SHEET INDEX							
SHEET							
TITLE SHEET							
OLD FREDERICK ROAD - ROAD WIDENING PLAN AND PROFILE							
ARCHERS GLEN - ROAD PLAN AND PROFILE							
ARCHERS GLEN - ROAD PLAN AND PROFILE							
STREET TREE, GRADING, AND SEDIMENT CONTROL PLAN							
STREET TREE, GRADING, AND SEDIMENT CONTROL PLAN							
OLD FREDERICK ROAD - CROSS SECTIONS							
LANDSCAPE PLAN AND STORM DRAIN DRAINAGE AREA MAP							
STORM DRAIN PROFILES, STRUCTURE SCHEDULE & TRAFFIC CONTROL PLAN							
STORM DRAIN PROFILES							
SEDIMENT AND EROSION CONTROL NOTES AND DETAILS							
SEDIMENT AND EROSION CONTROL NOTES AND DETAILS							
STORMWATER MANAGEMENT NOTES AND DETAILS							
CHANNEL PLAN, PROFILE AND DRAINAGE AREA MAP							
FOREST CONSERVATION PLAN							
FOREST CONSERVATION PLAN NOTES AND DETAILS							
STORMWATER MANAGEMENT NOTES AND DETAILS							
STORMWATER MANAGEMENT PROFILES AND DETAILS							

FINAL ROAD CONSTRUCTION, GRADING AND STORMWATER MANAGEMENT PLAN

AIRCHIBIRS GILBIN

LOTS 6 THRU 22 AND
PRESERVATION PARCELS 'A' THRU 'C'

ZONIED: RC-DIEO

TAX MAP NO. 9 GRID NO. 22 PARCEL NO. 301

	ROAD CLASSIFICATION	ON CHART	
ROAD NAME	CLASSIFICATION	DESIGN SPEED	R/W WIDTH
ARCHERS GLEN	PUBLIC ACCESS PLACE	35 M.P.H.	40'

TRAFFIC CONTROL SIGNS							
STREET NAME	C.L. STATION	OFFSET	POSTED SIGN	SIGN CODE			
ARCHERS GLEN	0+39-	11'L	STOP	R1-1 /			
ARCHERS GLEN	1+50 /	11'R	25 MPH SPEED LIMIT	R2-1 /			
ARCHERS GLEN	2+75/	11°L Z	STOP AHEAD	w3-1a 🗸			
ARCHERS GLEN	4+30 /	11'R	20 MPH SPEED LIMIT	W 13-1 /			
ARCHERS GLEN	9+65 🗸	11'R /	20 MPH SPEED LIMIT	W 13-1 /			
ARCHERS GLEN	10+14	II'L	20 MPH SPEED LIMIT	W 13-1			
ARCHERS GLEN	14+201	II'L	20 MPH SPEED LIMIT	W 13-1 ✓			
ARCHERS GLEN	15+20	11'8	15 MPH SPEED LIMIT	W 13-1			

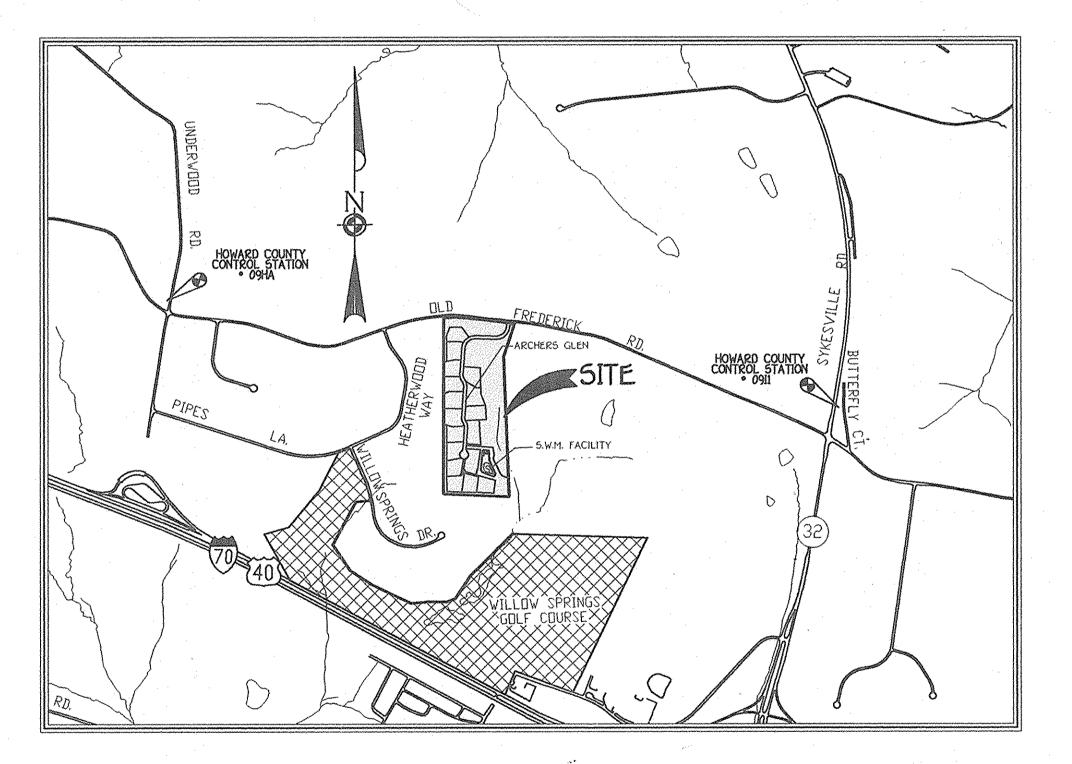
	STREET	LIGHT	CHART
STREET NAME	C.L. STATION	OFFSET	TYPE
ÁRCHERS GLEN	1 0+45	√55, Γ	250-WATT "SAG" MOUNTED ON A 30-FOOT BRONZE POLE W/ A 12-FOOT ARM

REVISION								
NO.		DESCRIPTION						
Δ	REVISE	FCE	SURETY	AMOUNT	FOR	FEE-IN-LIEU ÉSHT. NO	10-27-03	

FISHER, COLLINS & CARTER, INC.

ELLICOTT CITY, MARYLAND 21042

C-/DRAWINGS 3/30/30/FINALS SUBMISSION APRIL 2003/TITLE SHEET.DWG



VICINITY MAP 5CALE: 1" = 1200'

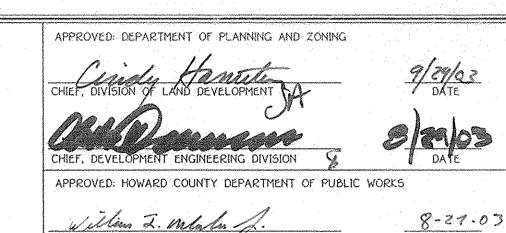
THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND



ARNOLD M. SEWELL
13000 OLD FREDERICK ROAD
SYKESVILLE, MARYLAND 21764

DEVELOPER
VIKING DEVELOPMENT CORPORATION
5050 OLD WASHINGTON ROAD
SYKESVILLE, MARYLAND 21784

ARLES J. CROVO SR., P.E.



GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.

2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS /

BUREAU OF ENGINEERING / CONSTRUCTION INSPECTION DIVISION AT (410) 3131880 AT LEAST (5) WORKING DAYS PRIOR TO THE START OF WORK.

3. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48
HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.

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.

5. COORDINATES BASED ON NAD'83 MARYLAND COORDINATE SYSTEM AS

PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 0911 AND NO. 0914 NO. 0911 N 602,689,337 ELEV. = 653.27

NO. 09HA N 604,263,481 E 1,318,531.057 ELEV. = 604.43

6. THE TRAFFIC STUDY WAS PREPARED BY THE TRAFFIC GROUP DATED MAY 22, 2001 AND APPROVED UNDER 501-19.

7. BACKGROUND INFORMATION:
A. SUBDIVISION NAME: ARCHERS GLEN
B. TAX MAP NO.: 9

C. PARCEL NO.: 301 D. ZONING: RC-DEO E. ELECTION DISTRICT: THIRD

F. TOTAL TRACT AREA: 40.00 AC. G. NO. OF BUILDABLE LOTS: 17
H. NO. OF OPEN SPACE LOTS: 0

I. NO. OF NON-BUILDABLE PARCELS: 2
J. NO. OF BUILDABLE PARCELS: 1
K. AREA OF BUILDABLE LOTS: 17:544 AC.

L. AREA OF OPEN SPACE LOTS: 0.00 AC.*
M. AREA OF NON-BUILDABLE PARCELS: 7.584 AC.*
N. AREA OF BUILDABLE PARCELS: 12.583 AC.*
O. TOTAL AREA OF ROADWAY TO BE DEDICATED: 2.289 AC.*

APPROVAL DATE: 9/18/02

8. NO CEMETERIES EXIST ON THE PROPERTY.

9. ALL FILL AREAS WITHIN ROADWAYS AND UNDER STRUCTURES SHALL BE

P. PREVIOUS FILE NOS.: 501-19 APPROVAL DATE: 5/22/01, P 02-05

OMPACTED TO A MINIMUM OF 95% COMPACTION OF AASHTO T-180.

10. THE FOREST CONSERVATION EASEMENT(S) HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16:1200 OF THE HOWARD COUNTY FOREST CONSERVATION ACT. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, EXCEPT AS SHOWN ON AN APPROVED ROAD CONSTRUCTION DRAWING.

APPROVED ROAD CONSTRUCTION DRAWING.
HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF
FOREST CONSERVATION EASEMENT ARE ALLOWED.

11. STORMWATER MANAGEMENT FACILITY:

TYPE - MICRO-POOL DESIGN. (EXTENDED DETENTION)
OWNER - HOMEOWNERS ASSOCIATION
CREDITS AREAS FOR S.W.M. COMPUTATIONS: NATURAL AREA
CONSERVATION CREDIT FOR DRAINAGE AREA 'A'. THERE WAS
NO CHANGE IN RCN OR Q VALUES, THE ONLY BENEFIT GAINED BY THIS CREDIT
WAS A REDUCTION IN WQV. IN ADDITION, A GRASS CHANNEL CREDIT IS UTILIZED THAT

PROVIDES THE REQUIRED RECHARGE VOLUME FOR THIS SITE.

12. THE PROPOSED WATER AND SEWER SYSTEMS SHALL BE PRIVATE.

13. THE SUBJECT PROPERTY IS LOCATED OUTSIDE OF THE METROPOLITAN DISTRICT.

14. TOPOGRAPHIC INFORMATION ESTABLISHED AT TWO FOOT INTERVALS BASED ON AERIAL TOPOGRAPHY PREPARED BY HARFORD AERIAL SURVEYS DATED JUNE 9, 2000 AND SUPPLEMENTED BY HOWARD COUNTY AERIAL CONTOUR MAPS AND FIELD RUN TOPOGRAPHY PREPARED BY FISHER, COLLINS & CARTER, INC. DATED

AUGUST 20, 2001.

15. FOR TLAG OR PIPESTEM LOTS, REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE IS TO BE PROVIDED AT THE JUNCTION OF THE FLAG OR PIPESTEM AND THE ROAD RIGHT-OF-WAY AND NOT ONTO THE FLAG OR PIPESTEM

DRIVEWAY.

16. WETLAND AND FOREST STAND DELINEATION INFORMATION SHOWN WAS TAKEN
FROM REPORTS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. DATED SEPTEMBER 18
2000 AND APPROVED UNDER 5 01-19.

17. SOILS INFORMATION TAKEN FROM SOIL MAP NO. 8, SOIL SURVEY, HOWARD COUNTY, MARYLAND, JULY 1968 155UE.

18. AS A CONSEQUENCE OF ITS SUBMISSION FOR COUNTY REVIEW PRIOR TO NOVEMBER 15, 2001, THIS PLAN IS SUBJECT TO THE 4th EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. IN ADDITION, BECAUSE IT DID NOT HAVE PRELIMINARY PLAN APPROVAL PRIOR TO NOVEMBER 1, 2001, IT IS SUBJECT TO COMPLIANCE WITH COUNTY COUNCIL BILL 50-2001, WHICH AMENDS PORTIONS OF THE ZONING REGULATIONS.

19. SUBJECT PROPERTY ZONED RC-DEO PER 10/18/93 COMPREHENSIVE ZONING PLAN.

20. THERE ARE STEEP SLOPES LOCATED ON THIS PROPERTY AS DEFINED

BY "SLOPES THAT AVERAGE 25% OR GREATER OVER 10 VERTICAL FEET", PER SECTION

16.108(b)(55) OF THE HOW COUNTY SUBDIVISION DEVELOPMENT REGULATIONS.

TOTAL AREA OF 25% OR GREATER SLOPES = 0.04 AC.*

21. AS PER SECTION 104.F.4.b OF THE ZONING REGULATIONS, ONLY ONE EASEMENT HOLDER IS REQUIRED FOR PRESERVATION PARCELS DESIGNED SOLELY FOR SWM FACILITIES OR COMMUNITY SEWERAGE DISPOSAL SYSTEMS.

A. NON-BUILDABLE PRESERVATION PARCEL 'A'
OWNED: PRIVATE HOMEOWNER

EASEMENT HOLDERS: HOWARD COUNTY, MARYLAND & HOMEOWNERS ASSOCIATION

B. NON-BUILDABLE PRESERVATION PARCEL 'C'
OWNED: HOMEOWNERS ASSOCIATION
EASEMENT HOLDER: HOWARD COUNTY, MARYLAND

C. BUILDABLE PRESERVATION PARCEL 'B'
OWNED: PRIVATE HOMEOWNER

22. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE WETLANDS, STREAM OR THEIR REQUIRED BUFFERS

EASEMENT HOLDERS: HOWARD COUNTY, HOMEOWNERS ASSOCIATION

THEIR REQUIRED BUFFERS

23. THE FOREST CONSERVATION REQUIREMENTS PER SECTION 16.1200 OF THE HOWARD COUNTY CODE

AND THE FOREST CONSERVATION MANUAL FOR THIS SUBDIVISION WILL BE FULFILLED BY PROVIDING

4.5 ACRES +/- OF ONSITE AFFORESTATION • \$0.50/SF FOR 165,520 S.F. = \$98,0/0.00 AND 6.8 ACRES (2.9 AC. NOT

CREDIT AREA) OF ONSITE FOREST RETENTION • \$0.20/SF FOR 296,200 SF. = \$59,241.60. THE REMAINING REQUIRED FOREST CONSERVATION REQUIREMENT WILL BE PROVIDED BY 1.0 AC. OF FEE-IN-LIEU.
• \$0.50/SF FOR \$3,560 S.F. = \$21,780.00 THE FORESTED FLOODPLAIN AREA OF 2.9 AC. IS NON-CREDITED F.C.E. AND DOES NOT REQUIRE SURETY.

TOTAL FOREST CONSERVATION EASEMENT AREA = 15.20 ACRES FOR A TOTAL FOREST SURETY OF \$176,053.60.

24. THE LANDSCAPE SURETY IN THE AMOUNT \$24.00.00 FOR PERIMETER LANDSCAPE REQUIREMENTS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL IS POSTED WITH THE DEVELOPER'S AGREEMENT FOR THIS SUBDIVISION.

MANUAL IS POSTED WITH THE DEVELOPER'S AGREEMENT FOR THIS SUBDIVISION.

25. A NOISE STUDY IS NOT REQUIRED AS THIS PLAN OF SUBDIVISION DOES NOT MEET ANY OF THE CRITERIA UNDER VOLUME III, SECTION

26. THERE IS AN EXISTING FOUNDATION LOCATED ON LOT 13. THIS FOUNDATION IS LEVEL WITH THE GROUND AND WILL BE FILLED WITH EARTH IN CONJUCTION WITH THE ROADWAY CONSTRUCTION.



