SHEET INDEX	
No.	DESCRIPTION
1	TITLE SHEET
2	WINDRIDGE COURT PLAN AND PROFILE
3	SHADY LANE PLAN AND ROADWAY DETAILS
4	SHADY LANE CROSS SECTIONS
5	STREET TREE GRADING AND SEDIMENT CONTROL PLAN
6	DRAINAGE AREA MAP
7	STORM DRAIN PROFILES AND DETAILS
8	SWM PLAN AND DETAILS
9	SWM NOTES AND DETAILS
10	SWM NOTES AND DETAILS
11	SEDIMENT CONTROL NOTES AND DETAILS
12	SEDIMENT CONTROL NOTES AND DETAILS
13	LANDSCAPING PLAN
14	ROAD IMPROVEMENTS FOR SHADY LANE

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 11-28-00

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT JA — DATE 1/3/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION JK — DATE 12/12/00

FINAL ROAD CONSTRUCTION, GRADING AND STORMWATER MANAGEMENT PLANS

WINDRIDGE FARMS

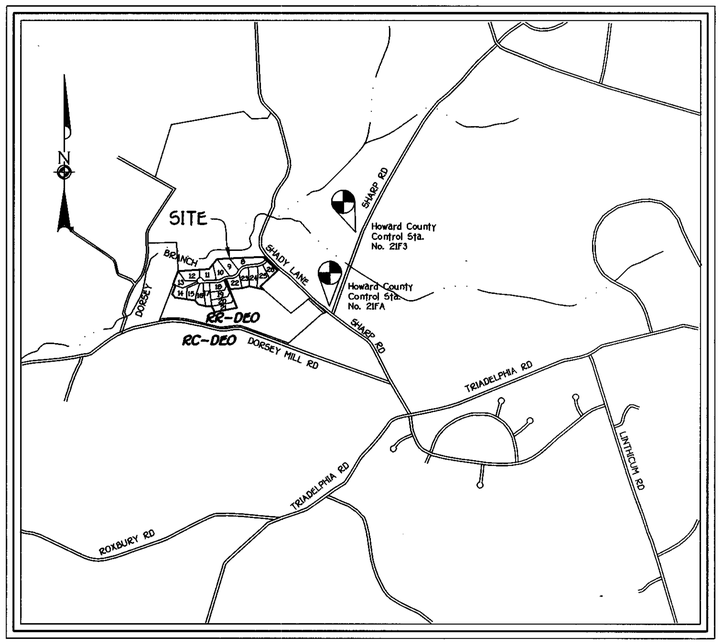
(A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL 'B' WINDRIDGE FARMS, SECTION 2 AREA 1 F 00-110, PLAT Nos. 14319 - 14322)

SECTION 2, AREA 2
LOTS 8 THRU 26
ZONED: RR-DEO

ROAD CLASSIFICATION CHART		
ROAD NAME	CLASSIFICATION	R/W WIDTH
WINDRIDGE COURT	PUBLIC ACCESS PLACE	40'

TRAFFIC CONTROL SIGNS				
STREET NAME	C.L. STATION	OFFSET	POSTED SIGN	SIGN CODE
WINDRIDGE COURT	0+51	23'L	STOP	R1-1
WINDRIDGE COURT	2+00	20'R	SPEED LIMIT 20 M.P.H.	R2-1

STREET LIGHT CHART				
DWG No.	STREET NAME	C.L. STATION	OFFSET	FIXTURE/POLE TYPE
2	WINDRIDGE COURT	0+40	27' RT	150-WATT H.P.S. VAPOR PENDANT FIXTURE (CUTOFF) MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12' ARM.



VICINITY MAP
SCALE 1" = 1200'

TAX MAP No. 21 PARCEL No. 31 GRID No. 17
FOURTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

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) 313-1880 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.
4. TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
5. 2 FOOT CONTOUR TOPOGRAPHY AND EXISTING CONDITIONS BASED ON AERIAL TOPOGRAPHIC SURVEY PREPARED BY HARFORD AERIAL MAPPING CO., INC. IN FEBRUARY 16, 1999.
6. THE COORDINATES SHOWN HEREON ARE BASED UPON HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT Nos. 21FA AND 21F3 WERE USED FOR THIS PROJECT.
   Sta. 21FA N 177402.7030 (meters) E 398818.7595 (meters)
   Sta. 21F3 N 177833.2198 (meters) E 399007.0354 (meters)
7. WATER IS PRIVATE.
8. SEWER IS PRIVATE.
9. THE TRAFFIC IMPACT ANALYSIS FOR THIS PROJECT WAS PREPARED BY THE TRAFFIC GROUP, INC. DATED MARCH, 1999 AND APPROVED UNDER SP99-12.
10. BACKGROUND INFORMATION:
    A. SUBDIVISION NAME: WINDRIDGE FARMS, SECTION 2, AREA 2
    B. TAX MAP NO.: 21
    C. PARCEL NO.: 31
    D. ZONING: RR-DEO
    E. ELECTION DISTRICT: FOURTH
    F. TOTAL TRACT AREA: 21.787 AC. ±
    G. NO. OF BUILDABLE LOTS: 17
    H. NO. OF BUILDABLE PRESERVATION PARCELS: NONE
    I. NO. OF OPEN SPACE LOTS: 2
    J. PRELIMINARY EQUIVALENT SKETCH PLAN APPROVAL DATE: FEBRUARY 16, 2000.
    K. PREVIOUS FILE Nos. : SP 99-12, F 00-110.
11. REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE TO BE PROVIDED AT THE JUNCTION OF THE PIPE / FLAG STEM AND THE ROAD R/W AND NOT ONTO THE PIPE / FLAG STEM DRIVEWAY.
12. HISTORIC STRUCTURE (HO-128) LOCATED ALONG DORSEY MILL ROAD IS TO REMAIN AS A NON-DWELLING UNIT..
13. ALL FILL AREAS WITHIN ROADWAYS AND UNDER STRUCTURES SHALL BE COMPACTED TO A MINIMUM OF 95% COMPACTION OF ASTM T-180.
14. THE WETLAND AND FOREST STAND DELINEATION WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. DATED MAY, 1999 AND APPROVED UNDER SP 99-12.
15. THE FOREST CONSERVATION EASEMENT AND OBLIGATIONS HAS BEEN PROVIDED ON WINDRIDGE FARMS, SECTION 2 AREA 1 (SEE F-00-110.)
16. STORMWATER MANAGEMENT FACILITY:
    TYPE - EXTENDED DETENTION
    OWNER - H.O.A.
    MAINTENANCE - HOMEOWNER'S ASSOCIATION
    STORMWATER MANAGEMENT WILL BE PROVIDED IN ACCORDANCE WITH HOWARD COUNTY AND MARYLAND 378 SPECIFICATIONS. WATER QUALITY WILL BE PROVIDED BY EXTENDED DETENTION
17. CLOSEST PORTION OF PROPERTY IS MORE THAN 2,500 FEET FROM THE TRIADELPHIA RESERVOIR.
18. ▨ THIS AREA DESIGNATES A PRIVATE EASEMENT OF 10,000 SQUARE FEET AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL. IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED UNTIL PUBLIC SEWERAGE IS AVAILABLE. THESE EASEMENTS SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWERAGE SYSTEM. THE COUNTY HEALTH OFFICER SHALL HAVE THE AUTHORITY TO GRANT VARIANCES FOR ENCROACHMENTS INTO THE PRIVATE SEWERAGE EASEMENT. RECORDATION OF A MODIFIED EASEMENT SHALL NOT BE NECESSARY.
19. THE LANDSCAPE PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. FINANCIAL SURETY FOR THE REQUIRED 131 LANDSCAPING TREES HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF $ 34,650.00 FOR SECTION 2, AREA 2. FINANCIAL SURETY FOR THE REQUIRED 34 LANDSCAPING TREES HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF 10,200.00 FOR SECTION 2, AREA 1 (F-00-110). THE TOTAL SURETY FOR THIS PROJECT WILL BE $43,650.00.

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

OWNER / DEVELOPER
CUBBAGE, L.L.C.
c/o MR. J. THOMAS SCRIVENER
8808 CENTRE PARK DRIVE
SUITE 209
COLUMBIA, MARYLAND 21045

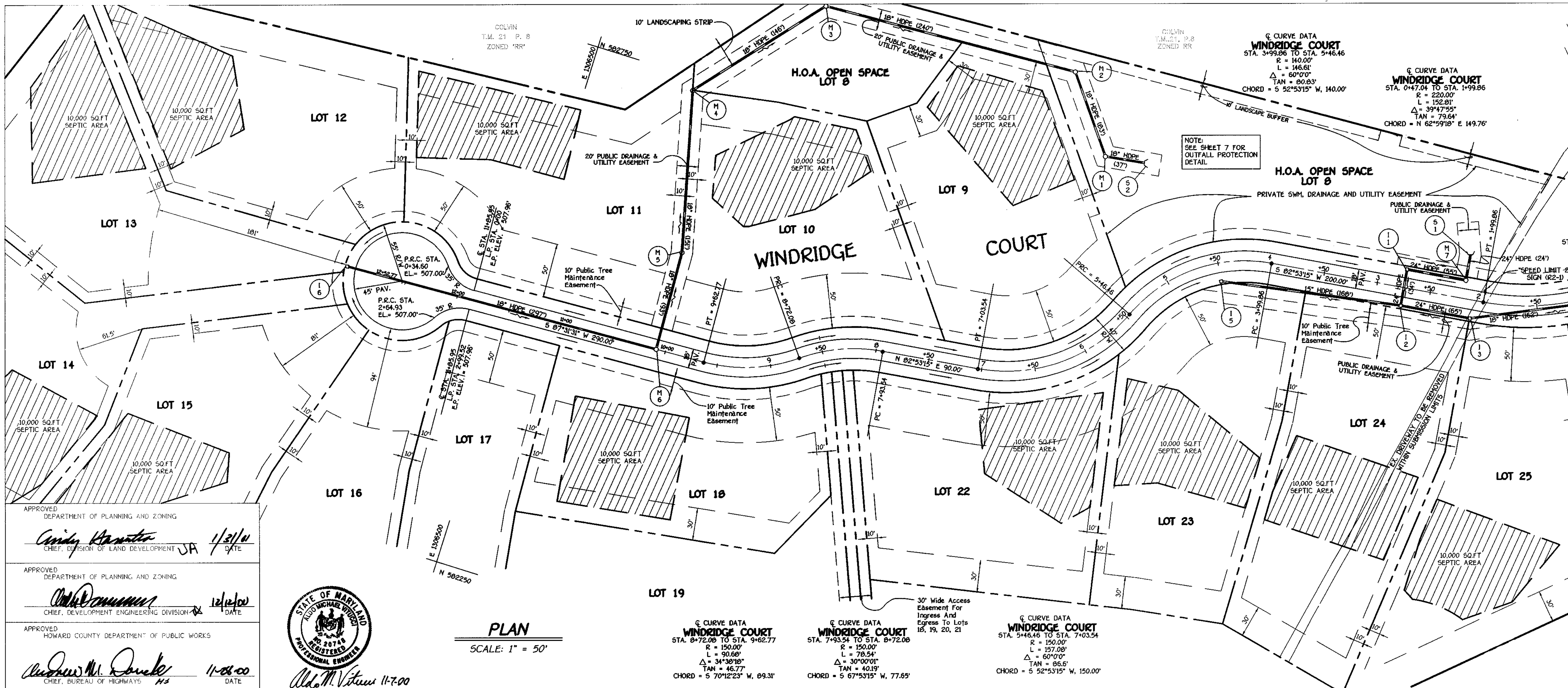
STATE OF MARYLAND — ALDO M. VITUCCI — NO. 20749 — REGISTERED PROFESSIONAL ENGINEER

ALDO M. VITUCCI, P.E. — DATE 10-5-00

WINDRIDGE FARMS
SECTION 2, AREA 2
LOTS 8 THRU 26
(A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL 'B' WINDRIDGE FARMS, SECTION 2 AREA 1)
ZONED: RR-DEO
TAX MAP No. 21 PARCEL No. 31 GRID No. 17
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: SEPTEMBER 1, 2000
SHEET 1 OF 14

F 00-178

K:\Drawings 3\30671 Windridge\FINALS\30671 FINALS TITLE SHEET.dwg Tue Sep 05 13:11:47 2000



APPROVED
DEPARTMENT OF PLANNING AND ZONING
[signature] JA 1/31/01
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

APPROVED
DEPARTMENT OF PLANNING AND ZONING
[signature] 12/12/00
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

APPROVED
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[signature] 11-08-00
CHIEF, BUREAU OF HIGHWAYS HS — DATE

WINDRIDGE FARMS
SECTION 2, AREA 2
LOTS 8 THRU 26

(A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL 'B' WINDRIDGE FARMS SECTION 2, AREA 1)
ZONED: RR-DEO
TAX MAP No. 21 PARCEL No. 31 GRID No. 17
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

WINDRIDGE COURT
PLAN AND PROFILE

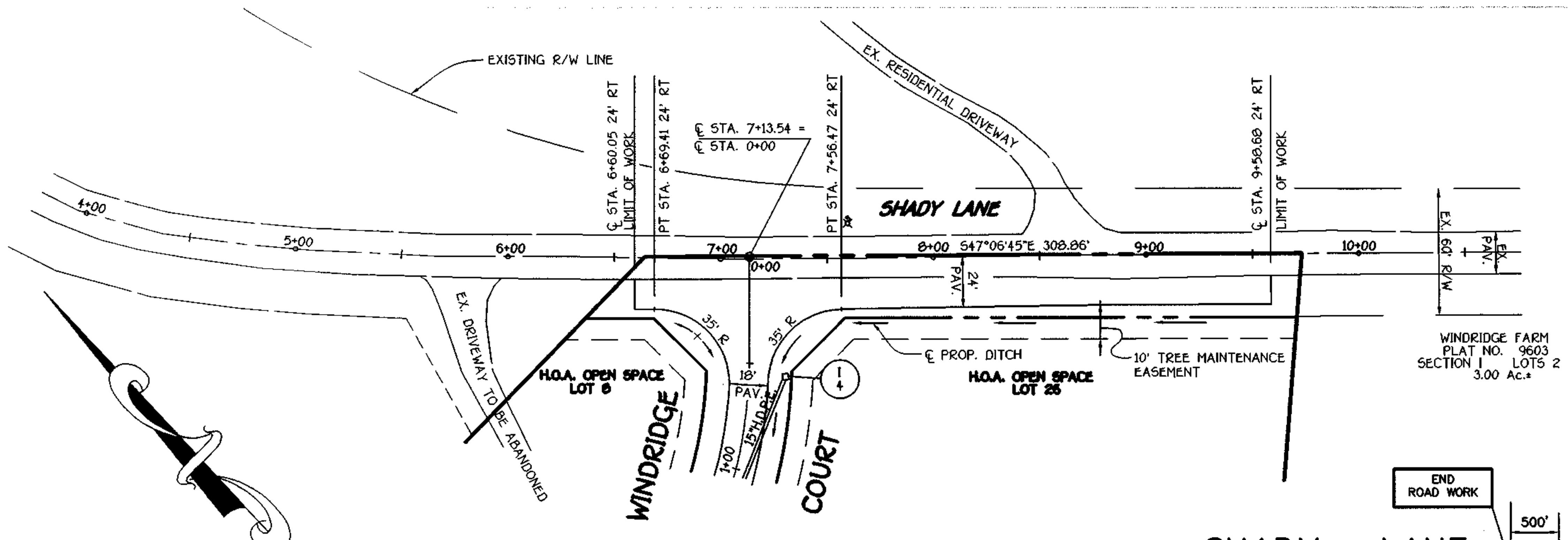
OWNER AND DEVELOPER
CUBBAGE L.L.C.
c/o J. THOMAS SCRIVENER
8808 CENTRE PARK DRIVE
COLUMBIA, MARYLAND 21045

SCALE: AS SHOWN	DATE: SEPT. 1, 2000	DWG. NO. 2 OF 14
DES. A.M.V.	DRN. F.J.M.	CHK. A.M.V.

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

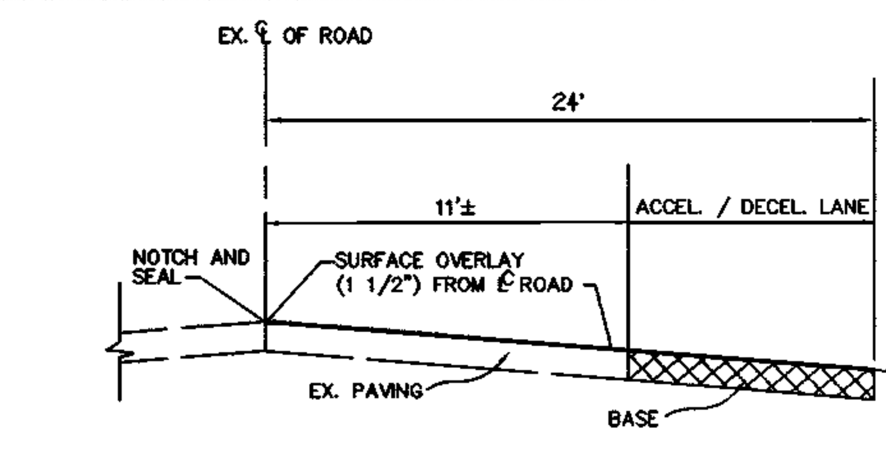
K:\Drawings 3\30671 Windridge\FINALS\30671 FINAL ROAD SHT 1.dwg Tue Sep 05 13:39:51 2000

F00-178



PLAN

SCALE: 1" = 50'

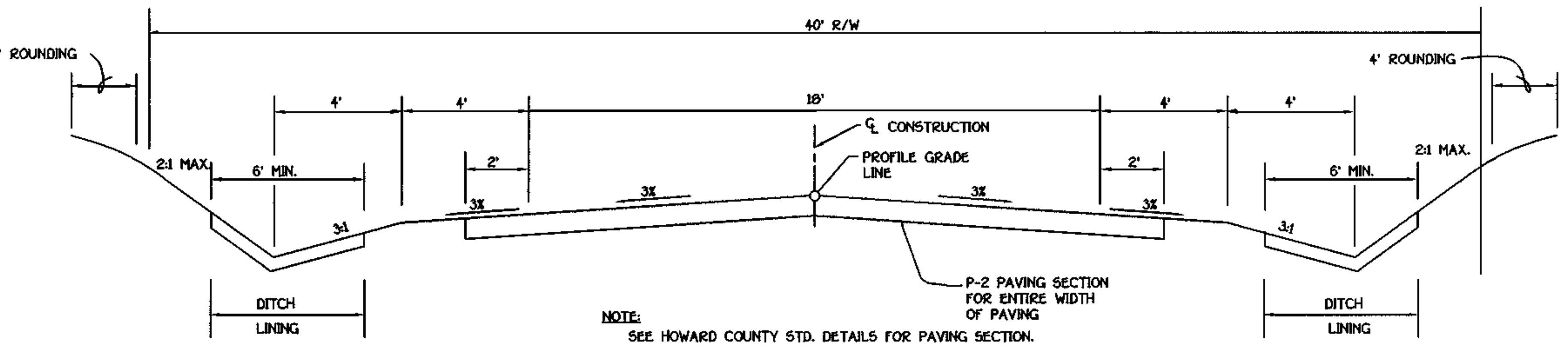


(STATION 6+60.06 TO STATION 9+58.68)

SHADY LANE OVERLAY SECTION

NO SCALE

THE IMPROVEMENTS SHALL BE IN ACCORDANCE WITH HOWARD COUNTY STD. DETAIL R-10.01



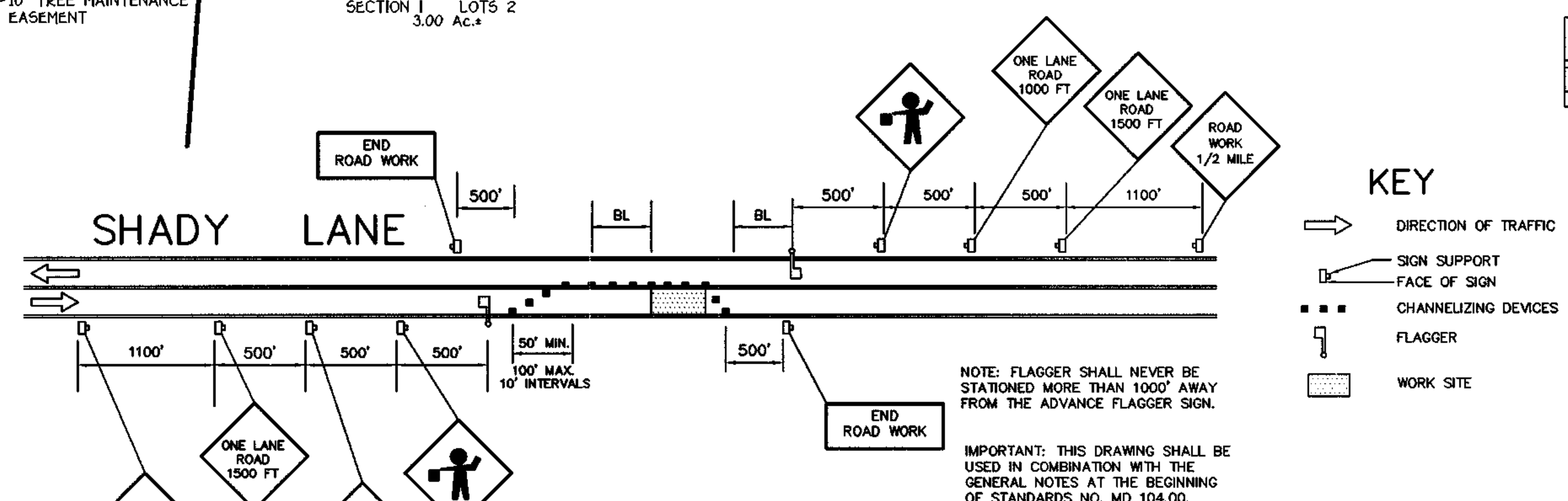
NOTE:
SEE HOWARD COUNTY STD. DETAILS FOR PAVING SECTION.

