

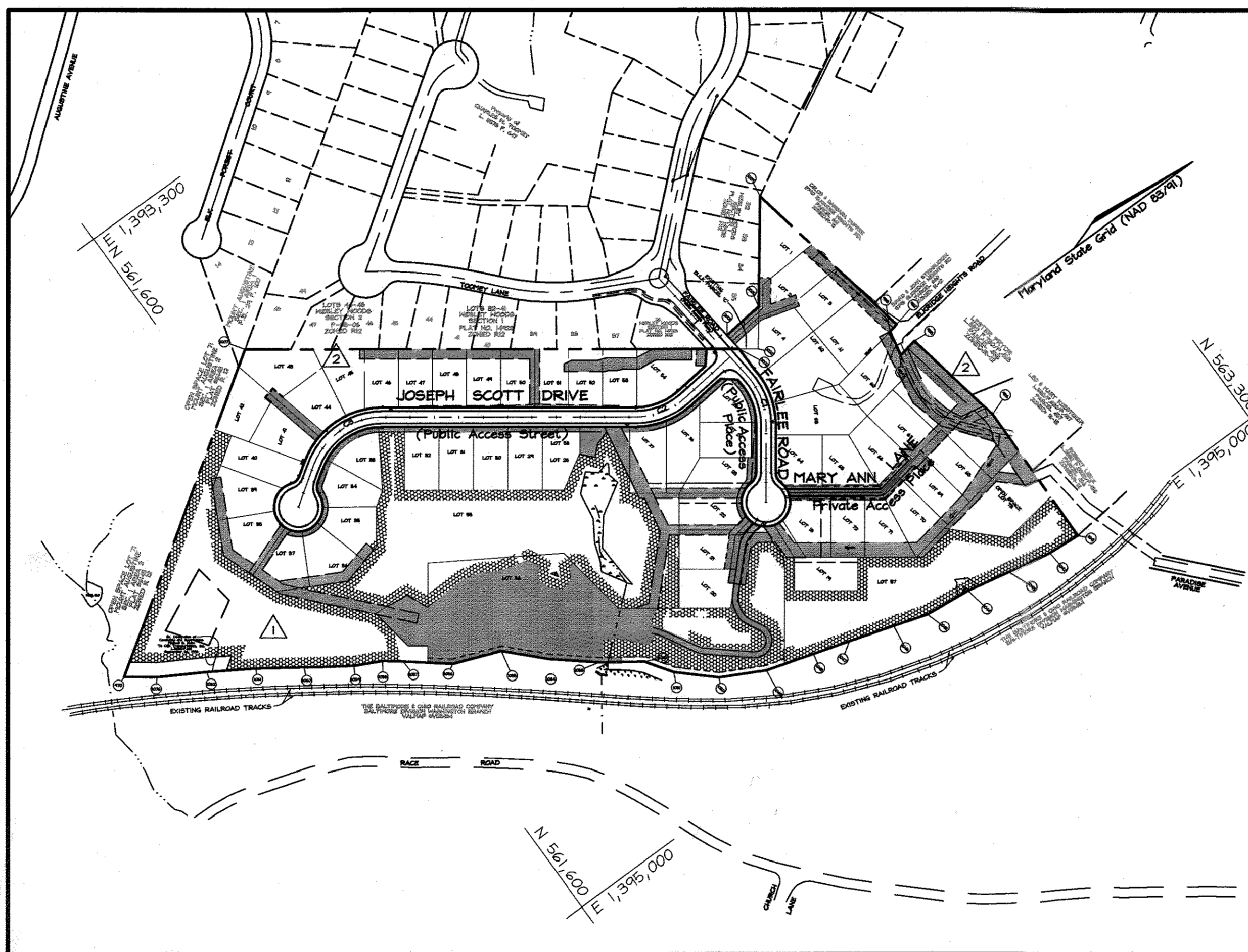
GENERAL NOTES

- Subject property zoned "R-12" per 2/2/04 Comprehensive Zoning Plan.
- This site is located within the metropolitan district.
- Public water and sewer will be used within this site.
- Howard County Soils Map 26.
- Gross area of site subject to subdivision:
 - Parcel 163: 25.55 ac.
 - Bulk Parcel 'C': 3,321sf ± or 0.06 ac.
 - Total area: 25.66 ac.
- Total area of steep slopes on site: 2.88 ac. ±
- Net area of site subject to subdivision: 22.78 ac. ±
- Area of proposed public r/w: 1.54 ac. ±
- Number of proposed buildable lots: 54
- Area of proposed buildable lots: 12.33 ac. ±
- Number of proposed open space lots: 6
- Area of proposed open space lots: 11.789 ac. ±
- Topography is based on a field run topography survey prepared by Fisher, Collins & Carter, Inc. in Feb. of 2001 and aerial topography prepared by Harford Aerial Surveys, Inc. in Feb. of 1999.
- Field run boundary survey prepared by Fisher, Collins & Carter, Inc. on April 2, 2001.
- The coordinates shown herein are based upon the Howard County Geodetic Control which is based on the Maryland State Plane Coordinate system. Howard County monument numbers 321A and 318B were used for this project.
- A.P.F.O. traffic study prepared by Street Traffic Studies L.T.D. and approved under S-01-24.
- Wetlands delineation and report and forest stand delineation and report prepared by Exploration Research Inc. and approved under S-01-24.
- There are no floodplains, historic structures or cemeteries on-site.
- No clearing, grading or construction is permitted within wetlands, streams or their required buffers, and steep slopes of 25% or greater containing a contiguous area of 20,000 SF or more, unless waivers have been approved. The steep slope disturbance for the construction of an access driveway for the SWM facility located within Open Space Lot 56 determined to be necessary by DPZ in accordance with Section 16.116(c) of the Subdivision Regulations.
- Open Space requirements:
 - Open Space required (30%-8,400sf minimum lot size): 25.58ac. ± x 0.30 = 7,674sf. ±
 - Open Space provided: 11,789 ac. ± (0.2 ac. ± non-credited)
- Recreational open space requirements:
 - Open Space required (200sf per buildable lot): 54 x 200 = 10,800 sf
 - Open Space provided: 10,800 sf ±
- This plan is subject to the Fourth Edition of the Subdivision and Land Development Regulations and the Zoning Regulations as amended by Council Bill No. 50-2001. Development or construction on these lots must comply with setback and buffer regulations in effect at the time of submission of the site development plan, waiver petition, or building and grading permits.
- The lots shown herein comply with the minimum ownership width and lot area as required by the Maryland State Department of the Environment.
- Internal landscaping for lots 25 and 54 will be shown at Site Development Plan stage.
- 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 to the pipestem lot driveway.
- Existing house on Lot 62 to be removed.
- Stormwater management & water quality is provided as necessary in accordance with the 2000 stormwater management manual. Pond to be a micro pond extended detention pond hazard class 'A'. Facility to be owned and maintained by the Homeowners Association. Stormwater Management recharge requirement will be provided through grass channel credit, sheet flow to buffer credit and storage/infiltration within forsway at 5' cutfill and gravel recharge apron at 5-2 outfall. A Level Spreader will be provided on Lot 14.
- All ditches and swales will have erosion control matting.
- This project is subject to review and approval by the Maryland Aviation Administration (MDAA) regarding confirmation that construction of proposed structures on this site will not penetrate any navigational airspace and that the proposed SWM landscaping will meet their approval requirements. Permit number 04-064 has been approved in a letter dated 6/23/04.
- CPV management for a portion of Wesley Woods (3 ac. ±) is provided in the stormwater management facility on site.
- A gravity sewer service waiver Section 4.3.B.3.b of Volume II of the Howard County Design Manual has been approved by the Department of Public Works Bureau of Engineering for Lots 34-39 on June 18, 2004.
- The contractor shall notify the following utility companies or agencies at least five(5) working days before starting work shown on these plans:

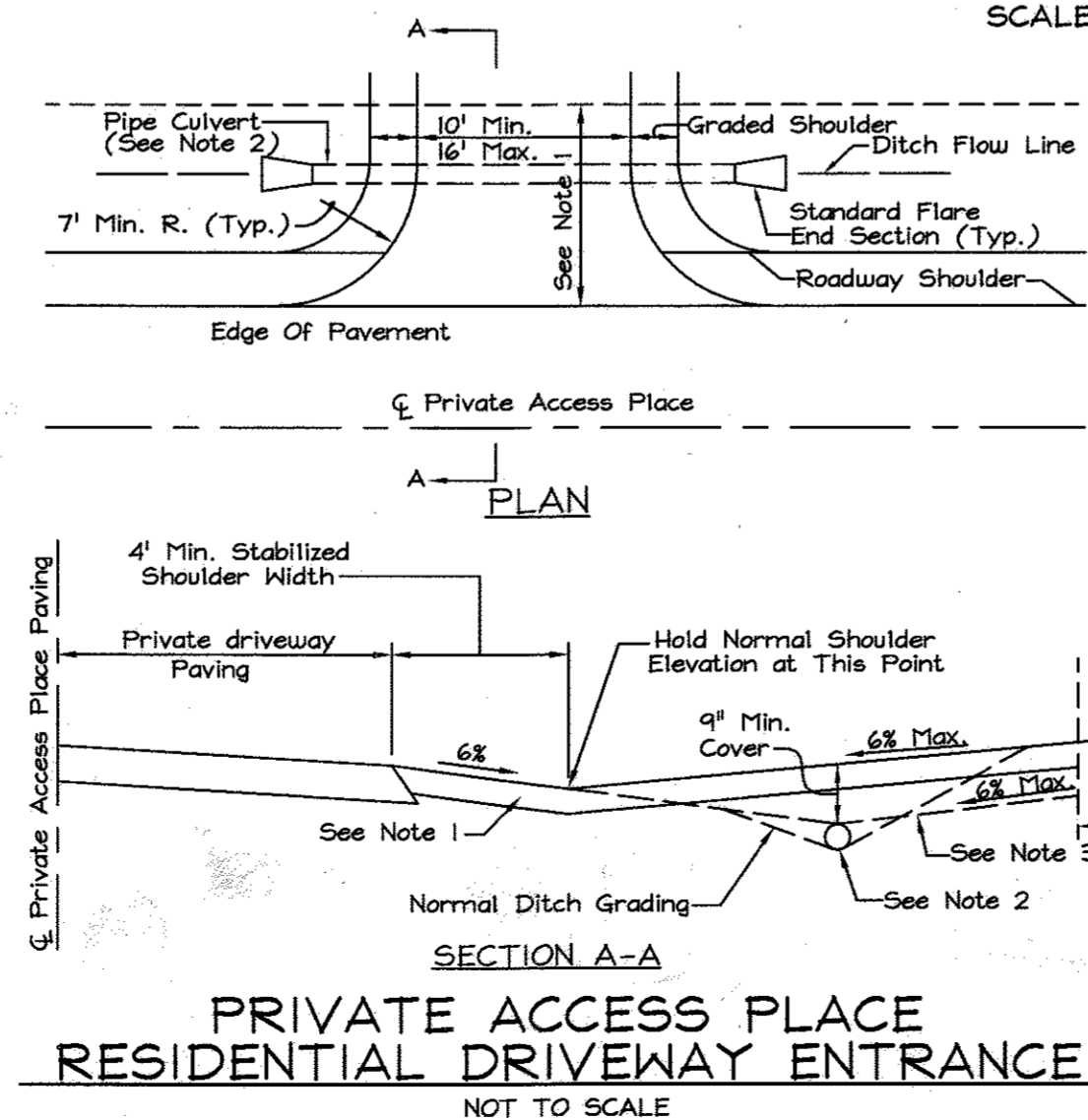
State Highway Administration	410.531.5533
BGE(Contractor Services)	410.850.4620
BGE(underground damage control)	410.787.9066
Miss Utility	1.800.257.7777
Colonial Pipeline Company	410.796.1390
Howard County, Dept. of Public Works, Bureau of Utilities	410.313.4900
Howard County Health Department	410.313.2640
- The contractor shall notify Miss Utility at 1-800-257-7777 at least 48 hours prior to any excavation work being done.
- The contractor shall notify the Department of Public Works/Bureau of Engineering Inspection Division at (410) 313-1880 at least five (5) working days prior the start of work. All fills for public road surfaces require 95% compaction (AASHTO-T-100).
- Landscape surety is based on the required landscaping of 65 shade trees, 23 evergreen trees, the Private Access Place street trees (19), and refuse pad shrubs (10), in the amount of \$28,950.00.
- This project complies with the requirements of section 16.1200 of the Howard County Code for Forest Conservation by retaining 1.65 acres of forest and planting 0.60 acres of reforestation within Forest Conservation Easement 1, retaining 2.60 acres of forest and planting 0.47 acres of reforestation within Forest Conservation Easement 2, planting 0.43 acres of reforestation within Forest Conservation Easement 3, and retaining 2.00 acres of forest and planting 0.23 acres of reforestation within Forest Conservation Easement 4. Total retention = 6.25 ac. Total reforestation provided = 1.72 ac. \$91,917.74 surety to be posted with the Developer's Agreement. Requested Fee-in-lieu for 1.61 ac remaining obligation is \$35,065.80.
- Previous Howard County file numbers: S-99-16; S-01-24; WP-99-87; P-03-12
- All construction shall be in accordance with the latest standards and specifications of Howard County plus MSHA standards and specifications, if applicable.
- 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.
- Open Space Lots 55 thru 59, and 73:
 - Open Space Lots 55, 57, and 73 to be dedicated to Howard County.
 - Open Space Lots 56, 58, and 59 to be dedicated to the Homeowners Association.
- Per the geotechnical report, prepared by Herbst/Benson & Associates, the following procedures are recommended for basin and embankment construction:
 - Along the area of the proposed embankment, strip all vegetation, topsoil and any surface organically contaminated soils to expose relatively clean existing fills or competent native soils.
 - Proof roll the exposed surface with a loaded tandem dump truck to delineate unsuitable areas and cut out any soft yielding areas to expose firm underlying soils.
 - Excavate the core trench to a minimum depth of 4 feet below the proposed basin elevation using a minimum 4-foot bottom trench width and side slopes no steeper than 1:1. Beneath the principal spillway, the core trench depth should extend at least 4 feet beyond the bottom of the pipe cradle and use similar bottom widths and side slopes. Compact the bottom of the trench excavation to firm, unyielding condition.
 - Backfill the core trench excavation using the native CL cut soils from the west slope as represented by boring SWM-4. Judging from the moisture/compacted density test results shown of SHEET I, COMPACTION TEST, the fill should be readily compatible at the existing moisture content.
 - Prior to placing the principal spillway pipe and cradle, examine the founding soils along the pipe alignment outside the core trench area. Undercut any organic or otherwise unsuitable material and compact the exposed grade to a firm, unyielding condition. The existing fill soils and core trench fills are expected to adequately support principal spillway construction providing that the applied bearing pressures do not exceed 1,000 PSF. Backfill the principal spillway excavation and place embankment fill using the native cut soils from the western slope and approved existing CL clay fill soil from the basin excavation to form the embankment.

FINAL ROAD CONSTRUCTION PLAN HUNTERS RIDGE

LOTS 1 THRU 4, 18 THRU 54, 60 THRU 72
OPEN SPACE LOTS 55 THRU 59 & 73, AND A RESUBDIVISION
OF BULK PARCEL 'C' WESLEY WOODS, SECTION 1
HOWARD COUNTY, MARYLAND



LOCATION MAP
SCALE: 1"=200'

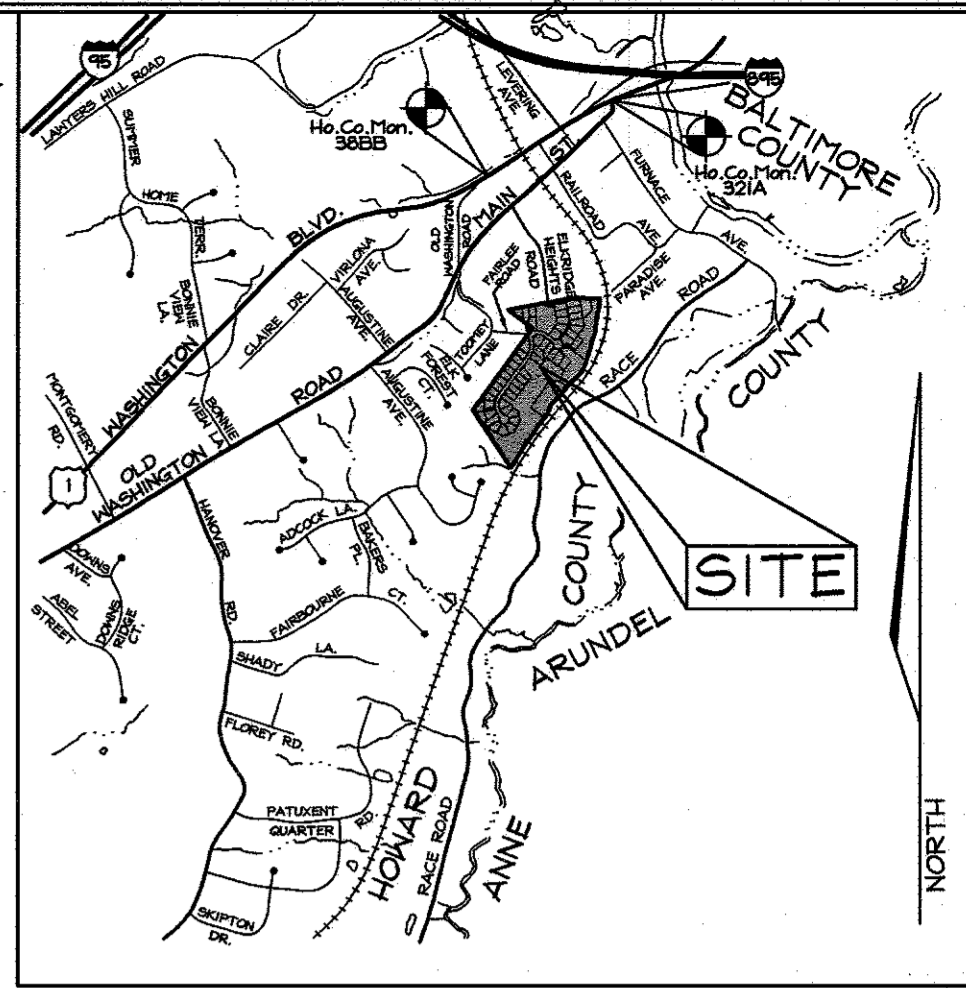
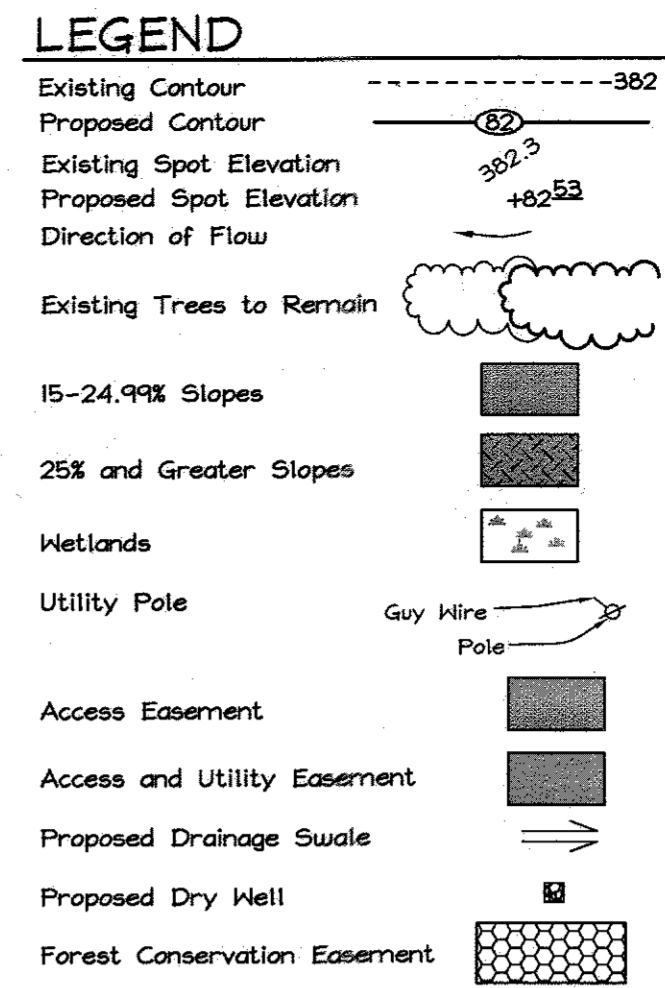


**PRIVATE ACCESS PLACE
RESIDENTIAL DRIVEWAY ENTRANCE**
NOT TO SCALE

- NOTES:**
- Driveway must be paved using standard paving section P-1 as shown on S14. No. or alternate section equal to or better than P-1, as approved by D.P.W.
 - Drainage culvert shall be sized for a 10 year frequency storm and the minimum size shall be 12" dia. round or 14" x 9" arch pipe if larger pipe is required, ditch invert shall be lowered to provide min. ditch gradient of 0.5% and clearance shown.
 - Swale flow may be provided over driveway located at or near the crest of vertical curves on the public road where quantity of flow is small, as approved by D.P.W.
 - Tie-in grade of private driveway shall not exceed 14%.

Continuation of General Notes

- The 5x20' concrete pad for the "Refuse and Recycle Collection Pad" located within the public right-of-way will be maintained by the owners of Lots 65-72, pursuant to the Declaration of Right of Access and Maintenance Obligations recorded among the land records of Howard County Maryland.
- For private driveway culverts for lots 70-72, see detail this sheet.
- All Fill Areas within Public Right-Of-Ways to have 95% Compaction.
- All street sign posts shall be 2" square metal tube (14 gauge) installed into a 3" sleeve (2.5" square metal tube, 12 gauge) with a cap on top.



VICINITY MAP
SCALE: 1"=2000'

BENCHMARKS

Sta. 321A	N 172,252.2977	E 425,261.5439	El.: 8.4417 (meters)
Sta. 38BB	N 565,025.4623	E 1,395,212.2485	El.: 27.676 (feet)
	N 171,904.6745	E 424,785.3620	El.: 19.6328 (meters)
	N 564,007.646	E 1,393,649.975	El.: 64.412 (feet)

SHEET INDEX

DESCRIPTION	SHEET No.
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Road Plan and Profile - Fairlee Road	2 of 20
Road Plan and Profile - Joseph Scott Drive	3 of 20
Road Plan and Profile - Private Access Place	4 of 20
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Sediment and Erosion Control and Grading Plan	6 of 20
Sediment and Erosion Control and SWM Pond Notes and Details	7 of 20
Retaining Wall Enticement Plan and SEC Details	8 of 20
Storm Drain Drainage Area Map	9 of 20
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Landscape Plan, Notes and Details	13 of 20
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Retaining Wall Profile, Details & Wall Section	18 of 20
Retaining Wall Tables, Details & Civil Plan	19 of 20
Retaining Wall Specifications	20 of 20

CENTERLINE ROAD CURVE DATA

CURVE #	RADIUS	LENGTH	DELTA	TANGENT	CHORD BEARING	CHORD LENGTH
C1	150.00	110.59	42°14'27"	57.94	N74°55'02"W	108.10
C2	150.00	110.59	42°14'27"	57.94	N15°04'52"E	108.10
C3	150.00	183.26	70°00'00"	105.03	S01°12'06"W	172.07

ROAD CLASSIFICATION

ROAD NAME	CLASSIFICATION	R/W
Fairlee Road	Public Access Place	40'
Joseph Scott Drive	Public Access Street	40'
Mary Ann Lane	Private Access Place	min. 24' easement

STREET LIGHT TABLE

FIXTURE TYPE	POLE TYPE	LOCATION	STREET
100 watt HPS vapor Premier post top mounted	14' black fiberglass	€ Sta. 1+90 17' right	Fairlee Road
100 watt HPS vapor Premier post top mounted	14' black fiberglass	€ Sta. 3+55 13' left	Fairlee Road
100 watt HPS vapor Premier post top mounted	14' black fiberglass	N 562,503.6 E 1,394,426.6	Fairlee Road
100 watt HPS vapor Premier post top mounted	14' black fiberglass	€ Sta. 3+04 15' left	Joseph Scott Drive
100 watt HPS vapor Premier post top mounted	14' black fiberglass	€ Sta. 7+90 15' right	Joseph Scott Drive
100 watt HPS vapor Premier post top mounted	14' black fiberglass	N 561,566.3 E 1,393,998.8	Joseph Scott Drive

Note: Light pole location given at center of base

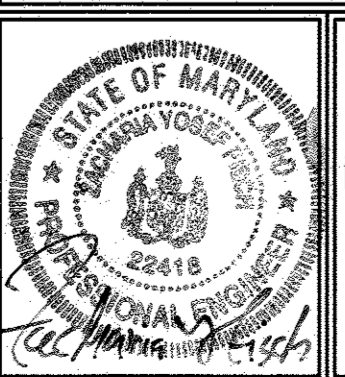
OWNER/DEVELOPER

Richmond American Homes of Maryland, Inc.
6200 Old Dobbin Lane
Columbia, Md 21045
410.872.0267

**COVER SHEET
HUNTERS RIDGE**

LOTS 1 THRU 4, 18 THRU 54, 60 THRU 72
OPEN SPACE LOTS 55 THRU 59 & 73
AND A RESUBDIVISION OF BULK PARCEL 'C'
WESLEY WOODS, SECTION 1, PLAT NO. 14926

TAX MAP 38 GRIDS 4 & 10 PARCEL 163
1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND



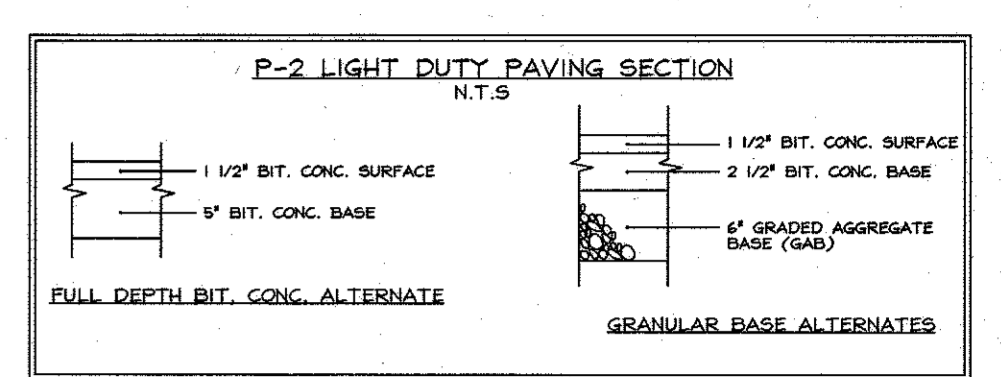
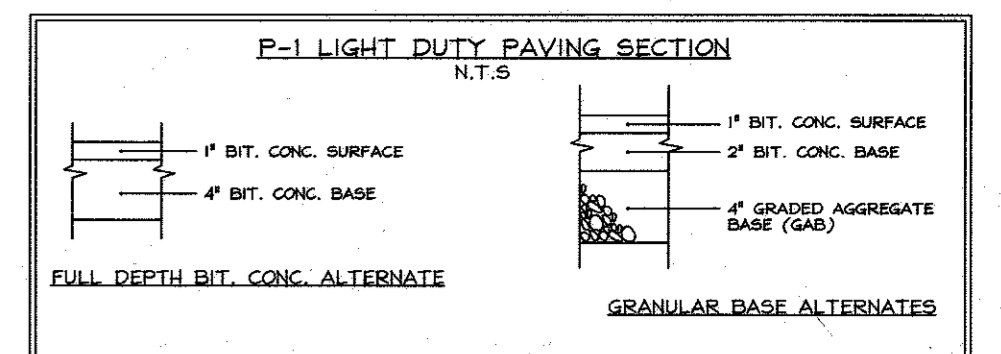
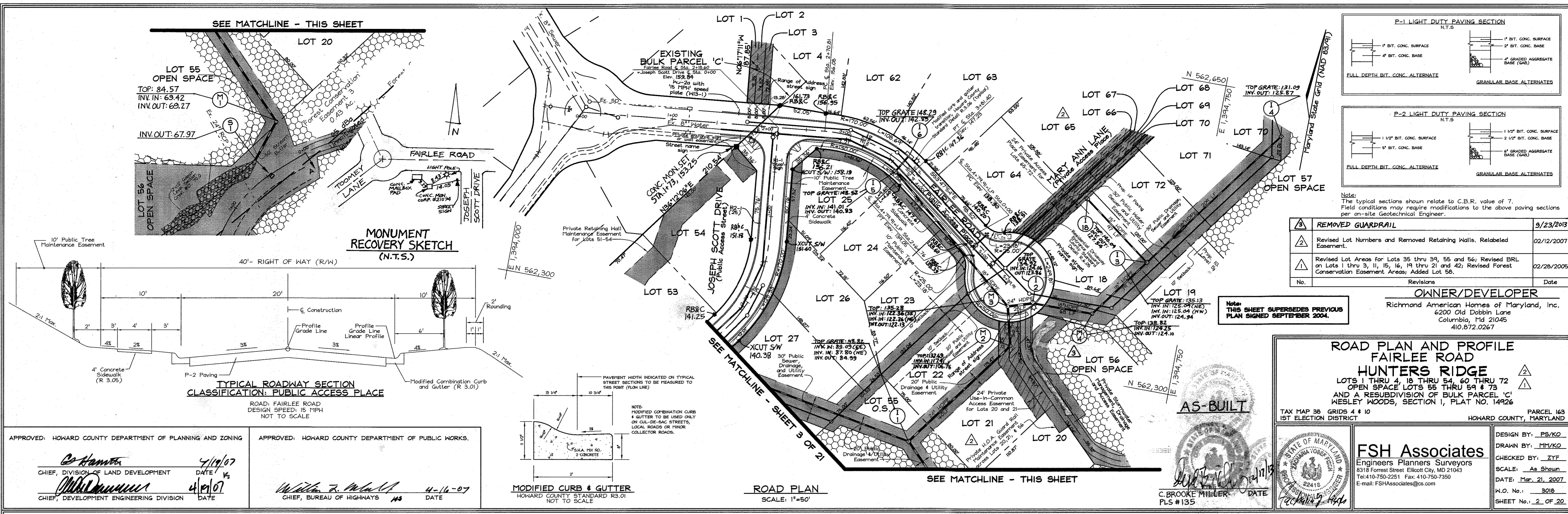
FSH Associates
Engineers Planners Surveyors
8318 Forest Street, Ellicott City, MD 21043
Tel: 410-750-2251 Fax: 410-750-7350
E-mail: FSHAssociates@cs.com

DESIGN BY: PS/KO
DRAWN BY: MM/KO
CHECKED BY: ZYF
SCALE: As Shown
DATE: Jan. 23, 2007
P.L.O. No.: 3018
SHEET No.: 1 OF 20

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
4/11/07
4/19/07

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.
4-16-07

No.	Revisions	Date
1	Revised Lots and Lot Numbers. Deleted Retaining Wall & Their Easements on Lots 20, 21, & 43 thru 46. Revised Pipestems, Moved Street Light. Re-Subdivided Lot 5. Extended Sewer Easement. Revised General Notes #26 & 27. Removed General Note #32. Revised General Note #37 (formerly #38).	02/12/2007
2	Revised Lot Areas for Lots 35 thru 39, 55 and 56; Revised BRL on Lots 1 thru 3, 11, 15, 16, 19 thru 21 and 42; Revised Forest Conservation Easement Areas; Added Lot 58.	02/28/2006



Note:
The typical sections shown relate to C.B.R. of 7.
Field conditions may require modifications to the above paving sections
per on-site Geotechnical Engineer.

No.	Revisions	Date
1	REMOVED GUARDRAIL	3/23/2013
2	Revised Lot Numbers and Removed Retaining Walls, Relabeled Easement.	02/12/2007
3	Revised Lot Areas for Lots 35 thru 39, 55 and 56; Revised BRL on Lots 1 thru 3, 11, 15, 16, 19 thru 21 and 42; Revised Forest Conservation Easement Areas; Added Lot 58.	02/28/2005

OWNER/DEVELOPER
Richmond American Homes of Maryland, Inc.
6200 Old Dobbin Lane
Columbia, Md 21045
410.872.0267

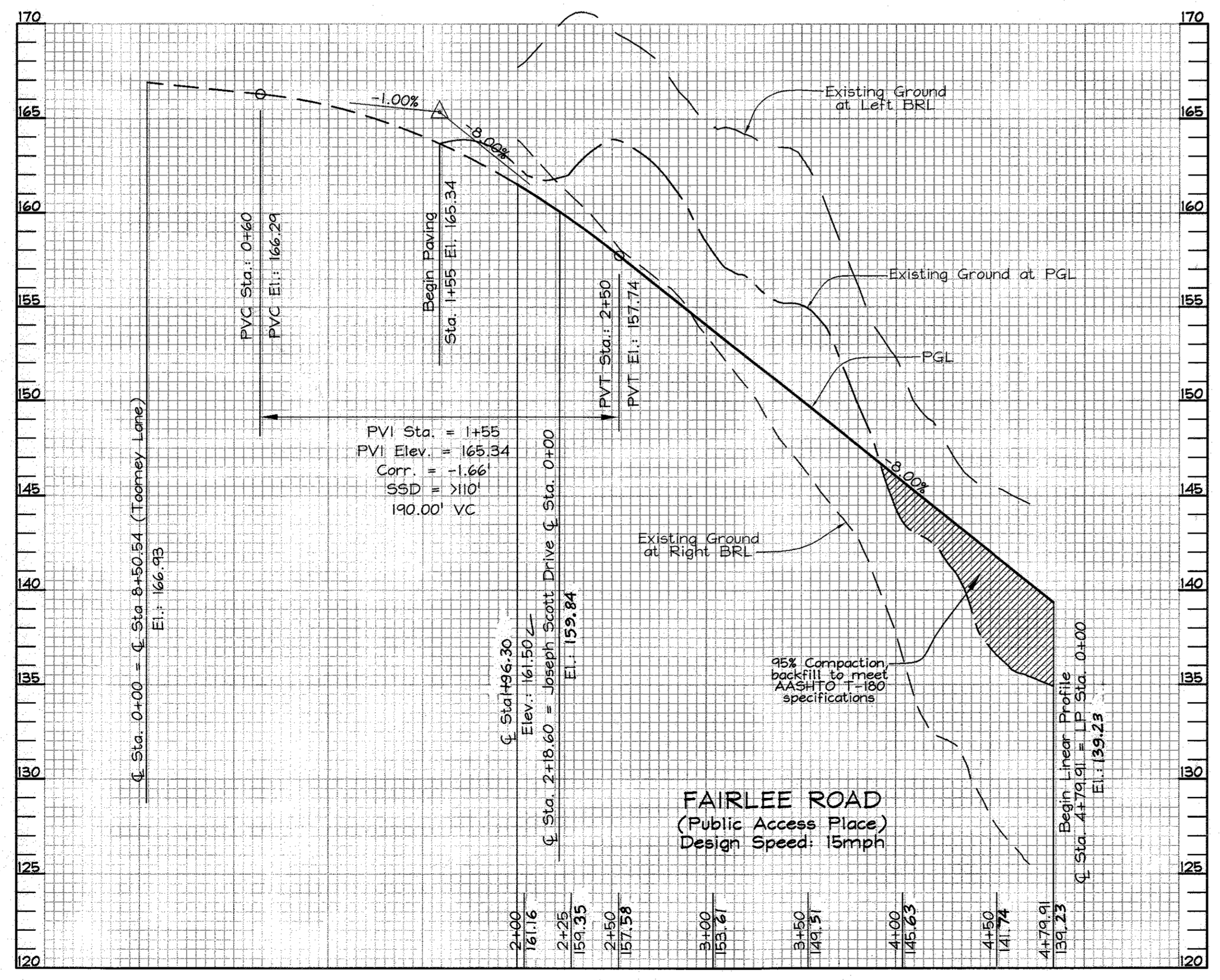
ROAD PLAN AND PROFILE FAIRLEE ROAD HUNTERS RIDGE
LOTS 1 THRU 4, 18 THRU 54, 60 THRU 72
OPEN SPACE LOTS 56 THRU 59 & 73
AND A RESUBDIVISION OF BULK PARCEL 'C'
WESLEY WOODS, SECTION 1, PLAT NO. 14926
TAX MAP 38 GRIDS 4 & 10 PARCEL 163
1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

FSH Associates
Engineers Planners Surveyors
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Tel: 410-750-2251 Fax: 410-750-7350
E-mail: FSHAssociates@cs.com

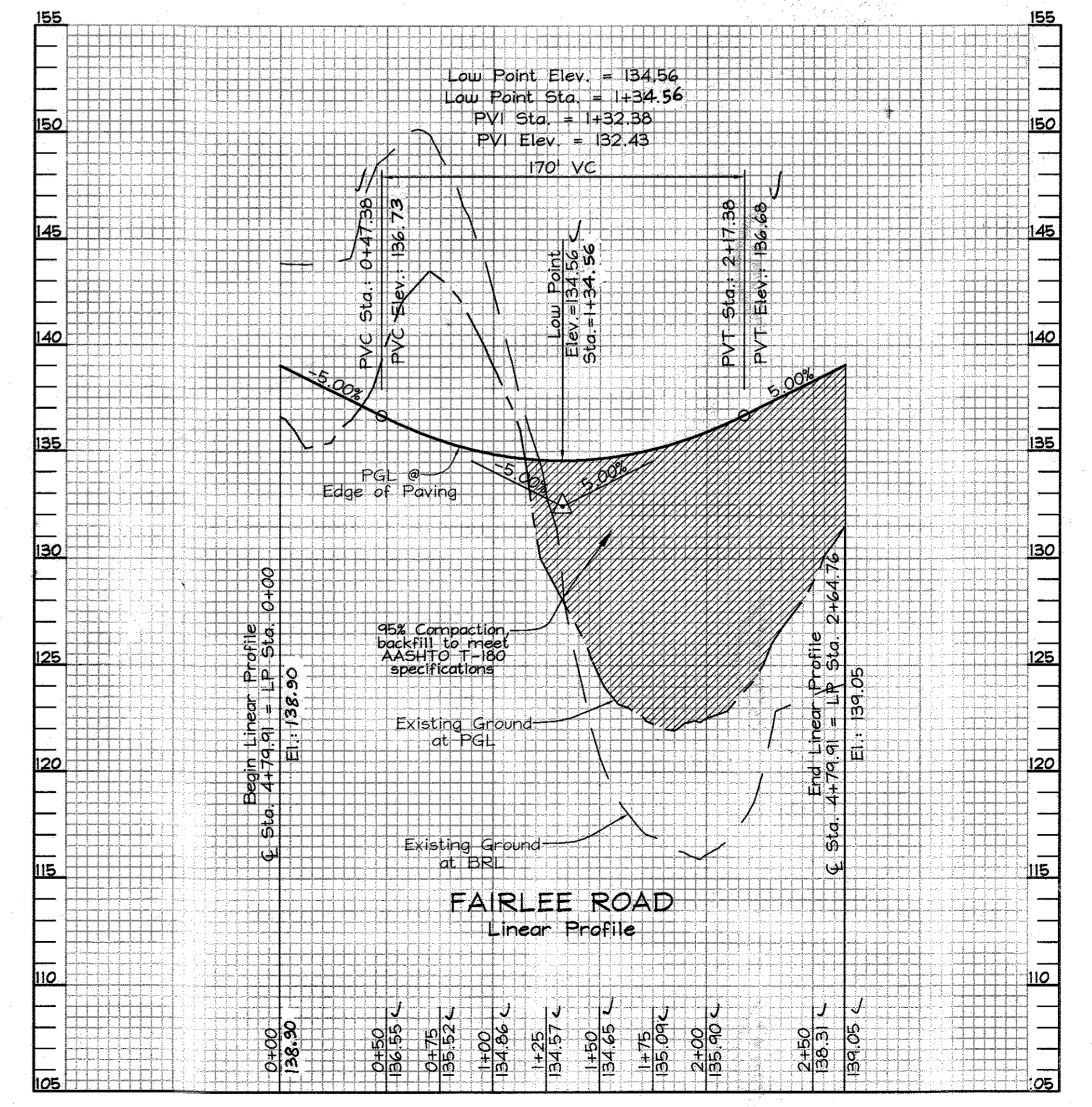
DESIGN BY: PS/KO
DRAWN BY: MM/KO
CHECKED BY: ZYF
SCALE: As Shown
DATE: Mar. 21, 2007
W.O. No.: 3018
SHEET No.: 2 OF 20

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
DATE: 4/19/07
CHIEF, DIVISION OF LAND DEVELOPMENT

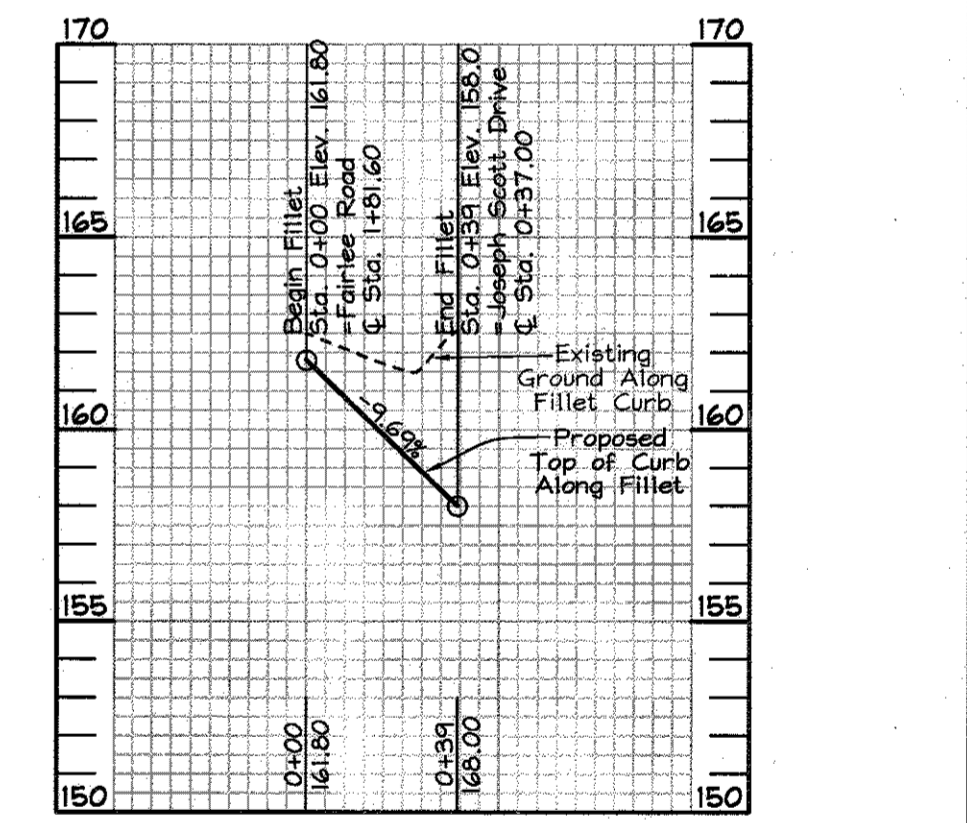
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
DATE: 4-16-07
CHIEF, BUREAU OF HIGHWAYS



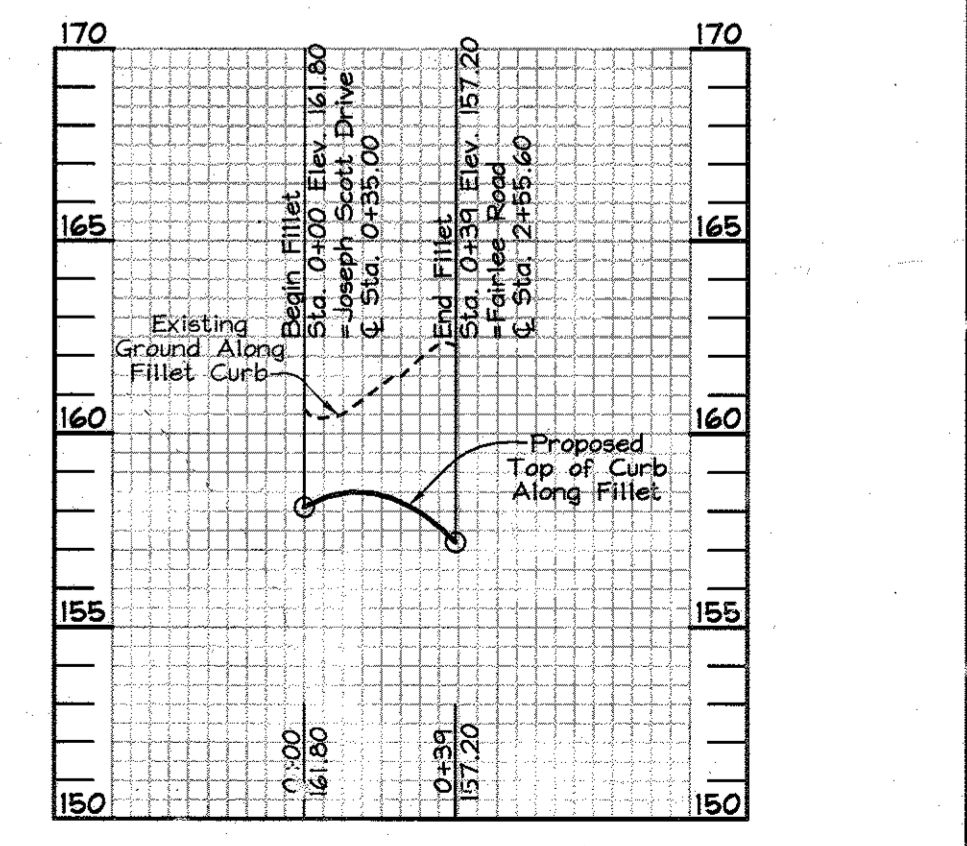
ROAD PROFILE
SCALE- HORIZONTAL: 1"=50'
VERTICAL: 1"=5'



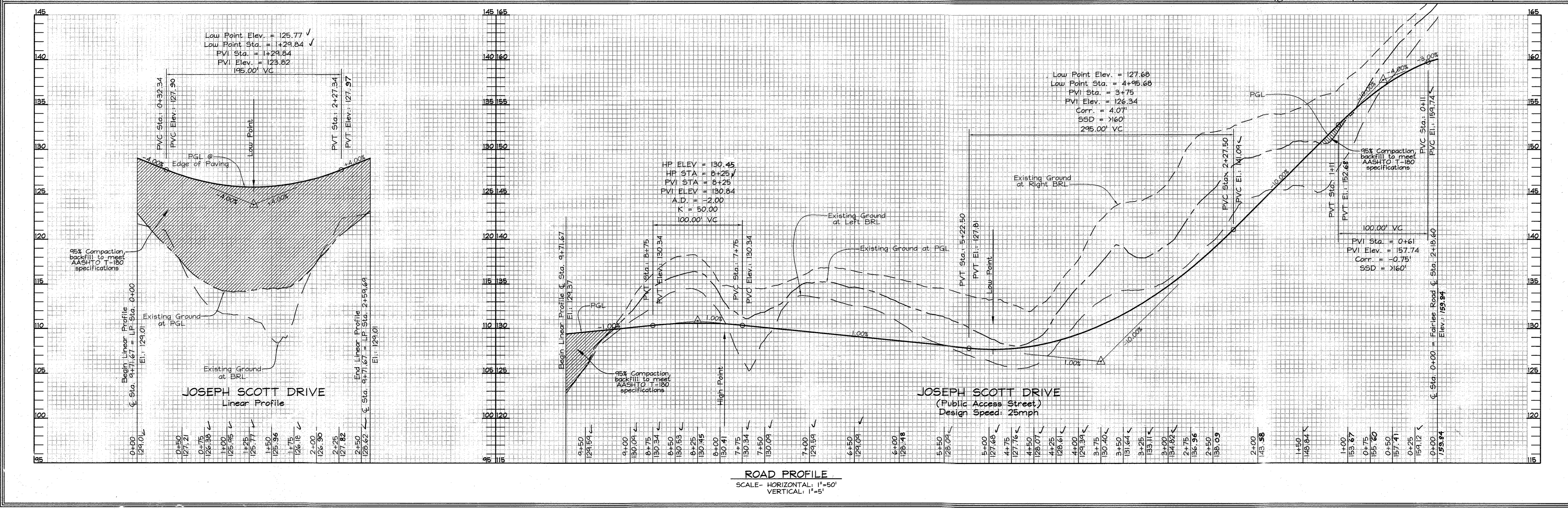
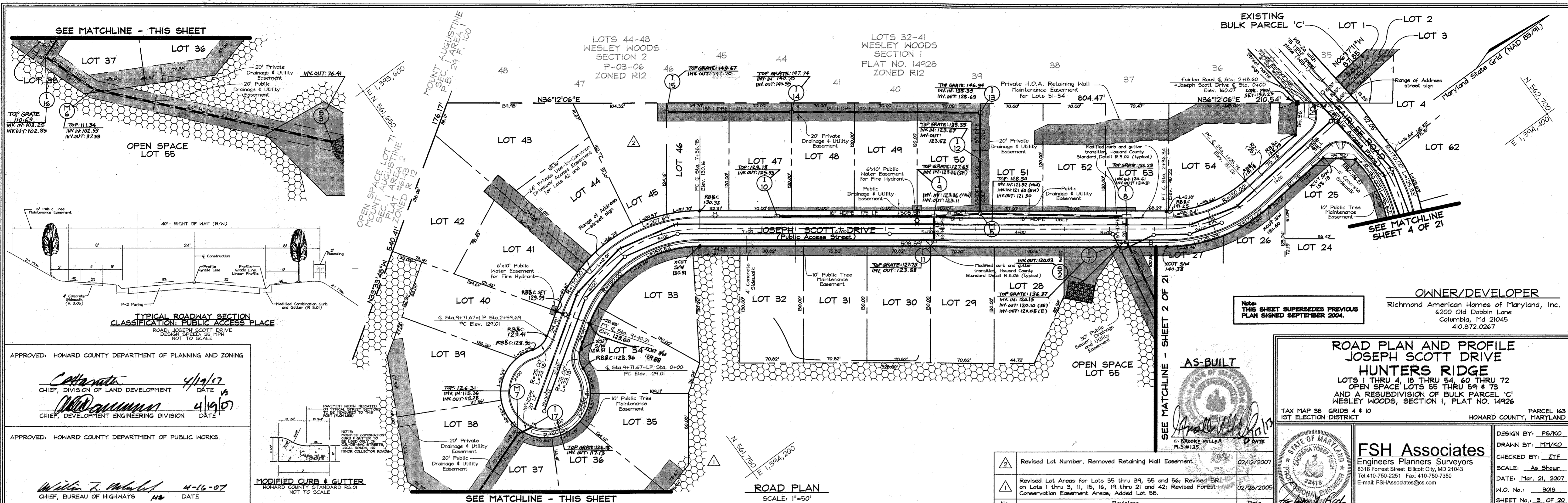
LINEAR PROFILE
SCALE- HORIZONTAL: 1"=50'
VERTICAL: 1"=5'



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



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



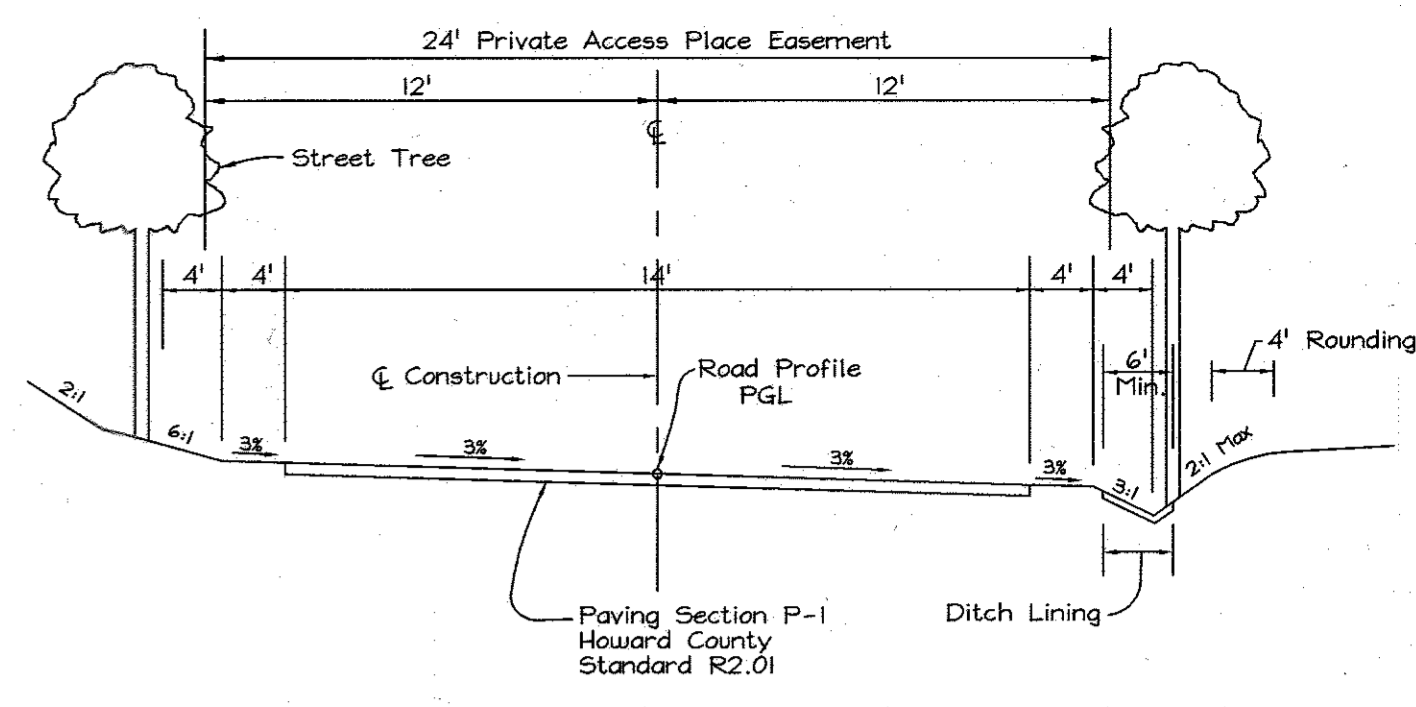
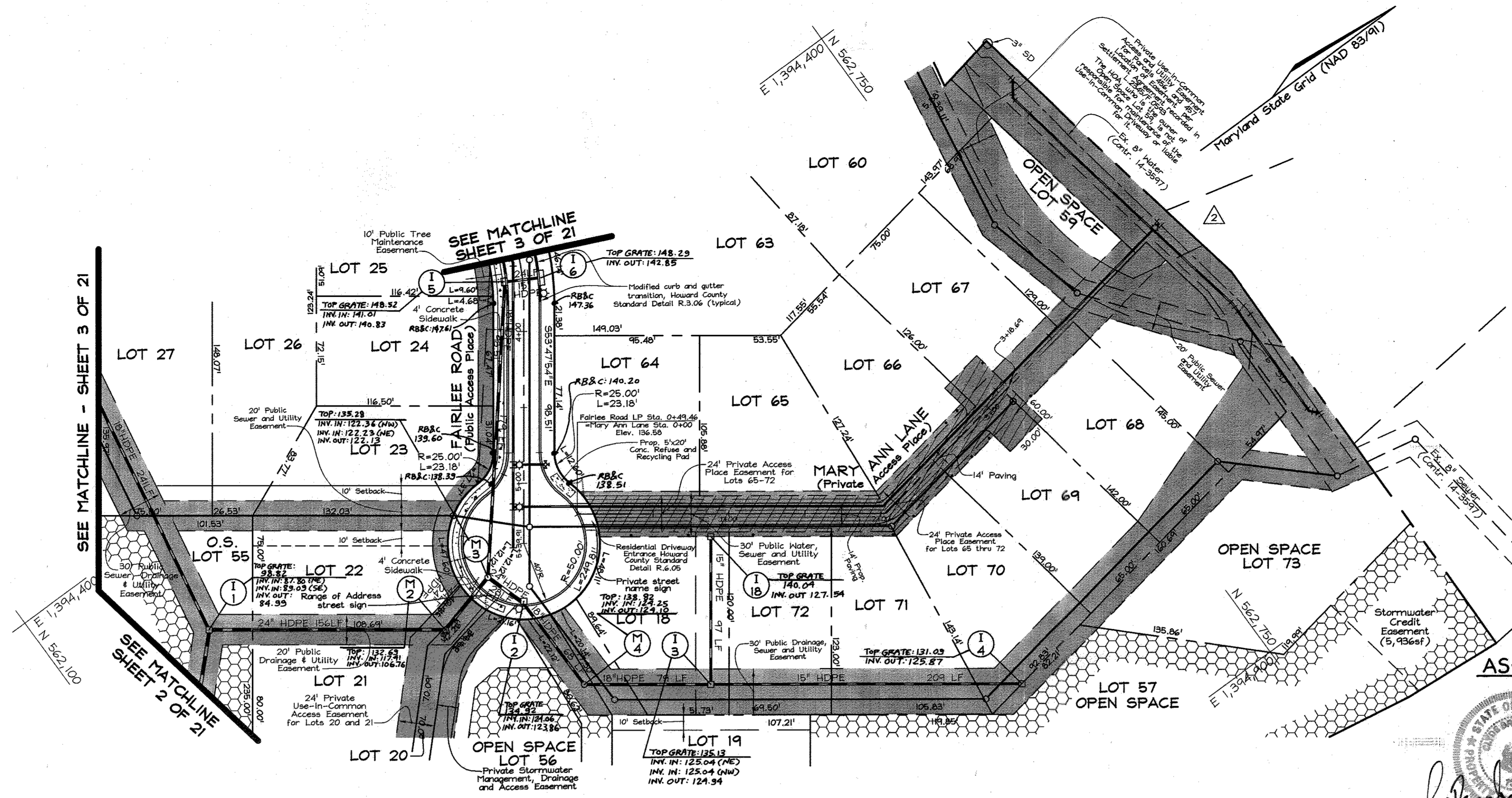
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

C. Hamish 4/19/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Charles Cummings 4/19/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

William F. ... 4-16-07
 CHIEF, BUREAU OF HIGHWAYS DATE



CLASSIFICATION: PRIVATE ACCESS PLACE
NOT TO SCALE

⚠	Revised Lots and Lot Numbers, Deleted Retaining Wall, Revised Pipestems, Moved Street Light, Re-subdivided Lot 5, Revised Easements.	02/12/2007
⚠	Revised Lot Areas for Lots 35 thru 39, 55 and 56; Revised BRL on Lots 1 thru 3, 11, 15, 16, 19 thru 21 and 42; Revised Forest Conservation Easement Areas; Added Lot 58.	02/28/2005
No.	Revisions	Date

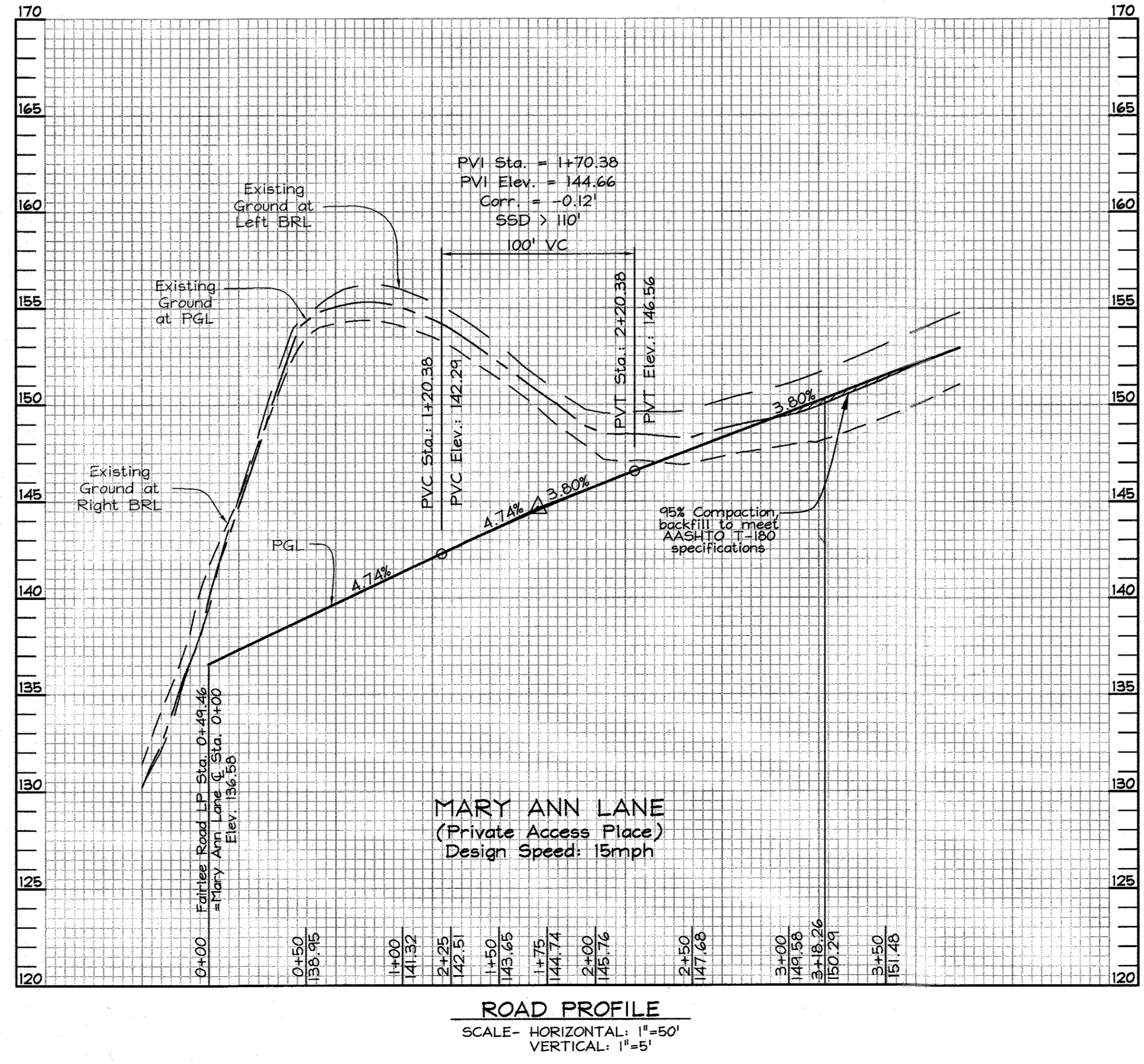
OWNER/DEVELOPER
 Richmond American Homes of Maryland, Inc.
 6200 Old Dobbin Lane
 Columbia, Md 21045
 410.872.0267

**ROAD PLAN AND PROFILE
 PRIVATE ACCESS PLACE
 HUNTERS RIDGE**
 LOTS 1 THRU 4, 18 THRU 54, 60 THRU 72
 OPEN SPACE LOTS 55 THRU 59 & 73
 AND A RESUBDIVISION OF BULK PARCEL 'C'
 WESLEY WOODS, SECTION 1, PLAT NO. 14926

TAX MAP 38 GRIDS 4 & 10
 1ST ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

FSH Associates
 Engineers Planners Surveyors
 8318 Forrest Street, Ellicott City, MD 21043
 Tel: 410-750-2251 Fax: 410-750-7350
 E-mail: FSHAssociates@cs.com

DESIGN BY: PS/KO
 DRAWN BY: MM/KO
 CHECKED BY: ZYE
 SCALE: As Shown
 DATE: Mar. 21, 2007
 H.O. No.: 3018
 SHEET No.: 4 OF 20



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



LEGEND

- Existing Contour: ---
- Proposed Contour: - - -
- Spot Elevation: +02.55
- Direction of Flow: →
- Tree Protection Fence: [Symbol]
- Existing Trees to Remain: [Symbol]
- Light Poles: Post Top, Overhead, Ballard
- Stabilized Construction Entrance: [Symbol]
- Silt Fence: SF
- Super Silt Fence: SSF
- Earth Dike: A-1
- Limit of Disturbance: LOD
- Erosion Control Matting: EC1
- Rip-Rap Inflow Protection: RRP
- Gabion Inflow Protection: G1
- Removable Pumping Station: RPS
- Grass Swale for Recharge: [Symbol]

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.

[Signature] 3.23.07
 SIGNATURE OF DEVELOPER DATE
 RICHMOND AMERICAN HOMES OF MARYLAND, INC.

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.

[Signature] 3.23.07
 SIGNATURE OF ENGINEER DATE
 ZACHARIA Y. FISCH

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 4/19/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 4/16/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

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

[Signature] 4/10/07
 USDA NATURAL RESOURCES CONSERVATION SERVICE DATE

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

[Signature] 4/10/07
 HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

[Signature] 4-16-07
 CHIEF, BUREAU OF HIGHWAYS DATE

OWNER/DEVELOPER

Richmond American Homes of Maryland, Inc.
 6200 Old Dobbin Lane
 Columbia, Md 21045
 410.872.0267

SEDIMENT AND EROSION CONTROL AND GRADING PLAN

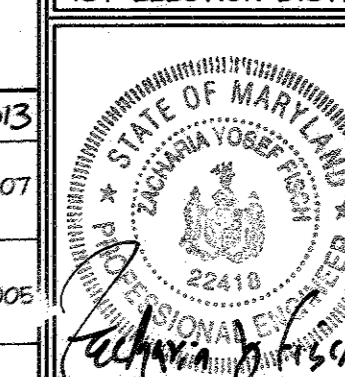
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 WESLEY WOODS, SECTION 1, PLAT NO. 14926

TAX MAP 38 GRIDS 4 & 10 PARCEL 163
 1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

Note: THIS SHEET SUPERSEDES PREVIOUS PLAN SIGNED SEPTEMBER 2004.

No.	Revisions	Date
1	REMOVED GUARDRAIL & UPDATE GRADINGS	9/23/2013
2	Revised Lots and Lot Numbers, Grading, & Pipestems. Deleted Retaining Walls. Relabeled Easement. Moved Street Light. Re-Subdivided Lot 5.	02/12/2007
3	Revised Lot Areas for Lots 35 thru 39, 55 and 56; Revised BRL on Lots 1 thru 3, 11, 15, 16, 19 thru 21 and 42; Revised Forest Conservation Easement Areas; Added Lot 58.	02/28/2005



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DESIGN BY: PS/KO
 DRAWN BY: MM/KO
 CHECKED BY: ZYF
 SCALE: 1"=50'
 DATE: Mar. 21, 2007
 W.O. No.: 3019
 SHEET No. 5 OF 20

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
C. Hamner 4/19/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE
John DeGennaro 4/19/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
William F. Mahaffey 4-16-07
 CHIEF, BUREAU OF HIGHWAYS 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.
John DeGennaro 3/23/07
 SIGNATURE OF DEVELOPER DATE
 RICHMOND AMERICAN HOMES OF MARYLAND, INC.

ENGINEER'S 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.
Zacharia Y. Fisch 3/23/07
 SIGNATURE OF ENGINEER DATE
 ZACHARIA Y. FISCH

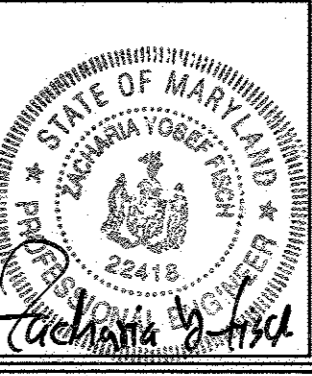
THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.
Jim Morgan 4/18/07
 USDA-NATURAL RESOURCES CONSERVATION SERVICE DATE
 THESE PLANS FOR SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
John K. Hunter 4/18/07
 HOWARD SOIL CONSERVATION DISTRICT DATE

Revised Title Block, Lot Numbers, and Removed Retaining Wall Easement.	02/12/2007
Revised Lot Areas for Lots 35 thru 39, 55 and 56; Revised BRL on Lots 1 thru 3, 11, 15, 16, 19 thru 21 and 42; Revised Forest Conservation Easement Areas, Added Lot 58.	02/26/2008
No. Revisions	Date

FOR AS-BUILT STORMWATER MANAGEMENT (SWM) POND ELEVATIONS SEE SHT. 3 OF 20.

OWNER/DEVELOPER
 Richmond American Homes of Maryland, Inc.
 6200 Old Dobbin Lane
 Columbia, Md 21045
 410.872.0267

SEDIMENT AND EROSION CONTROL AND GRADING PLAN
HUNTERS RIDGE
 LOTS 1 THRU 4, 18 THRU 54, 60 THRU 72
 OPEN SPACE LOTS 55 THRU 59 & 73
 AND A RESUBDIVISION OF BULK PARCEL 'C'
 WESLEY WOODS, SECTION 1, PLAT NO. 14926
 TAX MAP 38 GRIDS 4 & 10 PARCEL 163
 1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND



FSH Associates
 Engineers Planners Surveyors
 8318 Forness Street, Ellicott City, MD 21043
 Tel: 410-750-2251 Fax: 410-750-7350
 E-mail: FSHAssociates@cs.com

DESIGN BY: PS/KO
 DRAWN BY: MM/KO
 CHECKED BY: ZYF
 SCALE: 1"=50'
 DATE: Mar. 21, 2007
 W.O. No.: 3018
 SHEET No.: 6 OF 20



SEQUENCE OF CONSTRUCTION

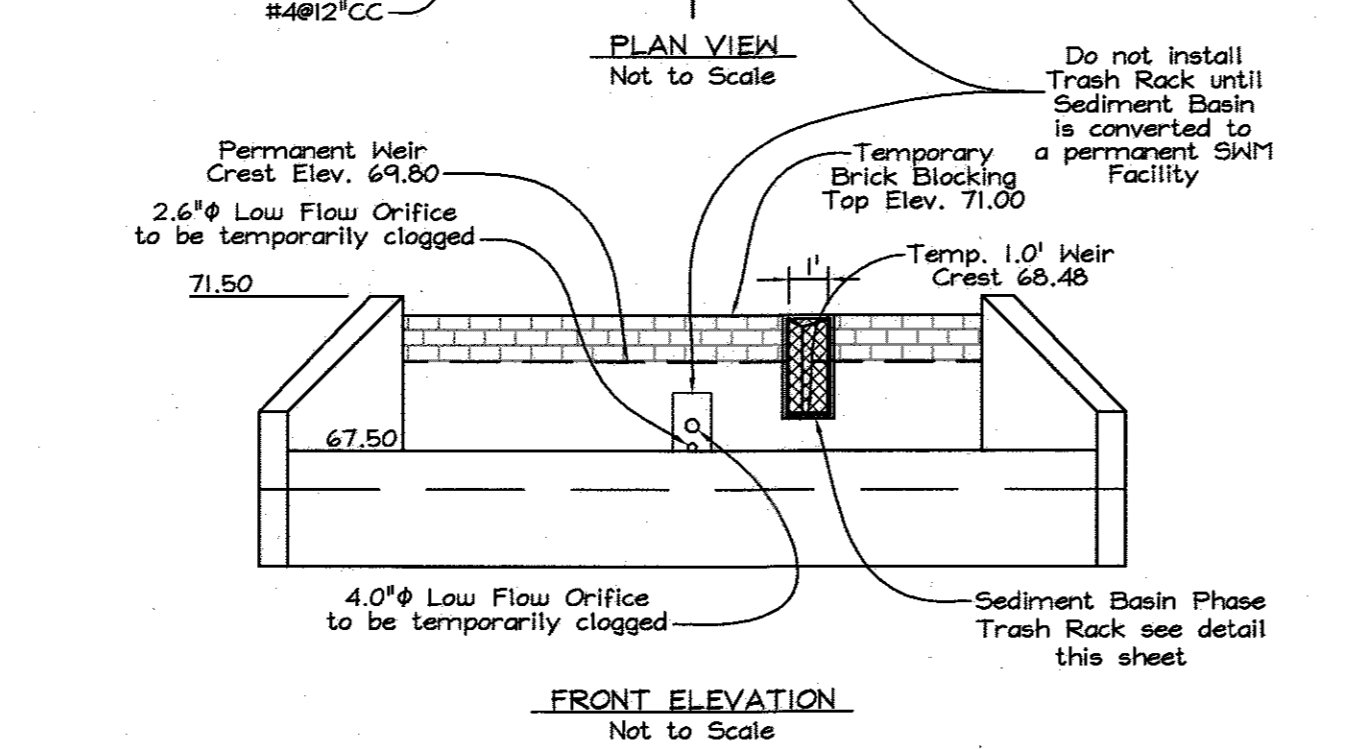
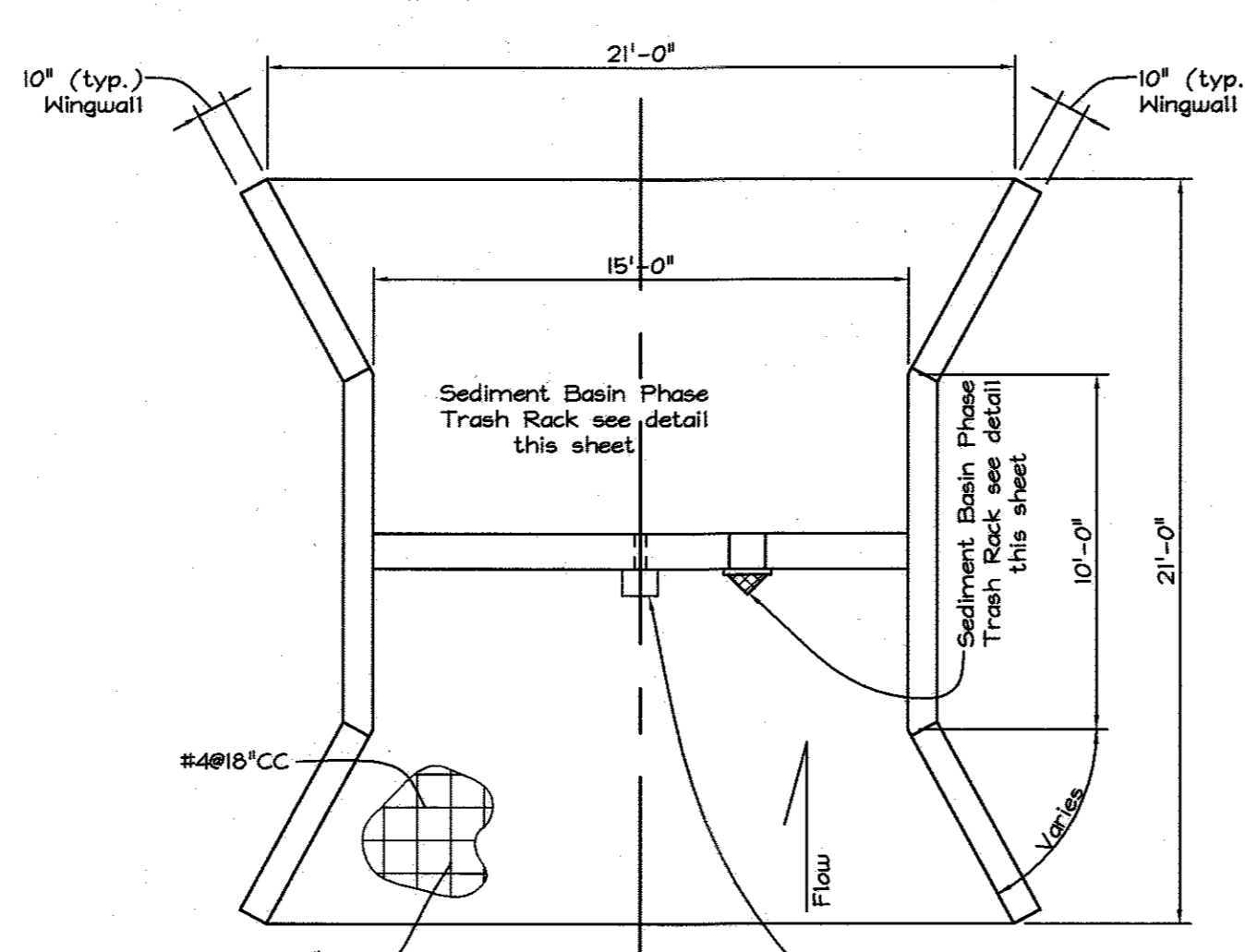
- Obtain grading permit and contact Howard County Sediment Control Inspector (SCI) to arrange a preconstruction meeting. (1 Day)
- Install Stabilized Construction Entrance at Fairlee Road as access point for construction. (1 Day)
- Clear and grub as necessary for installation of sediment control features, including super silt fences, earth dikes, slope drains, and sediment basins. (2 Weeks)
- Install silt fence, super silt fence, forebays and CS-1 for sediment basin use phase. Provide temporary 1.0' weir opening and temporary brick and mortar blocking per detail this sheet. (2 Weeks)
- Clear and grub site and install earth dikes and pipe slope drains to convey runoff to basin. Note that earth dikes to be adjusted as grading and filling progresses on a daily basis. * * *
- With permission of SCI, begin road and lot grading. (2 Weeks)
- Grade roads and lots to subgrade and install storm drain system and grass channels to be used for runoff conveyance to basin, * and construct retaining wall. (4 Weeks)
- Pave roadways and apply permanent stabilization to all disturbed areas. (2 Weeks)
- With permission of SCI, remove all silt fences/super silt fences and stabilize those areas. (1 Week)
- Flush storm drains of sediment. Convert sediment/stormwater basin permanent SWM (CS-1), de-water and remove accumulated sediment blocking devices on weir, construct permanent weir to proposed elevation, install trash rack, fine grade bottom to proposed elevation and apply permanent seeding and mulching to disturbed areas. (1 week)
- Remove earth dikes and pipe slope drains where storm drains are in-place to convey runoff to basin.
- Contractor to provide temporary stabilization to perimeter slopes within 7 days of grading or as directed by Howard County Sediment Control Inspector.

HUNTERS RIDGE SWM SUMMARY TABLE

Category	Volume Required	Volume Provided	Notes
Water Quality Volume (WQV)	0.5 Ac. Ft.	0.86 Ac. Ft.	0.36 Ac. Ft. stored in storm pool with 0.25 Ac. Ft. of extended detention.
Recharge Volume/Area (ReV)	0.92 Ac.Ft./0.99 Ac.	1.0 Ac. Ft.	See Note below
Channel Protection Volume (CpV)	33,106 cu. ft.	33,106 cu. ft.	1/2 incoming volume is detained for 18.48 hrs.
Overbank Flood Protection (Qp)	N/A	N/A	Not Required
Extreme Flood Volume (Qe)	N/A	N/A	Not Required

Notes:
Recharge area (Rea) treatment provided for lots 12-17, 1/2 lot 18, 1/2 lot 35 and all of lots 36-39 with grass channels at average slopes of 4%. Sheet Flow to Buffer credit taken for lot 11 and 1/2 of lot 19.
Dry well treatment provided for lots 43-54. (Dry wells at downspouts provided).

* * * Contractor to provide temporary stabilization to perimeter slopes within 7 days of grading or as directed by Howard County Sediment Control Inspector.



CS-1 CONCRETE WEIR CONTROL STRUCTURE MODIFICATIONS FOR SEDIMENT CONTROL

NOTE: NOT TO SCALE
Contractor shall form up a 1.0' wide temporary weir notch in the weir wall at crest elevation 69.48, providing a 2'x2' keyway. Contractor shall extend permanent weir crest to elevation 71.0 using brick and mortar, leaving a 1.0' wide opening to elevation 69.48. Once Sediment Control Measures are removed, these modifications shall be removed and the 1' wide weir shall be formed and poured to the permanent weir crest elevation (69.80).

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, and low organic matter content to plants, are unacceptably erodible.

Conditions Where Practice Applies:
1. This practice is limited to areas having 21 or flatter slopes unless otherwise specified.
a. The texture of the exposed subsoil/parent material is not adequate to produce vegetable growth.
b. The soil material is so shallow that the rooting zone is not deep enough to store adequate moisture and nutrients.
c. The original soil to be vegetated contains material toxic to plant growth.
d. The soil is so acidic that treatment with lime is not feasible.

ii. For the purpose of these Standards and Specifications, areas having slopes steeper than 21 require special consideration and design for adequate stabilization. Areas having slopes steeper than 21 shall have the appropriate stabilization shown on the plans.

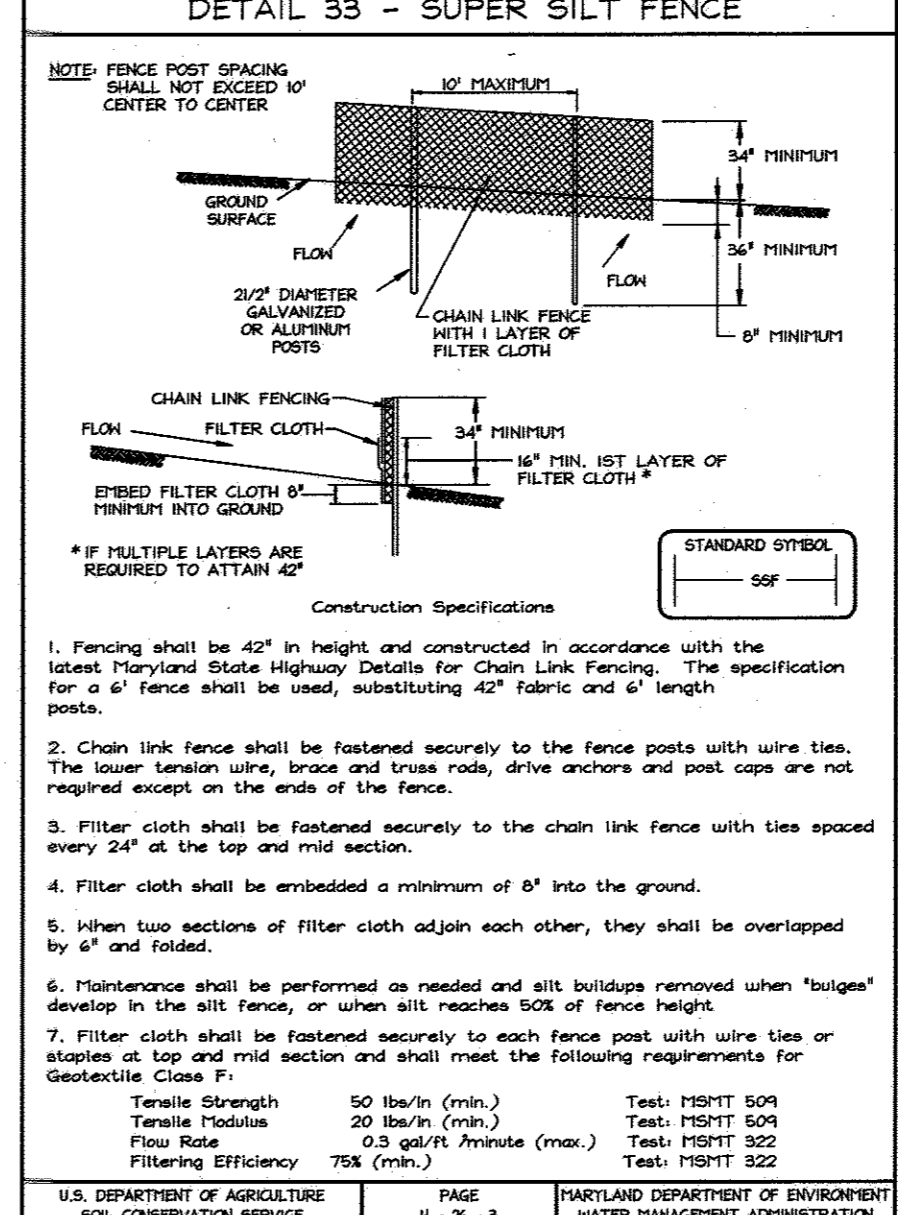
Construction and Material Specifications:
1. Topsoil salvaged from the existing site may be used provided that it meets the standards set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile shown in the Soil Survey published by USDA-NRCS in cooperation with Maryland Agricultural Experiment Station.
2. Topsoil Specifications - Soil to be used as topsoil must meet the following:
a. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand, or other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate authority. Regardless, topsoil shall not be a mixture of contrasting textures and shall contain less than 10% of the following: chert, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 and 1/2" in diameter.
b. Topsoil must be free of plants or plant parts such as Bermuda grass, quackgrass, johnsongrass, ruscus, poison ivy, thistle, or others as specified.
c. Where the subsoil is either highly acidic or composed of heavy clay, ground limestone shall be spread at the rate of 4-8 lbs/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Limestone shall be distributed uniformly over designated areas and worked into the soil to a minimum depth of 4 inches.
d. For sites having disturbed areas under 5 acres:
i. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section 1 - Vegetative Stabilization Methods and Materials.
ii. For sites having disturbed areas over 5 acres:
a. On soil meeting topsoil specifications, apply test results resulting fertilizer and lime as needed to bring the soil into compliance with the following: a pH for topsoil shall be between 6.0 and 6.5; if the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be applied 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 a soil content greater than 500 parts per million shall not be used.
d. No soil 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 phytotoxic materials.
e. Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist, may be used with the appropriate approval authority, may be used in lieu of natural topsoil.
3. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization-Section 1-Vegetative Stabilization Methods and Materials.

v. Topsoil Application
1. 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.
2. Grades on the areas to be topsoiled, which have been previously established, shall be maintained, about 2" - 8" higher in elevation.
3. Topsoil shall be uniformly distributed in a 4" - 6" layer and lightly compacted. The depth of 4" of spreading shall be performed in such a manner that seeding or sodding can be placed immediately after topsoil 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.
4. Topsoil shall not be placed until the topsoil or subsoil is in a frozen or mud condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

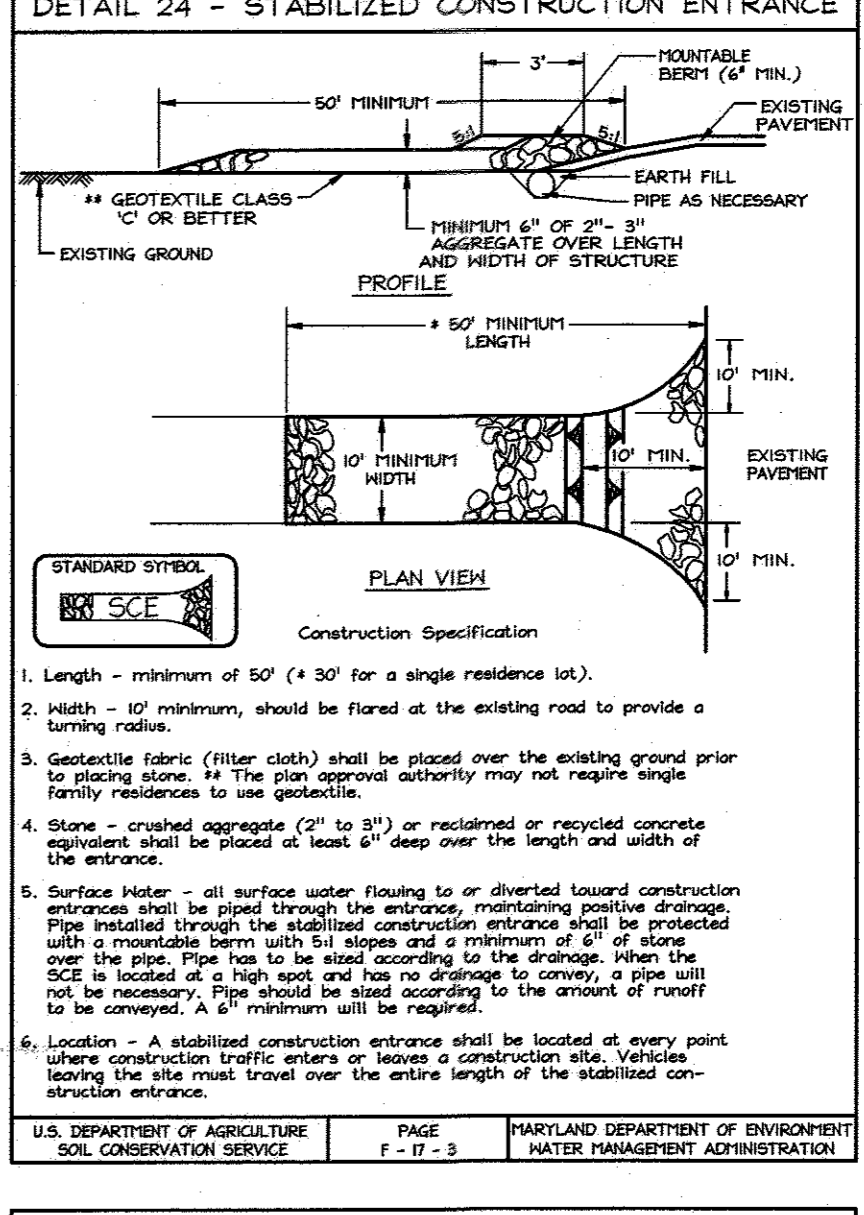
PERMANENT SEEDING NOTES
APPLY TO GRADED OR CLEARED AREAS NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE. MAINTAIN A PERMANENT LONG-LIVED VEGETATIVE COVER IS NEEDED.
SEEDBED PREPARATION: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding, if not previously loosened.
SOIL AMENDMENTS: In lieu of soil test recommendations, use one of the following schedules:
1) Preferred-Apply 2 tons per acre dolomitic limestone (42 lbs/100 sq.ft.) before seeding. Harrow or disc into upper three inches of soil. At the time of seeding, apply 400 lbs. per acre 30-0-0 ureform fertilizer (4 lbs/1000 sq.ft.).
2) Acceptable-Apply 2 tons per acre dolomitic limestone (42 lbs/100 sq.ft.) and 600 lbs. per acre 10-10-10 fertilizer (6 lbs/1000 sq.ft.) before seeding. Harrow or disc into upper three inches of soil.
SEEDING: For the periods March 1 thru April 30, and August 1 thru October 15, seed with 2 1/2 bushel per acre of annual ryegrass (3.2 lbs./1000 sq.ft.) For the period Nov. 1 thru August 31, seed with 3 lbs. per acre of seeding mixtures (07 lbs./1000 sq.ft.). For the period November 1 thru February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring. Option (2) Use soil. Option (3) Seed with 60 lbs/acre Kentucky 31 Tall Fescue and match with 2 tons/acre well anchored straw.
MULCHING: Apply 1 1/2 to 2 tons per acre (70 to 90 lbs./1000 sq.ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 200 gallons per acre (5 gal/1000 sq.ft.) of emulsified asphalt on flat areas. On slopes 5 feet or higher, use 340 gallons per acre (8 gal/1000 sq.ft.) for anchoring.
MAINTENANCE: Inspect all seeded areas and make needed repairs, replacements and reseeding.

TEMPORARY SEEDING NOTES
SEEDBED PREPARATION: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding, if not previously loosened.
SOIL AMENDMENTS: Apply 600 lbs. per acre 10-10-10 fertilizer (6 lbs/1000 sq.ft.).
SEEDING: For periods March 1 thru April 30, and August 15 thru November 15, seed with 2 1/2 bushel per acre of annual ryegrass (3.2 lbs./1000 sq.ft.) For the period Nov. 1 thru August 31, seed with 3 lbs. per acre of seeding mixtures (07 lbs./1000 sq.ft.). For the period November 1 thru February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring. Option (2) Use soil. Option (3) Seed with 60 lbs/acre Kentucky 31 Tall Fescue and match with 2 tons/acre well anchored straw.
MULCHING: Apply 1 1/2 to 2 tons per acre (70 to 90 lbs./1000 sq.ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 200 gallons per acre (5 gal/1000 sq.ft.) of emulsified asphalt on flat areas. On slopes 5 feet or higher, use 340 gallons per acre (8 gal/1000 sq.ft.) for anchoring.
REFER TO THE 1994 HARTLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.

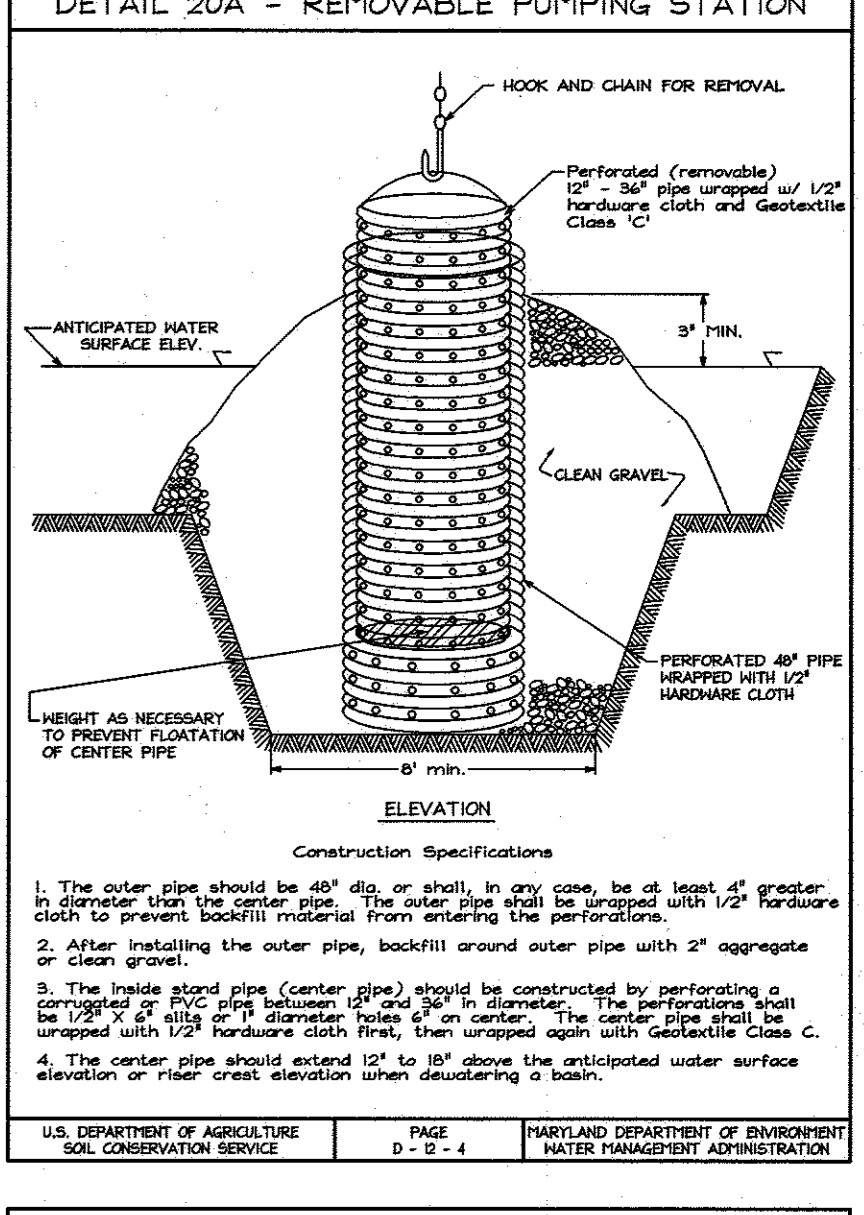
DETAIL 33 - SUPER SILT FENCE



DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE

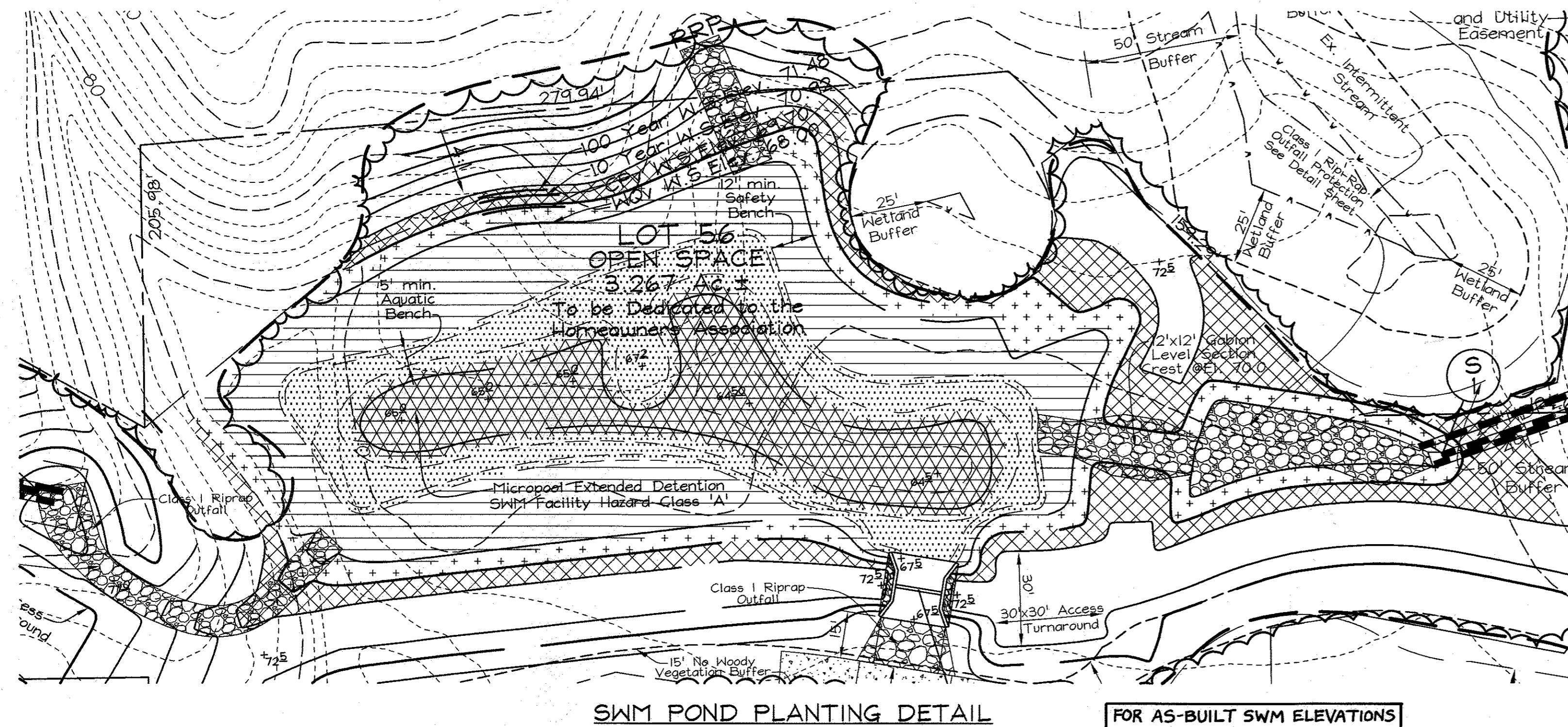


DETAIL 20A - REMOVABLE PUMPING STATION



LEGEND

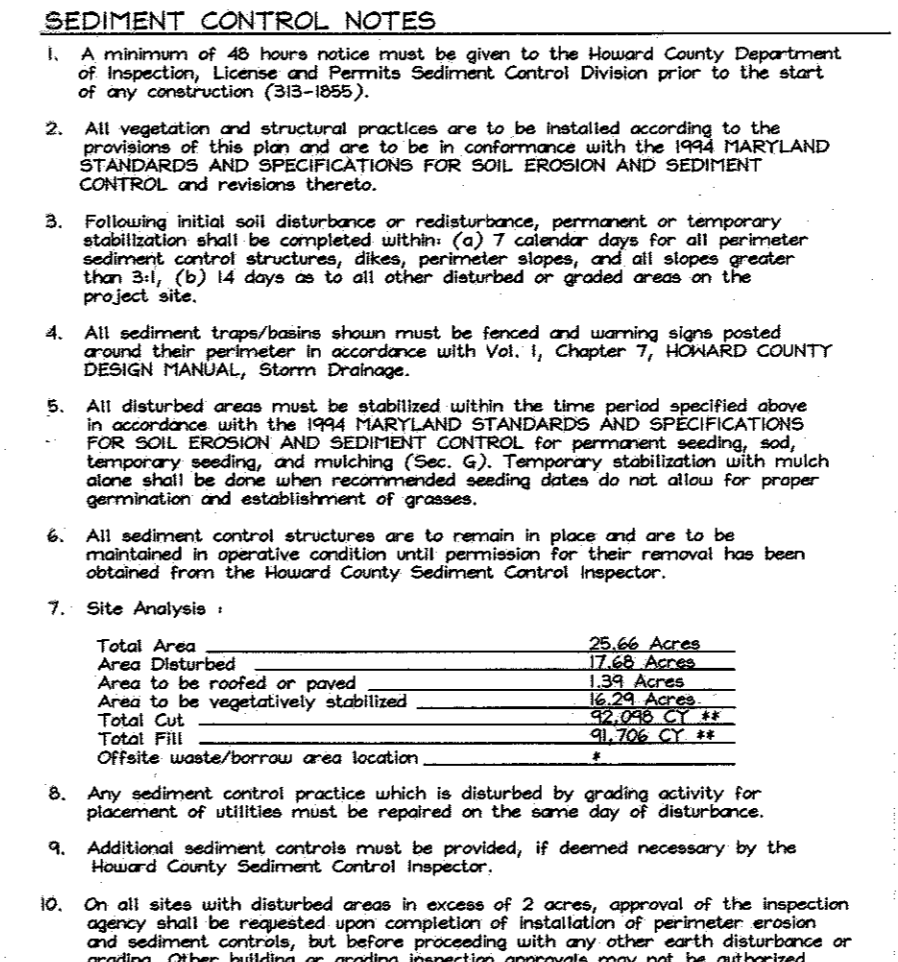
- (SWM Facility Hydrologic Zones Planting Requirements)
- Zone 1 - 6406 s.f. - 12"-36" depth below normal pool elevation. Pickleweed, Deep Water Duck Potato, Sag Pond Plant, Wild Celery, Redhead Grass. Plugs or bare root at 24" centers.
 - Zone 2 - 7177 s.f. - 0"-12" depth below normal pool elevation. Blue Flag Iris, Duck Potato, Flowering Bulrush, Soft Rush, Sedges, Lelia, Pond Cypress, various asters. Plugs or bare root at 24" centers.
 - Zone 3 - 11236 s.f. - 0"-12" elevation above normal pool elevation. New England Aster, Marsh Aster, Marsh Marigold (Appalachian Plateau), Tussock Sedge, Spotted Joe Pye Weed, Forget Me Not, Inkberry, Purple, Red Osier Dogwood, Seed Mix Only.
 - Zone 4 - 4488 s.f. - 1' to Cpv water surface elevation. Purple Cone Flower, Birds Foot Trefoil, Slender Rush, Deer Tongue Grass, Lespedeza, Switch Grass, Serviceberry, Gray Birch, Hackberry, Sweet Pepper, Bush (Coastal Plain), Gray Stern Dogwood, Red Osier Dogwood, Green Ash, Seed Mix with potted stock (No trees/shrubs on dam slopes).*
 - Zone 5 - Cpv to Qp100 water surface elevation (many wildflowers and native grasses). American Holly, Kitch Hazel, Ninesbark, Red Oak, American Elderberry, American Hemlock, Loubush, Blueberry, Maple Leaf Viburnum, Nannyberry, Blackhaw Viburnum, Seed Mix with potted stock (No trees/shrubs on dam slopes).*
 - Zone 6 - Qp100 water surface elevation and above. This area will be planted, where necessary, as part of forest conservation obligations. Many Natives. All species must be able to tolerate flood plain conditions. Native Grasses, Seed Mix with potted stock (No trees/shrubs on dam slopes).*
- * Plant mix of 3 potted stock species at density of 2 / 1000 s.f. area.



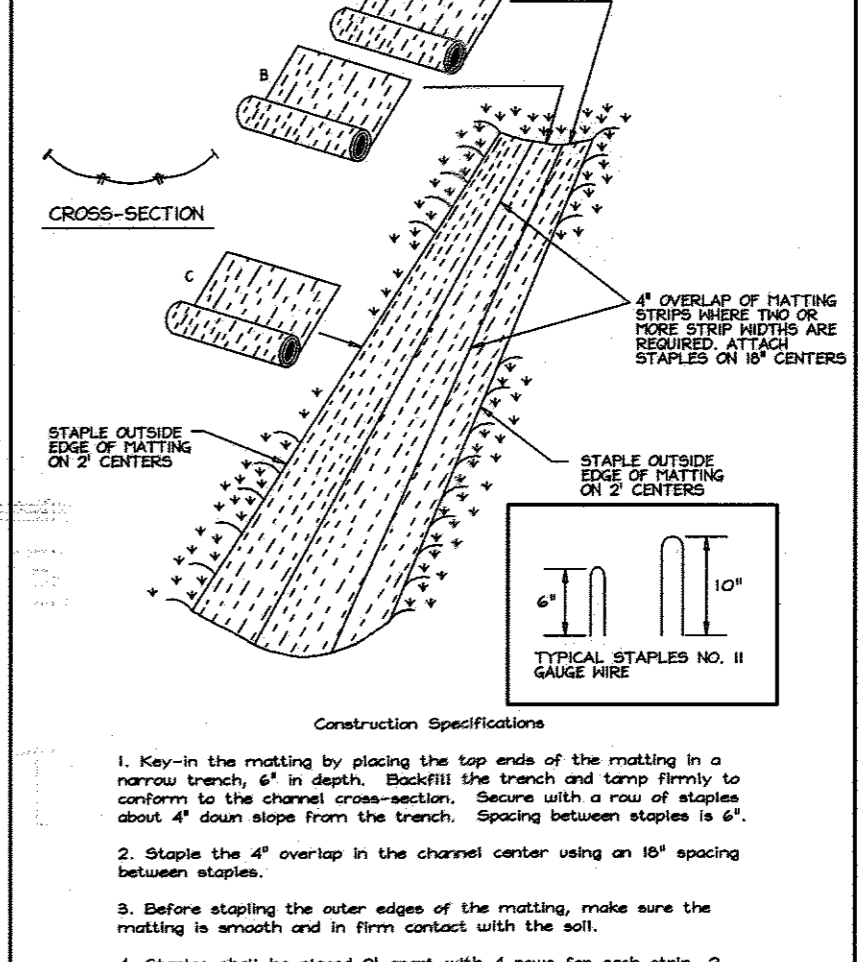
SEDIMENT CONTROL NOTES

- A minimum of 48 hours notice must be given to the Howard County Department of Inspection, License and Permits Sediment Control Division prior to the start of any construction (SIS-185).
- All vegetation and structural practices are to be installed according to the provisions of this plan and are to be in compliance with the 1994 HARTLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
- Following initial soil disturbance or re-disturbance, permanent or temporary stabilization shall be installed within (a) 7 calendar days for permanent sediment control structures, dikes, perimeter slopes, and all slopes greater than 5:1 and (b) 14 days to all other disturbed or graded areas on the project site.
- All sediment traps/basins shown must be finished and warning signs posted prior to their placement in accordance with Vol. 1, Chapter 7, HARTLAND COUNTY DESIGN MANUAL, Storm Drainage.
- All disturbed areas must be stabilized within the three period specified above in accordance with the 1994 HARTLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding, sodding, temporary seeding, and mulching (Sec. 6). Temporary stabilization with mulch alone shall be done when recommended seeding rates do not allow for proper germination and establishment of grass.
- All sediment control structures are to remain in place and are to be maintained in operative condition until their removal has been obtained from the Howard County Sediment Control Inspector.
- Site Analysis:
Total Area: 26.64 Acres
Area Disturbed: 17.85 Acres
Area to be roofed or paved: 1.31 Acres
Area to be vegetatively stabilized: 8.48 Acres
Total Cut: 17.85 Acres
Total Fill: 31.58 AC +/-
Offsite waste/borrow area location: 2
- 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.
- All disturbed areas with slopes in excess of 2:1, 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 disturbances or grading. Any building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.
- Trenches for the construction of utilities is limited to three pipe lengths or that which shall be back-filled and stabilized within one working day, whichever is shorter.
- To be determined by contractor, pre-approval of the Sediment Control Inspector with an approved and active grading permit.
- Total cut and fill quantities are for permit purposes only. Contractor to verify earthwork quantities.

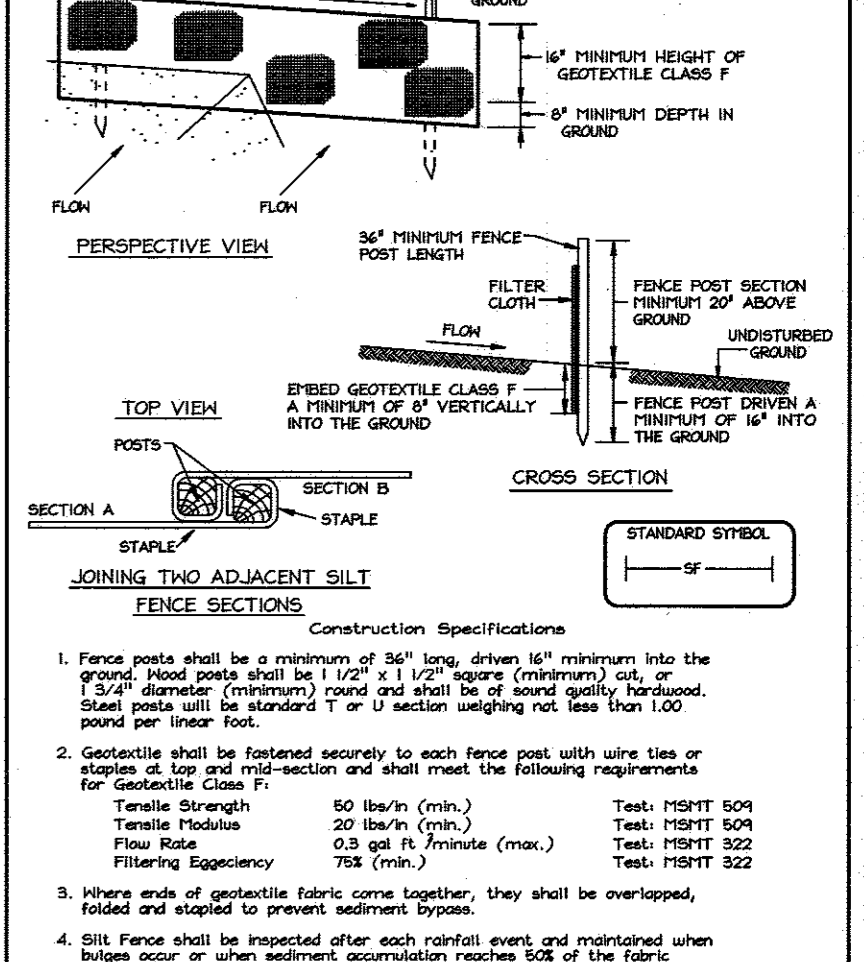
TRASH RACK DETAIL



DETAIL 30 - EROSION CONTROL MATTING



DETAIL 22 - SILT FENCE



SEDIMENT BASIN SCHEDULE (CS-1)

Drainage Area 22.23 Ac.
Storage Required 40,014 cu.ft. wet & dry
Storage Provided 40,014 cu.ft. wet & dry
Weir Length 15' lat.
Bottom Elevation: 64.5
Cleanout Elevation: 67.5
Embankment Elevation: 73.0 (constructed)
Net Storage Elevation: 68.48
Dry Storage Elevation: 70.20
Q Existing: 12.17 CFS
Q Proposed: 8.65 CFS @ elevation 70.44
Q Existing: 66.51 CFS
Q Proposed: 52.77 CFS @ elevation 71.78

NOTES FOR TEMPORARY TRASH RACK

- To be used on Temporary Weir during Sediment Basin Phase only.
- Steel to conform to ASTM A-36.
- All surfaces to be coated with ZRC cold galvanizing compound after welding.
- Trash rack to be fastened to wall with 1/2" masonry anchors. Trash rack to be removable.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
4/13/07
CHIEF, DIVISION OF LAND DEVELOPMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
4-14-07
CHIEF, BUREAU OF HIGHWAYS

DEVELOPER'S CERTIFICATE
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3-23-07
SIGNATURE OF DEVELOPER
RICHMOND AMERICAN HOMES OF MARYLAND, INC.

