GENERAL NOTES Existing Zoning: R-20 per the 02/02/04 Comprehensive Zoning Plan per the Comp Lite Zoning Regulation amendments effective 7/28/06. Deed Reference: 302/284 \$ 302/288/4137/261 Plat Reference: N/A Gross Area of Tract: 7.782 Ac. Area of 100 Year Floodplain: O Ac. Area of Steep Slopes: 0.417 Ac. (ON-SITE) Net Area of Tract: 7.365 Ac. Number of Proposed Lots/Parcels: 12 + 4 Open Space Lots Append of Proposed Lots/Parcels: a) Buildable Lots: 3.376 Ac. b) Open Space Lots: 3.471 Ac. (Total) 3.397 Ac. (Credited) c) Minimum open space required is 3.113 Ac. (40%) d) Area of proposed public roads: 0.935 Ac. 9. Land dedicated to Howard County, Maryland, for purposes of a public road 0.935 acres. 10. This project is in conformance with the latest Howard County Standards unless waivers have been approved. 11. The existing topography shown hereon was field run by DDC, Inc in November, 2007. 12. Landscaping for this development and landscaping surety is provided as part of the Developers Agreement, at final plan stage, in accordance with the latest edition of the Howard County Landscape Manual. Landscape Manual. The coordinates shown hereon are based upon the Howard County Geodetic Control, which is based upon the Maryland State Coordinate System. Howard County Monument No 46FB (1/2" diameter steel rebar with ridges) and DDC Point No. 99 were used for this project This property is within the Metropolitan District. Stormwater management for this development will be provided by the following means: Recharge volume (REV) will be via rooftop impervious disconnection (some by way of rain gardens), non-rooftop impervious disconnection and sheet flow to buffer credits, as well as a 6" deep stone recharge trench in sand filter #1. The Water Quality (WQV) will be provided through 2 sand filters, the aforementioned credits and the natural area conservation credit. Channel protection volume (CPV) will not be required because the proposed condition 1-year storm is less than 2 cfs at each design point. Overbank flood protection volume is not required. Extreme flood protection volume will be addressed by proving that the 100-year storm will adequately convey through the three existing pipes that pass under the noise wall. The sand filter facilities are to be privately owned and maintained by the HOA. If the building footprints on the lots utilizing rain gardens (lots 2-4, 11, 12 \$ 14) exceeds 2,000 sf., additional stormwater management measures will be required. footprints on the lots utilizing rain gardens (lots 2-4, 11, 12 \$ 14) exceeds 2,000 sf., additions stormwater management measures will be required. 5. Existing utilities shown hereon are based on field surveys and record drawings. 7. There is no floodplain onsite, there are steep slopes, streams and buffers onsite. 3. Non-Tidal wetlands shown hereon are based on a field investigation prepared by McCarthy \$ Associated, Inc. dated May, 2005. 3. Traffic study was provided under S-06-004. 9. The geotechnical study for this project was prepared by Hillis-Carnes dated November, 2007. 1. Project Background Information: Subdivision Name: MD & VA MILK PRODUCERS, SOUTH Tax Map/Block/Parcel: 46 & 47 / 12 & 1 / 985 & P/O 2 Zoning: R-20 Election District: 6th Total (Gross) Tract Area: 7.782 ac. Number of Proposed Lots/Parcels: 12 + 4 Open Space Lots Applicable Department of Planning & Zoning File No's.: S-06-004, P-08-007 Preliminary Plan approval date (P-08-007): 9/8/08 22. There are no existing dwellings or structures on the site. 23. The proposed road shall be public. 24. BRL denotes the Building Restriction Line. 25. Sediment and erosion control measures are provided on the final plan in accordance with the 1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control. 26. Street trees are provided on the access place in accordance with Section 16.124 of the Howard County Subdivision Regulations. 27. Onsite sidewalks are provided in accordance with Section 16.134 of the Howard County 27. Onsite sidewalks are provided in accordance with Section 16.134 of the Howard County Subdivision Regulations. 28. There are no historic structures or cemeteries located on the subject property. 29. No grading, removal of vegetative cover or trees, paving and new structures shall be permitted within the wetlands, stream or their required buffers, flood plain and forest conservation easement unless otherwise specified approved by the Department of Planning and Zoning. 30. All construction shall be in accordance with the latest standards and specifications of Howard County plus MSHA standards and specifications. Contact the District 7 Utility Section 48 hours prior to any work performed at 301-624-8115. 31. The contractor shall notify the Department of Public Works/Bureau of Engineering/Construction Inspection Division at (410) 313-1880 at least (5) working days prior to the start of work. 32. The contractor shall notify "Miss Utility" at 1-800-257-7777 at least 48 hours prior to any excavation work being done. excavation work being done. 33. Traffic control devices, markings and signings shall be in accordance with the latest edition of the Manual of Uniform Traffic Control Devices (MUTCD). 34. All sign posts used for traffic control signs in the County right-of-way shall be mounted on a 2st galvanized steel, perforated, square tube post (14 gauge) inserted into a 2-1/2st galvanized steel, perforated, square tube sleeve (12 gauge) 3st long. A galvanized steel pole cap shall be steel, perforated, square tube sleeve (12 gauge) 3' long. A galvanized steel pole cap shall mounted on top of each post. 35. Street light placement and the type of fixtures and poles shall be in accordance with the Howard County Design Manual, Volume III (2006), Section 5.5.A. A minimum spacing of 20-feet shall be maintained between any street light and any tree. 36. Water is public. Contract #24-4570-D. 37. Sewer is public. Contract #24-4570-D. 38. Provide sidewalk ramps at all intersections with truncated dome pad per current ADA 39. This plan has been prepared in accordance with the provisions of Section 16.124 of the Ho. Co. Code. Financial surety for the required landscaping in the amount of \$21,450.00 must be posted as part of the Developer's Agreement (47 shade trees, 49 evergreen trees). 40. A total of 1.761± acres of forest retention and 0.082± acres of reforestation are proposed under this plan. As such, the required surety amount for the retention acreage is \$15,342.00± under this plan. As such, the required surety amount for the retention acreage is \$15,342.00± (\$0.20/s.F.), and the approximate, required surety amount for the on-site reforestation is \$1,786.00± (\$0.50/s.F.). The total amount of required forest conservation act surety is \$17,128.00. No surety is required for forestation requirements to be fulfilled through the purchase of 1.218 acres of credit in the Maple Ridge forest conservation built (\$5\$) (\$1.011) 1. Reservation of Public Utility and Forest tonestation reservation. Developer reserves unto itself, its successors and assigns, all easements gives on this plan for water, sewer, storm drainage, other public utilities and forest conservation (designated as "Forest Conservation Area"), located in, on, over and through lots 1 through 15, any conveyances of the aforesaid lots/parcels shall be subject to the easements herein reserved, whether or not expressly stated in the deed(s) conveying said lot(s)/parcels. Developer shall execute and deliver deeds for the easements herein reserved to Howard County with a metes and bounds description of the forest conservation area. Upon completion of the public utilities and their acceptance by Howard County, and in the case of the forest conservation and bounds description of the forest conservation area. Upon completion of the public utilities and their acceptance by Howard County, and in the case of the forest conservation easement(s), upon completion of the developer's obligations under the forest conservation installation and maintenance agreement executed by the developer and the County, and the release of developer's surety posted with said agreement. The County shall accept the easements and record the deed(s) of easement in the Land Records of Howard County. 42. The structural design for the headwalls on Milkshake Drive was performed by Hillis-Carnes dated March 2009. 43. Per e-mail documentation from Ron Lepson dated May 11, 2009, the County will accept a public road crossing the BGE property without a fee simple right-of-way.

MD & VA MILK PRODUCERS SOUTH

TAX MAP 46, GRID 12, PARCEL 985 & TAX MAP 47, GRID 1, p/o PARCEL 2 6TH ELECTION DISTRICT HOWARD COUNTY, MD

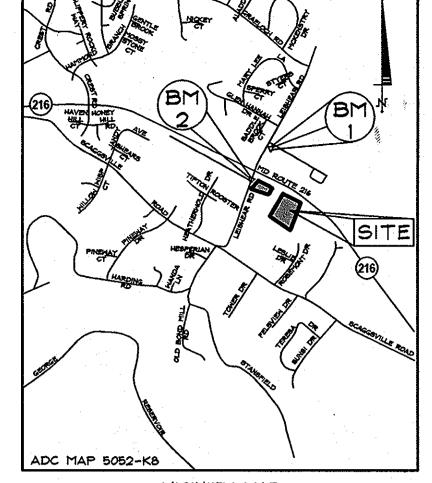
BENCHMARK

DESCRIPTION

BENCHMARK #1 N. 537149.8119 1347468,9693 46FB (CONCRETE MONUMENT)

<u>BENCHMARK #2</u> N. 536597.4034 1347214.5476 DDC POINT #99 (1/2" STEEL REBAR)

332.04



		DRAWING LIST	
	SHEET #	DESCRIPTION	_
	. 1	COVER SHEET	_
	2	ROAD PLAN & PROFILE	_
	3	TRAFFIC CONTROL & STRIPING PLAN	
	4	GRADING, SEDIMENT & EROSION CONTROL PLAN	_
	5	GRADING, SEDIMENT & EROSION CONTROL PLAN- INTERIM COND.	
	6	STORM DRAIN PROFILES	_
	7	STORM DRAIN DRAINAGE AREA AND SOILS MAP	_
	8	SEDIMENT AND EROSION CONTROL WATERWAY CROSSING PLAN, DETAILS	_
	9	SEDIMENT & EROSION CONTROL NOTES	
	10	SEDIMENT & EROSION CONTROL DETAILS	_
	11	STORMWATER MANAGEMENT NOTES & DETAILS	-
	12	STORMWATER MANAGEMENT NOTES & DETAILS	
	13	STORMMATER MANAGEMENT SOIL BORING LOGS	
	14	FOREST CONSERVATION PLAN	
	15	FOREST CONSERVATION PLAN	
	16	LANDSCAPING AND STREET TREE PLAN	Ç
,	17	LANDSCAPE NOTES, DETAILS & SWM/WATER QUALITY PLANTING	
	18	SITE PLAN, CULVERT AND HEADWALL PLAN	
	19	HEADWALL ELEVATIONS AND FOOTING PLAN	
	20	UPSTREAM HEADWALL PLAN AND ELEVATION	
	21	DOWNSTREAM HEADWALL PLAN AND ELEVATION	
	22	HEADWALL TYPICAL SECTION AND CONSTRUCTION DETAIL	
	23	DOWNSTREAM HEADWALL BEAM REINFORCEMENT DETAIL	
	24	UPSTREAM HEADWALL BEAM REINFORCEMENT DETAIL	
	25	SOIL BORING LOGS	
			_

DATA SOURCES:

192 East Main Street

410-931-7897

SITE ADDRESS:

Westminster, MD 21157

http://www.demariodesign.us

OWNER/DEVELOPER:

LEISHEAR RD @ MD RTE. 216 LAUREL, MD 20723

MD & VA MILK PRODUCERS ASSN. INC.

C/O THOMAS BARBUTI WHITEFORD, TAYLOR & PRESTON LLP.

7 ST. PAUL STREET BALTIMORE, MD 21202

BOUNDARY AND TOPO SHOWN HEREON ARE BASED ON A FIELD RUN SURVEY PREPARED BY DEMARIO DESIGN CONSULTANTS, INC., DATED NOVEMBER 2007. WETLANDS SHOWN PER S-06-004, DERIVED FROM A REPORT PREPARED BY MCCARTHY & ASSOCIATES DATED MAY 2005.

DESIGN CONSULTANTS

ENGINEERS, PLANNERS, SURVEYORS, LANDSCAPE ARCHITECTS

MD & VA MILK PRODUCERS SOUTH

Phone: (410) 386-0560

eMail: ddc@demariodesign.us

Fax: (410) 386-0564

<u>Site Analysis Data Chart</u>

 General Site Data
 a. Present Zoning: R-20
 b. Applicable DPZ File References: S-06-004, P-08-007 Proposed Use of Site or Structure(S): 12 SFD RESIDENTIAL Proposed Water and Sewer Systems: Public

Area Tabulation a. Total Area of Site 7.782 Ac. 1. Parcel 895: 1.598 Ac. ± 2. Parcel 2: 6.184 Ac. ±

b. Approximate Area of 100 Year Floodplain: 0 Ac. c. Approximate Area of Steep Slopes (25% or Greater): 0.417 Ac. d. Net Area of Site 7.365 Ac.

Unit/Lot Tabulation
a. Total Number of Residential Units/Lots Allowed for Project by Right:

e. Area of Proposed Building Lots: 3.376 Ac f. Area of Proposed Open Space Lots: 3.471 Ac. g. Area of Bulk Parcels: O Ac. n. Area of Proposed Public Roads: 0.935 Ac.

2 Dwelling Units Per Acre (7.329 x 2 = 14 Dwelling Units) o. Total Number of Residential units/Lots Proposed on this Submission 1. Parcel 985 = 1 Unit 2. Parcel P/O 2 = 11 Units

c. Density of Project Per Gross Acre: 1.54 units/acre d. Total number of Open Space lots proposed: 4
e. Total Number of Non - Buildable Bulk Parcels Proposed: 0 f. Total Number of Lots/ Parcels Proposed: 12

4. Open Space Tabulation a. Open Space Required - 40%: (7.782 x 40% = 3.113 Ac.) b. Open Space Provided - 44%: 3.397 Ac. (Credited) c. Recreation Open Space Required: 2,400 s.f. (12 Lots x 200 s.f.)
d. Recreation Open Space Provided: 2,400 s.f. (Open Space Lot 15)

COVER SHEET

3/22/10 DATE Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed profession engineer under the laws of the State of Maryland, License No. 25420 , Expiration Date: 7-20-10. MARK R. THAYER P.E. 25420

DWG. SCALE: AS SHOWN

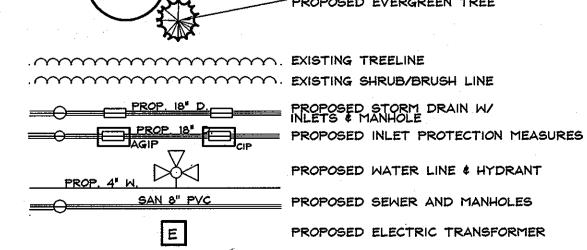
6TH ELECTION DISTRICT HOWARD COUNTY REVISIONS DESCRIPTION OF CHANGES DRN. REV. DATE DES. BY: JCO CO. FILE # F-09-061 TAX ACC. # 06-414435 DRN. BY: SDS TAX MAP: 46 & 47 CHK. BY: JCO BLOCK / GRID: 12 & 1 DATE: 3/22/10 DDC JOB# 07106.3 PARCEL# 985 & P/O 2 SHEET NUMBER: ZONE / USE: R-20

VEHICULAR INGRESS AND EGRESS IS RESTRICTED VEHICULAR INGRESS AND EGRESS IS RESTRICTED 12,708 S.F. 12,482 S.F 12,003 S.F. OPEN SPACE 12,000 S.F. 12,000 S.F. PLATS 5971, 5972, 5973, 6779, 7022 PARCEL 38 SUSQUEMANNA RECREATIONAL ZONED R-20 TRANSMISSION OPEN SPACE COMPANY OF DAMOS AND NICK W. 2,400 S.F. PARCEL 82 DAMOS NON-CREDITED 2244/737 OPEN SPACE PARCEL 24 ZONED R-20 PARCEL 24 ZONED R-20 5593/356 3,243 S.F. PARCEL 23 ZONED R--20 12,000 S.F. 31'± 12,000 S.F LOT 20 PARCEL PARCEL LOT 40 PARCEL. James L Ellinger DENNIS I SWEENEY 228/117 DESC. IN AND DARLA L SWEENEY EUGENE W. RILEY AND 152/142 , 6426/384 [°] PARCEL 33 FRANCES L. RILEY ALMA J. PARCEL 34. ZONED R-20 SANDY JONED R-20 JAURENCE 2002/232 p/o PARCEL 277 746/626 PARCEL 38 PARCEL ZONED R-20 PARCEL 169 ZONED R-20 PARCEL 35 LOCATION MAP SCALE: 1"=100"

DRAWING LEGEND

EXISTING MINOR CONTOUR (2' INTERVAL) EXISTING MAJOR CONTOUR (10' INTERVAL) ADJACENT PROPERTY LINE EXISTING PROPERTY BOUNDARY EX. ROAD / EDGE OF PAVING · --- EX. SEWER LINE & MANHOLES, CLEAN-OUTS EX. OVERHEAD ELECTRIC & UTILITY POLES PROPOSED MINOR CONTOUR (2' INTERVAL) PROPOSED MAJOR CONTOUR (10' INTERVAL) PROP. STANDARD CURB & GUTTER PROP. REVERSE CURB & GUTTER PROP. MOUNTABLE CURB & GUTTER/ PROP. REVERSE/MOUNTABLE CURB & GUTTER PROPOSED PRIVATE ROAD/DRIVE CENTERLINE PROPOSED BUILDING EXPANSION PROPOSED SPOT ELEVATION & FLOW ARROW

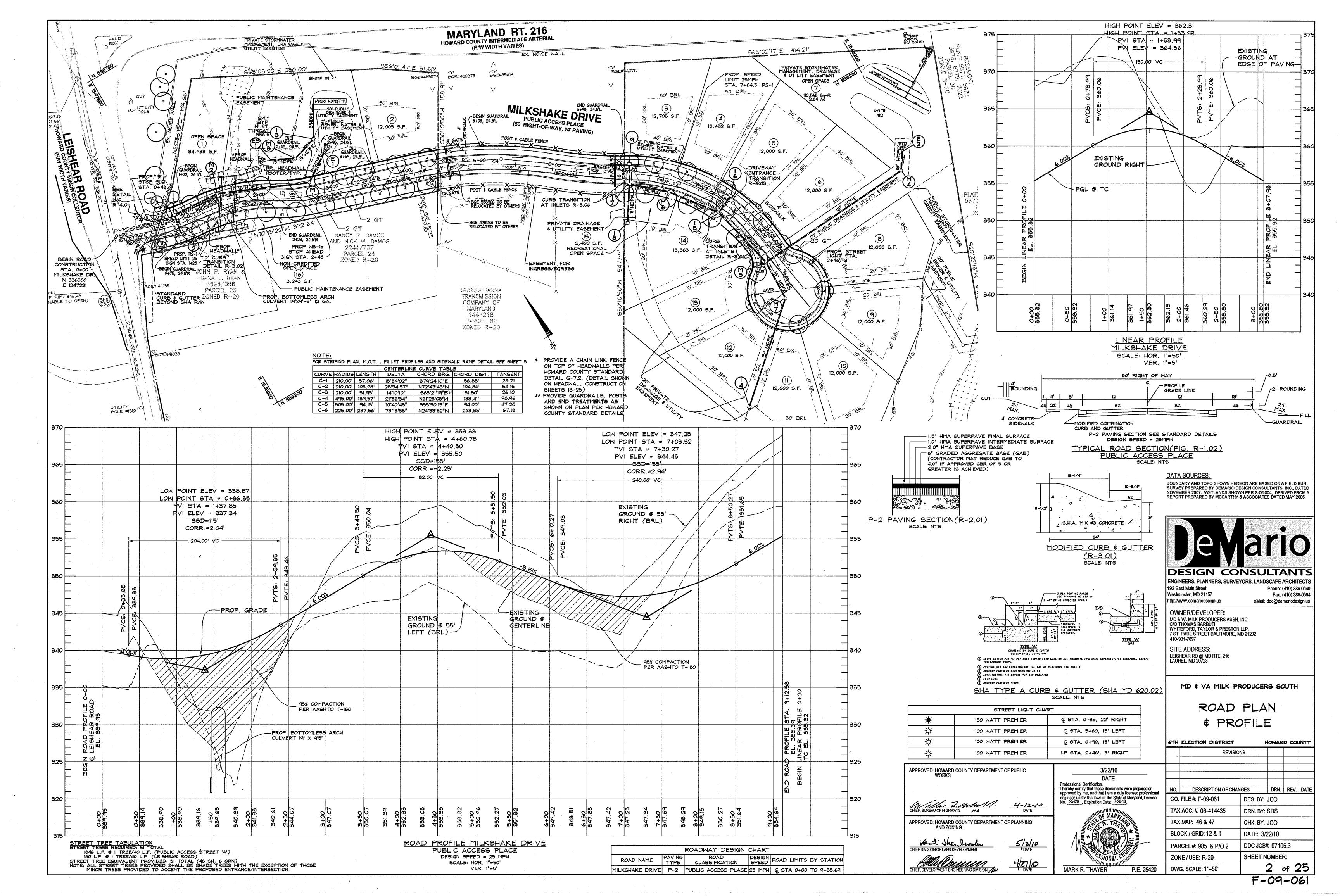
EXISTING TREES

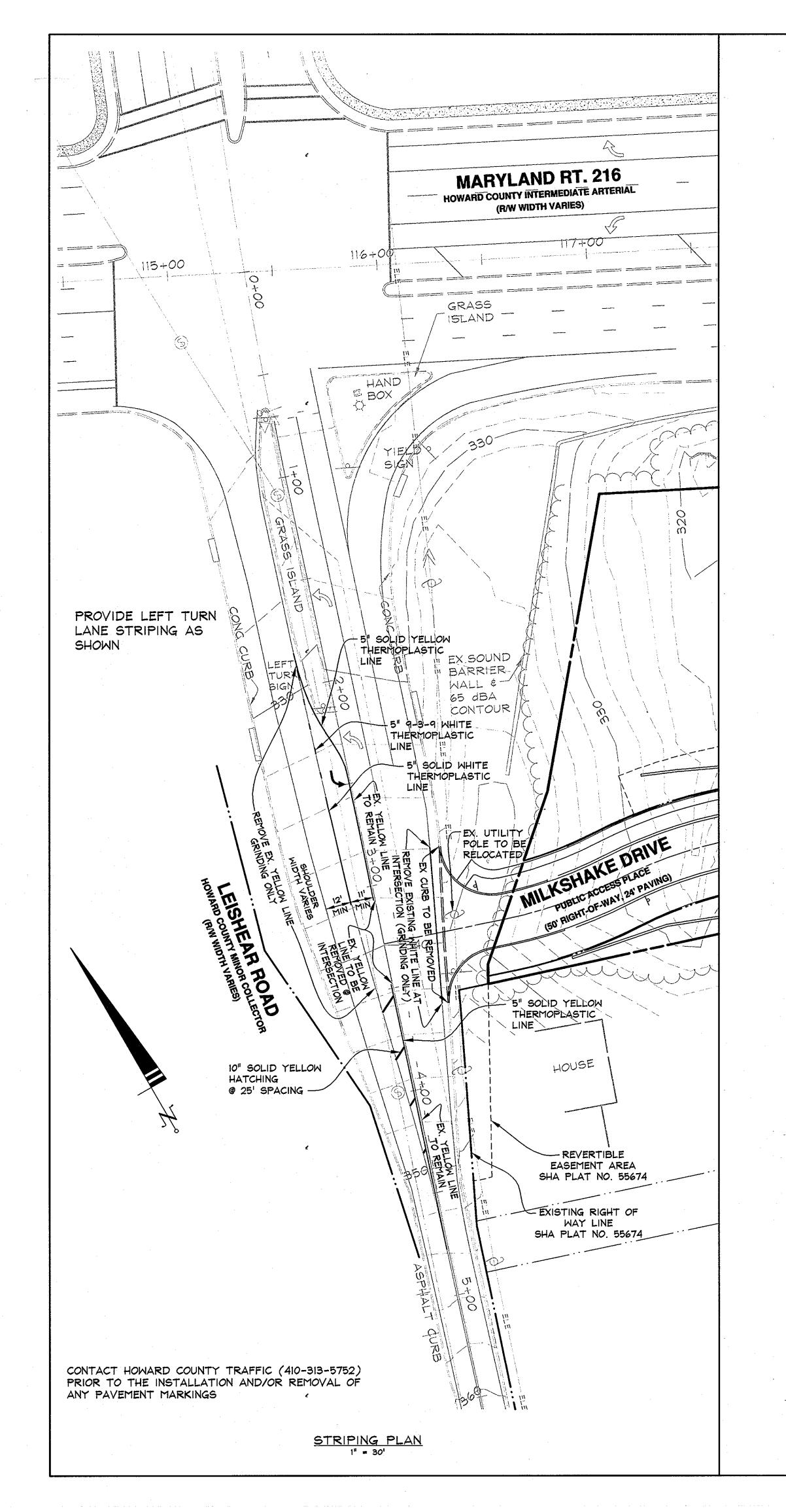


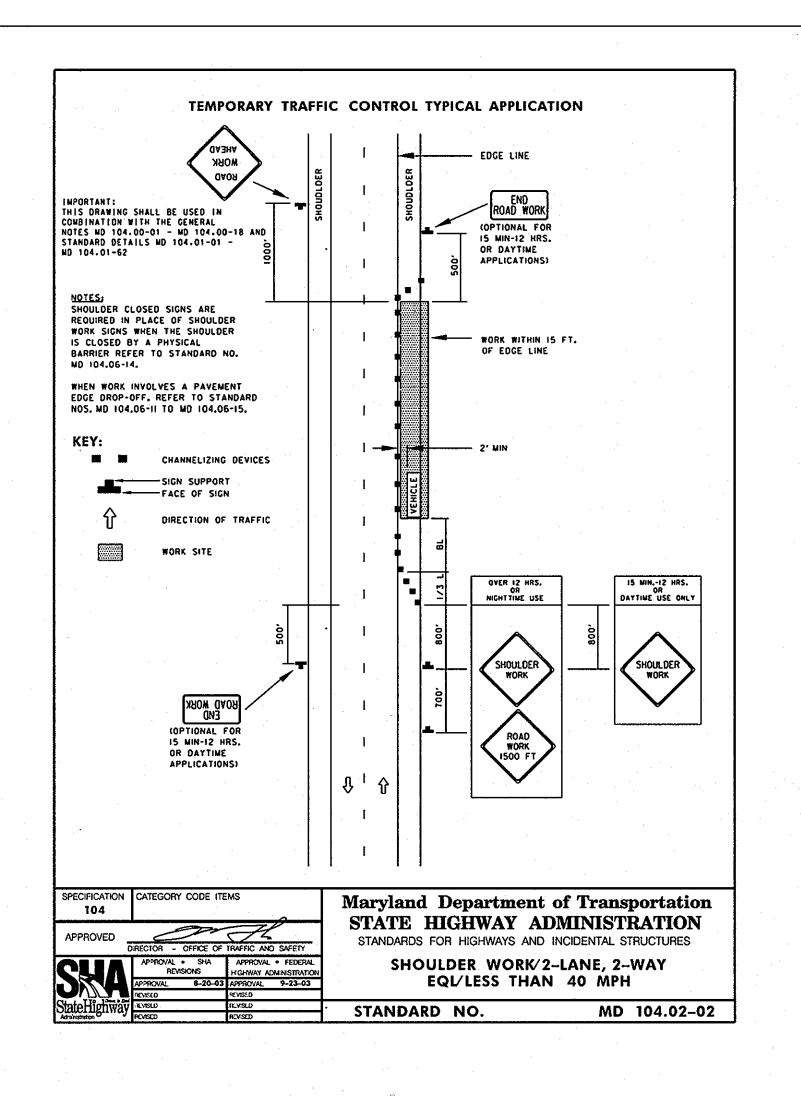
PROPOSED WATER LINE & HYDRANT PROPOSED SEWER AND MANHOLES PROPOSED ELECTRIC TRANSFORMER PROPOSED ELECTRIC METER PROPOSED DRAINAGE DIVIDE EXISTING DRAINAGE DIVIDE

