

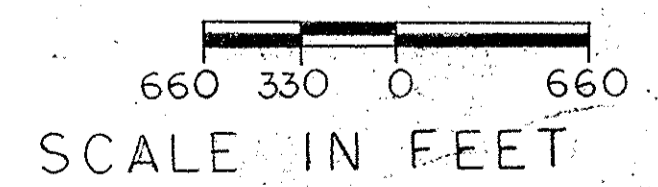
- BM #1 - TOP OF CHISELED X ON S.E. CORNER OF CONCRETE CATCH BASIN WALL 80' N. OF DITCH W. SIDE OF ELLISTON RD. M.S.L. ELEV. 586.45
- BM #2 - X CHISELED IN TOP CENTER OF W. HEADWALL OF FARM CROSSING ON FEPPLING FARM. M.S.L. ELEV. 586.07
- BM #3 - X CHISELED IN CENTER OF W. HEADWALL OF FARM CROSSING ON F. EPPLING FARM. M.S.L. ELEV. 585.05
- BM #4 - TOP OF "R" IN BEYER IN CENTER OF W. HEADWALL OF FARM DRIVE ON F. BEYER FARM. M.S.L. ELEV. 583.57
- BM #5 - TOP OF 10" CONCRETE TILE WHERE DITCH TURNS NORTH ON W. SIDE OF GRAYTOWN RD. M.S.L. ELEV. 580.69
- BM #6 - TOP SPIKE IN W. SIDE OF TELEPHONE POLE 100' N. OF C. BEYER BLDG. AREA. M.S.L. ELEV. 583.45
- BM #7 - TOP OF SPIKE IN N. SIDE OF POLE E. SIDE GRAYTOWN RD. W. PFEIFFER FARM. M.S.L. ELEV. 583.85
- BM #8 - TOP OF S. END OF 5'X7' ELLIPTICAL SEWER S.W. CORNER OF INTERSECTION GRAYTOWN RD. ST. RT. 579. M.S.L. ELEV. 580.98
- BM #9 - TOP OF N. END OF 5'X7' ELLIPTICAL SEWER N.W. CORNER OF INTERSECTION. M.S.L. ELEV. 580.74
- BM #10 - TOP OF CONCRETE MARKER POST E. SIDE ST. RT. 2 IN W. PFEIFFER BLDG. AREA. M.S.L. ELEV. 581.83
- BM #11 - ON CENTER OF S. SIDE OF CATCH BASIN IN L. WAGNER BLDG. AREA. M.S.L. ELEV. 579.98
- BM #12 - TOP OF N. END OF 48" R/C SEWER N. END OF L. BLAUSEY BLDG. AREA. M.S.L. ELEV. 580.16
- BM #13 - X ON N. END OF 48" R/C SEWER S. SIDE R. CHIO BLDG. AREA. M.S.L. ELEV. 578.82
- BM #14 - TOP OF W. END OF 7' C.M.P. UNDER ST. RT. 2 M.S.L. ELEV. 578.45

**NOTICE TO LANDOWNERS OR CONTRACTORS**  
 PRIOR TO START OF CONSTRUCTION THE OWNER OF THE PIPELINE OR OTHER TRANSMISSION LINE MUST BE NOTIFIED OF THE PENDING CONSTRUCTION, GIVING THE DATE AND TIME SUCH CONSTRUCTION IS SCHEDULED TO BEGIN. THE PROPERTY OWNER OR THE CONTRACTOR IS RESPONSIBLE FOR GIVING THIS NOTICE.

**INDEX TO SMALL PARCELS**

SECTION	PARCEL	PROPERTY OWNER	ACRES
34	A	FRANKLIN MOOMEY	.5
33	B	HAROLD OPFER	2.0
32	C	JOHN LINK	.3
35	D	FREDERICK HELLE	.3

LOCATION & OWNERSHIP MAP  
 BENTON TOWNSHIP



**LEGEND**

- PROPOSED IMPROVEMENT
- HIGHWAYS
- PROPERTY LINE
- SECTION CENTER
- SECTION CORNER
- WATERSHED
- ACRES OWNED
- ACRES BENEFITED
- TRANSMISSION LINE

