RESTORATION SCHEDULE								
STATION	TO STATION	DISTANCE	MATERIAL					
and the second s	WATER	RMAINS						
10+00	10+03±	10 15	ASPHALT PAVING					
20+18±	20+22.49	10 L.F.±	CURB & GUTTER					
10+03±	20+18±	1,015 L.F.±	SEED & MULCH					
			_					
1		34						

### SURVEY CONTROL

HOWARD CO. B.M. 47IB NAD 83 (1991): N 529,701.572 E 1,361,469.770 NAVD 88: EL. 179.917'

HOWARD CO. B.M. 47IC NAD 83 (1981): N 532,036.869 E 1,362,819.070

### WATER MAIN NOTES

- 1. Except as indicated on the Plans and noted above, all public water mains shall be polyvinylchloride (PVC) pipe meeting the requirements of AWWA C900 DR18, pressure Class 150 and the Howard County Design Manual Volume IV - Standard Specifications and Details for Construction and all subsequent amendments thereto.
- 2. Tops of water mains shall have a minimum of 3'-6" of cover unless otherwise noted.
- 3. Valves adjacent to tees shall be strapped to tees.
- 4. All fittings shall be buttressed or anchored with concrete in accordance with Standard Details unless otherwise provided for on the drawings
- 5. 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.
- 6. The Contractor shall not operate any water main valves on the existing water system.
- 7. Fire Hydrants to be removed shall be returned to: **Howard County Bureau of Utilities** 
  - 8250 Old Montgomery Road Columbia, Md. 21045
- 8. The Contractor shall notify the Howard County Bureau of Utilities at least fifteen (15) days prior to any water main shut downs.
- 9. 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.
- 11. 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.
- 12. 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.
- 13. 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.

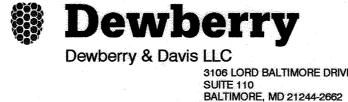
<u> </u>			مستشنيت فيستبيث فأنجيك	
/	APPUR	TENANO	E TABLE	
VALVES	FROM	ТО	DISTANCE	REMARKS
20+21	EX. FH	8" V.	15.5'	
T.S. & V.	EX. FH V.	8" V.	15.0'	10 No. 10
8" x 8"	TEST STA. #1	8" V.	4.0'	20+17 T.S. #1
	DI OWOEE	0" 11		
17+74	BLOWOFF	4" V.	4.5	
4" BLOWOFF V.		4" V.	5.0'	
	EX. SMH 3014	4" V.	7.1	
		e in in standard to the		
T.S. #1	EX. FH	T.S.	14,5	
20+17	EX. FH V.	T.S.	15.0'	
	8" V.	T.S.	4.0'	T.S. & V.
T.S. #2	BLOWOFF 17+74	T.S.	2.5'	
17+72	EX. SMH 3014	T.S.	67.0'	
	BLOWOFF 4" V.	T.S.	5.0'	
				· ·
T.S. #3	EX. SMH 3015	ī.S.	232.0	
14+00	21" END SECTION	T.S.	132.0	E.S. WILL NOT BE
	12+68			REMOVED IN THE FUTURE
T,S. #4	EX. 8" V.	T.S.	17.0'	
10+15	EX. SD MH	T.S.	58.0'	
	CORNER HOUSE	T.S.	59.0'	LOT 92

### 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. 10959 EXPIRATION DATE: MAY 2010 10-20-08

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND





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ENGINETY.	DATE:		CD	1	AS BUILT		6.11.0
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	DRN:	AZW	<b></b>				
ARIAN	DES:	SMS					
11111/	DEC.	CHC					

1. 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.

**GENERAL NOTES** 

- 2. Topographic field surveys were performed on December 2004 by Dewberry & Davis, LLC.
- 3. 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. 47IB and Howard Co. B.M. 47 IC. All vertical controls are based on NAVD '88. Vertical control provided on the drawings is Ho. Co. Monument #37HC, N 556,364.08, E 1,375,513.20,
- 4. All pipe elevations shown are invert elevations unless otherwise noted on the
- 5. 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
- 6. For details not shown on the drawings, and for materials and construction methods, use Howard County Design Manual, Volume IV, Standard Specifcations and Details for Construction (Latest Edition). The Contractor shall have a copy of Volume IV on the job.
- 7. 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.
- 8. Contractor shall notify the following utility companies or agencies at least five (5) working days before starting work shown on these plans : AT&T. **BGE - Contractor Services** 410-850-4620 **BGE** - Emergency 410-685-1400 State Highway Administration . Bureau of Utilities (DPW). 410-313-4900 Verizon.. 1-800-743-0033 / 410-224-9210 Colonial Pipeline Co. 410-795-1390 1-800-257-7777
- 9. 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.
- 10. 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. 11. The Contractor shall notify the Bureau of Highways, Howard County at
- (410) 313-7450 at least five (5) working days before any open cut, boring/ jacking or trenchless installation operation in 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.
- 12. 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.
- 13. 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

# HAMMOND BRANCH WATER MAIN EXTENSION CAPITAL PROJECT W-8270 CONTRACT NO. 44-4259 8

**VICINITY MAP** 

SCALE: 1" = 600'

**TAX MAP NO. 47, GRID 23** 

HOWARD COUNTY

DEPARTMENT OF PUBLIC WORKS

ELLICOTT CITY, MARYLAND 21043

INDEX	OF SHEETS		
SHEET NO.	DESCRIPTION		
1	TITLE SHEET		^ ^a, *.
2	PLAN		
3	PROFILE		
4	SEDIMENT AND ERC	OSION CONTROL PLAN	

SEDIMENT AND EROSION CONTROL DETAILS

SEDIMENT AND EROSION CONTROL NOTES

SEDIMENT AND EROSION CONTROL NOTES & DETAILS

TYPE OF BUILDING:

NUMBER OF PARCELS:

WATER HOUSE CONNECTIONS: N/A

DRAINAGE AREA: LITTLE PATUXENT

ASSEMBLE DE AVING

ITEM	UNIT	ESTIMATE	AS-BUILT	SUPPLIER
8" PVC WATER MAIN	L.F.	622	1008	BRS/JM EAGLE
-8" DIP WATER MAIN	L.F:	400		
8" BLOWOFF	EA.	1		BRS/KUPFERLE
8"x8" TAPPING SLEEVE AND VALVE	EA.	1		BRS/J.C.M.
TEST STATION	EA.	3		BRS/DFW PLASTICS
FIRE HYDRANT	EA.	. I		HD SUPPLY/MUELLER
NAME OF UTILITY CONTRACTOR	R: W.F. WI	LSON & SONS	3	
CHECK BOX				

