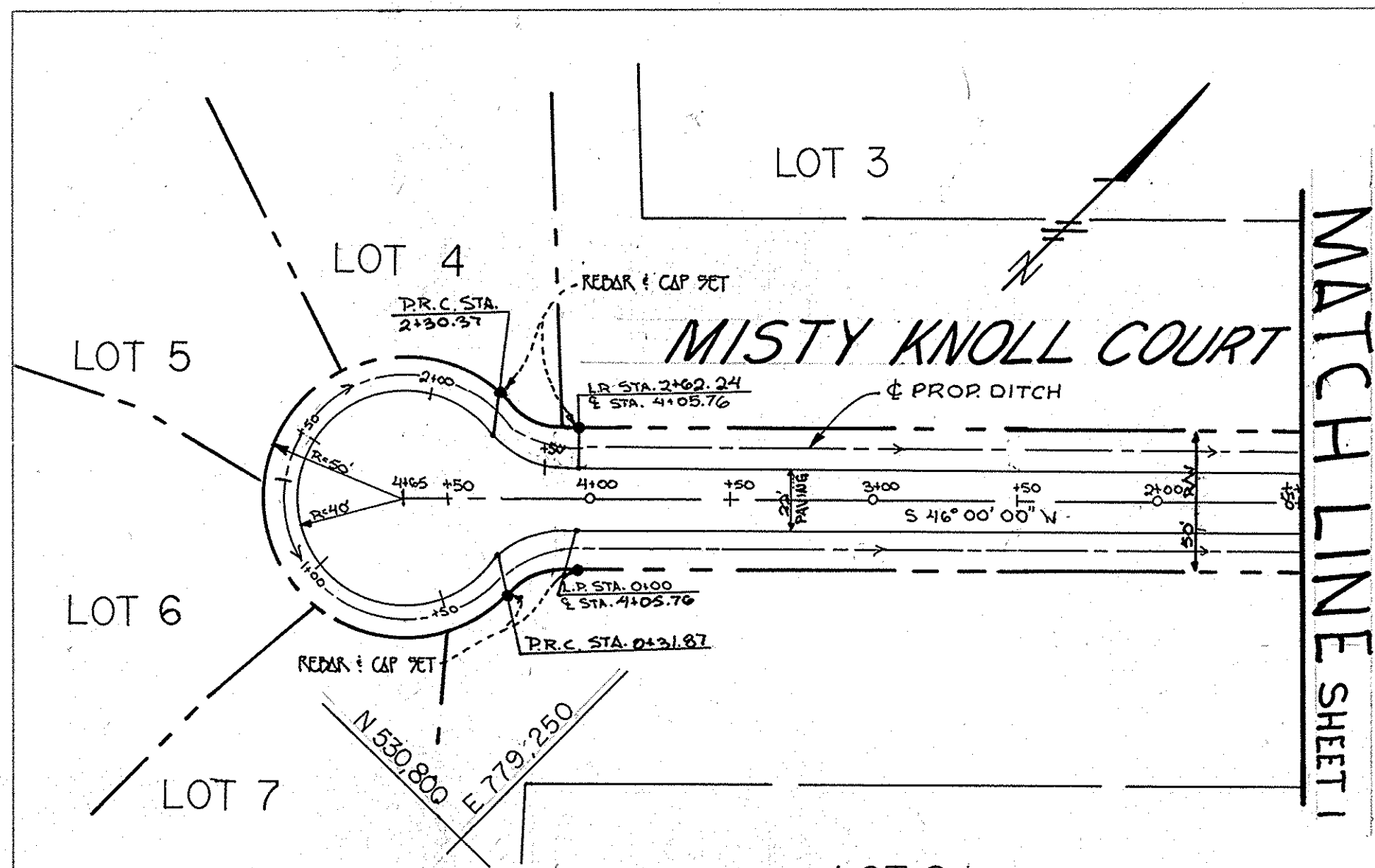


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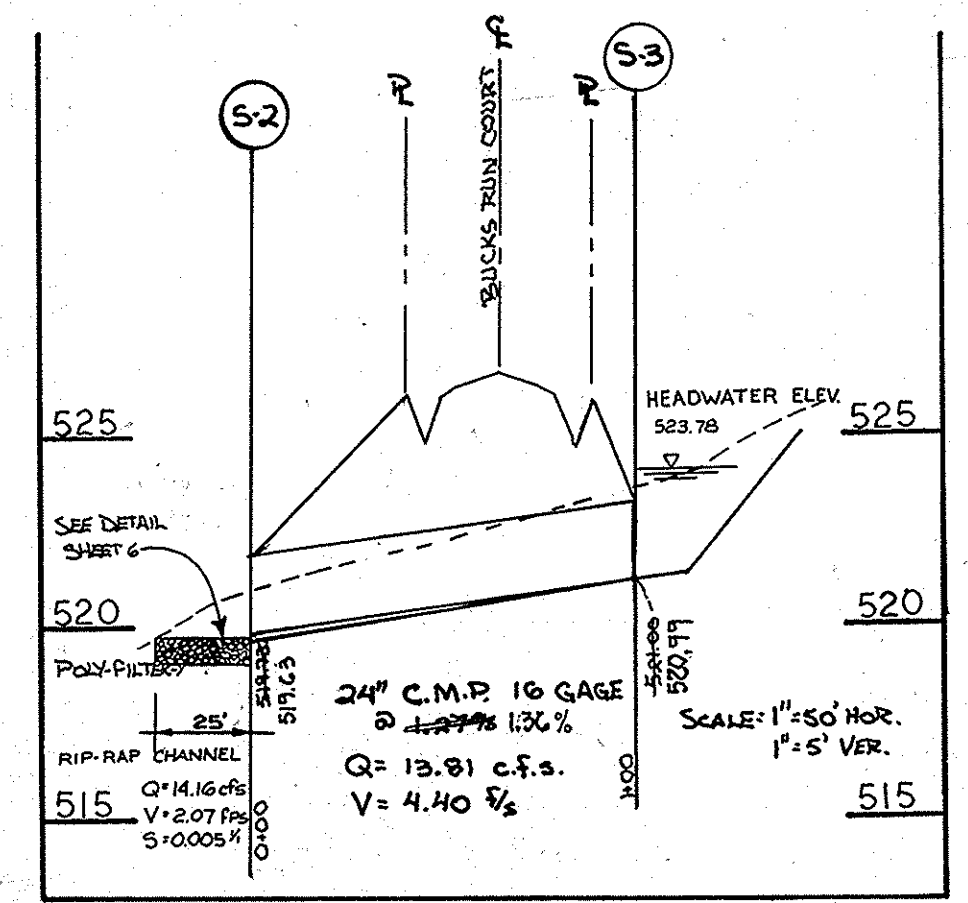


APPROVED
DEPARTMENT OF PUBLIC WORKS
Oliver M. Ferguson 9/1/90
CHIEF, LAND DEVELOPMENT DIVISION MK DATE

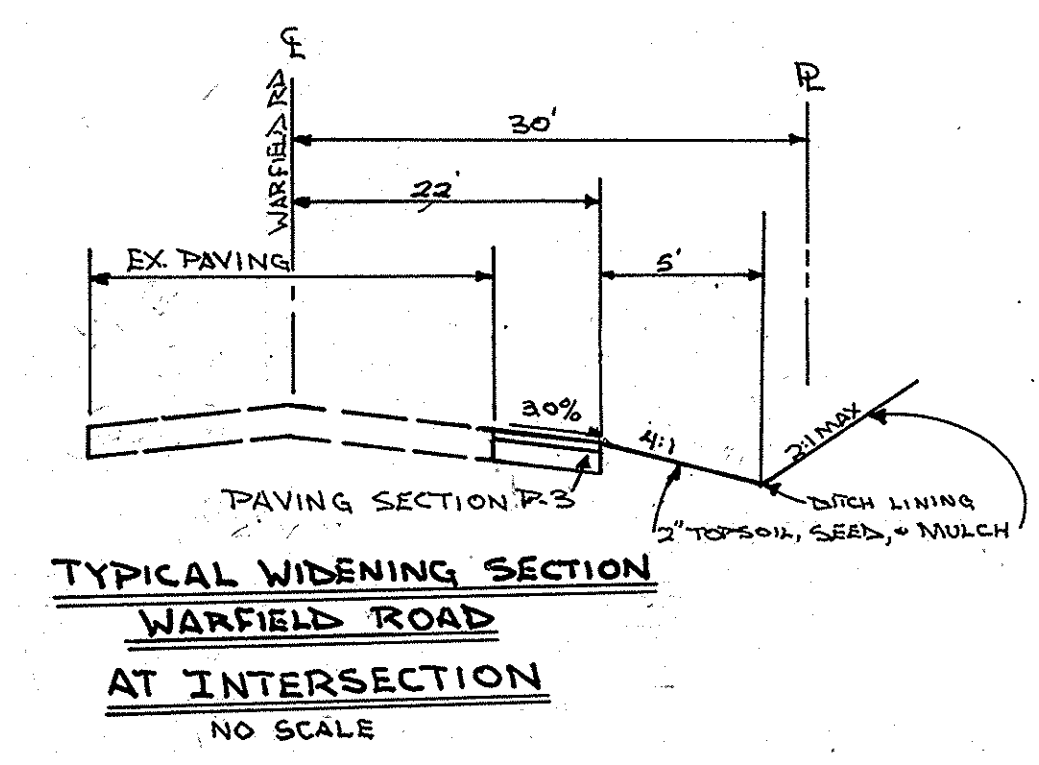
APPROVED
DEPARTMENT OF PUBLIC WORKS
Frank W. Welwood 8/15/90
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED
DEPARTMENT OF PUBLIC WORKS
William S. Ray 9-5-90
CHIEF, BUREAU OF ENGINEERING DATE

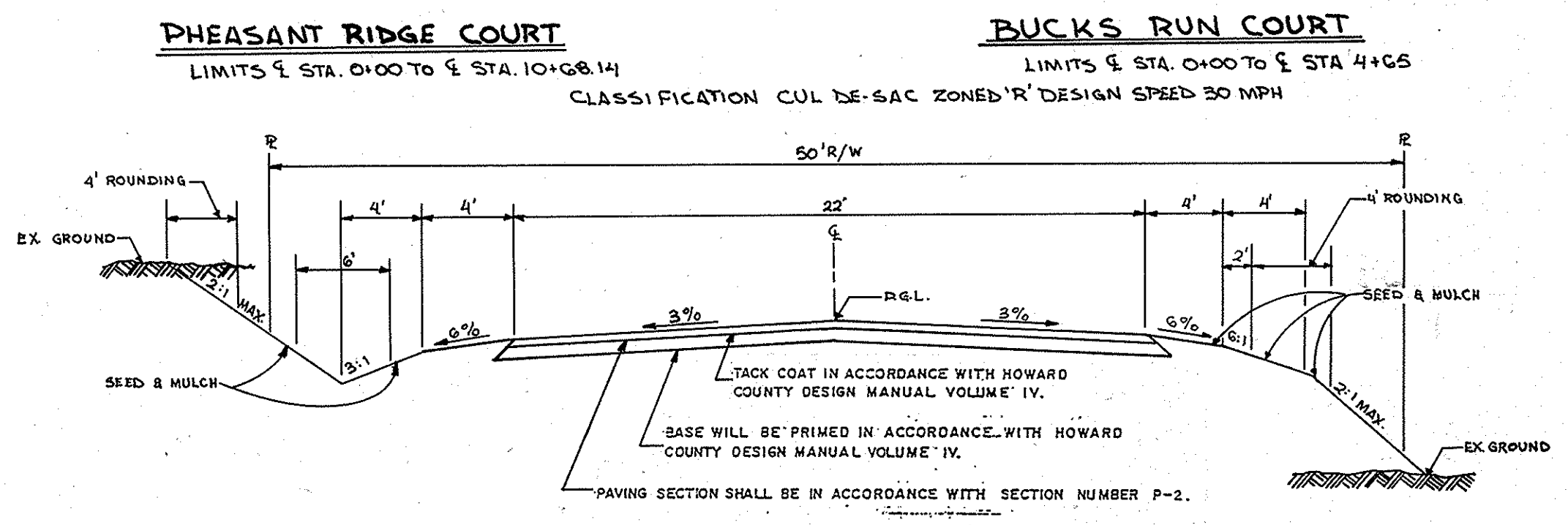
APPROVED
DEPARTMENT OF PLANNING AND ZONING
Frank J. Dwyer 9/17/90
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE



