

GENERAL NOTES

- Subject property Zoned "R-12" per 02/02/04 Comprehensive Zoning Plan and per the "Comp. Lite" Zoning Regulation Amendments effective 7/26/06.
- Water and sewer service to these lots will be granted under the provisions of Section 18.122.B of the Howard County Code.
- Sketch plan, S-06-014, approved on June 15, 2007. Preliminary Plan, P-06-004, approved on February 26, 2009.
- This site is located within the metropolitan district.
- Soils map no. 24.
- Gross area of site: 2.510 ac.±
- Number of proposed buildable lots: 7
Area of proposed buildable lots: 1.636 ac.±
- Number of proposed open space lots: 2
Area of proposed open space lot: 0.867 ac.±
- Open space requirements:
a.) Open space required (30% gross area of site - minimum lot size 8,400sf.):
2.510 ac.± x 0.30 = 0.753 ac.±
b.) Open space provided:
0.867 ac.± (Credited)
0.000 ac.± (Not Credited)
- Area to be dedicated to Howard County Maryland for Public Right-of-Way: 0.007 ac.±.
- The on site existing topography was field run by FSH Associates on September 2007. Off Site Topography is based on aerial survey with two foot contour intervals prepared by Howard County dated 2004.
- Boundary shown is based on Field Run Boundary Survey by FSH Associates on August 27, 2007.
- A.P.F.O. Traffic Study prepared by Street Traffic Studies Ltd. approved on June 15, 2007.
- The wetlands delineation study for this project was prepared by Exploration Research Inc., and approved on June 15, 2007.
- The Forest Stand Delineation and report for this project was prepared by Exploration Research Inc., and approved on June 15, 2007.
- There are no floodplains, steep slopes, streams, historic structures or cemeteries on-site.
- Note - Development Engineering Division has agreed to allow water quality (WQV) and channel protection (CPV) to be treated jointly within the proposed pocket sand filter.
- This plan complies with the requirements of Section 16.1200 of the Howard County Code for Forest Conservation by providing 0.18 acres of retention and 0.05 Ac. of reforestation on-site in the Forest Conservation Easement. The easement will primarily contain priority areas of wetland and wetland buffer. The remaining 0.43 acres of obligation will be fulfilled by a fee-in-lieu payment of \$14,048.10 (18,730.8 s.f. @ \$0.75/s.f.). The total forest conservation obligation met on this site is 0.23 acres, with a total forest conservation surety amount of \$2,658 (retention of 7,840.80 s.f. x \$0.20 + reforestation planting of 2,178 s.f. x \$0.50/s.f.).
- Landscaping in accordance with Section 16.124 of the Howard County Code and Landscape Manual shall be provided as shown on the Landscape Plan, Sheet 4. Financial surety for the required perimeter landscaping will be posted as part of the Developer's Agreement for the Site Development Plan in the amount of \$7,800.00 (17 shade trees @ \$300.00 each, 4 ornamental trees @ \$150.00 each, and 14 evergreen trees @ \$150.00 each).
- Driveway(s) shall be provided prior to issuance of a use and occupancy permit for any new dwellings to ensure safe access for fire and emergency vehicles per the following requirements:
1) Width - 12 feet (16 feet serving more than one residence);
2) Surface - six (6") inches of compacted crusher run base with tar and chip coating (1-1/2" Minimum);
3) Geometry - Maximum 14% grade, maximum 10% grade change and 45-foot turning radius;
4) Structures (culverts/bridges) - capable of supporting 25 gross tons (H25-loading);
5) Drainage elements - capable of safely passing 100 year flood with no more than 1 foot depth over driveway surface;
6) Maintenance - sufficient to ensure all weather use
- No grading, removal of vegetative cover or trees, paving and new structures shall be permitted within the limits of wetlands, stream(s), or their required buffers, floodplain and forest conservation easement areas, unless approved by the Department of Planning and Zoning.
- For flag or pipestem lots, refuse collection, snow removal and road maintenance are provided to the junction of the flag or pipestem and road right-of-way line and not onto the pipestem lot driveway.
- All sign posts used for traffic control signs installed in the County right-of-way shall be mounted on a 2" galvanized steel, perforated, square tube post (14 gauge) inserted into a 2-1/2" galvanized steel, perforated, square tube sleeve (12 gauge) - 3' long. A galvanized steel pole cap shall be mounted on top of each post.
Topography along lines of sight was field run by FSH Associates on or about January 2006.
- Stormwater management quantity & quality is provided as necessary in accordance with the 2000 Stormwater Management Manual. Water quality is provided through the proposed Pocket Sand Filter Facility and through the Sheetflow to Buffer Credit for Lot 7, recharge is provided, for the entire site, through the Grass Channel Credit. Channel protection is provided through one year extended detention within the proposed Pocket Sand Filter Facility.
- The project is in conformance with the latest Howard County Standards unless waivers have been approved.
- The coordinates shown hereon are based upon the Howard County Geodetic Control which is based on the Maryland State Plane Coordinate System. Howard County Monument Nos. 42R1 and 42R2 were used for this project.
- Existing utilities along Guilford Road are based on field run survey by FSH Associates on or about January, 2006.
- The geotechnical report for this project was prepared by Herbert Benson & Associates, dated October 11, 2007.
- This plan is subject to a design manual waiver from section 2.5.2.H and Figure 2.17 of Design Manual Volume III to allow the use of stopping sight distance on a Major Collector and higher classification roadway. Waiver was approved on 8/22/06.
- A waiver from section 5.4.B.6 of Howard County Design Manual, Volume II, Water and Sewer, to allow the sewer line to be closer than 25 feet but no closer than 15 feet was approved on May 25, 2008.
- A waiver from Section 2.6.A of Howard County Design Manual, Volume III, Roads and Bridges, to allow a Use-In-Common driveway to serve more than six (6) dwelling units (7 dwelling units approved), was approved on December 17, 2008.
- Development Engineering Division has agreed to allow water quality (WQV) and channel protection (CPV) to be treated jointly within the proposed pocket sand filter.
- 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.
- The contractor shall notify "This Utility" at 1-800-257-7777 at least 48 hours prior to any excavation work being done.
- Traffic control devices, markings and signing shall be in accordance with the latest edition of the Manual of Uniform Traffic Control Devices (MUTCD). All street and regulatory signs shall be in place prior to the placement of any asphalt.
- Street light placement and the type of fixture and pole shall be in accordance with the Howard County Design Manual, Volume III (2006) Section 5.5.A. Use a 14" high black fiberglass pole with a Premier post top fixture and a 100W HPS lamp size street light. A minimum spacing of 20' shall be maintained between any street light and any tree. See location table this sheet.
- A private range of address sign assembly shall be fabricated and installed by Howard County Bureau of Highways at the developer's/owner's expense. Contact Howard County Traffic Division at 410-313-5752 for details and cost estimates.

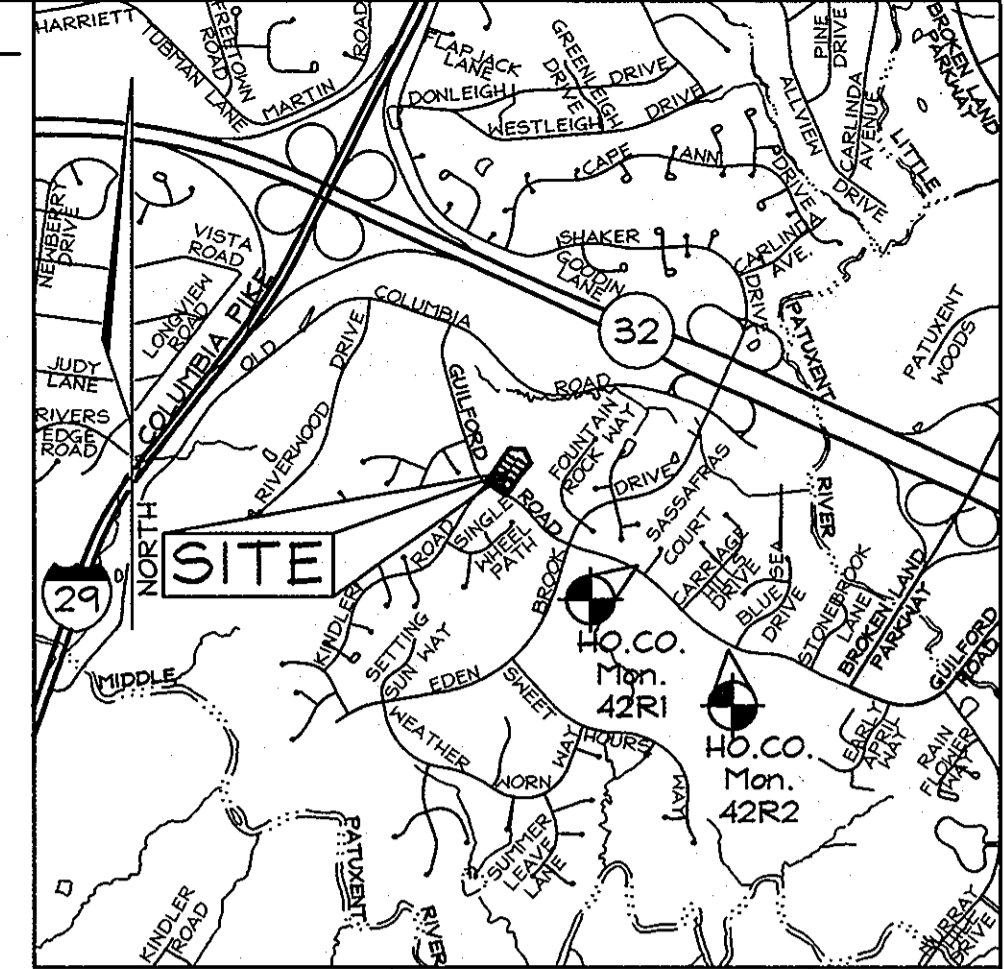
FINAL CONSTRUCTION PLAN

KINGS COVE

A RESUBDIVISION OF LOTS 4 AND 5-A, SNYDER PLAT, PLAT BOOK 7 / FOLIO 71, AND PLAT BOOK 026 / FOLIO 039 HOWARD COUNTY, MARYLAND

LEGEND

- Existing contours
- Proposed Contour
- Existing Spot Elevation
- Proposed Spot Elevation
- Direction of Flow
- Soils Line
- Existing Trees / Proposed Trees
- Existing Fence Line
- Existing Perc Test (Passed)
- Existing Utility Poles
- Proposed House
- Existing Stream Buffer
- Existing Wetland Buffer
- Existing Wetland
- Wetland
- Proposed Light Pole
- Super Silt Fence
- Super Diversion Fence
- Limit of Disturbance
- Earth Dike



BENCHMARKS

Coordinates based on NAD83, Maryland coordinate system as projected by Howard County geodetic control stations no. 42R1 and no. 42R2 denotes approximate location (see vicinity map).

Sta. 42R1	N 547,820.2380	E 1,351,171.5866	El.: 375.871
Sta. 42R2	N 546,946.8001	E 1,352,118.5607	El.: 331.525

COORDINATE TABLE

POINT	NORTHING	EASTING
1	548,589.1467	1,349,845.4863
2	548,669.3027	1,349,701.2651
3	548,680.4389	1,349,650.2668
4	548,704.2069	1,349,616.1611
5	549,038.5153	1,349,849.2022
6	549,032.0114	1,349,999.7327
7	548,884.8679	1,350,066.5653

MINIMUM LOT SIZE CHART

LOT NUMBER	GROSS AREA (SF)	PIPESTEM AREA (SF)	MINIMUM LOT SIZE (SF)
2	9,035±	497±	8,538±
3	9,148±	552±	8,596±
4	9,286±	800±	8,486±
5	10,052±	1,064±	8,988±
7	11,046±	1,200±	9,846±
8	9,553±	907±	8,646±
9	13,147±	1,580±	11,568±

SHEET INDEX

DESCRIPTION	SHEET No.
Cover Sheet	1 of 10
Guilford Road Improvements, Plan, Profile & Details	2 of 10
Private Driveway Plan, Profile & Details	3 of 10
Grading, Landscaping, Sediment & Erosion Control & Soils Plan	4 of 10
Sediment & Erosion Control Notes & Details and Storm Drain Profiles	5 of 10
Final Storm Drain Drainage Area Map	6 of 10
Final Stormwater Management Pond Plan, Profiles & Details	7 of 10
Final Stormwater Management Notes & Details	8 of 10
Final Forest Conservation Plan	9 of 10
Final Forest Conservation Notes & Details	10 of 10

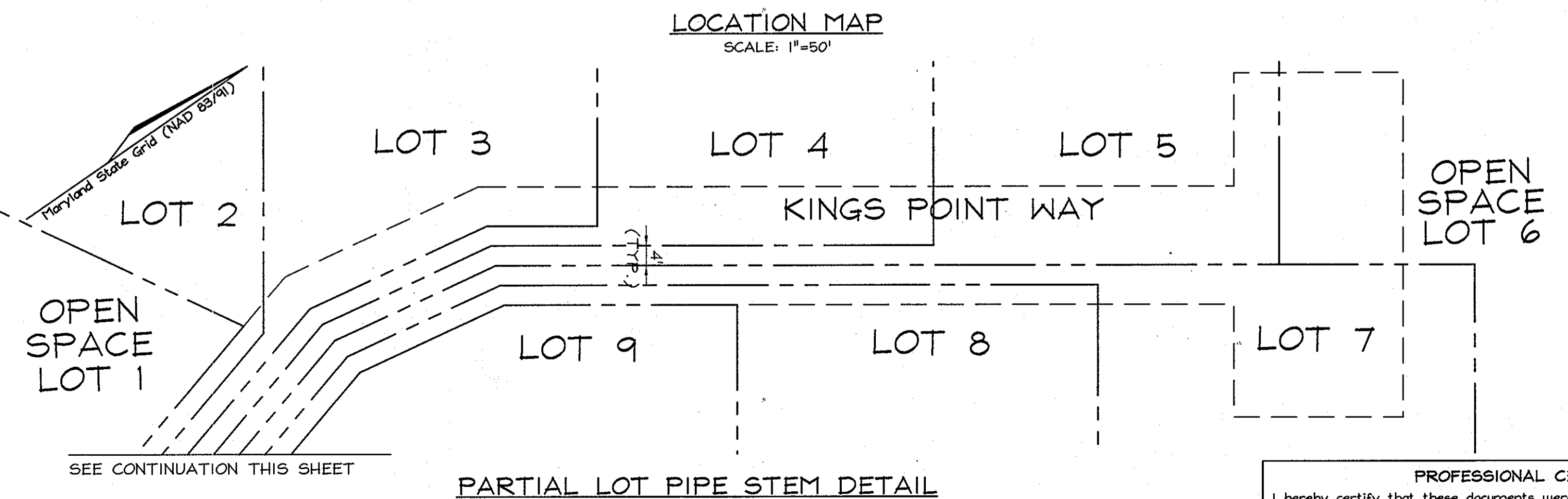
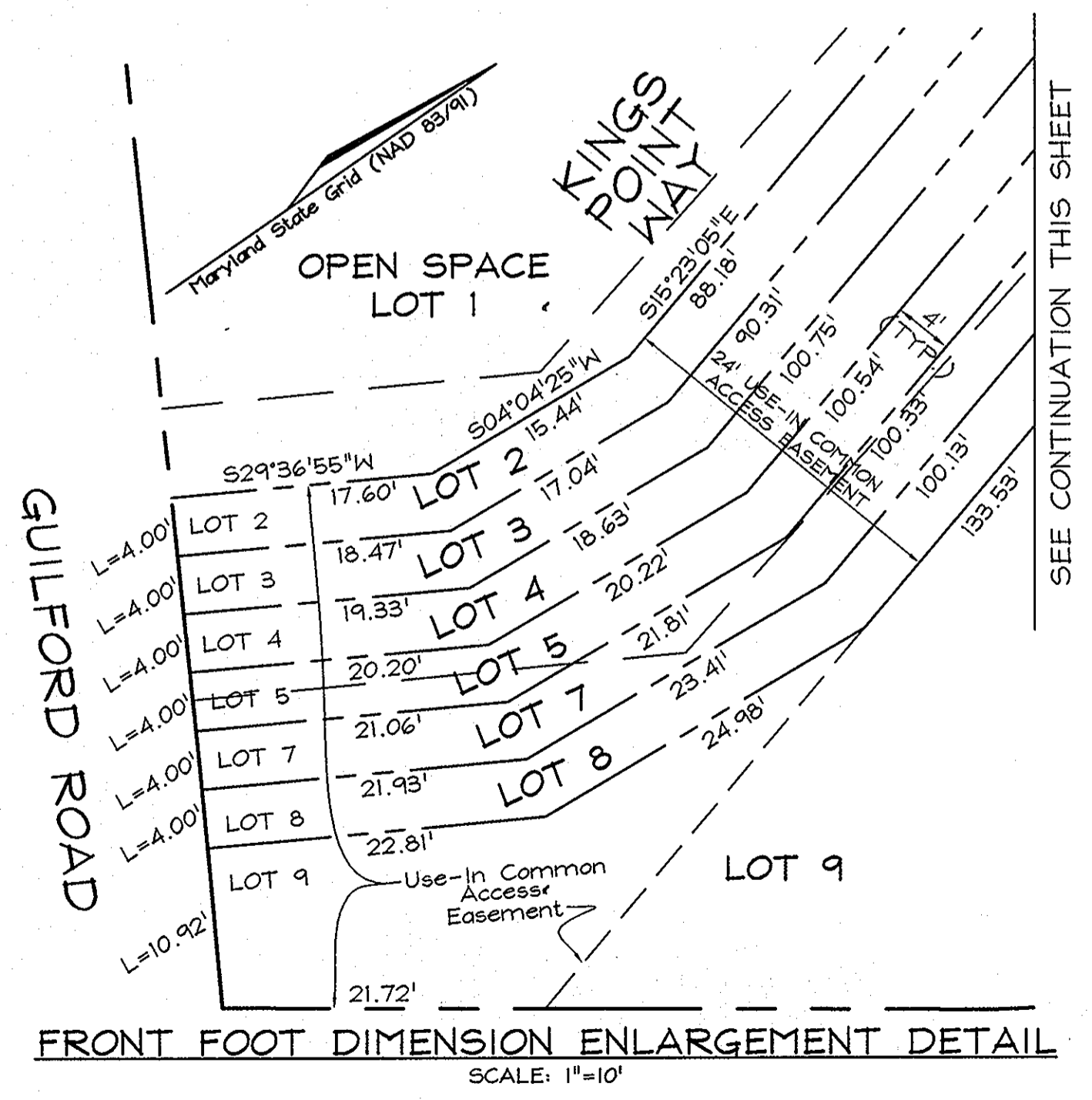
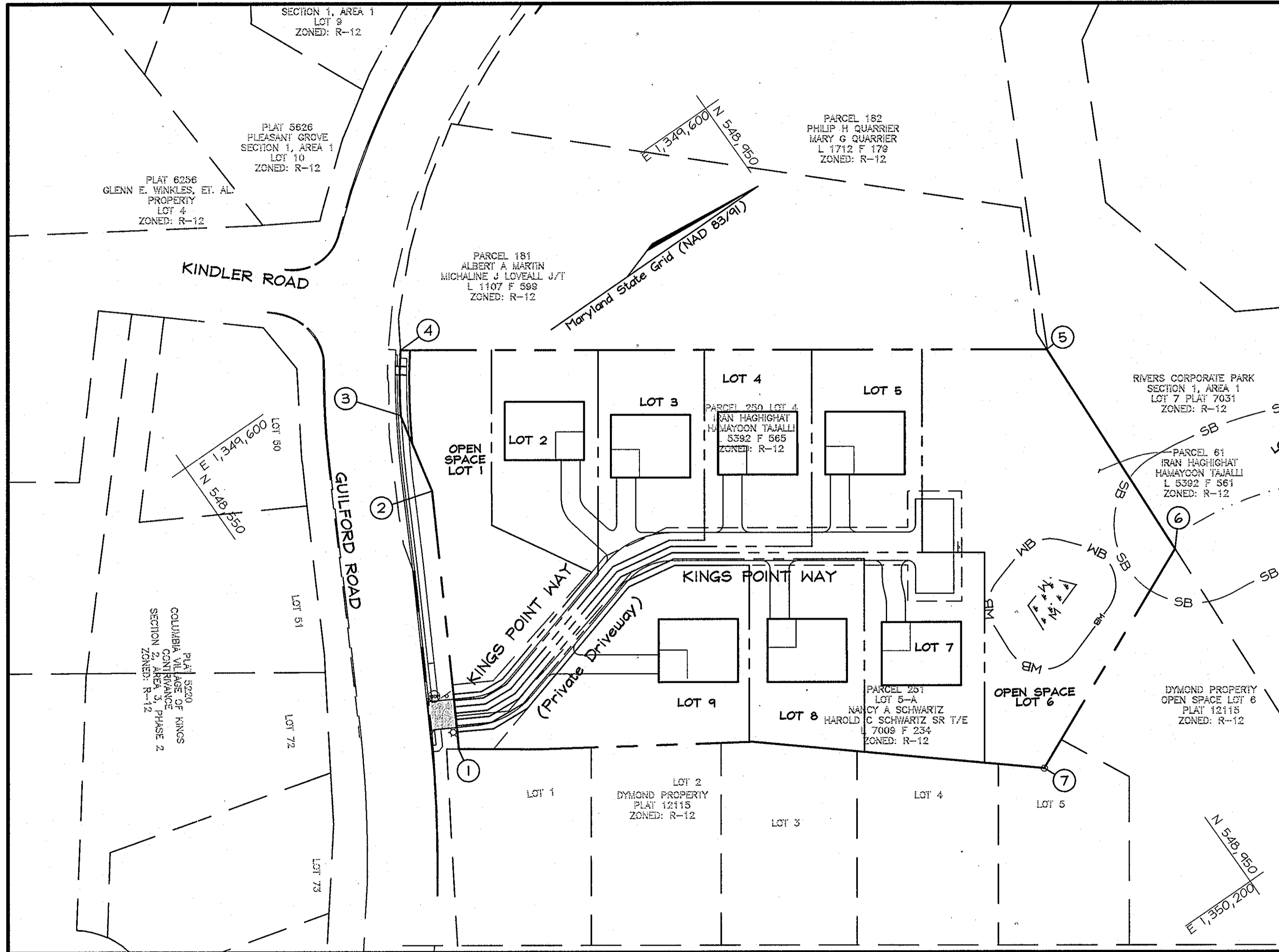
CENTERLINE DRIVEWAY CURVE DATA

NAME	CURVE No.	RADIUS	LENGTH	DELTA	TANGENT	CHD BEAR	CHD LEN
Kings Point Way	C1	45.00'	31.22'	39°45'14"	16.27'	N06°14'17"E	30.60'
	C2	45.00'	38.67'	49°13'54"	20.62'	S09°47'15"W	37.49'

STREET LIGHT TABLE

STREET NAME	LOCATION	OFFSET	FIXTURE TYPE
Guilford Road	Guilford Road (Sta. 10+12)	37± Left	14" High Black Fiberglass pole, 100 watt HPS 150-watt HPS post top; Premier 150-watt HPS 150-watt HPS

Note: ☆ Denotes Street Light



OWNER/DEVELOPER
CMC Land, LLC
1170 Stonegate Lane
Columbia, MD 21044
Attn: Ms. Cindy Delzoppo
443-250-6395

COVER SHEET
KINGS COVE
(A RESUBDIVISION OF LOTS 4 AND 5-A, SNYDER PLAT NUMBER PB 7/F 71 AND PB 026/F 039)
ZONING R-12
TAX MAP 42 GRID 7 PARCELS 61, 250 & 251
6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

FSH Associates
Engineers Planners Surveyors
8339 Howard Lane, Elkridge, MD 21075
Tel: 410-567-5200 Fax: 410-798-1562
E-mail: info@fsher.com

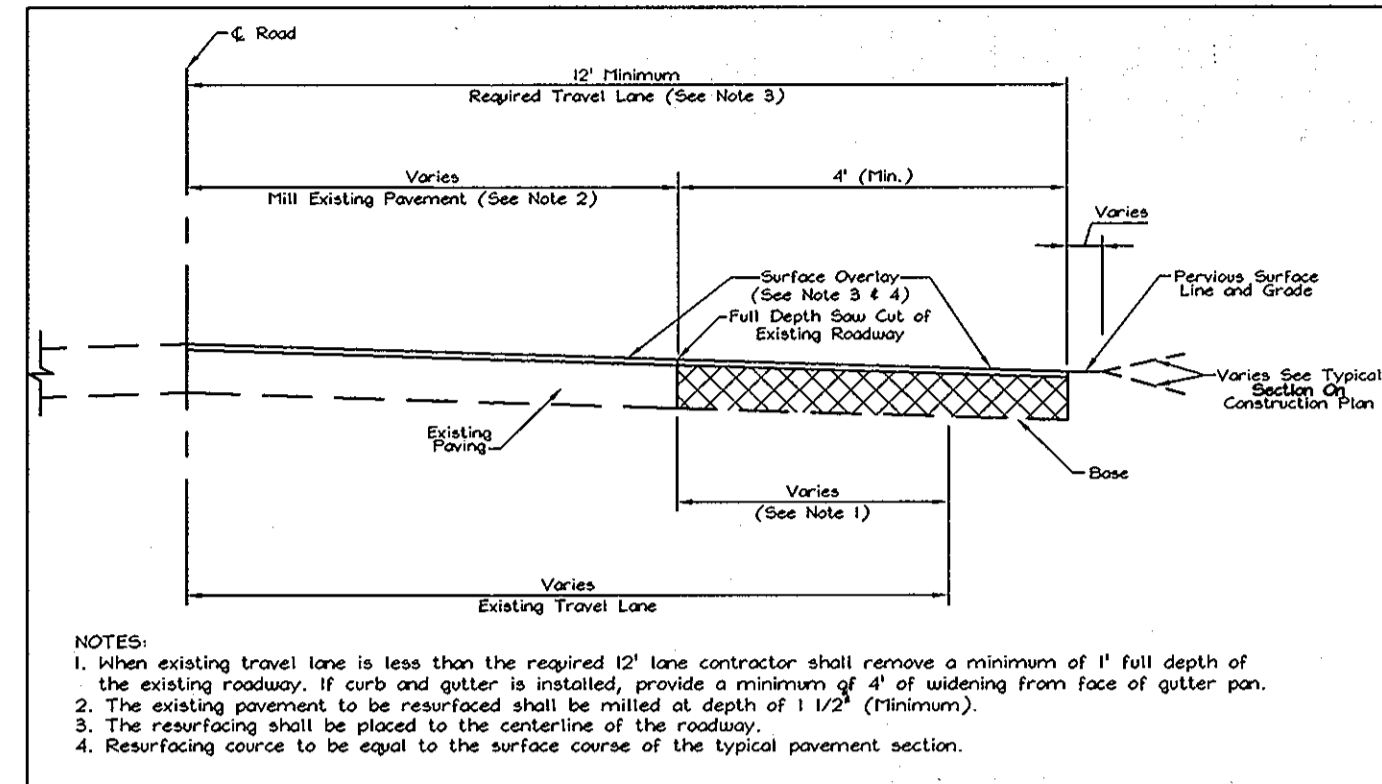
DESIGN BY: MLT
DRAWN BY: HS/RL
CHECKED BY: ZYF
SCALE: As Shown
DATE: Mar. 31, 2010
H.O. No.: 3394
SHEET No.: 1 OF 10

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. #34689, Expiration Date: 07/06/2011.