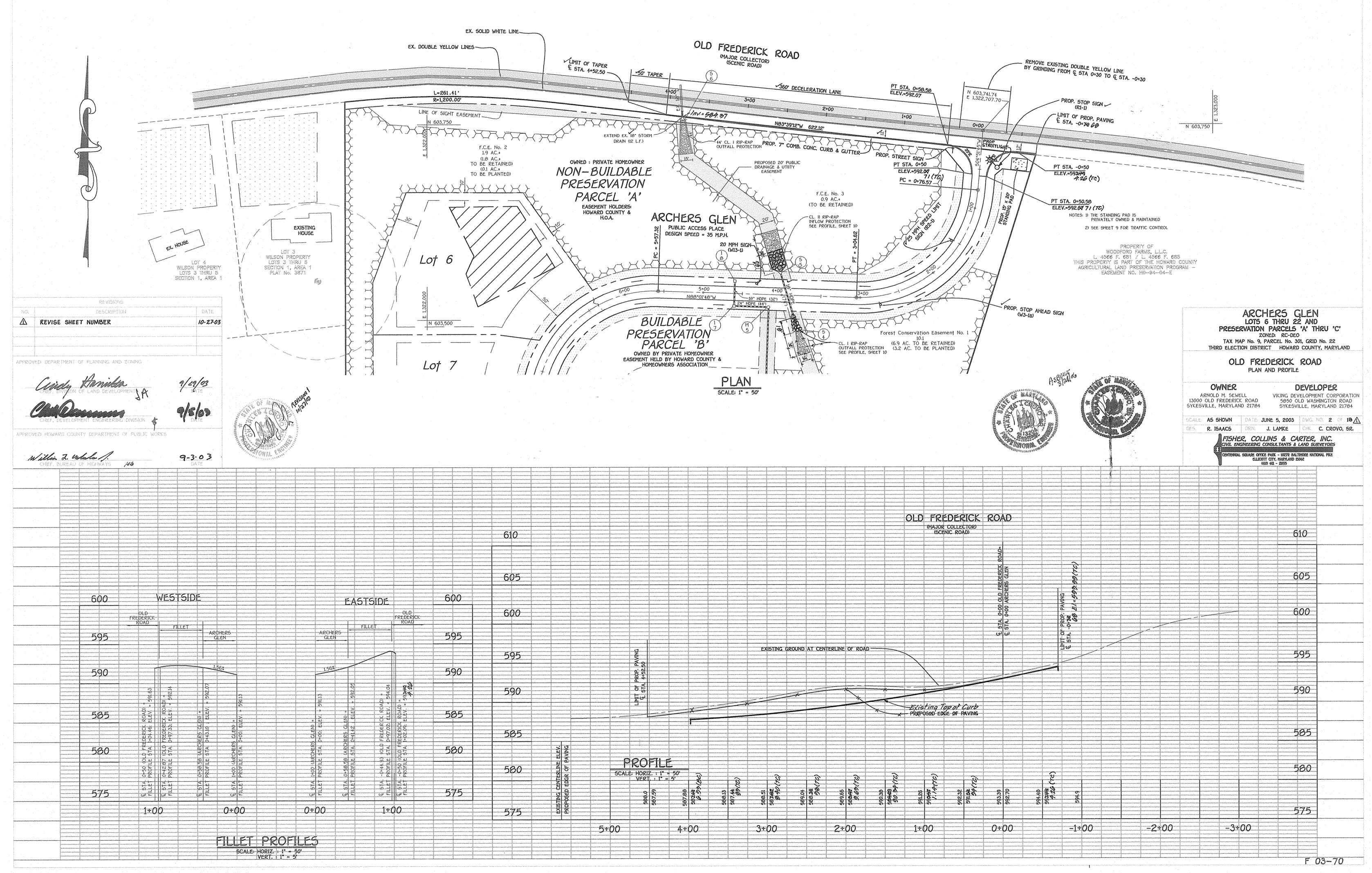
TITLE SHEET

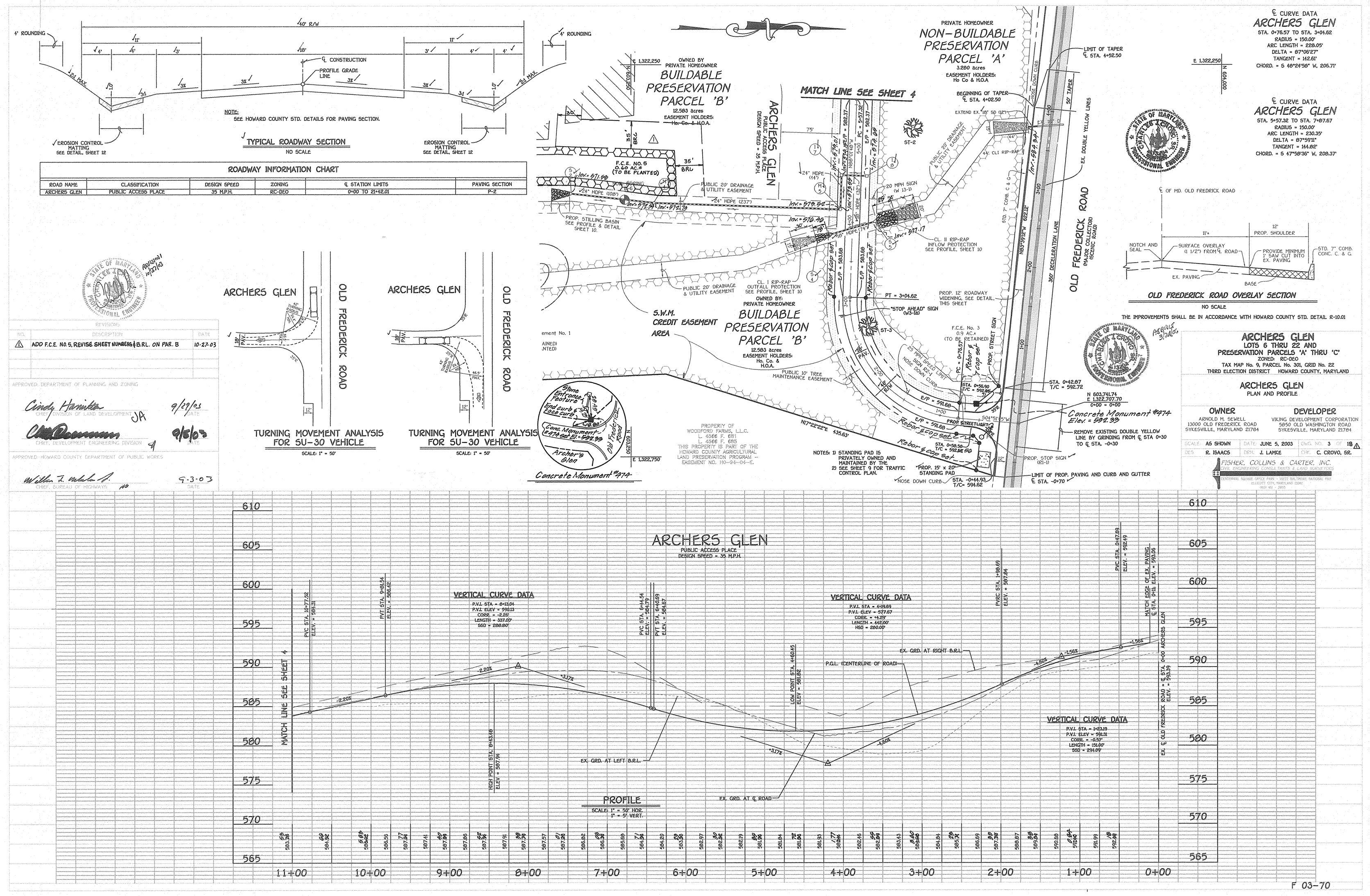
ARCHERS GLEN

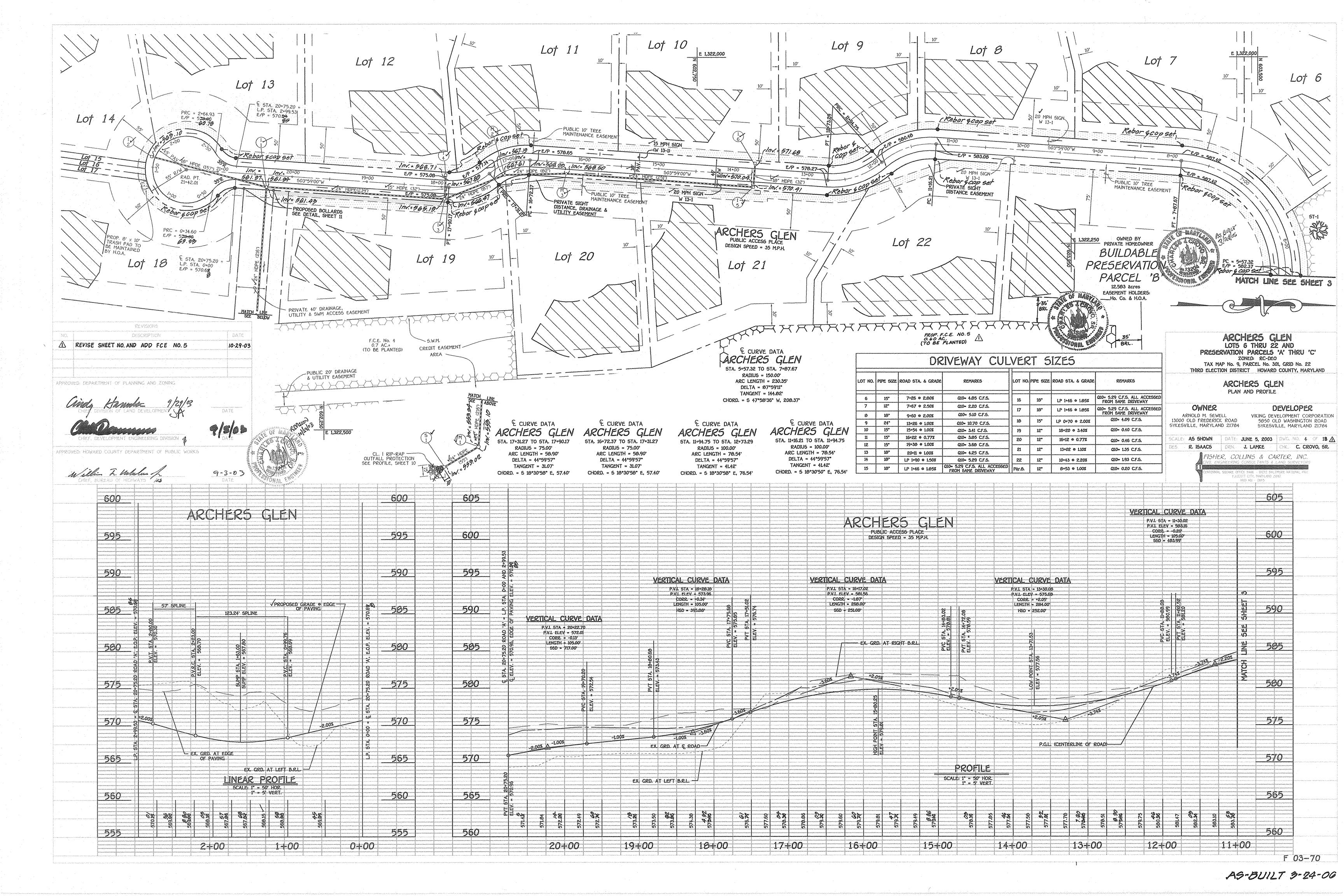
LOTS 6 THRU 22 AND

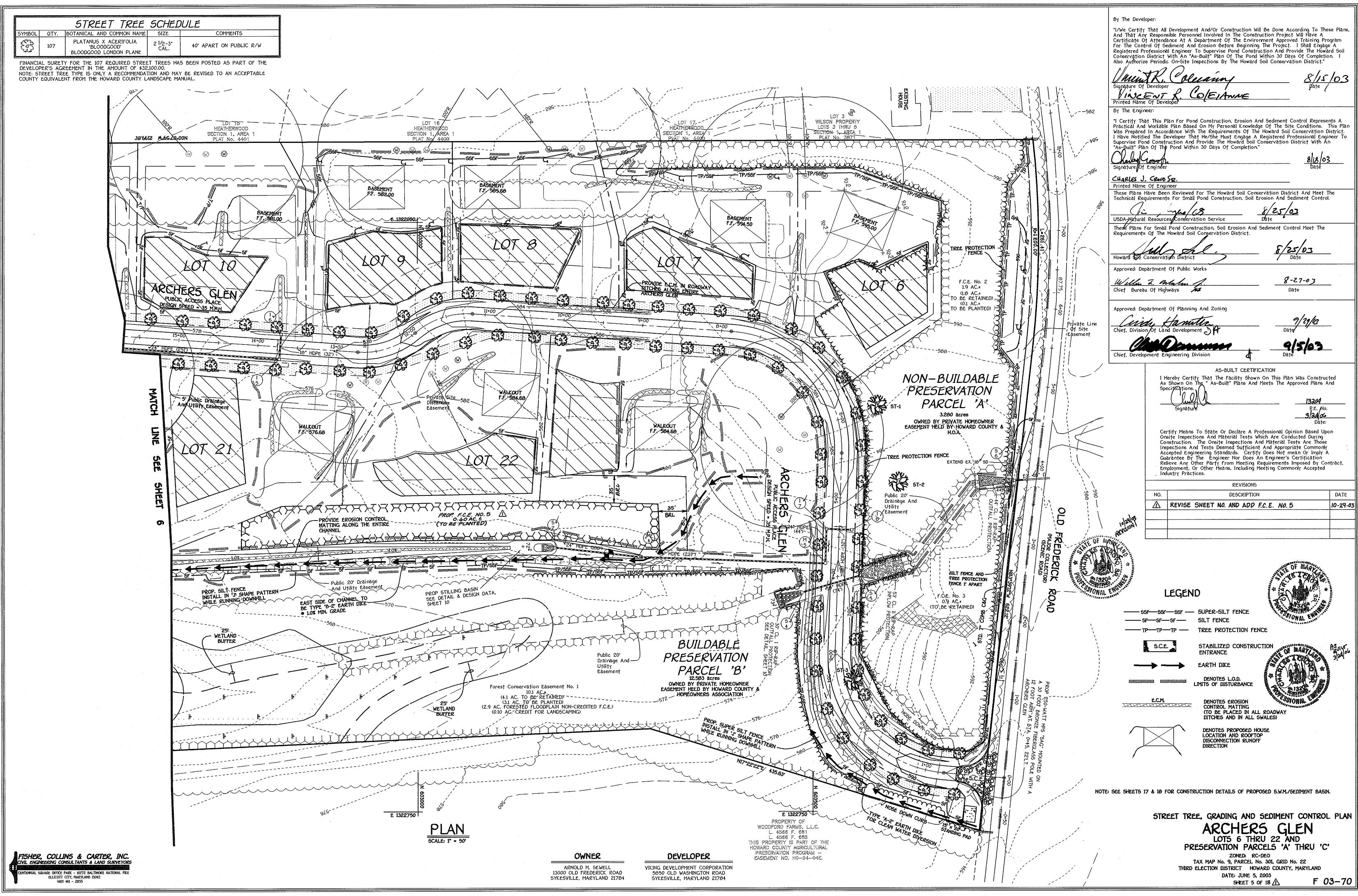
PRESERVATION PARCELS 'A' THRU 'C'

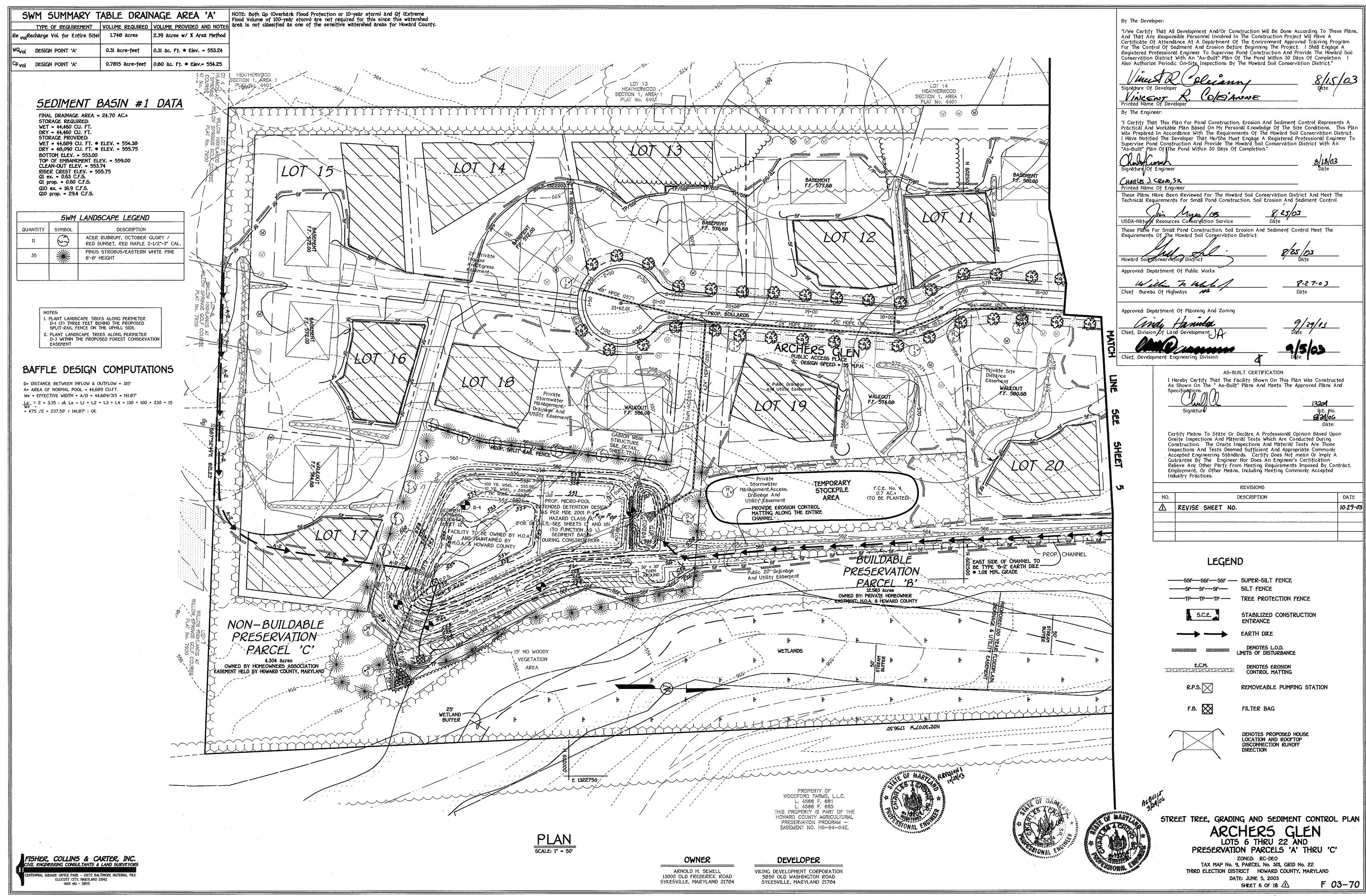
ZONED: RC-DEO
TAX MAP No. 9, PARCEL No. 301, GRID No. 22
THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND

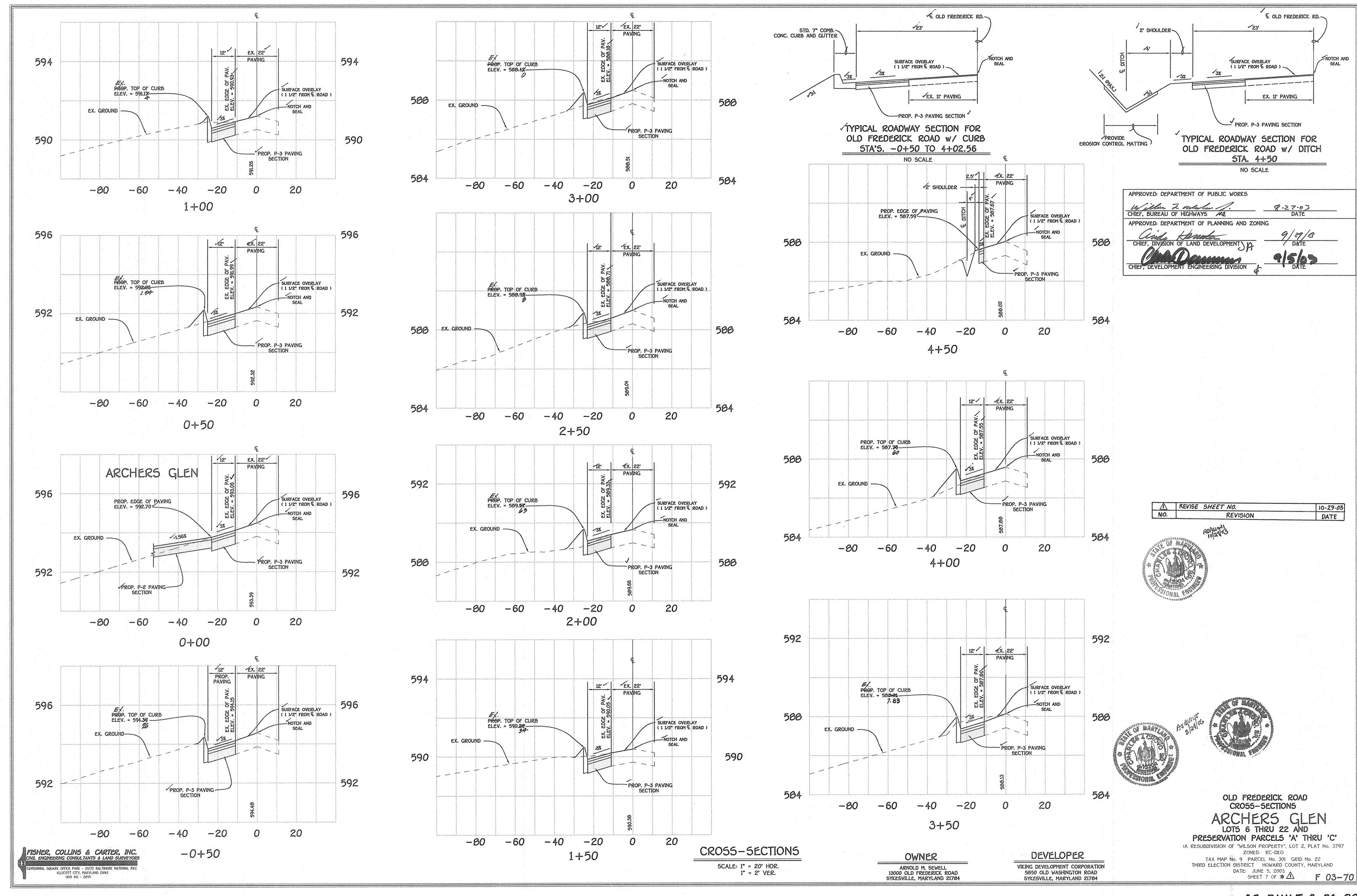


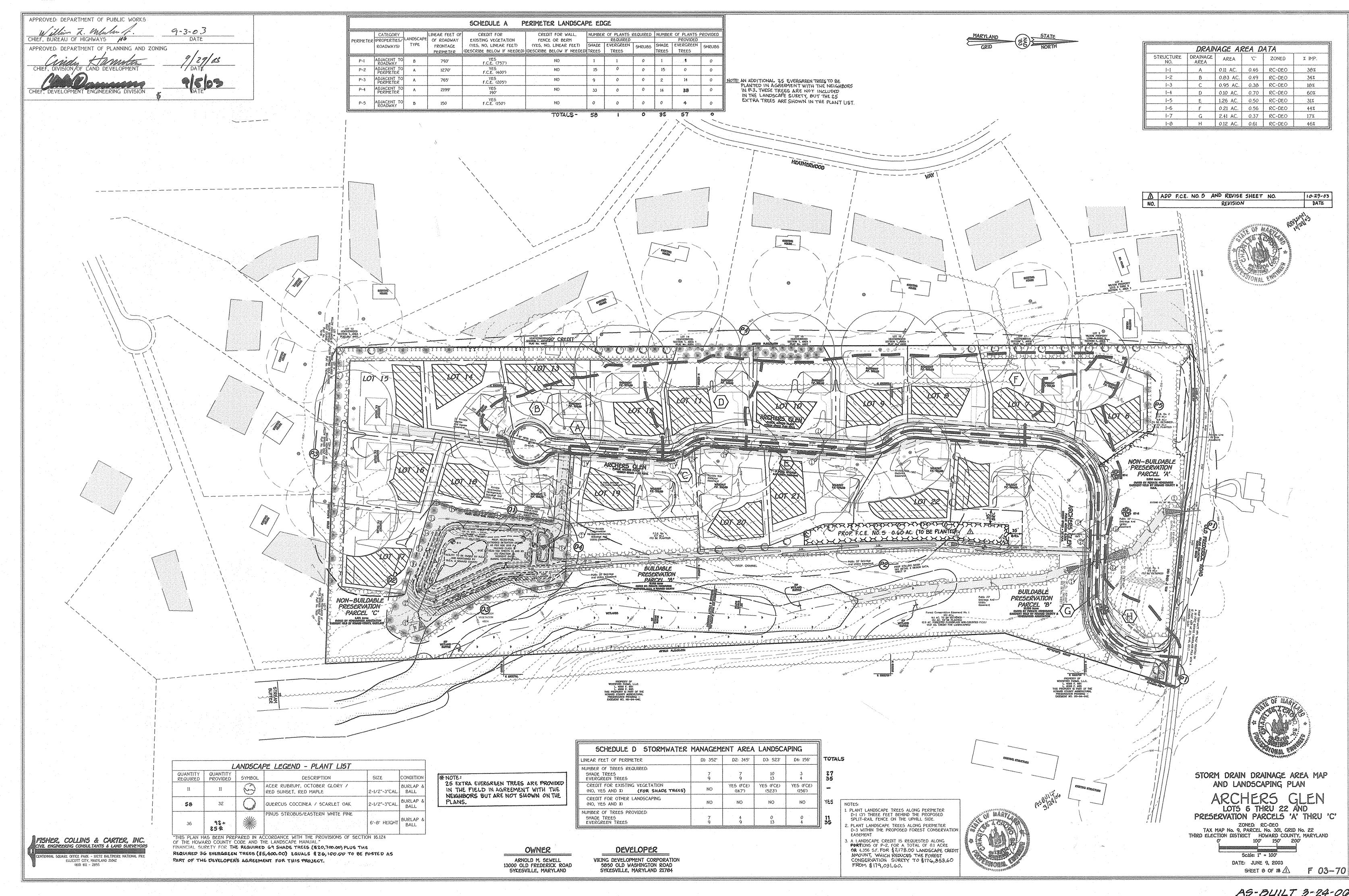








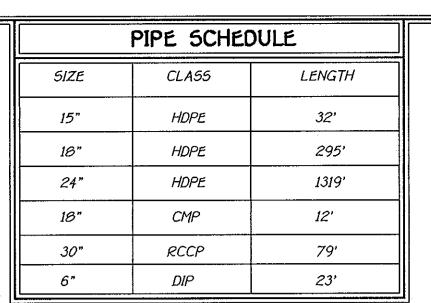


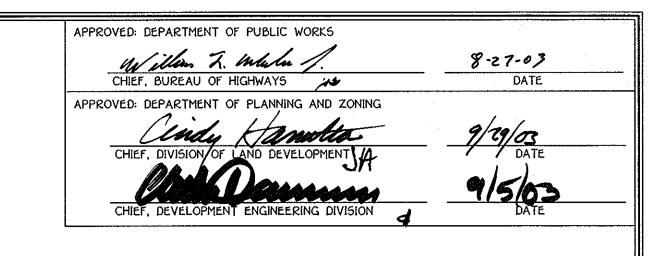


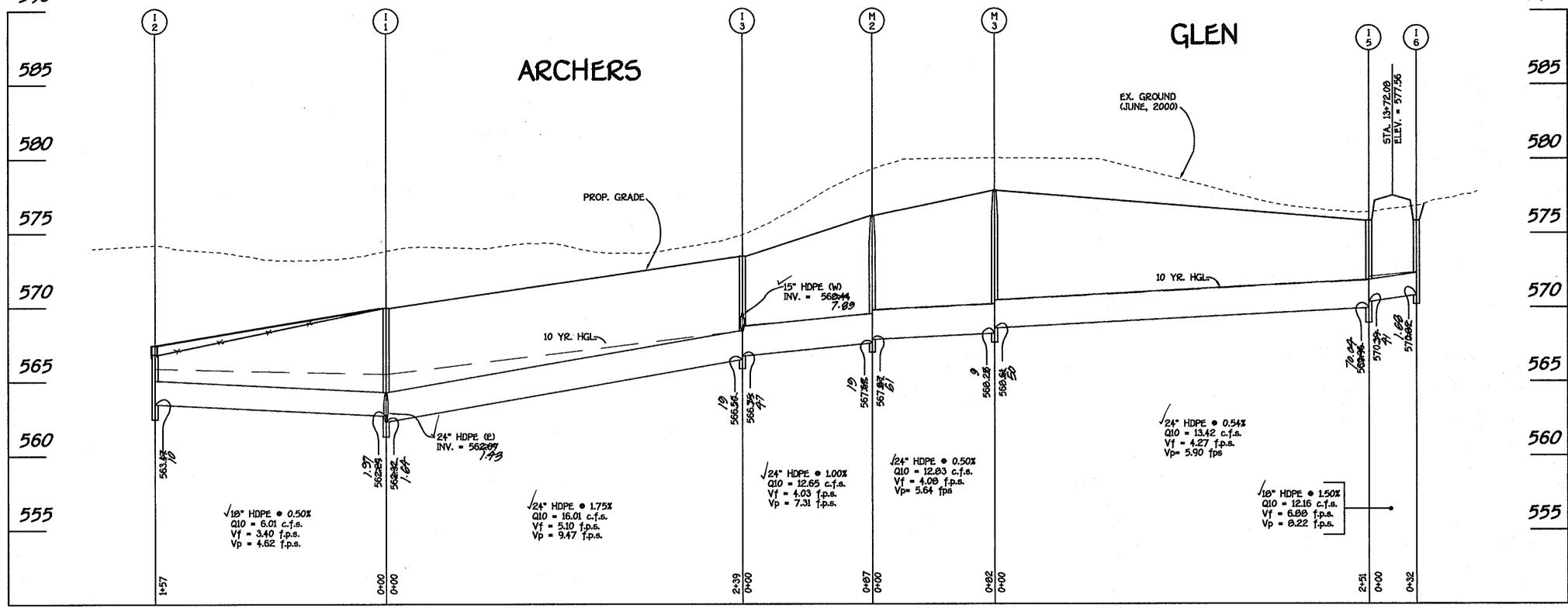
		Aug. 314 Sept. 22 - 1111	STRUCTO	URE SCHEDULI	E			
STRUCTURE NO.	TOP ELEVATION	NI.VNI	INV.OUT	ROAD NAME	E ROAD STA.	OFFSET	TYPE	REMARKS
I-1	* 55001 569.62	(18)56234/56283 (24)	562 8 7 1.43	ARCHERS GLEN /	€ 5TA. 20+34 ✓	√ _{16'} L.	OPEN END GRATE	5.D 4.36
I-2	560H 7.25		563. 5 ¢ 10	ARCHERS GLEN /	L.P. STA. 1+63.00	2.3 x L.	OPEN END GRATE	5.D 4.36
I-3	573. % 33	(15) 562-14/566.75 (24")	566. 54 1 9	ARCHERS GLEN	€ STA. 17+9 %6	<i>15</i> ′ № L.	OPEN END GRATE	5.D 4.36
I-4	573. % 47	7.69 47	568.7₡/	ARCHERS GLEN	€ 5TA. 17+9 % 6	17 X R.	OPEN END GRATE	5.D 4.36
. I-5	575. 87 98	570. X 41	55902 570.04	ARCHERS GLEN	€ 5TA. 13+72.0 &0	1 6' L.	OPEN END GRATE	5.D 4.36
I-6	575876.72		570-87 1.68	ARCHERS GLEN	€ 5TA. 13+72.0 %0	16.5 % R.	OPEN END GRATE	5.D 4.36
1-7	580 ,33 07	574.99 <i>15</i>	574. 49<i>01</i>	ARCHERS GLEN	€ STA. 4+69.45 <i>59</i>	√16' L.	OPEN END GRATE	5.D 4.36
I-8	5 86. 13 <i>579.95</i>		57 5.45.4.69	ARCHERS GLEN	€ STA. 4+89:45.69	16.518 R.	OPEN END GRATE	5.D 4.36
							.	
M-1	3 50:0 0 <i>559.69</i>	55429 553.94	553. 50/0	ARCHERS GLEN	€ STA. 20+34	232' L.	STD. MANHOLE /	G - 5.11
M-2	57 820 5.24	567. 84<i>6</i>/	567. 62 /9	ARCHERS GLEN 🖊	€ STA. 17+1#3	15 18 L.	STD. MANHOLE -	G - 5.11
M-3	577. % 39	568.5 %/	568.2 % 9	ARCHERS GLEN	€ 5TA. 16+2 8 €	14'18' L.	STD. MANHOLE 🖊	G - 5.11
M-4	576.50	572.79	572.54	ARCHERS GLEN	€ STA. 4+17	253' L.	STD. MANHOLE -	G - 5.11
M-5	5 80.80 79.48	57 427 3.59	57 402 3.52	ARCHERS GLEN	£ STA. 4+189	16.518 L.	STD. MANHOLE	G - 5.11
M-6	556.30	552. 26 43	552 16 2.28		N 601779.14 E 1322589.05		STD MANHOLE	G - 5.11
R-1	55 ⊅25 	553. 90. <i>30</i>	552 81 3.08		N 601000.20 E 1322535.40		CONCRETE RISER	
5-1	555.0 K Z	553.0 * Z	553.0 % Z		N 602114.12 E 1322413.51		HDPE END SECTION	A.D.S. FLARED END SECTION
5-2	57 \$≈00 3.50	572 90°]. 50	571. 99 <i>56</i>		N 603176.26 E 1322414.39		HDPE END SECTION	A.D.S. FLARED END SECTION
5-3	554.50	552.0 45	552.0 %/				CONC. END SECTION	5.D 5.51
5-4	3 50.50 577.96	57 2:00 6.50	57 1289 6.46	ARCHERS GLEN	£ STA. 3+93	46' L.	HDPE END SECTION	A.D.S. FLARED END SECTION
5-5	5354 578.67	57 54 7.19	57 404 7.19	ARCHERS GLEN	€ STA. 3+93	29' R.	HOPE END SECTION	A.D.S. FLARED END SECTION
5-6	387.06 <i>585.88</i>	58 636 4:38	586 35 4.37	OLD FREDERICK ROAD	£ STA. 3+78	28' L.	METAL END SECTION	5.D 5.51

A.D.S. - ADVANCED DRAINAGE SYSTEMS LONDON, OHIO 1-800-733-9554

* DENOTES THROAT ELEVATION







PROFILE

5CALE: HORIZ. : 1" = 50" VERT. : 1" = 5"

MAINTENANCE OF TRAFFIC SPECIAL PROVISIONS

1. THE PURPOSE OF THIS PORTION OF THE SPECIAL PROVISION IS TO SET FOR THE TRAFFIC CONTROL REQUIREMENTS NECESSARY FOR THE SAFE AND EFFICIENT MAINTENANCE TO TRAFFIC WITHIN WORK AREAS, AND TO MINIMIZE ANY INCONVENIENCES TO THE TRAVELING PUBLIC AND THE CONTRACTOR AND/OR PERMITTEE.

2. PROPERTY TRAFFIC CONTROL THROUGH WORK AREAS IS ESSENTIAL FOR INSURING THE SAFETY AND THAT OF HIGHWAY WORKERS HAS THE HIGHEST PRIORITY OF ALL TASKS WITHIN THIS PROJECT. THE PROPERTY APPLICATION OF THE APPROVED TRAFFIC CONTROL PLAN (TCP) WILL PROVIDE THE DESIRED LEVEL OF SAFETY. PROVIDE THE DESIRED LEVEL OF SAFETY.
THROUGHOUT THESE SPECIAL PROVISIONS, ANY MENTION OF THE TCP SHALL BE IMPLIED TO INCLUDE ANY COMBINATION OF TYPICAL TRAFFIC CONTROL STANDARDS WHICH FORM THE OVERALL TCP FOR THIS PROJECT WHICH HAS BEEN APPROVED BY THE APPROPRIATE SHA TRAFFIC ENGINEER.

1. THE CONTRACTOR AND/OR PERMITTEE SHALL BE REQUIRED TO ADHERE TO THE PROVISIONS OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), 1988 EDITION, ESPECIALLY PART VI, AND TO SECTION 814 OF THE MARYLAND DOT STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS (JANUARY, 1982; INCLUDING ALL REVISIONS AND SUPPLEMENTS TO EACH.

5. THE CONTRACTOR AND/OR PERMITTEE SHALL BE REQUIRED TO ADHERE TO THE REQUIREMENTS SET FOR IN THE TCP AND THESE SPECIAL PROVISIONS, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. ANY REQUESTS TO MAKE MINOR CHANGES TO THE TCP OR THE SPECIAL PROVISIONS WITH REGARD TO THE TRAFFIC CONTROL ITEMS SHALL BE MADE IN WRITING TO THE ENGINEER A MINIMUM OF THREE(3) WORKING DAYS PRIOR TO THE PROPOSED SCHEDULING CHANGE. THE CONTRACTOR AND/OR PERMITTEE SHALL HAVE WRITTEN APPROVAL OF THE ENGINEER PRIOR TO THE IMPLEMENTATION OF ANY CHANGE.

6. NO WORK SHALL BEGIN ON ANY WORK ACTIVITY OR WORK PHASE UNTIL ALL REQUIRED TRAFFIC CONTROL PATTERNS AND DEVICES INDICATED ON THE TCP FOR THAT ACTIVITY OR PHASE ARE

COMPLETELY AND CORRECTLY IN PLACE TO HAVE BEEN CHECKED FOR APPROVED USAGE. CONPLETELY AND CORRECTLY IN PLACE TO HAVE BEEN CHECKED FOR APPROVED SAGE.

GENERAL AND SPECIFIC WARNING SIGNS SHALL ONLY BE IN PLACE WHEN SPECIFIC WORK
TASKS AND ACTIVITIES ARE ACTUALLY UNDERWAY OR CONDITIONS EXIST THAT POSE A POTENTIAL
HAZARD TO THE PUBLIC, AND ANY ADDITIONAL SIGNING HAS BEEN APPROVED BY THE
APPROPRIATE SHA TRAFFIC ENGINEER. NOTE: THE PRACTICE OF PLACING SIGNING AND
OTHER TRAFFIC CONTROL DEVICES IN ADDITION TO THOSE INDICATED ON THE APPROVED TCP IS
NOT PERMITTED.

NOT PERMITTED.

8. THE CONTRACTOR AND/OR PERMITTEE SHALL PROVIDE, MAINTAIN IN NEW CONDITION, AND MOVE WHEN NECESSARY, OR AS DIRECTED BY THE ENGINEER, ALL TRAFFIC CONTROL DEVICES USED FOR THE GUIDANCE AND PROTECTION OF MOTORISTS, PEDESTRIANS, AND WORKERS.

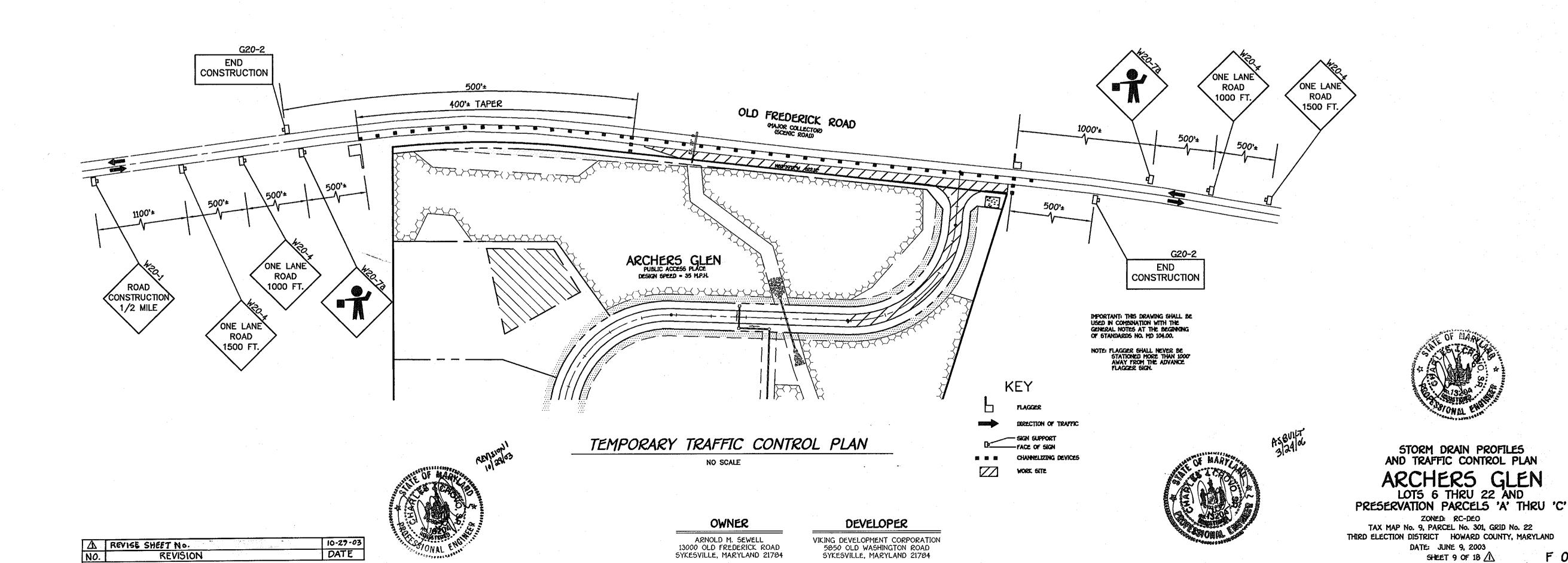
9. ALL TRAFFIC CONTROL DEVICES REQUIRED BY THE TCP SHALL BE KEPT IN GOOD CONDITION, FULLY PERFORMING AS SET FORTH IN THE TCP, THE MUTCD, AND/OR SECTION 814 OF THE SPECIFICATIONS. FOR REFLECTIVE DEVICES, A PARTICULAR DEVICE IS ASSUMED TO HAVE FAILED TO MEET MINIMUM OPERATIONAL STANDARDS WHEN THE DEVICE NO LONGER HAS RETRO-REFLECTANCE CAPABILITY OF AT LEAST 60% OF THE SPECIFIED MINIMUM VALUE OVER AT LEAST 90% OF THE VISIBLE REFLECTIVE SURFACE.