AS-BUILT DATE

BRS= BELAIR ROAD SUPPLY

AS BUILT

TITLE SHEET

BLOCK NO. 23

600' SCALE MAP NO. 47

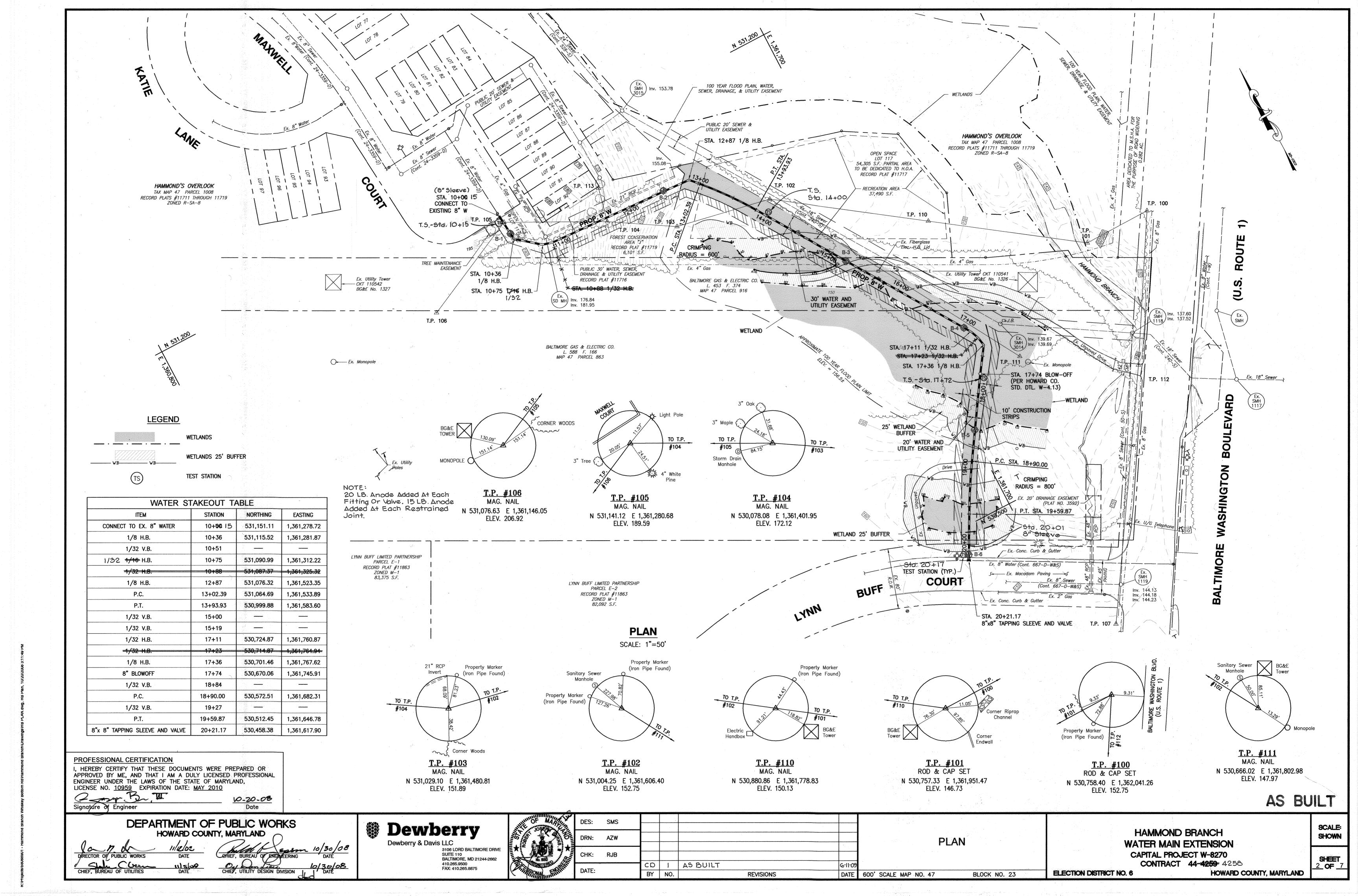
HAMMOND BRANCH WATER MAIN EXTENSION **CAPITAL PROJECT W-8270 CONTRACT 44-4259** 4258