APPROVED: DEPARTMENT OF PUBLIC WORKS.
Chief, Bureau of Highways
Date: 4-12-10

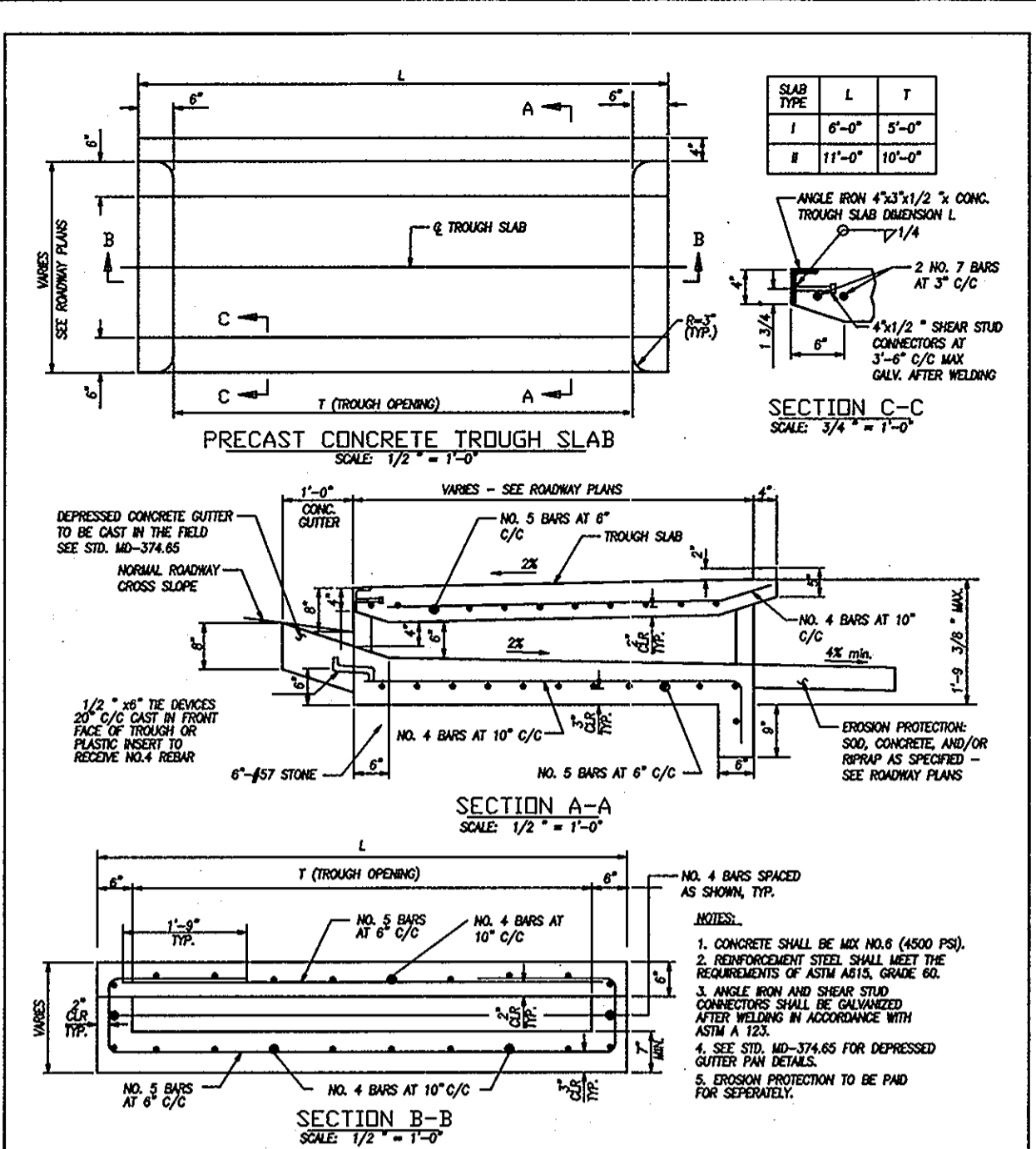
APPROVED: DEPARTMENT OF PLANNING AND ZONING
Chief, Division of Land Development
Date: 4-20-10

Chief, Development Engineering Division
Date: 4/19/10



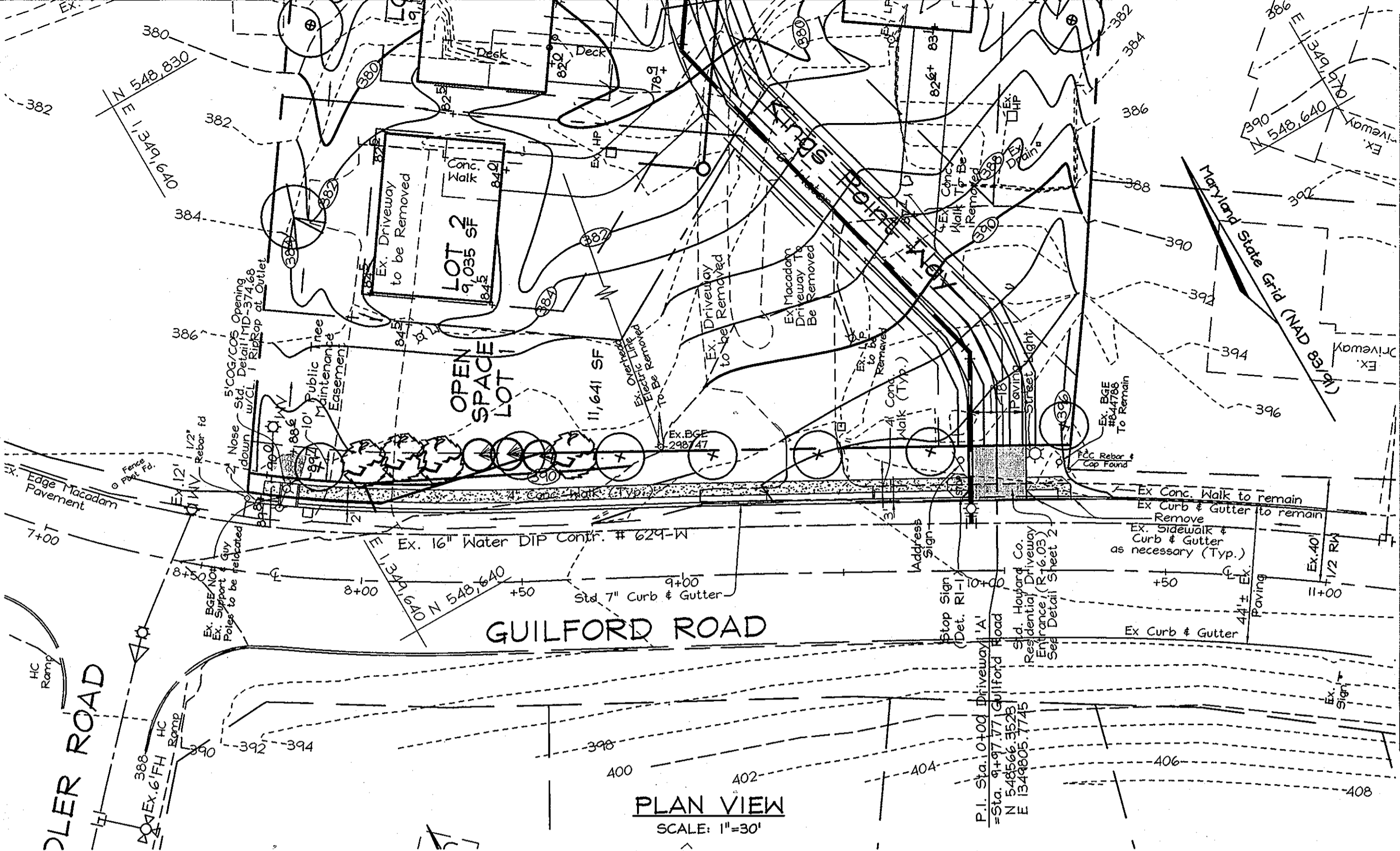
NOTES:
 1. When existing travel lane is less than the required 12' lane contractor shall remove a minimum of 1" full depth of the existing roadway. If curb and gutter is installed, provide a minimum of 4" of widening from face of gutter pan.
 2. The existing pavement to be resurfaced shall be milled at depth of 1 1/2" (minimum).
 3. The resurfacing shall be placed to the centerline of the roadway.
 4. Resurfacing course to be equal to the surface course of the typical pavement section.

Revised: Howard County, Maryland Department of Public Works
 Approved: Chief, Bureau of Engineering
 Detail R-1.08

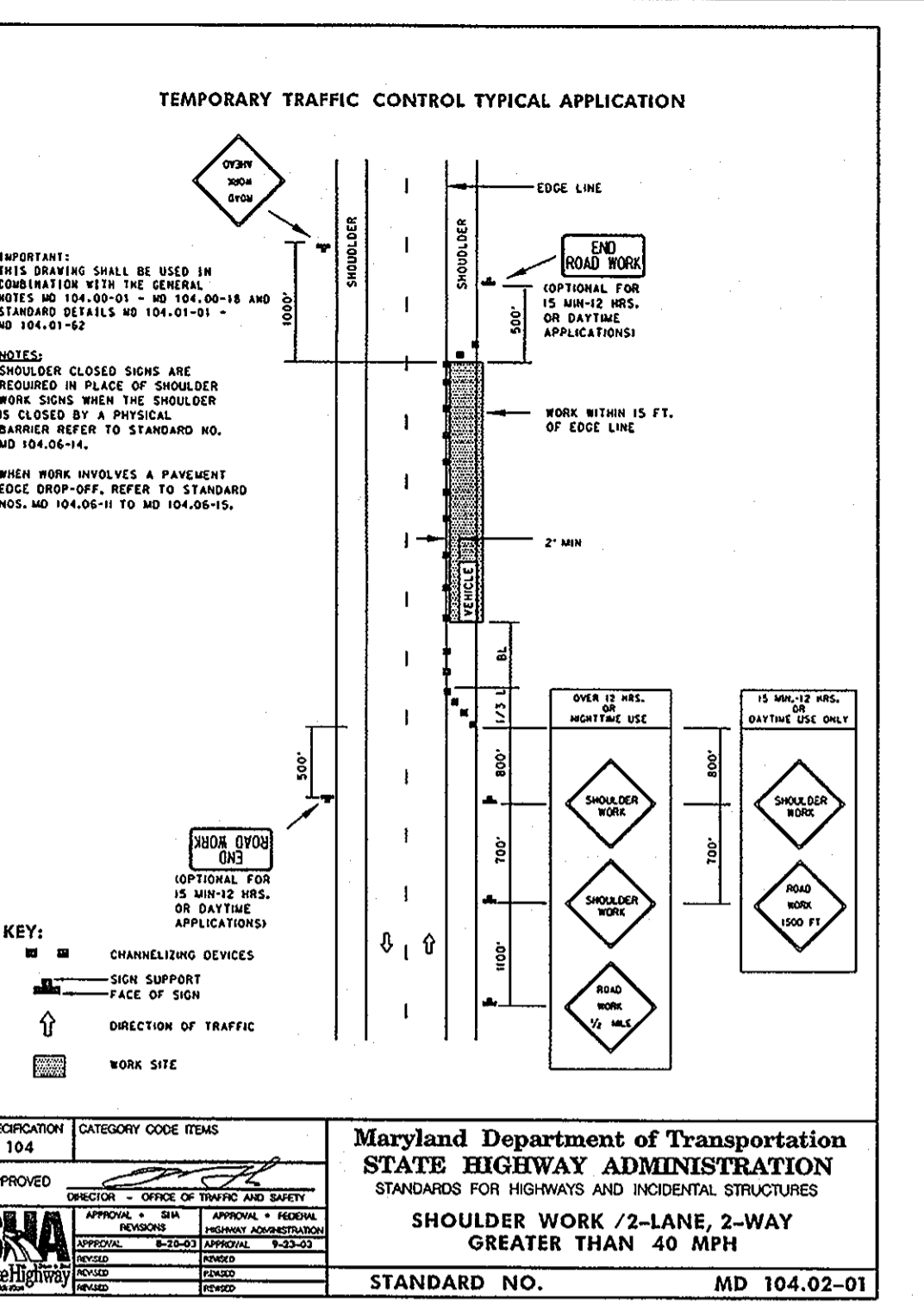


PRECAST CONCRETE TROUGH SLAB
 SCALE: 1/2" = 1'-0"
 SECTION C-C
 SECTION A-A
 SECTION B-B

Maryland Department of Transportation
 STATE HIGHWAY ADMINISTRATION
 STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
 PRECAST OR CAST-IN-PLACE
 CDG / CDS OPENING
 5' OR 10' ONLY
 STANDARD NO. MD-374.68

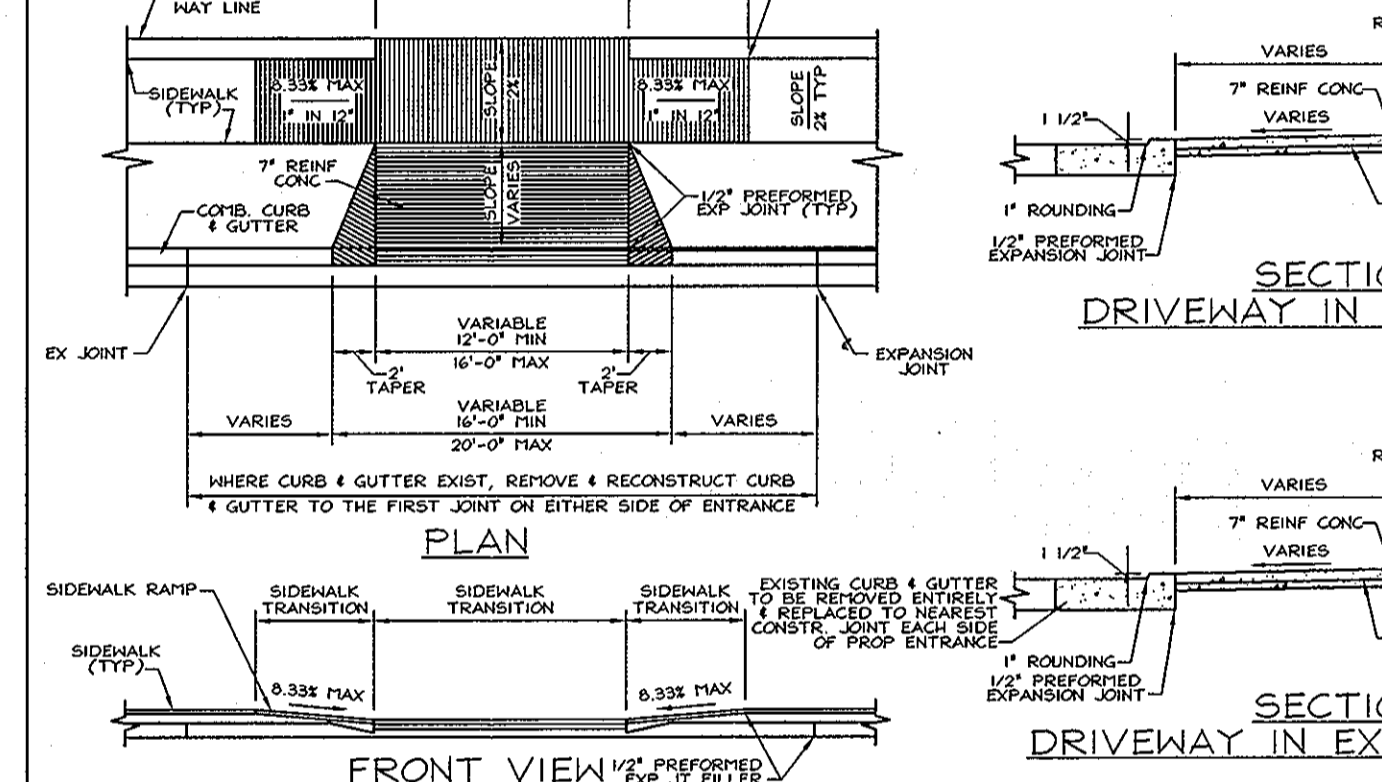


PLAN VIEW
 SCALE: 1" = 30'



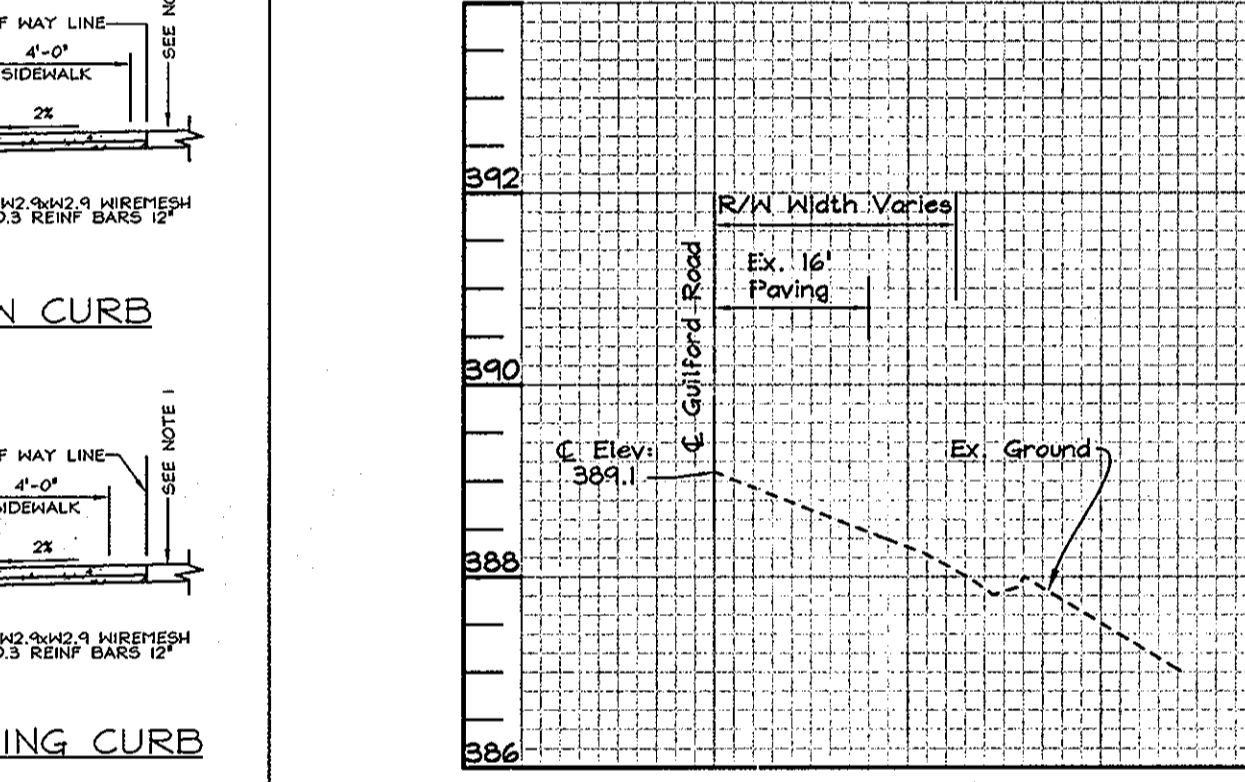
TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

Maryland Department of Transportation
 STATE HIGHWAY ADMINISTRATION
 STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
 SHOULDER WORK 7/2-LANE, 2-WAY
 GREATER THAN 40 MPH
 STANDARD NO. MD 104.02-01

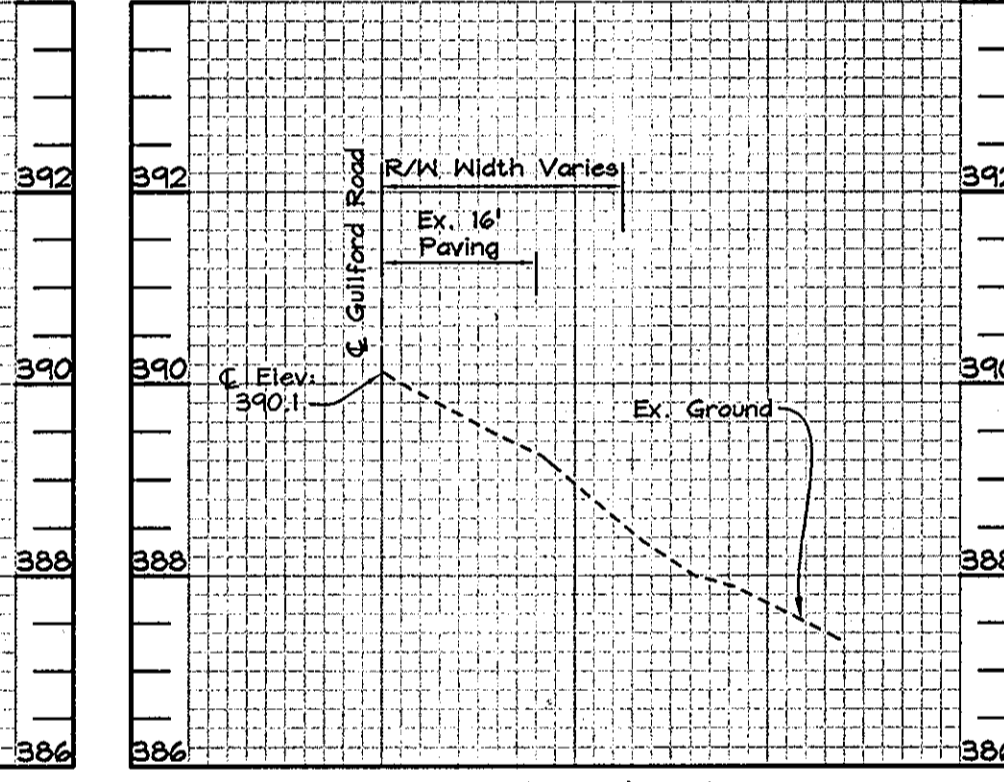


SECTION 1
 DRIVEWAY IN NEW CURB
 SECTION 2
 DRIVEWAY IN EXISTING CURB

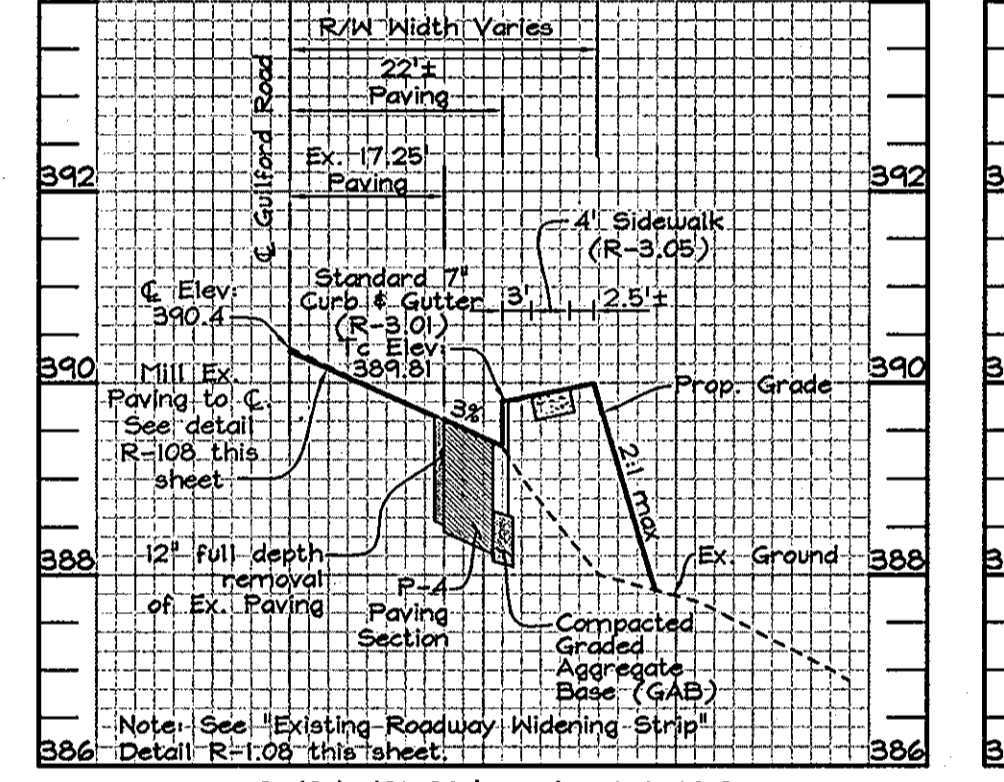
Revised: Howard County, Maryland Department of Public Works
 Approved: Chief, Bureau of Engineering
 Detail R-6.01



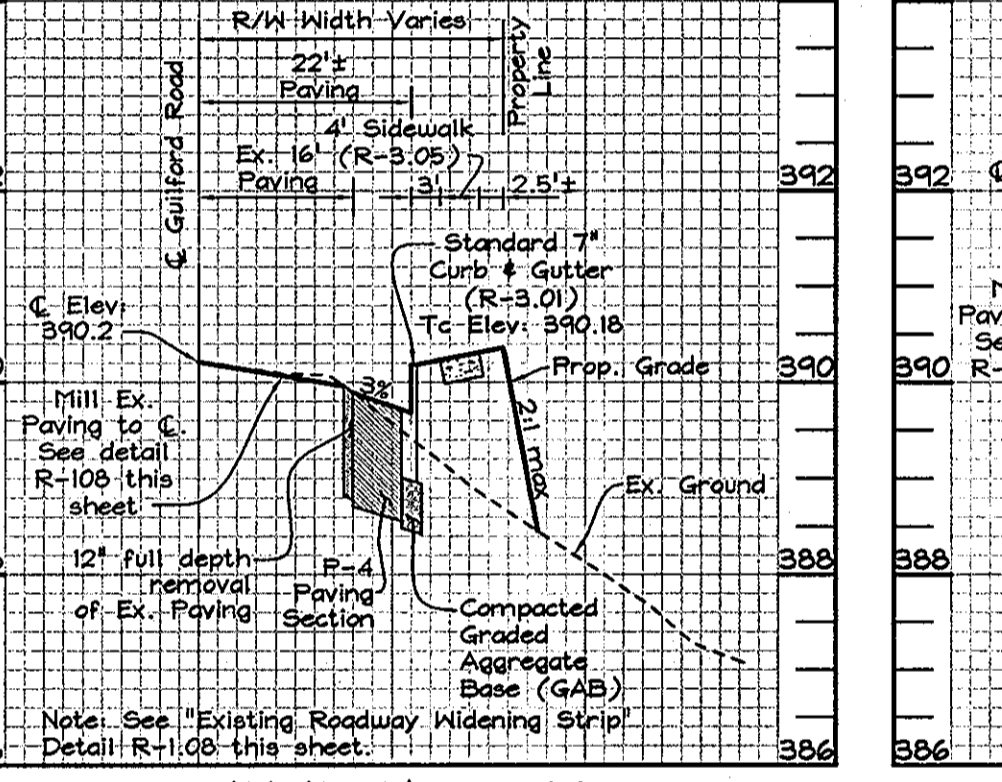
STATION: 7+00
 SCALE- HORIZONTAL: 1"=20'
 VERTICAL: 1"=2'



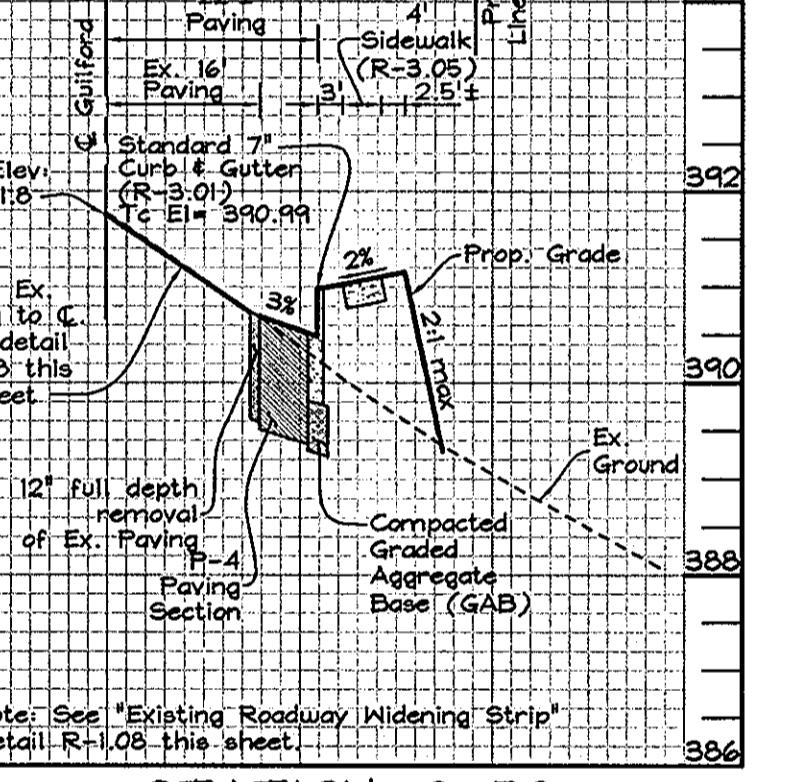
STATION: 7+50
 SCALE- HORIZONTAL: 1"=20'
 VERTICAL: 1"=2'



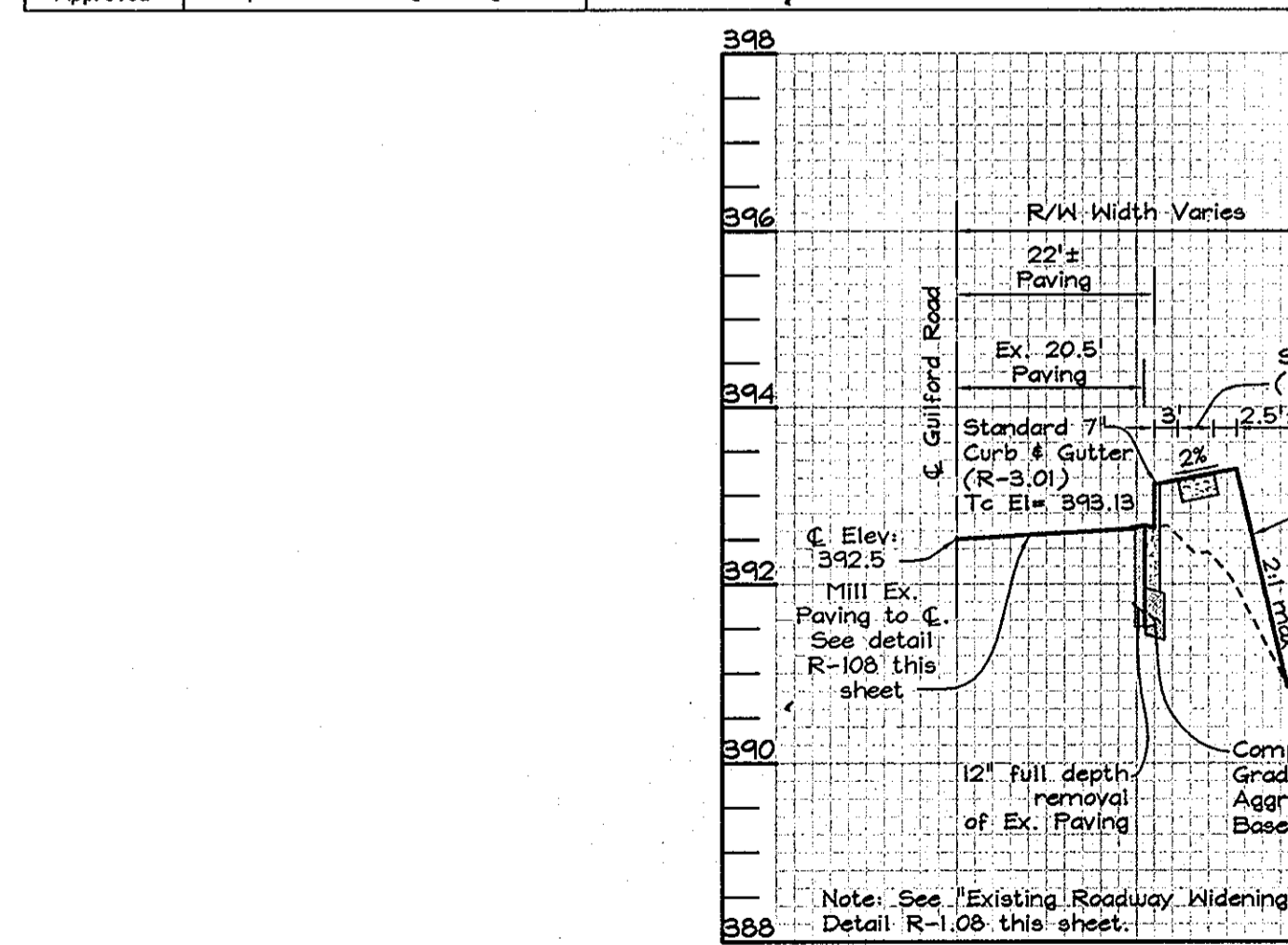
STATION: 7+66.52±
 at West Property Line
 SCALE- HORIZONTAL: 1"=20'
 VERTICAL: 1"=2'



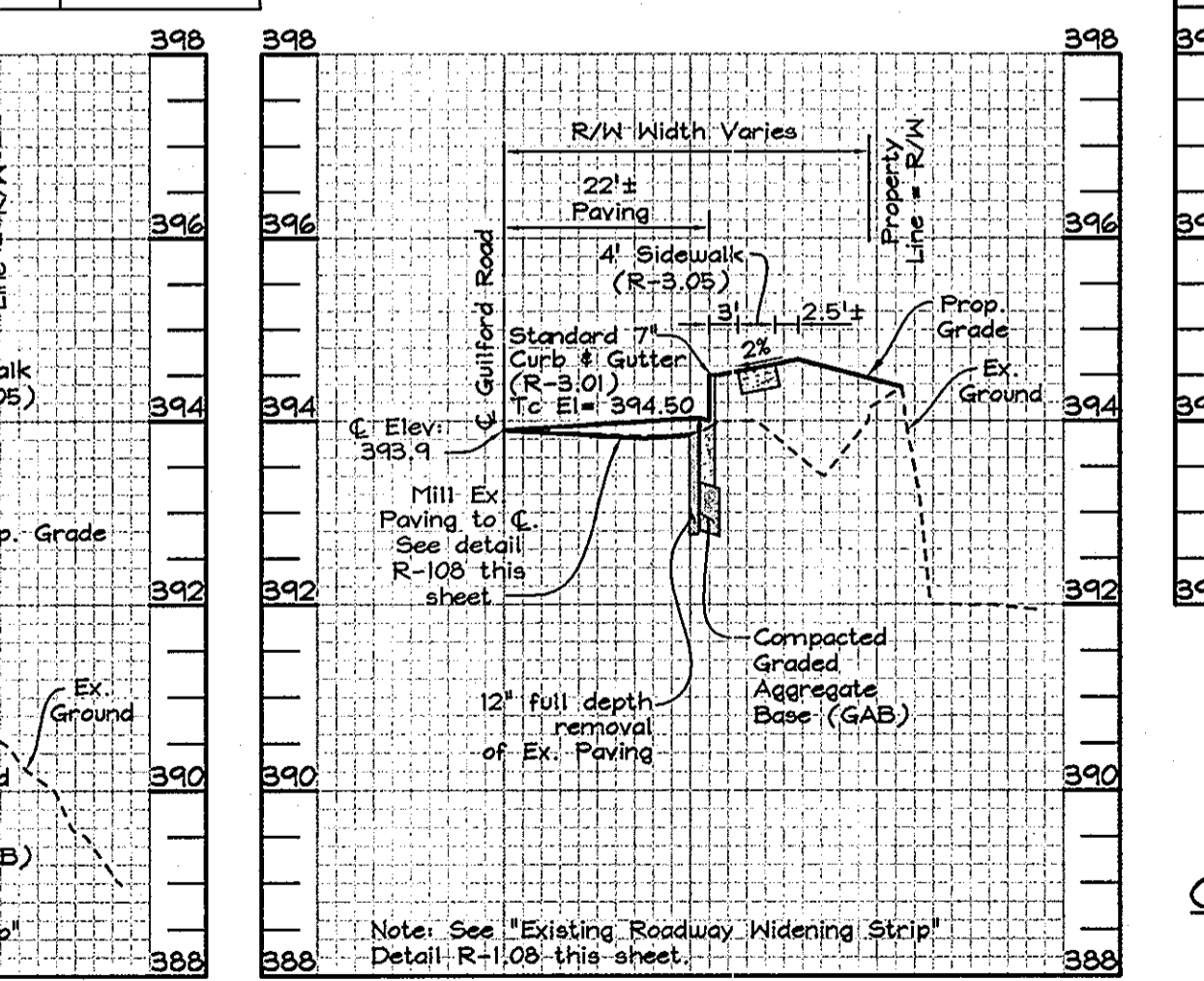
STATION: 8+00
 SCALE- HORIZONTAL: 1"=20'
 VERTICAL: 1"=2'