TYPICAL ROADWAY SECTION (PUBLIC ACCESS PLACE)

NO SCALE

ROADWAY INFORMATION CHART

ROAD NAME	CLASSIFICATION	DESIGN SPEED	ZONING	℄ STATION LIMITS	R/W	PAV. WIDTH	PAVING SECTION
WINDRIDGE COURT	PUBLIC ACCESS PLACE	25 M.P.H.	RR-DEO	0+00 TO 12+52.77	40'	18'	P-2



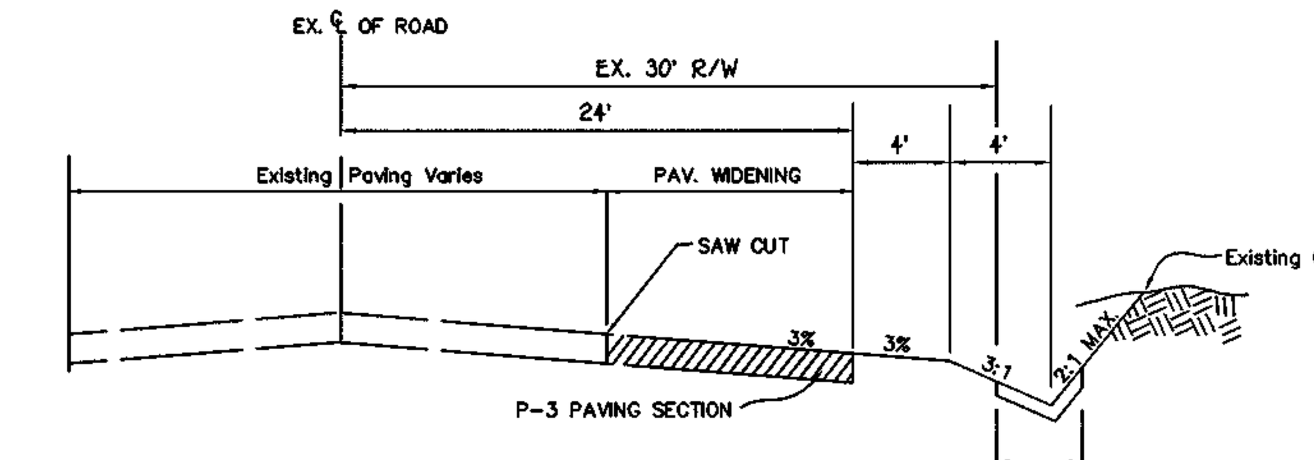
NOTE: FLAGGER SHALL NEVER BE STATIONED MORE THAN 1000' AWAY FROM THE ADVANCE FLAGGER SIGN.

IMPORTANT: THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES AT THE BEGINNING OF STANDARDS NO. MD 104.00.

(STANDARD NO. MD 104.02-02)

TEMPORARY TRAFFIC CONTROL PLAN

NO SCALE

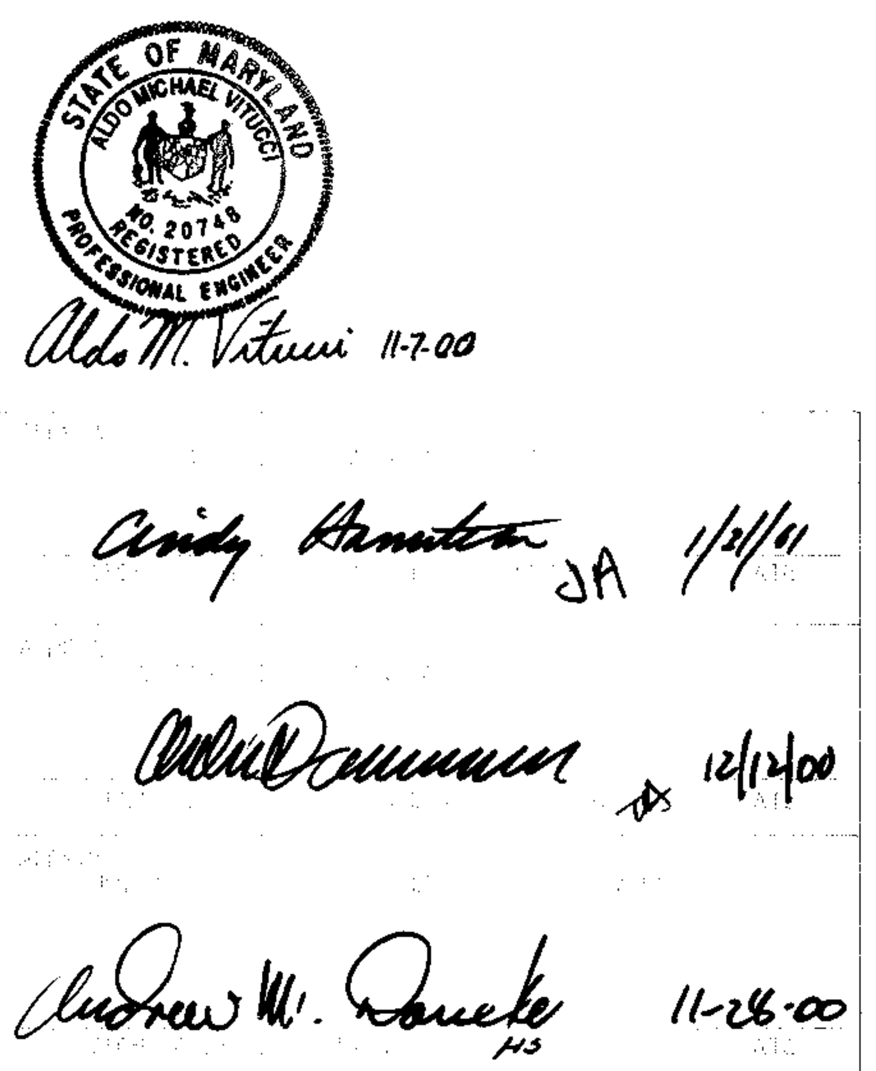


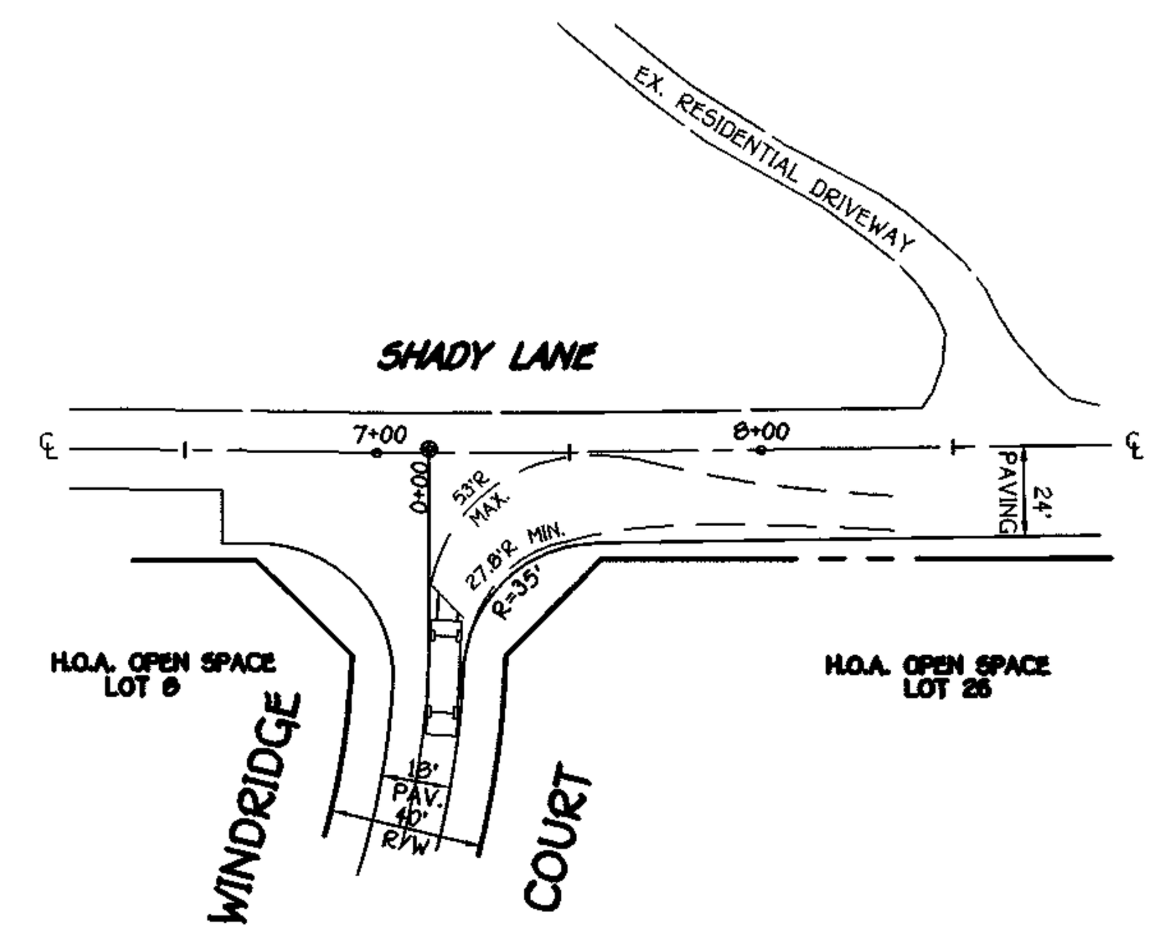
(STATION 6+60.06 TO STATION 9+58.68)

(MAJOR COLLECTOR)

TYPICAL WIDENING SECTION (SHADY LANE)

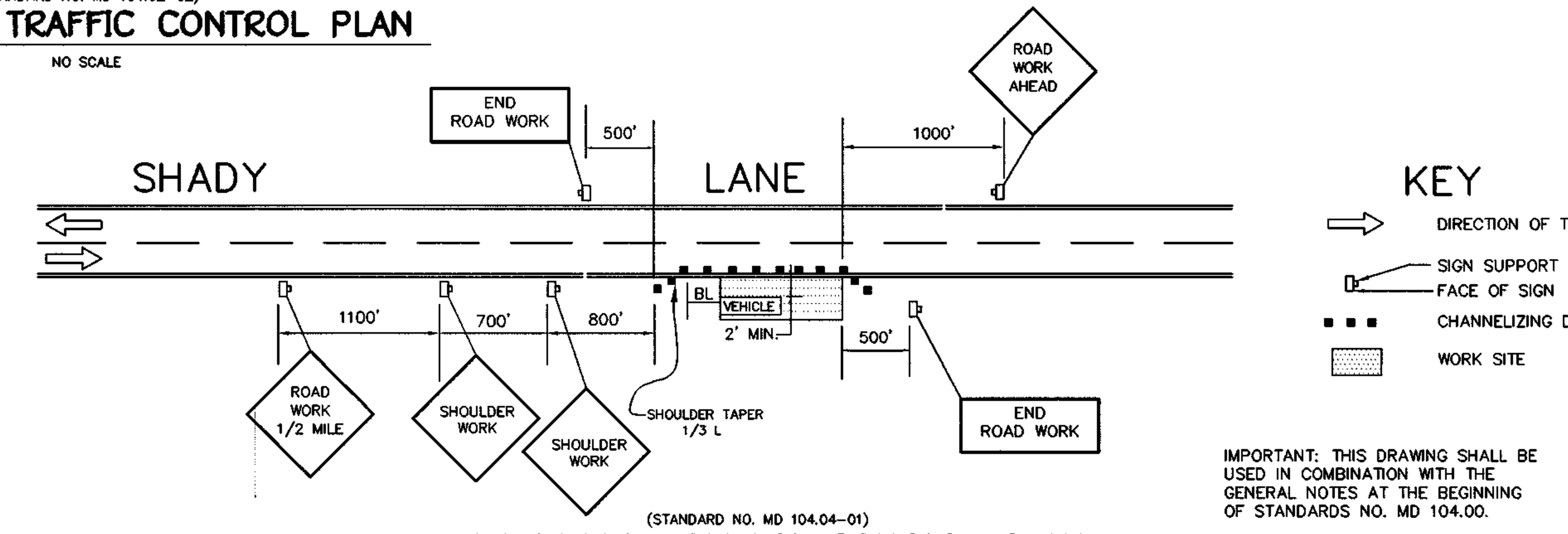
NO SCALE





TURNING MOVEMENT ANALYSIS FOR HO. CO. SNOW PLOW

SCALE: 1" = 50'



IMPORTANT: THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES AT THE BEGINNING OF STANDARDS NO. MD 104.00.

(STANDARD NO. MD 104.04-01)

TEMPORARY TRAFFIC CONTROL PLAN

NO SCALE

WINDRIDGE FARMS
SECTION 2, AREA 2
LOTS 8 THRU 26

(A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL 'B' WINDRIDGE FARMS SECTION 2, AREA 1)
ZONED: RR-DEO
TAX MAP No. 21 PARCEL No. 31 GRID No. 17
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

SHADY LANE AND WINDRIDGE COURT

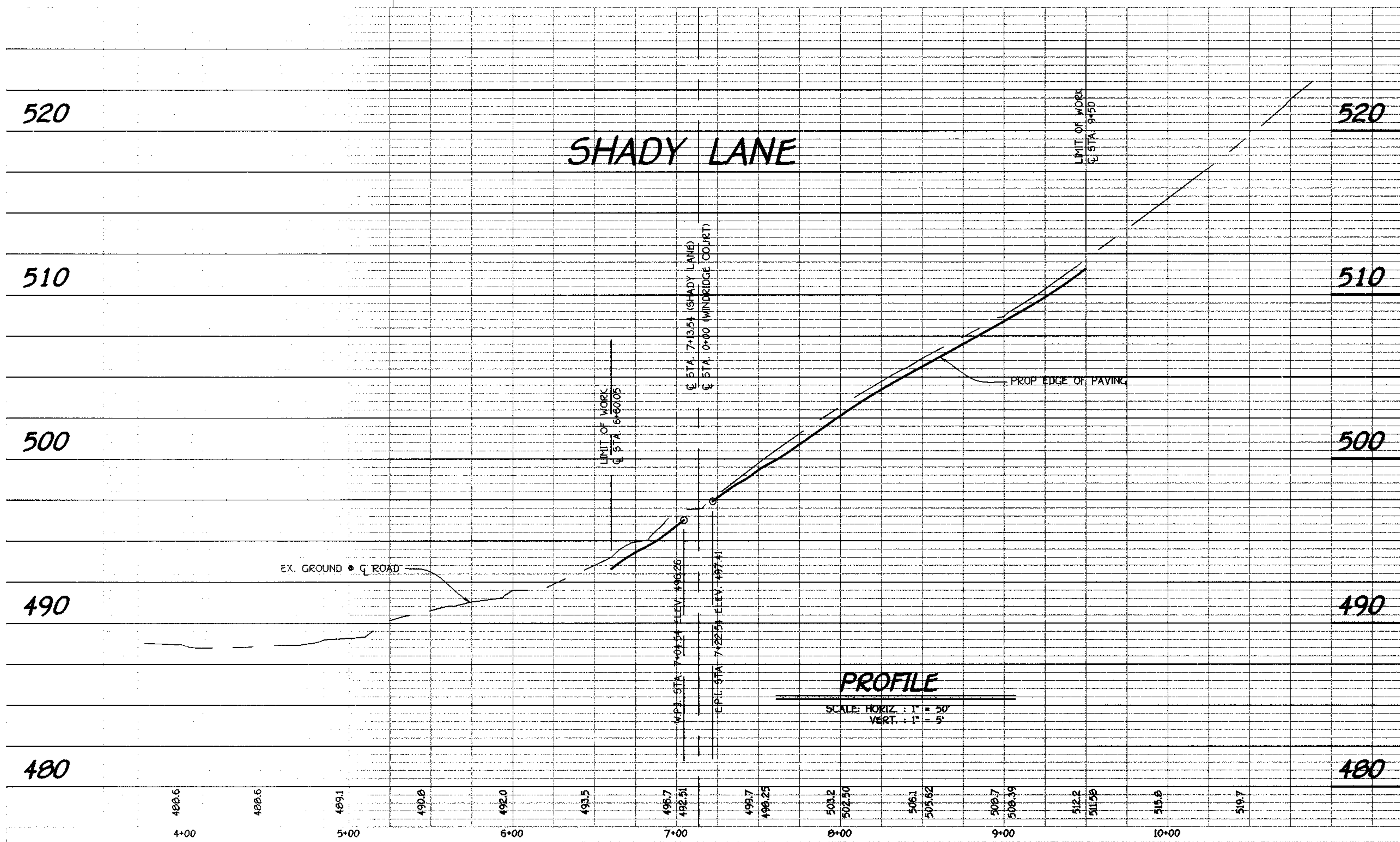
PLAN, PROFILES AND ROADWAY DETAILS

OWNER AND DEVELOPER

CUBBAGE L.L.C.
c/o J. THOMAS SCRIVENER
8808 CENTRE PARK DRIVE
COLUMBIA, MARYLAND 21045

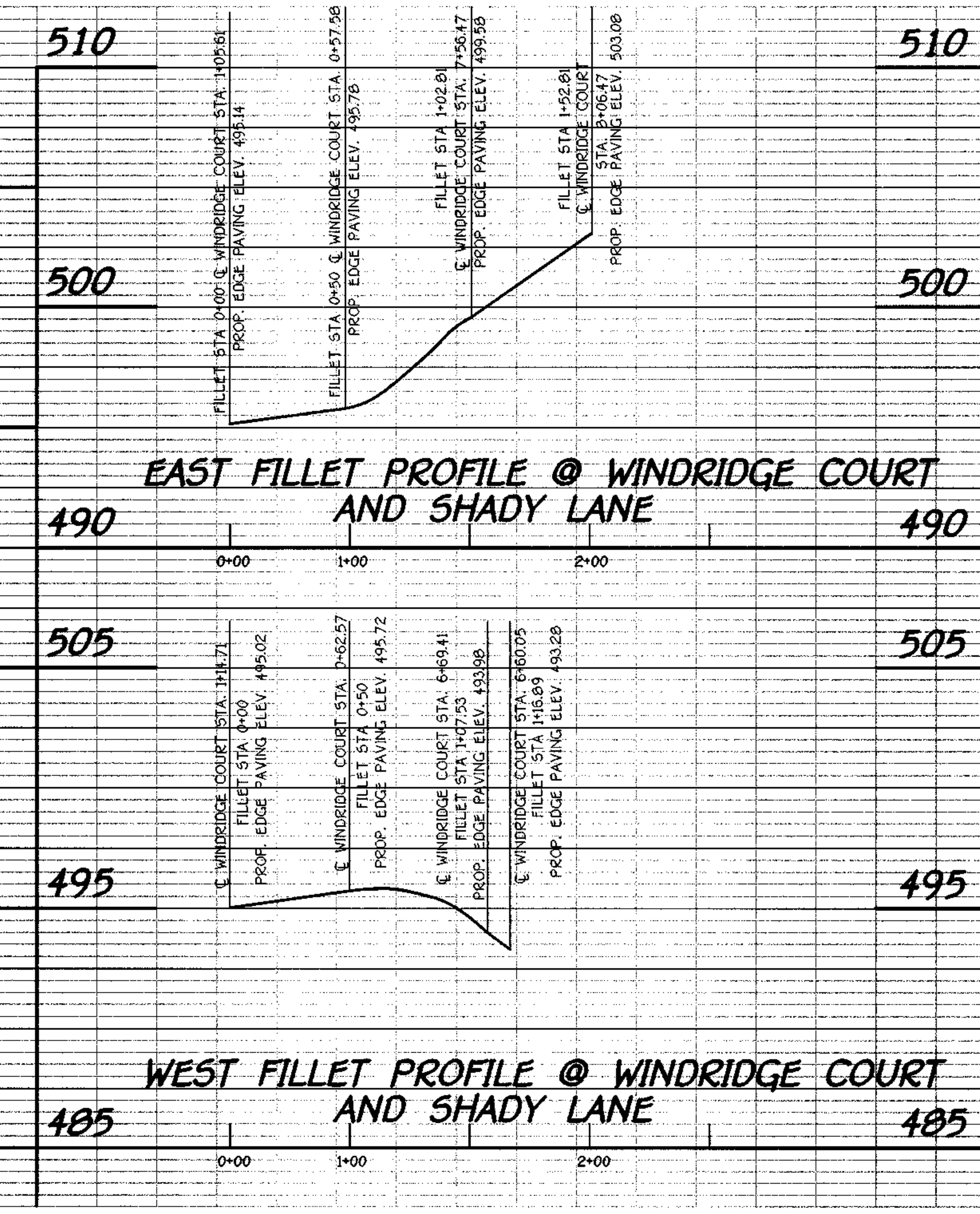
SCALE AS SHOWN	DATE SEPT. 1, 2000	3 OF 14
DES. Z.Y.F.	DRN. F.J.M.	Z.Y.F.