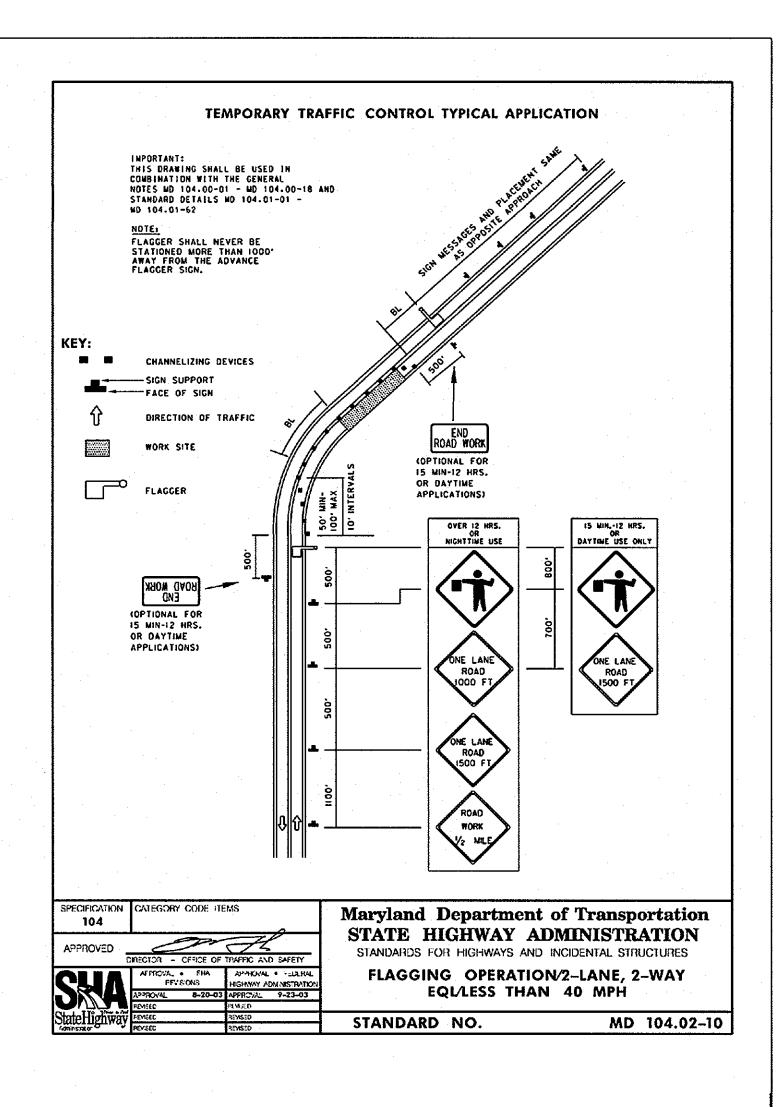
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC



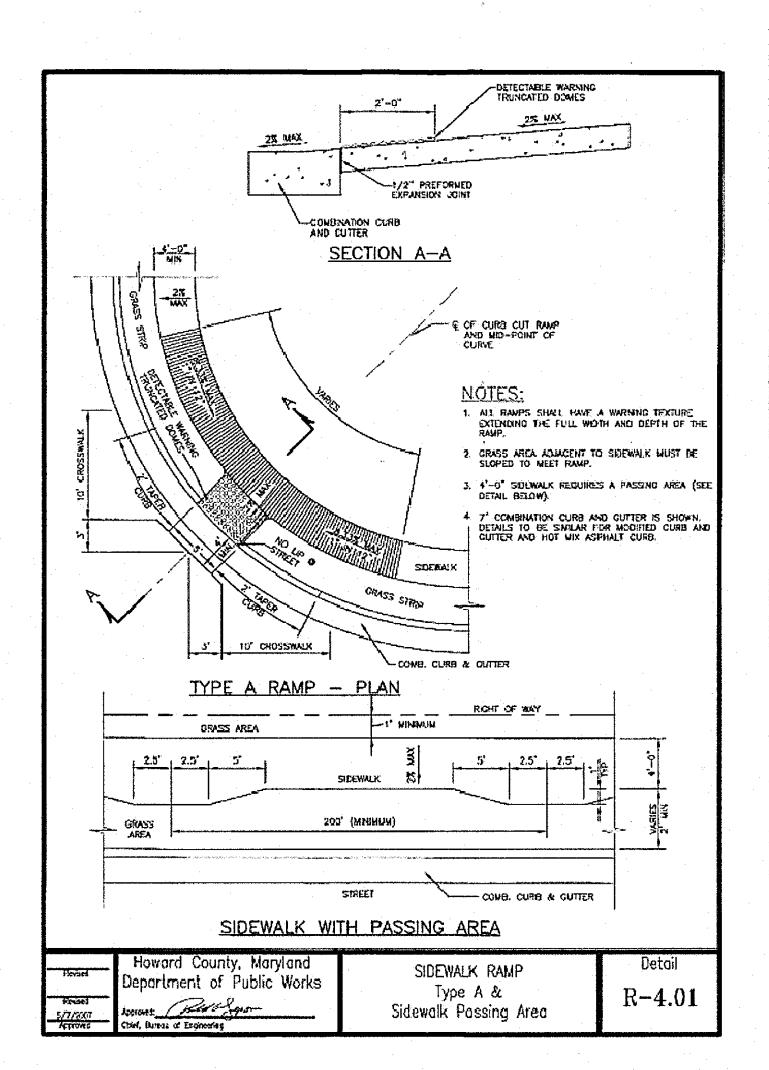


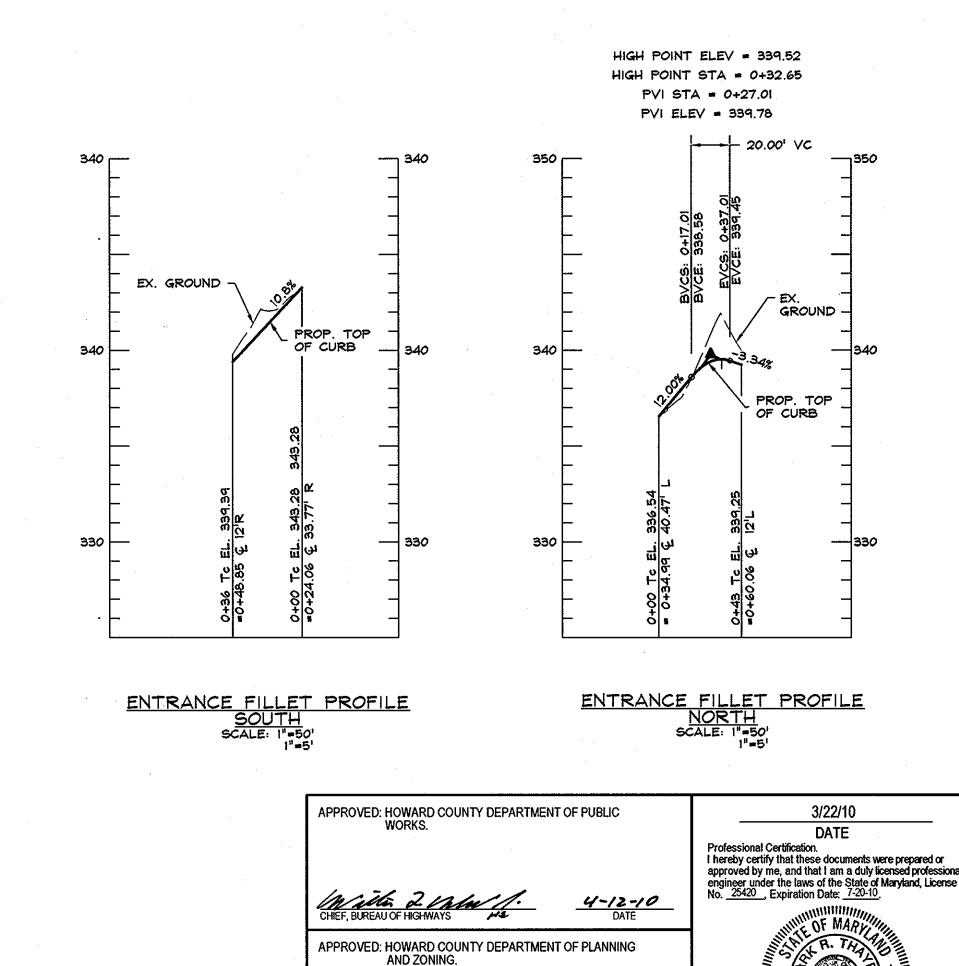




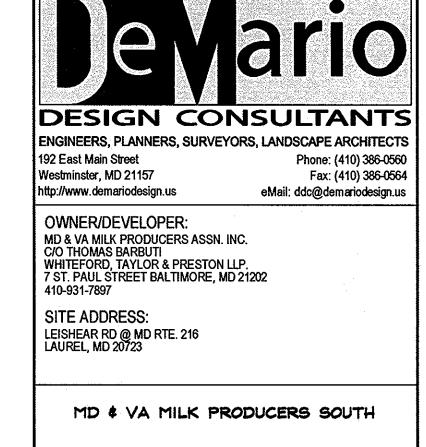
DATA SOURCES:

TRAFFIC CONTROL DETAILS





MARK R. THAYER

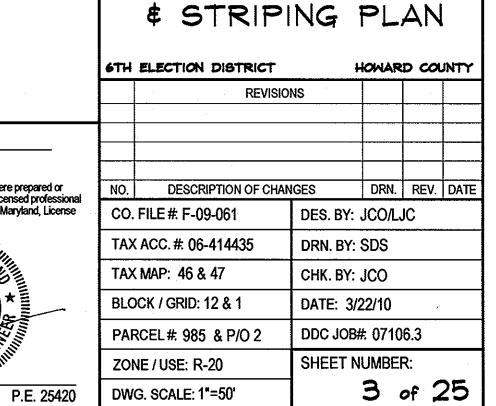


BOUNDARY AND TOPO SHOWN HEREON ARE BASED ON A FIELD RUN

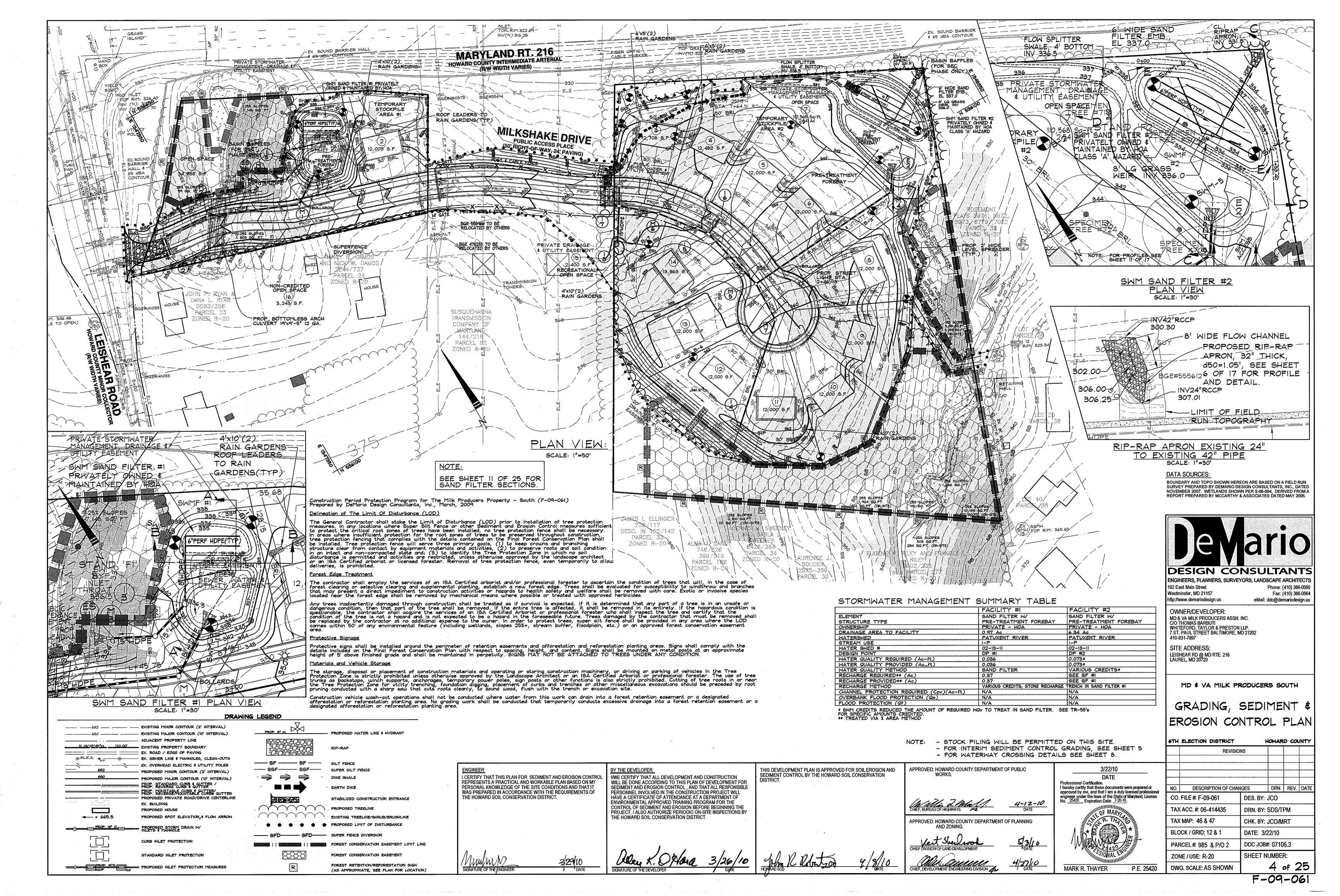
REPORT PREPARED BY MCCARTHY & ASSOCIATES DATED MAY 2005.