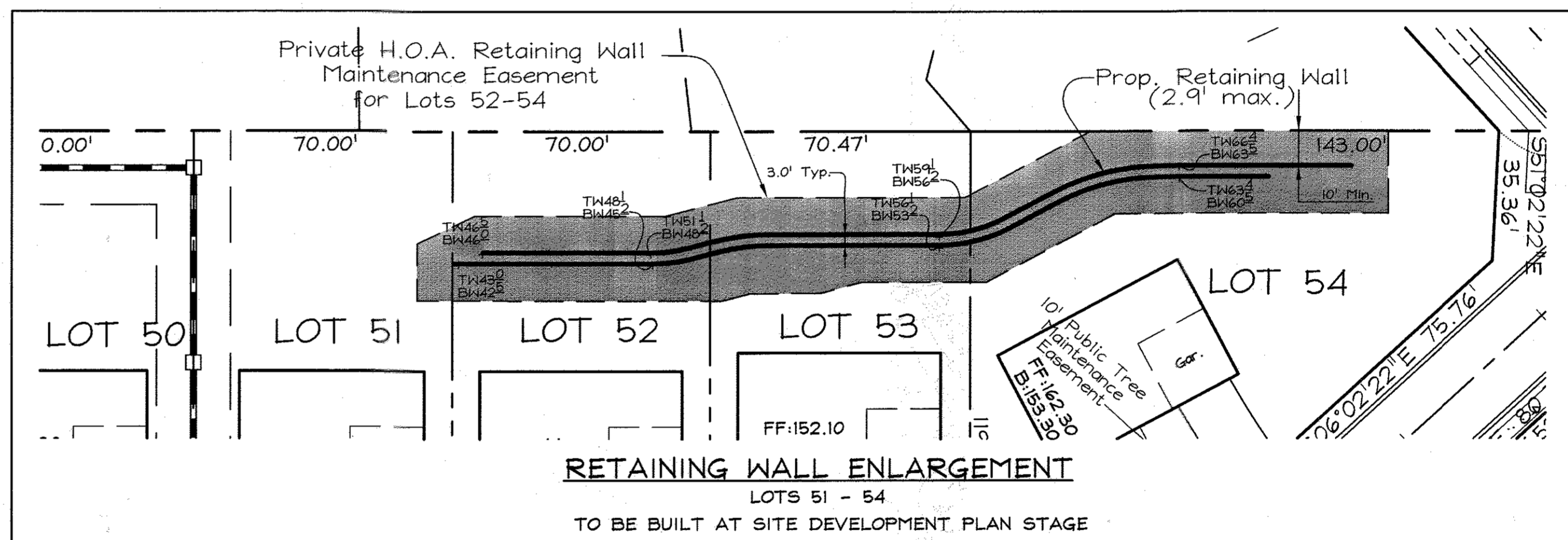
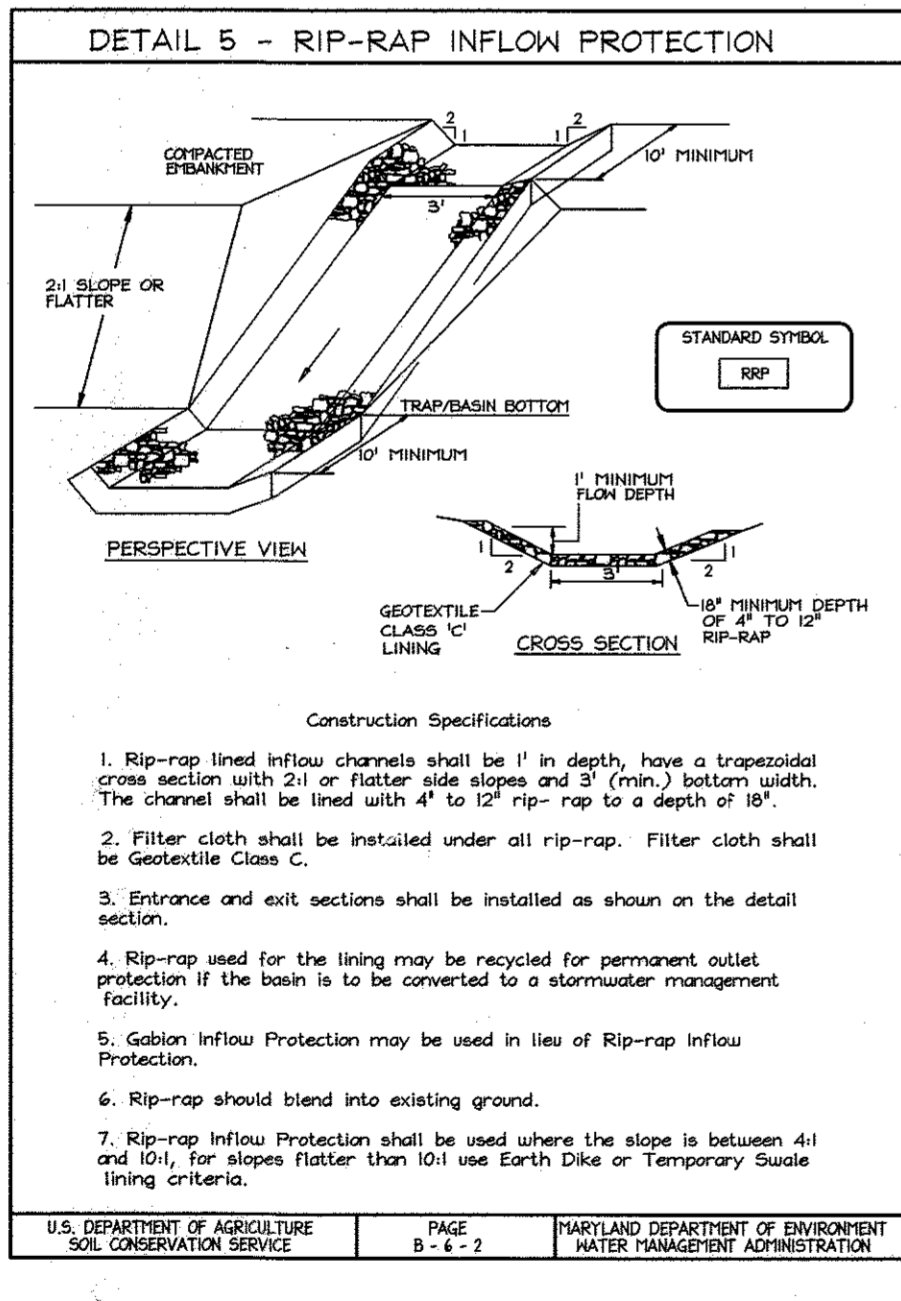
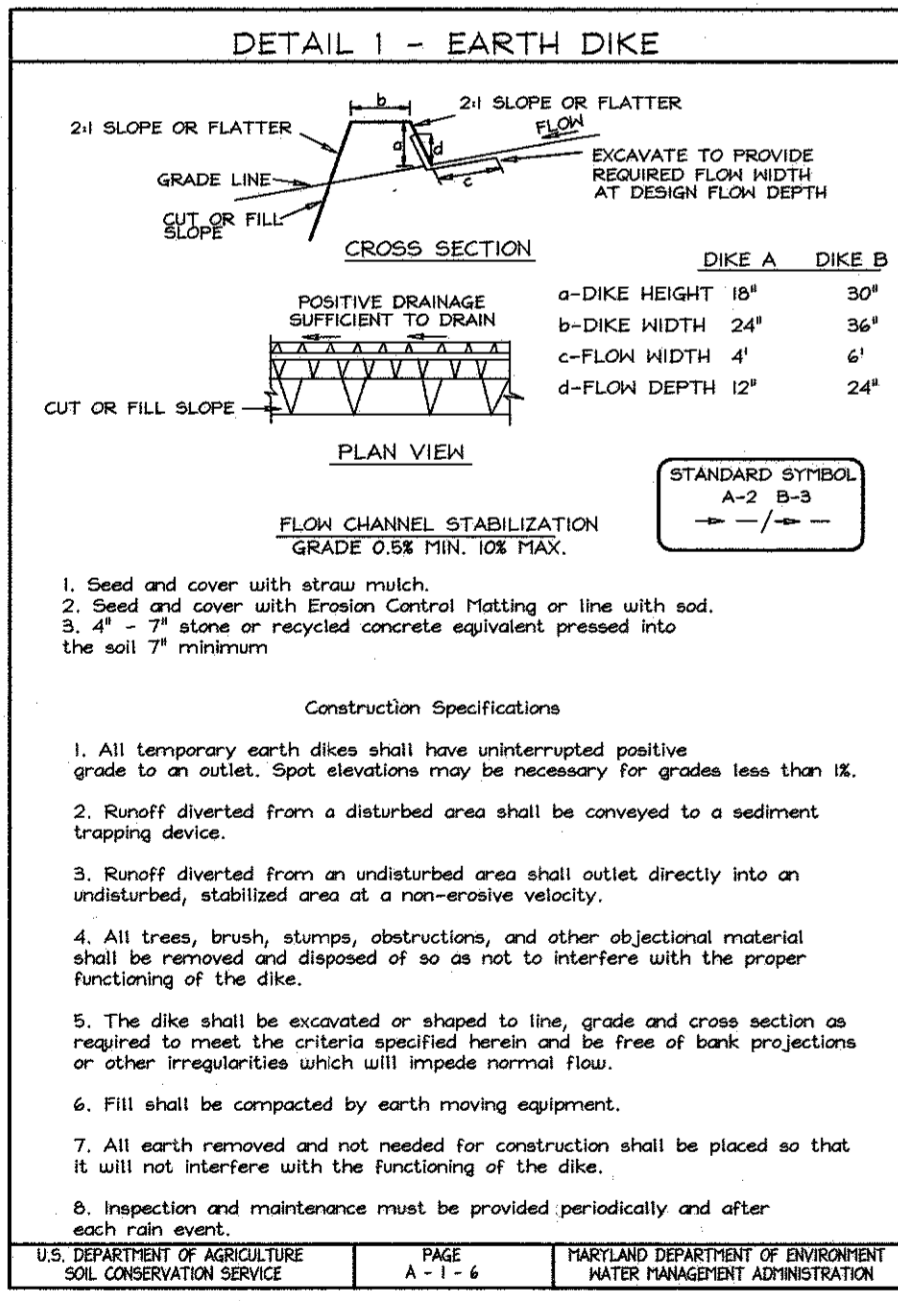
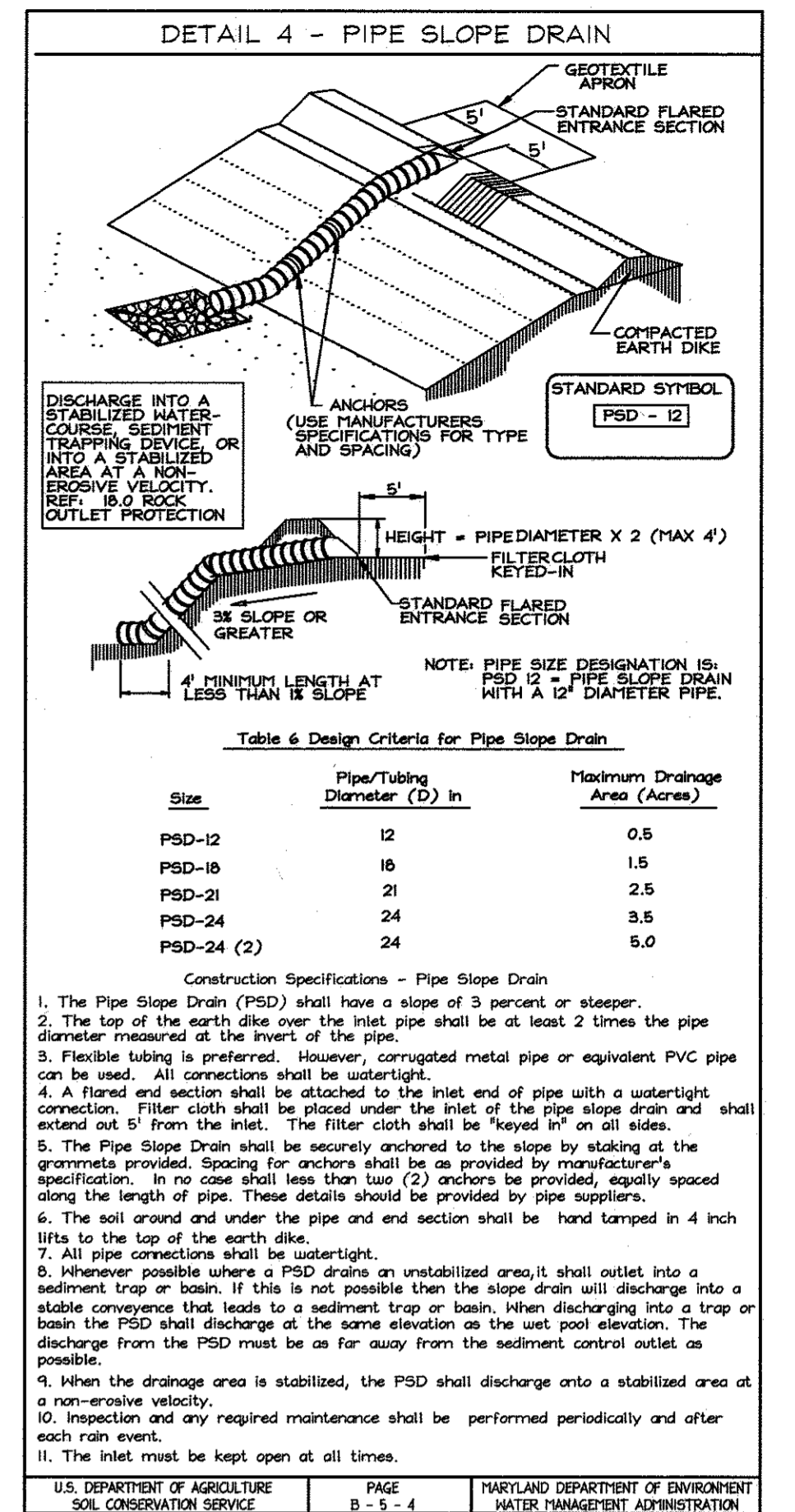
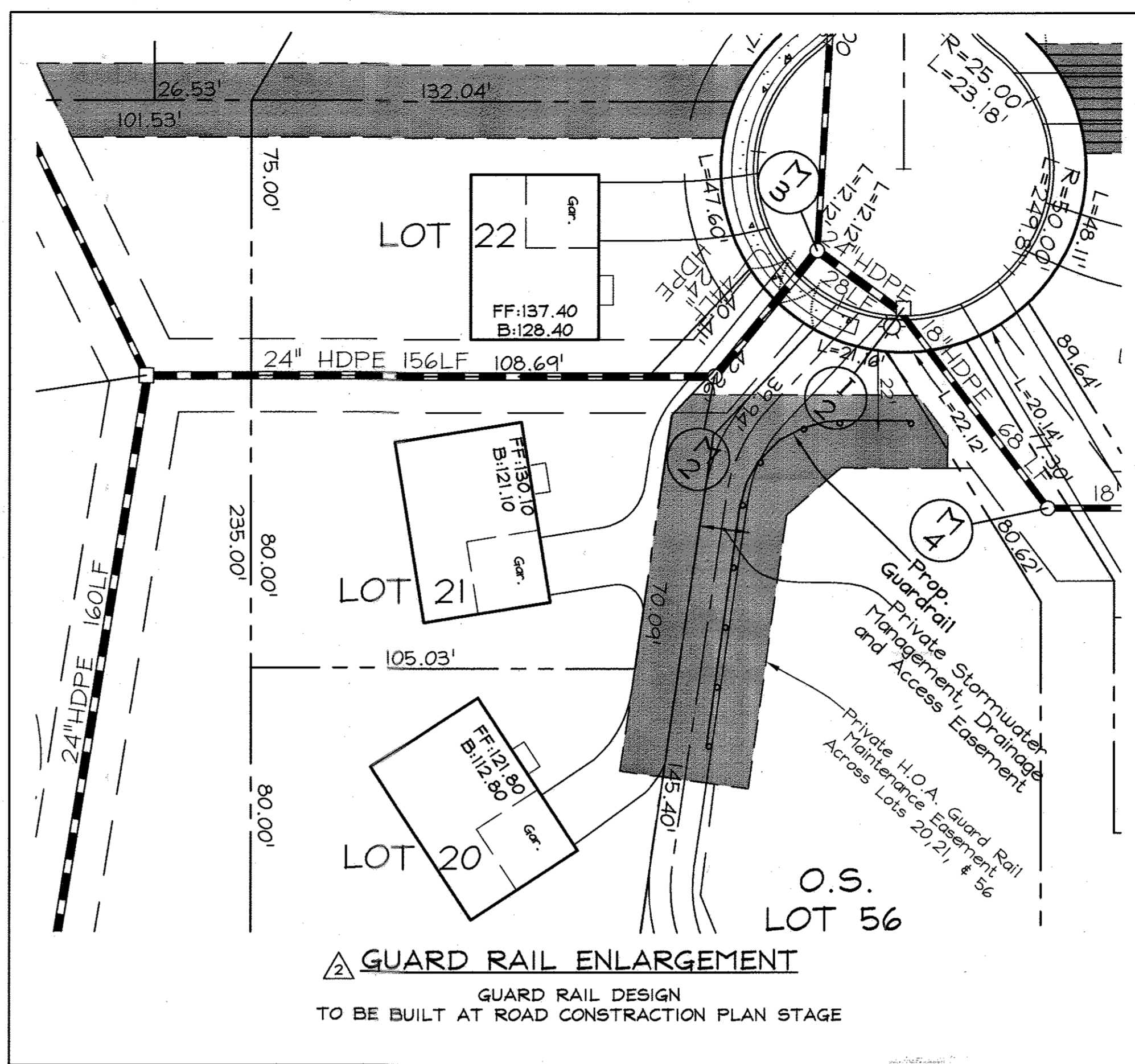
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3-23-07
SIGNATURE OF ENGINEER
ZACHARIA Y. FISCH

THESE PLANS HAVE BEEN REVIEWED FOR HOWARD COUNTY CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.
4/14/07
DATE
4/14/07
DATE
HOWARD COUNTY CONSERVATION DISTRICT

SEDIMENT AND EROSION CONTROL AND SWM POND NOTES AND DETAILS
HUNTERS RIDGE
LOTS 1 THRU 4, 18 THRU 54, 60 THRU 72
OPEN SPACE LOTS 55 THRU 59 & 73
AND A RESUBDIVISION OF BULK PARCEL 'C'
WESLEY WOODS, SECTION 1, PLAT NO. 14926
TAX MAP 36 GRIDS 4 & 10 PARCEL 163
1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER
Richmond American Homes of Maryland, Inc.
6200 Old Dobbin Lane
Columbia, Md 21045
410.872.0267

DESIGN BY: KO
DRAWN BY: KO
CHECKED BY: ZYF
SCALE: As Shown
DATE: Mar. 21, 2007
P.L.O. No.: 9018
SHEET No. 1 OF 20



OWNER/DEVELOPER
 Richmond American Homes of Maryland, Inc.
 6200 Old Dobbin Lane
 Columbia, Md 21045
 410.872.0267

RETAINING WALL ENLARGEMENTS and SEDIMENT AND EROSION CONTROL DETAILS HUNTERS RIDGE
 LOTS 1 THRU 4, 18 THRU 54, 60 THRU 72
 OPEN SPACE LOTS 55 THRU 59 & 73
 AND A RESUBDIVISION OF BULK PARCEL 'C'
 HESLEY WOODS, SECTION 1, PLAT NO. 14926
 TAX MAP 36 GRIDS 4 & 10 PARCEL 163
 1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 4/19/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.
 [Signature] 4-16-07
 CHIEF, BUREAU OF HIGHWAYS DATE

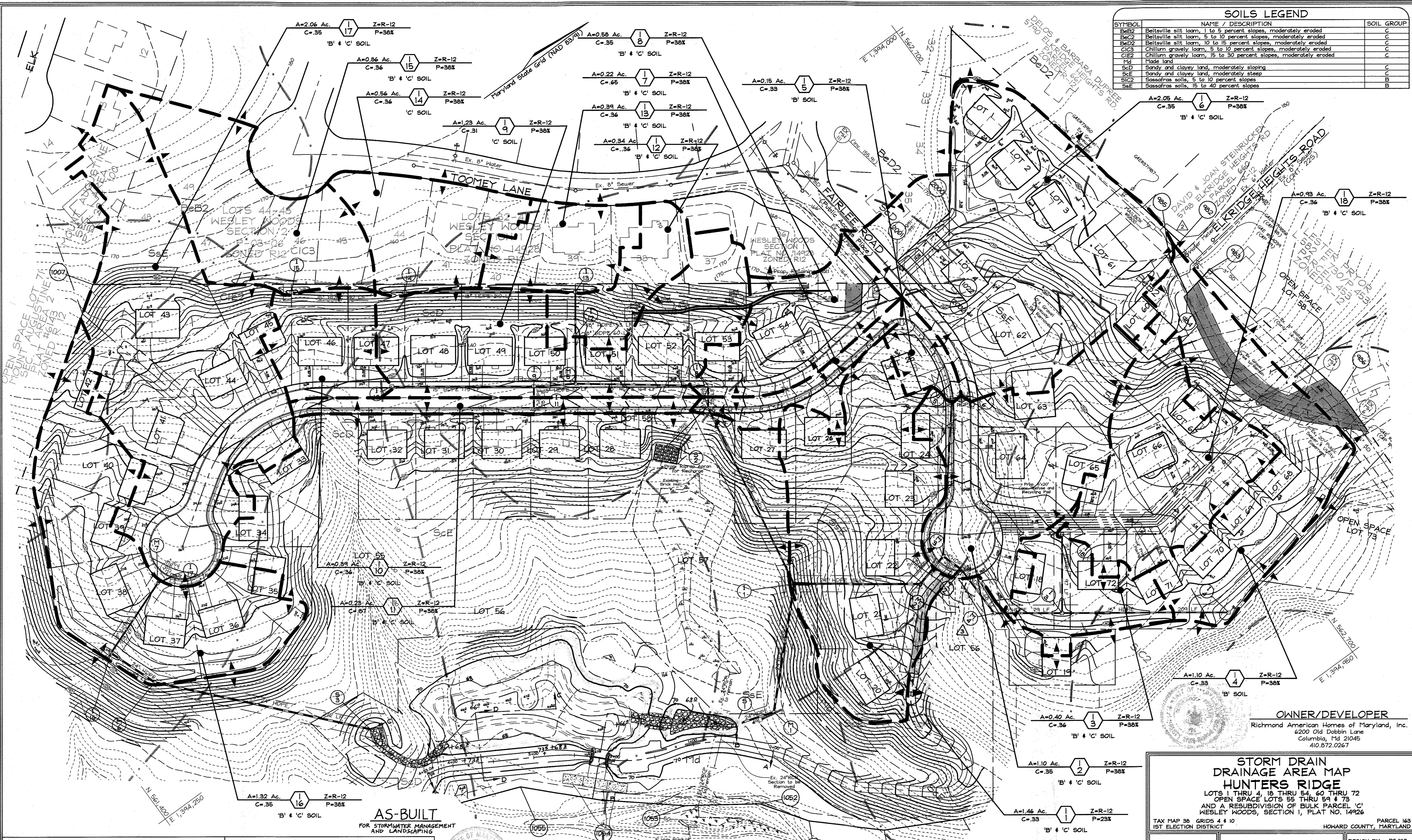
Note: THIS SHEET SUPERSEDES PREVIOUS PLAN SIGNED SEPTEMBER 2004.

No.	Revisions	Date
1	Removed Retaining Wall Enlargement Details. Relabeled Easement.	02/12/2007
2	Revised Lot Areas for Lots 35 thru 39, 55 and 56; Revised BRL on Lots 1 thru 3, 11, 15, 16, 19, thru 21 and 42; Revised Forest Conservation Easement Areas; Added Lot 58.	02/28/2005

DESIGN BY: PS/KO
 DRAWN BY: MM/KO
 CHECKED BY: ZYF
 SCALE: 1"=30'
 DATE: Jan 23, 2007
 N.O. No.: 3018
 SHEET No. 8 OF 20

FSH Associates
 Engineers Planners Surveyors
 8318 Forest Street, Ellicott City, MD 21043
 Tel: 410-750-2251 Fax: 410-750-7550
 E-mail: FSHAssociates@cs.com

SOILS LEGEND		
SYMBOL	NAME / DESCRIPTION	SOIL GROUP
BsB2	Beltville silt loam, 1 to 5 percent slopes, moderately eroded	C
Bc2	Beltville silt loam, 5 to 10 percent slopes, moderately eroded	C
Be2	Beltville silt loam, 10 to 15 percent slopes, moderately eroded	C
CiC3	Chillum gravelly loam, 5 to 10 percent slopes, moderately eroded	C
CiE2	Chillum gravelly loam, 15 to 30 percent slopes, moderately eroded	C
Tz4	Tide land	C
Sd	Sandy and clayey land, moderately steep	C
ScE	Sandy and clayey land, moderately steep	C
Sic2	Sassafras soils, 5 to 10 percent slopes	B
SeE	Sassafras soils, 15 to 40 percent slopes	B



OWNER/DEVELOPER
 Richmond American Homes of Maryland, Inc.
 6200 Old Dobbin Lane
 Columbia, Md 21045
 410.872.0267

STORM DRAIN DRAINAGE AREA MAP HUNTERS RIDGE
 LOTS 1 THRU 4, 18 THRU 54, 60 THRU 72
 OPEN SPACE LOTS 55 THRU 59 & 73
 AND A RESUBDIVISION OF BULK PARCEL 'C' WESLEY WOODS, SECTION 1, PLAT NO. 14926

TAX MAP 38 GRIDS 4 & 10
 1ST ELECTION DISTRICT

PARCEL 163
 HOWARD COUNTY, MARYLAND

FSH Associates
 Engineers Planners Surveyors
 8318 Forest Street Elicott City, MD 21043
 Tel: 410-750-2251 Fax: 410-750-7350
 E-mail: FSHAssociates@cs.com

DESIGN BY: PS/KO
 DRAWN BY: MM/KO
 CHECKED BY: ZYF
 SCALE: 1"=50'
 DATE: Mar. 21, 2007
 M.O. No.: 301B
 SHEET No.: 9 OF 20

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

C. Bate 4/19/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

A. Bate 4/19/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

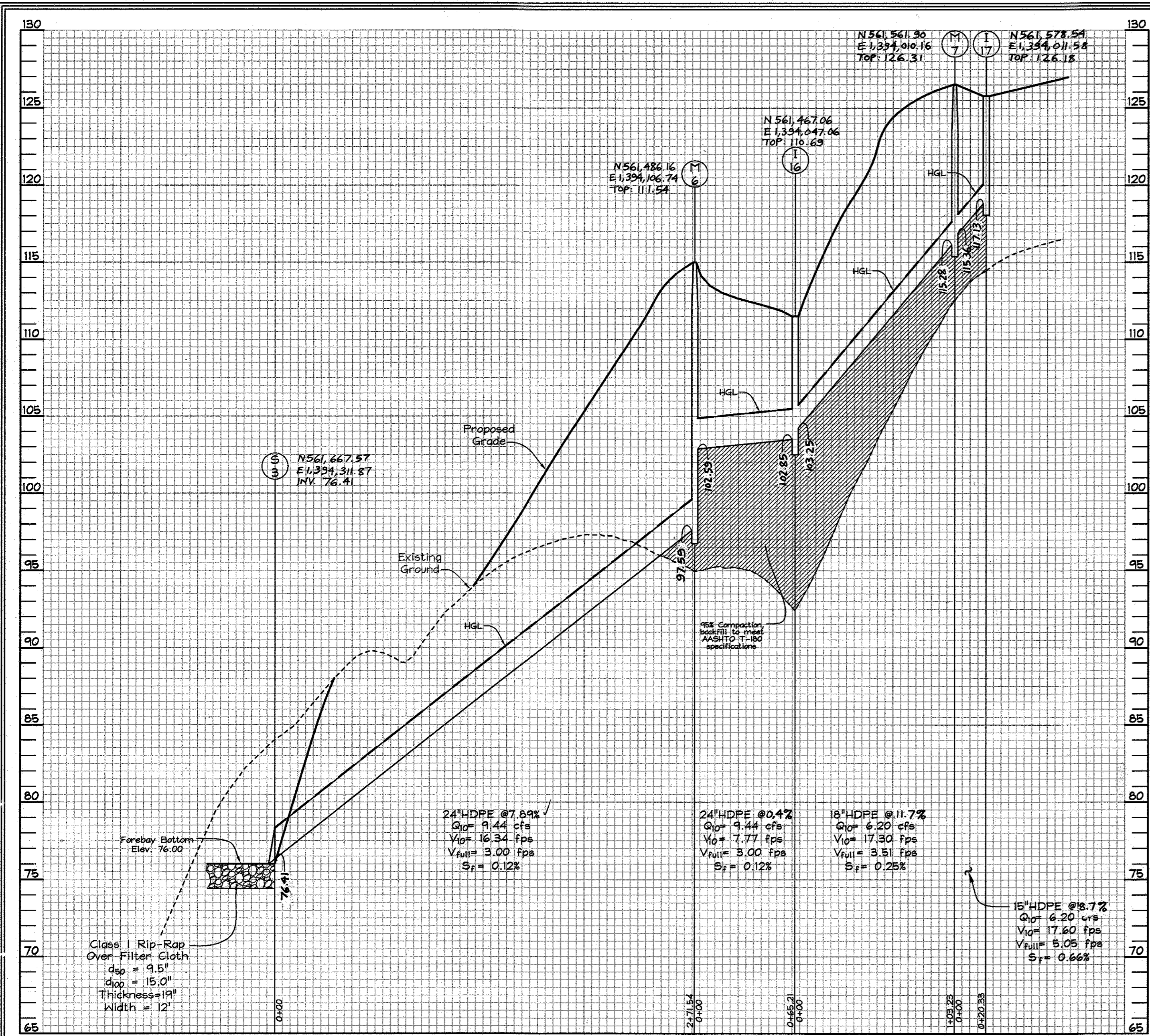
William T. Washburn 4-16-07
 CHIEF, BUREAU OF HIGHWAYS DATE

AS-BUILT
 FOR STORMWATER MANAGEMENT AND LANDSCAPING

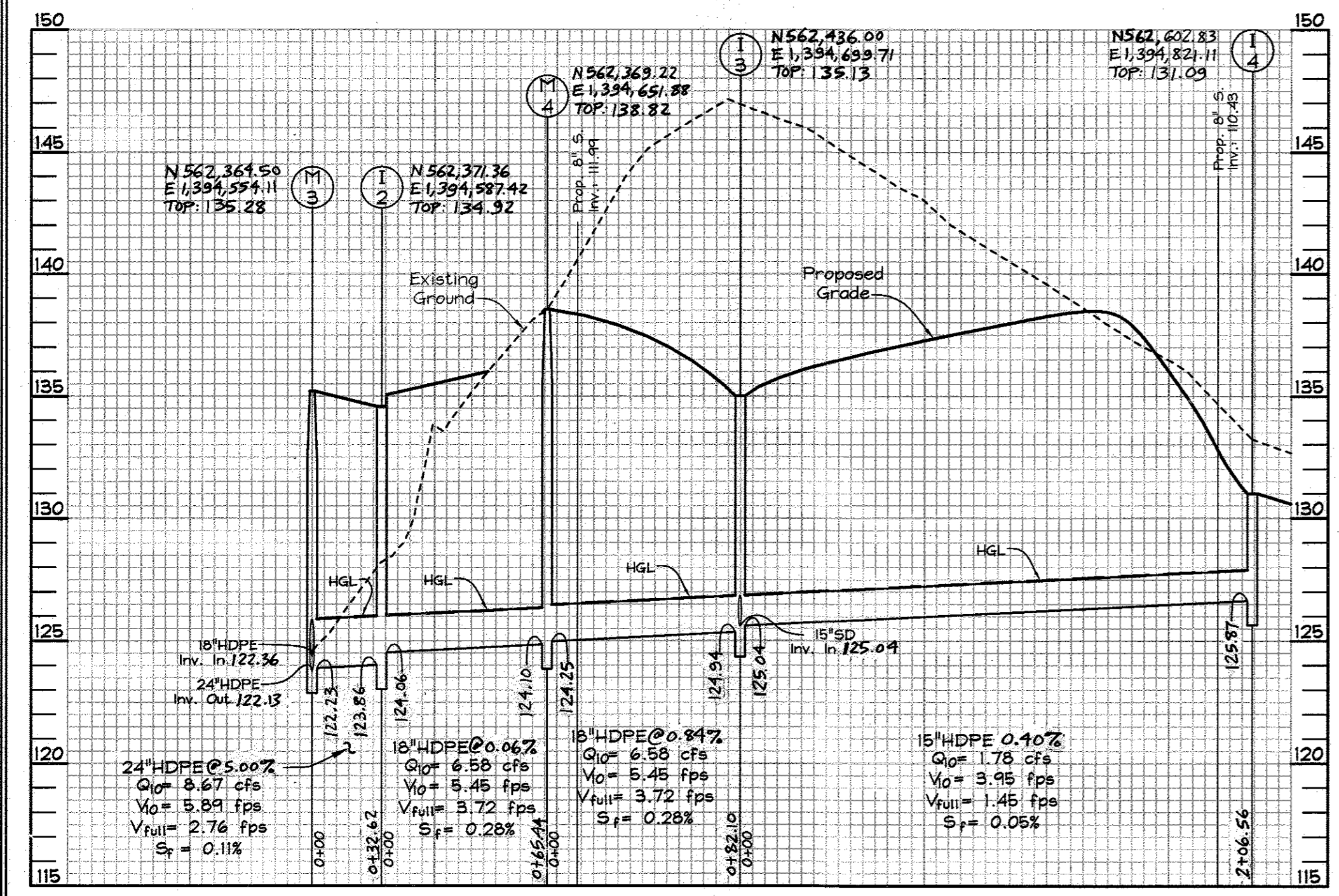
Zacharia Y. Fisch 12/17/13
 ZACHARIA Y. FISCH DATE
 PE # 22413

NOTES
 THIS SHEET SUPERSEDES PREVIOUS PLAN SIGNED SEPTEMBER 2004.

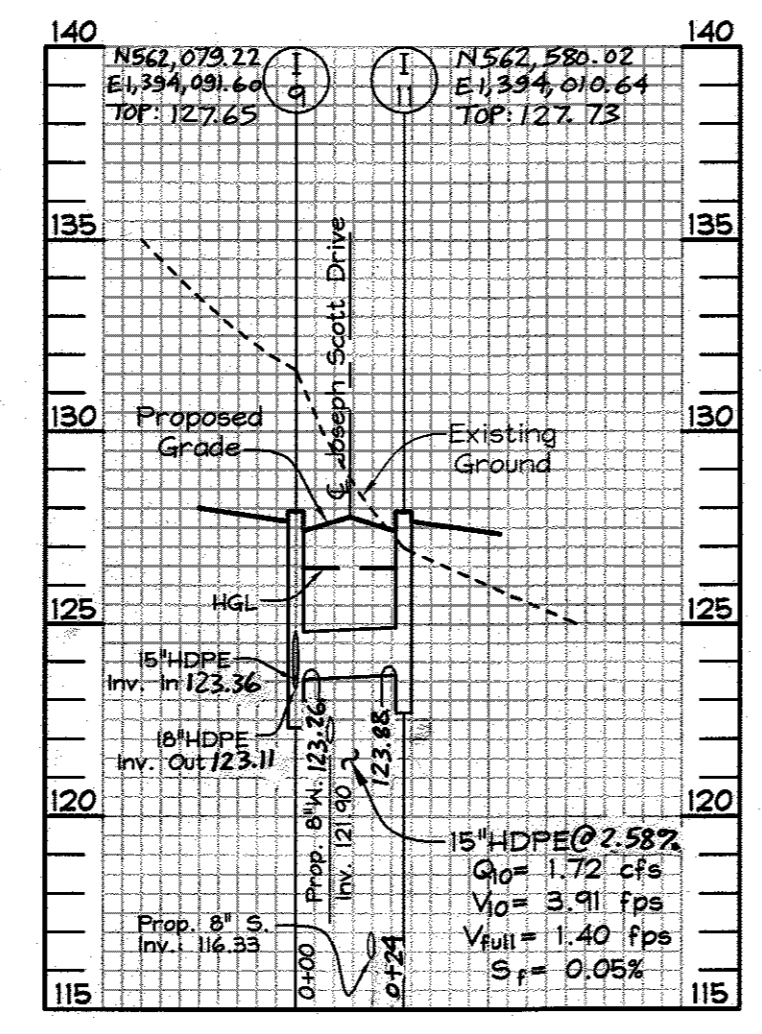
No.	Revisions	Date
1	UPDATED GRADING & REMOVED GUARDRAIL	9/23/2013
2	Revised Lots and Lot Numbers. Revised Drainage Divides. Deleted Retaining Walls and Easements. Re-Subdivided Lot 5. Revised Easements.	02/12/2007
3	Revised Lot Areas for Lots 55 thru 59, 66 and 67; Revised SBL on Lots 1 thru 3, 11, 15, 16, 18 thru 21 and 42; Revised Forest Conservation Easement Areas; Added Lot 58.	02/25/2006



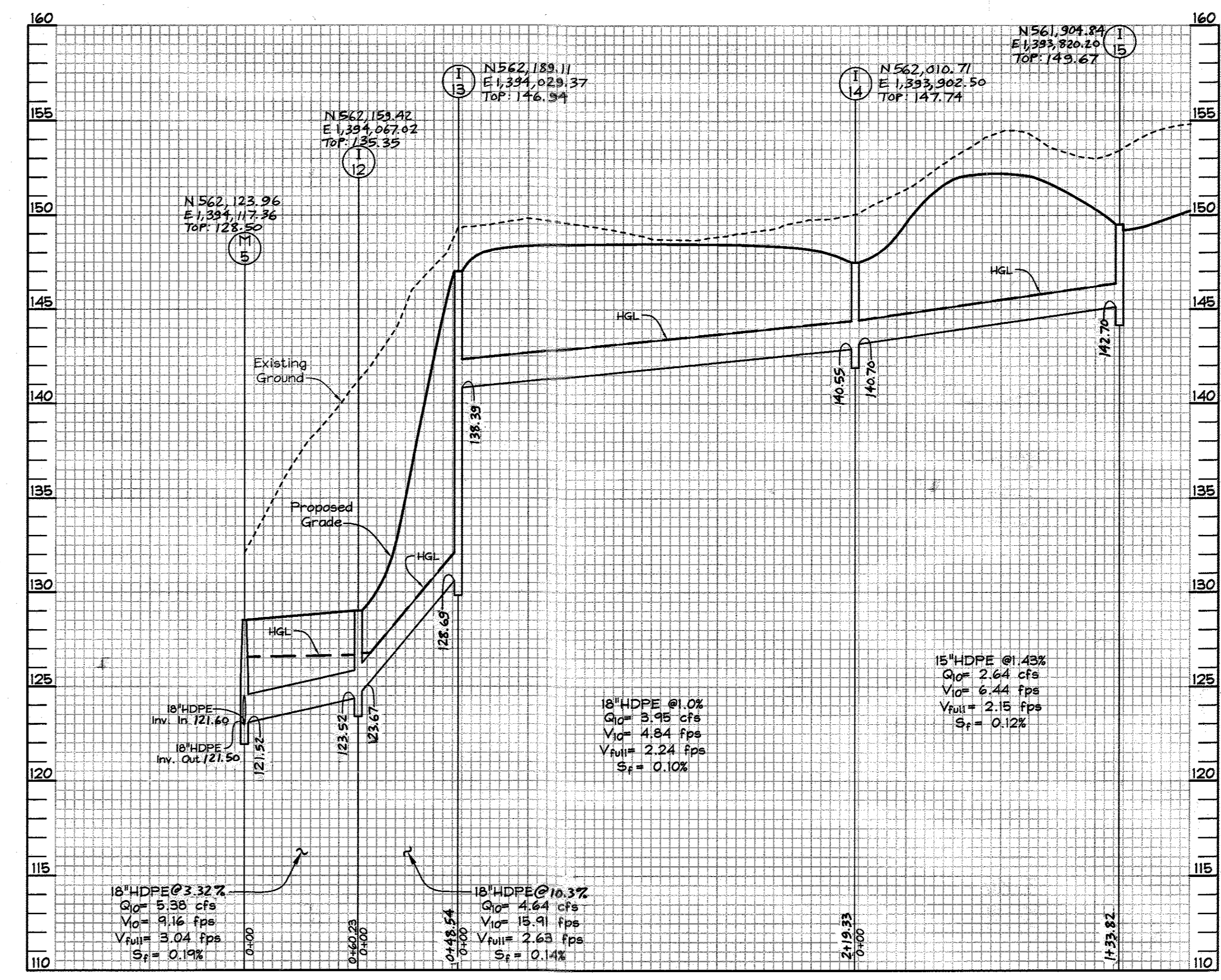
STORM DRAIN PROFILE
SCALE: HOR.: 1"=50'
VERT.: 1"=5'



STORM DRAIN PROFILE
SCALE: HOR.: 1"=50'
VERT.: 1"=5'

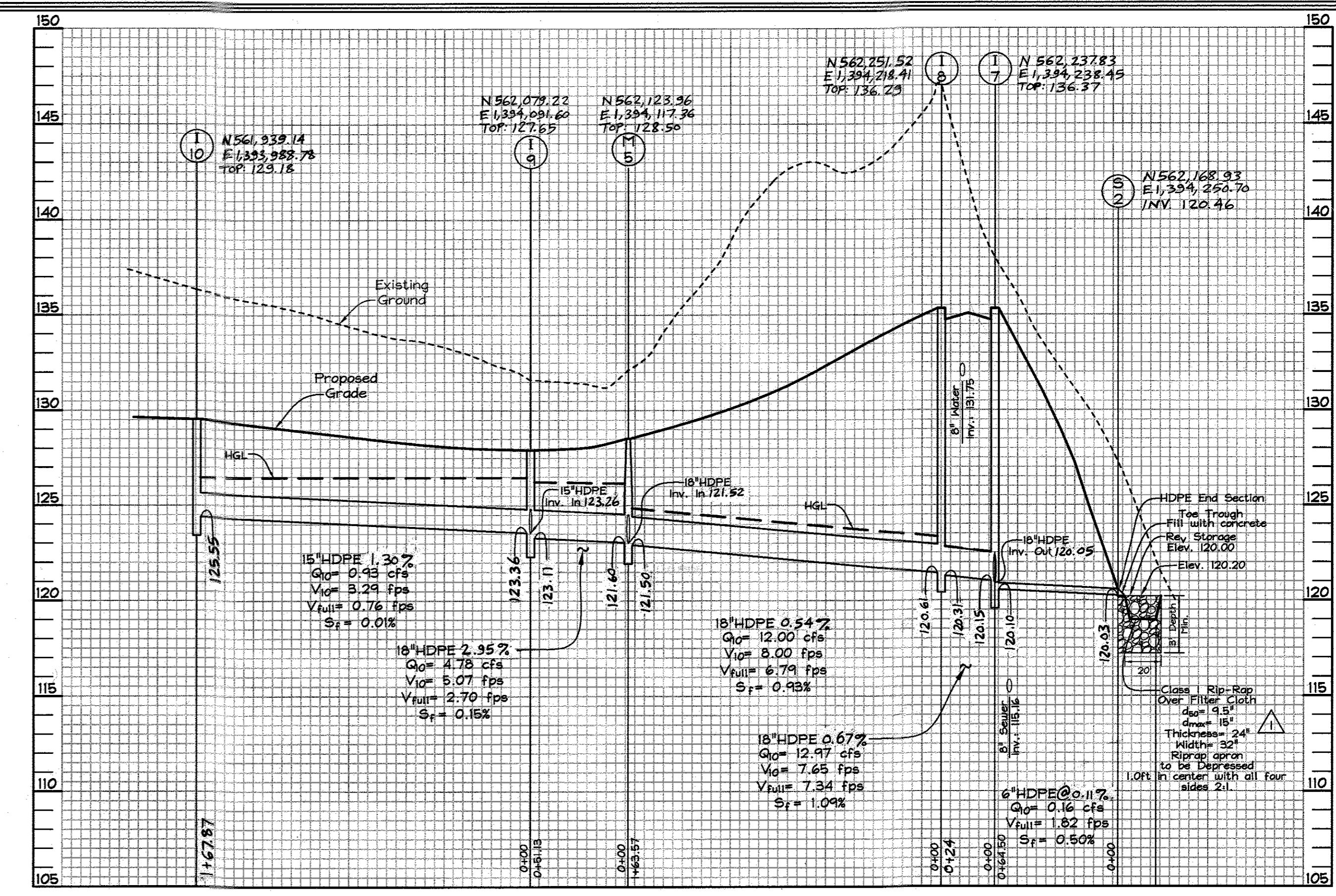


STORM DRAIN PROFILE
SCALE: HOR.: 1"=50'
VERT.: 1"=5'



STORM DRAIN PROFILE
SCALE: HOR.: 1"=50'
VERT.: 1"=5'

Note: THIS SHEET SUPERSEDES PREVIOUS PLAN SIGNED SEPTEMBER 2004.



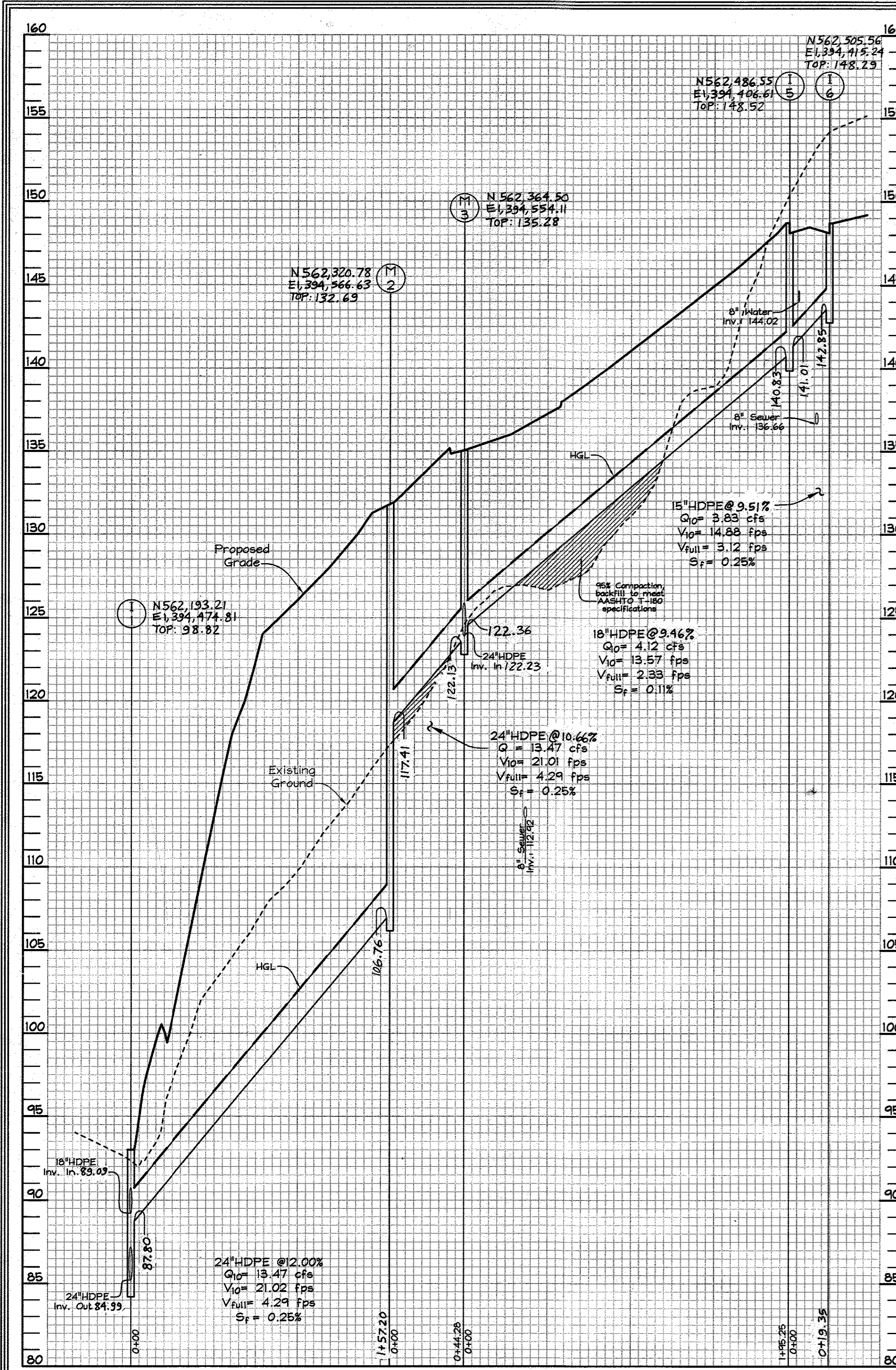
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SCALE: HOR.: 1"=50'
VERT.: 1"=5'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
C. Williams 4/19/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE
W. J. Miller 2/19/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE
 APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
W. J. Miller 4-16-07
 CHIEF, BUREAU OF HIGHWAYS DATE

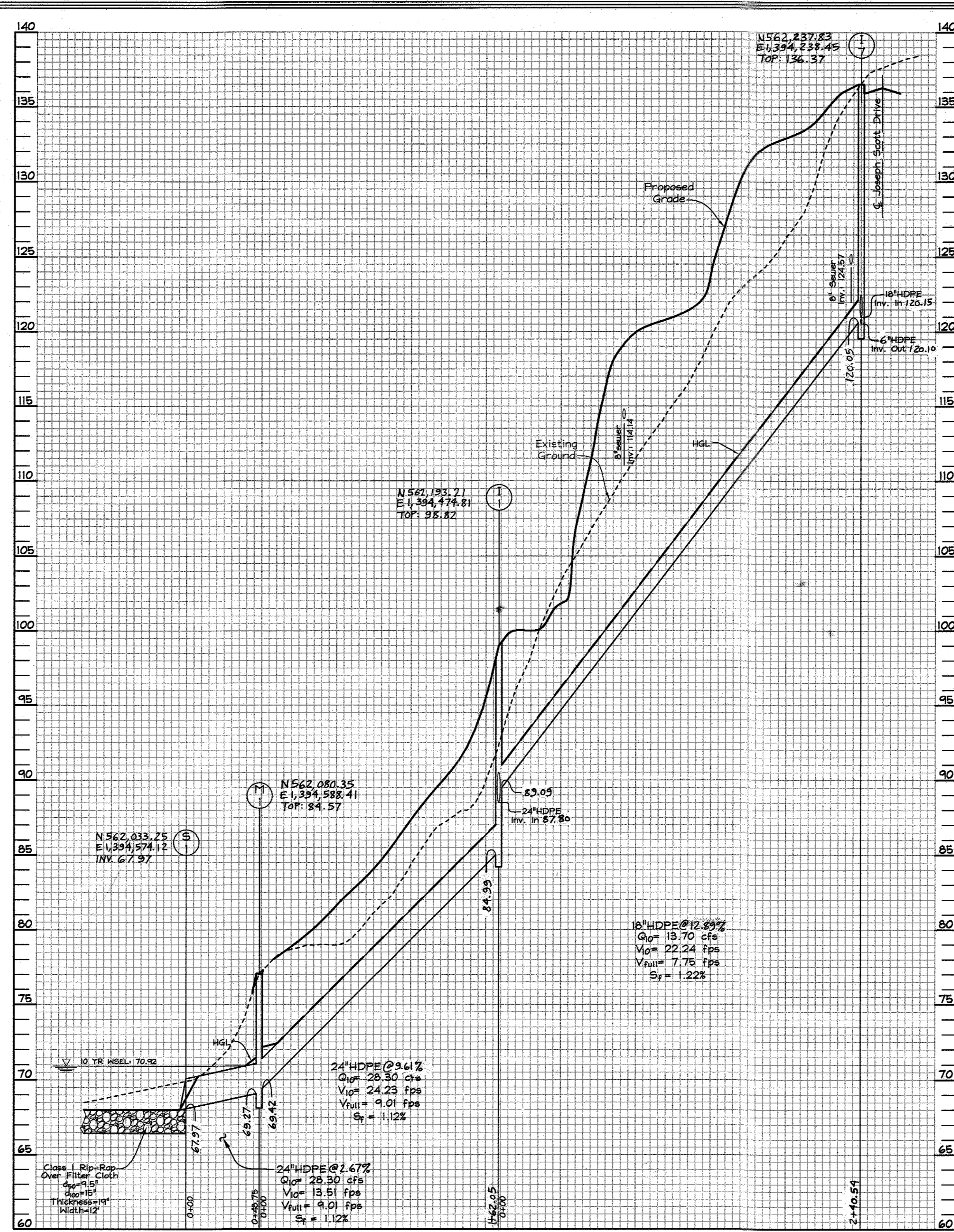
AS-BUILT
 OWNER/DEVELOPER
 Richmond American Homes of Maryland, Inc.
 6200 Old Dobbin Lane
 Columbia, Md 21045
 410.872.0267
 C. BROOKE MILLER
 PLS #135
 DATE

STORM DRAIN PROFILES
HUNTERS RIDGE
 LOTS 1 THRU 4, 18 THRU 54, 60 THRU 72
 OPEN SPACE LOTS 55 THRU 59 & 73
 AND A RESUBDIVISION OF BULK PARCEL 'C'
 WESLEY WOODS, SECTION 1, PLAT NO. 14926
 TAX MAP 38 GRIDS 4 & 10 PARCEL 163
 1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
FSH Associates
 Engineers Planners Surveyors
 8318 Forrest Street Elkoot City, MD 21043
 Tel: 410-750-2251 Fax: 410-750-7350
 E-mail: FSHAssociates@cs.com
 DESIGN BY: KO
 DRAWN BY: KO
 CHECKED BY: ZYF
 SCALE: As Shown
 DATE: Jan. 23, 2007
 N.O. No.: 3018
 SHEET No.: 12 OF 20

No.	Revised Storm Drain Profile 1-10 to 5-2	02/12/2007
	Revisions	Date



STORM DRAIN PROFILE
SCALE: HOR.: 1"=50'
VERT.: 1"=5'

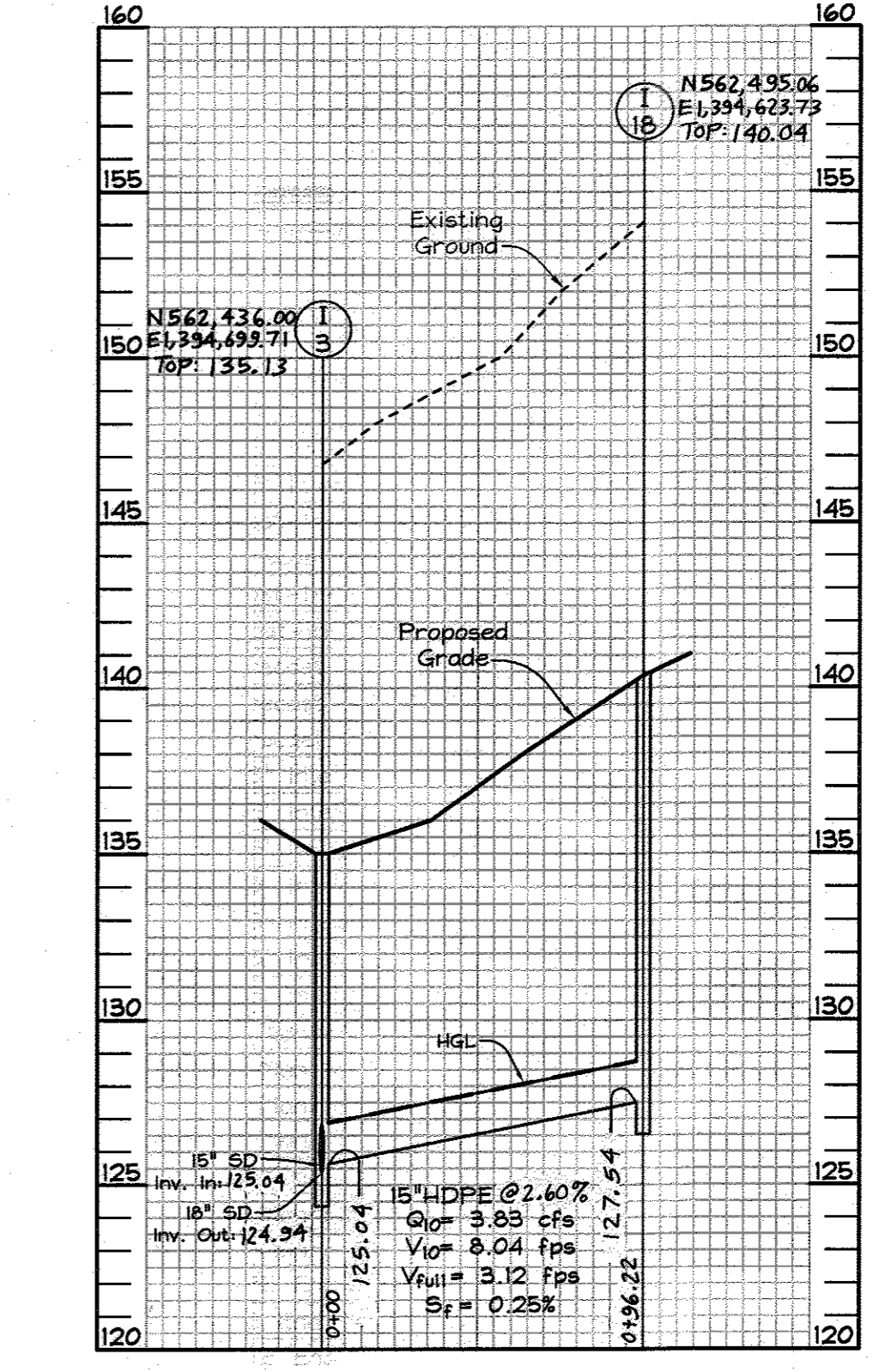


STORM DRAIN PROFILE
SCALE: HOR.: 1"=50'
VERT.: 1"=5'

STRUCTURE SCHEDULE							
NO.	TYPE	LOCATION		TOP ELEV.	INV. IN.	INV. OUT.	REMARKS
I-1	Single 'S' Inlet	N 562,193.21	E 1,394,474.81	98.82	83.80 (2.4')	84.99	SD 4.22
I-2	Single 'S' Inlet	N 562,371.36	E 1,394,587.42	134.92	124.06	123.86	SD 4.22
I-3	Single 'S' Inlet	N 562,436.00	E 1,394,639.71	135.18	123.25 (1.8')	124.94	SD 4.22
I-4	Single 'S' Inlet	N 562,602.83	E 1,394,821.11	131.09	-	125.87	SD 4.22
I-5	'A-5' Cast-in-Place Inlet	Fairlee Road Sta. 3+65.86	10.00' Right	148.82	141.01	140.83	SD 4.01
I-6	'A-10' Precast Inlet	Fairlee Road Sta. 3+65.86	10.00' Left	148.29	-	142.85	SD 4.41
I-7	'A-5' Cast-in-Place Inlet	Joseph Scott Drive Sta. 2+80.40	12.00' Left	136.37	120.15	120.05 (1.8')	SD 4.01
I-8	'A-10' Cast-in-Place Inlet	Joseph Scott Drive Sta. 2+80.40	12.00' Right	136.29	120.61	120.31	SD 4.02
I-9	'A-5' Precast Inlet	Joseph Scott Drive Sta. 4+95.67	12.00' Right	127.65	123.32 (1.8')	123.11	SD 4.40
I-10	'A-5' Precast Inlet	Joseph Scott Drive Sta. 6+68.90	12.00' Right	129.18	-	125.55	SD 4.40
I-11	'A-5' Precast Inlet	Joseph Scott Drive Sta. 4+95.67	12.00' Left	127.73	-	123.88	SD 4.40
I-12	Single 'S' Inlet	Joseph Scott Drive Sta. 4+44.64	77.23' Right	135.35	123.67	123.52	SD 4.22
I-13	Single 'S' Inlet	Joseph Scott Drive Sta. 4+43.00	130.00' Right	146.94	138.39	128.69	SD 4.22
I-14	Single 'S' Inlet	Joseph Scott Drive Sta. 6+52.20	130.00' Right	147.74	140.70	140.55	SD 4.22
I-15	Single 'S' Inlet	Joseph Scott Drive Sta. 7+77.90	132.49' Right	149.67	-	142.70	SD 4.22
I-16	Single 'S' Inlet	N 561,467.06	E 1,394,047.06	110.69	103.25	102.85	SD 4.22
I-17	Single 'S' Inlet	N 561,578.54	E 1,394,011.58	126.18	-	117.13	SD 4.22
I-18	Single 'S' Inlet	N 562,435.06	E 1,394,623.73	140.04	-	127.54	SD 4.22
M-1	Precast Manhole (4')	N 562,080.35	E 1,394,588.41	84.57	69.42	69.27	G 5.12
M-2	Precast Manhole (4')	N 562,320.78	E 1,394,566.63	132.69	117.41	106.76	G 5.12
M-3	Precast Manhole (4')	N 562,364.50	E 1,394,554.11	135.28	123.36 (1.8')	122.13	G 5.12
M-4	Precast Manhole (4')	N 562,369.22	E 1,394,651.88	138.82	124.25	124.10	G 5.12
M-5	Precast Manhole (4')	Joseph Scott Drive Sta. 4+44.64	17.00' Right	128.50	121.53 (1.8')	121.50	G 5.12
M-6	Precast Manhole (4')	N 561,486.16	E 1,394,106.74	111.54	102.59	97.59	G 5.12
M-7	Precast Manhole (4')	N 561,561.30	E 1,394,010.16	126.31	115.36	115.28	G 5.12
S-1	24" HDPE End Section	N 562,033.25	E 1,394,574.12	-	-	67.97	-
S-2	6" HDPE End Section	N 562,168.93	E 1,394,250.70	-	-	120.03	-
S-3	24" HDPE End Section	N 561,667.57	E 1,394,311.87	-	-	76.41	-

NOTE: 1. Top elevations are to the center, top of grate inlet for all 'S' inlets; center, top of concrete slab @ curb line for A-5 and A-10; and center top of manhole cover for precast manholes.
2. Structures I-3, I-13 and M-2 to have granite bottoms.
3. See Grading plans, sheets 5 and 6, for top of structure slopes.

PIPE SCHEDULE		
SIZE	TYPE	LENGTH
6"	HDPE	64.5 LF
15"	HDPE	693 LF
18"	HDPE	1,225 LF
24"	HDPE	774 LF



STORM DRAIN PROFILE
SCALE: HOR.: 1"=50'
VERT.: 1"=5'

AS-BUILT
DATE: 12/17/13
G. BROOKE MILLER
PLS #135

OWNER/DEVELOPER
Richmond American Homes of Maryland, Inc.
6200 Old Dobbin Lane
Columbia, Md 21045
410.872.0267

STORM DRAIN PROFILES
HUNTERS RIDGE
LOTS 1 THRU 4, 18 THRU 54, 60 THRU 72
OPEN SPACE LOTS 55 THRU 59 & 73
AND A RESUBDIVISION OF BULK PARCEL 'C'
MESLEY WOODS, SECTION 1, FLAT NO. 14926
TAX MAP 38 GRIDS 4 & 10 PARCEL 163
1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

FSH Associates
Engineers Planners Surveyors
8318 Farret Street, Ellicott City, MD 21043
Tel: 410-750-2251 Fax: 410-750-7350
E-mail: FSHAssociates@fsh.com

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

CHIEF, DIVISION OF LAND DEVELOPMENT
CHIEF, DEVELOPMENT ENGINEERING DIVISION

CHIEF, BUREAU OF HIGHWAYS

No.	Revisions	Date
2	Revised Title Block.	02/12/2007
1	Revised Lot Areas for Lots 35 thru 39, 55 and 56; Revised BRL on Lots 1 thru 3, 11, 15, 16, 19 thru 21 and 42; Revised Forest Conservation Easement Areas, Added Lot 55.	02/26/2005

NOTE: THIS SHEET SUPERSEDES PREVIOUS PLAN SIGNED SEPTEMBER 2004.

MARYLAND STATE WATER MANAGEMENT FACILITY CONSTRUCTION SPECIFICATIONS
CONSTRUCTION SPECIFICATIONS FOR SWM DETENTION FACILITY (S-1)

These specifications are appropriate to all ponds within the scope of the Standard Practice MD-376. 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 all trees, stumps, rocks and other obstructions. Grubbed material shall be removed to a depth of 24 inches below the subgrade. All trees shall be removed 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, rocks, rubbish and other objectionable material. Areas to be covered by the reservoir will be cleared of all trees, brush, logs, rocks, rubbish and other objectionable material. Areas to be covered by the reservoir will be cleared of all trees, brush, logs, rocks, rubbish and other objectionable material. Areas to be covered by the reservoir will be cleared of all trees, brush, logs, rocks, rubbish and other objectionable material.

Earth Fill
The fill material shall be taken from approved designated borrow areas. It shall be free of rocks, stumps, logs, rubbish, stones greater than 6" from other objectionable materials. Fill material for the center of the pond shall be placed in a minimum of 12" lifts. Consideration may be given to the use of other materials in the embankment if approved by a geotechnical engineer. Such special materials shall be approved by a geotechnical engineer. Consideration may be given to the use of other materials in the embankment if approved by a geotechnical engineer. Consideration may be given to the use of other materials in the embankment if approved by a geotechnical engineer.

Recharge Obligation
Rev Req'd: 2,046 cu.ft.
Res Req'd: 0.49 Ac.
Res Prov'd: 0.49 Ac.
Rev Prov'd: 3,887 cu. ft.

Recharge Obligation Table

POND SUMMARY	YEAR (CPV)	10 YEAR**	100 YEAR	WATER QUALITY FOR AREA TO POND**
Flow Into Pond	21.4 cfs	174.64 cfs	123.17 cfs	WQV Req'd: 0.50 ac.ft.
Flow Out of Pond	0.51 cfs	56.46 cfs	101.76 cfs	WQV Prov'd: 0.36 ac.ft. (ext. detention)
				0.26 ac.ft. (detention)
WIS Elevation	69.7	70.92	71.48	Total Provided: 0.61 ac.ft.
Storage Volume	0.26 ac.ft.			

** Assumes clogged Low Flow Orifices.

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 means. The backfill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other means.

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 means.

Pipe Details
All pipes shall be circular in cross section. The pipe shall be installed in accordance with the requirements of the applicable codes and specifications.

1. Materials - (Polymer Coated Steel Pipe) - Steel pipes with polymer coating shall have a minimum coating thickness of 0.01 inches (10 mils) and shall be installed in accordance with the requirements of the applicable codes and specifications.

2. Materials - (Aluminum Coated Steel Pipe) - This pipe and its appearance shall conform to the requirements of the applicable codes and specifications.

3. Connections - All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be installed at an angle to the riser and pipe. Anti-seep collars shall be connected to the riser in such a manner as to prevent seepage. Drain lines are not considered to be watertight.

4. Backfilling - All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be installed at an angle to the riser and pipe. Anti-seep collars shall be connected to the riser in such a manner as to prevent seepage. Drain lines are not considered to be watertight.

5. Reinforced Concrete Pipe of the following criteria shall apply for reinforced concrete pipes:
1. Materials - Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM C-391.
2. Bedding - Reinforced concrete pipe shall be installed in a concrete bedding/trough for their entire length. The bedding/trough shall consist of high strength concrete pipe under the pipe and on the sides of the pipe to a minimum thickness of 4 inches. The bedding/trough shall be installed in a concrete bedding/trough for their entire length. The bedding/trough shall consist of high strength concrete pipe under the pipe and on the sides of the pipe to a minimum thickness of 4 inches.

3. Laying pipe - Bell and spigot pipe shall be placed with the bell and 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 on the top and sides of the pipe. Care shall be exercised to avoid 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-200 conforming to ASTM D-1785 or ASTM D-2246. Corrugated high density polyethylene (HDPE) pipe shall conform to the following: 12" through 24" shall meet the requirements of AASHTO M254 Type B, and 30" through 48" shall meet the requirements of AASHTO M254 Type B.
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 otherwise 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 shown on the drawings.

Drainage Diagrams - When a drainage diagram 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 404, Part 3.
Rock Riprap
Rock riprap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 31.
Geotextile shall be placed under all fill and shall meet requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 700.04, Class C.
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 ditches, levees, cofferdams, drainage channels, and stream diversions necessary to protect to be occupied by the permanent work. The contractor shall site, 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 excavation, 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 upflow or outlet works and to be so installed as to prevent obstruction in any degree whatsoever of the flow of water to the upflow or outlet works and to be so installed as to prevent obstruction in any degree whatsoever of the flow of water to the upflow or outlet works.

Stabilization
All borrow areas shall be graded to provide proper drainage and left in a slightly condition. All exposed surfaces of the embankment, roadway, walk and borrow areas, and borrow shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Natural Resources Conservation Service Standards and Specifications for Critical Area Planting (CR-342) or as shown on the accompanying drawings.
Erosion and Sediment Control
Construction operations shall be carried out in such a manner that erosion will be controlled and silt and dirt pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall show erosion and sediment control measures.

Revised Section 'B' - 'B' Profile; Updated Recharge Obligation and Pond Summary. 01/15/2007

No. Revisions Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

ENGINEERS CERTIFICATE

DEVELOPER'S CERTIFICATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

ENGINEERS CERTIFICATE

DEVELOPER'S CERTIFICATE

OPERATION AND MAINTENANCE SCHEDULE FOR STORMWATER MANAGEMENT DETENTION FACILITY

ROUTINE MAINTENANCE BY H.O.A.

- FACILITY WILL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHOULD BE PERFORMED DURING WET WEATHER TO DETERMINE IF IT IS FUNCTIONING PROPERLY.
- TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES A YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHOULD BE MOWED AS NEEDED.
- DEBRIS AND LITTER NEXT TO THE OUTLET STRUCTURE SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
- VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS RIPRAP OUTLET AREAS SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

NON-ROUTINE MAINTENANCE BY H.O.A.

- STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, THE RISER, AND THE PIPES SHALL BE REPAIRED UPON DETECTION OF ANY DAMAGE. THE COMPONENTS SHOULD BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
- SEDIMENT SHOULD BE REMOVED WHEN ITS ACCUMULATION SIGNIFICANTLY REDUCES THE DESIGN STORAGE, INTERFERES WITH THE FUNCTION OF THE RISER, WHEN DEEPE NECESSARY FOR AESTHETIC REASONS, OR WHEN DEEMED NECESSARY BY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

SPECIAL CONSTRUCTION METHODS FOR SEEPAGE CONTROLS

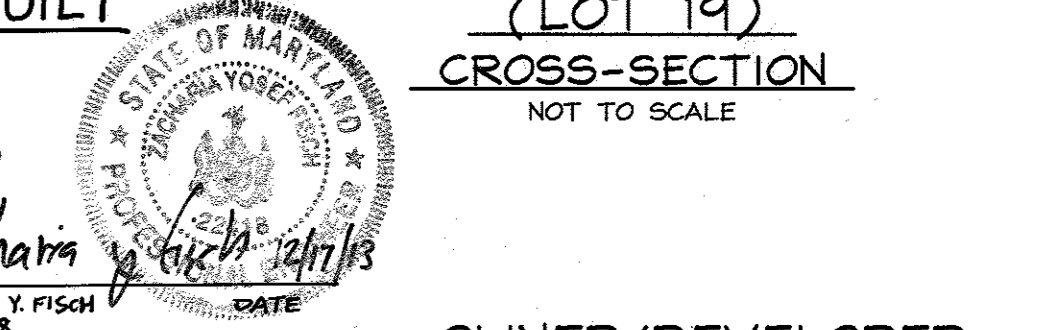
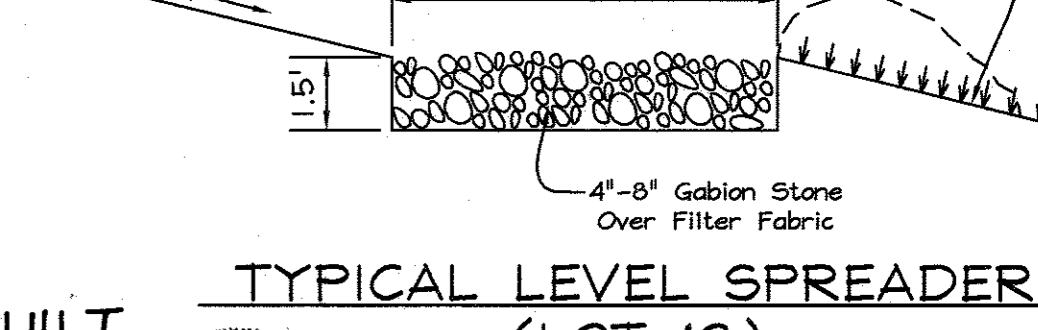
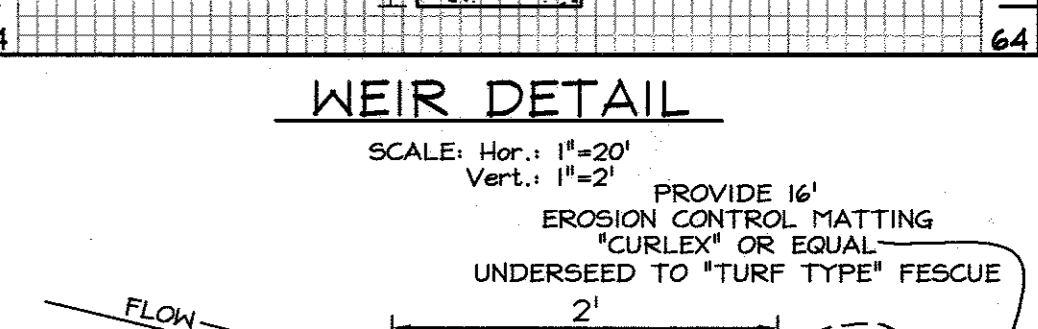
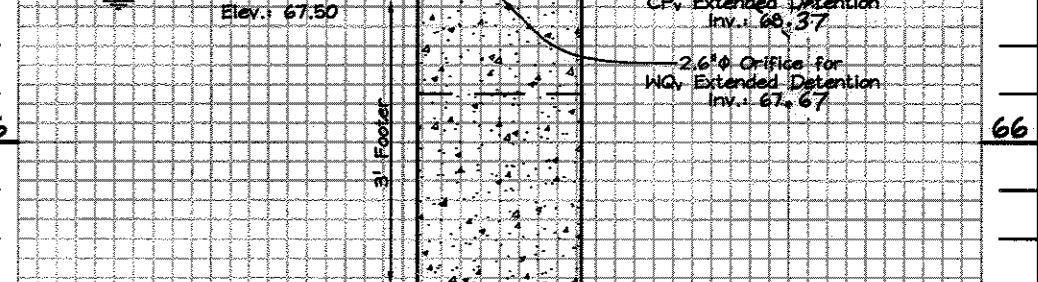
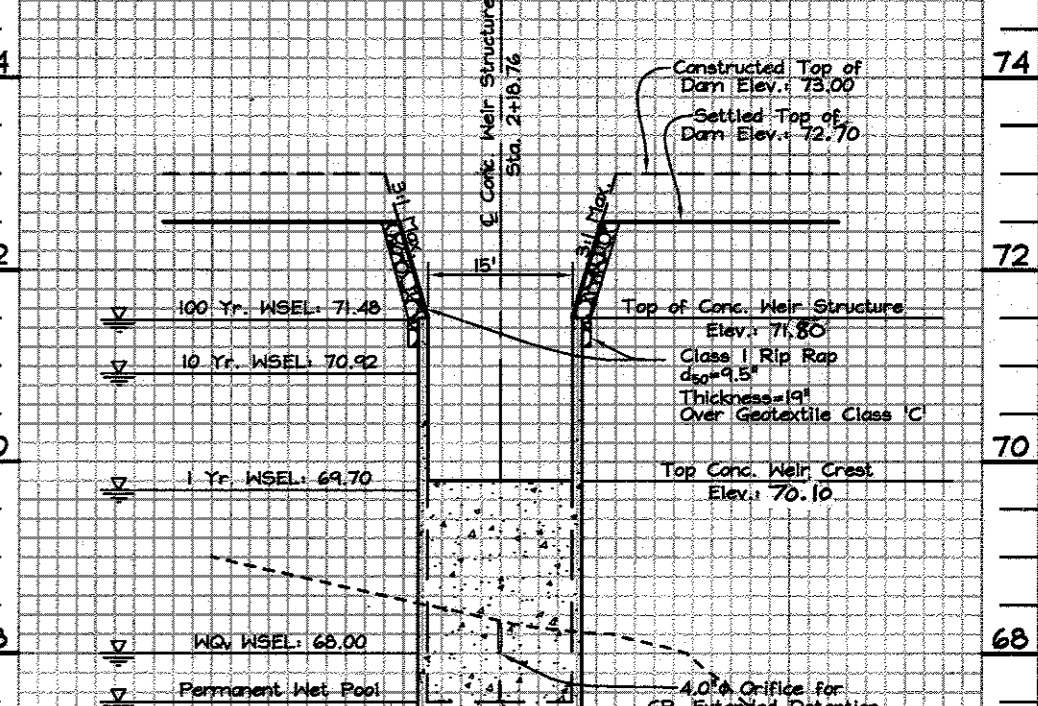
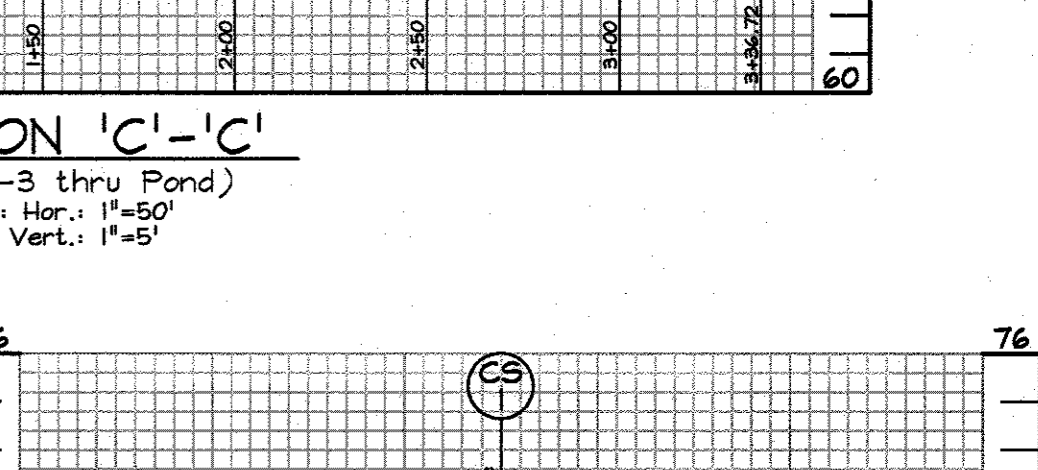
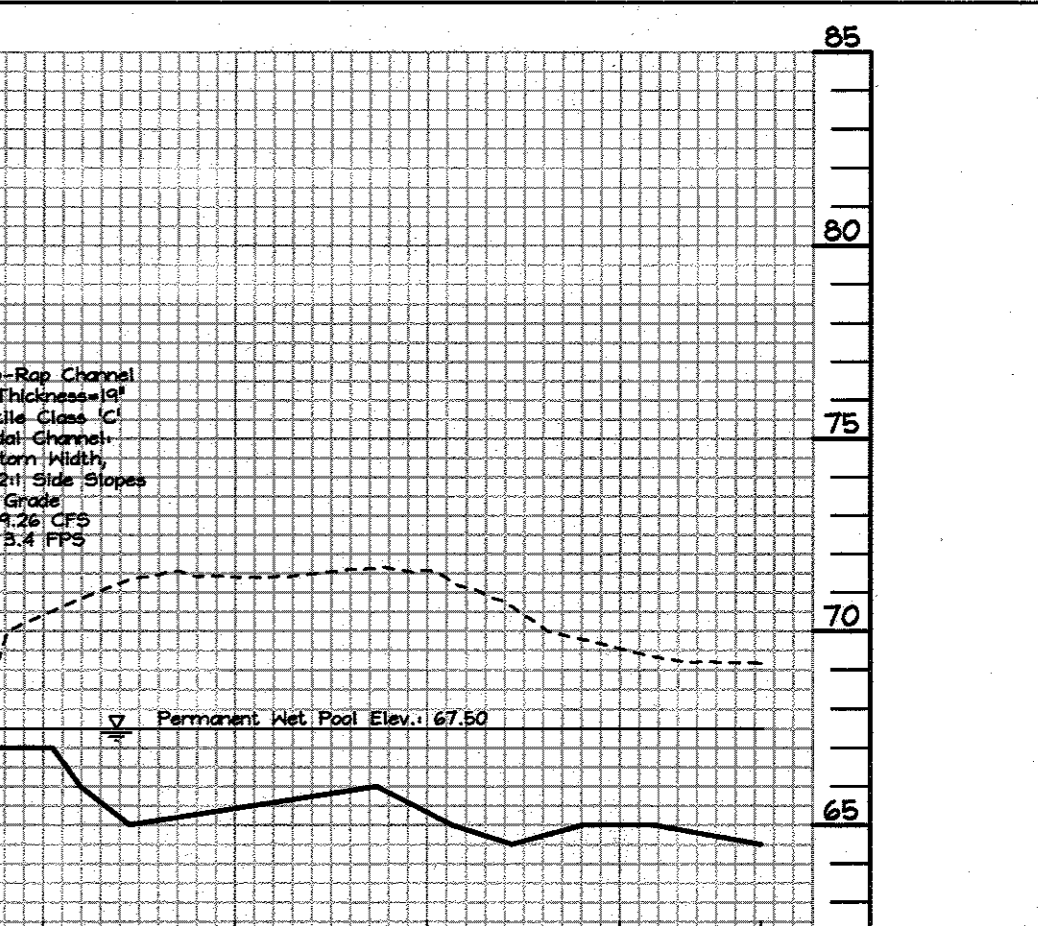
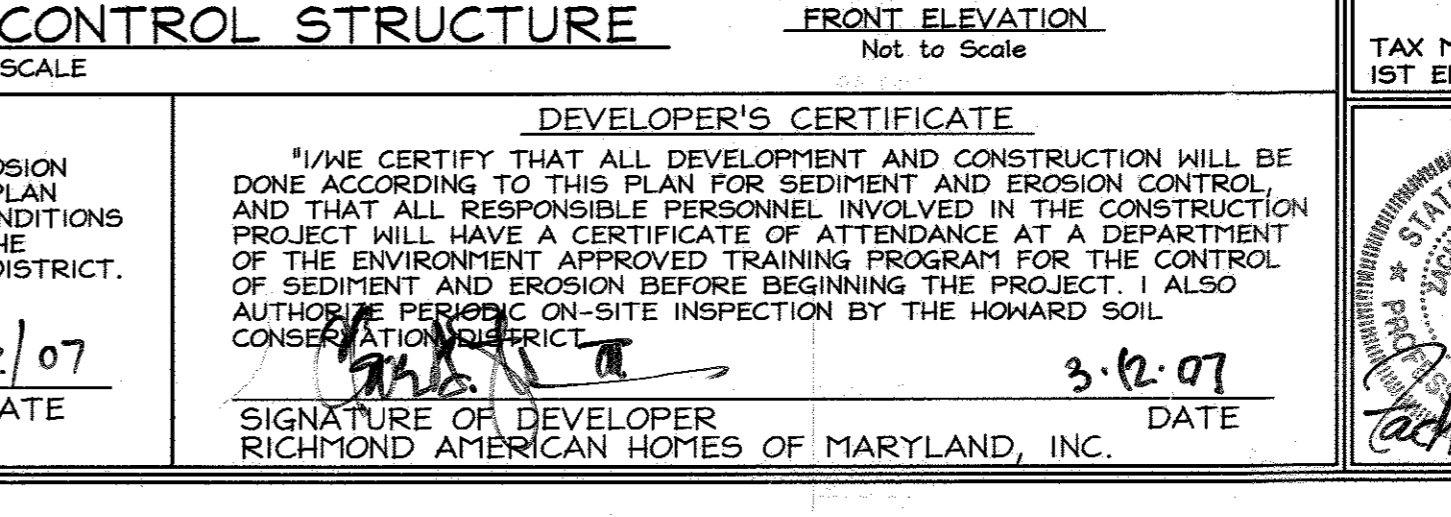
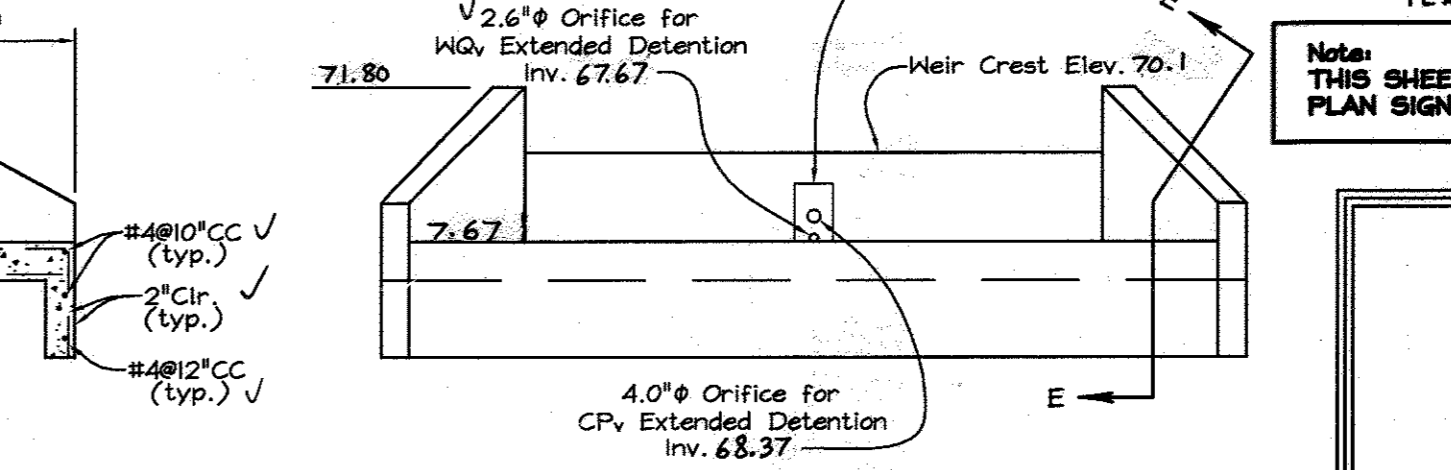
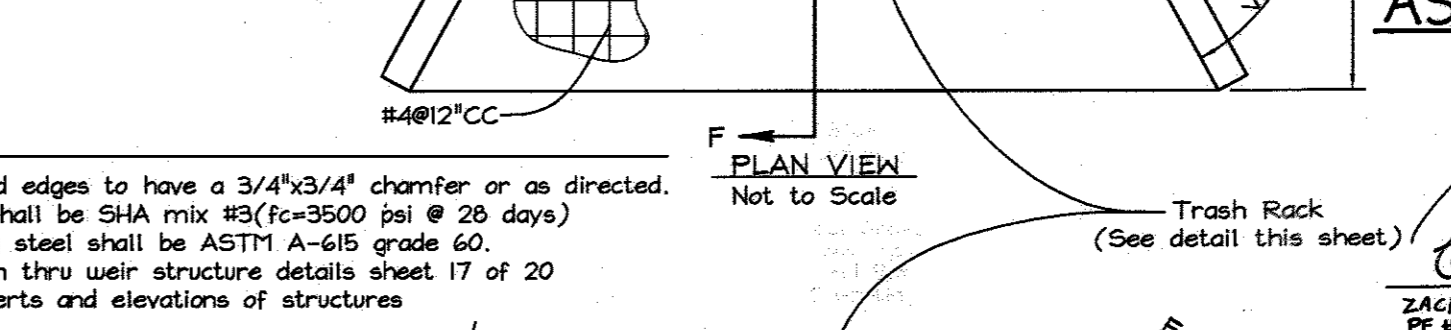
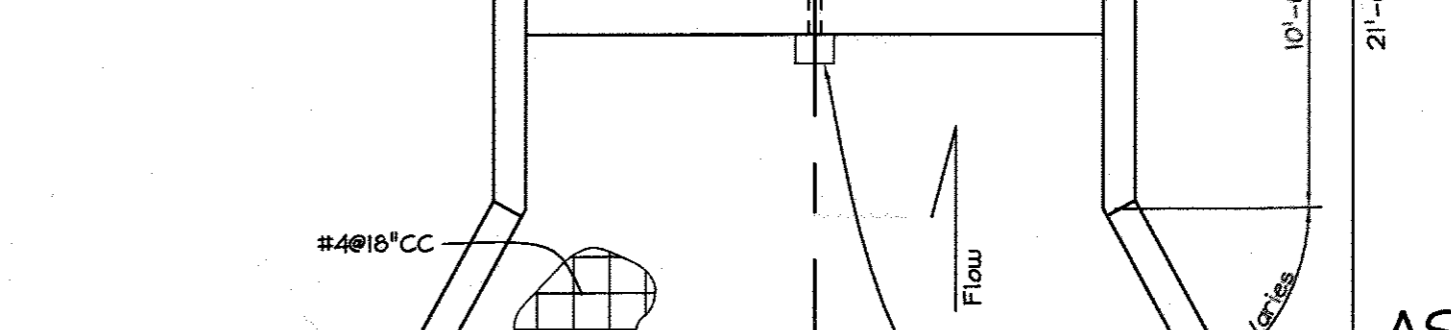
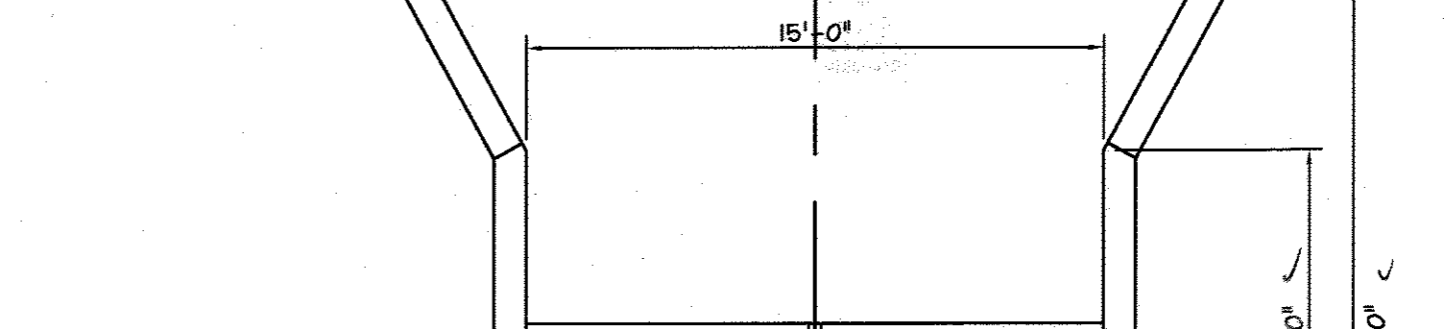
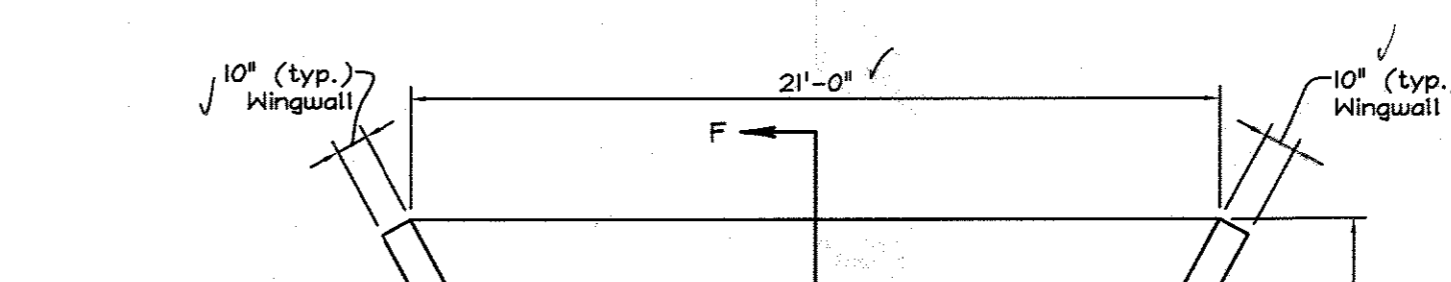
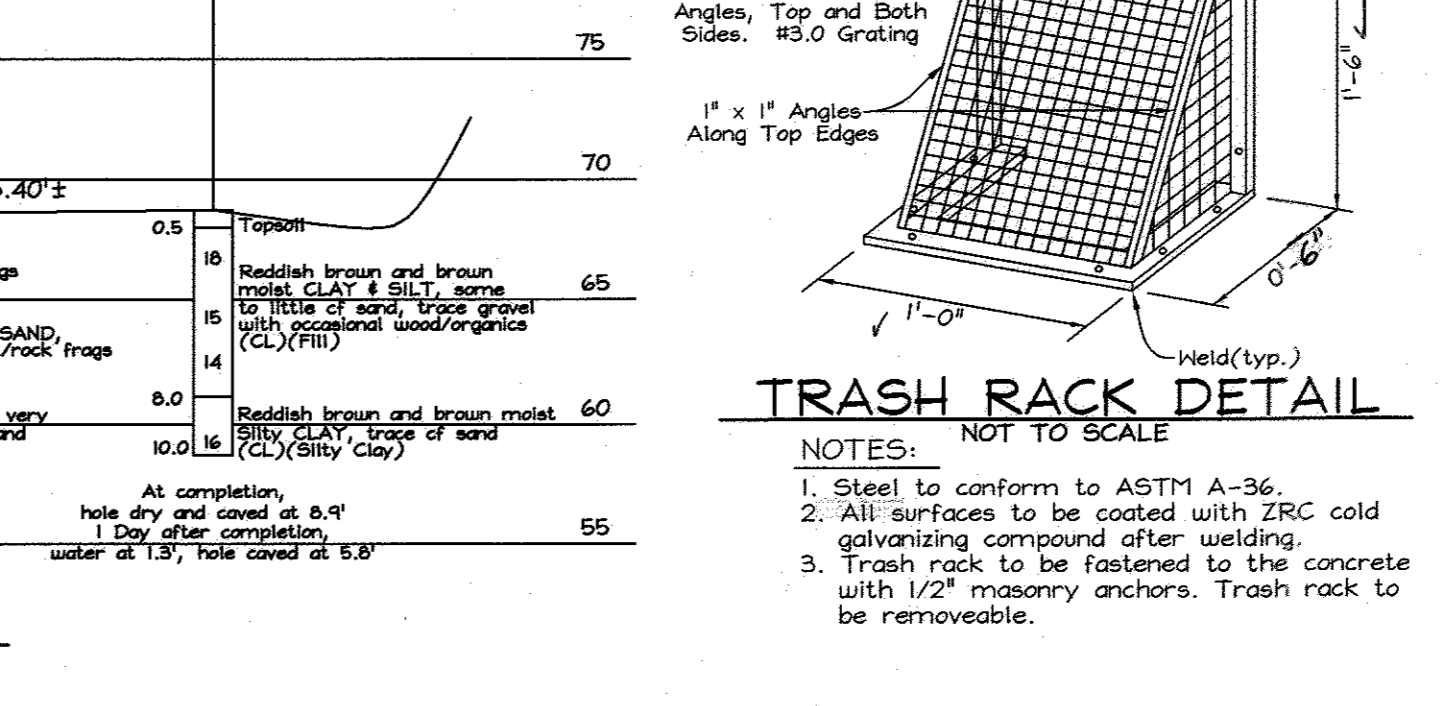
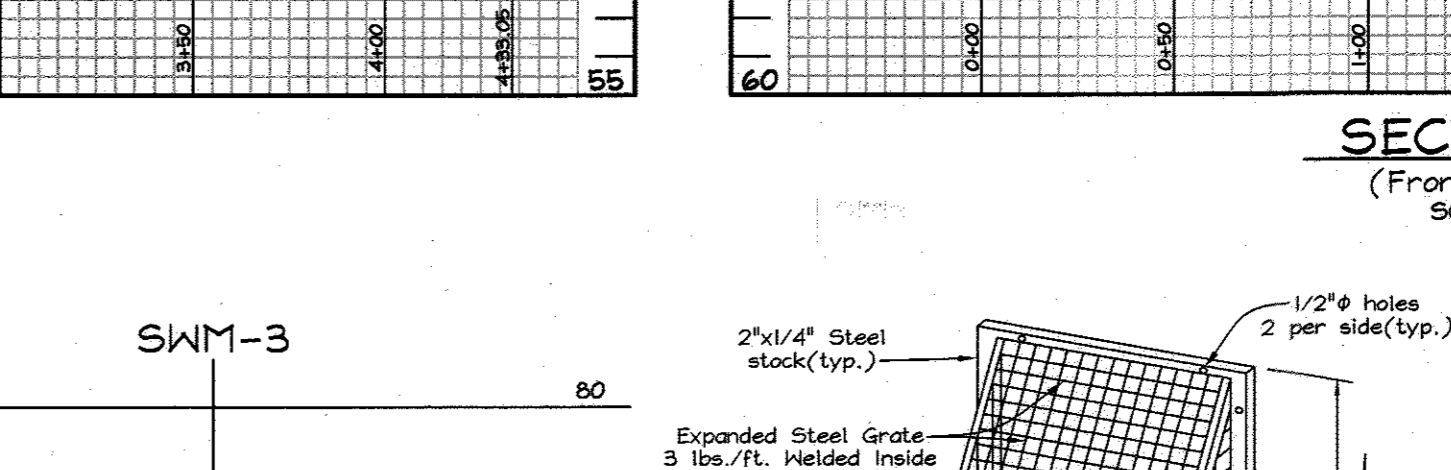
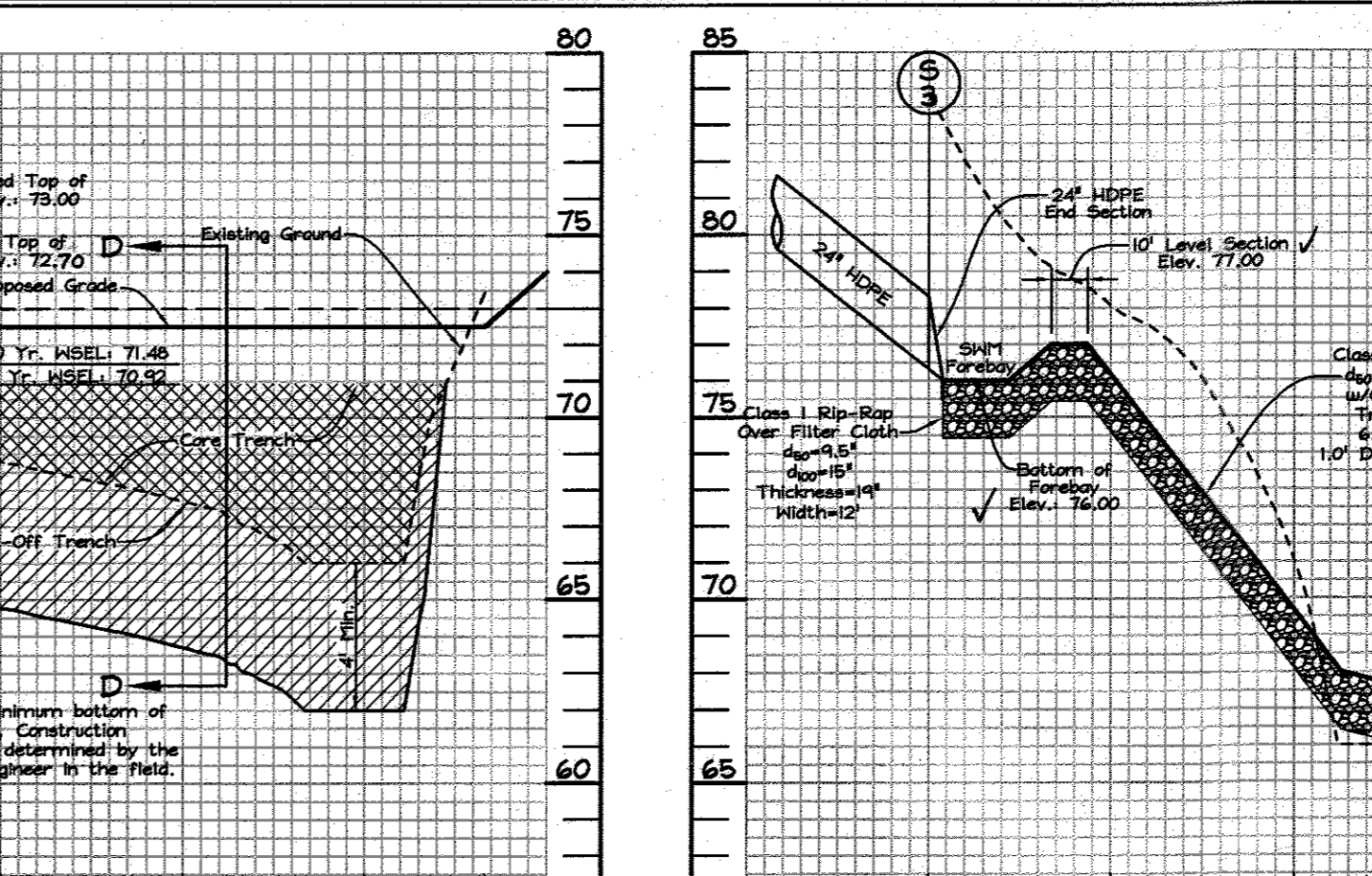
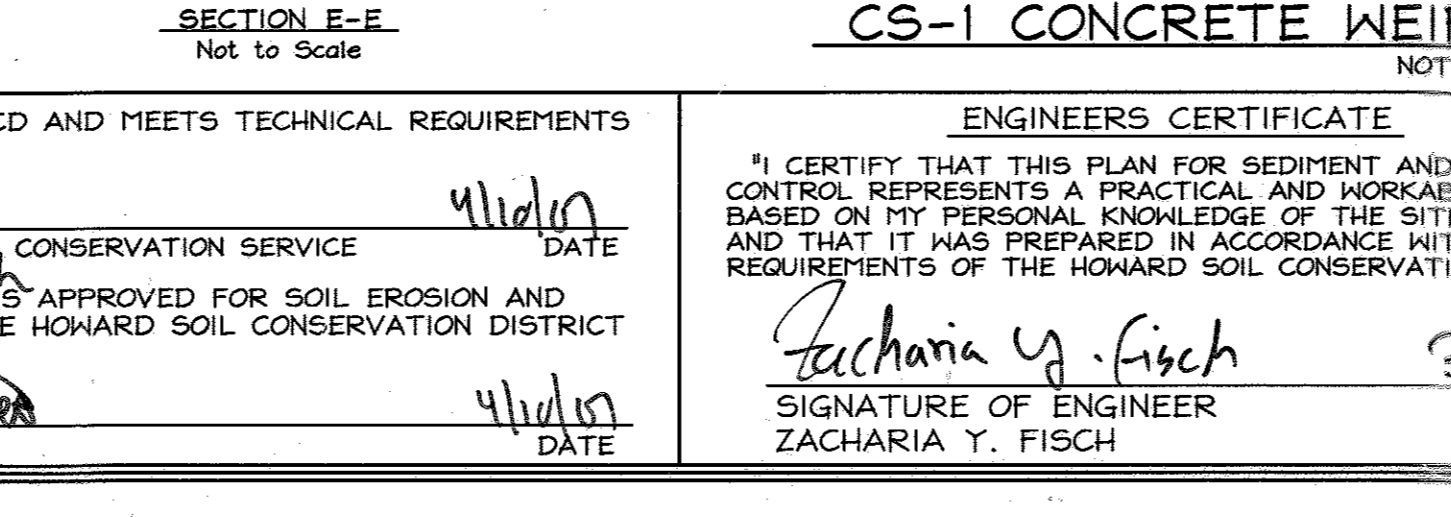
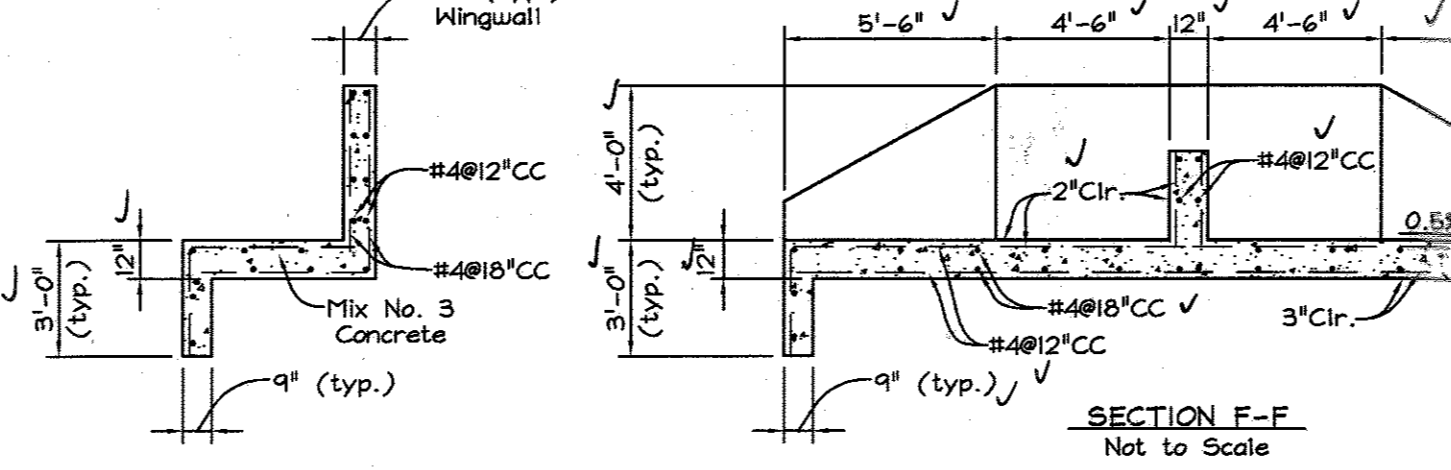
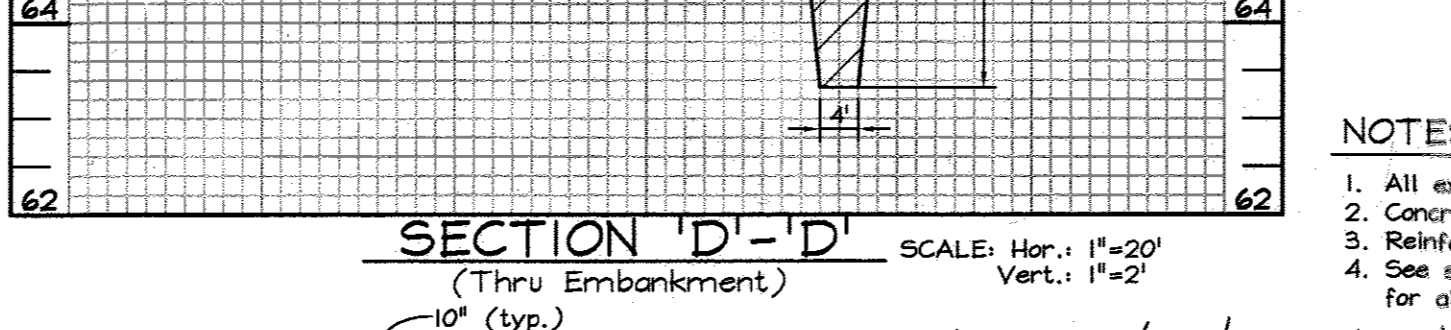
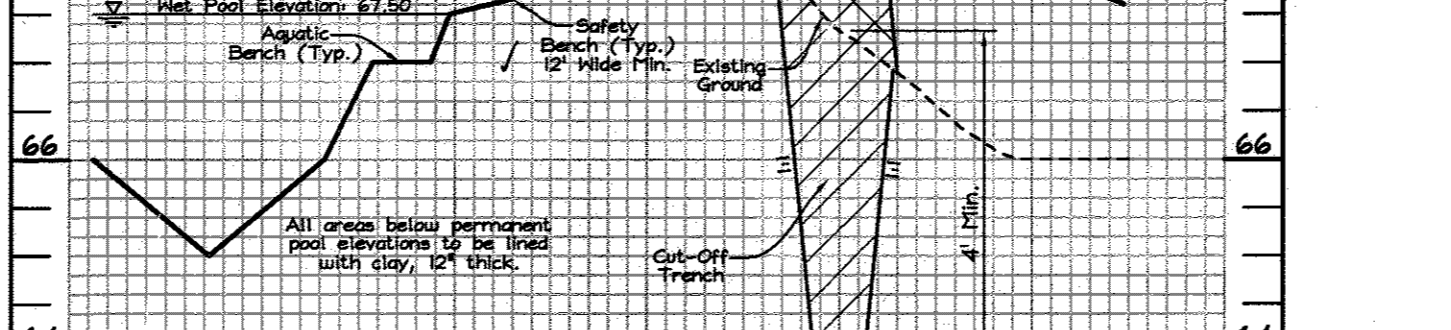
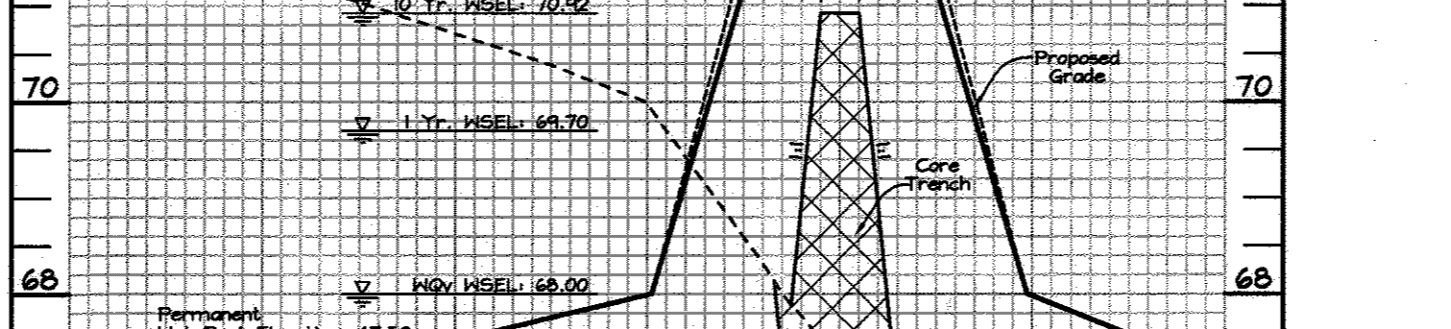
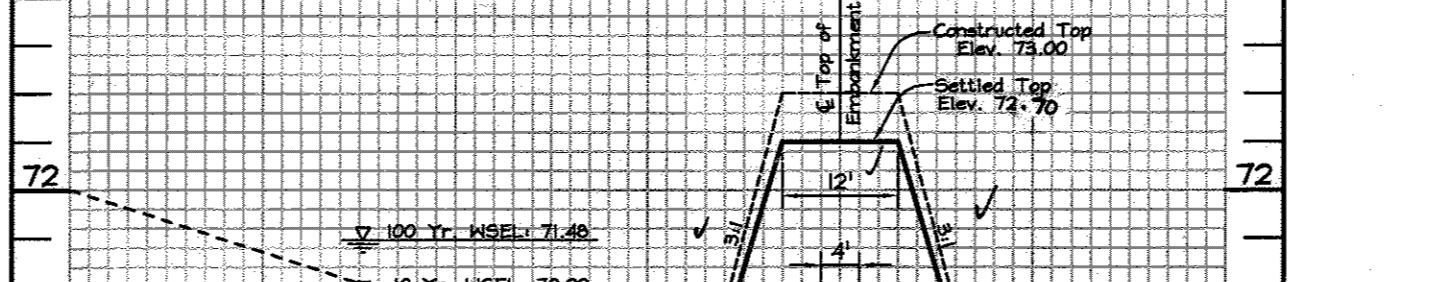
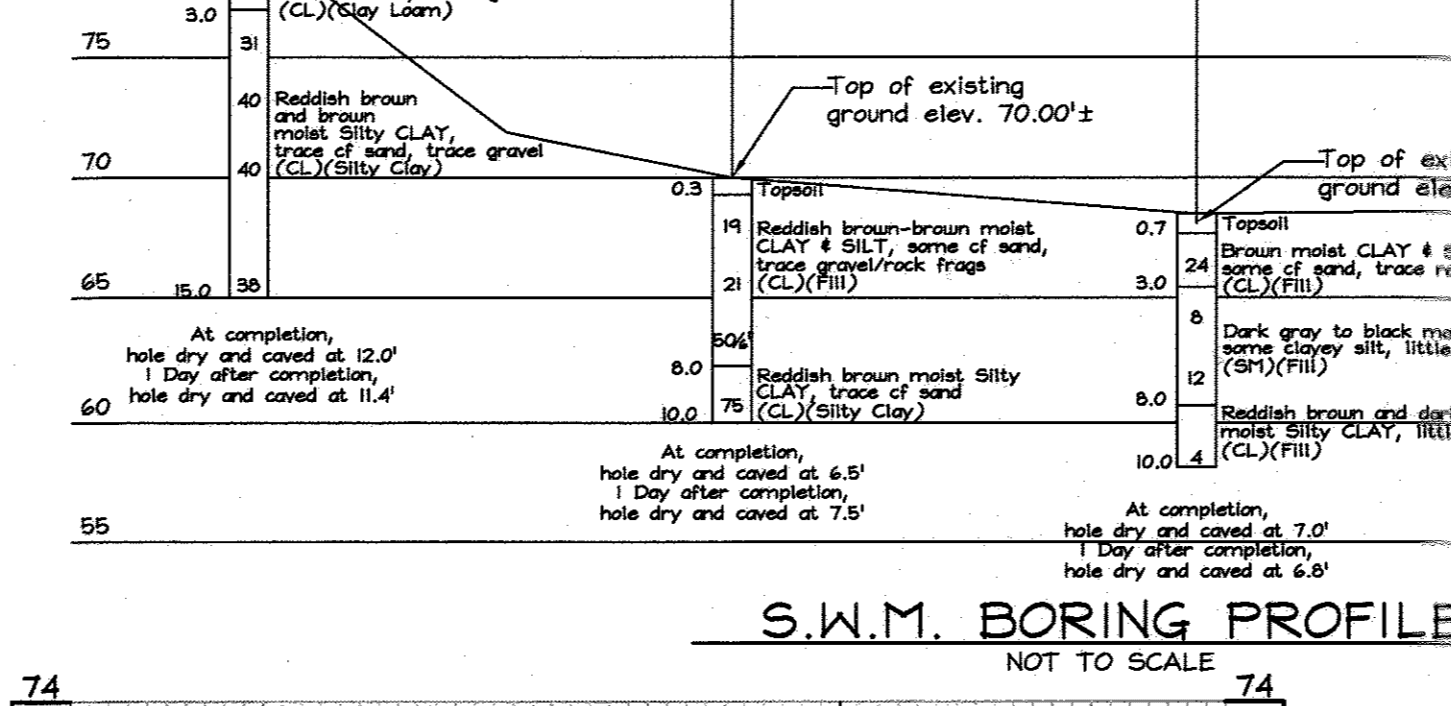
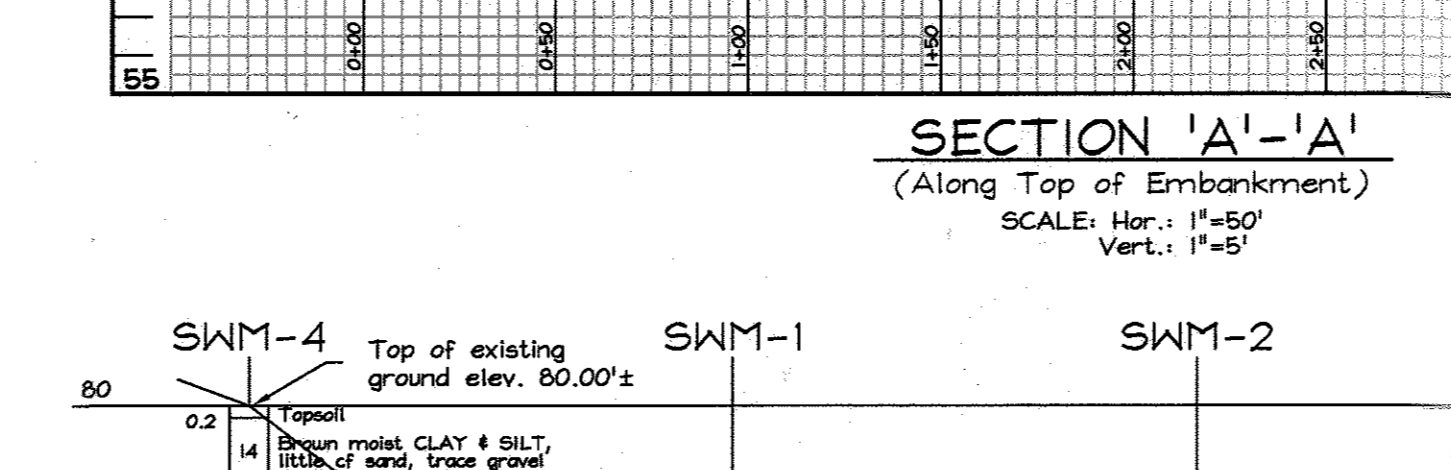
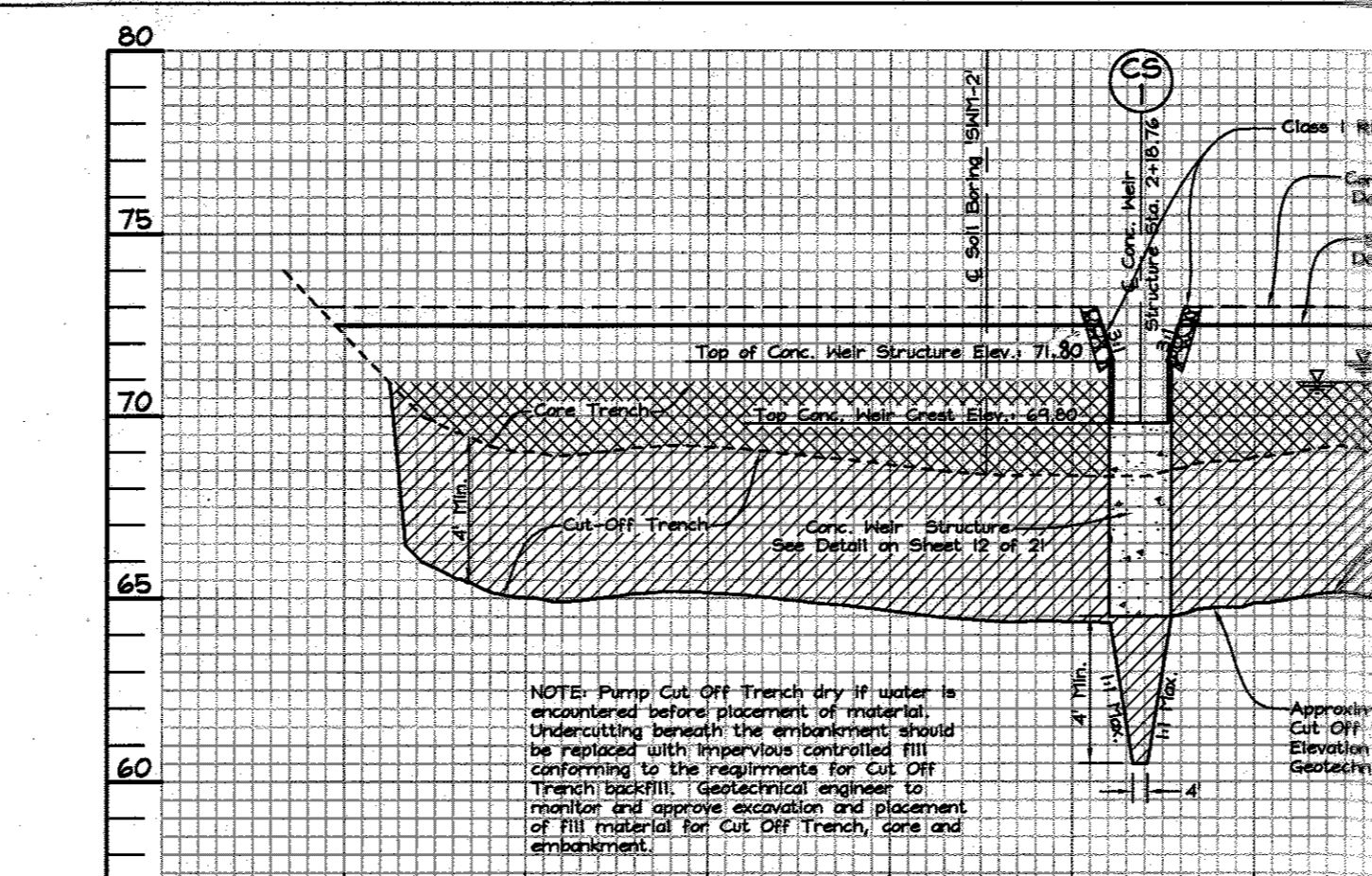
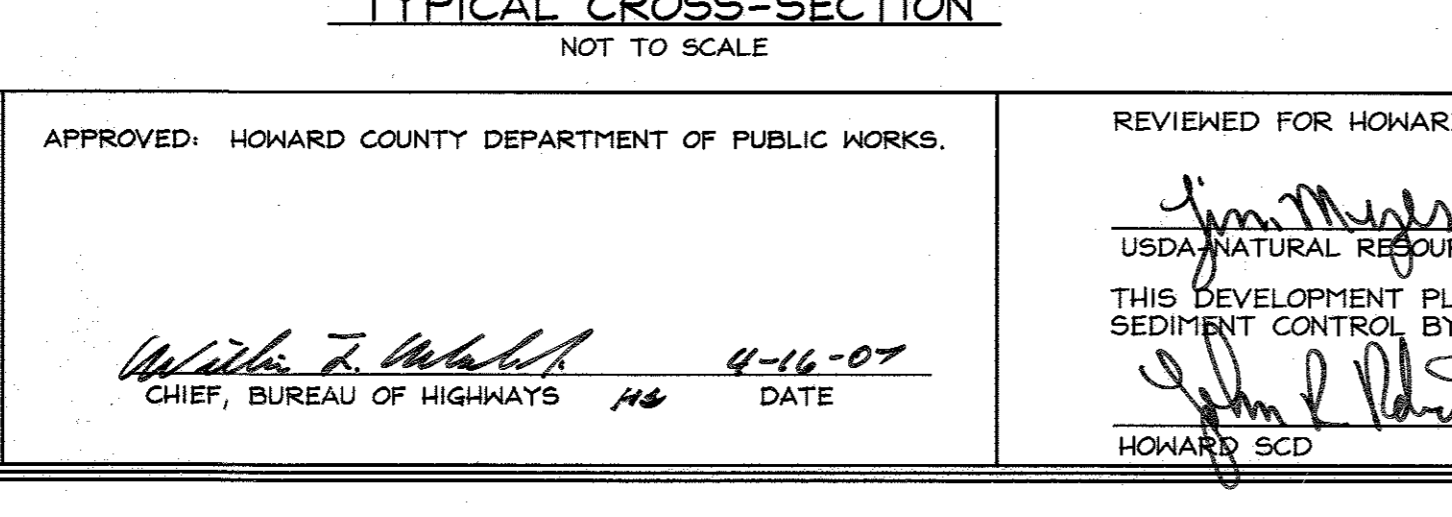
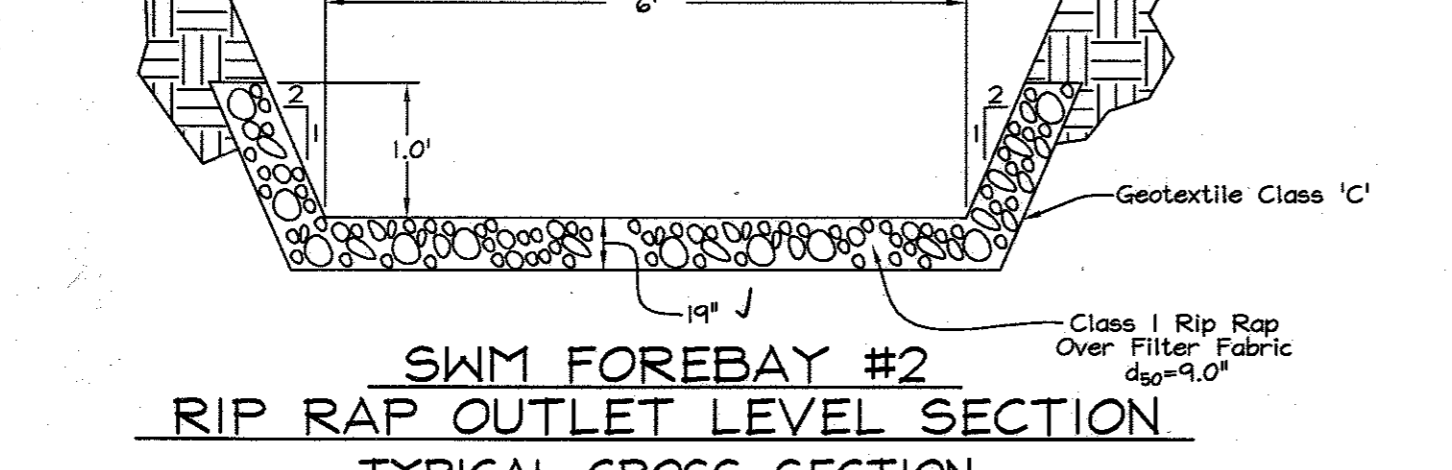
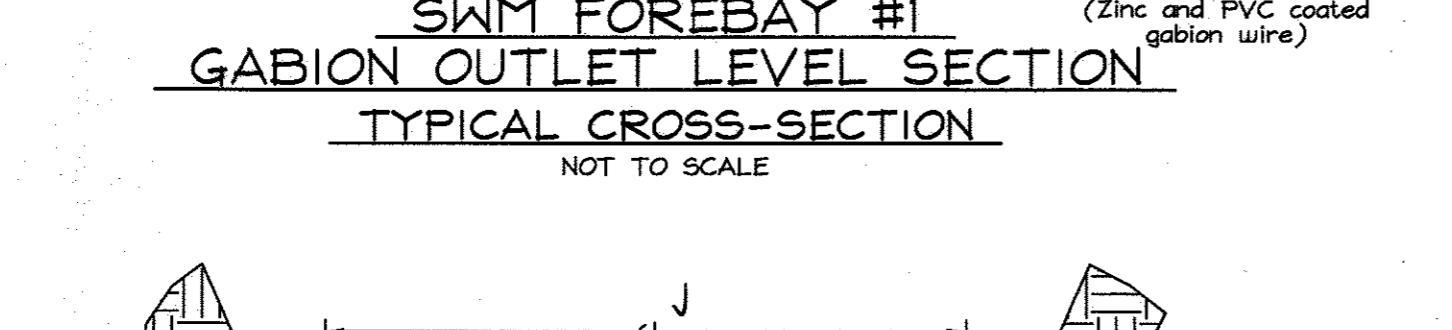
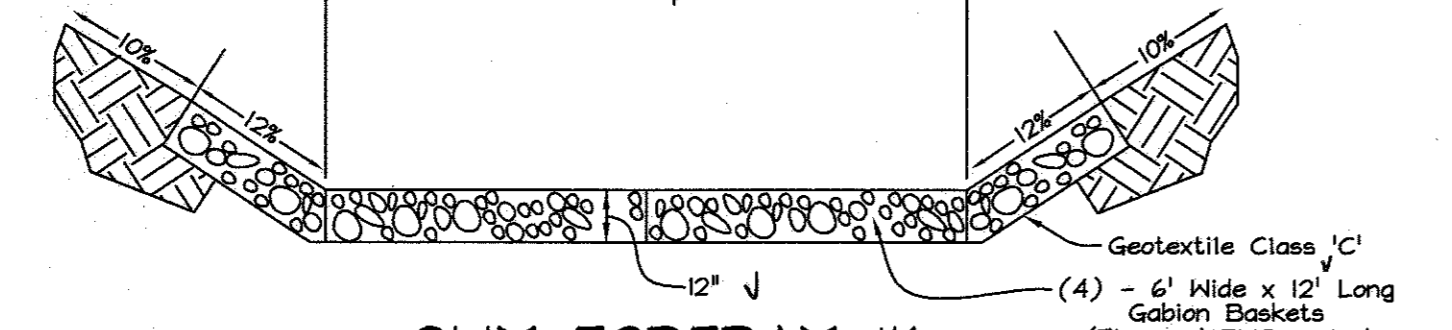
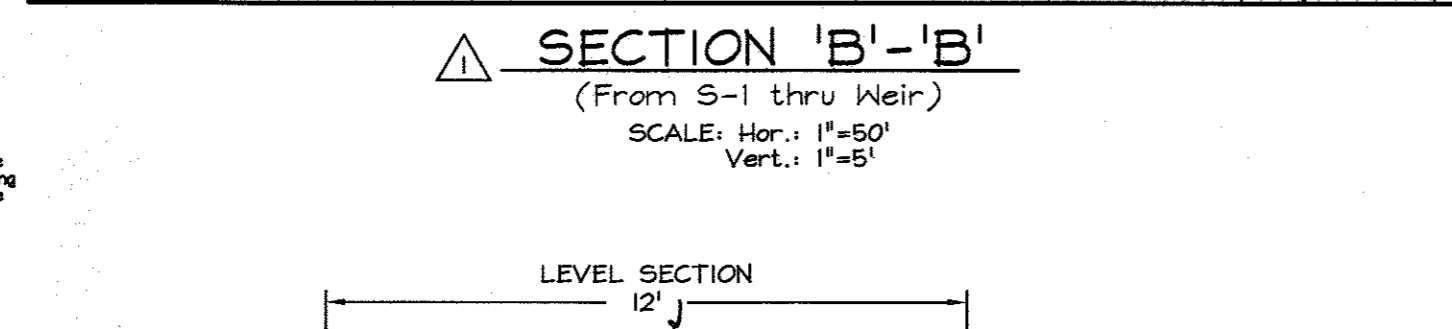
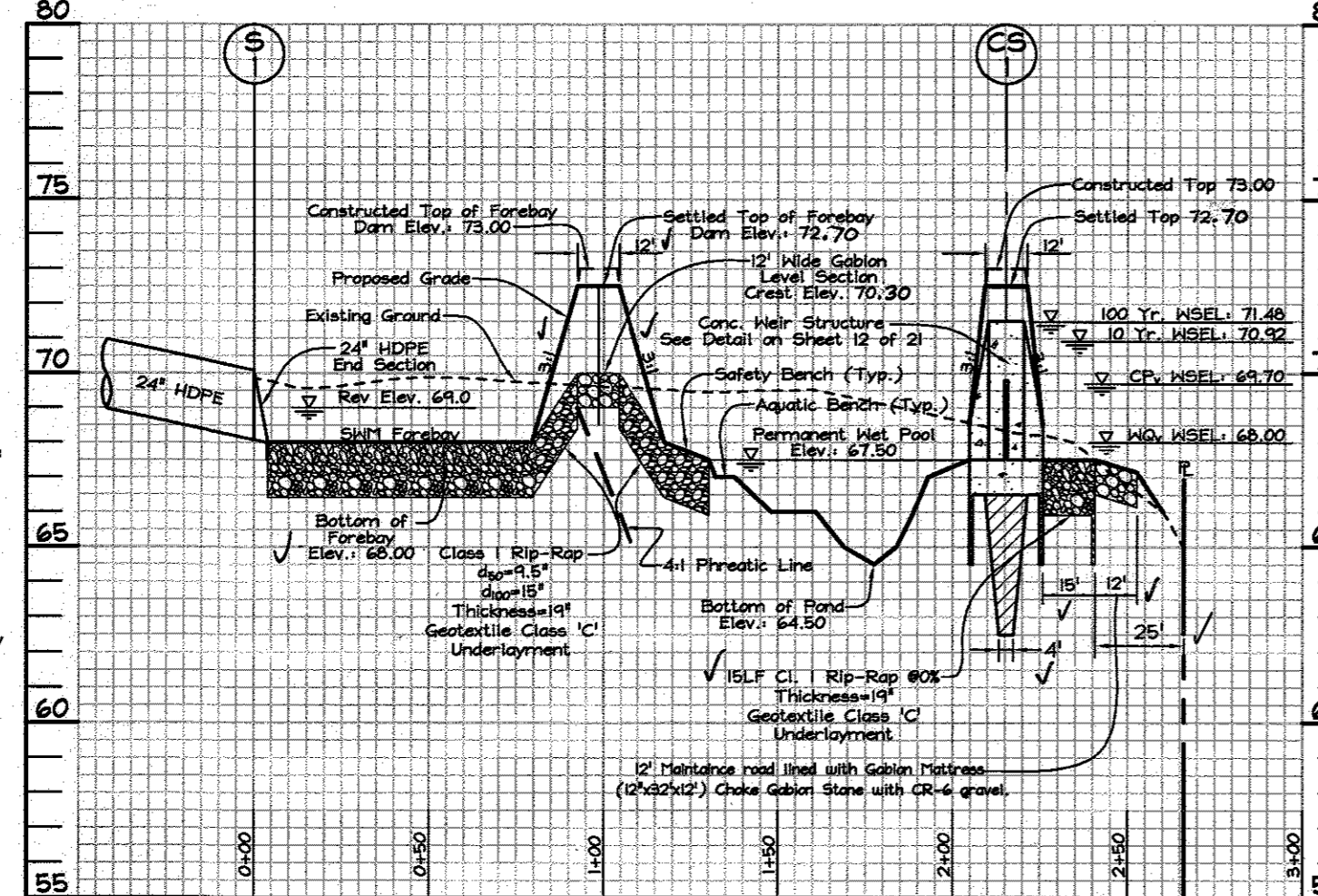
To prevent undesirable seepage through the basin and beneath the embankment, compact the clay surface across the bottom of the basin and tie in to the embankment. Since the soils encountered within all borrow areas are CL clay soils, it would be possible in most areas to form the liner by recompacting the in-place materials. The exposed basin surface should be examined after mass grading and any sand deposits undercut 1 foot below proposed basin grade. This undercut area should be backfilled with CL clay soils compacted to a minimum 98 percent of the AASHTO T-99 maximum dry density. In the remaining clay area, the basin bottom should be thoroughly rolled to a minimum 98 percent of the AASHTO T-99 maximum dry density.