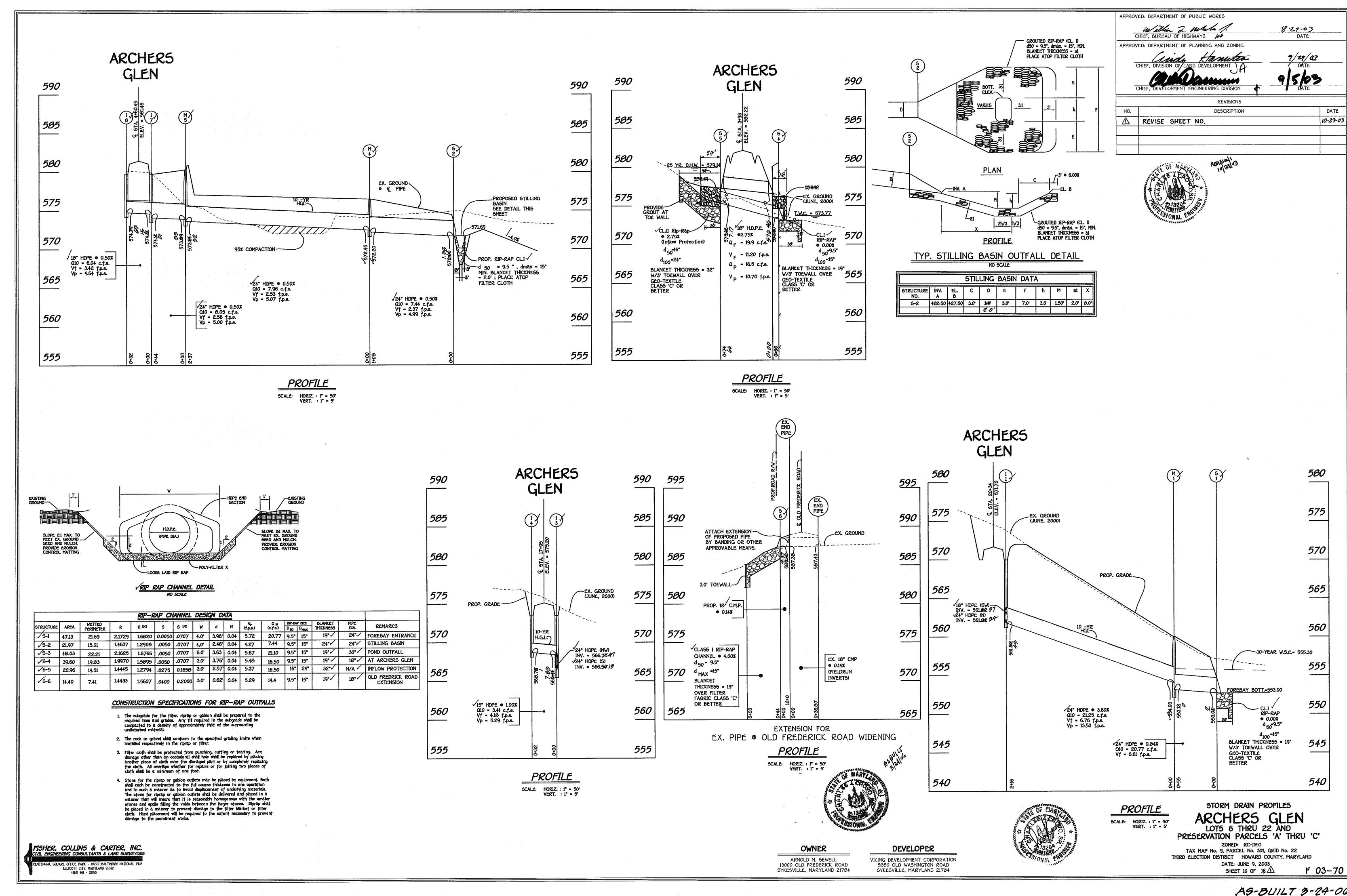
10. ALL TRAFFIC CONTROL DEVICES NOT REQUIRED FOR THE SAFE CONDUCT OF TRAFFIC SHALL BE PROMPTLY REMOVED, COMPLETELY COVERED, TURNED AWAY FROM TRAFFIC, OR OTHERWISE TAKEN OUT OF SERVICE. IT IS INTENDED THAT NO TRAFFIC CONTROL DEVICE IS TO BE IN SERVICE WHEN THERE IS NO CLEAR CUT REASON FOR THE DEVICE.

11. THROUGHOUT THE PERIODIS) OF WORK ACTIVITIES, TRAFFIC SHALL BE MAINTAINED BY IMPLEMENTING THE APPROVED TCP. IN LIEU OF THE TCP PREPARED FOR THIS PROJECT, AND/OR INDIVIDUAL TYPICAL TRAFFIC CONTROL STANDARDS, THE CONTRACTOR AND/OR PERMITTEE HAS THE OPTION OR PREPARING AND SUBMITTING A TCP, WHOLLY OR IN PART, PERMITTEE HAS THE OPTION OR PREPARING AND SUBMITTING A TCP, WHOLLY OR IN PART, OF HIS OWN DESIGN, FOLLOWING GUIDELINES SET FORTH IN THE MUTCD AND PRESCRIBED BY THE ADMINISTRATION. A TCP DEVELOPED BY THE CONTRACTOR AND/OR PERMITTEE SHALL BE EXERCISED TO PRESENT CORRECT AND NON-CONFLICTING GUIDANCE TO THE TRAVELING

12. THROUGHOUT THESE SPECIAL PROVISIONS, WHERE SPEED OF TRAFFIC IS NOTED, THIS MEANS
THE POSTED SPEED OR PREVAILING TRAVEL SPEED, WHICHEVER IS HIGHER, UNLESS OTHERWISE 13. TRAFFIC SHALL BE MAINTAINED AT ALL TIMES THROUGHOUT THE ENTIRE LENGTH OF THE PROJECT, UNLESS OTHERWISE NOTED. NO TRAVEL LANE(S) OTHER THAN THOSE DESIGNATED FOR POSSIBLE CLOSURE IN THE TCP SHALL BE CLOSED WITHOUT OBTAINING PRIOR APPROVAL FORM THE ENGINEER. ALL INGRESS AND EGRESS TO THE WORK AREA BY THE CONTRACTOR AND/OR PERMITTEE SHALL BE PERFORMED WITH THE FLOW OF TRAFFIC.

FISHER, COLLINS & CARTER, INC. CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS . SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE ELLICOTT CITY, MARYLAND 21042





STANDARDS AND SPECIFICATIONS FOR TOPSOIL

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

Purpose

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

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.
- 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

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

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

- 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 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 11/2" in diameter.
- ii. Topsoil must be free of plants or plant parts such as bermuda grass, quackgrass, Johnson grass, nutsedge, 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.

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.

For sites having disturbed areas over 5 acres

dissipation of phyto-toxic materials.

i. On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:

- a. pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.
- b. Organic content of topsoil shall be not less than 1.5 percent by weight. c. Topsoil having soluble salt content greater than 500 parts per million shall not be used
- d. No sod or seed shall be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit

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.

ii. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section 1 - Vegetative Stabilization Methods and Materials.

i. When top soiling, 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 top soiled, 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 sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from top soiling 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
- Alternative for Permanent Seeding Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below: i. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribe amendments and for sites having disturbed areas under 5 acres
- shall conform to the following requirements: a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06.
- b. Composted sludge shall contain at least I percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a Ph of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use
- c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet. iv. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.

References: Guideline Specifications, Soil Preparation and Sodding, MD-VA, Pub. •I, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

SEDIMENT CONTROL NOTES

- 1) A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (313-1055) 2) ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED
- ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO. 3) FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: a) 7
 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES
- DIKES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3:1, b) 14 DAYS AS 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. CHAPTER 12. OF THE 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 (SEC. 51), SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50), AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
- 6) 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.

7) SITE ANALYSIS: TOTAL AREA OF SITE AREA DISTURBED

22.27 ACRES AREA TO BE ROOFED OR PAVED 2.28 ACRES 19.99 AREA TO BE VEGETATIVELY STABILIZED ACRES OFFSITE WASTE/BORROW AREA LOCATION N/A

8) ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING

ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE. 9) ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED

NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR. 10) ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS. BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL.

BY THE INSPECTION AGENCY IS MADE. 11) 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.

FISHER, COLLINS & CARTER, INC. IVIL ENGINEERING CONSULTANTS & LAND SURVEYORS ennial square office park - 10272 Baltimore National Pike

40.00 ACRES

20.0 STANDARDS AND SPECIFICATIONS VEGETATIVE STABILIZATION

DEFINITION Using vegetation as cover for barren soil to protect it from forces that cause erosion

PURPOSE

Vegetative stabilization specifications are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby reducing sediment loads and run-off to downstream areas, and improving wildlife habitat and visual resources.

CONDITIONS WHERE PRACTICE APPLIES This practice shall be used on denuded areas as specified on the plans and may be used on highly erodible or critically eroding areas. This specification is divided into Temporary Seeding, to quickly establish vegetative cover for short duration O(up to one year), and Permanent Seeding, for long term vegetative cover. Examples of applicable areas for Temporary Seeding are temporary Soil Stockpiles, cleared areas being left idle between construction phases, earth dikes, etc. and for Permanent Seeding

are lawns, dams, cut and fill slopes and other areas at final grade, former stockpile and staging areas, etc. EFFECTS ON WATER QUALITY AND QUANTITY Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and rates of runoff, infiltration evaporation, transpiration, percolation, and groundwater recharge. Vegetation, over time, will increase organic matter content and improve the water holding capacity of the soil and subsequent plant growth.

Vegetation will help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to receiving waters. Plants will also help protect groundwater supplies by assimilating those substances present within the root zone. Sediment control devices must remain in place during grading, seedbed preparation, seeding, mulching and vegetative establishment to prevent large quantities of sediment and associated chemicals and nutrients from washing into surface waters.

SECTION 1 - VEGETATIVE STABILIZATION METHODS AND MATERIALS

A. Site Preparation Install erosion and sediment control structures (either temporary of permanent) such as diversions grade stabilization structures, berms, waterways, or sediment control basins.

ii. Perform all grading operations at right angles to the slope. Final grading and shaping is not usually necessary for temporary seeding.

iii. Schedule required soil tests to determine soil amendment composition and application rates for sites

having disturbed area over 5 acres.

B. Soil Amendments (Fertilizer and Lime Specifications) Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas over 5 acres. Soil analysis may be performed by the University of Maryland or a recognized commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses. ii. Fertilizers shall be uniform in composition, free flowing and suitable for accurate application by

approved equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers shall all be delivered to the site fully labeled according the applicable state fertilizer laws and shall bear the name, trade name or trademark and warrantee of the producer.

iii. Lime materials shall be ground limestone (hydrated or burnt lime may be substituted) which contains

at least 50% total oxides (calcium oxide plus magnesium oxide). Limestone shall be ground to such fineness that at least 50% will pass through a *100 mesh sieve and 90-100% will pass through a *20 mesh sieve. v. Incorporate lime and fertilizer into the top 3-5" of soil by disking or other suitable means.

Seedbed Preparation
i. Temporary Seeding
a. Seedbed preparation shall consist of loosening soil to a depth of 3" to 5" by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened it should not be rolled or dragged smooth, but left in the roughened condition. Sloped areas (greater than 3:1) should be tracked leaving the surface in an irregular condition with ridges running parallel to the contour of the slope.

b. Apply fertilizer and lime as prescribed on the plans.

c. In corporate lime and fertilizer into the top 3-5" of soil by disking or other suitable means.

Permanent Seeding Minimum soil conditions required for permanent vegetative establishment 1. Soil pH shall be between 6.0 and 7.0.

Soluble salts shall be less than 500 parts per million (ppm). The soil shall contain less than 40% clay, but enough fine grained material (>30% silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception is if lovegrass or serecia lespedezas is to be planted, then a sandy soil (30% silt plus clay) would be acceptable.

newly disturbed areas.

Soil shall contain 1.5% minimum organic matter by weight.
Soil must contain sufficient pore space to permit adequate root penetration.
If these conditions cannot be met by soils on site, adding topsoil is required in accordance with Section 21 Standard and Specification for Topsoil.

Areas previously graded in conformance with the drawings shall be maintained in a true and even grade, then scarified or otherwise loosened to a depth of 3-5" to permit bonding of the topsoil to the surface area and to create horizontal erosion check slots to prevent topsoil

the surface area and to create horizontal erosion check slots to prevent topsoil from sliding down a slope.

Apply soil amendments as per soil test or as included on the plans.

Mix soil amendments into the top 3-5° of topsoil by disking or other suitable means. Lawn areas should be raked to smooth the surface, remove large objects like stones and branches. and ready the area for seed and application. Where site conditions will not permit normal seedbed preparation, loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface. Steep slopes (steeper than 3:1) should be tracked by a dozer leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. top 1-3" of soil should be loose and friable. Seedbed loosening may not be necessary on

Seed Specifications All seed must meet the requirements of the Maryland State Seed Law. All seed shall be subject to re-testing by a recognized seed laboratory. All seed used shall have been tested within the 6 months immediately preceding the date of sowing such material on this job.

Note: Seed tags shall be made available to the inspector to verify type and rate of seed used. ii. Inoculant - The inoculant for treating legume seed in the seed mixtures shall be a pure culture of nitrogen-fixing bacteria prepared specifically for the species. Inoculants shall not be used later than the date indicated on the container. Add fresh inoculant as directed on package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75°-80° F. can weaken bacteria and make the inoculant less effective. Methods of Seeding

hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer), broadcast or drop seeded, or a cultipacker seeder. a. If fertilizer is being applied at the time of seeding, the application rates amounts will not exceed the following: nitrogen; maximum of 100 lbs. per acre total of soluble nitrogen; P205 (phosphorous); 200 lbs/ac; K20 (potassium): 200 lbs/ac.

Lime - use only ground agricultural limestone. (Up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding. Seed and fertilizer shall be mixed on site and seeding shall be done immediately and

without interruption. ii. Dry Seeding: This includes use of conventional drop or broadcast spreaders. Seed spread dry shall be incorporated into the subsoil at the rates prescribed on the Temporary or Permanent Seeding Summaries or Tables 265 or 26. The seeded area shall then be rolled with a weighted roller to provide good seed to soil contact. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.

iii. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.

Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after planting. Where practical, seed should be applied in two directions perpendicular to each other Apply half the seeding rate in each direction.

Mulch Specifications (In order of preference) Straw shall consist of thoroughly threshed wheat, rie or oat straw, reasonable bright in color, and shall not be musty, moldy, caked, decayed, or excessively dusty and shall be free of noxious weed seeds as specified in the Maryland Seed Law.

Wood Cellulose Fiber Mulch (WCFM)
 a. WCFM shall consist of specially prepared wood cellulose processed into a uniform

WCFM shall be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry. WCFM, including dye, shall contain no germination or growth inhibiting factors. WCFM materials shall be manufactured and processed in such a manner that th wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry.

The mulch material shall form a blotter-like ground cover, on application, having moisture absorption and percolation properties and shall cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings. WCFM material shall contain no elements or compounds at concentration levels that will be phytol-toxic.

f. WCFM must conform to the following physical requirements: fiber length to approximately 10 mm., diameter approximately 1 mm., pH range of 4.0 to 8.5, ash content of 1.6% maximum and water holding capacity of 90% minimum.

Note: Only sterile straw mulch should be used in areas where one species of grass is desired. Mulching Seeded Areas - Mulch shall be applied to all seeded areas immediately after seeding.

If grading is completed outside of the seeding season, mulch along shall be applied as prescribed in this section and maintained until the seeding season returns and seeding can be performed in accordance with these specifications. When straw mulch is used, it shall be spread over all seeded areas at the rate of 2 tons/acre. Mulch shall be applied to a uniform loose depth of between 1° and 2°. Mulch applied shall achieve a uniform distribution and depth so that the soil surface is not exposed. If a mulch anchoring tool is

to be used, the rate should be increased to 2.5 tons/acre. iii. Wood cellulose fiber used as a mulch shall be applied at a net dry weight of 1,500 lbs. per acre. The wood cellulose fiber shall be mixed with water, and the mixture shall contain a maximum of 50 lb

Securing Straw Mulch (Mulch Anchoring): Mulch anchoring shall be performed immediately following mulch application to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon size of area and erosion hazard:

i. A mukh anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of two (2) inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. It used on sloping land, this practice should be used on the contour if possible.

Wood cellulose fiber may be used for anchoring straw. The fiber binder shall be applied at a net dry weight of 750 pounds/acre. The wood cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.

iii. Application of liquid binders should be heavier at the edges where wind catches mulch, such as in valleys and crest of banks. The remainder of area should be appear uniform after binder application. Synthetic binders - such as Acrylic DLR (Agro-Tack), DCA-70 Petroset, Terra Tax

I. Terra Tack AR or other approved equal may be used at rates recommended by the manufacturer to anchor mulch v. Lightweight plastic netting may be stapled over the mulch according to manufacturer's recomnendations. Netting is usually available in rolls 4' to 15' feet wide and 300 to 3,000 feet long



Δ	REVISE	SHEET	NO.	10.29.03
NO.	_		REVISION	PATE

Incremental Stabilization - Cut Slopes

Incremental Stabilization of Embankments - Fill Slopes

All cuts slopes shall be dressed prepared, seeded and mulched as the work progresses. Slopes shall be excavated and stabilized in equal increments not to exceed to

Construction sequence (Refer to Figure 3 below): a. Excavate and stabilize all temporary swales, side ditches, or berms that will be used to convey runoff from the excavation
 b. Perform Phase 1 excavation, dress, and stabilize.

Perform Phase 2 excavation, dress and stabilize. Overseed Phase 1 areas as

necessary.

Perform final phase excavation, dress and stabilize. Overseed previously seeded areas as necessary. Note: Once excavation has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation of completing the operation out of the seeding season will necessitate the application of temporary stabilization.