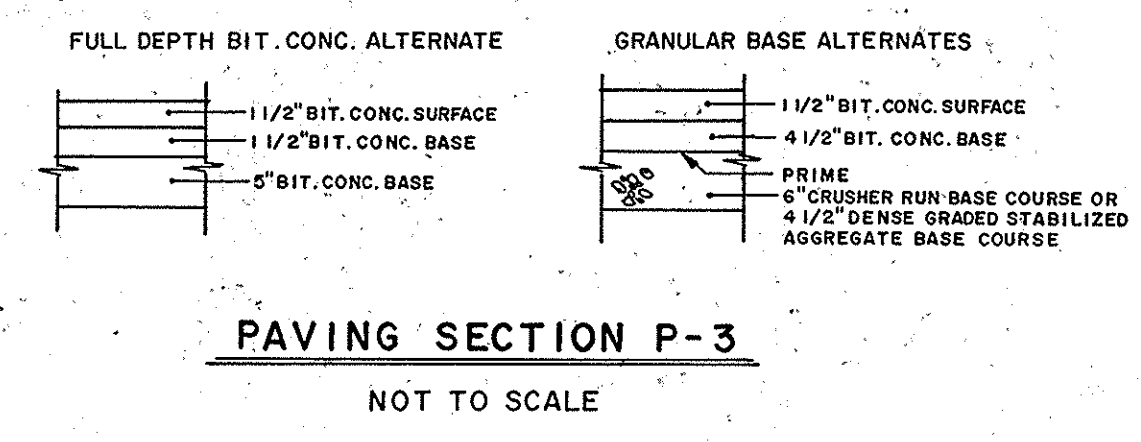
CULVERT
MISTY KNOLL COURT



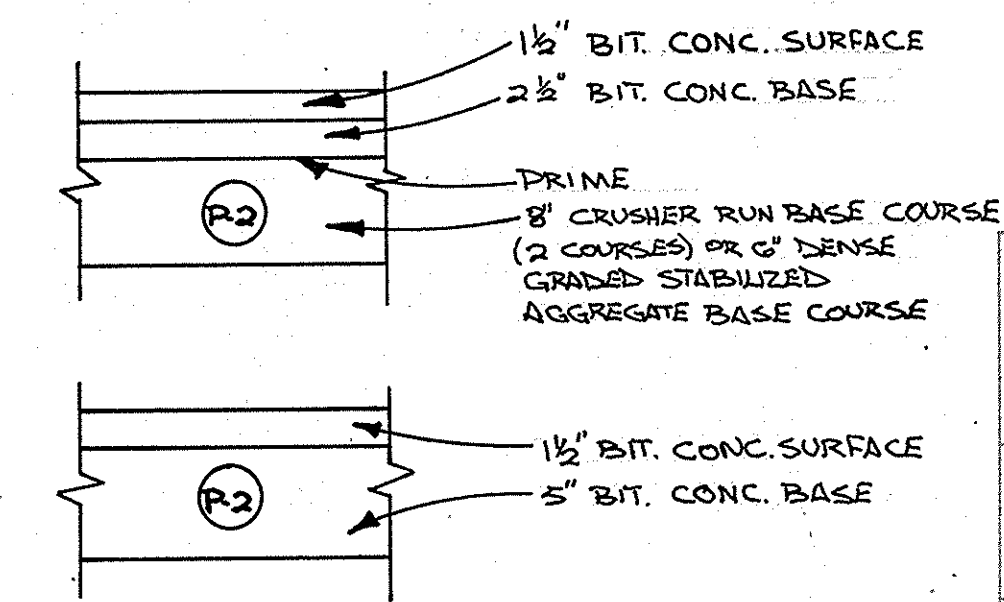
TYPICAL WIDENING SECTION
WARFIELD ROAD
AT INTERSECTION
NO SCALE



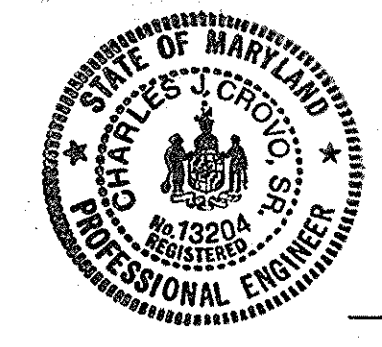
TYPICAL ROADWAY SECTION
NO SCALE



PAVING SECTION P-3
NOT TO SCALE



PAVING SECTION P-2
NOT TO SCALE



Charles J. Crovo Sr.
CHARLES J. CROVO SR.
DATE 7/16/90

WARFIELD'S GRANT
SECTION 1, AREA 1
LOTS 1-16 & PARCEL A
4TH. ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

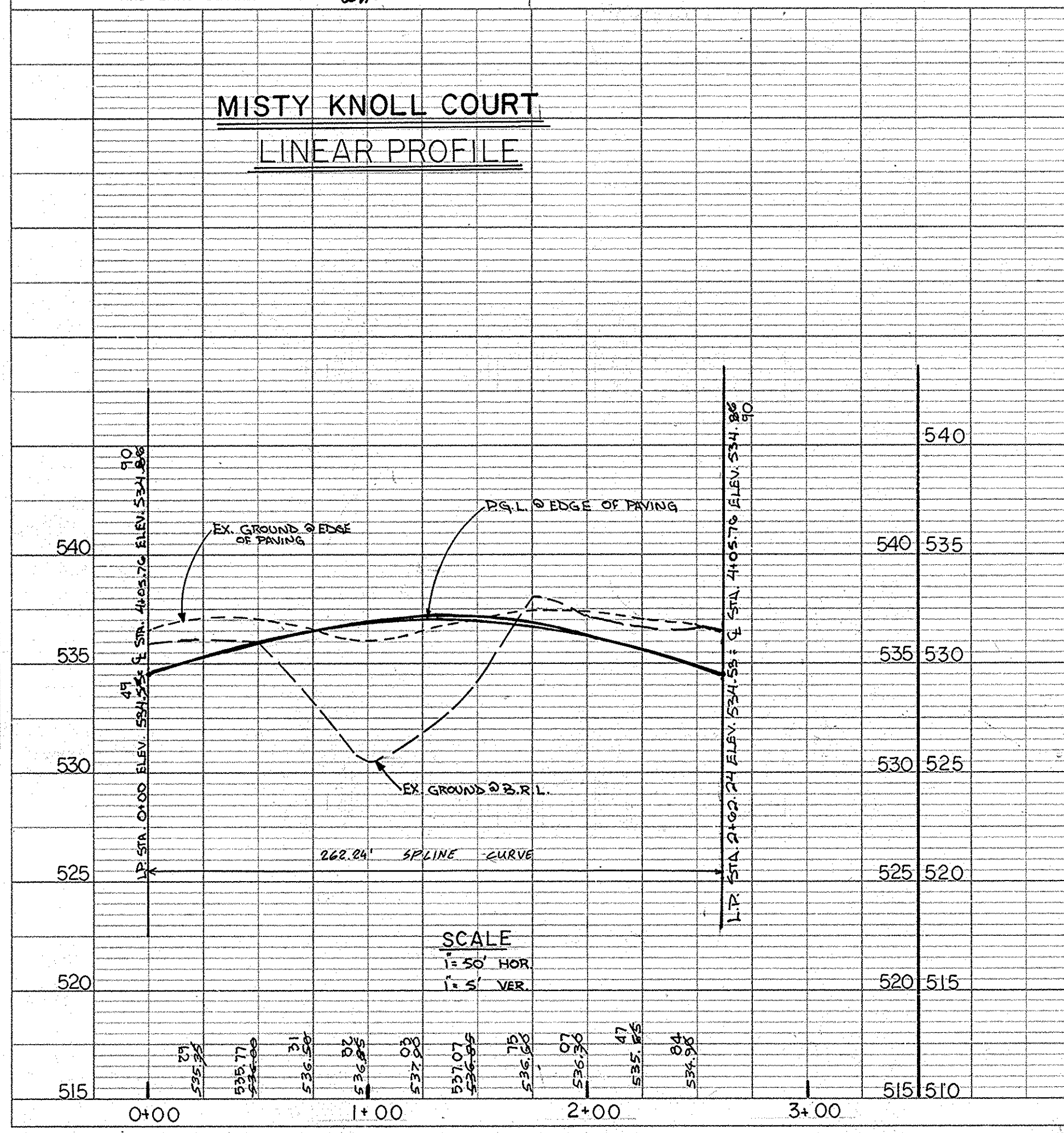
MISTY KNOLL COURT
PLAN AND PROFILE

OWNER AND DEVELOPER
WARFIELD'S GRANT LTD. PARTNERSHIP
P.O. BOX 122
ELLCOTT CITY, MARYLAND 21043

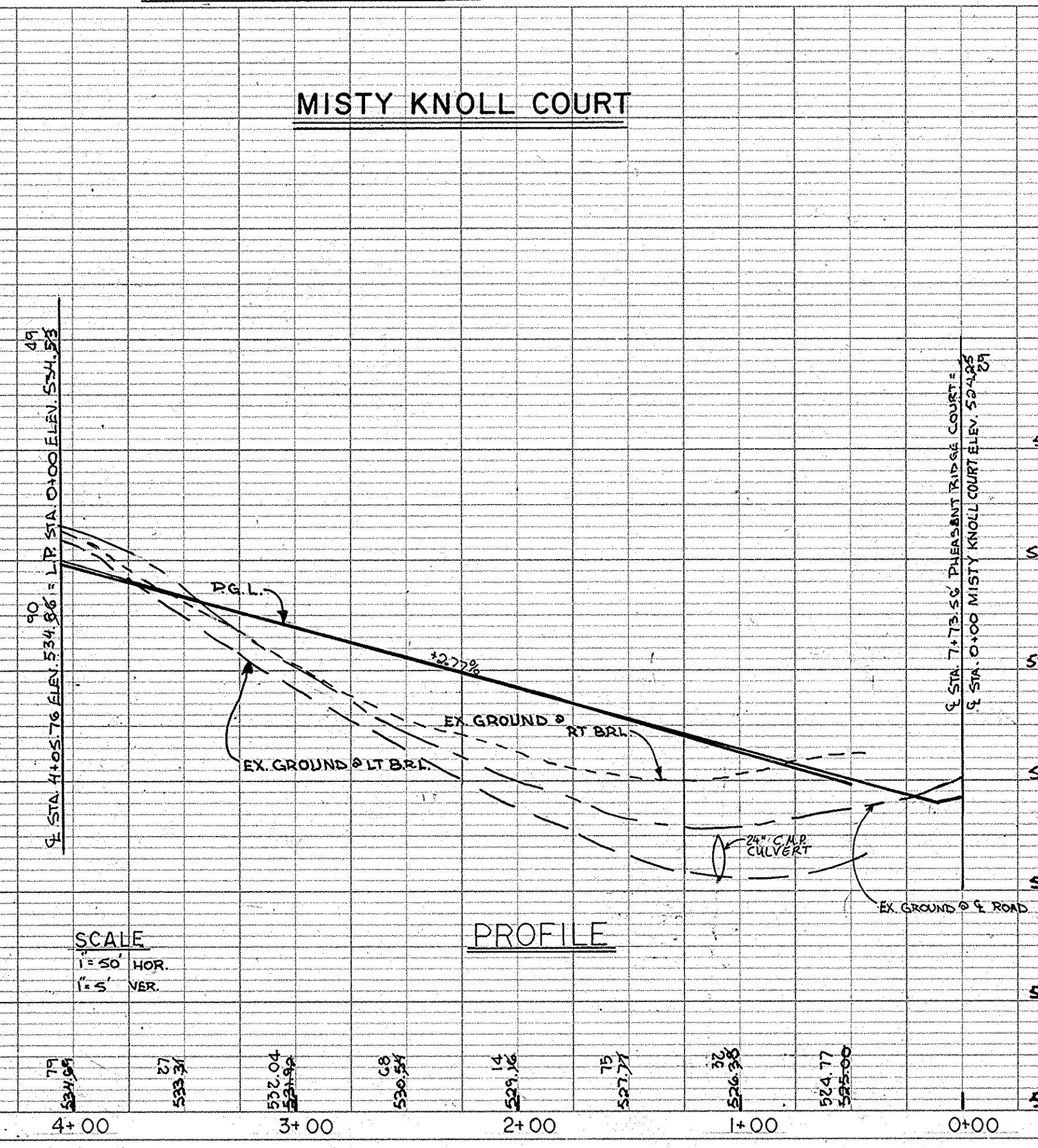
SCALE AS SHOWN DATE 2/14/1990 DWG. NO. 2 OF 6
DES. Z. Y. FISCH DRN. D. GROSS CHK. C. J. CROVO

FISHER, COLLINS AND CARTER, INC.
CIVIL ENGINEERS AND LAND SURVEYORS
8388 COURT AVE. ELLCOTT CITY, MARYLAND 21043

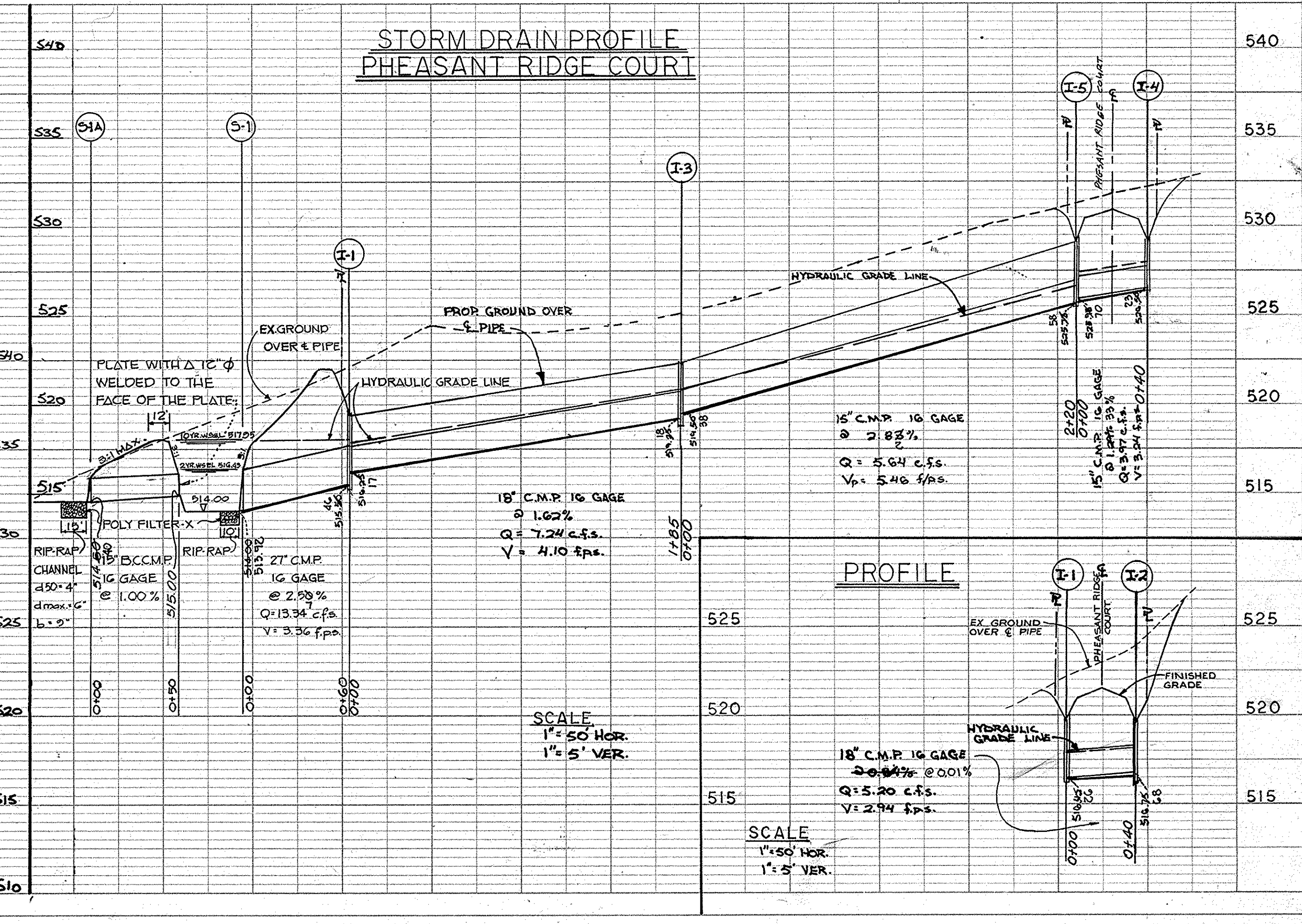
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GRADES CHECKED	
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PROFILE	



MISTY KNOLL COURT
LINEAR PROFILE



MISTY KNOLL COURT
PROFILE



STORM DRAIN PROFILE
PHEASANT RIDGE COURT

PROFILE

1574

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

Signature: *Charles J. Crovo* Date: 7/16/90

DEVELOPER'S CERTIFICATE
"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD COUNTY CONSERVATION DISTRICT OR ITS AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY."