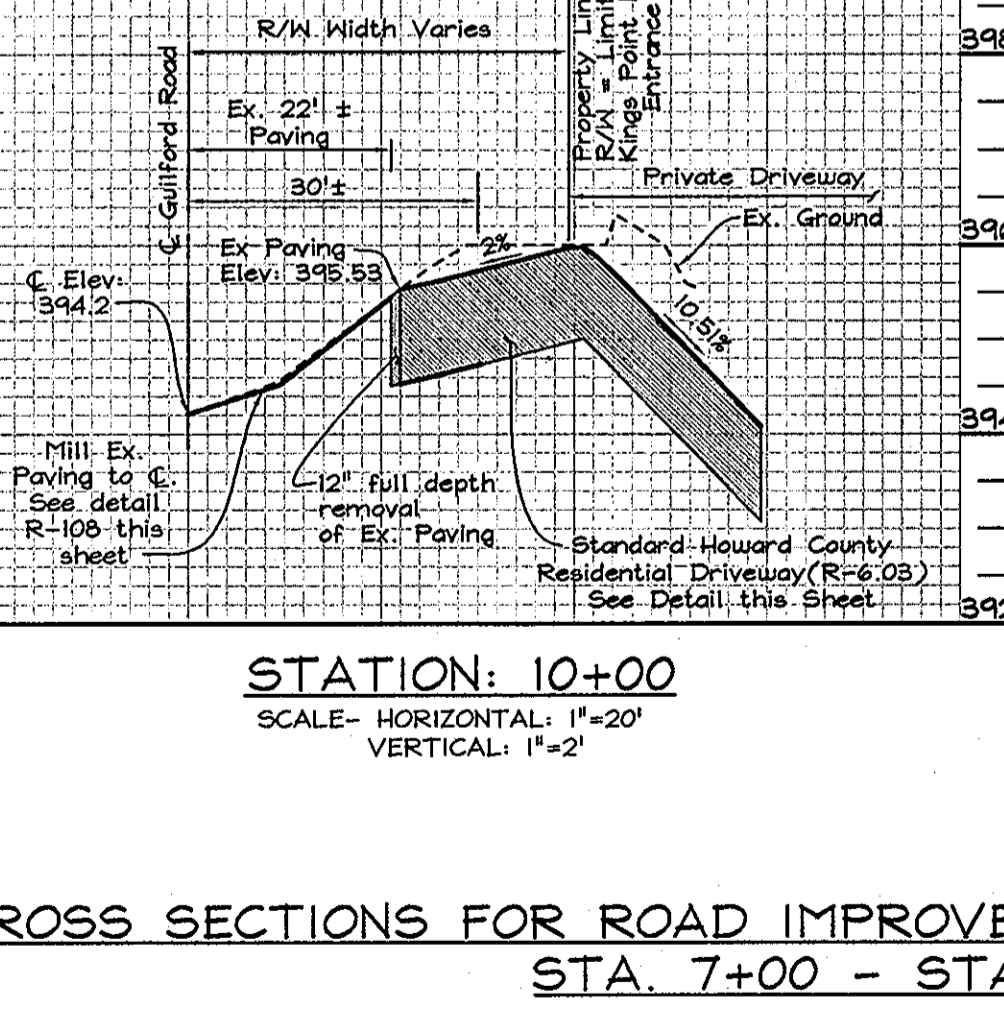
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 SCALE- HORIZONTAL: 1"=20'
 VERTICAL: 1"=2'



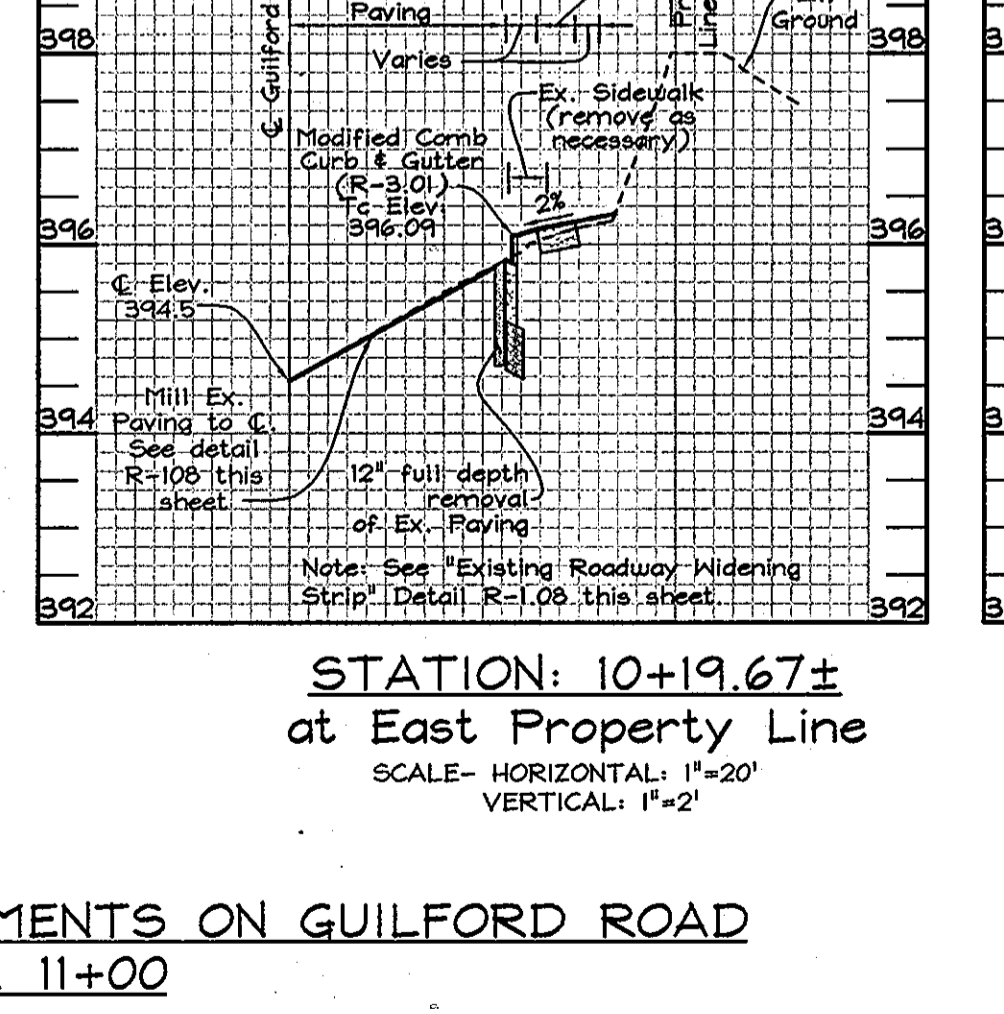
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 VERTICAL: 1"=2'



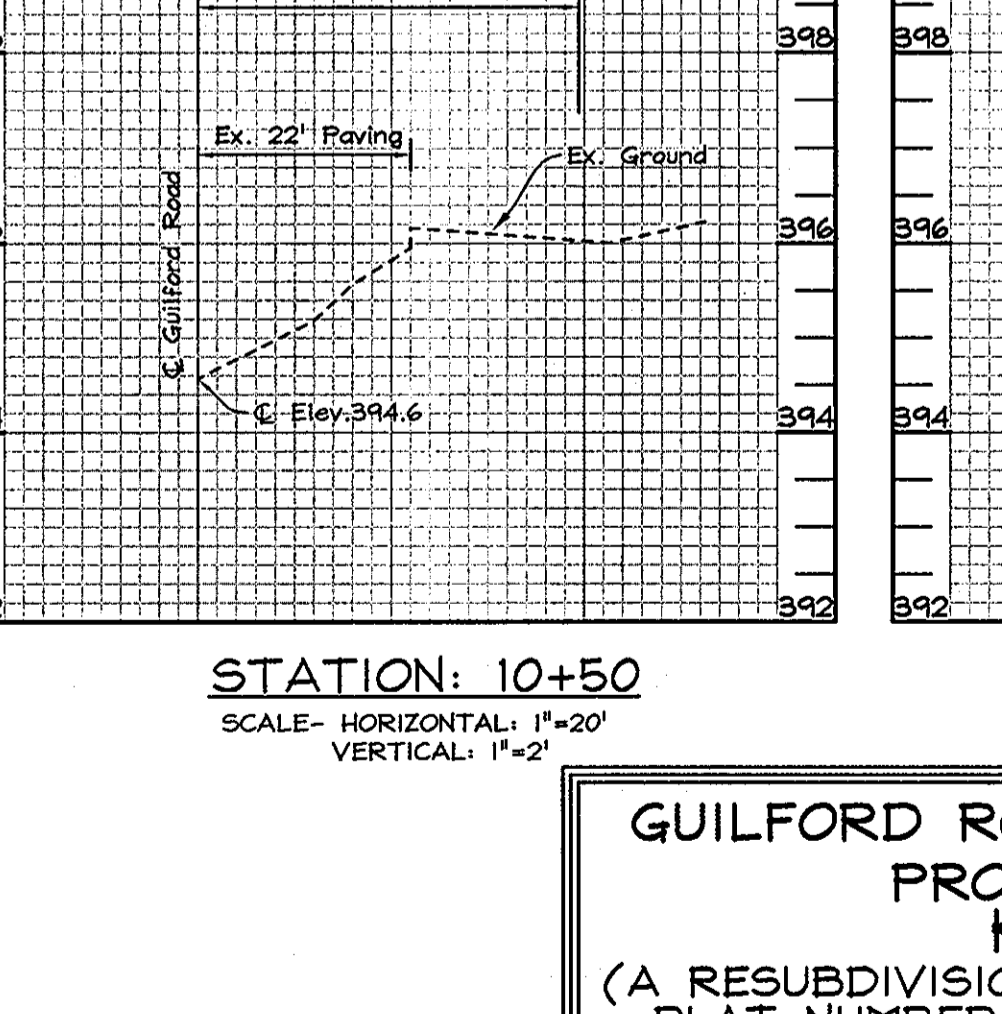
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 SCALE- HORIZONTAL: 1"=20'
 VERTICAL: 1"=2'



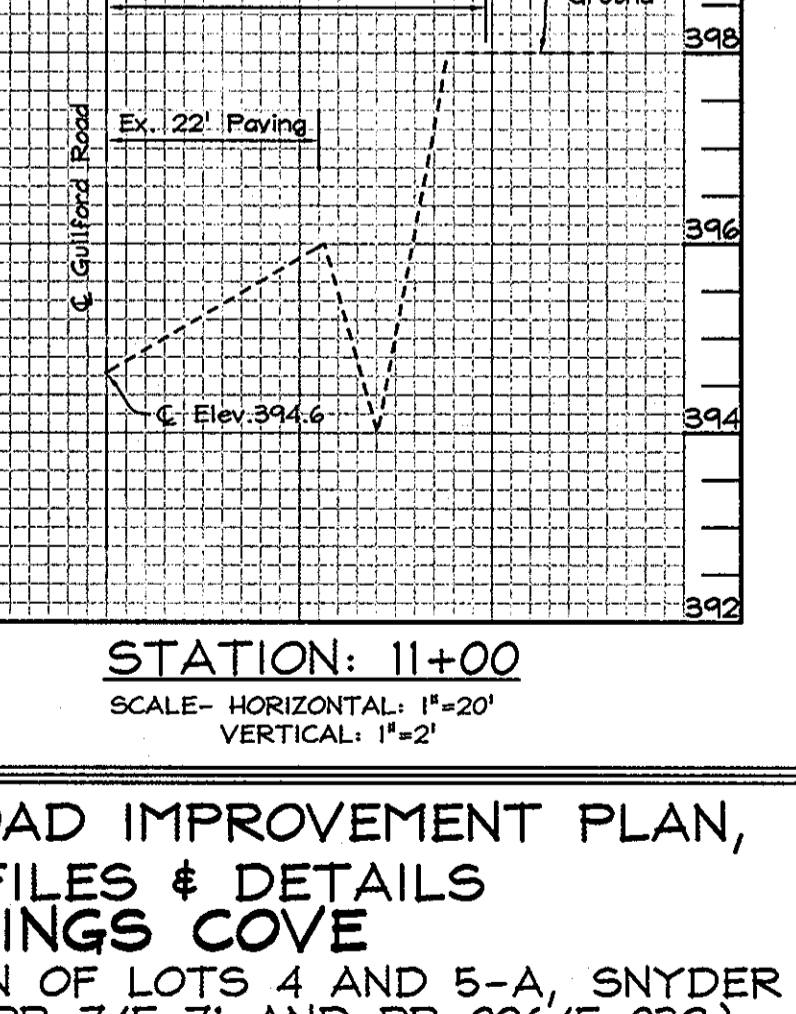
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 VERTICAL: 1"=2'



STATION: 10+19.67±
 at East Property Line
 SCALE- HORIZONTAL: 1"=20'
 VERTICAL: 1"=2'



STATION: 10+50
 SCALE- HORIZONTAL: 1"=20'
 VERTICAL: 1"=2'



STATION: 11+00
 SCALE- HORIZONTAL: 1"=20'
 VERTICAL: 1"=2'

CROSS SECTIONS FOR ROAD IMPROVEMENTS ON GUILFORD ROAD
 STA. 7+00 - STA. 11+00

GUILFORD ROAD IMPROVEMENT PLAN,
 PROFILES & DETAILS
 KINGS COVE
 (A RESUBDIVISION OF LOTS 4 AND 5-A, SNYDER
 PLAT NUMBER PB 7/1 AND PB 026/F 039)
 ZONING R-12
 TAX MAP 42 GRID 7 PARCELS 61, 250 & 251
 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

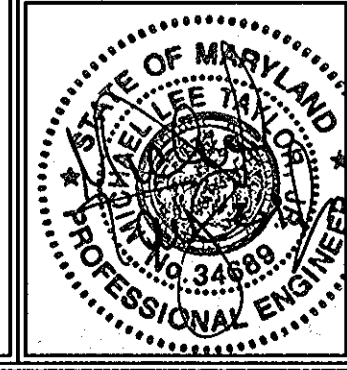
APPROVED: DEPARTMENT OF PUBLIC WORKS
 Chief, Bureau of Highways
 Date: 4-12-10

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Division of Land Development
 Date: 4-20-10

Chief, Development Engineering Division
 Date: 4/19/10

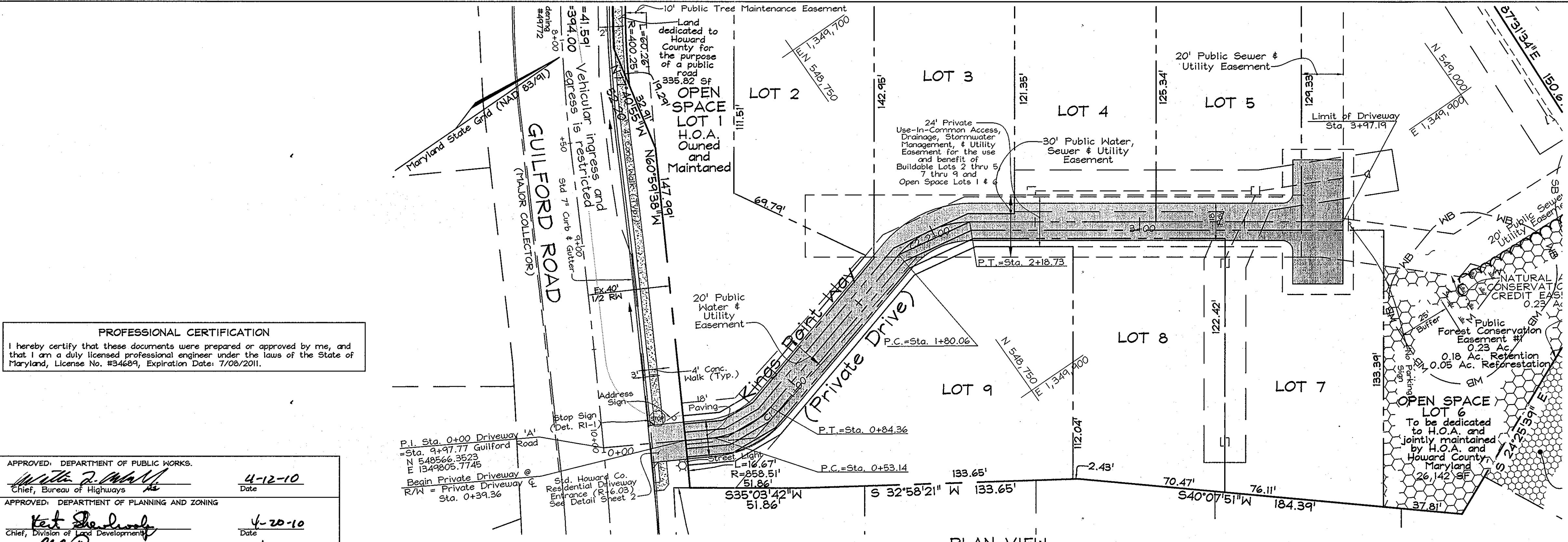
PROFESSIONAL CERTIFICATION
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OWNER/DEVELOPER
 CMC Land, LLC
 1170 Stonegate Lane
 Columbia, MD 21044
 Attn: Ms. Cindy Delzoppo
 443-250-6395



FSH Associates
 Engineers Planners Surveyors
 3339 Howard Lane, Elkridge, MD 21075
 Tel: 410-567-5200 Fax: 410-796-1582
 E-mail: info@fshri.com

DESIGN BY: MLT
 DRAWN BY: HS/RL
 CHECKED BY: ZYF
 SCALE: As Shown
 DATE: Mar. 31, 2010
 H.O. No.: 3394
 SHEET No.: 2 OF 10



PROFESSIONAL CERTIFICATION
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APPROVED: DEPARTMENT OF PUBLIC WORKS.
W. P. Wall
 Chief, Bureau of Highways
 Date: 4-12-10

APPROVED: DEPARTMENT OF PLANNING AND ZONING
K. J. DeLoach
 Chief, Division of Land Development
 Date: 4-20-10

W. J. Danner
 Chief, Development Engineering Division
 Date: 4/19/10

OWNER/DEVELOPER
 CMC Land, LLC
 11710 Stonegate Lane
 Columbia, MD 21044
 Attn: Ms. Cindy DeZoppo
 443-250-6395

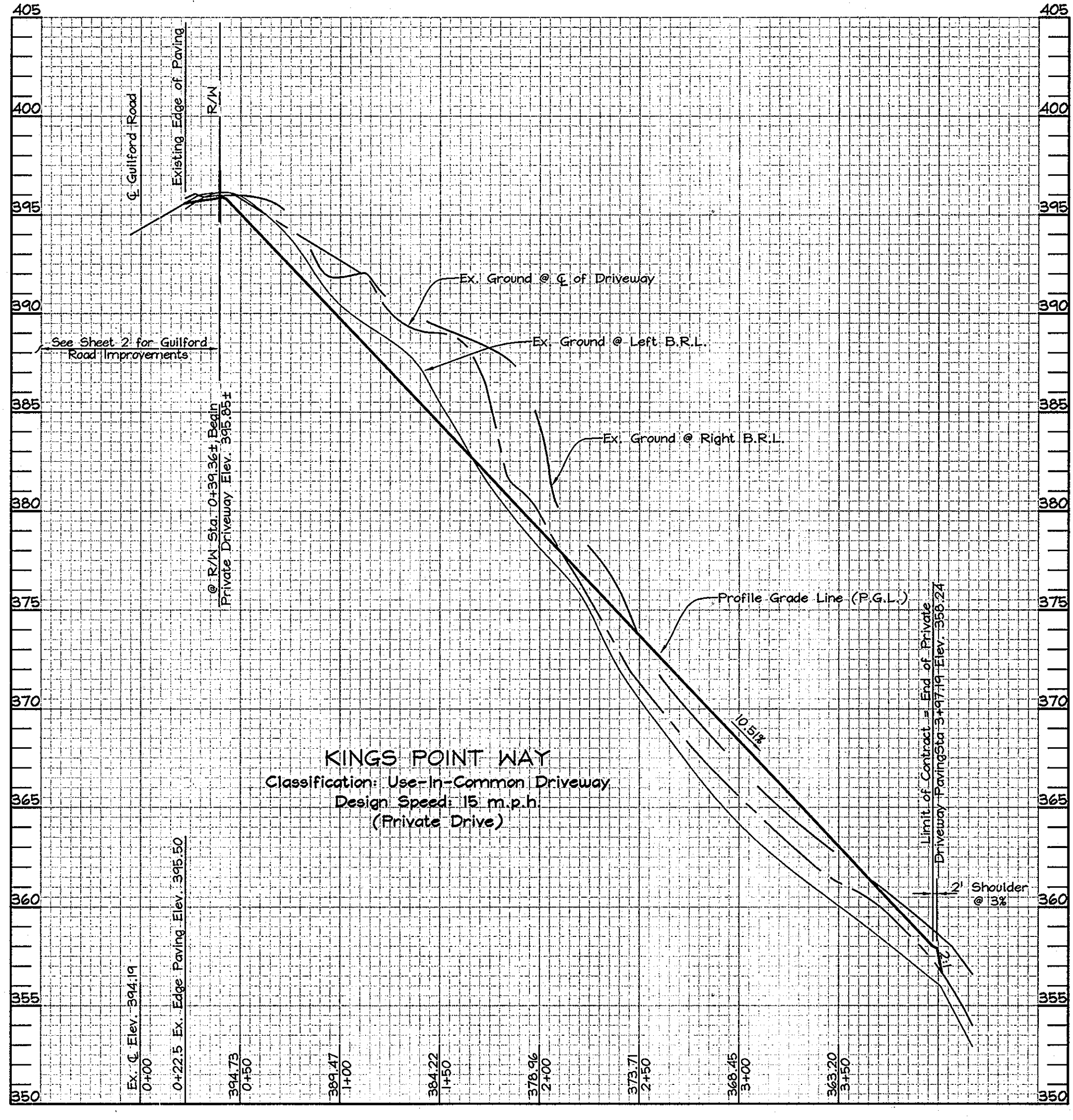
**KINGS POINT WAY
 PLAN, PROFILE & DETAILS
 KINGS COVE**
 (A RESUBDIVISION OF LOTS 4 AND 5-A, SNYDER
 PLAT NUMBERS PB 7/F 71 AND PB 026/F 039)
 ZONING R-12 PARCELS 61, 250 & 251
 TAX MAP 42 GRID 7 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

FSH Associates
 Engineers Planners Surveyors
 6339 Howard Lane Elkridge, MD 21075
 Tel: 410-587-5200 Fax: 410-796-1562
 E-mail: info@fsh.com

DESIGN BY: AY
 DRAWN BY: AY
 CHECKED BY: ZYF
 SCALE: As Shown
 DATE: Mar. 31, 2010
 W.O. No.: 3394
 SHEET No.: 3 OF 10

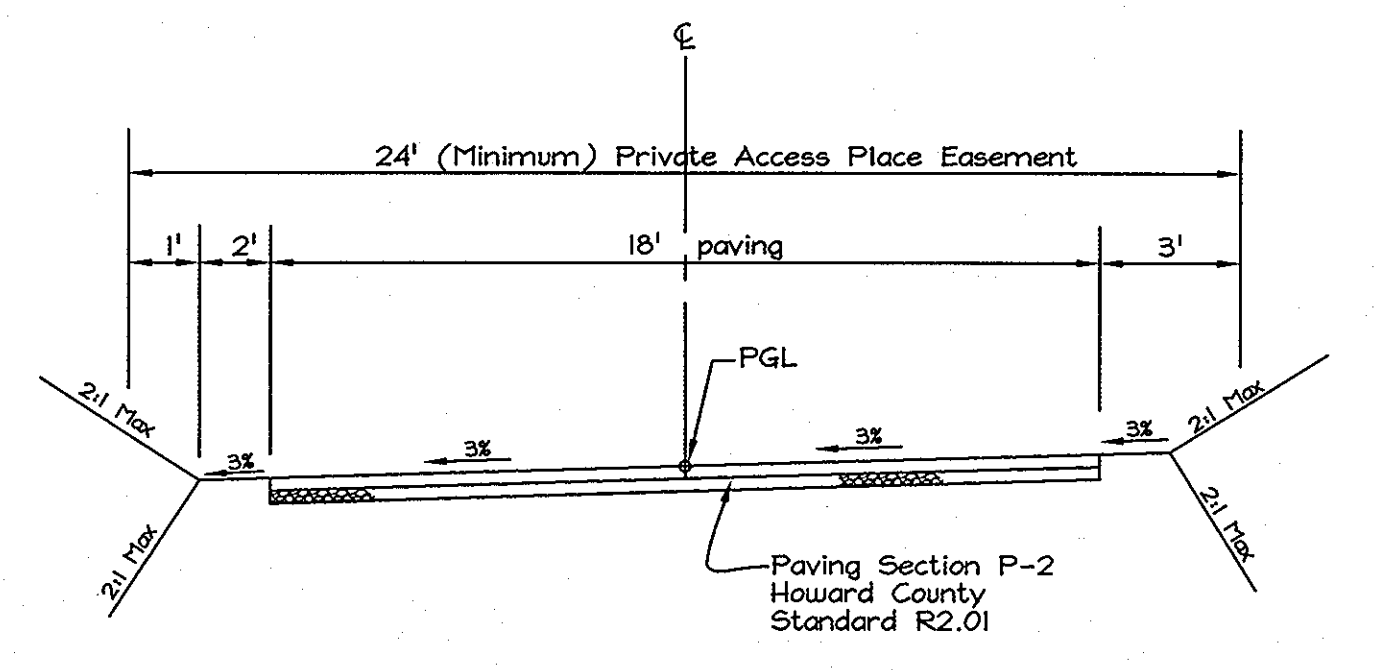
PLAN VIEW
 SCALE: 1"=30'

☉ Denotes street light use 14' high, black fiberglass pole with Premier Post-top fixture and a 100W HPS lamp size.

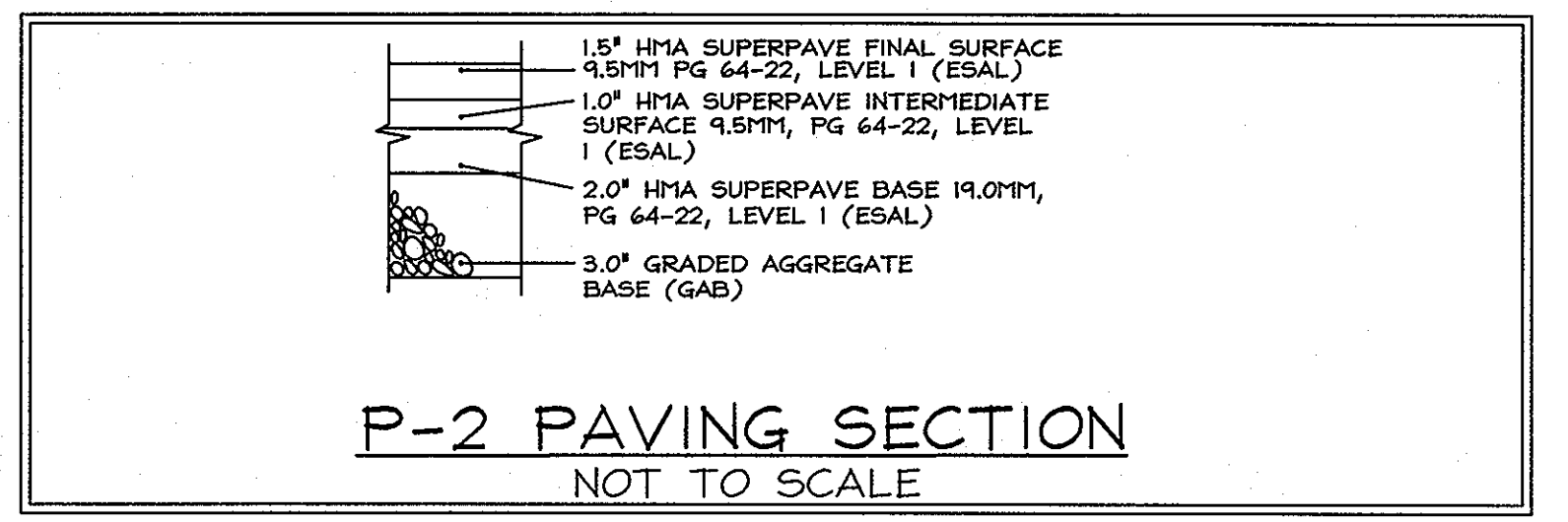


KINGS POINT WAY
 Classification: User-In-Common Driveway
 Design Speed: 15 m.p.h.
 (Private Drive)

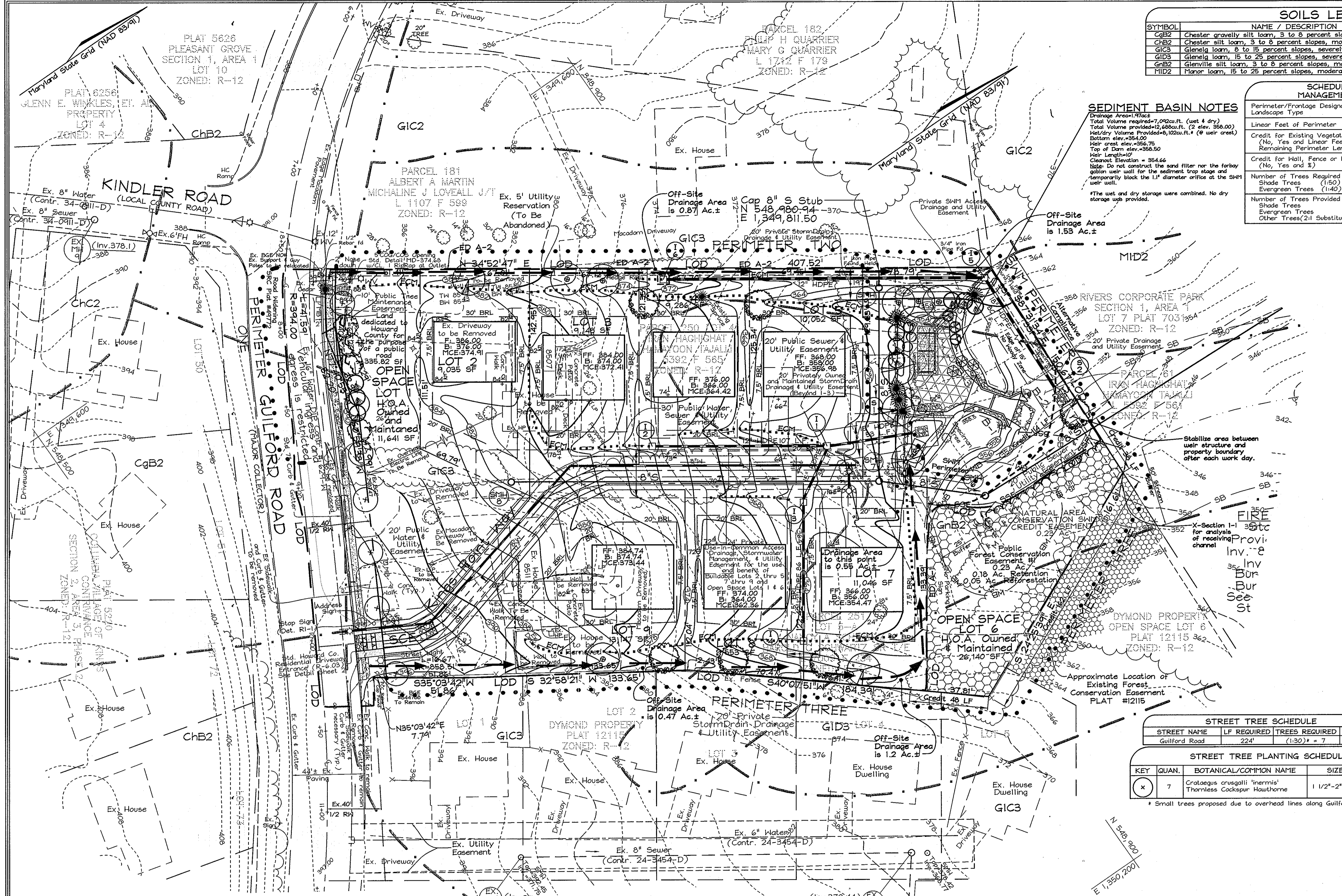
ROAD PROFILE
 SCALE- HORIZONTAL: 1"=50'
 VERTICAL: 1"=5'



TYPICAL KINGS POINT WAY SECTION
 CLASSIFICATION: PRIVATE USE-IN-COMMON DRIVEWAY
 DESIGN SPEED: 15 MPH MAX.
 NOT TO SCALE



Note:
 Paving section shown is based on a California Bearing Ratio (CBR) of 7 or greater. Actual CBR tests may result in modifications to the paving section. For other CBR values go to the Howard County Design Manual Volume IV, Standard Detail R-2.01, for associated P-2 Paving Sections.



