

TRAVERSE DATA			
TRAV. PT.	NORTHING	EASTING	ELEV.
#100 TRAVERSE	N 602,689.38	E 1,326,821.51	652.32
#101 ROD AND CAP	N 602,288.57	E 1,326,798.68	644.41
#102 ROD AND CAP	N 601,925.35	E 1,327,114.57	634.00
#103 ROD AND CAP	N 601,745.29	E 1,327,422.12	630.81
#104 ROD AND CAP	N 601,734.67	E 1,327,742.49	630.70
#105 ROD AND CAP	N 601,645.77	E 1,328,086.21	638.21
#106 ROD AND CAP	N 601,591.41	E 1,328,614.97	645.37
#107 ROD AND CAP	N 601,488.43	E 1,329,139.49	646.48
#200 SPUR (60d NAIL)	N 602,007.50	E 1,327,205.15	636.02

BENCH MARKS
 HO. CO. B.M. 0911
 ALSO KNOWN AS: 3636001
 CONCRETE MONUMENT 0.3' BELOW SURFACE
 MD. RTE. 32 500' NORTH OF MD. RTE. 99
 NAVD 83: N 602,689.2976 E 1,326,821.4640
 NAVD 88: EL. 652.489

HO. CO. B.M. 16HC
 ALSO KNOWN AS: N/A
 MD. RTE. 144 WEST OF FOLLY QUARTER ROAD
 NAVD 83: N 589,780.9077 E 1,341,530.1088
 NAVD 88: EL. 448.709

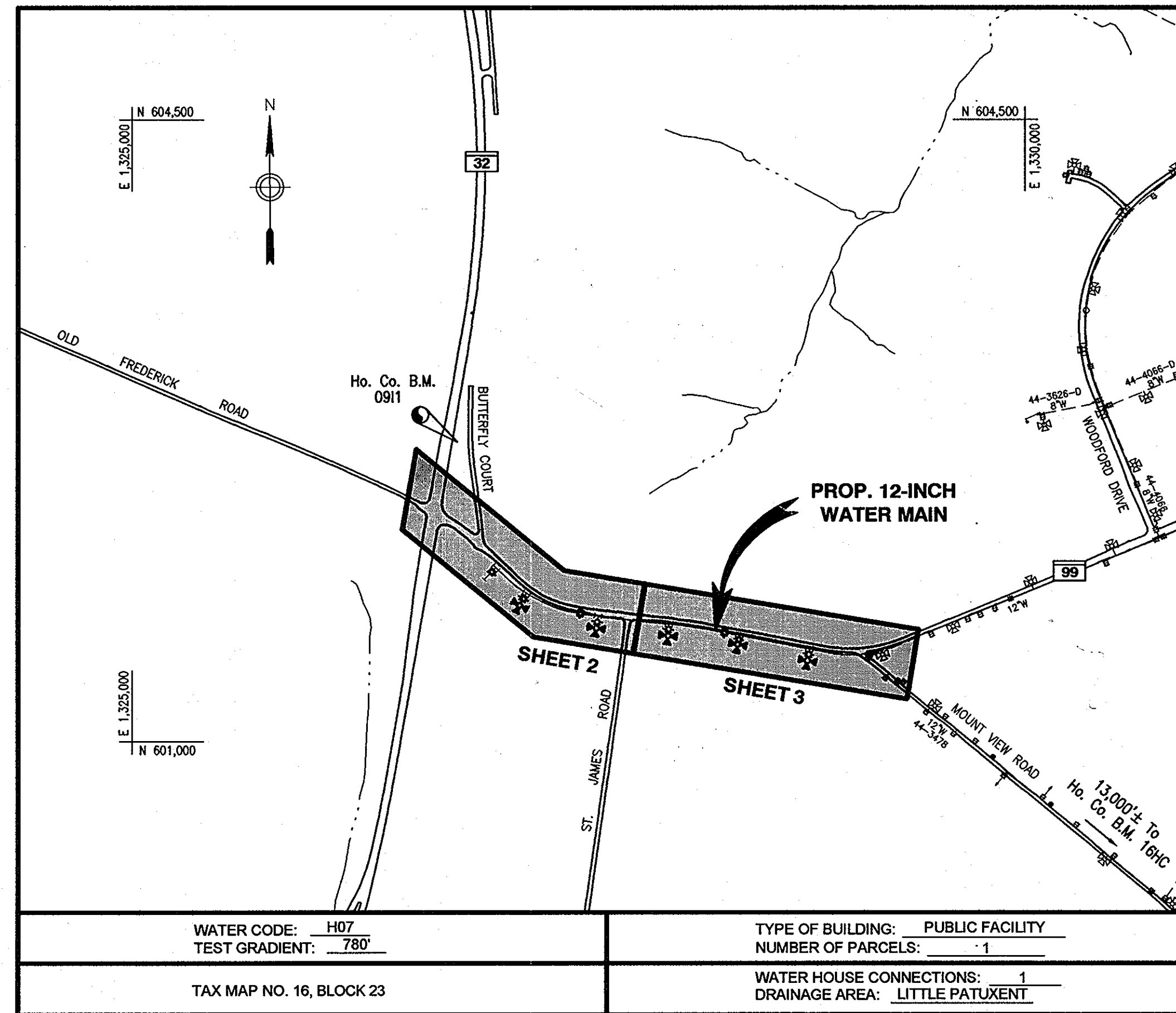
QUANTITIES				
ITEM	UNIT	ESTIMATE	AS-BUILT	SUPPLIER
12" D.I.P. CLASS 54 WATER MAIN	L.F.	2155	2150	GRIFFIN PIPE
12" VALVE	EA.	3	3	KENNEDY VALVE
12" 1/8 HORIZ. BEND	EA.	4	2	M.J. FITTINGS
12"x6" TEE	EA.	6	6	M.J. FITTINGS
FIRE HYDRANT	EA.	5	5	AMER. FLOW CONTROL
12" CAP AND BUTTRESS	EA.	1	1	M.J. FITTING
6" D.I.P. CLASS 54 WATER MAIN (INCLUDING F.H. LEADS)	L.F.	60	56	GRIFFIN PIPE
6" VALVE	EA.	6	6	KENNEDY VALVE

WATER STAKEOUT TABLE			
ITEM	STATION	NORTHING	EASTING
CONNECT TO EX. 12"W-P.C.	10+00	601,497.51	1,329,093.74
12" VALVE	10+05	601,496.87	1,329,088.78
P.T.-12" 1/8 H. BEND	10+71.78	601,493.15	1,329,022.16
12" 1/8 HORIZ. BEND	10+77.73	601,497.50	1,329,018.11
P.C.	11+38.46	601,501.43	1,328,957.49
P.T.	12+01.08	601,509.38	1,328,895.42
12"x6" FH TEE	13+00	601,528.05	1,328,798.28
12"x6" FH TEE	17+05	601,604.52	1,328,400.57
12" VALVE	17+85	601,619.62	1,328,322.01
P.C.	18+78.59	601,637.29	1,328,230.10
12"x6" FH TEE	21+00	601,669.42	1,328,011.10
P.R.C.	21+79.01	601,676.17	1,327,932.39
P.T.	22+99.76	601,686.75	1,327,812.09
P.C.	24+17.79	601,701.40	1,327,694.98
12"x6" FH TEE	25+00	601,712.20	1,327,613.48
12" VALVE	26+00	601,728.34	1,327,514.79
P.T.	26+14.32	601,730.92	1,327,500.71
P.C.	26+44.84	601,736.49	1,327,470.70
P.T.	28+48.89	601,808.19	1,327,280.80
12" 1/8 HORIZ. BEND	29+08.04	601,838.52	1,327,230.03
P.C.-12" 1/8 H. BEND	29+20.04	601,836.86	1,327,218.14
12"x6" FH TEE	29+30	601,841.73	1,327,209.46
P.T.	30+59.30	601,919.89	1,327,042.45
12"x6 TEE & 6" VALVE	31+50	601,983.71	1,327,040.35
12" CAP & BUTTRESS	31+55.46	601,987.55	1,327,038.57

HOWARD COUNTY

DEPARTMENT OF PUBLIC WORKS

ELLCOTT CITY, MARYLAND 21043



WATER CODE: H07
 TEST GRADIENT: 780

TYPE OF BUILDING: PUBLIC FACILITY
 NUMBER OF PARCELS: 1

TAX MAP NO. 16, BLOCK 23

WATER HOUSE CONNECTIONS: 1
 DRAINAGE AREA: LITTLE PATUXENT

VICINITY MAP
 SCALE: 1" = 600'

GENERAL NOTES

- Approximate location of existing mains are shown. The Contractor shall take all necessary precautions to protect existing mains and services and maintain uninterrupted service. Any damage incurred shall be repaired immediately to the satisfaction of the Engineer by the Contractor at the Contractor's expense.
- Topographic field surveys were performed on November 2007 by Dewberry & Davis LLC.
- Horizontal and Vertical Survey Controls:
 The coordinates shown on the drawings are based on Maryland State Reference System NAD 83/91 as projected by Howard County Geodetic Control Stations Howard Co. B.M. 0911 and B.M. 16HC
 All Vertical Controls are based on NAVD '88.
- All pipe elevations shown are invert elevations unless otherwise noted on the plans.
- Clear all utilities by a minimum of 12". Clear all poles by 5'-0" minimum or tunnel as required unless otherwise noted. The owner has contacted the utility companies and has made arrangements for bracing of poles as shown on the drawings. In the event the Contractor's work requires the bracing of additional poles, any cost incurred by the owner for the bracing of additional poles or damages shall be deducted from monies owed the Contractor. The Contractor shall coordinate with the utility companies to schedule the bracing of the poles.
- For details not shown on the drawings, and for materials and construction methods, use Howard County Design Manual, Volume IV, Standard Specifications and Details for Construction (Latest Edition). The Contractor shall have a copy of Volume IV on the job.
- All existing utilities shall be test pitted/located as necessary and in advance of the proposed construction, in order to properly make all required utility crossings and/or connections. Any discrepancies or utility conflicts shall be immediately reported to the Engineer. Where test pits have been made on existing utilities, they are noted by the symbol at the location of the test pit. A note or notes containing the results of the test pit or pits is included on the drawings or specifications. Existing utilities in the vicinity of the proposed work for which test pits have not been dug shall be located by the Contractor two (2) weeks in advance of construction operations at his own expense.
- Contractor shall notify the following utility companies or agencies at least five (5) working days before starting work shown on these plans:
 AT&T 1-800-252-1133
 BGE - Contractor Services 410-850-4620
 BGE - Emergency 410-685-1400
 State Highway Administration 410-531-5533
 Bureau of Utilities (DPW) 410-313-4900
 Verizon 1-800-743-0033 / 410-224-9210
 Colonial Pipeline Co. 410-795-1390
 Miss Utility 1-800-257-7777
- Trees and shrubs are to be protected from damage to the maximum extent. Trees and shrubs located within the construction strip are not to be removed or damaged by the Contractor.
- Contractor shall remove trees, stumps and roots along the line of excavation. Payment for such removal shall be included in the unit price bid for construction of the main.
- The Contractor shall notify the Howard County Bureau of Highways at (410) 313-7450 at least five (5) working days before any open cut, boring/jacking or trenchless installation operation of any county roads for laying water/sewer mains or house connections. The approval of these drawings will constitute compliance with DPW requirements per Section 18.114(a) of the Howard County Code.
- The Contractor is responsible for contacting the various businesses and coordinating his work activities so as not to negatively impact connected customers. The installation of water main shall cause a minimum of disturbance to the existing businesses and notification to the businesses of any "interruptions of service" shall be the responsibility of the Contractor. The County requires that the Contractor notify each business affected, by letter or with door tags, of the impending service interruption at least 48 hours in advance of the planned interruption. In the event of an unplanned interruption, the Contractor will be responsible for notifying the businesses by "door to door" canvassing.
- The Contractor shall provide all necessary lines, grades and elevations, and cut sheets shall be prepared based on the lines and grades shown on the Contract drawings.

WATER MAIN NOTES

- Tops of water mains shall have a minimum of 3'-6" of cover unless otherwise noted.
- Valves adjacent to tees shall be strapped to tees.
- All fittings shall be restrained joints unless otherwise provided for on the drawings.
- Fire Hydrants shall be set to the bury line elevations shown on the drawings. All fire hydrants shall be installed in accordance with Standard Details. Soil around the fire hydrant shall be compacted in accordance with Section 1000 and Section 1005 of the Howard County Standard Specifications.
- The Contractor shall not operate any water main valves on the existing water system.
- Fire Hydrants to be removed shall be returned to:
 Howard County Bureau of Utilities
 8250 Old Montgomery Road
 Columbia, Md. 21045
 410-313-4900
- The Contractor shall notify the Howard County Bureau of Utilities at least fifteen (15) days prior to any water main shut downs.
- All ductile iron pipes to be used on the public water system shall be class 54. Ductile iron fittings shall meet the requirements of the Howard County Design Manual Volume IV - Standard Specifications and Details for Construction and shall be exterior epoxy coated in accordance with AWWA C116.
- All water house connections shall be copper meeting the requirements of and constructed in accordance with the Howard County Design Manual Volume IV - Standard Specifications and Details for Construction.
- All fire hydrant leads including the tee shall be ductile iron class 54 meeting the requirements of and constructed in accordance with the Howard County Design Manual Volume IV - Standard Specifications and Details for Construction.
- All water mains constructed in fill areas shall be restrained ductile iron pipe class 54 meeting the requirements of and constructed in accordance with the Howard County Design Manual Volume IV - Standard Specifications and Details for Construction.
- All water mains within casing pipes shall be restrained ductile iron pipes class 54 meeting the requirements of and constructed in accordance with the Howard County Design Manual Volume IV - Standard Specifications and Details for Construction.

LEGEND

	TRAVERSE		WATER VALVE
	POLES		EX. OVERHEAD ELECTRIC
	DECIDUOUS TREE		EX. OVERHEAD TELEPHONE
	EVERGREEN TREE		R/W LINE
	EX. GAS MAIN		WOOD FENCE
	EX. WATER MAIN		CHAIN LINK FENCE
	EX. STORM DRAIN		WOODS LINE
	EX. FIRE HYDRANT		LIGHT POLE
	PROP. WATER MAIN		ROAD SIGN
	PROP. FIRE HYDRANT		GUARD RAIL

FIRE SUPPRESSION LINE

VOLUNTEER FIRE STATION 3

CAPITAL PROJECT W-8284
 CONTRACT NO. 44-4529

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	PLAN
3	PLAN
4	PROFILE
5	MAINTENANCE OF TRAFFIC PLANS AND NOTES
6	MAINTENANCE OF TRAFFIC DETOUR PLAN
7	SEDIMENT AND EROSION CONTROL PLAN
8	SEDIMENT AND EROSION CONTROL PLAN
9	SEDIMENT AND EROSION CONTROL DETAILS
10	SEDIMENT AND EROSION CONTROL NOTES

PROFESSIONAL CERTIFICATION

I, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 15512 EXPIRATION DATE: AUGUST 28, 2009

Robert P. III
 Signature of Engineer
 4-04-08
 Date

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

John A. Blanton 4/18/08
 Approved: District Director Date

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

John A. Blanton 4/18/08
 DIRECTOR OF PUBLIC WORKS DATE

Robert P. III 4/7/08
 CHIEF, BUREAU OF ENGINEERING DATE

Robert P. III 4-7-08
 CHIEF, UTILITY DESIGN DIVISION DATE

Dewberry
 Dewberry & Davis LLC
 3120 LORD BALTIMORE DRIVE
 SUITE 211
 BALTIMORE, MD 21244-2862
 410.265.8500
 FAX: 410.265.8575