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS



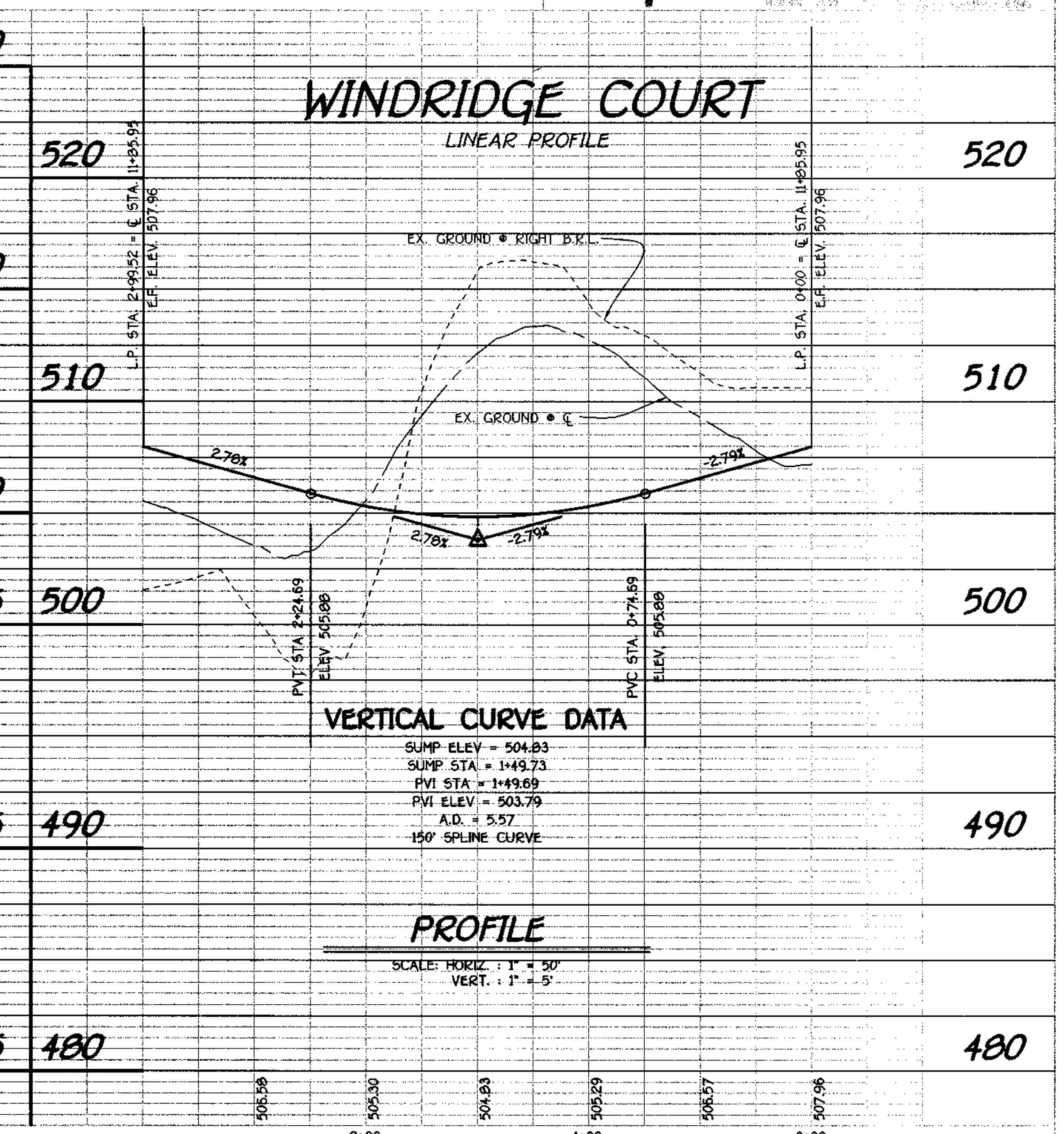
PROFILE

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



EAST FILLET PROFILE @ WINDRIDGE COURT AND SHADY LANE

WEST FILLET PROFILE @ WINDRIDGE COURT AND SHADY LANE



VERTICAL CURVE DATA

SUMP ELEV = 504.03
SUMP STA. = 1+49.73
PVI STA. = 1+49.69
PVI ELEV = 503.79
A.D. = 5.57
150' SPLINE CURVE

PROFILE

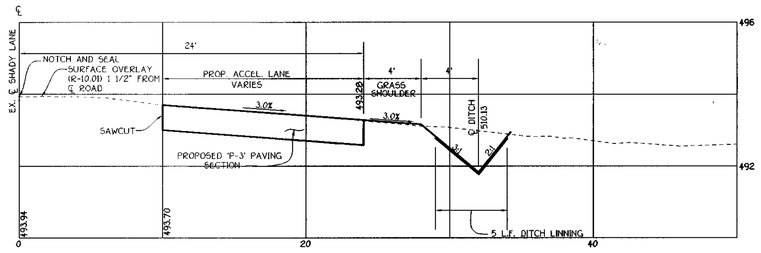
SCALE: HORIZ. : 1" = 50'
VERT. : 1" = 5'

F 00-178

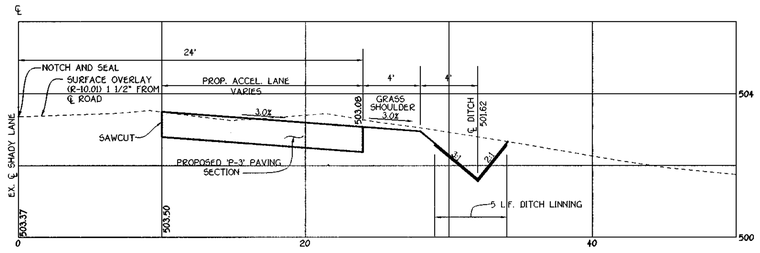
K:\Drawings 3\30671 Windridge\FINAL\30671 FINAL ROAD SHT 2.dwg

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 12-8-00

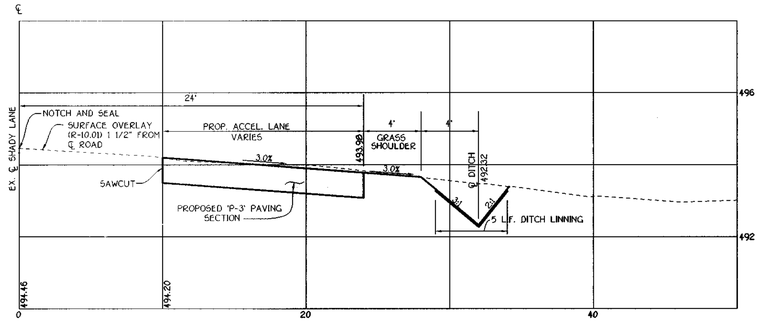
APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/21/00
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/12/00



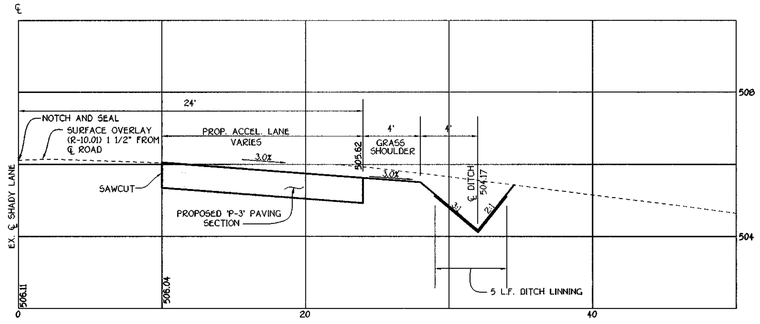
℄ STA 6+60.05 SHADY LANE



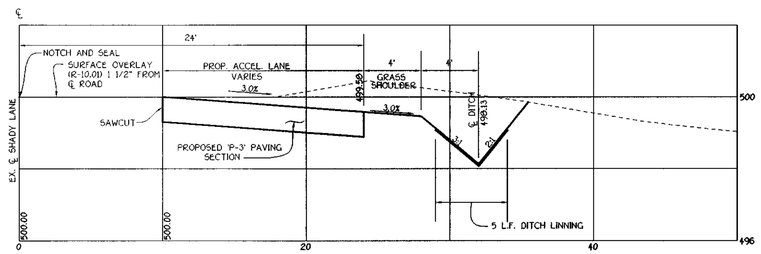
℄ STA 8+06.47 SHADY LANE



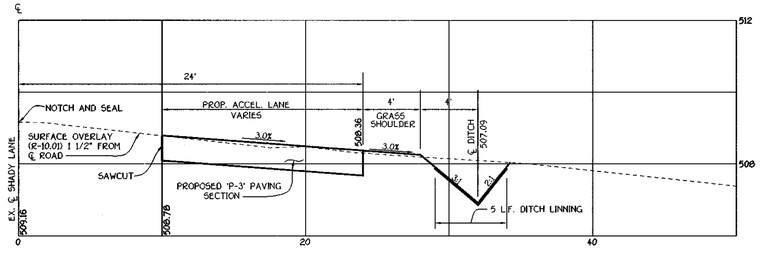
℄ STA 6+69.41 SHADY LANE



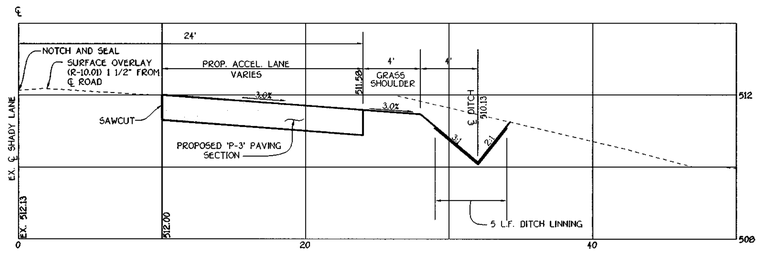
℄ STA 8+50 SHADY LANE



℄ STA 7+56.47 SHADY LANE



℄ STA 9+00 SHADY LANE



℄ STA 9+50 SHADY LANE

STATE OF MARYLAND
ALDO MICHAEL VITUCCI
NO. 20765
REGISTERED
PROFESSIONAL ENGINEER

Aldo M. Vitucci 11-7-00

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

CROSS SECTIONS
SCALE: HORIZ. 1" = 5'
VERT. 1" = 2'

OWNER AND DEVELOPER
CUMMAGE L.L.C.
c/o J. THOMAS SCRIVENER
8000 CENTER PARK DRIVE
SUITE 209
COLUMBIA, MARYLAND 21045

CROSS SECTIONS FOR SHADY LANE
WINDRIDGE FARMS
SECTION 2, AREA 2
LOTS 8 THRU 26

(A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL 'B' WINDRIDGE FARMS SECTION 2, AREA 1)
ZONED: RR-DEO
TAX MAP No. 21 PARCEL No. 31 GRID No. 17
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: SEPTEMBER 1, 2000
SHEET 4 OF 14

F 00-178

K:\Drawings 3\30671 Windridge\FINALS\30671 CROSS SECTIONS.dwg Tue Sep 05 09:34:21 2000

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."

Signature Of Developer — Date: 9/7/00

CUBBAGE, LLC
Printed Name Of Developer

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 Of Engineer — Date: 11-7-00

ALDO M. VITUCCI
Printed Name Of Engineer

ALDO M. VITUCCI — No. 7079 — REGISTERED PROFESSIONAL ENGINEER — STATE OF MARYLAND

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.

USDA-Natural Resources Conservation Service — Date: 2/01/01

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

Howard Soil Conservation District — Date: 2/01/01

Approved: Department Of Public Works

Chief Bureau Of Highways — Date: 11-28-00

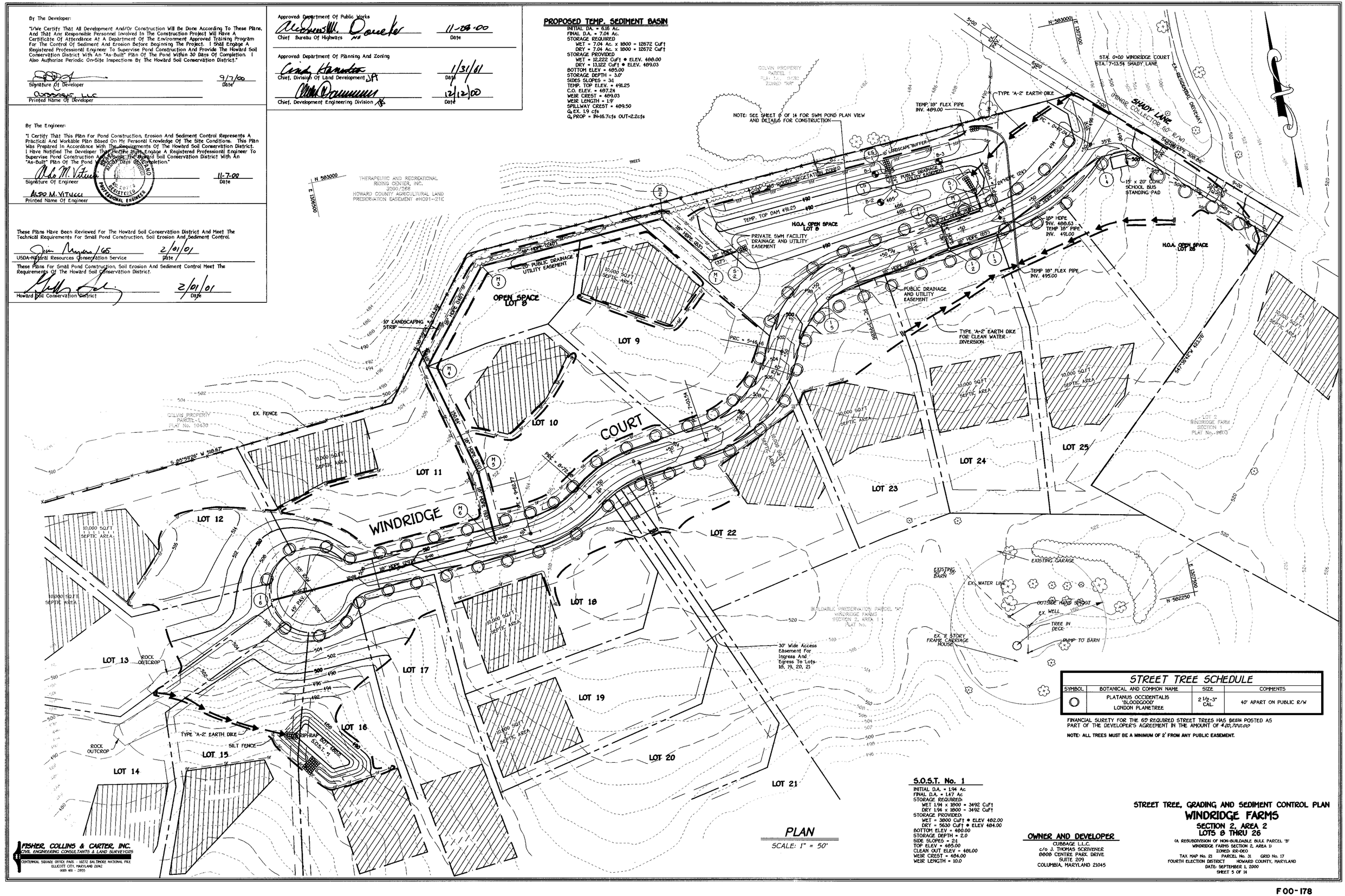
Approved: Department Of Planning And Zoning

Chief, Division Of Land Development — Date: 1/31/01

Chief, Development Engineering Division — Date: 12/12/00

PROPOSED TEMP. SEDIMENT BASIN

INITIAL D.A. = 6.16 Ac.
FINAL D.A. = 7.04 Ac.
STORAGE REQUIRED
WET = 7.04 Ac. x 1800 = 12672 Cuft
DRY = 7.04 Ac. x 1800 = 12672 Cuft
STORAGE PROVIDED
WET = 12,222 Cuft @ ELEV. 488.00
DRY = 13,122 Cuft @ ELEV. 489.03
BOTTOM ELEV = 485.00
STORAGE DEPTH = 3.0'
SIDES SLOPES = 3:1
TEMP. TOP ELEV. = 491.25
C.O. ELEV. = 487.24
WEIR CREST = 488.03
WEIR LENGTH = 1.9'
SPILLWAY CREST = 489.50
Q_i EX. 1.9 cfs
Q_i PROP = IN=16.7cfs OUT=2.2cfs



PLAN

SCALE: 1" = 50'

STREET TREE SCHEDULE			
SYMBOL	BOTANICAL AND COMMON NAME	SIZE	COMMENTS
○	PLATANUS OCCIDENTALIS 'BLOODGOOD' LONDON PLANETREE	2 1/2"-3" CAL.	40' APART ON PUBLIC R/W

FINANCIAL SURETY FOR THE 69 REQUIRED STREET TREES HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF $20,700.00

NOTE: ALL TREES MUST BE A MINIMUM OF 2' FROM ANY PUBLIC EASEMENT.

S.O.S.T. No. 1

INITIAL D.A. = 1.94 Ac
FINAL D.A. = 1.47 Ac
STORAGE REQUIRED:
WET 1.94 x 1800 = 3492 Cuft
DRY 1.94 x 1800 = 3492 Cuft
STORAGE PROVIDED:
WET = 3900 Cuft @ ELEV 482.00
DRY = 5630 Cuft @ ELEV 484.00
BOTTOM ELEV = 480.00
STORAGE DEPTH = 2.0
SIDE SLOPES = 2:1
TOP ELEV = 485.00
CLEAN OUT ELEV = 481.00
WEIR CREST = 484.00
WEIR LENGTH = 10.0

OWNER AND DEVELOPER

CUBBAGE L.L.C.
c/o J. THOMAS SCRIVENER
8808 CENTRE PARK DRIVE
SUITE 209
COLUMBIA, MARYLAND 21045

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

STREET TREE, GRADING AND SEDIMENT CONTROL PLAN
WINDRIDGE FARMS
SECTION 2, AREA 2
LOTS 8 THRU 26

(A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL 'B' WINDRIDGE FARMS SECTION 2, AREA 1)
ZONED: RR-DEO
TAX MAP No. 21 PARCEL No. 31 GRID No. 17
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: SEPTEMBER 1, 2000
SHEET 5 OF 14

F 00-178

K:\Drawings 3\30671 Windridge\FINALS\30671 Final Grading Sht 1.dwg Tue Sep 05 13:26:42 2000

SOILS LEGEND

SOIL		CLASS
ChB2	Chester silt loam, 3 to 8 percent slopes, moderately eroded	B
ChC2	Chester silt loam, 8 to 15 percent slopes, moderately eroded	B
* CuB	Cornus silt loam, local alluvium, 3 to 8 percent slopes	B
GIA	Glenelg loam, 0 to 3 percent slopes	B
GIB2	Glenelg loam, 3 to 8 percent slopes, moderately eroded	B
GIC2	Glenelg loam, 8 to 15 percent slopes, moderately eroded	B
GIC3	Glenelg loam, 8 to 15 percent slopes, severely eroded	B
* GnA	Glenville silt loam, 0 to 3 percent slopes	C
* GnB2	Glenville silt loam, 3 to 8 percent slopes, moderately eroded	C
MIB2	Manor loam, 3 to 8 percent slopes, moderately eroded	B
MIC2	Manor loam, 8 to 15 percent slopes, moderately eroded	B
MIC3	Manor loam, 8 to 15 percent slopes, severely eroded	B
MID3	Manor loam, 15 to 25 percent slopes, severely eroded	B
MIE	Manor loam, 25 to 45 percent slopes	B
MnD	Manor very stony loam, 3 to 25 percent slopes	B

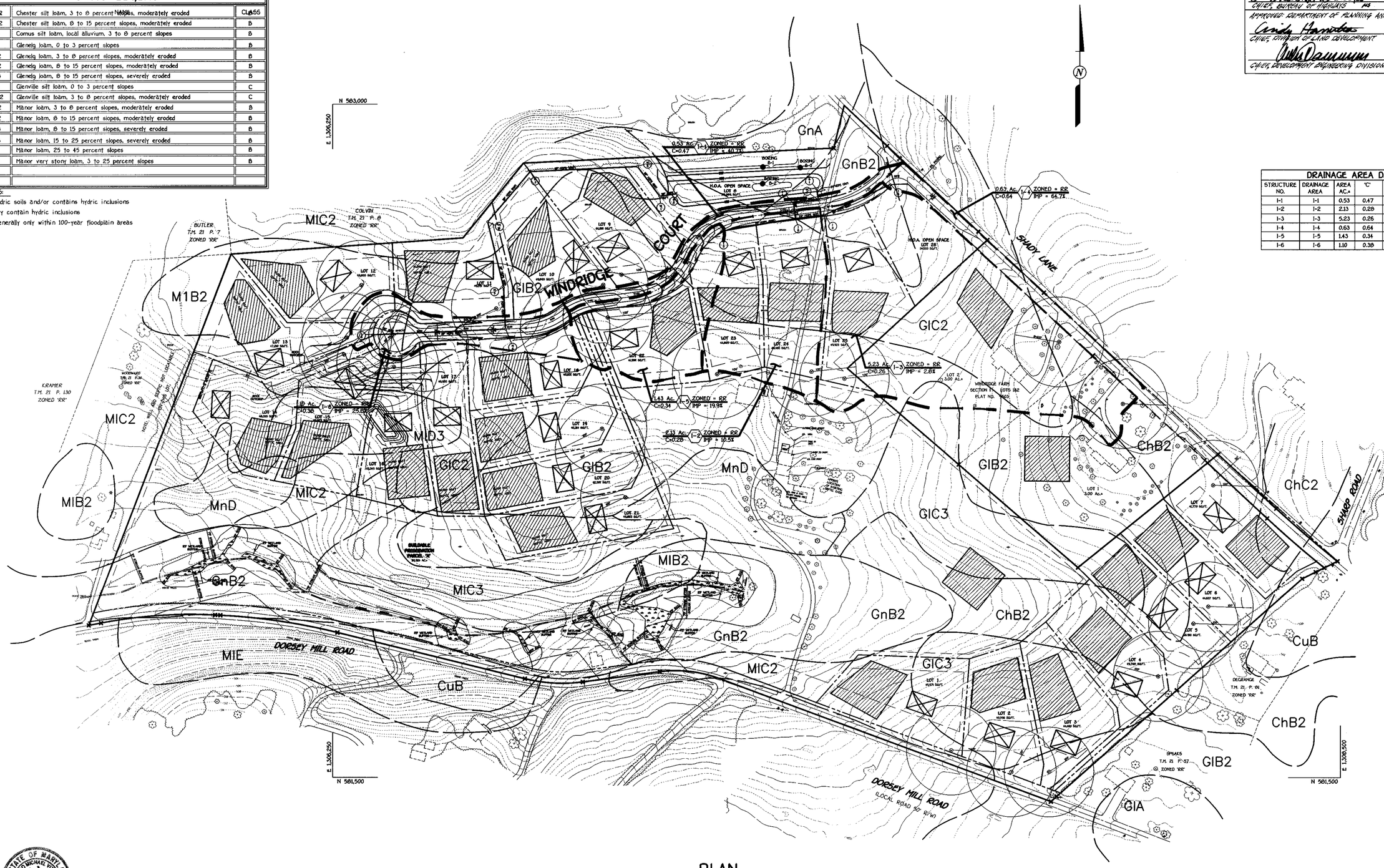
NOTES:
- * Hydric soils and/or contains hydric inclusions
- ** May contain hydric inclusions
- † Generally only within 100-year floodplain areas

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 12-9-00

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/31/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/12/00

DRAINAGE AREA DATA

STRUCTURE NO.	DRAINAGE AREA	AREA AC.±	'C'	ZONED	TC
I-1	I-1	0.53	0.47	RR	10.0 MIN.
I-2	I-2	2.13	0.28	RR	12.3 MIN.
I-3	I-3	5.23	0.26	RR	15.0 MIN.
I-4	I-4	0.63	0.64	RR	10.0 MIN.
I-5	I-5	1.43	0.34	RR	12.9 MIN.
I-6	I-6	1.10	0.38	RR	13.6 MIN.