Embankments shall be constructed in lifts as prescribed on the plans.

i. Embankments shall be constructed in lifts as prescribed on the plans.
ii. Slopes shall be stabilized immediately when the vertical height of the multiple lifts reaches
15°, or when the grading operation ceases as prescribed in the plans.
iii. At the end of each day, temporary berms and pipe slope drains should be constructed along the top edge of the embankment to intercept surface runoff and convey it down the slope in a non-erosive manner to a sediment trapping device.
iv. Construction sequence: Refer to Figure 4 (below).
a. Excavate and stabilize all temporary swales, side ditches, or berms that will be used to divert runoff around the till. Construct slope silt fence on low side of fill as shown in Figure 5, unless other methods shown on the plans address this area.
b. Place Phase 1 embankment, dress and stabilize.
c. Place Phase 2 embankment, dress and stabilize.
d. Place final phase embankment, dress and stabilize.

Place final phase embankment, dress and stabilize. Overseed previously seeded Areas as necessary.

Note: Once the placement of fill has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization

SECTION 2 - TEMPORARY SEEDING

Vegetation - annual grass or grain used to provide cover on disturbed areas for up to 12 months. For longer duration of vegetative cover, Permanent Seeding is required.

i. Select one or more of the species or mixtures listed in Table 26 for the appropriate Plant Hardiness Zone (from Figure 5) and enter them in the Temporary seeding summary below, along with application rates, seeding dates and seeding depths. If this summary is not put on the plans and completed, then Table 26 must be put on the plans.

ii. For sites having soil tests performed, the rates shown on this table shall be deleted and the rates recommended by the testing agency shall be written in Soil tests are not required for Temporary Seeding.

Seed Mixture (Hardiness Zone6b) From Table 26					Fertilizer Rate	Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	(10-10-10)	
1	BARLEY OATS RYE	122 96 140	3/1 - 5/15, 8/15 - 10/15	1" - 2" 1" - 2" 1" - 2"	600 lb/ac (15 lb/1000=f)	2 tons/ac (100 lb/1000sf)

SECTION 3 - PERMANENT SEEDING

Seeding grass and legumes to establish groung cover for a minimum of one year on disturbed areas generally receiving low maintenance

A. Seed mixtures - Permanent Seeding

i. Select one or more of the species or mixtures listed in Table 25 for the appropriate Plant Hardiness Select one of more of the species of mixtures listed in Table 25 for the appropriate right hardiness. Zone (from Figure 5) and enter them in the Permanent Seeding Summary below, along with application rates and seeding dates. Seeding depths can be estimated using Table 26. If this summary is not put on the construction plans and completed, then Table 25 must be put on the plans. Additional planting specifications for exceptional sites such as shorelines, streambanks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-SCS Technical Field Office Guide, Sections 13. Critical Area Planting. For special lawn maintenance areas, see Sections IV Sod and V Turfgrass.

ii. For sites having disturbed area over 5 areas, the rates shown on this table shall be deleted and the rates recommended by the soil testing agency shall be written in

iii. For areas receiving low maintenance, apply ureaform fertilizer (46-0-0) at 3 1/2 lbs/1000 sq. ft. (150 lbs/ac), in addition to the above soil amendments shown in the table below, to be performed at

Seed Mixture (Hardiness Zone <u>6b</u>) From Table 25						Fertilizer ((10-20-20)	Rate	Lime Rate	
No.	Species	Application Rate (b/ac)	Seeding Dates	Seeding Depths	N P205 K20			Kaje	
3	TALL FESCUE (05%) PERENNIAL RYE GRASS (10%) KENTUCKY BLUEGRASS (5%)	125 15 10	3/1 - 5/15, 8/15 - 10/15	1 2-	90 lb/ac (2.0 lb/	175 lb/ac (4 lb/	175 lb/ac (4 lb/	2 tons/ac	
10	TALL FESCUE (80%) HARD FESCUE (20%)	120 30	3/1 - 5/15, 8/15 - 10/15	1 2-	1000sf)	1000sf)	1000sf)	1000sf)	

EARTH DIKE NOT TO SCALE L b 2:1 SLOPE OR FLATTER 2:1 SLOPE OR FLATTER - EXCAVATE TO PROVIDE REQUIRED FLOW WIDTH GRADE LINE AT DESIGN FLOW DEPTH CUT OR FILL -CROSS SECTIO POSITIVE DRAINAGE SUFFICIENT TO DRAIN **b-DIKE WIDTH**

c-FLOW WIDTH V V V V V V Vd-FLOW DEPTH CUT OR FILL SLOPE PLAN VIEW STANDARD SYMBO FLOW CHANNEL STABILIZATION A-2 B-3 GRADE 0.5% MIN. 10% MAX. **→ -**/→ -

1. Seed and cover with straw mulch. 2. Seed and cover with Erosion Control Matting or line with sod. 3. 4" - 7" stone or recycled concrete equivalent pressed into the soil 7" minimum

Construction Specifications

1. All temporary earth dikes shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grades less than 1%. 2. Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.

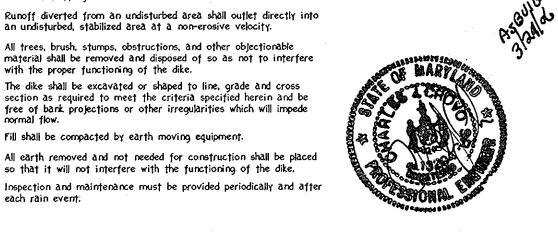
3. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed, stabilized area at a non-erosive velocity. 4. All trees, brush, stumps, obstructions, and other objectionable

with the proper functioning of the dike. 5. The dike shall be excavated or shaped to line, grade and cross section as required to meet the criteria specified herein and be free of bank projections or other irregularities which will impede

6. Fill shall be compacted by earth moving equipment.

7. All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the dike.

8. Inspection and maintenance must be provided periodically and after

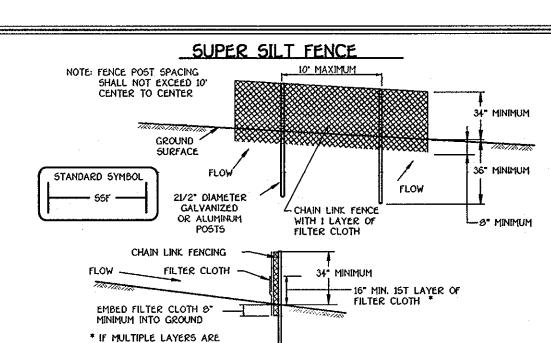


OWNER

ARNOLD M. SEWELL 13000 OLD FREDERICK ROAD SYKESVILLE, MARYLAND 21784

VIKING DEVELOPMENT CORPORATION 712 CHESSIE CROSSING WAY WOODBINE, MARYLAND 21797

DEVELOPER



REQUIRED TO ATTAIN 42" Construction Specification 1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length

2. Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.

3. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section. 4. Filter cloth shall be embedded a minimum of 8" into the ground. 5. When two sections of filter cloth adjoin each other, they shall be overlapped

by 6" and folded.

Tensile Modulus

Filtering Efficiency 75% (min.)

Flow Rate

.6. Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height 7. Filter cloth shall be fastened securely to each fence post with wire ties of staples at too and mid section and shall meet the following requirements for Geotextile Class F: Tensile Strength

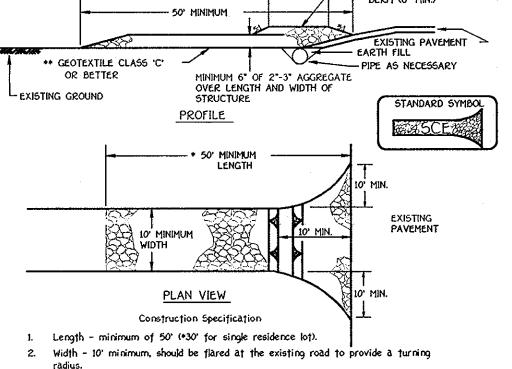
20 lbs/in (min.)

Test: MSMT 509

Test: MSMT 322

0.3 gal/ft /minuté (max.) Test: M5MT 322

STABILIZED CONSTRUCTION ENTRANCE



3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family

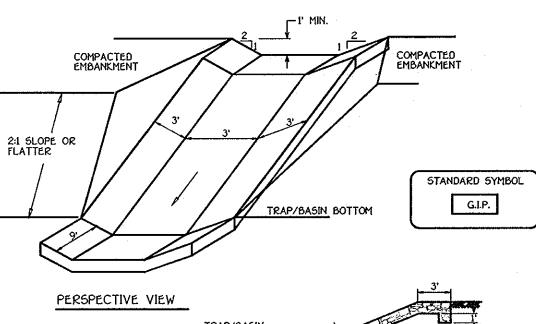
4. Stone - crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the 5. Surface Water - all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe nstalled through the stabilized construction entrance shall be protected with a nountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and

has no drainage to convey a pipe will not be necessary. Pipe should be sized

according to the amount of runoff to be conveyed. A 6" minimum will be required 6. Location - A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

GABION INFLOW PROTECTION

NOT TO SCALE



PROFILE ALONG CENTERLINE

Construction Specifications 1. Gabion inflow protection shall be constructed of 9' x 3' x 9" gabion baskets forming a trapezoidal cross section 1' deep, with 2:1 side slopes,

2. Geotextile Class C shall be installed under all gabion baskets.

3. The stone used to fill the gabion baskets shall be 4" - 7".

and a 3' bottom width.

4. Gabions shall be installed in accordance with manufacturers recommendations.

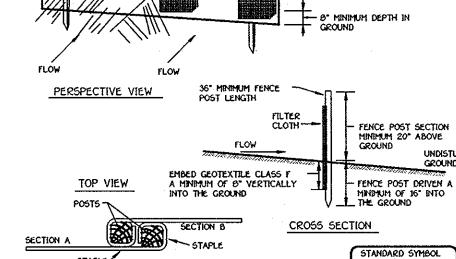
5. Gabion Inflow Protection shall be used where concentrated flow is present on slopes steeper than 4:1.

I Hereby Certify That This Plan For Erosion And Sediment Control Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site Condition And That It Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District. 3/18/03 har hour Signature/Of Enginee DEVELOPER'S CERTIFICATE "I/We Certify That All Development And Construction Will Be Done According To This Plan Of Development And Plan For Erosion And Sediment Control And That All Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of Natural Resources 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 Or Their Authorized Agents. As Are Deemed Necessary." Reviewed For Howard County Soil Conservation District And Meets Technical Requirements. U.S.D.A. -This Development Is Approved For Erosion And Sediment Control By The Howard Soil Conservation District. Howard Sod Conservation Dist Approved: Department Of Planning And Zoning 9/29/03

Approved: Howard County Department Of Public Works

ENGINEER'S CERTIFICATE

8-27-03 SILT FENCE - 36" MINIMUM LENGTH FENCE POST DRIVEN A MINIMUM OF 16" INTO --- 16" MINIMUM HEIGHT O - 8° MINIMUM DEPTH II



FENCE SECTIONS Construction Specifications 1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 11/2" x 11/2" square (minimum) cut, or 13/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pond per linear foot. 2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirement

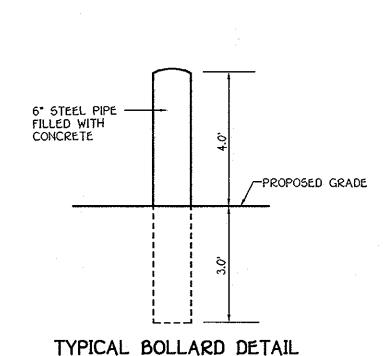
-----5F ------

50 lbs/in (min.) Tensile Modulus 20 lbs/in (min.) Test: MSMT 509 0.3 gal ft / minute (max.)*

JOINING TWO ADJACENT SILT

folded and stapled to prevent sediment bypas 4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

3. Where ends of geotextile fabric come together, they shall be overlapped,



SEDIMENT AND EROSION CONTROL NOTES & DETAILS ARCHERS GLEN

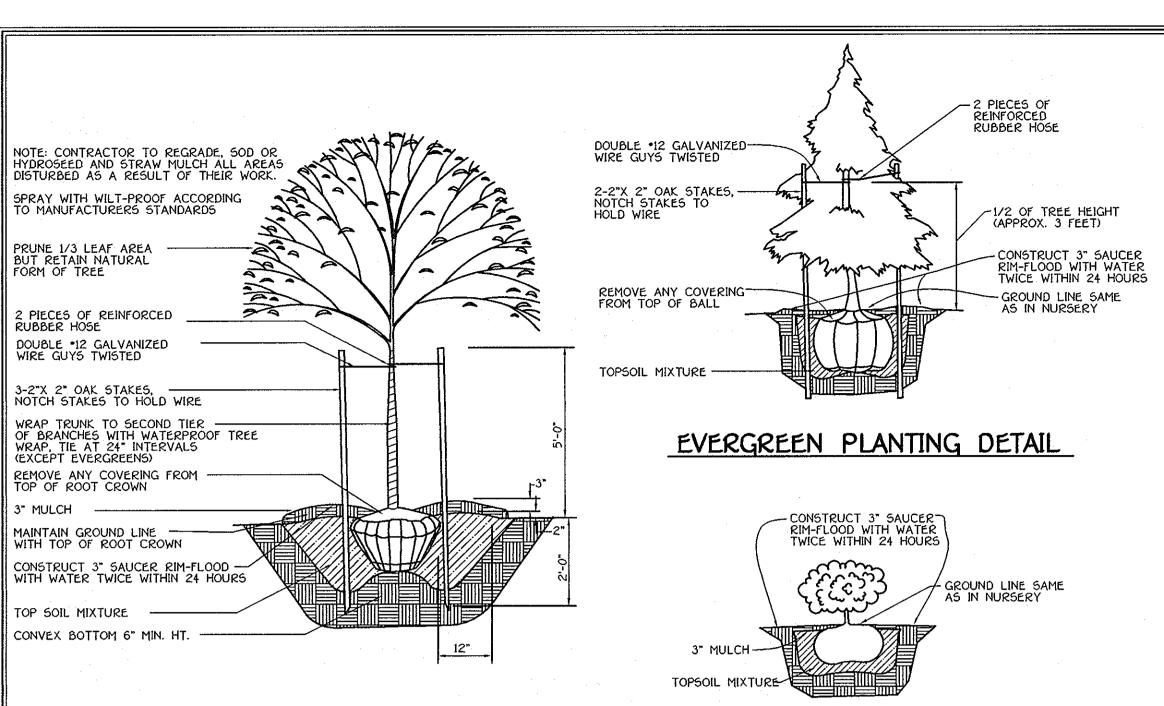
NOT TO SCALE

PRESERVATION PARCELS 'A' THRU 'C' ZONED: RC-DEO TAX MAP No. 9, PARCEL No. 301, GRID No. 22

LOTS 6 THRU 22 AND

THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND DATE: JUNE 9, 2003 SHEET 11 OF 18 A

A9-BUILT 3-24-06



TREE PLANTING DETAIL

SHRUB PLANTING DETAIL

PLANTING SPECIFICATIONS

Plants, related material, and operations shall meet the detailed description as given on the plans and as described herein.

All plant material, unless otherwise specified, shall be nursery grown, uniformly branched, have a vigorous root system, and shall conform to the species, size, root and shape shown on the plant list and the American Association of Nurserymen (AAN) Standards. Plant material shall be healthy, vigorous, free from defects, decay, disfiguring roots, sun scald injuries. abrasions of the bark, plant disease, insect pest eggs, borers and all forms of insect infestations or objectionable disfigurements. Plant material that is weak or which has been cut back from larger grades to meet specified requirements will be rejected. Trees with forked leaders will not be accepted. All plants shall be freshly dug; no healed-in plants from cold storage will be accepted.

Unless otherwise specified, all general conditions, planting operations, details and planting specification shall conform to "Landscape Specification Guidelines for Baltimore-Washington Metropolitan Areas", (hereinafter "Landscape Guidelines") approved by the Landscape Contractors Association of Metropolitan Washington and the Potomac Chapter of the American Society of Landscape Architect, latest edition, including all agenda.

Contractor shall be required to guarantee all plant material for a period of one year after date of acceptance in accordance with the appropriate section of the Landscape Guidelines Contractor's attention is directed to the maintenance requirements found within the one year specifications including watering and replacement of specified plant material.

Contractor shall be responsible for notifying utility companies, utility contractors and "Miss Utility" a minimum of 48 hours prior to beginning any work. Contractor may make minor adjustments in spacing and location of plant material to avoid conflicts with utilities. Damage to existing structure and utilities shall be repaired at the expense of the Contractor.

Protection of existing vegetation to remain shall be accomplished by the temporary installation of 4 foot high snow fence or blaze orange safety fence at the drip line.

Contractor id responsible for installing all material in the proper planting season for each plant type. All planting is to be completed within the growing season of completion of site construction.

Bid shall be base on actual site conditions. No extra payment shall be made for work arising from site conditions differing from those indicated on drawings and specifications

Plant quantities are provided for the convenience of the contractor only. If discrepancies exist between quantities shown on plan and those shown on the plant list, the quantities on the plan take precedence

All shrubs shall be planted in continuous trenches or prepared planting beds and mulched with composted hardwood mulch as details and specified except where

noted on plans.

Positive drainage shall be maintained in planting beds 2 percent slope).

FISHER, COLLINS & CARTER, INC.

IVIL ENGINEERING CONSULTANTS & LAND SURVEYOR

ELLICOTT CITY, MARYLAND 21042

(410) 461 - 2855

Duare office park - 10272 Baltimore National Pi

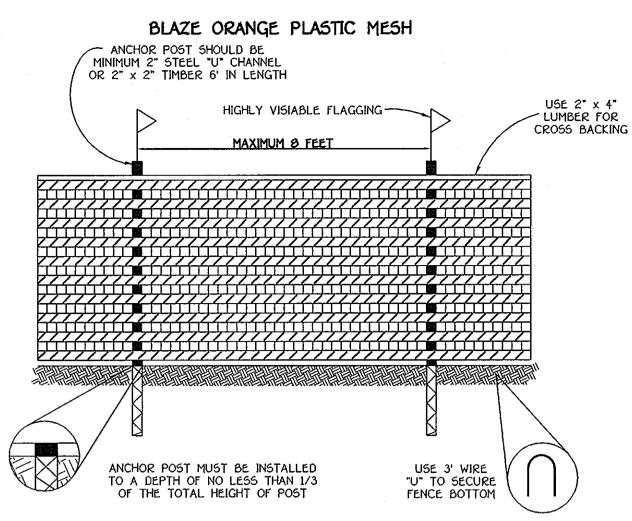
Planting mix shall be as follows: Deciduous Plants - Two parts topsoil, one part well-rotted cow or horse manure. Add 3 lbs. of standard fertilizer per cubic yard of planting mix. Evergreen Plants - two parts topsoil, one part humus or other approved organic material. Add 3 lbs. of evergreen (acidic) fertilizer per cubic yard of planting mix. Topsoil shall conform to the Landscape Guidelines.

Weed Control: Incorporate a pre-emergent herbicide into the planting bed following recommended rates on the label. Caution: Be sure to carefully check the chemical used to assure its adaptability to the specific ground cover to be treated.

All areas within contract limits disturbed during or prior to construction not designated to receive plants and mulch shall be fine graded and seeded.

This plan is intended for landscape use only. see other plan sheets for more information on grading, sediment control, layout, etc.