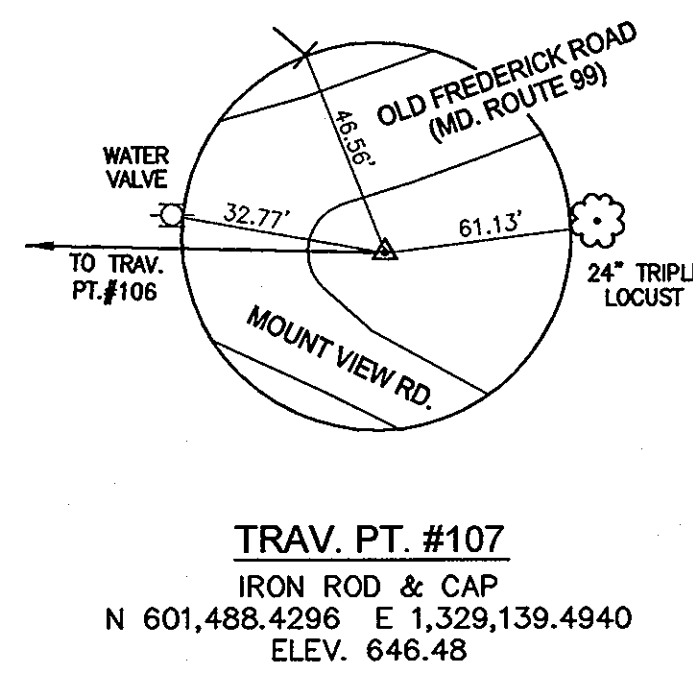
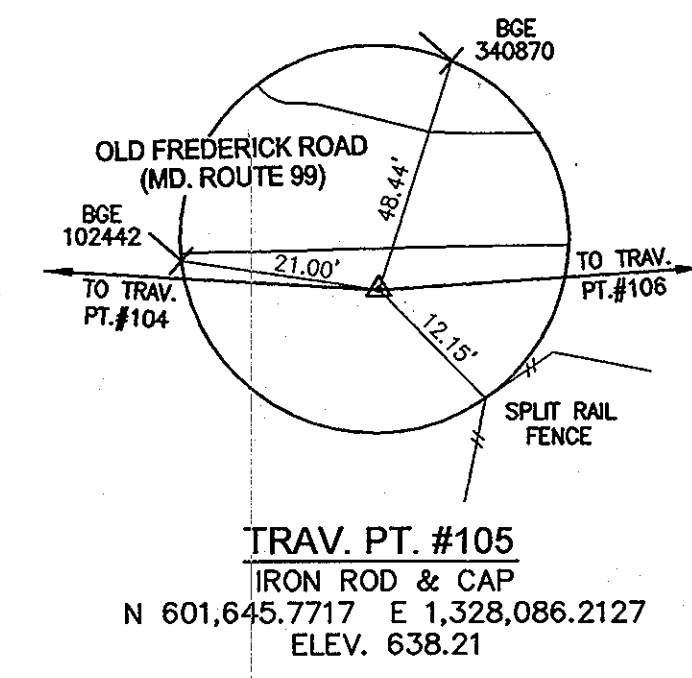
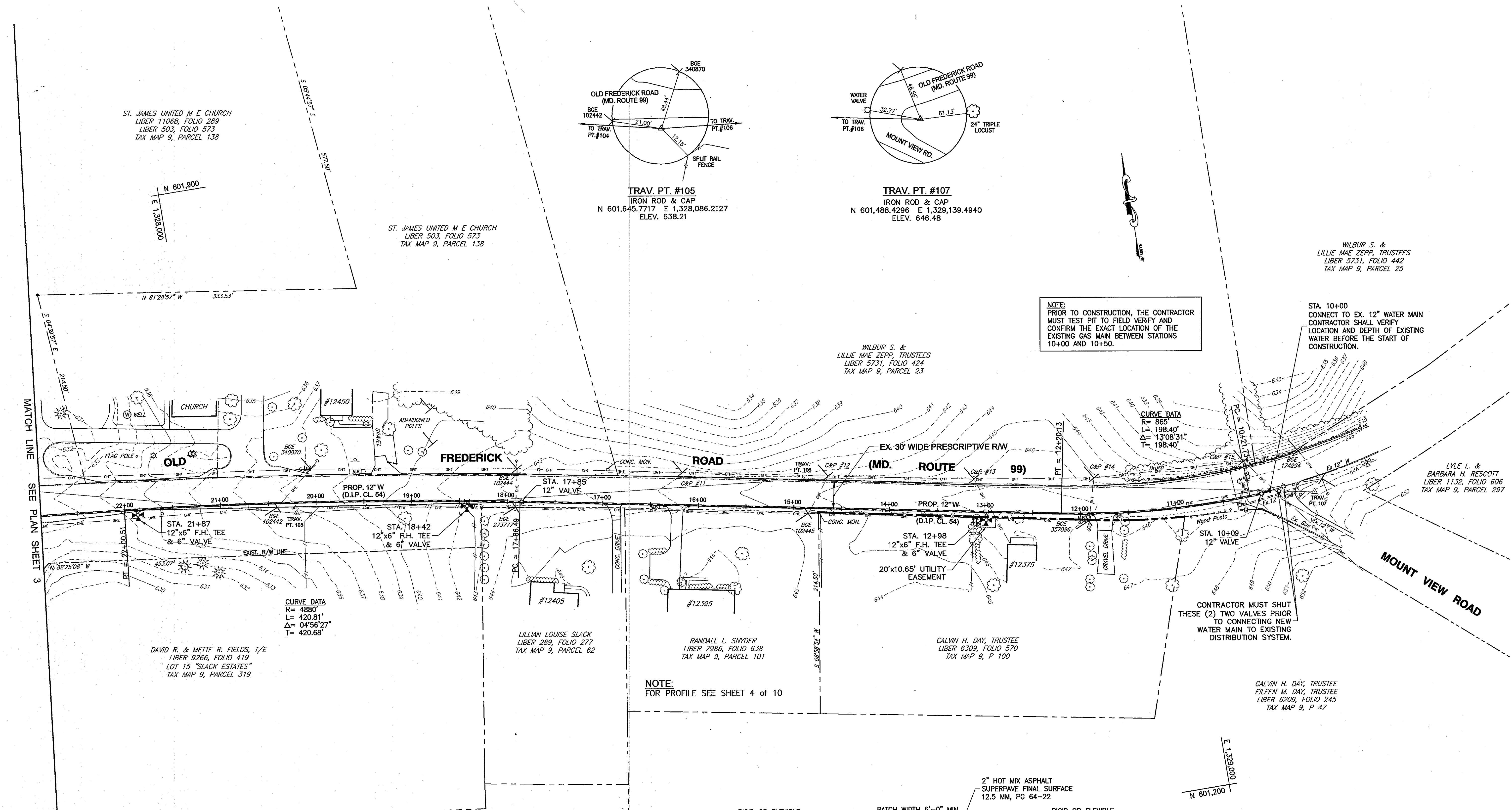


DES:	CD				
DRN:	CD				
CHK:	RJB				
DATE:	03/31/08	BY:	NO.	REVISIONS	DATE

TITLE SHEET

600' SCALE MAP NO. 16 BLOCK NO. 23 ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN
 SHEET 1 OF 10



NOTE:
PRIOR TO CONSTRUCTION, THE CONTRACTOR
MUST TEST PIT TO FIELD VERIFY AND
CONFIRM THE EXACT LOCATION OF THE
EXISTING GAS MAIN BETWEEN STATIONS
10+00 AND 10+50.

WILBUR S. &
LILLIE MAE ZEPP, TRUSTEES
LIBER 5731, FOLIO 442
TAX MAP 9, PARCEL 25

STA. 10+00
CONNECT TO EX. 12\"/>

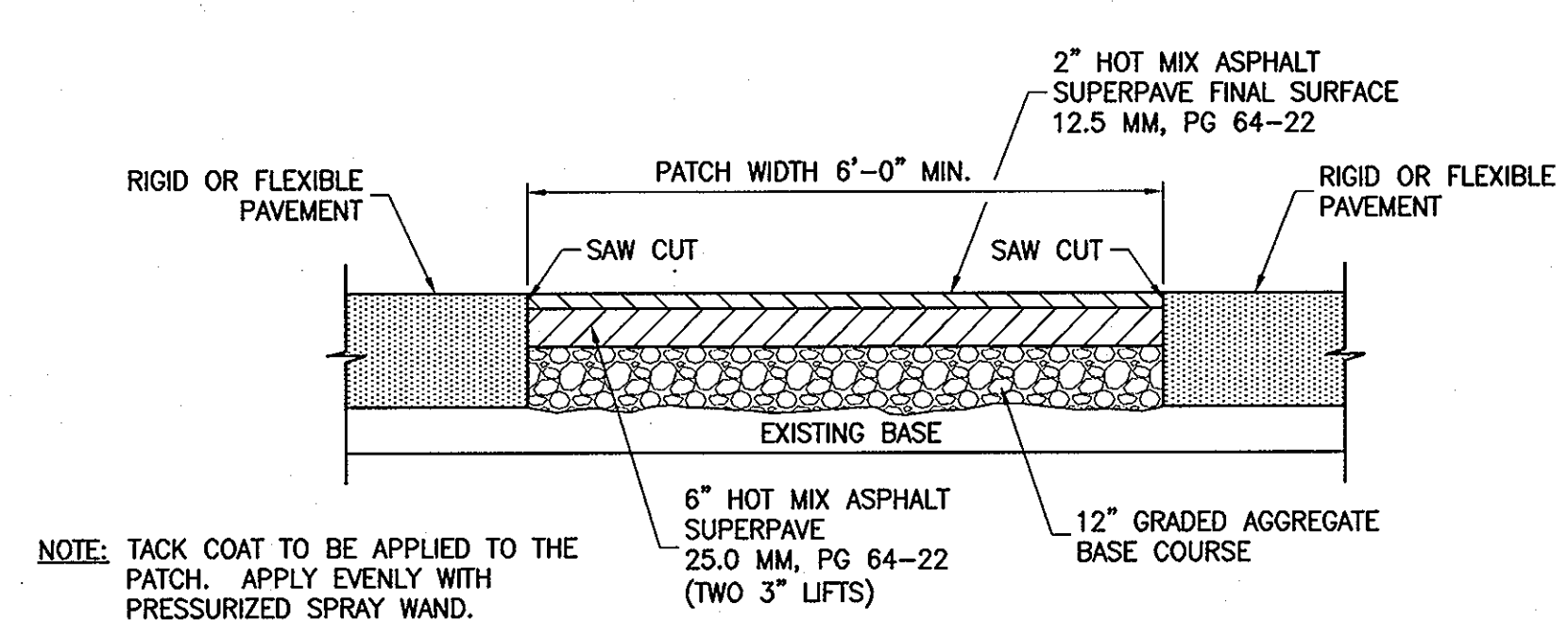
LYLE L. &
BARBARA H. RESCOTT
LIBER 1132, FOLIO 606
TAX MAP 9, PARCEL 297

CONTRACTOR MUST SHUT
THESE (2)
TO CONNECTING NEW
WATER MAIN TO EXISTING
DISTRIBUTION SYSTEM.

CALVIN H. DAY, TRUSTEE
EILEEN M. DAY, TRUSTEE
LIBER 6209, FOLIO 245
TAX MAP 9, P. 47

NOTE:
FOR PROFILE SEE SHEET 4 OF 10

PLAN
SCALE: 1" = 50'



NOTE: TACK COAT TO BE APPLIED TO THE
PATCH. APPLY EVENLY WITH
PRESSURIZED SPRAY WAND.

PAVEMENT REPAIR DETAIL
NOT TO SCALE

AS-BUILT DRAWING - OCTOBER 29, 2008

REPLACES SIGNED AND SEALED MYLARS ON FILE
WITH HOWARD COUNTY

PROFESSIONAL CERTIFICATION
I, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR
APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL
ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE
NO. 15512 EXPIRATION DATE: AUGUST 28, 2009
Samuel B. ...
Signature of Engineer Date 10-29-08

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
DIRECTOR OF PUBLIC WORKS DATE
CHIEF, BUREAU OF UTILITIES DATE
CHIEF, BUREAU OF ENGINEERING DATE 11-4-08
CHIEF, UTILITY DESIGN DIVISION DATE 11-4-08

Dewberry
Dewberry & Davis LLC
3120 LORD BALTIMORE DRIVE
SUITE 211
BALTIMORE, MD 21244-2962
410.265.9200
FAX: 410.265.9875

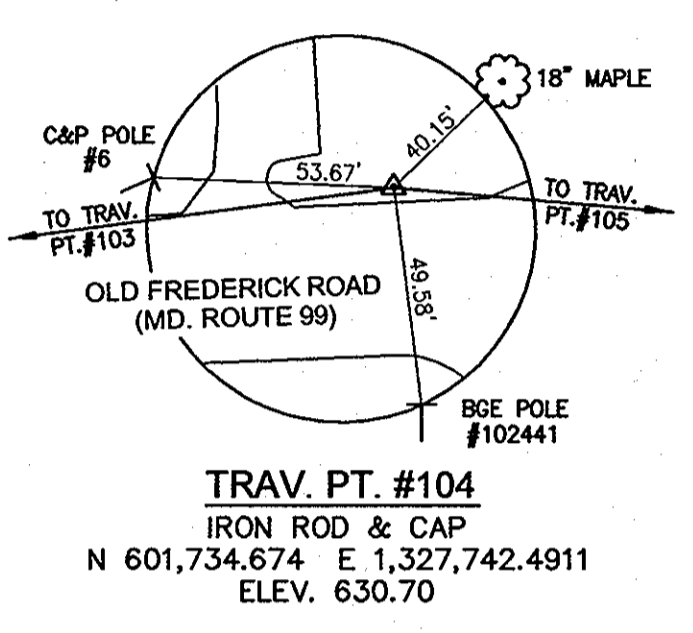
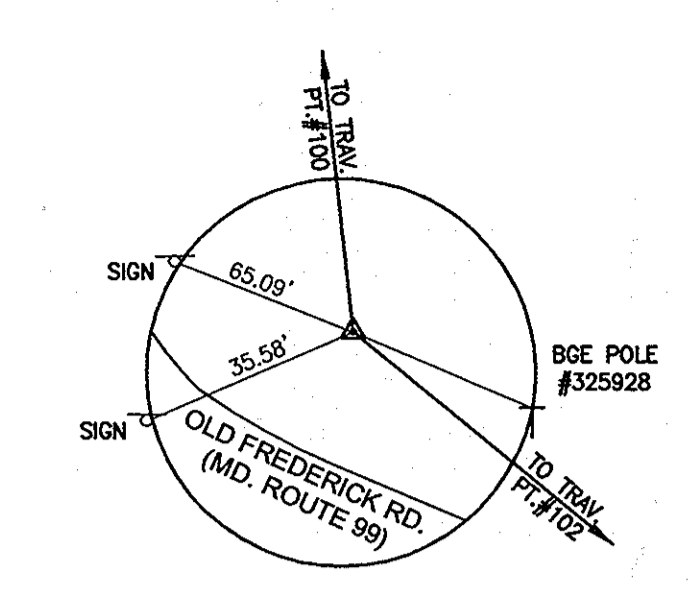
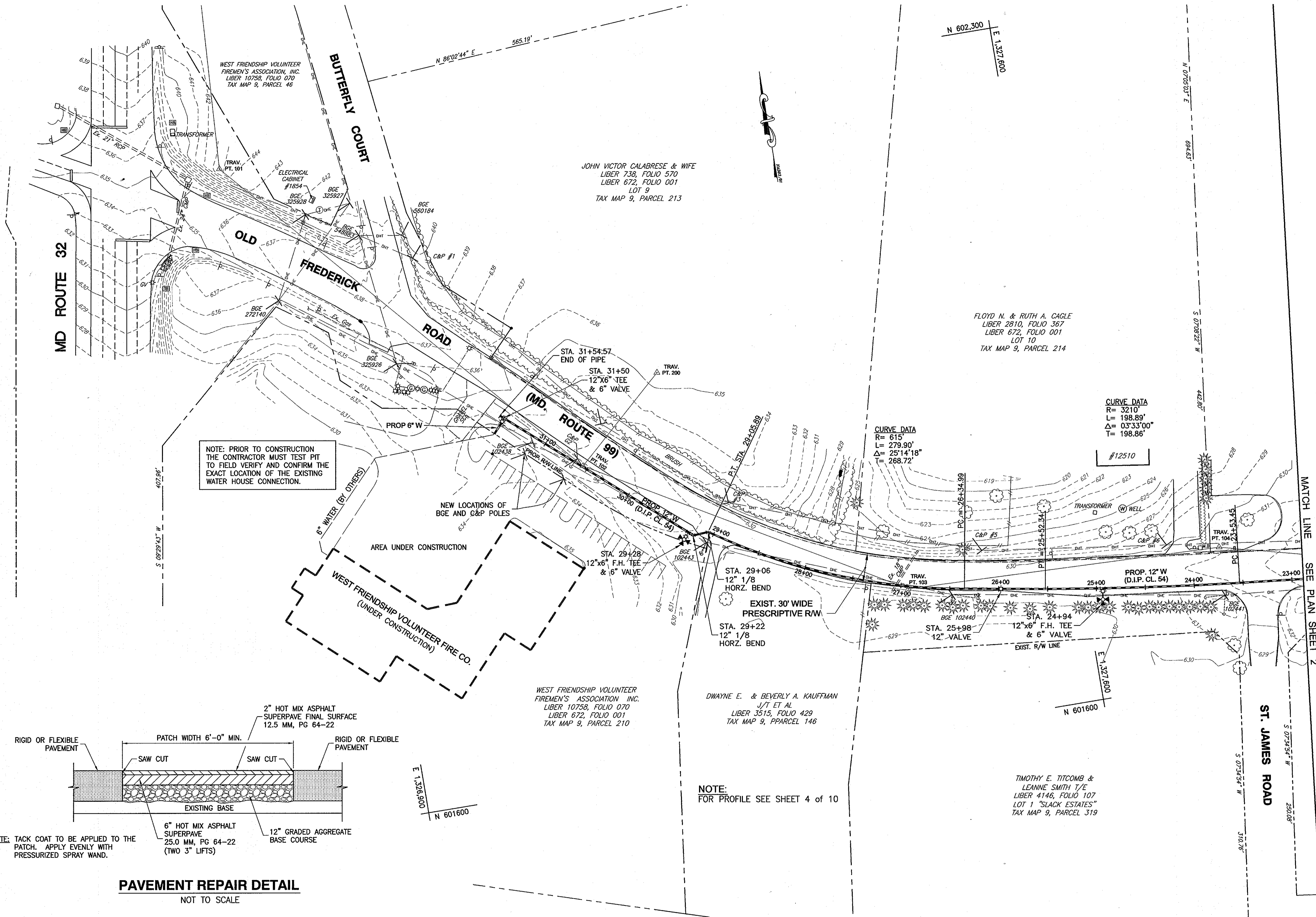