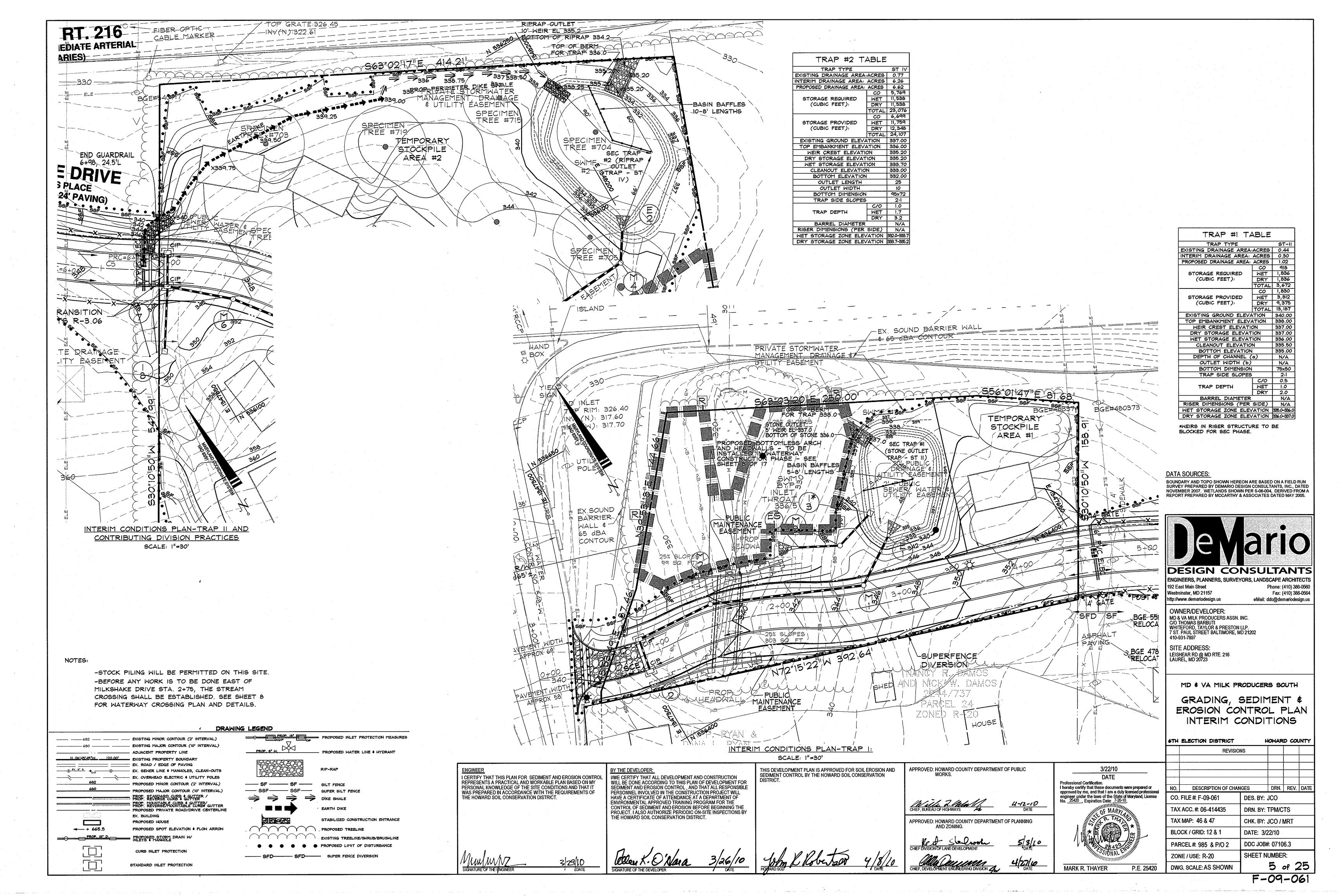
SURVEY PREPARED BY DEMARIO DESIGN CONSULTANTS, INC., DATED

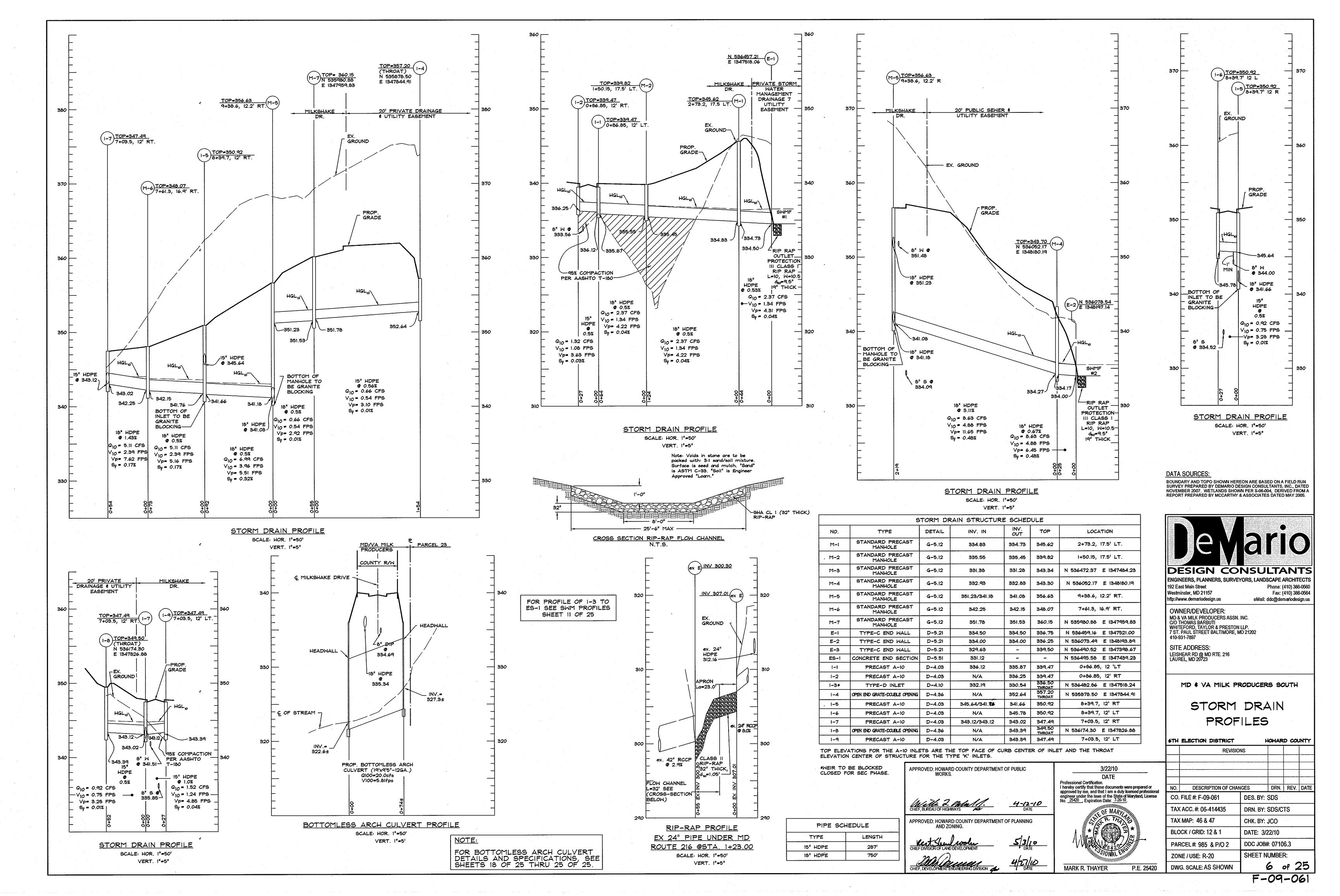
NOVEMBER 2007. WETLANDS SHOWN PER S-06-004, DERIVED FROM A

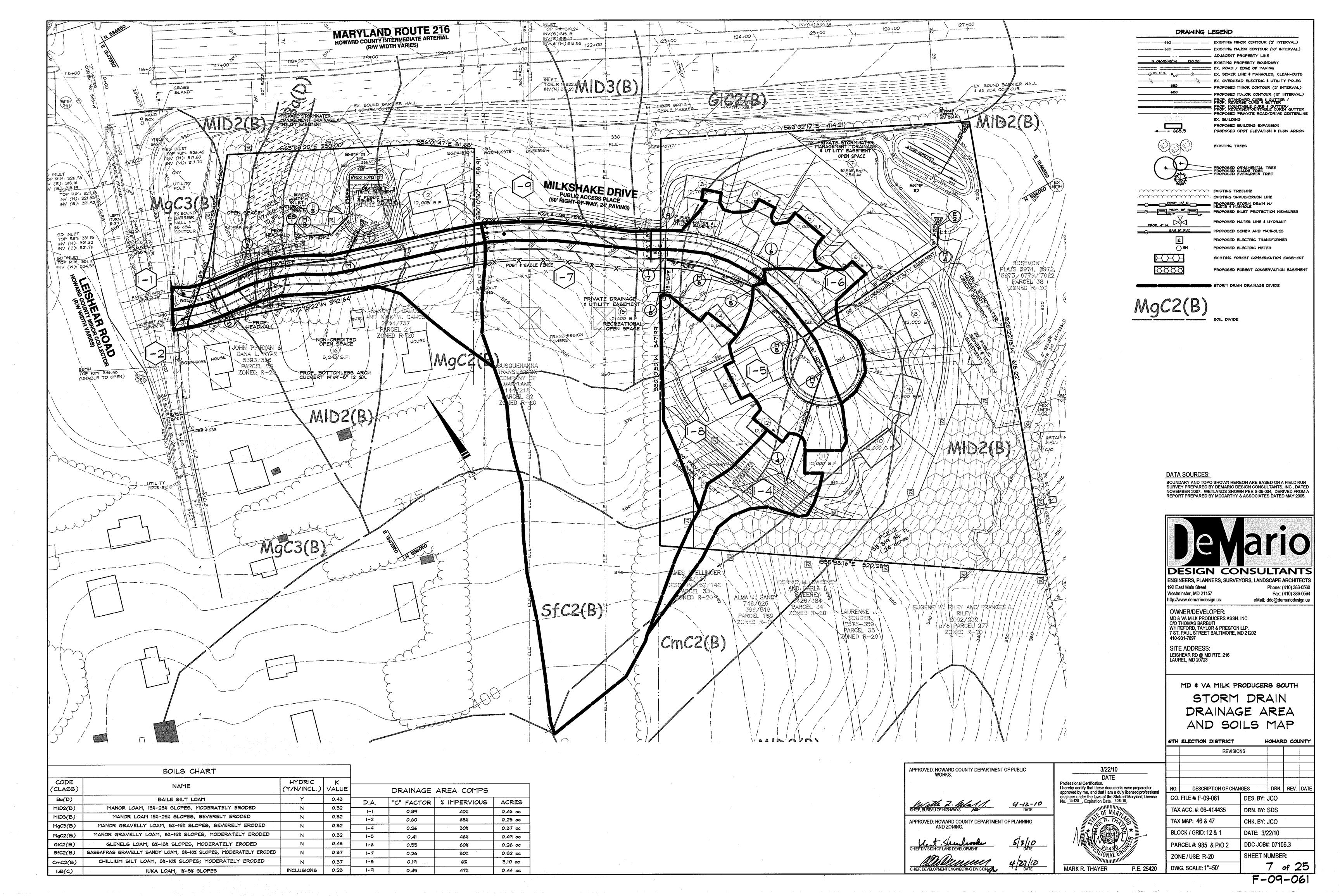


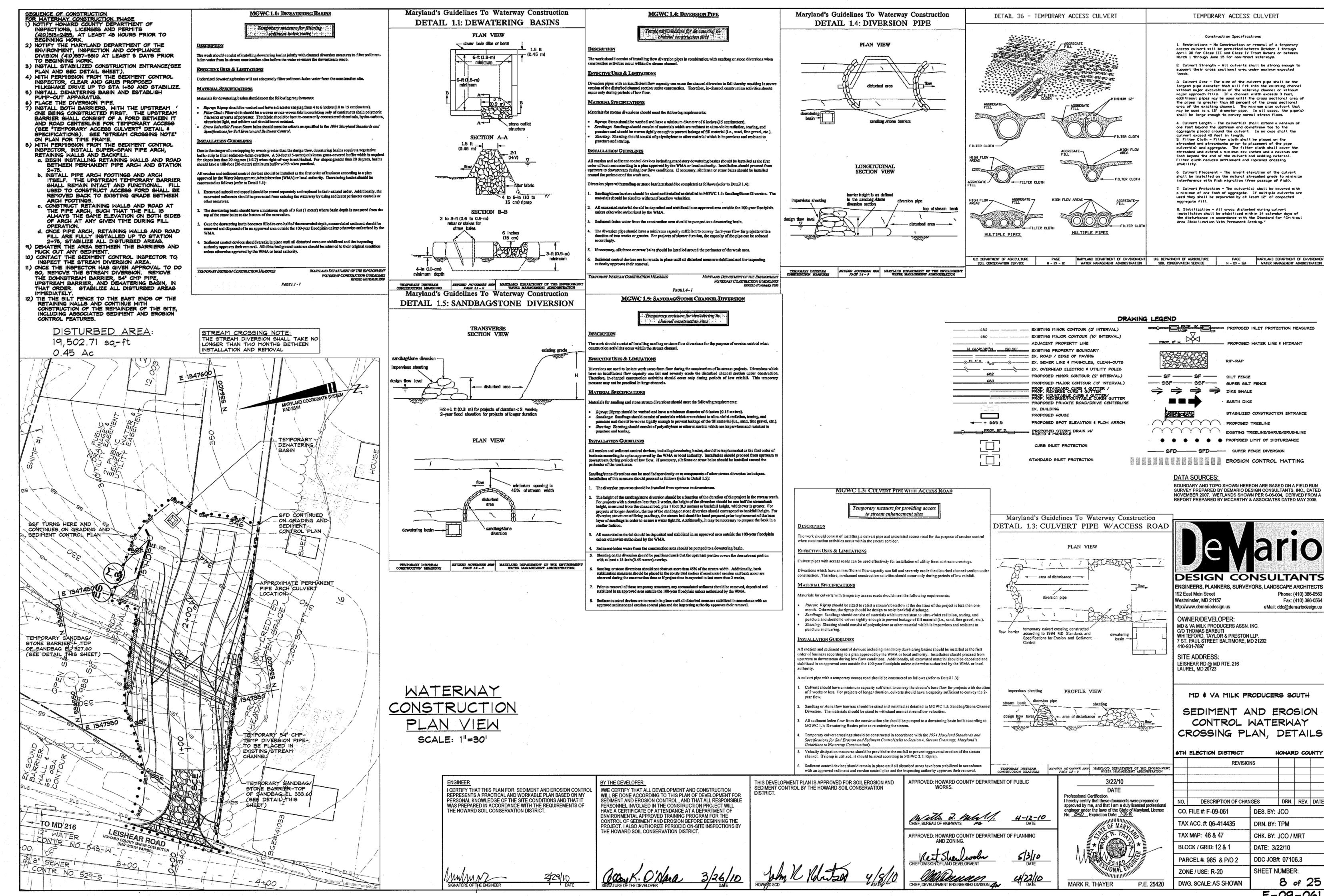
TRAFFIC CONTROL











والمرابع والطبيان للمفاقعين الأكرابيس المرابع والمتار والمرابع

walls in the the the

-09-06

	SEED MIX			T SEEDING	USDA					<u> </u>	1	· · · · · ·	
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				MOIST TO	5b		\times			\times			
	TALL FESCUE (75%)	150	3.4	DRY	6a		\supset			\supset			
	CANADA BLUEGRASS (10%)	·		·	6b	\supset				-	\supset		A
	KENTUCKY BLUEGRASS (10%) REDTOP (5%)				7a	\boxtimes						\times	
	REDIOF (3%)	*			7b	X						\times	
	KENTUCKY BLUEGRASS (50%)	150	3.4	MOIST TO	5b		\supset			\times			
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_	REDTOP (10%)			DRY	6b	\supset					\times		
			~			. 5b							
			0.0				\times			\times			l
	TALL FESCUE (85%)	125	2.9	MOIST TO	6a		\supset			\supset			
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	KENTUCKY BLUEGRASS (5%)	10	.23		7a	\supset						\times	
						7b	$\overline{}$					\Longrightarrow	
	RED FESCUE OR	60	.92	MOIST TO	5b		\Longrightarrow			\sim	 		-
4	CHEWING FESCUE (80%)	60	.92	DRY	6a		\Longrightarrow			\Longrightarrow			D
-	PERENNIAL RYEGRASS (20%)	15	.34		-6b	$\overline{}$					\searrow		
	***************************************				5b					$\overline{}$			
	TALL FESCUE (85%) OR,	110	2.5	MOIST TO	6a	 -	\Longrightarrow			\Longrightarrow			
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J	PLUS CROWNVETCH OR	20	46		7a	\bigotimes							
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			<u> </u>		5b	\Leftrightarrow							
6	WEEPING LOVEGRASS (17%)	4	.09	DRY TO	7a	\bowtie		\Leftrightarrow		<u> </u>			F
0	SERECIA LESPEDEZA (83%)	20	.46	VERY DRY		\Leftrightarrow		\Leftrightarrow			 		'
-					7b 5b								
	TALL FESCUE (83%)	110	2.5	DRY TO			\Leftrightarrow		\Leftrightarrow	\Leftrightarrow			ł ·
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/	SERECIA LESPEDEZA(15%)	20	.46		6b 7a	\Leftrightarrow		\Leftrightarrow					∍ G >
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	REEDY CANARYGRASS (75%)	40	.92	WET TO MODERATELY	6a								١.,
8	REDTOP (6%) PLUS	3	.07	DRY	6b	$\langle \rangle$							Н
	BIRDSFOOT TREEFOIL (19%)	.10	.23		7a	$\langle \rangle$,e					l
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9	POA TRIVIALIZE (7%)	10	.23	DRY	6a						k		
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	TALL FESCUE (80%)	120	3.4	WET TO	6a	L -		<u> </u>		\bowtie			
10	HARD FESCUE (20%)	30	.69	DRY	6b	\bowtie					\geq		J
	11/11/0 1 LOUGE (20%)				7a	\geqslant						\approx	
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11	HARD FESCUE (100%)	.75	3.4	MOIST TO	6a	Ļ,	\geq			\geq	Ļ.,		k
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			1	l l	7a	\sim	1	l		1		\sim	7

- C/ POPULAR MIX PRODUCES PERMANENT GROUNDCOVER QUICKLY. BLUEGRASS QUICKENS STAND. D/ BEST USE ON SHADY SLOPES NOT ON POORLY DRAINED CLAYS.
- E/ USE ON LOW MAINTENANCE, STEEP SLOPES. USE TALL FESCUE IN DRAUGHT CONDITIONS. CROWN VETCH BEST FOR 5b, 6a, 6b,
- F/ SUITABLE FOR SEEDING IN MIDSUMMER.

BY THE DEVELOPER:

IAVE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION

HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF

CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE

PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY

I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION 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

ENVIRONMENTAL APPROVED TRAINING PROGRAM FOR THE

THE HOWARD SOIL CONSERVATION DISTRICT.

THE HOWARD SOIL CONSERVATION DISTRICT.

WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR

SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL

- G/ WEEPING LOVEGRASS MAY BE SEEDED WITH TALL FESCUE IN MID-SUMMER. SERECIA LESPEDEZA IS BEST SUITED FOR ZONES 7a & 7b. H/ USE ON POORLY DRAINED SOILS - DITCHES OR WATERWAYS. BIRDSFOOT TREEFOIL IS BEST FOR ZONES
- 5a. 6a ABOVE 2.000 FT. / USE IN AREAS OF MOIST SHADE. POA TRIVIALIZE THRIVES IN WET SHADY AREAS.
- J/ TALL FESCUE MAY BE SEEDED ALONE. THE HARD FESCUE PROVIDES BETTER SHADE TOLERANCE AND PRODUCES A BETTER STAND.
- K/ LOW FERTILITY GRASS. REQUIRES INFREQUENT MOWING. GOOD COMPANION FOR WILDFLOWERS.
- TABLE 26 TEMPORARY SEEDING RATES, DEPTHS, AND DATES

	IAULL 20	12,771					.,,.,,		<u> </u>					
SPECIES	MINIMUM S RATE		PLANTING DEPTH		7a and 7b 6b 6a							and 5b		
3F LUIL3	PER ACRE	LBS/1000 SQ.FT.	INCHES	• •		8/15- 11/30	,	,	'	3/15- 5/31		10/31		
CHOOSE ONE:				· ·		BY			BY.			BY		
BARLEY	122 lbs	2.80	1-2	Х		10/15	X	-	10/15	Х	–	10/1		
OATS	96 lbs	2.21	1-2	Х	l · —	_	Χ -		-	Х	-	-		
RYE	140 lbs	3.22	1-2	Х.		x	X	_	X	Х		X		
BARLEY OR	150 lbs	3.45	1	Х	X	10/15	X	Х	10/15	Х	Х	10/1		
RYE PLUS			ľ	Х	Х	ľχ	Х	Х	ľΧ	Х	Х	ΙΧ		
FOXTAIL MILLET														
WEEPING LOVEGRASS	4 lbs	.09	1/4-1/2	-	, X	1	ı	X	_	_	Х	-		
ANNUAL RYEGRASS	50 lbs	1.15	1/4-1/2	Х	-	11/1	Х	-	11/1	Х		8/15		
MILLET	50 lbs	1.15	1/2	_	Х		-	Х		_	Х			

Note: Select one or more of the species or mixtures listed on Table 26 for the appropriate plant hardiness zone. SEQUENCE OF CONSTRUCTION

OBTAIN A GRADING PERMIT

- NOTIFY "MISS UTILITY" AT LEAST 48 HOURS BEFORE BEGINNING ANY WORK AT 1-800-257-7777. NOTIFY THE HOWARD COUNTY OFFICE OF CONSTRUCTION/INSPECTION DIVISION AT 410-313-1870
- AT LEAST 24 HOURS BEFORE STARTING ANY WORK. INSTALL STABILIZED CONSTRUCTION ENTRANCE. (1 DAY)
- PERFORM STREAM CROSSING PER WATERWAY CROSSING SEQUENCE OF CONSTRUCTION ON SHEET 8. DO NOT DISTURB ANY OF THE SITE EAST OF MILKSHAKE DRIVE STA. 2+75 UNTIL THIS IS DONE. (4 WEEK)
- WITH PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR, INSTALL PERIMETER SEDIMENT CONTROL DEVICES THROUGHOUT REMAINDER OF SITE. DO NOT INSTALL DIKES OR DIKE/SWALES THAT CONVEY RUNOFF TO THE TRAPS. (2 DAYS)
- CONSTRUCT SEDIMENT CONTROL TRAP #1 AND PROP. STORM DRAINS E-I THROUGH I-2. INSTALL C.I.P. FOR I-I AND I-2 USE THESE INLETS AND DRAINS FOR SEC RUNOFF UNTIL THE REST OF THE SITE IS GRADED AND STABILIZED. STORM DRAIN 1-3 TO ES-1 TO BE INSTALLED UPON CONVERSION OF TRAP I TO SMM FACILITY. INSTALL TRAP II AND CONTRIBUTING DIKE AND DIKE/SWALE DIVERSION. (I WEEK)
- WITH SEDIMENT CONTROL DEVICES INSTALLED AND WITH INSPECTORS APPROVAL, CLEAR & GRADE SITE. (2 WEEK)

SEWER & STORM DRAINS AND CONSTRUCT SWM SAND FILTERS STORM DRAIN 1-9 THROUGH E-2(INCLUDING ALL SPURS) \$ 1-4 TO M-5 CAN NOW REPLACE DIKE AND DIKE/SWALE DIVERSION TO TRAP II. (4 WEEKS)

- BEGIN INSTALLATION OF CURB & GUTTER. (3 WEEKS) WITH CURB & GUTTER IN PLACE PAVE ROAD AND INSTALL SIDEWALKS. (2 WEEKS)
- FINE GRADE SITE AND STABILIZE ALL DISTURBED AREAS. (2 WEEKS)
- INSTALL SITE LANDSCAPING & STREET TREES. (2 WEEKS) WITH ALL DISTURBED AREAS STABILIZED FLUSH STORM DRAIN SYSTEM, INCLUDING THE EXISTING CULVERTS RUNNING UNDER MD ROUTE 216, MUCK OUT TRAPS AND CONVERT TO STORMWATER MANAGEMENT SAND FILTERS.
- WITH THE INSPECTORS APPROVAL REMOVE REMAINING SEDIMENT CONTROL DEVICES.
- THE CONTRACTOR SHALL INSPECT AND PROVIDE NECESSARY MAINTENANCE ON THE SEDIMENT AND EROSION CONTROL DEVICES SHOWN ON THE PLAN. THE INSPECTION SHALL BE ON A DAILY BASIS AND AFTER EACH RAINFALL.
- NOTIFY HOWARD COUNTY OFFICE OF INSPECTIONS AND PERMITS FOR A FINAL INSPECTION OF THE COMPLETED SITE.

- STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION Section I Vegetative Stabilization Methods and Materials
- A. Site Preparation i. 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 test to determine soil amendment composition and application rates for sites having disturbed area over 5 acres.
- B. Soil Amendments (Fertilizer and Lime Specifications)
- i. Soil test 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.
- i. 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 rademark 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 Preparation
 - 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 counter of the slope.
 - b. Apply fertilizer and lime as prescribed on the plans.
 - c. Incorporate time and fertilizer into the top 3 5" of soil by disking or other suitable

i. Temporary Seeding

- a. Minimum soil conditions required for permanent vegetative establishment
 - 1. Soil pH shall be between 6.0 and 7.0 2. Soluble saits shall be less than 500 parts per million (ppm).
 - 3. 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 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 penetration.
- 6. If these conditions cannot be met by the 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 test or as included on the plans. d. 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 greas.

be necessary on newly disturbed areas. D. Seed Specifications

- 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 of seed used.
- ii. 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 hydroseeding. 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 <u>Hydroseeding:</u> Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer) proadcast or drop seeder, or a cultipacker seeder.
- 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.
- b. 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 hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding. 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 soil contact.
- 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. b. Where practical, seed should be applied in two directions perpendicular to each other.
- F. Mulch Specifications (In order of preference)
- i. 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. ii. Wood Cellulose Fiber Mulch (WCFM)
- a. MCFM shall consist of specially prepared wood cellulose processed into a uniform fibrous b. 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.
- c. 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, an 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 seedings.
- e. WCFM material shall contain no elements or compounds at concentration levels that will
- f. MCFM 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 much should be used in areas where one species of grass is desired. Mulching Seeded Areas - Mulch shall be applied to all seeded areas immediately after seeding. i. 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.
- ii. 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. 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, 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: i. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the 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.
- ii. 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
- iii. Application of liquid binders should be heavier at the edges where wind catches mulch, such as in valleys or on crest of banks. The remainder of area should appear uniform after binder application. Synthetic binders such as Acrylic DLR (Agro-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 feet long. Incremental Stabilization -- Cut Slopes -- See G-20-6
- Incremental Stabilization -- Fill Slopes -- See G-20-7

21.0 STANDARDS & SPECIFICATIONS FOR TOPSOIL

Construction and Material Specifications

Definition - Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation.

Purpose - To provide a suitable soil medium for vegetative growth. Soils of concern have low maisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation. Conditions Where Practice Applies

- 1. This practice is limited to areas having 2:1 or flatter slopes where:
- a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
- b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
- c. The original soil to be vegetated contains material toxic to plant growth. d. The soil is so acidic that treatment with limestone is not feasible.
- 11. For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans.
- I. Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-SCS in cooperation with Maryland Agricultural Experimental Station.
- Topsoil Specifications Soil to be used as topsoil must meet the following:
- Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 1/2" in diameter.
- Topsoil must be free of plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.
- iii. Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 pounds per 1,000 square fed) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures. III. For sites having disturbed areas over 5 acres:
- On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:
- a. pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.
- b. Organic content of topsoil shall be not less than 1.5 percent by weight.
- c. Topsoil having soluble salt content greater than 500 parts per million shall not be used. d. No sod or seed shall be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of photo-toxic. materials.
- Note: Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.
- Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization Section I Vegetative Stabilization Methods and Materials.
- V. Topsoil Application
- i. When topsoiling, maintain needed erosion and sediment control practices such as diversions, Grade Stabilization Structures, Earth Dikes, Slope Silt Fence and Sediment Traps and Basins.
- ii. Grades on the areas to be topsoiled, which have been previously established, shall be maintained, albeit 4"-8" higher in elevation.
- i. Topsoil shall be uniformly distributed in a 4" 8" layer and lightly compacted to a minimum thickness of 4". Spreading shall be performed i such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations shall be corrected in order to prevent the formation of depressions or water pockets.
- iv. Topsoil shall not be placed while the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation. VI. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:
- Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribe amendments and for sites having disturbed areas under 5 acres shall conform to the
- a. Composted sludge: shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06.
- b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a Ph of 7.0 to 8.0. I compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use
- c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application

References: Guideline Specifications, Soil Preparation and Sodding. MD-V A, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

<u> SECTION V - TURFGRASS ESTABLISHMENT</u>

Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium 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 should be in such condition that future mowing of grasses will pose no difficulty.

Note: Choose certified material. Certified material is the best guarantee of cultivate 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. Turfgrass Mixtures

- 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 Cultivates Seeding Rate: 1.5 to 2.0 pounds/1000 square feet. A minimum of three bluegrass cultivates should be chosen ranging from a minimum of 10% to a maximum of 35% of the
- 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 Cultivates/Certified Kentucky Bluegrass Seeding rate: 2 pounds mixture/1000 square feet. A minimum of 3 Kentucky Bluegrass Cultivates must be chosen, with each cultivate ranging from 10% to 35% of the mixture by weight.
- 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 Cultivates 95 100%, certified Kentucky Bluegrass Cultivates 0 5%. Seeding rate: 5 to 8 lb/1000 sf. One or more cultivates may be blended
- iv. 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 Cultivates 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 cultivates must be chosen, with each cultivate 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 Cultivate Recommendations for Maryland". B. Ideal times of seedina:
- 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 seedlings with adequate water for plant growth (1/2"-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 or adverse sites.
- D. Repairs and Maintenance Inspect all seeded areas for failures and make necessary repairs, replacements, and reseedings
- Once the vegetation is established, the site shall have 95% groundcover to be considered adequately stabilized.
- 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 using half of the rates originally applied may be necessary.
- iv. Maintenance fertilizer rates for permanent seedings are shown in Table 24. For lawns and other medium high maintenance turfgrass areas, refer to the University of Maryland publication "Lawn Care in Maryland" Bulletin No. 17i.

<u>SEDIMENT CONTROL GENERAL NOTES</u>

C. Irrigation

- A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, 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 THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
- FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:
 - A. SEVEN CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPE AND ALL SLOPES STEEPER THAN
- B. FOURTEEN DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE 4. ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12, OF THE
- "HOWARD COUNTY DESIGN MANUAL", STORM DRAINAGE. 5. ALL DISTURBED AREA 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), SODS (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: TOTAL AREA OF SITE = 7.782 acres AREA DISTURBED = 6.25 acres AREA TO BE ROOFED OR PAVED = 1.40 acres
- AREA TO BE VEGETATIVELY STABILIZED = 4.94 acres = 20,532 cu yd TOTAL CUT = 20,532 cu yd TOTAL FILL (LOCATION TO BE DETERMINED BY CONTRACTOR.
- LOCATION POINT MUST HAVE OPEN GRADING PERMIT. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE. ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY
- THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR. IO. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION
- APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

DATA SOURCES:

192 East Main Street

410-931-7897

BOUNDARY AND TOPO SHOWN HEREON ARE BASED ON A FIELD RUN SURVEY PREPARED BY DEMARIO DESIGN CONSULTANTS, INC., DATED NOVEMBER 2007. WETLANDS SHOWN PER S-06-004, DERIVED FROM A REPORT PREPARED BY MCCARTHY & ASSOCIATES DATED MAY 2005.