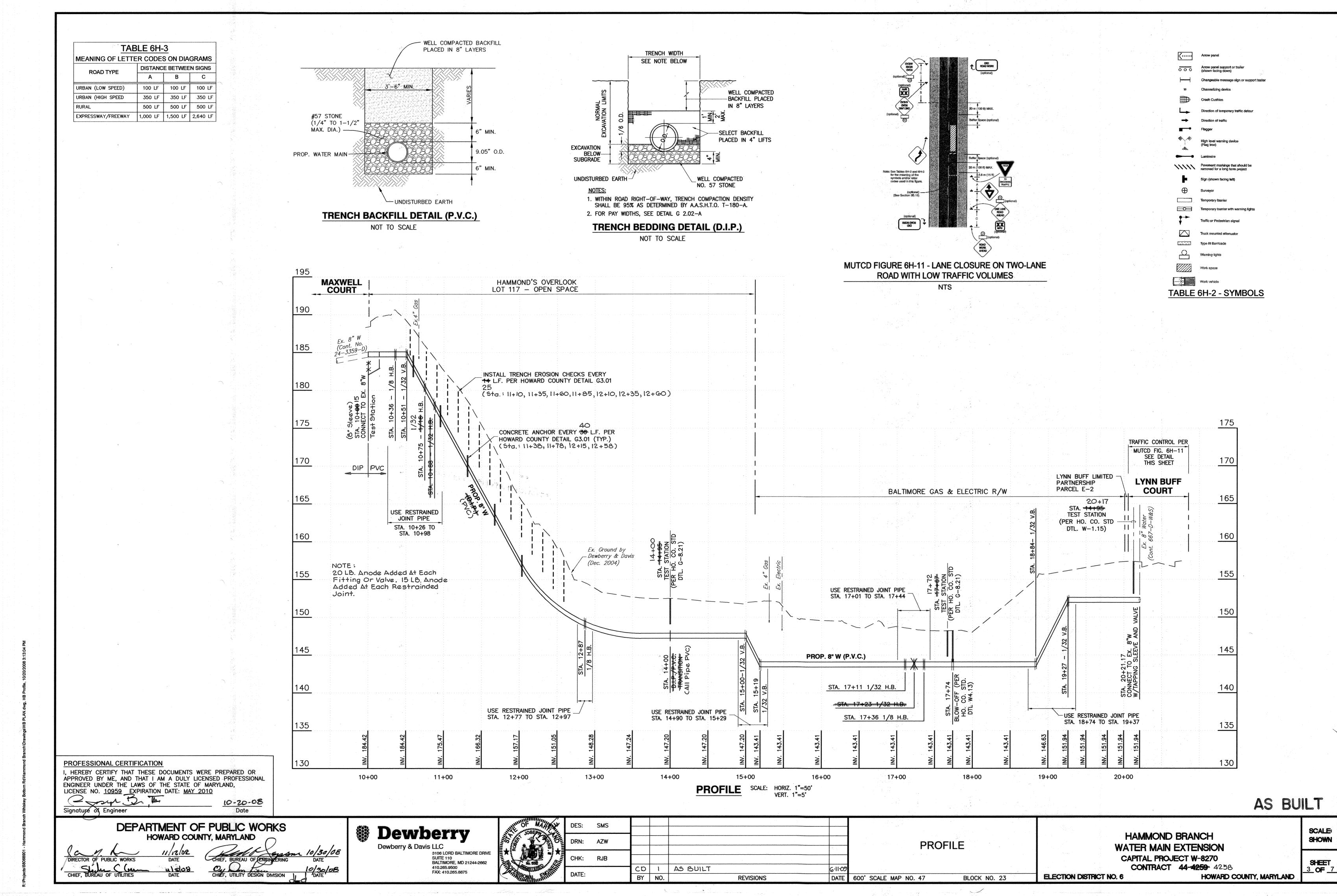
**ELECTION DISTRICT NO. 6** 

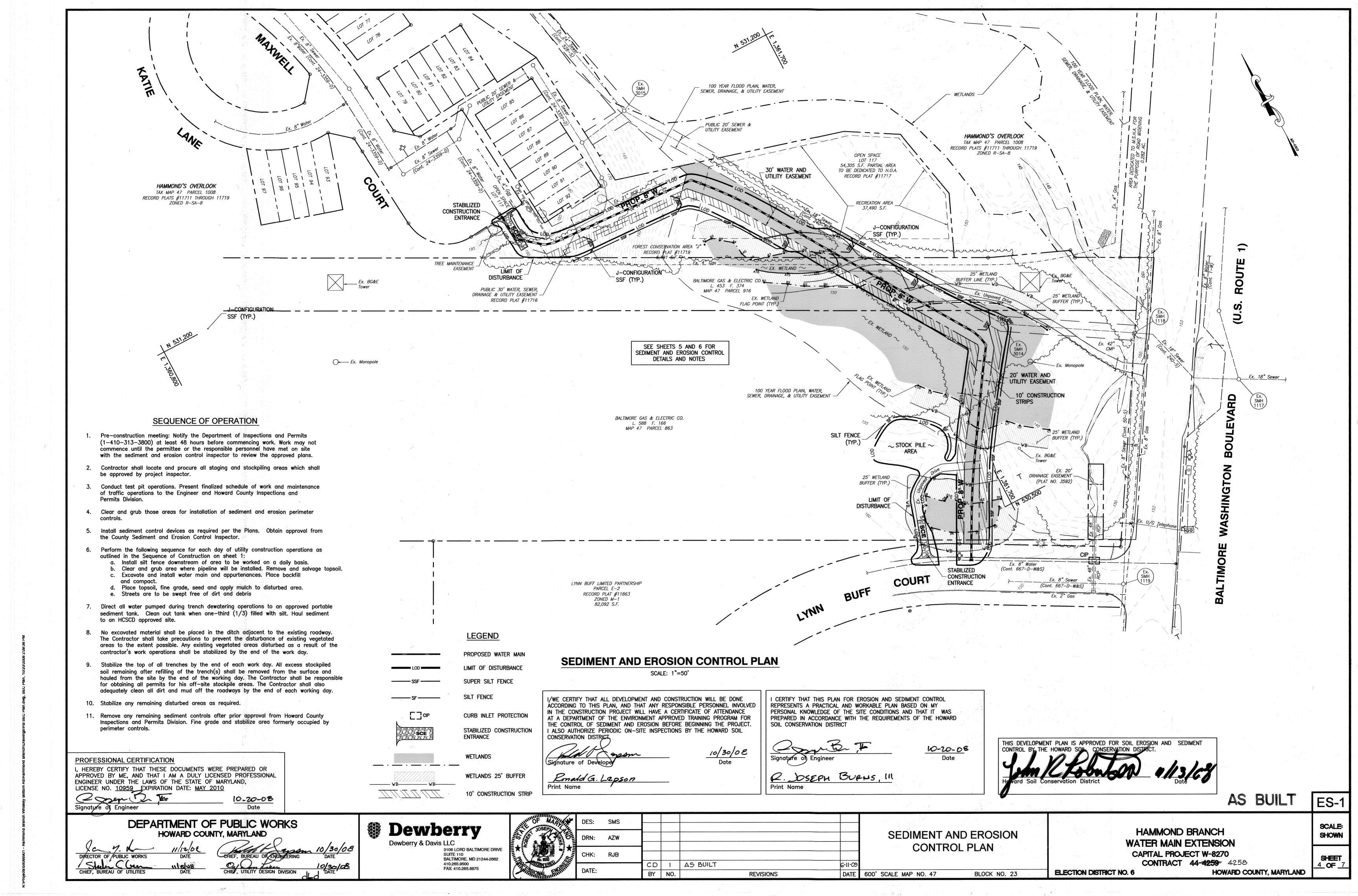
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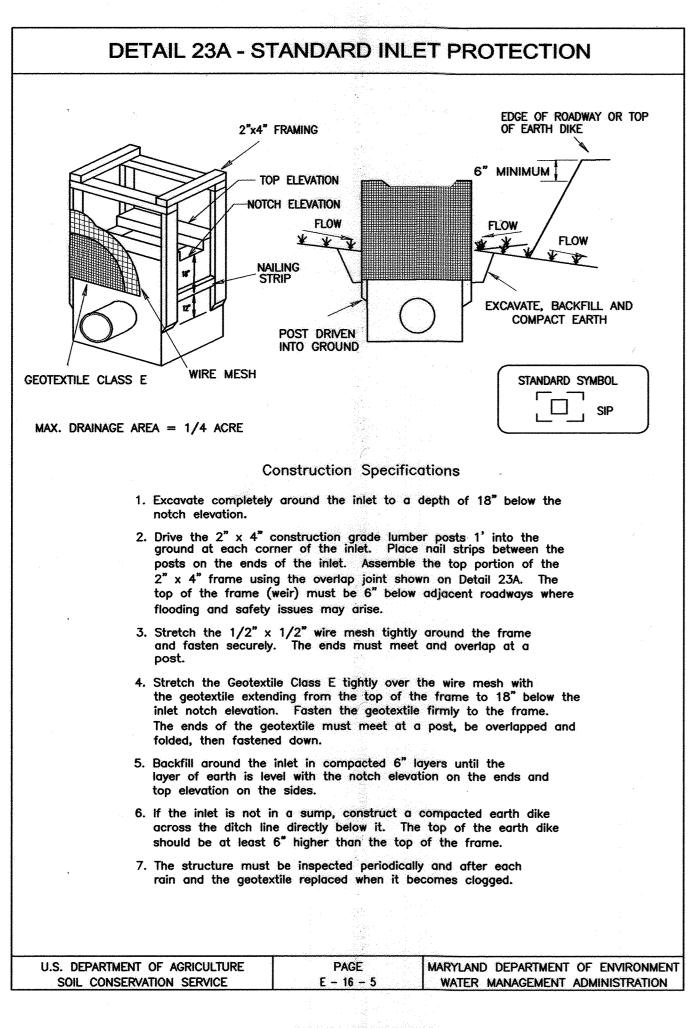
HOWARD COUNTY, MARYLAND