Recharge Obligation
Rev Req'd: 2,046 cu.ft.
Res Req'd: 0.49 Ac.
Res Prov'd: 0.49 Ac.
Rev Prov'd: 3,887 cu. ft.

POND SUMMARY

YEAR (CPV)	10 YEAR**	100 YEAR	WATER QUALITY FOR AREA TO POND**
Flow Into Pond	21.4 cfs	174.64 cfs	123.17 cfs
Flow Out of Pond	0.51 cfs	56.46 cfs	101.76 cfs
			WQV Prov'd: 0.36 ac.ft. (ext. detention)
			0.26 ac.ft. (detention)
WIS Elevation	69.7	70.92	71.48
Storage Volume	0.26 ac.ft.		

** Assumes clogged Low Flow Orifices.



OWNER/DEVELOPER
Richmond American Homes of Maryland, Inc.
6200 Old Dobbin Lane
Columbia, Md 21045
410.872.0267

STORMWATER MANAGEMENT NOTES AND DETAILS HUNTERS RIDGE
LOTS 1 THRU 4, 18 THRU 54, 60 THRU 72
OPEN SPACE LOTS 55 THRU 59 & 73
AND A RESUBDIVISION OF BULK PARCEL 'C'
HESLEY WOODS, SECTION 1, PLAT NO. 14926

TAX MAP 38 GRIDS 4 & 10 PARCEL 163
1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DESIGN BY: KO
DRAWN BY: KO
CHECKED BY: ZTF
SCALE: As Shown
DATE: Jan 23, 2007
I.P.O. No.: 3018
SHEET No. 12 OF 20

F-04-111

LEGEND

- Existing Contour
- Proposed Contour
- Existing Spot Elevation
- Proposed Spot Elevation
- Direction of Flow
- Existing Trees to Remain
- Walk Out Basement
- Shade Tree
- Street Tree
- Evergreen Tree
- Shrub
- Landscape Perimeter

STREET TREE SCHEDULE

STREET NAME	LF REQUIRED	TREES REQUIRED	PROVIDED
Fairlee Road	680	22	22
Joseph Scott Drive	2,170	54	54
Mary Ann Lane	776	19	19

STREET TREE LANDSCAPE SCHEDULE

KEY	QUAN.	BOTANICAL NAME	SIZE	NOTE
AR	27	Acer rubrum, Shade Trees (Street Trees)	2 1/2"-3" Cal.	B # B
PA	27	Platanus x acerifolia, Shade Trees (Street Trees)	2 1/2"-3" Cal.	B # B
ZS	22	Zelkova serrata, Shade Trees (Street Trees)	2 1/2"-3" Cal.	B # B
QC	19	Quercus coccinea Scarlet Oak	2 1/2"-3" Cal.	B # B

LANDSCAPE SCHEDULE

KEY	QUAN.	BOTANICAL NAME	SIZE	NOTE
AR	32	Acer rubrum (Shade Trees)	2 1/2"-3" Cal.	B # B
GR	33	Quercus rubra (Shade Trees)	2 1/2"-3" Cal.	B # B
PS	13	Pinus strobus Eastern White Pine	6'-8' Ht.	B # B
TO	10	Thuja occidentalis 'Nigra' Dark American Arborvitae	5'-6' Ht.	B # B
IV	10	Ilex verticillata Winterberry	3'-4' Ht.	Cont.

NOTES:

- At the time of plant installation, all shrubs and trees listed and approved on the Landscape Plan shall comply with the proper height requirements in accordance with the Howard County Landscape Manual. In addition, no substitutions or relocations of the required plantings may be made without prior review and approval from the Department of Planning and Zoning. Any deviation from the 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 revision are made to the applicable plans.
- Landscape surety is based on the required landscaping of 65 shade trees, 23 evergreen trees and the Private Access Place street trees (19) and refuse pad shrubs (10) in the amount of \$28,950.00.

SCHEDULE D : STORMWATER MANAGEMENT AREA LANDSCAPING

Linear Feet of Perimeter	1,261 LF
Credit for Existing Vegetation (No, Yes and Linear Feet)	Yes, #364 LF (Remaining Perimeter: 897 LF)
Credit for Wall, Fence or Berm (No, Yes and %)	N/A
Number of Trees Required	150 = 18 Shade Trees 140 = 23 Evergreen Trees
Number of Trees Provided	18 Shade Trees 23 Evergreen Trees 0 Trees (0 Substitution Trees)

* Existing trees to remain

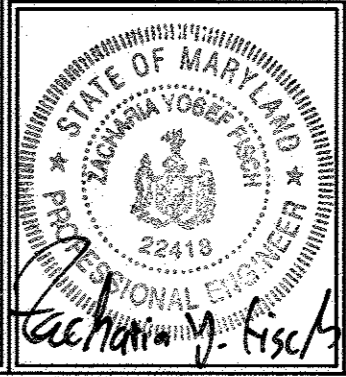
OWNER/DEVELOPER
 Richmond American Homes of Maryland, Inc.
 6200 Old Dobbin Lane
 Columbia, Md 21045
 410.872.0267

LANDSCAPE PLAN
HUNTERS RIDGE
 LOTS 1 THRU 4, 18 THRU 54, 60 THRU 72
 OPEN SPACE LOTS 55 THRU 59 & 73
 AND A RESUBDIVISION OF BULK PARCEL 'C'
 WESLEY WOODS, SECTION 1, PLAT NO. 14926

TAX MAP 38 GRIDS 4 & 10 PARCEL 163
 1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

Note:
 THIS SHEET SUPERSEDES PREVIOUS PLAN SIGNED SEPTEMBER 2004.

No.	Revisions	Date
1	UPDATE GRADING & REMOVE GUARDRAIL	9/23/2013
2	Revised Lots and Lot Numbers. Deleted Retaining Walls. Revised Pipestems. Revised Perimeter Landscaping. Moved Street Light. Revised and Relabeled Easements. Re-Subdivided Lot 5.	02/12/2007
3	Revised Lot Areas for Lots 35 thru 39, 55 and 56; Revised BRL on Lots 1 thru 3, 11, 15, 16, 19 thru 21 and 42; Revised Forest Conservation Easement Areas; Added Lot 58.	02/28/2005



FSH Associates
 Engineers Planners Surveyors
 8318 Forrest Street
 Ellicott City, MD 21043
 Tel: 410-750-2251 Fax: 410-750-7350
 E-mail: FSHAssociates@cs.com

DESIGN BY: PS/KO
 DRAWN BY: MM/KO
 CHECKED BY: ZYF
 SCALE: 1"=50'
 DATE: Mar. 21, 2007
 P.O. No.: 3018
 SHEET No.: 18 OF 22

SCHEDULE A PERIMETER LANDSCAPE EDGE

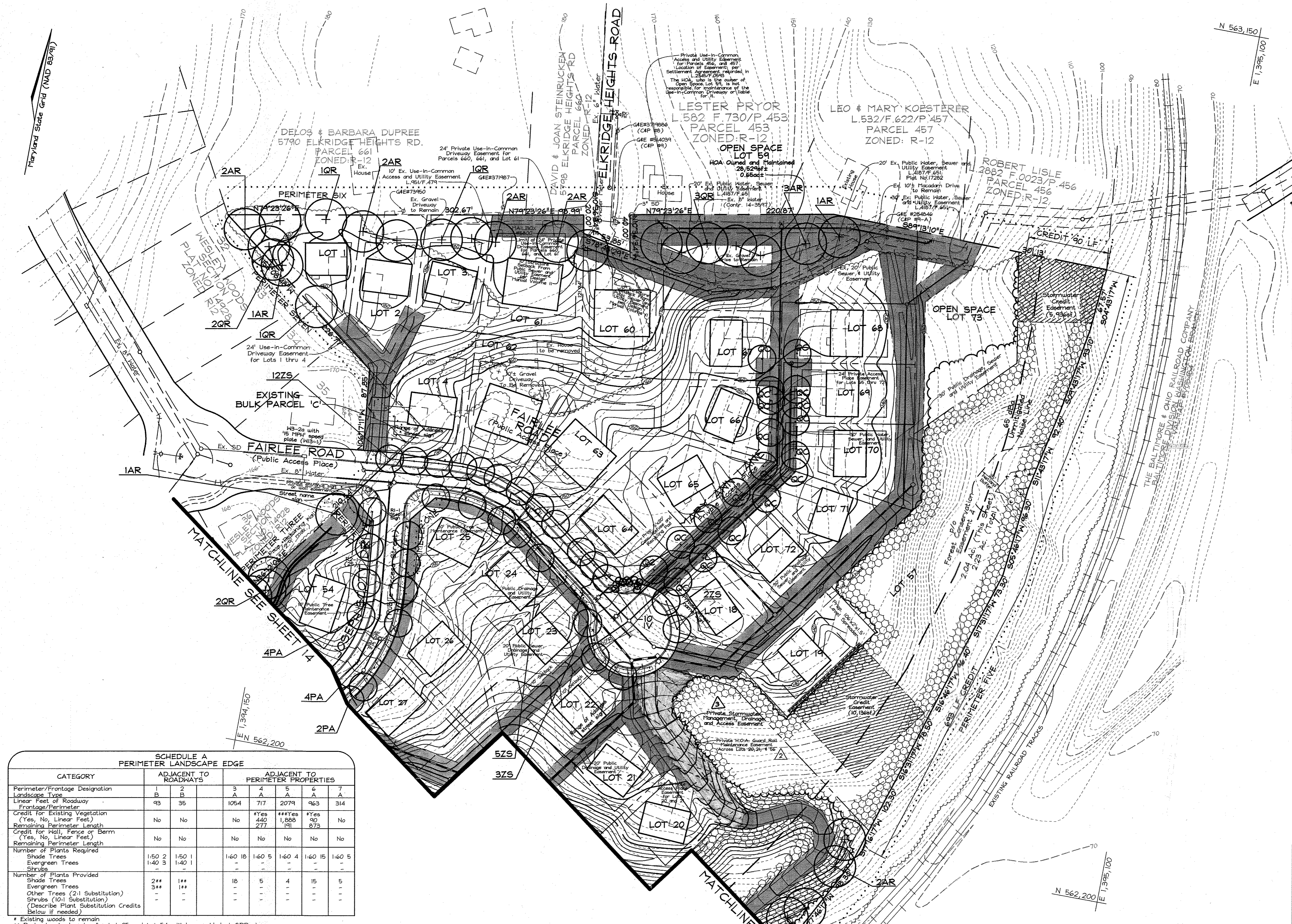
CATEGORY	ADJACENT TO ROADWAYS		ADJACENT TO PERIMETER PROPERTIES				
	1	2	3	4	5	6	7
Perimeter/Frontage Designation	B	B	A	A	A	A	A
Linear Feet of Roadway Frontage/Perimeter	93	35	1054	717	2079	963	314
Credit for Existing Vegetation (Yes, No, Linear Feet)	No	No	No	440	1,888	90	No
Remaining Perimeter Length (Yes, No, Linear Feet)	No	No	No	277	1,911	873	No
Remaining Perimeter Length							
Number of Plants Required							
Shade Trees	1:50	2	1:50	1	1:60	18	1:60
Evergreen Trees	1:40	3	1:40	1	1:60	4	1:60
Shrubs							
Number of Plants Provided							
Shade Trees	2**	1**	18	5	4	15	5
Evergreen Trees							
Other Trees (2:1 Substitution)	3**	1**					
Shrubs (10:1 Substitution)							
(Describe Plant Substitution Credits Below if needed)							

* Existing woods to remain
 ** Perimeter landscaping for Lot 25 and Lot 54 will be provided at SDP stage
 *** Credit taken for existing woods and the shared boundary with the SMT Perimeter

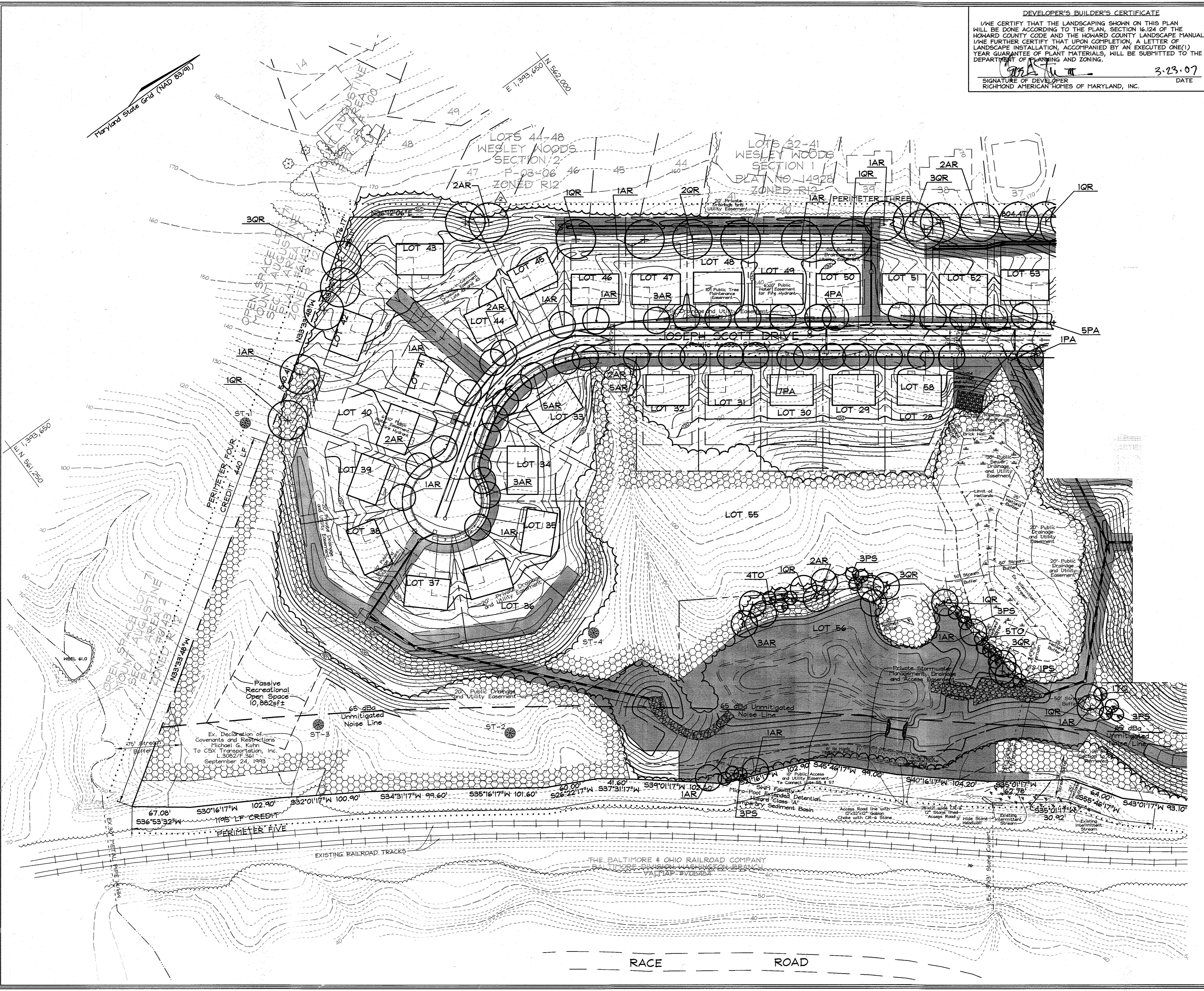
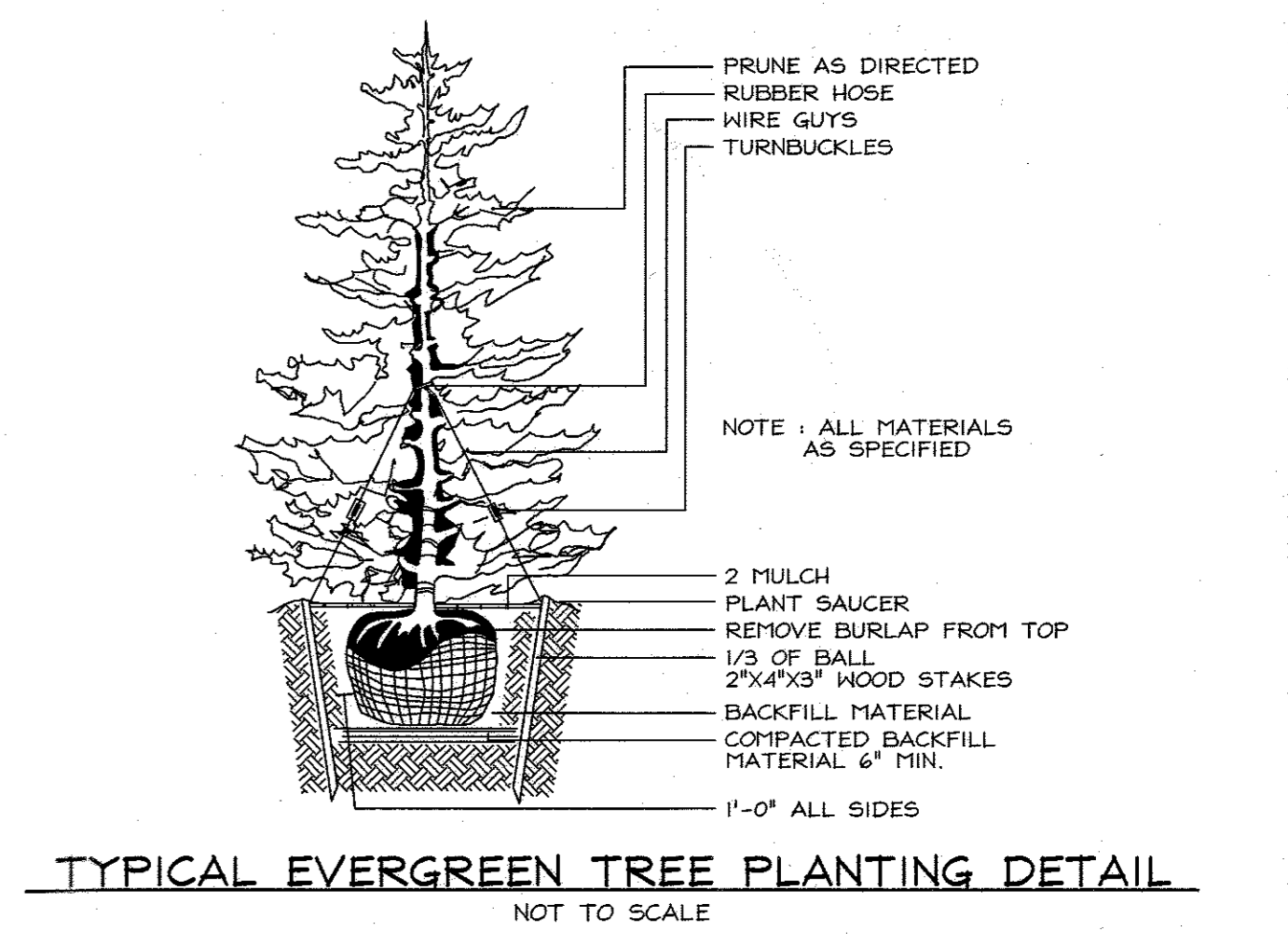
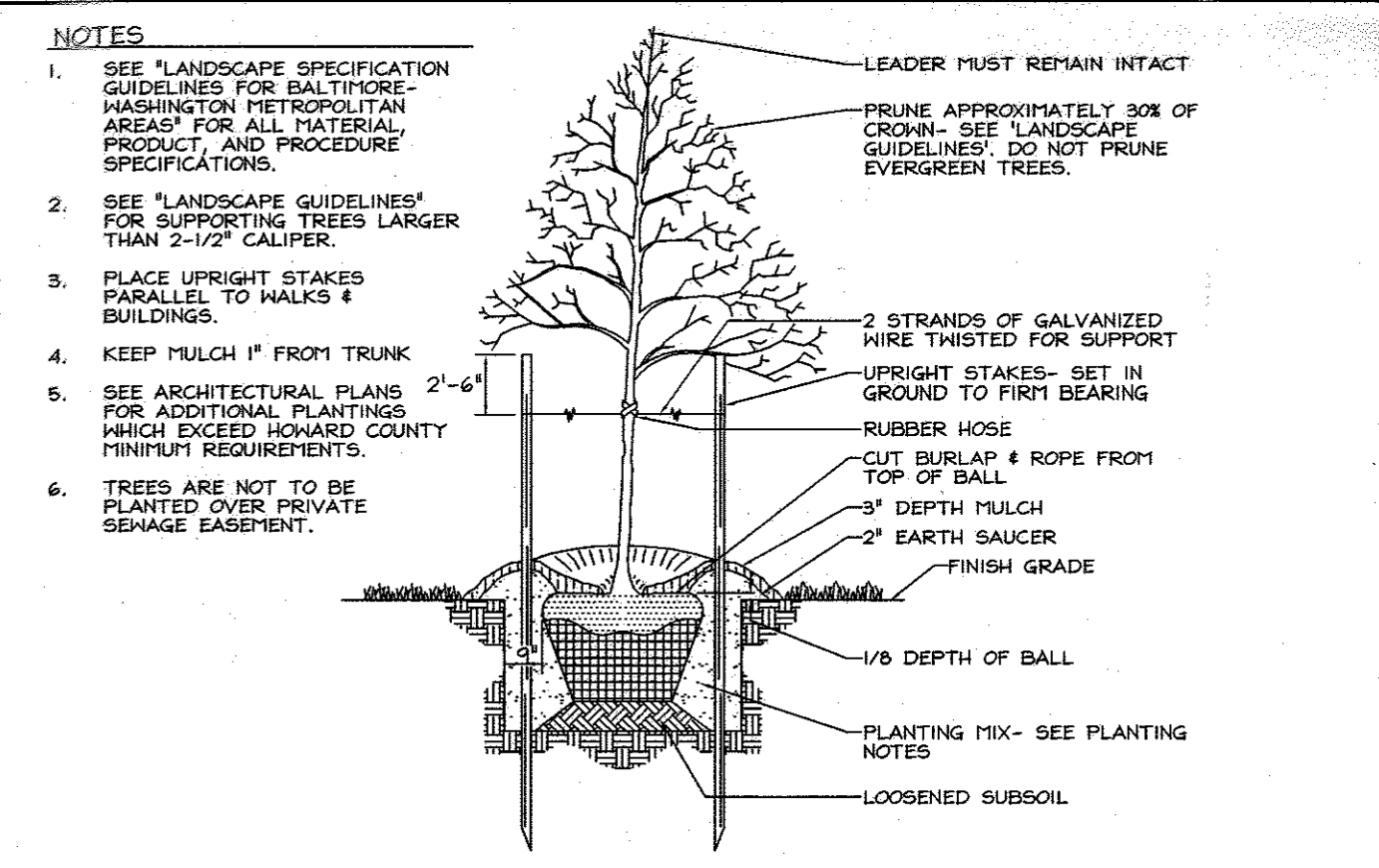
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 4/19/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 [Signature] 4-16-07
 CHIEF, BUREAU OF HIGHWAYS 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.
 [Signature] 3-23-07
 SIGNATURE OF DEVELOPER DATE
 RICHMOND AMERICAN HOMES OF MARYLAND, INC.



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.
 SIGNATURE OF DEVELOPER: *[Signature]* DATE: 3-23-07
 RICHMOND AMERICAN HOMES OF MARYLAND, INC.



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
[Signature] 4/16/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE
[Signature] 4/16/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[Signature] 4-16-07
 CHIEF, BUREAU OF HIGHWAYS DATE

No.	Revisions	Date
2	Deleted Retaining Walls and Easement on Lots 43-46.	02/12/2007
3	Revised Lot Areas for Lots 35 thru 39, 55 and 56; Revised BRL on Lots 1 thru 3, 11, 15, 16, 19 thru 21 and 42; Revised Forest Conservation Easement Areas; Added Lot 58.	02/28/2005

FOR AS-BUILT SWM POND ELEVATIONS SEE SHEET 9 OF 20.

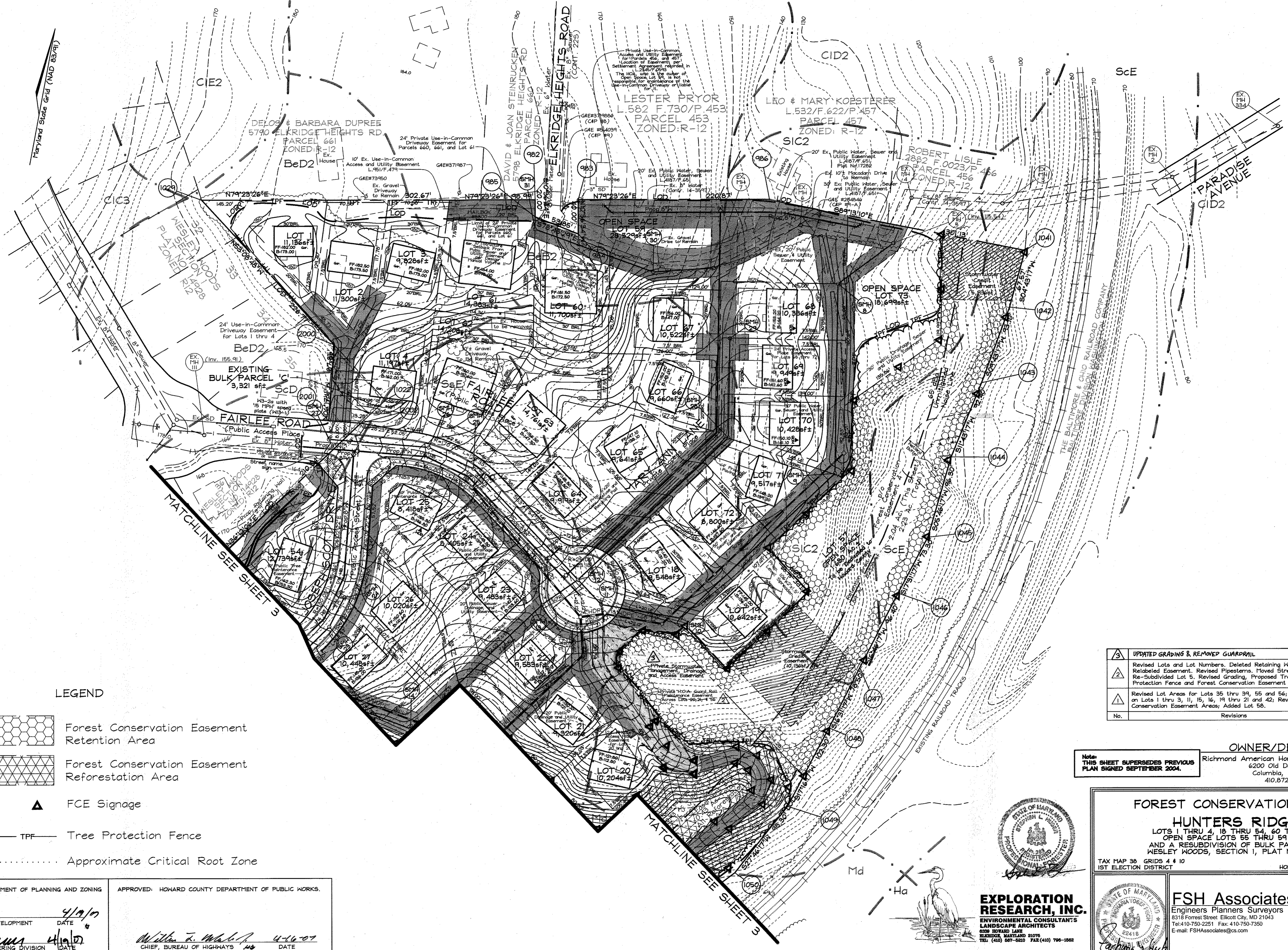
Note: THIS SHEET SUPERSEDES PREVIOUS PLAN SIGNED SEPTEMBER 2004.
 Richmond American Home.
 410.872.0267

HUNTERS RIDGE
 OPEN SPACE LOTS 55 THRU 59 & 73 AND A RESUBDIVISION OF BULK PARCEL 'C' WESLEY WOODS, SECTION 1, PLAT NO. 14928

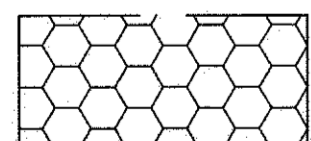
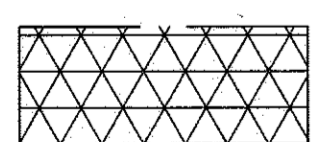



TAX MAP 38 GRIDS 4 & 10 PARCEL 163
 1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DESIGN BY: PS/KO
 DRAWN BY: MM/KO
 CHECKED BY: TF
 SCALE: 1"=50'
 DATE: Mar. 21, 2007
 W.O. No.: 3018
 SHEET No.: 14 OF 20

FSH Associates
 Engineers Planners Surveyors
 8318 Forrest Street Ellicott City, MD 21043
 Tel: 410-750-2251 Fax: 410-750-7350
 E-mail: FSHAssociates@cs.com



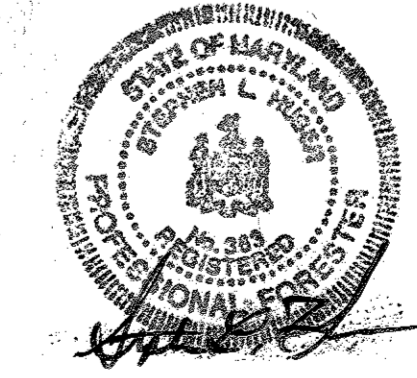
LEGEND

-  Forest Conservation Easement Retention Area
-  Forest Conservation Easement Reforestation Area
-  FCE Signage
-  TPF Tree Protection Fence
-  Approximate Critical Root Zone

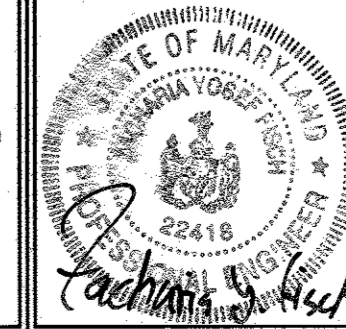
No.	Revisions	Date
1	UPDATED GRADING & REMOVED GUARDRAIL	9/23/2013
2	Revised Lots and Lot Numbers. Deleted Retaining Walls and Relabeled Easement. Revised Pipestems. Moved Street Light. Re-Subdivided Lot 5. Revised Grading, Proposed Tree Line, Tree Protection Fence and Forest Conservation Easement #4 Areas.	02/12/2007
3	Revised Lot Areas for Lots 35 thru 39, 55 and 56; Revised BRL on Lots 1 thru 3, 11, 15, 16, 19 thru 21 and 42; Revised Forest Conservation Easement Areas; Added Lot 58.	02/28/2005

OWNER/DEVELOPER
 Richmond American Homes of Maryland, Inc.
 6200 Old Dobbin Lane
 Columbia, Md 21045
 410.672.0267

FOREST CONSERVATION PLAN
HUNTERS RIDGE
 LOTS 1 THRU 4, 18 THRU 54, 60 THRU 72
 OPEN SPACE LOTS 55 THRU 59 & 73
 AND A RESUBDIVISION OF BULK PARCEL 'C'
 WISLEY WOODS, SECTION 1, PLAT NO. 14926
 TAX MAP 38 GRIDS 4 & 10 PARCEL 163
 1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND




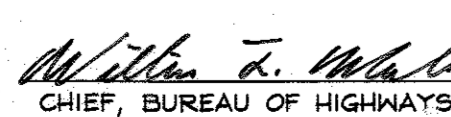
EXPLORATION RESEARCH, INC.
 ENVIRONMENTAL CONSULTANTS & LANDSCAPE ARCHITECTS
 6339 BOWARD LANE
 BLENHEIM, MARYLAND 21026
 TEL: (410) 547-5210 FAX: (410) 798-1888



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 8318 Forest Street, Ellicott City, MD 21043
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 E-mail: FSHAssociates@cs.com

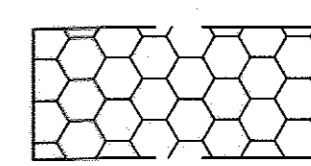
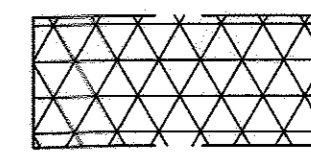

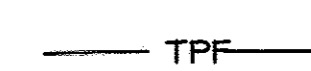
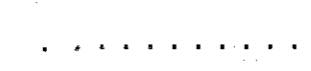
DESIGN BY: FS/KO
 DRAWN BY: MM/RAB
 CHECKED BY: ZTF/SLH
 SCALE: 1"=50'
 DATE: Mar. 21, 2007
 N.O. No.: 3018
 SHEET No. 18 OF 20

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 4/19/07

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

 CHIEF, BUREAU OF HIGHWAYS
 DATE: 4/16/07

No.	Revisions	Date
1	Revised Lot Areas for Lots 35 thru 39, 55 and 56; Revised BRL on Lots 1 thru 3, 11, 15, 16, 19 thru 21 and 42; Revised Forest Conservation Easement Areas; Added Lot 58.	02/28/2005
2	Deleted Retaining Walls and Easement on Lots 43-46.	02/12/2007

LEGEND

-  Forest Conservation Easement Retention Area
-  Forest Conservation Easement Reforestation Area
-  FCE Signage
-  TPF Tree Protection Fence
-  Approximate Critical Root Zone

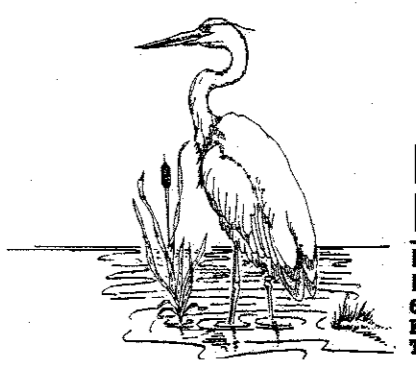
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Howard 4/19/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

William 4/19/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

William 4-16-07
 CHIEF, BUREAU OF HIGHWAYS DATE



EXPLORATION RESEARCH, INC.
 ENVIRONMENTAL CONSULTANTS
 LANDSCAPE ARCHITECTS
 639 REVEREND LANE
 BELLEGRUE MARYLAND 20776
 TEL: (410) 667-9210 FAX: (410) 796-1562

FOR AS-BUILT SWM POND ELEVATIONS SEE SHEET 9 OF 20.



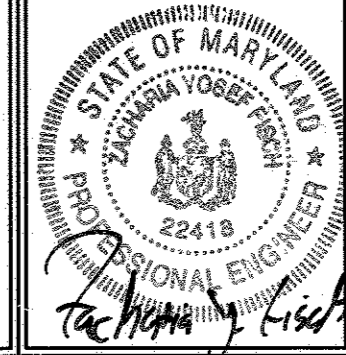
OWNER/DEVELOPER

Richmond American Homes of Maryland, Inc.
 6200 Old Dobbin Lane
 Columbia, Md 21045
 410.872.0267

FOREST CONSERVATION PLAN

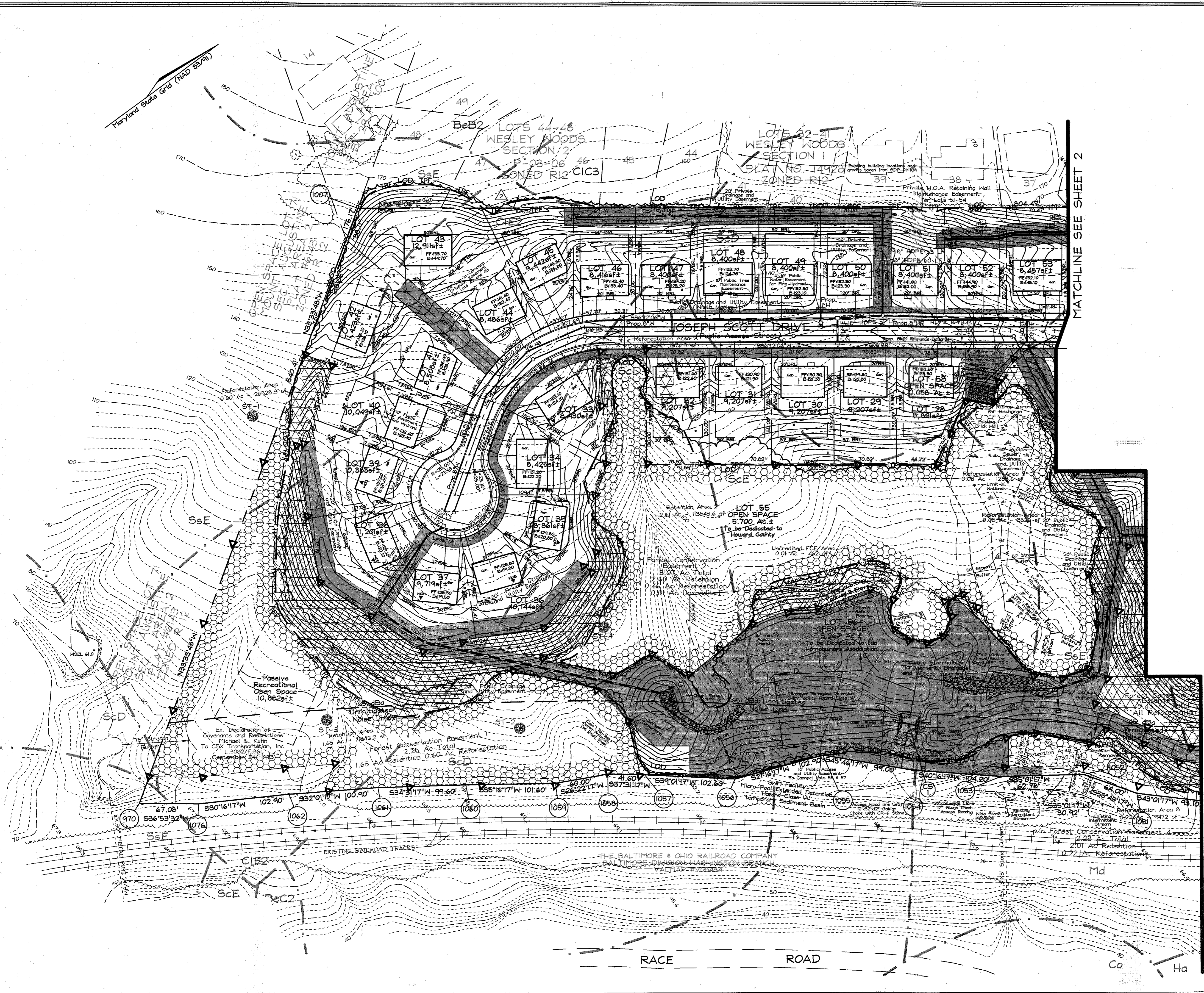
HUNTERS RIDGE
 LOTS 1 THRU 4, 18 THRU 54, 60 THRU 72
 OPEN SPACE LOTS 55 THRU 59 & 73
 AND A RESUBDIVISION OF BULK PARCEL 'C'
 WESLEY WOODS, SECTION 1, PLAT NO. 14926

TAX MAP 38, GRIDS 4 & 10 PARCEL 163
 1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND



FSH Associates
 Engineers Planners Surveyors
 8318 Forrest Street, Ellicott City, MD 21043
 Tel: 410-750-2251 Fax: 410-750-7350
 E-mail: FSHAssociates@cs.com

DESIGN BY: PS/KO
 DRAWN BY: MIM/RAB
 CHECKED BY: ZYF/SLH
 SCALE: 1"=50'
 DATE: Mar. 21, 2007
 W.O. No.: 3019
 SHEET No.: 16 OF 20



FOREST CONSERVATION WORKSHEET

Net Tract Area Acres
A. Total Tract Area 25.66
B. Area Within 100 Year Floodplain 0
C. Other deductions (Area p/o FCP for F-00-115) 0.08
D. Net Tract Area 25.58
Zoning Use Category: Residential
Land Use Category
E. Afforestation Minimum (15 % x D) 3.84
F. Conservation Threshold (20 % x D) 5.12
Existing Forest Cover
G. Existing Forest on Net Tract Area 24.10
H. Forest Area Above Conservation Threshold Breakeven Point 18.98
I. Forest Retention Above Threshold with no Mitigation 8.92
J. Clearing Permitted without Mitigation 15.18
Proposed Forest Clearing
K. Forest Areas to be Cleared 17.85
L. Forest Areas to be Retained 6.25
Planting Requirements
M. Reforestation for Clearing Above Threshold 4.46
N. Reforestation for Clearing Below the Threshold 0
P. Credit for Retention Above Conservation Threshold 1.13
Q. Total Reforestation Required 3.33
R. Total Afforestation Required 0
S. Total Reforestation and Afforestation Requirement 3.33

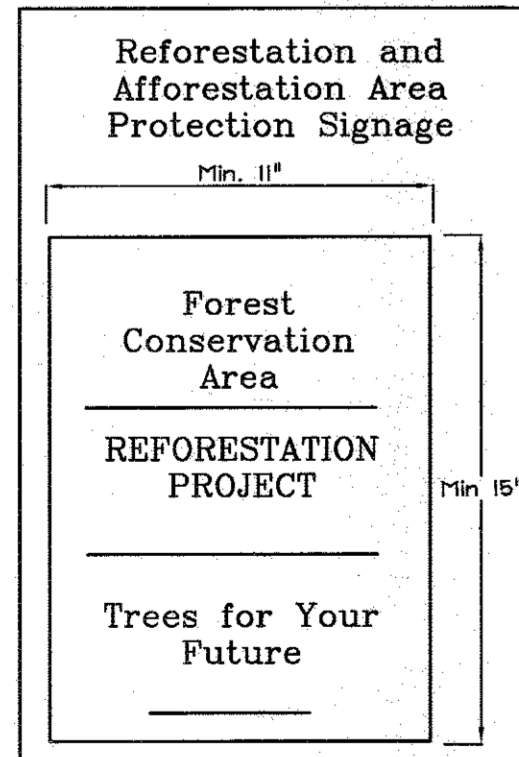
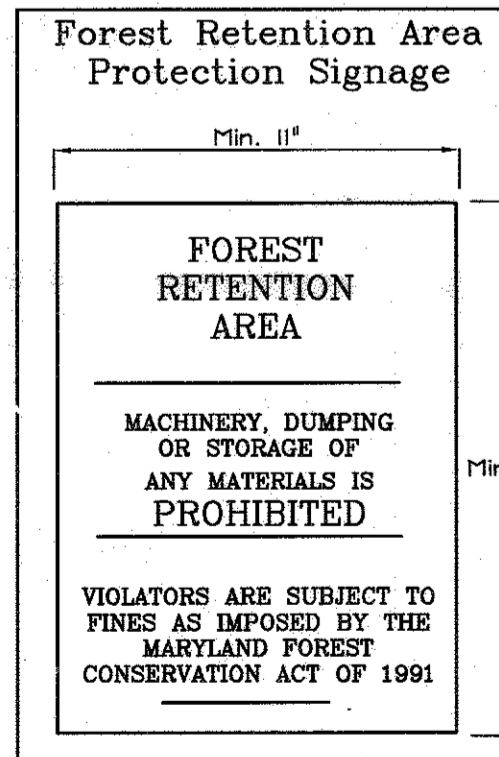
FOREST CONSERVATION NARRATIVE

This Forest Conservation Plan has been developed in accordance with the Howard County Forest Conservation Act of 1991. The total tract area consists of 25.66 acres of land, including a 0.08 ac area on the adjacent Wesley Woods subdivision which has been included in the forest conservation plan for F-00-115. This area was deducted for a net tract of 25.58 ac. The site contains 24.10 acres of forest cover on the net tract. Forest retained in easements will total 6.25 acres. A total of 1.72 acres of reforestation planting is proposed. Four forest conservation easements will be established. Total area contained within easements is 7.98 acres. All easements contain wetlands, streams and their buffers, and steep slopes. For the remaining 1.60 acres of obligation, we propose a fee-in-lieu payment of \$35,065.80.

New on-site plantings will be 2-3' containerized whip stock planted at 350 stems/acre with tree shelters.

FOREST CONSERVATION EASEMENT TABLE

Table with columns: EASEMENT, TYPE, AREA (ACRES), BOND RATE, BOND PRICE. Rows include Reforestation Retention and Reforestation Uncredited for various areas.



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

Chief, Division of Land Development
Date: 4/19/07

Chief, Bureau of Highways
Date: 4-16-07

FOREST CONSERVATION EASEMENT #1
Reforestation Area 1 : 0.60 Ac. (210 trees @ 350 TPA)

Table with columns: Qty, Botanical Name, Common Name, Min. Size, Spacing, Notes. Lists tree species like Acer rubrum, Liriodendron tulipifera, etc.

FOREST CONSERVATION EASEMENT #2
Reforestation Area 2 : 0.03 Ac. (14 trees @ 350 TPA)

Table with columns: Qty, Botanical Name, Common Name, Min. Size, Spacing, Notes. Lists tree species like Acer rubrum, Liriodendron tulipifera, etc.

FOREST CONSERVATION EASEMENT #2
Reforestation Area 3 : 0.19 Ac. (67 trees @ 350 TPA)

Table with columns: Qty, Botanical Name, Common Name, Min. Size, Spacing, Notes. Lists tree species like Acer rubrum, Liriodendron tulipifera, etc.

FOREST CONSERVATION EASEMENT #2
Reforestation Area 4 : 0.13 Ac. (46 trees @ 350 TPA)

Table with columns: Qty, Botanical Name, Common Name, Min. Size, Spacing, Notes. Lists tree species like Acer rubrum, Liriodendron tulipifera, etc.

FOREST CONSERVATION EASEMENT #2
Reforestation Area 5 : 0.03 Ac. (11 trees @ 350 TPA)

Table with columns: Qty, Botanical Name, Common Name, Min. Size, Spacing, Notes. Lists tree species like Acer rubrum, Liriodendron tulipifera, etc.

FOREST CONSERVATION EASEMENT #2
Reforestation Area 6 : 0.08 Ac. (28 trees @ 350 TPA)

Table with columns: Qty, Botanical Name, Common Name, Min. Size, Spacing, Notes. Lists tree species like Acer rubrum, Liriodendron tulipifera, etc.

FOREST CONSERVATION EASEMENT #3
Reforestation Area 7 : 0.43 Ac. (151 trees @ 350 TPA)

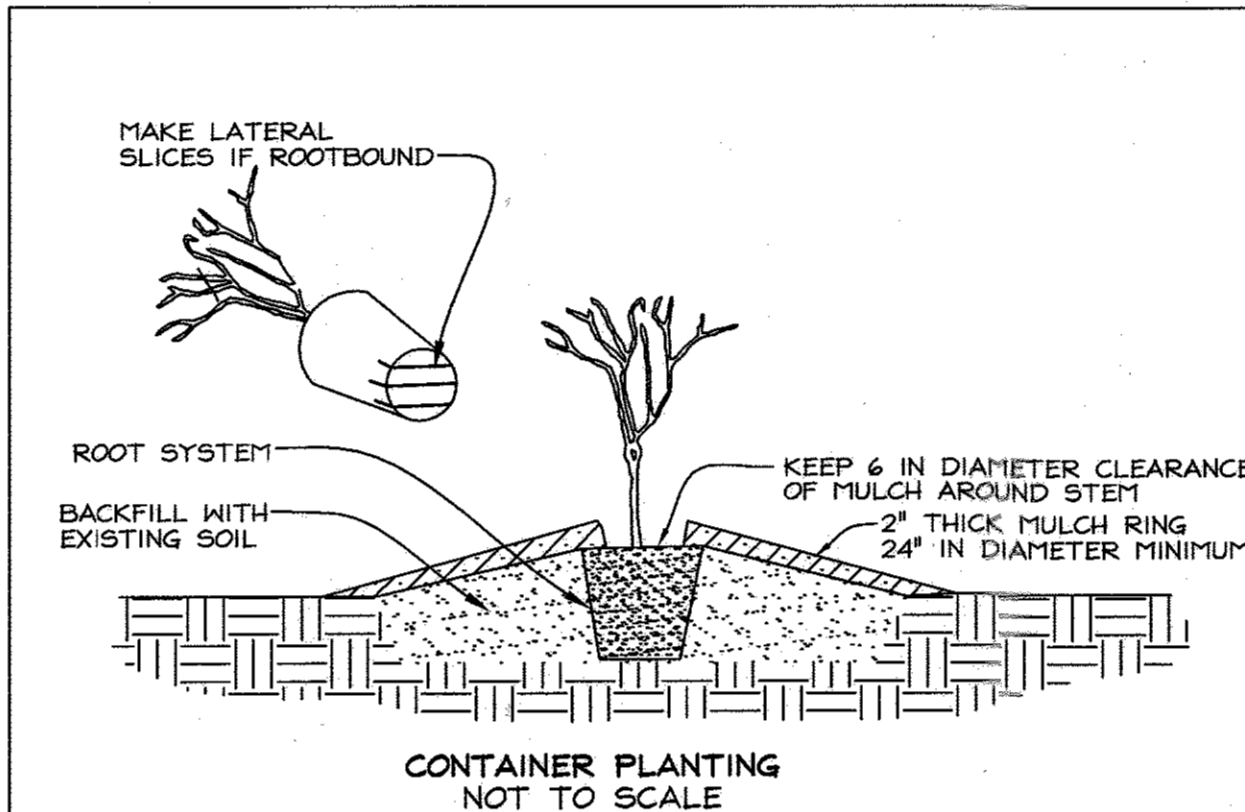
Table with columns: Qty, Botanical Name, Common Name, Min. Size, Spacing, Notes. Lists tree species like Acer rubrum, Liriodendron tulipifera, etc.

FOREST CONSERVATION EASEMENT #4
Reforestation Area 8 : 0.23 Ac. (77 trees @ 350 TPA & 4 trees @ 200 TPA)

Table with columns: Qty, Botanical Name, Common Name, Min. Size, Spacing, Notes. Lists tree species like Acer rubrum, Liriodendron tulipifera, etc.

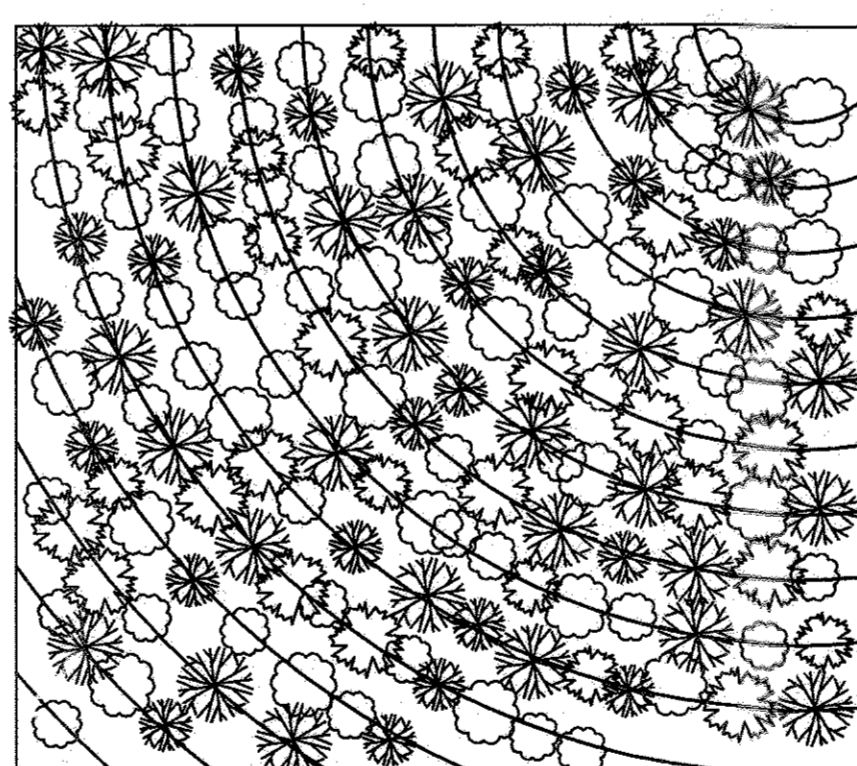
MANAGEMENT NOTES FOR FOREST RETENTION AREAS

- 1. All proposed activities shall adhere to the conditions, schedules and terms of an approved sediment control and erosion plan.
2. After the boundaries of the retention area have been staked and flagged...
3. Tree protection for all retained areas:
a. All retention areas within 50 feet of proposed construction activities shall be protected by highly visible, well anchored temporary protection devices...
4. All protection devices shall be properly maintained and shall remain in place until construction has ceased.



- 1. REMOVE THE PLANT EITHER BY CUTTING OR INVERTING THE CONTAINER BEING PLACED NEAR THE DOWNHILL EDGE OF THE BASIN.
2. USE A KNIFE TO CUT THROUGH BOTTOM HALF OF THE ROOT BALL.
3. PLANT SHRUBS ON FORMED UP MOUNDS 4" ABOVE THE EXISTING GRADE...

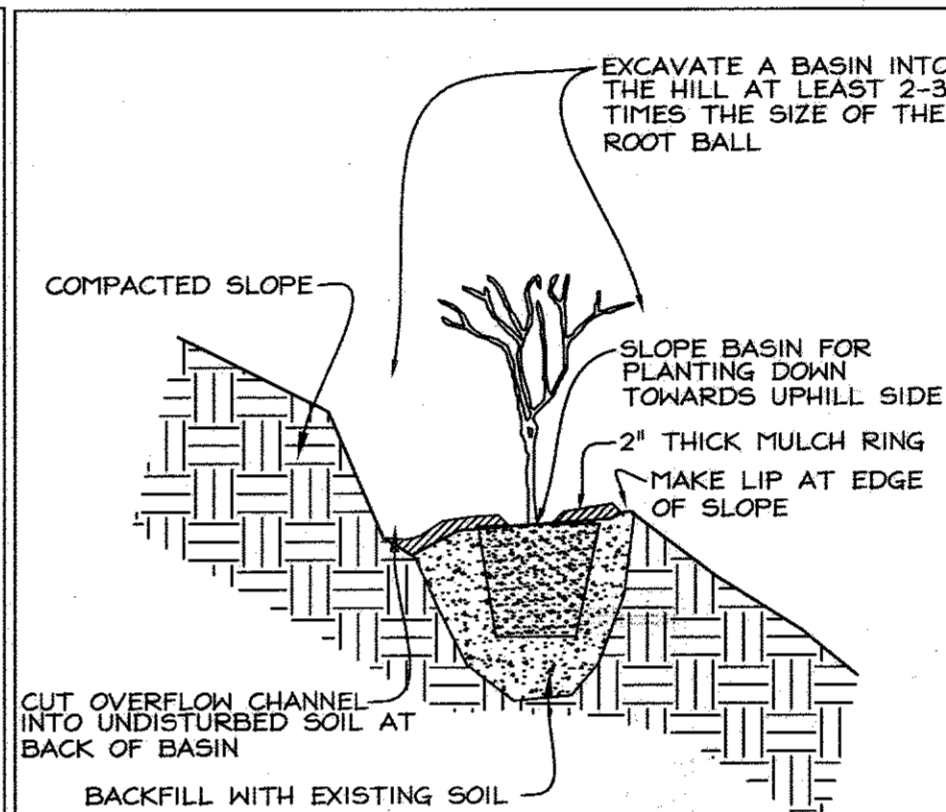
CURVILINEAR RANDOMIZED PLANTING



- 1. MIX TREE AND SHRUB SPECIES IN THE STAGING AREA.
2. SET THE GUIDE CURVILINEAR LINE AS CLOSE TO CONTOUR AS POSSIBLE

Soil Protection Zone Notes

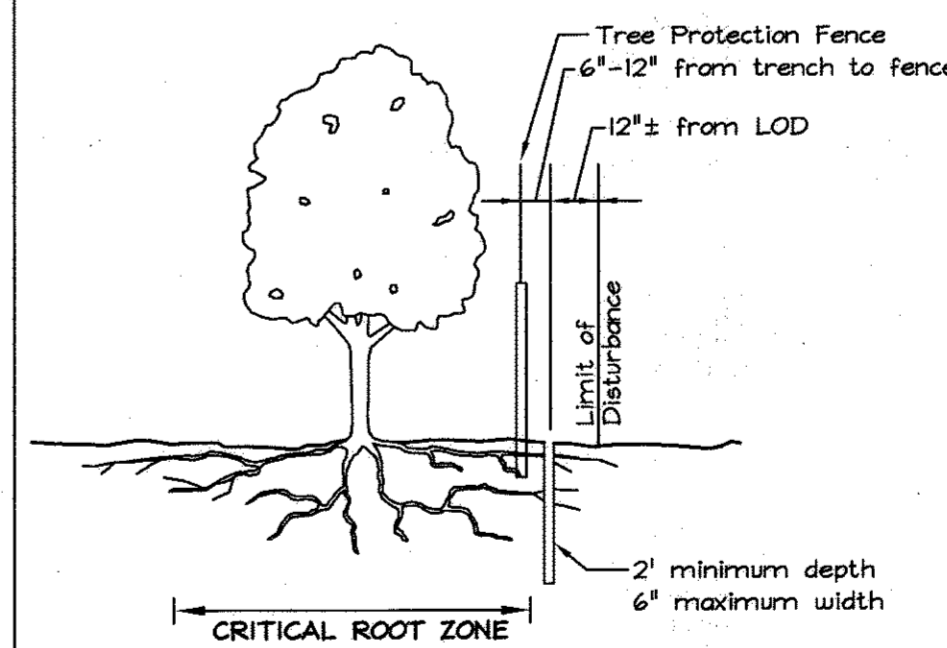
- 1. The Soil Protection Zone shall include all areas contained inside the Limit of Disturbance.
2. Where possible, the Soil Protection Zone shall extend to the drip line of specimen trees.
3. No construction activity is permitted within the Soil Protection Zone.
4. If soil has been compacted or grading has taken place in the vicinity of the Soil Protection Zone, root pruning shall be implemented per Root Pruning detail, shown on this plan.



- 1. PLANT AS PER CONTAINER PLANTING DETAIL EXCEPT PREP OF PLANTING AREA.
2. A BASIN FOR PLANTING IS CUT INTO THE SLOPE WITH PLANT BEING PLACED NEAR THE DOWNHILL EDGE OF THE BASIN.

ROOT PRUNING

- 1. Retention areas shall be set prior to construction.
2. Boundaries of retention areas shall be flagged, and location of trench shall be specified by ERI Qualified Professional.
3. Roots shall be cut cleanly with root pruning equipment, where roots are found, trenching shall be done by air spade or hand tools.



Reforestation Area Monitoring Notes

- 1. 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.
2. 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.

Reforestation Area Planting Notes

- 1. Initial planting inspection and certification required. Planting contractor to notify ERI qualified professional 24 hours in advance of planting.
2. Reforestation areas may be planted as soon as reasonable to do so. Late winter-early spring plantings are preferred.

CRITICAL ROOT ZONE

For the edge of large areas, use the greater of the two choices below:

1" DBH of the tree = 1' radius of the critical root zone or 8 ft radius circle around the trunk of the tree

For isolated specimen trees: 1" DBH = 1.5' radius of the critical root zone

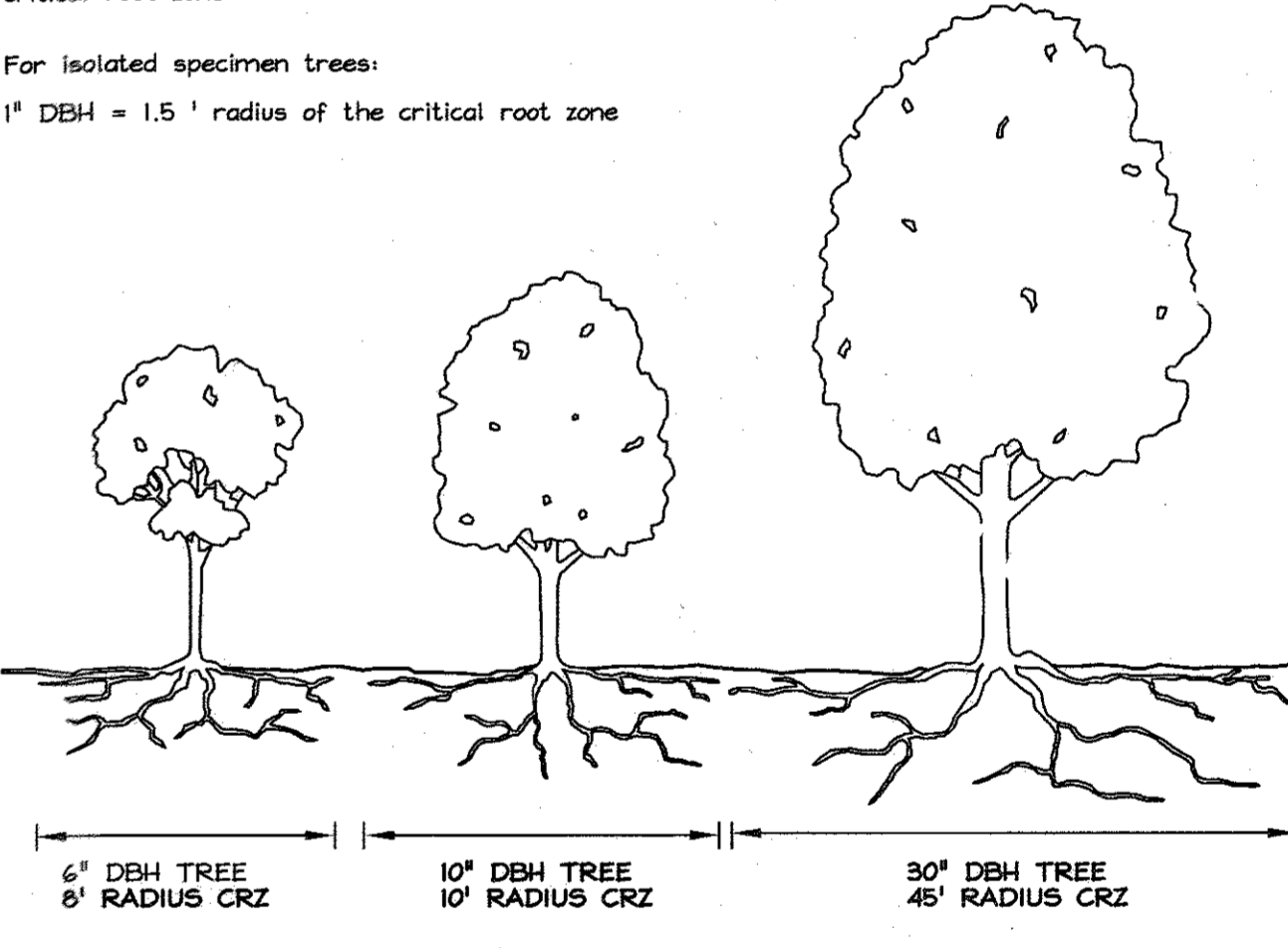


Table with columns: No., Revisions, Date. Lists revisions to the Forest Conservation Worksheet, Narrative, and Easement Table.

OWNER/DEVELOPER

Richmond American Homes of Maryland, Inc.
6200 Old Dobbin Lane
Columbia, Md 21045
410.872.0267

FOREST CONSERVATION NOTES AND DETAILS
HUNTERS RIDGE
LOTS 1 THRU 4, 18 THRU 54, 60 THRU 72

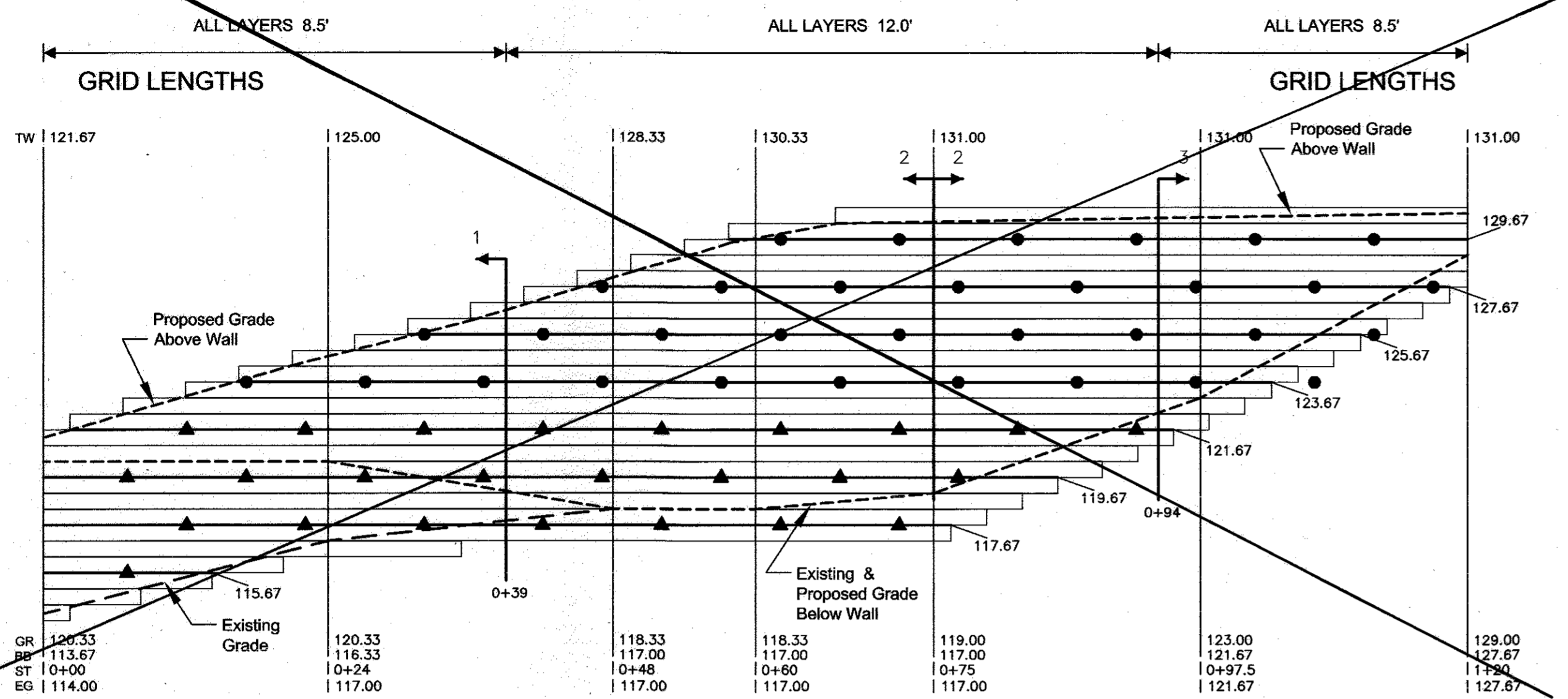
TAX MAP 38 GRIDS 4 & 10 PARCEL 163
1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

FSH Associates

Engineers Planners Surveyors
8318 Forest Street, Ellicott City, MD 21043
Tel: 410-750-2251 Fax: 410-750-7350

DESIGN BY: PS/KO
DRAWN BY: MM/RAB
CHECKED BY: ZYE/SLH
SCALE: 1"=50'
DATE: Mar. 21, 2007
W.O. No.: 3015
SHEET No.: 17 OF 20

~~WALL #1 (between Lots 21 & 58)~~ Δ

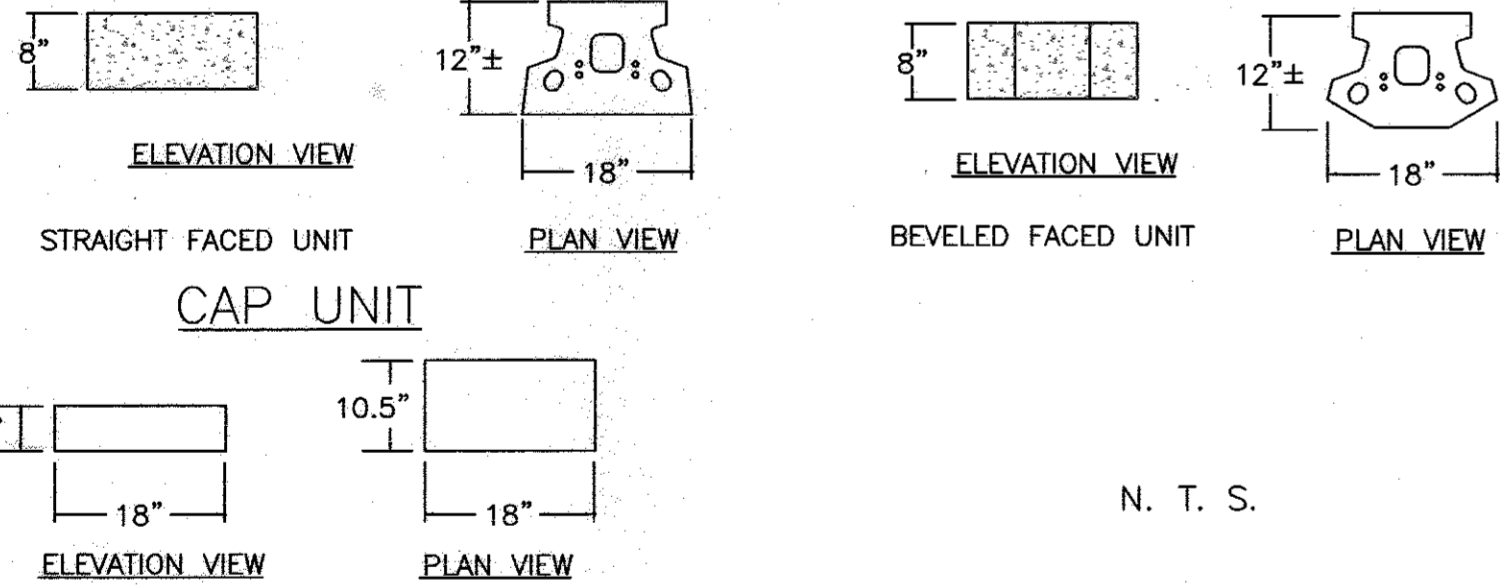


~~GRID KEY: MIRAFI 3XT
MIRAFI 5XT~~

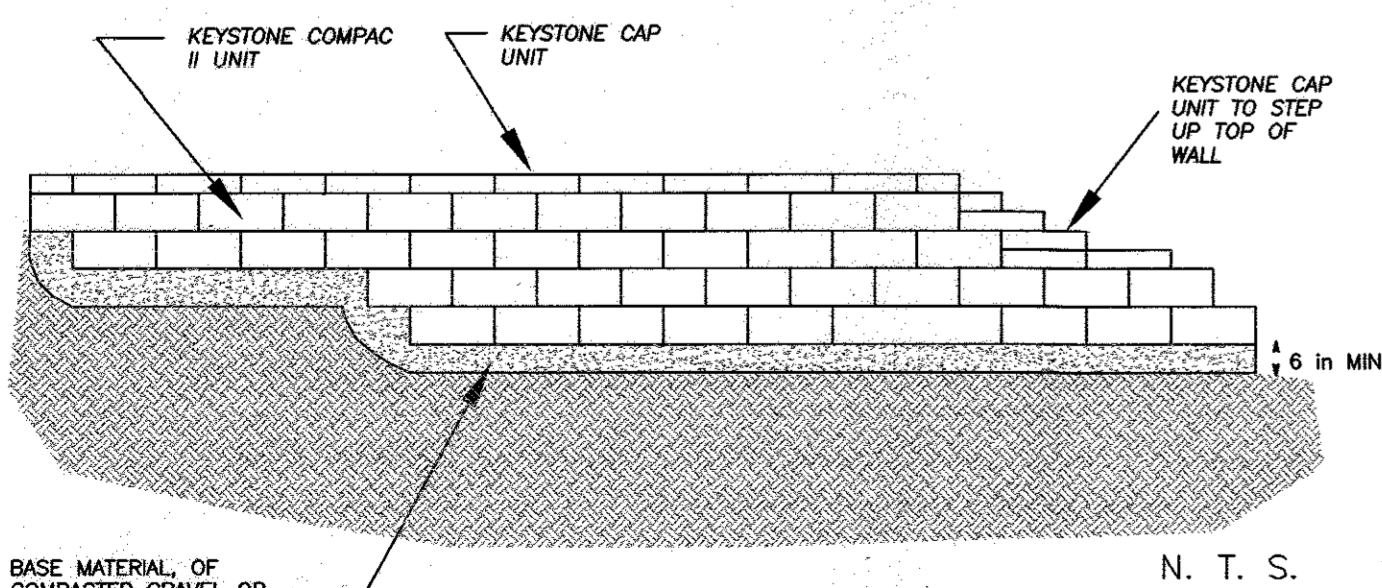
~~TW = TOP OF WALL (NOT INCLUDING CAP)
GR = PROPOSED FINISHED GRADE AT BASE OF WALL
BB = BOTTOM OF BLOCK / TOP OF LEVELING PAD
ST = WALL STATION
EG = EXISTING GRADE~~

~~Scale:
Horizontal 1" = 10'
Vertical 1" = 5'~~

KEYSTONE COMPAC II DIMENSIONS



N. T. S.



KEYSTONE STEP DOWN TYPICAL DETAIL

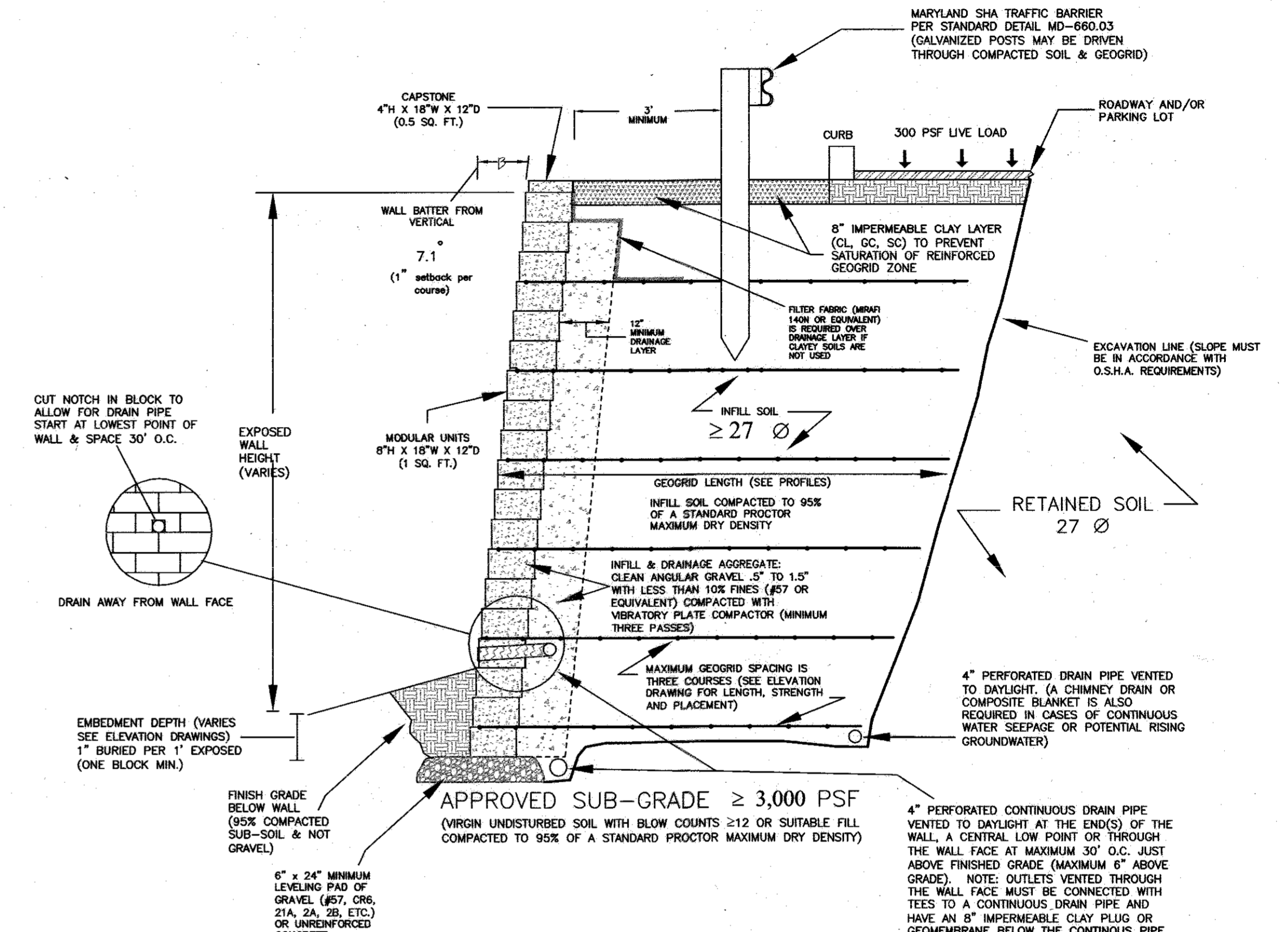
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Cecilia Hamer 10/1/04
CHIEF, DIVISION OF LAND DEVELOPMENT DATE 10/1/04
William 10/15/04
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE 10/15/04

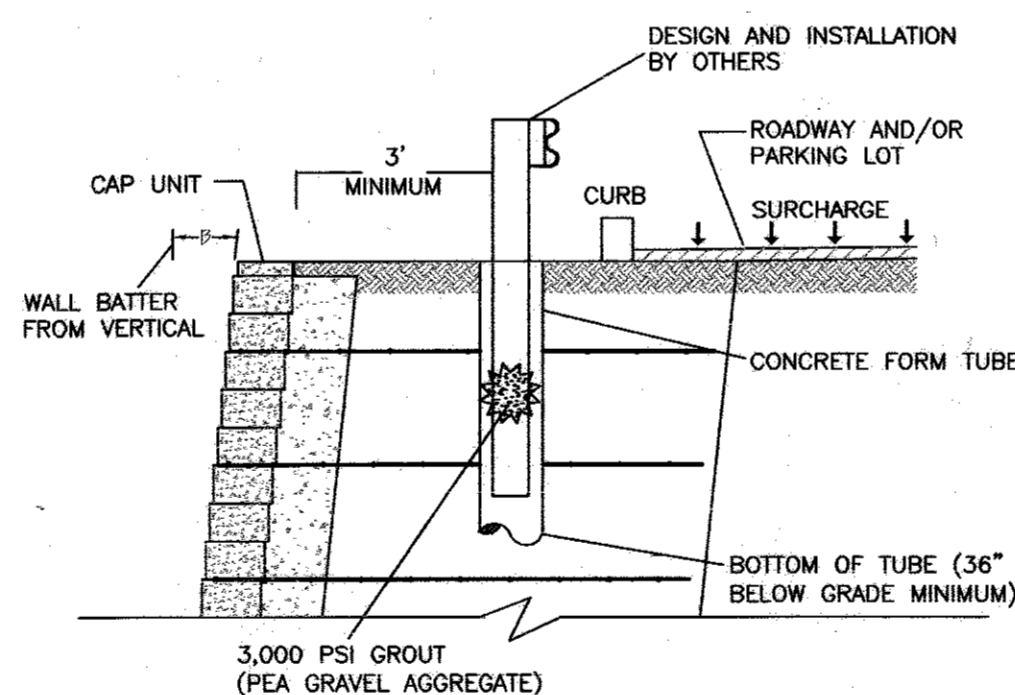
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS DATE

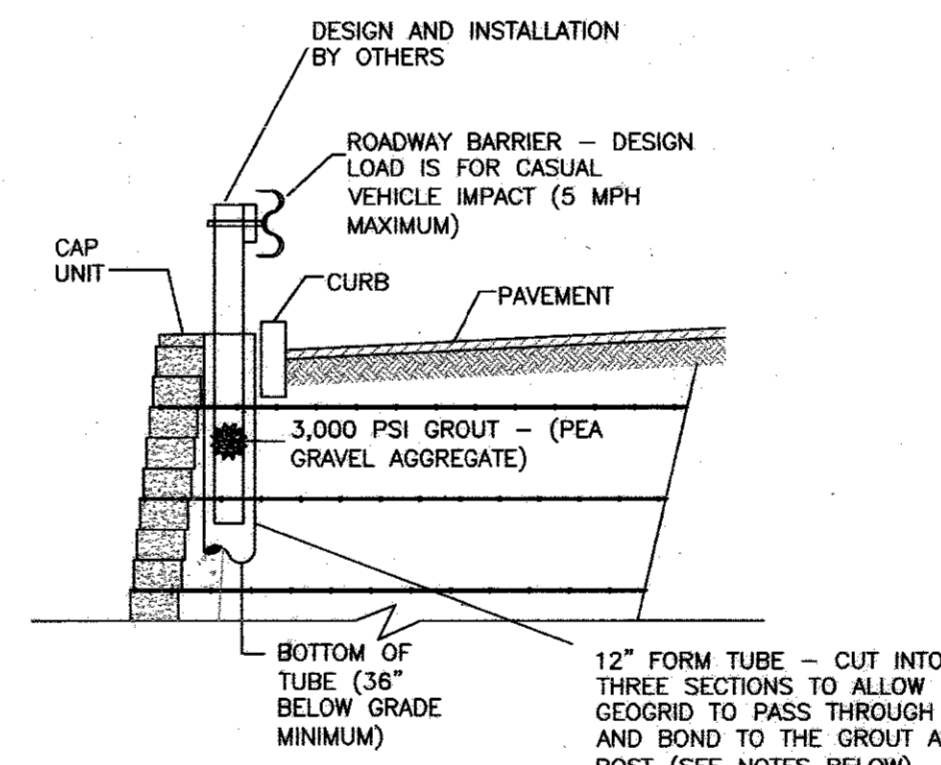
KEYSTONE COMPAC II
WALL SECTION



N. T. S.



GUARDRAIL DETAIL
N.T.S.



GUARDRAIL WITH IMPACT LOAD
N.T.S.

- NOTE: THE CONCRETE FORM TUBE SHALL:
- BE 12" IN DIAMETER MINIMUM
 - INTERSECT TWO GEGRID LAYERS VERTICALLY
 - BE CUT INTO SEGMENTS TO ALLOW THE GEGRID TO PASS CONTINUOUSLY FROM THE FACE OF THE WALL, THROUGH THE FORM TUBE, THROUGH THE 12" DRAINAGE LAYER AND INTO THE REINFORCED SOIL ZONE - BE A MINIMUM OF 36" BELOW GRADE TO ELIMINATE ANY FROST CONCERNS
 - BE GROUTED WITH 3,000 PSI CONCRETE (WITH PEA GRAVEL AGGREGATE) AFTER THE POST INSTALLATION
- THE GEGRID SHALL:
- PASS CONTINUOUSLY THROUGH THE CUT SECTION
 - BE CUT TO ALLOW THE POST TO BE INSTALLED AFTER THE WALL IS CONSTRUCTED (THE GEGRID LEFT PENETRATING THE TUBE WILL BOND WITH THE GROUT TO CREATE A UNIFIED MASS WITH THE REINFORCED SOIL)
 - BE KEPT TAUT WITHOUT ANY SLACK

No.	Revision	Date
1	Remove Wall #1 Detail. Revise Title Block.	03-26-2007
2	Revised Lot Areas for Lots 35 thru 39, 55 and 56; revised PRL on Lots 1 thru 3, 11, 15, 16, 19 thru 21, and 42; revised Forest Conservation Easement Areas; added Lot 58.	02-28-05

OWNER / DEVELOPER

Richmond American Homes of Maryland, Inc.
6200 Old Dobbin Lane
Columbia, Md 21045
410-872-0267

LOTS 1 THRU 4, 18 THRU 54, 60 THRU 72
OPEN SPACE LOTS 55 THRU 59 & 73 Δ

RETAINING WALL PROFILE, DETAILS & WALL SECTION

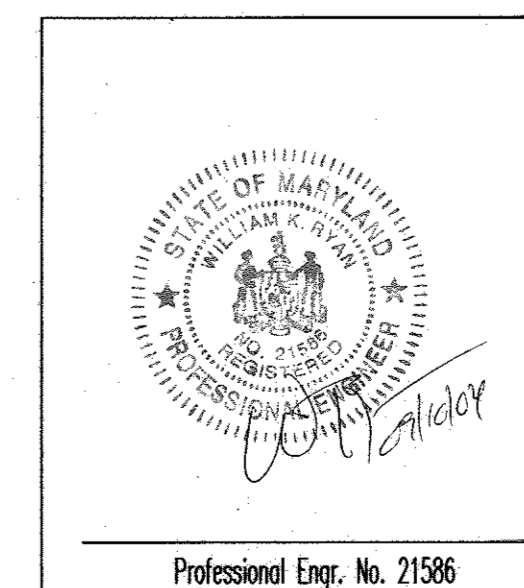
HUNTERS RIDGE

LOTS 1 THRU 54, OPEN SPACE LOTS 55 THRU 58

AND A RESUBDIVISION OF BULK PARCEL 'C'
WESLEY WOODS, SECTION 1

TAX MAP 38 GRIDS 4 & 10
1ST ELECTION DISTRICT

PARCEL 163
HOWARD COUNTY, MARYLAND



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

FSH Associates
Engineers Planners Surveyors
8318 Forest Street, Ellicott City, MD 21043
Tel: 410-750-2251 Fax: 410-750-7350
E-mail: FSHAssociates@cs.com

DESIGN BY: DKS
DRAWN BY: JWP
CHECKED BY: WKR
SCALE: AS SHOWN
DATE: Jun 07, 2004
W.G. No.: 3018
SHEET No.: 18 OF 20

Professional Eng. No. 21586

GENERAL NOTES

1. SOIL PARAMETERS: Based on review of the "Geotechnical Engineering Study" dated 07/20/2001 for this site prepared by Hillis-Carnes Engineering Associates, Inc., an internal angle of friction of 27° was used for the soils in this design. This is for a worst case CL (lean clay) soil type and shall be verified during wall construction. CH (fat clay), MH (elastic silt) and OH/OL/PT (organic) soils are not acceptable for wall construction. If these unsuitable soils are encountered they shall be removed and replaced with soils that meet or exceed the design friction angle of 27°. The on site geotechnical engineer shall monitor this closely during the construction process. The site soils vary widely (in addition to CL there is also ML- silt, SC- clayey sand & SM- silty sand). If possible, the sandy soils should be stockpiled and used for backfilling the wall since they have a higher friction angle, are more free draining and it is easier to achieve 95% compaction (CL & ML are fine-grained and it is difficult to control the moisture level). The moisture level of the soils must be ±2% of optimum. Since proctor tests were not available for the CL soil, an assumed unit weight (maximum wet density) of 125 PCF was used. Fluctuations of 5 PCF higher or lower will not affect these designs, however if the unit weight varies by more than 5 PCF Ryan & Associates (RA) must be notified so that the cross sections can be rerun to verify that all factors of safety are still met. The site geotechnical shall run standard proctor tests of the proposed backfill soil (prior to wall construction) to verify the accuracy of this design assumption. No cohesion was used in any of the calculations.

2. CONSTRUCTION OVERSIGHT: The construction of this wall must be performed under the observation of a Maryland Registered Professional Engineer to ensure that it is built in accordance with the RA General Notes and Specifications.

3. GLOBAL STABILITY: A global stability analysis was done on G-Slope design software for the wall and a factor of safety of 1.3 was met. A copy of the global stability analysis has been included in the 8 1/2" X 11" calculations submittal.

4. BEARING CAPACITY: The wall's sub-grade (the soils under the wall's gravel leveling pad and the soils under the wall's reinforced geogrid zone) must be tested by the site geotechnical engineer prior to wall construction and have a minimum allowable bearing capacity of 3,000 PSF. The sub-grades must be virgin (natural undisturbed soil with blow counts greater than or equal to 12) or suitable fill (greater than or equal to 27°) compacted to 95% of a standard proctor maximum dry density. Any areas of the sub-grade that does not meet this maximum pressure will require undercutting and/or geogrid reinforcing.

5. DESIGN SOFTWARE: Internal and external wall calculations were performed with Keywall 2001 design software (version 3.1.6). A table has been included ("Cross Section Details and Factors of Safety") which has the following information: section location (area of wall referenced), total wall height, loads applied, factors of safety (for sliding, overturning, bearing capacity and global stability) and bearing pressure (the load exerted by the wall on the sub-grade). Factors of safety of 1.5 were also met for: geogrid pullout (from the soil and from the block), geogrid overstress (geogrid rupture) and connection (block to geogrid).

6. SPECIFICATIONS: Construction and materials must conform to the attached "Specifications for Retaining Wall Systems".

7. GEOGRIDS: Mirafi 3XT & 5XT geogrids, which have LTDS (Long Term Design Strengths) of 1558 and 2234 respectively, were used in this design. All geogrid substitutions must have prior approval of RA.

8. WALL PROFILE: The elevation drawing was done to represent the grade changes necessary on the civil drawings and was done in even block course increments of .667' (8"). Minor field changes may be necessary by the wall installer. Lineal footage may be added or subtracted as needed if the wall's height is equal to or less than the design heights. If the wall needs to be raised in height, RA shall be notified and new structural cross sections must be provided before the wall installer proceeds. The cap height of .333' (4") is not shown on the profile drawing however its height may have been used in some cases to achieve the desired TW elevations.