Signature: *James M. Nelson* Date: 7/16/90

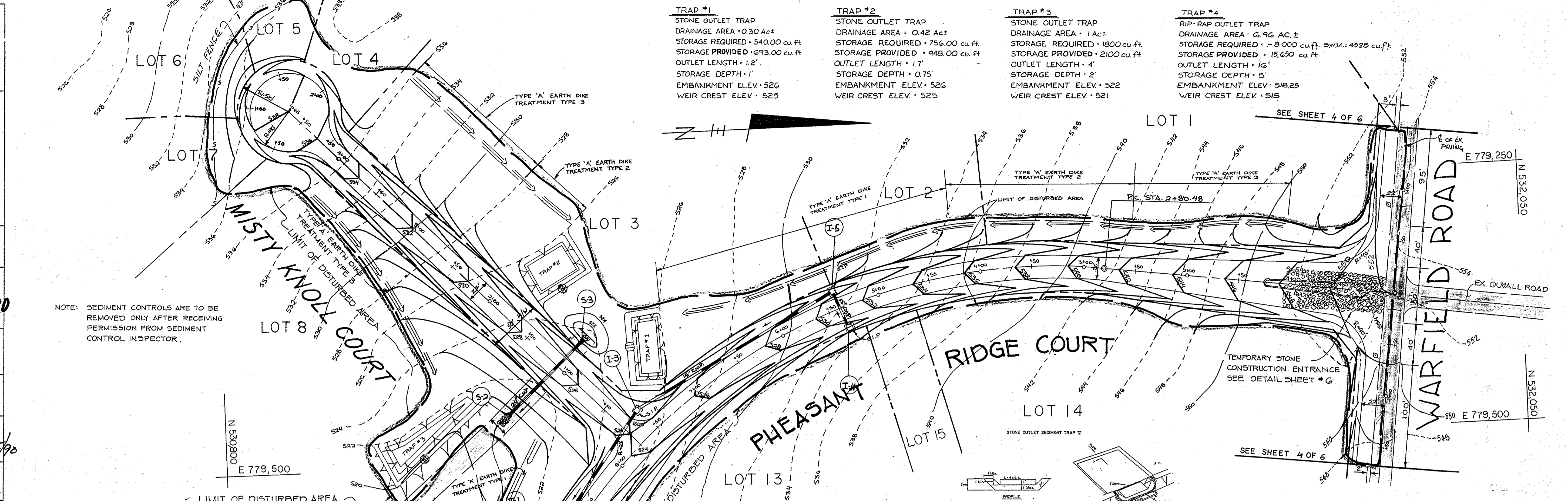
Signature: *John P. Johnson* Date: 7/16/90

Signature: *Frank J. Zamp* Date: 7/16/90

Signature: *Michael B. Reid* Date: 5/2/90

Signature: *David W. McLaughlin* Date: 4/16/90

Signature: *Chas. J. Crovo* Date: 7/16/90



TRAP #1
STONE OUTLET TRAP
DRAINAGE AREA: 0.30 AC±
STORAGE REQUIRED: 540.00 cu ft
STORAGE PROVIDED: 673.00 cu ft
OUTLET LENGTH: 1.2'
STORAGE DEPTH: 1'
EMBANKMENT ELEV: 526
WEIR CREST ELEV: 525

TRAP #2
STONE OUTLET TRAP
DRAINAGE AREA: 0.42 AC±
STORAGE REQUIRED: 756.00 cu ft
STORAGE PROVIDED: 948.00 cu ft
OUTLET LENGTH: 1.7'
STORAGE DEPTH: 0.75'
EMBANKMENT ELEV: 522
WEIR CREST ELEV: 525

TRAP #3
STONE OUTLET TRAP
DRAINAGE AREA: 1 AC±
STORAGE REQUIRED: 1800 cu ft
STORAGE PROVIDED: 2100 cu ft
OUTLET LENGTH: 4'
STORAGE DEPTH: 2'
EMBANKMENT ELEV: 522
WEIR CREST ELEV: 521

TRAP #4
RIP-RAP OUTLET TRAP
DRAINAGE AREA: 6.96 AC±
STORAGE REQUIRED: 8000 cu ft SWM: 4528 cu ft
STORAGE PROVIDED: 15,650 cu ft
OUTLET LENGTH: 16'
STORAGE DEPTH: 5'
EMBANKMENT ELEV: 518.25
WEIR CREST ELEV: 515

NOTE: SEDIMENT CONTROLS ARE TO BE REMOVED ONLY AFTER RECEIVING PERMISSION FROM SEDIMENT CONTROL INSPECTOR.

