CROSS-SECTIONS & TRAFFIC CONTROL PLAN

FINAL ROAD CONSTRUCTION, GRADING AND STORMWATER MANAGEMENT PLAN

RIVERCREST

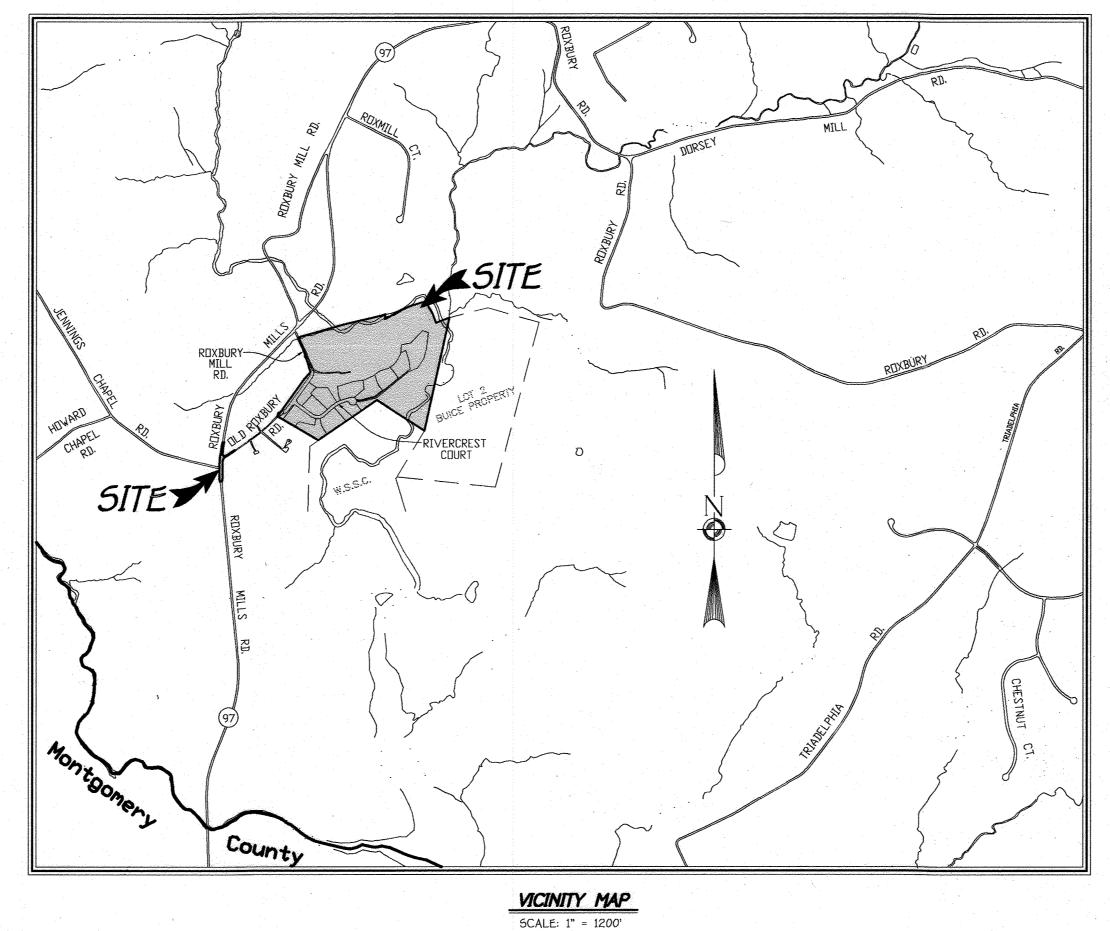
LOTS 1 THRU 10, BUILDABLE PRESERVATION PARCEL 'A', NON-BUILDABLE PRESERVATION PARCEL 'B' & 'C' AND NON-BUILDABLE BULK PARCEL 'D' (A RESUBDIVISION OF LOT 1, "BUICE PROPERTY", PLAT Nos. 5426-5429) ZONED: RC-DEO

CLASSIFICATION	DESIGN SPEED	R/W WIDTH
UBLIC ACCESS PLACE	25 M.P.H.	VARIES
UBLIC ACCESS PLACE	25 M.P.H.	40'
-	UBLIC ACCESS PLACE	UBLIC ACCESS PLACE 25 M.P.H.

I NATI I	C CONT	NOL .	wells.	
ROAD NAME	C.L. 5TA.	OFFSET	POSTED SIGN	SIGN CODI
RIVERCREST COURT	0+30	22'L	5TOP	R1-1
RIVERCREST COURT	1+00	12'R	SPEED LIMIT 25	R2-1
				-
				7.

HOWARD COUNTY HEALTH DEPARTMENT GENERAL NOTES

- THIS PROPERTY IS LOCATED WITHIN 2500 FEET OF THE TRIADELPHIA RESERVOIR. COMAR 26.04.02.04K STATES; "A LOT LOCATED WITHIN 2500 FEET OF THE NORMAL WATER LEVEL OF EXISTING OR PROPOSED WATER SUPPLY RESERVOIRS, MEASURED HORIZONTALLY OR WITHIN A 5000-FOOT RADIUS UPSTREAM FROM THE WATER INTAKE ON STREAMS USED AS POTABLE WATER SUPPLY SOURCES AND A 5000-FOOT RADIUS OF WATER INTAKE LOCATED WITHIN A RESERVOIR SHALL HAVE AN AREA OF NOT LESS THAN 2 ACRES WITH A MINIMUM WIDTH OF 175 FEET...". A VARIANCE FROM MDE TO THIS SECTION OF THE REGULATION WAS GRANTED BY MDE ON MARCH 11, 2003 SUBJECT TO THE FOLLOWING
- 2. THE SEWAGE EASEMENTS SHOWN CAN NOT BE ADJUSTED WITHOUT ADDITIONAL PERCOLATION



TAX MAP NO. 21 GRID NO. 20 PARCEL NO. 84

33. STORMWATER MANAGREMENT FOR LOTG WILL BE PROVIDED IN ACCORDANCE WITH THE M.D.E. STORM water design manual, valmes 1 & 17, bevised 2009. THIS KAN PROPOSES STORMKATER MANAGEMENTANT BY THE USE OF 3 (M-5) DRY WELLS AND TWO AREAS OF NON-ROOPTOP DISCONNECTION CREDIT (N-2). ALL SUM BACILITIES ARE TO BE MAINTAINED BY THE

34, STORMWATER MANAGEMENT FOR LOT 2 WILL BE PROVIDED IN ACCORDANCE WHILTHE MIDE STORM WATER DESIGN MANUAL, VOLUMES I II, REVISED 2009. iths plan proposes stormwater management by THE USE OF A (M-G) BIO-RETEXTION FACILITY TO BE MAINTAINED BY THE HOMEOWNER.

STORMWATER MANAGEMENT FOR LOT 4 WILL BE PROMPED IN ACCORDANCE WITH THE M.D.E. STORM WATER DESIGN MANUAL. VOLUMES I II. REMISSO 2009. THIS RAN PROPOSES STORMWATER MANAGEMENT

IN ACCORDANCE WITH THE MIDE STORMWHER DESIGN MANUAL VOLUMES I + II, REVISED 2009. THIS FLAI PROPOSES STORMWATER MANUALENTENT BY THE USE OF A (M-G) MICRO-BIORETENTION AND 4 (M-5) DRYMELL PACILITIES TO BE MAINTAINED BY THE

APPROVED: DEPARTMENT OF PUBLIC WORKS

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

CCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN

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

 ✓ HOWARD COUNTY MONUMENT NO. 21EA
 N 582,567.123 E 1,300,165.657
 6. APEO TRAFFIC STUDY PREPARED BY THE TRAFFIC GROUP, INC. DATED NOV

A. SUBDIVISION NAME: RIVERCREST D. ZONING: RC-DEO E. ELECTION DISTRICT: FOURTH

G. TOTAL AREA OF 25% OR GREATER SLOPES: 2.28 AC. I. NO. OF BUILDABLE LOTS: 10 J. NO. OF OPEN SPACE LOTS: 0

K. NO. OF NON-BUILDABLE PRESERVATION PARCELS: 2 N. AREA OF BUILDABLE LOTS: 11.430
O. AREA OF OPEN SPACE LOTS: 0.00 AC.# AREA OF NON-BUILDABLE PRESERVATION PARCELS: 0.861 AC.±

2. AREA OF BUILDABLE PRESERVATION PARCEL: 34.439 AC.+ TOTAL AREA OF ROADWAY TO BE DEDICATED: 2.074 AC PREVIOUS FILE NOS .: 5 01-16, P 02-20 & WP 05-23 , F-19-00 8. NO CEMETERIES EXIST ON THE PROPERTY.

9. ALL FILL AREAS WITHIN ROADWAYS AND UNDER STRUCTURES SHALL BE COMPACTED TO A MINIMUM OF 95% COMPACTION OF AASHTO T-180. 10. THE FOREST CONSERVATION EASEMENT(S) HAS BEEN ESTABLISHED TO FULFIL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY FOREST CONSERVATION ACT. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED APPROVED ROAD CONSTRUCTION DRAWING. HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF

CREDITS AREAS FOR S.W.M. COMPUTATIONS: NATURAL AREA STORMWATER MANAGEMENT PROVIDED IN ACCORDANCE WITH HOWARD COUNTY AND MARYLAND 378 SPECIFICATIONS. RECHARGE VOLUME WILL BE PROVIDED THROUGH THE USE OF DRY SWALES.

WATER QUALITY AND CHANNEL PROTECTION VOLUME WILL BE PROVIDED BY A MIRCO-POOL POND.

5. FOR FLAG OR PIPESTEM LOTS, REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE IS TO BE PROVIDED AT THE JUNCTION OF THE FLAG OR PIPESTEN

> Occupancy To Ensure Safe Access For Fire And Emergency Vehicles Per The Following (Minimum) Requirements: a) Width - 12 Feet (14 Feet Serving More Than One Residence): b) Surface - Six (6") Inches Of Compacted Crusher Run Base With Tar And Chip Coating. (1 -1/2" Minimum): c) Geometry - Maximum 15% Grade, Maximum 10% Grade Change Ar 45-Foot Turning Radius;

> d) Structures (Culverts/Bridges) - Capable Of Supporting 25 Gross Tons (H25-Loading): e) Drainage Elements - Capable Of Safely Passing 100 Year Flood With No More Than 1 Foot Depth Over Surface: f) Structure Clearances - Minimum 12 Feet:

a) Maintenance - Sufficient To Ensure All Weather Use 16. WETLAND AND FOREST STAND DELINEATION INFORMATION WAS TAKEN FROM REPORTS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. DATED NOV. 1999 AND APPROVED LINDER 5 01-16. 17. SOILS INFORMATION TAKEN FROM SOIL MAP NO. 17, SOIL SURVEY,

HOWARD COUNTY, MARYLAND, JULY 1968 ISSUE. 18. THIS PROJECT IS SUBJECT TO THE 4th EDITION OF THE HOWARD COUNTY SUBDIVISION REGULATIONS AND TO THE ZONING REGULATIONS AS AMENDED BY COUNCIL BILL 50-2001. 19. SUBJECT PROPERTY ZONED RC-DEO PER 10/16/93 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 HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. TOTAL AREA OF 25% OR GREATER SLOPES = 2.28 AC.+ 21. PRESERVATION PARCEL 'A' SHALL BE PRIVATELY OWNED AND MAINTAINED AND ENCUMBERED WITH AN EASEMENT AGREEMENT WITH THE HOWARD COUNTY AGRICULTURAL LAND PRESERVATION PROGRAM, NON-BUILDABLE

PRESERVATION PARCEL 'B' SHALL BE PRIVATELY OWNED AND MAINTAINED AND ENCUMBERED WITH AN EASEMENT AGREEMENT WITH HOWARD COUNTY, MARYLAND AND RIVERCREST HOMEOWNER'S ASSOCIATION, INC. NON-BUILDABLE PRESERVATION PARCEL 'C' SHALL BE PRIVATELY OWNED AND MAINTAINED BY RIVERCREST HOMEOWNER'S ASSOCIATION INC. AND ENCUMBERED WITH AN EASEMENT AGREEMENT WITH HOWARD COUNTY, MARYLAND. 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. "Non-Buildable Preservation Parcel 'C' To be Privately Owned And Maintained By H.O.A. And The Easement Holder Shall Be Howard County, Maryland. This Agreement Prohibits Further Subdivision Of The Parcels, Outlines The Maintenance Responsibilities Of Their Owners And Enumerates The Uses Permitted On The Parcels."

22. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE WETLANDS, STREAM OR THEIR REQUIRED BUFFERS EXCETT PER NOTES 26 228 below. See also Note 32.

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 THE FOREST CONSERVATION SURETY AMOUNT WILL BE \$105,415.00.

24 THE LANDSCAPE SURFTY IN THE AMOUNT OF \$21.750,00 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.

25. EXISTING SEPTIC FIELD LOCATED ON PRESERVATION PARCEL 'A' WILL REMAIN ALONG WITH THE TWO EXISTING FARM STRUCTURES. THESE TWO STRUCTURES WILL BE UTILIZED AS A FARM TENANT HOUSE AND FARMING OPERATION USES. 26. IN ACCORDANCE WITH SECTION 16.116(a)(4) & 16.115.d., FLOODPLAIN AND WETLANDS NEED NOT BE DELINEATED IN CLUSTER SUBDIVISIONS THE WETLANDS AND BUFFERS WILL NOT BE IMPACTED BY THE PROPOSED LOTS OR

DEVELOPMENT EXCEPT ALONG THE EXISTING 30 FOOT PUBLICLY OWNED AND MAINTAINED ROAD RIGHT-OF-WAY (ROXBURY MILL ROAD) LOCATED NEAR THE NORTHERN SITE ENTRANCE. 27. TENTATIVE APPROVAL OF THE SKETCH PLAN (S-01-16) IS GRANTED, SUBJECT TO COMPLIANCE WITH THE REQUIREMENTS OF COMAR 26.04.02.04K. SINCE THIS PROJECT IS LOCATED WITHIN 2,500 FEET OF THE NORMAL WATER LEVEL OF THE EXISTING TRIADELPHIA RESERVOIR. THE MINIMUM LOT SIZE SHALL BE 2 ACRES. THE DENSITY FOR THIS PROJECT WILL YIELD AN AVERAGE LOT SIZE OF 51.1 AC./12 LOTS = 4.258 ACRES. THE 12 UNITS ARE THE "BY-RIGHT"

YIELD AND PER SECTION 104.F.L.c.11, THE PROJECT IS ENTITLED TO A BONUS LOT FOR A TOTAL OF 13 LOTS. ALSO PER ZONING, SECTION 106.B.2.b. THIS PROJECT IS NOT ELIGIBLE TO BE DENSITY-RECEIVING SINCE IT IS LOCATED WITHIN 2500 FEET OF THE NORMAL WATER LEVEL OF A WATER SUPPLY RESERVOIR. 28. THE HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING HAS DETERMINED THAT DISTURBANCE TO ENVIRONMENTAL AREAS FOR THE PURPOSE OF THE NORTHERN ROAD CROSSING TO BE A NECESSARY DISTURBANCE

IN ACCORDANCE WITH SECTION 16.116.c. OF THE SUBDIVISION REGULATIONS. 29. BULK PARCEL 'D' RESERVES THE RIGHT TO BE FURTHER SUBDIVIDED INTO A MAXIMUM OF TWO (2) ONE ACRE CLUSTER LOTS. 30. THIS PROPERTY IS SUBJECT TO BA CASE NO. BA-02-69C FOR A CONDITIONAL USE FOR THE EXISTING FARMHOUSE AND

OFFICE TO BE USED INSTEAD AS A TENANT HOUSE AND WAS APPROVED BY HOWARD COUNTY. Conditions of approval for BA Case No. 02-69C are as follows: 1. The petitioner must obtain a building permit for the construction of the new dwelling on the property within eight years of the date of this decision and order.

2. The petitioner must commence the use of the conditional use within two years after the building permit is issued. 31. PRESERVATION PARCEL 'A' IS ENCUMBERED BY AN AGRICULTURAL LAND PRESERVATION FASEMENT HELD BY THE HOWARD. COUNTY AGRICULTURAL LAND PRESERVATION PROGRAM AND IS RESTRICTED BY AN ACCOMPANYING DEED OF PRESERVATION

GRADING AND REMOVAL OF VEGETATION WITHIN EXISTING STEEP SLOPES ADJACENT TO THE EAST SIDE OF LOT 2.

ENUMERATES PERMITTED USES AND PROHIBITS RESUBDIVISION OF THE PARCEL 32. A WAIVER PETITION (WP 05-23) FOR THIS PROPERTY WAS APPROVED ON NOVEMBER 5, 2004 FROM SECTION 16.116.b.1 TO ALLOW

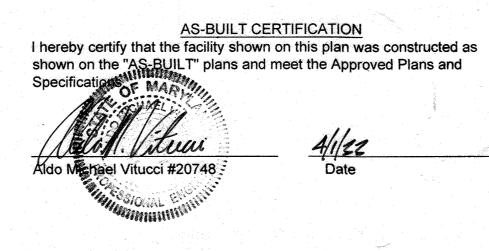
EASEMENT. THE EASEMENT, ENTERED INTO BY THE OWNERS, OUTLINES MAINTENANCE RESPONSIBILITIES OF THE PARCEL OWNER,

LOTS 1 THRU 10. BUILDABLE PRESERVATION PARCEL 'A' NON-BUILDABLE PRESERVATION PARCEL 'B' & 'C' AND NON-BUILDABLE BULK PARCEL 'D'

(A RESUBDIVISION OF LOT 1, "BUICE PROPERTY", PLAT Nos. 5426-5429)

ZONED: RC-DEO TAX MAP NO. 21 GRID NO. 20 PARCEL NO. 84 FOURTH FLECTION DISTRICT HOWARD COUNTY, MARYLAND

FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND **AS-BUILT CERTIFICATION** I hereby certify that the facility shown on this plan was constructed as



THE INSTRUMENTS USED IN PERFORMING AS-BUILT SURVEY 10 SECOND ROBOTIC TOTAL STATION & PRISM

4 ADD GENERAL NOTE 36 3 ADD GENERAL NOTE 35 2 ADD GENERAL NOTE 34 6/19/1 1 ADD GENERAL NOTE 33

OWNER Mr. Robert Preston Buice 21400 New Hampshire Avenue Brookeville, Maryland 20833

