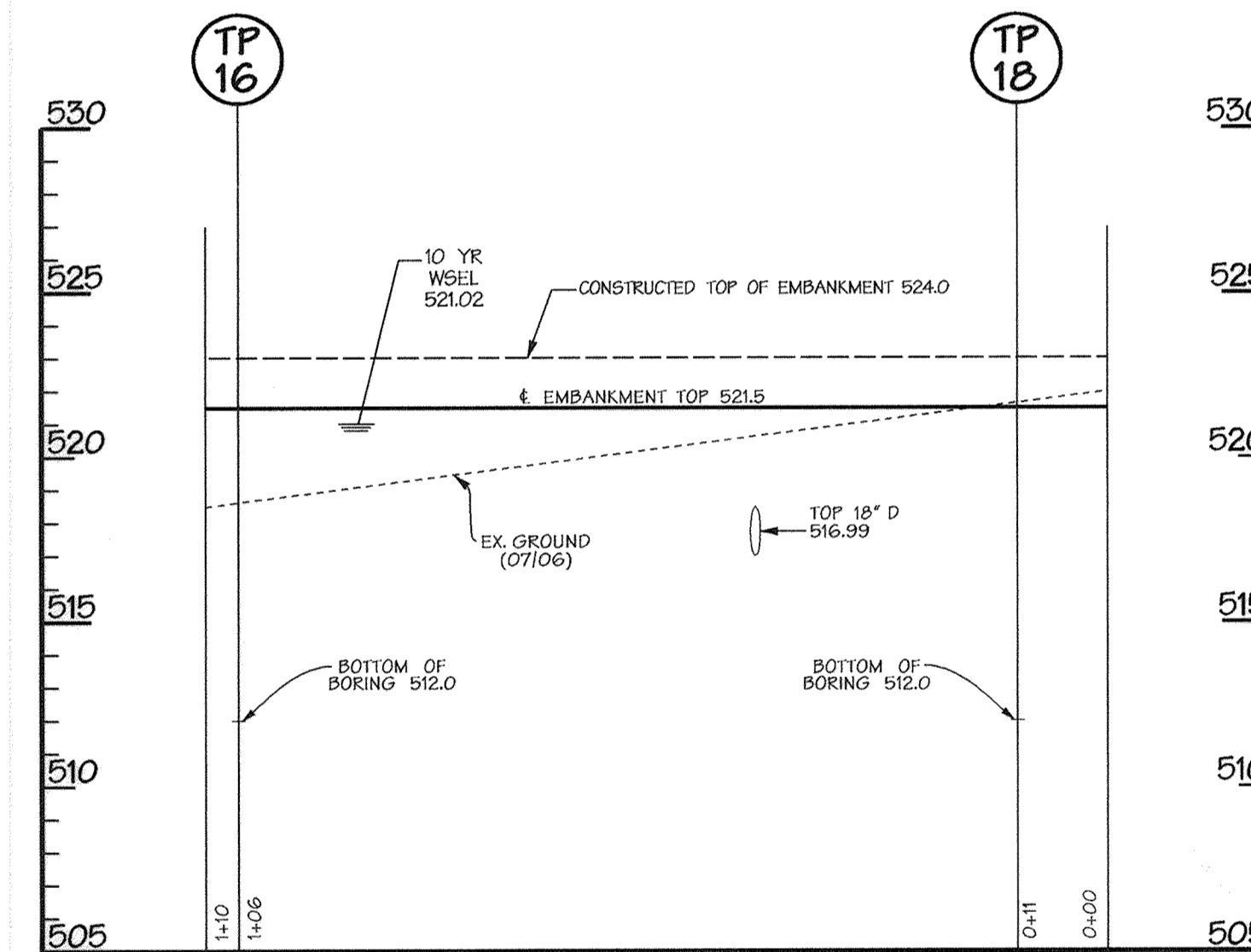
(M - 15) Diversion Structure At SWM Facility No. 4
5'-0" STANDARD MANHOLE (G 5.13)

Scale: 1/4" = 1'-0"



SECTION A-A

NOT TO SCALE



PROFILE ALONG CENTERLINE OF EMBANKMENT

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

I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

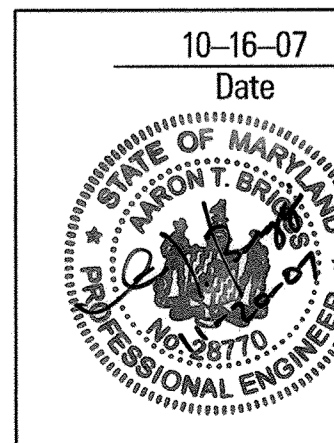
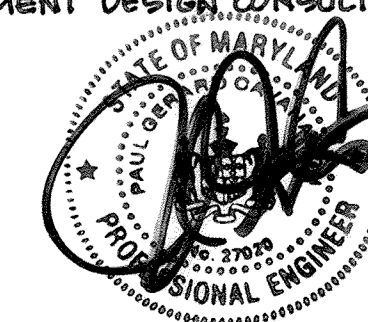
SIGNED: PAUL G. CAVANAUGH
LICENSE NO. 27020

DATE: 5/11/2018
EXPIRATION DATE: 1/29/2020

HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD 83/2011 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATION S 14 FB

VERTICAL DATUM FOR THIS AS-BUILT SURVEY IS NORTH AMERICAN VERTICAL DATUM (NAVD) 1998 AS PROJECTED BY THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATION OR HOWARD CONTROL BENCH MARKS 14 FB

THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.



DEVELOPERS CERTIFICATE:

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I/SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION (ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Signature: *Cynthia M. McAuffee*
DATE: 11/17/07
SIGNATURE OF DEVELOPER: CYNTHIA M. MCAUFFEE
PRINT NAME: BELOW SIGNATURE

ENGINEERS CERTIFICATE:

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL, REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTICED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

Signature: *AA Ron Briggs*
DATE: 11-20-07
SIGNATURE OF ENGINEER: AA Ron Briggs
PRINT NAME: BELOW SIGNATURE

NOTE: ACTUAL LENGTH AND DEPTH OF CUT-OFF TRENCH SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER IN THE FIELD. FILL MATERIAL FOR THE CUT-OFF TRENCH & CLAY CORE SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION CL, CL, CH, OR SC. CONSIDERATION MAY BE GIVEN TO THE USE OF OTHER MATERIALS IN THE EMBANKMENT IF DESIGN AND CONSTRUCTION ARE SUPERVISED BY A GEOTECHNICAL ENGINEER.

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
Signature: *W. J. ...*
CHIEF, BUREAU OF HIGHWAYS
DATE: 12-7-07

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Signature: *...*
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 12/14/07
Signature: *...*
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 12/14/07

Date	No.	Revision Description

BELLE HAVEN ESTATES

LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O, NON-BUILDABLE BULK PARCEL P, TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND

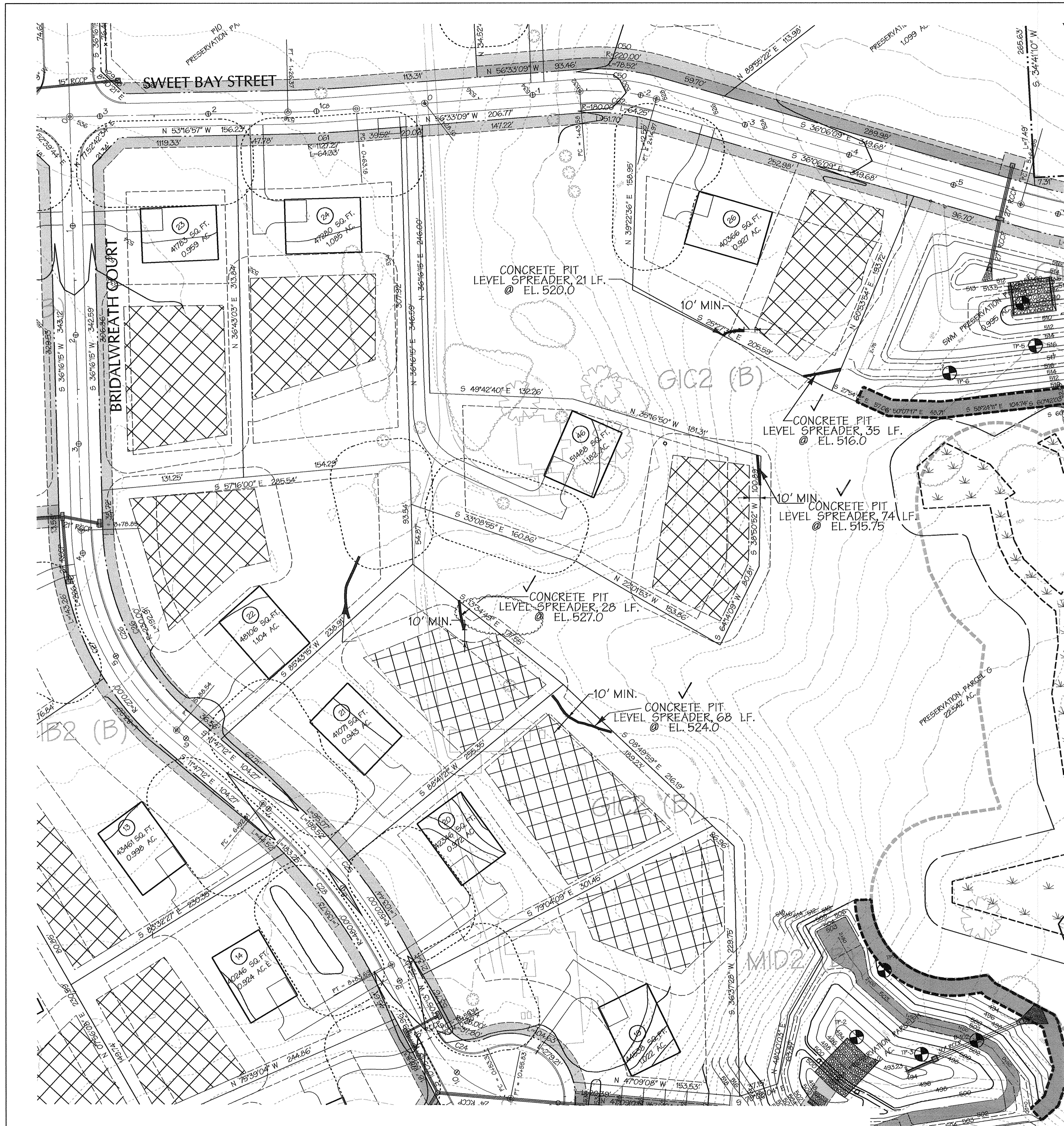
OWNER/DEVELOPER
Union Chapel Road, LLC,
9025 Chevrolet Drive
Suite K
Ellicott City, MD 21042
Phone: (410) 461-5800

DMW
Date: 10-16-07
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

TITLE: **STORMWATER MANAGEMENT PROFILES & DETAILS**
SWM FACILITY #4

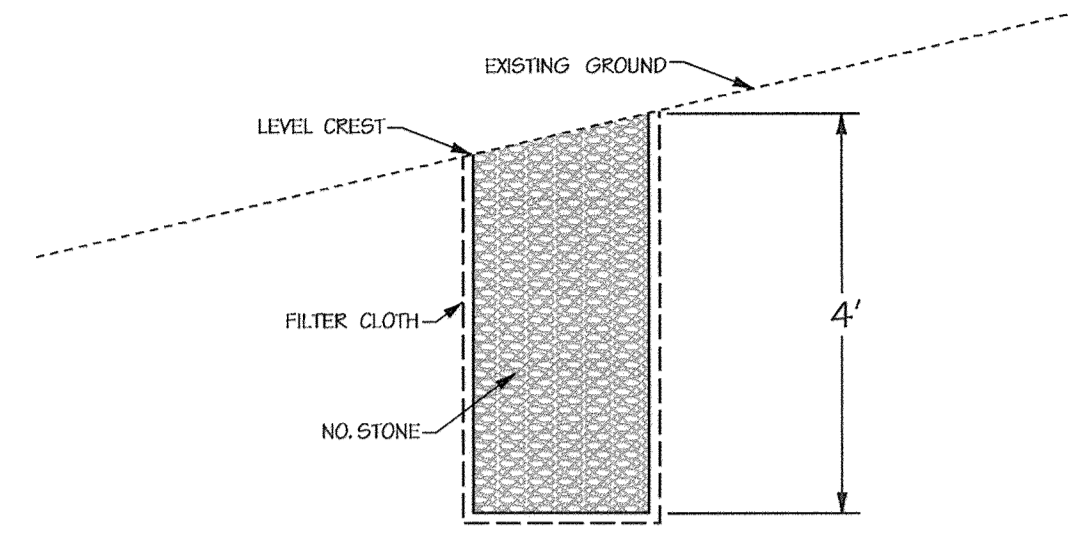
Des. By: CVS	Scale: AS SHOWN	Proj. No. 01067F
Dm. By: GMD	Date: 10/16/07	35 of 74
Chk. By: ATB	Approved: ATB	

Professional Engr. No. 28770



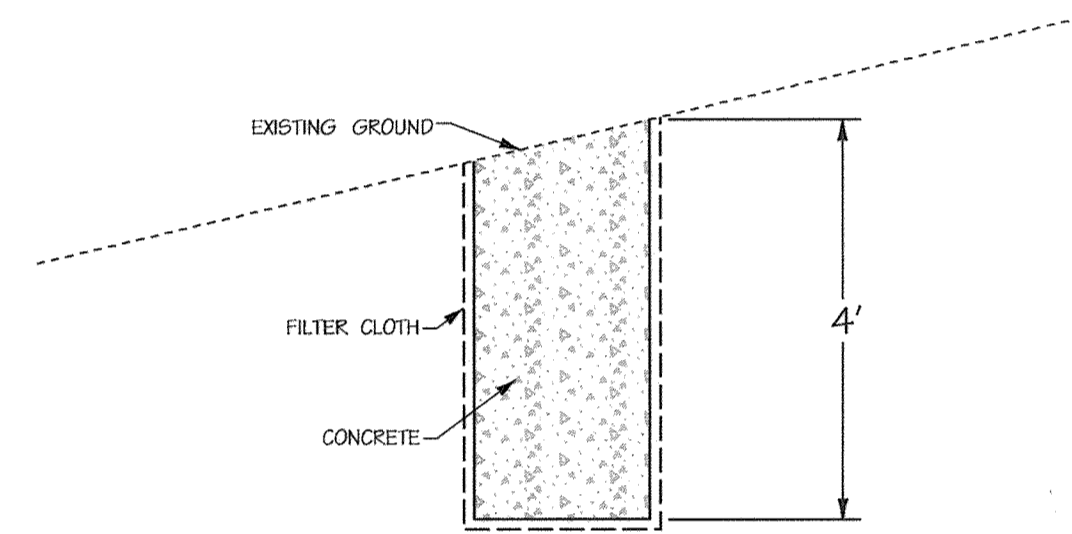
LEGEND

- STREAM CENTERLINE
- 75' STREAM BUFFER
- WETLAND
- 25' WETLAND BUFFER
- 100 YR. WSE + 1' FREEBOARD (LE-FLOODPLAIN EASEMENT)
- EX. TREELINE
- EX. MINOR CONTOUR
- EX. MAJOR CONTOUR
- EX. STRUCTURE
- PROP. TREELINE (IF SHOWN)
- PROPERTY BOUNDARY
- RIGHT OF WAY LINE
- ROADWAY CENTERLINE
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROP. LOT NUMBER
- ADJACENT LOT LINE
- PROP. LOT LINE
- PROPOSED PUBLIC DRAINAGE AND UTILITY EASEMENT
- FOREST CONSERVATION EASEMENT
- SWM NATURAL CONSERVATION EASEMENT
- NON-WOODY VEGETATION LIMIT
- B-102 BORING LOCATION AND NUMBER
- CLASS I RIP-RAP
- GABION MATTRESS
- LEVEL SPREADER



SEE DRAINAGE AREA MAPS FOR LOCATIONS & LENGTHS
ENTIRE LEVEL SPREADER SHALL BE PARALLEL TO THE CONTOUR

STONE PIT LEVELSPREADER DETAIL
NOT TO SCALE



SEE DRAINAGE AREA MAPS FOR LOCATIONS & LENGTHS
ENTIRE LEVEL SPREADER SHALL BE PARALLEL TO THE CONTOUR

CONCRETE LEVEL SPREADER
NOT TO SCALE

AS-BUILT CERTIFICATION

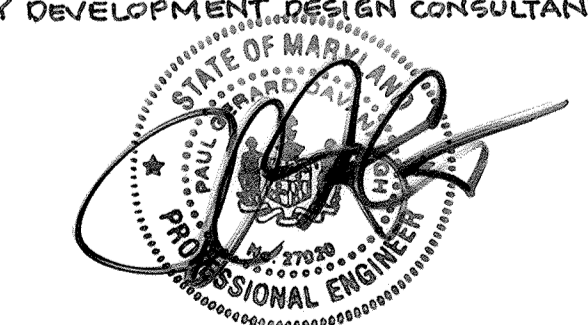
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SIGNED: PAUL G. CAVANAUGH DATE: 5/11/2018
LICENSE NO: 27020 EXPIRATION DATE: 1/25/2020

HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD 83/2011 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 14 FB

VERTICAL CONTROL FOR THIS AS-BUILT SURVEY IS NORTH AMERICAN VERTICAL DATUM (NAVD) 1988 AS PROJECTED BY THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATION OR HOWARD CONTROL BENCH MARKS 14 FB

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DEVELOPERS CERTIFICATE:
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Cynthia M. McLaughlin DATE: 11/17/07
SIGNATURE OF DEVELOPER: CYNTHIA M. McLAUGHLIN DATE: 11/17/07
PRINT NAME BELOW SIGNATURE

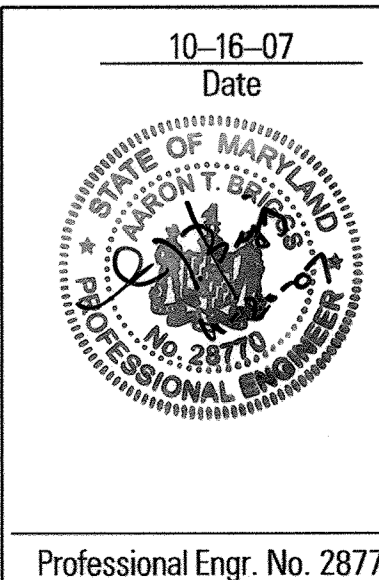
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Paul G. Cavanaugh DATE: 11-20-07
SIGNATURE OF ENGINEER: PAUL G. CAVANAUGH DATE: 28770
PRINT NAME BELOW SIGNATURE

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS		
<i>With 2. mald</i>	DATE	12-7-07
CHIEF, BUREAU OF HIGHWAYS		
APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING		
<i>Cynthia Hunter</i>	DATE	12/14/07
CHIEF, DIVISION OF LAND DEVELOPMENT		
<i>Paul G. Cavanaugh</i>	DATE	12/14/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION		
Date	No.	Revision Description

BELLE HAVEN ESTATES
LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O, NON-BUILDABLE BULK PARCEL P
TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER
Union Chapel Road, LLC
9025 Chevrolet Drive
Suite K
Ellicott City, MD 21042
Phone: (410) 461-8800

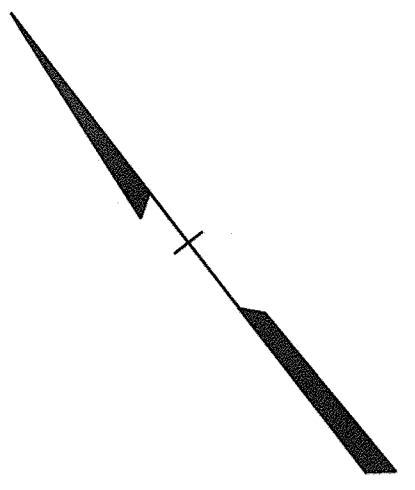
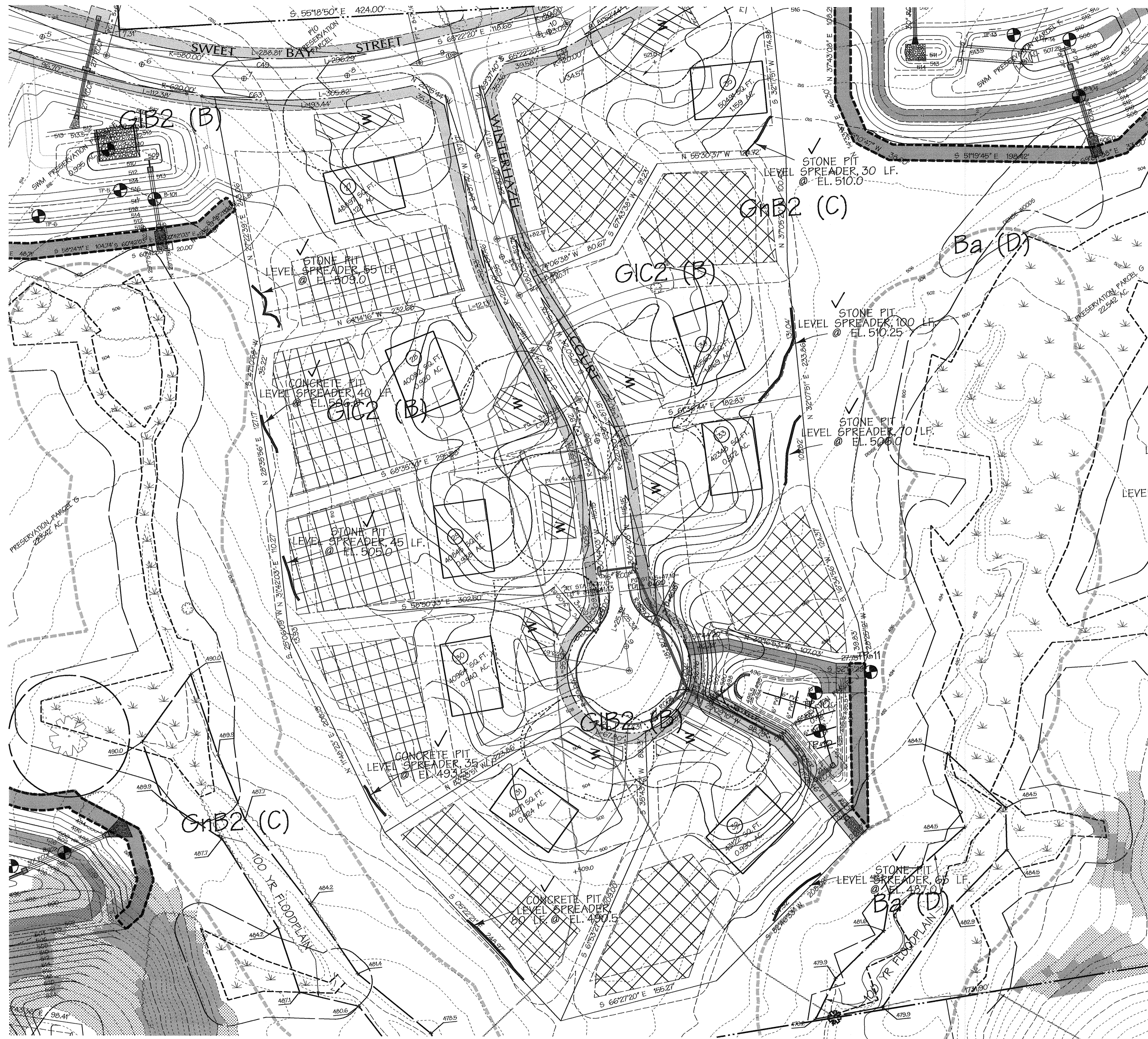


10-16-07
Date

STORMWATER MANAGEMENT
LEVEL SPREADER LOCATIONS

Des. By	KAD	Scale	1" = 50'	Proj. No.	01067F
Drn. By	GMO	Date	10/16/07		
Clk. By	ATB	Approved	ATB		36 of 74

Professional Engr. No. 28770



10' MIN.

LEGEND

	STREAM CENTERLINE
	75' STREAM BUFFER
	WETLAND
	25' WETLAND BUFFER
	100 YR WSE + 1' FREEBOARD (E.F. FLOODPLAIN EASEMENT)
	EX. TREELINE
	EX. MINOR CONTOUR
	EX. MAJOR CONTOUR
	EX. STRUCTURE
	PROP. TREELINE (IF SHOWN)
	PROPERTY BOUNDARY
	RIGHT OF WAY LINE
	ROADWAY CENTERLINE
	400' PROPOSED MAJOR CONTOUR
	398' PROPOSED MINOR CONTOUR
	PROP. LOT NUMBER
	ADJACENT LOT LINE
	PROP. LOT LINE
	PROPOSED PUBLIC DRAINAGE AND UTILITY EASEMENT
	FOREST CONSERVATION EASEMENT
	SWM NATURAL CONSERVATION EASEMENT
	NON-WOODY VEGETATION LIMIT
	B-102 BORING LOCATION AND NUMBER
	CLASS RIP-RAP
	GABION MATTRESS
	LEVEL SPREADER

AS-BUILT CERTIFICATION

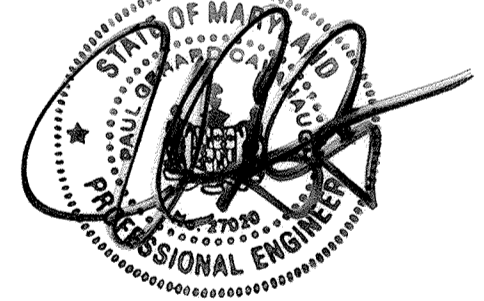
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SIGNED: PAUL G. CAVANAUGH
LICENSE NO: 27020
DATE: 9/11/2018
EXPIRATION DATE: 1/25/2020

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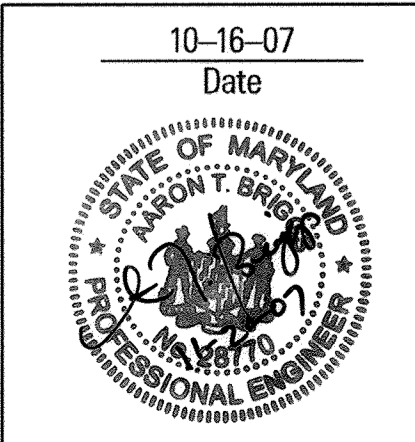


APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
With R. Cavanaugh
CHIEF, BUREAU OF HIGHWAYS
DATE: 12-7-07

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Andy Smith
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 12/11/07
W.D. Dorman
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 12/11/07

Date	No.	Revision Description

BELLE HAVEN ESTATES
LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O,
NON-BUILDABLE BULK PARCEL P
TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND
OWNER/DEVELOPER
Union Chapel Road, LLC,
8025 Chevrolet Drive
Suite K
Ellicott City, MD 21042
Phone: (410) 461-5800



DEVELOPERS CERTIFICATE:
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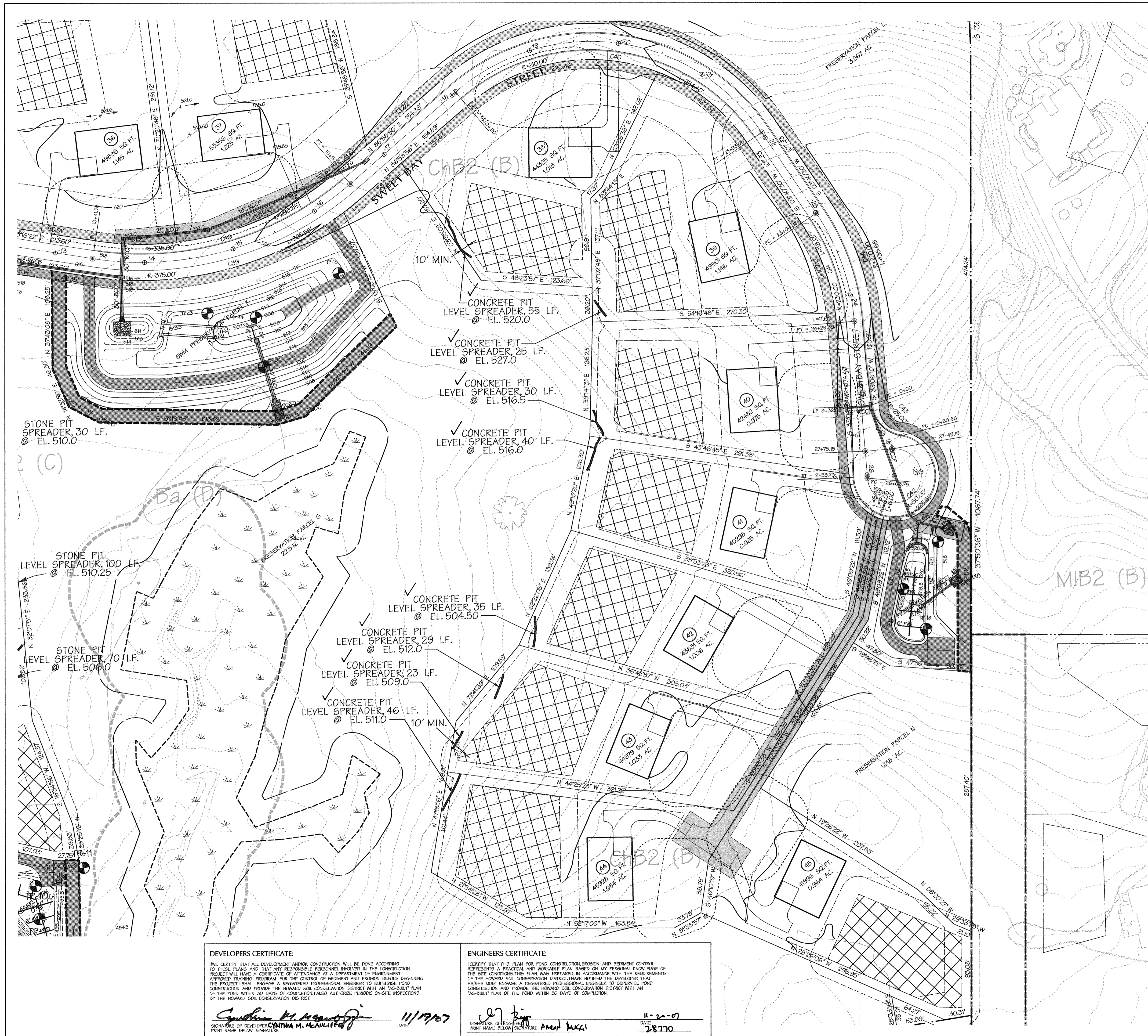
Cynthia M. McAuliffe
SIGNATURE OF DEVELOPER
PRINT NAME: CYNTHIA M. MCAULIFFE
DATE: 11/14/07

ENGINEERS CERTIFICATE:
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Paul G. Cavanaugh
SIGNATURE OF REGISTERED PROFESSIONAL ENGINEER
PRINT NAME: PAUL G. CAVANAUGH
DATE: 11-20-07
LICENSE NO: 28770

TITLE: STORMWATER MANAGEMENT
LEVEL SPREADER LOCATIONS

Des. By	KAD	Scale	1" = 50'	Proj. No.	01067F
Dm. By	GMO	Date	10/16/07	37 of 74	
Chk. By	ATB	Approved	ATB	Professional Engr. No. 28770	



LEGEND

	STREAM CENTERLINE
	75' STREAM BUFFER
	WETLAND
	25' WETLAND BUFFER
	100' YR. WSE + 1' FREEBOARD (ALL FLOODPLAIN EASEMENT)
	EX. TREELINE
	EX. MINOR CONTOUR
	EX. MAJOR CONTOUR
	EX. STRUCTURE
	PROP. TREELINE (IF SHOWN)
	PROPERTY BOUNDARY
	RIGHT OF WAY LINE
	ROADWAY CENTERLINE
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	PROP. LOT NUMBER
	ADJACENT LOT LINE
	PROP. LOT LINE
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	FOREST CONSERVATION EASEMENT
	SWM NATURAL CONSERVATION EASEMENT
	NON-WOODY VEGETATION LIMIT
	BORING LOCATION AND NUMBER
	GLASS RIP-RAP
	GABION MATTRESS
	LEVEL SPREADER

AS-BUILT CERTIFICATION

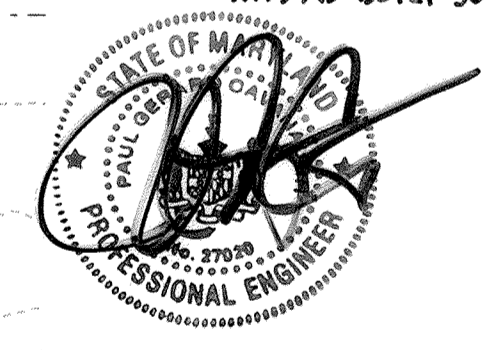
I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

SIGNED: PAUL G. CAVANAUGH DATE: 5/11/2018
 LICENSE NO: 27020 EXPIRATION DATE: 1/25/2020

HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD '83/2011 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 14FB

VERTICAL DATUM FOR THIS AS-BUILT SURVEY IS NORTH AMERICAN VERTICAL DATUM (NAV'D) 1998 AS PROJECTED BY THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATION OR HOWARD COUNTY CONTROL BENCH MARKS 14FB

THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS		
<i>Walter Z. Muhl</i>	12-7-07	DATE
APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING		
<i>Judy Lander</i>	12/11/07	DATE
<i>Chris Pannunzi</i>	12/11/07	DATE
Date	No.	Revision Description

BELLE HAVEN ESTATES

LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O, NON-BUILDABLE BULK PARCEL P
 TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
 ELECTION DISTRICT NO. 3 HOWARD COUNTY, MARYLAND
 OWNER/DEVELOPER
 Union Chapel Road, LLC.
 9025 Chevrolet Drive
 Suite K
 Ellicott City, MD 21042
 Phone: (410) 461-6600

10-16-07
Date

Professional Engr. No. 28770

DEVELOPERS CERTIFICATE:

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SUBSTANT AND EROSION BEFORE BEGINNING THE PROJECT. I/SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I/ALSO AUTHORIZE PERIODS ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Cynthia M. McAniff 11/17/07 DATE
 SIGNATURE OF DEVELOPER PRINT NAME: CYNTHIA M. McANIFF

ENGINEERS CERTIFICATE:

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTICED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

Paul G. Cavanaugh 11-20-07 DATE
 SIGNATURE OF ENGINEER PRINT NAME: PAUL G. CAVANAUGH 28770

TITLE		
STORMWATER MANAGEMENT		
LEVEL SPREADER LOCATIONS		
Des. By	KAD	Scale 1" = 50'
Proj. No.	01067F	
Drn. By	GMO	Date 10/16/07
38 of 74		
Chk. By	ATB	Approved ATB

**STORMWATER MANAGEMENT POND
GENERAL CONSTRUCTION SPECIFICATIONS**

All stormwater management facilities shall be constructed in accordance with Baltimore County's "Standard Specifications and Details for Construction", (1985) and the N.R.C.S. Maryland "Standards and Specifications for Ponds", (MD-378, 2000).

These specifications are appropriate to all ponds within the scope of the standard practice MD-378. All references to ASTM and AASHTO specifications apply to the most recent version.

Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped of topsoil. All trees, vegetation, roots, and other objectionable material shall be removed. Channel banks and sharp breaks shall be sloped to no steeper than 1:1. All trees shall be cleared and grubbed within 15 feet of the toe of the embankment.

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush and stumps shall be cut approximately level with the ground surface. For dry stormwater management ponds, a minimum of a 25-foot radius around the inlet structure shall be cleared.

All cleared and grubbed material shall be disposed of outside and below the limits of the dam and reservoir as directed by the owner or his representative. When specified, a sufficient quantity of topsoil will be stockpiled in a suitable location for use on the embankment and other designated areas.

MATERIAL - The fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, wood, rubbish, stones greater than 6", frozen or other objectionable materials. Fill material for the center of the embankment and cut off trench shall conform to Unified Soil Classification GC, Gc, CH, or CL and must have at least 30% passing the #200 sieve. Consideration may be given to the use of other materials in the embankment if designed by a geotechnical engineer. Such special designs must have construction supervised by a geotechnical engineer.

Materials used in the outer shell of the embankment must have the capability to support vegetation of the quality required to prevent erosion of the embankment.

PLACEMENT - Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in maximum 8 inch thick (before compaction) layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portions of the embankment. The principal spillway must be installed concurrently with fill placement and not excavated into the embankment.

Control the movement of the hauling equipment over the fill so that the entire surface of each lift is compacted to 95% of AASHTO Specification T-99 (or equivalent ASTM Specifications). Fill material must contain enough moisture to yield the required degree of compaction with the equipment used.

When required by the reviewing agency the minimum required density shall not be less than 95% of the maximum dry density with a moisture content within +/- 2% of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the engineer at the time of construction. All compaction is to be determined by AASHTO Method

CUT OFF TRENCH - The cut off trench shall be excavated into impervious material along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be governed by the equipment used for excavation, with the minimum width being four feet. The depth shall be at least four feet below existing grade or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability.

EMBANKMENT CORE - The core shall be parallel to the centerline of the embankment as shown on the plans. The top width of the core shall be a minimum of four feet. The height shall extend up to at least the 10 year water elevation or as shown on the plans. The side slopes shall be 1 to 1 or flatter. The core shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability. In addition, the core shall be placed concurrently with the outer shell of the embankment.

4. STRUCTURE BACKFILL

Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed 4 inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than 4 feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24" or greater over the structure or pipe.

Structure backfill may be flowable fill meeting the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 313 as modified. The mixture shall have a 100-200 psi 28 day unconfined compressive strength. The flowable fill shall have a minimum pH of 4.0 and a minimum resistivity of 2,000 ohm-cm. Material shall be placed such that a minimum of 6" (measured perpendicular to the outside of the pipe) of flowable fill shall be under (bedding), over and, on the sides of the pipe. It only needs to extend up to the spring line for rigid conduits. Average slump of the fill shall be 7" to assure flowability of the material. Adequate measures shall be taken (sand bags, etc.) to prevent floating the pipe. When using flowable fill, all metal pipe shall be bituminous coated. Any adjoining soil fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material shall completely fill all voids adjacent to the flowable fill zone. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a structure or pipe unless there is a compacted fill of 24" or greater over the structure or pipe. Backfill material outside the structural backfill (flowable fill) zone shall be of the type and quality conforming to that specified for the core of the embankment or other embankment materials.

5. REMOVAL AND REPLACEMENT OF DEFECTIVE FILL

Fill placed at densities lower than specified minimum density or at moisture contents outside the specified acceptable range of moisture content or otherwise not conforming to the requirements of the specifications shall be reworked to meet the requirements or removed and replaced by acceptable fill. The bottoms of such excavations shall be finished flat or gently curving and at the sides of such excavations the adjacent sound fill shall be trimmed to a slope not steeper than 3 feet horizontally to 1 foot vertically extending from the bottom of the excavation to the fill surface.

6. PIPE CONDUITS

All pipes shall be circular in cross section. All perforated pipes shall have a minimum of 3.31 square inches of opening per square foot of pipe surface (ex. 30 3/8-inch holes per square foot). Perforations are to be uniformly spaced around the full periphery of the pipe. Any holes blocked or partially blocked by bituminous coating shall be opened prior to installation.

REINFORCED CONCRETE PIPE - All of the following criteria shall apply for reinforced concrete pipe:

1. Materials - Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM C-361.
2. Bedding - Reinforced concrete pipe conduits shall be laid in a concrete bedding/ cradle for their entire length. This bedding/cradle shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 50% of its outside diameter with a minimum thickness of 6 inches. Where a concrete cradle is not needed for structural purposes, flowable fill may be used as described in the "Structure Backfill" section of this standard. Gravel bedding is not permitted.
3. Laying Pipe - Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 4 feet from the riser.
4. Backfilling shall conform to "Structure Backfill".
5. Connections - All connections (to anti-seep collars, riser, etc.) shall be watertight.
6. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

PLASTIC PIPE - All of the following criteria shall apply for plastic pipe:

1. Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241. Corrugated high density polyethylene (HDPE) pipe, couplings and fittings shall conform to following: 4" - 10" inch pipe shall meet the requirements of AASHTO M252 Type 5, and 12" through 24" inch shall meet the requirements of AASHTO M294 Type 5.
2. Joints and connections to anti-seep collars shall be completely watertight.
3. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.
4. Backfilling shall conform to "Structure Backfill".
5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

7. DUCTILE IRON PIPE - ALL DIP SHALL BE CLASS 52

Concrete must meet minimum requirements set forth in Maryland State Highway Administration Standard Specifications for Construction and Materials, Section 302 (Portland Cement Concrete Mixture), Mix Number 3. Reinforcing steel must be ASTM A615, Grade 60. Steel angles and anchor bars must be ASTM A36.

8. ROCK RIP-RAP

Rock rip-rap shall meet the requirements of the Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 311.

Geotextile shall be placed under all rip-rap and shall meet the requirements of the Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 921.09, Class GE Non-woven.

The rip-rap shall be placed to the required thickness in one operation. The rock shall be delivered and placed in a manner that will insure the rip-rap in place shall be reasonably homogeneous with the larger rocks uniformly distributed and firmly in contact one to another with the smaller rocks filling the voids between the larger rocks.

9. CARE OF WATER DURING CONSTRUCTION

All work on permanent structures shall be carried out in areas free from water. The contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works, the contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from the various parts of the work and for maintaining the excavations, foundation, and other parts of the work free from water as required or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary protective works shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works and so as not to interfere in any way with the operation of maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent works. The removal of water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom of required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the locations being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water to pumps from which the water shall be pumped.

10. STABILIZATION

All borrow areas shall be graded to provide proper drainage and left in a slightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Natural Resources Conservation Service Standards and Specifications for Critical Area Planting (MD-342) or as shown on the accompanying drawings.

11. EROSION AND SEDIMENT CONTROL

Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures to be employed during the construction process.

All disturbed areas shall be controlled by an erosion and sediment control plan which has been approved by the Baltimore County Soil Conservation District (B.C.S.C.D.).

12. SEEDING

Seeding, fertilizing and mulching shall be as follows:

- Seed Mix: 50% Kenblue Kentucky Bluegrass
40% Pennlawn Creeping Red Fescue
10% Streaker Redtop
Applied at a rate of 150 pounds per acre.
- (or)
- Rebel II Tall Fescue (125 pounds per acre)
Pennfine Perennial Ryegrass (15 pounds per acre)
Kenblue Kentucky Bluegrass (10 pounds per acre)
- (or)
- Pennlawn Creeping Red Fescue (70 pounds per acre)
Aurora Hard Fescue (50 pounds per acre)
Common White Clover (6 pounds per acre)
Winter Rye (45 pounds per acre)

Lime: 2 tons per acre Dolomitic Limestone.

Fertilizer: 600 pounds per acre 10-10-10 fertilizer before seeding.
400 pounds per acre 30-0-0-Ureaform Fertilizer at time of seeding.

Mulch: Straw at 4,000 pounds per acre.

Anchoring: Mulching tool or wood cellulose fiber binder at a net dry binder rate of 750 pounds per acre. The wood cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water or at rates recommended by the manufacturer.

13. FILTER CLOTH

All filter cloth shall conform to the 1994 Maryland Standards and Specifications for soil erosion and sediment control, or the latest edition.

14. GABIONS

All gabions shall be PVC coated woven wire baskets. Stone size shall be 4 inches to 7 inches. (Class IV gabions)

15. CONSTRUCTION INSPECTION BY DESIGNATED ENGINEERS

The construction of the pond and embankment, and certification that the pond and embankment have been built in accordance with the plans shall be under the supervision of a Registered Professional Engineer. The engineer shall be notified sufficiently in advance of construction in order that arrangements can be made for (1) inspection of pipe trench and bedding, (2) inspection of riser and anti-seep collars and, (3) supervision of embankment construction and compaction testing. The engineer shall direct the handling of water during construction, minor changes not affecting the integrity of the dam in order to compensate for unusual soil conditions, and the removal and replacement of defective fill.

"BUILT PER PLAN"
DATE: 5/11/2018

AS-BUILT CERTIFICATION

I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

SIGNED: PAUL G. CAVANAUGH
LICENSE NO: 27020

DATE: 5/11/2018
EXPIRATION DATE: 1/25/2020

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THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
William R. Mischel
CHIEF, BUREAU OF HIGHWAYS
DATE: 12-7-07

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Quincy Hampton
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 12/14/07

Mr. [Signature]
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 12/14/07

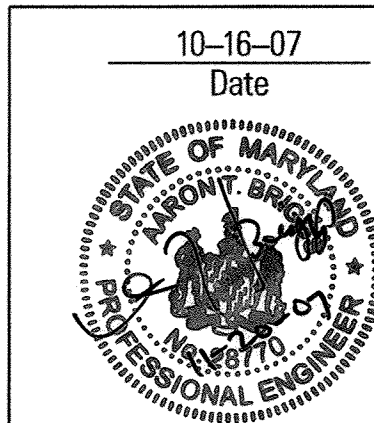
Date	No.	Revision Description

BELLE HAVEN ESTATES

LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O,
NON-BUILDABLE BULK PARCEL P
TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER
Upton Chapel Road, LLC
9025 Chevrolet Drive
Suite K
Ellicott City, MD 21042
Phone: (410) 469-5800

DMW
Duff-McCune-Walkers, Inc.
300 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 296-3333
Fax 296-4705
A Team of Land Planners,
Landscape Architects,
Engineers, Surveyors &
Environmental Professionals



10-16-07
Date
Professional Engr. No. 28770

TITLE			
STORMWATER MANAGEMENT SPECIFICATIONS			
Des. By	KAD	Scale Not To Scale	Proj. No. 01067F
Dwn. By	MDT	Date 10/16/07	39 of 74
Chk. By	ATB	Approved ATB	

DEVELOPERS CERTIFICATE:

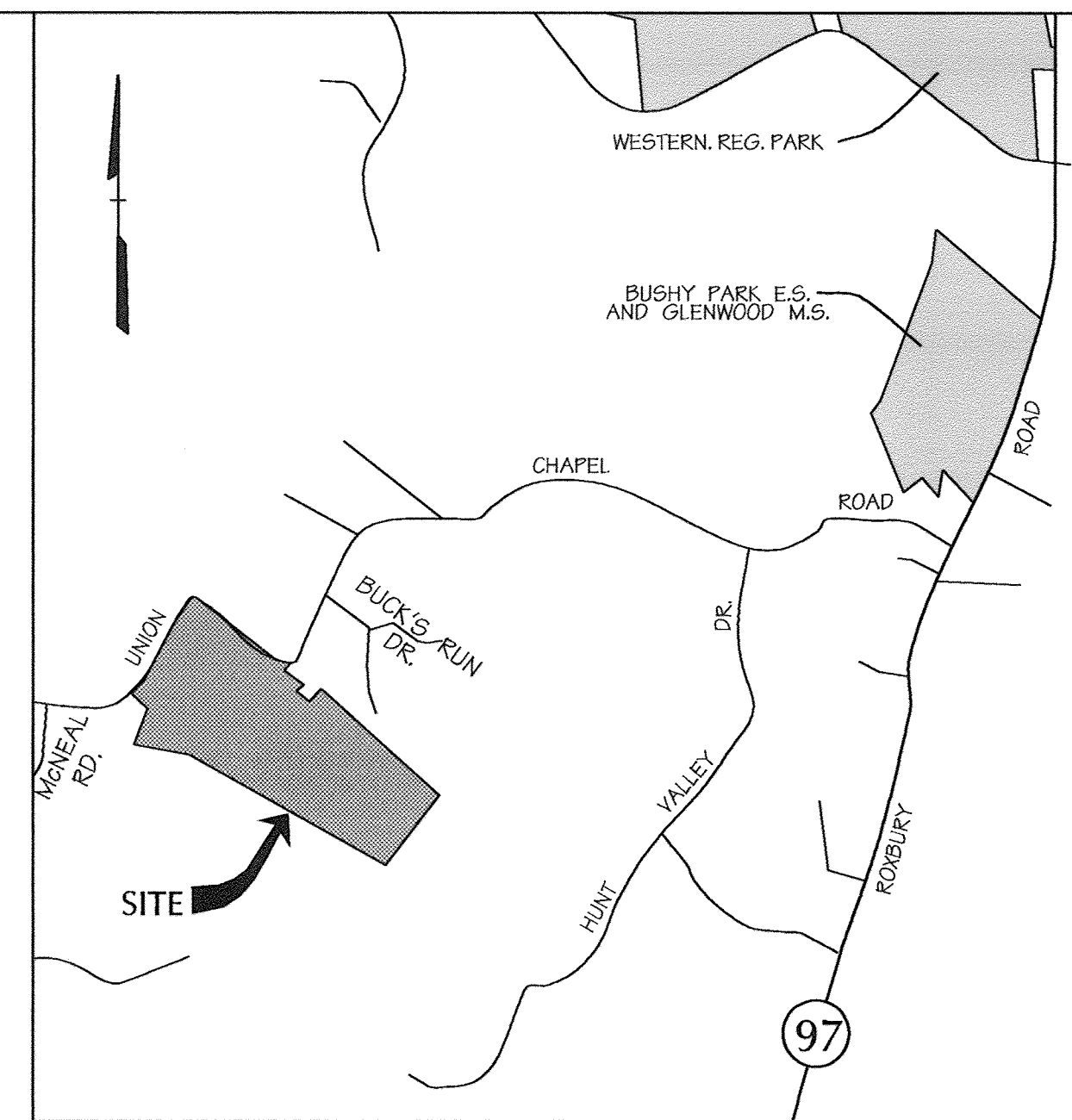
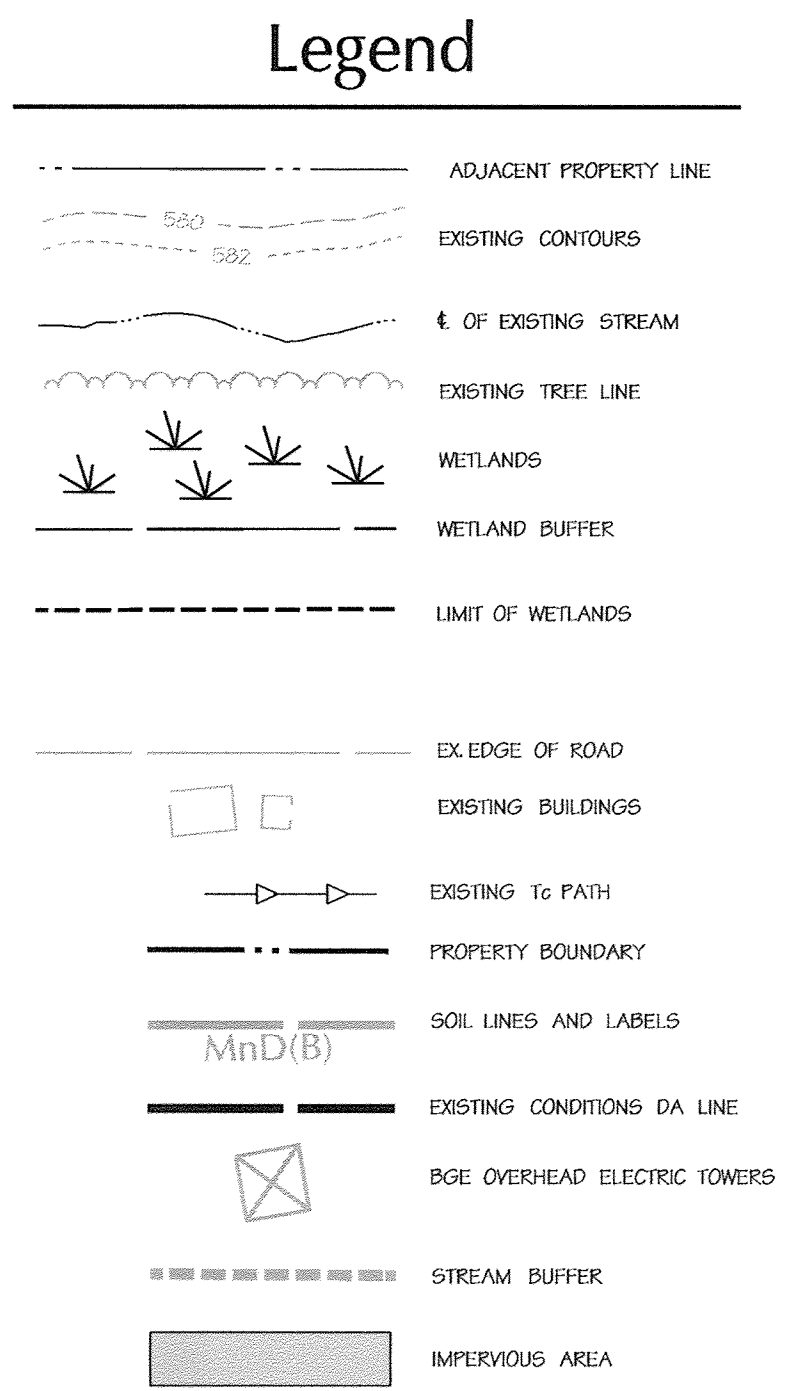
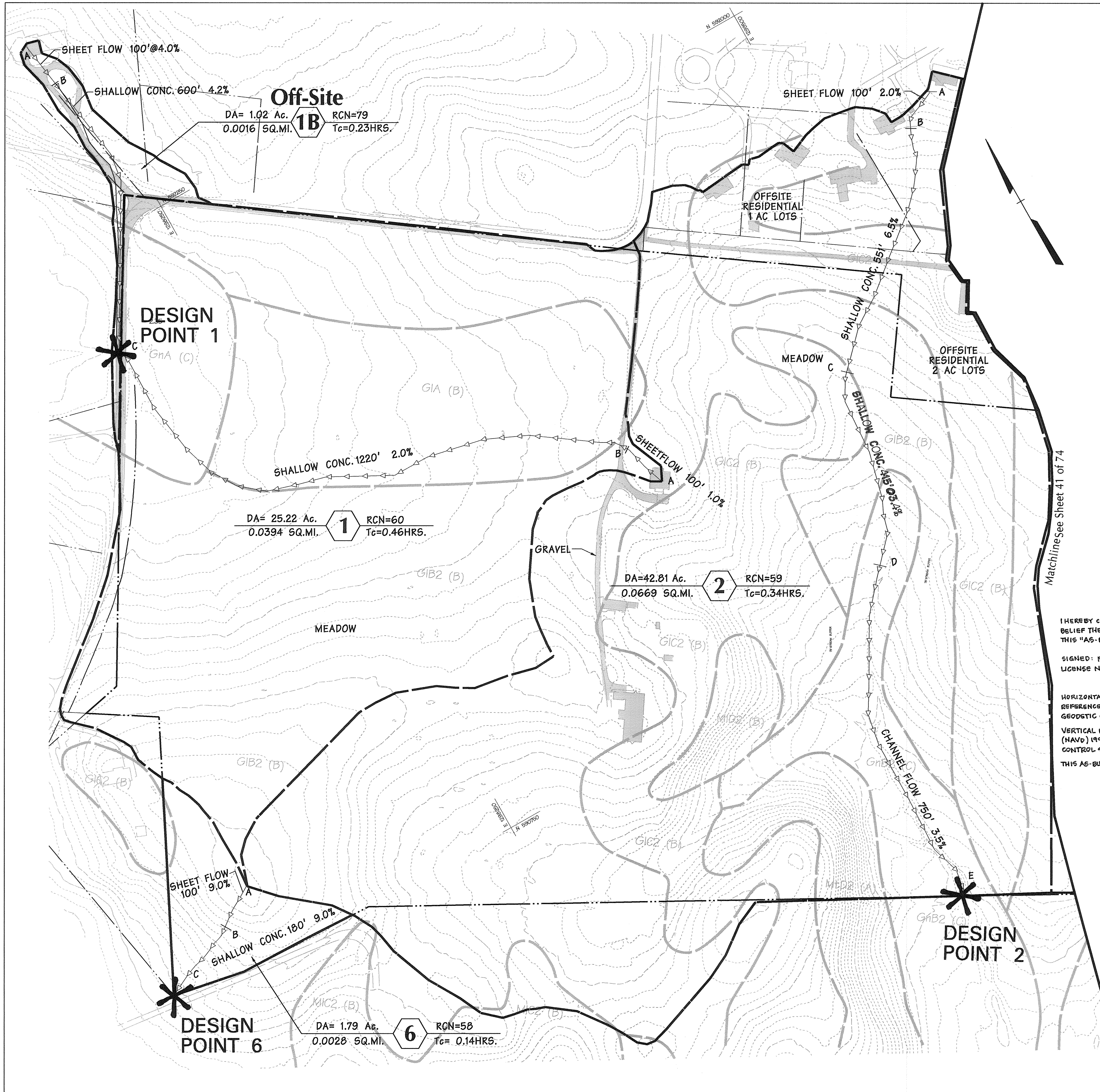
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Cynthia M. McCallister
SIGNATURE OF DEVELOPER: CYNTHIA M. MCCALLISTER
DATE: 11/14/07

