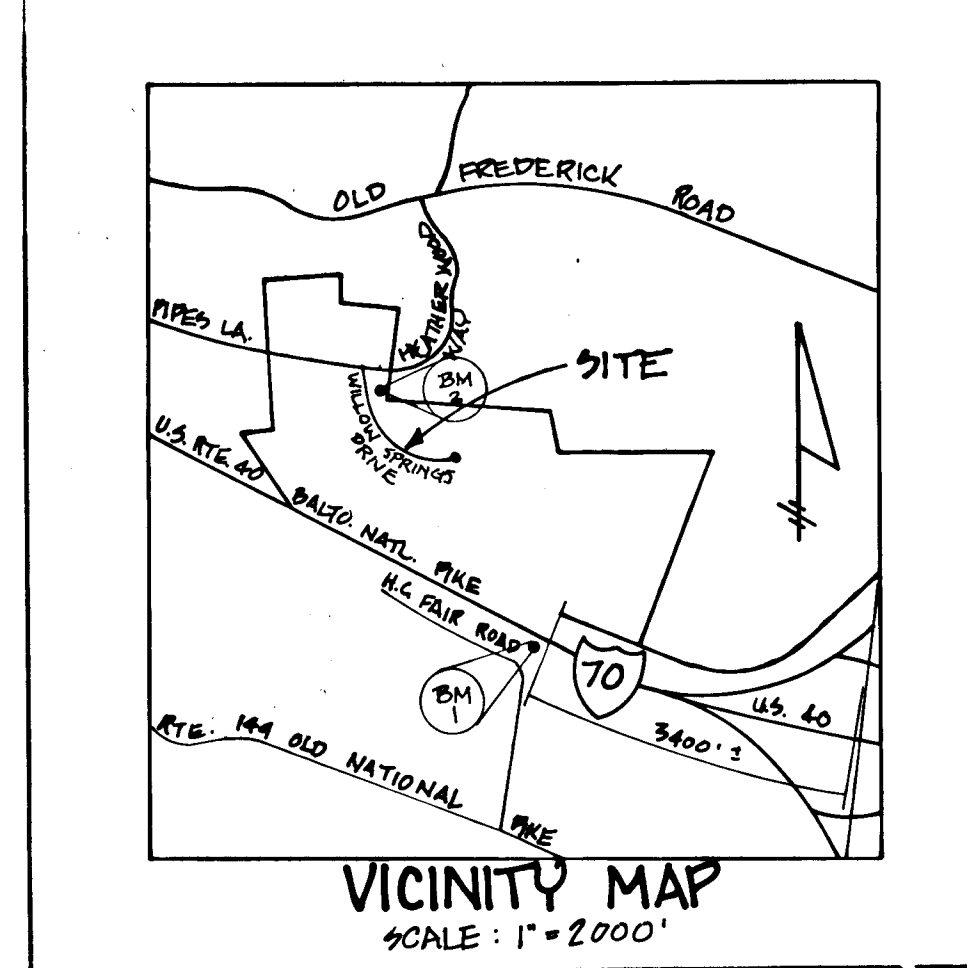
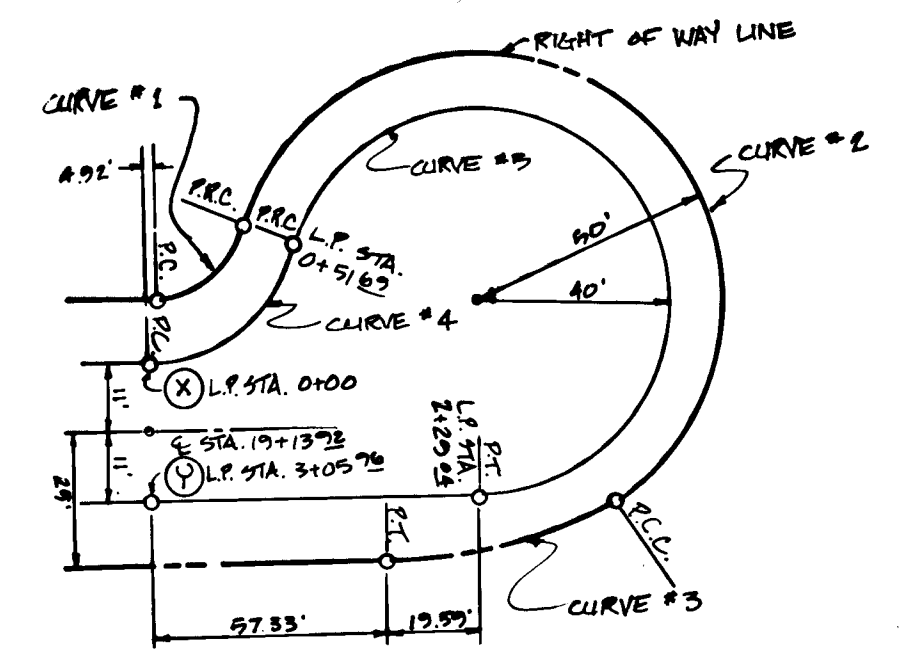
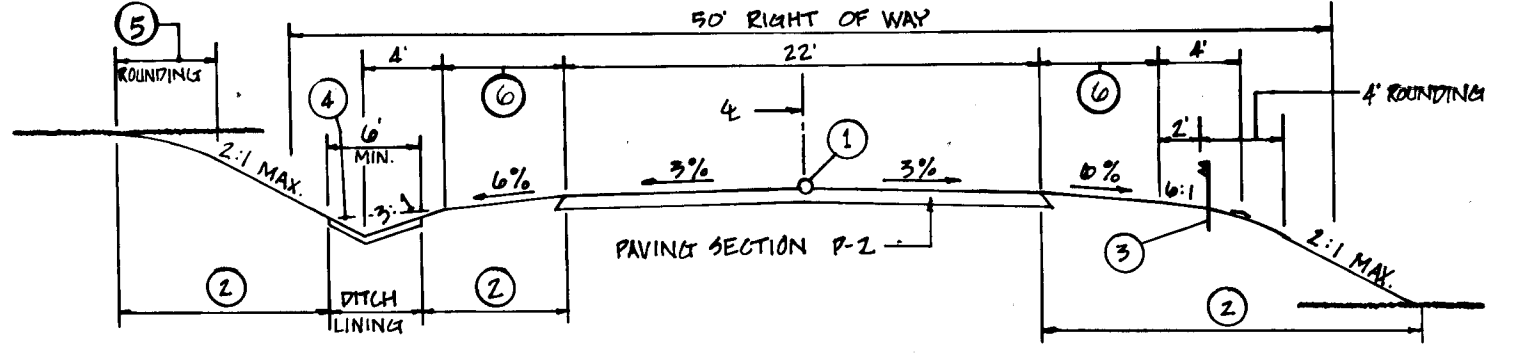


**TYPICAL SECTION
OFFSET CUL-DE-SAC
WITHOUT ISLAND
NO SCALE**



BENCHMARKS
 1) HOWARD COUNTY TRAVERSE POINT NO. 5536007 EL. 560.48
 3/4" REINFORCING ROD IN GRASSY MEDIAN OF I-70
 2) SHANABERGER & LANE TRAVERSE POINT NO. B-13 EL. 548.28
 3/8" IRON BAR IN GRASS, SOUTH OF EXISTING T-TURN AT END OF HEATHERWOOD WAY.

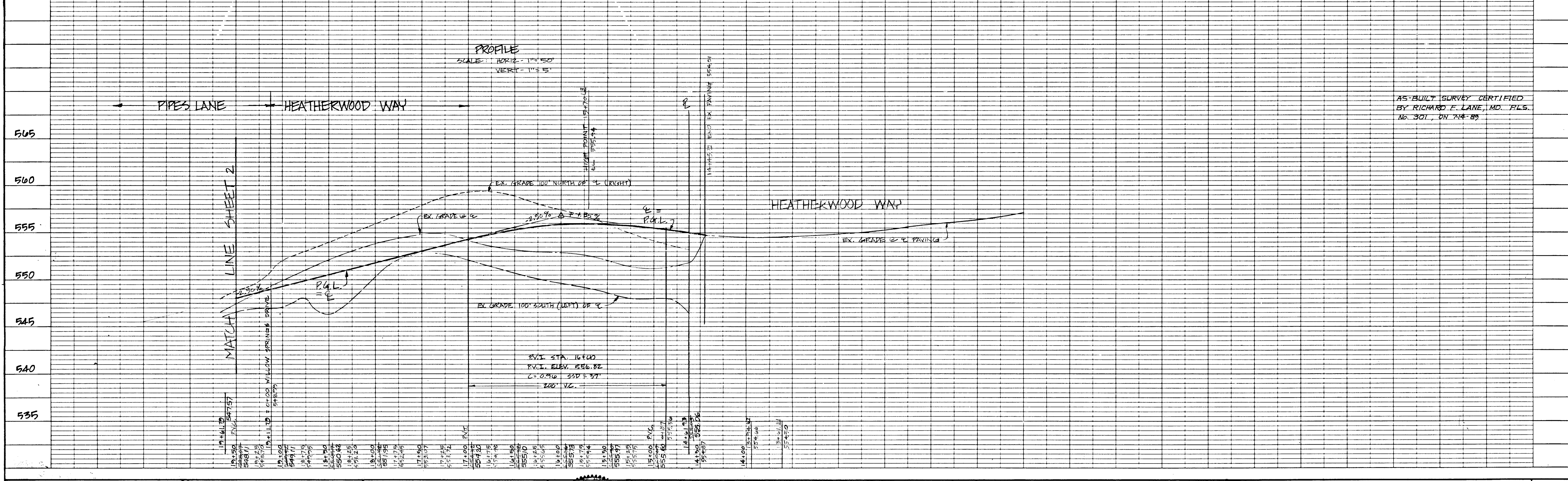
ROAD NAME	FROM STATION	TO STATION	ROAD CLASSIFICATION	ZONING	DESIGN SPEED	DIMENSIONS ON TYP. SECTION	
						5	6
HEATHERWOOD WAY	14+61.93	19+11.79	LOCAL ROAD	R	30	5'	6'
PIPE'S LANE	19+11.79	28+40.41	LOCAL ROAD	R	30	5'	6'
WILLOW SPRINGS DR.	0+00	19+13.92	CUL-DE-SAC	R	30	4'	4'



1. PROFILE GRADE LINE (P.G.L.).
2. INDICATES 2" TOPSOIL, SEED AND MULCH.
3. GUARDRAIL WHERE REQUIRED BY DESIGN MANUAL.
4. DITCH CROSS SECTION SLOPE MAY BE FLATTENED TO PROVIDE A SHOULDER AT OR NEAR THE CREST OF VERTICAL CURVES WHERE QUANTITY OF SHALE FLOW IS SMALL, AS APPROVED BY D.P.W.
5. FOR PIPES LANE AND HEATHERWOOD WAY THERE WILL BE 4' ROUNDINGS, FOR WILLOW SPRINGS DRIVE THERE WILL BE 4' ROUNDINGS.
6. FOR PIPES LANE AND HEATHERWOOD WAY THERE WILL BE 6' AT A 6% SLOPE, FOR WILLOW SPRINGS DRIVE THERE WILL BE 4' AT A 6% SLOPE.

	1	2	3	4	5
Δ	73°44'01"	8°50'40"09"	23°04'11"	74°02'30"	25°02'00"
R	25.00'	50.00'	100.00'	40.00'	40.00'
L	32.17'	201.30'	40.26'	51.69'	177.35'
T	18.75'	—	2.041'	30.17'	—
L.C.	30.00'	—	39.99'	48.17'	—

- GENERAL NOTES**
- 1) ALL WORK SHALL BE DONE IN ACCORDANCE WITH HOWARD COUNTY STANDARDS, SPECIFICATIONS, AND DETAILS FOR CONSTRUCTION.
 - 2) ALL UTILITY COMPANIES MUST BE NOTIFIED 24 HOURS IN ADVANCE OF ANY CONSTRUCTION.
 - 3) ALL INLETS, MANHOLES, AND END SECTIONS SHALL BE HOWARD COUNTY STANDARDS UNLESS OTHERWISE SHOWN.
 - 4) STORM DRAIN TRENCHES WITHIN ROAD RIGHT-OF-WAYS SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH HOWARD COUNTY ROAD CODE.
 - 5) ANY DAMAGE TO PUBLIC RIGHT-OF-WAYS OR PAVING WILL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
 - 6) CONTRACTOR TO NOTIFY THE HOWARD COUNTY DEPT. OF INSPECTION AT LEAST 3 DAYS BEFORE STARTING WORK SHOWN ON THESE DRAWINGS. TELEPHONE 792-7272.
 - 7) ALL TRAFFIC CONTROL DEVICES SHALL BE INSTALLED IN COMPLIANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, 1978 EDITION.
 - 8) DESIGN SHOWN HEREON IS BASED ON 2" AERIAL TOPOGRAPHY PREPARED BY PHOTO SCIENCE, INC.



AS-BUILT SURVEY CERTIFIED BY RICHARD F. LANE, MD. P.L.S. No. 301, ON 7/4/89

1363

APPROVED: DEPARTMENT OF PUBLIC WORKS <i>[Signature]</i> 6-1-88 CHIEF, BUREAU OF ENGINEERING	APPROVED: DEPARTMENT OF PUBLIC WORKS <i>[Signature]</i> 6/1/88 CHIEF, BUREAU OF HIGHWAYS	SHANABERGER & LANE 8126 TOWN & COUNTRY BLVD. SUITE 203 ELLICOTT CITY, MD. 21043 (301) 461-9563	DES: GSS DRN: SLM CHK: GSS DATE:	WILLOW HIGHLANDS AT WILLOW SPRINGS GOLF COURSE TAX MAP 9, PARCEL 191; TAX MAP 10, PARCELS 11, 145 ZONING MAP 9 & 15, 3rd ELECTION DISTRICT HOWARD COUNTY, MD	PLAN & PROFILE OF HEATHERWOOD WAY	SCALE AS SHOWN SHEET 1 OF 2
---	--	---	---	--	--	--------------------------------

NOTE: GUARD RAIL REVISION APPROVED ON 5-10-89 BY BUREAU OF ENGINEERING

TAPER MACADAM FROM 24' WIDTH @ STA. 28+40 TO 22' WIDTH @ STA. 28+00.

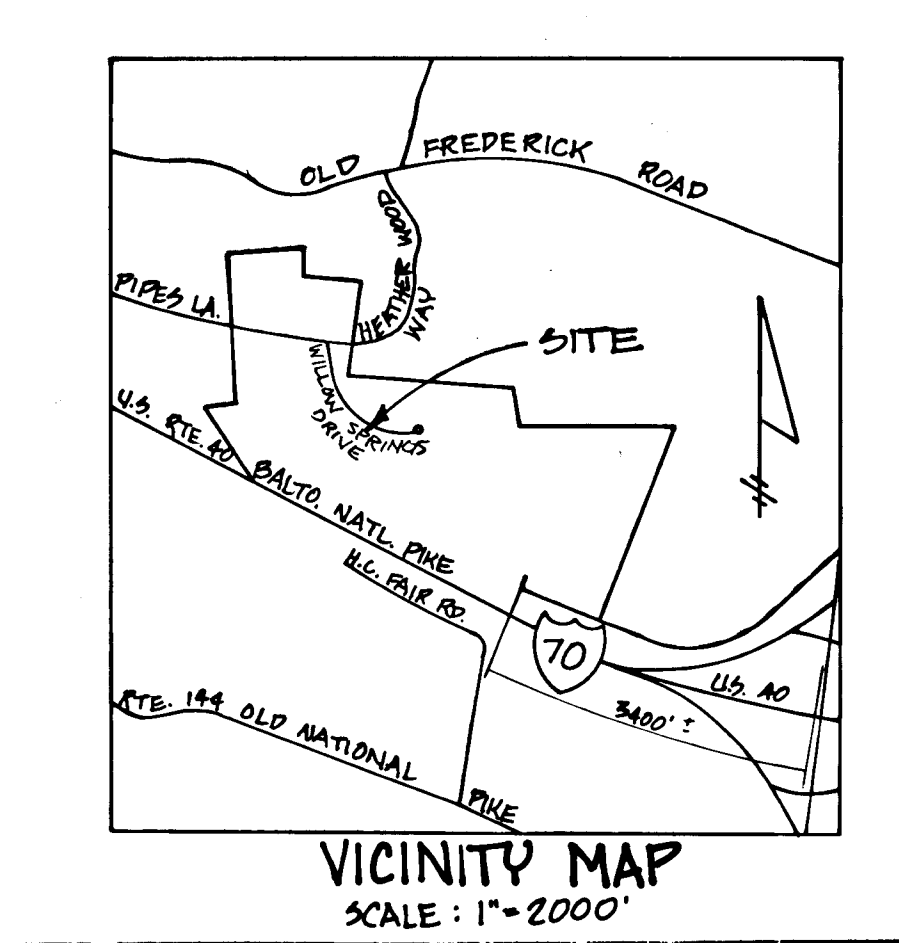
DESIGNATES EXISTING MACADAM PAVING AND CURBS TO BE REMOVED; REPLACED WITH TOPSOIL, SEED AND MULCH.

EXISTING MACADAM PAVING TO REMAIN. CONSTRUCT BITUMINOUS CONCRETE CURBS TO MEET EXISTING CURBS FOR LINE AND GRADE. MAINTAIN 24' WIDTH (E.C. TO E.C.) TO STA. 28+40. END PROPOSED CURBS AT STA. 28+40.

PIPES LANE

PLAN

SCALE: 1" = 50'



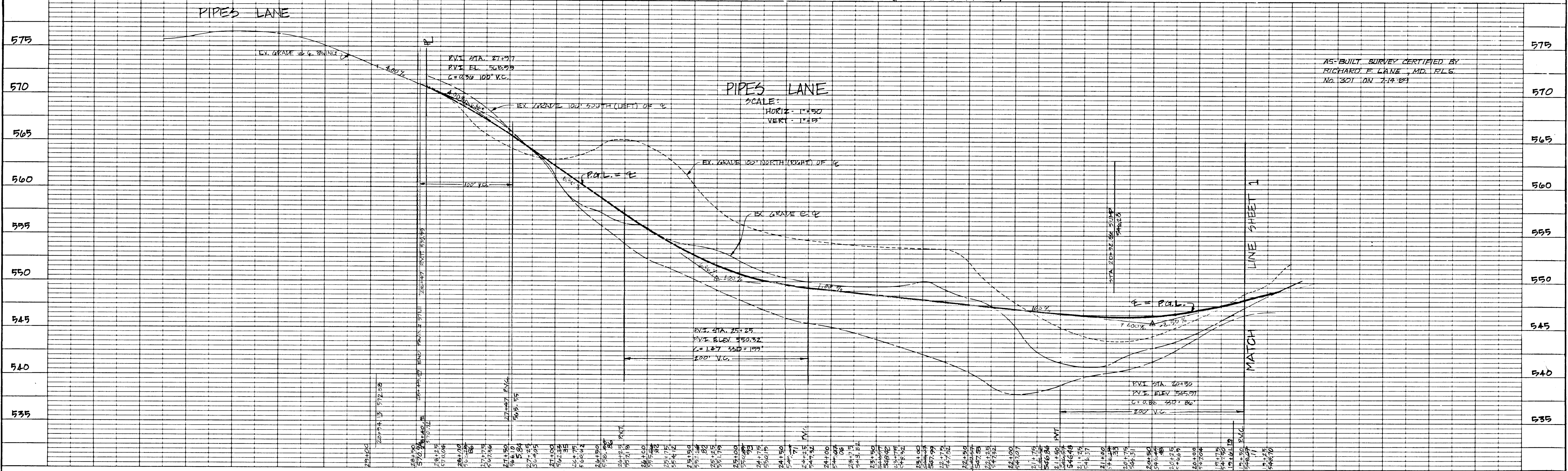
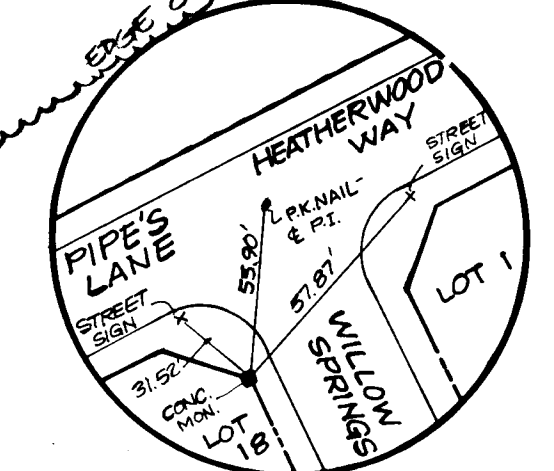
CURVE DATA

STA. 19+10 TO STA. 27+84.23
 R = 1125.00'
 Δ = 41°53'23"
 L = 822.50'
 T = 430.61'
 CH = N 86°50'01" E 804.31'

GUARDRAIL NOTES:

- GUARDRAIL TO BE CONSTRUCTED IN ACCORDANCE WITH HOWARD COUNTY DESIGN MANUAL VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION.
- LOCATIONS OF GUARDRAIL AS FOLLOWS:
 HEATHERWOOD WAY - 1) BEGIN STATION 19+70 RT. END STATION 22+47 RT.
 2) BEGIN STATION 21+05 LT. END STATION 22+10 LT.
 WILLOW SPRINGS DRIVE 1) BEGIN STATION 5+73 LT. END STATION 8+24 LT.
 2) BEGIN STATION 5+75 RT. END STATION 8+40 RT.