**SUPPORTING DATA**

- DRAINAGE AREA 663 ACRES
- LAND USE GENERAL FARMING
- SOIL TYPE FULTON TOLEDO
- LAND SLOPE 0-2%
- DESIGN COEFFICIENT  $Q_6$
- TYPE DRAINAGE SURFACE TILE

**CONSTRUCTION DATA**

STATION	GRADE	BOTTOM WIDTH	SIDE SLOPES	CUBIC YARDS	AVERAGE DEPTH
93+00	.07	3'	1 1/2:1	9525	5.5
136+22	.05	4'	1 1/2:1-3:1	5,382	5.6
142+67	.05	12'	1 1/2:1-3:1	83	3.0
				14,990	

THIS DITCH PLAN HAS BEEN APPROVED BY  
*John L. Papcun*  
 OTTAWA COUNTY ENGINEER DATE 10/20/67

GROUP CO-CHAIRMAN  
*Clarence A. Beyer*  
*William H. Pfeiffer*

LOCATION - E. 1/2 SEC. 32 OF AND W. 1/2 SEC. 33, BENTON TWP. (T. 8 N. R. 14 E.) AND W. 1/2 SEC. 4, E. 1/2 AND S. W. 1/4 SEC. 5 AND 3, T. 8 N. R. 14 E., SEC. 6, BENTON TWP. (T. 8 N. R. 14 E.) OTTAWA CO., OHIO

SURVEYED - DOYLE SOMMER EDWARD CAMPBELL DONALD OPFER 4-586-67

REFERENCE - FIELD NOTES ON FILE IN OTTAWA SOIL & WATER CONSERVATION OFFICE.

JOB CLASS VI GROUP #23  
 DITCH IMPROVEMENT  
 EPPLING DRAINAGE DITCH  
 OTTAWA COUNTY, OHIO.

U.S. DEPARTMENT OF AGRICULTURE  
 SOIL CONSERVATION SERVICE

Designed by DONALD OPFER 7/67	Date 7/67	Approved by <i>Richard J. Craft</i>
Drawn by DONALD OPFER 7/3/67	for <i>Richard J. Craft</i>	
Traced by <i>R. L. Moran</i>	Title <i>Memodated 10/10/67</i>	
Checked by <i>R. Craft</i>	Sheet No. 167	Drawing No. OH-1-83-67-16

SPECIFICATION

- I. EXCAVATION
- A. BOTTOM WIDTH: The bottom width shall be three (3) feet between sta. 0+00 and sta. 93+00 and four (4) feet to sta. 136+52 twelve (12) feet to sta. 142+67.
- B. BANK SLOPES: The ditch banks are to be constructed to at least 1 1/2 foot horizontal to 1 foot vertical on farm side and extend existing slopes on road side.
- C. ALIGNMENT: The centerline of the proposed improvement shall be approximately the centerline of the existing ditch unless otherwise indicated on the plan.
- D. TOTAL EXCAVATION: The total excavation consists of 14,990 cubic yards of earth over 14,267 lineal feet of ditch.
- E. EXCESS YARDAGE: No extra compensation will be paid for such excavation in excess of yardage herein estimated from cross section. The contractor should view the proposed work to his own satisfaction.
- II. CLEARING: All trees or brush which would interfere with the excavation operation must be cleared from the ditch right-of-way ahead of the construction operations. Stumps on the berm should be removed or cut as low as cutting tools permit. Cleared debris should be disposed of by burning or removed from right-of-way.
- III. BERM WIDTH: Unless otherwise noted the berms will have the following minimum widths: four (4) feet wide for ditches up to four (4) feet depth; six (6) feet wide for four to six feet depth; and ten (10) feet wide for ditches over six feet in depth.
- IV. SPOIL BANKS: Excavated material should be deposited and spread along one or both sides of the ditch, as determined, except where used for levees. Slope of the spoil after spreading should be at least 3:1 on channel side and at least 4:1 on the field side. The height of the spoil should not exceed one foot above average ground level. Openings shall be provided for surface water to enter the ditch.
- V. TILE OUTLETS: Landowners protect their tile outlets with a section of continuous rigid pipe and flap-gates or grid to exclude rodents. For details of construction see your local Soil Conservation Technician.
- VI. SURFACE WATER OUTLETS: Whenever a lateral of a surface ditch enters the main ditch at a higher elevation protection from erosion should be provided by: Drop structures, pipe drops, other suitable structures or grassed waterway. For assistance on outlets see your Soil Conservation Technician.
- VII. DITCH BANK SEEDINGS: The ditch banks will be seeded, immediately after each day's work, to tall fescue (Kentucky 31 or Alta) at the rate of 25 lbs. per acre. A minimum of 500 lbs. of 10-10-10 fertilizer or equivalent will be applied. 5 acres of ditch bank seeding will be required.
- VIII. CULVERTS: Existing culverts and bridges will be cleaned and the inverts (flow line) lowered to correspond to the proposed grade of ditch as indicated on the plan.
- |         |        |
|---------|--------|
| Station | 9+15   |
| Station | 17+73  |
| Station | 46+77  |
| Station | 71+98  |
| Station | 80+13  |
| Station | 109+67 |
| Station | 115+19 |
| Station | 126+14 |
| Station | 126+55 |
| Station | 130+75 |
- IX. DRIVE SEWERS: BETWEEN STATIONS 93+00 and 133+26:  
These drive sewers will be installed according to State of Ohio, Department of Highways, Construction and Material Specifications, Columbus, Ohio, January 1, 1967, Item 603.  
603.02 Materials - Type D Conduits  
603.04 Bedding - Class B

