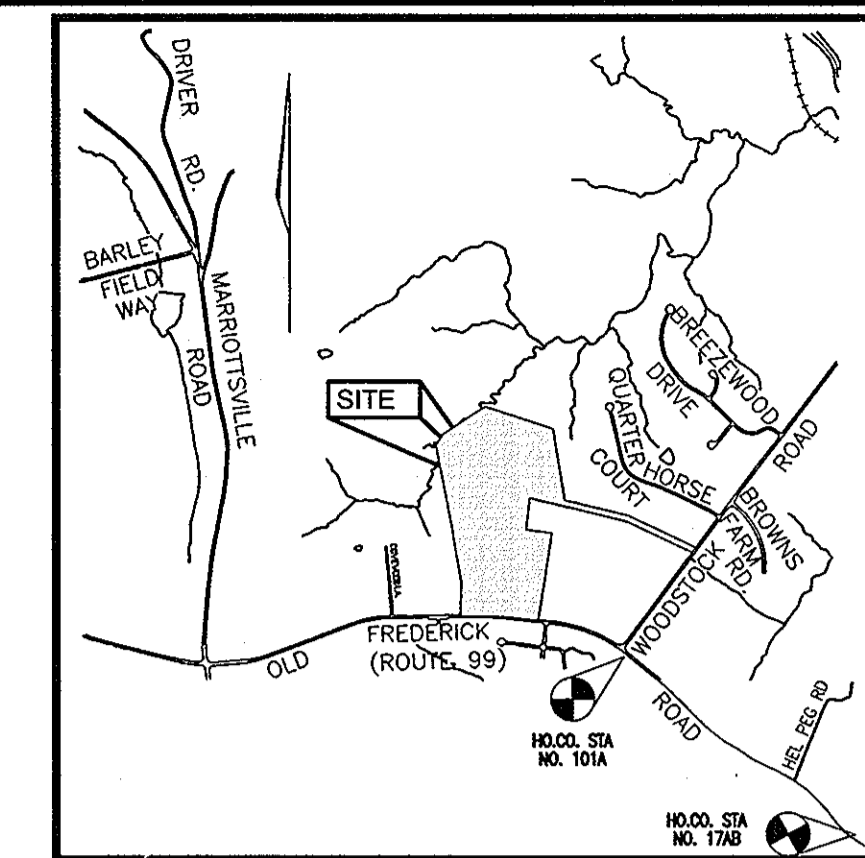


SHEET INDEX	
SHEET NO.	TITLE
1	COVER SHEET
2	FINAL ROAD PROFILE
3	FINAL ROAD PROFILE
4	FINAL ROAD PROFILE
5	FINAL GRADING & SEDIMENT CONTROL PLAN
6	FINAL GRADING & SEDIMENT CONTROL PLAN
7	FINAL GRADING & SEDIMENT CONTROL PLAN
8	SEDIMENT EROSION CONTROL DETAILS
9	STORM DRAIN DRAINAGE AREA MAP
10	STORMDRAIN PROFILES
11	STORMWATER MANAGEMENT DETAILS
12	STORMWATER MANAGEMENT DETAILS
13	LANDSCAPE PLAN
14	FOREST CONSERVATION PLAN
15	FOREST CONSERVATION DETAILS
16	RETAINING WALL
17	RETAINING WALL
18	RETAINING WALL
19	RETAINING WALL
20	TRAFFIC STRIPING PLAN
21	TRAFFIC STRIPING PLAN

FINAL ROAD CONSTRUCTION PLANS

THE PRESERVE AT WAVERLY GLEN

LOTS 1-21, PRESERVATION PARCELS A-F AND NON-BUILDABLE BULK PARCEL G A RESUBDIVISION OF LOTS 1 & 2 AND PARCEL A OF SHADOW SHADE PLAT NO. 13808 AND LOT 1 OF HIGHPOINT AT BREEZEWOOD FARMS PLAT NO. 6385 HOWARD COUNTY, MARYLAND



VICINITY MAP
SCALE: 1"=2000'

BENCHMARKS

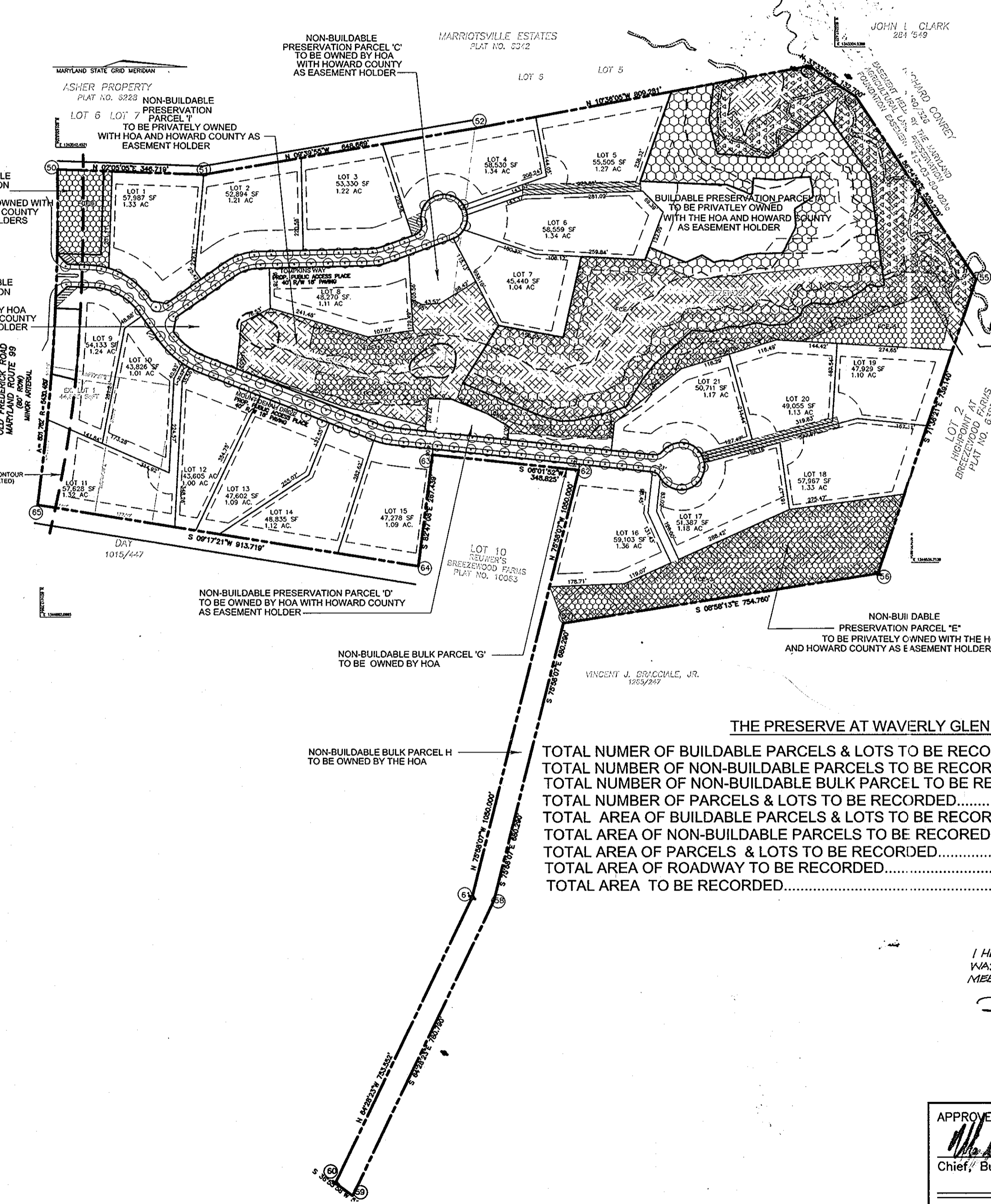
10A	N 600,995.172	E 1,345,340.347
10HA	N 601,206.897	E 1,340,912.465

SITE DATA

LOCATION: TAX MAP 10, PARCELS '309' & '102'
4TH ELECTION DISTRICT
EXISTING ZONING: RC-DEO
GROSS AREA OF PARCEL: 2,158,354 SQ. FT. (49.55 ACRES)
AREA OF RIGHT OF WAY: 11,194,200 SQ. FT. (257 ACRES)
AREA OF EX FLOODPLAIN: 92,019 SQ.FT. (2.12 ACRES)
AREA OF STEEP SLOPES (NOT LOCATED IN FLOOD PLAIN): 132,279 SQ. FT. (3.04 ACRES)
NET AREA OF PROJECT: 2,065,920.40 SQ. FT. (47.43 ACRES)
NUMBER OF PROPOSED RESIDENTIAL LOTS/PARCELS: 22
AREA OF PROPOSED RESIDENTIAL LOTS 1-21: 1,089,435.6 SQ. FT. (25.01 ACRES)
AREA OF PROPOSED BUILDABLE PRESERVATION PARCEL 'A': 554,400.0 SQ. FT. (12.73 ACRES)
AREA OF PROPOSED NON-BUILDABLE PRESERVATION PARCELS 'B', 'C', 'D', 'E', 'F' & 'G': 1,320,379.4 SQ. FT. (7.35 ACRES)
AREA OF PROPOSED NON-BUILDABLE BULK PARCEL 'G', 'H': 818,870.0 SQ. FT. (1.88 ACRES)
NUMBER OF PROPOSED PRESERVATION PARCELS: 7
TOTAL APPROXIMATE LIMIT OF DISTURBANCE: 250,034 SF ± (5.74 AC.)

GENERAL NOTES

- ALL ASPECTS OF THE PROJECT ARE IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.
- DEED REFERENCE: 3419/444 (PARCEL 7), 1453/747 (PARCEL 1304)
- THE PROJECT BOUNDARY IS BASED ON A BOUNDARY SURVEY PREPARED BY VOGEL & ASSOCIATES DATED MARCH 2001
- THE TOPOGRAPHY SHOWN HEREON IS BASED ON AN AERIAL PREPARED BY POTOMAC AERIAL SURVEYS DATED 4/14/01.
- WATER AND SEWER FOR THIS PROJECT WILL BE PRIVATE.
- STORMWATER MANAGEMENT TO BE PROVIDED FOR THE DEVELOPMENT. WATER QUALITY TO BE PROVIDED BY:
FACILITY NO. 1: A MICROPOOL EXTENDED DETENTION POND (HAZARD CLASS 'A') Cpv and Wqv.
FACILITY NO. 2: EXTENDED DETENTION OF WQ. (HAZARD CLASS 'A') Wqv only OWNED AND MAINTAINED BY H.O.A.
FACILITY NO. 3: A MICROPOOL EXTENDED DETENTION OF WQ. (HAZARD CLASS 'A') Wqv only OWNED AND MAINTAINED BY H.O.A.
- WETLANDS DELINEATED BY ECO-SCIENCES 09-27-00.
- THE FLOODPLAIN IS BASED ON F-86-13, HIGHPOINT AT BREEZEWOOD FARMS, LOTS 1 & 2, PLAT NO. 6385.
- FOREST STAND DELINEATION PLAN PREPARED BY FREDERICK WARD ASSOCIATES DATED JULY, 21 2001.
- APFD TRAFFIC STUDY PREPARED BY THE TRAFFIC GROUP DATED 2-22-01.
- THERE IS NO GRADING OR DISTURBANCE WITHIN STEEP SLOPES ON SITE WITH A CONTIGUOUS AREA OF 20,000 SF OR GREATER.
- ALL LANDSCAPING REQUIREMENTS AS SET FORTH IN THE LANDSCAPE MANUAL SHALL BE COMPLIED WITH.
- STREET LIGHTING IS NOT REQUIRED FOR THIS SITE.
- THE STORMWATER MANAGEMENT SYSTEM SHOWN ON THIS PLAN IS AN APPROXIMATION OF ITS ULTIMATE SIZE AND SHAPE. IT IS UNDERSTOOD THAT THIS SYSTEM HAS NOT BEEN FINAL DESIGNED AND ITS SIZE AND SHAPE MAY CHANGE ALTERING THE NUMBER OF UNITS ALLOCATED FOR THIS DEVELOPMENT.
- THIS PROPERTY IS NOT WITHIN THE METROPOLITAN DISTRICT.
- TO THE BEST OF THE OWNERS KNOWLEDGE, THERE ARE NO BURIAL/CEMETERY LOCATIONS ON SITE.
- TRASH COLLECTION AND RECYCLING WILL BE CURBSIDE PICKUP AT COUNTY ROADWAY.
- A NOISE STUDY WAS PREPARED BY ROBERT H. VOGEL, DATED SEPTEMBER 2002. THE NOISE CONTOUR IS BASED ON THE PROJECTED 2020 TRAFFIC STUDY.
- DENSITY: NUMBER OF ENTITIES PERMITTED BY RIGHT: 49.55/4.25 = 11
MAXIMUM RECEIVING YIELD: 44.4/2 = 22; THE PRESERVE AT WAVERLY GLEN, DENSITY-RECEIVING PLAT, TAX MAP 10, BLOCK 23, PARCELS 304 & 102 PLAT NO. RE-03-06
NUMBER OF BUILDABLE ENTITIES PROPOSED: 21 LOTS & 1 PRESERVATION PARCEL = 22
NUMBER OF DEO UNITS NEEDED: 22-11 = 11; 5 DEOS FROM THE DIPUOLA SENDING PLAT, TAX MAP 6, BLOCK 16, PART OF PARCEL 60, PLAT NO F-00-50; 6 DEOS FROM THE ERDMAN SENDING PLAT, TAX MAP 28, BLOCK 5, PARCEL 76, PLAT NO. RE-03-06
- AS A CONSEQUENCE OF ITS SUBMISSION FOR COUNTY REVIEW PRIOR TO NOVEMBER 15, 2001, THIS PROJECT IS SUBJECT TO COMPLIANCE WITH THE FOURTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. IN ADDITION, BECAUSE IT DID NOT HAVE PRELIMINARY APPROVAL PRIOR TO NOVEMBER 1, 2001, IT IS SUBJECT TO COMPLIANCE WITH COUNTY COUNCIL BILL 50-2001 WHICH AMENDS PORTIONS OF THE ZONING REGULATIONS.
- THE EXISTING DRIVEWAY FROM WOODSTOCK ROAD WILL BE REMOVED WEST OF LOT 10 OF REWHER'S BREEZEWOOD FARMS, PLAT NO. 10063
- THE FOREST CONSERVATION EASEMENT TO BE RECORDED AS PART OF SHADOW SHADE, PLAT NO. 13808 WILL NOT BE RETAINED AS PART OF THIS SUBDIVISION.
- PRESERVATION PARCELS "A", "E", "F" & "I" TO BE PRIVATELY OWNED WITH THE HOA AND HOWARD COUNTY AS EASEMENT HOLDERS. PRESERVATION PARCELS "B", "C", & "D" ARE TO BE OWNED BY THE HOA WITH HOWARD COUNTY AS THE EASEMENT HOLDER. NON-BUILDABLE BULK PARCEL "G" & "H" TO BE OWNED BY THE HOA FOR THE PURPOSE OF SUPPORTING SIDE SLOPE GRADING FOR DENALI DRIVE. PRESERVATION PARCEL "A" TO BE A BUILDABLE ENVIRONMENTAL PRESERVATION PARCEL. PRESERVATION PARCEL "E" TO BE USED TO PRESERVE ENVIRONMENTALLY SENSITIVE RESOURCES. PRESERVATION PARCELS "B", "C" & "D" ARE TO ENCOMPASS STORMWATER MANAGEMENT FACILITIES. THE 5 DENSITY RECEIVING SUBDIVISION WILL BE FULFILLED IN THE CREATION OF PRESERVATION PARCELS "B", "C" & "D".
- FOREST CONSERVATION PLAN PREPARED BY DNR QUALIFIED PROFESSIONAL LARRY J. THOMPSON, DATED JULY 2004.
- PLANNING AND ZONING FILE NUMBERS: S-02-03, F-99-25, F-86-13, P-03-02.
- SEDIMENT AND EROSION CONTROL WILL BE PROVIDED FOR THIS SITE.
- FOREST CONSERVATION REQUIREMENTS PER SECTION 16.1202 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL FOR THIS SUBDIVISION WILL BE FULFILLED BY THE RETENTION OF EXISTING FOREST IN THE AMOUNT OF 6.46 AC. AND REFORESTATION OF 5.91 AC. FOR A TOTAL FOREST CONSERVATION OBLIGATION AREA OF 12.75 AC.
RETENTION OF 6.46 ACRES (281,389 SF X 0.20).....\$56,280
PLANTING TREES IN UNFORESTED SWM CREDIT AREAS AND OTHER REFORESTATION AREAS, TOTAL 5.91 ACRES (287,440 SF X 0.50).....\$128,720
THE REMAINING 0.38 AC OF REFORESTATION WILL BE SATISFIED THROUGH FEE-IN-LIEU IN THE AMOUNT OF (16,553 SF X 0.50) \$8,277
FINANCIAL SURETY IN THE AMOUNT OF \$185,000 WILL BE PAID WITH THE FC MAINTENANCE AGREEMENT. THE SURETY AMOUNT IS SUBJECT TO THE FINAL PLAN APPROVAL.
- STREET TREES ARE REQUIRED FOR THIS SUBDIVISION IN ACCORDANCE WITH SECTION 16.124(e)(1) OF THE SUBDIVISION REGULATIONS AND THE LANDSCAPE MANUAL.
- LOTS 18-20 AND 5-6 & PRESERVATION PARCEL A WILL UTILIZE A USE-IN-COMMON DRIVEWAY. HOWARD COUNTY STANDARD DETAIL NO. R-6.06 WILL BE UTILIZED FOR THE ENTRANCE AT THE INTERSECTION OF THE PUBLIC ROAD.
- TREE PROTECTION FENCING WILL BE PROVIDED AT THE LIMITS OF DISTURBANCE WHERE GRADING IS ADJACENT TO ENVIRONMENTAL AREAS.
- NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE WETLANDS, STREAMS OR THEIR BUFFERS AND THE FOREST CONSERVATION EASEMENTS.
- FINANCIAL SURETY FOR THE REQUIRED TOTAL 145 STREET TREES HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$43,500
- FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING (IN THE AMOUNT OF \$45,450) AND FENCING (832 LF @ \$10 PER LF) HAS BEEN POSTED AS A PART OF THE DPW DEVELOPER'S AGREEMENT IN THE TOTAL AMOUNT OF \$53,770



PHASING CHART

YEAR	PHASE	ALLOCATIONS
2004	1	7
2005	2	12

COORDINATE TABLE

NO.	NORTHING	EASTING
50	N 601454.93	E 1343594.75
51	N 601801.42	E 1343607.35
52	N 602440.89	E 1369759.0984
53	N 585508.195	E 1343349.57
54	N 603462.93	E 1343422.93
55	N 603630.92	E 1343858.86
56	N 603397.68	E 1344580.23
57	N 602652.16	E 1344677.91
58	N 602487.22	E 131345337.91
59	N 602150.75	E 131346042.48
60	N 602109.98	E 1346011.83
61	N 602434.71	E 1345331.84
62	N 602886.29	E 1344313.17
63	N 602342.39	E 1344276.52
64	N 602308.81	E 1344394.34
65	N 601407.06	E 1344541.84

CURVE TABLE

CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
C1	160.00	148.13	79.85	142.90	S28°18'32"W	53°2'42"
C2	150.00	86.96	44.74	85.75	N38°13'21"E	33°13'3"
C3	150.00	40.82	20.54	40.70	N13°49'01"E	15°35'38"
C4	150.00	88.77	45.73	87.48	S18°12'54"E	33°54'26"
C5	150.00	49.46	24.96	49.24	N10°42'30"W	18°53'39"
C6	25.00	15.39	7.95	15.15	N37°47'28"W	35°16'16"

THE PRESERVE AT WAVERLY GLEN

TOTAL NUMBER OF BUILDABLE PARCELS & LOTS TO BE RECORDED.....1 PARCEL+21 LOTS=22
TOTAL NUMBER OF NON-BUILDABLE PARCELS TO BE RECORDED.....7
TOTAL NUMBER OF NON-BUILDABLE BULK PARCEL TO BE RECORDED.....1
TOTAL NUMBER OF PARCELS & LOTS TO BE RECORDED.....30
TOTAL AREA OF BUILDABLE PARCELS & LOTS TO BE RECORDED.....37.7406 AC.
TOTAL AREA OF NON-BUILDABLE PARCELS TO BE RECORDED.....9.2347 AC.
TOTAL AREA OF PARCELS & LOTS TO BE RECORDED.....46.9754 AC.
TOTAL AREA OF ROADWAY TO BE RECORDED.....2.5737 AC.
TOTAL AREA TO BE RECORDED.....49.5491 AC.

OWNER/DEVELOPER

THE PRESERVE AT WAVERLY GLEN, LLC
3675 PARK AVENUE, SUITE 301
ELLCOTT CITY, MARYLAND 21043
(410) 486-0023

COVER SHEET

THE PRESERVE AT WAVERLY GLEN
LOTS 1-21, PRESERVATION PARCELS A-F AND I
AND NON-BUILDABLE BULK PARCEL G & H
A RESUBDIVISION OF LOTS 1 & 2 AND PARCEL A OF SHADOW SHADE PLAT NO. 13808 AND LOT 1 OF HIGHPOINT AT BREEZEWOOD FARMS PLAT NO. 6385

REF. S-02-03, P-03-02, F-99-25, F-86-13 PARCELS '304' & '102'
TAX MAP #10 BLOCK 23 HOWARD COUNTY, MARYLAND
4TH ELECTION DISTRICT

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS

8407 MAIN STREET
ELLCOTT CITY, MARYLAND 21043
TEL: 410.461.7666 FAX: 410.461.8961

DESIGN BY: RJUCO
DRAWN BY: RJ
CHECKED BY: AS SHOWN
DATE: AUG. 2004
SCALE: AS SHOWN
W.C. NO.: 2017139.00

1 SHEET OF 22

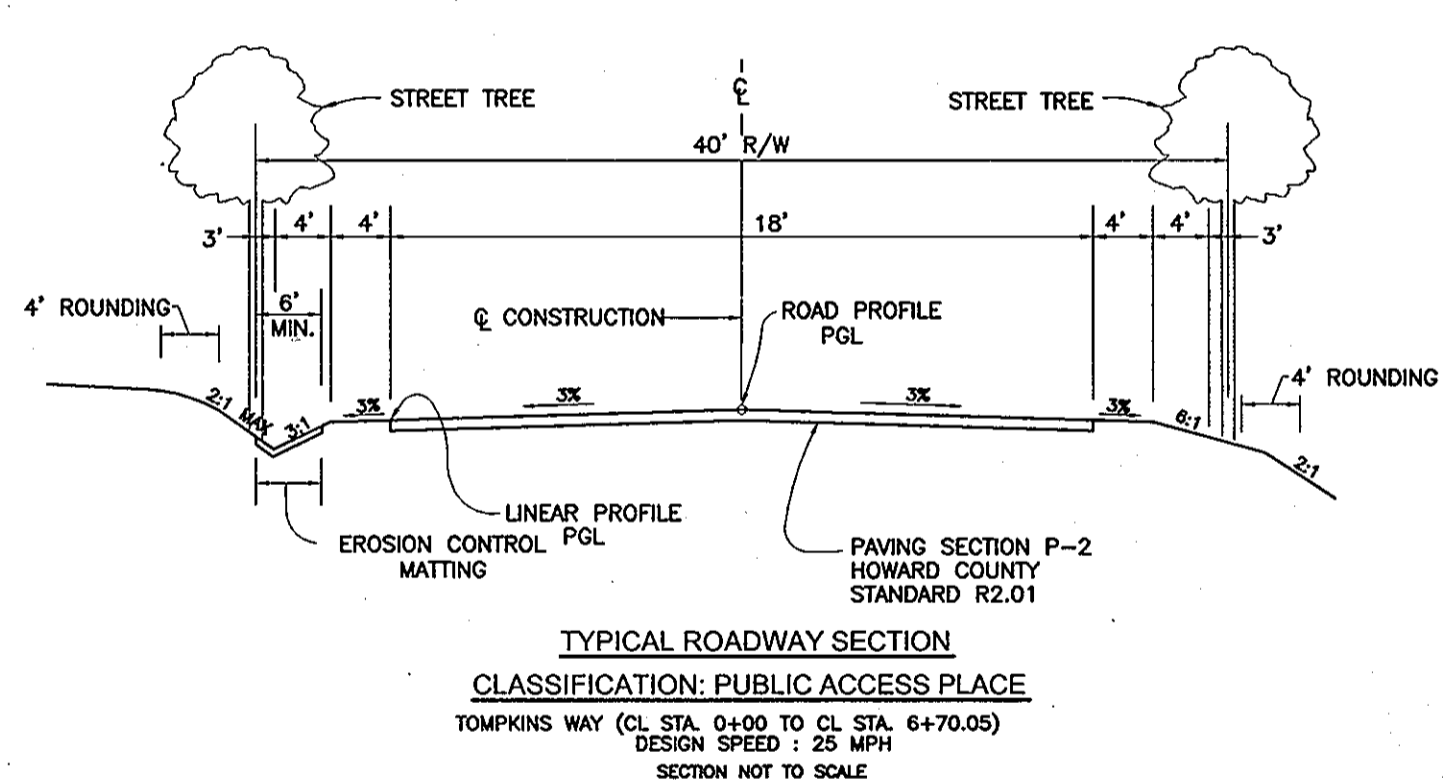
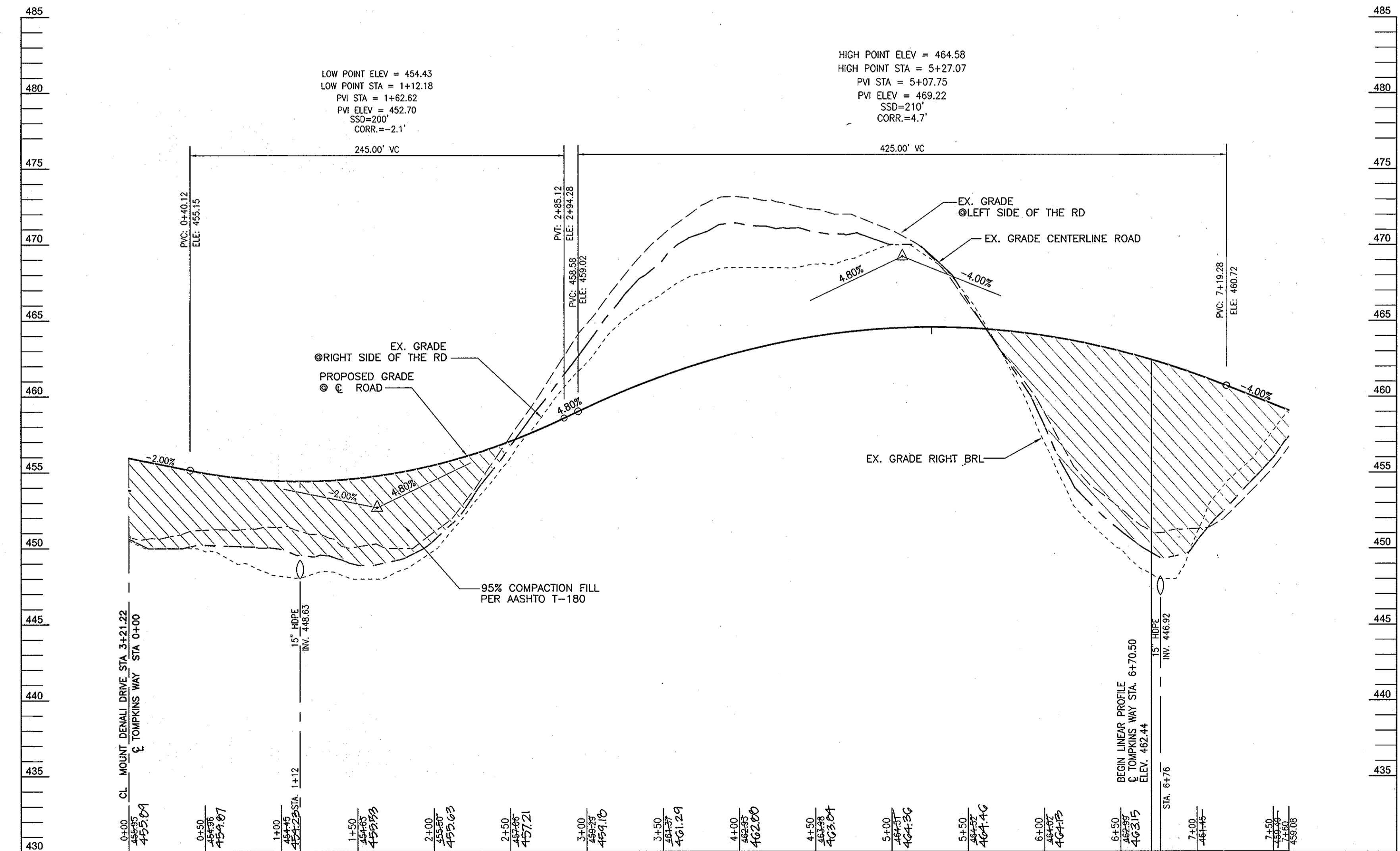
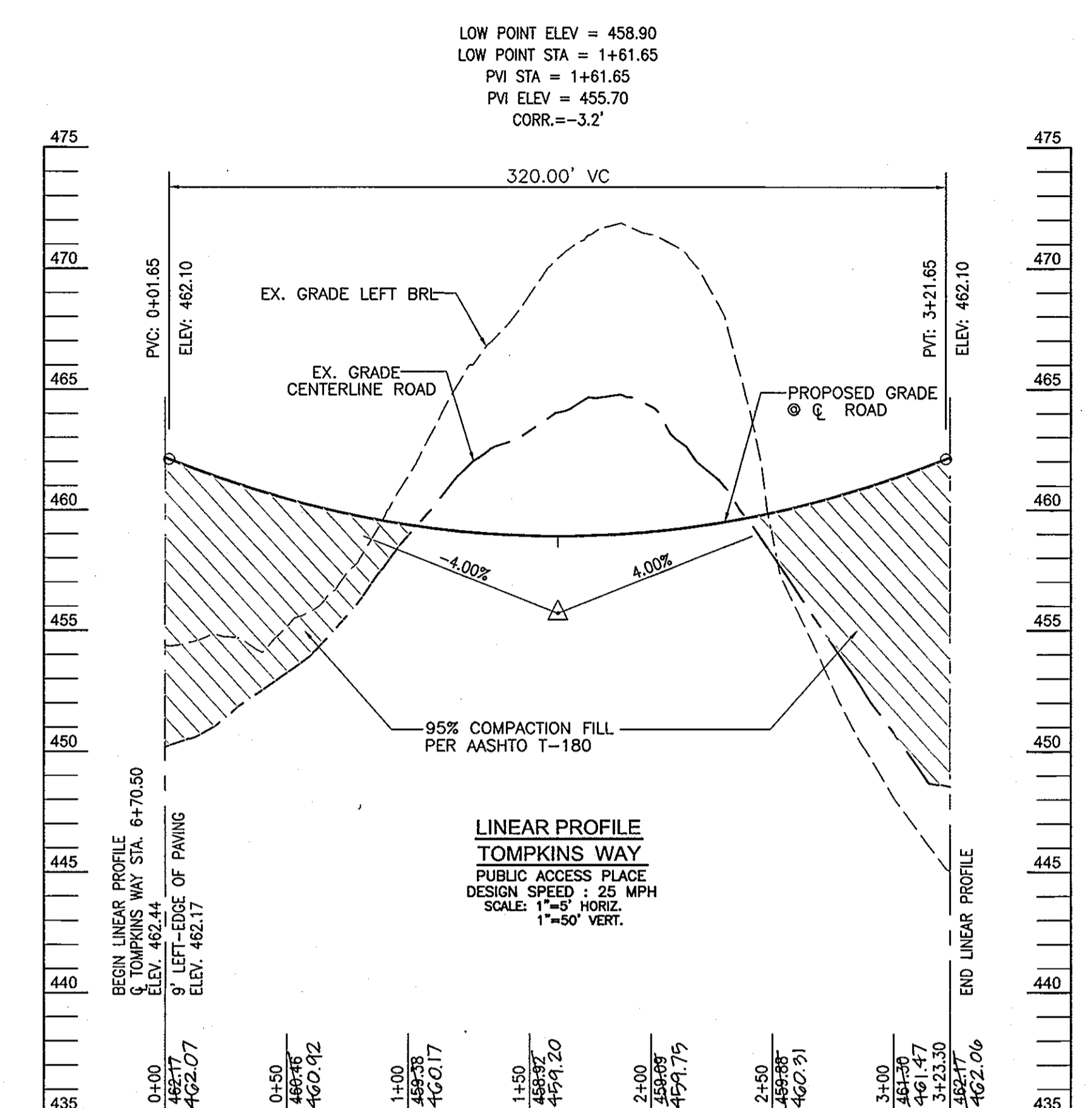
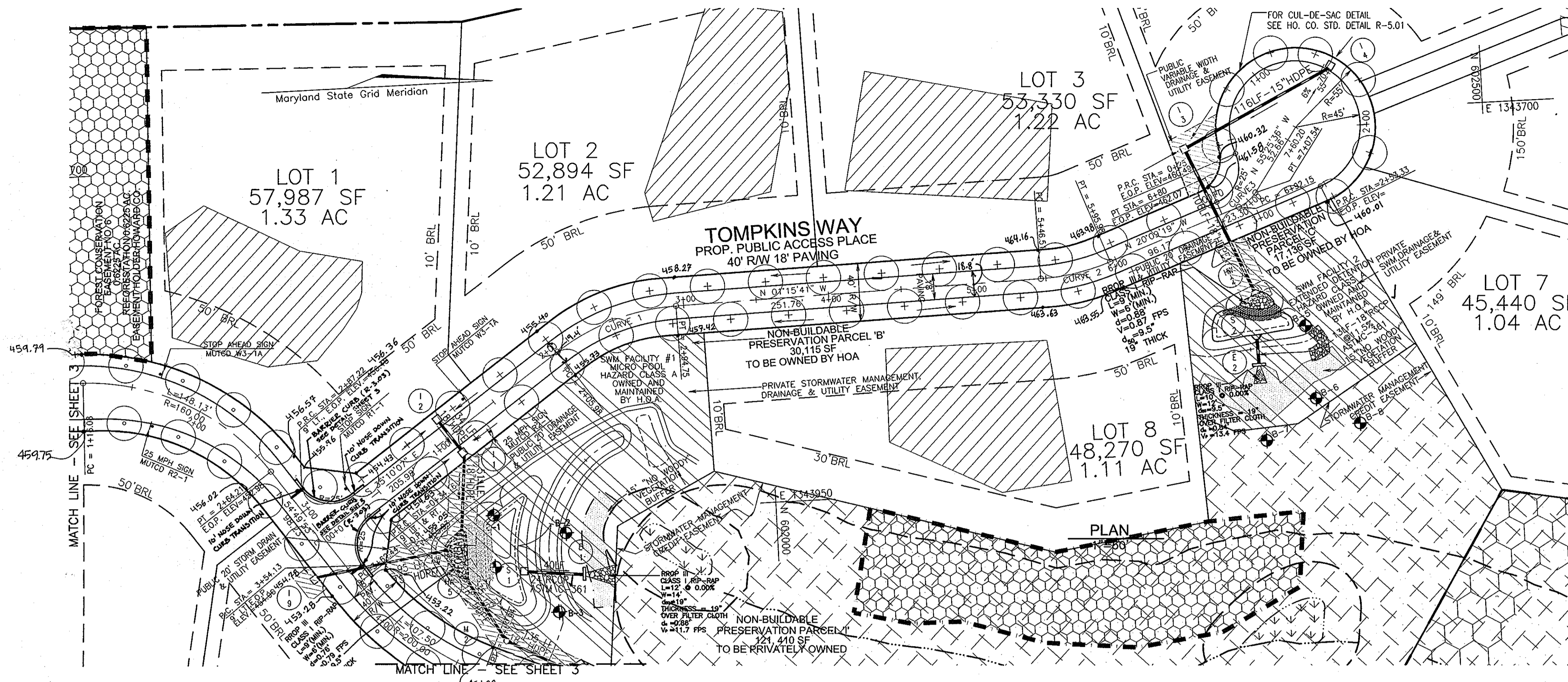
AS-BUILT CERTIFICATE OF MARYLAND

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE PLANS AND SPECIFICATIONS MEETS THE APPROVED PLANS AND SPECIFICATIONS

APPROVED: DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways AS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Chief, Division of Land Development AS DATE
Chief, Development Engineering Division AS DATE

LOCATION PLAN
SCALE: 1"=200'

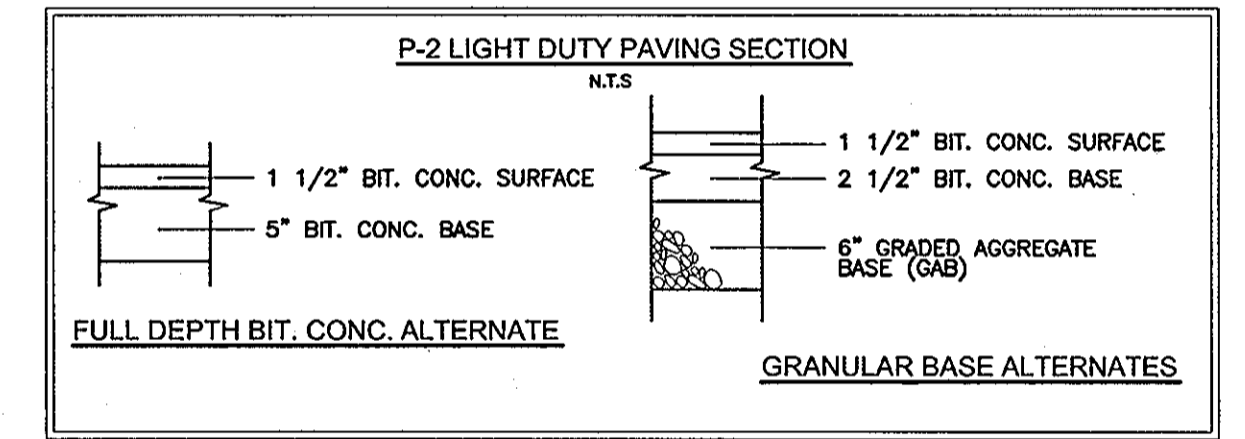


CURVE TABLE

CURVE	LENGTH	RADIUS	DELTA ANGLE	TANGENT	CHORD DIRECTION	CHORD LENGTH
C1	88.77	150.00	33°54'26"	45.73	S18°12'54"E	87.48
C2	49.46	150.00	18°53'39"	24.96	N10°42'30"W	49.24
C3	15.39	25.00	35°16'16"	7.95	N37°47'28"W	15.15

STREET TREE CALCULATIONS

STREET NAME	LINEAR FEET	REQUIRED TREES	PROVIDED TREES
TOMPKINS WAY	1630	40	40



- LEGEND**
- NO-WOODY VEGETATION BUFFER
 - FOREST CONSERVATION EASEMENT (RETENTION)
 - FOREST CONSERVATION EASEMENT (REFORESTATION)
 - 100 YER FLOODPLAIN EASEMENT
 - SEPTIC EASEMENT
 - PUBLIC SWM CREDIT AREA EASEMENT
 - Q-STREAM
 - STREAM BUFFER
 - WETLAND BUFFER
 - WETLAND
 - SOIL BORING

AS-BUILT CERTIFICATE OF MARYLAND
 I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE AS-BUILT PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.
OWNER/DEVELOPER
 THE PRESERVE AT WAVERLY GLEN, LLC
 3675 PARK AVENUE, SUITE 301
 ELICOTT CITY, MARYLAND 21043
 (410) 480-2023

APPROVED: DEPARTMENT OF PUBLIC WORKS
 Chief, Bureau of Highways
 Date: 8/24/04

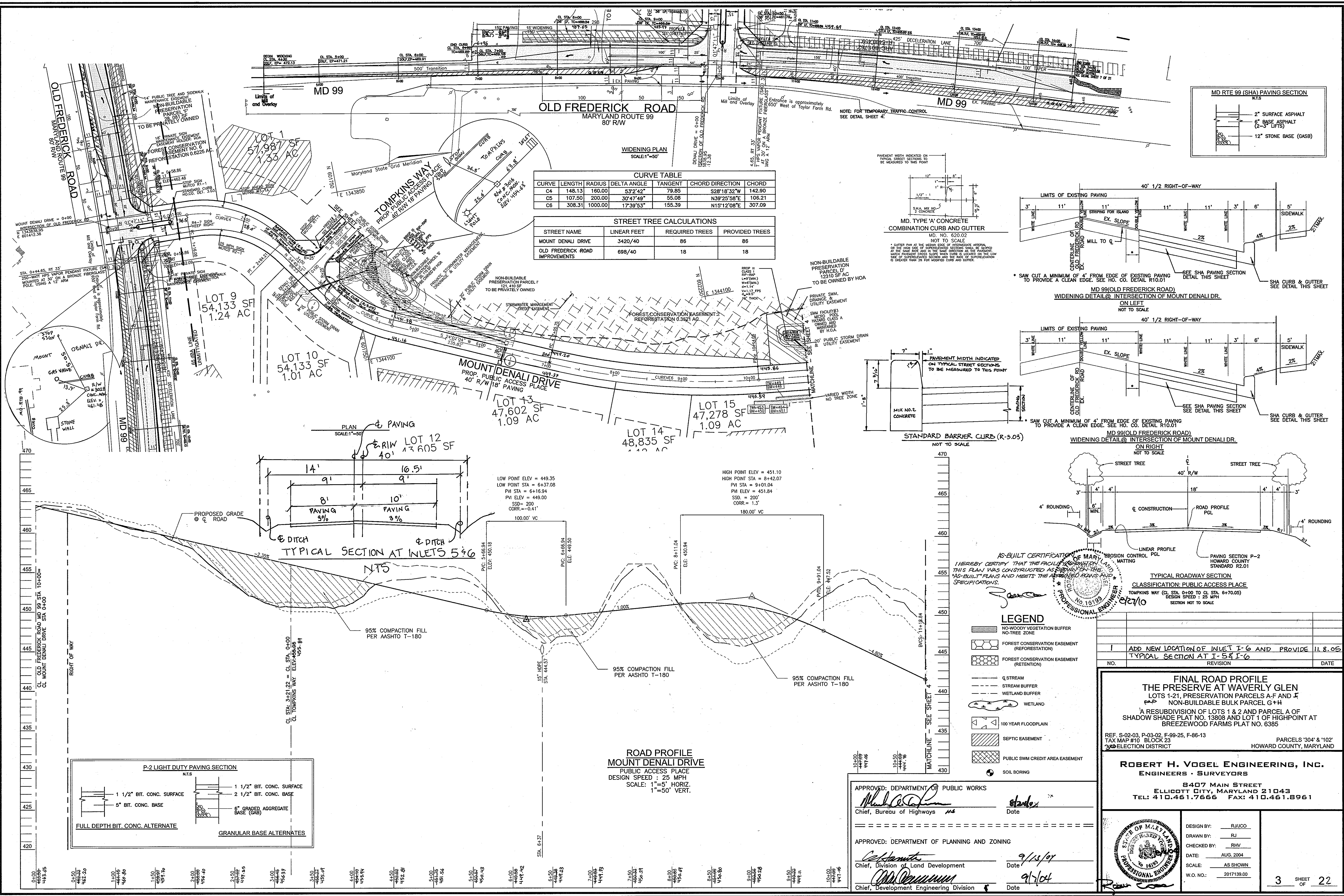
APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Division of Land Development
 Date: 9/13/04

APPROVED: DEPARTMENT OF PUBLIC WORKS
 Chief, Development Engineering Division
 Date: 9/7/04

FINAL ROAD PROFILE
 THE PRESERVE AT WAVERLY GLEN
 LOTS 1-21, PRESERVATION PARCELS A-F AND
 NON-BUILDABLE BULK PARCEL G+H
 A RESUBDIVISION OF LOTS 1 & 2 AND PARCEL A OF SHADOW SHADE PLAT NO. 13808 AND LOT 1 OF HIGHPOINT AT BREEZEWOOD FARMS PLAT NO. 6385
 REF. S-02-03, P-03-02, F-99-25, F-86-13
 TAX MAP #10 BLOCK 23
 PARCELS '304' & '102'
 HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
 ENGINEERS - SURVEYORS
 8407 MAIN STREET
 ELLICOTT CITY, MARYLAND 21043
 TEL: 410.461.7666 FAX: 410.461.8961

DESIGN BY: RJ/JCO
 DRAWN BY: RJ
 CHECKED BY: RHV
 DATE: AUG. 2004
 SCALE: AS SHOWN
 W.O. NO.: 2017139.00

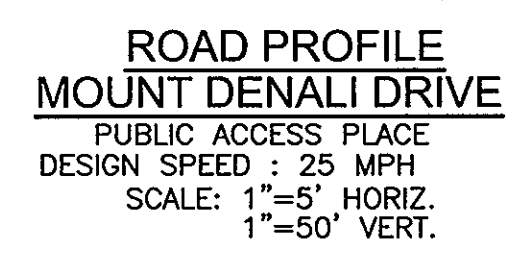
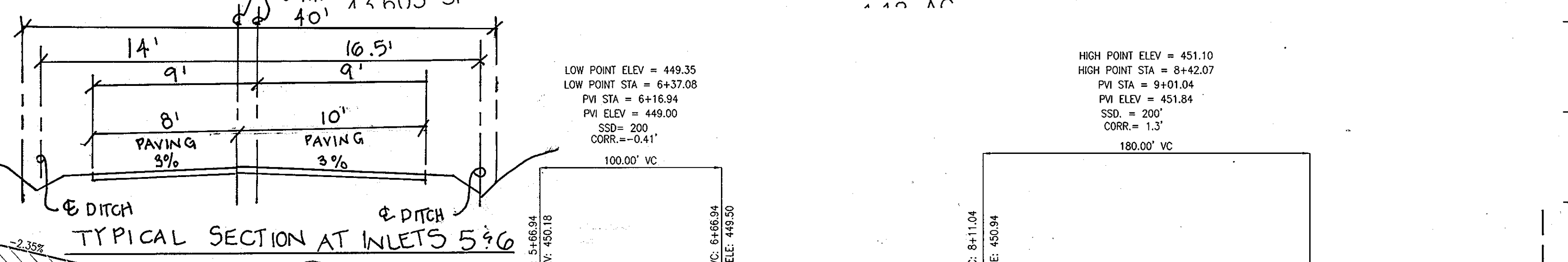
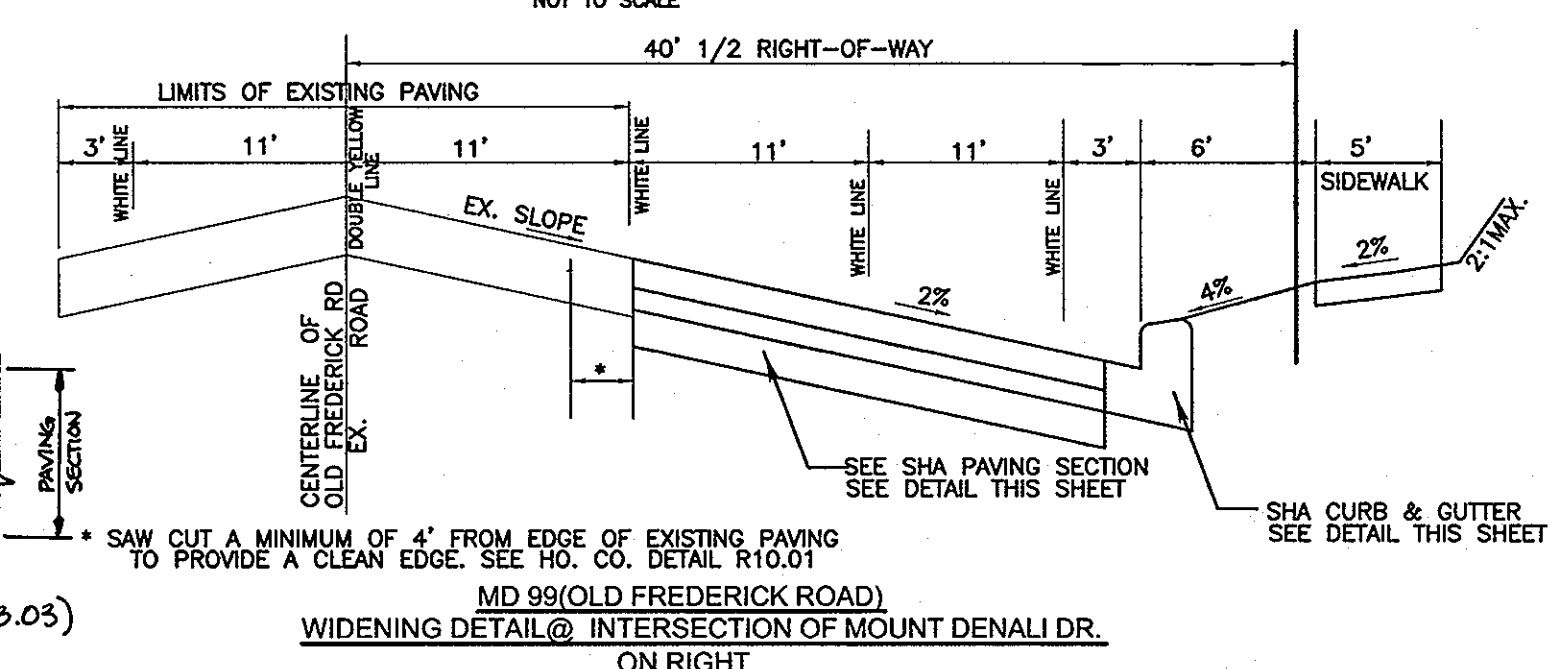
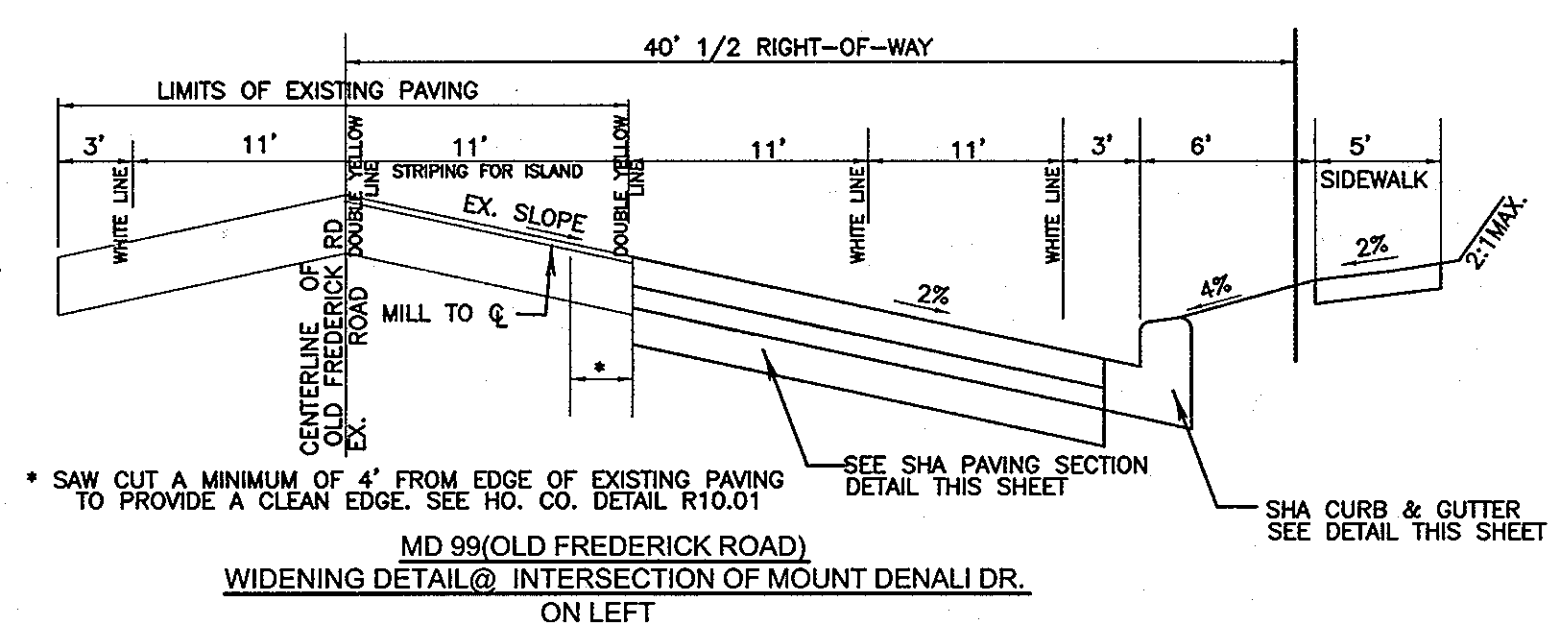
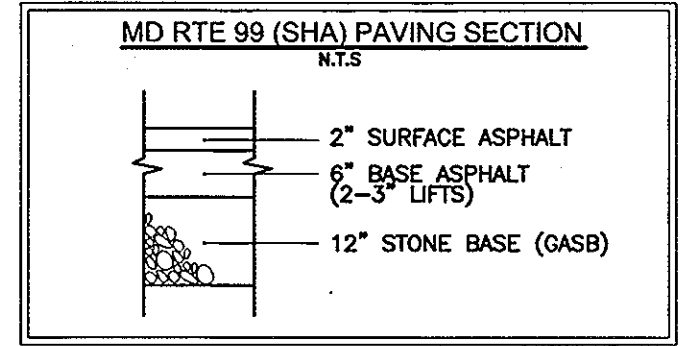