DEVELOPER Rivercrest, LLC 21400 New Hampshire Avenue Brookeville. Maryland 20833

6.21.05

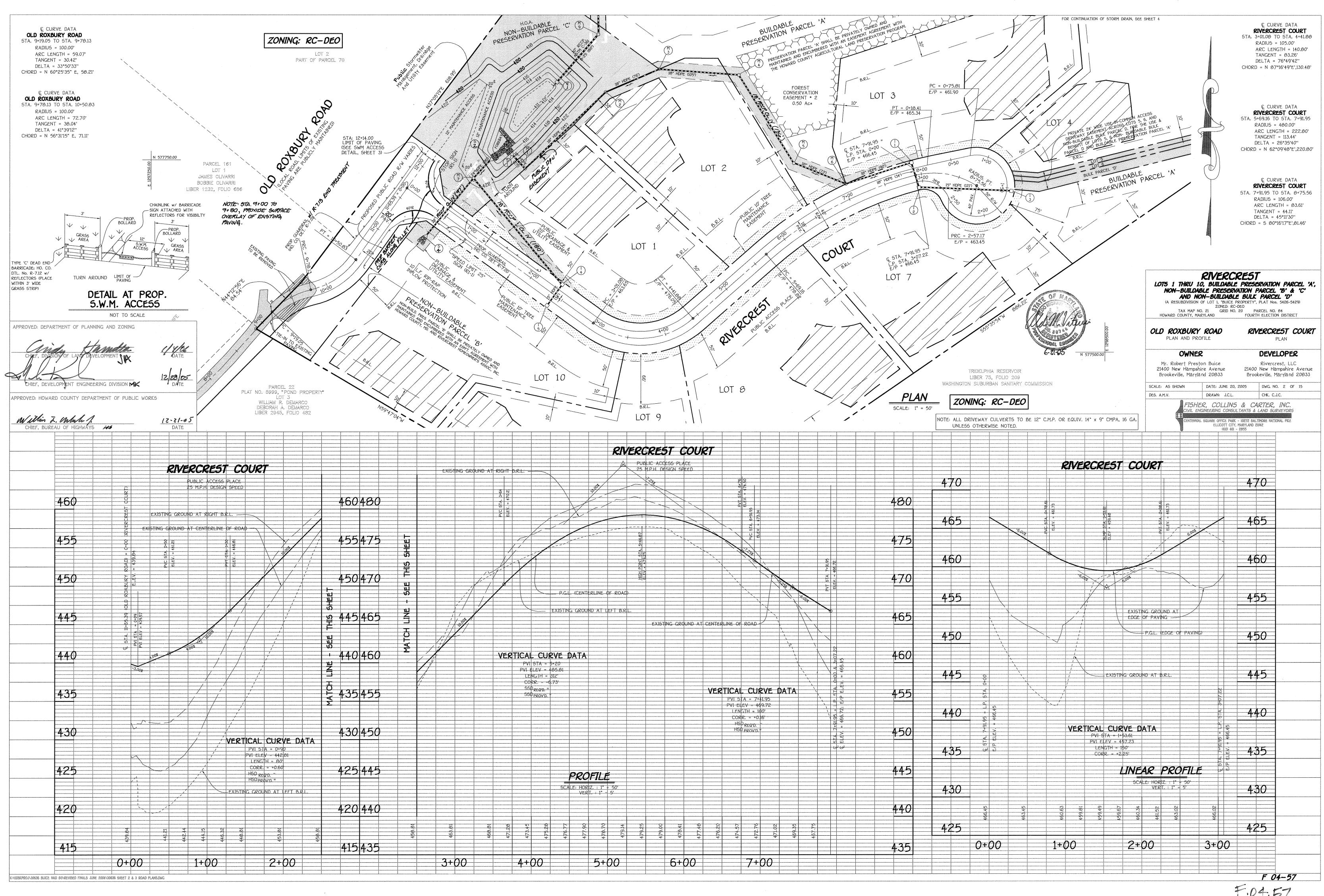
ELLICOTT CITY, MARYLAND 21042

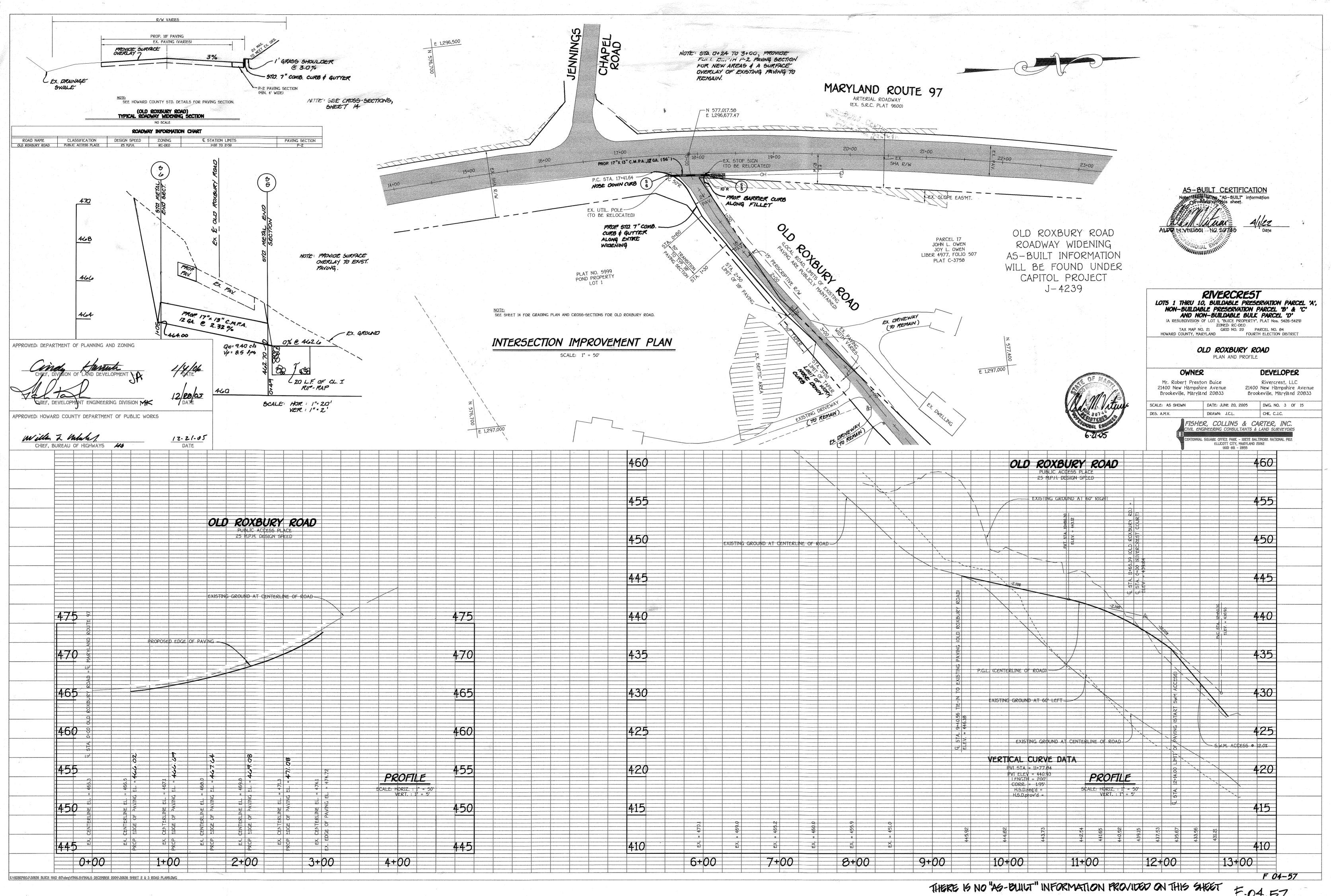
NSDSKPROJN30636 BUICE NAD 83\dwg\FINAL5\REVISED FINALS DECEMBER 2004\30636 SHEET I TITLE SHEET.DWG

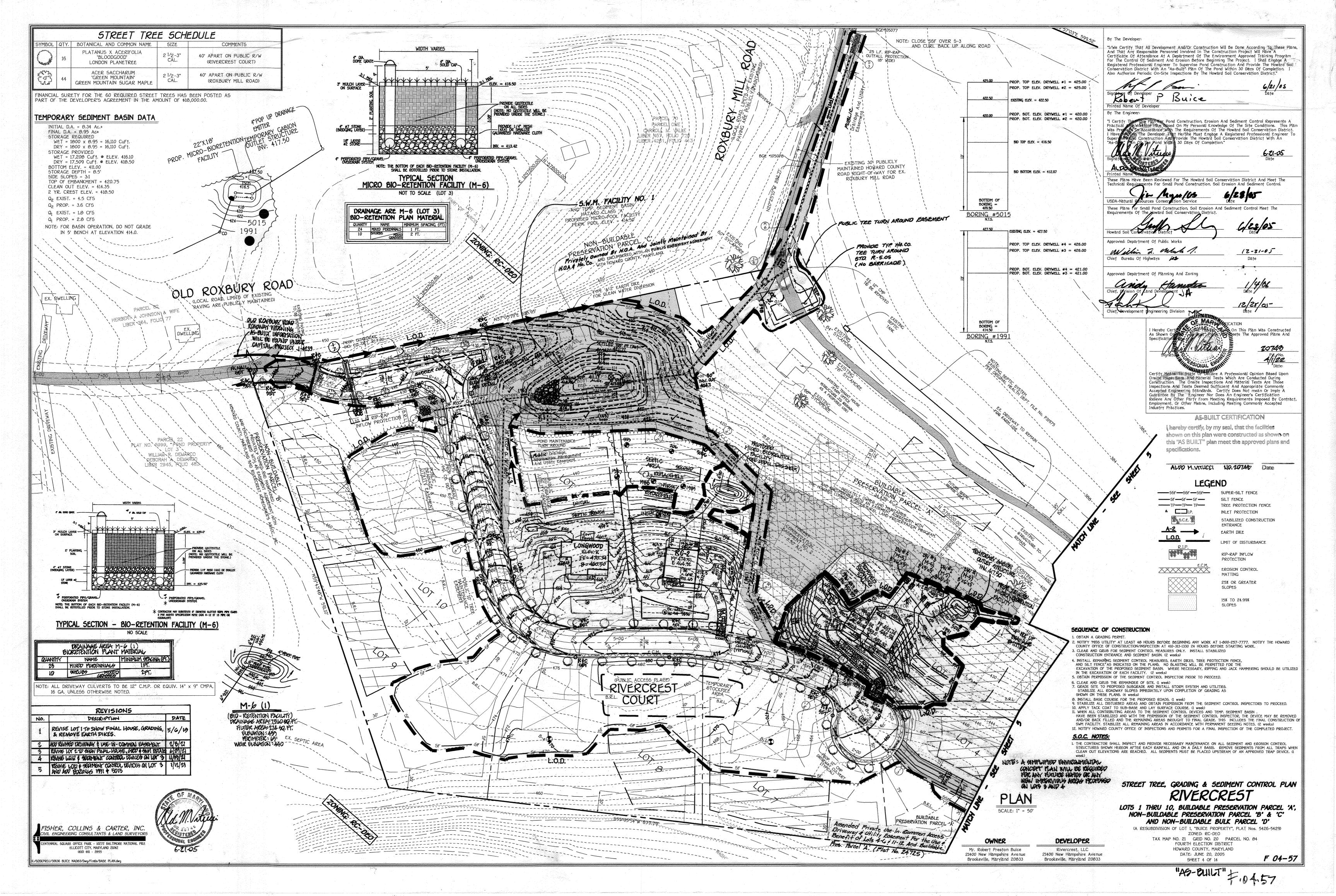
FISHER. COLLINS & CARTER. INC.