CONC. MON. LOCATION



AS-BUILT SURVEY CERTIFIED BY RICHARD F. LANE, MD, R.L.S. NO. 301 ON 7-19-83

1363

APPROVED: DEPARTMENT OF PUBLIC WORKS
 Richard F. Lane, Chief, Bureau of Engineering, 6/1/88
 APPROVED: OFFICE OF PLANNING AND ZONING
 Richard F. Lane, Chief, Division of Community Planning and Land Development, 5/27/88

SHANABERGER + LANE
 8726 TOWN & COUNTRY BLVD.
 SUITE 203
 ELLICOTT CITY, MD 21043
 (301) 461-9563

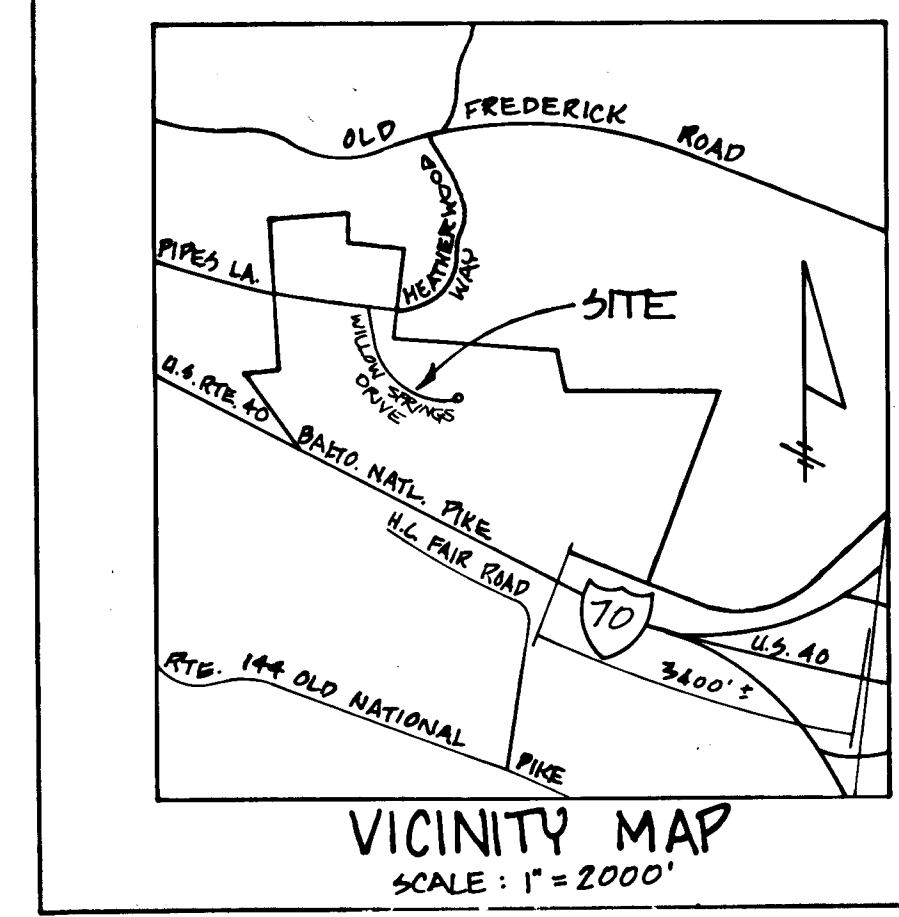


DES	GSS			
DRN	GLM			
CHK	GSS			
DATE	BY	NO.	REVISION	DATE

WILLOW HIGHLANDS AT WILLOW SPRINGS GOLF COURSE
 TAX MAP 2, PARCEL 191; TAX MAP 15, PARCELS 11, 143
 ZONING MAP 2 E 19, 3rd ELECTION DISTRICT
 HOWARD COUNTY, MD

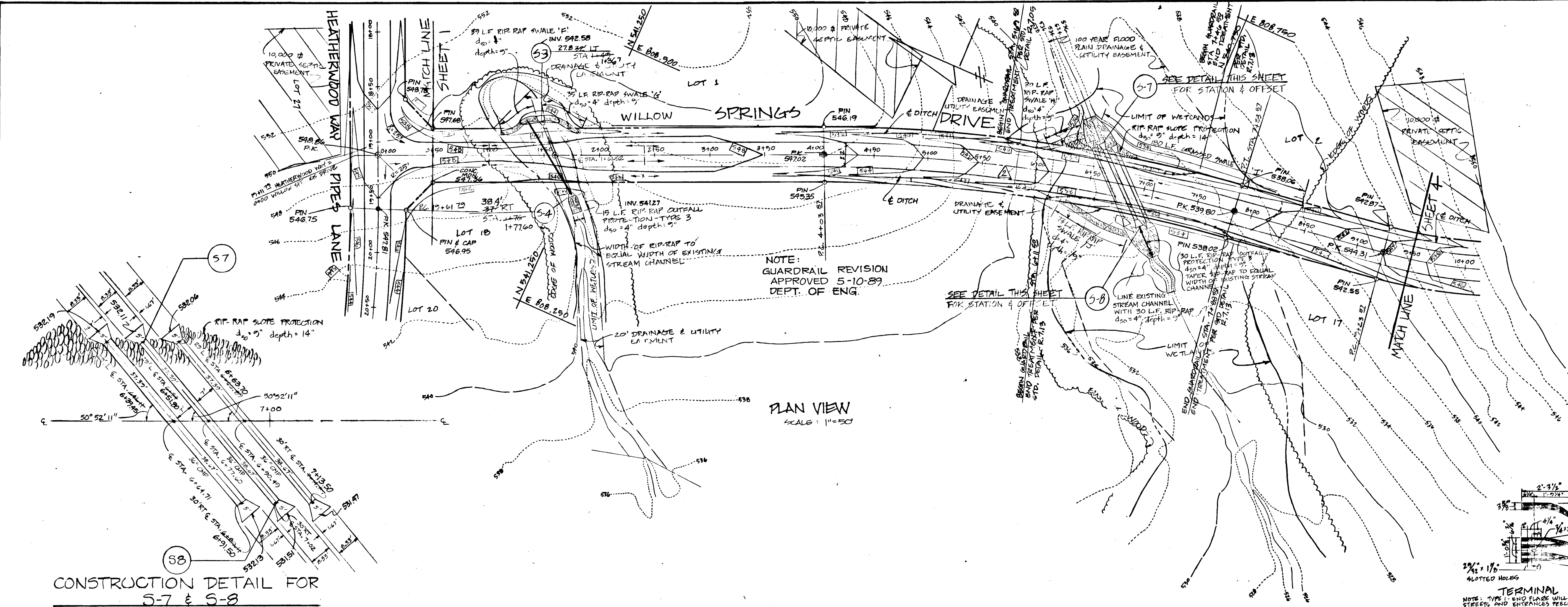
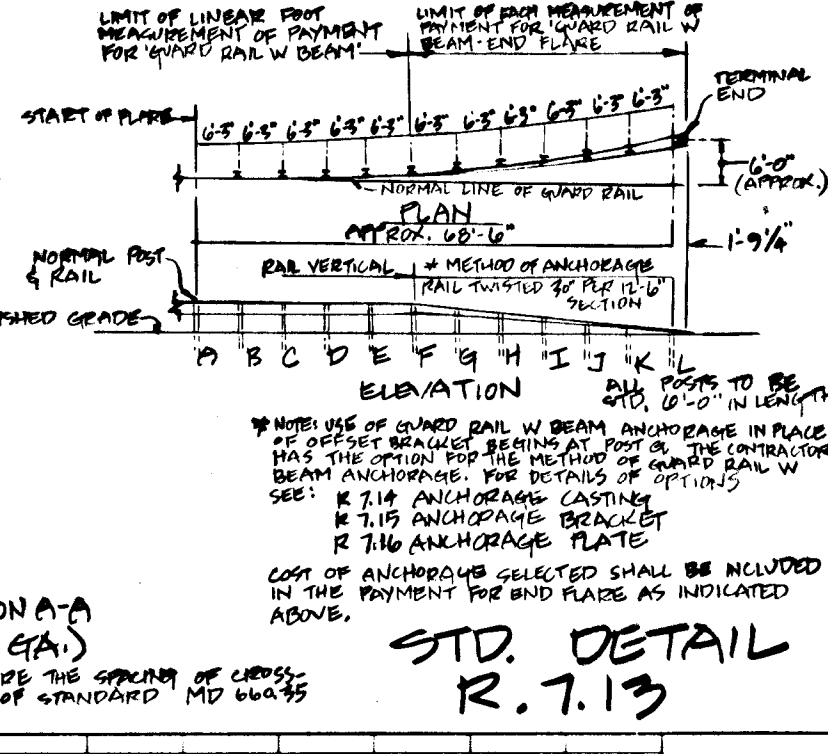
PLAN & PROFILE OF PIPES LANE

SCALE AS SHOWN
 SHEET 2 OF 2

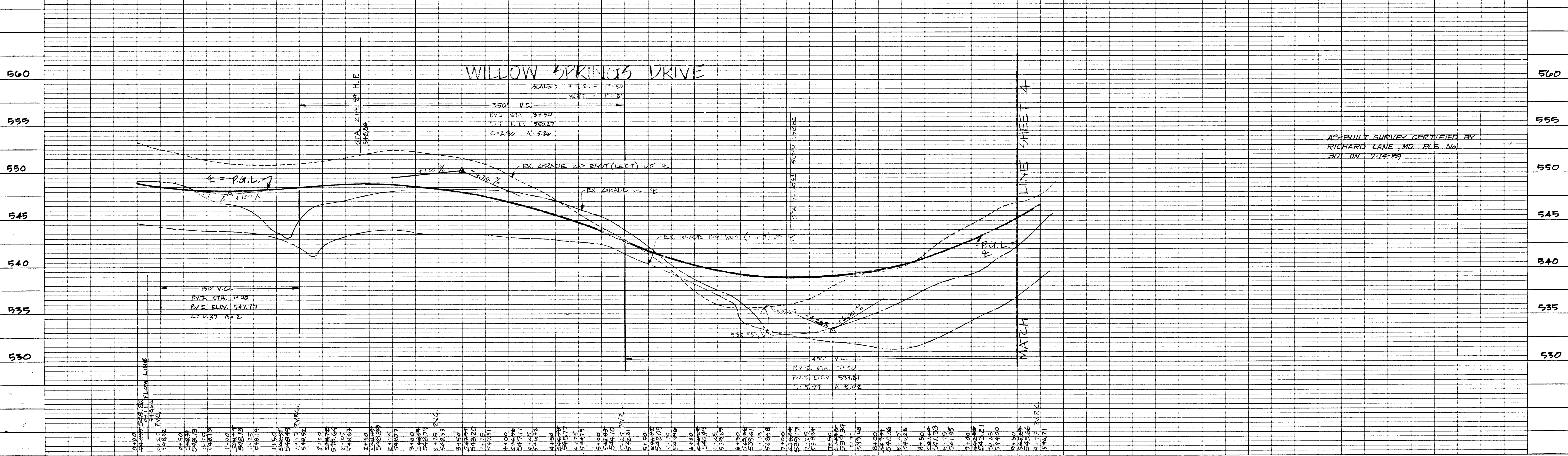


CURVE DATA

△ STA. 4 + 03.82 TO 7 + 83.82
 R = 1379.00'
 Δ = 15° 00' 04"
 L = 380.00'
 T = 171.12'
 CH = 5 16' 11" 59" E 379.79'



CONSTRUCTION DETAIL FOR 5-7 & 5-8
 SCALE: 1" = 20'



APPROVED: DEPARTMENT OF PUBLIC WORKS
James E. P. ...
 CHIEF, BUREAU OF ENGINEERING DATE: 6/1/88

APPROVED: DEPARTMENT OF PUBLIC WORKS
James E. P. ...
 CHIEF, BUREAU OF ENGINEERING DATE: 6/1/88

APPROVED: OFFICE OF PLANNING AND ZONING
James E. P. ...
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE: 5/27/88

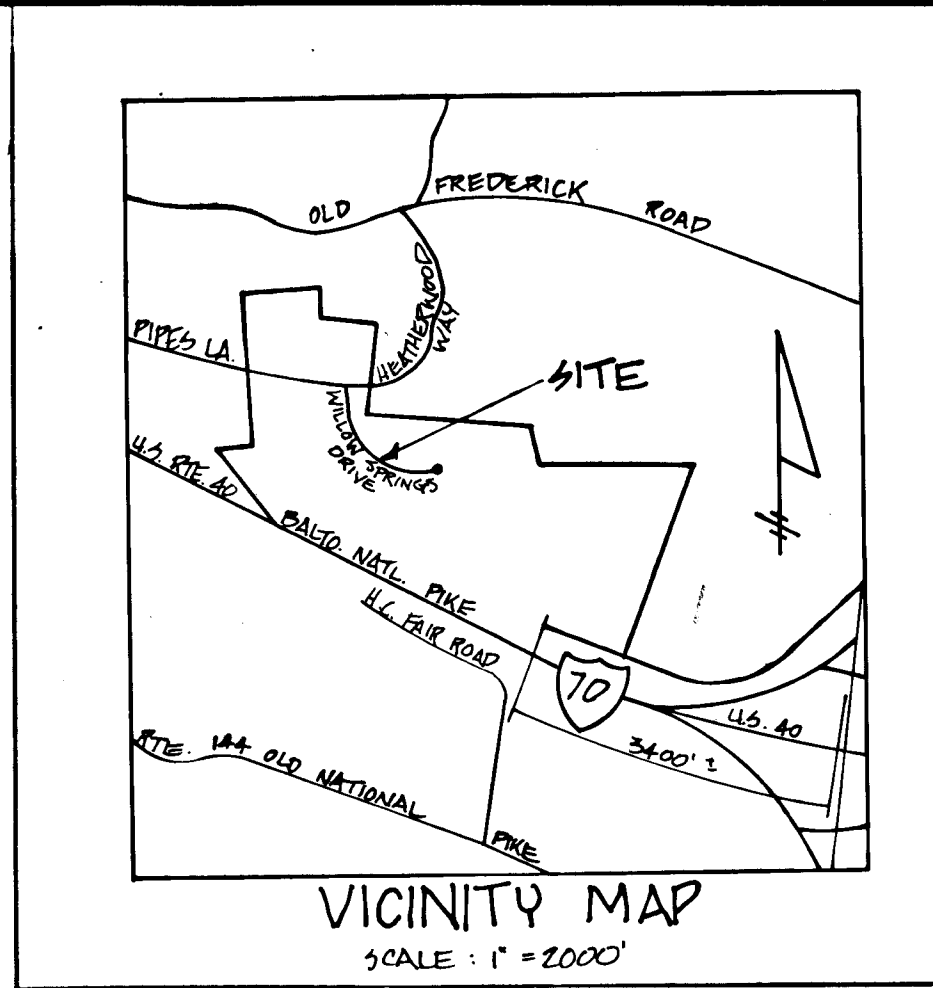
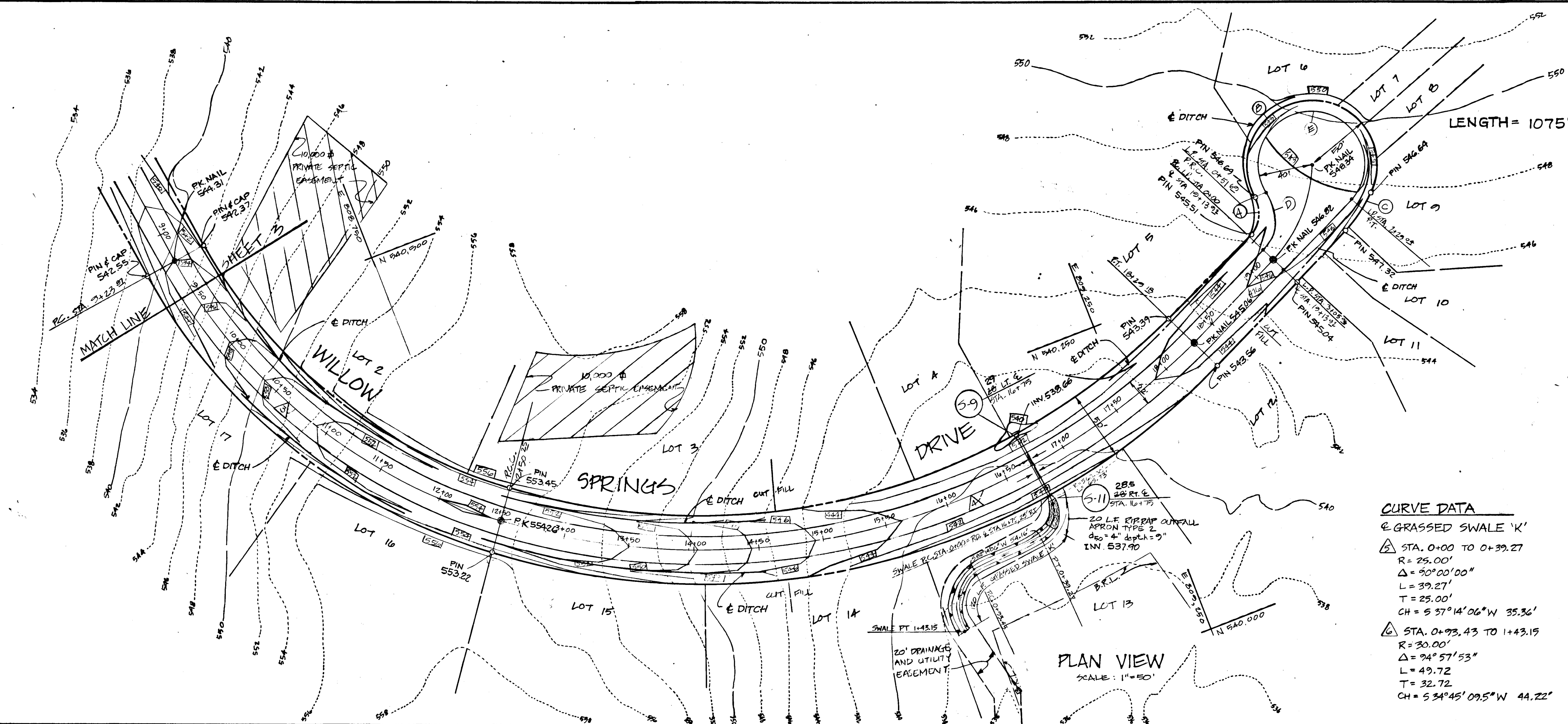
SHANABERGER + LANE
 8726 TOWN & COUNTRY BLVD
 SUITE 203
 ELLICOTT CITY, MD. 21043
 (301) 461-9563

DES: GSS	BY:	NO.	REVISION	DATE
DRN: SLT				
CHK: GSS				
DATE:				

WILLOW HIGHLANDS AT WILLOW SPRINGS GOLF COURSE
 BY MAP 9, PARCEL 151; TAX MAP 15, PARCELS 11, 145
 ZONING MAP 7 & 15, 3RD ELECTION DISTRICT
 HOWARD COUNTY, MD