PLAN
SCALE: 1" = 100'

STATE OF MARYLAND — ALDO MICHAEL VITUCCI — NO. 20749 — REGISTERED PROFESSIONAL ENGINEER

Aldo M. Vitucci 11-7-00

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
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(410) 461 - 2855

OWNER AND DEVELOPER
CUBBAGE L.L.C.
c/o J. THOMAS SCRIVENER
8808 CENTRE PARK DRIVE
SUITE 209
COLUMBIA, MARYLAND 21045

STORM DRAIN DRAINAGE AREA MAP
WINDRIDGE FARMS
SECTION 2, AREA 2
LOTS 8 THRU 26

(A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL 'B' WINDRIDGE FARMS SECTION 2, AREA 1)
ZONED: RR-DEO
TAX MAP No. 21 PARCEL No. 31 GRID No. 17
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: SEPTEMBER 1, 2000
SHEET 6 OF 14

F 00-178

Approved: Department Of Planning And Zoning

Chief, Division Of Land Development — 1/31/01 — Date

Chief, Development Engineering Division — 12/12/00

Approved: Howard County Department Of Public Works

Chief, Bureau Of Highways — 11-28-00 — Date

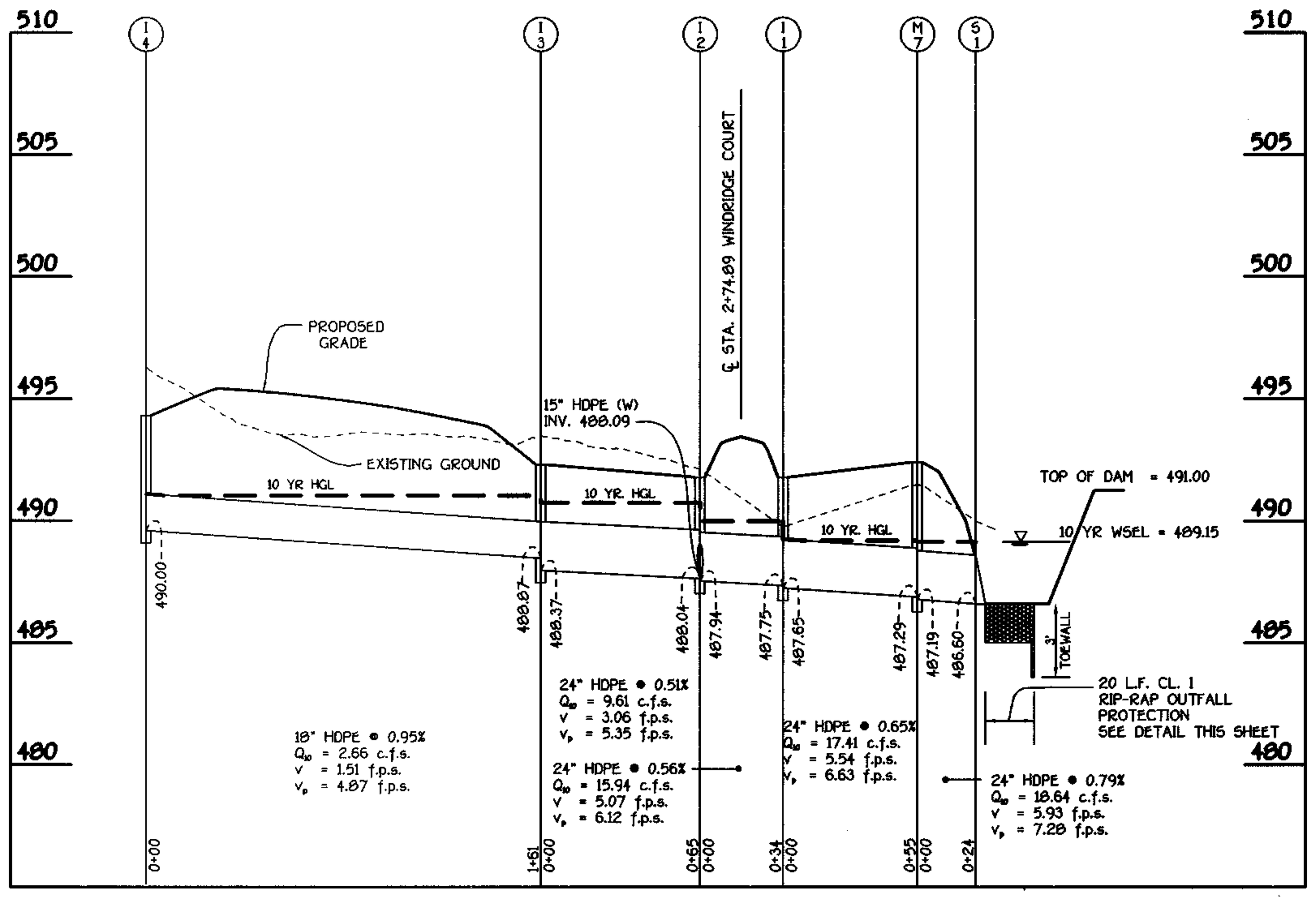
PIPE SCHEDULE

SIZE	MATERIAL	LENGTH
15"	HDPE	168 FEET
18"	HDPE	1209 FEET
24"	HDPE	178 FEET

STRUCTURE SCHEDULE

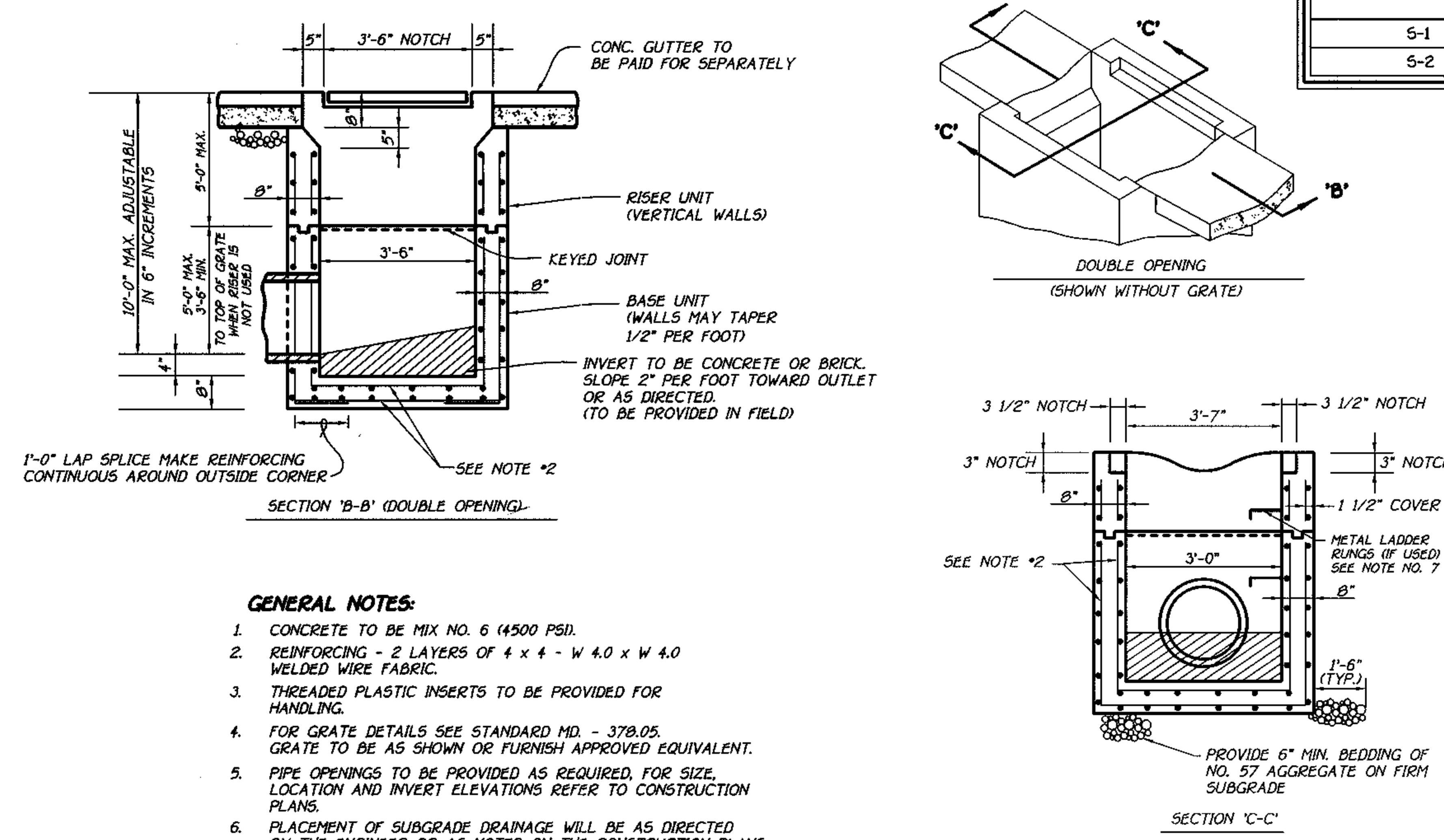
STRUCTURE NO.	TOP ELEVATION	INV. IN	INV. OUT	ROAD NAME	ROAD STA.	OFFSET	TYPE	REMARKS
I-1	491.78	487.75	487.65	WINDRIDGE COURT	STA. 2+74.89	17' RT	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-2	491.78	488.04 / 488.09	487.94	WINDRIDGE COURT	STA. 2+74.89	17' LT	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-3	492.34	488.87	488.37	WINDRIDGE COURT	STA. 2+09.55	17' LT	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-4	494.35	-----	490.00	WINDRIDGE COURT	STA. 0+55.64	17' LT	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-5	495.86	-----	490.11	WINDRIDGE COURT	STA. 4+50.00	17' LT	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
I-6	503.38	-----	499.80	WINDRIDGE COURT	L.P. STA. 1+49.73	8' RT	OPEN END GRATE	S.D. 4.36 w/ S.D. 4.13
M-7	492.18	487.29	487.19	WINDRIDGE COURT	STA. 2+19.47	17' RT	BRICK MANHOLE	G - 5.01
M-6	513.13	497.42	497.17	WINDRIDGE COURT	STA. 10+08.45	0'	BRICK MANHOLE	G - 5.01
M-5	510.60	496.43	496.28	-----	N 582591.80 E 1306631.49	----	BRICK MANHOLE	G - 5.01
M-4	504.30	495.07	494.92	-----	N 582738.19 E 1306595.98	----	BRICK MANHOLE	G - 5.01
M-3	503.00	493.46	493.31	-----	N 582849.68 E 1306690.77	----	BRICK MANHOLE	G - 5.01
M-2	494.60	489.91	489.76	-----	N 582861.06 E 1306930.50	----	BRICK MANHOLE	G - 5.01
M-1	494.50	488.51	488.36	-----	N 582794.87 E 1306980.58	----	BRICK MANHOLE	G - 5.01

S-1	488.60	-----	486.60	WINDRIDGE COURT	STA. 2+19.47	41' RT	HDPE END SECTION	
S-2	489.35	-----	487.85	-----	N 582800.05 E 1307016.95	----	HDPE END SECTION	



PROFILES

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

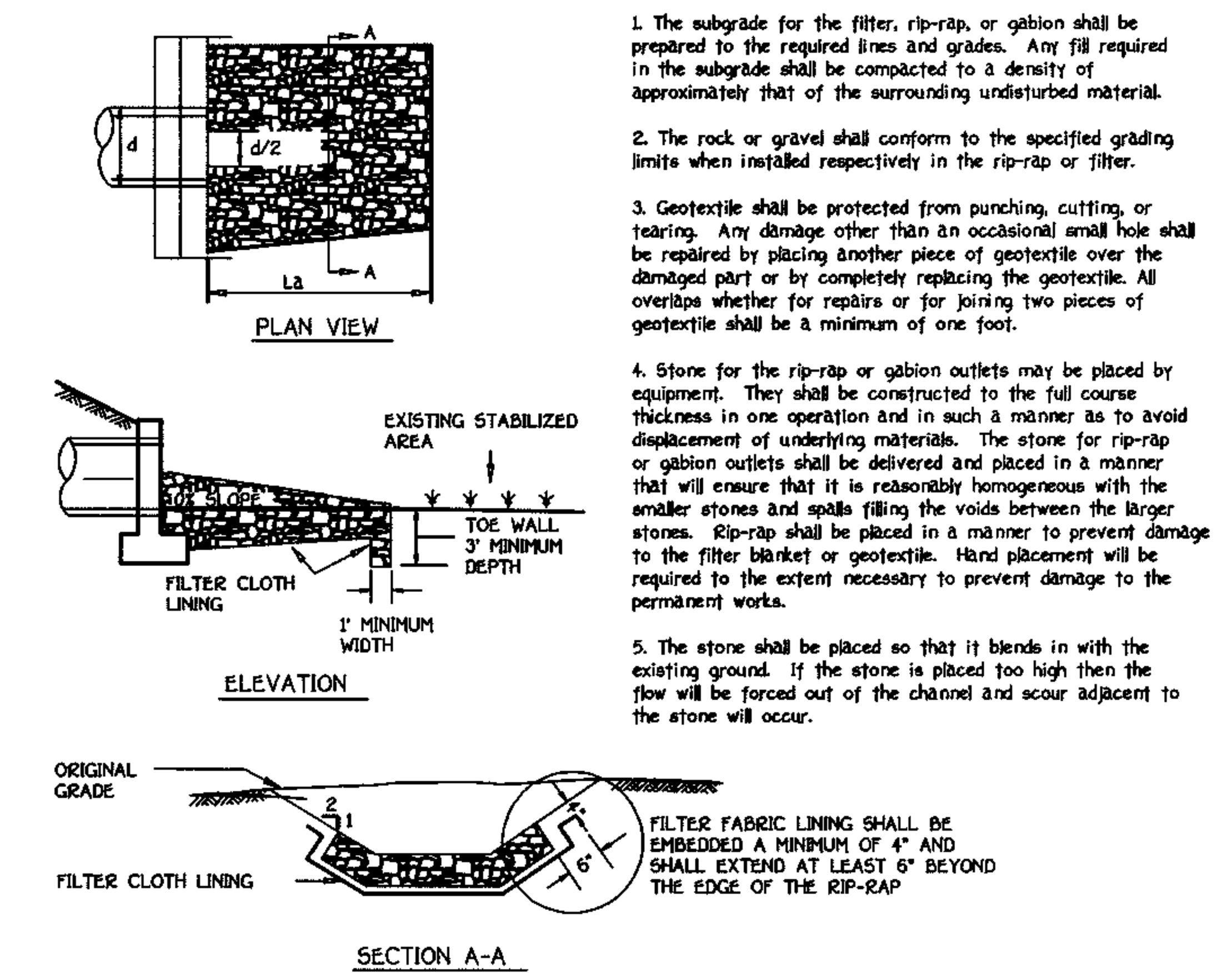


GENERAL NOTES:

1. CONCRETE TO BE MIX NO. 6 (4500 PSI).
2. REINFORCING - 2 LAYERS OF 4 x 4 - W 4.0 x W 4.0 WELDED WIRE FABRIC.
3. THREADED PLASTIC INSERTS TO BE PROVIDED FOR HANDLING.
4. FOR GRATE DETAILS SEE STANDARD MD. - 378.05. GRATE TO BE AS SHOWN OR FURNISH APPROVED EQUIVALENT.
5. PIPE OPENINGS TO BE PROVIDED AS REQUIRED, FOR SIZE, LOCATION AND INVERT ELEVATIONS REFER TO CONSTRUCTION PLANS.
6. PLACEMENT OF SUBGRADE DRAINAGE WILL BE AS DIRECTED BY THE ENGINEER OR AS NOTED ON THE CONSTRUCTION PLANS.
7. LADDER RUNGS SHALL BE IN ACCORDANCE WITH STANDARD MD. - 383.91, AS SHOWN OR AS DIRECTED BY THE ENGINEER.
8. MINIMUM DEPTH PAYMENT PER "EACH" INLET INCLUDES DEPTHS UP TO 3'-6". VERTICAL DEPTH PAYMENT PER LINEAR FOOT INCLUDES DEPTHS IN EXCESS OF 3'-6".
9. A 6" PERFORATED CIRCULAR PIPE, FOR EROSION AND SEDIMENT CONTROL, SHALL BE PLACED IN THE INLET WALL AT ALL INLET SEDIMENT TRAPS AS SHOWN ON THE PLANS.

MODIFIED OPEN END GRATE

NOT TO SCALE



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 material.

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 smaller stones and spalls filling the voids between the larger 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.