9. WALL BATTER: The 7.1' batter (1" setback per block course) was used for the Keystone blocks in this design. The 0.5' (near vertical: 1/16" setback per block course) may not be used for this wall. NOTE: it is important for the wall installer and the civil engineer/surveyor to predetermine the walls' batters during stake out. The wall will need to be moved forward at its base if there are critical dimensions that must be met on the high sides of the wall.

10. FACTORS OF SAFETY: The following factors of safety have been met in this design: Sliding 1.5, Overturning 2.0, Bearing Capacity 2.0, Geogrid Overstress 1.5, Geogrid Pullout 1.5 (from the block and from the soil) and Global Stability 1.3.

11. EMBEDMENT: The wall embedment varies from one to ten blocks. The exact amount of buried blocks may be determined by subtracting the "BB" elevations from the "CR" elevations on the RA profile drawing. Additional blocks were buried in some areas so that the wall will not be built on fill soils.

12. REAR DRAIN TILES: Rear drainpipes are required at the back of the wall's reinforced geogrid zone. This is in addition to the mandatory 4" drainpipe at the front of the wall (within the gravel leveling pad or behind the at grade courses- depending which drainpipe position is exercised). The rear drainpipe shall be surrounded by a minimum of 6" of clean gravel (#57 or equivalent) and shall have perpendicular solid pipes that run forward and connect to the front drainage system with crosses or tees.

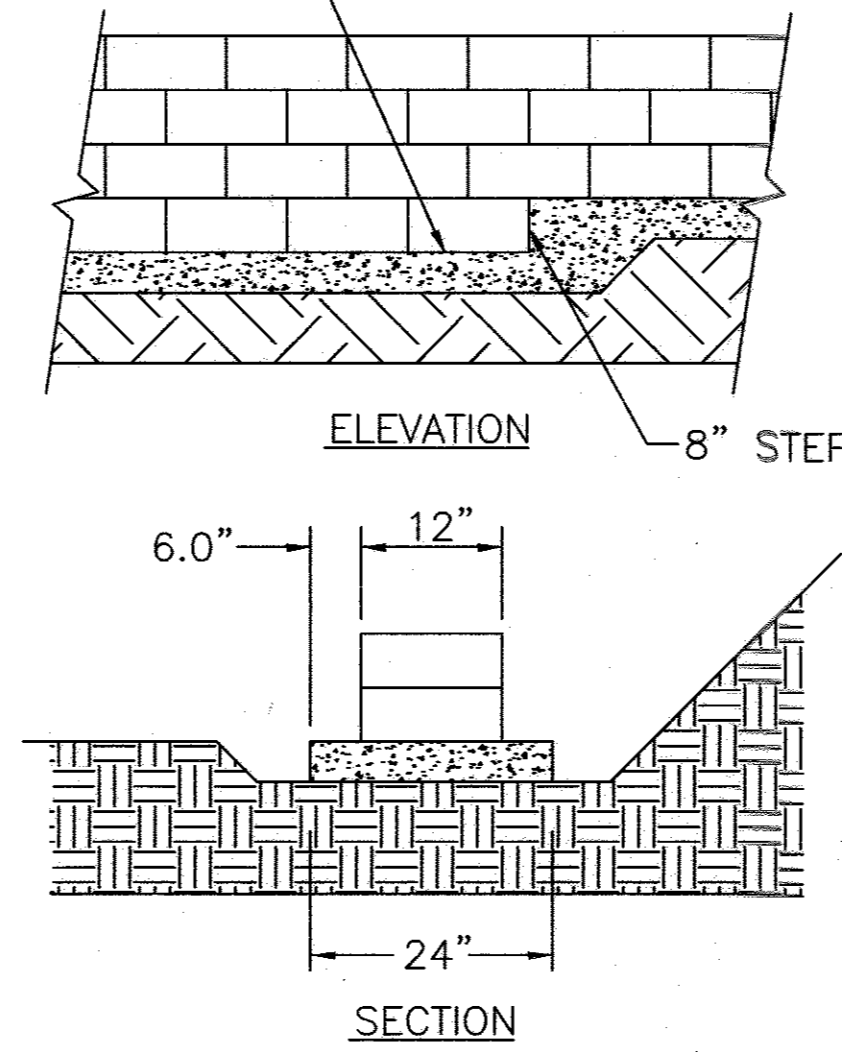
13. BLOCK SYSTEM: This design is valid only for the Keystone Compac II block system. Each segmental wall system has unique dimensions, connection devices and interacts differently with geogrids; therefore other block types may not be substituted.

14. SEPARATE 8 1/2" X 11" SUBMITTAL: A separate 8 1/2" X 11" booklet has also been provided and includes: cover letter, General Notes, Keywall cross section calculations, G-Slope global stability calculations and RA Specifications.

15. SPECIAL HOWARD COUNTY RETAINING WALL SPECIFICATIONS:

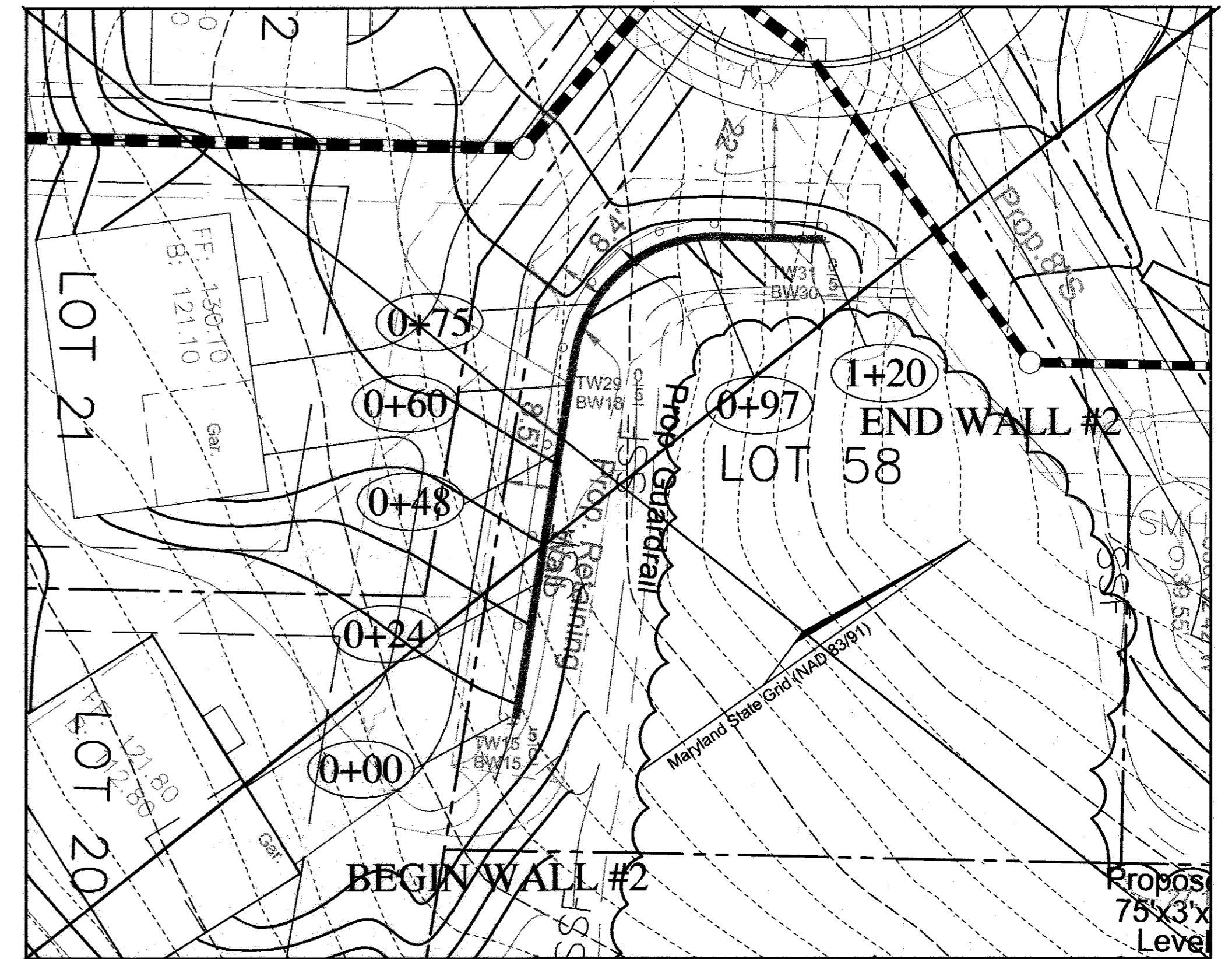
- a. Retaining walls shall only be constructed under the observation of a Registered Professional Engineer and a (NICET, WACEL, or equivalent) certified soils technician.
- b. The required bearing pressure beneath the footing of the wall shall be verified in the field by a certified soils technician. Testing documentation shall be provided to the Howard County Inspector prior to the start of construction. The required test procedure shall be the Dynamic Cone Penetrometer Test ASTM STP-399.
- c. The suitability of the fill material shall be confirmed by the on-site soils technician. Each eight inch lift must be compacted to 95% Standard Proctor Density and the testing report shall be made available to the Howard County Inspector upon completion of the construction.
- d. For walls over ten feet in height, one soil boring is required every 100 feet along the length of the wall, copies of the boring reports shall be provided to the Howard County Inspector prior to the start of construction.

6" COMPACTED GRAVEL OR UNREINFORCED CONCRETE LEVELING PAD



LEVELING PAD DETAIL

N. T. S.



WALL #2 (between Lots 21 & 58)
SCALE 1"=20' @

CROSS SECTION DETAILS & FACTORS OF SAFETY:

SECTION	STATION	TOTAL WALL HEIGHT	LOAD APPLIED	SLIDING minimum 1.50	OVERTURNING minimum 2.00	BEARING CAPACITY minimum 2.50	BEARING PRESSURE PSE	GLOBAL STABILITY minimum 1.30
WALL #1								
1	0+00 TO 0+39	10.00'	300 PSF LIVE LOAD	1.63	3.78	6.78	1467	1.69
2	0+39 TO 0+94	14.00'	300 PSF LIVE LOAD	1.70	4.36	6.42	2008	1.69
3	0+94 TO 1+20	10.00'	300 PSF LIVE LOAD	1.63	3.78	6.78	1467	1.69

MATERIAL ESTIMATE: BLOCK: Keystone Compac II **GEOGRID:** Mirafi 3XT & 5XT

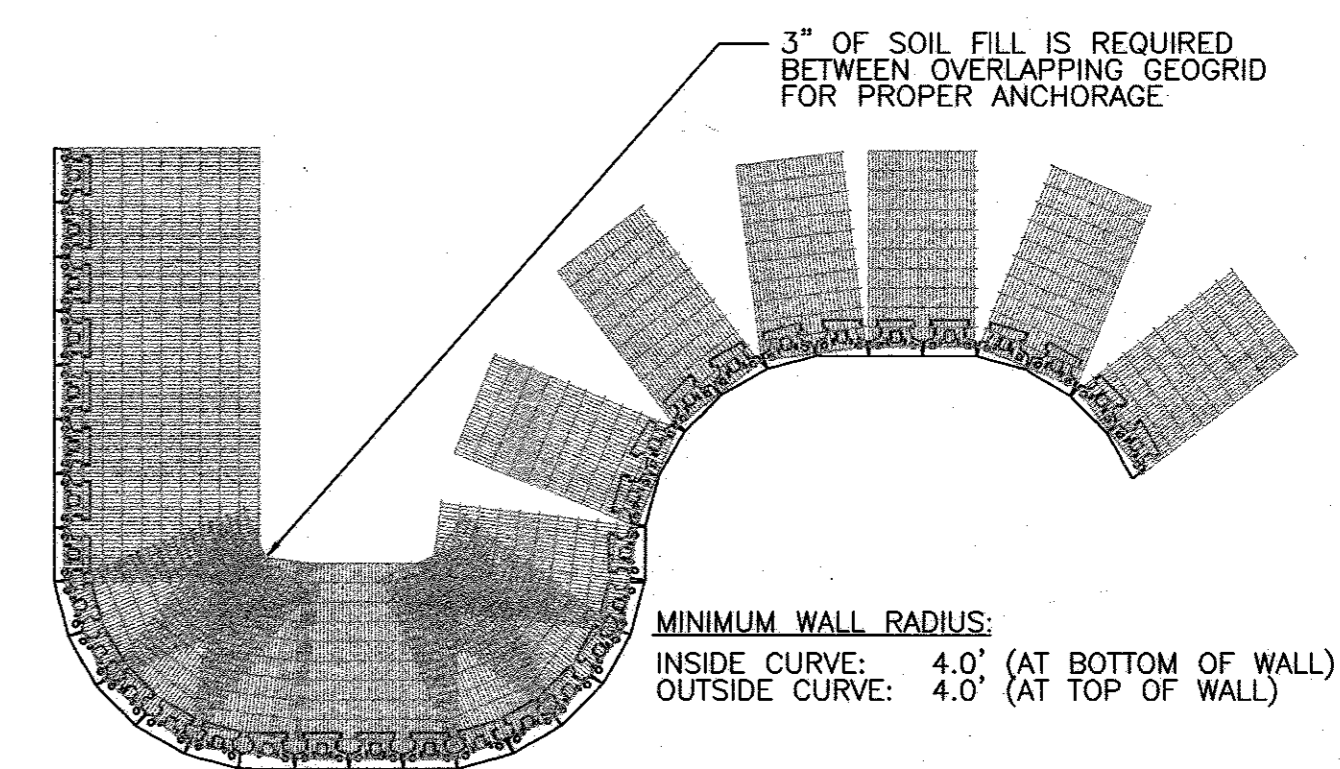
WALL	TOTAL SQ. FT.	(1.0 S.F.) BLOCK	(.5 S.F.) CAPS**	PINS	SQ. YDS. 3XT GRID	SQ. YDS. 5XT GRID	SQ. YDS. 7XT GRID	CU. YDS. DRAIN GRAVEL	LEVELING PAD GRAVEL	FT. WALL LENGTH
1	1,273	1,225	96	2,290	415	360	0	75	9	120

Totals include 2% extra for block and caps, 15% for geogrid and 5% for gravel.

* Ryan & Associates is not responsible for extras or shortages based on this take-off. It is the contractor's responsibility to verify the accuracy of this design by reviewing the site/grading plan for this project.

** Includes one extra cap per step down on top of the wall for double capping.

REINFORCEMENT PLACEMENT FOR INSIDE AND OUTSIDE CURVES



GEOGRID INSTALLATION ON CURVES

N. T. S.

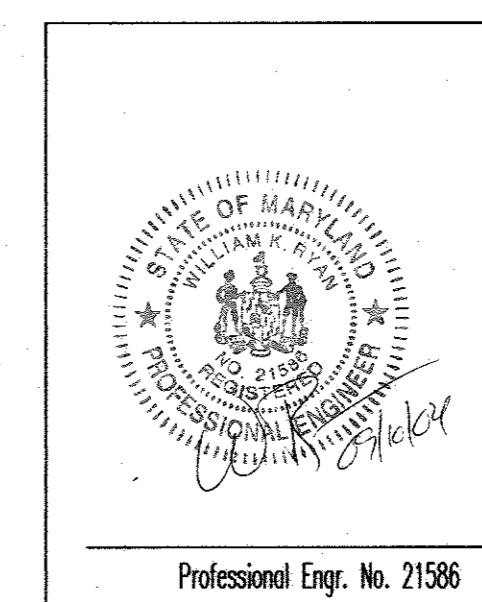
OWNER/DEVELOPER

Richmond American Homes of Maryland, Inc.
6200 Old Dobbin Lane
Columbia, MD 21045
410.872.0267

LOTS 1 THRU 4, 18 THRU 54, 60 THRU 72
OPEN SPACE LOTS 55 THRU 59 & 73 @

RETAINING WALL TABLES, DETAILS & CIVIL PLAN
HUNTERS RIDGE
LOTS 1 THRU 54, OPEN SPACE LOTS 55 THRU 59
AND A RESUBDIVISION OF BULK PARCEL 'C'
WESLEY WOODS, SECTION 1

TAX MAP 98 GRIDS 4 & 10
1ST ELECTION DISTRICT
PARCEL 163
HOWARD COUNTY, MARYLAND



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

FSH Associates
Engineers Planners Surveyors
8318 Forest Street Elkton City, MD 21043
Tel: 410-750-2251 Fax: 410-750-7350
E-mail: FSHAssociates@cs.com

DESIGN BY: DKS
DRAWN BY: JWP
CHECKED BY: WKR
SCALE: AS SHOWN
DATE: Jan. 07, 2004
W.O. No.: 3018
SHEET No.: 19 OF 20

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Cindy Hamilton 10/24/04
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

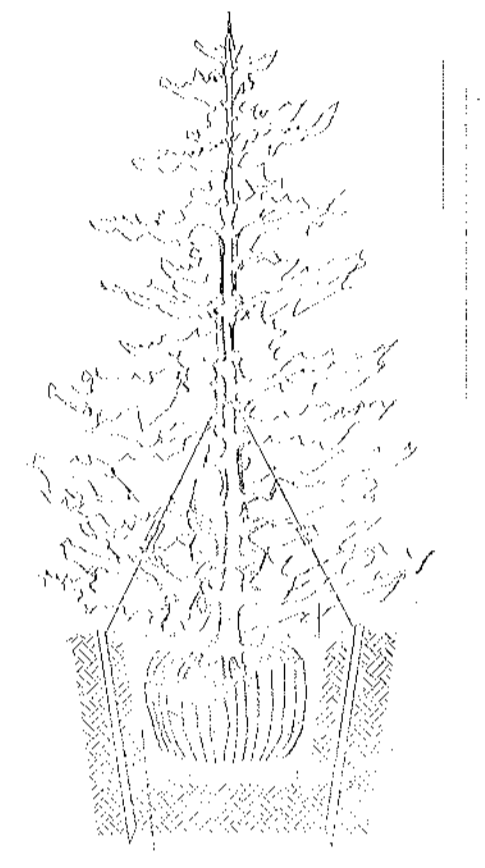
CHIEF, BUREAU OF HIGHWAYS
DATE

No.	REVISION	Date
1	REMOVE RETAINING WALL #2 DETAIL. REVISE TITLE BLOCK.	03-26-07
2	Revised Lot Areas for Lots 55 thru 59, 55 and 56; revised BCL on lots 1 thru 3, 11, 15, 19, 19 thru 21 and 42; revised Forest Conservation Easement Areas; added Lot 56.	02-20-05

DEVELOPER'S BUILDER'S CERTIFICATE
 I HEREBY 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 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.
J. J. K. PROBERT P.A.C. 2/15/04
 SIGNATURE OF DEVELOPER DATE
 RICHMOND AMERICAN HOMES OF MARYLAND, INC.

- NOTES**
1. SEE LANDSCAPE SPECIFICATION SHEETS FOR MATERIALS, MAINTENANCE AND REPLACEMENT SCHEDULES FOR ALL PLANTING, TREES, AND PERENNIALS.
 2. SEE LANDSCAPE SPECIFICATION SHEETS FOR MATERIALS, MAINTENANCE AND REPLACEMENT SCHEDULES FOR ALL PLANTING, TREES, AND PERENNIALS.
 3. PLACE OVERHEAD WATERS AND UTILITY LINES IN UNDESIRABLE LOCATIONS.
 4. TREE BUFFER: TREE BUFFER
 5. SEE LANDSCAPE SPECIFICATION SHEETS FOR MATERIALS, MAINTENANCE AND REPLACEMENT SCHEDULES FOR ALL PLANTING, TREES, AND PERENNIALS.
 6. SEE LANDSCAPE SPECIFICATION SHEETS FOR MATERIALS, MAINTENANCE AND REPLACEMENT SCHEDULES FOR ALL PLANTING, TREES, AND PERENNIALS.

TYPICAL TREE PLANTING AND STAKING
 DECIDUOUS TREES UP TO 2 1/2" CALIBER NOT TO SCALE



TYPICAL EVERGREEN TREE PLANTING DETAIL
 NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
[Signature] 1/15/04
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE
[Signature] 1/15/04
 CHIEF, DEVELOPMENT ENGINEERING DEPARTMENT DATE
 APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[Signature] 02-15-04
 CHIEF, BUREAU OF HIGHWAYS DATE

No.	REVISION	Date
1	Revised Lot Areas for Lots 38 thru 50, 55, and 56; revised Forest Conservation Easement Areas; added Lot 58.	02-28-05

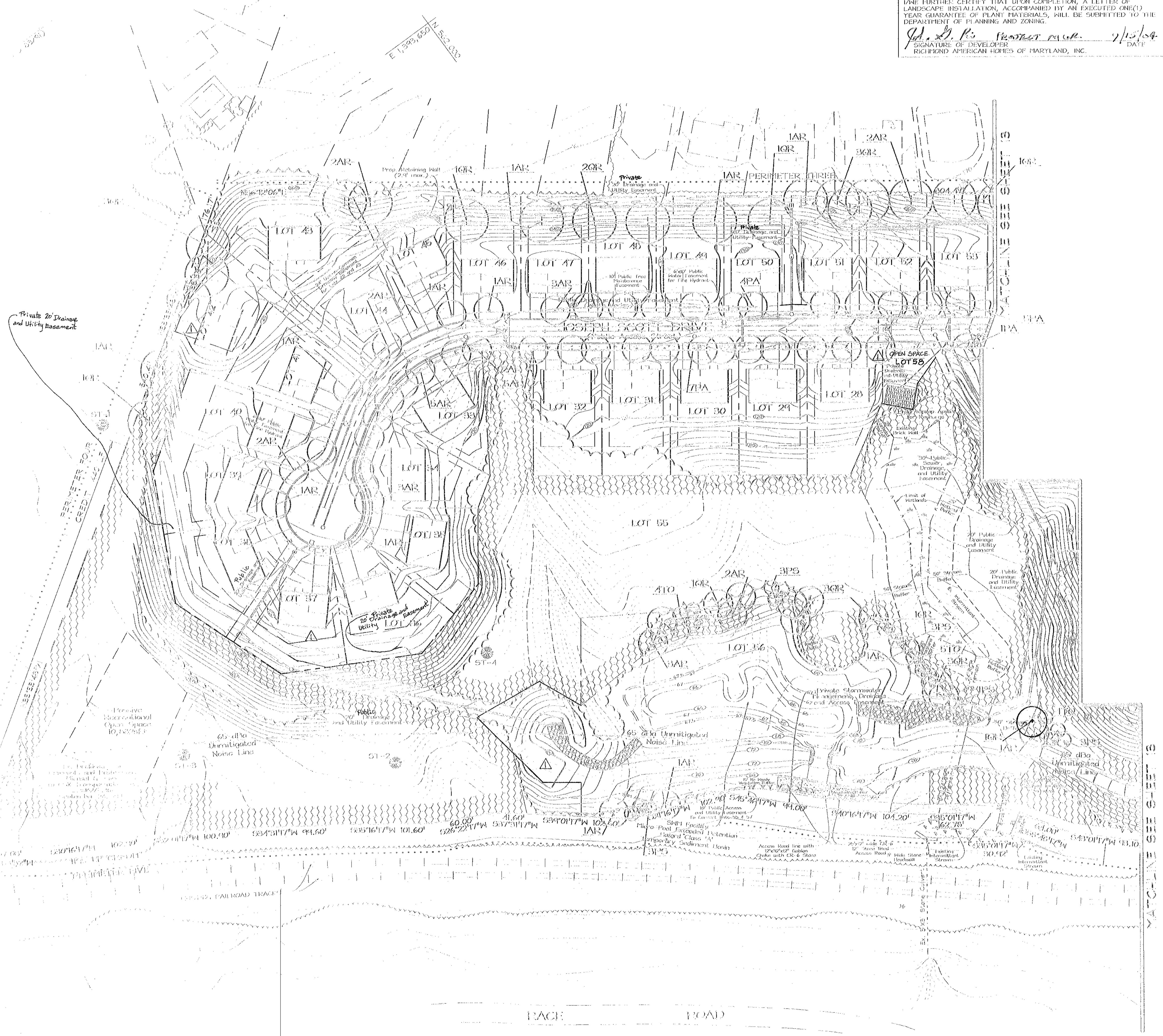
LANDSCAPE PLAN, DETAILS

HUNTERS GREEN
 LOTS 1 THRU 54, OPEN SPACE LOTS 55 THRU 58
 AND A RECREATION AREA (SEE PLAN 02-15-04)
 WESTWOOD, SECTION 16.124, 16.222

TAX MAP 30, GAMES 4 & 10
 HOWARD COUNTY, MARYLAND
 ELECTRIC DISTRICT

ES&S
 ENGINEERING & SURVEYING
 11011 Forest Street, Suite 100, Catonsville, MD 21049
 Tel: 410-286-2264 Fax: 410-286-2259
 E-mail: ES&S@esand.com

[Signature] 02/15/04





LEGEND

Existing Centerline	---
Proposed Centerline	---
Existing Spot Elevation	○
Proposed Spot Elevation	○
Direction of Flow	→
Existing Trees to Remain	○
Plant Out Elevation	○
Shade Tree	○
Street Tree	○
Evergreen Tree	○
Shrub	○
Landscape Tree	○

STREET TREE SCHEDULE

STREET NAME	TYPE	QUANTITY	PROVIDED
Parade Road	200	22	22
Joseph Scott Drive	2,100	50	50
Playa Vista Lane	700	21	21

STREET TREE LANDSCAPE SCHEDULE

KEY	QUAN.	BOTANICAL NAME	SIZE	NOTE
AR	24	Acacia saligna (Shade Tree)	2 1/2" x 3" Cal.	15 E 13
PA	24	Platanus x occidentalis (Shade Tree)	2 1/2" x 3" Cal.	15 E 13
AS	22	Zelkova serrata (Shade Tree)	2 1/2" x 3" Cal.	15 E 13
EC	14	Quercus laevis (Shade Tree)	2 1/2" x 3" Cal.	15 E 13

LANDSCAPE SCHEDULE

KEY	QUAN.	BOTANICAL NAME	SIZE	NOTE
AR	32	Acacia saligna (Shade Tree)	2 1/2" x 3" Cal.	15 E 13
AS	35	Zelkova serrata (Shade Tree)	2 1/2" x 3" Cal.	15 E 13
LS	14	Thuja occidentalis (Shrub)	6" x 6" Cal.	15 E 13
IV	10	Thuja occidentalis (Shrub)	6" x 6" Cal.	15 E 13
IV	10	Box Veronicola (Shrub)	6" x 6" Cal.	15 E 13

NOTES:

- At the time of plant installation, all shrubs and trees listed and approved on the Landscape Plan shall comply with the proper field requirements in accordance with the Howard County Landscape Manual. In addition, no substitutions or relocations of the required plantings may be made without prior review and approval from the Department of Planning and Zoning. Any deviation from the approved Landscape Plan may result in a delay or change in the release of Landscape Surety until such time as all required materials are placed on the project site.
- Landscape surety is based on the required landscape of 25 shade trees, 25 evergreen trees and the Private Access Place street trees (10) and other (50) shrubs (10) in the amount of \$99,900.00.

SCHEDULE D - STREET TREE MANAGEMENT AREA LANDSCAPING

Linear Feet of Perimeter	1,264
Credit for Existing Vegetation (No. Trees and Linear Feet)	1 Tree, 164 LF (Residential Perimeter)
Credit for Holly, Yucca or Ferns (No. Trees and LF)	N/A
Number of Trees Provided	100 - 30 Shade Trees, 70 Evergreen Trees
Number of Trees Provided	20 Shade Trees, 10 Evergreen Trees, 10 Other Trees (20 Substitution)

SCHEDULE A - PERIMETER LANDSCAPE EDGE

VEGETATION	CREDIT TO PERIMETER		ADDITIONAL PERIMETER PLANTINGS	
	NO.	LF	NO.	LF
1. Existing Holly, Yucca or Ferns	0	0	0	0
2. Existing Trees	1	164	0	0
3. Existing Shrubs	0	0	0	0
4. Existing Other	0	0	0	0
5. New Holly, Yucca or Ferns	0	0	0	0
6. New Trees	100	1,000	100	1,000
7. New Shrubs	0	0	0	0
8. New Other	0	0	0	0
9. Total	101	1,164	100	1,000

APPROVED: [Signature] [Title] [Date]

APPROVED: [Signature] [Title] [Date]

DEVELOPER'S CERTIFICATE

I, THE DEVELOPER, HEREBY CERTIFY THAT THE LANDSCAPING DESIGN 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 WILL 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.

[Signature] [Title] [Date]

CHIEF DEVELOPER

Richard American Homes of Maryland, Inc.

14000 WOODBURN ROAD, SUITE 200, WOODBURN, MD 21797

LANDSCAPE PLAN

LOTS 1 THRU 27, OPEN SPACE TO THE WEST OF LOT 8 AND A REVISION OF LOT 20 AND LOT 21, BERLEY RIDGE, SECTION 1, PLAT 1, 1996

FAX: 410-326-1100

DATE: 02/26/05

REVISION: [Table with 2 columns: No., Revision]

DATE: [Table with 2 columns: No., Date]

OPERATION AND MAINTENANCE SCHEDULE FOR STORMWATER MANAGEMENT DETENTION FACILITY

OPERATION AND MAINTENANCE SCHEDULE FOR STORMWATER MANAGEMENT DETENTION FACILITY

OPERATION AND MAINTENANCE SCHEDULE FOR STORMWATER MANAGEMENT DETENTION FACILITY

1. The facility shall be inspected annually and after major storms. Inspections shall be performed during the winter months to determine if there is a buildup of ice on the slopes of the embankment. Other side slopes and embankments shall be inspected during the summer months to determine if there is a buildup of vegetation. Inspections shall be performed during the spring and fall months to determine if there is a buildup of sediment on the slopes of the embankment.

2. The facility shall be inspected after every major storm. Inspections shall be performed during the winter months to determine if there is a buildup of ice on the slopes of the embankment. Other side slopes and embankments shall be inspected during the summer months to determine if there is a buildup of vegetation. Inspections shall be performed during the spring and fall months to determine if there is a buildup of sediment on the slopes of the embankment.

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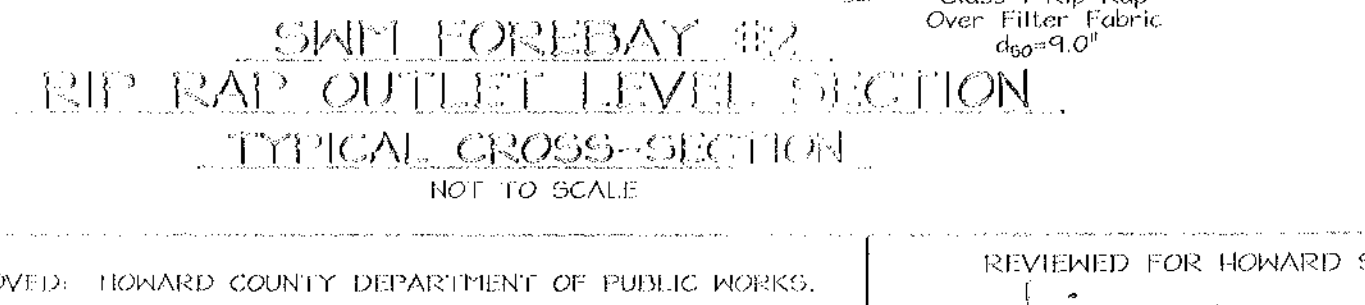
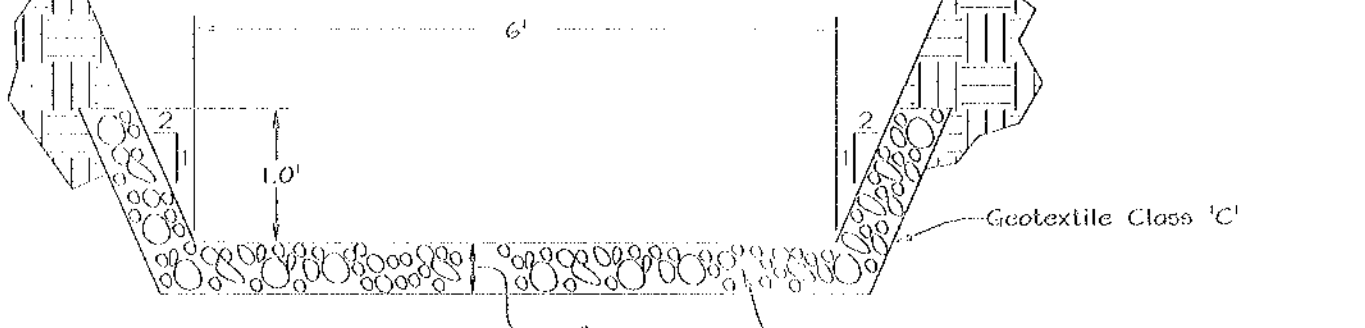
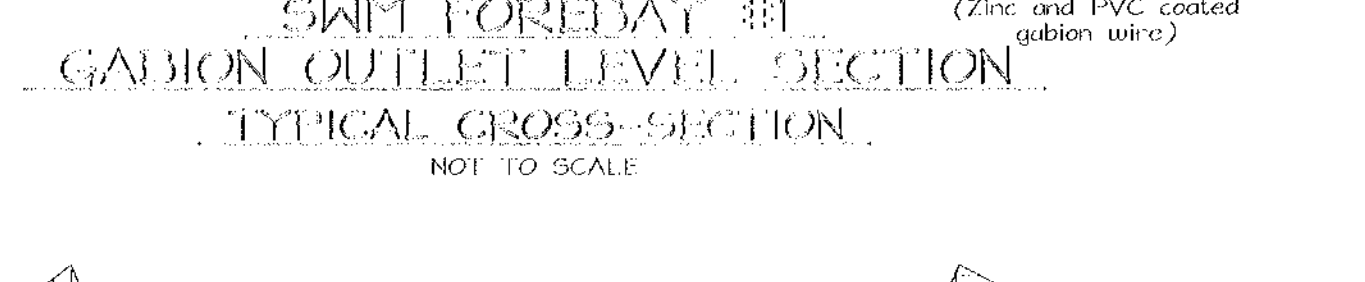
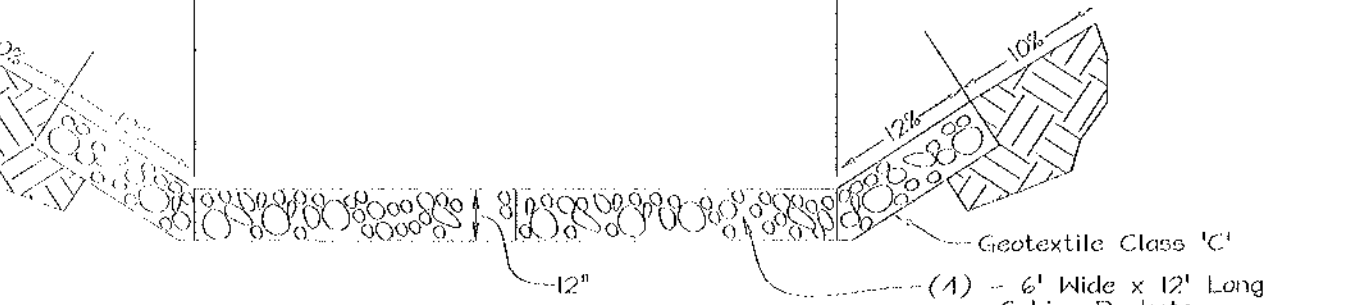
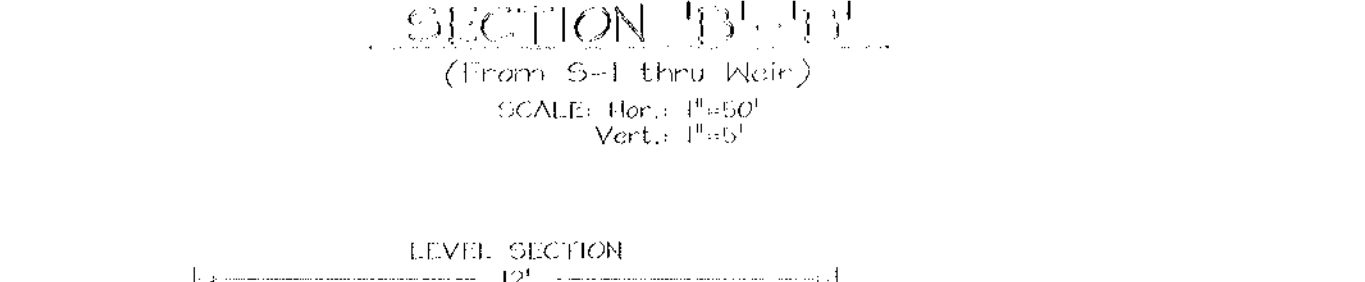
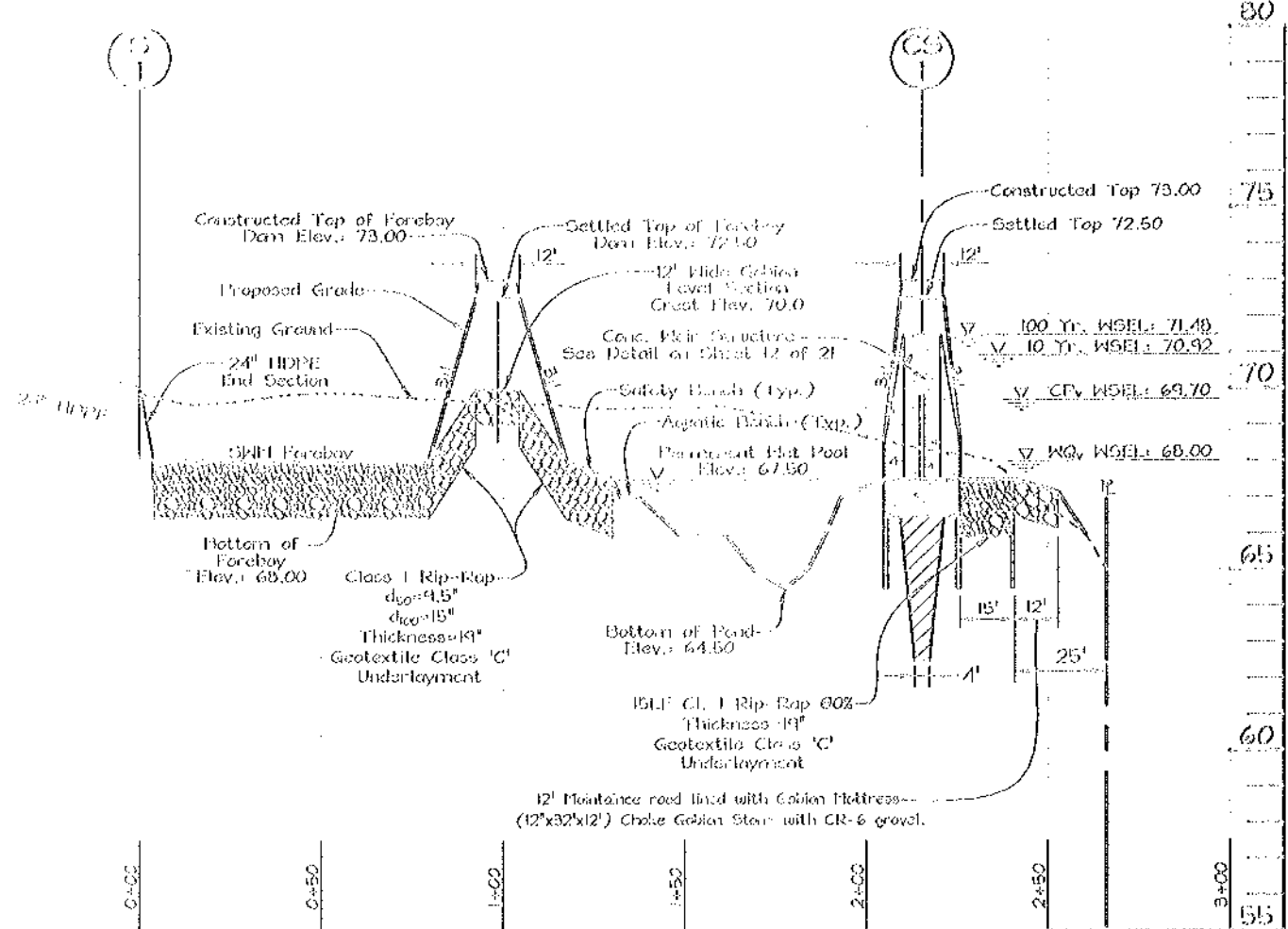
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Flow Rate (cfs)	10 YEAR	100 YEAR	WATER QUALITY FOR AREA TO BE DETAINED
Flow into Pond	21.4 cfs	123.7 cfs	Flow Depth 0.50 ft
Flow out of Pond	0.51 cfs	101.76 cfs	Flow Depth 0.50 ft (not pool)
Flow Volume	69.7	71.40	Total Detention 0.25 ac-ft
Flow Volume	0.25 ac-ft		



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

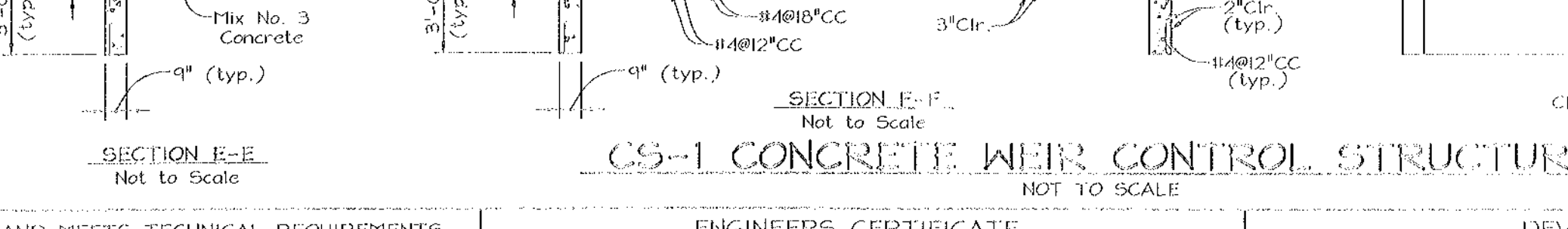
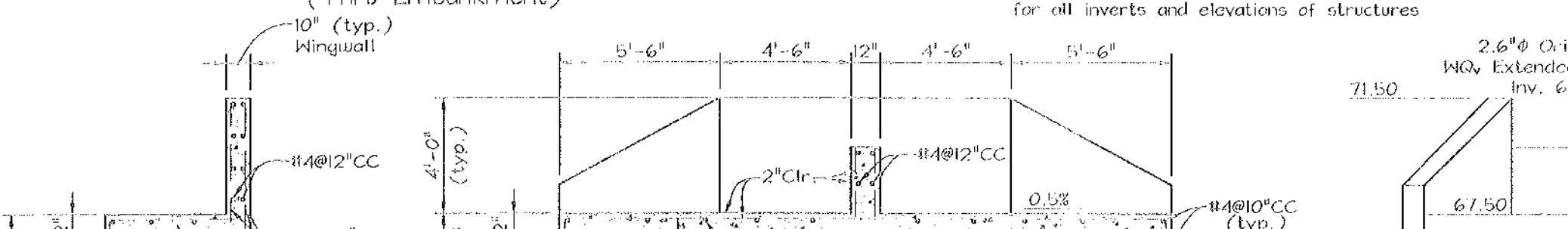
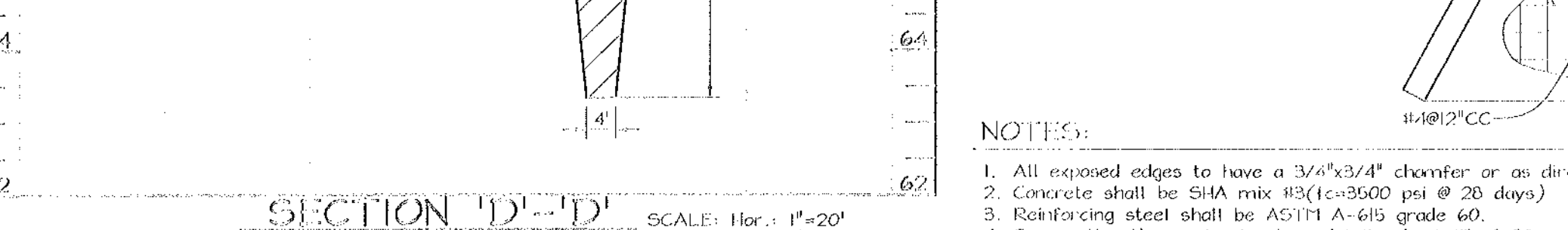
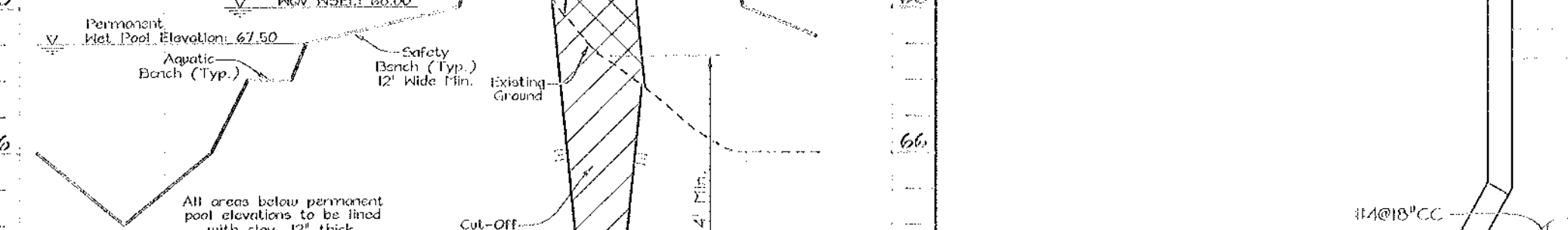
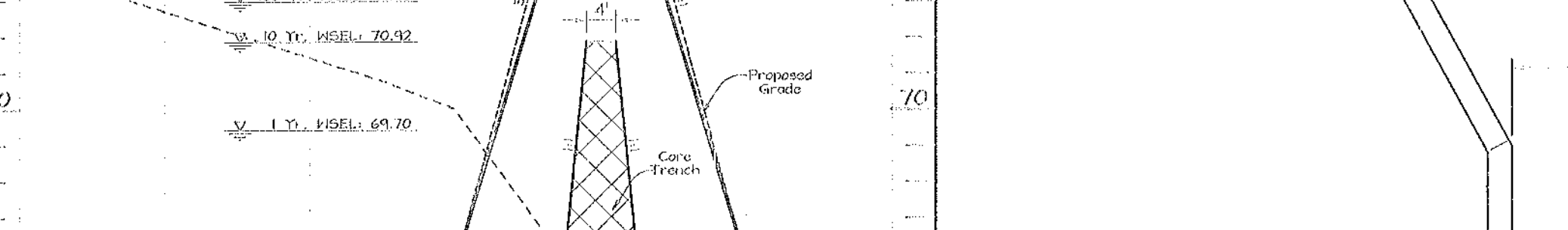
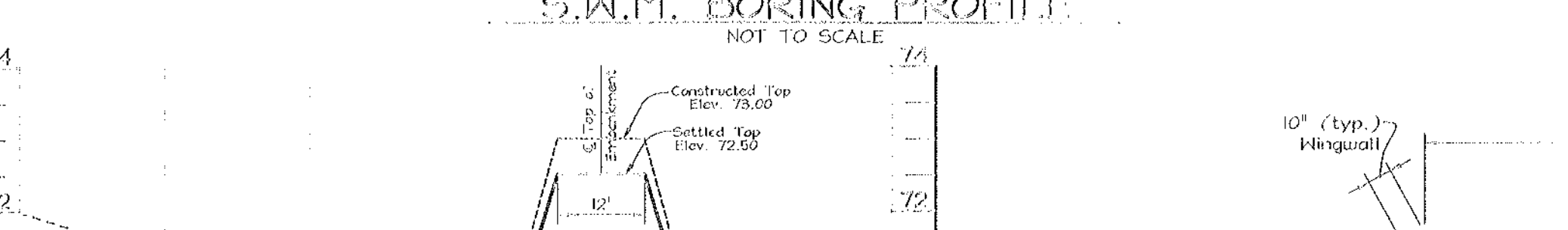
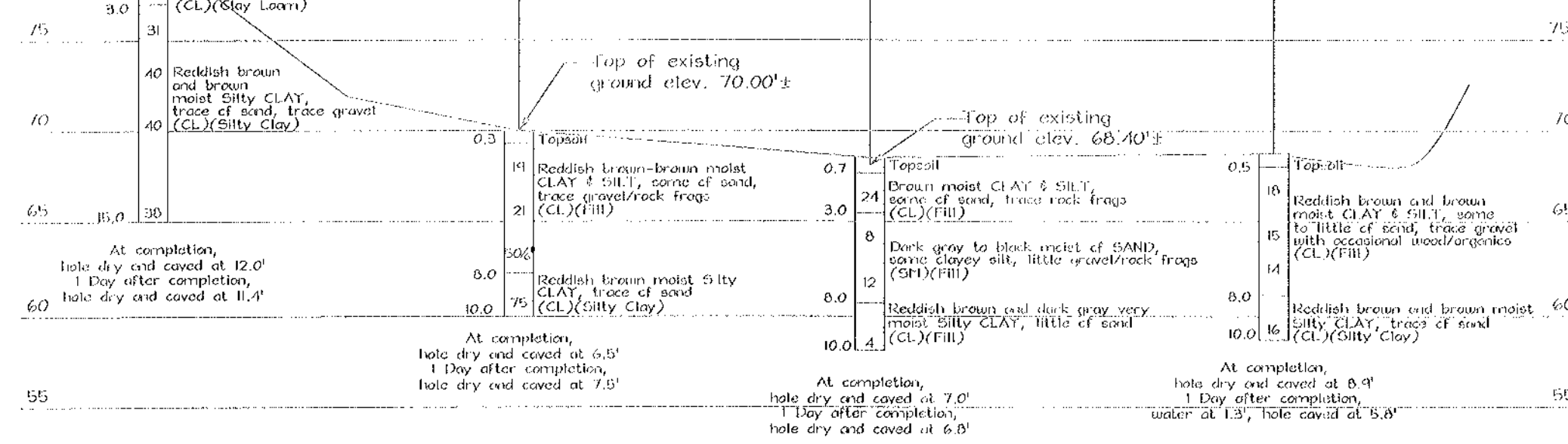
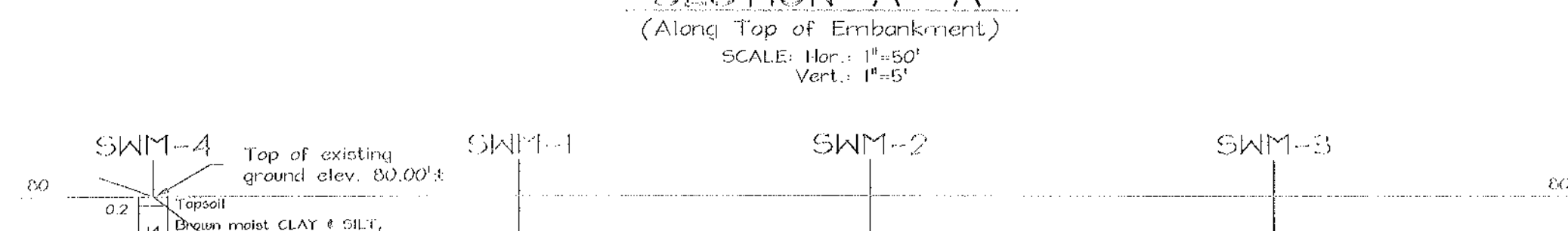
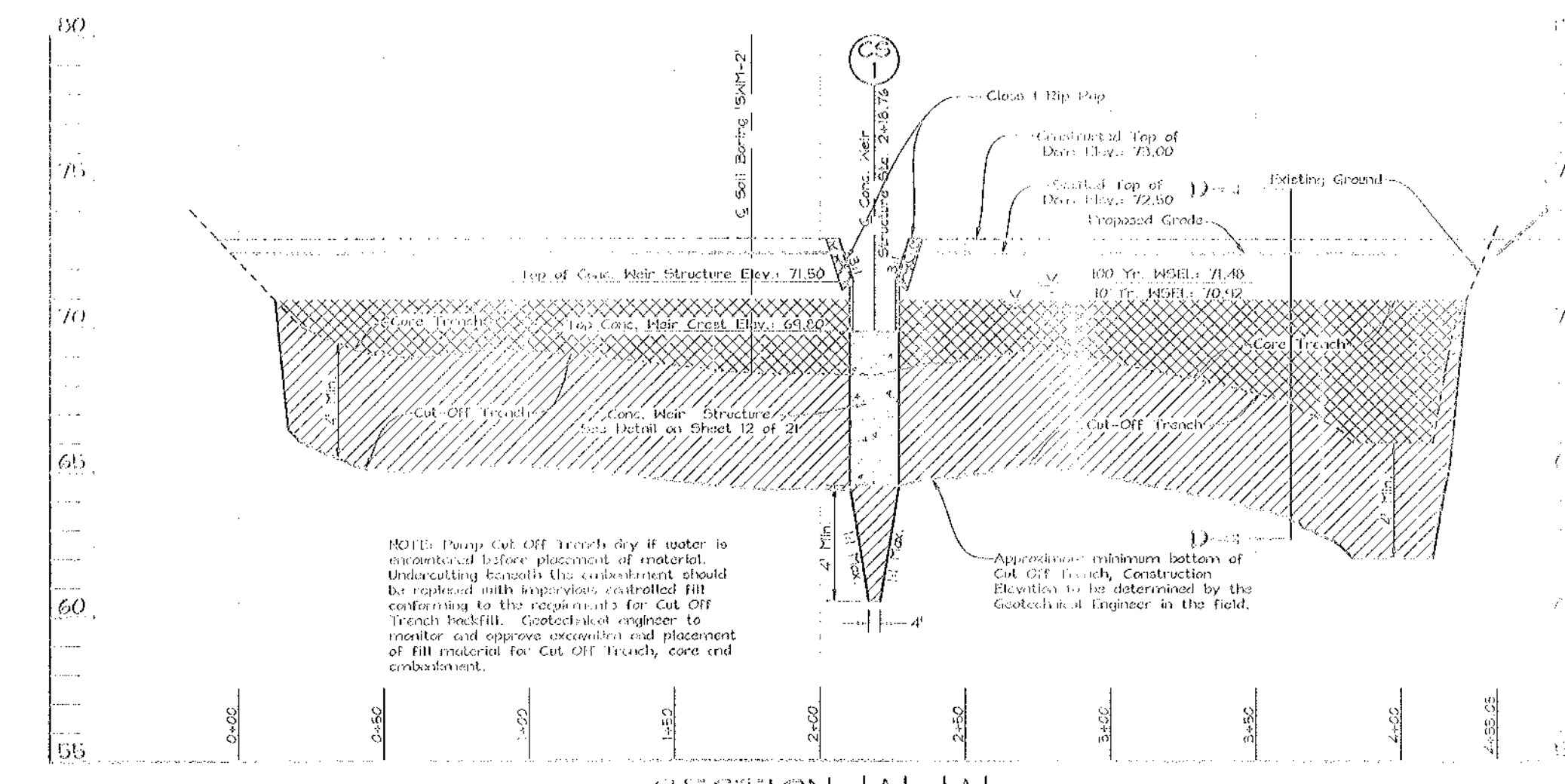
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

USDA-NATURAL RESOURCES CONSERVATION SERVICE

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

HOWARD SCD



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.

SIGNATURE OF ENGINEER ZACHARIA Y. FISCH

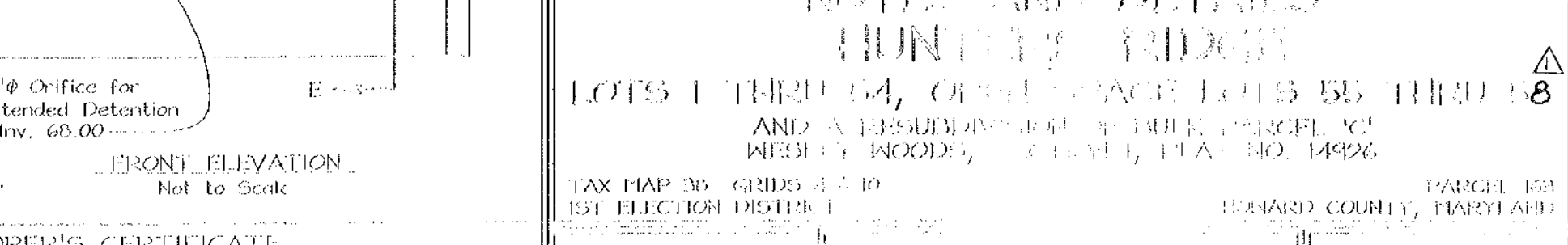
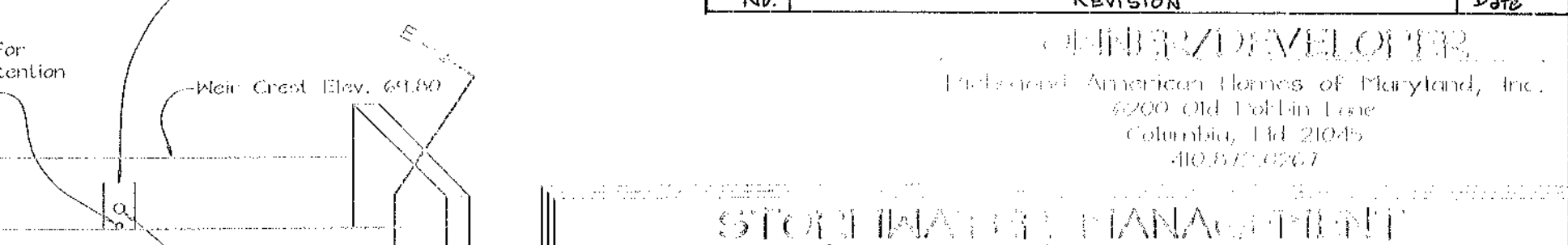
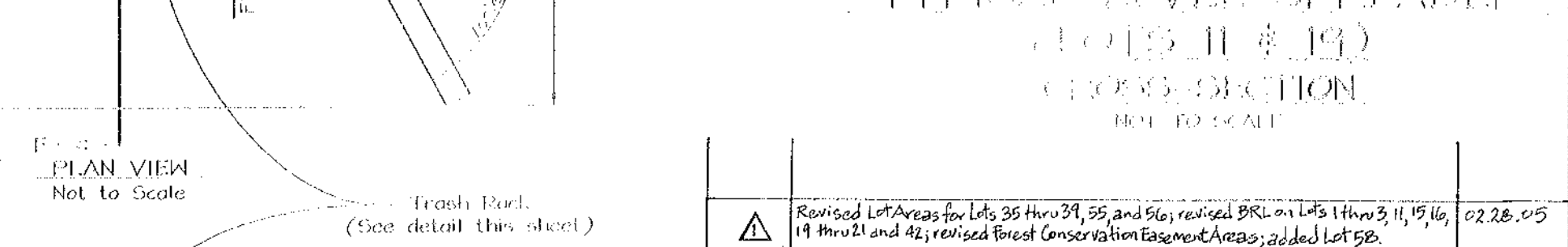
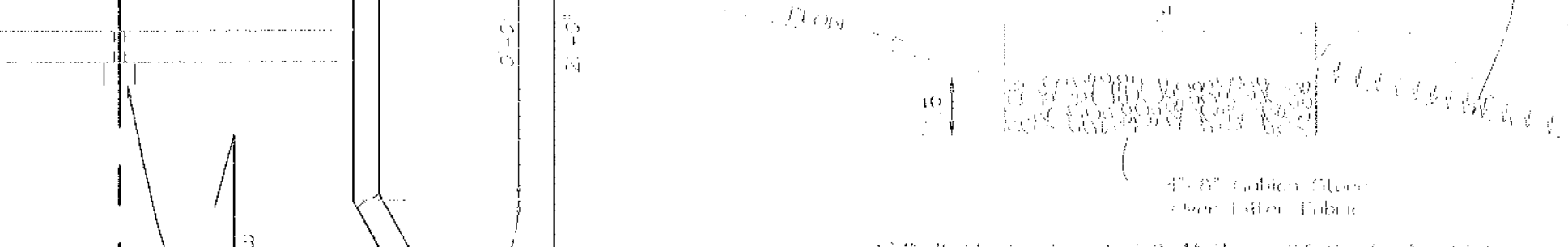
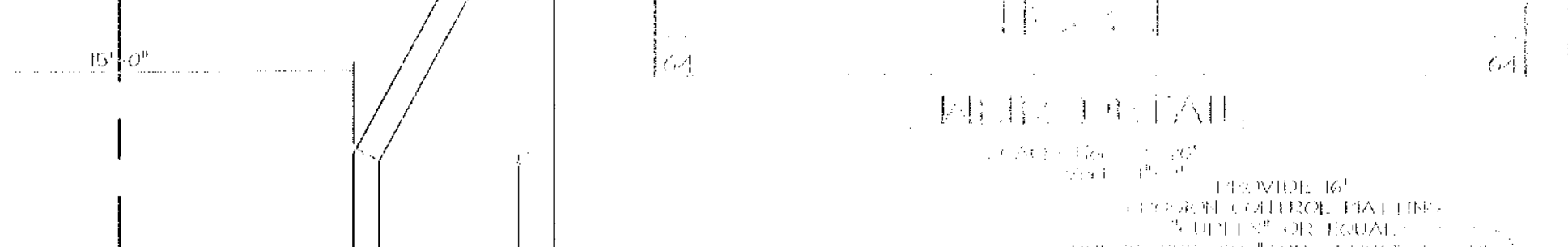
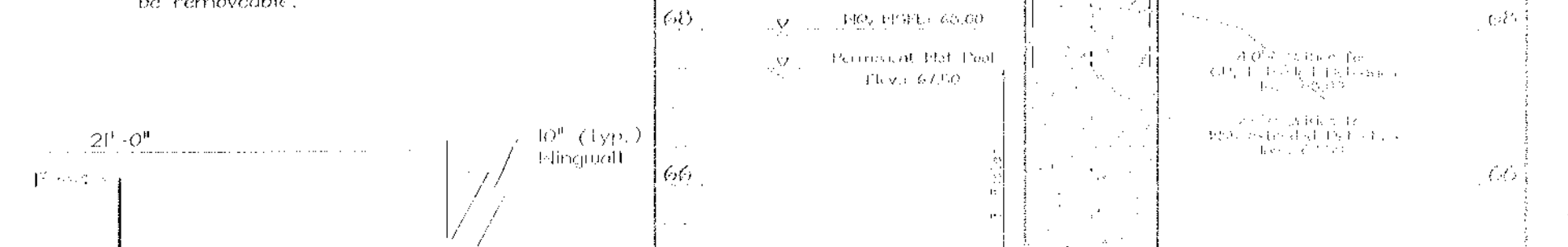
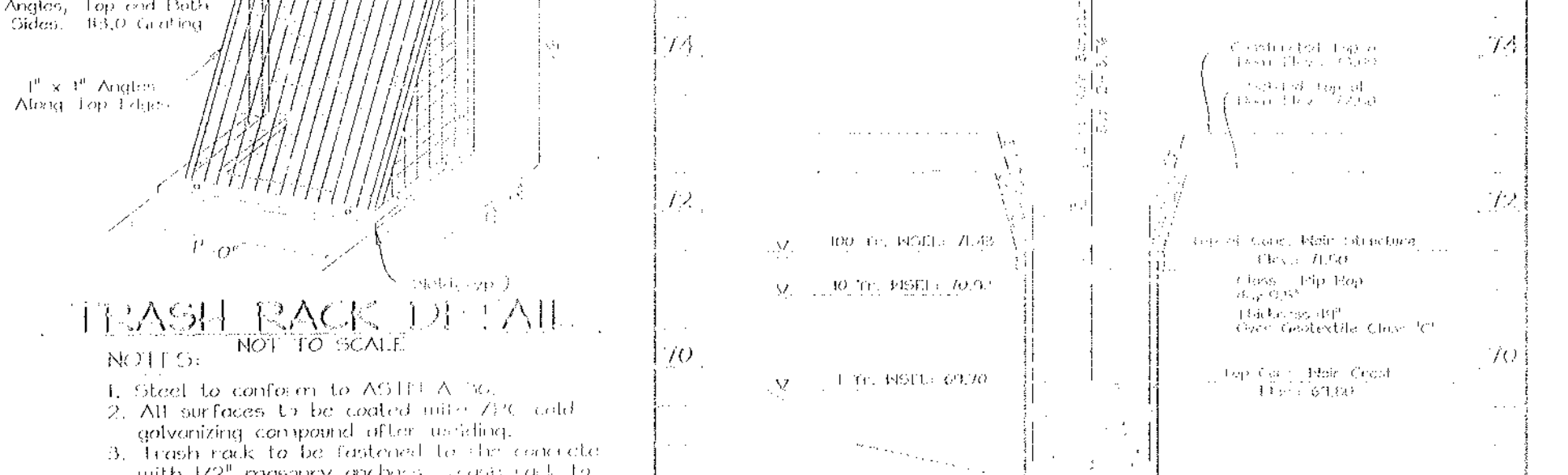
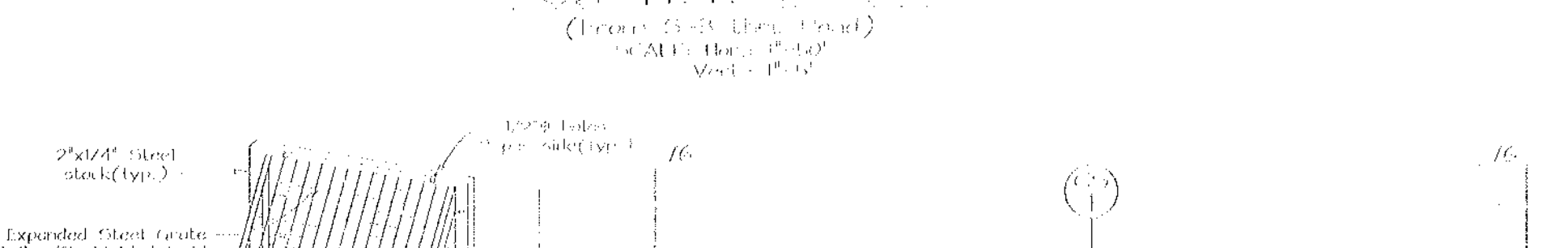
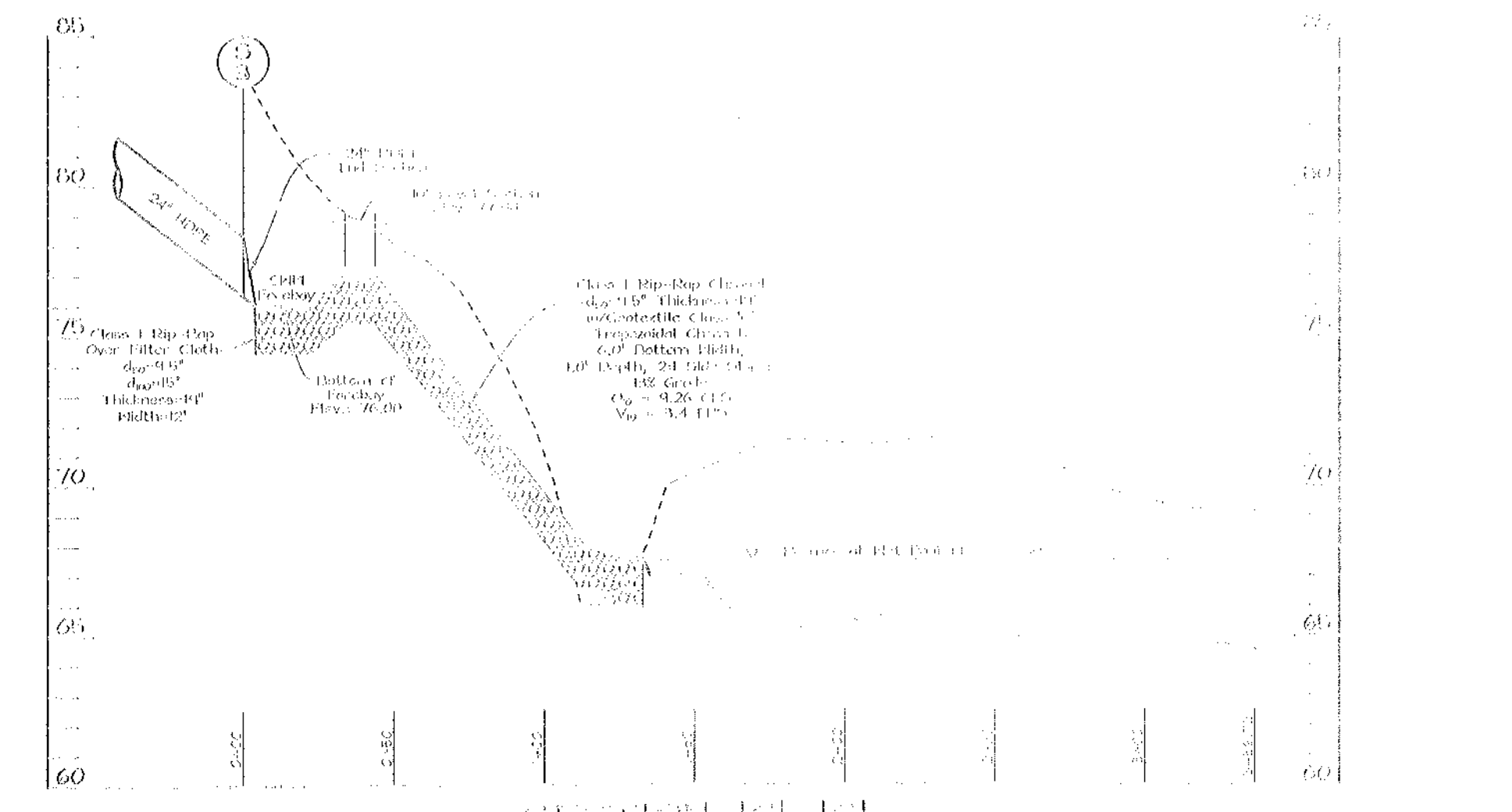
DATE 4/15/04

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 OF THE 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/WE AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

SIGNATURE OF DEVELOPER ZACHARIA Y. FISCH

DATE 2/15/04



REVISION

No.	REVISION	Date
1	Revised LPA Areas for Lots 36 thru 37, 39, and 50; revised SWM LPA Areas 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.	02/28/05

DESIGNED BY: [Signature]

DRAWN BY: [Signature]

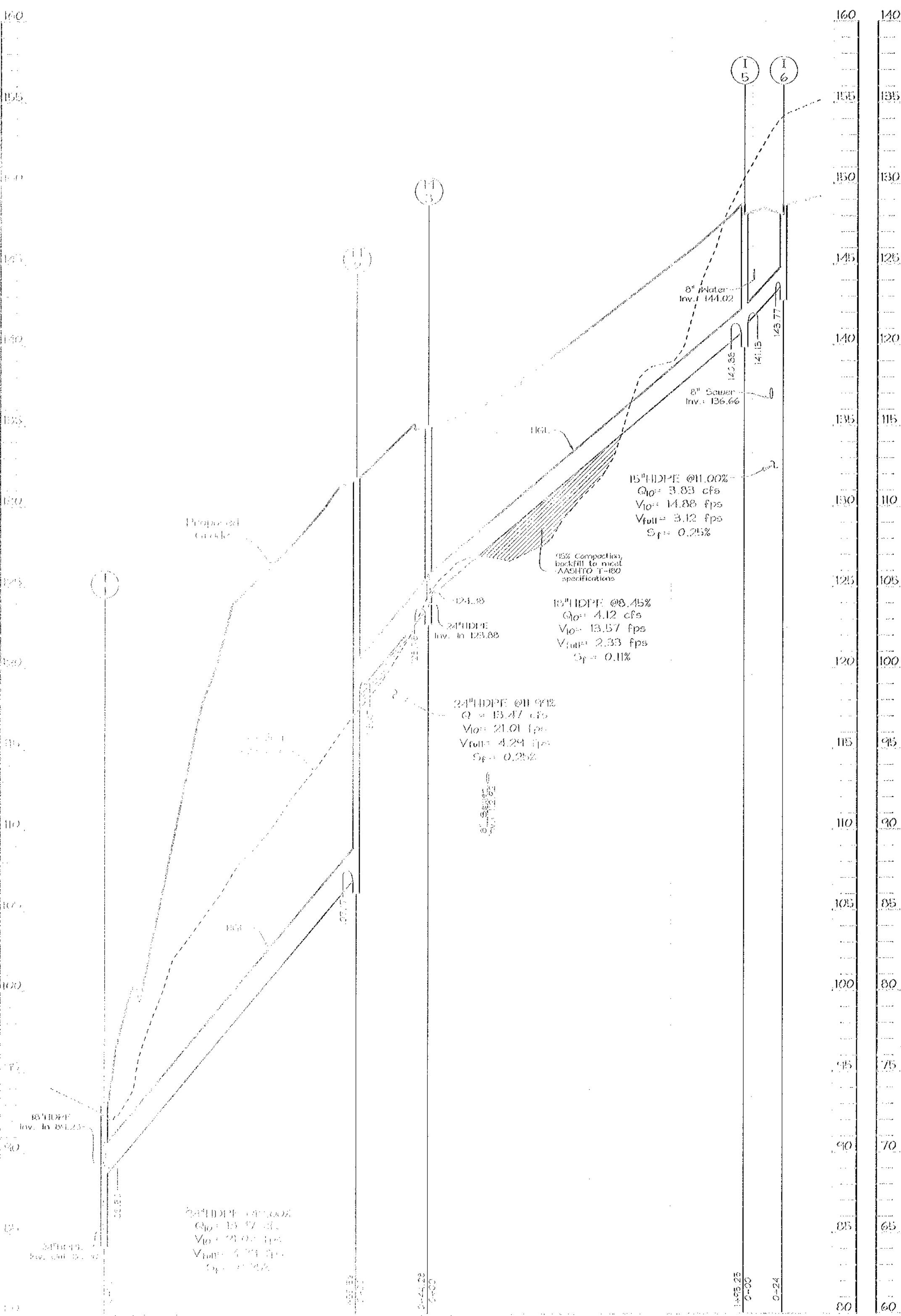
CHECKED BY: [Signature]

SCALE: As Shown

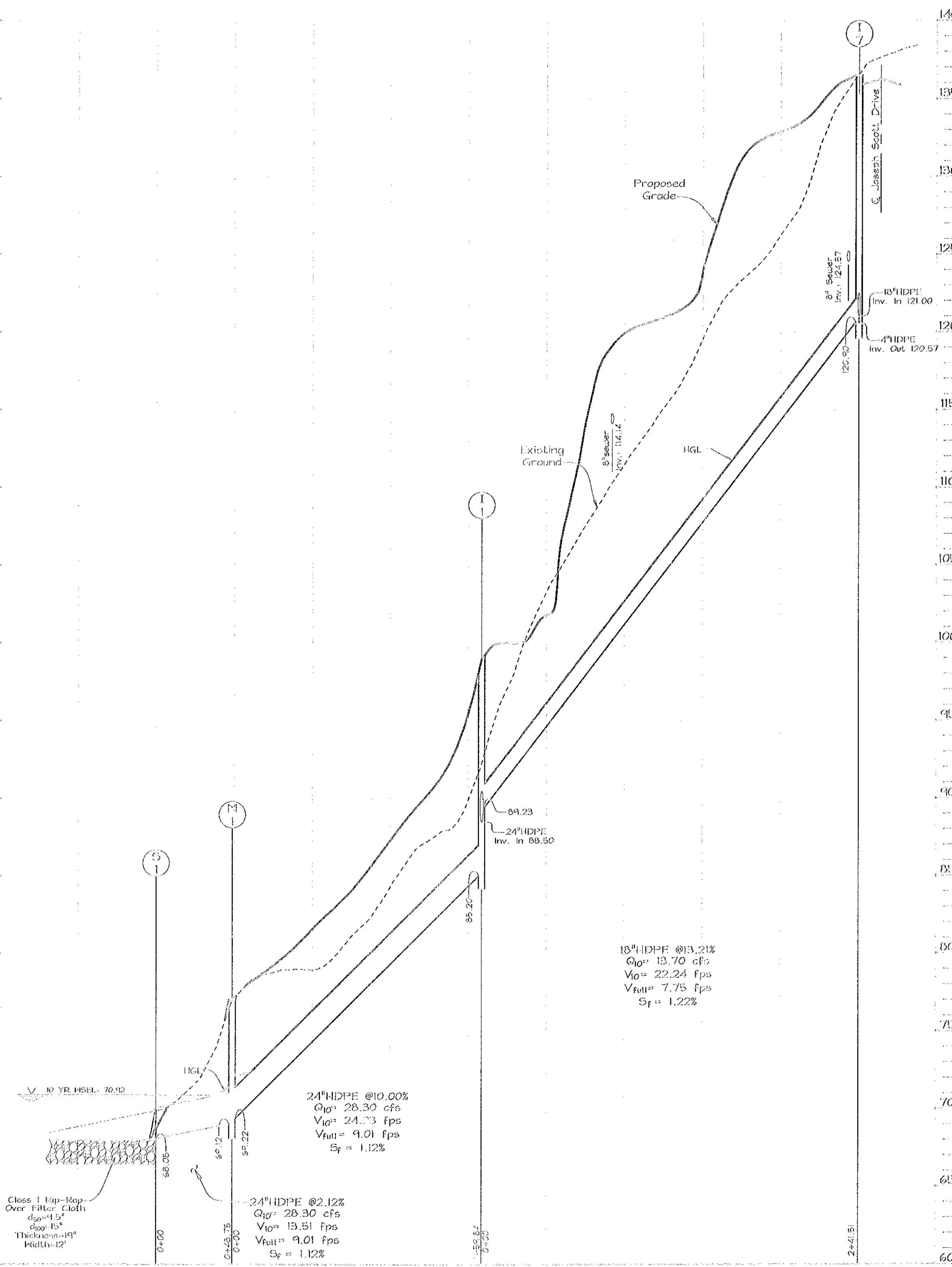
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PROJECT NO.: 0408

SHEET NO.: 13 OF 20



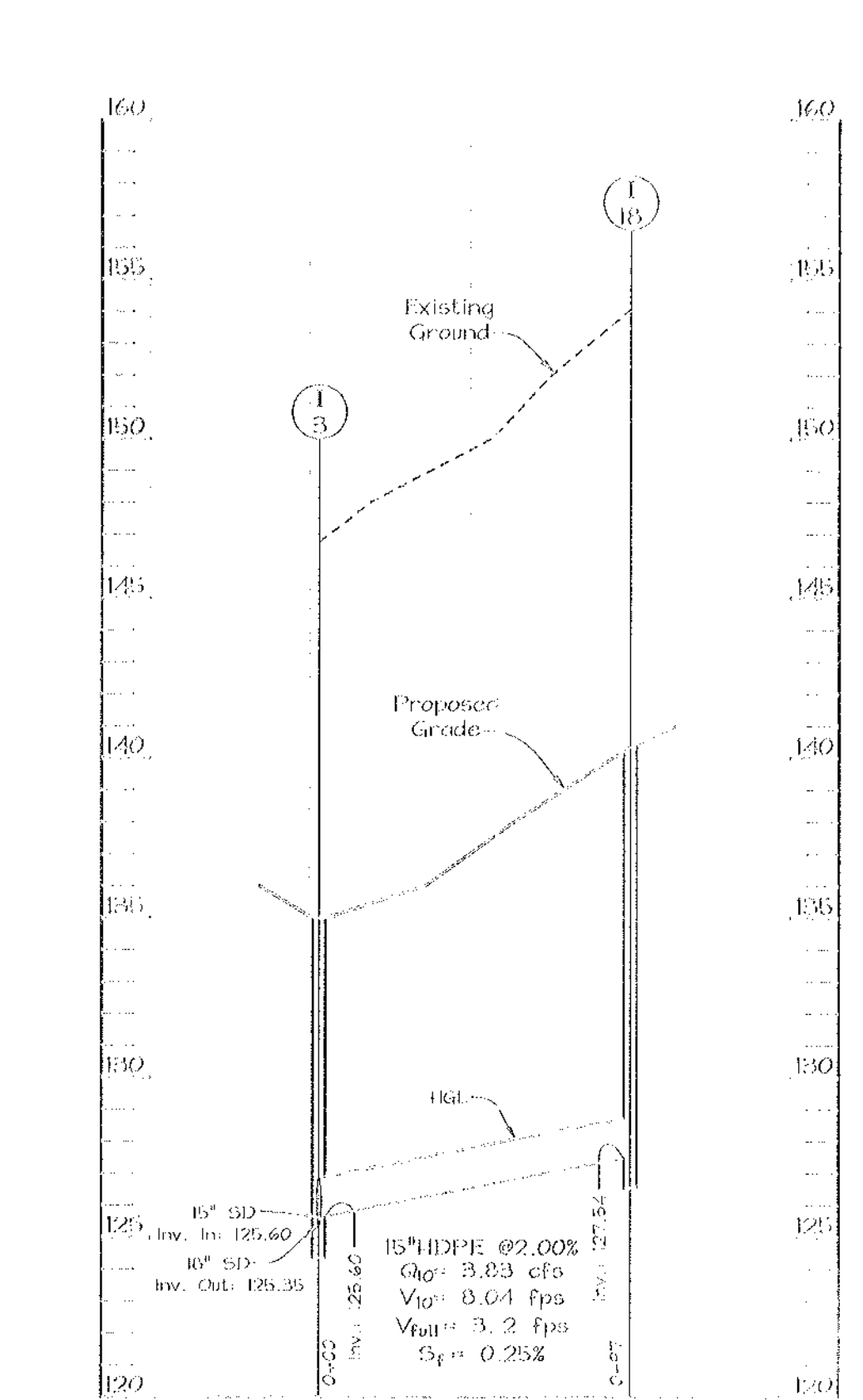
STORM DRAIN PROFILE
SCALE: HOR. = 1"=50'
VERT. = 1"=5'



STORM DRAIN PROFILE
SCALE: HOR. = 1"=50'
VERT. = 1"=5'

STRUCTURE SCHEDULE							
NO.	TYPE	LOCATION		TOP ELEV.	INV. IN	INV. OUT	REMARKS
I-1	Single 'S' Inlet	N 562,195.31	E 1,394,475.28	91.00	103.00	85.20	SD 4.22
I-2	Single 'S' Inlet	N 562,373.40	E 1,394,582.73	131.00	124.00	131.00	SD 4.22
I-3	Single 'S' Inlet	N 562,440.31	E 1,394,691.57	131.00	124.00	131.00	SD 4.22
I-4	Single 'S' Inlet	N 562,605.52	E 1,394,820.50	131.00	124.00	131.00	SD 4.22
I-5	'A-5' Cast-In-Place Inlet	Fairlee Road Sta. 3+65.86	10.00' Right	148.75	141.13	148.75	SD 4.22
I-6	'A-10' Precast Inlet	Fairlee Road Sta. 3+65.86	10.00' Left	148.75	141.13	148.75	SD 4.22
I-7	'A-5' Cast-In-Place Inlet	Joseph Scott Drive Sta. 2+01.09	12.00' Left	148.41	141.00	148.41	SD 4.22
I-8	'A-10' Cast-In-Place Inlet	Joseph Scott Drive Sta. 2+01.09	12.00' Right	148.41	141.00	148.41	SD 4.22
I-9	'A-5' Precast Inlet	Joseph Scott Drive Sta. 4+95.67	12.00' Right	128.50	122.00	128.50	SD 4.22
I-10	'A-5' Precast Inlet	Joseph Scott Drive Sta. 6+70.69	12.00' Right	128.50	122.00	128.50	SD 4.22
I-11	'A-5' Precast Inlet	Joseph Scott Drive Sta. 4+95.67	12.00' Left	128.50	122.00	128.50	SD 4.22
I-12	Single 'S' Inlet	Joseph Scott Drive Sta. 4+44.64	17.00' Right	128.50	122.00	128.50	SD 4.22
I-13	Single 'S' Inlet	Joseph Scott Drive Sta. 4+44.64	17.00' Left	128.50	122.00	128.50	SD 4.22
I-14	Single 'S' Inlet	Joseph Scott Drive Sta. 6+54.64	17.00' Right	128.50	122.00	128.50	SD 4.22
I-15	Single 'S' Inlet	Joseph Scott Drive Sta. 7+76.86	17.00' Right	128.50	122.00	128.50	SD 4.22
I-16	Single 'S' Inlet	N 561,466.96	E 1,394,045.59	111.00	104.00	111.00	SD 4.22
I-17	Single 'S' Inlet	N 561,584.24	E 1,394,083.03	131.00	124.00	131.00	SD 4.22
I-18	Single 'S' Inlet	N 562,491.60	E 1,394,691.50	131.00	124.00	131.00	SD 4.22
M-1	Precast Manhole (4')	N 562,001.90	E 1,394,587.91	111.00	104.00	111.00	G 5.12
M-2	Precast Manhole (4')	N 562,350.84	E 1,394,567.16	131.00	124.00	131.00	G 5.12
M-3	Precast Manhole (4')	N 562,363.70	E 1,394,556.04	131.00	124.00	131.00	G 5.12
M-4	Precast Manhole (4')	N 562,372.93	E 1,394,650.29	131.00	124.00	131.00	G 5.12
M-5	Precast Manhole (4')	Joseph Scott Drive Sta. 4+44.64	17.00' Right	128.50	122.00	128.50	G 5.12
M-6	Precast Manhole (4')	N 561,489.04	E 1,394,106.93	111.00	104.00	111.00	G 5.12
M-7	Precast Manhole (4')	N 561,564.06	E 1,394,010.57	126.50	116.64	126.50	G 5.12
S-1	24" HDPE End Section	N 562,035.50	E 1,394,572.94	126.50	116.64	126.50	G 5.12
S-2	6" HDPE End Section	N 562,173.80	E 1,394,244.95	126.50	116.64	126.50	G 5.12
S-3	24" HDPE End Section	N 561,648.92	E 1,394,310.34	126.50	116.64	126.50	G 5.12

NOTE: 1. Top elevations are to the center, top of grate inlet for all 'S' inlets; center, top of concrete slab @ curb line for 'A-5' and 'A-10'; and center top of manhole cover for precast manholes.
2. Structures I-3, I-13 and M-2 to have granite bottoms.
3. See Grading plans, sheets 5 and 6, for top of structure slopes.



STORM DRAIN PROFILE
SCALE: HOR. = 1"=50'
VERT. = 1"=5'

SIZE	TYPE	LENGTH
6"	HDPE	635 LF
15"	HDPE	615 LF
18"	HDPE	1,315 LF
24"	HDPE	775 LF

PREPARED BY
Richmond Associates, Inc., 2000 Old Dobbin Lane, Columbia, SC 29204
RD 220, BOX 7

STORM DRAIN PROFILE
HUNTERS HOLLOW
LOTS 1 THRU 54, OPEN SPACE LOTS 55 THRU 80
AND A REZONING OF THE LOTS TO
RESIDENTIAL, SINGLE-FAMILY DETACHED
TAX MAP NO. GRIDS 4 & 10
ELECTION DISTRICT

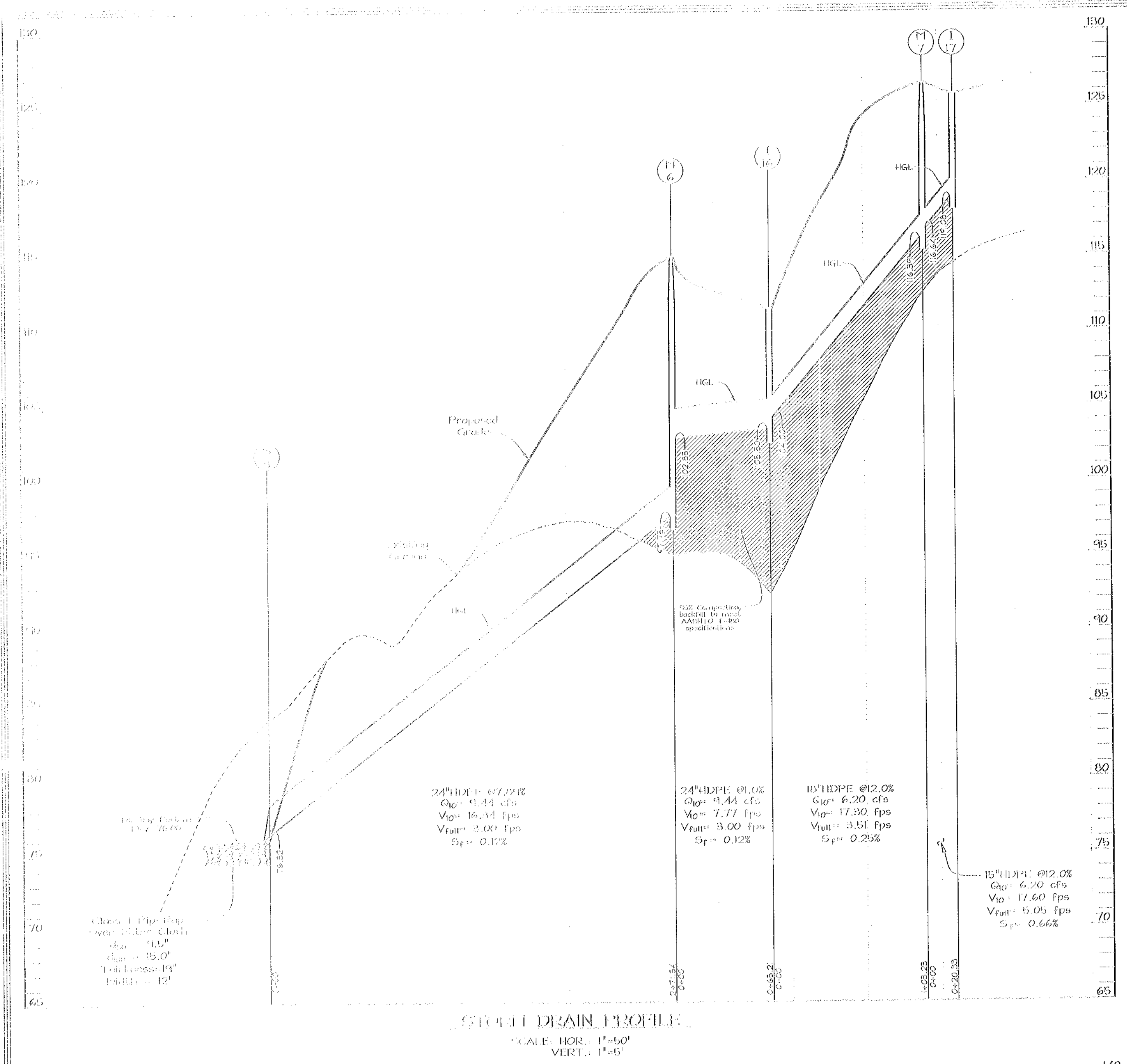
REVISIONS

No.	Revision	Date
1	Revised Lot Areas for Lots 55 thru 79, and 80; revised P&E on Lots 1 thru 5, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80; revised Easement Areas, added Lot 55.	02/28/05

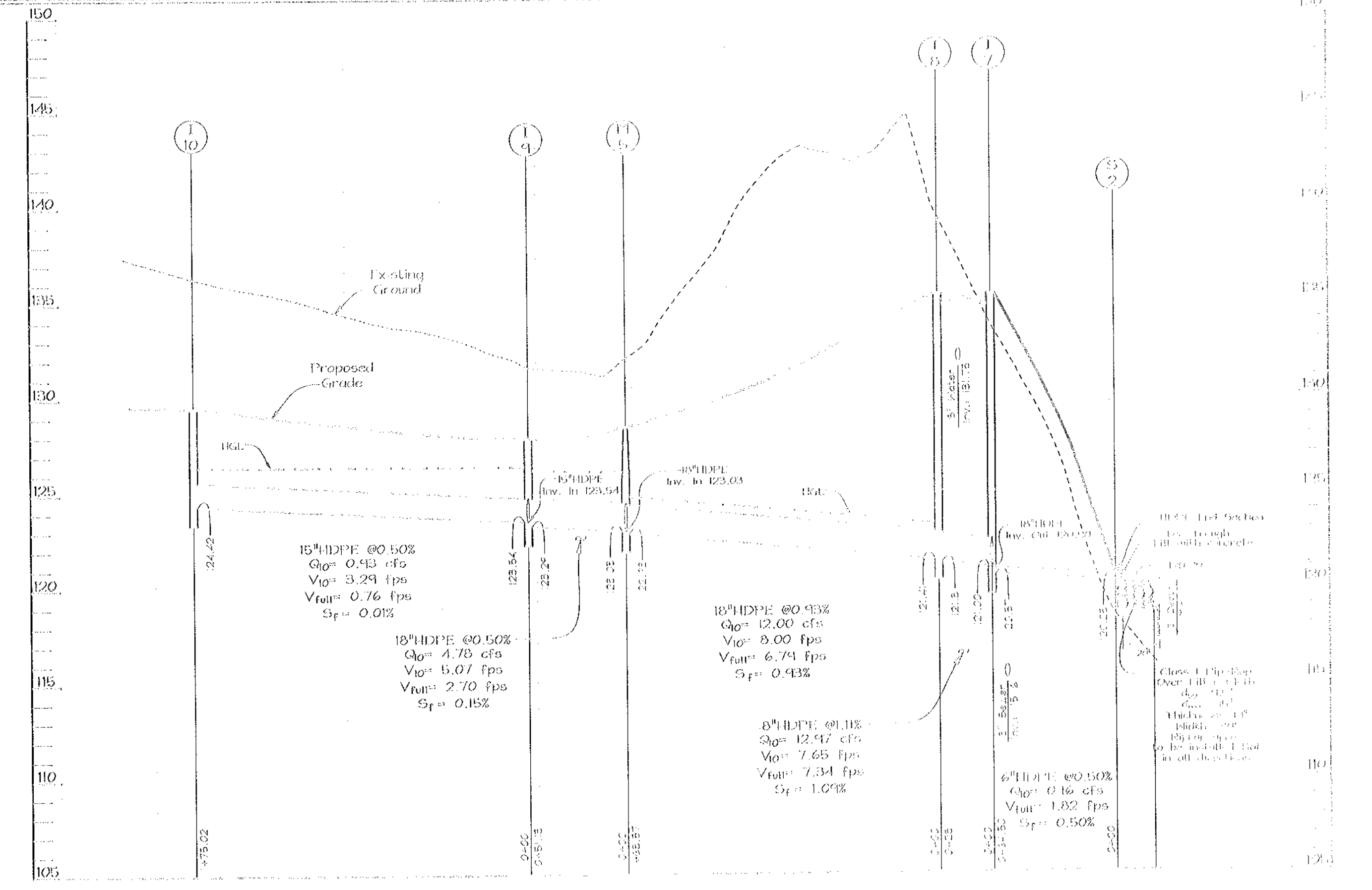
APPROVED: [Signature] DATE: 02/28/05

APPROVED: [Signature] DATE: 02/28/05

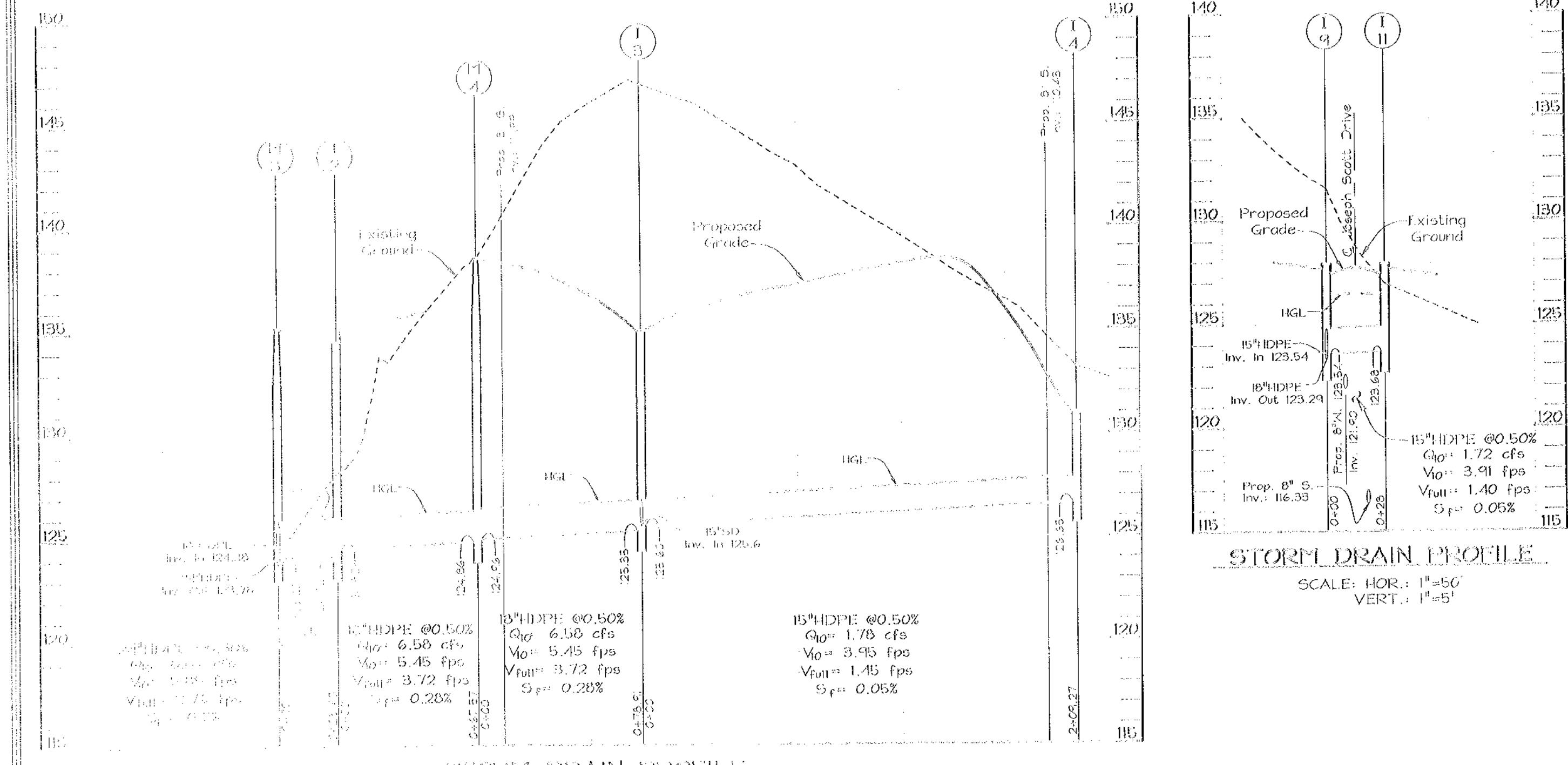
APPROVED: [Signature] DATE: 02/28/05



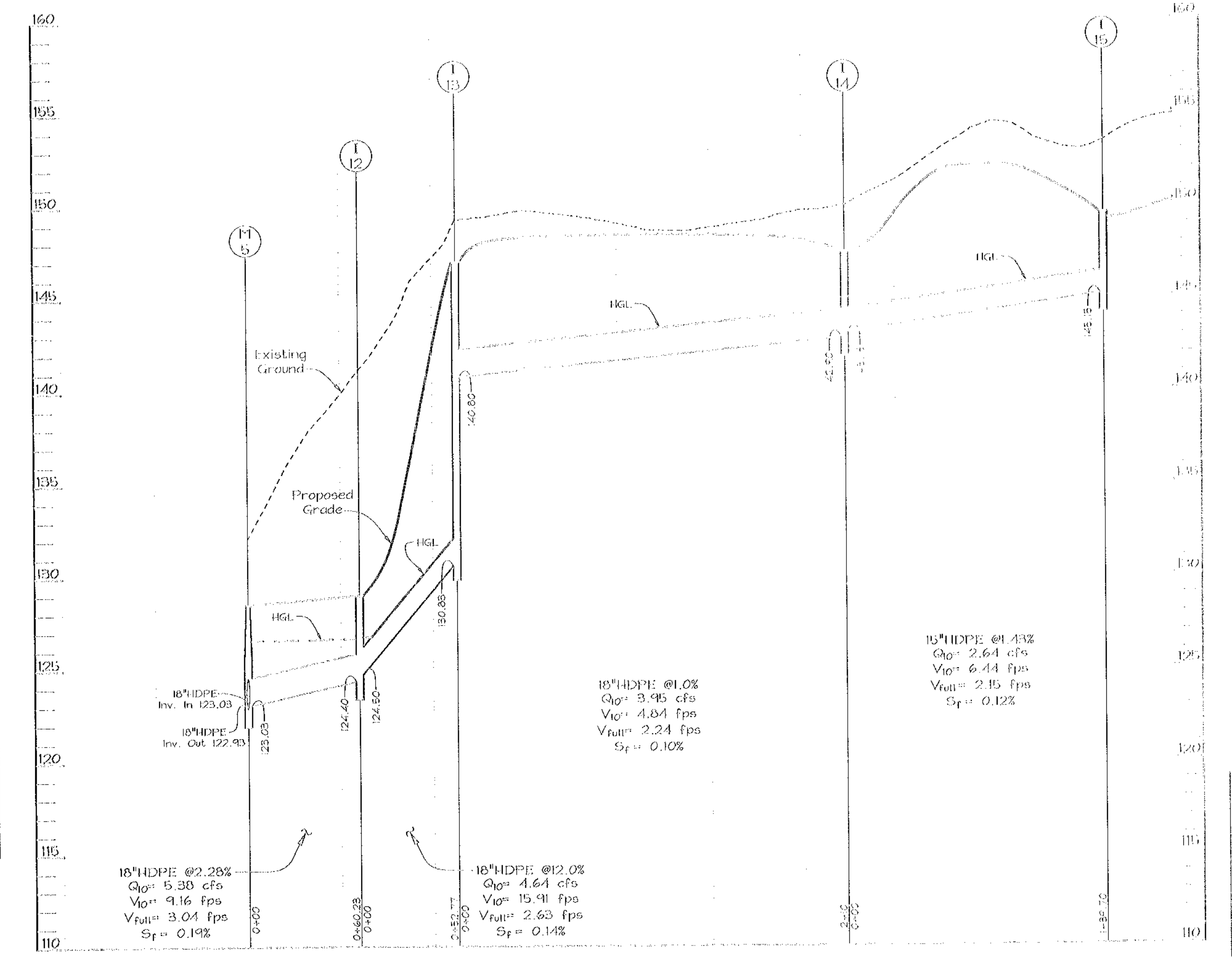
STREET DRAIN PROFILE
SCALE: HOR. 1"=50'
VERT. 1"=5'



STREET DRAIN PROFILE
SCALE: HOR. 1"=50'
VERT. 1"=5'



STREET DRAIN PROFILE
SCALE: HOR. 1"=50'
VERT. 1"=5'



STORM DRAIN PROFILE
SCALE: HOR. 1"=50'
VERT. 1"=5'

APPROVED: *Thomas J. Kelly*
CHIEF, DIVISION OF PUBLIC WORKS

APPROVED: *William J. ...*
CHIEF, DIVISION OF ENGINEERING

APPROVED: *...*
CHIEF, BUREAU OF HIGHWAYS

OWNER/DEVELOPER
Standard American Haven of Graydon, Inc.
600 GILL LINDEN ROAD
COLUMBIA, MD 21046
410-771-0267

STREET DRAIN PROFILE
LOTS 1 THRU 54, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68
AND A PORTION OF LOT 69, TRACT 10, WHEELER BLOCK, DISTRICT 1, PLAN NO. 1497

TAX MAP NO. 35, GRID 4-4, 1ST ELECTION DISTRICT

No.	REVISION	Date
1	Removed Lot Areas for Lots 35 thru 51, 55 and 56; revised BRL on Lots 1 thru 3, 11, 12, 14 thru 17, and 42; revised Forest Conservation Easement Areas; added Lot 35.	02.28.05

Professional Engineer Seal: *William J. ...*

DATE: 02.28.05

SCALE: As Shown

DATE: 05.01.05, 2004

SHEET No. 10 OF 20

A=0.06 Ac. (17) Z=R-12
Co.35 1'-0" SOIL

A=0.06 Ac. (17) Z=R-12
Co.36 1'-0" SOIL

A=0.06 Ac. (17) Z=R-12
Co.36 1'-0" SOIL

A=0.23 Ac. (17) Z=R-12
Co.31 1'-0" SOIL

A=0.58 Ac. (18) Z=R-12
Co.35 1'-0" SOIL

A=0.22 Ac. (17) Z=R-12
Co.35 1'-0" SOIL

A=0.39 Ac. (13) Z=R-12
Co.36 1'-0" SOIL

A=0.34 Ac. (12) Z=R-12
Co.36 1'-0" SOIL

A=0.15 Ac. (17) Z=R-12
Co.33 1'-0" SOIL

SOILS LISTED

SOIL CLASS	NAME / DESCRIPTION
13A	Beltville silt loam, 1 to 5 percent slope, moderately well drained
13B	Beltville silt loam, 5 to 10 percent slope, moderately well drained
13C	Beltville silt loam, 10 to 15 percent slope, moderately well drained
13D	Chillicothe sandy loam, 5 to 10 percent slope, moderately well drained
13E	Chillicothe sandy loam, 10 to 15 percent slope, moderately well drained
13F	Chillicothe sandy loam, 15 to 20 percent slope, moderately well drained
13G	Chillicothe sandy loam, 20 to 25 percent slope, moderately well drained
13H	Chillicothe sandy loam, 25 to 30 percent slope, moderately well drained
13I	Chillicothe sandy loam, 30 to 35 percent slope, moderately well drained
13J	Chillicothe sandy loam, 35 to 40 percent slope, moderately well drained
13K	Chillicothe sandy loam, 40 to 45 percent slope, moderately well drained
13L	Chillicothe sandy loam, 45 to 50 percent slope, moderately well drained
13M	Chillicothe sandy loam, 50 to 55 percent slope, moderately well drained
13N	Chillicothe sandy loam, 55 to 60 percent slope, moderately well drained
13O	Chillicothe sandy loam, 60 to 65 percent slope, moderately well drained
13P	Chillicothe sandy loam, 65 to 70 percent slope, moderately well drained
13Q	Chillicothe sandy loam, 70 to 75 percent slope, moderately well drained
13R	Chillicothe sandy loam, 75 to 80 percent slope, moderately well drained
13S	Chillicothe sandy loam, 80 to 85 percent slope, moderately well drained
13T	Chillicothe sandy loam, 85 to 90 percent slope, moderately well drained
13U	Chillicothe sandy loam, 90 to 95 percent slope, moderately well drained
13V	Chillicothe sandy loam, 95 to 100 percent slope, moderately well drained

A=0.66 Ac. (17) Z=R-12
Co.35 1'-0" SOIL

A=0.64 Ac. (17) Z=R-12
Co.33 1'-0" SOIL

A=0.40 Ac. (13) Z=R-12
Co.36 1'-0" SOIL

A=0.15 Ac. (17) Z=R-12
Co.35 1'-0" SOIL

A=0.46 Ac. (17) Z=R-12
Co.33 1'-0" SOIL

OWNER/DEVELOPER
Richard America, Trustee of the Estate of
6200 Old Dublin Lane
Columbus, Ind 47215
(317) 532-0277

**THIRD DEGREE
DRAINAGE AREA MAP
SUBDIVISION 13853**

LOTS 1 THRU 54, OTHER BEARS LOTS 55 TO 58
AND A RE-DEVELOPMENT OF THE FOREST AND
WESLEY FOREST, SECTION 1, T14N, R10E, M42W

TAX MAP NO. GRID 4-10
FOR ELECTION PURPOSES

APPROVED: *Richard America*
DEVELOPER

APPROVED: *William J. ...*
CHIEF, BUREAU OF HIGHWAYS

DATE: 10-21-88

REVISION: 02-28-05

DATE: 02-28-05

REVISION: Revised Lot Areas for Lots 39, 55 and 56; revised 2881 on Lots 1 thru 3, 11, 15, 16, 18 thru 21 and 44; revised Forest Conservation Easements Area; added Lot 58.