PLAN & PROFILE OF WILLOW SPRINGS DRIVE
 SCALE AS SHOWN
 SHEET 2 OF 2

1363



CURVE DATA

△ STA. 9+23.82 TO 12+50.25
 R = 425.00'
 Δ = 44° 00' 00"
 L = 324.38'
 T = 171.71'
 CH = 630° 16' 38" E 318.42'

△ STA. 12+50.25 TO 18+29.19
 R = 535.00'
 Δ = 62° 00' 00"
 L = 578.43'
 T = 321.46'
 CH = 535° 16' 37" E 576.84'

CURVE DATA

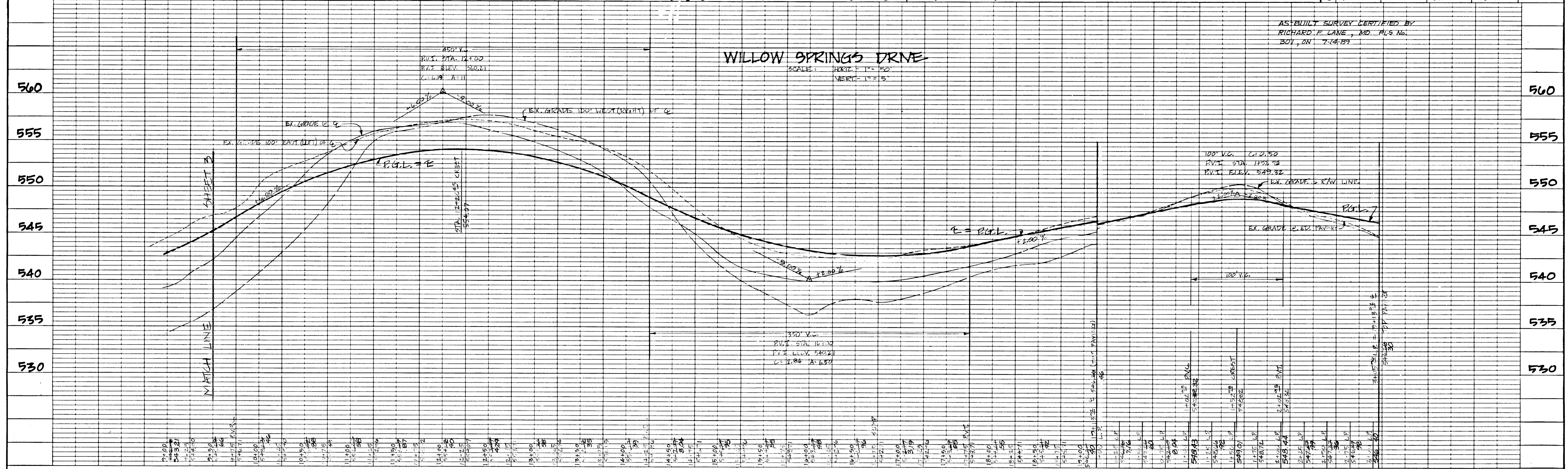
△ GRASSED SWALE 'K'

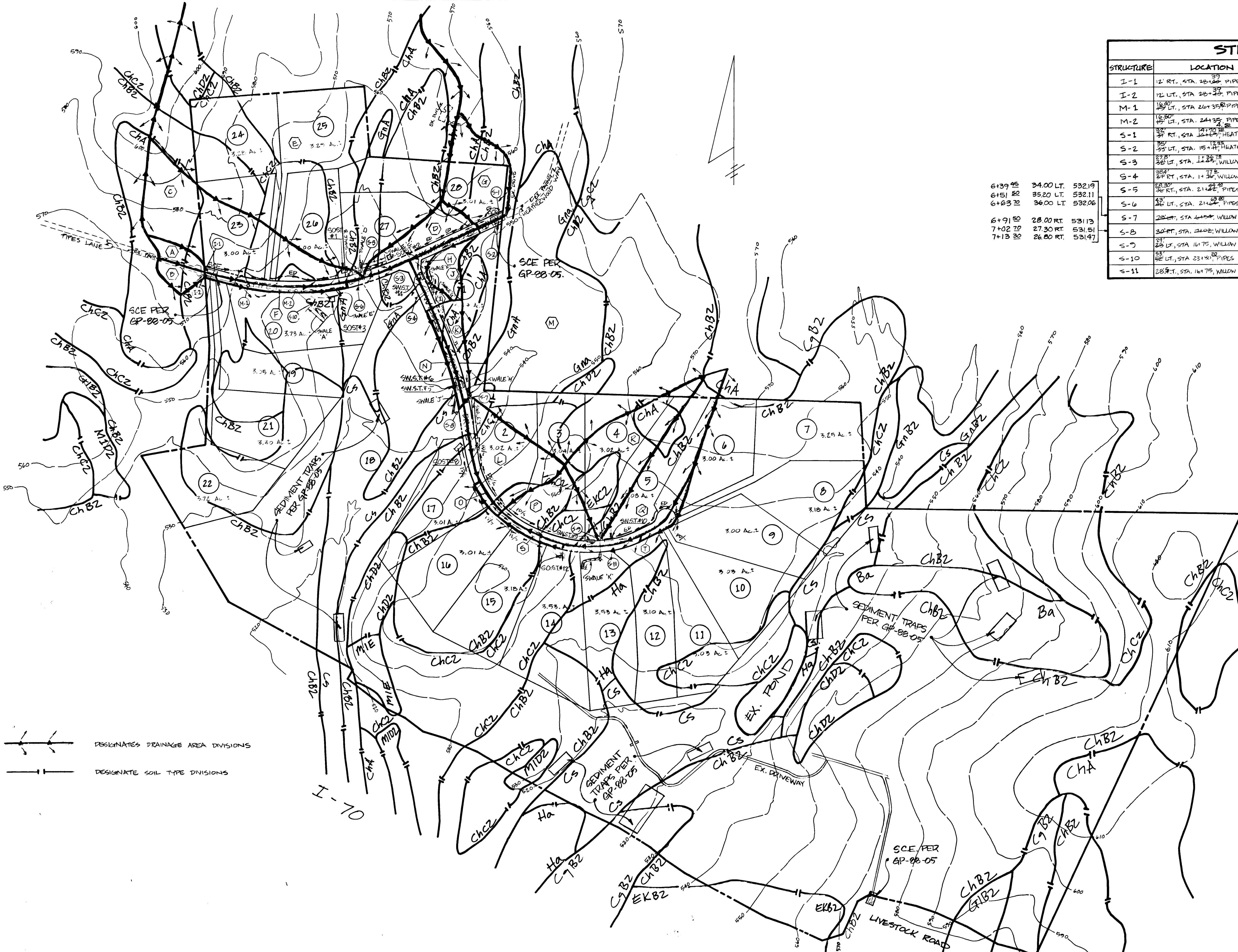
△ STA. 0+00 TO 0+39.27
 R = 25.00'
 Δ = 90° 00' 00"
 L = 39.27'
 T = 25.00'
 CH = 537° 14' 06" W 35.36'

△ STA. 0+93.43 TO 1+43.19
 R = 30.00'
 Δ = 94° 57' 53"
 L = 49.72'
 T = 32.72'
 CH = 534° 45' 09.5" W 44.22'

CUL-DE-SAC CURVE DATA

	A	B	C	D	E
Δ	73° 44' 07"	23° 40' 09"	23° 04' 11"	74° 02' 30"	254° 02' 09"
R	25.00'	90.00'	100.00'	100.00'	40.00'
L	32.17'	201.30'	10.24'	51.69'	177.35'
T	18.75'	—	20.41'	30.17'	—
LC	30.00'	—	39.99'	48.17'	—





STRUCTURE SCHEDULE

STRUCTURE	LOCATION	TYPE	TOP ELEV.	INN. IN	INN. OUT	STANDARD DTL. #
I-1	12 RT. STA. 20+37 PIPES LANE	A-5 INLET	571.45 T.C.	—	566.70	S.D. 4.01
I-2	12 LT. STA. 20+37 PIPES LANE	A-5 INLET	076	566.25	566.25	S.D. 4.01
M-1	16 LT. STA. 21+35 PIPES LANE	STANDARD PRECAST MANHOLE	557.30	549.25	549.25	G.S. 12 & G.S. 11
M-2	16 LT. STA. 24+35 PIPES LANE	STANDARD PRECAST MANHOLE	540.00	544.30	544.30	G.S. 12 & G.S. 11
S-1	35 RT. STA. 14+75 HEATHERWOOD WAY	METAL END SECT.	—	550.75	—	S.D. 5.01
S-2	35 LT. STA. 15+47 HEATHERWOOD WAY	METAL END SECT.	—	—	547.90	S.D. 5.01
S-3	27 LT. STA. 11+25 WILLOW SPRINGS DRIVE	METAL END SECT.	—	542.40	—	S.D. 5.01
S-4	30 RT. STA. 11+36 WILLOW SPRINGS DRIVE	METAL END SECT.	—	—	541.50	S.D. 5.01
S-5	30 RT. STA. 21+22 PIPES LANE	METAL END SECT.	—	530.39	—	S.D. 5.01
S-6	42 LT. STA. 21+07 PIPES LANE	METAL END SECT.	—	—	528.07	S.D. 5.01
S-7	20 RT. STA. 14+34 WILLOW SPRINGS DRIVE	(3) METAL END SECT.	—	532.30	—	S.D. 5.01
S-8	30 RT. STA. 14+02 WILLOW SPRINGS DRIVE	(3) METAL END SECT.	—	—	531.70	S.D. 5.01
S-9	24 LT. STA. 14+75 WILLOW SPRINGS DRIVE	METAL END SECT.	—	528.58	—	S.D. 5.01
S-10	53 LT. STA. 23+41 PIPES LANE	METAL END SECT.	—	—	543.06	S.D. 5.01
S-11	28 RT. STA. 16+75 WILLOW SPRINGS DRIVE	METAL END SECT.	—	—	537.55	S.D. 5.01

6139 95	34.00 LT.	532.19
6151 80	35.20 LT.	532.11
6163 70	36.00 LT.	532.06
6191 80	28.00 RT.	531.13
7102 70	27.30 RT.	531.51
7113 30	26.00 RT.	531.47

PIPE SCHEDULE

DIAMETER	TYPE	QTY
15"	C.M.P.	644 L.F.
36"	C.M.P.	249 L.F.
48"	C.M.P.	73 L.F.

AS-BUILT SURVEY CERTIFIED BY
 RICHARD F. LANE, MD. PLS. No.
 301, ON 7-14-89

DRAINAGE AREA INFORMATION

SUB-AREA	ZONING	AREA (Ac.)	C
A	R	0.40	0.31
B	R	0.43	0.33
C	R	5.70	0.23
D	R	1.25	0.24
E	R	42.21	0.24
F	R	0.36	0.52
G	R	2.63	0.24
H	R	0.42	0.40
I	R	0.20	0.33
J	R	1.16	0.24
K	R	0.79	0.32
L	R	2.67	0.24
M	R	64.44	0.24
N	R	0.25	0.51
O	R	0.11	0.52
P	R	1.34	0.20
Q	R	2.92	0.27
R	R	3.35	0.24
S	R	0.15	0.52
T	R	0.28	0.44

--- DESIGNATES DRAINAGE AREA DIVISIONS
 --- DESIGNATE SOIL TYPE DIVISIONS

APPROVED: DEPARTMENT OF PUBLIC WORKS
James R. Kelly 6-1-88
 CHIEF, BUREAU OF ENGINEERING
 DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS
William M. Williams 6/1/88
 CHIEF, BUREAU OF HIGHWAYS
 DATE

APPROVED: OFFICE OF PLANNING AND ZONING
James R. Kelly 5/1/88
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT
 DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS
William M. Williams 5/1/88
 CHIEF, LAND DEVELOPMENT DIVISION
 DATE