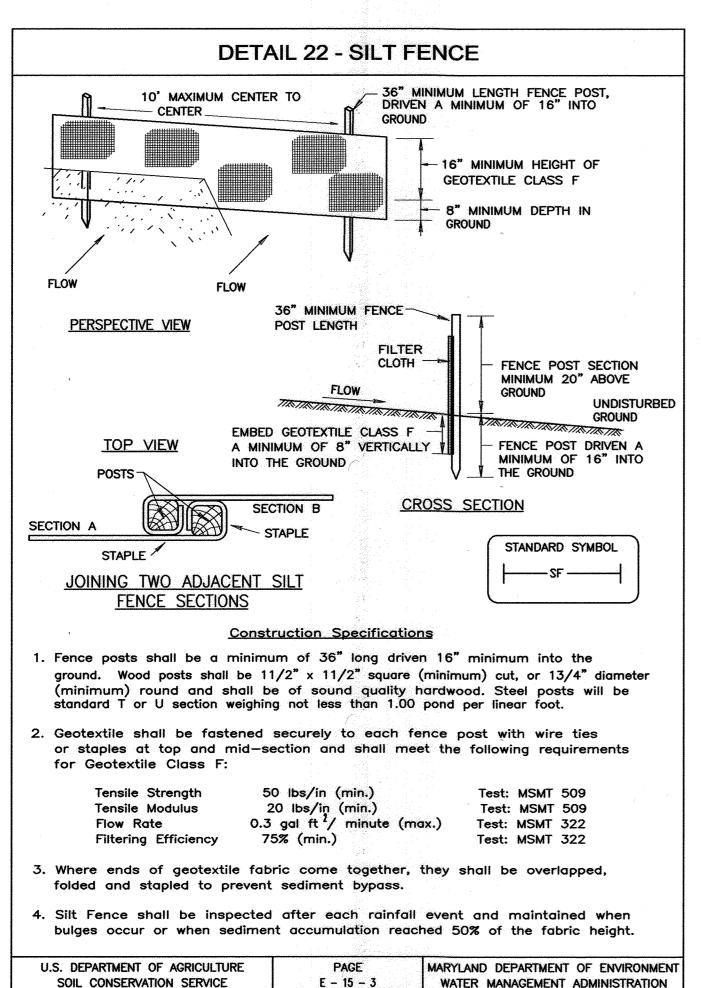
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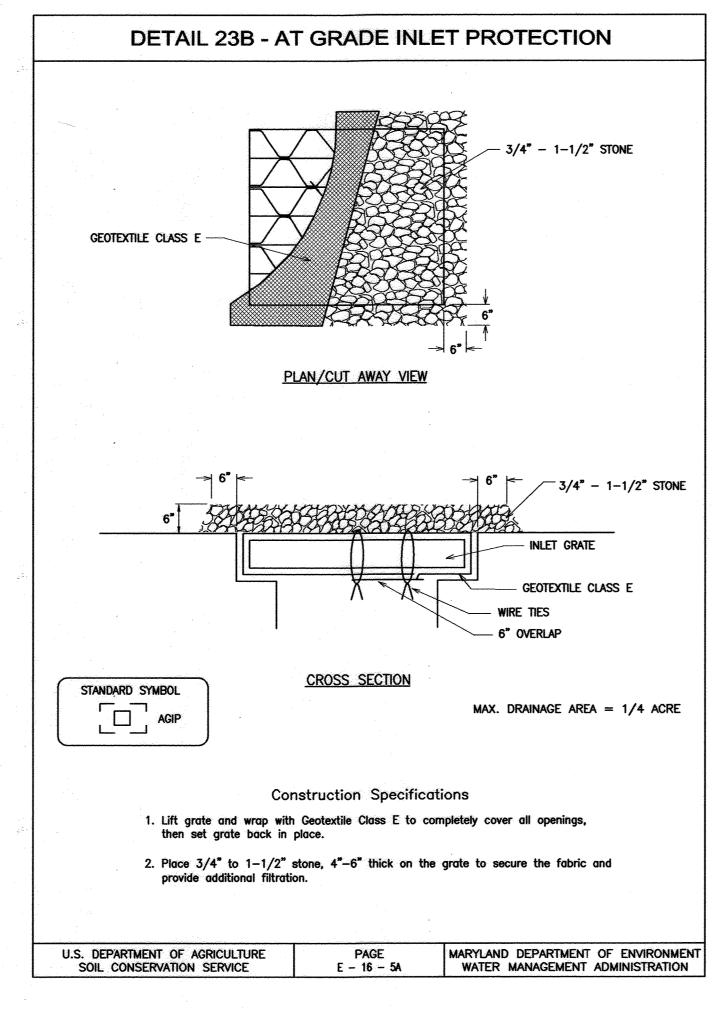