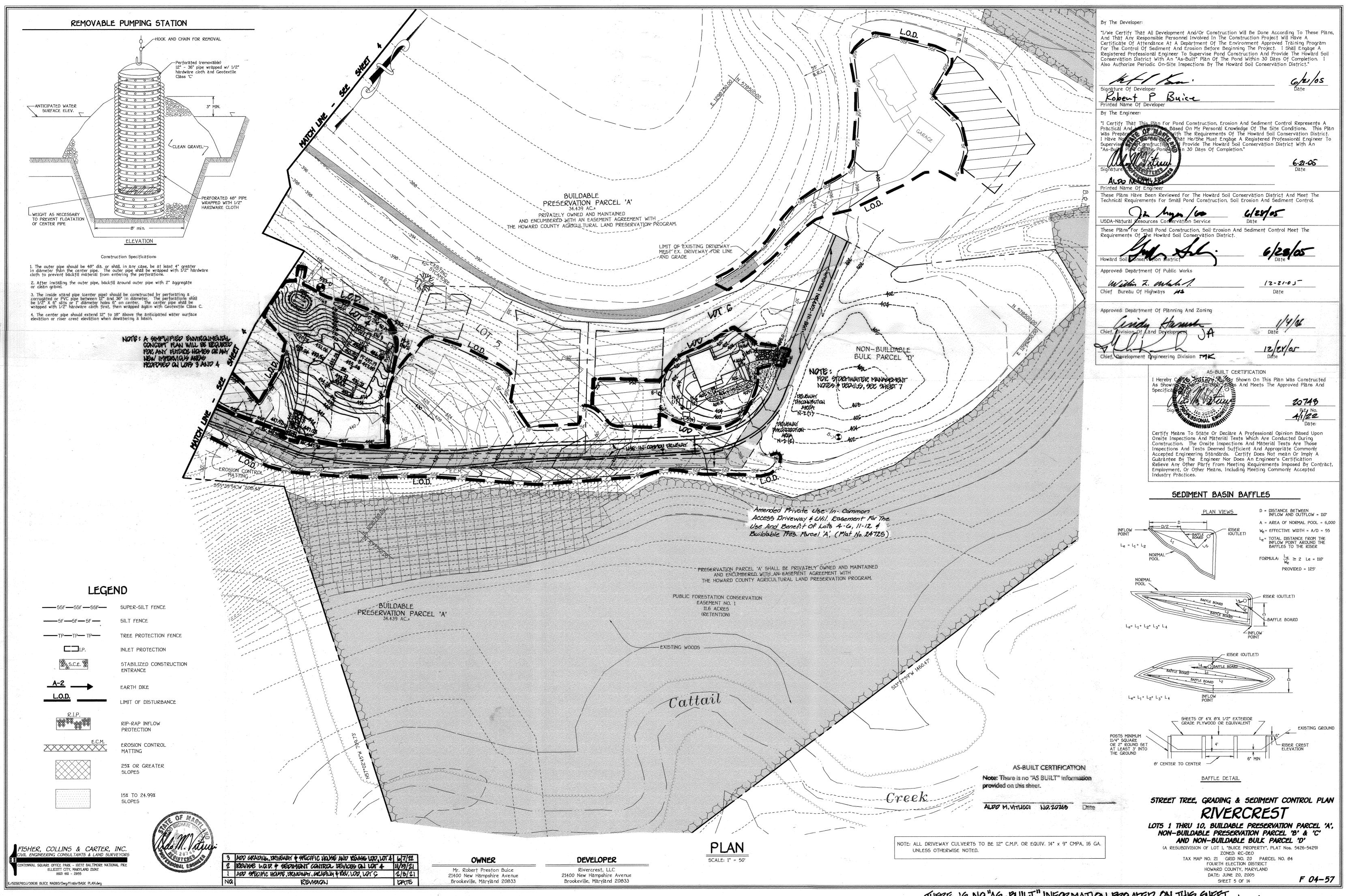
"AG-BUILT" +.04.57

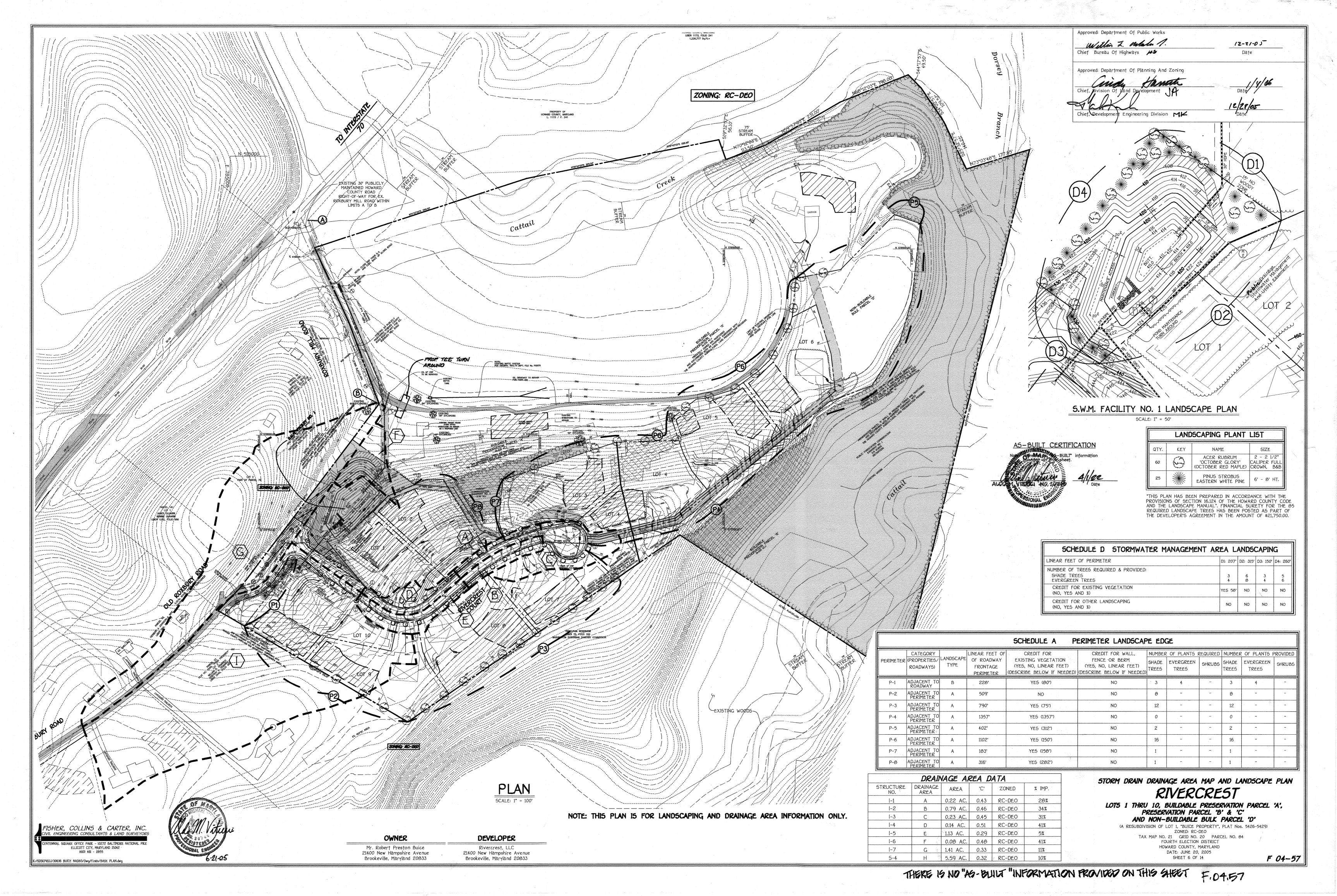
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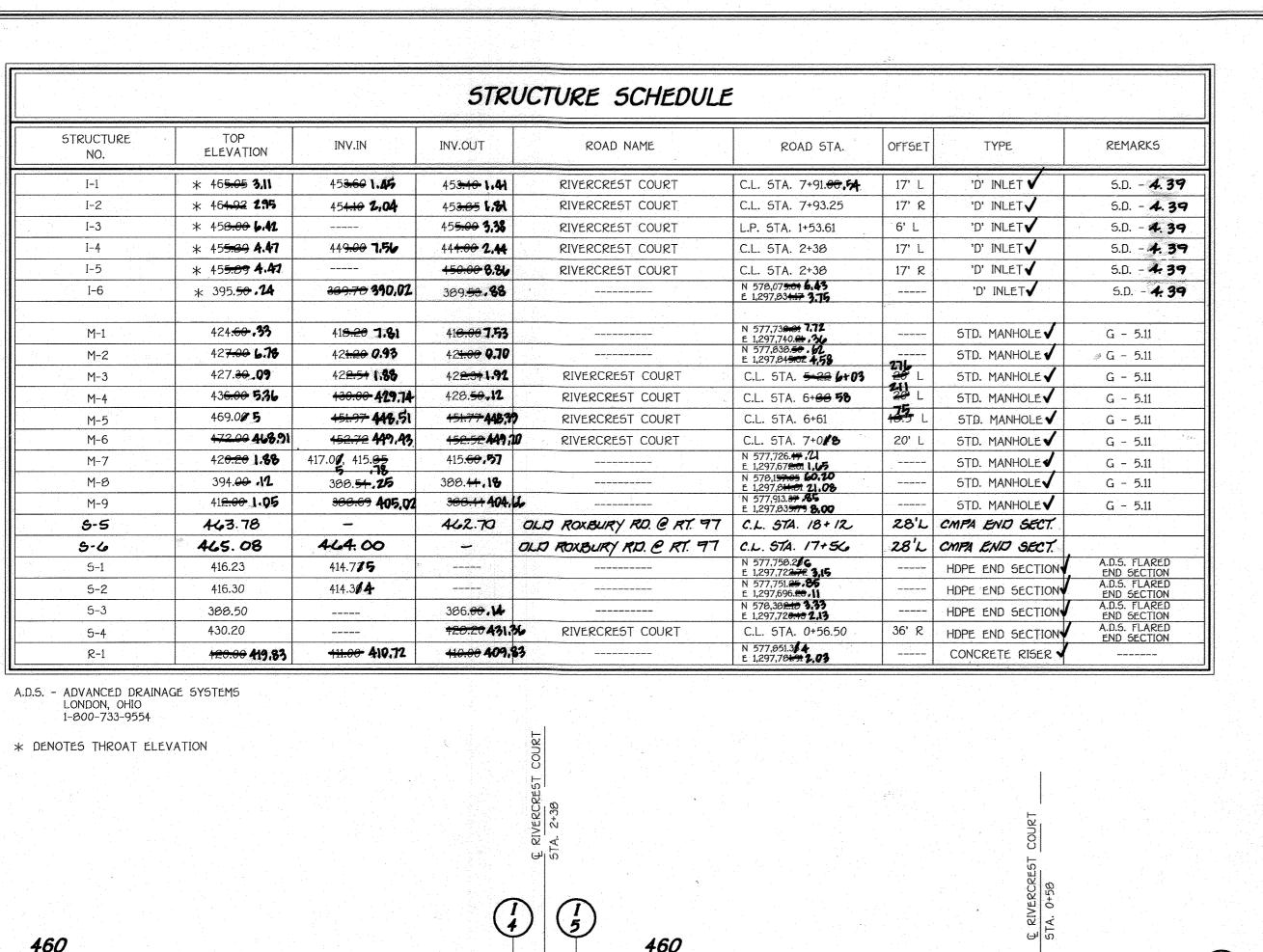


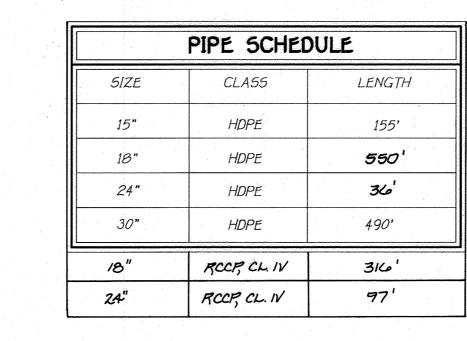


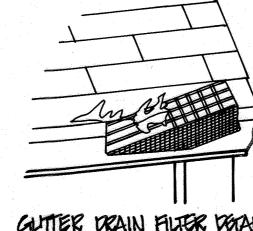












GLITTER DRAIN FLITER DETAIL NOT TO SUALE

OPERATION & MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED DISCOUNECTION OF NON-ROOFTOP RUNOPF (N-2)

1. MAINTENANCE OF AREAS RECEIVING DISCONNECTION RUNOFF IS GENERALLY NO DIFFERENT THAN THAT REQUIRED FOR OTHER LAWN OR LANDSCAPED AREAS, THE AREAS RECEIVING RUNOFF SHOULD BE PROTECTED FROM FUTUR COMPACTION OR DEVELOPMENT OF IMPERVIOUS AREA IN COMMERCIAL ARE FOOT TRAFFIC GHOLD BE DECOURAGED AS WELL,

DRY WELL CHART

LOTG 1 630 50.47. GO CLIFT. 84 CLIFT. 100% 105' x 5' x 4'

LOT C 2 811 92, FT. 78 CLI.FT. 84 CLI.FT. 100% 10.5' x 5' x 4'

LOT G 3 482 50.17. 48 CU.PT. 86 CU.FT. 100% 9' x 6' x 4'

	APPRO	VED: DE	PART	MENT OF PL	ANNING AND ZONIN	G		
LX D URE IRBS	CHIE	, DIVISI	BN OI	HAND DEV	ELOPMENT JA		1/4/c6	
	CHIEF	h+)PMEN	IT ENGINEER	ING DIVISION MK		12/28/05 PATE	
	===1		, (REVISIONS			
		NO.			DESCRIPTION			DATE
× W×1	,	1	ADD	WM NOTER	& DETAILS			1/8/11
		2	ADD	SWM PRACTI	CES FOR LOT 2			6/29/21
	AT III.							

3 ADD SUM PRACTICES & DRY WELL CHART FOR LOT 4

4 ADD GWM PRACTICES & DOST WELL CHART FOR LOT 3

12-21-05

6/7/12

APPROVED: DEPARTMENT OF PUBLIC WORKS

Willin 2. alul 1.

CHIEF, BUREAU OF HIGHWAYS MS

* AREA OF TREATMENT EXCESSOR REQUIRED

CRUFF AREA	PROPOSED PAVING
QUALTO WIDTH OF PAVING	1245
5% SLORE YUK.	2%40%
5% 3010 E	PI PAUN

TYPICAL DRIVEWAY SECTION FOR NON-ROOFTOP DISCONNECT CREDIT NOT TO SCALE

OWNER

Mr. Robert Preston Buice

21400 New Hampshire Avenue

Brookeville, Maryland 20833

OPERATION & MAINTENANCE 9CHEQUE FOR DRYWELLS (M-5)

- A. THE OWNER SHALL INSPECT MONITORING WELLS AND STRUCTURES ON A QUARTERLY BUSIS AND AFFER EVERY HEAVY STORM EVENT, B. THE OWNER SHALL RECORD THE WATER LEVELS AND SEGMENT BUILD UP IN THE MONITORING WELLS OVER A PERIOD OF SCHOOL DAYS TO INSURE TRENION DRAINAGE.
- TO INSURE TRENCH DRAINAGE,

 C. THE OMNER SHALL MAINTAIN A LOG BOOK TO DETERMINE THE DATE
 AT WHICH THE PACILITY DRAINS.

 D. WHEN THE PACILITY DECOMES CLOGGED SO THAT IT DOES NOT DRAIN
 BOWN WITHIN A SEASITY TWO (72) HOVE TIME PERIOD, CORDECTIVE
 ACTION SHALL BE TAKEN.

 E. THE MAINTENANCE LOG BOOK SHALL BE AVAILABLE TO HOWARD COUNTY
 FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION & MAINTENANCE
- FOR INFECTION TO INFORM THE CONTROL OF THE INFILTRATION FACILITY
 F, ONCE THE PERFORMANCE CHARACTERISTICS ON THE INFILTRATION FACILITY
 HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN
 ANNUAL BASIS UNLESS THE PERFORMANCE
 BATA INDICATES THAT A MORE FREQUENT
 SCHEDULE IS REQUIRED.