CURVE TABLE

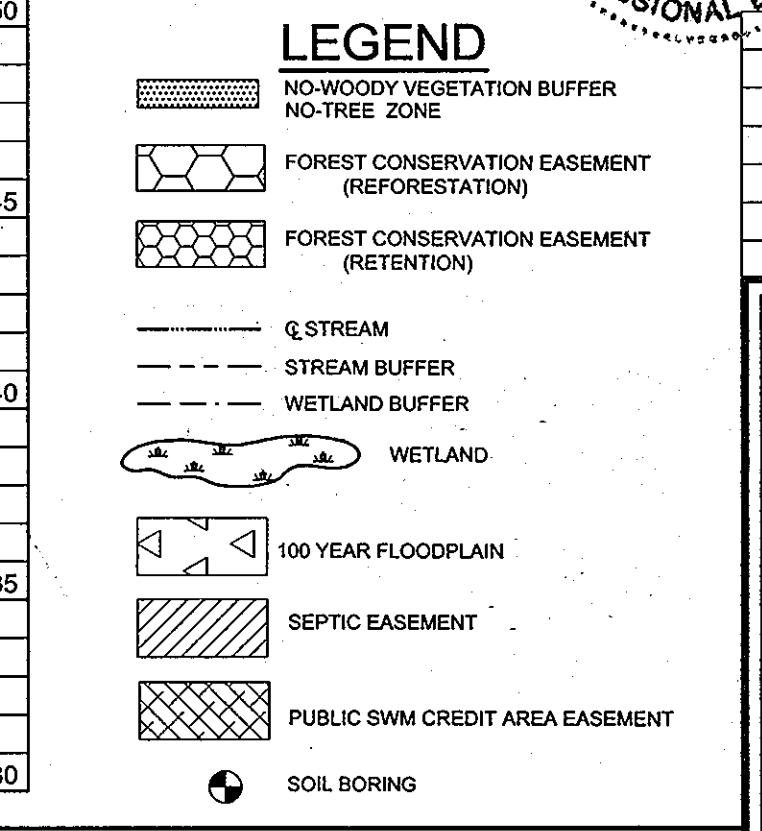
CURVE	LENGTH	RADIUS	DELTA ANGLE	TANGENT	CHORD DIRECTION	CHORD
C4	148.13	160.00	53°2'42"	79.85	S28°18'32"W	142.90
C5	107.50	200.00	30°47'49"	55.08	N39°25'58"E	106.21
C6	308.31	1000.00	17°39'53"	155.39	N15°12'08"E	307.09

STREET TREE CALCULATIONS

STREET NAME	LINEAR FEET	REQUIRED TREES	PROVIDED TREES
MOUNT DENALI DRIVE	3420/40	86	86
OLD FREDERICK ROAD IMPROVEMENTS	698/40	18	18



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



TYPICAL ROADWAY SECTION

CLASSIFICATION: PUBLIC ACCESS PLACE
 TOMPKINS WAY (CL STA. 0+00 TO CL STA. 6+70.05)
 DESIGN SPEED: 25 MPH
 SECTION NOT TO SCALE

NO.	REVISION	DATE
1	ADD NEW LOCATION OF INLET I-6 AND PROVIDE TYPICAL SECTION AT I-5+1-6	11.8.05

FINAL ROAD PROFILE THE PRESERVE AT WAVERLY GLEN
 LOTS 1-21, PRESERVATION PARCELS A-F AND J
 NON-BUILDABLE BULK PARCEL G+H
 A RESUBDIVISION OF LOTS 1 & 2 AND PARCEL A OF SHADOW SHADE PLAT NO. 13808 AND LOT 1 OF HIGHPOINT AT BREEZEWOOD FARMS PLAT NO. 6385

REF: S-02-03, P-03-02, F-99-25, F-86-13
 TAX MAP #10 BLOCK 23 PARCELS '304' & '102'
 3RD ELECTION DISTRICT HOWARD COUNTY, MARYLAND

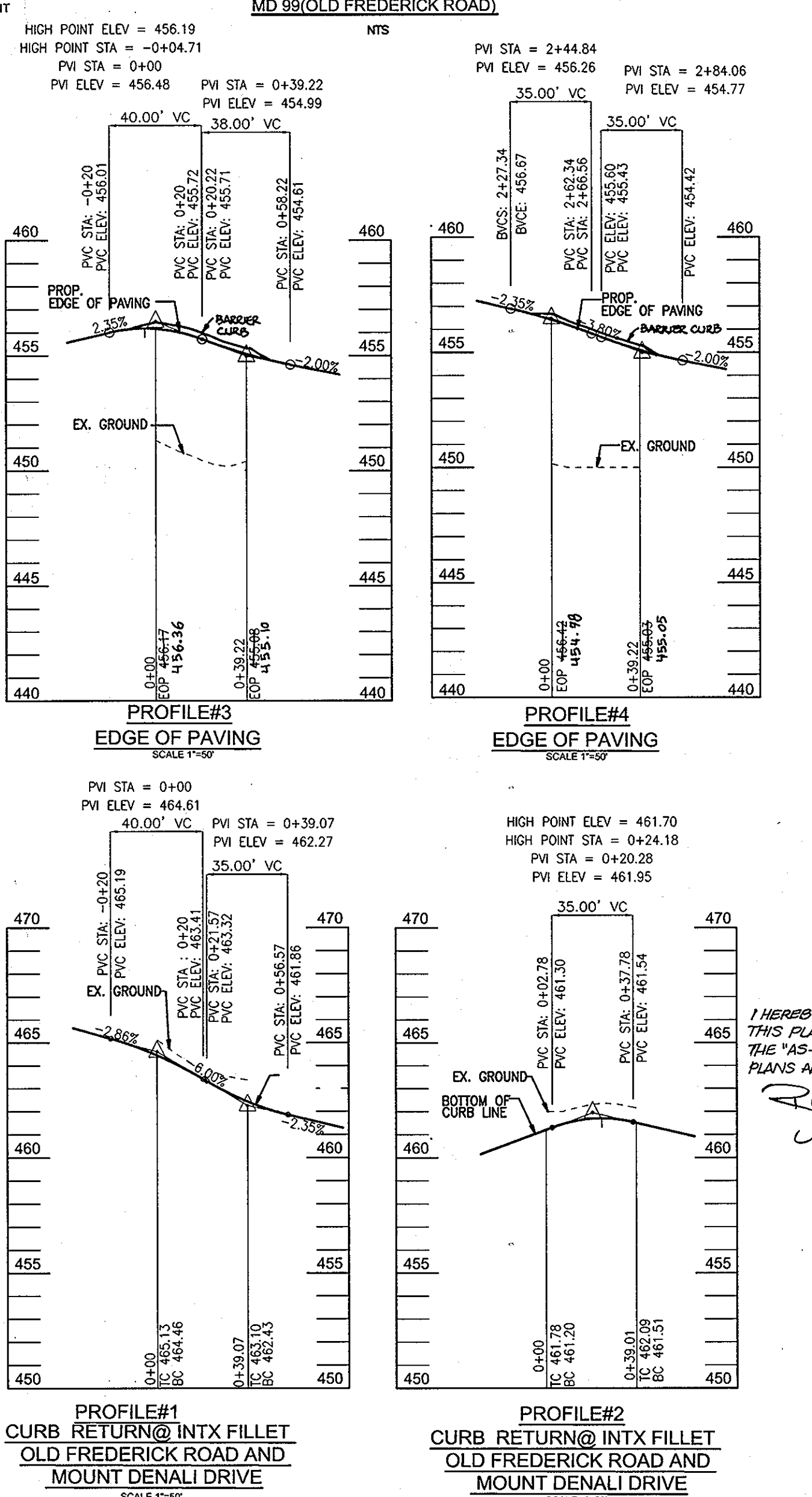
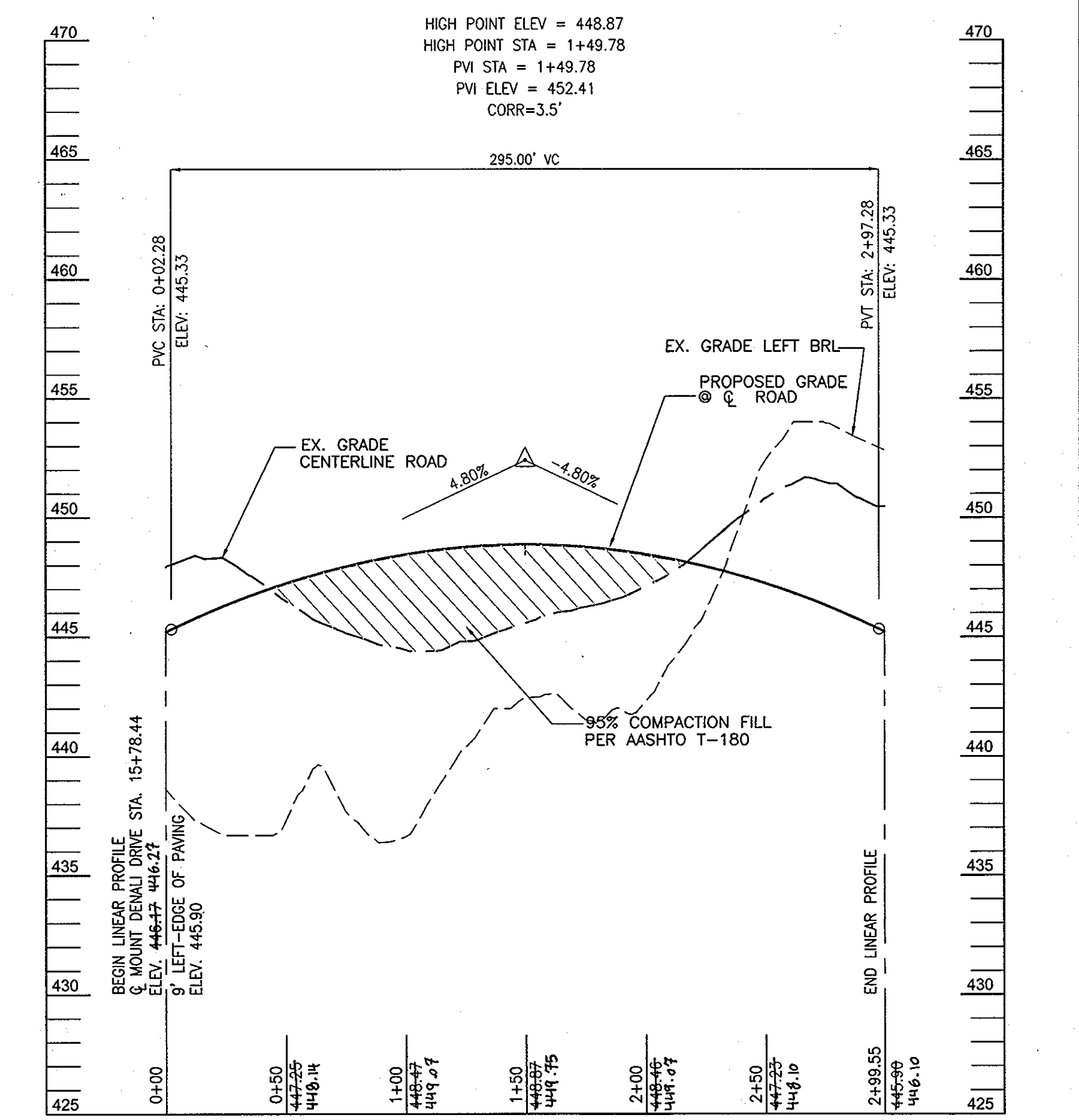
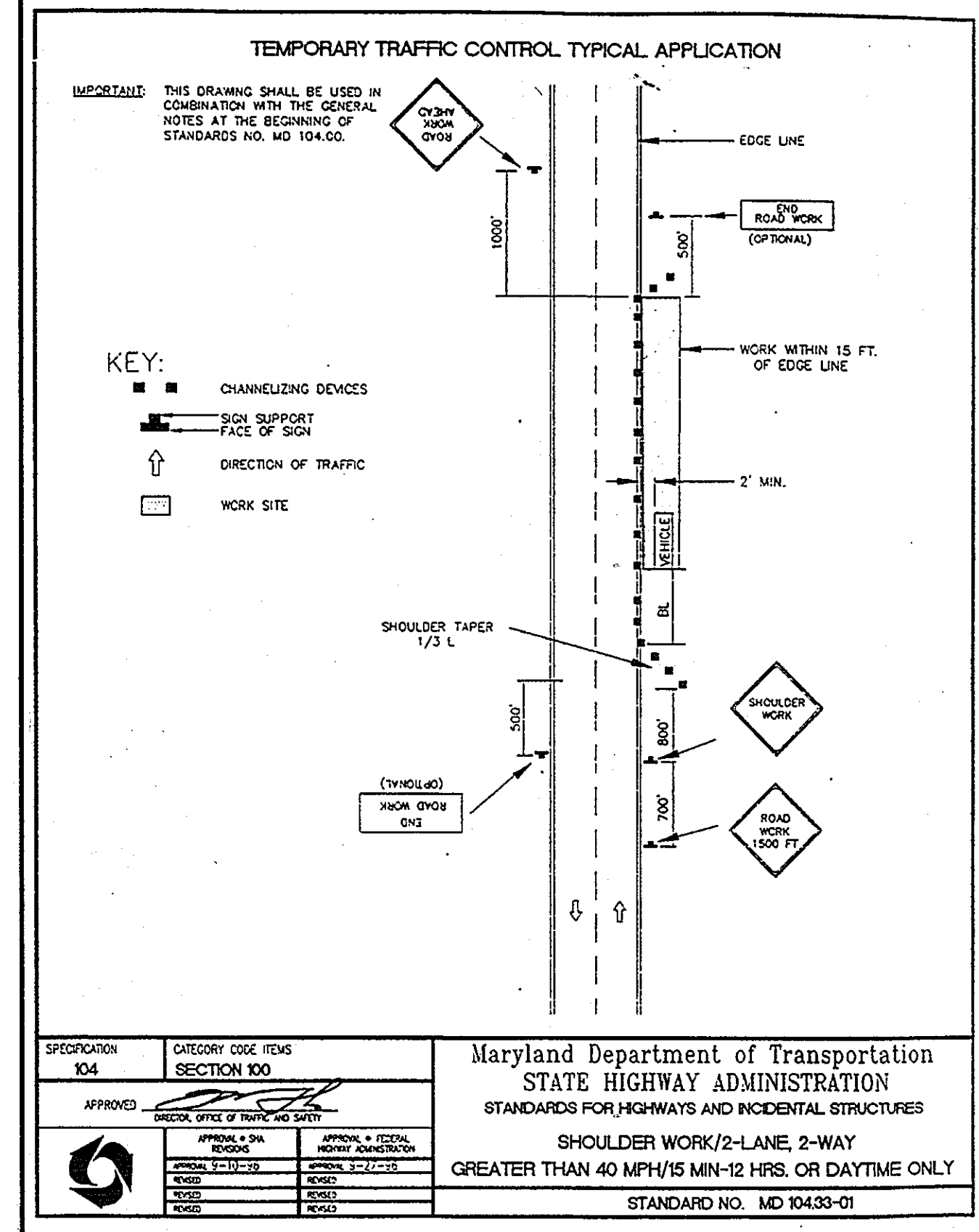
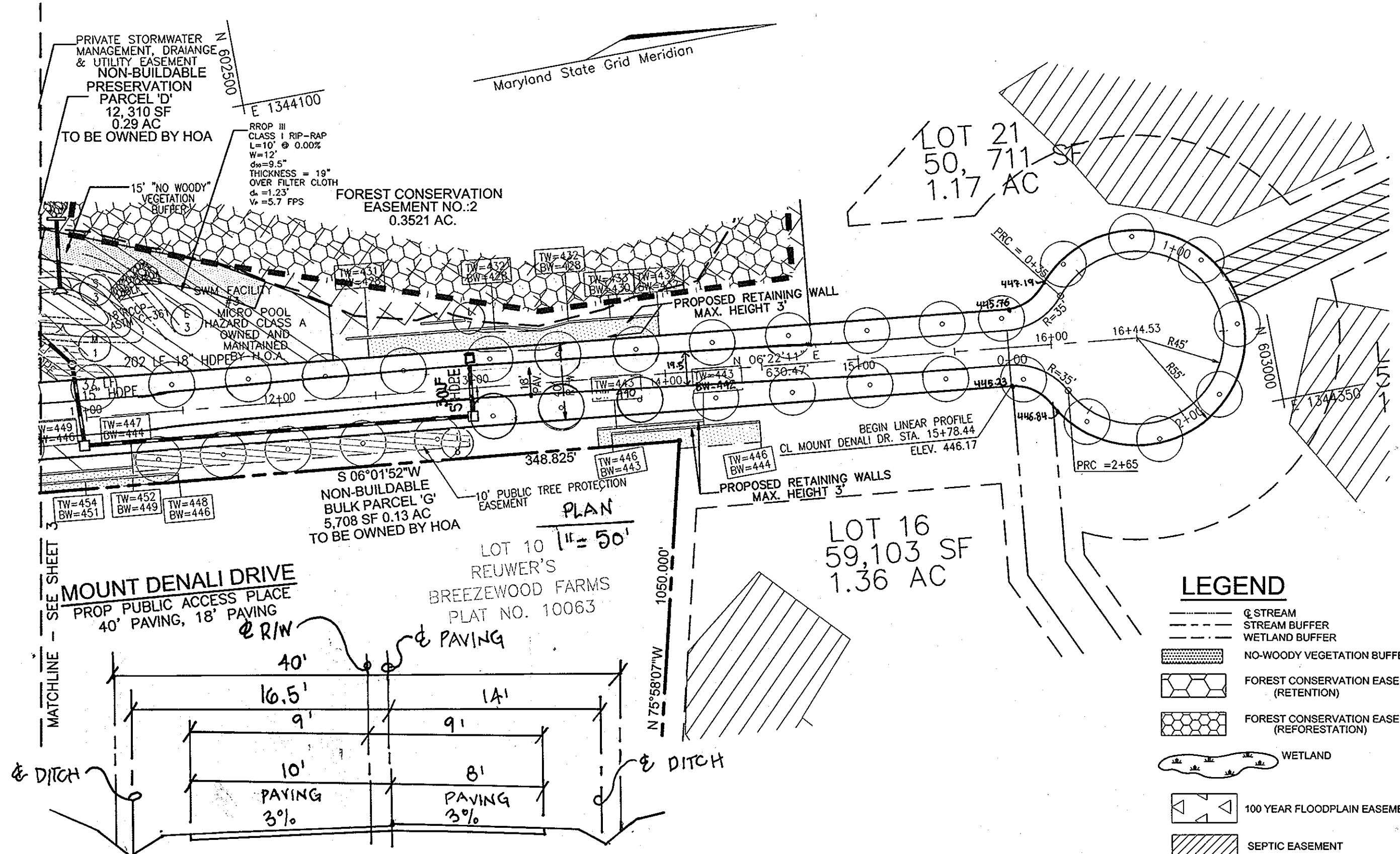
ROBERT H. VOGEL ENGINEERING, INC.
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 8407 MAIN STREET
 ELLICOTT CITY, MARYLAND 21043
 TEL: 410.461.7666 FAX: 410.461.8961

DESIGN BY: RJ/JCO
 DRAWN BY: RJ
 CHECKED BY: RHW
 DATE: AUG. 2004
 SCALE: AS SHOWN
 W.O. NO.: 2017139.00

APPROVED: DEPARTMENT OF PUBLIC WORKS
 Chief, Bureau of Highways

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Division of Land Development

APPROVED: DEPARTMENT OF DEVELOPMENT ENGINEERING DIVISION
 Chief, Development Engineering Division



APPROVED: DEPARTMENT OF PUBLIC WORKS
 Chief, Bureau of Highways

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Division of Land Development

APPROVED: DEPARTMENT OF DEVELOPMENT
 Chief, Development Engineering Division

ADD NEW LOCATION OF INLET I-7 AND PROVIDE TYPICAL SECTION AT I-7 & I-8

FINAL ROAD PROFILE
 THE PRESERVE AT WAVERLY GLEN
 LOTS 1-21, PRESERVATION PARCELS A-F AND ±
 NON-BUILDABLE BULK PARCEL G+H

A RESUBDIVISION OF LOTS 1 & 2 AND PARCEL A OF SHADOW SHADE PLAT NO. 13808 AND LOT 1 OF HIGHPOINT AT BREEZWOOD FARMS PLAT NO. 6385

REF. S-02-03, P-03-02, F-99-25, F-86-13
 TAX MAP #10 BLOCK 23
 SELECTION DISTRICT

PARCELS '304' & '102'
 HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
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 ELLICOTT CITY, MARYLAND 21043
 TEL: 410.461.7666 FAX: 410.461.8961

DESIGN BY: RJ/JCO
 DRAWN BY: RJ
 CHECKED BY: RHY
 DATE: AUG. 2004
 SCALE: AS SHOWN
 W.O. NO.: 2017139.00

4 SHEET OF 22

TSSWM BASIN NO. 1
 EX. DRAINAGE AREA: 5.87 AC.
 PROP. DRAINAGE AREA: (PROP. 8.5 AC. - 5.01 BY PASS=3.49 AC.) MICRO POOL EXTENDED DETENTION POND
 TOTAL STORAGE REQUIRED: 12564 CF
 TOTAL STORAGE PROVIDED: 34142 CF
 BOTTOM ELEVATION: 443.90
 CREST ELEVATION: 448.90
 WET STORAGE ELEVATION: 443.00 - 444.97 (1.97')
 DRY STORAGE ELEVATION: 444.97 - 446.90 (1.93')
 TOTAL STORAGE DEPTH: 3.90'
 TOP OF EMBANKMENT: 449.00
 CLEANOUT ELEVATION: 443.99
 SIDE SLOPES: 3:1
 EX. Q₁ = 0.81 CFS
 W/TSSWM Q₁ = 0.99 CFS

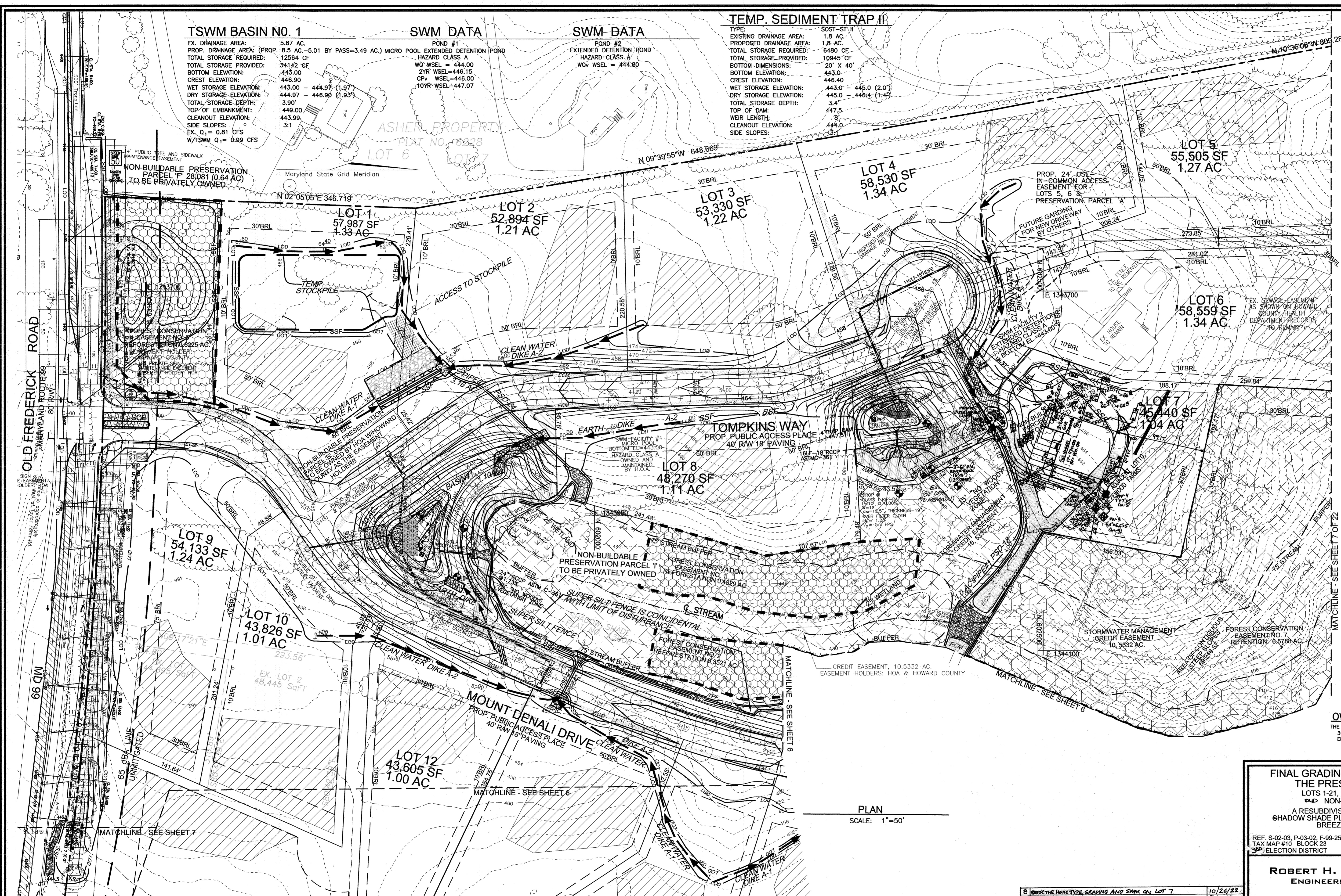
SWM DATA
 POND #1
 HAZARD CLASS A
 WQ WSEL = 444.00
 2YR WSEL = 446.15
 10YR WSEL = 448.00
 10YR WSEL = 447.07

SWM DATA
 POND #2
 EXTENDED DETENTION POND
 HAZARD CLASS A
 WQ WSEL = 444.80

TEMP. SEDIMENT TRAP II
 TYPE: SOST-ST II
 EXISTING DRAINAGE AREA: 1.8 AC.
 PROPOSED DRAINAGE AREA: 1.8 AC.
 TOTAL STORAGE REQUIRED: 6480 CF
 TOTAL STORAGE PROVIDED: 10945 CF
 BOTTOM DIMENSIONS: 20' X 40'
 BOTTOM ELEVATION: 443.0
 CREST ELEVATION: 446.40
 WET STORAGE ELEVATION: 443.0 - 445.0 (2.0')
 DRY STORAGE ELEVATION: 445.0 - 446.4 (1.4')
 TOTAL STORAGE DEPTH: 3.4'
 TOP OF DAM: 447.5
 WEIR LENGTH: 8'
 CLEANOUT ELEVATION: 444.0
 SIDE SLOPES: 3:1

LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING TREES TO REMAIN
- NO-WOODY VEGETATION BUFFER
- 15%-24.99% STEEP SLOPE AREA
- 25% OR GREATER STEEP SLOPE AREA
- FOREST CONSERVATION EASEMENT (RETENTION)
- FOREST CONSERVATION EASEMENT (REFORESTATION)
- EARTH DIKE
- SOIL BORING
- SUPER SILT FENCE
- LIMIT OF DISTURBANCE
- Q-STREAM
- STREAM BUFFER
- WETLAND BUFFER
- NON-TIDAL WETLAND
- 100YEAR FLOOD PLAN EASEMENT
- SEPTIC EASEMENT
- PUBLIC SWM CREDIT EASEMENT
- STABILIZED CONSTRUCTION ENTRANCE
- RIP-RAP INFLOW PROTECTION
- RPS
- ECM
- GM
- REMOVABLE PUMPING STATION
- EROSION CONTROL MATTING
- GABION INFLOW PROTECTION



PLAN
 SCALE: 1"=50'

OWNER/DEVELOPER
 THE PRESERVE AT WAVERLY GLEN LLC.
 3675 PARK AVENUE, SUITE 301
 ELLICOTT CITY, MARYLAND 21043
 (410) 486-0223

FINAL GRADING & SEDIMENT CONTROL PLAN
 THE PRESERVE AT WAVERLY GLEN
 LOTS 1-21, PRESERVATION PARCELS A-F AND I
 NON-BUILDABLE BULK PARCEL G+H
 A RESUBDIVISION OF LOTS 1 & 2 AND PARCEL A OF
 SHADOW SHADE PLAT NO. 13808 AND LOT 1 OF HIGHPOINT AT
 BREEZEWOOD FARMS PLAT NO. 6385
 REF. S-02-03, P-03-02, F-99-25, F-86-13
 TAX MAP #10 BLOCK 23 PARCELS '304' & '102'
 ELECTION DISTRICT HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
 ENGINEERS - SURVEYORS
 8407 MAIN STREET
 ELLICOTT CITY, MARYLAND 21043
 TEL: 410.461.7666 FAX: 410.461.8961

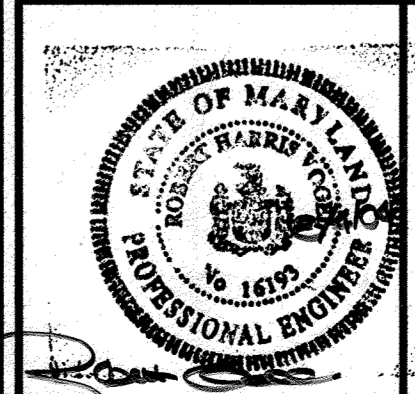
APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS
 [Signature] DATE 9/10/04
 CHIEF, DIVISION OF LAND DEVELOPMENT
 [Signature] DATE 9/13/04

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 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] DATE 8/24/04
 ROBERT H. VOGEL

DEVELOPER'S CERTIFICATE
 I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE IN ACCORDANCE TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I 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.
 [Signature] DATE 8/14/04
 MICHAEL PFEIFFER (MEMBER)

THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.
 [Signature] DATE 9/9/04
 USDA-NATURAL RESOURCES CONSERVATION SERVICE
 THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
 [Signature] DATE 9/9/04
 HOWARD SOIL CONSERVATION DISTRICT

AS-BUILT CERTIFICATION
 I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE AS-BUILT PLANS, AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.
 [Signature] DATE 8/27/10
 SIGNATURE OF ENGINEER
 ROBERT H. VOGEL



DESIGN BY: RJJ/CJ
 DRAWN BY: RJ
 CHECKED BY: RHV
 DATE:
 SCALE: AS SHOWN
 W.O. NO.: 2017139.00
 5 SHEET OF 22

SWMF NO. 3

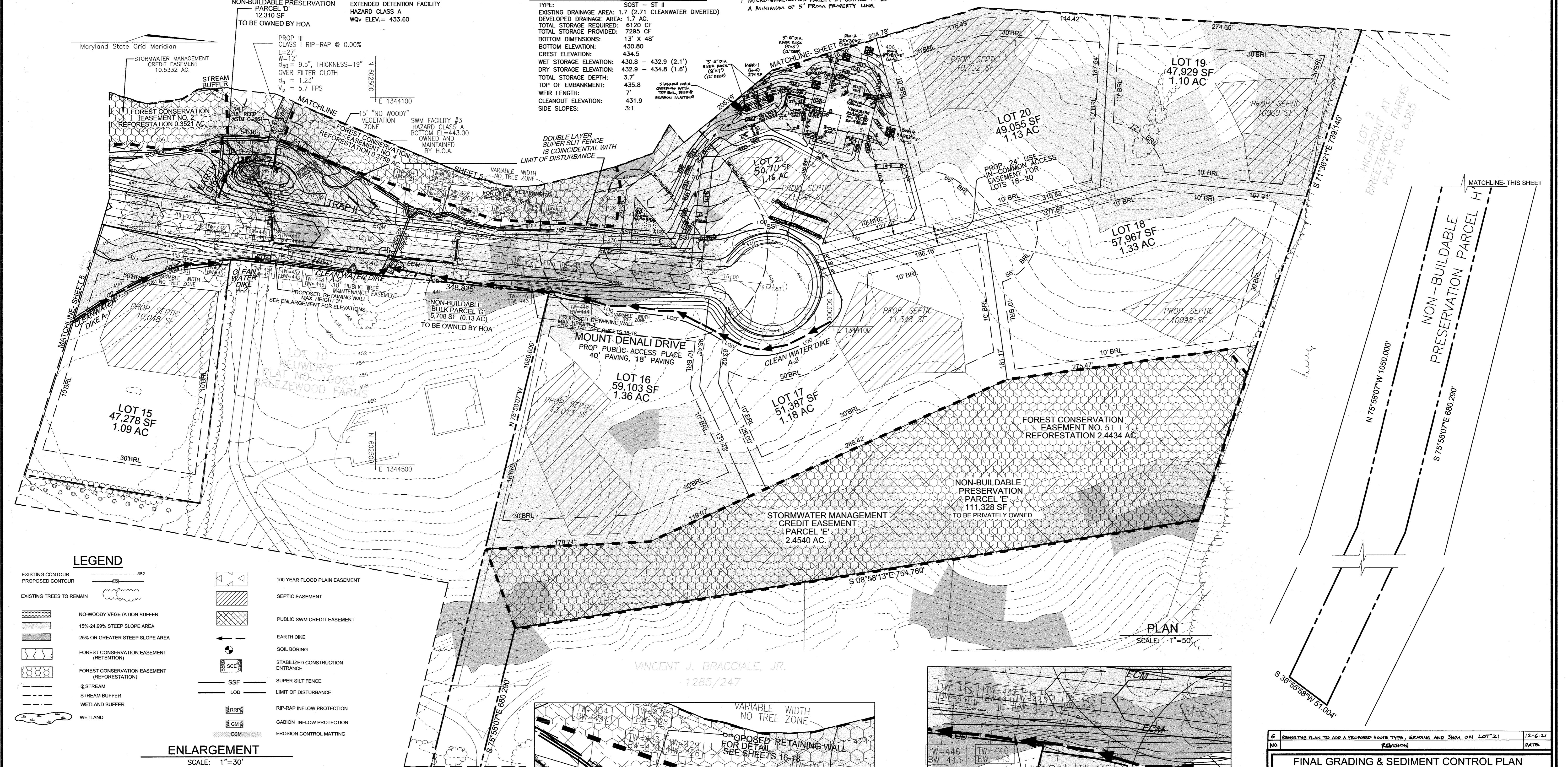
NON-BUILDABLE PRESERVATION PARCEL 'D'
12,310 SF
TO BE OWNED BY HOA

EXTENDED DETENTION FACILITY
HAZARD CLASS A
WQV ELEV.= 433.60

TEMP. SEDIMENT TRAP 3

TYPE: SOST - ST II
EXISTING DRAINAGE AREA: 1.7 (2.71 CLEANWATER DIVERTED)
DEVELOPED DRAINAGE AREA: 1.7 AC
TOTAL STORAGE REQUIRED: 6120 CF
TOTAL STORAGE PROVIDED: 7295 CF
BOTTOM DIMENSIONS: 13' x 48'
BOTTOM ELEVATION: 430.80
CREST ELEVATION: 434.5
WET STORAGE ELEVATION: 430.8 - 432.9 (2.1')
DRY STORAGE ELEVATION: 432.9 - 434.8 (1.6')
TOTAL STORAGE DEPTH: 3.7'
TOP OF EMBANKMENT: 435.8
WEIR LENGTH: 7'
CLEANOUT ELEVATION: 431.9
SIDE SLOPES: 3:1

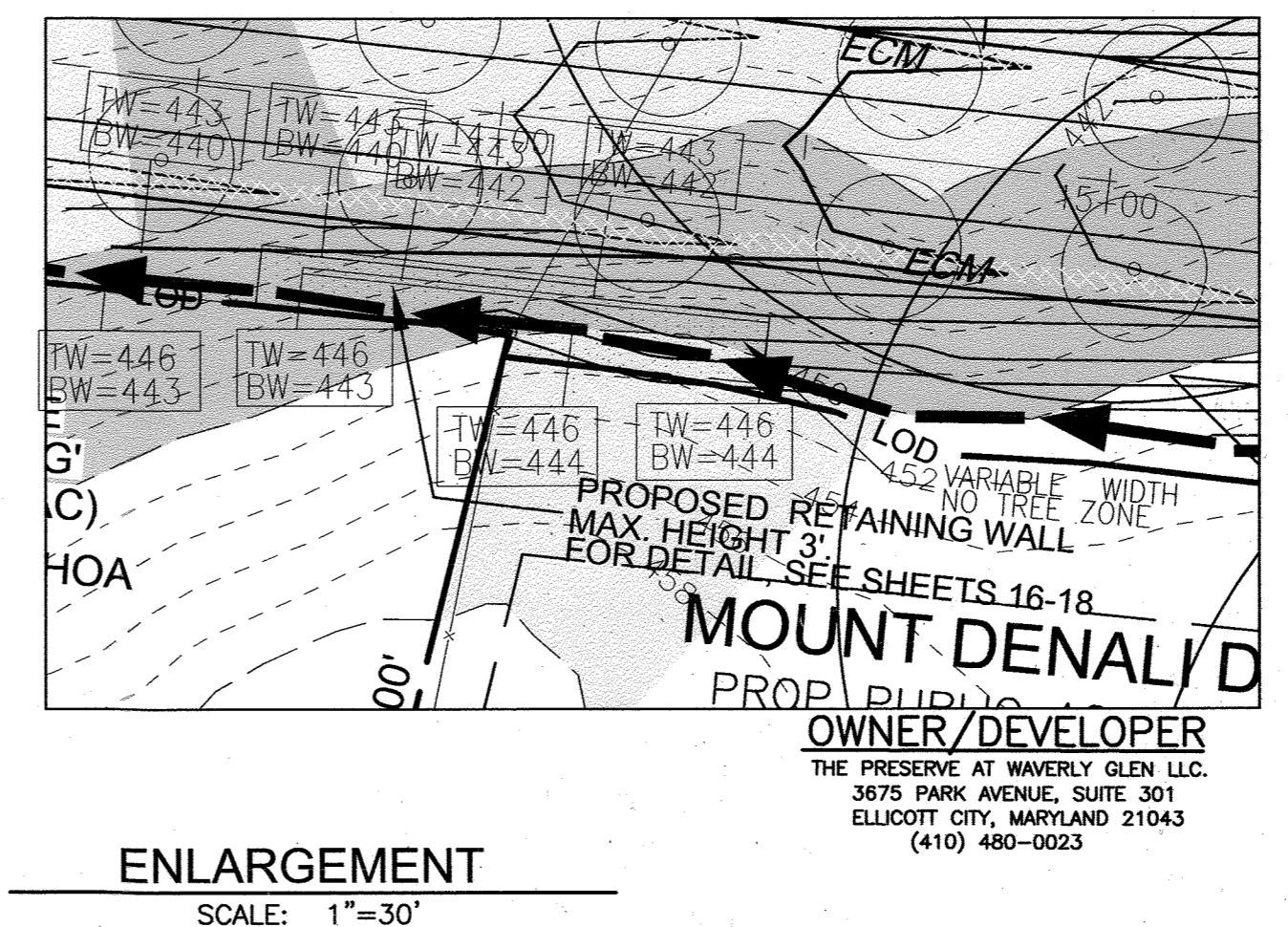
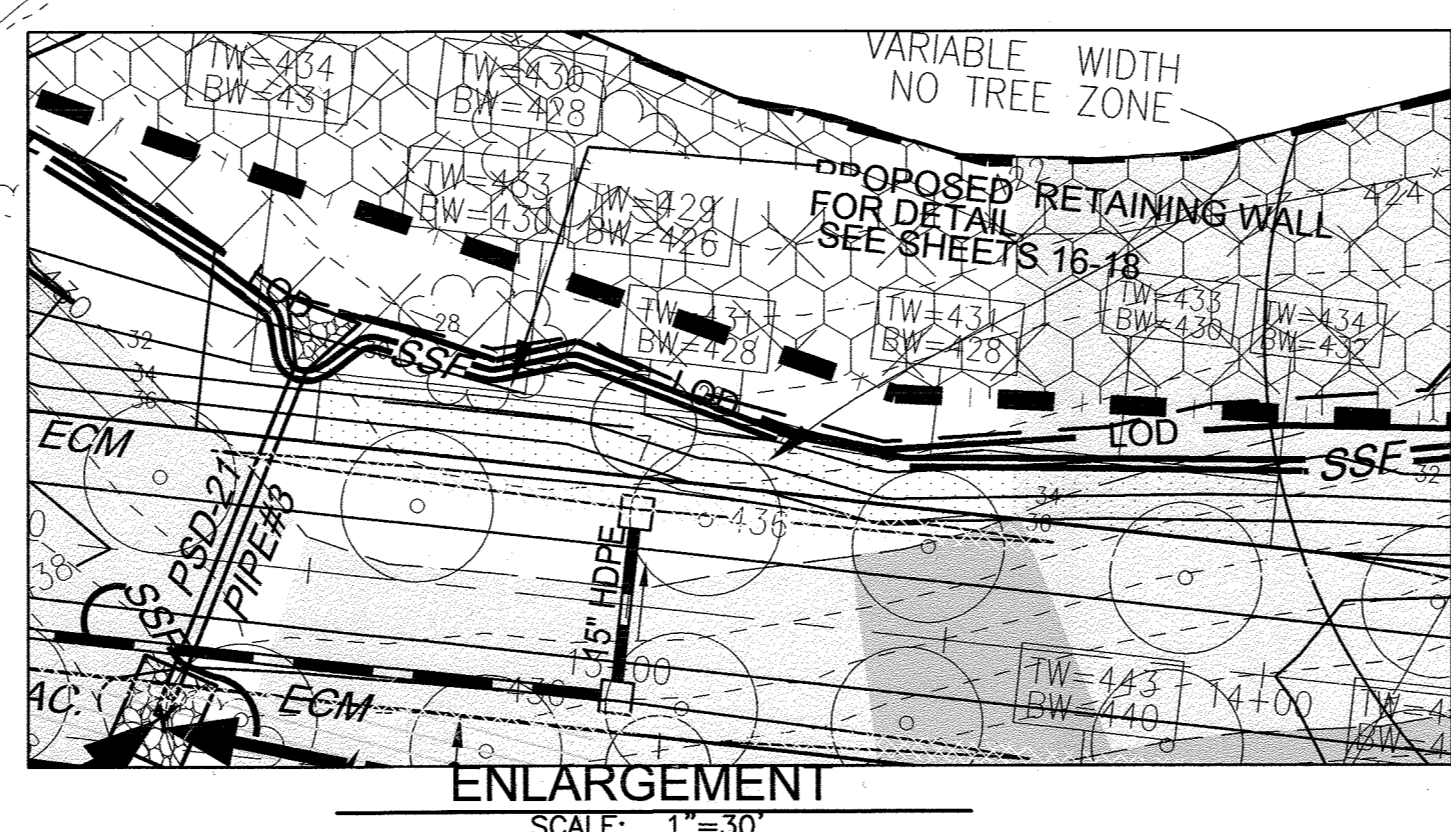
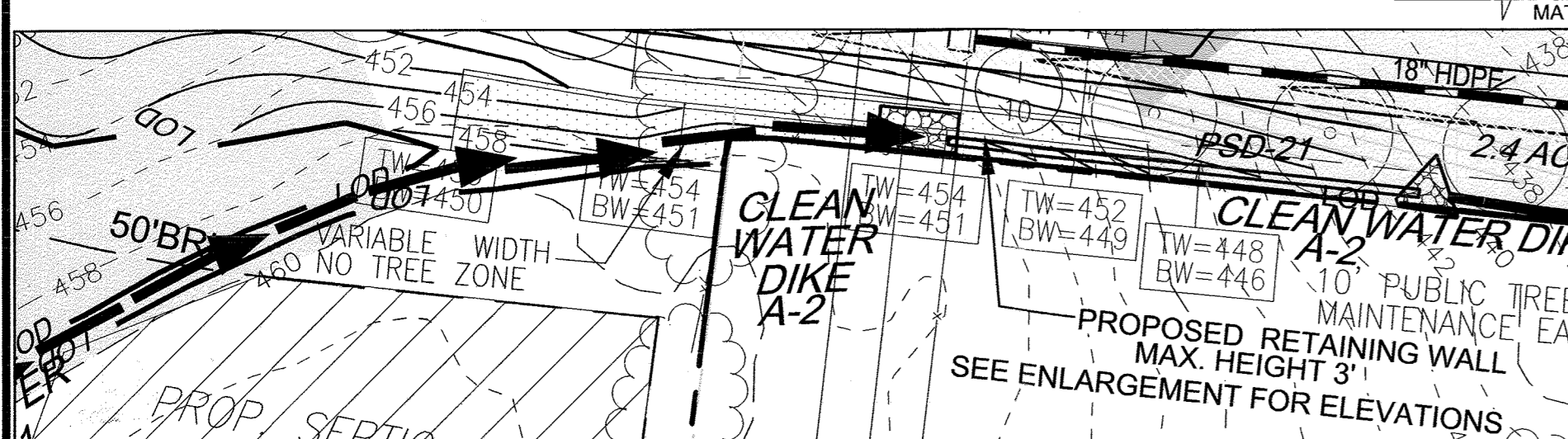
*NOTE:
1. MICRO-BIORETENTION FACILITY #1 OUTFALL TO BE A MINIMUM OF 5' FROM PROPERTY LINE.



LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING TREES TO REMAIN
- NO-WOODY VEGETATION BUFFER
- 15% 24.99% STEEP SLOPE AREA
- 25% OR GREATER STEEP SLOPE AREA
- FOREST CONSERVATION EASEMENT (RETENTION)
- FOREST CONSERVATION EASEMENT (REFORESTATION)
- Q STREAM
- STREAM BUFFER
- WETLAND BUFFER
- WETLAND
- 100 YEAR FLOOD PLAIN EASEMENT
- SEPTIC EASEMENT
- PUBLIC SWM CREDIT EASEMENT
- EARTH DIKE
- SOIL BORING
- STABILIZED CONSTRUCTION ENTRANCE
- SSF
- LOD
- RIP-RAP INFLOW PROTECTION
- GABION INFLOW PROTECTION
- ECM
- SUPER SILT FENCE
- LIMIT OF DISTURBANCE
- EROSION CONTROL MATTING

ENLARGEMENT
SCALE: 1"=30'



PLAN
SCALE: 1"=50'

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, DIVISION OF HIGHWAYS
DATE: 9/7/04

CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 9/13/04

ENGINEER'S 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 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.

DATE: 9/14/04

DEVELOPER'S CERTIFICATE
I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE IN ACCORDANCE TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I 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.

DATE: 9/14/04

THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

DATE: 9/9/04

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

DATE: 9/27/04

6 REVISION: REVISE THE PLAN TO ADD A PROPOSED HOUSING TYPE, GRADING AND SWM ON LOT 21
NO. REVISION DATE

FINAL GRADING & SEDIMENT CONTROL PLAN
THE PRESERVE AT WAVERLY GLEN
LOTS 1-21, PRESERVATION PARCELS A-F AND G
NON-BUILDABLE BULK PARCEL G/H
A RESUBDIVISION OF LOTS 1 & 2 AND PARCEL A OF SHADOW SHADE PLAT NO. 13808 AND LOT 1 OF HIGHPOINT AT BREEZEWOOD FARMS PLAT NO. 6385

REF. S-02-03, P-03-02, F-99-25, F-86-13
TAX MAP #10 BLOCK 23
ELECTION DISTRICT

PARCELS '304' & '102'
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS - SURVEYORS
8407 MAIN STREET
ELLCOTT CITY, MARYLAND 21043
TEL: 410.461.7666 FAX: 410.461.8961

DESIGN BY: RJUCO
DRAWN BY: RJ
CHECKED BY: RHV
DATE: JULY 2004
SCALE: AS SHOWN
W.O. NO.: 2017139.00

6 SHEET OF 22





N
E 1344200

5' RIP-RAP CHANNEL
CLASS I RIP-RAP
19" THICK, d₅₀ = 9.5"
SEE TYPICAL SECTION
THIS SHEET
MATCHLINE - SEE SHEET 5 OF 15

MATCHLINE - SEE SHEET 5

PLAN
SCALE: 1"=50'

21.0 STANDARDS AND SPECIFICATIONS FOR TOP SOIL

DEFINITION
PLACEMENT OF TOPSOIL OVER A PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION.

PURPOSE
TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETABLE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.

