

GENERAL NOTES

- Subject property Zoned "R-20" per 02/02/04 Comprehensive Zoning Plan and per the "Comprehensive Lite" Zoning Regulation Amendments effective 7/28/06.
- Public water and sewer to be utilized.
- Howard County Soil map no. 15.
- Total area of site subject to subdivision: 4.842 ac.±
- Area of proposed public r/w: 0.000 ac.±
- Number of proposed buildable lots: 10
- Area of proposed buildable lots: 3,388 ac.±
- Number of proposed Open Space Lots: 1
- Area of proposed Open Space Lots: 1,454 ac.±
- Open space requirements: 4.842 acres x 30% (14,000sq.ft. minimum lot size) = 1,453 ac.±
- Open space provided: 1,454 ac.± (Lot 11)
- Open space Lot 11, including noise wall and SHM facility, will be owned and maintained by H.O.A.
- The project is in conformance with the latest Howard County Standards unless waivers have been approved.
- There are no historic structures or cemeteries on-site.
- Field Run Boundary Survey prepared by C.B. Miller and Associates in June, 2001.
- The existing topography is based on a field run Topographic Survey prepared by C.B. Miller & Associates, Inc., in June 2001, with a 2 foot contour interval.
- The coordinates shown herein are based on Howard County Geodetic Controls which is based upon the Maryland State Plane Coordinate System. Howard County Monuments 161A and 161B were used for this project. (See Vicinity Map)
- Existing utilities are based on existing construction drawings, Contract #24-1994-D, Existing Dunes Drive road drawing F-90-93.
- A.P.F.O. Traffic Study prepared by Street Traffic Studies Ltd. in February, 2002 and approved under SP-02-06.
- Wetlands Delineation and Report and Forest Stand Delineation and Report prepared by Exploration Research Inc. and approved under SP-02-06.
- The noise study for this project was prepared by Wilson T. Ballard Co. in July, 2002, and approved under SP-02-06.
- The proposed noise mitigation wall shall be permitted and constructed prior to the issuance of building permits for lots 1-10, under The Site Development Plan.
- All proposed open channel ditches shall be lined with erosion control matting (see plan).
- Vehicular access is proposed along Dunes Drive and access is restricted along US Route 40.
- This property is subject to the 5th edition of the Howard County Subdivision and Land Development Regulations.
- All landscaping requirements will be the responsibility of the developer. The landscaping surety will be posted in the developer's agreement in the amount of \$21,350 (64 shade trees @ \$300.00 each, 14 evergreen trees @ \$150.00 each, and 6 shrubs @ \$10 each).
- Previous Howard County file numbers: SP-02-06 and WP-03-32.
- Waiver petition WP-03-32 approved on November 1, 2002 granted a waiver from sections 16.120(b)(4)(iv) and 16.121(e)(1) to reduce the frontage for access of open space lot 11 and the stormwater management facility from (40) feet to zero (0) feet, subject to recordation of a maintenance agreement for access to lots 1 thru 10 and open space lot 11.
- The Subject Property is located on Howard County ADC map II, Grid D-6.
- Driveway(s) shall be provided prior to issuance of a use and occupancy permit for any new dwellings to ensure safe access for fire and emergency vehicles per the following requirements:
 - Width - 12 Feet (14 feet serving more than one residence);
 - Surface - six (6") inches of compacted crusher run base with tar and chip coating (1-1/2" minimum);
 - Geometry - Maximum 14% grade, Maximum 10% grade change and 45-foot turning radius;
 - Structures (culverts/bridges) - capable of supporting 25 gross tons (H25-loading);
 - Drainage elements - capable of safely passing 100 year flood with no more than 1 foot depth over driveway surface;
 - Maintenance - sufficient to ensure all weather use
- For flag or pipestem lots, 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.
- Water and sewer service to these lots will be granted under the provisions of Section 18.122.B of the Howard County Code.
- All existing on-site structures are to be removed prior to plat recordation.
- Stormwater Management water quality (WQV) is provided through the sand filter within the proposed Pocket Sand Filter Facility. Channel Protection (CPV) is provided through extended detention of the one (1) year storm within the Pocket Sand Filter Facility. The SHM Recharge requirements are met through the grass channel credit using the recharge percent area method. SHM Overland Flood Protection (10 year) and Extreme Flood Volume (100 year) are not required for this site. All Stormwater Management pond ownership and maintenance is the responsibility of the Home Owners Association.
- All existing wells and septic systems to be properly abandoned according to the Howard County Health Department Regulations.
- At the site development plan stage, the BRL's effective at that time must be shown on the plan. The builder must comply with both the platted BRL's and those required by the then-effective Zoning Regulations.
- The contractor shall notify the following utility companies or agencies at least five(5) working days before starting work shown on these plans:

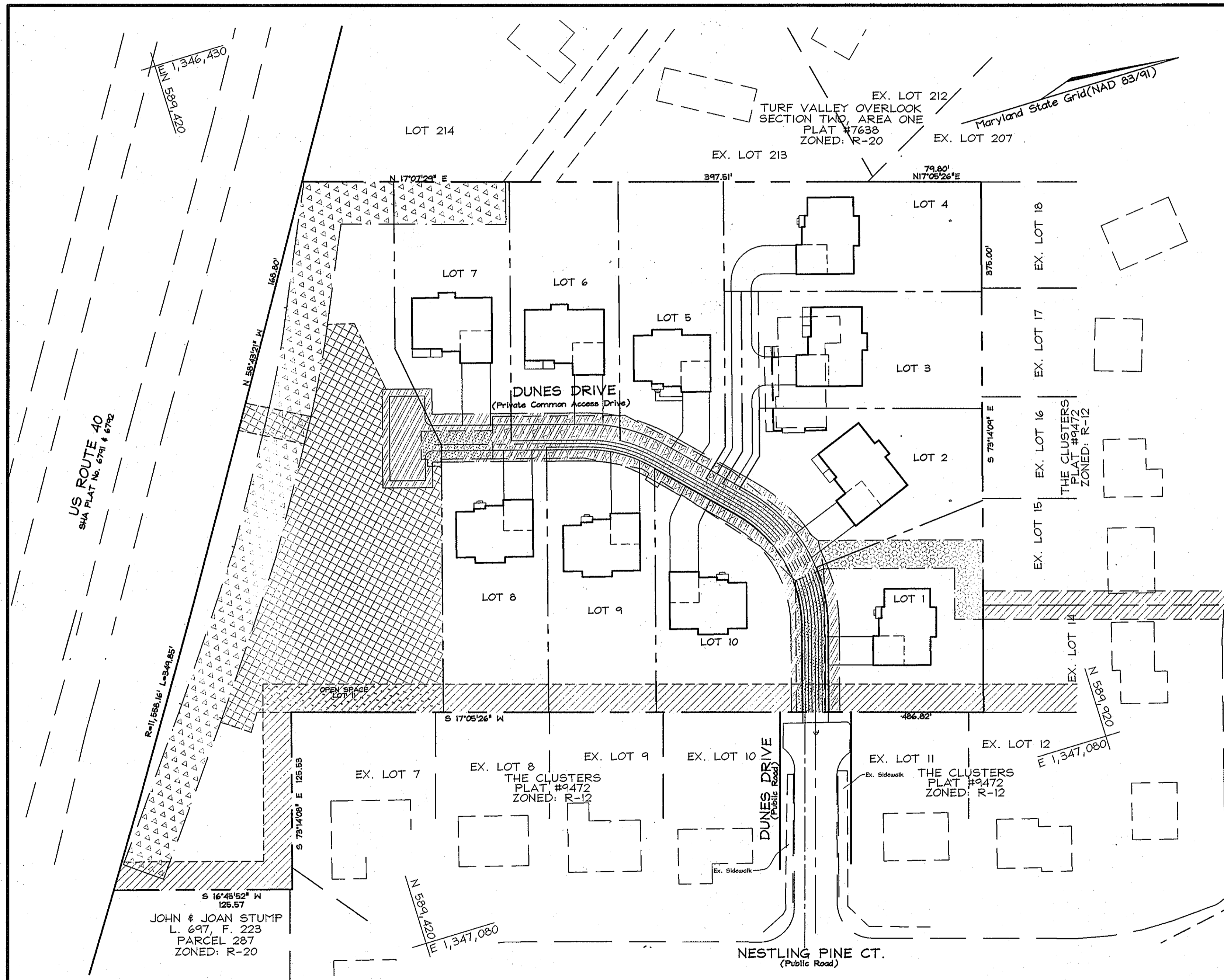
| | |
|---|----------------|
| State Highway Administration | 410.531.5533 |
| BGE(contract services) | 410.850.4620 |
| BGE(underground damage control) | 410.787.9068 |
| Miss Utility | 1.800.257.7777 |
| Colonial Pipeline Company | 410.795.1930 |
| Howard County, Dept. of Public Works, Bureau of Utilities | 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 to the start of work. All fills for public road surfaces require 95% compaction (AASHTO-T-180).
- 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.
- 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.
- A minimum 20' distance shall be maintained between street lights and street trees.
- The Forest Conservation Plan was prepared in accordance with the Howard County Forest Conservation Manual. The net tract area is 4.80 acres, with 0.9 acres of forest. There is no 100-year flood plain, wetlands, streams, steep slopes or associated buffers on site, clearing below the forest conservation threshold consists of 0.9 acres, creating a 1.8 acres of reforestation obligation. This obligation will be met by offsite planting on The E. Alexander Adams and Marion Harless Property, Lot 2, Plat No. 10147, Tax Map 7, Grid 17, Parcel 215. Surety in the amount of \$39,204.00 shall be posted as part of the Developer's Agreement for 1.80 ac/78,408 sq. ft.
- REFUSE AND RECYCLE COLLECTION FOR THESE LOTS SHALL BE PROVIDED CURBSIDE AS ALLOWED BY THE RIGHT OF ENTRY AGREEMENT BETWEEN DUNES VISTAS LLC AND HOWARD COUNTY, MARYLAND RECORDED IN LIBER 11720 FOLIO 137.

FINAL ROAD CONSTRUCTION PLANS

DUNES VISTAS

LOTS 1 THRU 10 AND OPEN SPACE LOT 11

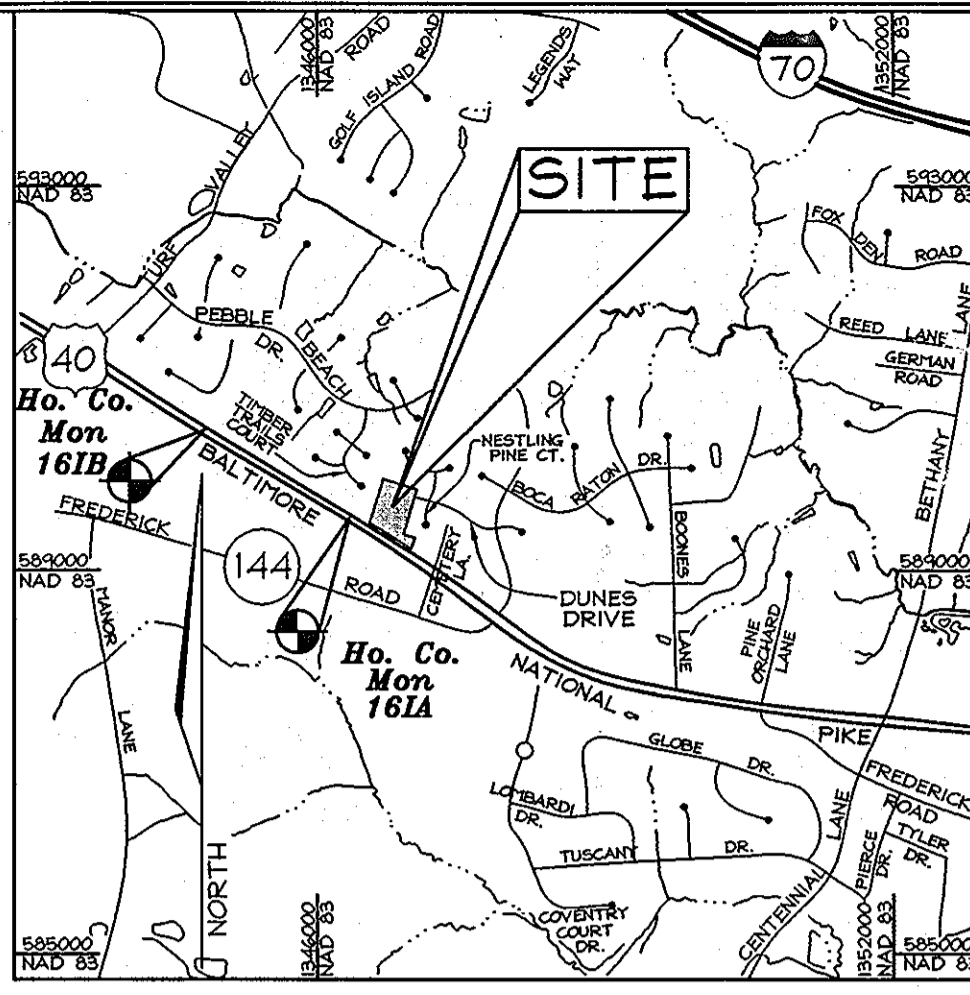
HOWARD COUNTY, MARYLAND



LOCATION MAP
SCALE: 1"=50'

LEGEND

- Existing contours: Dashed line with elevation (e.g., 552)
- Proposed Contour: Solid line with elevation (e.g., 550.0)
- Existing Spot Elevation: Circle with elevation (e.g., 560.3)
- Proposed Spot Elevation: Circle with elevation (e.g., 482.53)
- Direction of Flow: Arrow
- Soils Line: Dotted line
- Limit of Disturbance: Solid line
- Existing Trees to Remain: Cloud-like symbol
- Public Water & Sewer & Utility Easement: Wavy line pattern
- Public Sewer & Utility Easement: Dotted pattern
- Public Water & Utility Easement: Horizontal line pattern
- Private Access Place, Drainage & Utility Easement: Diagonal line pattern
- Existing Easement: Horizontal line pattern
- Private Noise Wall Access, Maintenance, Drainage & Utility Easement: Triangle pattern
- Private SHM, Access, Drainage & Utility Easement: Cross-hatch pattern
- Private SHM Access Management Easement: Dotted pattern
- Street Light: Star symbol



VICINITY MAP
SCALE: 1"=2000'

BENCHMARKS

| | | | |
|-----------------------------|---------------|-----------------|--------------|
| Howard County Monument 161A | N 584,504.388 | E 1,346,343.658 | El.: 463.674 |
| Howard County Monument 161B | N 590,475.281 | E 1,344,753.967 | El.: 470.576 |

SHEET INDEX

| DESCRIPTION | SHEET No. |
|---|-----------|
| Cover Sheet | 1 of 10 |
| Final Road Plan, Profile and Details | 2 of 10 |
| Sediment and Erosion Control and Grading Plan | 3 of 10 |
| Sediment and Erosion Control Notes and Details | 4 of 10 |
| Storm Drain Drainage Area Map, Profiles and Details | 5 of 10 |
| Stormwater Management Plan, Profiles and Details | 6 of 10 |
| Stormwater Management Notes and Details | 7 of 10 |
| Forest Conservation, Landscaping and Street Tree Plan | 8 of 10 |
| Offsite Forest Mitigation Plan for Dunes Vistas | 9 of 10 |
| Offsite Forest Mitigation Plan for Dunes Vistas | 10 of 10 |

DEVELOPER/OWNER
Dunes Vistas LLC
c/o Brian D. Boy
11807 Wellingford Court
Clarksville, Md 21029
Tel: (410) 792-2565

COVER SHEET
DUNES VISTAS
LOTS 1 THROUGH 10, AND OPEN SPACE LOT 11
ZONED: R-20
TAX MAP 16 GRID 24
2ND ELECTION DISTRICT
PARCEL 57
HOWARD COUNTY, MARYLAND

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 9/20/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 9/14/07
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

DEVELOPER'S BUILDER'S CERTIFICATE

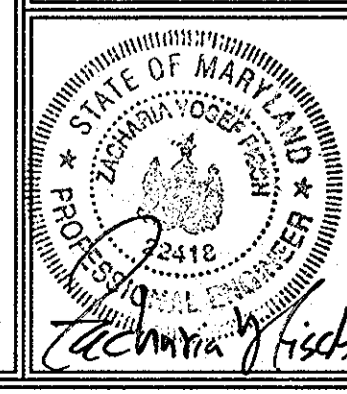
I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION, A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE(1) YEAR GUARANTEE OF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

[Signature] 9-10-07
SIGNATURE OF DEVELOPER DATE

2 BE1 10/5/10 ADD GEN. NOTE 41. REVISE GEN. NOTE 27 TO ELIMINATE "REFUSE COLLECTION"

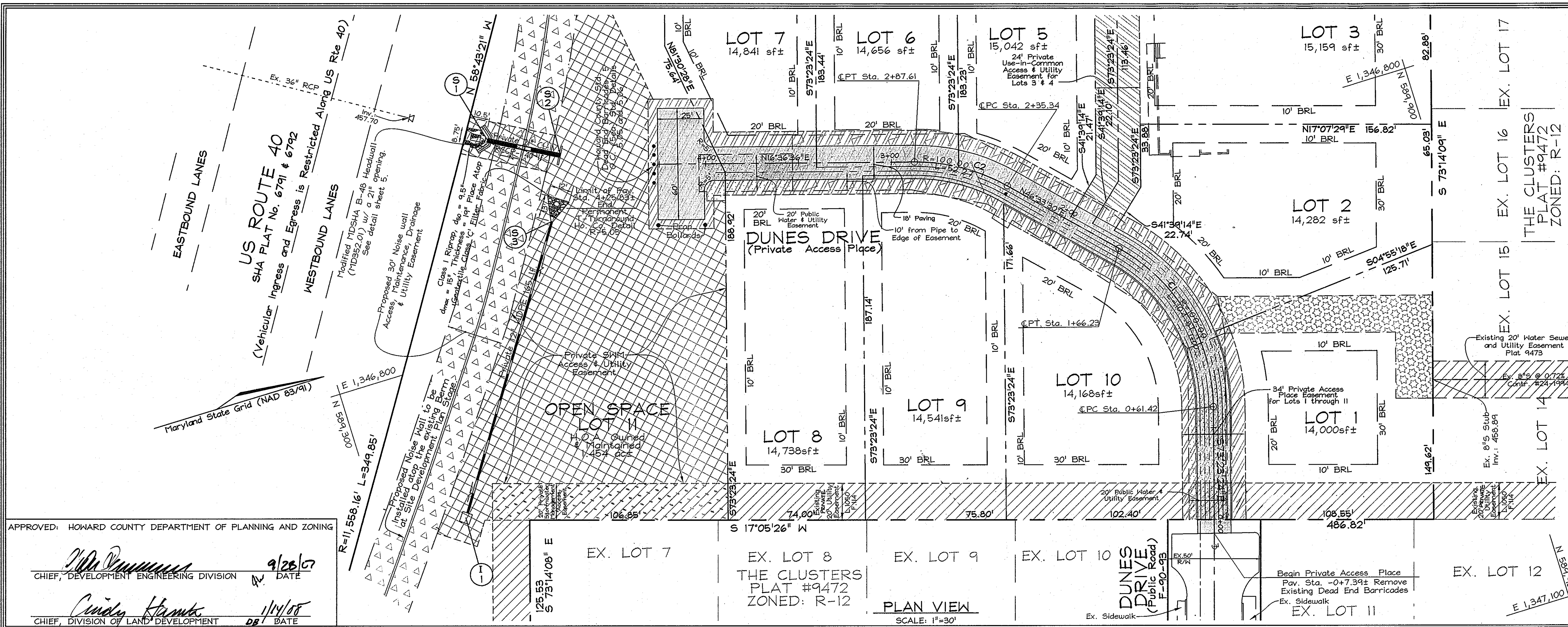
PROFESSIONAL CERTIFICATION

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. #22118, Expiration Date: 7/23/23



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

DESIGN BY: MT
DRAWN BY: CED
CHECKED BY: ZYF
SCALE: As Shown
DATE: Sep. 7, 2007
W.O. No.: 3060
SHEET No.: 1 OF 10



CENTERLINE ROAD CURVE DATA

| CURVE No. | RADIUS | LENGTH | DELTA | CHORD BEARING | CHORD LENGTH |
|-----------|--------|---------|-----------|---------------|--------------|
| C1 | 100.00 | 104.81' | 62°03'06" | N76°55'03"E | 100.08' |
| C2 | 100.00 | 92.27' | 24°56'54" | N81°55'03"E | 51.68' |

STREET LIGHT TABLE

| FIXTURE TYPE | POLE TYPE | LOCATION | STREET |
|--|----------------------|--------------------------------|-------------|
| 100 watt or 150 watt HPS Premier or Acorn post top mounted | 14' black fiberglass | N 589,494.26 E 1,346,729.08 | Dunes Drive |

NOTE:
1. All street trees shall be at least 7-feet from the edge of pavement, 5-feet from the edge of driveway and at least 6-feet from the centerline of a swale. Reference the Landscape Plan for more details and planting plan.