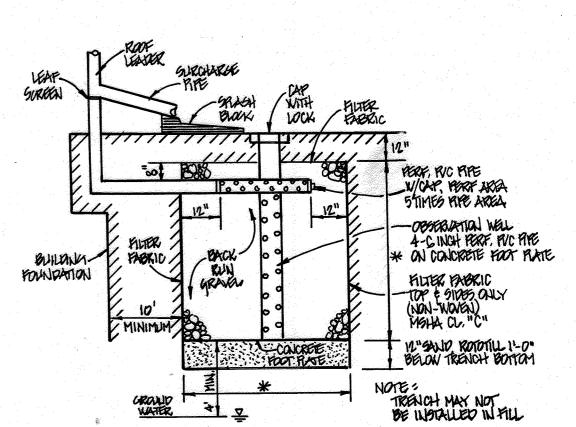
STOR	MWA	ater 1	MANAGEMENT PR	PACTICES	
66		YWELLS (M-5) NUMBER	ROOPTOP DISCOULECTION Y/N NUMBER	I ION-ROOFIOP DISCONNECTION (N-2) Y/N NUMBER	Micro 810 (M-G) Y/N NUMBER
ist coulet	Y	(3)	N	Y (2)	N
EST COURT	N		N	N	Y (1)
sear const	Y	(3)	N	N	Y (1)
est collet	Y	(4)		N	Y (1)

DEVELOPER

Rivercrest, LLC

21400 New Hampshire Avenue

Brookeville, Maryland 20833



* THE EXACT NUMBER OF DRY WELLS REQUIRED & THE LENGTH AND WIDTH WILL BE DETERMINED QUE DOWNSYOUT DRAINAGE PATTERNS ARE DETERMINED

DRIVVELL DETAIL (M-5) NOT TO SCALE

	© RIVER STA. 2+3			FOLICY FOR		G 15445 RIVERCEST COURT 2 15441 RIVERCEST COURT 4 15433 RIVERCEST COURT
460		460		$\binom{5}{4}$	STA. 0+58 STA. 0+58 (A) (A) (B) (C) (A)	3 15477 KNEKOKES COURT
455		455	440	SECTION	PROP. GROUND	440
450		450	435	STD. END		435
445	EX. GROUND	445	430	PIP-PAP INFLOW & W	R. HGL.	430
440	PROVIDE GRANITE INVERT	440	425	PROTECTION ATOP FILTER CLOTH $d_{\infty} = 9.5$ " $d_{\text{max}} = 15$ "	OLS 30' SWM TURN AREA	425 AROUND
435	7	435	420		EX. G	ROUND 420
430	10YR. HGL.	430	415	PROVIDE CONCRETE PIPE ANCHORS (PER STD. DETAIL G-3.01)	18"HDPE(E) BOTTOM TOP FORI	OF GABION EBAY EL. 415.00 4.35
425	PROVIDE CONCRETE PIPE	425	410	24 Q ₁₀	"RCCP, CL. N @ 72.75% 16.06% PROVIDE PROVIDE	CLASS I RIP-RAP OUTFALL PROTECTION © 0.00%
420	PROVIDE CONCRETE PIPE ANCHORS (PER STD. DETAIL G-3.01) 15" HDPE © 2.94% Q ₁₀ = 0.78 C.F.S. V _f = 0.64 F.P.S. V _p = 5.21 F.P.S.	420	405	V	= 16.05 F.P.S. INVERT	PROTECTION © 0.00% OVER FILTER FABRIC SEE DETAIL, SHEET Ø 405
415	24"HPPE(S) INV.415. 05 .78 24"HDPE(N) INV.415. 00 .57	415	400	↑ 26+0	$Q_{i0} = 9.54 V_{f} = 3.04 V_{p} = 12.97$	C.F.5. F.P.5. F.P.5.
	PROVIDE Q ₁₀ = 1.52 C.F.5. INVERT V_p = 11.01 F.P.5.				PROFILE 5CALE: HORIZ.: 1" = 50' VERT.: 1" = 5'	
410		410				

PROFILE

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

FISHER, COLLINS & CARTER, INC.

(410) 461 - 2855

VIL ENGINEERING CONSULTANTS & LAND SURVEYORS

NIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE ELLICOTT CITY, MARYLAND 21042

STORMWATER MANAGEMENT INFORMATION (LOT 3)

IMPERVIOUS ESDV REQUIRED ESDV PROVIDED REV REQUIRED REV PROVIDED PE REQUIRED PE PROVIDED In.

DRY WELL CHART LOT NO. AREA OF ROOF VOLUME VOLUME AREA OF REQUIRED PROVIDED TREATMENT LOT 3 734 5Q.FT. 50 CF 96 CF 100% 8' x 6' x 5' LOT 3 464 5Q.FT. 37 CF 64 CF 100% 6' x 5' x 4' DW 2 LOT 3 431 5Q.FT. 34 CF 64 CF 100% 6' x 5' x 4' DW 3 LOT 3 700 5Q.FT. 55 CF 96 CF 100% 6' x 6' x 5' DW 4

75	OCE BETALL, STILLT O		2+4 4	48+0 00+0 00+0	0 29 +1	375
<u>80</u>	25 L.F. CLASS I RIP-RAP OUTFALL PROTECTION © 0.00% OVER FILTER FABRIC SEE DETAIL, SHEET 8				PUBLIC PRIVATE	380
	TOEWALL \$9	$Q_{10} = 20.36 \text{ C.F.5.}$ $V_{f} = 4.15 \text{ F.P.5.}$ $V_{p} = 0.34 \text{ F.P.5.}$	30 " HDPE $Q_{10} = 20.5$: $V_{f} = 4.19$ $V_{p} = 8.37$	5 C.F.S. $Q_{10} = 15$.	91 C.F.5. 24 F.P.5. 52 F.P.5.	
85	3' MIN. DEPTH GROUTED RIP-RAP TOEWALL	√ 0.94% 30" HDPE ⊕ 1.00%	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	1.94% 1.94% 1.94%	.c4	385
- Angus Angus				#6:		
90		10YR. HGL.				390
95		EX. GROUND				395
	(5)					
00					$Q_{10} = 16.20 \text{ C.}$ $V_{f} = 3.30 \text{ F.P.}$ $V_{p} = 15.04 \text{ F.F.}$	F.5. 5. 400 2.5. 400
				TROJ. GROOT		
05				PROP. GROUN	30" RCCP FROM R-1 INV. 405.	(5W) 405
10	LOT 4 641 5Q LOT 4 642 5Q		· · · · · · · · · · · · · · · · · · ·			410
10	LOT 4 647 5Q	FT. 62 CF 64 CF 100%	8' x 5' x 4' DW 1			410
	LOT NO. AREA OF PER DRYN	DRY WELL CHART ROOF VOLUME VOLUME AREA OF REQUIRED PROVIDED TREATME				
15		DOV WELL CHAOT	•			415

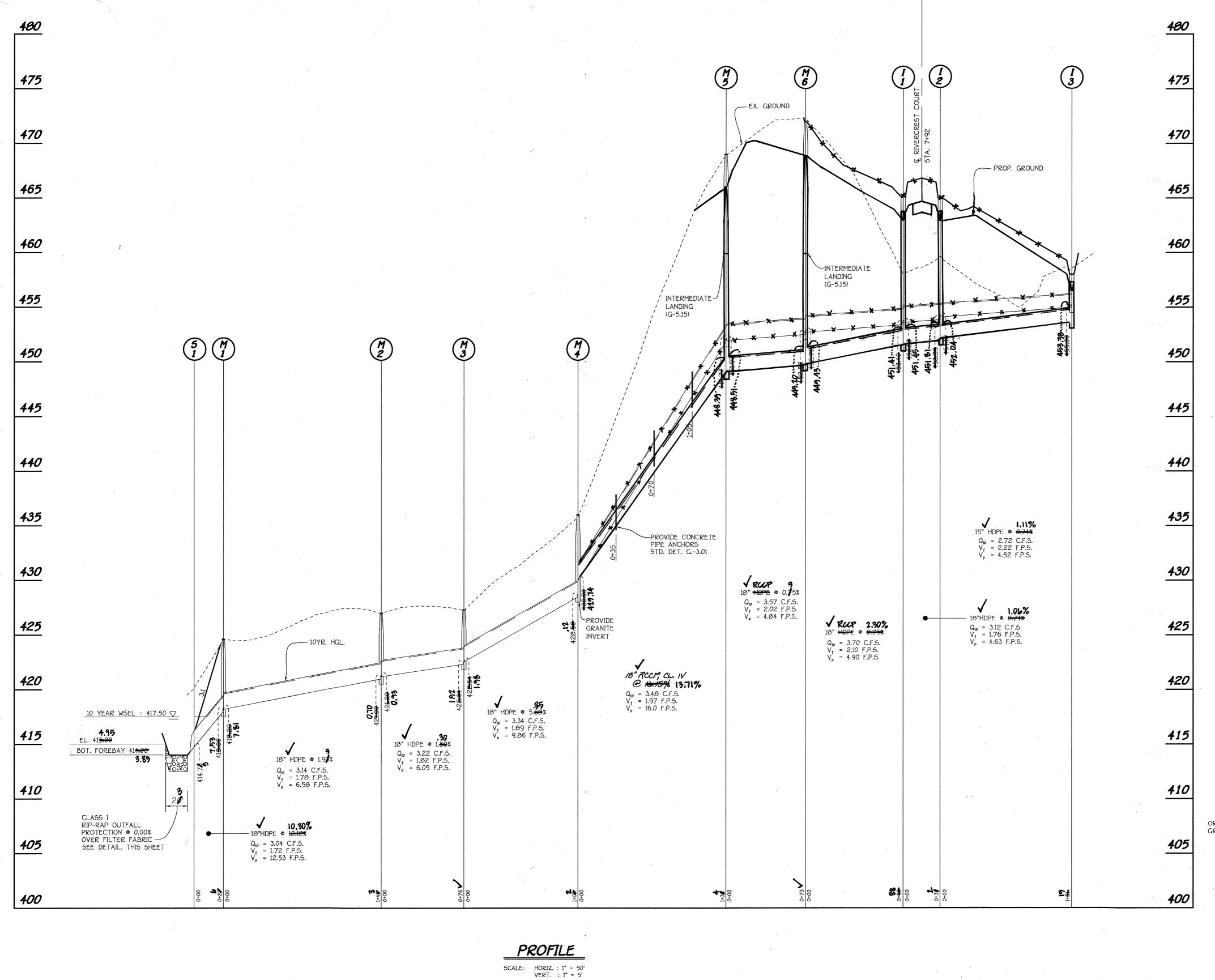
AS-BUILT CERTIFICATION

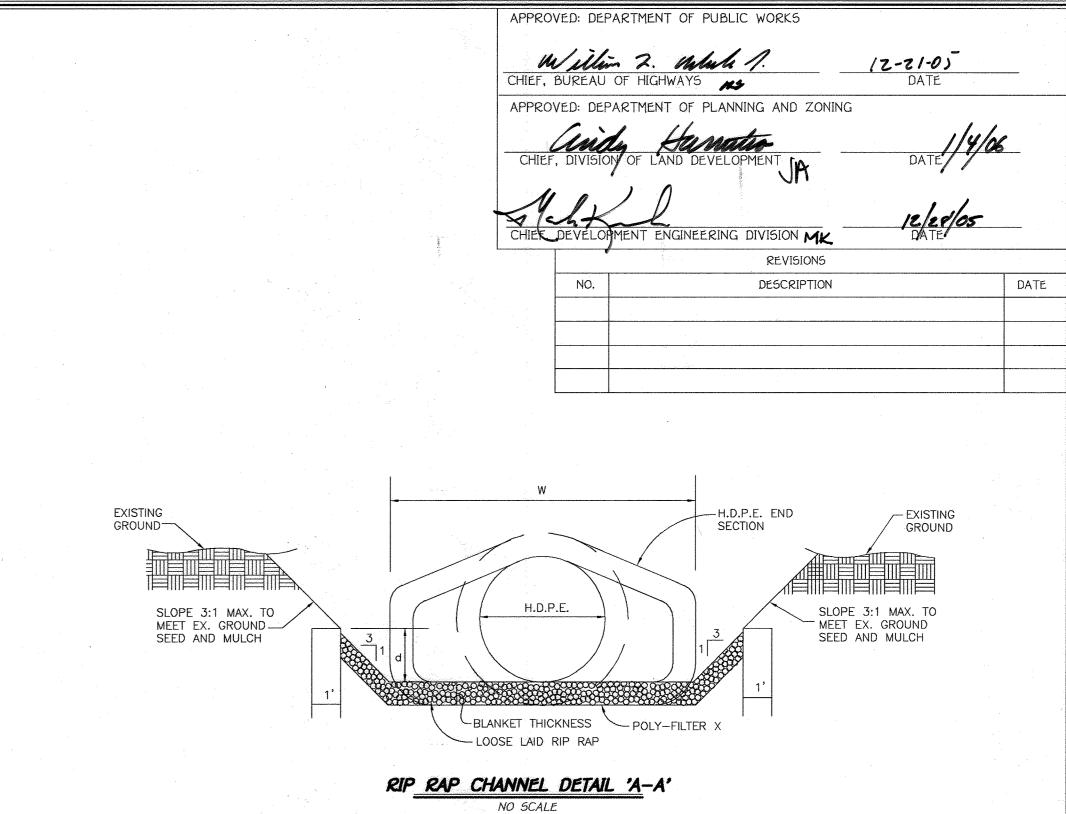
STORM DRAIN PROFILES RIVERCREST

LOTS 1 THRU 10, BUILDABLE PRESERVATION PARCEL 'A', PRESERVATION PARCEL 'B' & 'C' AND NON-BUILDABLE BULK PARCEL 'D'