NOTE: FILTER CLOTH SHALL BE GEOTEXTILE CLASS C

ROCK OUTLET PROTECTION III

NOT TO SCALE

PROFILES

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

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
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ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

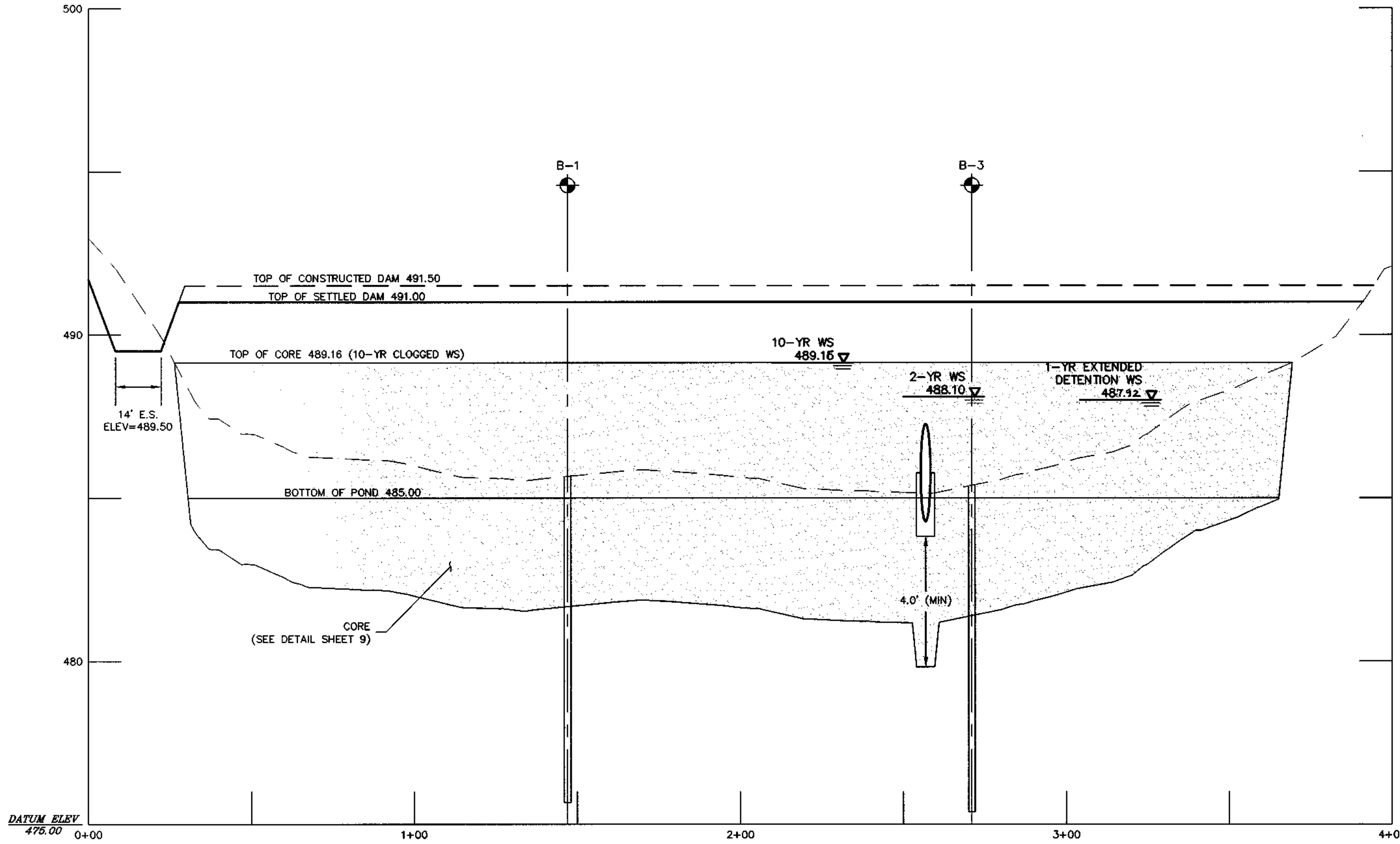
STATE OF MARYLAND — ALDO MICHAEL VITUCCI — NO. 20748 — REGISTERED PROFESSIONAL ENGINEER — 11-7-00

OWNER AND DEVELOPER
CUBBAGE L.L.C.
c/o J. THOMAS SCRIVENER
8808 CENTRE PARK DRIVE
SUITE 209
COLUMBIA, MARYLAND 21045

STORM DRAIN PROFILES AND DETAILS
WINDRIDGE FARMS
SECTION 2, AREA 2
LOTS 8 THRU 26

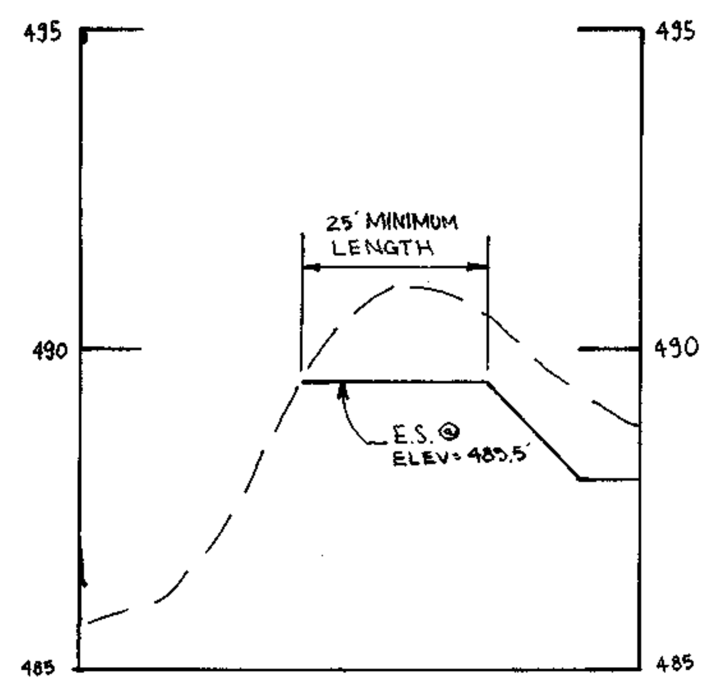
(A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL 'B' WINDRIDGE FARMS SECTION 2, AREA 1)
ZONED: RR-DEO
TAX MAP No. 21 PARCEL No. 31 GRID No. 17
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: SEPTEMBER 1, 2000
SHEET 7 OF 14

F 00 - 178



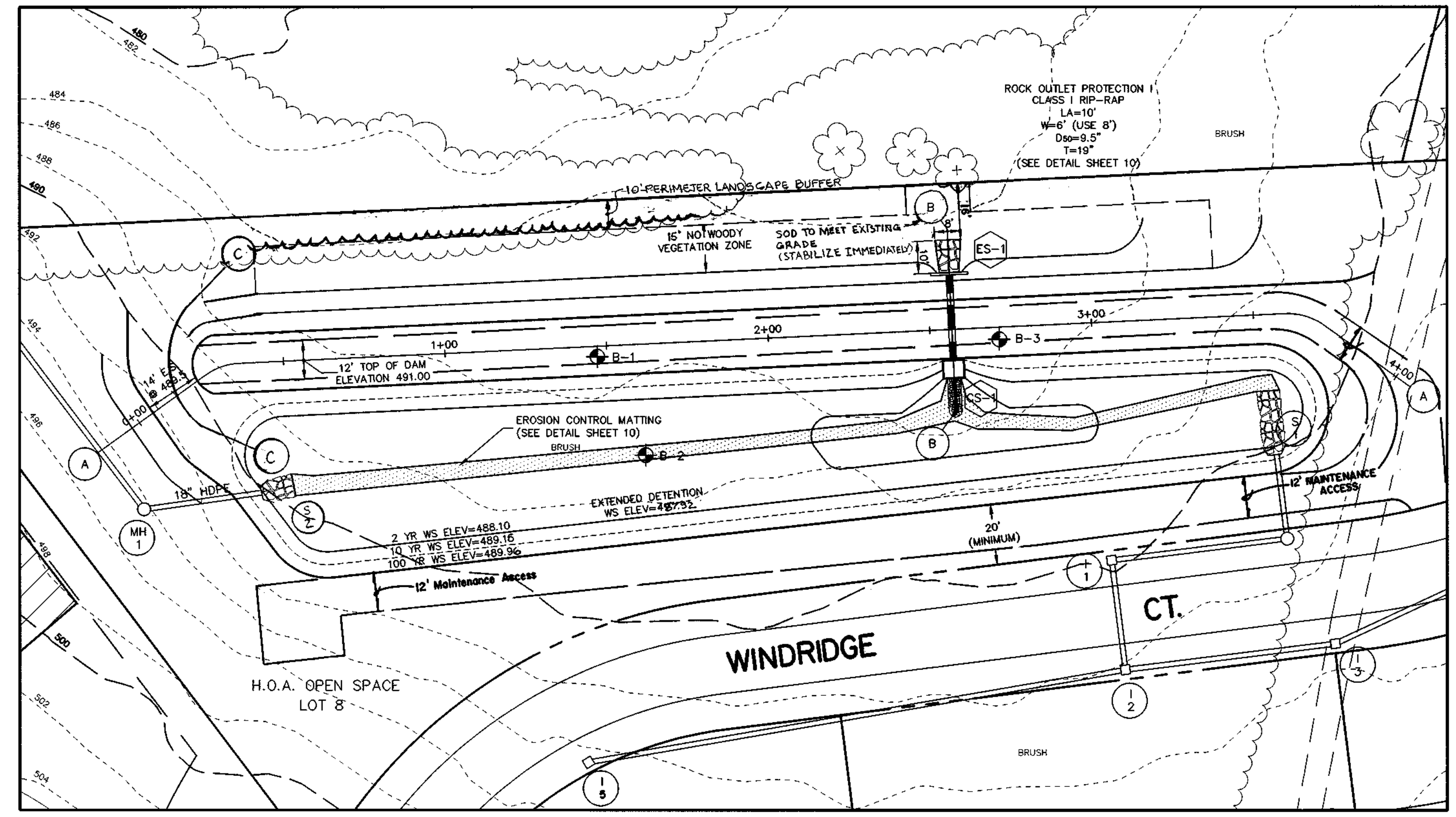
CENTERLINE EMBANKENT PROFILE (A-A)

HORIZONTAL SCALE : 1" = 30'
VERTICAL SCALE : 1" = 3'



EMERGENCY SPILLWAY PROFILE (C-C)

HORIZONTAL SCALE : 1" = 30'
VERTICAL SCALE : 1" = 3'



STORMWATER MANAGEMENT POND DETAIL

SCALE : 1" = 30'

POND DATA
HAZARD CLASSIFICATION- "a"
DRAINAGE AREA- 14.7 ACRES
PROPOSED RCN- 67
PROPOSED TC- 0.20 HR.
WATER QUALITY TYPE- EXTENDED DETENTION
1 YEAR EXTENDED DETENTION ELEVATION- 487.92
2 YEAR STORM POOL ELEVATION- 488.10, QOUT=1.7 CFS, QIN=11.6 CFS
10 YEAR STORM POOL ELEVATION- 489.16, QOUT=21.3 CFS, QIN=35.1 CFS
100 YEAR STORM POOL ELEVATION- 489.96, QOUT=53.2 CFS, QIN=66.2 CFS
OWNERSHIP- PRIVATE

STRUCTURE SCHEDULE

STRUCTURE NO.	TOP ELEVATION	INV.IN	INV.OUT	ROAD NAME	ROAD STA.	OFFSET	TYPE	REMARKS
CS-1	490.50	485.00	484.50	-----	N 582,837.67 E 1,307,230.87	---	CONCRETE RISER	
ES-1	488.23	-----	484.23	-----	N 582,867.66 E 1,307,229.13	---	TYPE 'C' ENDWALL	S.D. 5.21

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 SPECIFICATIONS.

SIGNATURE ____ P.E. NO.: ____ DATE: ____

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 AND ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

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."

[signature] SIGNATURE OF DEVELOPER — 9/7/00 DATE

COBBAGE, LLC
PRINTED NAME OF DEVELOPER

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] SIGNATURE OF ENGINEER — 8/28/00 DATE

R. JACOB HIKMAT
PRINTED NAME OF ENGINEER

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

Jim Myers / NRCS. — USDA - NATURAL RESOURCES CONSERVATION SERVICE — 1/25/01 DATE

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

[signature] HOWARD SOIL CONSERVATION DISTRICT — 1/25/01 DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

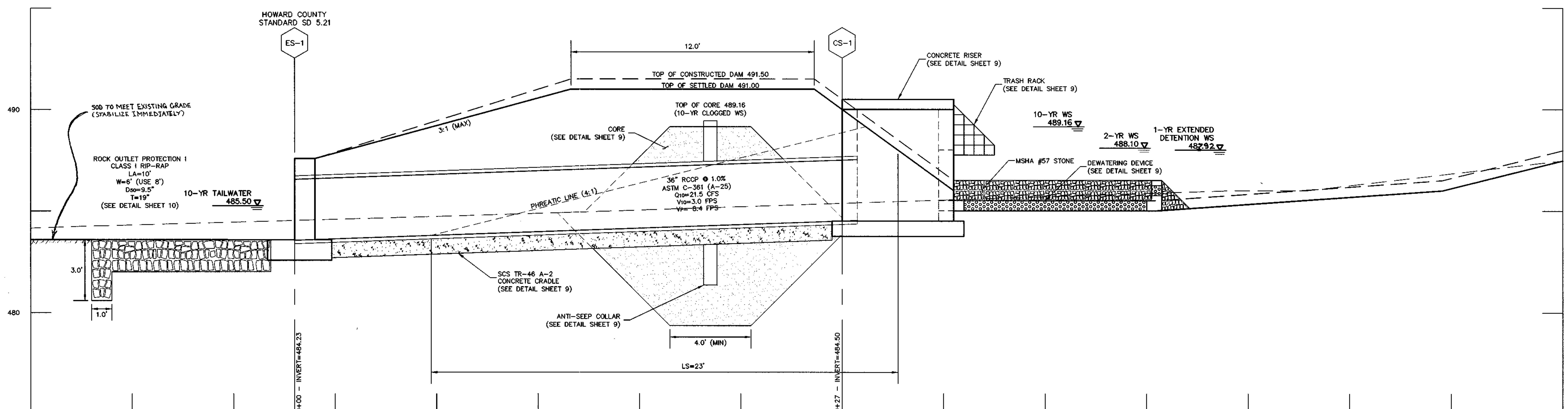
[signature] CHIEF BUREAU OF HIGHWAYS — 11-28-00 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONNING

[signature] CHIEF, DIVISION OF LAND DEVELOPMENT — 1/31/01 DATE

[signature] CHIEF, DEVELOPMENT ENGINEERING DIVISION — 12/12/00 DATE

H:\98099\DWG\099-POND_DETAILS.DWG



PRINCIPAL SPILLWAY PROFILE (B-B)

SCALE : 1" = 3'

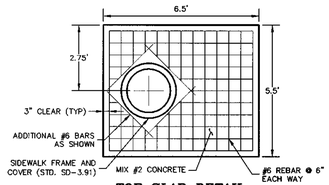
WINDRIDGE FARMS - SECTION 2, AREA 2
LOTS 8 THRU 26 AND BUILDABLE PRESERVATION PARCEL A
TAX MAP 21, PARCEL 31
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
STORMWATER MANAGEMENT DETAILS

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

project	date
98099	MAY 2000
illustration	engineering
KR	KR
scale	approval
1"=30'	

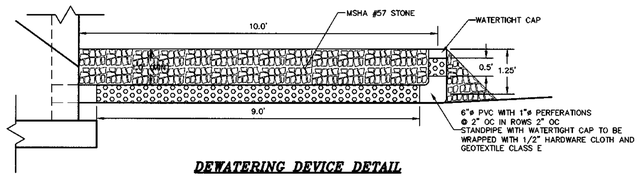
no.	description revisions	date

F00-178



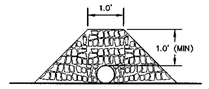
TOP SLAB DETAIL

SCALE : 1" = 3'



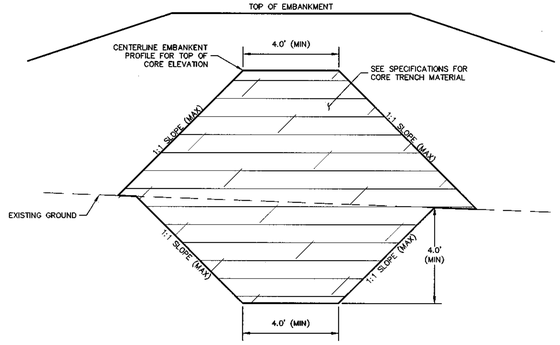
DEWATERING DEVICE DETAIL

SCALE : 1" = 2'



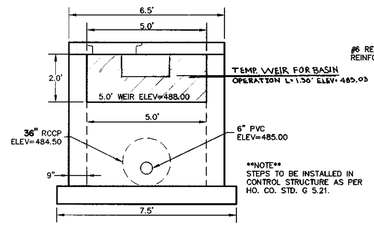
DEWATERING DEVICE (SECTION)

SCALE : 1" = 2'



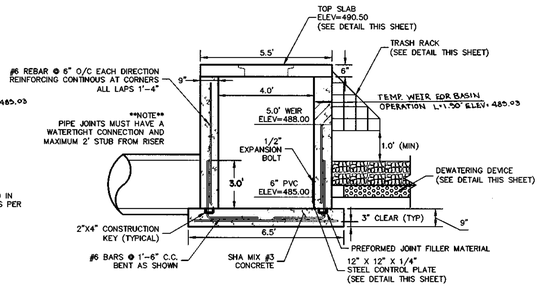
CORE TRENCH DETAIL

NOT TO SCALE



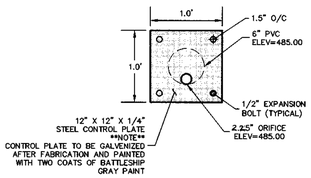
CONTROL STRUCTURE DETAIL (ELEVATION)

SCALE : 1" = 3'



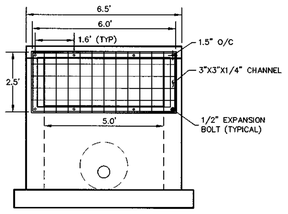
CONTROL STRUCTURE DETAIL (SECTION)

SCALE : 1" = 3'



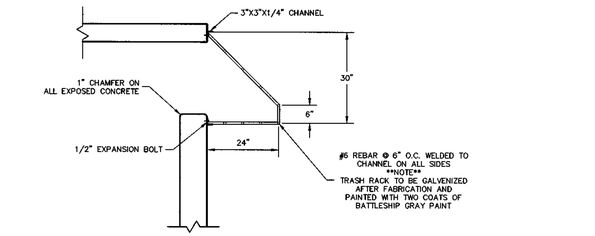
CONTROL PLATE DETAIL

SCALE : 1" = 1'



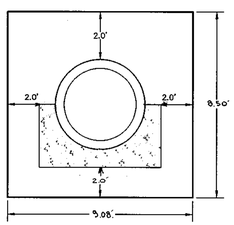
TRASH RACK ELEVATION

SCALE : 1" = 3'



TRASH RACK DETAIL

SCALE : 1" = 2'

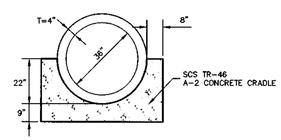


NOTE
JOINT FILLER MATERIAL SHALL BE PLACED BETWEEN ALL CONCRETE SURFACES EXCEPT BETWEEN THE PIPE AND THE CRADLE

ANTI-SEEP COLLAR SHALL BE PLACED A MINIMUM OF 2' FROM ANY PIPE JOINT

ANTI-SEEP COLLAR DETAIL

SCALE : NOT TO SCALE



CONCRETE CRADLE DETAIL

NOT TO SCALE

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 SPECIFICATIONS.

P.E. NO.: _____

SIGNATURE _____ DATE: _____

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 AND ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE DEVELOPER:

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SIGNATURE OF DEVELOPER — DATE 9/7/00

CONGRESS LLC
PRINTED NAME OF DEVELOPER

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 OF ENGINEER — DATE 8/24/00

R. JACOB HILKMAN
PRINTED NAME OF ENGINEER

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

USDA — NATURAL RESOURCES CONSERVATION SERVICE — DATE 1/25/01

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 1/25/01

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF BUREAU OF HIGHWAYS — DATE 11-28-00

APPROVED: DEPARTMENT OF PLANNING AND ZONNING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 1/31/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/12/00

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project 98099 | date MAY 2000
illustration KR | engineering KR
scale 1"=3' | approval

no.	description	date
	revisions	

WINDRIDGE FARMS- SECTION 2, AREA 2
LOTS 8 THRU 26 AND BUILDABLE PRESERVATION PARCEL A
TAX MAP 21, PARCEL 31
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
STORMWATER MANAGEMENT DETAILS

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

POND 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

AREAS TO BE COVERED BY THE RESERVOIR WILL BE CLEARED OF ALL TREES, BRUSH, LOGS, RUBBISH AND OTHER OBJECTIONABLE MATERIAL UNLESS OTHERWISE DESIGNATED TO THE PLANS. TREES, BRUSH AND STUMPS SHALL BE CUT APPROXIMATELY LEVEL WITH THE GROUND SURFACE. FOR DRY STORMWATER MANAGEMENT PONDS, A MINIMUM OF A 50 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 QUALITY 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. CONSIDERATION MAY BE GIVEN TO THE USE OF OTHER MATERIALS IN THE EMBANKMENT IF DESIGN AND CONSTRUCTION ARE SUPERVISED BY A GEOTECHNICAL ENGINEER.

PLACEMENT- AREAS ON WHICH FILL IS TO BE 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 AND SPREADING EQUIPMENT OVER THE FILL SHALL BE CONTROLLED SO THAT THE ENTIRE SURFACE OF EACH LIFT SHALL BE TRAVERSE BY NOT LESS THAN ONE TREAD TRACK OF THE 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.

WHERE A MINIMUM REQUIRED DENSITY IS SPECIFIED, IT SHALL NOT BE LESS 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

CUT OFF TRENCH- THE CUFF OFF TRENCH SHALL BE EXCAVATED INTO IMPERVIOUS MATERIAL ALONG OR PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE BOTTOM WIDTH OF THE TRENCH SHALL BE GOVERNED BY THE EQUIPMENT USED FOR EXCAVATION, WITH THE MINIMUM WIDTH BEING FOUR FEET. THE DEPTH SHALL BE AT LEAST FOUR FEET BELOW EXISTING GRADE OR AS SHOWN ON THE PLANS. THE SIDE SLOPES OF THE TRENCH SHALL BE 1 TO 1 OR FLATTER. THE BACKFILL SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TAMPERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY.

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 MATERIAL 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 FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE.

PIPE CONDUITS

ALL PIPES SHALL BE CIRCULAR IN CROSS SECTION.

CORRUGATED METAL PIPE- ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR CORRUGATED METAL PIPE:
1. MATERIALS- (STEEL PIPE)- THIS PIPE AND ITS APPURTENANCE SHALL BE GALVANIZED AND FULLY BITUMINOUS COATED AND SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M-190 TYPE A WITH WATERTIGHT COUPLING BANDS. ANY BITUMINOUS COATING DAMAGED OR OTHERWISE REMOVED SHALL BE REPLACED WITH COLD APPLIED BITUMINOUS COATING COMPOUND. STEEL PIPES WITH POLYMERIC COATINGS SHALL HAVE A MINIMUM COATING THICKNESS OF 0.01 INCH (10 MIL) ON BOTH SIDES OF THE PIPE. THE FOLLOWING COATINGS OR AN APPROVED EQUAL MAY BE USED: NEXON, PLASTI-COTE, BLAC-KLAD, AND BETH-CU-LOY. COATED CORRUGATED STEEL PIPE SHALL MEET THE REQUIREMENTS OF AASHTO M-245 AND M-246.

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. ANY ALUMINUM COATING DAMAGED OF OTHERWISE REMOVED SHALL BE REPLACED WITH COLD APPLIED BITUMINOUS COATING COMPOUND.?

MATERIALS-(ALUMINUM PIPE)- THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M-196 OR M-211 WITH WATERTIGHT COUPLINGS BANDS OR FLANGES. ALUMINUM SURFACES THAT ARE TO BE IN CONTACT WITH CONCRETE SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER. 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 AS THE PIPE. METALS MUST BE INSULATED FROM DISSIMILAR MATERIALS WITH USE RUBBER OR PLASTIC INSULATING MATERIALS AT LEAST 24 MILS IN THICKNESS.