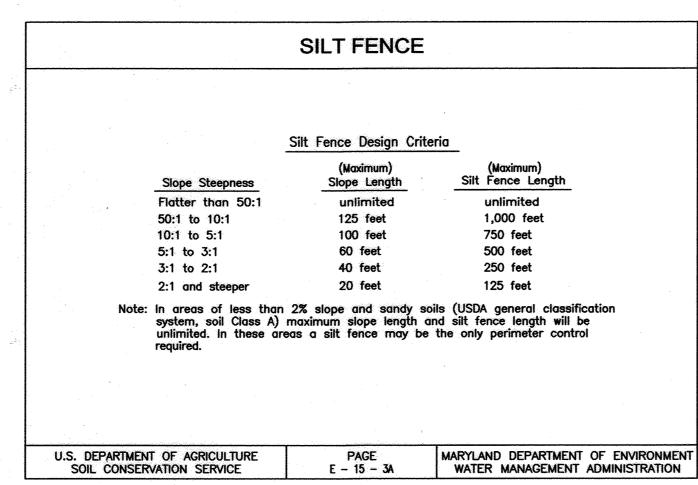


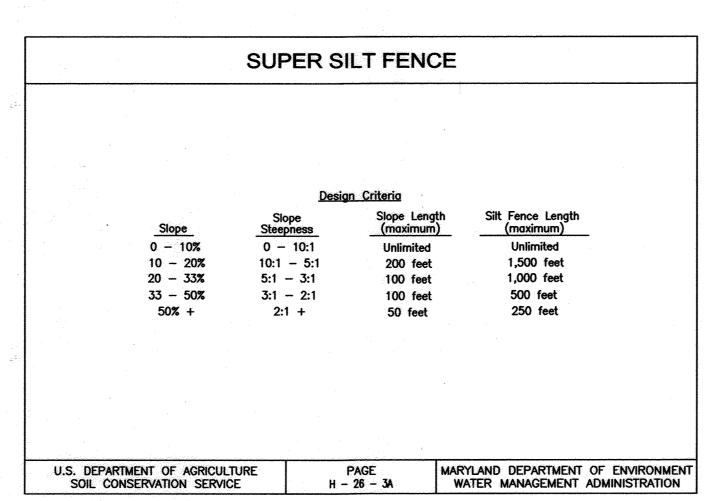


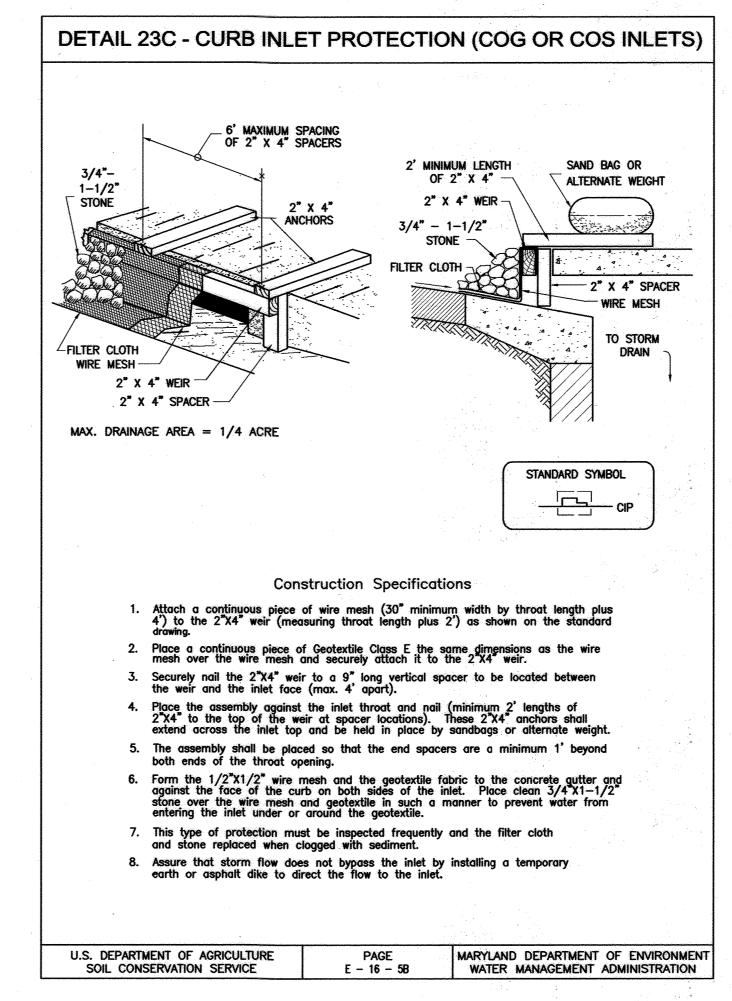


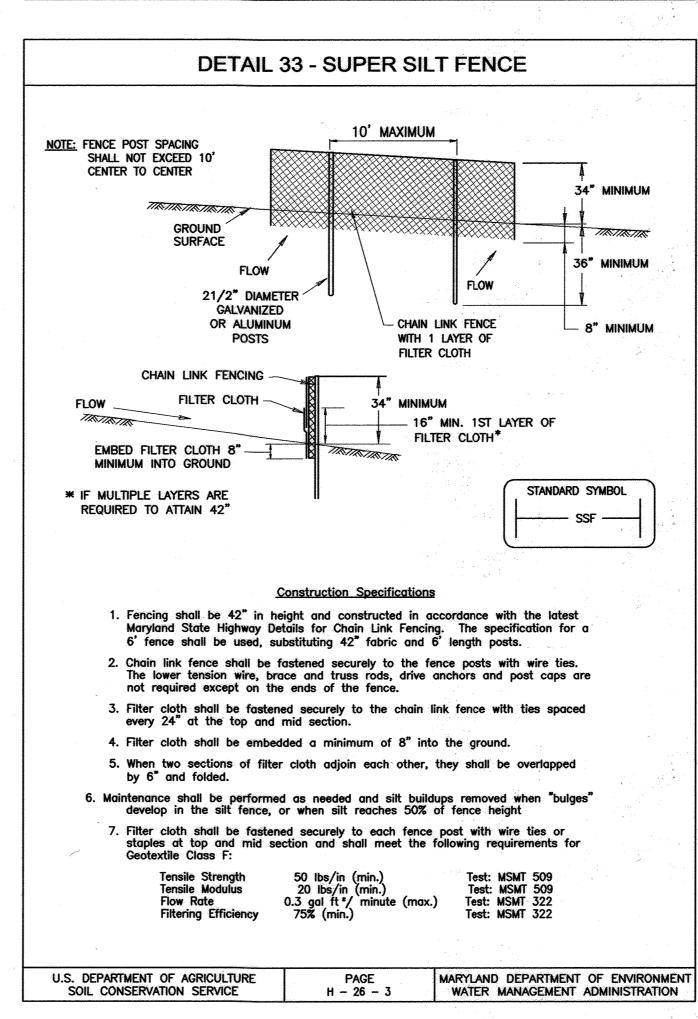


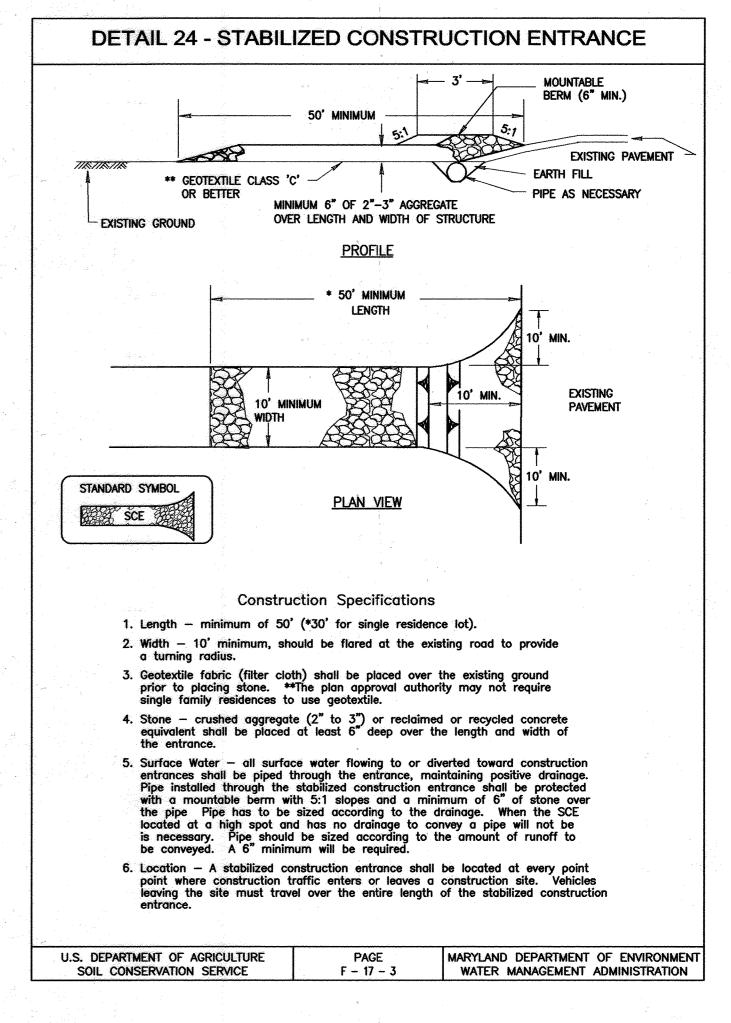


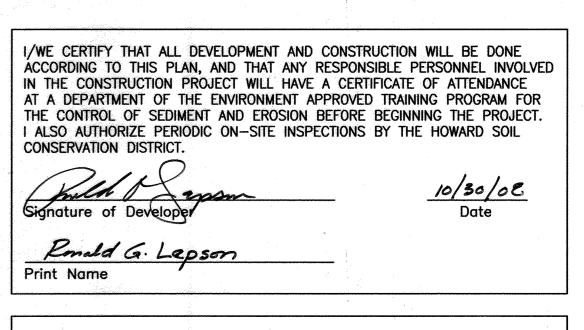




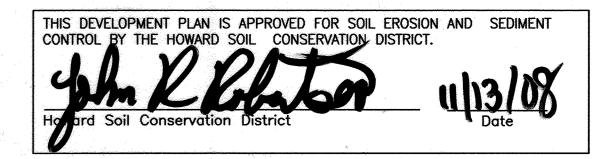








CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT 10-20-08 Q. JOSEAN BURNS, 111



### PROFESSIONAL CERTIFICATION

**ELECTION DISTRICT NO. 6** 

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,

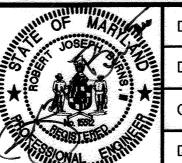
LICENSE NO. 10959 EXPIRATION DATE: MAY 2010

10-20-08 Date

## DEPARTMENT OF PUBLIC WORKS

HOWARD COUNTY, MARYLAND

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•	DATE:		CD BY	NO.	AS BUILT REVISIONS	G·II·09 DATE	600' SCALE MAP NO. 47

SEDIMENT AND EROSION

BLOCK NO. 23

AS BUILT

HAMMOND BRANCH WATER MAIN EXTENSION **CAPITAL PROJECT W-8270 CONTRACT 44-4259** 4258

HOWARD COUNTY, MARYLAND

SHOWN SHEET <u>5\_OF\_7</u>

ES-2

SCALE:

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3106 LORD BALTIMORE DRIVE BALTIMORE, MD 21244-2662

410.265.9500

FAX: 410.265.8875

CONTROL DETAILS

### BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS 1. No excess fill, construction material, or debris are to be stockpiled or stored in the wetlands or buffer. 2. Place materials in a location and manner which does not adversely impact service or subsurface water flow into or out of the nontidal wetland. 3. Do not use the excavated material as backfill if it contains waste metal products, unsightly debris, toxic material or any other deleterious substance. If additional backfill is required, use clean material free of waste metal products. unsightly debris, toxic material or any other deleterious substance.

damage to the nontidal wetlands or buffer. 5. Repair and maintain any serviceable structure or fill so there is no permanent loss of nontidal wetlands in excess nontidal wetlands lost under the original structure

4. Place heavy equipment on mats or suitably operate the equipment to prevent

6. Rectify any nontidal wetlands temporarily impacted by any construction. 7. All stabilization in the wetland and buffer shall be of the following recommended species: Annual Ryegrass (Lolium multiflorum), Millet (Setaria italica), Barley (Hordeum sp.), Oats (Avena sp.), and/or Rye (Secale cereale). These species will allow for the stabilization of the site while also allowing for the voluntary revegetation of natural wetland species. Other non-persistent vegetation may be acceptable, but must be approved by the Division. Kentucky 31 fescue shall not be utilized in the wetland or buffer areas. The area should be seeded and mulched to reduce erosion after construction activities have been completed.