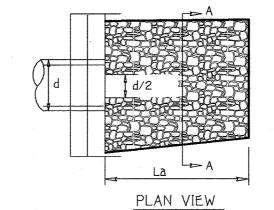
(A RESUBDIVISION OF LOT 1, "BUICE PROPERTY", PLAT Nos. 5426-5429) ZONED: RC-DEO TAX MAP NO. 21 GRID NO. 20 PARCEL NO. 84 FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND DATE: JUNE 20, 2005 SHEET 7 OF 14 F 04-57

"A9-BUILT" F.04.57





CTDUCTUDE	ADEA	WETTED		D 2/3	_	C 1/2	141		N.I	٧	Q	RIP-RA	NP SIZE	BLANKET	0	DIÁ.
STRUCTURE	AREA	PERIMETER	R	R 2/3	5	S 1/2	VV	đ	IN .	(F.P.S.)	(C.F.S.)	d ₅₀	d _{MAX}	THICKNESS	Q ₁₀	DIA.
S-1	2.44 S.F.	7.50'	0.3253'	0.4730	0.0050	0.0707	3.0'	0.40'	0.04	1.24	3.04	9.5"	15"	19"	3.04	18"
S-2	5.38 S.F.	9.71	0.5541'	0.6746	0.0050	0.0707	4.0'	0.74	0.04	1.77	9.54	9.5"	15"	19"	9.54	24"
S-3	14.84 S.F.	14.75	1.0061'	1.0041	0.0050	0.0707	6.0'	1.54	0.04	2.64	39.13	9.5"	15"	19"	39.13	30"



Construction Specifications

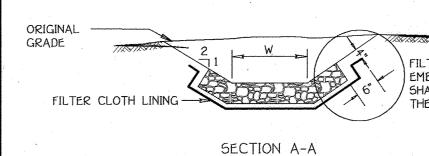
1. The subgrade for the filter, rip-rap, or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed materia

2. The rock or gravel shall conform to the specified grading limits when installed respectively in the rip-rap or filter.

3. Geotextile shall be protected from punching, cutting, or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of geotextile over the damaged part or by completely replacing the geotextile. All overlaps whether for repairs or for joining two pieces of geotextile shall be a minimum of one foot.

4. Stone for the rip-rap or gabion outlets may be placed by equipment. They shall be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for rip-rap or gabion outlets shall be delivered and placed in a manner that will ensure that it is reasonably homogeneous with the - GROUTED TOE WALL smaller stones and spalls filling the voids between the larger __ (3' MINIMUM DEPTH) stones. Rip-rap shall be placed in a manner to prevent damage to the filter blanket or geotextile. Hand placement will be required to the extent necessary to prevent damage to the permanent works.

> 5. The stone shall be placed so that it blends in with the existing ground. If the stone is placed too high then the flow will be forced out of the channel and scour adjacent to the stone will occur.



ELEVATION

EMBEDDED A MINIMUM OF 4" AND SHALL EXTEND AT LEAST 6" BEYOND THE EDGE OF THE RIP-RAP

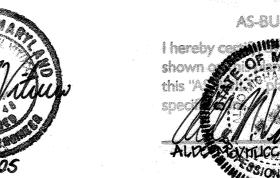
NOTE: FILTER CLOTH SHALL BE GEOTEXTILE CLASS C

EXISTING STABILIZED

- 1' MINIMUM

ROCK OUTLET PROTECTION III

NO SCALE



STORM DRAIN PROFILES **RIVERCREST**

LOTS 1 THRU 10, BUILDABLE PRESERVATION PARCEL 'A', PRESERVATION PARCEL 'B' & 'C' AND NON-BUILDABLE BULK PARCEL 'D'

(A RESUBDIVISION OF LOT 1, "BUICE PROPERTY", PLAT Nos. 5426-5429) ZONED: RC-DEO TAX MAP NO. 21 GRID NO. 20 PARCEL NO. 84 FOURTH ELECTION DISTRICT

HOWARD COUNTY, MARYLAND DATE: JUNE 20, 2005 SHEET 8 OF 14

F 04-57

AS-BUILT CERTIFICATION

DEVELOPER

20.0 STANDARDS AND SPECIFICATIONS VEGETATIVE STABILIZATION

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

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 Olup 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. Negetation 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

- Install erosion and sediment control structures (either temporary of permanent) such as diversions, grade stabilization structures, berms, waterways, or sediment control basins. i. Perform all grading operations at right angles to the slope. Final grading and shaping is not usually 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 to the applicable state fertilizer laws and shall bear the name, trade name or trademark and warrantee
- iii. Lime materials shall be ground limestone (hydrated or burnt lime may be substituted) which contains at least 50% total oxides (calcium oxide plus magnesium oxide). Limestone shall be ground to such fineness that at least 50% will pass through a *100 mesh sieve and 98-100% will pass through a *20 mesh sieve.
 Incorporate lime and fertilizer into the top 3-5" of soil by disking or other suitable means.
- Seedbed Preparation
 i. Temporary Seeding 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.
 ii. 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. 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. b. Areas previously graded in conformance with the drawings shall be maintained in a true and even grade, then scarified or otherwise loosened to a depth of 3-5" to permit bonding of the topsoil to the surface area and to create horizontal erosion check slots to prevent topsoil to the surface area and to create horizontal erosion check slots to prevent topsoil from slidina 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. The 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
- hods of beeding:

 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 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. F. Mulch Specifications (In order of preference)
- Straw shall consist of thoroughly threshed wheat, rye 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)
 WCFM shall consist of specially prepared wood cellulose processed into a uniform
- fibrous physical state. 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 the
- wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry The mulch material shall form a blotter-like ground cover, 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.

 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.

 i. 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. ii. When straw mulch is used, it shall be spread over all seeded areas at the rate of 2 tons/acre. Mulch shall be applied to a uniform loose depth of between 1" and 2". Mulch applied shall achieve a uniform distribution and depth so that the soil surface is not exposed. If a mulch anchoring tool is to be used, the rate should be increased to 2.5 tons/acre.
- iii. Wood cellulose fiber used as a mulch shall be applied at a net dry weight of 1,500 lbs. per acre. The wood cellulose fiber shall be mixed with water, and the mixture shall contain a maximum of 50 lbs. of wood cellulose fiber per 100 gallons of water.
- Securing Straw Mulch (Mulch Anchoring): Mulch anchoring shall be performed immediately following mulch application to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon size of area and erosion hazard:
- i. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of two (2) inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should be used on the contour if possible.
 ii. Wood cellulose fiber may be used for anchoring straw. The fiber binder shall be applied at a net dry weight of 750 pounds/acre. The wood cellulose fiber shall be mixed with water and ne mixture shall contain a maximum of 50 pounds of wood cellulose fiber per 100 gallons
- 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 , Terra Tack AR or other approved equal may be used at rates recommended by the nanufacturer to anchor mulch.
- iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer's recom mendations. Netting is usually available in rolls 4' to 15' feet wide and 300 to 3,000 feet long. Incremental Stabilization - Cut 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 15'.
- ii. 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
- 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 int he operation of completing the operation out of the seeding season will necessitate the application of temporary stabilization. . Incremental Stabilization of Embankments - Fill Slopes
 - Embankments shall be constructed in lifts as prescribed on the plans.
- 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.
 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.

 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 fill. Construct slope silt fence on low side of fill as shown
- in Figure 5, unless other methods shown on the plans address this area. Place Phase 1 embankment, dress and stabilize. Place Phase 2 embankment, dress and stabilize. Place final phase embankment, dress and stabilize. Overseed previously seeded areas as necessary
- Once the placement of fill has begun the operation should be continuous from grubbing through the completion of and placement of topsoil (if required) grading 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.

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SECTION 2 - TEMPORARY SEEDING

A. Seed mixtures - 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.

Sec	ed Mixture (Hard From	liness Zone <u>6b</u> n 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 b/ac (15 b/1000sf)	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

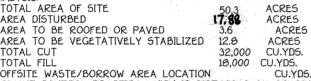
- A. Seed mixtures Permanent Seeding
- i. Select one or more of the species or mixtures listed in Table 25 for the appropriate Plant Hardiness Zone (from Figure 5) and enter them in the Permanent Seeding Summary below, along with application rates and seeding dates. Seeding depths can be estimated using 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, Section - 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 Z From Table					Fertilizer (10-20-20)	Rate	Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	N	P205	K20	Rujo
3	TALL FESCUE (Ø5%) PERENNIAL RYE GRASS (10%) KENTUCKY BLUEGRASS (5%)	125 15 10	3/1 - 5/15, 8/15 - 10/15	i" - 2"	90 lb/ac (2.0 lb/	175 lb/ac (4 lb/	175 lb/ac (4 lb/	2 tons/
10	TALL FESCUE (80%) HARD FESCUE (20%)	120 30	3/1 - 5/15, 8/15 - 10/15	1" - 2"	1000sf)	1000sf)	1000sf)	1000sf)

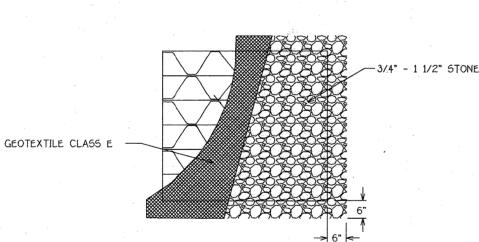
SEDIMENT CONTROL NOTES

- 1) A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LISCENSES AND PERMITS, SEDIMENT CONTROL
- DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (313-1855) 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.

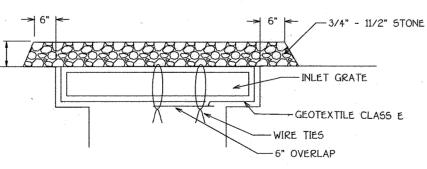
 3) FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: a) 7
- ALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES DIKES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3:1, b) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE. 4) ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING
- SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE 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
- 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 AREA TO BE ROOFED OR PAVED



- OFFSITE WASTE/BORROW AREA LOCATION 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 LENGHTS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.



PLAN/CUT AWAY VIEW



STANDARD SYMBOI AGIP

provide additional filtration.

MAX. DRAINAGE AREA = 1/4 ACRE

Construction Specifications

1. Lift grate and wrap with Geotextile Class E to completely cover all openings, then set grate back in place. 2. Place 3/4" to 11/2" stone, 4"-6" thick on the grate to secure the fabric and

AT GRADE INLET PROTECTION

NOT TO SCALE

4	reased 1.0.D. In geoment control notes	67/21
2	REVISED LO.D. IN GEOMENT CONTROL NOTES	11/19/21
2	revised i.o.d. in germent control notes	6/29/21
1	REVISED LIOID. IN GERMANT CONTROL NOTES	2/8/21
NO.		DATE

STANDARDS AND SPECIFICATIONS FOR TOPSOIL

Definition

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

Purpose

To provide a suitable soil medium for 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

- 1. This practice is limited to areas having 2:1 or flatter slopes where:
- a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth. b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
- c. The original soil to be vegetated contains material toxic to plant growth. d. The soil is so acidic that treatment with limestone is not feasible.
- II. For the purpose of these Standards and Specifications, areas having slopes steeper than 21 require special consideration and design for adequate stabilization. Areas having slopes steeper than 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

n 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 diamete
- ii. Topsoil must be free of plants or plant parts such as bermuda grass, quackgrass, Johnson grass,
- 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 acresi i. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative
- Stabilization Section I Vegetative Stabilization Methods and Materials For sites having disturbed areas over 5 acres

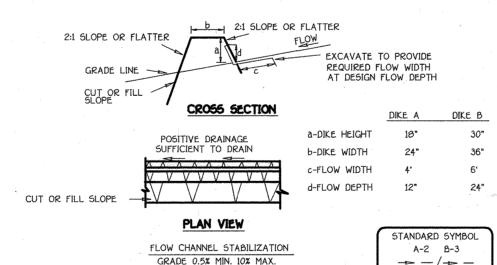
dissipation of phyto-toxic materials.