CONDITIONS WHERE PRACTICE APPLIES

I. THIS PRACTICE IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:

A. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.

B. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.

C. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.

D. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.

II. FOR THE PURPOSE OF THESE STANDARDS AND SPECIFICATIONS, AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN FOR ADEQUATE STABILIZATION. AREAS HAVING SLOPES STEEPER THAN 2:1 SHALL HAVE THE APPROPRIATE STABILIZATION SHOWN ON THE PLANS.

CONSTRUCTION AND MATERIAL SPECIFICATIONS

I. TOPSOIL SALVAGED FROM THE EXISTING SITE MAY BE USED PROVIDED THAT IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-SCS IN COOPERATION WITH MARYLAND AGRICULTURAL EXPERIMENTAL STATION.

II. TOPSOIL SPECIFICATIONS - SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:

I. TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR A SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. REGARDLESS, TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND SHALL CONTAIN LESS THAN 5% BY VOLUME OF CHINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1" AND 1/2" IN DIAMETER.

II. TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACKGRASS, JOHNSONGRASS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.

III. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE SPREAD AT THE RATE OF 4-8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL. LIME SHALL BE DISTRIBUTED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING PROCEDURES.

II. FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES:

I. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.

III. FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES:

I. ON SOIL MEETING TOPSOIL SPECIFICATIONS, OBTAIN TEST RESULTS DICTATING FERTILIZER AND LIME AMENDMENTS REQUIRED TO BRING THE SOIL INTO COMPLIANCE WITH THE FOLLOWING:

A. PH FOR TOPSOIL SHALL BE BETWEEN 6.0 AND 7.5. IF THE TESTED SOIL DEMONSTRATES A PH OF LESS THAN 6.0, SUFFICIENT LIME SHALL BE PRESCRIBED TO RAISE THE PH TO 6.5 OR HIGHER.

B. ORGANIC CONTENT OF TOPSOIL SHALL BE NOT LESS THAN 1.5 PERCENT BY WEIGHT.

C. TOPSOIL HAVING SOLUBLE SALT CONTENT GREATER THAN 500 PARTS PER MILLION SHALL NOT BE USED.

D. NO SOIL OR SOD SHALL BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.

NOTE: TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY, MAY BE USED IN LIEU OF NATURAL TOPSOIL.

II. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION-SECTION I-VEGETATIVE STABILIZATION METHODS AND MATERIALS.

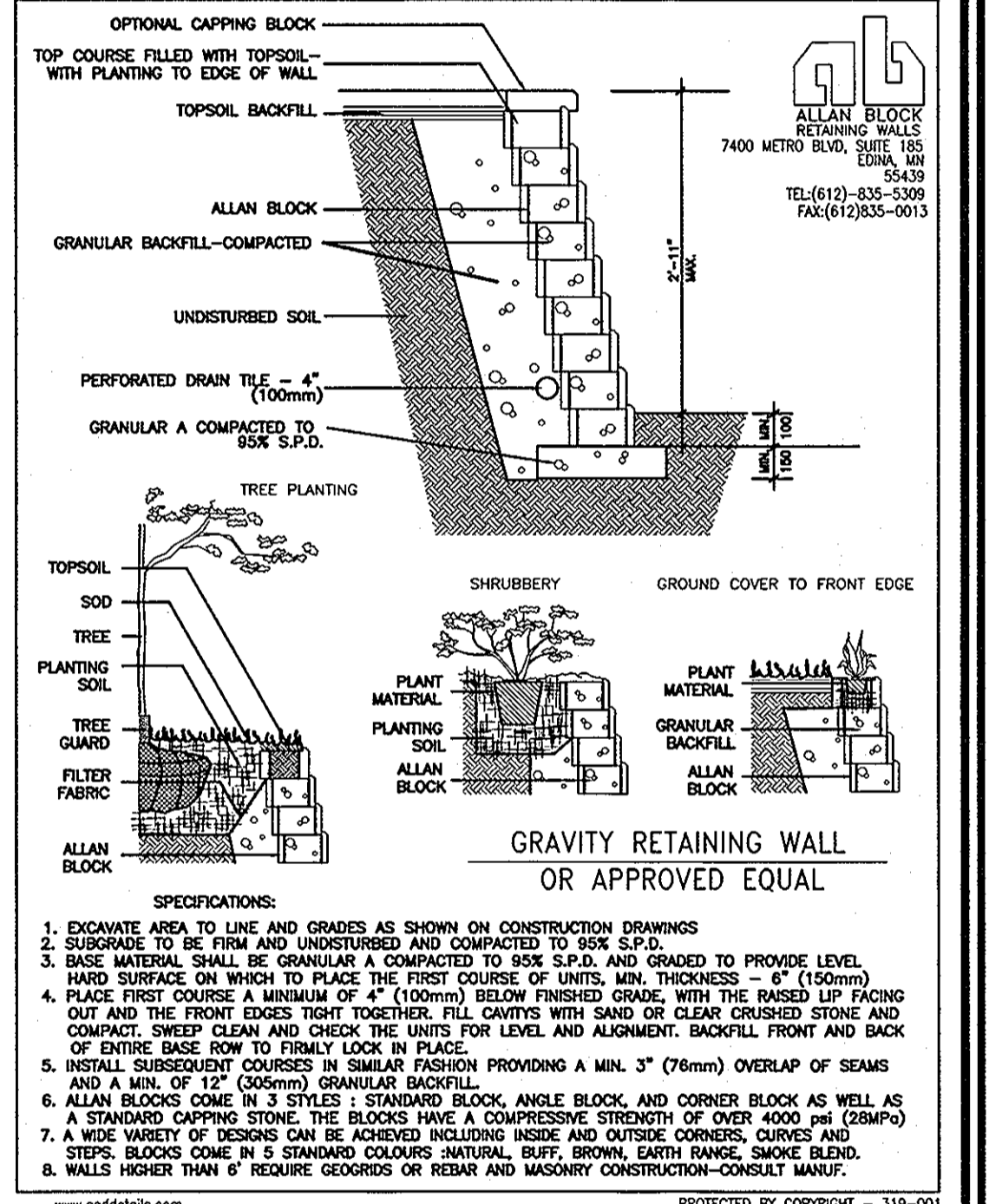
V. TOPSOIL APPLICATION

I. WHEN TOPSOILING, MAINTAIN NEEDED EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, EARTH DIKES, SLOPE SILT FENCE AND Sediment Traps and Basins.

II. Grades on the areas to be topsoiled, which have BEEN PREVIOUSLY ESTABLISHED, SHALL BE MAINTAINED, ALTHOUGH 4" - 8" higher in elevation.

III. TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4" - 8" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4". SPREADING SHALL BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR water pockets.

IV. TOPSOIL SHALL NOT BE PLACED WHILE THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.



GRAVITY RETAINING WALL
OR APPROVED EQUAL
LESS THAN OR EQUAL TO 3' HIGH
SEE WALL PLANS SHEETS 16-18

OWNER/DEVELOPER
THE PRESERVE AT WAVERLY GLEN, LLC
3675 PARK AVENUE, SUITE 301
ELLCOTT CITY, MARYLAND 21143
(410) 480-0023

FINAL GRADING & SEDIMENT CONTROL PLAN
THE PRESERVE AT WAVERLY GLEN
LOTS 1-21, PRESERVATION PARCELS A-F AND I
NON-BUILDABLE BULK PARCEL G+H
A RESUBDIVISION OF LOTS 1 & 2 AND PARCEL A OF
SHADOW SHADE PLAT NO. 13808 AND LOT 1 OF HIGHPOINT AT
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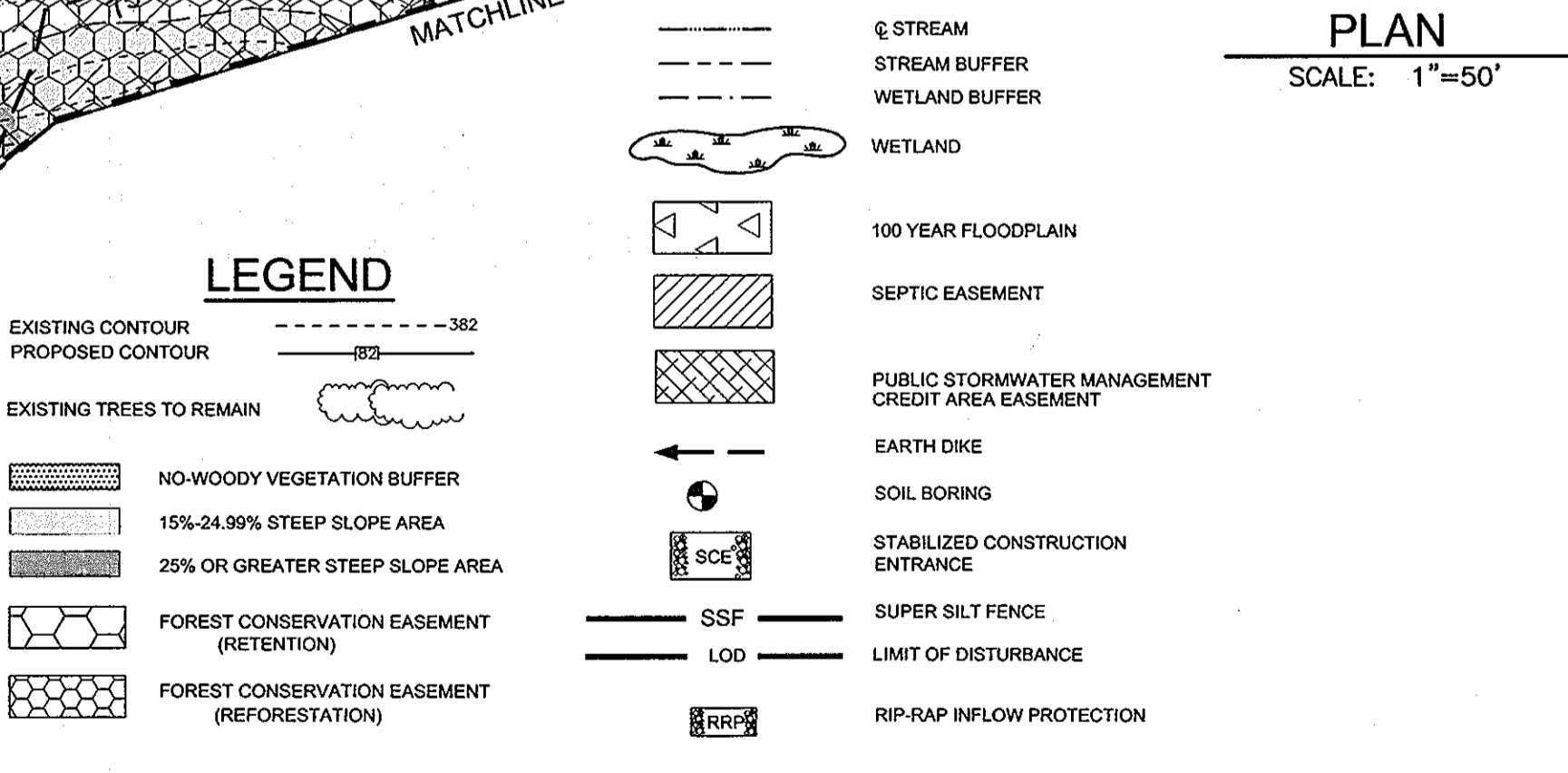
REF. S-02-03, P-03-02, F-99-25, F-86-13
TAX MAP #10 BLOCK 23
ELECTION DISTRICT

PARCELS '304' & '102'
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS - SURVEYORS
8407 MAIN STREET
ELLCOTT CITY, MARYLAND 21143
TEL: 410.461.7666 FAX: 410.461.8961

DESIGN BY: RJ/JCO
DRAWN BY: RJ
CHECKED BY: RHV
DATE: AUG. 2004
SCALE: AS SHOWN
W.O. NO.: 2017139.00

7 SHEET OF 22



APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS
CHIEF, DEVELOPMENT ENGINEERING DIVISION
CHIEF, DIVISION OF LAND DEVELOPMENT

DATE: 9/7/04
DATE: 9/13/04

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 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.

ROBERT H. VOGEL
SIGNATURE OF ENGINEER
DATE: 8/14/04

DEVELOPER'S CERTIFICATE
I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE IN ACCORDANCE TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I 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.

MILLER WOOD (MEMBER)
SIGNATURE OF DEVELOPER
DATE: 8/14/04

THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

JIM MYOULS
USDA-NATURAL RESOURCES CONSERVATION SERVICE
DATE: 9/9/04

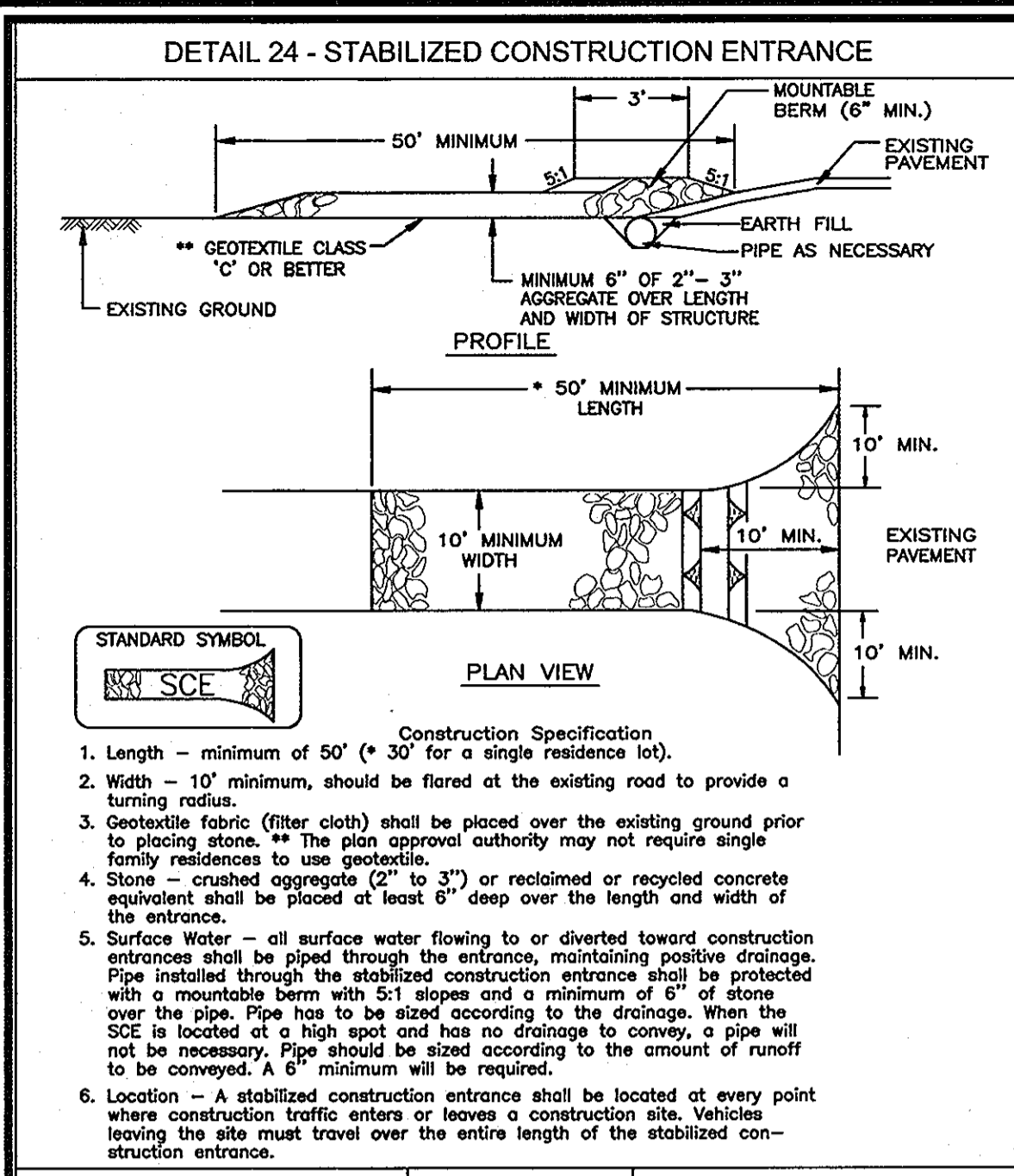
THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT
DATE: 9/9/04

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

ROBERT H. VOGEL
SIGNATURE OF ENGINEER
DATE: 9/9/04

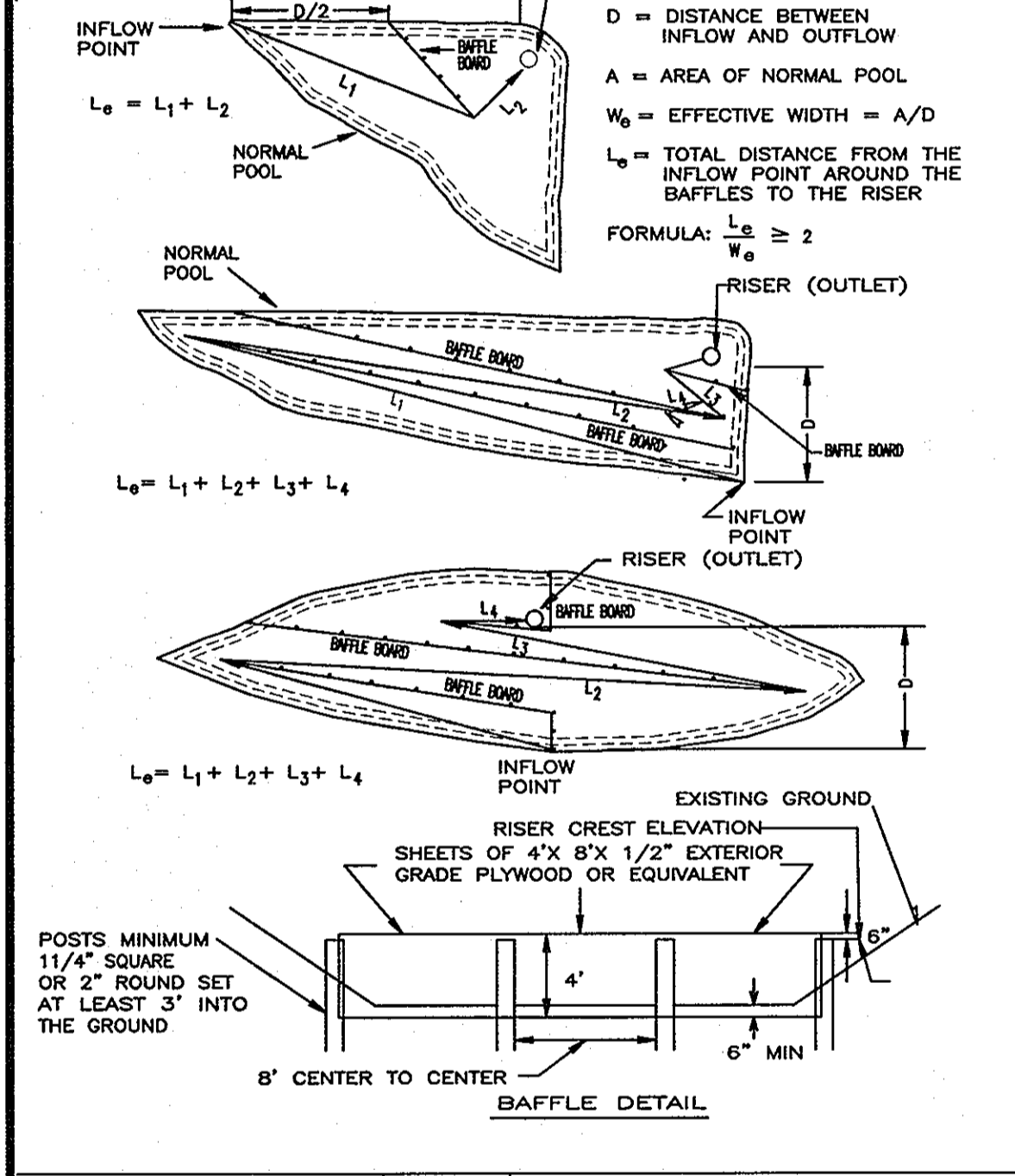
CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ON-SITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ON-SITE SITE INSPECTION AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE OR WARRANTY NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.



Construction Specifications

- Length - minimum of 50' (4' 30" for a single residence lot).
- Width - 10' minimum, should be formed at the existing road to provide a turning radius.
- Geotextile fabric (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 malleable 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 6" 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 PAGE F-17-3 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE C-10-23 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

TEMPORARY SEEDING NOTES

SEEDBED PREPARATION: Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, if not already previously loosened.

SOIL AMENDMENTS: Apply 600 lbs. per acre 10-10-10 fertilizer (14 lbs./1,000 sq.ft.).

SEEDING: For periods March 1 thru April 30 and from August 15 thru November 15, seed with 2 1/2 bushels per acre of annual ryegrass (3.2 lbs./1,000 sq.ft.). For the period May 1 thru August 15, seed with 3 lbs. per acre of weeping lovegrass (.07 lbs./1,000 sq.ft.). For the period November 1 thru February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use seed.

MULCHING: Apply 1 1/2 to 2 tons per acre (70 to 90 lbs./1,000 sq.ft.) of unrotted straw mulch immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (6 gal/1,000 sq.ft.) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1,000 sq.ft.) for anchoring.

REFER TO THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.

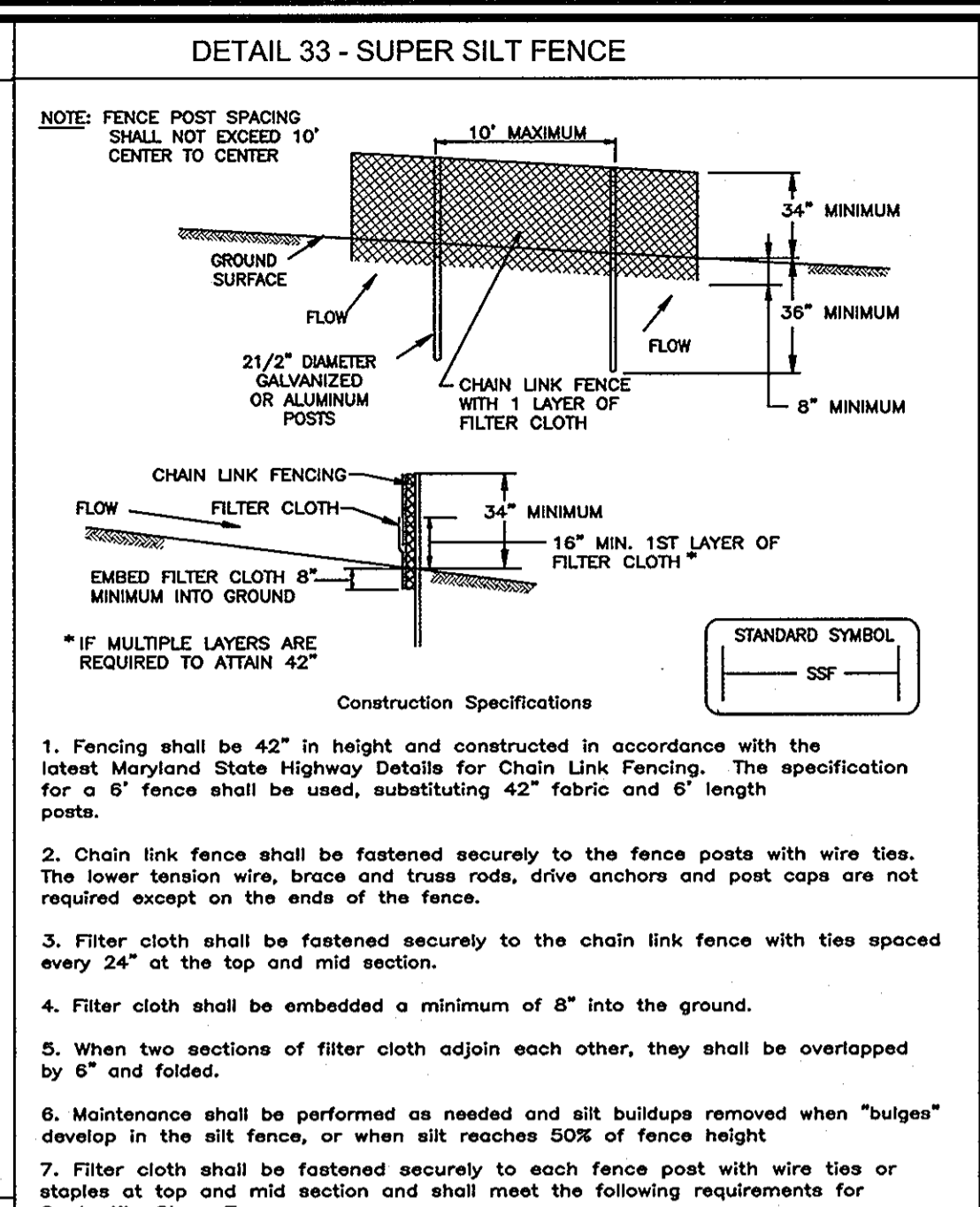
APPROVED: DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Chief, Division of Land Development

APPROVED: DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
Chief, Division of Environmental Engineering

DATE: 9/13/04

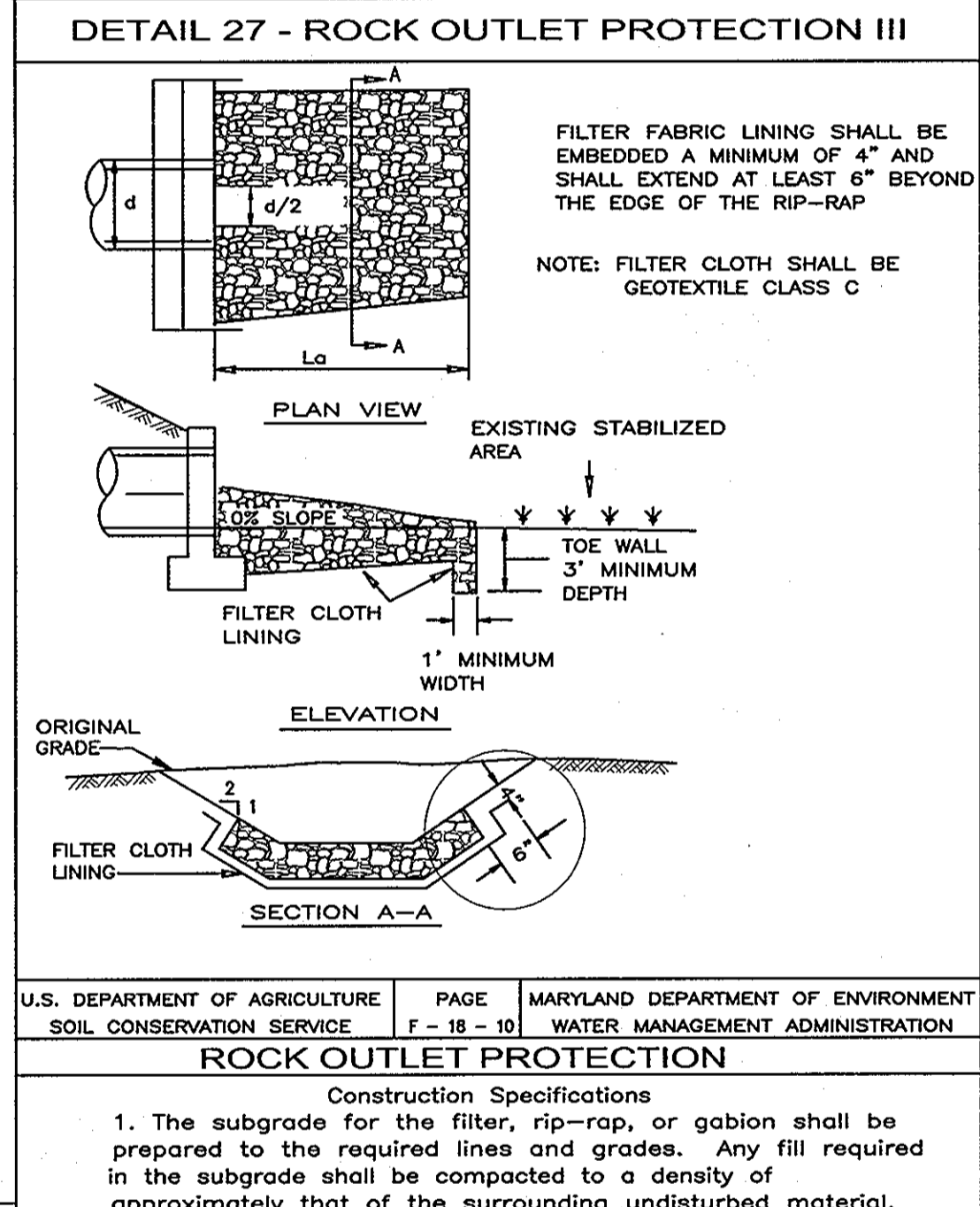
DATE: 9/7/04



Construction Specifications

- Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length posts.
- Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.
- 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 8" 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 needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height.
- Filter cloth 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:

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE H-29-3 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



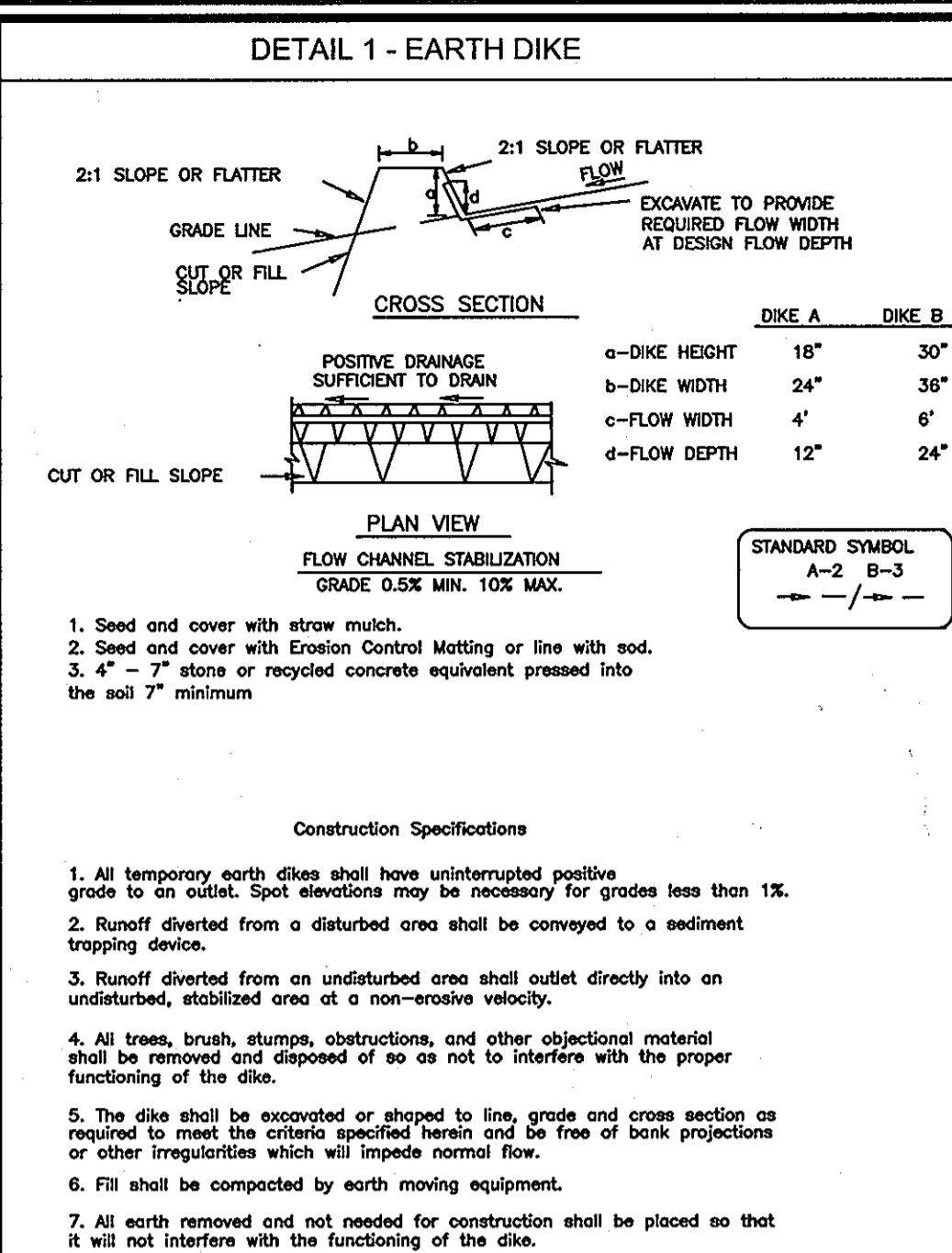
Construction Specifications

- The subgrade for the filter, rip-rap, or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.
- The rock or gravel shall conform to the specified grading limits when installed respectively in the rip-rap or filter.
- Geotextile shall be protected from punching, cutting, or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of geotextile over the damaged part or by completely replacing the geotextile. All overlaps whether for repairs or for joining two pieces of geotextile shall be a minimum of one foot.
- Stone for the rip-rap or gabion outlets may be placed by equipment. They shall be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for rip-rap or gabion outlets shall be delivered and placed in a manner that will ensure that it is reasonably homogeneous with the smaller stones and spalls filling the voids between the larger stones. Rip-rap shall be placed in a manner to prevent damage to the filter blanket or geotextile. Hand placement will be required to the extent necessary to prevent damage to the permanent works.
- The stone shall be placed so that it blends in with the existing ground. If the stone is placed too high then the flow will be forced out of the channel and scour adjacent to the stone will occur.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE F-18-10 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

ROCK OUTLET PROTECTION

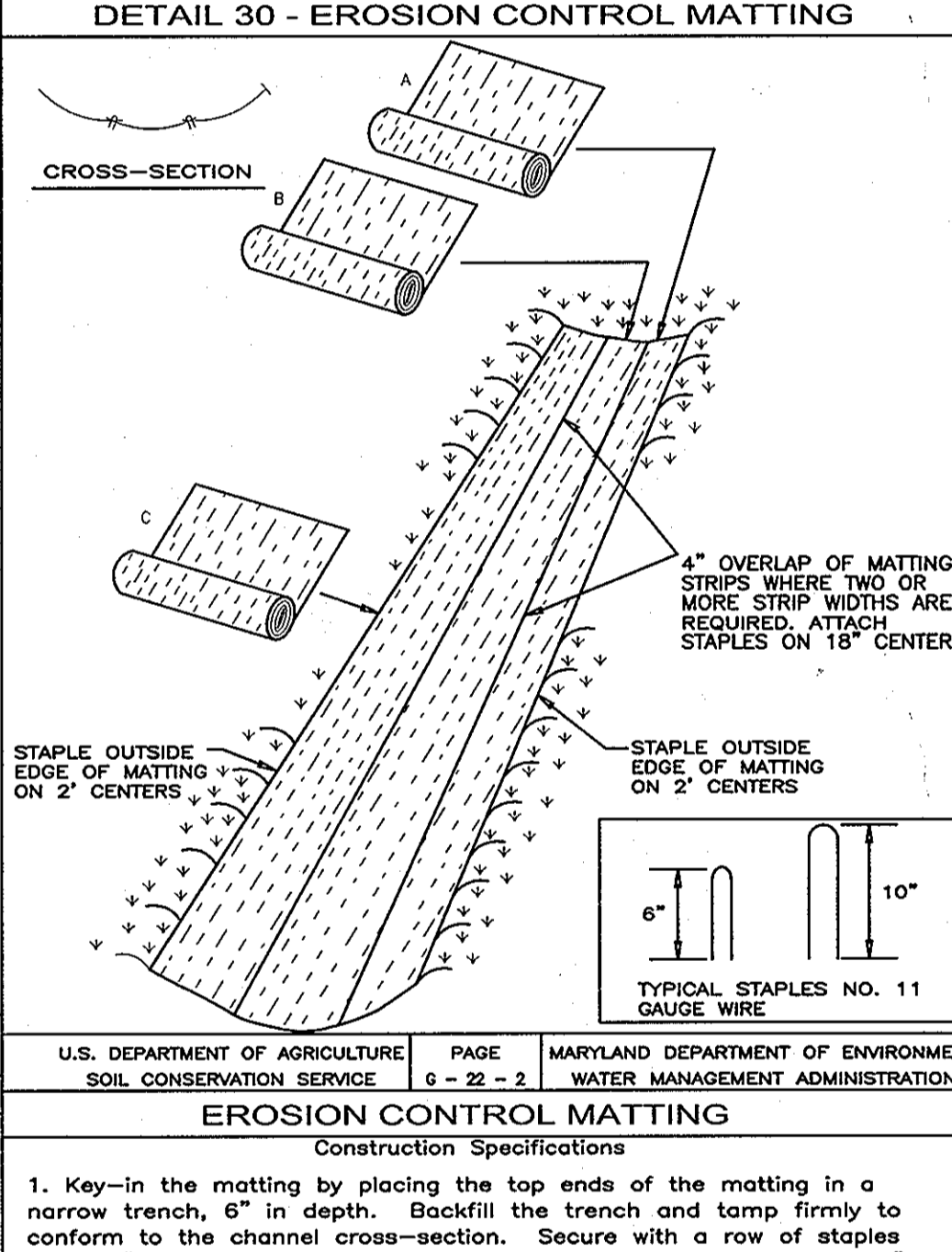
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE F-18-10 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



Construction Specifications

- Temporary earth dikes shall have unimpaired positive grade to an outlet. Spot elevations may be necessary for grades less than 1%.
- Ranoff diverted from a disturbed area shall be conveyed to a sediment trapping device.
- All trees, brush, stumps, obstructions, and other objectionable 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 topped to line, grade and cross section as required to meet a criteria specified herein and be free of bank projections or other irregularities which will impede normal flow.
- Fill shall be compacted by earth moving equipment.
- All earth removed and not needed 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 PAGE A-1-6 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



Construction Specifications

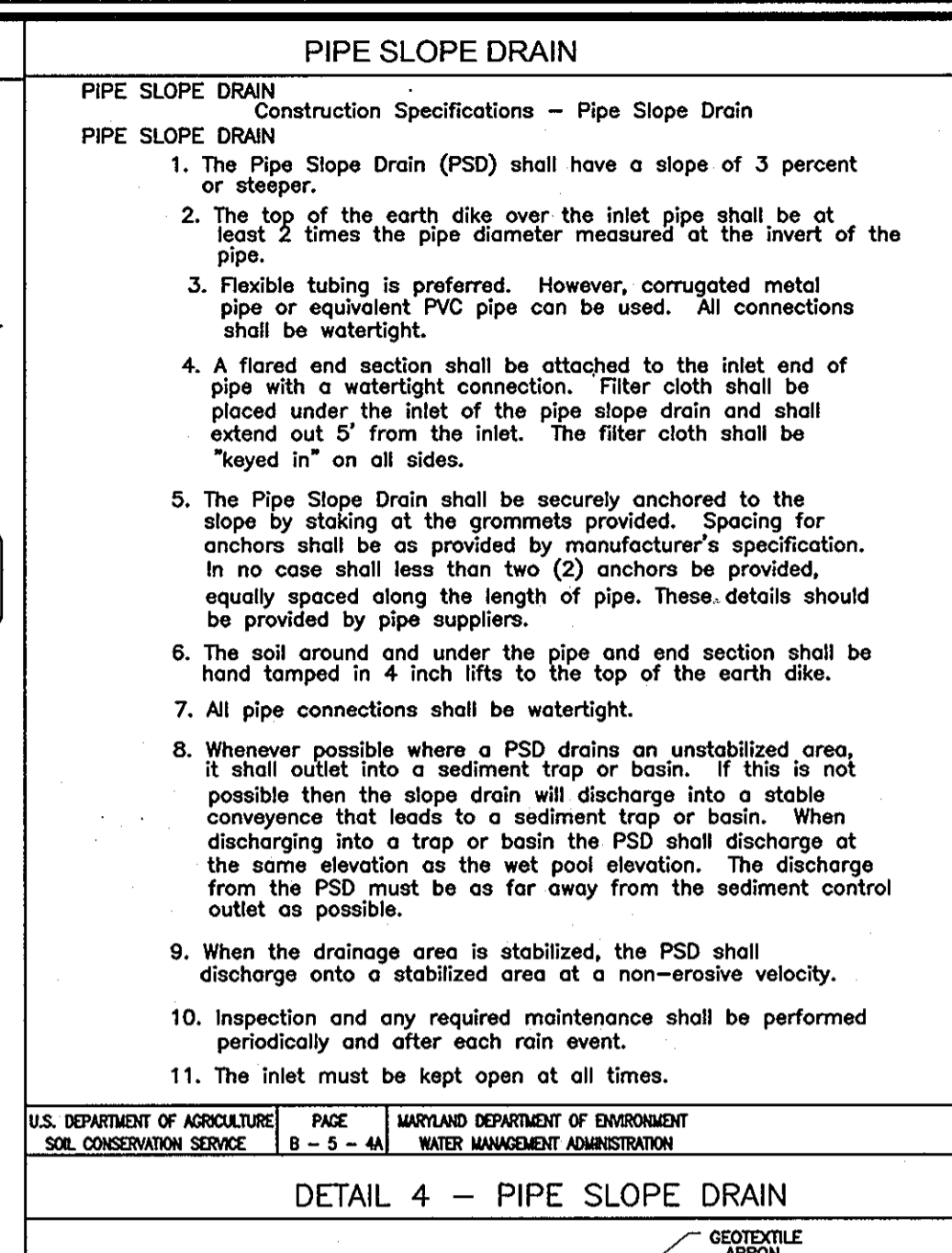
- Key-in the matting by placing the top ends of the matting in a narrow trench, 6" in depth. Backfill the trench and tamp firmly to conform to the channel cross-section. Secure with a row of staples about 4" down slope from the trench. Spacing between staples is 6".
- Staple the 4" overlap in the channel center using an 18" spacing between staples.
- Before stapling the outer edges of the matting, make sure the matting is smooth and in firm contact with the soil.
- Staples shall be placed 2' apart with 4 rows for each strip, 2 outer rows, and 2 alternating rows down the center.
- Where one roll of matting ends and another begins, the end of the top strip shall overlap the upper end of the lower strip by 4", shiplap fashion. Reinforce the overlap with a double row of staples spaced 6" apart in a staggered pattern on either side.
- The discharge end of the matting liner should be similarly secured with 2 double rows of staples.

Note: If flow will enter from the edge of the matting then the area affected by the flow must be keyed-in.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE C-22-2 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

EROSION CONTROL MATTING

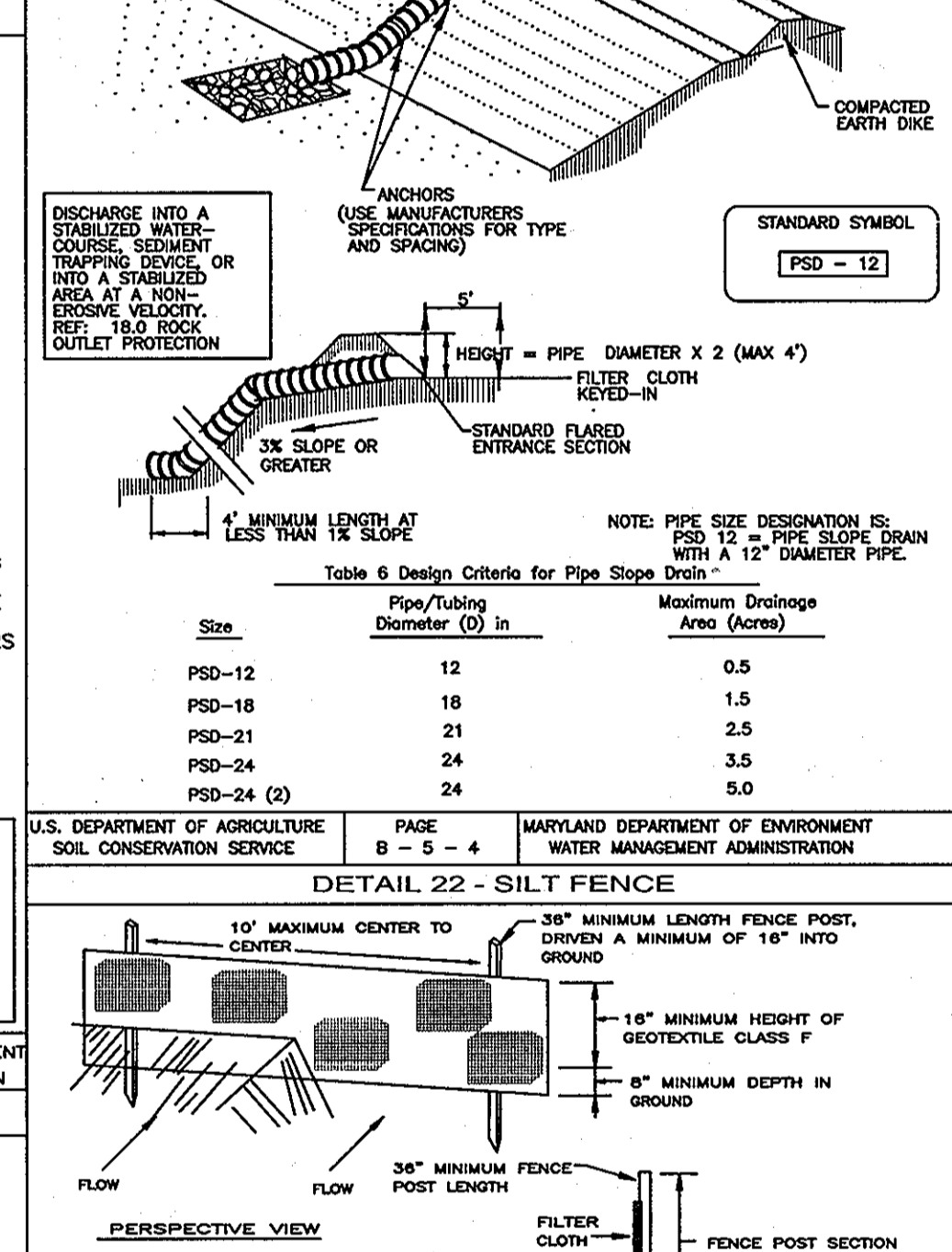
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE C-22-2 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



Construction Specifications - Pipe Slope Drain

- The Pipe Slope Drain (PSD) shall have a slope of 3 percent or steeper.
- The top of the earth dike over the inlet pipe shall be at least 2 times the pipe diameter measured at the invert of the pipe.
- Flexible tubing is preferred. However, corrugated metal pipe or equivalent PVC pipe can be used. All connections shall be watertight.
- A flared end section shall be attached to the inlet end of pipe with a watertight connection. Filter cloth shall be placed under the inlet of the pipe slope drain and shall extend out 5' from the inlet. The filter cloth shall be "keyed in" on all sides.
- The Pipe Slope Drain shall be securely anchored to the slope by staking at the grommets provided. Spacing for anchors shall be as provided by manufacturer's specification. In no case shall less than two (2) anchors be provided, equally spaced along the length of pipe. These details should be provided by pipe suppliers.
- The soil around and under the pipe and end section shall be hand tamped in 4 inch lifts to the top of the earth dike.
- All pipe connections shall be watertight.
- Whenever possible where a PSD drains an unstabilized area, it shall outlet into a sediment trap or basin. If this is not possible then the slope drain will discharge into a stable conveyance that leads to a sediment trap or basin. When discharging into a trap or basin the PSD shall discharge at the same elevation as the wet pool elevation. The discharge from the PSD must be as far away from the sediment control outlet as possible.
- When the drainage area is stabilized, the PSD shall discharge onto a stabilized area at a non-erosive velocity.
- Inspection and any required maintenance shall be performed periodically and after each rain event.
- The inlet must be kept open at all times.