ENGINEERS CERTIFICATE:

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTICED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

Paul G. Cavanaugh
SIGNATURE OF ENGINEER: PAUL G. CAVANAUGH
DATE: 11-20-07
FRONT NAME: BELOW SIGNATURE: 28770



EXISTING FLOW SUMMARY

DP	1 YR EXISTING PEAK FLOW
#1	2.16 CFS
#2	2.79 CFS
#6	0.13 CFS

"BUILT PER PLAN"
DATE: 5/11/2018

AS-BUILT CERTIFICATION

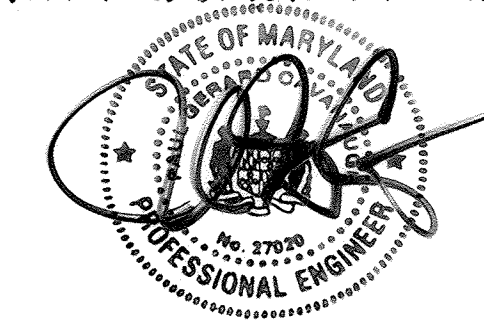
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SIGNED: PAUL G. CAVANAUGH DATE: 5/11/2018
LICENSE NO: 27020 EXPIRATION DATE: 1/25/2020

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THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS		
<i>Walter Z. Marshall</i>	12-7-07	DATE
CHIEF, BUREAU OF HIGHWAYS		
APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING		
<i>John K. ...</i>	12/14/07	DATE
CHIEF, DIVISION OF LAND DEVELOPMENT		
<i>John ...</i>	12/14/07	DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION		

BELLE HAVEN ESTATES

LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O,
NON-BUILDABLE BULK PARCEL P
TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER
Union Chapel Road, LLC.
9025 Chevrolet Drive
Suite K
Ellicott City, MD 21042
Phone: (410) 461-5900

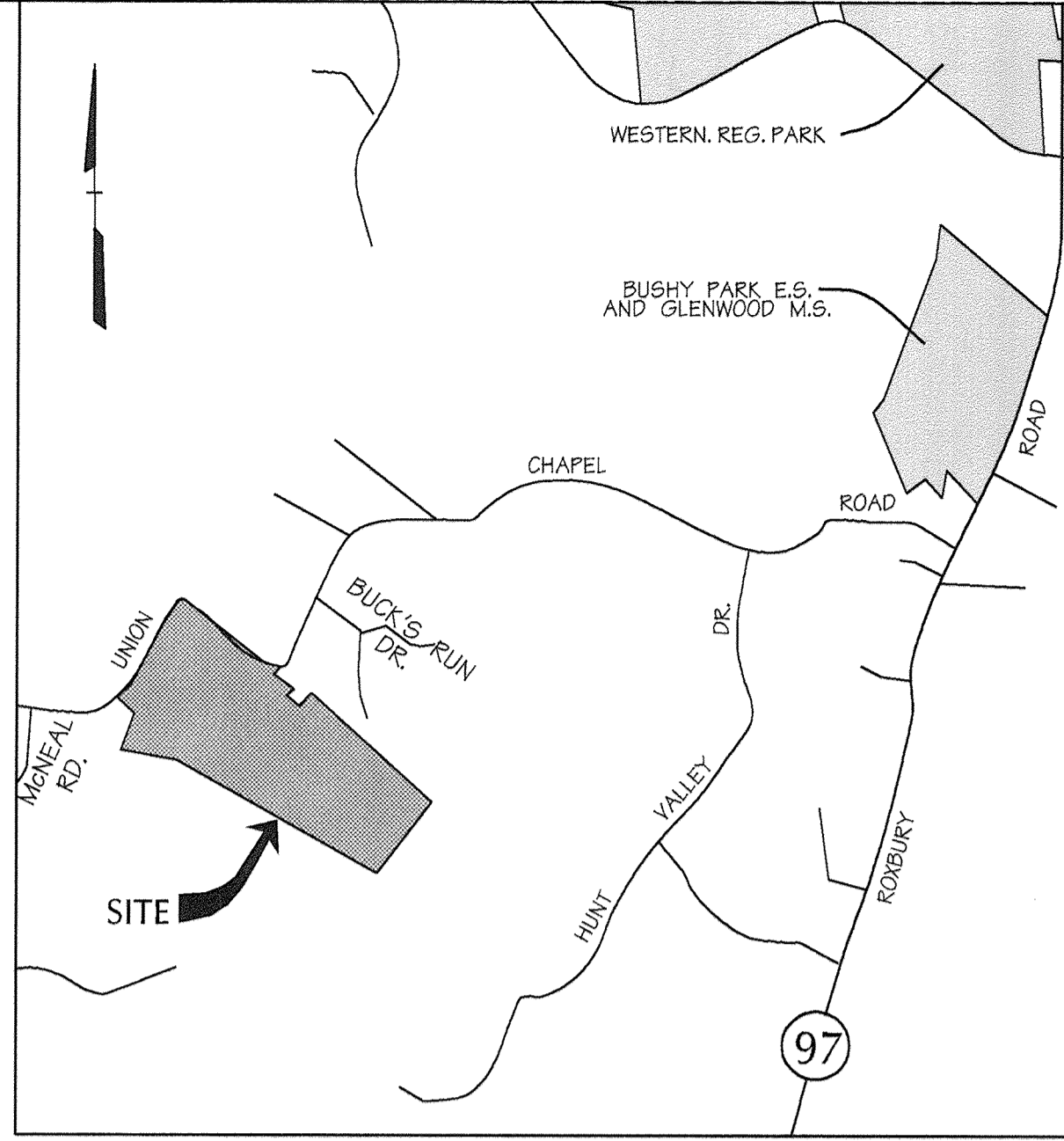
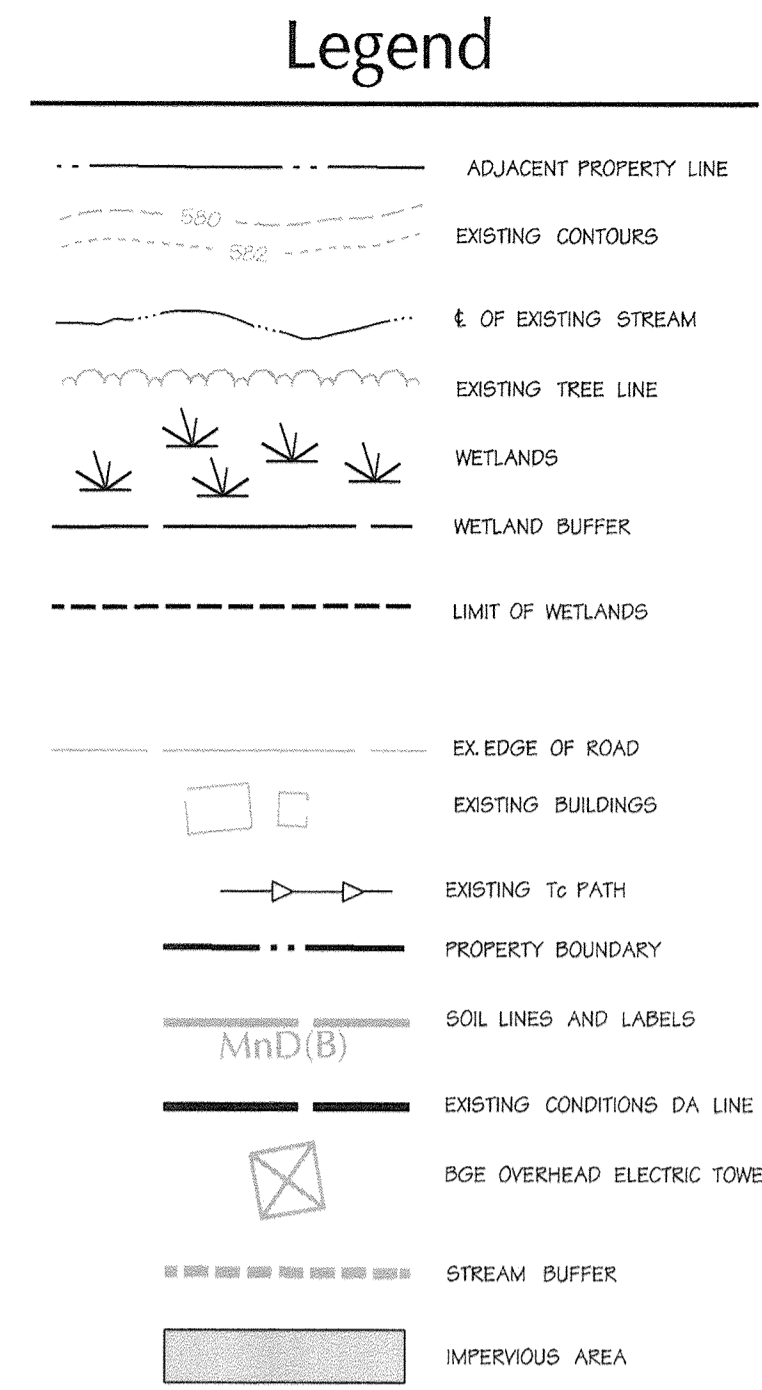
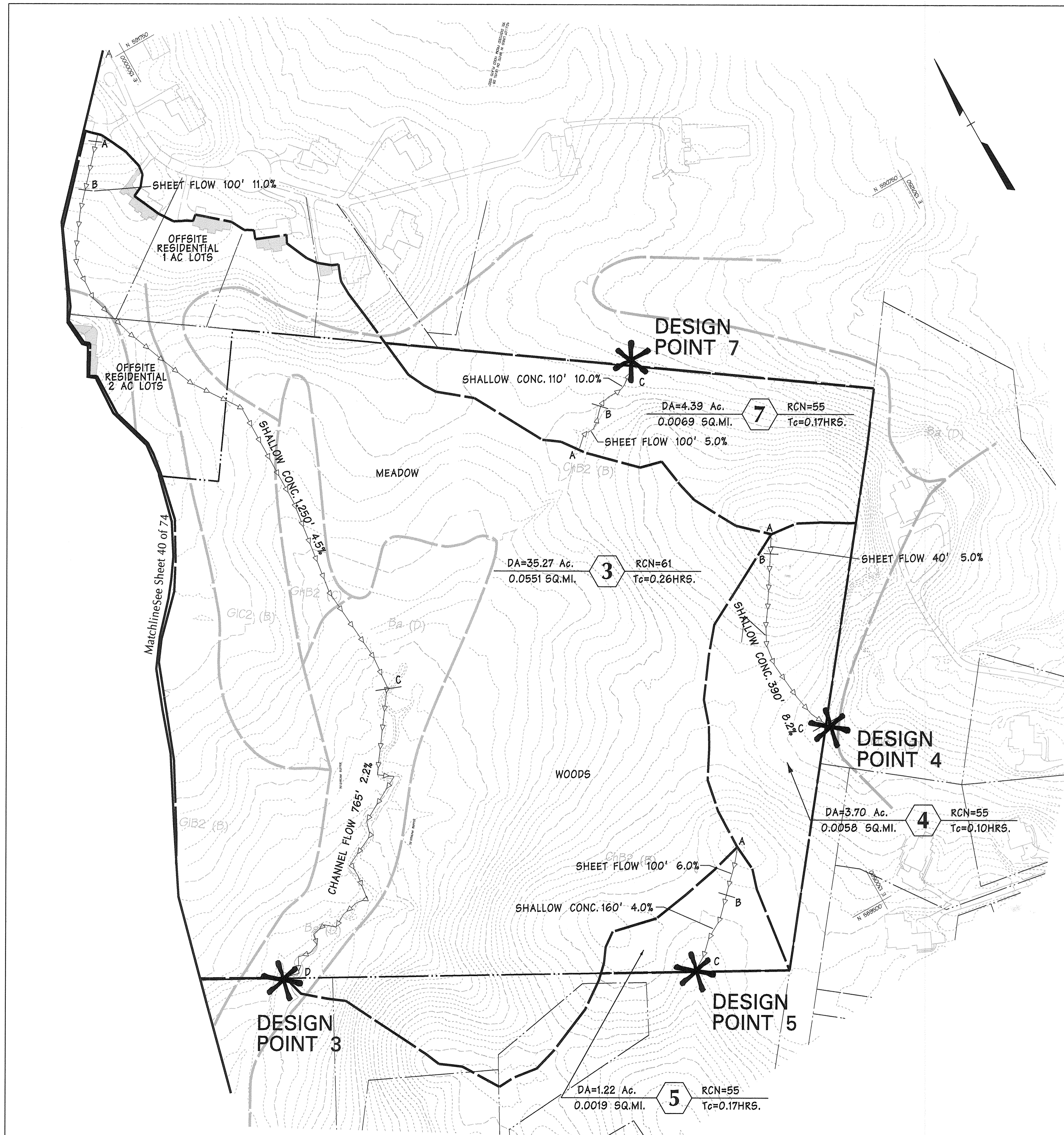
DMW
Draft-McCune-Walker, Inc.
200 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 296-3333
Fax: 296-4706

A Team of Land Planners,
Landscape Architects,
Engineers, Surveyors &
Environmental Professionals

TITLE: FINAL SWM EXISTING CONDITIONS DRAINAGE AREA MAP			
Des. By	CVS	Scale	1"=100'
Dm. By	GMO	Date	10/16/07
Chk. By	ATB	Approved	ATB
			40 of 74

10-16-07
Date

Professional Engr. No. 28770



VICINITY MAP
SCALE: 1"=2000'

EXISTING FLOW SUMMARY

DP	1 YR EXISTING PEAK FLOW
#3	3.58 CFS
#4	0.07 CFS
#5	0.02 CFS
#7	0.08 CFS

"BUILT PER PLAN"
DATE: 8/11/2018

AS-BUILT CERTIFICATION

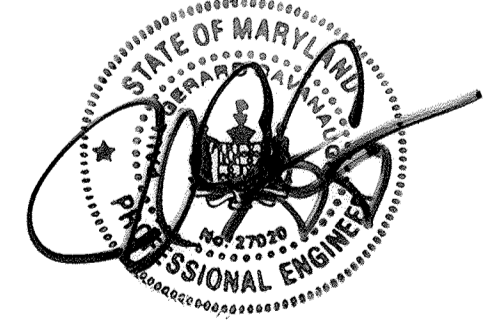
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SIGNED: PAUL G. CAVANAUGH DATE: 8/11/2018
LICENSE NO: 27020 EXPIRATION DATE: 1/29/2020

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<i>William J. ...</i>	DATE
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APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING	12/14/07
<i>...</i>	DATE
CHIEF, DIVISION OF LAND DEVELOPMENT	
<i>...</i>	12/14/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE

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(410) 296-3333
Fax 296-4705

FINAL SWM EXISTING CONDITIONS DRAINAGE AREA MAP

Des. By	CVS	Scale	1"=100'	Proj. No.	01067F
Dwn. By	GMO	Date	10/16/07		
Chk. By	ATB	Approved	ATB		41 of 74

10-16-07
Date

Professional Engr. No. 28770

E:\01067F\01067F\94444\01067F.dwg, Nov 08 08:14:51 2007

AS - BUILT CERTIFICATION

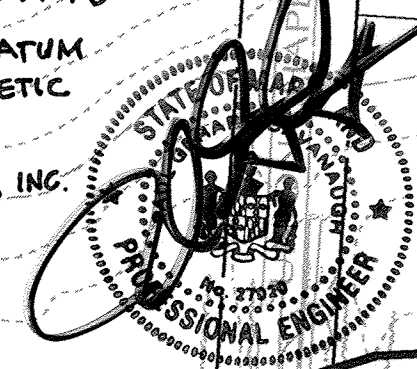
"BUILT PER PLAN"
DATE: 9/11/2018

I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

SIGNED: PAUL G. CAVANAUGH
LICENSE NO: 27020

DATE: 9/11/2018
EXPIRATION DATE: 1/25/2020

HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD 83/2011 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 14-FB
VERTICAL DATUM FOR THIS AS-BUILT SURVEY IS NORTH AMERICAN VERTICAL DATUM (NAVD) 1988 AS PROJECTED BY THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATION OR HOWARD CONTROL BENCH MARKS 14-FB
THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.



DA=2.58 Ac.
0.0040 SQ.MI. **1B** RCN=68
Tc=0.22HRS.

DA=10.09 Ac.
0.0158 SQ.MI. **2A** RCN=65
Tc=0.20HRS.

DA=0.88 Ac.
0.0014 SQ.MI. **1C** RCN=71
Tc=0.18HRS.

DA=24.37 Ac.
0.0381 SQ.MI. **1A** RCN=69
Tc=0.20HRS.

DA=17.25 Ac.
0.0270 SQ.MI. **2C** RCN=62
Tc=0.32HRS.

DA=14.88 Ac.
0.0233 SQ.MI. **2B** RCN=65
Tc=0.19HRS.

DA=1.77 Ac.
0.0028 SQ.MI. **6** RCN=56
Tc=0.14HRS.

NATURAL AREA OF CONSERVATION CREDIT AREA (1A)
A=0.76 Ac.

NATURAL AREA OF CONSERVATION CREDIT AREA (1A)
A=0.58 Ac.

NAC 0.43 AC (1A) (2A)
NAC 0.33 AC

NAC=0.87 AC (2A)

DESIGN POINT 1
PIPE FLOW 110' 3.0%
SHALLOW CONC. 170' 2.0%
SHEET FLOW 60' 2.0%

SHEET FLOW TO BUFFER CREDIT AREA (2C)
A = 2.75 Ac.
IMP. A = 0.20 Ac.

PIPE FLOW 65' TO PPS

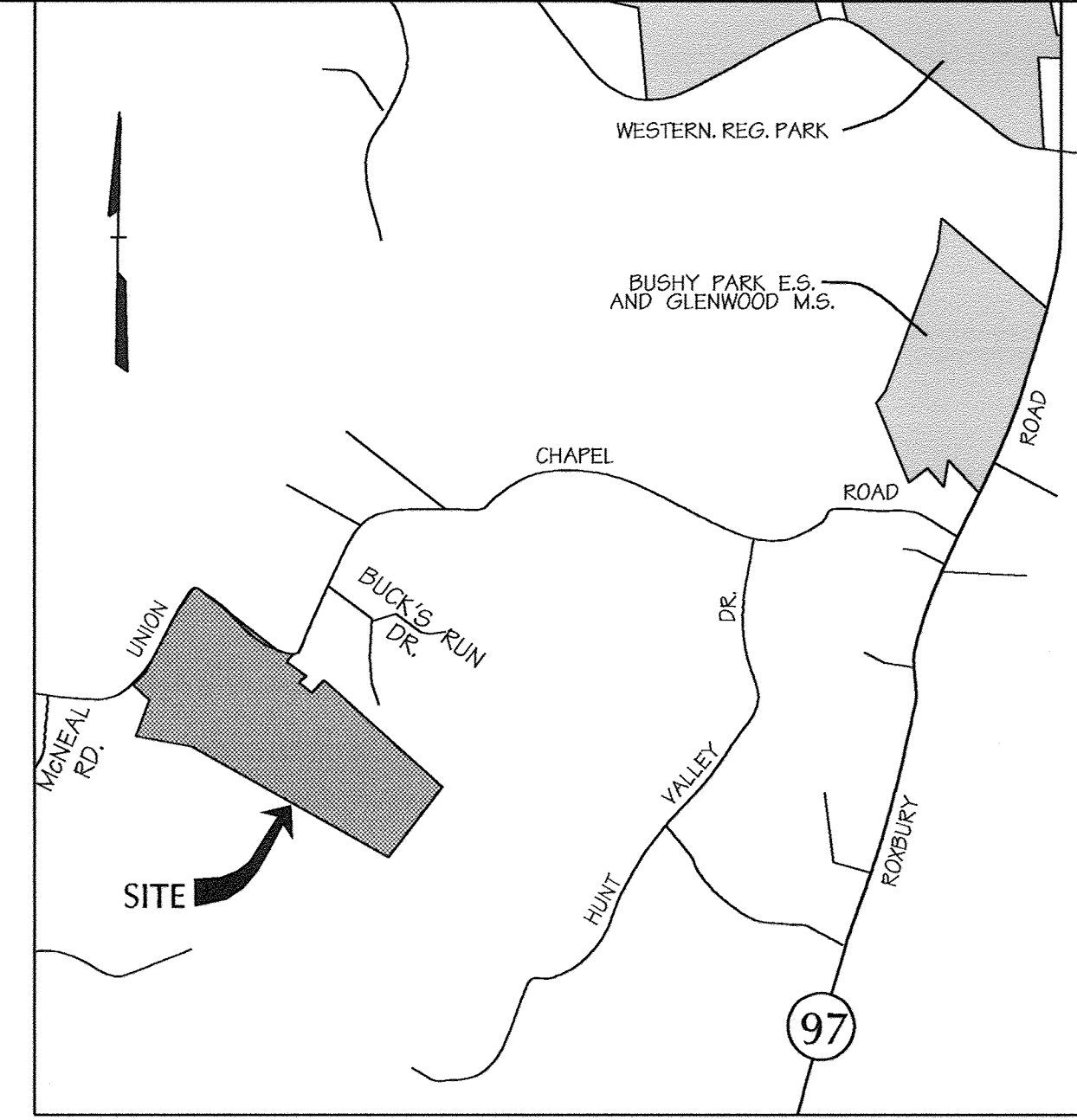
NATURAL AREA OF CONSERVATION CREDIT AREA
(1A) A=0.34 Ac.
(2B) A=0.06 Ac.
(6) A=1.63 Ac.

SHEET FLOW '90' 5.6%
SHALLOW CONC. 385' 6.9%

DESIGN POINT 2

DESIGN POINT 6

IMPERVIOUS AREA TO FULFILL RECHARGE VOLUME REQUIREMENT
(1A) A = 1.91 Ac.
(2) A = 1.04 Ac.



VICINITY MAP

SCALE: 1"=2000'

Legend

- ADJACENT PROPERTY LINE
- - - EXISTING CONTOURS
- EXISTING SPOT ELEVATION
- - - PROPOSED CONTOURS
- EXISTING STREAM
- - - EXISTING TREE LINE
- WETLANDS
- - - WETLAND BUFFER
- LIMIT OF WETLANDS
- PROPOSED ROAD
- EX. EDGE OF ROAD
- EXISTING BUILDINGS
- PROPOSED TO PATH
- PROPOSED CONDITIONS DA LINE
- SOIL LINES AND LABELS
- BGE OVERHEAD ELECTRIC TOWERS
- PROPOSED LOT LINES
- PROPOSED LOT NUMBERS
- PROPERTY BOUNDARY
- PROPOSED ROAD R/W LINES
- STREAM BUFFER

SHEET FLOW TO BUFFER CREDIT AREA (2C)
A = 2.99 Ac.
IMP. A = 0.26 Ac.

- SHEET FLOW TO BUFFER CREDIT AREA
- NATURAL AREA OF CONSERVATION CREDIT AREA
- NON-ROOFTOP DISCONNECTS FOR Rev
- ROOFTOP DISCONNECTS FOR Rev

NAC - NATURAL AREA OF CONSERVATION CREDIT AREA
SFTB - SHEET FLOW TO BUFFER CREDIT AREA

PROPOSED FLOW SUMMARY

DP	1 YR PROPOSED PEAK FLOW
#1	1.74 CFS
#2	0.78 CFS
#6	0.05 CFS

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
Walter J. Whall 12-7-07
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Craig Hester 12/11/09
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Paul G. Cavanaugh 12/11/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

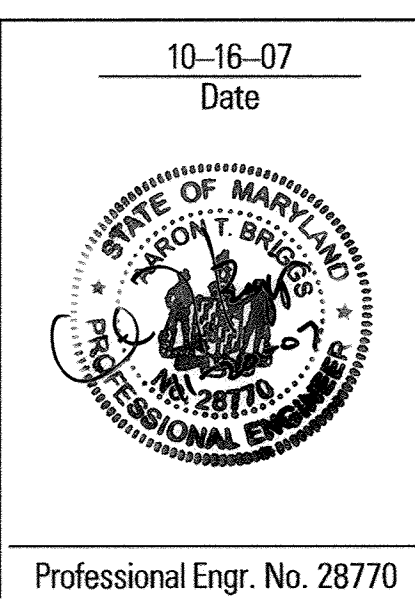
BELLE HAVEN ESTATES
LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O,
NON-BUILDABLE BULK PARCEL P
TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER
Union Chapel Road, LLC
8025 Chevoles Drive
Suite K
Ellicott City, MD 21042
Phone: (410) 461-9900

DMW
Duff McCune-Walker, Inc.
300 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 296-3333
Fax: 296-4705
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

TITLE **FINAL SWM PROPOSED CONDITIONS TOTAL SITE DRAINAGE AREA MAP**

Des. By	CYS	Scale	1"=100'	Proj. No.	01067F
Drn. By	GMO	Date	10/16/07		
Chk. By	ATB	Approved	ATB		42 of 74



Professional Engr. No. 28770

AS-BUILT CERTIFICATION

"BUILT PER PLAN"
DATE: 5/11/2018

I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

SIGNED: PAUL G. CAYANAUGH
LICENSE NO: 27020

DATE: 5/11/2018
EXPIRATION DATE: 1/25/2020

HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD '83/2011' AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 14FB

VERTICAL DATUM FOR THIS AS-BUILT SURVEY IS NORTH AMERICAN VERTICAL DATUM (NAVD) 1988 AS PROJECTED BY THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATION OR HOWARD CONTROL BENCH MARKS 14FB

THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.



DESIGN POINT 7

DA= 3.06 Ac.
0.0048 SQ.MI. RCN=58
Tc=0.17HRS.

DESIGN POINT 4

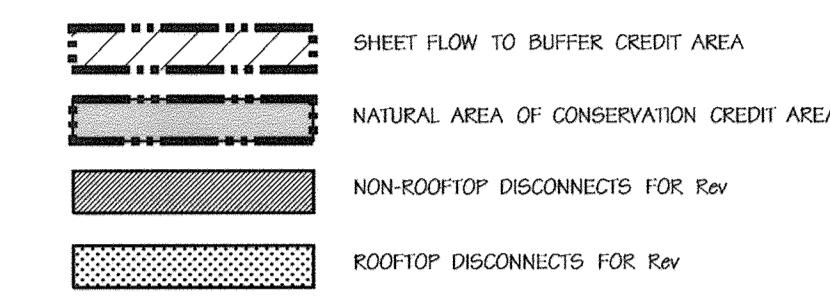
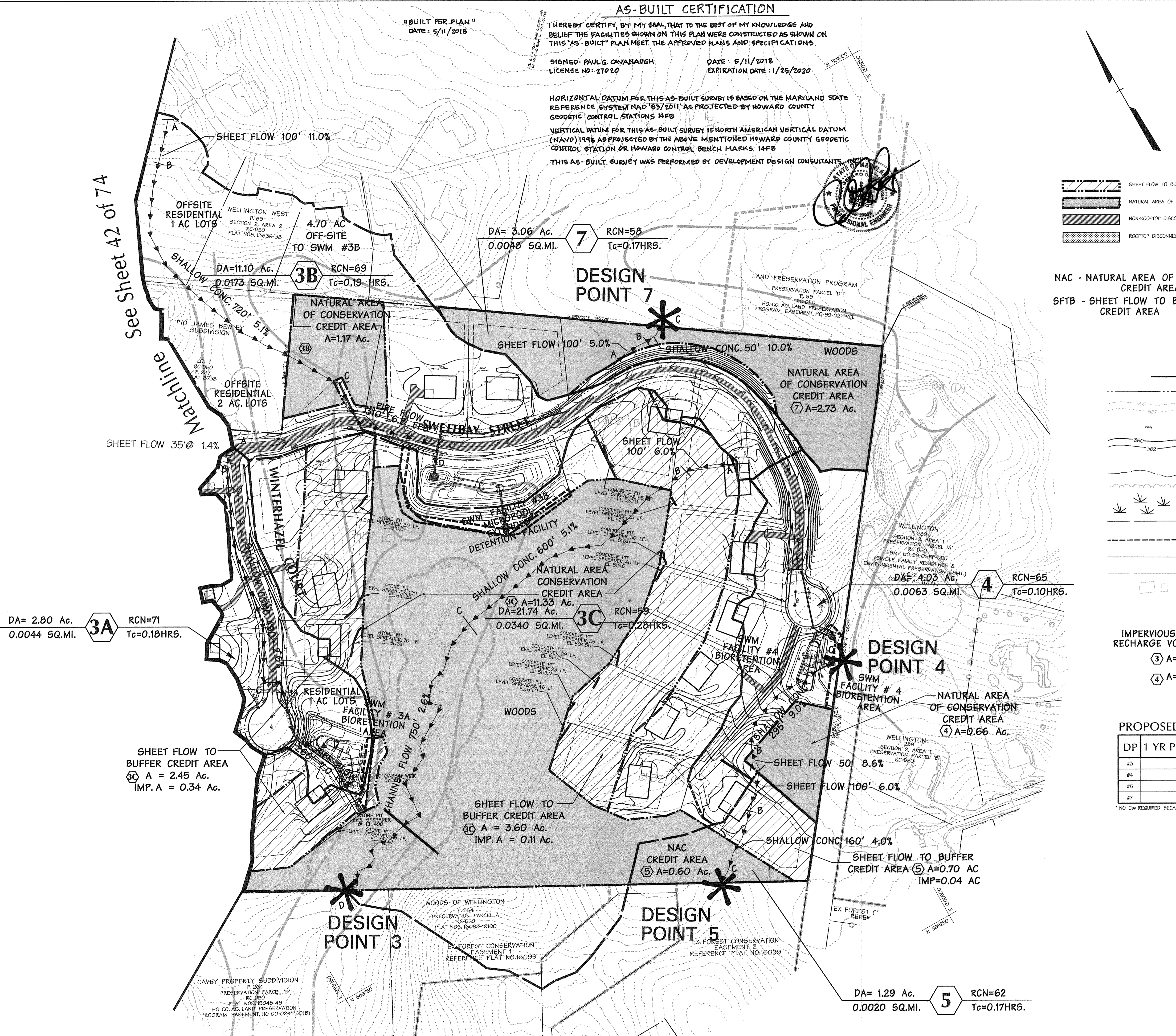
DA= 4.03 Ac.
0.0063 SQ.MI. RCN=65
Tc=0.10HRS.

DESIGN POINT 3

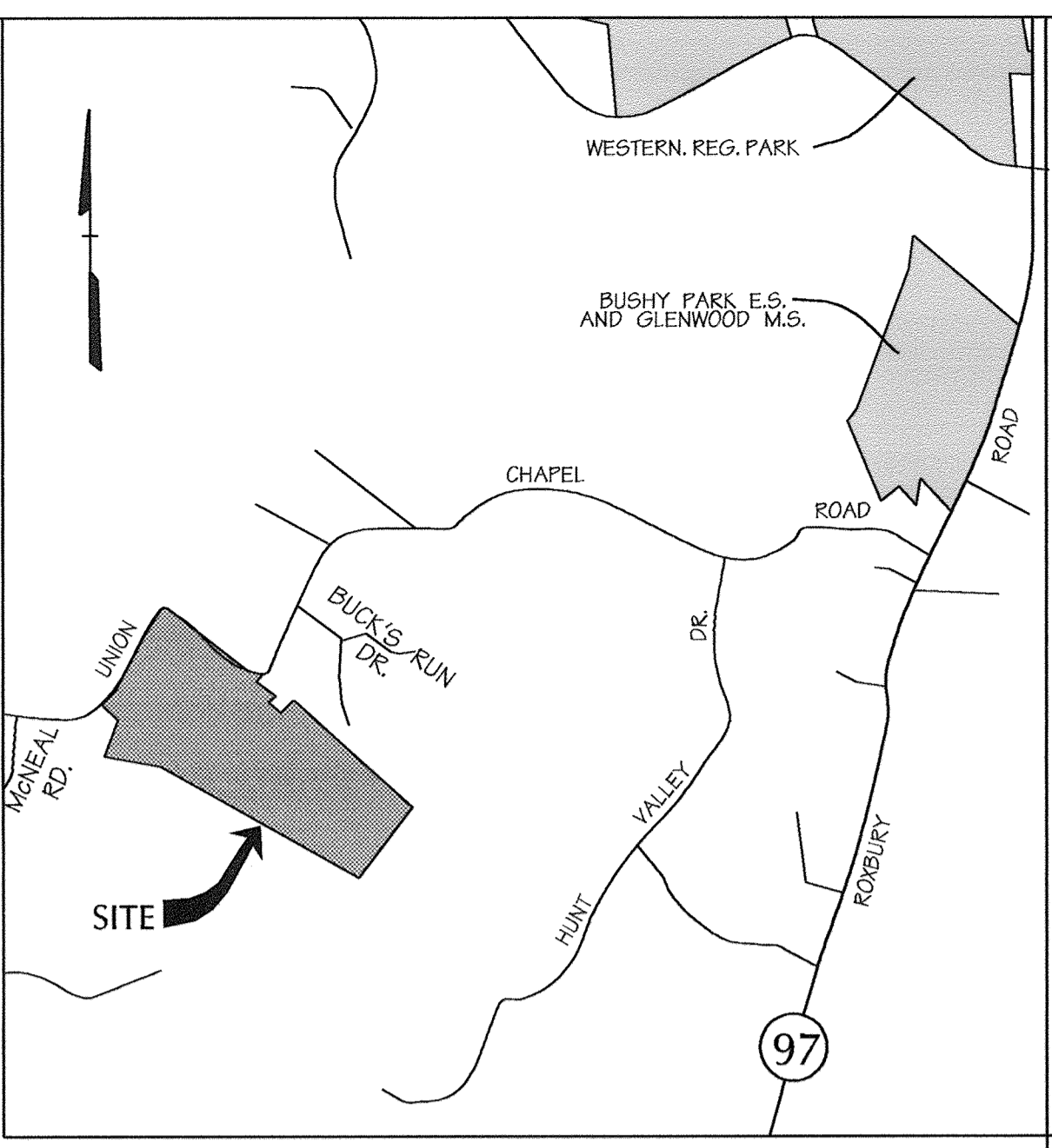
DA= 11.33 Ac.
DA=21.74 Ac. RCN=59
0.0340 SQ.MI. Tc=0.28HRS.

DESIGN POINT 5

DA= 1.29 Ac.
0.0020 SQ.MI. RCN=62
Tc=0.17HRS.

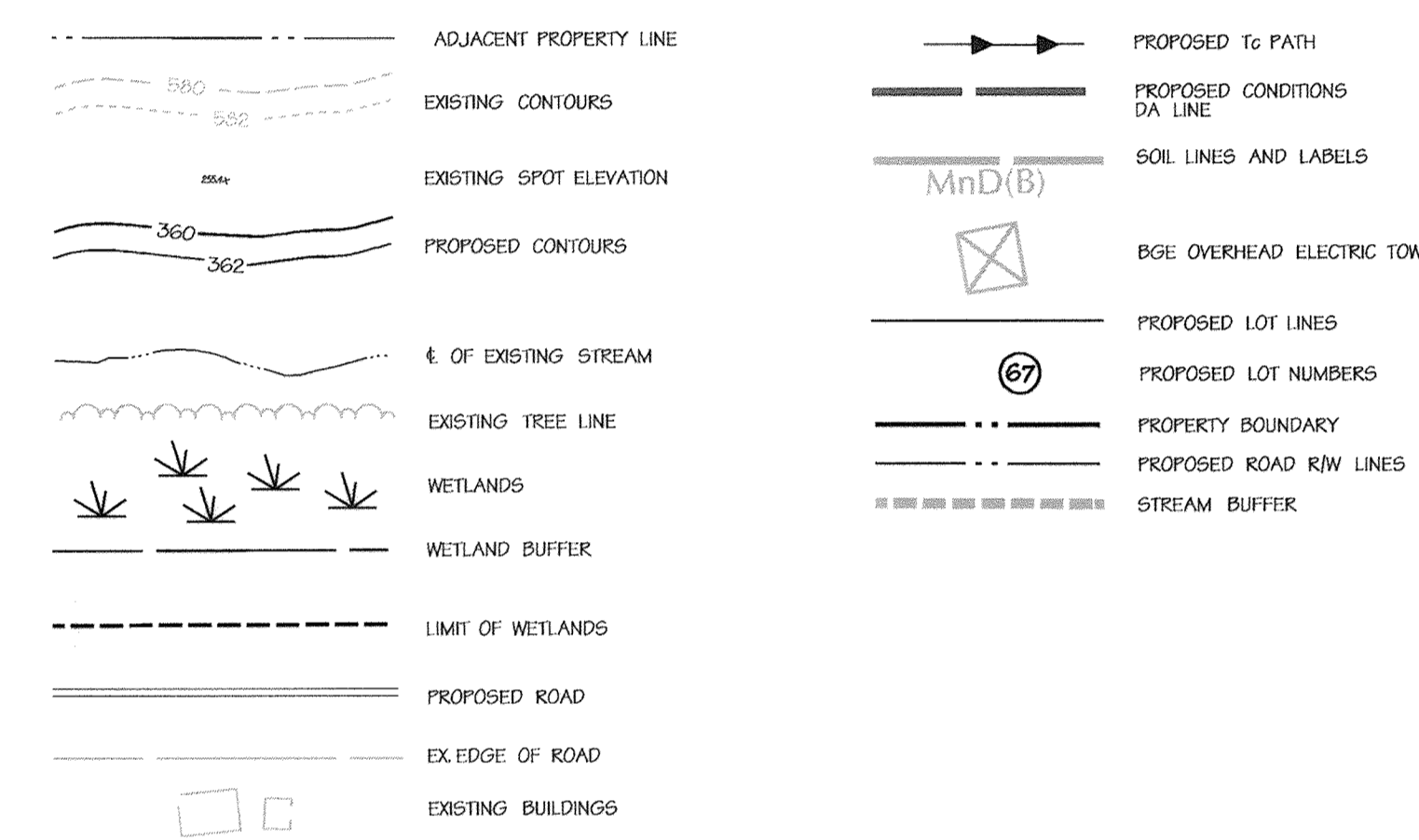


NAC - NATURAL AREA OF CONSERVATION CREDIT AREA
SFTB - SHEET FLOW TO BUFFER CREDIT AREA



VICINITY MAP
SCALE: 1"=2000'

Legend



IMPERVIOUS AREA TO FULFILL RECHARGE VOLUME REQUIREMENT

③ A = ___ Ac.
④ A = 0.22 Ac.

PROPOSED FLOW SUMMARY

DP	1 YR PROPOSED PEAK FLOW
#3	3.46 CFS
#4	1.61 CFS*
#5	0.55 CFS*
#7	0.21 CFS*

* NO CPM REQUIRED BECAUSE DEVELOPED FLOW IS LESS THAN 2 CFS

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
William R. ... 12-7-07
CHIEF, BUREAU OF HIGHWAYS MS DATE

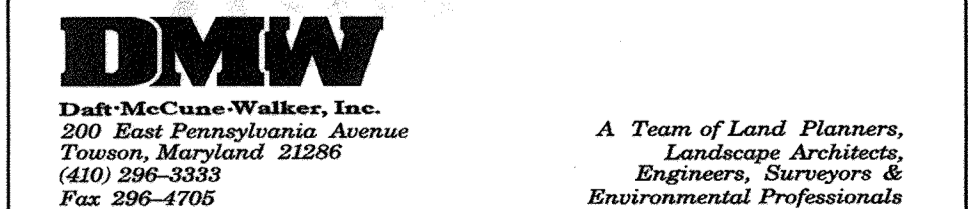
APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
... 12/11/07
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

... 12/11/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date	No.	Revision Description

BELLE HAVEN ESTATES
LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O,
NON-BUILDABLE BULK PARCEL P
TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER
Union Chapel Road, LLC,
9025 Chevrolet Drive
Suite K
Ellicott City, MD 21042
Phone: (410) 461-5300



TITLE
FINAL SWM PROPOSED CONDITIONS
TOTAL SITE DRAINAGE AREA MAP

Des. By	CVS	Scale	1"=100'	Proj. No.	01067F
Drn. By	GMO	Date	10/16/07	43 of 74	
Chk. By	ATB	Approved	CVM	Professional Engr. No. 28770	

"BUILT PER PLAN"
DATE: 5/11/2018

A5-BUILT CERTIFICATION

I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

SIGNED: PAUL G. CAVANAUGH
LICENSE NO: 27020

DATE: 5/11/2018
EXPIRATION DATE: 1/25/2020

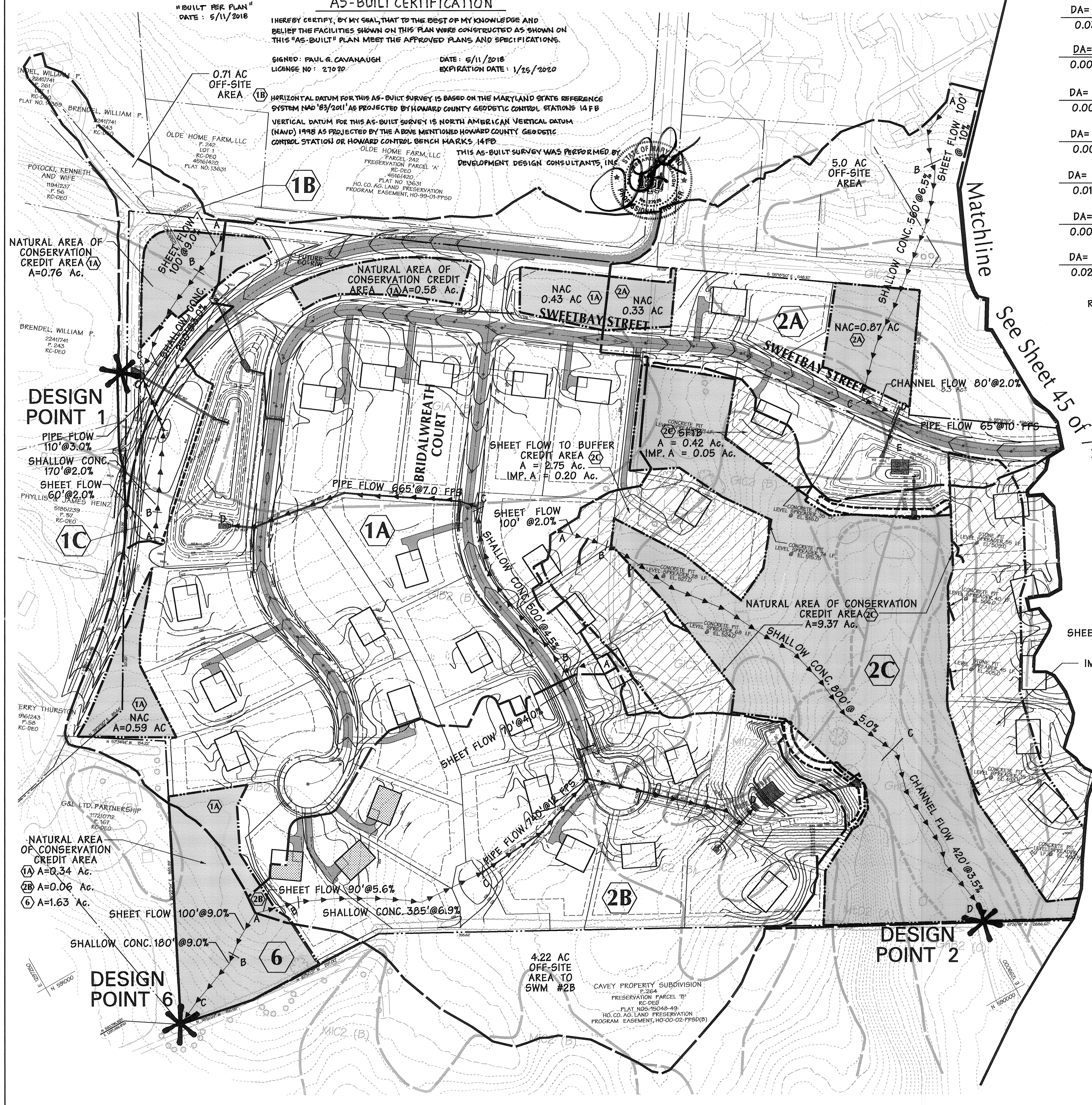
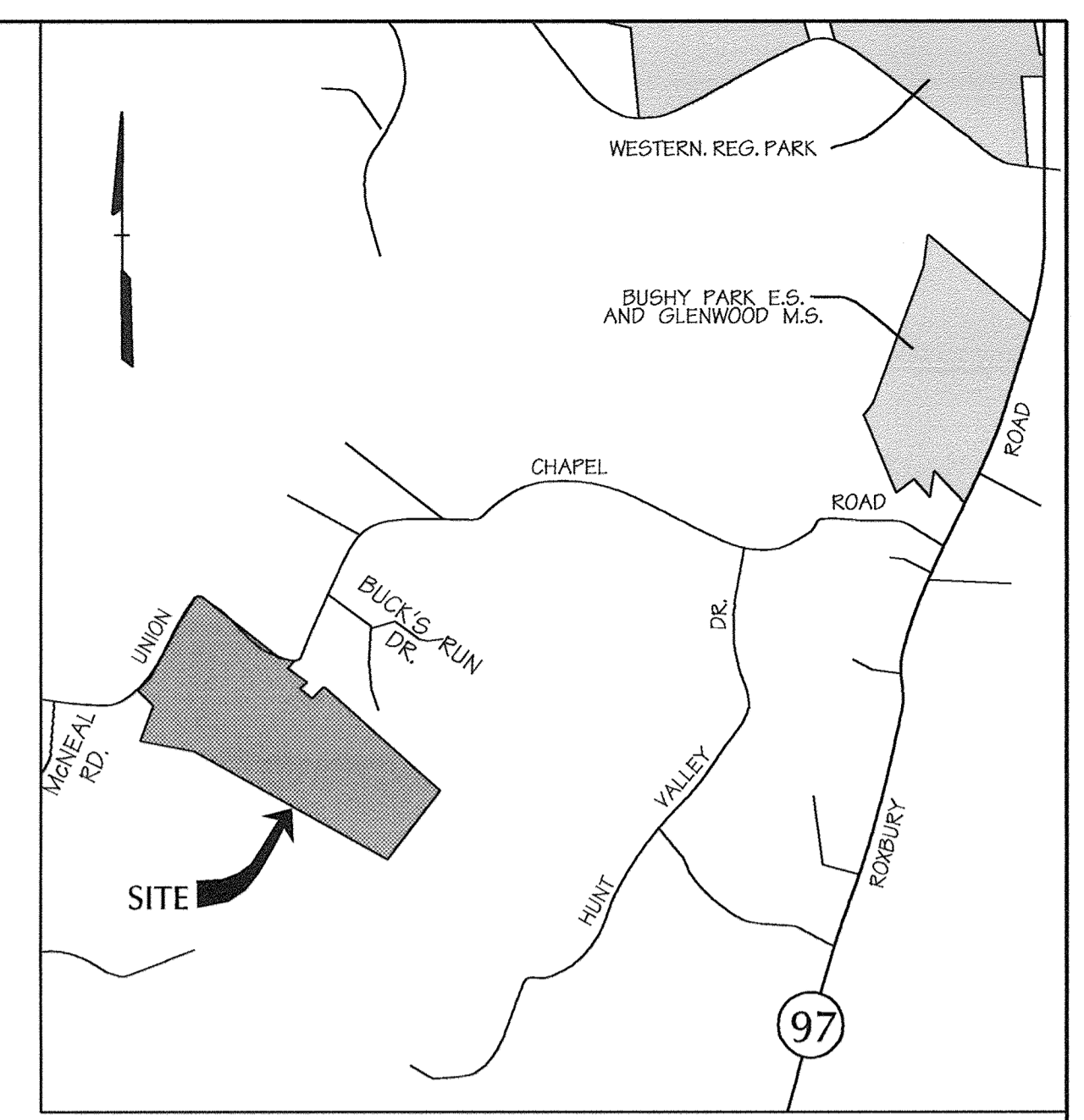
HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD '83/2011' AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 14 FB
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THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.



DA= 24.37 Ac. 0.0381 SQ.MI.	1A	RCN=69 Tc=0.20HRS.
DA= 2.58 Ac. 0.0040 SQ.MI.	1B	RCN=68 Tc=0.22HRS.
DA= 0.88 Ac. 0.0014 SQ.MI.	1C	RCN=71 Tc=0.18HRS.
DA= 5.09 Ac. 0.008 SQ.MI.	2A	RCN=65 Tc=0.30HRS.
DA= 10.66 Ac. 0.0167 SQ.MI.	2B	RCN=67 Tc=0.26HRS.
DA= 1.77 Ac. 0.0028 SQ.MI.	6	RCN=56 Tc=0.14HRS.
DA= 17.25 Ac. 0.0270 SQ.MI.	2C	RCN=62 Tc=0.32HRS.

IMPERVIOUS AREA TO FULFILL RECHARGE VOLUME REQUIREMENT
 (1A) A = 1.91 Ac.
 (2A) A = 1.04 Ac.



Legend

- ADJACENT PROPERTY LINE
- EXISTING CONTOURS
- EXISTING SPOT ELEVATION
- PROPOSED CONTOURS
- EXISTING STREAM
- EXISTING TREE LINE
- WETLANDS
- WETLAND BUFFER
- PROPOSED ROAD
- EDGE OF ROAD
- EXISTING BUILDINGS
- WATER QUALITY DA LINE
- SOIL LINES AND LABELS
- BGE OVERHEAD ELECTRIC TOWERS
- PROPOSED LOT LINES
- PROPOSED LOT NUMBERS
- PROPERTY BOUNDARY
- PROPOSED ROAD R/W LINES
- STREAM BUFFER

- SHEET FLOW TO BUFFER CREDIT AREA
- NATURAL AREA OF CONSERVATION CREDIT AREA
- NON-ROOFTOP DISCONNECTS FOR Rv
- ROOFTOP DISCONNECTS FOR Rv

NAC - NATURAL AREA OF CONSERVATION CREDIT AREA
 SFTB - SHEET FLOW TO BUFFER CREDIT AREA

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
Walter E. Smith 12-7-17
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
David H. ... 1/11/19
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Paul G. Cavanaugh 12/11/17
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date	No.	Revision Description

BELLE HAVEN ESTATES
 LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-0,
 NON-BUILDABLE BULK PARCEL P
 TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
 ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER
 Union Chapel Road, LLC
 9025 Chevrolet Drive
 Suite K
 Ellicott City, MD 21042
 Phone: (410) 461-6900

DMW
 Dawn McCann-Walkers, Inc.
 300 East Pennsylvania Avenue
 Towson, Maryland 21286
 (410) 296-3333
 A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

Des. By	CV5	Scale	1"=100'	Proj. No.	01067F
Drn. By	GMO	Date	10/16/17		
Chk. By	ATB	Approved	ATB		44 of 74

10-16-07
Date

Professional Engr. No. 28770

"BUILT PER PLAN"
DATE: 5/11/2018

AS-BUILT CERTIFICATION

I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

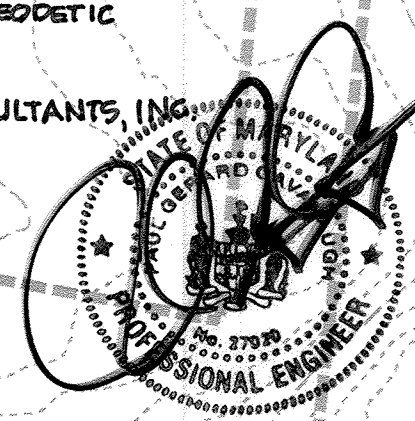
SIGNED: PAUL G. CAVANAUGH
LICENSE NO: 27020

DATE: 5/11/2018
EXPIRATION DATE: 1/25/2020

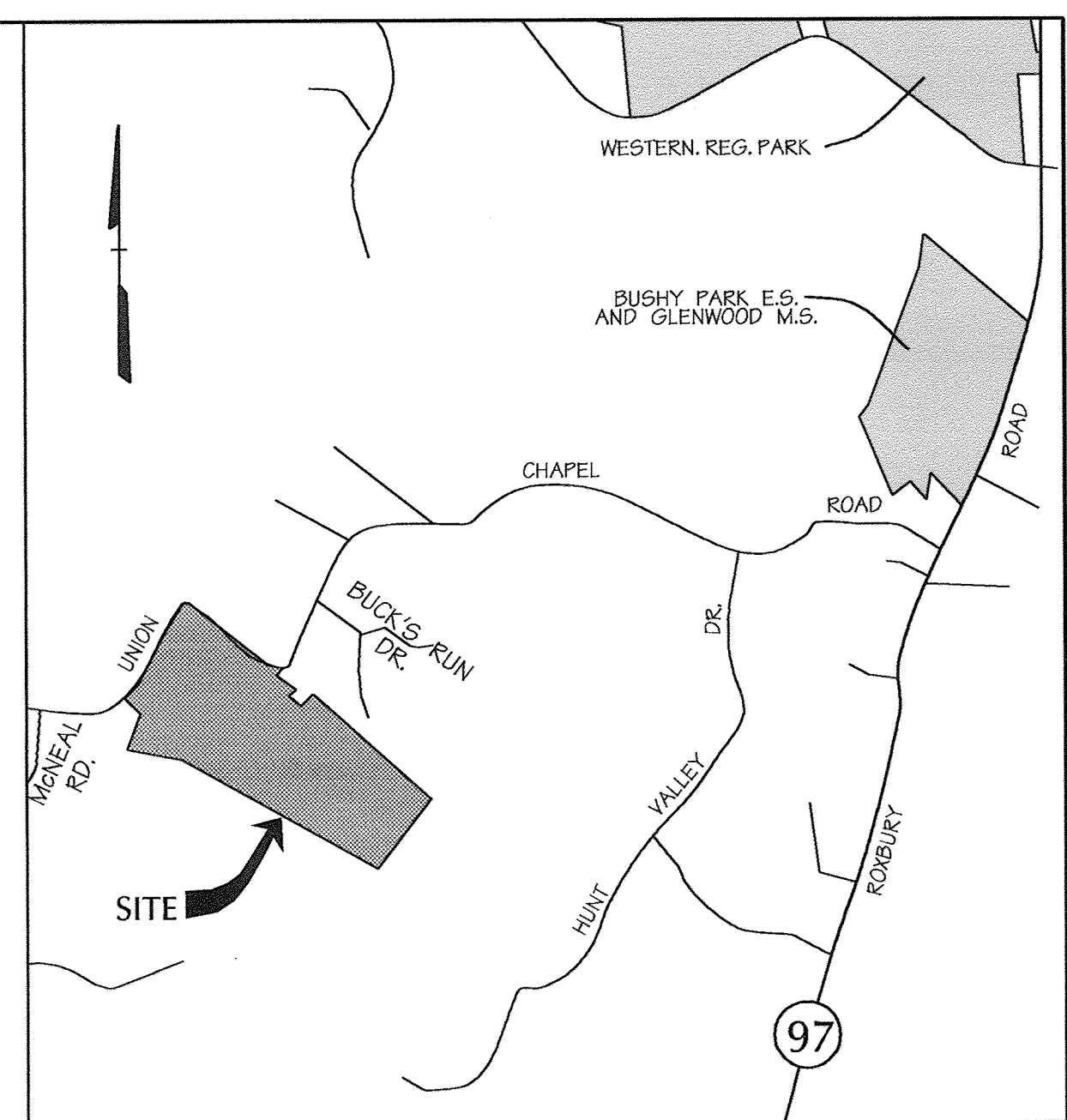
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THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.