ENGINEERS, PLANNERS, SURVEYORS, LANDSCAPE ARCHITECTS

Phone: (410) 386-0560

HOWARD COUNTY

Fax: (410) 386-0564

Westminster, MD 21157 http://www.demariodesign.ua eMail: ddc@demariodesign.us OWNER/DEVELOPER: MD & VA MILK PRODUCERS ASSN. INC WHITEFORD, TAYLOR & PRESTON LLP.

7 ST. PAUL STREET BALTIMORE, MD 21202

SITE ADDRESS: LEISHEAR RD @ MD RTE. 216 LAUREL, MD 20723

6TH ELECTION DISTRICT

MD & VA MILK PRODUCERS SOUTH

CONTROL NOTES

REVISIONS

3/22/10 DATE Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed profession engineer under the laws of the State of Maryland, License No. 25420 Expiration Date: 7-20-10 MARK R. THAYER P.E. 25420

| DRN. | REV. | DATI DESCRIPTION OF CHANGES CO. FILE #. F-09-061 DES. BY: JCO TAX ACC. #: 06-414435 DRN. BY: SDS TAX MAP: 46 & 47 CHK. BY: JCO BLOCK / GRID: 12 & 1 DATE: 3/22/10 DDC JOB#: 07106.3 PARCEL#: 985 & P/O 2 Sheet Number: ZONE / USE: R-20 DWG. SCALE: N/A

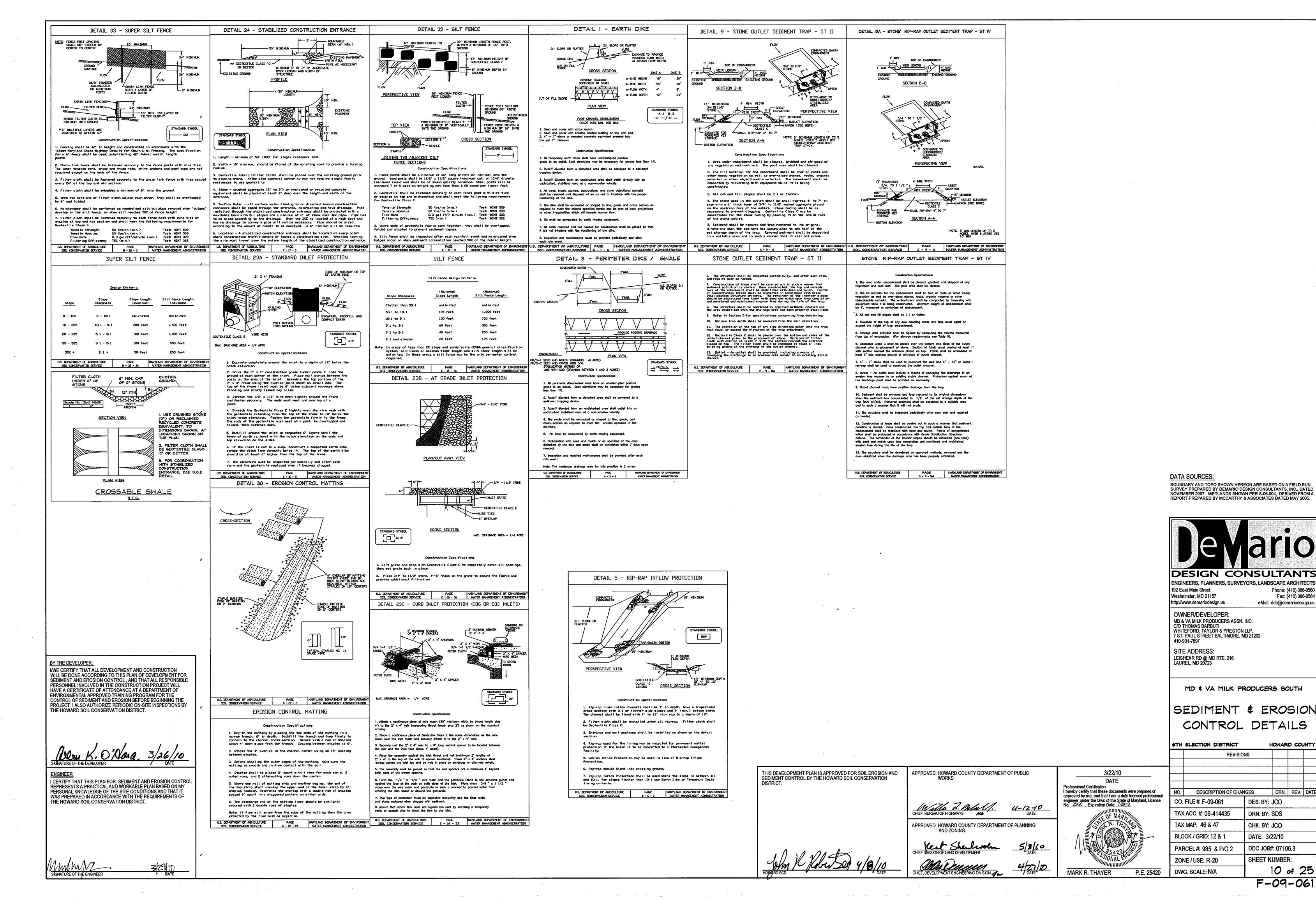
SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND

AND ZONING.

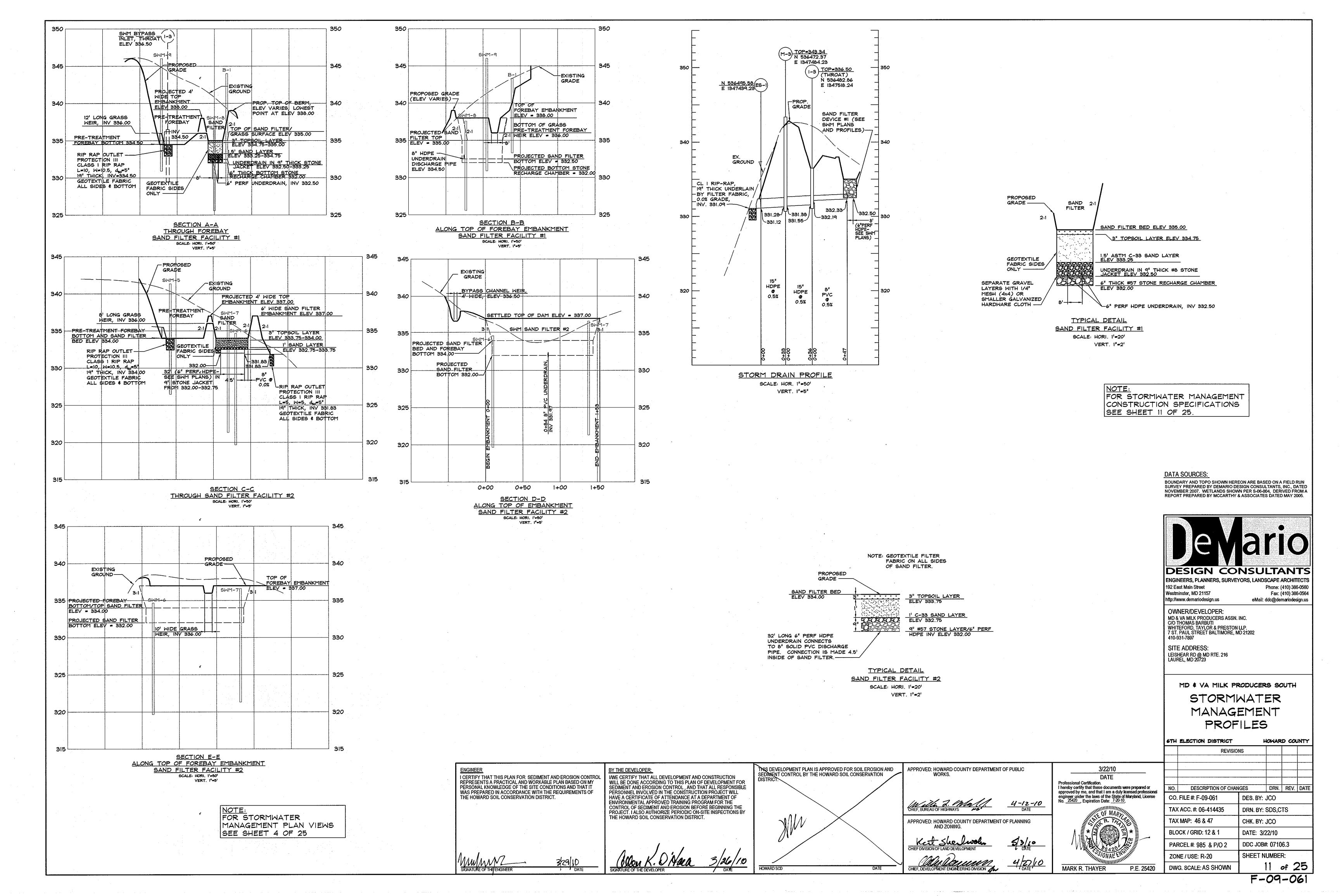
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING



Fax: (410) 386-0564

DRN. REV. DATE



CONSTRUCTION SPECIFICATIONS

1. General

All stormwater management facilities shall be constructed in accordance with Howard County's "Design Manual Volume I - Storm Drainage 2006" and the "2000 Maryland Stormwater Design Manual Volumes I & II". All references to ASTM and AASHTO specifications apply to the most recent

2. Site Preparation

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

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

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

3. <u>Earth Fill</u>

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

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

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

<u>Compaction</u> - The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one tread track of heavy equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction will be obtained with the equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble, yet not be so wet that water can be squeezed out.

When required by the reviewing agency the minimum required density shall not be less than 95% of maximum dry density with a moisture content within +/-2% of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by AASHTO Method T-99 (Standard Proctor).

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

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

4. Structure Backfill

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

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

5. Removal and Replacement of Defective Fill

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

6. Pipe Conduits

All pipes shall be circular in cross section. Corrugated Metal Pipe - All of the following criteria shall apply for

1. Materials - (Polymer Coated steel pipe) - Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. This pipe and its appurtenances shall conform to the requirements of AASHTO Specifications M-245 & M-246 with watertight coupling bands or flanges.

Materials - (Aluminum Coated Steel Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274 with watertight coupling bands or flanges. Aluminum Coated Steel Pipe, when used with flowable fill or when soil and/or water conditions warrant the need for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Any aluminum coating damaged or otherwise removed shall be replaced with cold applications bituminous coating compound. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt

Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or M-211 with watertight coupling bands or flanges. Aluminum Pipe, when used with flowable fill or when soil and/or water conditions warrant for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be between 4 and 9.

- 2. Coupling bands, anti-seep collars, end sections, etc., must be composed of the same material and coatings as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness.
- 3. Connections All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands are not considered to be

All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled an adequate number of corrugations to accommodate the bandwidth. The following type connections are acceptable for pipes less than 24 inches in diameter: flanges on both ends of the pipe with a circular 3/8 inch closed cell neoprene gasket, pre-punched to the flange bolt circle, sandwiched between adjacent flanges; a 12-inch wide standard lap type band with 12-inch wide by 3/8-inch thick closed cell circular neoprene gasket; and a 12-inch wide hugger type band with 0- ring gaskets having a minimum diameter of 1/2 inch greater than the corrugation depth. Pipes 24 inches in diameter and larger shall be connected by a 24 inch long annular corrugated band using a minimum of 4 (four) rods and lugs, 2 on each connecting pipe end. A 24-inch wide by 3/8-inch thick closed cell circular neoprene gasket will be installed with 12 inches on the end of each pipe. Flanged joints with 3/8 inch closed cell gaskets the full width of the flange is also acceptable.

Helically corrugated pipe shall have either continuously welded seams or have lock seams with internal caulking or a neoprene bead.

- 4. Bedding The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.
- 5. Backfilling shall conform to "Structure Backfill"
- 6. Other details (anti-seep collars, valves, etc.) shall be as shown on the

Reinforced Concrete Pipe - All of the following criteria shall apply for

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

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

<u>Plastic Pipe</u> - The following criteria shall apply for plastic pipe:

1. Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D- 1785 or ASTM D-2241. Corrugated High Density Polyethylene (HDPE) pipe, couplings and fittings shall conform to the following: 4" - 10" inch pipe shall meet the requirements of AASHTO M252 Type S, and 12" through 24" inch shall meet the requirements of AASHTO M294 Type S.

- 2. Joints and connections to anti-seep collars shall be completely
- 3. Bedding -The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with

suitable earth compacted to provide adequate support.

- 4. Backfilling shall conform to "Structure Backfill"
- 5. Other details (anti-seep collars, valves, etc.) shall be as shown on the

<u>Drainage Diaphragms</u> - A drainage diaphragm is NOT used on this project.

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 902, Mix No.3.

8. Rock Riprap

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

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

9. Care of Water during Construction

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

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

11. Erosion and Sediment Control

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

12. Seeding

Seeding, fertilizing and mulching shall be as follows: Seed Mix: 50% Kenblue Kentucky Bluegrass 40% Pennlawn Creeping Red Fescue

10% Streaker Redtop

Applied at a rate of 150 pounds per acre. Rebel II Tall Fescue (125 pounds per acre) Pennfine Perennial Ryegrass (15 pound per acre) Kenblue Kentucky Bluegrass (10 pounds per acre)

Pennlawn Creeping Red Fescue (70 pounds per acre) Aurora Hard Fescue (50 pounds per acre) Common White Clover (6 pounds per acre)

Winter Rye (45 pounds per acre) For the stormwater management bmp's: 70% Forager Tall Fescue 30% Chemung Crownvetch, Inoculated

Applied at a rate of 55 pounds per acre. Optimum seeding dates: March 1 to April 30. Lime: 2 tons per acre Dolomitic Limestone. Fertilizer: 600 pounds per acre 10-10-10 fertilizer before seeding. 400 pounds per acre 30-0-0 Ureaform Fertilizer at time of

per 100 gailons of water or at rates recommended by the

Mulch: Straw at 4,000 pounds per acre. Anchoring: Mulching tool or wood cellulose fiber binder at a net dry binder rate of 750 pounds per acre. The wood cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 pounds of wood cellulose fiber

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

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

15. Fence

Chain link fencing: Construct fencing in accordance with the State Highway Administration Standard details 690.01 and 690.02. Use specifications for a 6-foot fence, substituting 42" fabric and 6'-8" line posts. Construct the gate in accordance with SHA Standard detail 692.01 with 42" fabric. The fabric used for the fence and gate must conform to AASHTO Designation M181-74. Fence post and wire fabric shall be dark vinyl (PVC) coated green or black.

16. Construction Inspection by Designated Engineers

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

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED STORMWATER MANAGEMENT FACILITIES AND SAND FILTERS

ROUTINE MAINTENANCE

1. Facilities shall be inspected annually and after major storms, inspections shall be performed during wet weather to determine if the pond is functioning properly.

2. Top and side slopes of the embankment shall be mowed a minimum of two(2) times per year, once in June and once in September. Other side slopes and maintenance access shall be moved as needed.

3. Debris and litter shall be removed during regular mowing operations and as needed.

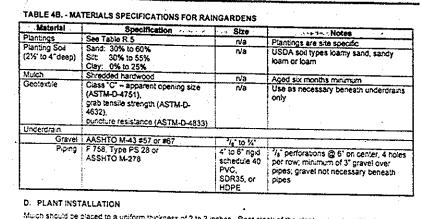
4. Visible signs of erosion in the facilities as well as the rip-rap or gabion outlet area shall be repaired as soon as it is noticed.

NON-ROUTINE MAINTENANCE

1. Structural components of the facilities such as the berm, bypass inlet and pipes shall be repaired upon the detection of any damage. The components shall be inspected during routine maintenance operations.

2. Sediment shall be removed from the facilities (filter bed and forebay) no later than when the capacity of the facilities are half full of sediment or when deemed necessary for aesthetic reasons, upon approval from the department of public works.

3. When the draindown time exceeds 72 hours, filter media shall be replaced



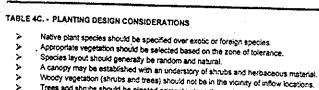
Much should be placed to a uniform truckness of 2 to 3 inches. Root stock of the plant material shall be kept most curring transport and on-site storage. The plant root ball should be planted so that "\" of the ball is above final grade surface. The diameter of the planting pit should be at least six inches larger than the diameter of the planting ball. Set and maintain the plant straight (upright) during the planting process. Thoroughly water ground bed cover after

. Trees shall be braced using 2" by 2" stakes only as necessary and for the first growing season only. Stakes are to be equally spaced on the outside of the tree ball. Grasses and legume seed should be drilled into the soil to a depth of at least one inch. Grass and legume plugs shall The topsoil specifications provide enough organic material to adequately supply nutrients from natural cycling. The primary function of the raingarden is to improve water quality. Adding fertilizers defeats, or at a minimum, impedes this goal. Only add fertilizer if wood chips or mulch is used to amend the soil.

E. PLANTING GUIDANCE Plant material selection should be based on the goal of simulating a terrestrial community of native species but may be tailored to various gardening themes. Raingardens simulate upland-species ecosystems that are dominated by shrubs and herbaceous materials but may also contain trees. By creating a diverse, dense plant cover, the raingarden will be able to treat stormwater runoff and withstand urban stresses from insects, disease, drought, temperature, word, and exposure.

STANDARD STORMATER HANGEMENT PLAN INSTRUCTIONS

The proper selection and installation of plant materials is key to a successful system. There are essentially three zones within a raingarden. The lowest elevation supports plant species that are adapted to standing and fluctuating water levels. The middle elevation supports plants that like drier soil conditions that may tolerate occasional inundation by water. The outer edge is the highest elevation and generally supports plants adapted to drier conditions. A listing of appropriate plant materials is included in Appendix A of the Design Manual and Appendix 1 of these instructions. The layout of plant materials should be flexible, but should also follow the general principles outlined in Table 48. The objective is to have a system that resembles a random and natural plant layout, while maintaining optimal plant conditions for plant establishment and growth.



Trees and strubs should be planted primarily along the perimeter of the raingarden.

Stressors (e.g., wind, sun, exposure, insects and disease infestation, and drought) should be considered when developing the planting plan.

Noxous weeds shall not be specified or used.

Aesthetics and visual characteristics should be a prime consideration. Safety issues must be considered. Exacting and proposed utilities (e.g., water, sewer, or electric) must be identified and considered

Plant materials should conform to the American Association of Nurserymen's publication, the American Standard Nursery Stock. The planting plan should include a sequence of construction, a description of the contractor responsibilities, a planting schedule and installation specifications, initial maintenance requirements, and a warranty period stipulating requirements for plant survival. Table 4D, presents some typical issues for planting specifications TABLE 40. - PLANTING SPECIFICATION ISSUES

Specification Element Issues
Sequence of Construction Describe the preparation activities, soil amendments, etc.; address erosion and sediment control procedures; specify step-by-step procedure for plant Specify the contractor's responsibilities such as watering, care of plant material during Responsibilities (ransport, timeliness of installation, repairs due to vandalism, etc.)

Planting Schedule and Specify the plants to be installed, the type of materials (e.g., balled and burlap, bare.) Specify the plants to be installed, the type of materials (e.g., balled and burlab, bare root, containerized), time of year for installations, sequence of installation, ferbization, stabilization seeding if needed, watering, and general care.

Specify mulching frequency (annual mulching is most common), removal and replacement of dead or diseased vegetation, watering schedule (once per day for 14 days is common). days is common)
Specify the warranty period, the required survival rate, and the expected condition of plant species at the end of the warranty period

TABLE 4E. - RAINGARDEN SEQUENCE OF CONSTRUCTION

STANCARD STORMATTER MANAGEMENT PLAN INSTRUCTIONS

1. Subsequent to final grading and stabilization of lot, excavate raingarden area to proper dimensions
2. Install gravel envelope, geotextile, underdrain, and observation well.
3. Place and loosely compact planting soil.
4. Install plants at proper depth and location (see species and zone specifications) according to the planting plan.
5. Multir and fertilize according to the plan and specifications and as necessary.

ROUTINE MAINTENANCE

. Facility shall be inspected annually and after major storms, inspections shall be performed during wet weather to determine if the rain gardens are functioning properly.

OPERATION AND MAINTENANCE SCHEDULE FOR

PRIVATELY OWNED RAIN GARDENS

2. Top and side slopes of the rain gardens shall be mowed a minimum of two(2) times per year, once in June and once in September, or as needed.

3. Debris and litter shall be removed during regular mowing operations and as needed.

4. Visible signs of erosion in the rain gardens as well as the outlet area shall be repaired as soon as it is noticed. NON-ROUTINE MAINTENANCE

. Structural components of the rain gardens such as the the pipes shall be repaired upon the detection of any damage. The components shall be inspected during routine maintenance operations.

2. Sediment shall be removed from the rain gardens no later than when the capacity of the rain gardens are half full of sediment or when deemed necessary for aesthetic reasons, upon approval from the department of public

3. When the draindown time exceeds 72 hours, filter media shall be replaced.

DATA SOURCES:

192 East Main Street

410-931-7897

SITE ADDRESS:

Nestminster, MD 21157

http://www.demariodesign.us

OWNER/DEVELOPER:

LEISHEAR RD @ MD RTE. 216 LAUREL, MD 20723

MD & VA MILK PRODUCERS ASSN. INC.

C/O THOMAS BARBUTI WHITEFORD, TAYLOR & PRESTON LLP.

7 ST. PAUL STREET BALTIMORE, MD 21202

BOUNDARY AND TOPO SHOWN HEREON ARE BASED ON A FIELD RUN

SURVEY PREPARED BY DEMARIO DESIGN CONSULTANTS, INC., DATED NOVEMBER 2007. WETLANDS SHOWN PER S-06-004, DERIVED FROM A

REPORT PREPARED BY MCCARTHY & ASSOCIATES DATED MAY 2005.