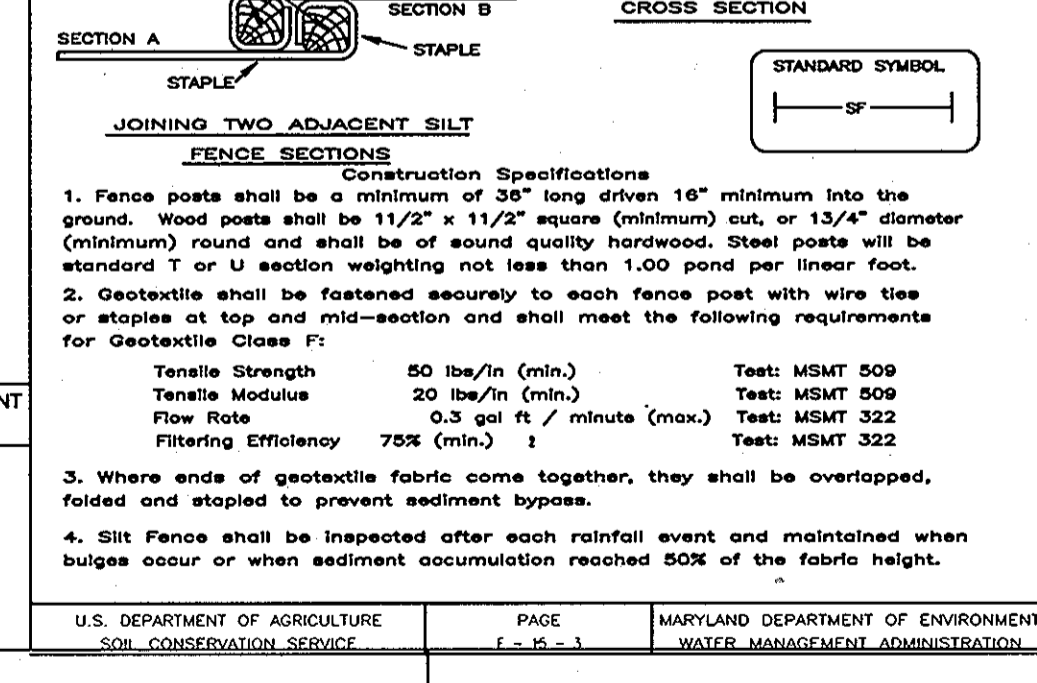
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE B-9-4 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



Construction Specifications

- Area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
- The fill material for the embankment shall be free of roots and other woody vegetation as well as oversized stones, rocks, organic material or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed.
- All cut and fill slopes shall be 2:1 or flatter.
- The stone used in the outlet shall be small rip-rap 4" to 7" in size with a 1" thick layer of 3/4" to 1 1/2" washed aggregate placed over the stone. The aggregate shall be compacted in place. The stone facing by piping it on the inside face of the stone outlet.
- Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to one half of the wet storage depth of the trap. Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.
- Area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
- The fill material for the embankment shall be free of roots and other woody vegetation as well as oversized stones, rocks, organic material or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed.
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U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE B-5-4 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

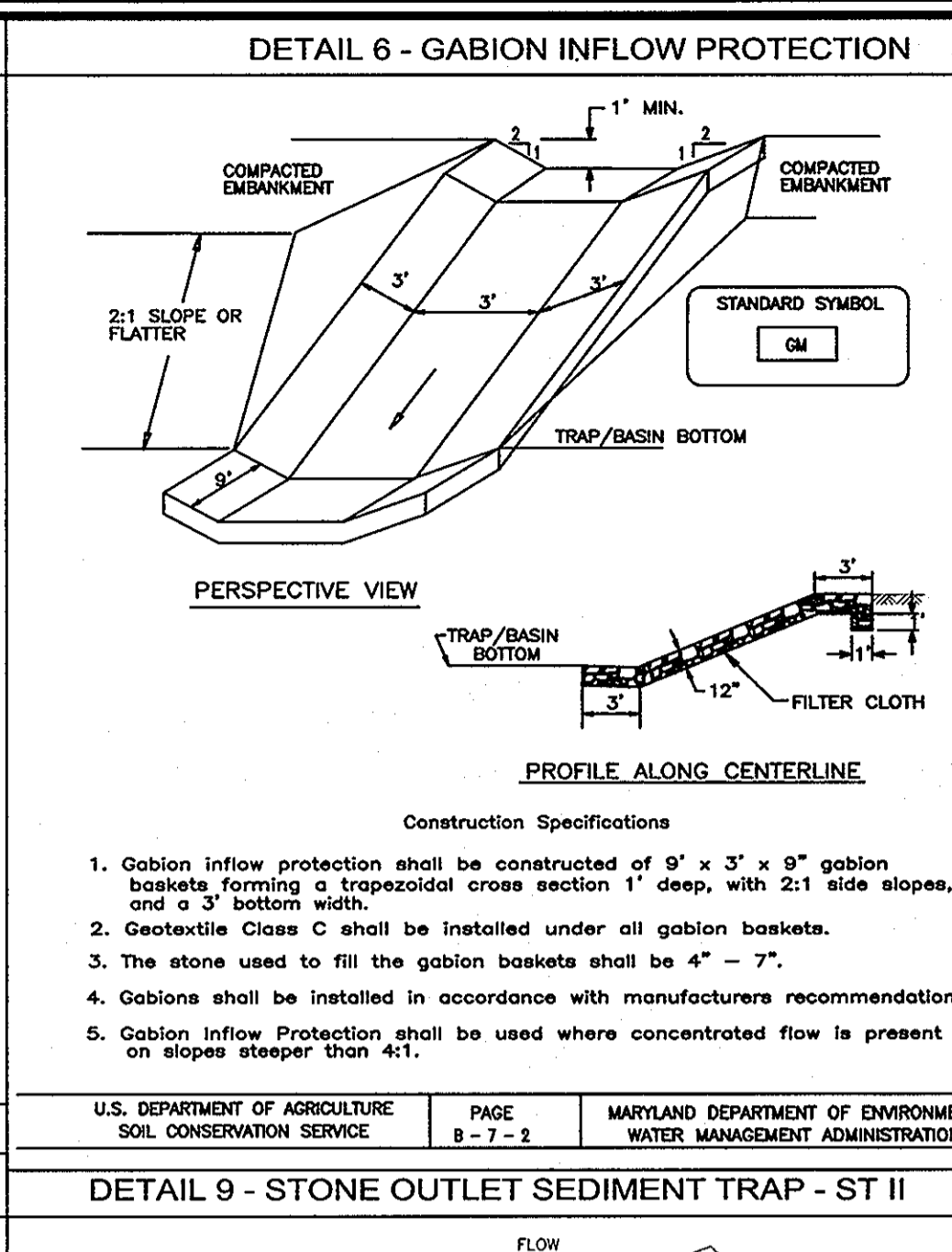


Construction Specifications

- Fence posts shall be a minimum of 36" long driven 18" minimum into the ground. Wood posts shall be 1 1/2" x 1 1/2" square (minimum) cut, or 1 3/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighing not less than 1.00 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:

Note: If flow will enter from the edge of the matting then the area affected by the flow must be keyed-in.

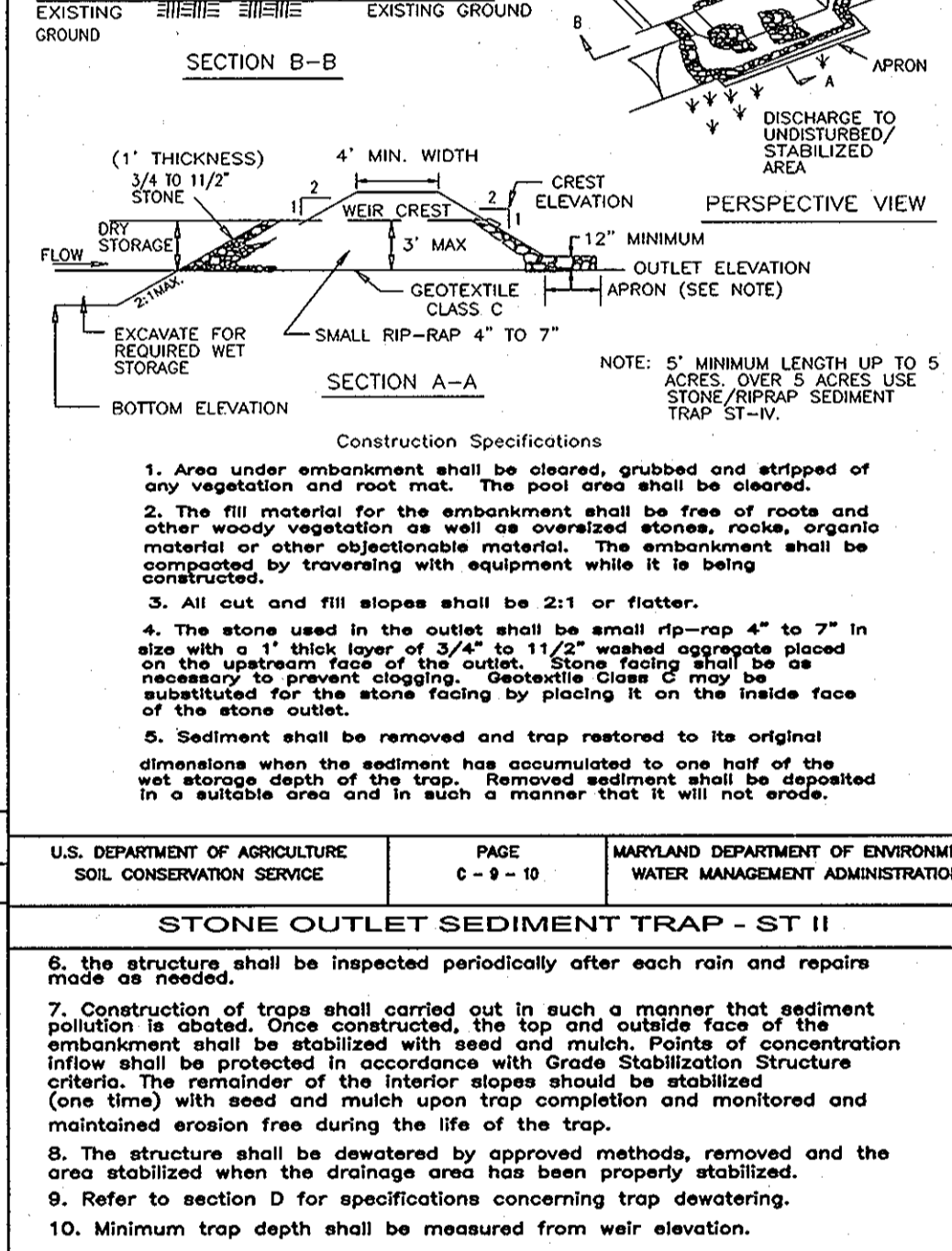
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE C-22-2 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



Construction Specifications

- Gabion inflow protection shall be constructed of 9' x 3' x 3' gabion baskets forming a trapezoidal cross section 1' deep, with 2:1 side slopes, and 3' bottom width.
- Geotextile Class C shall be installed under all gabion baskets.
- The stone used to fill the gabion baskets shall be 4" - 7".
- Gabions shall be installed in accordance with manufacturer's recommendations.
- Gabion Inflow Protection shall be used where concentrated flow is present on slopes steeper than 4:1.

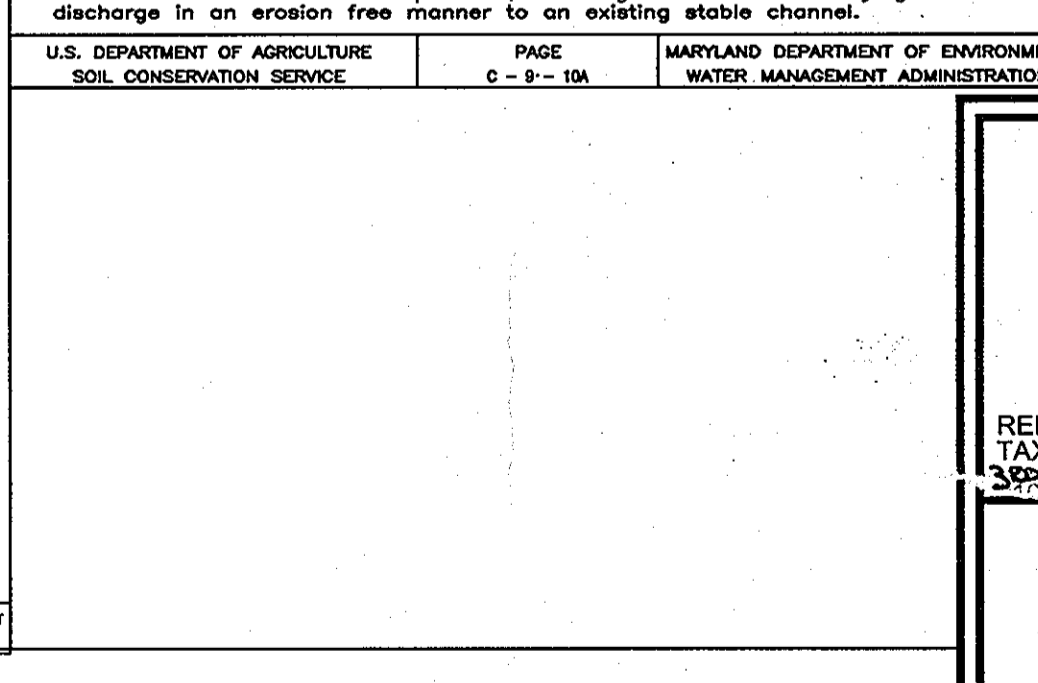
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE B-7-2 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



Construction Specifications

- Area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
- The fill material for the embankment shall be free of roots and other woody vegetation as well as oversized stones, rocks, organic material or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed.
- All cut and fill slopes shall be 2:1 or flatter.
- The stone used in the outlet shall be small rip-rap 4" to 7" in size with a 1" thick layer of 3/4" to 1 1/2" washed aggregate placed over the stone. The aggregate shall be compacted in place. The stone facing by piping it on the inside face of the stone outlet.
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U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE C-9-10 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



Construction Specifications

- The structure shall be inspected periodically after each rain and repairs made as needed.
- Construction of traps shall be carried out in such a manner that sediment pollution is avoided. Once constructed, the top and outside face of the embankment shall be stabilized with seed and mulch. Points of concentration inflow shall be protected in accordance with Grade Stabilization Structure criteria. The remainder of the interior slopes should be stabilized (one time) with seed and mulch upon trap completion and monitored and maintained erosion free during the life of the trap.
- The structure shall be dewatered by approved methods, removed and the area stabilized when the drainage area has been properly stabilized.
- Refer to section D for specifications concerning trap dewatering.
- Minimum trap depth shall be measured from weir elevation.
- The elevation of the top of any dike directing water into the trap must equal or exceed the elevation of the trap embankment.
- Geotextile Class C shall be placed over the bottom and sides of the outlet channel prior to the placement of stone. Sections of filter cloth must overlap at least 1' with the section nearest the entrance placed on top. The filter cloth shall be embedded at least 6" into existing ground at the entrance of the outlet channel.
- Outlet-An outlet shall be provided, including a means of conveying the discharge in an erosion free manner to an existing drainage channel.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE C-9-10 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SEQUENCE OF CONSTRUCTION	DURATION
1. OBTAIN GRADING PERMIT.	
2. NOTIFY HOWARD COUNTY BUREAU OF INSPECTIONS AND PERMITS (313-1800) AT LEAST 24 HOURS BEFORE STARTING ANY WORK.	3 DAYS
3. INSTALL PERMITS SUPER SILT FENCE, CLEANWATER DIKES AND PIPE SLOPE DRAINS.	3 DAYS
4. CONSTRUCT STORMWATER MANAGEMENT FACILITY (SEDIMENT BASINS) DO NOT CONSTRUCT FORELAY FOR THE FINAL SWM FACILITIES WITH TEMPORARY SEDIMENT BASIN UNTIL AFTER CONSTRUCTION CONTROL STRUCTURES AND OUTFALLS. BLOCK S-2 AND S-3 PIPES AND S-1 PER 139A.	5 WEEKS
5. WITH GRADING IS PROGRESS MAINTAIN FLOW TO BASINS. BEGIN GRADING OF MOUNT DEVALI DRIVE AND TOMPKINS WAY.	3 WEEK
6. GRADE REMAINING ROAD TO SUB-BASE AS SITE IS GRADED. INSTALL STORM DRAIN SYSTEMS, AS ROAD IS GRADED TO SUB-BASE.	2 WEEK
7. WITH INSPECTOR'S APPROVAL CLEAR AND GRUB SITE AND BEGIN MASS GRADING REMOVE EXISTING CULVERT AND STABILIZE IMMEDIATELY.	2 WEEK
8. BEGIN PAVING MOUNT DEVALI DRIVE AND TOMPKINS WAY.	2 WEEK
9. AS STORMWATER MANAGEMENT POND IS STABILIZED, INSTALL POND LANDSCAPING AS SHOWN IN SCHEDULE "D" AND PERMITTER LANDSCAPING AS SHOWN IN SCHEDULE "A". SEE SHEET 13 FOR SCHEDULE TABLES. INSTALL STREET TREES.	1 WEEK
10. WITH INSPECTOR'S APPROVAL AND ROAD PAVING COMPLETE AND CONTROLLING DRAINAGE AREA STABILIZED, CONCRETED SEDIMENT BASIN #1 TO PERMANENT WATER QUALITY EXTENDED DETENTION SWM FACILITIES. MAINTAIN SEDIMENT TRAPS TO PERMANENT GRADES AND REMOVE BLOCKING FROM CONTROL STRUCTURES S-2 AND S-3.	1 WEEK
11. WITH PERMISSION OF THE INSPECTOR, FLUSH STORM DRAIN SYSTEM AND REMOVE ALL SEDIMENT CONTROLS FROM THE SITE. STABILIZED ALL DISTURBED AREAS IMMEDIATELY.	2 WEEK

NOTES

DURING GRADING AND AFTER EACH RAINFALL, THE CONTRACTOR SHALL INSPECT AND PROVIDE THE NECESSARY MAINTENANCE ON THE SEDIMENT AND EROSION CONTROL MEASURES SHOWN HEREIN.

FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN A 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, SWALES, DITCH PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1.

14 CALENDAR DAYS FOR ALL OTHER DISTURBED AREAS.

SEDIMENT CONTROL NOTES

- A minimum of 48 hours notice must be given to the Howard County Department of Inspection, License and Permits Sediment Control Division prior to the start of any construction (313-1855).
- All vegetation and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, and revisions thereto.
- Following initial soil disturbance or redisturbance, permanent or temporary stabilization shall be completed within: (a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes, and all slopes greater than 3:1, (b) 14 days as to all other disturbed or graded areas on the project site.
- All disturbed areas must be stabilized within the time period specified above in accordance with the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding, sod, temporary seeding, and mulching (Sec. 9). Temporary stabilization with mulch alone shall be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
- All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
- Site Analysis:

Total Area	SUBDIVISION	2158358.80 SF. (49.5491 Acres)
Area Disturbed		341904.32 (7.84 Acres)
Area to be roofed or paved		56427.68 (1.295 Acres)
Area to be vegetatively stabilized		19,500 CV
Total CV		283140 (6.545 Acres)
Total Fill		19,500 CV

Offsite waste/borrow area location
- Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
- Additional sediment controls must be provided, if deemed necessary by the Howard County Sediment Control Inspector.
- On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.
- Trenches for the construction of utilities is limited to three pipe lengths or that which shall be back-filled and stabilized within one working day, whichever is shorter.
- To be determined by contractor, with pre-approval of the Sediment Control Inspector with an approved and active grading permit.

OWNER/DEVELOPER
THE PRESERVE AT WAVERLY GLEN LLC.
3675 PARK AVENUE, SUITE 301
ELLCOTT CITY, MARYLAND 21043
(410) 480-2023

SEDIMENT AND EROSION CONTROL
THE PRESERVE AT WAVERLY GLEN
LOTS 1-21, PRESERVATION PARCELS A-F AND I
A NON-BUILDABLE BULK PARCEL G+H
A RESUBDIVISION OF LOTS 1 & 2 AND PARCEL A OF
SHADOW SHADE PLAT NO. 13908 AND LOT 1 OF HIGHPOINT AT
BREEZEWOOD FARMS PLAT NO. 6385

REF S-02-03, P-03-02, F-99-25, F-86-13
1.7X10.5' BLOCK 23
35th ELECTION DISTRICT

PARCELS '304' & '102'
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS - SURVEYORS

8407 MAIN STREET
ELLCOTT CITY, MARYLAND 21043
TEL: 410.461.7666 FAX: 410.461.8961

DESIGN BY: RJ
DRAWN BY: RJ
CHECKED BY: JCO
DATE: 05-21-2004
SCALE: AS SHOWN
W.O. NO.: 2017138.00

8 SHEET OF 22

AS-BUILT F-03-193

ENGINEER'S 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 DEVELOPED THIS 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.

DATE: 8/14/04

DEVELOPER'S CERTIFICATE

"I WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE IN ACCORDANCE TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I 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.

DATE: 8/14/04

THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

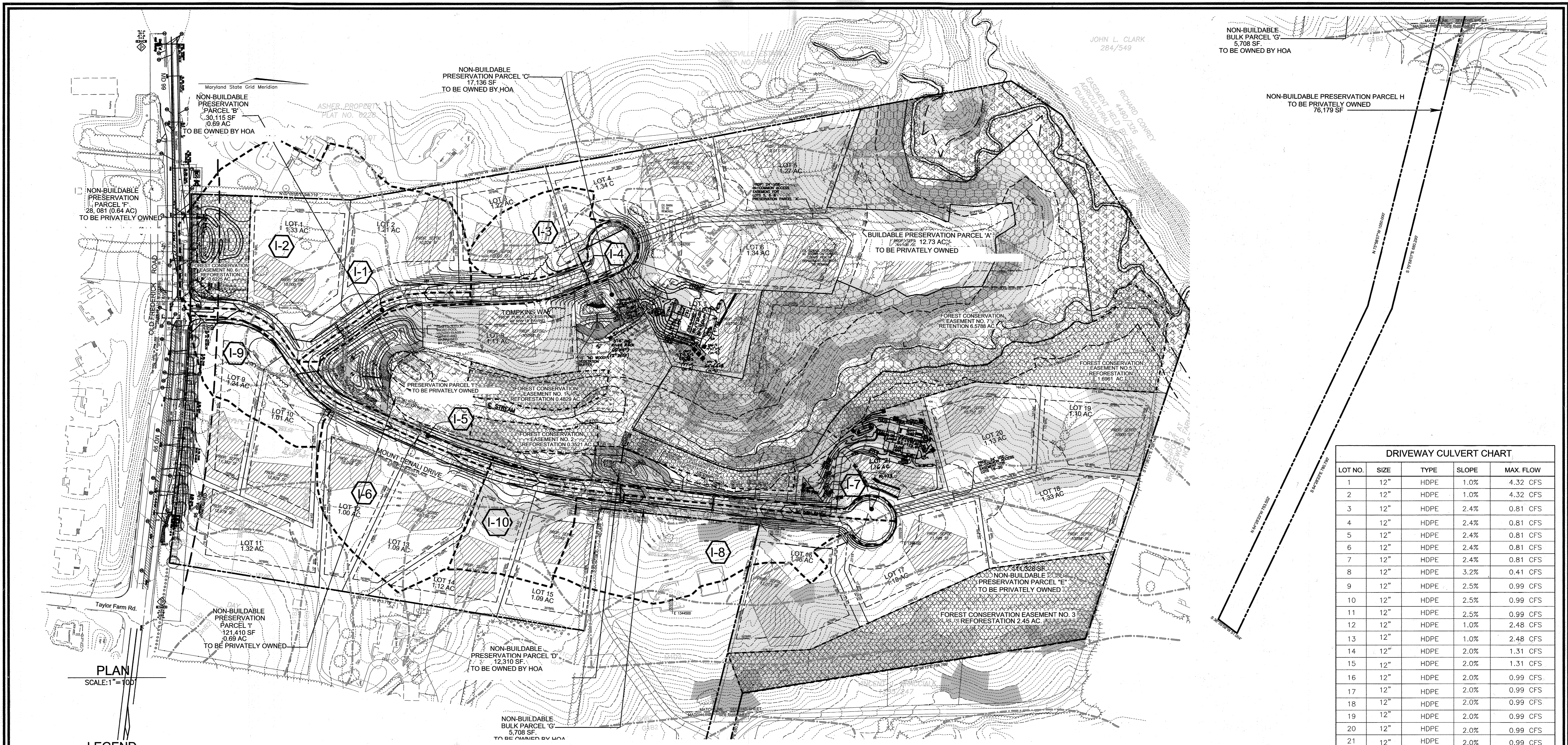
DATE: 9/9/04

DATE: 9/9/04

USDA-NATURAL RESOURCES CONSERVATION SERVICE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

DATE: 9/9/04



PLAN
SCALE: 1"=100'

PLAN
SCALE: 1"=100'

LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING TREES TO REMAIN
- NO-WOODY VEGETATION BUFFER
- 15%-24.99% STEEP SLOPE AREA
- 25% OR GREATER STEEP SLOPE AREA
- FOREST CONSERVATION EASEMENT (REFORESTATION)
- FOREST CONSERVATION EASEMENT (RETENTION)
- STREAM
- STREAM BUFFER
- WETLAND BUFFER
- WETLAND
- 100 YEAR FLOODPLAIN EASEMENT
- SEPTIC EASEMENT
- PUBLIC SWM CREDIT AREA EASEMENT
- SOIL BORING
- DRAINAGE DIVIDE LINE

SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	TYPE
EIC3	ELIOAK SILTY CLAY LOAM, 8 TO 15 PERCENT SLOPES, SEVERELY ERODED	B
GIB2	GLENELG LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	B
GC2	GLENELG LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED	B
GC3	GLENELG LOAM, 8 TO 15 PERCENT SLOPES, SEVERELY ERODED	B
GH2	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	C
MC2	MANOR LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED	B
MID3	MANOR LOAM, 15 TO 25 PERCENT SLOPES, SEVERELY ERODED	B
MIE	MANOR LOAM, 25 TO 45 PERCENT SLOPES	B

8	REVISE THE HOUSE TYPE, GRADING AND SWM ON LOT 7	10/2/03
7	REVISE THE HOUSE TYPE, GRADING AND SWM ON LOT 21	3-2-22
6	REVISE THE PLAN TO ADD A PROPOSED HOUSE TYPE, GRADING AND SWM ON LOT 21	12-6-21
NO.	REVISION	DATE

STORM DRAIN CHART

INLET NO.	AREA(AC.)	ZONE	'c' FACTOR	IMP.
1	0.25	RC-DEO	0.36	28%
2	4.36	RC-DEO	0.22	15%
3	0.85	RC-DEO	0.21	15%
4	0.91	RC-DEO	0.21	15%
5	0.61	RC-DEO	0.47	44%
6	0.28	RC-DEO	0.31	21%
7	3.58	RC-DEO	0.23	17%
8	0.41	RC-DEO	0.47	44%
9	2.53	RC-DEO	0.25	20%
10	1.14	RC-DEO	0.25	25%

DRIVEWAY CULVERT CHART

LOT NO.	SIZE	TYPE	SLOPE	MAX. FLOW
1	12"	HDPE	1.0%	4.32 CFS
2	12"	HDPE	1.0%	4.32 CFS
3	12"	HDPE	2.4%	0.81 CFS
4	12"	HDPE	2.4%	0.81 CFS
5	12"	HDPE	2.4%	0.81 CFS
6	12"	HDPE	2.4%	0.81 CFS
7	12"	HDPE	2.4%	0.81 CFS
8	12"	HDPE	3.2%	0.41 CFS
9	12"	HDPE	2.5%	0.99 CFS
10	12"	HDPE	2.5%	0.99 CFS
11	12"	HDPE	2.5%	0.99 CFS
12	12"	HDPE	1.0%	2.48 CFS
13	12"	HDPE	1.0%	2.48 CFS
14	12"	HDPE	2.0%	1.31 CFS
15	12"	HDPE	2.0%	1.31 CFS
16	12"	HDPE	2.0%	0.99 CFS
17	12"	HDPE	2.0%	0.99 CFS
18	12"	HDPE	2.0%	0.99 CFS
19	12"	HDPE	2.0%	0.99 CFS
20	12"	HDPE	2.0%	0.99 CFS
21	12"	HDPE	2.0%	0.99 CFS

* DRIVEWAY CULVERT LOCATIONS TO BE DETERMINED AT BUILDING PERMIT.

APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 CHIEF, DIVISION OF LAND DEVELOPMENT

ENGINEER'S 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 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.

DEVELOPER'S CERTIFICATE
 I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE IN ACCORDANCE TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I 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.

THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.
 USDA-NATURAL RESOURCES CONSERVATION SERVICE
 THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

OWNER/DEVELOPER
 THE PRESERVE AT WAVERLY GLEN, LLC
 3875 PARK AVENUE, SUITE 301
 ELLICOTT CITY, MARYLAND 21043
 (410) 480-0023

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

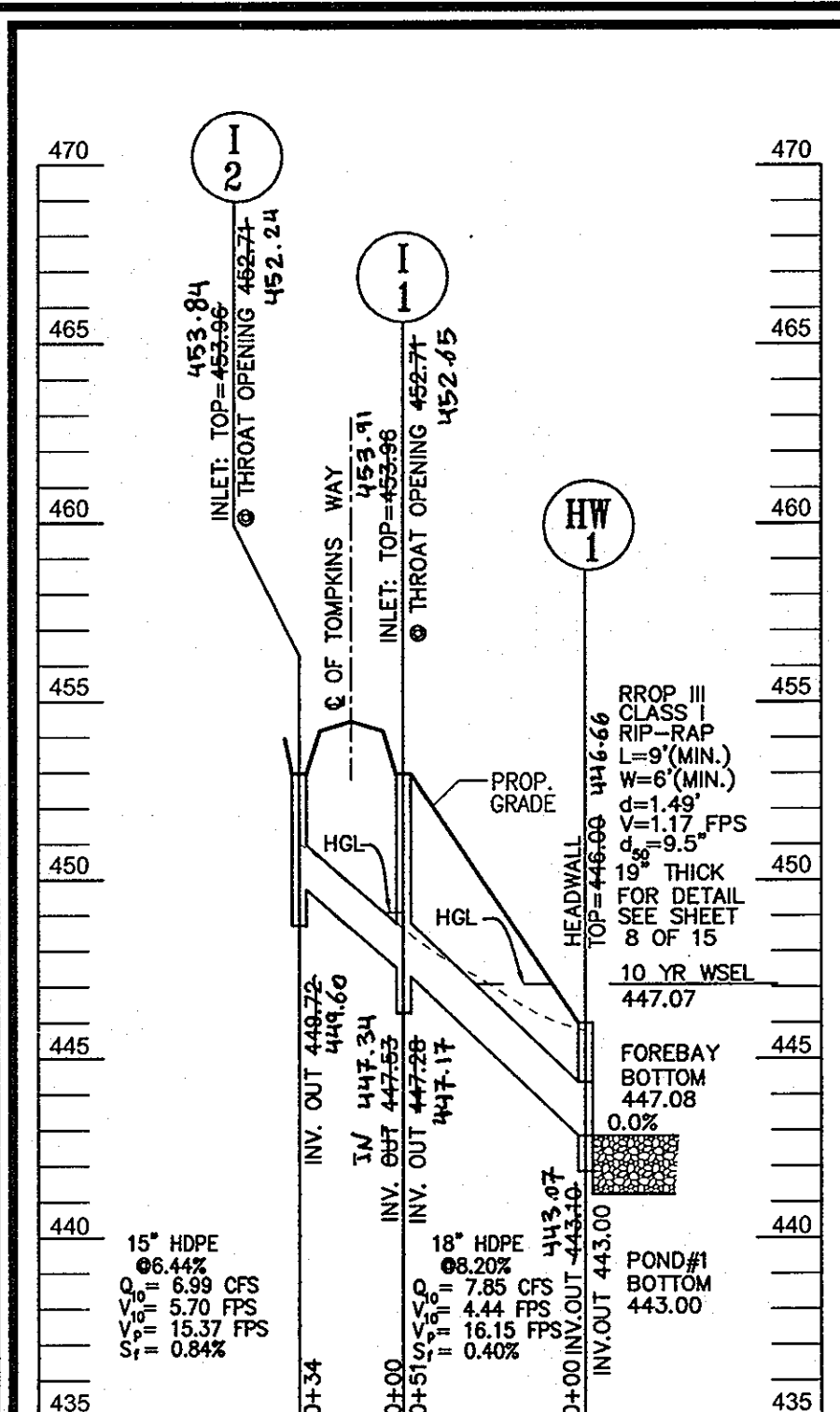
STORM DRAIN - DRAINAGE AREA MAP
 THE PRESERVE AT WAVERLY GLEN
 LOTS 1-21, PRESERVATION PARCELS A-F AND I
 AND NON-BUILDABLE BULK PARCEL G+H
 A RESUBDIVISION OF LOTS 1 & 2 AND PARCEL A OF SHADOW SHADE PLAT NO. 13808 AND LOT 1 OF HIGHPOINT AT BREEZEWOOD FARMS PLAT NO. 6385

REF: S-02-03, P-03-02, F-99-25, F-86-13
 TAX MAP #10 BLOCK 23
 PARCELS '304' & '102'
 HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
 ENGINEERS - SURVEYORS
 8407 MAIN STREET
 ELLICOTT CITY, MARYLAND 21043
 TEL: 410.461.7666 FAX: 410.461.8961

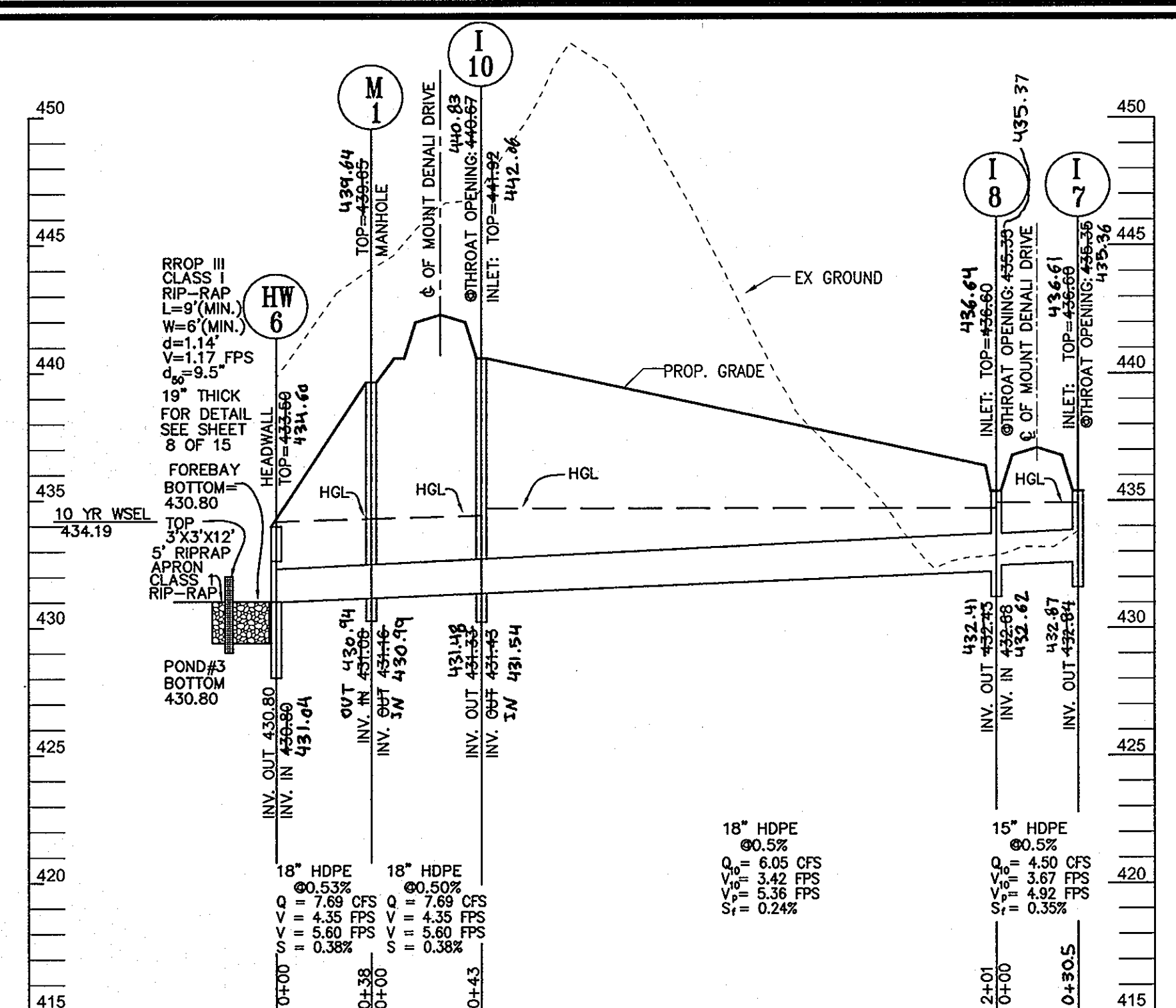
DESIGN BY: RJ/JCO
 DRAWN BY: RJ
 CHECKED BY: RHY
 DATE: JULY 2004
 SCALE: AS SHOWN
 W.O. NO.: 2017138.00