8. After installation has been completed, make post construction grades and elevations of nontidal wetlands the same as the original grades and elevations in temporarily

9. To protect important aquatic speices, in-stream work is prohibited as determined by the classification of the stream as follows: Class I waters in-stream work may not be constructed during the period of March 1 through June 15, inclusive, during any

10. Stormwater runoff from impervious surfaces shall be controlled to prevent the washing of debris into the waterway.

11. Culvert(s) shall be constructed and any riprap placed so as not to obstruct the movement of aquatic spiecies, unless the purpose of the activity is to impound water.

### PERMANENT SEEDING NOTES

Apply to graded or cleared areas not subject to immediate further disturbance where a permanent long-lived vegetative cover is needed.

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

Soil Amendments: In lieu of soil test recommendations, use one of the following schedules: 1. Preferred - Apply 2 tons/acre dolomitic limestone (92 lbs/1000 sq. ft.) and 600 lbs/acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.) before seeding. Harrow or disk into upper three inches of soil. At time of seeding, apply 400 lbs/acre 30-0-0 ureaform fertilizer (9 lbs/1000 sq. ft.)

2. Acceptable - Apply 2 tons/acre dolomitic limestone (92 lbs/1000 sq. ft.) and 1000 lbs/acre 10-10-10 fertilizer (23 lbs/1000 sq. ft.) before seeding. Harrow or disk into upper three inches of soil.

Seeding - For the periods March 1 - April 30, and August 1 - October 15, seed with 60 lbs/acre (1.4 lbs/1000 sq. ft.) of Kentucky 31 Tall Fescue. For the period May 1 - July 31, seed with 60 lbs Kentucky 31 Tall Fescue per acre and 2 lbs/acre (.05 lbs/1000 sq. ft.) of weeping lovegrass. During the period of October 16 - February 28, protect site by: Option 1 - Two tons per acre of well anchored straw mulch and seed as soon as possible in the spring. Option 2 - Use sod. Option 3 - Seed with 60 lbs/acre Kentucky 30 Tall Fescue and mulch with 2 tons/acre well anchored straw.

Mulching - Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000 sq. ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slope 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq. ft.) for anchoring.