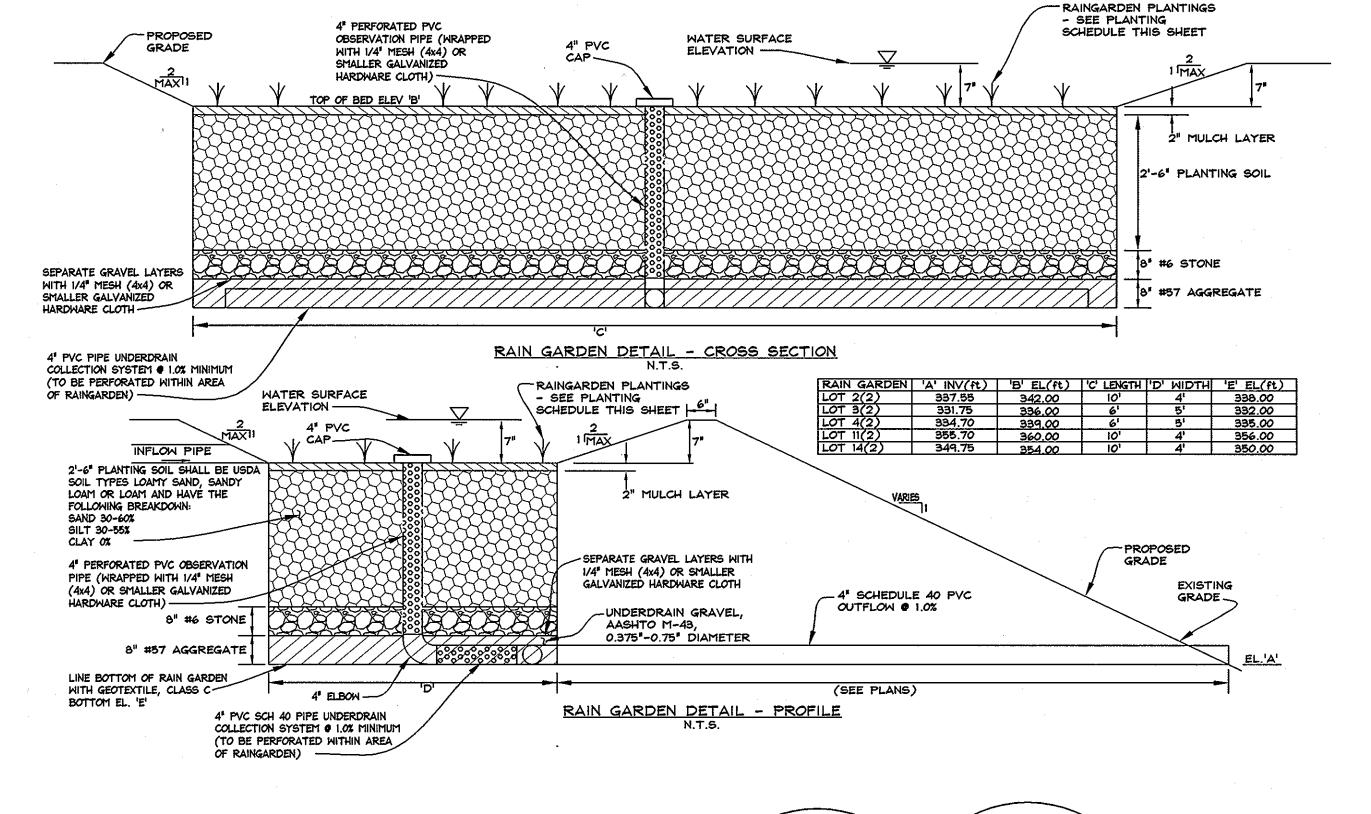
DESIGN CONSULTANTS

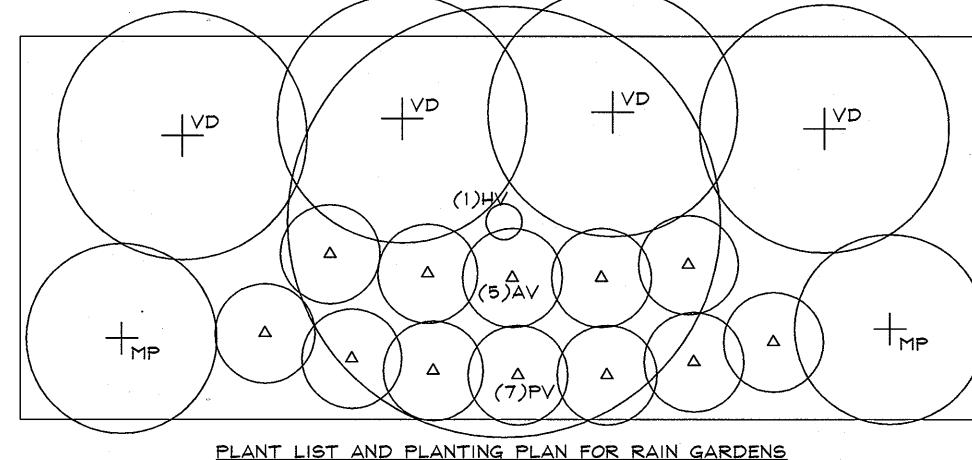
ENGINEERS, PLANNERS, SURVEYORS, LANDSCAPE ARCHITECTS

Phone: (410) 386-0560

eMail: ddc@demariodesign.us

Fax: (410) 386-0564





BY THE DEVELOPER: CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT SEDIMENT AND EROSION CONTROL , AND THAT ALL RESPONSIBLE WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL THE HOWARD SOIL CONSERVATION DISTRICT. HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENTAL 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.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC 4-12-10 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DATE Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed profes engineer under the laws of the State of Maryland, License No. 25420 , Expiration Date: 7-20-10. MARK R. THAYER P.E. 25420

3/22/10

MD & VA MILK PRODUCERS SOUTH STORMWATER MANAGEMENT NOTES & DETAILS 6TH ELECTION DISTRICT HOWARD COUNTY REVISIONS

DESCRIPTION OF CHANGES DRN. REV. DATE CO. FILE #: F-09-061 DES. BY: JCO TAX ACC. #: 06-414435 DRN. BY: CTS TAX MAP: 46 & 47 CHK. BY: JCO BLOCK / GRID: 12 & 1 DATE: 3/22/10 PARCEL# 985 & P/O 2 DDC JOB#: 07106.3 SHEET NUMBER: ZONE / USE: R-20 12 of 25 DWG. SCALE: AS SHOWN

RAIN GARDEN PLANT LIST

	SPECIES	ABBREV.	INUNDATION ZONE	HYDROLOGIC CONDITIONS
LOWER STORY (HERBACEOUS SPECIES):	BROOMSEDGE SWITCHGRASS (SHENANDOAH)	AV PV	RIPARIAN/FP TERRACE HIGH-MARSH/RIPARIAN	4,5 = PERIODIC 3,4 = REGULAR/PERIODIC
	WITCH HAZEL	HV	RIPARIAN/FP TERRACE	4,5 PERIODIC
MID-STORY (SHRUBS):	ARROWWOOD (CHRISTDOM) BAYBERRY	VD MP	HIGH-MARSH/RIPARIAN HIGH-MARSH/RIPARIAN	3,4 = REGULAR/PERIODIC 3,4 = REGULAR/PERIODIC

BORING LOG SWM-1	BORING LOG SWM-2	BORING LOG SWM-3	BORING LOG SWM-4	BORING LOG SWM-5
Elevation/ SON SYMBOLS/ SAMPLE Description Boring and Sampling Notes	Elevation/ SOIL SYMBOLS: SAMPLE CONDITIONS Description Boring and Sampling Notes	Elevation/ SOIL SYMBOLS/ SAMPLE Description Boring and Sampling Notes	Elevation/ SOA. SYMBOLS/ SYMBOLS/ SAMPLE Description Boring and Sampling Notes	Elevation/ SOIL SYMBOLS/ SAMPLE Description Boring and Sampting Notes
Brown, moist, soft, sandy SIL1 Brown to tan, moist, medium dense to very dense, micaceous sity SAND (SM) D Brown to tan, moist, medium dense to very dense, micaceous drilling. D Brown to tan, moist, medium dense to very dense, micaceous drilling. No groundwater encountered white drilling.	Brown, moist, medium stiff, sandy SILT (ML) Brown to tan, moist, roose to dense, micacecus sitty SAND (SM) Brown, moist, roose to dense, micacecus sitty SAND Brown, moist, very dense, micaceous sitty SAND (SM; Decomposed ROCK) Bottom of Boring at 13.9'	Brown, moist, soft, sandy S!LT Topsoil-3" No groundwater encountered while drilling. Brown, moist, vory dense, micaceous silty SAND (SM) Brown, moist, vory dense, micaceous silty SAND (SM: Decomposed ROCK) Bottom of Boring at 14.3'	Brown, moist, medium stiff, sandy SILT (ML) Brown, moist, medium dense to dense, micaceous sity SAND D Brown, moist, medium dense to dense, micaceous sity SAND Brown, moist, very dense, micaceous sity SAND (SM; Decomposed ROCK) Bottom of Boring at 14.9	Brown, moist, very soft, micaceous sandy SILT (ML) Brown to erange brown, moist, medium dense, micaceous silty SAND to sandy SILT (SM-ML) Brown, moist, very dense, micaceous silty SAND to sandy SILT (SM-ML) Brown, moist, very dense, micaceous silty SAND to sandy SILT (SM-ML; Decomposed ROCK) Bottom of Boring at 14.9'

	BORING LOG SWM-6			<u>-6</u>	BORING LOG SWM-7			BORING LOG SWM-8			<u>B0</u>	RING LOG SWM	1-9	BORING LOG B-1				
	18	SOIL SYMBOLS/ SAMPLE OXIDITIONS	Description	Boring and Sampling Notes	Elevation/ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Elevation/ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Elevation/ SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Elevation/ SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Bering and Sampling Notes
33	C H		Brown, moist, soft, micaceous sandy SILT (ML) Brown, moist, loose to medium dense, micaceous silty SAND to sandy SILT (SM-ML) Gray, moist, very dense, micaceous silty SAND to sandy SILT (SM-ML; Decomposed ROCK) Bottom of Boring at 15.0'	Topsoil-5" No groundwater encountered while drilling.	335 - 5		Brown, moist, soft, micaceous sandy SiLT (ML) Brown, moist, loose to medium dense, micaceous sity SAND to sandy SiLT (SM-ML) Gray, moist, very dense, micaceous sity SAND to sandy SiLT (SM-ML; Decomposed ROCK) Bottom of Boring at 15.3	Topseil-5* No groundwater encountered while drilling.	335 - 3		Brown, molst, soft to medium stiff, micaceous sandy SILT (ML) Brown, moist, medium dense, micaceous silty SAND to sandy SILT (SM-ML) Auger refusal at 12.0' Bottom of Boring at 12.0'	Topsoll-8" No groundwater sncountered while driling.	345 - 0 D D D D D D D D D D D D D D D D D D	Brown, moist, soft to medium stiff micaceous sandy SILT (ML) Brown to reddish brown, moist, medium dense, micaceous silty SAND to sandy SILT (SM-ML) Brown, moist, very dense, micaceous silty SAND to sandy SILT (SM-ML; Decomposed ROCK) Bottom of Boring at 15.1'	Topsoil-8" Na greundwaler encountsred while drilling.		Brown, moist, soft, sandy SILT (ML) Brown to tan, moist, medium dense to dense, micacsous silty SAND (SM) Bottom of Boring at 10.3	
33	5 20				- 20				- 2	C			20			20	·	

7-7 (H)

BORING LOG B-2	BORING LOG B-3	BORING LOG B-4	BORING LOG B-5	BORING LOG B-6	BORING LOG B-7
Elevation/ SOIL SYMBOLS/ Description Boring and Sampling Notes	Elevation SOIL SYMBOLS SAMPLE Description Boring and Sampling Notes	Elevation/ Soit Symbols Description Boring and Sampling Notes	E'evation/ SOR SYMBOLS/ SAMPLE Description Boring and Sampling Oppth CONDITIONS Description	Depth CONDITIONS Description Boring and Sampling Notes	Elevation/ SOIL SYMBOLS/ SAMPLE Description Boring and Sampling Notes
Brown, moist, soft, sandy SiLT (ML) Brown to tar, moist, medium dense, micaceous silty SAND (SM) Brown, moist, very dense, micaceous silty SAND (SM; Decomposed ROCK) Brown, moist, very dense, micaceous silty SAND (SM; Decomposed ROCK) Brown, moist, very dense, micaceous silty SAND (SM; Decomposed ROCK)	Brown, moist, soft, sandy SiLT (ML) Brown to tan, moist, medium dense to dense, micaccous silty SANC (SM) Brown, moist, very dense, micaceous silty SAND (SM; Decomposed ROCK) Brown, moist, very dense, micaceous silty SAND (SM; Decomposed ROCK) Brown, moist, very dense, micaceous silty SAND (SM; Decomposed ROCK)	Brown, moist, medium stiff, sandy SiLT (ML) Brown, moist, medium dense to dense, micaceous silty SAND D Brown, moist, medium dense to dense, micaceous silty SAND O Bottom of Boring at 10.0' Bottom of Boring at 10.0'	Brown, moist, medium stiff, sandy Sit.T (Mt.) Brown, moist, dense, micaceous sity SAND (SM) Brown, moist, very censo, micaceous sity SAND (SM; Decomposed ROCK) Bottom of Boring at 15.0*		Brown, moist, very soft, misaceous sandy SiLT (ML) Brown to reddish brown, moist, loose to medium dense, misaceous silty SAND to sandy SiLT (SM-ML) Brown to reddish brown, moist, loose to medium dense, misaceous silty SAND to sandy SiLT (SM-ML) Brown to reddish brown, moist, loose to medium dense, misaceous silty SAND to sandy SiLT (SM-ML) Brown to reddish brown, moist, loose to medium dense, misaceous silty SAND to sandy SiLT (SM-ML) Brown to reddish brown, moist, loose to medium dense, misaceous silty SAND to sandy SiLT (SM-ML) Brown to reddish brown, moist, loose to medium dense, misaceous silty SAND to sandy SiLT (SM-ML) Brown to reddish brown, moist, loose to medium dense, misaceous silty SAND to sandy SiLT (SM-ML)

DATA SOURCES: BOUNDARY AND TOPO SHOWN HEREON ARE BASED ON A FIELD RUN SURVEY PREPARED BY DEMARIO DESIGN CONSULTANTS, INC., DATED NOVEMBER 2007. WETLANDS SHOWN PER S-06-004, DERIVED FROM A REPORT PREPARED BY MCCARTHY & ASSOCIATES DATED MAY 2005.



Westminster, MD 21157 http://www.demariodesign.us OWNER/DEVELOPER:
MD & VA MILK PRODUCERS ASSN. INC.
C/O THOMAS BARBUTI
WHITEFORD, TAYLOR & PRESTON LLP.
7 ST. PAUL STREET BALTIMORE, MD 21202
410-931-7897

SITE ADDRESS: LEISHEAR RD @ MD RTE. 216 LAUREL, MD 20723

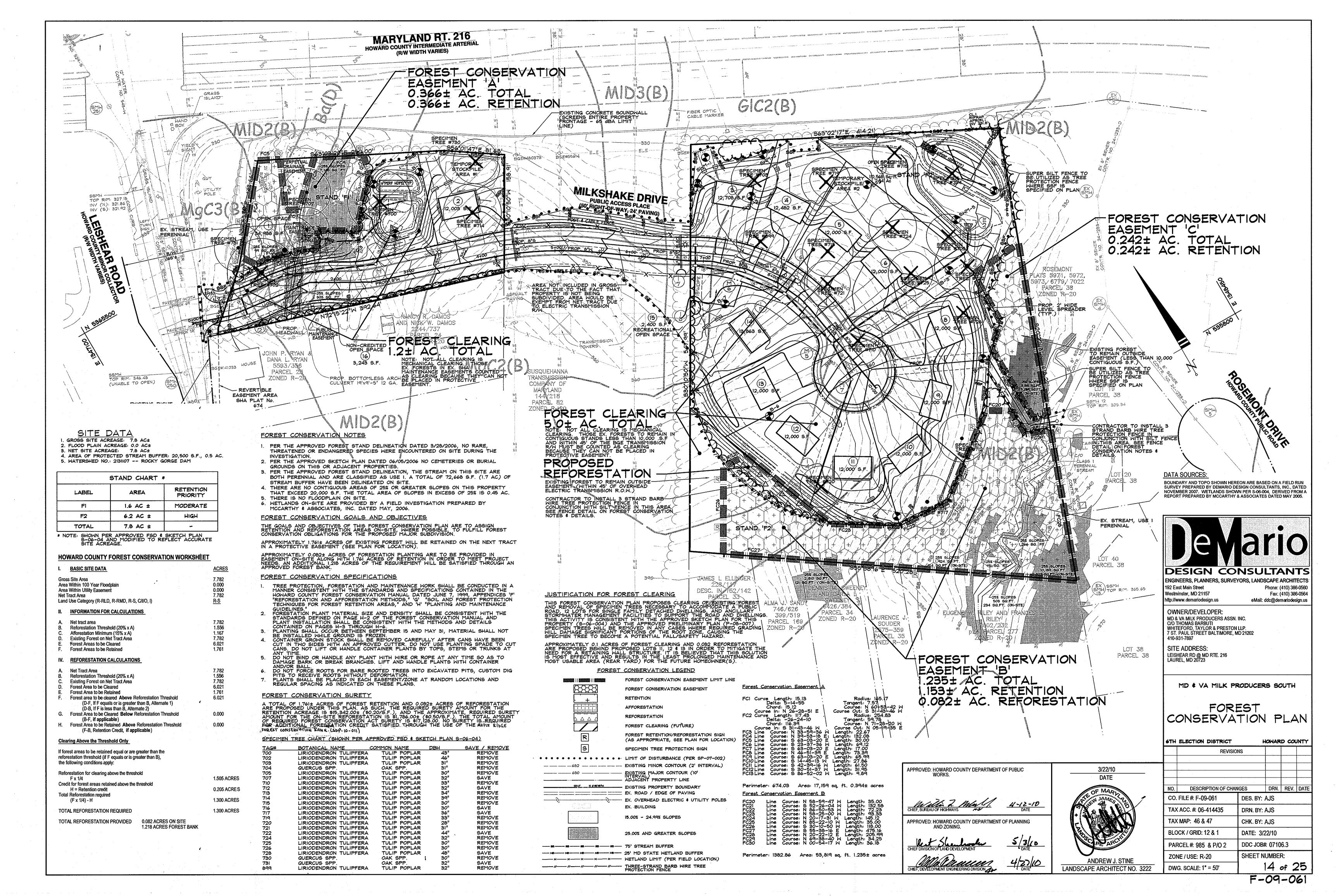
MD & VA MILK PRODUCERS SOUTH STORMWATER MANAGEMENT SOIL BORING LOGS

6TH ELECTION DISTRICT APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS. 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. 25420, Expiration Date: 7-20-10. CO. FILE #: F-09-061 4-12-10 DATE TAX ACC. #: 06-414435 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING. TAX MAP: 46 & 47 BLOCK / GRID: 12 & 1 PARCEL# 985 & P/O 2 ZONE / USE: R-20 MARK R. THAYER P.E. 25420 DWG. SCALE: N/A

REVISIONS DRN. REV. DATE NO. DESCRIPTION OF CHANGES DES. BY: MRT DRN. BY: SDS CHK. BY: MRT DATE: 3/22/10 DDC JOB#. 07106.3 SHEET NUMBER: 13 of 25 F-09-061

HOWARD COUNTY



Construction Period Protection Program for The Milk Producers Property - South (F-09-061) Prepared by DeMario Design Consultants, Inc., March, 2009 Delineation of The Limit Of Disturbance (LOD) 1" STOCK The General Contractor shall stake the Limit of Disturbance (LOD) prior to installation of tree protection measures. In any locations where Super Silt Fence or other Sediment and Erosion Control measures sufficient to protect the critical root zones of trees have been installed, no tree protection Fence shall be necessary. In areas where insufficient protection for the root zones of trees to be preserved throughout construction, tree protection fencing that complies with the details contained on the Final Forest Conservation Plan shall be installed. Tree protection fence will serve three primary goals, (1) to keep crowns and branching structure clear from contact by equipment materials and activities, (2) to preserve roots and soil condition in an intact and non-compacted state and; (3) to identify the Tree Protection Zone in which no soil disturbance is permitted and activities are restricted, unless otherwise approved by the landscape architect or an ISA Certified arborist or licensed forester. Removal of tree protection fence, even temporarily to allow deliveries, is prohibited. Forest Edge Treatment The contractor shall employ the services of an ISA Certified arborist and/or professional forester to ascertain the condition of trees that will, in the case of forest clearing or selective clearing and supplemental planting, establish a new forest edge. Trees shall be evaluated for susceptibility to windthrow and branches that may present a direct impediment to construction activities or hazards to health safety and welfare shall be removed with care. Exotic or invasives located near the forest edge shall be removed by mechanical means where possible or treated with approved berbicides. Any trees inadvertently damaged through construction shall be treated as if survival is expected. If it is determined that any part of a tree is in an unsafe or dangerous condition, then that part of the tree shall be removed. If the entire tree is affected, it shall be removed in its entirety. If the hazardous condition is questionable, the contractor shall acquire the services of an ISA Certified Arborist or professional forester who shall inspect the tree and certify that the condition of the tree is not a hazard and is not expected to be a hazard in the foreseeable future. Trees damaged by the contractor that must be removed shall be replaced by the contractor at no additional expense to the owner. In order to protect trees, super silt fence shall be provided in any area where the LOD comes within 50' of any environmental feature (including wetlands, slopes 25%+, stream buffer, floodplain, etc.) or an approved forest conservation easement area. — 11' X 11' Protective Signage Protective signs shall be installed around the perimeter of retention easements and afforestation and reforestation planting areas. Signs shall comply with the details included on the Final Forest Conservation Plan with respect to spacing, height, and content. Signs shall be mounted on metal posts at an approximate height of 5' above finished grade and shall be maintained in perpetuity. SIGNS MAY NOT BE ATTACHED TO TREES UNDER ANY CONDITION. Materials and Vehicle Storage LEGEND: PLANTING NOTES The storage, disposal or placement of construction materials and operating or storing construction machinery, or driving or parking of vehicles in the Tree Protection Zone is strictly prohibited unless otherwise approved by the Landscape Architect or an ISA Certified Arborist or professional forester. The use of tree trunks as backstops, winch supports, anchorages, temporary power poles, sign posts or other functions is also strictly prohibited. Cutting of tree roots in or near the Tree Protection Zone for utility trenching, foundation digging, placement of curbs and trenches or other miscellaneous excavations should be preceded by root pruning conducted with a sharp saw that cuts roots cleanly, to sound wood, flush with the trench or excavation site. 1) TREES WILL BE MULCHED WITH 2"-4" MULCH OVER THE ROOT AREA. AVOID DIRECT CONTACT WITH THE TRUNK. O.C. - ON CENTER 2) HARDWOOD WHIPS NO LESS THAN 21" HEIGHT AND AVERAGING 24" IN HEIGHT WILL BE USED. LARGE TREE - OVERSTORY 3) WATERING AND FERTILIZING WILL BE PERFORMED ON AN AS NEEDED BASIS Construction vehicle wash-out operations shall not be conducted where water from this work can drain into a forest retention easement or a designated afforestation or reforestation planting area. No grading work shall be conducted that temporarily conducts excessive drainage into a forest retention easement or a designated afforestation or reforestation planting area. 4) PLANTING OF UNDERSTORY TREES SHALL BE IN AN EVEN, RANDOM SMALL TREE - UNDERSTORY PLANTING DESIGN Activities Permitted within the Tree Protection Zone The following activities may be conducted within the Tree Protection Zone in an effort to restore or enhance suitability for forest habitat: * Mulch may be spread within the Tree Protection Zone to a four to six inch depth, leaving the trunks of existing trees clear of mulch. Mulch shall be unpainted, untreated shredded wood or other material approved by the Landscape Architect or an ISA Certified Arborist or professional forester.

* Aeration, fertilization and applications of mycornhizae or other beneficial practices may be conducted within the Tree Protection Zone. Fertilization and mycorrhizal treatments shall be preceded by a soils analysis by a soils lab certified to perform such work. Natural amendments such as organic mulch, leaf mold or compost tea are preferred sources of fertilization.

* Irrigation is the single most important treatment for trees within the Tree Protection Zone. The Contractor should designate an irrigation schedule to wet in the Tree Protection Zone to the depth of the root zone and replace that water once it is depleted. Light, frequent irrigation should be avoided.

* In periods of extended drought, wind or grading, trunks, limbs and foliage should be sprayed with water to remove accumulated construction dust.

* The removal of exotic or invasive plan material is a high priority within the tree protection zone. Invasive ANCHOR POSTS SHOULD BE MINIMUM 2" "U" CHANNEL OR 2" X 2" TIMBER 6" IN LENGTH 6' MAX. remove accumulated construction dust.

* The removal of exotic or invasive plan material is a high priority within the tree protection zone. Invasive material should be removed by mechanical means where possible. Herbicides may be used where they will not negatively affect adjacent plan material.

* Selective pruning or thinning to remove dead or diseased plan material.

* Planting in stream or wetland buffers should be preceded by the correction of any existing erosion problems and the use of chemical fertilizers and herbicides should be minimized or eliminated. The Contractor shall retain the services of an ISA Certified Arborist or professional forester for monitoring the Tree Protection Zone, performing any necessary construction period management, stress reduction, watering or other corrective activities during construction and during Post Construction (Guarantee Period) Management. Timing of Afforestation and Reforestation Planting < Planting shall occur between September 15 and May 31, plant materials shall not be installed while ground is frozen. Planting of Proposed Forest Conservation Easement 'D' shall be delayed until the planting season after grading for the proposed public street is completed. All other easements have sufficient separation from construction activities to allow for planting, when possible, between the dates indicated above. <u>Certification of Completion</u> At the end of the construction period, the landscape architect, ISA Certified Arborist or professional forester retained by the Contractor shall convey to the Howard County Department of Planning and Zoning a certification that all forest retention areas have been preserved, all afforestation and reforestation plantings have been installed as required by the forest conservation plan, and that all protection measures required for the post construction period have been put in place. A sample certification can be found in Appendix J of the Howard County Forest Conservation Manual. Post Construction (Guarantee Period) Management Program -ATTACH PLASTIC FLAGGING TAPE TO BARBED WIRE FENCE The Contractor shall be responsible for the following post-construction activities for the full length of the Guarantee Period (minimum of 2 growing seasons per the Howard County Forest Conservation Manual): * Regular mowing of afforestation and reforestation planting areas shall be conducted through the Guarantee Period to suppress growth of weeds and remove habitat for mice, voles or other rodents that prey on newly planted trees. Mowing equipment shall have pneumatic tires and shall not be of sufficient size to cause excessive soil -ANCHOR POSTS MUST BE INSTALLED TO A DEPTH OF NO LESS THAN 1/3 OF THE TOTAL HEIGHT OF THE POST compaction.