3. CONNECTIONS- ALL CONNECTIONS WITH PIPES MUST BE COMPLETELY WATERTIGHT. THE DRAIN PIPE OR BARREL CONNECTION TO THE RISER SHALL BE WELDED ALL AROUND WHEN THE PIPE AND RISER ARE METAL. ANTI-STEEP COLLARS SHALL BE CONNECTED TO THE PIPE IN SUCH A MANNER AS TO BE COMPLETELY WATERTIGHT. DIMPLE BANDS ARE NOT CONSIDERED TO BE WATERTIGHT.

ALL CONNECTIONS SHALL USE A RUBBER OF NEOPRENE GASKET WHEN JOINING PIPE SECTIONS. THE END OF EACH PIPE SHALL BE-ROLLED AND ADEQUATE NUMBER OF CORRUGATIONS TO ACCOMMODATE THE BAND WIDTH. THE FOLLOWING TYPE CONNECTIONS ARE ACCEPTABLE FOR PIPE LESS THAN 24" IN DIAMETER: FLANGES ON BOTH ENDS OF THE PIPE, A 12" WIDE STANDARD LAP TYPE BAND WITH 12" WIDE BY 3/8" THICK CLOSED CELL CIRCULAR NEOPRENE GASKET; AND A 12" WIDE HUGGER TYPE BAND WITH O-RING GASKETS HAVING MINIMUM DIAMETER OF 1/2" GREATER THAN THE CORRUGATION DEPTH. PIPES 24: IN DIAMETER AND LARGER SHALL BE CONNECTED BY A 24" LONG ANNULAR CORRUGATED BAND USING RODS AND LUGS. A 12" WIDE BY 3/8" THICK CLOSED CELL CIRCULAR NEOPRENE GASKET WILL BE INSTALLED ON THE END OF EACH PIPE FOR A TOTAL OF 24"

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 DESIGNATION C-361.

2. BEDDING- ALL REINFORCED CONCRETE PIPE CONDUITS SHALL BE LAID IN A CONCRETE BEDDING FOR THEIR ENTIRE LENGTH. THIS BEDDING SHALL CONSIST OF HIGH SLUMP CONCRETE PLACED UNDER THE PIPE AND UP THE SIDES OF THE PIPE AT LEAST 10% OF ITS OUTSIDE DIAMETER WITH A MINIMUM THICKNESS OF 3 INCHES, OR AS SHOWN ON THE DRAWINGS.

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 2 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.

POLYVINYL CHLORIDE (PVC) PIPE- ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR POLYVINYL CHLORIDE (PVC) PIPE:

1. MATERIALS-PVC PIPE SHALL BE PVC-1120 OR PVC-1220 CONFORMING TO ASTM D-1785 OR ASTM D-2241.

2. JOINTS AND CONNECTIONS TO ANTI-SEEP COLLARS SHALL BE COMPLETELY WATERTIGHT.

3. BEDDING- THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT, SPONGY OR OTHER UNSTABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.

4. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL."

5. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

CONCRETE

CONCRETE SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 905.

THE RIPRAP SHALL BE PLACED TO THE REQUIRED THICKNESS IN ONE OPERATION. THE ROCK SHALL BE DELIVERED AND PLACED IN A MANNER THAT WILL INSURE THE RIPRAP IN PLACE SHALL BE REASONABLY HOMOGENOUS WITH THE LARGER ROCKS UNIFORMLY DISTRIBUTED AND FIRMLY IN CONTACT ONE TO ANOTHER WITH THE SMALLER ROCKS FILLING THE VOIDS BETWEEN THE LARGER ROCKS. FILTER CLOTH SHALL BE REPLACED UNDER ALL RIPRAP AND SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 919.12.?

CARE OF WATER DURING CONSTRUCTION

ALL WORK ON THE 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 THE 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 OF THE REQUIRED EXCAVATIONS AND WILL ALLOW SATISFACTORY PERFORMANCE OF ALL AND 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 TO SUMPS FROM WHICH THE WATER SHALL BE PUMPED.

STABILIZATION

ALL BORROW AREAS SHALL BE GRADED TO PROVIDE PROPER DRAINAGE AND LEFT IN A SLIGHTLY CONDITION. ALL EXPOSED SURFACES OF THE EMBANKMENT, SPILLWAY, SPOIL AND BORROW AREAS, AND BERMS SHALL BE STABILIZED BY SEEDING, LIMING, FERTILIZING AND MULCHING IN ACCORDANCE WITH THE MARYLAND SOIL 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 TO BE EMPLOYED DURING THE CONSTRUCTION PROCESS.

SWM POND MAINTENANCE REQUIREMENTS

a. SILT SHALL BE REMOVED WHEN ACCUMULATION EXCEEDS SIX (6) INCHES IN BASINS WITHOUT FOREBAYS. IN BASIN WITH FOREBAYS, SILT SHALL BE REMOVED WHEN THE ACCUMULATION EXCEEDS FOUR (4) INCHES IN THE FOREBAY.

b. ACCUMULATED PAPER, TRASH AND DEBRIS SHALL BE REMOVED AS NECESSARY.

c. VEGETATION GROWING ON THE EMBANKMENT TOP AND FACES IS NOT ALLOWED TO EXCEED 18 INCHES IN HEIGHT AT ANY TIME.

c. ANNUAL INSPECTION AND REPAIR, IF REQUIRED, OF THE STRUCTURE SHALL BE PERFORMED.

OPERATION, MAINTENANCE AND INSPECTION

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

SWM POND MAINTENANCE SCHEDULE

ROUTINE MAINTENANCE:

1. FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER ALL MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE POND IS FUNCTIONING PROPERLY.

2. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES PER YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHALL BE MOWED AS NEEDED.

3. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AS NEEDED.

4. VISIBLE SIGNS OF EROSION ON THE POND, RIP-RAP, OR GABION OUTLET AREA SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

NON-ROUTINE MAINTENANCE:

1. STRUCTURAL COMPONENTS OF THE POND (DAM, RISER, AND 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/OR FOREBAY, WHEN ONE HALF THE TOTAL CAPACITY OF THE POND AND/OR FOREBAY IS FULL OF SEDIMENT, OR DEEMED NECESSARY FOR AESTHETIC REASONS, UPON APPROVAL FROM THE DEPARTMENT OF PUBLIC WORKS.

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 SPECIFICATIONS.

SIGNATURE ____ P.E. NO.: ____ DATE: ____

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 AND ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

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."

[signature] 9/7/00
SIGNATURE OF DEVELOPER DATE

CWBROOK LLC
PRINTED NAME OF DEVELOPER

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] 8/28/00
SIGNATURE OF ENGINEER DATE

R-JACOB HIKMAT
PRINTED NAME OF ENGINEER

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

[signature] 1/25/01
USDA - NATURAL RESOURCES CONSERVATION SERVICE DATE

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

[signature] 1/25/01
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

[signature] 11-28-00
CHIEF BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONNING

[signature] 1/3/01
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[signature] 12/12/00
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

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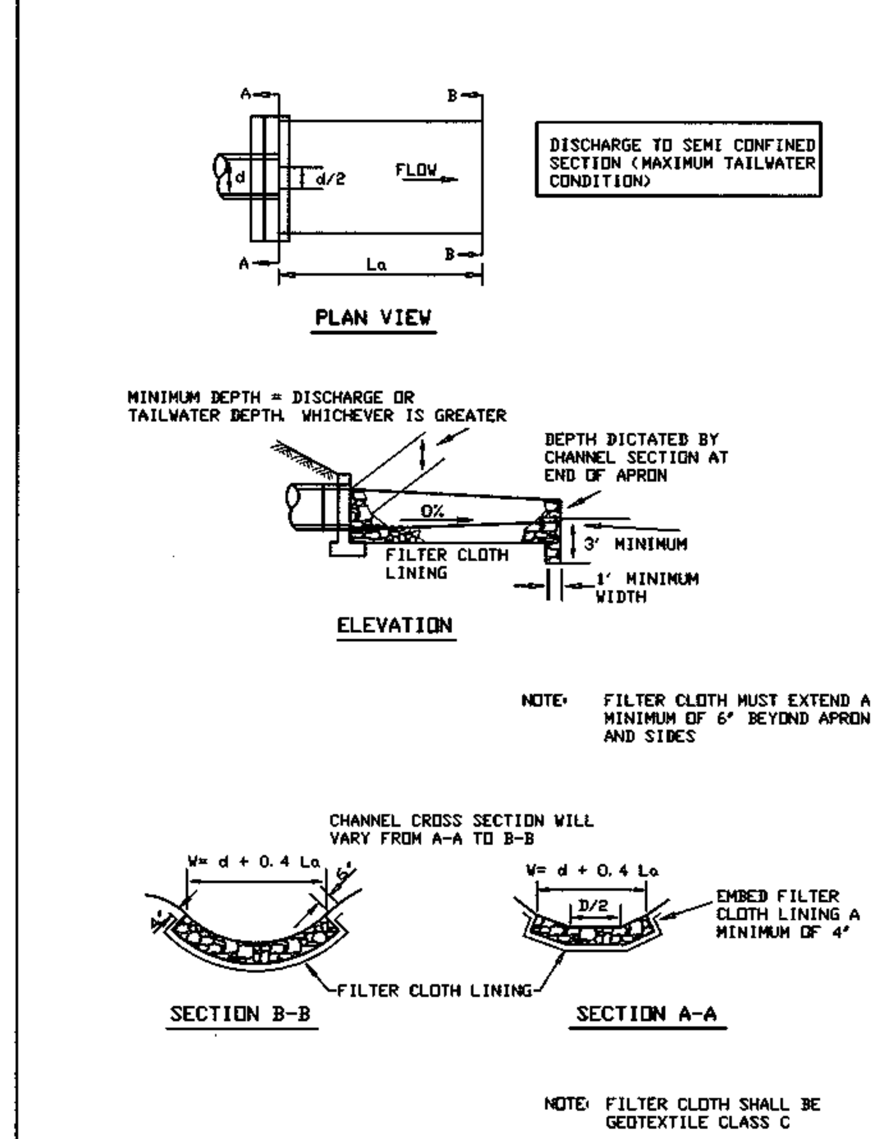
FOR STORMWATER MANAGEMENT

DETAIL 25 - ROCK OUTLET PROTECTION I



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE | PAGE F - 18 - 8 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

ROCK OUTLET PROTECTION

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 material.

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

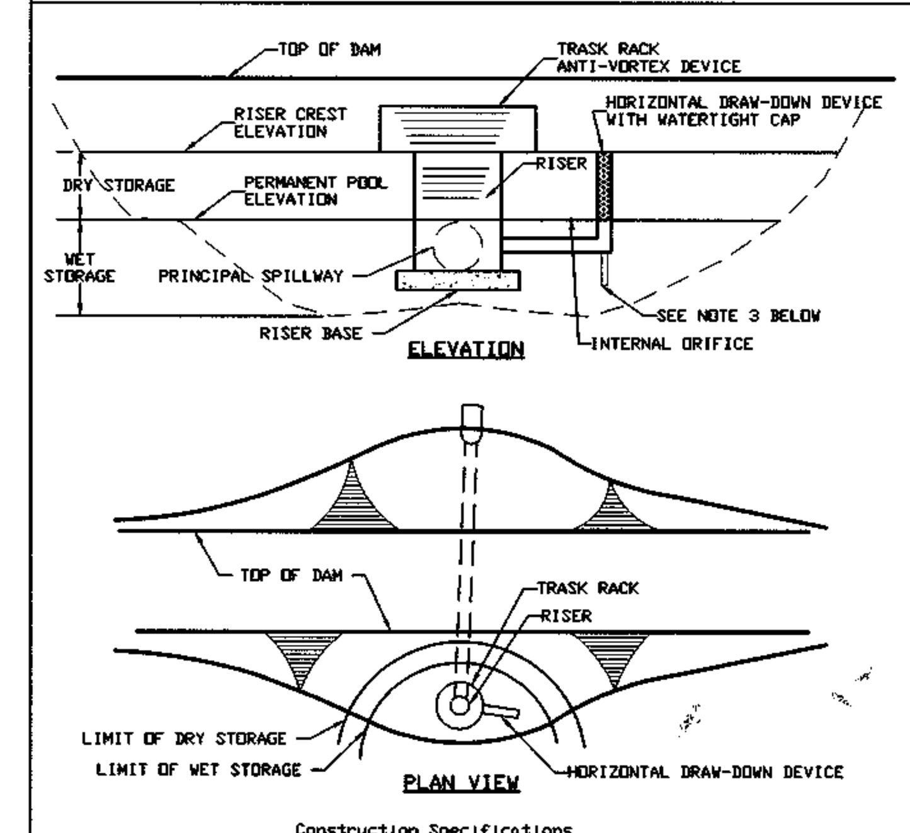
3. Geotextile shall be protected from punching, cutting, or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of geotextile over the damaged part or by completely replacing the geotextile. All overlaps whether for repairs or for joining two pieces of geotextile 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 smaller stones and spalls filling the voids between the larger 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.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE | PAGE F - 18 - 8A | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

BASIN DRAW DOWN SCHEMATIC VERTICAL DRAW DOWN DEVICE



Construction Specifications

1. PERFORATIONS IN THE DRAW-DOWN DEVICE MAY NOT EXTEND INTO THE WET STORAGE.

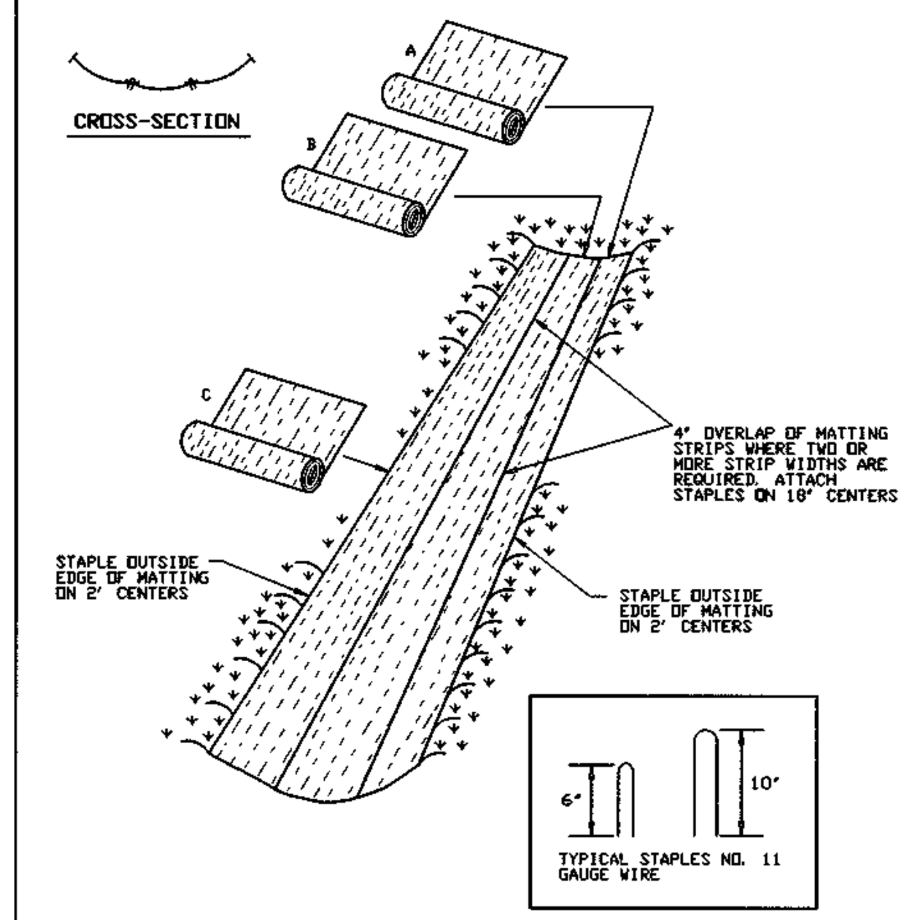
2. The total area of the preforations must be greater than 4 times the area of the internal orifice.

3. The preforated portion of the draw-down deviceshall be wrapped with 1/2' hardware cloth and geotextile fabric. The geotextile fabric shall meet specifications for Geotextile Class E.

4. Provide support of draw-down device to prevent sagging and flotation. 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 guage minimum wire.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE | PAGE C - 10 - 29 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 30 - EROSION CONTROL MATTING



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE | PAGE G - 22 - 2 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

EROSION CONTROL MATTING

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.

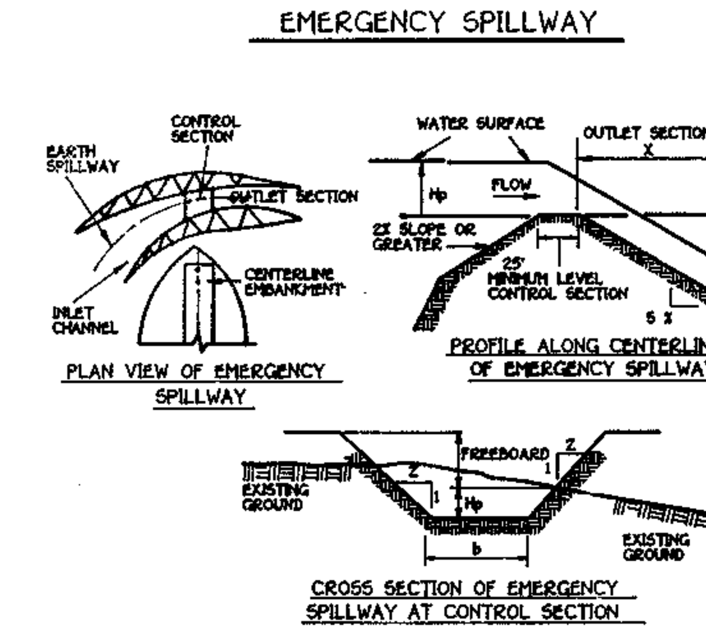
5. Where one roll of matting ends and another begins, the end of the top strip shall overlap the upper end of the lower strip by 4', shiplap fashion. Reinforce the overlap with a double row of staples spaced 6' apart in a staggered pattern on either side.

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.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE | PAGE G - 22 - 2A | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

EMERGENCY SPILLWAY



LEGEND

n= Manning's Coefficient of Roughness.
Hp= Difference in elevation between the crest of the emergency spillway and the control section and water surface of the reservoir, in feet.
b= Bottom width of emergency spillway at the control section, in feet. (8' Minimum)
Q= Total discharge, in cfs.
V= Velocity, in feet per second, that will exist in the channel below the control section, at design Q, if constructed to slope (S) that is shown. (Vmax = 5 fps)
S= Flattest slope (S), in %, allowable for the channel below the control section.
X= Minimum length of the channel below the control section, in feet.
Z= Side slope ratio.
Minimum Z = 2

NOTES

1. For a given Hp a decrease in the exit slope from S as given in the table decreases the spillway discharge but increasing the exit slope from S does not increase the discharge. If an exit slope (Se) steeper than S is used, then the velocity (Ve) in the exit channel will increase according to the following relationship:

$$Ve = V \left(\frac{Se}{S}\right)^{0.3}$$

2. Data to the right of the heavy vertical lines on Table 14 should be used with caution, as the resulting sections will be either poorly proportioned or have velocities in excess of 5 ft./sec.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. — RECORD OF SOIL EXPLORATION (Page 1 of 1)

Project Name: Wind Ridge — Location: Howard County, Maryland — Boring # B-1 — Job # 99024A
Datum: — Surf. Elev. 485.8 — Date Started 01-28-99
SAMPLER: Hammer Wt. 140 Lbs. — Hammer Drop 30 Inches — Pipe Size 2.0 Inches OD — Hole Diameter 6" — Rock Core Dia. – — Boring Method HSA
Foreman: Palmer Stephens — Inspector: — Date Completed 01-28-99

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					
	Topsoil	1.0						12" Topsoil
	Brown, moist, soft silt, little fine, fine sand (ML) (Silt Loam)	3.0		I	2-2-3	1	16"	Groundwater encountered at 6.5' while drilling
	Greenish brown to brown, very moist to wet medium dense silty fines to coarse sand with rock fragments and mica (SM) (Sandy Loam/Loamy Sand)			D	10-15-13	2	16"	Caved in at 6.0' at Completion
			5	D	5-8-8	3	12"	Caved in at 4.25' after 4 days
				D	8-9-9	4	3"	
	Bottom of Test Hole at 10.0'	10.0	10					
			15	D	6-6-8	6	16"	
			20					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE; CA-CONTINUOUS FLIGHT AUGER; RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED; I-INTACT; U-UNDISTURBED; L-LOST
GROUND WATER DEPTH: AT COMPLETION 5.0 FT.; AFTER 24 hr 3.0 FT.; AFTER ____ FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS; CFA-CONT. FLIGHT AUGERS; DC-DRIVING CASING; MD-MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. — RECORD OF SOIL EXPLORATION (Page 1 of 1)

Project Name: Wind Ridge — Location: Howard County, Maryland — Boring # B-2 — Job # 99024A
Datum: — Surf. Elev. 487.3 — Date Started 01-28-99
SAMPLER: Hammer Wt. 140 Lbs. — Hammer Drop 30 Inches — Pipe Size 2.0 Inches OD — Hole Diameter 6" — Rock Core Dia. – — Boring Method HSA
Foreman: Palmer Stephens — Inspector: — Date Completed 01-28-99

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					
	Topsoil	13"						12" Topsoil
	Brown to yellowish brown, moist to very mist, soft to stiff silt, little sand with traces of mica and rock fragments (ML) (Loam)	3.0		D	2-2-3	1	18"	No groundwater encountered while drilling
				D	5-5-5	2	12"	Caved in at 7.5' at Completion
			5	D	2-3-9	3	15"	Caved in at 5' after 4 days
	Brown, wet, medium dense silty sand and quartz rock fragments (SM-GM) (Sand)	8.0		D	8-13-13	4	10"	
	Bottom of Test Hole at 10.0'	10.0	10					
			15					
			20					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE; CA-CONTINUOUS FLIGHT AUGER; RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED; I-INTACT; U-UNDISTURBED; L-LOST
GROUND WATER DEPTH: AT COMPLETION 7.5 FT.; AFTER 24 hr 4.5 FT.; AFTER ____ FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS; CFA-CONT. FLIGHT AUGERS; DC-DRIVING CASING; MD-MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. — RECORD OF SOIL EXPLORATION (Page 1 of 1)

Project Name: Wind Ridge — Location: Howard County, Maryland — Boring # B-3 — Job # 99024A
Datum: — Surf. Elev. 487 — Date Started 01-28-99
SAMPLER: Hammer Wt. 140 Lbs. — Hammer Drop 30 Inches — Pipe Size 2.0 Inches OD — Hole Diameter 6" — Rock Core Dia. – — Boring Method HSA
Foreman: Palmer Stephens — Inspector: — Date Completed 01-28-99

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					
	Topsoil	1.0						12" Topsoil
	Brown, moist, meduim stiff silt, little sand and rock fragments (ML) (Silt Loam)			D	1-2-4	1	16"	No groundwater encountered while drilling
	Reddish brown, very moist, loose silty fine sand with rock fragments (SM) (Sandy Loam)	3.0		D	4-4-5	2	18"	Caved in at 7.0' at Completion
	Green, wet, very loose to loose micaceous very fine sandy silt (ML) (Loam)	6.0	5	I	2-2-3	3	14"	Caved in at 1' after 4 days
				I	2-3-4	4	18"	
	Bottom of Test Hole at 10.0'	10.0	10					
			15					
			20					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE; CA-CONTINUOUS FLIGHT AUGER; RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED; I-INTACT; U-UNDISTURBED; L-LOST
GROUND WATER DEPTH: AT COMPLETION Dry FT.; AFTER 24 hr Dry FT.; AFTER ____ FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS; CFA-CONT. FLIGHT AUGERS; DC-DRIVING CASING; MD-MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS

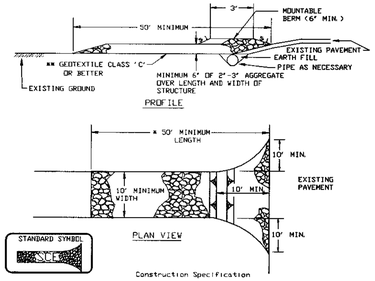
project	date
98099	MAY 2000
illustration	engineering
KR	KR
scale	approval
1"=30'	

no.	description / revisions	date

WINDRIDGE FARMS - SECTION 2, AREA 2
LOTS 8 THRU 26 AND BUILDABLE PRESERVATION PARCEL A
TAX MAP 21, PARCEL 31
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
STORMWATER MANAGEMENT DETAILS

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

F00-178



Construction Specification

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

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

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 residences to use geotextile.