SHANABERGER & LANE
 8726 TOWN & COUNTRY BLVD
 SUITE 203
 ELLICOTT CITY, MD 21043
 (301) 461-9563



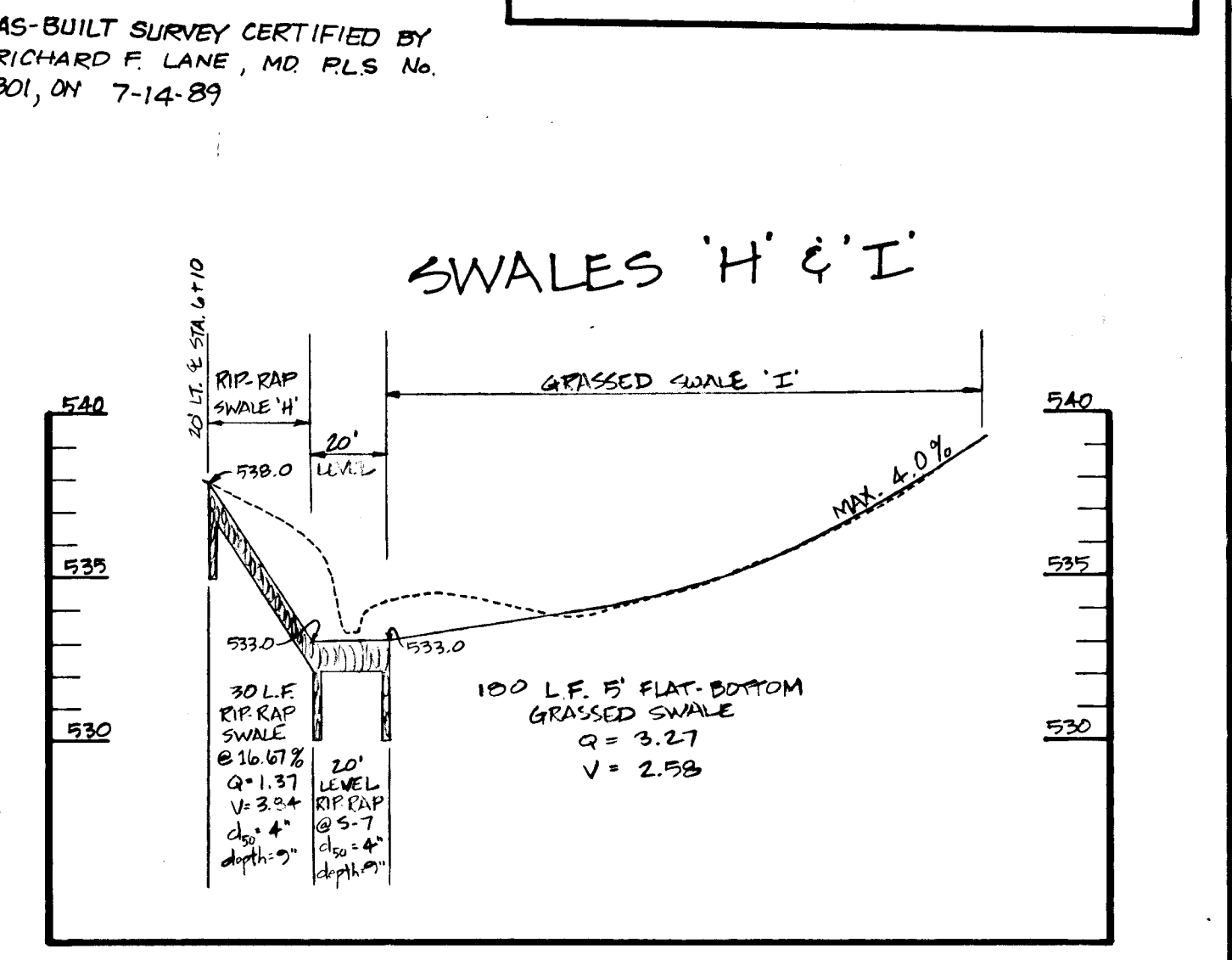
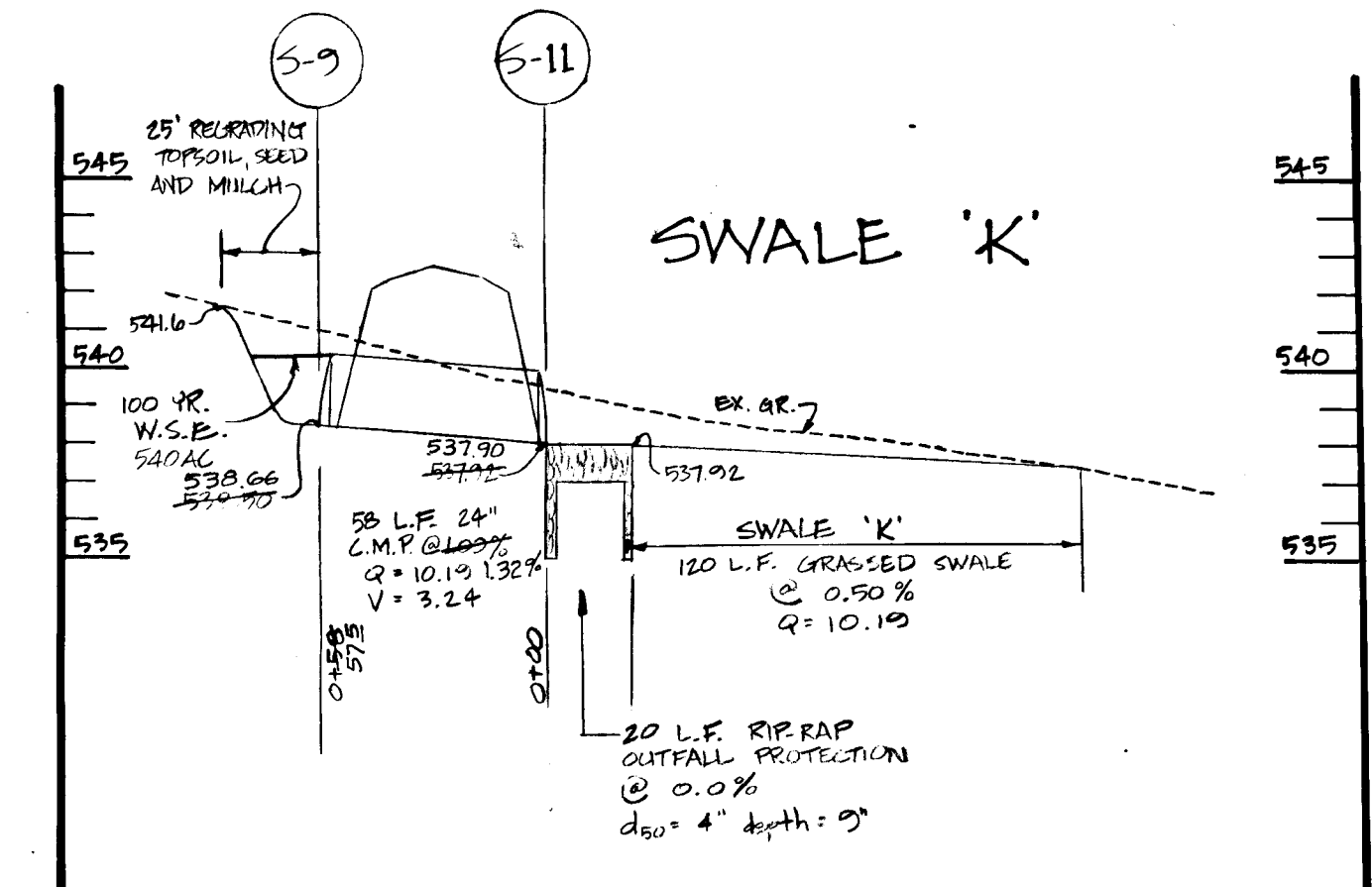
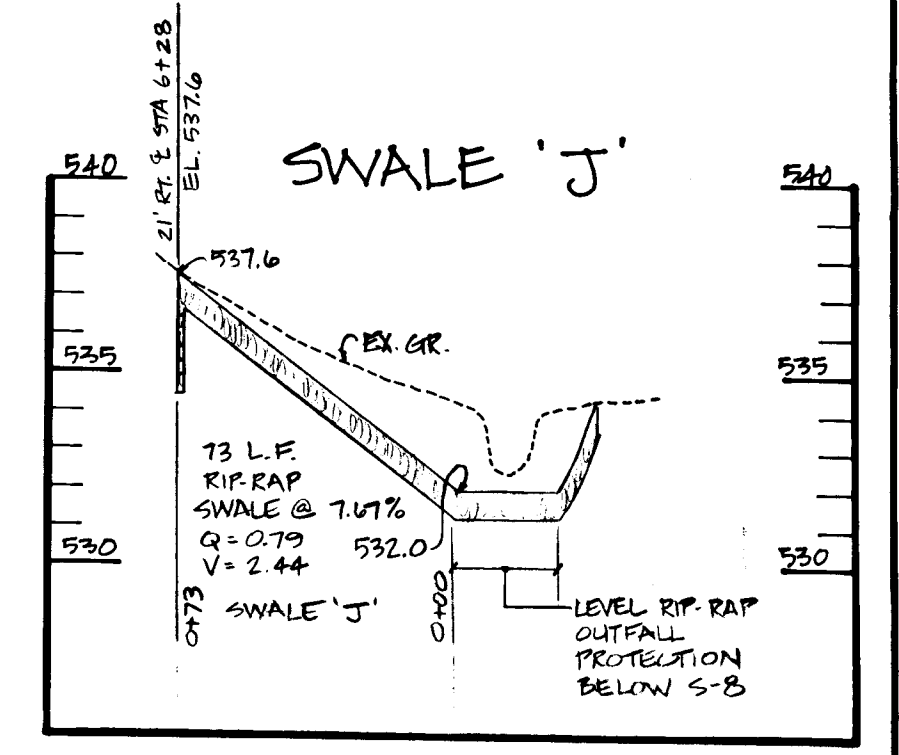
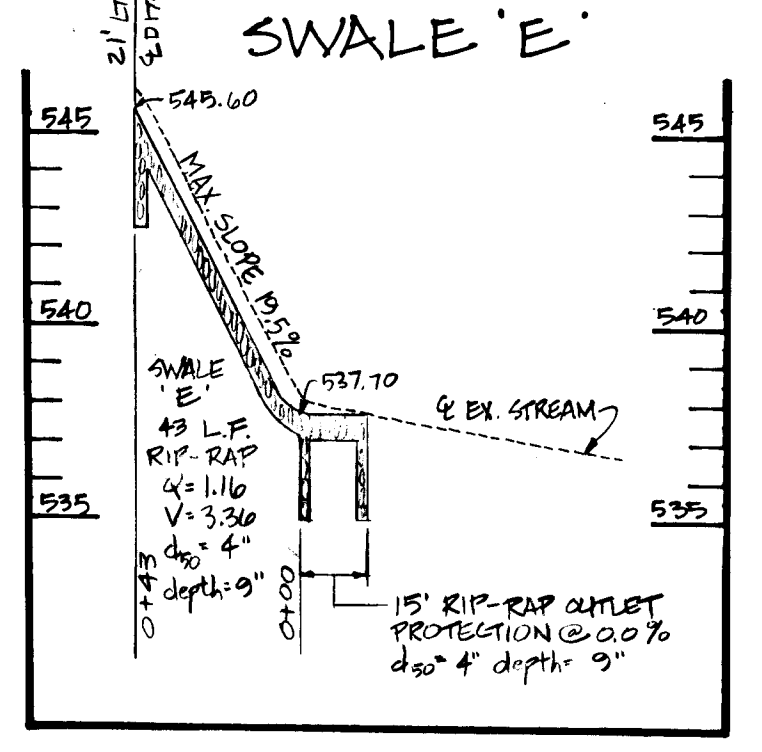
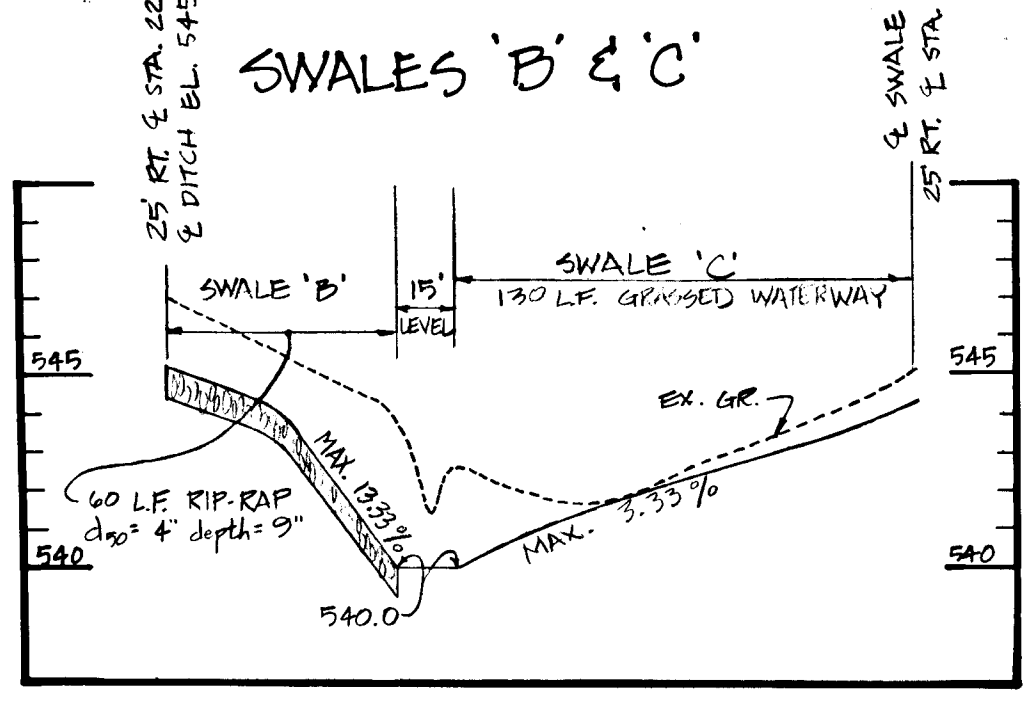
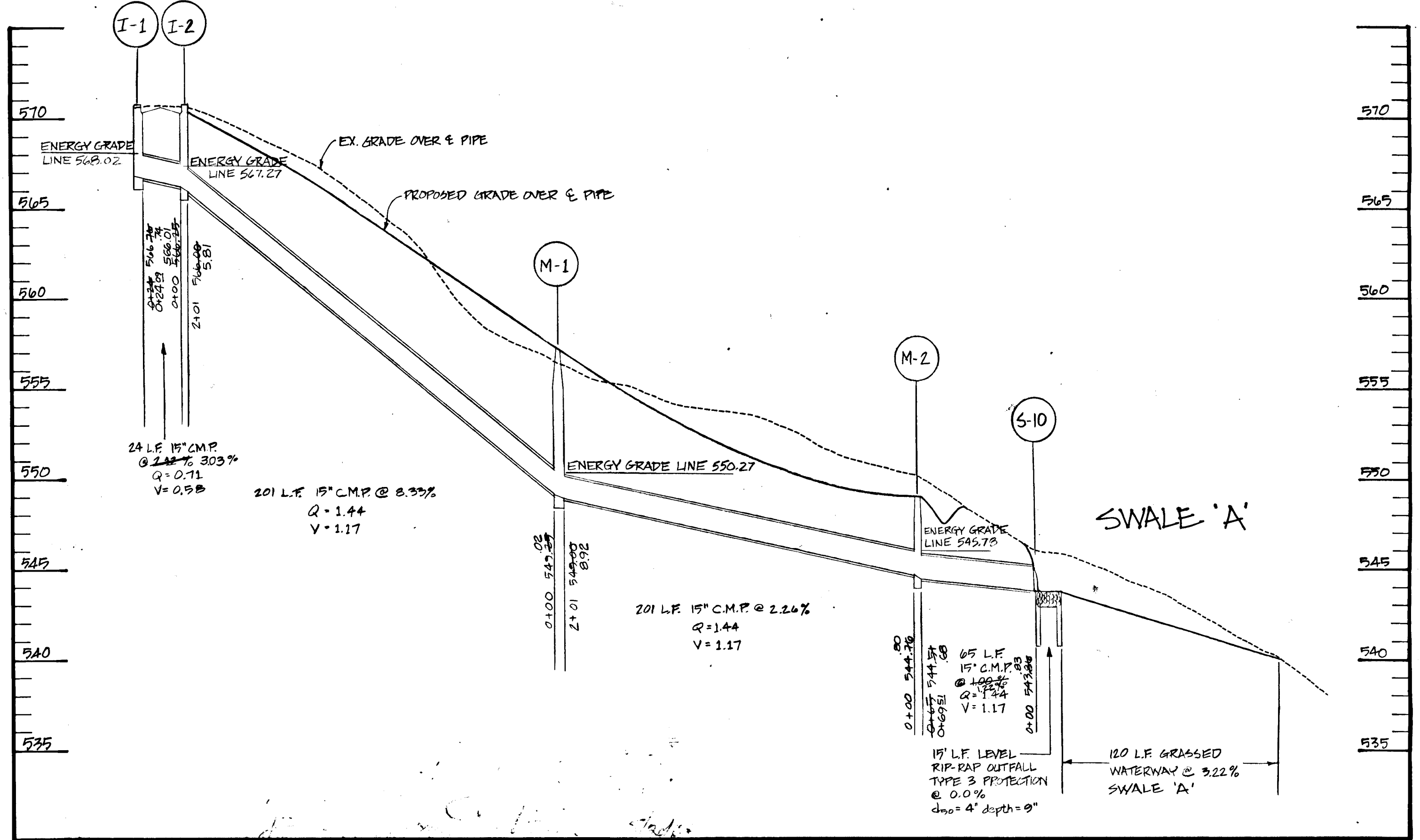
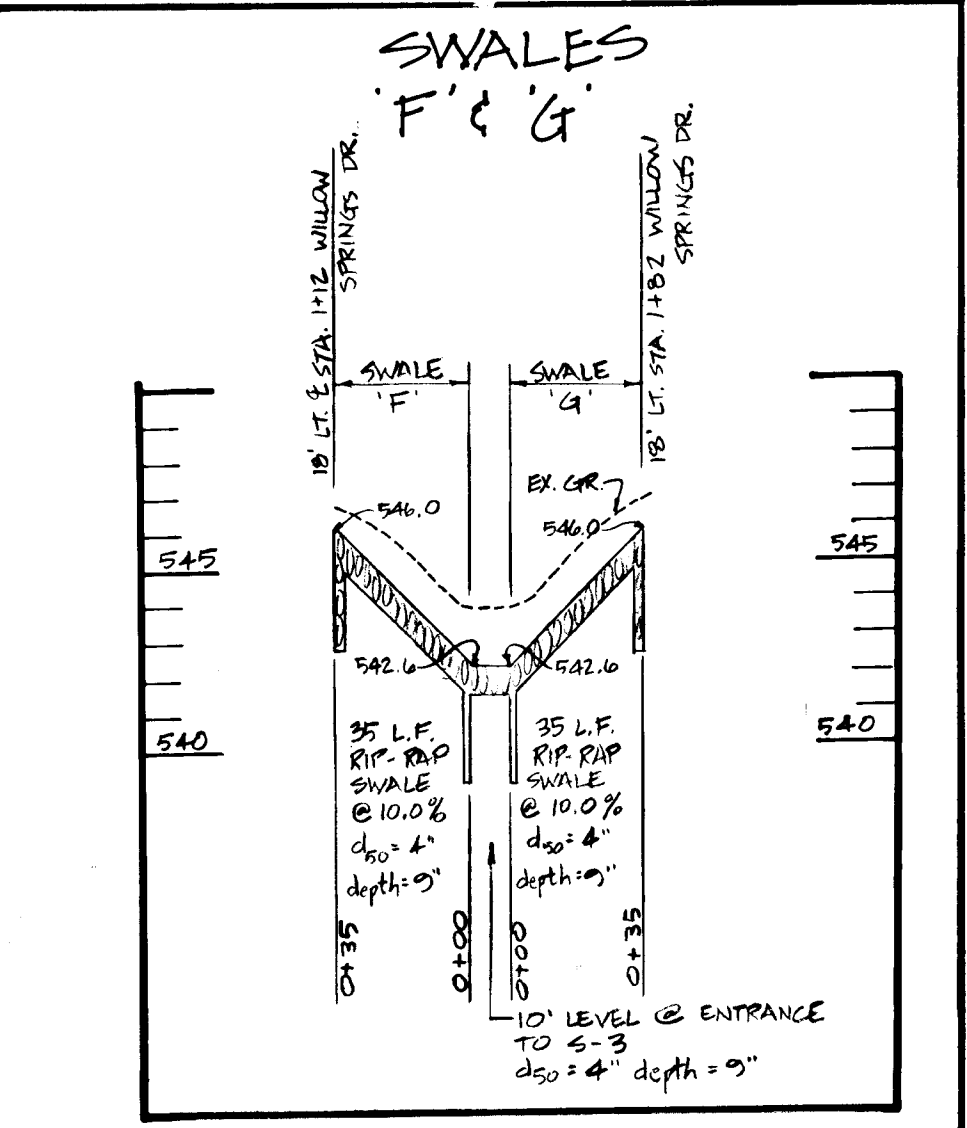
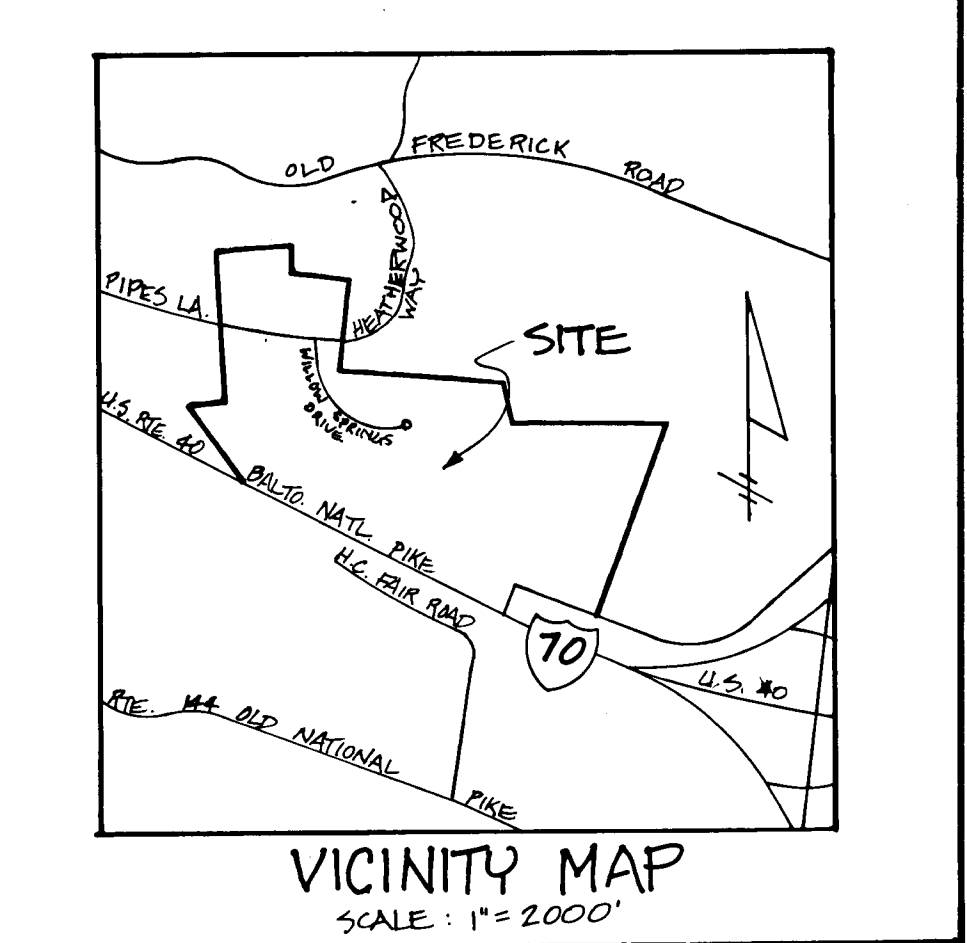
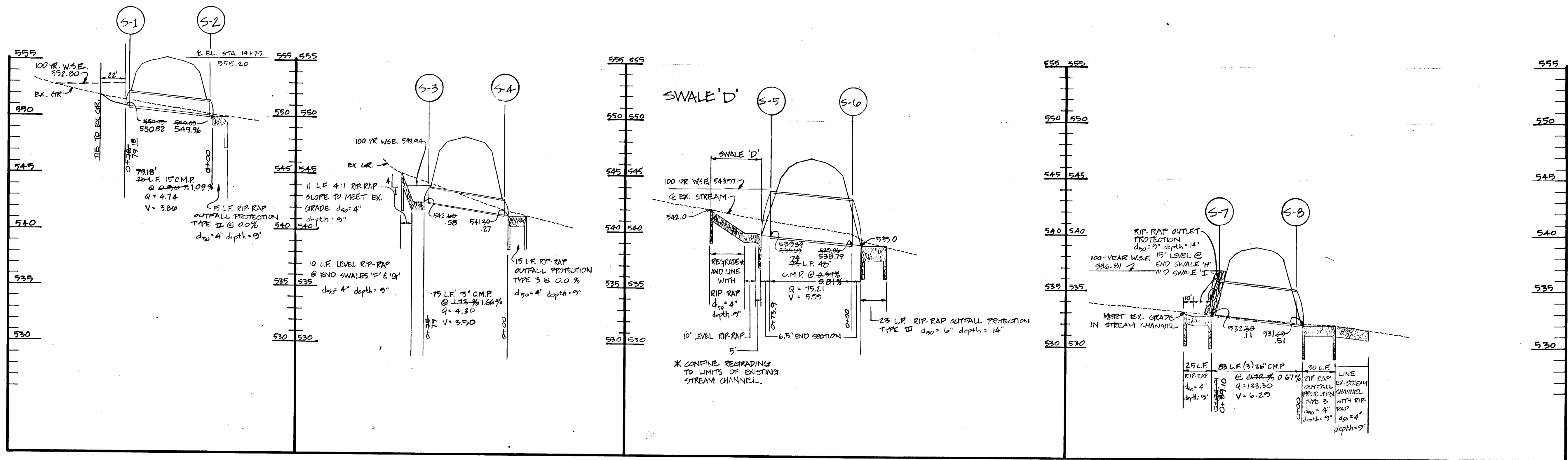
REV.	NO.	REVISION	DATE

WILLOW HIGHLANDS AT WILLOW SPRINGS GOLF COURSE
 TAX MAP 9, PARCELS 151; TAX MAP 15, PARCELS 11, 145
 ZONING MAP 9 & 15, 3rd ELECTION DISTRICT
 HOWARD COUNTY, MD

DRAINAGE AREA MAP

SCALE:
1" = 200'

SHEET 5
OF 9



AS-BUILT SURVEY CERTIFIED BY RICHARD F. LANE, MR. PLS. No. 301, ON 7-14-89

APPROVED: DEPARTMENT OF PUBLIC WORKS
 APPROVED: DEPARTMENT OF PUBLIC WORKS
 APPROVED: OFFICE OF PLANNING AND ZONING
 APPROVED: DEPARTMENT OF PUBLIC WORKS

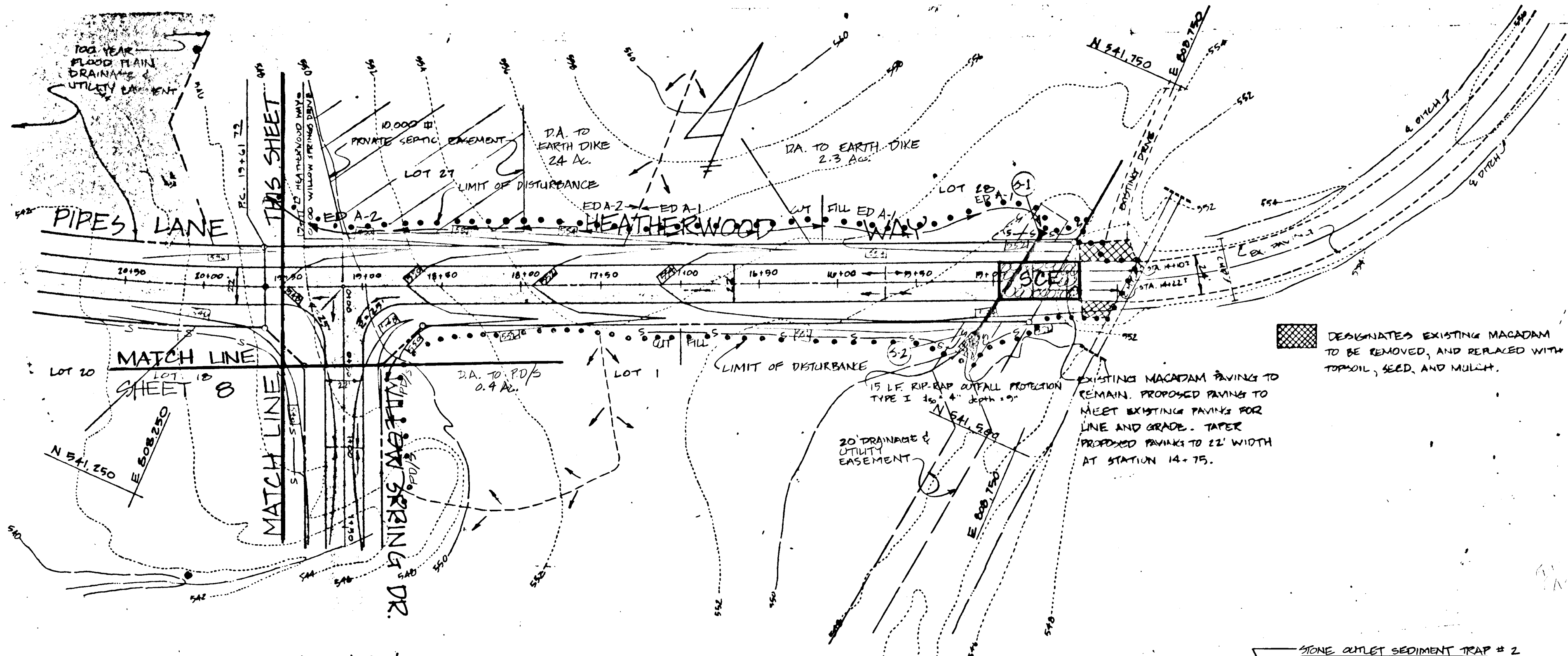
SHANABERGER & LANE
 8726 TOWN & COUNTRY BLVD.
 SUITE 203
 ELLICOTT CITY, MARYLAND 21043
 (301) 461-9563