* Maintaining on site measures including fences and signs to prevent undesirable intrusion into the Tree Protection Zone.

* Periodic inspection for continued compliance with this Construction Period Maintenance Program.

* Education of new occupants of the development to avoid activities that could destroy or degrade protected forest resources.

* Periodic thinning, watering, fertilizing or other measures to ensure survival and growth in the Tree Protection Zone and/or afforestation or reforestation planting areas.

* Removal and replacement of dead afforestation and reforestation such that a 75% survival rating is achieved by the end of the second growing season.

* Removal and/or control of competing or exotic vegetation.

* Final inspection and certification that the survival rates have been met at the end of the Post Construction Management Period. NOTES: FOREST PROTECTION DEVICE ONLY.
RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR
TO INSTALLING DEVICE.
AVOID ROOT DAMAGE WHEN PLACING ANCHOR POSTS.
BARBED WIRE SHOULD BE SECURELY ATTACHED TO POSTS.
DEVICE SHOULD BE PROPERLY MAINTAINED DURING CONSTRUCTION.
PROTECTIVE SIGNAGE IS ALSO RECOMMENDED. ACCEPTED FOR THE PROVISION OF THE SERVICES DETAILED ABOVE COMPANY NAME COMPANY ADDRESS BARB WIRE TREE PROTECTION FENCE FOREST CONSERVATION EASEMENT 'B' # OF I" STOCK TO BE PLANTED (17) ACREAGE TO BE PLANTED (0.082±) QUANTITY TOLERANCE REMARKS COMMON NAME SPECIES SPACING TULIP POPLAR LIRIODENDRON TULIPFERA 1" CAL. 8'-10' HT 15' O.C. FACU FACU SASSAFRAS ALBIDUM 1" CAL. 6'-8' HT. 15' O.C. SASSAFRAS NYSSA SYLVATICA 1" CAL. 8'-10' HT FAC BLACK GUM 15' O.C. BLACK CHERRY 15' O.C. FACU PRUNUS SEROTINA 1" CAL. 8'-10' HT RED OAK 1" CAL. 8'-10' HT FACU QUERCUS RUBRA 15' O.C. 1" CAL. 6'-8' HT. FACU CERCIS CANADENSIS 15' O.C. REDBUD FACU 1" CAL. 4'-6' HT. PINUS STROBUS 151 O.C. WHITE PINE SPECIMEN **FOREST** Forest TREE Conservation Area RETENTION AREA DO NOT REMOVE REFORESTATION MACHINERY, DUMPING OR STORAGE OF ANY MATERIALS IS PROJECT PROHIBITE **PROHIBITED** Trees For VIOLATORS ARE SUBJECT TO FINES AS IMPOSED BY THE MARYLAND FOREST CONSERVATION ACT OF 1991 Your Future

RETENTION, REFORESTATION, & AFFORESTATION PROTECTION SIGN DETAILS

ノN.T.S.

DATA SOURCES: BOUNDARY AND TOPO SHOWN HEREON ARE BASED ON A FIELD RUN SURVEY PREPARED BY DEMARIO DESIGN CONSULTANTS, INC., DATED NOVEMBER 2007. WETLANDS SHOWN PER S-06-004, DERIVED FROM A

REPORT PREPARED BY MCCARTHY & ASSOCIATES DATED MAY 2005.



ENGINEERS, PLANNERS, SURVEYORS, LANDSCAPE ARCHITECTS 192 East Main Street Phone: (410) 386-0560

Fax: (410) 386-0564

eMail: ddc@demariodesign.us

Westminster, MD 21157 http://www.demariodesign.us

OWNER/DEVELOPER: MD & VA MILK PRODUCERS ASSN. INC. C/O THOMAS BARBUTI WHITEFORD, TAYLOR & PRESTON LLP.

7 ST. PAUL STREET BALTIMORE, MD 21202

410-931-7897 SITE ADDRESS: LEISHEAR RD @ MD RTE. 216 LAUREL, MD 20723

MD & VA MILK PRODUCERS SOUTH

FOREST CONSERVATION PLAN

6TH ELECTION DISTRICT REVISIONS 3/22/10 DATE DWG. SCALE: 1"=50' LANDSCAPE ARCHITECT NO. 3222

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING

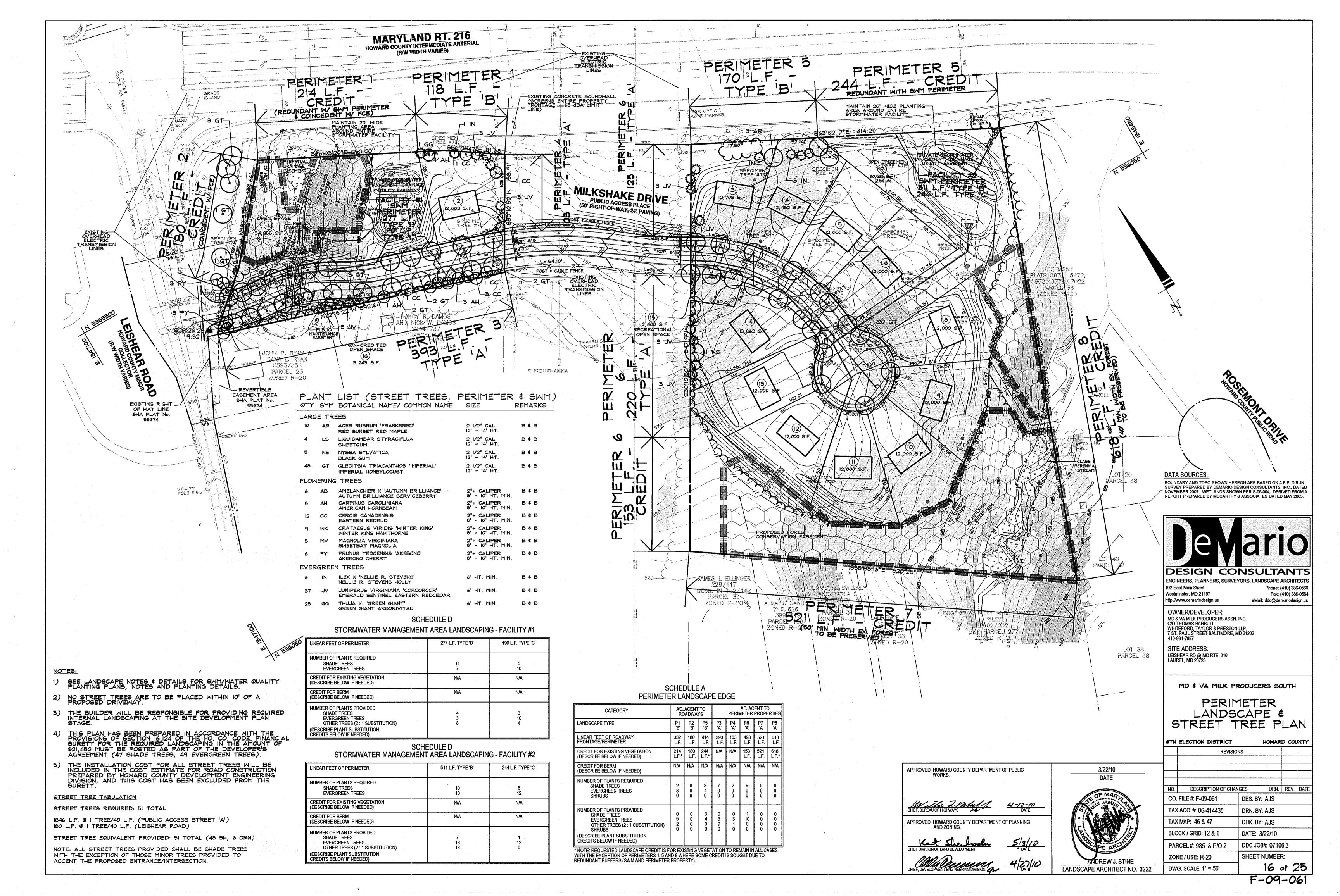
My Jan 2. Mar 1. CHIEF, BUREAU OF HIGHWAYS MA

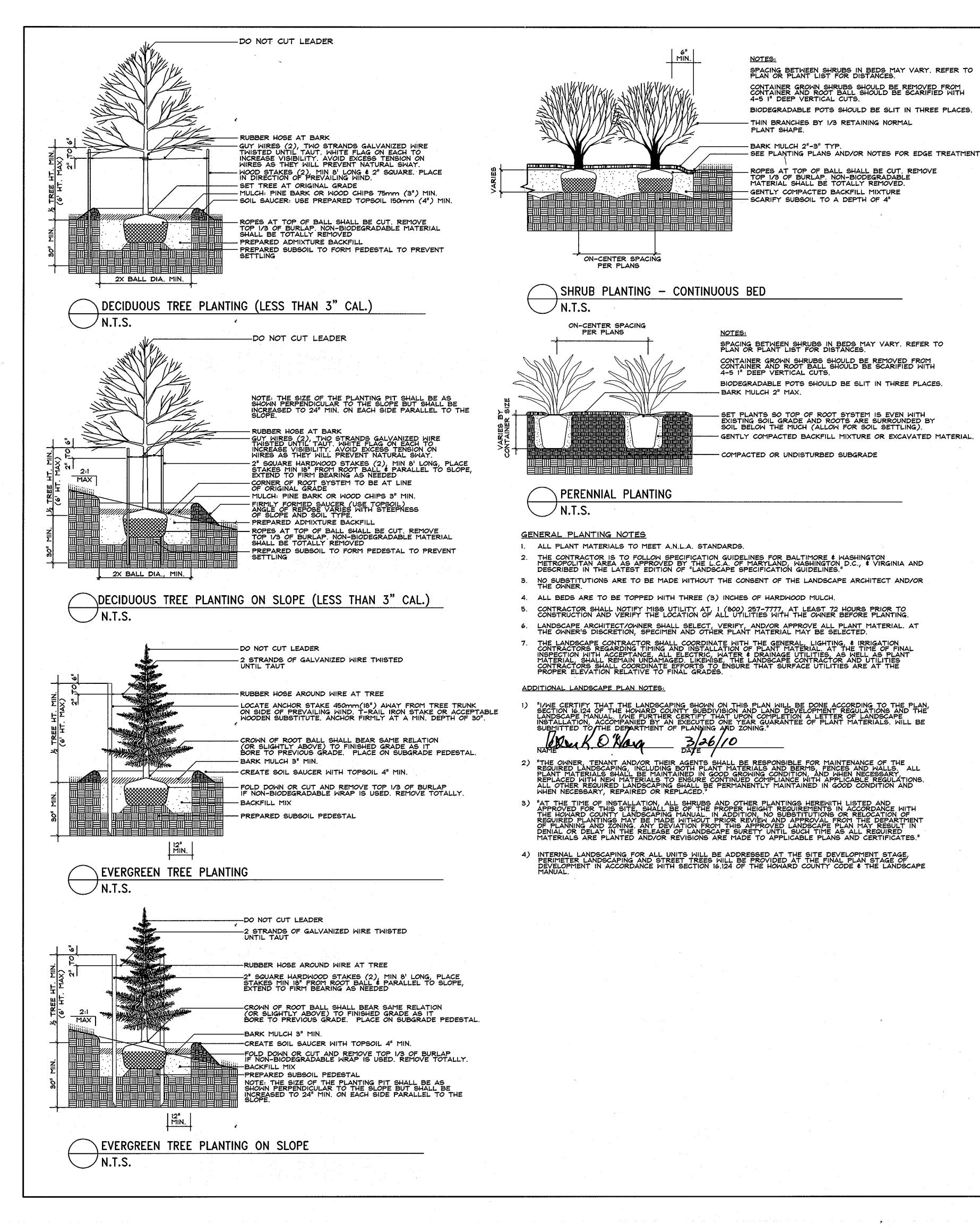
AND ZONING.

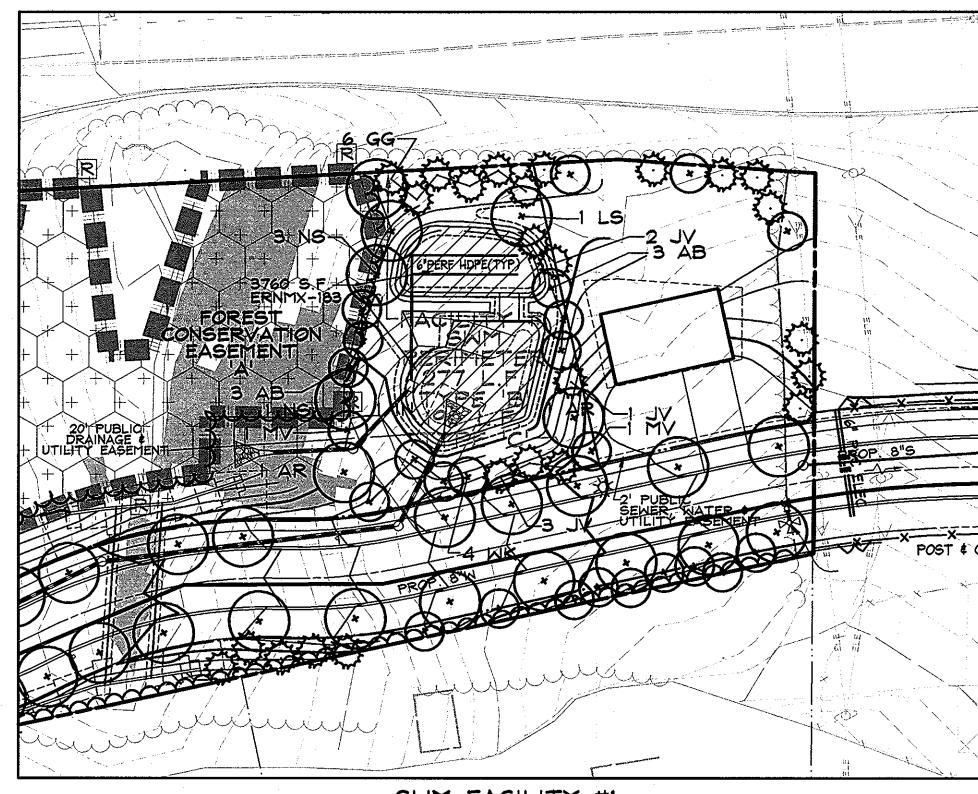
11211010				<u> </u>				
O. DESCRIPTION OF CHAN	IGES	DRN.	REV.	DATE				
O. FILE#: F-09-061	DES. BY: AJS							
AX ACC.#: 06-414435	DRN. BY: A	AJS						
AX MAP: 46 & 47	CHK. BY: AJS							
LOCK / GRID: 12 & 1	DATE: 3/2	2/10						
PARCEL# 985 & P/O 2	DDC JOB#	: 0710	6.3					
ONE / USE: R-20	SHEET N							
WG. SCALE: 1"=50'		5	of 2	25				

F-09-06

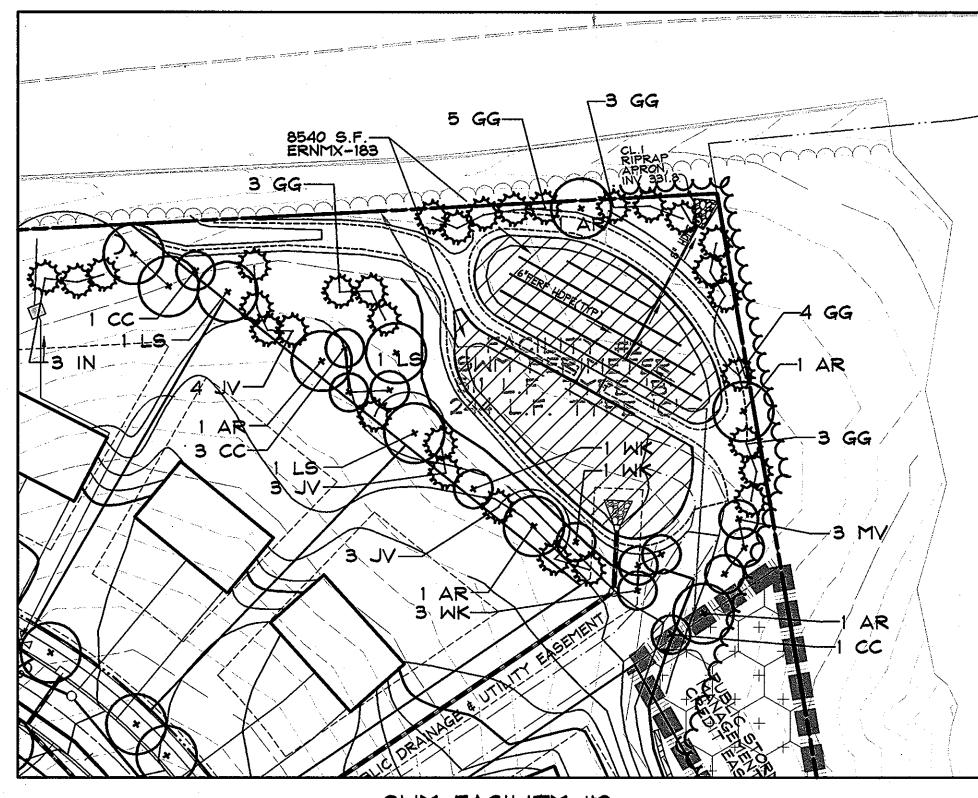
HOWARD COUNTY







SWM FACILITY #1
WATER QUALITY PLANTING PLAN
SCALE: 1" = 40'



SWM FACILITY #2
WATER QUALITY PLANTING PLAN
SCALE: 1" = 40'

DENOTES SWM FACILITY WATER QUALITY PLANTING MIX. ERNST CONSERVATION SEED RETENTION BASIN MIX (ERNMX-183) TO BE PROVIDED AT A RATE OF 20BULK LBS PER ACRE OR 1/3-1/2 LBS PER 1,000 SQ. FT.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC

WORKS.

JAMES AND ZOUNTY DEPARTMENT OF PLANNING AND ZONING.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

CHIEF DIVISION OF LAND DEVELOPMENT

CHIEF, DEVELOPMENT ENGINEERING DIVISION A HORIZON DATE

ANDREW J. STINE

LANDSCAPE ARCHITECT NO. 3222



ENGINEERS, PLANNERS, SURVEYORS, LANDSCAPE ARCHITECTS
192 East Main Street Phone: (410) 386-0560
Westminster, MD 21157 Fax: (410) 386-0564
http://www.demariodesign.us eMail: ddc@demariodesign.us

OWNER/DEVELOPER:
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C/O THOMAS BARBUTI
WHITEFORD, TAYLOR & PRESTON LLP.
7 ST. PAUL STREET BALTIMORE, MD 21202
410-931-7897