APPROVED: *Condy Hamilton*
CHIEF, DIVISION OF LAND DEVELOPMENT

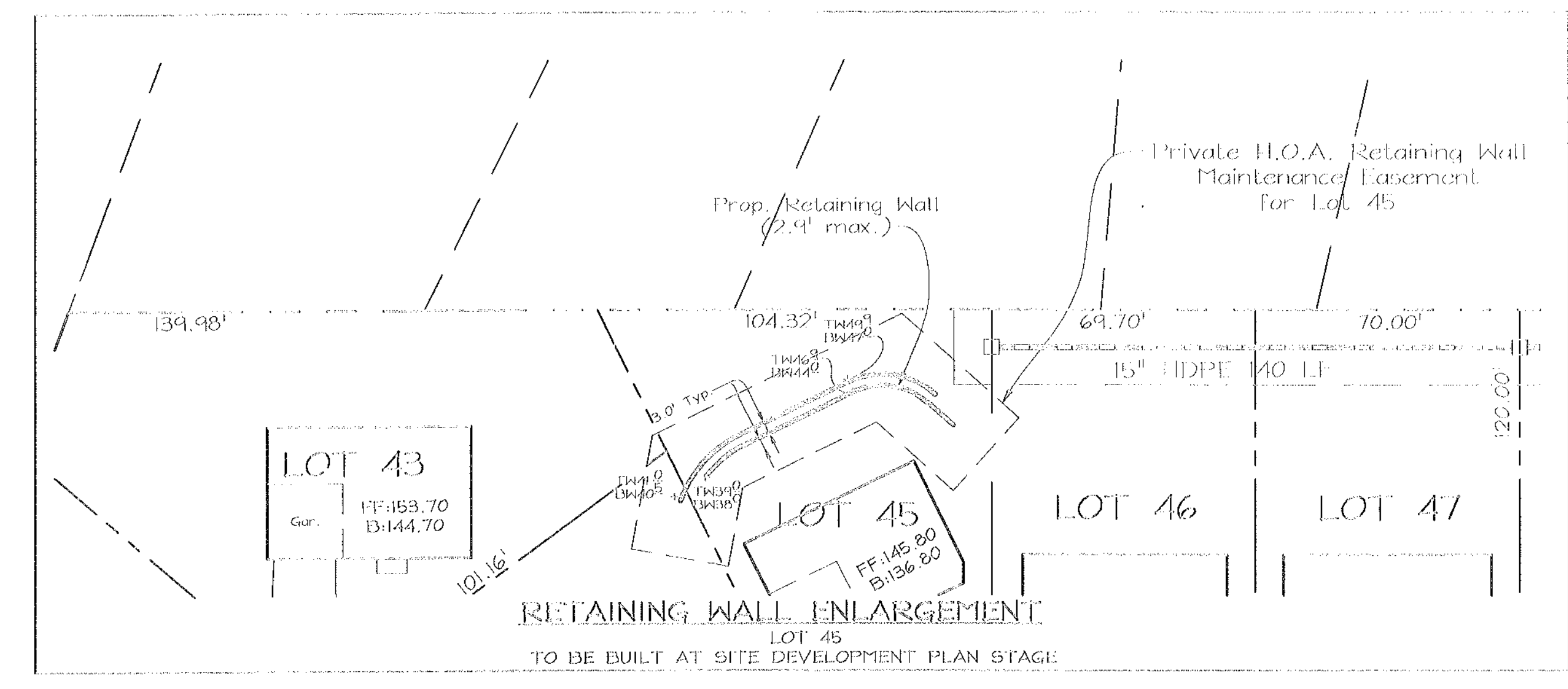
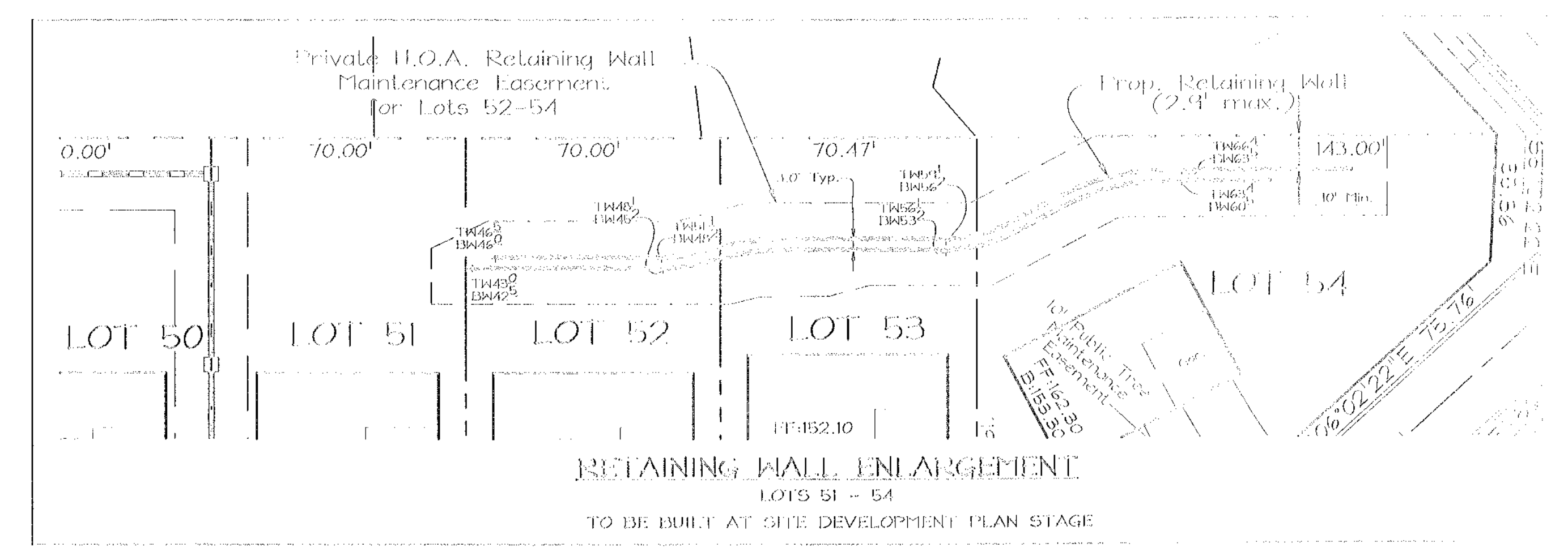
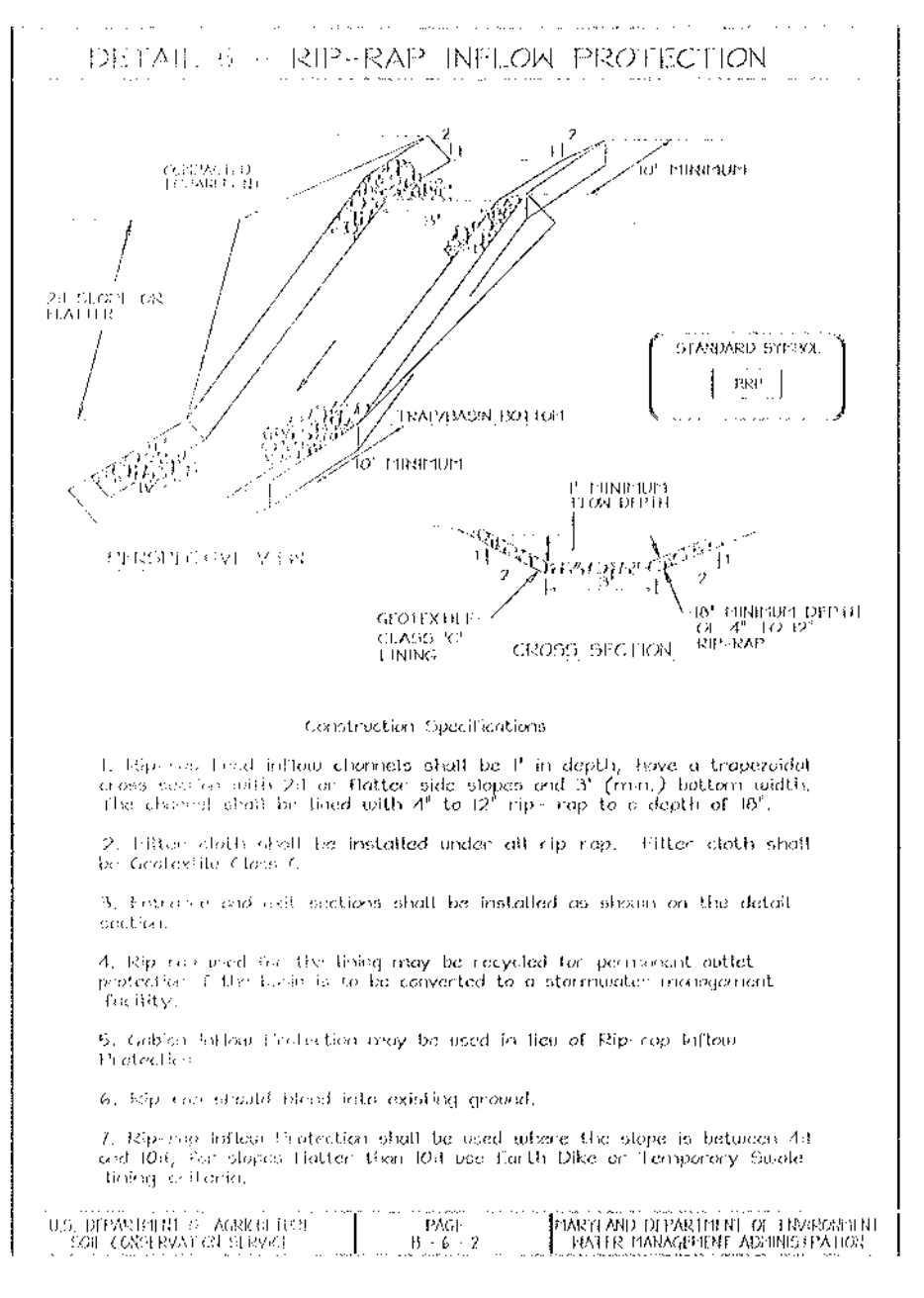
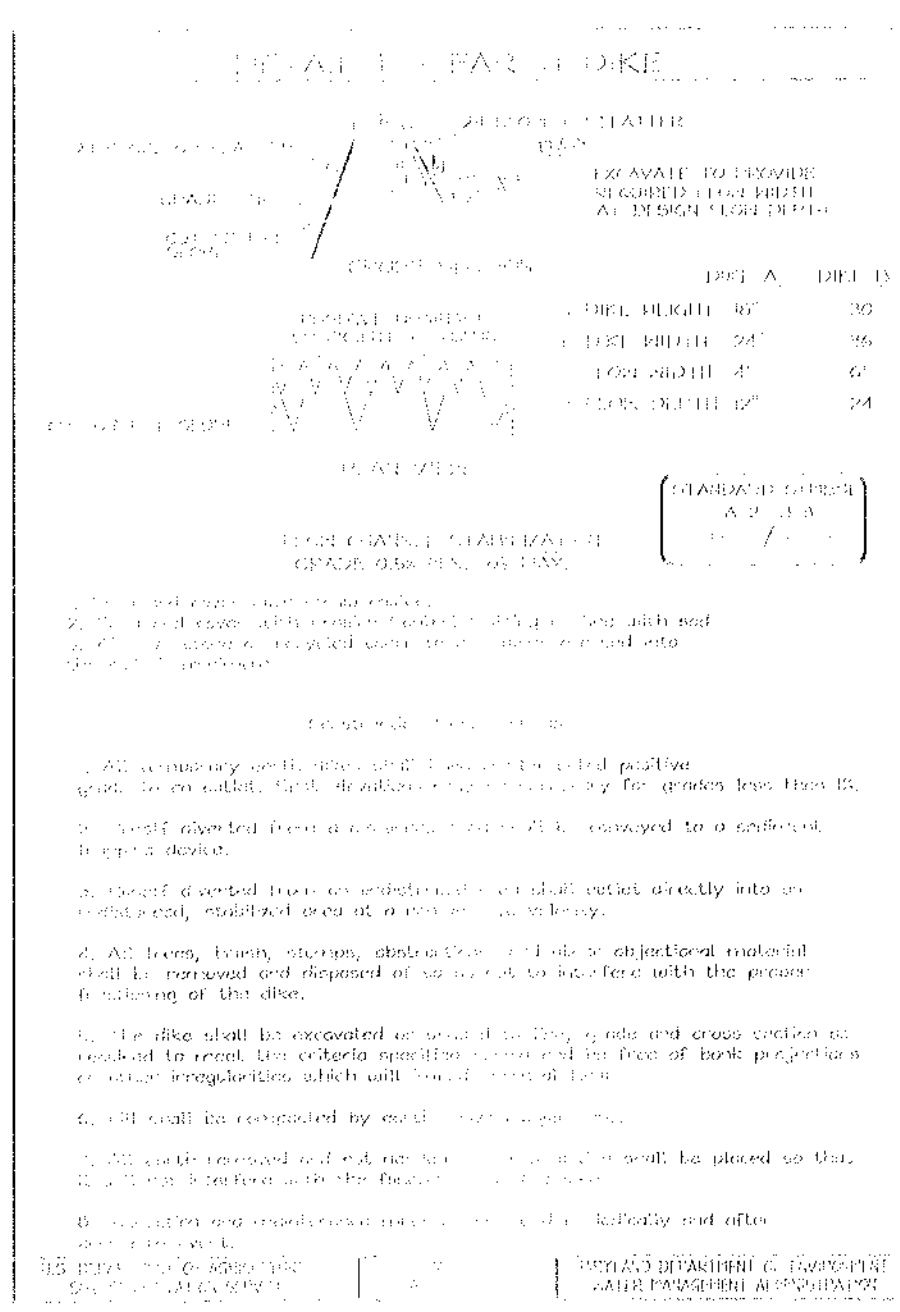
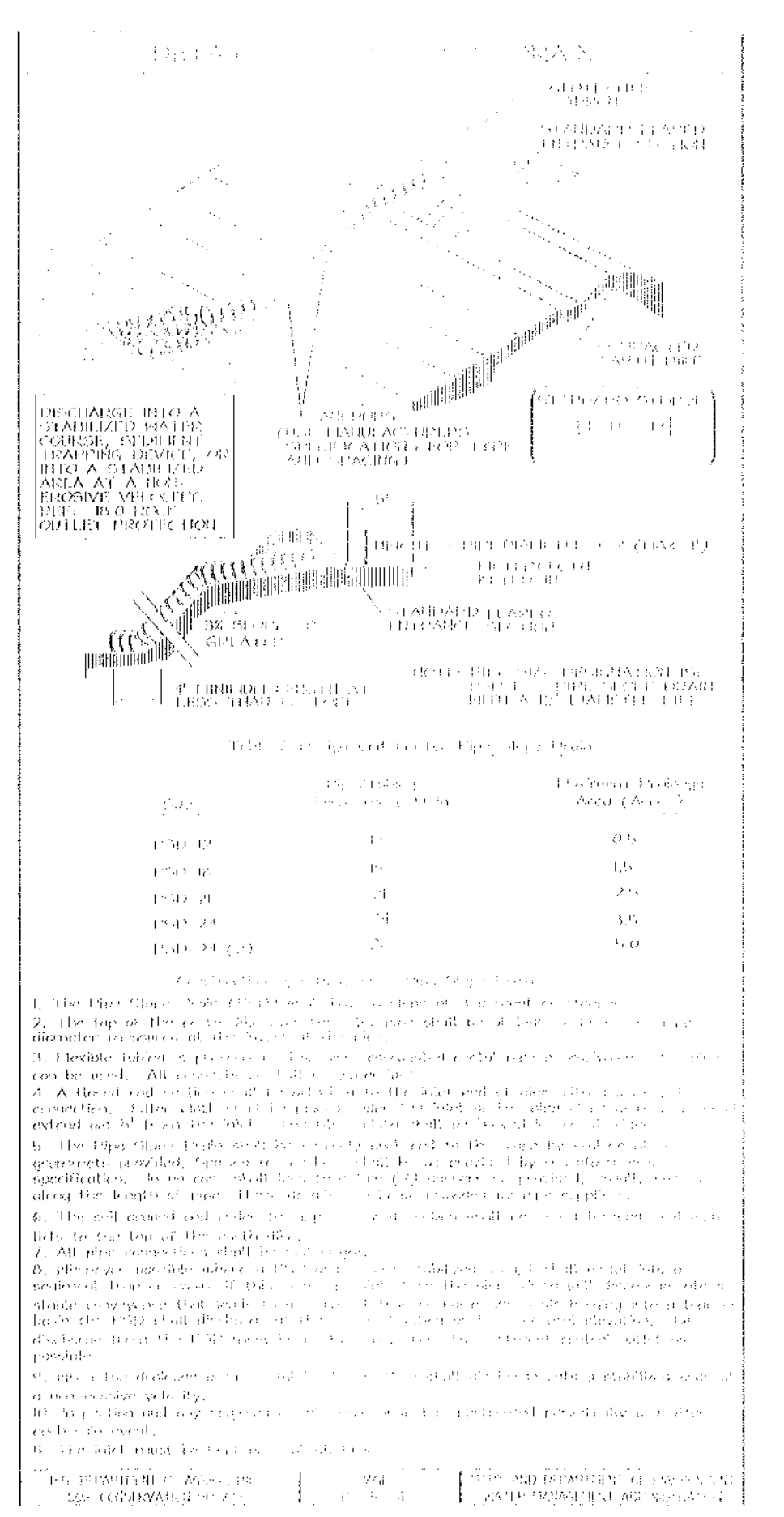
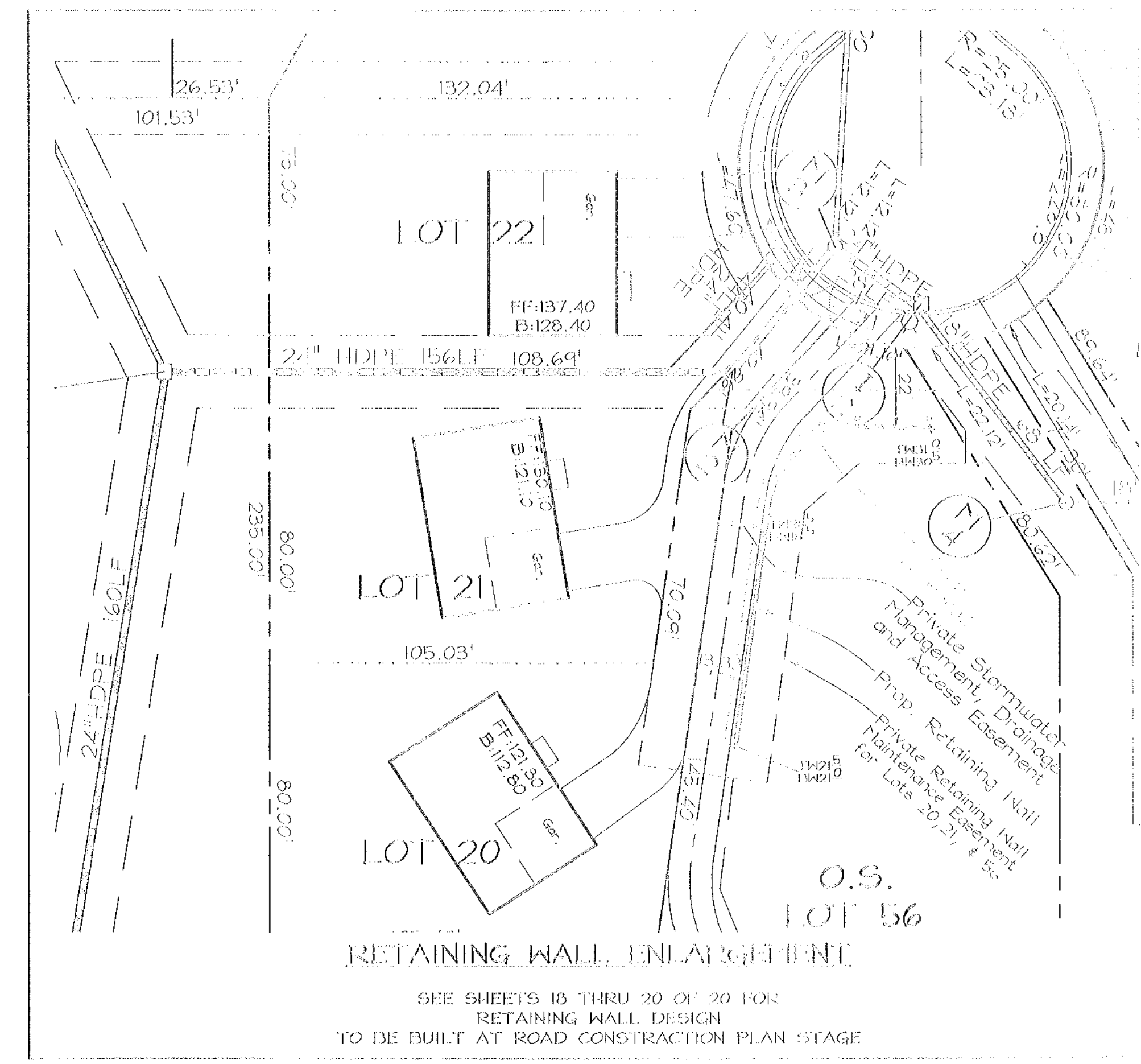
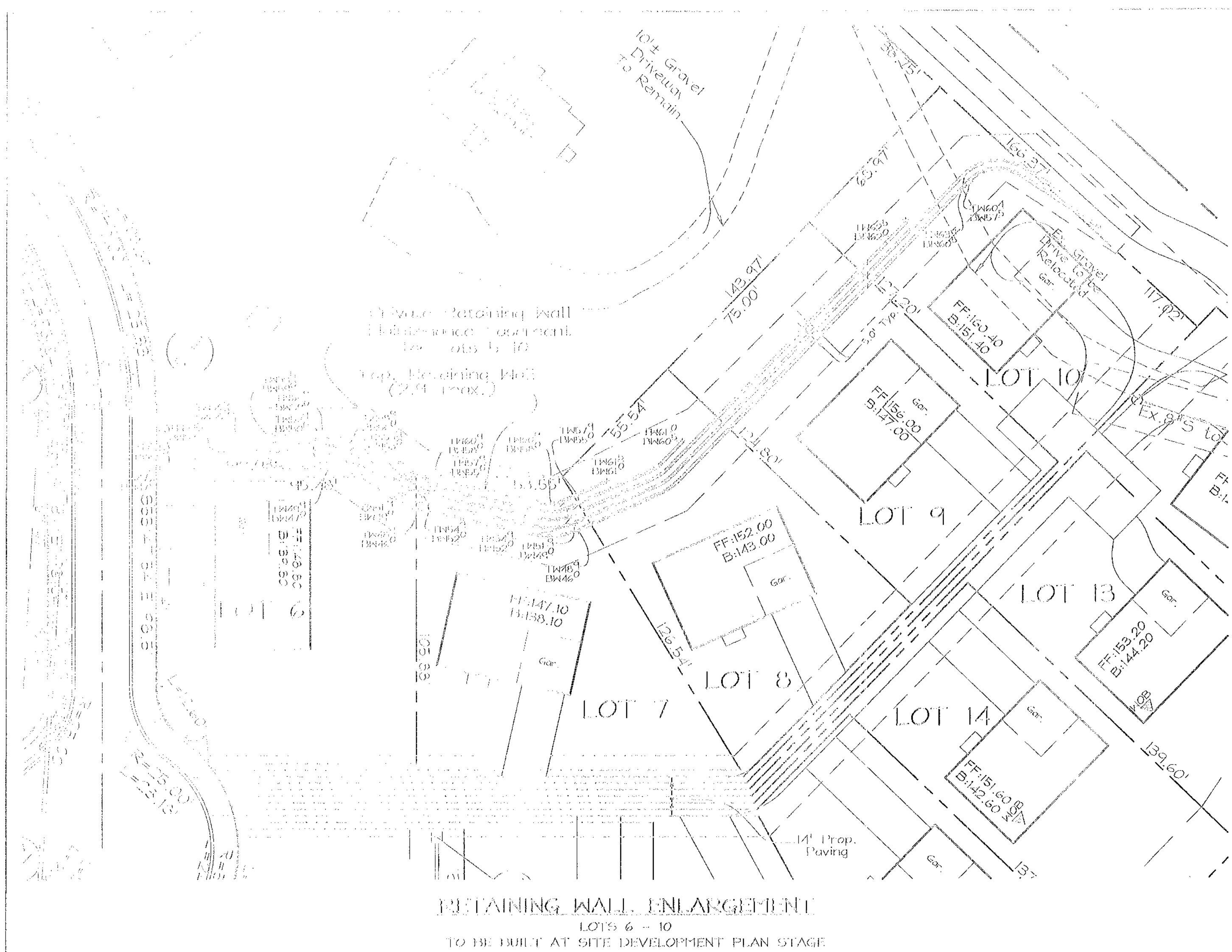
DATE: 10/15/88

CHIEF, DEVELOPMENT PLANNING DIVISION

APPROVED: *Richard America*
DEVELOPER

DATE: 10/15/88

No.	REVISION	Date
1	Revised Lot Areas for Lots 39, 55 and 56; revised 2881 on Lots 1 thru 3, 11, 15, 16, 18 thru 21 and 44; revised Forest Conservation Easements Area; added Lot 58.	02-28-05



No.	REVISION	Date
1	Revised Lot Areas on Lots 55 thru 59 and 60; revised BRL on Lots 1 thru 5, 10, 15, 16, 18 thru 21 and 42; revised Street Construction Easement Areas; added Lot 58.	02.28.05

CONSUMER DEVELOPMENT
 11 Howard Avenue, Boylston, MA 01968
 401.937.1200

RETAINING WALL ENLARGEMENTS AND GRADIENT AND EROSION CONTROL DETAILS
 LOTS 1 THRU 14, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

FAX: 401.937.1200
 1st ELECTION DISTRICT
 HOWARD COUNTY, MASSACHUSETTS

DESIGN: [Signature]
 CHECKED: [Signature]
 SCALE: 1/8" = 1'-0"
 DATE: 02.28.05
 P.O. No.: 2005
 SHEET No.: 8 OF 20

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

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 [Signature]
 CHIEF, BUREAU OF HIGHWAYS

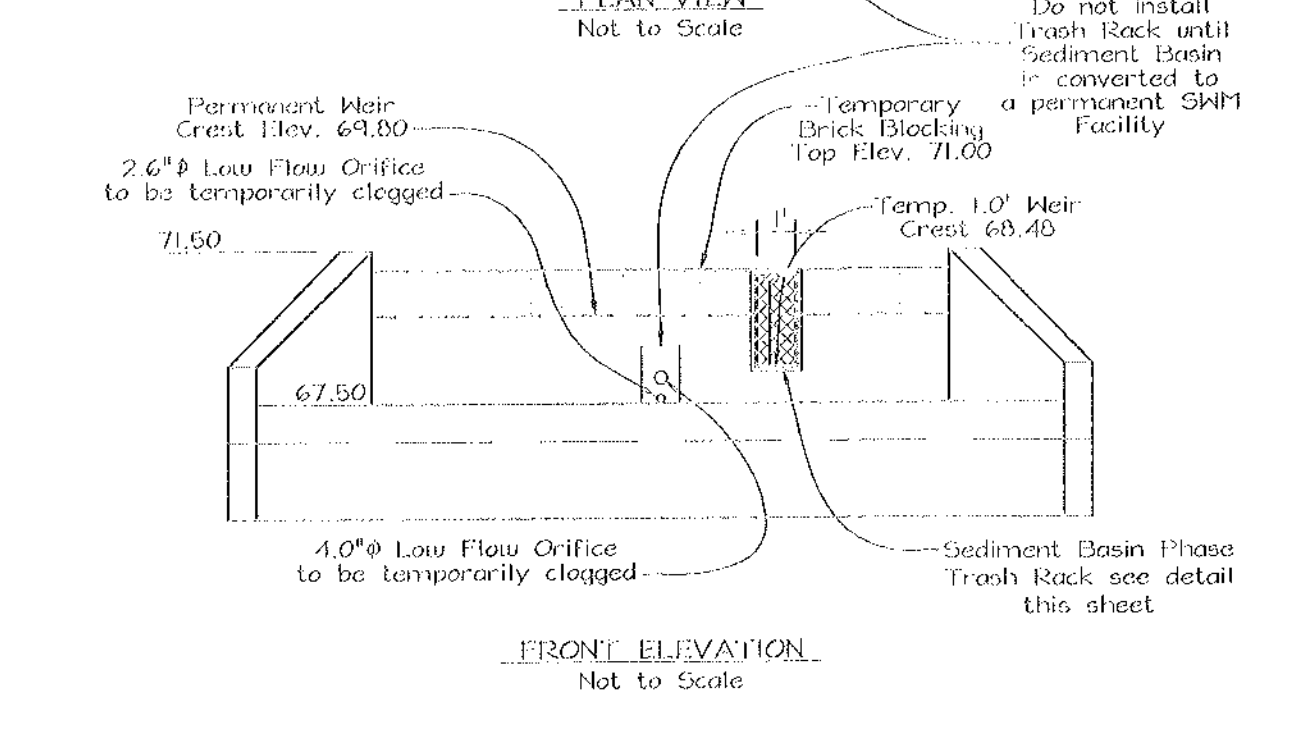
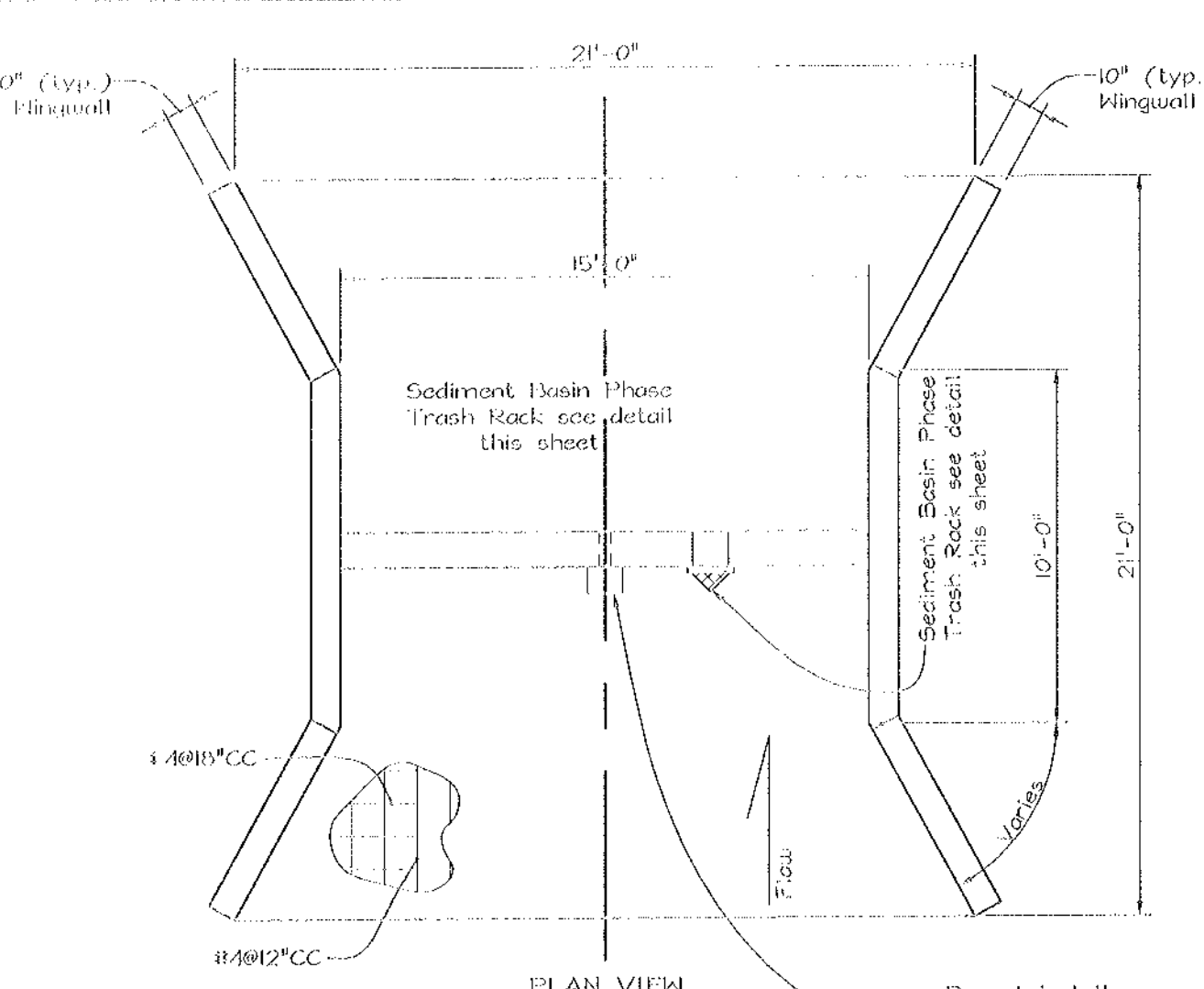
SEQUENCE OF CONSTRUCTION

- 1. Grading... 2. Install... 3. Earth... 4. Final... 5. Planting...

HUNDRED RIDGE SWEEP SUMMARY TABLE

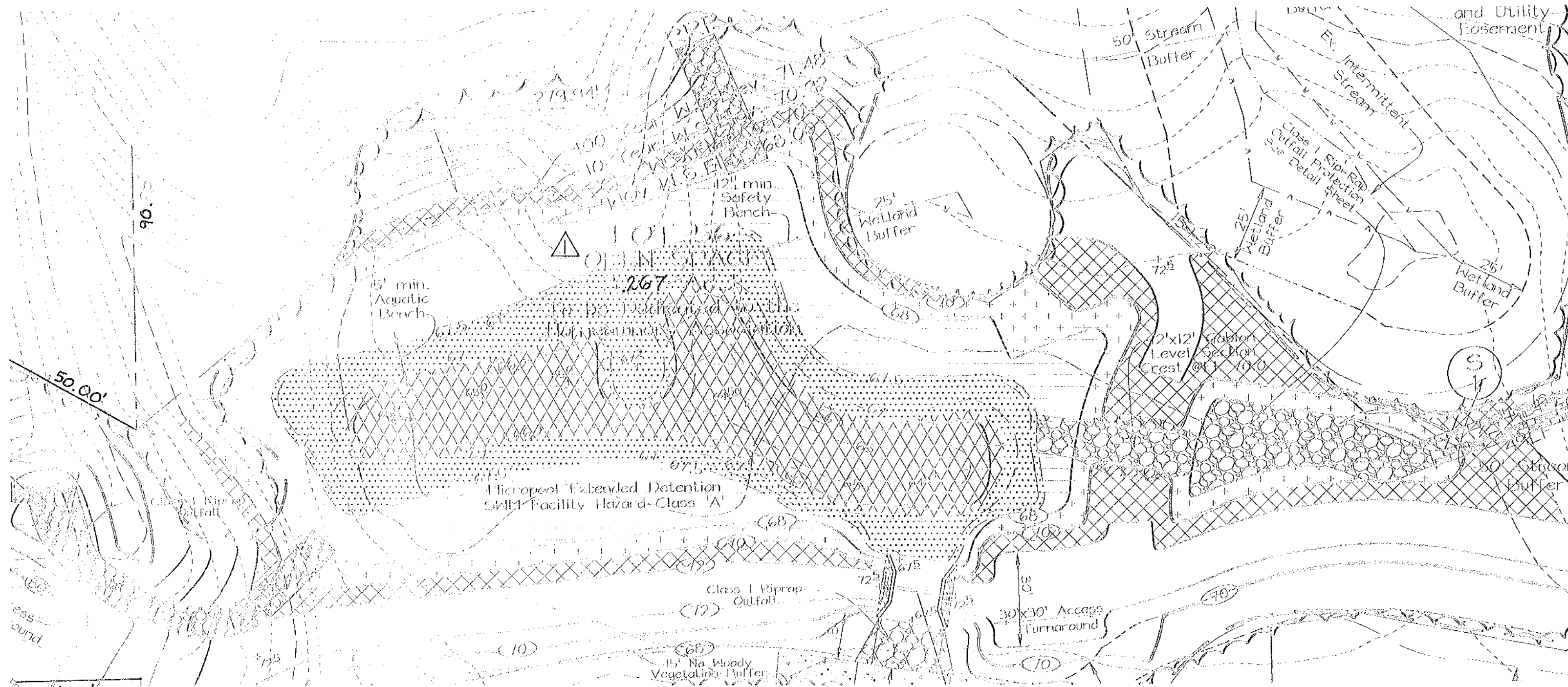
Table with columns: Category, Volume Required, Volume Provided, Notes. Rows include Category 1 through 6.

Notes. Reclamation (55%) treatment provided for lots 12-17, 122 lot 35, lot 36 and all of lots 36-39 with grass cover of average slopes of 4%.



SOIL FACILITY HYDROLOGY PLANTING REQUIREMENTS

- Zone 1 - 24'-0" x 2'-0" 12"x36" depth below normal pool elevation... Zone 2 - 12' x 12' depth below normal pool elevation... Zone 3 - 12' x 12' elevation above normal pool elevation... Zone 4 - 40' x 10' to 1' to 0' to top motor surface elevation... Zone 5 - 0' to 0.100 motor surface elevation... Zone 6 - 0.100 motor surface elevation and above...

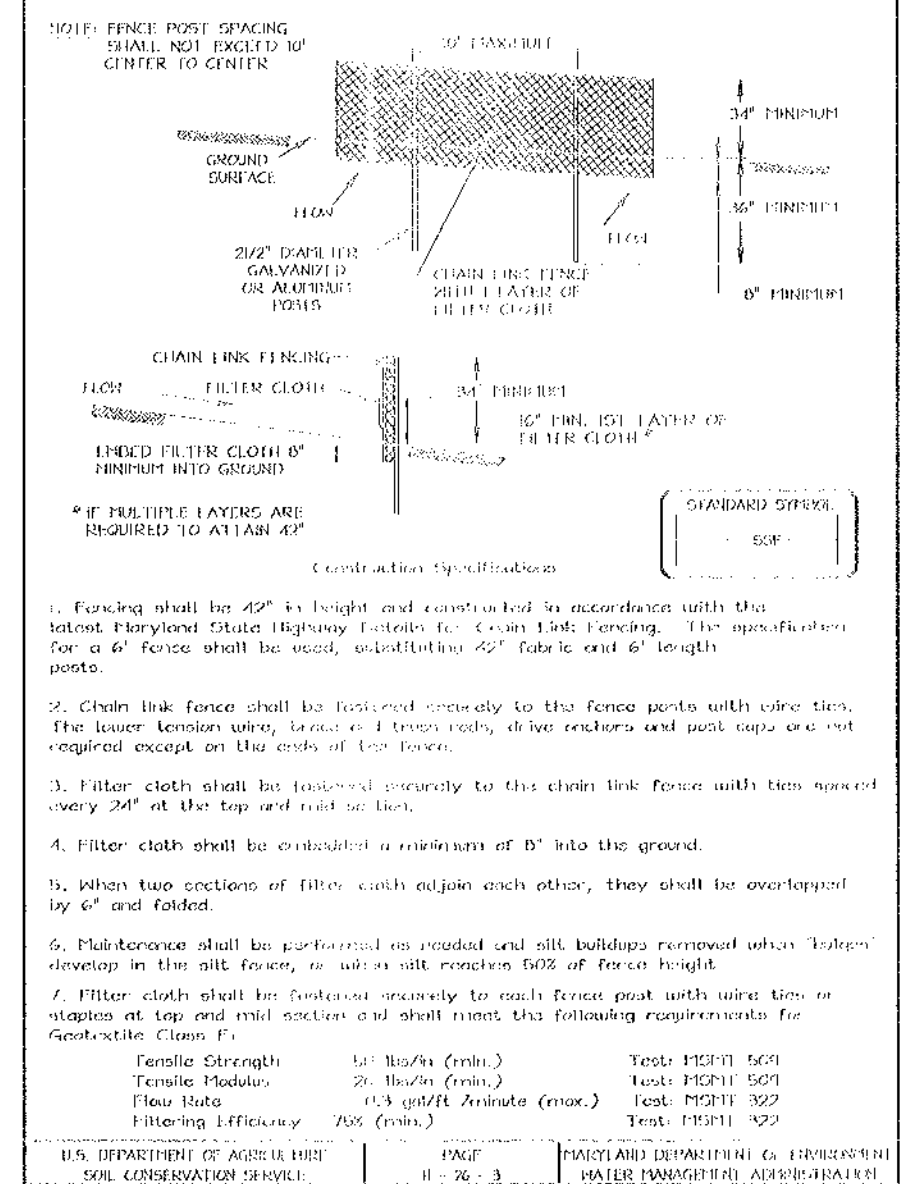


SLOPE POND PLANTING DETAIL Scale: 1" = 30'

SOIL STANDARDS AND SPECIFICATIONS FOR TOPSOIL

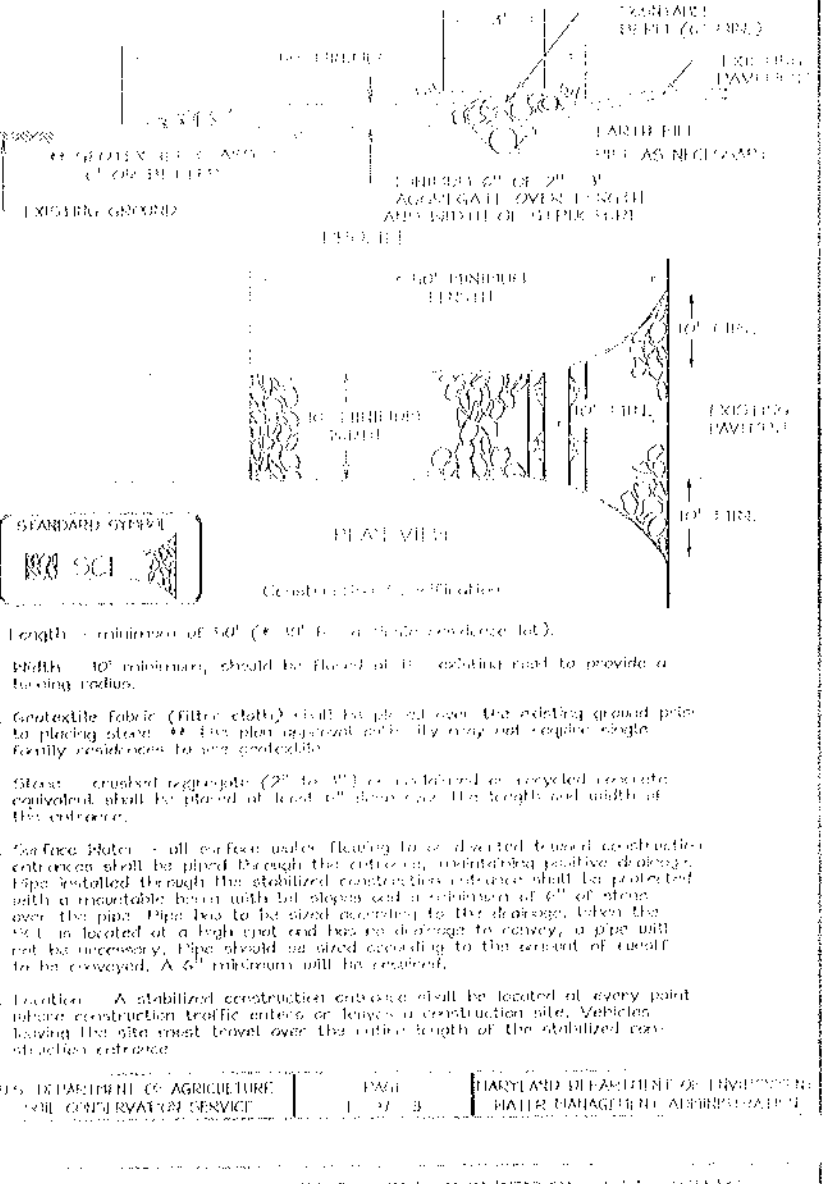
Definition: The amount of topsoil over a proposed subject prior to the start of permanent vegetation. Purpose: To provide a suitable soil medium for vegetative growth... Installation and Material Specifications: 1. Topsoil obtained from the existing site may be used provided that it meets the standards set forth in these specifications...

DETAIL 33 - CHAIN LINK FENCE



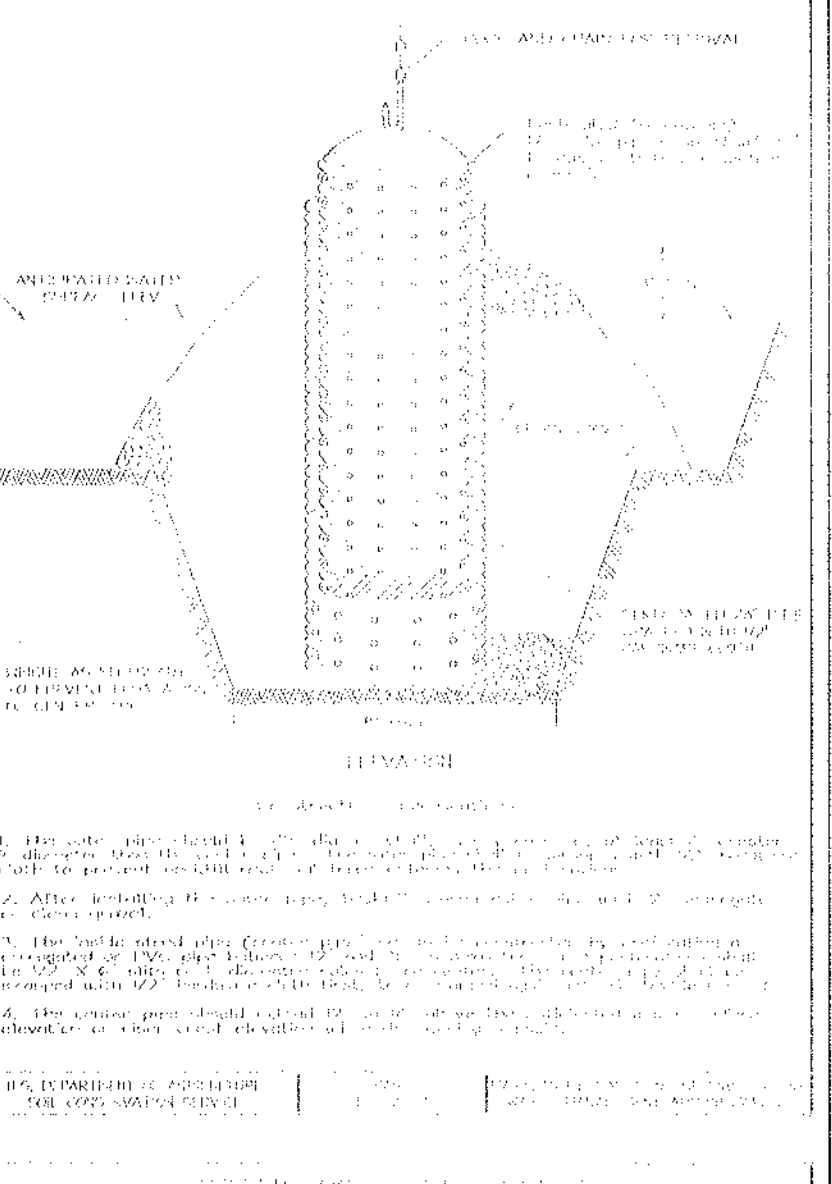
Construction Specifications: 1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Construction Specifications... 2. Chain link fence shall be fastened securely to the fence posts with wire ties...

DETAIL 34 - WEATHERTIGHT CONSTRUCTION ENTRANCE



Construction Specifications: 1. Length - minimum of 5' (4' if in a driveway area). 2. Material - 1/2" thick aluminum or steel sheet piling with a minimum of 2" x 2" aluminum or steel reinforcement...

INTERIM DRAINAGE STATION



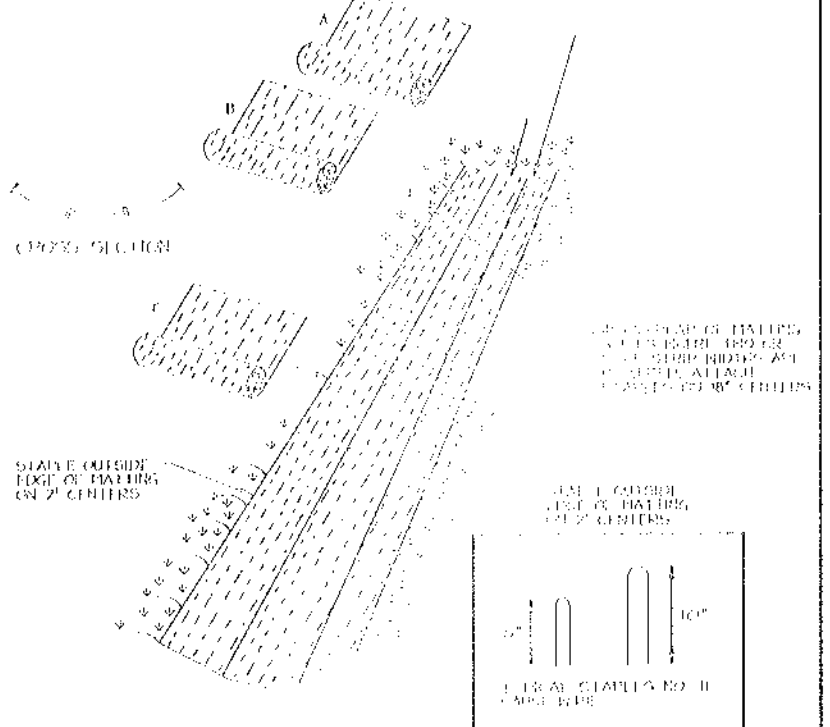
CONCRETE WEIR CONTROL STRUCTURE MODIFICATIONS FOR SEDIMENT CONTROL

NOTE: NOT TO SCALE. Contractor shall form up a 1.0' wide temporary weir notch in the weir wall at crest elevation 66.40, providing a 2.62' opening. Contractor shall extend permanent weir crest to elevation 71.0 using brick and mortar, leaving a 1.0' wide opening to elevation 66.40.

SEDIMENT CONTROL NOTES

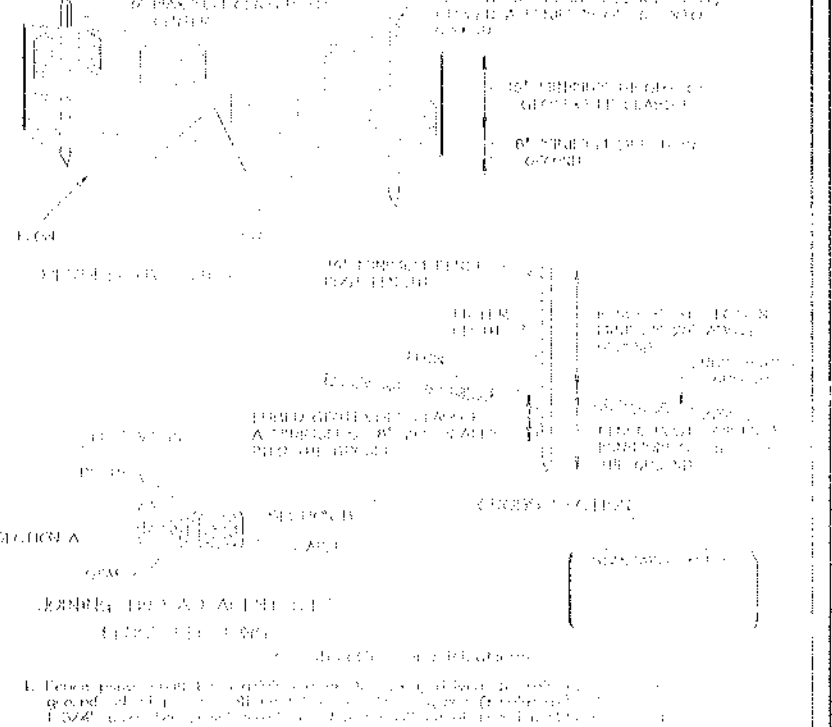
- 1. A minimum of 40 hours notice must be given to the Howard County Department of Construction, Planning and Public Works... 2. All sediment control structures shall be constructed in accordance with the FHWA (PARTIAL) AND OTHER FEDERAL AGENCIES (PARTIAL) GUIDANCE... 3. All sediment control structures shall be constructed in accordance with the FHWA (PARTIAL) AND OTHER FEDERAL AGENCIES (PARTIAL) GUIDANCE... 4. All sediment control structures shall be constructed in accordance with the FHWA (PARTIAL) AND OTHER FEDERAL AGENCIES (PARTIAL) GUIDANCE...

DETAIL 30 - EROSION CONTROL TRAINING



Construction Specifications: 1. Key in the walls of the training structure to the existing concrete curb... 2. Gravel shall be placed in the training structure in layers... 3. The gravel shall be compacted in each layer... 4. The gravel shall be compacted in each layer...

DETAIL 32 - TRASH RACK DETAIL



Construction Specifications: 1. The trash rack shall be constructed in accordance with the FHWA (PARTIAL) AND OTHER FEDERAL AGENCIES (PARTIAL) GUIDANCE... 2. The trash rack shall be constructed in accordance with the FHWA (PARTIAL) AND OTHER FEDERAL AGENCIES (PARTIAL) GUIDANCE...

NOTES FOR TEMPORARY TRASH RACK

- 1. To be used on temporary flow during construction (trash rack detail only). 2. Trash rack to be installed over existing trash rack detail. 3. All surfaces to be coated with 25% zinc galvanizing to prevent corrosion. 4. Trash rack to be installed to the wall with 1/2" temporary castings. Trash rack to be removable.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Signature and title: Chief, Department of Planning and Zoning.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Signature and title: Chief, Department of Public Works.

DEVELOPER'S CERTIFICATE

I hereby certify that all development and construction will be done according to this plan for sediment and erosion control...

ENGINEERS CERTIFICATE

I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge and the conditions and that it was prepared in accordance with the requirements of the Howard County Soil Conservation District.

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

Signature and title: Engineer/Soil Conservation District official.

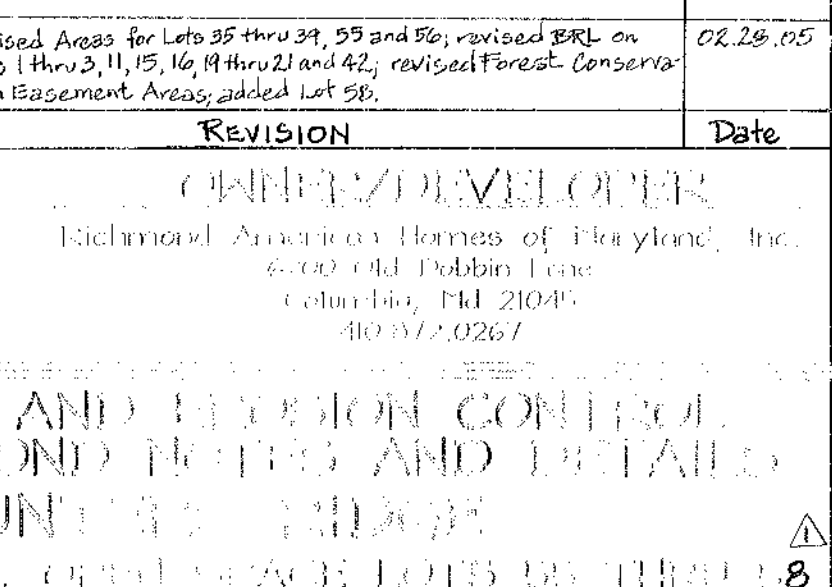
NO. REVISION DATE

Table with columns: No., Revision, Date. Row 1: Revised Areas for Lots 25 thru 39, 59 and 60, revised SLOPE Pond, revised WEIR, revised TRASH RACK, revised FENCE, revised DETENTION Basin, revised FLOW CONTROL, revised EROSION CONTROL, revised SLOPE POND PLANTING, revised TRASH RACK DETAIL, revised CHAIN LINK FENCE, revised WEATHERTIGHT CONSTRUCTION ENTRANCE, revised INTERIM DRAINAGE STATION, revised SLOPE POND PLANTING DETAIL.

OWNER/DEVELOPER

Richard American Homes of Maryland, Inc., 4000 Old Dublin Lane, Gaithersburg, MD 20878.

SEDIMENT AND EROSION CONTROL AND SWEEP DETAILS



SCALE: 1" = 30'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING, APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

City Minutes
CITY DEPARTMENT OF PLANNING AND ZONING
[Signature] 10/15/04
CITY DEPARTMENT OF PLANNING AND ZONING

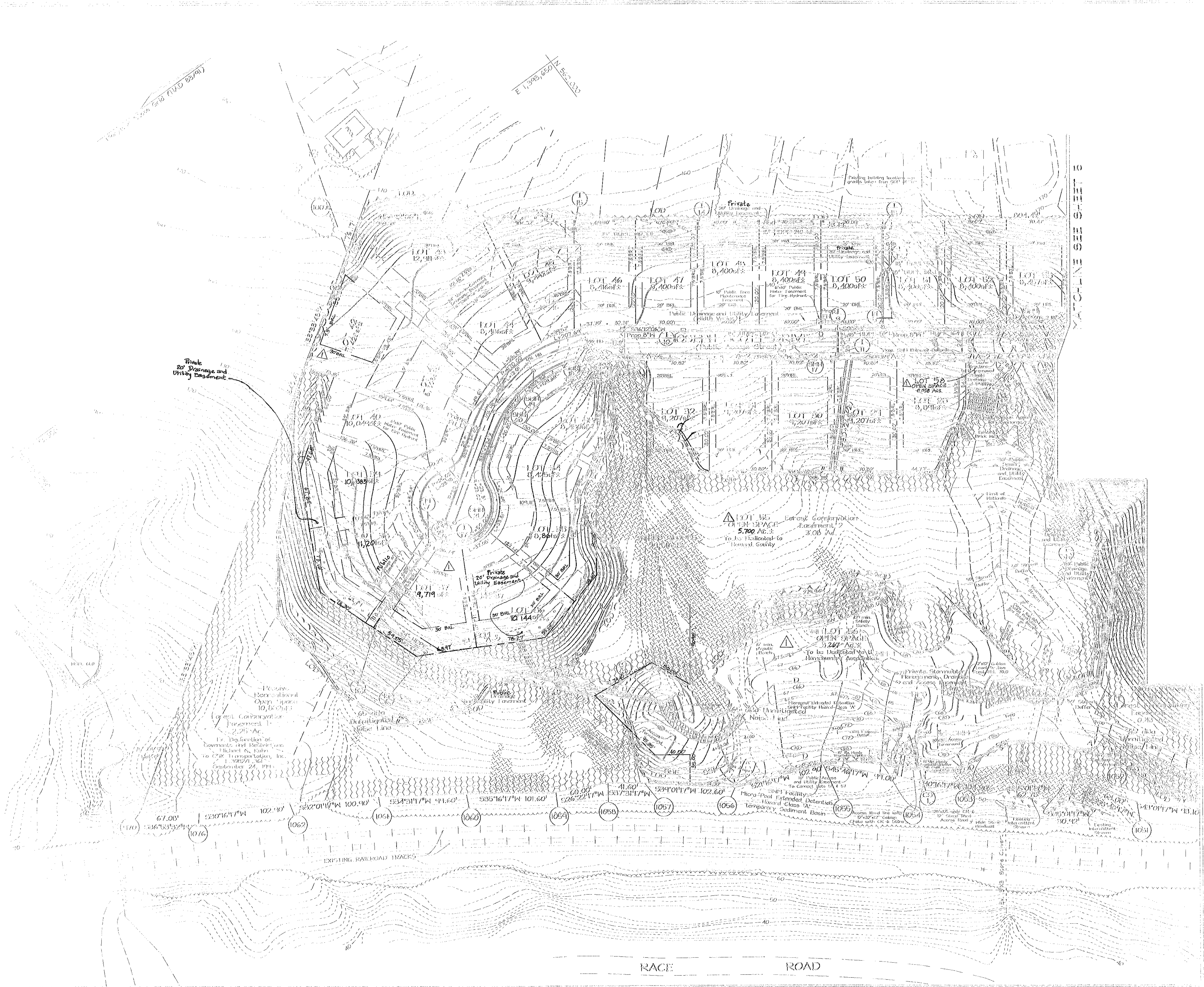
City Minutes
CITY DEPARTMENT OF PLANNING AND ZONING
[Signature] 10-1-04
CITY DEPARTMENT OF PLANNING AND ZONING

THE CITY OF RICHMOND HAS REVIEWED AND APPROVED THESE PLANS AND HAS CONSENTED TO THE SUBMISSION OF THESE PLANS TO THE BOARD OF CITY DEPARTMENT OF PLANNING AND ZONING FOR REVIEW AND APPROVAL. THE CITY OF RICHMOND HAS REVIEWED AND APPROVED THESE PLANS AND HAS CONSENTED TO THE SUBMISSION OF THESE PLANS TO THE BOARD OF CITY DEPARTMENT OF PLANNING AND ZONING FOR REVIEW AND APPROVAL.

[Signature] 9/15/04
CITY DEPARTMENT OF PLANNING AND ZONING

[Signature] 9/16/04
CITY DEPARTMENT OF PLANNING AND ZONING

THESE PLANS HAVE BEEN REVIEWED BY THE BOARD OF CITY DEPARTMENT OF PLANNING AND ZONING AND THEY ARE APPROVED FOR THE BOARD OF CITY DEPARTMENT OF PLANNING AND ZONING TO CONSIDER AND ACT UPON.



No.	REVISION	Date
	Revised lot Areas for Lots 35 thru 53, 55 and 56; revised B.C.E. on Lots 1 thru 3, 11, 15, 16, 19 thru 23, and 42; revised forest Conservation Easement Area; added lot 58.	02.28.05

OWNER/DEVELOPER
Richard American Brown of Maryland, Inc.
6000 Old Robin Lane
Columbia, MD 21046

SEDPIMENT AND EROSION CONTROL AND GRADING PLAN
LOT 54, OPEN SPACE LOTS 55, 56, 57, 58 AND A 19330 DIVISION OF THE 19330 AC PRESIDENT WOODS, RICHMOND, VA 23066

TAX MAP 95, CASE NO. 110
 101 ELECTRA DISTRICT
 RICHMOND COUNTY, VIRGINIA

DESIGN BY: [Signature]
 CHECKED BY: [Signature]
 SCALE: 1"=50'
 DATE: SEP. 30, 2004
 P.O. No. 3016
 SHEET No. 6 OF 20



LEGEND

Proposed Road	(Symbol)
Proposed Utility	(Symbol)
Proposed Easement	(Symbol)
Proposed Lot	(Symbol)
Proposed Subdivision	(Symbol)
Proposed Easement	(Symbol)
Proposed Utility	(Symbol)
Proposed Road	(Symbol)
Proposed Lot	(Symbol)
Proposed Subdivision	(Symbol)
Proposed Easement	(Symbol)
Proposed Utility	(Symbol)
Proposed Road	(Symbol)
Proposed Lot	(Symbol)
Proposed Subdivision	(Symbol)
Proposed Easement	(Symbol)
Proposed Utility	(Symbol)
Proposed Road	(Symbol)
Proposed Lot	(Symbol)
Proposed Subdivision	(Symbol)
Proposed Easement	(Symbol)
Proposed Utility	(Symbol)

DEVELOPER'S CERTIFICATE

I HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE IN ACCORDANCE WITH THE PLAN FOR EROSION CONTROL AND SEDIMENT 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 EROSION AND SEDIMENT BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE TO BOOK OR HAVE INSPECTED BY THE HOWARD SOIL CONSERVATION DISTRICT.

Richard A. Jones 2/15/04
 SIGNATURE OF DEVELOPER DATE
 RICHMOND AMERICAN HOMES OF VIRGINIA, INC.

ENGINEER'S CERTIFICATE

I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND FEASIBLE PLAN BASED ON THE TERRAIN, KNOWLEDGE OF THE SOIL CONDITIONS AND THAT IT HAS BEEN PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

Zacharia J. Hoch 1/15/04
 SIGNATURE OF ENGINEER DATE
 ZACHARIA J. HOCH

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Carolee K. Hester 1/15/04
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE 16

Chris Cummings 1/15/04
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE 6

THESE PLANS HAVE BEEN REVIEWED BY HOWARD SOIL CONSERVATION DISTRICT AND THEY MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

John J. ... DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

William J. ... 10-9-04
 CHIEF, BUREAU OF HIGHWAYS DATE 23

OWNER/DEVELOPER
 Richmond American Homes of Virginia, Inc.
 6200 Old Dominion Lane
 Chesapeake, VA 23060
 813-977-2277

SEDIMENT AND EROSION CONTROL AND GRADING PLAN
HUNTER HILLS
 LOTS 1 THRU 14, OVERLAP LOTS 15 THRU 18 AND A RE-DEVELOPMENT OF FOUR PARCELS OF WHEATY WOODS, SHEET 91, PLAT NO. 14426

TAX MAP NO. 0405-4-010 SHEET 184
 ELECTION DISTRICT HOWARD COUNTY, VIRGINIA

REVISION

No.	REVISION	Date
1	Revised Lot Areas for Lots 35 thru 39, 55 and 56; revised PERL on Lots 1 thru 11, 13, 16, 17 thru 21, and 42; revised Forest Conservation Easement Area, added Lot 50.	02.28.05

DATE: 02.28.05
 SHEET NO. 5 OF 20

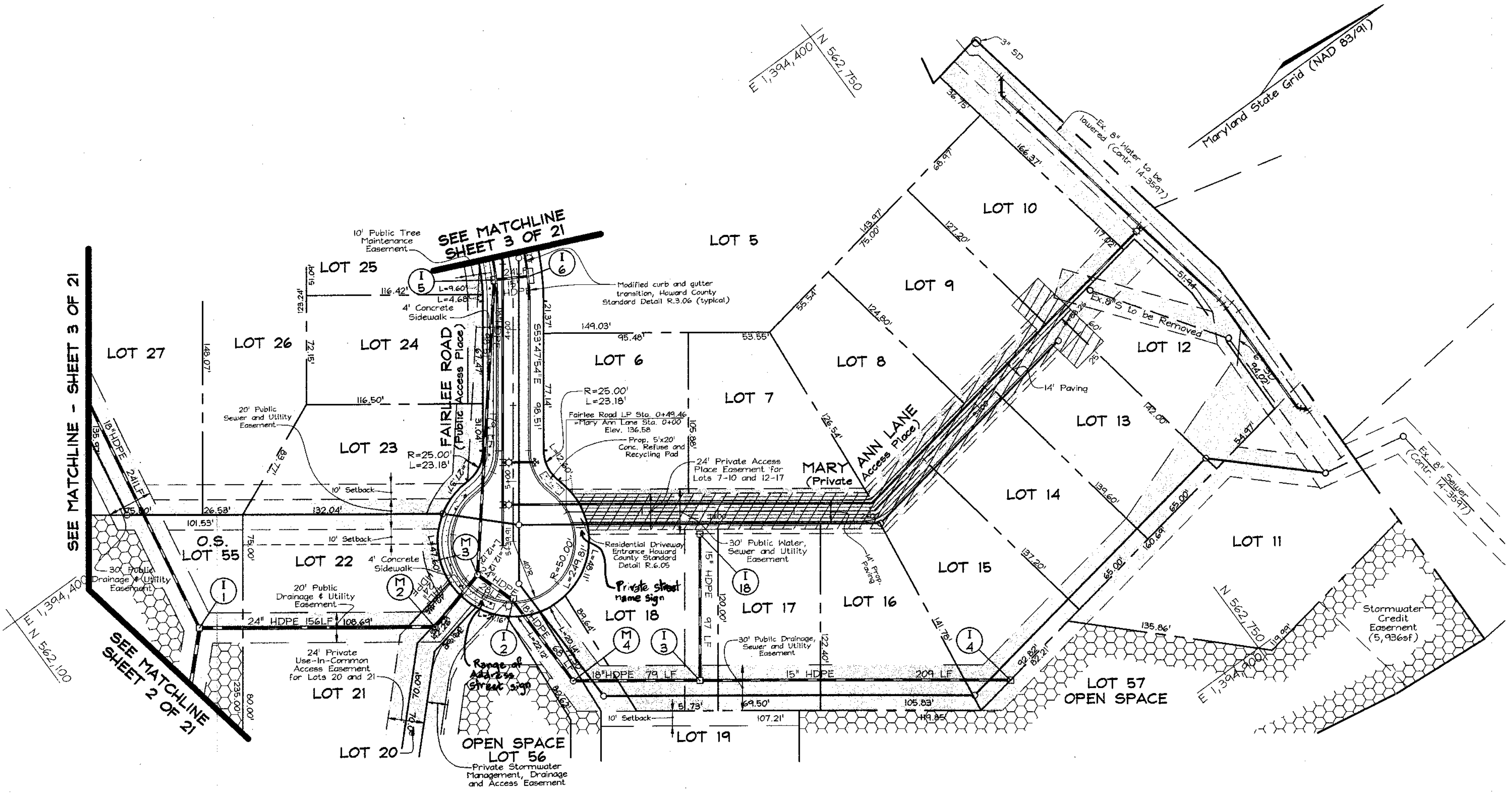
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Vinny Hamata 10/19/04
CHIEF, DIVISION OF LAND DEVELOPMENT DATE VS

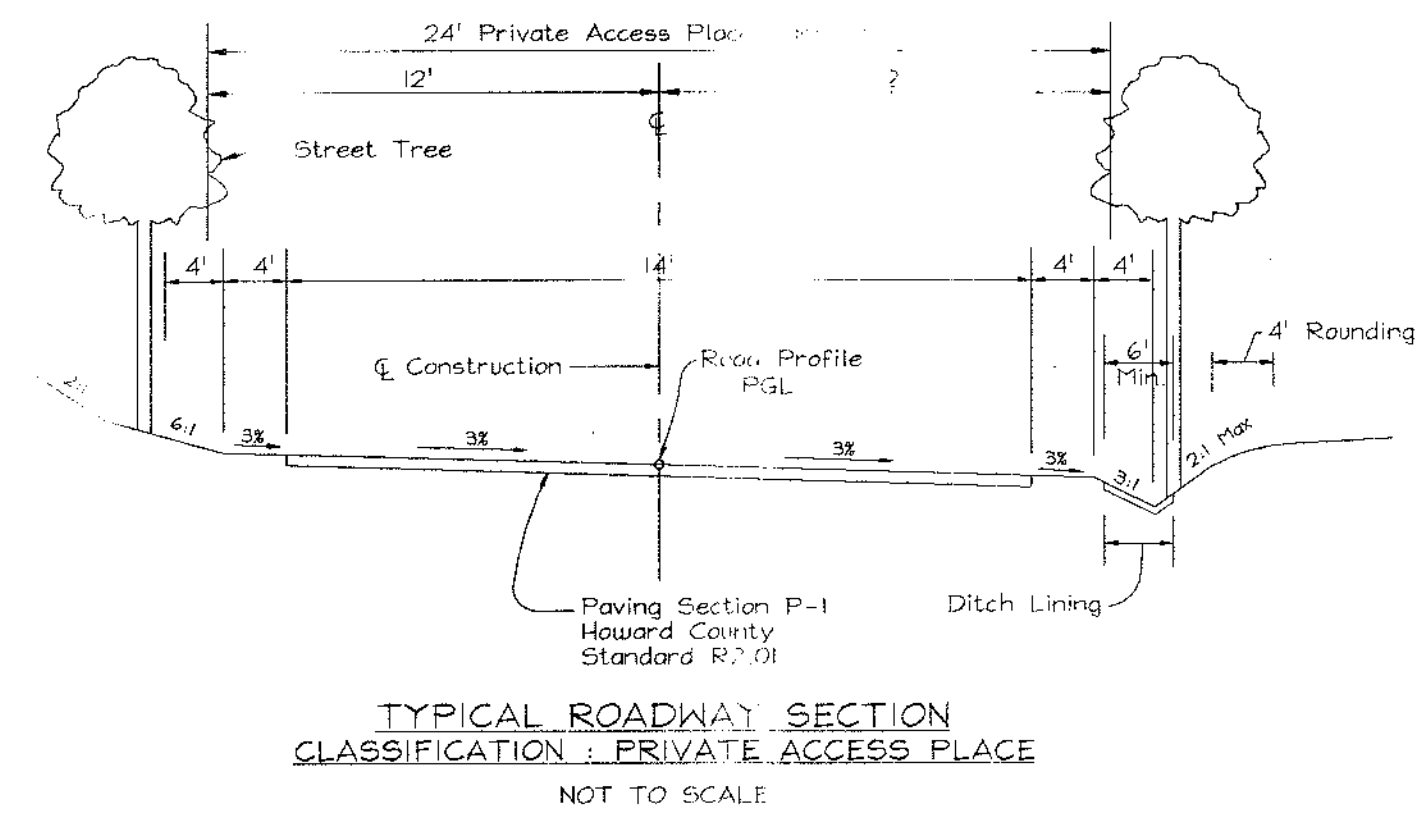
Mike Vanneman 10/15/04
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE E

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

William F. White 10-4-04
CHIEF, BUREAU OF HIGHWAYS MS DATE



ROAD PLAN
SCALE: 1"=50'



No.	REVISION	Date
1	Revised Lot Areas for Lots 25 thru 29, 33 and 56; revised PRTs on Lots 1 thru 5, 11, 13, 14, 17 thru 21 and 48; revised Flood Conservation Easement Areas; added Lot 56.	02.28.05

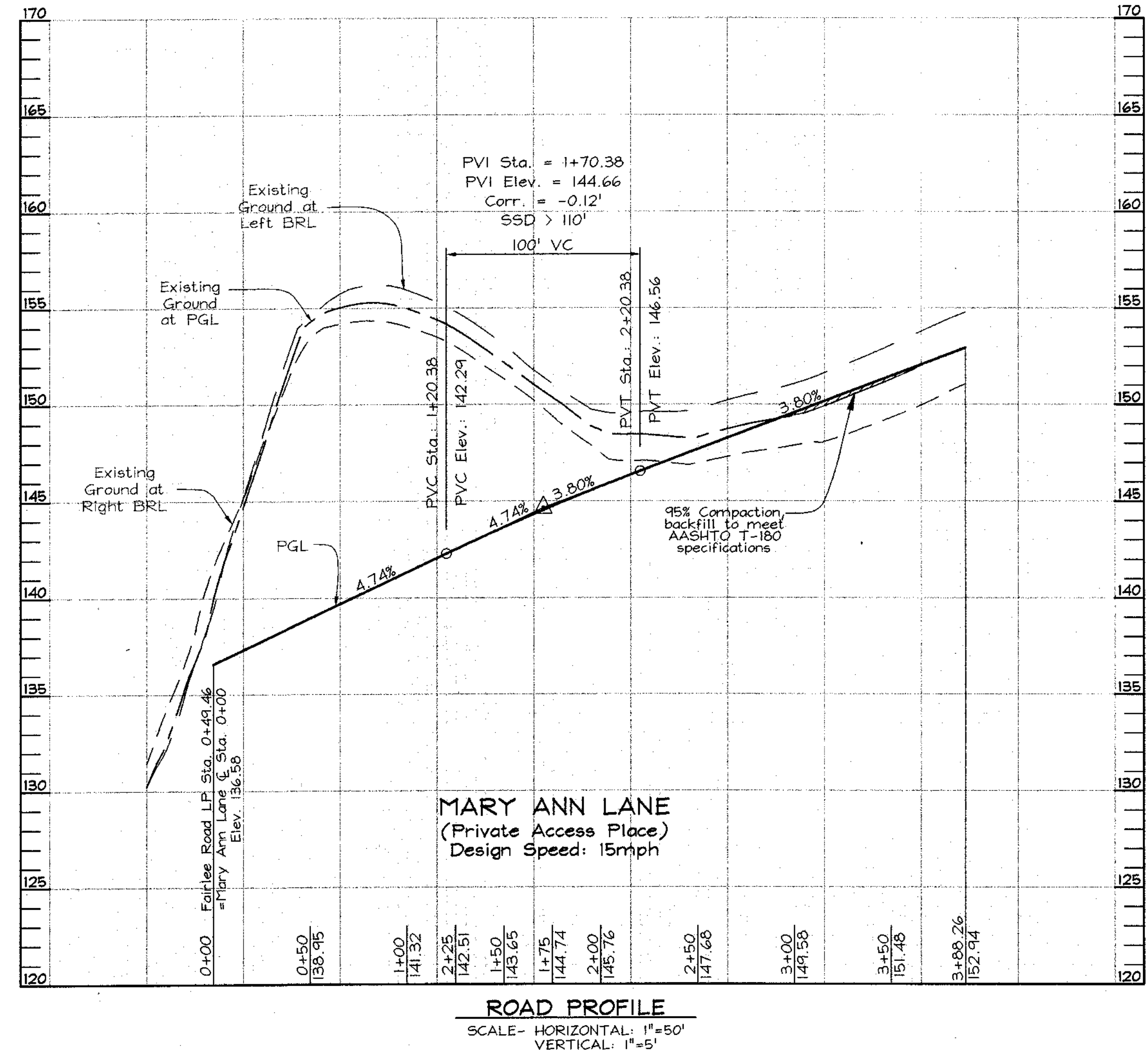
OWNER/DEVELOPER
Richmond American Homes of Maryland, Inc.
6200 Old Dobbin Lane
Columbia, Md 21045
410.872.0267

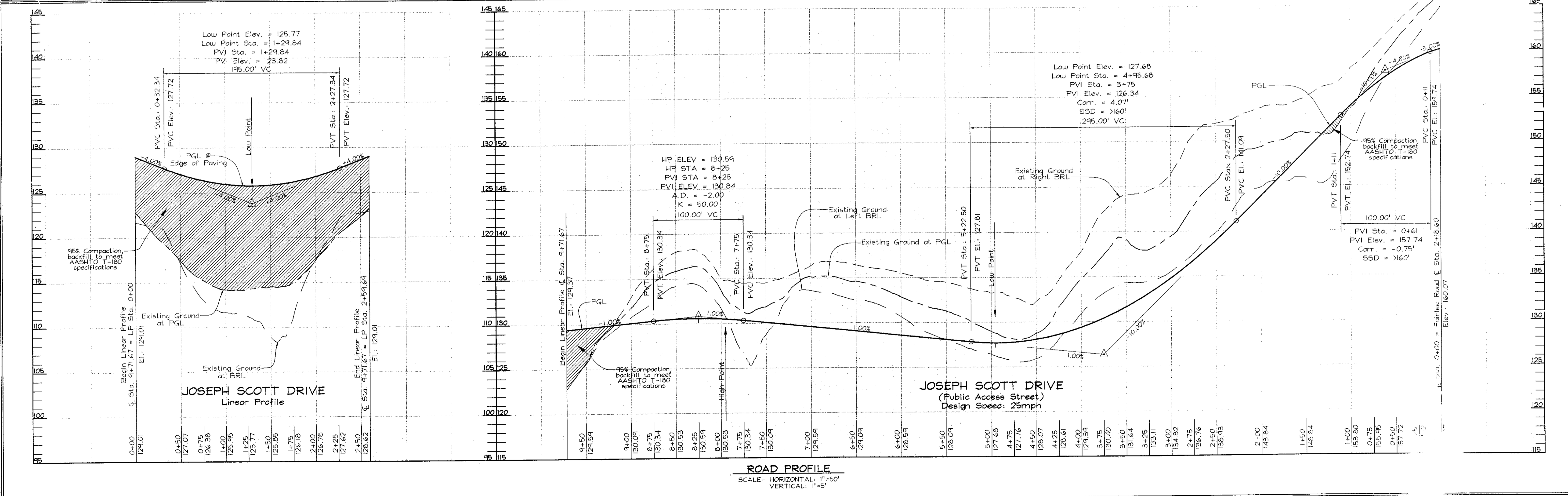
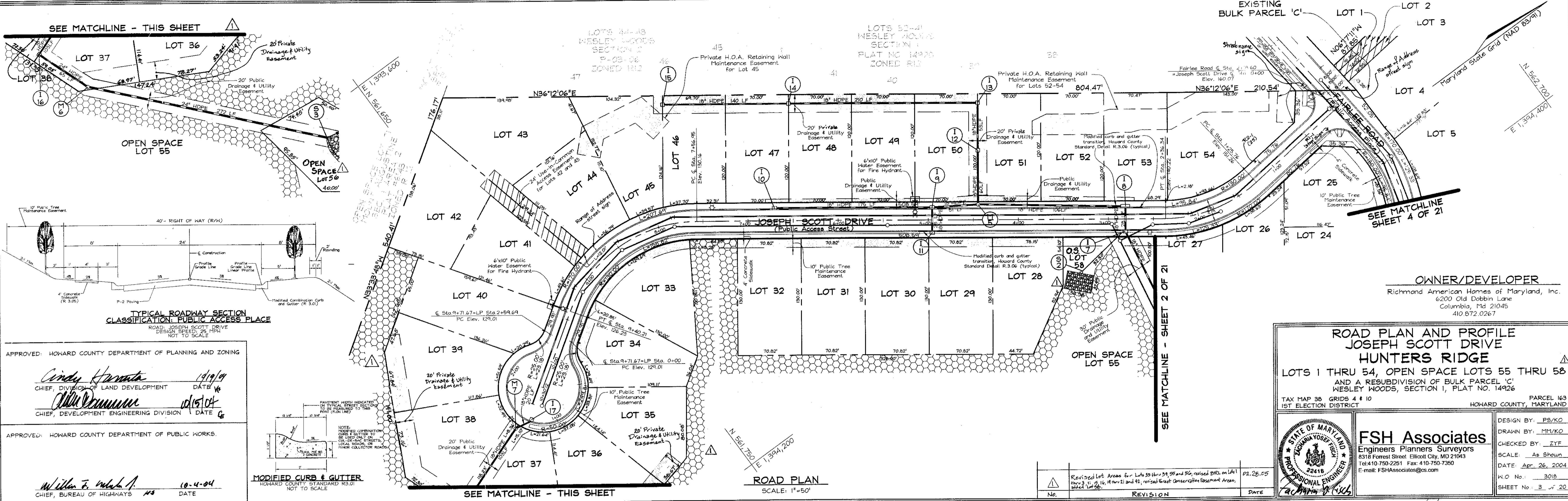
ROAD PLAN AND PROFILE
PRIVATE ACCESS PLACE
HUNTERS RIDGE
LOTS 1 THRU 54, OPEN SPACE LOTS 55 THRU 58
AND A RESUBDIVISION OF BULK PARCEL 'C'
WESLEY WOODS, SECTION 1, PLAT NO. 14926

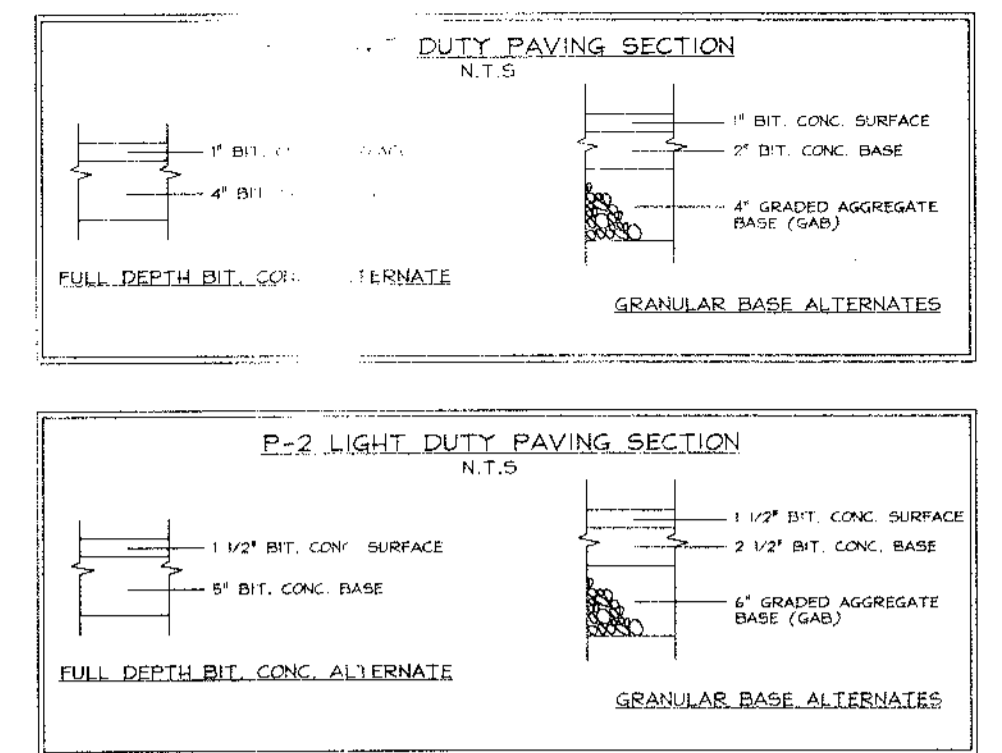
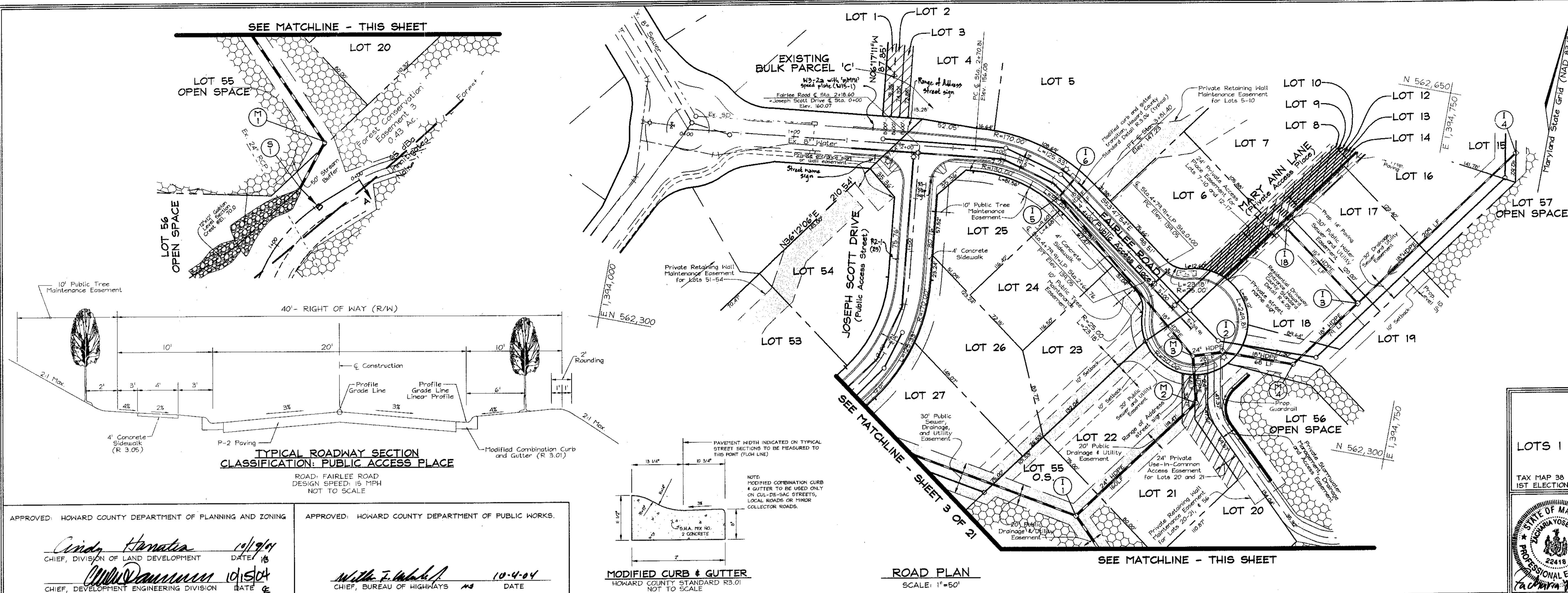
TAX MAP 38 GRIDS 4 & 10 PARCEL 163
1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DESIGN BY: PS/KO
DRAWN BY: MM/KO
CHECKED BY: ZYF
SCALE: As Shown
DATE: Apr 26, 2004
W.O. No.: 3018
SHEET No. 4 OF 20

FSH Associates
Engineers Planners Surveyors
8318 Forrest Street Ellicott City, MD 21043
Tel: 410-750-2251 Fax: 410-750-7359
E-mail: FSHAssociates@cs.com







Note:
 The typical sections shown relate to C.B.R. value of 7.
 Field conditions may require modifications to the above paving sections per on-site Geotechnical Engineer.

No.	REVISION	Date
1	Revised Lot Areas for Lots 35 thru 39 and 58; revised P&E for Lots 1 thru 3, 6, 15, 16, 19 thru 21, and 46; revised Forest Conservation Easement Areas; added Lot 58.	02.28.05

OWNER/DEVELOPER
 Richmond American Homes of Maryland, Inc.
 6300 Old Dobbin Lane
 Columbia, Md 21045
 410.872.0267

ROAD PLAN AND PROFILE
FAIRLEE ROAD
HUNTERS RIDGE
 LOTS 1 THRU 54, OPEN SPACE LOTS 55 THRU 58
 AND A RESUBDIVISION OF BULK PARCEL 'C'
 WESLEY WOODS, SECTION I, PLAT NO. 14926

TAX MAP 38 GRIDS 4 & 10 PARCEL 163
 1ST ELECTION DISTRICT HONARD COUNTY, MARYLAND

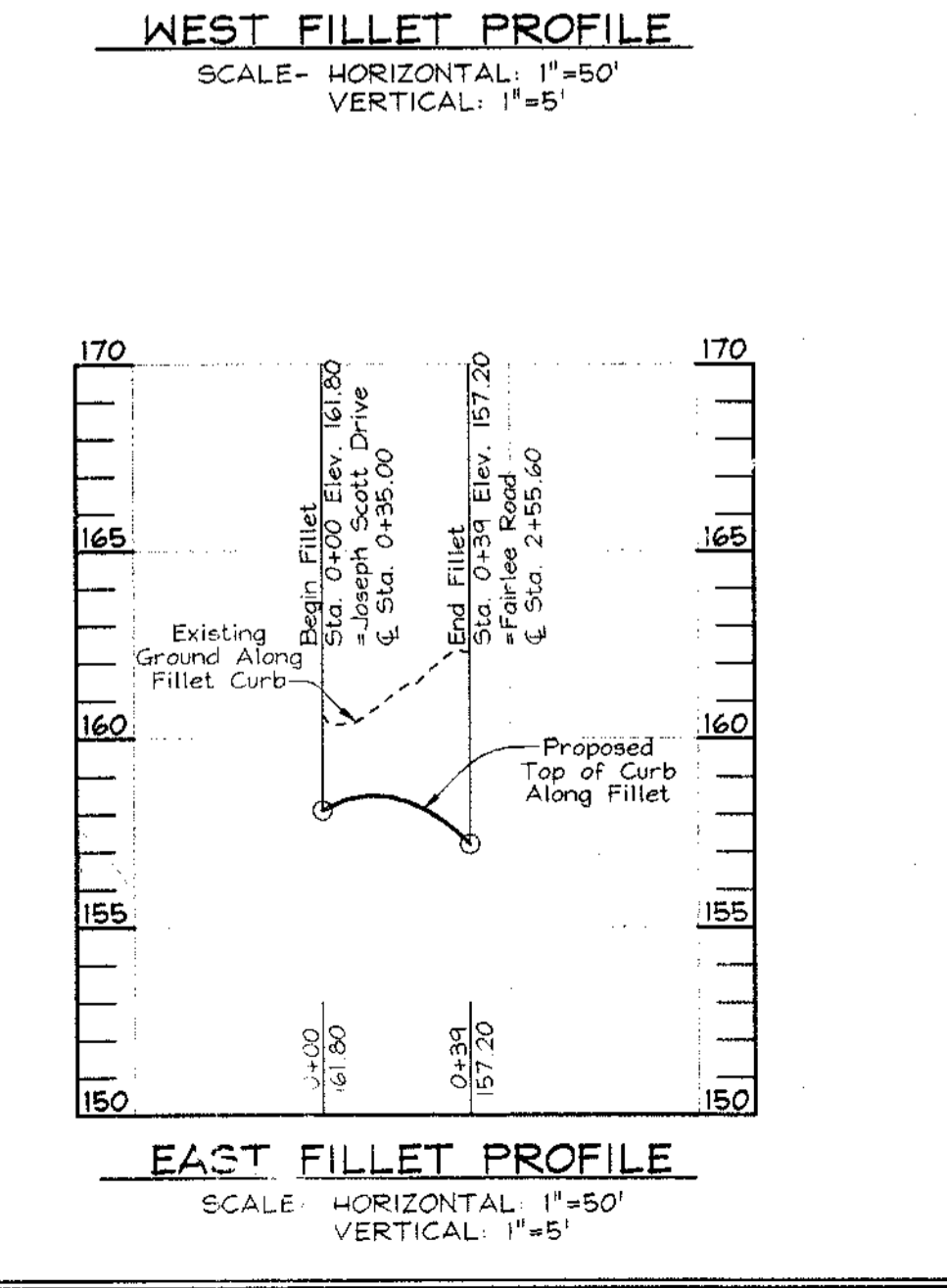
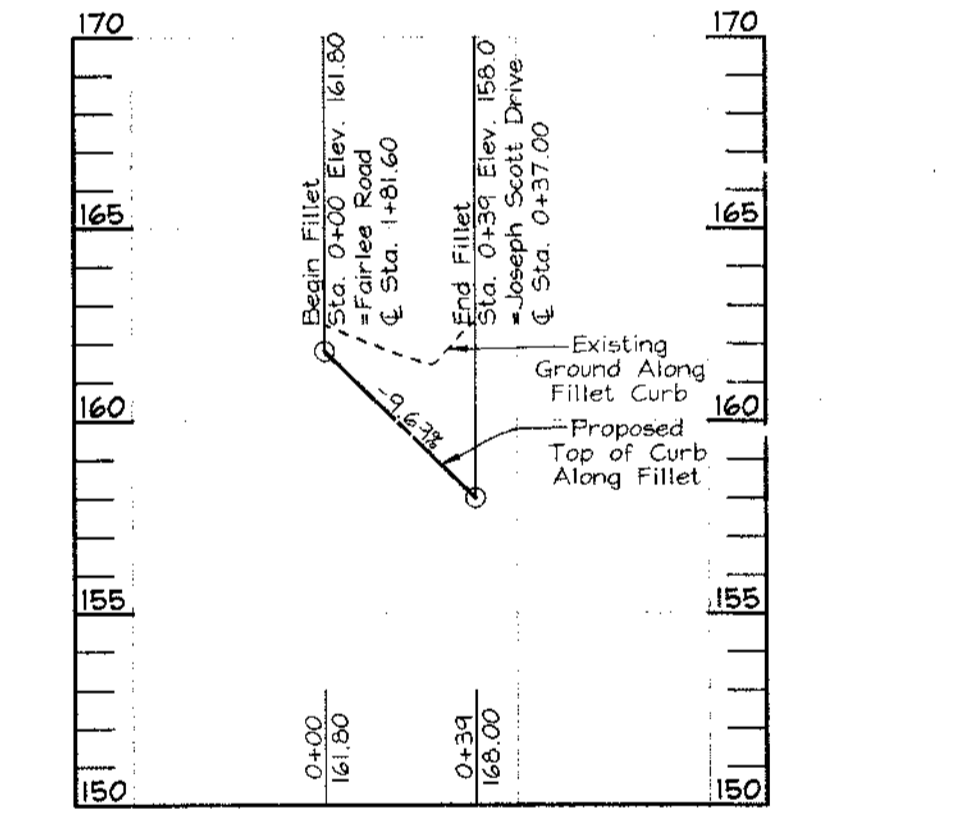
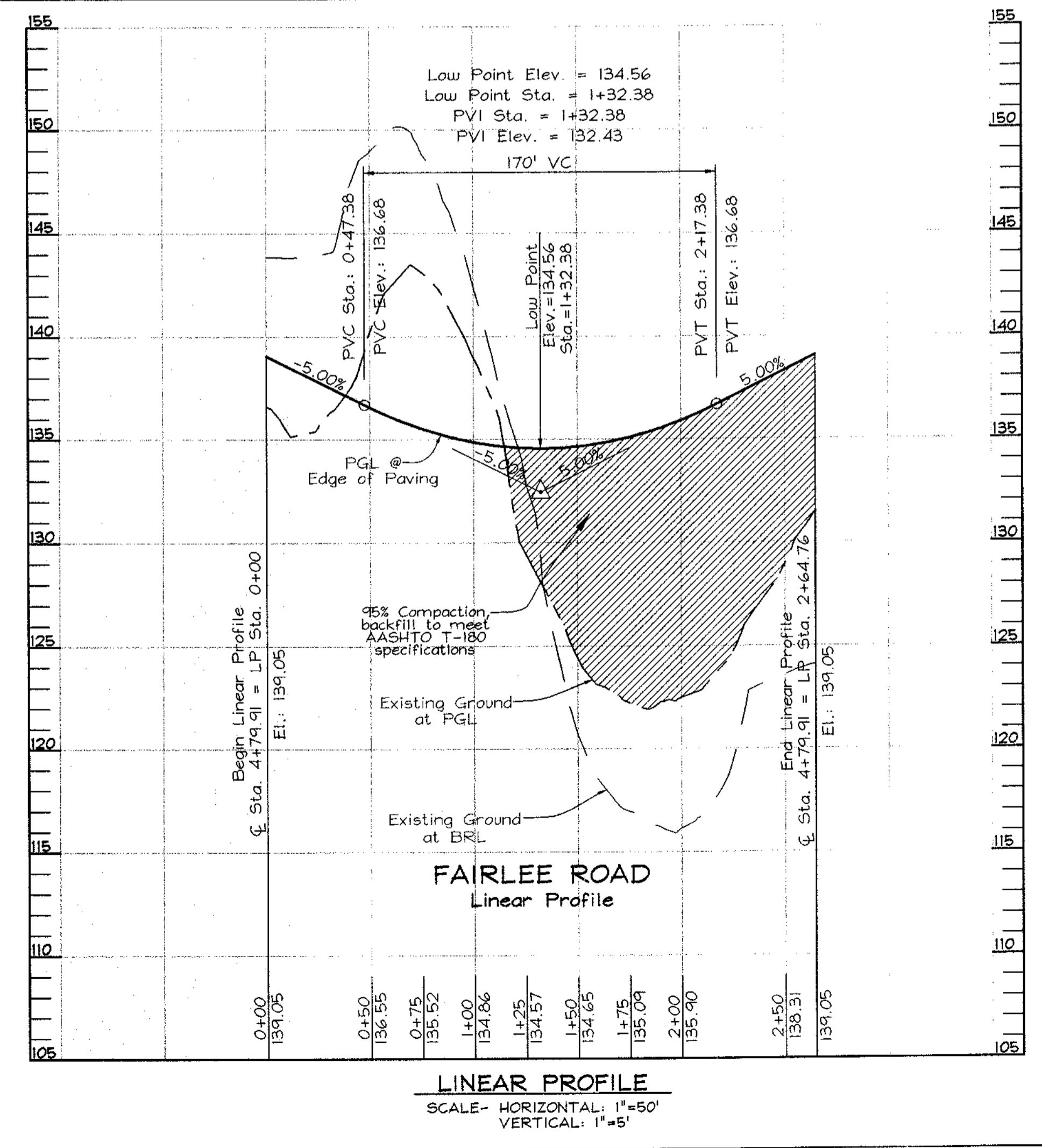
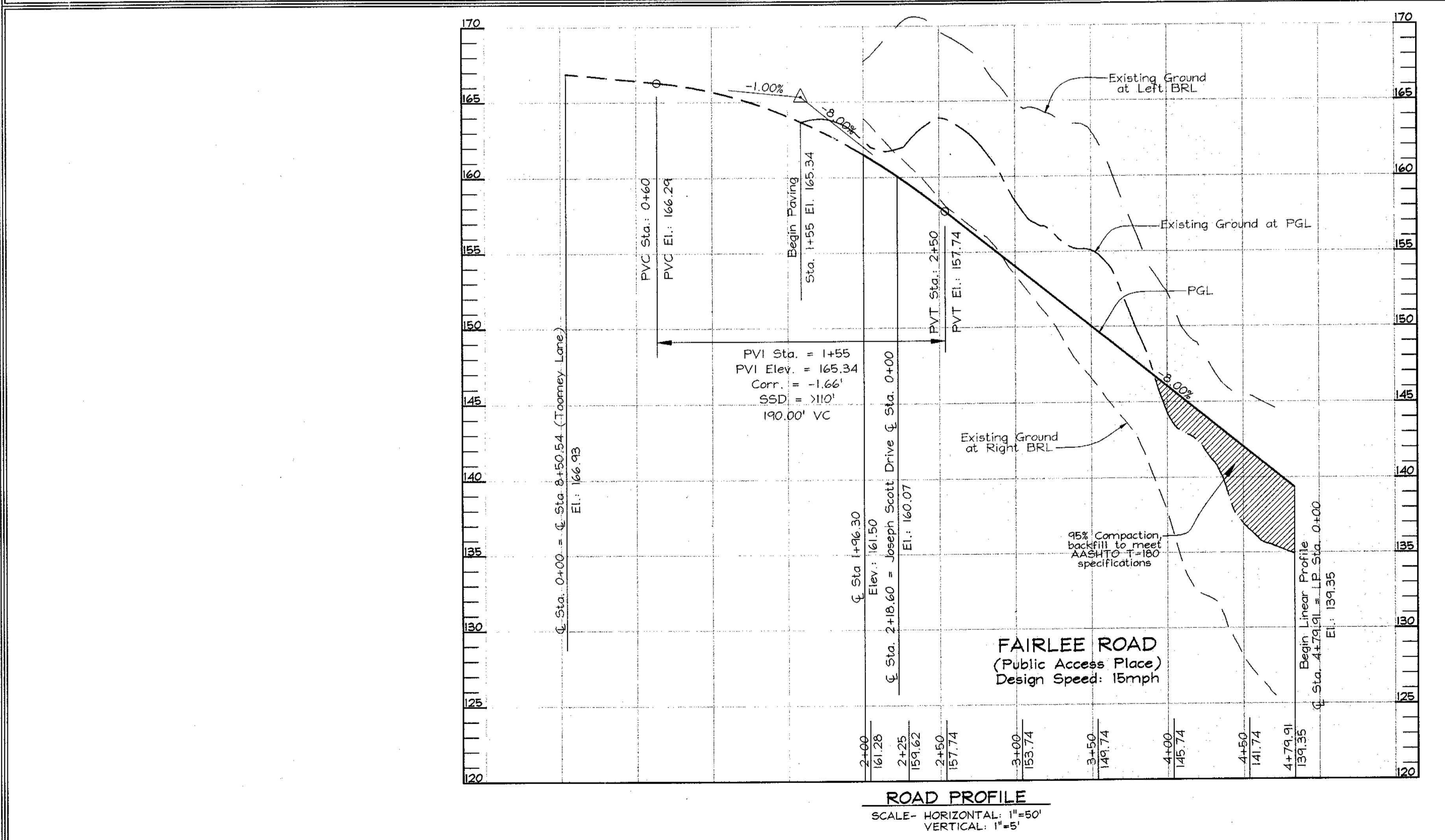


FSH Associates
 Engineers Planners Surveyors
 8318 Forest Street, Ellicott City, MD 21043
 Tel: 410-750-2251 Fax: 410-750-7350
 E-mail: FSHAssociates@cs.com

DESIGN BY: PS/KO
 DRAIN BY: PM/KO
 CHECKED BY: ZYF
 SCALE: As Shown
 DATE: Apr. 26, 2004
 W.O. No.: 3018
 SHEET No.: 2 OF 20

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Cindy Hanania 10/19/04
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE 10/19/04

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.
William J. White 10-4-04
 CHIEF, BUREAU OF HIGHWAYS DATE 10-4-04



GENERAL NOTES

- Subject property zoned "R-12" per 2/2/04 Comprehensive Zoning Plan.
- This site is located within the metropolitan district.
- Public water and sewer will be used within this site.
- Howard County Soils Map 26.
- Gross area of site subject to subdivision:
 - Parcel 163: 25.58 ac.
 - Bulk Parcel 'C': 3.322 ac. ± or 0.00 ac.
 - Total area: 25.66 ac.
- Total area of steep slopes on site: 2.88 ac. ±
- Net area of site subject to subdivision: 22.78 ac. ±
- Area of proposed public R/W: 1.54 ac. ±
- Number of proposed buildable lots: 54
- Area of proposed buildable lots: 13.30 ac. ±
- Number of proposed open space lots: 4
- Area of proposed open space lots: 10.82 ac. ±
- Topography is based on a field run topography survey prepared by Fisher, Collins & Carter, Inc. in Feb. of 2001 and aerial topography prepared by Harford Aerial Surveys, Inc. in Feb. of 1999.
- Field run boundary survey prepared by Fisher, Collins & Carter, Inc. on April 2, 2001.
- 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 numbers 321A and 318B were used for this project.
- A.P.F.O. traffic study prepared by Street Traffic Studies L.T.D. and approved under S-01-24.
- Wetlands delineation and report and forest stand delineation and report prepared by Exploration Research Inc. and approved under S-01-24.
- There are no floodplains, historic structures or cemeteries on-site.
- No new grading or construction is permitted within wetlands, streams or their required buffers, and steep slopes of 25% or greater containing a contiguous area of 20,000 SF or more, unless waivers have been approved. The steep slope disturbance for the construction of an access driveway for maintenance of the SHM facility located within Open Space Lot 56 determined to be necessary by DPZ in accordance with Section 16.116(c) of the Subdivision Regulations.
- Open Space requirements:
 - Open Space required (30%-0.400sf minimum lot size): 25.58ac. ± x 0.30 = 7.67ac. ±
 - Open Space provided: 10.82 ac. ± (0.2 ac. ± non-credited)
- Recreational open space requirements:
 - Open Space required (200sf per buildable lot): 54 x 200 = 10,800 sf
 - Open Space provided: 10,800 sf ±
- This plan is subject to the Fourth Edition of the Subdivision and Land Development Regulations and the Zoning Regulations as amended by Council Bill No. 50-2001. Development or construction on these lots must comply with setback and buffer regulations in effect at the time of submission of the site development plan, waiver petition, or building and grading permits.
- The lots shown hereon comply with the minimum ownership width and lot area as required by the Maryland State Department of the Environment.
- Internal landscaping for lots 20 and 54 will be shown at Site Development Plan stage.
- 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 to the pipestem lot driveway.
- Existing house on Lot 5 to remain.
- Stormwater management & water quality is provided as necessary in accordance with the 2000 stormwater management manual. Pond to be a micro pond extended detention pond having a 15' minimum depth. Facility to be owned and maintained by the Homeowners Association. Stormwater management requirement will be provided by drywells located on lots 6 - 9, 18, 19, 28 - 32, 43 - 54. Soil borings for each drywell location shall be shown in accordance with H.B.A.M. Bulletin titled "Disconnection of Rooftop Runoff Credits Using Dry Wells". Level Spreaders will be provided on Lots 4 & 19.
- All ditches and swales will be erosion control matted.
- This project is subject to review and approval by the Maryland Aviation Administration (MAA) regarding confirmation that construction of proposed structures on this site will not penetrate any navigational airspace and that the proposed SHM landscaping will meet their approval requirements. Permit number 04-064 has been approved in a letter dated 6/23/04.
- CPM management for a portion of Wesley Woods (3 ac. ±) is provided in the stormwater management facility on site.
- The retaining wall designed to construct the access to the stormwater management facility is privately owned and maintained by the Homeowners Association.
- Soil borings for drywell location have been shown in accordance with HBAM Bulletin titled, "Disconnection of Rooftop Runoff Credits Using Dry Wells."
- A gravity sewer service waiver of Section 4.3.B.3.b of Volume II of the Howard County Design Manual has been approved by the Department of Public Works Bureau of Engineering for Lots 34-39 on June 18, 2004.
- The contractor shall notify the following utility companies or agencies at least five(5) working days before starting work shown on these plans:

State Highway Administration	410.531.5633
BGE(contractor services)	410.950.4620
BGE(underground damage control)	410.787.9068
Miss Utility	1.800.257.7777
Colonial Pipeline Company	410.795.1390
Howard County, Dept. of Public Works, Bureau of Utilities	410.313.4900
Howard County Health Department	410.313.2640
- The contractor shall notify Miss Utility at 1-800-257-7777 at least 48 hours prior to any excavation work being done.
- The contractor shall notify the Department of Public Works/Bureau of Engineering Construction Inspection Division at (410) 313-1800 at least five (5) working days prior the start of work. All fills for public road surfaces require 95% compaction (AASHTO-T-180).
- Landscape surety is based on the required landscaping of 65 shade trees, 23 evergreen trees and the Private Access Place street trees and refuse pad shrubs in the amount of \$28,950.00.
- This project complies with the requirements of section 16.1200 of the Howard County Code for Forest Conservation by retaining 1.65 acres of forest and planting 0.60 acres of reforestation within Forest Conservation Easement 1, retaining 2.68 acres of forest and planting 0.46 acres of reforestation within Forest Conservation Easement 2, planting 0.43 acres of reforestation within Forest Conservation Easement 3, and retaining 2.01 acres of forest and planting 0.22 acres of reforestation within Forest Conservation Easement 4. Total retention = 6.26 ac. Total reforestation provided = 1.71 ac. \$91,949.00 surety to be posted with the Developer's Agreement.
- Requested Fee or fee for 1.61 ac. remaining obligation is \$35,049.80.
- Previous Howard County file numbers: S-99-16; S-01-24; HP-99-87; P-03-12
- All construction shall be in accordance with the latest standards and specifications of Howard County plus MSHA standards and specifications if applicable.
- 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.
- Open Space Lots 55 thru 57:
 - Open Space Lots 55 and 57 to be dedicated to Howard County.
 - Open Space Lot 56 to be dedicated to the Homeowners Association.
- Per the geotechnical report, prepared by Herbst/Benson & Associates, the following procedures are recommended for basin and embankment construction:
 - Along the area of the proposed embankment, strip all vegetation, topsoil and any surface organically contaminated soils to expose relatively clean existing fills or competent native soils.
 - Proof roll the exposed surface with a loaded tandem dump truck to delineate unsuitable areas and cut out any soft yielding areas to expose firm underlying soils.
 - Excavate the core trench to a minimum depth of 4 feet below the proposed basin elevation using a minimum 4-foot bottom trench width and side slopes no steeper than 1:1. Beneath the principal spillway, the core trench depth should extend at least 4 feet beyond the bottom of the pipe grade and use similar bottom widths and side slopes. Compact the bottom of the trench excavation to firm, unyielding condition.
 - Backfill the core trench excavation using the native CL cut soils from the west slope as represented by boring SHM-4. Judging from the moisture/compacted density test results shown on SHEET I, COMPACTION TEST, the fill should be readily compactible at the existing moisture content.
 - Prior to placing the principal spillway pipe and cradle, examine the founding soils along the pipe alignment outside the core trench area. Undercut any organic or otherwise unsuitable material and compact the exposed grade to a firm, unyielding condition. The existing fill soils and core trench fills are expected to adequately support principal spillway construction provided non-applied bearing pressures do not exceed 1,000 PSF. Backfill the principal spillway excavation and place embankment fill using the native cut soils from the western slope and approved existing CL clay fill soil from the basin excavation to form the embankment.