SYMBOL	NAME / DESCRIPTION	SOIL GROUP
CgB2	Chester gravelly silt loam, 3 to 8 percent slopes, moderately eroded	B
ChB2	Chester silt loam, 3 to 8 percent slopes, moderately eroded	B
GIC3	Glenelg loam, 8 to 15 percent slopes, severely eroded	B
GICB	Glenelg loam, 15 to 25 percent slopes, severely eroded	B
GnB2	Glenelg silt loam, 3 to 8 percent slopes, moderately eroded	C
MID2	Major loam, 15 to 25 percent slopes, moderately eroded	C

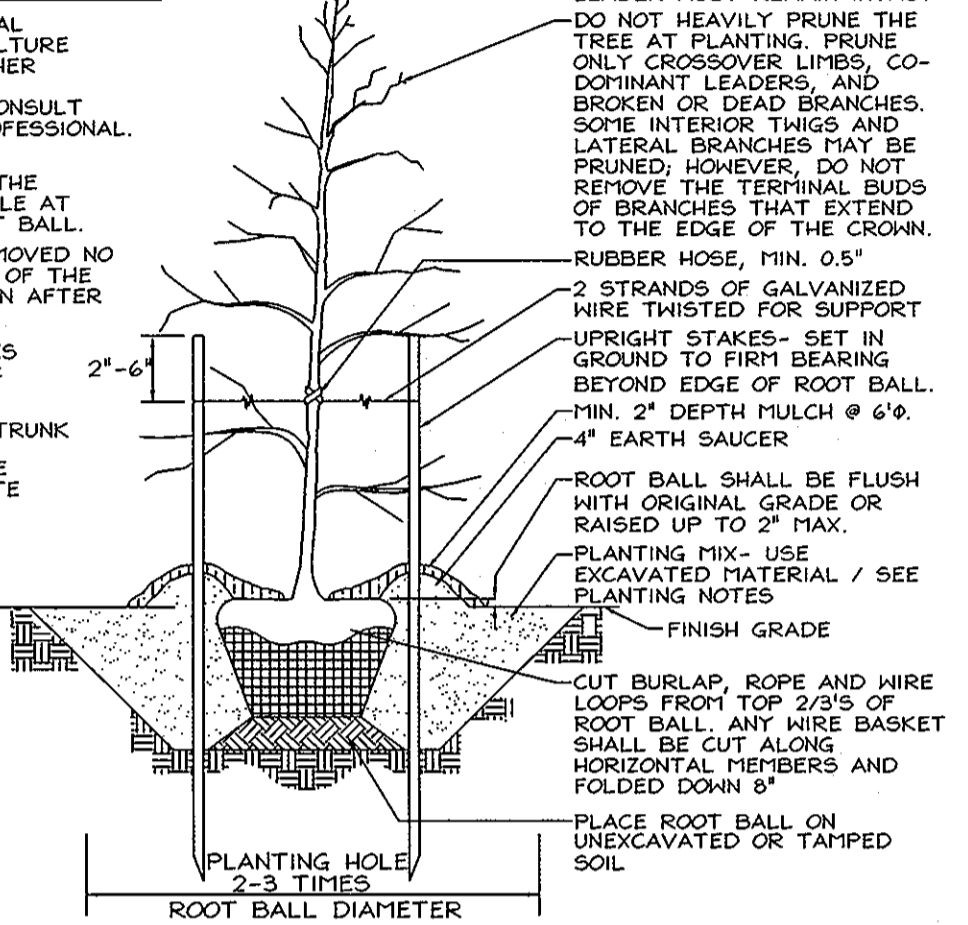
SYMBOL	DESCRIPTION
---	Existing Contour
---	Proposed Contour
+	Proposed Spot Elevation
→	Existing Spot Elevation
→	Direction of Flow
---	Existing Treeline
---	Soils Line
---	Limit of Disturbance
---	Super Silt Fence
---	Stone Construction Entrance
---	Earth Dike
---	Proposed Treeline
---	Erosion Control Matting
---	Riprap Inflow Protection

SEDIMENT BASIN NOTES
 Drainage Area = 1.97 ac.
 Total Volume Required = 7,020 cu. ft. (wet 4 dry)
 Total Volume Provided = 2,680 cu. ft. (2 elev. 350.00)
 Net/dry Volume Provided = 5,102 cu. ft. (9 wet crest)
 Bottom elev. = 354.00
 Mean crest elev. = 356.75
 Top of Dam elev. = 356.50
 Mean Length = 70'
 Cleanout Elevation = 354.66
 Note: Do not construct the sand filter nor the forbay gabion weir wall for the sediment trap stage and temporarily block the 1.1" diameter orifice at the SWM weir wall.
 *The wet and dry storage were combined. No dry storage was provided.

SCHEDULE D : STORMWATER MANAGEMENT AREA LANDSCAPING	
Perimeter/Frontage Designation	SWM Perimeter
Landscape Type	B
Linear Feet of Perimeter	491'
Credit for Existing Vegetation (No, Yes and Linear Feet)	Yes (114')
Remaining Perimeter Length	377'
Credit for Wall, Fence or Berm (No, Yes and %)	No
Number of Trees Required (Shade Trees (150) Evergreen Trees (140))	150 B 140 G
Number of Trees Provided (Shade Trees (21) Evergreen Trees (21) Substitution)	7 1 0 Trees (0 Substitution Trees)

NOTES

- CONSULT INTERNATIONAL SOCIETY OF ARBORICULTURE GUIDELINES FOR FURTHER DETAILS OF PLANTING SPECIFICATIONS, OR CONSULT WITH A QUALIFIED PROFESSIONAL.
- EACH TREE SHALL BE PLANTED SUCH THAT THE TRUNK FLARE IS VISIBLE AT THE TOP OF THE ROOT BALL.
- STAKES SHALL BE REMOVED NO LATER THAN THE END OF THE FIRST GROWING SEASON AFTER PLANTING.
- PLACE UPRIGHT STAKES PARALLEL TO WALLS OF BUILDINGS.
- KEEP MULCH 1" FROM TRUNK.
- TREES ARE NOT TO BE PLANTED ON PRIVATE SEWAGE EASEMENT.



TYPICAL TREE PLANTING AND STAKING
 ALL TREES UP TO 3" CALIPER NOT TO SCALE

LANDSCAPE NOTES

- At the time of installation, all shrubs and other plantings herewith listed and approved for this site, shall be of the proper height requirements in accordance with the Howard County Landscaping Manual. In addition, no substitutions or relocation of required plantings may be made without prior review and approval from the Department of Planning and Zoning. Any deviation from this approved Landscape Plan may result in denial or delay in the release of landscape surety until such time as all required materials are planted and/or revisions are made to applicable plans and certificates.
- The owner, tenant, and/or their agents shall be responsible for maintenance of the required landscaping, including both plant materials and berms. All plant materials shall be maintained in good growing condition, and when necessary, replaced with new materials to ensure continued compliance with applicable regulations. All other required landscaping shall be permanently maintained in good condition, and when necessary, repaired or replaced.
- Financial surety for the required perimeter landscaping will be posted as part of the Developer's Agreement for the Site Development Plan in the amount of \$7,800.00 (17 shade trees @ \$500.00 each, 4 ornamental trees @ \$150.00 each, and 14 evergreen trees @ \$150.00 each).
- The developer is claiming Alternative Compliance for part of the SWM perimeter. The plant quantities are calculated for the entire length (minus the credit area) however the request is made to place them along the interior lots and the Martin property as shown. The area of the alternative compliance request is an area of grading that is included in the "No Woody Zone." In addition, the requested section abuts an open space area that will never be developed.

STREET TREE SCHEDULE			
STREET NAME	LF REQUIRED	TREES REQUIRED	PROVIDED
Guilford Road	224'	(130)* = 7	7

STREET TREE PLANTING SCHEDULE			
KEY	QUAN.	BOTANICAL/COMMON NAME	SIZE NOTE
X	7	Crataegus crusgalli 'Inermis' Thornless Cockspur Hawthorne	1 1/2"-2" Cal. B & B

* Small trees proposed due to overhead lines along Guilford Road.

LANDSCAPE SCHEDULE			
KEY	QUAN.	BOTANICAL/COMMON NAME	SIZE NOTE
6	6	Acer rubrum 'October Glory' 'October Glory' Red Maple	2 1/2"-3" Cal. B & B
6	6	Gleditsia triacanthos inermis 'Imperial' Thornless Honeylocust	2 1/2"-3" Cal. B & B
5	5	Quercus rubra Red Oak	2 1/2"-3" Cal. B & B
4	4	Magnolia stellata Star Magnolia	6'-8' B & B
4	4	Ilex 'Nellie R Stevens' Nellie Stevens Holly	5'-6' B & B
5	5	Thuja occidentalis 'Techny' 'Techny' Eastern Arborvitae	5'-6' B & B

OWNER/DEVELOPER
 CMC Land, LLC
 11710 Stonegate Lane
 Columbia, MD 21044
 Attn: Ms. Cindy Delozoppo
 443-250-6395

SCHEDULE A PERIMETER LANDSCAPE EDGE			
CATEGORY	ADJACENT TO ROADWAYS	ADJACENT TO PERIMETER PROPERTIES	
Perimeter/Frontage Designation	B	2	3
Landscape Type	A	A	A
Linear Feet of Roadway	120	329'	570
Credit for Existing Vegetation (Yes, No, Linear Feet)	No	No	Yes** (248LF) 322 LF
Remaining Perimeter Length	No	No	No
Credit for Wall, Fence or Berm (Yes, No, Linear Feet)	No	No	No
Number of Plants Required			
Shade Trees	1:50 2	1:60 5	1:60 5
Evergreen Trees	1:40 3	-	-
Number of Plants Provided			
Shade Trees	0***	5	5
Evergreen Trees	0***	-	-
Other Trees (21 Substitution)	4***	-	-
Shrubs (101 Substitution)	-	-	-
(Describe Plant Substitution Credits Below if needed)			

** SWM Perimeter also exists along this side of property. See Schedule D.
 *** Credit taken for retained existing woodland.
 **** Small trees proposed due to overhead lines along Guilford Road.

PLAN VIEW
 SCALE: 1"=30'

Note: No Stockpiling is Permitted On-site.

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. #34689, Expiration Date: 07/08/2011.

DEVELOPER'S CERTIFICATE
 I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN 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 THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

SWM Planting Notes
 Within Facility - Bottom to 354.0 - 1,697 s.f. To be planted with Red Top (Agrostis alba) at 5 lbs / 1000 s.f.

SYM.	QTY.	BOTANICAL NAME	SIZE	NOTE
3	3	Clethra alnifolia Sweet Pepperbush	3'-4" Ht.	Cont.
3	3	Gephalopodium occidentale	3'-4" Ht.	Cont.
3	3	Ilex verticillata Winterberry	3'-4" Ht.	Cont.
3	3	Viburnum dentatum Arrowwood	3'-4" Ht.	Cont.

Remaining area around the stormwater management facility will be stabilized as per the permanent seeding notes, see Sheet 5 and vegetated per the landscape buffer requirements. Entire area to be prepared as per the permanent seeding notes.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

Walter Z. Maltz 4-12-10
 CHIEF, BUREAU OF HIGHWAYS DATE

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

John P. Robertson 4/8/10
 HOWARD SCD DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Pat Sheehy 4-20-10
 Chief, Division of Land Development DATE
Michael L. Taylor Jr. 4/9/10
 Chief, Development Engineering Division DATE

DEVELOPER'S BUILDER'S CERTIFICATE

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

Cindy Delozoppo 3/31/2010
 SIGNATURE OF DEVELOPER DATE

ENGINEER'S CERTIFICATE
 I/WE 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.

Michael L. Taylor Jr. 3/31/10
 SIGNATURE OF ENGINEER DATE
Cindy Delozoppo 3/31/2010
 SIGNATURE OF DEVELOPER DATE

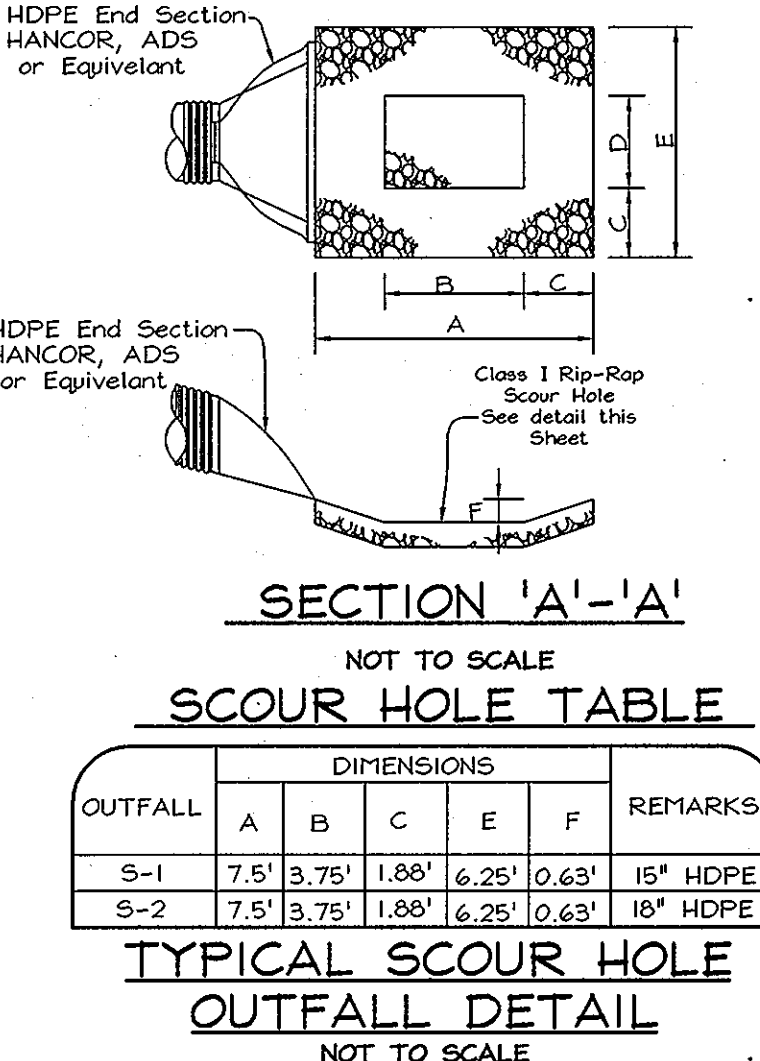
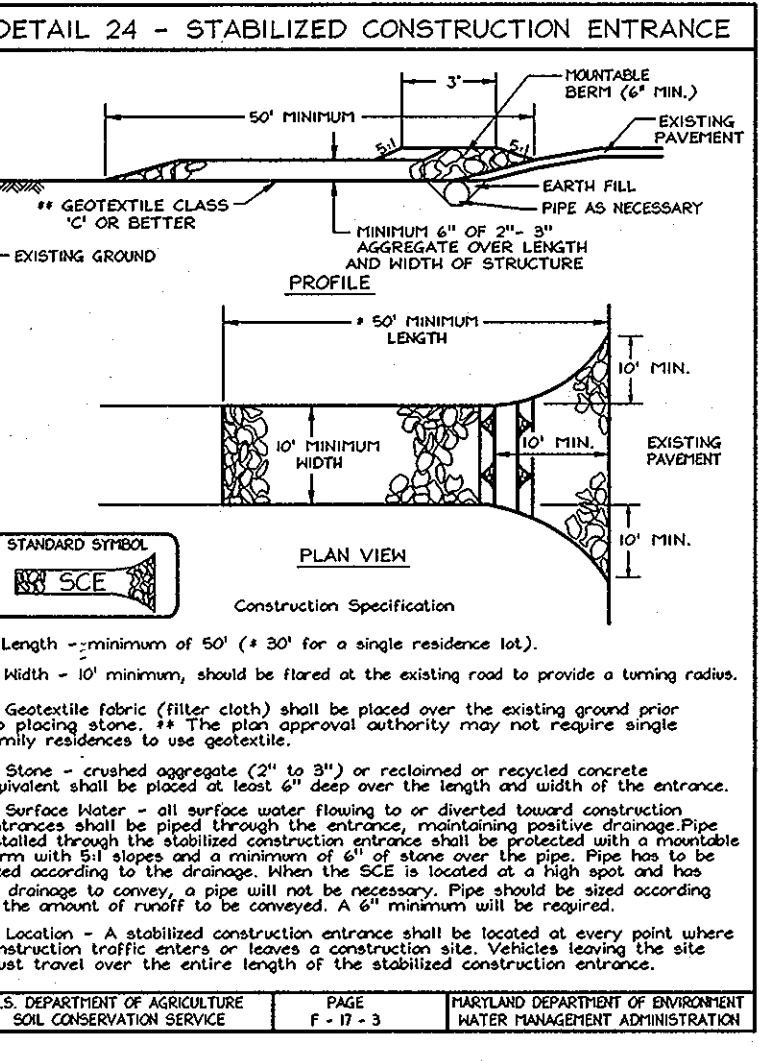
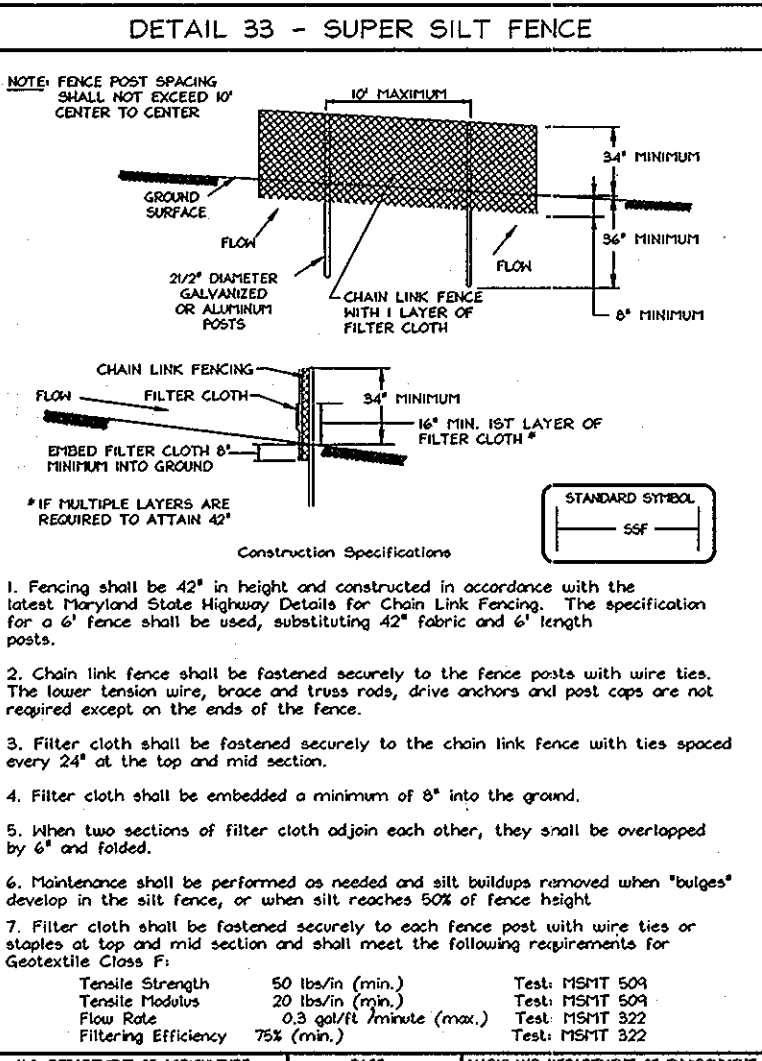
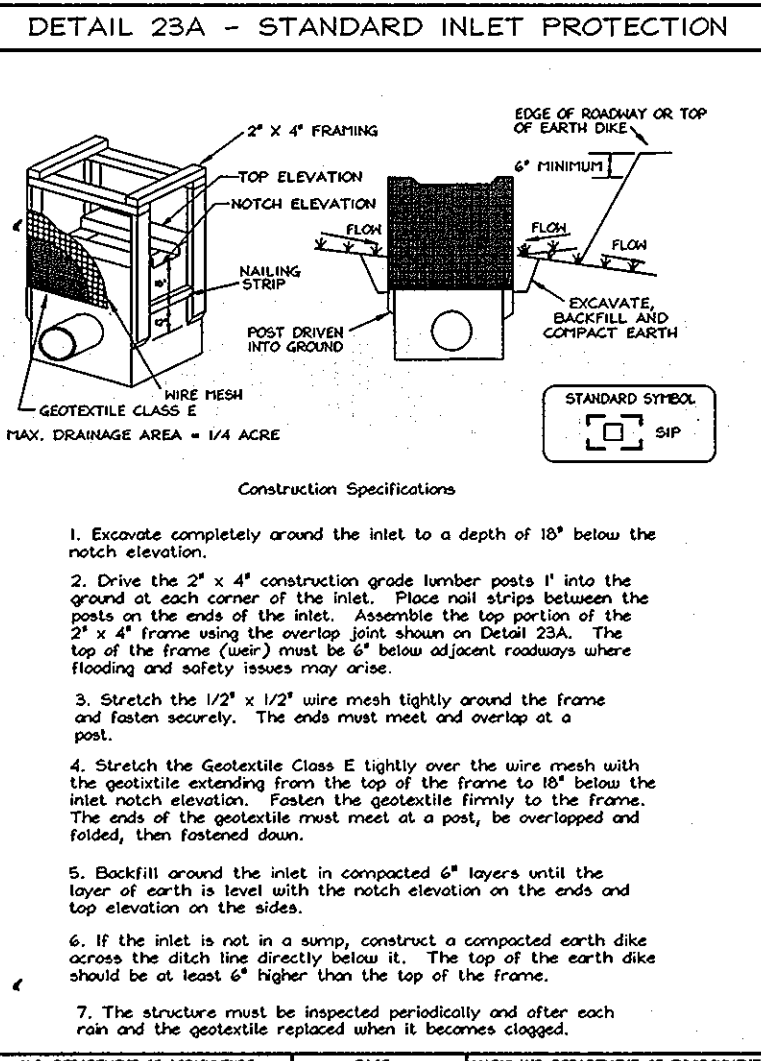
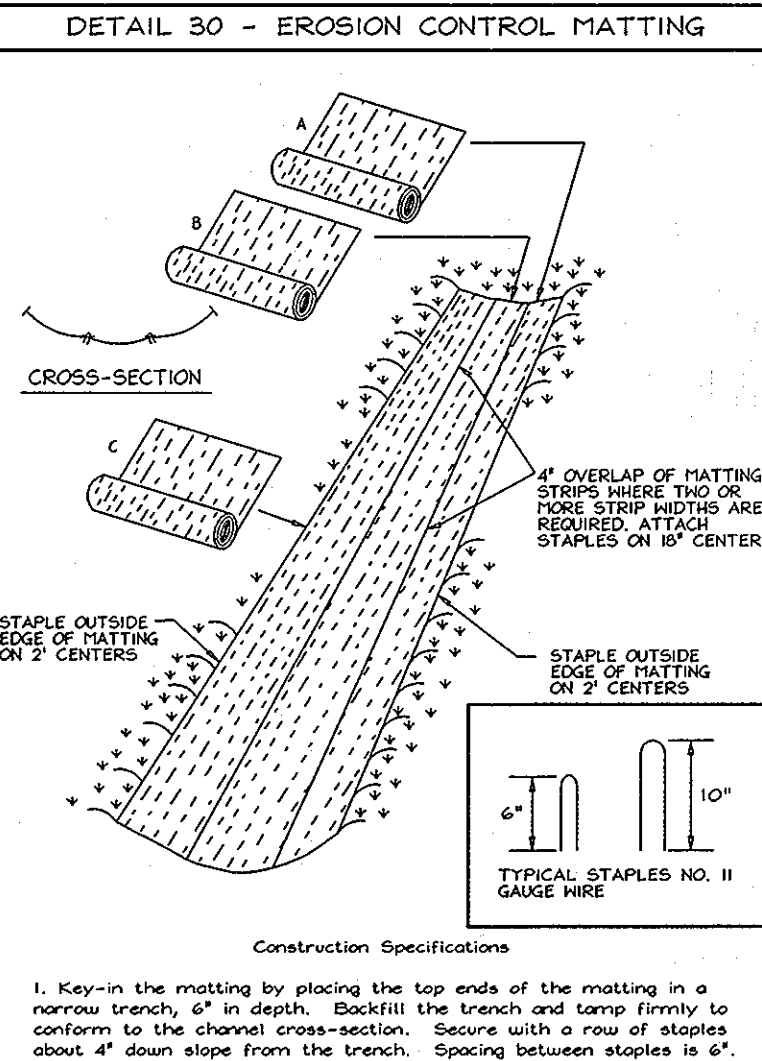
GRADING, LANDSCAPING, SEDIMENT & EROSION CONTROL, & SOILS PLAN

KINGS COVE
 (A RESUBDIVISION OF LOTS 4 AND 5-A, SNYDER PLAT NUMBER PB 7/F 1 AND PB 026/F 039)

TAX MAP 42 GRID 7 PARCELS 61, 250 & 251
 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

FSH Associates
 Engineers Planners Surveyors
 63339 Howard Lane, Elkridge, MD 21075
 Tel: 410-677-5200 Fax: 410-796-1562
 E-mail: info@fshri.com

DESIGN BY: MLT
 DRAWN BY: HS/RL
 CHECKED BY: ZYF
 SCALE: As Shown
 DATE: Mar. 31, 2010
 P.L.O. No.: 3394
 SHEET No.: 4 OF 10



PERMANENT SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT LONG-LIVED VEGETATIVE COVER IS NEEDED.

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

SOIL AMENDMENTS: In lieu of soil test recommendations, use the following schedule: Apply 2 tons per acre dolomitic limestone (42 lbs/1000 s.f.) and 400 lbs. / acre (20.7 lbs./1000s.f.) of 10-20-20 before seeding. Harrow or disc into upper 3 in. of soil.

SEEDING: Apply a mixture of Turf Type Top Fescue (60%) and Hard Fescue (20%) in accordance with seeding dates and rates shown in the Temporary Seeding Summary shown on this sheet. For stabilization outside of the seeding dates, apply straw mulch at rates and methods specified below and apply permanent seeding when under proper seeding dates.

MULCHING: Immediately following seeding, apply a uniform 1-2 in. Deep layer of unrattled small grain straw at a rate of 2 tons/acre. (Apply 2.5 tons/acre if a mulch anchoring tool is used). Straw may be anchored with wood cellulose fiber at a rate of 750 lbs. / acre mixed at a ratio of 50 lbs. of wood fiber/100 gal. of water. Synthetic liquid binders such as Terra Tex II, Acrylic DLR (Agra-Tack), DCA-70, Petrosert and other approved equals may be used at rates recommended by the manufacturers.

PERMANENT SEEDING SUMMARY

Seed Mixture (Hardness Zone 2a and 2b) From Table 25	Application Rate (lb/ac)	Seeding Dates	Seeding Depth	Fertilizer Rate (10-20-20)	Lime Rate	
No. 10	Species: Turf Fescue (60%) Hard Fescue (20%)	120 30	3/15-5/15 8/15-11/15	0.5 in.	90lb/ac (2.0lb/1000s.f.)	17lb/ac (.4lb/1000s.f.) 175lb/ac (4.1lb/1000s.f.)

TEMPORARY SEEDING NOTES

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

SOIL AMENDMENTS: In lieu of soil test recommendations, use the following schedule: Apply 2 tons per acre dolomitic limestone (42 lbs/1000 s.f.) and 600 lbs. / acre (15 lbs./1000s.f.) of 10-10-10 before seeding. Harrow or disc into upper 3 in. of soil.

SEEDING: Apply the Maryland State Highway approved seed mixture of Barley or Rye plus Fescue Millet in accordance with seeding dates and rates shown in the Temporary Seeding Summary shown on this sheet. For stabilization outside of the seeding dates, apply straw mulch at rates and methods specified below.

MULCHING: Immediately following seeding, apply a uniform 1-2 in. Deep layer of unrattled small grain straw at a rate of 2 tons/acre. (Apply 2.5 tons/acre if a mulch anchoring tool is used). Straw may be anchored with wood cellulose fiber at a rate of 750 lbs. / acre mixed at a ratio of 50 lbs. of wood fiber/100 gal. of water. Synthetic liquid binders such as Terra Tex II, Acrylic DLR (Agra-Tack), DCA-70, Petrosert and other approved equals may be used at rates recommended by the manufacturers.

TEMPORARY SEEDING SUMMARY

Seed Mixture (Hardness Zone 2a and 2b) From Table 26	Application Rate (lb/ac)	Seeding Dates	Seeding Depth	Fertilizer Rate (10-10-10)	Lime Rate	
No. 2	Species: Barley or Rye plus Fescue Millet	150 lb. (3.5lb/1000sqft)	2/1-1/30 (7a) 3/15-10/31 (6a)	1/4 in. 1/2 in.	600 lb/ac (15lb/1000sqft)	2 ton/ac (100lb/1000sqft)

21.0 STANDARDS AND SPECIFICATIONS FOR TOPSOIL

Definition

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

Purpose

To provide a suitable soil medium for vegetable growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or other unacceptable soil gradation.