- 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 I - 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
- 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 I 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.



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
- 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 material shall be removed and disposed of so as not to interfere 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

NOT TO SCALE

EARTH DIKE

each rain event.

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

ROUTINE MAINTENANCE (BY H.O.A.)

- 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
- 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 (BY HOWARD COUNTY)

- 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 and maintained by Howard County.
- 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.

OWNER

Mr. Robert Preston Buice

21400 New Hampshire Avenue

Brookeville, Maryland 20833

at It Was Prepared In Accordance Howard Soil Conservation District 6.21-05 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 Approved: This Development Is Approved For Erosion And Sediment Control By he woward Soil Conservation District.

ENGINEER'S CERTIFICATE

Plan For Erosion And Sediment Control

Workable Plan Based On My Personal Knowledge

Approved: Department Of Planning And Zoning

Approved: Howard County Department Of Public Works

Willin Z. Whater of.

12-21-05

- FENCE POST DRIVEN A

MINIMUM OF 16" INTO

STANDARD SYMBOL

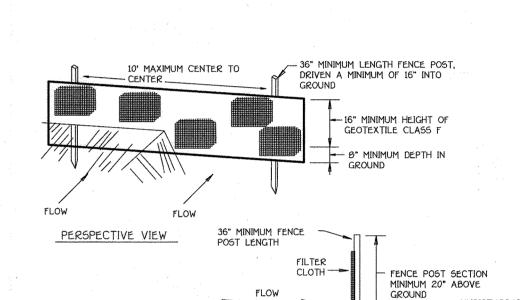
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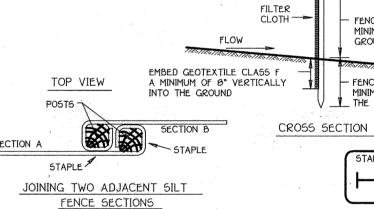
THE GROUND

Test: MSMT 509

Test: MSMT 509

Test: MSMT 322





Construction Specifications 1. Fence posts shall be a minimum of 36" long driven 16" minimum into the around. 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 requirements for Geotextile Class F:

Tensile Strength 50 lbs/in (min.) 0.3 gal ft / minute (max.)2 3. Where ends of geotextile fabric come together, they shall be overlapped folded and stapled to prevent sediment bypass 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. Silt Fence Design Criteria

Silt Fence Length Slope Length Flatter than 50: unlimited unlimited 50:1 to 10:1 125 feet 1.000 feet 10:1 to 5:1 100 feet 750 feet 5:1 to 3:1 60 feet 500 feet 3:1 to 2:1 40 feet 250 feet 2:1 and steeper 20 feet 125 feet Note: In areas of less than 2% slope and sandy soils (USDA general classification system, soil Class A) maximum slope length and silt fence length will be unlimited. In these areas a silt fence may be the only perimeter control

> SILT FENCE NOT TO SCALE

SEDIMENT AND EROSION CONTROL NOTES AND DETAILS RIVERCREST

LOTS 1 THRU 10, BUILDABLE PRESERVATION PARCEL 'A'. NON-BUILDABLE PRESERVATION PARCEL 'B' & 'C' AND NON-BUILDABLE BULK PARCEL 'D'

(A RESUBDIVISION OF LOT 1, "BUICE PROPERTY", PLAT Nos. 5426-5429) ZONED: RC-DEO TAX MAP NO. 21 GRID NO. 20 PARCEL NO. 84 FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND DATE: JUNE 20, 2005

F 04-57

THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET F. 04.57

BERM (6" MIN.)

- EARTH FILL

MINIMUM 6" OF 2"-3" AGGREGATE

OVER LENGTH AND WIDTH OF

STRUCTURE

* 50' MINIMUM

PROFILE

O' MINIMUM

1. Length - minimum of 50' (*30' for single residence lot).

residences to use geotextile.

PLAN VIEW

Construction Specification

2. Width - 10' minimum, should be flared at the existing road to provide a turning

to placing stone. **The plan approval authority may not require single family

equivalent shall be placed at least 6" deep over the length and width of the

entrances shall be piped through the entrance, maintaining positive drainage. Pipe

mountable 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

according to the amount of runoff to be conveyed. A 6" minimum will be required.

where construction traffic enters or leaves a construction site. Vehicles leaving

STABILIZED CONSTRUCTION ENTRANCE

the site must travel over the entire length of the stabilized construction entrance.

42" CHAIN LINK FENCE

WITH 1 LAYER OF MIRAFI

OVER UPHILL SIDE OF FENCE

10' MAXIMUM

PERSPECTIVE VIEW

SECTION VIEW

CONSTRUCTION SPECIFICATIONS

FOR CHAIN U FENCING. THE SPECIFICATIONS FOR A 6'-0" FENCE SHALL BE USED.

SUBSTITUTING 42" FABRIC AND 8' POSTS, POSTS SHALL BE PLACED WITHOUT

POST CAPS ARE NOT REQUIRED EXCEPT ON THE ENDS OF THE FENCE.

4. FILTER CLOTH SHALL BE IMBEDDED A MINIMUM OF 9" INTO THE GROUND.

3. FILTER CLOTH TO BE FASTENED SECURELY TO CHAIN LINK FENCE WITH TIES

5. WHEN TWO SECTIONS OF DIVERSION CLOTH ADJOIN EACH OTHER THEY SHALL

1. FENCING SHALL BE 42" HIGH CHAIN CONSTRUCTED IN ACCORDANCE WITH THE LATEST

MARYLAND STATE HIGHWAY ADMINISTRATION STANDARD DETAILS 690.01 AND 690.02

2. CHAIN LINK FENCE SHALL BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES

OR STAPLES. THE LOWER TENSION WIRE, BRACE AND TRUSS RODS, ANCHORS AND

40-80

Slope Length

(maximum)

400 feet

300 feet

SUPER-SILT FENCE

NOT TO SCALE

LGERTIFICATION

CHAIN LINK FENCING-

FLOW

LAYER MIRAFI IN

BOTTOM OF 14" MIN.

CONCRETE EMBEDMENT.

WITH CURLEX (MIN. 36" WIDE)

MIRAFI MCF 1212 OR EQUIVALENT

EMBED MIRAFI

MIN. 9" INTO GRE

SPACED EVERY 24" AT TOP AND MID SECTION.

BE OVERLAPPED BY SIX INCHES AND FOLDED.

6. MAINTENANCE SHALL BE PERFORMED AS NEEDED.

Fabric Properties

Elongation at Failure (%)

Puncture Strength (lbs.)

Equivalent Opening Size

0 - 10%

10 - 20%

20 - 33%

33 - 50%

Grab Tensile Strength (lbs.)

Mullen Burst Strength (PSI)

Slurry Flow Rate (gal/min/sf)

Utraviolet Radiation Stability (%)

Steepness

0 - 10:1

5:1 - 3:1

3:1 - 2:1

installed through the stabilized construction entrance shall be protected with a

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

5. Surface Water - all surface water flowing to or diverted toward construction

6. Location - A stabilized construction entrance shall be located at every point

NOT TO SCALE

3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior

4. Stone - crushed aggregate (2" to 3") or reclaimed or recycled concrete

** GEOTEXTILE CLASS 'C'

OR BETTER

- EXISTING GROUND

XISTING PAVEMENT

网络SCE 数

- PIPE AS NECESSARY

EXISTING

21/2" DIAMETER

OR ALUMINUM

Test Method

ASTM D1682

ASTM D1682

ASTM D3786

ASTM D751

DOT VTM-51

US 5td Sieve

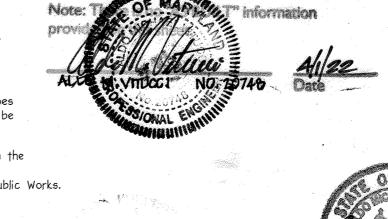
ASTM G-26

Silt Fence Length

Unlimited

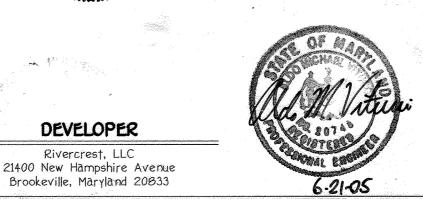
(maximum)

PAVEMENT



DEVELOPER

Rivercrest, LL(



STORM WATER MANAGEMENT POND CONSTRUCTION SPECIFICATIONS

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

Site Preparation

Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped of topsoil. All trees, vegetation, roots and other objectionable material shall be removed. Channel banks and sharp breaks shall be sloped to no steeper than 1:1. All trees shall be cleared and grubbed within 15 feet of the 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 engineer. Such special designs must have construction supervised by a geotechnical engineer. Materials used in the outer shell of the embankment must have the capability to support vegetation of the quality required to prevent erosion of the embankment.

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

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

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

Cut Off Trench - The cutoff trench shall be excavated into impervious material along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be governed by the equipment used for excavation, with the minimum width being four feet. The depth shall be at least four feet below existing grade or as shown on the plans. The side slopes of the trench shall be 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 four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24" or greater over the structure or pipe.

Structure backfill may be flowable fill meeting the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 313 as modified. The mixture shall have a 100-200 psi; 28 day unconfined compressive strength. The flowable fill shall have a minimum pH of 4.0 and a minimum resistivity of 2,000 ohm-cm. Material shall be placed such that a minimum of 6" (measured perpendicular to the outside of the pipe) of flowable fill shall be under (bedding), over and, on the sides of the pipe. It only needs to extend up to the spring line for rigid conduits. Average slump of the fill shall be 7" to assure flowability of the material. Adequate measures shall be taken (sand bags, etc.) to prevent floating the pipe. When using flowable fill, all metal pipe shall be bituminous coated. Any adjoining soil fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material shall completely fill all voids adjacent to the flowable fill zone. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a structure or pipe unless there is a compacted fill of 24" or greater over the structure or pipe. Backfill material outside the structural backfill (flowable fill) zone shall be of the type and quality conforming to 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 watertight 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 3/8 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 3/8-inch thick closed cell circular neoprene gasket; and a 12-inch wide hugger type band with o-ring gaskets having a minimum diameter of 1/2-inch greater than the corrugation depth. Pipes 24-inches in diameter and larger shall be connected by a 24-inch long annular corrugated band using a minimum of 4 (four) rods and lugs, 2 on each connecting pipe end. A 24-inch wide by 3/8-inch thick closed cell circular neoprene gasket will be installed with 12-inches on the end of each pipe. Flanged joints with 3/8-inch closed cell gaskets the full width of the

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

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

5. Backfilling shall conform to "Structure Backfill". 6. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

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

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

2. Bedding - Reinforced concrete pipe conduits shall be laid in a concrete bedding/cradle for their entire length. This bedding/cradle shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 50% of its outside diameter with a minimum thickness of 6 inches. Where a concrete cradle is not needed for structural reasons. flowable fill may be used as described in the "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 Backfill". 5. Other details (Anti-seep collars, valves, etc.) shall be as shown on the drawings.

requirement of AASHTO M294 Type 5.

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

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,

Materials, Section 311.

adequate support.

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.

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.

State Highway Administration Standard Specifications for Construction and

Care of Water during Construction

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

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 "WET" STORAGE accordance with the Natural Resources Conservation Service Standards and Specifications for Critical Area Planting (MD-342) or as shown on the accompanying drawings.

Erosion and Sediment Control

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

OPERATION AND MAINTENANCE

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.