LEGEND

- Existing Easement
- Private SHM Access, Drainage & Utility Easement
- Private Noise Wall Access, Drainage & Utility Easement
- Public Water & Sewer Access & Utility Easement
- Proposed Paving
- Public Sewer & Utility Easement
- Private SHM Access, Drainage & Utility Easement
- Private Access Place, Drainage & Utility Easement
- Private In-Common Access, Drainage & Utility Easement
- Public Water & Sewer Access & Utility Easement
- Private SHM Access Management Easement

DEVELOPER/OWNER
Dunes Vistas LLC
c/o Brian D. Boy
1807 Wallingford Court
Clarksville, Md 21024
Tel: 410-567-5200 Fax: 410-796-1562
E-mail: info@sheri.com

FINAL ROAD PLAN, PROFILE AND DETAILS
DUNES VISTAS
LOTS 1 THROUGH 10, AND OPEN SPACE LOT II
ZONED: R-20
TAX MAP 16 GRID 24
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
PARCEL 57

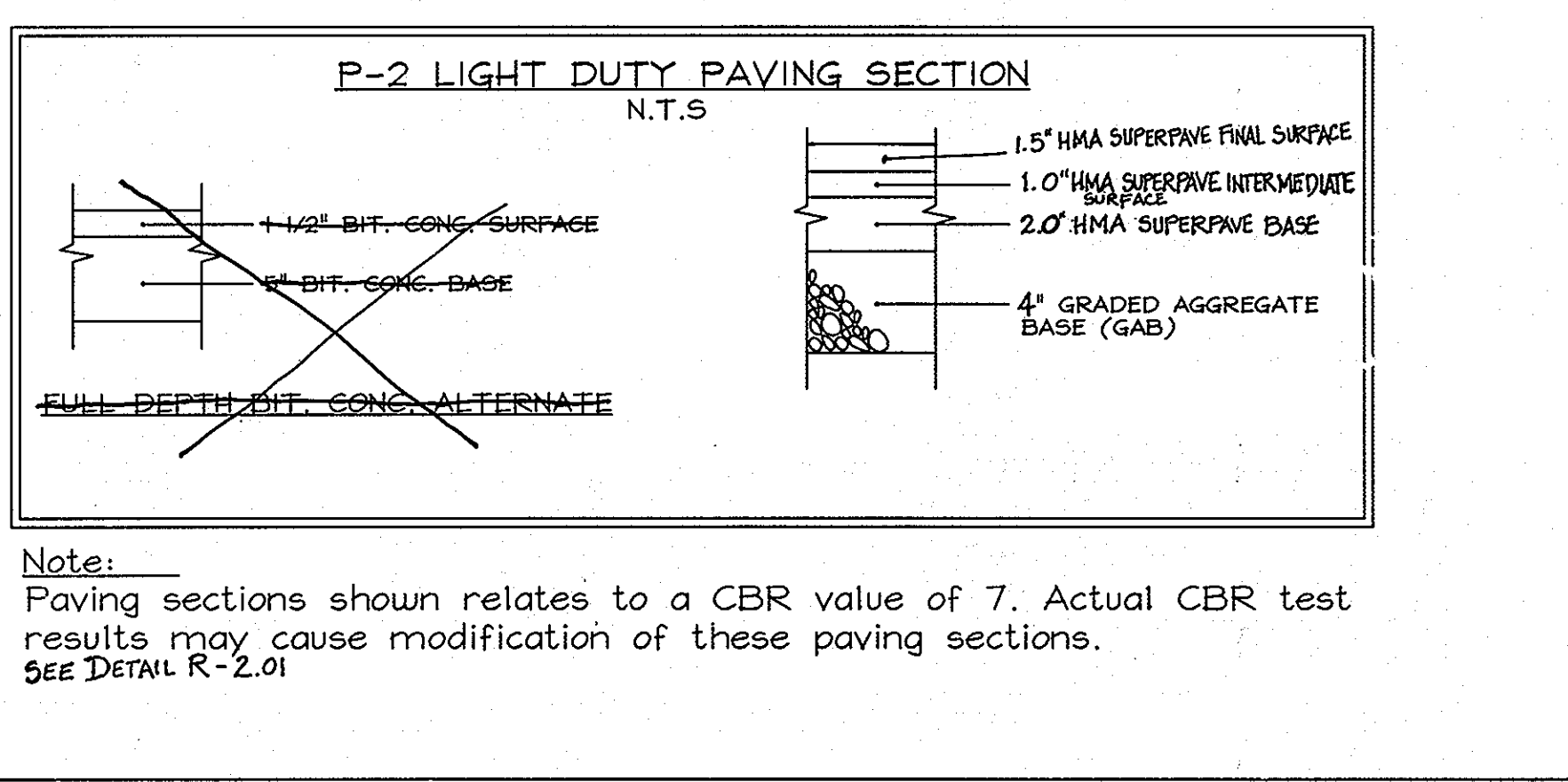
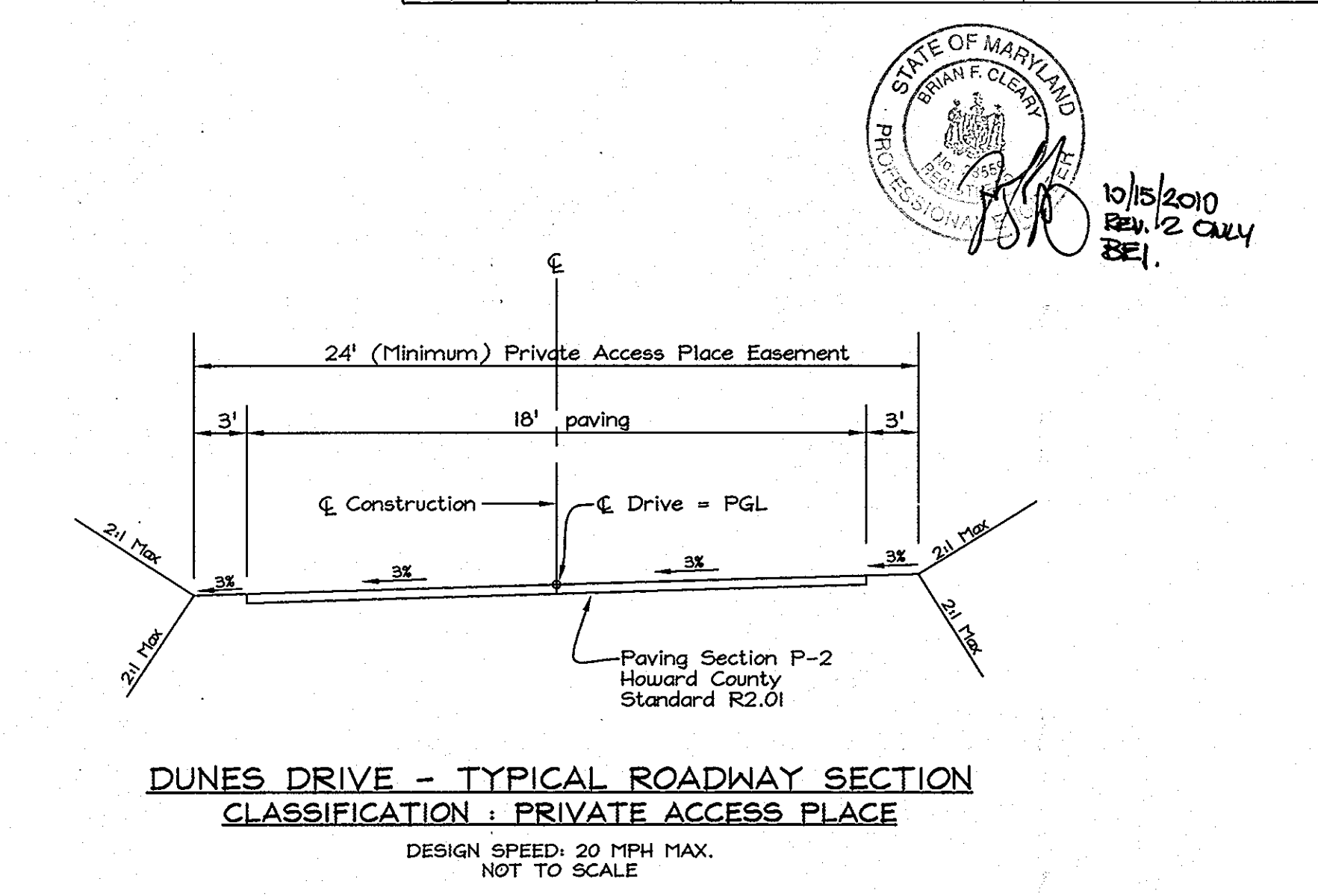
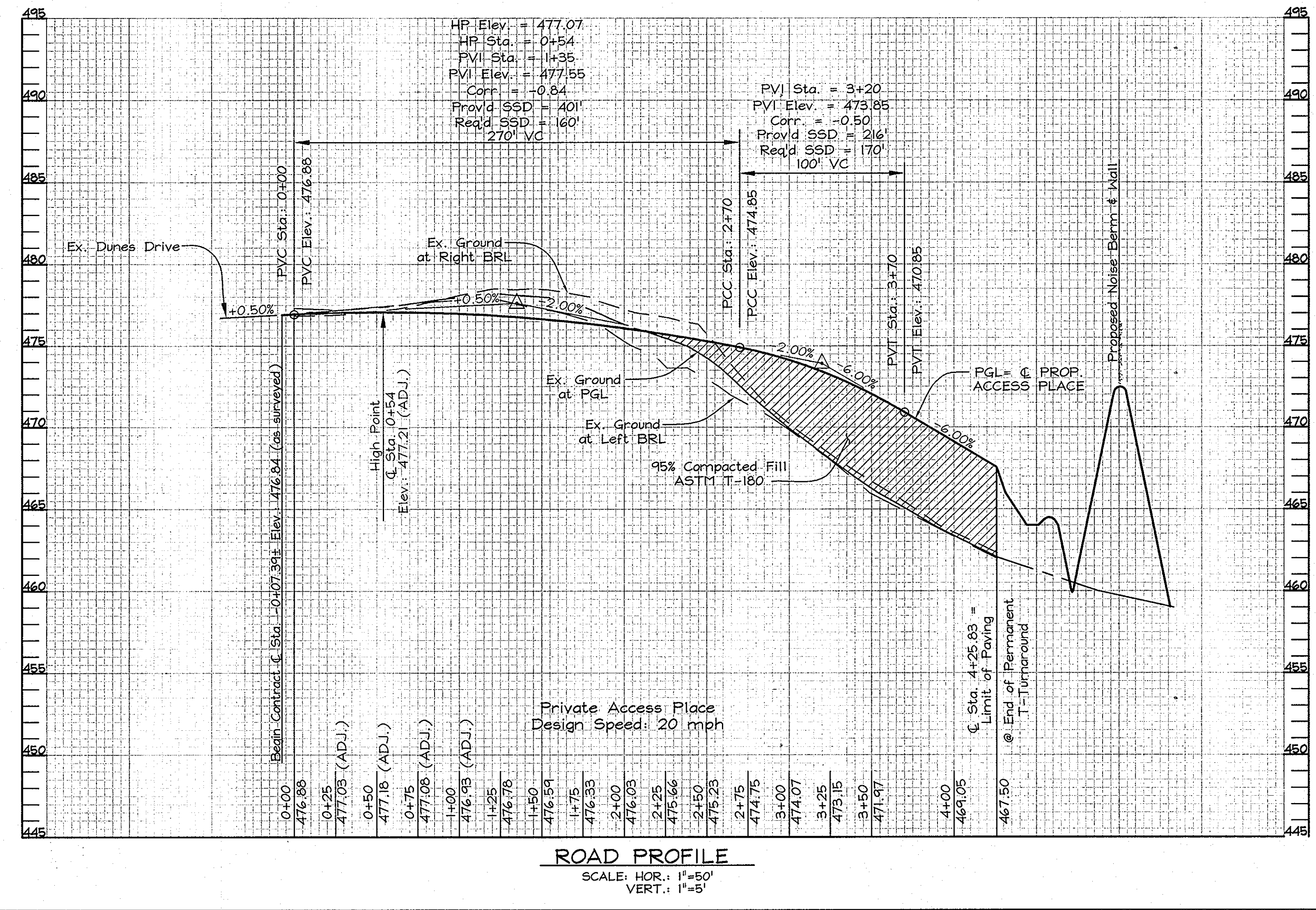
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

John P. ... 9/26/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Cindy Hamble 1/14/08
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

DESIGN BY: ZTF
DRAWN BY: CED
CHECKED BY: SH
SCALE: As Shown
DATE: Sep. 7, 2007
W.O. No.: 3060
SHEET No.: 2 OF 10

FSH Associates
Engineers Planners Surveyors
6338 Howard Lane, Elkridge, MD 21075
Tel: 410-567-5200 Fax: 410-796-1562
E-mail: info@sheri.com



| SOILS LEGEND | | |
|--------------|---|------------|
| SYMBOL | NAME / DESCRIPTION | SOIL GROUP |
| ChA | CHESTER SILT LOAM, 0 TO 3 PERCENT SLOPES | B |
| ChB2 | CHESTER SILT LOAM, 3 TO 6 PERCENT SLOPES, MODERATELY ERODED | B |
| ChC3 | CHESTER SILT LOAM, 8 TO 15 PERCENT SLOPES, SEVERELY ERODED | B |

| LEGEND | |
|---|-----------------|
| Existing Contour | --- --382 |
| Proposed Contour | --- --476.6 |
| Spot Elevation | 476.6 |
| Direction of Flow | → |
| Tree Protection Fence | ⊕ |
| Existing Trees to Remain | ⊕ |
| Proposed Bollard | • |
| Stabilized Construction Entrance | ▨ |
| Silt Fence and Tree Protection Fence | --- SF --- SF |
| Silt Fence | --- SF --- SF |
| Super Silt Fence | --- SSF --- SSF |
| Limit of Disturbance | LOD |
| Erosion Control Matting | ECM |
| Soil Boundary | --- |
| Rip-Rap Inflow Protection | RRP |
| Gabion Inflow Protection | GM |
| At Grade Inlet Protection | AGIP |
| Public Water & Sewer & Utility Easement | ▨ |
| Private Access Place, Drainage & Utility Easement | ▨ |
| Private Noise Wall Access, Maintenance, Drainage & Utility Easement | ▨ |
| Existing Easement | ▨ |
| Private SWM, Access, Drainage & Utility Easement | ▨ |
| Public Sewer & Utility Easement | ▨ |
| Public Water & Utility Easement | ▨ |
| Private SWM Access Management Easement | ▨ |
| Proposed Street Light | ☆ |

REVISIONS:

| NO. | DATE | REVISION | BY |
|-----|------------|---|-----|
| 2 | 10-15-2010 | DELETE DRIVE PAD AND STREET RIGHT AT END OF "TURNOAROUND" REUSE EXISTING PUBLIC EASEMENT L1050 F114 TO BE "PRIVATE" | BE1 |
| 1 | 5-24-10 | REVISE GRADES ON LOTS 7-10 PER EXISTING CONDITIONS | BE2 |

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

Jim Murray 9-18-07
USDA-NATURAL RESOURCES CONSERVATION SERVICE DATE

John Stump 9-19-07
HOWARD SCD DATE

ENGINEERS CERTIFICATE

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

Zacharia Y. Fisch 9/10/07
SIGNATURE OF ENGINEER DATE
ZACHARIA Y. FISCH

DEVELOPER'S CERTIFICATE

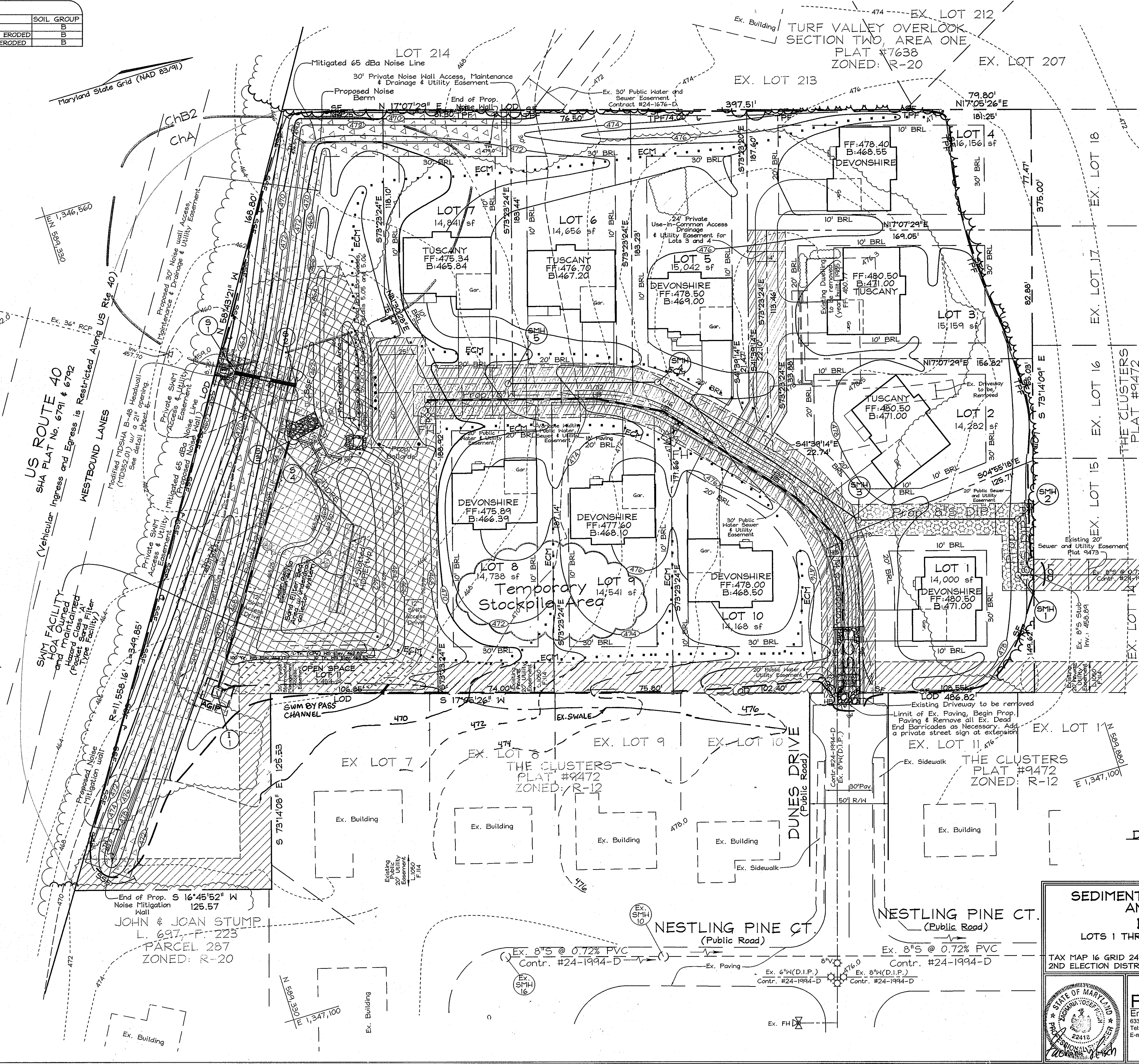
"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL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

John Stump 9/10/07
SIGNATURE OF DEVELOPER DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

John Stump 9/20/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Candy Kama 11/14/07
CHIEF, DIVISION OF LAND DEVELOPMENT DATE



DEVELOPER/OWNER
Dunes Vistas LLC
c/o Brian D. Boy
11807 Hollingford Court
Clarksville, MD 21024
Tel: (410) 792-2565

SEDIMENT AND EROSION CONTROL AND GRADING PLAN
DUNES VISTAS
LOTS 1 THROUGH 10, AND OPEN SPACE LOT 11
ZONED: R-20

TAX MAP 16 GRID 24 PARCEL 57
2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

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

DESIGN BY: MT
DRAWN BY: CED
CHECKED BY: ZYF
SCALE: 1"=30'
DATE: Sep 7, 2007
P.O. No.: 3060
SHEET No.: 3 OF 10

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 (410-313-185B).
- All vegetation and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 1934 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, and revisions thereto.
- Following initial soil disturbance or redistribution, permanent or temporary stabilization shall be completed within: (a) 7 calendar days for all perimeter sediment control structures, dikes, permanent slopes, and all slopes greater than 3:1, (b) 14 days to all other disturbed or graded areas on the project site.
- All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 7, HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
- All disturbed areas must be stabilized within the time period specified above in accordance with the 1934 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, and revisions thereto, and temporary seeding, and mulching (Sec. G). Temporary stabilization with mulch alone shall be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
- All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
- Site Analysis:

| | |
|------------------------------------|------------|
| Total Area | 4.84 Acres |
| Area Disturbed | 3.92 Acres |
| Area to be seeded or paved | 0.95 Acres |
| Area to be vegetatively stabilized | 3.89 Acres |
| Total C.I. | 7.418 C.I. |
| Total Fill | 15,022 CY |
| Offsite waste/borrow 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 and sediment controls, but before proceeding with any other earth disturbance or grading activity. Grading or 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.

* Earthwork quantities are solely for the purpose of calculating fees. Contractor to verify all quantities prior to the start of construction.

** To be determined by contractor, with pre-approval of the Sediment Control Inspector with an approved and active grading permit.

PERMANENT SEEDING NOTES

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

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

SOIL AMENDMENTS: In lieu of soil test recommendations, use the following schedule: Apply 2 tons per acre dolomitic limestone (92 lbs/1000 s.f.) And 800 lbs. / acre (20.7 lbs./1000s.f.) of 10-20-20 before seeding. Harrow or disc into upper 3 in. of soil.

SEEDING: Apply a mixture of Turf Type Tall Fescue (80%) and Hard Fescue (20%) in accordance with seeding rates and dates shown in the Permanent Seeding Summary shown on this sheet. For stabilization outside of the seeding dates, apply straw mulch at rates and methods specified below and apply permanent seeding when within proper seeding dates.

MULCHING: Immediately following seeding, apply a uniform 1-2 in. Deep layer of un-rotted small grain straw at a rate of 2 tons/acre. (Apply 2.5 Tons/acre if a mulch anchoring tool is used). Straw may be anchored with wood cellulose fiber at a rate of 750 lbs. / acre mixed at a ratio of 50 lbs. Of wood fiber/ 100 gal. of water. Synthetic liquid binders such as Terra Tax II, Acrylic DLR (Agro-Tax), DCA-10, Petrosol and other approved equals may be used at rates recommended by the manufacturers.

| No. | Species | Application Rate (lb/ac) | Seeding Dates | Seeding Depth | Fertilizer Rate (10-20-20) | | | Lime Rate |
|-----|--|--------------------------|------------------------|---------------|----------------------------|--------------------------|--------------------------|----------------------------|
| | | | | | N | P2O5 | K2O | |
| 10 | Tall Fescue (80%) Hard Fescue (20%) | 120 30 | 3/1-5/15 8/15-11/15 | 0.5 in. | 90lb/ac (2.0lb/1000sf) | 175lb/ac (4lb/1000sf) | 175lb/ac (4lb/1000sf) | 2tons/ac (100lb/1000sf) |

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: In lieu of soil test recommendations, use the following schedule: Apply 2 tons per acre dolomitic limestone (92 lbs/1000 s.f.) And 600 lbs. / acre (15 lbs./1000s.f.) of 10-10-10 before seeding. Harrow or disc into upper 3 in. of soil.