DES:	CD
DRN:	CD
CHK:	RJB
DATE:	03/31/08
BY:	NO.
REVISIONS:	
DATE:	

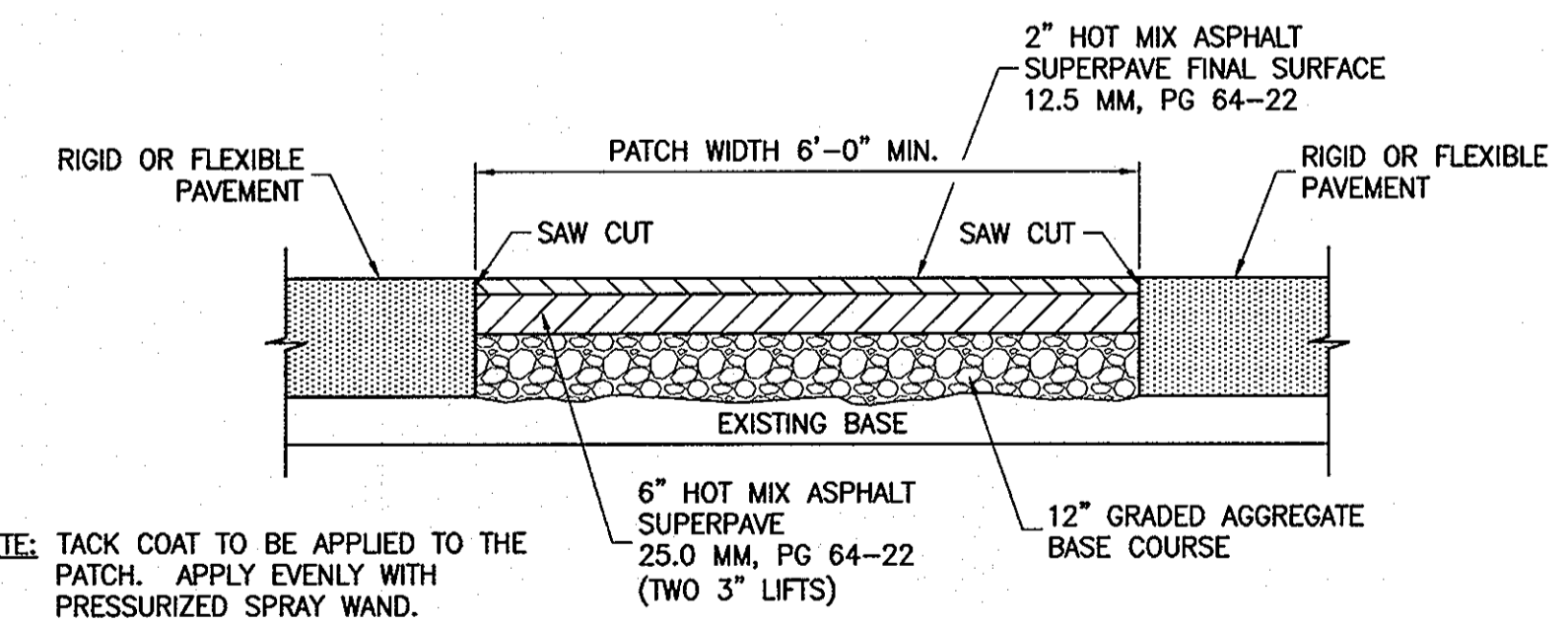
PLAN
600' SCALE MAP NO. 16
BLOCK NO. 23

FIRE SUPPRESSION LINE
VOLUNTEER FIRE STATION 3
CAPITAL PROJECT W-8284
CONTRACT 44-4529
ELECTION DISTRICT NO. 2
HOWARD COUNTY, MARYLAND

SCALE:
AS
SHOWN
SHEET
2 OF 10



NOTE: PRIOR TO CONSTRUCTION THE CONTRACTOR MUST TEST PIT TO FIELD VERIFY AND CONFIRM THE EXACT LOCATION OF THE EXISTING WATER HOUSE CONNECTION.



PLAN
 SCALE: 1" = 50'

AS-BUILT DRAWING - OCTOBER 29, 2008

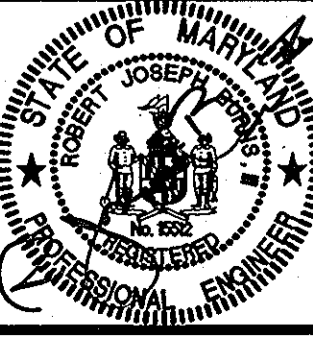
REPLACES SIGNED AND SEALED MYLARS ON FILE WITH HOWARD COUNTY

PROFESSIONAL CERTIFICATION
 I, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 15512 EXPIRATION DATE: AUGUST 28, 2009
 Signature of Engineer: [Signature] Date: 10-29-08

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS: [Signature] DATE: 11-4-08
 CHIEF, BUREAU OF ENGINEERING: [Signature] DATE: 11-4-08
 CHIEF, BUREAU OF UTILITIES: [Signature] DATE: 11-4-08
 CHIEF, UTILITY DESIGN DIVISION: [Signature] DATE: 11-4-08

Dewberry
 Dewberry & Davis LLC
 3120 LORD BALTIMORE DRIVE
 SUITE 211
 BALTIMORE, MD 21244-2662
 410.265.9500
 FAX: 410.265.9875



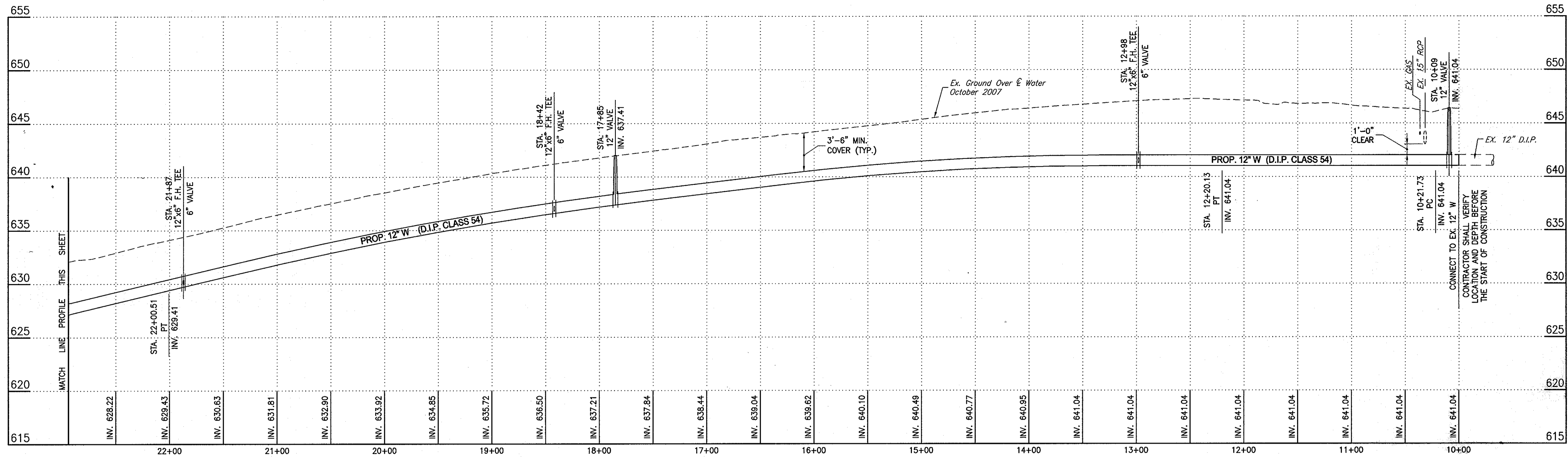
DES:	CD				
DRN:	CD				
CHK:	RJB				
DATE:	03/31/08				
BY:	NO.	REVISIONS	DATE		

PLAN

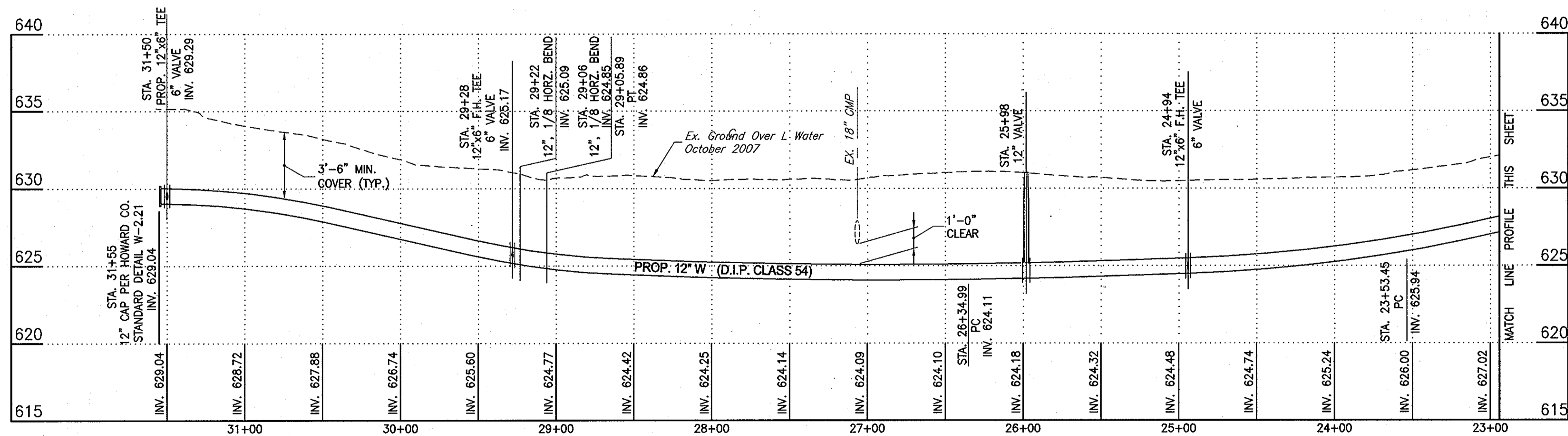
600' SCALE MAP NO. 16
 BLOCK NO. 23
 ELECTION DISTRICT NO. 2
 HOWARD COUNTY, MARYLAND

FIRE SUPPRESSION LINE
VOLUNTEER FIRE STATION 3
 CAPITAL PROJECT W-8284
 CONTRACT 44-4529

SCALE: AS SHOWN
 SHEET 3 OF 10



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



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

UTILITY NOTES:

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

PROFESSIONAL CERTIFICATION

I, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 15512 EXPIRATION DATE: AUGUST 28, 2009

[Signature] 10-29-08
Signature of Engineer Date

AS-BUILT DRAWING - OCTOBER 29, 2008

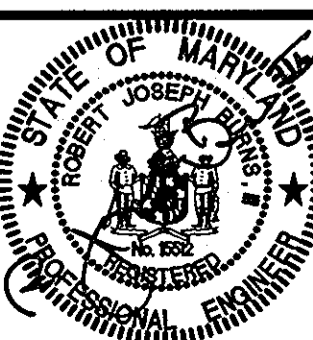
REPLACES SIGNED AND SEALED MYLARS ON FILE WITH HOWARD COUNTY

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS DATE: 11/16/08
[Signature] DATE: 11-16-08
CHIEF, BUREAU OF UTILITIES

CHIEF, BUREAU OF ENGINEERING DATE: 11-4-08
[Signature] DATE: 11-4-08
CHIEF, UTILITY DESIGN DIVISION

Dewberry
Dewberry & Davis LLC
3120 LORD BALTIMORE DRIVE
SUITE 211
BALTIMORE, MD 21244-2662
410.283.9500
FAX: 410.283.9875



DES:	CD
DRN:	CD / AW
CHK:	RJB
DATE:	03/31/08
BY:	CD
NO.:	1
REVISIONS:	ALIGNMENT SHIFT DURING CONSTRUCTION STATION 10+00 TO 8+00