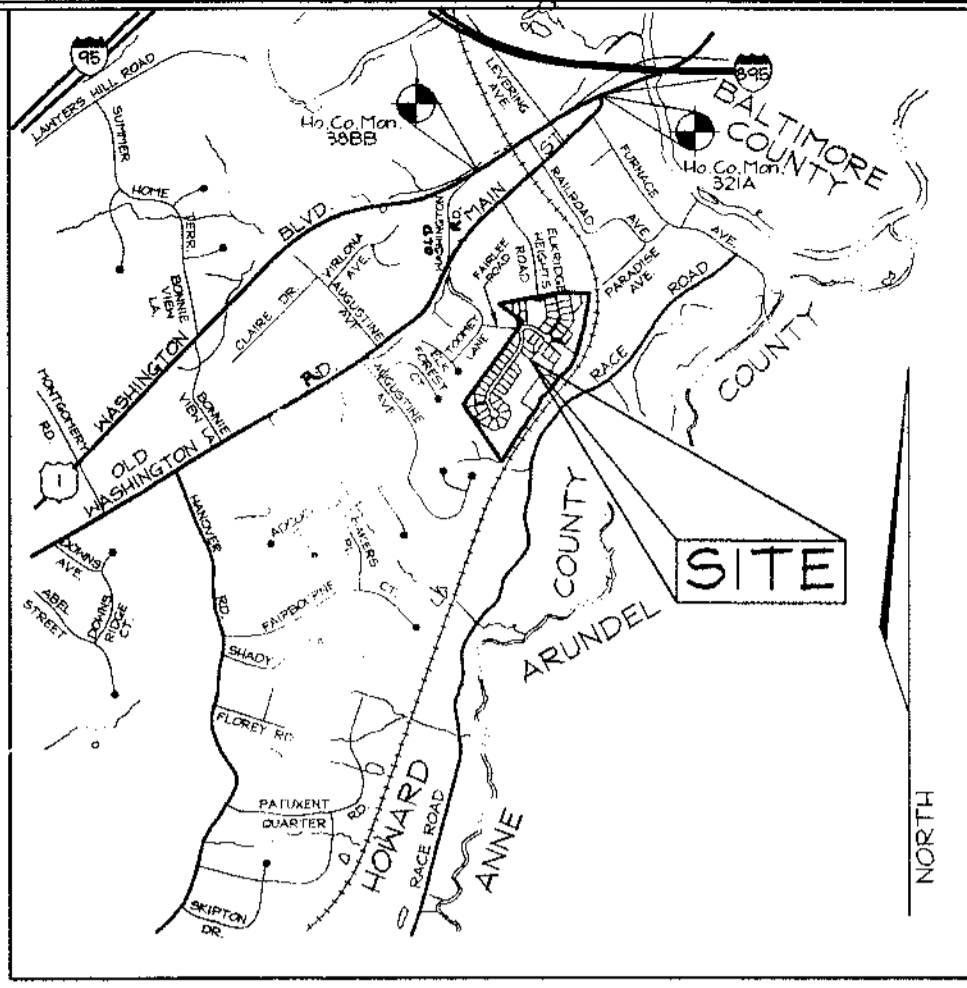
FINAL ROAD CONSTRUCTION PLAN

HUNTERS RIDGE

LOTS 1 THRU 54, OPEN SPACE LOTS 55 THRU 58 AND A RESUBDIVISION OF BULK PARCEL 'C' WESLEY WOODS, SECTION 1 HOWARD COUNTY, MARYLAND

LEGEND

- Existing Contour: --- 382
- Proposed Contour: --- 382.5
- Existing Spot Elevation: +82.53
- Proposed Spot Elevation: ---
- Direction of Flow: ---
- Existing Trees to Remain: [Symbol]
- 15-24.9% Slopes: [Symbol]
- 25% and Greater Slopes: [Symbol]
- Wetlands: [Symbol]
- Utility Pole: Guy Wire, Pole
- Access Easement: [Symbol]
- Access and Utility Easement: [Symbol]
- Proposed Drainage Swale: [Symbol]
- Proposed Dry Well: [Symbol]
- Forest Conservation Easement: [Symbol]



BENCHMARKS
SCALE: 1"=200'

Sta. 321A	N 172,232.2477	E 425,261.5439	EI: 8.4417 (meters)
	N 565,065.463	E 1,395,212.248	EI: 27.696 (feet)
Sta. 388B	N 171,909.8745	E 424,785.3620	EI: 19.6328 (meters)
	N 564,007.646	E 1,393,649.975	EI: 64.412 (feet)

SHEET INDEX

DESCRIPTION	SHEET No.
Cover Sheet	1 of 20
Road Plan and Profile - Fairlee Road	2 of 20
Road Plan and Profile - Joseph Scott Drive	3 of 20
Road Plan and Profile - Private Access Place	4 of 20
Sediment and Erosion Control and Grading Plan	5 of 20
Sediment and Erosion Control and Grading Plan	6 of 20
Sediment and Erosion Control and SHM Pond Notes and Details	7 of 20
Retaining Wall Enticement Plan and SEC Details	8 of 20
Storm Drain Drainage Area Map	9 of 20
Storm Drain Profiles	10 of 20
Storm Drain Profiles	11 of 20
Stormwater Management Notes and Details	12 of 20
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Landscape Plan, Notes and Details	14 of 20
Forest Conservation Plan	15 of 20
Forest Conservation Notes and Details	16 of 20
Retaining Wall Profile, Details & Wall Section	18 of 20
Retaining Wall Tables, Details & Civil Plan	19 of 20
Retaining Wall Specifications	20 of 20

CENTERLINE ROAD CURVE DATA

CURVE #	RADIUS	LENGTH	DELTA	TANGENT	CHORD BEARING	CHORD LENGTH
C1	150.00	110.59	42°14'27"	57.94	N74°55'08"W	108.10
C2	150.00	110.59	42°14'27"	57.94	N15°04'52"E	108.10
C3	150.00	163.26	70°00'00"	105.03	S01°12'06"W	172.07

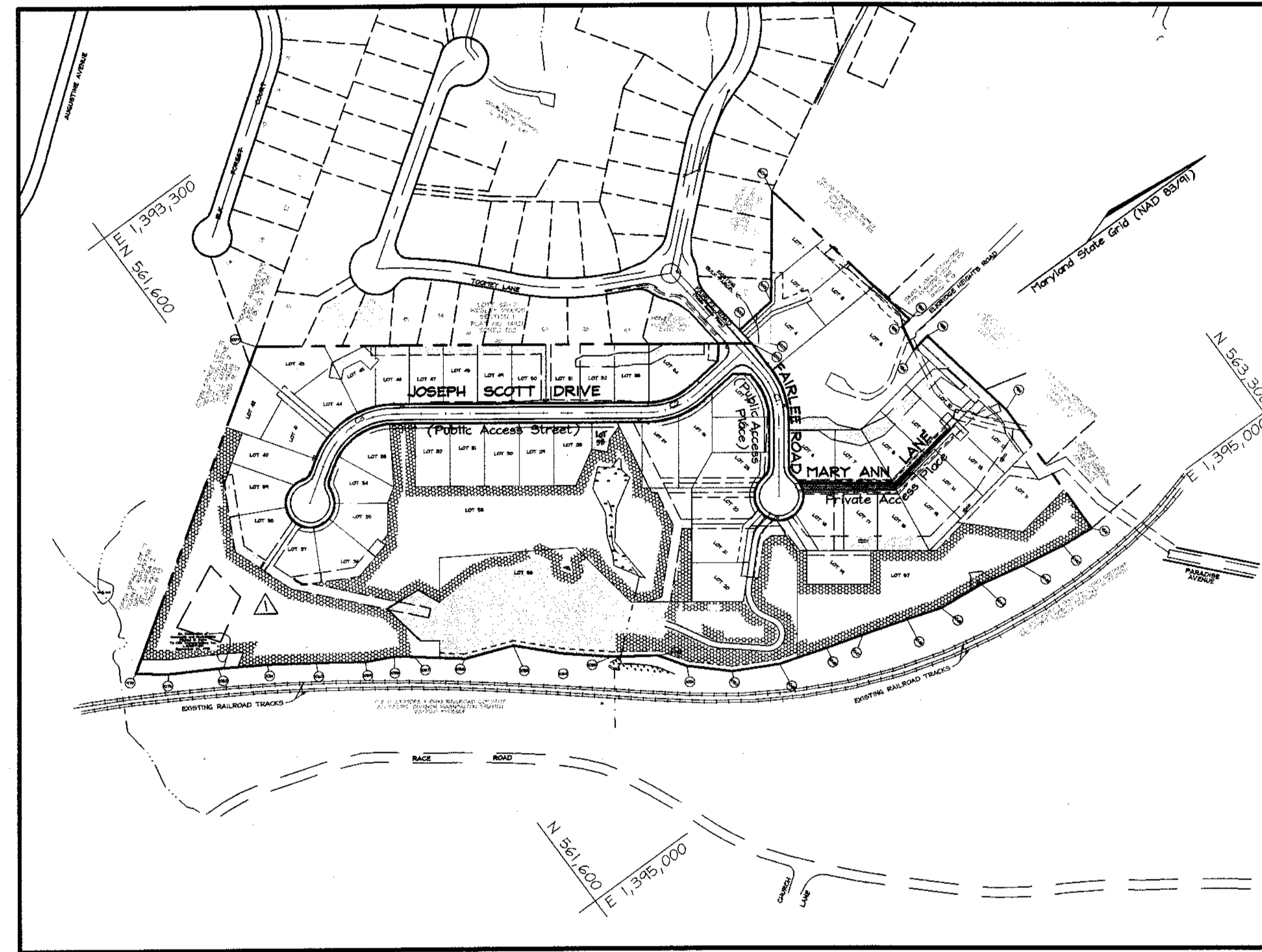
ROAD CLASSIFICATION

ROAD NAME	CLASSIFICATION	R/W
Fairlee Road	Public Access Place	40'
Joseph Scott Drive	Public Access Street	40'
Mary Ann Lane	Private Access Place	min. 24' easement

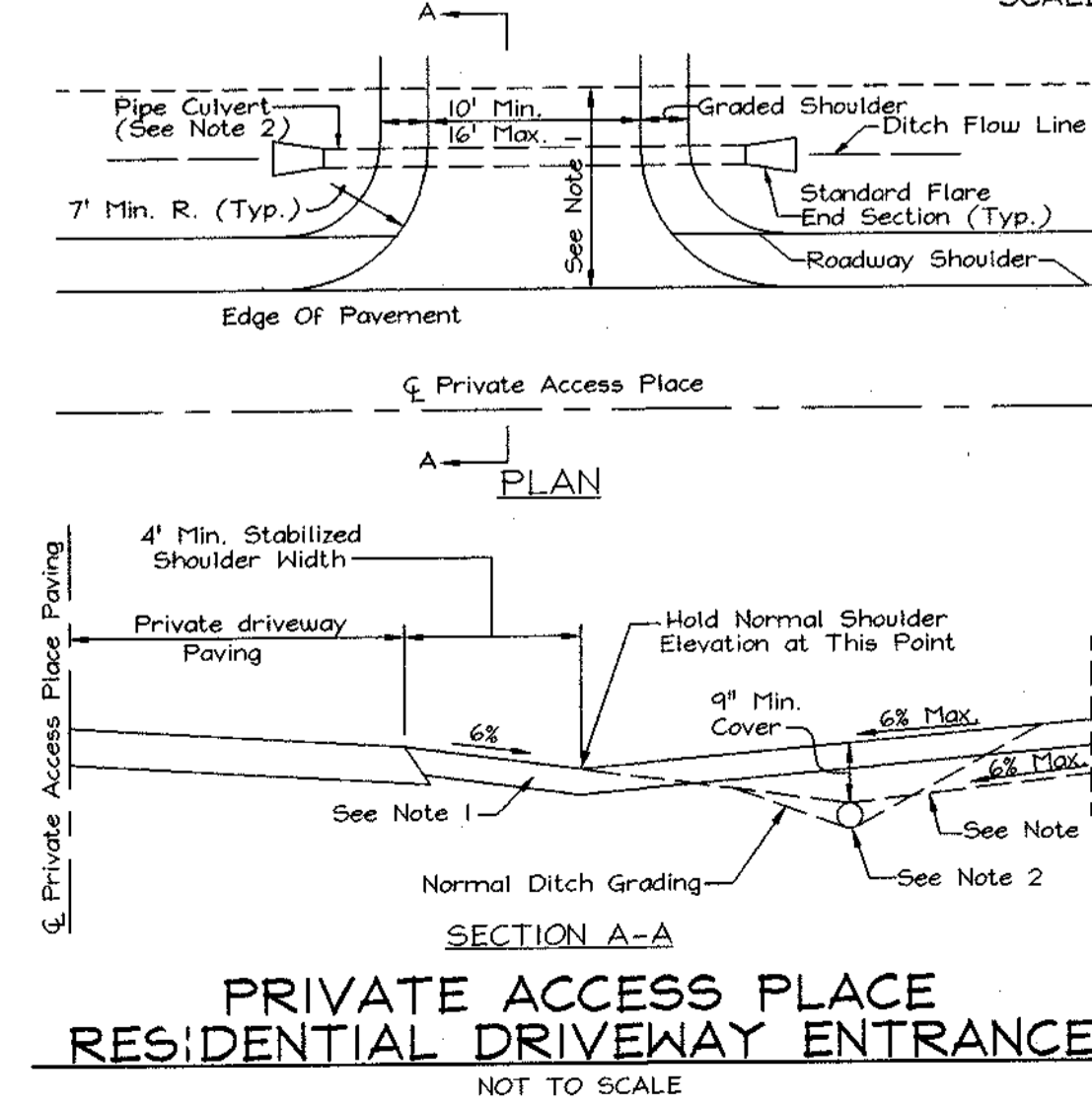
STREET LIGHT TABLE

FIXTURE TYPE	POLE TYPE	LOCATION	STREET
100 watt HPS vapor Premier post top mounted	14' black fiberglass	☉ Sta. 1+90 17' right	Fairlee Road
100 watt HPS vapor Premier post top mounted	14' black fiberglass	☉ Sta. 3+55 13' left	Fairlee Road
100 watt HPS vapor Premier post top mounted	14' black fiberglass	N 562,368.0 E 1,394,584.8	Fairlee Road
100 watt HPS vapor Premier post top mounted	14' black fiberglass	☉ Sta. 3+04 15' left	Joseph Scott Drive
100 watt HPS vapor Premier post top mounted	14' black fiberglass	☉ Sta. 7+90 15' right	Joseph Scott Drive
100 watt HPS vapor Premier post top mounted	14' black fiberglass	N 561,566.3 E 1,393,998.8	Joseph Scott Drive

Note: Light pole location given at center of base.



LOCATION MAP
SCALE: 1"=200'



- NOTES:**
- Driveway must be paved using standard paving section P-1 as shown on S'd. No. or alternate section equal to or better than P-1, as approved by D.P.W.
 - Drainage culvert shall be sized for a 10 year frequency storm and the minimum size shall be 12" dia. round or 14" x 9" arch pipe if larger pipe is required, ditch invert shall be lowered to provide min. ditch gradient of 0.5% and clearance shown.
 - Swale flow may be provided over driveway located at or near the crest of vertical curves on the public road where quantity of flow is small, as approved by D.P.W.
 - Tie-in grade of private driveway shall not exceed 14%.

Continuation of General Notes

- The 5'x20' concrete pad for the "Refuse and Recycle Collection Pad" located within the public right-of-way will be maintained by the owners of Lot 7-10 and 12-17, pursuant to the Declaration of Right of Access and Maintenance Obligations recorded among the land records of Howard County Maryland.
- For private driveway culverts for lots 14-17, see detail this sheet.
- All Fill Areas within Public Right-Of-Way to have 95% Compaction.
- All street sign posts shall be 2" square metal tube posts (14 gauge) installed into a 3" sleeve (2.5" square metal tube, 12 gauge) with a cap on top.

OWNER/DEVELOPER
Richmond American Homes of Maryland, Inc.
6200 Old Dobbin Lane
Columbia, Md 21045
410.872.0267

COVER SHEET
HUNTERS RIDGE
LOTS 1 THRU 54, OPEN SPACE LOTS 55 THRU 58
AND A RESUBDIVISION OF BULK PARCEL 'C'
WESLEY WOODS, SECTION 1, PLAT NO. 14926
TAX MAP 38 GRIDS 4 & 10 PARCEL 163
1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DESIGN BY: PS/KO
DRAWN BY: MM/KO
CHECKED BY: ZYF
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DATE: Sept. 15, 2004
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SHEET No.: 1 OF 20

FSH Associates
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8318 Forest Slim, MD 21043
Tel: 410-750-7250
Fax: 410-750-7250
E-mail: FSH@fsa.com

Revised Lot Areas for Lots 35 thru 39 55 and 56, revised BRL on Lots 1 thru 3, 11, 15, 16, 19 thru 21 and 42; revised Forest Conservation Easement Areas added Lot 38.
02.28.05
DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Indy Harwood 10/19/04
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.
William F. White II 10-4-04
CHIEF, BUREAU OF HIGHWAYS DATE

FOREST CONSERVATION WORKSHEET

Net Tract Area	Acres
A. Total Tract Area	25.66
B. Area Within 100 Year Floodplain	0
C. Other deductions (Area p/o FCP for F-00-115)	0.08
D. Net Tract Area	25.58
Landing Use Category: Residential	
Land Use Category	
E. Afforestation Minimum (15 % x D)	3.84
F. Conservation Threshold (20 % x D)	5.12
Existing Forest Cover	
G. Existing Forest on Net Tract Area	24.10
H. Forest Area Above Conservation Threshold	18.98
Breakeven Point	
I. Forest Retention Above Threshold with no Mitigation	8.92
J. Clearing Permitted without Mitigation	15.18
Proposed Forest Clearing	
K. Forest Areas to be Cleared	17.85
L. Forest Areas to be Retained	6.25
Planting Requirements	
M. Reforestation for Clearing Above Threshold	4.46
N. Reforestation for Clearing Below the Threshold	0
P. Credit for Retention Above Conservation Threshold	1.13
Q. Total Reforestation Required	3.33
R. Total Afforestation Required	0
S. Total Reforestation and Afforestation Requirement	3.33

FOREST CONSERVATION NARRATIVE

This Forest Conservation Plan has been developed in accordance with the Howard County Forest Conservation Act of 1991. The total tract area consists of 25.66 acres of land, including a 0.08 acre area on the adjacent Wesley Woods subdivision which has been included in the forest conservation plan for F-00-115. This area was deducted for a net tract of 25.58 ac. The site contains 24.10 acres of forest cover on the net tract. Forest retained in easements will total 6.25 acres. A total of 1.72 acres of reforestation planting is proposed. Four forest conservation easements will be established. Total area contained within easements is 7.98 acres. All easements contain wetlands, streams and their buffers, and steep slopes. For the remaining 1.60 acres of obligation, we propose a fee-in-lieu payment of \$35,065.00.

New on-site plantings will be 2'-3' containerized whip stock planted at 350 stems/acre with tree shelters.

FOREST CONSERVATION EASEMENT #1
Reforestation Area 1 : 0.60 Ac. (210 trees @ 350 TPA)

Qty	Botanical Name	Common Name	Min. Size	Spacing	Notes
35	Acer rubrum	Red Maple	WHIP 2'-3'	11' o.c.	1-3 Gallon Container Grown with tree shelters
35	Liriodendron tulipifera	Tulip Poplar	WHIP 2'-3'	11' o.c.	
35	Quercus coccinea	Scarlet Oak	WHIP 2'-3'	11' o.c.	
35	Quercus rubra	Red Oak	WHIP 2'-3'	11' o.c.	
35	Cercis canadensis	Red bud	WHIP 2'-3'	11' o.c.	
35	Acer negundo	Box-elder	WHIP 2'-3'	11' o.c.	

FOREST CONSERVATION EASEMENT #2
Reforestation Area 2 : 0.03 Ac. (14 trees @ 350 TPA)

Qty	Botanical Name	Common Name	Min. Size	Spacing	Notes
2	Acer rubrum	Red Maple	WHIP 2'-3'	11' o.c.	1-3 Gallon Container Grown with tree shelters
2	Liriodendron tulipifera	Tulip Poplar	WHIP 2'-3'	11' o.c.	
2	Quercus coccinea	Scarlet Oak	WHIP 2'-3'	11' o.c.	
2	Quercus rubra	Red Oak	WHIP 2'-3'	11' o.c.	
3	Cercis canadensis	Red bud	WHIP 2'-3'	11' o.c.	
3	Acer negundo	Box-elder	WHIP 2'-3'	11' o.c.	

FOREST CONSERVATION EASEMENT #2
Reforestation Area 3 : 0.19 Ac. (67 trees @ 350 TPA)

Qty	Botanical Name	Common Name	Min. Size	Spacing	Notes
12	Acer rubrum	Red Maple	WHIP 2'-3'	11' o.c.	1-3 Gallon Container Grown with tree shelters
11	Liriodendron tulipifera	Tulip Poplar	WHIP 2'-3'	11' o.c.	
11	Quercus coccinea	Scarlet Oak	WHIP 2'-3'	11' o.c.	
11	Quercus rubra	Red Oak	WHIP 2'-3'	11' o.c.	
11	Cercis canadensis	Red bud	WHIP 2'-3'	11' o.c.	
11	Acer negundo	Box-elder	WHIP 2'-3'	11' o.c.	

FOREST CONSERVATION EASEMENT #2
Reforestation Area 4 : 0.13 Ac. (46 trees @ 350 TPA)

Qty	Botanical Name	Common Name	Min. Size	Spacing	Notes
7	Acer rubrum	Red Maple	WHIP 2'-3'	11' o.c.	1-3 Gallon Container Grown with tree shelters
7	Liriodendron tulipifera	Tulip Poplar	WHIP 2'-3'	11' o.c.	
8	Quercus coccinea	Scarlet Oak	WHIP 2'-3'	11' o.c.	
8	Quercus rubra	Red Oak	WHIP 2'-3'	11' o.c.	
8	Cercis canadensis	Red bud	WHIP 2'-3'	11' o.c.	
8	Acer negundo	Box-elder	WHIP 2'-3'	11' o.c.	

FOREST CONSERVATION EASEMENT #2
Reforestation Area 5 : 0.03 Ac. (11 trees @ 350 TPA)

Qty	Botanical Name	Common Name	Min. Size	Spacing	Notes
1	Acer rubrum	Red Maple	WHIP 2'-3'	11' o.c.	1-3 Gallon Container Grown with tree shelters
2	Liriodendron tulipifera	Tulip Poplar	WHIP 2'-3'	11' o.c.	
2	Quercus coccinea	Scarlet Oak	WHIP 2'-3'	11' o.c.	
2	Quercus rubra	Red Oak	WHIP 2'-3'	11' o.c.	
2	Cercis canadensis	Red bud	WHIP 2'-3'	11' o.c.	
2	Acer negundo	Box-elder	WHIP 2'-3'	11' o.c.	

FOREST CONSERVATION EASEMENT #2
Reforestation Area 6 : 0.08 Ac. (28 trees @ 350 TPA)

Qty	Botanical Name	Common Name	Min. Size	Spacing	Notes
5	Acer rubrum	Red Maple	WHIP 2'-3'	11' o.c.	1-3 Gallon Container Grown with tree shelters
5	Liriodendron tulipifera	Tulip Poplar	WHIP 2'-3'	11' o.c.	
5	Quercus coccinea	Scarlet Oak	WHIP 2'-3'	11' o.c.	
5	Quercus rubra	Red Oak	WHIP 2'-3'	11' o.c.	
4	Cercis canadensis	Red bud	WHIP 2'-3'	11' o.c.	
4	Acer negundo	Box-elder	WHIP 2'-3'	11' o.c.	

FOREST CONSERVATION EASEMENT #3
Reforestation Area 7 : 0.43 Ac. (151 trees @ 350 TPA)

Qty	Botanical Name	Common Name	Min. Size	Spacing	Notes
25	Acer rubrum	Red Maple	WHIP 2'-3'	11' o.c.	1-3 Gallon Container Grown with tree shelters
26	Liriodendron tulipifera	Tulip Poplar	WHIP 2'-3'	11' o.c.	
25	Quercus coccinea	Scarlet Oak	WHIP 2'-3'	11' o.c.	
25	Quercus rubra	Red Oak	WHIP 2'-3'	11' o.c.	
25	Cercis canadensis	Red bud	WHIP 2'-3'	11' o.c.	
25	Acer negundo	Box-elder	WHIP 2'-3'	11' o.c.	

FOREST CONSERVATION EASEMENT #4
Reforestation Area 8 : 0.23 Ac. (77 trees @ 350 TPA & 4 trees @ 200 TPA)

Qty	Botanical Name	Common Name	Min. Size	Spacing	Notes
14	Acer rubrum	Red Maple	WHIP 2'-3'	11' o.c.	1-3 Gallon Container Grown with tree shelters
13	Liriodendron tulipifera	Tulip Poplar	WHIP 2'-3'	11' o.c.	
13	Quercus coccinea	Scarlet Oak	WHIP 2'-3'	11' o.c.	
13	Quercus rubra	Red Oak	WHIP 2'-3'	11' o.c.	
12	Cercis canadensis	Red bud	WHIP 2'-3'	11' o.c.	
12	Acer negundo	Box-elder	WHIP 2'-3'	11' o.c.	
4	Quercus rubra	Red Oak	1-1 1/2" Cal	15' o.c.	B#B

MANAGEMENT NOTES FOR FOREST RETENTION AREAS

- 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. Temporary signage shall be replaced with permanent signage on posts in locations shown.
 - Following completion of construction, prior to use, the County Inspector shall inspect the entire area.

Soil Protection Zone Notes

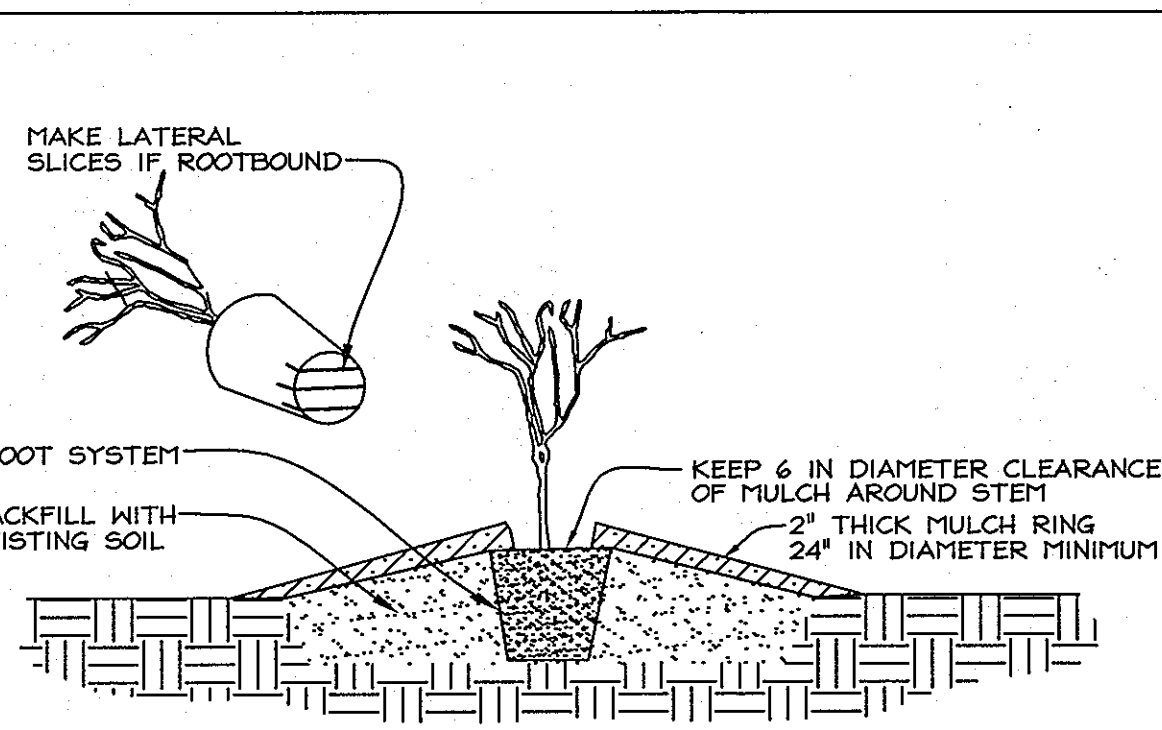
- The Soil Protection Zone shall include all areas contained inside the Limit of Disturbance.
- Where possible, the Soil Protection Zone shall extend to the drip line of specimen trees. For other groups of trees, the zone shall be the drip line or 40% of the height of the tree, whichever is greater.
- 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 Soil Protection Zone 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 MD 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 Monitoring Notes

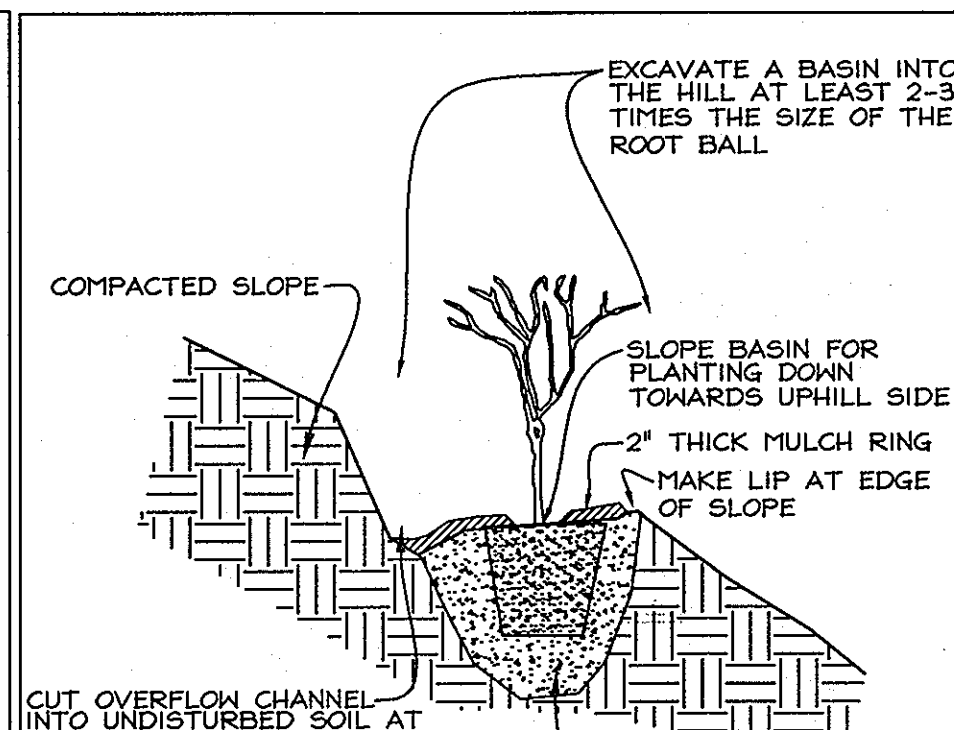
- Monthly visits during the first growing season are to assess the success of the plantings and to determine if supplemental watering, pest control or other actions are necessary. Early spring visits will document winter kill and autumn visits will document summer kill.
- The minimum survival rate shall 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 at 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 include 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.

Reforestation Area Planting Notes

- Initial planting inspection and certification required. Planting contractor to notify ERI qualified professional 24 hours in advance of planting.
- Planting materials shall be certified as to species and quantity 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 16-8-16 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 watering 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 wood alcohol.
- 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.

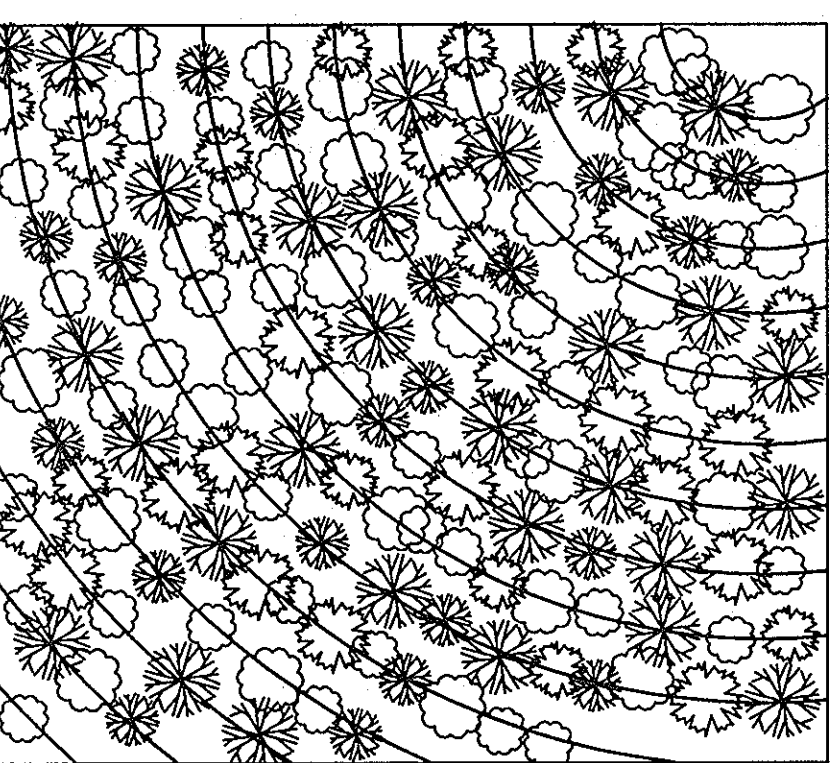


- PLANTING PROCEDURE FOR CONTAINER GROWN PLANTS**
- REMOVE THE PLANT EITHER BY CUTTING OR INVERTING THE CONTAINER
 - USE A KNIFE TO CUT THROUGH BOTTOM HALF OF THE ROOT BALL.
 - PLANT SHRUBS ON FORMED UP MOUNDS 4" ABOVE THE EXISTING GRADE WHEN HIGH WATER TABLE CONDITIONS EXIST, OTHERWISE PLANT FLUSH WITH EXISTING GRADE.
 - PLANTING HOLE TO BE 2-3 TIMES THE DIAMETER OF THE CONTAINER.
 - INSERT FERTILIZER TABLET, BACKFILL 2/3 OF THE ROOT BALL AND WATER.
 - AFTER WATER PERCOLATES, BACKFILL HOLE TO TOP OF ROOT BALL AND GENTLY TAMP SOIL TO FIRM CONTACT WITH PLANT.
 - APPLY MULCH RING AROUND PLANT KEEPING A 6" IN CLEARANCE FROM STEM.



- PLANTING ON STEEP SLOPES**
- PLANT AS PER CONTAINER PLANTING DETAIL EXCEPT PREP OF PLANTING AREA
 - A BASIN FOR PLANTING IS CUT INTO THE SLOPE WITH PLANT BEING PLACED NEAR THE DOWNHILL EDGE OF THE BASIN.
 - BASIN SHOULD SLOPE TOWARD UPHILL SIDE TO ALLOW RAIN TO BE CAPTURED AND INFILTRATED INTO THE SOIL.
 - AN OVERFLOW CHANNEL SHALL BE CUT INTO UNDISTURBED SOIL AT THE REAR OF THE BASIN TO ALLOW EXCESS RUNOFF AND SEDIMENT TO ESCAPE WITHOUT DAMAGING THE BASIN.
 - MULCH AROUND PLANT IN BASIN.

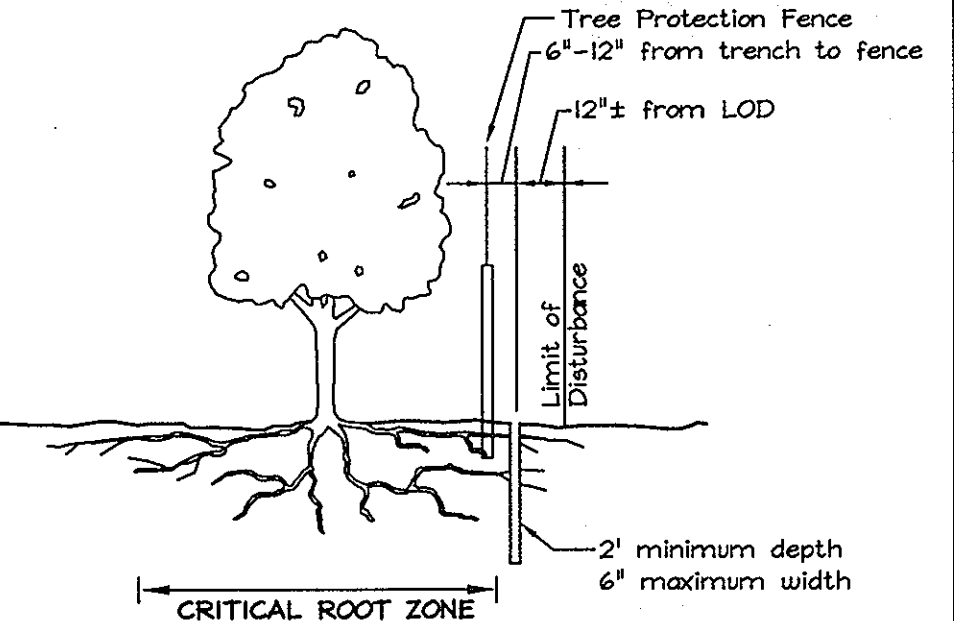
CURVEILINEAR RANDOMIZED PLANTING



- PLANT PLACEMENT DETAIL**
- NOT TO SCALE
- MIX TREE AND SHRUB SPECIES IN THE STAGING AREA.
 - SET THE GUIDE CURVILINEAR LINE AS CLOSE TO CONTOUR AS POSSIBLE

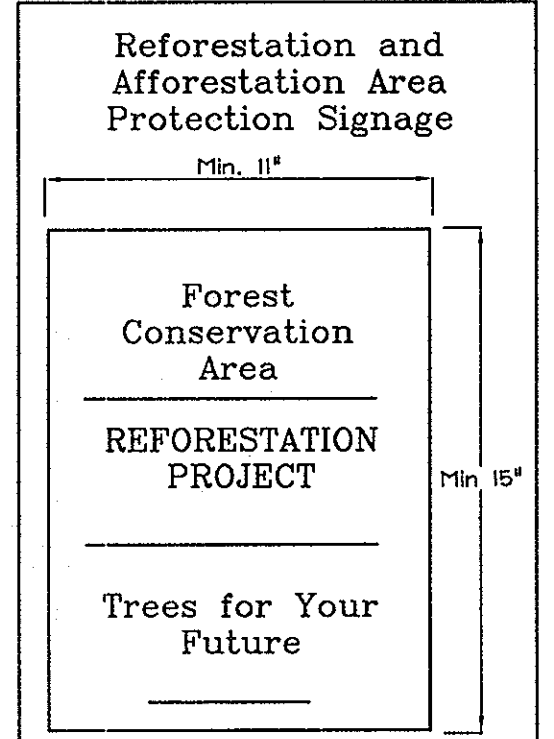
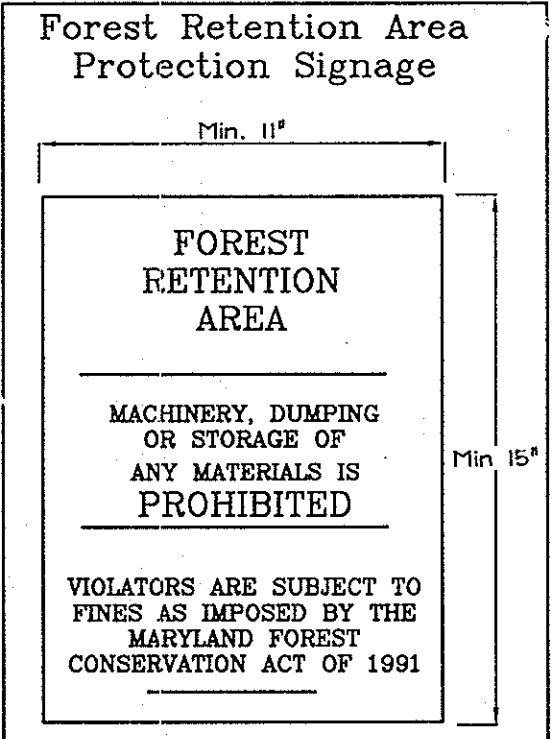
ROOT PRUNING

- Retention areas shall be set prior to construction
- Boundaries of retention areas shall be flagged, and location of trench shall be specified by ERI Qualified Professional.
- Roots shall be cut cleanly with root pruning equipment. Where roots 1" are found, trenching shall be done by air spade or hand tools. Roots 1/2" shall be cut with a hand saw.
- Trench shall be immediately backfilled with soil removed or high organic content soil.
- Any other techniques shall be approved by the ERI Qualified Professional before implementation.



FOREST CONSERVATION EASEMENT TABLE

EASEMENT	TYPE	AREA (ACRES)	BOND RATE	BOND PRICE
1	Reforestation Retention	0.60 1.65	\$0.50 /S.F. \$0.20 /S.F.	\$13,068.00 \$14,374.80
2	Reforestation Retention Uncredited	0.46 2.60 0.01	\$0.50 /S.F. \$0.20 /S.F.	\$10,018.84 \$22,651.20
3	Reforestation	0.43	\$0.50 /S.F.	\$9,365.50
4	Reforestation Retention	0.23 2.00	\$0.50 /S.F. \$0.20 /S.F.	\$5,009.40 \$17,424.00
TOTAL		7.98		\$91,911.74
	Reforestation Retention Uncredited	1.72 6.25 0.01		\$37,461.60 \$54,450.14



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

Cliffhart 4/19/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 4/19/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

William F. ... 4-16-07
 CHIEF, BUREAU OF HIGHWAYS DATE

The forest conservation easements have been established to fulfill the requirements of Section 16.1200 of the Howard County Code and the Forest Conservation Manual. No clearing, grading or construction is permitted within the forest conservation easements, however, forest management practices as defined in the Deed of Forest Conservation Easement are allowed.

EXPLORATION RESEARCH, INC.
 ENVIRONMENTAL CONSULTANTS
 LANDSCAPE ARCHITECTS
 22415
 6850 HOWARD LANE
 ELDFORD, MARYLAND 21750
 TEL: (410) 587-3550 FAX: (410) 700-1562

No.	Revisions	Date
2	Revised Forest Conservation Worksheet, Narrative, and Easement Table. Revised Title Block.	02/12/2007
1	Revised Lot Areas for Lots 35 thru 39, 55 and 56; Revised ERL on Lots 1 thru 3, 11, 15, 16, 19 thru 21 and 42; Revised Forest Conservation Easement Areas. Added Lot 58.	02/28/2005

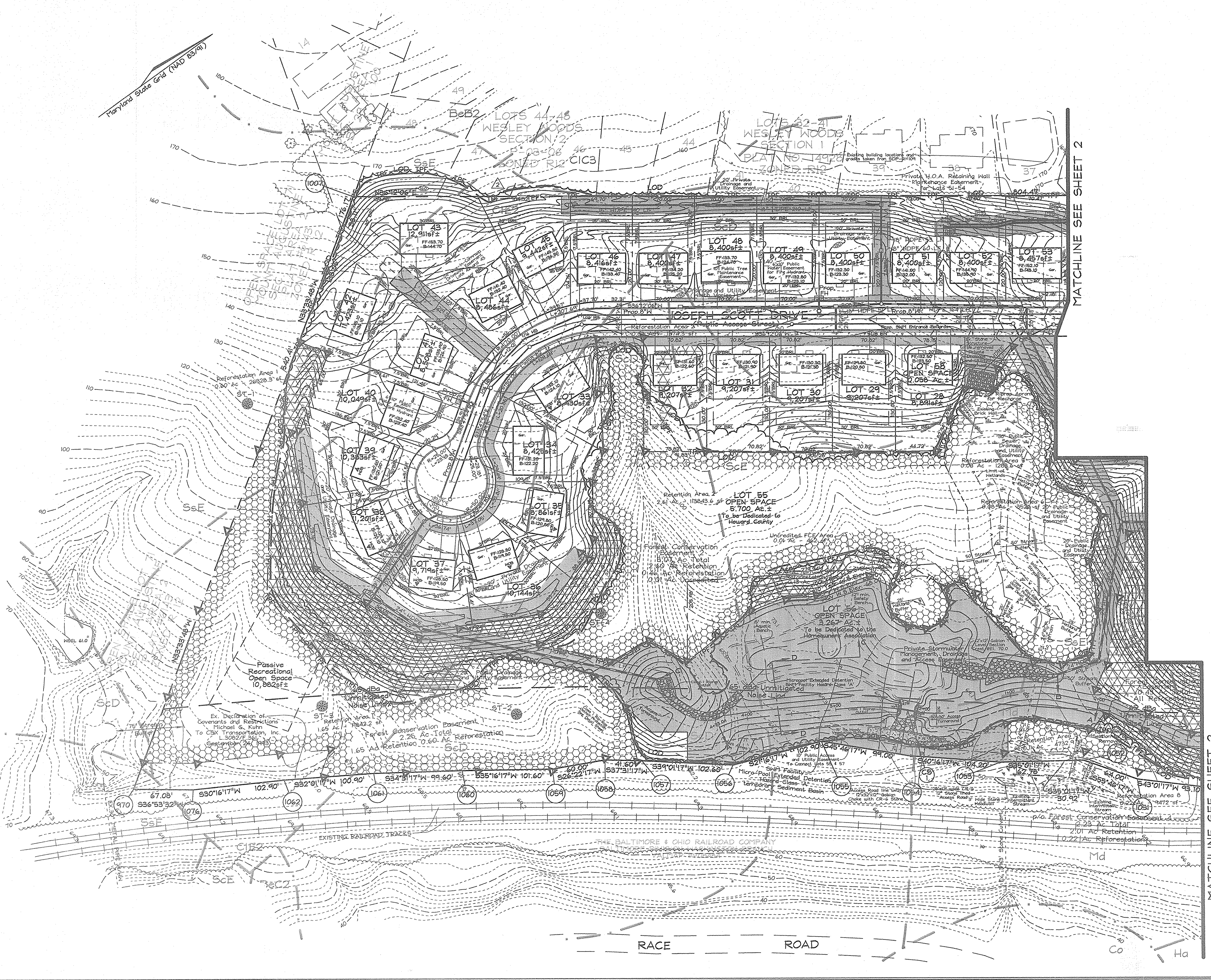
OWNER/DEVELOPER
 Richmond American Homes of Maryland, Inc.
 6200 Old Dobbin Lane
 Columbia, Md 21045
 410.872.0267

FOREST CONSERVATION NOTES AND DETAILS
HUNTERS RIDGE
 LOTS 1 THRU 4, 18 THRU 54, 60 THRU 72
 OPEN SPACE LOTS 55 THRU 59 & 73
 AND A RESUBDIVISION OF BULK PARCEL 'C'
 WESLEY WOODS, SECTION 1, PLAT NO. 14926
 TAX MAP 38 GRIDS 4 & 10 PARCEL 163
 1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

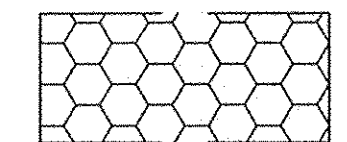
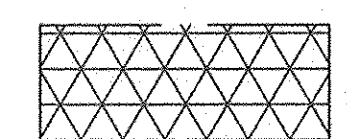

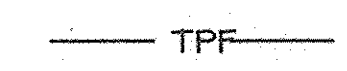
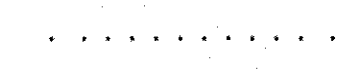
FSH Associates
 Engineers Planners Surveyors
 8318 Forest Street Ellicott City, MD 21043
 Tel: 410-750-2251 Fax: 410-750-7390
 E-mail: FSHAssociates@cs.com

DESIGN BY: PS/KO
 DRAWN BY: MM/RAB
 CHECKED BY: ZYF/SLH
 SCALE: 1"=50'
 DATE: Mar. 21, 2007
 N.O. No.: 3018
 SHEET No.: 17 OF 20

No.	Revisions	Date
1	Revised Lot Areas for Lots 35 thru 39, 55 and 56; Revised BRL on Lots 1 thru 3, 11, 15, 16, 19 thru 21 and 42; Revised Forest Conservation Easement Areas; Added Lot 58.	02/28/2005
2	Deleted Retaining Walls and Easement on Lots 43-46.	02/12/2007



LEGEND

-  Forest Conservation Easement Retention Area
-  Forest Conservation Easement Reforestation Area
-  FCE Signage
-  Tree Protection Fence
-  Approximate Critical Root Zone

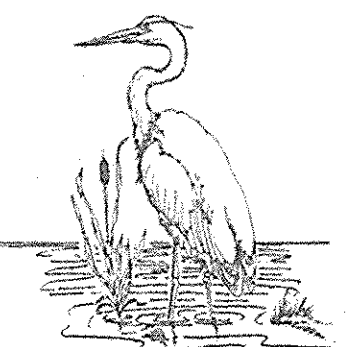
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chadwick 4/19/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

David 4/19/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

W. F. ... 4-16-07
 CHIEF, BUREAU OF HIGHWAYS DATE



EXPLORATION RESEARCH, INC.
 ENVIRONMENTAL CONSULTANTS
 LANDSCAPE ARCHITECTS
 5209 HOWARD LANE
 ELICOTT CITY, MARYLAND 21076
 TEL: (410) 557-5210 FAX: (410) 760-1682



OWNER/DEVELOPER
 Richmond American Homes of Maryland, Inc.
 6200 Old Dobbin Lane
 Columbia, Md 21045
 410.872.0267

Notes:
 THIS SHEET SUPERSEDES PREVIOUS PLAN SIGNED SEPTEMBER 2004.

FOREST CONSERVATION PLAN

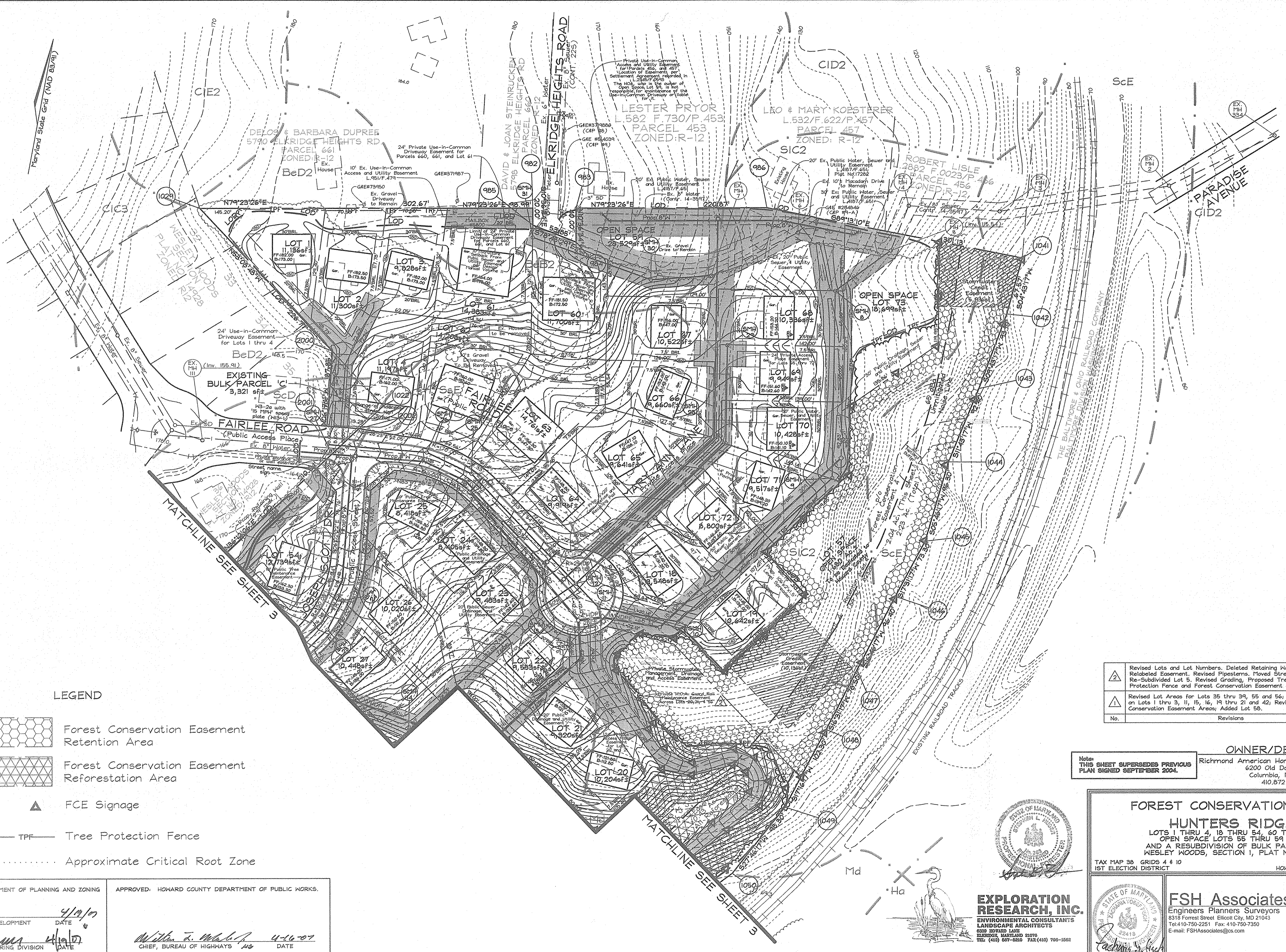
HUNTERS RIDGE

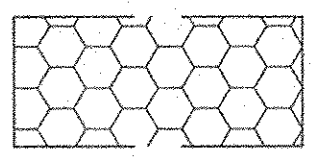
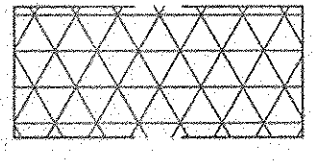


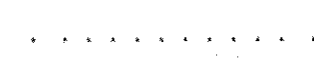
LOTS 1 THRU 4, 18 THRU 54, 60 THRU 72
 OPEN SPACE LOTS 55 THRU 59 & 73
 AND A RESUBDIVISION OF BULK PARCEL 'C'
 WESLEY WOODS, SECTION 1, FLAT NO. 14926

TAX MAP 38 GRIDS 4 & 10 PARCEL 163
 1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

FSH Associates
 Engineers Planners Surveyors
 8318 Forest Street Ellicott City, MD 21043
 Tel: 410-750-2251 Fax: 410-750-7350
 E-mail: FSHAssociates@cs.com

DESIGN BY: PS/KO
 DRAWN BY: MM/RAB
 CHECKED BY: ZYF/BLH
 SCALE: 1"=50'
 DATE: Mar. 21, 2007
 W.O. No.: 3018
 SHEET No.: 16 OF 20




- LEGEND**
-  Forest Conservation Easement Retention Area
 -  Forest Conservation Easement Reforestation Area
 -  FCE Signage
 -  TPF Tree Protection Fence
 -  Approximate Critical Root Zone


No.	Revisions	Date
2	Revised Lots and Lot Numbers. Deleted Retaining Walls and Relabeled Easement. Revised Pipestems. Moved Street Light. Re-Subdivided Lot 5. Revised Grading. Proposed Tree Line, Tree Protection Fence and Forest Conservation Easement #4 Areas.	02/12/2007
1	Revised Lot Areas for Lots 35 thru 39, 55 and 56; Revised BRL on Lots 1 thru 3, 11, 15, 16, 19 thru 21 and 42; Revised Forest Conservation Easement Areas; Added Lot 58.	02/28/2005

OWNER/DEVELOPER
 Richmond American Homes of Maryland, Inc.
 6200 Old Dobbin Lane
 Columbia, Md 21045
 410.872.0267

FOREST CONSERVATION PLAN
HUNTERS RIDGE
 LOTS 1 THRU 4, 18 THRU 54, 60 THRU 72
 OPEN SPACE LOTS 55 THRU 59 & 73
 AND A RESUBDIVISION OF BULK PARCEL 'C'
 WESLEY WOODS, SECTION 1, PLAT NO. 14926

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 1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

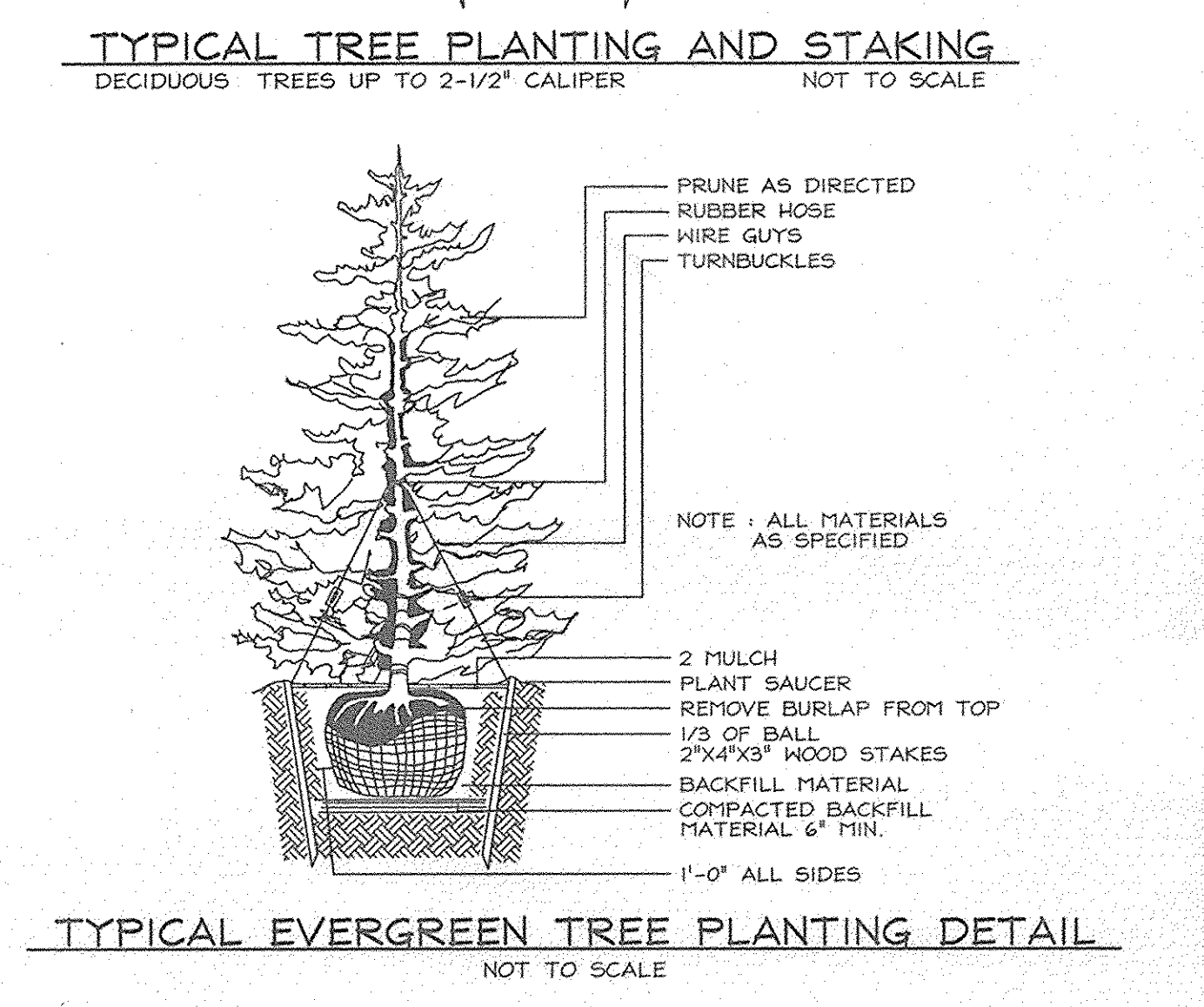
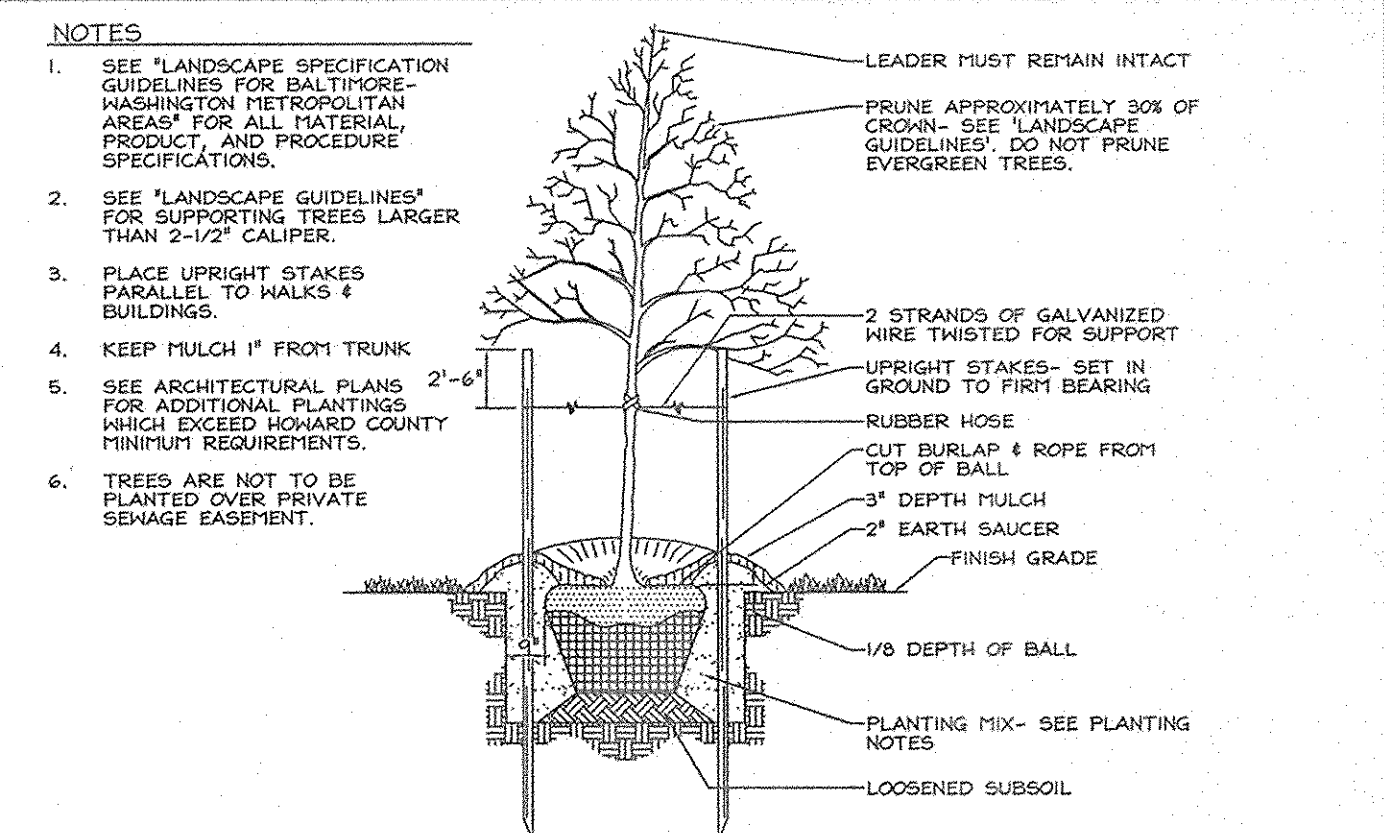
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 4/19/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 4-16-07
 CHIEF, BUREAU OF HIGHWAYS DATE

EXPLORATION RESEARCH, INC.
 ENVIRONMENTAL CONSULTANTS
 LANDSCAPE ARCHITECTS
 6530 HOWARD LANE
 BELLEHURST, MARYLAND 20757
 TEL: (410) 587-0310 FAX: (410) 798-1552

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 Tel: 410-750-2251 Fax: 410-750-7350
 E-mail: FSHAssociates@cs.com

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.
 SIGNATURE OF DEVELOPER: *[Signature]* DATE: 3.23.07
 RICHMOND AMERICAN HOMES OF MARYLAND, INC.



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
[Signature] 4/19/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE
[Signature] 4/19/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[Signature] 4-16-07
 CHIEF, BUREAU OF HIGHWAYS DATE

No.	Revisions	Date
2	Deleted Retaining Walls and Easement on Lots 43-46.	02/12/2007
1	Revised Lot Areas for Lots 35 thru 39, 55 and 56; Revised BRL on Lots 1 thru 3, 11, 15, 16, 19 thru 21 and 42; Revised Forest Conservation Easement Areas; Added Lot 58.	02/28/2005

Notes: THIS SHEET SUPERSEDES PREVIOUS PLAN SIGNED SEPTEMBER 2004.
 Richmond American Home.
 410.872.0267

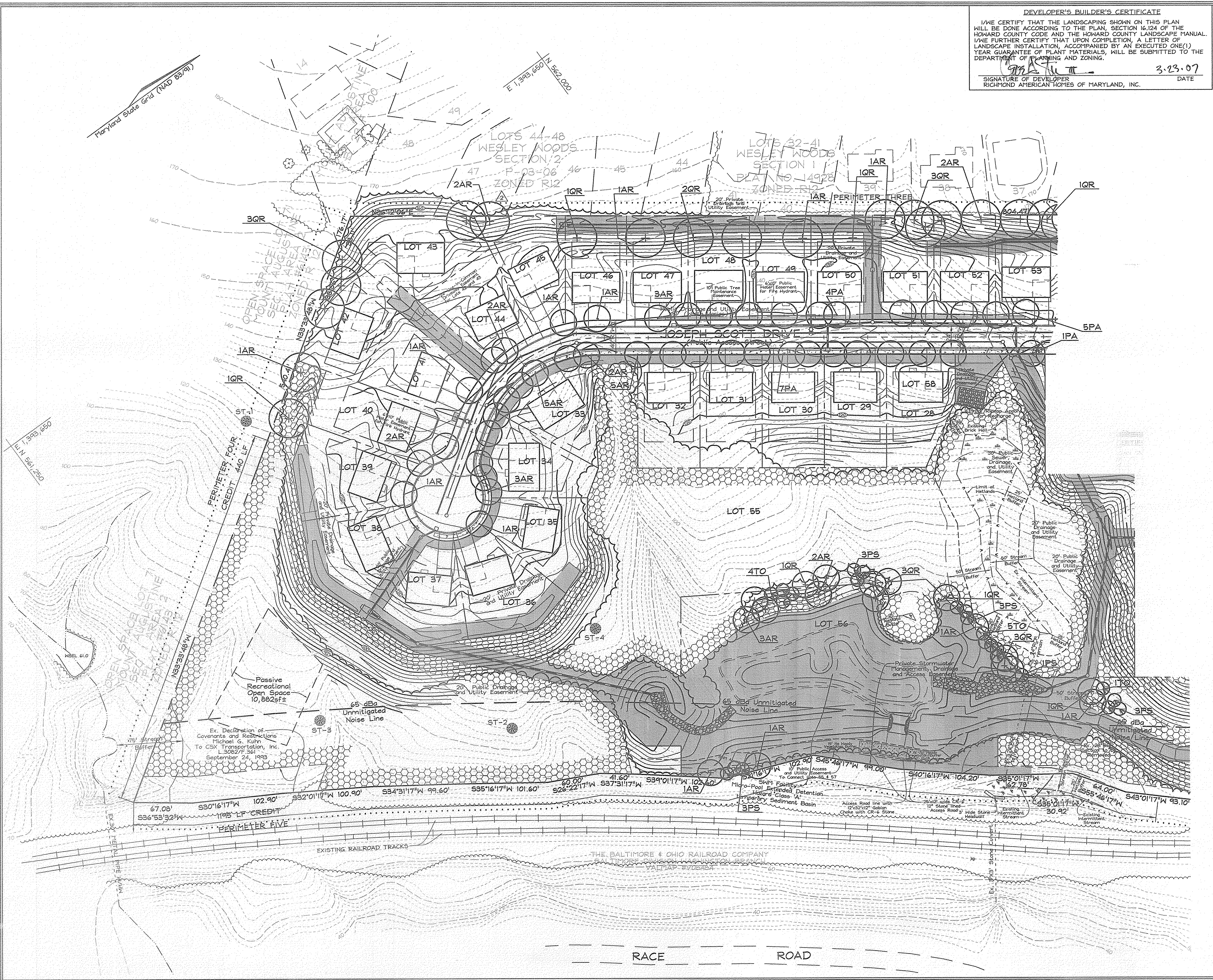
HUNTERS RIDGE
 OPEN SPACE LOTS 55 THRU 59 & 73
 AND A RESUBDIVISION OF BULK PARCEL 'C'
 WESLEY WOODS, SECTION 1, PLAT NO. 14926

TAX MAP 38 GRIDS 4 & 10
 1ST ELECTION DISTRICT

PARCEL 163
 HOWARD COUNTY, MARYLAND

FSH Associates
 Engineers Planners Surveyors
 5318 Forest Street, Ellicott City, MD 21043
 Tel: 410-750-2251 Fax: 410-750-7350
 E-mail: FSHAssociates@cs.com

DESIGN BY: PS/KO
 DRAWN BY: MM/KO
 CHECKED BY: YF
 SCALE: 1"=50'
 DATE: Mar. 21, 2007
 P.O. No.: 3016
 SHEET No.: 14 OF 20



LEGEND

- Existing Contour
- Proposed Contour
- Existing Spot Elevation
- Proposed Spot Elevation
- Direction of Flow
- Existing Trees to Remain
- Walk Out Basement
- Shade Tree
- Street Tree
- Evergreen Tree
- Shrub
- Landscape Perimeter

STREET TREE SCHEDULE			
STREET NAME	LF REQUIRED	TREES REQUIRED	PROVIDED
Fairlee Road	880	22	22
Joseph Scott Drive	2,170	54	54
Mary Ann Lane	776	19	19

STREET TREE LANDSCAPE SCHEDULE				
KEY	QUAN.	BOTANICAL NAME	SIZE	NOTE
AR	27	Acer rubrum, Shade Trees (Street Trees)	2 1/2"-3" Cal.	B & B
PA	27	Platanus x acerifolia, Shade Trees (Street Trees)	2 1/2"-3" Cal.	B & B
ZS	22	Zelkova serrata, Shade Trees (Street Trees)	2 1/2"-3" Cal.	B & B
QC	19	Quercus coccinea, Scarlet Oak	2 1/2"-3" Cal.	B & B

LANDSCAPE SCHEDULE				
KEY	QUAN.	BOTANICAL NAME	SIZE	NOTE
AR	32	Acer rubrum (Shade Trees)	2 1/2"-3" Cal.	B & B
QR	33	Quercus rubra (Shade Trees)	2 1/2"-3" Cal.	B & B
PS	13	Pinus strobus, Eastern White Pine	6'-8' Ht.	B & B
TO	10	Thuja occidentalis 'Nigra', Dark American Arborvitae	5'-6' Ht.	B & B
IV	10	Ilex verticillata, Winterberry	3'-4' Ht.	Cont.

- NOTES:
- At the time of plant installation, all shrubs and trees listed and approved on the Landscape Plan shall comply with the proper height requirements in accordance with the Howard County Landscape Manual. In addition, no substitutions or relocations of the required plantings may be made without prior review and approval from the Department of Planning and Zoning. Any deviation from the 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 revision are made to the applicable plans.
 - Landscape surety is based on the required landscaping of 65 shade trees, 23 evergreen trees and the Private Access Place street trees (19) and refuse pad shrubs (10) in the amount of \$28,450.00.

SCHEDULE D : STORMWATER MANAGEMENT AREA LANDSCAPING	
Linear Feet of Perimeter	1,261 LF
Credit for Existing Vegetation (No, Yes and Linear Feet)	Yes, 4364 LF (Remaining Perimeter: 897 LF)
Credit for Wall, Fence or Berm (No, Yes and %)	N/A
Number of Trees Required	
Shade Trees	1:50 = 18 Shade Trees
Evergreen Trees	1:40 = 23 Evergreen Trees
Number of Trees Provided	
Shade Trees	18 Shade Trees
Evergreen Trees	23 Evergreen Trees
Other Trees (2:1 Substitution)	0 Trees (0 Substitution Trees)

* Existing trees to remain

OWNER/DEVELOPER

Richmond American Homes of Maryland, Inc.
6200 Old Dobbin Lane
Columbia, Md 21045
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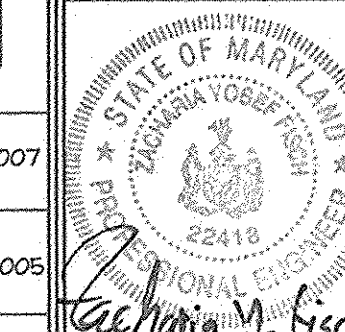
LANDSCAPE PLAN

HUNTERS RIDGE
LOTS 1 THRU 4, 18 THRU 54, 60 THRU 72
OPEN SPACE LOTS 55 THRU 59 & 73
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TAX MAP 38 GRIDS 4 & 10 PARCEL 163
1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DESIGN BY: PS/KO
DRAWN BY: MM/KO
CHECKED BY: ZYF
SCALE: 1"=50'
DATE: Mar. 21, 2007
N.O. No.: 301B
SHEET No.: 1B OF 2B

FSH Associates
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Tel: 410-750-2251 Fax: 410-750-7350
E-mail: FSHAssociates@cs.com



No.	Revisions	Date
1	Revised Lots and Lot Numbers, Deleted Retaining Walls, Revised Pipestems, Revised Perimeter Landscaping, Moved Street Light, Revised and Relabeled Easements, Re-Subdivided Lot 5.	02/12/2007
2	Revised Lot Areas for Lots 35 thru 39, 55 and 56; Revised BRL on Lots 1 thru 3, 11, 15, 16, 19 thru 21 and 42; Revised Forest Conservation Easement Areas; Added Lot 58.	02/28/2005

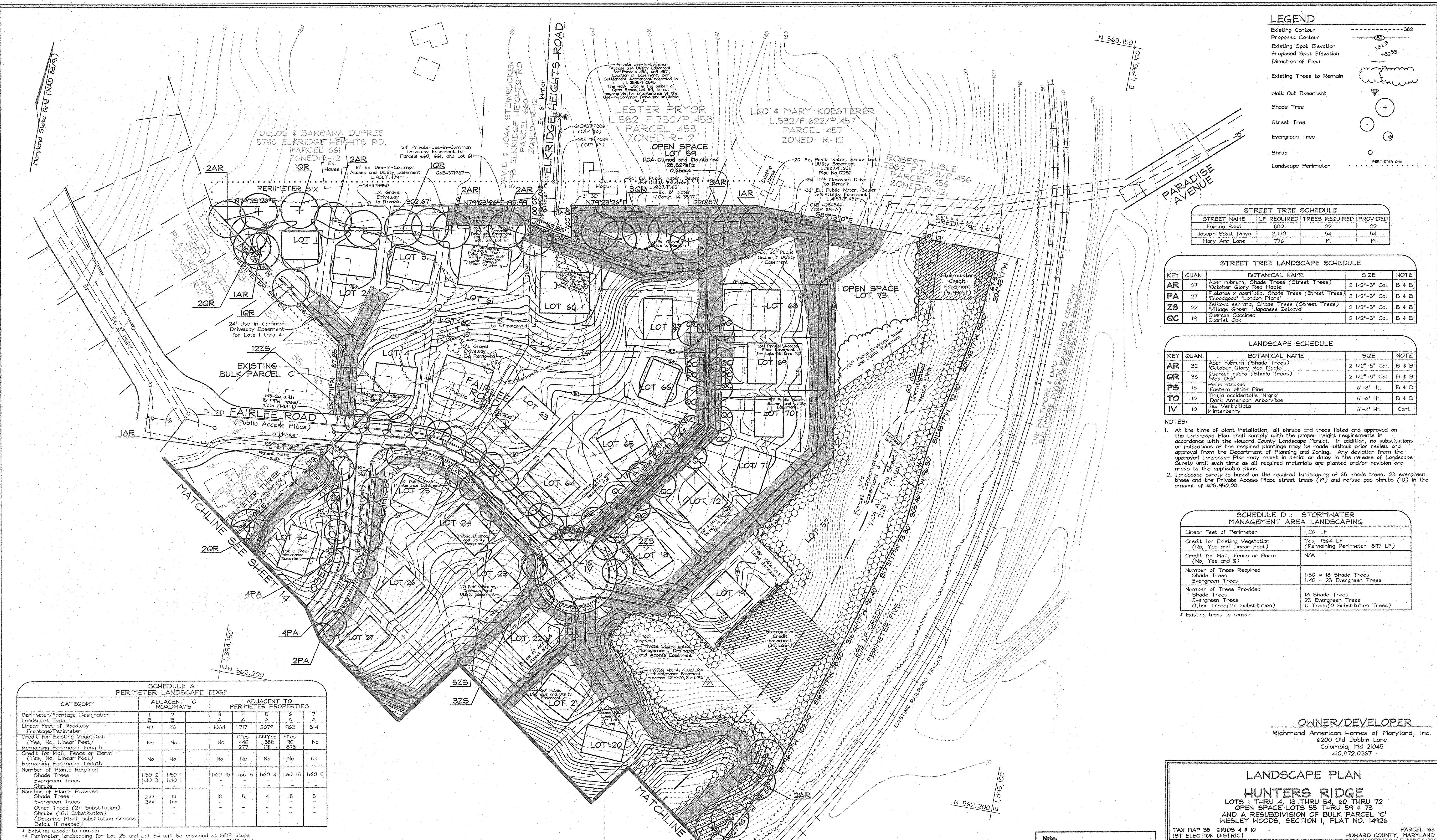
SCHEDULE A PERIMETER LANDSCAPE EDGE							
CATEGORY	ADJACENT TO ROADWAYS		ADJACENT TO PERIMETER PROPERTIES				
Perimeter/Frontage Designation	1	2	3	4	5	6	7
Linear Feet of Roadway Frontage/Perimeter	93	35	1054	717	2079	963	314
Credit for Existing Vegetation (Yes, No, Linear Feet)	No	No	No	440	1,068	90	No
Remaining Perimeter Length	No	No	No	277	1,011	873	No
Credit for Wall, Fence or Berm (Yes, No, Linear Feet)	No	No	No	No	No	No	No
Remaining Perimeter Length							
Number of Plants Required							
Shade Trees	1:50 = 2	1:50 = 1	1:60 = 18	1:60 = 5	1:60 = 4	1:60 = 15	1:60 = 5
Evergreen Trees	1:40 = 3	1:40 = 1	-	-	-	-	-
Shrubs	-	-	-	-	-	-	-
Number of Plants Provided							
Shade Trees	2**	1**	18	5	4	15	5
Evergreen Trees	3**	1**	-	-	-	-	-
Other Trees (2:1 Substitution)	-	-	-	-	-	-	-
Shrubs (10:1 Substitution)	-	-	-	-	-	-	-

* Existing woods to remain
** Perimeter landscaping for Lot 25 and Lot 54 will be provided at SDP stage
*** Credit taken for existing woods and the shared boundary with the SH-1 Perimeter

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
[Signature] 4/19/07
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[Signature] 4-16-07
CHIEF, BUREAU OF HIGHWAYS 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.
[Signature] 3-23-07
SIGNATURE OF DEVELOPER DATE
RICHMOND AMERICAN HOMES OF MARYLAND, INC.



MARYLAND STATE STORMWATER MANAGEMENT FACILITY CONSTRUCTION SPECIFICATIONS

These specifications are applicable to all ponds within the scope of the standard practice (SD-376). 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. Normal logs and debris should be piled in a separate area. All trees shall be cleared and grubbed within 5 feet of the low water of the embankment.

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, ferns, rubbish and other objectionable material unless otherwise designated on the plans. Trees, shrubs, and stumps shall be cut approximately 30 inches above ground level. For any stormwater management ponds, a minimum of 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 shown on the site plan or otherwise, when specified, in sufficient quantity to avoid soil being deposited 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, weed, rubbish, stones greater than 12 inches or other objectionable material. Fill placed in the center of the basin shall be placed in 3000 wide wheel tracks. Consideration may be given to use of other materials in the embankment if they are approved by the Engineer. "Rubble" used in the outer shell of the embankment must have the capability to support vegetation of the same height and density as the surrounding area.

Placement - Areas on which fill is to be placed shall be compacted prior to placement of fill. Fill materials shall be placed in maximum 6 inch thick (before compaction) layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portion of the embankment. The principal spillway must be treated concurrently with fill placement and not excavated into the embankment.

Compaction - The movement of the heating and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be covered by not less than one level 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 density can be achieved. The fill material shall be compacted to a minimum of 98 percent of the AASHTO T-99 maximum dry density. The exposed basin surface should be examined after mass grading and any sand deposits under 1 foot below proposed basin grade. This undercut area should be backfilled with CL clay soils compacted to a minimum of 98 percent of the AASHTO T-99 maximum dry density. In the remaining clay areas, the basin bottom should be thoroughly rolled to a minimum 98 percent of the AASHTO T-99 maximum dry density.

Non-routine maintenance by H.O.A.
1. FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF IT IS FUNCTIONING PROPERLY.
2. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES A YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHALL BE MOWED AS NEEDED.
3. DEBRIS AND LITTER NEXT TO THE OUTLET STRUCTURE SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
4. VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS RIPRAP OUTLET AREAS SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

ROUTINE MAINTENANCE BY H.O.A.
1. STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, THE RISER, AND THE PIPES SHALL BE REPAIRED UPON DETECTION OF ANY DAMAGE. THE COMPONENTS SHOULD BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
2. SEDIMENT SHOULD BE REMOVED WHEN ITS ACCUMULATION SIGNIFICANTLY REDUCES THE DESIGN STORAGE, INTERFERES WITH THE FUNCTION OF THE RISER, WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, OR WHEN DEEMED NECESSARY BY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.
3. SPECIAL CONSTRUCTION METHODS FOR SEEPAGE CONTROLS
To prevent undesirable seepage through the basin and beneath the embankment, compact the clay surface across the bottom of the basin and tie to the embankment. Since the soils encountered within all borings at basin elevation are CL clay soils, it would be possible in most areas to form the liner by recompacting the in-place materials. The exposed basin surface should be examined after mass grading and any sand deposits under 1 foot below proposed basin grade. This undercut area should be backfilled with CL clay soils compacted to a minimum of 98 percent of the AASHTO T-99 maximum dry density. In the remaining clay areas, the basin bottom should be thoroughly rolled to a minimum 98 percent of the AASHTO T-99 maximum dry density.

RECHARGE OBLIGATION (Total Site)
Rea Req'd: 2.046 cu.ft.
Rea Req'd: 0.49 Ac
Rea Prov'd: 0.49 Ac
Rea Prov'd: 3,887 cu. ft.

Structure Backfill
Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjacent fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other normally driven compaction equipment. The material density shall be determined on or adjacent to the pipe. At no time during the backfilling operation shall erosion equipment be used to grade or trim the backfill. The backfill shall be compacted with vibration equipment, rollers, or hand tampers, to ensure maximum density and minimum permeability. Equipment shall be driven over any part of a concrete structure or pipe, unless there is a completed fill of 24" or greater over the structure or pipe.

Structure backfill may be feasible fill meeting the requirements of Maryland Department of Transportation, State Highway Administration Standards Specifications for Construction and Materials, Section 414.17B Class C. The fill shall have a minimum thickness of 24 inches and shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other normally driven compaction equipment. The material density shall be determined on or adjacent to the pipe. At no time during the backfilling operation shall erosion equipment be used to grade or trim the backfill. The backfill shall be compacted with vibration equipment, rollers, or hand tampers, to ensure maximum density and minimum permeability. Equipment shall be driven over any part of a concrete structure or pipe, unless there is a completed fill of 24" or greater over the structure or pipe. Backfill (Feasible Fill) shall be of the type and quality conforming to that specified for the core of the embankment or other embankment material.

Pipe Caissons
All pipes shall be circular in cross section.

Corrugated Metal Pipe - All of the following criteria shall apply for corrugated metal pipe:
1. Material - (Minimum Coated Steel Pipe) - Steel pipes with polymeric coating shall have a minimum coating thickness of 0.008 inches (not less than 1 mil) and shall be tested to confirm to the requirements of AASHTO Specification M-246 or M-246 with water tight coating bond or flange.
2. Material - (Aluminum Coated Steel Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-246 with water tight coating bond or flange. Aluminum coating shall be fully continuous and shall be applied to the entire surface of the pipe. 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 water shall be protected with zinc or zinc alloy coating.
3. Coatings, joints, anti-seep collars, and sections, etc., must be composed of the same material and coatings as the pipe. Joints must be treated from dissimilar materials with use of rubber or plastic insulating material at least 1/2 inch thick.
4. Connections - All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be sealed off ground when the pipe and riser are installed. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight.
5. Laying pipe - Bell and spigot pipe shall be placed with the bell and upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire length, the bedding shall be placed in such a manner under the pipe as 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.
6. Backfilling - 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.
7. Bedding shall conform to "Structure Backfill".
8. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Reinforced Concrete Pipe of the following criteria shall apply for reinforced concrete pipe:
1. Material - Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM C-556.
2. Bedding - Reinforced concrete pipe shall be laid in a concrete bedding/correl for their entire length. This bedding/correl shall consist of high strength concrete placed under the pipe and up the sides of the pipe to least 24" of its outside thickness of 6 inches. Where a concrete grade is not needed for structural reasons, feasible 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 and upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire length, the bedding shall be placed in such a manner under the pipe as 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 as shown on the drawings.

SECTION 'B'-'B'
(From S-1 thru Weir)
SCALE: Hor. 1"=50'
Vert. 1"=5'

SWM FOREBAY #2 RIP RAP OUTLET LEVEL SECTION
TYPICAL CROSS-SECTION
NOT TO SCALE

SWM FOREBAY #1 TYPICAL CROSS-SECTION
NOT TO SCALE

Geotextile Class 'C'
Class I Rip Rap Over Filter Fabric
6" x 6" (4) 6" x 12" Long Gabion (Zinc and PVC coated gabion wire)

No.	Revisions	Date
1	Revised Section 'B'-'B' Profile; Updated Recharge Obligation and Pond Summary.	01/15/2007

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 Chief, Division of Land Development
 DATE: 4/19/07

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.
 Chief, Bureau of Highways
 DATE: 4-16-07

OPERATION AND MAINTENANCE SCHEDULE FOR STORMWATER MANAGEMENT DETENTION FACILITY

ROUTINE MAINTENANCE BY H.O.A.
1. FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF IT IS FUNCTIONING PROPERLY.
2. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES A YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHALL BE MOWED AS NEEDED.
3. DEBRIS AND LITTER NEXT TO THE OUTLET STRUCTURE SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
4. VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS RIPRAP OUTLET AREAS SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

POND SUMMARY	YEAR (CP)	10 YEAR**	100 YEAR	WATER QUALITY FOR AREA TO POND**
Inflow Into Pond	21.4 cfs	74.84 cfs	123.17 cfs	WQV Req'd: 0.50 ac.ft.
Flow Out of Pond	0.51 cfs	56.46 cfs	101.76 cfs	WQV Prov'd: 0.36 ac.ft.(wet pool)
WV Elevation	64.7	70.92	71.48	Total Provided: 0.61 ac.ft.
Storage Volume	0.25 ac.ft.			

** Assumes clogged Low Flow Orifices.

SECTION 'A'-'A'
(Along Top of Embankment)
SCALE: Hor. 1"=50'
Vert. 1"=5'

SECTION 'C'-'C'
(From S-3 thru Pond)
SCALE: Hor. 1"=50'
Vert. 1"=5'

NOTE: Pump Cut-Off Trench shall be installed in accordance with the notes on sheet 17 of 20. Underdrains beneath the embankment should be installed with impervious membrane and sealed with approved sealant. Elevation to be determined by the Geotechnical Engineer in the field. Monitor and approved excavation and placement of fill material for cut-off trench, core and embankment.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division
 DATE: 4/19/07

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS
 USA/NATURAL RESOURCES CONSERVATION SERVICE
 THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT
 SIGNATURE OF ENGINEER
 DATE: 4/19/07

S.W.M. BORING PROFILE
NOT TO SCALE

SECTION 'D'-'D'
(Thru Embankment)
SCALE: Hor. 1"=20'
Vert. 1"=2'

CS-1 CONCRETE WEIR CONTROL STRUCTURE
NOT TO SCALE

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.
 SIGNATURE OF ENGINEER: Zacharia Y. Fisch
 DATE: 3/12/07

SECTION 'D'-'D'
(Thru Embankment)
SCALE: Hor. 1"=20'
Vert. 1"=2'

SECTION 'E'-'E'
Not to Scale

CS-1 CONCRETE WEIR CONTROL STRUCTURE
NOT TO SCALE

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 AND ALSO AUTHORITY PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.
 SIGNATURE OF DEVELOPER: Richmond American Homes of Maryland, Inc.
 DATE: 3.12.07

SECTION 'C'-'C'
(From S-3 thru Pond)
SCALE: Hor. 1"=50'
Vert. 1"=5'

TRASH RACK DETAIL
NOT TO SCALE

NOTES:
1. Steel to conform to ASTM A-36
2. All surfaces to be coated with ZRC cold galvanizing compound after welding.
3. Trash rack to be fastened to the concrete with 1/2" x 12" masonry anchors. Trash rack to be removable.

WEIR DETAIL
SCALE: Hor. 1"=20'
Vert. 1"=2'

PROVIDE 16' EROSION CONTROL MATTING (CURLEY OR EQUAL) UNDERSEED TO "TURF TYPE" FESCUE

4"-6" Gabion Stone Over Filter Fabric

TYPICAL LEVEL SPREADER (LOT 19) CROSS-SECTION
NOT TO SCALE

OWNER/DEVELOPER
 Richmond American Homes of Maryland, Inc.
 6200 Old Dobbin Lane
 Columbia, MD 21045
 410.872.0267

STORMWATER MANAGEMENT NOTES AND DETAILS
 HUNTERS RIDGE
 LOTS 1 THRU 4, 18 THRU 54, 60 THRU 72
 OPEN SPACE LOTS 55 THRU 59 & 73
 AND A RESUBDIVISION OF BULK PARCEL C
 WESLEY WOODS, SECTION 1, PLAT NO. 14926

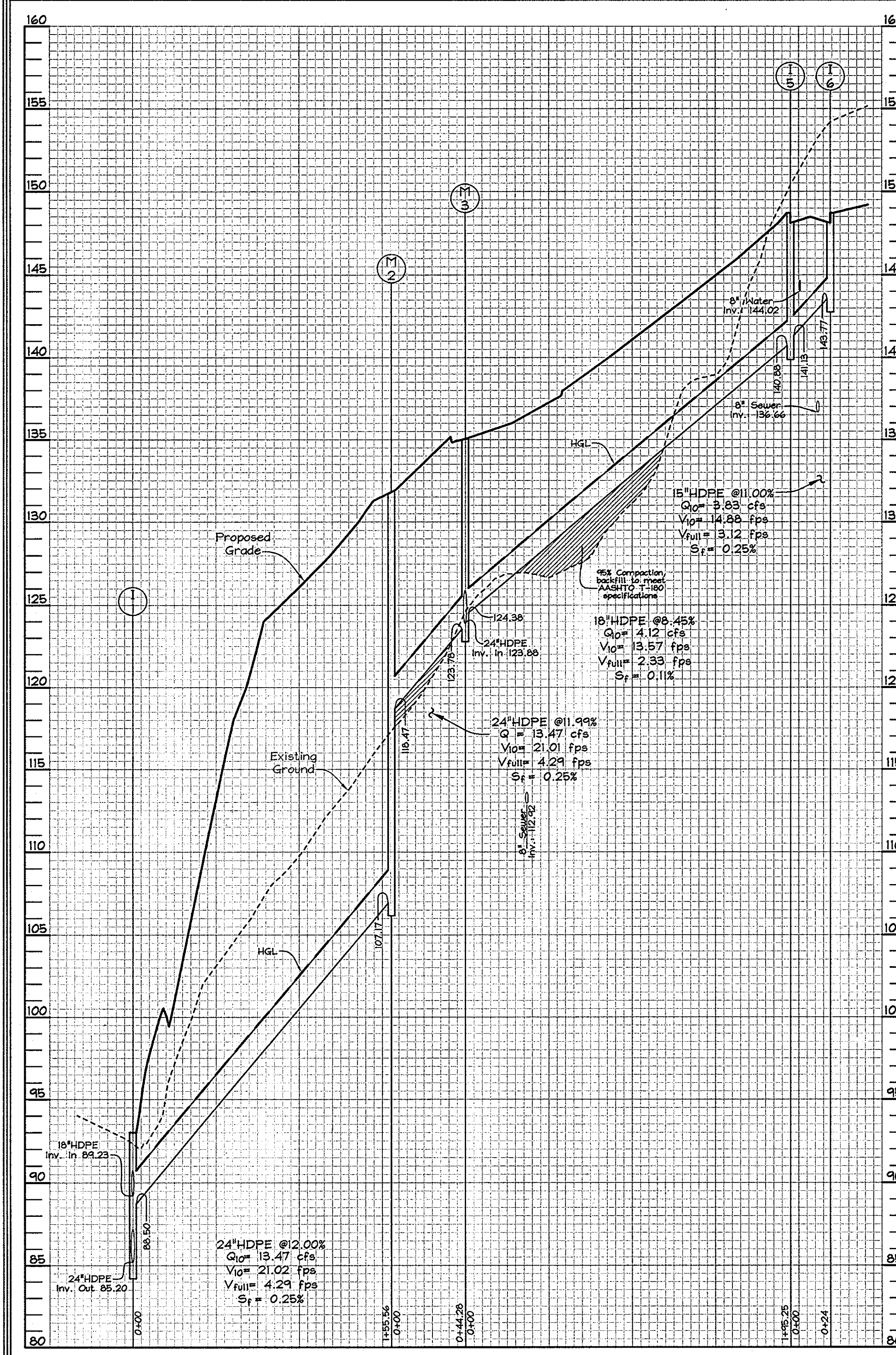
TAX MAP 38 GRIDS 4 & 10
 1ST ELECTION DISTRICT

PARCEL 163
 HOWARD COUNTY, MARYLAND

DESIGN BY: KO
 DRAWN BY: KO
 CHECKED BY: ZYF
 SCALE: As Shown
 DATE: Jan 23, 2007
 M.O. No.: 3018
 SHEET No.: 12 OF 20

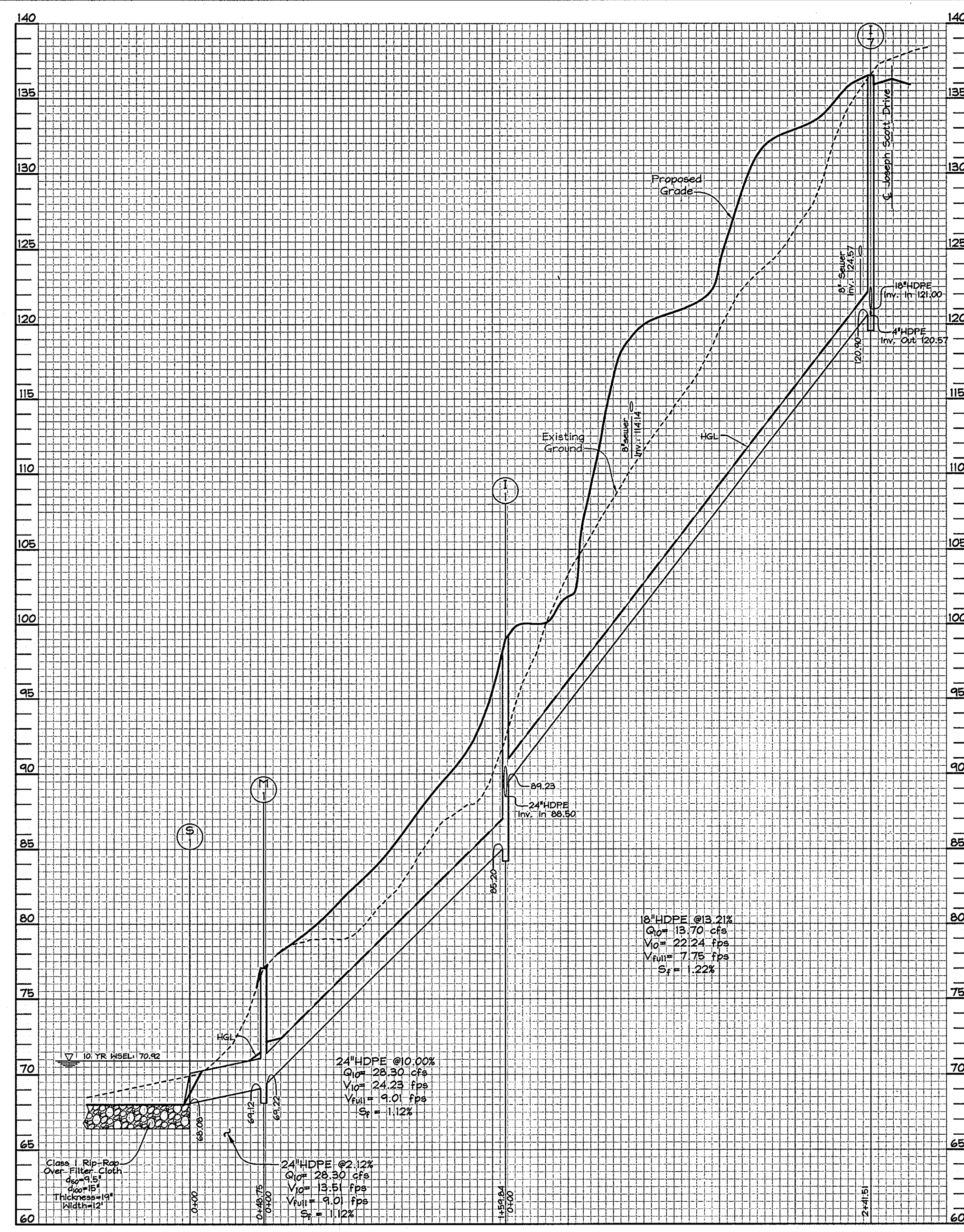
FSH Associates
 Engineers Planners Surveyors
 8318 Forrest Street
 Elkton City, MD 21433
 Tel: 410-750-2251 Fax: 410-750-7350
 E-mail: FSHAssociates@cs.com

MIXED USE DEVELOPMENT PLAN



STORM DRAIN PROFILE

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



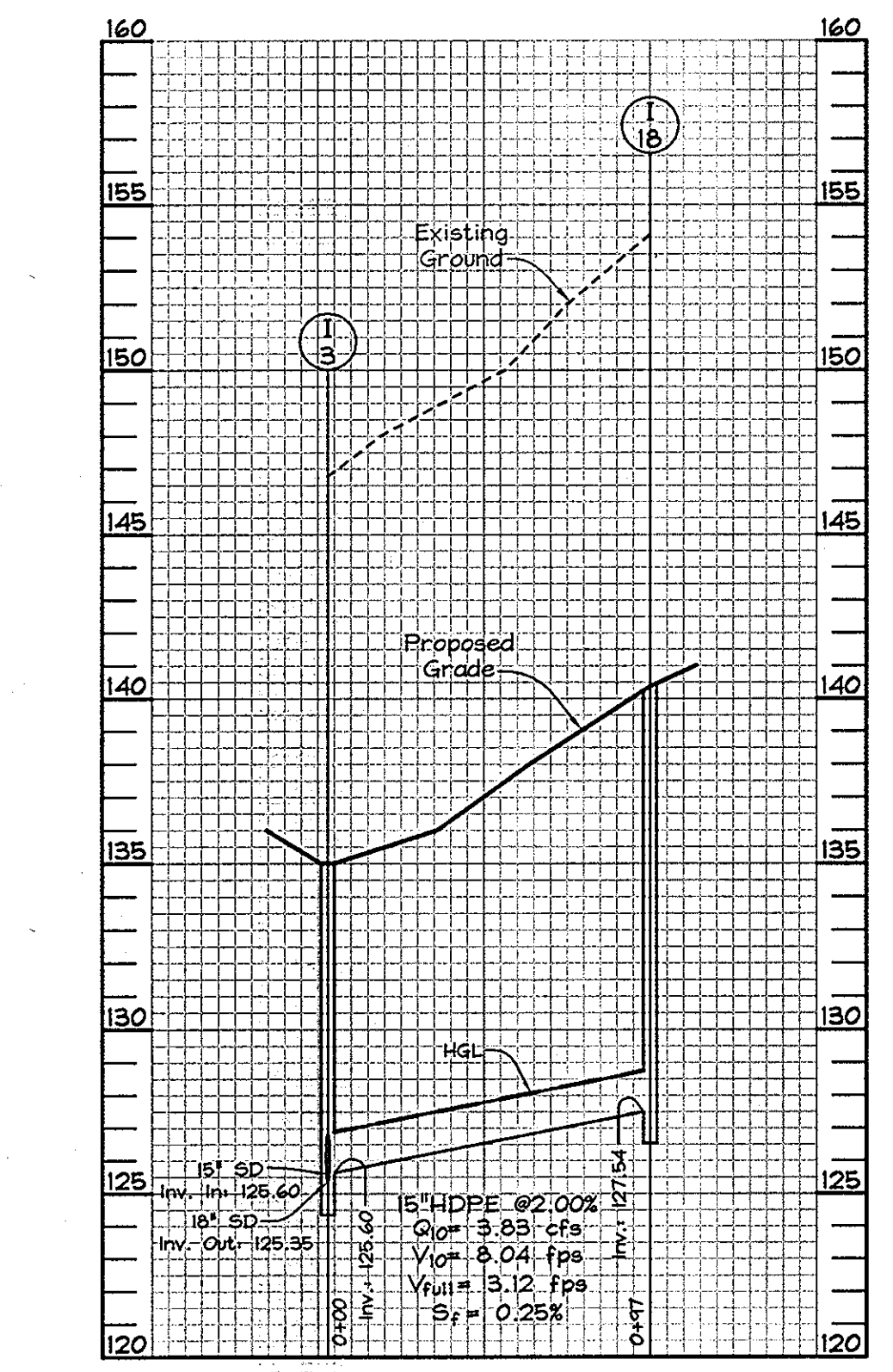
STORM DRAIN PROFILE

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

STRUCTURE SCHEDULE							
NO.	TYPE	LOCATION	TOP ELEV.	INV. IN.	INV. OUT	REMARKS	
I-1	Single 'S' Inlet	N 562,195.31 E 1,394,475.28	99.00	89.33(18") 86.50(24")	85.20	SD 4.22	
I-2	Single 'S' Inlet	N 562,373.40 E 1,394,582.73	134.56	124.52	124.02	SD 4.22	
I-3	Single 'S' Inlet	N 562,440.31 E 1,394,699.57	135.0	125.60(18") 123.60(24")	125.35	SD 4.22	
I-4	Single 'S' Inlet	N 562,605.52 E 1,394,820.50	131.0	-	126.65	SD 4.22	
I-5	'A-5' Cast-in-Place Inlet	Fairlee Road Sta. 3+65.86	10.00' Right	148.75	141.13	140.88	SD 4.01
I-6	'A-10' Precast Inlet	Fairlee Road Sta. 3+65.86	10.00' Left	148.75	-	143.77	SD 4.41
I-7	'A-5' Cast-in-Place Inlet	Joseph Scott Drive Sta. 2+81.09	12.00' Left	136.49	121.00	120.87(4") 120.80(18")	SD 4.01
I-8	'A-10' Cast-in-Place Inlet	Joseph Scott Drive Sta. 2+81.09	12.00' Right	136.49	121.41	121.31	SD 4.02
I-9	'A-5' Precast Inlet	Joseph Scott Drive Sta. 4+95.67	12.00' Right	127.90	123.34(18") 121.34(24")	123.29	SD 4.40
I-10	'A-5' Precast Inlet	Joseph Scott Drive Sta. 6+70.69	12.00' Right	129.52	-	124.42	SD 4.40
I-11	'A-5' Precast Inlet	Joseph Scott Drive Sta. 4+95.67	12.00' Left	127.90	-	123.68	SD 4.40
I-12	Single 'S' Inlet	Joseph Scott Drive Sta. 4+44.64	77.23' Right	129.0	124.50	124.40	SD 4.22
I-13	Single 'S' Inlet	Joseph Scott Drive Sta. 4+44.64	130.00' Right	147.0	140.80	130.83	SD 4.22
I-14	Single 'S' Inlet	Joseph Scott Drive Sta. 6+54.64	130.00' Right	147.50	143.15	142.90	SD 4.22
I-15	Single 'S' Inlet	Joseph Scott Drive Sta. 7+76.86	132.49' Right	149.50	-	145.15	SD 4.22
I-16	Single 'S' Inlet	N 561,466.96 E 1,394,045.59	111.50	104.00	103.50	SD 4.22	
I-17	Single 'S' Inlet	N 561,584.24 E 1,394,013.03	125.77	-	119.08	SD 4.22	
I-18	Single 'S' Inlet	N 562,497.60 E 1,394,621.30	140.36	-	127.54	SD 4.22	
M-1	Precast Manhole (4')	N 562,081.90 E 1,394,587.91	77.00	69.22	69.12	G 5.12	
M-2	Precast Manhole (4')	N 562,320.84 E 1,394,567.16	133.30	118.47	107.17	G 5.12	
M-3	Precast Manhole (4')	N 562,363.70 E 1,394,556.04	135.20	124.35(18") 122.35(24")	123.78	G 5.12	
M-4	Precast Manhole (4')	N 562,372.98 E 1,394,650.29	138.53	124.96	124.86	G 5.12	
M-5	Precast Manhole (4')	Joseph Scott Drive Sta. 4+44.64	17.00' Right	128.59	123.03(18") 121.03(24")	122.93	G 5.12
M-6	Precast Manhole (4')	N 561,489.09 E 1,394,106.93	115.00	102.85	97.75	G 5.12	
M-7	Precast Manhole (4')	N 561,564.06 E 1,394,010.57	126.50	116.64	116.39	G 5.12	
S-1	24" HDPE End Section	N 562,035.50 E 1,394,572.94	-	-	60.08	-	
S-2	6" HDPE End Section	N 562,173.80 E 1,394,244.95	-	-	120.25	-	
S-3	24" HDPE End Section	N 561,668.92 E 1,394,310.39	-	-	76.32	-	

NOTE: 1. Top elevations are to the center, top of grate inlet for all 'S' inlets; center, top of concrete slab @ curb line for A-5 and A-10; and center top of manhole cover for precast manholes.
2. Structures I-3, I-13 and M-2 to have granite bottoms.
3. See Grading plans, sheets 5 and 6, for top of structure slopes.

PIPE SCHEDULE		
SIZE	TYPE	LENGTH
6"	HDPE	64.5 LF
15"	HDPE	693 LF
18"	HDPE	1,225 LF
24"	HDPE	774 LF



STORM DRAIN PROFILE

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

OWNER/DEVELOPER
Richmond American Homes of Maryland, Inc.
6200 Old Dobbin Lane
Columbia, Md 21045
410.872.0267

STORM DRAIN PROFILES
HUNTERS RIDGE
LOTS 1 THRU 4, 18 THRU 54, 60 THRU 72
OPEN SPACE LOTS 55 THRU 59 & 73
AND A RESUBDIVISION OF BULK PARCEL 'C'
WESLEY WOODS, SECTION 1, PLAT NO. 14926
TAX MAP 38 GRIDS 4 & 10
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

Note: THIS SHEET SUPERSEDES PREVIOUS PLAN SIGNED SEPTEMBER 2004.