DA= 2.80 Ac. 0.0043 SQ.MI.	3A	RCN=71 Tc=0.18HRS.
DA= 6.4 Ac. 0.01 SQ.MI.	3B	RCN=71 Tc=0.19HRS.
DA= 21.74 Ac. 0.034 SQ.MI.	3C	RCN=59 Tc=0.28HRS.
DA= 4.03 Ac. 0.0063 SQ.MI.	4	RCN=65 Tc=0.10HRS.
DA= 1.29 Ac. 0.002 SQ.MI.	5	RCN=62 Tc=0.17HRS.
DA= 3.06 Ac. 0.0048 SQ.MI.	7	RCN=58 Tc=0.17HRS.



VICINITY MAP
SCALE: 1"=2000'

IMPERVIOUS AREA TO FULFILL RECHARGE VOLUME REQUIREMENT
3A = 0.69 Ac.
4 = 0.22 Ac.

Legend

- ADJACENT PROPERTY LINE
- EXISTING CONTOURS
- EXISTING SPOT ELEVATION
- PROPOSED CONTOURS
- E OF EXISTING STREAM
- EXISTING TREE LINE
- WETLANDS
- WETLAND BUFFER
- LIMIT OF WETLANDS
- PROPOSED ROAD
- EX. EDGE OF ROAD
- EXISTING BUILDINGS
- SHEET FLOW TO BUFFER CREDIT AREA
- NATURAL AREA OF CONSERVATION CREDIT AREA
- NON-ROOFTOP DISCONNECTS FOR RW
- ROOFTOP DISCONNECTS FOR RW
- WATER QUALITY DA LINE
- SOIL LINES AND LABELS
- EGE OVERHEAD ELECTRIC TOWERS
- PROPOSED LOT LINES
- PROPOSED LOT NUMBERS
- PROPERTY BOUNDARY
- PROPOSED ROAD R/W LINES
- STREAM BUFFER

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
Walter R. ... 12-7-07
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Chris Hunt 12/11/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Paul G. Cavanaugh 12/11/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date: No. Revision Description

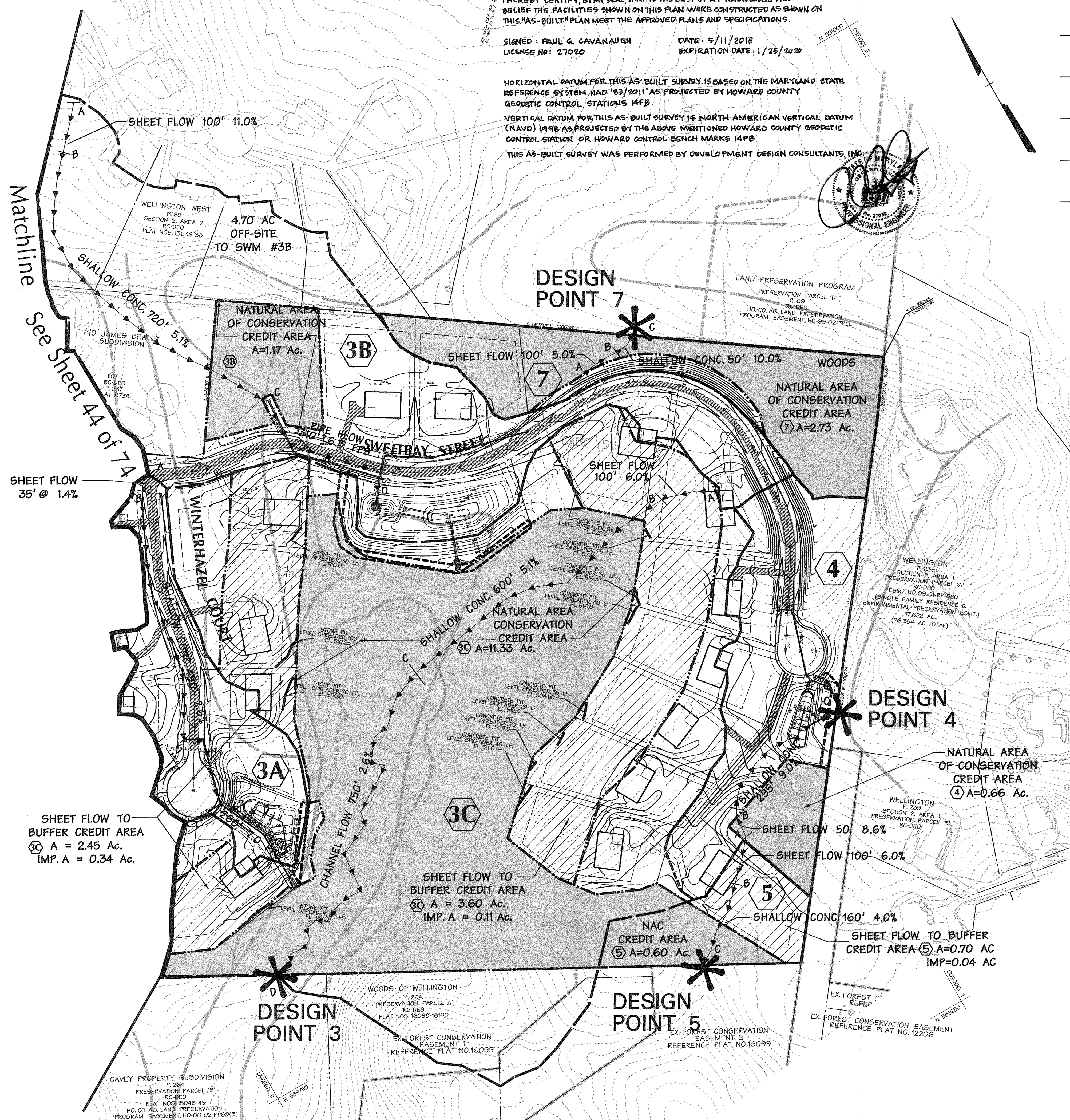
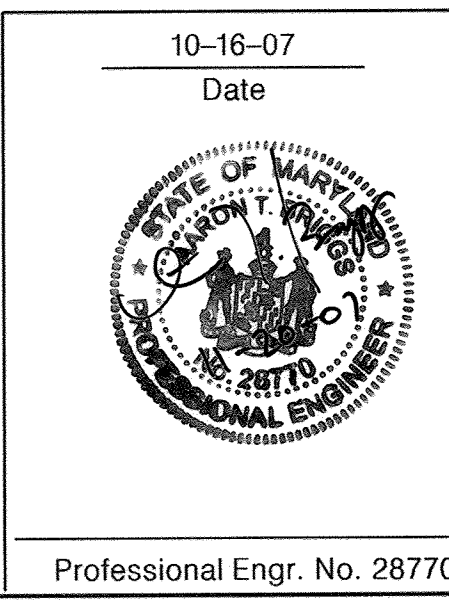
BELLE HAVEN ESTATES
 LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O,
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 ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND

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A Team of Land Planners,
 Landscape Architects,
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Des. By	CVS	Scale	1"=100'	Proj. No.	01067F
Drn. By	GMO	Date	10/16/07	45 of 74	
Chk. By	ATB	Approved	ATB		



Matchline
See Sheet 44 of 74

SHEET FLOW 35' @ 1.4%

SHEET FLOW TO BUFFER CREDIT AREA
3A A = 2.45 Ac.
 IMP. A = 0.34 Ac.

4.70 AC OFF-SITE TO SWM #3B

NATURAL AREA OF CONSERVATION CREDIT AREA
3B A=1.17 Ac.

NATURAL AREA OF CONSERVATION CREDIT AREA
3C A=11.33 Ac.

SHEET FLOW TO BUFFER CREDIT AREA
3C A = 3.60 Ac.
 IMP. A = 0.11 Ac.

NAC CREDIT AREA
5 A=0.60 Ac.

DESIGN POINT 5

NATURAL AREA OF CONSERVATION CREDIT AREA
4 A=0.66 Ac.

DESIGN POINT 4

SHEET FLOW TO BUFFER CREDIT AREA
5 A=0.70 AC
 IMP=0.04 AC

DESIGN POINT 7

7

DESIGN POINT 3

3C

DESIGN POINT 5

5

CAVEY PROPERTY SUBDIVISION
 P. 254
 PRESERVATION PARCEL 'B'
 RC-DEO
 PLAT NOS. 15048-49
 HO. CO. AG. LAND PRESERVATION PROGRAM EASEMENT, HO-CO-02-PPSP(18)

WOODS OF WELLINGTON
 P. 264
 PRESERVATION PARCEL A
 RC-DEO
 PLAT NOS. 16098-16100
 EX. FOREST CONSERVATION EASEMENT 1
 REFERENCE PLAT NO.16099

EX. FOREST CONSERVATION EASEMENT 2
 REFERENCE PLAT NO.16099

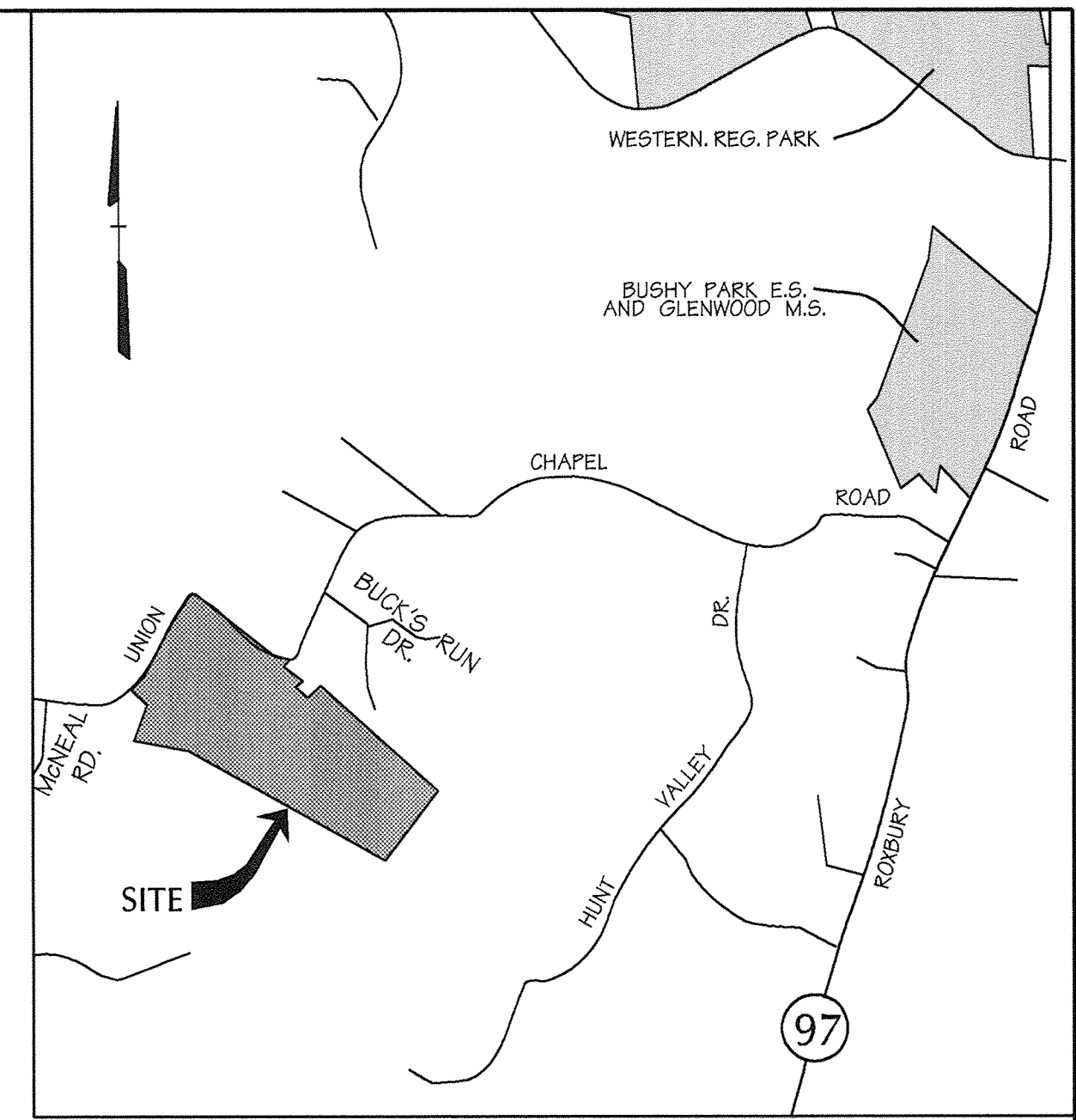
EX. FOREST 'C' REF.
 EX. FOREST CONSERVATION EASEMENT REFERENCE PLAT NO.12206

WELLINGTON
 P. 225
 SECTION 2, AREA 1
 PRESERVATION PARCEL 'A'
 RC-DEO
 ESMT. HO-99-01-PP-DEO
 (SINGLE FAMILY RESIDENCE & ENVIRONMENTAL PRESERVATION ESMT.)
 17,622 AC.
 (26,354 AC. TOTAL)

LAND PRESERVATION PROGRAM
 PRESERVATION PARCEL 'D'
 P. 69
 ESMTED
 HO. CO. AG. LAND PRESERVATION PROGRAM EASEMENT, HO-99-02-PPCL

DATA SOURCES:

Boundary per existing deeds.
 Topo taken from Howard County topo CD, 1999.
 Septics approximated from adjacent plats and DMW field visits, July, 2001.
 Approximate wetland limits from DMW field visits, July, 2001.
 Soils taken from Howard County Soil Survey, 1968.



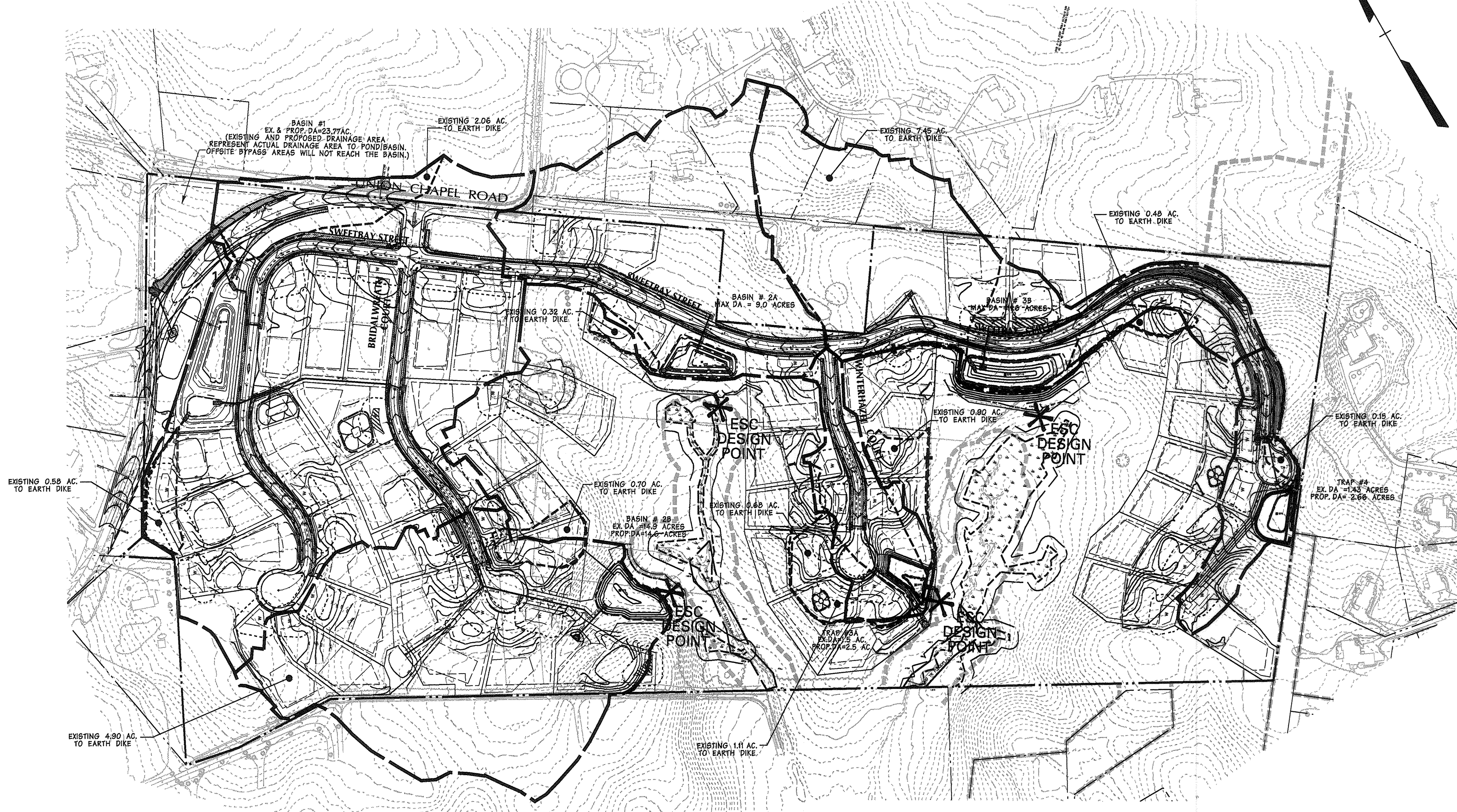
VICINITY MAP

SCALE: 1"=2000'

Legend

- ADJACENT PROPERTY LINE
- - - EXISTING CONTOURS
- - - PROPOSED CONTOURS
- - - PROPOSED LOT LINES
- - - PROPERTY BOUNDARY
- - - PROPOSED ROAD R/W LINES
- - - STREAM BUFFER
- - - EXISTING CONDITIONS DA LINE
- - - PROPOSED CONDITIONS DA LINE
- - - PROPOSED ROAD
- - - EX. EDGE OF ROAD
- - - EXISTING BUILDINGS
- - - EXISTING TREE LINE
- - - WETLANDS
- - - WETLAND BUFFER
- - - LIMIT OF WETLANDS
- - - EX. EDGE OF ROAD
- - - EXISTING BUILDINGS

NOTE: SWALES AND DITCHES TO BE CONSTRUCTED FROM LOWEST END TO HIGHEST END AND STABILIZED IMMEDIATELY WITH EROSION CONTROL MATTING.



"BUILT PER PLAN"
 DATE: 5/11/2018

AS-BUILT CERTIFICATION

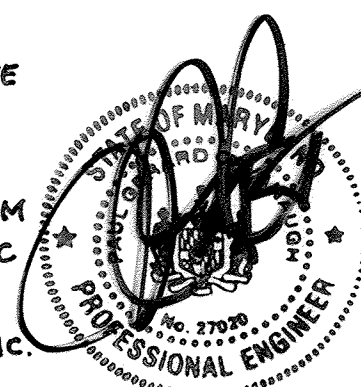
I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

SIGNED: PAUL G. CAVANAUGH DATE: 5/11/2018
 LICENSE No: 27020 EXPIRATION DATE: 1/25/2020

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THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.



ENGINEERS CERTIFICATE:

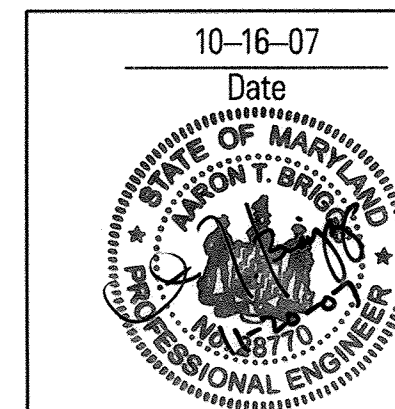
I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

Signature: *Agon Balca* DATE: 11-20-07
 PRINT NAME BELOW SIGNATURE: Agon Balca DATE: 28770

DEVELOPERS CERTIFICATE:

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I/SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I/ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Signature: *Cynthia M. McLaughlin* DATE: 11/17/07
 PRINT NAME BELOW SIGNATURE: CYNTHIA M. McLAUGHLIN DATE: 28770



Professional Engr. No. 28770

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
 Signature: *William J. ...* DATE: 12-9-07
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
 Signature: *...* DATE: 12/1/07
 CHIEF, DIVISION OF LAND DEVELOPMENT

Signature: *...* DATE: 12/1/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

Date	No.	Revision Description

BELLE HAVEN ESTATES

LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O, NON-BUILDABLE BULK PARCEL P, TAX MAP 14, GRID 20, PARCEL 68, ZONE RC-DEG ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER
 Union Chapel Road, LLC
 8028 Chevrolet Drive
 Suite K
 Ellicott City, MD 21042
 Phone (410) 461-2800

DMW
 Dan McCune-Walker, Inc.
 200 East Pennsylvania Avenue
 Towson, Maryland 21286
 (410) 296-3333
 Fax 296-4705
 A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

TITLE
SEDIMENT AND EROSION CONTROL DRAINAGE AREA MAP

Des. By	KAD	Scale	1" = 200'	Proj. No.	01067F
Drn. By	GMO	Date	10/16/07	46 of 74	
Chk. By	ATB	Approved	CYM		

AS-BUILT CERTIFICATION

I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

SIGNED: PAUL G. CAVANAUGH
LICENSE NO: 27020

DATE: 5/11/2018
EXPIRATION DATE: 1/25/2020

HORIZONTAL DATUM FOR THE AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD '83/2011, AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 14 FB

VERTICAL DATUM FOR THIS AS-BUILT SURVEY IS NORTH AMERICAN VERTICAL DATUM (NAVD) 1988 AS PROJECTED BY THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATION OR HOWARD CONTROL BENCH MARKS 14 FB

THIS AS-BUILT SURVEY WAS PREPARED BY DEVELOPMENT DESIGN CONSULTANTS, INC.

"BUILT PER PLAN"
DATE: 5/11/2018

BASIN TABLE

BASIN DEPTH	WET 4.0	BASIN NUMBER	1
	DRY 3.0	EXISTING DRAINAGE AREA: ACRES	23.77
	TOTAL 7.0	PROPOSED DRAINAGE AREA: ACRES	23.77
DESIGN HIGHWATER	10 YR 516.77	CLEAN OUT	21,393
FREEBOARD PROVIDED	2.23'	WET	42,786
BARREL DIAMETER	36"	DRY	42,786
RISER DIAMETER	6' X 6'	TOTAL	85,572
EMERGENCY SPILLWAY WIDTH	N/A	CLEAN OUT	17,671
WET STORAGE ZONE	509.0-513.0	WET	69,557
DRY STORAGE ZONE	513.0-516.00	DRY	43,195
BOTTOM DIMENSIONS	SEE PLAN	TOTAL	114,394
		EXISTING GROUND ELEVATION	514.0
		TOP EMBANKMENT ELEVATION	518.0
		EMERGENCY SPILLWAY CREST ELEVATION	N/A
		RISER CREST ELEVATION	516.00
		WET STORAGE ELEVATION	513.00
		CLEANOUT ELEVATION	511.00
		BOTTOM ELEVATION	509.00
Q INTO BASIN (C.F.S.)	1 YR 24.24	10 YR 81.55	
Q OUT BARREL (C.F.S.)	1 YR 0.37	10 YR 38.51	
Q EXISTING	1 YR 1.69	10 YR 25.31	

*EX. AND PROP. DRAINAGE AREA REPRESENT ACTUAL DRAINAGE AREA TO POND/BASIN OFFSITE BYPASS AREAS WILL NOT REACH THE BASIN.

LEGEND

- EX. MAJOR CONTOUR
- EX. MINOR CONTOUR
- EX. WATER
- EX. SANITARY SEWER
- EX. GAS
- EX. STORM DRAIN
- EX. EDGE OF ROAD
- PROP. EDGE OF ROAD
- SILT FENCE
- SUPER SILT FENCE
- INLET PROTECTION
- STABILIZED CONSTRUCTION ENT.
- MOUNTABLE BERM
- TEMPORARY SWALE
- EARTH DIKE
- LIMIT OF DISTURBANCE
- TEMP DIKE/SWALE
- STEEP SLOPES
- 75' STEAM BUFFER
- 100 YR FLOODPLAIN
- PROPOSED CONTOUR
- SPOT ELEVATION
- RPS
- REMOVABLE PUMP STATION
- MOUNTABLE BITUMINOUS CURB DIVERSION
- FUTURE HOUSE AND DRIVEWAY
- EROSION CONTROL MATTING

NOTE: SWALES AND DITCHES TO BE CONSTRUCTED FROM LOWEST END TO HIGHEST END AND STABILIZED IMMEDIATELY WITH EROSION CONTROL MATTING.

NOTE: WHERE SILT FENCE OR SUPER SILT FENCE RUNS PARALLEL TO CONTOUR, EACH END MUST BE TURNED UPHILL FOR A DISTANCE OF 2' VERTICAL FEET.

NOTE: FOR SUPER SILT FENCE TREATMENT AT OUTFALLS, SEE DETAIL SHEET 54

MATCH LINE - SHEET 48

ENGINEERS CERTIFICATE:

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

Signature: *[Signature]* DATE: 11-20-07
PRINT NAME BELOW SIGNATURE: Andrew B. ... DATE: 28770

DEVELOPERS CERTIFICATE:

I WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION. BEFORE BEGINNING THE PROJECT, I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZED PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Signature: *[Signature]* DATE: 11/17/07
PRINT NAME BELOW SIGNATURE: CATHIA M. McAWLEY

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
Signature: *[Signature]* DATE: 12-7-07
CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Signature: *[Signature]* DATE: 12/11/07
CHIEF, DIVISION OF LAND DEVELOPMENT

Signature: *[Signature]* DATE: 12/11/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION

Date	No.	Revision Description

BELLE HAVEN ESTATES

LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O, NON-BUILDABLE BULK PARCEL P, TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO ELECTION DISTRICT NO. 3 HOWARD COUNTY, MARYLAND

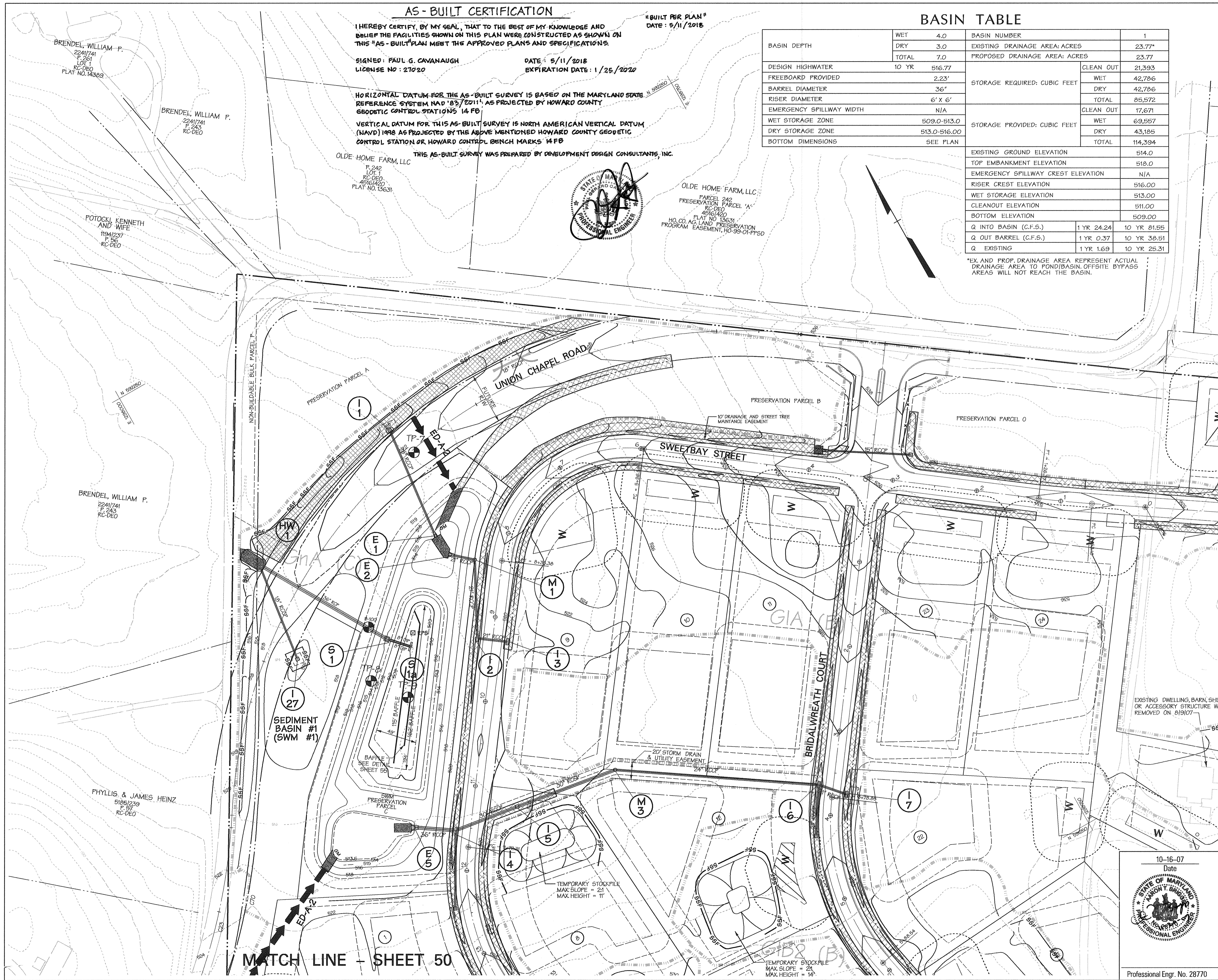
OWNER/DEVELOPER
Union Chapel Road, LLC
9025 Chevrolet Drive
Suite K
Ellicott City, MD 21042
Phone: (410) 461-6800

DMW
Duff McCune Walker, Inc.
300 East Pennsylvania Avenue
Towson, Maryland 21286
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

TITLE
SEDIMENT BASIN #1 (SWM FACILITY #1)

Des. By	CVG	Scale	1" = 50'	Proj. No.	01067CF
Dm. By	GMO	Date	10/16/07	47 of 74	
Chk. By	ATB	Approved	ATB		

10-16-07
Date
Professional Engr. No. 28770



MATCH LINE - SHEET 50

10/08/07 10:08:57 AM \\server\dwg\96645628\2307_2007

MATCH LINE - SHEET 47

MATCH LINE - SHEET 49



BASIN 2A TABLE

BASIN NUMBER	2A		
EXISTING DRAINAGE AREA: ACRES	10.0		
PROPOSED DRAINAGE AREA: ACRES	9.0		
STORAGE REQUIRED: CUBIC FEET	CLEAN OUT	8,100	
	WET	16,200	
	DRY	16,200	
		TOTAL	32,400
STORAGE PROVIDED: CUBIC FEET	CLEAN OUT	8,126	
	WET	23,648	
	DRY	16,950	
		TOTAL	40,598
EXISTING GROUND ELEVATION	510.0		
TOP EMBANKMENT ELEVATION	517.0		
EMERGENCY SPILLWAY CREST ELEVATION	N/A		
RISER CREST ELEVATION	514.50		
WET STORAGE ELEVATION	513.00		
CLEANOUT ELEVATION	511.00		
BOTTOM ELEVATION	509.0		
Q INTO BASIN (C.F.S.)	1 YR 4.00	10 YR 23.29	
Q OUT BASIN (C.F.S.)	1 YR 0.11	10 YR 14.24	
EXISTING Q (C.F.S.)	1 YR 2.15	10 YR 18.16	
Q OUT EMERGENCY SPILLWAY	N/A		
BASIN DEPTH	WET	4.0	
	DRY	1.5	
	TOTAL	5.5	
DESIGN HIGHWATER	10 YR	514.90	
FREEBOARD PROVIDED	2.1		
BARREL DIAMETER	30"		
RISER DIAMETER	4' X 4'		
EMERGENCY SPILLWAY WIDTH	N/A		
WET STORAGE ZONE	509.0-513.0		
DRY STORAGE ZONE	513.0-514.5		
BOTTOM DIMENSIONS	SEE PLAN		

LEGEND

- EX MAJOR CONTOUR
- EX MINOR CONTOUR
- EX WATER
- EX SANITARY SEWER
- EX STORM DRAIN
- EX GAS
- EX EDGE OF ROAD
- PROP. UTILITIES
- PROP. EDGE OF ROAD
- SILT FENCE
- SUPER SILT FENCE
- INLET PROTECTION
- INLET PROTECTION
- STABILIZED CONSTRUCTION ENT.
- MOUNTABLE BERM
- TEMPORARY SWALE
- EARTH DIKE
- LIMIT OF DISTURBANCE
- TEMP DIKE/SWALE
- STEEP SLOPES
- 75' STEAM BUFFER
- 100 YR FLOODPLAIN
- PROPOSED CONTOUR
- SPOT ELEVATION
- RPS REMOVABLE PUMP STATION
- MOUNTABLE BITUMINOUS CURB DIVERSION
- FUTURE HOUSE AND DRIVEWAY
- EROSION CONTROL MATTING

NOTE: SWALES AND DITCHES TO BE CONSTRUCTED FROM LOWEST END TO HIGHEST END AND STABILIZED IMMEDIATELY WITH EROSION CONTROL MATTING.

NOTE: WHERE SILT FENCE OR SUPER SILT FENCE RUNS PARALLEL TO CONTOUR, EACH END MUST BE TURNED UPHILL FOR A DISTANCE OF 2' VERTICAL FEET.

NOTE: FOR SUPER SILT FENCE TREATMENT AT OUTFALLS, SEE DETAIL SHEET 54

NOTE: ONCE BASIN IS CONSTRUCTED AND BEFORE ANY FILL IS PLACED, CONTRACTOR TO BEGIN DIKE CONSTRUCTION STARTING FROM POND TO INTERSECTION WITH WINTERHAZEL COURT. CONTRACTOR TO FILL ONLY AS NEEDED TO CONSTRUCT DIKE IN ITS ENTIRETY PRIOR TO ANY GRADING UPHILL OF EARTH DIKE. SUPER SILT FENCE BELOW DIKE TO BE INSTALLED PRIOR TO BEGINNING EARTH DIKE INSTALLATION.

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
12-7-07

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
12/11/07

Date	No.	Revision Description
------	-----	----------------------

BELLE HAVEN ESTATES
LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O, NON-BUILDABLE BULK PARCEL P
TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
ELECTION DISTRICT NO. 3 HOWARD COUNTY, MARYLAND
OWNER/DEVELOPER
Union Chapel Road, LLC
8025 Chevrolet Drive
Suite K
Ellicott City, MD 21042
Phone: (410) 461-6800

DMW
Duff-McCune-Walker, Inc.
200 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 296-3333
Fax: 296-4705
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

TITLE SEDIMENT BASIN #2A (SWM FACILITY # 2A)			
Des. By	KAD	Scale	1" = 50'
Proj. No.	01067F		
Dwn. By	GMO	Date	10/16/07
Chk. By	ATB	Approved	ATB
			48 of 74

MATCH LINE - SHEET 51

AS-BUILT CERTIFICATION

I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

SIGNED: PAUL G. CAVANAUGH
LICENSE No: 27920

DATE: 5/11/2018
EXPIRATION DATE: 1/25/2020

"BUILT PER PLAN"
DATE 5/11/2018

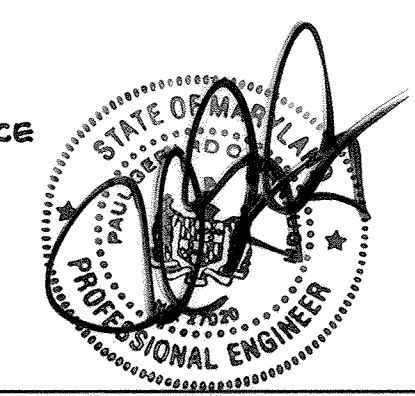
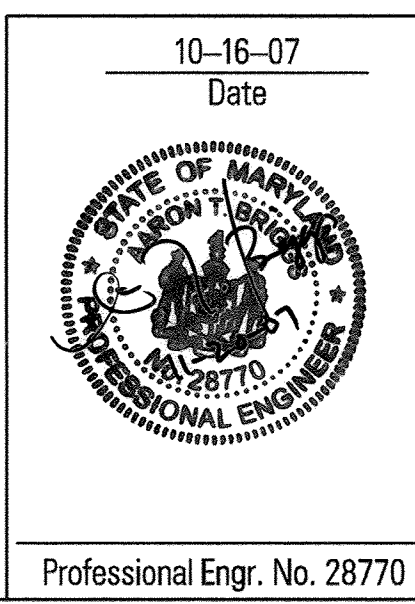
HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD '83/2011' AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 14 FB

VERTICAL DATUM FOR THIS AS-BUILT SURVEY IS NORTH AMERICAN VERTICAL DATUM (NAVD) 1988 AS PROJECTED BY THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATION OR HOWARD CONTROL BENCH MARKS 14 FB.

THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.

ENGINEERS CERTIFICATE:
I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.
11-20-07
28770

DEVELOPERS CERTIFICATE:
I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I/SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I/ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.
11/17/07



10/08/07 06:07:18 5/11/2018 10:16:07

MATCH LINE - SHEET 48

"BUILT PER PLAN"
DATE: 5/11/2018

AS-BUILT CERTIFICATION

I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

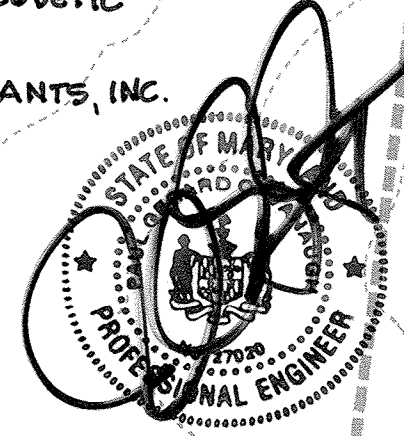
SIGNED: PAUL G. CAVANAUGH DATE: 5/11/2018
LICENSE NO: 27020 EXPIRATION DATE: 1/25/2020

HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON MARYLAND STATE REFERENCE SYSTEM NAD '83/2011' AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 14 FB

VERTICAL DATUM FOR THIS AS-BUILT SURVEY IS NORTH AMERICAN VERTICAL DATUM (NAVD) 1998 AS PROJECTED BY THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATION OR HOWARD CONTROL BENCH MARKS 14 FB

THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.

LOCKARD ADAM J
LOCKARD DONNA
PRESERVATION PARCEL 'D'
PARCEL 69
RC-DEO
HO. CO. AGRICULTURE PRESERVATION
PROGRAM EASEMENT, HO-99-02-PPCL
L 6226-F 316



BASIN 3B TABLE

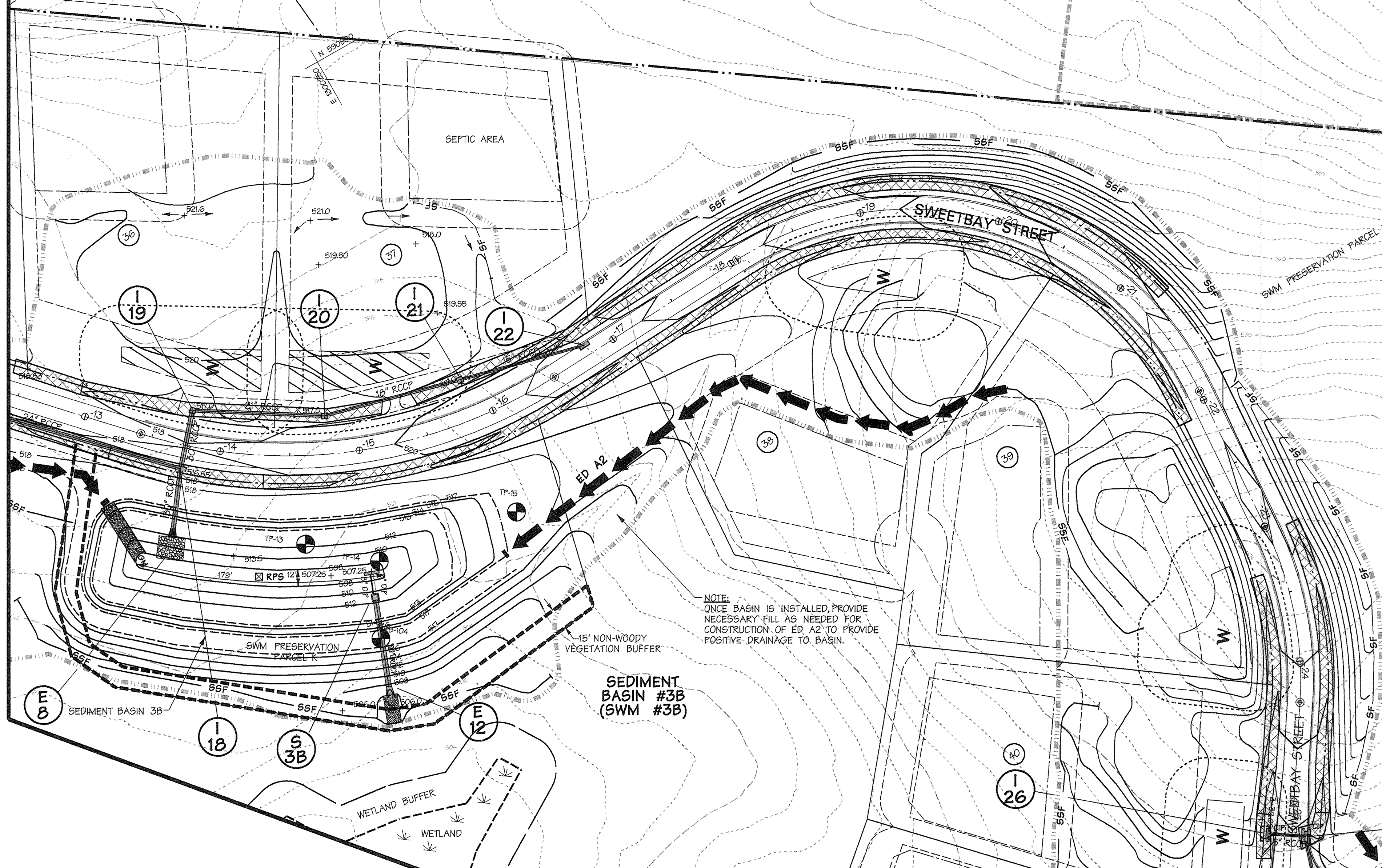
BASIN NUMBER	3B	
EXISTING DRAINAGE AREA: ACRES	3.25	
PROPOSED DRAINAGE AREA: ACRES	11.6	
STORAGE REQUIRED: CUBIC FEET	CLEAN OUT	10,440
	WET	20,880
	DRY	20,880
	TOTAL	41,760
STORAGE PROVIDED: CUBIC FEET	CLEAN OUT	7,484
	WET	22,898
	DRY	21,873
	TOTAL	44,771
EXISTING GROUND ELEVATION	509.0	
TOP EMBANKMENT ELEVATION	517.0	
EMERGENCY SPILLWAY CREST ELEVATION	N/A	
RISER CREST ELEVATION	513.50	
WET STORAGE ELEVATION	512.00	
CLEANOUT ELEVATION	510.00	
BOTTOM ELEVATION	508.00	
Q INTO BASIN (C.F.S.)	1 YR 7.10	10 YR 33.43
Q OUT BARREL (C.F.S.)	1 YR 0.22	10 YR 18.07
Q EXISTING	1 YR 0.23	10 YR 4.76
Q OUT EMERGENCY SPILLWAY	N/A	
BASIN DEPTH	WET	4.0
	DRY	1.5
	TOTAL	5.5
DESIGN HIGHWATER	10 YR	514.0
FREEBOARD PROVIDED	3.0	
BARREL DIAMETER	30"	
RISER DIAMETER	4' X 4'	
EMERGENCY SPILLWAY WIDTH	N/A	
WET STORAGE ZONE	508.0-512.0	
DRY STORAGE ZONE	512.0-513.5	
BOTTOM DIMENSIONS	SEE PLAN	

LEGEND

- EX. MAJOR CONTOUR
- EX. MINOR CONTOUR
- EX. WATER
- EX. SANITARY SEWER
- EX. STORM DRAIN
- EX. GAS
- EX. EDGE OF ROAD
- PROP. UTILITIES
- PROP. EDGE OF ROAD
- SUPER SILT FENCE
- INLET PROTECTION
- STABILIZED CONSTRUCTION ENT.
- MOUNTABLE BERM
- TEMPORARY SWALE
- EARTH DIKE
- LIMIT OF DISTURBANCE
- TEMP DIKE/ SWALE
- STEEP SLOPES
- 75' STEAM BUFFER
- 100 YR FLOODPLAIN
- PROPOSED CONTOUR
- SPOT ELEVATION
- RPS REMOVABLE PUMP STATION
- MOUNTABLE BITUMINOUS CURB DIVERSION
- FUTURE HOUSE AND DRIVEWAY
- EROSION CONTROL MATTING

NOTE: FOR SUPER SILT FENCE TREATMENT AT OUTFALLS, SEE DETAIL SHEET 54

NOTE: WHERE SILT FENCE OR SUPER SILT FENCE RUNS PARALLEL TO CONTOUR, EACH END MUST BE TURNED UPHILL FOR A DISTANCE OF 2' VERTICAL FEET.



NOTE: ONCE BASIN IS INSTALLED, PROVIDE NECESSARY FILL AS NEEDED FOR CONSTRUCTION OF ED A2 TO PROVIDE POSITIVE DRAINAGE TO BASIN.

SEDIMENT BASIN #3B (SWM #3B)

BOWMAN ROBERT E JR.
BOWMAN CONNIE T.
PARCEL 239
SECTION 2, AREA 1
PRESERVATION PARCEL 'A'
RC-DEO
ESMT. HO-99-01-PP-DEO
L 4412-F 1

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
Walter Z. ... 12-7-07
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
... 12/11/09
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

... 12/11/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

REVISION TABLE

Date	No.	Revision Description

BELLE HAVEN ESTATES
LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O, NON-BUILDABLE BULK PARCEL P
TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER
Union Chapel Road, LLC
9025 Chevrolet Drive
Suite K
Ellicott City, MD 21042
Phone: (410) 481-8900

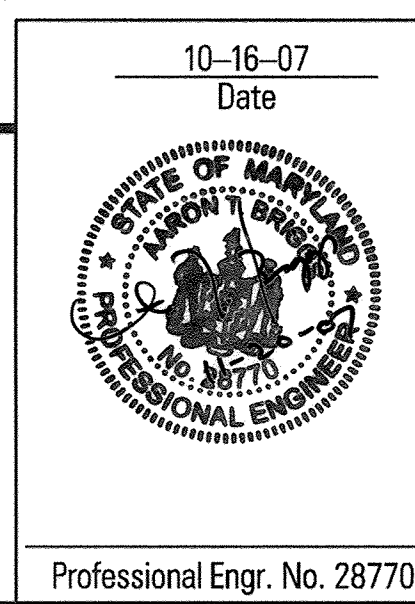
ENGINEERS CERTIFICATE:
I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

Paul G. Cavanaugh 11-20-07
SIGNATURE OF ENGINEER DATE
PRINT NAME BELOW SIGNATURE: Paul G. Cavanaugh 28770

DEVELOPERS CERTIFICATE:
I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I/WE SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I/WE ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Cynthia M. McAuliffe 11/17/07
SIGNATURE OF DEVELOPER DATE
PRINT NAME BELOW SIGNATURE: Cynthia M. McAuliffe

MATCH LINE - SHEET 52



DMW
Darr McCune-Walker, Inc.
300 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 296-3333
Fax: 296-4705

A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

TITLE
SEDIMENT AND EROSION CONTROL SWM FACILITY #3B

Des. By	KAD	Scale	1" = 50'	Proj. No.	01067F
Drn. By	GMO	Date	10/16/07		
Chk. By	ATB	Approved	ATB		49 of 74

Professional Engr. No. 28770

AS-BUILT CERTIFICATION

I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

"NO AS-BUILT INFORMATION IN THIS SHEET"
DATE: 5/11/2018

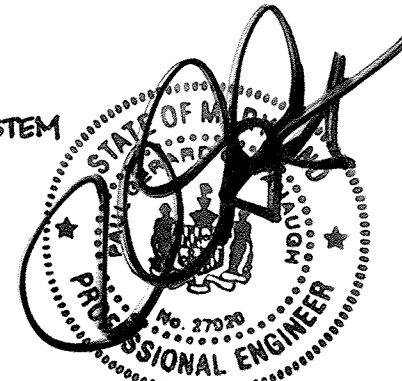
SIGNED: PAUL G. CAVANAUGH
LICENSE NO: 27020

DATE: 5/11/2018
EXPIRATION DATE: 1/25/2020

HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD 83/2011 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 14FB

VERTICAL DATUM FOR THIS AS-BUILT SURVEY IS NORTH AMERICAN VERTICAL DATUM (NAVD) 1988 AS PROJECTED BY THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATION OR HOWARD COUNTY BENCH MARKS 14FB

THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.



MATCH LINE - SHEET 47



MATCH LINE - SHEET 51

NOTE: WHERE SILT FENCE OR SUPER SILT FENCE RUNS PARALLEL TO CONTOUR, EACH END MUST BE TURNED UPHILL FOR A DISTANCE OF 2 VERTICAL FEET.

NOTE: FOR SUPER SILT FENCE TREATMENT AT OUTFALLS, SEE DETAIL SHEET 54

LEGEND

- EX MAJOR CONTOUR
- EX MINOR CONTOUR
- EX WATER
- EX SANITARY SEWER
- EX STORM DRAIN
- EX GAS
- EX EDGE OF ROAD
- PROP. UTILITIES
- PROP. EDGE OF ROAD
- SILT FENCE
- SUPER SILT FENCE
- INLET PROTECTION
- INLET PROTECTION
- STABILIZED CONSTRUCTION ENT.
- MOUNTABLE BERM
- TEMPORARY SWALE
- EARTH DIKE
- LIMIT OF DISTURBANCE
- TEMP DIKE/SWALE
- STEEP SLOPES
- 75' STEAM BUFFER
- 100 YR FLOODPLAIN
- PROPOSED CONTOUR
- SPOT ELEVATION
- RP6
- REMOVABLE PUMP STATION
- MOUNTABLE BITUMINOUS CURB DIVERSION
- FUTURE HOUSE AND DRIVEWAY
- EROSION CONTROL MATTING

NOTE: SWALES AND DITCHES TO BE CONSTRUCTED FROM LOWEST END TO HIGHEST END AND STABILIZED IMMEDIATELY WITH EROSION CONTROL MATTING.

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
Walter R. Hall 12-1-07
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Cindy Harsh 12/1/07
CHIEF, DIVISION OF LAND DEVELOPMENT DATE
Michael... 12/1/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date	No.	Revision Description

BELLE HAVEN ESTATES
LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O,
NON-BUILDABLE BULK PARCEL P
TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND
OWNER/DEVELOPER
Union Chapel Road, LLC
8028 Chevrolet Drive
Suite K
Ellicott City, MD 21042
Phone: (410) 461-6900

DMW
Darr McCase Walker, Inc.
300 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 286-3333
Fax: 286-4706
A Team of Land Planners,
Landscape Architects,
Engineers, Surveyors &
Environmental Professionals

TITLE			
SEDIMENT AND EROSION CONTROL PLAN			
Des. By	CVS	Scale	1" = 50'
Proj. No.	01067F		
Drn. By	GMO	Date	10/16/07
Chk. By	ATB	Approved	ATB
			50 of 74

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF HOWARD SOIL CONSERVATION DISTRICT.