TREE PLANTING DETAIL

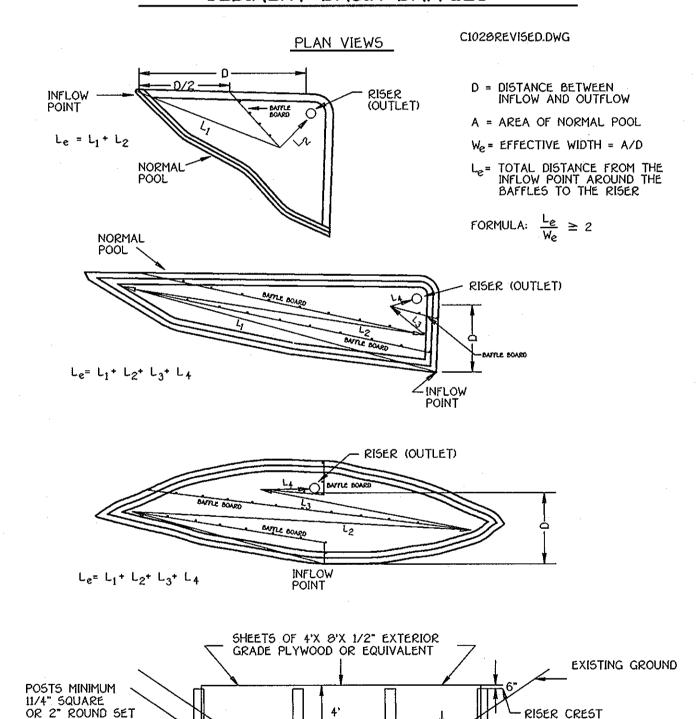


NOTES:

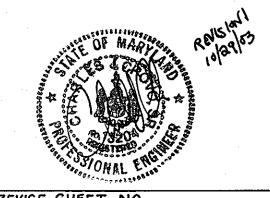
- FOREST PROTECTION DEVICE ONLY.
 RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
 BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE. ROOT DAMAGE SHOULD BE AVOIDED.
- PROTECTIVE SIGNAGE MAY ALSO BE USED. DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

TREE PROTECTION DETAIL

SEDIMENT BASIN BAFFLES



BAFFLE DETAIL



A REVISE SHEET NO. 10-29-03 REVISION DATE

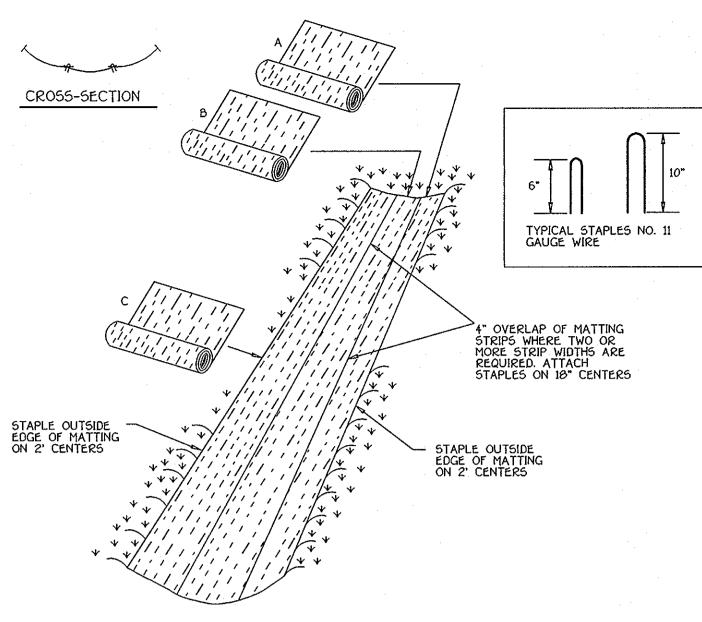
AT LEAST 3' INTO

8' CENTER TO CENTER

THE GROUND

OWNER ARNOLD M. SEWELL 13000 OLD FREDERICK ROAD SYKESVILLE, MARYLAND 21784

DEVELOPER VIKING DEVELOPMENT CORPORATION 5050 OLD WASHINGTON ROAD SYKESVILLE, MARYLAND 21784



Construction Specifications

- 1. Key-in the matting by placing the top ends of the matting in a narrow trench, 6" in depth. Backfill the trench and tamp firmly to conform to the channel cross-section. Secure with a row of staples about 4" down slope from the trench. Spacing between staples is 6".
- 2. Staple the 4" overlap in the channel center using an 18" spacing between staples.
- 3. Before stapling the outer edges of the matting, make sure the matting is smooth and in firm contact with the soil.
- 4. Staples shall be placed 2' apart with 4 rows for each strip, 2 outer rows, and 2 alternating rows down the center.
- 5. Where one roll of matting ends and another begins, the end of the top strip shall overlap the upper end of the lower strip by 4", shiplap fashion. Reinforce the overlap with a double row of staples spaced 6" apart in a staggered pattern on either side.
- 6. The discharge end of the matting liner should be similarly secured with 2 double rows of staples.

Note: If flow will enter from the edge of the matting then the area effected by the flow must be keyed-in.

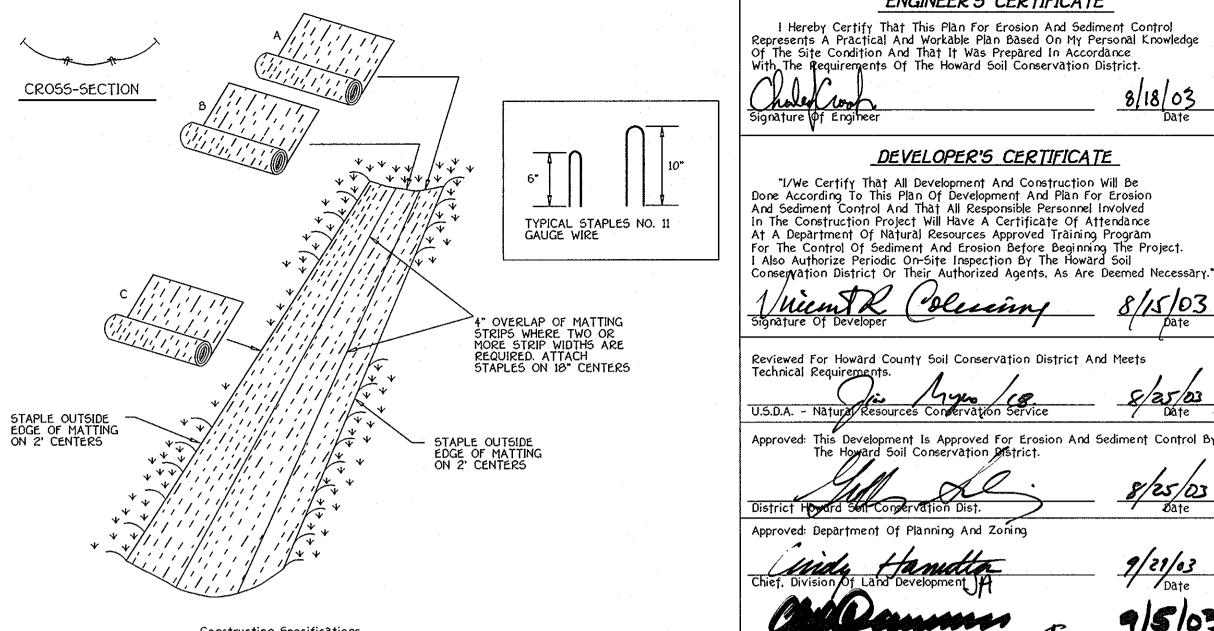
EROSION CONTROL MATTING

NOT TO SCALE

SEQUENCE OF CONSTRUCTION

- 1. OBTAIN A GRADING PERMIT.
- 2. NOTIFY "MISS UTILITY" AT LEAST 40 HOURS BEFORE BEGINNING ANY WORK AT 1-800-257-7777. NOTIFY THE HOWARD COUNTY OFFICE OF CONSTRUCTION/INSPECTION AT 410-313-1330 24 HOURS BEFORE STARTING WORK.
- 3. INSTALL ALL TREE PROTECTION FENCE FOR TREES TO BE UNDISTURBED AS INDICATED ON THE PLANS (2 DAYS). CLEAR AND GRUB FOR SEDIMENT BASIN/SWM PONDS ONLY. INSTALL STABILIZED CONSTRUCTION CONSTRUCT 5-4 TO 5-5 UNDER ARCHERS GLEN AND STABILIZE WITH SUPER SILT FENCE.
- 4. INSTALL SEDIMENT BASIN/SWM POND AND ASSOCIATED EARTH DIKES AND SILT FENCE AS INDICATED ON THE PLANS. NO BLASTING WILL BE PERMITTED FOR THE EXCAVATION OF SEDIMENT BASIN/SWM POND EMBANKMENT. WHERE NECESSARY, RIPPING AND JACK HAMMERING SHOULD BE UTILIZED IN THE EXCAVATION OF THE FACILITY. (2 WEEKS)
- 5. RECEIVE PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR PRIOR TO PROCEEDING. INSTALL ANY REMAINING SEDIMENT CONTROL MEASURES. (I WEEK)
- 6. RECEIVE PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR PRIOR TO PROCEEDING. CONSTRUCT STORM DRAIN SYSTEMS. INSTALL 1-1 THROUGH 5-2 DO NOT BLOCK INLETS 1-1 THRU I-8 AS STORM DRAIN SYSTEM WILL BE USE TO CONVEY SEDIMENT TO BASIN, (I WEEK)
- 7. RECEIVE PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR PRIOR TO PROCEEDING. CLEAR AND GRUB THE REMAINDER OF THE SITE. (3 DAYS)
- B. GRADE SITE TO THE PROPOSED SUB-GRADE AND INSTALL THE STORM DRAIN SYSTEMS. STABILIZE ALL SLOPES IMMEDIATELY UPON COMPLETION OF GRADING.
- 9. GRADE ALONG OLD FREDERICK ROAD FOR APPROPRIATE ROAD IMPROVEMENTS. RELOCATE ANY UTILITY POLES IF NECESSARY. EXTEND EXISTING CULVERT UNDER OLD FREDERICK ROAD TO MEET WITH THE NEWLY GRADED ROADSIDE DITCH. STABILIZE ALL SLOPES IMMEDIATELY UPON COMPLETION OF GRADING WITH PERMISSION FROM THE INSPECTOR. (2 WEEKS)
- 10. CONSTRUCT ROAD BASE COURSE FOR INTERNAL SUBDIVISION ROAD. SAW CUT OLD FREDERICK ROAD AND INSTALL PAVING SECTION PER APPROPRIATE IMPROVEMENTS. (10 DAYS)
- 11. WHEN ALL CONTRIBUTING AREAS TO THE SEDIMENT CONTROL DEVICES AND THE POND HAVE BEEN STABILIZED AND WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, THE DEVICES MAY BE REMOVED AND/OR BACKFILLED AND THE REMAINING AREAS BROUGHT TO FINAL DESIGN GRADE. STABILIZE ALL REMAINING AREAS IN ACCORDANCE WITH PERMANENT SEEDING NOTES. (2 WEEKS)
- 12. NOTIFY HOWARD COUNTY OFFICE OF INSPECTIONS AND PERMITS FOR FINAL INSPECTION OF THE COMPLETED PROJECT.

THE CONTRACTOR SHALL INSPECT AND PROVIDE NECESSARY MAINTENANCE ON ALL SEDIMENT AND EROSION CONTROL STRUCTURES SHOWN HEREON, AFTER EACH RAINFALL AND ON A DAILY BASIS. REMOVE SEDIMENT FROM THE POND WHEN THE CLEANOUT ELEVATION HAS BEEN REACHED. ALL SEDIMENT MUST BE PLACED UPSTREAM OF THE APPROVED TRAPPING DEVICE.



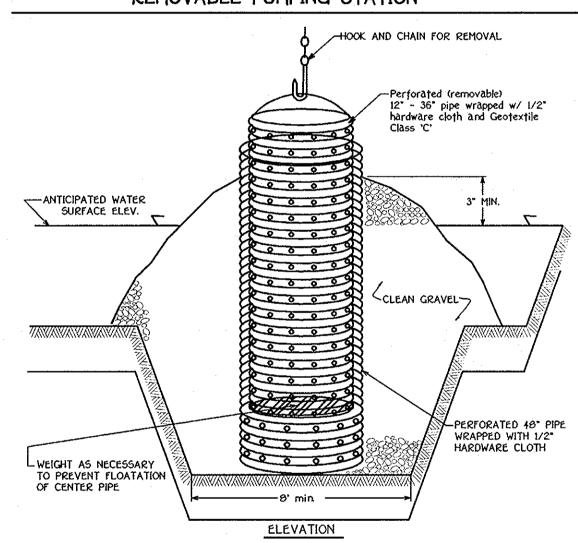
8-27-03 REMOVABLE PUMPING STATION

The Howard Soil Conservation District.

ENGINEER'S CERTIFICATE

DEVELOPER'S CERTIFICATE

1 Hereby Certify That This Plan For Erosion And Sediment Control



Construction Specifications

1. The outer pipe should be 40" dia. or shall, in any case, be at least 4" greater in diameter than the center pipe. The outer pipe shall be wrapped with 1/2" hardware cloth to prevent backfill material from entering the perforations. 2. After installing the outer pipe, backfill around outer pipe with 2" aggregate or clean gravel. 3. The inside stand pipe (center pipe) should be constructed by perforating a corrugated or PVC pipe between 12" and 36" in diameter. The perforations shall be 1/2" X 6" slits or 1" diameter holes 6" on center. The center pipe shall be wrapped with 1/2" hardware cloth first, then wrapped again with Geotextile Class C 4. The center pipe should extend 12" to 10" above the anticipated water surface elevation or riser crest elevation when dewatering a basin





SEDIMENT AND EROSION CONTROL NOTES & DETAILS LOTS 6 THRU 22 AND

PRESERVATION PARCELS 'A' THRU 'C' ZONED: RC-DEO TAX MAP No. 9, PARCEL No. 301, GRID No. 22

THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND DATE: JUNE 9, 2003 SHEET 12 OF 18 1 F 03-70

STORM WATER MANAGEMENT POND CONSTRUCTION SPECIFICATIONS

These specifications are appropriate to all ponds within the scope of the Standard for practice MD-370. All references to ASTM and AASHTO specifications apply to

Site Preparation

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

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

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

EARTH FILL

Material - The fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, wood, rubbish, stones greater than 6°, frozen or other objectionable materials. Fill material for the center of the embankment, and cut off trench shall conform to Unified Soil Classification GC. SC. CH. or CL and must have at least 30% passing the *200 sieve. Consideration may be given to the use of other materials in the embankment if designed by a geotechnical enoineer. 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 0-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 embarkment. 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 such that the required degree of compaction will be obtained with the equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble, vet 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

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, rollers, or hand tampers to assure maximum density and minimum permeability. In addition, the core shall be placed concurrently with the outer shell of the embankment.

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 fou 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; 20 day unconfined compressive strength. The flowable fill shall have a minimum pH of 4.0 and a minimum resistivity of 2,000 ohm-cm. Material shall be placed such that a minimum of 6" (measured perpendicular to the outside of the pipe) of flowable fill shall be under (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 addacent to the flowable fill zone. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a structure or pipe unless there is a compacted fill of 24" or creater over the structure or pipe. Backfill material outside the structural backfill (flowable fill) zone shall be of the type and quality conforming to the 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

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

Materials - (Aluminum Coated Steel Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274 with waterticht coupling bands or flanges. Aluminum Coated Stel 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.

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

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

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

All connections shall use a rubber or neoprene gasket when joining pipe sections The end of each pipe shall be re-rolled an adequate number of corrugations to accommodate the bandwidth. The following type connections are acceptable for pipes less than 24-inches in diameter: flanges on both ends of the pipe with a circular 3/0 inch closed cell neoprene gasket, prepunched to the flange bolt circle, sandwiched between adjacent flanges; a 12-inch wide standard lap type band with 12-inch wide by 3/0-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 3/0-inch closed cell gaskets the full width of the flange is also acceptable.

Helically corrugated pipe shall have either continuously welded seams or have lock seams with internal caulking or a neoprene bead. 4. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide

5. Backfilling shall conform to "Structure Backfill". 6. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings. Reinforced Concrete Pipe - All of the following criteria shall apply for reinforced

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

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

3. Laying pipe - Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 4 feet from the riser.

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

The following criteria shall apply for plastic pipe:

1. Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241. Corrugated High Density Polyethylene (HDPE) pipe, couplings and fittings shall conform to the following: 4" - 10" inch pipe shall meet the requirement of AASHTO M252 Type 5, and 12" through 24" inch shall meet the requirement of AASHTO M294 Type 5.

2. Joints and connections to anti-seep collars shall be completely watertight.

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

4. Backfilling shall conform to "Structure Backfill".

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

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

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

Rock Riprap

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

Geotextile shall be placed under all riprap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 921.09, Class 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, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from various parts of the work and for maintaining the excavations, foundation, and other parts of the work free from water as required or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary protective works shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works and so as not to interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent works. The removal of water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the locations being refilled shall be maintained below the bottom of the excavation at such ocations which may require draining the water sumps from which the water shall

Stabilization

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

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

OPERATION AND MAINTENANCE

An operation and maintenance plan in accordance with Local or State Regulations will be prepared for all ponds. As a minimum, the dam inspection checklist located in Appendix A shall be included as part of the operation and maintenance plan and performed at least annually. Written records of maintenance and major repairs needs to be retained in a file. The issuance of a Maintenance and Repair Permit for any repairs or maintenance that involves the modification of the dam or spillway from its original design and specifications is required. A permit is also required for any repairs or reconstruction that involve a substantial portion of the structure. All indicated repairs are to be made as soon as practical.

STORMWATER MANAGEMENT POND NO. 1

		DESIGN	SUMMARY		
XESIGN STORM	ALLOWABLE RELEASE RATE	FACILITY INFLOW	FACILITY DISCHARGE	WATER SURFACE ELEVATION	STORAGE VOLUME (ACI
YEAR	0.6 CF5	1.2 CF5	0.2 CF5	553.67	0.5953
o year	***	24.2 CF5	8.5 CF5	555.00	1.3676
O YEAR		50.1 CF5	30.2 CF5	555.99	2.0896

STRUCTURE CLASSIFICATION, LOW HAZARD, CLASS 'A' POND WQV STORAGE ELEVATION = 553.20 WATERSHED AREA TO FACILITY (ACRES): ULTIMATE 22.289 ACRES LEVEL OF MANAGEMENT PROVIDED BY FACILITY: 1 YEAR STORM

Embankment and Cut-off Trench Construction

THE AREA OF THE PROPOSED SWM POND SHOULD BE STRIPPED OF TOPSOIL AND ANY OTHER UNSUITABLE MATERIALS FROM THE EMBANKMENT OR STRUCTURE AREA IN ACCORDANCE WITH SOIL CONSERVATION GUIDELINES. AFTER STRIPPING OPERATIONS HAVE BEEN COMPLETED, THE EXPOSED SUBGRADE MATERIALS SHOULD BE PROOFROLLED WITH A LOADED DUMP TRUCK OR SIMILAR EQUIPMENT IN THE PRESENCE OF A GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE UTILIZING A DYNAMIC CONE PENETROMETER. ANY EXCESSIVELY SOFT OR LOOSE MATERIALS IDENTIFIED BY PROOFOLLING OR PENETROMETER TESTING SHOULD BE EXCAVATED TO SUITABLE FIRM SOIL, AND THEN GRADES RE-ESTABLISHED BY BACKFILLING WITH

A REPRESENTATIVE OF THE GEOTECHNICAL ENGINEER SHOULD BE PRESENT TO MONITOR PLACEMENT AND COMPACTION OF FILL FOR THE EMBANKMENT AND CUT-OFF TRENCH. IN ACCORDANCE WITH MARYLAND SOIL CONSERVATION SPECIFICATION 370 SOILS CONSIDERED SUITABLE FOR THE CENTER OF EMBANKMENT AND CUT-OFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION GC, SC, CH, OR CL.
IT IS OUR PROFESSIONAL OPINION THAT IN ADDITION TO THE SOIL MATERIALS DESCRIBED ABOVE A
FINE GRAINED SOIL, INCLUDING SILT (ML) WITH A PLASTICITY INDEX OF 10 OR MORE CAN BE

UTILIZED FOR THE CENTER OF THE EMBANKMENT AND CORE TRENCH. BASED ON OUR VISUAL CLASSIFICATIONS IT APPEARS THAT SOME OF THE ON-SITE SOILS, ESPECIALLY THE NEAR SURFACE SOILS, WILL BE SUITABLE FOR USE AS CORE TRENCH MATERIAL. IT IS RECOMMENDED THAT ADDITIONAL EXPLORATION AND LABORATORY TESTING BE PERFORMED PRIOR TO POND CONSTRUCTION TO IDENTIFY AND QUANTIFY POTENTIAL BORROW AREAS FOR CORE TRENCH MATERIAL ALL FILL MATERIALS MUST BE PLACED AND COMPACTED WITH MD SCS 378

POND BOTT.