HYDRAULIC CALCULATIONS

Channel Flow:  $v = \frac{1.486}{n} R^{2/3} S^{1/2}$

Soil Type: Fulton, Toledo Sici Minimum allowable side slope: 1 1/2:1

Maximum allowable velocity: 4.0 fps (bankfull stage or 10 Yr. freq. if less than bankfull)

Reach	Sta.	0+31	9+35	46+93	72+15	93+00	102+00	136+52
	to Sta.	9+15	46+77	71+98	98+00	102+00	136+32	142+67
Drainage Area	(Ac.)	100	253	371	550	602	659	663
Q <sub>0</sub> flow	(cfs)	11.5	25	32.5	40	41.5	43.6	43.9
"n"		0.040	0.040	0.040	0.040	0.040	0.040	0.040
Slope - s	(ft./ft.)	0.0007	0.0007	0.0007	0.0007	0.0005	0.0005	0.0005
s <sub>0</sub>		0.0266	0.0266	0.0266	0.0266	0.0224	0.0224	0.0224
Q/S <sub>0</sub> = Kd		432	939	1222	1503	1853	1944	1963
Kd Value Used		448	923	1241	1514	1878	1989	2028
Side Slope		1 1/2:1	1 1/2:1	1 1/2:1	1 1/2:1	1 1/2:1	2:1	2:1
Bottom Width	(ft.)	3	3	3	3	4	4	12
Depth	(ft.)	1.9	2.7	3.1	3.4	3.5	3.6	2.3
Area	(sq. ft.)	11.13	19.05	23.73	27.54	32.39	33.84	38.22
Velocity = Q/A	(fps)	1.03	1.31	1.37	1.45	1.28	1.29	1.15

HEAD LOSS IN CULVERTS  $H = \frac{V^2}{2g} (1 + K_e K_{FL})$  Q<sub>0</sub> FLOW

Station	0+00	9+15	17+73	46+77	71+98	80+13	93+00	109+67	115+19	123+14	126+55	130+75	136+52
Drainage Area	Ac.	80	100	150	253	371	430	550	616	631	643	652	659
Q <sub>0</sub> Flow	C.F.S.	9.5	11.5	16.5	25	32.5	35	40	42	43	43	43.5	43.5
Diameter	In.	24"	24"	24"	36"	3'x4'sq	48"	5'x7'	2 - 36"	48"	48"	48"	2 - 36"
Type		C.M.P.	V.S.P.	V.S.P.	C.M.P.	CON.	C.M.P.	R/C/ELI.	R/C	R/C	C.M.P.	C.M.P.	R/C
Length	ft.	.025	.014	.014	.025	.013	.025	.015	.015	.015	.025	.013	.013
X-Sectional Area	(sq.ft.)	3.14	3.14	3.14	7.07	12'	12.57	28.27	14.14	12.57	12.57	12.57	14.14
Kp		.046	.014	.014	.027	.0055	.018	.0029	.0072	.0049	.018	.018	.0049
KpL		1.43	.28	.28	.43	.094	.396	0.30	1.45	.99	.43	.43	1.42
Ke		.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5
Velocity	(fps)	3.	3.87	5.3	3.5	2.7	2.7	1.4	2.96	3.4	3.4	3.4	3.1
Head Loss	(ft.)	.41	.36	.77	.37	.01	.23	.06	.42	.45	.35	.35	.44