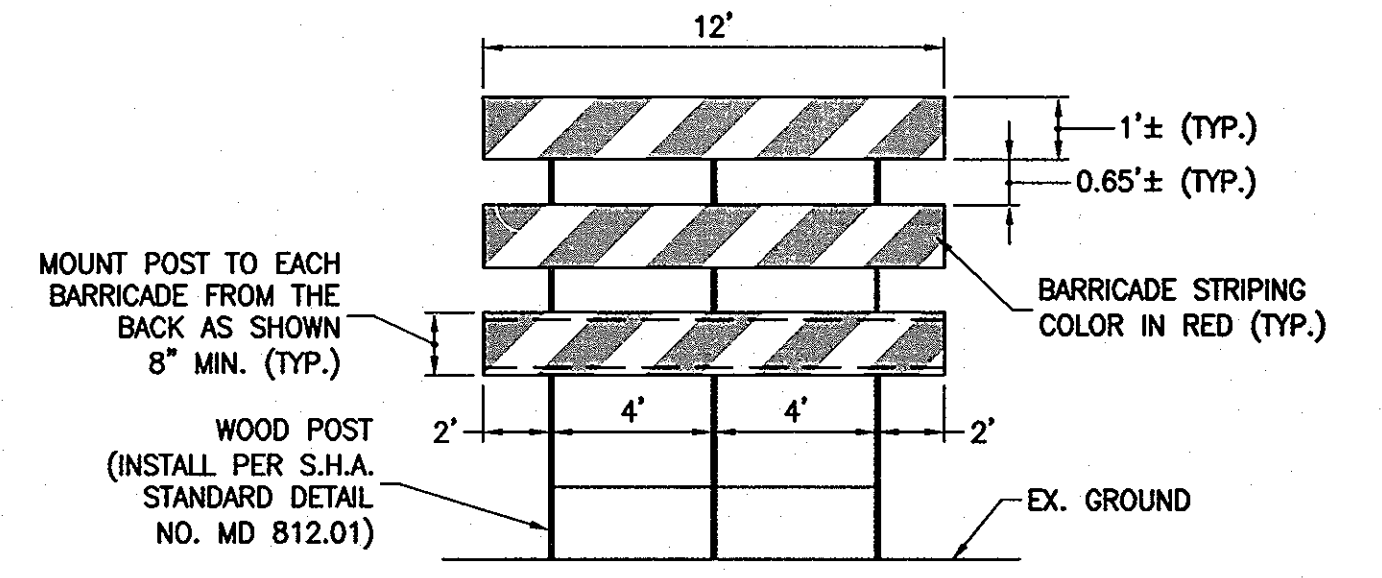
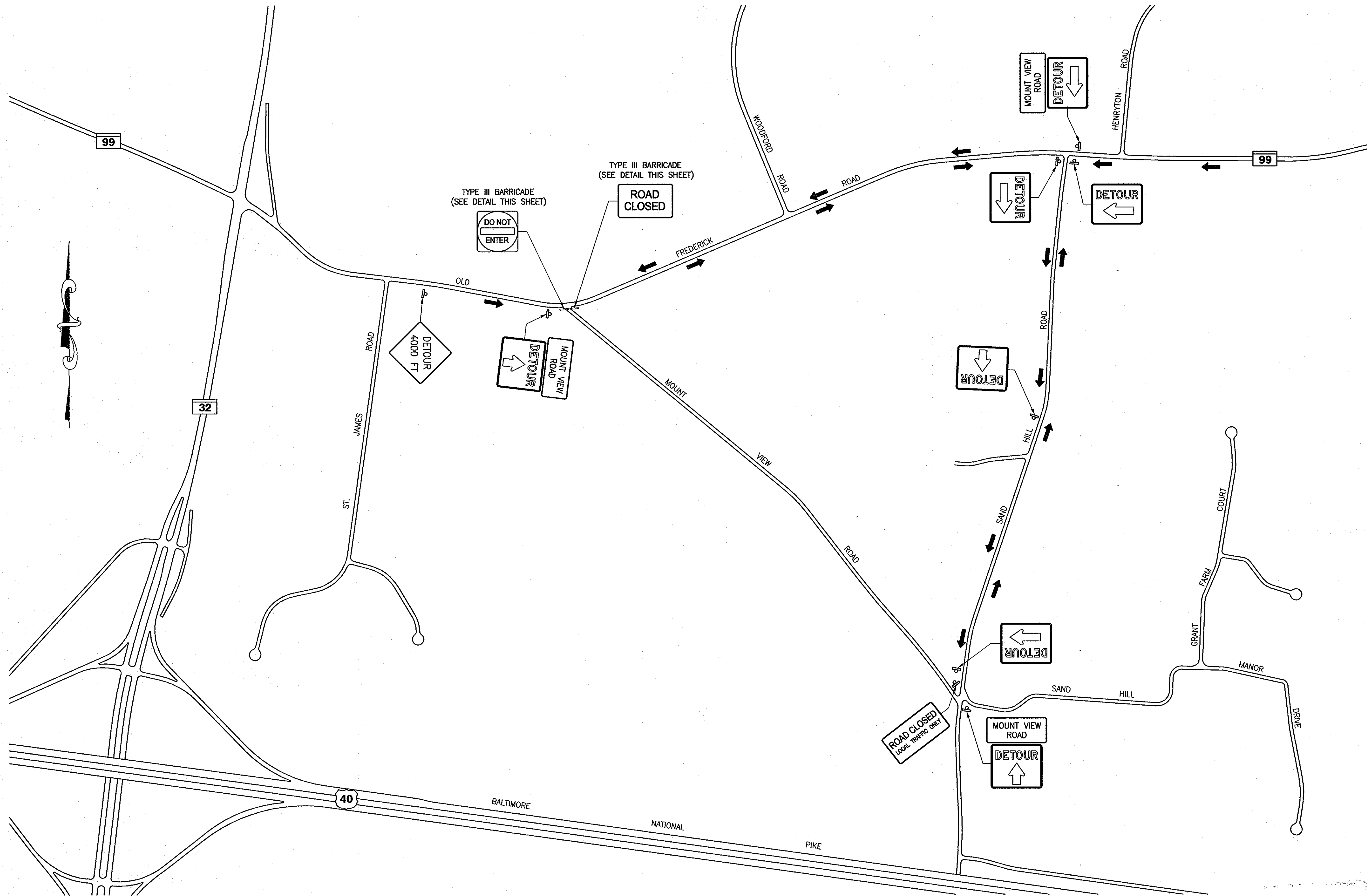
PROFILE

DATE: 600' SCALE MAP NO. 16
BLOCK NO. 23

FIRE SUPPRESSION LINE
VOLUNTEER FIRE STATION 3
CAPITAL PROJECT W-8284
CONTRACT 44-4529

ELECTION DISTRICT NO. 2
HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN
SHEET 4 OF 10



MODIFIED TYPE III BARRICADE DETAIL
NOT TO SCALE

DETOUR PLAN
SCALE: 1" = 400'

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

Approved: _____ Date: _____

PROFESSIONAL CERTIFICATION
I, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 15512 EXPIRATION DATE: AUGUST 28, 2009

Robert B. Hill 4-04-08
Signature of Engineer Date

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

James W. Hill 4/16/08
DIRECTOR OF PUBLIC WORKS DATE

Robert B. Hill 4/17/08
CHIEF, BUREAU OF ENGINEERING DATE

Oliver O. Hill 4-7-08
CHIEF, UTILITY DESIGN DIVISION DATE

Dewberry
Dewberry & Davis LLC
3120 LORD BALTIMORE DRIVE
SUITE 211
BALTIMORE, MD 21244-2662
410.285.9500
FAX: 410.285.8875



DES:	AW				
DRN:	AW				
CHK:	RJB				
DATE:	03/31/08	BY	NO.	REVISIONS	DATE

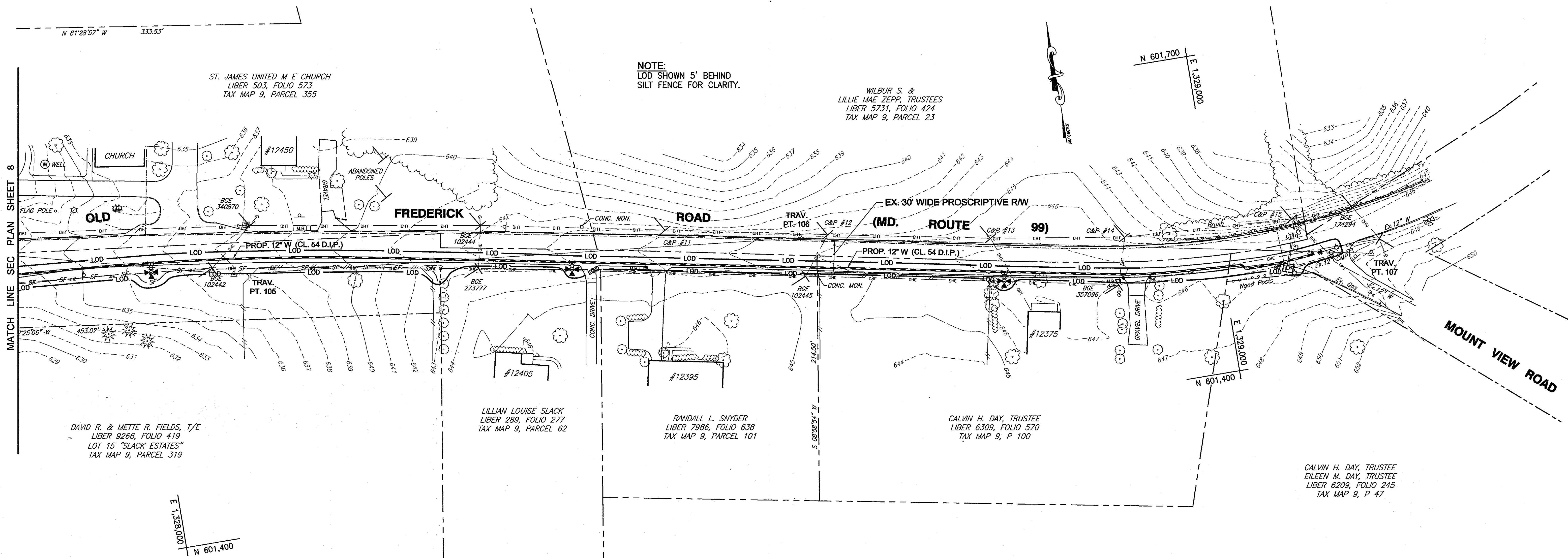
**MAINTENANCE OF TRAFFIC
DETOUR PLAN**

600' SCALE MAP NO. 16 BLOCK NO. 23

**FIRE SUPPRESSION LINE
VOLUNTEER FIRE STATION 3**
CAPITAL PROJECT W-8284
CONTRACT 44-4529


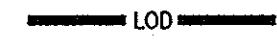
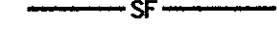
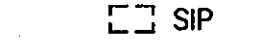
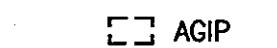

ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN
SHEET 6 OF 10



SEDIMENT AND EROSION CONTROL PLAN
SCALE: 1" = 50'

LEGEND

-  PROPOSED WATER MAIN
-  LIMIT OF DISTURBANCE
-  SILT FENCE
-  STANDARD INLET PROTECTION
-  AT GRADE INLET PROTECTION
-  STABILIZED CONSTRUCTION ENTRANCE

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

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

Approved: *John L. Whitman* 4/7/08
Howard S.C.D. Date

PROFESSIONAL CERTIFICATION
I, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 15512 EXPIRATION DATE: AUGUST 28, 2009

Robert B. III 4.04.08
Signature of Engineer Date

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: *James H. ...* 4/6/08
Date: 4/7/08

Chief, Bureau of Engineering: *Robert B. III* 4/7/08
Date: 4/7/08

Chief, Utility Design Division: *...* 4/7/08
Date: 4/7/08

Dewberry
Dewberry & Davis LLC
3120 LORD BALTIMORE DRIVE
SUITE 211
BALTIMORE, MD 21244-2662
410.265.6500
FAX: 410.265.9875



DES:	AW				
DRN:	AW				
CHK:	RJB				
DATE:	03/31/08	BY:	NO.	REVISIONS	DATE

SEDIMENT AND EROSION CONTROL PLAN

600' SCALE MAP NO. 16 BLOCK NO. 23

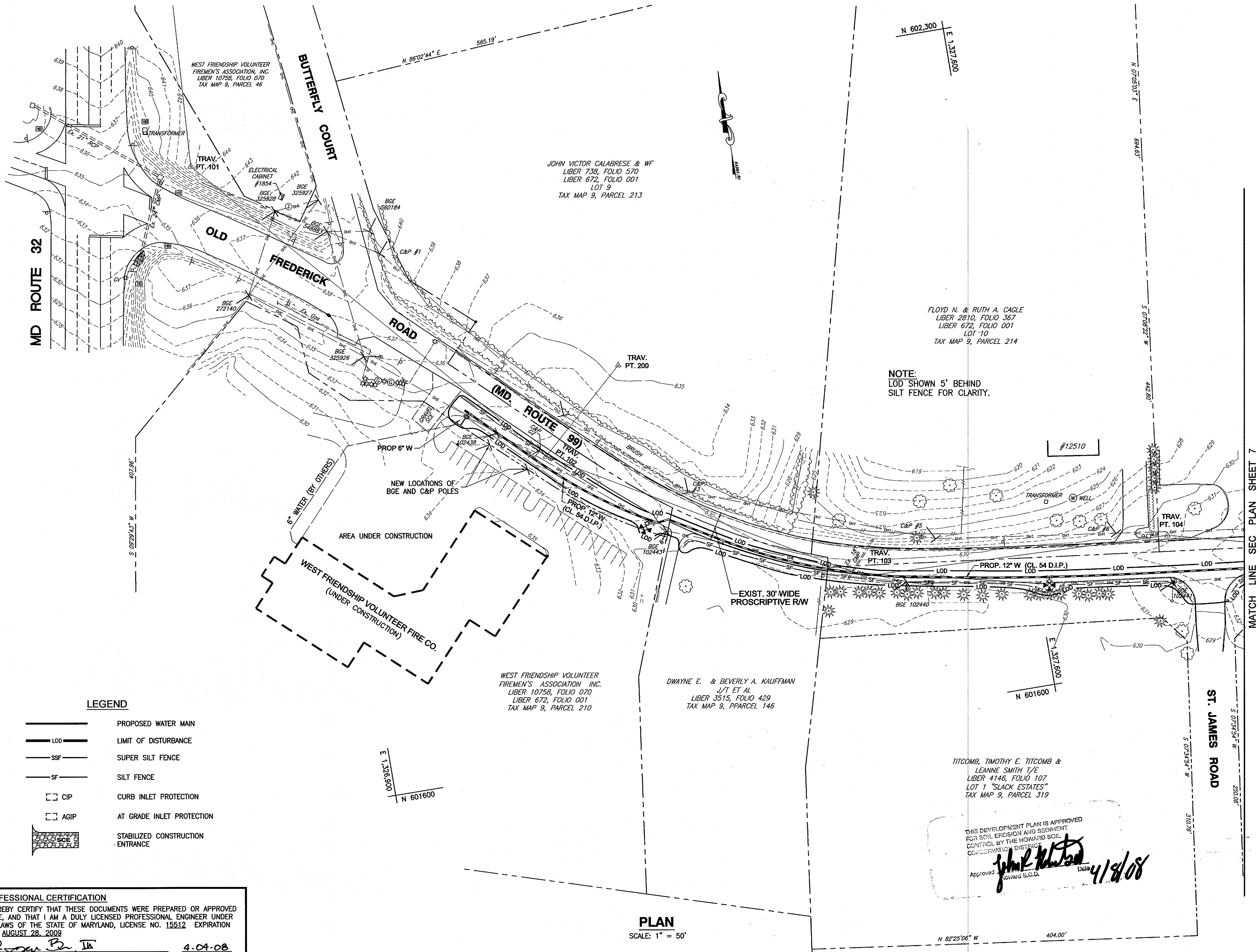
**FIRE SUPPRESSION LINE
VOLUNTEER FIRE STATION 3**

CAPITAL PROJECT W-8284
CONTRACT 44-4529

ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN
SHEET 7 OF 10

R:\Projects\0000000000 - Old Frederick Road Water Main EIT\CAD\PPP-SEC.dwg, SEC PLAN 7, 4/4/2009 2:55:56 PM



LEGEND

- PROPOSED WATER MAIN
- LOD LIMIT OF DISTURBANCE
- SSF SUPER SILT FENCE
- SF SILT FENCE
- CIP CURB INLET PROTECTION
- AGIP AT GRADE INLET PROTECTION
- STABILIZED CONSTRUCTION ENTRANCE

PROFESSIONAL CERTIFICATION

I, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 15512 EXPIRATION DATE: AUGUST 28, 2009

Signature of Engineer **4-04-08**
 Signature of Engineer Date

PLAN
 SCALE: 1" = 50'

UTILITY NOTES

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

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD COUNTY CONSERVATION DISTRICT
Signature 4/18/08
 Approved: Howard S.G.D.

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

Signature 4/12/08
 DIRECTOR OF PUBLIC WORKS DATE

Signature 4/7/08
 CHIEF, BUREAU OF UTILITIES DATE

Signature 4/7/08
 CHIEF, UTILITY DESIGN DIVISION DATE

Dewberry
 Dewberry & Davis LLC
 3120 LORD BALTIMORE DRIVE
 SUITE 211
 BALTIMORE, MD 21244-2662
 410.265.9500
 FAX: 410.265.8875