EL. = 550.0**84**

A REVISE SHEET NO.

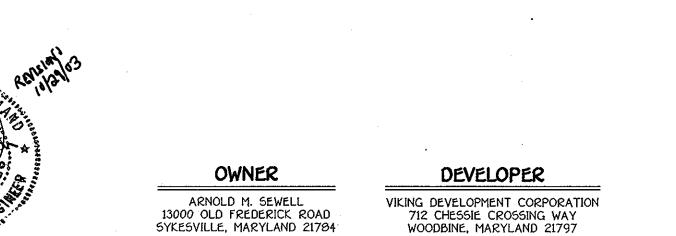
REVISION

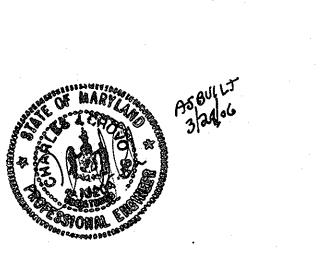
DRAW - DOWN DEVICE DESIGN $A_0 = 11(2.5/12)^2$ $A_0 = 0.1364 \text{ ft}^2$ TEMP. WEIR CREST EL. = 554.80 (LIMIT OF DRY STORAGE) PERF. SECTION = 555.75 - 554.38 = 1.37' >1.5" DIA. HOLES - (TYP.) $4A_0 = 0.5456 \text{ ft}^2$ 6" DIA. BASIN DRAW-DOWN — W/ 5" INTERNAL ORIFICE LIMIT OF BASIN USE 1.5" DIA. HOLES IN PERF. WET STORAGE EL. = 553.80 PIPE: $A_{1.5} = 0.123 \text{ ft}^2$ $A + = (33 PERF/FT)(0.0123 FT^2)(1.37 FT)$ "DIA. D.I.P. LOW FLOW PIPE w/2.75" $A\dagger = 0.5561 \text{ FT}^2$ ORIFICE; INV. = 553.00 * USE 33 PERF./LINEAR FOOT o" DIA. D.I.P.

> -FOR TEMPORARY BASIN USE, PROVIDE SUPPORT OF LOW FLOW PIPE DEVICE TO PREVENT SAGGING AND FLOATATION. AN ACCEPTABLE PREVENTATIVE MEASURE IS TO STAKE BOTH SIDES OF LOW FLOW DEVICE WITH 1" STEEL ANGLE, SET 3' MINIMUM INTO THE GROUND THEN JOINING THEM TO THE DEVICE BY WRAPPING WITH 12 GAUGE MINIMUM WIRE -PROVIDE SUPPORT OF LOW FLOW PIPE DEVICE TO PREVENT SAGGING AND FLOATATION. PROVIDE CONCRETE HEADWALL TO SUPPORT LOW FLOW DEVICE $(4.1)^{\circ}H \times 1.5^{\circ}W \times 0.67^{\circ}$ (PERMANENT S.W.M.)

DRAW DOWN DEVICE DETAIL

5CALE : 1"= 1"





DATE

By The Developer:

"I/We Certify That All Development And/Or Construction Will Be Done According To These Plans, And That Any Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of The Environment Approved Training Program For The Control Of Sediment And Erosion Before Beginning The Project. I Shall Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion. I Also Authorize Periodic On-Site Inspections By The Howard Soil Conservation District."

By The Engineer:

'I Certify That This Plan For Pond Construction, Erosion And Sediment Control Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site Conditions. This Plan Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District. I Have Notified The Developer That He/She Must Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built", Plan Of The Pond Within 30 Days Of Completion."

Signature G CHARLES J. CROVO, SR

Printed Name Of Engineer These Plans Have Been Reviewed For The Howard Soil Conservation District And Meet The Fechnical Requirements For Small Pond Construction, Soil Erosion And Sediment Control. fin Myses /65

USDA-Natural Resources Conservation Service These Plans For Small Pond Construction, Soil Erosion And Sediment Control Meet The Requirements Of The Howard Soil Conservation District.

Approved: Department Of Public Works

William T. Malon /. 8-27-83 Chief Bureau Of Highways

Approved: Department Of Planning And Zoning

Chief. Division Of/Land Development

Chief, Development Engineering Division

8/18/63

AS-BUILT CERTIFICATION Hereby Certify That The Facility Shown On This Plan Was Constructed As Shown On The " As-Built" Plans And Meets The Approved Plans And Specifications / 13209 Signature

Certify Means To State Or Declare A Professional Opinion Based Upon Onsite Inspections And Material Tests Which Are Conducted During Construction. The Onsite Inspections And Material Tests Are Those Inspections And Tests Deemed Sufficient And Appropriate Commonly Accepted Engineering Standards. Certify Does Not mean Or Imply A Guarantee By The Engineer Nor Does An Engineer's Certification Relieve Any Other Party From Meeting Requirements Imposed By Contract.

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

ROUTINE MAINTENANCE

1. Facility shall be inspected annually and after major storms. Inspections shall be preformed during wet weather to determine if the pond is functioning properly.

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

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

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

NON-ROUTINE MAINTENANCE

1. Structural components of the pond such as the dam, the riser, and the pipes shall be repaired upon the detection of any damage. The components shall be inspected during routine maintenance operations.

2. Sediment shall be removed from the pond, and forebay, no later than when the capacity of the pond or forebay, is half full of sediment, or, when deemed necessary for aesthetic reasons, upon approval from the Department of Public Works.



STORMWATER MANAGEMENT NOTES AND DETAILS

ARCHERS GLEN LOTS 6 THRU 22 AND PRESERVATION PARCELS 'A' THRU 'C'

ZONED: RC-DEO TAX MAP No. 9, PARCEL No. 301, GRID No. 22 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND DATE: JUNE 9, 2003

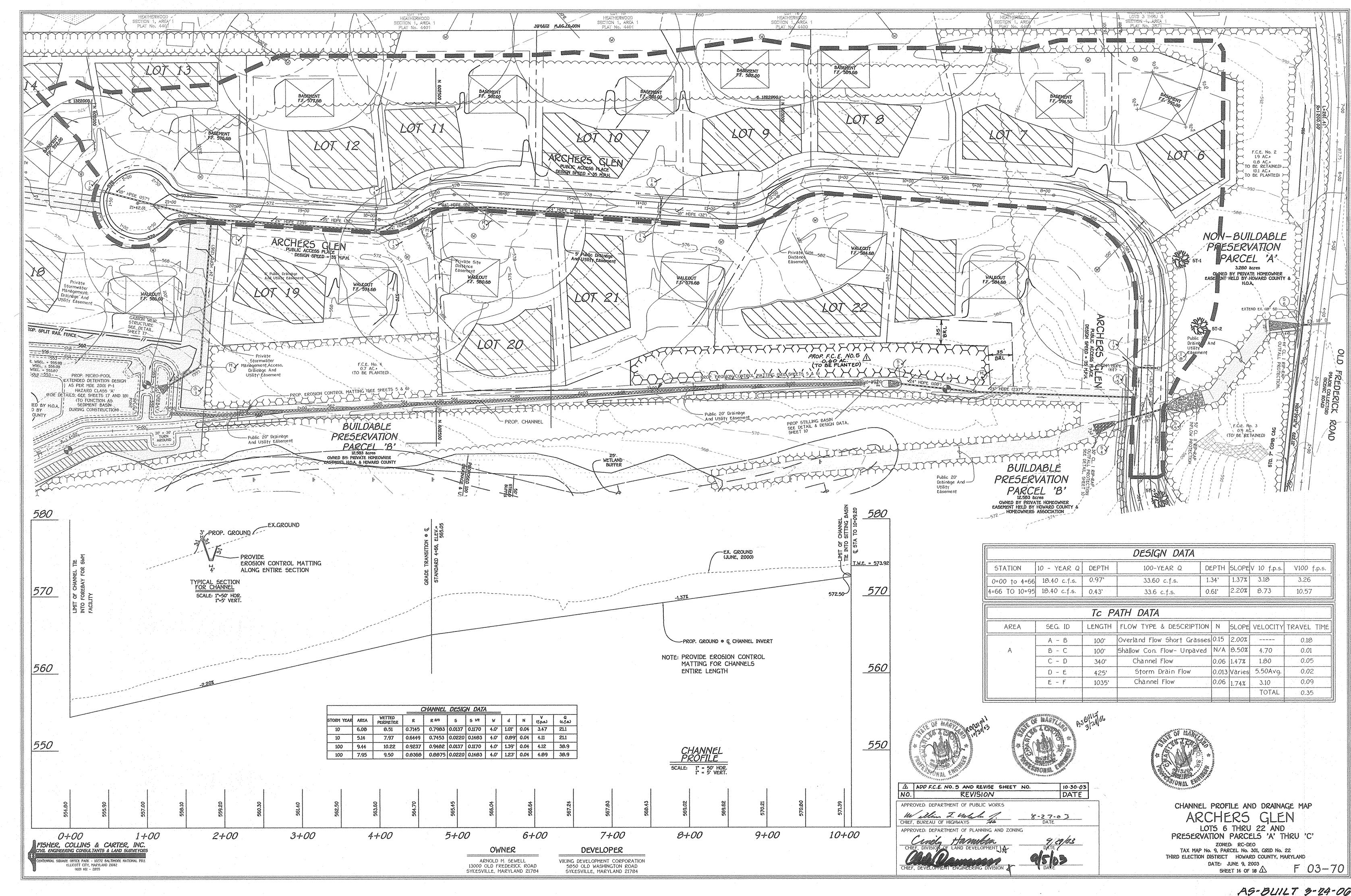
SHEET 13 OF 18 🗥

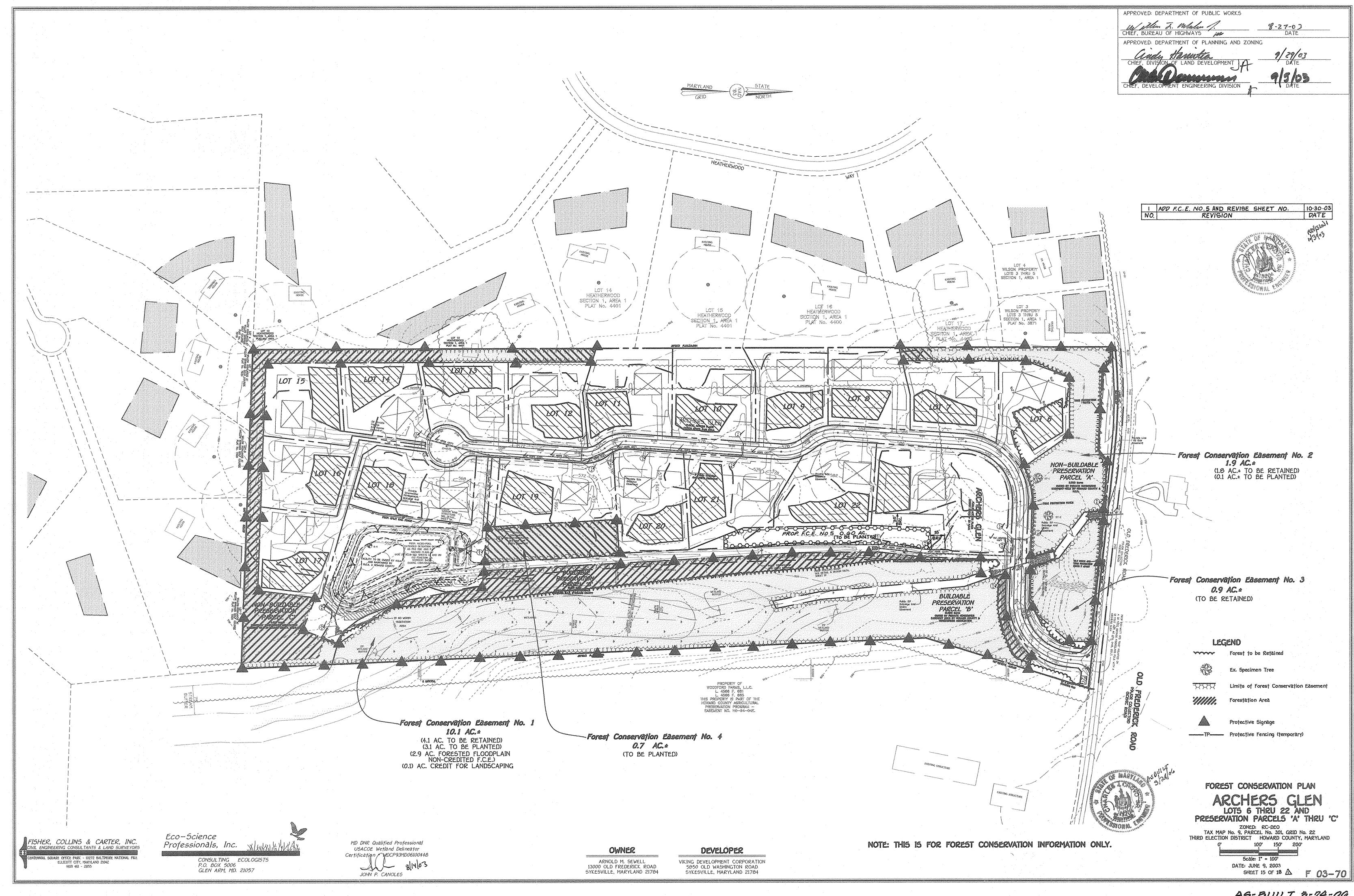
AG-BUILT 3-24-06

al square office park - 10272 baltimore national pike **FLEICOTT CITY, MARYLAND 2104**

FISHER. COLLINS & CARTER. INC.

VIL ENGINEERING CONSULTANTS & LAND SURVEYORS





Planting Notes:

- 1. Multiflora rose control may be required as part of this planting plan.
- 2. Bareroot plant material may be used to offset the cost of multiflora rose removal and maintenance. If bareroot material is used it must be planted in March-April and an anti-desiccant gel should be utilized to protect root systems. Container grown stock is recommended.
- 3. Plants should be flagged to aid on location during maintenance. Plantings should also be planted in rows along contour to facilitate maintenance and removal of invasive and exotic species.

Multiflora Rose Control Note

Multiflora rose is prevalent in certain areas to be afforested. Prior to planting all multiflora rose shall be removed. Removal of the rose may be performed with mowing and herbicide treatments. Physical removal of all top growth following by a periodic herbicide treatment of stump sprouts is recommended. Native tree and shrub species occurring within the rose thickets should be retained wherever possible. Herbicides treatments shall occur on 2 month intervals during the first growing season and once each in the spring and fall for subsequent years. Herbicides used shall be made specifically to address woody plant material and shall be applied as per manufacturers specifications. Care should be taken not to spray planted trees or naturally occurring native tree/shrub seedlings. It is recommended that initiation of rose removal begin at least six months prior to planting.

Planting/Soil Specifications

1. Planting of nursery stock shall take place between March 15th and April 30th. Container stock may be planted September 1-October 30. 2. A twelve (12) inch layer of topsoil shall be spread over all afforestation areas impacted by site grading to assure a suitable planting area. Disturbed areas shall be seeded and stabilized as per general construction plan for project. Planting areas not impacted by site grading shall have no

- 3. All bareroot planting stock shall have their root systems dipped into an anti-desiccant gel prior to planting.
- 4. Plants shall be installed so that the top of root mass is level with the top of existing grade. Backfill in the planting pits shall consist of 3 parts existing soil to 1 part pine fines or equivalent. 5. Fertilizer shall consist of Agriform 22-8-2, or equivalent, applied as per manufacturer's specifications.
- 6. A two (2) inch layer of hardwood mulch shall be placed over the root area of all plantings. 7. Plant material shall be transported to the site in a tarped or covered truck. Plants shall be kept moist prior to planting. 8. All non-organic debris associated with the planting operation shall be removed from the site by the contractor.

Sequence of Construction

1. Plants shall be installed as per Plant Schedule and the Planting/Soil Specifications for the project. 2. Upon completion of the planting, signage shall be installed as per the Forest Retention Area Protection Devices shown on Sheet 2 of the Forest Conservation Plan

3. Plantings shall be maintained and guaranteed in accordance with the Maintenance and Guarantee requirements for project.

Maintenance of Plantings

5. Dead branches will be pruned from plantings.

- 1. Maintenance of plantings shall last for a period of 24 months. 2. All plant material shall be watered twice a month during the 1st growing season. Watering may be more or less frequent depending on weather conditions. During second growing season, once a month during May-September, if needed.

 3. Invasive exotics and noxious weeds will be removed from reforestation areas. Old field successional species will be retained.
- 4. Plants will be examined a minimum two times during the growing season for serious plant pests and diseases. Serious problems will be treated with the appropriate agent.

Guarantee Requirements

1. After one growing season, plant material shall be maintained at 90% survival threshold. A 75 percent survival rate of forestation plantings will be required at the end of the 24 month maintenance period. All plant material below the 75 percent threshold will be replaced at the beginning of the next growing season.

2. The contractor will not be liable for plant loss due to theft or vandalism.

Surety for Forestation

1. The developer shall post a surety (bond, letter of credit) to ensure that reforestation plantings are completed. Upon acceptance of the plantings by the County, the bond shall be released

-	FCE SUMMARY CHART							
	FCE AREAS	A.C.	RETENTION					
	1	10.1	4.1 Ac. RETENTION/3.1 AC. PLANTINGS/NON-CREDITED AREA OF 2.9 Ac. FORESTED FLOODPLAIN AREA					
	2	1.9	1.8 Ac. RETENTION / 0.1 AC. PLANTINGS					
	3	0.9	0.9 Ac. RETENTION					
	4	0.7	0.7 Ac. PLANTINGS					
	5	0.6	O.G AC. PLANTINGS					
	TOTALS	14.2	9.7 Ac. RETENTION (6.8 Ac. N.T.A.) 4.5 AcPLANTINGS					

FOREST CONSERVATION

EASEMENT

UNAUTHORIZED DISTURBANCE OF VEGETATION IS PROHIBITED.