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

MULCHING: Immediately following seeding, apply a uniform 1-2 in. Deep layer of un-rotted small grain straw at a rate of 2 tons/acre. (Apply 2.5 Tons/acre if a mulch anchoring tool is used). Straw may be anchored with wood cellulose fiber at a rate of 750 lbs. / acre mixed at a ratio of 50 lbs. Of wood fiber/ 100 gal. of water. Synthetic liquid binders such as Terra Tax II, Acrylic DLR (Agro-Tax), DCA-10, Petrosol and other approved equals may be used at rates recommended by the manufacturers.

| No. | Species | Application Rate (lb/ac) | Seeding Dates | Seeding Depth | Fertilizer Rate (10-10-10) | | | Lime Rate |
|-----|-----------------------------------|-------------------------------|-----------------------------------|-----------------|----------------------------|----------------------------|-----------------------------|-----------|
| | | | | | N | P2O5 | K2O | |
| 2 | Barley or Rye plus Foxtail Millet | 150 lbs. (3.5lbs/1000sqft) | 2/1-11/30 (7a) 3/15-10/31 (6a) | 1/4 in - 1/2 in | 600 lb/ac (15lb/1000sf) | 600 lb/ac (15lb/1000sf) | 2 tons/ac (100lb/1000sf) | |

21.0 STANDARDS AND SPECIFICATIONS FOR TOPSOIL

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

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

Conditions Where Practice Applies
I. This practice is limited to areas having 2:1 or flatter slopes where:
a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
c. The original soil to be vegetated contains material toxic to plant growth.
d. The soil is so acidic that treatment with limestone is not feasible.

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

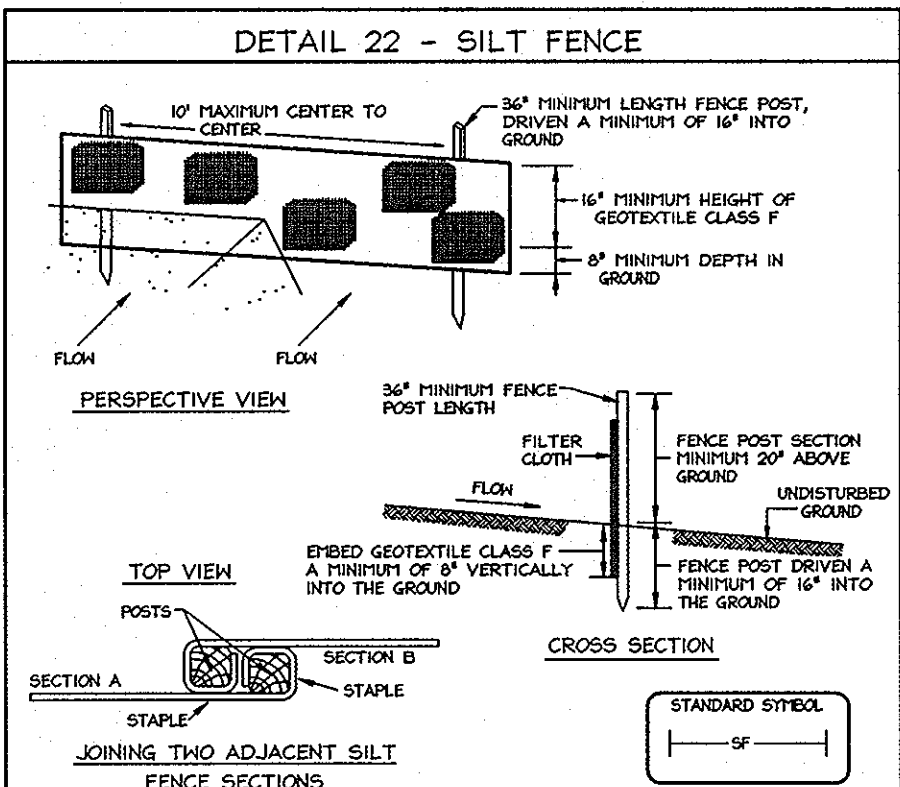
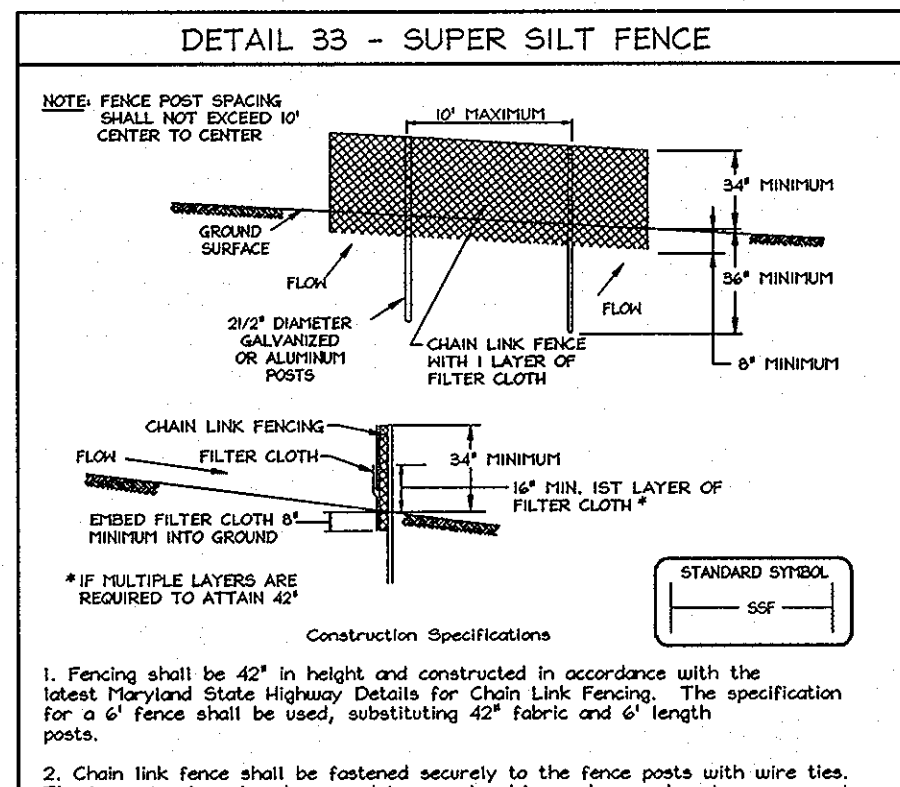
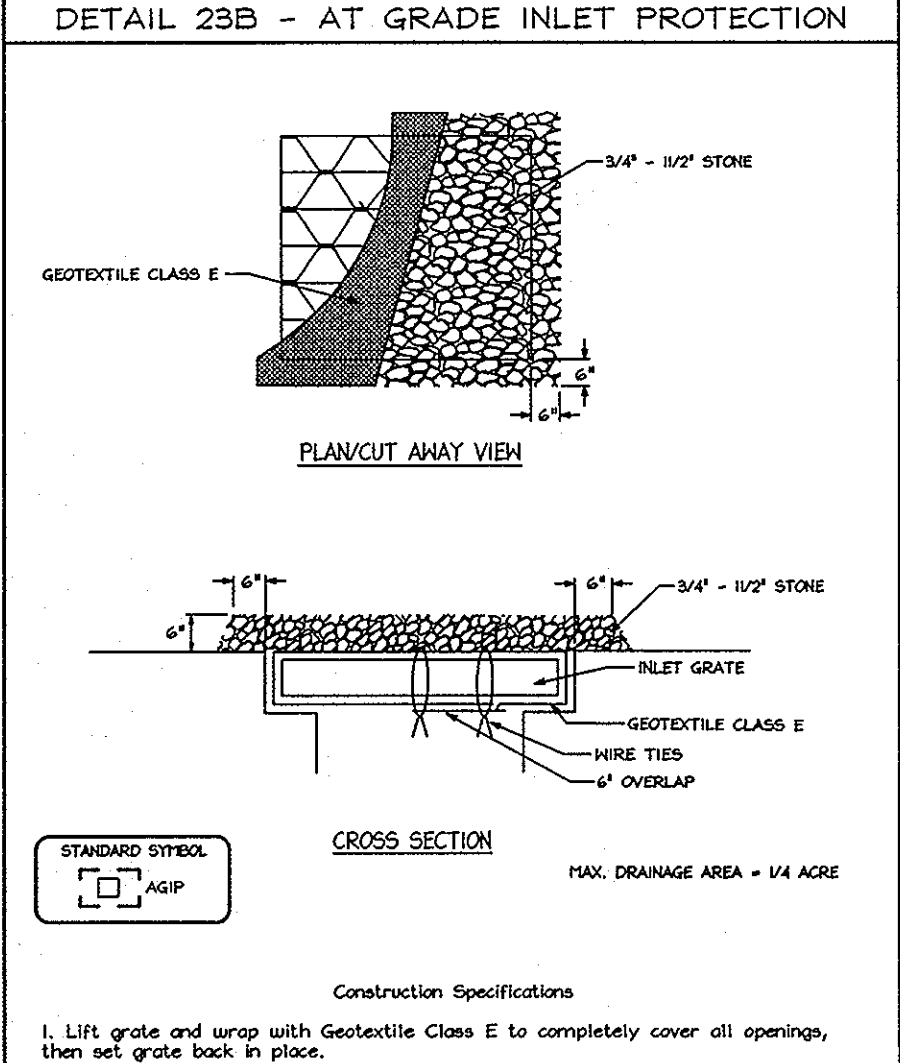
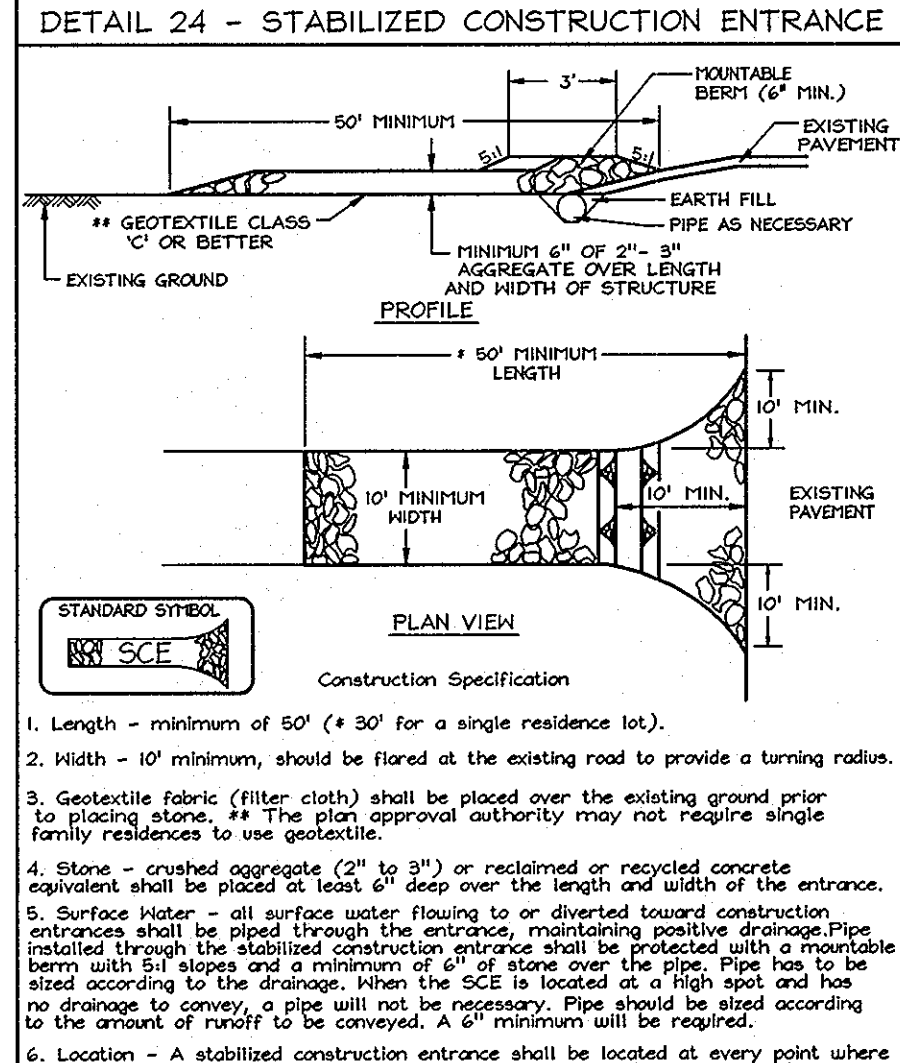
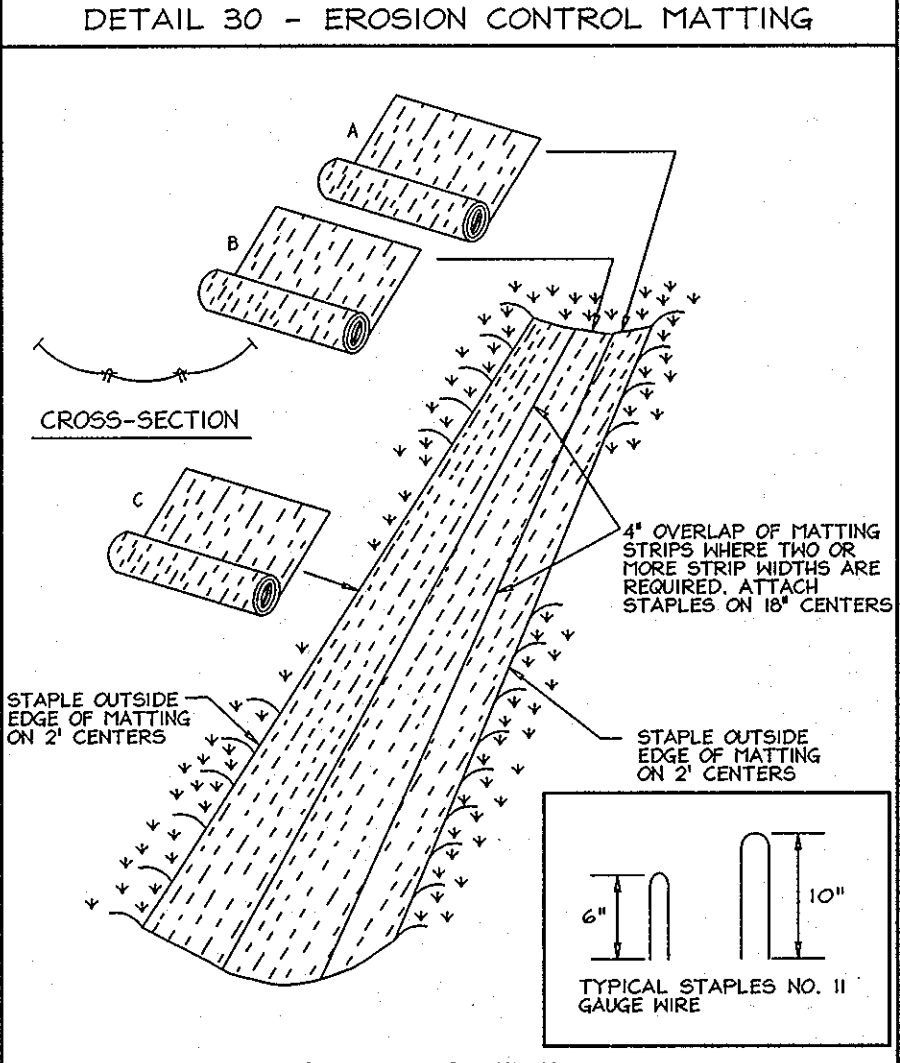
Construction and Material Specifications
I. Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the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

II. Topsoil Specifications - Soil to be used as topsoil must meet the following:
i. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or a soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 and 1/2" in diameter.
ii. Topsoil must be free of plants or plant parts such as Bermuda grass, quackgrass, Johnsrass, nutgrass, poison ivy, thistle, or others as specified.
iii. Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.
iv. Topsoil shall not be placed while the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

III. For sites having disturbed areas under 5 acres:
1. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.
2. On soil meeting topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:
a. pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.
b. Organic content of topsoil shall be not less than 15 percent by weight.
c. Topsoil having soluble salt content greater than 500 parts per million shall not be used.
d. No sod or seed shall be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phytotoxic materials.

NOTE: Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.

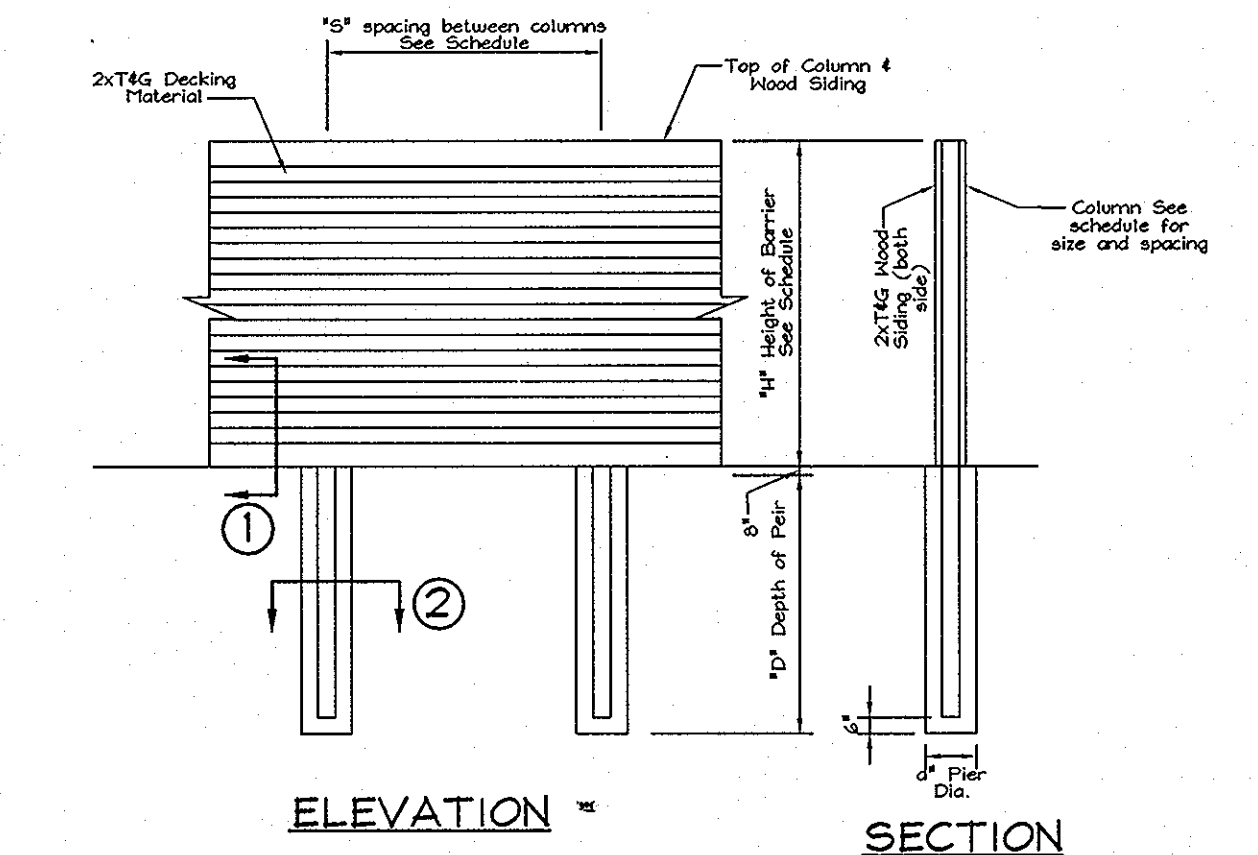
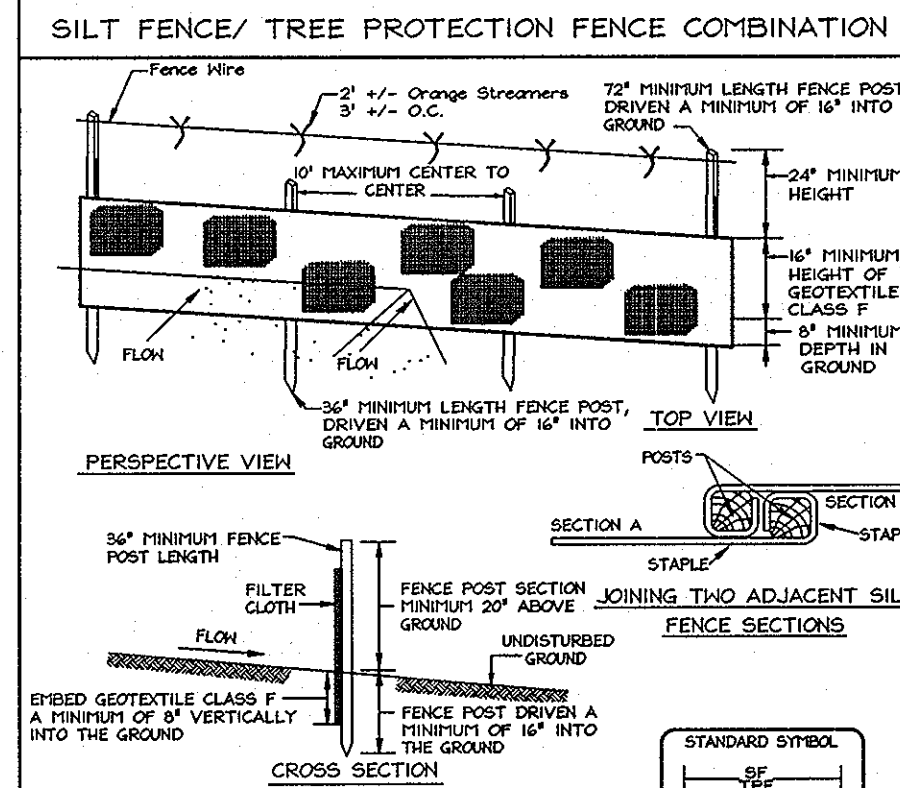
IV. Topsoil Application
i. When topsoiling, maintain needed erosion and sediment control practices such as diversions, Grade Stabilization Structures, Earth Dikes, Slope Silt Fence and Sediment Traps and Basins.
ii. Grades on the areas to be topsoiled, which have been previously established, shall be maintained, albeit 4"-8" higher in elevation.
iii. Topsoil shall be uniformly distributed in a 4"-8" layer and lightly compacted to a minimum thickness of 4". Spreading shall be performed in such a manner that seeding or sodding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations shall be corrected in order to prevent the formation of depressions or water pockets.
iv. Topsoil shall not be placed while the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.