THESE SEWER SIZES RECOMMENDED BY OTTAWA COUNTY ENGINEER AS LISTED BELOW

R/C 27"	30"	36"	42"	okey	54"	okey	60"	60"	60"	60"	60"	60"	60"
CMP 36"	36"	42"	54"	okey	66"	okey	72"	72"	72"	72"	72"	72"	72"
If replaced													
48" R/C													
60" CMP													
OR													
2 - 42" or 1 - 36" with 1 - 48" R/C													

EPPLING GROUP DITCH  
PROPOSED IMPROVEMENT  
OTTAWA COUNTY, OHIO

**U. S. DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE**

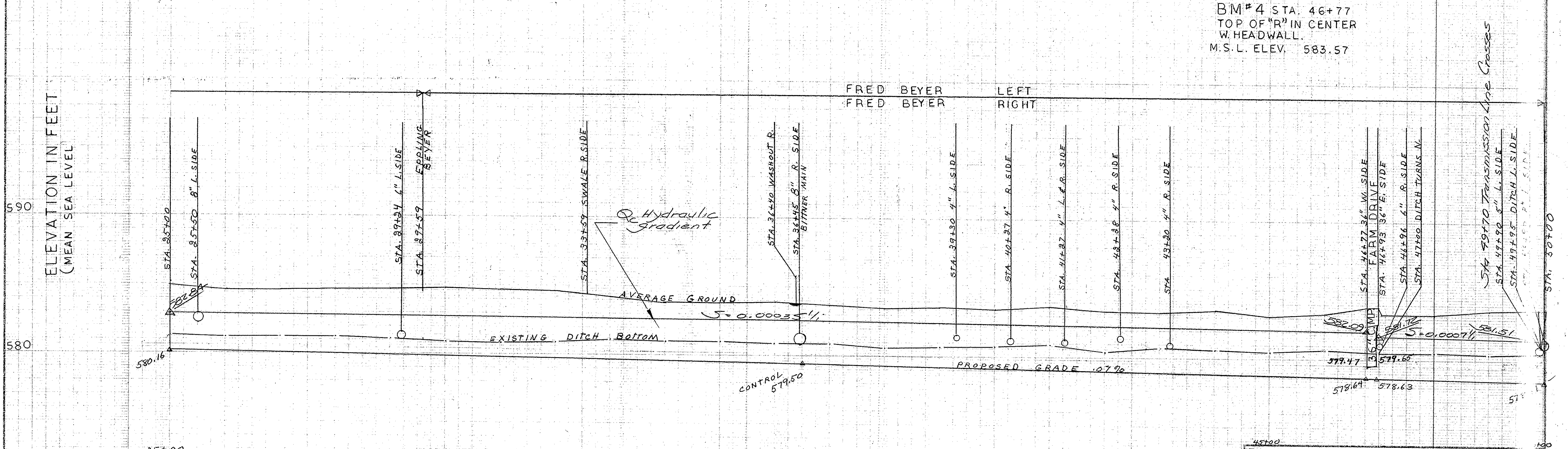
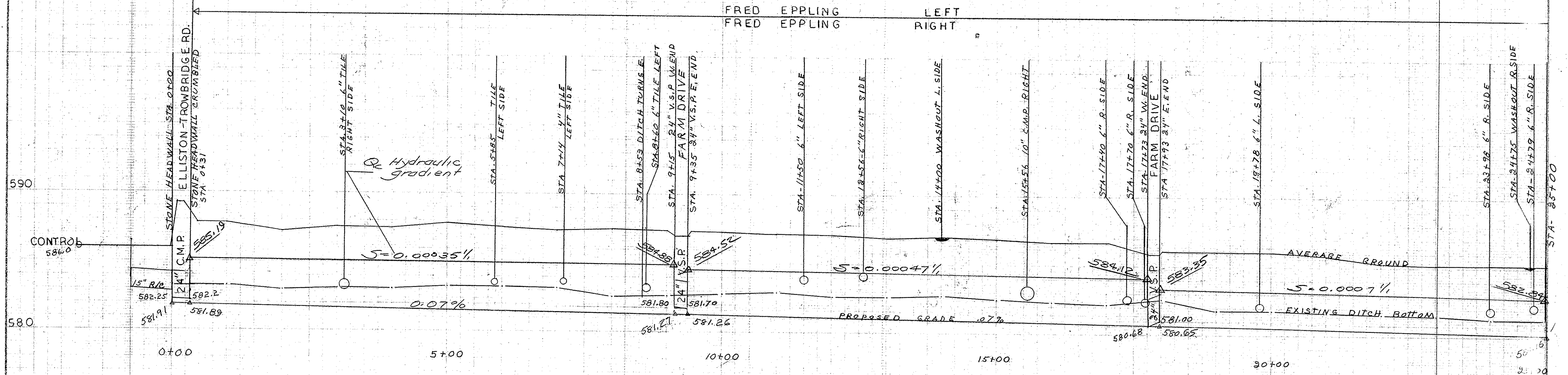
Date: 9/67  
Designed by: DONALD OPPER  
Drawn by: DONALD OPPER  
Traced by: R. GROET  
Checked by: R. GROET