VIOLATORS SUBJECT TO PENALTIES UNDER THE HOWARD COUNTY

FOREST CONSERVATION ACT OF

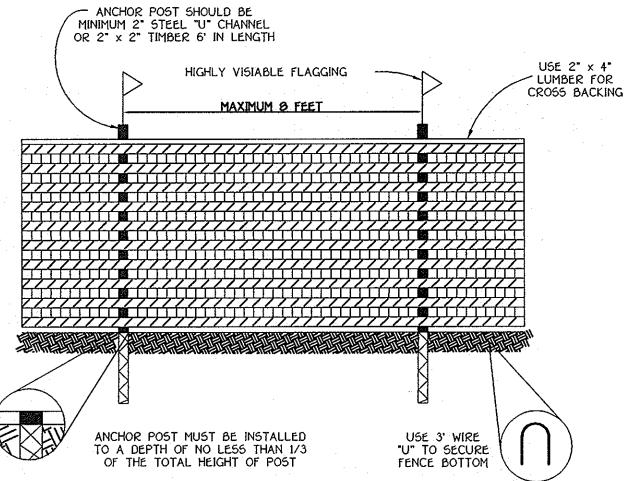
1991.

TREES FOR YOUR

FUTURE

11" MINIMUM

BLAZE ORANGE PLASTIC MESH



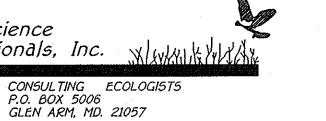
FOREST PROTECTION DEVICE ONLY. RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.

ROOT DAMAGE SHOULD BE AVOIDED. PROTECTIVE SIGNAGE MAY ALSO BE USED. . DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

TREE PROTECTION DETAIL



Eco-Science Professionals, Inc.



MD DNR Qualified Professional USACOE Wetland Delineator Certification NDCP93MD0610044B JOHN P. CANOLES

OWNER ARNOLD M. SEWELL 13000 OLD FREDERICK ROAD SYKESVILLE, MARYLAND 21784

DEVELOPER VIKING DEVELOPMENT CORPORATION 5850 OLD WASHINGTON ROAD SYKESVILLE, MARYLAND 21784

Planting Schedule

FCE Planting Area 1 (3.1 acres) Size Acer rubrum - Red maple Fraxinus pennsylvanica - Green ash 2' - 3' whip Liriodendron tulipifera - Poplar 2' - 3' whip Nyssa sylvatica - Black gum 2' - 3' whip Prunus serotina - Black cherry ** 2' - 3' whip ** Quercus rubra - Red oak 2' - 3' whip 100 Sassafras albidum - Sassafras 2' - 3' whip TOTAL-1,095 TREES

Planting Schedule

FCE Planting Area 2 (0.1 acres)

Qty.	Species	Size	Spacin
5	Acer rubrum - Red maple	2' - 3' whip	**
10	Fraxinus pennsylvanica - Green ash	2' - 3' whip	**
5	Liriodendron tulipifera - Poplar	2' - 3' whip	**
5	Nyssa sylvatica – Black gum	2' - 3' whip	**
10	Prunus serotina – Black cherry	2' - 3' whip	**
5	Quercus rubra - Red oak	2' - 3' whip	**
5	Sassafras albidum – Sassafras	2' - 3' whip	**
TOTAL 45 TR	ees		

FCF Planting Area 4 (0.7 acres)

Qty.	Species	Size	Spacing
40	Acer rubrum - Red maple	2' - 3' whip	**
55	Fraxinus pennsylvanica - Green ash	2' - 3' whip	**
55	Liriodendron tulipifera - Poplar	2' - 3' whip	**
40	Nyssa sylvatica – Black gum	2' - 3' whip	**
30	Prunus serotina - Black cherry	2' - 3' whip	**
10	Quercus rubra - Red oak	2' - 3' whip	**
20	Sassafras albidum - Sassafras	2' - 3' whip	**

** Plantings to be spaced on 11 foot centers, plantings should be installed in rows to facilitate future maintenance. Where possible rows should be made along contour. (1,595 TREES/AC W/TREESHELTER REQUIRED.)

b.t. - branched transplant

	FCE	PLANTING	AREA 5	(0.6 ACRES)		
	QTY	SPECIES			SIZE	
		ACER RUBRUM			2'- 3' WHIP	SPACING **
^	45	FRAXINUS PENN	YSYLVANICA - GA	REENASH	2'-3' WHIP	**
$\Delta\!$	50	LIRIODENDRON TU	JLIPIFERA - PO	PLAR	2'-3' WHIP	**
		NYSSA SYLVATIO			2'-3' WHIP	**
	20	PRUNUS SEROTIN	VA - BLACK CH	ERRY	2'-3' WHIP	
		QUERCUS RUBRA	A - RED OAK	4	2'- 3' WHIP	<i>**</i> **
	15	SASSAFRAS A	ILBIDUM - SAS	SAFRAS	21-3' WHIP	**
	ToTAL=205 TRE	ES				***

A REVISE FCE TO ADD AREA 5 REVISE SURETY INFO PER 11-3-03 DATE REVISION

APPROVED: DEPARTMENT OF PUBLIC WORKS

APPROVED: DEPARTMENT OF PLANNING AND ZONING

A REVISE SHEET NO.

CHIEF, BUREAU OF HIGHWAYS



8-27.03

DATE

FOREST CONSERVATION WORKSHEET VERSION 1.0

FOREST DATA	
	Acres
Gross Area:	40.00
Net Tract Area (NTA):	36.05
Existing Forest (NTA):	12.00
Afforestation Threshold:	7.4
Reforestation Threshold:	9.2
Afforestation Required:	
Forest to be Retained (NTA) in FCE:	6.8
Forest to be "Cleared" (NTA):	5.2
Reforestation Required:	5.5
Onsite Forestation Proposed:	<u> 4.5</u>
Outstanding Forestation Obligation:	<u>1.0</u>

FOREST CONSERVATION NOTES

- Any Forest Conservation Easement (FCE) area shown hereon is subject to protective covenants which may be found in the Land Records of Howard County which restrict the disturbance and use of these areas.
- Forestated areas occurring outside of the FCE shall not be considered part
- of the FCE and shall not be subject to protective land covenants. Limits of disturbance shall be restricted to areas outside the limit of
- There shall be no clearing, grading, construction or disturbance of vegetation in the Forest Conservation Easement, except as permitted by Howard County
- No stockpiles, parking areas, equipment cleaning areas, etc. shall occur within areas designated as Forest Conservation Easements.

temporary fencing or the FCE boundary, whichever is greater.

- Temporary fencing shall be used to protect forest resources during construction. The fencing shall be placed along all FCE boundaries which occur within 15 feet of the proposed limits of disturbance.
- Permanent signage shall be placed 50-100' apart along the boundaries of all areas included in Forest Conservation Easements.
- All FCA calculations shown to the nearest 0.1 acre as per the FCA
- Planting plans, signage, fencing and details for Forest Conservation Easement reforestation areas will be provided on the Forest Conservation Plan.
- The outstanding ECA obligation will be met BY PROVIDING 1.0 AC. AS A FEE-IN-LIEU.
- Forested floodplain area of 2.9 acres exists within an F.C.E. area and is not taking credit towards fulfilling the F.C.E. obligations for this site.



D. NET TRACT AREA=	36.8
LAND USE CATEGORY: RC-DEO	
INFORMATION FOR CALCULATIONS:	
E. AFFORESTATION THRESHOLD	7.4 9.2
EXISTING FOREST COVER: G. EXISTING FOREST COVER (EXCLUDING FLOODPLAIN)= H. AREA OF FOREST ABOVE AFFORESTATION THRESHOLD: SREAK EVEN POINT:	12.0 4.6 2.8
J. FOREST RETENTION ABOVE THRESHOLD WITH NO MITIGATION= K. CLEARING PERMITTED WITHOUT MITIGATION= PROPOSED FOREST CLEARING:	9.8 2.2
L. TOTAL AREA OF FOREST TO BE CLEARED= M. TOTAL AREA OF FOREST TO BE RETAINED=	<u>5.2</u> _6.8
PLANTING REQUIREMENTS: N. REFORESTATION FOR CLEARING ABOVE CONSERVATION THRESHOLD= P. REFORESTATION FOR CLEARING BELOW CONSERVATION THRESHOLD= Q. CREDIT FOR RETENTION ABOVE CONSERVATION THRESHOLD= R. TOTAL REFORESTATION REQUIRED= T. TOTAL REFORESTATION AND AFFORESTATION REQUIRED=	0.7 4.8 0.0 5.5 0.0 5.5

FOREST SURETY NOTES

BASIC SITE DATA: A. TOTAL TRACT AREA....

B. AREA WITHIN 100 YEAR FLOODPLAIN

C. AREA TO REMAIN IN AGRICULTURAL PRODUCTION=

1. THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOREST CONSERVATION ACT. THIS FOREST OBLIGATION IS FULFILLED BY PROVIDING 15.9 ACRES OF FOREST CONSERVATION AS FOLLOWS: a). ON-SITE AFFORESTATION (PLANTING) = 4.5 Ac b). ON-SITE RETENTION = c). FEE -IN-LIEU = d). ON-SITE NON-CREDITED FCE = 1.0 AC.

2.9 Ac 2. THE TOTAL FOREST CONSERVATION SURETY AMOUNT OF \$179,031.60 MINUS A CREDIT OF \$2,178.00 YIELDS A TOTAL OF \$176,853.60 DOLLARS AND IS POSTED WITH THE DEVELOPER'S AGREEMENT AND IS BASED ON THE FOLLOWING: a). ON-SITE AFFORESTATION (PLANTING) = \$ 98,010.00

(4.5 Ac x 43,560 Sq.Ft/Ac x \$0.50) b). ON-SITE RETENTION =

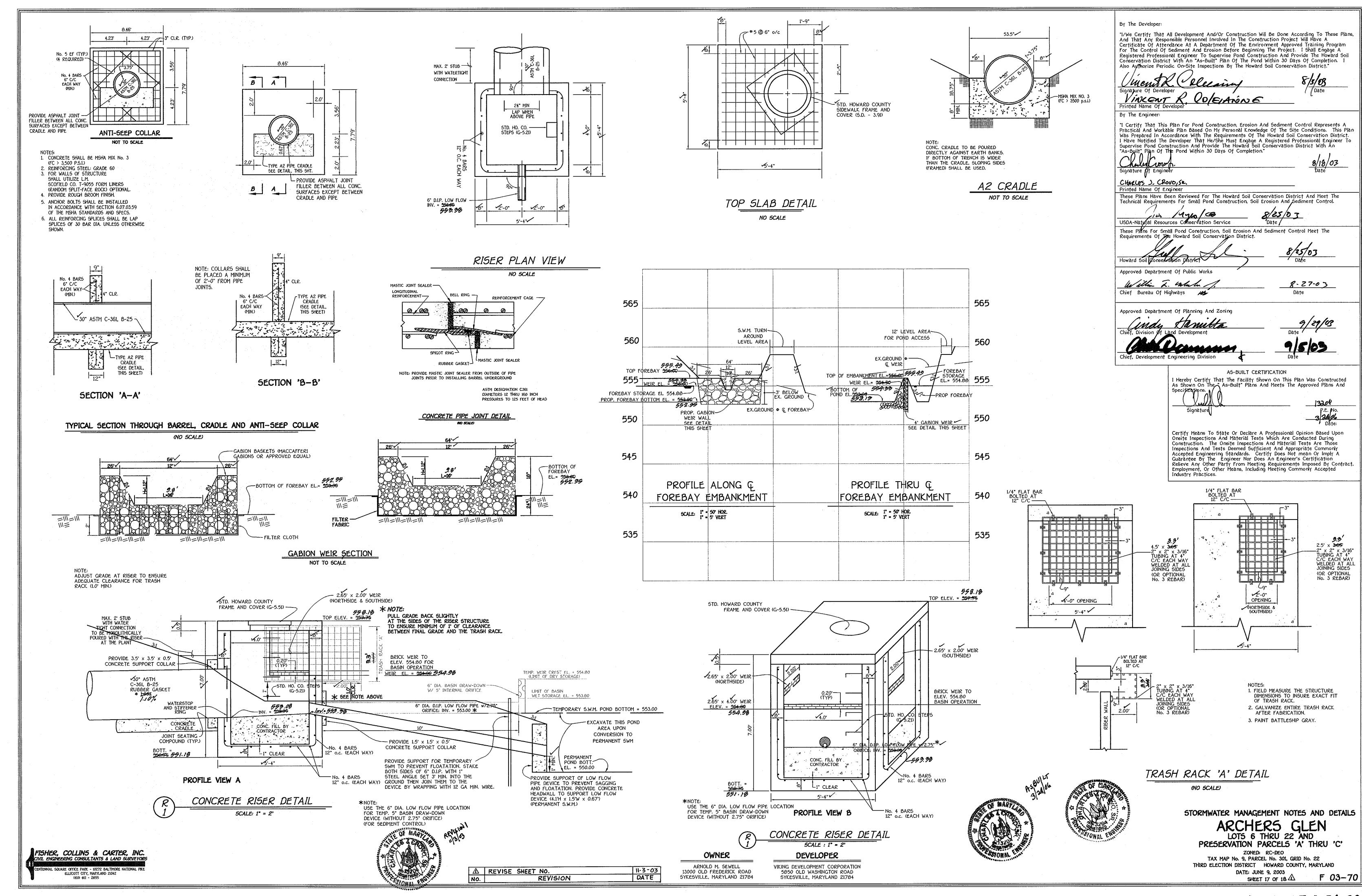
(6.80 Ac x 43,560 Sq.Ft/Ac x \$0.20) c). FEE-IN-LIEU = \$ 21,780.00 (1.0 AC. x 43560 SQ.FT./AC. X \$ 0.50)

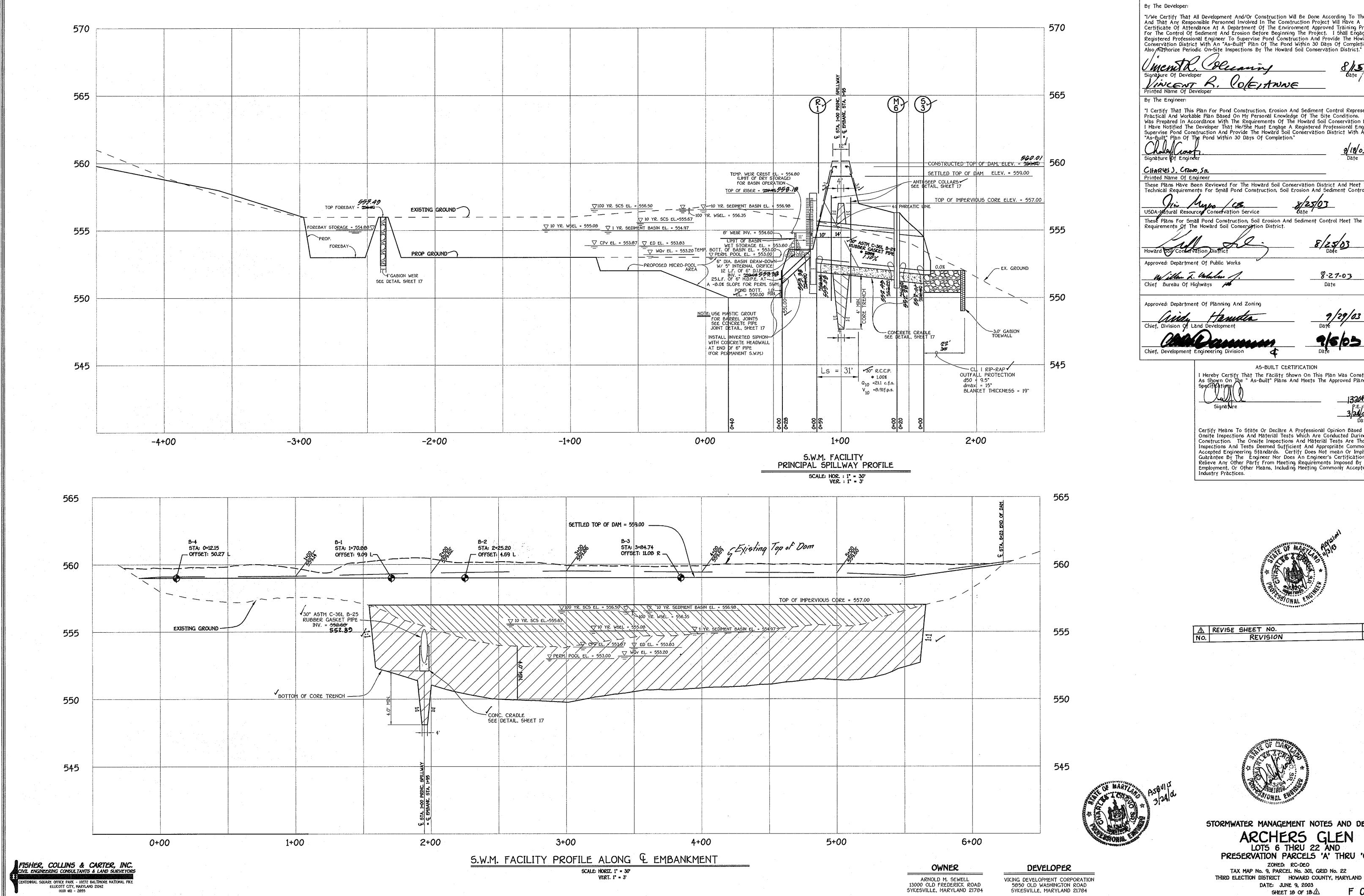
FOREST CONSERVATION NOTES & DETAILS

LOTS 6 THRU 22 AND

PRESERVATION PARCELS 'A' THRU 'C' ZONED: RC-DEO TAX MAP No. 9, PARCEL No. 301, GRID No. 22

THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND DATE: JUNE 9, 2003 SHEET 16 OF 18 🕰





"I/We Certify That All Development And/Or Construction Will Be Done According To These Plans.

And That Any Responsible Personnel Involved In The Construction Project Will Have A

Certificate Of Attendance At A Department Of The Environment Approved Training Program

For The Control Of Sediment And Erosion Before Beginning The Project. I Shall Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion. I Also Authorize Periodic On-Site Inspections By The Howard Soil Conservation District."

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These Plans Have Been Reviewed For The Howard Soil Conservation District And Meet The

8-27-03

8/18/03

AS-BUILT CERTIFICATION

Hereby Certify That The Facility Shown On This Plan Was Constructed As-Built" Plans And Meets The Approved Plans And

Certify Means To State Or Declare A Professional Opinion Based Upon Onsite Inspections And Material Tests Which Are Conducted During Construction. The Onsite Inspections And Material Tests Are Those Inspections And Tests Deemed Sufficient And Appropriate Commonly Accepted Engineering Standards. Certify Does Not mean Or Imply A Guarantee By The Engineer Nor Does An Engineer's Certification Relieve Any Other Party From Meeting Requirements Imposed By Contract, Employment, Or Other Means, Including Meeting Commonly Accepted Industry Practices.



11-3-03 DATE



STORMWATER MANAGEMENT NOTES AND DETAILS LOTS 6 THRU 22 AND PRESERVATION PARCELS 'A' THRU 'C'

ZONED: RC-DEO
TAX MAP No. 9, PARCEL No. 301, GRID No. 22 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND

F 03-70