Conditions Limited Practice Applies

I. This practice is limited to areas having 2:1 or flatter slopes where:

- The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
- 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.
- The original soil to be vegetated contains material toxic to plant growth.
- The soil is so acidic that treatment with limestone is not feasible.

II. For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans.

Construction and Material Specifications

I. Topsoil salvaged from the existing site may be used provided that it meets the standards set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-SCS in cooperation with Maryland Agricultural Experimental Station.

II. Topsoil Specifications - Soil to be used as topsoil must meet the following:

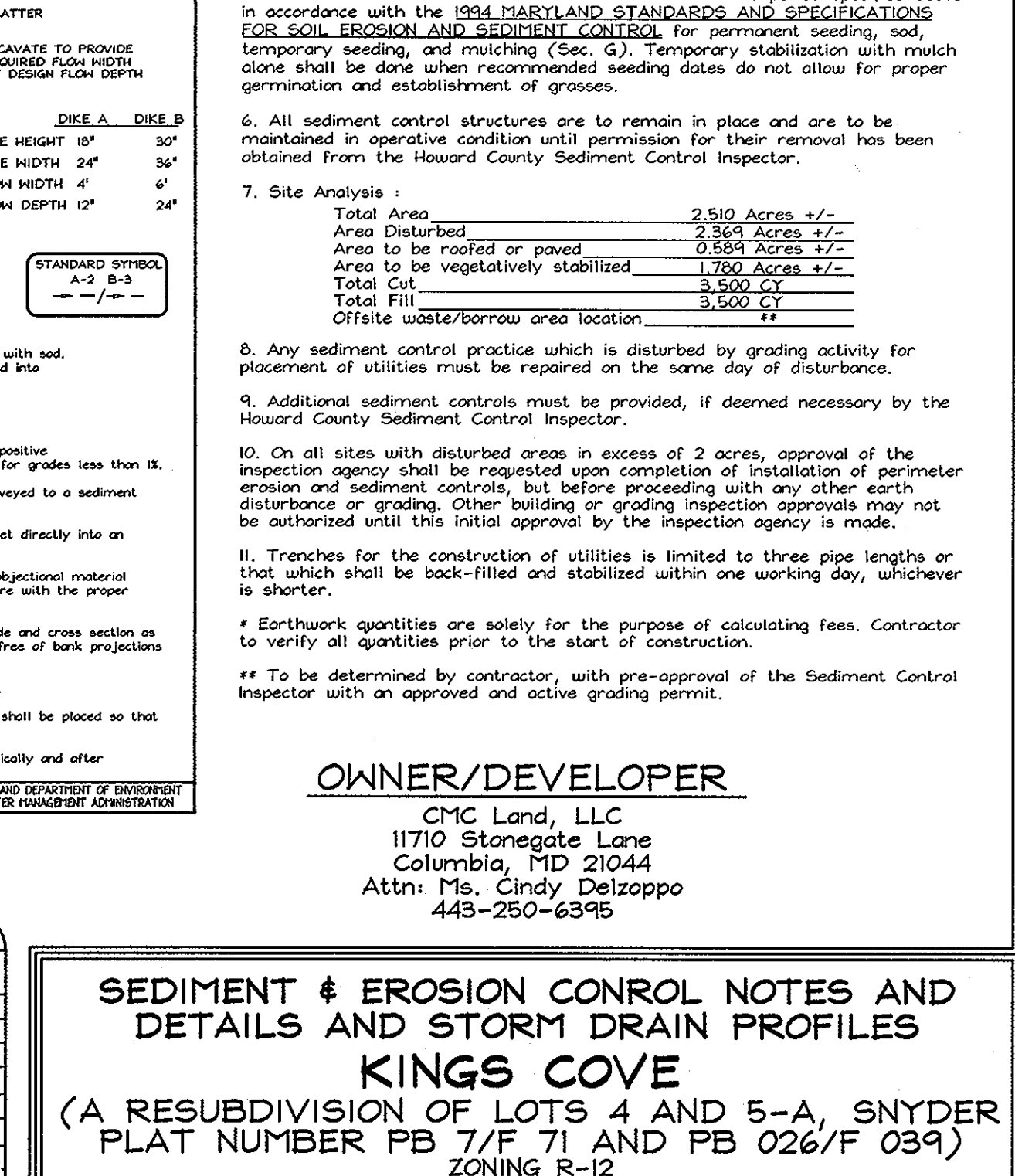
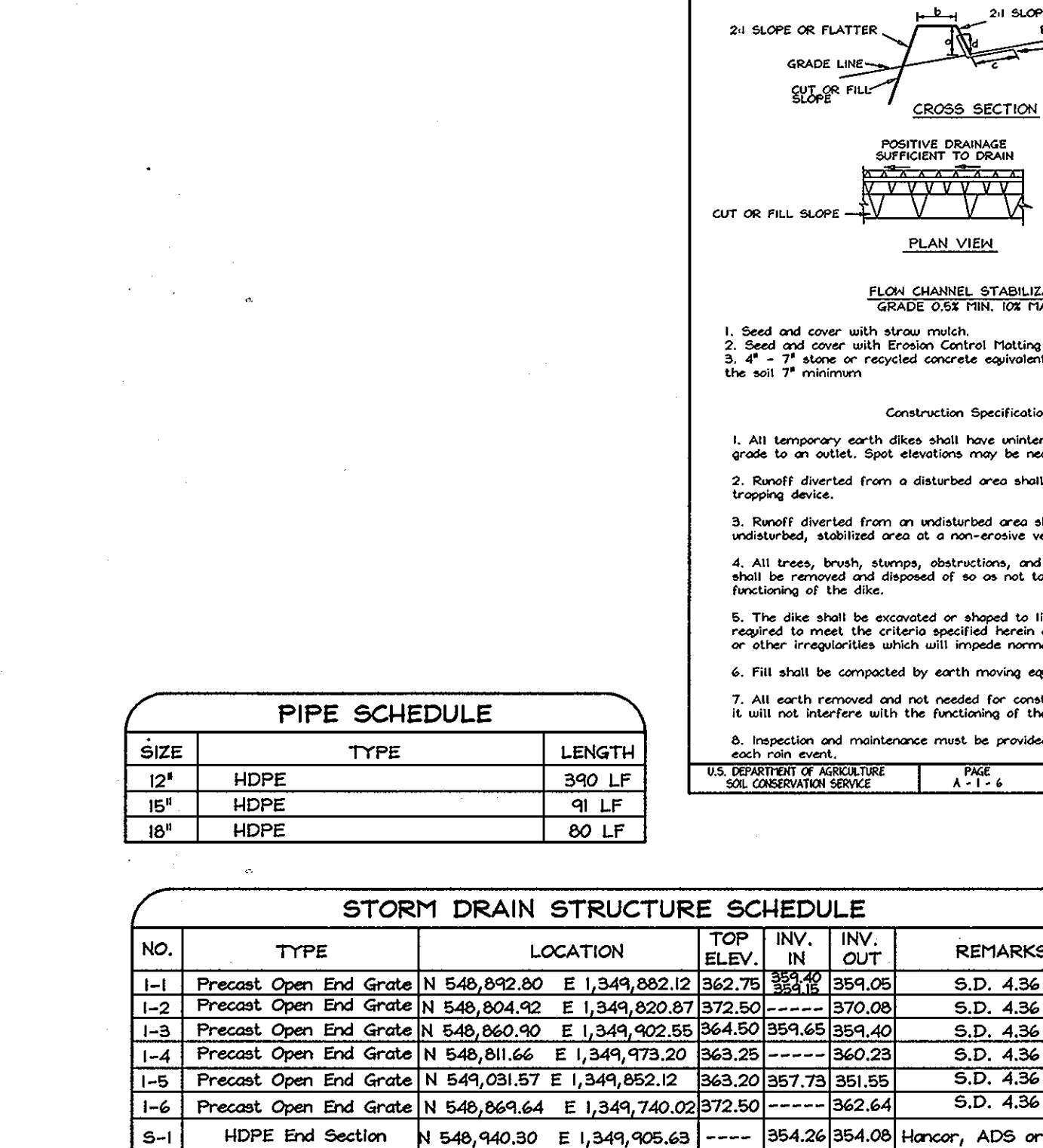
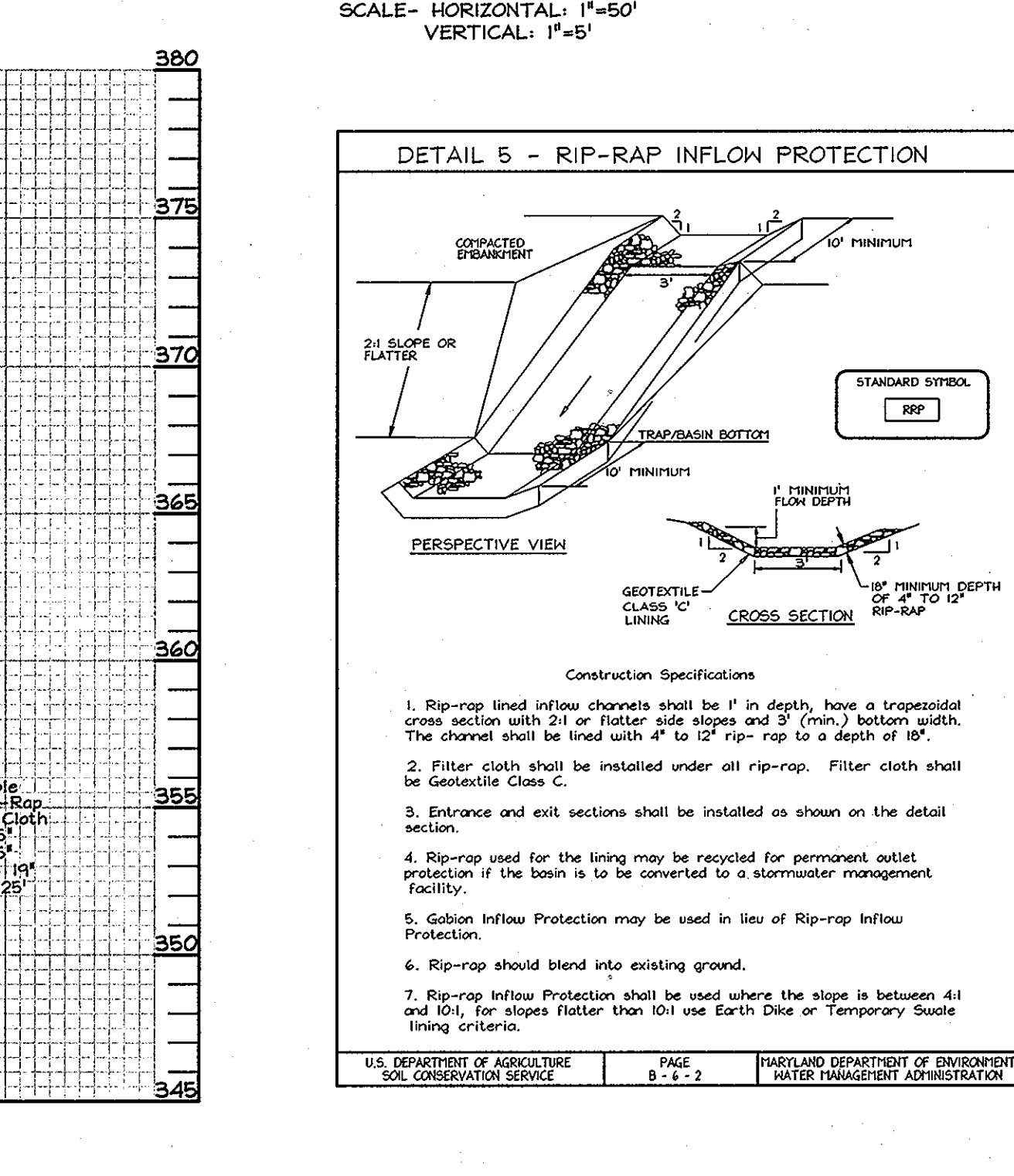
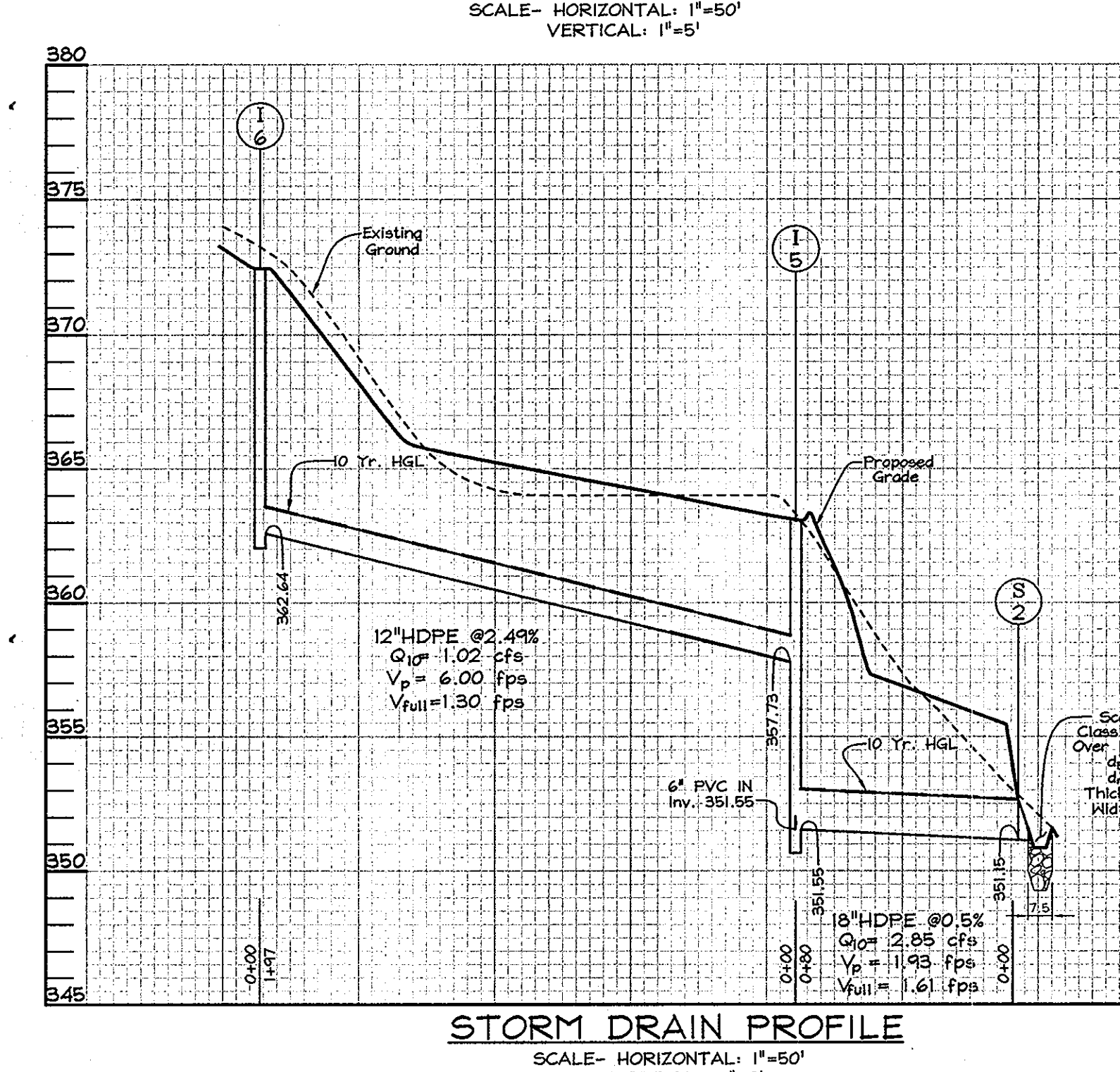
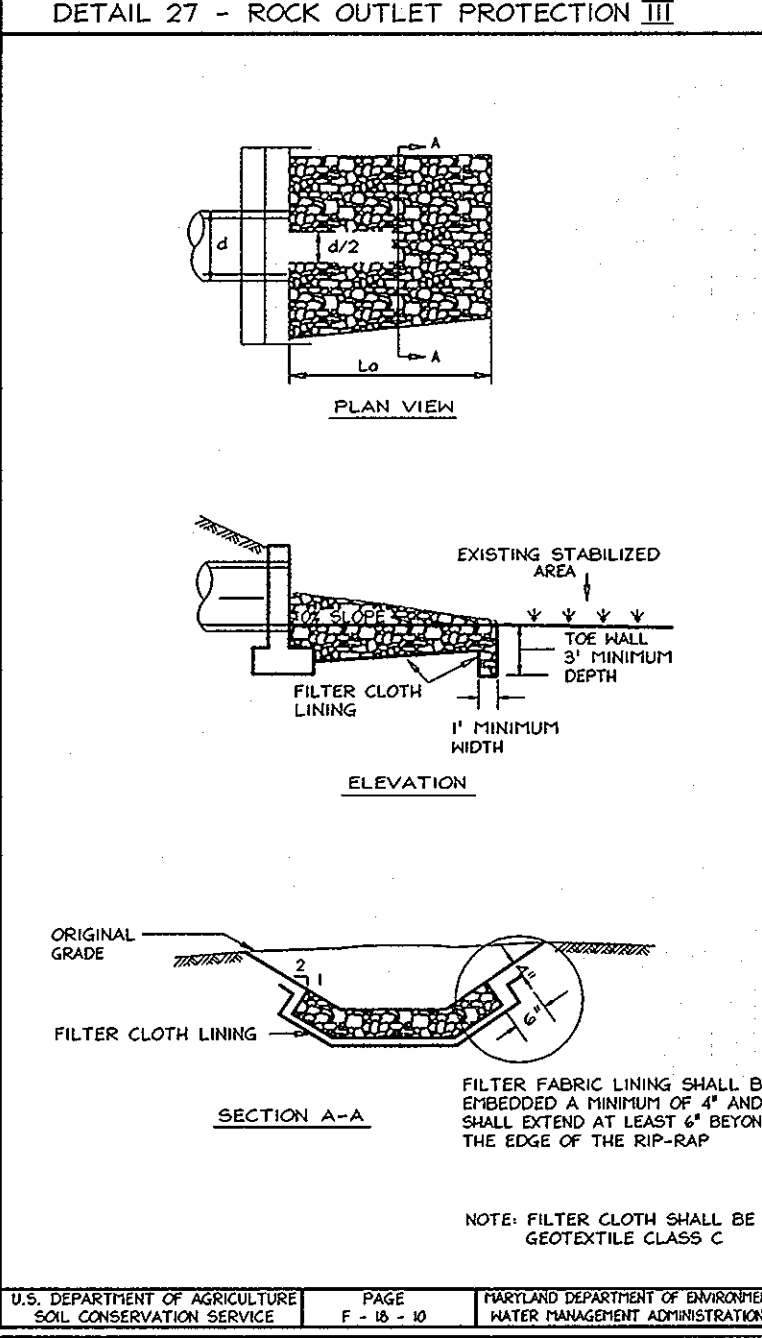
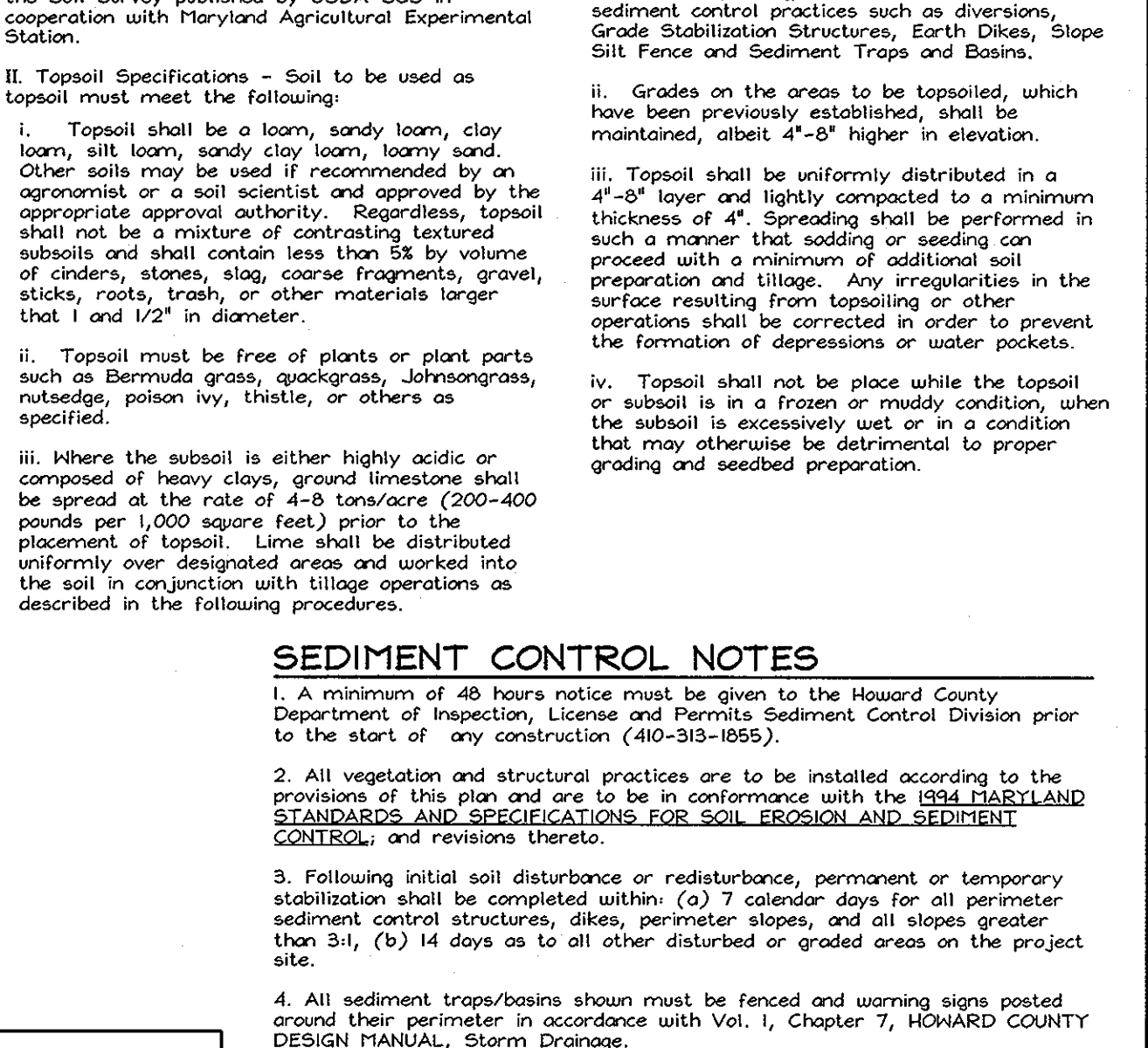
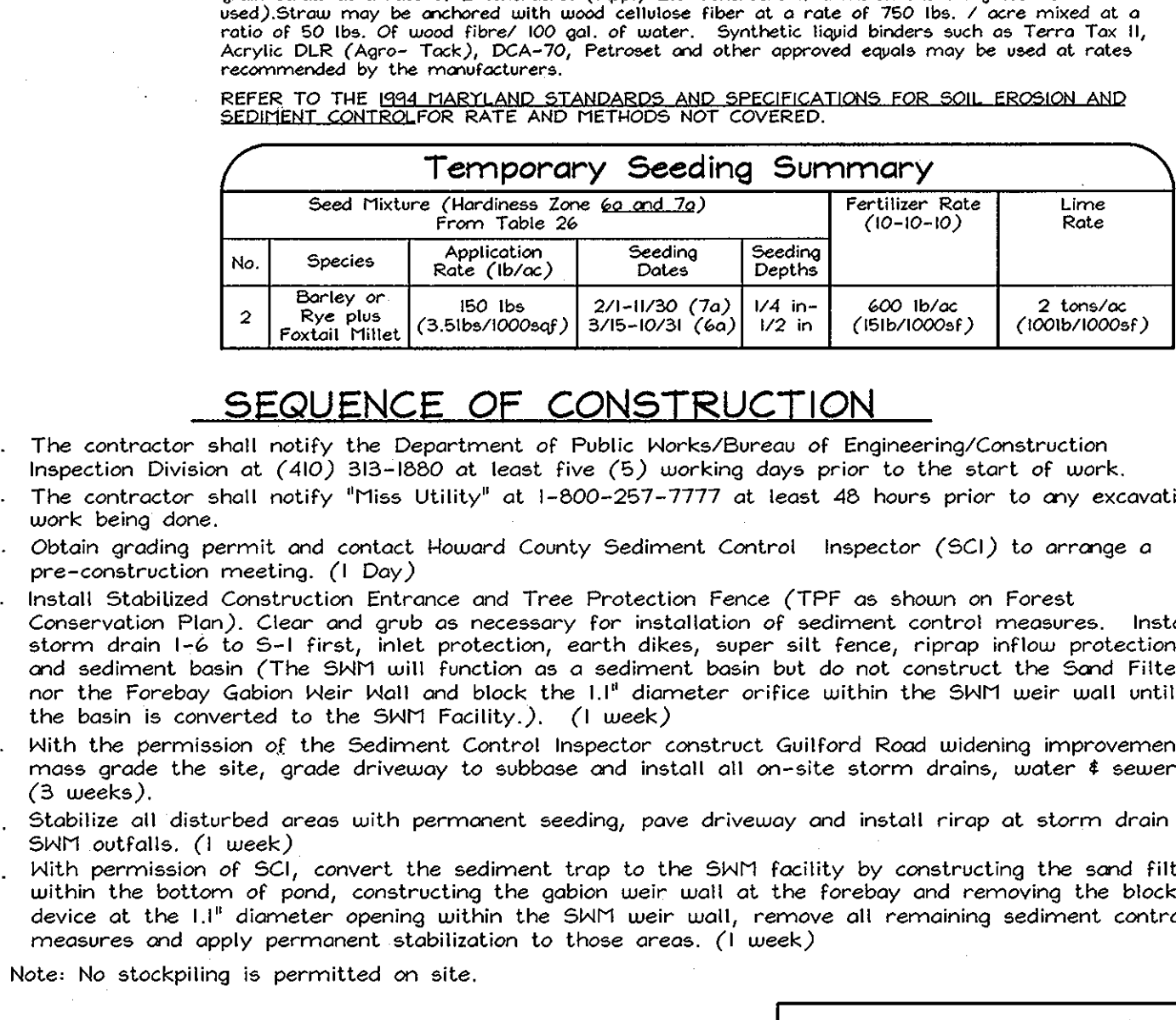
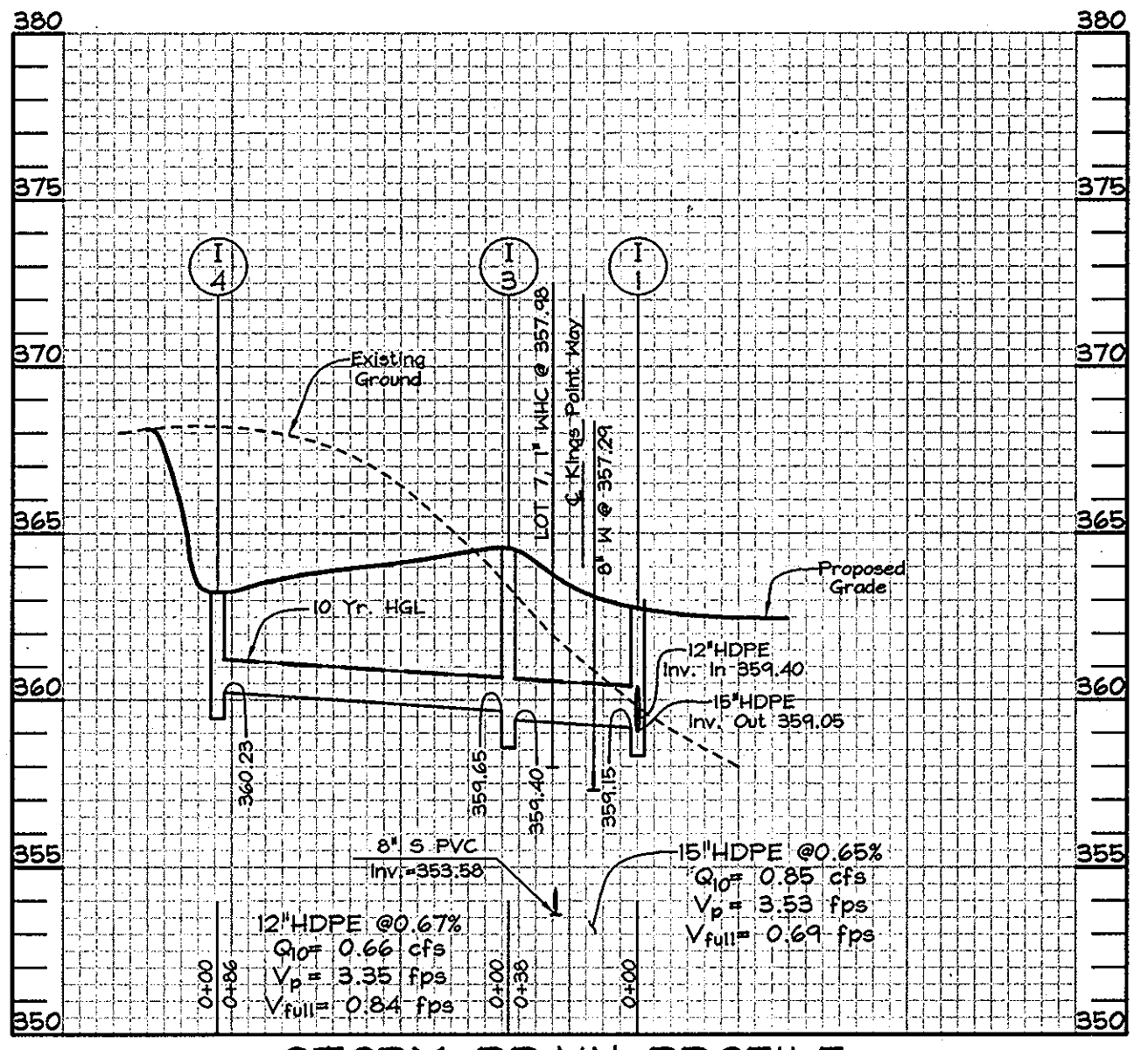
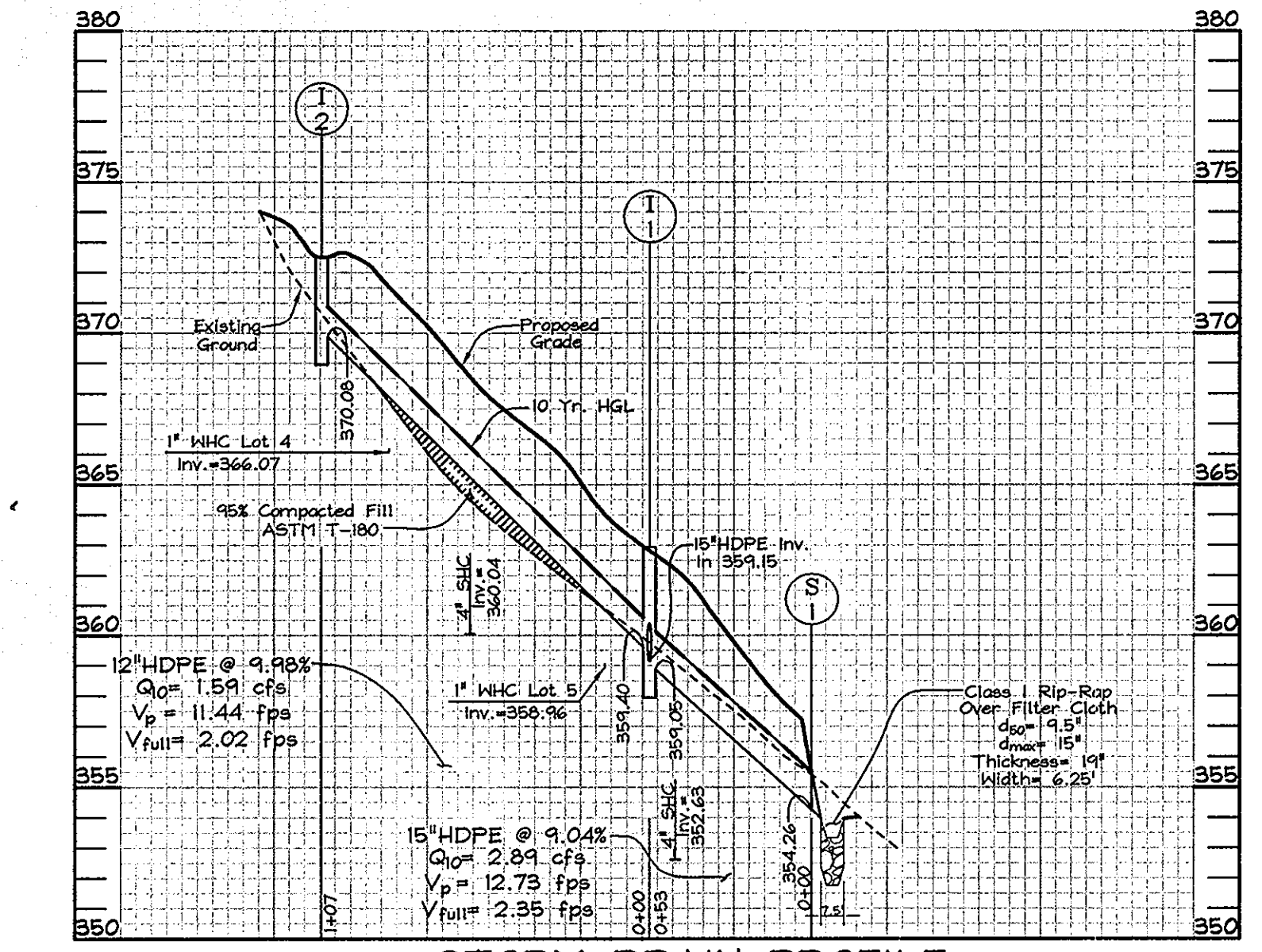
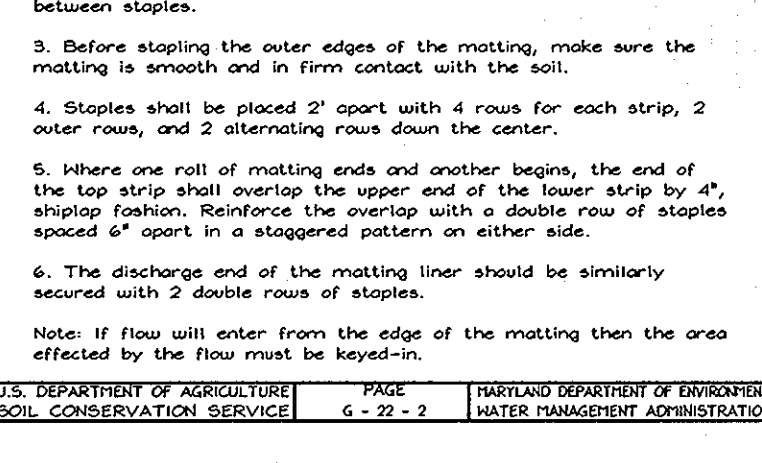
- Topsoil shall be a loam, sandy loam, clay loam, silty loam, sandy clay loam, loamy sand, or other soils may be used if recommended by an agronomist or a soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting textured contents and 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\"/>

III. Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.