APPROVED: *[Signature]* 12/1/07 DATE
HOWARD SOIL CONSERVATION DISTRICT

PLAN NUMBER

ENGINEERS CERTIFICATE:

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

[Signature] 11-20-07 DATE
SIGNATURE OF ENGINEER
PRINT NAME BELOW SIGNATURE: **ALAN BALKAS** 28770

DEVELOPERS CERTIFICATE:

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

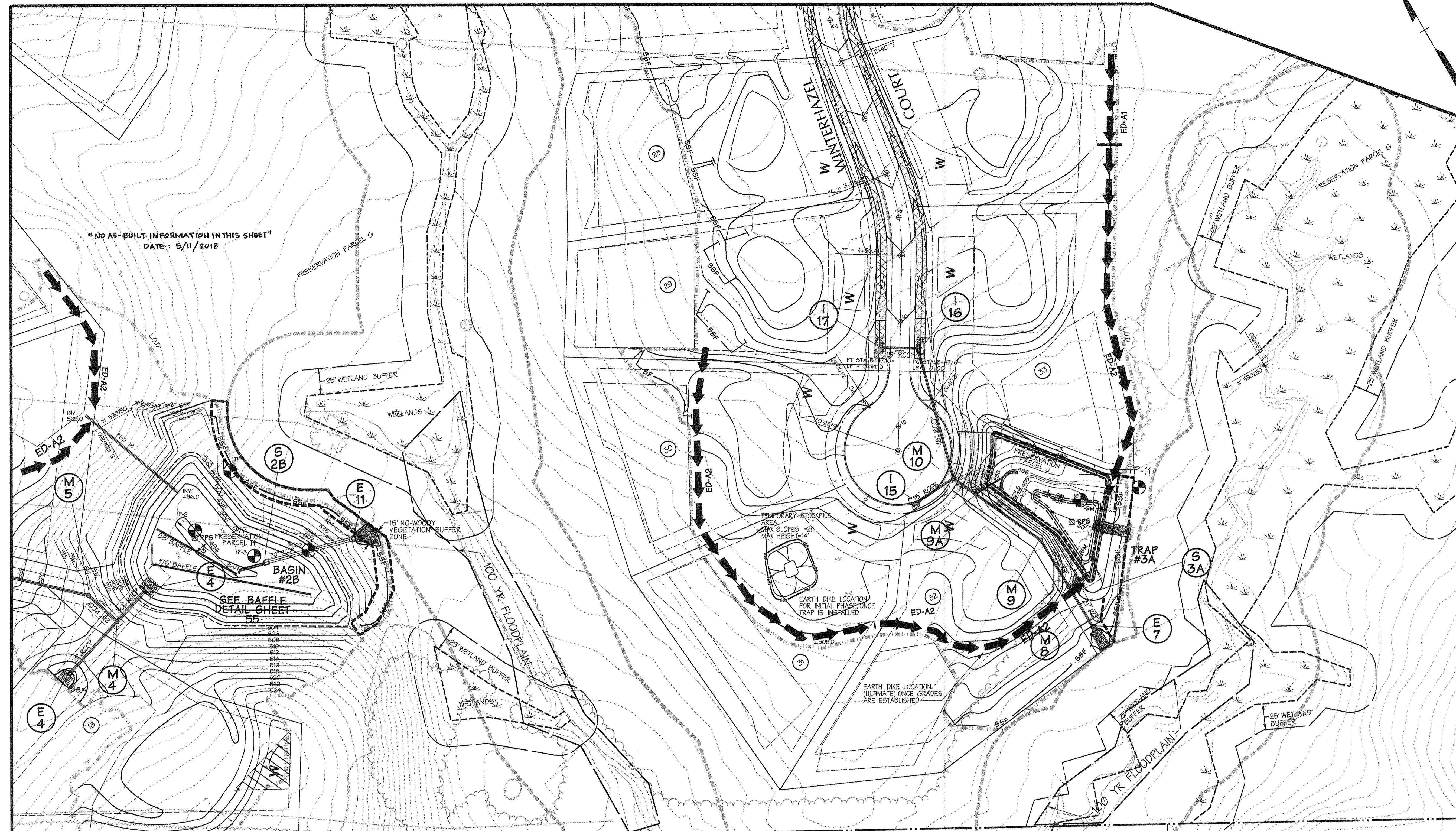
[Signature] 11/19/07 DATE
SIGNATURE OF DEVELOPER
PRINT NAME BELOW SIGNATURE: **CYNTHIA M. MCANILFF**



Professional Engr. No. 28770

MATCH LINE - SHEET 50

MATCH LINE - SHEET 52



TRAP NUMBER	3A	
TRAP TYPE	11	
EXISTING DRAINAGE AREA: ACRES	1.5	
PROPOSED DRAINAGE AREA: ACRES	2.5	
STORAGE REQUIRED: CUBIC FEET	CLEAN OUT	2,520
	WET	4,500
	DRY	4,500
	TOTAL	9,000
STORAGE PROVIDED: CUBIC FEET	CLEAN OUT	2,706
	WET	7,751
	DRY	19,436
	TOTAL	27,187
EXISTING GROUND ELEVATION	492.5	
TOP EMBANKMENT ELEVATION	495.0	
WEIR CREST ELEVATION	493.5	
WET STORAGE ELEVATION	491.5	
CLEANOUT ELEVATION	490.5	
BOTTOM ELEVATION	489.0	
EXISTING Q (C.F.S.)	1 YR	0.09
PROPOSED Q (C.F.S.)	1 YR	6.65
TRAP DEPTH	WET	2.5
	DRY	2.0
	TOTAL	4.5
BARREL DIAMETER	N/A	
RISER DIAMETER	N/A	
OUTLET WIDTH	11.5'	
WET STORAGE ZONE	489.0-491.5	
DRY STORAGE ZONE	491.5-493.5	
TRAP SIDE SLOPES	2:1	
BOTTOM DIMENSIONS	SEE PLAN	
EXISTING 1-YR Q (CFS)	0.09	
PROPOSED 1-YR Q (CFS)	6.65	

LEGEND

--- EX MAJOR CONTOUR	--- EX MINOR CONTOUR	--- EX WATER	--- EX SANITARY SEWER	--- EX STORM DRAIN	--- EX GAS	--- EX EDGE OF ROAD	--- PROP UTILITIES	--- PROP. EDGE OF ROAD	--- SUPER SILT FENCE	--- INLET PROTECTION	--- INLET PROTECTION	--- STABILIZED CONST. ENT.	--- MOUNTABLE BERM	--- TEMPORARY SWALE	--- EARTH DIKE	--- LIMIT OF DISTURBANCE	--- TEMP DIKE SWALE	--- STEEP SLOPES	--- MOUNTABLE BITUMINOUS CURB DIVERSION	--- FUTURE HOUSE AND DRIVEWAY	--- EROSION CONTROL MATTING	--- 75' STEAM BUFFER	--- 100 YR FLOODPLAIN	--- PROPOSED CONTOUR	--- SPOT ELEVATION	--- REMOVABLE PUMP STATION	--- EROSION CONTROL MATTING
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NOTE: SWALES AND DITCHES TO BE CONSTRUCTED FROM LOWEST END TO HIGHEST END AND STABILIZED IMMEDIATELY WITH EROSION CONTROL MATTING.

NOTE: WHERE SILT FENCE OR SUPER SILT FENCE BEING PARALLEL TO CONTOUR EACH END MUST BE TURNED UPHILL FOR A DISTANCE OF 2' VERTICAL FEET.

NO AS-BUILT INFORMATION IN THIS SHEET
DATE: 5/11/2018

AS-BUILT CERTIFICATION

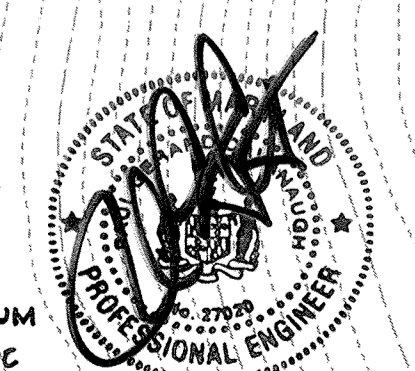
I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

SIGNED: PAUL G. CAVANAUGH DATE: 5/11/2018
LICENSE NO: 27020 EXPIRATION DATE: 11/25/2020

HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD '83/2011' AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 14 FB

VERTICAL DATUM FOR THIS AS-BUILT SURVEY IS NORTH AMERICAN VERTICAL DATUM (NAVD) 1988 AS PROJECTED BY THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATION OR HOWARD CONTROL BENCH MARKS 14 FB

THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.



ENGINEERS CERTIFICATE:
I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. ALSO, AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

DEVELOPERS CERTIFICATE:
I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I/SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. ALSO, AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Signature of Engineer: Paul G. Cavanaugh
Date: 11-20-07
Print Name Below Signature: PAUL G. CAVANAUGH
Date: 28770

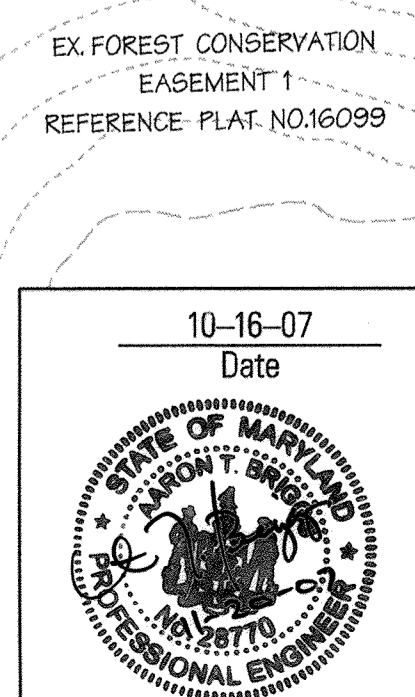
Signature of Developer: Cynthia M. McAuliffe
Date: 11/17/12
Print Name Below Signature: CYNTHIA M. MCAULIFFE

BASIN 2B TABLE

BASIN NUMBER	2B		EXISTING Q (C.F.S.)	1 YR	0.78	10 YR	18.90
EXISTING DRAINAGE AREA: ACRES	14.9		Q INTO BASIN (C.F.S.)	1 YR	12.19	10 YR	45.98
PROPOSED DRAINAGE AREA: ACRES	14.6		Q OUT BARREL (C.F.S.)	1 YR	0.22	10 YR	32.79
STORAGE REQUIRED: CUBIC FEET	CLEAN OUT	13,140	Q OUT EMERGENCY SPILLWAY	N/A			
	WET	26,280	BASIN DEPTH	WET	4.0		
	DRY	26,280		DRY	2.0		
	TOTAL	52,560		TOTAL	6.0		
STORAGE PROVIDED: CUBIC FEET	CLEAN OUT	12,409	DESIGN HIGHWATER	10 YR 500.73			
	WET	37,139	FREEBOARD PROVIDED	2.27'			
	DRY	31,052	BARREL DIAMETER	30"			
	TOTAL	68,191	RISER DIAMETER	4' X 4'			
EXISTING GROUND ELEVATION	492.0		EMERGENCY SPILLWAY WIDTH	N/A			
TOP EMBANKMENT ELEVATION	503.0		WET STORAGE ZONE	494-498			
EMERGENCY SPILLWAY CREST ELEVATION	500.0		DRY STORAGE ZONE	498-500			
WEIR CREST ELEVATION	498.00		BOTTOM DIMENSIONS	SEE PLAN			
WET STORAGE ELEVATION	496.00						
CLEANOUT ELEVATION	496.00						
BOTTOM ELEVATION	494.00						

NOTE: FOR SUPER SILT FENCE TREATMENT AT OUTFALLS, SEE DETAIL SHEET 54

WOODS OF WELLINGTON
P. 264
PRESERVATION PARCEL A
RC-DEO
PLAT NOS. 16098-16100



Professional Engr. No. 28770

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
Willa R. Walker, Chief, Bureau of Highways, Date: 12-7-07

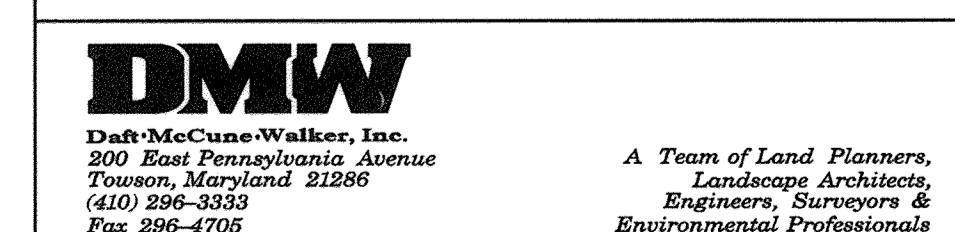
APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Cynthia M. McAuliffe, Chief, Division of Land Development, Date: 12/10/07

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Paul G. Cavanaugh, Chief, Development Engineering Division, Date: 12/10/07

Date	No.	Revision Description
------	-----	----------------------

BELLE HAVEN ESTATES

LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O, NON-BUILDABLE BULK PARCEL P
TAX MAP 14, GRID 20, PARCEL 88, ZONE RC-DEO
ELECTION DISTRICT NO. 3 HOWARD COUNTY, MARYLAND
OWNER/DEVELOPER
Union Chapel Road, LLC
3025 Chevrolet Drive
Suite A
Ellicott City, MD 21042
Phone: (410) 481-6800



SEDIMENT AND EROSION CONTROL
BASIN #2B AND TRAP #3A

Des. By	CVS	Scale	1" = 50'	Proj. No.	01067F
Drn. By	GMO	Date	10/16/07	51 of 74	
Chk. By	ATB	Approved	ATB		

MATCH LINE - SHEET 49

MATCH LINE - SHEET 51

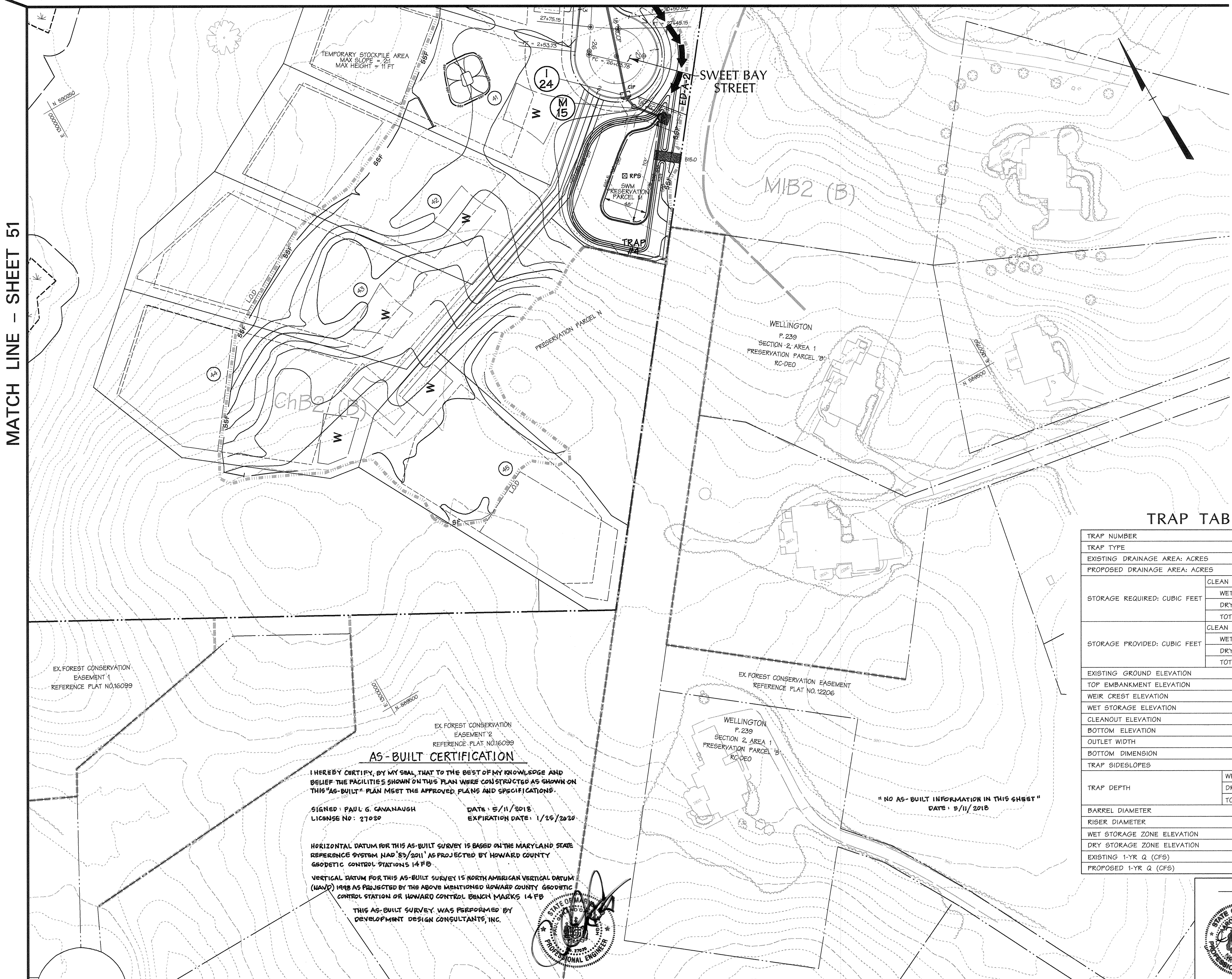
NOTE: FOR SUPER SILT FENCE TREATMENT AT OUTFALLS, SEE DETAIL SHEET 54

NOTE: WHERE SILT FENCE OR SUPER SILT FENCE RUNS PARALLEL TO CONTOUR, EACH END MUST BE TURNED UP HILL FOR A DISTANCE OF 2' VERTICAL FEET.

LEGEND

- EX MAJOR CONTOUR
- EX MINOR CONTOUR
- EX WATER
- EX SANITARY SEWER
- EX STORM DRAIN
- EX GAS
- EX EDGE OF ROAD
- PROP. UTILITIES
- PROP. EDGE OF ROAD
- SILT FENCE
- SUPER SILT FENCE
- INLET PROTECTION
- INLET PROTECTION
- STABILIZED CONSTRUCTION ENT.
- MOUNTABLE BERM
- TEMPORARY SWALE
- EARTH DIKE
- LIMIT OF DISTURBANCE
- TEMP DIKE/SWALE
- STEEP SLOPES
- 75' STEAM BUFFER
- 100 YR FLOODPLAIN
- PROPOSED CONTOUR
- SPOT ELEVATION
- REMOVABLE PUMP STATION
- MOUNTABLE BITUMINOUS CURB DIVERSION
- FUTURE HOUSE AND DRIVEWAY
- EROSION CONTROL MATTING NG

NOTE: SWALES AND DITCHES TO BE CONSTRUCTED FROM LOWEST END TO HIGHEST END AND STABILIZED IMMEDIATELY WITH EROSION CONTROL MATTING.



THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF HOWARD SOIL CONSERVATION DISTRICT.

U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE DATE: 12/4/07
 APPROVED: HOWARD SOIL CONSERVATION DISTRICT
 PLAN NUMBER: 12/4/07

ENGINEERS CERTIFICATE:
 I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERSEDE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

Signature: *Mark Baucus* DATE: 11-20-07
 PRINT NAME BELOW SIGNATURE: MARK BAUCUS DATE: 28770

DEVELOPERS CERTIFICATE:
 I HEREBY CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERSEDE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Signature: *Cynthia M. McAuliffe* DATE: 11/19/07
 PRINT NAME BELOW SIGNATURE: CYNTHIA M. MCAULIFFE

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
 Signature: *William J. Smith* DATE: 12-7-07
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
 Signature: *Janis Hester* DATE: 12/11/07
 CHIEF, DIVISION OF LAND DEVELOPMENT
 Signature: *William J. Smith* DATE: 12/11/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

Date	No.	Revision Description

BELLE HAVEN ESTATES
 LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O, NON-BUILDABLE BULK PARCEL P
 TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
 ELECTION DISTRICT NO. 3 HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER
 Union Chapel Road, LLC
 9025 Chevrolet Drive
 Suite K
 Elkport City, MD 21042
 Phone: (410) 461-6800

DMW
 Dawn McCune Walker, Inc.
 200 East Pennsylvania Avenue
 Towson, Maryland 21286
 (410) 296-3333
 Fax: 296-4708

A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

TITLE			
SEDIMENT TRAP #4 (SWM FACILITY #4)			
Des. By	CVS	Scale	1" = 50'
Drn. By	GMO	Date	10/16/07
Chk. By	ATB	Approved	ATB
Proj. No.		01067F	
		52 of 74	

TRAP TABLE

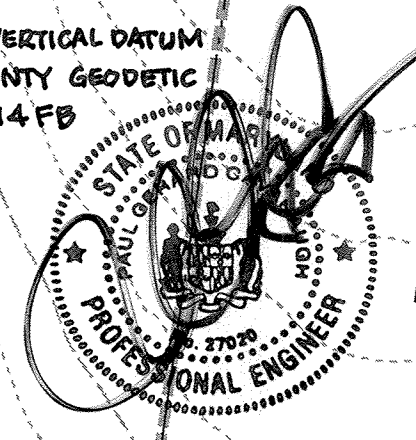
TRAP NUMBER	4	
TRAP TYPE	11	
EXISTING DRAINAGE AREA: ACRES	1.43	
PROPOSED DRAINAGE AREA: ACRES	2.66	
STORAGE REQUIRED: CUBIC FEET	CLEAN OUT	2,610
	WET	4,788
	DRY	4,788
	TOTAL	9,576
STORAGE PROVIDED: CUBIC FEET	CLEAN OUT	2,049
	WET	7,541
	DRY	16,587
	TOTAL	25,250
EXISTING GROUND ELEVATION	517.0	
TOP EMBANKMENT ELEVATION	519.0	
WEIR CREST ELEVATION	518.0	
WET STORAGE ELEVATION	516.5	
CLEANOUT ELEVATION	515.5	
BOTTOM ELEVATION	515.0	
OUTLET WIDTH	12'	
BOTTOM DIMENSION	30'x95'	
TRAP SIDESLOPES	2:1	
TRAP DEPTH	WET	1.5'
	DRY	1.5'
	TOTAL	3.0'
BARREL DIAMETER	-NA-	
RISER DIAMETER	-NA-	
WET STORAGE ZONE ELEVATION	515.0-516.5	
DRY STORAGE ZONE ELEVATION	516.5-518.0	
EXISTING 1-YR Q (CF6)	0.23	
PROPOSED 1-YR Q (CF6)	6.01	

AS-BUILT CERTIFICATION
 I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.
 SIGNED: PAUL G. CAVANAUGH DATE: 5/11/2018
 LICENSE NO: 27020 EXPIRATION DATE: 1/25/2020

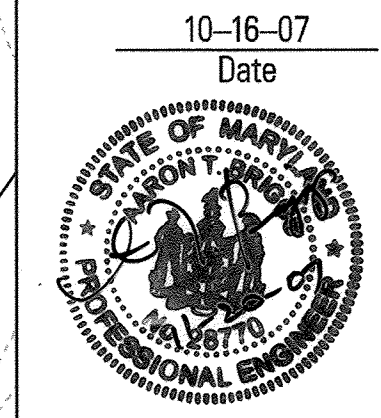
HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD '83/2011' AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 14 FB.

VERTICAL DATUM FOR THIS AS-BUILT SURVEY IS NORTH AMERICAN VERTICAL DATUM (NAVD) 1988 AS PROJECTED BY THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATION OR HOWARD CONTROL BENCH MARKS 14 FB.

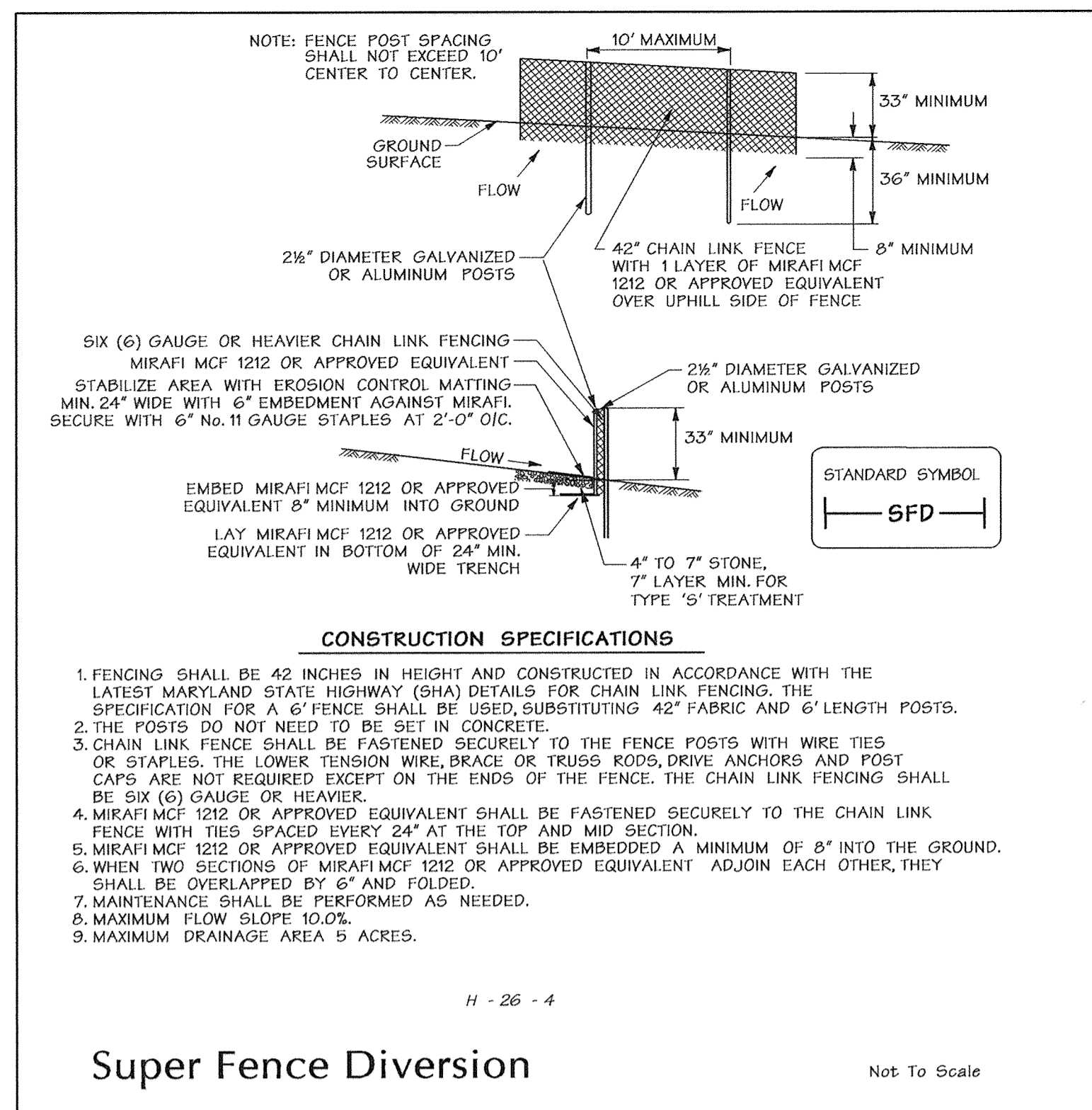
THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.



"NO AS-BUILT INFORMATION IN THIS SHEET"
 DATE: 5/11/2018

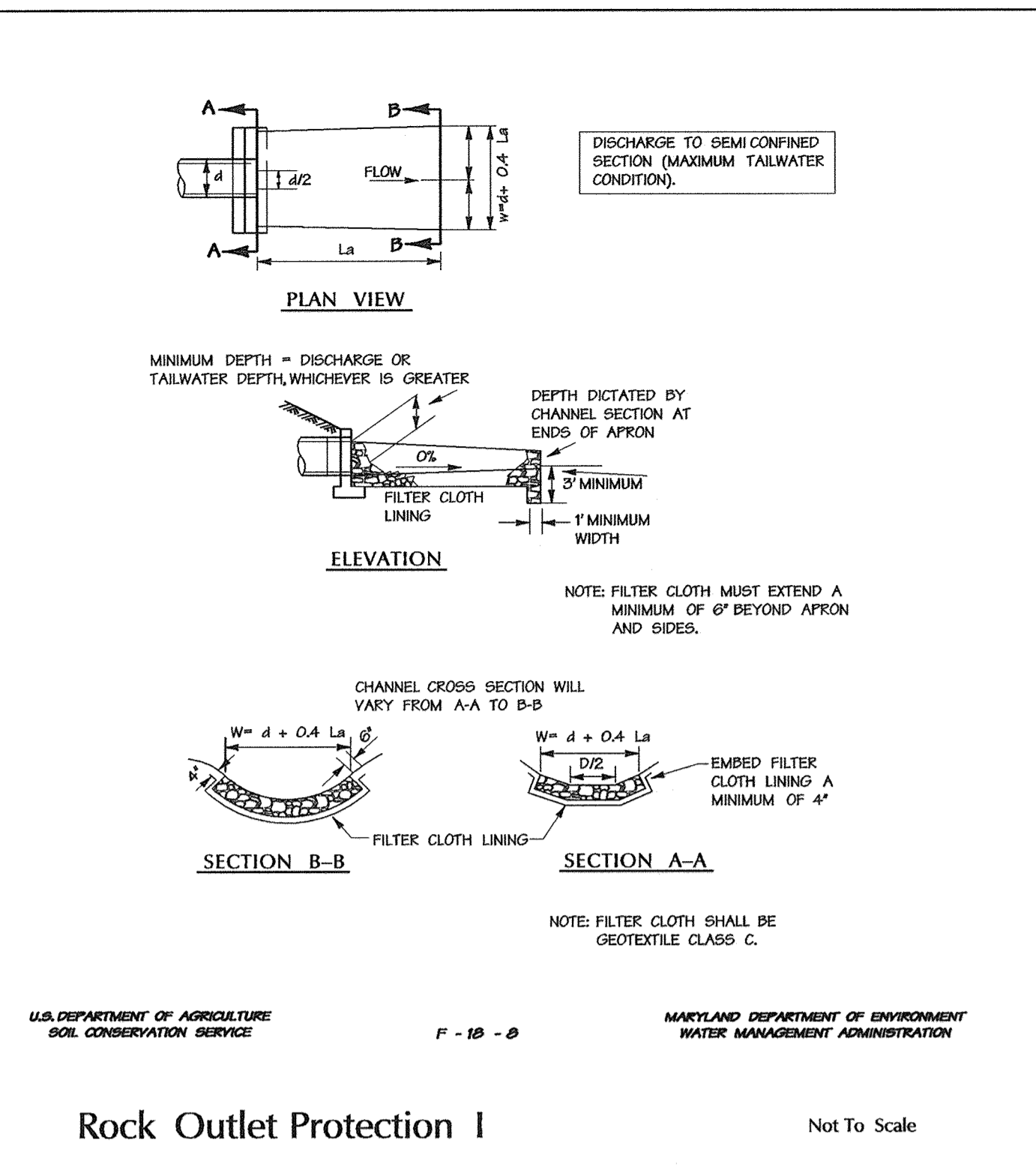


Professional Engr. No. 28770



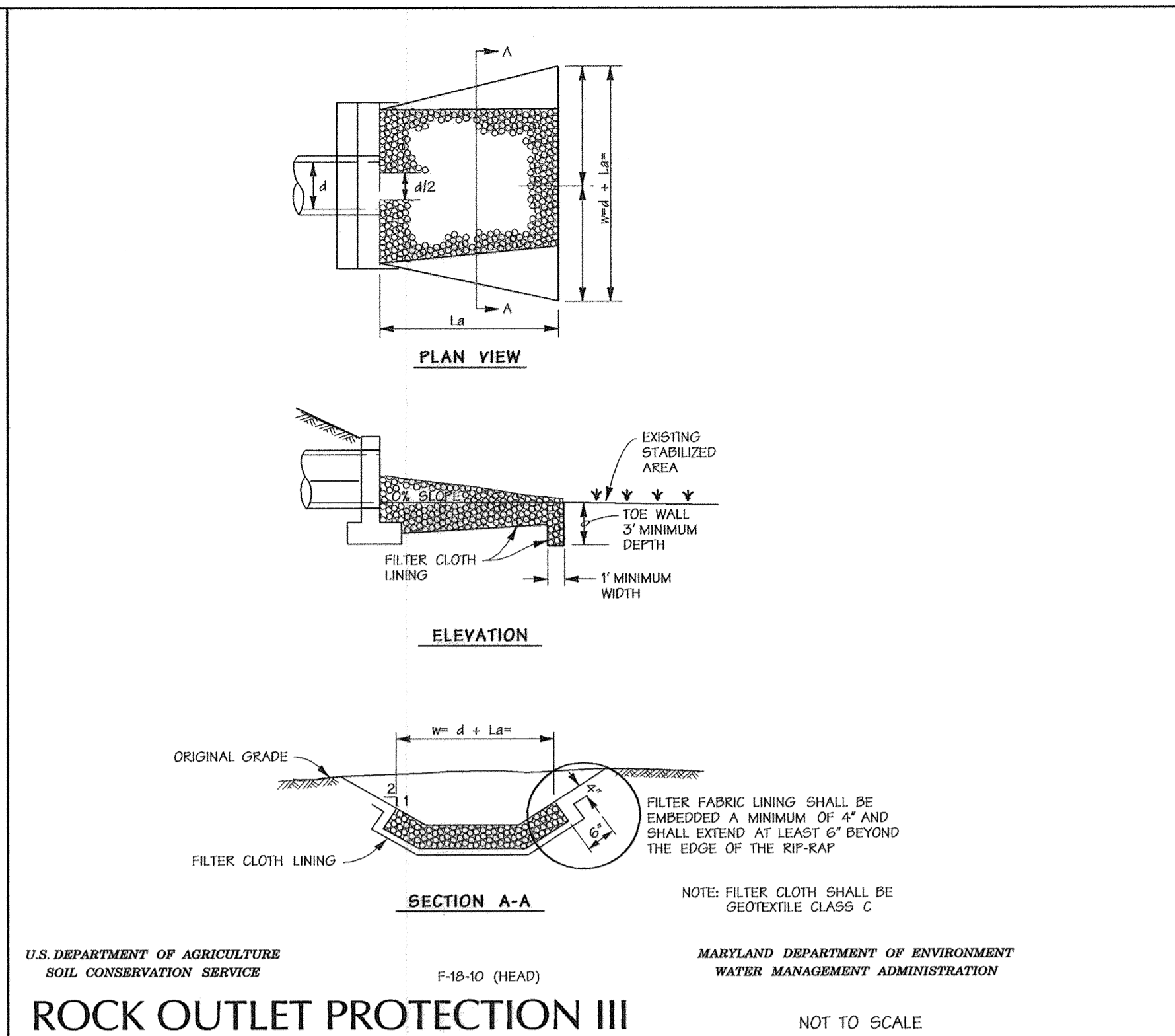
Super Fence Diversion

Not To Scale



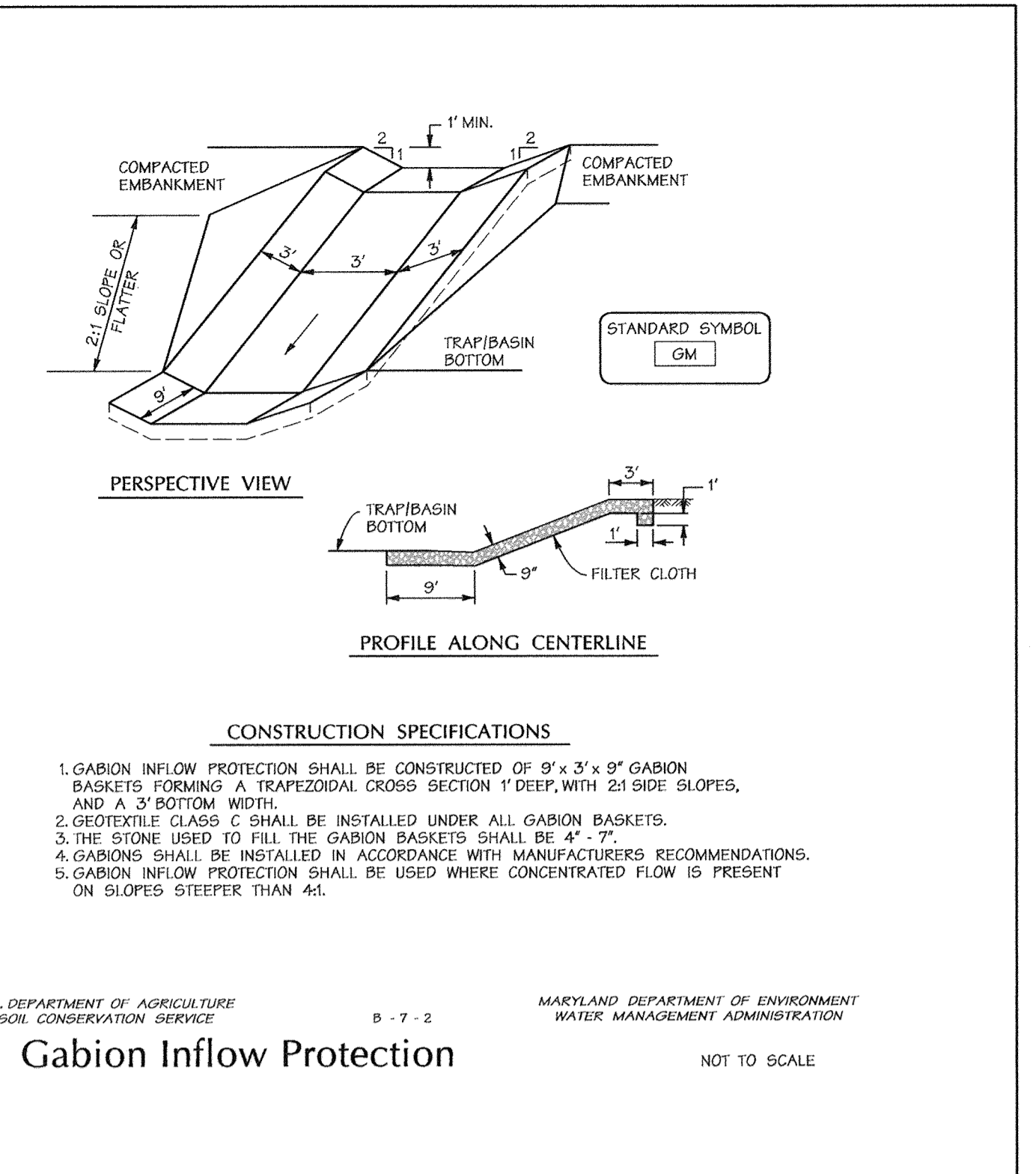
Rock Outlet Protection I

Not To Scale



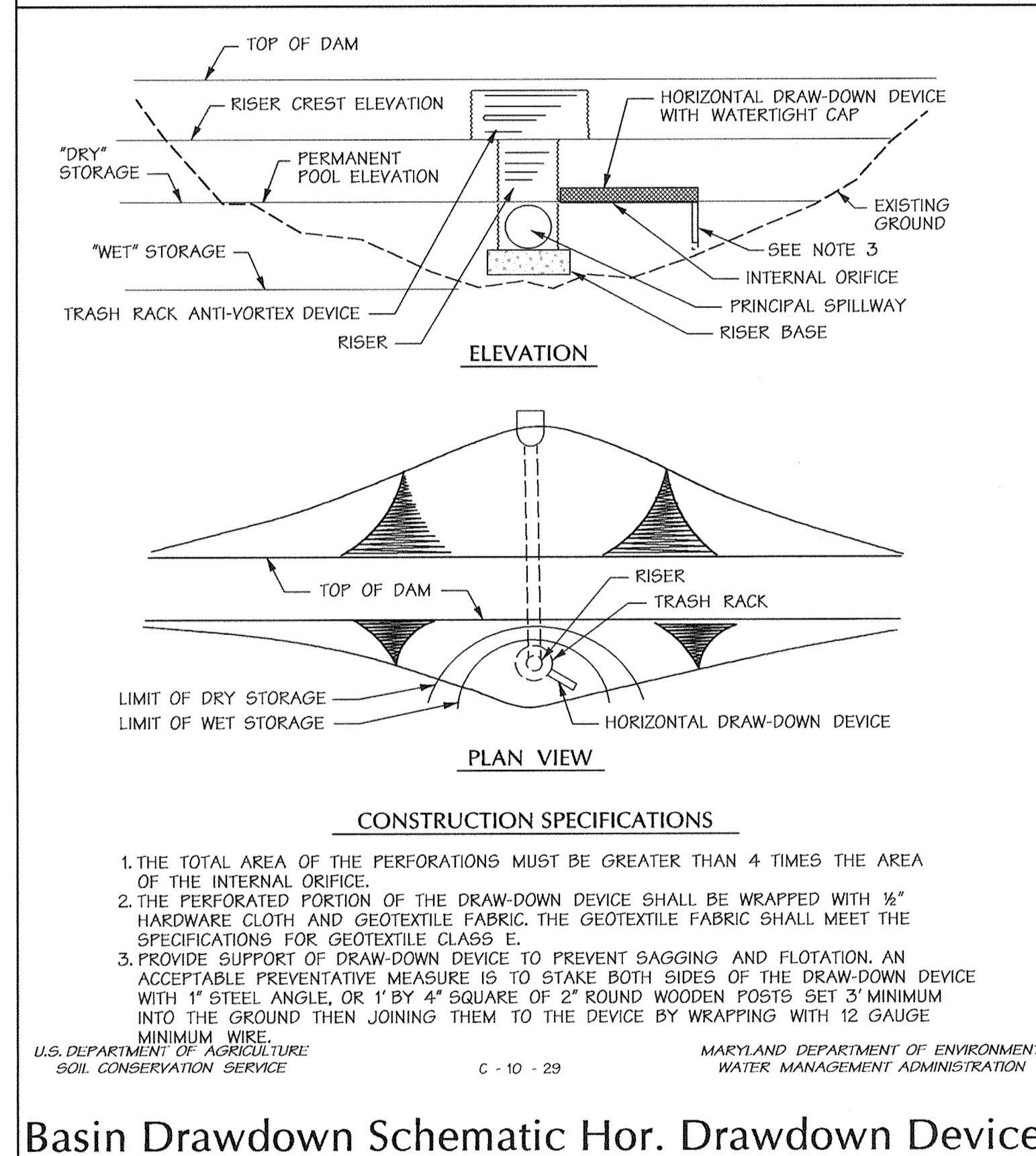
ROCK OUTLET PROTECTION III

NOT TO SCALE

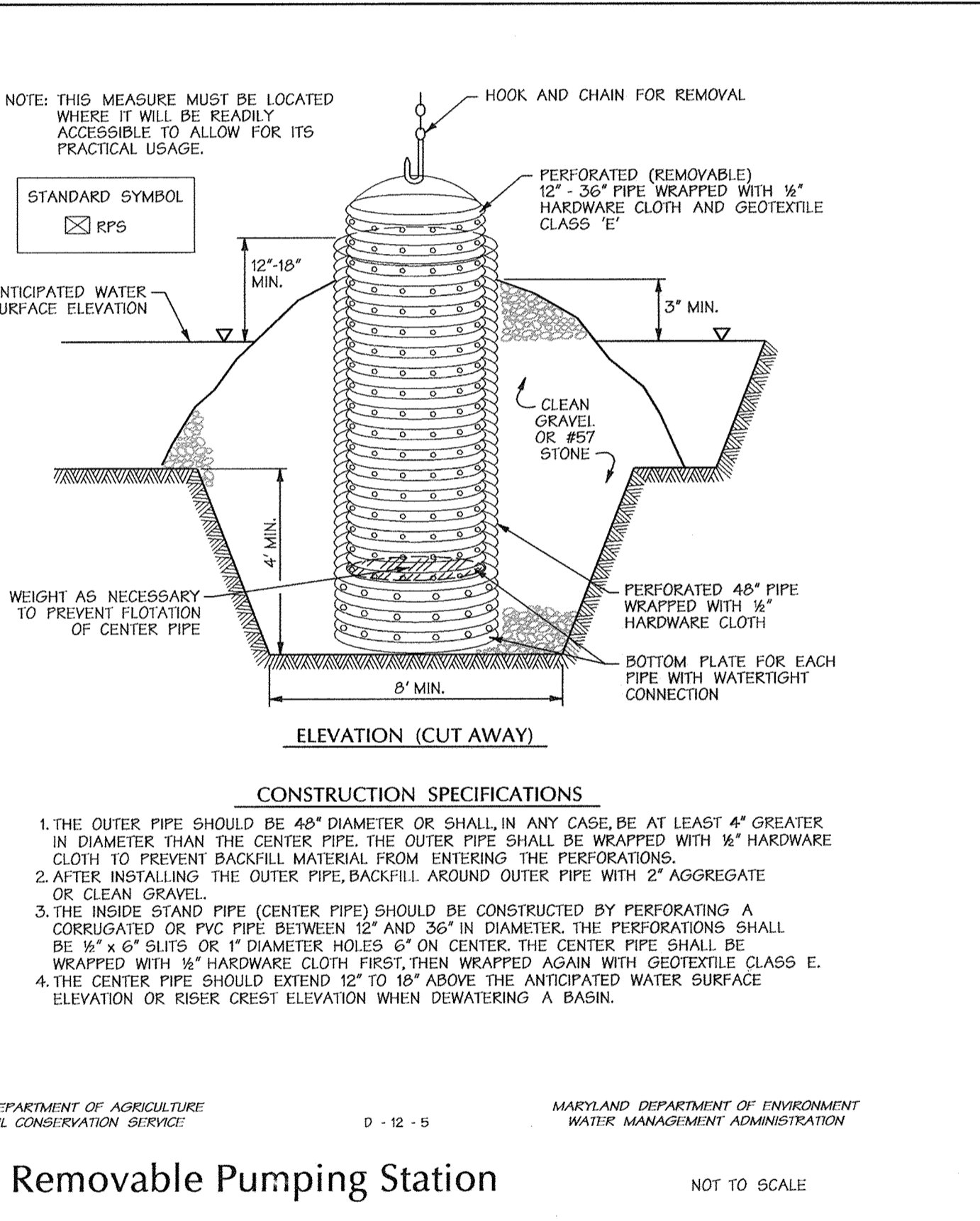


Gabion Inflow Protection

NOT TO SCALE

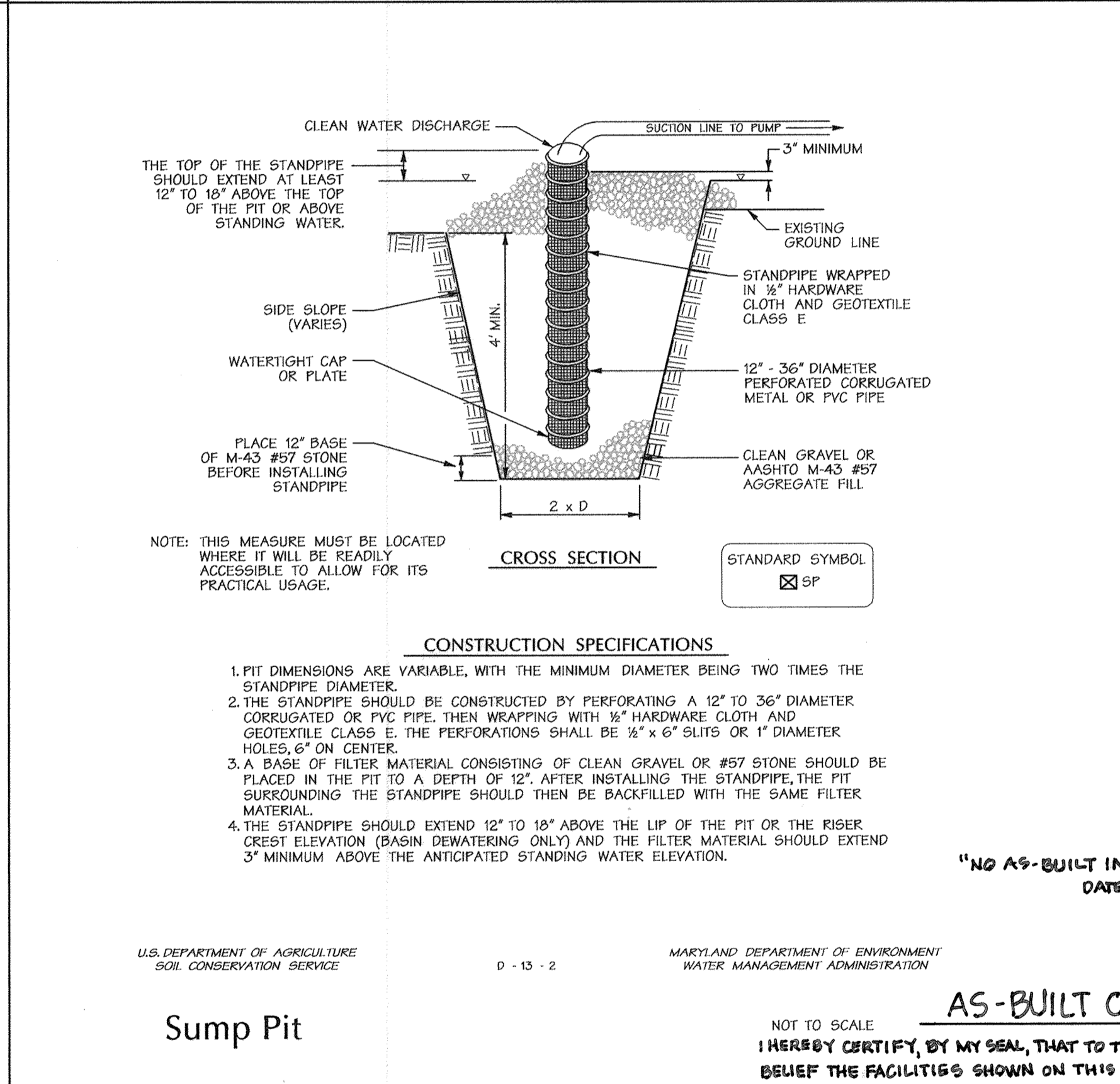


Basin Drawdown Schematic Hor. Drawdown Device



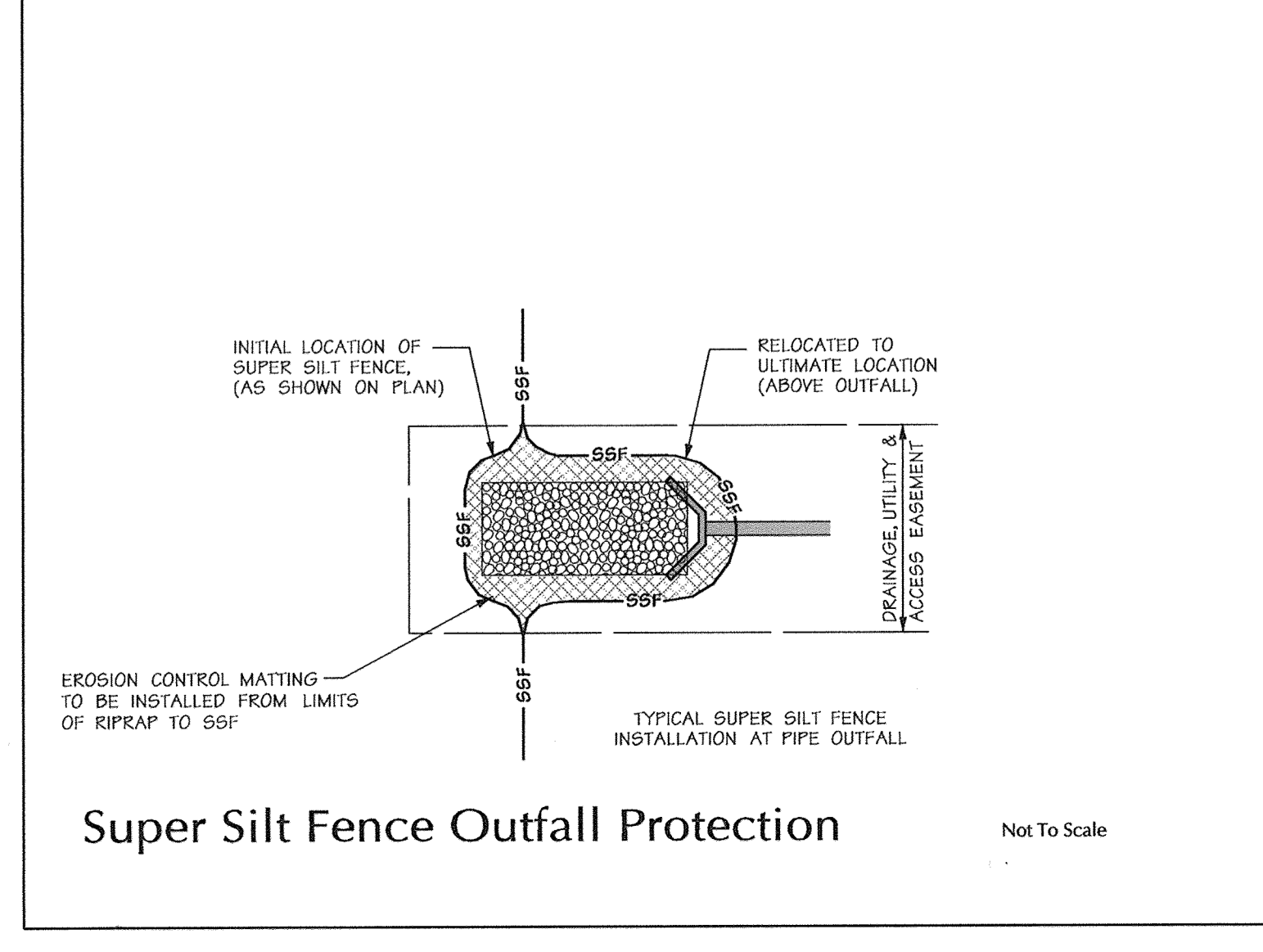
Removable Pumping Station

NOT TO SCALE



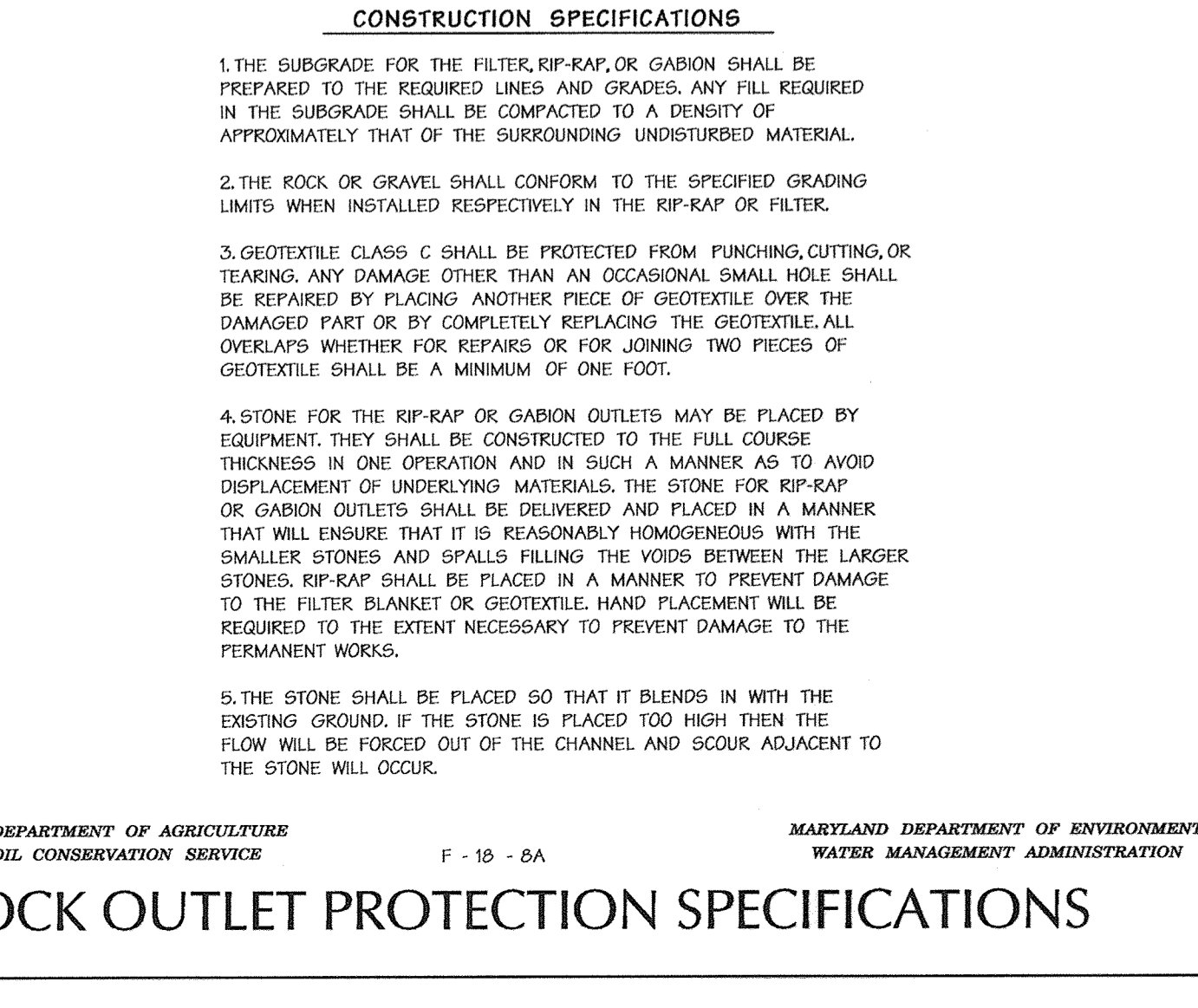
Sump Pit

NOT TO SCALE

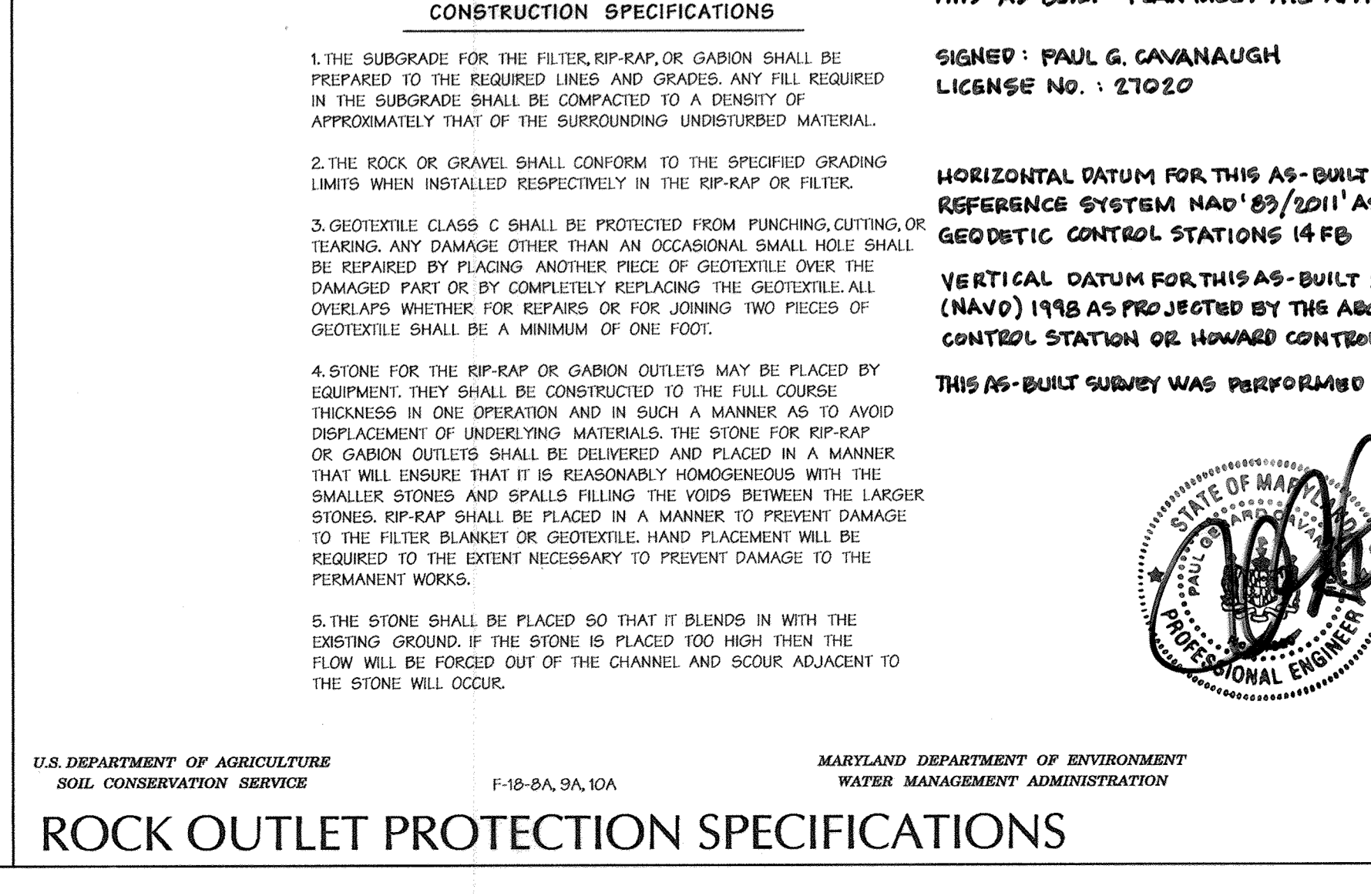


Super Silt Fence Outfall Protection

Not To Scale



ROCK OUTLET PROTECTION SPECIFICATIONS



ROCK OUTLET PROTECTION SPECIFICATIONS

DEVELOPERS CERTIFICATE:

I HEREBY CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE FOND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE FOND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Cynthia M. McLaughlin 11/17/07
 SIGNATURE OF DEVELOPER: **CYNTHIA M. MCLAUGHLIN**
 PRINT NAME BELOW SIGNATURE

ENGINEERS CERTIFICATE:

I CERTIFY THAT THIS PLAN FOR FOND CONSTRUCTION, EROSION AND SEDIMENT CONTROL, REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE FOND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE FOND WITHIN 30 DAYS OF COMPLETION.