NOTES:
I. General
A. Height of barrier shall be based on acoustic requirements.
B. Barrier walls having a height (H) not indicated in the tables shall be constructed as shown in the next higher height category.
2. Siding
A. 2X wood decking material shall be utilized to span horizontally between posts. Design criteria is based on an allowable bending stress of 1400 lbs. per square inch and 33% increase in stress for wind loads as considered appropriate. Decking shall be MC5.
B. Siding in contact with the ground and for a distance of 6" above grade shall be treated with wood preservative.
3. Post
A. Wood post shall be utilized of the spacing indicated on the schedule. Design criteria is based on an allowable bending stress of 1400 lbs. per square inch and 33% increase for wind loads as considered appropriate.
4. Concrete
A. Concrete in the piers shall have a 26-day compressive strength of 2500 lbs. per square inch.
B. Concrete shall be placed in drilled piers utilizing the earth as the forms.
5. Foundations
A. The drilled piers have been designed utilizing an allowable passive pressure of 300 lbs. per square foot and the following formula:
 $D = \frac{(4.82) p}{M}$
M = Moment at top of drilled pier (FT. / LBS.)
p = Allowable passive pressure (300 lbs. per square foot)
d = Diameter of pier (FT.)
D = Depth of pier (FT.)
6. Alternate #1 (Preservative Treatment). Alternate #1 represents the additional cost factor for treating the basic wood structure indicated on this reference plan. Painting shall consist of 3 applications of paint, 2 coats of latex base paint conforming to Federal Specification TT-P-00966 shall be applied over a primer coat conforming to Federal Specification TT-P-00250.
7. Alternate #2 (Painting). Alternate #2 represents the additional cost factor required to paint one side of the basic wood structure shown on this reference plan. Painting shall consist of 3 applications of paint, 2 coats of latex base paint conforming to Federal Specification TT-P-00966 shall be applied over a primer coat conforming to Federal Specification TT-P-00250.
8. Alternate #3 (Staining). Alternate #3 represents the additional cost factor required to stain one side of the basic wood structure. Stain shall consist of 2 coats of semi-transparent sealer stain applied in accordance with manufacturer's written instructions.
9. Alternate #4 (Preservative Treatment) shall be utilized for this project.

SEQUENCE OF CONSTRUCTION

- Obtain grading permit and contact Howard County Sediment Control Inspector (SC1) 410-313-1880 to arrange a preconstruction meeting. (1 Day)
- Install Stabilized Construction Entrances. (1 Day)
- Clear and grub as necessary to install sediment control practices. Install silt fence and super silt fences. (3 Days)
- With permission of SC1 begin road and site grading. (2 Weeks)
- Grade roads and pads to subgrade, construct SWM and filter facility and protect with geotextile, install earthen noise berm and culvert 5-1 to 5-2 and place 55F at inlet, construct remaining storm drains. (4 Weeks)
- Fine grade and apply temporary stabilization to all disturbed areas. (1 Day)
- Regrade roads and permanently stabilize all disturbed areas. (1 Week)
- With permission of SC1 remove all remaining sediment control devices and stabilize disturbed areas. Remove geotextile over sand filter, cover with topsoil and permanently stabilize. (5 Days)



SCHEDULE

40 LBS/4' HORIZONTAL LOADING

| H | S | D | d | POST SIZE |
|----------|----|----|-----|-----------|
| Up to 6' | 8' | 6' | 12" | 4" x 8" |
| 5'-10' | 8' | 8' | 18" | 6" x 12" |

NOTE: The proposed Noise Wall is privately owned and shall be maintained by the Homeowners Association. The Noise Wall shall be inspected and repaired as necessary at a minimum of once a year. See Grading Plan sheet 3 for proposed top of wall elevations.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 9/26/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 11/14/08
CHIEF, DIVISION OF LAND DEVELOPMENT 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 COUNTY SEDIMENT CONTROL DIVISION.

[Signature] 9/10/07
SIGNATURE OF DEVELOPER DATE

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

[Signature] 9-18-07
HOWARD SCD DATE

[Signature] 9-18-07
HOWARD SCD DATE

ENGINEERS CERTIFICATE

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

[Signature] 9/10/07
SIGNATURE OF ENGINEER DATE

ZACHARIA Y. FISCH

DEVELOPER/OWNER

Dunes Vistas LLC
c/o Brian D. Boy
11807 Kellingford Court
Clarksville, Md 21029
Tel: (410) 742-2565

SEDIMENT AND EROSION CONTROL NOTES AND DETAILS

DUNES VISTAS

LOTS 1 THROUGH 10, AND OPEN SPACE LOT 11

ZONED:R-20

TAX MAP 16 GRID 24
2ND ELECTION DISTRICT

PARCEL 57
HOWARD COUNTY, MARYLAND

DESIGN BY: MT

DRAWN BY: CED

CHECKED BY: ZYE

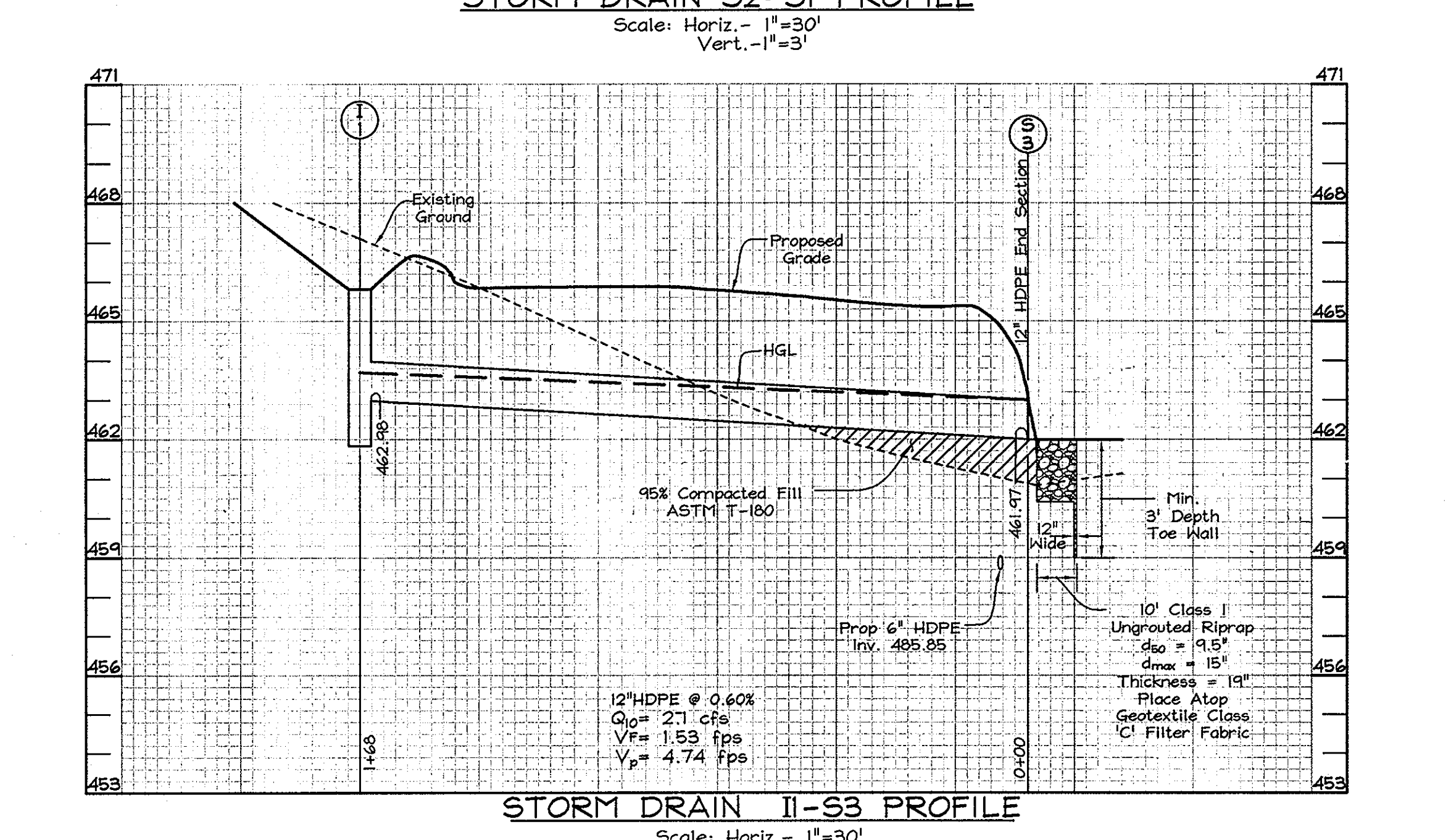
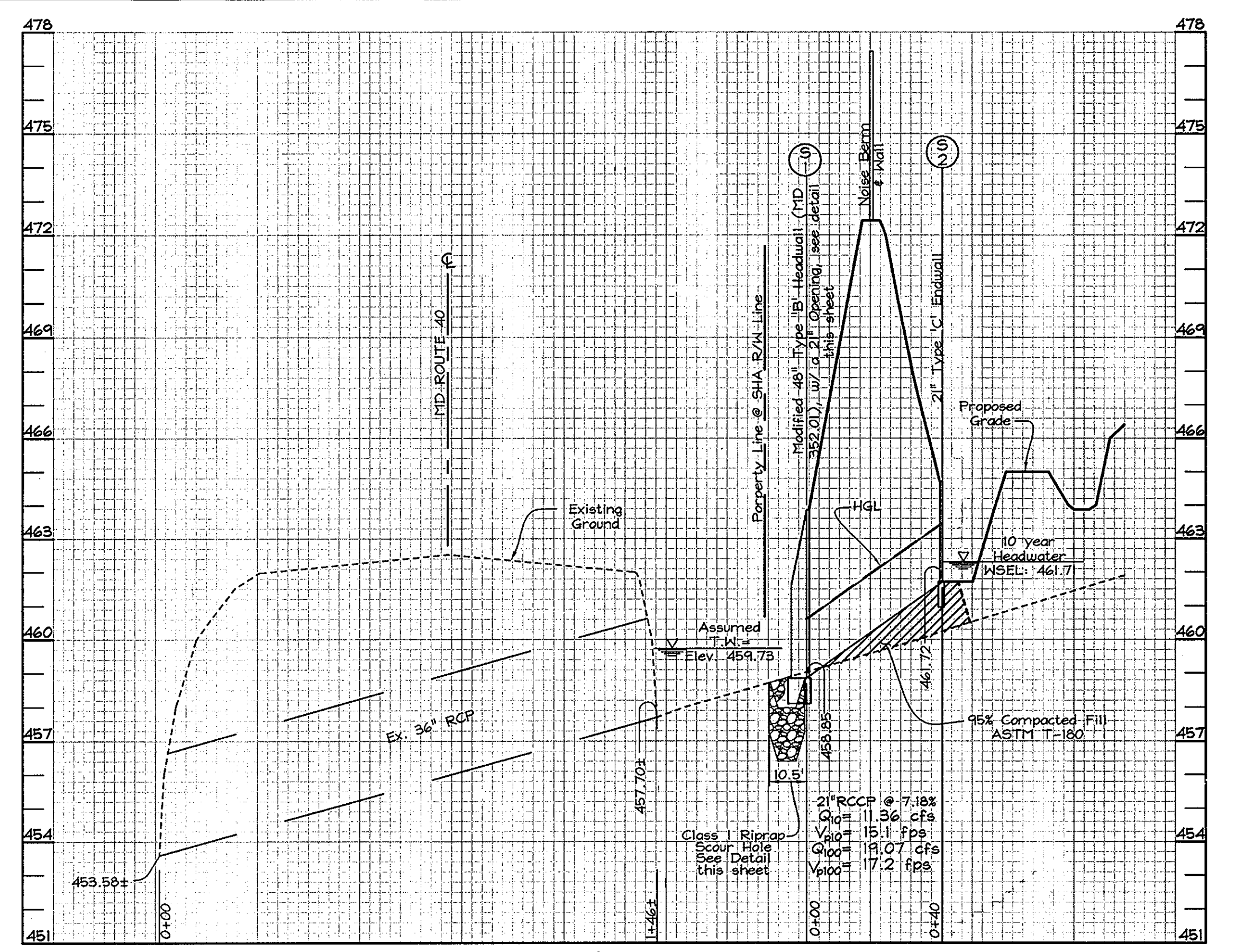
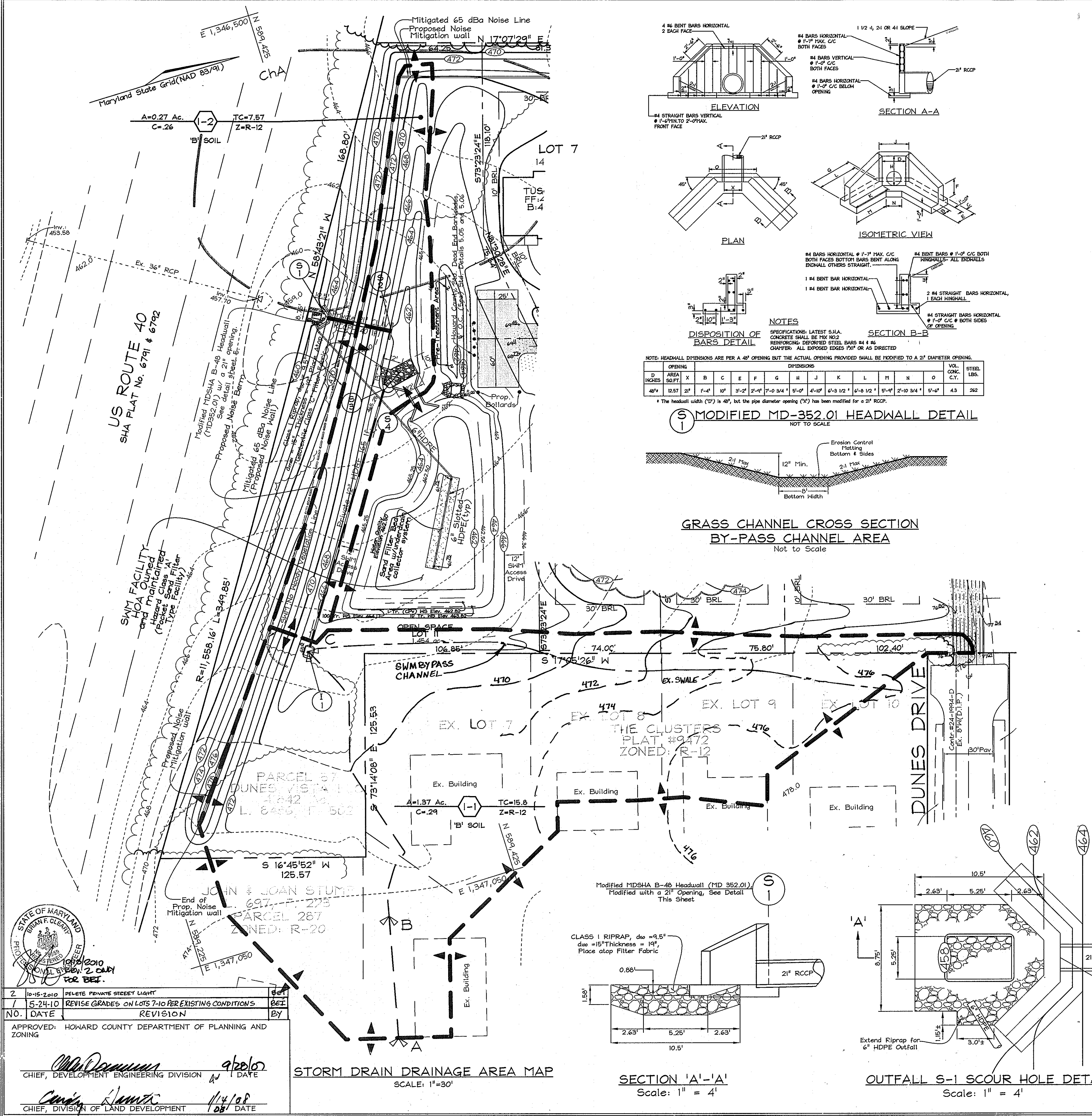
SCALE: No Scale

DATE: Sep 7, 2007

H.O. No.: 3060

SHEET No.: 4 OF 10

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



STRUCTURE SCHEDULE

| NO. | TYPE | LOCATION | TOP ELEV. | INV. IN | INV. OUT | REMARKS |
|-----|-------------------------|-------------------------------|-----------|---------|----------|-----------------------|
| I-1 | Type 'D' Inlet | N 589,345.040 E 1,346,884.187 | 465.80 | - | 462.98 | D 4.10 |
| S-1 | 21" RCP End Section | N 589,416.404 E 1,346,691.687 | - | 458.85 | - | Modified MD-352.01** |
| S-2 | 21" RCP End Section | N 589,451.425 E 1,346,711.012 | - | - | 461.72 | SD 5.21* |
| S-3 | 12" HDPE End Section | N 589,436.599 E 1,346,743.793 | - | 461.97 | - | 12" HDPE End Section |
| S-4 | Concrete Weir Structure | N 589,453.982 E 1,346,754.271 | 464.00 | N/A | N/A | See Detail Sheet 628* |

* or approved equivalent.
** S-1 Headwall is a 48" MD-352.01 Headwall with a opening modified from 48" to 21". See detail this sheet.
*** SEE Also Howard County Detail P-6.01

PIPE SCHEDULE

| SIZE | TYPE | LENGTH |
|------|------|--------|
| 12" | HDPE | 168 LF |
| 21" | RCCP | 40 LF |

STORM DRAIN DRAINAGE AREA MAP, PROFILES AND DETAILS
DUNES VISTAS
LOTS 1 THROUGH 10, AND OPEN SPACE LOT 11
ZONED: R-20

TAX MAP 16 GRID 24
2ND ELECTION DISTRICT

PARCEL 57
HOWARD COUNTY, MARYLAND

DEVELOPER/OWNER
Dunes Vistas LLC
c/o Brian D. Boy
1807 Kellington Court
Clarksville, Md 21029
Tel: (410) 792-2565

FSH Associates
Engineers Planners Surveyors
6339 Howard Lane, Elkridge, MD 21075
Tel: 410-567-5200 Fax: 410-798-1562
E-mail: info@fsher.com

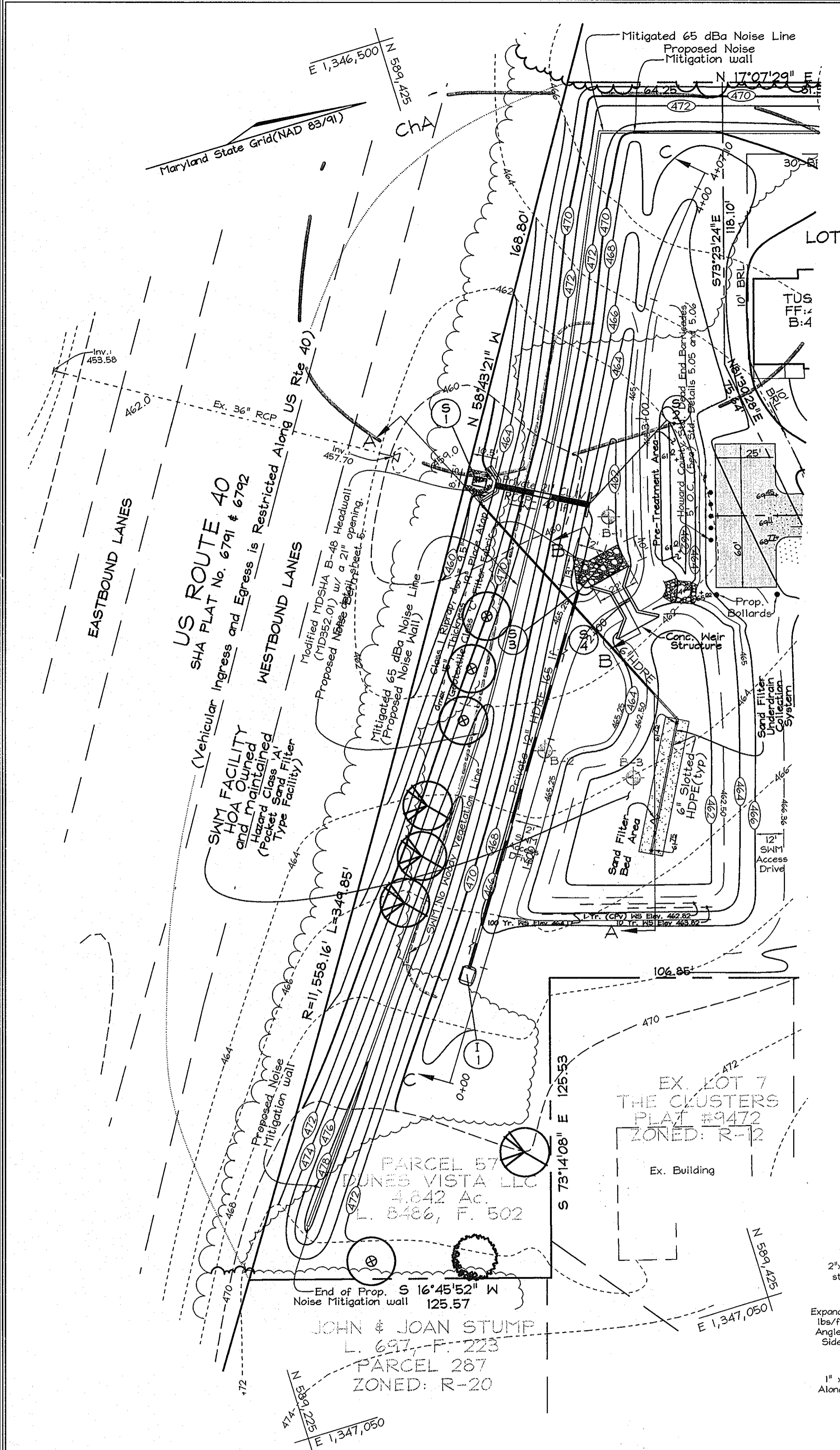
DESIGN BY: MT
DRAWN BY: CED
CHECKED BY: ZYF
SCALE: As Shown
DATE: Sep. 7, 2007
P.L.O. No.: 306C
SHEET No.: 5 OF 10