Approved by: [Signature]  
Title: [Blank]  
Sheet: [Blank] Drawing No. [Blank]  
No. 04-1-83-67-10  
of 8

BM #1 STA. 0+80  
 X S. E. CORNER OF  
 CATCH BASIN.  
 ELEV. M.S.L. 586.45

BM #2 STA. 9+15  
 X CENTER W. HEADWALL  
 ELEV. M.S.L. 586.07

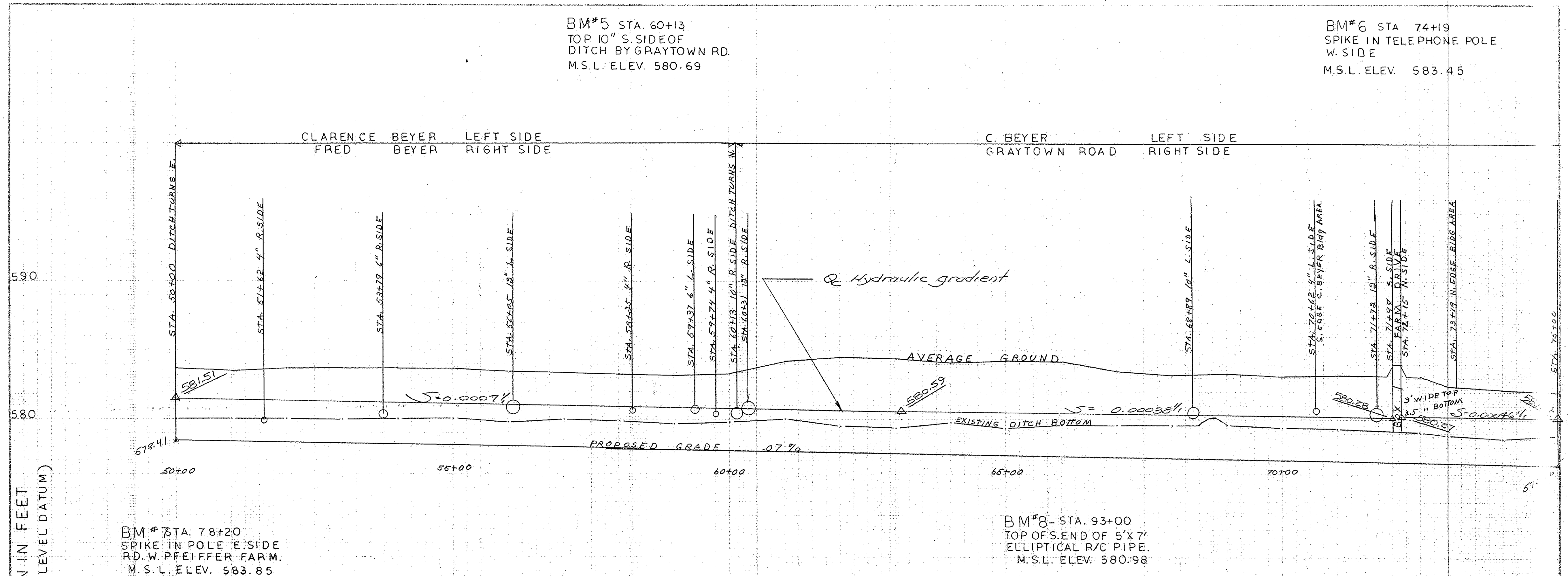
BM #3 STA. 17+73  
 X CENTER OF W. HEADWALL  
 M.S.L. ELEV. 585.05