9 SHEET OF 22



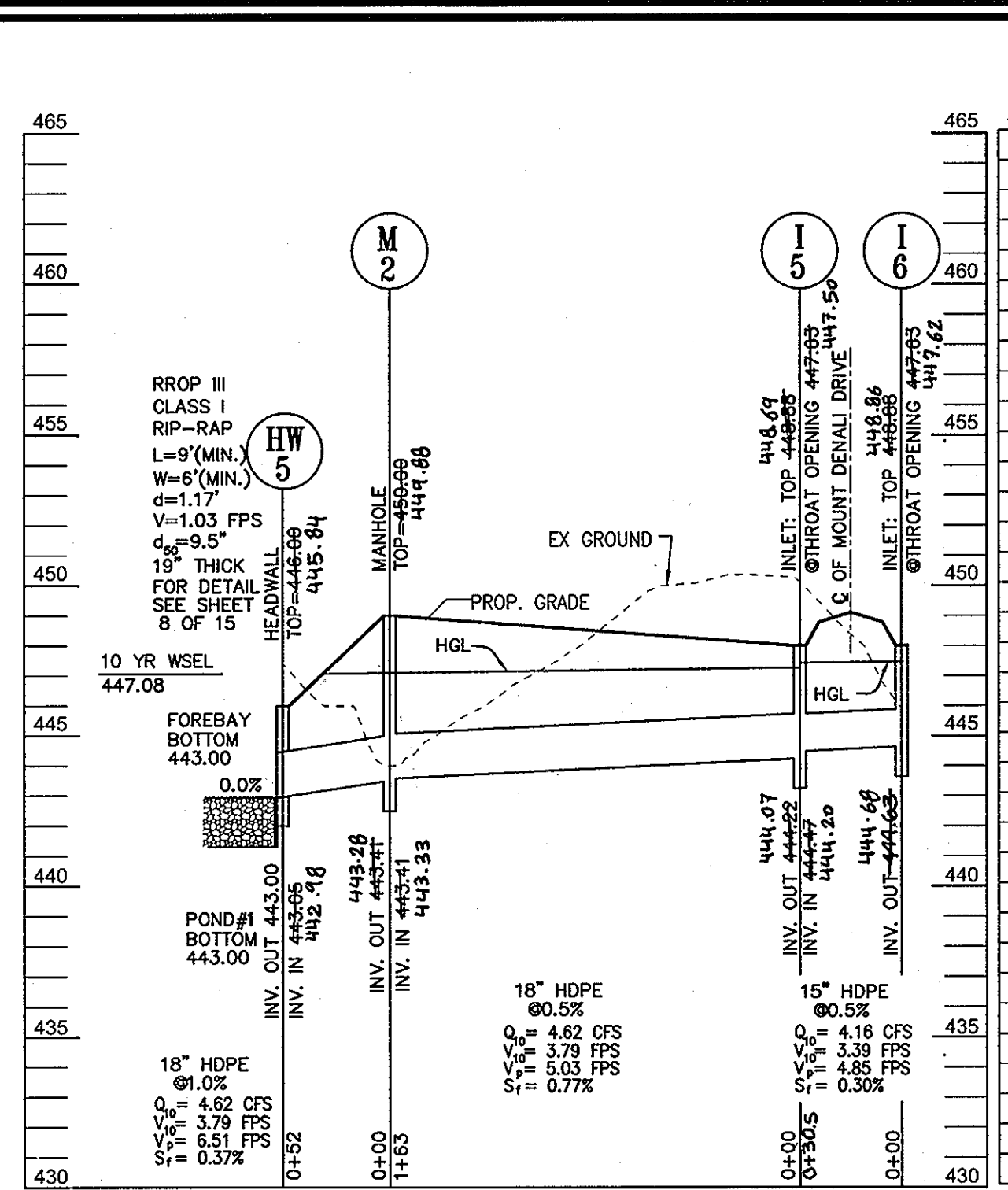
STORM DRAIN PROFILE

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



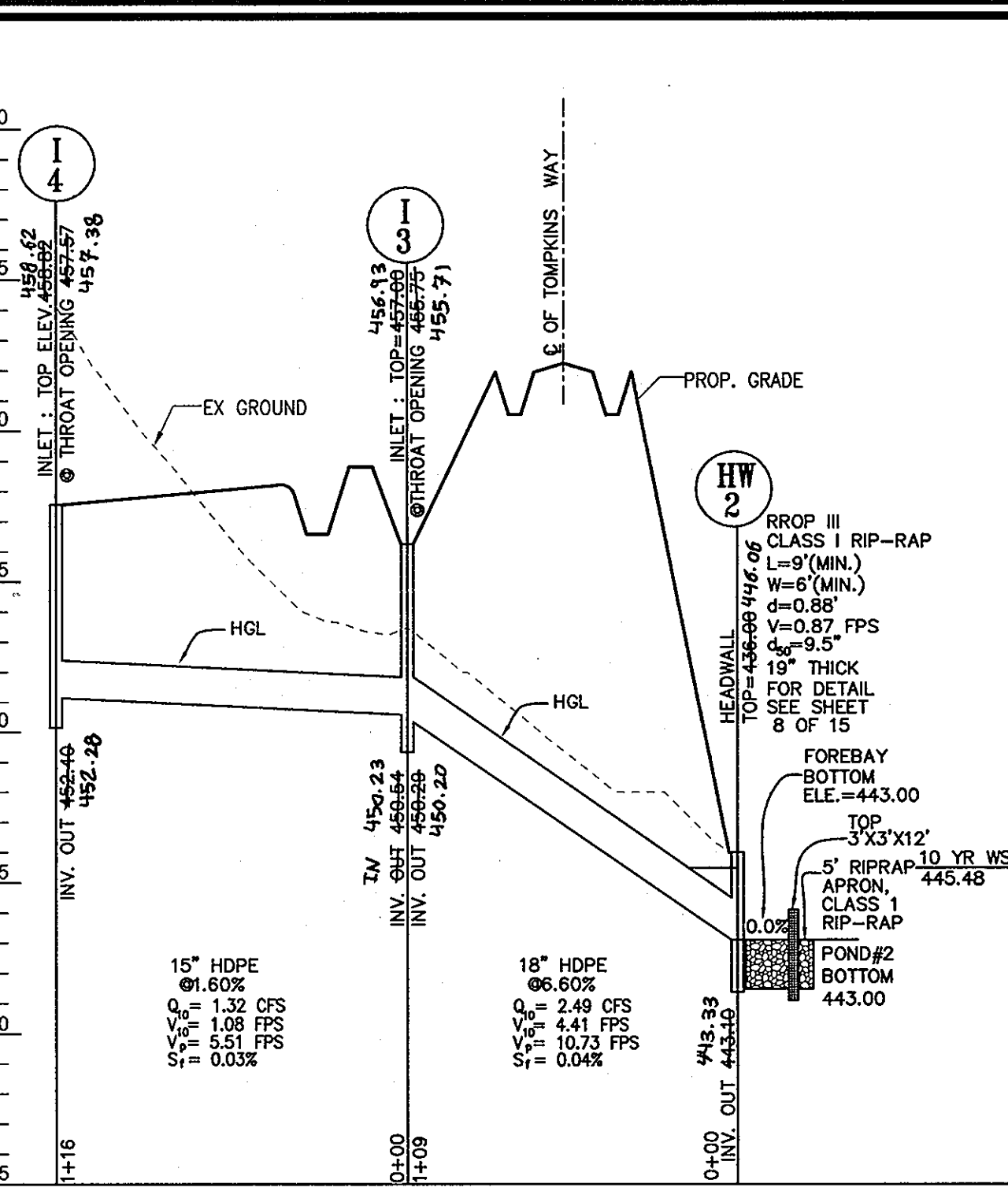
STORM DRAIN PROFILE

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



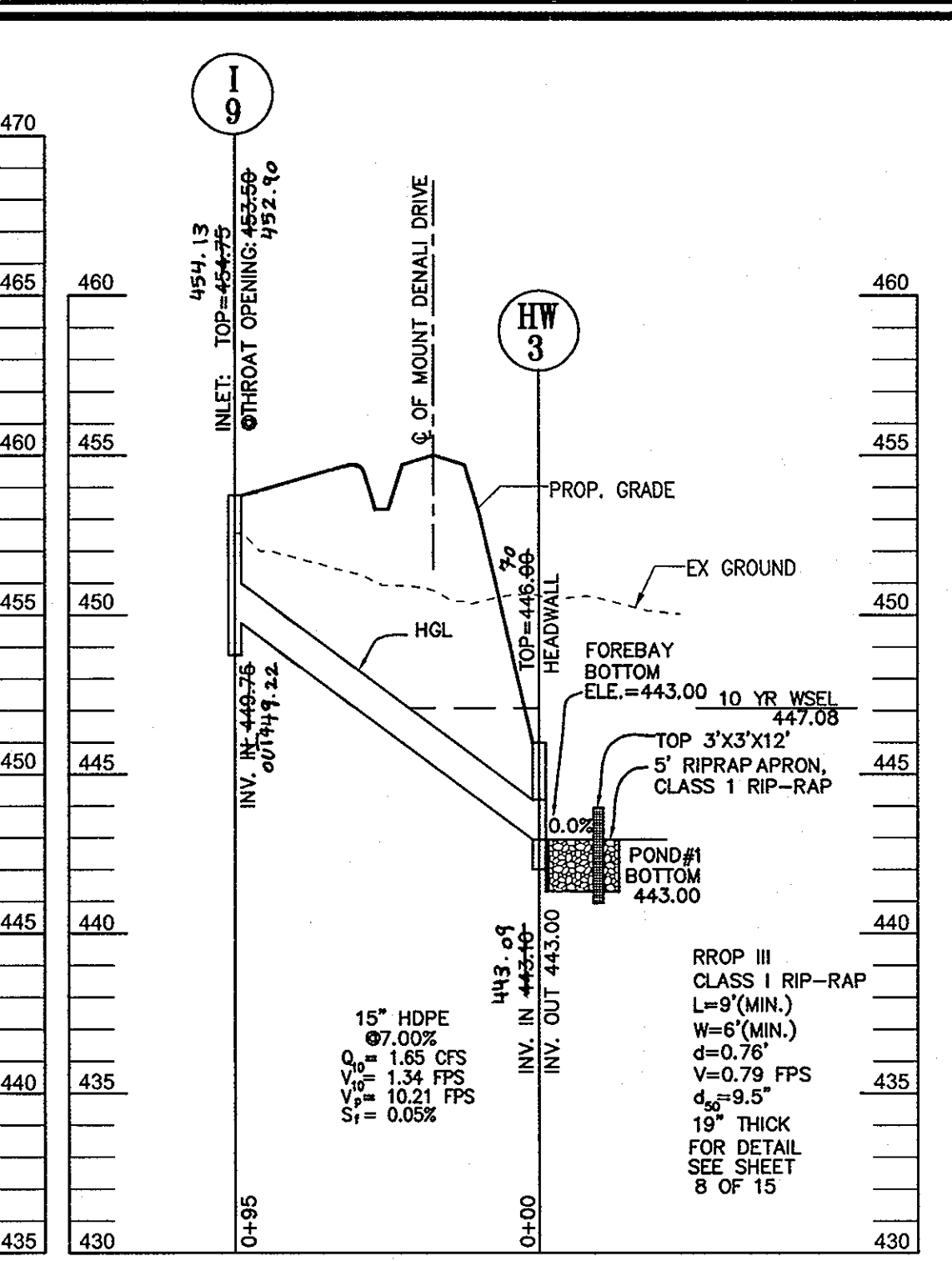
STORM DRAIN PROFILE

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



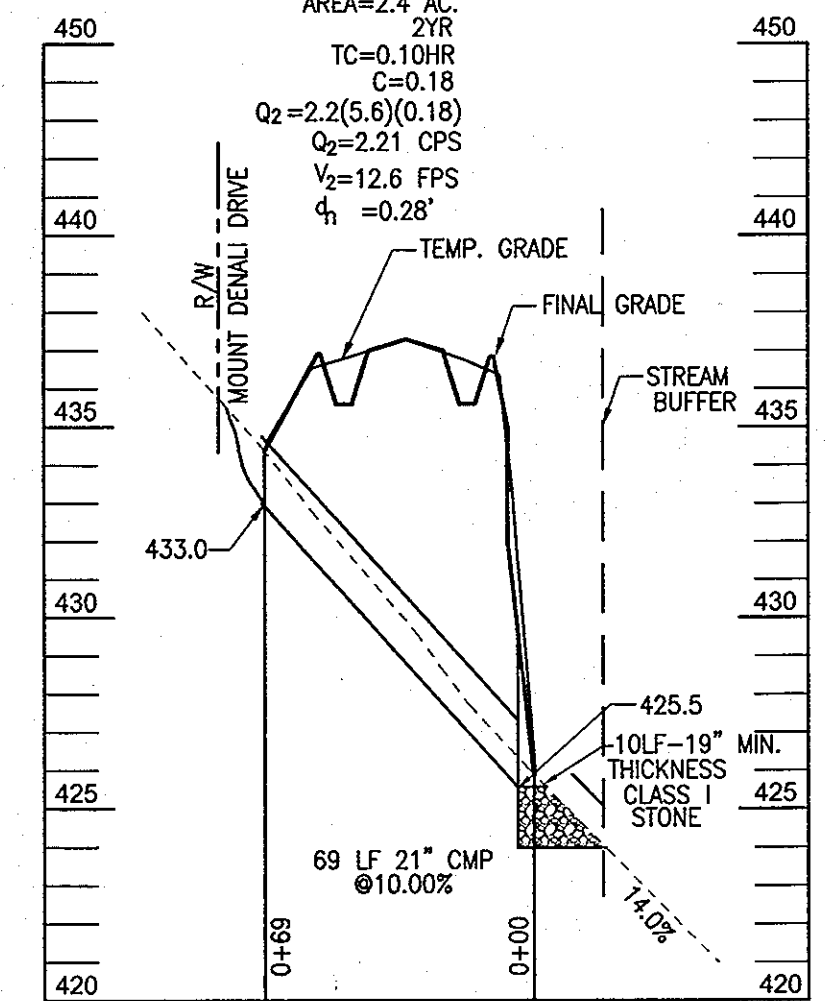
STORM DRAIN PROFILE

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



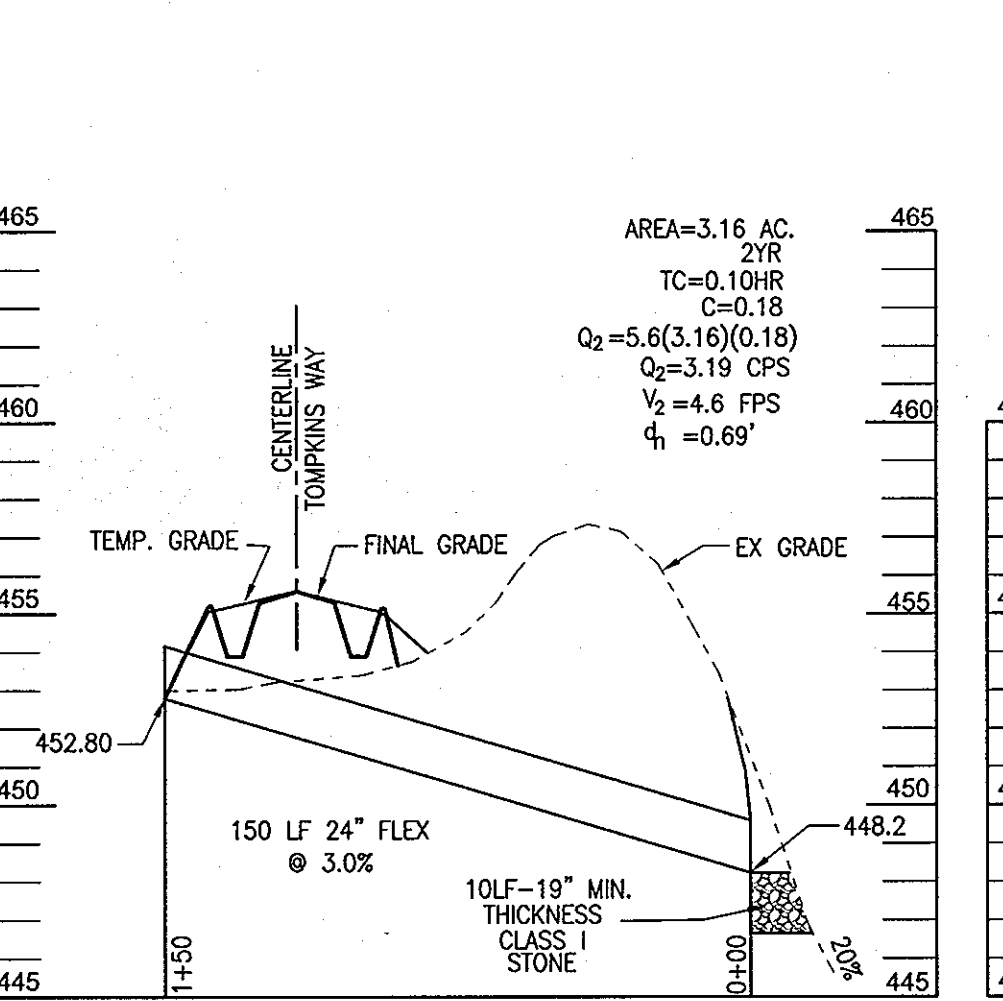
STORM DRAIN PROFILE

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



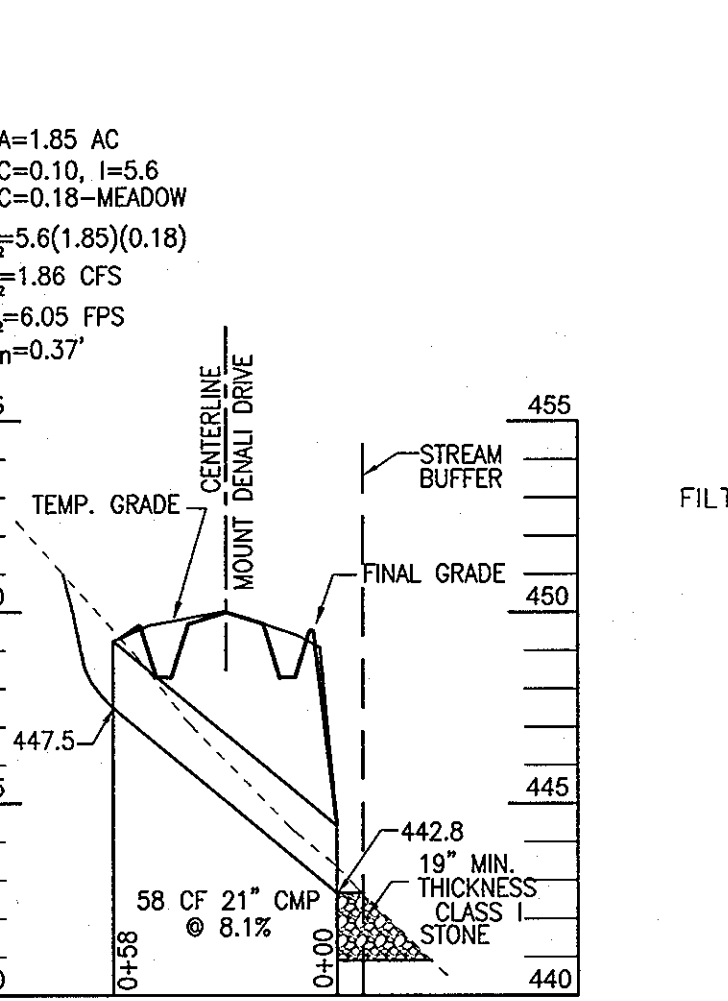
TMP PSD PIPE#3

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



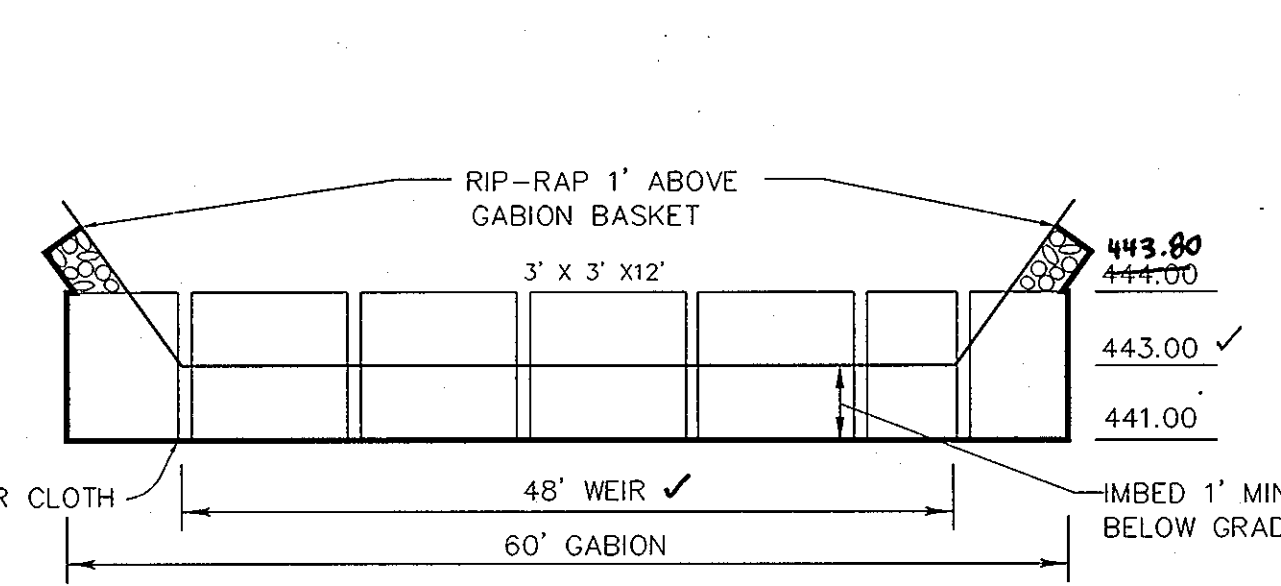
TMP PSD PIPE#1

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



TMP PSD PIPE#2

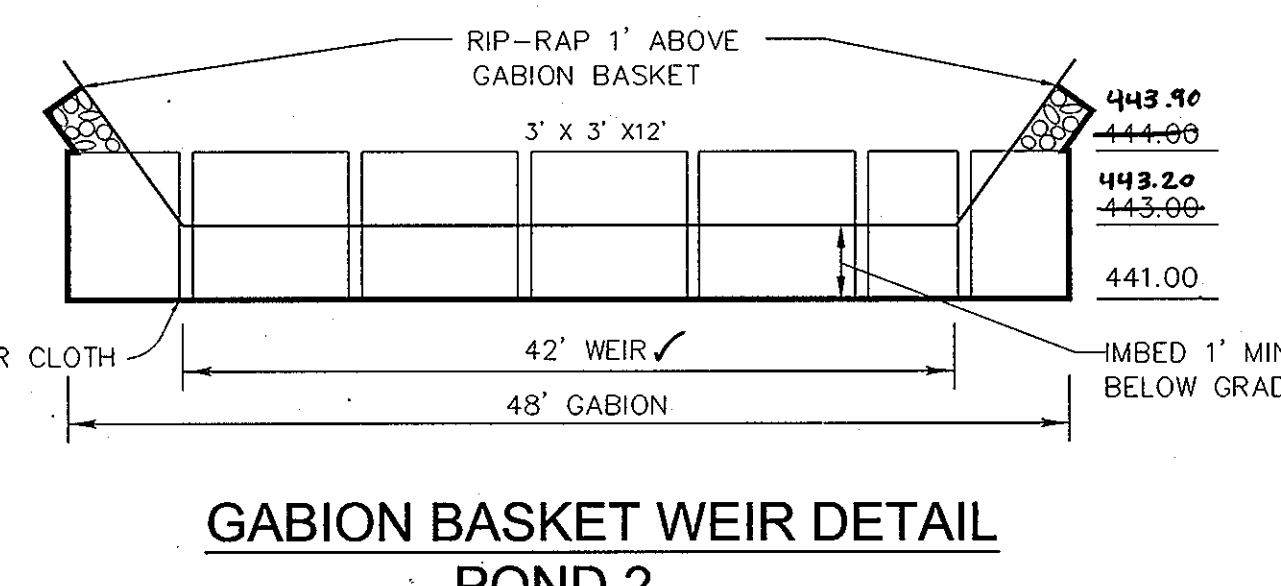
SCALE: 1" = 50' HORIZ.
1" = 5' VERT.



GABION BASKET WEIR DETAIL

POND 1

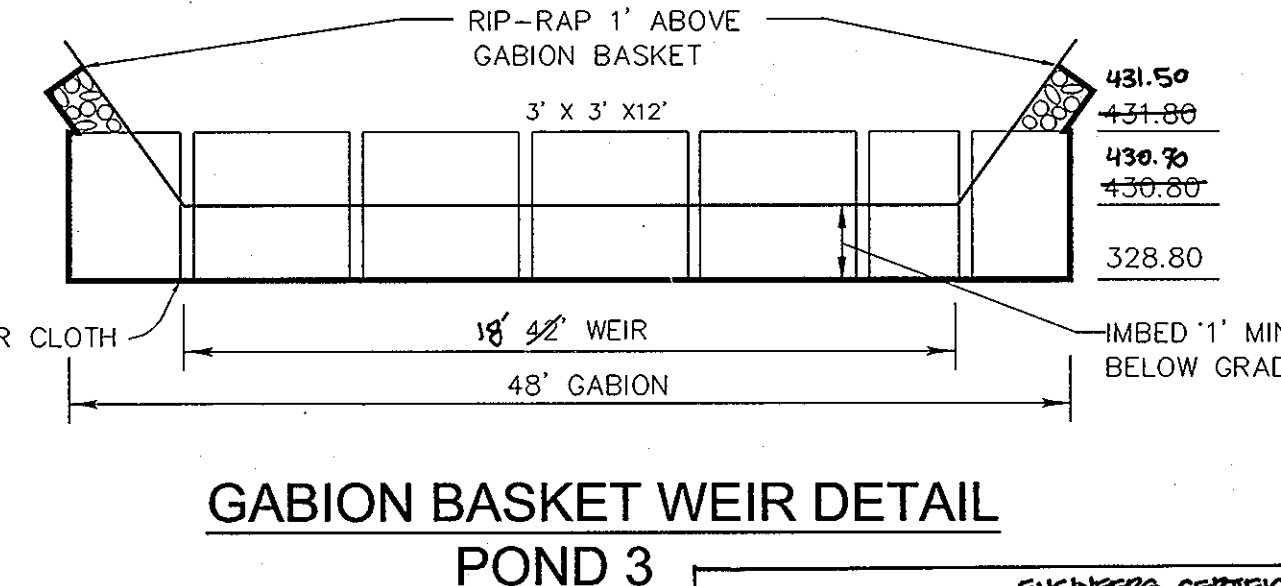
NOT TO SCALE



GABION BASKET WEIR DETAIL

POND 2

NOT TO SCALE



GABION BASKET WEIR DETAIL

POND 3

NOT TO SCALE

AS-BUILT CERTIFICATION OF MARYLAND
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THESE PLANS WAS CONSTRUCTED AS SHOWN ON THE PLANS AND MEETS THE MECHANICAL REQUIREMENTS FOR FINAL ROAD CONSTRUCTION AND NEIGHBORHOOD CONTROL.

APPROVED: DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways

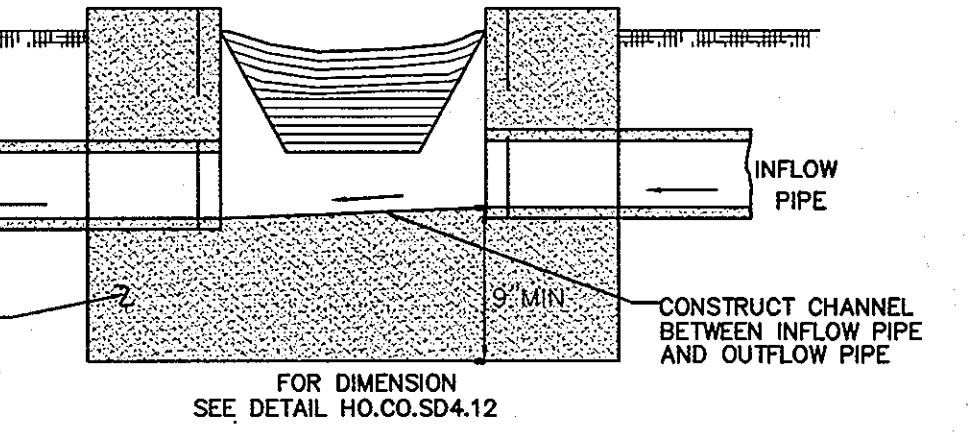
APPROVED: DEPARTMENT OF PLANNING AND ZONING
Chief, Division of Land Development

APPROVED: HOWARD SOIL CONSERVATION DISTRICT

PIPE SIZE	TYPE	TOTAL LENGTH
15"	HDPE	356 LF
18"	HDPE	551 LF
24"	RCCP ASTM C-361	40 LF
18"	RCCP ASTM C-361	51 LF

NO.	TYPE	LOCATION	TOP ELEV.	INV IN	INV OUT	REMARKS
HW1	TYPE 'A' HEADWALL (CIRCULAR)	N 601787.80 E 1343958.87	446.00	446.66	443.10	SD.5.11
I-1	TYPE 'K' INLET	CL STA. 1+12, 17' RT. TOMPKINS WAY	453.96	453.91	447.53	SD.4.12
I-2	TYPE 'K' INLET	CL STA. 1+12, 17' LT. TOMPKINS WAY	453.96	453.84	449.72	SD.4.12
HW2	TYPE 'A' HEADWALL (CIRCULAR)	N 602336.40 E 1343821.30	436.00	446.06	443.10	SD.5.11
I-3	TYPE 'K' INLET	N 602293.52 E 1343721.20	457.00	456.43	450.54	SD.4.12
I-4	TYPE 'K' INLET	N 602396.84 E 1343669.07	458.92	458.62	450.10	SD.4.12
HW5	TYPE 'A' HEADWALL (CIRCULAR)	N 601826.36 E 1344013.68	446.00	445.84	443.10	SD.5.11
M-2	STANDARD 4' MANHOLE	N 601838.76 E 1344046.81	449.29	449.88	443.55	SD.4.12
I-5	TYPE 'K' INLET	CL STA. 6+37, 14' LT. MT DENALI DR	448.88	448.69	444.47	SD.4.12
I-6	TYPE 'K' INLET	CL STA. 6+37, 16.5' RT. MT DENALI DR	448.96	448.86	444.63	SD.4.12
HW6	TYPE 'A' HEADWALL (CIRCULAR)	N 602402.42 E 1344190.30	434.00	434.60	431.03	SD.5.11
M-1	STANDARD 4' MANHOLE	N 602422.01 E 1344224.90	430.65	431.04	431.39	SD.4.12
I-7	TYPE 'K' INLET	CL STA. 12+98, 16.5' LT. MT DENALI DR	436.60	436.64	432.41	SD.4.12
I-8	TYPE 'K' INLET	CL STA. 12+98, 18' RT. MT DENALI DR	435.35	435.37	432.43	SD.4.12
I-9	TYPE 'K' INLET	CL STA. 12+98, 18' RT. MT DENALI DR	454.13	452.90	449.22	SD.4.12
HW-3	TYPE 'A' HEADWALL	N 601771.99 E 1343971.15	446.00	446.70	443.10	SD.5.11
I-10	TYPE 'K' INLET	CL STA. 10+98, 17' RT. MT DENALI DR	440.82	441.02	437.44	SD.4.12
E-1	TYPE 'A' HEADWALL	N 601865.99 E 1343992.47	445.00	442.00	442.00	SD.5.11
E-2	TYPE 'A' HEADWALL	N 602337.12 E 1343872.92	443.00	441.90	441.90	SD.5.11
E-3	TYPE 'A' HEADWALL	N 602441.46 E 1344189.59	433.55	430.55	430.55	SD.5.11

NOTE: *TOP ELEVATION ARE TO AT THE THROAT OPENING FOR TYPE "K" INLET.
TOP OF MANHOLE COVER FOR PRECAST MANHOLES.



MODIFIED 'K' INLET
NON-TERMINAL
NTS

OWNER/DEVELOPER
THE PRESERVE AT WAVERLY GLEN LLC
3675 PARK AVENUE, SUITE 301
ELICOTT CITY, MARYLAND 21043
(410) 480-0023

APPROVED: DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Chief, Division of Land Development

APPROVED: HOWARD SOIL CONSERVATION DISTRICT

STORMDRAIN DRAINAGE AREA MAP
THE PRESERVE AT WAVERLY GLEN
LOTS 1-21, PRESERVATION PARCELS A-F AND I
(B) NON-BUILDABLE BULK PARCEL G-4
A RESUBDIVISION OF LOTS 1 & 2 AND PARCEL A OF
SHADOW SHADE PLAT NO. 13808 AND LOT 1 OF HIGHPOINT AT
BREEZEWOOD FARMS PLAT NO. 6385

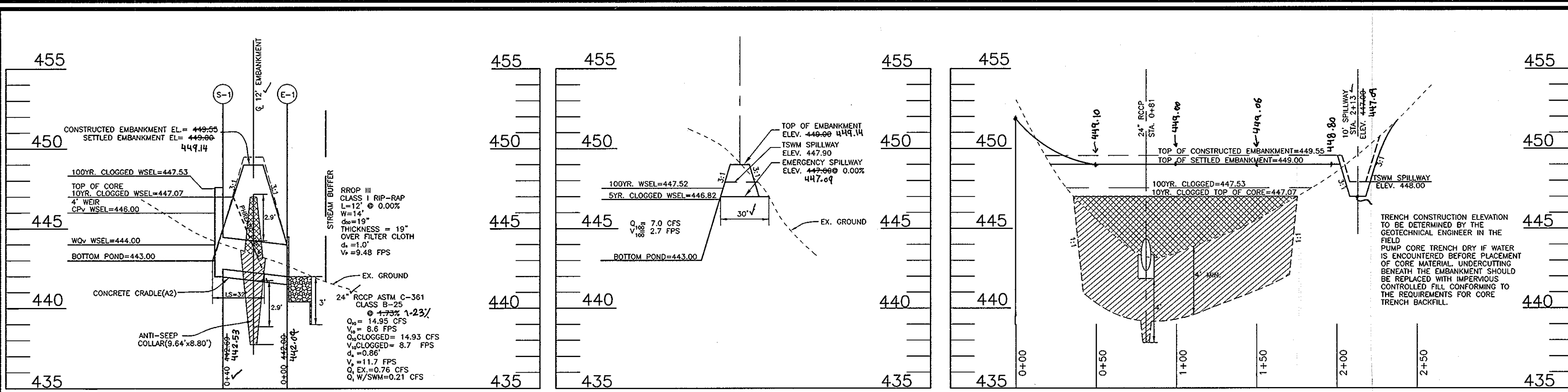
REF. S-02-03, P-03-02, F-98-25, F-86-13
TAX MAP #10 BLOCK 23
ELECTION DISTRICT

PARCELS '304' & '102'
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS
8407 MAIN STREET
ELICOTT CITY, MARYLAND 21043
TEL: 410.461.7666 FAX: 410.461.9661

DESIGN BY: RJ/SCD
DRAWN BY: RJ/SCD
CHECKED BY: RHW
DATE: JULY 2004
SCALE: AS SHOWN
I.W.G. NO.: 2017139.00

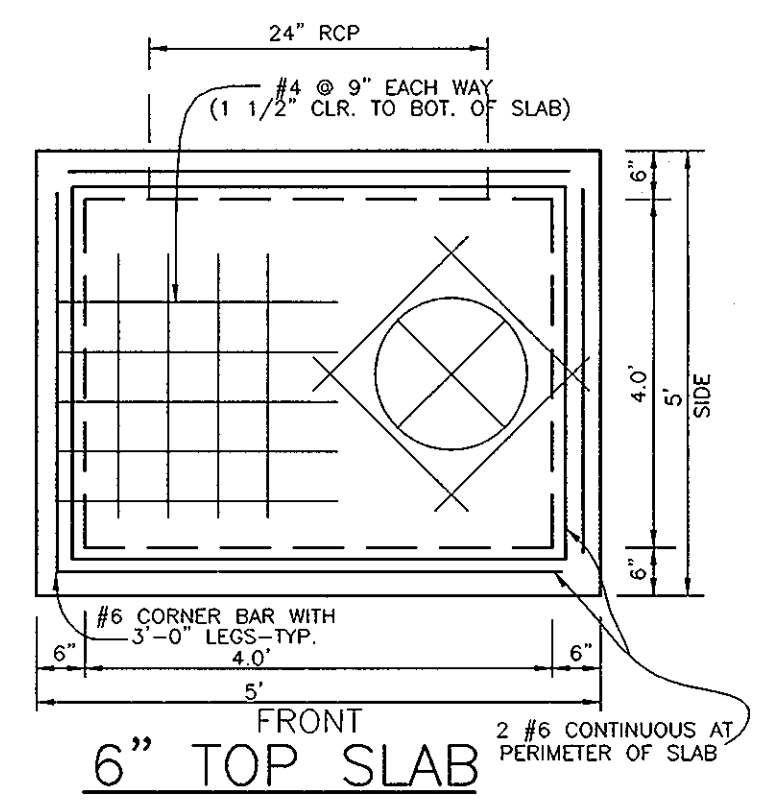
10 SHEET OF 22



POND # 1
PRINCIPLE SPILLWAY PROFILE
SCALE: 1" = 50' HORIZ.
1" = 5' VERT.

POND # 1
EMERGENCY SPILLWAY PROFILE
SCALE: 1" = 50' HORIZ.
1" = 5' VERT.

POND # 1
PROFILE ALONG EMBANKMENT
SCALE: 1" = 50' HORIZ.
1" = 5' VERT.



POND # 1
NOT TO SCALE

OPERATION, MAINTENANCE AND INSPECTION
INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, SCS "STANDARDS AND SPECIFICATIONS FOR PONDS" (MD-378). THE POND OWNER(S) AND ANY HEIRS, SUCCESSORS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTENANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATIONS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

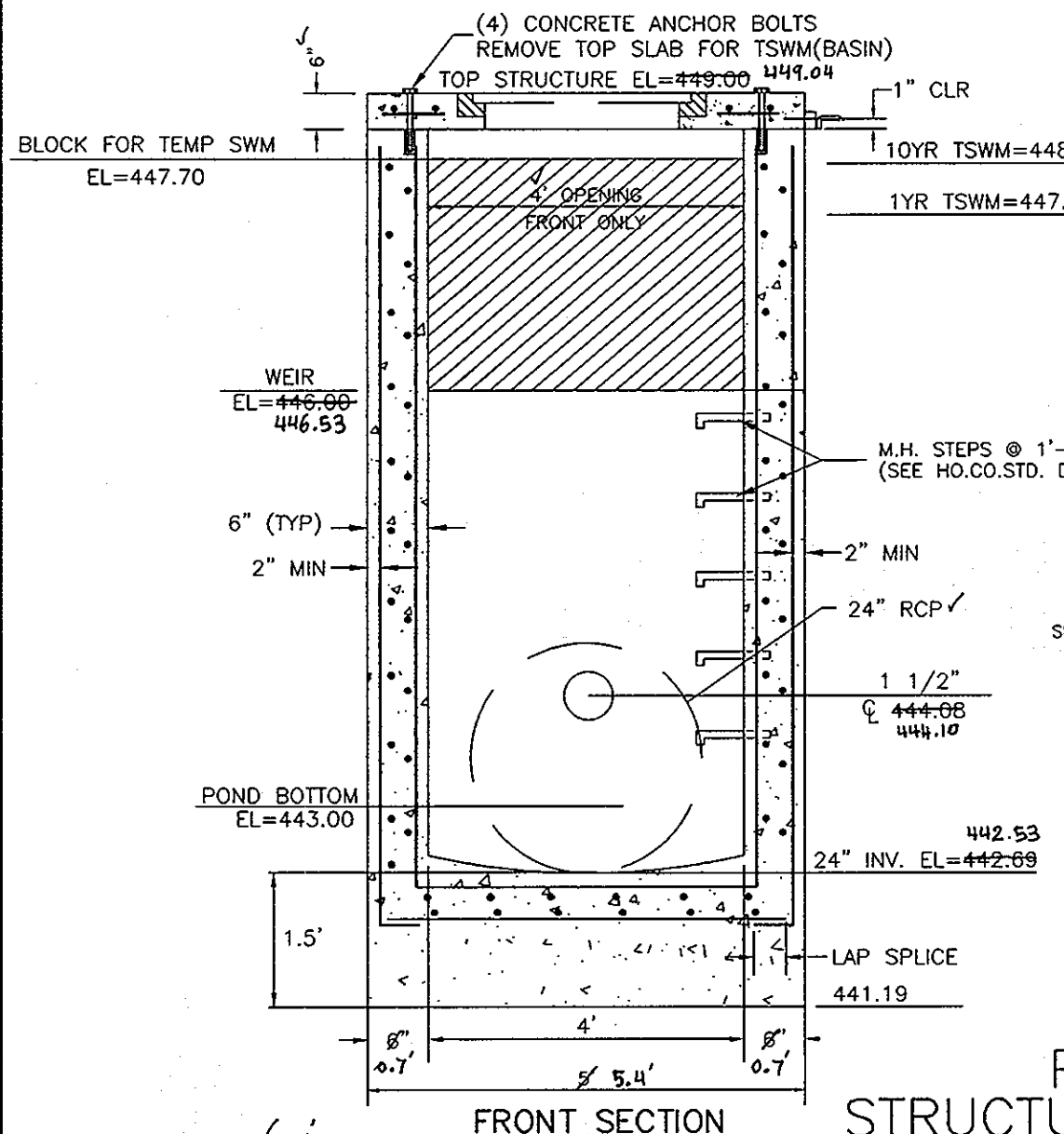
POND #1 SUMMARY

	2 YEAR	10 YEAR	100 YEAR
FLOW INTO POND	7.44 c.f.s.	21.63 c.f.s.	39.90 c.f.s.
FLOW OUT OF POND	1.46 c.f.s.	15.11 c.f.s.	31.16 c.f.s.
W.S. ELEVATION	446.16	447.07	447.52
STORAGE VOLUME	0.21 AC FT	0.31 AC FT	0.42 AC FT

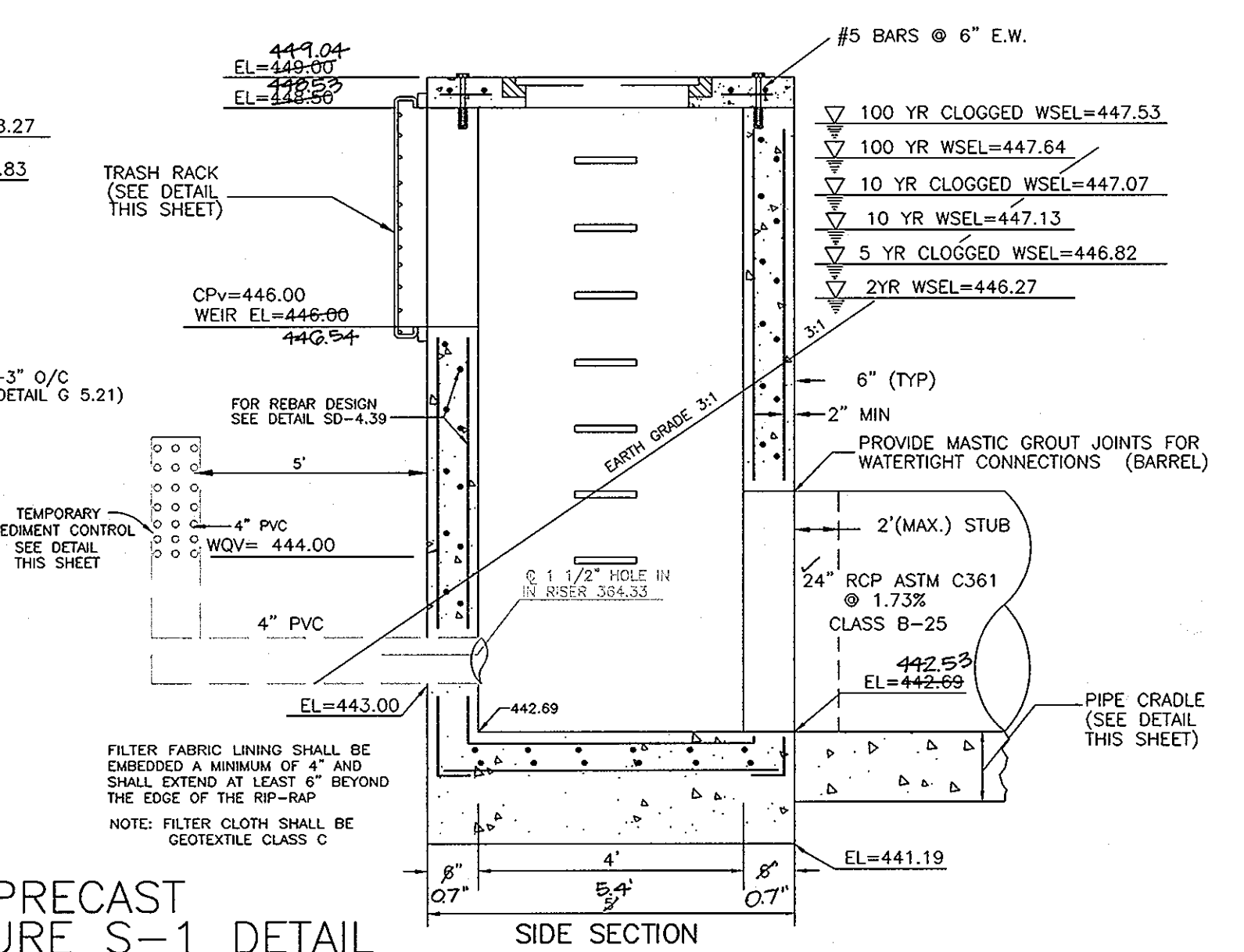
	WQv	Cpv	Rev
	0.09 Ac.Ft.	0.20 Ac.Ft.	0.02 Ac.Ft.

OPERATION AND MAINTENANCE SCHEDULE FOR STORMWATER MANAGEMENT EXTENDED DETENTION FACILITY(FACILITIES 1, 2 & 3)

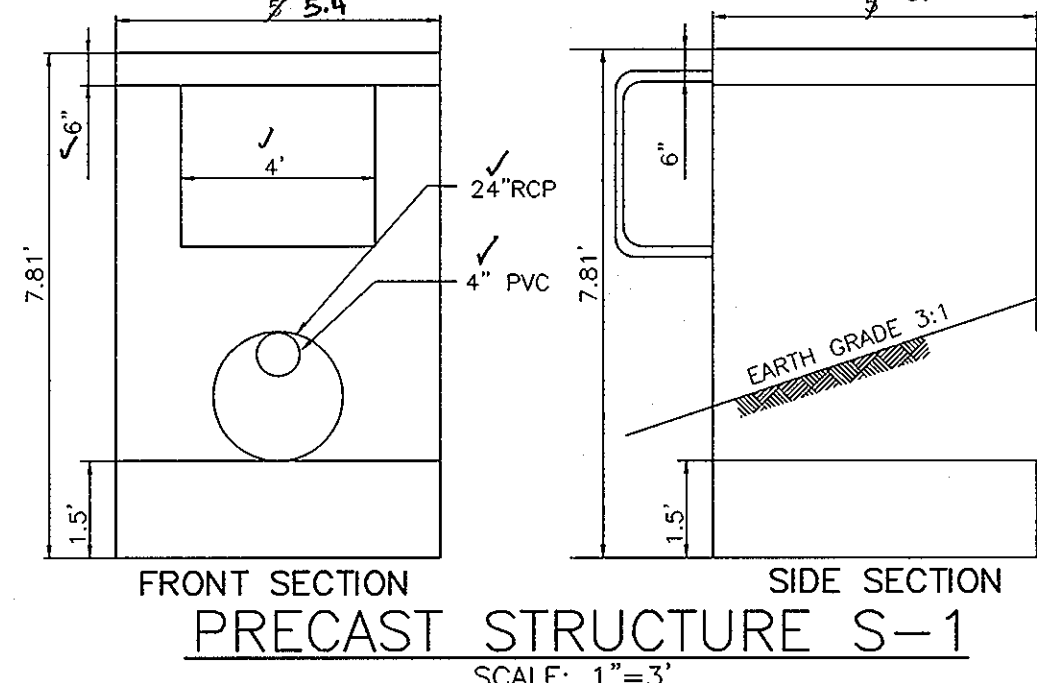
- ROUTINE MAINTENANCE BY HOA
1. FACILITY WILL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHOULD BE PERFORMED DURING WET WEATHER TO DETERMINE IS FUNCTIONING PROPERLY.
 2. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES A YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHOULD BE MOWED AS NEEDED.
 3. DEBRIS AND LITTER NEXT TO THE OUTLET STRUCTURE SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
 4. VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS RIPRAP OUTLET AREAS SHALL BE REPAIRED AS SOON AS IT IS NOTICED.
- NON-ROUTINE MAINTENANCE BY HOA
1. STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, THE RISER, AND THE PIPES SHALL BE REPAIRED UPON DETECTION OF ANY DAMAGE. THE COMPONENTS SHOULD BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
 2. SEDIMENT SHOULD BE REMOVED WHEN ITS ACCUMULATION SIGNIFICANTLY REDUCES THE STORAGE. INTERFERE WITH THE FUNCTION OF THE RISER, WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, OR WHEN DEEMED NECESSARY BY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.



PRECAST STRUCTURE S-1 DETAIL
FRONT SECTION
NOT TO SCALE

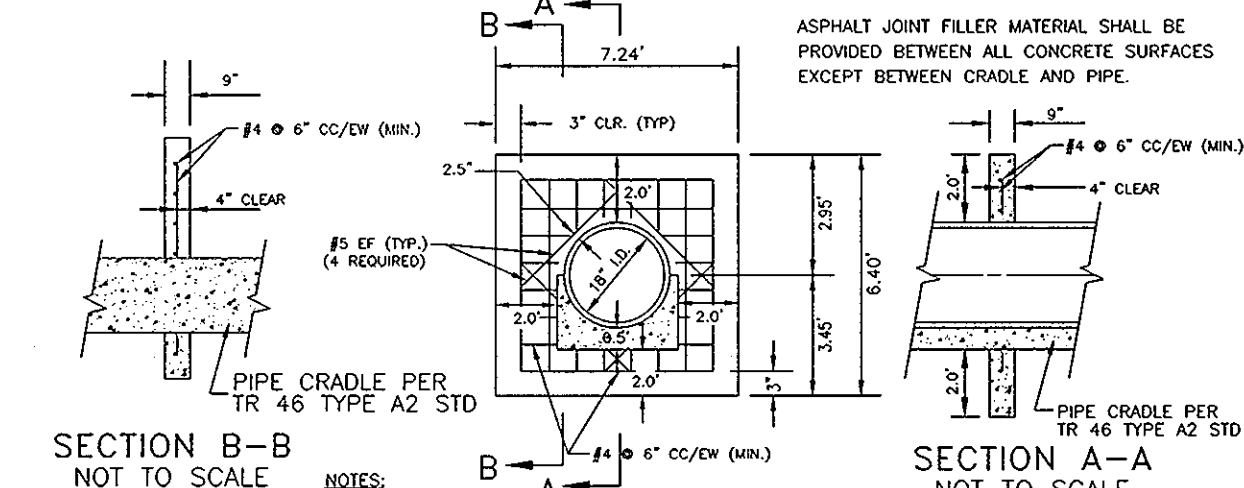


PRECAST STRUCTURE S-1 DETAIL
SIDE SECTION
NOT TO SCALE



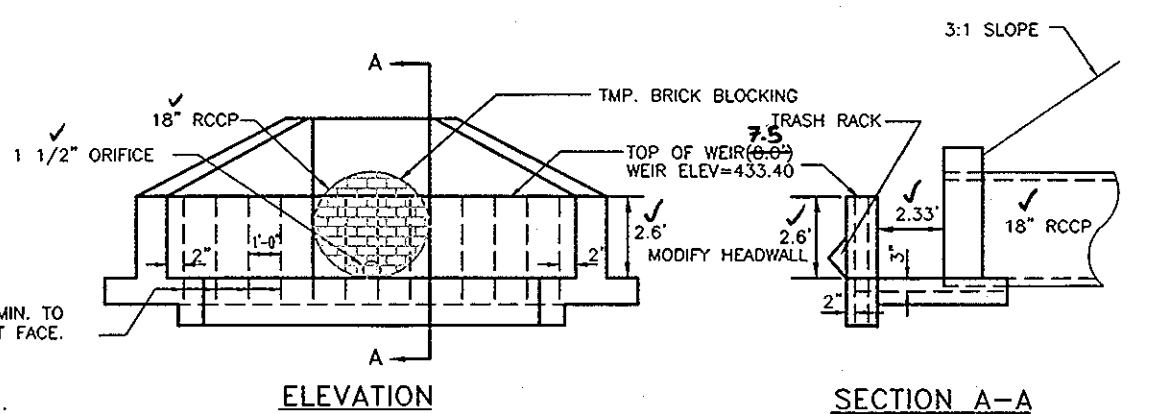
TRASH RACK DETAIL
LOW FLOW ORIFICE(FACILITIES 2&3)
NOT TO SCALE

- NOTES FOR TRASH RACK**
1. TRASH RACK TO BE CENTERED OVER OPENING.
 2. STEEL TO CONFORM TO ASTM A-36.
 3. ALL SURFACES TO BE COATED WITH ZRC COLD GALVANIZING COMPOUND AFTER WELDING.
 4. TRASH RACK TO BE FASTENED TO THE WALL WITH 1/2" MASONRY ANCHORS. TRASH RACK TO BE REMOVABLE.

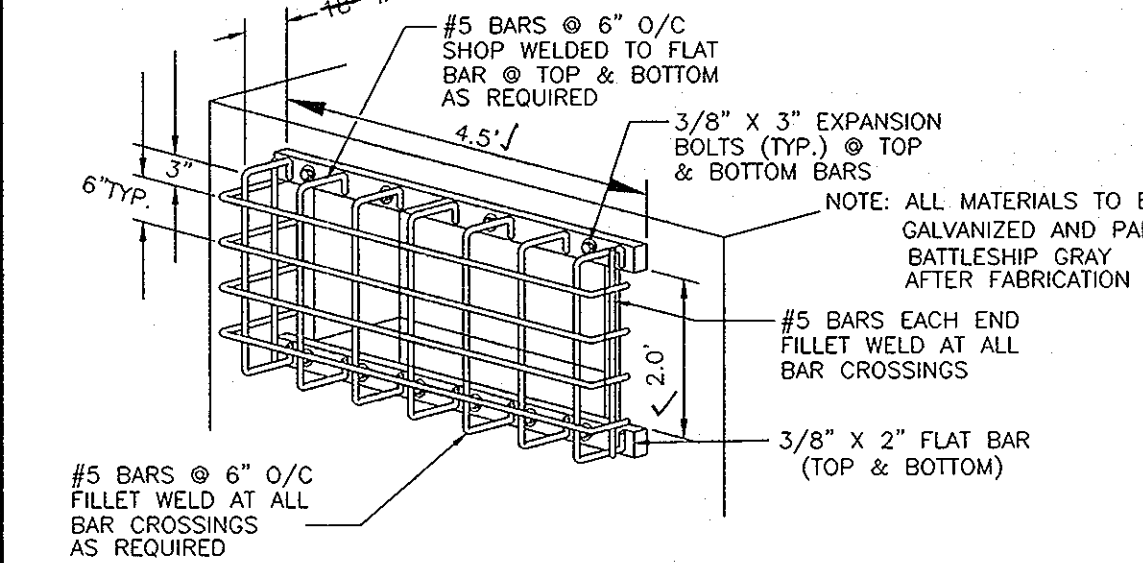


CONCRETE ANTI-SEEP COLLAR DETAIL
NOT TO SCALE

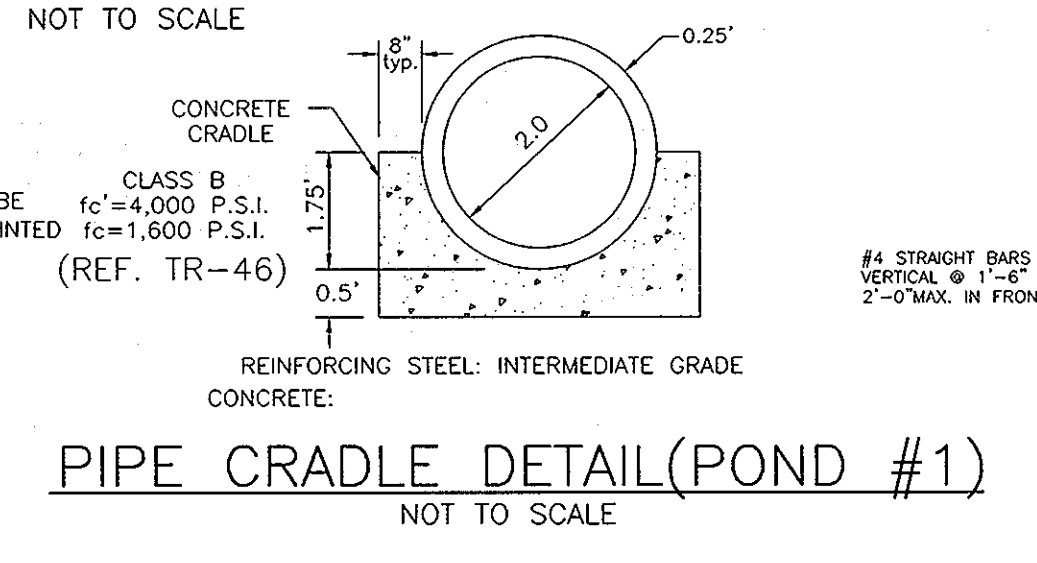
(FACILITIES #2 AND #3)
CONCRETE ANTI-SEEP COLLAR DETAIL



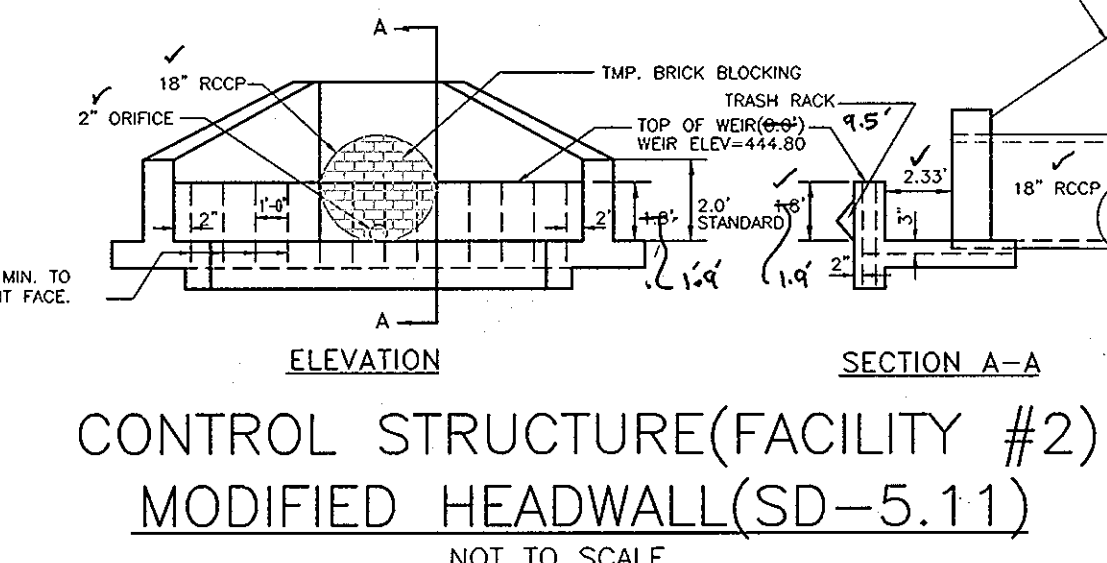
CONTROL STRUCTURE(FACILITY #3)
MODIFIED HEADWALL(SD-5.11)
NOT TO SCALE



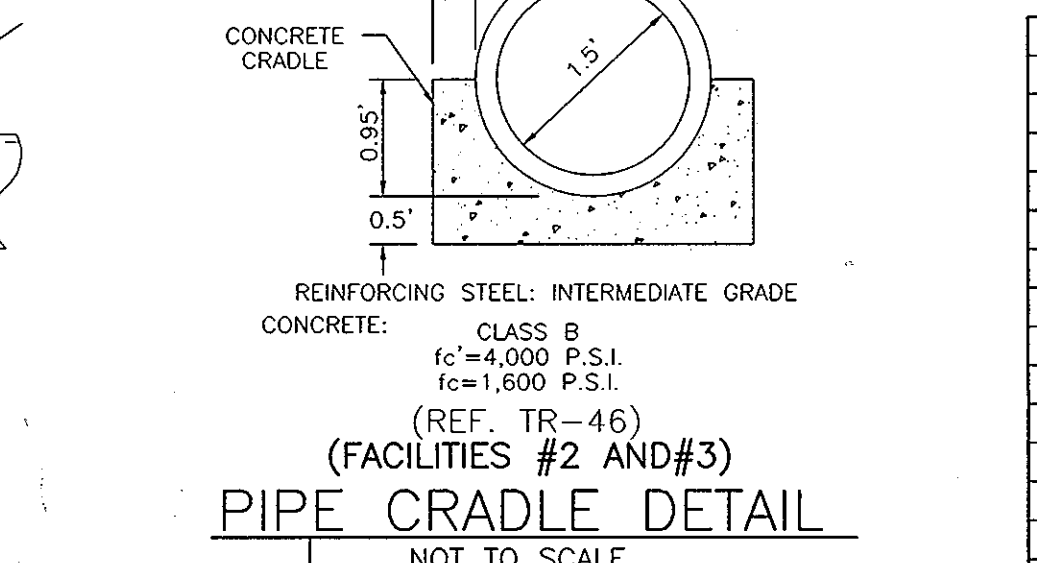
TRASH RACK DETAIL(POND #1)
NOT TO SCALE



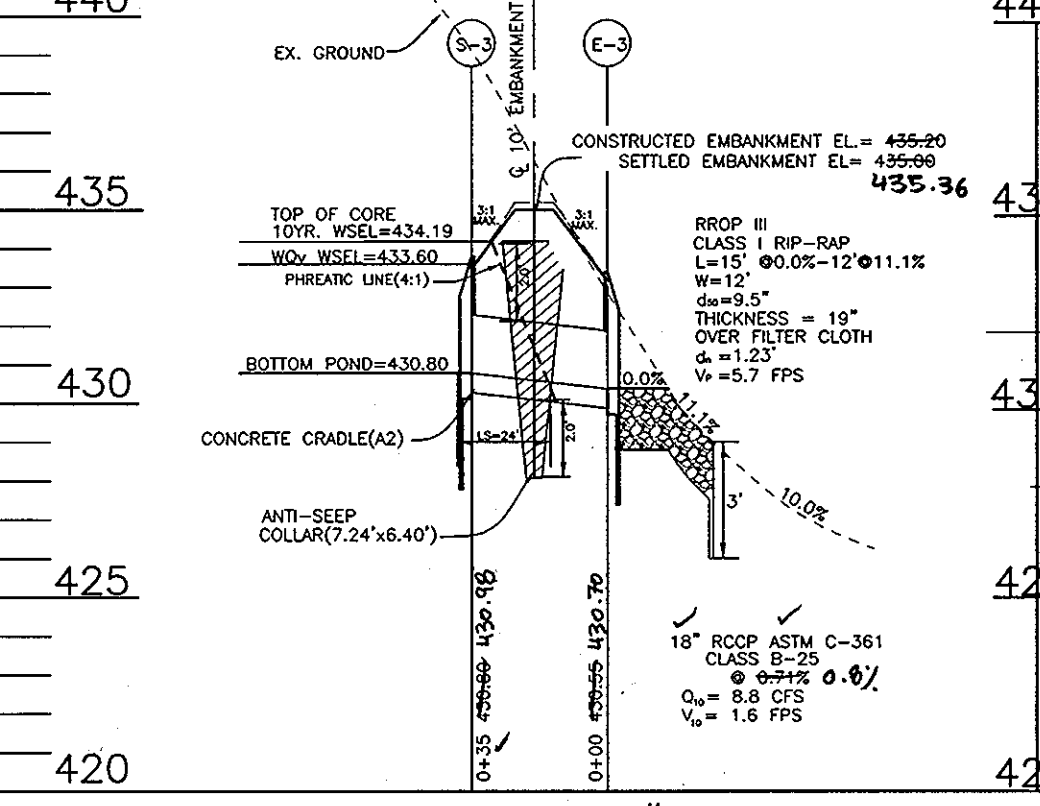
PIPE CRADLE DETAIL(POND #1)
NOT TO SCALE



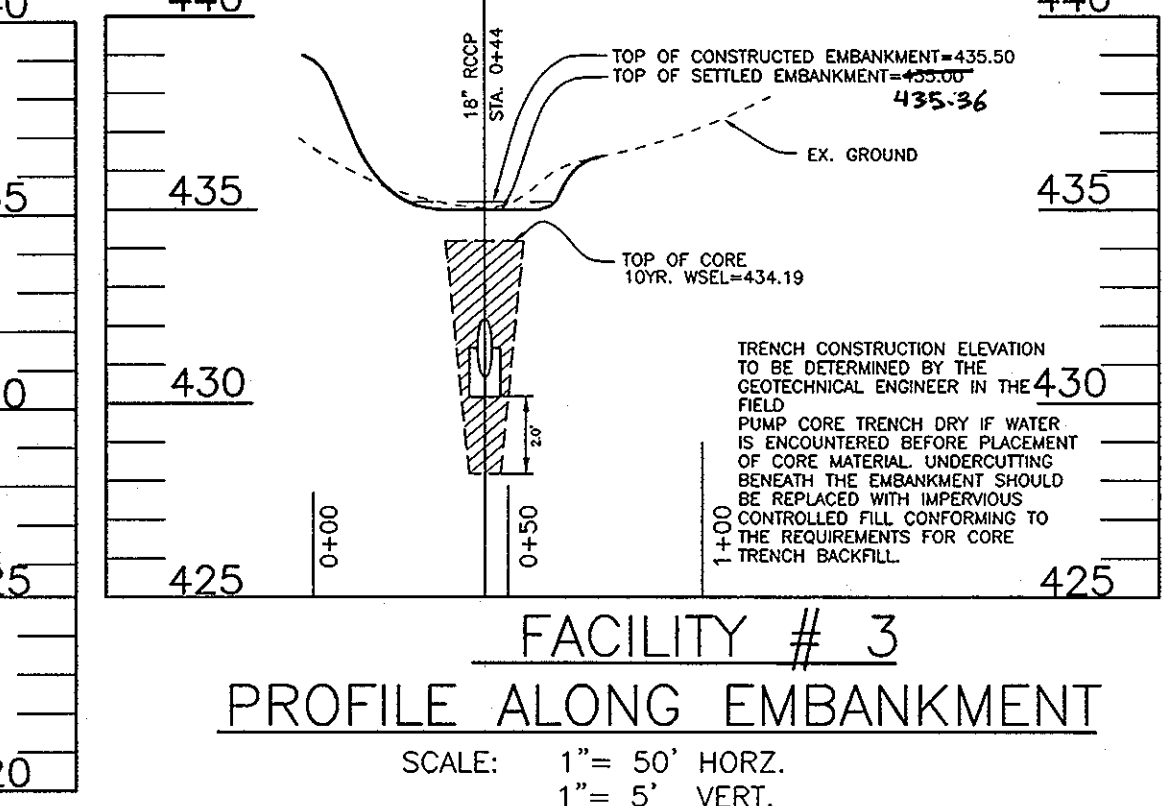
CONTROL STRUCTURE(FACILITY #2)
MODIFIED HEADWALL(SD-5.11)
NOT TO SCALE



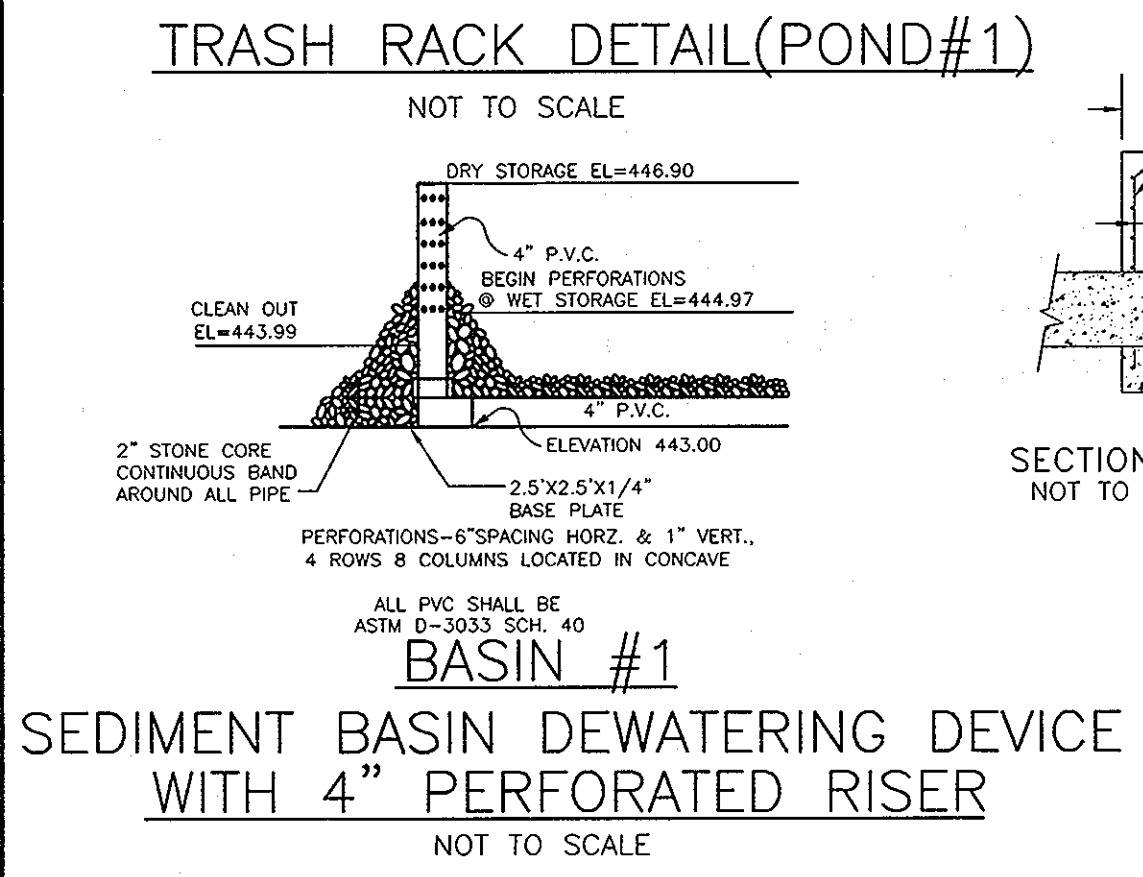
PIPE CRADLE DETAIL
NOT TO SCALE



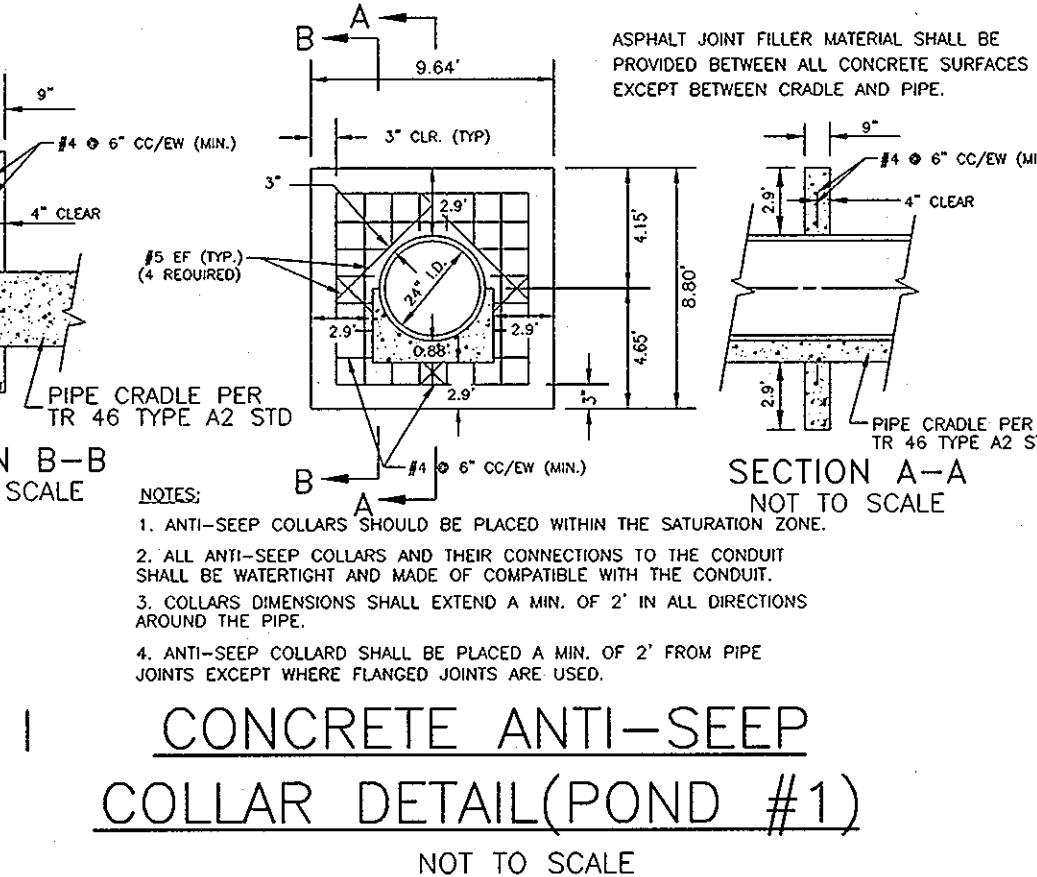
FACILITY # 3
PRINCIPLE SPILLWAY PROFILE
SCALE: 1" = 50' HORIZ.
1" = 5' VERT.