STATE OF MARYLAND
DEPARTMENT OF PLANNING AND ZONING

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 9/20/10

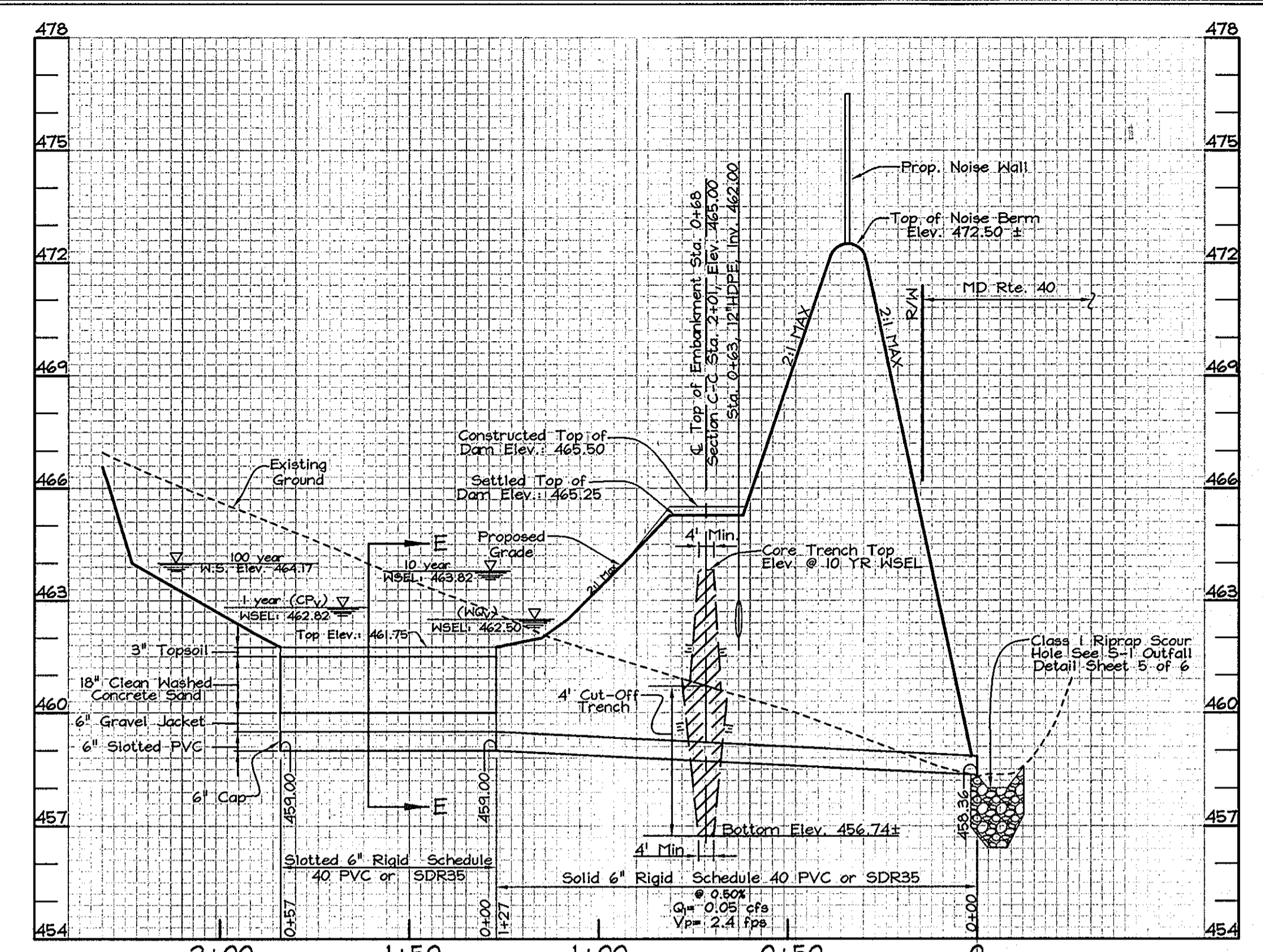
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 11/14/08



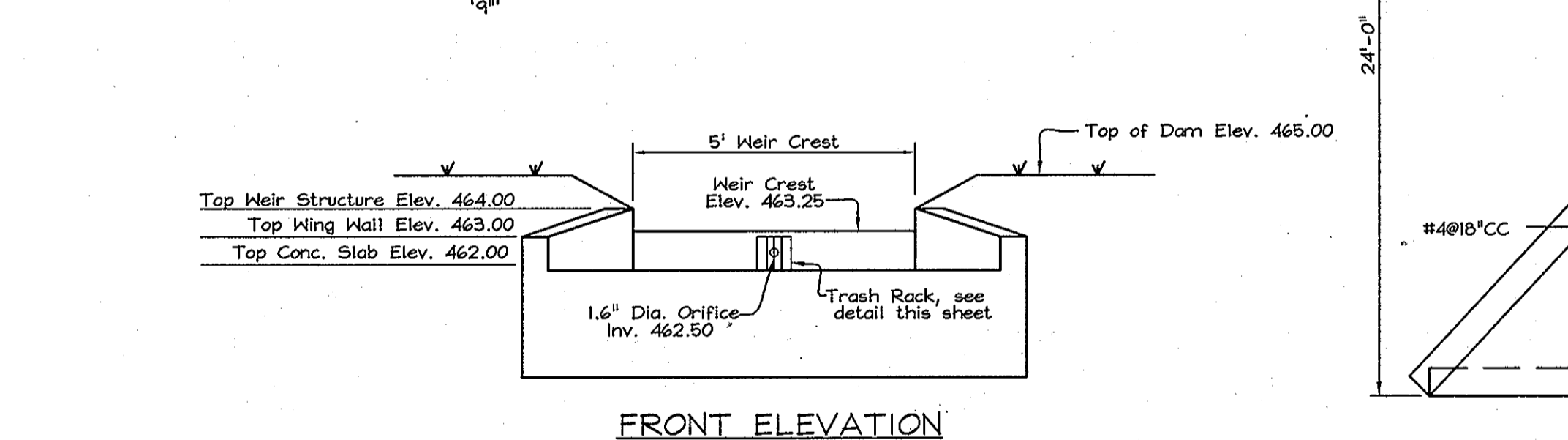
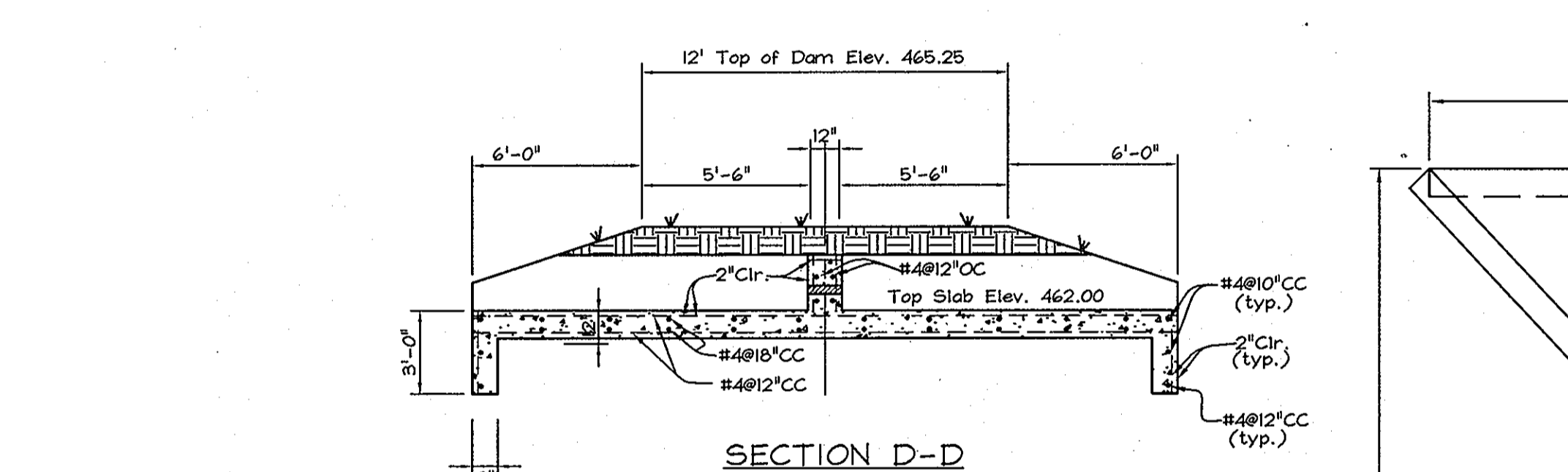
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

W. D. ... 9/20/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Candy ... 11/1/07
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

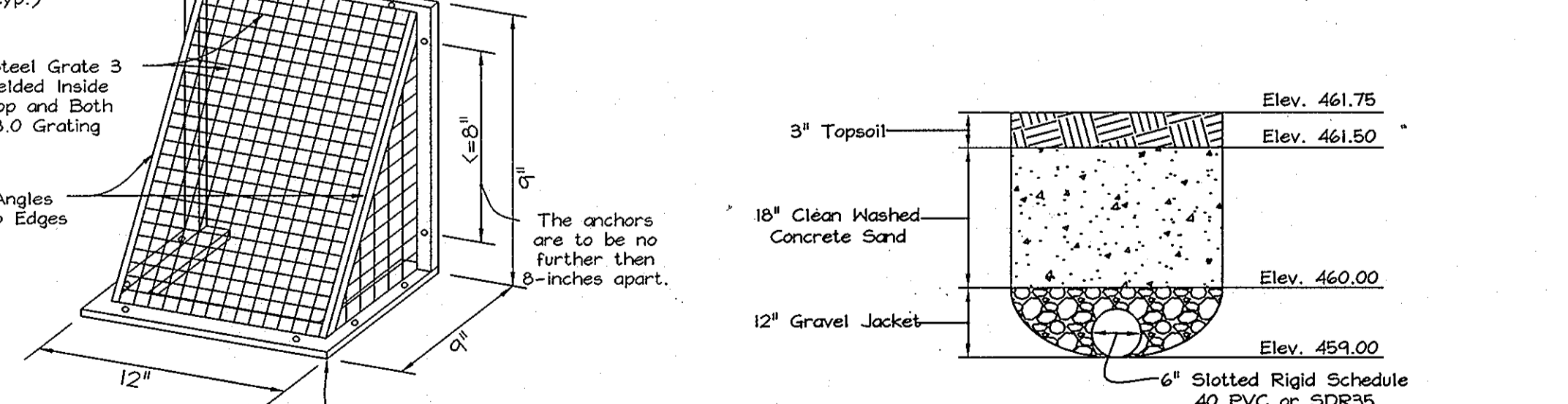


SECTION A-A PROFILE THROUGH SAND FILTER OUTFALL PIPE
Scale: Horizontal-1"=30'
Vertical-1"=3'



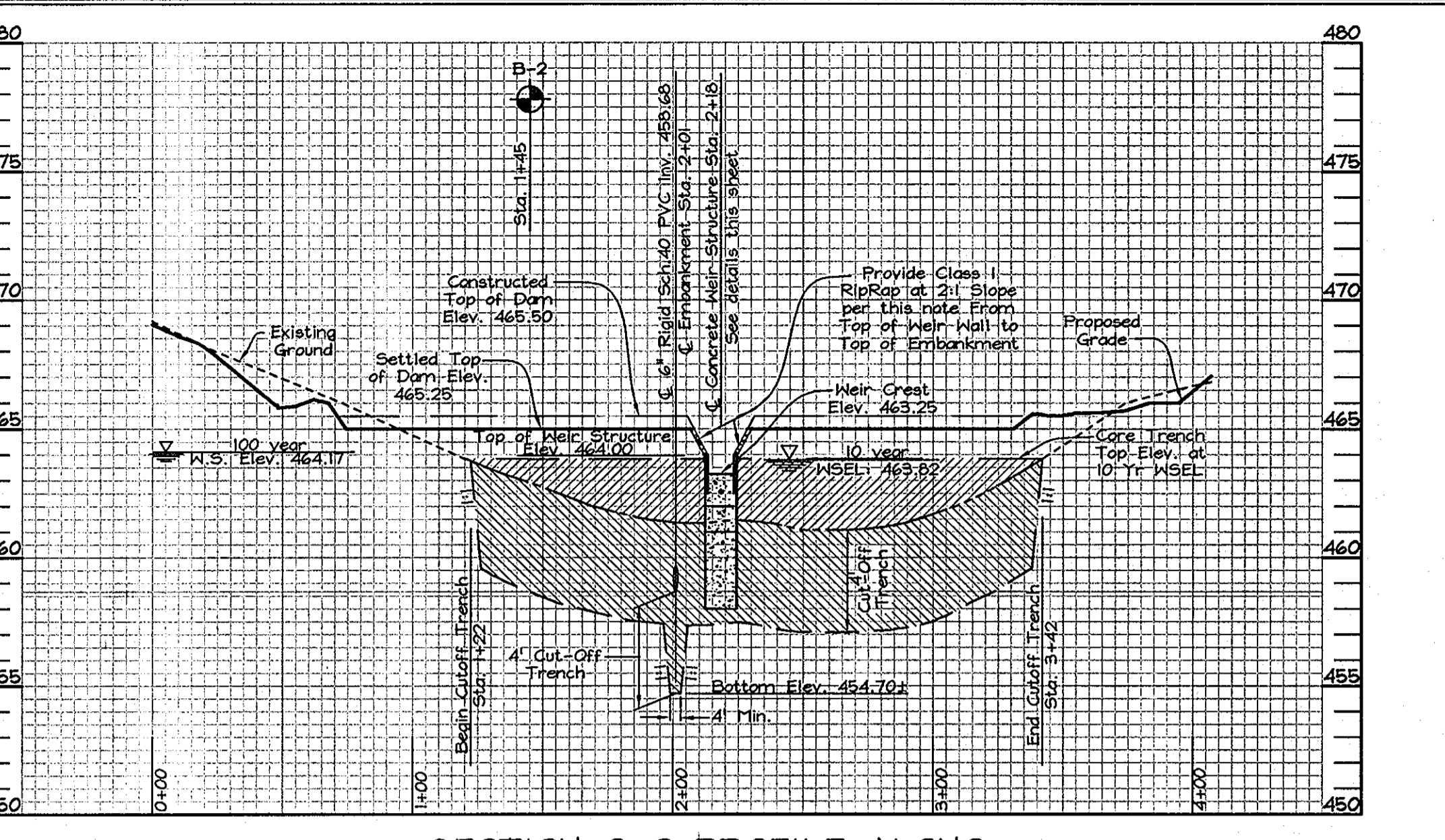
NOTES:
1. All exposed edges to have a 3/4"x3/4" chamfer or as directed.
2. Concrete shall be SHA mix #3 (fc=3500 psi @ 28 days)
3. Reinforcing steel shall be ASTM A-615 grade 60.

S-4 WEIR STRUCTURE DETAIL
NOT TO SCALE

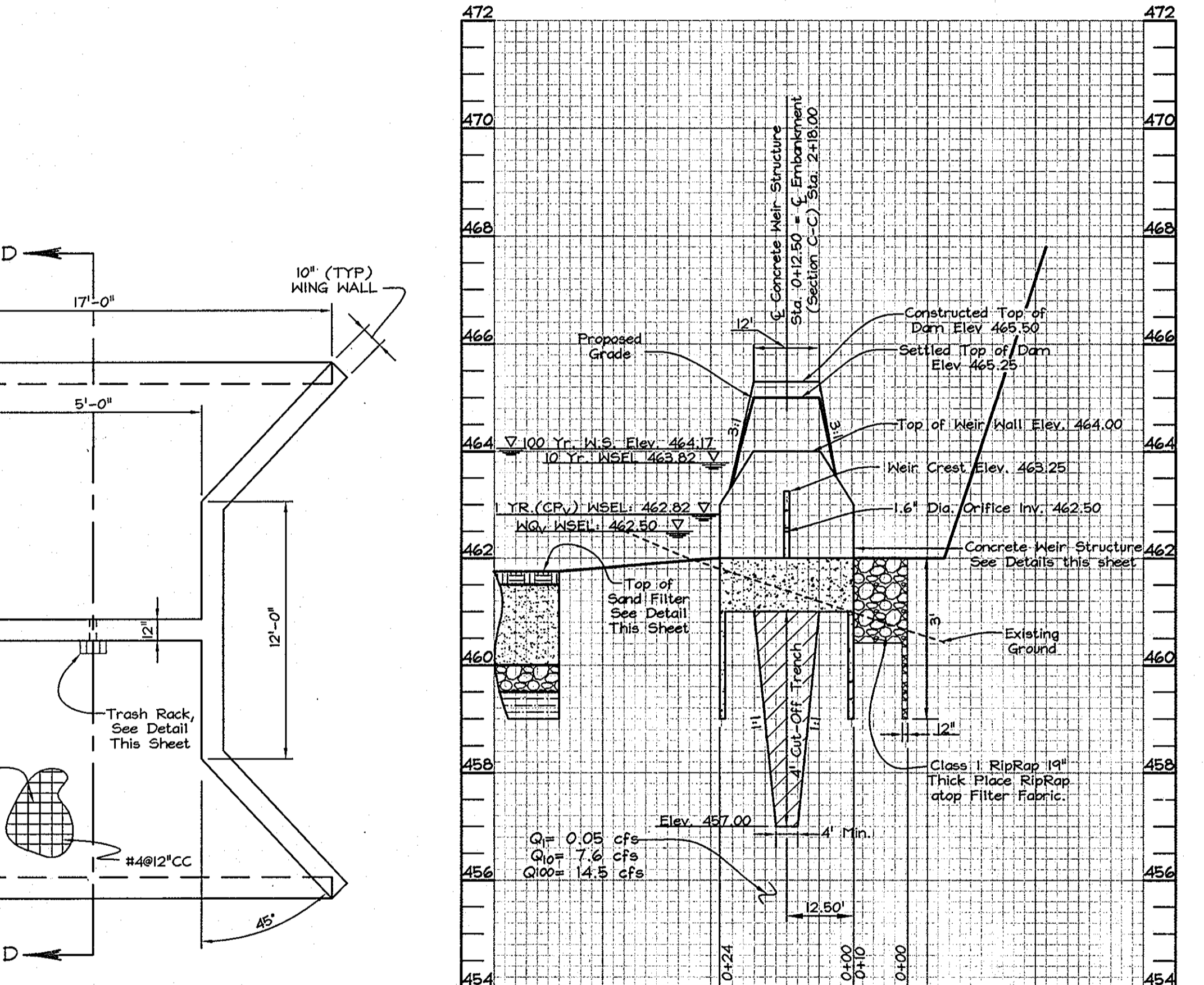


TRASH RACK DETAIL
NOT TO SCALE

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" masonry anchors. Trash rack to be removable.



SECTION C-C PROFILE ALONG TOP OF EMBANKMENT
Scale: Horizontal-1"=50'
Vertical-1"=5'



SECTION B-B PROFILE THROUGH WEIR STRUCTURE
Scale: Horizontal-1"=20'
Vertical-1"=2'

DEVELOPER/OWNER
Dunes Vistas LLC
c/o Brian D. Boy
11807 Wollington Court
Clarkville, MD 21024
Tel: (410) 792-2565

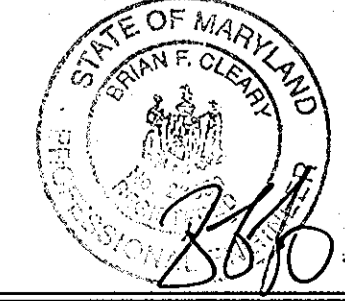
STORMWATER MANAGEMENT PLAN, PROFILES AND DETAILS
DUNES VISTAS
LOTS 1 THROUGH 10, AND OPEN SPACE LOT 11
ZONED: R-20

TAX MAP 16 GRID 24
2ND ELECTION DISTRICT

PARCEL 57
HOWARD COUNTY, MARYLAND

FSH Associates
Engineers Planners Surveyors
6339 Howard Lane, Elkridge, MD 21075
Tel: 410-567-5200 Fax: 410-798-1562
E-mail: info@fsher.com

DESIGN BY: MT
DRAWN BY: CED
CHECKED BY: ZYF
SCALE: As Shown
DATE: Sep. 7, 2007
W.O. No.: 3060
SHEET No.: 6 OF 10



10/10/2010
RE: BE 1 - 2
10-15-2010
DELETE PRIVATE STREET LIGHT

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED POCKET SAND FILTER, STORMWATER MANAGEMENT FACILITY (F-5)

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

| FLOW INTO POND | 1 YEAR | 10 YEAR | 100 YEAR |
|----------------|--------------|--------------|----------|
| 2.51 c.f.s. | 11.1 c.f.s. | 19.4 c.f.s. | |
| 0.05 c.f.s. | 7.6 c.f.s. | 14.5 c.f.s. | |
| 462.82 | 463.82 | 464.17 | |
| 0.12 Ac. Ft. | 0.11 Ac. Ft. | 0.19 Ac. Ft. | |

| Water Quality Obligation | Recharge Obligation |
|-----------------------------------|--------------------------------------|
| W.Q.V. Required : 5,622 cu.ft. | Rev. Required: 1,481 ft ³ |
| W.Q.V. Prov'd : 5,622 cu.ft. | Rev. Provided: N/A** |
| W.Q.V. Provided using Sand Filter | Rea. Prov'd: 0.38 Ac.*** |

**Recharge treated through Grass Channel Credit.
***Road paving, Duellings (1 thru 7) and their driveways drain to the road ditches which are used for the Grass Channel Credit for recharge.

MARYLAND 378 STORMWATER MANAGEMENT POND CONSTRUCTION SPECIFICATIONS

CONSTRUCTION SPECIFICATIONS

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

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

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

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

Earth Fill
Material - The fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, wood, rubbish, stones greater than 6", frozen or other objectionable materials. Fill material for the center of the embankment, and cut off trench shall conform to Unified Soil Classification GC, SC, CH, or CL and must have at least 32% passing the #200 sieve. Consideration may be given to the use of other materials in the embankment if designed by a geotechnical engineer. Such special designs must have construction supervised by a geotechnical engineer. Materials used in the outer shell of the embankment must have the capability to support vegetation of the quality required to prevent erosion of the embankment.

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

Compaction - The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by no less than one tread track of heavy equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture so that if formed into a ball it will not crumble, yet not be so wet that water can be squeezed out.

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

Cut Off Trench - The cutoff trench shall be excavated into impervious material along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be governed by the equipment used for excavation, with the minimum width being four feet. The depth shall be at least four feet below existing grade or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability.

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

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

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

Pipe Conduits
All pipes shall be circular in cross section.

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

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

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

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

2. Coupling, bands, anti-seep collars, end sections, etc., must be composed of the same material and coatings as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness.