Maintenance - Inspect all seeding areas and make needed repairs, replacements and

### TEMPORARY SEEDING NOTES

Apply to graded or cleared areas likely to be re-disturbed where a short-term vegetative

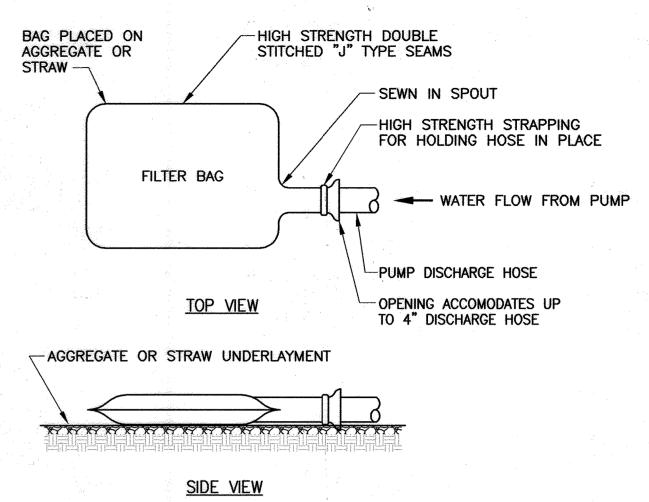
<u>Seedbed preparation:</u> — Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, if not previously loosened.

Soil Amendments: -- Apply 600 lbs/acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.).

Seeding: -- For periods March 1 - April 30 and from August 15 - October 15, seed with 2-1/2 bushel per acre of annual rye (3.2 lbs/1000 sq. ft.). For the period May 1 -August 14, seed with 3 lbs/acre of weeping lovegrass (.07 lbs/1000 sq. ft.). For the period November 16 - February 28, protect site by apply 2 tons/acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

Mulching: -- Apply 1-1/2 to 2 tons/acre (70 to 90 lbs/1000 sq. ft.) of unrotted weed-free, small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gal. per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slope 8 ft. or higher, use 348 gal. per acre (8gal/1000 sq. ft.) for anchoring.

Refer to the 1994 "Maryland Standards and Specifications for Soil Erosion and Sediment Control" for additional rates and methods not covered.



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.

FILTER BAG

NOT TO SCALE

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

10-20-08

Q. JOSEPH BURNS, 111

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT

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. 10959 EXPIRATION DATE: MAY 2010

10.20-08

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND



3106 LORD BALTIMORE DRIVE SUITE 110 BALTIMORE, MD 21244-2662 410.265.9500 FAX: 410.265.8875

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SEDIMENT AND EROSION **CONTROL NOTES & DETAILS** 

BLOCK NO. 23

600' SCALE MAP NO. 47

HAMMOND BRANCH WATER MAIN EXTENSION CAPITAL PROJECT W-8270 **CONTRACT 44-4259** 4258 ELECTION DISTRICT NO. 6

SCALE: SHOWN

HOWARD COUNTY, MARYLAND

AS BUILT

SHEET <u>of \_7</u>

ES-3

### 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 diversions, grade stabilization structures, berms, waterways, or sediment control basins.
- ii. Perform all grading operations at right angles to the slope. Final grading and shaping is not usually necessary for temporary seeding.
- iii. 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 ratios 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
- ii. 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 warrantee of the producer.
- iii. Lime materials shall be ground limestone (hydrated or burnt lime may be substituted) which contains at least 50% total oxides (calcium oxide plus 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.
- iv. Incorporate lime and fertilizer into the top 3-5" of soil by disking or other suitable means

### C. Seedbed Protection

### i. Temporary Seeding

- a. Seedbed 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 roughened 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

- a. Minimum soil conditions required for permanent vegetative establishment:
  - 1. Soil oH 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 materia (>30% silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception is if lovegrass or serecia lespedeza is to be planted, then a sandy soil (<30% silt plus clay) would be acceptable
- 4. Soil shall contain 1.5% minimum organic matter by weight.
- 5. Soil must contain sufficient pore space to permit adequate root
- 6. If these conditions cannot be met by soils on site, adding topsoil is required in accordance with Section 21 Standard and Specification for Topsoil.
- b. 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.
- c. 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 seedbed 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. Seedbed loosening may not be necessary on newly disturbed areas.

- i. All seed must meet the requirements of the Maryland State Seed Law. All seed shall be subject to re-testing by a recognized seed 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 o
- Inoculant The inoculant for treating legume seed in the seed mixtures shall be a pure be used later than the date indicated on the container. Add fresh inoculant as directed on package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75-80° ( can weaken bacteria and make the inoculant less effective.

- Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer)
  - a. If fertilizer is being applied at the time of seeding, the application rates amounts will not exceed the following: nitrogen; maximum of 100 lbs. per acre total of

soluble nitrogen; P205 (phosphorous): 200 lbs/ac; K20 (potassium); 200 lbs/ac

- Lime use only ground agricultural limestone, (Up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by lydroseeding at any one time. Do not use burnt or hydrated lime when
- c. Seed and fertilizer shall be mixed on site and seeding shall be done immediately and without interruption.
- ii. Dry Seeding: This includes use of conventional drop or broadcast spreaders.
- a. 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
- b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.
- iii. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil
  - a. Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed 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)

DIRECTOR OF PUBLIC WORKS

- Straw shall consist of thoroughly threshed wheat, rye or oat straw, reasonably bright n 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.
- ii. Wood Cellulose Fiber Mulch (WCFM) a. WCFM shall consist of specially prepared wood cellulose processed into a uniform
  - 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. d. 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 phyto-toxic
  - 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.

DEPARTMENT OF PUBLIC WORKS

HOWARD COUNTY, MARYLAND

11/12/02

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 tons/acre. Mulch shall be applied to a uniform loose depth of between 1" and 2". 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.
- iii. 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 the mixture shall contain a
- 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:
- i. 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 greas, 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 edges where wind catches mulch, such as in valleys and on crests of banks. The remainder of area should be appear uniform after binder application. Synthetic binders— such as Acrylic DLR (Aaro-Tack). DCA-70. Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used at rates recommended by the manufacturer to anchor mulch.
- iv. 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

### I. Incremental Stabilization - Cut Slopes

- i. 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'.
- ii. 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.
- b. Perform phase 1 excavation, dress and stabilize.
- c. Perform phase 2 excavation, dress, and stabilize. Overseed phase I areas as necessary. d. Perform final phase excavation, dress, and stabilize. Overseed previously seeded areas
- Note: Once excavation has begun, the operation should be continuous from grubbing through completion of grading and placement of topsoil (if required) and permanen seed and mulch. Any interruptions in the operation or completing the operation out of the season will necessitate the application of temporary stabilization.

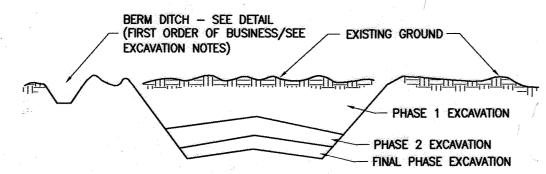


Figure 4 Incremental Stabilization - Cut

- J. Incremental Stabilization of Embankments Fill Slopes
- i. Embankments shall be constructed in lifts as prescribed on the plans.
- ii. Slopes shall be stabilized immediately when the vertical height of the multiple lifts reaches 15', or when the grading operation cease as prescribed in the plans.
- iii. 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.
- iv. Construction sequence: Refer to Figure 5 (below):
  - a. Excavate and stabilize all temporary swales, side ditches, or berms that will be used to divert runoff ground 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.
- c. Place phase 2 embankment, dress and stabilize.
- d. Place final phase embankment, dress and stabilize. Overseed previously seeded
- 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.