2:1 SLOPE OR FLATTER STANDARD SYMBOL RIP TRAP/BASIN BOTTOM PERSPECTIVE VIEW GEOTEXTILE CLASS 'C' Construction Specifications 1. Rip-rap lined inflow channels shall be 1' in depth, have a trapezoidal cross section with 2:1 or flatter side slopes and 3' (min.) bottom width. The channel shall be lined with 4" to 12" rip- rap to a depth of 18".

2. Filter cloth shall be installed under all rip-rap. Filter cloth shall be Geotextile Class C.

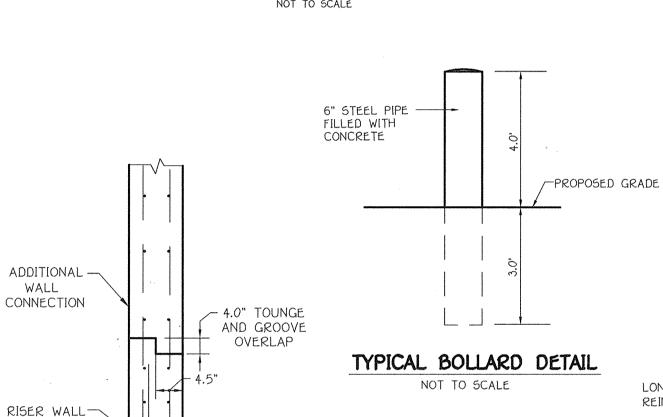
3. Entrance and exit sections shall be installed as shown on the detail 4. Rip-rap used for the lining may be recycled for permanent outlet

protection if the basin is to be converted to a stormwater management 5. Gabion Inflow Protection may be used in lieu of Rip-rap Inflow

6. Rip-rap should blend into existing ground.

7. Rip-rap Inflow Protection shall be used where the slope is between 4:1 and 10:1, for slopes flatter than 10:1 use Earth Dike or Temporary Swale

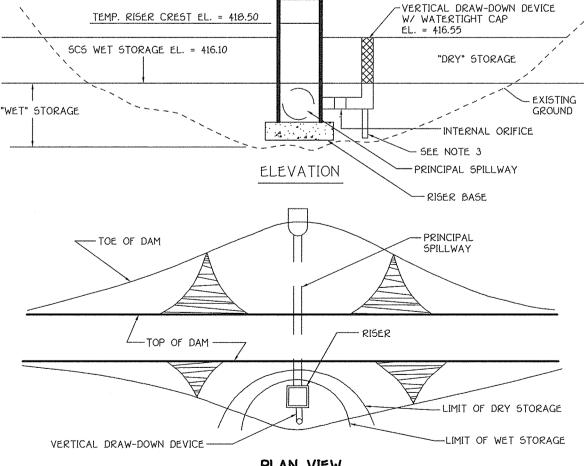
RIP-RAP INFLOW PROTECTION



-No. 6 DOWELS BENT AS SHOWN

KEYED JOINT DETAIL WALL SECTION TO WALL SECTION NOT TO SCALE

TEMP. TOP OF DAM = 420.75



PLAN VIEW

- CONSTRUCTION SPECIFICATIONS 1. PERFORATIONS IN THE DRAW-DOWN DEVICE MAY NOT EXTEND INTO THE WET STORAGE. 2. THE TOTAL AREA OF THE PERFORATIONS MUST BE GREATER THAN 2 TIMES THE AREA
- OF THE INTERNAL ORIFICE. 3. THE PERFORATED PORTION OF THE DRAW-DOWN DEVICE SHALL BE WRAPPED WITH 1/2" HARDWARE CLOTH AND GEOTEXTILE FABRIC. THE GEOTEXTILE FABRIC SHALL MEET THE
- SPECIFICATIONS FOR GEOTEXTILE CLASS E 4. PROVIDE SUPPORT OF DRAW-DOWN DEVICE TO PREVENT SAGGING AND FLOATATION. AN ACCEPTABLE PREVENTATIVE MEASURE IS TO STAKE BOTH SIDES OF DRAW-DOWN DEVICE WITH 1" STEEL ANGLE, OR 1' BY 4" SQUARE OR 2" ROUND WOODEN POSTS SET 3' MINIMUM INTO THE GROUND THEN JOINING THEM TO THE DEVICE BY WRAPPING WITH 12 GAUGE

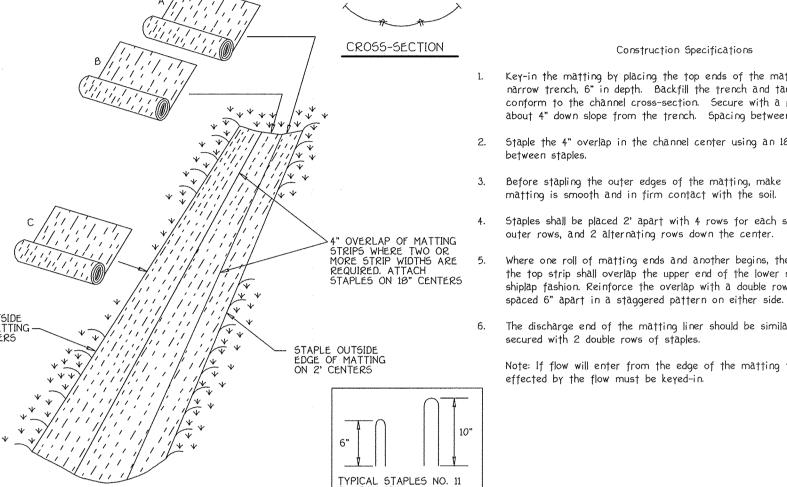
VERTICAL DRAW-DOWN DEVICE

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 378 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



Construction Specifications 1. Key-in the matting by placing the top ends of the matting in a By The Developer:

By The Engineer

USDA-Nata

Chief Bureau Of Highways

Approved: Department Of Planning And Zoning

Chief, Development Engineering Division MK

Specifications.

Signature

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

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

Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil

I Certify That This Plan For Pond Construction, Erosion And Sediment Control Represents A

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

Technical Requirements For Small Pond Construction, Soil Erosion And Sediment Control.

These Plans For Small Pond Construction, Soil Erosion And Sediment Control Meet The

Practical And Workable Plan Based On My Personal Knowledge Of The Site Conditions. This Plan

one Construction And Provide The Howard Soil Conservation District With Andrew Of The Pond Within 30 Days Of Completion."

pordance With The Requirements Of The Howard Soil Conservation District.

AS-BUILT CERTIFICATION

I Hereby Certify That The Facility Shown On This Plan Was Constructed

As Shown On The " 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

Relieve Any Other Party From Meeting Requirements Imposed By Contract,

Guarantee By The Engineer Nor Does An Engineer's Certification

Employment, Or Other Means, Including Meeting Commonly Accepted

veloper That He/She Must Engage A Registered Professional Engineer To

6-21-05

12-21-05

P.E. No.

(CURLEX EXCELSIOR

BLANKET OR EQUIV.

Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion. I

For The Control Of Sediment And Erosion Before Beginning The Project. I Shall Engage A

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

Also Authorize Periodic On-Site Inspections By The Howard Soil Conservation District."

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.

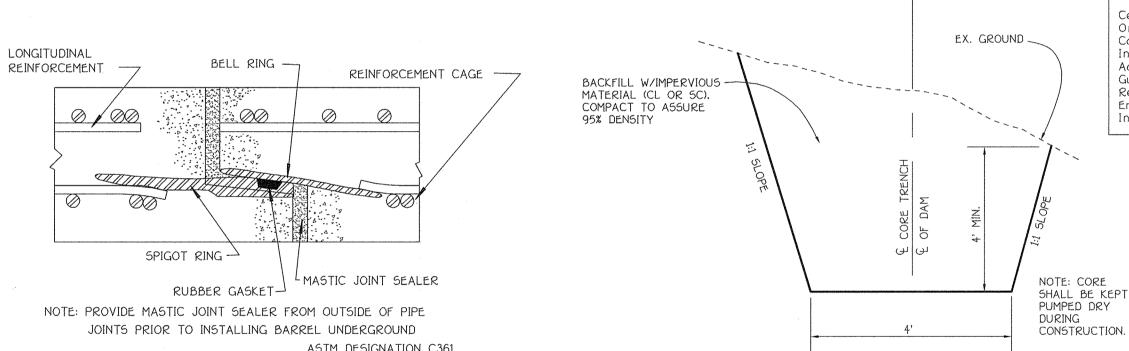
Where one roll of matting ends and another begins, the end of the top strip shall overlap the upper end of the lower strip by 4", shiplap fashion. Reinforce the overlap with a double row of staples

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

GAUGE WIRE



ASTM DESIGNATION C361

NOT TO SCALE

- 4" GRADED AGGREGATE BASE (GAB)

CLASSIFICATION

PRIVATE DRIVEWAY

- 1" BIT. CONC. SURFACE

- 2" BIT. CONC. BASE

DIAMETERS 12 THRU 168 INCH PRESSURES TO 125 FEET OF HEAD CONCRETE PIPE JOINT DETAIL

4' ROUNDING -

CORE TRENCH DETAIL 40' R/W (RIVERCREST COURT) R/W VARIES (OLD ROXBURY ROAD) 20' (OLD ROXBURY ROAD / 18' (RIVERCREST COURT) — € CONSTRUCTION . GROUND _ -PROFILE GRADE ROUNDING -2:1 MAX. TO MEET EX. GROUND EROSION CONTROL MATTING THROUGHOL P-2 PAVING SECTION SEE HOWARD COUNTY STD. DETAILS FOR PAVING SECTION. SEE PLAN VIEW FOR LOCATION (CURLEX EXCELSIOR TYPICAL ROADWAY SECTION EROSION CONTROL MATTING THROUGHOU

P-1 PAVING SECTION FOR DRIVEWAY NOT TO SCALE

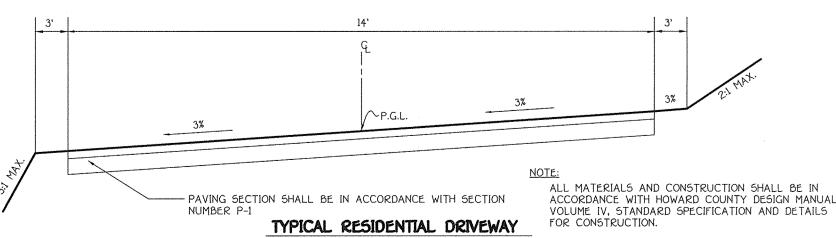
ROAD NAME

DRIVEWAY

ROADWAY INFORMATION CHART DESIGN SPEED & STATION LIMITS ROAD NAME CLASSIFICATION

€ STATION LIMITS PAVING SECTION

0+00 TO 8+05



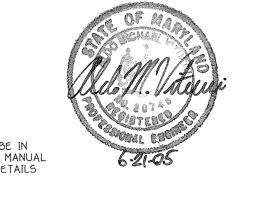
DRIVEWAY INFORMATION CHART

ZONING

RC-DEO

DESIGN SPEED

15 M.P.H.



STORMWATER MANAGEMENT NOTES AND DETAILS

LOTS 1 THRU 10, BUILDABLE PRESERVATION PARCEL 'A', NON-BUILDABLE PRESERVATION PARCEL 'B' & 'C' AND NON-BUILDABLE BULK PARCEL 'D'

(A RESUBDIVISION OF LOT 1, "BUICE PROPERTY", PLAT Nos. 5426-5429). ZONED: RC-DEO TAX MAP NO. 21 GRID NO. 20 PARCEL NO. 84 FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND DATE: JUNE 20, 2005

F 04-57

PAVING SECTION

FISHER, COLLINS & CARTER, INC. ELLICOTT CITY, MARYLAND 21042 (410) 461 - 2855 :/SDSKPROJ/30636 BUICE NADB3/Dwa/Finals/Sheet 9 SWM Notes.dwa

OWNER Mr. Robert Preston Buice 21400 New Hampshire Avenue Brookeville, Maryland 20833

Rivercrest, LLC 21400 New Hampshire Avenue Brookeville, Maryland 20833

DEVELOPER

NOT TO SCALE