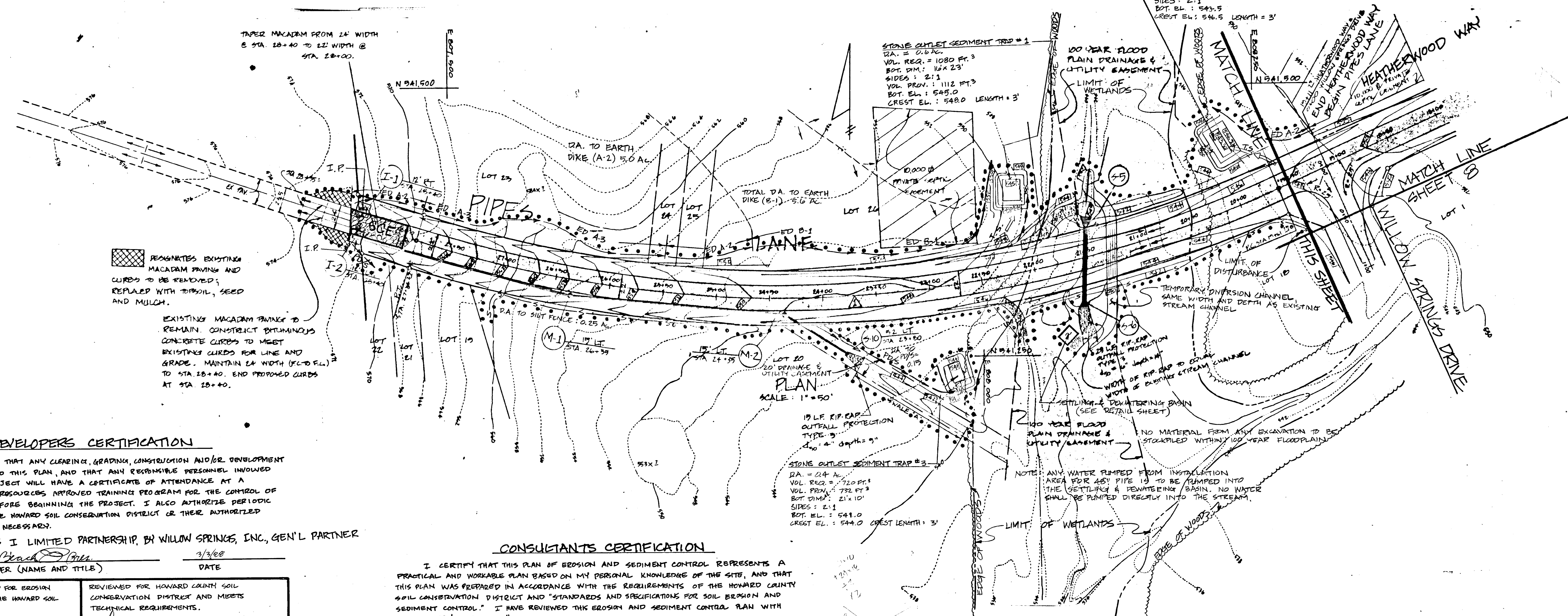
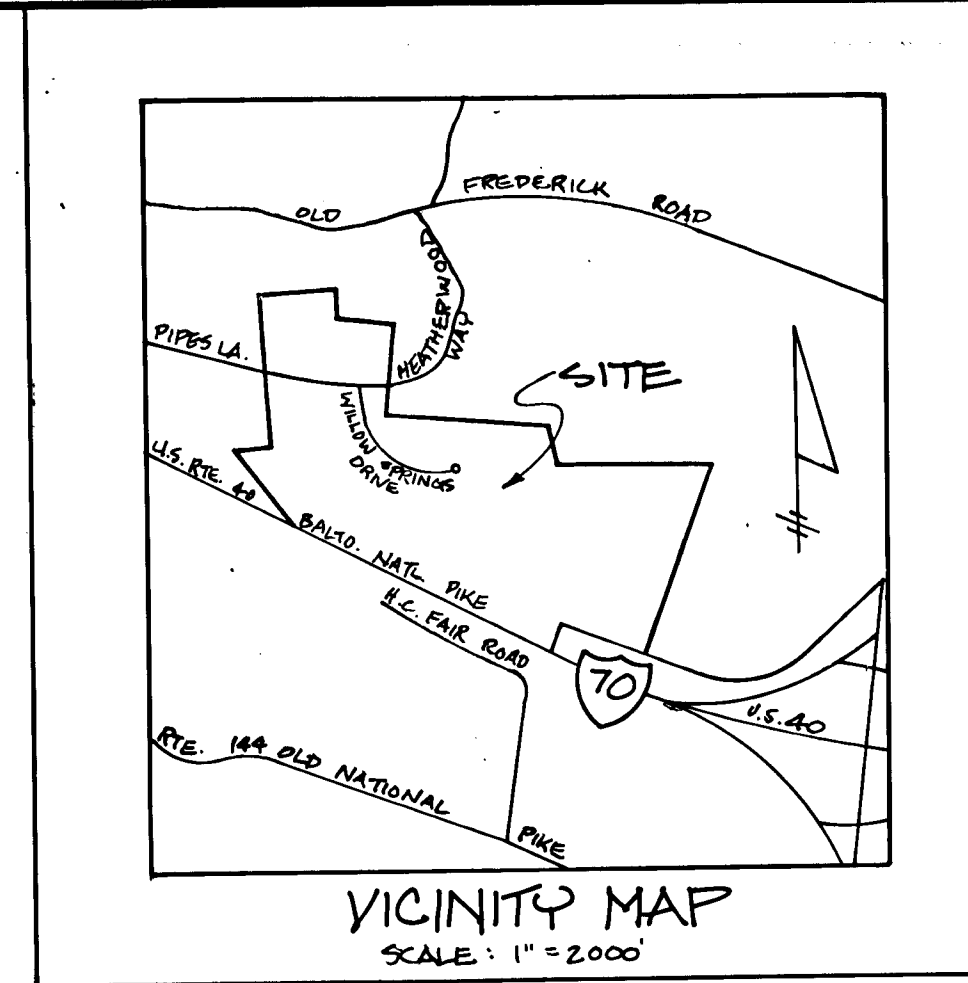
DESIGNED	DRAWN	CHECKED	DATE

STORM DRAIN PROFILES
 WILLOW HIGHLANDS AT WILLOW SPRINGS GOLF COURSE
 TAX MAP 9, PARCEL 151; TAX MAP 15, PARCELS 11, 145
 ZONING MAP 9 (15, 3rd ELECTION DISTRICT
 HOWARD COUNTY, MD

HORIZ: 1"=50'
 SCALE: VERT: 1"=5'
 SHEET 6
 OF 9



PLAN VIEW
SCALE: 1"=50'



OWNER/DEVELOPERS CERTIFICATION

I/WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION AND/OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

WILLOW SPRINGS I LIMITED PARTNERSHIP, BY WILLOW SPRINGS, INC., GEN'L PARTNER

Sharon C. Beach 3/3/88
OWNER/DEVELOPER (NAME AND TITLE) DATE

CONSULTANTS CERTIFICATION

I CERTIFY THAT THIS PLAN OF EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD COUNTY SOIL CONSERVATION DISTRICT AND "STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL." I HAVE REVIEWED THIS EROSION AND SEDIMENT CONTROL PLAN WITH THE OWNER/DEVELOPER.

SIGNATURE: *Richard H. Caswell* NO. LICENSE NO. 12427 DATE 5/11/88
NAME: R.H. CASWELL

1363

THIS DEVELOPMENT IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
APPROVED: *Stephen L. Smith* 5/20/88
DISTRICT CHIEF, HOWARD SOIL CONSERVATION DISTRICT DATE

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.
APPROVED: *James M. Helm* 5/20/88
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS
William E. Kelly 6-1-88
CHIEF, BUREAU OF ENGINEERING DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS
William E. Kelly 5/12/88
CHIEF, LAND DEVELOPMENT DIVISION DATE

SHANABERGER & LANE
BETH TOWN & COUNTRY BLDG.
SUITE 203
ELLCOTT CITY, MD 21043
(301) 461-9563

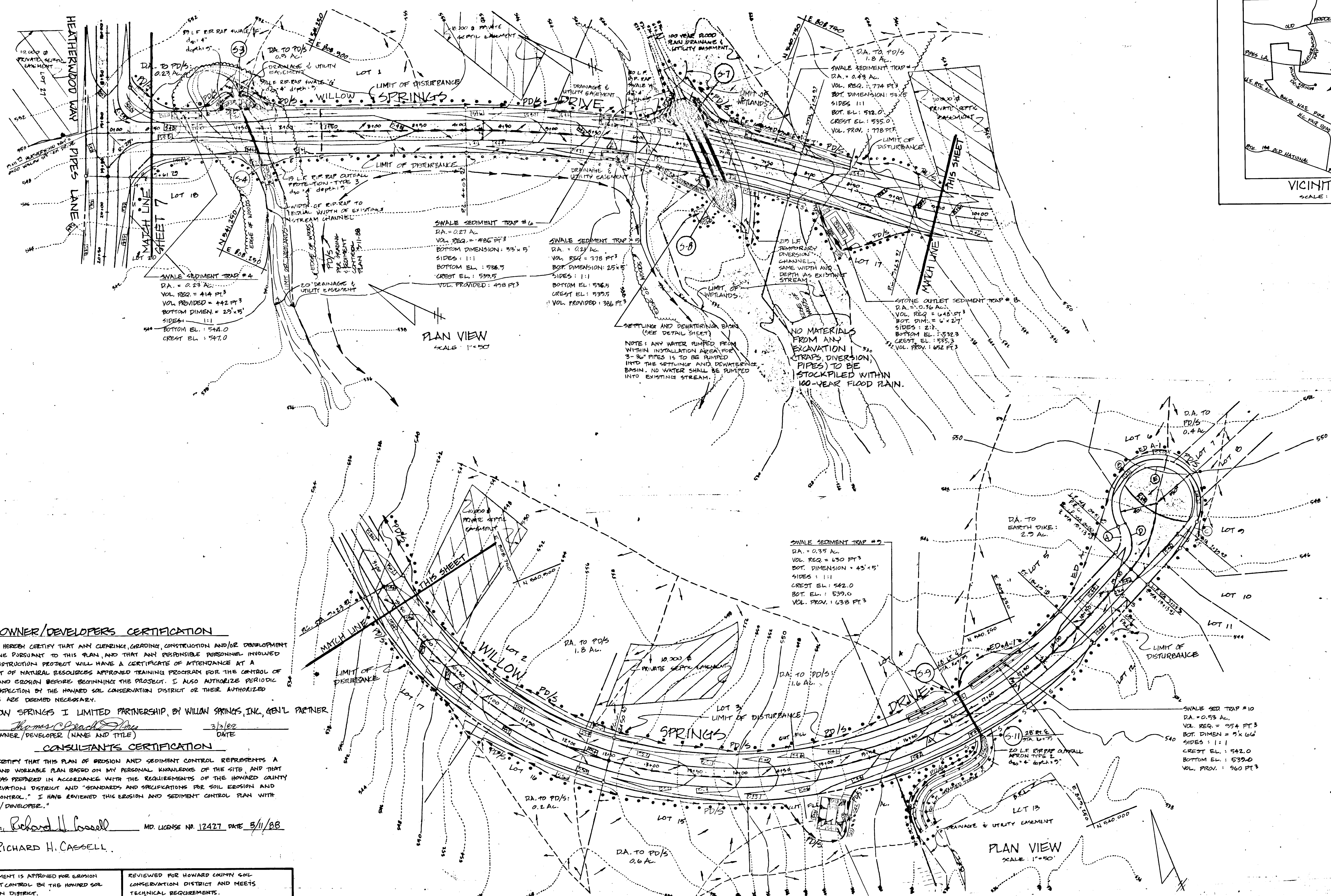
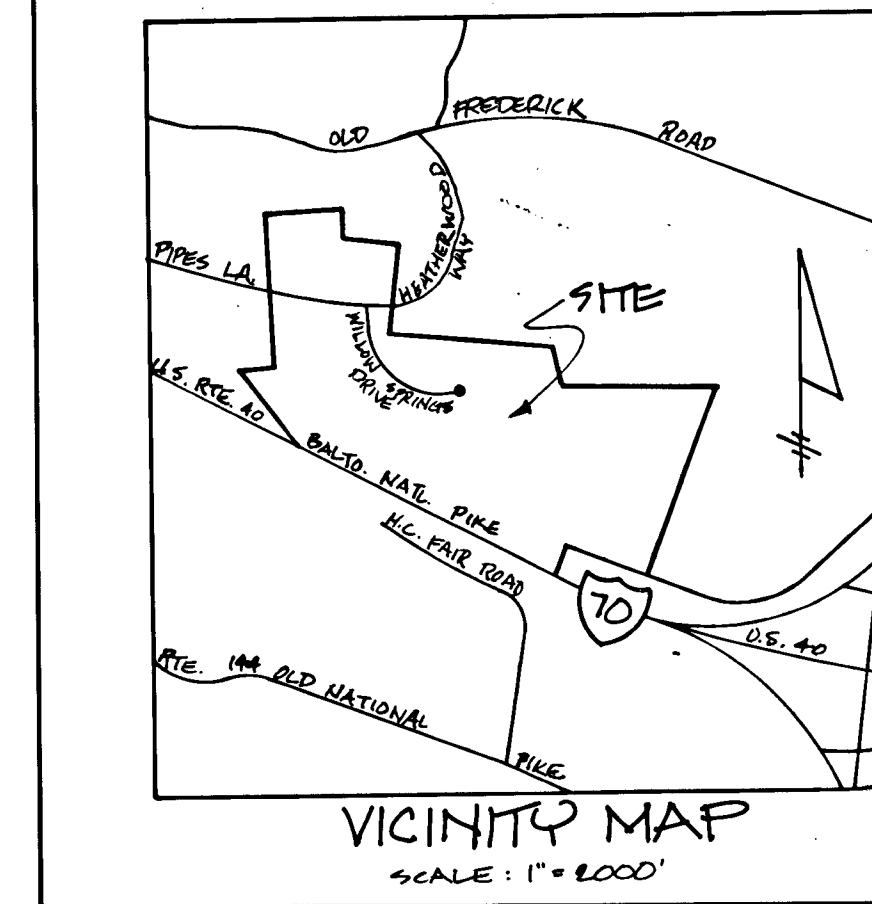
R.H. Caswell

DATE	BY	NO.	REVISION	DATE

WILLOW HIGHLANDS AT WILLOW SPRINGS GOLF COURSE
TAX MAP 9, PARCELS 151; TAX MAP 15, PARCELS 11, 145
ZONING MAP 9C 15, 3rd ELECTION DISTRICT
HOWARD COUNTY, MD

GRADING AND SEDIMENT CONTROL NOTES & DETAILS
PIPES LANE & HEATHERWOOD WAY

SCALE AS SHOWN
SHEET 7 OF 9



OWNER/DEVELOPERS CERTIFICATION

I/WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION AND/OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

WILLOW SPRINGS I LIMITED PARTNERSHIP, BY WILLOW SPRINGS, INC, GEN'L PARTNER

Thomas C. Beach
 OWNER/DEVELOPER (NAME AND TITLE) 3/2/88 DATE

CONSULTANTS CERTIFICATION

I CERTIFY THAT THIS PLAN OF EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD COUNTY SOIL CONSERVATION DISTRICT AND "STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL." I HAVE REVIEWED THIS EROSION AND SEDIMENT CONTROL PLAN WITH THE OWNER/DEVELOPER.

SIGNATURE: *Richard H. Cassell* MD. LICENSE NO. 12427 DATE 5/11/88

NAME: RICHARD H. CASSELL

THIS DEVELOPMENT IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT. APPROVED: <i>John L. Anla</i> 5/20/88 DATE DISTRICT CHIEF, HOWARD SOIL CONSERVATION DISTRICT	REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS. APPROVED: <i>James M. McLean</i> 5/20/88 DATE DISTRICT CHIEF, HOWARD SOIL CONSERVATION DISTRICT
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APPROVED: DEPARTMENT OF PUBLIC WORKS <i>James M. McLean</i> 6/1/88 DATE CHIEF, BUREAU OF ENGINEERING	APPROVED: DEPARTMENT OF PUBLIC WORKS <i>James M. McLean</i> 6/1/88 DATE CHIEF, BUREAU OF HIGHWAYS
APPROVED: OFFICE OF PLANNING AND ZONING <i>James M. McLean</i> 6/1/88 DATE CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT	APPROVED: DEPARTMENT OF PUBLIC WORKS <i>James M. McLean</i> 5/11/88 DATE CHIEF, LAND DEVELOPMENT DIVISION

SHANABERGER LANE
 8720 TOWN & COUNTRY BLVD
 SUITE 203
 ELLICOTT CITY, MD 21043
 (301) 461-9563



DES: GSS	499	PER S.C.S. COMMENTS DATED 3/24/88	4/6
DRN: SLM			
CHK: GSS			
DATE:	BY NO.	REVISION	DATE

WILLOW HIGHLANDS AT WILLOW SPRINGS GOLF COURSE
 TAX MAP 9, PARCEL 151; TAX MAP 15, PARCELS 11, 145
 ZONING MAP 74 15, 3RD ELECTION DISTRICT
 HOWARD COUNTY, MD

GRADING AND SEDIMENT CONTROL NOTES & DETAILS WILLOW SPRINGS DRIVE	SCALE AS SHOWN SHEET 2 OF 2
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1363

SEDIMENT CONTROL NOTES

- 1) A minimum of 24 hours notice must be given to the Howard County Office of Inspection and Permits prior to the start of any construction. (992-2437)
- 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 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
- 3) Following initial soil disturbance or redistribution, permanent or temporary stabilization shall be completed within a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 days as to all other disturbed or graded areas on the project site.
- 4) All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 12, of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
- 5) All disturbed areas must be stabilized within the time period specified above in accordance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding (Sec. 51) and (Sec. 51), 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	17,308 Acres
Area Disturbed	6,540 Acres
Area to be roofed or paved	1,224 Acres
Area to be vegetatively stabilized	9,720 Acres
Total Cut	6887 Cu. yds
Total Fill	6887 Cu. yds
Off-site waste/borrow area location	N/A
- 8) Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
- 9) Additional sediment control must be provided, if deemed necessary by the Howard County DSW 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) If houses are to be constructed on an "As-Built" basis, at random, Single Lot Sediment Control as shown below shall be implemented.
- 12) All pipes to be blocked at the end of each day (see detail below). N/A
- 13) The total amount of straw bale dikes/silt fence equals 1596 L.F.