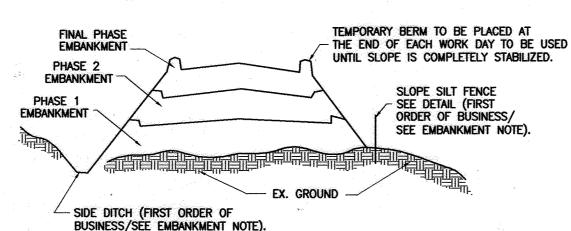


Figure 5 Incremental Stabilization - Embankment Fill Comply with MD 378 Specifications.

### 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

- i. 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.
- ii. 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.

### TEMPORARY SEEDING SUMMARY

		IIXTURE (HARDIN ABLE 26	FERTILIZER RATE	LIME RATE		
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES SEEDI		(10–10–10)	LIME RAIE
	ANNUAL RYEGRASS	50 LB/AC	3/1 - 4/30 8/15 - 11/1	1/4"-1/2"	600 LB/AC	2 TONS/AC
	MILLET	50 LB/AC	5/1 - 8/14	1/2"	(15 LB/ /1000 SF)	(100 LB /1000 SF)

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 maintainence.

### A. Seed Mixtures - Permanent Seeding

- i. 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 To 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 athetic treatment may be found in USDA-SCS technical Field Office Guide, Section 342 - Critical Area Planting. For special lawn maintenance areas, see Section IV Sod and V Turfgrass.
- ii. 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.
- iii. For areas receiving low maintenance, apply ureaform fertilizer (46-0-0) at 3 1/2 lbs/1000 sq. ft. (150 lbs/ac), in addition to the above soil amendments shown in the table below, to be performed at the time of seeding.

### PERMANENT SEEDING SUMMARY

	SEED MI FROM TA	XTURE (HARD ABLE 25	DINESS ZONE 6b	FERTILIZER RATE (10-20-20)			LIME	
NO.	SPECIES	APPLICATION RATE(LB/AC)	SEEDING DATES	SEEDING DEPTHS	N	P205	K20	RATE
3	TALL FESCUE PERENNIAL RYE KY.BLUEGRASS	125 LB/AC 15 LB/AC 10 LB/AC	3/1 - 5/15 8/15 - 10/15	1/4"-1/2"				
7	TALL FESCUE WEEPING LOVEGRASS SERECIA LESPEDEZA	110 LB/AC 3 LB/AC 20 LB/AC	3/1 - 10/15	1/4"-1/2"	90 LB/AC (15 LB/ 1000 SF)	175 LB/AC (4 LB/ 1000 SF)	175 LB/AC (4 LB/ 1000 SF)	2 TONS/AC (100 LB/ 1000 SF)

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

labels shall be made available to the job foreman and inspector.

- i. Class of turfgrass sod shall be Maryland or Virginia State Certified or Approved. Sod
- ii. Sod shall be machine cut atuuniform 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 pads and torn or uneven ends will
- iii. 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
- iv. Sod shall not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival
- v. 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

- i. During periods of excessively high temperature or in areas having dry subsoil, the subsoil shall be lightly irrigated immediately prior to laying the sod.
- ii. 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 staggers 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.
- iii. Wherever possible, sod shall be laid with the long edges parallel to the contour and with staggering 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
- iv. Sod shall be watered immediately following rolling or tamping until the underside of the new sod pad 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.

- i. 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.
- iii. 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.

Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will 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 raked 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: Choose 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

- i. 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.
- ii. 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 Ryegrass Cultivars/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
- iii. 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 and 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)

If soil moisture is deficient, supply new seedings 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 seedings are made late in the planting season, in abnormally dry or hot seasons, or on

D. Repairs and Maintenance

Total Cut

Total Fill

Inspect all seeded areas for failures and make necessary repairs, replacements, and reseedings

- i. Once the vegetation is established, the site shall have 95% ground cover to be considered
- ii. If the stand provides less than 40% ground coverage, reestablish following original lime
- fertilizer, seedbed preparation and seeding recommendations. iii. 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 turfgrass areas, refer to the University of Maryland publication "Lawn Care n Maryland" Bulletin No. 171.

### SEDIMENT CONTROL GENERAL NOTES

- 1. 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.
- 2. 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.
- 3. 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 greas on the project site.
- 4. 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.
- 5. 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.

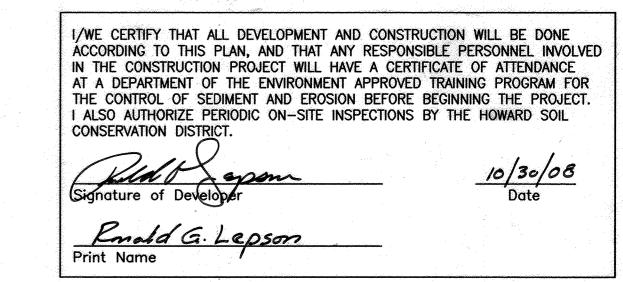
6.	Site Analysis		Site is	defined	as areas	involvir
				improve		

1.20 Acres 1.20 Acres Total Area of Site Area Disturbed Area to be paved Area to be Vegetatively Stabilized

\_8\_ Sq. Yds 672 Sq. Yds. N/A Cu. Yds. N/A Cu. Yds.

Offsite waste/borrow area location To be determined by contractor.

- 7. Any sediment control practices which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
- 8. Additional sediment control must be provided, if deemed necessary by the Howard County Sediment Control Inspector. 9. 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.
- 10. 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.
- 11. Spoil from trench excavation shall be place on the uphill side of the excavation



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

Q. JOSEPH BURHS, 111

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT

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. 10959 EXPIRATION DATE: MAY 2010 NBI 10-20-08 C Doney Signature of Engineer

HAMMOND BRANCH WATER MAIN EXTENSION **CAPITAL PROJECT W-8270** CONTRACT 44-4259 4258

BALTIMORE, MD 21244-2662 Stelle Chen 410.265.9500 AS BUILT FAX: 410.265.8875 DATE: BY NO.

Dewberry

**Dewberry & Davis LLC** 

3106 LORD BALTIMORE DRIVE

DES: DRN: CHK: RJB REVISIONS

600' SCALE MAP NO. 47

SEDIMENT AND EROSION

**CONTROL NOTES** 

BLOCK NO. 23

AS BUILT

**ELECTION DISTRICT NO. 6** 

HOWARD COUNTY, MARYLAND

SHEET \_OF \_7

ES-4

SCALE

SHOWN

10-20-08