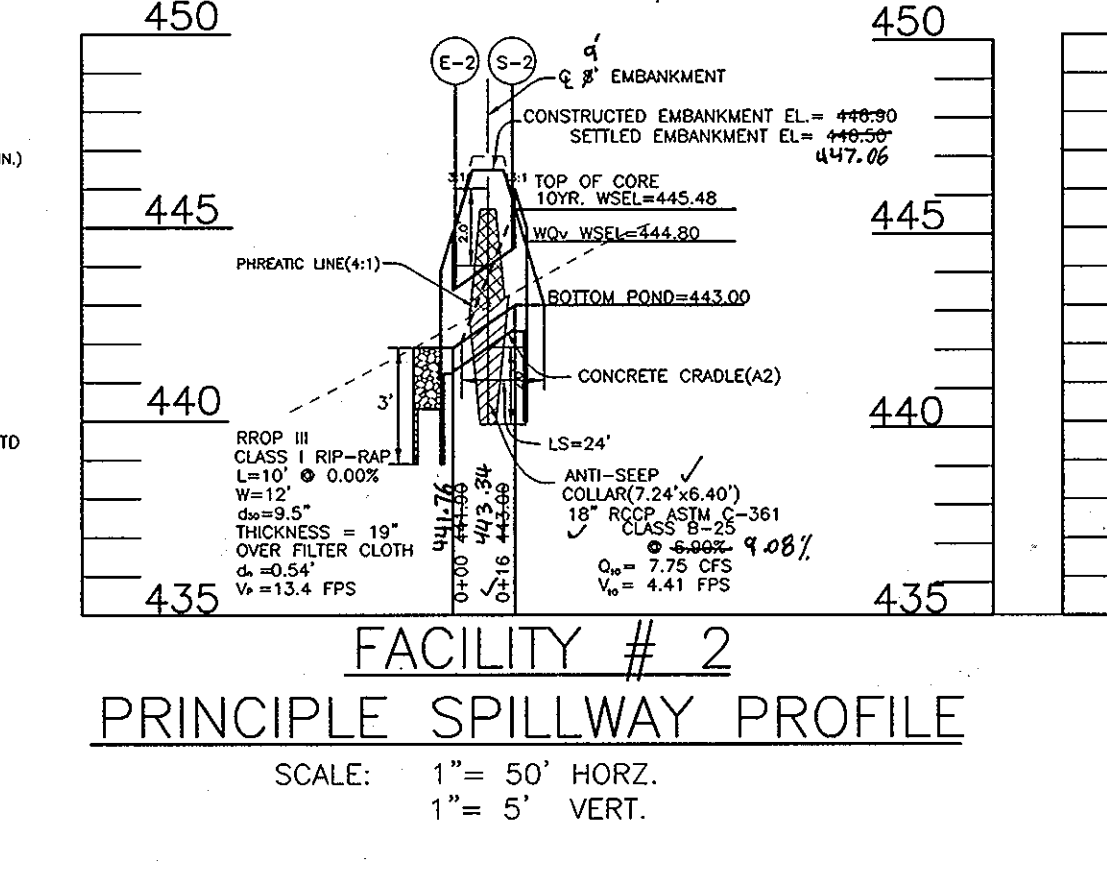
FACILITY # 3
PROFILE ALONG EMBANKMENT
SCALE: 1" = 50' HORIZ.
1" = 5' VERT.



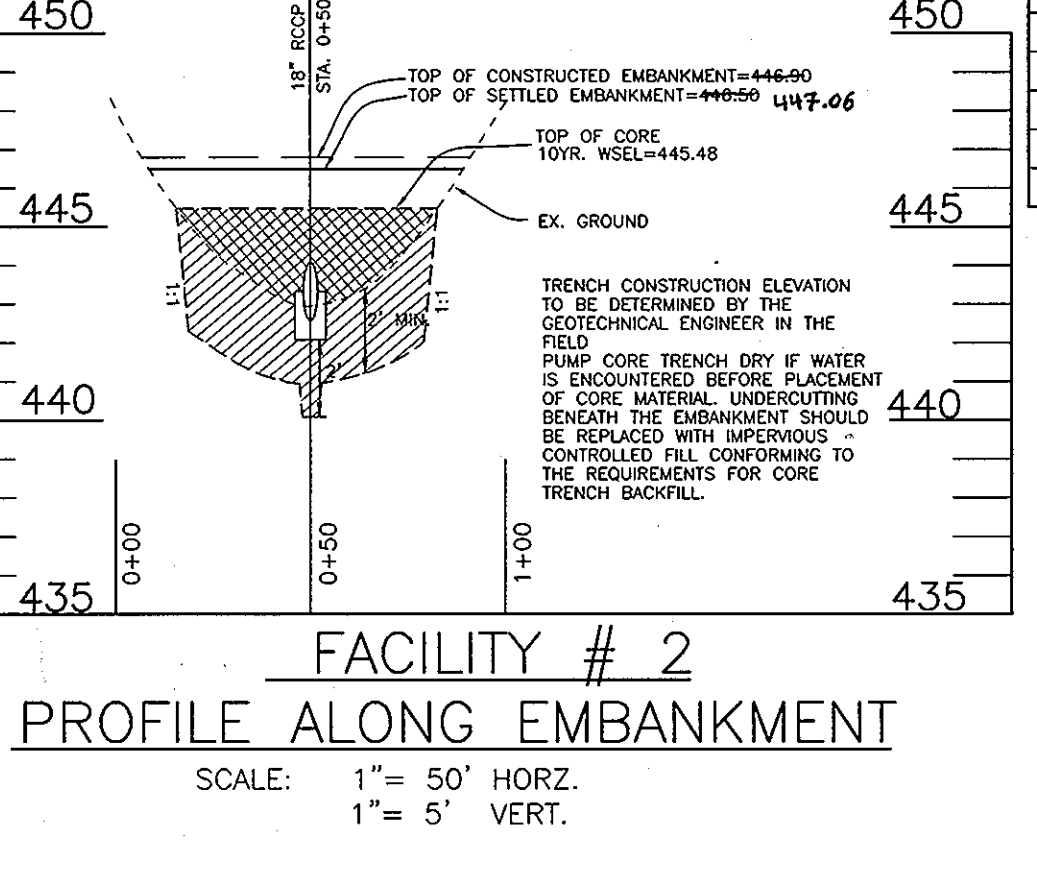
BASIN # 1
SEDIMENT BASIN DEWATERING DEVICE I
WITH 4" PERFORATED RISER
NOT TO SCALE



CONCRETE ANTI-SEEP COLLAR DETAIL(POND #1)
NOT TO SCALE



FACILITY # 2
PRINCIPLE SPILLWAY PROFILE
SCALE: 1" = 50' HORIZ.
1" = 5' VERT.



FACILITY # 2
PROFILE ALONG EMBANKMENT
SCALE: 1" = 50' HORIZ.
1" = 5' VERT.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[Signature] 9/12/04
CHIEF, DEVELOPMENT ENGINEERING DIVISION

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
[Signature] 9/13/04
CHIEF, DIVISION OF LAND DEVELOPMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
[Signature] 9/13/04
DIRECTOR

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
[Signature] 9/13/04
CHIEF, DIVISION OF LAND DEVELOPMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
[Signature] 9/13/04
DIRECTOR

THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

USDA-NATURAL RESOURCES CONSERVATION SERVICE
[Signature] 9/16/04
DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
[Signature] 9/16/04
DATE

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 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] 8/14/04
DATE

DEVELOPER'S CERTIFICATE
I HEREBY CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE IN ACCORDANCE TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I 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.
[Signature] 8/14/04
DATE

STORMWATER MANAGEMENT DETAILS
THE PRESERVE AT WAVERLY GLEN
LOTS 1-21, PRESERVATION PARCELS A-F AND
A-D NON-BUILDABLE BULK PARCEL G-H
A RESUBDIVISION OF LOTS 1 & 2 AND PARCEL A OF
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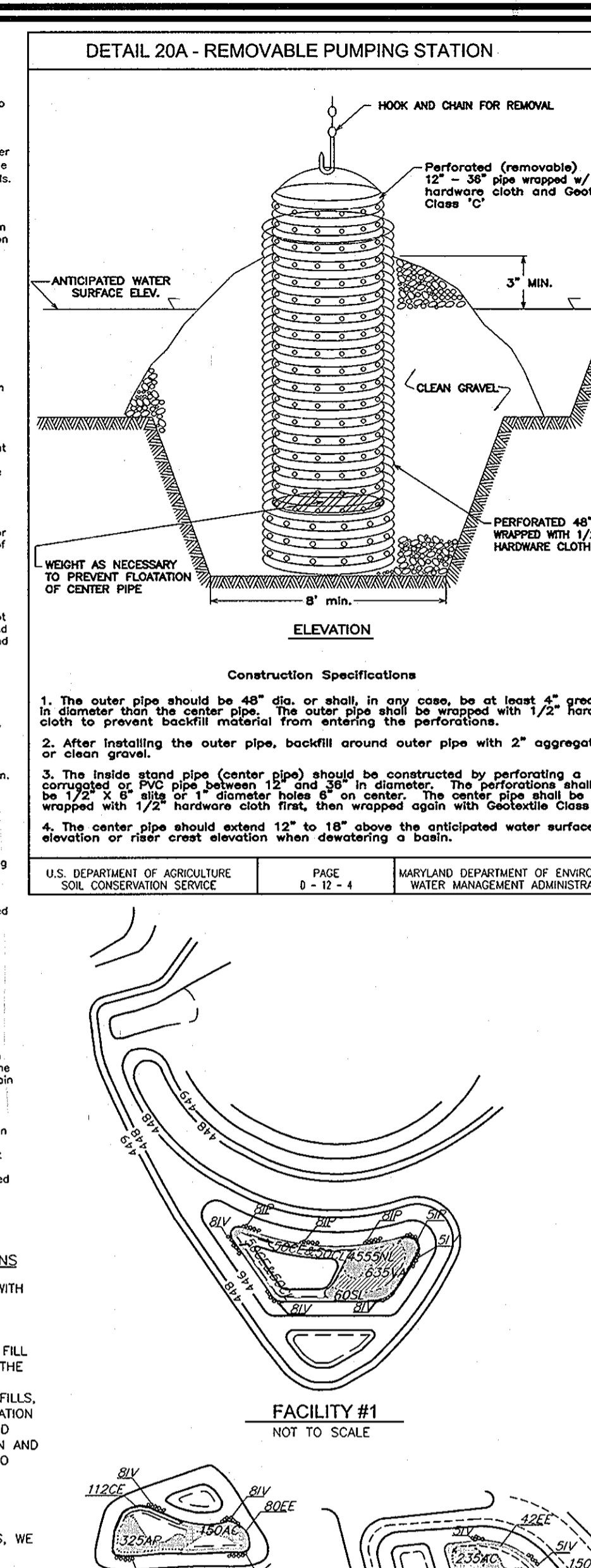
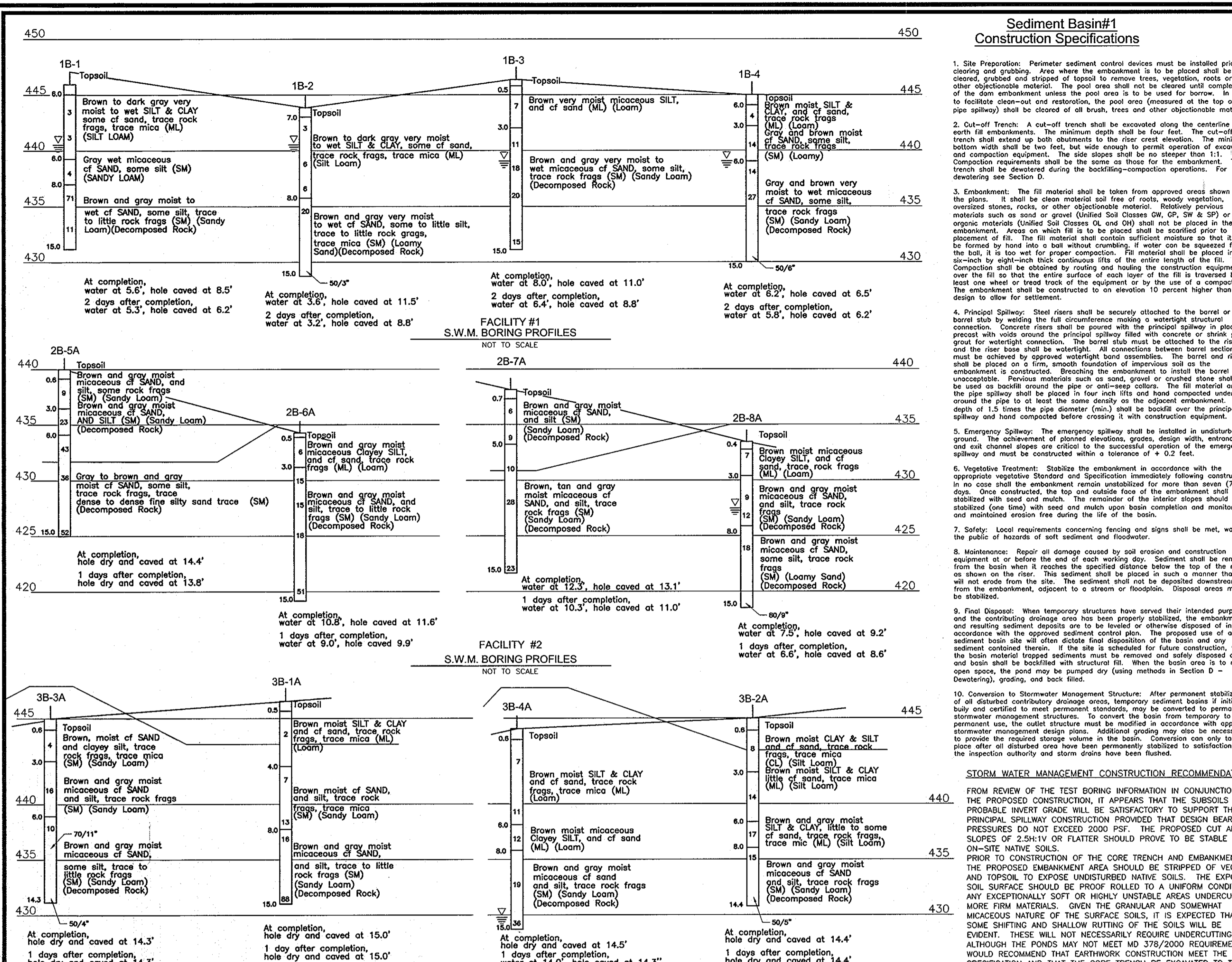
REF: S-02-03, P-03-02, F-99-25, F-86-13
TAX MAP BLOCK 23
33RD ELECTION DISTRICT

PARCELS '304' & '102'
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS - SURVEYORS
8407 MAIN STREET
ELLCOTT CITY, MARYLAND 21043
TEL: 410.461.7666 FAX: 410.461.9661

DESIGN BY: JCO
DRAWN BY: JCO/RJ
CHECKED BY: RHV
DATE: AUG. 2004
SCALE: AS SHOWN
W.O. NO.: 2017139.00

11 SHEET OF 22



CONSTRUCTION SPECIFICATIONS

These specifications are appropriate to all ponds within the scope of the Standard for project M-378. All specifications to ASHM and ASHTO specifications apply to the most recent version.

Site Preparation

Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped of topsoil. All trees, vegetation, rocks and other objectionable material shall be removed. Concrete blocks and sharp breaks shall be spaced to a maximum of 11'. All trees shall be cleared and grubbed within 15 feet of the top of the embankment.

Excavation

Excavation shall be covered by the reservoir with cleared of trees, brush, logs, fence, rubbish and other objectionable material unless otherwise designated on the plans. Logs, 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.

Earth Fill

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, SC, CH, or CL and must have at least 30% passing #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 portion of the embankment. The principal spillway must be installed concurrently with fill placement and not excavated into the embankment.

Reinforced Concrete

Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM C-361.

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 on the sides of the pipe to a depth of 4 inches. The bedding/cradle shall have a minimum thickness of 4 inches. Where a concrete cradle is not needed for structural reasons, flowfill may be used as described in the "Structure Backfill" section of this standard. Concrete bedding is not permitted.

Laying Pipe

Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with the manufacturer's instructions. The pipe shall be installed in a trench that has been excavated to the original line and grade of the pipe. The first joint must be located within 4 feet from the riser. With recommendations of the manufacturer of the material. After the joints are sealed for the entire length, the bedding shall be placed so that the pipe is fully supported by the bedding. The bedding shall be placed to a depth of 4 inches on the original line and grade of the pipe. The first joint must be located within 4 feet of the riser.

Backfilling

Backfilling shall conform to "Structure Backfill".

Other Details

Other details (anti-seep collars, valves, etc.) shall be shown on the drawings.

Plastic Pipe

The following criteria shall apply for plastic pipe:

- 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 the following: 4" - 10" inch pipe shall meet the requirements of ASHTO M252 Type S, and 12" through 24" inch shall meet the requirements of ASHTO M254 Type S.
- Anti-seep connections - Anti-seep collars shall be completely watertight.
- 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.
- Backfilling shall conform to "Structure Backfill".
- Other details (anti-seep collars, valves, etc.) shall be shown on the drawings.

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 four inches in thickness and compacted by hand tamper 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 four 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 of pipe.

Structure Backfill

Structure backfill may be flowfill fill meeting the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 313.3 as modified. The mixture shall have a 100-200 pass 28 day unconfined compressive strength. The flowfill fill shall have a minimum unit weight of 120 pcf and a minimum moisture content of 20%. Material shall be placed such that minimum of 6" (measured perpendicular to the outside of the pipe) of flowfill fill shall be under (bedding), over (top), on the sides of the pipe. It may extend up to the spring line for rigid conduits. Average slump of the flowfill fill shall be 7" to 8". Adequate flowfill measures shall be taken (sand bags, etc.) to prevent flowing the pipe. The material shall completely fill all voids adjacent to the flowfill 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 of pipe.

Pipe Conditions

All pipes shall be circular in cross section.

Corrugated Metal Pipe

All of the following criteria shall apply for corrugated metal pipe:

- Materials - (Polymer Coated Steel Pipe) - Steel pipes with polymer coating shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. Its type and its appearance shall conform to the requirements of ASHTO Specification M-248 & M-246 with water-tight coupling bands or flanges.
- Materials - (Aluminum Coated Steel Pipe) - This pipe and its appearance shall conform to the requirements of ASHTO Specification M-274 with water-tight coupling bands or flanges. Aluminum coated steel pipe, when used with flowfill fill or when soil and/or water conditions warrant the need for increased durability, shall be fully bluminous coated per requirements of ASHTO Specification M-190 Type A. All aluminum coating damaged or otherwise removed shall be replaced with cold applied bluminous coating compound. Aluminum surfaces that are in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of epoxy.

FACILITY #1

2' DEEP STORMWATER POND HERBACEOUS LANDSCAPE SCHEDULE

KEY	QUAN.	BOTANICAL NAME	SIZE	REMARKS
VA	635	Vallisneria spiralis Wild Celery	plug	2' oc
IP	29	Iris pseudacoris Yellow Water Iris	plug	1.5' oc
IV	29	Iris versicolor Blue Flag (wear gloves)	plug	1.5' oc
SL	60	Sagittaria latifolia Duck Potato (do not plant tubers)	plug	4' oc
CE	100	Cyperus esculentus Yellow Nut Sedge	plug	2' oc
NL	455	Najas luteum Cladoclad	plug	1.5' oc
CL	100	Carex lasiocarpa Lake Sedge	plug	2' oc

REMOVE Baffle Boards PRIOR TO INSTALLATION OF PLANT MATERIALS. ADD THREE INCHES OF TOPSOIL TO PLANTING AREA. STABILIZE WITH 40 POUNDS PER ACRE OF A HYDROSEED MIX (WET MIX AND MEADOW MIX) FROM SYLVIA NATIVE NURSERY OR EQUAL. ALL PLANT MATERIALS TO CONFORM TO THE MOST CURRENT ANM SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH LCAWM SPECIFICATIONS.

FACILITY #2

9' DEEP STORMWATER POND HERBACEOUS LANDSCAPE SCHEDULE

KEY	QUAN.	BOTANICAL NAME	SIZE	REMARKS
AP	325	Alisma plantago-aquatica Water Plantain	plug	2' oc
AC	150	Acorus calamus Sweet Flag	plug	2' oc
CE	112	Cyperus esculentus Yellow Nut Sedge	plug	2' oc
EE	80	Eleocharis aquisetoides Knotted Spike Rush	rhizome	2' oc
IP	16	Iris pseudacoris Yellow Water Iris	plug	1.5' oc
IV	16	Iris versicolor Blue Flag (wear gloves)	plug	1.5' oc
CL	100	Carex lasiocarpa Lake Sedge	rhizome	4' oc

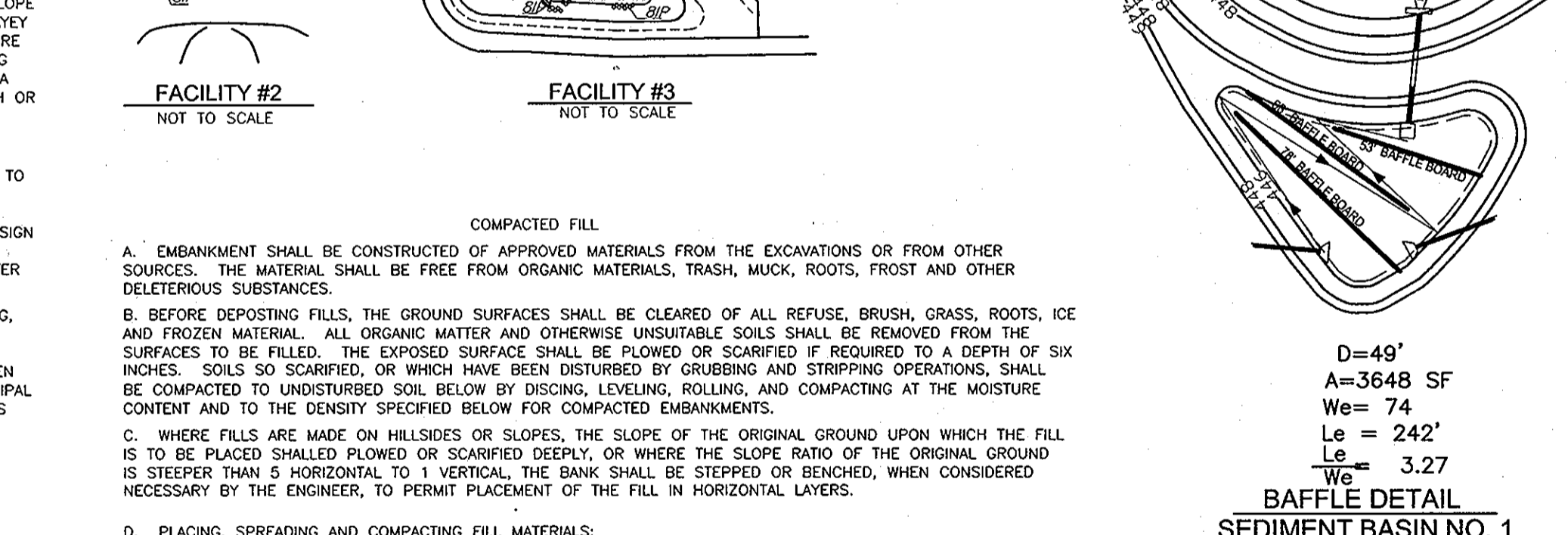
REMOVE Baffle Boards PRIOR TO INSTALLATION OF PLANT MATERIALS. ADD THREE INCHES OF TOPSOIL TO PLANTING AREA. STABILIZE WITH 40 POUNDS PER ACRE OF A HYDROSEED MIX (WET MIX AND MEADOW MIX) FROM SYLVIA NATIVE NURSERY OR EQUAL. ALL PLANT MATERIALS TO CONFORM TO THE MOST CURRENT ANM SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH LCAWM SPECIFICATIONS. CONTRACTOR TO AVOID STEPPING IN MICROPOOL DURING INSTALLATION.

FACILITY #3

9' DEEP STORMWATER POND HERBACEOUS LANDSCAPE SCHEDULE

KEY	QUAN.	BOTANICAL NAME	SIZE	REMARKS
AP	175	Alisma plantago-aquatica Water Plantain	plug	2' oc
AC	235	Acorus calamus Sweet Flag	plug	2' oc
CE	150	Cyperus esculentus Yellow Nut Sedge	plug	2' oc
EE	42	Eleocharis aquisetoides Knotted Spike Rush	rhizome	2' oc
IP	16	Iris pseudacoris Yellow Water Iris	plug	1.5' oc
IV	10	Iris versicolor Blue Flag (wear gloves)	plug	1.5' oc
CL	100	Carex lasiocarpa Lake Sedge	rhizome	4' oc

REMOVE Baffle Boards PRIOR TO INSTALLATION OF PLANT MATERIALS. ADD THREE INCHES OF TOPSOIL TO PLANTING AREA. STABILIZE WITH 40 POUNDS PER ACRE OF A HYDROSEED MIX (WET MIX AND MEADOW MIX) FROM SYLVIA NATIVE NURSERY OR EQUAL. ALL PLANT MATERIALS TO CONFORM TO THE MOST CURRENT ANM SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH LCAWM SPECIFICATIONS. CONTRACTOR TO AVOID STEPPING IN MICROPOOL DURING INSTALLATION.



FACILITY #1

9' DEEP STORMWATER POND HERBACEOUS LANDSCAPE SCHEDULE

KEY	QUAN.	BOTANICAL NAME	SIZE	REMARKS
VA	635	Vallisneria americana Wild Celery	plug	2' oc
IP	29	Iris pseudacoris Yellow Water Iris	plug	1.5' oc
IV	29	Iris versicolor Blue Flag (wear gloves)	plug	1.5' oc
SL	60	Sagittaria latifolia Duck Potato (do not plant tubers)	plug	4' oc
CE	100	Cyperus esculentus Yellow Nut Sedge	plug	2' oc
NL	455	Najas luteum Cladoclad	plug	1.5' oc
CL	100	Carex lasiocarpa Lake Sedge	plug	2' oc

REMOVE Baffle Boards PRIOR TO INSTALLATION OF PLANT MATERIALS. ADD THREE INCHES OF TOPSOIL TO PLANTING AREA. STABILIZE WITH 40 POUNDS PER ACRE OF A HYDROSEED MIX (WET MIX AND MEADOW MIX) FROM SYLVIA NATIVE NURSERY OR EQUAL. ALL PLANT MATERIALS TO CONFORM TO THE MOST CURRENT ANM SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH LCAWM SPECIFICATIONS.

FACILITY #2

9' DEEP STORMWATER POND HERBACEOUS LANDSCAPE SCHEDULE

KEY	QUAN.	BOTANICAL NAME	SIZE	REMARKS
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AC	150	Acorus calamus Sweet Flag	plug	2' oc
CE	112	Cyperus esculentus Yellow Nut Sedge	plug	2' oc
EE	80	Eleocharis aquisetoides Knotted Spike Rush	rhizome	2' oc
IP	16	Iris pseudacoris Yellow Water Iris	plug	1.5' oc
IV	16	Iris versicolor Blue Flag (wear gloves)	plug	1.5' oc
CL	100	Carex lasiocarpa Lake Sedge	rhizome	4' oc

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FACILITY #3

9' DEEP STORMWATER POND HERBACEOUS LANDSCAPE SCHEDULE

KEY	QUAN.	BOTANICAL NAME	SIZE	REMARKS
AP	175	Alisma plantago-aquatica Water Plantain	plug	2' oc
AC	235	Acorus calamus Sweet Flag	plug	2' oc
CE	150	Cyperus esculentus Yellow Nut Sedge	plug	2' oc
EE	42	Eleocharis aquisetoides Knotted Spike Rush	rhizome	2' oc
IP	16	Iris pseudacoris Yellow Water Iris	plug	1.5' oc
IV	10	Iris versicolor Blue Flag (wear gloves)	plug	1.5' oc
CL	100	Carex lasiocarpa Lake Sedge	rhizome	4' oc

REMOVE Baffle Boards PRIOR TO INSTALLATION OF PLANT MATERIALS. ADD THREE INCHES OF TOPSOIL TO PLANTING AREA. STABILIZE WITH 40 POUNDS PER ACRE OF A HYDROSEED MIX (WET MIX AND MEADOW MIX) FROM SYLVIA NATIVE NURSERY OR EQUAL. ALL PLANT MATERIALS TO CONFORM TO THE MOST CURRENT ANM SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH LCAWM SPECIFICATIONS. CONTRACTOR TO AVOID STEPPING IN MICROPOOL DURING INSTALLATION.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 DATE: 9/13/04
 DATE: 9/13/04

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
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APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 DATE: 9/13/04
 DATE: 9/13/04

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 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.

DEVELOPER'S CERTIFICATE

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE IN ACCORDANCE TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I 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.

AS-BUILT CERTIFICATION

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

STORMWATER MANAGEMENT DETAILS

THE PRESERVE AT WAVERLY GLEN
 LOTS 1-21, PRESERVATION PARCELS A-F AND G
 NON-BUILDABLE BULK PARCEL G-14
 A RESUBDIVISION OF LOTS 1 & 2 AND PARCEL A OF
 SHADOW SHADE PLAT NO. 13808 AND LOT 1 OF HIGHPOINT AT
 BREEZEWOOD FARMS PLAT NO. 6385

REF. S-02-03, F-99-25, F-98-13
 TAX MAP #10 BLOCK 23
 PARCELS '304' & '102'
 HOWARD COUNTY, MARYLAND

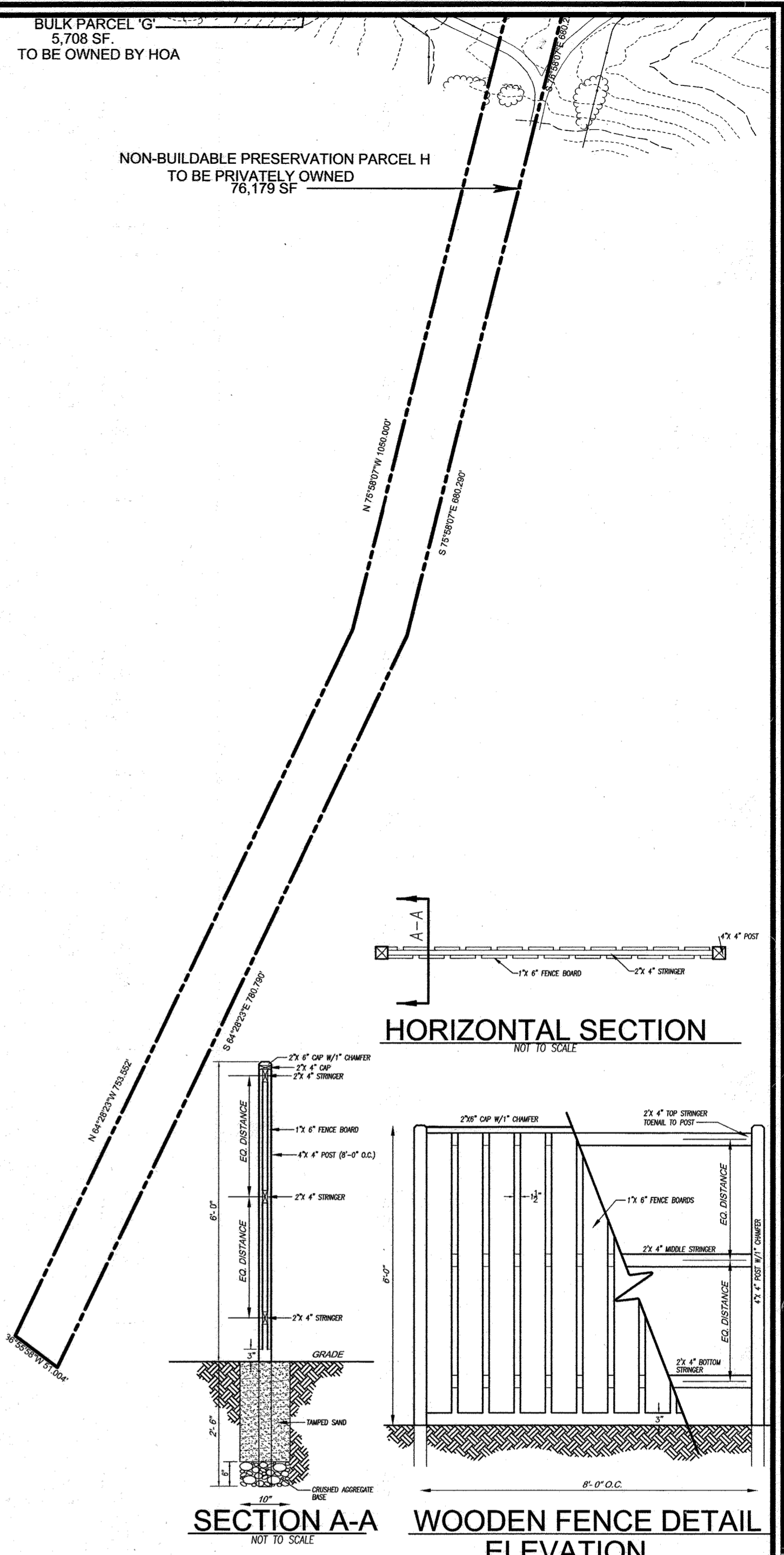
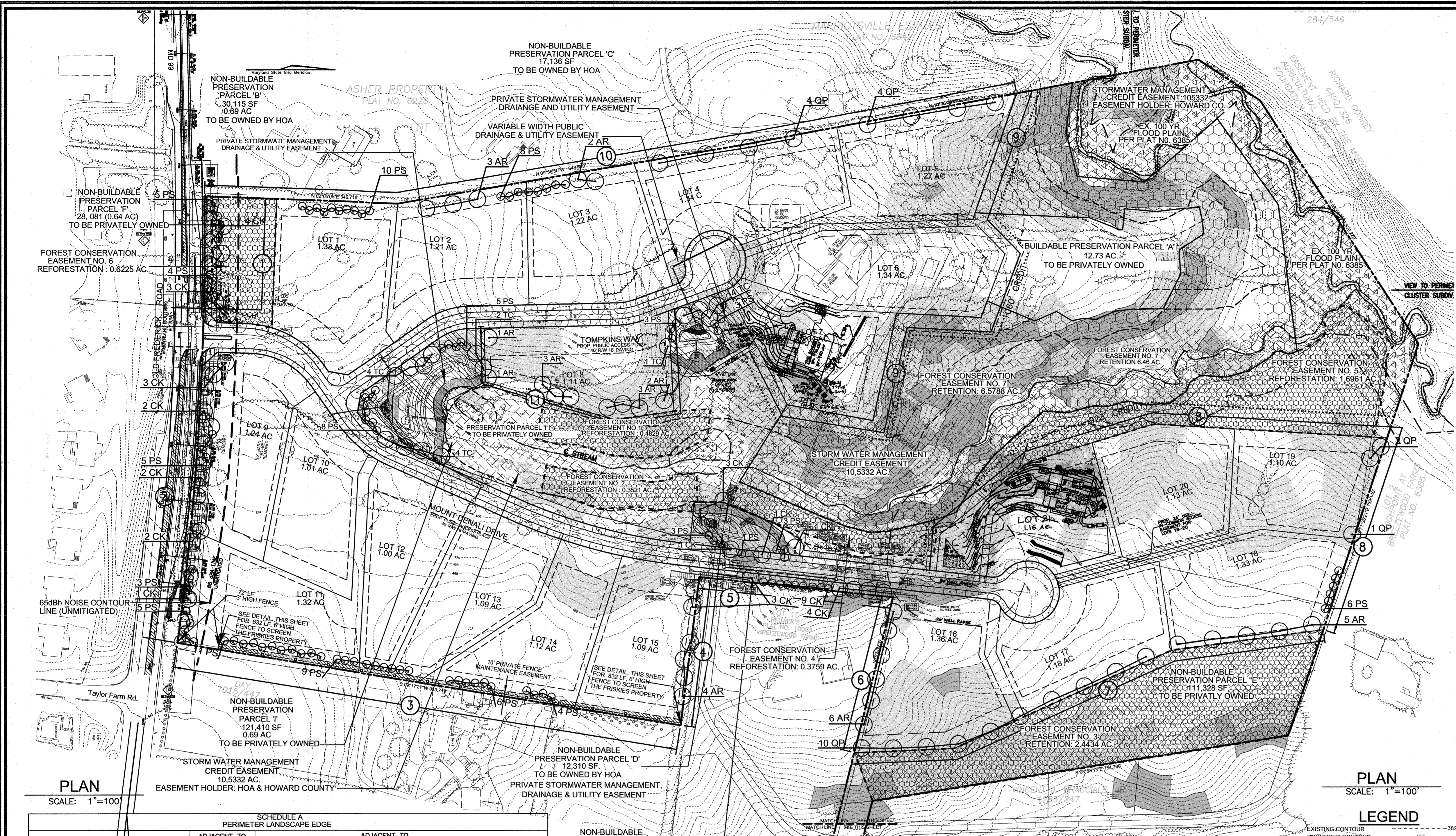
FREDERICK WARD ASSOCIATES, INC.
 ENGINEERS
 7125 Riverwood Drive Columbia, Maryland 21046-2354
 Phone: 410-290-9550 Fax: 410-720-6226
 Bldg. #101, P.O. Box 101, Columbia, Maryland 21046-0101

DESIGN BY: JCOIRJ
 DRAWN BY: RJV
 CHECKED BY: RH
 DATE: MAY, 2003
 SCALE: AS SHOWN
 W.O. NO.: 2017139.00

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AS-BUILT

F-03-02



SCHEDULE A PERIMETER LANDSCAPE EDGE

CATEGORY	ADJACENT TO PERIMETER PROPERTIES										
	1	2	3	4	5	6	7	8	9	10	11
Perimeter/Frontage Designation	B	B	A	A	A	A	A	A	A	A	A
Linear Feet of Roadway	350	511	915	267	348	385	880	1302	1060	1345	624
Credit for Existing Vegetation (Yes, No, Linear Feet)	No	No	No	No	No	No	No	Yes* 923	1060	No	No
Credit for Wall, Fence or Berm (Yes, No, Linear Feet)	No	No	No	No	No	No	No	No	No	No	No
Number of Plants Provided (LF Remaining)	1:50 7	1:50 9	1:60 10	1:60 4	1:50 7	1:60 6	1:60 15	1:60 3	1:60 13	1:60 11	1:60 11
Shade Trees	1:50 7	1:50 9	1:60 10	1:60 4	1:50 7	1:60 6	1:60 15	1:60 3	1:60 13	1:60 11	1:60 11
Evergreen Trees	1:40 9	1:40 13			1:40 9						
Shrubs											
Number of Plants Provided	7	10		4	7	6	15	3		13	11
Shade Trees	7	10		4	7	6	15	3		13	11
Evergreen Trees	9	13			9						
Other Trees (2:1 Substitution)			30							18	
Shrubs (10:1 Substitution)								6			
Describe Plant Substitution Credits Below if needed											

STREET TREE CALCULATIONS

STREET NAME	LINEAR FEET	NO. REQUIRED	NO. PROVIDED	SPECIES	SIZE/ROOT
OLD FREDERICK ROAD IMPROVEMENTS	698/40	18	18	PRUNUS CALLERYANA/CLEVELAND SELECT CLEVELAND SELECT PEAR	2 1/2" - 3" Cal. B & B
MOUNT DENALI DRIVE	3420 /40	86	86	PRUNUS SARGENTII SARGENT CHERRY	2 1/2" - 3" Cal. B & B
TOMPKINS WAY	1630 /40	41	41	ACER RUBRUM 'OCTOBER GLORY' OCTOBER GLORY RED MAPLE	2 1/2" - 3" Cal. B & B

SCHEDULE D : STORMWATER MANAGEMENT AREA LANDSCAPING

LINEAR FEET OF PERIMETER	SWM FACILITY 1 508 LF	SWM FACILITY 2 223 LF	SWM FACILITY 3 283 LF
CREDIT FOR EXISTING VEGETATION (NO, YES AND LINEAR FEET)	No	No	No
CREDIT FOR OTHER LANDSCAPING (NO, YES AND LF)	No	No	No
NUMBER OF TREES REQUIRED (225)	10 SHADE TREES 13 EVERGREEN TREES	4 SHADE TREES 7 EVERGREEN TREES	6 SHADE TREES 7 EVERGREEN TREES
NUMBER OF TREES PROVIDED	10 SHADE TREES 13 EVERGREEN TREES	4 SHADE TREES 6 EVERGREEN TREES	6 SHADE TREES 7 EVERGREEN TREES

LANDSCAPE SCHEDULE

KEY QUAN.	BOTANICAL NAME	SIZE	REM.
AR 32	Acer rubrum October Glory Red Maple	2 1/2" - 3" Cal.	B & B
CK 30	Acer platanoides 'Crimson King' Crimson King Norway Maple	2 1/2" - 3" Cal.	B & B
TC 13	Tilia cordata 'Greenspire' Littleleaf Linden	2 1/2" - 3" Cal.	B & B
PS 111	Pinus strobus Eastern White Pine	6 - 8' HL.	B & B
QP 21	Quercus palustris Pin Oak	2 1/2" - 3" Cal.	B & B

GENERAL NOTES

- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY AND LANDSCAPE MANUAL.
- FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING (IN THE AMOUNT OF \$45,450) AND FENCING (832 LF @ \$10 PER LF) HAS BEEN PAID AS A PART OF THE DPW DEVELOPER'S AGREEMENT IN THE TOTAL AMOUNT OF \$ 53,770
- FINANCIAL SURETY FOR THE REQUIRED TOTAL 145 STREET TREES HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN AMOUNT OF \$43,500.
- A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.

DEVELOPER'S CERTIFICATE

I CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND HOWARD COUNTY LANDSCAPE MANUAL.

Mail Papan (MEMBER) 8/4/04 DATE

LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING TREES TO REMAIN
- NO-WOODY VEGETATION BUFFER
- 15%-24.99% STEEP SLOPE AREA
- 25% OR GREATER STEEP SLOPE AREA
- FOREST CONSERVATION EASEMENT (RETENTION)
- FOREST CONSERVATION EASEMENT (REFORESTATION)
- RETENTION
- STREAM
- STREAM BUFFER
- WETLAND BUFFER
- NON TIDAL WETLAND
- 100 YEAR FLOODPLAIN EASEMENT
- SEPTIC EASEMENT DRAINAGE & UTILITY EASEMENT TREE MAINTENANCE EASEMENT
- PUBLIC SWM CREDIT AREA EASEMENT
- SOIL BORING

APPROVED: DEPARTMENT OF PUBLIC WORKS

Michael Papan
CHIEF, DEPARTMENT OF PUBLIC WORKS
DATE: 8/12/04

Robert H. Vogel
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 8/12/04

ENGINEER'S 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 COUNTY 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 COUNTY SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

Robert H. Vogel
SIGNATURE OF ENGINEER
ROBERT H. VOGEL
DATE: 8/4/04

DEVELOPER'S CERTIFICATE

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

Mail Papan (MEMBER) 8/4/04 DATE

THESE PLANS HAVE BEEN REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

Jim Munn 9/9/04 DATE
USDA-NATURAL RESOURCES CONSERVATION SERVICE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.