SITE ADDRESS: LEISHEAR RD @ MD RTE. 216 LAUREL, MD 20723

ZONE / USE: R-20

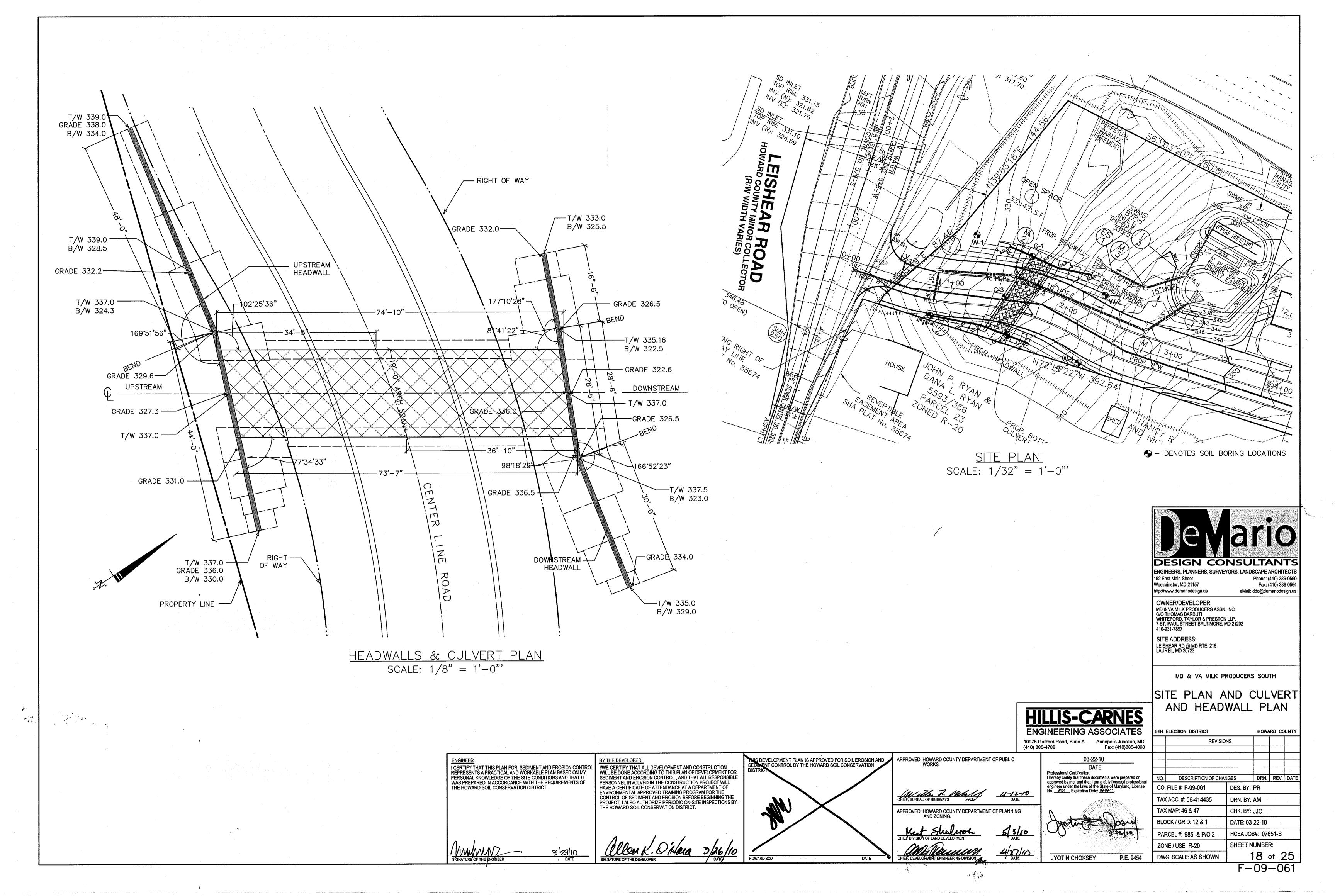
DWG. SCALE: AS SHOWN

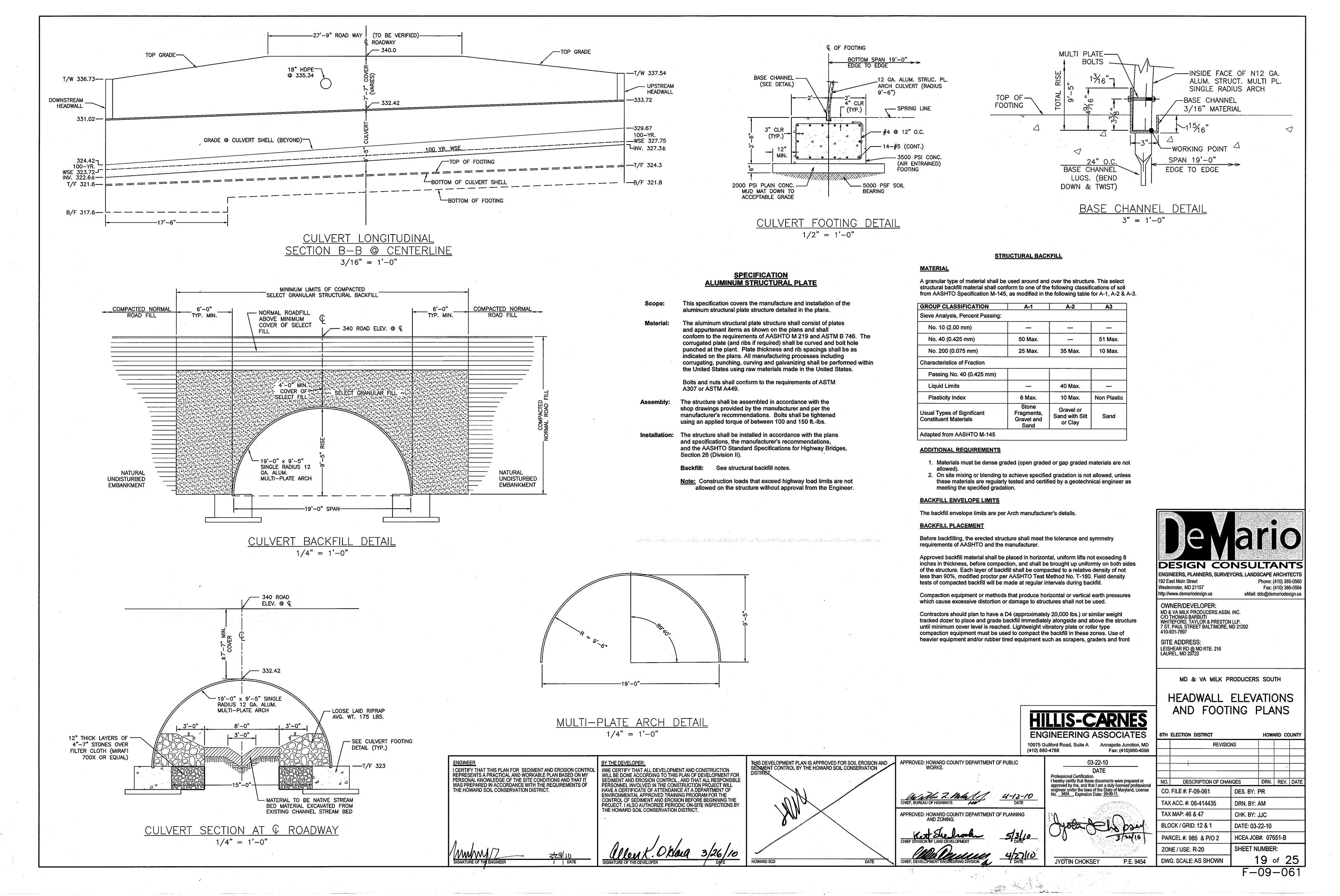
LANDSCAPE
NOTES & DETAILS
& SWM/WATER
QUALITY PLANTING

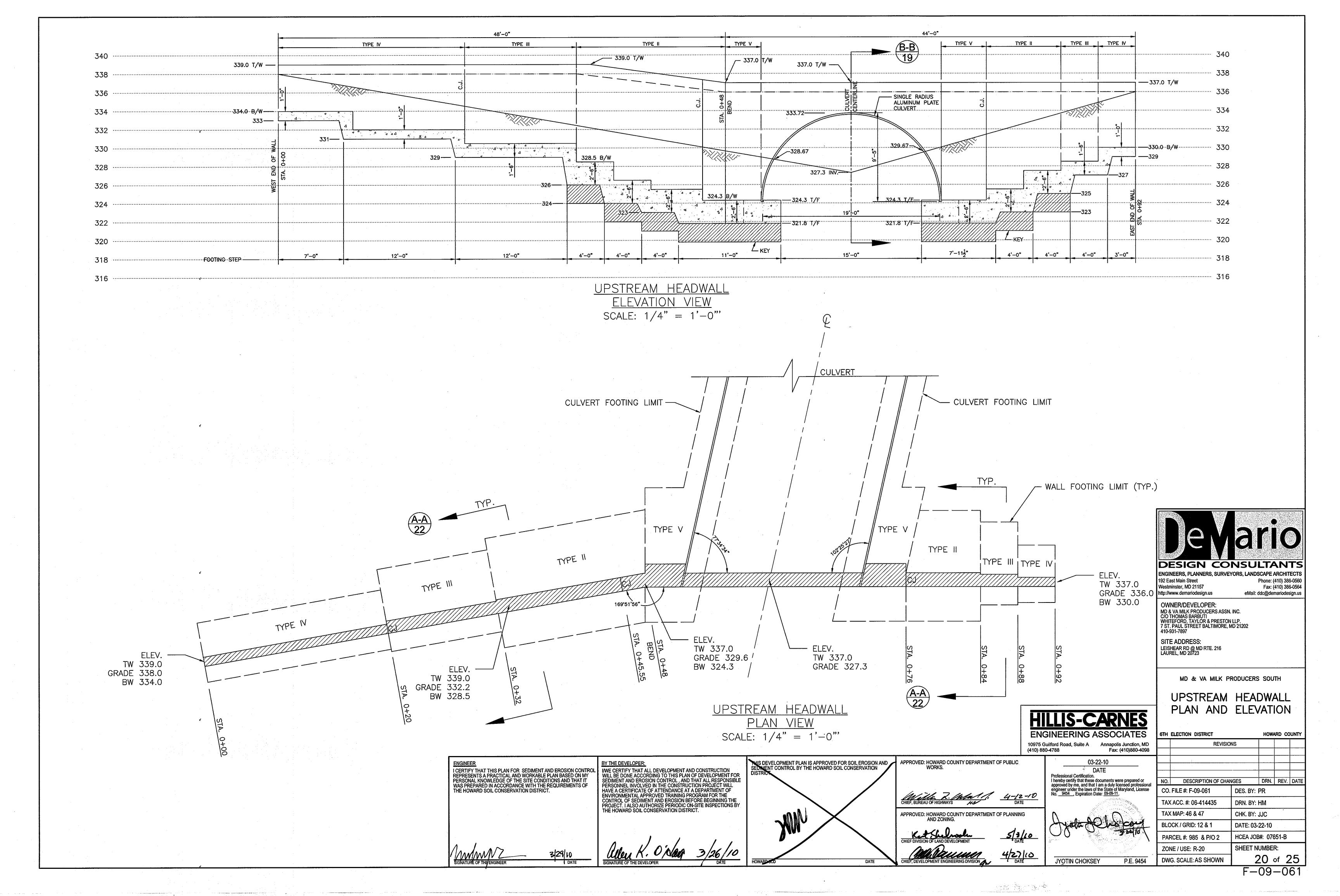
PARCEL # 985 & P/O 2 DDC JOB#: 07106.3

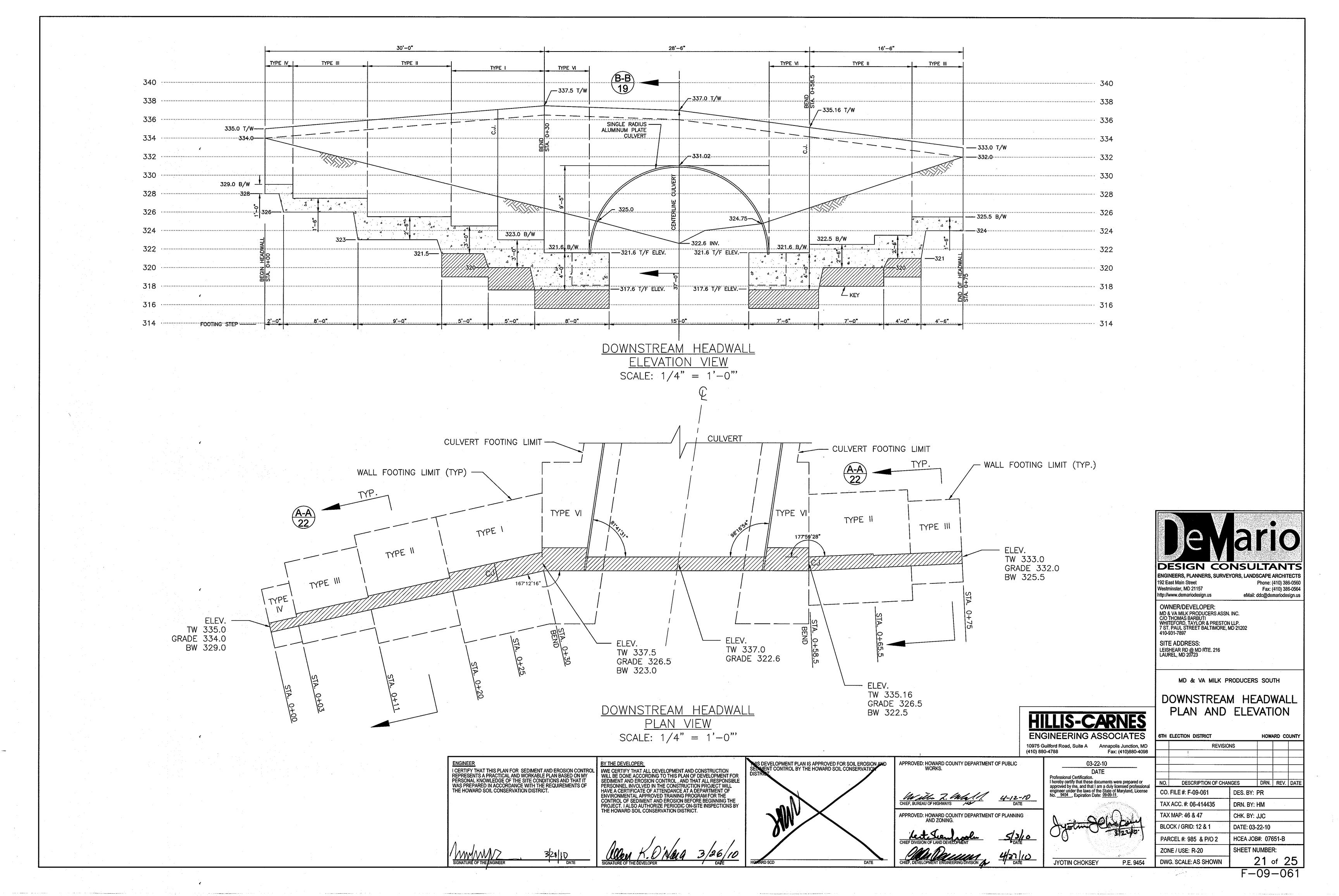
17 of 25 F-09-061

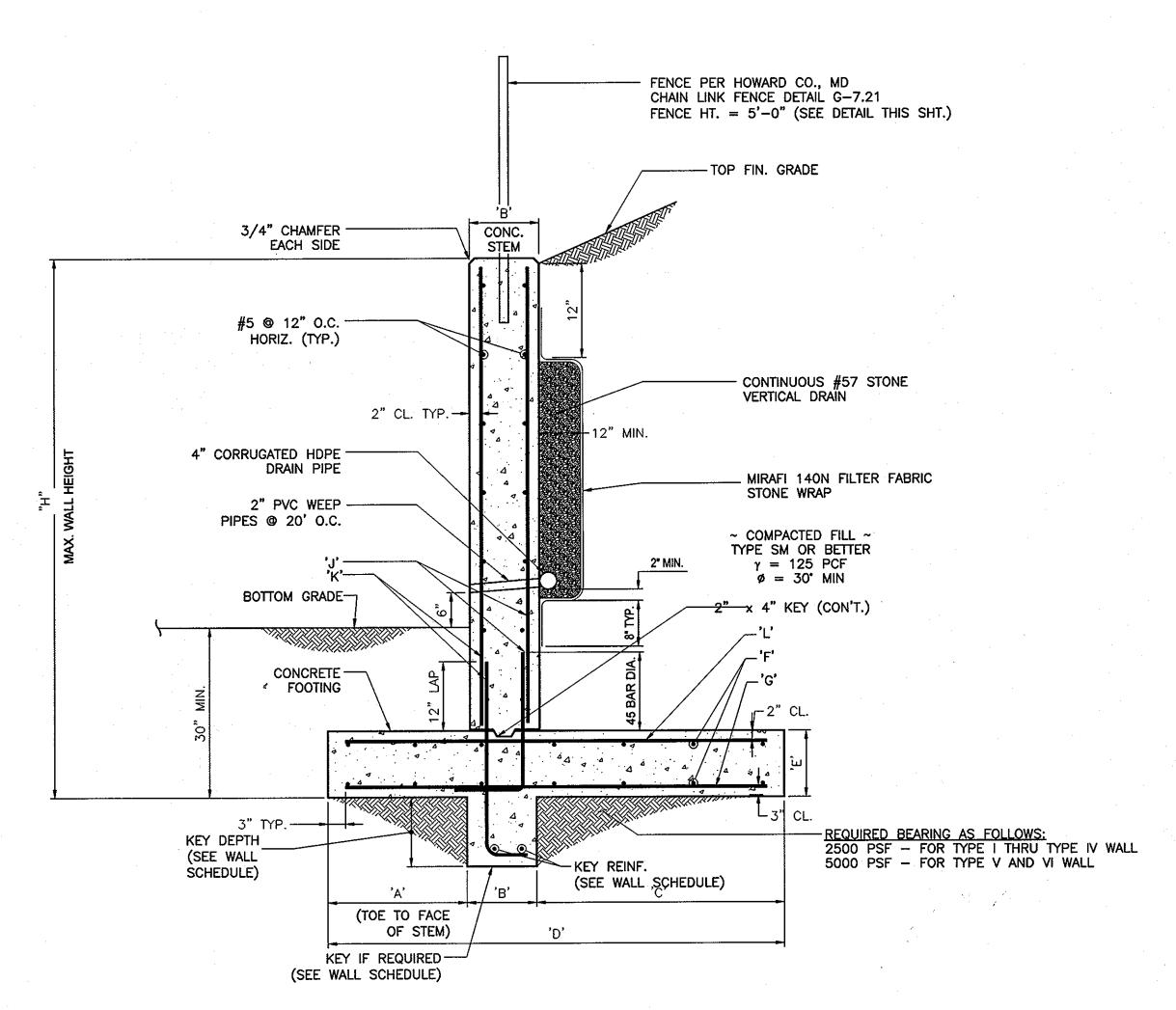
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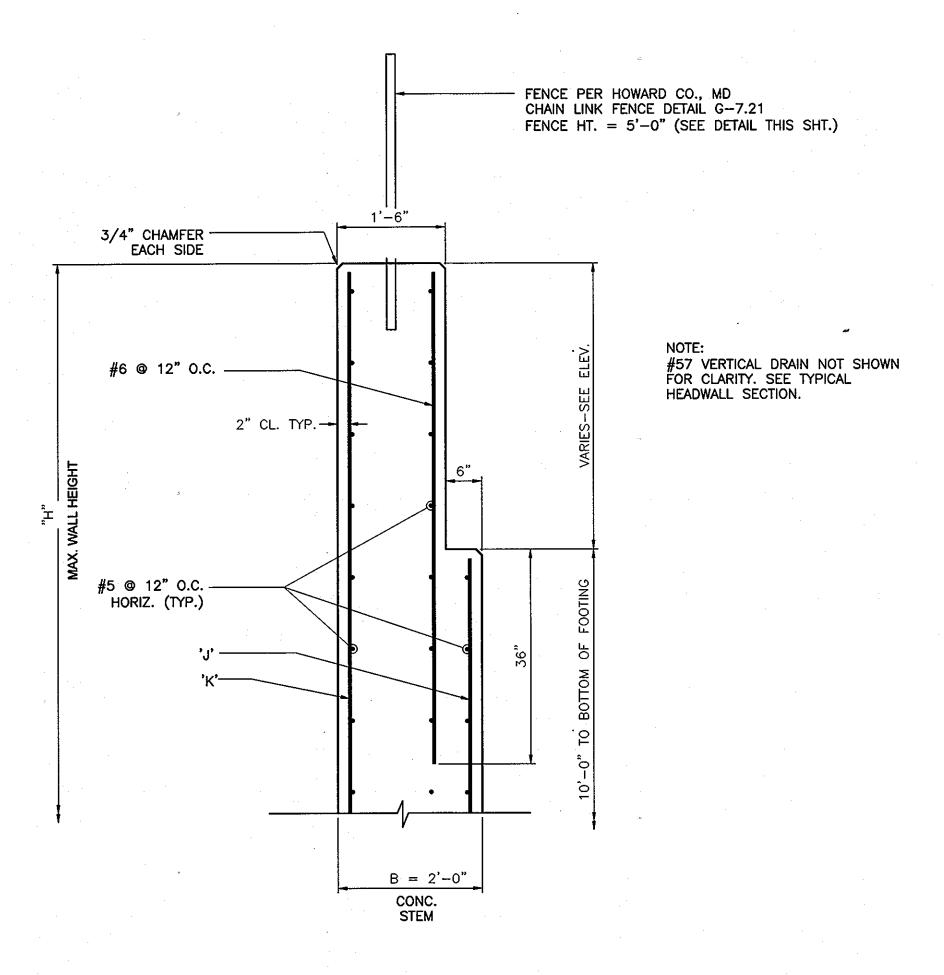




TYPICAL HEADWALL SECTION DETAIL SCALE: 3/4" = 1'-0"

Series Brieferson Marie														
Wall Type	Maximum Height "H"	Wall & Footing Dimension					Footin	g Reinforcei	ments	Stem Reir	forcement	Key		
		"A" (Toe)	"B" (Stem)	"C" (Heel)	"D" (Width)	"E" (Thick)	"F"	"G"	ոլո	"J"	"K"	Reinf.	Depth	
1	18'-6"	5'-9"	2'-0"/1'-6"	6'-3"	14'-0"	3'-0"	#8@12"	#8@12"	#8@12"	#8@12"	· #6@12"	3-#7	2'-6"	
· II	15'-0"	3'-9"	1'-6"	6'-9"	12'-0"	2'-6"	#8@12"	#8@12"	#8@12"	#7@12"	#6@12"	3-#6	2'-0"	
Ш	10'-6"	2'-0"	1'-4"	5'-8"	9'-0"	1'-6"	#6@12"	#6@12"	#7@12"	#6@12"	#6@12"			
i IV	8'-0"	1'-9"	4 1'-0"	3'-9"	6'-6"	1'-0"	#5@12"	#5@12"	#5@12"	#5@12"	#5@12"			
V	17'-0"	3'-9"	2'-6"	8'-3"	14'-6"	2'-6"	#6@12"	#6@12"	#8@6"	8 - #8	#6@12"	3-#7	2'-0"	
· VI	20'-0"	5'-9"	2'-6"	9'-3"	17'-6"	4'-0"	#7@12"	#8@12"	#8@6"	10 - #8	#6@12"	3-#7	2'-0"	

- 1.) ALL CONCRETE SHALL BE 3500 PSI WITH AIR ENTRAINMENT, EXEPT 2000 PSI MUD MAT.
- 2.) REINFORCING STEEL SHALL CONFORM TO ASTM A-615 GRADE 60.
- 3.) WALL BACKFILL SHALL BE COMPACTED TO 95% OF T-99.
- 4.) CONCRETE WORK SHALL COMPLY WITH THE LATEST ACI 318 BUILDING CODE FOR CONCRETE
- 5.) ALL REBAR SPLICES NOT SHOWN SHALL BE A MINIMUM OF 40 BAR DIAM.
- 6.) ALL WALL EXPOSED SURFACES SHALL BE MORTAR PATCHED AND SACK-RUBBED FINISHED WITH GROUT AND BURLAP.
- 7.) DESIGN SOIL BEARING VALUE ARE AS FOLLOWS (TO BE FIELD VERIFIED): TYPE I THRU IV = 2500 PSF TYPE V, VI, & CULVERT FOOTING = 5000 PSF



STEPPED STEM FOR TYPE I HEADWALL DETAIL SCALE: 3/4" = 1'-0"

Y THE DEVELOPER:

IWE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR

PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF

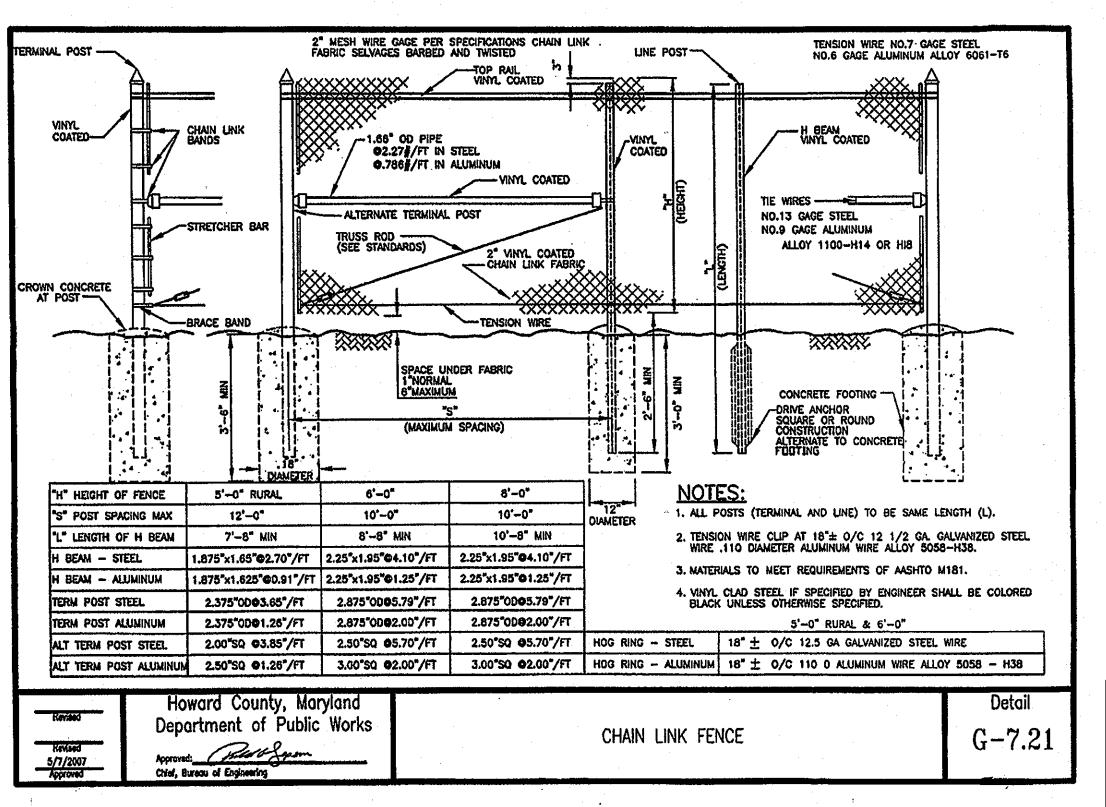
CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

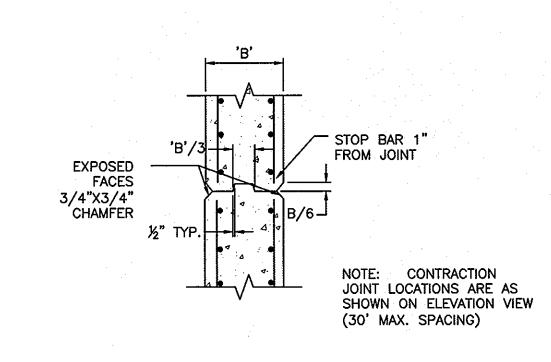
ENVIRONMENTAL APPROVED TRAINING PROGRAM FOR THE

SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE

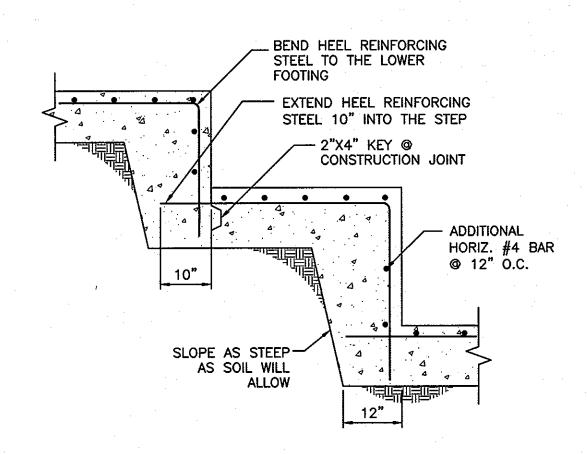
I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY

PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.