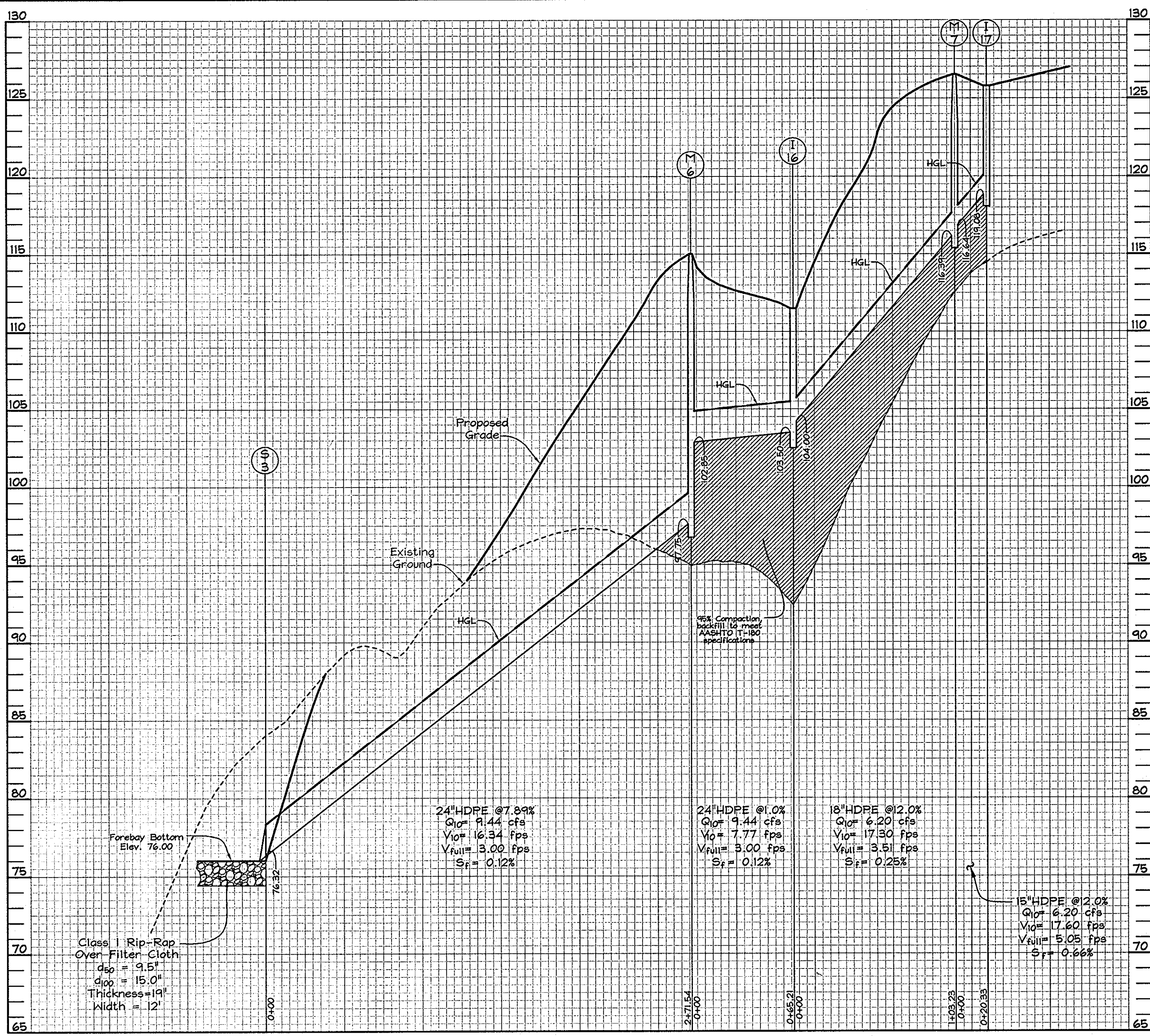
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
[Signature] 4/19/07
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.
[Signature] 4-16-07
CHIEF, BUREAU OF HIGHWAYS DATE

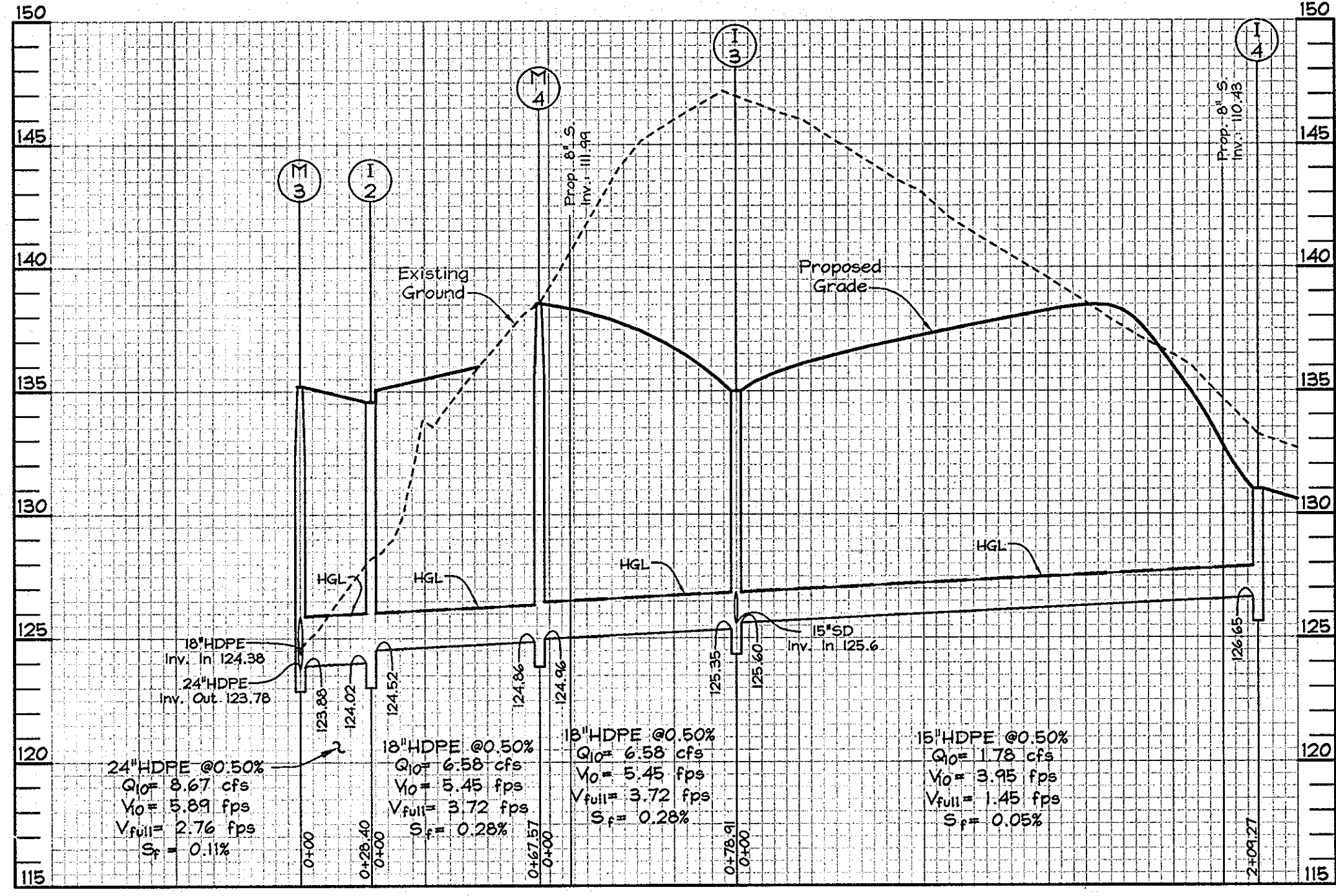
No.	Revisions	Date
1	Revised Title Block.	02/12/2007
2	Revised Lot Areas for Lots 35 thru 39, 55 and 56; Revised BRL on Lots 1 thru 3, 11, 15, 16, 19 thru 21 and 42; Revised Forest Conservation Easement Areas; Added Lot 58.	02/28/2005

DESIGN BY: KO
DRAWN BY: KO
CHECKED BY: ZYF
SCALE: As Shown
DATE: Jan. 23, 2007
W.O. No.: 3018
SHEET No. 11 OF 20

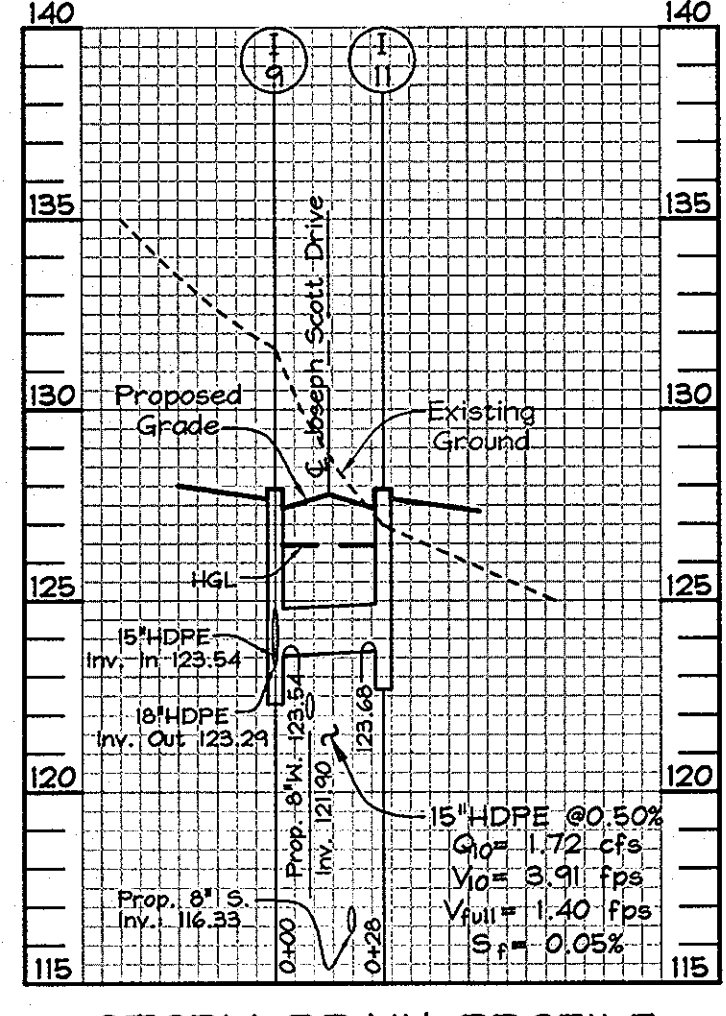
FSH Associates
Engineers Planners Surveyors
8318 Forrest Street
Ellicott City, MD 21043
Tel: 410-750-2251 Fax: 410-750-7350
E-mail: FSHAssociates@cs.com



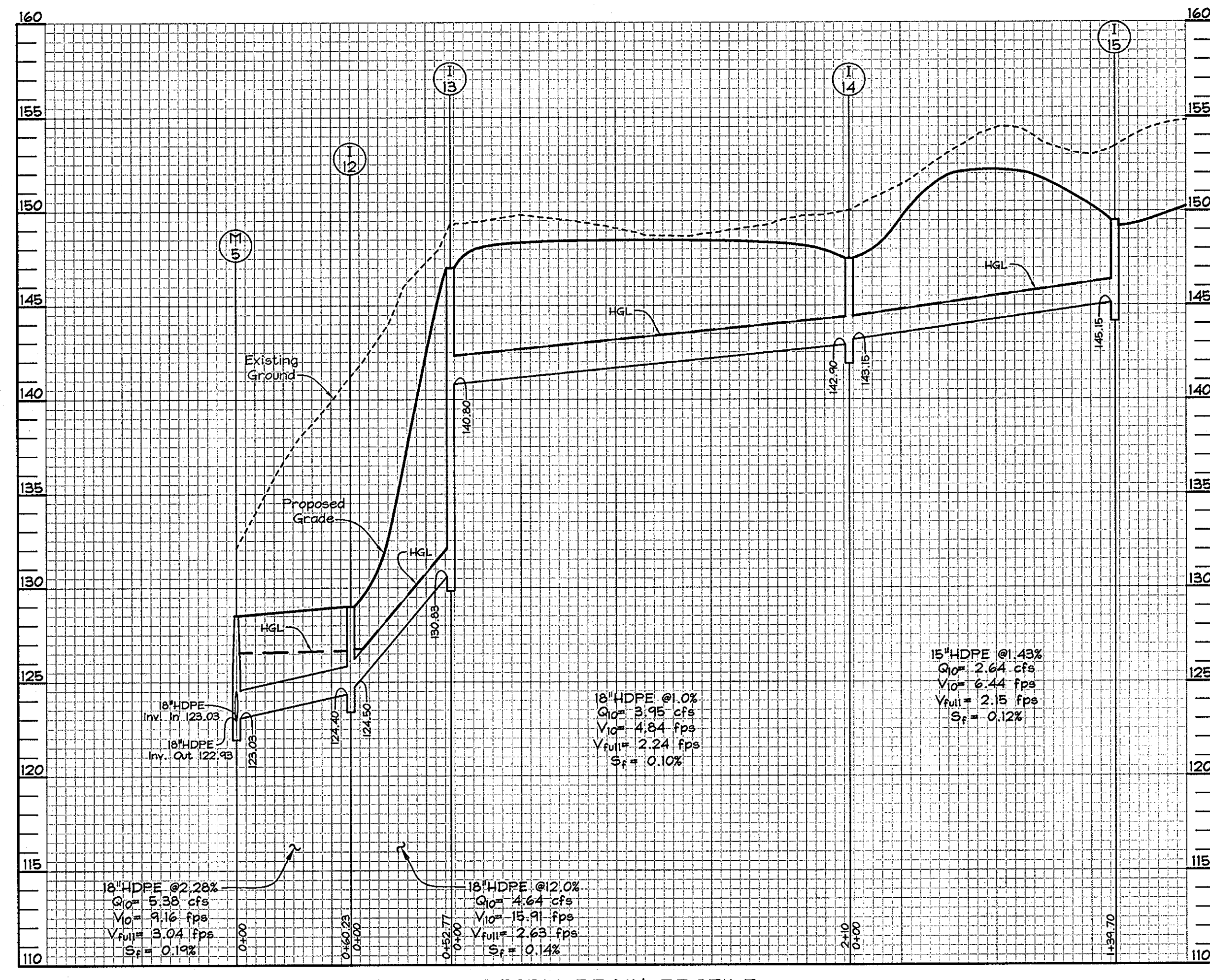
STORM DRAIN PROFILE
SCALE: HOR.: 1"=50'
VERT.: 1"=5'



STORM DRAIN PROFILE
SCALE: HOR.: 1"=50'
VERT.: 1"=5'



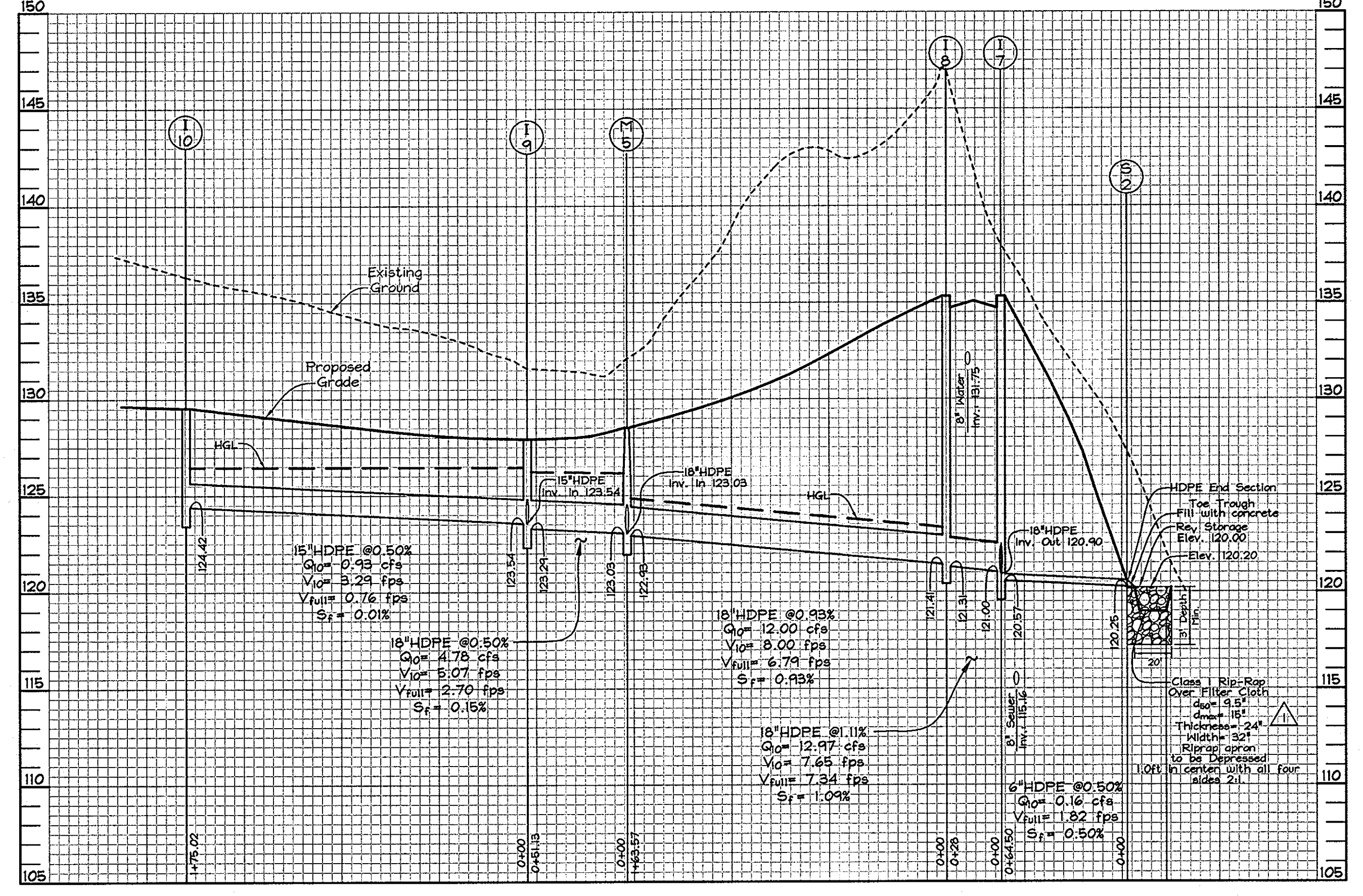
STORM DRAIN PROFILE
SCALE: HOR.: 1"=50'
VERT.: 1"=5'



STORM DRAIN PROFILE
SCALE: HOR.: 1"=50'
VERT.: 1"=5'

Note: THIS SHEET SUPERSEDES PREVIOUS PLAN SIGNED SEPTEMBER 2004.

No.	Revisions	Date
1	Revised Storm Drain Profile 1-10 to 5-2	02/12/2007



STORM DRAIN PROFILE
SCALE: HOR.: 1"=50'
VERT.: 1"=5'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Robert H. ... 4/19/07
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

William R. ... 4/19/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.
William R. ... 4-16-07
CHIEF, BUREAU OF HIGHWAYS DATE

OWNER/DEVELOPER
Richmond American Homes of Maryland, Inc.
6200 Old Dobbin Lane
Columbia, Md 21045
410.872.0267

STORM DRAIN PROFILES
HUNTERS RIDGE
LOTS 1 THRU 4, 18 THRU 54, 60 THRU 72
OPEN SPACE LOTS 55 THRU 59 & 73
AND A RESUBDIVISION OF BULK PARCEL 'C'
WESLEY WOODS, SECTION 1, PLAT NO. 14926

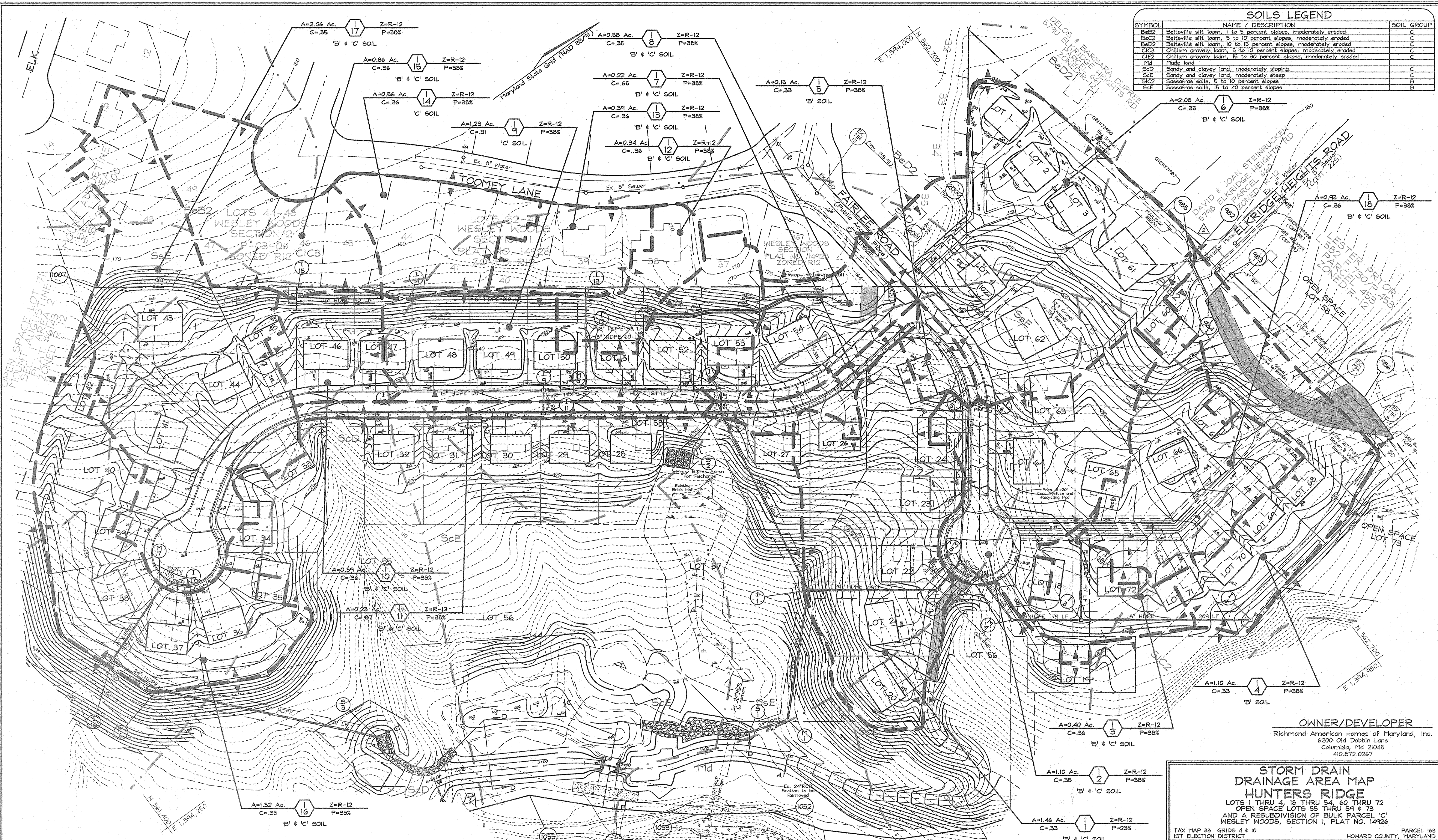
TAX MAP 38 GRIDS 4 & 10 PARCEL 163
1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND



FSH Associates
Engineers Planners Surveyors
9318 Forrest Street, Ellicott City, MD 21043
Tel: 410-750-2251 Fax: 410-750-7350
E-mail: FSHAssociates@cs.com

DESIGN BY: KO
DRAWN BY: KO
CHECKED BY: ZTF
SCALE: As Shown
DATE: Jan. 23, 2007
W.O. No.: 3018
SHEET No. 10 OF 20

SOILS LEGEND		
SYMBOL	NAME / DESCRIPTION	SOIL GROUP
BeB2	Beltville silt loam, 1 to 5 percent slopes, moderately eroded	C
BeC2	Beltville silt loam, 5 to 15 percent slopes, moderately eroded	C
BeD2	Beltville silt loam, 10 to 15 percent slopes, moderately eroded	C
CiC3	Chillum gravelly loam, 5 to 10 percent slopes, moderately eroded	C
Md	Mide land	C
ScD	Sandy and clayey land, moderately sloping	C
ScE	Sandy and clayey land, moderately steep	C
SiC2	Sassafras soils, 5 to 10 percent slopes	B
SeE	Sassafras soils, 15 to 40 percent slopes	B



OWNER/DEVELOPER
 Richmond American Homes of Maryland, Inc.
 6200 Old Dobbin Lane
 Columbia, Md 21045
 410.872.0267

STORM DRAIN DRAINAGE AREA MAP
HUNTERS RIDGE
 LOTS 1 THRU 4, 18 THRU 54, 60 THRU 72
 OPEN SPACE LOTS 55 THRU 59 & 73
 AND A RESUBDIVISION OF BULK PARCEL 'C'
 WESLEY WOODS, SECTION 1, PLAT NO. 14926

TAX MAP 38 GRIDS 4 & 10 PARCEL 163
 1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

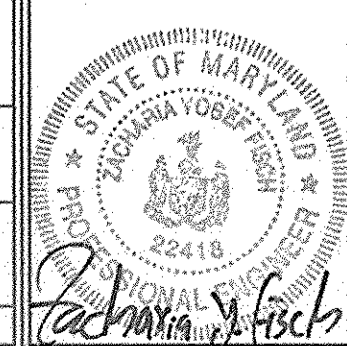
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[Signature] 4/19/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 4/19/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.
[Signature] 4-16-07
 CHIEF, BUREAU OF HIGHWAYS DATE

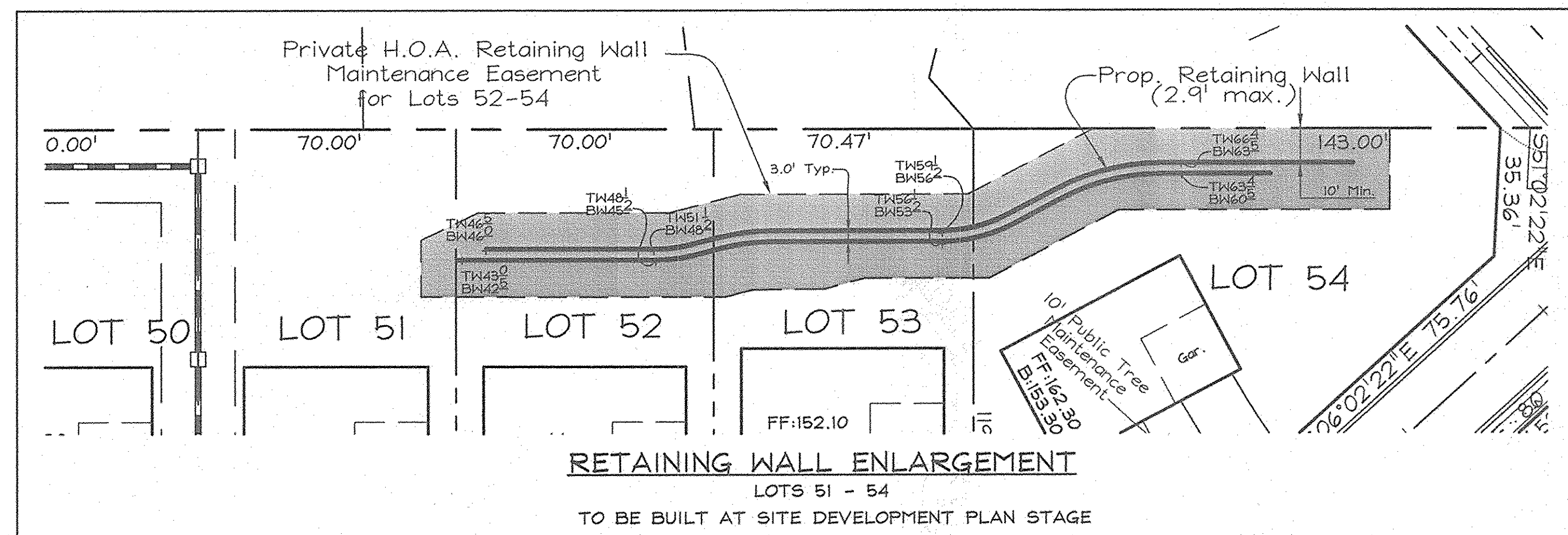
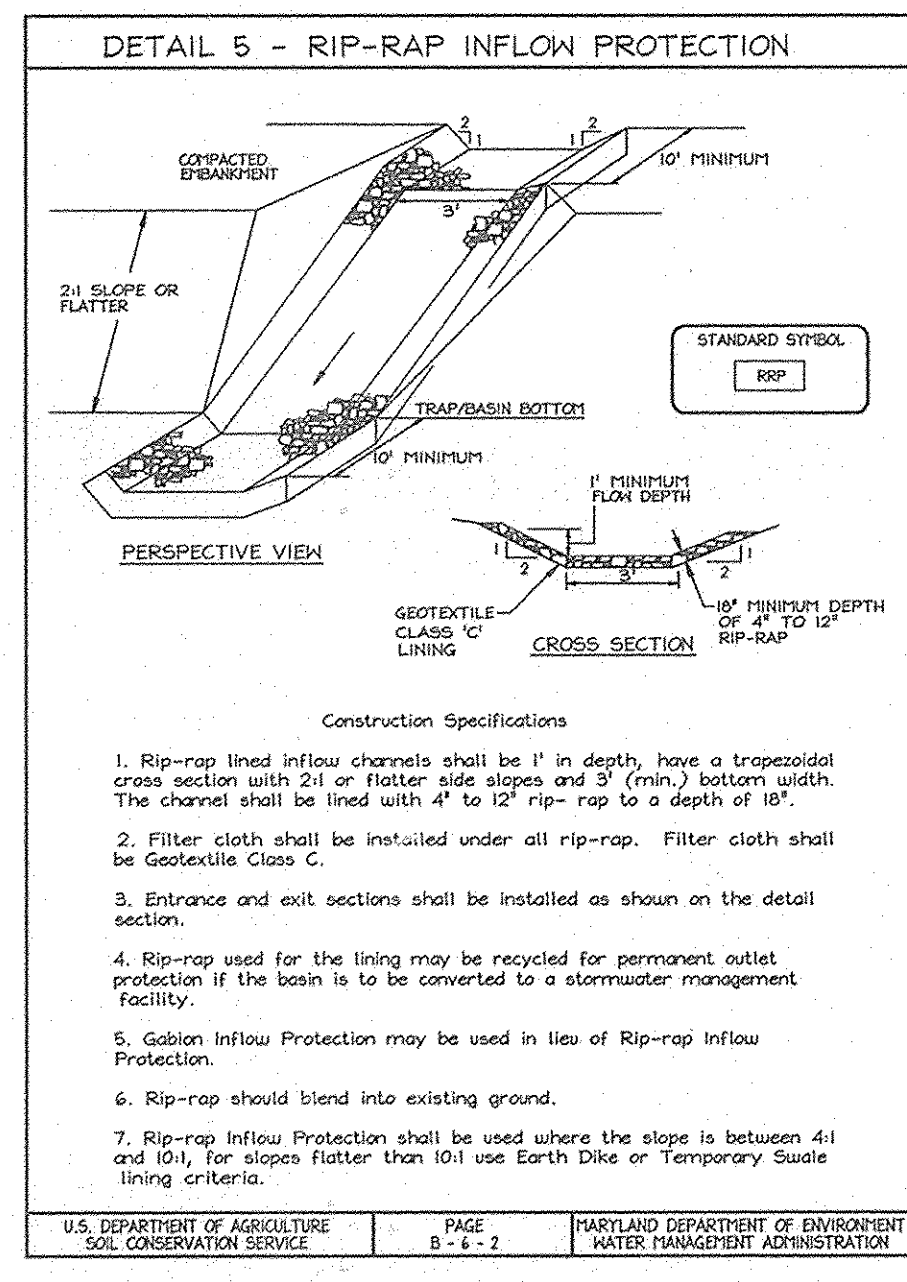
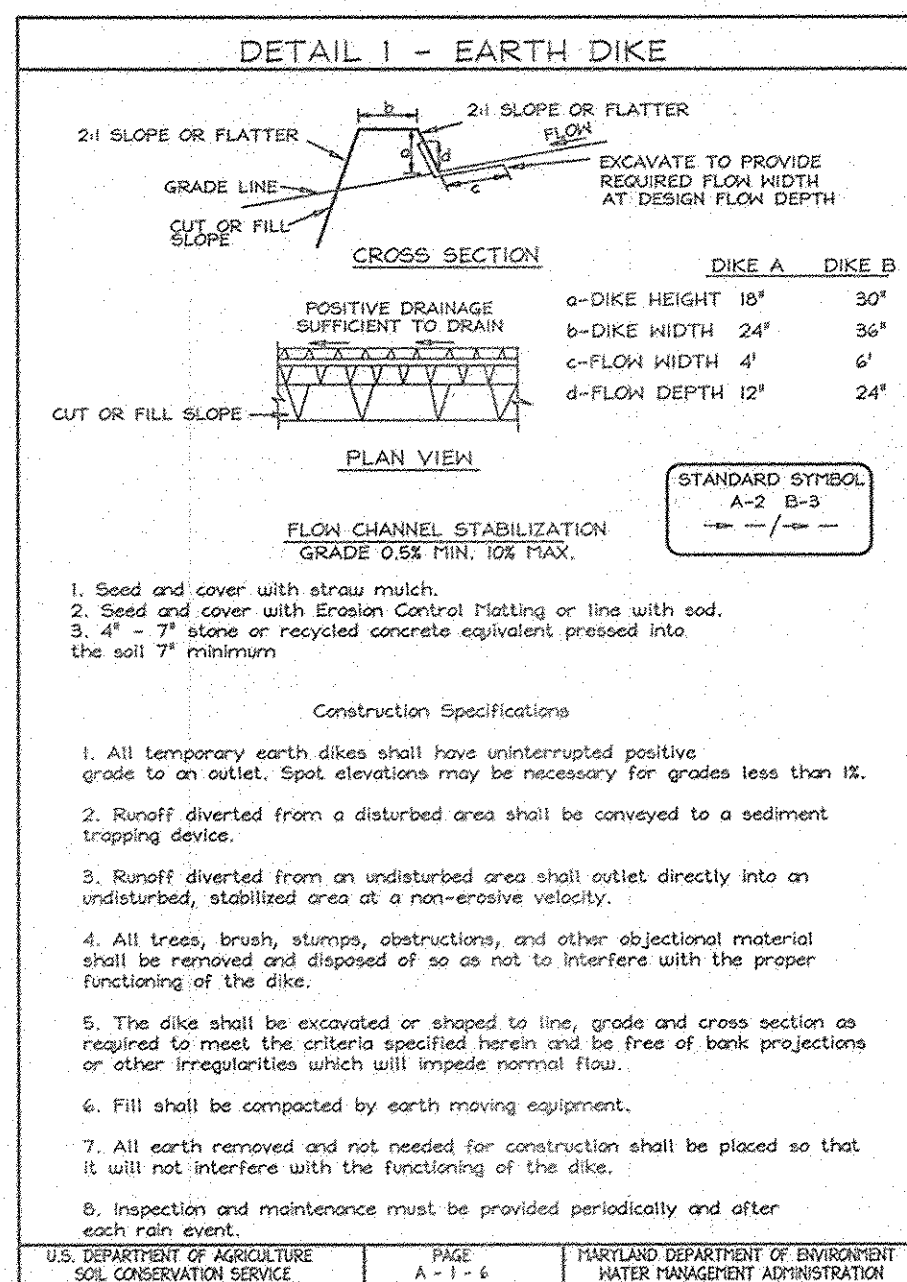
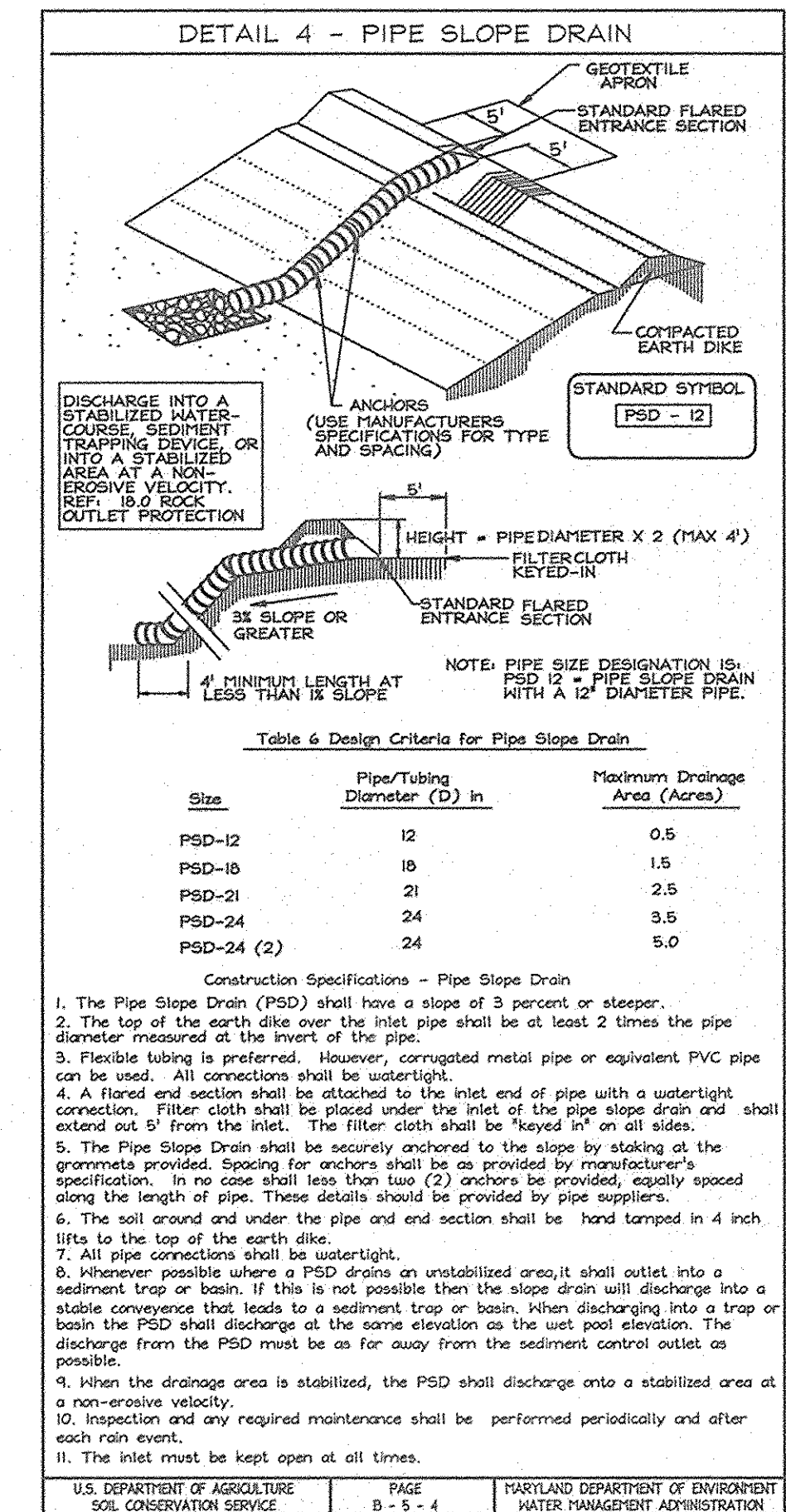
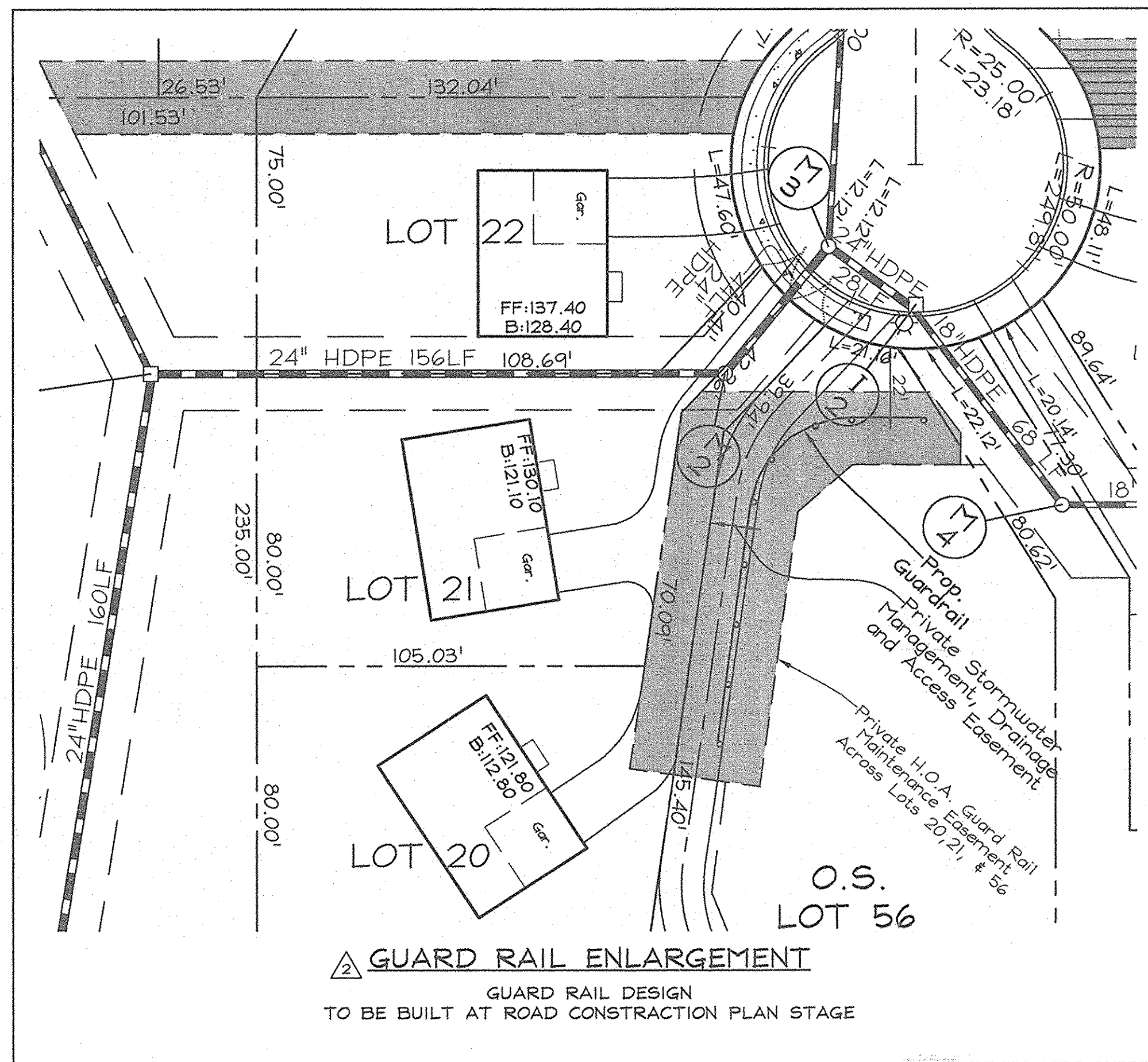
Notes:
 THIS SHEET SUPERSEDES PREVIOUS PLAN SIGNED SEPTEMBER 2004.

No.	Revisions	Date
1	Revised Lots and Lot Numbers, Revised Drainage Divides, Deleted Retaining Walls and Easements, Re-Subdivided Lot 5, Revised Easements.	02/12/2007
2	Revised Lot Areas for Lots 35 thru 39, 55 and 56; Revised ERL on Lots 1 thru 3, 11, 15, 16, 19 thru 21 and 42; Revised Forest Conservation Easement Areas, Added Lot 58.	02/25/2005



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DESIGN BY: PS/KO
 DRAWN BY: MM/KO
 CHECKED BY: ZYF
 SCALE: 1"=50'
 DATE: Mar. 21, 2007
 N.O. No.: 301B
 SHEET No.: 9 OF 20

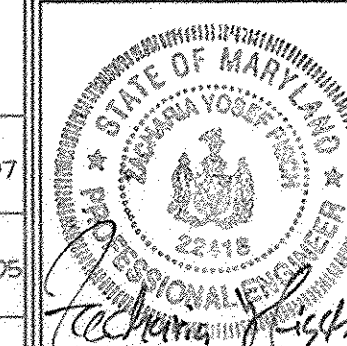


OWNER/DEVELOPER
 Richmond American Homes of Maryland, Inc.
 6200 Old Dobbin Lane
 Columbia, Md 21045
 410.872.0267

RETAINING WALL ENLARGEMENTS and SEDIMENT AND EROSION CONTROL DETAILS HUNTERS RIDGE
 LOTS 1 THRU 4, 18 THRU 54, 60 THRU 72
 OPEN SPACE LOTS 55 THRU 59 & 73
 AND A RESUBDIVISION OF BULK PARCEL 'C' WESLEY WOODS, SECTION 1, PLAT NO. 14926
 TAX MAP 38 GRIDS 4 & 10 PARCEL 163
 1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

Note: THIS SHEET SUPERSEDES PREVIOUS PLAN SIGNED SEPTEMBER 2004.

No.	Revisions	Date
1	Removed Retaining Wall Enlargement Details. Relabeled Easement.	02/12/2007
2	Revised Lot Areas for Lots 35 thru 39, 55 and 56; Revised BRL on Lots 1 thru 3, 11, 15, 16, 19 thru 21 and 42; Revised Forest Conservation Easement Areas; Added Lot 58.	02/26/2005



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DESIGN BY: PS/KO
 DRAWN BY: MM/KO
 CHECKED BY: ZYF
 SCALE: 1"=30'
 DATE: Jan 23, 2007
 H.O. No.: 3018
 SHEET No. 8 OF 20

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

John J. ... 4/17/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

William J. ... 4/19/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

William J. ... 4/16/07
 CHIEF, BUREAU OF HIGHWAYS DATE

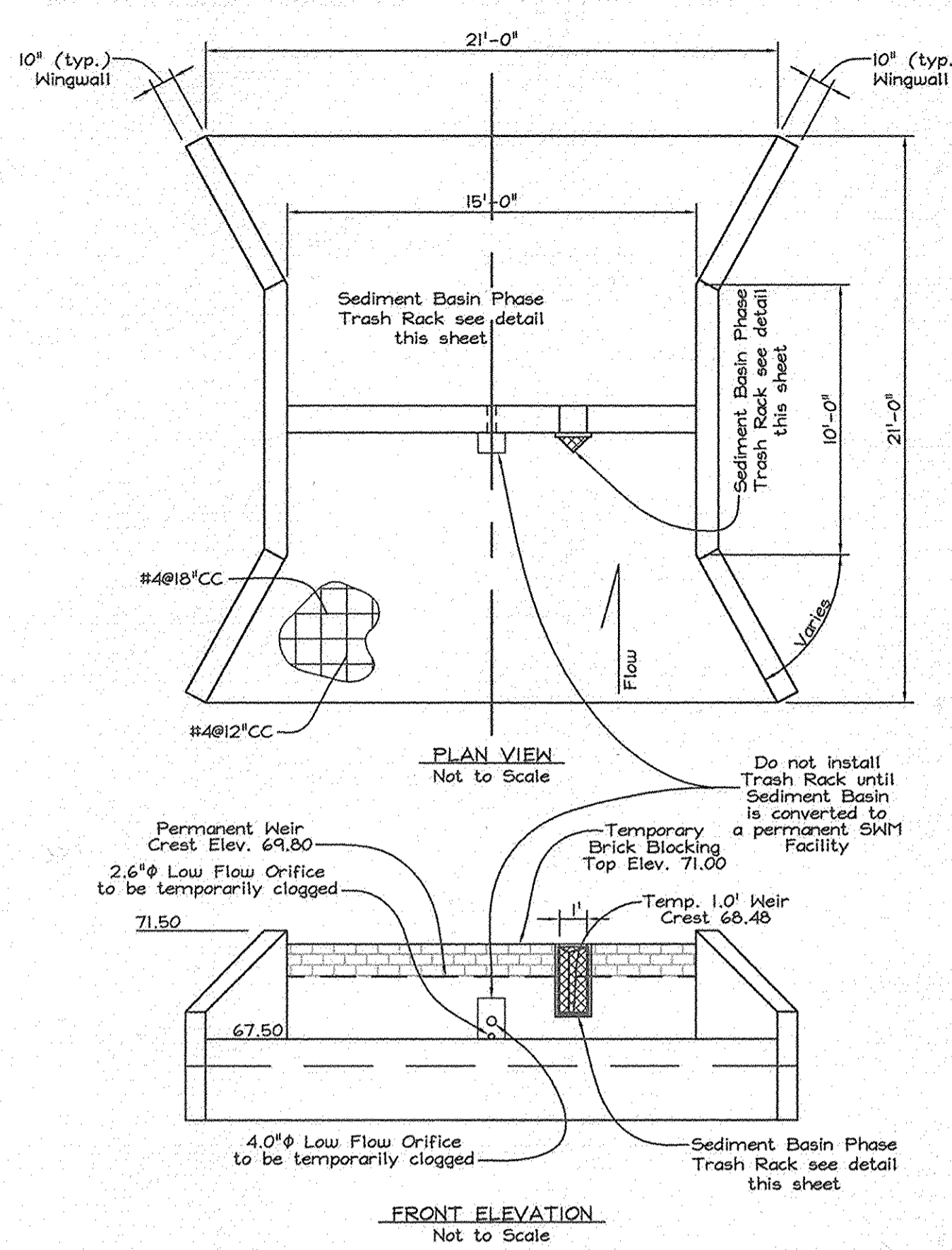
SEQUENCE OF CONSTRUCTION

- Obtain grading permit and contact Howard County Sediment Control Inspector (SCI) to arrange a preconstruction meeting. (1 Day)
- Install Stabilized Construction Entrance at Fairlee Road as access point for construction. (1 Day)
- Clear and grub as necessary for installation of sediment control features, including super silt fences, earth dikes, silt drains, and sediment basins.
- Install silt fence, super silt fence, forebays and CS-1 for sediment basin use preconstruction. 0.0' weir opening and temporary brick and mortar blocking per detail this sheet. (2 Weeks)
- Clear and grub site and install earth dikes and pipe slope drains to convey runoff to basin. Note that earth dikes to be adjusted as grading and filling progresses on a daily basis. *
- With permission of SCI, begin road and lot grading. (2 Weeks)
- Grade roads and lots to subgrade and install storm drain system and grass channels to be used for runoff conveyance to basin, and construct retaining wall. (4 Weeks)
- Pave roadways and apply permanent stabilization to all disturbed areas. (2 Weeks)
- With permission of SCI, remove all silt fences/super silt fences and stabilize those areas. (1 Week)
- Flush storm drains of sediment. Convert sediment/stormwater basin to permanent SWM (CS-1). Decauser and remove accumulated sediment blocking devices on weir, construct permanent weir to proposed elevation, install trash rack, fine grade bottom to proposed elevations and apply permanent seeding and mulching to disturbed areas. (1 week)
- Remove earth dikes and pipe slope drains where storm drains are in-place to convey runoff to basin.
- Contractor to provide temporary stabilization to perimeter slopes within 7 days of grading or as directed by Howard County Sediment Control Inspector.

HUNTERS RIDGE SWM SUMMARY TABLE

Category	Volume Required	Volume Provided	Notes
Water Quality Volume (WQV)	0.5 Ac. Ft.	0.86 Ac. Ft.	0.36 Ac. Ft. stored in micro pool with 0.25 Ac. Ft. of extended detention.
Recharge Volume/Area (ReV/ReA)	0.92 Ac. Ft. 0.99 Ac.	1.0 Ac. Ft.	See Note below
Channel Protection Volume (CpV)	33,106 cu. ft.	33,106 cu. ft.	1/2 incoming volume is detained for 18.48 hrs.
Overbank Flood Protection (OpV)	N/A	N/A	Not Required
Extreme Flood Volume (ExV)	N/A	N/A	Not Required

Notes:
Recharge area (ReA) treatment provided for lots 12-17, 1/2 lot 18, 1/2 lot 35 and all of lots 36-39 thru grass channels at average slopes of 4%.
Sheet Flow to Buffer credit taken for lot II and 1/2 of lot 19.
Dry well treatment provided for lots 43-54. (Dry wells at downspouts provided).



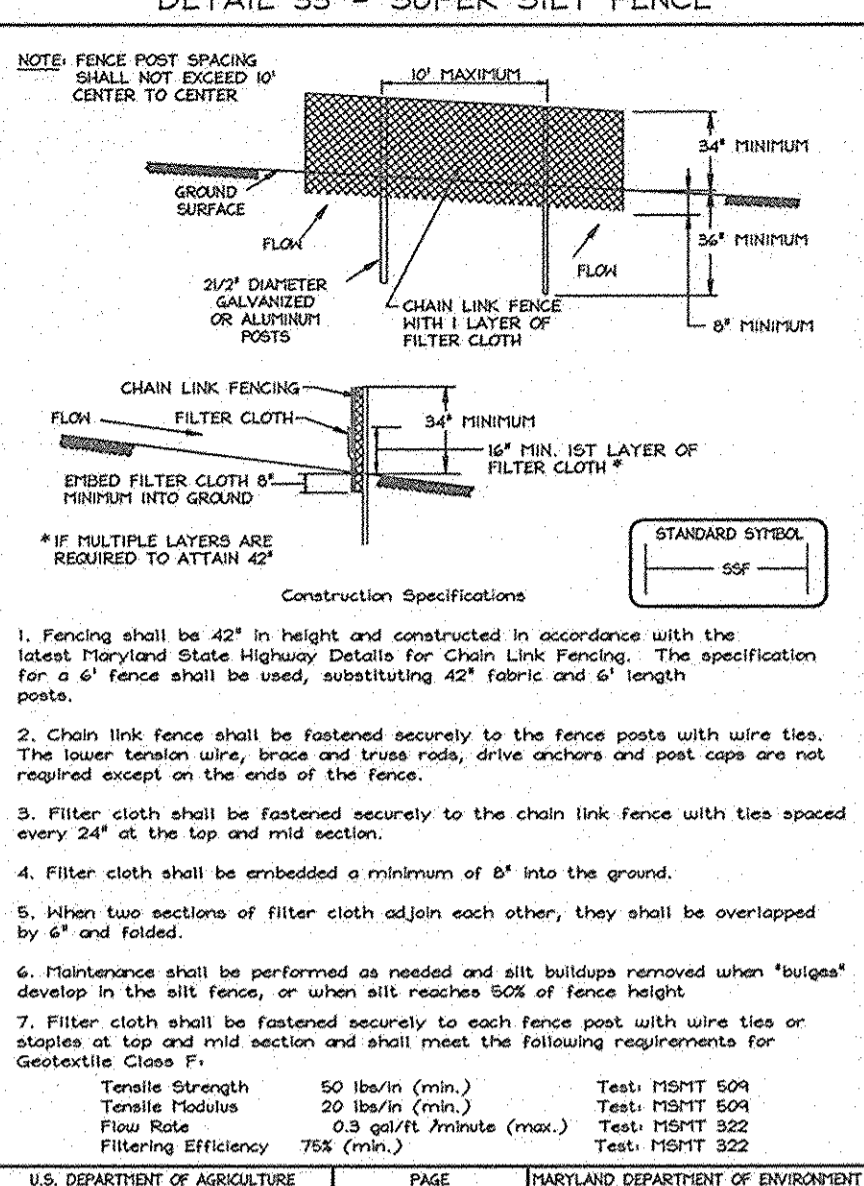
CS-1 CONCRETE WEIR CONTROL STRUCTURE MODIFICATIONS FOR SEDIMENT CONTROL

NOTE: NOT TO SCALE
Contractor shall form up a 1.0' wide temporary weir notch in the weir wall at crest elevation 69.45, providing a 2'x2' keyway. Contractor shall extend permanent weir crest to elevation 71.0 using brick and mortar, leaving a 1.0' wide opening to elevation 69.45. Once Sediment Control Measures are removed, these modifications shall be removed and the 1' wide weir shall be formed and poured to the permanent weir crest elevation (69.80).

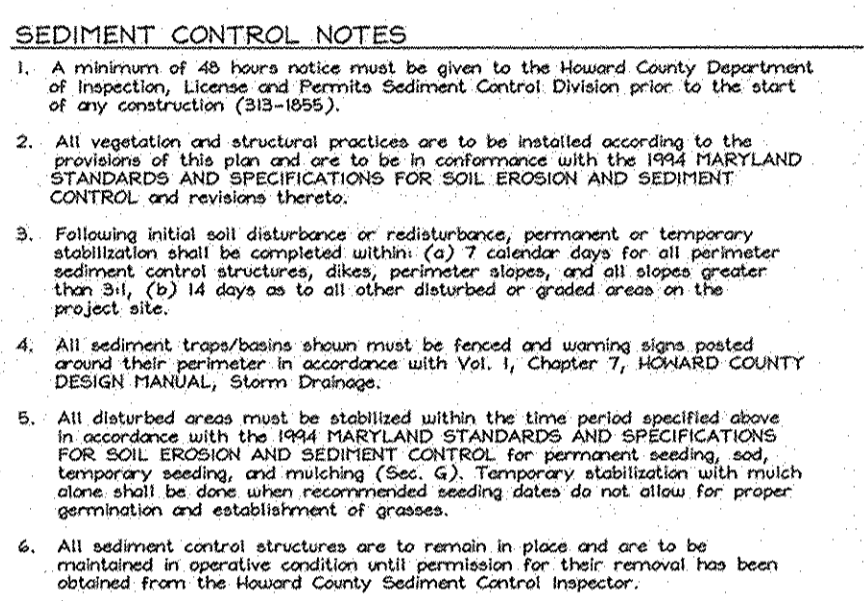
21.0 STANDARDS AND SPECIFICATIONS FOR TOPSOIL

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, moderate toxic to plants, and/or unacceptable soil gradation.
Conditions Where Practice Applies:
1. This practice is limited to areas having 21 or flatter slopes where:
a. The texture of the exposed subsoil/parent material is not adequate to produce vegetable 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 plants.
d. The soil is so acidic that treatment with limestone is not feasible.
2. For the purpose of these Standards and Specifications, areas having slopes steeper than 21 require special consideration and design for adequate stabilization. Areas having slopes steeper than 21 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-NRCS in cooperation with Maryland Agricultural Experiment Station.
II. Topsoil Specifications - Soil to be used as topsoil must meet the following:
1. Topsoil shall be a loamy, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or a soil scientist and approved by the appropriate authority. Topsoil shall not be a mixture of contrasting textures, subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, twigs, or other materials larger than 1 and 1/2" in diameter.
2. Topsoil must be free of plants or plant parts such as Bermuda grass, quackgrass, Johnsongrass, nutgrass, poison ivy, thistle, or others as specified.
3. Where the subsoil is either highly acidic or composed of heavy clay, 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. The limestone shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.
4. For sites having disturbed areas under 5 acres:
a. Place topsoil (if required) and apply soil amendments as specified in 2.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.
b. On all meeting topsoil specifications, obtain test results indicating fertilizer time amendments required to bring the soil into compliance with the following:
i. pH for topsoil use between 6.0 and 7.0.
ii. Total Nitrogen shall be a minimum of 0.2% by weight.
iii. Phosphorus shall be a minimum of 15 ppm by weight.
iv. Potassium shall be a minimum of 150 ppm by weight.
c. Organic content of topsoil shall be not less than 1% by weight.
d. Topsoil having soluble salt content greater than 0.1% shall not be used.
e. No soil or seed shall be placed on soil which has been treated with soil sterilants or fumigants used for weed control until sufficient time has elapsed (14 days) for the fumigant or sterilant to break down to non-toxic levels.
f. Topsoil substitute amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate authority, shall be used.
III. Place topsoil (if required) and apply soil amendments specified in 2.0 Vegetative Stabilization Methods and Materials.
V. Topsoil Application
1. When topsoiling, maintain needed erosion and sediment control measures in place until the topsoil is stabilized. Structures, Earth Dikes, Slope Silt Fence and Sediment Traps and Basins.
2. Grades on the areas to be topsoiled, which have been previously established, shall be maintained. A 2' - 8' higher in elevation.
3. Topsoil shall be uniformly distributed in a 4" - 6" layer and lightly compacted to a minimum hardness of 4'. Spreading shall be performed in such a manner that sodding or seeding can proceed with a minimum additional 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.
4. 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 be detrimental to proper grading and seedbed preparation.
PERMANENT SEEDING NOTES
APPLY TO GRADED OR CLEARED AREAS NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT COVERED VEGETATIVE COVER IS REQUIRED.
SEEDBED PREPARATION: Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, if not previously done.
SOIL AMENDMENTS: Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, if not previously done.
1) Fertilizer-Applied 2 tons per acre dolomitic limestone (40 lbs/1000 sq.ft.) and 50 lbs/1000 sq.ft. of urea (14 lbs/1000 sq.ft.) before seeding. Harrow or disc into upper three inches of soil. At the time of seeding, apply 500 lbs. per acre 20-0-0 urea-form fertilizer (14 lbs/1000 sq.ft.).
2) Ammoniac-Applied 2 tons per acre dolomitic limestone (40 lbs/1000 sq.ft.) and apply 500 lbs. per acre 10-10-10 fertilizer (20 lbs/1000 sq.ft.) before seeding. Harrow or disc into upper three inches of soil.
SEEDING: For the periods March 1 thru April 30, and August 1 thru October 15, seed with 2 1/2 bushels per acre of grass (0.2 lbs./1000 sq.ft.) For the period May 1 thru July 31, seed with 60 lbs. per acre of urea (14 lbs/1000 sq.ft.) of urea-form fertilizer. During the period of October 1 thru February 28, protect site by applying 2 tons per acre well anchored straw mulch and seed as soon as possible in the spring. (2) Use seed, 0.0000 (3) Seed with 10 lbs/acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre well anchored straw.
MULCHING: Apply 1 1/2 to 2 tons per acre (70 to 140 lbs./1000 sq.ft.) of untreated small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 250 gallons per acre (5 gal/1000 sq.ft.) of emulsified asphalt on flat areas. On slopes 6 feet or higher, use 348 gallons per acre (6 gal/1000 sq.ft.) for anchoring.
MAINTENANCE: Inspect all seeded areas and make needed repairs, replacements and reseedings.
TEMPORARY SEEDING NOTES
SEEDBED PREPARATION: Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, if not previously done.
SOIL AMENDMENTS: Apply 600 lbs. per acre 10-10-10 fertilizer (14 lbs./1000 sq.ft.).
SEEDING: For periods March 1 thru April 30, and from August 1 thru November 15, seed with 2 1/2 bushels per acre of grass (0.2 lbs./1000 sq.ft.) For the period May 1 thru August 14, seed with 3 lbs. per acre of urea (14 lbs/1000 sq.ft.) of urea-form fertilizer. During the period of October 1 thru February 28, protect site by applying 2 tons per acre well anchored straw mulch and seed as soon as possible in the spring, or use seed.
MULCHING: Apply 1 1/2 to 2 tons per acre (70 to 140 lbs./1000 sq.ft.) of untreated small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 250 gallons per acre (5 gal/1000 sq.ft.) of emulsified asphalt on flat areas. On slopes 6 feet or higher, use 348 gallons per acre (6 gal/1000 sq.ft.) for anchoring.
REFER TO THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.

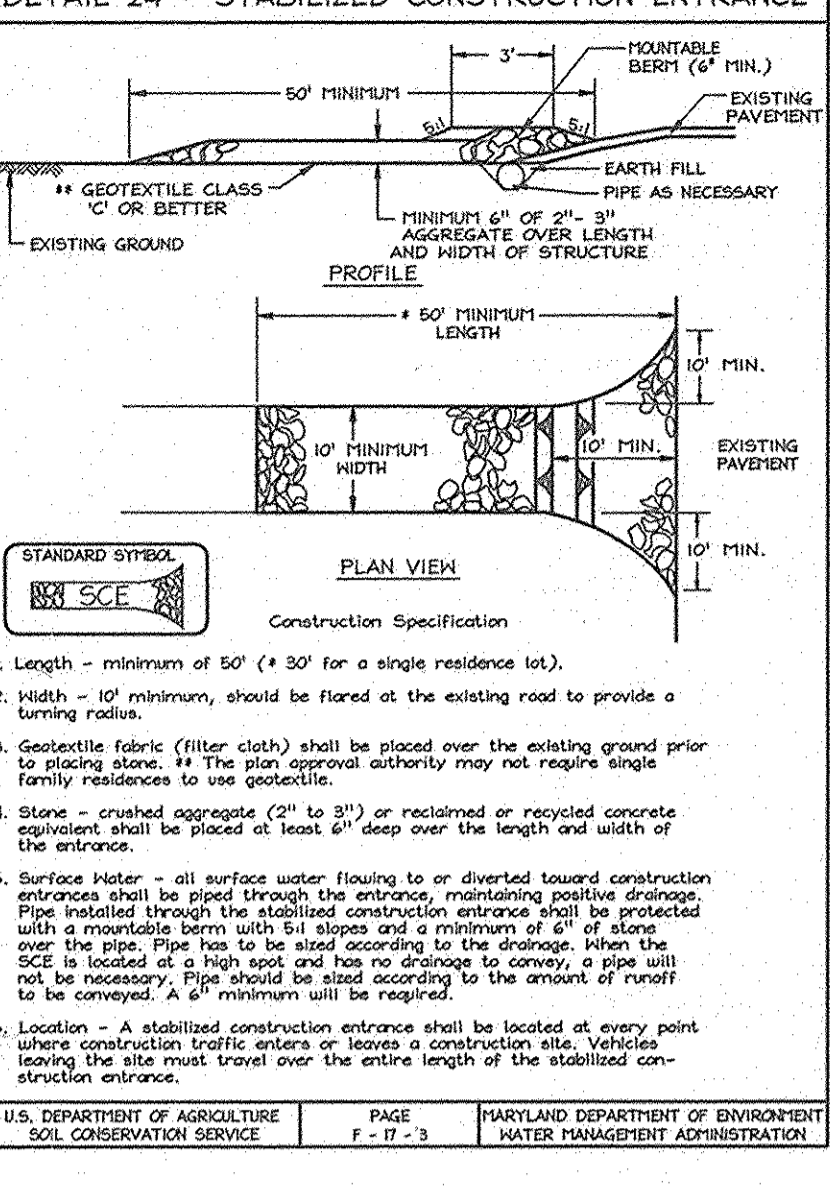
DETAIL 33 - SUPER SILT FENCE



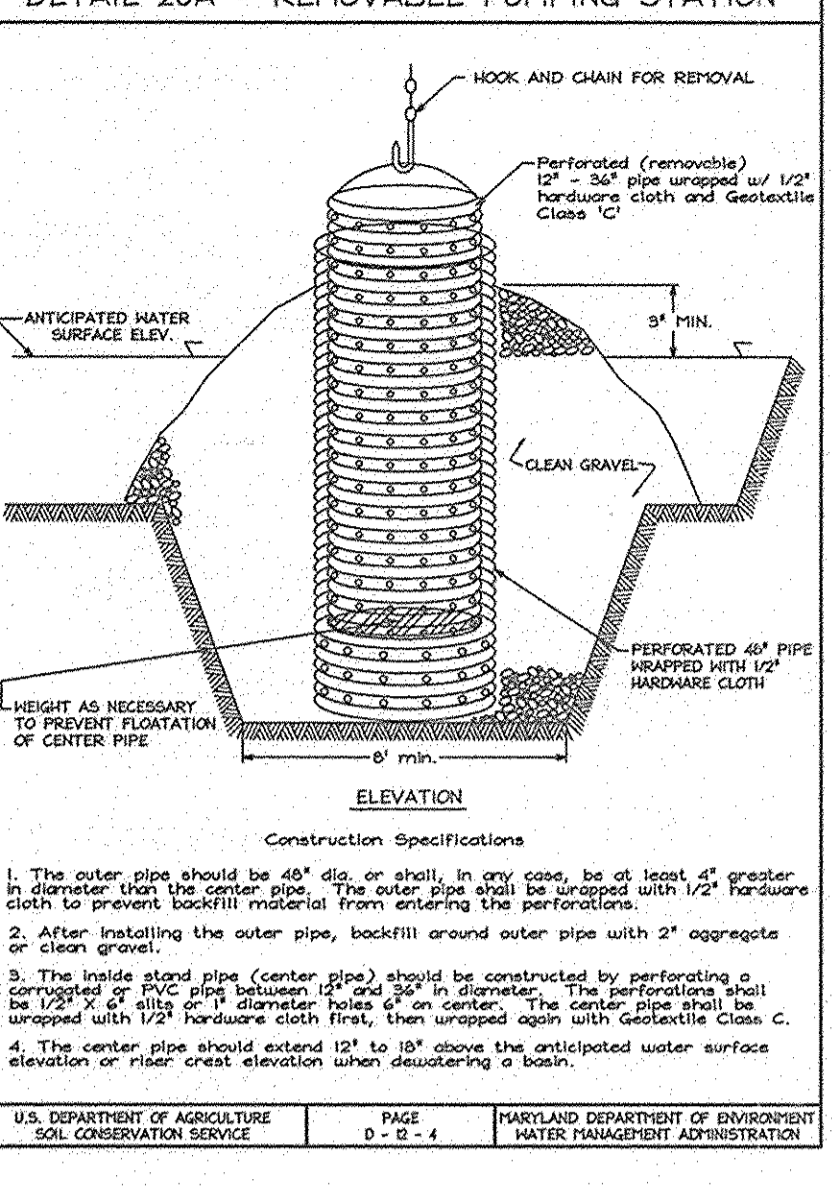
DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE



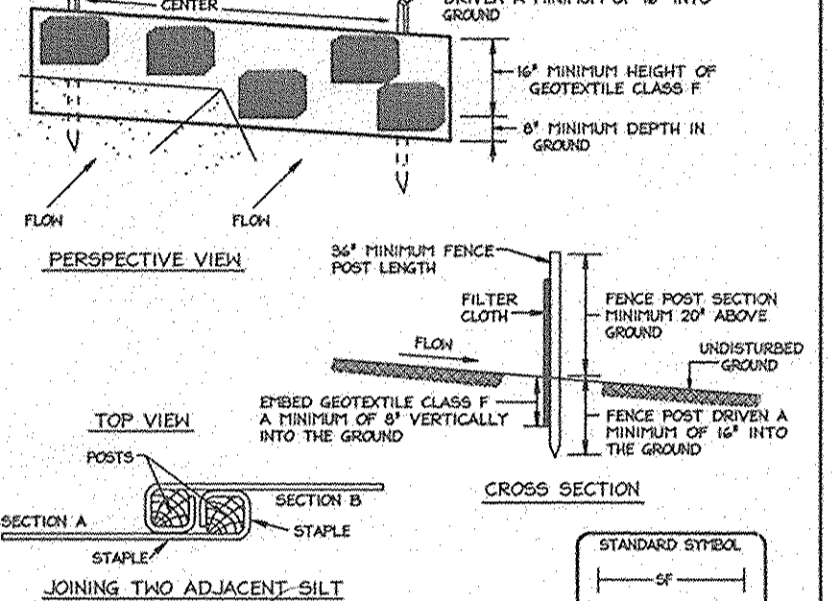
DETAIL 20A - REMOVABLE PUMPING STATION



DETAIL 30 - EROSION CONTROL MATTING



DETAIL 22 - SILT FENCE

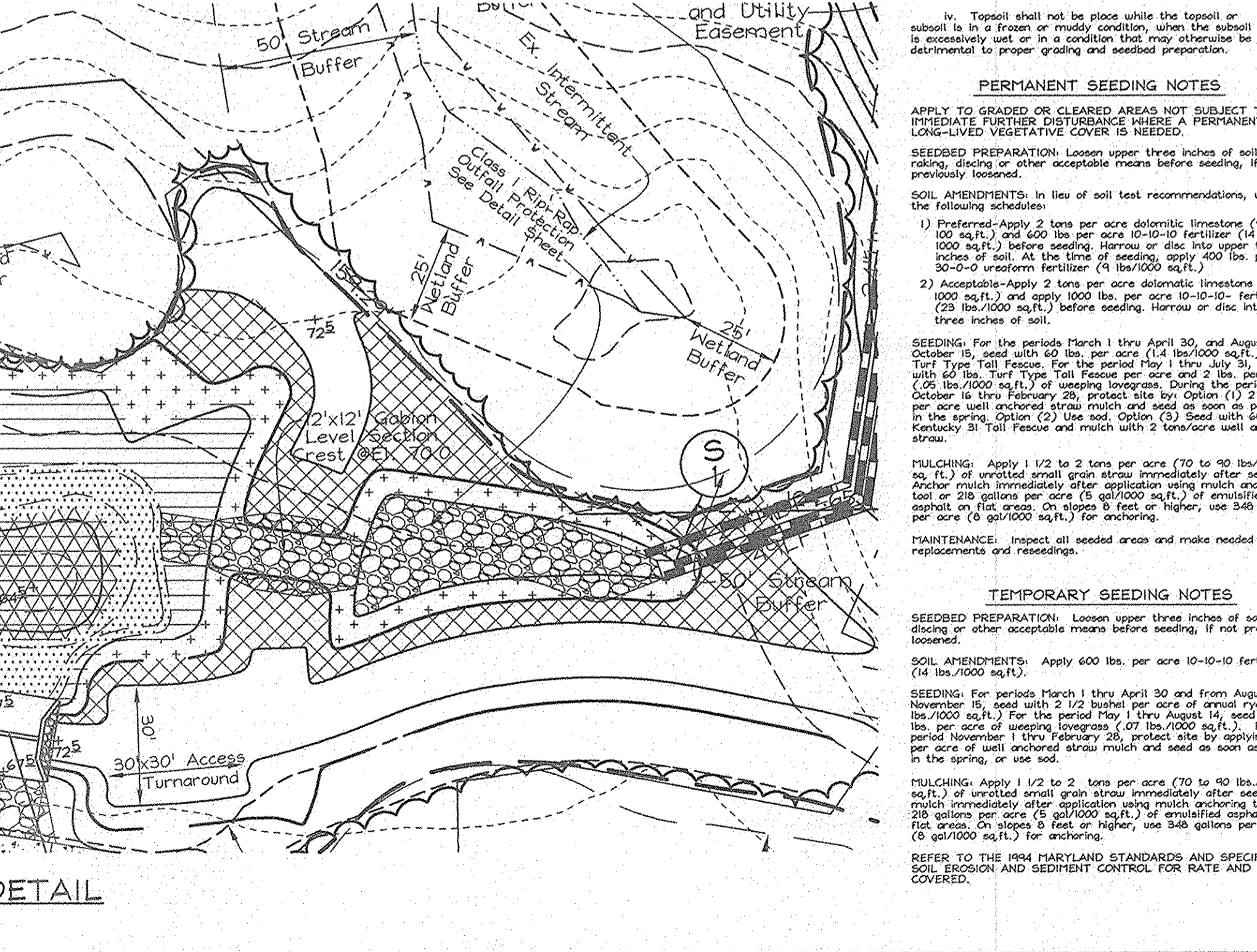
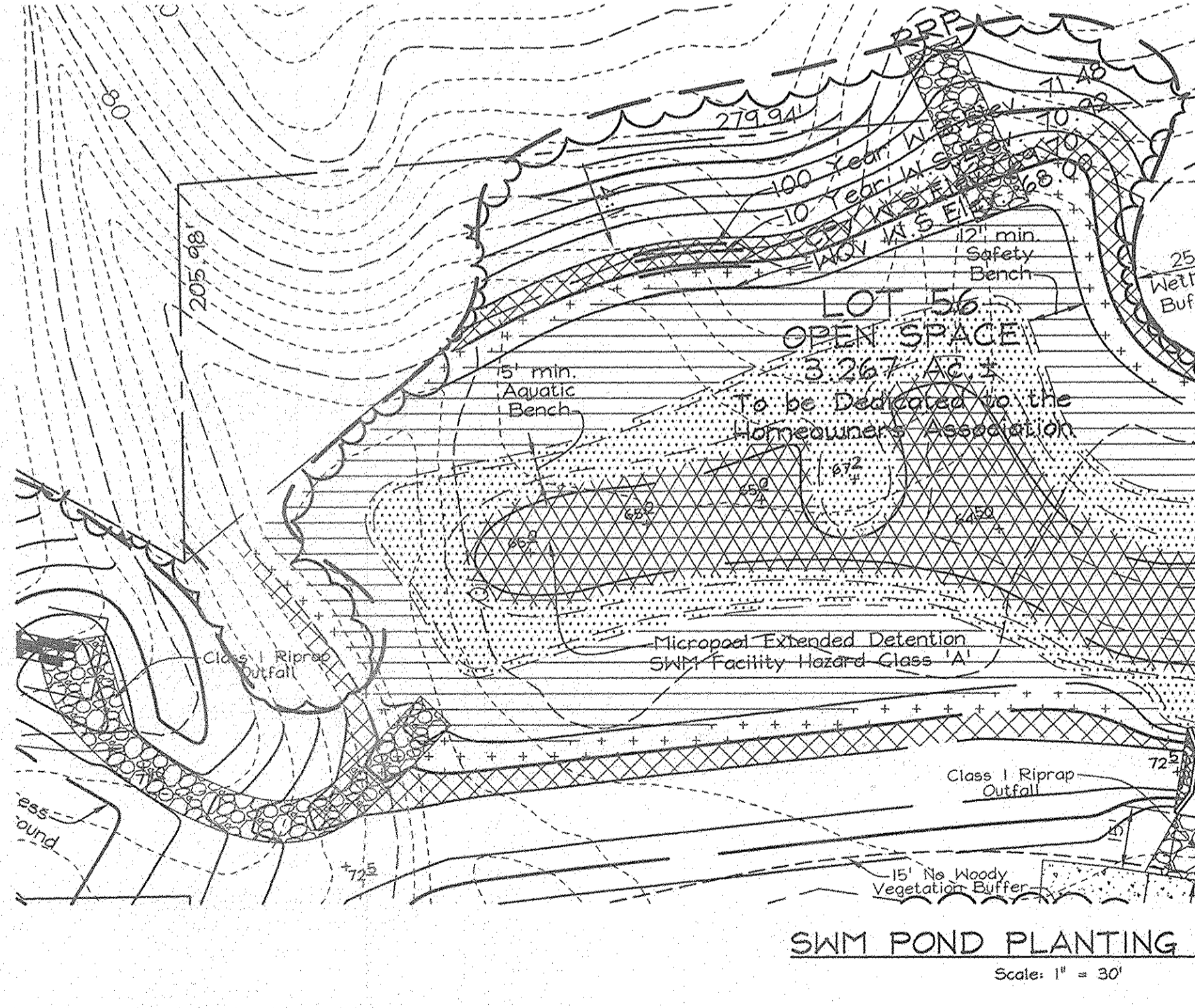


LEGEND

(SWM Facility Hydrologic Zones Planting Requirements)

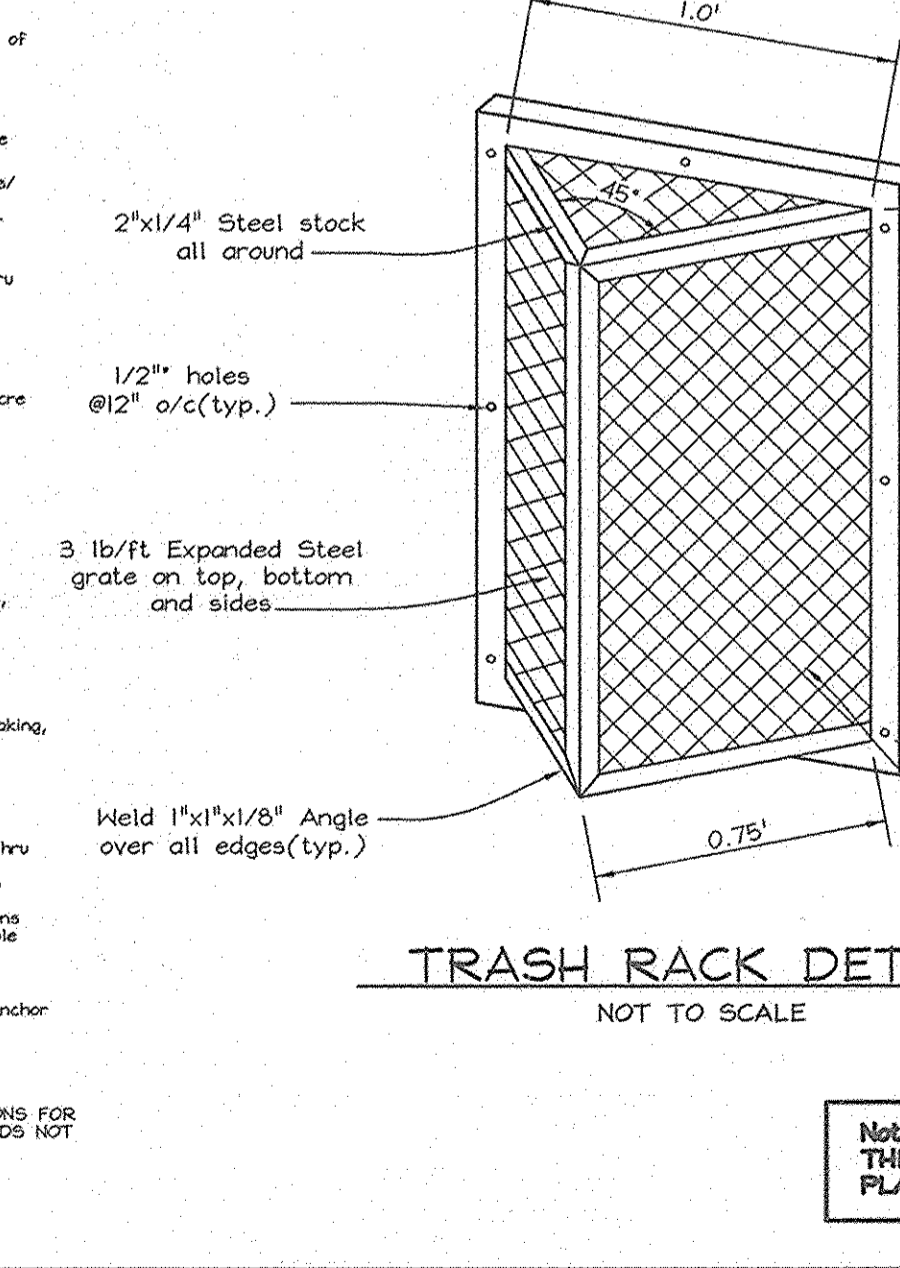
Zone	Planting Requirements
Zone 1 - 6406 s.f. - 12"-36" depth below normal pool elevation	Picklerweed, Deep Water Duck Potato, Sago Pond Plant, Wild Celery, Redhead Grass. Plugs or bare root at 24" centers.
Zone 2 - 7177 s.f. - 0"-12" depth below normal pool elevation	Duck Potato, Flowering Bulrush, Smartweed, Labelle, Pond Cypress, various asters. Plugs or bare root at 24" centers.
Zone 3 - 11236 - 0"-12" elevation above normal pool elevation	New England Aster, Marsh Aster, Marsh Marigold (Appalachian Plateau), Tussock Sedge, Spotted Joe Pye Weed, Forget Me Not, Inkberry, Purple, Red Osier Dogwood, Seed Mix Only
Zone 4 - 4488 s.f. - 1' to Cpv water surface elevation	Purple Cone Flower, Birds Foot Trefoil, Slender Rush, Deer Tongue Grass, Leopards, Switch Grass, Serviceberry, Gray Birch, Hackberry, Sweet Pepper, Bush (Coastal Plain), Gray Stern Dogwood, Red Osier Dogwood, Green Ash, Seed Mix with potted stock (No trees/shrubs on dam slopes).*
Zone 5 - Cpv to Op100 water surface elevation	(Many wildflowers and native grasses) American Holly, Hitch Hazel, Nisibark, Red Oak, American Elderberry, American Hornlock, Loubush, Blueberry, Maple Leaf Viburnum, Nannyberry, Blackhaw Viburnum, Seed Mix with potted stock (No trees/shrubs on dam slopes).*
Zone 6 - Op100 water surface elevation and above	This area will be planted, where necessary, as part of forest conservation obligations. Many Natives. All species must be able to tolerate flood plain conditions. Native Grasses. Seed Mix with potted stock (No trees/shrubs on dam slopes).*

* Plant mix of 3 potted stock species at density of 2 / 1000 s.f. area.



SEDIMENT CONTROL NOTES

- A minimum of 48 hours notice must be given to the Howard County Department of Inspection, License and Permits Sediment Control Division prior to the start of any construction (318-1995).
- All vegetation and structural practices are to be installed according to the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, and revised thereto.
- Following initial soil disturbance or redistribution, permanent or temporary stabilization shall be completed within (3) 7 calendar days for all permanent sediment control structures, dikes, perimeter pipes, and all slopes greater than 3:1, (6) 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. I, Chapter 7, HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
- 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, soil temporary seeding, and mulching (Sec. 2). Temporary stabilization with mulch alone shall be done when recommended seeding does not allow for proper germination and establishment of grasses.
- All sediment control structures are to remain in place and one 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 26.66 Acres
Area Disturbed 17.68 Acres
Area to be reseed or paved 1.32 Acres
Area to be vegetatively stabilized 1.32 Acres
Total Fill 91.06 CU. YD.
Office waste/terrace area location *
- Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
Additional sediment controls must be provided, if deemed necessary by the Howard County Sediment Control Inspector.
- On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion control structures and mulching (Sec. 2). Temporary stabilization with mulch alone shall be done when recommended seeding does not allow for proper germination and establishment of grasses. Other building or grading inspection approvals may not be substituted until this initial approval is made.
- Trenches for the construction of utilities is limited to three pipe lengths or that which shall be back-filled and stabilized within one working day, whichever is shorter.
- To be determined by contractor, with pre-approval of the Sediment Control Inspector with an approved active grading permit.
- *Total cut and fill quantities are for permit purposes only. Contractor to verify earthwork quantities.



NOTES FOR TEMPORARY TRASH RACK

- (To be used on Temporary Weir during Sediment Basin Phase only.)
- Trash rack to be centered over opening.
 - Steel to conform to ASTM A-36.
 - All surfaces to be coated with ZRC cold galvanizing compound after welding.
 - Trash rack to be fastened to the wall with 1/2" masonry anchors. Trash rack to be removable.
 - Where one rail of matting ends and another begins, the end of the top strip shall overlap the upper end of the lower strip by 4", slapping friction. Reinforce the overlap with a double row of staples spaced 2' apart in a staggered pattern on either side.
 - The discharge end of the matting liner should be similarly secured with 2 double rows of staples.
- Notes: If flow will enter from the edge of the matting then the area affected by the flow must be knee-kick.

SEDIMENT BASIN SCHEDULE (CS-1)

Drainage Area	Storage Required	Volume Provided	Weir Length
22.23 Ac.	40,014 cu.ft. wet & dry	40,014 cu.ft. wet & dry	15' total
Bottom Elevation: 64.5			
Clearout Elevation: 67.5			
Embankment Elevation: 73.0 (constructed)			
Net Storage Elevation: 69.45			
Dry Storage Elevation: 70.20			
Q Existing: 12.17 CFS			
Q Existing: 6.65 CFS @ elevation 70.44			
Q Existing: 66.51 CFS			
Q Proposed: 52.77 CFS @ elevation 71.78			

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
4/19/07
4/19/07

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 CERTIFY 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 INSPECTION BY THE HOWARD COUNTY SEDIMENT CONTROL DISTRICT.
3-23-07

ENGINEER'S CERTIFICATE
I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND FEASIBLE SOLUTION 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.
3-23-07

THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.
4/19/07

SEDIMENT AND EROSION CONTROL AND SWM POND NOTES AND DETAILS HUNTERS RIDGE
LOTS 1 THRU 18 THRU 54 & 60 THRU 72
OPEN SPACE, LOTS 5 THRU 89 & 73
AND A RESUBDIVISION OF BULK PARCEL 'C'
WESLEY WOODS, SECTION 1, PLAT NO. 14926
TAX MAP 38 GRIDS 4 & 10
1ST ELECTION DISTRICT

OWNER/DEVELOPER
Richmond American Homes of Maryland, Inc.
6200 Old Dobbin Lane
Columbia, Md 21045
410.872.0267

FSH Associates
Engineers Planners Surveyors
8318 Forrest Street, Ellicott City, MD 21043
Tel: 410-750-2251 Fax: 410-750-7350
E-mail: FSHAssociates@cs.com

C. Harwitz 4/19/07
 CHIEF, DIVISION OF LAND DEVELOPMENT / DATE
J. Williams 4/19/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION / DATE

William F. Mahall 4-16-07
 CHIEF, BUREAU OF HIGHWAYS / 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."

Joseph A. ... 3/23/07
 SIGNATURE OF DEVELOPER / DATE
 RICHMOND AMERICAN HOMES OF MARYLAND, INC.

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."

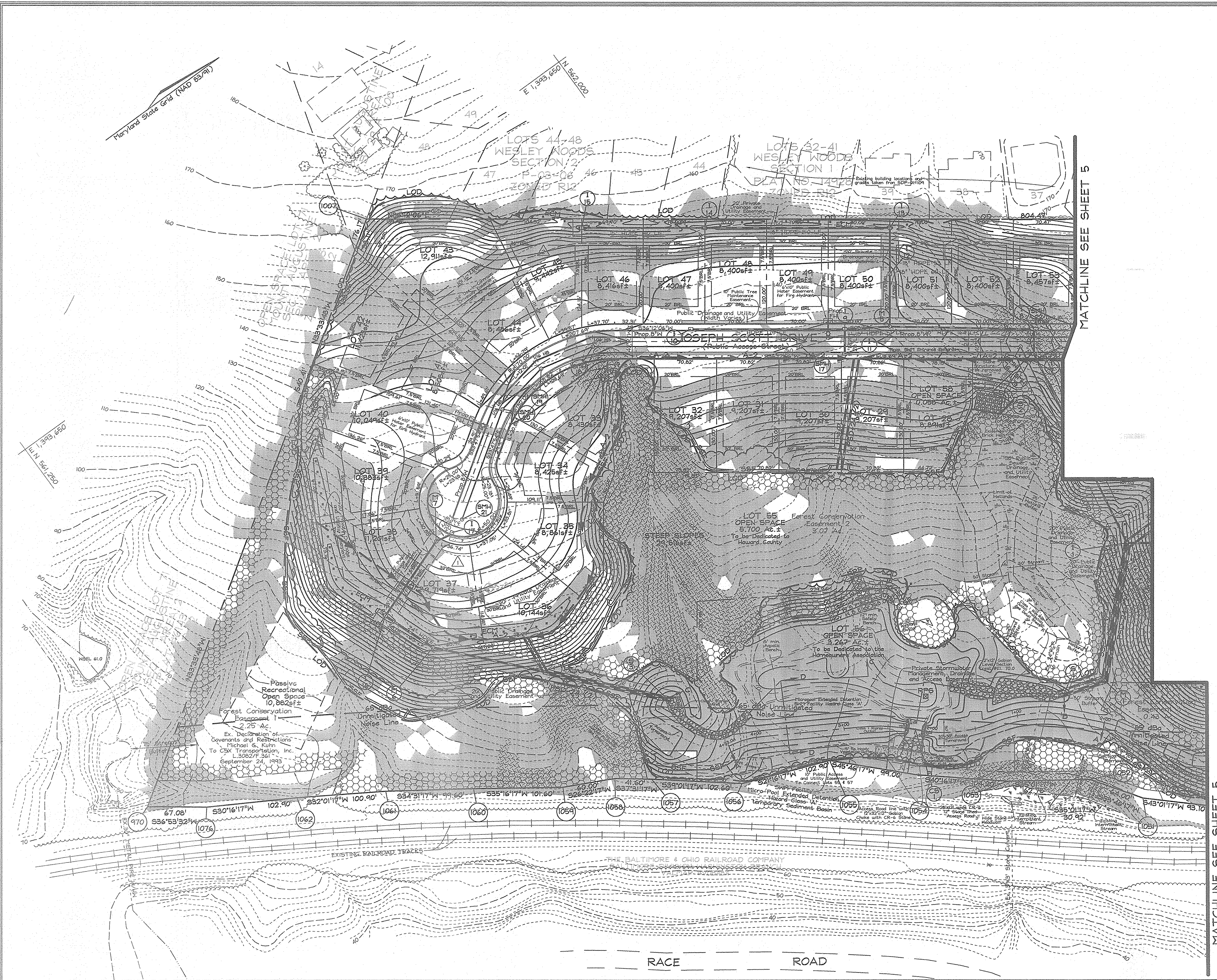
Zacharia Y. Fisch 3/23/07
 SIGNATURE OF ENGINEER / DATE
 ZACHARIA Y. FISCH

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

Jan Meyer 4/10/07
 USDA-NATURAL RESOURCES CONSERVATION SERVICE / DATE

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

John P. ... 4/10/07
 HOWARD SOIL CONSERVATION DISTRICT / DATE



MATCHLINE SEE SHEET 5

MATCHLINE SEE SHEET 10

No.	Revisions	Date
2	Revised Title Block, Lot Numbers, and Removed Retaining Wall Easement.	02/12/2007
3	Revised Lot Areas for Lots 35 thru 39, 55 and 56; Revised BRL on Lots 1 thru 3, 11, 15, 16, 19 thru 21 and 42; Revised Forest Conservation Easement Areas; Added Lot 58.	02/28/2005

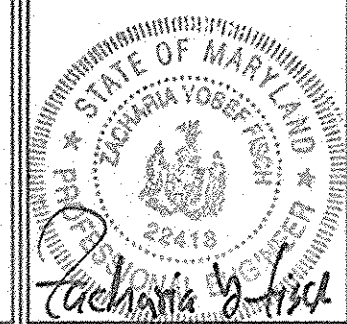
OWNER/DEVELOPER

Richmond American Homes of Maryland, Inc.
 6200 Old Dobbin Lane
 Columbia, Md 21045
 410.872.0267

SEDIMENT AND EROSION CONTROL AND GRADING PLAN

HUNTERS RIDGE
 LOTS 1 THRU 4, 18 THRU 54, 60 THRU 72
 OPEN SPACE LOTS 55 THRU 59 & 73
 AND A RESUBDIVISION OF BULK PARCEL 'C'
 WESLEY WOODS, SECTION 1, PLAT NO. 14926

TAX MAP 38, GRIDS 4 & 10 PARCEL 163
 1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND



FSH Associates
 Engineers Planners Surveyors
 8318 Forrest Street Ellicott City, MD 21043
 Tel: 410-750-2251 Fax: 410-750-7350
 E-mail: FSHAssociates@cs.com

DESIGN BY: PS/KO
 DRAWN BY: MM/KO
 CHECKED BY: ZYF
 SCALE: 1"=50'
 DATE: Mar. 21, 2007
 W.O. No.: 3018
 SHEET No.: 6 OF 20



LEGEND

- Existing Contour: ---
- Proposed Contour: - - -
- Spot Elevation: +82.53
- Direction of Flow: →
- Tree Protection Fence: [Symbol]
- Existing Trees to Remain: [Symbol]
- Light Poles: * Post Top, * Overhead, * Ballard
- Stabilized Construction Entrance: [Symbol]
- Silt Fence: SF
- Super Silt Fence: SSF
- Earth Dike: A-1
- Limit of Disturbance: LOD
- Erosion Control Matting: ECM
- Rip-Rap Inflow Protection: RRP
- Gabion Inflow Protection: G1
- Removable Pumping Station: RPS
- Grass Swale for Recharge: [Symbol]

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.

[Signature] 3.23.07
 SIGNATURE OF DEVELOPER DATE
 RICHMOND AMERICAN HOMES OF MARYLAND, INC.

ENGINEER'S 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.

[Signature] 3.23.07
 SIGNATURE OF ENGINEER DATE
 ZACHARIA Y. FISCH

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 4/19/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 4/16/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

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

[Signature] 4/16/07
 USDA NATURAL RESOURCES CONSERVATION SERVICE DATE

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

[Signature] 4/16/07
 HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

[Signature] 4-16-07
 CHIEF, BUREAU OF HIGHWAYS DATE

OWNER/DEVELOPER

Richmond American Homes of Maryland, Inc.
 6200 Old Dobbin Lane
 Columbia, Md 21045
 410.872.0267

SEDIMENT AND EROSION CONTROL AND GRADING PLAN

HUNTERS RIDGE

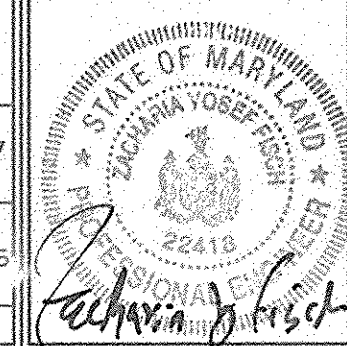
LOTS 1 THRU 4, 18 THRU 54, 60 THRU 72
 OPEN SPACE LOTS 55 THRU 59 & 73
 AND A RESUBDIVISION OF BULK PARCEL 'C'
 WESLEY WOODS, SECTION 1, PLAT NO. 14926

TAX MAP 38 GRIDS 4 & 10 PARCEL 163
 1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

Notes

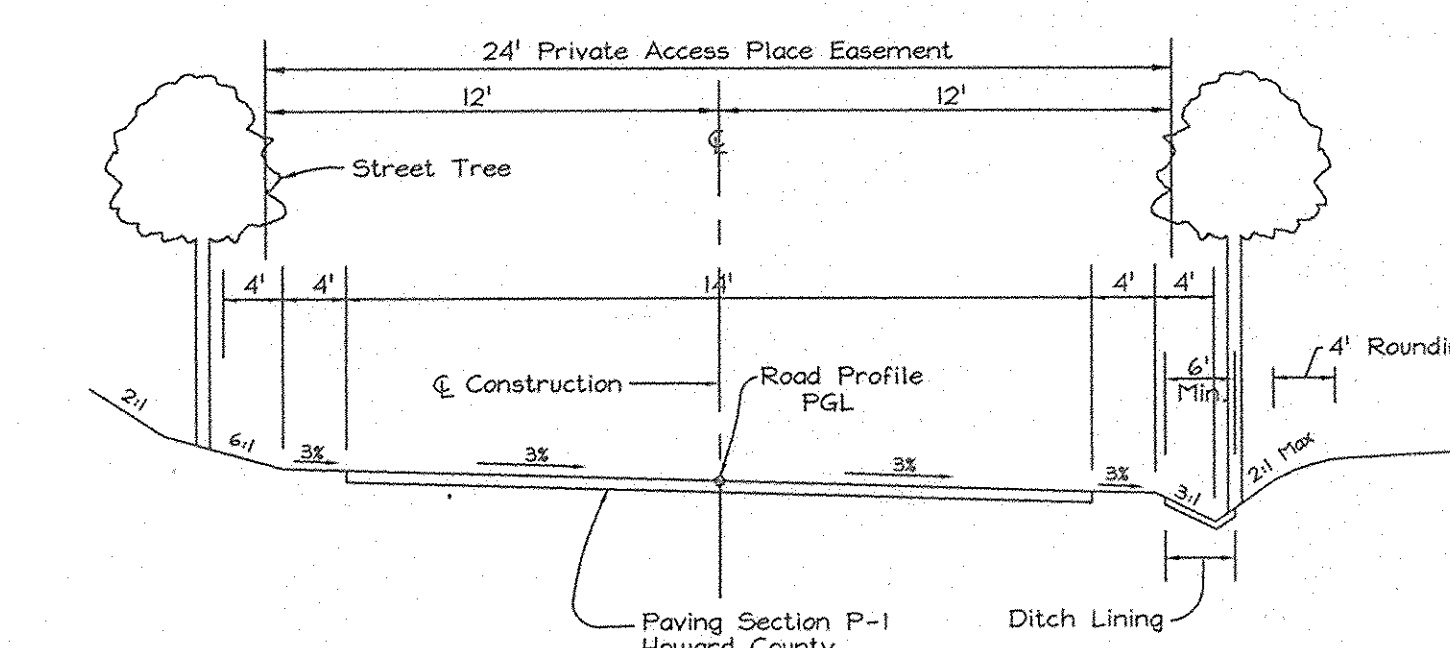
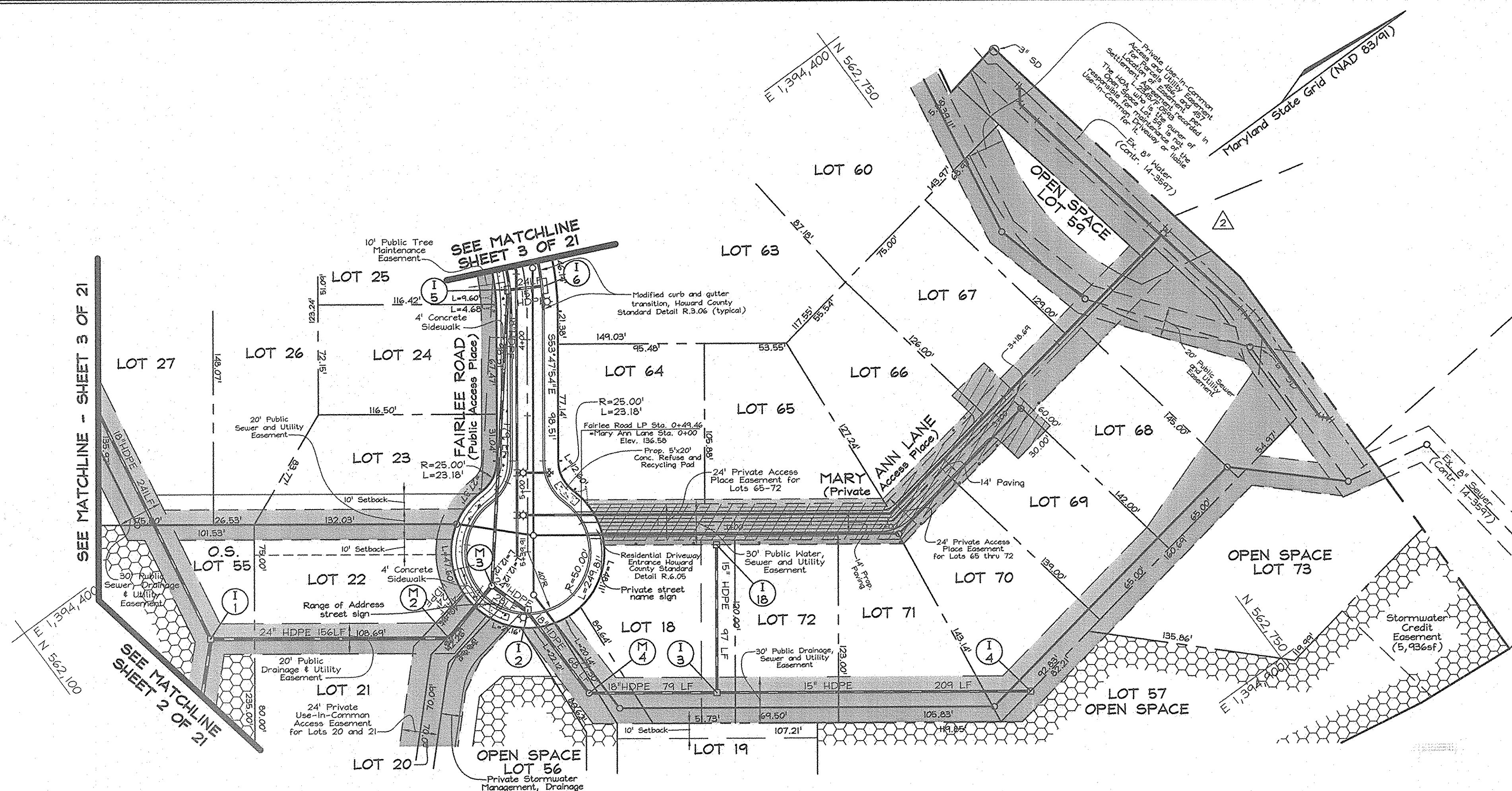
THIS SHEET SUPERSEDES PREVIOUS PLAN SIGNED SEPTEMBER 2004.

No.	Revisions	Date
1	Revised Lots and Lot Numbers, Grading, & Pipestems. Deleted Retaining Walls. Relabeled Easement. Moved Street Light. Re-Subdivided Lot 5.	02/12/2007
2	Revised Lot Areas for Lots 35 thru 39, 55 and 56; Revised BRL on Lots 1 thru 3, 11, 15, 16, 19 thru 21 and 42; Revised Forest Conservation Easement Areas; Added Lot 58.	02/28/2005



FSH Associates
 Engineers Planners Surveyors
 8318 Forrest Street Ellicott City, MD 21043
 Tel: 410-750-2251 Fax: 410-750-7350
 E-mail: FSHAssociates@cs.com

DESIGN BY: PS/KO
 DRAWN BY: MM/KO
 CHECKED BY: ZYF
 SCALE: 1"=50'
 DATE: Mar 21, 2007
 P.O. No.: 3018
 SHEET No.: 5 OF 20



No.	Revisions	Date
2	Revised Lots and Lot Numbers, Deleted Retaining Wall, Revised Pipestems, Moved Street Light, Re-Subdivided Lot 5, Revised Easements.	02/12/2007
1	Revised Lot Areas for Lots 35 thru 39, 55 and 56; Revised BRL on Lots 1 thru 3, 11, 15, 16, 19 thru 21 and 42; Revised Forest Conservation Easement Areas; Added Lot 58.	02/28/2005

OWNER/DEVELOPER
Richmond American Homes of Maryland, Inc.
6200 Old Dobbin Lane
Columbia, Md 21045
410.872.0267

ROAD PLAN AND PROFILE PRIVATE ACCESS PLACE HUNTERS RIDGE
LOTS 1 THRU 4, 18 THRU 54, 60 THRU 72
OPEN SPACE LOTS 55 THRU 59 & 73
AND A RESUBDIVISION OF BULK PARCEL 'C' WESLEY WOODS, SECTION 1, PLAT NO. 14926

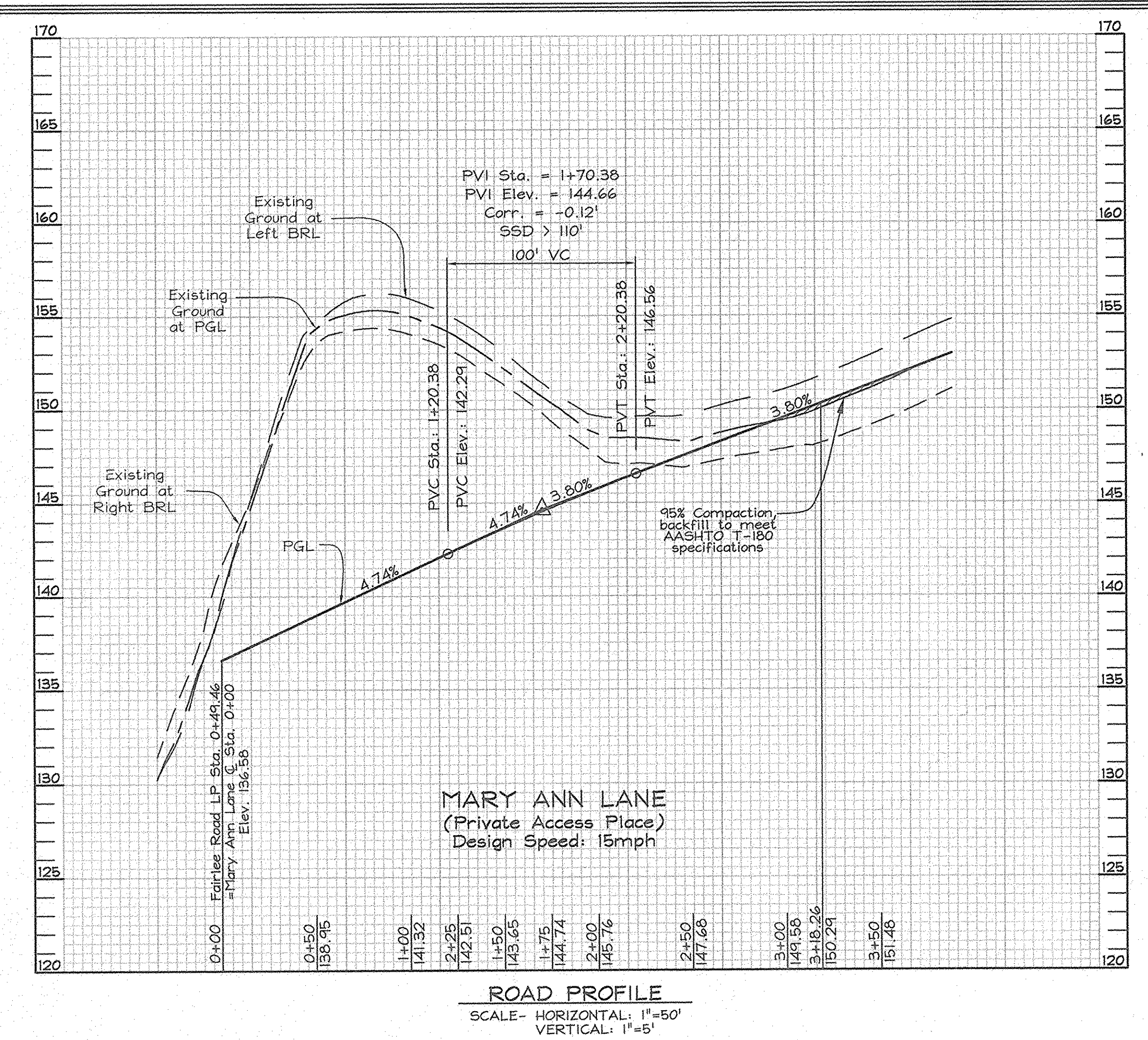
TAX MAP 28 GRIDS 4 & 10 PARCEL 163
1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

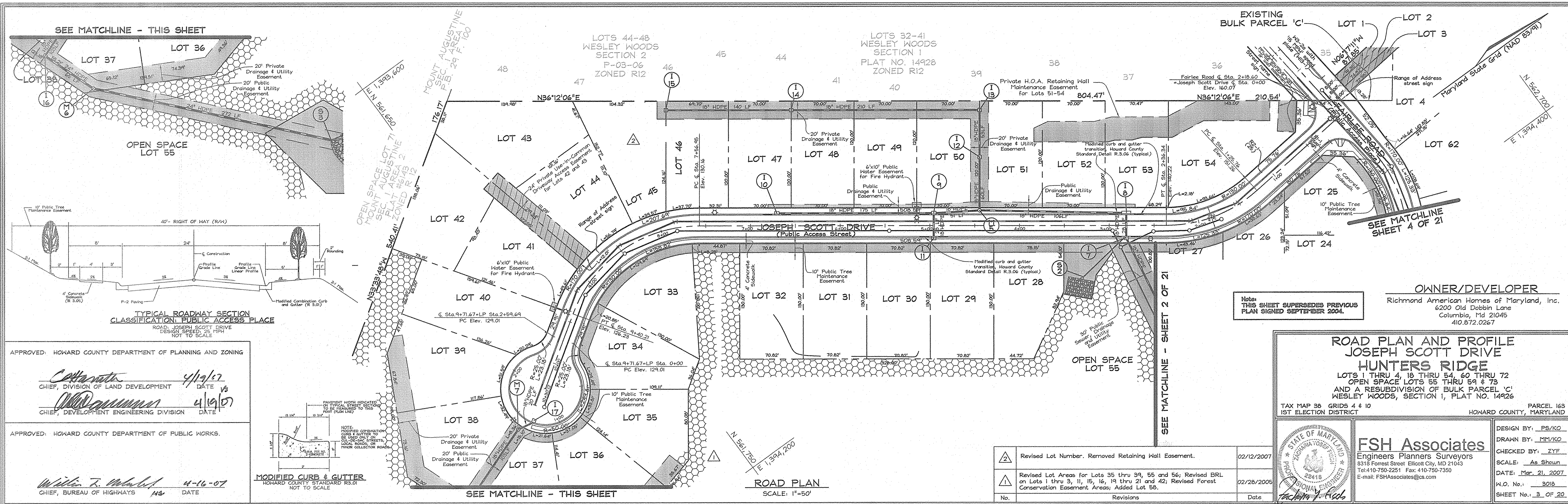
FSH Associates
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8318 Forrest Street Elkoot City, MD 21043
Tel: 410-750-2251 Fax: 410-750-7350
E-mail: FSHAssociates@cs.com

DESIGN BY: PS/KO
DRAWN BY: MM/KO
CHECKED BY: ZYF
SCALE: As Shown
DATE: Mar 21, 2007
W.O. No.: 3018
SHEET No.: 4 OF 20

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF PLANNING AND DEVELOPMENT
DATE: 4/19/07

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS
DATE: 4-16-07





APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Colleen... 4/19/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

William... 4/19/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

William... 4-16-07
 CHIEF, BUREAU OF HIGHWAYS DATE

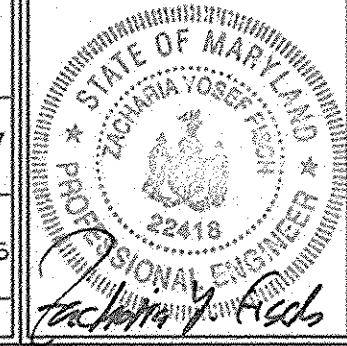
Note:
 THIS SHEET SUPERSEDES PREVIOUS
 PLAN SIGNED SEPTEMBER 2004.

OWNER/DEVELOPER
 Richmond American Homes of Maryland, Inc.
 6200 Old Dobbin Lane
 Columbia, Md 21045
 410.872.0267

ROAD PLAN AND PROFILE
 JOSEPH SCOTT DRIVE
 HUNTERS RIDGE
 LOTS 1 THRU 4, 18 THRU 54, 60 THRU 72
 OPEN SPACE LOTS 55 THRU 59 & 73
 AND A RESUBDIVISION OF BULK PARCEL 'C'
 WESLEY WOODS, SECTION 1, PLAT NO. 14926

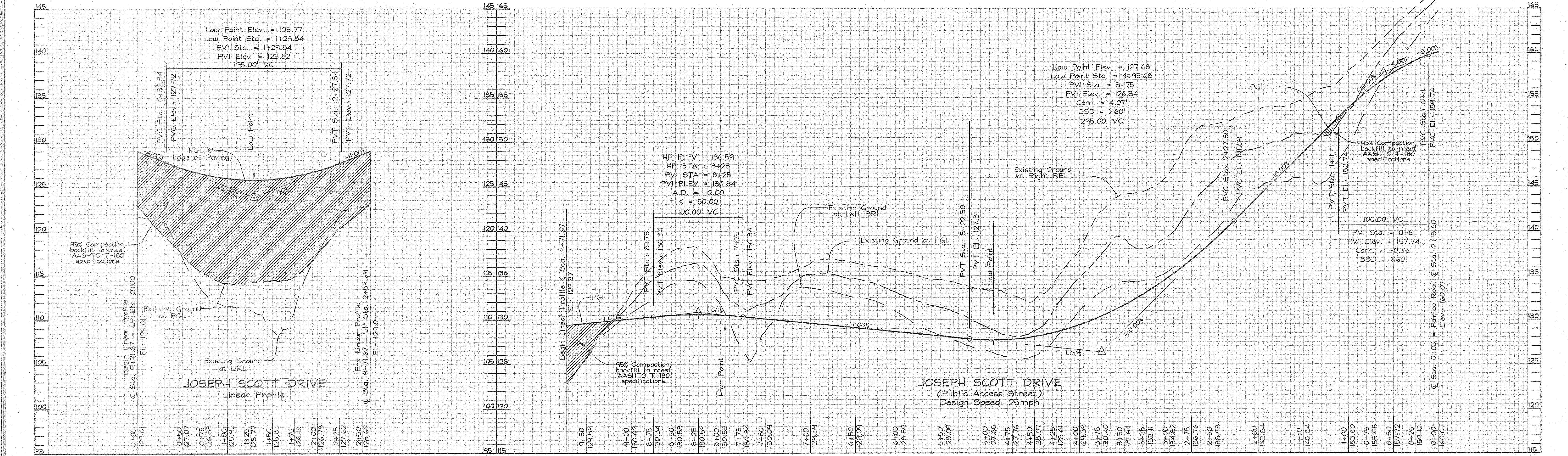
TAX MAP 98 GRIDS 4 & 10
 1ST ELECTION DISTRICT

PARCEL 163
 HOWARD COUNTY, MARYLAND

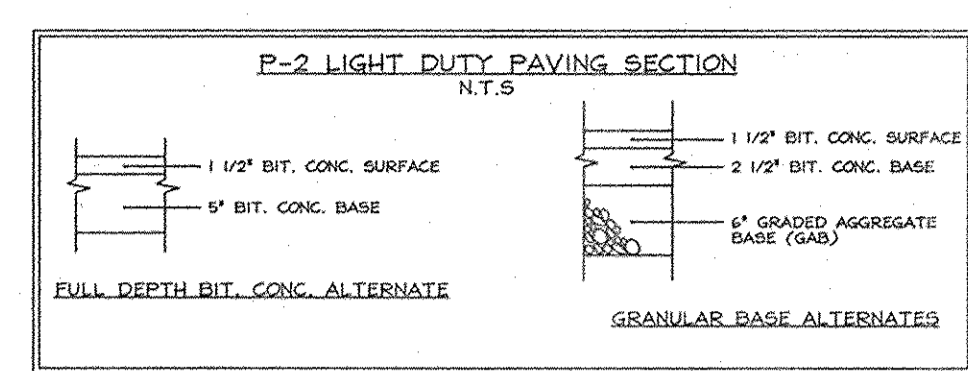
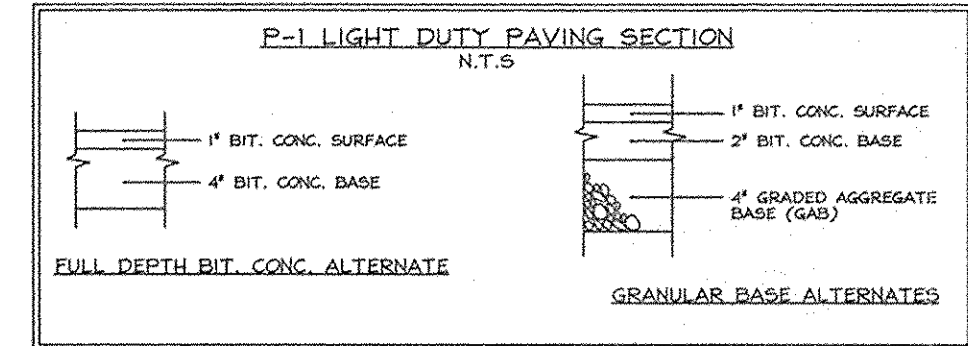
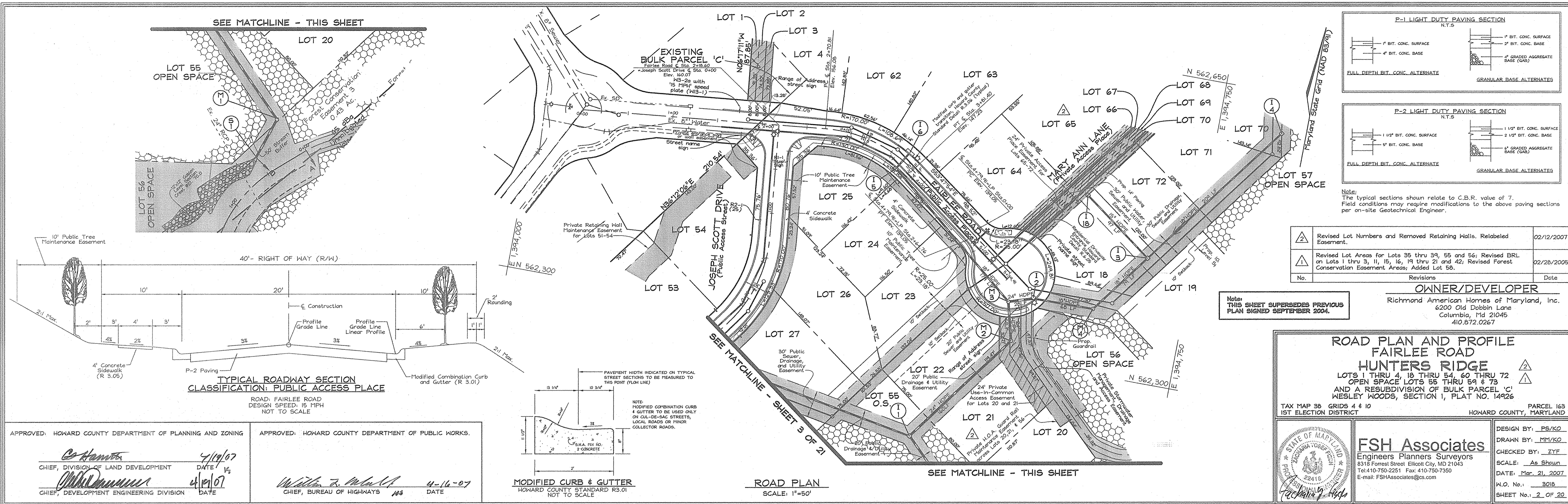


DESIGN BY: PS/KO
 DRAWN BY: MM/KO
 CHECKED BY: ZYF
 SCALE: As Shown
 DATE: Mar 21, 2007
 W.O. No.: 3018
 SHEET No.: 3 OF 20

No.	Revisions	Date
2	Revised Lot Number. Removed Retaining Wall Easement.	02/12/2007
1	Revised Lot Areas for Lots 35 thru 39, 55 and 56; Revised BRL on Lots 1 thru 3, 11, 15, 16, 19 thru 21 and 42; Revised Forest Conservation Easement Areas; Added Lot 58.	02/28/2006



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



Note:
The typical sections shown relate to C.B.R. value of 7.
Field conditions may require modifications to the above paving sections per on-site Geotechnical Engineer.