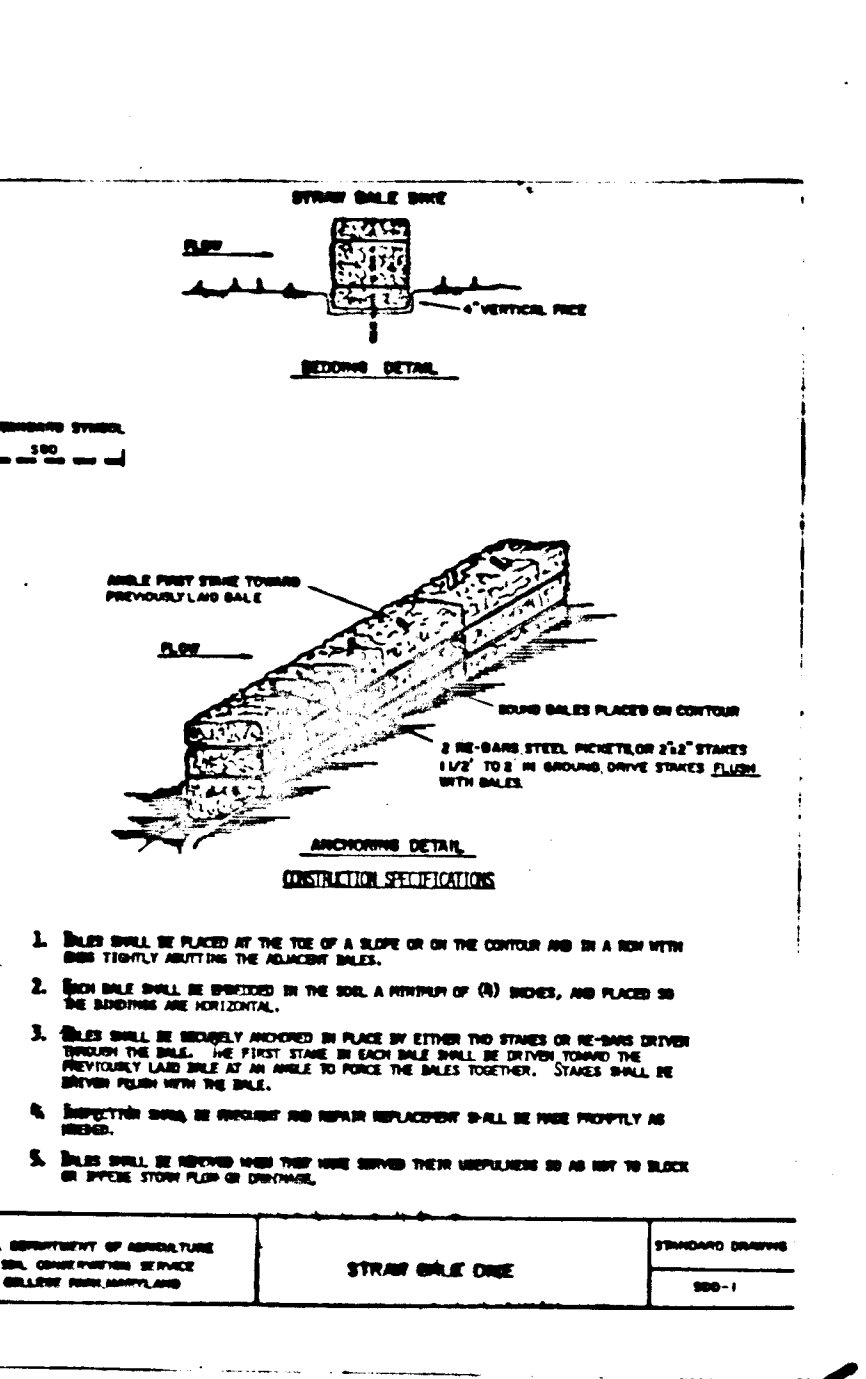
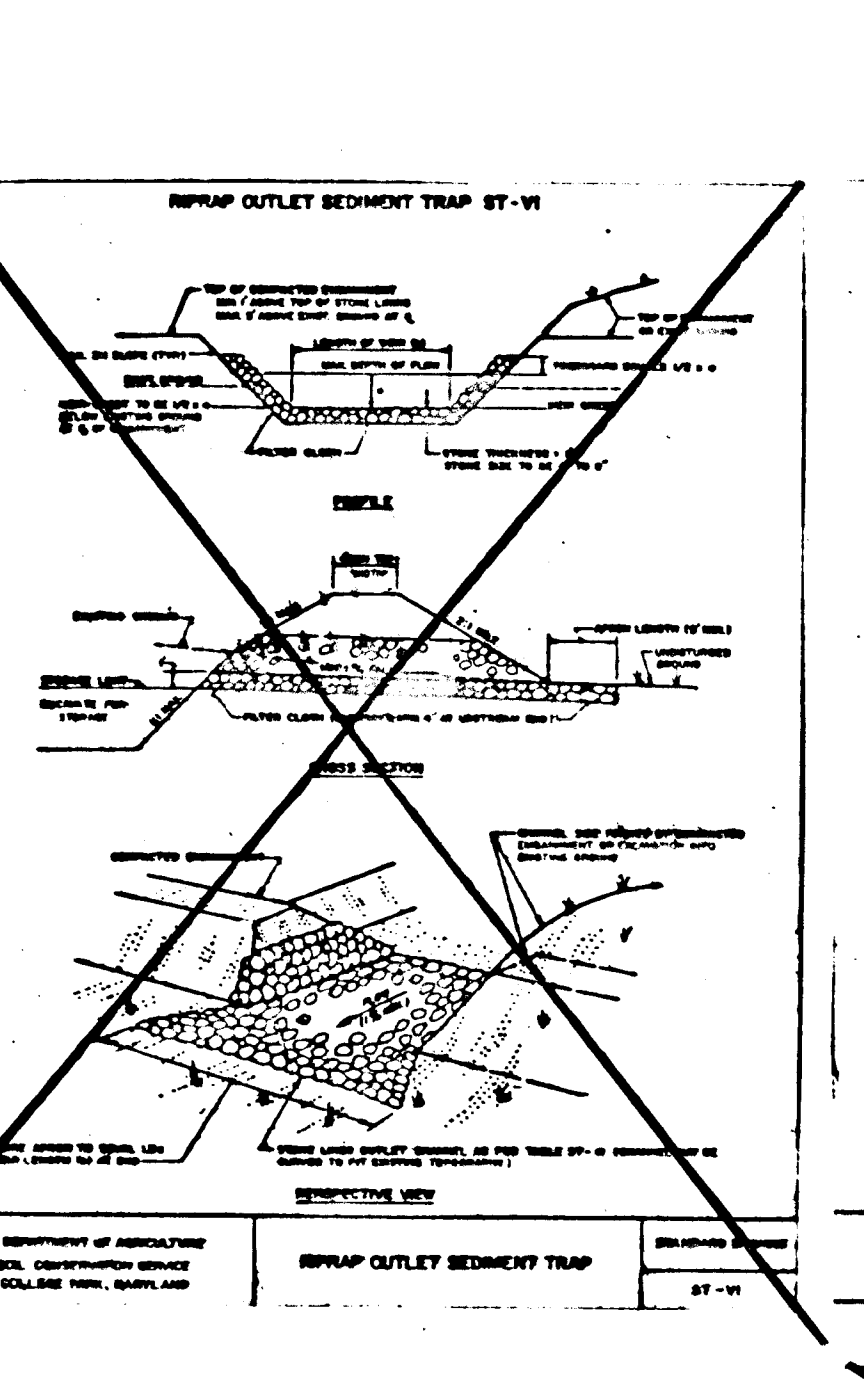
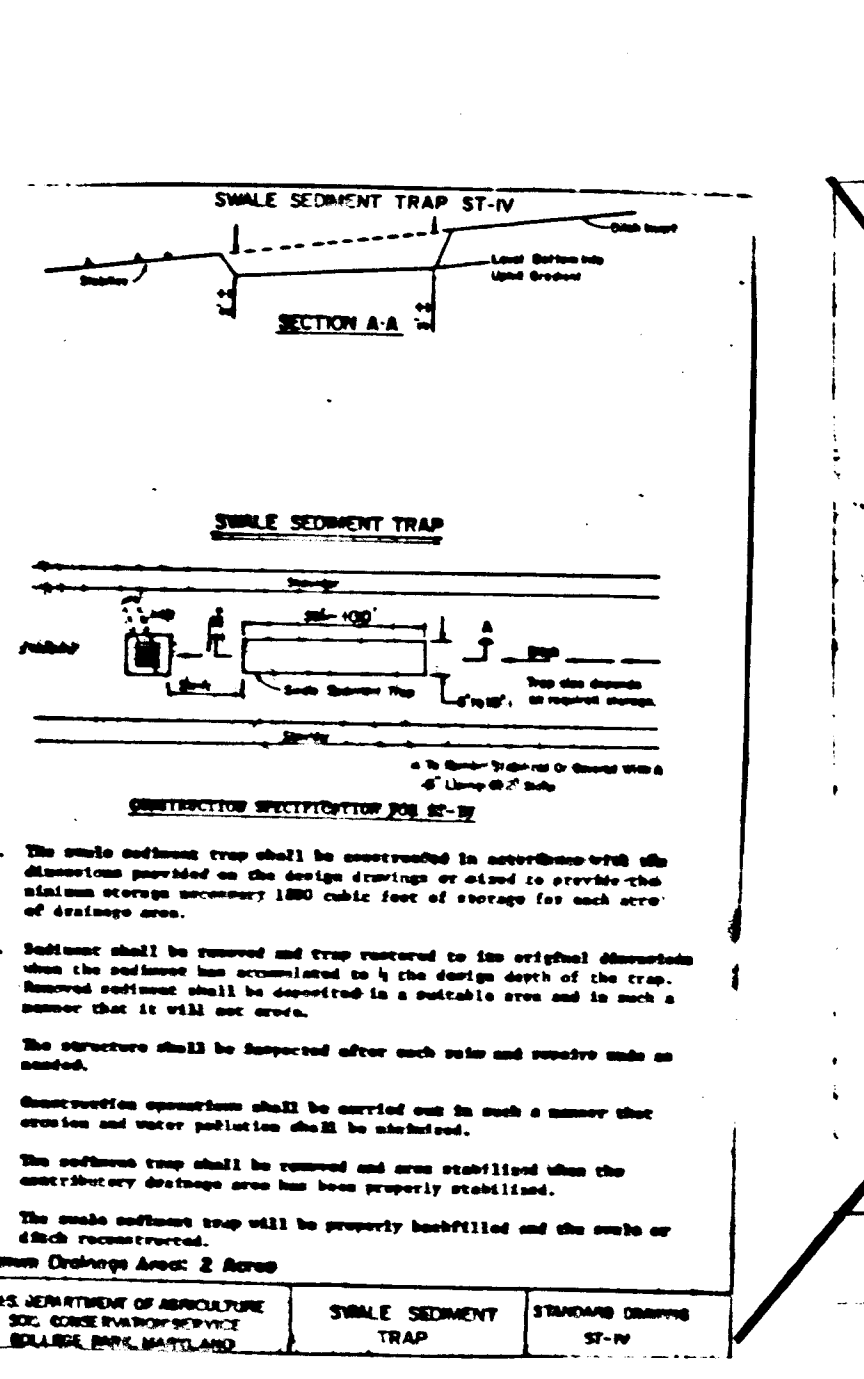
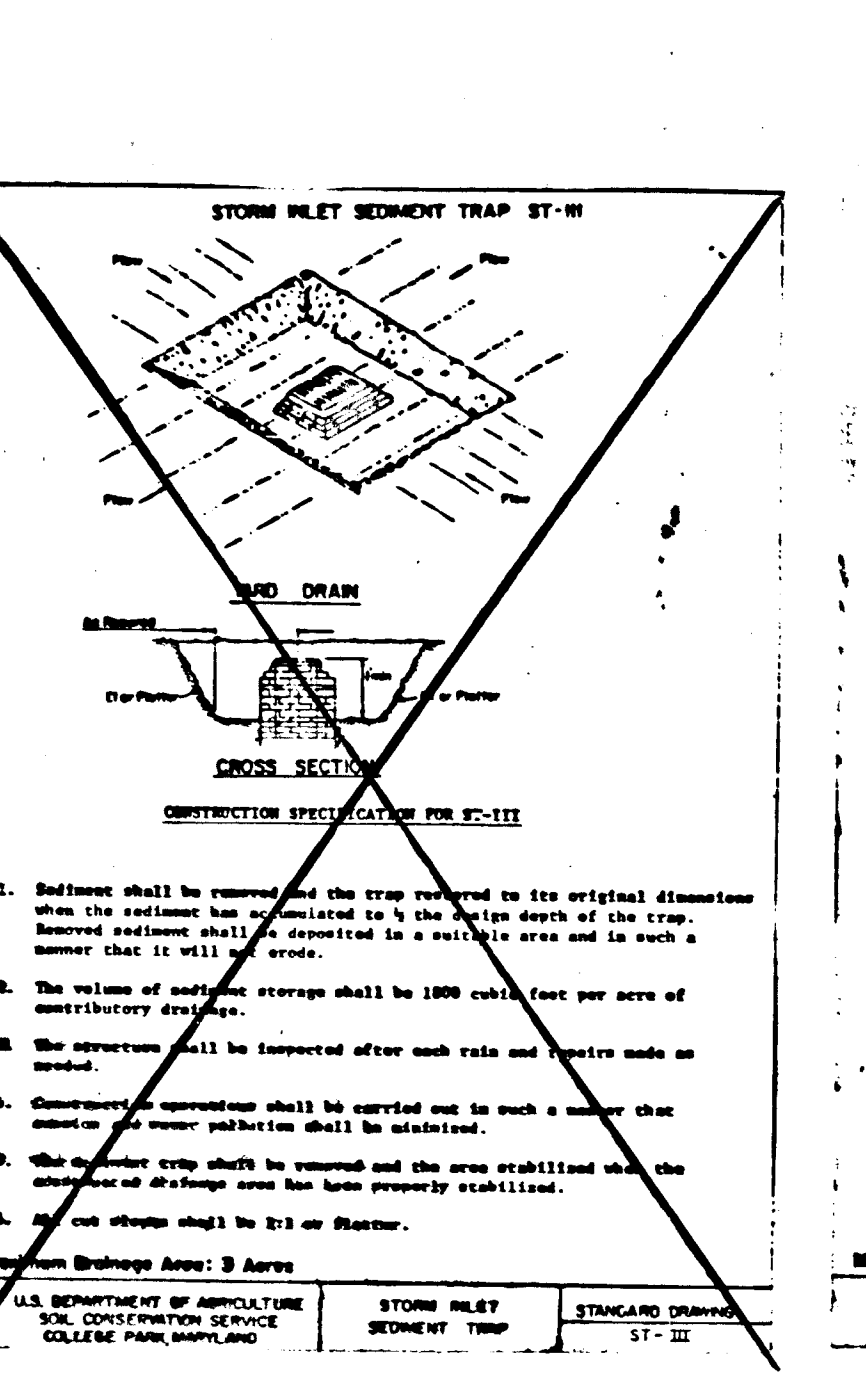
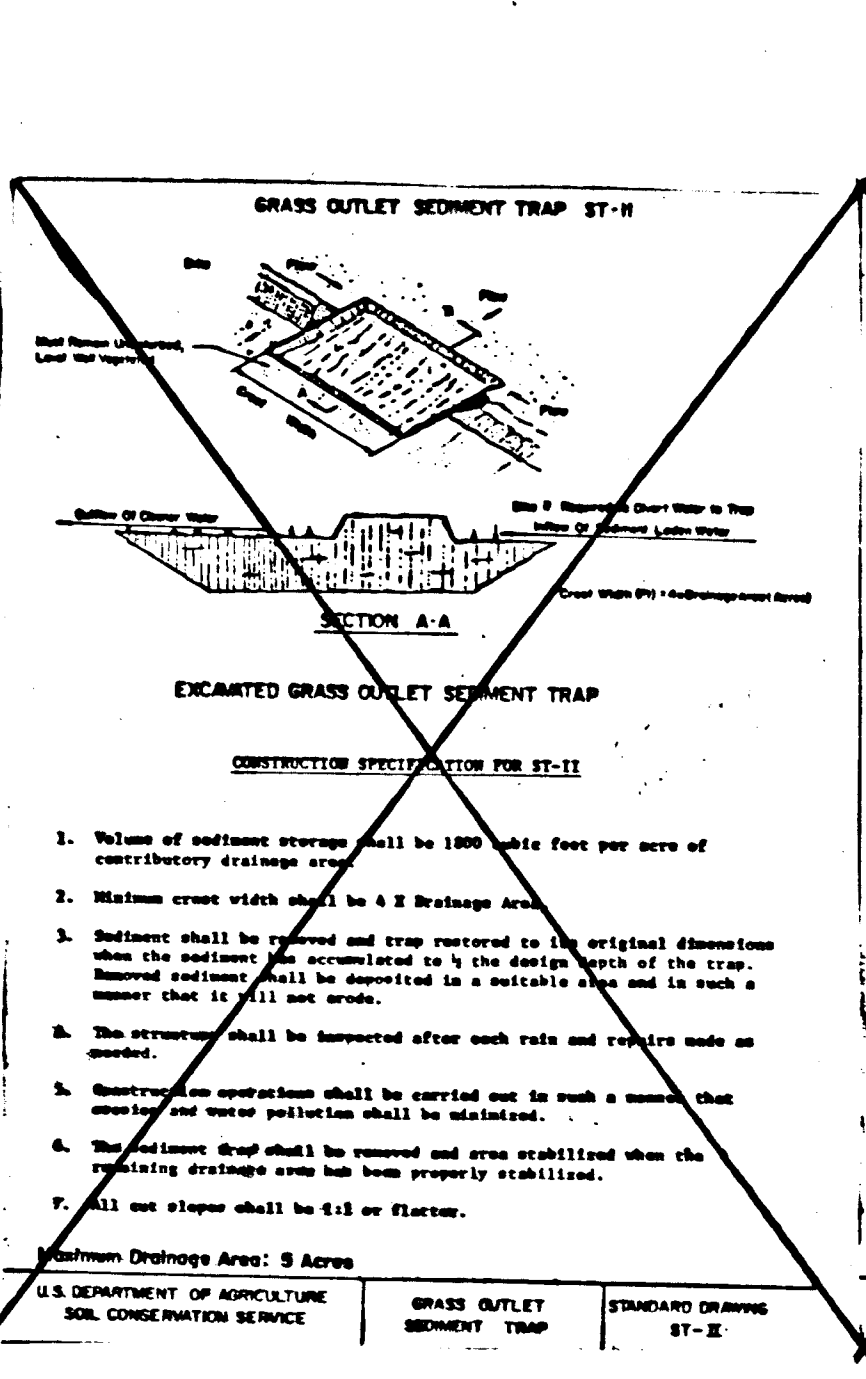
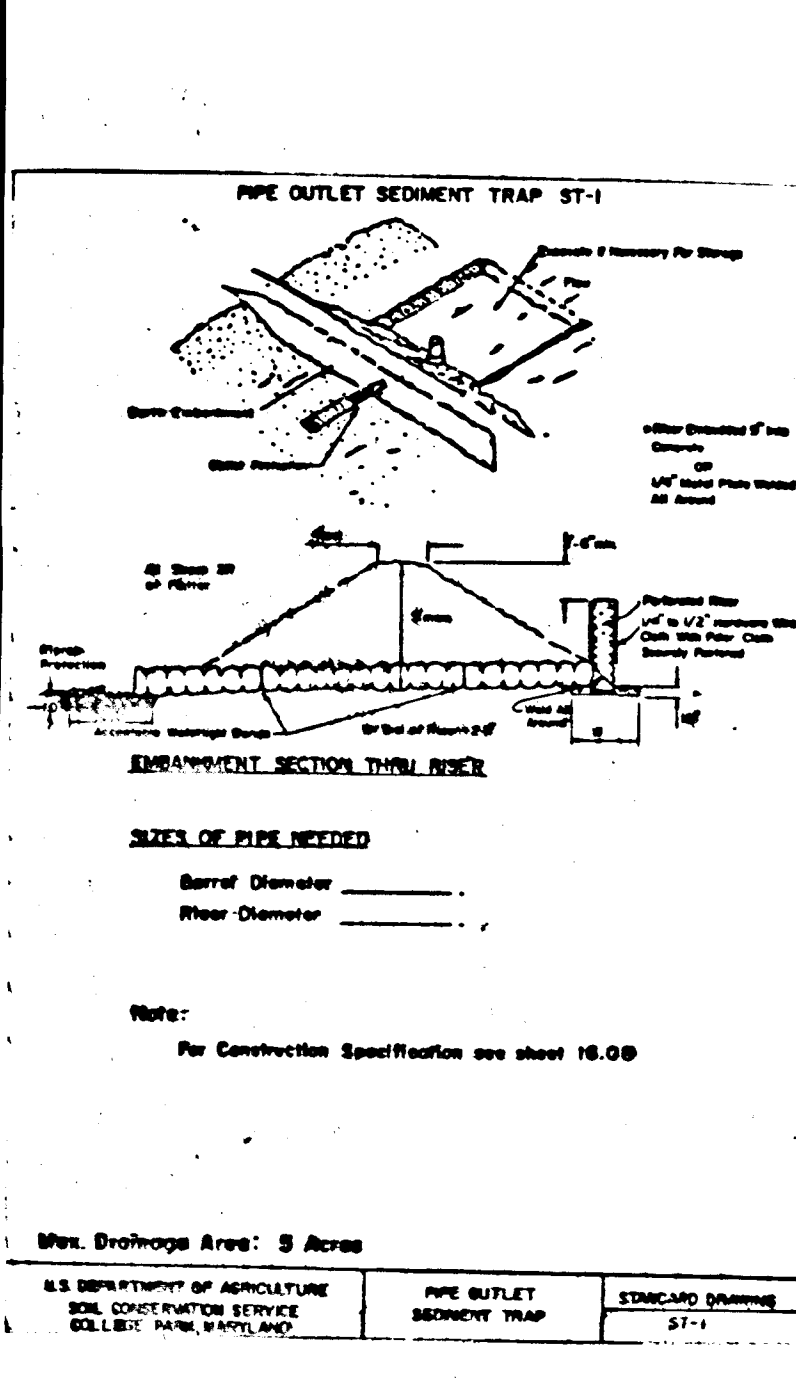
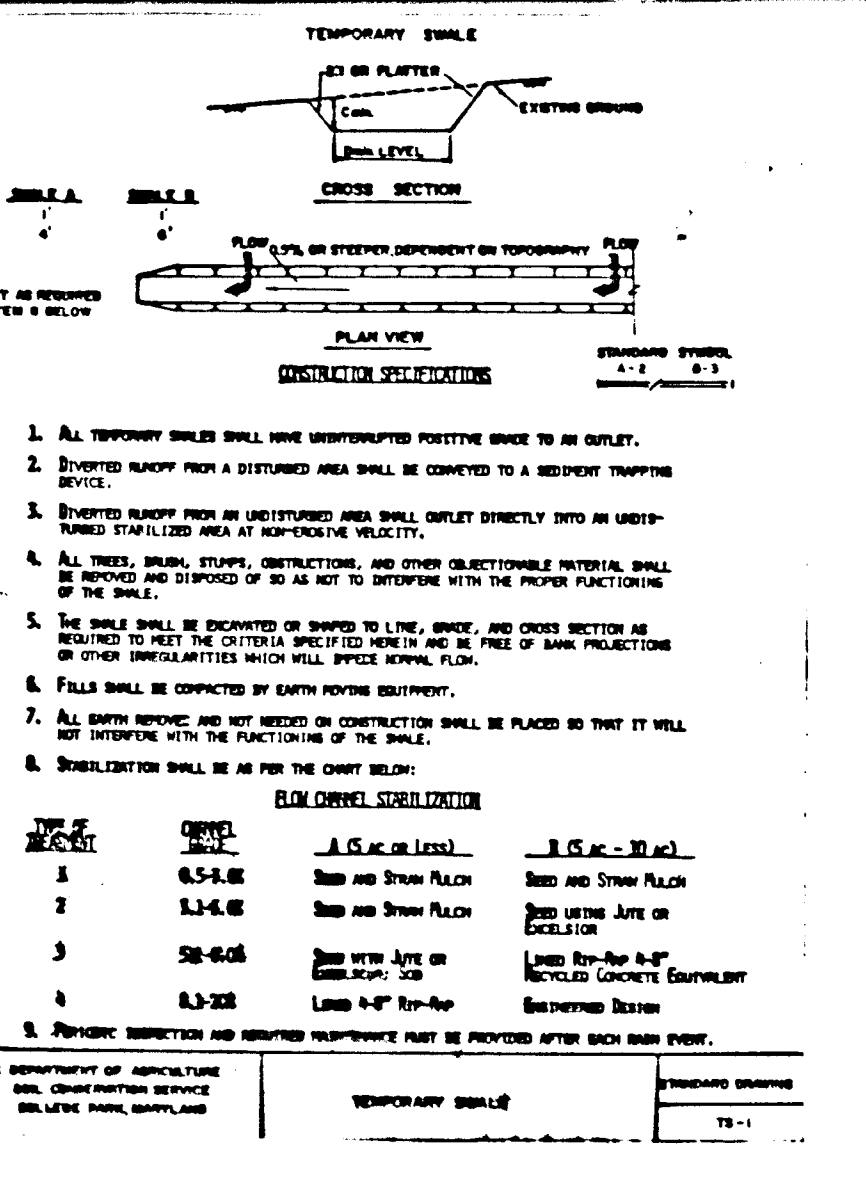
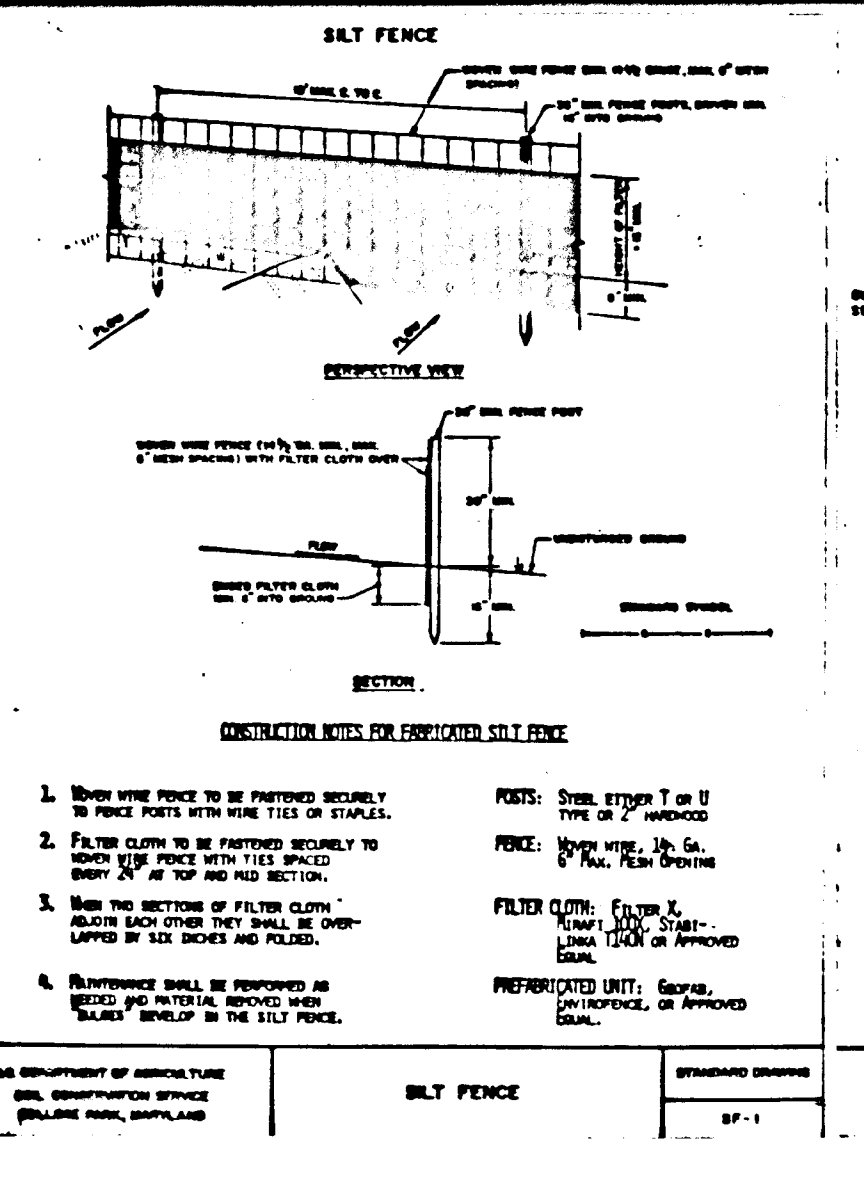
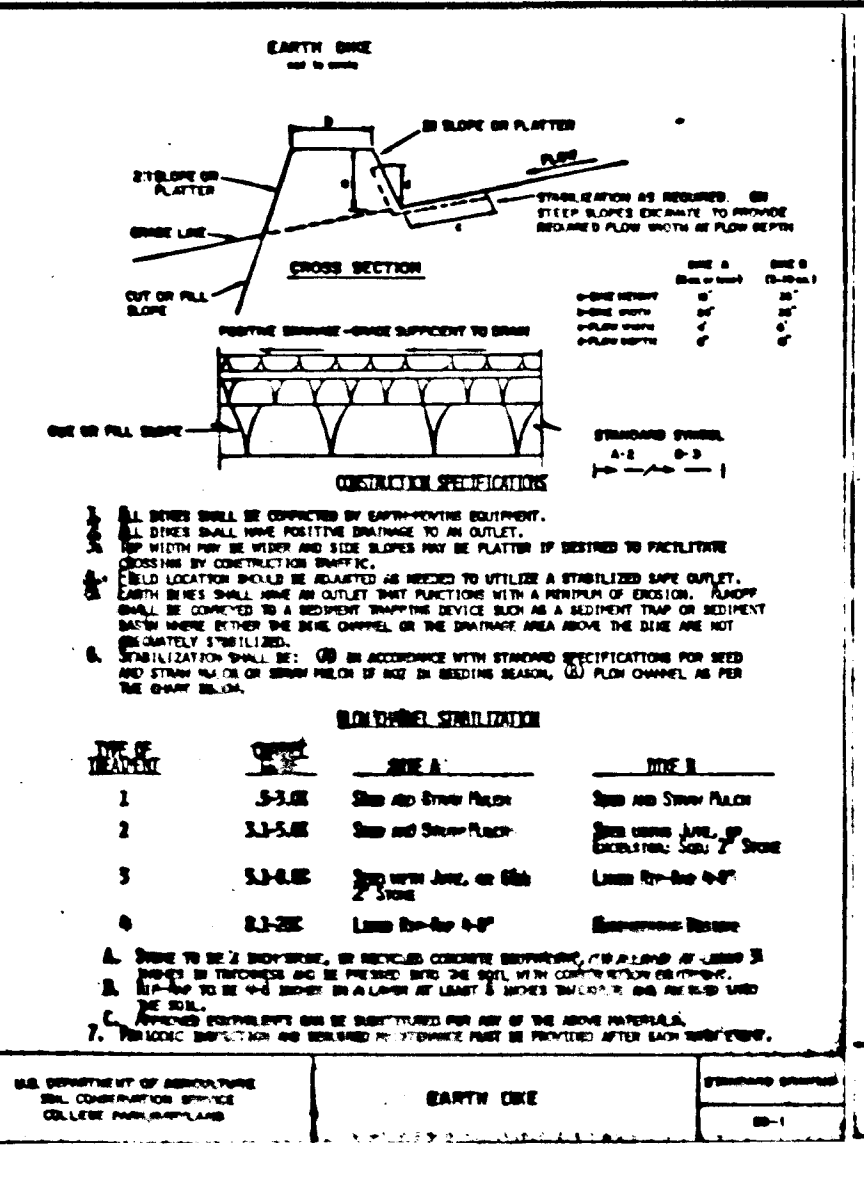
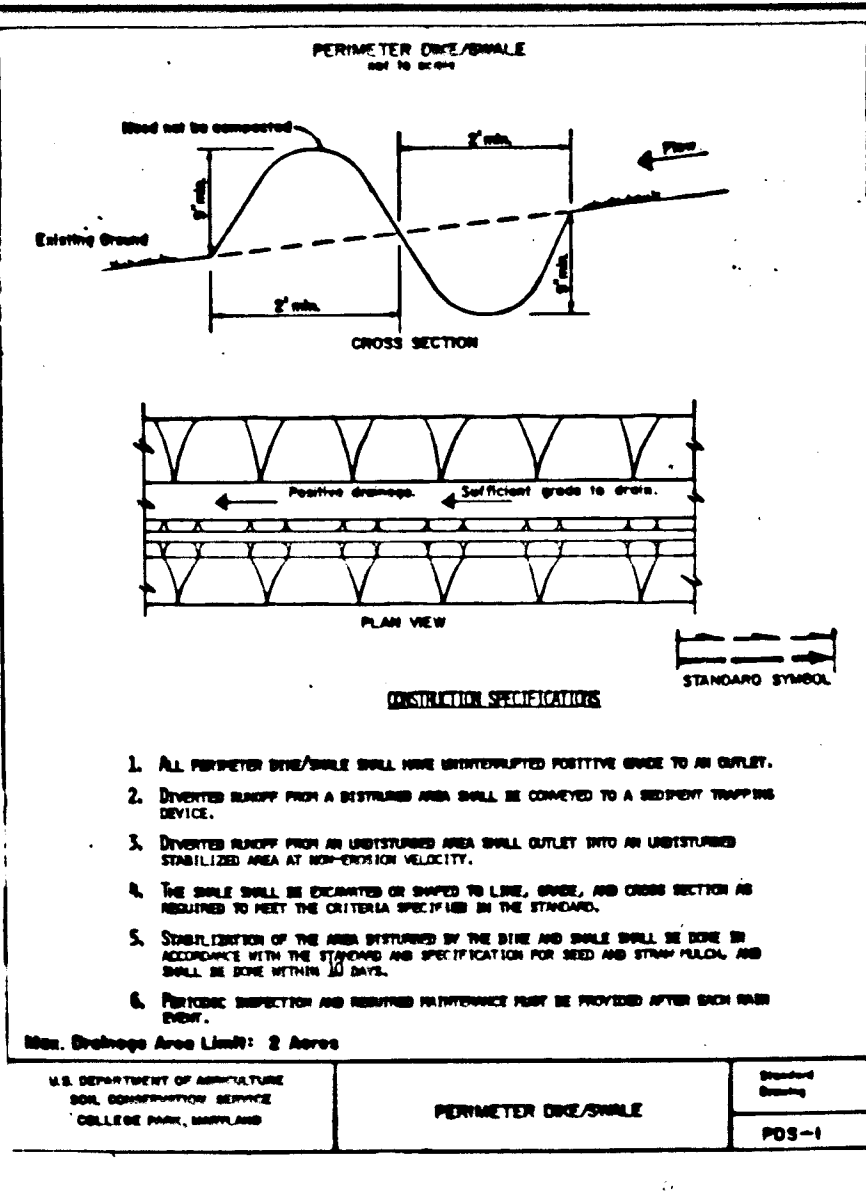
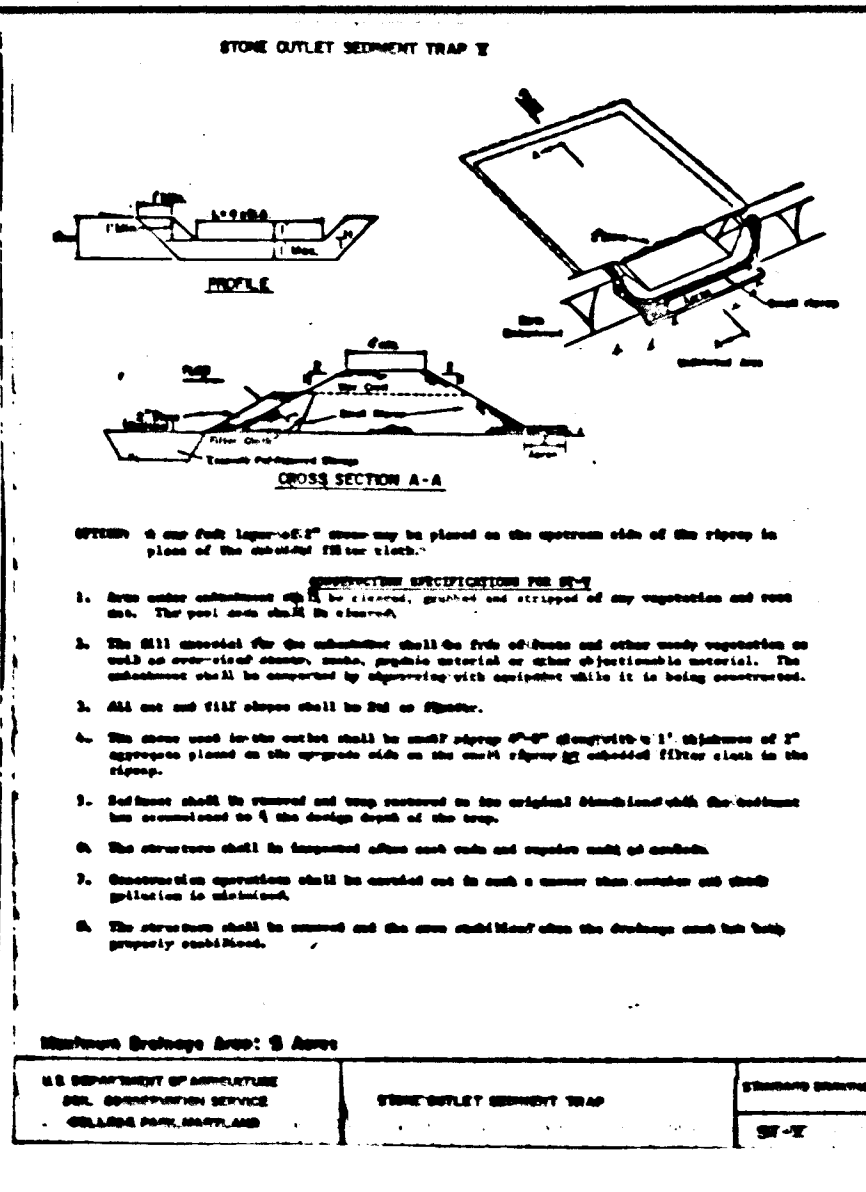
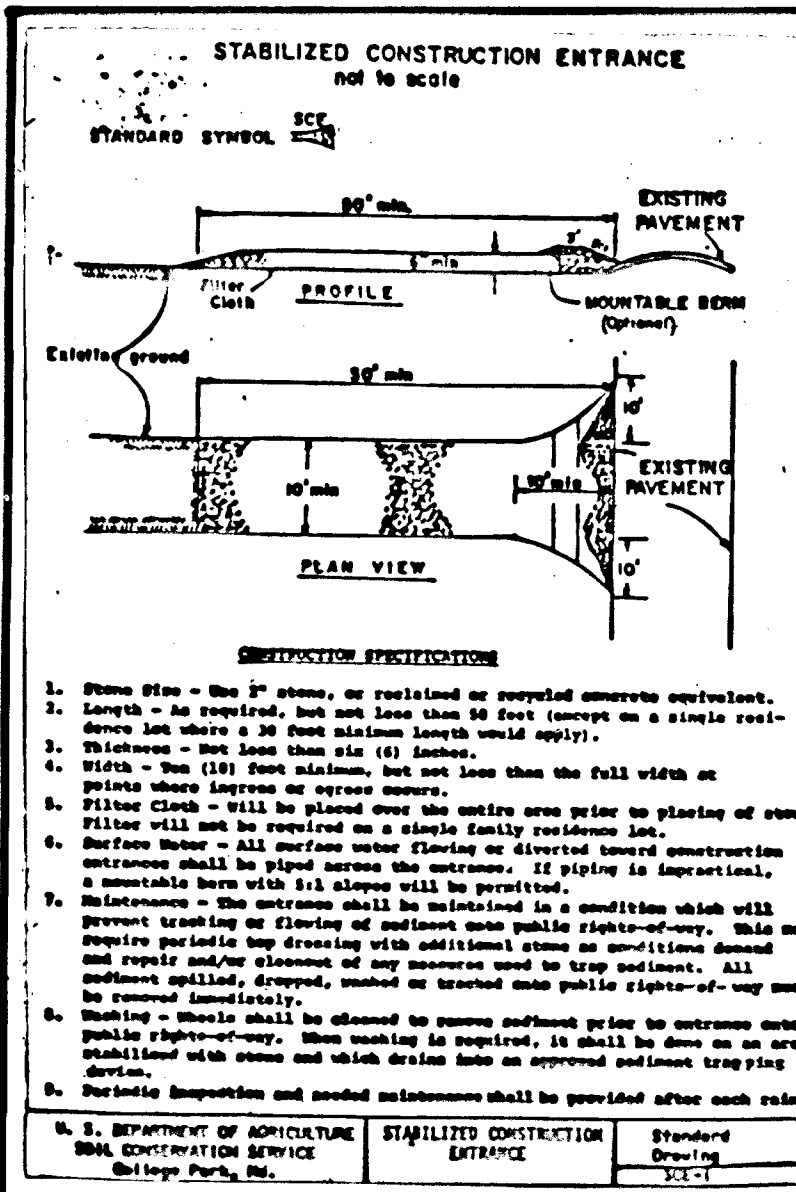
SEQUENCE OF CONSTRUCTION