WALL STEM VERTICAL CONTRACTION "C.J." DETAIL $\frac{\text{(PLAN VIEW)}}{\text{SCALE: } 3/4" = 1'-0"}$



FOOTING STEP DETAIL SCALE: 3/4" = 1'-0"



SECTION & CONSTRUCTION DETAILS

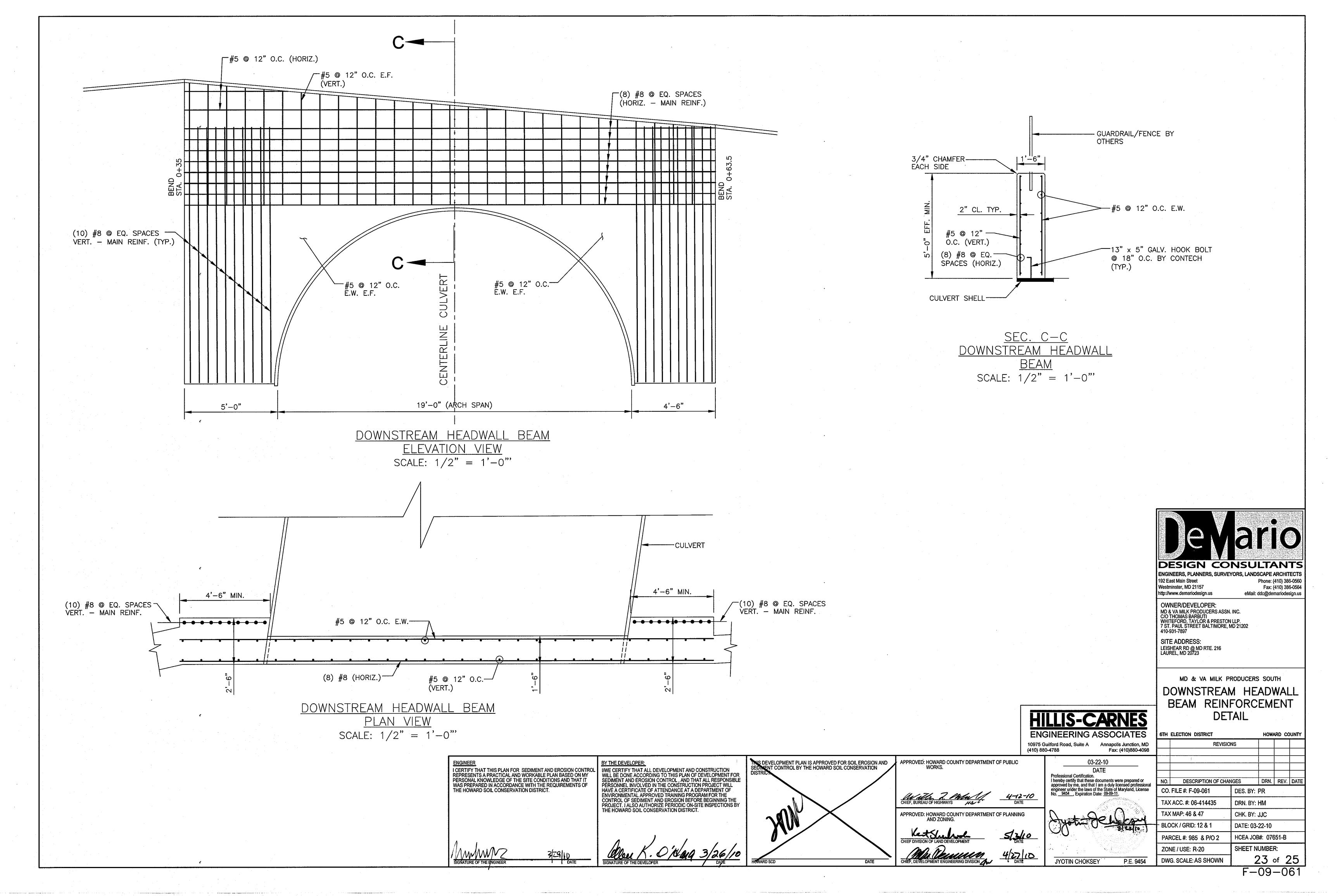
ENGINEERING ASSOCIATES 6TH ELECTION DISTRICT REVISIONS Annapolis Junction, MD Fax: (410)880-4098 03-22-10 DATE I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professiona engineer under the laws of the State of Maryland, License No. __9454__, Expiration Date: 09-09-11. NO. DESCRIPTION OF CHANGES CO. FILE #: F-09-061 DES. BY: PR TAX ACC. #: 06-414435 DRN. BY: HM TAX MAP: 46 & 47 CHK. BY: JJC BLOCK / GRID: 12 & 1 DATE: 03-22-10 HCEA JOB#: 07651-B PARCEL#: 985 & P/O 2 SHEET NUMBER: ZONE / USE: R-20 DWG. SCALE: AS SHOWN P.E. 9454 JYOTIN CHOKSEY

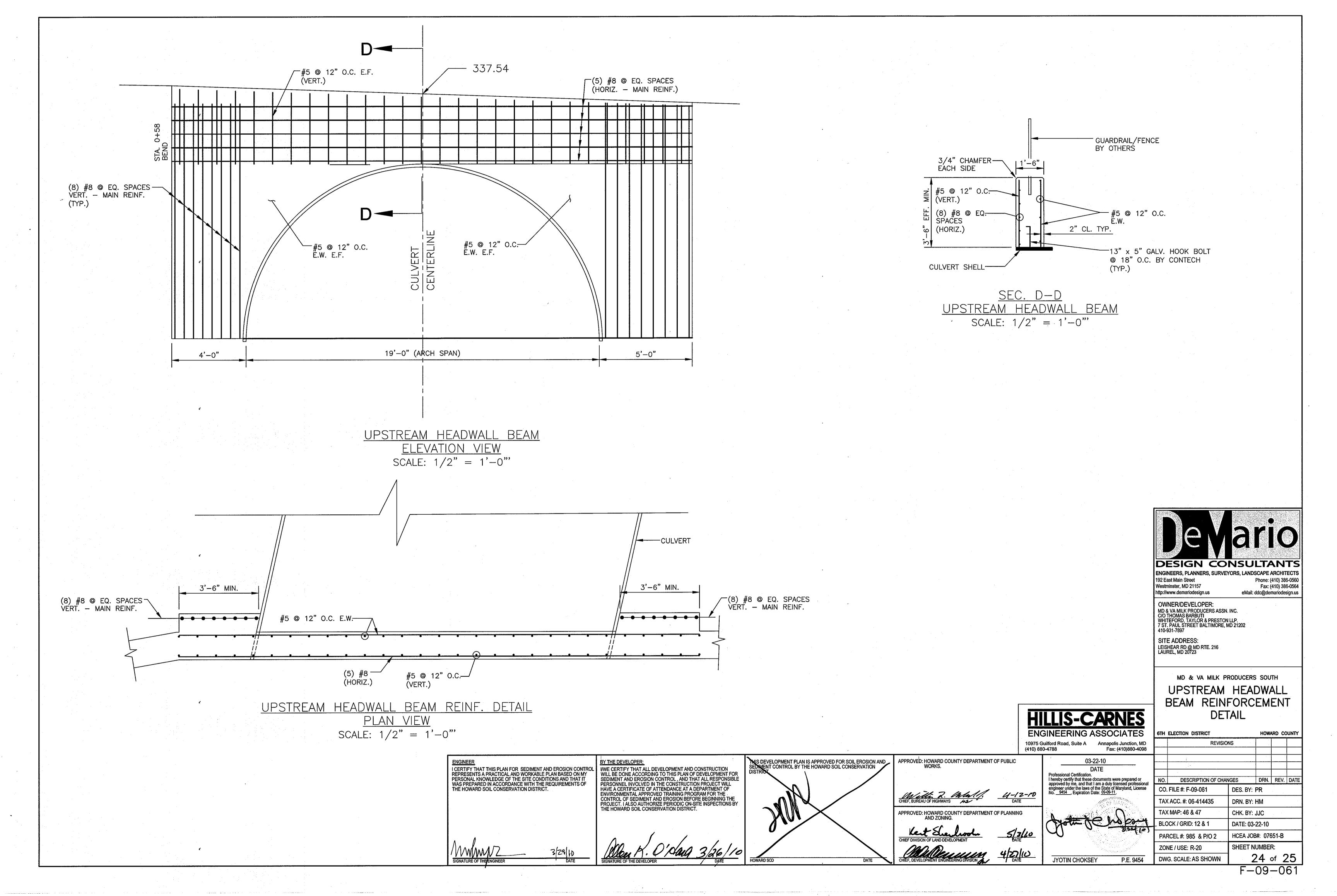
10975 Guilford Road, Suite A (410) 880-4788 THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT. APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS. Professional Certification. APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING

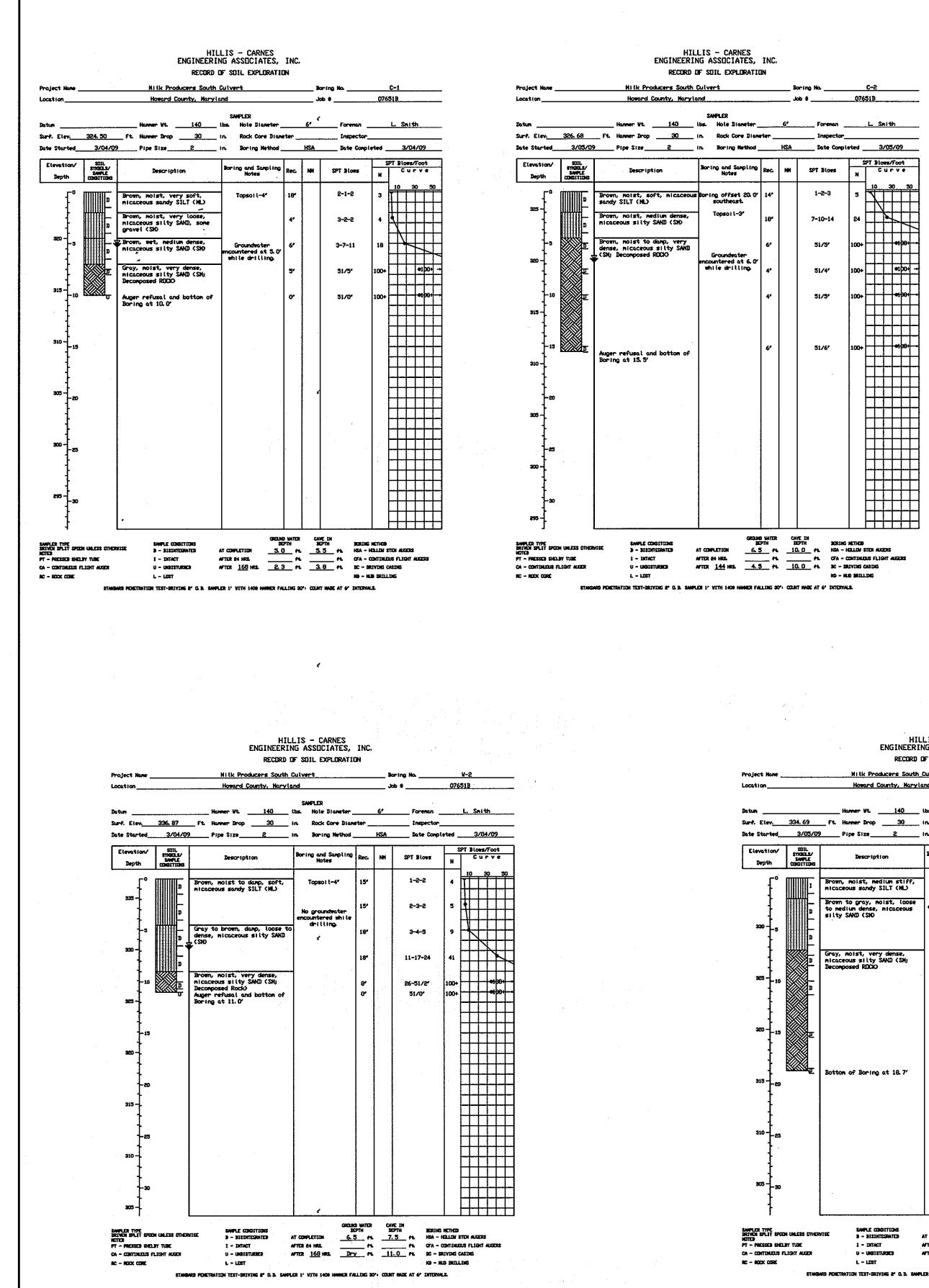
22 of 25

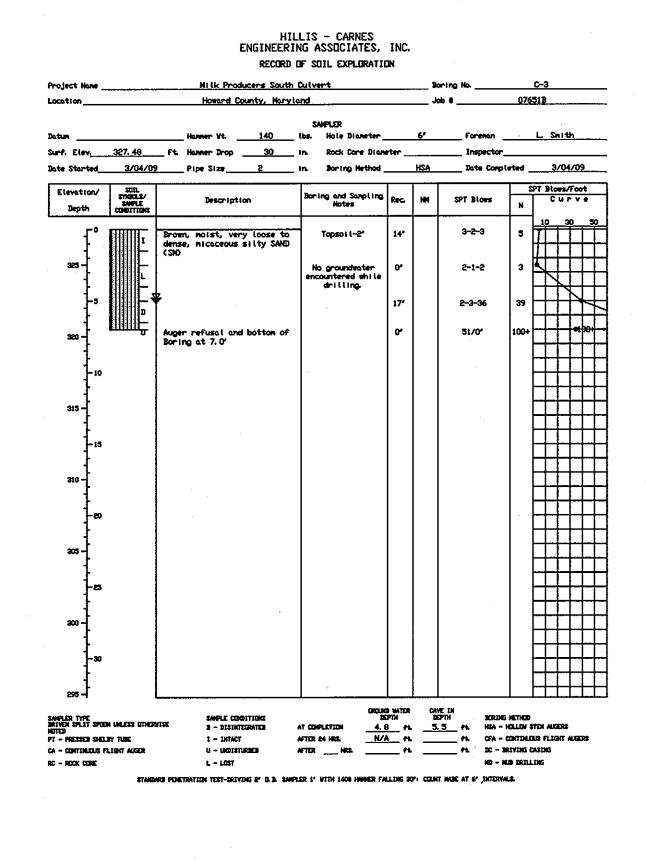
HOWARD COUNTY

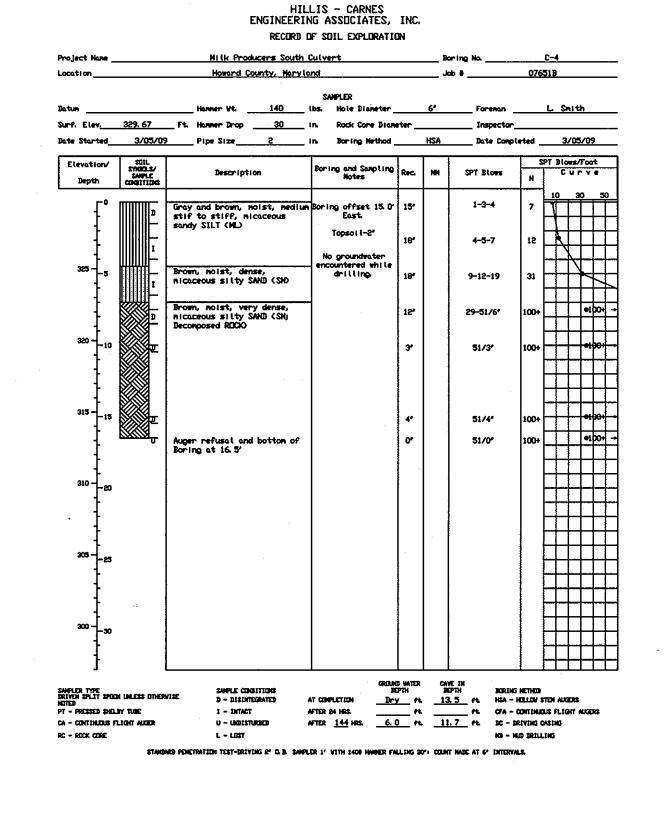
DRN. REV. DATE

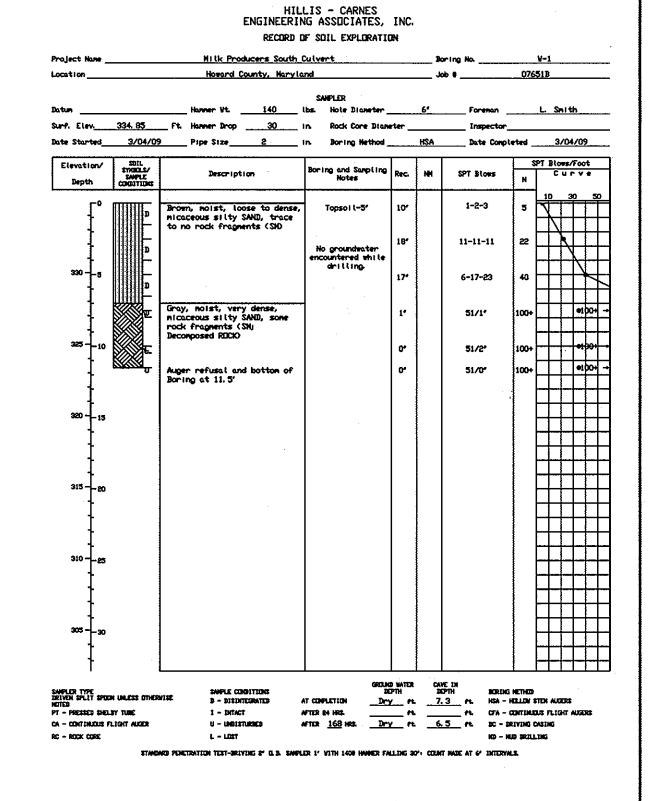


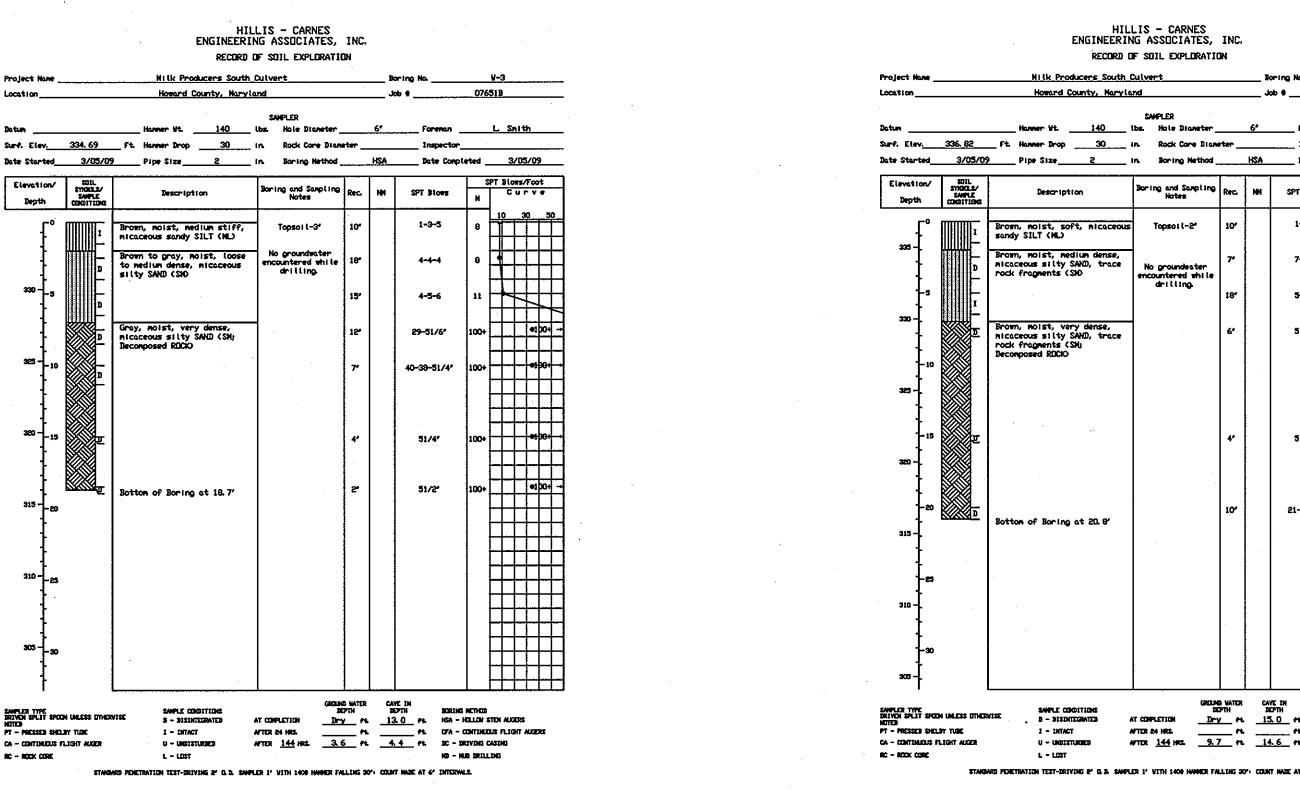












BY THE DEVELOPER:

I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION 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.

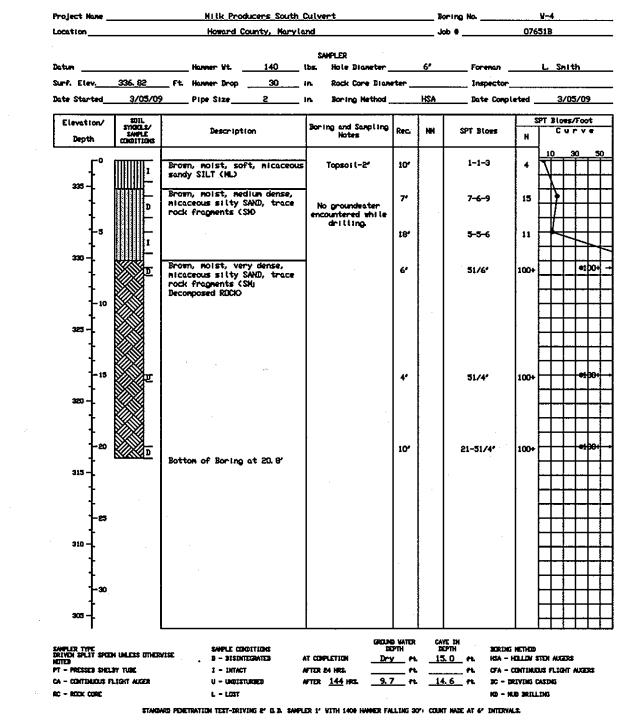
I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE

PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENTAL APPROVED TRAINING PROGRAM FOR THE

THE HOWARD SOIL CONSERVATION DISTRICT.

CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY

HOWARD SCD



NOTE: FOR SOIL BORING LOCATIONS SEE SITE PLAN, SHEET 18 OF 25



SOIL BORING LOGS

SPELBY TUBE 2 - INTACT OUS PLIGHT ALGER U - UNGISTURBED RE L - LOST STANGARD PENETRATION TEST-DRIVING & 0		9.7 Pt. 14.6 Pt. R FALLING 30" COUNT NADE AT 6"	CFA - CONTINUOUS FLIGHT ALIGERS SC - DRIVING CASING ND - NUD BRILLING ' INTERVALS.		ENC			61
MENT PLAN IS APPROVED FOR SO TROL BY THE HOWARD SOIL CON	IL EROSION AND SERVATION	WOF	i Z Mass.	ENT OF PUBLIC 4-12- DAT		DATE Professional Certification. I hereby certify that these document approved by me, and that I am a duengineer under the laws of the State No. 9454, Expiration Date: 09-0	Is were prepared or Ily licensed professional e of Maryland, License 9-11,	N
			VARD COUNTY DEPARTME D ZONING.	ENT OF PLANNIN	IG	AyotuAeh	Luc 1	
		CHIEF DIVISION OF	Sheulsool. LAND DEVELOPMENT	5/ 3	1/10	Olimo	13	F
	DATE	Mul	Zuum,	4/27	10	IVOTINI CHOVCEV	P.E. 9454	Z
•	DATE	Uniter, DEVELOPME	INT ENGINEERING DIVISION	y '! DAT	-	JYOTIN CHOKSEY	7.E. 3434	1 -

TH ELECTION DISTRICT HOWARD COUNTY REVISIONS DESCRIPTION OF CHANGES DRN. REV. DATE CO. FILE #: F-09-061 DES. BY: PR TAX ACC. #: 06-414435 DRN. BY: AM TAX MAP: 46 & 47 CHK. BY: JJC BLOCK / GRID: 12 & 1 DATE: 03-22-10 HCEA JOB#: 07651-B PARCEL #: 985 & P/O 2 SHEET NUMBER: ZONE / USE: R-20 25 of 25 DWG. SCALE: AS SHOWN

F-09-061