NOTE: BLOCK B.C.C.M.P. WHEN SWM USED FOR SEDIMENT CONTROL

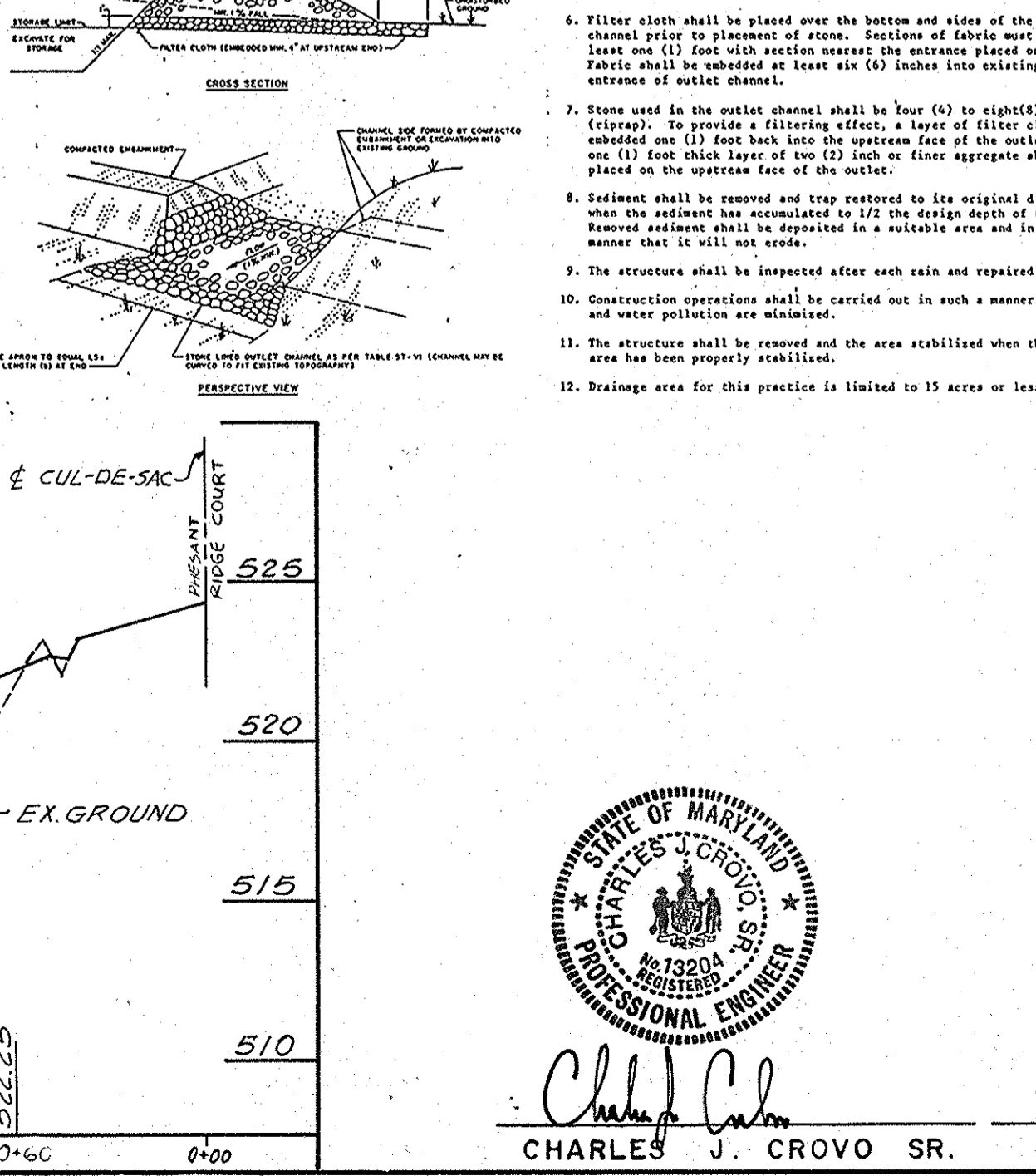
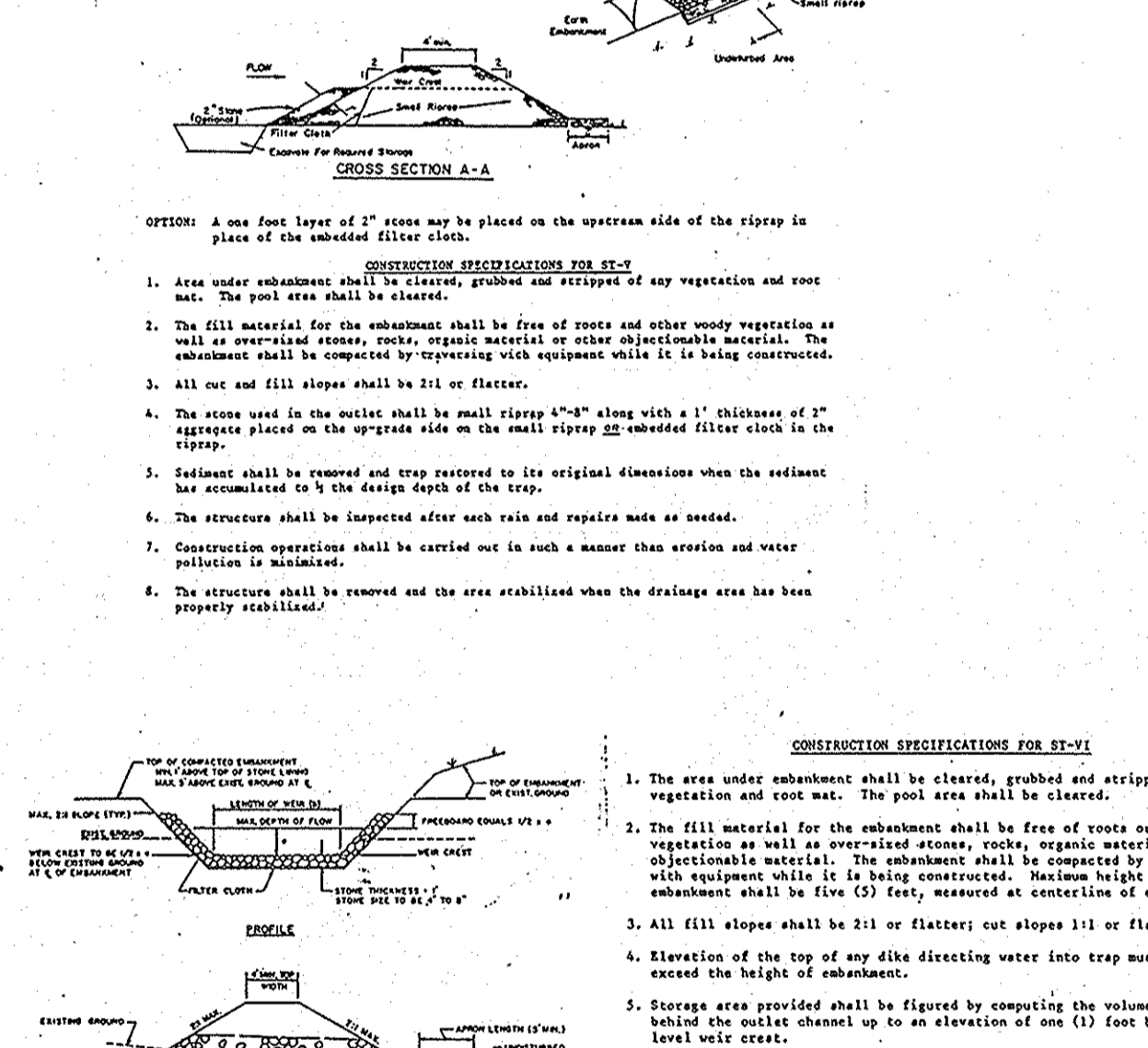
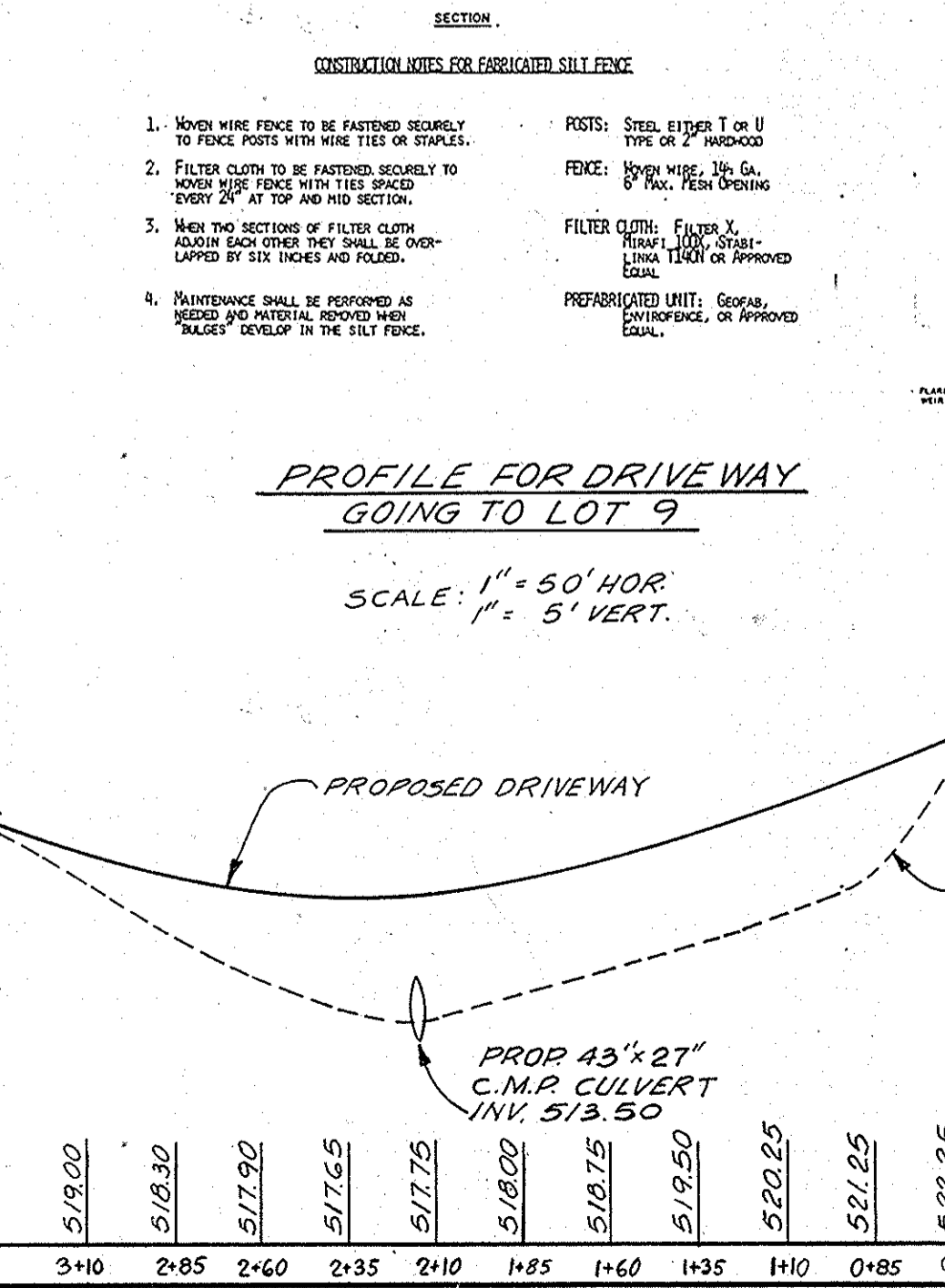
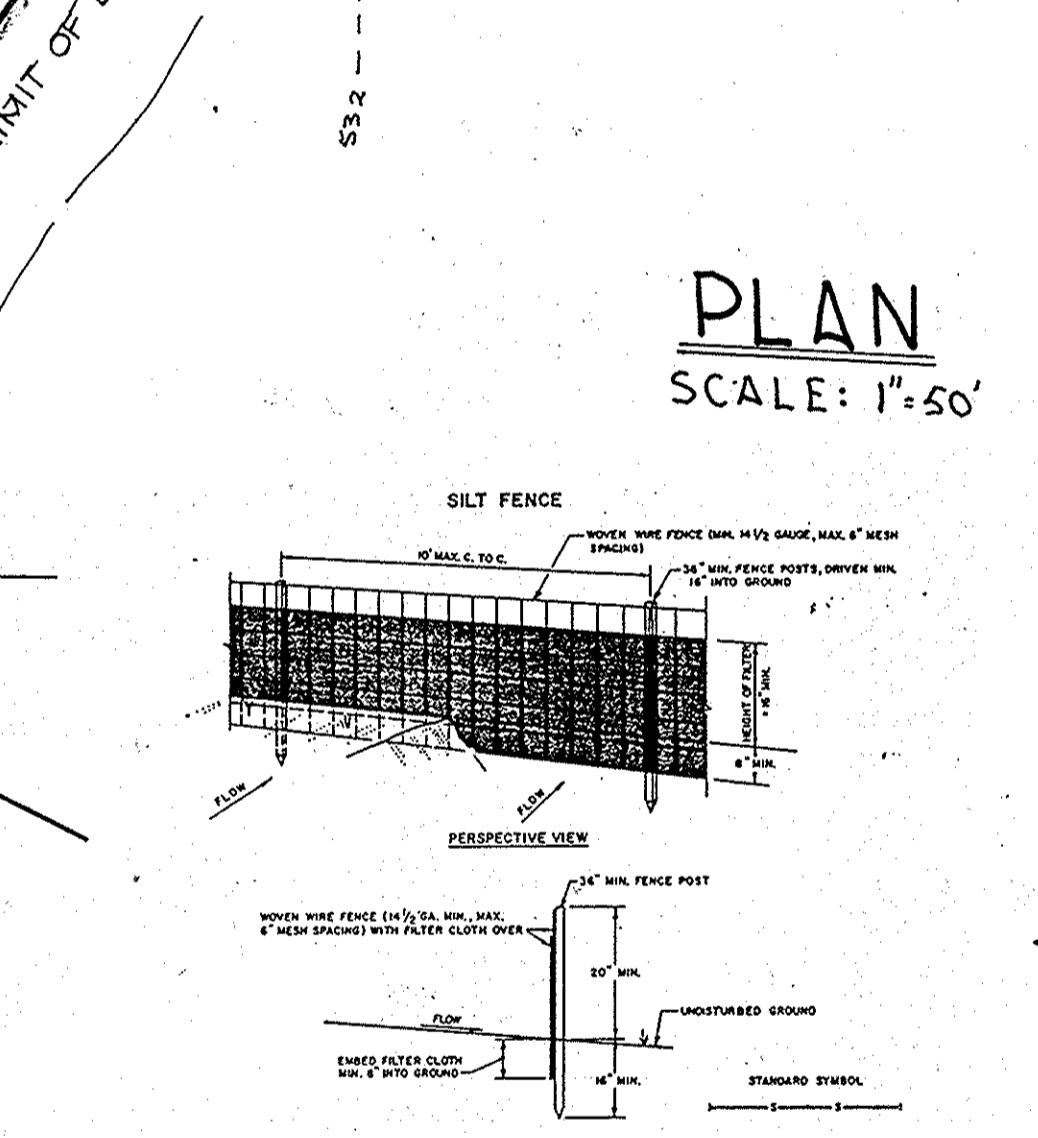
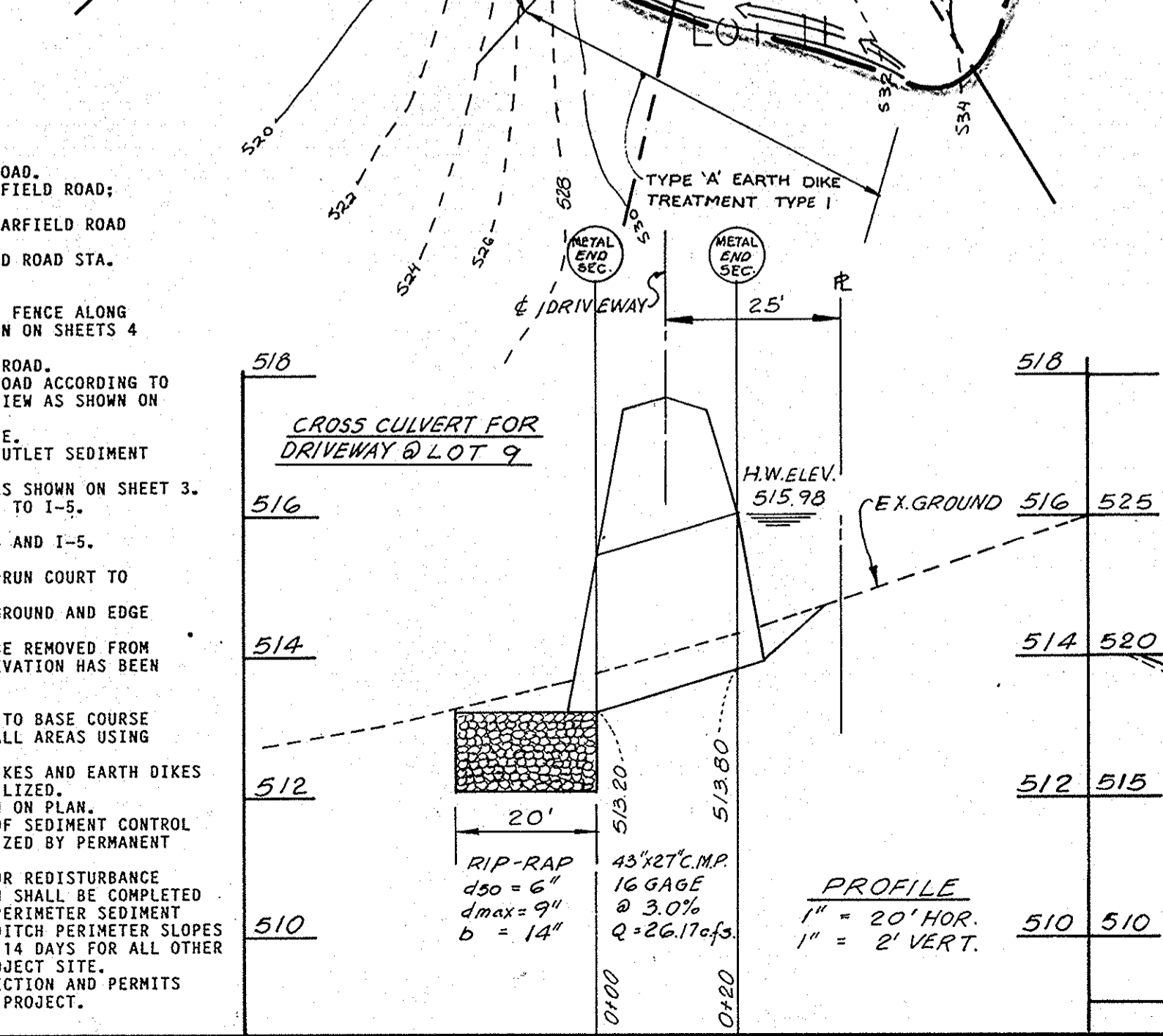
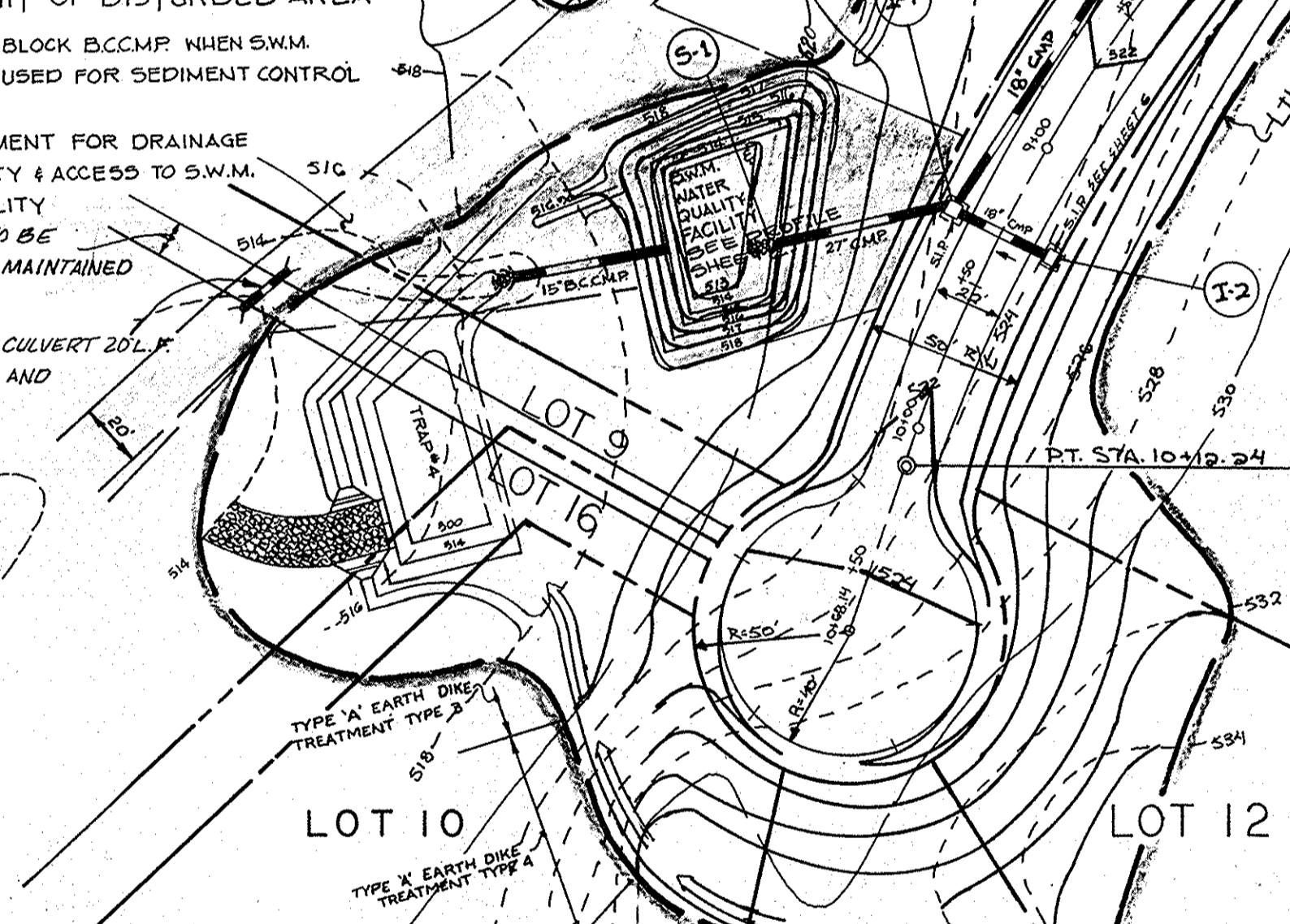
EASEMENT FOR DRAINAGE UTILITY & ACCESS TO S.W.M. FACILITY