Keith Selig 9/9/04 DATE
HOWARD COUNTY SOIL CONSERVATION DISTRICT

"AS-BUILT" CERTIFICATION

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

Robert H. Vogel 8/21/04 DATE
SIGNATURE OF ENGINEER
ROBERT H. VOGEL

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ON-SITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ON-SITE SITE INSPECTION AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

OWNER/DEVELOPER

THE PRESERVE AT WAVERLY GLEN, LLC
3675 PARK AVENUE, SUITE 301
ELLCOTT CITY, MARYLAND 21043
(410) 480-0023

LANDSCAPING PLAN

THE PRESERVE AT WAVERLY GLEN
LOTS 1-21, PRESERVATION PARCELS A-F AND J
NON-BUILDABLE BULK PARCEL G+H

A RESUBDIVISION OF LOTS 1 & 2 AND PARCEL A OF SHADOW SHADE PLAT NO. 13808 AND LOT 1 OF HIGHPOINT AT BREEZEWOOD FARMS PLAT NO. 6385

REF. S-02-03, P-03-02, F-99-25, F-86-13
TAX MAP #10 BLOCK 23
ELECTION DISTRICT

PARCELS '304' & '102'
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS - SURVEYORS

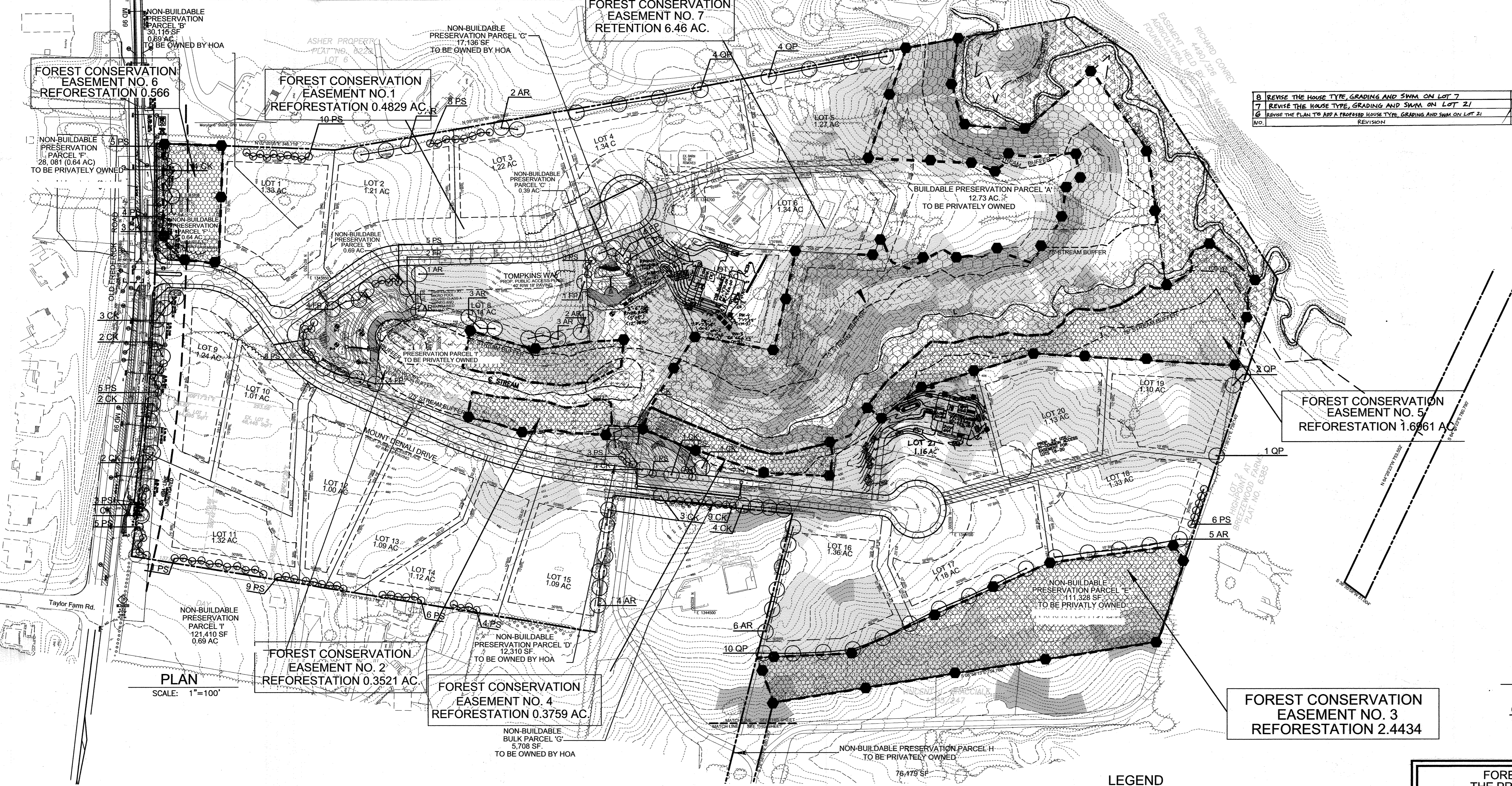
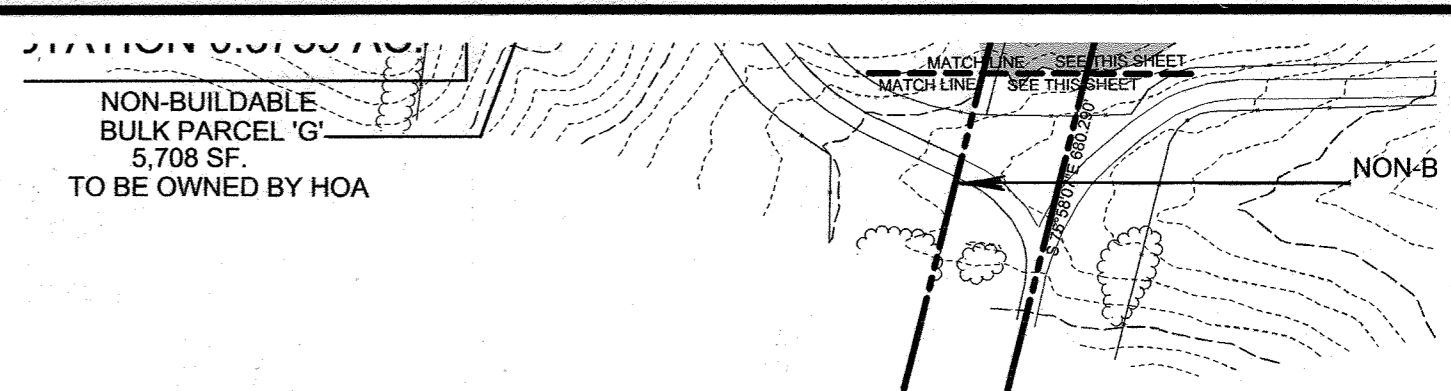
8407 MAIN STREET
ELLCOTT CITY, MARYLAND 21043
TEL: 410.461.7666 FAX: 410.461.8961

DESIGN BY: RJ/JCO
DRAWN BY: RJ
CHECKED BY: RHW
DATE: JULY 2004
SCALE: AS SHOWN
W.O. NO.: 2017139.00

13 SHEET OF 22

AS-BUILT F-03-193

SOILS LEGEND		
SYMBOL	NAME / DESCRIPTION	TYPE
GIC3	ELOAK SILTY CLAY LOAM, 8 TO 15 PERCENT SLOPES, SEVERELY ERODED	B
GIB2	GLENELG LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	B
GIC2	GLENELG LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED	B
GIC3	GLENELG LOAM, 8 TO 15 PERCENT SLOPES, SEVERELY ERODED	B
GIB2	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	B
MIC2	MANOR LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED	B
MID3	MANOR LOAM, 15 TO 25 PERCENT SLOPES, SEVERELY ERODED	B
MIE	MANOR LOAM, 25 TO 45 PERCENT SLOPES	B



NO.	REVISION	DATE
8	REVISE THE HOUSE TYPE, GRADING AND SWM ON LOT 7	10/26/21
7	REVISE THE HOUSE TYPE, GRADING AND SWM ON LOT 21	3-2-22
6	REVISE THE PLAN TO ADD A PROPOSED HOUSE TYPE, GRADING AND SWM ON LOT 21	12-6-21

FOREST CONSERVATION EASEMENTS AREA TABULATION	
FCE#1	REFORESTATION: 0.4829 AC. RETENTION: 0.0 AC.
FCE#2	REFORESTATION: 0.3521 AC RETENTION: 0.0 AC.
FCE#3	REFORESTATION: 2.4434 AC RETENTION: 0.0 AC.
FCE#4	REFORESTATION: 0.3759 AC RETENTION: 0.0 AC.
FCE#5	REFORESTATION: 1.6961 AC RETENTION: 0.0 AC.
FCE#6	REFORESTATION: 0.566 AC RETENTION: 0.0 AC.
FCE#7	REFORESTATION: 0.0 AC RETENTION: 6.46 AC
TOTAL REFORESTATION: 5.9164 AC TOTAL RETENTION: 6.46 AC	
FEE-IN-LIEU: 0.38 AC. = \$8,277.00	

PLAN
SCALE: 1"=100'

PLAN
SCALE: 1"=100'

OWNER/DEVELOPER
THE PRESERVE AT WAVERLY GLEN, LLC
3675 PARK AVENUE, SUITE 301
ELLCOTT CITY, MARYLAND 21043
(410) 480-0023

SITE DATA:
LOCATION: TAX MAP 10, PARCELS 102 AND 304
4TH ELECTION DISTRICT
EXISTING ZONING: RC-DEO
GROSS AREA OF PARCEL: 49.55 ACRES
AREA OF FLOODPLAIN: 2.12 ACRES
TOTAL FORESTED AREA: 11.73 ACRES
NET TRACT AREA: 47.43 ACRES
FOREST WITHIN NET TRACT AREA: 9.61 ACRES

FOREST RETENTION AREAS AND NOTES

1. FORESTED STREAM BUFFERS ARE RETAINED IN PRESERVATION PARCELS.
2. FORESTED WETLANDS AND THEIR BUFFERS ARE RETAINED IN PRESERVATION PARCELS
3. NO RARE, THREATENED OR ENDANGERED SPECIES WERE OBSERVED ON THIS SITE.
4. THE WOODED STEEP SLOPES ARE SUBSTANTIALLY RETAINED IN PRESERVATION PARCELS.
5. FORESTED AREAS ADJACENT TO FLOODPLAINS AND STREAM BUFFERS ARE SUBSTANTIALLY RETAINED IN PRESERVATION PARCELS.
6. UNWOODED SWM NATURAL CREDIT AREAS CAN BE PLANTED PER DED POLICY.
7. THERE ARE NO ISOLATED FOREST STANDS ON THIS SITE.
8. CHANGES IN GRADING AND RUNOFF WITHIN CONSTRUCTION/INSTALLATION AREAS WILL NOT ADVERSELY AFFECT THE SOILS WITHIN THE FOREST RETENTION AREA. SEDIMENT CONTROL MEASURES WILL REDIRECT CONCENTRATED FLOW RUNOFF TO STORMWATER MANAGEMENT FACILITIES, RETAIN SEDIMENT WITHIN THE CONSTRUCTION SITE, AND/OR REDIRECT CLEAN WATER AWAY FROM CONSTRUCTION AREAS.
9. FOREST CONSERVATION REQUIREMENTS PER SECTION 16.1200 OF THE HOWARD COUNTY CODE, DPZ, AND THE FOREST CONSERVATION MANUAL FOR THIS SUBDIVISION WILL BE FULFILLED BY THE RETENTION OF EXISTING FOREST IN THE AMOUNT OF 6.46 AC. AND THE REFORESTATION OF 5.91 AC. TOTAL OBLIGATION IS 12.75 AC. THE REMAINING 0.38 AC. WILL BE SATISFIED THROUGH FEE-IN-LIEU.
10. THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE. 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 PROTECTION NOTES

PRE-CONSTRUCTION ACTIVITIES

1. INSTALL BLAZE ORANGE FENCE AND RETENTION SIGNS BEFORE CONSTRUCTION BEGINS.
2. FENCING SHALL BE MAINTAINED IN GOOD CONDITION AND PROMPTLY REPAIRED OR RESTORED AS THE SITUATION WARRANTS.
3. A QUALIFIED TREE CARE EXPERT SHALL DETERMINE IF ROOT PRUNING IS REQUIRED ALONG THE LIMIT OF DISTURBANCE. ROOT PRUNE TREES AS REQUIRED. WATER ANY ROOT-PRUNED TREES IMMEDIATELY AFTER ROOT-PRUNING AND MONITOR FOR SIGNS OF STRESS DURING CONSTRUCTION.

CONSTRUCTION PHASE

1. NO DISTURBANCE OR DUMPING IS ALLOWED INSIDE THE TREE RETENTION AREA.
2. NO EQUIPMENT SHALL BE OPERATED INSIDE THE TREE RETENTION AREA INCLUDING TREE CANOPIES.
3. IN THE EVENT OF DROUGHT, THE PROTECTED TREES SHALL BE MONITORED FOR SIGNS OF STRESS AND WATERED AS NEEDED.

POST-CONSTRUCTION ACTIVITIES

1. AT THE DIRECTION OF A QUALIFIED TREE CARE EXPERT, DAMAGES TO RETAINED TREES SHALL BE REPAIRED BY THE CONTRACTOR.
2. FENCE REMOVAL AND STABILIZATION SHALL BE AS PER THE SEDIMENT AND EROSION CONTROL PLAN.
3. DO NOT REMOVE SIGNS.

LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING TREES TO REMAIN
- NO-WOODY VEGETATION BUFFER
- 15%-24.99% STEEP SLOPE AREA
- 25% OR GREATER STEEP SLOPE AREA
- FOREST CONSERVATION EASEMENT (RETENTION)
- FOREST CONSERVATION EASEMENT (REFORESTATION)
- Q STREAM
- STREAM BUFFER
- WETLAND BUFFER
- WETLAND
- 100 YEAR FLOODPLAIN EASEMENT
- SEPTIC EASEMENT
- PUBLIC SWM CREDIT AREA EASEMENT
- SOIL BORING

FOREST CONSERVATION REQUIREMENTS PER SECTION 16.1200 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL FOR THIS SUBDIVISION WILL BE FULFILLED BY THE RETENTION OF EXISTING FOREST IN THE AMOUNT OF 6.46 AC. AND REFORESTATION OF 5.91 AC FOR A TOTAL FOREST CONSERVATION OBLIGATION AREA OF 12.75 AC.

Retention of 6.46 ac (281,369 x 0.20) \$56,280
Planting trees in unwooded sum credit areas and other reforestation needs, Total 5.91 ac (257,440 of x 0.50) \$128,720

The remaining 0.38 ac of reforestation will be satisfied through fee-in-lieu in the amount of (16,553 of x 0.50) \$8,277

Produce survey in the amount of \$105,000. Will be paid with the RC maintenance agreement.

APPROVED: DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways
Date

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Chief, Division of Land Development
Date

Chief, Development Engineering Division
Date

FOREST CONSERVATION PLAN
THE PRESERVE AT WAVERLY GLEN
LOTS 1-21, PRESERVATION PARCELS A-F AND G
AND NON-BUILDABLE BULK PARCEL G-H
A RESUBDIVISION OF LOTS 1 & 2 AND PARCEL A OF SHADOW SHADE PLAT NO. 13808 AND LOT 1 OF HIGHPOINT AT BREEZEWOOD FARMS PLAT NO. 6385

REF. S-02-03, P-03-02, F-99-25, F-86-13
TAX MAP #10 BLOCK 23
3RD ELECTION DISTRICT

PARCELS '304' & '102'
HOWARD COUNTY, MARYLAND

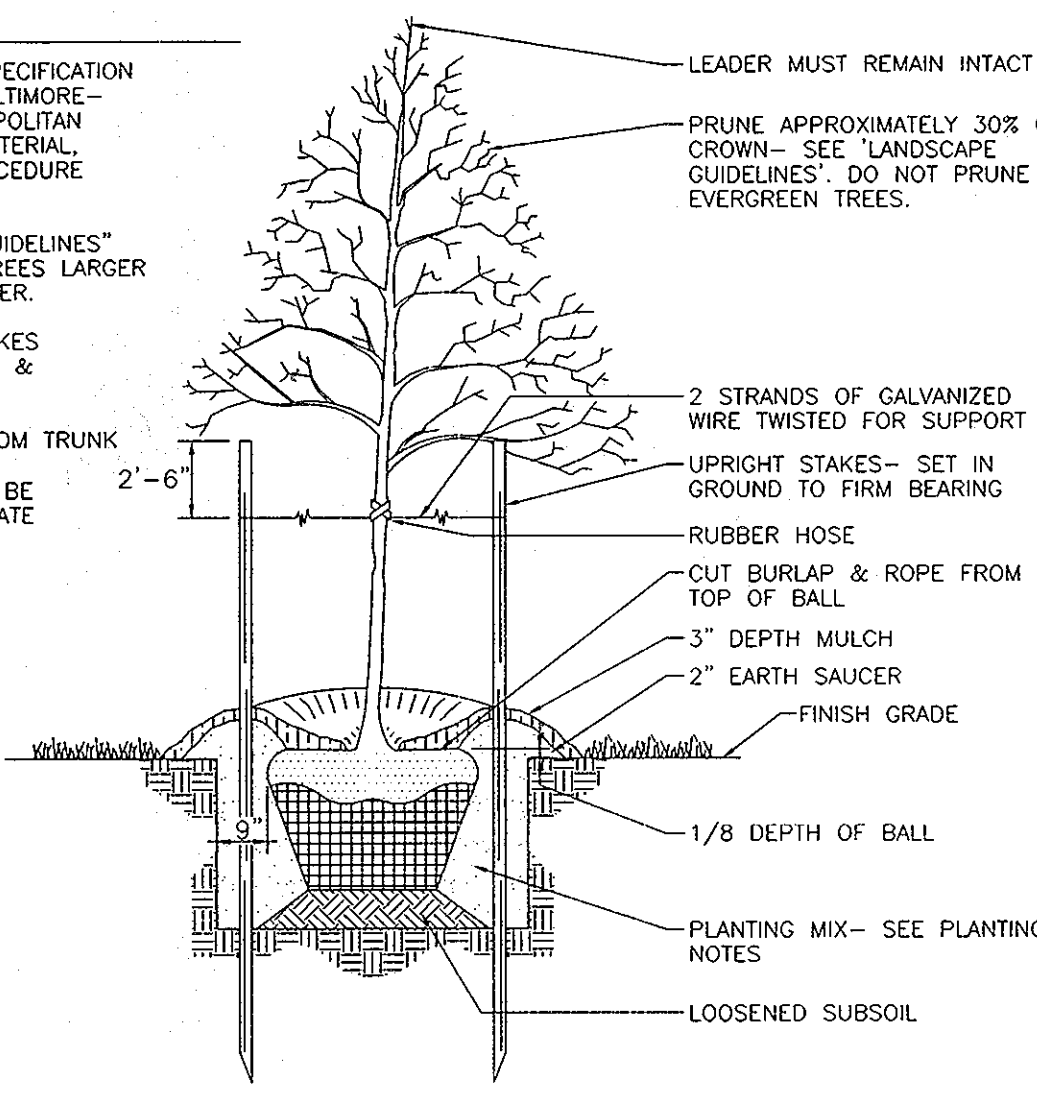
ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS - SURVEYORS
8407 MAIN STREET
ELLCOTT CITY, MARYLAND 21043
TEL: 410.461.7666 FAX: 410.461.8961

DESIGN BY: LUT
DRAWN BY: RJ
CHECKED BY: RHV
DATE: AUG. 2004
SCALE: AS SHOWN
W.O. NO.: 2017139.00

14 SHEET OF 22

NOTES

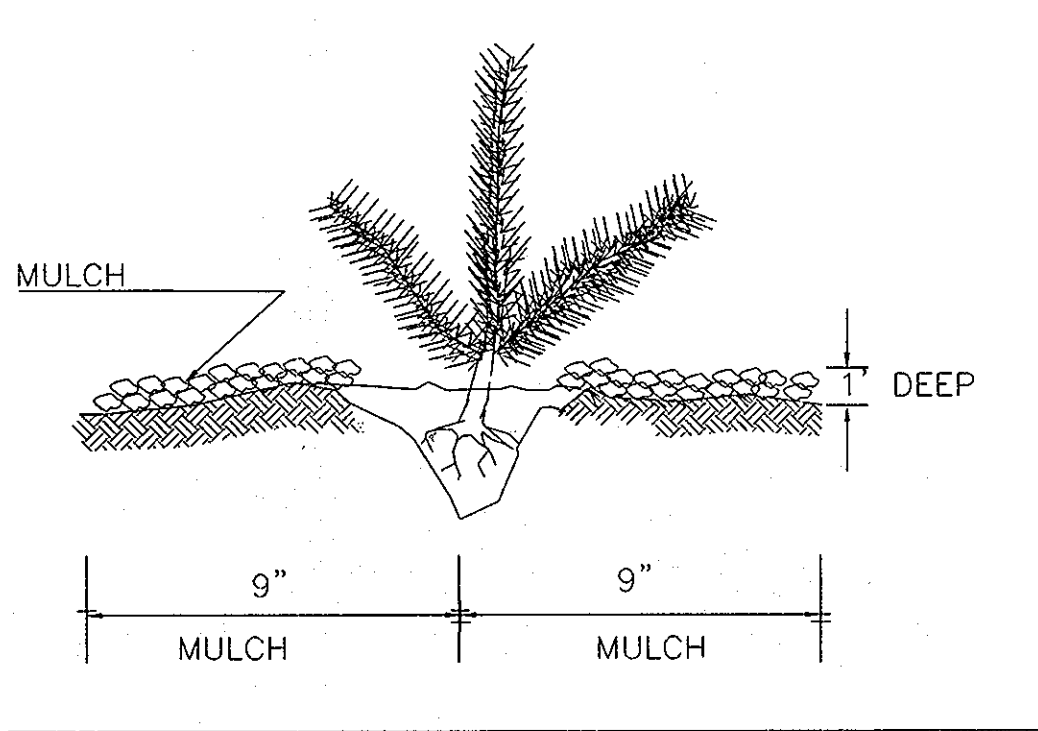
- SEE "LANDSCAPE SPECIFICATION GUIDELINES FOR BALTIMORE-WASHINGTON METROPOLITAN AREAS" FOR ALL MATERIAL, PRODUCT, AND PROCEDURE SPECIFICATIONS.
- SEE "LANDSCAPE GUIDELINES" FOR SUPPORTING TREES LARGER THAN 2-1/2" CALIPER.
- PLACE UPRIGHT STAKES PARALLEL TO WALKS & BUILDINGS.
- KEEP MULCH 1" FROM TRUNK
- TREES ARE NOT TO BE PLANTED OVER PRIVATE SEWAGE EASEMENT.



TREE PLANTING AND STAKING

TREES UP TO 2-1/2" CALIPER NOT TO SCALE

SEEDLING AND WHIP PLANTING SPECIFICATION



- NOTE:
- PLANT MIX TO BE 1/3 PIONEER & 2/3 MID TO LATE SUCCESSIONAL SPECIES
 - PLANT LARGER STOCK AND EVERGREENS AROUND PERIMETER TO PROTECT INTERIOR SMALLER STOCK.
 - WHEN SHRUBS ARE SPECIFIED, PLANT THEM IN CLUSTERS.
 - DO NOT PLANT TREES IN A GRID PATTERN.

DENSITY CHART

SIZE	QTY. PER ACRE	AVERAGE SPACING
2-3" CAL.	100	20'x20'
1" CALIPER	200	15'x15'
WHIPS	350	11'x11'

- NOTES:
- RANDOMLY SPACE SEEDLINGS / WHIPS SO THAT NO MORE THAN 5 OF ANY PARTICULAR SPECIES ARE PLANTED IN SUCCESSION. PLANT 1" CAL TREES AROUND PERIMETER OF REFORESTATION AREA.
 - PLANT 2 - 3 INCH CALIPER TREES ON AROUND PERIMETER OF REFORESTATION AREA #6 BECAUSE OF ITS PROMINENT LOCATION AT THE ENTRY TO THE SITE.
 - ALL PROPOSED PLANT MATERIAL TO BE NATIVE PLANT SPECIES. NO ORNAMENTAL CULTIVARS TO BE USED.
 - REFORESTATION MANAGEMENT RECORDS SHOULD BE KEPT FOR HOWARD COUNTY REVIEW.
 - YEAR 1: INSPECT TREES FOR HEALTH AND VIGOR AT: A. BEGINNING OF GROWING SEASON, B. MIDSUMMER AND C. FALL. ADJUST WATERING, PEST CONTROL, WEEDING AND FEEDING AS NEEDED. AFTER ONE-YEAR REPLACE ANY TREES THAT DID NOT SURVIVE DURING THE NEXT PLANTING SEASON.
 - YEAR 2: INSPECT TREES FOR HEALTH AND VIGOR IN APRIL & OCTOBER. ADJUST WATERING, PEST CONTROL, WEEDING AND FEEDING AS NEEDED. REPLACE ANY TREES THAT DID NOT SURVIVE YEAR 2 DURING THE NEXT PLANTING SEASON UP TO 50% OF ORIGINAL INSTALLATION.
 - CONTRACTOR TO FOLLOW ALL STATE AND COUNTY GUIDELINES FOR AFFORESTATION & REFORESTATION.

REFORESTATION PROVIDED - FCE-1

0.48 ACRES OR 21,034 SF
1" CALIPER TREES
96 (.48 AC) @ 200 TREES PER ACRE

REFORESTATION PROVIDED - FCE-2

0.35 ACRES OR 15,366 SF
1" CALIPER TREES
70 (.35 AC) @ 200 TREES PER ACRE

REFORESTATION PROVIDED - FCE-3

2.45 ACRES OR 106,836 SF
1" CALIPER TREES
490 (2.45 AC) @ 200 TREES PER ACRE

REFORESTATION PROVIDED - FCE-4

0.38 ACRES OR 16,375 SF
1" CALIPER TREES
76 (.38 AC) @ 200 TREES PER ACRE

REFORESTATION PROVIDED - FCE-5

1.70 ACRES OR 73,920 SF
1" CALIPER TREES
340 (1.70 AC) @ 200 TREES PER ACRE

PLANT SCHEDULE - FCE - 1			
QUAN.	BOTANICAL NAME	SIZE	SPACING (FT)
34	Acer rubrum Red Maple	1" Cal.	15 X 15
24	Platanus occidentalis Sycamore	1" Cal.	15 X 15
14	Prunus serotina Black Cherry	1" Cal.	15 X 15
24	Quercus palustris Pin Oak	1" Cal.	15 X 15

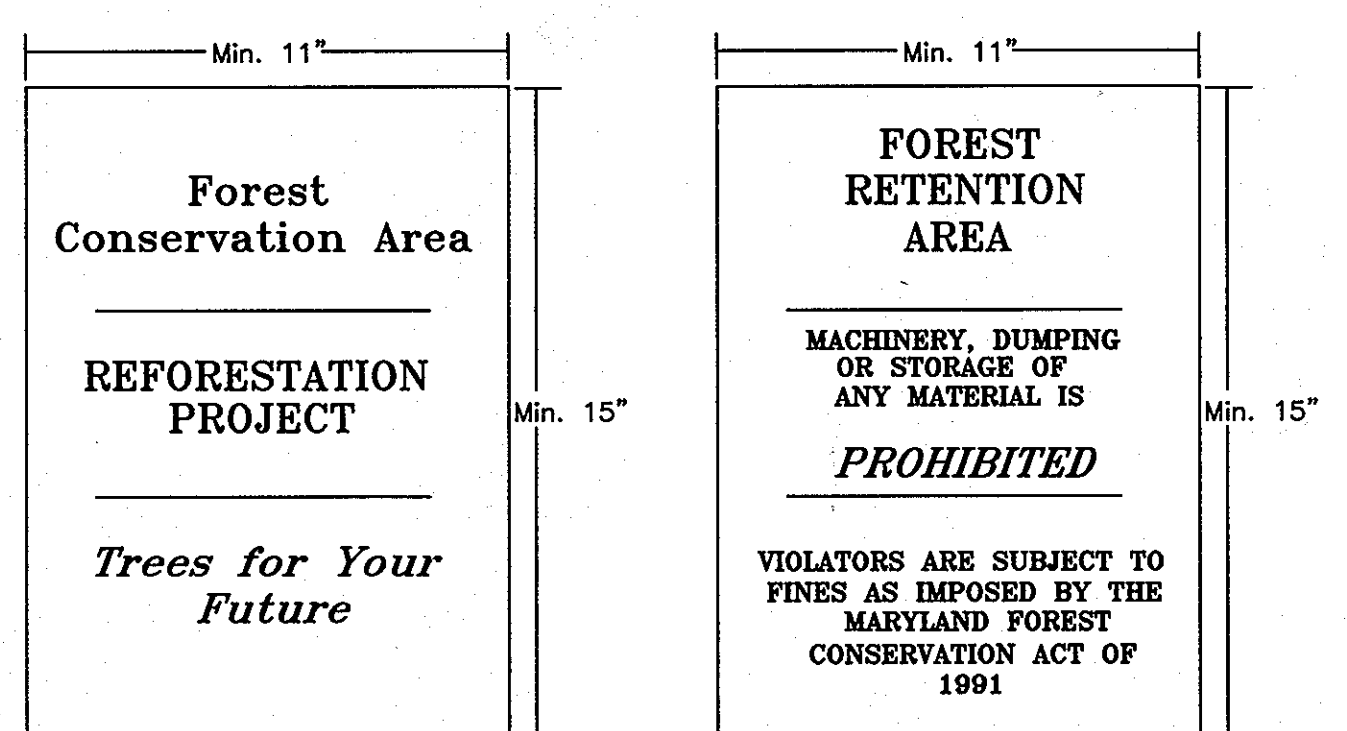
PLANT SCHEDULE - FCE - 2			
QUAN.	BOTANICAL NAME	SIZE	SPACING (FT)
28	Acer rubrum Red Maple	1" Cal.	15 X 15
18	Platanus occidentalis Sycamore	1" Cal.	15 X 15
7	Prunus serotina Black Cherry	1" Cal.	15 X 15
17	Quercus palustris Pin Oak	1" Cal.	15 X 15

PLANT SCHEDULE - FCE - 3			
QUAN.	BOTANICAL NAME	SIZE	SPACING (FT)
95	Liquidambar styraciflua American Sweet Gum	1" Cal.	15 X 15
55	Tilia cordata 'Greenspire' Littleleaf Linden	1" Cal.	15 X 15
95	Acer rubrum Red Maple	1" Cal.	15 X 15
95	Platanus occidentalis Sycamore	1" Cal.	15 X 15
55	Prunus serotina Black Cherry	1" Cal.	15 X 15
95	Quercus palustris Pin Oak	1" Cal.	15 X 15

PLANT SCHEDULE - FCE - 4			
QUAN.	BOTANICAL NAME	SIZE	SPACING (FT)
32	Acer rubrum Red Maple	1" Cal.	15 X 15
15	Platanus occidentalis Sycamore	1" Cal.	15 X 15
17	Prunus serotina Black Cherry	1" Cal.	15 X 15
15	Quercus palustris Pin Oak	1" Cal.	15 X 15
7	Tilia cordata 'Greenspire' Littleleaf Linden	1" Cal.	15 X 15

PLANT SCHEDULE - FCE - 5			
QUAN.	BOTANICAL NAME	SIZE	SPACING (FT)
49	Liquidambar styraciflua American Sweet Gum	1" Cal.	15 X 15
49	Fagus Grandifolia American Beech	1" Cal.	15 X 15
97	Acer rubrum Red Maple	1" Cal.	15 X 15
49	Platanus occidentalis Sycamore	1" Cal.	15 X 15
24	Prunus serotina Black Cherry	1" Cal.	15 X 15
48	Quercus palustris Pin Oak	1" Cal.	15 X 15
24	Tilia cordata 'Greenspire' Littleleaf Linden	1" Cal.	15 X 15

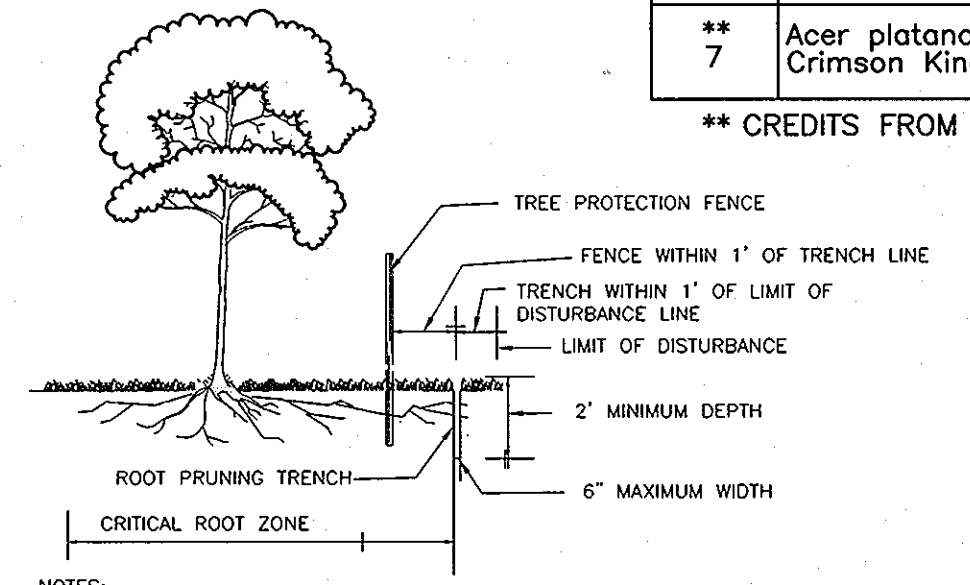
REFORESTATION PROTECTION SIGNAGE **FOREST RETENTION AREA SIGNAGE**



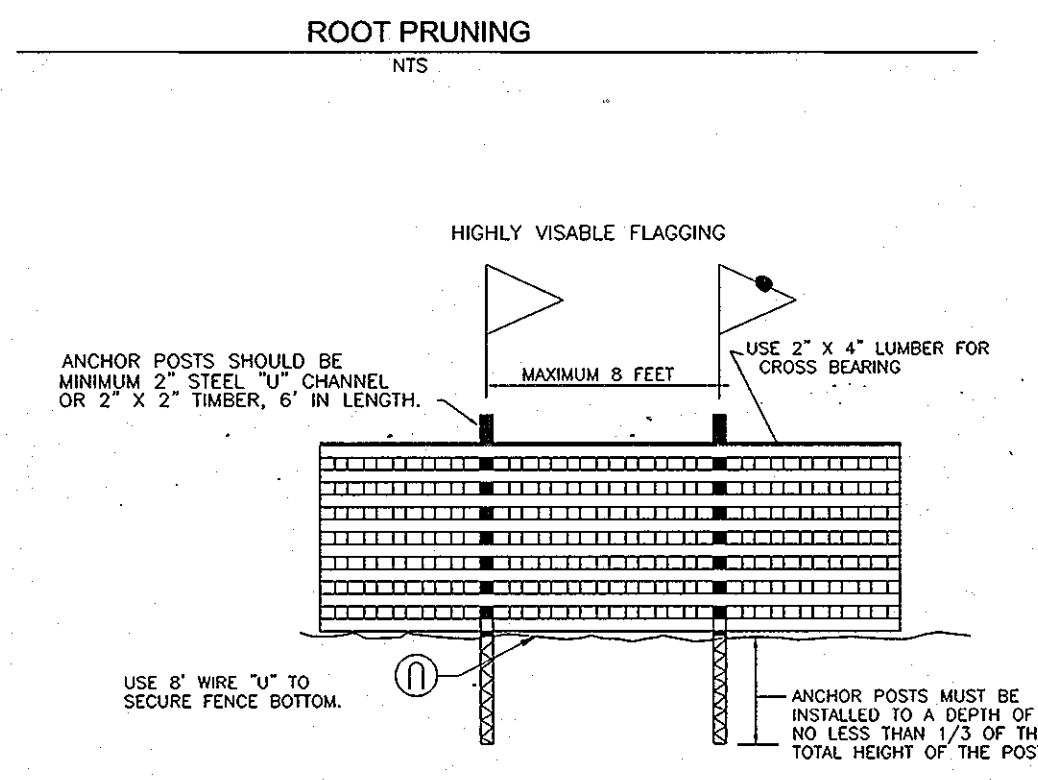
- NOTE:
- BOTTOM OF SIGNS TO BE HIGHER THAN TOP OF TREE PROTECTION FENCE.
 - SIGNS TO BE PLACED APPROXIMATELY 100' FEET APART.
 - ATTACHMENT OF SIGNS TO TREES IS PROHIBITED.

TOTAL
REFORESTATION PROVIDED - TOTAL
5.92 ACRES OR 257,875 SF
1" CALIPER TREES
1072 (5.36 AC) @ 200 TREES PER ACRE
2" CALIPER TREES
57 (0.57 AC) @ 100 TREES PER ACRE
(** CREDIT FOR 7 2-1/2"-3" CAL. TREES FROM LANDSCAPING)

REFORESTATION PROVIDED - FCE-6
0.57 ACRES OR 24,674 SF
2 1/2" - 3" CALIPER TREES
2" CALIPER TREES
.57 (.57 AC) @ 100 TREES PER ACRE



- NOTES:
- RETENTION AREAS TO BE ESTABLISHED AS PART OF THE FOREST CONSERVATION PLAN REVIEW PROCESS.
 - BOUNDARIES OF RETENTION AREAS TO BE STAKED, FLAGGED AND/OR FENCED PRIOR TO TRENCHING.
 - EXACT LOCATION OF TRENCH SHOULD BE IDENTIFIED.
 - TRENCH SHOULD BE IMMEDIATELY BACKFILLED WITH SOIL REMOVED OR ORGANIC SOIL.
 - ROOTS SHOULD BE CLEARLY CUT USING VIBRATORY KNIFE OR OTHER ACCEPTABLE EQUIPMENT.



- NOTES:
- FOREST PROTECTION DEVICE ONLY.
 - RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
 - BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
 - ROOF DAMAGE SHOULD BE AVOIDED.
 - PROTECTION SIGNAGE SHOULD BE USED.
 - DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.
- BLAZE ORANGE PLASTIC MESH
TYPICAL TREE PROTECTION FENCE DETAIL
NO SCALE

PLANT SCHEDULE			
QUAN.	BOTANICAL NAME	SIZE	SPACING (FT)
352	Acer rubrum Red Maple	1" Cal.	15 X 15
131	Liquidambar styraciflua American Sweet Gum	1" Cal.	15 X 15
49	Fagus Grandifolia American Beech	1" Cal.	15 X 15
72	Tilia cordata 'Greenspire' Littleleaf Linden	1" Cal.	15 X 15
108	Platanus occidentalis Sycamore	1" Cal.	15 X 15
69	Prunus serotina Black Cherry	1" Cal.	15 X 15
185	Quercus palustris Pin Oak	1" Cal.	15 X 15
7	Fagus Grandifolia American Beech	1" Cal.	20 X 20
22	Acer rubrum Red Maple	2"-3" CAL.	20 X 20
7	Platanus occidentalis Sycamore	2"-3" CAL.	20 X 20
**	Acer platanoides 'Crimson King' Pin Oak	2 1/2"-3" CAL.	20 X 20
**	Crimson King Norway Maple (CK)	2 1/2"-3" CAL.	20 X 20

** CREDITS FROM LANDSCAPING

17	PRUNUS SEROTINA BLACK CHERRY	2" CAL.	20 X 20
17	QUERCUS PALUSTRIS PIN OAK	2" CAL.	20 X 20

PLANT SCHEDULE - FCE - 6			
QUAN.	BOTANICAL NAME	SIZE	SPACING (FT)
22	Acer rubrum Red Maple	2" CAL.	20 X 20
7	Platanus occidentalis Sycamore	2" CAL.	20 X 20
7	Prunus serotina Black Cherry	2" CAL.	20 X 20
7	Quercus palustris Pin Oak	2" CAL.	20 X 20
7	Fagus Grandifolia American Beech	2" CAL.	20 X 20
**	Acer platanoides 'Crimson King' Pin Oak	2 1/2"-3" CAL.	20 X 20
**	Crimson King Norway Maple (CK)	2 1/2"-3" CAL.	20 X 20

** CREDITS FROM LANDSCAPING

HOWARD COUNTY FOREST CONSERVATION WORKSHEET

ZONED RC-DEO
NET TRACT AREA:
TOTAL TRACT AREA = 49.55 AC.
AREA WITHIN 100 YEAR FLOODPLAIN = 2.11 AC.
AREA TO REMAIN IN AGRICULTURAL PRODUCTION = 0.00 AC.
NET TRACT AREA = 47.44 AC

LAND USE CATEGORY
INPUT THE NUMBER "1" UNDER THE APPROPRIATE LAND USE ZONING, AND LIMIT TO ONLY ONE ENTRY.

ARA MDR IDA HDR MPD CIA
1 0 0 0 0 0

AFFOREST THRESHOLD 20% X D = 9.49 AC
CONSERVATION THRESHOLD 25% X D = 11.86 AC

EXISTING FOREST COVER:
EXISTING FOREST COVER (EXCLUDING FLOODPLAIN) = 9.61 AC
AREA OF FOREST ABOVE AFFORESTATION THRESHOLD = 0.12 AC
AREA OF FOREST ABOVE CONSERVATION THRESHOLD = 0.00 AC

BREAK EVEN POINT:
(2 X 1) + F = BREAK EVEN POINT (11.86 AC)
FOREST RETENTION WITH NO MITIGATION = 9.61 AC
CLEARING PERMITTED WITHOUT MITIGATION = 0.00 AC

PROPOSED FOREST CLEARING:
TOTAL AREA OF FOREST TO BE CLEARED = 3.15 AC
TOTAL AREA OF FOREST TO BE RETAINED = 6.46 AC

PLANTING REQUIREMENTS:
REFORESTATION FOR CLEARING ABOVE CONSERVATION THRESHOLD = 0.00 AC
REFORESTATION FOR CLEARING BELOW CONSERVATION THRESHOLD = 6.29 AC
CREDIT FOR RETENTION ABOVE CONSERVATION THRESHOLD (M-F) = 0.00 AC
TOTAL AFFORESTATION REQUIRED (N+P-Q) = 6.29 AC
TOTAL REFORESTATION REQUIRED = 0.00 AC
TOTAL REFORESTATION AND AFFORESTATION REQUIRED = 6.29 AC

TOTAL REQUIRED FOREST CONSERVATION OBLIGATION IS 12.75 ACRES.
(RETENTION-6.46 ACRES, REFORESTATION-6.29 ACRES)
COST ESTIMATE: (For bonding purposes only)
RETENTION OF 6.46 ACRES (281,398 SF X 0.20) \$56,280
PLANTING TREES IN UNFORESTED SWM CREDIT AREAS AND OTHER REFORESTATION AREAS, TOTAL 5.91 ACRES (257,440 SF X 0.50) \$128,720
TOTAL COST OF REFORESTATION WILL BE SATISFIED THROUGH FEE-IN-LIEU IN THE AMOUNT OF: (16,554 SF X 0.50) \$8,277

SURETY NOTE
FINANCIAL SURETY IN THE AMOUNT OF \$185,000 WILL BE PAID WITH THE FC MAINTENANCE AGREEMENT. THE SURETY AMOUNT IS SUBJECT TO THE FINAL PLAN APPROVAL.

FOREST CONSERVATION DETAILS
THE PRESERVE AT WAVERLY GLEN
LOTS 1-21, PRESERVATION PARCELS A-F AND J
AND NON-BUILDABLE BULK PARCEL G+H
A RESUBDIVISION OF LOTS 1 & 2 AND PARCEL A OF SHADOW SHADE PLAT NO. 13808 AND LOT 1 OF HIGHPOINT AT BREEZEWOOD FARMS PLAT NO. 6385

REF. S-02-03, P-03-02, F-99-25, F-88-13
TAX MAP #10 BLOCK 23
33RD ELECTION DISTRICT PARCELS '304' & '102' HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS - SURVEYORS
8407 MAIN STREET
ELLCOTT CITY, MARYLAND 21043
TELE: 410.461.7666 FAX: 410.461.8961

DESIGN BY: RJ/JCO
DRAWN BY: RJ
CHECKED BY: RHV
DATE: AUG. 2004
SCALE: AS SHOWN
S.W.O. NO.: 2017139.00

15 SHEET OF 22

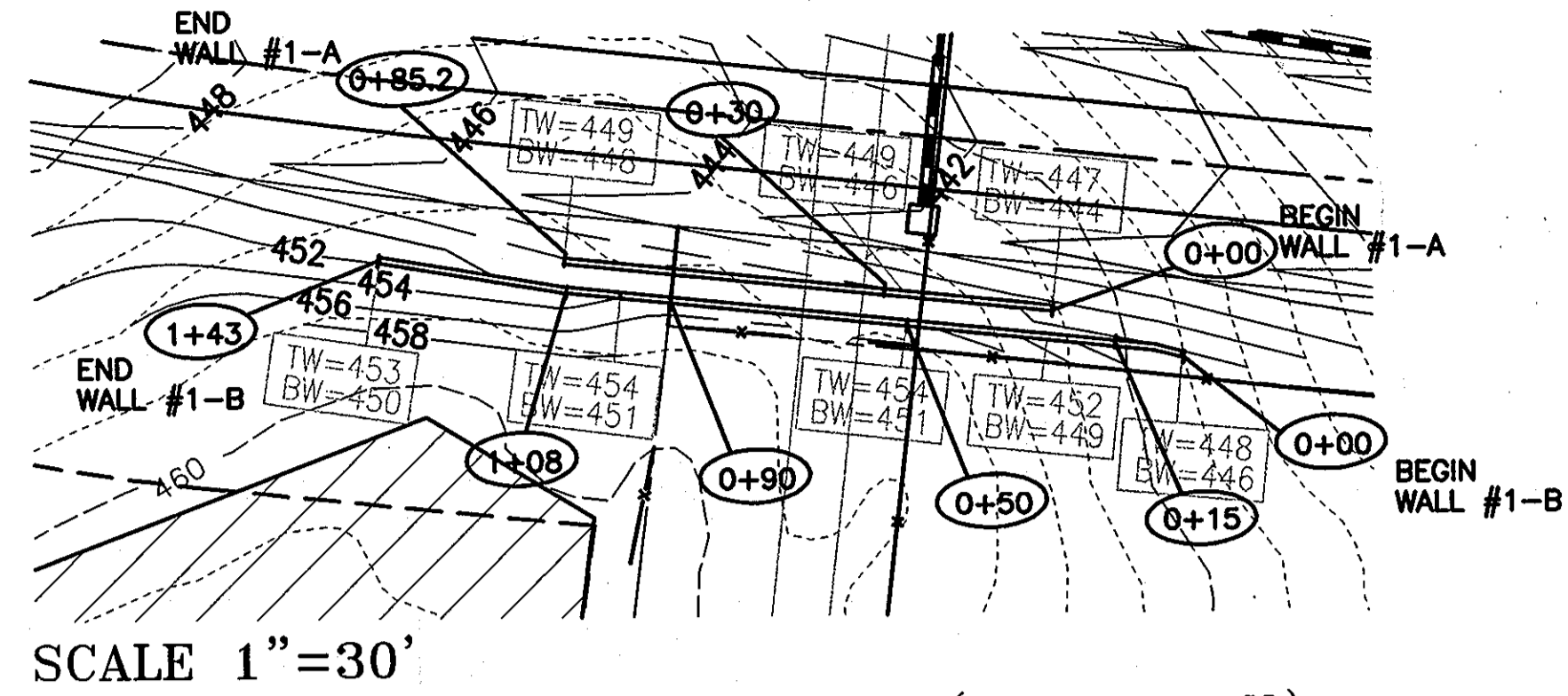
APPROVED: DEPARTMENT OF PUBLIC WORKS
[Signature]
Chief, Bureau of Highways Date

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature] 7/13/04
Chief, Division of Land Development Date

APPROVED: DEPARTMENT OF ENGINEERING
[Signature] 9/7/04
Chief, Development Engineering Division Date