3. Connections - All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands are not considered to be watertight.

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 OF DEVELOPER: *[Signature]* DATE: 9/10/07

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 OF ENGINEER: *[Signature]* DATE: 9/10/07
ZACHARIA Y. FISCH

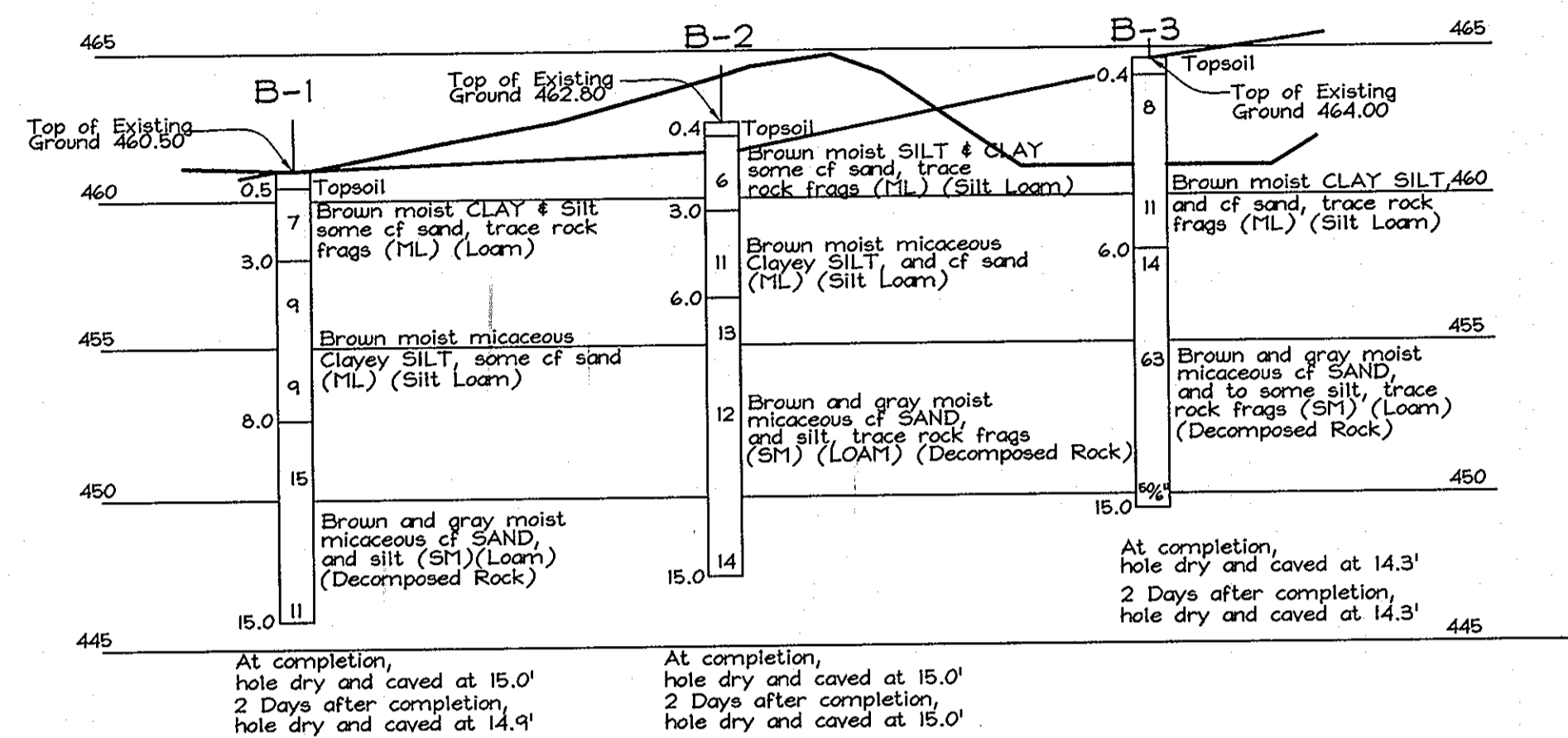
THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

[Signature] DATE: 9-18-07
USA-NATURAL RESOURCES CONSERVATION SERVICE
[Signature] DATE: 9-18-07
HOWARD SOIL CONSERVATION DISTRICT

OPERATION, MAINTENANCE AND INSPECTION

INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, SCS "STANDARDS AND SPECIFICATIONS FOR PONDS" (MD-378). THE POND OWNER(S) AND ANY HEIRS, SUCCESSORS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTENANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATIONS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID EFFLUENT, SLIDING OR SLUMPING.

| Classification | B-1 | B-2 | B-3 |
|--------------------------|------------|-----------|-----------|
| | Unified ML | ML | ML |
| AASHTO | A-7.5 (8) | A-4 (0) | A-5 (6) |
| USDA | Loam | Silt Loam | Silt Loam |
| Atterberg Limits | | | |
| Liquid Limit (LL) | B-1 | B-2 | B-3 |
| Plasticity Index (PI) | 41 | 38 | 43 |
| Natural Moisture Content | | | |
| Percent (%) | B-1 | B-2 | B-3 |
| | 26.1 | 26.3 | 24.3 |



S.W.M. BORING PROFILES NOT TO SCALE

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

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

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

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

Plastic Pipe - The following criteria shall apply for plastic pipe:

- Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241. Corrugated High Density Polyethylene (HDPE) pipe, couplings and fittings shall conform to the following: 4" - 10" inch pipe shall meet the requirements of AASHTO M252 Type S, and 12" through 24" inch shall meet the requirements of AASHTO M294 Type S.
- Joints and connections to anti-seep collars shall be completely watertight.
- Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.
- Backfilling shall conform to "Structure Backfill".
- Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

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

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

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

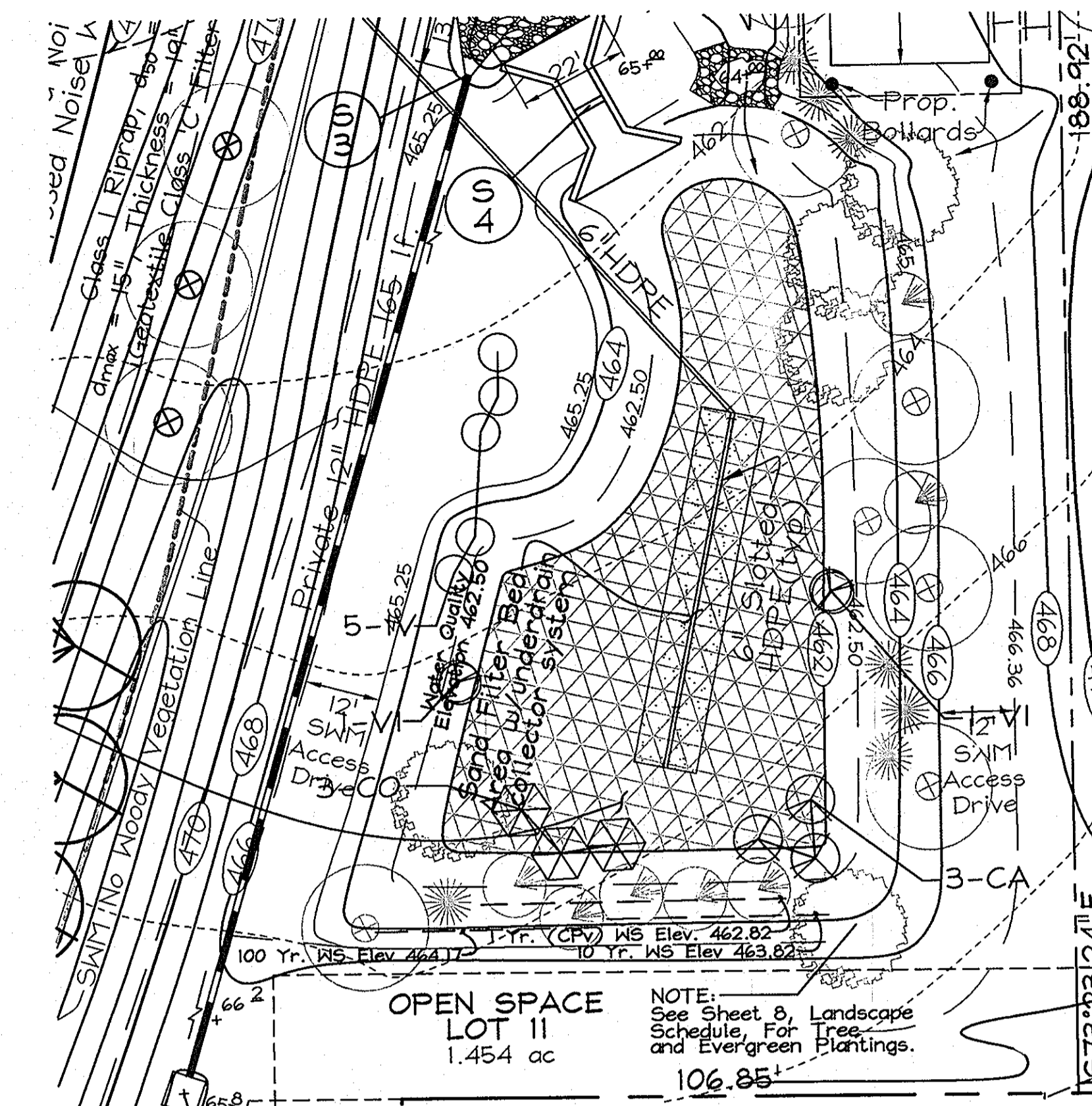
Geotextile shall be placed under all riprap and shall meet requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 921.09, Class C.

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 dikes, levees, cofferdams, all drainage channels, and stream diversions necessary to protect to be occupied by the permanent works. The contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from various parts of the work and for maintaining the 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.

When having served their purpose, all temporary protective works shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works and so as not to interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent works. The removal of water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the locations being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water sumps from which the water shall be pumped.

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

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



SWM FACILITY DETAIL SCALE: 1"=20'

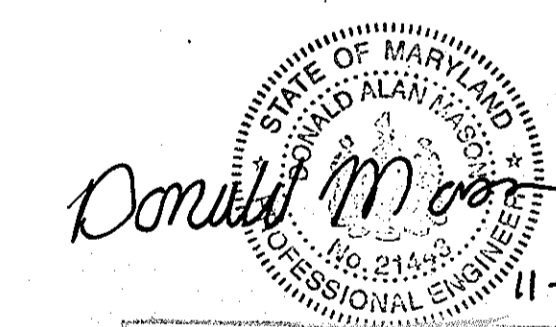
SWM Planting Notes

Within Facility - Bottom to 462.0 s.f. To be planted with 300 BLUE FLAG TREES (QUART BULBS)

| KEY | SYMBOL | QUAN. | BOTANICAL NAME | SIZE | NOTE |
|-----|--------|-------|------------------------------------|-----------|-------|
| CA | | 3 | Clethra alnifolia Sweet Pepperbush | 3'-4' Ht. | Cont. |
| CO | | 3 | Cephaelis occidentalis | 3'-4' Ht. | Cont. |
| IV | | 5 | Ilex verticillata Winterberry | 3'-4' Ht. | Cont. |
| VD | | 2 | Viburnum dentatum Arrowwood | 3'-4' Ht. | Cont. |

Remaining area around the stormwater management facility will be stabilized as per the permanent seeding notes, Sheet 4 of 8, and vegetated as per the landscape buffer requirements; see sheet 8 of 8.

Entire area to be prepared as per the permanent seeding notes.



Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 21443 Expiration Date: 12-21-12

FOR REVISIONS BY BENCHMARK ENGINEERING, INC. ONLY DEVELOPER/OWNER Dunes Vistas LLC c/o Brian D. Boy 11807 Hollingford Court Clarksville, Md 21024 Tel: (410) 792-2565

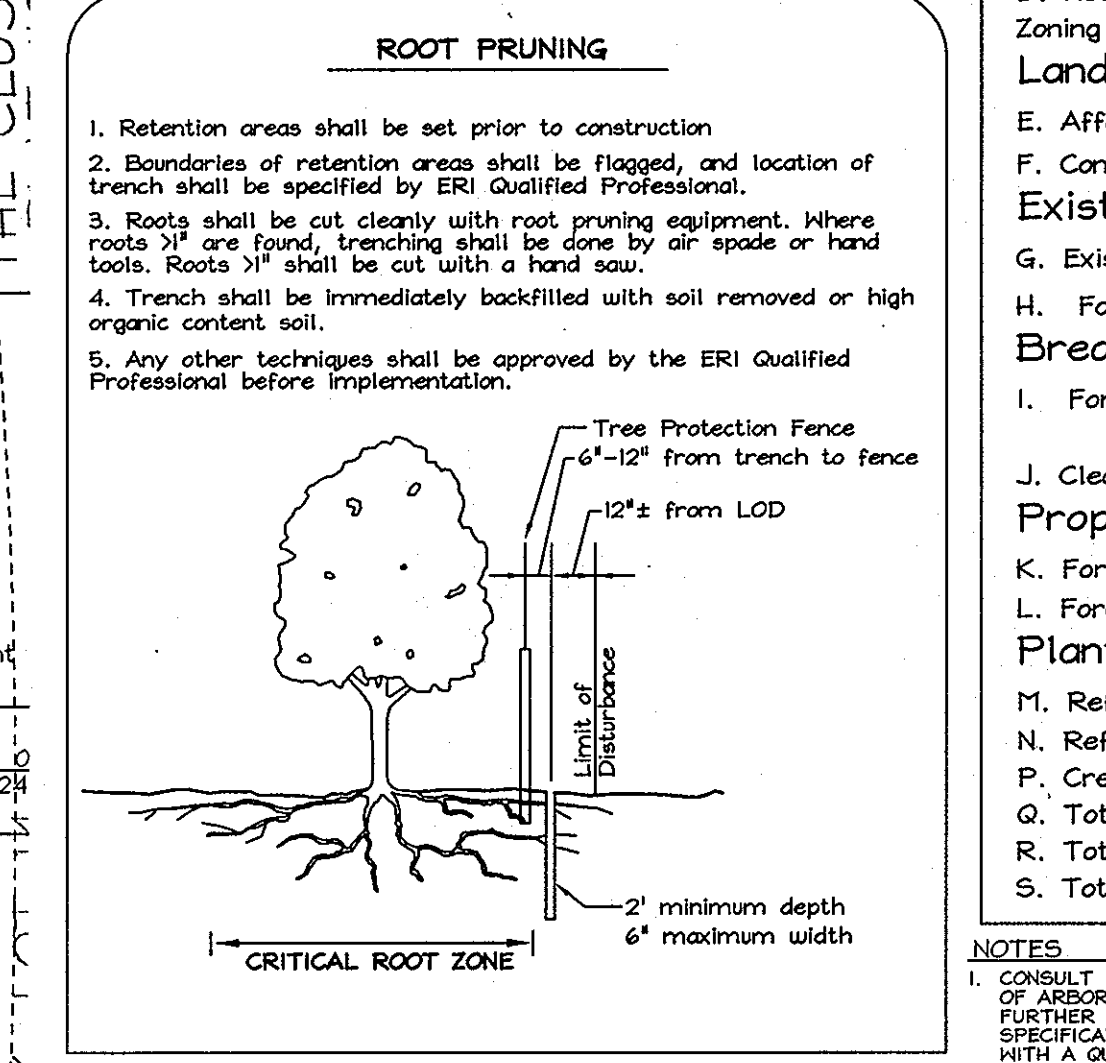
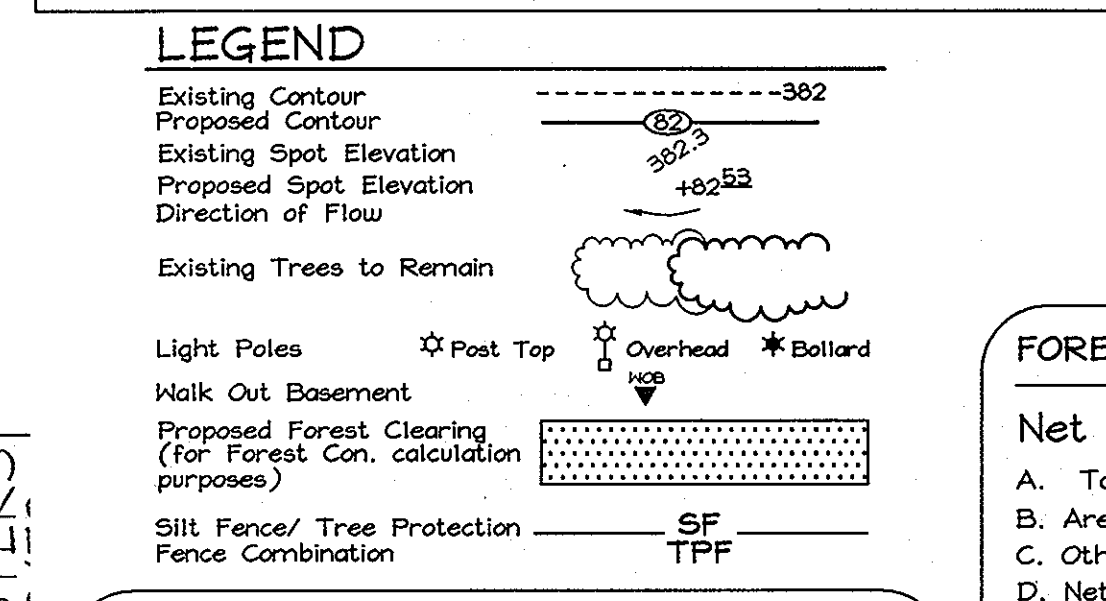
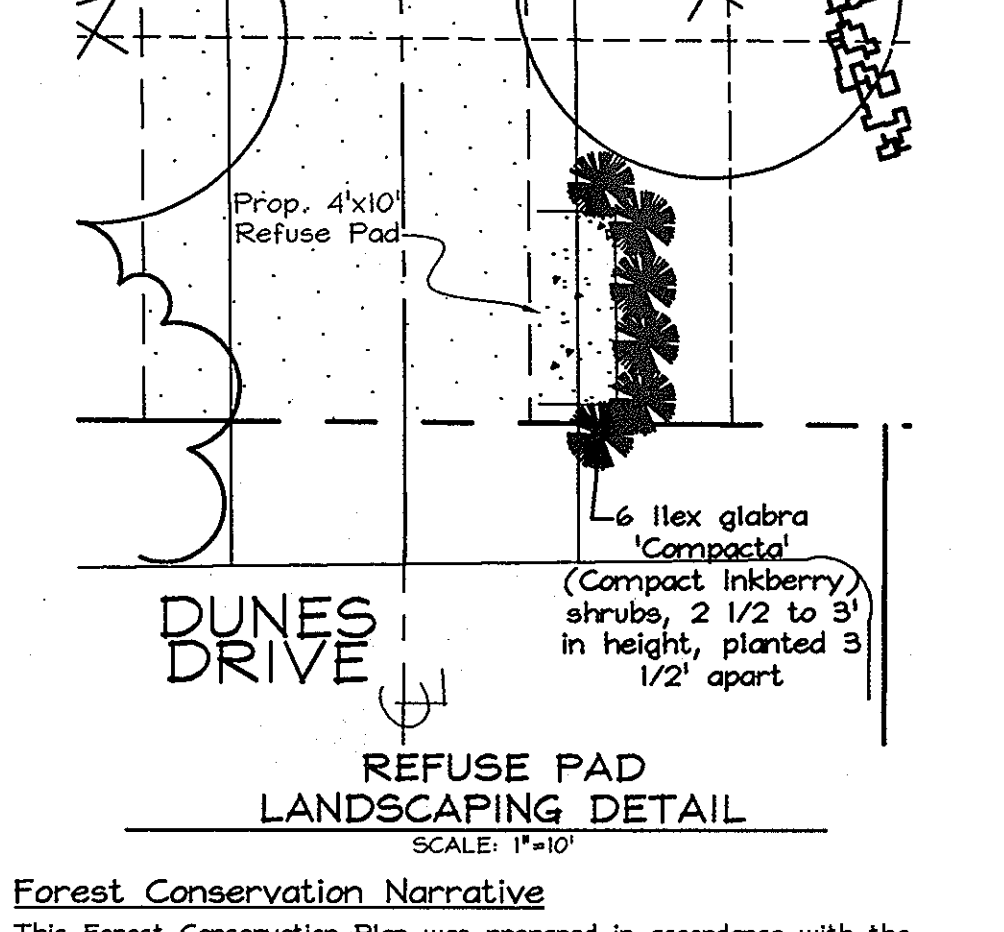
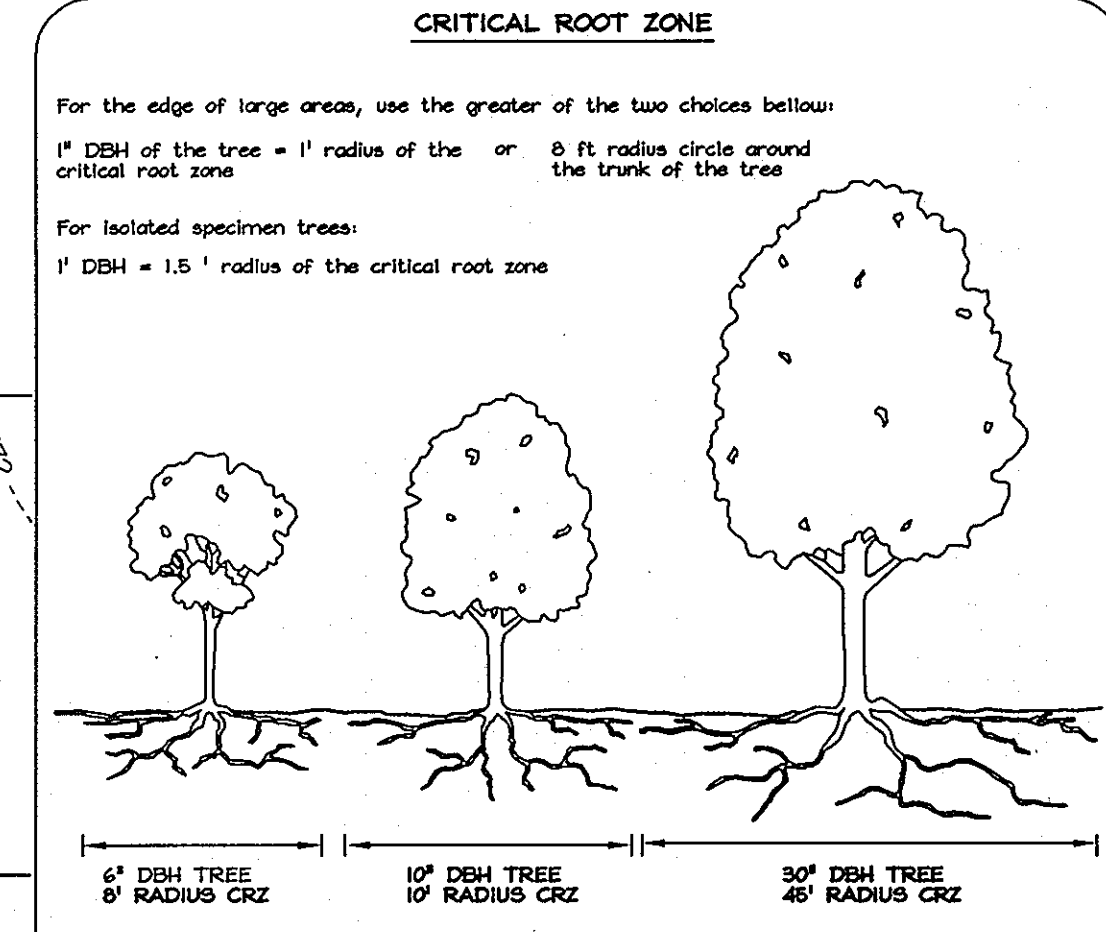
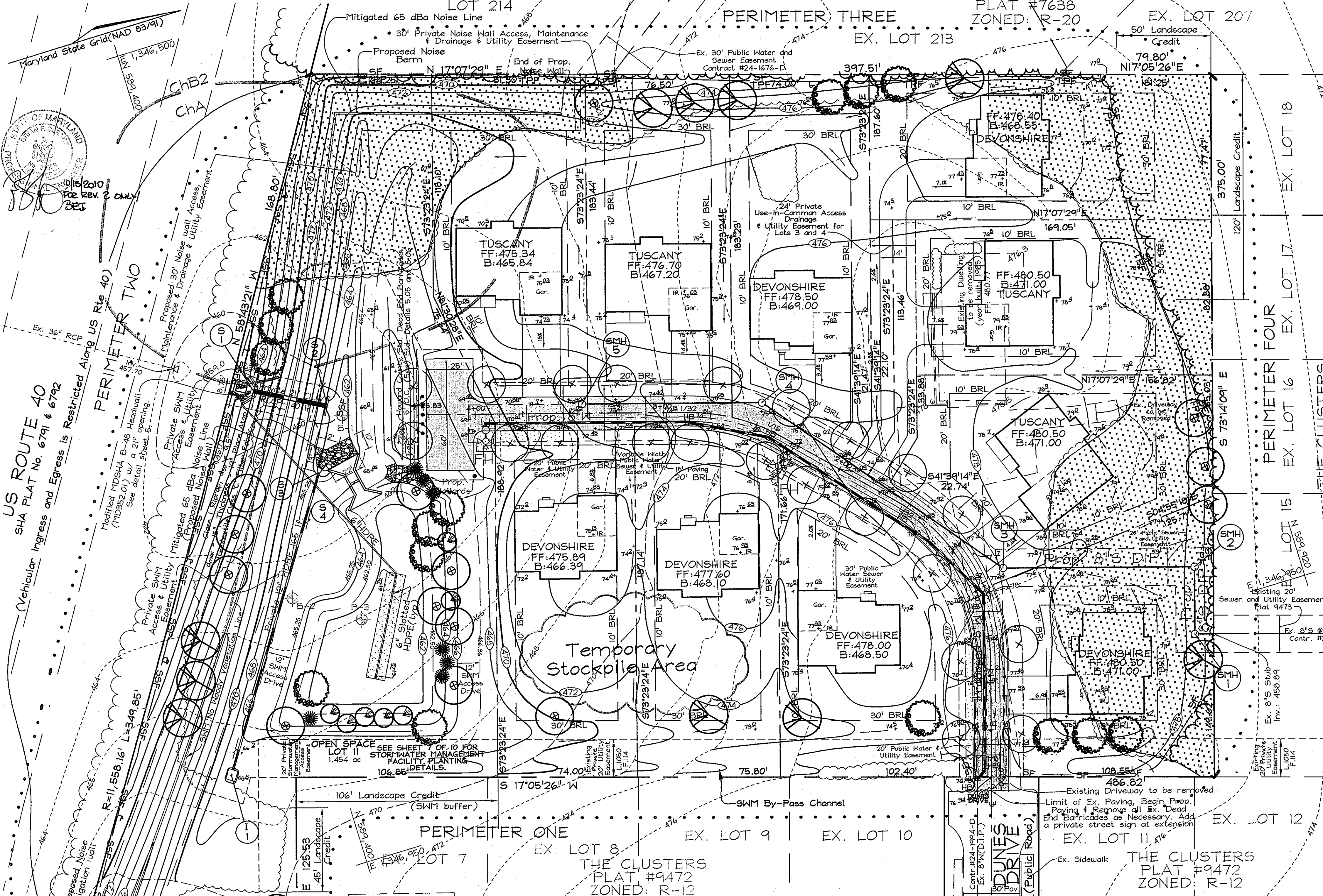
STORMWATER MANAGEMENT NOTES AND DETAILS DUNES VISTAS LOTS 1 THROUGH 10, AND OPEN SPACE LOT 11 ZONED: R-20