PROR 12" DRIVEWAY TO BE PRIVATELY OWNED AND MAINTAINED BY OWNER.

PROR 43" x 27" C.M.P. ALTERNATE 20" TO BE PRIVATELY OWNED AND MAINTAINED.

SEDIMENT CONTROL NOTES:

- A MINIMUM OF 24 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY OFFICE OF INSPECTIONS AND PERMITS PRIOR TO THE START OF ANY CONSTRUCTION (892-2437).
- ALL EROSION AND SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, 5:1 TO 14:1 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- ALL SEDIMENT TRAPS/BASINS SHALL BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
- ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1985 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDINGS (SEC. 51) 500 (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 SEEDING AND ESTABLISHMENT OF GRASSES.
- ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMITS FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- SITE ANALYSIS:**
TOTAL AREA OF SITE: 55.970 ACRES
AREA TO BE ROOFED OR PAVED: 7.218 ACRES
AREA TO BE VEGETATIVELY STABILIZED: 5.023 ACRES
TOTAL CUT: 6.224 CU. YDS.
TOTAL FILL: 6.224 CU. YDS.
- ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- 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.



STRUCTURE	TYPE	INV. IN	INV. OUT	ELEV.	STATION	REMARKS
I-1	'K' INLET	516.25	515.56	520.00	9+30RT.	S.D.-4.12
I-2	'K' INLET	516.17	516.78	520.00	9+30LT.	S.D.-4.12
I-3	'K' INLET	519.50	519.25	522.44	0+25RT.	S.D.-4.12
I-4	'K' INLET	---	526.50	520.07	5+40RT.	S.D.-4.12
I-5	'K' INLET	525.98	525.73	520.22	5+40LT.	S.D.-4.12
I-6	'K' INLET	---	527.66	524.10	5+40LT.	S.D.-4.12
S-1	METAL END SECTION	517.63	519.73	516.90	---	SEE PLAN
S-2	METAL END SECTION	520.99	---	521.73	---	SEE PLAN
S-3	METAL END SECTION	521.00	---	523.00	---	SEE PLAN
S-4	METAL END SECTION	537.17	---	538.25	4+50RT.	S.D.-5.61

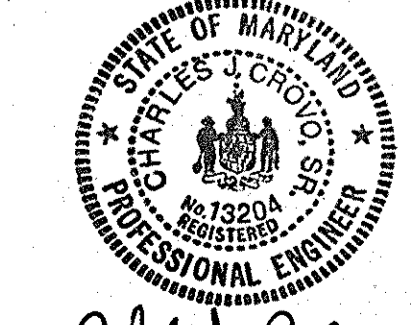
OWNER AND DEVELOPER
WARFIELD'S GRANT LTD. PARTNERSHIP
P.O. BOX 122
ELLCOTT CITY MARYLAND 21043

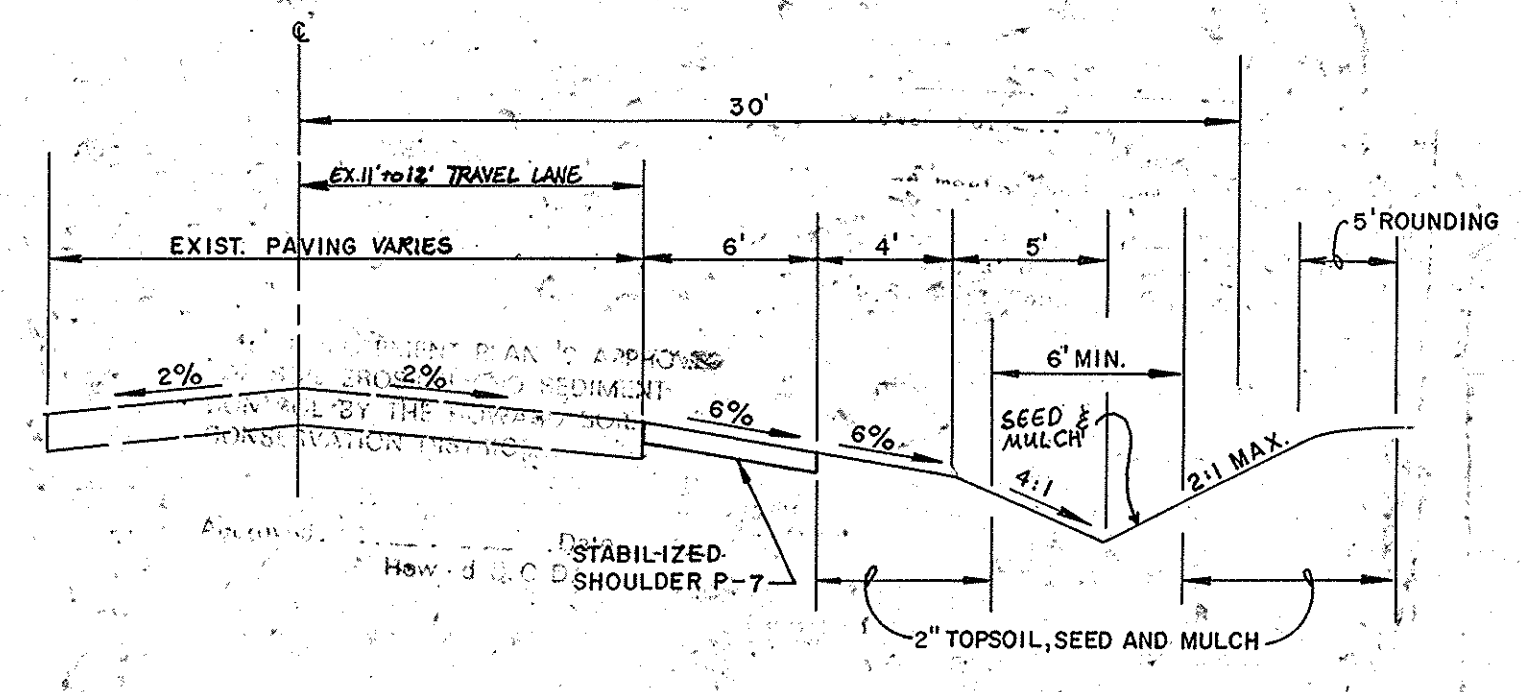
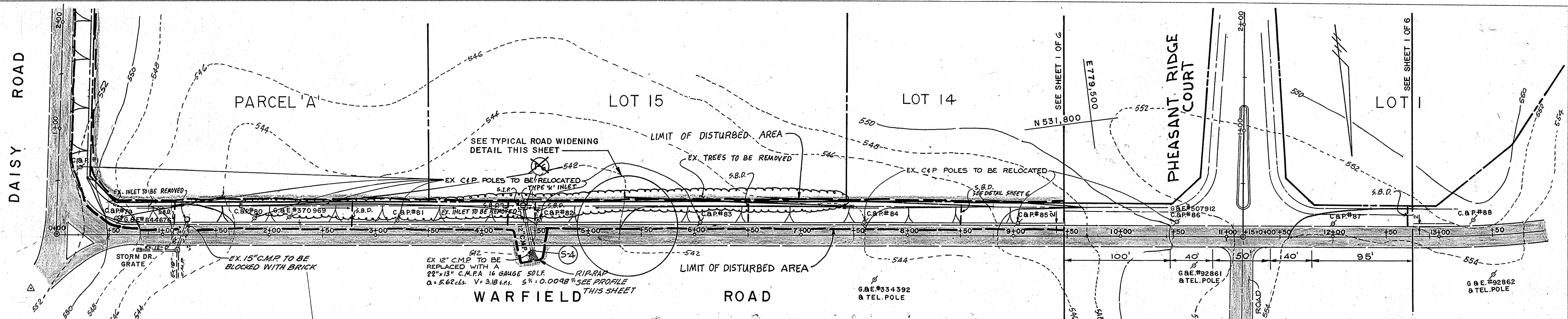
SECTION I AREA I
GRADING & SEDIMENT CONTROL
WARFIELD'S GRANT
4th. ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
TAX MAP 13 PARCEL 128
SCALE: AS SHOWN FEBRUARY 14, 1990
SHEET 3 OF 6

Signature: *Charles J. Crovo* Date: 7/16/90
CHARLES J. CROVO SR. DATE

1574

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERS & LAND SURVEYORS
8388 COURT AVE.
ELLCOTT CITY, MD. 21043





PLAN
SCALE: 1" = 50'

TYPICAL WIDENING SECTION
WARFIELD ROAD
NOT TO SCALE

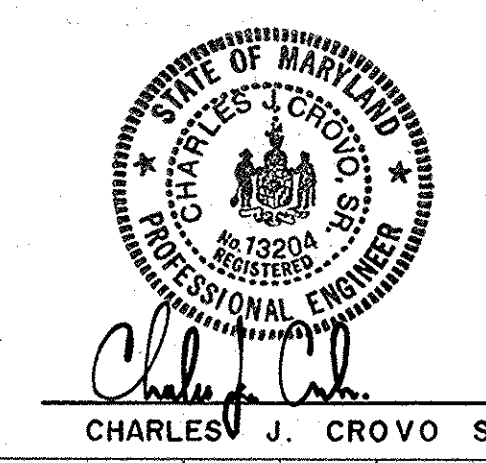
WARFIELD'S GRANT
SECTION 1, AREA 1
LOTS 1-16 & PARCEL A
4TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

**WARFIELD ROAD
PLAN AND PROFILE**

OWNER AND DEVELOPER
WARFIELD'S GRANT LTD. PARTNERSHIP
P.O. BOX 122
ELLICOTT CITY, MARYLAND 21043

SCALE AS SHOWN DATE 2/14/1990 DWG. NO. 4 OF 6
DES. Z. Y. FISCH DRN. A. STEINBERG CHK. C. J. CROVO

FISHER, COLLINS AND CARTER, INC.
CIVIL ENGINEERS AND LAND SURVEYORS
8388 COURT AVE. ELICOTT CITY, MARYLAND 21043

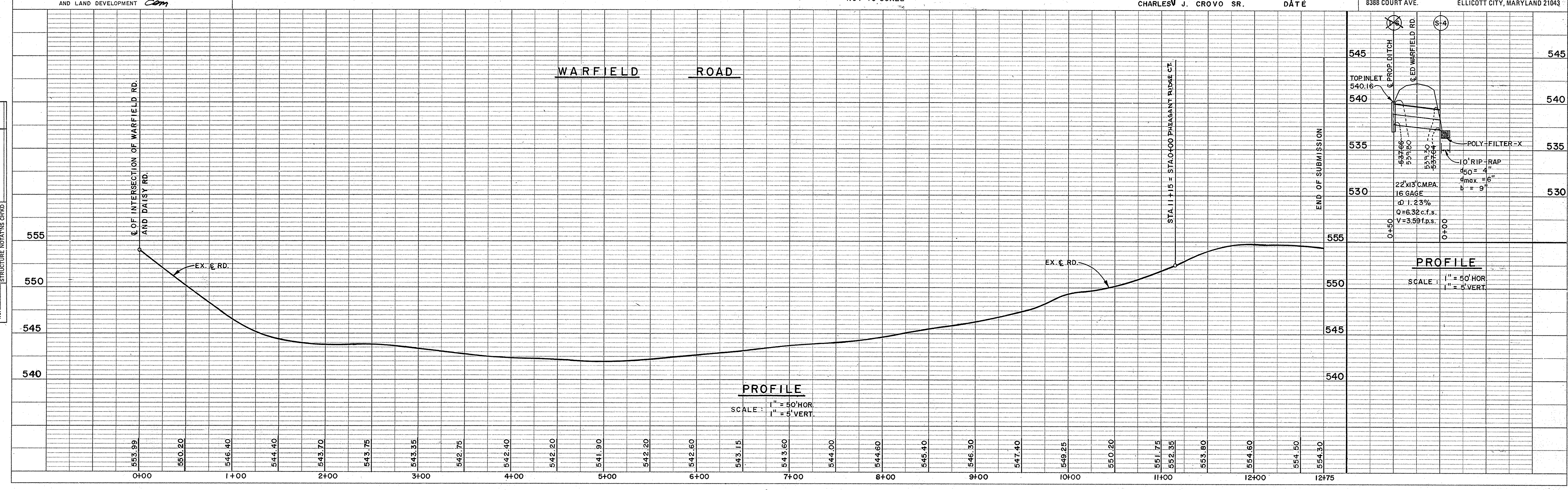


APPROVED DEPARTMENT OF PUBLIC WORKS
Oliver M. Longenecker 9/1/90
CHIEF, LAND DEVELOPMENT DIVISION MK DATE

APPROVED DEPARTMENT OF PUBLIC WORKS
Granville W. Weiland 8/15/90
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED DEPARTMENT OF PUBLIC WORKS
William R. Ray 9-5-90
CHIEF, BUREAU OF ENGINEERING DATE

APPROVED DEPARTMENT OF PLANNING AND ZONING
Mark S. D. Gault 9/1/90
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT Com DATE



PROFILE
SCALE: 1" = 50' HOR.
1" = 5' VERT.