- 1) OBTAIN GRADING PERMIT.
- 2) NOTIFY HOWARD S.C.D. AT LEAST 48 HOURS BEFORE STARTING WORK.
- 3) PLACE 3 STONE CONSTRUCTION ENTRANCES IF NOT ALREADY IN PLACE UNDER S.C.P. (THIRD S.C.E. LOCATION IS SHOWN ON DRAINAGE AREA MAP.)
- 4) CLEAR FOR SEDIMENT CONTROL MEASURES AND INSTALL STABILIZE WITH TEMPORARY SEEDING.
- 5) CONSTRUCT 2 TEMPORARY DRAINAGE CHANNELS AND 2 DRAINAGE BASINS.
- 6) DRAINAGE INSTALLATION AREA FOR PIPES FROM S-5 TO S-6 AND S-7 TO S-8. PUMP ALL WATER INTO DRAINAGE BASINS.
- 7) CONSTRUCT PIPES FROM S-5 TO S-6 AND S-7 TO S-8.
- 8) AS ROADWAY FILL IS PLACED, INSTALL SILT FENCE OR STRAW BALE DIKES ALONG ENTIRE LENGTH OF TIE OF EMBANKMENT, BOTH SIDES OF ROADWAY.
- 9) INSTALL RIP-RAP CHANNELS BELOW S-6 AND S-8, AND ABOVE S-7.
- 10) RE-DIRECT FLOW INTO S-5 AND S-7. REMOVE TEMPORARY DRAINAGE CHANNELS.
- 11) INSTALL STORM DRAINS FROM S-1 TO S-2, S-3 TO S-4, AND S-9 TO S-10.
- 12) GRADE GRAPS TO SURFACE.
- 13) INSTALL REMAINING STORM DRAINS.
- 14) FINE GRADE. REMOVE S.C.E.'S AT PIPES LANE AND AT WEATHERWOOD WAY. INSTALL BASE COURSE OF PAVING. STABILIZE REMAINING GRADED AREAS WITH PERMANENT SEEDING.
- 15) OBTAIN PERMISSION FROM SEDIMENT CONTROL INSPECTOR FOR REMOVAL OF SEDIMENT CONTROL MEASURES, AND REMOVE GRADE & STABILIZE AREAS DISTURBED BY REMOVAL OF SEDIMENT CONTROL MEASURES.
- 16) INSTALL TOP COURSE OF PAVING.