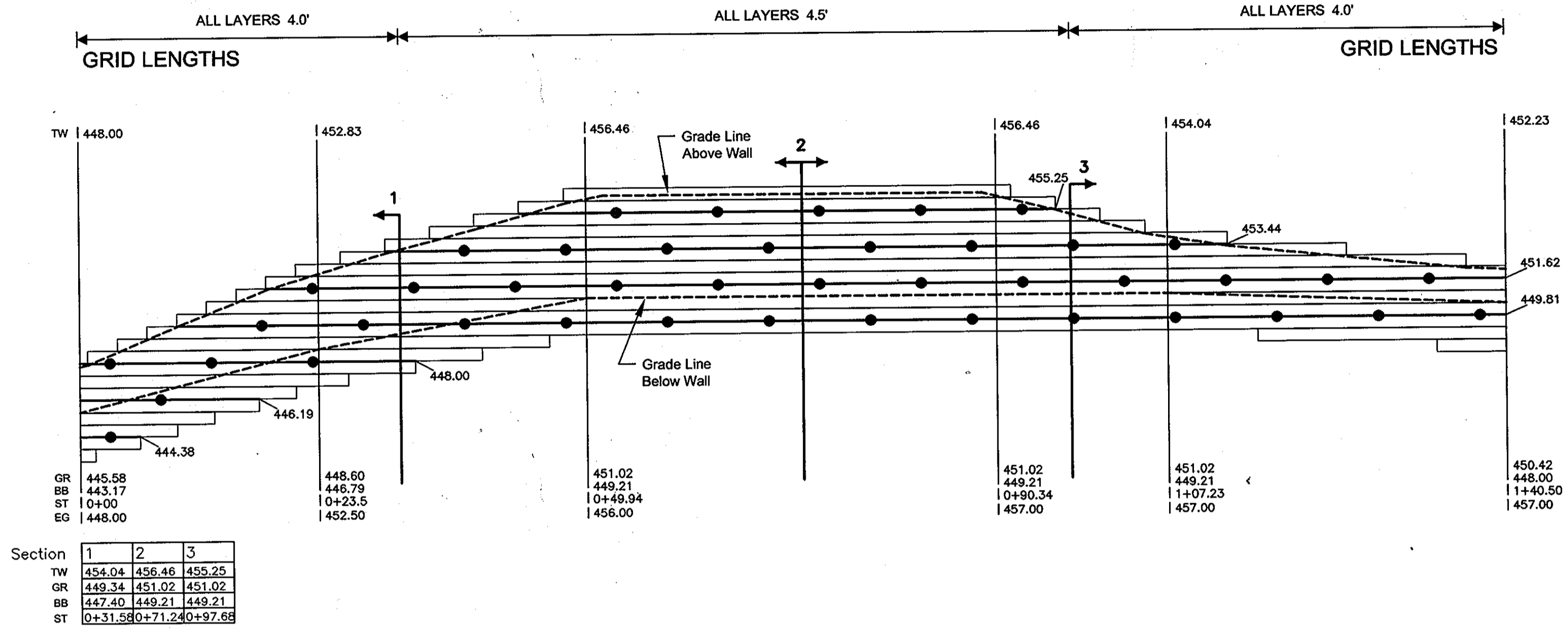
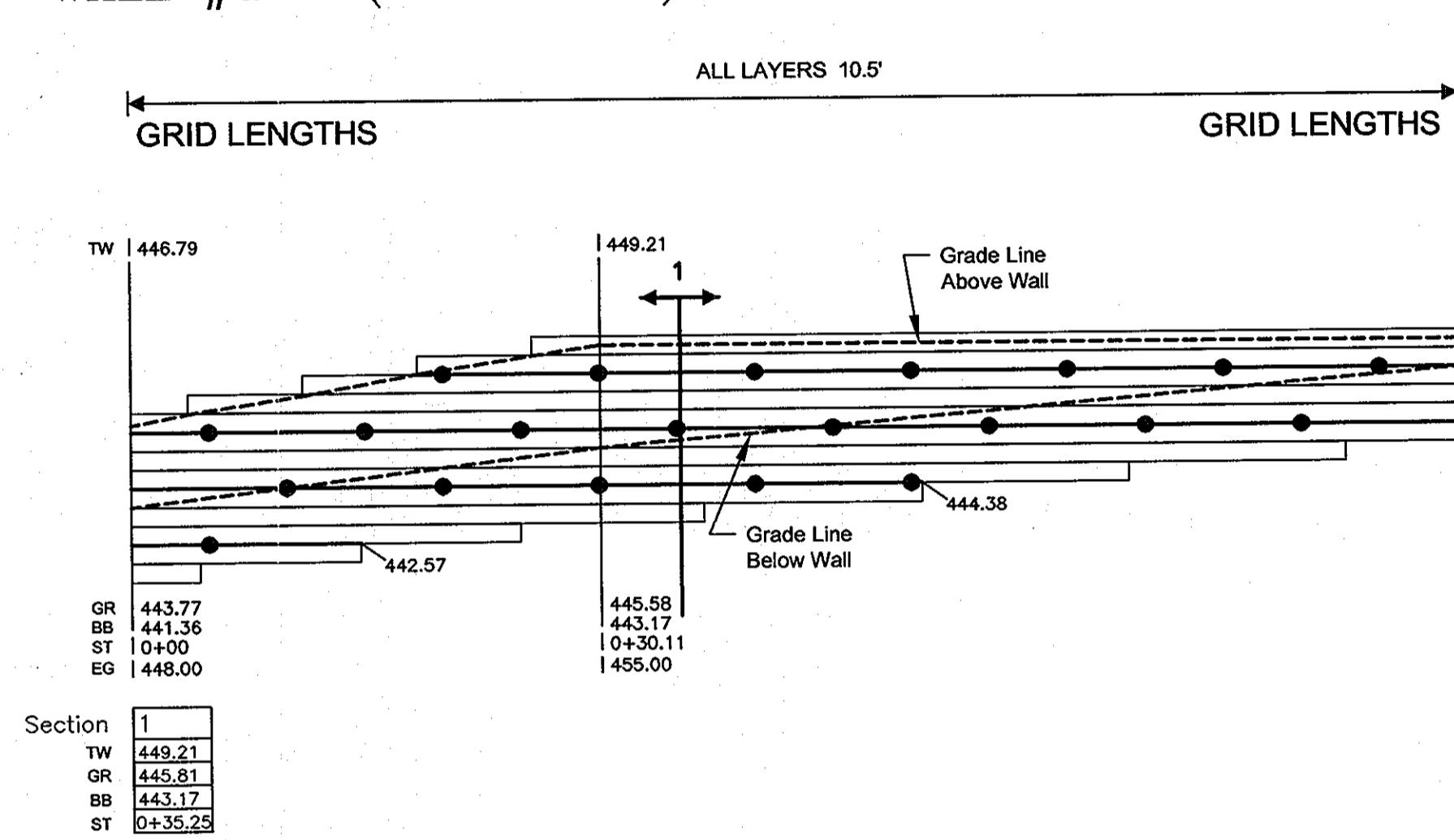
OWNER/DEVELOPER
THE PRESERVE AT WAVERLY GLEN, LLC
3075 PARK AVENUE, SUITE 3043
ELLCOTT CITY, MARYLAND 21043
(410) 480-0023

NO.	REVISION	DATE
1	REVISED PLANT FCE SCHEDULES - PLANT SIZE, G.S. 05	
	QUANTITIES AND SPACING	



WALL #1-A (lower wall)

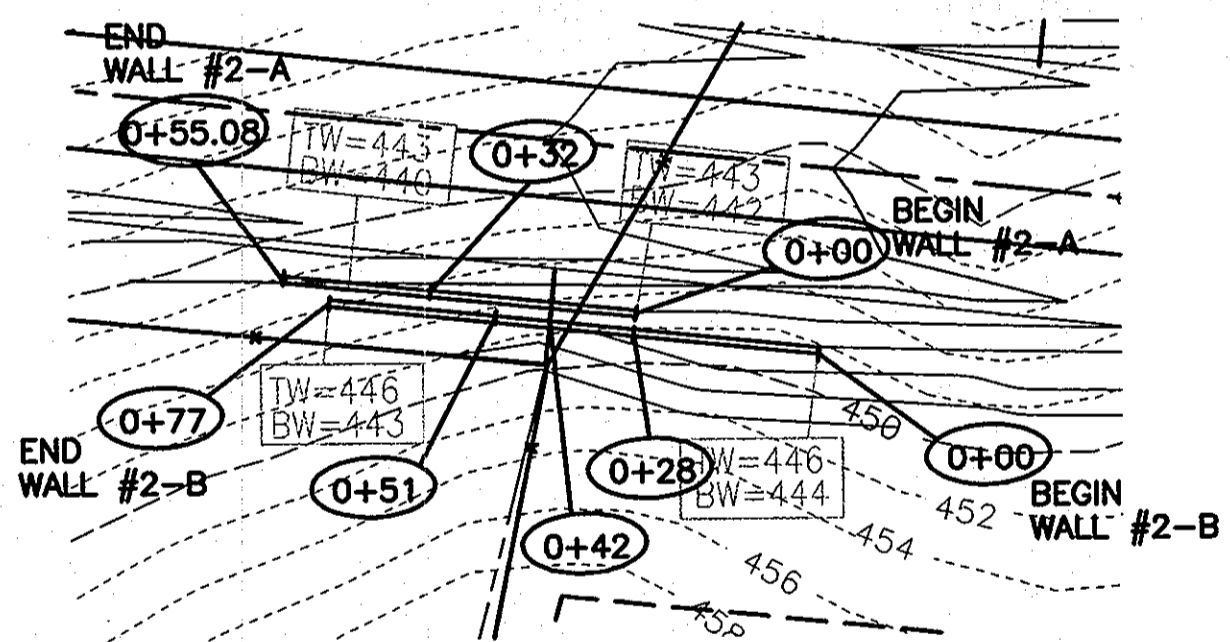
WALL #1-B (upper wall)



PROFILE SCALE:
 Horizontal 1"=10'
 Vertical 1"=5'

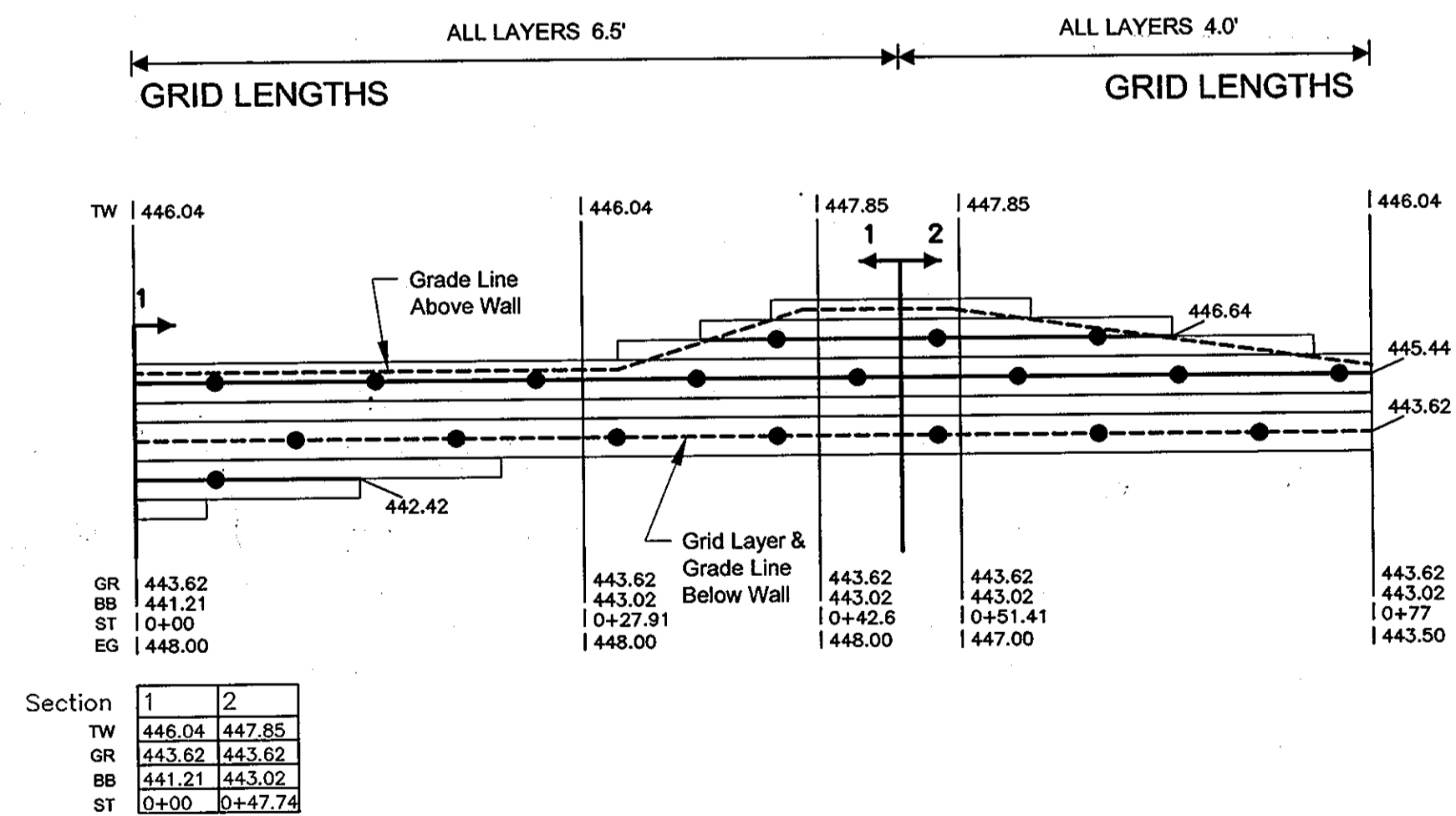
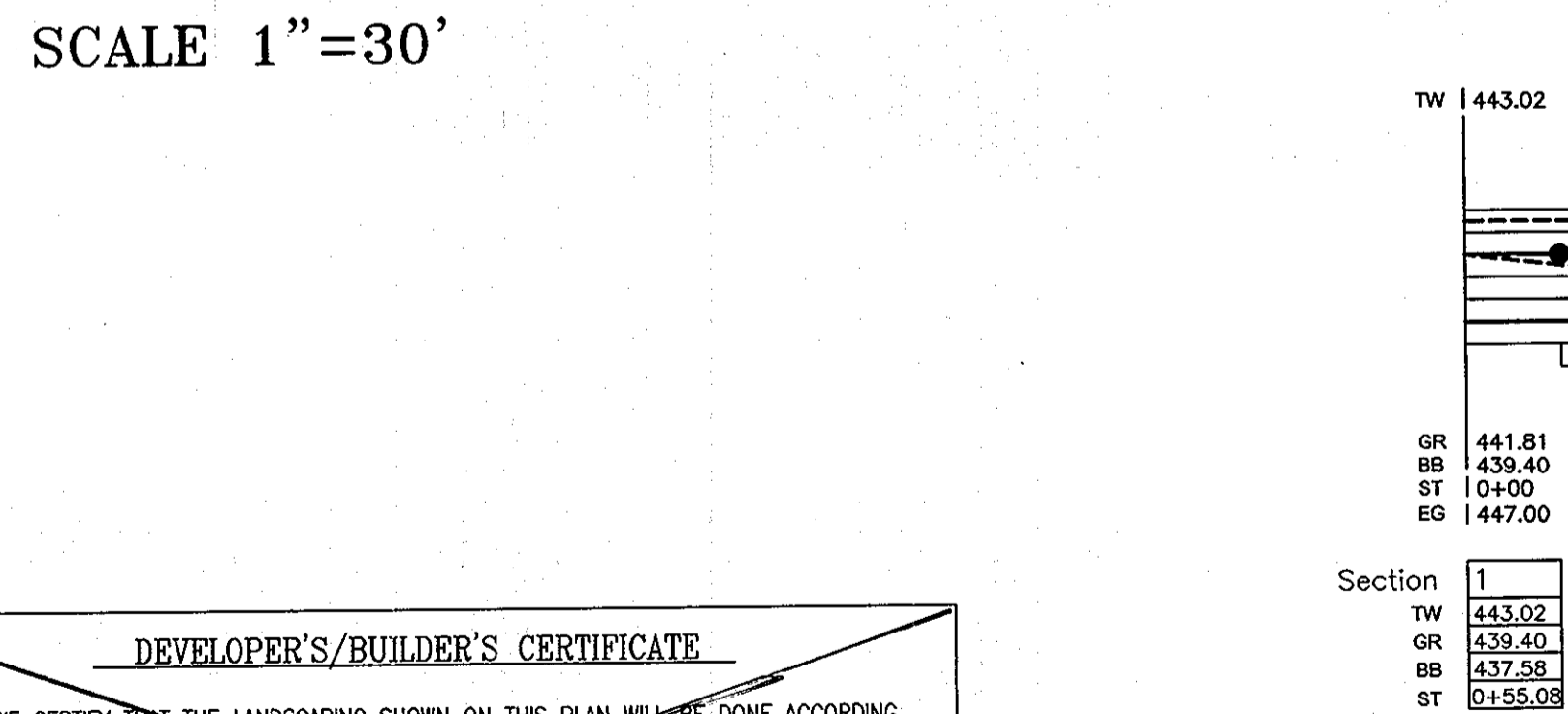
GRID KEY: MIRAFI 3XT

TW = TOP OF WALL (NOT INCLUDING CAP)
 GR = PROPOSED FINISHED GRADE AT BASE OF WALL
 BB = BOTTOM OF BLOCK / TOP OF LEVELING PAD
 ST = WALL STATION
 EG = EXISTING GRADE



WALL #2-A (lower wall)

WALL #2-B (upper wall)

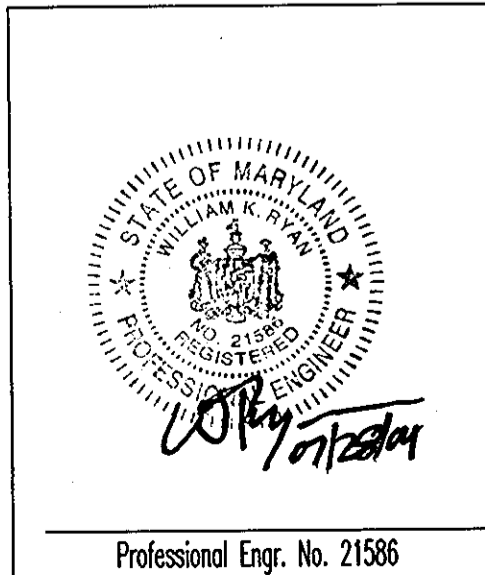


1	REDESIGN WALLS #3-A/#3-B PER REVISED GRADING PLAN	05-20-04
NO.	REVISION	DATE

THE PRESERVE AT WAVERLY GLEN
 LOTS 1-21, PRESERVATION PARCELS A-F AND J
 NON-BUILDABLE BULK PARCEL G-H
 A RESUBDIVISION OF LOTS 1 & 2 AND PARCEL A OF
 SHADOW SHADE PLAT NO. 13808 AND LOT 1 OF HIGHPOINT AT
 BREZEWOOD FARMS PLAT NO. 6385

REF. S-02-03, P-03-02, F-99-25, F-86-13 PARCELS '304' & '102'
 TAX MAP #10, BLOCK 23 HOWARD COUNTY, MARYLAND
 3RD ELECTION DISTRICT

ROBERT H. VOGEL ENGINEERING, INC.
 ENGINEERS - SURVEYORS
 8407 MAIN STREET
 ELLICOTT CITY, MARYLAND 21043
 TEL: 410.461.7666 FAX: 410.461.8961



RYAN & ASSOCIATES
 A Division of WKR Consulting, Inc.
 RETAINING WALL DIVISION
 717-477-8400 fax 717-477-8410
 68 West King Street
 Shippensburg, PA 17257-0006

DESIGN BY: _____
 DRAWN BY: _____
 CHECKED BY: _____
 DATE: _____
 SCALE: AS SHOWN
 W.O. NO.: 2017139.00

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

SIGNATURE OF DEVELOPER: _____ DATE: 9/2/04

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 CHIEF, DIVISION OF LAND DEVELOPMENT

APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS DATE: 8/2/04

THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICTS AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

USDA-NATURAL RESOURCES CONSERVATION SERVICE DATE: _____

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD S.C.D. DATE: _____

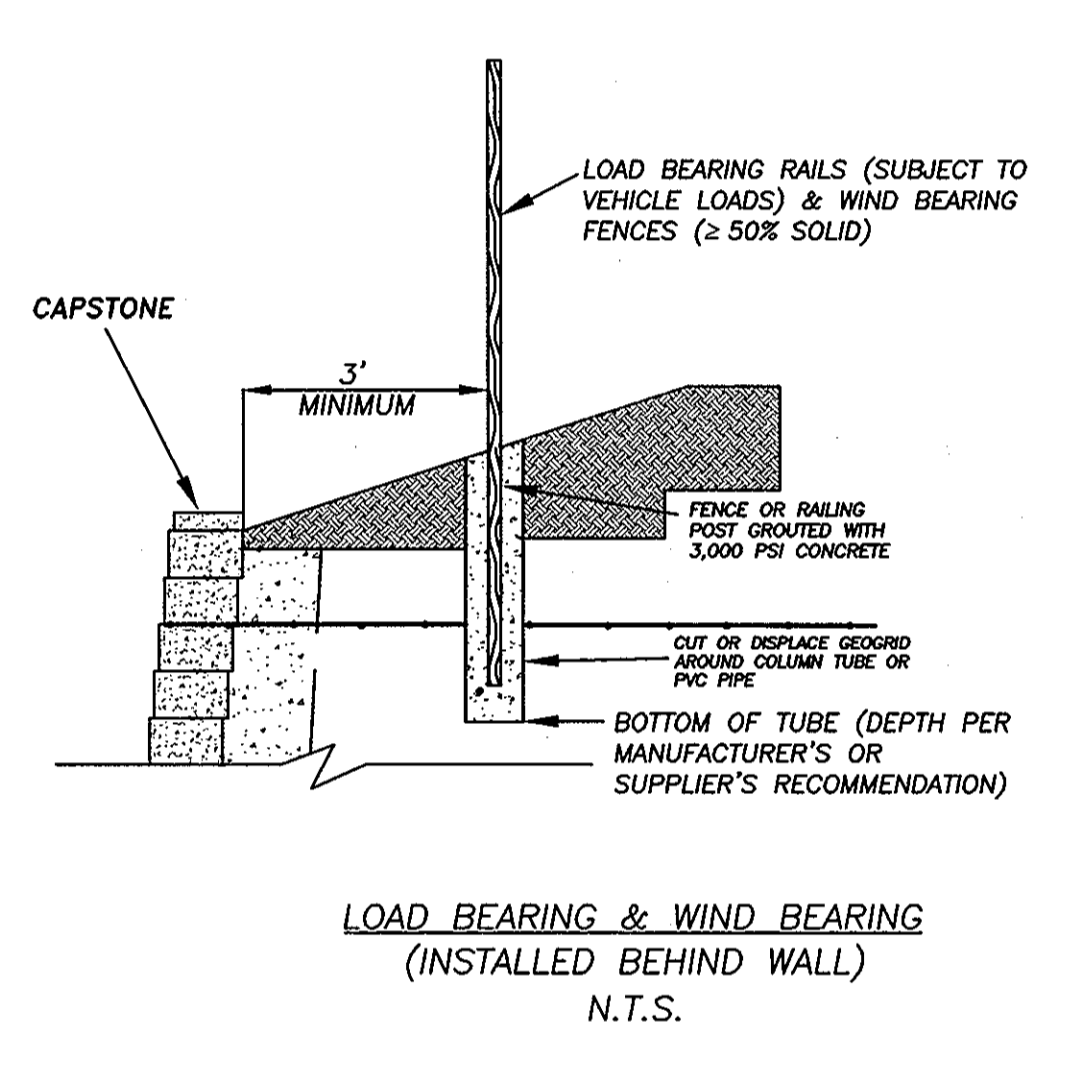
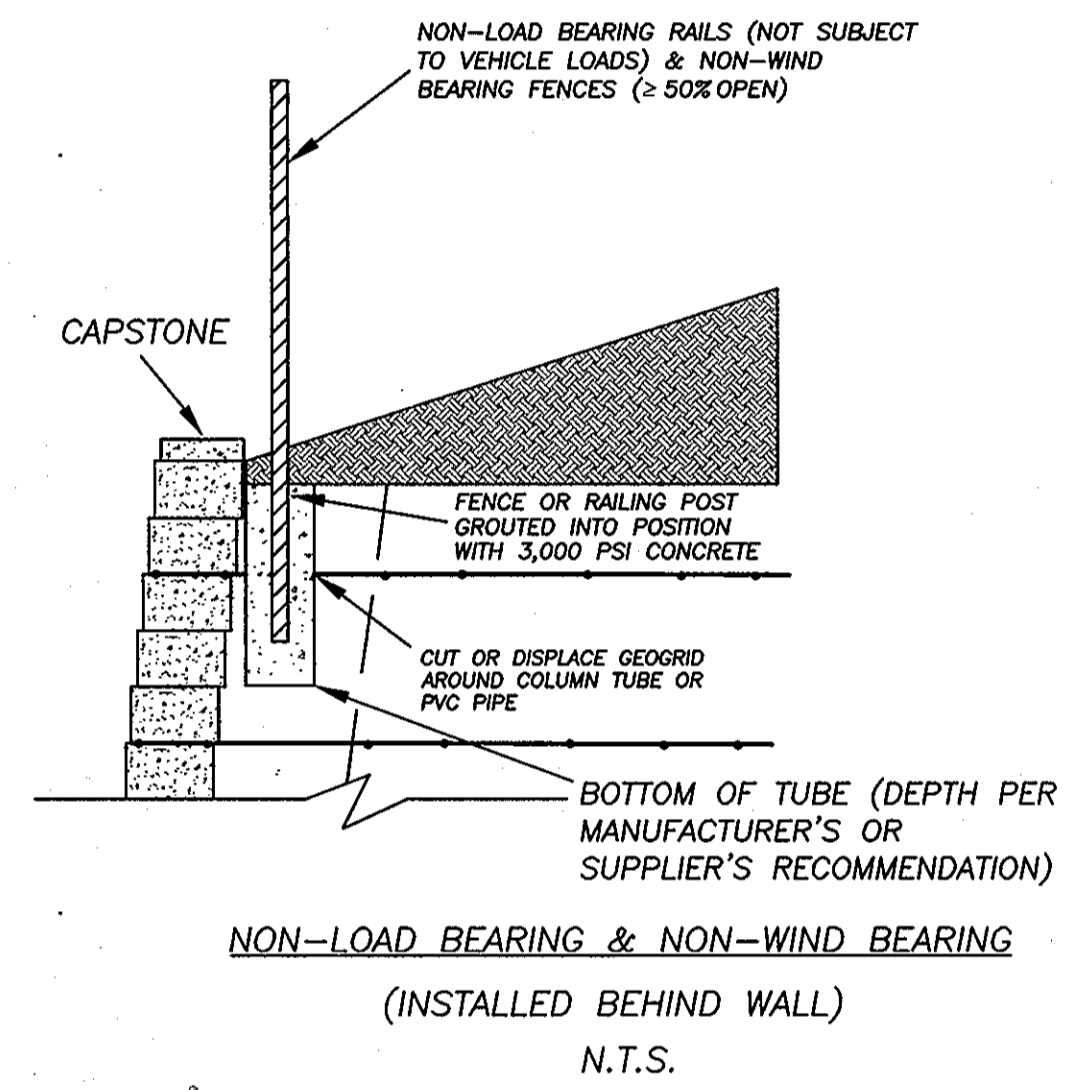
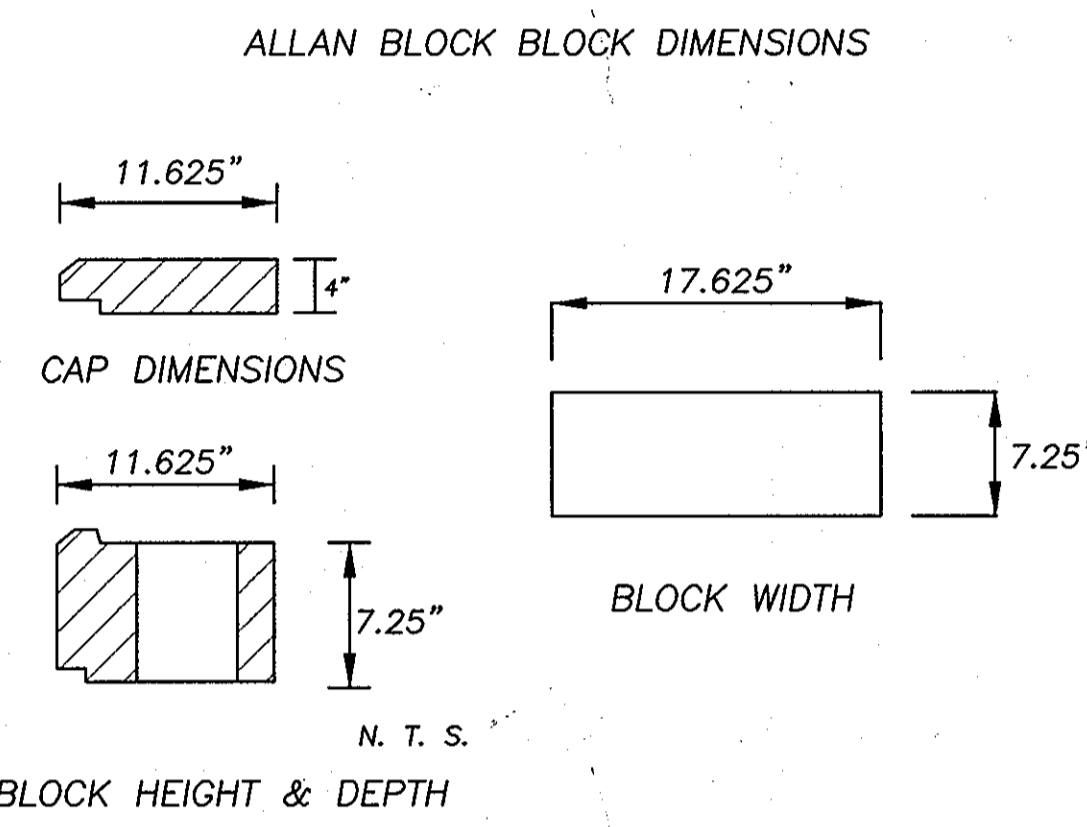
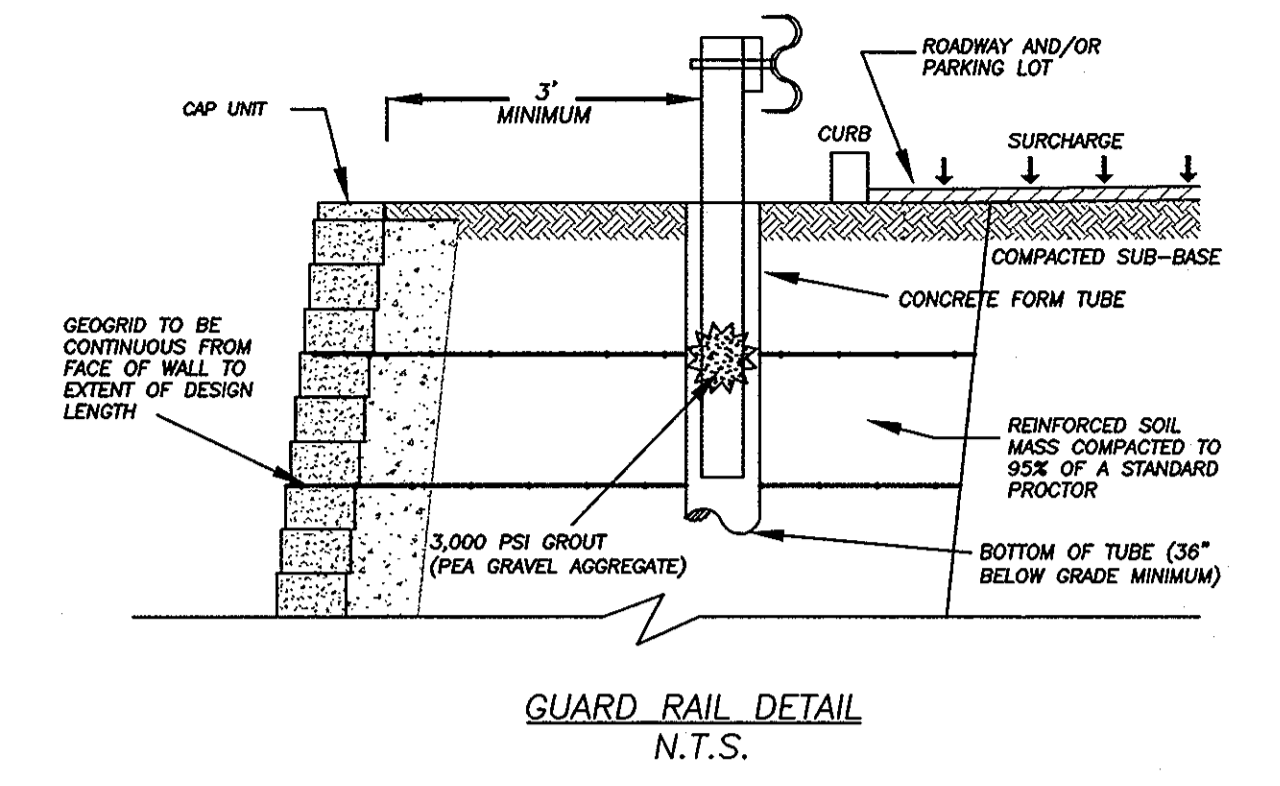
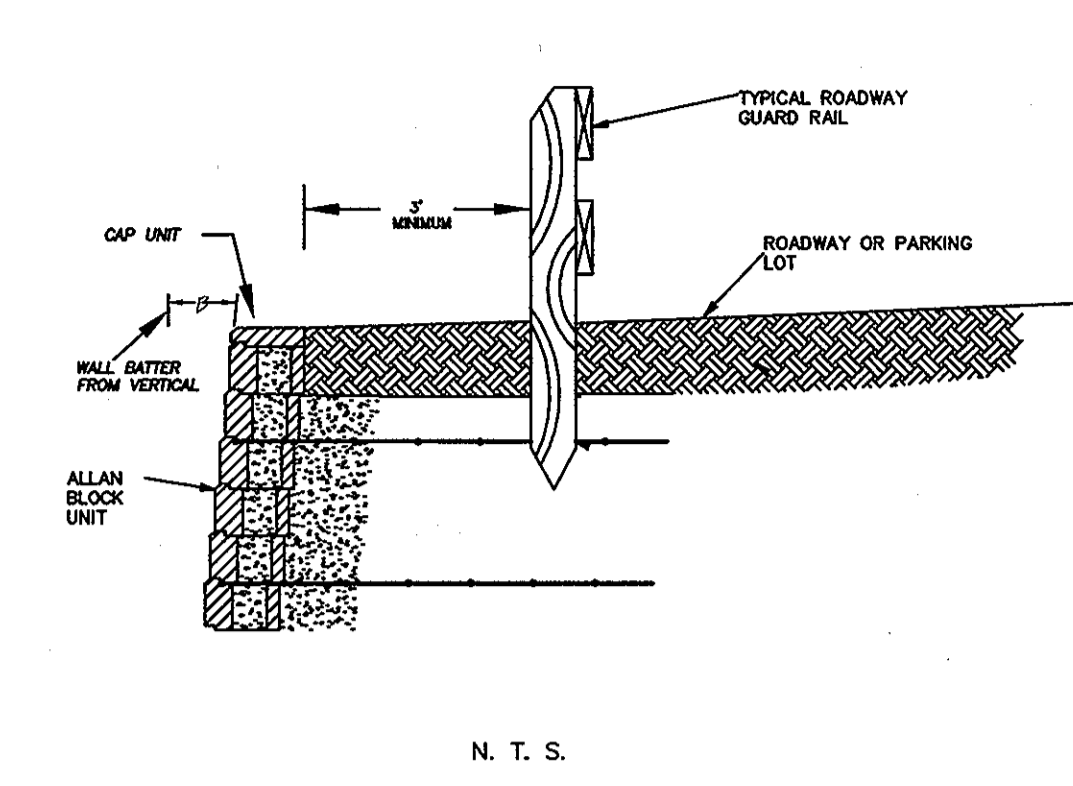
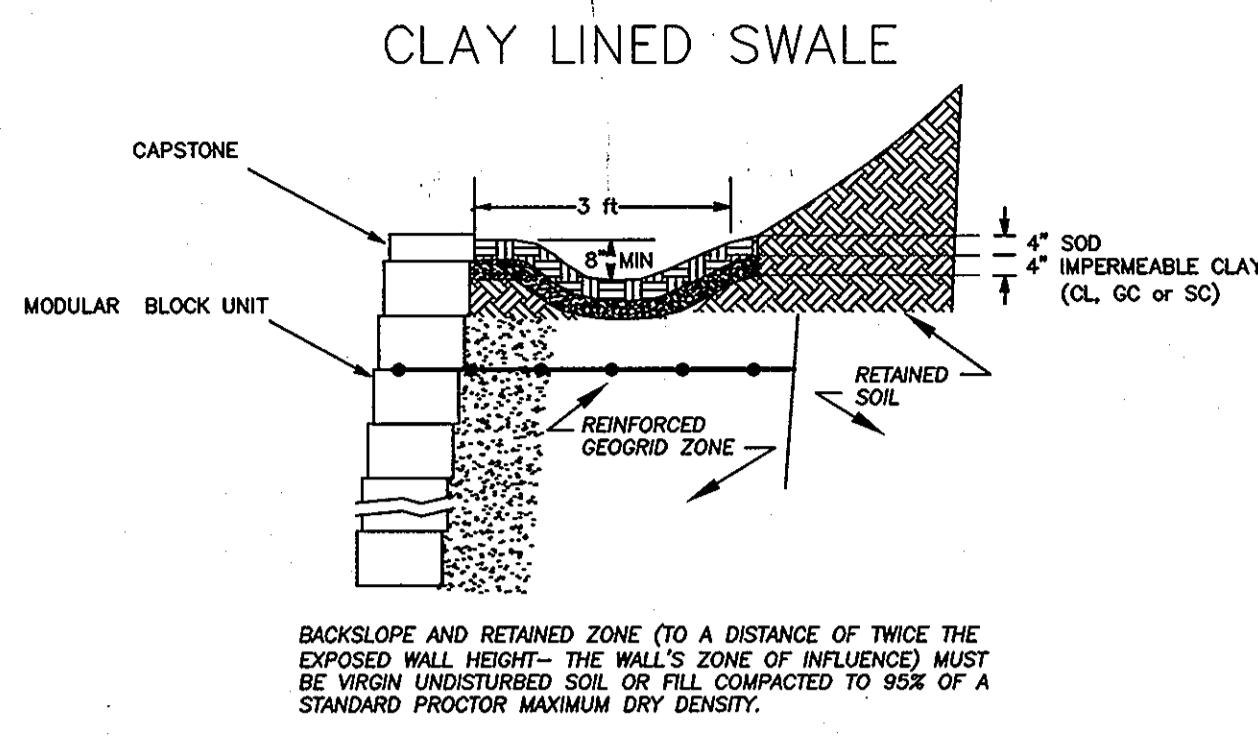
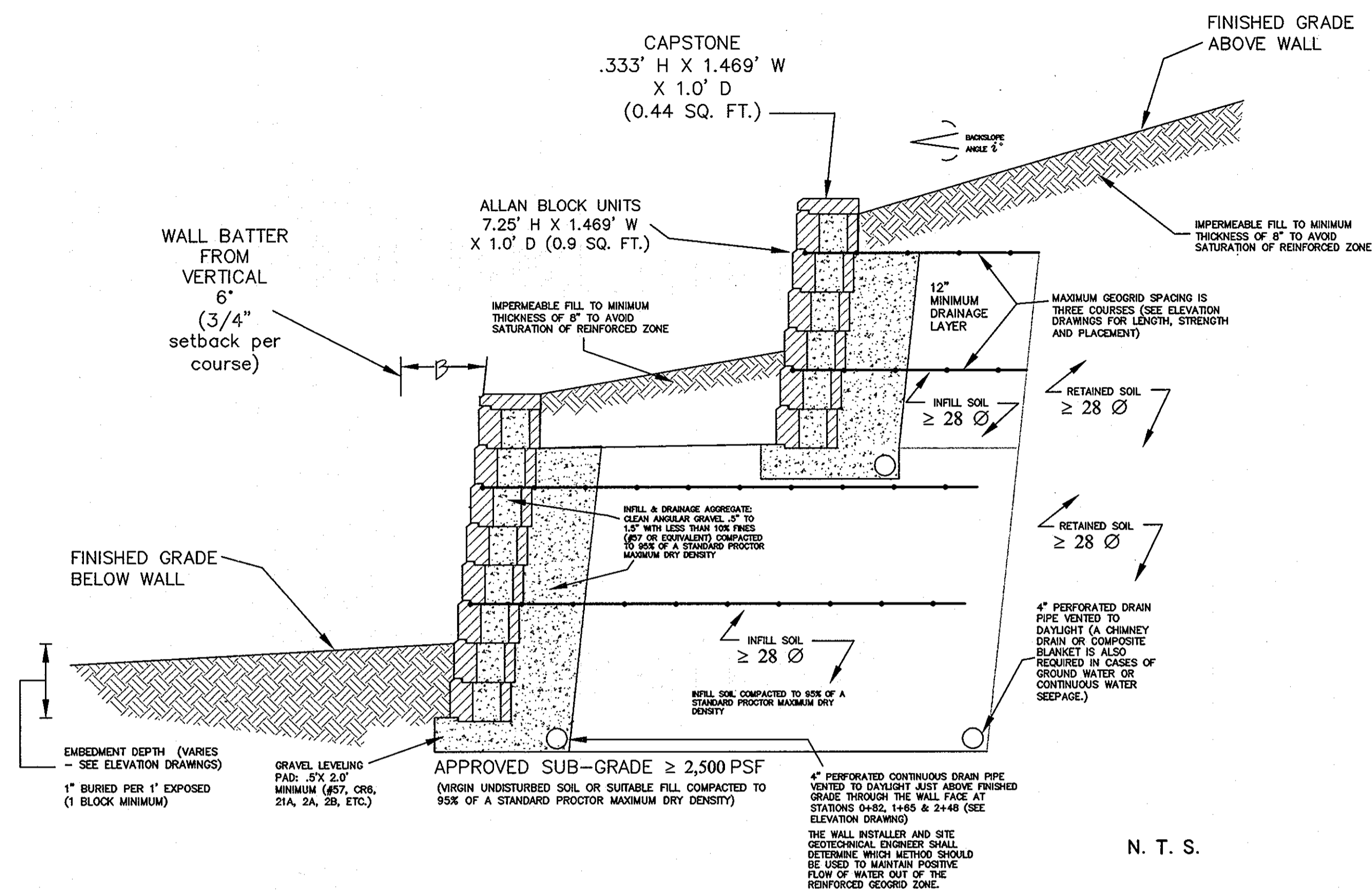
BY THE DEVELOPER:
 I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE IN ACCORDANCE TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I 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.

SIGNATURE OF DEVELOPER: _____ DATE: _____

BY THE ENGINEER:
 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 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: ROBERT H. VOGEL, P.E. DATE: _____

ALLAN BLOCK TERRACED WALL SECTION



MATERIAL ESTIMATE* FOR:

WALL #	TOTAL SQ. FT.	(9 S. F.)		(44 S. F.)		SQ. YDS. 3XT GRID	CU. YDS. DRAIN GRAVEL	CU. YDS. LEVELING PAD GRAVEL	FT. DRAIN PIPE	FT. WALL LENGTH
		6" BLOCK	CAPS	LITE STONES**	STONES**					
1-A	487	510	60	4	275	29	7	89	85	
1-B	949	995	101	21	250	56	11	148	141	
2-A	301	315	40	0	135	18	4	58	55	
2-B	356	365	56	6	145	21	6	81	77	
3-A	147	155	17	0	75	9	2	25	24	
3-B	739	760	114	10	200	44	13	169	161	
TOTAL	2,979	3,100	388	41	1,080	176	42	570	543	

NOTE: Quantities from the Allan Block software were increased by the following percentages: block & caps 3.0%, grid 15% and gravel 5%.

* Ryan & Associates is not responsible for extras or shortages based on this take-off. The recipient is responsible for verifying the accuracy of this design by reviewing the site/grading plan for this project or by taking field measurements.

** Lite quantity is based on one unit for each step down transition on the top of the wall.

CROSS SECTION DETAILS & FACTORS OF SAFETY:

SECTION	STATION	TOTAL HEIGHT # of courses	LOAD APPLIED	SLIDING minimum 1.50	OVERTURNING minimum 2.00	BEARING CAPACITY minimum 2.00	BEARING PRESSURE PSF	GLOBAL STABILITY minimum 1.30
WALL #1-A								
1	ENTIRE WALL	10	700 PSF DEAD LOAD	4.73	20.66	3.74	1918	1.308
WALL #1-B								
1	0+00 TO 0+31	11	2:1 SLOPE & 50 PSF LL	1.97	3.89	5.29	1116	1.308
2	0+31 TO 0+98	12	2:1 SLOPE & 50 PSF LL	2.06	4.17	4.87	1161	1.308
3	0+98 TO 1+40	10	2:1 SLOPE & 50 PSF LL	2.07	4.34	5.90	959	1.308
WALL #2-A								
1	ENTIRE WALL	9	540 PSF DEAD LOAD	3.81	12.40	3.47	1630	1.319
WALL #2-B								
1	0+00 TO 0+48	8	2:1 SLOPE	1.60	5.01	7.40	914	1.319
2	0+48 TO 0+77	8	3:1 SLOPE	2.05	5.09	4.67	735	1.319
WALL #3-A								
1	ENTIRE WALL	9	380 PSF DEAD LOAD	4.18	15.53	3.33	1384	1.88
WALL #3-B								
1	0+00 TO 0+69	8	2:1 BACK SLOPE	1.82	4.76	6.99	763	1.304
2	0+69 TO 0+88	9	2:1 BACK SLOPE	1.89	4.61	5.99	858	1.304
3	0+88 TO 1+61	7	2:1 BACK SLOPE	1.66	4.63	8.12	697	1.304

DEVELOPER'S/BUILDER'S CERTIFICATE

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN SECTION 16.24 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION, A CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE (1) YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

SIGNATURE OF DEVELOPER: _____ DATE: _____

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 _____ 9/7/04
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 _____ 9/12/04
 CHIEF, DIVISION OF LAND DEVELOPMENT

APPROVED: DEPARTMENT OF PUBLIC WORKS
 _____ 8/24/04
 CHIEF, BUREAU OF HIGHWAYS

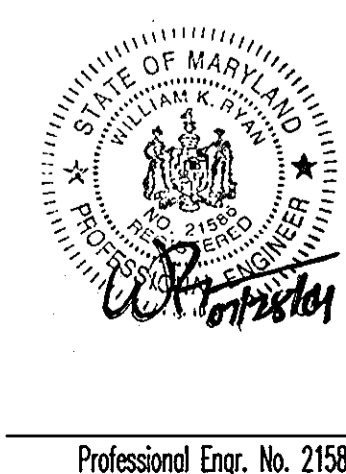
THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICTS AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.
 _____ DATE _____
 USDA-NATURAL RESOURCES CONSERVATION SERVICE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
 _____ DATE _____
 HOWARD S.C.D.

BY THE DEVELOPER:
 I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE IN ACCORDANCE TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I 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.
 _____ DATE _____
 SIGNATURE OF DEVELOPER

BY THE ENGINEER:
 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 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.
 _____ DATE _____
 SIGNATURE OF ENGINEER ROBERT H. VOGEL, P.E.

RYAN & ASSOCIATES
 A Division of WKR Consulting, Inc.
RETAINING WALL DIVISION
 717-477-8400 fax 717-477-8410
 68 West King Street
 Shippensburg, PA 17257-0006



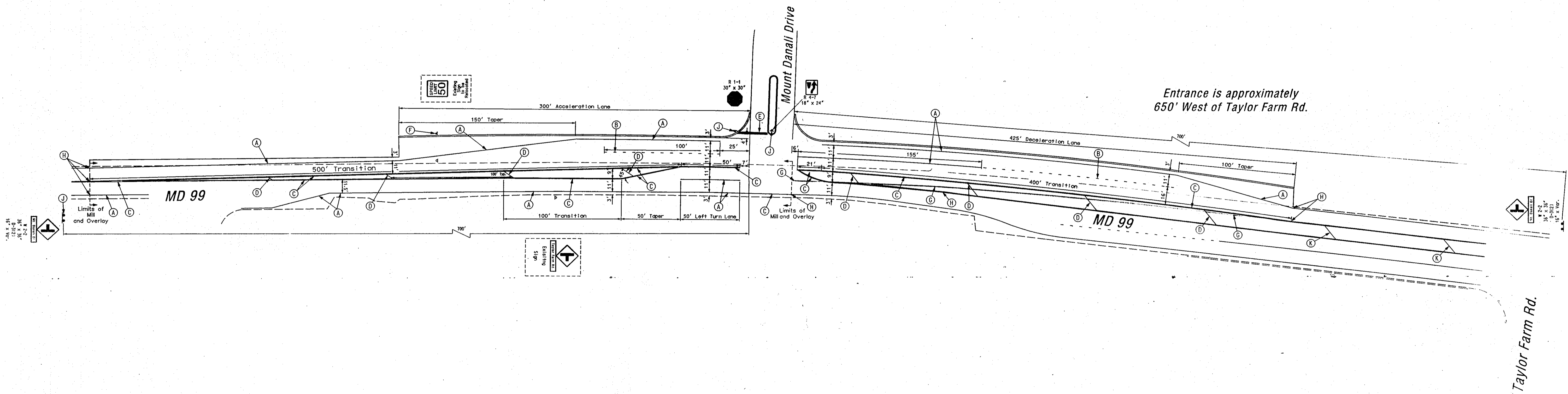
NO.	REVISION	DATE
1	REDESIGN WALLS #3-A/#3-B PER REVISED GRADING PLAN	05-20-04

THE PRESERVE AT WAVERLY GLEN
 LOTS 1-21, PRESERVATION PARCELS A-F AND I
 AND NON-BUILDABLE BULK PARCEL G+H
 A RESUBDIVISION OF LOTS 1 & 2 AND PARCEL A OF SHADOW SHADE PLAT NO. 13808 AND LOT 1 OF HIGHPOINT AT BREEZEWOOD FARMS PLAT NO. 6385
 REF. S-02-03, P-03-02, F-99-25, F-86-13
 TAX MAP #10 BLOCK 23 PARCELS '304' & '102'
 3RD ELECTION DISTRICT HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
 ENGINEERS - SURVEYORS
 8407 MAIN STREET
 ELLICOTT CITY, MARYLAND 21043
 TEL: 410.461.7666 FAX: 410.461.8961

DESIGN BY: _____
 DRAWN BY: _____
 CHECKED BY: _____
 DATE: _____
 SCALE: AS SHOWN
 W.O. NO.: 2017139.00

18 SHEET OF 22



CONSTRUCTION DETAILS

- A. Install 5 in. wide white solid pavement marking for lane line.
- B. Install 5 in. wide white broken pavement marking (3 ft. segment - 9 ft. gap) for lane line.
- C. Install 5 in. wide double yellow pavement marking - for center line.
- D. Install 10 in. wide solid yellow pavement marking - for gore area.
- E. Install 16 in. wide white solid pavement marking for stop line.
- F. Relocate existing ground mounted sign and post as shown.
- G. Remove existing pavement markings by grinding.
- H. Tie to existing markings.
- J. Install ground mounted sign as shown.
- K. Replace existing gore area marking.

LEGEND

- EXISTING GEOMETRICS
- PROPOSED GEOMETRICS
- ⊗ EXISTING/PROPOSED SIGNAL
- ⊔ EXISTING SIGN
- ⊔ PROPOSED SIGN
- ⊔ EXISTING SIGN TO REMAIN
- ⊔ EXISTING SIGN TO BE REMOVED

MATERIAL LIST

Materials to be furnished and/or installed by the Contractor.
All material in this list shall have catalog cuts submitted for approval prior to installation.

Quantity	Units	Specification Section	Description
Lump Sum	LS	108	Mobilization.
Lump Sum	LS	104	Maintenance of traffic.
1800	LF	549	5 in. wide pavement marking - white (paint).
3400	LF	549	5 in. wide pavement marking - yellow (paint).
150	LF	549	10 in. wide pavement marking - yellow (paint).
25	LF	549	16 in. HAPPTM marking for stop line.
1	EA	813	30 in. x 30 in. R 1-1 sign for ground mounting.
1	EA	813	18 in. x 24 in. R 4-7 sign for ground mounting.
2	EA	813	16 in. x 24 in. Var. D-3(2) sign for ground mounting.
2	EA	813	16 in. x 16 in. W 2-2 sign for ground mounting.
30	LF	812	4 in. x 4 in. wood sign support.
1	EA	---	Relocate existing sign and post.
500	LF	---	Remove existing pavement marking by grinding.

APPROVED: DEPARTMENT OF PUBLIC WORKS
[Signature]
 CHIEF, BUREAU OF HIGHWAYS
 DATE: 8/24/04

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature]
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 7/12/04
[Signature]
 CHIEF, DEVELOPMENT/ENGINEERING DIVISION
 DATE: 9/7/04

The Traffic Group
 The Traffic Group, Inc.
 Suite H
 9900 Franklin Square Drive
 Baltimore, Maryland 21216
 410-531-6600
 1-800-583-8411
 Fax: 410-531-6601



The Preserve at Waverly Glen
 MD 99 at Mount Danali Road

Pavement Marking and Signing Plan

NO.	REVISION DESCRIPTION	BY	DATE

SCALE: 1" = 40'
 DRAWN BY: J.E.S.
 DESIGNED BY: J.E.S.
 CHECKED BY:
 DATE: May 24, 2004
 JOB NO: 2002-0904
 SHEET NO: of
 LOCATION: Howard Co., MD
 FILE: pmp\planite.dgn

SHEET 21 OF 22

AS-BUILT

F-03-193

F:\2002\2002-0904 - \$\$\$\$\$\$.dgn 8/24/04