PROFILE
SCALE: 1" = 50' HOR.
1" = 5' VERT.

DATE	
BY	
REVISIONS	
NO.	
PLANNING	
ENGINEERING	
HIGHWAYS	
NO.	

DATE	
BY	
REVISIONS	
NO.	
PROFILES	
GRADES CHECKED	
STRUCTURE NOTATIONS CHKD	
NO.	

1574

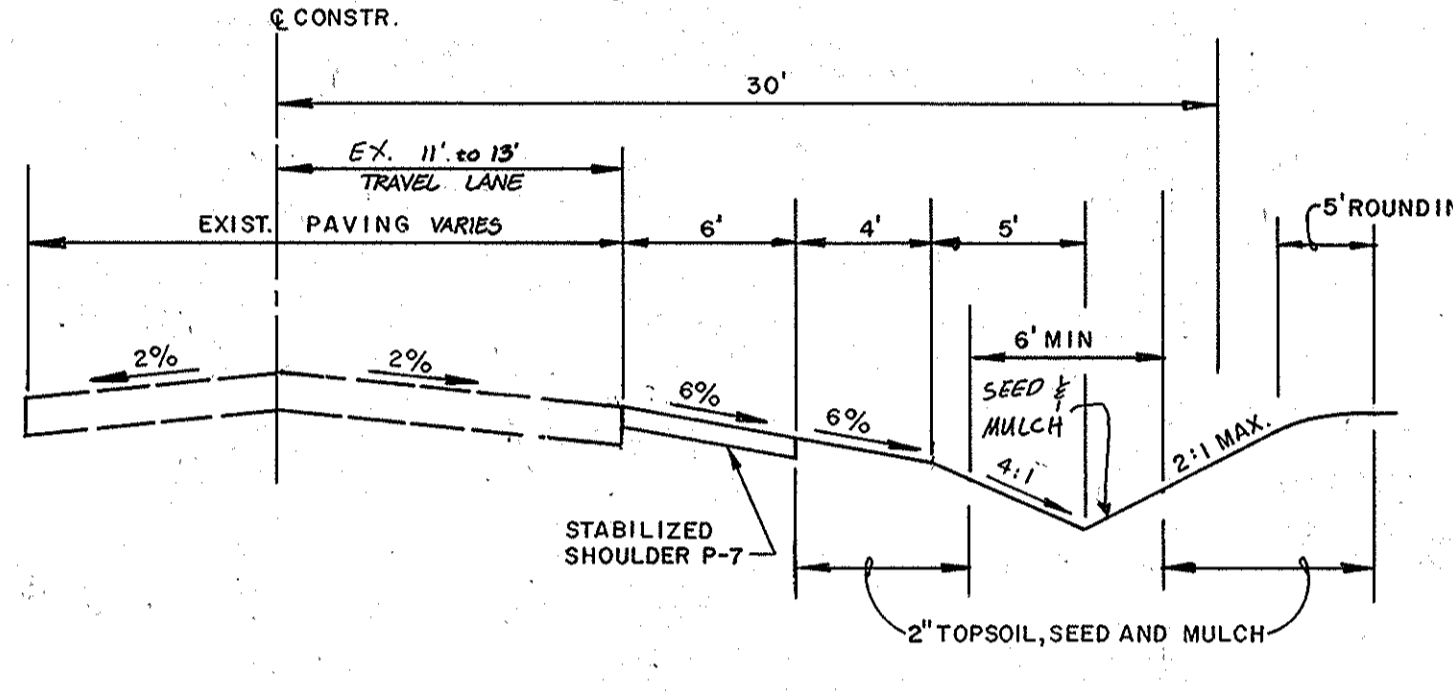
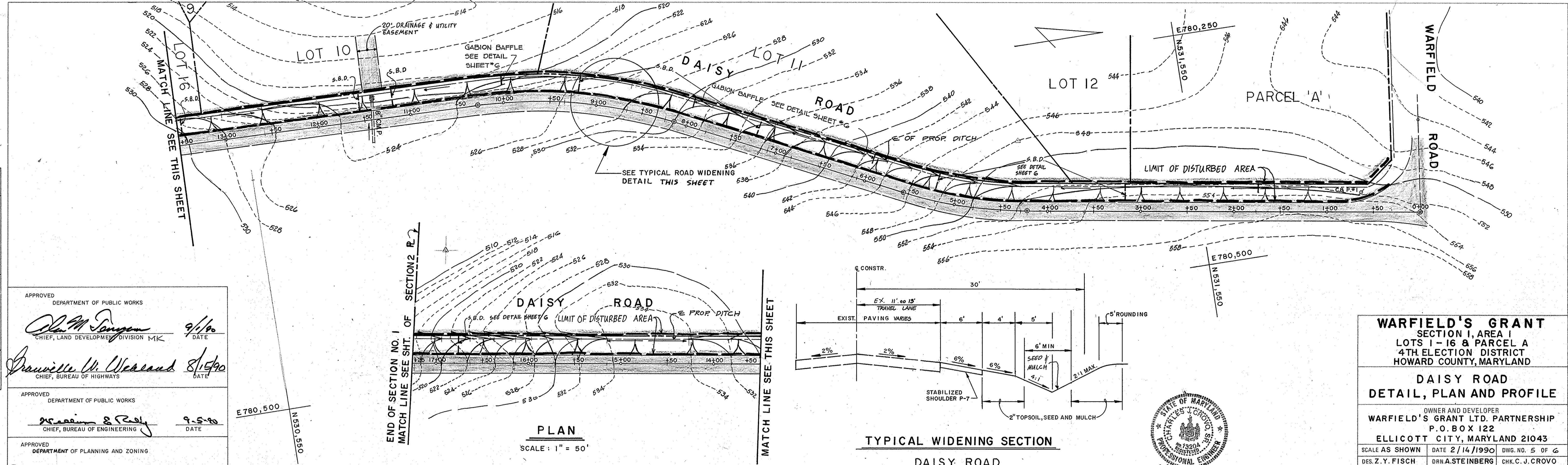
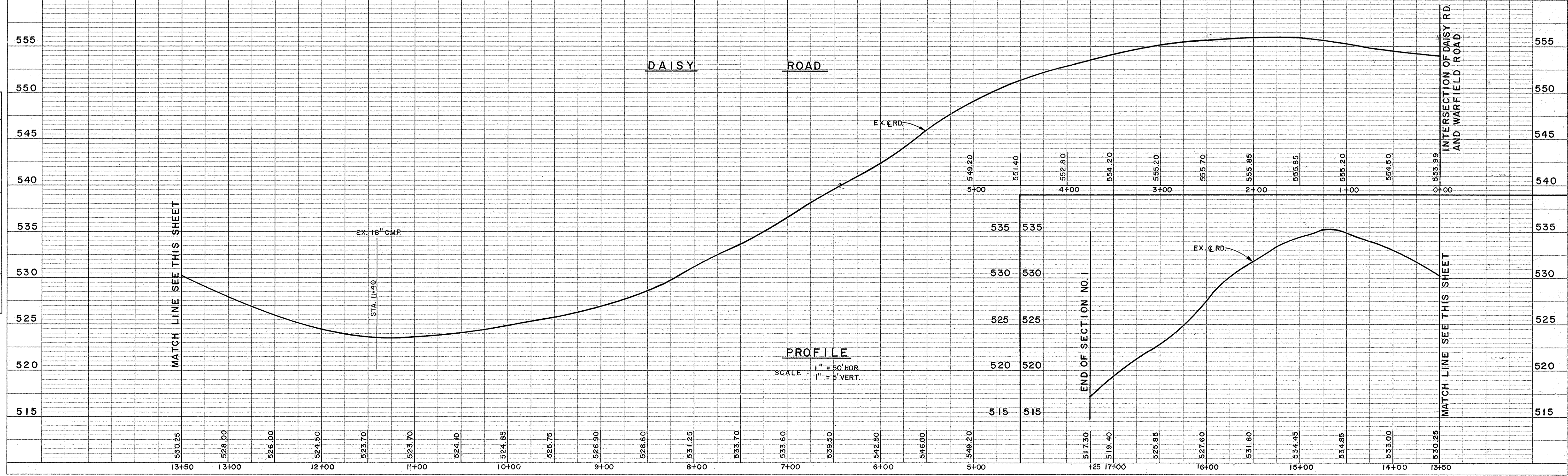
PLAN	REVISIONS	DATE
NO.	BY	
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APPROVED
DEPARTMENT OF PUBLIC WORKS
Alan M. Johnson 9/1/90
CHIEF, LAND DEVELOPMENT DIVISION MK DATE

APPROVED
DEPARTMENT OF PUBLIC WORKS
Braville W. Westland 8/15/90
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED
DEPARTMENT OF PLANNING AND ZONING
Frank J. Taylor 9/1/90
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT com DATE

PROFILE	REVISIONS	DATE
NO.	BY	
	DATE	
	DATE	
	DATE	
	DATE	
	DATE	
	DATE	
	DATE	
	DATE	
	DATE	



STATE OF MARYLAND
REGISTERED PROFESSIONAL ENGINEER
Charles J. Crovo Sr.
DATE 7/16/90

WARFIELD'S GRANT
SECTION I, AREA I
LOTS 1-16 & PARCEL A
4TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

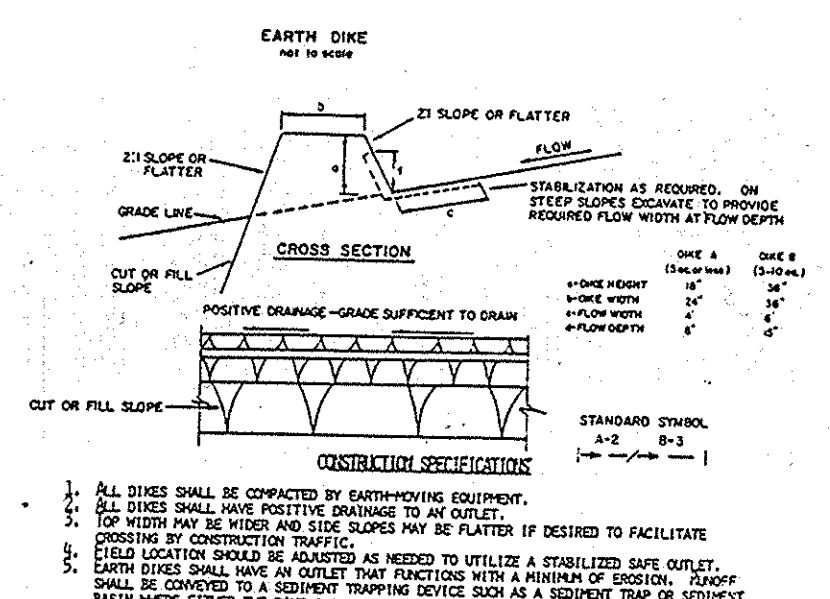
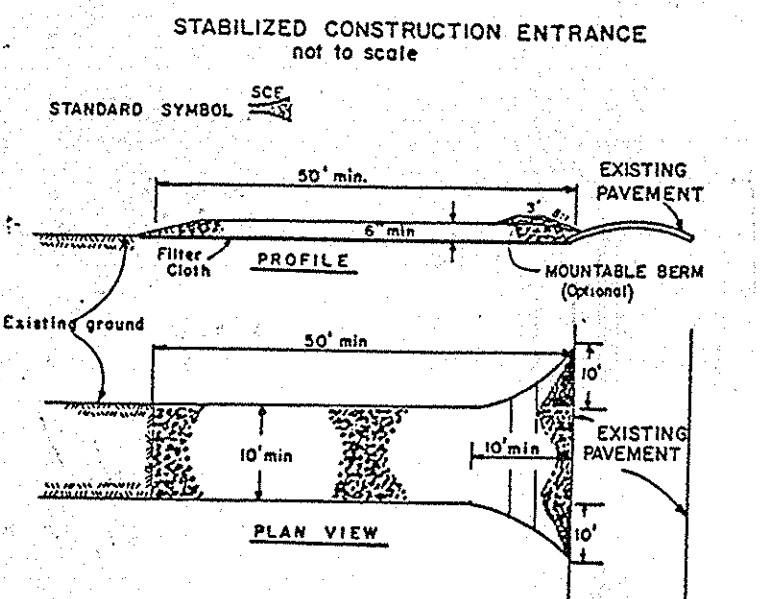
DAISY ROAD
DETAIL, PLAN AND PROFILE

OWNER AND DEVELOPER
WARFIELD'S GRANT LTD. PARTNERSHIP
P.O. BOX 122
ELLICOTT CITY, MARYLAND 21043

SCALE AS SHOWN DATE 2/14/1990 DWG. NO. 5 OF 6
DES. Z.Y. FISCH DRN. A. STEINBERG CHK. C.J. CROVO

FISHER, COLLINS AND CARTER, INC.
CIVIL ENGINEERS AND LAND SURVEYORS
8388 COURT AVE. ELLICOTT CITY, MARYLAND 21043

1574



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

SEEDBED PREPARATION: LOOSEN UPPER THREE-INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING. IF NOT PREVIOUSLY LOOSENED, SOIL IMPROVEMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ONE OF THE FOLLOWING SCHEDULE:

- 1) PREFERRED - APPLY 2 TONS PER ACRE BOWLING GREEN LIMESTONE (92 LBS/1000 SO. FT.) AND 600 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SO. FT.) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE-INCHES OF SOIL.
- 2) ACCEPTABLE - APPLY 2 TONS PER ACRE BOWLING GREEN LIMESTONE (92 LBS/1000 SO. FT.) AND 1000 LBS. PER ACRE 10-10-10 FERTILIZER (23 LBS/1000 SO. FT.) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE-INCHES OF SOIL.