TAX MAP 16 GRID 24 2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND PARCEL 57

FSH Associates
Engineers Planners Surveyors
6339 Howard Lane, Elkridge, MD 21075
Tel: 410-567-6200 Fax: 410-796-1562
E-mail: info@fsh.com

DESIGN BY: MT
DRAWN BY: CED
CHECKED BY: ZYE
SCALE: Not To Scale
DATE: Sep. 7, 2007
H.O. No.: 3060
SHEET No.: 7 OF 20

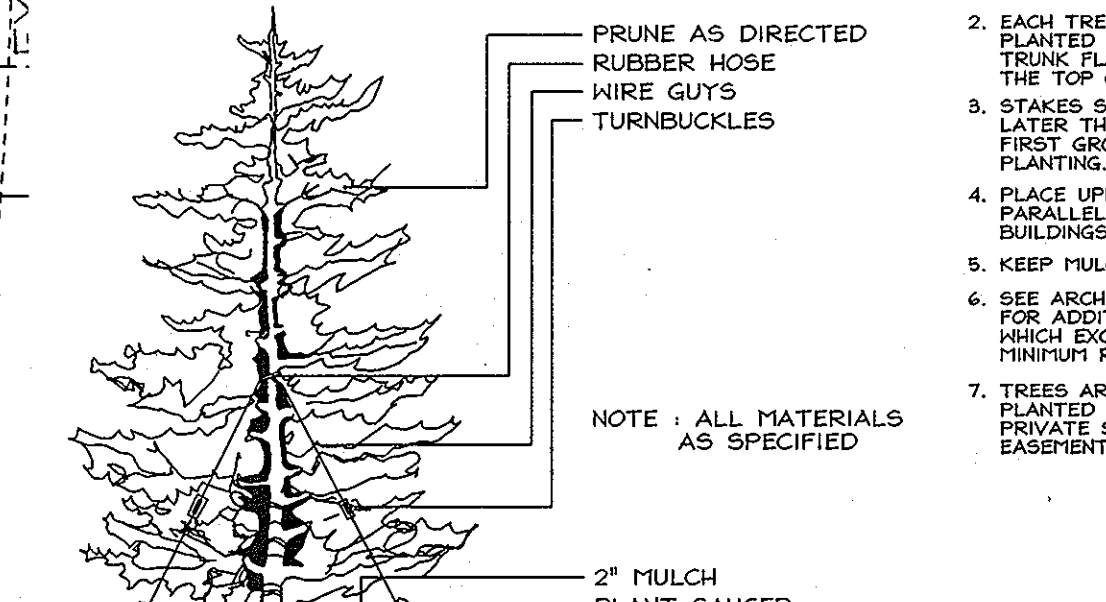
General Notes:
 1. See Sheet 4 for Silt Fence/Tree Protection Fence Combination Detail.
 2. All Silt Fence/ Tree Protection Fence Combinations to be trenched per root pruning specification, this sheet.



Forest Conservation Narrative
 This Forest Conservation Plan was prepared in accordance with the Howard County Forest Conservation Manual.
 The net tract area is 4.80 acres, with 0.9 acres of forest. There is no 100-year flood plain, wetlands, streams, steep slope or associated buffers on site. Clearing below the forest conservation threshold consists of 0.9 acres. Though all the forest is considered cleared for the forest conservation calculations, forest shall remain to the greatest extent possible, as shown by the limit of disturbance and proposed tree lines on the plan. The developer is currently reviewing options for off-site planting of the required 1.8 acres of reforestation or the use of a forest conservation bank.

FOREST CONSERVATION WORKSHEET

| Net Tract Area | Acres |
|--|-------|
| A. Total Tract Area | 4.80 |
| B. Area Within 100 Year Floodplain | --- |
| C. Other deductions | --- |
| D. Net Tract Area | 4.80 |
| Zoning Use Category: RESIDENTIAL-SUBURBAN | |
| Land Use Category | |
| E. Afforestation Minimum (15 % x D) | 0.72 |
| F. Conservation Threshold (20 % x D) | 0.96 |
| Existing Forest Cover | |
| G. Existing Forest on Net Tract Area | 0.90 |
| H. Forest Area Above Conservation Threshold | 0.00 |
| Break-even Point | |
| I. Forest Retention Above Threshold with no Mitigation | 0.96 |
| J. Cleared Permitted without Mitigation | 0.59 |
| Proposed Forest Clearing | |
| K. Forest Areas to be Cleared | 0.90 |
| L. Forest Areas to be Retained | 0 |
| Planting Requirements | |
| M. Reforestation for Clearing Above Threshold | 0 |
| N. Reforestation for Clearing Below the Threshold | 1.8 |
| P. Credit for Retention Above Conservation Threshold | 0 |
| Q. Total Reforestation Required | 1.8 |
| R. Total Afforestation Required | 0 |
| S. Total Reforestation and Afforestation Requirement | 1.8 |



TYPICAL TREE PLANTING AND STAKING
 DECIDUOUS TREES UP TO 2-1/2" CALIPER NOT TO SCALE
DEVELOPER/OWNER
 Dunes Vistas LLC
 c/o Brian D. Boy
 1807 Mollington Court
 Clarksville, MD 21029
 Tel: (410) 792-2565

JOHN @ JOAN STUMP
 L: 697, F: 223
PARCEL 287
ZONED: R-20

SOILS LEGEND

| SYMBOL | NAME / DESCRIPTION | SOIL GROUP |
|--------|---|------------|
| ChA | Chester Silt Loam, 0 to 3 percent slopes | B |
| ChB2 | Chester Silt Loam, 3 to 8 percent slopes, moderately eroded | B |
| ChC3 | Chester Silt Loam, 8 to 15 percent slopes, severely eroded | B |

SCHEDULE A PERIMETER LANDSCAPE EDGE

| CATEGORY | ADJACENT TO ROADWAYS | | ADJACENT TO PERIMETER PROPERTIES | |
|--|----------------------|------------|----------------------------------|------------|
| | A | B | A | B |
| Perimeter/Frontage Designation | B | A | 3 | 4 |
| Linear Feet of Roadway Frontage/Perimeter | 519' | 738' | 477' | 375' |
| Credit for Existing Vegetation (Yes, No, Linear Feet. Describe below if needed) | No | Yes** 48' | Yes** 50' | Yes** 120' |
| Credit for Wall, Fence, Berm, or Other Planting (Yes, No, Linear Feet. Describe below if needed) | Yes** 519' | Yes** 106' | No | No |
| Number of Plants Required | *** | 160 9 | 160 6 | 160 4 |
| Shade Trees | | | | |
| Evergreen Trees | | | | |
| Shrubs | | | | |
| Number of Plants Provided | | | | |
| Shade Trees | | | | |
| Evergreen Trees | 9 | 10 | 8 | 4 |
| Other Trees (21 Substitution) | | | | |
| Shrubs (101 Substitution) | | | | |
| (Describe Plant Substitution Credits Below if needed) | | | | |

SCHEDULE D: STORMWATER MANAGEMENT AREA LANDSCAPING

| | |
|--|---|
| Linear Feet of Perimeter | 833 LF |
| Credit for Existing Vegetation (No, Yes and %) | No |
| Credit for other Landscaping (No, Yes and %) | 4% Yes, Noise Berm & Wall (35% or 290 LF) |
| Number of Trees Required | |
| Shade Trees 1:50 | 11 |
| Evergreen Trees 1:40 | 14 |
| Number of Trees Provided | |
| Shade Trees | 11 |
| Evergreen Trees | 14 |
| Other Trees (21 Substitution) | 0 Trees (0 Substitution Trees) |

LANDSCAPE SCHEDULE

| KEY | QUAN. | BOTANICAL/COMMON NAME | SIZE | NOTE |
|---------------|-------|---|----------------|-------|
| (Tree symbol) | 16 | Acer rubrum 'October Glory' 'October Glory' Red Maple | 2 1/2"-3" Cal. | B & B |
| (Tree symbol) | 15 | Quercus palustris Pin Oak | 2 1/2"-3" Cal. | B & B |
| (Tree symbol) | 11 | Liquidambar styraciflua American Sweetgum | 2 1/2"-3" Cal. | B & B |
| (Tree symbol) | 7 | Pinus strobus Eastern White Pine | 6'-8' | B & B |
| (Tree symbol) | 7 | Thuja occidentalis 'Techny' 'Techny' Eastern Arborvitae | 5'-6' | B & B |

LANDSCAPE NOTES
 1. At the time of installation, all shrubs and other plantings herewith listed and approved for this site, shall be of the proper height requirements in accordance with the Howard County Landscaping Manual. In addition, no substitutions or relocation of required plantings may be made without prior review and approval from the Department of Planning and Zoning. Any deviation from this approved Landscape Plan may result in denial or delay in the release of landscape surety until such time as all required materials are planted and/or revisions are made to applicable plans and certificates.
 2. The owner, tenant, and/or their agents shall be responsible for maintenance of the required landscaping, including both plant materials and berms, fences and walls. All plant materials shall be maintained in good growing condition, and when necessary, replaced with new materials to ensure continued compliance with applicable regulations. All other required landscaping shall be permanently maintained in good condition, and when necessary, repaired or replaced.
 3. Financial surety for the required landscaping will be posted as part of the Developer's Agreement in the amount of \$21,360 (64 shade trees @ \$300.00 each, 14 evergreen trees @ \$150.00 each, and 6 shrubs @ \$10 each).

STREET TREE SCHEDULE

| STREET NAME | LF REQUIRED | TREES REQUIRED | PROVIDED |
|-------------|-------------|----------------|----------|
| DUNES DRIVE | 850' | (140) = 22 | 22 |

STREET TREE PLANTING SCHEDULE

| KEY | QUAN. | BOTANICAL/COMMON NAME | SIZE | NOTE |
|---------------|-------|---|----------------|-------|
| (Tree symbol) | 22 | Tilia americana 'Redmond' 'Redmond' American Linden | 2 1/2"-3" Cal. | B & B |

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
John Deane 9/20/10
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
Cindy Hunt 11/14/08
 CHIEF, DIVISION OF LAND DEVELOPMENT

FOREST CONSERVATION PLAN PREPARED BY:
EXPLORATION RESEARCH, INC.
 ENVIRONMENTAL CONSULTANTS
 LANDSCAPE ARCHITECTS
 6339 HOWARD LANE
 ELK RIDGE, MARYLAND 21078
 TEL: (410) 567-5200 FAX: (410) 798-1582

FOREST CONSERVATION, LANDSCAPING AND STREET TREE PLAN
DUNES VISTAS
 LOTS 1 THROUGH 10, AND OPEN SPACE LOT 11
 ZONED: R-20
 TAX MAP 16 GRID 24
 2ND ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 PARCEL 57

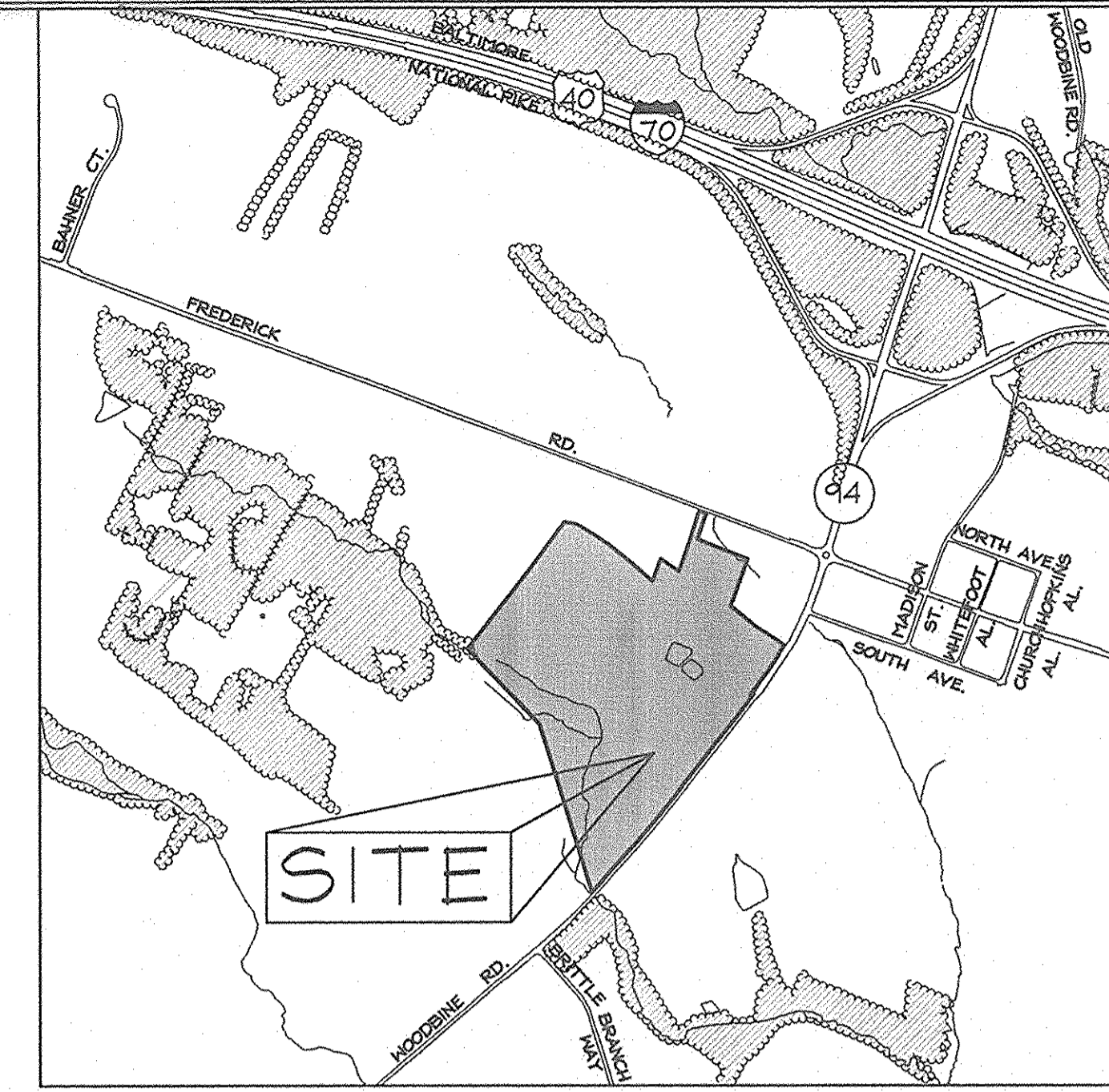
FSH Associates
 Engineers Planners Surveyors
 6339 Howard Lane, Elkridge, MD 21075
 Tel: 410-567-5200 Fax: 410-798-1582
 E-mail: info@fshri.com

DESIGN BY: SLH
 DRAWN BY: DH/SMH
 CHECKED BY: JZF
 SCALE: 1" = 30'
 DATE: Sep 7, 2007
 W.O. No.: 3060
 SHEET No.: 8 OF 10

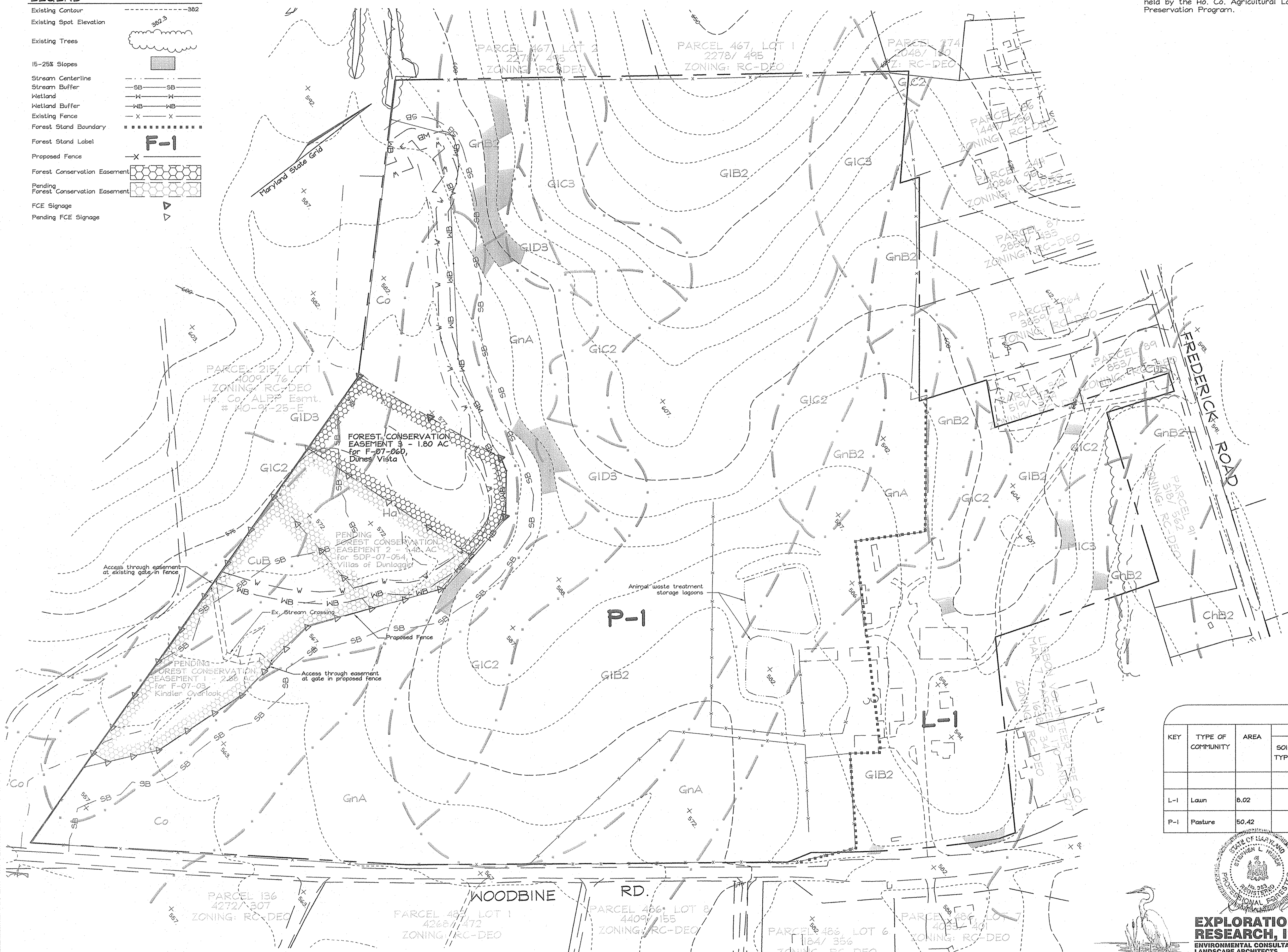
LEGEND

- Existing Contour -382
- Existing Spot Elevation 382.3
- Existing Trees
- 15-25% Slopes
- Stream Centerline
- Stream Buffer
- Wetland
- Wetland Buffer
- Existing Fence
- Forest Stand Boundary
- Forest Stand Label **F-1**
- Proposed Fence
- Forest Conservation Easement
- Pending Forest Conservation Easement
- FCE Signage
- Pending FCE Signage

This property is encumbered with a Ho. Co. Agricultural Land Preservation Easement, HO-91-24-E, which is held by the Ho. Co. Agricultural Land Preservation Program.