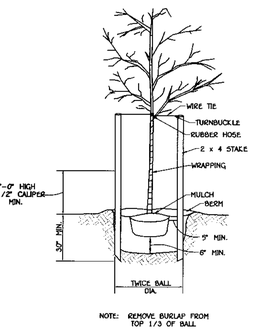
4. Stone - crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.

5. Surface Water - all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a 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 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.

STABILIZED CONSTRUCTION ENTRANCE - 2

NOT TO SCALE



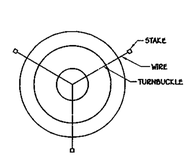
NOTE: REMOVE BURLAP FROM TOP 1/3 OF BALL

TREE PLANTING

NOT TO SCALE

GRADING FOR PLANTING ON SLOPES

NOT TO SCALE



STAKING DETAIL

NOT TO SCALE

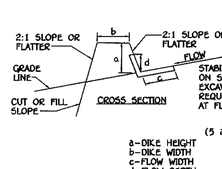
SEDIMENT CONTROL NOTES

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 (301-313-1855).
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 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. GRADING NECESSARY TO INSTALL STORM DRAINS, SEDIMENT TRAP AND EARTH DIKES TO BE PERFORMED FIRST. REMAINDER OF THE GRADING TO BE PERFORMED AFTER STORM DRAINS, SEDIMENT TRAP AND EARTH DIKES ARE INSTALLED.
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.
5) 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	21.786 ACRES
AREA DISTURBED	4.70 ACRES
AREA TO BE ROOFED OR PAVED	0.94 ACRES
AREA TO BE VEGETATIVELY STABILIZED	3.76 ACRES
TOTAL CUT	15,000 CU.YDS.
TOTAL FILL	15,000 CU.YDS.
OFFSITE WASTE/BORROW AREA LOCATION	N/A CU.YDS.

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.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855



CROSS SECTION

STABILIZATION AS REQUIRED. ON STEEP SLOPES EXCAVATE TO PROVIDE REQUIRED FLOW WIDTH AT FLOW DEPTH

	DIKE A (5 ac. or less)	DIKE B (5-10 ac.)
a-DIKE HEIGHT	19"	36"
b-DIKE WIDTH	24"	36"
c-FLOW WIDTH	4'	6'
d-FLOW DEPTH	8"	15"

POSITIVE DRAINAGE-GRADE SUFFICIENT TO DRAIN

STANDARD SYMBOL

CONSTRUCTION SPECIFICATIONS

1. ALL DIKES SHALL BE COMPACTED BY EARTH-MOVING EQUIPMENT.
2. ALL DIKES SHALL HAVE POSITIVE DRAINAGE TO AN OUTLET.
3. TOP WIDTH MAY BE WIDER AND SIDE SLOPES MAY BE FLATTER IF DESIRED TO FACILITATE CROSSING BY CONSTRUCTION TRAFFIC.
4. FIELD LOCATION SHOULD BE ADJUSTED AS NEEDED TO UTILIZE A STABILIZED SAFE OUTLET.
5. EARTH DIKES SHALL HAVE AN OUTLET THAT FUNCTIONS WITH A MINIMUM OF EROSION. RUNOFF SHALL BE CONVEYED TO A SEDIMENT BASIN WHERE EITHER THE DIKE CHANNEL OR THE DRAINAGE AREA ABOVE THE DIKE ARE NOT ADEQUATELY STABILIZED.
6. STABILIZATION SHALL BE: (A) IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR SEED AND STRAW MULCH OR STRAW MULCH IF NOT IN SEEDING SEASON, (B) FLOW CHANNEL AS PER THE CHART BELOW.

FLOW CHANNEL STABILIZATION

TYPE OF TREATMENT	CHANNEL GRADE	DIKE A	DIKE B
1	.5-3.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH
2	3.1-5.0%	SEED AND STRAW MULCH	SEED USING JUTE, OR EXCELSIOR; SOD; 2" STONE
3	5.1-8.0%	SEED WITH JUTE, OR SOD; 2" STONE	LINED RIP-RAP 4"-8"
4	8.1-20%	LINED RIP-RAP 4"-8"	ENGINEERING DESIGN

A. STONE TO BE 2 INCH STONE, OR RECYCLED CONCRETE EQUIVALENT, IN A LAYER AT LEAST 3 INCHES IN THICKNESS AND BE PRESSED INTO THE SOIL WITH CONSTRUCTION EQUIPMENT.
B. RIP-RAP TO BE 4-8 INCHES IN A LAYER AT LEAST 8 INCHES THICKNESS AND PRESSED INTO THE SOIL.
C. APPROVED EQUIVALENTS CAN BE SUBSTITUTED FOR ANY OF THE ABOVE MATERIALS.

7. PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED AFTER EACH RAIN EVENT.

EARTH DIKE

NOT TO SCALE

20.0 STANDARDS AND SPECIFICATIONS FOR 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 (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 the 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
   i. 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)
   i. 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 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.
   iv. Incorporate lime and fertilizer into the top 3-5" of soil by disking or other suitable means.
C. 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. Incorporate lime and fertilizer into the top 3-5" of soil by disking or other suitable means.
   ii. Permanent Seeding
      a. Minimum soil conditions required for permanent vegetative establishment:
         1. Soil pH shall be between 6.0 and 7.0.
         2. Soluble salts shall be less than 500 parts per million (ppm).
         3. 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 sericeia lespedeza is to be planted, then a sandy soil (<30% silt plus clay) would be acceptable.
         4. Soil shall contain 1.5% minimum organic matter by weight.
         5. There must be sufficient pore space to permit deep root penetration.
         6. 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 grade 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 sliding down a slope.
      c. Apply soil amendments as per soil test or as included on the plans.
      d. 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 implement 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 newly disturbed areas.
D. Seed Specifications
   i. 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, if 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.
E. Methods of Seeding
   i. 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; P2O5 (phosphorous): 200 lbs/Ac. K2O (potassium): 200 lbs/Ac.
      b. 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.
      c. 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.
      a. Seed spread dry shall be incorporated into the subsoil at the rates prescribed on the Temporary or Permanent Seeding Summaries or Tables 26b or 26. The seeded area shall then be rolled with a weighted roller to provide good seed to soil contact.
      b. 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.
      a. Cultipacker 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.
      b. 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)
   i. 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.
   ii. Wood Cellulose Fiber Mulch (WCFM)
      a. WCFM shall consist of specially prepared wood cellulose processed into a uniform fibrous physical state.
      b. 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.
      c. WCFM, including dye, shall contain no germination or growth inhibiting factors.
      d. 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.
      e. 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 2 mm, pH range of 4.0 to 8.5, ash content of 1.6% maximum and water holding capacity of 90% minimum.

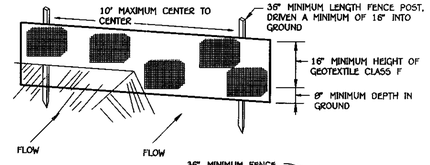
   Note: Only sterile straw mulch should be used in areas where one species of grass is desired.

G. 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" to 2". Mulch shall be spread by hand or blower machine in a uniform distribution and depth so that the soil surface is not exposed. If a mulch anchoring tool is to be used, the depth shall be increased to 2.5 inches.
   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.
H. 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 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 appropriate uniform binder application. Synthetic binders - such as Acrylic DLR (Hercules), Terra Tack AR, Terra Tack II, Terra Tack AR or other approved equal may be used at rates recommended by the manufacturer to anchor mulch.
   iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer's recommendations. Netting is usually available in rolls 4' to 15' feet wide and 300 to 3,000 feet long.
I. Incremental Stabilization - Cut Slopes
   i. 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.
      c. Perform Phase 2 excavation, dress and stabilize. Overseed Phase 1 areas as necessary.
      d. Perform final phase excavation, dress and stabilize. Overseed previously seeded areas as necessary.

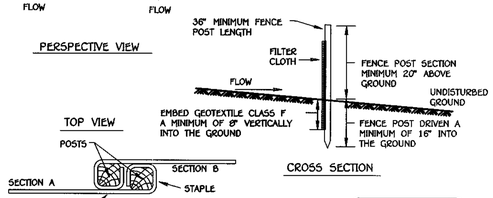
   Note: Once excavation has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions int he operation of completing the operation out of the seeding season will necessitate the application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

J. Incremental Stabilization of Embankments - Fill Slopes
   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 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.
      b. Place Phase 1 embankment, dress and stabilize.
      c. Place Phase 2 embankment, dress and stabilize.
      d. 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 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.



PERSPECTIVE VIEW



CROSS SECTION

JOINING TWO ADJACENT SILT FENCE SECTIONS

STANDARD SYMBOL

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 requirements for Geotextile Class F:

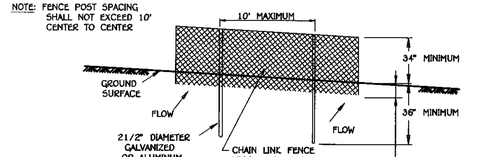
Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal/ft / minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

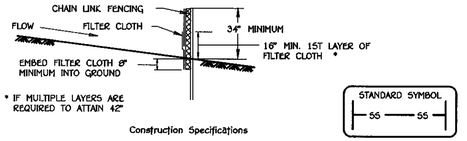
3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.

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.

DETAIL 22 - SILT FENCE

NOT TO SCALE





Construction Specifications

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 posts.

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.

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 or staples at top and mid section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal/ft /minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

DETAIL 33 - SUPER SILT FENCE

NOT TO SCALE

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.

A. Seed mixtures - Temporary Seeding
   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 Zone 6b From Table 26)

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

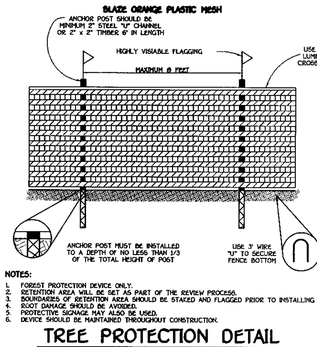
SECTION 3 - PERMANENT SEEDING

Seeding grass and legumes to establish ground 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 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 342 - 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 the time of seeding.

Seed Mixture (Hardiness Zone 6b From Table 25)

No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	Fertilizer Rate (10-20-20) N	Fertilizer Rate (10-20-20) P2O5	Fertilizer Rate (10-20-20) K20	Lime Rate
3	TALL FESCUE (85%)	125	3/1 - 5/15, 8/15 - 10/15	1" - 2"	90 lb/ac (2.0 lb/ 1000sf)	175 lb/ac (4 lb/ 1000sf)	175 lb/ac (4 lb/ 1000sf)	2 tons/ac (100 lb/ 1000sf)
	PERENNIAL RYE GRASS (10%)	15						
	KENTUCKY BLUEGRASS (5%)	10						
10	TALL FESCUE (60%)	120	3/1 - 5/15, 8/15 - 10/15	1" - 2"				
	HARD FESCUE (20%)	30						



NOTES:
1. FOREST PROTECTION DEVICE ONLY.
2. RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
3. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
4. ROOT DAMAGE SHOULD BE AVOIDED.
5. PROTECTIVE SIGNAGE MAY ALSO BE USED.
6. DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

TREE PROTECTION DETAIL

NOT TO SCALE

OWNER AND DEVELOPER

CUBBAGE L.L.C.
c/o J. THOMAS SCRIVENER
8000 CENTRE PARK DRIVE
SUITE 209
COLUMBIA, MARYLAND 21045

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND THAT ANY RESPONSIBLE PERSONNEL 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".

SIGNATURE OF DEVELOPER — DATE 9/7/00

ENGINEER'S CERTIFICATE

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

STATE OF MARYLAND — No. 21673 — REGISTERED PROFESSIONAL ENGINEER

SIGNATURE OF ENGINEER — DATE 11-7-00

REVIEW FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE — DATE 1/25/01

THIS DEVELOPMENT IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
APPROVED:
HOWARD SOIL CONSERVATION DISTRICT — DATE 1/25/01

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 1/31/01

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/12/00

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 11-28-00

SEDIMENT CONTROL NOTES AND DETAILS

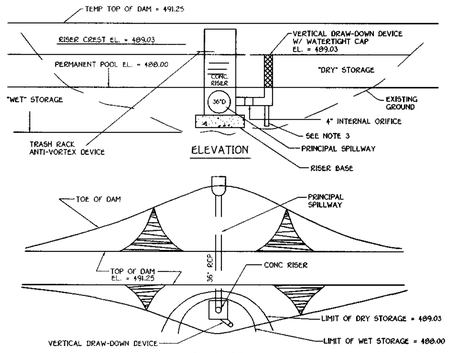
WINDRIDGE FARMS

SECTION 2, AREA 2
LOTS 8 THRU 26

(A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL 'B' WINDRIDGE FARMS SECTION 2, AREA 1)
ZONED: RR-DEO

TAX MAP No. 21 PARCEL No. 31 GRID No. 17
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: SEPTEMBER 1, 2000
SHEET 11 OF 14

F 00-178



CONSTRUCTION SPECIFICATIONS

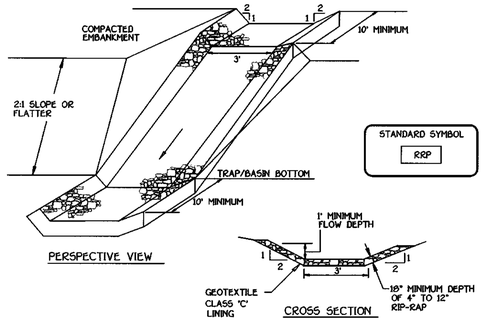
1. PERFORATIONS IN THE DRAW-DOWN DEVICE MAY NOT EXTEND INTO THE WET STORAGE.
2. THE TOTAL AREA OF THE PERFORATIONS MUST BE GREATER THAN 2 TIMES THE AREA OF THE INTERNAL ORIFICE.
3. THE PERFORATED PORTION OF THE DRAW-DOWN DEVICE SHALL BE WRAPPED WITH 1/2" HARDWARE CLOTH AND GEOTEXTILE FABRIC. THE GEOTEXTILE 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 MINIMUM WIRE.

BASIN DRAWDOWN SCHEMATIC
VERTICAL DRAW-DOWN DEVICE

NOT TO SCALE

DETAIL FOR TEMPORARY STORMWATER MANAGEMENT

BRICK WEIR IN RISER STRUCTURE FROM ELEV. 488.00 TO 489.03



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 section.

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 facility.

5. Gabion Inflow Protection may be used in lieu of Rip-rap Inflow Protection.

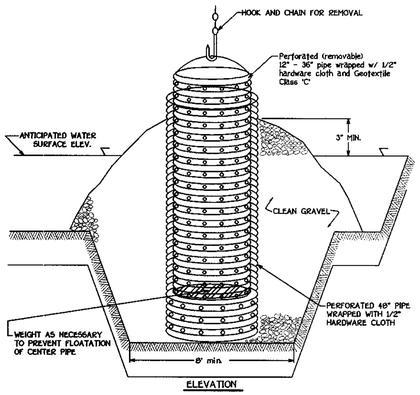
6. Rip-rap should blend into existing ground.

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 lining criteria.

RIP-RAP INFLOW PROTECTION

NOT TO SCALE

REMOVABLE PUMPING STATION



Construction Specifications

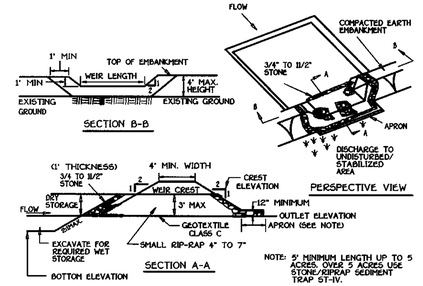
1. The outer pipe should be 48" dia. or shall, in any case, be at least 4" greater in diameter than the center pipe. The outer pipe shall be wrapped with 1/2" hardware cloth to prevent backfill material from entering the perforations.

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 18" above the anticipated water surface elevation or riser crest elevation when dewatering a basin.

STONE OUTLET SEDIMENT TRAP - ST II



Construction Specifications

1. Area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.

2. The fill material for the embankment shall be free of roots and other woody vegetation as well as over-sized stones, rocks, organic material or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed.

3. All cut and fill slopes shall be 2:1 or flatter.

4. The stone used in the outlet shall be small rip-rap 4" to 7" in size with a 1' thick layer of 3/4" to 11/2" washed aggregate placed on the upstream face of the outlet. Stone facing shall be as necessary to prevent clogging. Geotextile Class C may be substituted for the stone facing by placing it on the inside face of the stone outlet.

5. Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to one half of the wet storage depth of the trap. Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.

6. The structure shall be inspected periodically and after each rain and repairs made as needed.

7. Construction of traps shall be carried out in such a manner that sediment pollution is abated. Once constructed, the top and outside face of the embankment shall be stabilized with seed and mulch. Points of concentration inflow shall be protected in accordance with Grade Stabilization Structure criteria. The remainder of the interior slopes should be stabilized (one time) with seed and mulch upon trap completion and monitored and maintained erosion free during the life of the trap.

8. The structure shall be dewatered by approved methods, removed and the area stabilized when the drainage area has been properly stabilized.

9. Refer to Section D for specifications concerning trap dewatering.

10. Minimum trap depth shall be measured from the weir elevation.

11. The elevation of the top of any dike directing water into the trap must equal or exceed the elevation of the trap embankment.

12. Geotextile Class C shall be placed over the bottom and sides of the outlet channel prior to the placement of stone. Sections of filter cloth must overlap at least 1' with the section nearest the entrance placed on top. The filter cloth shall be embedded at least 6" into existing ground at the entrance of the outlet channel.

13. Outlet - An outlet shall be provided, including a means of conveying the discharge in an erosion free manner to an existing stable channel.

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND THAT ANY RESPONSIBLE PERSONNEL 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".