SEDIMENT CONTROL NOTES

- A minimum of 48 hours notice must be given to the Howard County Department of Inspection, License and Permit Sediment Control Division prior to the start of any construction (410-313-1855).
- All vegetation and structural practices are to be installed according to the provisions of this plan and are to be in accordance with the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL and revisions thereto.
- Following initial soil disturbance or redistribution, permanent or temporary stabilization shall be completed within (a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes, and all slopes greater than 3:1, (b) 14 days for all other disturbed or graded areas on the project site.
- All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 7, HOWARD COUNTY DESIGN MANUAL, Storm Drainages.
- All disturbed areas must be stabilized within the time period specified above in accordance with the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding, sod, temporary seeding, and mulching (Sec. G). Temporary stabilization with mulch alone shall be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
- All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
- Site Analysis:

Total Area	2,510 Acres +/-
Area Disturbed	2,363 Acres +/-
Area to be vegetatively stabilized	1,702 Acres +/-
Total Cut	3,500 CY
Total Fill	3,500 CY
- Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
- Additional sediment controls must be provided, if deemed necessary by the Howard County Sediment Control Inspector.
- On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.
- Trenches for the construction of utilities is limited to three pipe lengths or that which shall be back-filled and stabilized within one working day, whichever is shorter.
- Earthquake quantities are solely for the purpose of calculating fees. Contractor to verify all quantities prior to the start of construction.
- To be determined by contractor, with pre-approval of the Sediment Control Inspector with an approved and active grading permit.



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

Walter R. Smith 4-12-10
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Robert J. Davis 4-20-10
 Chief, Division of Development DATE

Michael J. Williams 4/19/10
 Chief, Development Engineering Division DATE

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

John R. Roberts 4/8/10
 HOWARD SCD DATE

ENGINEERS CERTIFICATE

"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."

Michael L. Taylor 3/31/10
 SIGNATURE OF ENGINEER DATE

Michael L. Taylor 3/31/10
 SIGNATURE OF DEVELOPER DATE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN 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 THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

Cindy DeLorenzo 3/31/2010
 SIGNATURE OF DEVELOPER DATE

PIPE SCHEDULE

SIZE	TYPE	LENGTH
12"	HDPE	390 LF
18"	HDPE	91 LF
18"	HDPE	90 LF

STORM DRAIN STRUCTURE SCHEDULE

NO.	TYPE	LOCATION	TOP ELEV.	INV. IN	INV. OUT	REMARKS
1-1	Precast Open End Grate	N 549,892.80 E 1,349,882.12	362.75	354.20	359.05	S.D. 4.36
1-2	Precast Open End Grate	N 549,804.92 E 1,349,820.87	372.50	370.05	370.05	S.D. 4.36
1-3	Precast Open End Grate	N 549,860.99 E 1,349,402.55	364.50	359.45	359.40	S.D. 4.36
1-4	Precast Open End Grate	N 548,811.66 E 1,349,473.20	363.25	360.25	360.25	S.D. 4.36
1-5	Precast Open End Grate	N 549,081.57 E 1,349,862.12	363.20	357.75	351.55	S.D. 4.36
1-6	Precast Open End Grate	N 548,864.64 E 1,349,740.02	372.50	362.64	362.64	S.D. 4.36
S-1	HDPE End Section	N 549,940.30 E 1,349,426.63	---	354.26	354.08	Hancock, ADS or equiv.
S-2	HDPE End Section	N 549,027.84 E 1,349,432.03	---	351.15	351.13	Hancock, ADS or equiv.

NOTES:

- Top elevations for the Precast Open End Grate inlets is the Centerline of the Throat Opening (not the top of grate).
- Top elevations and location for Precast Manhole are to the center top of manhole cover.
- The HDPE End Section location correspond to the point where the end section meets the incoming pipe.

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. #34689, Expiration Date: 07/08/2011.

OWNER/DEVELOPER

CNC Land, LLC
 11710 Stoneygate Lane
 Columbia, MD 21044
 Attn: Ms. Cindy Delozoppo
 443-250-6345

SEDIMENT & EROSION CONTROL NOTES AND DETAILS AND STORM DRAIN PROFILES

KINGS COVE

(A RESUBDIVISION OF LOTS 4 AND 5-A, SNYDER PLAT NUMBER PB 7/F 71 AND PB 026/F 039)

ZONING R-12 PARCELS 61, 250 & 251
 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

FSH Associates
 Engineers Planners Surveyors
 2339 Howard Lane, Elkridge, MD 21075
 Tel: 410-567-5200 Fax: 410-796-1562
 E-mail: info@fshri.com

DESIGN BY: MLT
 DRAWN BY: HS/RLL
 CHECKED BY: ZYE
 SCALE: As Shown
 DATE: Mar. 31, 2010
 P.L.O. No.: 3394
 SHEET No.: 5 OF 10

SOILS LEGEND		
SYMBOL	NAME / DESCRIPTION	SOIL GROUP
CqB2	Chester gravelly silt loam, 3 to 8 percent slopes, moderately eroded	B
ChB2	Chester silt loam, 3 to 8 percent slopes, moderately eroded	B
G1C3	Glenside loam, 8 to 15 percent slopes, severely eroded	B
G1D3	Glenside loam, 15 to 25 percent slopes, severely eroded	B
GnB2	Glenside silt loam, 3 to 8 percent slopes, moderately eroded	C
M1D2	Major loam, 15 to 25 percent slopes, moderately eroded	B

LEGEND	
Existing Contour	---760---
Proposed Contour	---760---
Proposed Spot Elevation	+60.52
Existing Spot Elevation	160.5
Direction of Flow	→
Existing Trees to Remain	(Tree Symbol)
Soils Line	--- G1C3 ---
Drainage Area Info	A= 1.05 Ac. Z= R-12 C= 0.25 T.C. = 30%
Drainage Area Line	--- (Dashed Line) ---

BEST MANAGEMENT PRACTICES

- FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAINS
- NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILED OR STORED IN NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR 100 YEAR FLOODPLAIN.
 - PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
 - DO NOT USE THE EXCAVATED MATERIAL AS BACKFILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE. IF ADDITIONAL BACKFILL IS REQUIRED, USE CLEAN MATERIAL FREE OF WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE.
 - PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
 - REPAIR AND MAINTAIN ANY SERVICEABLE STRUCTURE OR FILL, SO THERE IS NO PERMANENT LOSS OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, OR WATERWAYS, OR PERMANENT MODIFICATION OF THE 100-YEAR FLOODPLAIN IN EXCESS OF THAT LOST UNDER THE ORIGINALLY AUTHORIZED STRUCTURE OR FILL.
 - RECTIFY ANY NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS OR 100-YEAR FLOODPLAIN TEMPORARILY IMPACTED BY ANY CONSTRUCTION.
 - ALL STABILIZATION IN THE NONTIDAL WETLAND AND NONTIDAL WETLAND BUFFER SHALL CONSIST OF THE FOLLOWING SPECIES:
ANNUAL RYE GRASS (*Lolium multiflorum*)
MILLET (*Setaria italica*)
BARLEY (*Hordeum sp.*)
OATS (*Avena sp.*)
RYE (*Secale cereale*)
THESE SPECIES WILL ALLOW FOR THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NONTIDAL WETLANDS AND WATERWAYS DIVISION. KENTUCKY BI-FESCUE SHALL NOT BE UTILIZED IN WETLAND OR BUFFER AREAS. THE AREA SHOULD BE SEEDED AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
 - AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST-CONSTRUCTION GRADES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.
 - TO PROTECT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM.
USE I- AND I-P WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH JUNE 15, INCLUSIVE, DURING ANY YEAR.
 - STORMWATER RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAY.
 - CULVERTS SHALL BE CONSTRUCTED AND ANY RIPRAP PLACED SO AS NOT TO OBSTRUCT THE MOVEMENT OF AQUATIC SPECIES, UNLESS THE PURPOSE OF THE ACTIVITY IS TO IMPOUND WATER.

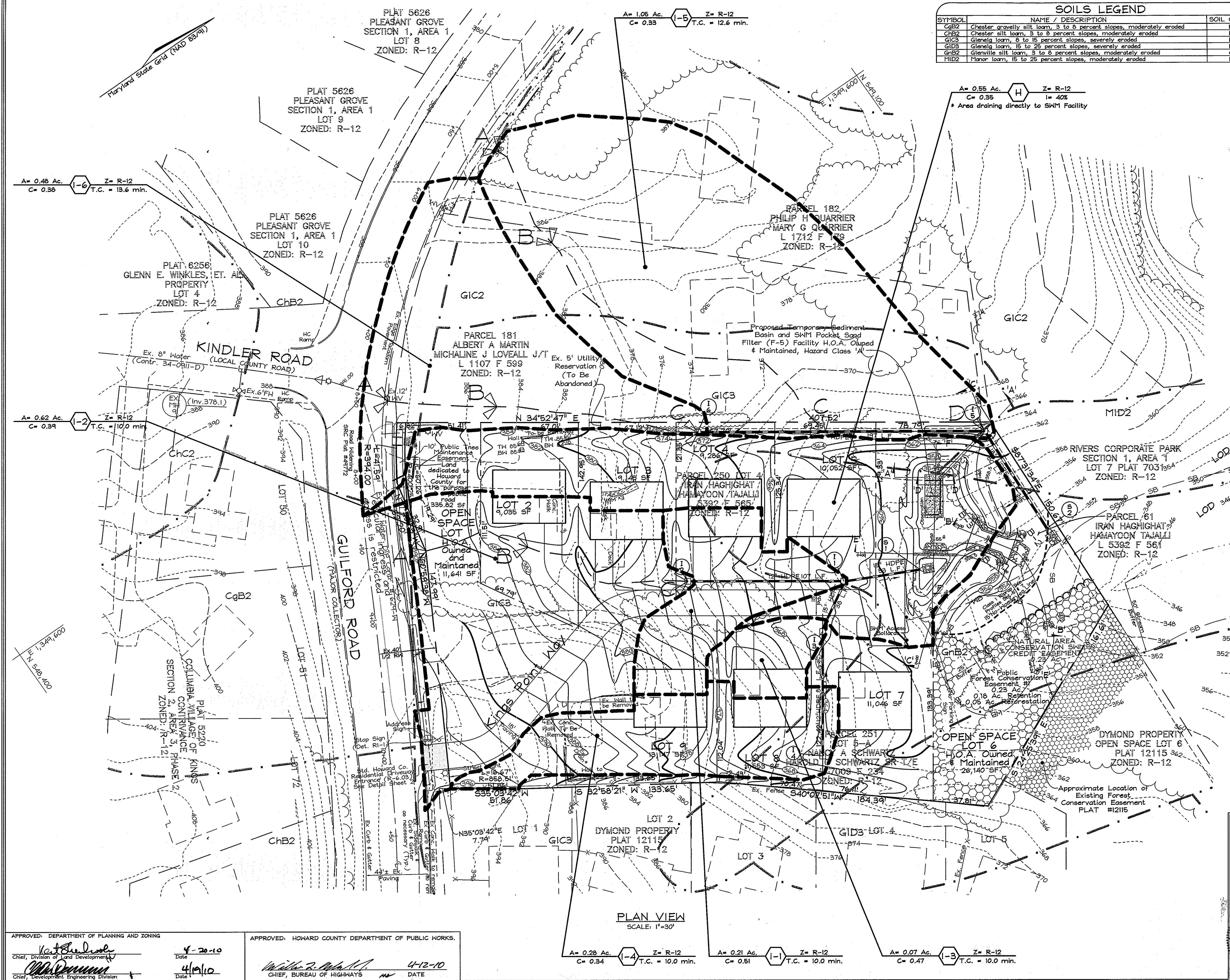
PROFESSIONAL CERTIFICATION
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. #34689, Expiration Date: 07/08/2009.

OWNER/DEVELOPER
CMC Land, LLC
1170 Stonegate Lane
Columbia, MD 21044
Attn: Ms. Cindy Delzoppo
443-250-6395

STORMDRAIN DRAINAGE AREA MAP
KINGS COVE
(A RESUBDIVISION OF LOTS 4 AND 5-A, SNYDER PLAT NUMBER PB 7/F 71 AND PB 026/F 039)
ZONING R-12
TAX MAP 42 GRID 7 PARCELS 61, 250 & 251
6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

FSH Associates
Engineers Planners Surveyors
6339 Howard Lane, Elkridge, MD 21075
Tel: 410-567-5200 Fax: 410-796-1562
E-mail: info@fshri.com

DESIGN BY: MILT
DRAWN BY: HS/RL
CHECKED BY: ZYF
SCALE: As Shown
DATE: Mar. 31, 2010
P.O. No.: 3394
SHEET No.: 6 OF 10

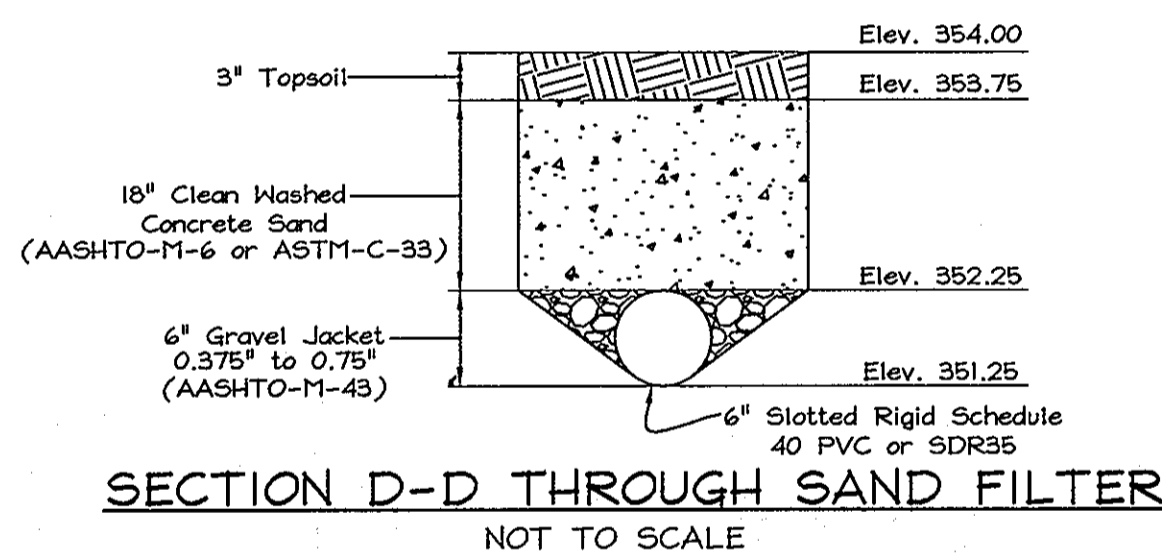
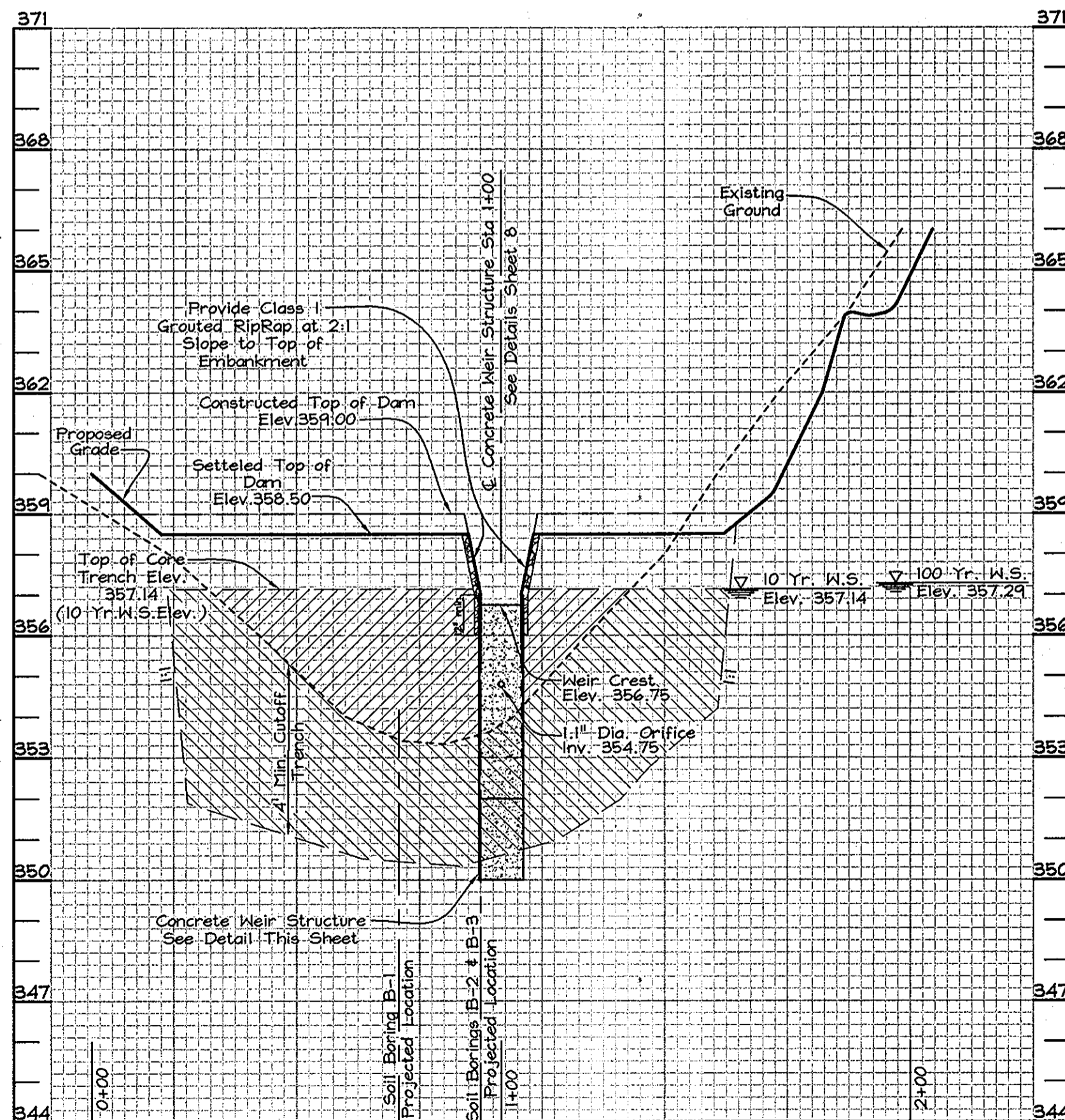
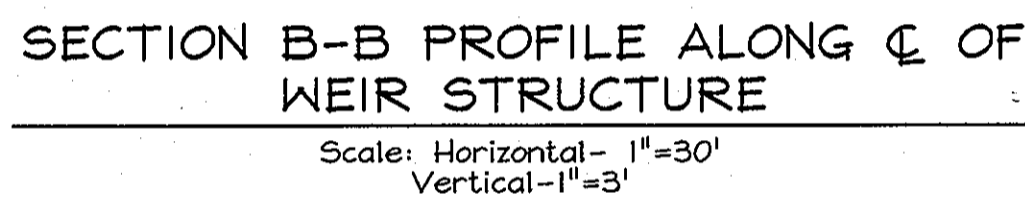
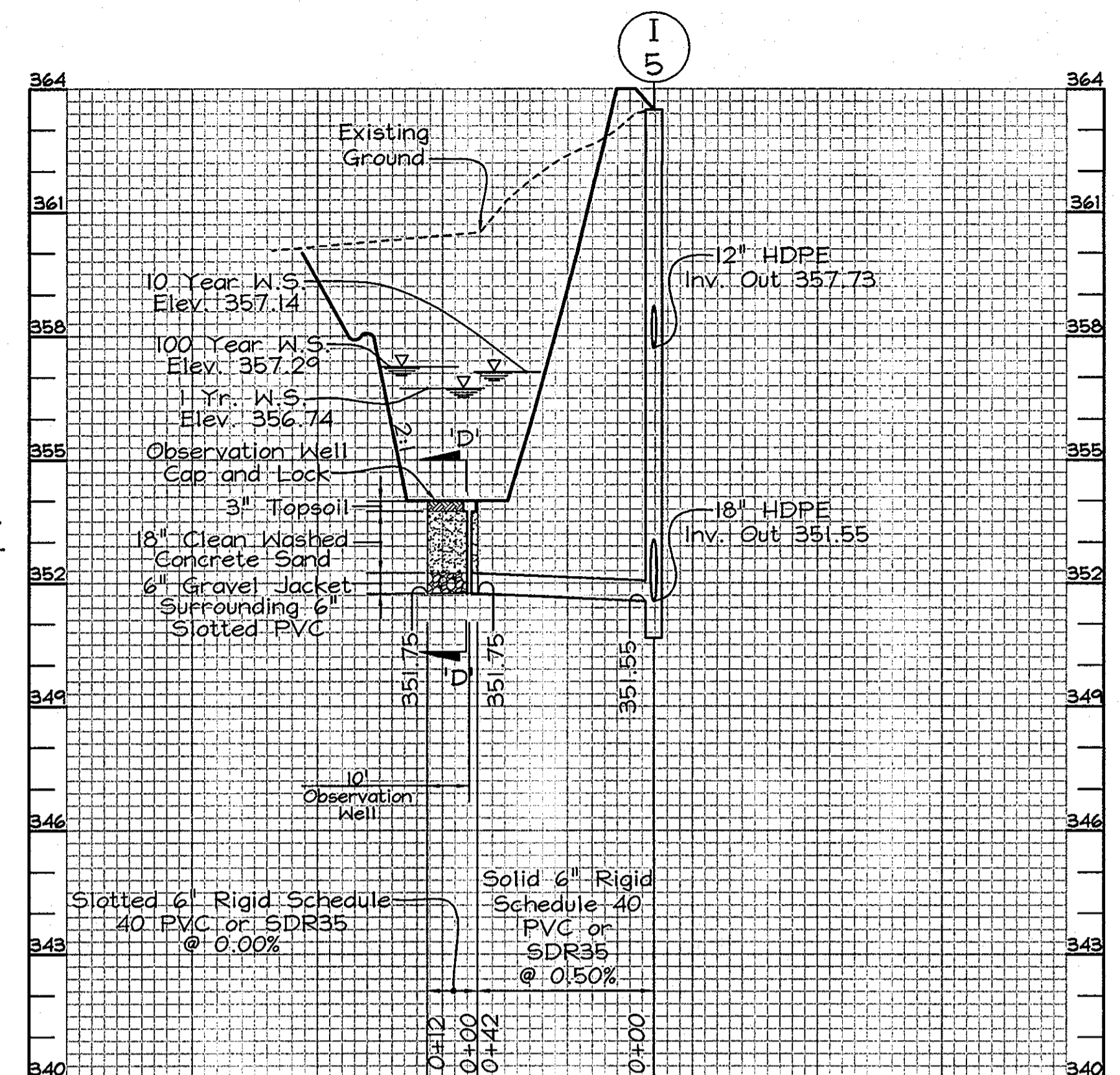
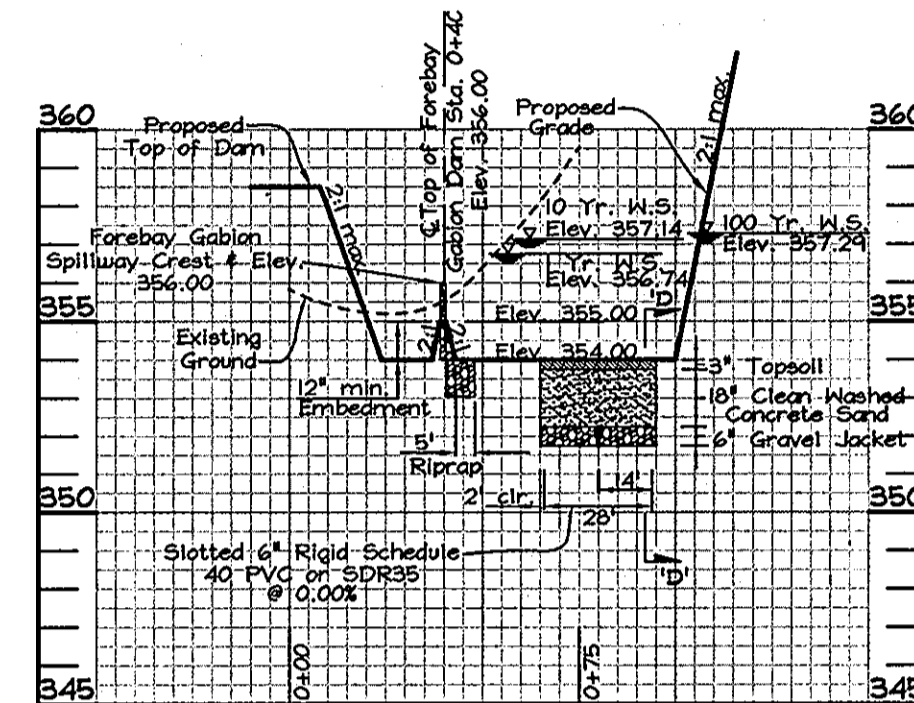
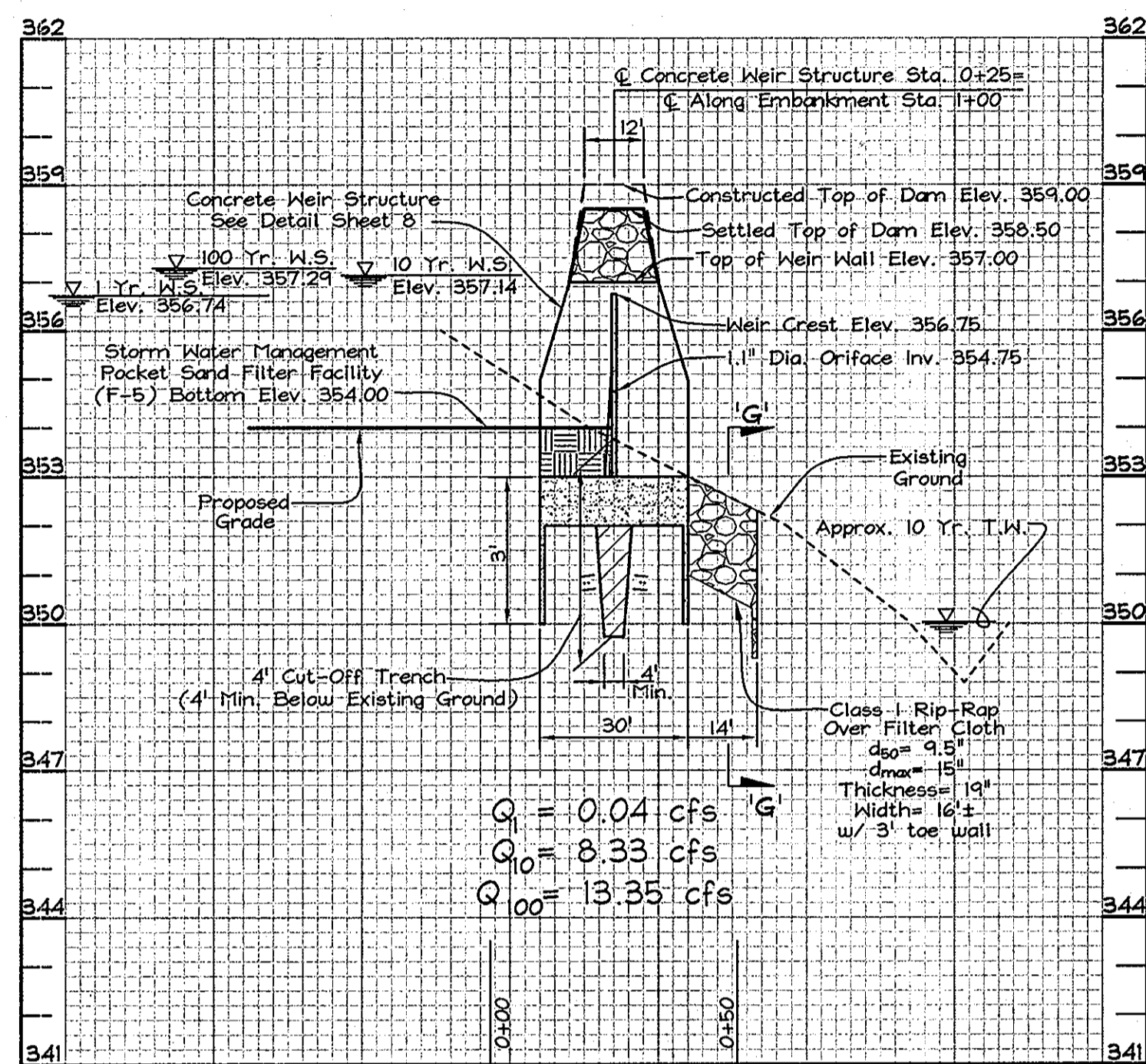
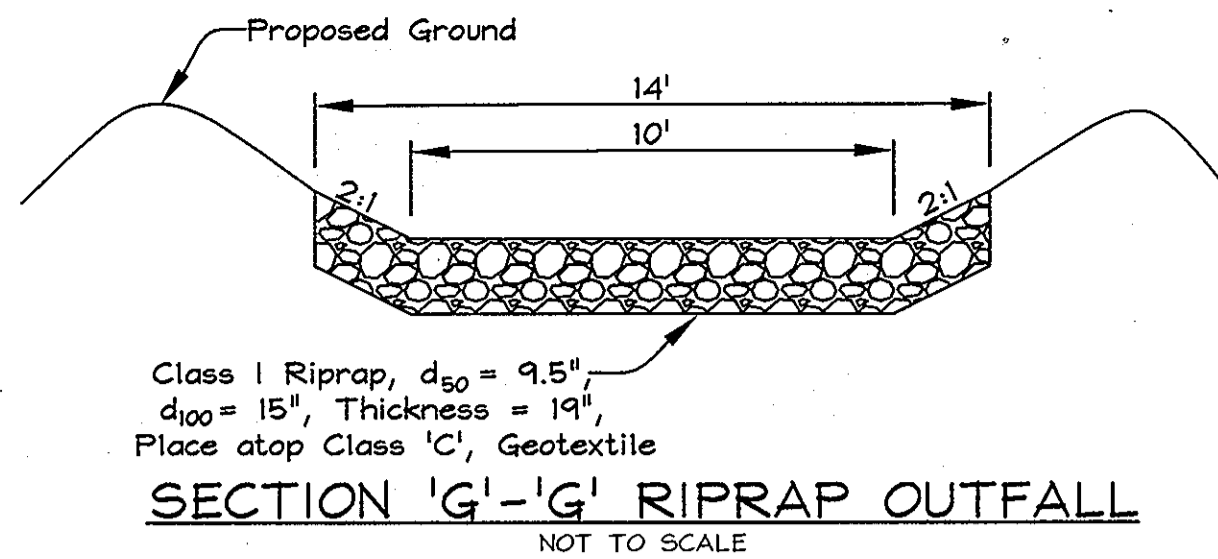
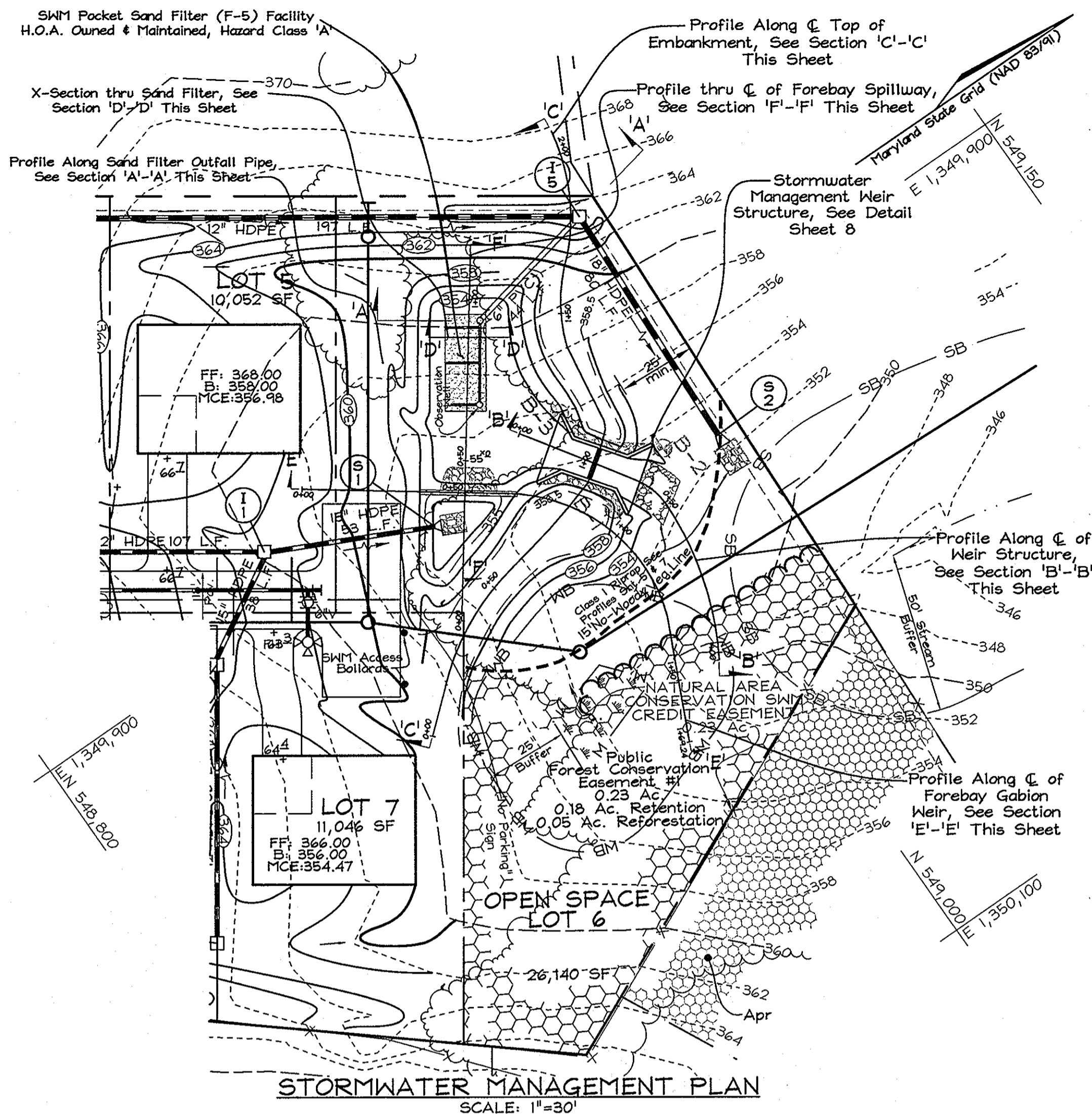