DES:	AW				
DRN:	AW				
CHK:	RJB				
DATE:	03/31/08	BY:	NO.	REVISIONS	DATE

SEDIMENT AND EROSION CONTROL PLAN

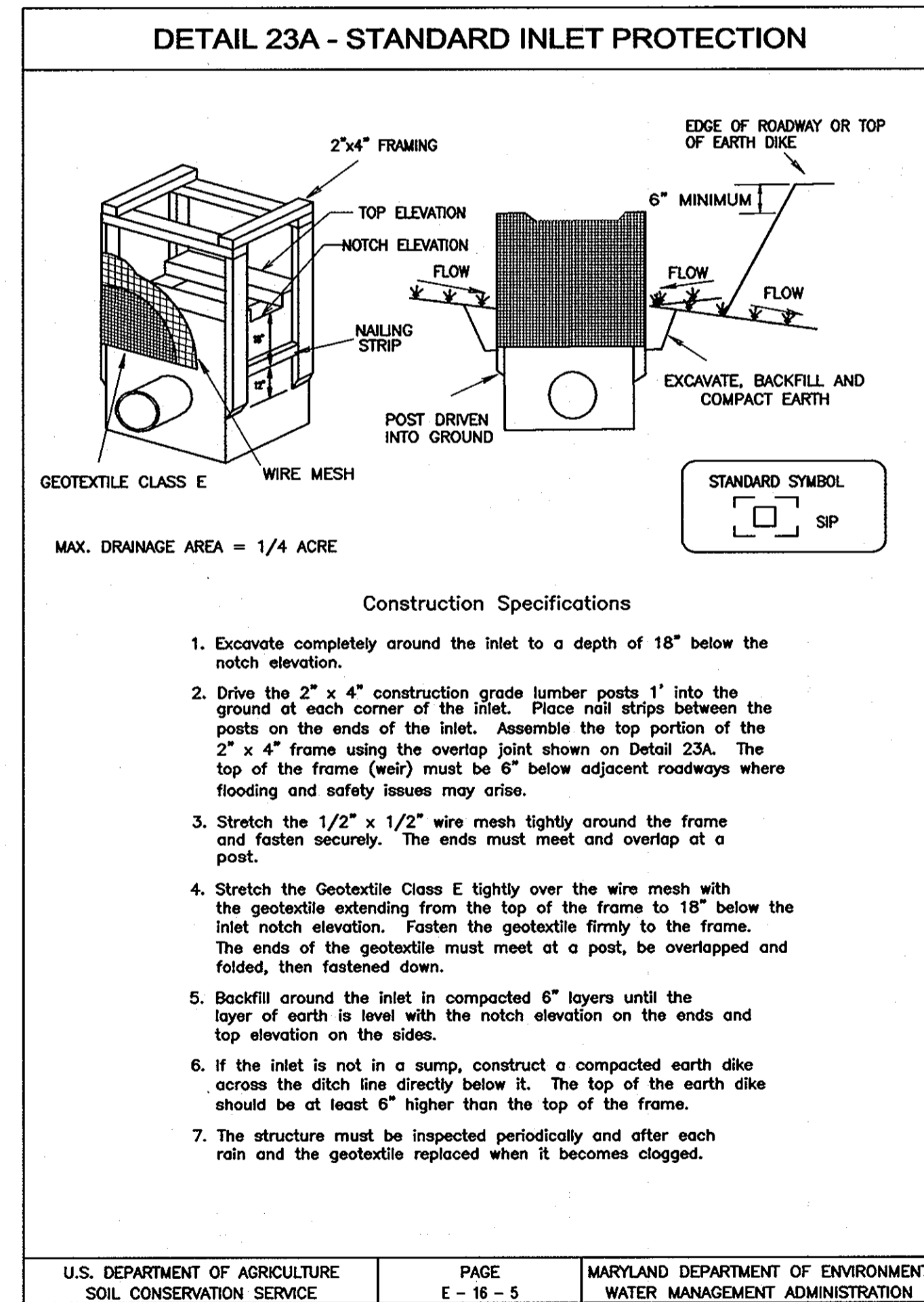
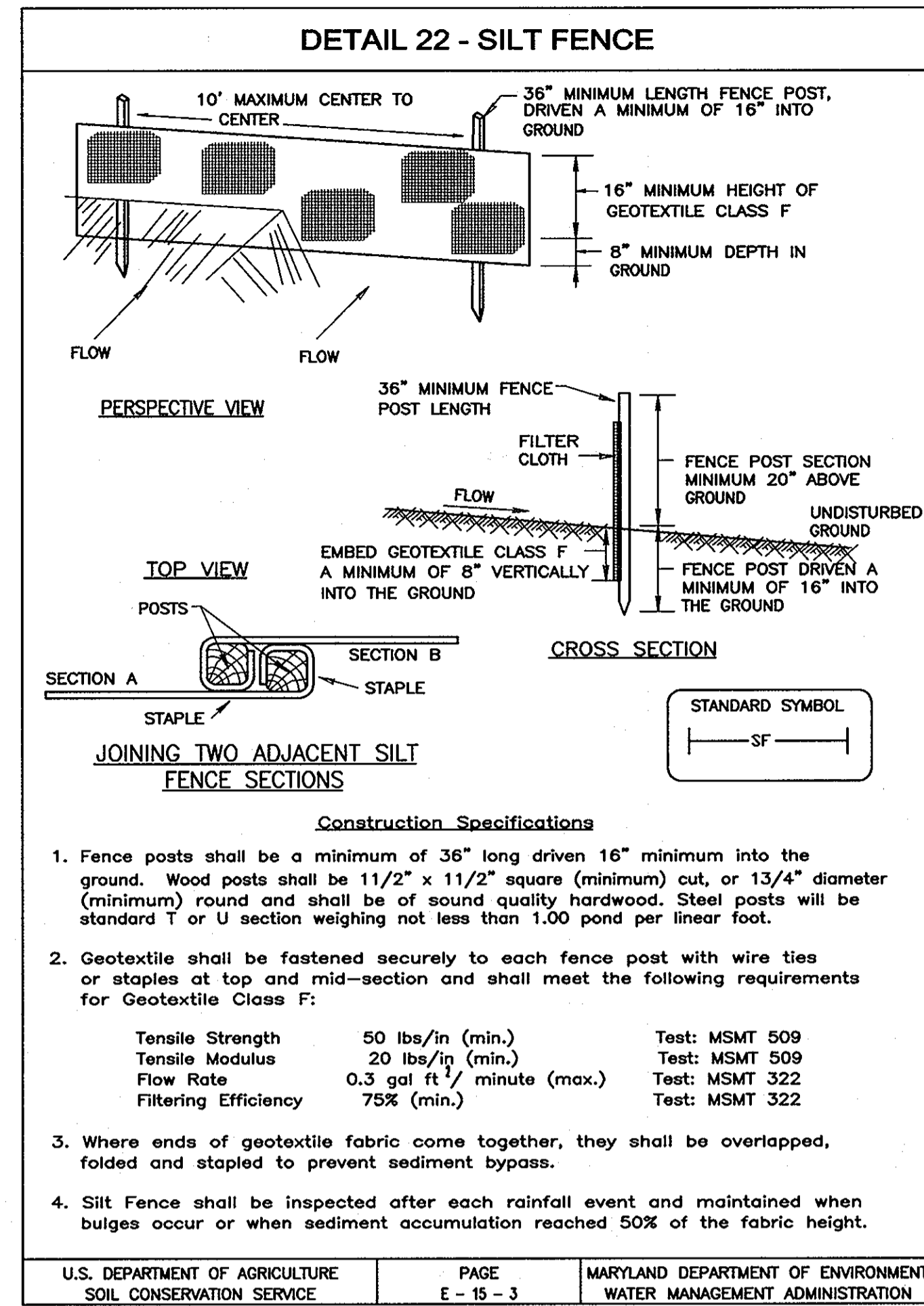
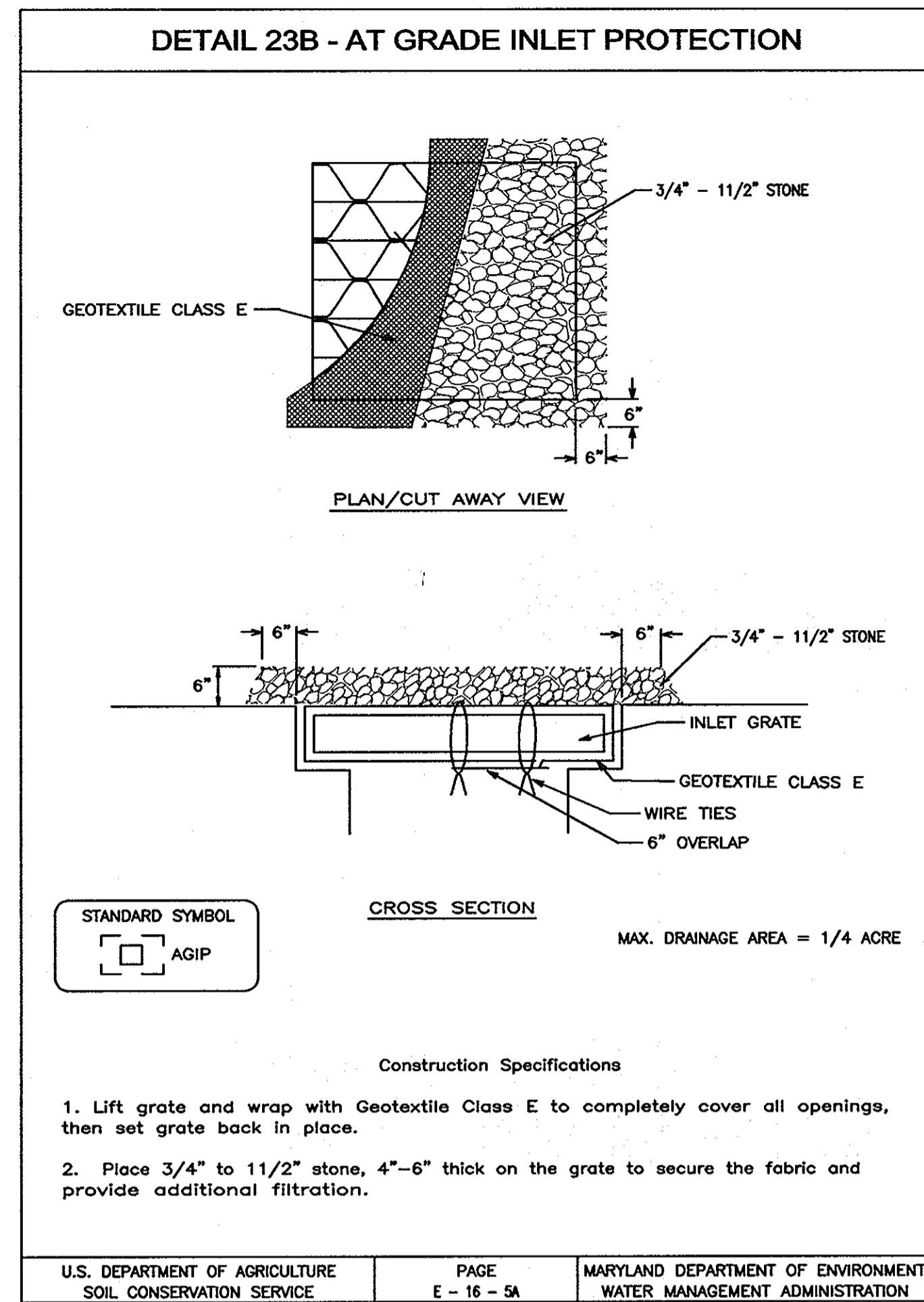
600' SCALE MAP NO. 16 BLOCK NO. 23

FIRE SUPPRESSION LINE
VOLUNTEER FIRE STATION 3
 CAPITAL PROJECT W-8284
 CONTRACT 44-4529

ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN
 SHEET 8 OF 10

R:\Projects\00000000 - Old Frederick Road Water Main E:\CAD\DWG-SEC.dwg, SEC PLAN B. 4/1/2009 2:27:56 PM



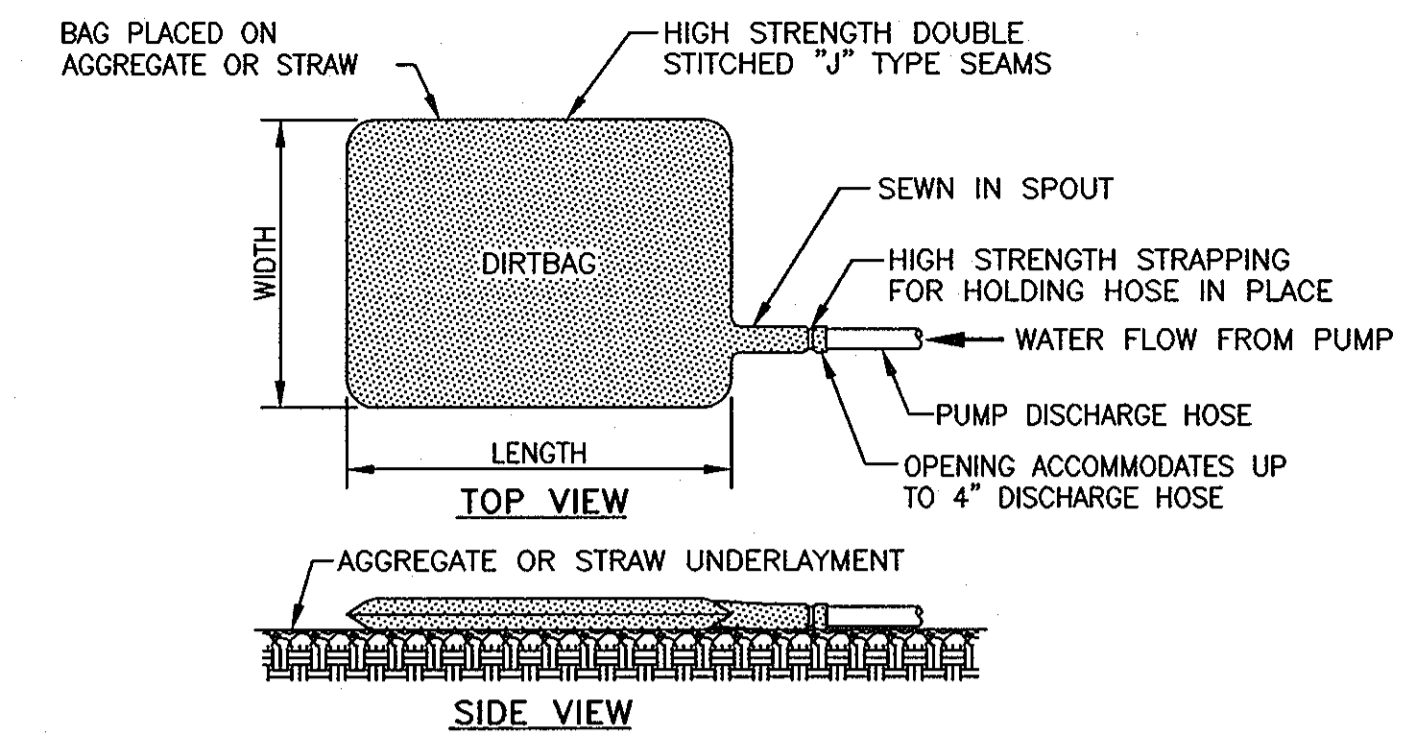
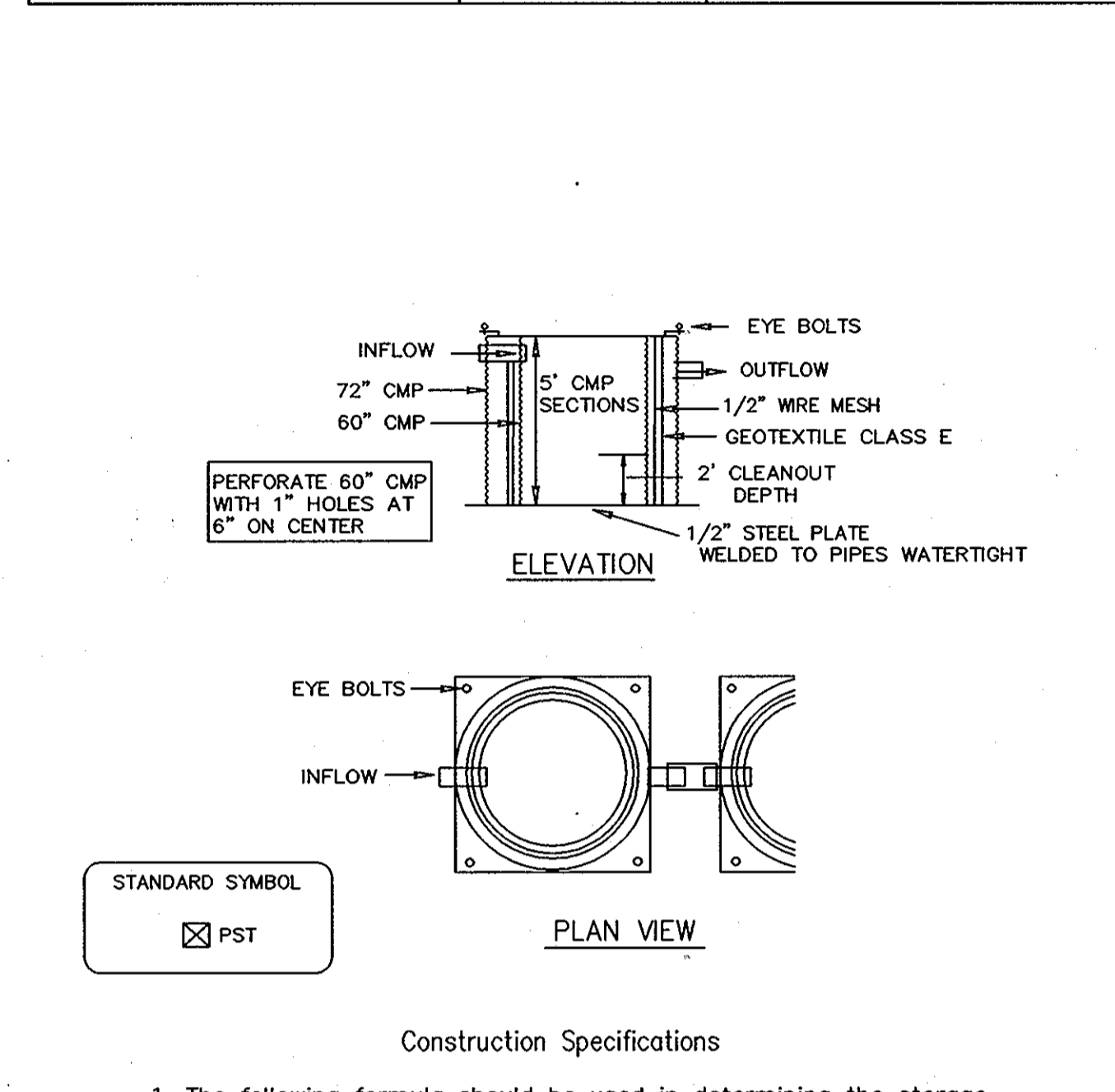
SILT FENCE

Silt Fence Design Criteria

Slope Steepness	Silt Fence Length	
	(Maximum) Slope Length	(Maximum) Silt Fence Length
Flatter than 50:1	unlimited	unlimited
50:1 to 10:1	125 feet	1,000 feet
10:1 to 5:1	100 feet	750 feet
5:1 to 3:1	60 feet	500 feet
3:1 to 2:1	40 feet	250 feet
2:1 and steeper	20 feet	125 feet

Note: In areas of less than 2% slope and sandy soils (USDA general classification system, soil Class A) maximum slope length and silt fence length will be unlimited. In these areas a silt fence may be the only perimeter control required.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E - 15 - 3A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION
---	---------------------	---



DIRTBAG SPECIFICATION CONTROL OF SEDIMENT IN PUMPED WATER
1.0 Description

1.1 This work shall consist of furnishing, placing and removing the DIRTBAG pumped sediment control device as directed by the design engineer or as shown on the contract drawings. The DIRTBAG pumped-silt control system is marketed by:

ACF Environmental, Inc.
1801-A Willis Road
Richmond, VA 23237
Phone: 1-800-644-9223
Fax: 1-804-271-3074

2.0 Materials

2.1 DIRTBAG

2.1.1 The DIRTBAG shall be a nonwoven bag which is sewn with a double needle machine using a high strength thread.

2.1.2 The DIRTBAG seams shall have an average wide width, strength per ASTM D-4884 as follows:

DIRTBAG STYLE	TEST METHOD	TEST RESULT
DIRTBAG 53	ASTM D-4884	60 lb/in
DIRTBAG 55	ASTM D-4884	100 lb/in

2.1.3 The DIRTBAG will have an opening large enough to accommodate a four (4) inch discharge hose with attached strap to tie off the hose to prevent the pumped water from escaping from the DIRTBAG without being filtered.