Paul G. Cavanaugh 11-20-07
 SIGNATURE OF ENGINEER: **Paul G. Cavanaugh**
 PRINT NAME BELOW SIGNATURE

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

With: R. McLaughlin 12-7-07
 CHIEF, BUREAU OF HIGHWAYS **ms** DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

Cynthia M. McLaughlin 12/11/07
 CHIEF, DIVISION OF LAND DEVELOPMENT **ms** DATE

Paul G. Cavanaugh 12/11/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION **ms** DATE

AS-BUILT CERTIFICATION

NOT TO SCALE

I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS.

SIGNED: **PAUL G. CAVANAUGH**
 LICENSE NO. 1 21020

DATE: 5/11/07
 EXPIRATION DATE: 1/25/2020

SEAL OF MARYLAND PROFESSIONAL ENGINEER

SEAL OF MARYLAND PROFESSIONAL ENGINEER

10-16-07
 Date

BELLE HAVEN ESTATES

LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O, NON-BUILDABLE BULK PARCEL P
 TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
 ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER
 Union Chapel Road, LLC
 9025 Chevrolet Drive
 Suite K
 Elberton, Maryland 21042
 Phone: (410) 461-5800

DMW
 Dan McCune-Walker, Inc.
 200 East Pennsylvania Avenue
 Towson, Maryland 21286
 (410) 296-3035
 Fax 296-4705

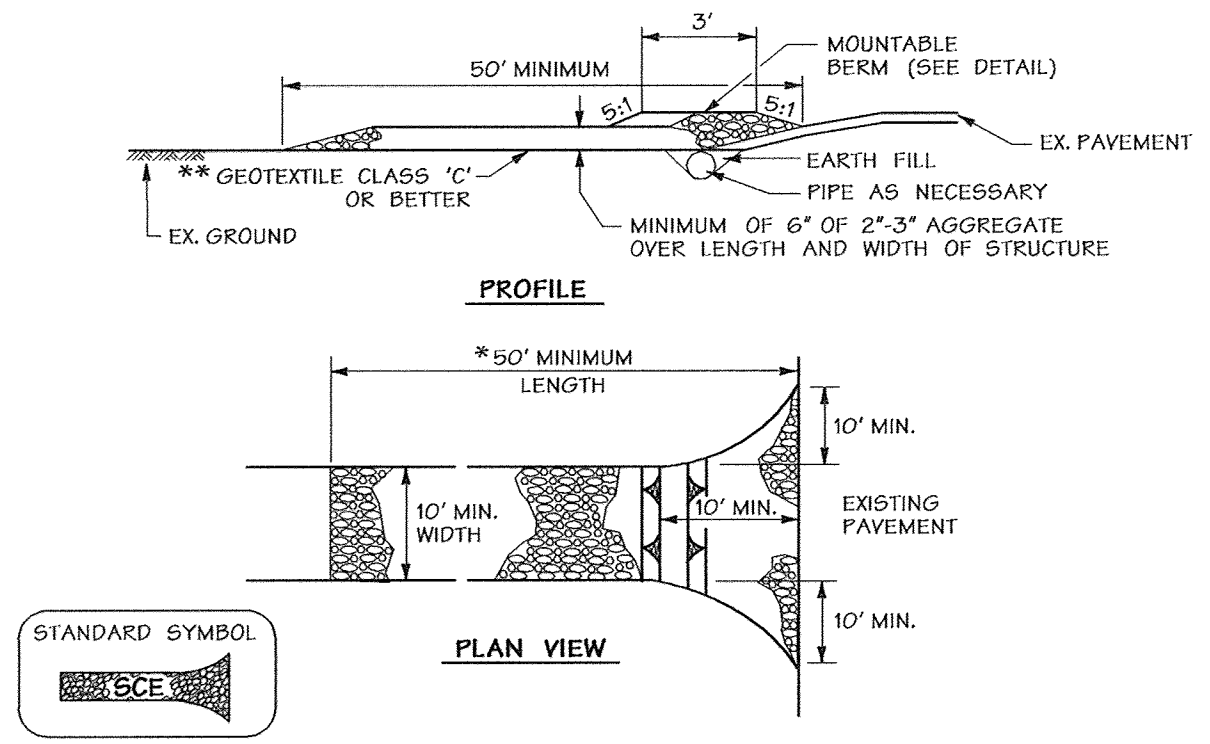
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

TITLE
SEDIMENT AND EROSION CONTROL DETAILS

Des. By	KAD	Scale	NONE	Proj. No.	01067F
Drn. By	MDT	Date	10/16/07		
Chk. By	ATB	Approved	ATB		54 of 74

Professional Engr. No. 28770

F-07-38

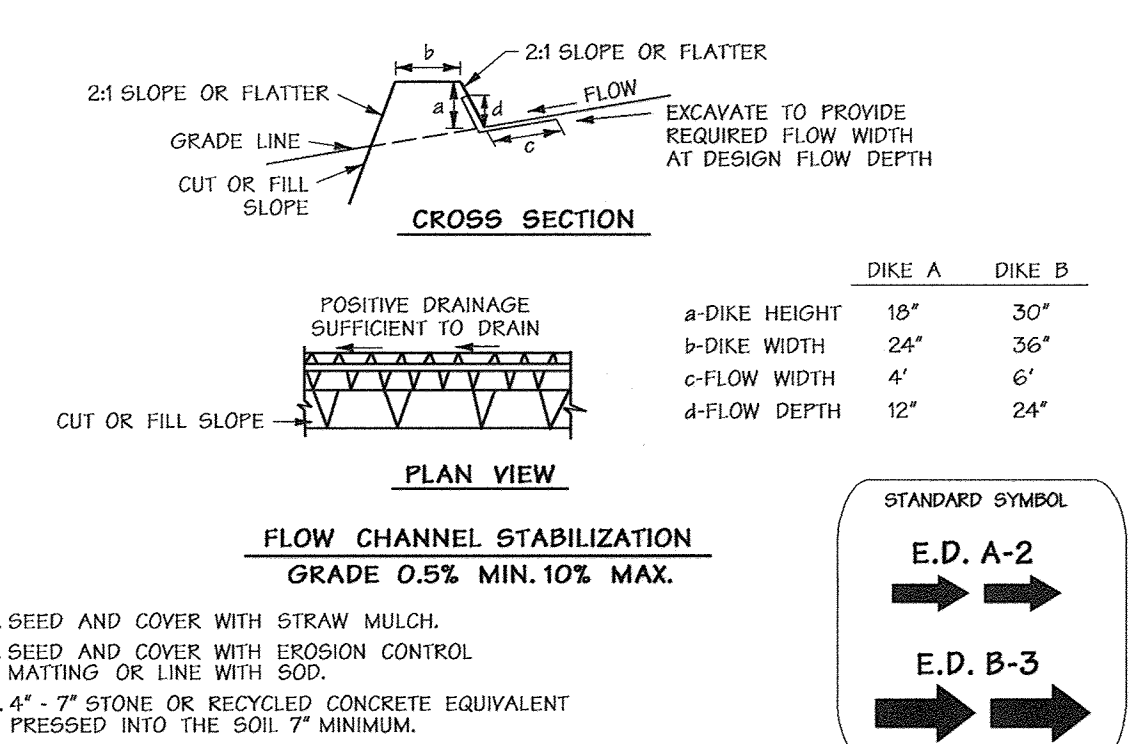


CONSTRUCTION SPECIFICATIONS

- LENGTH - MINIMUM OF 50' *10' FOR SINGLE RESIDENCE LOT.
- WIDTH - 10' MINIMUM SHOULD BE PLACED AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
- GEOTEXTILE FABRIC CLASS C (FILTER CLOTH) SHALL BE PLACED OVER THE EXISTING GROUND PRIOR TO PLACING STONE. THE PLAN APPROVAL AUTHORITY MAY NOT REQUIRE SINGLE FAMILY RESIDENCES TO USE GEOTEXTILE.
- STONE - CRUSHED AGGREGATE (2" TO 3") OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT SHALL BE PLACED AT LEAST 6" DEEP OVER THE LENGTH AND WIDTH OF THE ENTRANCE.
- SURFACE WATER - ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED THROUGH THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PIPE INSTALLED THROUGH THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE PROTECTED WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 6" OF STONE OVER THE PIPE. PIPE HAS TO BE SIZED ACCORDING TO THE DRAINAGE. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY A PIPE WILL NOT BE NECESSARY. PIPE SHOULD BE SIZED ACCORDING TO THE AMOUNT OF RUNOFF TO BE CONVEYED. A MINIMUM WILL BE REQUIRED.
- LOCATION - A STABILIZED CONSTRUCTION ENTRANCE SHALL BE LOCATED AT EVERY POINT WHERE CONSTRUCTION TRAFFIC ENTERS OR LEAVES A CONSTRUCTION SITE. VEHICLES LEAVING THE SITE MUST TRAVEL OVER THE ENTIRE LENGTH OF THE STABILIZED CONSTRUCTION ENTRANCE.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE F-17-B MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

Stabilized Construction Entrance Not To Scale



CONSTRUCTION SPECIFICATIONS

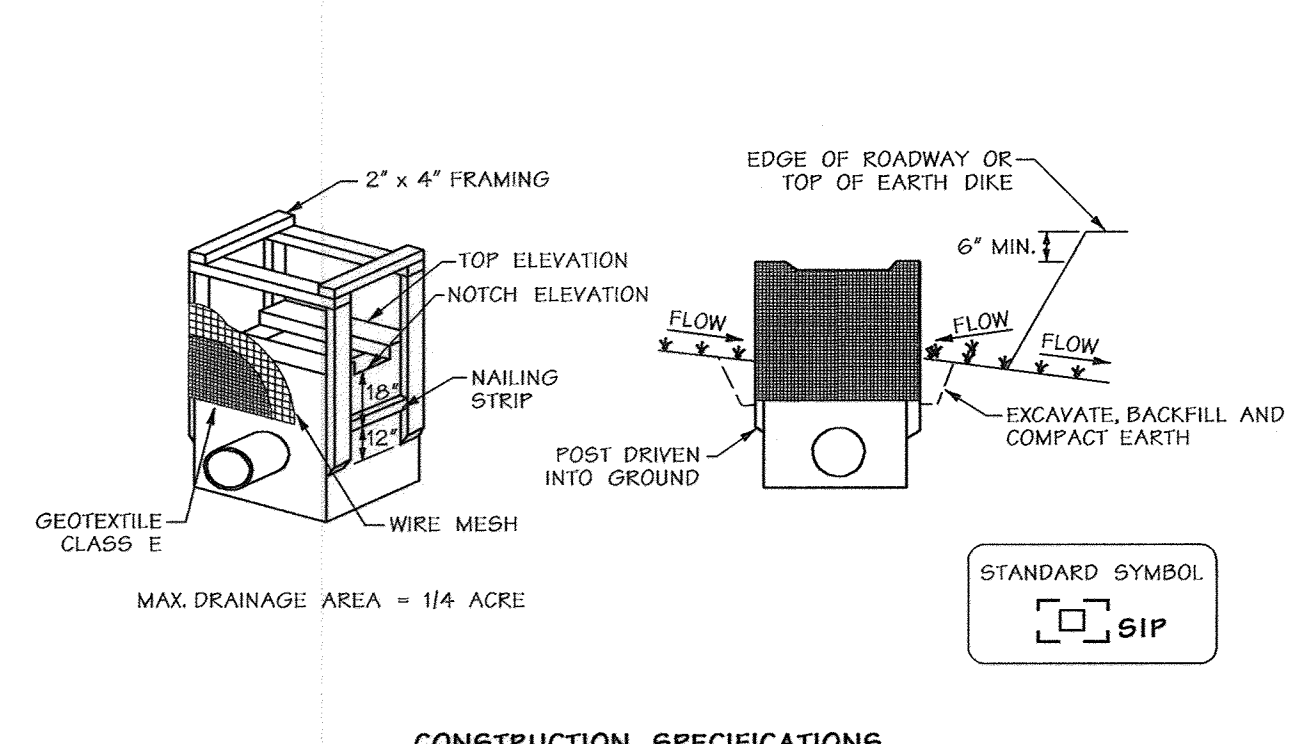
- SEED AND COVER WITH STRAW MULCH.
- SEED AND COVER WITH EROSION CONTROL MATTING OR LIME WITH 50%.
- 4" - 7" STONE OR RECYCLED CONCRETE EQUIVALENT PRESSED INTO THE SOIL 7" MINIMUM.

CONSTRUCTION SPECIFICATIONS

- ALL TEMPORARY EARTH DIKES SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO AN OUTLET. SPOT ELEVATIONS MAY BE NECESSARY FOR GRADES LESS THAN 1%.
- RUNOFF DIVERTED FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
- RUNOFF DIVERTED FROM AN UNDISTURBED AREA SHALL OUTLET DIRECTLY INTO AN UNDISTURBED, STABILIZED AREA AT A NON-EROSIVE VELOCITY.
- ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONAL MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE DIKE.
- THE DIKE SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPED EARTH FLOW.
- FILL SHALL BE COMPACTED BY EARTH MOVING EQUIPMENT.
- ALL EARTH REMOVED AND NOT REQUIRED FOR CONSTRUCTION SHALL BE PLACED SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE DIKE.
- INSPECTION AND MAINTENANCE MUST BE PROVIDED PERIODICALLY AND AFTER EACH RAIN EVENT.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE A-1-B MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

Earth Dike Not To Scale

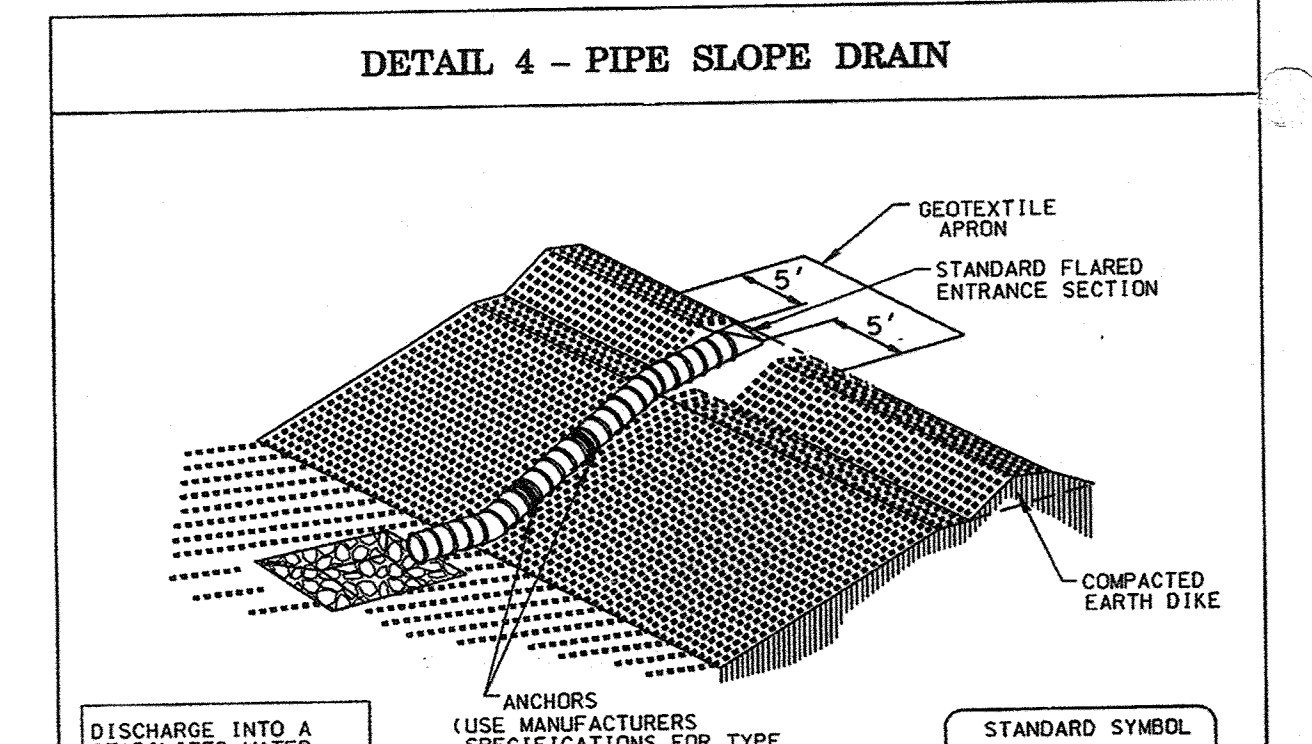


CONSTRUCTION SPECIFICATIONS

- EXCAVATE COMPLETELY AROUND THE INLET TO A DEPTH OF 18" BELOW THE NOTCH ELEVATION.
- DRIVE THE 2" x 4" CONSTRUCTION GRADE LUMBER POSTS 1" INTO THE GROUND AT EACH CORNER OF THE INLET. PLACE NAIL STRIPS BETWEEN THE POSTS ON THE ENDS OF THE INLET. ASSEMBLE THE TOP PORTION OF THE 2" x 4" FRAME USING THE OVERLAP JOINT SHOWN ON DETAIL. THE TOP OF THE FRAME (WEIR) MUST BE 6" BELOW ADJACENT ROADWAYS WHERE FLOODING AND SAFETY ISSUES MAY ARISE.
- STRETCH THE 1/2" x 1/2" WIRE MESH TIGHTLY AROUND THE FRAME AND FASTEN SECURELY. THE ENDS MUST MEET AND OVERLAP AT A POST.
- STRETCH THE GEOTEXTILE CLASS E TIGHTLY OVER THE WIRE MESH WITH THE GEOTEXTILE EXTENDING FROM THE TOP OF THE FRAME TO 18" BELOW THE INLET NOTCH ELEVATION. FASTEN THE GEOTEXTILE FIRMLY TO THE FRAME. THE ENDS OF THE GEOTEXTILE MUST MEET AT A POST, BE OVERLAPPED AND FOLDED, THEN FASTENED DOWN.
- BACKFILL AROUND THE INLET IN COMPACTED 6" LAYERS UNTIL THE LAYER OF EARTH IS LEVEL WITH THE NOTCH ELEVATION ON THE ENDS AND TOP ELEVATION ON THE SIDES.
- IF THE INLET IS NOT IN A SWAMP, CONSTRUCT A COMPACTED EARTH DIKE ACROSS THE DITCH LINE DIRECTLY BELOW IT. THE TOP OF THE EARTH DIKE SHOULD BE AT LEAST 6" HIGHER THAN THE TOP OF THE FRAME.
- THE STRUCTURE MUST BE INSPECTED PERIODICALLY AND AFTER EACH RAIN AND THE GEOTEXTILE REPLACED WHEN IT BECOMES CLOGGED.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE E-10-B MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

Standard Inlet Protection Not To Scale

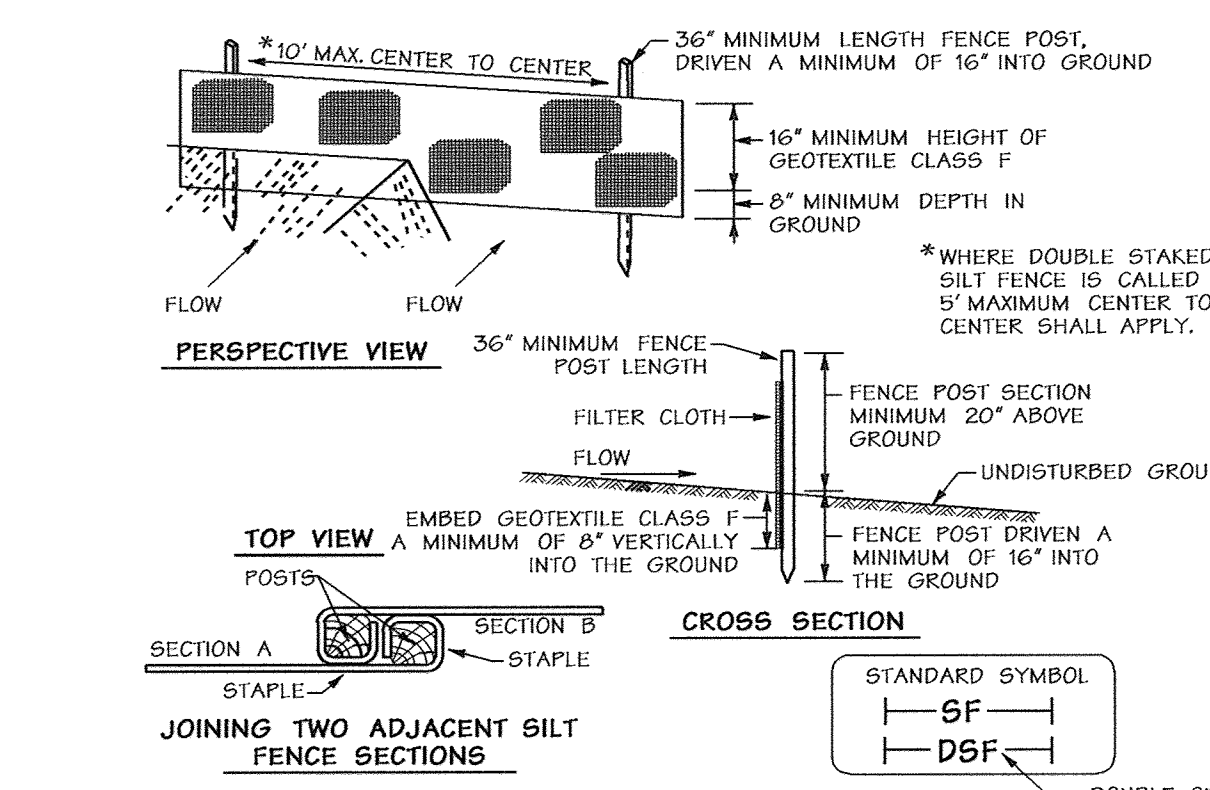


CONSTRUCTION SPECIFICATIONS

- EXCAVATE COMPLETELY AROUND THE INLET TO A DEPTH OF 18" BELOW THE NOTCH ELEVATION.
- DRIVE THE 2" x 4" CONSTRUCTION GRADE LUMBER POSTS 1" INTO THE GROUND AT EACH CORNER OF THE INLET. PLACE NAIL STRIPS BETWEEN THE POSTS ON THE ENDS OF THE INLET. ASSEMBLE THE TOP PORTION OF THE 2" x 4" FRAME USING THE OVERLAP JOINT SHOWN ON DETAIL. THE TOP OF THE FRAME (WEIR) MUST BE 6" BELOW ADJACENT ROADWAYS WHERE FLOODING AND SAFETY ISSUES MAY ARISE.
- STRETCH THE 1/2" x 1/2" WIRE MESH TIGHTLY AROUND THE FRAME AND FASTEN SECURELY. THE ENDS MUST MEET AND OVERLAP AT A POST.
- STRETCH THE GEOTEXTILE CLASS E TIGHTLY OVER THE WIRE MESH WITH THE GEOTEXTILE EXTENDING FROM THE TOP OF THE FRAME TO 18" BELOW THE INLET NOTCH ELEVATION. FASTEN THE GEOTEXTILE FIRMLY TO THE FRAME. THE ENDS OF THE GEOTEXTILE MUST MEET AT A POST, BE OVERLAPPED AND FOLDED, THEN FASTENED DOWN.
- BACKFILL AROUND THE INLET IN COMPACTED 6" LAYERS UNTIL THE LAYER OF EARTH IS LEVEL WITH THE NOTCH ELEVATION ON THE ENDS AND TOP ELEVATION ON THE SIDES.
- IF THE INLET IS NOT IN A SWAMP, CONSTRUCT A COMPACTED EARTH DIKE ACROSS THE DITCH LINE DIRECTLY BELOW IT. THE TOP OF THE EARTH DIKE SHOULD BE AT LEAST 6" HIGHER THAN THE TOP OF THE FRAME.
- THE STRUCTURE MUST BE INSPECTED PERIODICALLY AND AFTER EACH RAIN AND THE GEOTEXTILE REPLACED WHEN IT BECOMES CLOGGED.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE B-6-4 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 4 - PIPE SLOPE DRAIN

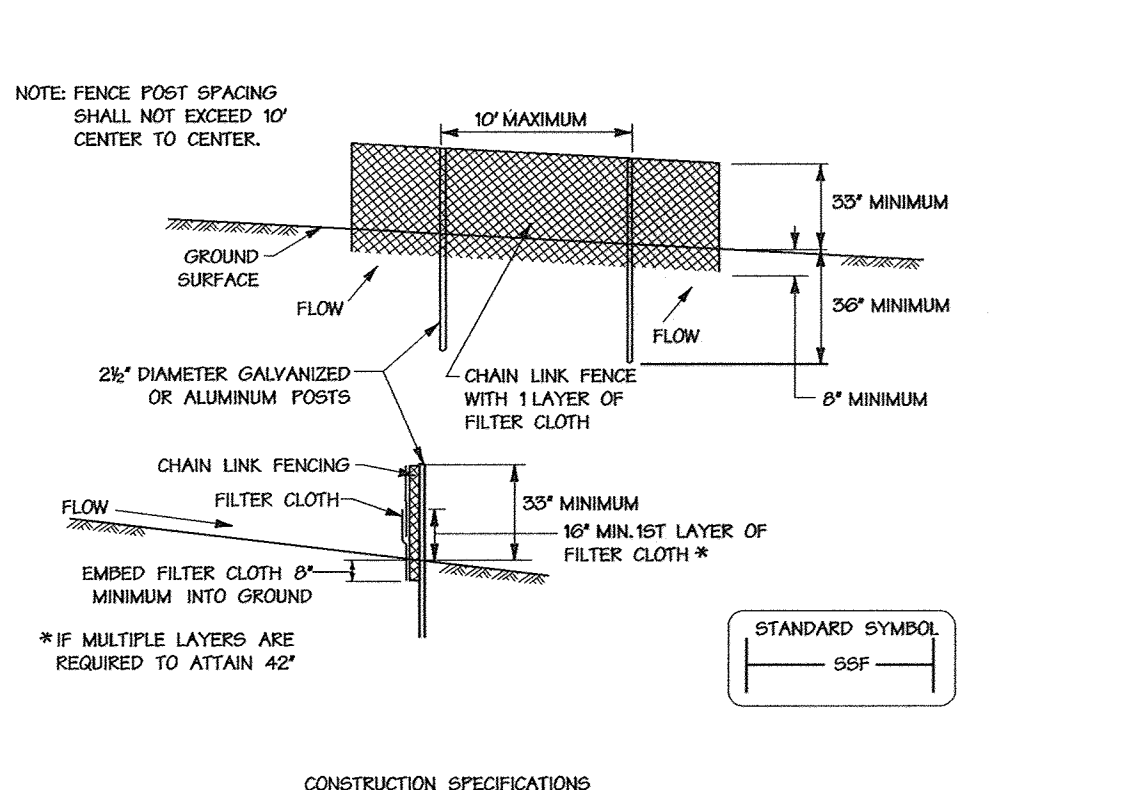


CONSTRUCTION SPECIFICATIONS

- FENCE POSTS SHALL BE A MINIMUM OF 36" LONG DRIVEN 16" MINIMUM INTO THE GROUND. WOOD POSTS SHALL BE 1 1/2" x 1 1/2" SQUARE (MINIMUM) CUT OR 1 1/2" DIAMETER (MINIMUM) ROUND AND SHALL BE OF SOUND QUALITY HARDWOOD. STEEL POSTS WILL BE STANDARD 1 OR U SECTION WEIGHTING NOT LESS THAN 100 POUND PER LINEAR FOOT.
- GEOTEXTILE SHALL BE FASTENED SECURELY TO EACH FENCE POST WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION AND SHALL MEET THE FOLLOWING REQUIREMENTS FOR GEOTEXTILE CLASS F:
TENSILE STRENGTH: 50 LBS./IN. (MIN.) TEST: MSMT 509
TENSILE MODULUS: 20 LBS./IN. (MIN.) TEST: MSMT 509
FLOW RATE: 0.3 GAL./FT./MIN. (MAX.) TEST: MSMT 322
FILTERING EFFICIENCY: 75% (MIN.) TEST: MSMT322
- WHERE ENDS OF GEOTEXTILE FABRIC COME TOGETHER, THEY SHALL BE OVERLAPPED, FOLDED AND STAPLED TO PREVENT SEDIMENT BYPASS.
- SILT FENCE SHALL BE INSPECTED AFTER EACH RAINFALL EVENT AND MAINTAINED WHEN BULGES OCCUR OR WHEN SEDIMENT ACCUMULATION REACHED 50% OF THE FABRIC HEIGHT.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE E-10-B MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

Silt Fence Not To Scale



CONSTRUCTION SPECIFICATIONS

- FENCING SHALL BE 42 INCHES IN HEIGHT AND CONSTRUCTED IN ACCORDANCE WITH THE LATEST MARYLAND STATE HIGHWAY (SHA) DETAILS FOR CHAIN LINK FENCING. THE SPECIFICATION FOR A 6 FENCE SHALL BE USED, SUBSTITUTING 42" FABRIC AND 6" LENGTH POSTS.
- THE POSTS DO NOT NEED TO BE SET IN CONCRETE.
- CHAIN LINK FENCE SHALL BE FASTENED SECURELY TO THE FENCE POSTS WITH WIRE TIES OR STAPLES. THE LOWER TENSION WIRE BRACE AND TRUSS RODS, DRIVE ANCHORS AND POST CAPS ARE NOT REQUIRED EXCEPT ON THE ENDS OF THE FENCE. THE CHAIN LINK FENCING SHALL BE SIX (6) GAUGE OR HEAVIER.
- FILTER CLOTH SHALL BE FASTENED SECURELY TO THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24" AT THE TOP AND MID SECTION.
- FILTER CLOTH SHALL BE EMBEDDED A MINIMUM OF 6" INTO THE GROUND.
- WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY 6" AND FOLDED.
- MAINTENANCE SHALL BE PERFORMED AS SEEDS AND SALT BUILDUPS REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE OR WHEN SILT REACHED 50% OF FENCE HEIGHT.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE H-20-B MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

Super Silt Fence Not To Scale

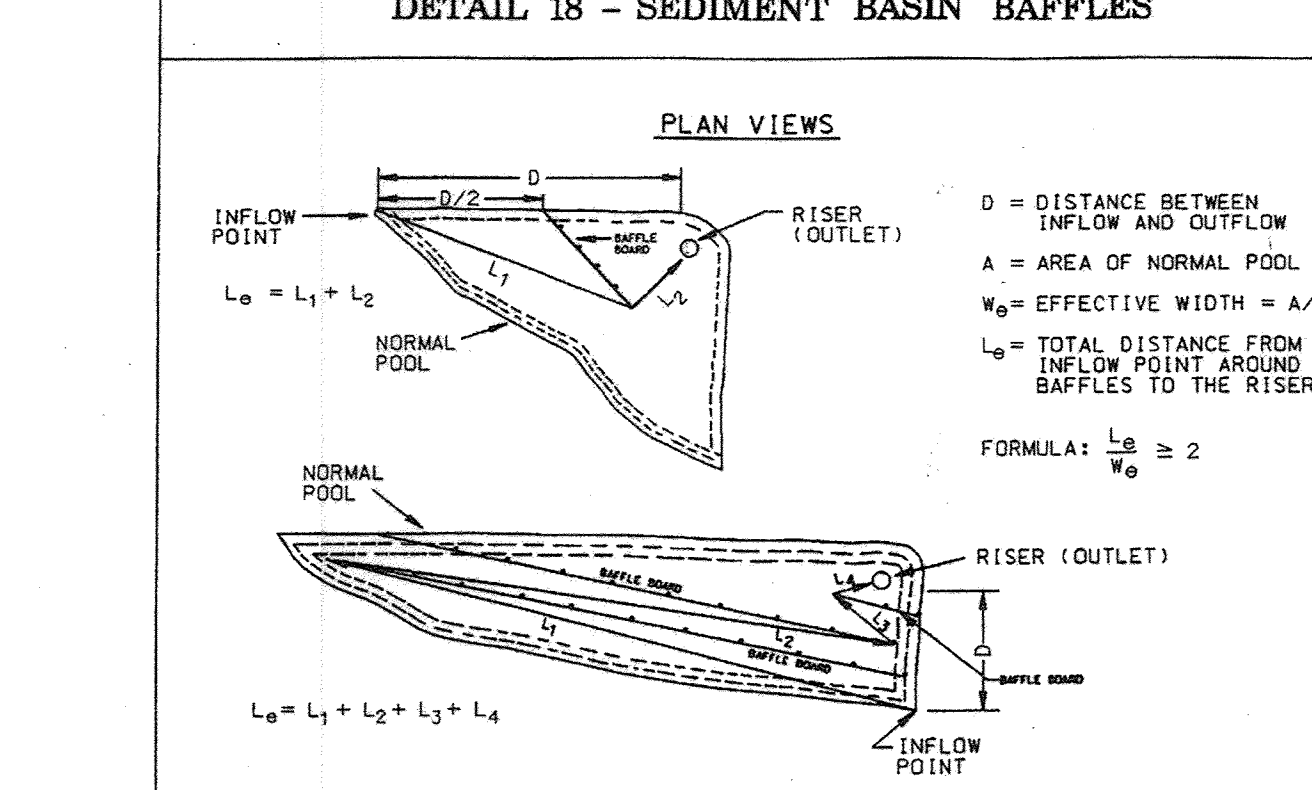
SILT FENCE DESIGN CRITERIA

SLOPE STEEPNESS	(MAXIMUM) SLOPE LENGTH	(MAXIMUM) SILT FENCE LENGTH
FLATTER THAN 50:1 (2%)	UNLIMITED	UNLIMITED
50:1 TO 10:1 (2-10%)	125 FEET	1,000 FEET
10:1 TO 5:1 (10-20%)	100 FEET	750 FEET
5:1 TO 3:1 (20-33%)	60 FEET	500 FEET
3:1 TO 2:1 (33-50%)	40 FEET	250 FEET
2:1 AND STEEPER (> 50%)	20 FEET	125 FEET

NOTE: IN AREAS OF LESS THAN 2% SLOPE AND SANDY SOILS (USDA GENERAL CLASSIFICATION SYSTEM SOIL CLASS A) MAXIMUM SLOPE LENGTH AND SILT FENCE LENGTH WILL BE UNLIMITED. IN THESE AREAS A SILT FENCE MAY BE THE ONLY PERIMETER CONTROL REQUIRED.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE E-10-B MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

Silt Fence

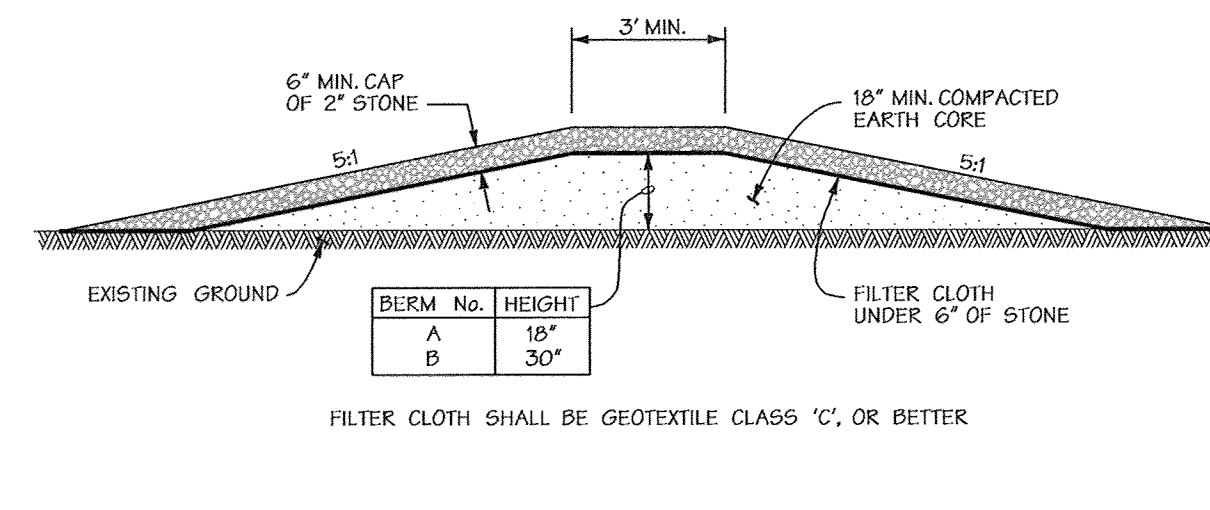


CONSTRUCTION SPECIFICATIONS

- POSTS MINIMUM 1 1/2" SQUARE OR 2" ROUND SET AT LEAST 3" INTO THE GROUND.
- EXISTING GROUND.
- RISER CREST ELEVATION.
- 6" CENTER TO CENTER.
- 8" MIN.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE C-10-28 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 18 - SEDIMENT BASIN BAFFLES



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE E-10-B MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

Mountable Berm Detail NOT TO SCALE

AS-BUILT CERTIFICATION

I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

SIGNED: PAUL G. CAVANAUGH DATE: 5/11/2018
LICENSE NO: 27020 EXPIRATION DATE: 1/25/2020

BELLE HAVEN ESTATES

LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O, NON-BUILDABLE BULK PARCEL D, TAX MAP 14, GRID 20, PARCEL 86, ZONE RC-DEO ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER: Union Chapel Road, LLC, 9025 Chevrolet Drive, Suite K, Ellicott City, MD 21042, Phone: (410) 461-5800

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
DATE: 12-2-07

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
DATE: 12/11/07

DEVELOPERS CERTIFICATE:

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I/WE SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I/WE ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

CYTHIA M. McAULIFFE DATE: 11/17/07

ENGINEERS CERTIFICATE:

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL, REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTICED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

ANAN BRIGGS DATE: 11-20-07

10-16-07 Date

Professional Engr. No. 28770

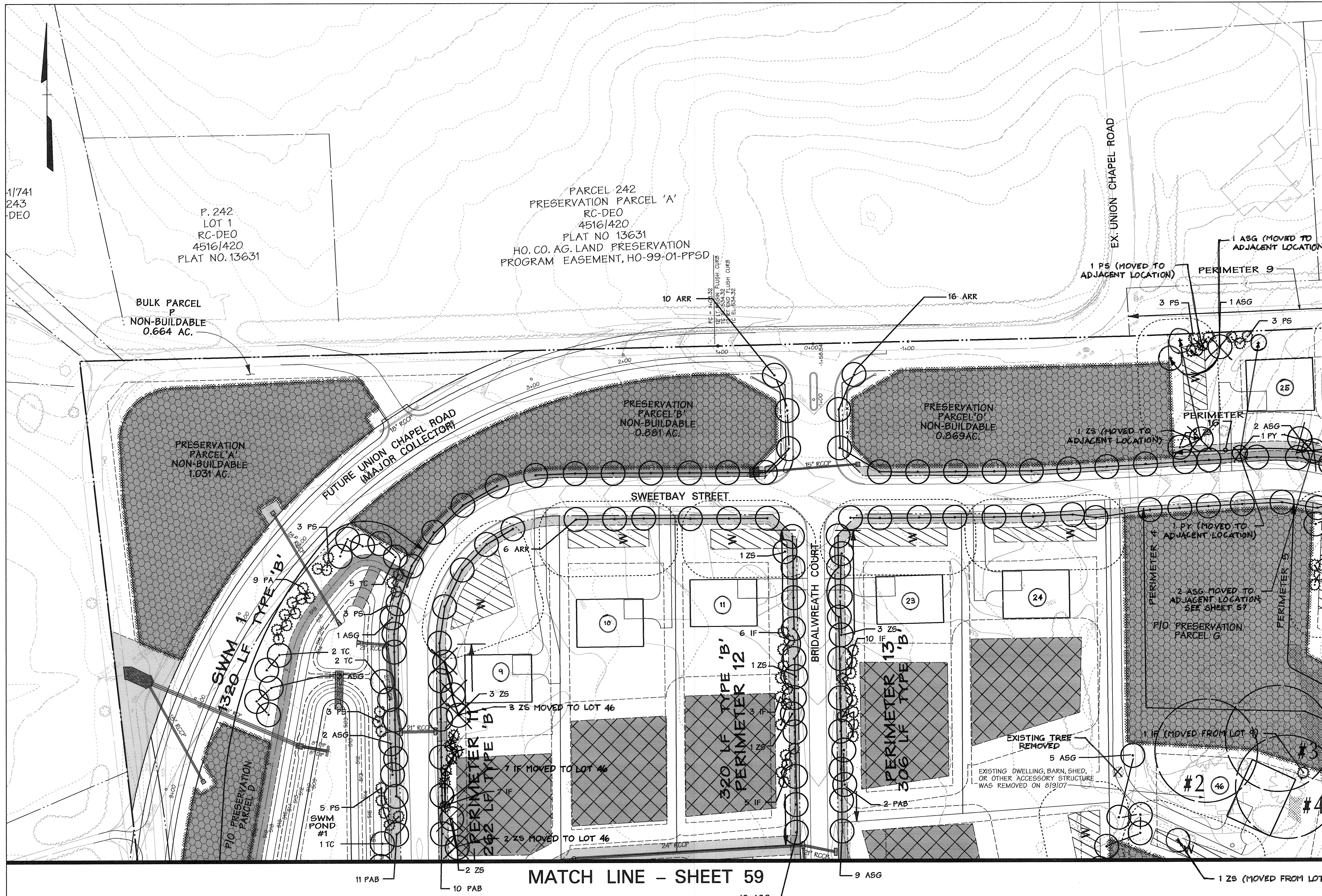
DMW
Dun-De-Cass-Walker, Inc.
200 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 296-3353
Fax 296-4706

A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

TITLE: SEDIMENT AND EROSION CONTROL DETAILS

Des. By	KAD	Scale	NONE	Proj. No.	01067F
Drn. By	MDT	Date	10/16/07		
Chk. By	ATB	Approved	ATB		55 of 74

F-07-38



MATCH LINE - SHEET 57

MATCH LINE - SHEET 59

LEGEND

- Existing Contour
- Existing Stream
- Existing Building
- Existing Woods line
- Existing Septic Area
- Proposed Lot Line
- Proposed Well Area
- Proposed Well
- Proposed 100' Well Circle
- Proposed Lot Lines
- Proposed Building Restriction Line
- Proposed Septic Reserve Area
- Lot Number
- Approximate Stream Buffer
- 25' Wetland Buffer
- Wetland
- FOREST CONSERVATION EASEMENT
- FOREST CLEARING
- REFORESTATION
- FOREST RETENTION
- PROPOSED WOODS LINE
- 15' NON WOODY VEGETATION BUFFER
- PROPOSED SHADE TREES
- PROPOSED SMALL DECIDUOUS TREES
- PROPOSED EVERGREEN TREES
- EXISTING SPECIMEN TREE

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
Willis Z. Marshall 12-7-07
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Sandy Hansen 12/11/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE
W. D. ... 12/11/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

6/21/18	REVISOR	REVISED PER FIELD INSPECTION NOTES
Date	No.	Revision Description

BELLE HAVEN ESTATES
 LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-D,
 NON-BUILDABLE BULK PARCEL F
 TAX MAP 14, GRID 20, PARCEL 68, ZONE RC-DEO
 ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND

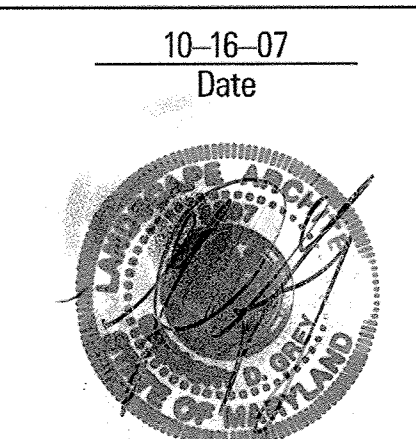
OWNER/DEVELOPER
 Union Chapel Road, LLC
 8025 Chevrolet Drive
 Suite K
 Ellicott City, MD 21042
 Phone: (410) 461-9600

DMW
 Draft-McCann-Walkers, Inc.
 200 East Pennsylvania Avenue
 Towson, Maryland 21286
 (410) 296-3333
 Phone: (410) 296-4705

A Team of Land Planners,
 Landscape Architects,
 Engineers, Surveyors &
 Environmental Professionals

LANDSCAPE AND STREET TREE PLAN			
Des. By	MJP	Scale	1" = 50'
Dwn. By	MDT	Date	10/16/07
Chk. By	Approved	Proj. No.	01067F
			56 of 74

NOTE:
 PERIMETER TREES FOR LOT 9 WERE MOVED TO LOT 46 (5 ZS AND 7 IF);
 PERIMETER TREES FOR LOTS 18 AND 25 WERE MOVED TO NEW LOCATIONS
 WITHIN EACH LOT (1 ASG, 2 PY; AND 3 ASG, 1 PS, 1 PY, 1 ZS RESPECTIVELY)



Date: 10-16-07
 Landscape Architect No. 3397

P. 69
SECTION 2, AREA 2
RC-DEO
PLAT NOS. 13636-38

LOT 1
RC-DEO
P. 237
PLAT 8738

PERIMETER 10
839 LF TYPE 'A'

MATCH LINE - SHEET 56

MATCH LINE - SHEET 58

MATCH LINE - SHEET 60

19 ARR
2 ASG
4 PA
1 QP
3 PA
3 ASG

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
William B. ...
CHIEF, BUREAU OF HIGHWAYS
DATE 12-7-07

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
...
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE 12/11/07

...
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE 12/11/07

6/21/18 REVISED PER FIELD INSPECTION NOTES

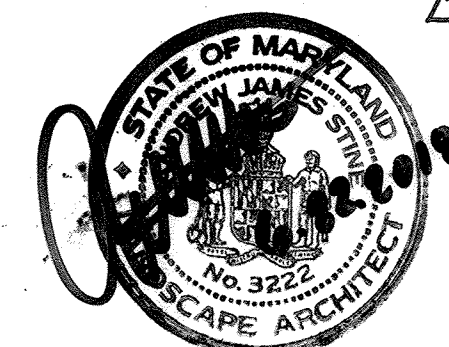
Date	No.	Revision Description

BELLE HAVEN ESTATES

LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O,
NON-BUILDABLE BULK PARCEL P
TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND
OWNER/DEVELOPER
Union Chapel Road, LLC
9025 Chevrolet Drive
Suite K
Ellicott City, MD 21042
Phone: (410) 461-5800

10-16-07
Date

Landscape Architect No. 3397



LANDSCAPE AND STREET TREE PLAN

Des. By	MJP	Scale	1" = 50'	Proj. No.	01067F
Drn. By	MDT	Date	10/16/07	57 of 74	
Chk. By	Approved				

**SCHEDULE A
PERIMETER LANDSCAPE EDGE**

CATEGORY	ADJACENT to ROADWAYS	ADJACENT to PERIMETER PROP.														TOTAL			
		P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13	P 14	P 15	P 16	REQUIRED	PROVIDED	
LANDSCAPE TYPE "A"																			
LINEAR FEET OF PERIMETER		352 LF	1471 LF	2130 LF	556 LF	1461 LF	851 LF	2179 LF	584 LF	839 LF									
LANDSCAPE TYPE "B"	P 1																		
LINEAR FEET OF PERIMETER		372 LF									262 LF	320 LF	306 LF	190 LF	182 LF	231 LF			
LANDSCAPE TYPE "C"																			
CREDIT FOR EXISTING VEGETATION (DESCRIBE BELOW IF NEEDED)	N/A	N/A	180' 180 LF - EX. TREES (1291 LF REMAINING)	N/A	193 LF SWM 2A (265 LF REMAINING)	415 LF 199 LF SWM 3A 225 LF - EX. TREES (1046 LF REMAINING)	132 LF SWM 3A (719 LF REMAINING)	2019 LF 2019 LF - EX. TREES (160 LF REMAINING)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
CREDIT FOR BERM (DESCRIBE BELOW IF NEEDED)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
NUMBER OF PLANTS REQUIRED																			(187 PU)
SHADE TREES	7	6	22	36	6	17	12	3	10	14	5	6	4	4	5	5	5	5	163
EVERGREEN TREES	9	--	--	--	--	--	--	--	--	--	7	8	8	5	5	6	6	6	48
SHRUBS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
NUMBER OF PLANTS PROVIDED*																			(187 PU)
SHADE TREES	7	4	15	29	4	17	12	3	5	10	5	3	5	3	4	5	5	5	131
EVERGREEN TREES	9	4	6	6	3	--	--	--	10	5	7	14	10	7	5	5	5	5	91
OTHER TREES (2 :1 SUBSTITUTION)	--	--	8	8	1	--	--	--	3	--	--	--	--	--	--	1	--	--	21
SHRUBS (10 :1 SUBSTITUTION)																			
(DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)																			

NOTE: STREET TREES WILL BE PROVIDED @ 1/40 LF. 320 STREET TREES SHOWN
NOTE: THE DEVELOPER WILL PROVIDE ALL PERIMETER LANDSCAPE OBLIGATIONS

**SCHEDULE D
STORMWATER MANAGEMENT
AREA LANDSCAPING**

POND							TOTAL	
	1	2A	2B	3A	3B	4	REQUIRED	PROVIDED
LINEAR FT OF PERIMETER (TYPE "B")	1,320 LF	820 LF	800 LF	380 LF	730 LF	540 LF		
NUMBER OF TREES REQUIRED							(131.5 PU)	
SHADE TREES @ 1/50 LF.	26	16	16	6	6	11	81	
EVERGREEN TREES @ 1/40 LF.	33	20	20	7	7	14	101	
CREDIT FOR EXISTING VEGETATION	NA	NA	NA	100 LF (280 LF REMAINING)	440 LF (230 LF REMAINING)	NA		
CREDIT FOR OTHER LANDSCAPING	NA	NA	NA	NA	NA	NA		
NUMBER OF TREES PROVIDED							(131.5 PU)	
SHADE TREES	26	13	16	6	6	11	78	
EVERGREEN TREES	33	26	20	7	7	14	107	
SHRUBS								

NOTE: THE DEVELOPER WILL PROVIDE ALL SWM LANDSCAPE OBLIGATIONS, TO BE PROVIDED AT THE FINAL PLAN STAGE.