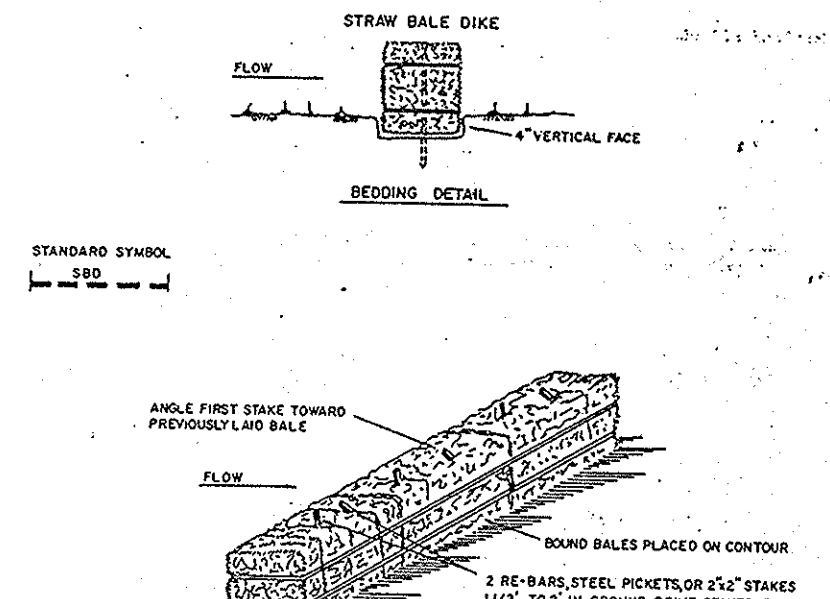
SEEDING: FOR THE PERIODS MARCH 1 THRU APRIL 30, AND AUGUST 15 THRU OCTOBER 15, SEED WITH 60 LBS. PER ACRE (1.4 LBS/1000 SQ. FT.) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD MAY 1 THRU JULY 31, SEED WITH 60 LBS. KENTUCKY 31 TALL FESCUE PER ACRE AND 1.5 LBS. PER ACRE (3.5 LBS/1000 SQ. FT.) OF KEEPING COVERGRASS. DURING THE PERIOD OF OCTOBER 16 THRU FEBRUARY 28, PROTECT SITE BY: OPTION (1) 2 TONS PER ACRE OF WELLS ANCHORED STRAW MULCH OR 210 GALLONS PER ACRE OR HIGHER. USE 348 GALLONS PER ACRE (8 GALL/1000 SQ. FT.) FOR ANCHORING AND RESEEDING. OPTION (2) SEED WITH 60 LBS/ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS/ACRE OF WELLS ANCHORED STRAW MULCH OR 210 GALLONS PER ACRE (5 GALL/1000 SQ. FT.) OF UNROTTED MULCH. APPLY 1 1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ. FT.) OF UNROTTED MULCH. STRAW MULCH IMMEDIATELY AFTER SEEDING. FERTILIZER 19 LBS/1000 SQ. FT. IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 210 GALLONS PER ACRE (5 GALL/1000 SQ. FT.) OF UNROTTED MULCH IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 210 GALLONS PER ACRE (5 GALL/1000 SQ. FT.) OF UNROTTED MULCH IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 210 GALLONS PER ACRE (5 GALL/1000 SQ. FT.) OF UNROTTED MULCH IMMEDIATELY AFTER SEEDING. USE 348 GAL PER ACRE (8 GALL/1000 SQ. FT.) FOR ANCHORING.

TEMPORARY SEEDING NOTES:
 APPLY TO GRADED OR CLEARED AREA SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.

SEEDBED PREPARATION: LOOSEN UPPER THREE-INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING. IF NOT PREVIOUSLY LOOSENED, SOIL IMPROVEMENTS: APPLY 200 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ. FT.)

SEEDING: FOR PERIODS MARCH 1 THRU APRIL 30 AND FROM AUGUST 15 THRU NOVEMBER 15, SEED WITH 2 1/2 TONS PER ACRE OF ANNUAL RYE (3.2 LBS/1000 SQ. FT.). FOR THE PERIOD MAY 1 THRU AUGUST 14, SEED WITH 1.5 TONS PER ACRE OF KEEPING COVERGRASS (1.9 LBS/1000 SQ. FT.). FOR THE PERIOD NOVEMBER 16 THRU FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELLS ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE UNROTTED MULCH. APPLY 1 1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ. FT.) OF UNROTTED MULCH. STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 210 GALLONS PER ACRE (5 GALL/1000 SQ. FT.) OF UNROTTED MULCH IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 210 GALLONS PER ACRE (5 GALL/1000 SQ. FT.) OF UNROTTED MULCH IMMEDIATELY AFTER SEEDING. USE 348 GAL PER ACRE (8 GALL/1000 SQ. FT.) FOR ANCHORING.

REFER TO THE 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.



- CONSTRUCTION SPECIFICATIONS**
1. Stone Size - One 2" stone, or recycled concrete equivalent.
 2. Length - as specified, but not less than 50 feet (except on a slope resistance lot where a 30 foot minimum length would apply).
 3. Thickness - not less than six (6) inches.
 4. Width - Two (2) foot minimum, but not less than the full width at the bottom where slopes of steep slopes.
 5. Filter Cloth - Will be placed over the entire area prior to placing of stone. Filter will not be required on a single family residence lot.
 6. Surface Water - All surface water flowing or directed toward construction entrances shall be piped across the entrance. If piping is impracticable, a non-siltable berm with six (6) inches will be permitted.
 7. Maintenance - The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto public right-of-way. This may require periodic top dressing with additional stone as conditions demand and sweep and/or cleaning of any measure used to trap sediment. All sediment spilled, dropped, washed or tracked onto public right-of-way must be removed immediately.
 8. Washing - Vehicles shall be cleaned to remove sediment prior to entrance onto public right-of-way. When washing is required, it shall be done on an area stabilized with stone and which drains into an approved sediment trapping device.
 9. Periodic inspection and needed maintenance shall be provided after each rain.

SOIL COVER STABILIZATION

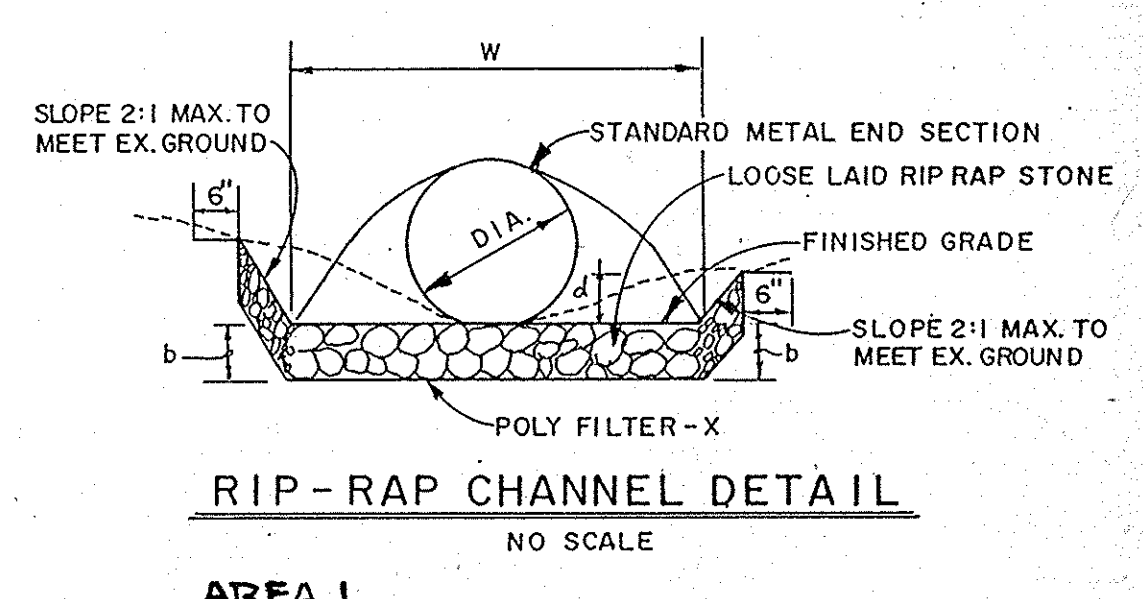
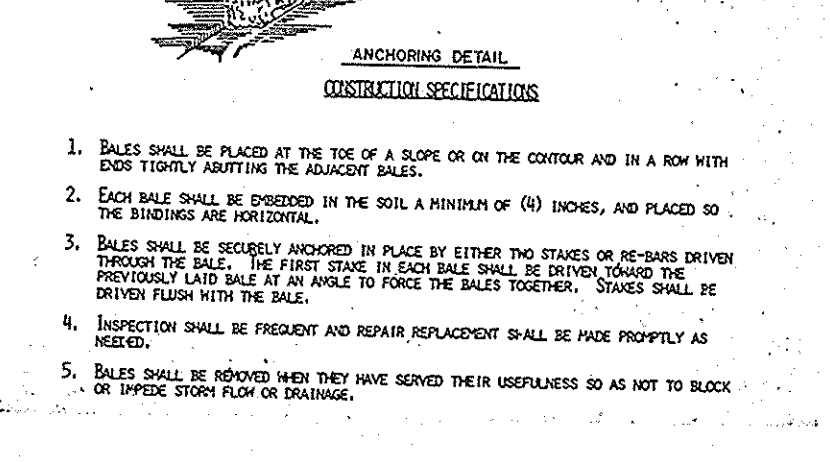
TYPE OF STRUCTURE	COVER	DISE A	DISE B
1	5-3.00	SEED AND STRAW MULCH	SEED AND STRAW MULCH
2	3.1-5.00	SEED WITH JUTE OR EXCELUTION 5002 2" STONE	SEED WITH JUTE OR EXCELUTION 5002 2" STONE
3	5.1-8.00	SEED WITH JUTE, OR 2" STONE	SEED WITH JUTE, OR 2" STONE
4	8.1-00	LINED RIP-RAP 4"-8"	LINED RIP-RAP 4"-8"

ENGINEERING DESIGN

- A. Stone to be 2 inch stone, or recycled concrete equivalent with cover at least 3 inches in thickness and be placed into the soil with construction equipment.
- B. Rip-rap to be 4 inch stone in a layer at least 4 inches thick.
- C. Approved equivalent can be substituted for any of the above materials.
- D. Periodic inspection and required maintenance must be provided after each rain event.

ANCHORING DETAIL
 CONSTRUCTION SPECIFICATIONS

1. Bales shall be placed at the toe of a slope or on the contour and in a row with 200 TONS PER ACRE OF ANNUAL RYE (3.2 LBS/1000 SQ. FT.)
2. Each bale shall be spaced in the soil a minimum of (8) inches, and placed so the bindings are horizontal.
3. Bales shall be securely anchored in place by either two stakes or re-bales driven through the bale. The first stake in each row shall be driven through the previously laid bale at an angle to force the bales together. Stakes shall be driven flush with the bale.
4. Inspection shall be frequent and repair/replacement shall be made promptly as needed.
5. Bales shall be removed when they have served their usefulness so as not to block or impede storm flow or drainage.