2.1.4 The geotextile fabric shall be a nonwoven fabric with the following properties:

DIRTBAG 53 Nonwoven

PROPERTY	TEST METHOD	TEST RESULT
Weight	ASTM D-3776	8 oz/yd
Grab Tensile	ASTM D-4832	200 lbs
Puncture	ASTM D-4833	130 lbs
Flow Rate	ASTM D-4491	80 Gal/Min/Ft
Permeability	ASTM D-4991	1.4 sec -1
W Resistance	ASTM D-4355	70%
AOS % Retained	ASTM D-4751	100

OR

DIRTBAG 55

PROPERTY	TEST METHOD	TEST RESULT
Weight	ASTM D-3776	10 oz/yd
Grab Tensile	ASTM D-4832	270 lbs
Puncture	ASTM D-4833	150 lbs
Flow Rate	ASTM D-4491	70 Gal/Min/Ft
Permeability	ASTM D-4991	1.3 sec -1
W Resistance	ASTM D-4355	70%
AOS % Retained	ASTM D-4751	100

All properties are minimum average roll value except the weight of the fabric which is given for information only.

3.0 CONSTRUCTION SEQUENCE

3.1 General

3.1.1 Install the DIRTBAG on a slope. It should be placed so the incoming water flows into the bag and will flow through the DIRTBAG and then flow off the site without creating more erosion. The neck of the DIRTBAG should be tied off tightly to stop the water from flowing out of the DIRTBAG without going through the walls of the bag. To increase the surface area being used, the DIRTBAG may be placed on a gravel bed to allow water to flow in all directions.

3.1.2 The DIRTBAG is considered full and should be disposed when it is impractical for the bag to filter the sediment out at a reasonable flow rate and should be replaced with a new DIRTBAG.

3.1.3 Disposal may be accomplished as directed by the design engineer. If the site allows, the DIRTBAG may be buried on site and seeded, visible fabric removed and seeded or removed from site to a proper disposal area.

4.0 BASIS OF PAYMENT

4.1 The payment for any DIRTBAG used during the construction is to be included in the bid of overall erosion and sediment control plan unless a unit price is requested.

PORTABLE SEDIMENT TANK

PROFESSIONAL CERTIFICATION
I, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 15512 EXPIRATION DATE: AUGUST 28, 2009

James P. [Signature] 4-09-08
Signature of Engineer Date

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

Approved: *[Signature]* Date: 4/18/08
Howard S.C.D.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works <i>[Signature]</i> 4/18/08 DATE	Chief, Bureau of Engineering <i>[Signature]</i> 4/17/08 DATE
Bureau of Utilities <i>[Signature]</i> 4/16/08 DATE	Chief, Utility Design Division <i>[Signature]</i> 4-7-08 DATE

Dewberry
Dewberry & Davis LLC
3120 LORD BALTIMORE DRIVE
SUITE 211
BALTIMORE, MD 21244-2662
410.265.9500
FAX: 410.265.8875



DES:	AW				
DRN:	AW				
CHK:	RJB				
DATE:	03/31/08				
BY:	NO.				
REVISIONS:					
DATE:					

SEDIMENT AND EROSION CONTROL
DETAILS

600' SCALE MAP NO. 16 BLOCK NO. 23

FIRE SUPPRESSION LINE
VOLUNTEER FIRE STATION 3
CAPITAL PROJECT W-8284
CONTRACT 44-4529

ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

SCALE:
AS
SHOWN

SHEET
9 OF 10

STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

Section I - Vegetative Stabilization Methods and Materials

- A. Site Preparation**
- Install erosion and sediment control structures (either temporary or permanent) such as diversion, grade stabilization structures, berms, waterways, or sediment control basins.
 - Perform all grading operations at right angles to the slope. Final grading and shaping is not usually necessary for temporary seeding.
 - Schedule required soil tests to determine soil amendment composition and application rates for sites having disturbed area over 5 acres.
- B. Soil Amendments (Fertilizer and Lime Specifications)**
- Soil tests must be performed to determine the exact rates and application rates for both lime and fertilizer on sites having disturbed areas over 5 acres. Soil analysis may be performed by the University of Maryland or a recognized commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.
 - Fertilizers shall be uniform in composition, free flowing and suitable for accurate application by approved equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers shall all be delivered to the site fully labeled according to the applicable state fertilizer laws and shall bear the name, trade name or trademark and warranty of the producer.
 - Lime materials shall be ground limestone (hydrated or burnt lime may be substituted) which contain less than 5% calcium oxide and less than 5% magnesium oxide. Limestone shall be ground to such fineness that at least 50% will pass through a #100 mesh sieve and 98-100% will pass through a #20 mesh sieve.
 - Incorporate lime and fertilizer into the top 3" - 5" of soil by disking or other suitable means.

- C. Seeded Protection**
- Temporary Seeding**
 - Seeded preparation shall consist of loosening soil to a depth of 3" to 5" by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened it should not be rolled or dragged smooth but left in the rough and uneven condition. Sloped areas (greater than 3:1) should be tracked leaving the surface in an irregular condition with ridges running parallel to the contour of the slope.
 - Apply fertilizer and lime as prescribed on the plans.
 - Incorporate lime and fertilizer into the top 3" - 5" of soil by disking or other suitable means.
 - Permanent Seeding**
 - Minimum soil conditions required for permanent vegetative establishment:
 - Soil pH shall be between 6.0 and 7.0.
 - Soluble salts shall be less than 500 parts per million (ppm).
 - The soil shall contain less than 40% clay but enough fine grained material (>30% silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception to this requirement is for leached soils to be planted, then a sandy soil (<30% silt plus clay) would be acceptable.
 - Soil shall contain 1.5% minimum organic matter by weight.
 - Soil shall contain sufficient pore space to permit adequate root penetration.
 - If these conditions cannot be met by soils on site, adding topsoil is required in accordance with Section 21 Standard and Specification for Topsoil.
 - Areas previously graded in conformance with the drawings shall be maintained in a true and even grade, then scarified or otherwise loosened to a depth of 3" - 5" to permit bonding of the topsoil to the surface area and to create horizontal erosion check slots to prevent topsoil from sliding down a slope.
 - Apply soil amendments as per soil tests or as included on the plans.
 - Mix soil amendments into the top 3" - 5" of topsoil by disking or other suitable means. Lawn areas should be raked to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Where site conditions will not permit normal seeded preparation, loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface. Steep slopes (steeper than 3:1) should be tracked by a dozer leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. The top 1" - 3" of soil should be loose and friable. Seeded loosening may not be necessary on newly disturbed areas.

- D. Seed Specifications**
- All seed must meet the requirements of the Maryland State Seed Law. All seed shall be subject to a seed test by a recognized laboratory. All seed used shall have been tested within the 6 months immediately preceding the date of sowing such material on this job. Note: Seed tags shall be made available to the inspector to verify type and rate of seed used.
 - Inoculant - The inoculant for treating legume seed in the seed mixtures shall be a pure culture of nitrogen-fixing bacteria prepared specifically for the species. Inoculants shall not be used later than the date indicated on the container. Add fresh inoculant as directed on package. Use four times the recommended rate when hydrosowing. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75-80° F. can weaken bacteria and make the inoculant less effective.
- E. Methods of Seeding**
- Hydrosowing:** Apply seed uniformly with hydrosower (slurry includes seed and fertilizer), broadcast or drop seeder, or a cultipacker seeder.
 - If fertilizer is being applied at the time of seeding, the application rate amounts will not exceed the following: nitrogen: maximum of 100 lbs. per acre total of soluble nitrogen; P205 (phosphorus): 200 lbs/acre; K20 (potassium): 200 lbs/acre.
 - Lime - use only ground agricultural limestone. (Up to 3 tons per acre may be applied by hydrosowing). Normally, not more than 2 tons are applied by hydrosowing at any one time. Do not use burnt or hydrated lime when hydrosowing.
 - Seed and fertilizer shall be mixed on site and seeding shall be done immediately and without interruption.
 - Dry Seeding:** This includes use of conventional drop or broadcast spreaders.
 - Seed spread dry shall be incorporated into the subsoil at the rates prescribed on the Temporary or Permanent Seeding Summaries or Tables 25 or 26. The seeded area shall then be rolled with a weighted roller to provide good seed to soil contact.
 - Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.
 - Drill or Cultipacker Seeding:** Mechanized seeders that apply and cover seed with soil.
 - Cultipacker seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seeded must be firm after planting.
 - Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.

- F. Mulch Specifications (In order of preference)**
- Straw shall consist of thoroughly threshed wheat, rye or oat straw, reasonably bright in color, and shall not be musty, moldy, caked, decayed, or excessively dusty and shall be free of noxious weed seeds as specified in the Maryland Seed Law.
 - Wood Cellulose Fiber Mulch (WCFM)**
 - WCFM shall consist of specially prepared wood cellulose processed into a uniform fibrous physical state.
 - WCFM shall be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.
 - WCFM, including dye, shall contain no germination or growth inhibiting factors.
 - WCFM materials shall be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material shall form a blotter-like ground cover, on application having moisture absorption and percolation properties and shall cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.
 - WCFM material shall contain no elements or compounds at concentration levels that will be phytotoxic.
 - WCFM must conform to the following physical requirements: fiber length to approximately 10 mm, diameter approximately 1 mm., pH range of 4.0 to 8.5, ash content of 1.6% maximum and water holding capacity of 90% minimum.
- Note: Only sterile straw mulch should be used in areas where one species of grass is desired.

- G. Mulching Seeded Areas - Mulch shall be applied to all seeded areas immediately after seeding.**
- If grading is completed outside of the seeding season, mulch alone shall be applied as prescribed in this section and maintained until the seeding season returns and seeding can be performed in accordance with these specifications.
 - When straw mulch is used, it shall be spread over all seeded areas at the rate of 2 tons/acre. Mulch shall be applied to a uniform loose depth of between 1" and 2". Mulch applied shall achieve a uniform distribution and depth so that the soil surface is not exposed. If a mulch anchoring tool is to be used, the rate should be increased to 2.5 tons/acre.
 - Wood cellulose fiber used as a mulch shall be applied at a net dry weight of 1,500 lbs. per acre. The wood cellulose fiber shall be mixed with water, and the mixture shall contain a maximum of 50 lbs. of wood cellulose fiber per 100 gallons of water.
- H. Securing Straw Mulch (Mulch Anchoring):** Mulch anchoring shall be performed immediately following mulch application to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon size of area and erosion hazard:
- A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into soil surface a minimum of two (2) inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should be used on the contour if possible.
 - Wood Cellulose fiber may be used for anchoring straw. The fiber binder shall be applied at a net dry weight of 750 pounds/acre. The wood cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
 - Application of liquid binders should be heavier at the edge where wind catches mulch, such as in valleys and on crests of banks. The remainder of area should be applied uniform after binder application. Synthetic binders - such as Acrylic DLR (Agra-Tack), DCA-70, Petrost, Terra Tack II, Terra Tack AR or other approved equal may be used at rates recommended by the manufacturer to anchor mulch.
 - Lightweight plastic netting may be stapled over the mulch according to manufacturer's recommendations. Netting is usually available in rolls 4' to 15' feet wide and 300 to 3,000 feet long.

- I. Incremental Stabilization - Cut Slopes**
- All cut slopes shall be dressed, prepared, seeded and mulched as the work progresses. Slopes shall be excavated and stabilized in equal increments not to exceed 15'.
 - Construction sequence (refer to Figure 4 below):
 - Excavate and stabilize all temporary swales, side ditches, or berms that will be used to convey runoff from the excavation.
 - Perform phase 1 excavation, dress and stabilize.
 - Perform phase 2 excavation, dress and stabilize. Overseed phase 1 areas as necessary.
 - Perform final phase excavation, dress and stabilize. Overseed previously seeded areas as necessary.

Note: Once excavation has begun, the operation should be continuous from grubbing through completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the season will necessitate the application of temporary stabilization.

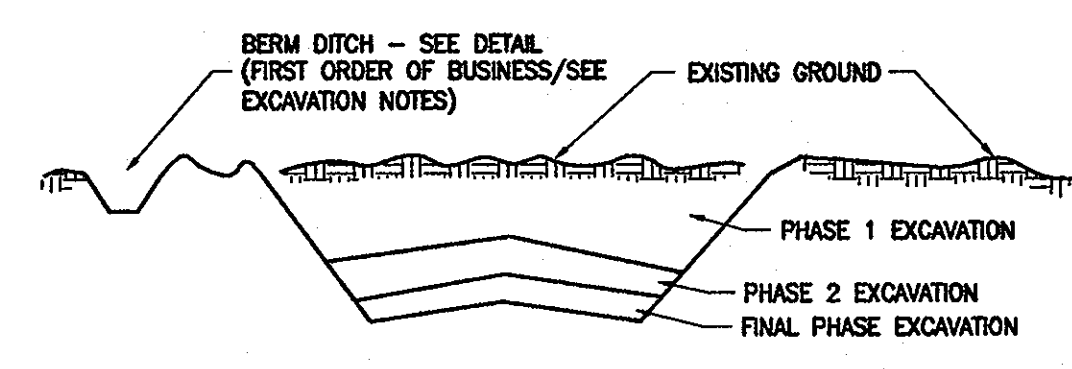


Figure 4 Incremental Stabilization - Cut

- J. Incremental Stabilization of Embankments - Fill Slopes**
- Embankments shall be constructed in lifts as prescribed on the plans.
 - Slopes shall be stabilized immediately when the vertical height of the multiple lifts reaches 15', or when the grading operation ceases as prescribed in the plans.
 - At the end of each day, temporary berms and pipe slope drains should be constructed along the top edge of the embankment to intercept surface runoff and convey it down the slope in a non-erosive manner to a sediment trapping device.
 - Construction sequence: Refer to Figure 5 (below):
 - Excavate and stabilize all temporary swales, side ditches, or berms that will be used to divert runoff around the fill. Construct Slope Silt Fence on low side of fill as shown in Figure 4, unless other methods shown on the plans address this area.
 - Place phase 1 embankment, dress and stabilize.
 - Place phase 2 embankment, dress and stabilize.
 - Place final phase embankment, dress and stabilize. Overseed previously seeded areas as necessary.