STREET TREE SCHEDULE

ROAD NAME	LENGTH OF ROAD (BOTH SIDES)	# OF TREES REQUIRED (1 PER 40 LF.)	# OF TREES PROVIDED
SWEETBAY STREET	8,880'	222	222
BRIDALWEATH COURT	2,520'	63	63
WINTERHAZEL COURT	1,410'	35	35
TOTAL		320	320

NOTES:
1. LOCATION OF TREES MAY VARY BASED ON EASEMENTS.
2. THE BONDING OF THE STREET TREES WILL BE INCLUDED IN THE COST ESTIMATE FOR THE ROAD CONSTRUCTION.

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
Walter F. ... 12-7-07
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
... 12/11/07
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

... 12/11/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date	No.	Revision Description

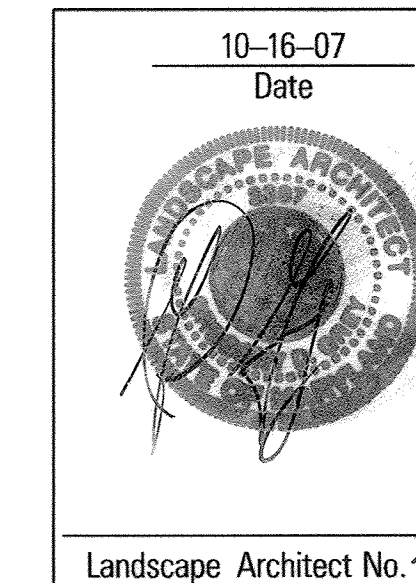
BELLE HAVEN ESTATES

LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O,
NON-BUILDABLE BULK PARCEL P
TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER
Union Chapel Road, LLC
9025 Chevrolet Drive
Suite K
Ellicott City, MD 21042
Phone: (410) 461-5900

DMW
Duff-McCune-Walker, Inc.
200 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 296-3333
Fax 296-4705
A Team of Land Planners,
Landscape Architects,
Engineers, Surveyors &
Environmental Professionals

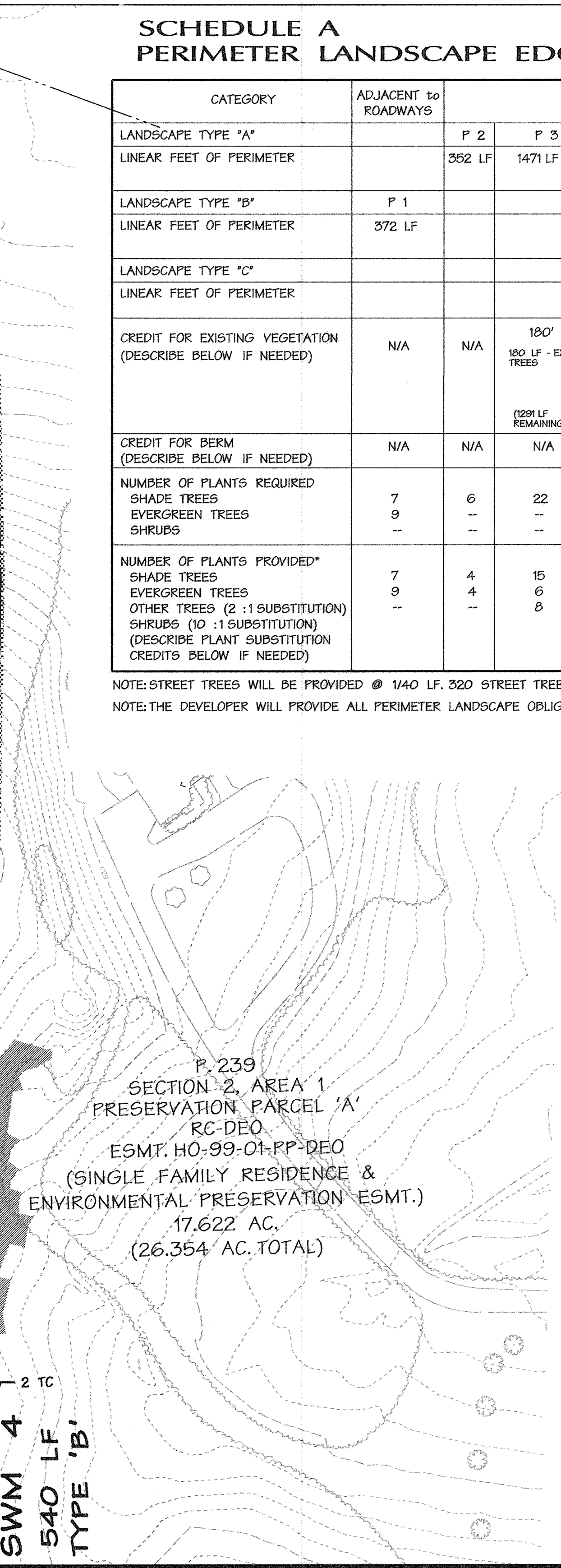
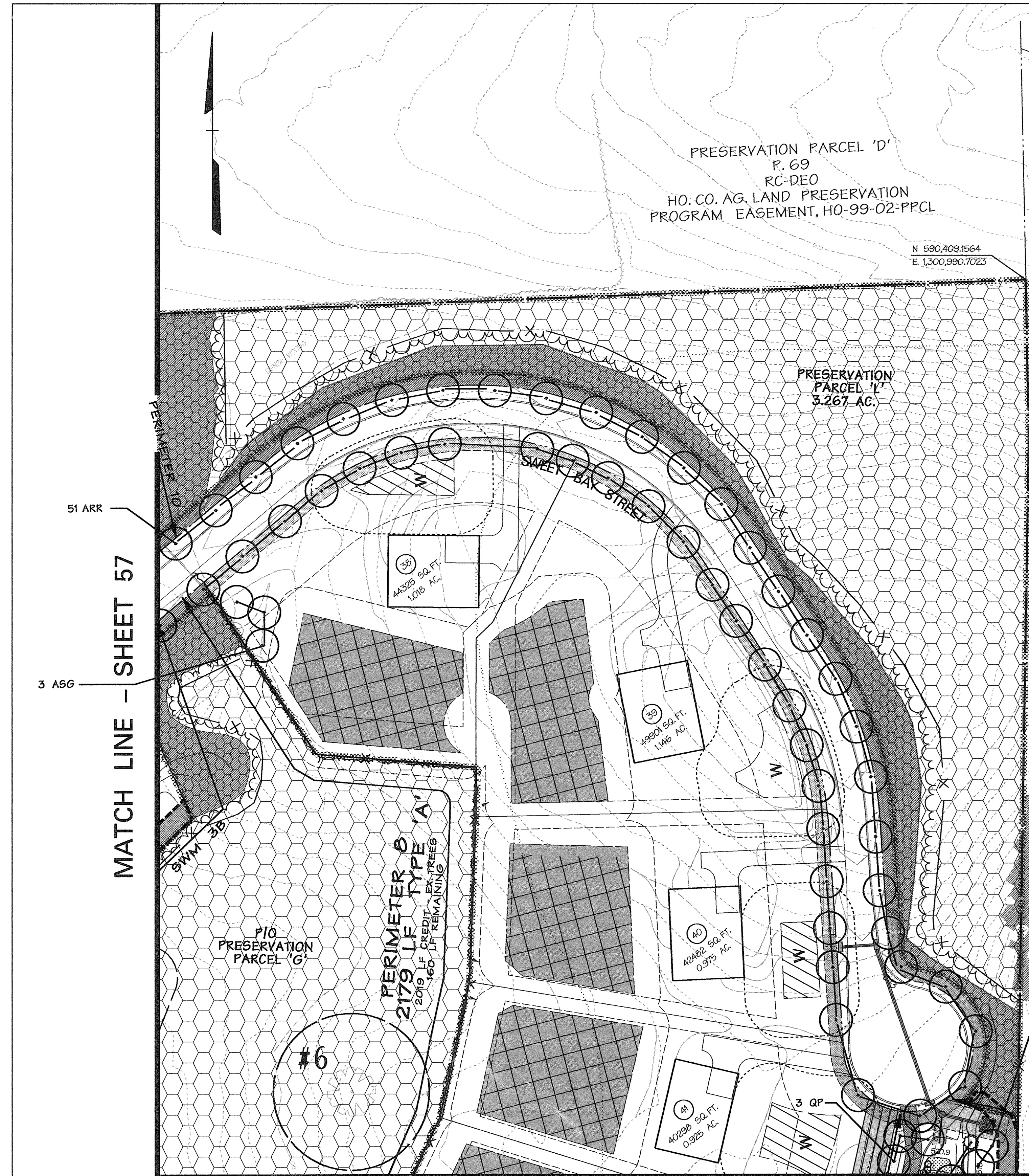
TITLE			
LANDSCAPE AND STREET TREE PLAN			
Des. By	MJP	Scale	1" = 50'
Dm. By	MDT	Date	10/16/07
Chk. By		Approved	
			Proj. No. 01067F 58 of 74

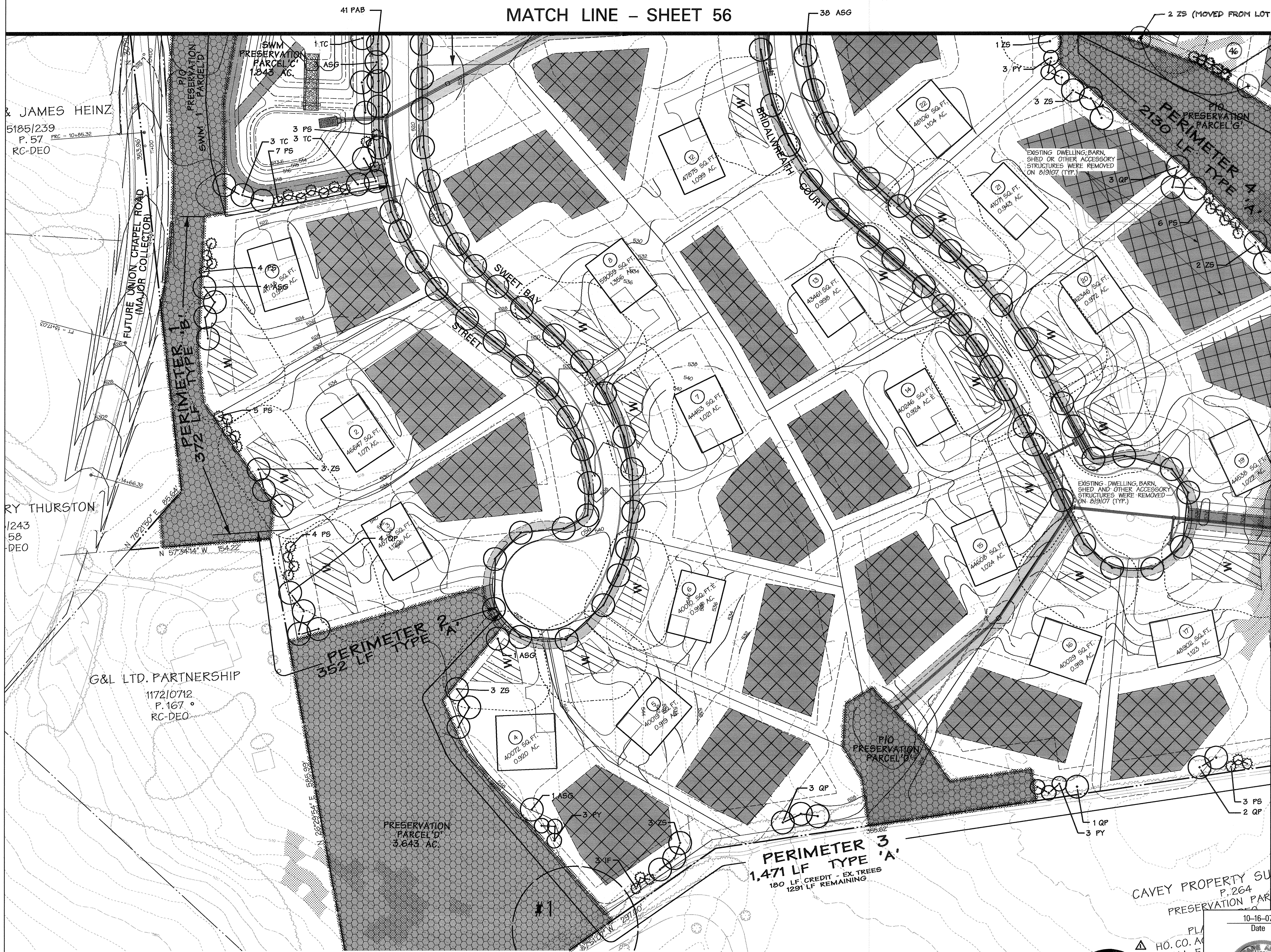


Landscape Architect No. 3397

MATCH LINE - SHEET 61

* NO AS-BUILT INFORMATION IN THIS SHEET *
DATE: 8/11/2018





MATCH LINE - SHEET 60

JAMES HEINZ
5185/239
P. 57
RC-DEO

RY THURSTON
1243
58
DEO

G&L LTD. PARTNERSHIP
117210712
P. 167
RC-DEO

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
Willie Z. ...
CHIEF, BUREAU OF HIGHWAYS
DATE: 12-7-07

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Sandy ...
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 12/11/07

W. ...
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 12/11/07

6/2/18 REVISED PER FIELD INSPECTION NOTES

Date	No.	Revision Description

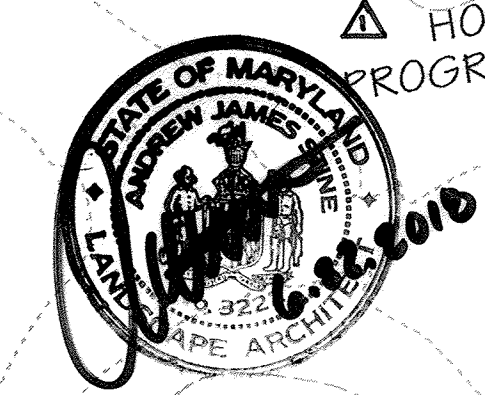
BELLE HAVEN ESTATES
LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-G,
NON-BUILDABLE BULK PARCEL P
TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
ELECTION DISTRICT NO. 3 HOWARD COUNTY, MARYLAND
OWNER/DEVELOPER
Union Chapel Road, LLC
9025 Chevrolet Drive
Suite K
Ellicott City, MD 21042
Phone: (410) 461-5000

DMW
Dunn MacCune-Walker, Inc.
300 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 296-3333
Fax: 296-4706
A Team of Land Planners,
Landscape Architects,
Engineers, Surveyors &
Environmental Professionals

TITLE
LANDSCAPE AND STREET TREE PLAN

Des. By	MJP	Scale	1" = 50'	Proj. No.	01067F
Drn. By	MDT	Date	10/16/07		
Chk. By		Approved			59 of 74

10-16-07
Date



Landscape Architect No. 3397

MATCH LINE - SHEET 59

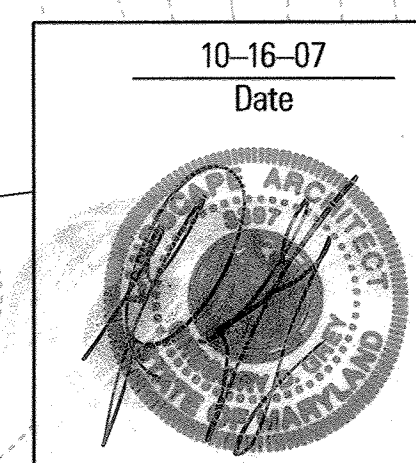
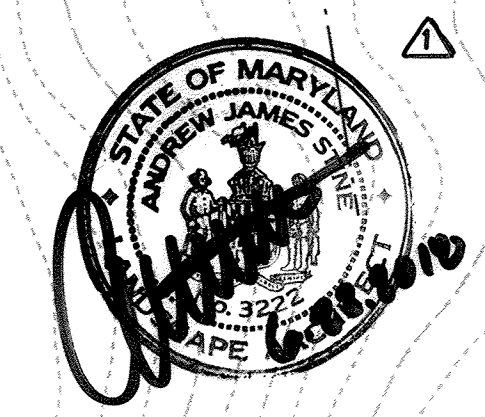
MATCH LINE - SHEET 61



CAVEY PROPERTY SUBDIVISION
P. 264
PRESERVATION PARCEL 'B'
RC-DEO
PLAT NOS. 15048-49
HO. CO. AG. LAND PRESERVATION
PROGRAM EASEMENT, HO-00-02-PPSD(B)

WOODS OF WELLINGTON
P. 264
PRESERVATION PARCEL A
RC-DEO
PLAT NOS. 16098-16100

EX. FOREST CONSERVATION
EASEMENT REFERENCE PLAN



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
W. R. ... 12-2-07
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
C. ... 12/11/07
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

... 12/11/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date	No.	Revision Description
6/21/18	1	REVISED PER FIELD INSPECTION NOTES

BELLE HAVEN ESTATES
LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O,
NON-BUILDABLE BULK PARCEL P
TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND

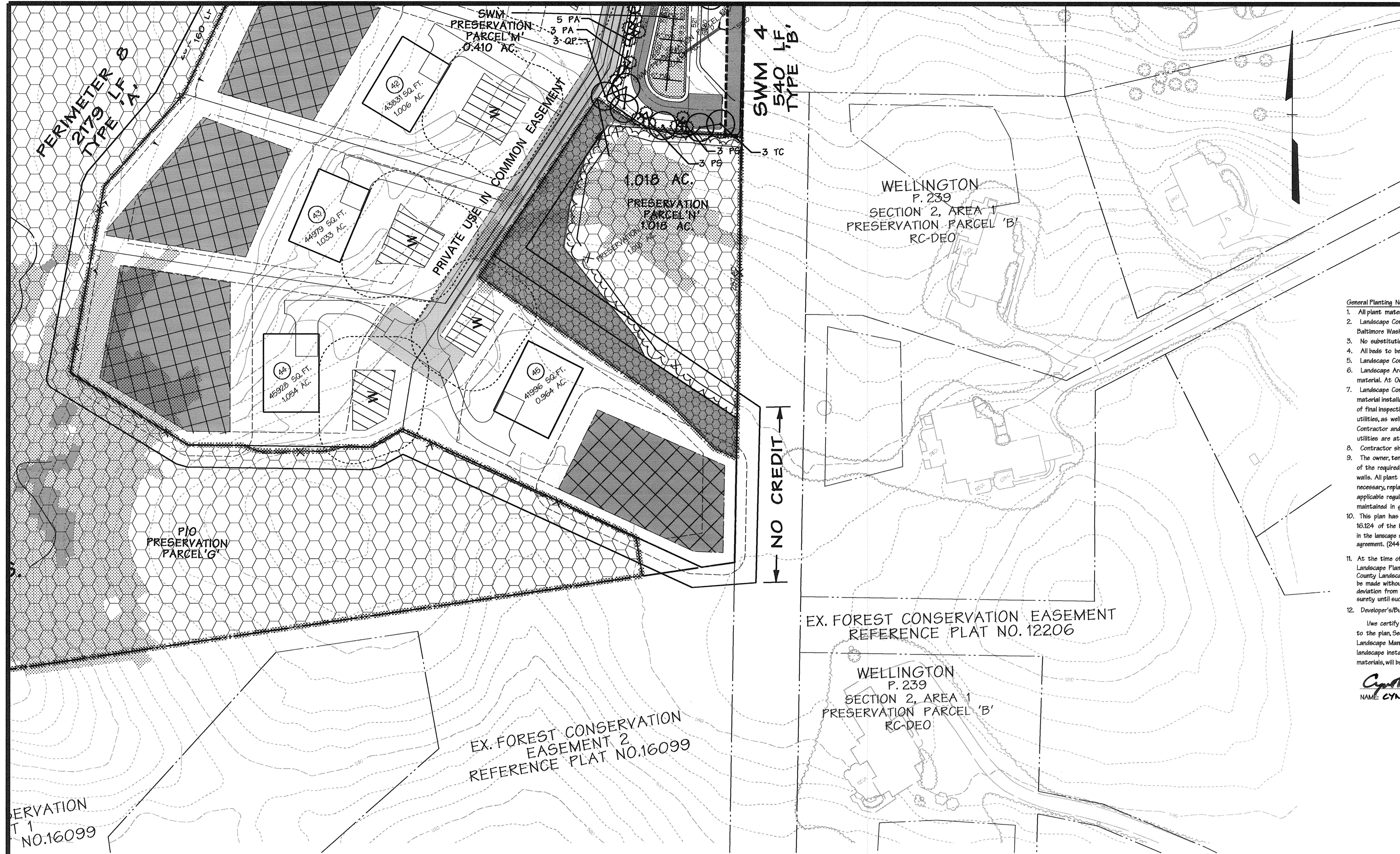
OWNER/DEVELOPER
Union Chapel Road, LLC
30255 Chevrolet Drive
Bulter K
Ellicott City, MD 21042
Phone: (410) 461-5900

DMW
Duff-McCune-Walker, Inc.
200 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 296-3333
Fax 296-4705

A Team of Land Planners,
Landscape Architects,
Engineers, Surveyors &
Environmental Professionals

TITLE LANDSCAPE AND STREET TREE PLAN			
Des. By	MJP	Scale	1" = 50'
Dwn. By	MDT	Date	10/16/07
Chk. By	Approved	Proj. No.	01067F
Landscape Architect No. 3397			60 of 74

MATCH LINE - SHEET 60



- General Planting Notes**
- All plant material to meet A.M. Standards.
 - Landscape Contractor to follow landscape specification guidelines for Baltimore Washington Metro area approved by LCAMM.
 - No substitutions to be made without consent of Landscape Architect or Owner.
 - All beds to be topped with three inches of hardwood mulch.
 - Landscape Contractor to verify location of utilities with Owner before planting.
 - Landscape Architect/Owner shall select, verify and/or approve all plant material. At Owner's discretion, specimen and other plant material will be selected.
 - Landscape Contractor shall coordinate plant bed filling operations and plant material installation with General Contractor and Utilities Contractor. At the time of final inspection with acceptance, all electric, water, drainage, and fountain utilities, as well as all plant materials, shall remain undamaged. Likewise, Landscape Contractor and Utilities Contractor shall coordinate efforts to ensure that surface utilities are at the proper elevation relative to final grades.
 - Contractor shall notify Miss Utility 72 hours prior to construction.
 - The owner, tenant, and/or their agents shall be responsible for maintenance of the required landscaping, including both plant materials and berms, fences and walls. All plant materials shall be maintained in good growing condition, and when necessary, replaced with new materials to ensure continued compliance with applicable regulations. All other required landscaping shall be permanently maintained in good condition, and when necessary, repaired or replaced.
 - This plan has been prepared in accordance with the provisions of Section 16.124 of the Howard County code. Financial security based on the required landscaping, as indicated in the landscape schedules, in the amount of \$65,000.00 must be posted as part of the developer's agreement. (244 shade, 149 evergreens).
 - At the time of plant installation, all shade and evergreen 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 deviation from the approved Landscape Plan may result in denial or delay in the release of landscape security until such time as all required materials are planted and/or revisions are made to the applicable plans.
 - Developer's/Builder's Certificate

Use 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. Use 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.

Cynthia M. McAuliffe 11/17/07
 NAME: CYNTHIA M. MCAULIFFE DATE

STORMWATER EDGE LANDSCAPE PLANT LIST

QTY	SYM	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
SHADE TREES				
31	ASG	ACER SACCHARUM 'GREEN MOUNTAIN' GREEN MOUNTAIN MAPLE	2 1/2" - 3" CAL. 12-14' HT.	B & B FULL HEAD
28	TC	TILIA CORDATA 'GREENSPIKE' GREENSPIKE LITTLELEAF LINDEN	2 1/2" - 3" CAL. 12-14' HT.	B & B FULL HEAD
25	QP	QUERCUS PALUSTRIS PIN OAK	2 1/2" - 3" CAL. 12-14' HT.	B & B FULL HEAD
EVERGREEN TREES				
53	FA	FICIA ABIES NORWAY SPRUCE	6'-8' HT.	B & B
62	PS	PINUS STROBUS WHITE PINE	6'-8' HT.	B & B

PERIMETER LANDSCAPE EDGE PLANT LIST

QTY	SYM	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
SHADE TREES				
56	ASG	ACER SACCHARUM 'GREEN MOUNTAIN' GREEN MOUNTAIN MAPLE	2 1/2" - 3" CAL. 12-14' HT.	B & B FULL HEAD
53	ZS	ZELKOVA SERRATA 'VILLAGE GREEN' VILLAGE GREEN JAPANESE ZELKOVA	2 1/2" - 3" CAL. 12-14' HT.	B & B FULL HEAD
2	PAB	PLATANUS ACERFOLIA 'BLOODGOOD' BLOODGOOD LONDON PLANE	2 1/2" - 3" CAL. 12-14' HT.	B & B FULL HEAD
23	QP	QUERCUS PALUSTRIS PIN OAK	2 1/2" - 3" CAL. 12-14' HT.	B & B FULL HEAD
UNDERSTORY TREES				
6	CC	CECIS CANADENSIS EASTERN REDBUD	8'-10' HT.	B & B SINGLE STEM
16	PY	PRUNUS x YEDOENSIS YOSHINO CHERRY	8'-10' HT.	B & B SINGLE STEM
EVERGREEN TREES				
51	IF	ILEX x ATTENUATA 'FOSTER' FOSTER'S HOLLY	6'-8' HT.	B & B (7 MALE)
40	PS	PINUS STROBUS WHITE PINE	6'-8' HT.	B & B

STREET TREE PLANT LIST

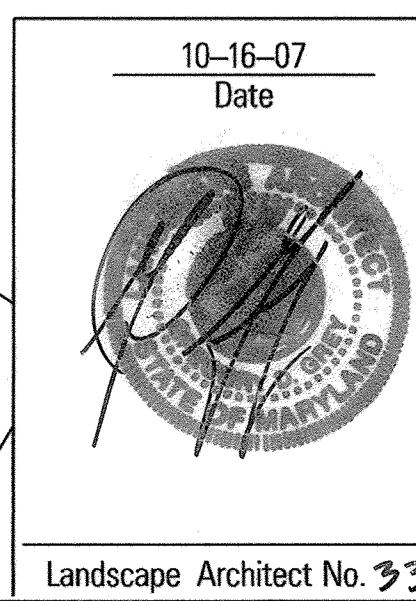
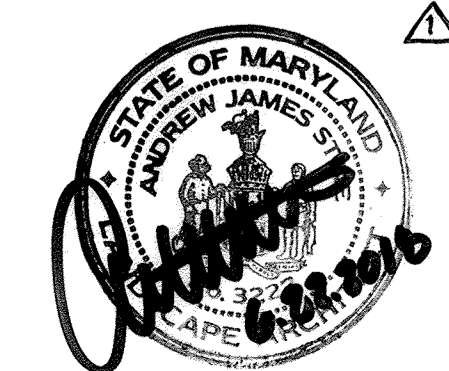
QTY	SYM	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
SHADE TREES				
166	ARR	ACER RUBRUM 'RED SUNSET' RED SUNSET MAPLE	2 1/2" - 3" CAL. 12-14' HT.	B & B FULL HEAD
57	ASG	ACER SACCHARUM 'GREEN MOUNTAIN' GREEN MOUNTAIN MAPLE	2 1/2" - 3" CAL. 12-14' HT.	B & B FULL HEAD
97	PAB	PLATANUS ACERFOLIA 'BLOODGOOD' BLOODGOOD LONDON PLANE	2 1/2" - 3" CAL. 12-14' HT.	B & B FULL HEAD

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS		
<i>with 2 mmm</i>		12-7-07
CHIEF, BUREAU OF HIGHWAYS		DATE
APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING		
<i>Cynthia M. McAuliffe</i>		12/14/07
CHIEF, DIVISION OF LAND DEVELOPMENT		DATE
<i>[Signature]</i>		12/14/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION		DATE
6/21/18	REVISOR	REVISOR
Date	No.	Revision Description

BELLE HAVEN ESTATES
 LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O, NON-BUILDABLE BULK PARCEL P
 TAX MAP 14, GRID 20, PARCEL 86, ZONE RC-DEO DISTRICT NO.3 HOWARD COUNTY, MARYLAND
 OWNER/DEVELOPER
 Union Chapel Road, LLC
 9025 Chevrolet Drive
 Suite K
 Ellicott City, MD 21042
 Phone: (410) 461-9800

DMW
 East McCune Walker, Inc.
 2100 East Pennsylvania Avenue
 Towson, Maryland 21286
 (410) 296-3353
 Fax 296-4705
 A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

TITLE			
LANDSCAPE AND STREET TREE PLAN			
Des. By	MJP	Scale	1" = 50'
Drn. By	MDT	Date	10/16/07
Proj. No.	01067F	Chk. By	Approved
			61 of 74



Landscape Architect No. 3397

"BUILT PER PLAN"
DATE: 5/11/2018

AS-BUILT CERTIFICATION

I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

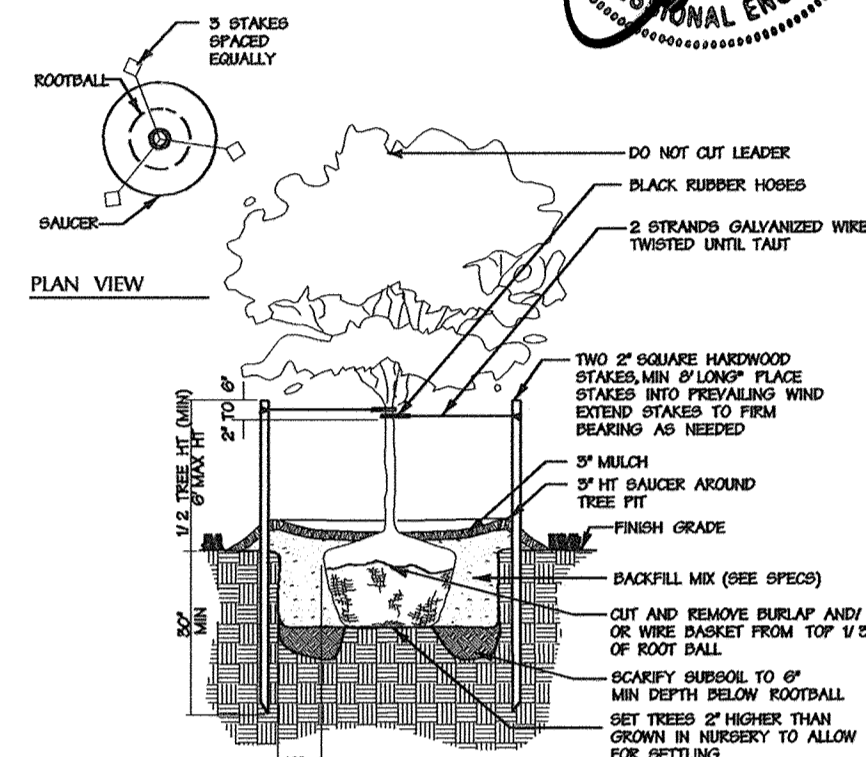
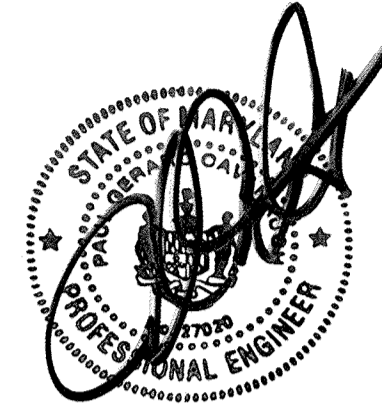
SIGNED: PAUL G. CAVANAUGH
LICENSE NO: 27020

DATE: 5/11/2018
EXPIRATION DATE: 1/25/2020

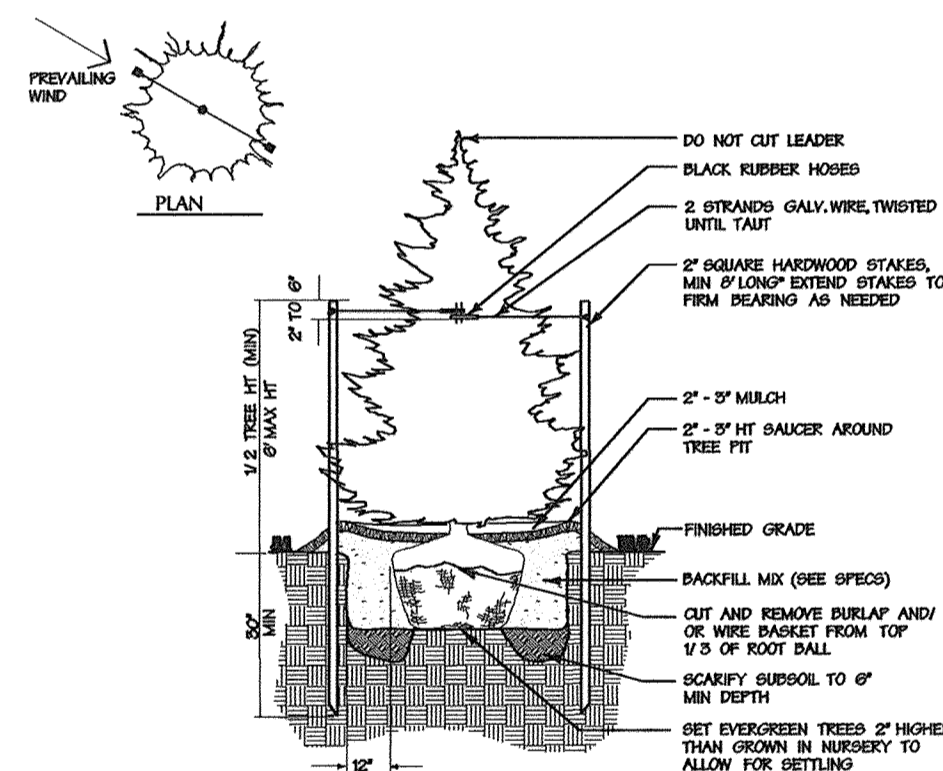
HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD '83/2011' AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 14FB

VERTICAL DATUM FOR THIS AS-BUILT SURVEY IS NORTH AMERICAN VERTICAL DATUM (NAVD) 1988 AS PROJECTED BY THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATION OR HOWARD CONTROL BENCH MARKS 14FB

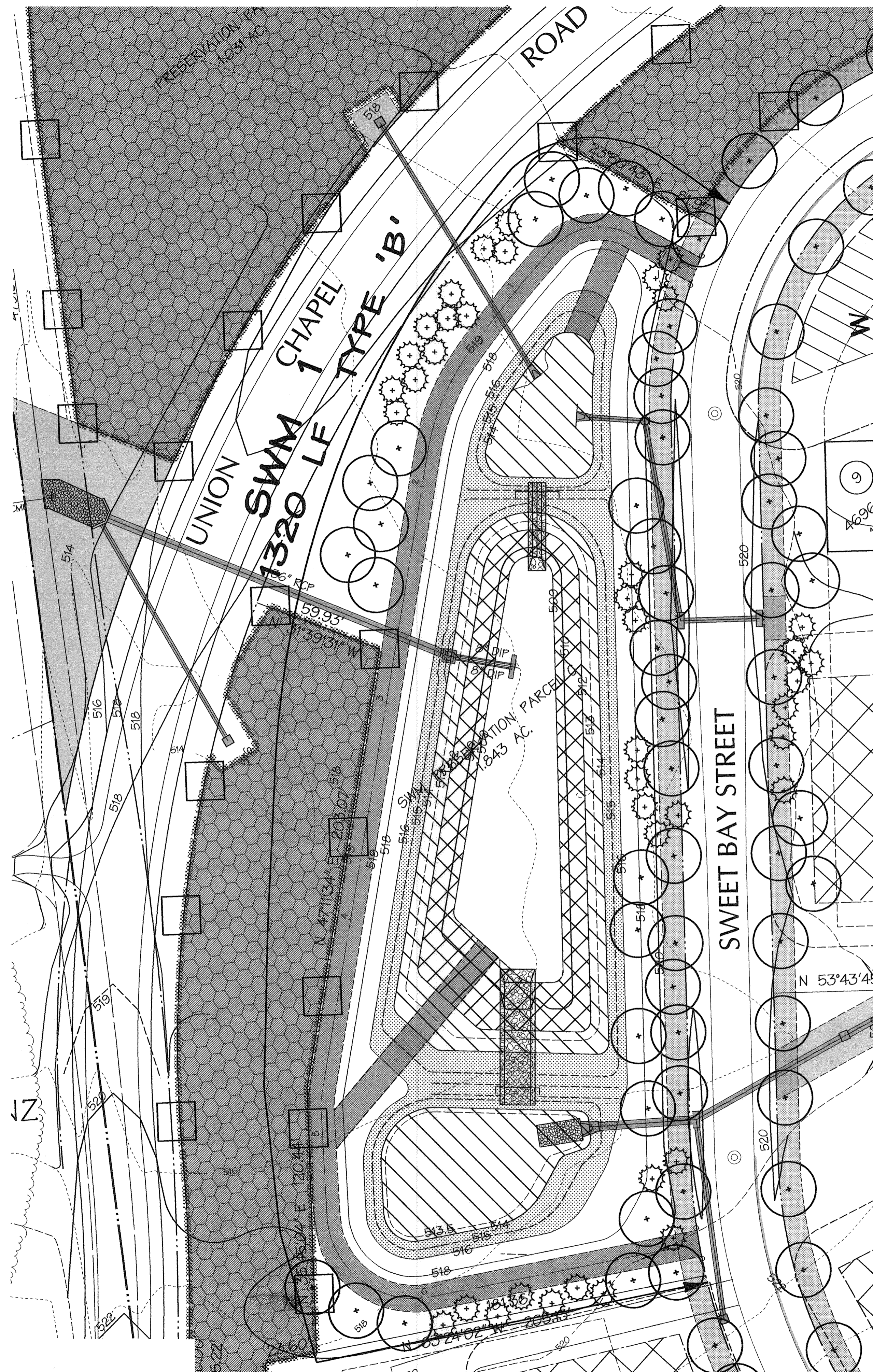
THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.



Less Than 3" Cal. Tree Planting
Not To Scale



Evergreen Tree Planting
Not To Scale



POND #1 PLANTING PLAN
SCALE: 1" = 30'

SWM Pond 1 Planting Schedule **

Zone "A" (6,981± SF)				
Species	Size	Plant Spacing	Quantity	Remarks
<i>Nuphar lutea</i>	plug	72"	250	OBL
TOTALS			250	

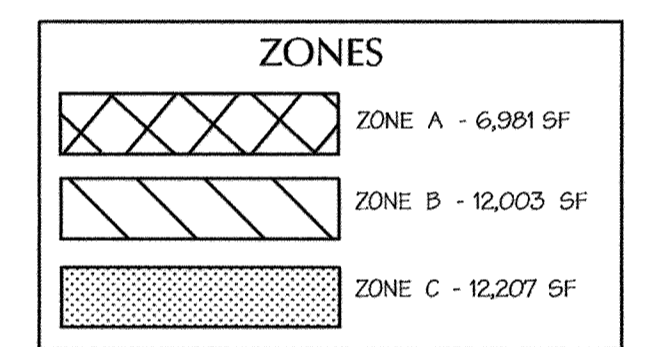
Zone "B" (12,003± SF)				
Species	Size	Plant Spacing	Quantity	Remarks
<i>Scirpus tabernaemontani</i>	plug	36"	300	OBL
<i>Sagittaria latifolia</i>	plug	36"	300	FACW
<i>Iris versicolor</i>	plug	36"	300	OBL
<i>Panicum virgatum</i>	plug	36"	300	FAC
<i>Saururus cernuus</i>	plug	36"	300	OBL
TOTALS			1,500	

Zone "C" (12,207± SF)				
Species	Size	Plant Spacing	Quantity	Remarks
<i>Asclepias incarnata</i>	plug	36"	500	OBL
<i>Aster novae-angliae</i>	plug	36"	500	OBL
<i>Panicum virgatum</i>	plug	36"	500	OBL
TOTALS			1,500	

* Dormant rhizomes of *Scirpus*, *Iris* and *Saururus*, dormant tubers of *Sagittaria*, and 1 styca bulbs of *Falsandra* may be substituted if plantings are to be installed during dormant season
** Alternate species and install in random pattern, distributing each species across the hydro gradient of each planting zone. Single species massings to be avoided.

LEGEND

- EX MAJOR CONTOUR
- EX MINOR CONTOUR
- EX WATER
- EX SANITARY SEWER
- EX STORM DRAIN
- EX GAS
- EX EDGE OF ROAD
- PROP. UTILITIES
- PROP. EDGE OF ROAD
- SILT FENCE
- SUPER SILT FENCE
- INLET PROTECTION
- INLET PROTECTION
- STABILIZED CONST. ENT.
- MOUNTABLE BERM
- TEMPORARY SWALE
- EARTH DIKE
- LIMIT OF DISTURBANCE
- TEMP DIKE/SWALE
- PROPOSED CONTOUR
- ×360.70 SPOT ELEVATION



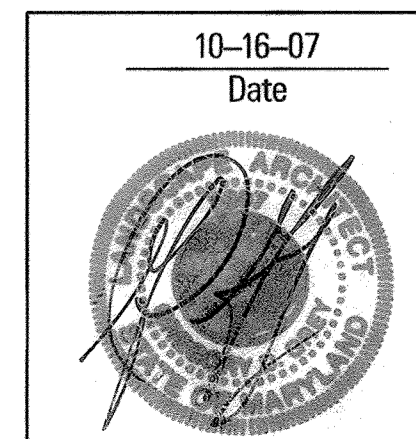
APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
Wills J. Walker 12-7-07
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Candy Kramer 12/4/07
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

W.D. Pennington 12/11/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date No. Revision Description

BELLE HAVEN ESTATES
LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O,
NON-BUILDABLE BULK PARCEL P
TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND
OWNER/DEVELOPER
Union Chapel Road, LLC
9025 Chevrolet Drive
Suite K
Ellicott City, MD 21042
Phone (410) 461-5900



DMW
Dan McCune-Walker, Inc.
300 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 296-3333
Fax: 296-4705

A Team of Land Planners,
Landscape Architects,
Engineers, Surveyors &
Environmental Professionals

TITLE: **STORMWATER MANAGEMENT**
POND #1 PLANTING PLAN

Des. By	MJP	Scale	1" = 30'	Proj. No.	01067F
Drn. By	MDT	Date	10/16/07	62 of 74	
Chk. By	Approved				

Landscape Architect No. 33917

"BUILT PER PLAN"
DATE: 5/11/2018

AS-BUILT CERTIFICATION

I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

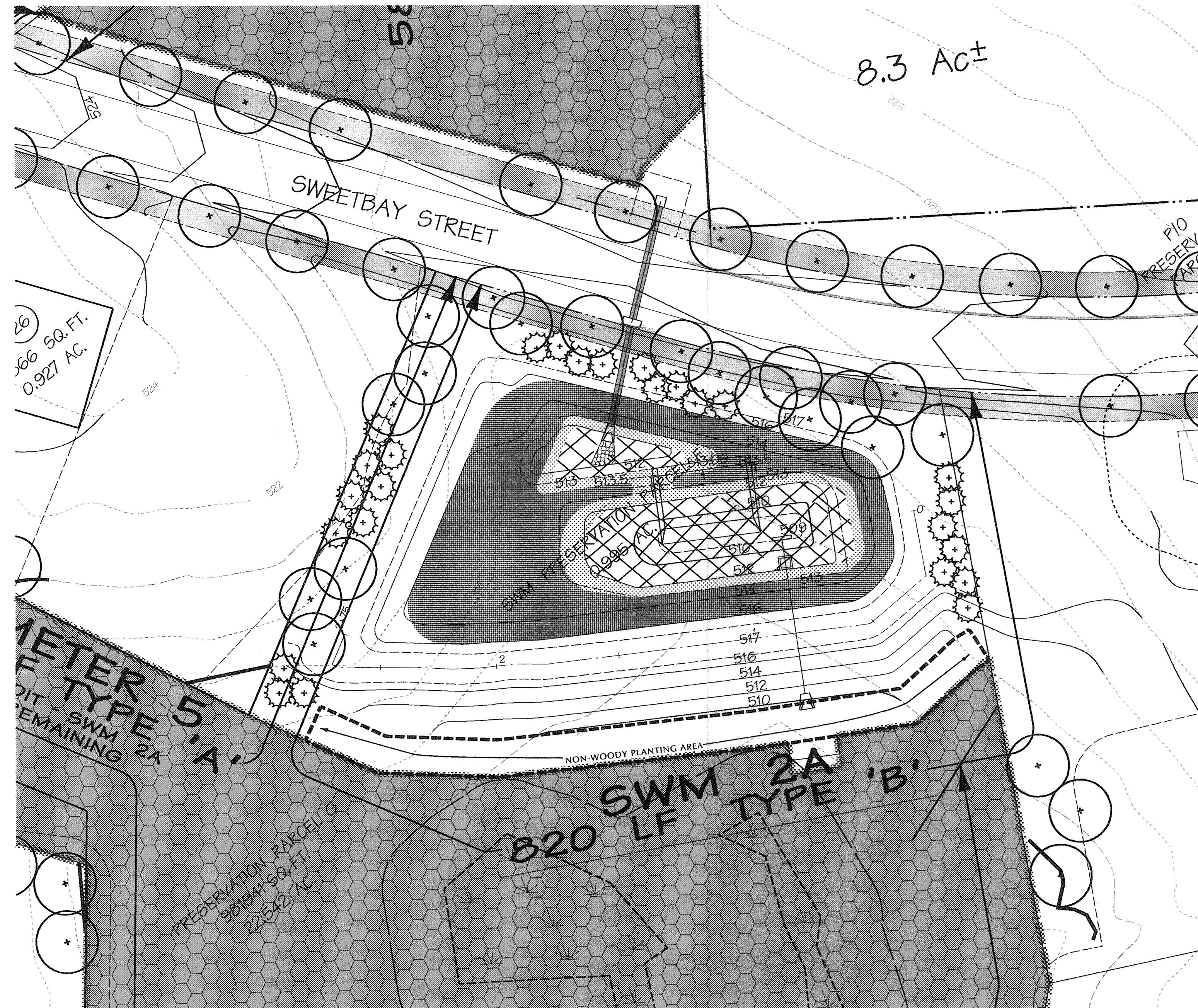
SIGNED: PAUL G. CAVANAUGH
LICENSE NO.: 27020

DATE: 5/11/2018
EXPIRATION DATE: 1/25/2020

HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD '83/2011' AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 14/FB

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THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.



SWM #2A PLANTING PLAN (WET FACILITY)

SCALE: 1"=30'

SWM Pond 2A Planting Schedule **

Species	Size	Plant Spacing	Quantity	Remarks
<i>Nuphar lutea</i>	plug	72"	156	ODL
TOTALS			156	

Species	Size	Plant Spacing	Quantity	Remarks
<i>Scirpus tabernaemontani</i>	plug	36"	50	ODL
<i>Sagittaria latifolia</i>	plug	36"	50	FACW
<i>Iris versicolor</i>	plug	36"	50	ODL
<i>Panicum virgatum</i>	plug	36"	50	FAC
<i>Saururus cernuus</i>	plug	36"	52	ODL
TOTALS			252	

Species	Size	Plant Spacing	Quantity	Remarks
<i>Aeclepias incarnata</i>	plug	36"	390	ODL
<i>Aster novae-angliae</i>	plug	36"	390	ODL
<i>Panicum virgatum</i>	plug	36"	390	ODL
TOTALS			1,170	

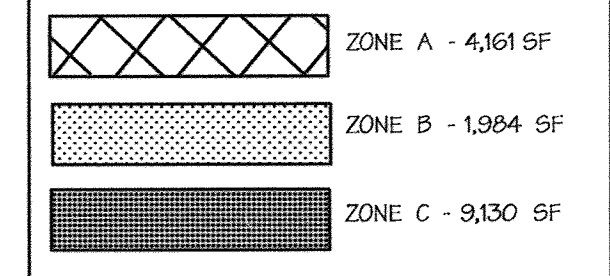
* Dormant rhizomes of *Scirpus*, *Iris* and *Saururus*, dormant tubers of *Sagittaria*, and 1 stem bulb of *Feltandra* may be substituted if plantings are to be installed during dormant season

** Alternate species and install in random pattern, distributing each species across the hydro gradient of each planting zone. Single species massings to be avoided.

LEGEND

- EX. MAJOR CONTOUR
- EX. MINOR CONTOUR
- EX. WATER
- EX. SANITARY SEWER
- EX. STORM DRAIN
- EX. GAS
- EX. EDGE OF ROAD
- PROP. UTILITIES
- PROP. EDGE OF ROAD
- SILT FENCE
- SUPER SILT FENCE
- INLET PROTECTION
- INLET PROTECTION
- STABILIZED CONST. ENT.
- MOUNTABLE BERM
- TEMPORARY SWALE
- EARTH DIKE
- LIMIT OF DISTURBANCE
- TEMP DIKE/SWALE
- PROPOSED CONTOUR
- x.360.70 SPOT ELEVATION

ZONES



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

W. J. ... 12-7-07
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

... 12/11/07
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

... 12/11/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date	No.	Revision Description

BELLE HAVEN ESTATES

LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O,
NON-BUILDABLE BULK PARCEL P
TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER

Union Chapel Road, LLC.
9025 Chevrolet Drive
Suite K
Ellicott City, MD 21042
Phone: (410) 461-6900



DMW
Dat+McCune-Walker, Inc.
200 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 296-3333
Fax 296-4706

A Team of Land Planners,
Landscape Architects,
Engineers, Surveyors &
Environmental Professionals

TITLE

STORMWATER MANAGEMENT FACILITY
SWM #2A PLANTING PLAN (WET FACILITY)

Des. By	MJP	Scale	1" = 30'	Proj. No.	01067F
Dwn. By	MDT	Date	10/16/07	63 of 74	
Chk. By	Approved				

10-16-07
Date

Landscape Architect No. 3397

"BUILT PER PLAN"
DATE: 9/11/2018

AS-BUILT CERTIFICATION

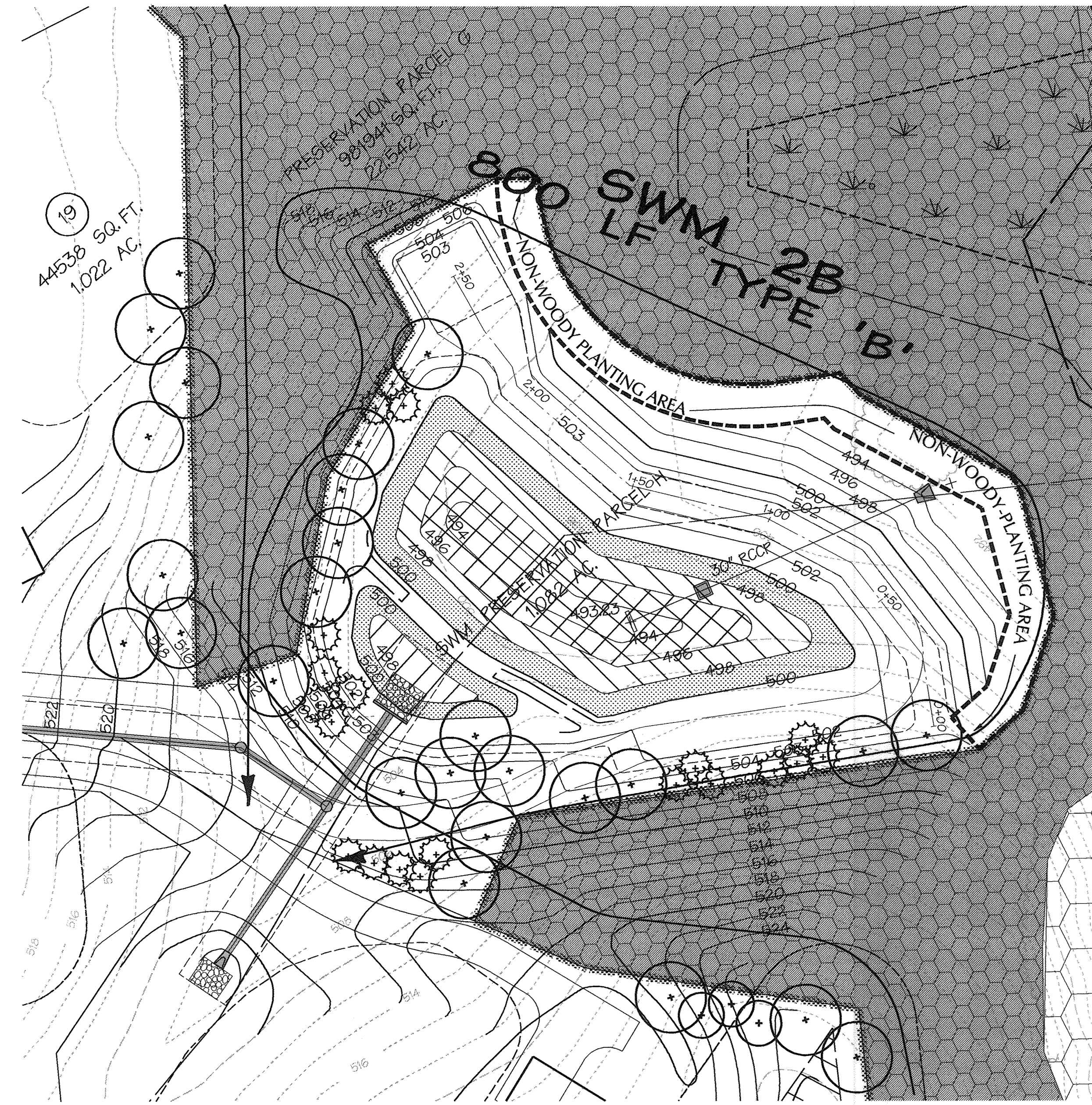
I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

SIGNED: PAUL G. CAVANAUGH DATE: 5/11/2018
LICENSE No: 27020 EXPIRATION DATE: 1/25/2020

HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD '83/2011' AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 14 FB

VERTICAL DATUM FOR THIS AS-BUILT SURVEY IS NORTH AMERICAN VERTICAL DATUM (NAVD) 1998 AS PROJECTED BY THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATION OR HOWARD CONTROL BENCH MARKS 14 FB

THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.