45+00	
DITCH IMPROVEMENT #2	
EPPLING DITCH	
OTTAWA COUNTY, OHIO.	
U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	
Designed by DONALD ORFF	Date 9/67
Drawn by Donald Orff	Title 1/18/67
Traced by	Sheet No. 3 of 8
Checked by R. COET	Drawing No. OH-183-67

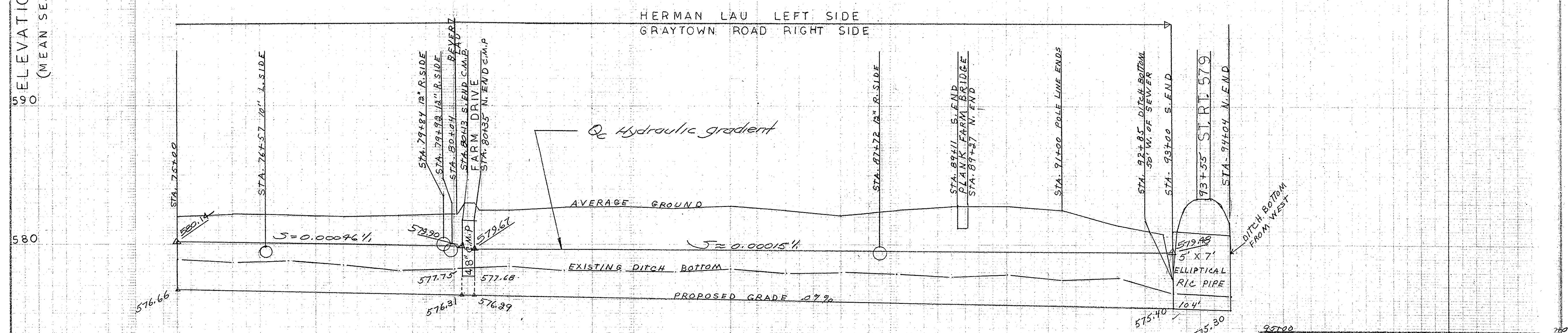
BM#5 STA. 60+13  
TOP 10" S. SIDE OF  
DITCH BY GRAYTOWN RD.  
M.S.L. ELEV. 580.69