Note: Once the placement of fill has begun, the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.

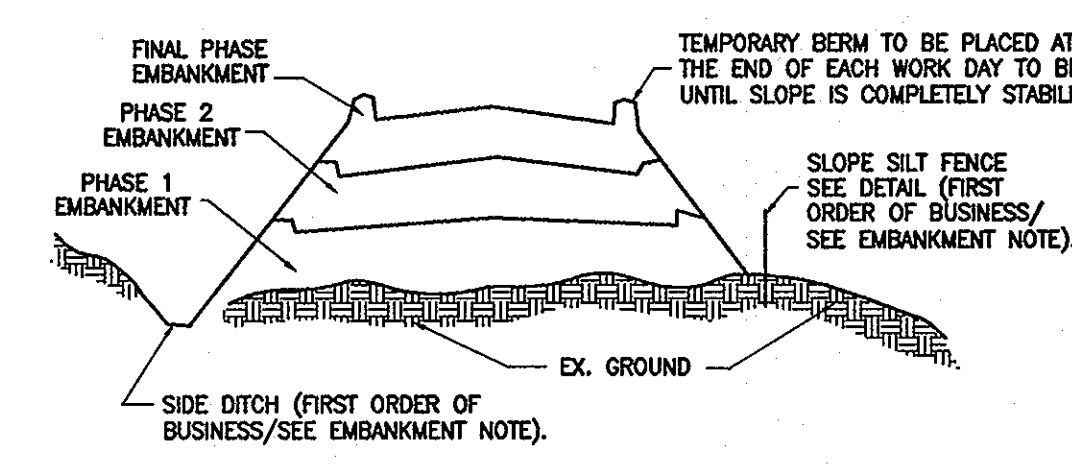


Figure 5 Incremental Stabilization - Embankment Fill Comply with MD 378 Specifications.

Section II - Temporary Seeding

- Vegetation - annual grass or grain used to provide cover on disturbed areas for up to 12 months. For longer duration of vegetative cover, Permanent Seeding is required.
- A. Seed Mixtures - Temporary Seeding**
- Select one or more of the species or mixtures listed in Table 26 for the appropriate Plant Hardiness Zone (from Figure 5) and enter them in the Temporary Seeding Summary below, along with application rates, seeding dates and seeding depths. If this Summary is not put on the plans and completed, then Table 26 must be put on the plans.
 - For sites having soil tests performed, the rates shown on this table shall be deleted and the rates recommended by the testing agency shall be written in. Soil tests are not required for Temporary Seeding.

SEED MIXTURE (HARDINESS ZONE 5b)				SEEDING DEPTHS	FERTILIZER RATE (10-10-10)	LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES			
	ANNUAL RYEGRASS	50 LB/AC	3/1 - 4/30 8/15 - 11/1	1/4" - 1/2"	600 LB/AC (15 LB / 1000 SF)	2 TONS/AC (100 LB / 1000 SF)
	MILLET	50 LB/AC	5/1 - 8/14	1/2"		

Section III: Permanent Seeding

- Seeding grass and legumes to establish ground cover for a minimum period of one year on disturbed areas generally receiving low maintenance.
- A. Seed Mixtures - Permanent Seeding**
- Select one or more of the species or mixtures listed in Table 25 for the appropriate Plant Hardiness Zone (from Figure 5) and enter them in the Permanent Seed Summary below, along with application rates and seeding dates. Seeding depths can be estimated using Table 26. If this Summary is not put on the construction plans and completed, then Table 25 must be put on the plans. Additional planting specifications for exceptional sites such as shorelines, streambanks, or dunes or for special purposes such as wildlife or athletic treatment may be found in USDA-SCS Technical Field Office Field, Section 342 - Critical Area Planting. For special lawn maintenance areas, see Section IV, Sod and V Turfgrass.
 - For sites having disturbed area over 5 acres, the rates shown on this table shall be deleted and the rates recommended by the soil testing agency shall be written in.
 - For areas receiving low maintenance, apply ureaform fertilizer (48-0-0) at 3 1/2 lbs/1000 sq. ft. (150 lbs/acre), in addition to the above soil amendments shown in the table below, to be performed at the time of seeding.

SEED MIXTURE (HARDINESS ZONE 5b)				FERTILIZER RATE (10-20-20)			LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	N	P205	K20	
3	TALL FESCUE PERENNIAL RYE KY.BLUEGRASS	125 LB/AC 15 LB/AC 10 LB/AC	3/1 - 5/15 8/15 - 10/15				
7	TALL FESCUE WEEPING LOVEGRASS SEEDMA LESPEDEZA	110 LB/AC 3 LB/AC 20 LB/AC	3/1 - 10/15	900 LB/AC (4 LB / 1000 SF)	175 LB/AC (1000 SF)	175 LB/AC (1000 SF)	2 TONS/AC (1000 SF)

Section IV - Sod: To provide quick cover on disturbed areas (2:1 grade or flatter).

- A. General specifications**
- Class of turfgrass sod shall be Maryland or Virginia State Certified or Approved. Sod labels shall be made available to the job foreman and inspector.
 - Sod shall be machine cut at a uniform soil thickness of 3/4", plus or minus 1/4", at the time of cutting. Measurement for thickness shall exclude top growth and thatch. Individual pieces of sod shall be cut to the suppliers width and length. Maximum allowable deviation from standard widths and lengths shall be 5 percent. Broken pods and torn or uneven ends will not be acceptable.
 - Standard size sections of sod shall be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
 - Sod shall not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
 - Sod shall be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period shall be approved by an agronomist or soil scientist prior to its installation.
- B. Sod Installation**
- During periods of excessively high temperature or in areas having dry subsoil, the subsoil shall be lightly irrigated immediately prior to laying the sod.
 - The first row of sod shall be laid in a straight line with subsequent rows placed parallel to and tightly wedged against each other. Lateral joints shall be staggered to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots.
 - Wherever possible, sod shall be laid with the long edges parallel to the contour and with sloping joints. Sod shall be rolled and tamped, pegged or otherwise secured to prevent slippage on slopes and to ensure solid contact between sod roots and the underlying soil surface.
 - Sod shall be watered immediately following rolling or tamping until the underside of the new sod pod and soil surface below the sod are thoroughly wet. The operations of laying, tamping and irrigating for any piece of sod shall be completed within eight hours.
- C. Sod Maintenance**
- In the absence of adequate rainfall, watering shall be performed daily or as often as necessary during the first week and in sufficient quantities to maintain moist soil to a depth of 4". Watering should be done during the heat of the day to prevent wilting.
 - After the first week, sod watering is required as necessary to maintain adequate moisture content.
 - The first mowing of sod should not be attempted until the sod is firmly rooted. No more than 1/3 of the grass leaf shall be removed by the initial cutting or subsequent cuttings. Grass height shall be maintained between 2" and 3" unless otherwise specified.

Section IV - Turfgrass Establishment

- Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which receive a medium to high level of maintenance. Areas to receive seed shall be tilled by disking or other approved methods to a depth of 2 to 4 inches, leveled and rolled to prepare a proper seedbed. Stones and debris over 1 1/2 inches in diameter shall be removed. The resulting seedbed shall be in such condition that future mowing of grasses will pose no difficulty.
- Note: Chose certified material. Certified material is the best guarantee to cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line.
- A. Permanent Seeding**
- Kentucky Bluegrass - Full sun mixture - For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and eastern shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds/1000 square feet. A minimum of three bluegrass cultivars should be chosen ranging from a minimum of 10% to a maximum of 35% of the mixture by weight.
 - Kentucky Bluegrass/Perennial Rye - Full sun mixture - For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Rye/Certified Kentucky Bluegrass Seeding rate: 2 pounds mixture/1000 square feet. A minimum of 3 Kentucky Bluegrass Cultivars must be chosen, with each cultivar ranging from 10% to 35% of the mixture by weight.
 - Tall Fescue/Kentucky Bluegrass - Full sun mixture - For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes: certified Tall Fescue Cultivars 95-100% certified Kentucky Bluegrass Cultivars 0 - 5%. Seeding rate: 5 to 8 lb/1000 sf. One or more cultivars may be blended.
 - Kentucky Bluegrass/Fine Fescue - Shade Mixture - For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes: certified Kentucky Bluegrass Cultivars 30-40% and certified Fine Fescue 60-70%. Seeding rate: 1 1/2 - 3 lbs/1000 square feet. A minimum of 3 Kentucky bluegrass cultivars must be chosen, with each cultivar ranging from a minimum of 10% to a maximum of 35% of the mixture by weight.
- Note: Turfgrass varieties should be selected from those listed in the most current University of Maryland Publication, Agronomy Mimeo #77, "Turfgrass Cultivar Recommendations for Maryland".

- B. Ideal times of seeding**
- Western MD: March 15 - June 1, August 1 - October 1 (Hardiness Zones - 5b, 6a)
Central MD: March 1 - May 15, August 15 - October 15 (Hardiness Zone - 6b)
Southern MD, Eastern Shore: March 1 - May 15, August 15 - October 15 (Hardiness Zones - 7a,7b)

PROFESSIONAL CERTIFICATION

I, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 15512 EXPIRATION DATE: AUGUST 28, 2009

Regan B. Burns
Signature of Engineer Date: 4-04-08

- C. Irrigation**
- If soil moisture is deficient, supply new seedlings with adequate water for plant growth (23/64 " 0 1" every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedlings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.
- D. Repairs and Maintenance**
- Inspect all seeded areas for failures and make necessary repairs, replacements, and reseedings within the planting season.
- Once the vegetation is established, the site shall have 95% ground cover to be considered adequately stabilized.
 - If the stand provides less than 40% ground coverage, reestablish following original time, fertilizer, seedbed preparation and seeding recommendations.
 - If the stand provides between 40% and 94% ground coverage, overseeding and fertilizing half of the rates originally applied may be necessary.
 - Maintenance fertilizer rates for permanent seedings are shown in table 24. For lawns and other medium to high maintenance turf grass areas, refer to the University of Maryland publication "Lawn Care n Maryland" Bulletin No. 171.

SEDIMENT CONTROL GENERAL NOTES

- A minimum of 48 hours notice must be given to Howard County Department of Inspections, Licenses and Permits, Sediment Control Division prior to the start of any construction. 410-313-1855.
- All vegetative and structural practices are to be installed according to the provisions of the plan and are to be in conformance with the most current Maryland Standards and Specifications for Soil Erosion and Sediment Control and revisions thereto.
- Following initial soil disturbance or re-disturbance, 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 (Sec. 51), sod (Sec. 54) temporary seeding (Sec. 50) and mulching (Sec. 52). Temporary stabilization with mulch alone can only 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
Site is defined as areas involving any improvement.
Total Area of Site: 0.96 Acres
Area Disturbed: 0.96 Acres
Area to be paved: 0.57 Sq. Yds.
Area to be Vegetatively Stabilized: 0.39 Sq. Yds.
Total Cut: 1,910 Cu. Yds.
Total Fill: 1,850 Cu. Yds.
Offsite waste/borrow area location: To be determined by contractor.
- Any sediment control practices which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
- Additional sediment control 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 by the end of each work day, whichever is shorter.
- Spill from trench excavation shall be placed on the uphill side of the excavation.

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, 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 ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Regan B. Burns
Signature of Developer Date: 4/7/08

Regan B. Burns
Print Name

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

Regan B. Burns
Signature of Engineer Date: 4-04-08

R. Joseph Burns, III
Print Name

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT TO MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL

Regan B. Burns
Signature of Engineer Date: 4-04-08

USDA-Natural Resources Conservation Service Date

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

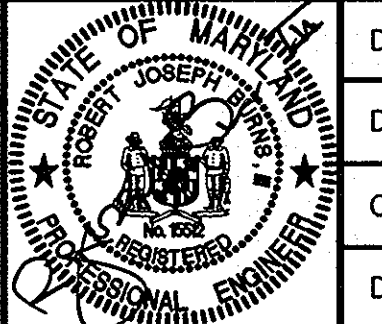
John R. Roberts
Signature of Engineer Date: 4/9/08

Howard Soil Conservation District

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS DATE: 4/7/08
CHIEF, BUREAU OF ENGINEERING DATE: 4/7/08
BUREAU OF UTILITIES DATE: 4-7-08
CHIEF, UTILITY DESIGN DIVISION DATE: 4-7-08

Dewberry & Davis LLC
3120 LORD BALTIMORE DRIVE SUITE 211 BALTIMORE, MD 21244-2662 410.265.9500 FAX: 410.265.8875



DES: AW
DRN: AW
CHK: RJB
DATE: 03/31/08

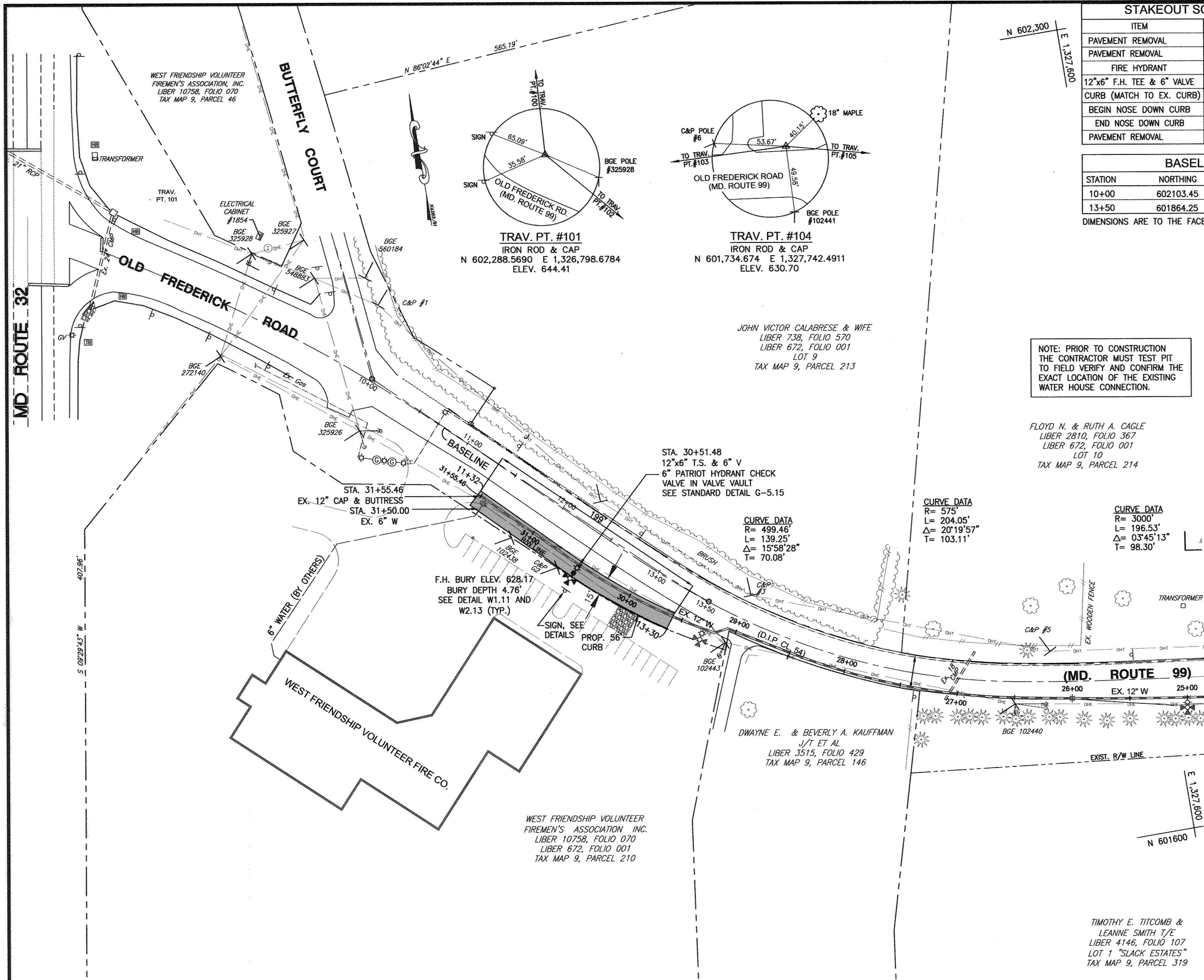
SEDIMENT AND EROSION CONTROL NOTES

600' SCALE MAP NO. 16 BLOCK NO. 23

FIRE SUPPRESSION LINE VOLUNTEER FIRE STATION 3 CAPITAL PROJECT W-8284 CONTRACT 44-4529

ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN
SHEET 10 OF 10



STAKEOUT SCHEDULE FOR TRUCK PULLOVER

ITEM	BASELINE STA.	DISTANCE	NORTHING	EASTING
PAVEMENT REMOVAL	11+32	28' RT.	601992.07	1327038.99
PAVEMENT REMOVAL	11+32	43' RT.	601981.44	1327027.80
FIRE HYDRANT	11+50	46' RT.	601966.65	1327039.63
12"x6" F.H. TEE & 6" VALVE	11+50	32' RT.	601976.70	1327049.53
CURB (MATCH TO EX. CURB)	12+78	44' RT.		
BEGIN NOSE DOWN CURB	13+27	39' RT.	601849.49	1327175.12
END NOSE DOWN CURB	13+32	38' RT.	601846.74	1327179.30
PAVEMENT REMOVAL	13+30	23' RT.	601859.46	1327187.24