SWM #2B PLANTING PLAN (WET FACILITY)

SCALE: 1"=30'

SWM Pond 2B Planting Schedule **

Species	Size	Plant Spacing	Quantity	Remarks
<i>Nuphar lutea</i>	plug	72"	100	OBL
TOTALS			100	

Species	Size	Plant Spacing	Quantity	Remarks
<i>Scirpus tabernaemontani</i>	plug	36"	87	OBL
<i>Sagittaria latifolia</i>	plug	36"	87	FACW
<i>Iris versicolor</i>	plug	36"	87	OBL
<i>Panicum virgatum</i>	plug	36"	87	FAC
<i>Saururus cernuus</i>	plug	36"	87	OBL
TOTALS			435	

Species	Size	Plant Spacing	Quantity	Remarks
<i>Anclypis incarnata</i>	plug	36"	192	OBL
<i>Aster novae-angliae</i>	plug	36"	192	OBL
<i>Panicum virgatum</i>	plug	36"	192	OBL
TOTALS			576	

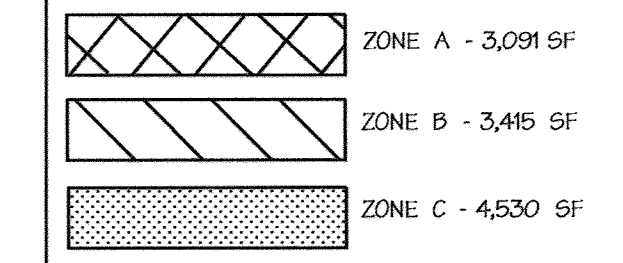
* Dormant rhizomes of *Scirpus*, *Iris* and *Saururus*, dormant tubers of *Sagittaria*, and 1 sigma bulbs of *Potamogeton* may be substituted if plantings are to be installed during dormant season

** Alternate species and install in random pattern, distributing each species across the hydro gradient of each planting zone. Single species massings to be avoided.

LEGEND

- EX MAJOR CONTOUR
- EX MINOR CONTOUR
- EX WATER
- EX SANITARY SEWER
- EX STORM DRAIN
- EX GAS
- EX EDGE OF ROAD
- PROP. UTILITIES
- PROP. EDGE OF ROAD
- SILT FENCE
- SUPER SILT FENCE
- INLET PROTECTION
- INLET PROTECTION
- STABILIZED CONST. ENT.
- MOUNTABLE BERM
- TEMPORARY SWALE
- EARTH DIKE
- LIMIT OF DISTURBANCE
- TEMP DIKE SWALE
- PROPOSED CONTOUR
- × 360.70 SPOT ELEVATION

ZONES



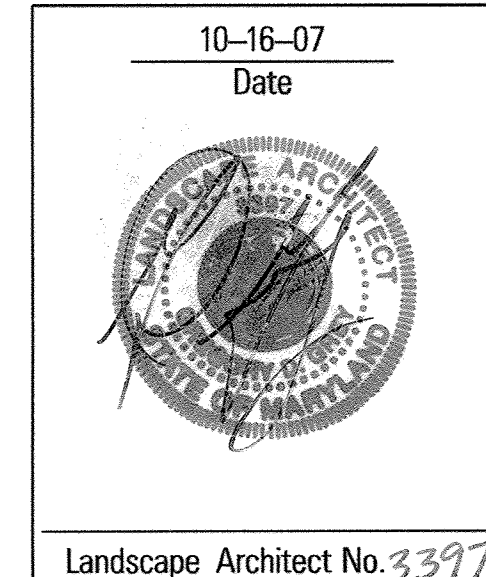
APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
Walter P. ... 12-7-07
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Cindy ... 12/10/07
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

... 12/11/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date No. Revision Description

BELLE HAVEN ESTATES
LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O,
NON-BUILDABLE BULK PARCEL P
TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND
OWNER/DEVELOPER
Union Chapel Road, LLC.
9025 Chevrolet Drive
Suite K
Ellicott City, MD 21042
Phone: (410) 461-5800



DMW
Duff-McCune-Walkers, Inc.
200 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 286-3333
Fax 296-4705
A Team of Land Planners,
Landscape Architects,
Engineers, Surveyors &
Environmental Professionals

TITLE: **STORMWATER MANAGEMENT FACILITY SWM #2B PLANTING PLAN (WET FACILITY)**

Des. By	MJP	Scale	1" = 30'	Proj. No.	01067F
Drn. By	MDT	Date	10/16/07	64 of 74	
Chk. By	Approved				

"BUILT PER PLAN"
DATE: 5/11/2018

AS-BUILT CERTIFICATION

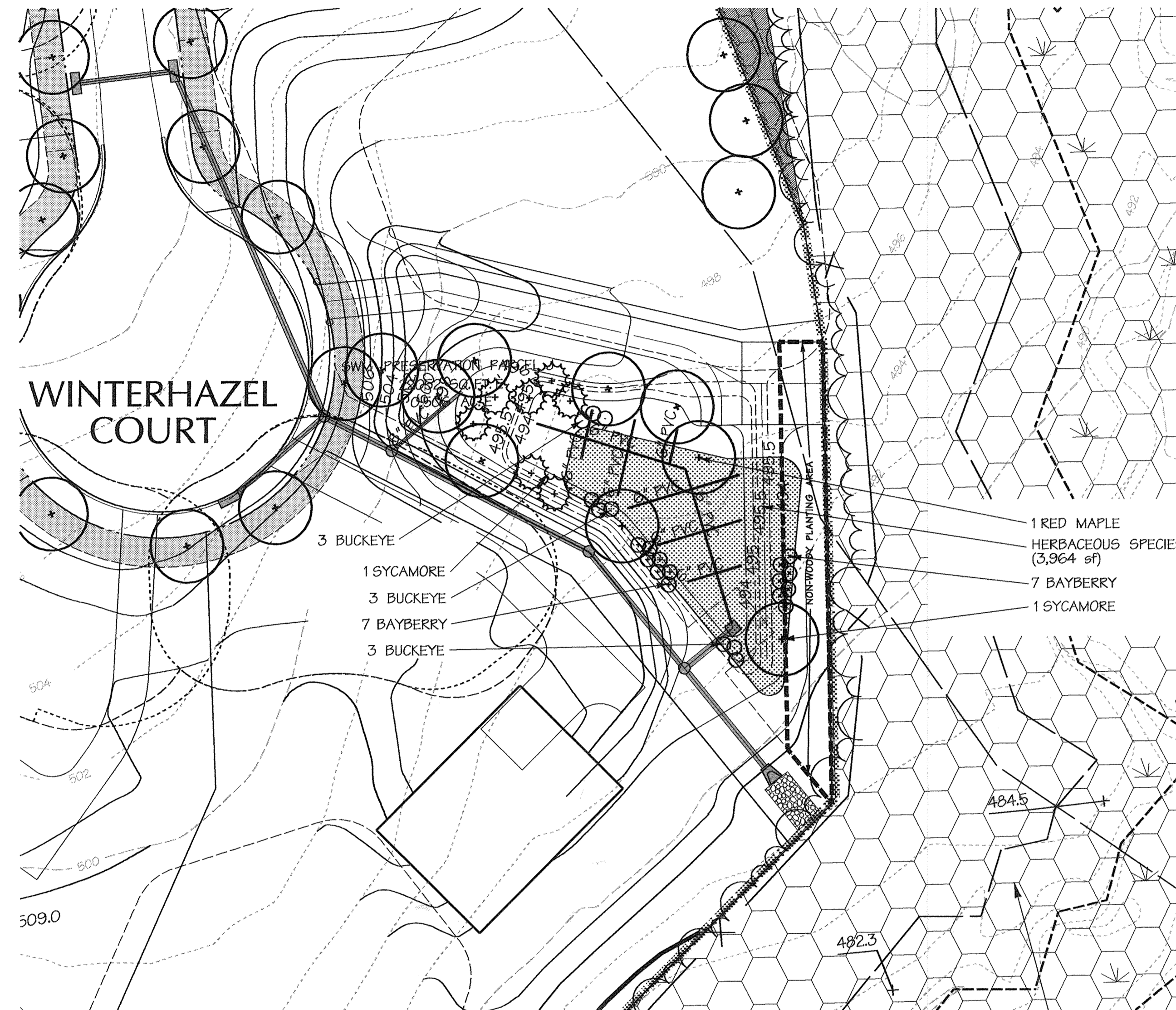
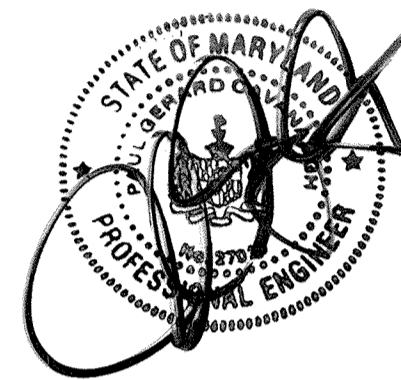
I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

SIGNED: PAUL G. CAVANAUGH DATE: 5/11/2018
LICENSE NO: 27020 EXPIRATION DATE: 1/25/2020

HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD '83/2011' AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 14FB

VERTICAL DATUM FOR THIS AS-BUILT SURVEY IS NORTH AMERICAN VERTICAL DATUM (NAVD) 1988 AS PROJECTED BY THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATION OR HOWARD CONTROL BENCH MARKS 14FB

THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.



SWM #3A PLANTING PLAN (BIO-DRY FACILITY)

SCALE: 1"=30'

QTY	BOTANICAL NAME/ COMMON NAME	SIZE	REMARKS
TREES			
1	ACER RUBRUM RED MAPLE	1 1/2" - 2" CAL. 8' - 10' HT.	B & B
2	PLATANUS OCCIDENTALIS SYCAMORE	1 1/2" - 2" CAL. 8' - 10' HT.	B & B
SHRUBS			
9	AESCLUS FARIVIFLORA BOTTLEBRUSH BUCKEYE	18" - 24"	#5 CAN. 30" O.C.
14	MYRICA PENNSYLVANICA BAYBERRY	18" - 24"	#5 CAN. 30" O.C.
HERBACEOUS SPECIES*			
170	ANDROPOGON VIRGINICUS BROOMSEDGE	1 FT.	36" O.C.-FIELD LOCATED
170	SCIRPUS PUNGENS THREE SQUARE BULRUSH	1 FT.	36" O.C.-FIELD LOCATED
170	RUDBECKIA LACINIATA TALL CONEFLOWER	1 FT.	36" O.C.-FIELD LOCATED

* Alternate species and install in random pattern, distributing each species across the hydro gradient of each planting zone. Single species massing to be avoided.

LEGEND

- EX. MAJOR CONTOUR
- EX. MINOR CONTOUR
- EX. WATER
- EX. SANITARY SEWER
- EX. STORM DRAIN
- EX. GAS
- EX. EDGE OF ROAD
- PROP. UTILITIES
- PROP. EDGE OF ROAD
- SILT FENCE
- SUPER SILT FENCE
- INLET PROTECTION
- INLET PROTECTION
- STABILIZED CONST. ENT.
- MOUNTABLE BERM
- TEMPORARY SWALE
- EARTH DIKE
- LIMIT OF DISTURBANCE
- TEMP. DIKE/ SWALE
- PROPOSED CONTOUR
- SPOT ELEVATION
- × 360.70
- + SHADE TREE
- ○ ○ ○ SHRUB
- * EVERGREEN TREE
- HERBACEOUS SPECIES

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
Witt: Z. m. h. l. l. 12-7-07
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Quidy: H. h. h. h. 12/10/07
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Witt: Z. m. h. l. l. 12/11/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date	No.	Revision Description

BELLE HAVEN ESTATES

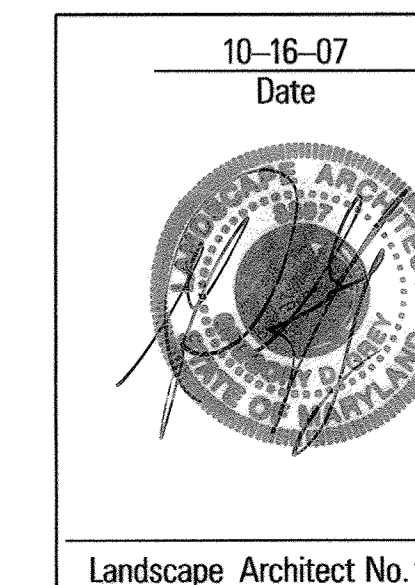
LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O,
NON-BUILDABLE BULK PARCEL P
TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER
Union Chapel Road, LLC.
9025 Chevrolet Drive
Suite K
Ellicott City, MD 21042
Phone: (410) 481-5900

DMW
Darr-McCune-Walker, Inc.
200 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 286-3333
Fax 286-4706
A Team of Land Planners,
Landscape Architects,
Engineers, Surveyors &
Environmental Professionals

TITLE
STORMWATER MANAGEMENT FACILITY
SWM #3A PLANTING PLAN (BIO-DRY FACILITY)

Des. By	MJP	Scale	1" = 30'	Proj. No.	01067F
Drn. By	MDT	Date	10/16/07	65 of 74	
Chk. By	Approved				



Landscape Architect No. 3397

en:\000710107\BelleHaven\01067F\1.LWP# Nov 07 15:23:19 2007

"BUILT PER PLAN"
DATE: 5/11/2018

AS-BUILT CERTIFICATION

I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

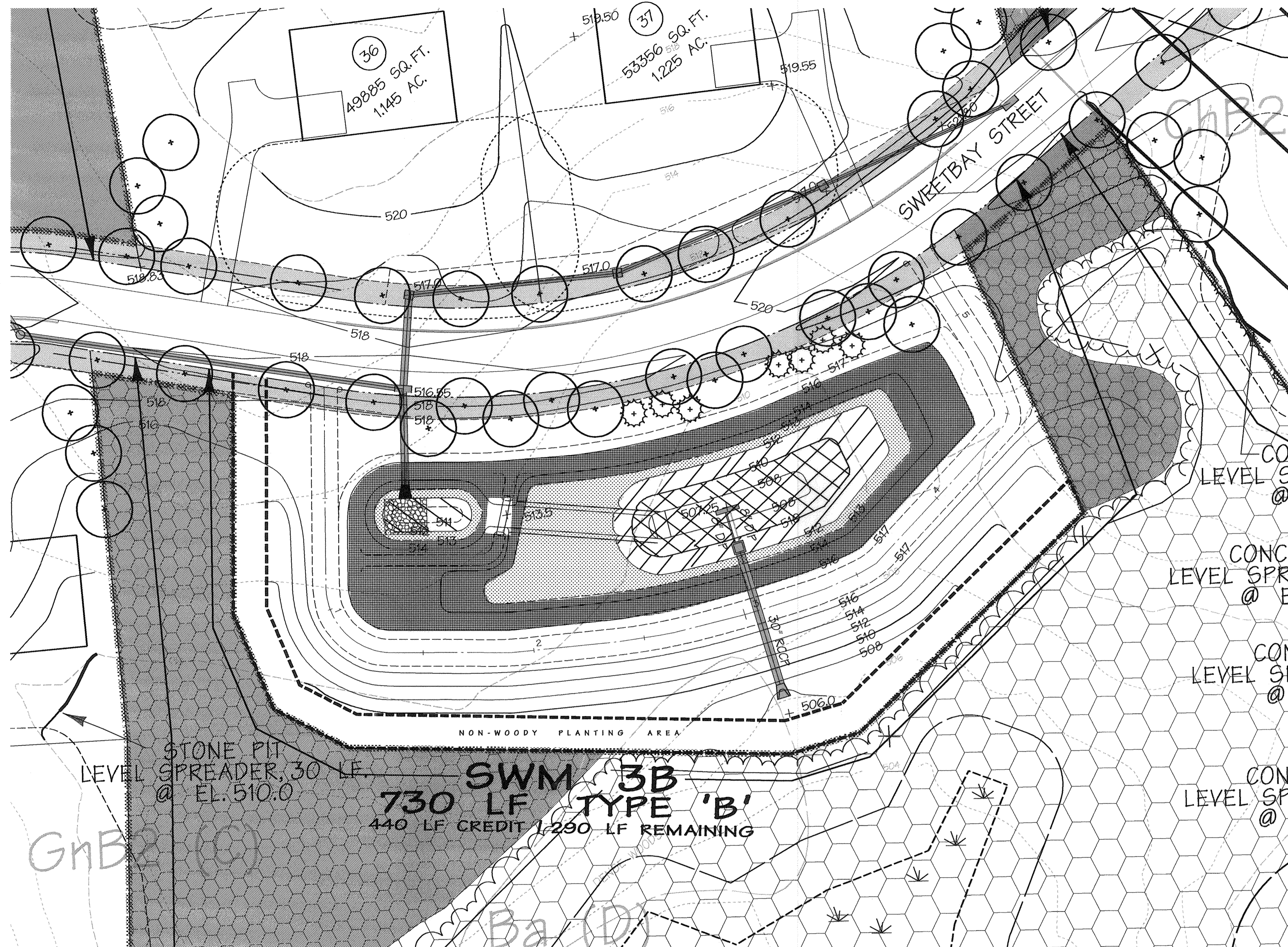
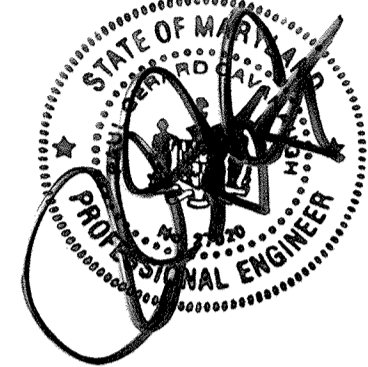
SIGNED: PAUL G. CAVANAUGH
LICENSE NO: 27020

DATE: 5/11/2018
EXPIRATION DATE: 1/25/2020

HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD '83/2011' AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 14 FB

VERTICAL DATUM FOR THIS AS-BUILT SURVEY IS NORTH AMERICAN VERTICAL DATUM (NAVD) 1988 AS PROJECTED BY THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATION OR HOWARD CONTROL BENCH MARKS 14 FB

THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.



STONE PIT LEVEL SPREADER, 30 LF @ EL. 510.0

SWM #3B
730 LF TYPE 'B'
440 LF CREDIT 1,290 LF REMAINING

CONC LEVEL SP @
CONC LEVEL SPRE @ EL
CONC LEVEL SPI @
CONC LEVEL SPR @ I

SWM Pond 3B Planting Schedule **

Species	Size	Plant Spacing	Quantity	Remarks
Nuphar lutea	quart container	72"	07	OBL
TOTALS			07	

Species	Size	Plant Spacing	Quantity	Remarks
Scirpus tabernaemontani	plug	36"	75	OBL
Sagittaria latifolia	plug	36"	75	FACW
Iris versicolor	plug	36"	75	OBL
Panicum virgatum	plug	36"	75	FAC
Saururus cernuus	plug	36"	75	OBL
TOTALS			375	

Species	Size	Plant Spacing	Quantity	Remarks
Anagallis incarnata	plug	36"	190	OBL
Aster novae-angliae	plug	36"	190	OBL
Panicum virgatum	plug	36"	190	OBL
TOTALS			570	

Species	Size	Plant Spacing	Quantity	Remarks
Panicum virgatum	quart container	36"	358	FAC
Acer granatsum	quart container	36"	358	FACW
Sanguinaria canadensis	quart container	36"	358	UPL/FACW
Andropogon gerardii	quart container*	36"	358	FAC
TOTALS			1344	

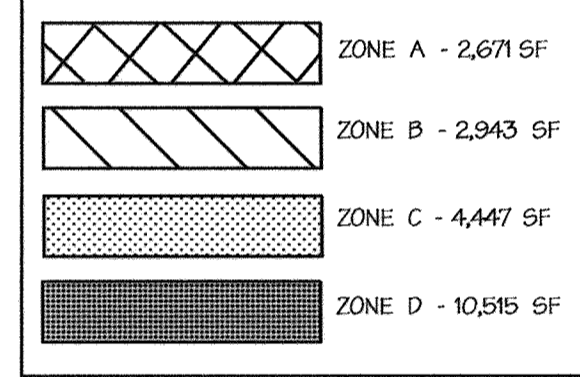
* Dormant rhizomes of Scirpus, Iris and Saururus, dormant tubers of Sagittaria, and 1 styca bulbs of Felisandra may be substituted if plantings are to be installed during dormant season

** Alternate species and install in random pattern, distributing each species across the hydro gradient of each planting zone. Single species massings to be avoided.

LEGEND

- EX MAJOR CONTOUR
- EX MINOR CONTOUR
- EX WATER
- EX SANITARY SEWER
- EX STORM DRAIN
- EX GAS
- EX EDGE OF ROAD
- PROP. UTILITIES
- PROP. EDGE OF ROAD
- SILT FENCE
- SUPER SILT FENCE
- INLET PROTECTION
- INLET PROTECTION
- STABILIZED CONST. ENT.
- MOUNTABLE BERM
- TEMPORARY SWALE
- EARTH DIKE
- LIMIT OF DISTURBANCE
- TEMP DIKE/SWALE
- PROPOSED CONTOUR
- SPOT ELEVATION

ZONES



SWM #3B PLANTING PLAN (WET FACILITY)

SCALE: 1"=30'

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
With: [Signature] 12-7-07
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
[Signature] 12/14/10
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 12/11/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

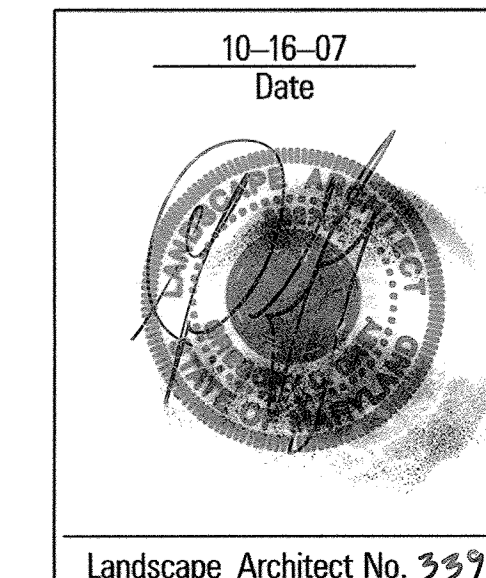
Date	No.	Revision Description

BELLE HAVEN ESTATES

LOTS 1-48, NON-BUILDABLE PRESERVATION PARCELS A-O,
NON-BUILDABLE BULK PARCEL P
TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND
OWNER/DEVELOPER
Union Chapel Road, LLC
9025 Chevrolet Drive
Shutle K
Ellicott City, MD 21042
Phone: (410) 461-6900

DMW
Darr McCune-Walkers, Inc.
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Fax 286-4705
A Team of Land Planners,
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TITLE			
STORMWATER MANAGEMENT FACILITY			
SWM #3B PLANTING PLAN (WET FACILITY)			
Des. By	MJP	Scale	1" = 30'
Drn. By	MDT	Date	10/16/07
Chk. By	Approved	Proj. No.	01067F
			66 of 74



"BUILT FOR PLAN"
DATE: 5/11/2018

AS-BUILT CERTIFICATION

I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

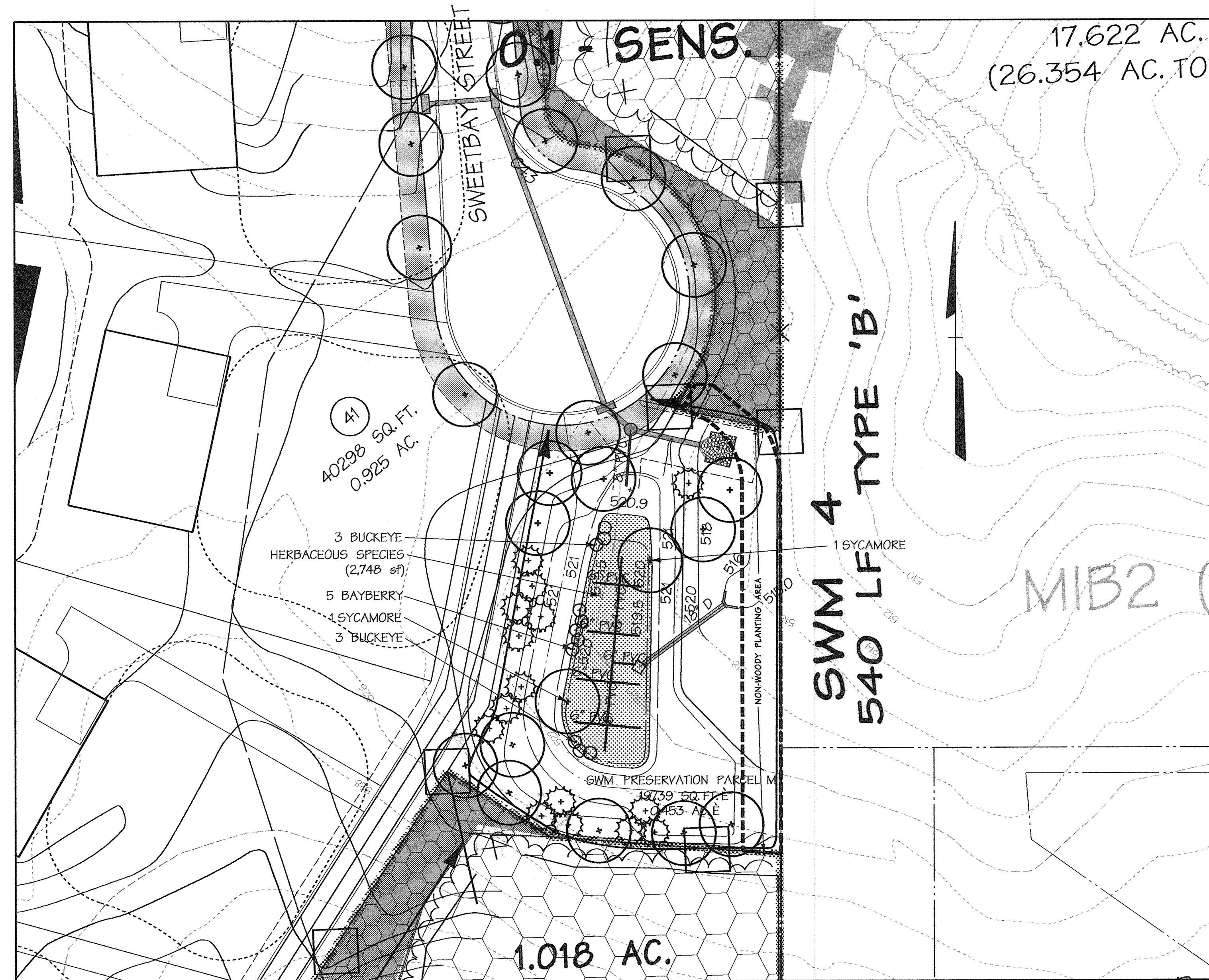
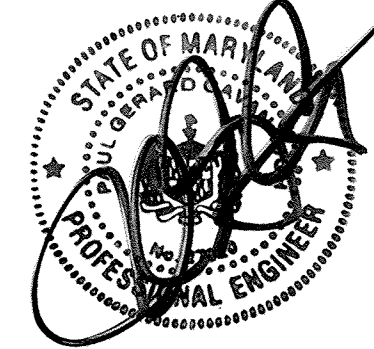
SIGNED: PAUL G. CAVANAUGH
LICENSE NO: 27020

DATE: 5/11/2018
EXPIRATION DATE: 1/25/2020

HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD '83/2011 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 14FB

VERTICAL DATUM FOR THIS AS-BUILT SURVEY IS NORTH AMERICAN VERTICAL DATUM (NAVD) 1988 AS PROJECTED BY THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATION OR HOWARD CONTROL BENCH MARKS 14FB

THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.



SWM #4 PLANTING PLAN (BIO-DRY FACILITY)

SCALE: 1"=30'

PLANT LIST

QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
TREES			
2	PLATANUS OCCIDENTALIS SYCAMORE	1 1/2" - 2" CAL. 8 - 10' HT.	B & B
SHRUBS			
6	AESCLUS PARVIFLORA BOTTLEBRUSH BUCKEYE	18 - 24"	#3 CAN. 30" O.C.
5	MYRICA PENNSYLVANICA BAYBERRY	18 - 24"	#3 CAN. 30" O.C.
HERBACEOUS SPECIES*			
120	ANDROPOGON VIRGINICUS BROOMSEDGE	1 FT.	36" O.C.-FIELD LOCATED
120	SCIRPUS PUNGENS THREE SQUARE BULRUSH	1 FT.	36" O.C.-FIELD LOCATED
120	RUDBECKIA LACINIATA TALL CONEFLOWER	1 FT.	36" O.C.-FIELD LOCATED

* Alternate species and install in random pattern, distributing each species across the hydro gradient of each planting zone. Single species massings to be avoided.

LEGEND

- EX. MAJOR CONTOUR
 - EX. MINOR CONTOUR
 - EX. WATER
 - EX. SANITARY SEWER
 - EX. STORM DRAIN
 - EX. GAS
 - EX. EDGE OF ROAD
 - PROP. UTILITIES
 - PROP. EDGE OF ROAD
 - SILT FENCE
 - SUPER SILT FENCE
 - INLET PROTECTION
 - STABILIZED CONST. ENT.
 - MOUNTABLE BERM
 - TEMPORARY SWALE
 - EARTH DIKE
 - LIMIT OF DISTURBANCE
 - TEMP. DIKE/ SWALE
 - PROPOSED CONTOUR
 - SPOT ELEVATION
-
- SHADE TREE
 - SHRUB
 - EVERGREEN TREE
 - HERBACEOUS SPECIES

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
Walter Z. ... 12-7-07
 CHIEF, BUREAU OF HIGHWAYS DATE

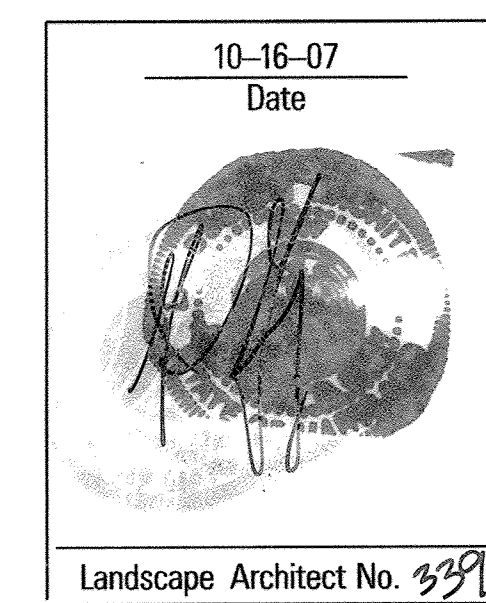
APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Cindy Harrod 12/14/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Mike ... 12/11/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date	No.	Revision Description

BELLE HAVEN ESTATES
 LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O,
 NON-BUILDABLE BULK PARCEL P
 TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
 ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER
 Union Chapel Road, LLC
 9025 Chevrolet Drive
 Suite K
 Ellicott City, MD 21042
 Phone: (410) 461-5800



10-16-07
Date

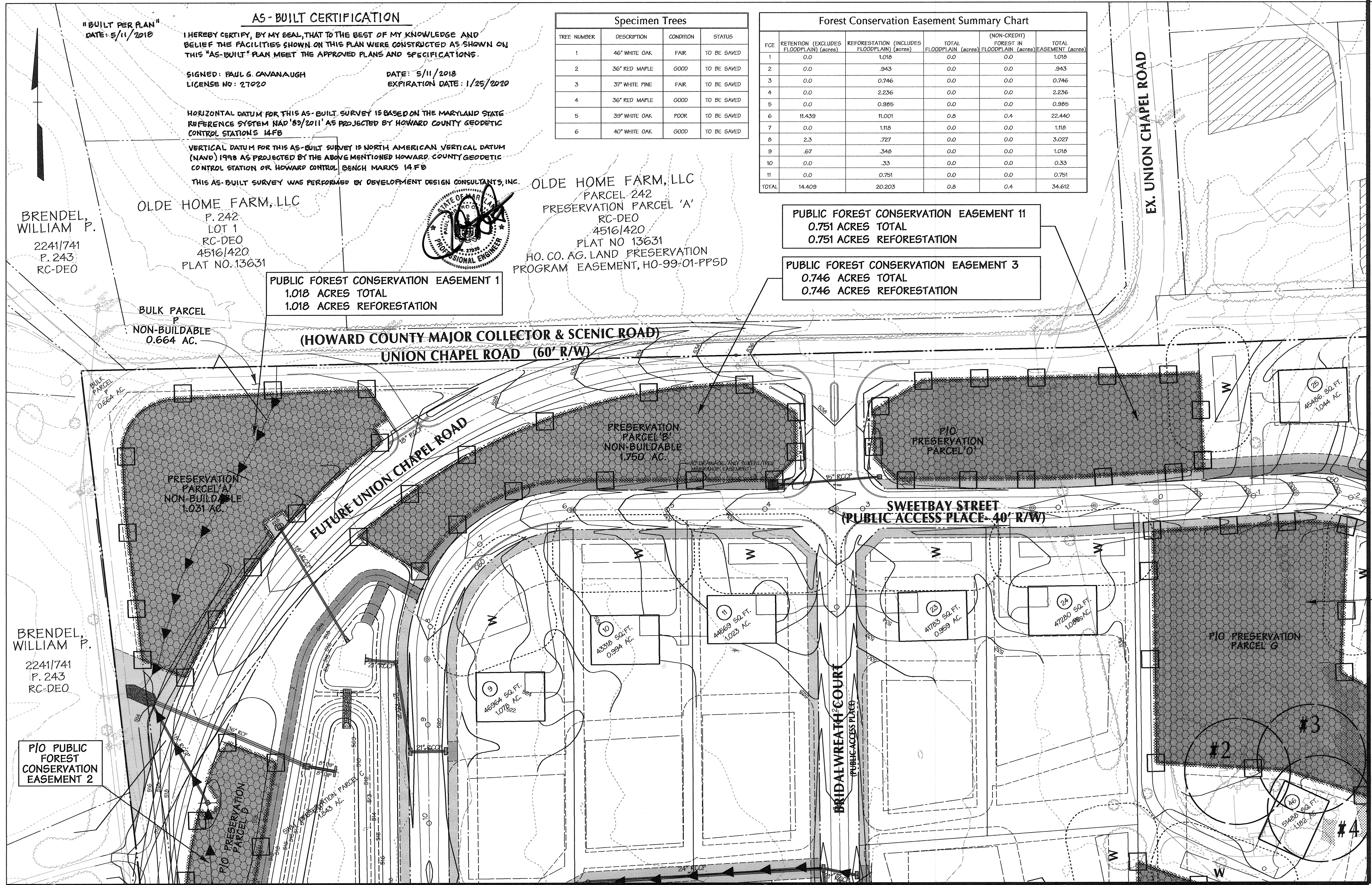
DMW
 DeB-McCune-Walker, Inc.
 200 East Pennsylvania Avenue
 Towson, Maryland 21286
 (410) 296-3333
 Fax 296-4705

A Team of Land Planners,
 Landscape Architects,
 Engineers, Surveyors &
 Environmental Professionals

TITLE
STORMWATER MANAGEMENT
 SWM #4 PLANTING PLAN (BIO-DRY FACILITY)

Des. By	MJP	Scale	1" = 30'	Proj. No.	01067F
Drn. By	MDT	Date	10/16/07	67 of 74	
Chk. By	Approved				

Landscape Architect No. 33917



"BUILT PER PLAN"
DATE: 5/11/2018

AS-BUILT CERTIFICATION

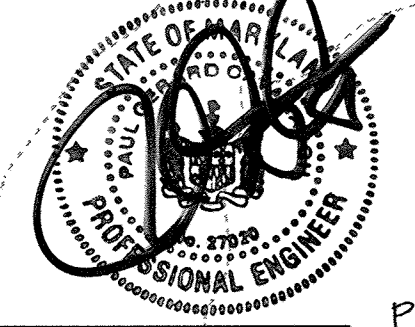
I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

SIGNED: PAUL G. CAVANAUGH
LICENSE NO: 27020
DATE: 5/11/2018
EXPIRATION DATE: 1/25/2020

HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD'83/2011 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 14FB

VERTICAL DATUM FOR THIS AS-BUILT SURVEY IS NORTH AMERICAN VERTICAL DATUM (NAVD) 1988 AS PROJECTED BY THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATION OR HOWARD CONTROL BENCH MARKS 14FB

THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.



Specimen Trees			
TREE NUMBER	DESCRIPTION	CONDITION	STATUS
1	46" WHITE OAK	FAIR	TO BE SAVED
2	36" RED MAPLE	GOOD	TO BE SAVED
3	37" WHITE PINE	FAIR	TO BE SAVED
4	36" RED MAPLE	GOOD	TO BE SAVED
5	39" WHITE OAK	POOR	TO BE SAVED
6	40" WHITE OAK	GOOD	TO BE SAVED

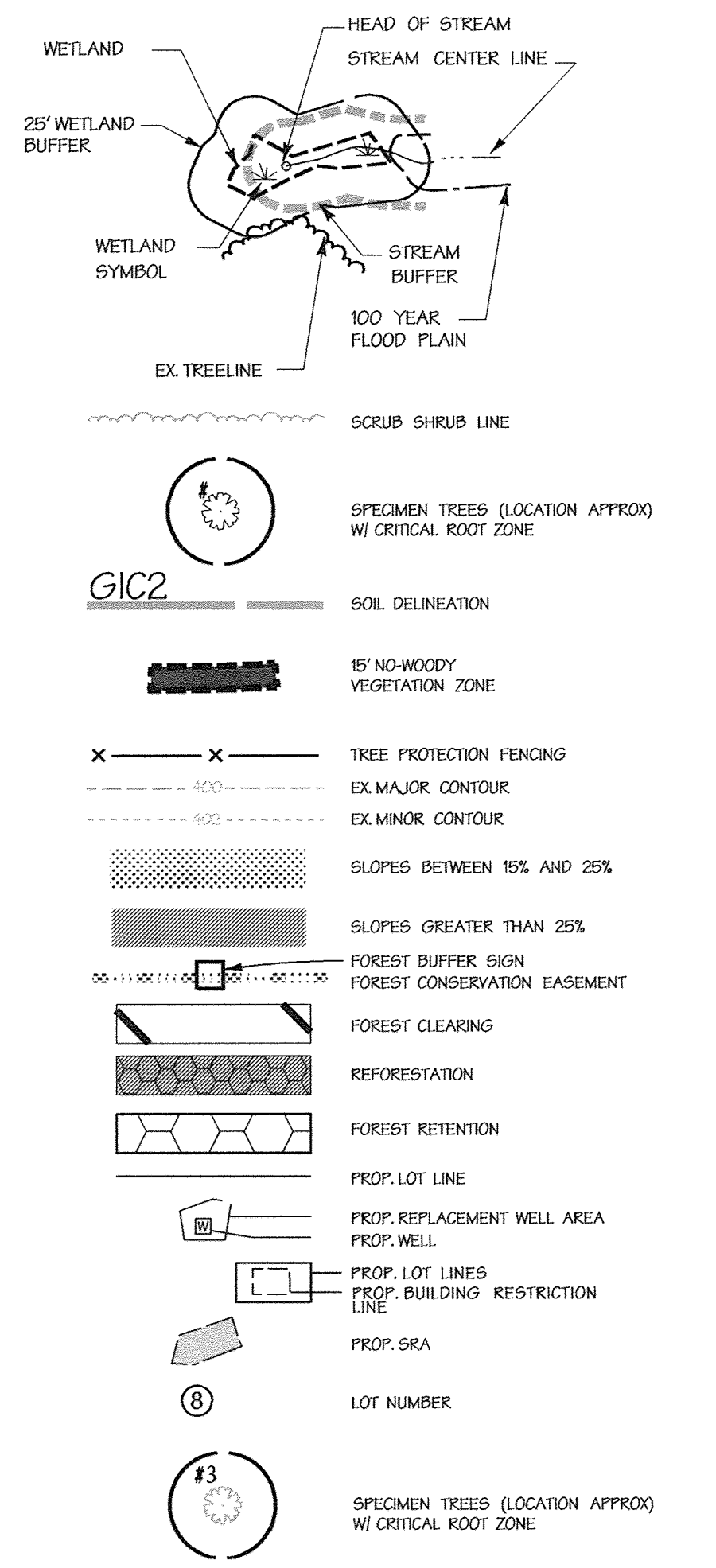
Forest Conservation Easement Summary Chart					
FCE	RETENTION (EXCLUDES FLOODPLAIN) (acres)	REFORESTATION (INCLUDES FLOODPLAIN) (acres)	TOTAL FLOODPLAIN (acres)	(NON-CREDIT) FOREST IN FLOODPLAIN (acres)	TOTAL EASEMENT (acres)
1	0.0	1.018	0.0	0.0	1.018
2	0.0	.943	0.0	0.0	.943
3	0.0	0.746	0.0	0.0	0.746
4	0.0	2.236	0.0	0.0	2.236
5	0.0	0.985	0.0	0.0	0.985
6	11.439	11.001	0.8	0.4	22.440
7	0.0	1.118	0.0	0.0	1.118
8	2.3	.727	0.0	0.0	3.027
9	.67	.348	0.0	0.0	1.018
10	0.0	.33	0.0	0.0	0.33
11	0.0	0.751	0.0	0.0	0.751
TOTAL	14.409	20.203	0.8	0.4	34.612

PUBLIC FOREST CONSERVATION EASEMENT 11
0.751 ACRES TOTAL
0.751 ACRES REFORESTATION

PUBLIC FOREST CONSERVATION EASEMENT 3
0.746 ACRES TOTAL
0.746 ACRES REFORESTATION

PUBLIC FOREST CONSERVATION EASEMENT 1
1.018 ACRES TOTAL
1.018 ACRES REFORESTATION

Legend



MATCH LINE - SHEET 69

MATCH LINE - SHEET 71

Forest Conservation Goals and Objectives

Development of Belle Haven Estates (Formerly known as Bewley Property) under the current Forest Conservation Act (FCA) will entail clearing of approximately 10.8 acres of the 25.2 acres of existing forest on-site. The goals and objectives of this Final Forest Conservation Plan are to provide short and long term protection of forest to be retained on-site and to provide approximately 20,203 acres of reforestation on-site. Appropriate forest protection measures will be implemented to maintain the health of all retained forest within the Forest Conservation Easement. Prior to construction blazes orange protective fencing shall be installed, after project completion permanent protective signage will be posted as shown on this Final Forest Conservation Plan.

Forest Conservation Notes:

This project complies with the requirements of Section 16.1200 of the Howard County Code of forest conservation with a total obligation of 34,612 acres provided by 14,409 acres of on-site retention and 20,203 acres of on-site reforestation.

The forest conservation easement has been established to fulfill the requirements of Section 16.1200 of the Howard County Code and the Forest Conservation Manual. No clearing, grading or construction is permitted within the forest conservation easement, however, forest management practices as defined in the Deed of Forest Conservation Easement are allowed.

Forest Conservation Calculations

BASIC SITE DATA	ACRES (1/10)
GR055 SITE AREA	98.2
AREA WITHIN 100 YEAR FLOODPLAIN	0.8
AREA WITHIN AGRICULTURAL USE OR PRESERVATION PARCEL (IF APPLICABLE)	0.0
NET TRACT AREA	97.4
LAND USE CATEGORY	RESIDENTIAL/RURAL-MEDIUM DENSITY
INFORMATION FOR CALCULATIONS	
A. NET TRACT AREA	97.4
B. REFORESTATION THRESHOLD (25% x A)	24.4
C. AFORESTATION MINIMUM (20% x A)	19.5
D. EXISTING FOREST ON NET TRACT AREA	25.2
E. FOREST AREAS TO BE CLEARED	10.8
F. FOREST AREAS TO BE RETAINED	14.4

REFORESTATION CALCULATIONS

A. NET TRACT AREA	97.4
B. REFORESTATION THRESHOLD (25% x A)	24.4
C. EXISTING FOREST ON NET TRACT AREA	25.2
D. FOREST AREAS TO BE CLEARED	10.8
E. FOREST AREAS TO BE RETAINED	14.4
F. FOREST AREAS CLEARED ABOVE REFORESTATION THRESHOLD.	0.8
G. FOREST AREAS CLEARED BELOW REFORESTATION THRESHOLD.	10.0
H. FOREST AREA RETAINED ABOVE REFORESTATION THRESHOLD.	0.0

CLEARING ABOVE THE THRESHOLD ONLY

IF FOREST AREAS TO BE RETAINED ARE GREATER THAN THE REFORESTATION THRESHOLD (IF E IS GREATER THAN B), THE FOLLOWING CALCULATIONS APPLY

REFORESTATION FOR CLEARING ABOVE THRESHOLD	0.2
Fx1/4	
REFORESTATION FOR CLEARING BELOW THRESHOLD	20.0
Gx2	
TOTAL REFORESTATION REQUIRED	20.2
(F1/4) + (Gx2)	
REFORESTATION PROVIDED	20.2

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
Walter J. Marshall 12-7-07
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Cynthia Harris 12/11/09
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

William J. ... 12/11/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

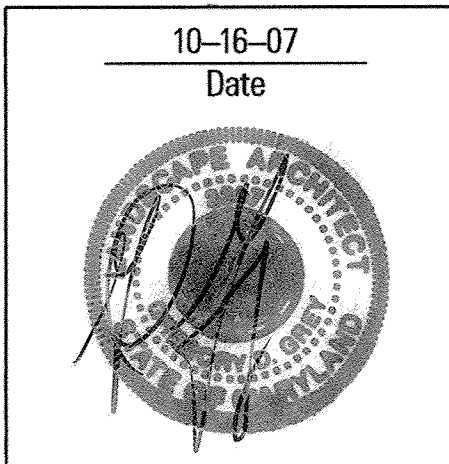
Date	No.	Revision Description

BELLE HAVEN ESTATES

LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O, NON-BUILDABLE BULK PARCEL P
TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER
Union Chapel Road, LLC
9025 Chevrolet Drive
Suite K
Ellicott City, MD 21042
Phone: (410) 461-5900

DMW
Dan MacCann-Walkers, Inc.
200 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 296-3353
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals



TITLE FOREST CONSERVATION PLAN

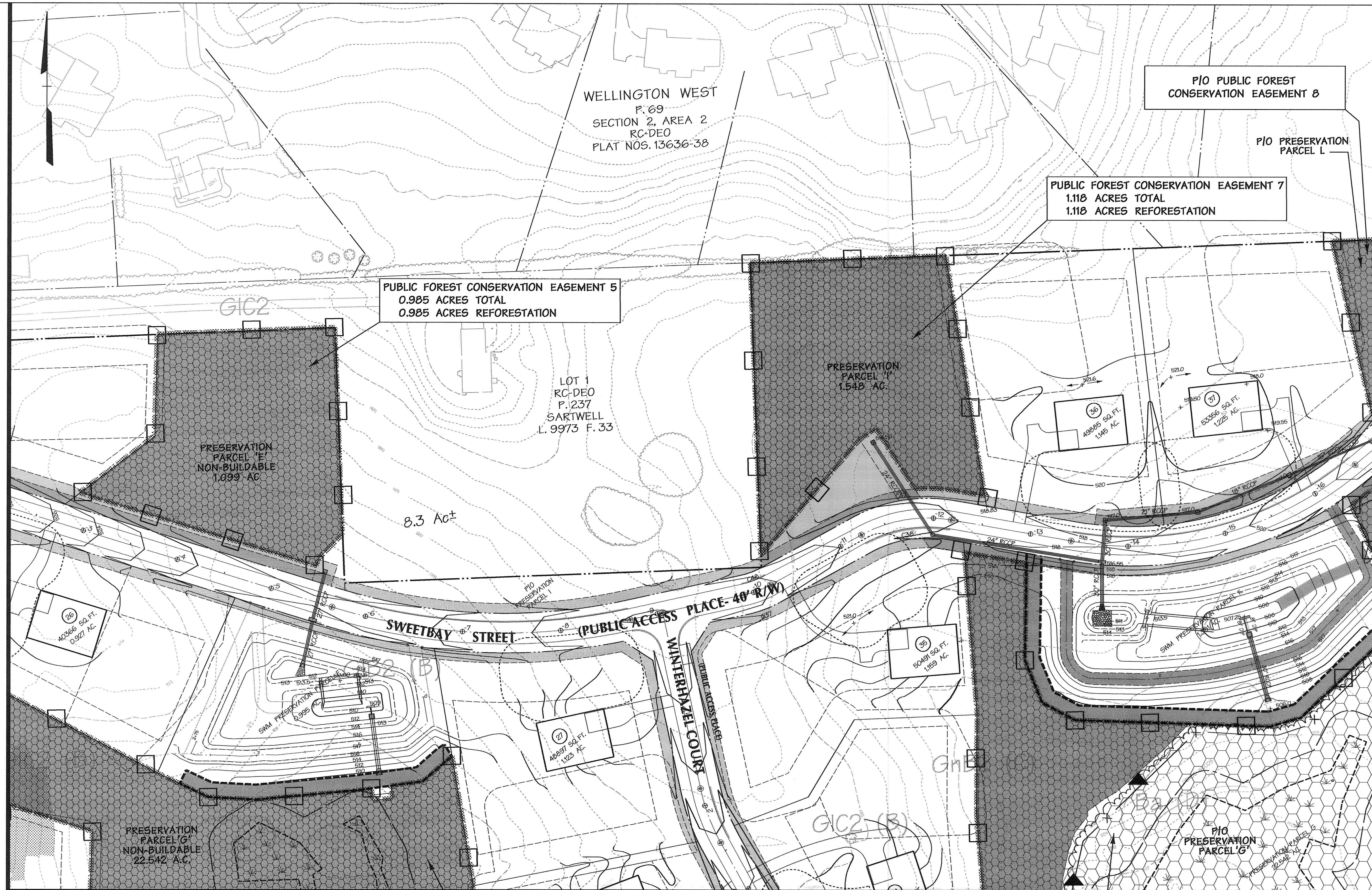
Des. By	MJP	Scale	1" = 50'	Proj. No.	01067F
Drn. By	MDT	Date	10/16/07	68 of 74	
Chk. By	SFM	Approved			

Landscape Architect No. 3397

MATCH LINE - SHEET 68

MATCH LINE - SHEET 70

MATCH LINE - SHEET 72



Legend

- WETLAND
- 25' WETLAND BUFFER
- WETLAND SYMBOL
- EX-TREELINE
- HEAD OF STREAM
- STREAM CENTER LINE
- STREAM BUFFER
- 100 YEAR FLOOD PLAN
- SCRUB SHRUB LINE
- SPECIMEN TREES (LOCATION APPROX) W/ CRITICAL ROOT ZONE
- GIC2
- SOIL DELINEATION
- 5' NO-WOODY VEGETATION ZONE
- TREE PROTECTION FENCING (OFFSET 5' FOR CLARITY)
- TEMPORARY TREE PROTECTIVE SIGNAGE
- EX-MAJOR CONTOUR
- EX-MINOR CONTOUR
- SLOPES BETWEEN 15% AND 25%
- SLOPES GREATER THAN 25%
- FOREST BUFFER SIGN
- FOREST CONSERVATION EASEMENT
- FOREST CLEARING
- REFORESTATION
- FOREST RETENTION
- PROP. LOT LINE
- PROP. REPLACEMENT WELL AREA
- PROP. WELL
- PROP. LOT LINES
- PROP. BUILDING RESTRICTION LINE
- PROP. SRA
- LOT NUMBER

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
Walter Z. ... 12-7-07
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Andy ... 12/11/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

... 12/11/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

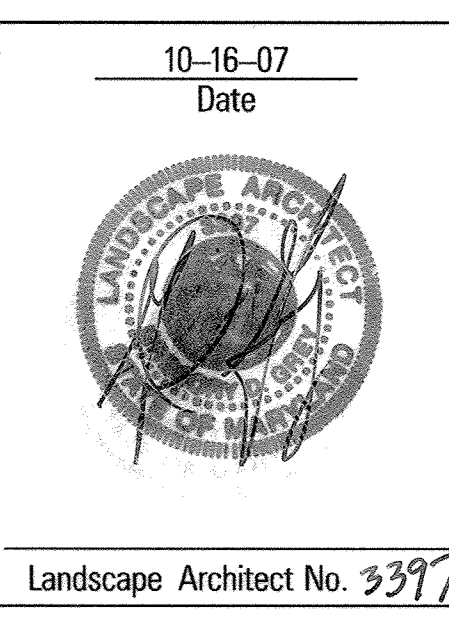
Date	No.	Revision Description

BELLE HAVEN ESTATES
 LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O,
 NON-BUILDABLE BULK PARCEL P
 TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
 ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER
 Union Chapel Road, LLC
 5025 Chevrolet Drive
 Suite 5
 Ellicott City, MD 21042
 Phone: (410) 461-5800

DMW
 Draft-McCune-Walker, Inc.
 200 East Pennsylvania Avenue
 Towson, Maryland 21286
 (410) 296-3333
 Fax 296-4705
 A Team of Land Planners,
 Landscape Architects,
 Engineers, Surveyors &
 Environmental Professionals

TITLE			
FOREST CONSERVATION PLAN			
Des. By	MJP	Scale	1" = 50'
Drn. By	MDT	Date	10/16/07
Chk. By	SFM	Approved	
Proj. No.			01067F
			69 of 74



AS-BUILT CERTIFICATION

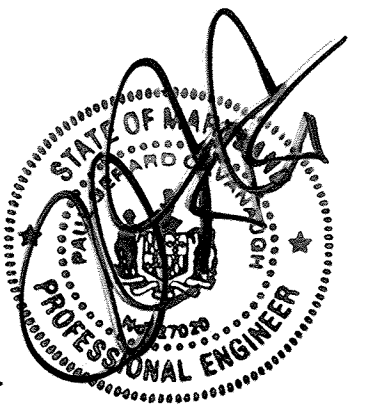
I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

SIGNED: PAUL G. CAVANAUGH DATE: 5/11/2018
 LICENSE No.: 21020 EXPIRATION DATE: 1/25/2020

HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD '83/2011 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 14FB

VERTICAL DATUM FOR THIS AS-BUILT SURVEY IS NORTH AMERICAN VERTICAL DATUM (NAVD) 1988 AS PROJECTED BY THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATION OR HOWARD COUNTY BENCH MARKS 14FB

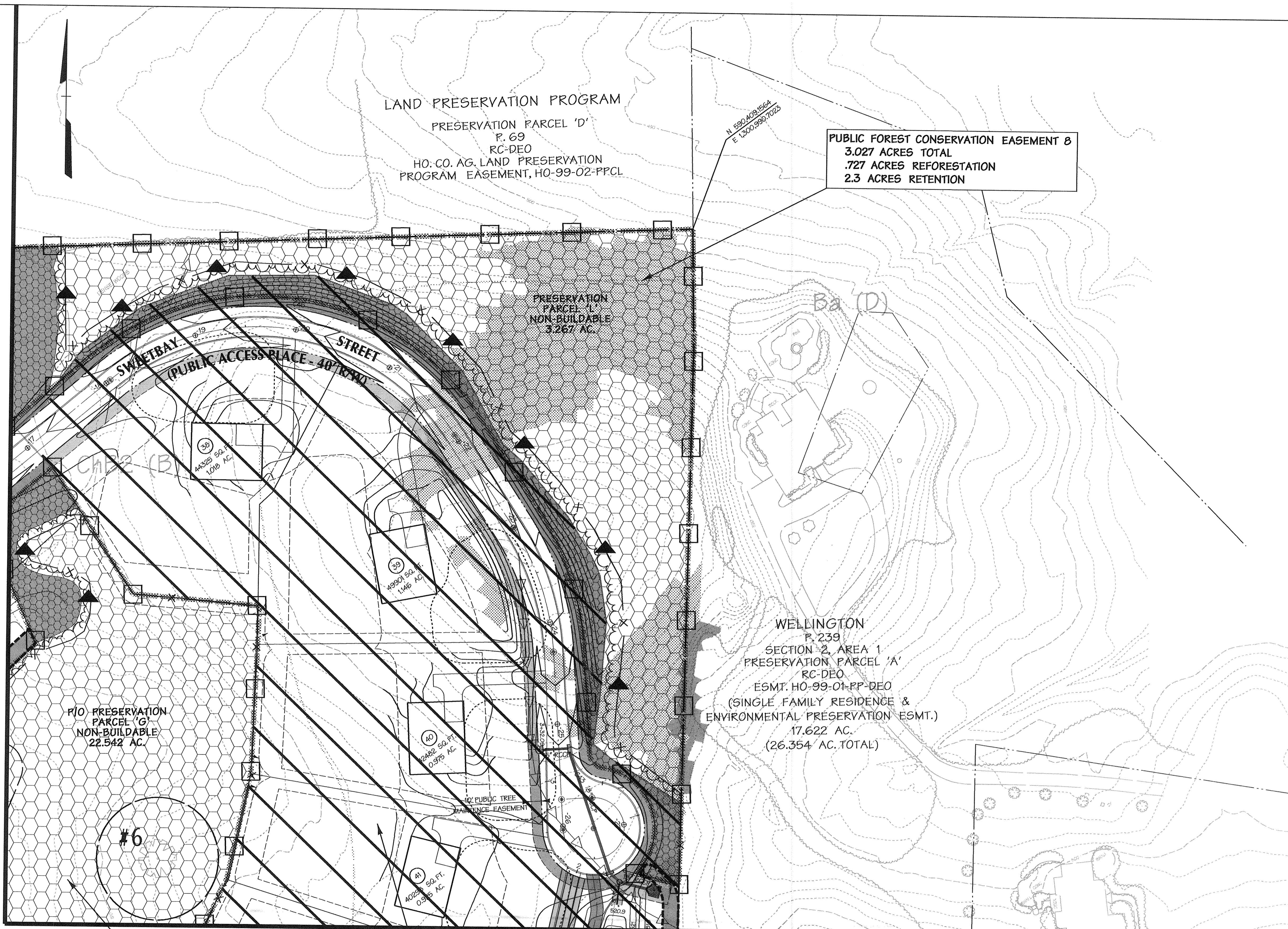
THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.