APPROVED: DEPARTMENT OF PLANNING AND ZONING
Date: 4-20-10
Chief, Division of Land Development

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.
Date: 4-12-10
Chief, Bureau of Highways

PLAN VIEW SCALE: 1"=30'

A= 0.28 Ac. Z= R-12 C= 0.34 T.C. = 10.0 min.
A= 0.21 Ac. Z= R-12 C= 0.51 T.C. = 10.0 min.
A= 0.07 Ac. Z= R-12 C= 0.47 T.C. = 10.0 min.



STORMWATER MANAGEMENT SUMMARY TABLES

SWM CRITERIA	REQUIRED	PROVIDED
Recharge (D.A. = 2.51 ac. Total Site Area)	Recharge Percent Volume (R _v) Method required 682 cu.ft.± Recharge Percent Area (R _a) Method required 0.21ac.±	Recharge provided through combination of the sheetflow to buffer credit using the Recharge Percent Area Method (R _a)
Water Quality (WQ) (D.A. = 2.51 ac. Total Site Area)	Water Quality (WQ) required 3,093 cu.ft.±	Water Quality (WQ) provided 2,850 cu.ft. using a sand filter.
Channel Protection (CP) (D.A. = 2.51 ac. Total Site Area)	Channel Protection (CP) Required 4,191 cu.ft.	Channel Protection (CP) provided 4,191 cu.ft. through extended detention of the one-year storm.

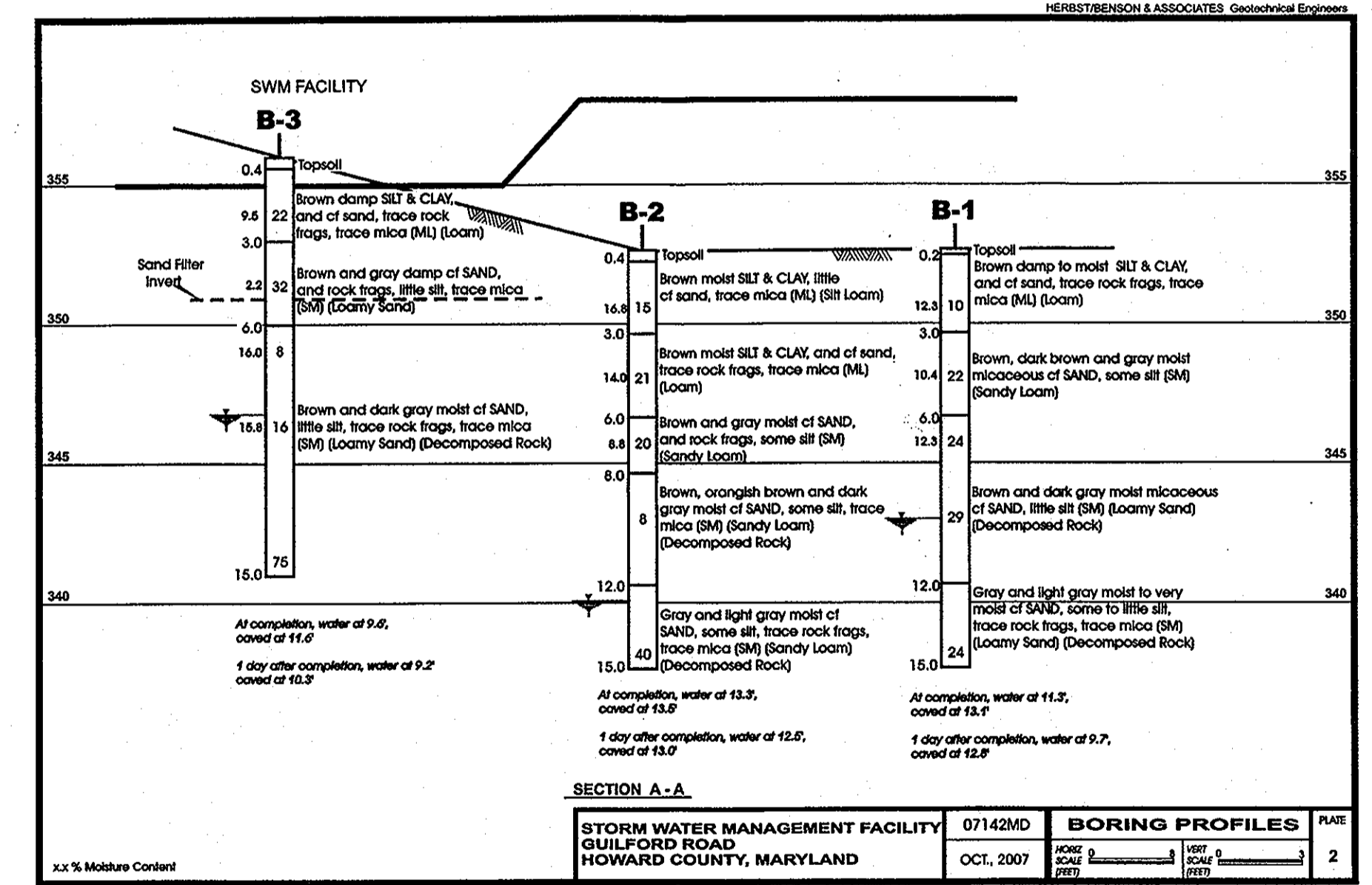
Pond Discharges:
1 Yr. 0.04c.f.s., Elev. 356.74
10 Yr. 8.33c.f.s., Elev. 357.14
100 Yr. 13.35c.f.s., Elev. 357.29

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

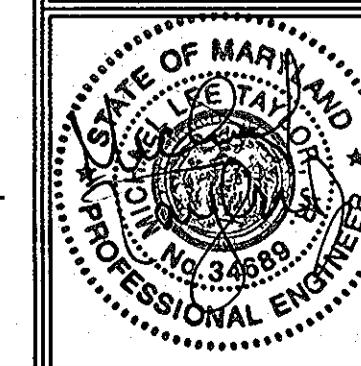
Walter P. Small
CHIEF, BUREAU OF HIGHWAYS
DATE: 4-12-10

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Vest S. DeLoach
Chief, Development Engineering Division
DATE: 4/20/10

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. #34689, Expiration Date: 07/06/2011.



STORMWATER MANAGEMENT PLAN, PROFILES AND DETAILS
KINGS COVE
(A RESUBDIVISION OF LOTS 4 AND 5-A, SNYDER PLAT NUMBER PB 7/F 71 AND PB 026/F 039)
ZONING R-12
TAX MAP 42 GRID 7 PARCELS 61, 250 & 251
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Columbia, MD 21044
Attn: Ms. Cindy Delzoppo
443-250-6395

**MARYLAND 378
STORMWATER MANAGEMENT POND CONSTRUCTION SPECIFICATIONS**

CONSTRUCTION SPECIFICATIONS (FOR SWM FACILITIES 1 & 2)

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

Site Preparation

Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped of topsoil. All trees, vegetation, 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.

Earth Fill

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 #20 sieve. Consideration may be given to the use of other materials in the embankment if designed by a geotechnical engineer. Such special designs must have construction supervised by a geotechnical engineer. Materials used in the outer shell of the embankment must have the capability to support vegetation of the quality required to prevent erosion of the embankment.

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

Compaction - 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 sheepfoot, 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 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 1 to 1 or flatter. The backfill shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability.

Embankment Core - The core shall be parallel to the centerline of the embankment as shown on the plans. The top width of the core shall be a minimum of four feet. The height shall extend up to at least the 10 year water elevation or as shown on the plans. The side slopes shall be 1 to 1 or flatter. The core shall be compacted with construction equipment.

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 minimum of 6" (measured perpendicular to the outside of the pipe) of flowable fill shall be under (bedding), over and, on the sides of the pipe. It only needs to extend up to the spring line for rigid conduits. Average slump of the fill shall be 7" to assure flowability of the material. Adequate measures shall be taken (sand bags, etc.) to prevent floating the pipe. When using flowable fill, all metal pipe shall be bituminous coated. Any adjoining soil fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material shall completely fill all voids adjacent to the flowable fill zone. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of the 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 (flowable fill) zone shall be of the type and quality conforming to that specified for the core of the embankment or other embankment materials.

Pipe Conduits

All pipes shall be circular in cross section.

Corrugated Metal Pipe - All of the following criteria shall apply for corrugated metal pipe:

1. Materials - (Polymer Coated steel pipe) - Steel pipes with polymeric coating 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 Pipes 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 applied bituminous coating compound. Aluminum surfaces that are to be in contact with concrete shall be primed 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.

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 Pipes 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 primed 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.

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.

2. Coupling, bands, anti-seep collars, end sections, etc., must be composed of the same material and coatings as the pipe. They 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 watertight.

All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be rolled on adequate number of corrugations to accommodate the bandwidth. The following type connections are acceptable: Flanges on both ends of the pipe with a circular 3/8 inch thick closed cell circular neoprene gasket, and a 12-inch wide hanger type band with o-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 drawings.

Reinforced Concrete Pipe All of the following criteria shall apply for reinforced concrete pipe:

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

2. Bedding - Reinforced concrete pipe conduits shall be laid in a concrete bedding/cradle for their entire length. This bedding/cradle shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 50% of its outside diameter with a minimum thickness of 6 inches. Where a concrete cradle is not needed for structural reasons, flowable fill may be used as described in the "Structure Backfill" section of this standard. Gravel bedding is not permitted.

3. Laying pipe - Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After 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 within 4 feet from the riser.

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

Plastic Pipe 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 watertight.

3. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

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

Drainage Diaphragms - When a drainage diaphragm is used, a registered professional engineer will supervise the design and construction inspection.

Concrete

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 414, Mix No. 3.

Rock Riprap

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

Geotextile shall be placed under all riprap and shall meet requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 921.04, Class C.

Core of Water during Construction

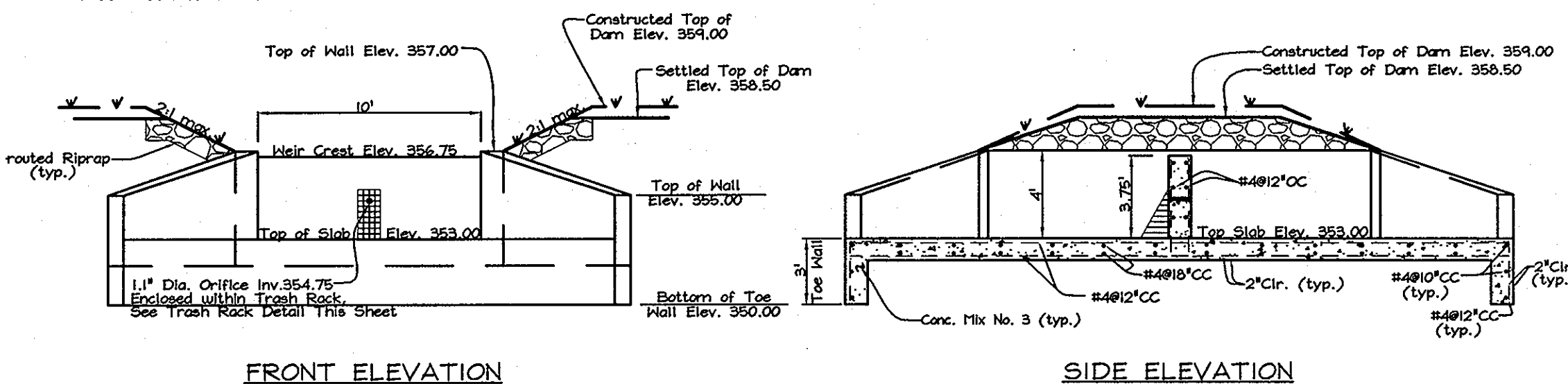
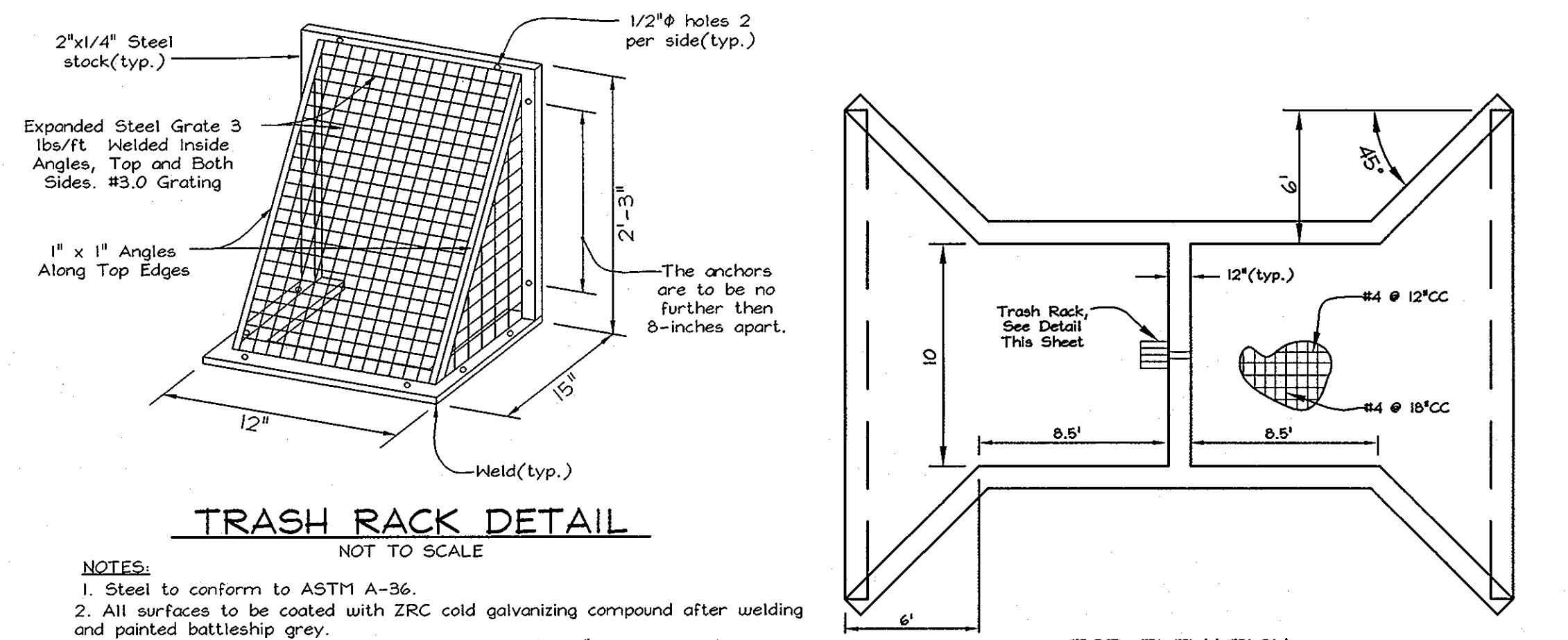
All work on permanent structures shall be carried out in areas free from water. The Contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect to be occupied by the permanent works. The contractor shall also furnish, 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 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.

Stabilization

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

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.



OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED SURFACE STORMWATER FILTRATION SYSTEMS (F-1, F-4, AND F-5)

1. The stormwater wetland facility shall be inspected annually and after major storms. Inspections shall be performed during wet weather to determine if the facility is functioning properly.
2. The top and side slopes of the embankment shall be mowed a minimum of once per year, when vegetation reaches 18" in height or as needed.
3. Filters that have a grass cover shall be mowed a minimum of three (3) times per growing season to maintain a maximum grass height of less than 12 inches.
4. Debris and litter shall be removed during regular mowing operations and as needed.
5. Visible signs of erosion in the facility shall be repaired as soon as it is noticed.
6. Remove silt when it exceeds four (4) inches deep in the forebay.
7. When water ponds on the surface of the filter bed for more than 72 hours, the top few inches of discolored material shall be replaced with fresh material. Proper cleaning and disposal of the removed materials and liquid must be followed by the owner.
8. A logbook shall be maintained to determine the rate at which the facility drains.
9. The maintenance logbook shall be available to Howard County for inspection to insure compliance with operation and maintenance criteria.
10. Once the performance characteristics of the infiltration system have been verified, the monitoring schedule can be reduced to an annual basis unless the performance data indicates that a more frequent schedule is required.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

William J. ...
4-12-10
CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Vest She ...
4-20-10
Chief, Division of Land Development

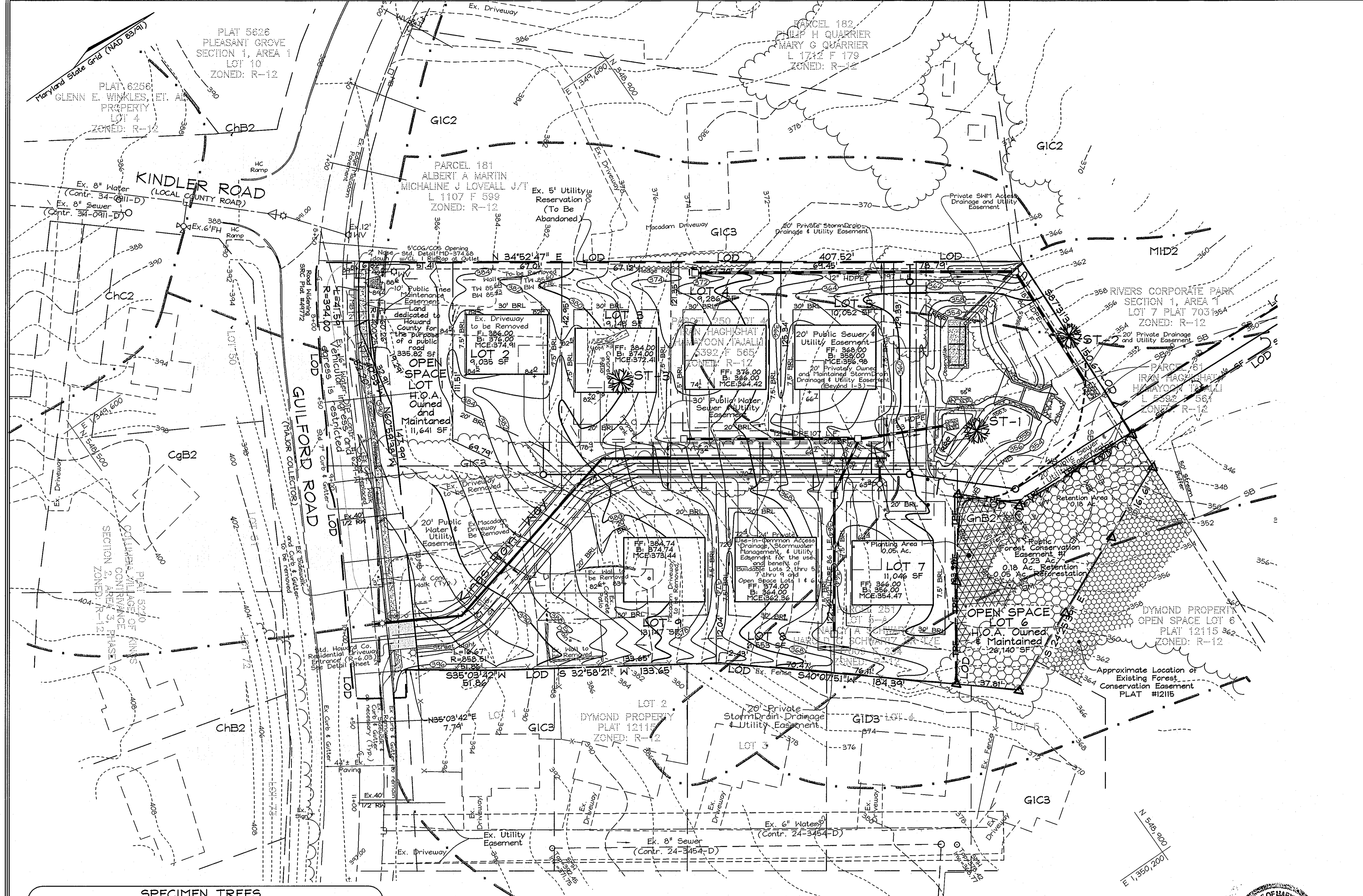
PROFESSIONAL CERTIFICATION
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer in the laws of the State of Maryland, License No. #34689, Expiration Date: 07/08/2011.

FINAL STORMWATER MANAGEMENT NOTES & DETAILS
KINGS COVE
(A RESUBDIVISION OF LOTS 4 AND 5-A, SNYDER PLAT NUMBER PB 7/F 71 AND PB 026/F 039)
ZONING R-12
TAX MAP 42 GRID 7 PARCELS 61, 250 & 251
6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DESIGN BY: MLT
DRAWN BY: HS/RL
CHECKED BY: ZYF
SCALE: As Shown
DATE: Mar. 31, 2010
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SHEET No.: 8 OF 10

OWNER/DEVELOPER
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FSH Associates
Engineers Planners Surveyors
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Tel: 410-587-5200 Fax: 410-796-1562
E-mail: info@fsh.com



LEGEND

Existing Contour	--- 362
Proposed Contour	--- 362
Existing Treenline	~~~~~
Proposed Treenline	~~~~~
Stream Centerline	---
Stream Buffer	SB SB
Wetland	W W
Wetland Buffer	WB WB
Soil Boundary	---
Forest Conservation Easement Retention Area	▨
Forest Conservation Easement Reforestation Area	▩
FCE Signage	△
Tree Protection Fence	TPF

FOREST CONSERVATION NARRATIVE

This Forest Conservation Plan was prepared in accordance with the Howard County Forest Conservation Manual.

The total tract area consists of 2.51 acres of land. The site contains 0.46 acres of forest resources, 0.18 acres of which shall be retained in a Forest Conservation Easement. There are 3 specimen trees on-site, all of which will be removed for site grading and utilities.

Of the required 0.48 acres of reforestation, 0.05 Ac. shall be planted in the Forest Conservation Easement. The easement will partially contain priority areas of wetland and wetland buffer. The remaining 0.43 acres of obligation will be fulfilled by a fee-in-lieu payment of \$14,048.10 (18,730.8 s.f. @ \$0.75/s.f.).

FOREST CONSERVATION WORKSHEET

Net Tract Area	Acres
A. Total Tract Area	2.51
B. Area Within 100 Year Floodplain	---
C. Other deductions	---
D. Net Tract Area	2.51
Zoning Use Category: RESIDENTIAL-SUBURBAN	
Land Use Category	
E. Afforestation Minimum (15 % x D)	0.38
F. Conservation Threshold (20 % x D)	0.50
Existing Forest Cover	
G. Existing Forest on Net Tract Area	0.42
H. Forest Area Above Conservation Threshold	0
Breakeven Point	
I. Forest Retention Above Threshold with no Mitigation	0.50
J. Clearing Permitted without Mitigation	0
Proposed Forest Clearing	
K. Forest Areas to be Cleared	0.24
L. Forest Areas to be Retained	0.18
Planting Requirements	
M. Reforestation for Clearing Above Threshold	0
N. Reforestation for Clearing Below the Threshold	0.48
P. Credit for Retention Above Conservation Threshold	0
Q. Total Reforestation Required	0.48
R. Total Afforestation Required	0
S. Total Reforestation and Afforestation Requirement	0.48

SPECIMEN TREES

NO.	DBH	COMMON NAME	SCIENTIFIC NAME	CONDITION	RETAINED
ST-1	40"	Willow	Salix sp.	Fair	NO
ST-2	44"	White oak	Quercus alba	Good	NO
ST-3	31"	Yellow poplar	Liriodendron tulipifera	Good	NO

SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	SOIL GROUP
CgB2	Chester gravelly silt loam, 3 to 8 percent slopes, moderately eroded	B
ChB2	Chester silt loam, 3 to 8 percent slopes, moderately eroded	B
GIC3	Glenelg loam, 8 to 15 percent slopes, severely eroded	B
GID3	Glenelg loam, 15 to 25 percent slopes, severely eroded	B
GrB2	Glenville silt loam, 3 to 8 percent slopes, moderately eroded	C
MID2	Manor loam, 15 to 25 percent slopes, moderately eroded	B

REFORESTATION AREA : 2,178 Sq. ft. (0.05 Ac)

2,178 Sq. ft. (350 TPA) 2'-3" Whip planting with Tree Shelters
0.05 acre x 350 TPA = 18 trees required

Qty	Botanical Name	Common Name	Min. Size	Spacing	Notes
4	Acer negundo	Boxelder	WHIP 2'-3" w/shelters	11' o.c.	1-3 Gallon Container Group
4	Liquidambar styraciflua	Sweetgum	WHIP 2'-3" w/shelters	11' o.c.	
5	Quercus palustris	Pin Oak	WHIP 2'-3" w/shelters	11' o.c.	
5	Amelanchier arborea	Serviceberry	WHIP 2'-3" w/shelters	11' o.c.	