BM#6 STA 74+19  
SPIKE IN TELEPHONE POLE  
W. SIDE  
M.S.L. ELEV. 583.45



BM #7 STA. 78+20  
SPIKE IN POLE E. SIDE  
RD. W. PFEIFFER FARM.  
M.S.L. ELEV. 583.85

BM#8- STA. 93+00  
TOP OF S. END OF 5' X 7'  
ELLIPTICAL R/C PIPE.  
M.S.L. ELEV. 580.98



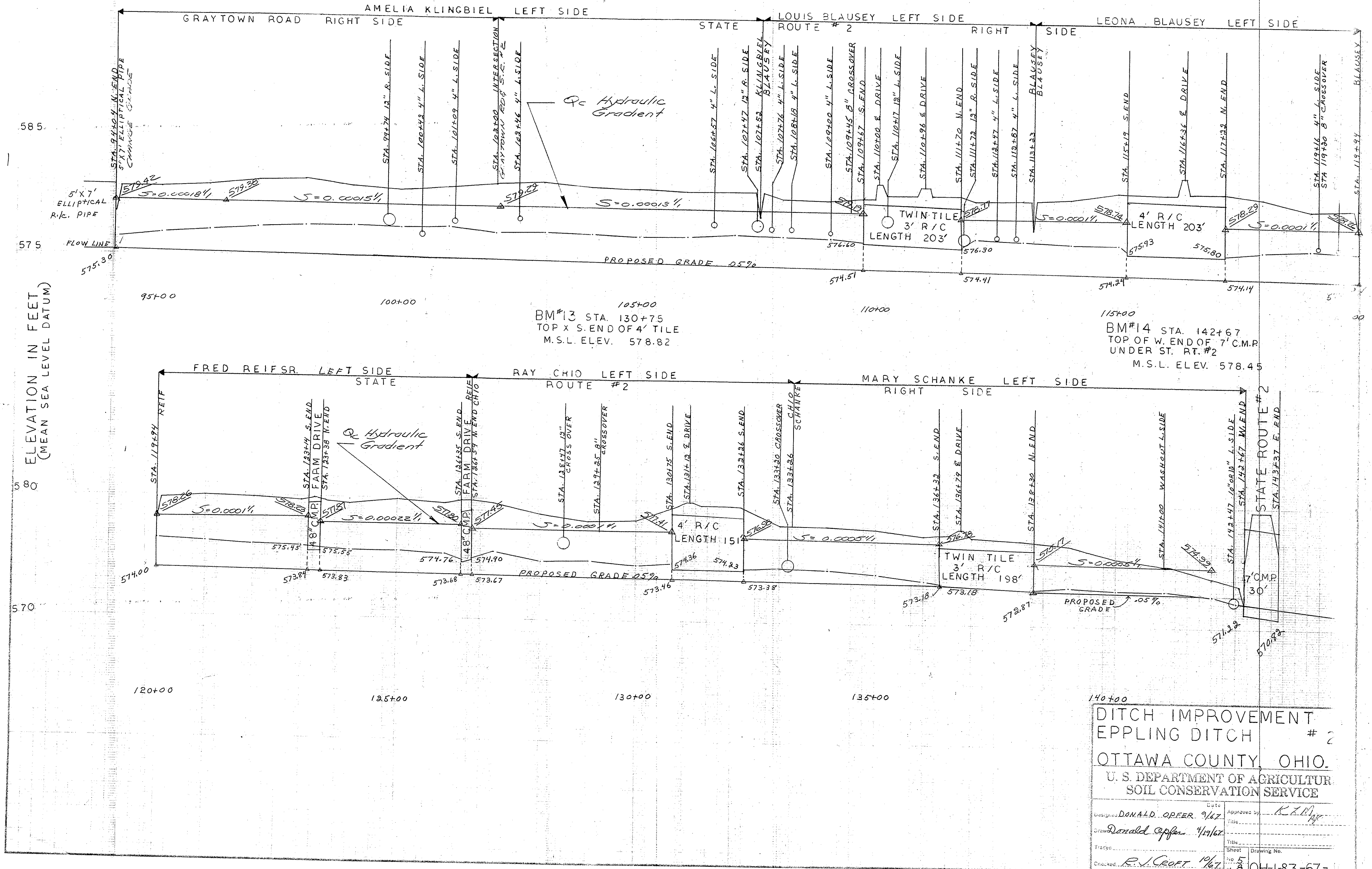
DITCH IMPROVEMENT	
EPPLING DITCH # 2	
OTTAWA COUNTY, OHIO.	
U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	
Designed DONALD OPPER 7/67	Date 7/67
Drawn Donald Opper 7/18/67	Approved by R. L. Coert
Traced	Title
Checked R. L. Coert 7/67	Sheet No. 4 of 8
Drawing No. OH-183-67-1	