BASELINE DATA

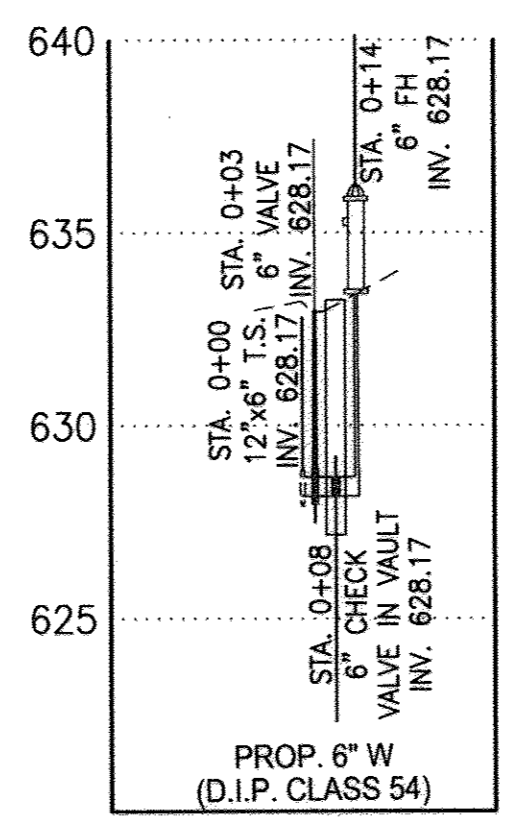
STATION	NORTHING	EASTING
10+00	602103.45	1326962.35
13+50	601864.25	1327217.98

DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED

GENERAL NOTES

- Approximate locations of existing mains are shown. The contractor shall take all necessary precautions to protect existing mains and services and maintain uninterrupted service. Any damage incurred shall be repaired immediately to the satisfaction of the Engineer at the contractor's expense.
- Topographic field survey was performed in August 2008 by Dewberry.
- Horizontal and Vertical Survey Controls: The coordinates shown on the drawings are based on Maryland State Reference System NAD '83/'91 as projected by Howard County Geodetic Control Stations No. 09H2 and No. 09H1. All vertical controls are based on NAVD '88. Vertical controls provided on the drawings are iron rod and cap (Engineering / Survey firm shall provide description of vertical control points, i.e., iron bars, cross cuts on concrete structures, etc).
- All pipe elevations shown are invert elevations unless otherwise noted on the plans.
- Clear all utilities by a minimum of 12 inches. Clear all poles by 5'-0" minimum or tunnel as required unless otherwise noted. The owner has contacted the utility companies and has made arrangements for bracing of poles as shown on the drawings. In the event the contractor's work requires the bracing of additional poles, any cost incurred by the owner for the bracing of additional poles or damages shall be deducted from monies owed the contractor. The contractor shall coordinate with the utility companies to schedule the bracing of the poles.
- For details not shown on the drawing, and for materials and construction methods, use Howard County Design Manual, Volume IV, Standard Specifications and Details for Construction (Latest Edition). The contractor shall have a copy of Volume IV on the job.
- Where test pits have been made on existing utilities, they are noted by the symbol at the locations of the test pits. A note or notes containing the results of the test pit or pits is included on the drawings. Existing utilities in the vicinity of the proposed work for which test pits have not been dug shall be located by the contractor two weeks in advance of construction operations at his own expense.
- The contractor shall notify the following utility companies or agencies at least five working days before starting work shown on these plans:

AT&T	800-252-1133
BGE (Contractor Services)	410-850-4620
BGE (Underground Damage Control)	410-787-9068
Bureau of Utilities	410-313-4900
Colonial Pipeline Co	410-795-1390
Miss Utility	800-257-7777
State Highway Administration	410-531-5533
Verizon	800-743-0033/410-224-9210
- Trees and shrubs are to be protected from damage to the maximum extent. Trees and shrubs located within the construction strip are not to be removed or damaged by the contractor.
- The contractor shall remove trees, stumps and roots along the line of excavation. Payment for such removal shall be included in the unit price bid for construction of the main.
- The contractor shall notify the Bureau of Highways, Howard County, at (410)-313-7450 at least five working days before boring/jacking of any County road for laying water/sewer mains or house connections. The approval of these drawings will constitute compliance with DPW requirements per Section 18.114(a) of the Howard County Code.
- All water mains shall be D.I.P. Class 54 unless otherwise noted.
- Tops of all water mains shall have a minimum of 3'-6" of cover unless otherwise noted.
- Valves adjacent to tees shall be strapped to tees.
- All fittings shall be buttressed or anchored with concrete in accordance with Standard Details unless otherwise provided for on the drawings.
- Fire hydrants shall be set to the bury line elevations shown on the drawings. All fire hydrants shall be installed in accordance with Standard Details. The soil around the fire hydrant shall be compacted in accordance with Section 1000 and Section 1005 of the Standard Specifications.
- The contractor shall not operate any water main valves on the existing water system.



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

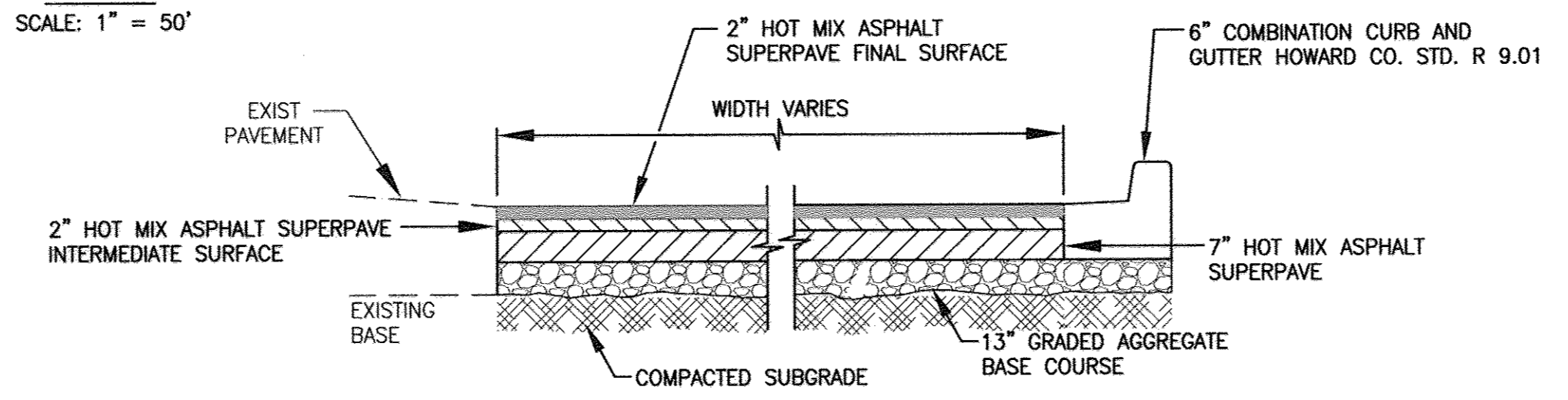
NOTE: PRIOR TO CONSTRUCTION THE CONTRACTOR MUST TEST PIT TO FIELD VERIFY AND CONFIRM THE EXACT LOCATION OF THE EXISTING WATER HOUSE CONNECTION.

FLOYD N. & RUTH A. CAGLE
LIBER 2810, FOLIO 367
LIBER 672, FOLIO 001
LOT 10
TAX MAP 9, PARCEL 214

CURVE DATA
R= 575
L= 204.05'
Δ= 20'19.57"
T= 103.11'

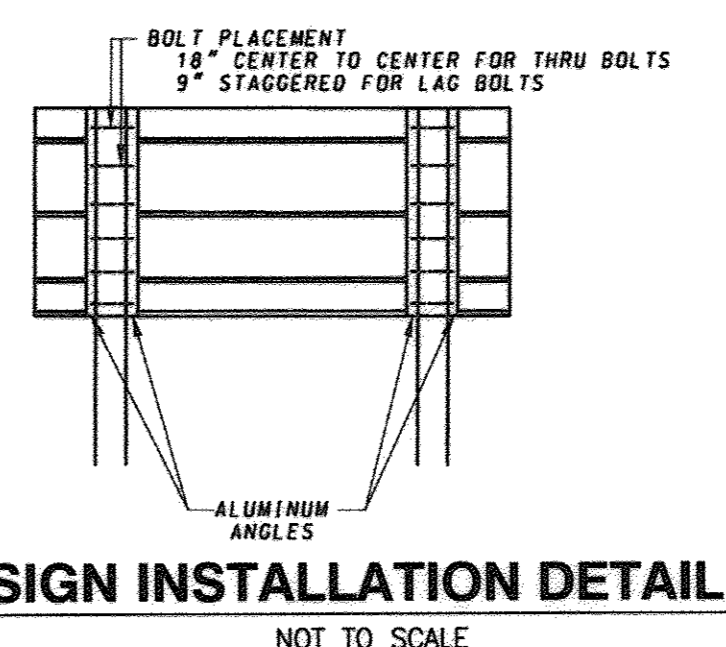
TIMOTHY E. TITCOMB & LEANNE SMITH T/E
LIBER 4146, FOLIO 107
LOT 1 "SLACK ESTATES"
TAX MAP 9, PARCEL 319

PLAN
SCALE: 1" = 50'

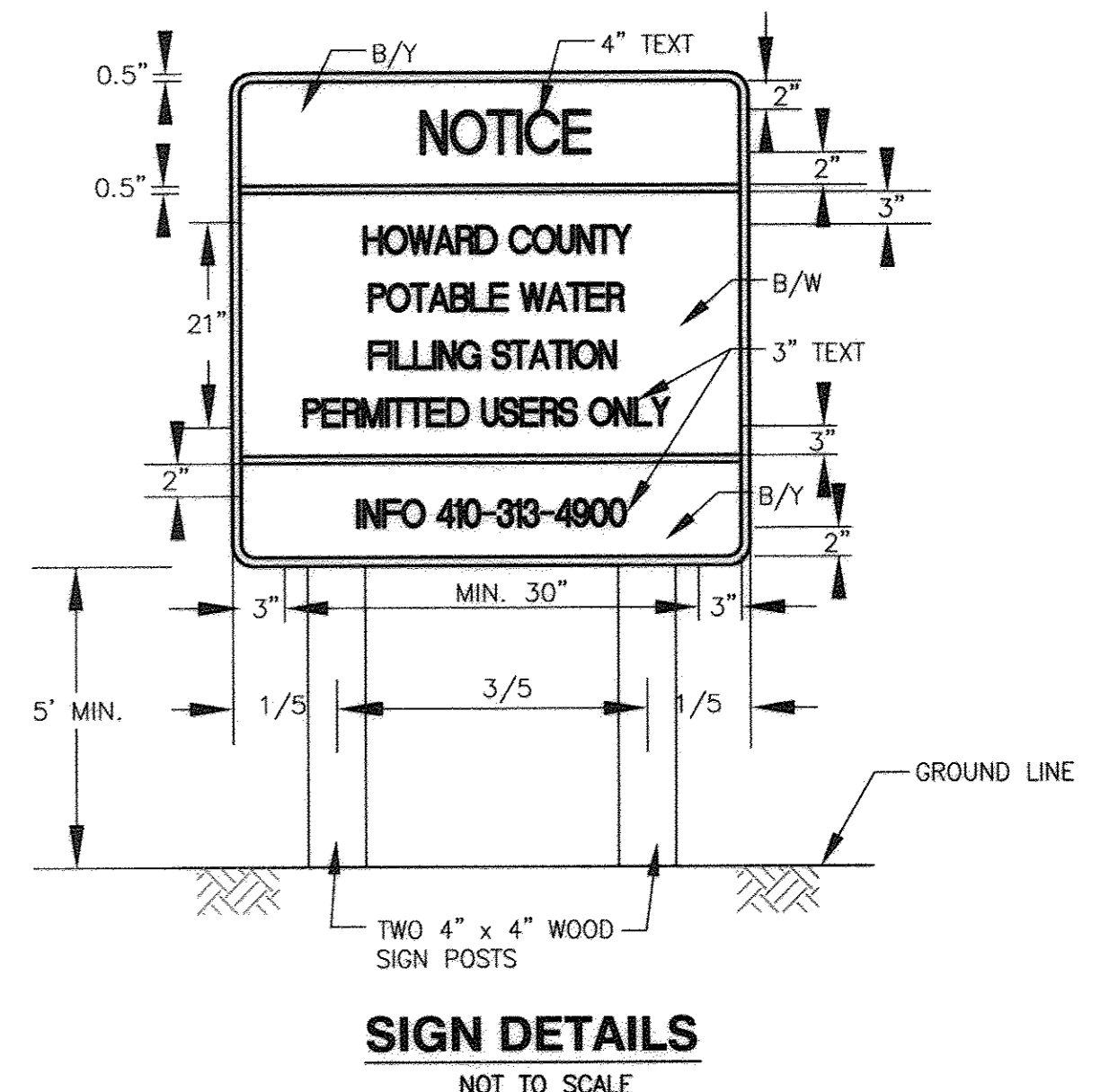


PULLOVER PAVEMENT SECTION
PER HOWARD COUNTY DETAIL R-2.02 "PAVING SECTIONS" NUMBER P-6
NOT TO SCALE

- NOTES**
- ALL BOLTS SHALL BE 3/8" F593 (18-8 TYPE 303-304) STAINLESS STEEL OR ANODIZED ALUMINUM HEX HEAD BOLT WITH WASHERS AND NUTS SPACED AT 12" MAXIMUM.
 - S.S. 3/8" MIN. LAG BOLTS MAY BE SUBSTITUTED FOR HEX HEAD BOLTS. LAG BOLTS MUST BE STAGGERED AT 9" INTERVALS.
 - ALL ALUMINUM ANGLES ARE 3 1/2" x 2 1/2" x 1/4".



SIGN INSTALLATION DETAIL
NOT TO SCALE



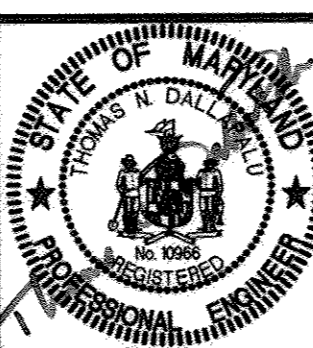
SIGN DETAILS
NOT TO SCALE

PROFESSIONAL CERTIFICATION
I, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 10966 EXPIRATION DATE: MAY 31, 2012
Thomas N. D... 4/29/10
Signature of Engineer Date

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signatures]
DIRECTOR OF PUBLIC WORKS DATE: 4/29/10
CHIEF, BUREAU OF UTILITIES DATE: 4/29/10
ARCHIEF, UTILITY DESIGN DIVISION PSD DATE: 4/29/10

Dewberry
Dewberry & Davis LLC
3108 LORD BALTIMORE DRIVE
SUITE 110
BALTIMORE, MD 21244-2662
410.265.9500
FAX: 410.265.8875



DES:	LAL				
DRN:	RLI				
CHK:	TND				
DATE:	04/28/10				
BY:	NO.	LL	ADD VEHICLE PULLOVER AND FH	6/19/09	
		NO.	REVISIONS	DATE	

VEHICLE PULL OVER
600' SCALE MAP NO. 16
BLOCK NO. 23

FIRE SUPPRESSION LINE
VOLUNTEER FIRE STATION 3
CAPITAL PROJECT W-8284
CONTRACT 44-4529
ELECTION DISTRICT NO. 2
HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN
SHEET 11 OF 11

Plotted by: (name) on: (date) Apr 28, 2010 - 4:30pm
 Title: (name) (sheet) SHEET 3 OF 11
 User: (name) Apr 28, 2010 4:30pm
 Plot Path: (path)