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

APPROVED: *Richard H. Caswell* DATE: 5/17/88
DISTRICT: HOWARD SOIL CONSERVATION DISTRICT

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.
Richard H. Caswell DATE: 5/17/88
DISTRICT: HOWARD SOIL CONSERVATION DISTRICT



PERMANENT SEEDING NOTES

Apply to graded or cleared areas not subject to immediate further disturbance where a permanent long-lived vegetative cover is needed.

Grass Seedings: Unless noted, use the following seedings:

1) **Perennial:** Apply 1 ton per acre dactylis glomerata (2 lbs/1000 sq ft) and 600 lbs per acre 10-10-10 fertilizer (1 lb/1000 sq ft) before seeding. Broadcast or disk into soil to a depth of 2 inches. Apply 600 lbs per acre 30-0-0 urea fertilizer (1 lb/1000 sq ft).

2) **Annuals:** Apply 2 tons per acre dactylis glomerata (2 lbs/1000 sq ft) and 1000 lbs per acre 10-10-10 fertilizer (1 lb/1000 sq ft) before seeding. Broadcast or disk into soil to a depth of 2 inches.

3) **Grasses:** For the periods March 1 thru April 30, and August 1 thru October 15, seed with 2 lbs per acre (1 lb/1000 sq ft) of Kentucky 31 Tall Fescue. For the period May 1 thru July 31, seed with 2 lbs per acre (1 lb/1000 sq ft) of Kentucky 31 Tall Fescue per acre and 1 lb per acre (0.5 lb/1000 sq ft) of creeping lovegrass. During the period of October 16 thru February 28, protect site by Option (1) 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring. Option (2) 1 ton and, Option (3) seed with 60 lbs/acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre well anchored straw.

4) **Grasses:** Apply 2 tons per acre (1 lb/1000 sq ft) of annual small grain seed immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 210 gal per acre (1 gal/1000 sq ft) of unadulterated asphalt or disk areas. On slopes 8 feet or higher, use 340 gal per acre (1 gal/1000 sq ft) for anchoring.

5) **Grasses:** Protect all seeded areas and make needed repairs, replacements and touchups.

TEMPORARY SEEDING NOTES

Apply to graded or cleared areas likely to be re-disturbed where a short-term vegetative cover is needed.

Grass Seedings: Unless noted, use the following seedings:

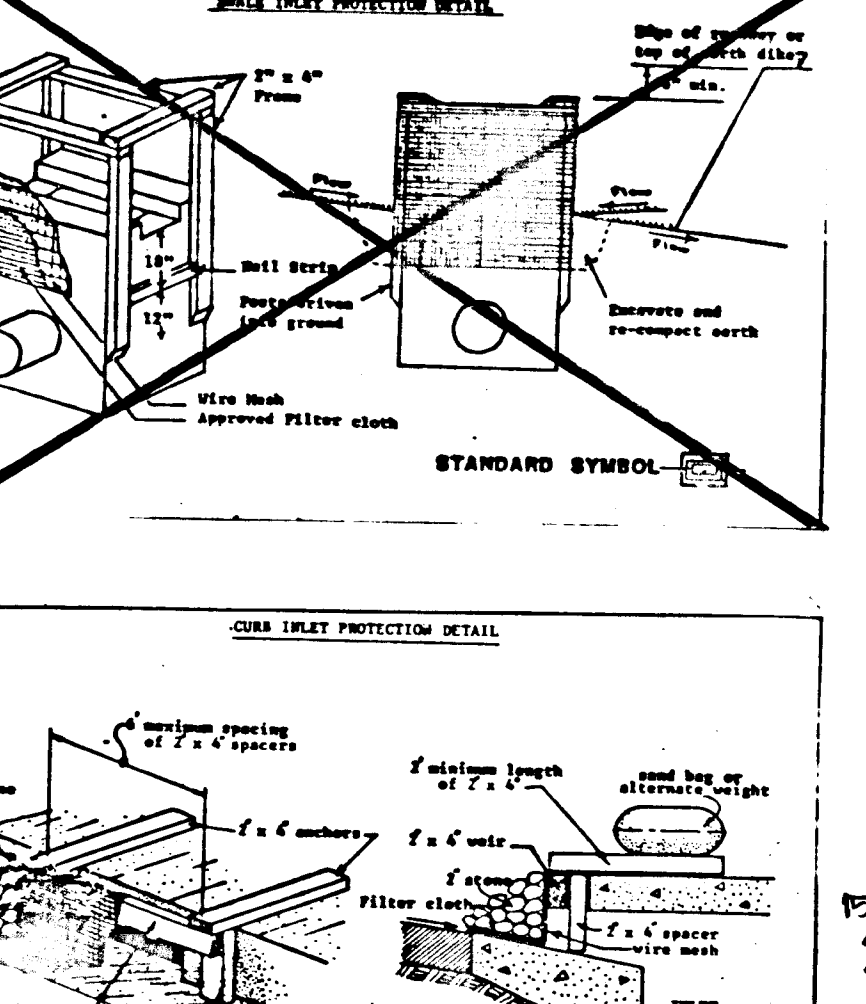
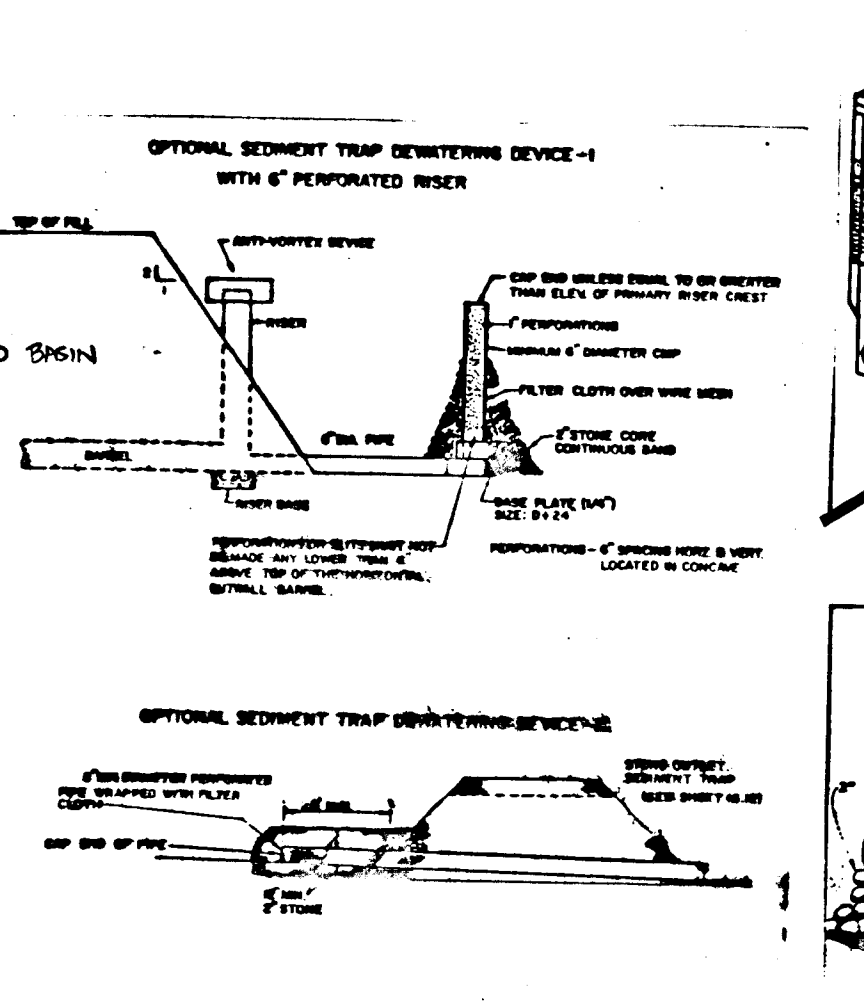
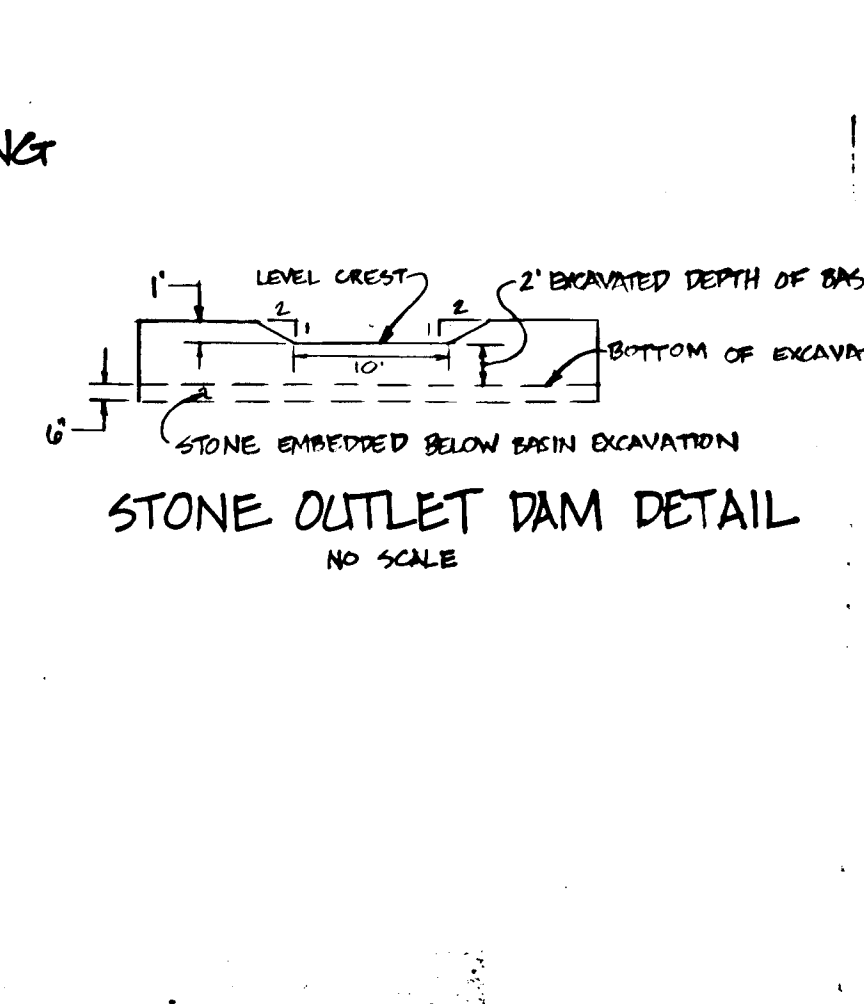
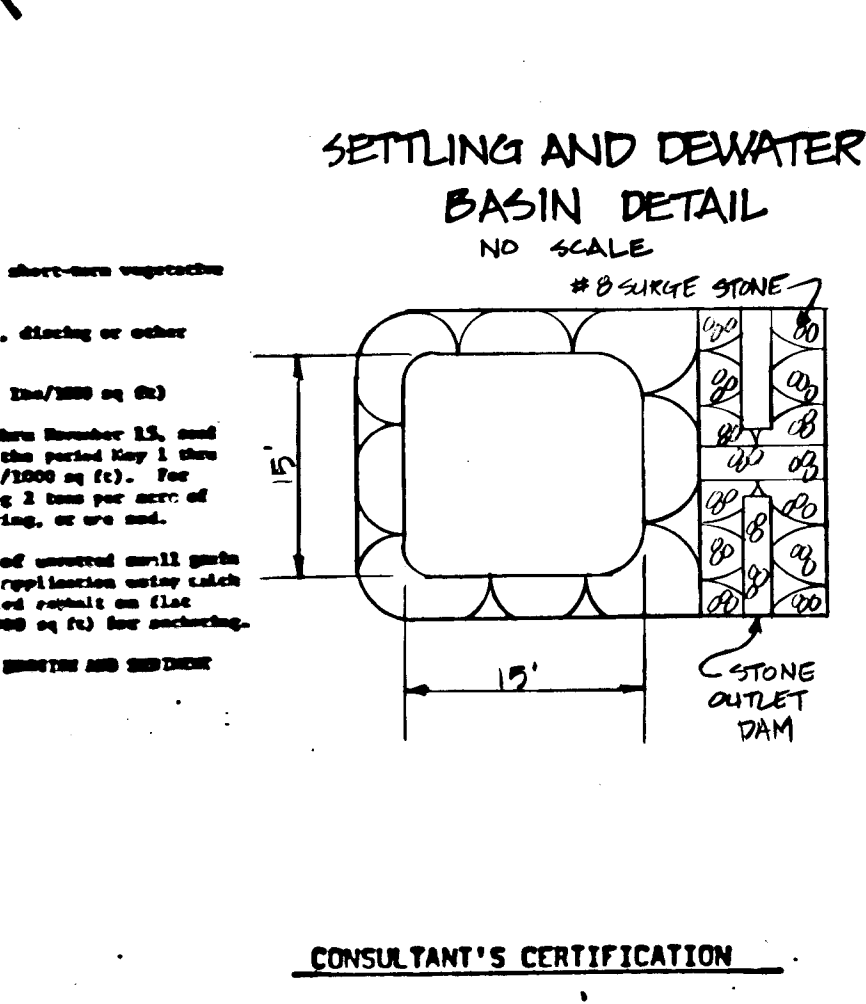
1) **Perennial:** Apply 1 ton per acre dactylis glomerata (2 lbs/1000 sq ft) and 600 lbs per acre 10-10-10 fertilizer (1 lb/1000 sq ft) before seeding. Broadcast or disk into soil to a depth of 2 inches. Apply 600 lbs per acre 30-0-0 urea fertilizer (1 lb/1000 sq ft).

2) **Annuals:** Apply 2 tons per acre dactylis glomerata (2 lbs/1000 sq ft) and 1000 lbs per acre 10-10-10 fertilizer (1 lb/1000 sq ft) before seeding. Broadcast or disk into soil to a depth of 2 inches.

3) **Grasses:** For the periods March 1 thru April 30, and August 1 thru October 15, seed with 2 lbs per acre (1 lb/1000 sq ft) of Kentucky 31 Tall Fescue. For the period May 1 thru July 31, seed with 2 lbs per acre (1 lb/1000 sq ft) of Kentucky 31 Tall Fescue per acre and 1 lb per acre (0.5 lb/1000 sq ft) of creeping lovegrass. During the period of October 16 thru February 28, protect site by Option (1) 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring. Option (2) 1 ton and, Option (3) seed with 60 lbs/acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre well anchored straw.

4) **Grasses:** Apply 2 tons per acre (1 lb/1000 sq ft) of annual small grain seed immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 210 gal per acre (1 gal/1000 sq ft) of unadulterated asphalt or disk areas. On slopes 8 feet or higher, use 340 gal per acre (1 gal/1000 sq ft) for anchoring.

5) **Grasses:** Protect all seeded areas and make needed repairs, replacements and touchups.



CONSULTANT'S CERTIFICATION

"I certify that this plan of erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site, and that this plan was prepared in accordance with the requirements of the Howard County Soil Conservation District and 'Standards and Specifications for Soil Erosion and Sediment Control.' I have reviewed this erosion and sediment control plan with the owner/developer."

Signature: *Richard H. Caswell* Md. License No. 12427 Date: 5/17/88

Name: R.H. CASSELL

OWNERS/DEVELOPERS CERTIFICATION

"I/We hereby certify that any clearing, grading, construction and/or development will be done pursuant to this plan, and that any responsible personnel involved in the construction project will have a certificate of attendance at a Department of Natural Resources approved training program for the control of sediment and erosion before beginning the project. I/WE ALSO AUTHORIZES FOLLOWING ON-SITE CONSTRUCTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE OBTAINED NECESSARILY."

WILLOW SPRINGS I LIMITED PARTNERSHIP, BY WILLOW SPRINGS, INC. GEN'L PARTNER
By *Sharon C. Beach* Date: 5/17/88

Owner/Developer (Name and Title) Date

APPROVED: DEPARTMENT OF PUBLIC WORKS
William J. H. H. H. H. 6/1/88
CHIEF, BUREAU OF ENGINEERING DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS
William J. H. H. H. H. 6/1/88
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
William J. H. H. H. H. 6/1/88
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS
William J. H. H. H. H. 5/17/88
CHIEF, LAND DEVELOPMENT DIVISION DATE

SHANBERGER & LANE
8726 TOWN & COUNTRY BLVD.
SUITE 203
ELLICOTT CITY, MARYLAND 21043
(301) 461-9563

DESIGNED	GSS	4/4	1	PER SDS COMMENTS DATED 3/14	4/27/88
DRAWN	SLM				
CHECKED	GSS				
DATE					
BY	NO.	REVISION			DATE

OWNER & DEVELOPER:

GRADING AND SEDIMENT CONTROL NOTES & DETAILS
WILLOW SPRINGS HIGHLANDS AT
WILLOW SPRINGS GOLF COURSE
TAX MAP 9, PARCEL 15; TAX MAP 13, PARCELS 11, 14, 5
ZONING MAP 96.15, 3rd ELECTION DISTRICT
HOWARD COUNTY, MD

SCALE: N/A
SHEET 9
OF 9

13/2