AREA 1 RIP-RAP CHANNEL DESIGN DATA

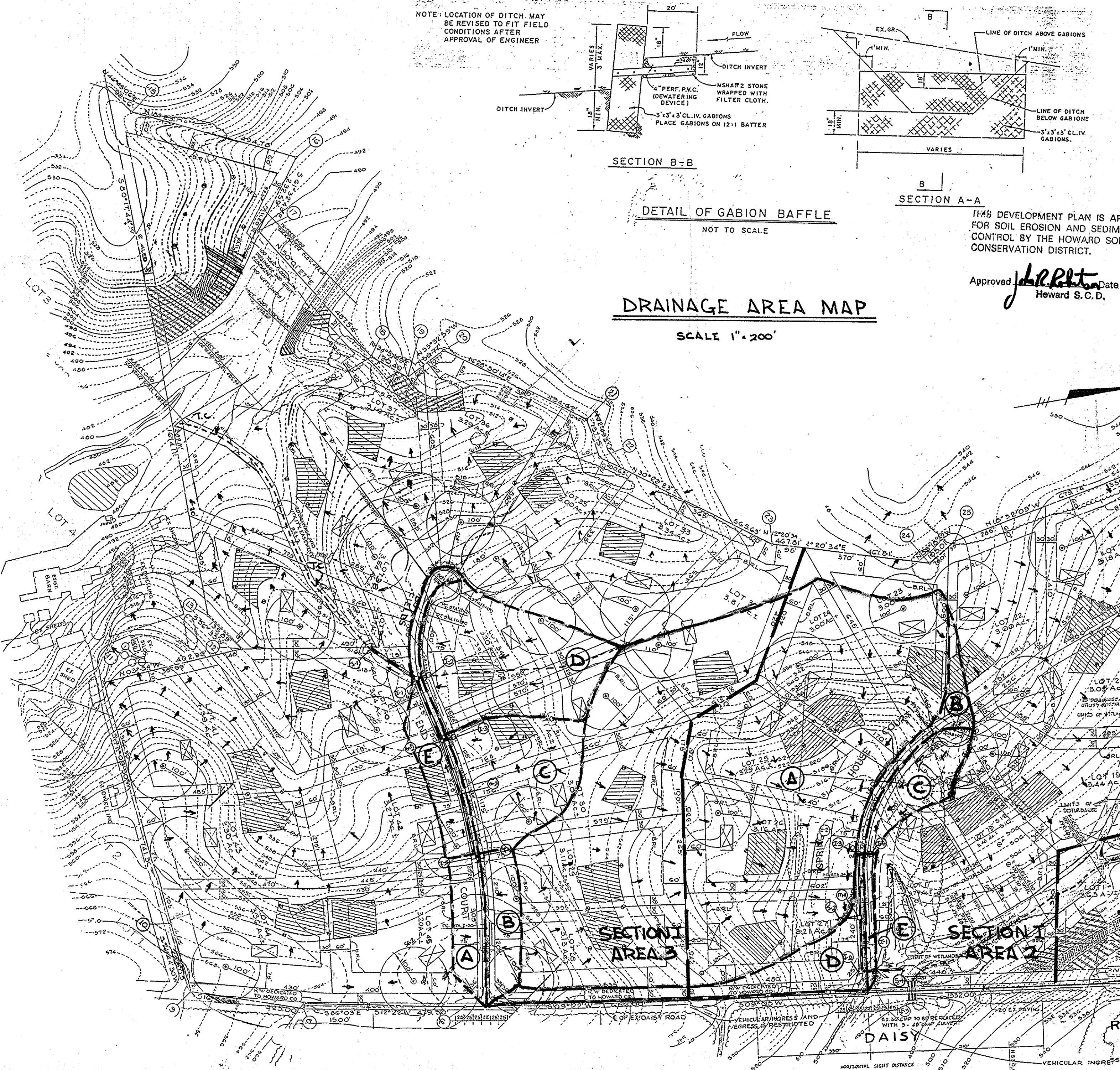
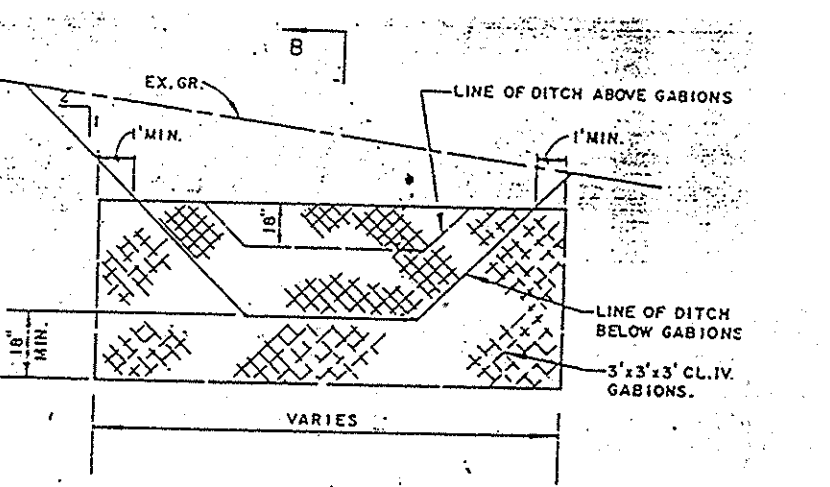
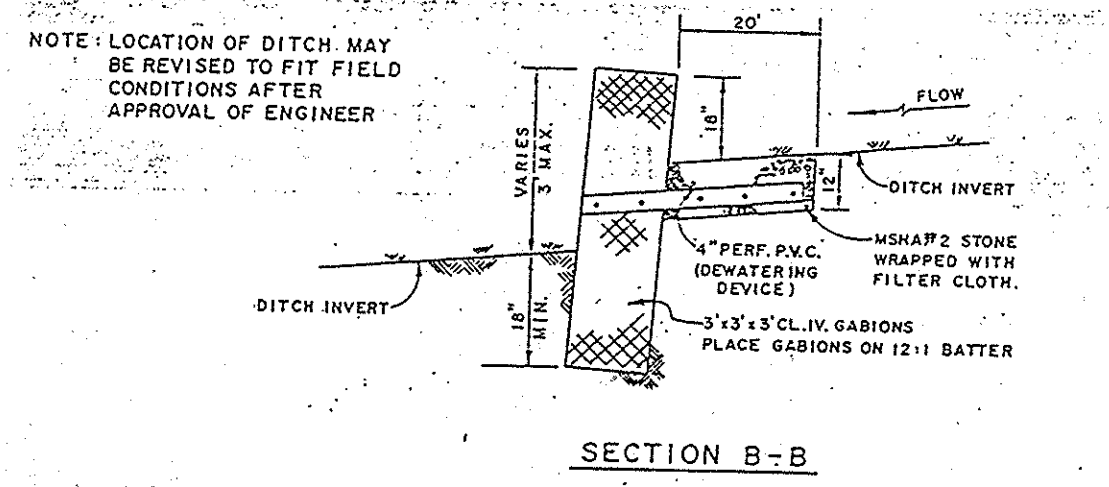
STRUCTURE	A	P.F.	R	R2/3	S%	S 1/2	η	Q c.f.s.	V f.p.s.	d ft.	W ft.	RIP-RAP SIZE	b	
												d 50 d MAX		
S-1	6.87	10.26	0.67	0.76	0.5%	0.0707	0.04	13.82	2.01	0.84	6.5	4"	6"	9"
S-2	6.84	9.77	0.70	0.79	0.5%	0.0707	0.04	14.16	2.07	0.91	5.7	4"	6"	9"

AREA 2 RIP-RAP CHANNEL DESIGN DATA

STRUCTURE	A	P.F.	R	R2/3	S%	S 1/2	η	Q c.f.s.	V f.p.s.	d ft.	W ft.	RIP-RAP SIZE	b	
												d 50 d MAX		
S-1	11.77	13.42	0.877	0.916	0.5%	0.0707	0.04	28.33	2.41	1.10	8.50	6"	9"	14"

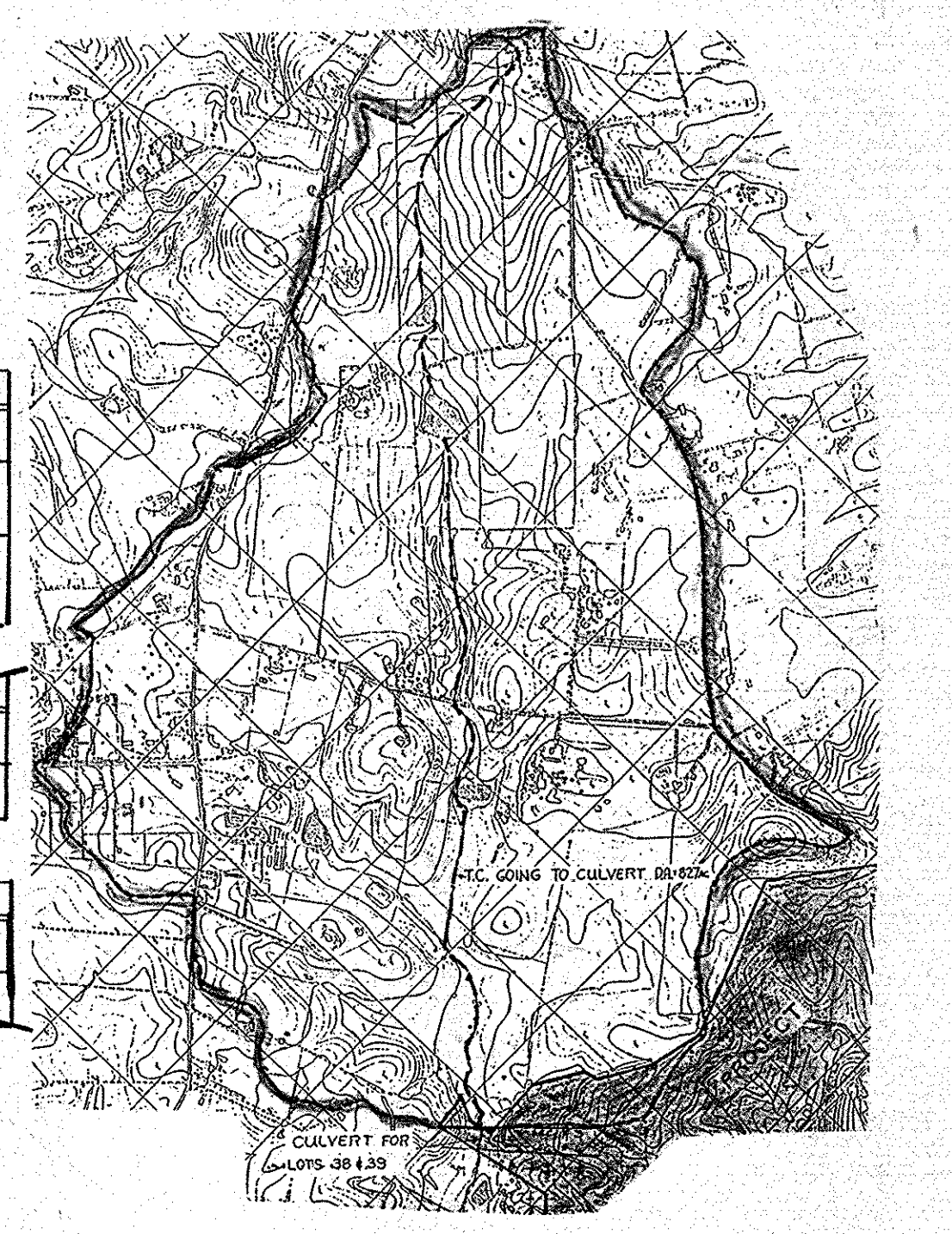
AREA 3 RIP-RAP CHANNEL DESIGN DATA

STRUCTURE	A	P.F.	R	R2/3	S%	S 1/2	η	Q c.f.s.	V f.p.s.	d ft.	W ft.	RIP-RAP SIZE	b	
												d 50 d MAX		
S-1	4.42	7.91	0.588	0.678	0.5%	0.0707	0.04	7.87	1.78	0.74	4.6	4"	6"	9"



Reviewed for **HOWARD** S.C.D.
 Name: *John P. Ritt*
 Date: *7/24/90*
 Signature: *John P. Ritt*
 U.S. Soil Conservation Service

Reviewed for **HOWARD** S.C.D.
 Name: *James W. Wallace*
 Date: *7/24/90*
 Signature: *James W. Wallace*
 U.S. Soil Conservation Service



APPROVED: DEPT. OF PLANNING AND ZONING
 Chief, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT
 Date: *7/24/90*

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 Chief, LAND DEVELOPMENT DIVISION
 Date: *9/1/90*

APPROVED: *James W. Wallace*
 Chief, BUREAU OF HIGHWAYS
 Date: *8/15/90*

APPROVED: *James W. Wallace*
 Chief, BUREAU OF ENGINEERING
 Date: *9-5-90*

DRAINAGE AREA TABULATION SECTION 1/AREA 1

DRAINAGE AREA	GOING TO	AREA AC.±	Cw	ZONED
A	S-3	14.20	0.24	"R"
B	I-3	0.60	0.40	"R"
C	I-1	0.39	0.61	"R"
D	I-2	3.44	0.28	"R"
E	I-4	2.15	0.28	"R"
F	I-5	0.38	0.61	"R"

DRAINAGE AREA TABULATION SECTION 1/AREA 2

DRAINAGE AREA	GOING TO	AREA AC.±	Cw	ZONED
A	S-2	2.85	0.24	"R"
B	I-3	0.38	0.47	"R"
C	I-4	0.91	0.37	"R"
D	I-2	2.93	0.33	"R"
E	I-1	0.26	0.50	"R"

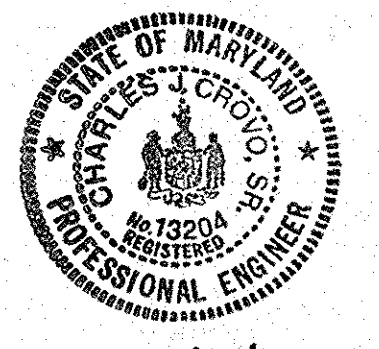
DRAINAGE AREA TABULATION SECTION 1/AREA 3

DRAINAGE AREA	GOING TO	AREA AC.±	Cw	ZONED
A	I-5	1.1	0.32	"R"
B	I-4	1.1	0.32	"R"
C	I-3	2.89	0.26	"R"
D	I-2	3.82	0.27	"R"
E	I-1	1.3	0.32	"R"

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERS & LAND SURVEYORS
 8388 COURT AVE.
 ELLICOTT CITY, MD. 21043

OWNER AND DEVELOPER
 WARFIELD'S GRANT LTD. PARTNERSHIP
 P.O. BOX 122
 ELLICOTT CITY, MARYLAND 21043

Charles J. Crovo
 CHARLES J. CROVO SR.
 DATE: *7/16/90*



DRAINAGE AREA MAPS AND DETAILS
 WARFIELD'S GRANT
 4th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 TAX MAP 13 PARCEL 128
 SCALE: AS SHOWN FEBRUARY 14, 1990
 SHEET 6 OF 6

1574