2	Revised Lot Numbers and Removed Retaining Walls. Relabeled Easement.	02/12/2007
1	Revised Lot Areas for Lots 35 thru 39, 55 and 56; Revised BRL on Lots 1 thru 3, 11, 15, 16, 19 thru 21 and 42; Revised Forest Conservation Easement Areas. Added Lot 55.	02/28/2005
No.	Revisions	Date

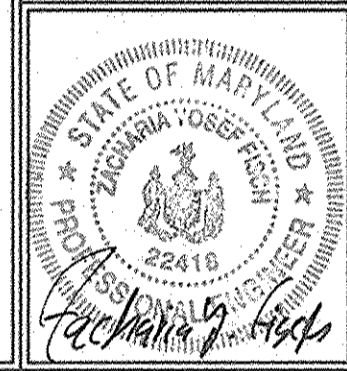
OWNER/DEVELOPER
Richmond American Homes of Maryland, Inc.
6200 Old Dobbin Lane
Columbia, Md 21045
410.872.0267

Note:
THIS SHEET SUPERSEDES PREVIOUS PLAN SIGNED SEPTEMBER 2004.

ROAD PLAN AND PROFILE
FAIRLEE ROAD
HUNTERS RIDGE
LOTS 1 THRU 4, 18 THRU 54, 60 THRU 72
OPEN SPACE LOTS 55 THRU 59 & 73
AND A RESUBDIVISION OF BULK PARCEL 'C'
WESLEY WOODS, SECTION 1, PLAT NO. 14926

TAX MAP 38 GRIDS 4 & 10
1ST ELECTION DISTRICT

PARCEL 163
HOWARD COUNTY, MARYLAND

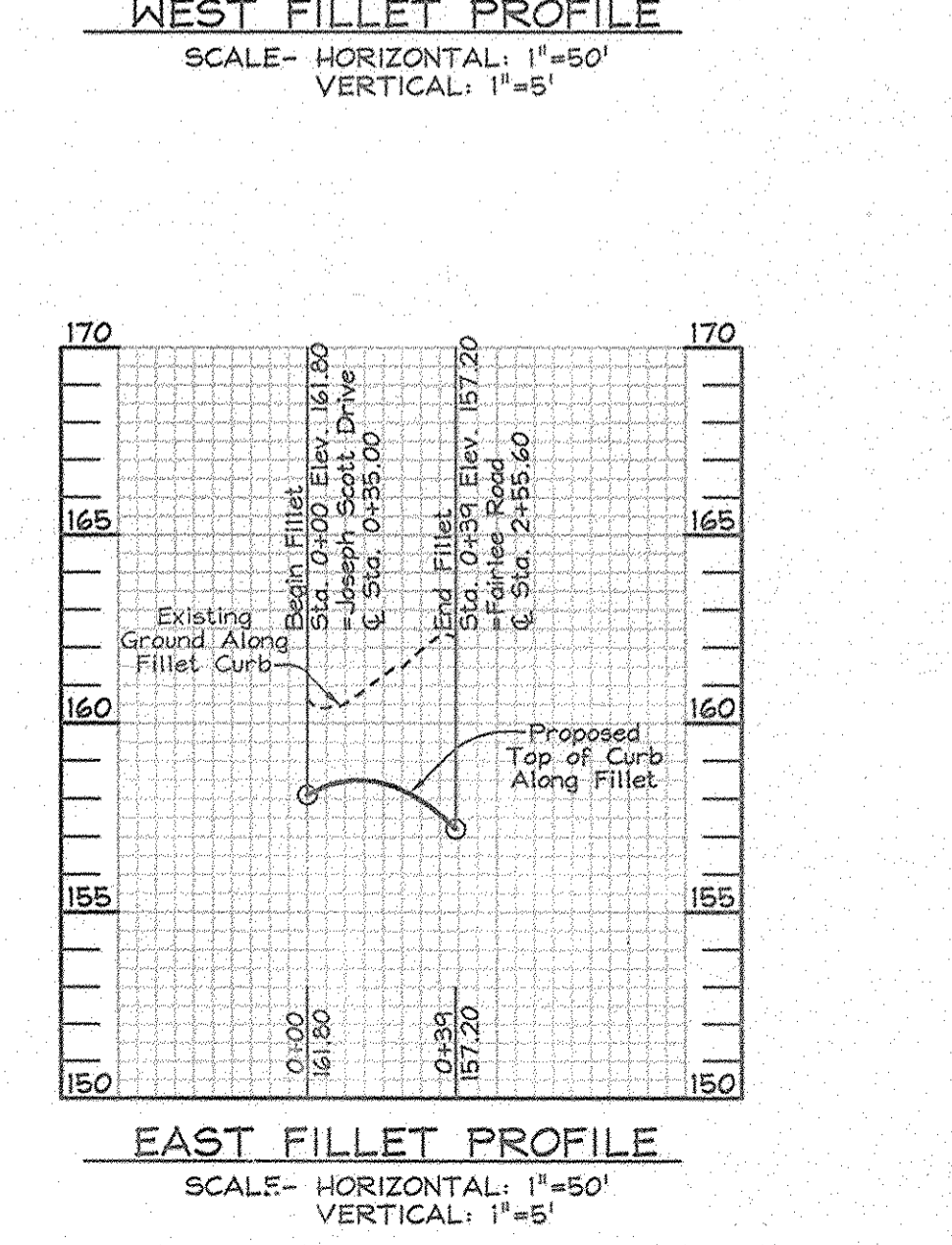
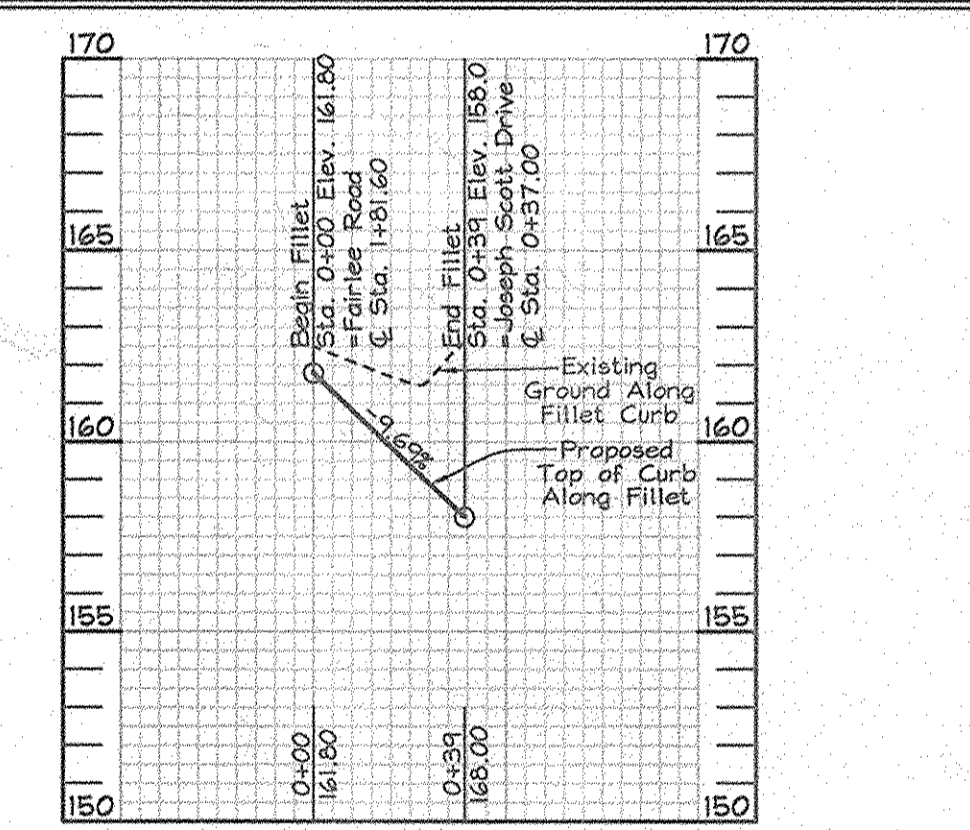
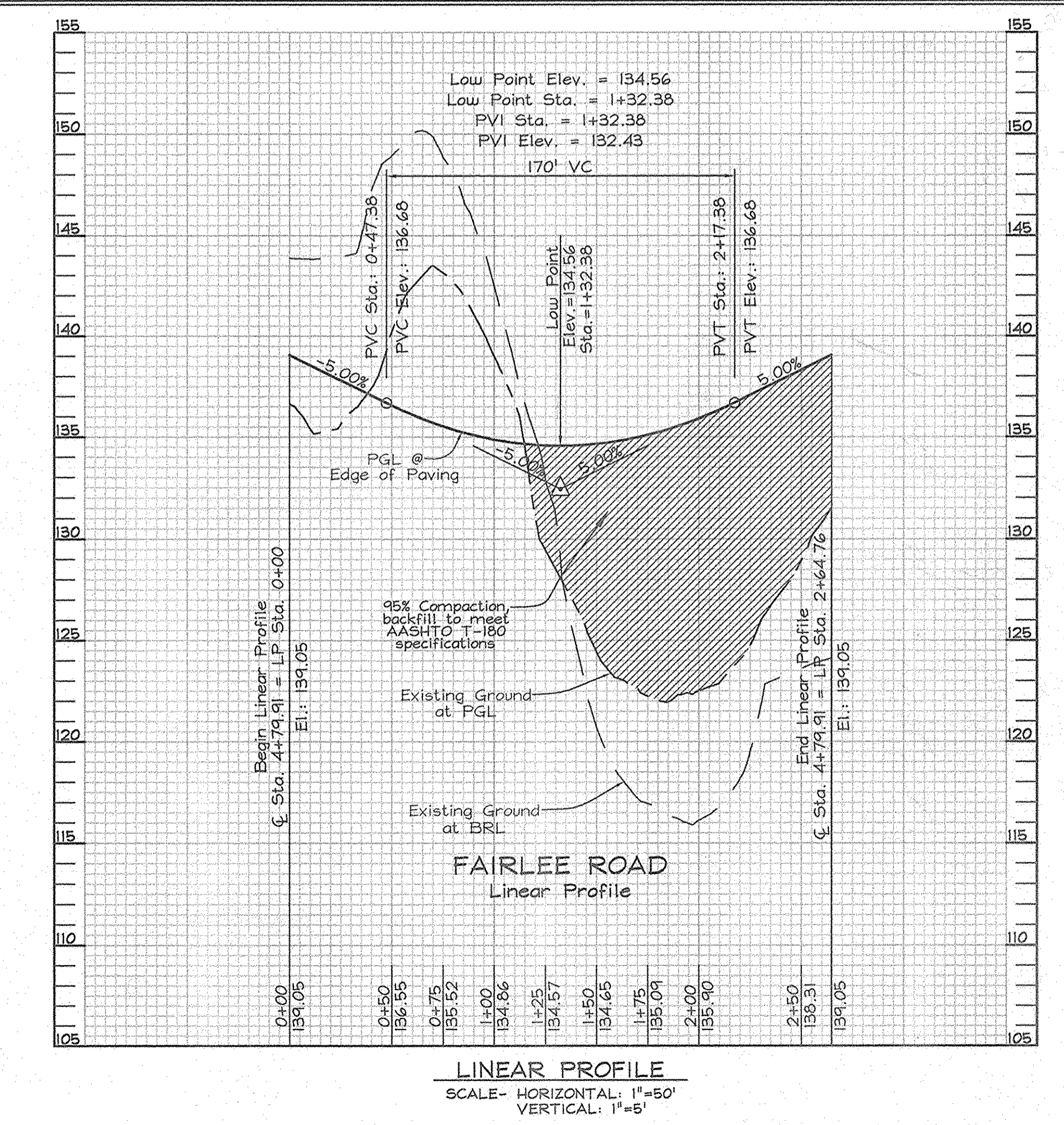
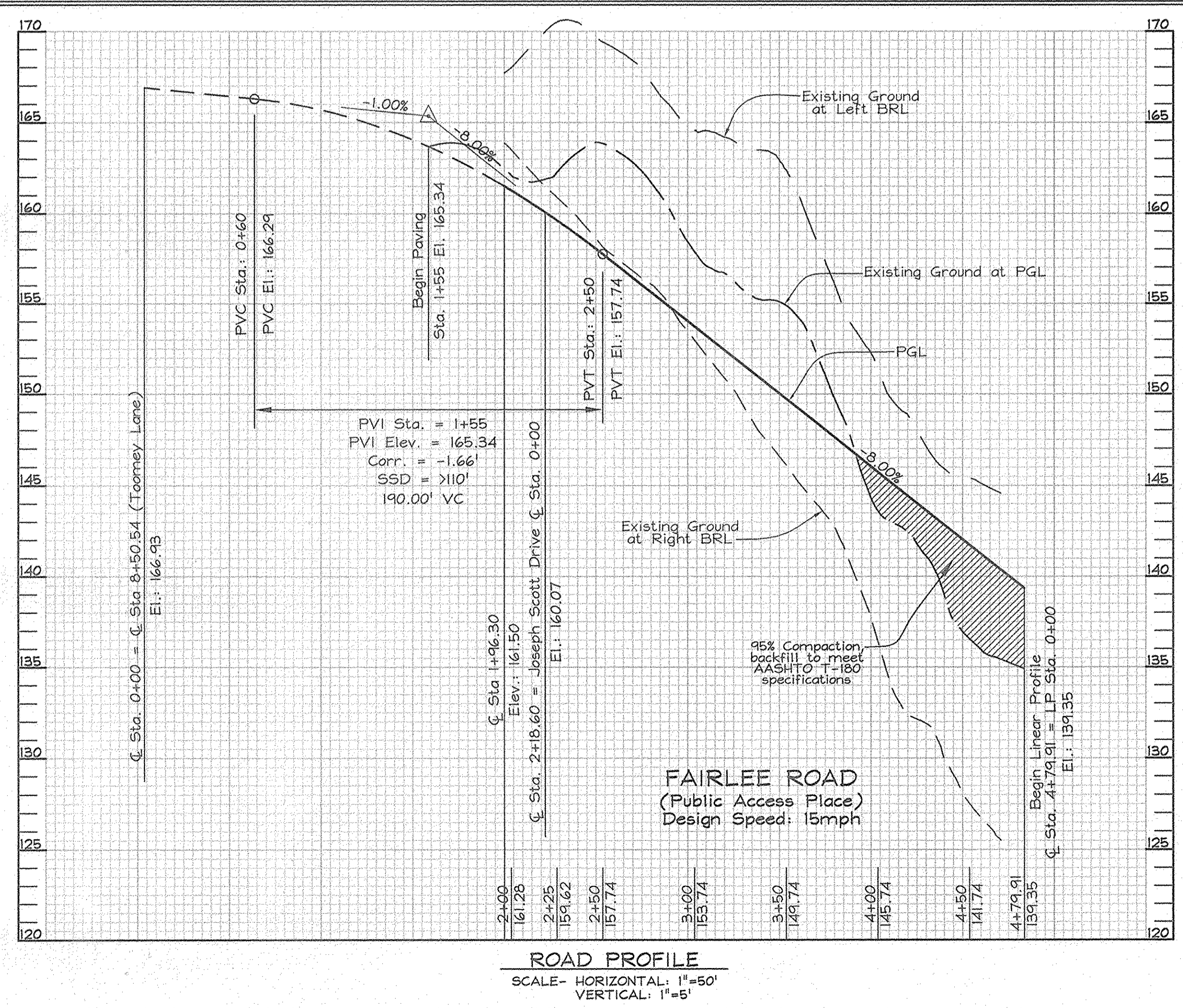


FSH Associates
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Tel: 410-750-2251 Fax: 410-750-7350
E-mail: FSHAssociates@cs.com

DESIGN BY: PS/KO
DRAWN BY: MM/KO
CHECKED BY: ZYF
SCALE: As Shown
DATE: Mar. 21, 2007
W.O. No.: 3018
SHEET No.: 2 OF 20

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
DATE: 4/19/07
CHIEF, DIVISION OF LAND DEVELOPMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.
DATE: 4-16-07
CHIEF, BUREAU OF HIGHWAYS



GENERAL NOTES

- Subject property zoned "R-12" per 2/2/04 Comprehensive Zoning Plan.
- This site is located within the metropolitan district.
- Public water and sewer will be used within this site.
- Howard County Soils Map 26.
- Gross area of site subject to subdivision:
 - Parcel 163: 25.55 ac.
 - Bulk Parcel 'C': 3,321sq± or 0.08 ac.
 - Total area: 25.66 ac.
- Total area of steep slopes on site: 2.89 ac.±
- Net area of site subject to subdivision: 22.77 ac.±
- Area of proposed public r/w: 1.54 ac.±
- Number of proposed buildable lots: 54
- Area of proposed buildable lots: 12.33 ac.±
- Number of proposed open space lots: 6
- Area of proposed open space lots: 11.789 ac.±
- Topography is based on a field run topography survey prepared by Fisher, Collins & Carter, Inc. in Feb. of 2001 and aerial topography prepared by Harford Aerial Surveys, Inc. in Feb. of 1999.
- Field run boundary survey prepared by Fisher, Collins & Carter, Inc. on April 2, 2001.
- The coordinates shown herein are based upon the Howard County Geodetic Control which is based on the Maryland State Plane Coordinate system. Howard County monument numbers 321A and 318B were used for this project.
- A.P.F.O. traffic study prepared by Street Traffic Studies L.T.D. and approved under S-01-24.
- Wetlands delineation and report, forest stand delineation and report prepared by Exploration Research, Inc. and approved under S-01-24.
- There are no floodplains, historic structures or cemeteries on-site.
- No clearing, grading or construction is permitted within wetlands, streams or their required buffers, and steep slopes of 25% or greater containing a contiguous area of 20,000 SF or more, unless waivers have been approved. The steep slope disturbance for the construction of an access driveway for maintenance of the SWM facility located within Open Space Lot 56 determined to be necessary by DPZ in accordance with Section 16.116(c) of the Subdivision Regulations.
- Open Space requirements:
 - Open Space required (30%-40% of minimum lot size): 25.58ac.± x 0.30 = 7.674ac.±
 - Open Space provided: 11.784 ac.± (0.2 ac.± non-credited)
- Recreational open space requirements:
 - Open Space required (200sf per buildable lot): 54 x 200 = 10,800 sf
 - Open Space provided: 10,800 sf±
- This plan is subject to the Fourth Edition of the Subdivision and Land Development Regulations and the Zoning Ordinance as amended by Council Bill No. 59-2001. Development or construction on these lots must comply with setback and buffer regulations in effect at the time of submission of the site development plan, waiver petition, or building and grading permits.
- The lots shown herein comply with the minimum ownership width and lot area as required by the Maryland State Department of the Environment.
- Internal landscaping for lots 25 and 54 will be shown at Site Development Plan stage.
- 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 to the pipestem lot driveway.
- Existing house on Lot 62 to be removed.
- Stormwater management & water quality is provided as necessary in accordance with the 2000 stormwater management manual. Pond to be a micro pond extended detention pond hazard class 'A'. Facility to be owned and maintained by the Homeowners Association. Stormwater Management recharge requirement will be provided through grass channels, sheet flow to buffer credit and storage/filtration within forebay at S-1 outfall and gravel recharge apron at S-2 outfall. A Level Spreader will be provided on Lot 19.
- All ditches and swales will have erosion control matting.
- This project is subject to review and approval by the Maryland Aviation Administration (MAA) regarding the construction of proposed structures on this site will not penetrate any navigational airspace and that the proposed SWM landscaping will meet their approval requirements. Permit number 04-064 has been approved in a letter dated 6/23/04.
- CPV management for a portion of Wesley Woods (3 ac.±) is provided in the stormwater management facility.
- A gravity sewer service waiver of Section 4.3.B.3.b of Volume II of the Howard County Design Manual has been approved by the Department of Public Works Bureau of Engineering for Lots 34-39 on June 18, 2004.
- The contractor shall notify the following utility companies or agencies at least five(5) working days before starting work on these plans:

State Highway Administration	410.531.5533
BGE(contractor services)	410.850.4620
BGE(underground damage control)	410.787.9068
Miss Utility	1.800.257.7777
Colonial Pipeline Company	410.795.1890
Howard County, Dept. of Public Works, Bureau of Utilities	410.313.4900
Howard County Health Department	410.313.2640
- The contractor shall notify Miss Utility at 1-800-257-7777 at least 48 hours prior to any excavation work being done.
- The contractor shall notify the Department of Public Works/Bureau of Engineering Construction Inspection Division at (410) 313-1880 at least five (5) working days prior to the start of work. All fills for public road surfaces require 95% compaction (AASHTO-T-180).
- Landscape survey is based on the required landscaping of 65 shade trees, 23 evergreen trees, the Private Access Place street trees (19), and refuse pad shrubs (10), in the amount of \$28,950.00.
- This project complies with the requirements of section 16.1200 of the Howard County Code for Forest Conservation by retaining 1.65 acres of forest and planting 0.60 acres of reforestation within Forest Conservation Easement 1, retaining 2.60 acres of forest and planting 0.17 acres of reforestation within Forest Conservation Easement 2, planting 0.43 acres of reforestation within Forest Conservation Easement 3, and retaining 2.00 acres of forest and planting 0.23 acres of reforestation within Forest Conservation Easement 4. Total retention = 6.25 ac. Total reforestation provided = 1.72 ac. \$41,911.74 surety to be posted with the Developer's Agreement. Requested Fee-in-lieu for 1.61 ac remaining obligation is \$35,065.80.
- Previous Howard County file numbers: S-01-16; S-01-24; HP-03-87; P-03-12
- All construction shall be in accordance with the latest standards and specifications of Howard County plus MSHA standards and specifications if applicable.
- 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.
- Open Space Lots 55 thru 59, and 73:
 - Open Space Lots 55, 57, and 73 to be dedicated to Howard County.
 - Open Space Lots 56, 58, and 59 to be dedicated to the Homeowners Association.

- Per the geotechnical report, prepared by Herbst/Benson & Associates, the following procedures are recommended for basin and embankment construction:
 - Along the area of the proposed embankment, strip all vegetation, topsoil and any surface organically contaminated soils to expose relatively clean existing fills or competent native soils.
 - Proof roll the exposed surface with a loaded tandem dump truck to delineate unsuitable areas and cut out any soft yielding areas to expose firm underlying soils.
 - Excavate the core trench to a minimum depth of 4 feet below the proposed basin elevation using a minimum 4-foot bottom trench width and side slopes no steeper than 1:1. Beneath the principal spillway, the core trench depth should extend at least 4 feet beyond the bottom of the pipe cradle and use similar bottom widths and side slopes. Compact the bottom of the trench excavation to firm, unyielding condition.
 - Backfill the core trench excavation using the native CL cut soils from the steep slope as represented by boring SHM-4. Judging from the moisture/compaction density test results shown of SHEET 1, COMPACTION TEST, the fill should be readily compatible at the existing moisture content.
 - Prior to placing the principal spillway pipe and cradle, examine the founding soils along the pipe alignment outside the core trench area. Undercut any organic or otherwise unsuitable material and compact the exposed grade to a firm, unyielding condition. The existing fill soils and core trench fills are expected to adequately support principal spillway construction providing that the applied bearing pressures do not exceed 1,000 PSF. Backfill the principal spillway excavation and place embankment fill using the native cut soils from the western slope and approved existing CL clay fill soil from the basin excavation to form the embankment.

General Notes to be Continued

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

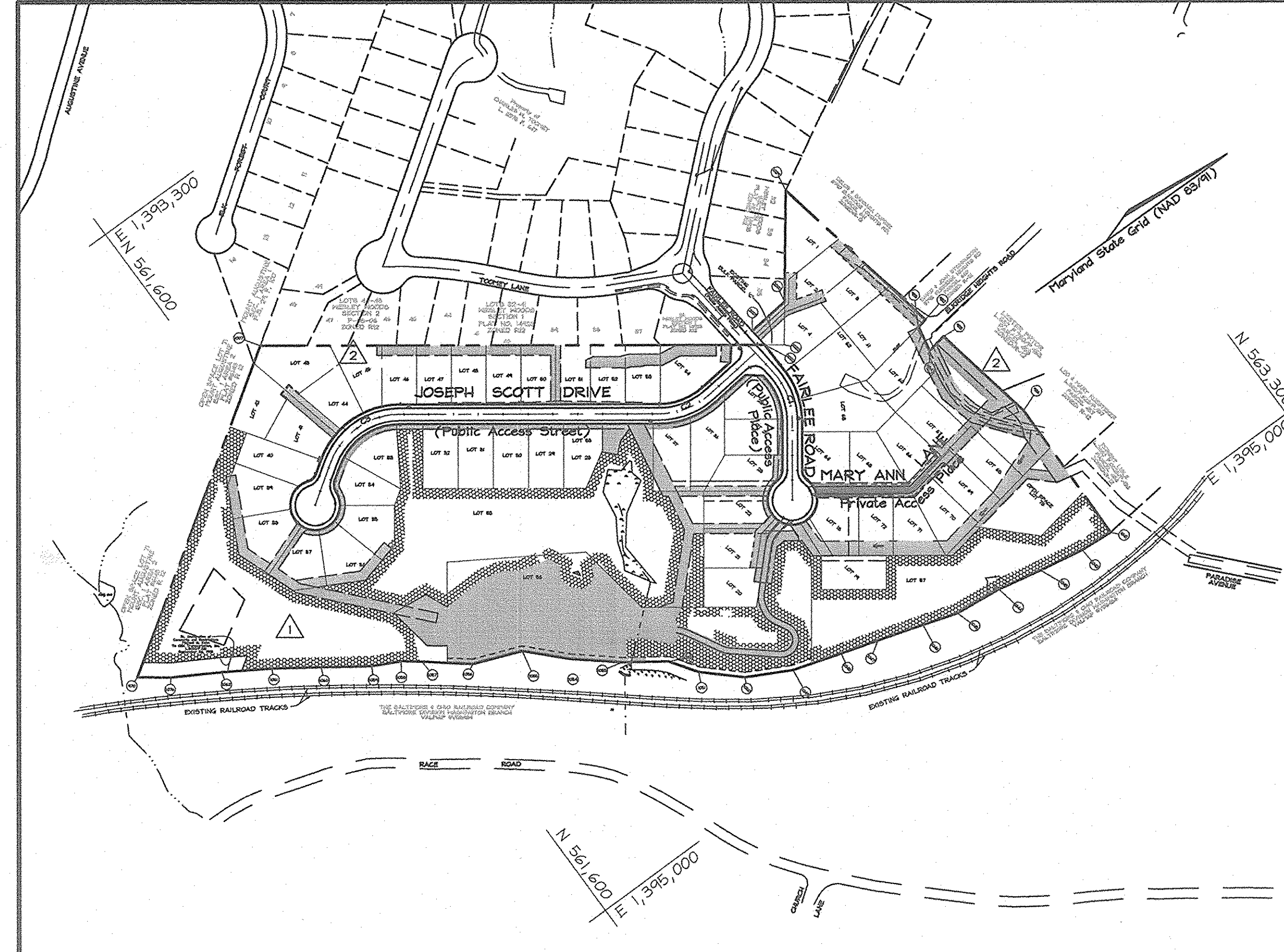
[Signature] 4/19/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 4/19/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

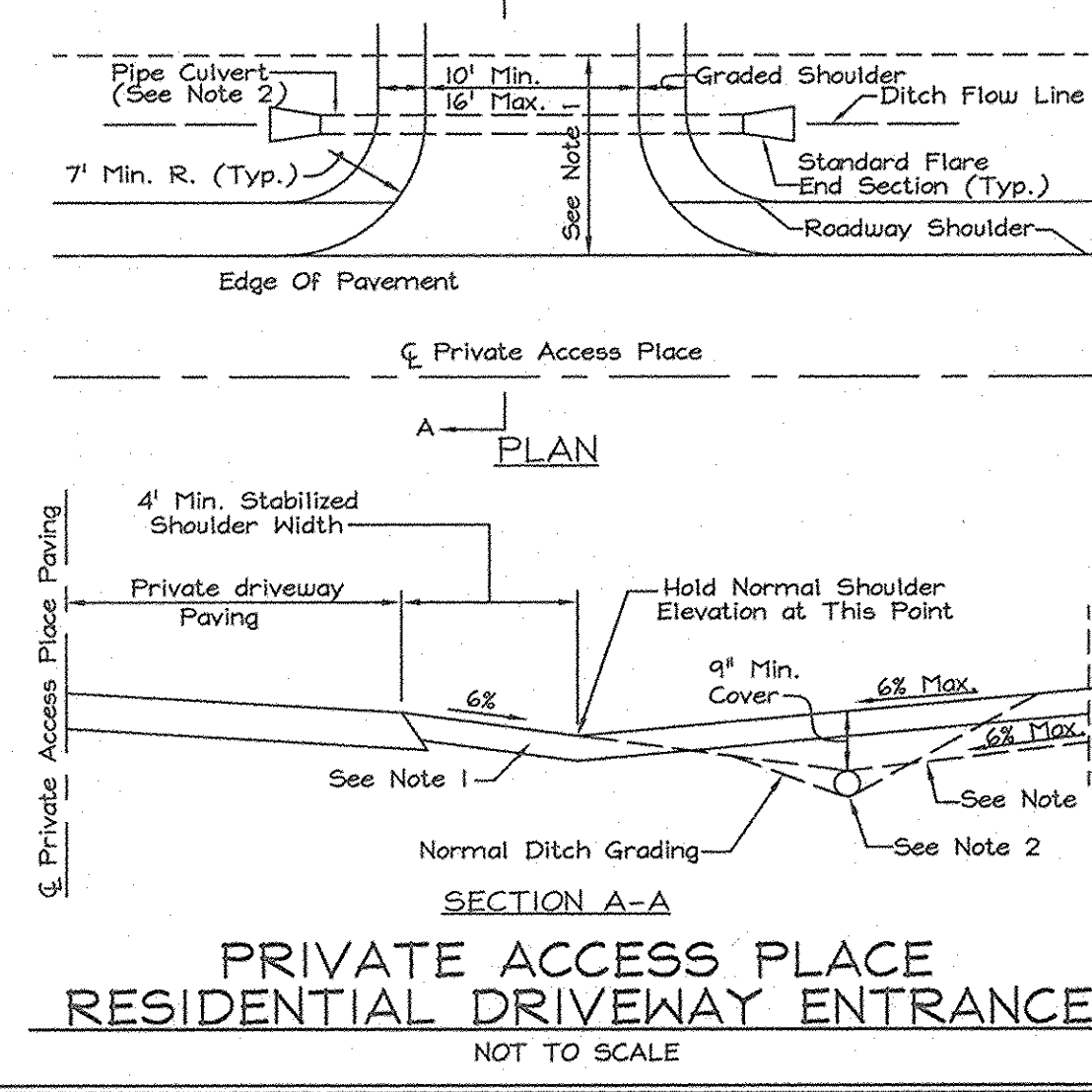
[Signature] 4-16-07
 CHIEF, BUREAU OF HIGHWAYS DATE

FINAL ROAD CONSTRUCTION PLAN HUNTERS RIDGE

LOTS 1 THRU 4, 18 THRU 54, 60 THRU 72 OPEN SPACE LOTS 55 THRU 59 & 73, AND A RESUBDIVISION OF BULK PARCEL 'C' WESLEY WOODS, SECTION 1 HOWARD COUNTY, MARYLAND



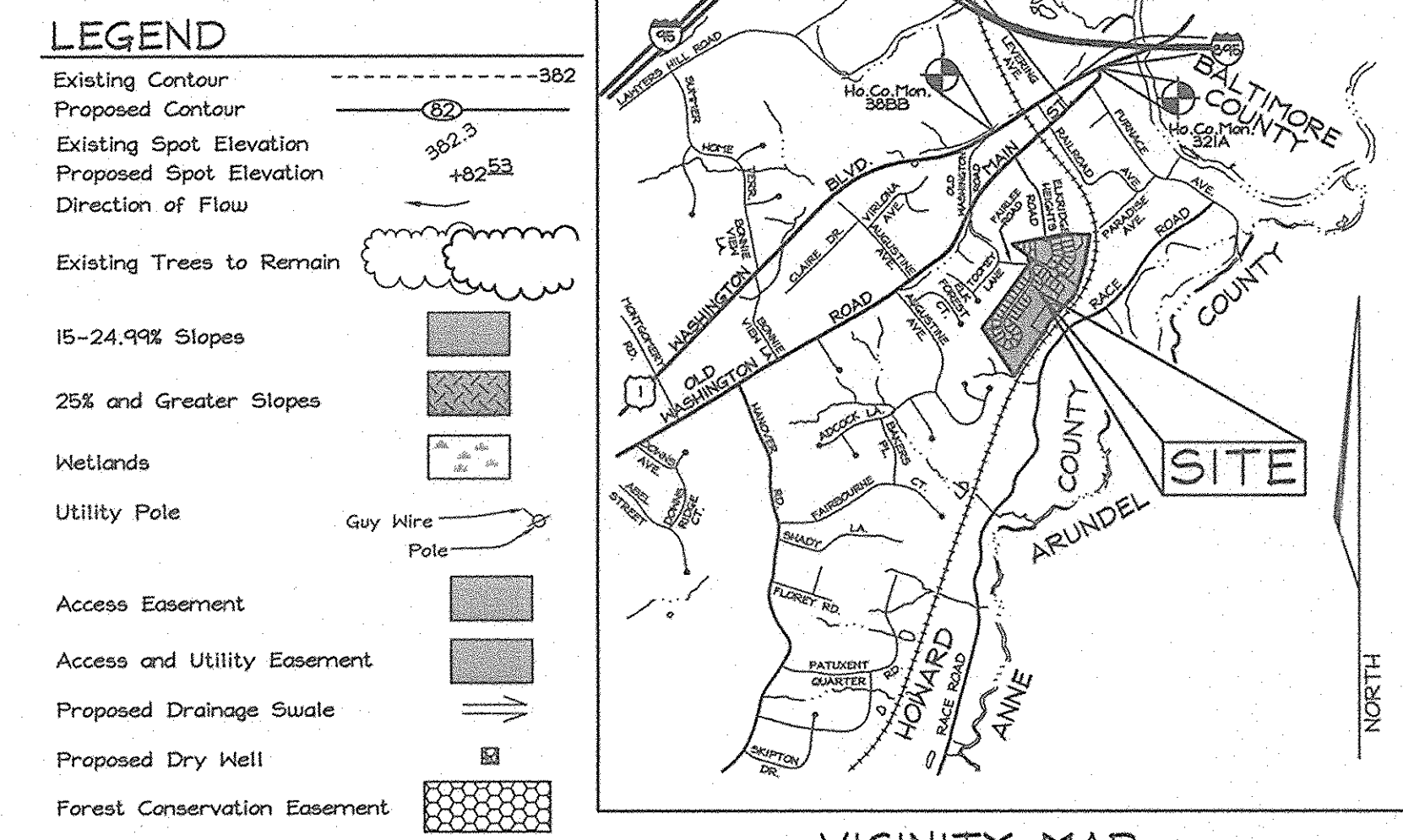
LOCATION MAP
SCALE: 1"=200'



- NOTES:**
- Driveway must be paved using standard paving section P-1 as shown on STD. No. or alternate section equal to or better than P-1, as approved by D.P.W.
 - Drainage culvert shall be sized for a 10 year frequency storm and the minimum size shall be 12" dia. round or 14" x 9" arch pipe if larger pipe is required, ditch invert shall be lowered to provide min. ditch gradient of 0.5% and clearance shown.
 - Swale flow may be provided over driveway located at or near the crest of vertical curves on the public road where quantity of flow is small, as approved by D.P.W.
 - Tie-in grade of private driveway shall not exceed 14%.

Continuation of General Notes

- The 5'x20' concrete pad for the "Refuse and Recycle Collection Pad" located within the public right-of-way will be maintained by the owners of Lots 65-72, pursuant to the Declaration of Right of Access and Maintenance Obligations recorded among the land records of Howard County Maryland.
- For private driveway culverts for lots 70-72, see detail this sheet.
- All Fill Areas within Public Right-Of-Ways to have 95% Compaction.
- All street sign posts shall be 2" square metal tube posts (14 gauge) installed into a 3" sleeve (2.5" square metal tube, 12 gauge) with a cap on top.



BENCHMARKS

Sta. 321A	N 172,232.2977	E 425,261.5439	El.: 8.4417 (meters)
Sta. 388B	N 565,065.463	E 1,395,212.248	El.: 27.646 (feet)
	N 171,904.8745	E 424,785.3620	El.: 19.6328 (meters)
	N 564,007.646	E 1,395,649.975	El.: 64.412 (feet)

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CENTERLINE ROAD CURVE DATA

CURVE #	RADIUS	LENGTH	DELTA	TANGENT	CHORD BEARING	CHORD LENGTH
C1	150.00	110.54	42°14'27"	57.94	N74°55'09"W	108.10
C2	150.00	110.54	42°14'27"	57.94	N105°04'51"E	108.10
C3	150.00	183.26	70°00'00"	105.03	S01°12'06"W	172.07

ROAD CLASSIFICATION

ROAD NAME	CLASSIFICATION	R/W
Fairlee Road	Public Access Place	40'
Joseph Scott Drive	Public Access Street	40'
Mary Ann Lane	Private Access Place	min. 24' easement

STREET LIGHT TABLE

FIXTURE TYPE	POLE TYPE	LOCATION	STREET
100 watt HPS vapor Premier post top mounted	14' black fiberglass	€ Sta. 1+90 17' right	Fairlee Road
100 watt HPS vapor Premier post top mounted	14' black fiberglass	€ Sta. 3+55 13' left	Fairlee Road
100 watt HPS vapor Premier post top mounted	14' black fiberglass	N 562,503.6 E 1,394,426.6	Fairlee Road
100 watt HPS vapor Premier post top mounted	14' black fiberglass	€ Sta. 3+04 15' left	Joseph Scott Drive
100 watt HPS vapor Premier post top mounted	14' black fiberglass	€ Sta. 7+90 15' right	Joseph Scott Drive
100 watt HPS vapor Premier post top mounted	14' black fiberglass	N 561,566.3 E 1,393,998.8	Joseph Scott Drive

Note: Light pole location given at center of base

OWNER/DEVELOPER

Richmond American Homes of Maryland, Inc.
 6200 Old Dobbin Lane
 Columbia, Md 21045
 410.872.0267

COVER SHEET
HUNTERS RIDGE
 LOTS 1 THRU 4, 18 THRU 54, 60 THRU 72
 OPEN SPACE LOTS 55 THRU 59 & 73
 AND A RESUBDIVISION OF BULK PARCEL 'C'
 WESLEY WOODS, SECTION 1, PLAT NO. 14926

TAX MAP 38 GRIDS 4 & 10
 1ST ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

DESIGN BY: **FSH/KO**
 DRAWN BY: **MM/KO**
 CHECKED BY: **ZTF**
 SCALE: **As Shown**
 DATE: **Jan. 23, 2007**
 I.L.O. No.: **301B**
 SHEET No.: **1 OF 20**

FSH Associates
 Engineers Planners Surveyors
 8318 Forest Street Ellicott City, MD 21043
 Tel: 410-750-2251 Fax: 410-750-7350
 E-mail: FSHAssociates@cs.com

Revisions

No.	Revisions	Date
1	Revised Lots and Lot Numbers. Deleted Retaining Wall & Their Easements on Lots 20, 21, & 43 thru 46. Revised Pipes/Storms. Moved Street Light. Re-Subdivided Lot 5. Extended Sewer Easement. Revised General Notes #26 & 27. Removed General Note #32. Revised General Note #37 (Formerly #36).	02/12/2007
2	Revised Lot Areas for Lots 35 thru 39, 55 and 56; Revised BRL on Lots 1 thru 3, 11, 15, 16, 19 thru 21 and 42; Revised Forest Conservation Easement Areas; Added Lot 58.	02/28/2005

SPECIFICATIONS FOR SEGMENTAL RETAINING WALL SYSTEMS

PART 1: GENERAL

1.01 Description

A. Work includes furnishing and installing segmental retaining wall (SRW) Units to the lines and grade designated on the Final Design prepared by Ryan & Associates (RA). Also included are furnishing and installing appurtenant materials required for construction of the retaining wall as shown on the RA Final Design.

1.02 Reference Standards

- A. ASTM C 140—Sampling and Testing Concrete Masonry Units
- B. ASTM D 4585—Tensile Properties of Geotextiles by the Wide-Width Strip Method.
- C. ASTM D 5262—Test Method for Evaluating the Unconfined Creep Behavior of Geo-Grids
- D. GRIGG1—Single Rib Geogrid Tensile Strength
- E. GRIGG5—Geogrid Pullout
- F. ASTM D 698—Moisture Density Relationship for Soils, Standard Method
- G. ASTM D 422—Gradation of Soils
- H. ASTM 4318—Atterberg Limits of Soil
- I. ASTM 3034—Specification for Polyvinyl Chloride (PVC) Plastic Pipe
- J. ASTM D 1248—Specification for Corrugated Plastic Pipe

1.03 Design Standards

A. The following factors of safety must have been met in this design: Sliding 1.5, Overturning 2.0, Bearing Capacity 2.0, Geogrid Overstress 1.5, Geogrid Connection (between the block and the geogrid) and Geogrid Pullout 1.5 (from the block and from the soil).

PART 2: MATERIALS & DESIGN PARAMETERS

2.01 Segmental Retaining Wall Units

A. SRW Units shall be machine formed, Portland Cement concrete blocks specifically designed for retaining wall applications. The SRW Unit currently approved for this project is:

Keystone Compac II as manufactured by Betco Block & Products

NOTE: Where Keystone specifications and reference documents conflict with these specifications, the RA specifications hold precedence.

B. SRW Units shall be sound and free of cracks or other defects that would interfere with the proper placing of the units or significantly impair the strength or permanence of the structure. Cracking or excessive chipping may be grounds for rejection. Units showing cracks longer than 1/2 inch shall not be used within the wall. Units showing chips visible at a distance of 30 feet from the wall shall not be used within the wall.

C. Concrete used to manufacture SRW Units shall have a minimum 28 days compressive strength of 3,000 PSI and a maximum moisture absorption rate, by weight, of 8% as determined in accordance with ASTM C 140. Compressive strength test specimens shall conform to the saw-cut coupon provisions of Section 5.2.4 of ASTM C 140 with the following exception: Coupon shall be taken from the least dimension of the unit of a size and shape representing the geometry of the unit as a whole.

D. SRW Units molded dimensions shall not differ more than ± 1/8 inch from that specified, except height which shall be ± 1/16 inch as measured in accordance with ASTM C 140.

2.02 Geosynthetic Reinforcement

A. Geosynthetic reinforcement shall consist of geogrids as indicated on the RA Final Design. No geogrid substitutions shall be permitted without the prior approval of RA (a partial redesign may be necessary if geogrids are substituted). NOTE: It is always acceptable to substitute a higher strength geogrid (of the same manufacturer) for a lower strength geogrid.

2.03 Shear Connectors

A. Shear connectors shall be 1/2 inch diameter thermoset isophthalic polyester resin-pultruded fiberglass reinforcement rods or equivalents to provide connection between vertically and horizontally adjacent units. Strength of shear connectors between vertical adjacent units shall be applicable over a design temperature of 10 degrees F to +100 degrees F. These connectors shall be capable of holding the geogrid in the proper design position during geogrid pre-tensioning and backfilling.

2.04 Leveling Pad

A. Material for the leveling pad shall consist of compacted gravel or unreinforced concrete. Typical gravels used for this leveling pad are #57, CR# 21A, 2A modified, 2B, RC# R257, etc. An unreinforced concrete with a strength of 1,500 PSI may also be used for the leveling pad.

2.05 Drainage Aggregate

A. Drainage aggregate shall be clean angular gravel (#57 or equivalent) with a size of 1/2 inch to 1 1/2 inches and less than 10% fines (passing the #200 sieve). Rounded " pea gravel" type aggregate is not permissible since it does not have the necessary frictional properties. Recycled gravel may be used if it meets the above criterion.

2.06 Drainage Pipe

A. The drainage collection pipe shall be a 4 inch perforated or slotted PVC or corrugated HDPE pipe.

2.07 Infill Soil: within the reinforced geogrid zone

A. The soils used must meet or exceed the friction angle stated in the RA Final Design (in the General Notes, on the typical wall section and on the structural cross sections). The reinforced material shall be free of debris and organic material (i.e., no plants, roots, sod, top soil, trash, wood, etc.). The infill soil shall not consist of CH (fat clay), MH (elastic silt) or OH/OL/PT (organic) soils.

B. Rocks may be used as infill material as long as they have a maximum size of 6 inches and a mean diameter of 3 inches. Recycled concrete is permissible for infill except with certain polyester geogrids in water applications. In the case of water applications the geogrid manufacturer shall be consulted to see if the alkali in the recycled material will cause corrosive damage to their geogrid.

C. Select gravel (classified by USCS as GP or GW) is always an acceptable substitution in the event suitable soils (those meeting RA's and the site geotechnical engineer's requirements) are not readily available.

D. 208 Retained Soil: the area beyond the infill soil and extending to a distance that is twice the wall's exposed height

A. This soil must meet or exceed the friction angle stated in the RA Final Design (in the General Notes, on the typical wall section and on the structural cross sections). This soil must be virgin (natural undisturbed with blow counts <12) or suitable fill (friction angle ≥ the RA Final Design requirement) compacted to 95% of a standard proctor maximum dry density.

2.09 Foundation Soil: the soil under the wall's gravel leveling pad and the soil under the reinforced geogrid zone

A. The foundation soil must meet or exceed the minimum allowable bearing capacity stated in the RA Final Design (in the General Notes and on the typical wall section). The sub-grade must be virgin (natural undisturbed soil with blow counts ≥12) or suitable fill (friction angle ≥ the RA Final Design requirement) compacted to 95% of a standard proctor maximum dry density.

2.10 Soil Investigation

A. RA recommends that every retaining wall design be preceded by an in-situ soil investigation by a licensed geotechnical engineer. However, if the owner and/or wall installer elects not to have an investigation conducted RA may assume soil design parameters based on: published data by the Soil Conservation Service (soil maps), a verbal description by the owner and/or wall installer or by RA's previous experience in certain geographic areas. It must be understood that the owner and/or wall installer bears full responsibility to the election not to have an investigation performed.

2.11 Site History & Information

A. Many factors other than soil information affect the performance and design of the retaining wall. RA relies on information provided by the owner and/or wall installer when designing a retaining wall. RA bears no responsibility if the owner and/or wall installer omit critical information required to properly design the wall. Information critical to wall design from the site consist of: topographic features (such as slopes), soil types, utilities, storm water management, structures (including buildings, other existing or proposed walls, swimming pools, etc.), site geological phenomenon, groundwater, loads with the wall's zone of influence (such as driveways, patios, roadways, sidewalks, etc.) and any other readily known site factors that could potentially impact the RA Final Design.

PART 3: CONSTRUCTION

3.01 Installation

A. RA considers all retaining walls to be critical structures, meaning most walls require a considerable financial investment by the owner and failure of a wall will negatively impact a property both financially and from a public safety perspective. The owner or owner's representative is responsible for verifying that the wall installer meets all of the requirements of the RA Final Design (as stated in these specifications and the project's General Notes). This includes all submittals for materials and design, qualifications and proper installation of the wall system. All walls with an exposed height of 6 feet or greater must have the construction certified by a licensed geotechnical/structural engineer registered in the jurisdiction of the project. Additionally, after the wall has been completed it is highly recommended that it be surveyed to establish the wall's current horizontal and vertical alignment.

B. The wall installer's field construction supervisor shall have demonstrated experience and be qualified to direct all work at the site.

C. RA provides construction oversight on some retaining wall projects. RA verifies general compliance with the RA Final Design; however, it is the wall installer's ultimate responsibility to construct the structure properly in accordance with the RA Final Design. RA's liability is limited to the amount of our fees for the scope of work provided for the wall designs and construction oversight.

3.02 Excavation

A. The wall installer shall excavate to the lines and grades shown on the RA Final Design and the project's civil plans. The wall installer shall take precautions to minimize over-excavation. Over-excavation shall be filled with compacted soil (friction angle ≥ RA design parameters) or gravel as directed by the site geotechnical engineer.

B. The wall installer shall verify the location of existing structures and utilities prior to excavation. The wall installer shall ensure that all surrounding structures are protected from the effects of wall excavation. Excavation support (shoring), if required, is the responsibility of the wall installer. All excavation must be conducted in accordance with OSHA (federal) and state safety regulations. All work to construct the wall must be in accordance with 29CFR1926 sub-part P (OSHA Excavation Safety Requirements).

3.03 Foundation Preparation

A. Following excavation, the foundation soils (under the wall's gravel leveling pad and under the wall's reinforced geogrid zone) shall be examined by the site geotechnical engineer to assure that the actual foundation soil strength meets or exceeds the minimum allowable bearing capacity in the RA Final Design (stated in the General Notes and shown on the typical wall section). Soils that do not meet the required strength shall be removed and replaced with approved select structural fill or gravel and be compacted to 95% of a standard proctor maximum dry density for the full depth.

B. In cases of poor bearing capacity or fill soils, an enlarged geogrid reinforced leveling pad may be required. This typically consists of a 1 foot deep x 4 foot wide leveling pad with geogrid under (on the sub-grade) and within the gravel (6 inches above the sub-grade). The sub-grade must be compacted with a "J-Tamp" or "Jumping Jack" type compactor with a minimum of three passes prior to geogrid placement. These extra measures will increase the soil's bearing capacity by a minimum of 1,000 PSF (RA shall be consulted if the soil's bearing capacity needs to be increased by more than 1,000 PSF).

3.04 Leveling Pad Construction

A. The leveling pad shall be placed so that its top elevation is the same as the bottom of block ("BB") elevation on the RA Final Design profile drawing. It shall have a minimum thickness of 6 inches and a minimum width of 2 feet. The leveling pad should, at a minimum, extend laterally at least a distance of 6 inches from the toe and heel of the lower most SRW Unit.

B. The leveling pad material shall be compacted to 95% of a standard proctor maximum dry density with a vibratory plate compactor to provide a firm level-bearing surface on which to place the first course of SRW Units. A thin layer (not to exceed 1/2 inch) of well-graded sand or stone dust may be used to smooth the top of the leveling pad.

3.05 SRW Unit Installation

A. All SRW Units shall be installed at the proper elevation and orientation as shown on the RA Final Design profile drawing and in conjunction with the project's civil plans. The SRW Units shall be installed in general accordance with the manufacturer's recommendations (RA's Final Design shall govern in any conflict between the two requirements).

B. The first course of SRW Units shall be placed on the leveling pad. The units shall be leveled side-to-side, front-to-rear and with adjacent units, and aligned to ensure intimate contact with the leveling pad. The first course is the most important for accurate and acceptable results. Alignment may be done by means of a string line or an offset from the base line to the backs of the blocks. SRW units shall have a minimum 4 inch overlap on units on each successive course so that the wall is interlocked and continuous. No horizontal gaps greater than 1/4 inch between the faces of adjacent units are permitted.

C. Because the wall has a setback, its batter must be predetermined during the stake out process by the civil engineer/surveyor and wall installer. If there are critical dimensions that must be met on the high side of the wall then the base (at the toe) will need to be moved forward to compensate.

D. Lay out of curves and corners shall be installed in accordance with the civil plans and the RA Final Design. Construction techniques for curves and corners shall be in general accordance with the SRW manufacturer's installation guidelines. In general, all tangent angles shown on the civil drawings should be changed into curves to enhance the wall's strength and appearance. Continuous vertical joints are not recommended. Inside and outside 90° corners may be constructed without compromising the wall's integrity if they are properly interlocked. Inside corners should be constructed so that the SRW Units interlock (according to manufacturer's recommendations) and outside corners should incorporate special corner blocks when possible. If special outside corner blocks are not available from the block manufacturer for this project then the manufacturer's guidelines for building structural outside corners shall be followed. If gluing is necessary only industrial grade adhesives or sealants designed for concrete-to-concrete applications may be used (adhesives designed for plastic or wood applications are not acceptable).

E. Clean all excess debris from the tops of the SRW Units and install the next course.

F. Repeat procedures to extent of wall height.

G. A ±2 tolerance is permitted horizontally for wall batter (block setback). In no case shall a wall go beyond vertical (have a negative batter). Walls shall be built level (not with grade), however a ±1.5 inch tolerance over a 10 foot distance is permitted vertically (as checked from left to right along the wall).

H. Embedment shall be a minimum of 1 inch buried for every 1 foot of wall exposed with one block minimum when the front slope is 4:1 or greater (more level). Walls constructed on 3:1 front slopes or less (more steep) require additional buried blocks. See the profile drawing in the RA Final Design for the exact amount of embedment (the amount of buried block can be determined at each wall station by subtracting the "BB" elevations from the "GR" elevations).

3.06 Geogrid Reinforcement Placement

A. All geogrid reinforcement shall be installed at the proper elevation, length and strength as shown on the profile and structural cross sections in the RA Final Design. Partial geogrid coverage is not acceptable; no gaps shall be present between geogrid layers. 100% coverage is required, however it is not necessary to overlap the geogrid pieces. The geogrid shall be laid horizontally on the compacted infill soil and on top of the concrete SRW Units. The geogrid must be embedded into the SRW Units to the face. The wall installer shall verify that the orientation of the geogrid is in accordance with the geogrid manufacturer's recommendations. The highest strength direction of the geogrid must be perpendicular to the wall face (the geogrid must not be laid parallel to the wall—cannot be rolled out with the wall).

B. Geogrid reinforcement layers shall be one continuous piece for their entire embedment length. Overlapping of the geogrid in the design strength direction (perpendicular to the wall face) is not permitted.

C. Tracked construction equipment shall not be operated directly on the geogrid. A minimum of 6 inches of backfill is required prior to operation of tracked vehicles over the geogrid. Turning shall be kept to a minimum. Rubber-tired equipment may pass over the geogrid reinforcement at slow speeds (less than 5 MPH).

D. The geogrid shall be in tension and free of wrinkles prior to placement of the infill soil. Nominal tension shall be applied to the geogrid and secured in place with staples, stakes or by hand until it is covered by 6 inches of infill soil.

E. For inside & outside corners and inside & outside curves the geogrid shall be placed according to the manufacturer's instructions to provide total geogrid coverage. On outside corners the geogrid should be shifted up or down one course and alternated so that the geogrid comes into the reinforced geogrid zone from both legs of the 90° angle. Geogrid layers should never be placed on top of one another; there must be a minimum of 3 inches of compacted infill soil between geogrid layers.

3.07 Wall Drainage

A. Drainage aggregate (clean gravel such as #57 or equivalent) shall be installed behind the entire wall face from the first course below grade to one course from the top of the wall. The drainage gravel shall be placed to a minimum thickness of 12 inches behind the SRW Units. Drains shall also fill all voids between and within (if hollow) the SRW Units. SRW Units must be filled with drainage aggregate in one course lifts (SRW Units may not be stacked in two or three course lifts and then have the gravel dumped in from the top through multiple courses). An impermeable clay layer (CL, GC or SC) shall be placed on top of the 12" drainage layer. If clayey soils are not readily available, a layer of filter fabric (Mirafi 140N or equivalent) shall be placed on top of the gravel (below the topsoil) to prevent the downward migration of fines.

B. Drainpipes are mandatory and shall be vented to daylight at the end(s) of the wall, at a central low point of the wall, or through the wall face at maximum intervals of 30 feet on center (no more than 6 inches above finished grade when vented through the wall face). The pipe(s) must maintain gravity flow of water outside the reinforced geogrid zone. Water must drain to an outlet and have positive flow. If a continuous pipe is run, it shall slope away into a storm sewer manhole or along a slope at an elevation lower than the lowest point of the pipe within the drainage aggregate. When drainpipes are daylighted at the end(s) of a wall they must be visible and unobstructed. The drainpipes should be checked by the owner on a regular basis to ensure that they remain open (not blocked, filled in, grown over, pinched).

C. Rear drainpipes are required in the following situations: when groundwater can rise and approach within 1 foot of the leveling pad sub-grade, in "cut" situations where the potential exists for storm water to enter the interface between the reinforced geogrid zone and the retained zone and when low permeable soils (CL-lean clay & ML-silt) are used for infill soil. Retaining walls with low permeable soils in the reinforced geogrid zone are more susceptible to being negatively impacted by hydrostatic forces. The owner may elect to install a rear drainpipe to minimize or eliminate potential hydrostatic force buildup leading to potential wall movements. RA recommends a rear drainage system for all walls with these soil types in cut situations, however ultimately it is the owner's decision. This rear drainpipe shall be surrounded by a minimum of 12 inches of clean gravel (#57 or equivalent) and surrounded with filter fabric to prevent the migration of fines. This rear drainpipe must vent to daylight or be directed to a storm sewer manhole (see instructions for front drainpipe in section 3.07B above).

D. Chimney drains (a second 12 inch layer of drainage aggregate within the rear 1 foot of the reinforced geogrid zone or directly behind the reinforced geogrid zone) must be installed when groundwater is present or likely (to an elevation that is a minimum of 1 foot above predicted levels as given by the site geotechnical engineer), when stated in the RA Final Design or when required by the site geotechnical engineer.

E. All drainage zone aggregate shall be compacted to 95% of a standard proctor maximum dry density with a vibratory plate compactor (minimum of three passes).

3.08 Backfill Placement

A. The infill soil shall be placed as shown in the RA Final Design in the maximum compacted lift thickness of 10 inches and shall be compacted to a minimum of 95% of a standard proctor maximum dry density (ASTM D 698) at a moisture content within 2% of optimum. The backfill shall be placed and spread in such a manner as to eliminate wrinkles or movement of the geogrid and the SRW units. Compaction testing shall be done at 25%, 50%, 75% and 100% of the wall height or as specified by the site geotechnical engineer.

B. Only a vibratory plate or small-scale vibratory smooth drum compactor equipment shall be allowed within 3 feet of the front of the wall face. Compaction within the 3 feet behind the wall face shall be achieved by at least three (3) passes of the lightweight mechanical plate compactor or roller. Heavy equipment (such as track hoes, ride on rollers, pons, etc.) must be kept back a minimum of 3 feet from the rear of the wall.

C. At the end of each day's operation, the wall installer shall slope the last level of backfill away from the wall facing to direct water runoff away from the wall face.

D. At completion of wall construction if final grading, paving, landscaping and/or storm drainage installation adjacent to the wall is not placed immediately after wall completion, temporary grading shall be provided to ensure that water runoff is not allowed to collect or pond behind the wall until final construction adjacent to the wall is completed.

E. Filter fabric (Mirafi 140N or equivalent) is required when the infill soil is classified as poorly graded sand (SP) or well graded sand (SW) since these soils are non-cohesive and could potentially slough, clogging the gravel drainage layer. Filter fabric is optional between the 12 inch gravel drainage layer and the compacted infill soil if the backfill soils are clayey (CL or SC), gravelly (GC, GM, GP or GW) or silty (ML or SM).

3.09 SRW Caps

A. SRW caps shall be properly aligned and glued (for safety reasons) to the underlying SRW Units with a flexible high-strength concrete adhesive or sealant designed for "concrete to concrete" applications (not for plastic or wood). Rigid adhesive or mortar is not acceptable.

3.10 Water Applications

A. When walls are installed in water applications (such as storm water ponds, streams, bulkheads, areas adjacent to flood plains, etc.) all clean gravel must be used as infill up to 1 foot above the 100 year flood elevation, the high water level or the top of berm/spillway. This gravel must be free draining and have less than 10% fines (#57 or equivalent). Filter fabric (Mirafi 140N or equivalent) must go in front of the buried block, under the leveling pad, behind the reinforced geogrid zone (vertically up to the extent of the gravel infill) and on top of the gravel infill (horizontally). This is required to prevent the migration of fines into the gravel infill. Rip rap is required in front of the bottom row of the SRW units installed in tidal waters. Rip rap is also required when indicated on the civil plans and where pipes with active water flow exist through the wall.

3.11 Rails, Fences & Other Structures

A. The scope of RA for this project does not include fence or railing designs. Typical details have been given to provide general guidelines for the installation of fences, guardrails and rollings behind walls. RA cannot give specific details because the type, placement and height of fences and rails vary widely and because the requirements are different depending on the municipality and regulatory authority. RA can provide a project specific fence or rail detail and structural design for an additional fee. If you exact information (material type and size and manufacturer's specifications and installation guidelines).

B. Open fences and rollings not subject to wind loads (minimum of 50% open and maximum of 50% solid) may be placed directly behind the wall or in the wall (can be placed in the blocks only if they are a hollow system and if the cores and web alignment will accept the posts) as long as they are not subject to vehicular impact. Solid or semi-solid fences that are subject to wind loads must be kept back a minimum of 3 feet from the rear of the wall to prevent loading of the wall.

C. Guardrails subject to vehicular impact must be kept back a minimum of 3 feet from the rear of the wall to prevent loading of the wall. Guardrails may be placed closer than this 3 foot minimum only if a barrier (such as curbing, wheel stops, etc.) is in place to prevent vehicular impact (the overhang of vehicles must be considered when determining this).

D. Light post foundations, sign foundations and similar structures subject to wind loads must be kept back a minimum of 3 feet from the rear of the wall to prevent loading of the wall.

E. In cases where these 3 foot minimum distances cannot be met due to restraints on the site, additional analyses will need to be done to determine methods of stabilization. RA can provide these designs for an additional fee.

3.12 Storm Structures & Utilities

A. Reinforced Concrete Pipes (RCP) may pass through the leveling pad or wall structure without compromising the design. The SRW units may be cut to fit around the pipe and the voids filled with non-shrink grout or type "M" mortar. A concrete collar may be cast around the structure if desired. When a collar is cast, the top of the collar shall line up with an even block course to maintain proper alignment and neat workmanship.

B. The wall may not bear on plastic or steel pipes (such as ADS, CMP, HDPE, PVC, SLPPF, etc.) or utilities (such as electric, gas, phone lines, sewer or water lines, etc.). Grade beams or lintels must be used to bridge these non-load bearing structures. If a specific grade beam or lintel is not specified in the RA Final Design, RA shall be consulted to determine the size, strength and reinforcement of the grade beam or lintel. If these non-load bearing pipes or utilities are located at minimum of 42 inches below the wall's leveling pad then a grade beam or lintel is not necessary.

C. Concrete storm structures may be located behind a wall and be within the reinforced geogrid zone as dictated by the project's civil drawings. If the structure(s) cannot be moved out of the reinforced geogrid zone and the geogrid cannot be installed to its full design length the following shall apply. On small structures (such as collection boxes, concrete pipes less than 18 inches, inlets, manholes, etc.) it is acceptable to shorten the geogrid from the design length and meet the structure. The area between the wall and structure where the geogrid has been shortened must be filled with gravel (#57 or equivalent) and not soil. The gravel must be compacted to 95% of a standard proctor maximum dry density with a vibratory plate compactor. On large structures and in cases where pipes parallel the wall for long distances, RA shall be consulted to determine the impact on the wall before allowing this to be done.

D. The wall's integrity may be compromised if pipes or structures burst or develop leaks and allow water or fluids to saturate the reinforced geogrid zone. RA is not responsible for wall failure that results from pipes or structures that burst or leak and allow water or fluids to saturate the reinforced geogrid zone.

3.13 Construction Adjacent to Completed Wall

A. The owner or owner's representative is responsible for ensuring that construction adjacent to the wall by others does not disturb the wall or place temporary construction loads on the wall that exceed design loads, including loads such as water pressure, temporary grades, or equipment loading. Heavy paving or grading equipment shall be kept a minimum of three feet behind the back of the wall face. Equipment with wheel loads in excess of 150 PSF per load shall not be operated with 10 feet of the face of the retaining wall during construction adjacent to the wall. Care should be taken by the general contractor or owner to ensure water runoff is directed away from the wall structure until final grading and surface drainage collection systems are completed.

B. Care must be taken when installing appurtenances (such as generators, transformers, etc.) or utilities within the reinforced geogrid zone of the wall. The compaction integrity of the reinforced geogrid zone must be maintained, both below and beside (around) the appurtenance or utility. Neglecting to do so may cause hydrostatic pressure and wall failure.

3.14 Storm Water Management

A. The segmental retaining wall is not a storm water management structure. The wall can accommodate the rainfall above the reinforced geogrid zone but not the watershed (including the retained zone). Therefore it is absolutely essential that surface water be prevented from entering (and ultimately saturating) the reinforced geogrid zone. This is usually accomplished by the site engineer (owner's civil engineer) grading the surface behind the wall to direct surface water to swales that divert the water around the wall ends, to inlets or over the top of the wall through scuppers. If water is directed to the wall (such as applications with back slopes), the top 8 inches of compacted fill over the reinforced geogrid zone must have impermeable soil (such as CL, GC or SC). If clayey soils are not readily available an underlying geomembrane (geosynthetic liner) may also be used. This geomembrane shall be Mirafi G200N, Stratadrain or equivalent. It shall extend downward vertically a minimum of 3 feet behind the reinforced geogrid zone, be laid horizontally on top of the reinforced geogrid zone with a maximum slope of 10:1 and extend forward into the 12 inch gravel drainage layer.

3.15 Post Construction Responsibilities

A. Retaining walls are a substantial financial investment. Therefore it is in the owner's best interest that a wall maintenance budget be established within the overall property management budget to monitor and provide preventative maintenance. Retaining wall maintenance, at a minimum, should consist of: checking drainage, inspecting for settling and surveying to verify alignment and batter. This service should be qualified personnel under the supervision of a licensed geotechnical/structural engineer. RA can provide this service for an additional fee.

B. RA SHOULD BE NOTIFIED AS SOON AS REASONABLY POSSIBLE IF THE RETAINING WALL EXHIBITS CONDITIONS CONTRARY TO THE RA FINAL DESIGN SO THAT RA MAY BE CONSULTED TO PROTECT THE OWNER'S INVESTMENT.

END OF SECTION Revised 01-07-04

The information contained herein is proprietary and is the sole property of RA. It is only intended for use on this project. Reuse of these drawings, sketches, and design computations in any manner is strictly prohibited pressure without written approval from RA. Any other use is subject to penalty of law. (c)

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Cindy Hamstra 10/19/04
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

10/15/04
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

CHIEF, BUREAU OF HIGHWAYS 113 DATE

No.	REVISION	Date
1	REVISE TITLE BLOCK	05-23-07
2	REVISED LOT AREAS FOR LOTS 55 THRU 59, 58 AND 56; REVISED PERL ON LOTS 1 THRU 5, 11, 15, 16, 19 THRU 21, AND 42; REVISED FOREST CONSERVATION EASEMENT AREAS; ADDED LOT 52.	02-28-05

RYAN & ASSOCIATES
 A Division of WKR Consulting, Inc.
RETAINING WALL DIVISION
 717-477-8400 fax 717-477-8410
 68 West King Street
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Professional Engr. No. 21586

OWNER/DEVELOPER
 Richmond American Homes of Maryland, Inc.
 6200 Old Dobbin Lane
 Columbia, Md 21045
 410.574.0267

LOTS 1 THRU 4, 18 THRU 54, 60 THRU 72
OPEN SPACE LOTS 55 THRU 59 & 73

RETAINING WALL SPECIFICATIONS
HUNTERS RIDGE
LOTS 1 THRU 54, OPEN SPACE LOTS 55 THRU 58
 AND A RESUBDIVISION OF BULK PARCEL 'C'
 WESLEY WOODS, SECTION 1

TAX MAP 38 GRIDS 4 & 10
 1ST ELECTION DISTRICT

PARCEL 163
 HOWARD COUNTY, MARYLAND

DESIGN BY: DKS
 DRAWN BY: JWP
 CHECKED BY: YKR
 SCALE: AS SHOWN
 DATE: Jan. 07, 2004
 W.O. No.: 3018
 SHEET No.: 20 OF 20

FSH Associates
 Engineers Planners Surveyors
 8518 Forest Street, Elkton City, MD 21043
 Tel: 410-750-2251 Fax: 410-750-7390
 E-mail: FSHAssociates@cs.com

GENERAL NOTES

1. SOIL PARAMETERS: Based on review of the "Geotechnical Engineering Study" dated 07/20/2001 for this site prepared by Hillis-Carnes Engineering Associates, Inc., an internal angle of friction of 27° was used for the soils in this design. This is for a worst case CL (lean clay) soil type and shall be verified during wall construction. CH (fat clay), MH (elastic silt) and OH/OL/PT (organic) soils are not acceptable for wall construction. If these unsuitable soils are encountered they shall be removed and replaced with soils that meet or exceed the design friction angle of 27°. The on site geotechnical engineer shall monitor this closely during the construction process. The site soils vary widely (in addition to CL there is also ML- silt, SC- clayey sand & SM- silty sand). If possible, the sandy soils should be stockpiled and used for backfilling the wall since they have a higher friction angle, are more free draining and it is easier to achieve 95% compaction (CL & ML are fine-grained and it is difficult to control the moisture level). The moisture level of the soils must be ±2% of optimum. Since proctor tests were not available for the CL soil, an assumed unit weight (maximum wet density) of 125 PCF was used. Fluctuations of 5 PCF higher or lower will not affect these designs, however if the unit weight varies by more than 5 PCF Ryan & Associates (RA) must be notified so that the cross sections can be rerun to verify that all factors of safety are still met. The site geotechnical shall run standard proctor tests of the proposed backfill soil (prior to wall construction) to verify the accuracy of this design assumption. No cohesion was used in any of the calculations.

2. CONSTRUCTION OVERSIGHT: The construction of this wall must be performed under the observation of a Maryland Registered Professional Engineer to ensure that it is built in accordance with the RA General Notes and Specifications.

3. GLOBAL STABILITY: A global stability analysis was done on G-Slope design software for the wall and a factor of safety of 1.3 was met. A copy of the global stability analysis has been included in the 8 1/2" X 11" calculations submittal.

4. BEARING CAPACITY: The wall's sub-grade (the soils under the wall's gravel leveling pad and the soils under the wall's reinforced geogrid zone) must be tested by the site geotechnical engineer prior to wall construction and have a minimum allowable bearing capacity of 3,000 PSF. The sub-grades must be virgin (natural undisturbed soil with blow counts greater than or equal to 12) or suitable fill (greater than or equal to 27°) compacted to 95% of a standard proctor maximum dry density. Any areas of the sub-grade that does not meet this maximum pressure will require undercutting and/or geogrid reinforcing.

5. DESIGN SOFTWARE: Internal and external wall calculations were performed with Keywall 2001 design software (version 3.1.6). A table has been included ("Cross Section Details and Factors of Safety") which has the following information: section location (area of wall referenced), total wall height, loads applied, factors of safety (for sliding, overturning, bearing capacity and global stability) and bearing pressure (the load exerted by the wall on the sub-grade). Factors of safety of 1.5 were also met for: geogrid pullout (from the soil and from the block), geogrid overstress (geogrid rupture) and connection (block to geogrid).

6. SPECIFICATIONS: Construction and materials must conform to the attached "Specifications for Retaining Wall Systems".

7. GEOGRIDS: Mirafi 3XT & 5XT geogrids, which have LTDS (Long Term Design Strengths) of 1558 and 2234 respectively, were used in this design. All geogrid substitutions must have prior approval of RA.

8. WALL PROFILE: The elevation drawing was done to represent the grade changes necessary on the civil drawings and was done in even block course increments of .667' (8"). Minor field changes may be necessary by the wall installer. Lineal footage may be added or subtracted as needed if the wall's height is equal to or less than the design heights. If the wall needs to be raised in height, RA shall be notified and new structural cross sections must be provided before the wall installer proceeds. The cap height of .333' (4") is not shown on the profile drawing however its height may have been used in some cases to achieve the desired TW elevations.

9. WALL BATTER: The 7.1' batter (1" setback per block course) was used for the Keystone blocks in this design. The 0.5' (near vertical: 1/16" setback per block course) may not be used for this wall. NOTE: it is important for the wall installer and the civil engineer/surveyor to predetermine the walls' batters during stake out. The wall will need to be moved forward at its base if there are critical dimensions that must be met on the high sides of the wall.

10. FACTORS OF SAFETY: The following factors of safety have been met in this design: Sliding 1.5, Overturning 2.0, Bearing Capacity 2.0, Geogrid Overstress 1.5, Geogrid Pullout 1.5 (from the block and from the soil) and Global Stability 1.3.

11. EMBEDMENT: The wall embedment varies from one to ten blocks. The exact amount of buried blocks may be determined by subtracting the "BB" elevations from the "GR" elevations on the RA profile drawing. Additional blocks were buried in some areas so that the wall will not be built on fill soils.

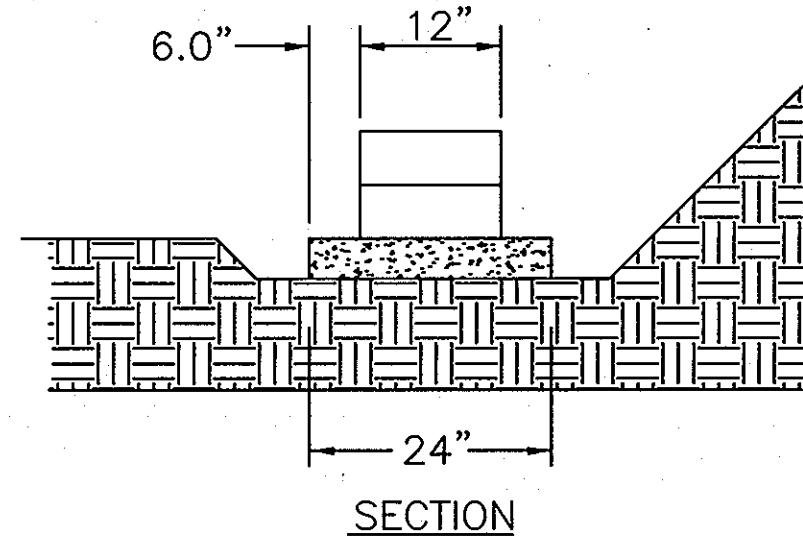
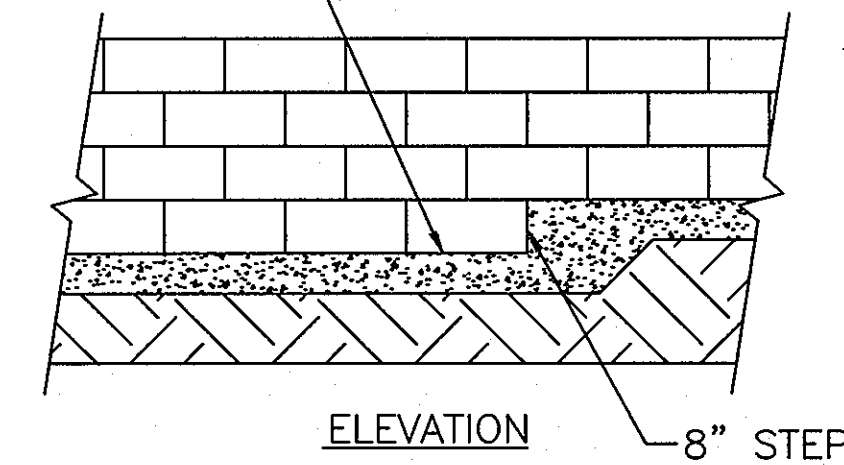
12. REAR DRAIN TILES: Rear drainpipes are required at the back of the wall's reinforced geogrid zone. This is in addition to the mandatory 4" drainpipe at the front of the wall (within the gravel leveling pad or behind the at grade courses- depending which drainpipe position is exercised). The rear drainpipe shall be surrounded by a minimum of 6" of clean gravel (#57 or equivalent) and shall have perpendicular solid pipes that run forward and connect to the front drainage system with crosses or tees.

13. BLOCK SYSTEM: This design is valid only for the Keystone Compac II block system. Each segmental wall system has unique dimensions, connection devices and interacts differently with geogrids; therefore other block types may not be substituted.

14. SEPARATE 8 1/2" X 11" SUBMITTAL: A separate 8 1/2" X 11" booklet has also been provided and includes: cover letter, General Notes, Keywall cross section calculations, G-Slope global stability calculations and RA Specifications.

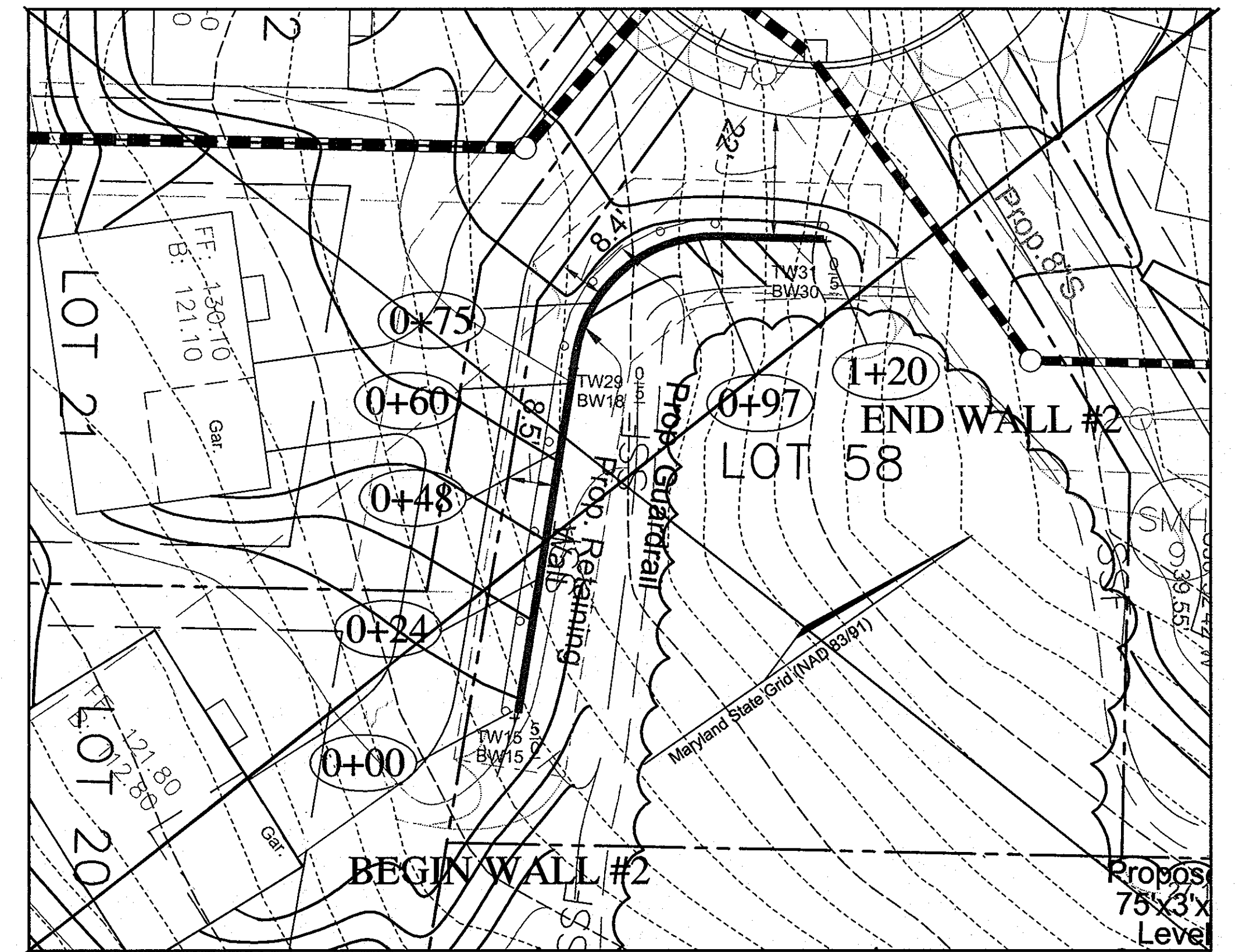
15. SPECIAL HOWARD COUNTY RETAINING WALL SPECIFICATIONS:
a. Retaining walls shall only be constructed under the observation of a Registered Professional Engineer and a (NICET, WACEL, or equivalent) certified soils technician.
b. The required bearing pressure beneath the footing of the wall shall be verified in the field by a certified soils technician. Testing documentation shall be provided to the Howard County Inspector prior to the start of construction. The required test procedure shall be the Dynamic Cone Penetrometer Test ASTM STP-399.
c. The suitability of the fill material shall be confirmed by the on-site soils technician. Each eight inch lift must be compacted to 95% Standard Proctor Density and the testing report shall be made available to the Howard County Inspector upon completion of the construction.
d. For walls over ten feet in height, one soil boring is required every 100 feet along the length of the wall, copies of the boring reports shall be provided to the Howard County Inspector prior to the start of construction.

6" COMPACTED GRAVEL OR UNREINFORCED CONCRETE LEVELING PAD



LEVELING PAD DETAIL

N. T. S.



WALL #2 (between Lots 21 & 58)

SCALE 1"=20'

CROSS SECTION DETAILS & FACTORS OF SAFETY:

SECTION	STATION	TOTAL WALL HEIGHT	LOAD APPLIED	SLIDING	OVERTURNING	BEARING CAPACITY	BEARING PRESSURE	GLOBAL STABILITY
				minimum 1.50	minimum 2.00	minimum 2.50	PSE	minimum 1.30
WALL #1								
1	0+00 TO 0+39	10.00'	300 PSF LIVE LOAD	1.63	3.78	6.78	1467	1.69
2	0+39 TO 0+94	14.00'	300 PSF LIVE LOAD	1.70	4.36	6.42	2008	1.69
3	0+94 TO 1+20	10.00'	300 PSF LIVE LOAD	1.63	3.78	6.78	1467	1.69

MATERIAL ESTIMATE: BLOCK: Keystone Compac II GEOGRID: Mirafi 3XT & 5XT

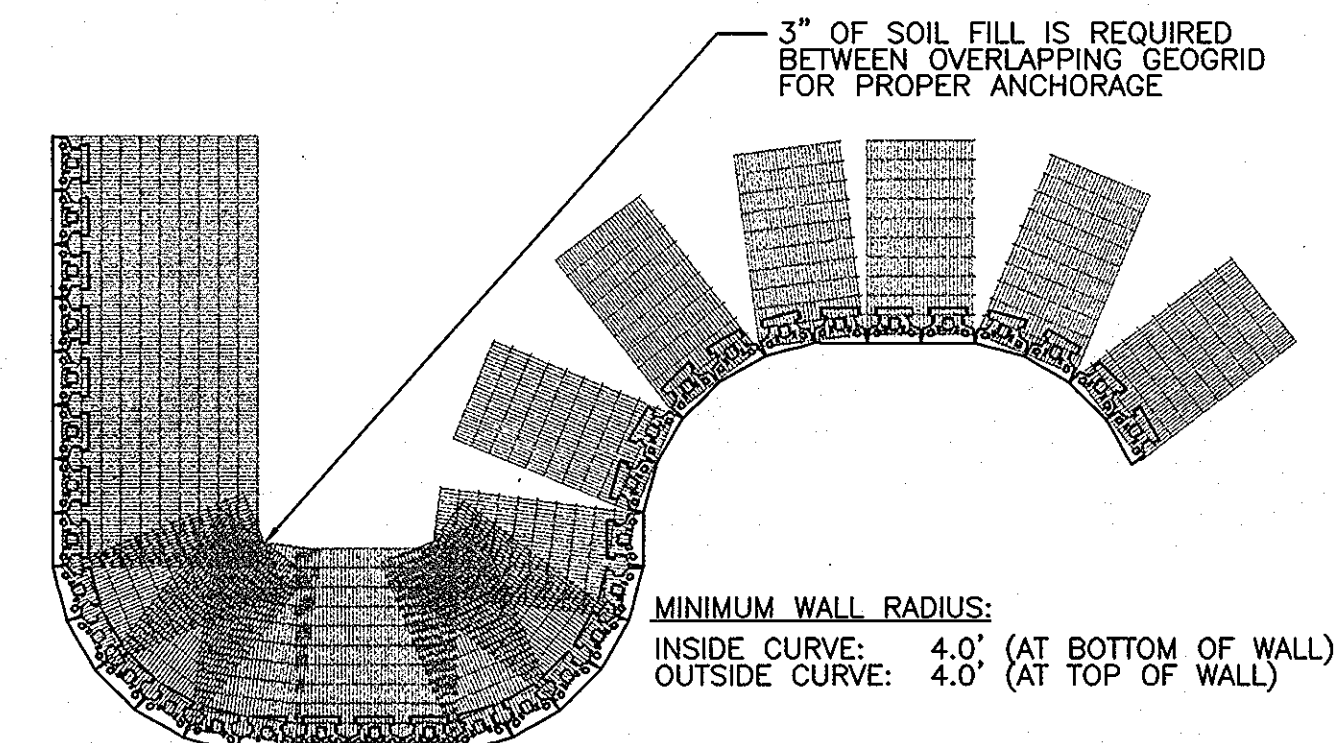
WALL	TOTAL SQ. FT.	(1.0 S.F.) BLOCK	(5 S.F.) CAPS**	PINS	SQ. YDS.			CU. YDS. DRAIN GRAVEL	LEVELING PAD GRAVEL	FT. WALL LENGTH
					3XT GRID	5XT GRID	7XT GRID			
1	1,273	1,225	96	2,290	415	360	0	75	9	120

Totals include 2% extra for block and caps, 15% for geogrid and 5% for gravel.

* Ryan & Associates is not responsible for extras or shortages based on this take-off. It is the contractor's responsibility to verify the accuracy of this design by reviewing the site/grading plan for this project.

** Includes one extra cap per step down on top of the wall for double capping.

REINFORCEMENT PLACEMENT FOR INSIDE AND OUTSIDE CURVES



GEOGRID INSTALLATION ON CURVES

N. T. S.

OWNER/DEVELOPER

Richmond American Homes of Maryland, Inc.
6200 Old Dobbin Lane
Columbia, MD 21045
410.872.0267

LOTS 1 THRU 4, 10 THRU 54, 60 THRU 72
OPEN SPACE LOTS 55 THRU 59 & 73

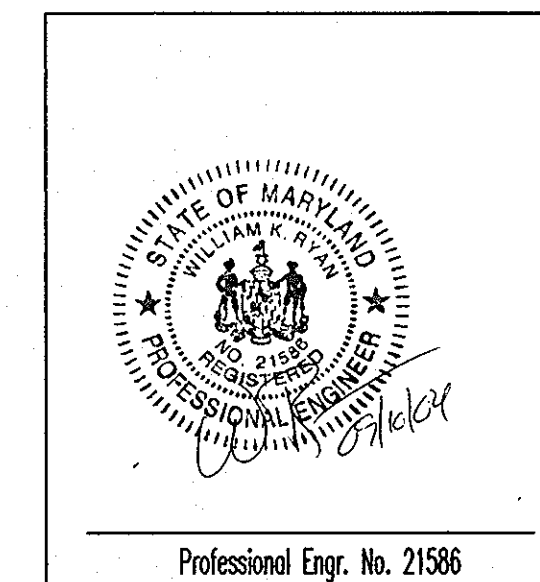
RETAINING WALL TABLES, DETAILS & CIVIL PLAN

HUNTERS RIDGE

LOTS 1 THRU 54, OPEN SPACE LOTS 55 THRU 59
AND A RESUBDIVISION OF BULK PARCEL 'C'
WESLEY WOODS, SECTION 1

TAX MAP 38 GRIDS 4 & 10
1ST ELECTION DISTRICT

PARCEL 163
HOWARD COUNTY, MARYLAND



RYAN & ASSOCIATES
A Division of WKR Consulting, Inc.
RETAINING WALL DIVISION
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68 West King Street
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FSH Associates

Engineers Planners Surveyors
8318 Forest Street, Ellicott City, MD 21043
Tel: 410-750-2251 Fax: 410-750-7350
E-mail: FSHAssociates@cs.com

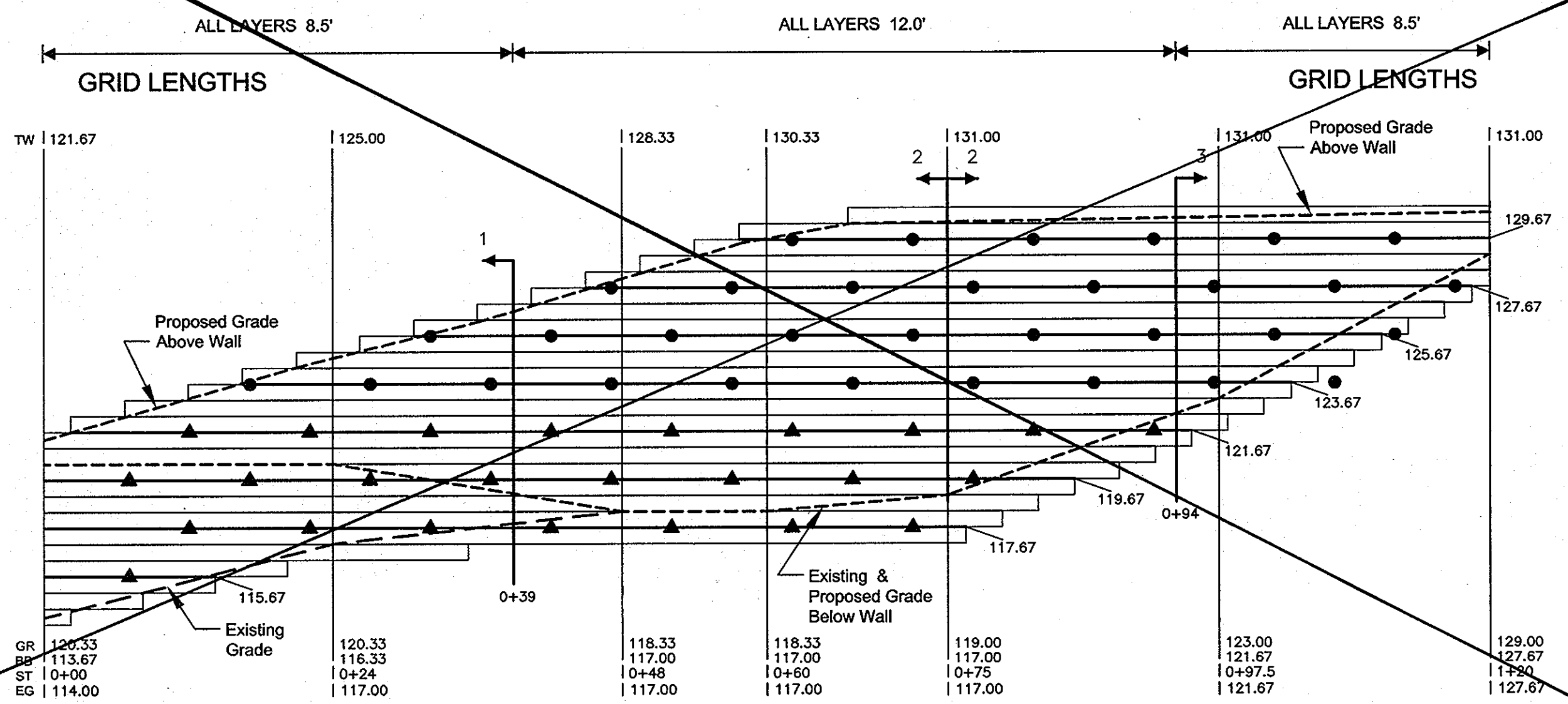
DESIGN BY: DKS
DRAWN BY: JWP
CHECKED BY: WKR
SCALE: AS SHOWN
DATE: 09/07/2004
W.O. No.: 3018
SHEET No.: 19 OF 20

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Cindy Hamilton 10/24/04
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
William Dammann 10/15/04
CHIEF, BUREAU OF HIGHWAYS DATE

No.	REVISION	Date
1	REMOVE RETAINING WALL #2 DETAIL. REVISE TITLE BLOCK.	09-26-07
2	Revised Lot Areas for Lots 55 thru 59, 55 and 56; revised BRL on lots 1 thru 3, 11, 15, 16, 19 thru 21, and 42; revised Forest Conservation Easement Areas; added Lot 58.	02-28-05

WALL #1 (between Lots 21 & 58) Δ

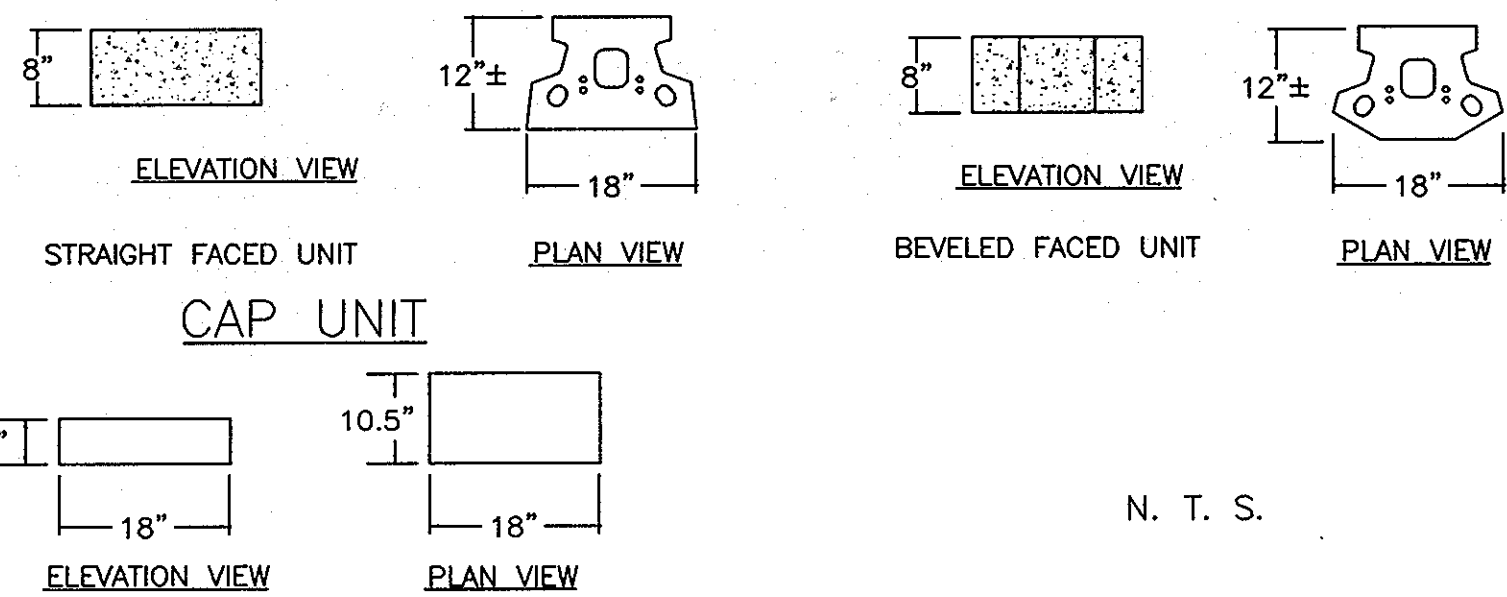


GRID KEY: MIRAFI 3XT
MIRAFI 5XT

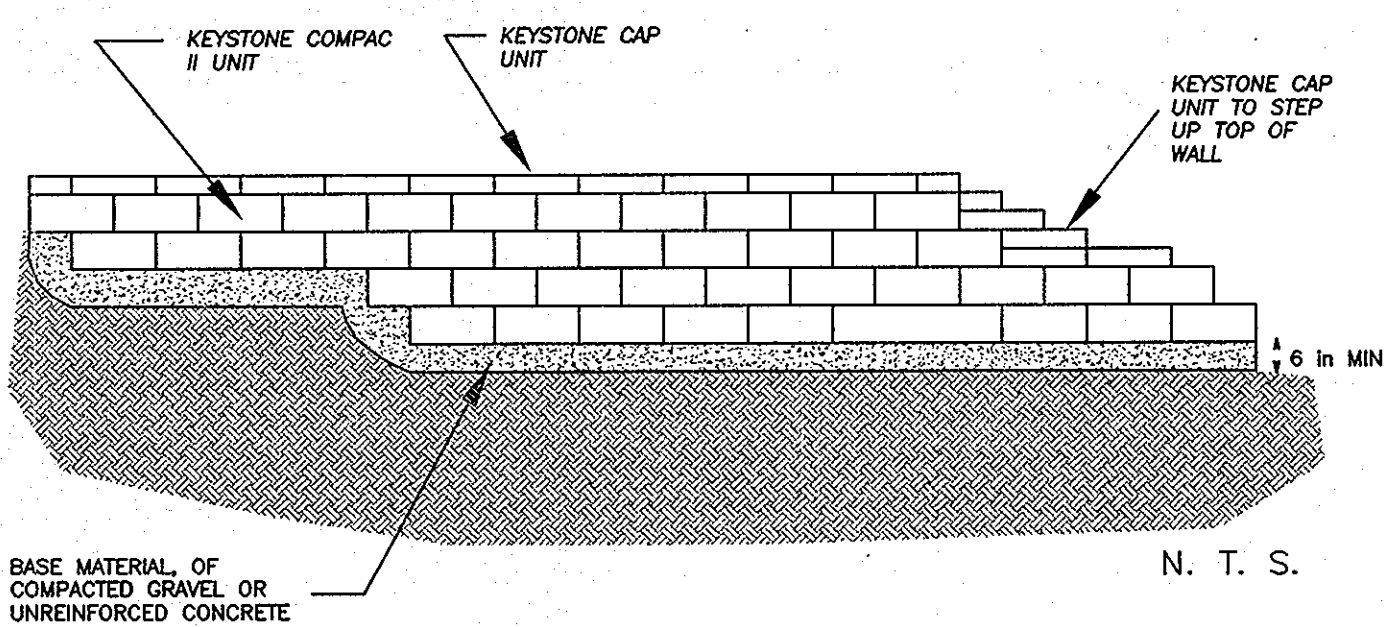
TW = TOP OF WALL (NOT INCLUDING CAP)
GR = PROPOSED FINISHED GRADE AT BASE OF WALL
BB = BOTTOM OF BLOCK / TOP OF LEVELING PAD
ST = WALL STATION
EG = EXISTING GRADE

Scale:
Horizontal 1" = 10'
Vertical 1" = 5'

KEYSTONE COMPAC II DIMENSIONS

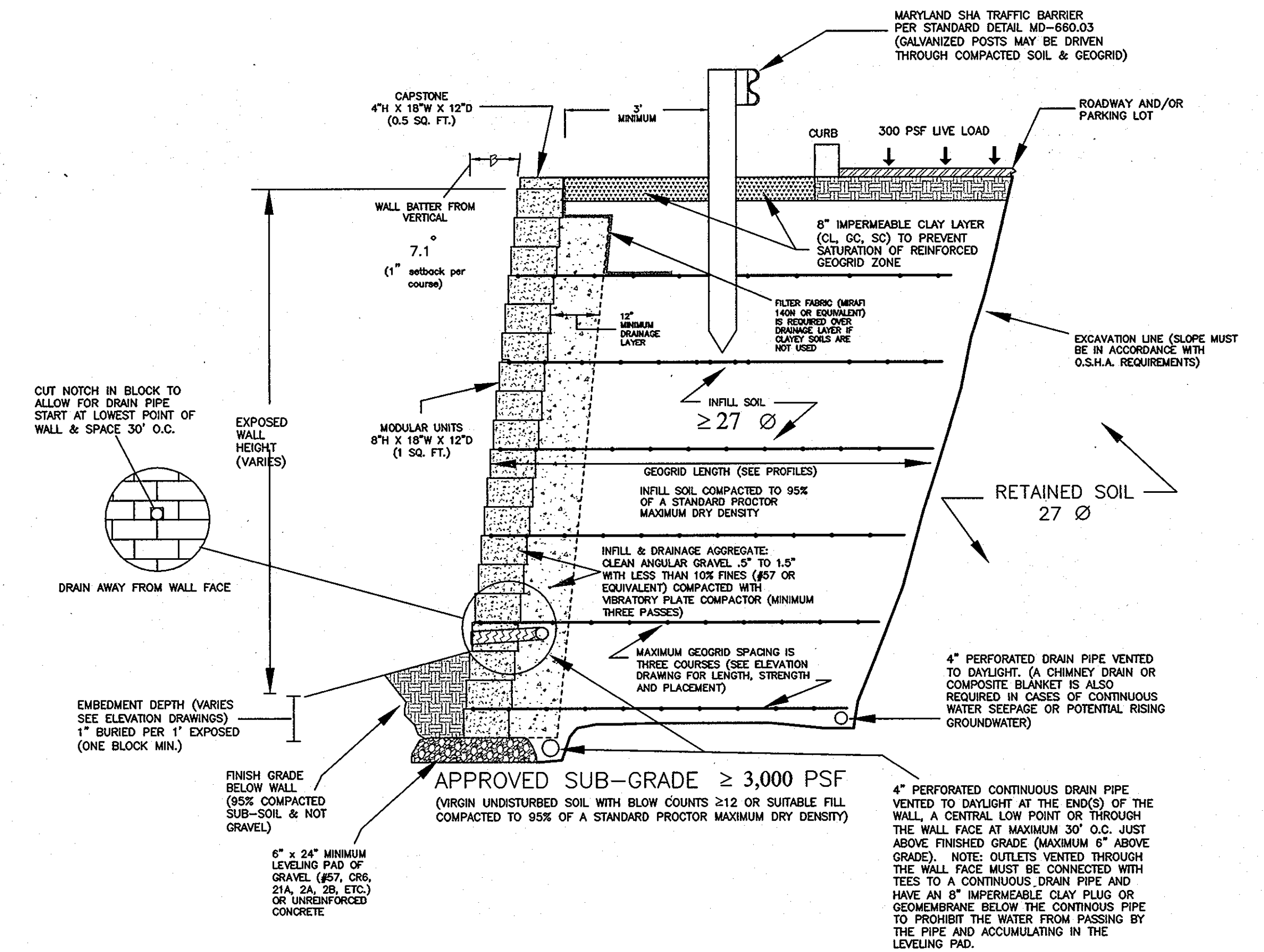


N. T. S.

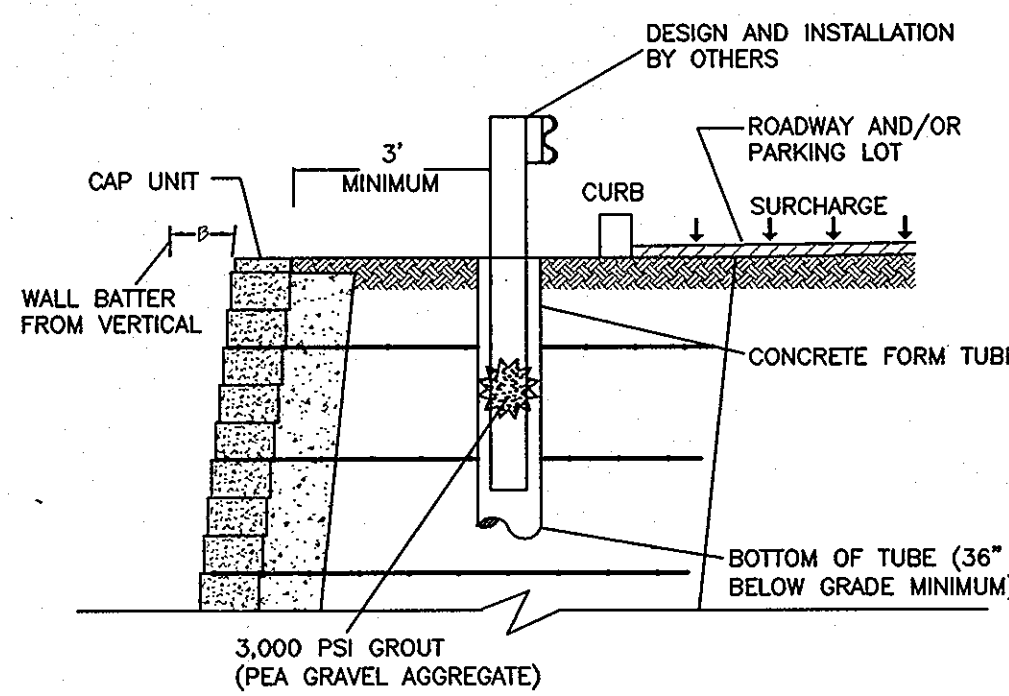


KEYSTONE STEP DOWN TYPICAL DETAIL

KEYSTONE COMPAC II
WALL SECTION

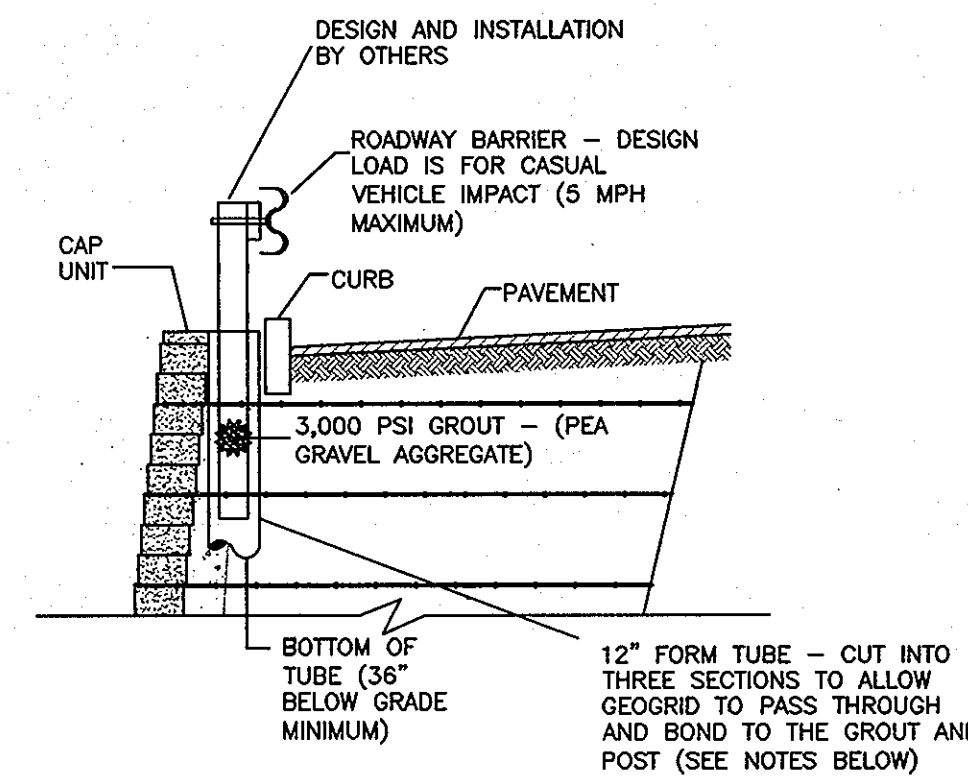


N. T. S.



NOTE:
1. GALVANIZED POSTS MAY BE DRIVEN DIRECTLY THROUGH THE COMPACTED SOIL AND GEOGRID (SEE DETAIL ABOVE RIGHT)
2. IF POSTS ARE SQUARE (SUCH AS 4X4 WOOD) CONCRETE FORM TUBES MUST BE PLACED DURING WALL CONSTRUCTION AND THE POSTS GROUTED IN LATER.
3. BLUNT POSTS MAY NOT BE DRIVEN INTO GEOGRID AFTER WALL CONSTRUCTION IS COMPLETE.

GUARDRAIL DETAIL
N.T.S.



NOTE: THE CONCRETE FORM TUBE SHALL:
- BE 12" IN DIAMETER MINIMUM
- INTERSECT TWO GEOGRID LAYERS VERTICALLY
- BE CUT INTO SEGMENTS TO ALLOW THE GEOGRID TO PASS CONTINUOUSLY FROM THE FACE OF THE WALL, THROUGH THE FORM TUBE, THROUGH THE 12" DRAINAGE LAYER AND INTO THE REINFORCED SOIL ZONE - BE A MINIMUM OF 36" BELOW GRADE TO ELIMINATE ANY FROST CONCERNS
- BE GROUTED WITH 3,000 PSI CONCRETE (WITH PEA GRAVEL AGGREGATE) AFTER THE POST INSTALLATION

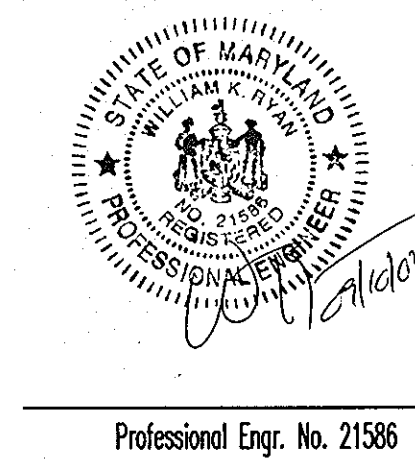
THE GEOGRID SHALL:
- PASS CONTINUOUSLY THROUGH THE CUT SECTION OF THE CONCRETE FORM TUBE
- BE CUT TO ALLOW THE POST TO BE INSTALLED AFTER THE WALL IS CONSTRUCTED (THE GEOGRID LEFT PENETRATING THE TUBE WILL BOND WITH THE GROUT TO CREATE A UNIFIED MASS WITH THE POST AND TRANSFER THE LOAD TO THE REINFORCED SOIL)
- BE KEPT TAUT WITHOUT ANY SLACK

GUARDRAIL WITH IMPACT LOAD
N.T.S.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Cynthia Horvath 10/19/04
CHIEF, DIVISION OF LAND DEVELOPMENT DATE 10/19/04

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Blair Dammann 10/15/04
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE 10/15/04

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



No.	REVISION	Date
1	Remove Wall's Detail. Revise Title Block.	05-26-2007
2	Revised Lot Areas for Lots 35 thru 59, and 96; revised PRL on Lots 1 thru 3, 11, 15, 16, 19 thru 21, and 42; revised Forest Conservation Easement Areas; added Lot 58.	02-28-05

OWNER/DEVELOPER

Richmond American Homes of Maryland, Inc.
6200 Old Dobbin Lane
Columbia, MD 21045
410-892-0267

LOTS 1 THRU 4, 18 THRU 54, 60 THRU 72
OPEN SPACE LOTS 55 THRU 59 & 73 Δ

RETAINING WALL PROFILE, DETAILS & WALL SECTION
HUNTERS RIDGE
LOTS 1 THRU 54, OPEN SPACE LOTS 55 THRU 58
AND A RESUBDIVISION OF BULK PARCEL 'C'
WESLEY WOODS, SECTION 1

TAX MAP 38 GRIDS 4 & 10 1ST ELECTION DISTRICT	PARCEL 163 HOWARD COUNTY, MARYLAND
DESIGN BY: DKS	DRAWN BY: SHP
CHECKED BY: WKR	SCALE: AS SHOWN
DATE: Jan. 07, 2004	W.O. No.: 3018
SHEET No.: 18 OF 20	

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