VICINITY MAP
SCALE: 1"=100'



SOILS LEGEND

| SYMBOL | NAME / DESCRIPTION | SOIL GROUP |
|--------|---|------------|
| Co | Cadon silt loam | C |
| CuB | Comus silt loam, local alluvium, 3 to 8 percent slopes | B |
| GIB2 | Glenelg loam, 3 to 8 percent slopes, moderately eroded | B |
| GIC2 | Glenelg loam, 8 to 15 percent slopes, moderately eroded | B |
| GIC3 | Glenelg loam, 8 to 15 percent slopes, severely eroded | B |
| GID3 | Glenelg loam, 15 to 25 percent slopes, severely eroded | B |
| GnA | Glenville silt loam, 0 to 3 percent slopes | C |
| GnB2 | Glenville silt loam, 3 to 8 percent slopes, moderately eroded | C |
| Ha | Halboro silt loam | D |
| MIC3 | Manor loam, 8 to 15 percent slopes, severely eroded | B |

Forest Stand Delineation Narrative
 This Forest Stand Delineation was prepared in accordance with the Howard County Forest Conservation Manual.
 LI and PI The Pasture and Lawn areas contain scattered trees and shrubs along the existing stream and around the existing house sites. As the site is not being disturbed, specimen trees were not verified at this time. The pasture is actively used for cattle grazing. An easement is being created along the existing stream.
 There are minor areas of steep slopes on the site as indicated on the plan.

FOREST STAND ANALYSIS TABLE

| KEY | TYPE OF COMMUNITY | AREA | SOIL INFORMATION | | | EXISTING VEGETATION (Type and approx. %) | STAND CHARACTERISTICS | | | FOREST AREA IN SENSITIVE ENVIRONMENTS |
|-----------------------------------|-------------------|-------|------------------|----------------------|----------------------------|--|-----------------------|-----------------|-----|---------------------------------------|
| | | | SOIL TYPE | TYPICAL FOREST COVER | WOODLAND SUITABILITY INDEX | | HABITAT VALUE | SIZE AVG. DIAM. | AGE | |
| NO ON-SITE FOREST RESOURCES EXIST | | | | | | | | | | |
| L-1 | Lawn | 8.02 | | | | | | | | |
| P-1 | Pasture | 50.42 | | | | | | | | |

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

John P. ... 9/26/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Christy ... 11/14/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

EXPLORATION RESEARCH, INC.
 ENVIRONMENTAL CONSULTANTS
 LANDSCAPE ARCHITECTS
 6339 HOWARD LANE
 ELK RIDGE, MARYLAND 21076
 TEL (410) 567-5200 FAX (410) 998-1582

OWNER
 Harless Farm Trust
 14965 Frederick Road
 Woodbine, MD 21797

OFFSITE FOREST MITIGATION PLAN
for DUNES VISTAS
LOTS 1-10 AND OPEN SPACE LOT 11
 on Harless Farm property, F-07-26

TAX MAP 7 GRID 17 PARCEL 215
 4TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

FSH Associates
 Engineers Planners Surveyors
 6339 Howard Lane, Elkridge, MD 21075
 Tel: 410-567-5200 Fax: 410-798-1582
 E-mail: info@fisher.com

DESIGN BY: RAB
 DRAWN BY: SMM
 CHECKED BY: SH
 SCALE: 1" = 100'
 DATE: Sept. 7, 2007
 P.L.O. No.: 3474
 SHEET No.: 9 OF 10

Easement 1: PLANTING AREA: 1.80 Ac.

| Qty | Botanical Name | Common Name | Size | Credit/Plant | Total Credit |
|-----|-------------------------|-----------------|---------|--------------|--------------|
| 51 | Acer negundo | Box Elder | 1" Cal. | 217.8 | 11107.80 |
| 51 | Betula nigra | River Birch | 1" Cal. | 217.8 | 11107.80 |
| 51 | Liquidambar styraciflua | Sweetgum | 1" Cal. | 217.8 | 11107.80 |
| 51 | Magnolia virginiana | Sweetbay | 1" Cal. | 217.8 | 11107.80 |
| 52 | Platanus occidentalis | Sycamore | 1" Cal. | 217.8 | 11325.60 |
| 52 | Quercus bicolor | Swamp White Oak | 1" Cal. | 217.8 | 11325.60 |
| 52 | Salix nigra | Black Willow | 1" Cal. | 217.8 | 11325.60 |

360 Total Plantings 78,408 s.f. = 1.80 Ac.

FOREST CONSERVATION EASEMENT TABLE

| EASEMENT | TYPE | AREA (ACRES) |
|----------|---------------|--------------|
| 3 | Reforestation | 1.80 |
| TOTAL | | 1.80 |

Planting Areas Description

The proposed planting area totalling 1.80 Ac. is proposed entirely within 30' wetland buffer, wetland, and wetland buffer areas. The current land use is pasture, making it an ideal area to plant and provide a forested stream buffer.

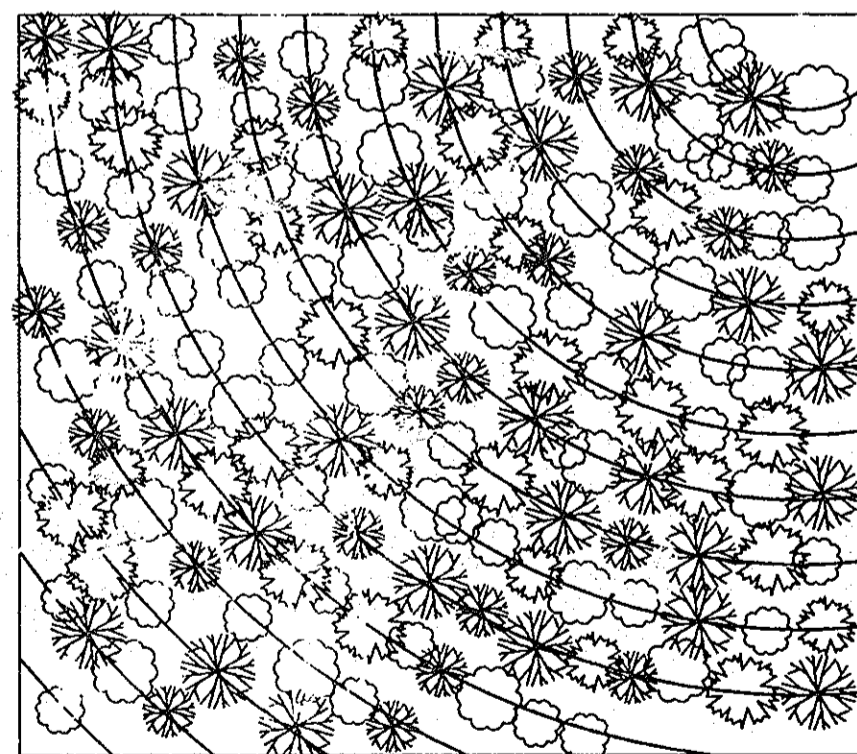
Planting will utilize a variety of species as shown in the proposed planting schedule. Whips will be randomly placed per the details on this sheet. All container whips will utilize tree shelters.

Plant Selection and Density Spacing Requirements.

Planting material size and density shall be varied with a combination of planting stock. Planting quantity and spacing are based on square footage credit, which varies by material size. A total of 43,560 sq. ft. of planting credit must be fulfilled for each acre planted. This credit can be fulfilled with any combination of material size in accordance with the following chart.

| Material Size | Spacing | TPA | Sq. Ft. Credit per Plant | Comments |
|---------------------|-----------|-----|--------------------------|-----------------------------------|
| 2" caliper trees | 20' x 20' | 100 | 435.6 | B & B |
| 1" caliper trees | 15' x 15' | 200 | 217.8 | B & B/Container |
| seedlings or whips | 11' x 11' | 150 | 125 | Container 1-3 gal w/tree shelters |
| seedlings or shrubs | 8' x 8' | 700 | 62 | Bare root |

CURVILINEAR RANDOMIZED PLANTING



PLANT PLACEMENT DETAIL NOT TO SCALE

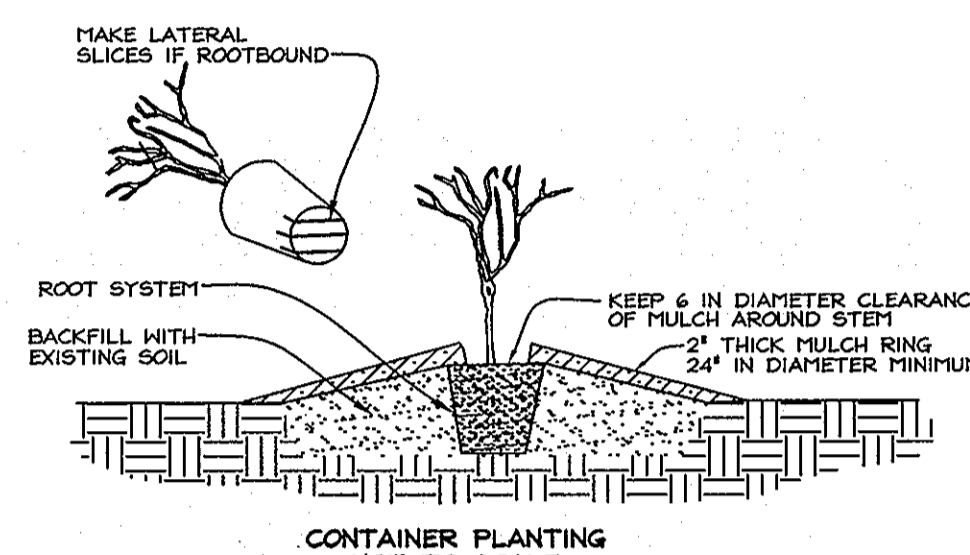
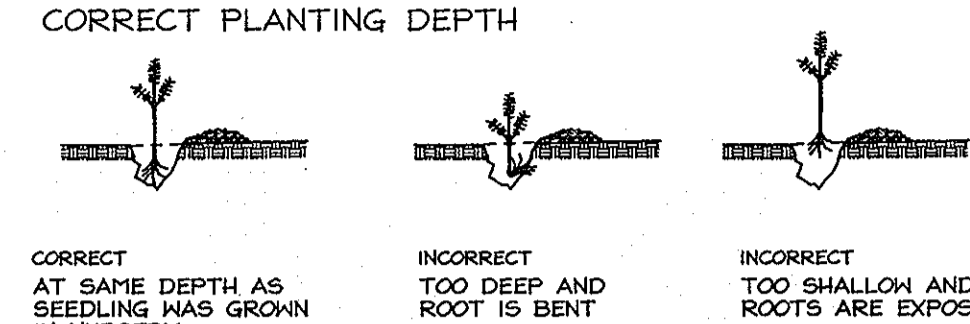
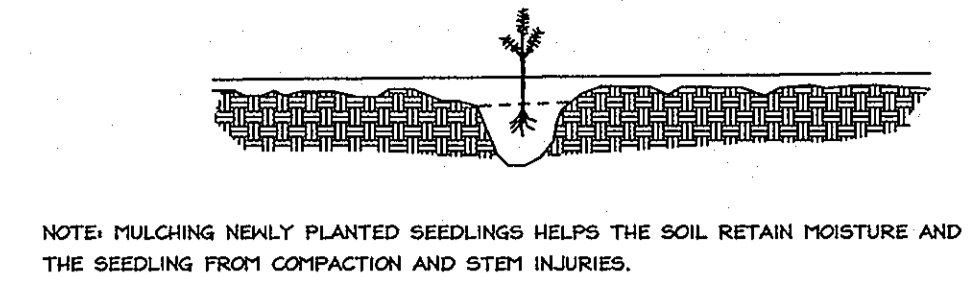
- MIX TREE AND SHRUB SPECIES IN THE STAGING AREA.
- SET THE GUIDE CURVILINEAR LINE AS CLOSE TO CONTOUR AS POSSIBLE.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

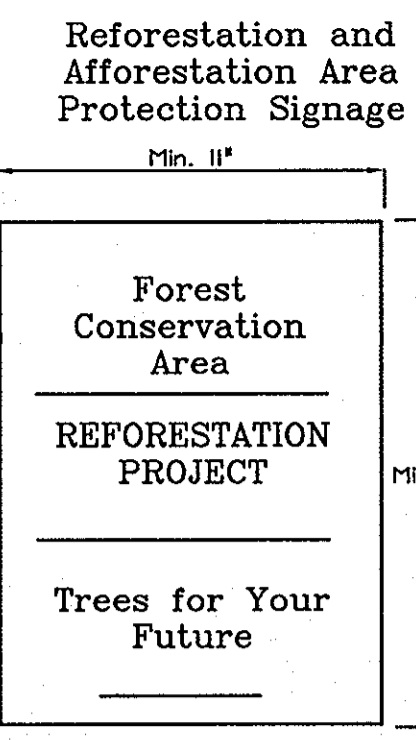
John P. ... 9/28/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Cindy ... 1/14/08
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

SEEDLING AND WHIP PLANTING



- CONTAINER PLANTING NOT TO SCALE**
- 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.



Reforestation and Afforestation Area Protection Signage

SIGN DETAIL: PERMANENT SIGN

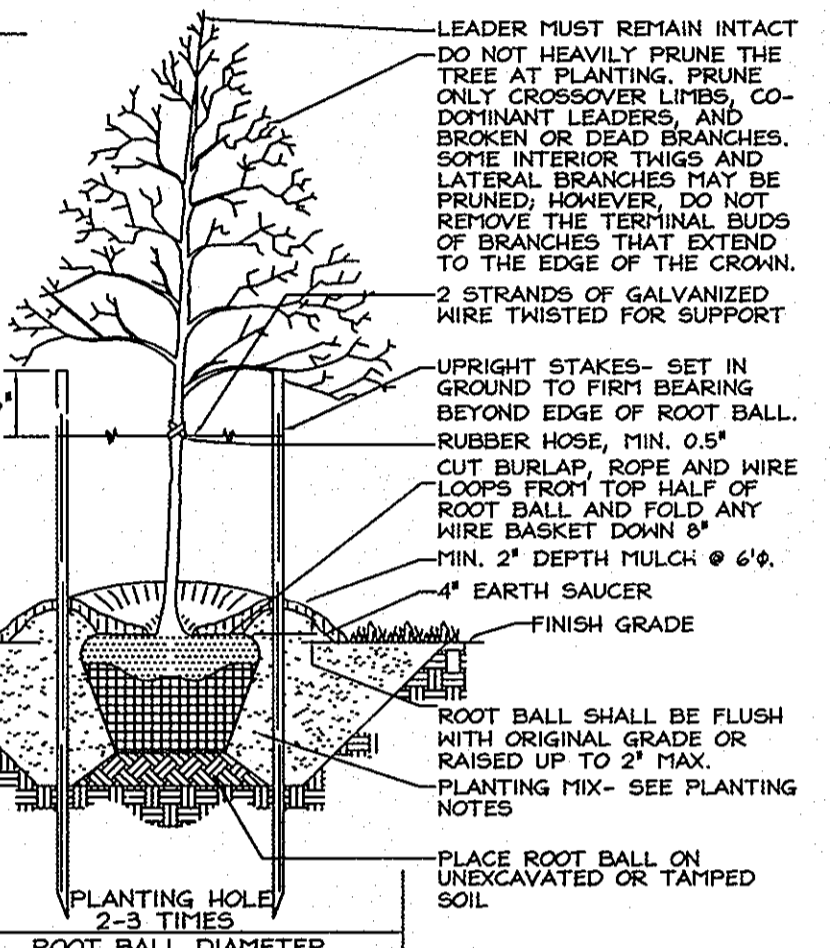
SIGNAGE NOTE: ALL TREE PROTECTION SIGNS SHALL BE PLACED ON METAL "T" POSTS OR PRESSURE TREATED WOOD POLES. NO ATTACHMENT OF SIGNS TO TREES IS PERMITTED.

Reforestation Area Planting Notes

- Initial planting inspection and certification required. Planting contractor to notify ERI qualified professional 24 hours in advance of planting.
- Reforestation areas may be planted as soon as reasonable to do so. Late winter- early spring plantings are preferred. Earliest planting dates will vary from year to year but planting may generally begin as soon as the ground is no longer frozen. Alternate planting dates may be considered as conditions warrant.
- Soil amendments and fertilization recommendations will be made based upon the results of soil analysis for nitrogen, phosphorus, potassium, organic matter content and pH. If required, fertilizer will be provided using a slow release, soluble 16-8-16 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 planting operation should allow for watering during installation to completely soak backfill materials.
- Mulch shall be applied in accordance with the diagram provided and shall consist of composted, shredded hardwood bark mulch, free of 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 auguring is preferred with scarification of the sides of each hole.
- All nursery stock may be sprayed with deer repellent containing Bitrex such as Repellex(TM). All nursery stock to be grown with deer repellent tablets in growing medium, such as Repellex Tablets.

NOTES

- CONSULT INTERNATIONAL SOCIETY OF ARBORICULTURE GUIDELINES FOR FURTHER DETAILS OF PLANTING SPECIFICATIONS OR CONSULT WITH A QUALIFIED PROFESSIONAL.
- EACH TREE SHALL BE PLANTED SUCH THAT THE TRUNK FLARE IS VISIBLE AT THE TOP OF THE ROOT BALL.
- STAKES SHALL BE REMOVED NO LATER THAN THE END OF THE FIRST GROWING SEASON AFTER PLANTING.
- PLACE UPRIGHT STAKES PARALLEL TO WALKS & BUILDINGS.
- KEEP MULCH 1" FROM TRUNK
- SEE ARCHITECTURAL PLANS FOR ADDITIONAL PLANTINGS WHICH EXCEED HOWARD COUNTY MINIMUM REQUIREMENTS.
- TREES ARE NOT TO BE PLANTED OVER PRIVATE SEWAGE EASEMENT.



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

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, invasive plant management, mowing or other actions are necessary. Early spring visits will document winter kill and autumn visits will document summer kill.
- The minimum survival rate shall be 75% of the total number of trees planted per acre at the end of the two year maintenance period. Wild tree seedlings from natural regeneration on the planting site may be counted up to 50% toward the total survival number if they are healthy native species at least 12 inches tall.
- 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.

Forest Tree Protection and Management Notes

- Any significant changes made to the Forest Conservation Plan shall be made with the prior approval of the Howard County Dept. of Planning and Zoning.
- Forest protection and management to be in accordance with a forest management plan. The plan shall be prepared by a MD. licensed forester to facilitate the landowners management objectives, such as wildlife enhancement, water quality, aesthetics, forest products, etc.
- Future forest harvests may be conducted under a Howard County approved forest harvest plan, prepared by a MD. licensed forester.

Surety in the amount of \$39,204.00 shall be posted as part of the Developer's Agreement for 1.80 ac/78,408 sq. ft.



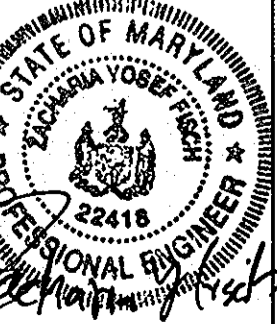
EXPLORATION RESEARCH, INC.
 ENVIRONMENTAL CONSULTANTS
 LANDSCAPE ARCHITECTS
 6033 HOWARD LANE
 ELKRDORF, MARYLAND 21076
 TEL: (410) 587-0210 FAX: (410) 798-1562



OWNER
 Harless Farm Trust
 14965 Frederick Road
 Woodbine, MD 21797

OFFSITE FOREST MITIGATION PLAN
for DUNES VISTAS
 LOTS 1-10 AND OPEN SPACE LOT 11
 on Harless Farm property, F-08-26

TAX MAP 7 GRID 17 PARCEL 215
 4TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND



FSH Associates
 Engineers Planners Surveyors
 6339 Howard Lane, Elkridge, MD 21029
 Tel: 410-587-5200 Fax: 410-798-1562
 E-mail: info@fsher.com

DESIGN BY: SHM
 DRAWN BY: SHM
 CHECKED BY: RAB/SLH
 SCALE: As Shown
 DATE: Sept. 7, 2007
 W.O. No.: 3474
 SHEET No. 10 OF 10