SIGNATURE OF DEVELOPER — DATE: 9/7/00

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SIGNATURE OF ENGINEER — DATE: 11-7-00

REVIEW FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

U.S. DEPT. NATURAL RESOURCES CONSERVATION SERVICE — DATE: 1/25/01

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APPROVED:

HOWARD SOIL CONSERVATION DISTRICT — DATE: 1/25/01

APPROVED: DEPARTMENT OF PLANNING AND ZONING

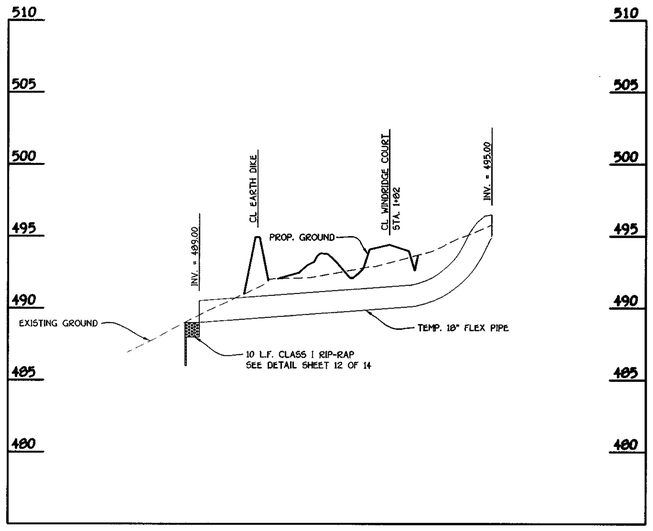
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE: 1/31/01

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE: 12/12/00

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE: 11-28-00

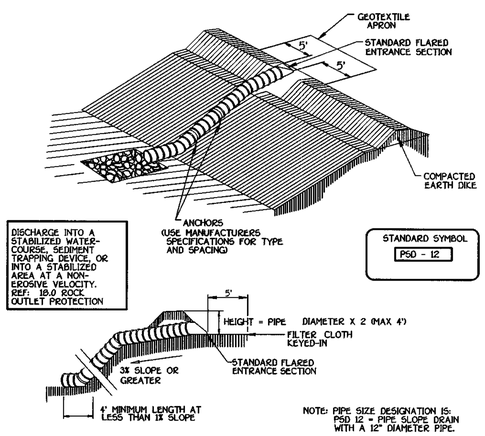


PROFILE

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

PIPE SLOPE DRAIN

NOT TO SCALE

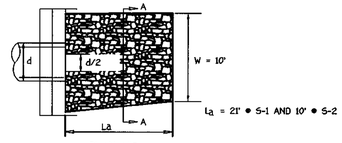


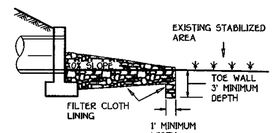
NOTE: PIPE SIZE DESIGNATION IS: PSD 12 = PIPE SLOPE DRAIN WITH A 12" DIAMETER PIPE.

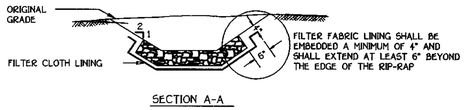
Table 6 Design Criteria for Pipe Slope Drain

Size	Pipe/Tubing Diameter (D) in	Maximum Drainage Area (Acres)
PSD-12	12	0.5
PSD-18	18	1.5
PSD-21	21	2.5
PSD-24	24	3.5
PSD-24 (2)	24	5.0

ROCK OUTLET PROTECTION III







NOTE: FILTER CLOTH SHALL BE GEOTEXTILE CLASS C

SEQUENCE OF CONSTRUCTION

1. OBTAIN A GRADING PERMIT.

2. NOTIFY MISS UTILITY AT LEATS 48 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 STRATING WORK.

3. CLEAR AND GRUB FOR SEDIMENT CONTROL MEASURES ONLY. INSTALL STABILIZED CONSTRUCTION ENTRANCE. (1 week)

4. INSTALL REMAINING SEDIMENT CONTROL MEASURES, EARTH DIKES, SILT FENCE AND SEDIMENT BASIN/SWM POND 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 CORE TRENCH. (2 weeks)

5. OBTAIN PERMISSION OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO PROCEEDING WITH THE REMAINDER OF THE SITE WORK.

6. CLEAR AND GRUB FOR THE SITE WORK. (1 week)

7. GRADE THE REMAINING SITE TO THE PROPOSED SUBGRADE AND INSTALL THE PROPOSED STORM DRAIN SYSTEM. STABILIZE ALL ROADWAY SLOPES AND DITCHES IMMEDIATELY UPON COMPLETION OF GRADING AS SHOWN ON THESE PLANS. (4 weeks)

8. 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. (1 week)

9. INSTALL BASE COURSE FOR THE PROPOSED ROADS. (1 week)

10. STABILIZE ALL DISTURBED AREAS AND OBTAIN PERMISSION FROM THE SEDIMENT CONTROL INSPECTORS TO PROCEED.

11. APPLY TACK COAT TO SUB-BASE AND LAY SURFACE COURSE. (1 week)

12. WHEN ALL CONTRIBUTING AREAS TO THE SEDIMENT CONTROL DEVICES FOR THE INITIAL GRADING PHASE HAVE BEEN STABILIZED AND WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, THE DEVICE MAY BE REMOVED AND/OR BACKFILLED AND THE REMAINING AREAS BROUGHT TO FINAL GRADE. STABILIZE ALL REMAINING AREAS IN ACCORDANCE WITH PERMANENT SEEDING NOTES. (2 weeks)

13. NOTIFY HOWARD COUNTY OFFICE OF INSPECTIONS AND PERMITS FOR A FINAL INSPECTION OF THE COMPLETED PROJECT.

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

F.C.C.• 30671 SED CON DETAILS.DWG

OWNER AND DEVELOPER

CUBBAGE L.L.C.
c/o J. THOMAS SCRIVENER
8808 CENTRE PARK DRIVE
SUITE 209
COLUMBIA, MARYLAND 21045

SEDIMENT CONTROL NOTES AND DETAILS
WINDRIDGE FARMS
SECTION 2, AREA 2
LOTS 8 THRU 26

(A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL 'B' WINDRIDGE FARMS SECTION 2, AREA 1)
ZONED: RR-DEO

TAX MAP No. 21 PARCEL No. 31 GRID No. 17
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: SEPTEMBER 1, 2000
SHEET 12 OF 14

F00-178

Approved: Department Of Public Works

[signature] 11-28-00

Chief, Bureau Of Highways — Date

Approved: Department Of Planning And Zoning

[signature] 1/31/01

Chief, Division Of Land Development — Date

[signature] 12/12/00

Chief, Development Engineering Division — Date

SCHEDULE A - PERIMETER LANDSCAPE EDGE

PERIMETER	P-1	P-2	P-3	P-4	P-5	P-6	P-7	P-8	P-9
CATEGORY	ADJACENT TO PERIMETER	ADJACENT TO PERIMETER	ADJACENT TO PERIMETER	ADJACENT TO PERIMETER	ADJACENT TO PERIMETER	ADJACENT TO PERIMETER	ADJACENT TO PERIMETER	ADJACENT TO ROADWAY	ADJACENT TO ROADWAY
LANDSCAPE TYPE	A	A	A	A	A	A	A	B	B
LINEAR FEET OF PERIMETER	276'	733'	404'	1220'	323'	572'	473'	212'	32'
CREDIT FOR EXISTING VEGETATION (NO, YES AND %)	NO	NO	YES 171'	YES 437'	NO	NO	NO	NO	NO
CREDIT FOR OTHER LANDSCAPING (NO, YES, AND %)	NO	NO	NO	NO	NO	NO	NO	NO	NO
NUMBER OF TREES REQUIRED SHADE TREES EVERGREEN TREES	 5 -	 13 -	 4 -	 14 -	 6 -	 10 -	 8 -	 5 6	 1 1
NUMBER OF TREES PROVIDED SHADE TREES EVERGREEN TREES SHRUBS	 5 - -	 13 - -	 4 - -	 14 - -	 6 - -	 10 - -	 8 - -	 5 6 -	 1 1 -

SCHEDULE D STORMWATER MANAGEMENT AREA LANDSCAPING

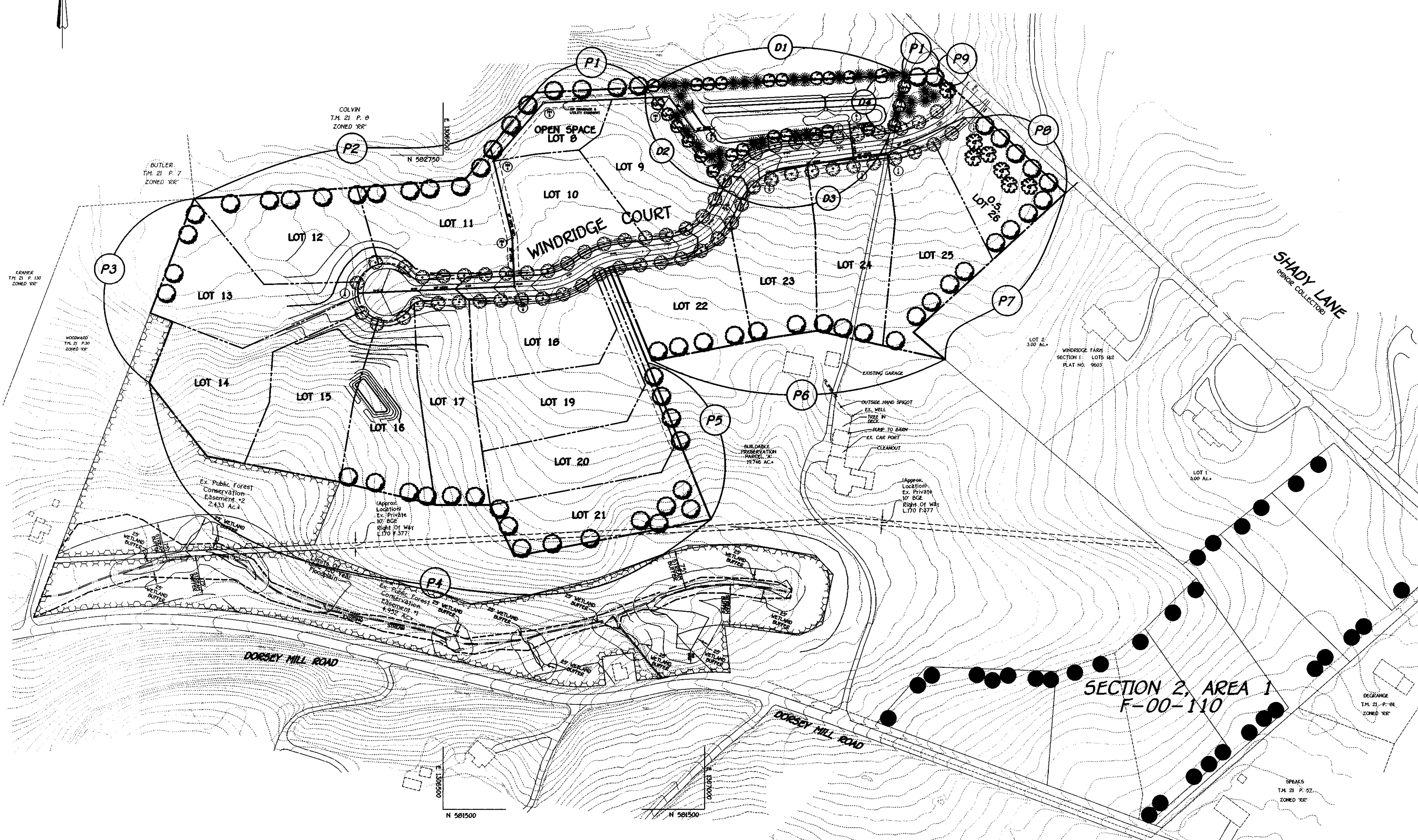
LINEAR FEET OF PERIMETER	D1: 492'	D2: 243'	D3: 351'	D4: 116'
NUMBER OF TREES REQUIRED: SHADE TREES EVERGREEN TREES	 10 13	 5 7	 8 9	 3 3
CREDIT FOR EXISTING VEGETATION (NO, YES AND %)	NO	NO	NO	NO
CREDIT FOR OTHER LANDSCAPING (NO, YES AND %)	NO	NO	NO	NO
NUMBER OF TREES PROVIDED: SHADE TREES EVERGREEN TREES OTHER TREES (2:1 SUBSTITUTION)	 10 13 -	 5 7 -	 8 9 -	 3 3 -

LANDSCAPE SCHEDULE

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
66		ACER RUBRUM 'RED SUNSET'	RED SUNSET RED MAPLE	2 1/2"-3"
26		FRAXINUS AMERICANA 'AUTUMN PURPLE'	AUTUMN PURPLE WHITE ASH	2 1/2"-3"
7		CEDRUS DEODORA	DEODAR CEDAR	6'-8' HT.
32		PINUS STROBUS	WHITE PINE	6'-8' HT.

NOTE: THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. FINANCIAL SURETY FOR THE REQUIRED 131 LANDSCAPING TREES HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF $ [illegible] FOR SECTION 2, AREA 2. FINANCIAL SURETY FOR THE REQUIRED 34 LANDSCAPING TREES HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF $10,200.00 FOR SECTION FOR SECTION 2, AREA 1 (F-00-110). THE TOTAL SURETY FOR THIS PROJECT WILL BE $43,650.00.

NOTE: ALL TREES SHALL BE A MINIMUM OF 2' FROM ANY PUBLIC EASEMENT.



LEGEND

DENOTES PROPOSED STREET TREE

PLAN

SCALE: 1" = 100'

FISHER, COLLINS & CARTER, INC.
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[signature] 11-7-00

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LANDSCAPE PLAN
WINDRIDGE FARMS
SECTION 2, AREA 2
LOTS 8 THRU 26

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FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: SEPTEMBER 1, 2000
SHEET 13 OF 14

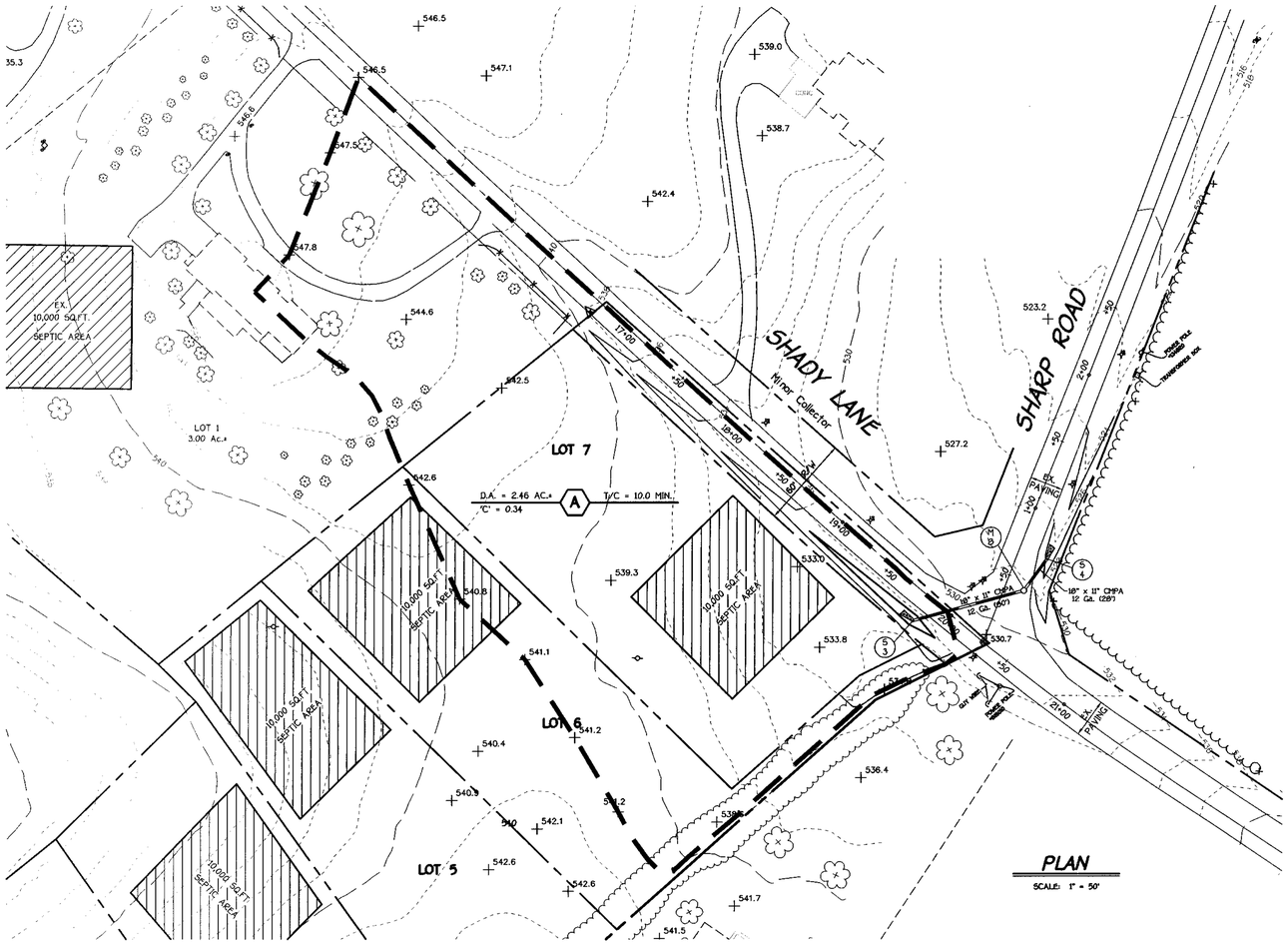
APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 11-28-00

APPROVED: DEPARTMENT OF PLANNING AND ZONING

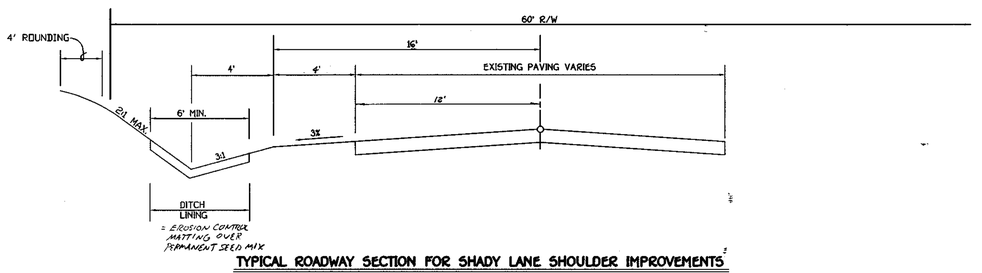
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 1/31/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/12/00



STRUCTURE SCHEDULE

STRUCTURE NO.	TOP ELEVATION	INV.IN	INV.OUT	ROAD NAME	ROAD STA.	OFFSET	TYPE	REMARKS
M-8	528.28	525.37	525.27	SHARP ROAD	0+44	13'R	STD. MANHOLE	G - 5.01
S-3	529.44	---	528.47	SHADY LANE	19+82	19'R	METAL END SECTION	SD 5.63
S-4	525.63	---	524.71	SHARP ROAD	0+70	20'R	METAL END SECTION	SD 5.63

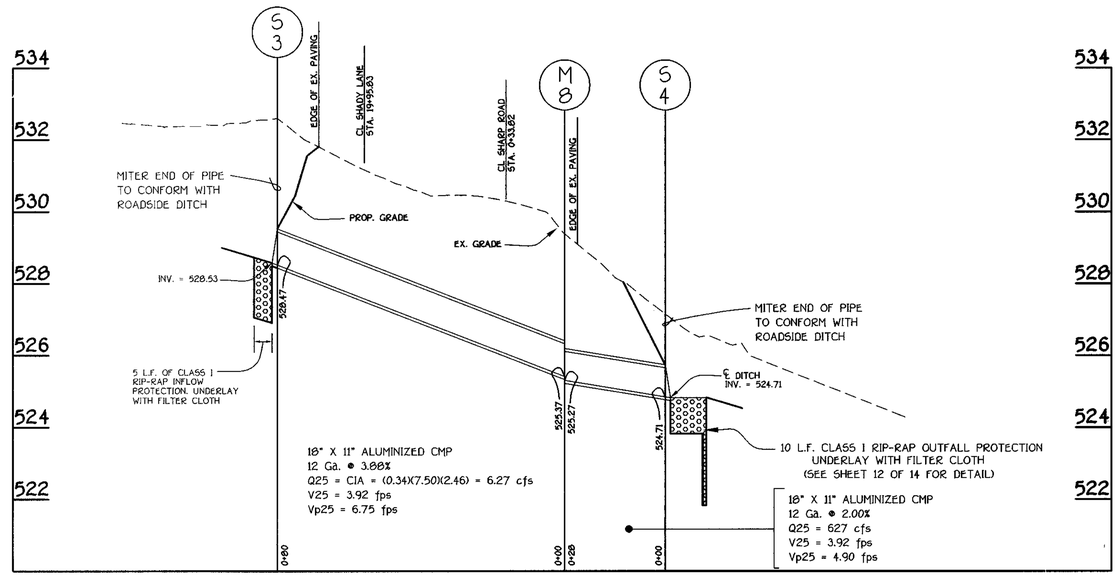


TYPICAL ROADWAY SECTION FOR SHADY LANE SHOULDER IMPROVEMENTS

NO SCALE

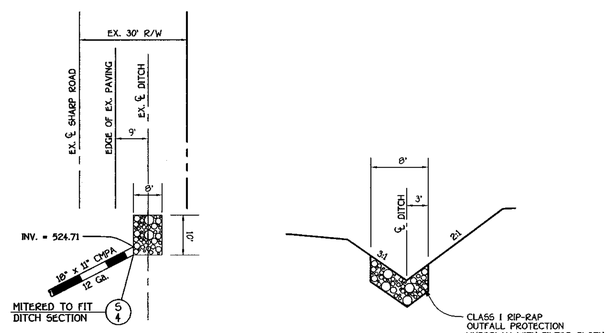
ROADWAY INFORMATION CHART

ROAD NAME	CLASSIFICATION	DESIGN SPEED	ZONING	℄ STATION LIMITS
SHADY LANE	MINOR COLLECTOR	35 M.P.H.	RR-DEO	16+75 TO 20+00
SHARP ROAD	MINOR COLLECTOR	35 M.P.H.	RR-DEO	0+00 TO 1+75



PROFILE

SCALE: HORIZ.: 1" = 20'
VERT.: 1" = 2'



RIP-RAP OUTFALL DETAIL @ S-4

NO SCALE

STATE OF MARYLAND — HUGH MICHAEL VITUNI — NO. 20746 — REGISTERED PROFESSIONAL ENGINEER

Hugh M. Vituni 11-7-00

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