"BUILT PER PLAN"
 DATE: 5/11/2018

PUBLIC FOREST CONSERVATION EASEMENT 6
 22.440 ACRES TOTAL
 11.001 ACRES REFORESTATION
 11.439 ACRES RETENTION

MATCH LINE - SHEET 69



Legend

- WETLAND
- 25' WETLAND BUFFER
- WETLAND SYMBOL
- EX TREELINE
- SCRUB SHRUB LINE
- SPECIMEN TREES (LOCATION APPROX) W/ CRITICAL ROOT ZONE
- GIC2 SOIL DELINEATION
- 15' NO-WOODY VEGETATION ZONE
- TREE PROTECTION FENCING (OFFSET 5' FOR CLARITY)
- TEMPORARY TREE PROTECTION SIGNS
- EX MAJOR CONTOUR
- EX MINOR CONTOUR
- SLOPES BETWEEN 15% AND 25%
- SLOPES GREATER THAN 25%
- FOREST BUFFER SIGN
- FOREST CONSERVATION EASEMENT
- FOREST CLEARING
- REFORESTATION
- FOREST RETENTION
- PROP. LOT LINE
- PROP. REPLACEMENT WELL AREA
- PROP. WELL
- PROP. LOT LINES
- PROP. BUILDING RESTRICTION LINE
- PROP. SRA
- LOT NUMBER

DATA SOURCES:
 Boundary per DMW survey dated - September, 2003.
 Topo taken from low level flight and aerial survey prepared by Virginia Resource mapping, March 7, 2002.
 Adjacent septic systems approximated from adjacent plat and DMW field visits, July, 2001.
 Soils taken from Howard County Soil Survey, 1968.
 Surveyed Wetland and Stream limits as shown on approved Jurisdictional Determination Plan (CENAB-OP-RMS) 03-65273-11
 Existing forest edge taken from photogrammetry on March 7, 2002.

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
Walter R. ... 12-7-07
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Cathy ... 12/1/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

... 12/1/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date	No.	Revision Description

MATCH LINE - SHEET 73

P/O PUBLIC FOREST CONSERVATION EASEMENT 6

10.5 AC. PROPOSED FOREST CLEARING (CONT'D ON SHEET 73 OF 74)

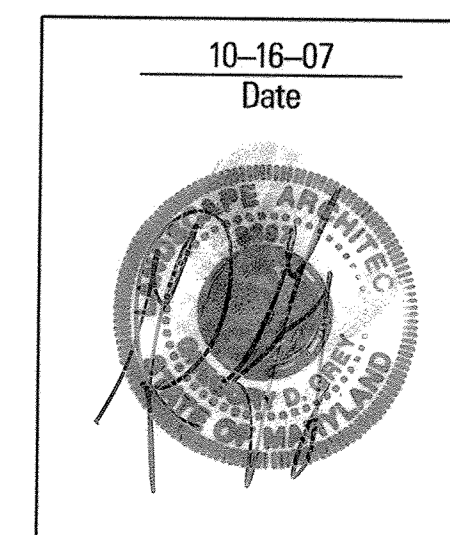
AS - BUILT CERTIFICATION

I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

SIGNED: PAUL G. CANANAUGH DATE: 5/11/2018
 LICENSE No.: 27020 EXPIRATION DATE: 1/25/2020

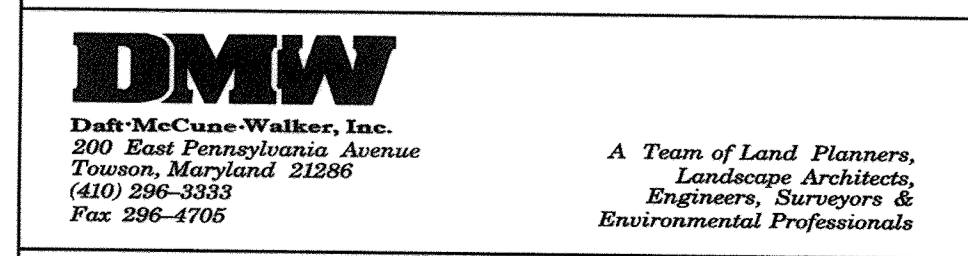
HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD '83/2011' AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 14FB
 VERTICAL DATUM FOR THIS AS-BUILT SURVEY IS NORTH AMERICAN VERTICAL DATUM (NAV) 1998 AS PROJECTED BY THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATION OR HOWARD CONTROL BENCH MARKS 14FB
 THE AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.

"BUILT PER PLAN" DATE: 5/11/2018



BELLE HAVEN ESTATES

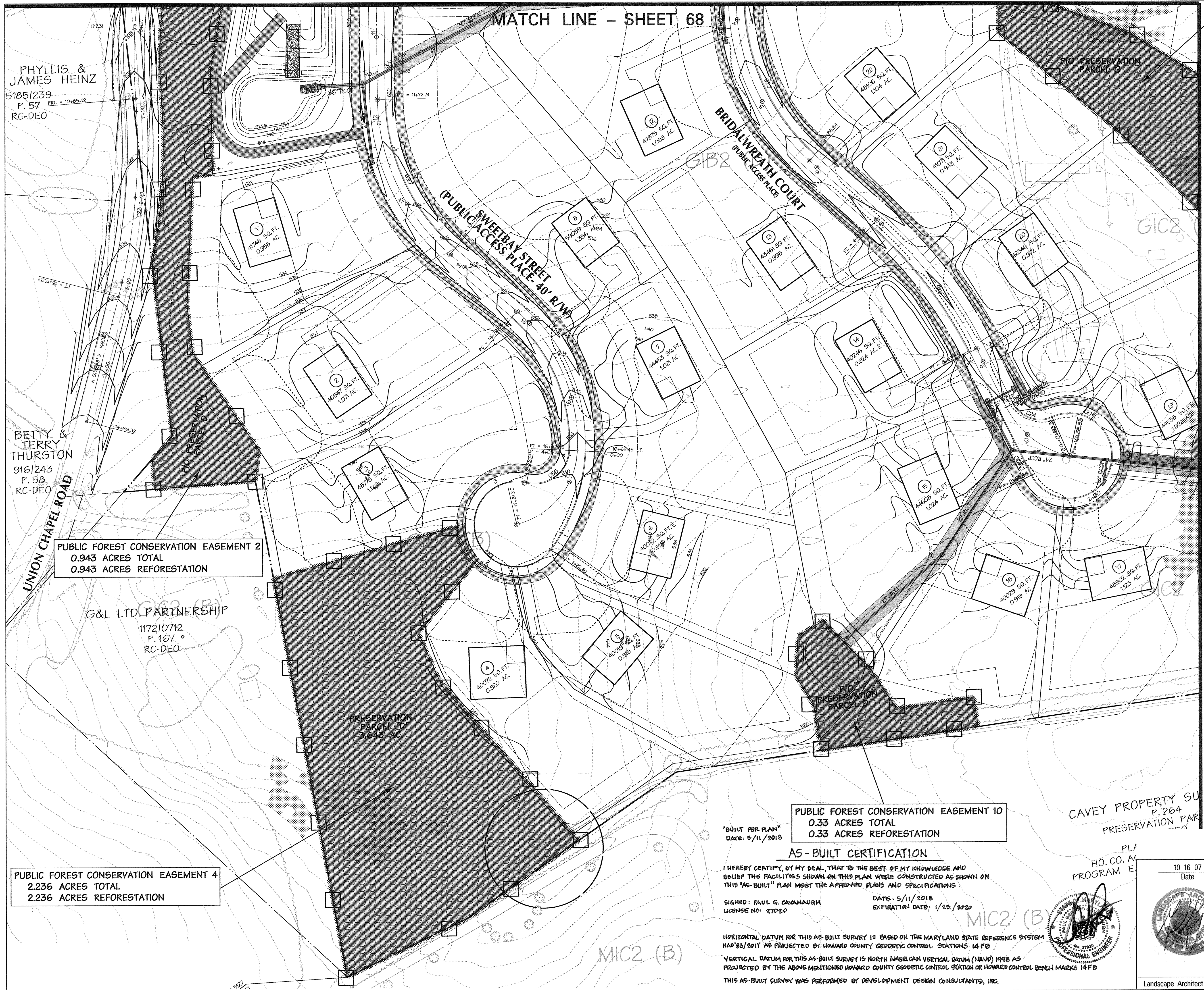
LOTS 1-48, NON-BUILDABLE PRESERVATION PARCELS A-O, NON-BUILDABLE BULKY PARCEL P
 TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND
 OWNER/DEVELOPER
 Union Chapel Road, LLC
 9025 Chevrolet Drive
 Suite K
 Elliotts City, MD 21042
 Phone (410) 461-5800



TITLE FOREST CONSERVATION PLAN

Des. By	MJP	Scale	1" = 50'	Proj. No.	01067F
Dwn. By	MDT	Date	10/16/07	70 of 74	
Chk. By	SFM	Approved			

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PHYLLIS & JAMES HEINZ
5185/239
P. 57
RC-DEO

BETTY & TERRY THURSTON
916/243
P. 58
RC-DEO

PUBLIC FOREST CONSERVATION EASEMENT 2
0.943 ACRES TOTAL
0.943 ACRES REFORESTATION

G&L LTD. PARTNERSHIP
1172/0712
P. 167
RC-DEO

PRESERVATION PARCEL D
3.643 AC.

PUBLIC FOREST CONSERVATION EASEMENT 4
2.236 ACRES TOTAL
2.236 ACRES REFORESTATION

PUBLIC FOREST CONSERVATION EASEMENT 10
0.33 ACRES TOTAL
0.33 ACRES REFORESTATION

"BUILT PER PLAN"
DATE: 9/11/2018

AS-BUILT CERTIFICATION

I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

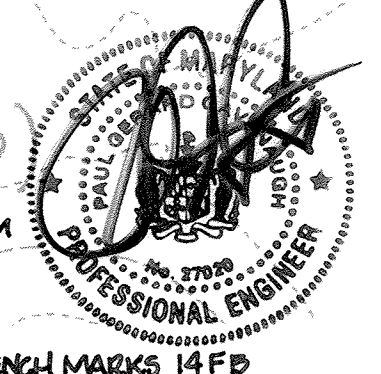
SIGNED: PAUL G. CANAUAUGH
LICENSE NO: 27020
DATE: 5/11/2018
EXPIRATION DATE: 1/25/2020

HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD'83/2011 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 14 FB

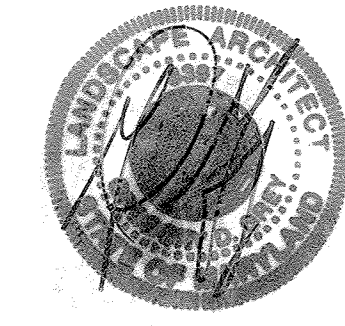
VERTICAL DATUM FOR THIS AS-BUILT SURVEY IS NORTH AMERICAN VERTICAL DATUM (NAVD) 1998 AS PROJECTED BY THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATION OR HOWARD CONTROL BENCH MARKS 14 FB

THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.

PLA
HO. CO. A
PROGRAM E



10-16-07
Date



Landscape Architect No. 3397

P/O PUBLIC FOREST CONSERVATION EASEMENT 6

Legend

- WETLAND
- 25' WETLAND BUFFER
- WETLAND SYMBOL
- EX. TREE LINE
- HEAD OF STREAM
- STREAM CENTER LINE
- STREAM BUFFER
- 100 YEAR FLOOD PLAIN
- SCRUB SHRUB LINE
- GIC2
- SOIL DELINEATION
- 15' NO-WOODY VEGETATION ZONE
- EX. MAJOR CONTOUR
- EX. MINOR CONTOUR
- SLOPES BETWEEN 15% AND 25%
- SLOPES GREATER THAN 25%
- FOREST BUFFER SIGN
- FOREST CONSERVATION EASEMENT
- FOREST CLEARING
- REFORESTATION
- FOREST RETENTION
- PROP. LOT LINE
- PROP. REPLACEMENT WELL AREA
- PROP. WELL
- PROP. LOT LINES
- PROP. BUILDING RESTRICTION LINE
- PROP. SKA
- LOT NUMBER

MATCH LINE - SHEET 72

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
Willie J. Smith 12-7-07
CHIEF, BUREAU OF HIGHWAYS
DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Andy Hunt 12/11/07
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE

William J. ... 12/11/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE

Date	No.	Revision Description

BELLE HAVEN ESTATES
LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O,
NON-BUILDABLE BULK PARCEL P
TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND
OWNER/DEVELOPER
Union Chapel Road, LLC.
9025 Chevrolet Drive
Suite K
Ellicott City, MD 21042
Phone: (410) 461-5900

DMW
Dale McCune-Walker, Inc.
200 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 296-3333
Fax 296-4705
A Team of Land Planners,
Landscape Architects,
Engineers, Surveyors &
Environmental Professionals

TITLE
FOREST CONSERVATION PLAN

Des. By	MJP	Scale	1" = 50'	Proj. No.	01067F
Drn. By	MDT	Date	10/16/07	71 of 74	
Chk. By	SFM	Approved			

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Legend

- WETLAND
- HEAD OF STREAM
- STREAM CENTER LINE
- 25' WETLAND BUFFER
- WETLAND SYMBOL
- EX. TREE LINE
- EX. TREELINE
- SCRUB SHRUB LINE
- SPECIMEN TREES (LOCATION APPROX) W/ CRITICAL ROOT ZONE
- GIC2
- SOIL DELINEATION
- 15' NO-WOODY VEGETATION ZONE
- TREE PROTECTION FENCING (OFFSET 5' FOR CLARITY)
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- SLOPES BETWEEN 15% AND 25%
- SLOPES GREATER THAN 25%
- FOREST BUFFER SIGN
- FOREST CONSERVATION EASEMENT
- FOREST CLEARING
- REFORESTATION
- FOREST RETENTION
- PROP. LOT LINE
- PROP. REPLACEMENT WELL AREA
- PROP. WELL
- PROP. LOT LINES
- PROP. BUILDING RESTRICTION LINE
- PROP. SRA
- LOT NUMBER

MATCH LINE - SHEET 73



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
With: 7.06.07 12-7-07
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Cindy Handman 12/11/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Mike Dorman 12/11/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date	No.	Revision Description

BELLE HAVEN ESTATES
 LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O,
 NON-BUILDABLE BULK PARCEL P
 TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
 ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND
 OWNER/DEVELOPER
 Union Chapel Road, LLC
 9025 Chevrolet Drive
 Suite K
 Ellicott: City, MD 21042
 Phone: (410) 461-5800

7-19-07
 Date

DMW
 Darrin McCaskey-Walkers, Inc.
 200 East Pennsylvania Avenue
 Towson, Maryland 21286
 (410) 286-3255
 Fax: 286-4705

A Team of Land Planners,
 Landscape Architects,
 Engineers, Surveyors &
 Environmental Professionals

TITLE: **FOREST CONSERVATION PLAN**

Des. By	MJP	Scale	1" = 50'	Proj. No.	01067F
Drn. By	MDT	Date	7/19/07	72 of 74	
Chk. By	SFM	Approved	Landscape Architect No. 3377		

AS-BUILT CERTIFICATION

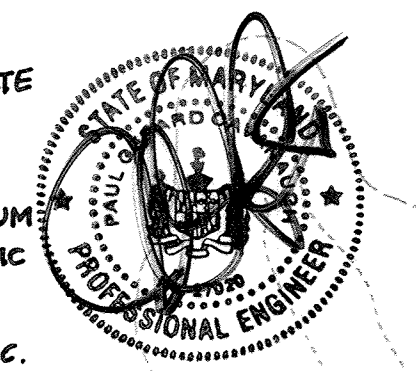
I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

SIGNED: PAUL G. CAVANAUGH DATE: 5/11/2018
 LICENSE NO: 27020 EXPIRATION DATE: 1/25/2020

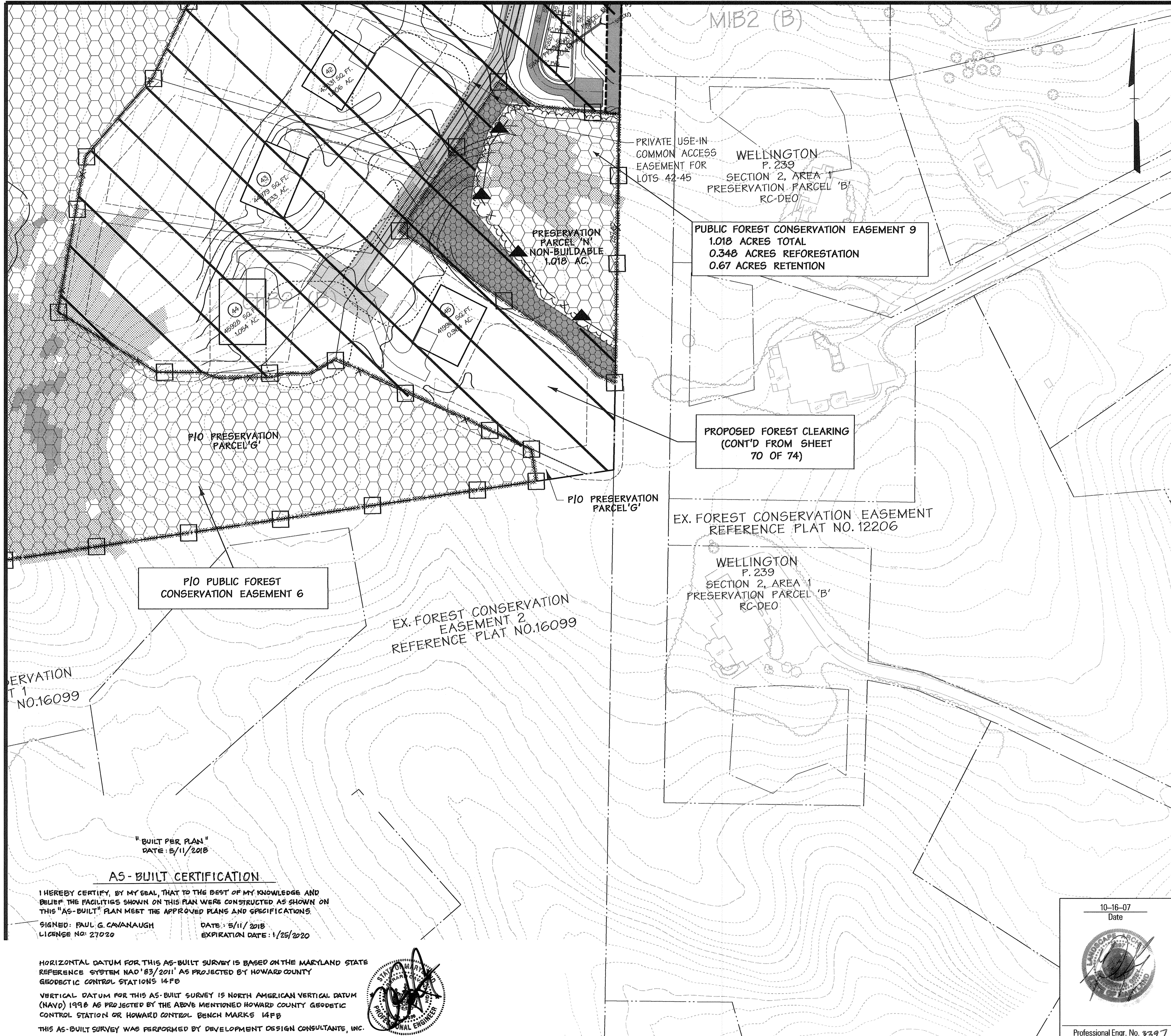
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THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.



m:\01067F\01067F\BelleHaven\01067F72.dwg 11 Nov 07 15:15:55 2007



Legend

- WETLAND
- 25' WETLAND BUFFER
- WETLAND SYMBOL
- EX. TREELINE
- HEAD OF STREAM
- STREAM CENTER LINE
- STREAM BUFFER
- 100 YEAR FLOOD PLAIN
- SCRUB SHRUB LINE
- SPECIMEN TREES (LOCATION APPROX) W/ CRITICAL ROOT ZONE
- GIC2 SOIL DELINEATION
- 15' NO-HOODY VEGETATION ZONE
- TREE PROTECTION FENCING (OFFSET 5' FOR CLARITY)
- TEMPORARY TREE PROTECTION SIGNS
- EX. MAJOR CONTOUR
- EX. MINOR CONTOUR
- SLOPES BETWEEN 15% AND 25%
- SLOPES GREATER THAN 25%
- FOREST BUFFER SIGN
- FOREST CONSERVATION EASEMENT
- FOREST CLEARING
- REFORESTATION
- FOREST RETENTION
- PROP. LOT LINE
- PROP. REPLACEMENT WELL AREA
- PROP. WELL
- PROP. LOT LINES
- PROP. BUILDING RESTRICTION LINE
- PROP. GRA
- LOT NUMBER

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
with 2 sub M
 CHIEF, BUREAU OF HIGHWAYS *nc* DATE 12-7-07

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Chris Hunter 12/11/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

John D... 12/11/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date	No.	Revision Description

BELLE HAVEN ESTATES
 LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O,
 NON-BUILDABLE BULK PARCEL P
 TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
 ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND
 OWNER/DEVELOPER
 Union Chapel Road, LLC
 9025 Chevrolet Drive
 Suite R
 Ellicott City, MD 21042
 Phone: (410) 461-6800

10-16-07
 Date

Professional Engr. No. 3397

"BUILT PER PLAN"
 DATE: 5/11/2018

AS-BUILT CERTIFICATION

I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS

SIGNED: PAUL G. CAVANAUGH DATE: 5/11/2018
 LICENSE NO: 27020 EXPIRATION DATE: 1/25/2020

HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD'83/2011 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 14FB

VERTICAL DATUM FOR THIS AS-BUILT SURVEY IS NORTH AMERICAN VERTICAL DATUM (NAVD) 1998 AS PROJECTED BY THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATION OR HOWARD CONTROL BENCH MARKS 14FB

THIS AS-BUILT SURVEY WAS PERFORMED BY DEVELOPMENT DESIGN CONSULTANTS, INC.

DMW Dawn MacCann-Walkers, Inc. 200 East Pennsylvania Avenue Towson, Maryland 21286 (410) 286-3333 Fax 286-4705				A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals	
TITLE FOREST CONSERVATION PLAN					
Des. By	MJP	Scale	1" = 50'	Proj. No.	01067F
Dwn. By	MDT	Date	10/16/07	73 of 74	
Chk. By	SFM	Approved			

STANDARDS AND SPECIFICATIONS FOR PLANTING

1. PLANT MATERIAL SELECTION

A. Nursery grown plant materials greater than 1" caliper should meet or exceed the requirements of the American Nurserymen Specifications, i.e. should be typical of the species and variety, have a normal habit of growth, be first quality, sound, vigorous, well-branched, have healthy, well-furnished root systems, and be free of disease, insect pests and mechanical injuries.
 B. Planting stock less than 1" caliper should meet the following standards:
 Seedling/whips:
 Hardwoods - 14" to 12" caliper with roots not less than 8" long
 Shrubs - 16" or larger caliper with 8" root system.

2. PLANTING SITE PREPARATION

Soils shall not be disturbed outside the area necessary for planting individual specimens and the removal of exotic invasive plant material. These areas should be stabilized as shown on the temporary seeding notes. At least two weeks prior to the proposed planting date, the contractor shall spot spray with Round-up, Ally or other approved herbicide to remove multiflora rose and other undesirable vegetation.

3. PLANTING PERIOD

All material shall be planted between September 15 and May 31. Material shall not be installed when ground is frozen.

4. PLANT MATERIAL STORAGE

Plants should be planted within 24 hours of delivery if possible. Plant material which are left unplanted for more than 24 hours shall be protected from direct sun and weather and kept moist. Nursery stock should not be left unplanted for more than two weeks.

5. ON-SITE INSPECTION

Prior to planting, planting stock shall be inspected by the landscape architect or other qualified professional familiar with this plan. Plant material not conforming to standard nurseryman specifications for size, form, vigor, roots, trunk wounds, insects and disease should be replaced.

6. TOPSOIL FOR PLANTING SOIL

A. On-site material or imported from same source as topsoil used on site for finish grading.

- 1. Uniform composition, free of subsoil, clay lumps, stones, stumps, roots or similar objects larger than 1 inch.
- 2. Topsoil must be free of plants or plant parts of bermudagrass, quackgrass, Johnsongrass, nutsedge, poison ivy, Canada thistle, or others as specified.
- 3. All topsoil shall be tested by a recognized laboratory for pH and soluble salts. A pH of 4.5 to 7.5 is required. Soluble salts shall not be higher than 500 parts per million.

7. ADDITIVE FOR BACKFILL MIX

A. Wood Residuals:

- 1. Source shall be well composted, not chemically treated.
- 2. Physical properties - grading:

U.S. Sieve	Dry Weight Percent Passing
No. 4	100
No. 10	95 - 100
No. 30	90 - 100
No. 35	65 - 100
No. 60	0 - 50
No. 140	0 - 20
No. 270	0 - 7

3. Organic content by ash analysis: 90 - 100 percent dry weight

4. Chemistry:

Range	Nil - 3.5
a. Saturation Extract Conductivity (EC)	Nil - 3.5
b. Reaction (pH)	3.0 - 5.5

5. Salinity: Maximum saturation extract conductivity 1.0 millimhos per cm at 25 degrees centigrade.

B. Sand

1. Physical Properties - Grading:

U.S. Sieve	Dry Weight Percent Passing
No. 4	100
No. 10	95 - 100
No. 30	90 - 100
No. 35	65 - 100
No. 60	0 - 50
No. 140	0 - 20
No. 270	0 - 7

2. Chemistry:

Saturation Extract Conductivity (EC)	Nil - 3.0
Sodium Absorption Ratio (SAR)	Nil - 6.0
Boron - ppm in saturation extract solution	Nil - 1.0
Reaction (pH)	6.0 - 7.5
Available calcium - sodium acetate extractable - ppm	Nil - 2000
dry weight	

C. Treble Superphosphate: Commercial product containing 19 to 20 percent available phosphoric acid.

8. MULCH

A. Shredded long fiber hardwood.

B. Mulch shall have been shredded within the last six (6) months.

9. PLANTING MIX

A. Planting mix shall be prepared at approved on-site staging area using approved on-site existing soil. Mix minimum quantities of 20 cubic yards or sufficient mix for entire job if less than 20 cubic yards is required.

B. Thoroughly mixed in the following proportions for tree and shrub planting mix:

- 5 cy Existing soil
- 2 cy Sharp sand
- 3 cy Wood residuals
- 4.5 lbs. treble superphosphate
- 5 lbs. Dolomite limestone (eliminate for acid loving plants)

10. LAYOUT AND EXCAVATION OF PLANTING AREAS

A. Plants shall be placed in each zone at random locations shown at spacing as indicated on the plan.

B. The Landscape Architect or qualified professional will check location of plants in the field and shall adjust to exact position before planting begins.

C. Subsoil shall not be worked when moisture content is so great that excessive compaction will occur, nor when it is so dry that clods will not readily break. Water shall be applied, if necessary, to bring soil to an optimum moisture content before tilling and planting.

D. Tree pits shall not be excavated more than 24 hours in advance of planting operation. Tree pits shall be excavated to the following dimensions:

Excavation for	Width	Depth
Canned Trees	Can + 12 in.	Can + 4 in.
B&B Trees	Ball + 12 in.	Ball + 4 in.

E. Excavate shrub pits to the following depths:

Excavation for	Width	Depth
Shrubs	Ball or Can + 8 in.	Can + 4 in., not less than 12 in.

11. PREPARING PLANT MATERIALS FOR PLANTING

A. Container stock shall be removed carefully after cans have been cut on two sides with approved cutter. Do not use spade to cut cans. Do not lift or handle container plants by tops, stems or trunks at any time.

B. Do not bind or handle any plant with wire or rope at any time so as to damage bark or break branches. Lift and handle plants only from bottom of ball.

C. Balled and burlapped (B&B) plants shall have firm balls of earth. Plants moved with a ball will not be accepted if the ball is cracked or broken before or during planting operations. B&B material shall be dug only when dormant. Pre-dug stored B&B material shall be inspected and approved at the storage site.

D. Do not force roots for bare rooted trees into excavated pits - custom dig pits to receive roots without deformation.

12. MIXING

A. Mix soil base, amendments and chemical additives by mechanical means.

B. Soil and sand bases shall be completely pulverized and free of lumps or aggregated material. Moisture content of base materials shall not be such that chemical granular or pelletized additives become dissolved during the mixing process.

C. Mix media in quantities of not less than 20 cubic yards or mix total quantity required if less than 50 cubic yards. The Contractor shall be responsible for continuity between batches.

D. Contaminating backfill mix with unmixed soil in backfill mixing lots shall be avoided.

13. INSTALLATION OF CONTAINERIZED PLANT MATERIAL

A. Scarify the walls and bottom of all plant pits immediately prior to the placement of plant and backfill mix. The Contractor shall remove all glazing of soil caused by an auger or mechanical hole digger.

B. Wells around trees and shrubs: after planting is complete, form a soil well 3 inches high around each plant, extending to the outer limit of the plant pit in accordance with planting details shown on the Drawings.

C. Smooth planted areas to conform to specified grades after full settlement as occurred. Contractor shall bear final responsibility for proper surface drainage of planted areas. Any discrepancy in the drawings or specifications, obstructions on the site or prior work done by another party, which Contractor feels precludes establishing proper drainage, shall be brought to the attention of the Landscape Architect in writing.

D. Water all plants immediately again after planting.

E. Spread mulch in required areas to the compacted depth of 2 inches.

14. Maintenance by the Contractor

A. A 2-year Contractor's Maintenance and Monitoring Period shall be at mobilization. Seventy-five percent survivorship must be guaranteed for this period. The Site shall be inspected at the end of the two year period to ascertain survivorship and provide for replacement if necessary.

B. The Contractor's maintenance of new planting shall consist of watering, cultivating, weeding (and spot spraying with an approved herbicide as needed to control multiflora rose), mulching, and removing invasive vegetation as necessary to insure survival. The Contractor shall maintain and protect plantings from herbivory using Ropel or other approved herbicide deterrent as necessary to insure survival.

C. Protect planting area and plants at all times against damage of all kinds for duration of maintenance period. Maintenance includes temporary protection barriers and signs as required for protection. If any plants become damaged or injured, because sufficient protection was not provided, treat or replace as directed by Landscape Architect at no additional cost to Owner.

GUARANTEE: A MINIMUM SURVIVAL RATE OF 75% IS TO BE GUARANTEED BY THE CONTRACTOR AT THE END OF THE TWO YEAR MAINTENANCE PERIOD.

PRECONSTRUCTION MEETING/CONSTRUCTION PERIOD PRACTICES

Before construction begins, a required preconstruction meeting shall be held. The principle contractors, engineer, Howard County inspectors and a qualified forest professional familiar with the plan shall be present. All items pertaining to forest retention, tree preservation, and construction period practices shall be discussed.

Any changes to the plan due to on-site conditions must be approved by the Howard County Department of Planning and Zoning.

POST CONSTRUCTION MANAGEMENT/MAINTENANCE BY CONTRACTOR

All dead trees or tree limbs which pose an immediate safety hazard will be felled. Trees dropped within the forest retention area will not be removed.

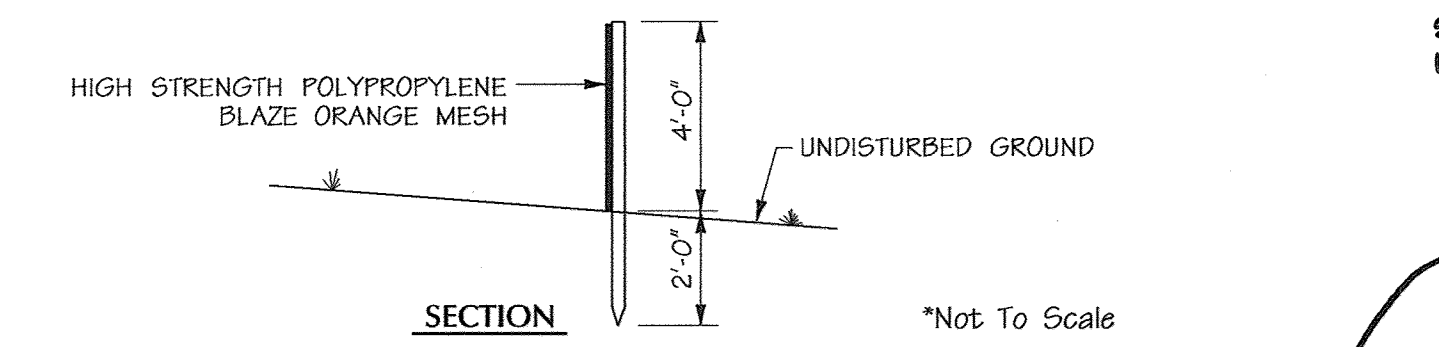
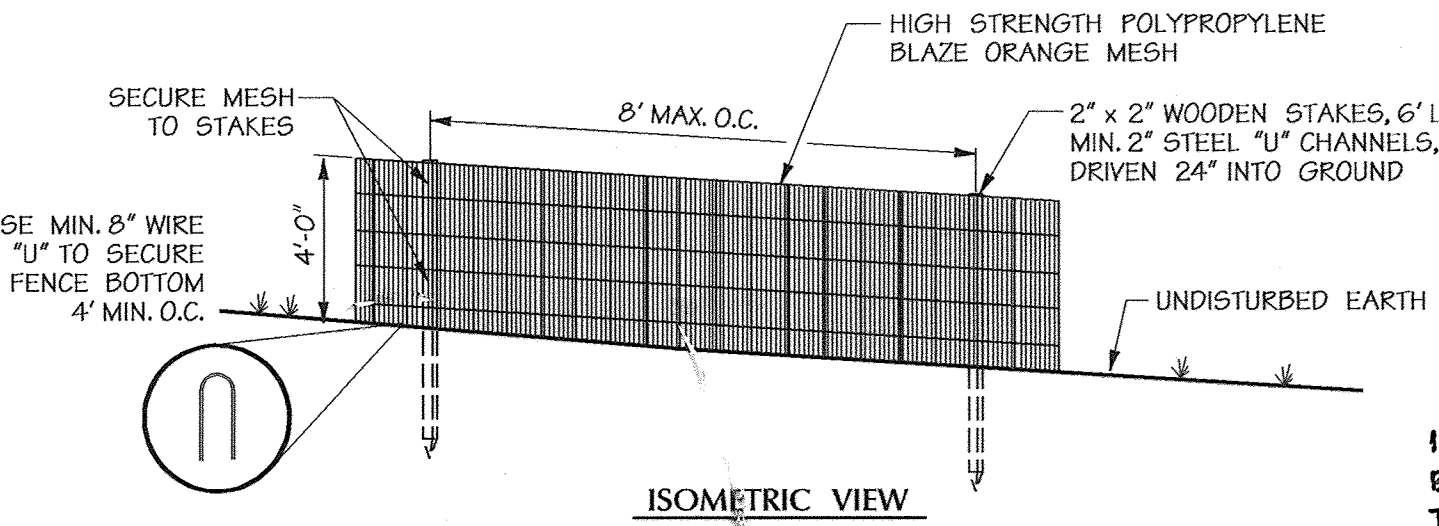
All temporary forest protection structures will be removed after construction and permanent signage will be placed where indicated on the plan.

A 2-year Contractor's Maintenance and Monitoring Period shall begin at mobilization. Seventy-five percent survivorship must be guaranteed for this period. The site shall be inspected at the end of the two year period to ascertain survivorship and provide for replacement if necessary.

The Contractor's maintenance of new planting shall consist of watering, cultivating, weeding, and mulching as necessary to insure survival.

Contractor shall protect planting areas and plants at all times against damage of all kinds for duration of maintenance period. Maintenance includes temporary protection barriers and signs as required for protection. If any plants become damaged or injured, because sufficient protection was not provided, treat or replace as directed by Landscape Architect at no additional cost to Owner.

REFORESTATION AREAS SHOWN ON THIS PLAN TO BE PLACED IN FOREST CONSERVATION EASEMENT WITH PERMANENT FOREST PROTECTION SIGNS PLACED AT 50' TO 100' INTERVALS AROUND EASEMENTS.



- NOTES:
1. THIS DETAIL IS FOR FOREST PROTECTION DEVICE ONLY.
 2. FOREST RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
 3. BOUNDARIES OF FOREST RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING THE DEVICE.
 4. ROOT DAMAGE SHALL BE AVOIDED.
 5. PROTECTION SIGNAGE MAY ALSO BE USED.
 6. FOREST PROTECTION FENCE SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.

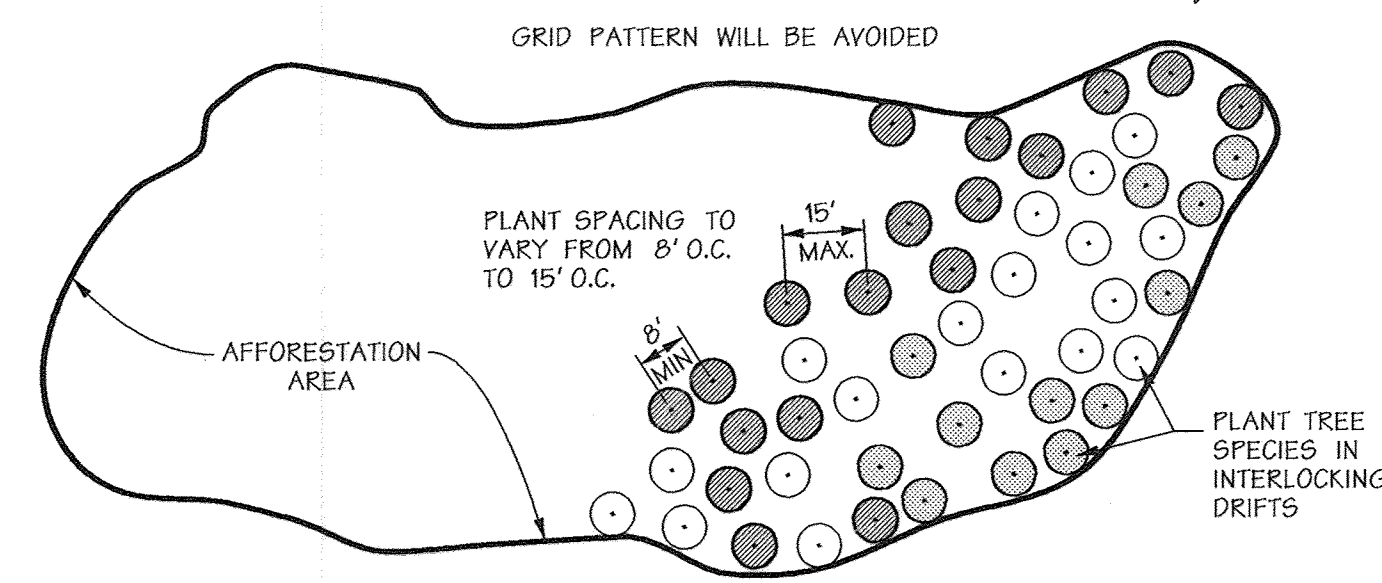
Forest Protection Fence

"BUILT PER PLAN"
DATE: 5/11/2018

Specimen Tree Protection Signage AS-BUILT CERTIFICATION

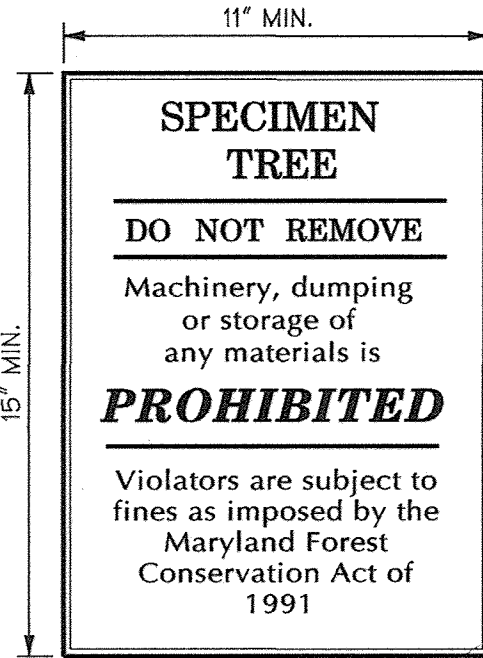
I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

SIGNED: PAUL G. CAVANAUGH DATE: 5/11/2018
LICENSE NO: 27020 EXPIRATION DATE: 1/25/2020



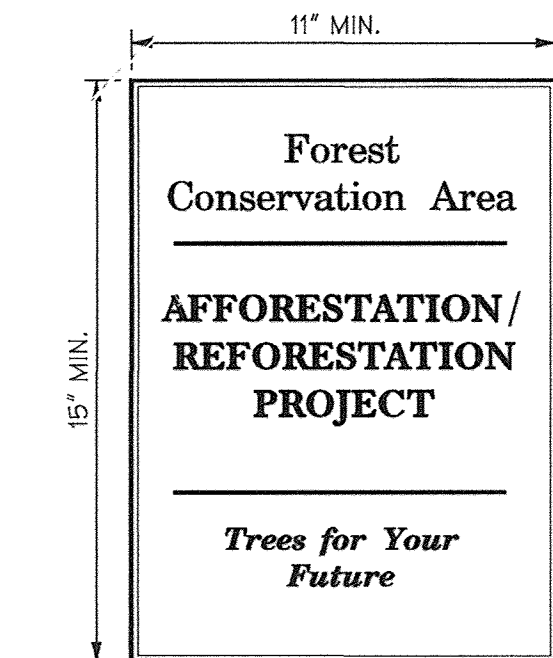
Planting Design Schematic

Whip plantings should be installed in a curvilinear pattern to facilitate maintenance but avoid a grid appearance. Tree shelters should be installed on all whip plantings.



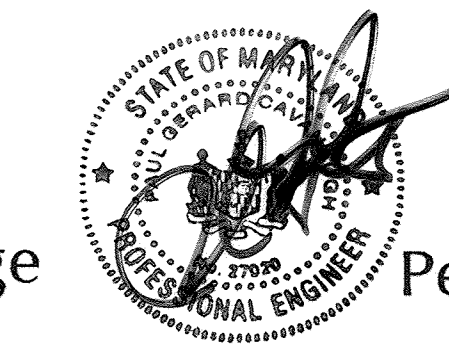
Note to Contractor:

Zone I species shall be planted within wetlands. Zone II species shall be planted within wetland buffers and floodplains. Zone III species shall be planted on all remaining uplands. Maintenance is required to remove and control exotic, invasive herbaceous and shrub species throughout the planting areas. Tree shelters shall be used.



SIGNS TO BE PLACED ON METAL POSTS 5'± ABOVE FINISH GRADE PRIOR TO PLANTING. PLACE SIGNS EVERY 100' AROUND PERIMETER OF FOREST CONSERVATION AREA.

*Not To Scale



Permanent & Temporary Signage

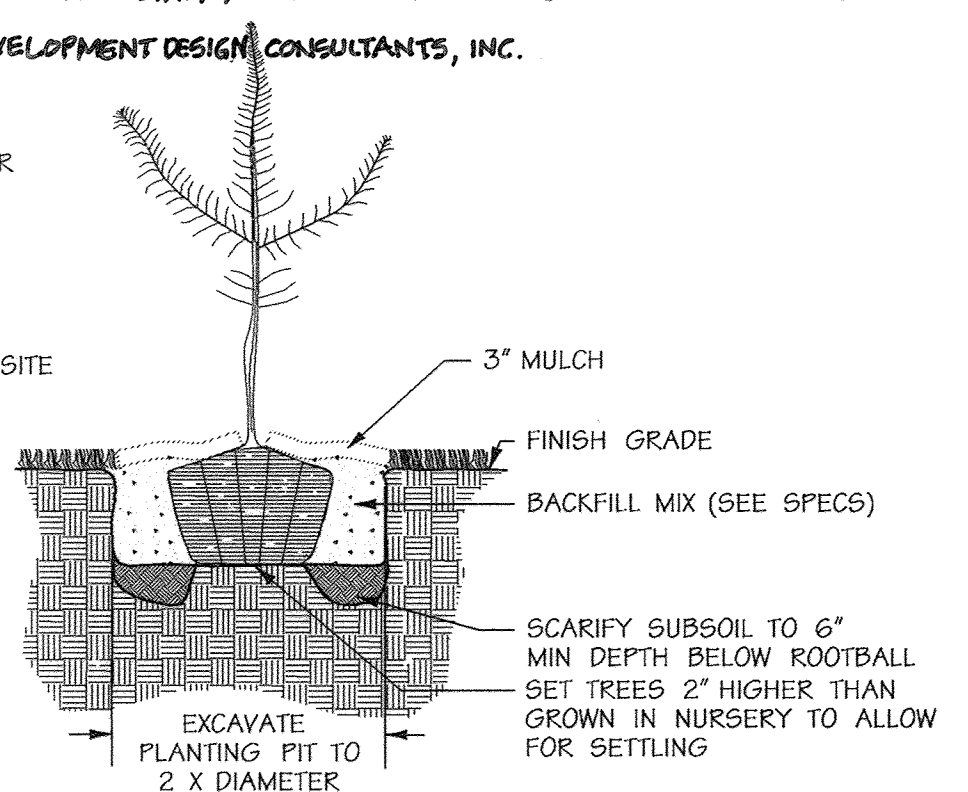
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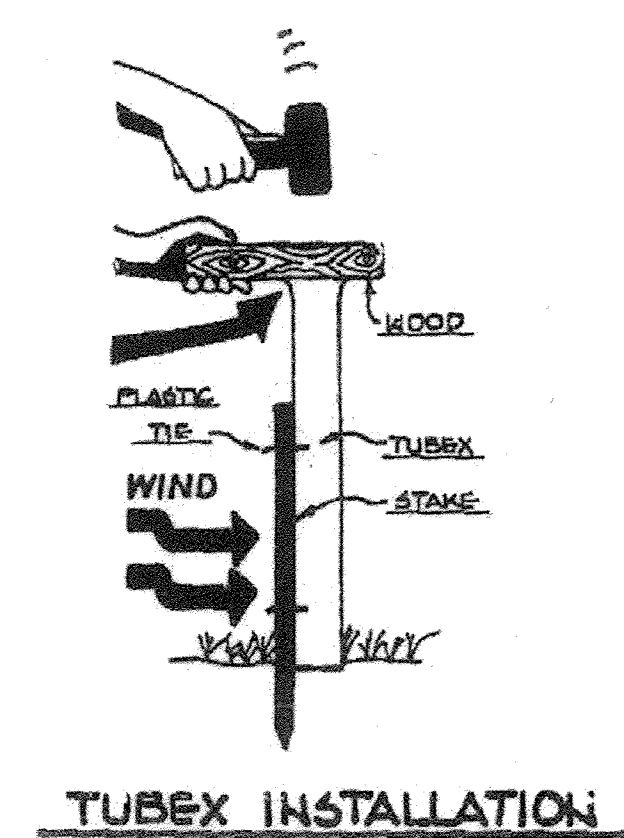
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PLANTING PROCEDURES FOR ALL CONTAINER GROWN TREES AND SHRUBS:

1. REMOVE THE PLANT EITHER BY CUTTING OR INVERTING THE CONTAINER.
2. GENTLY LOOSEN ROOTS FROM SOILS. ROOTS MAY NOT BE CUT OR TRIMMED ON SITE.
3. PLANT SHRUB OR TREE 1 TO 2 INCHES ABOVE THE EXISTING GRADE.
4. APPLY 2 TO 3 INCH THICK LAYER OF SHREDDED HARDWOOD MULCH.



Typical Tree Planting (For container grown whips) Not To Scale



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
 With 2.01/14
 CHIEF, BUREAU OF HIGHWAYS
 DATE: 12-7-07

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 12/11/07

CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 12/11/07

Date	No.	Revision Description

BELLE HAVEN ESTATES

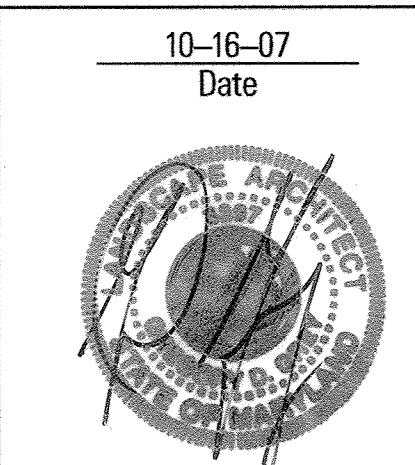
LOTS 1-46, NON-BUILDABLE PRESERVATION PARCELS A-O,
 NON-BUILDABLE BULK PARCEL P
 TAX MAP 14, GRID 20, PARCEL 66, ZONE RC-DEO
 ELECTION DISTRICT NO.3 HOWARD COUNTY, MARYLAND
 OWNER/DEVELOPER
 Union Chapel Road, LLC
 9025 Chevrolet Drive
 Suite K
 Ellicott City, MD 21042
 Phone: (410) 461-5800

DMW
 David McCreary Walker, Inc.
 200 East Pennsylvania Avenue
 Towson, Maryland 21286
 (410) 286-3333
 Fax 298-4705

A Team of Land Planners,
 Landscape Architects,
 Engineers, Surveyors &
 Environmental Professionals

TITLE FOREST CONSERVATION PLAN SPECIFICATIONS and DETAILS

Des. By	MJP	Scale	NONE	Proj. No.	01067F
Dwn. By	MDT	Date	10/16/07	74 of 74	
Chk. By	SFM	Approved			



Landscape Architect No. 3397