GENERAL NOTES

- Per a search on the MERLIN website on October 17, 2007, the subject property contains no floodplains, rare, threatened or endangered species or critical habitats for rare, threatened or endangered species, no historic structures or other historic resources (including trees and cemeteries).
- This plat complies with the requirements of Section 16.1200 of the Howard County Code for Forest Conservation by providing 0.18 acres of retention and 0.05 Ac. of reforestation on-site in the Forest Conservation Easement. The easement will partially contain priority areas of wetland and wetland buffer. The remaining 0.43 acres of obligation will be fulfilled by a fee-in-lieu payment of \$14,048.10 (18,730.8 s.f. @ \$0.75/s.f.). The total forest conservation obligation met on this site is 0.23 acres, with a total forest conservation surety amount of \$2,658 (retention of 7,840.80 s.f. x \$0.20 + reforestation planting of 2,178 s.f. x \$0.50/s.f.).

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. #34689, Expiration Date: 07/08/2011.

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Division of Land Development
 Date: 4/20/10

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.
 Chief, Bureau of Highways
 Date: 4-12-10

STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 FLP

FOREST CONSERVATION PLAN PREPARED BY:

EXPLORATION RESEARCH, INC.
 ENVIRONMENTAL CONSULTANTS
 LANDSCAPE ARCHITECTS
 8539 Howard Lane, Elkridge, MD 21045
 TEL: (410) 567-5200 FAX: (410) 798-1562

OWNER/DEVELOPER
 GMC Land, LLC
 11710 Stonegate Lane
 Columbia, MD 21044
 Attn: Ms. Cindy Delzoppo
 443-250-6395

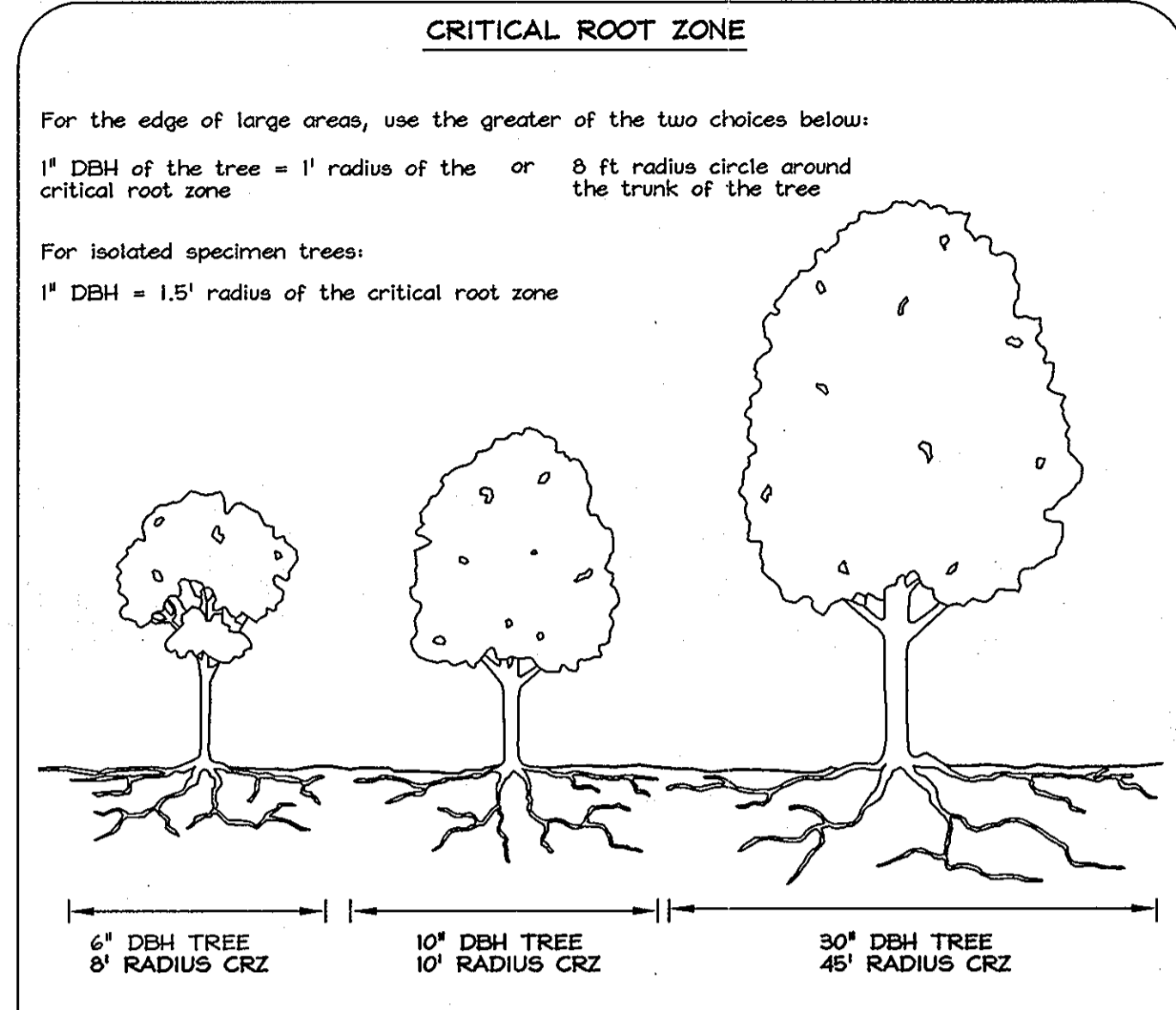
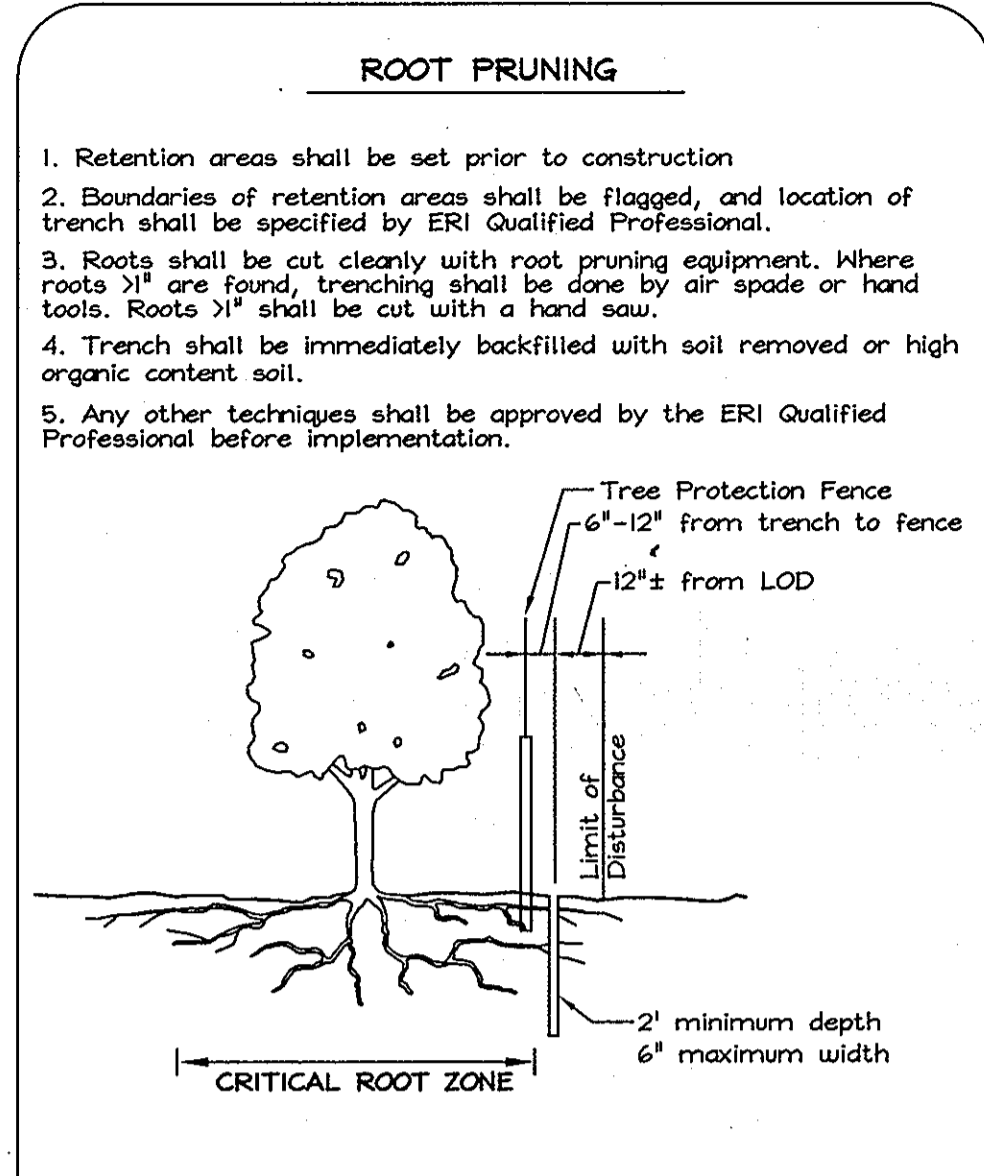
FOREST CONSERVATION PLAN

KINGS COVE
 (A RESUBDIVISION OF LOTS 4 AND 5-A, SNYDER PLAT NUMBER PB 7/F 71 AND PB 026/F 039)
 ZONING R-12

TAX MAP 42 GRID 7 PARCELS 61, 250 & 251
 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

FSH Associates
 Engineers Planners Surveyors
 8539 Howard Lane, Elkridge, MD 21045
 Tel: 410-567-5200 Fax: 410-798-1562
 E-mail: info@fsher.com

DESIGN BY: MLT/SHM
 DRAWN BY: HS/SHM
 CHECKED BY: ZF/RAB
 SCALE: As Shown
 DATE: Mar. 31, 2010
 W.O. No.: 3394/2374
 SHEET No.: 9 OF 10



Soil Protection Zone Notes

- The Soil Protection Zone shall include all areas contained outside the Limit of Disturbance.
- Where possible, the Soil Protection Zone shall extend to the drip line of specimen trees. For other groups of trees, the zone shall be the drip line or 40% of the height of the tree, whichever is greater.
- No construction activity is permitted within the Soil Protection Zone.
- If soil has been compacted or grading has taken place in the vicinity of the Soil Protection Zone, root pruning shall be implemented per Root Pruning detail, shown on this plan.
- Root pruning shall occur prior to the beginning of construction.
- Where the Limit of Disturbance must encroach inside the Critical Root Zone of a tree, soil disturbance shall be mitigated with vertical mulching, radial trenching, or another method approved by the ERI Forest Conservation Professional.
- Prior to construction, the Limits of Disturbance shall be marked and the ERI Professional shall determine which trees will need preventative treatment or removal.
- Tree maintenance and removal shall be undertaken by a qualified Maryland Tree Expert to ensure damage to surrounding trees is minimized.
- Brush and limbs removed for construction shall be chipped and spread at the edge of the Soil Protection Zone to a depth of 6 inches. This shall occur outside the Soil Protection Zone where compaction could impact otherwise unprotected Critical Root Zone.

Reforestation Area Planting Notes

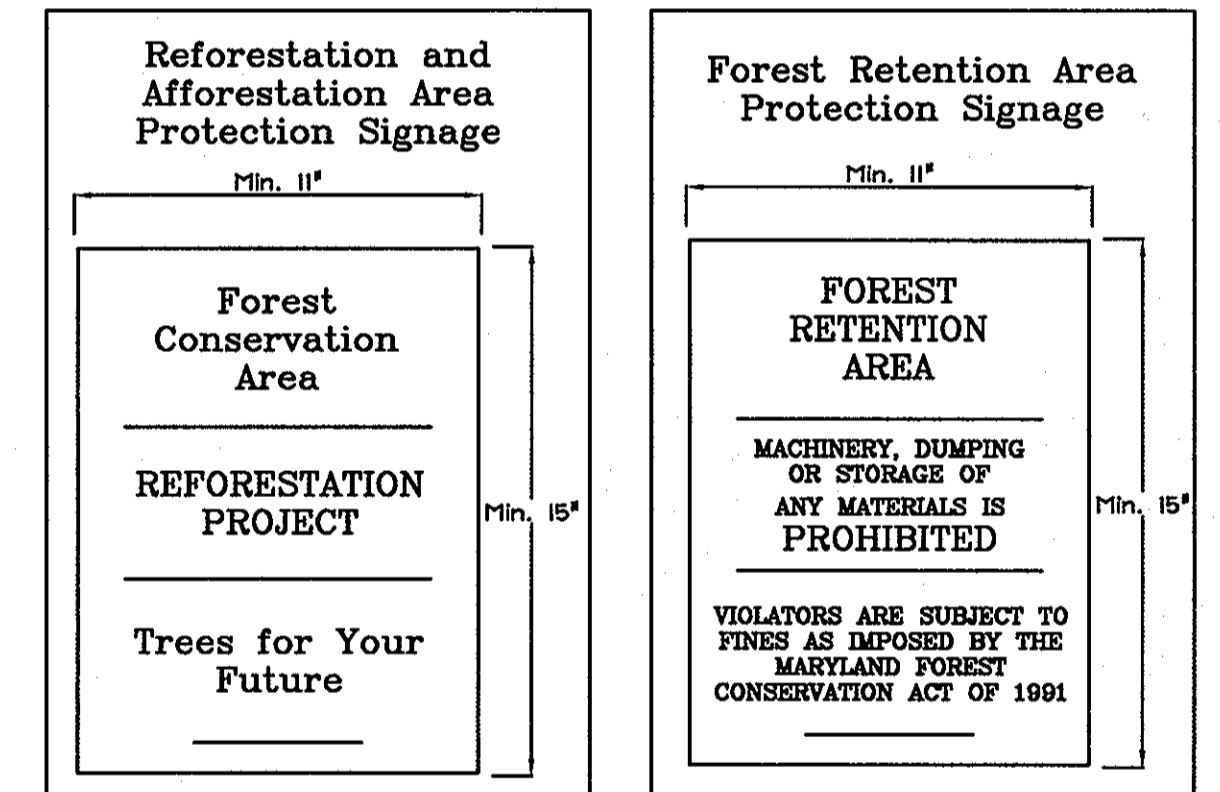
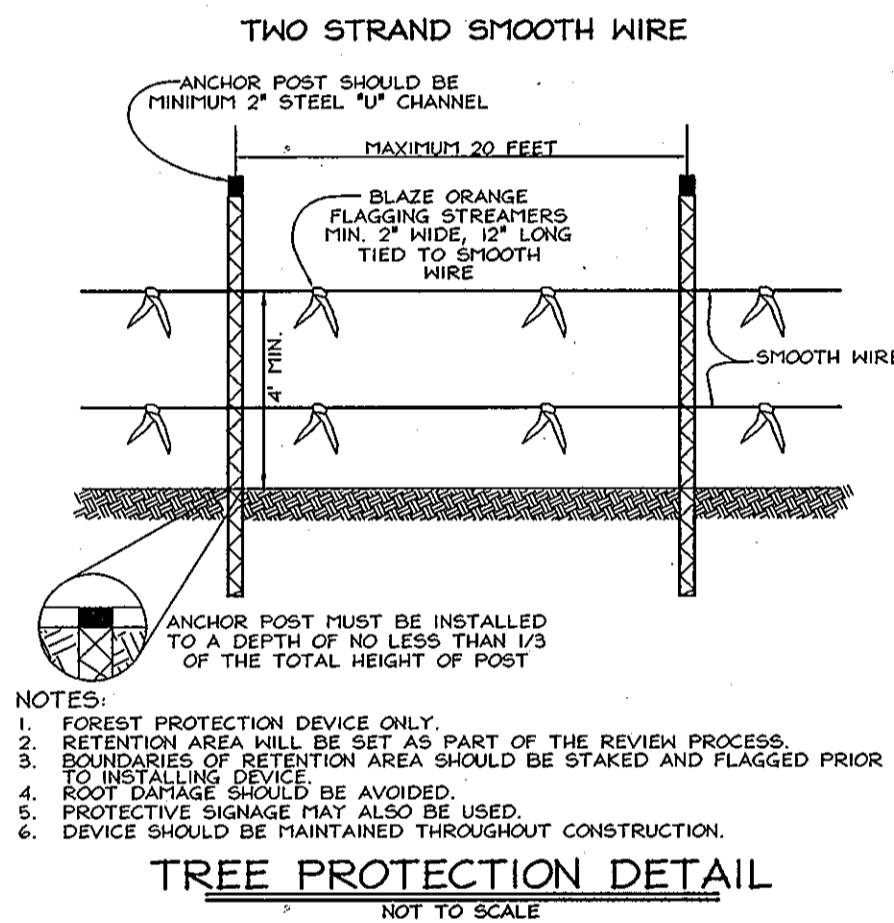
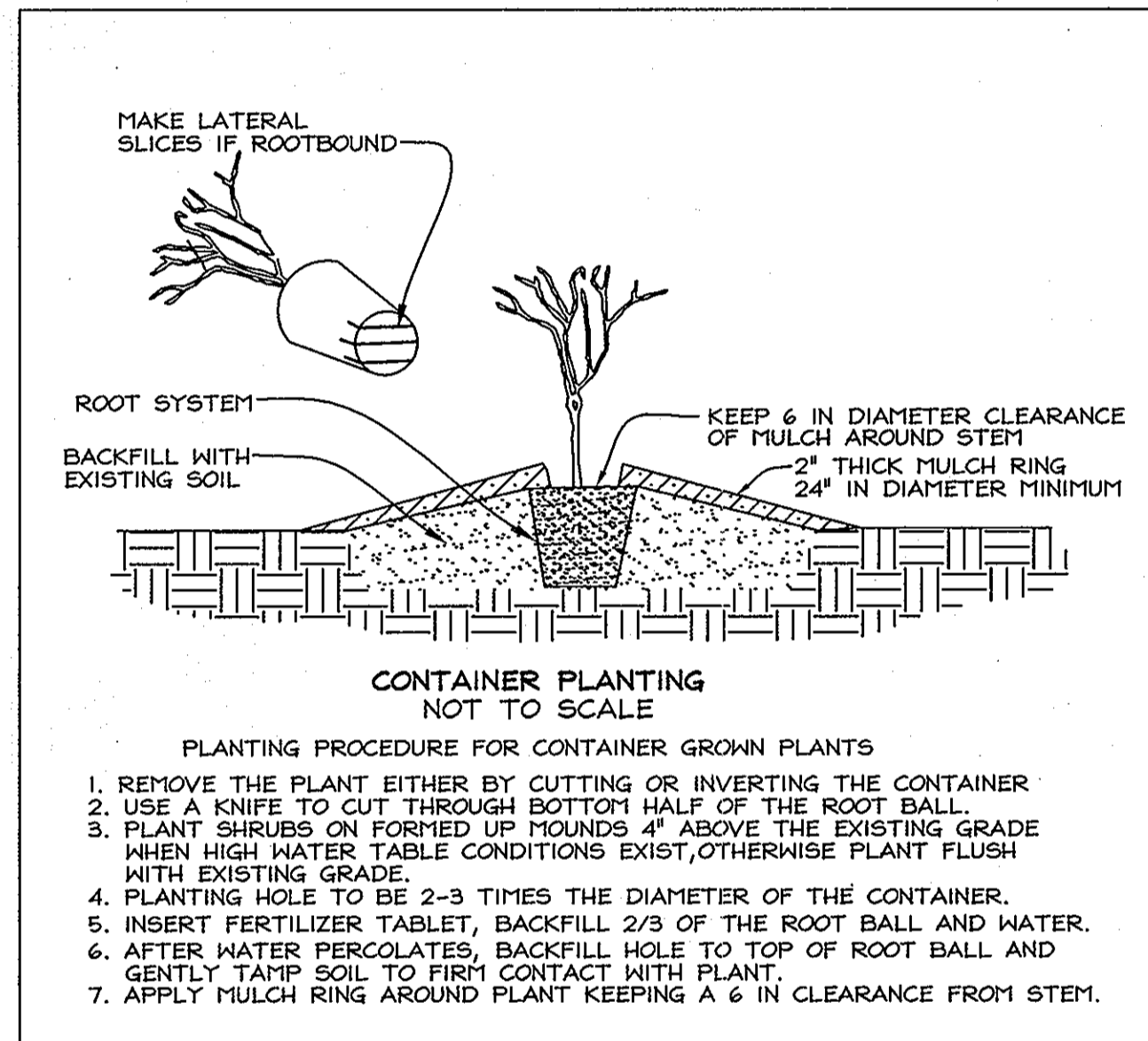
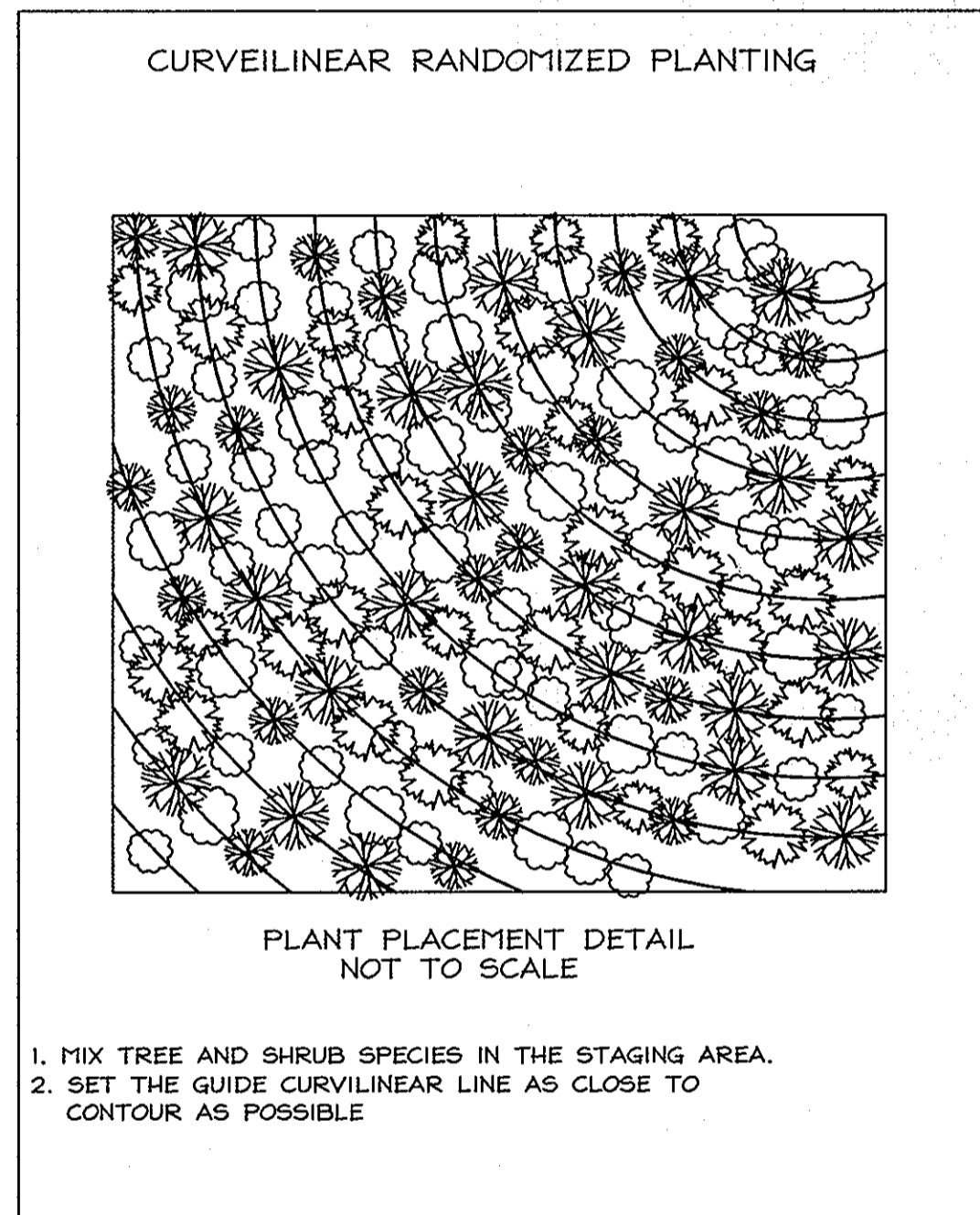
- Initial planting inspection and certification required. Planting contractor to notify ERI qualified professional 24 hours in advance of planting.
- Reforestation areas may be planted as soon as reasonable to do so. Late winter-early spring plantings are preferred. Earliest planting dates will vary from year to year but planting may generally begin as soon as the ground is no longer frozen. Alternate planting dates may be considered as conditions warrant.
- Soil amendments and fertilization recommendations will be made based upon the results of soil analysis for nitrogen, phosphorus, potassium, organic matter content and pH. If required, fertilizer will be provided using a slow release, soluble 16-0-16 analysis designed to last 5-8 years contained in polyethylene perforated bags such as manufactured by ADCO Works, P.O. Box 310 Hollis, N.Y. 11423 or approved equal.
- Plant materials shall be planted in accordance with the planting diagram, planting details and planting schedule.
- Plant stock must be protected from desiccation at all times prior to planting. Materials held for planting shall be moistened and placed in cool shaded areas until ready for placement.
- Planting materials shall be nursery grown and inspected prior to planting. Plants not conforming to the American Standards for Nursery Stock specifications for size, form, vigor, or roots, or due to trunk wounds, breakage, desiccation, insect or disease must be replaced.
- Newly planted trees may require watering at least once per week during the first growing season depending on rainfall in order to get established. The initial planting operation should allow for watering during installation to completely soak backfill materials.
- Mulch shall be applied in accordance with the diagram provided and shall consist of composted, shredded hardwood bark mulch, free of weed seeds.
- Planting holes should be excavated to a minimum diameter of 2.5 to 3 times the diameter of the root ball or container. Mechanical angling is preferred with scarification of the sides of each hole.
- All nursery stock to be sprayed with deer repellent containing Bitrex such as Repellex. All nursery stock to be grown with deer repellent tablets in growing medium, such as Repellex Tablets.

Forest Retention Management Notes

- All proposed activities shall adhere to the conditions, schedules and terms of an approved sediment control and erosion plan.
- After the boundaries of the retention area have been staked and flagged and before any disturbance has taken place on-site, a preconstruction meeting at the construction site shall take place. The developer, contractor or project manager, and appropriate County inspectors shall attend.
- Tree protection for all retained areas:
 - All retention areas within 50 feet of proposed construction activities shall be protected by highly visible, well anchored temporary protection devices (silt fence or blaze orange plastic mesh).
 - All protection devices shall be in place prior to any grading or land clearing.
 - All protection devices shall be properly maintained and shall remain in place until construction has ceased.
 - Attachment of signs, fencing or other objects to trees is prohibited.
 - No equipment, machinery, vehicles, materials or excessive pedestrian traffic shall be allowed within protected areas.
- If the critical root zone (see detail) is affected by construction activities such as grade change, digging for foundations and roads or utility installation:
 - Prune roots with a clean cut using proper pruning equipment (see root pruning detail).
 - Water and fertilize as needed.
- During construction phase, monitor and correct condition of retained trees for: soil compaction, root injury, flood conditions, drought conditions and other stress signs.
- Post-Construction Phase:
 - Inspect existing trees around the perimeter of disturbed limits for evidence of soil compaction, root injury, limb injury, or other stress signs and correct with proper management techniques such as root or limb pruning, soil aeration, fertilization, crown reduction or watering. Inspection and evaluation shall be performed by a licensed arborist.
 - Inspect for dead or dying trees or limbs which may pose safety hazard and remove.
 - No burial of discarded materials will occur onsite within the conservation areas.
 - No burning within 100 feet of wooded area.
 - All temporary forest protection structures will be removed after construction.
 - Following completion of construction, prior to use, the County inspector shall inspect the entire area.

Reforestation Area Monitoring Notes

- Monthly visits during the first growing season are to assess the success of the plantings and to determine if supplemental watering, pest control or other actions are necessary. Early spring visits will document winter kill and autumn visits will document summer kill.
 - The minimum survival rate shall be 75% of the total number of trees planted per acre at the end of the two year maintenance period. Wild tree seedlings from natural regeneration on the planting site may be counted up to 50% toward the total survival number if they are healthy native species at least 12 inches tall.
- Certification at the end of the two-year post construction period must indicate that the survival rates will result in a 100 tree per acre ratio for a forest and the 3 to 4 foot height standard for whips by the end of the two growing season post construction period, with at least 50% of those trees having the potential of attaining a 2" caliper DBH within 7 years.
- Survival will be determined by a stratified random sample of the plantings. The species composition of the sample population should be proportionate to the amount of each species in the entire planting to be sampled.
 - Effective monitoring will assess plant survivability during the first growing season and make recommendations for reinforcement planting if required at that time.



SIGNAGE NOTE: All tree protection signs shall be placed on metal 'T' posts or pressure treated wood poles. NO attachment of signs to trees is permitted.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

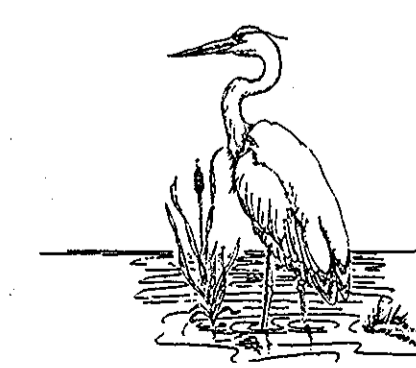
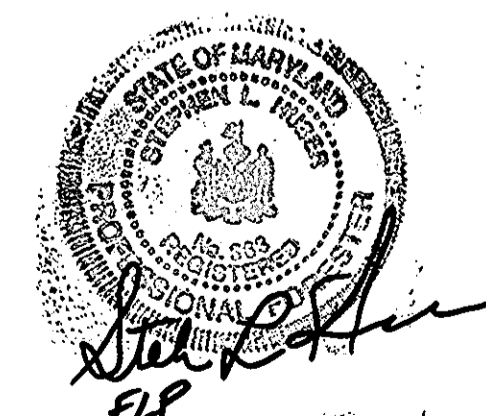
William R. ... 4-12-10
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
... 4-20-10
 Chief, Division of Land Development Date
... 4/19/10
 Chief, Development Engineering Division 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. 434689, Expiration Date: 07/08/2011.

OWNER/DEVELOPER

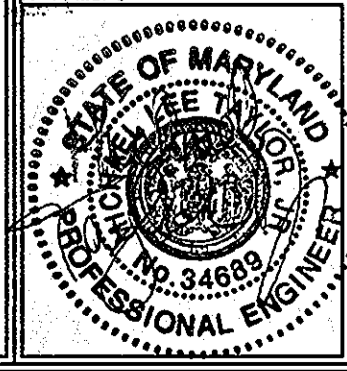
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FOREST CONSERVATION NOTES AND DETAILS
KINGS COVE
 (A RESUBDIVISION OF LOTS 4 AND 5-A, SNYDER PLAT NUMBER PB 7/F 71 AND PB 026/F 039)
 ZONING R-12
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