BM#9 STA. 94+04  
TOP OF N. END OF 5'X 7'  
ELLIPTICAL R/C PIPE  
M.S.L. ELEV. 580.74

BM#10 STA. 105+00  
TOP OF MARKER POST  
WILBUR PFEIFFER BLDG.  
AREA  
M.S.L. ELEV. 581.83

BM#11 STA. 110+17  
CENTER S. SIDE OF  
CATCH BASIN BLDG AREA  
M.S.L. ELEV. 579.98

BM#12 STA. 117+22  
TOP OF N. END OF 4' R/C PIPE  
LOUIS BLAUSEY BLDG AREA.  
M.S.L. ELEV. 580.16



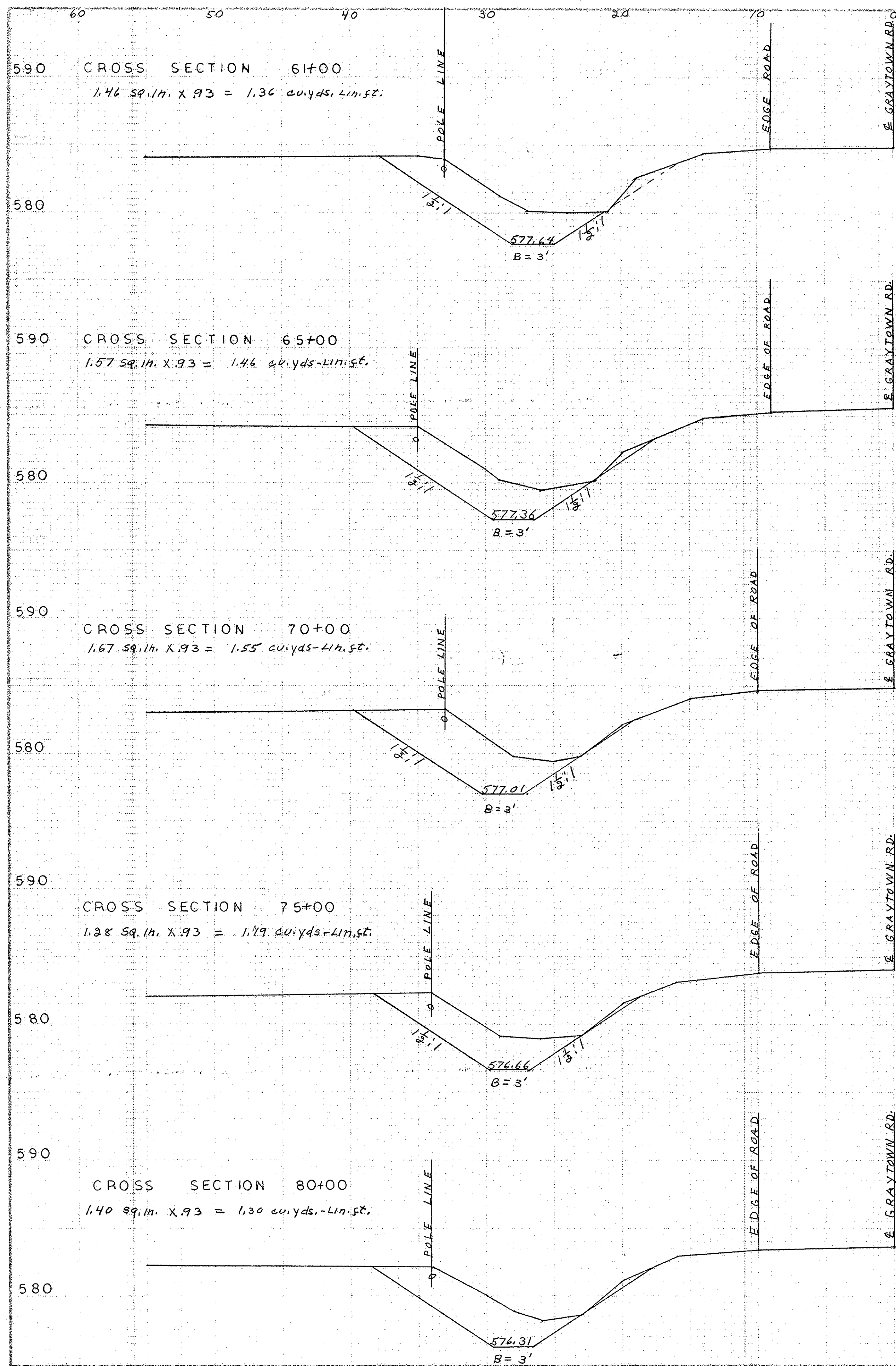
DITCH IMPROVEMENT  
EPPLING DITCH # 2  
OTTAWA COUNTY, OHIO.  
U. S. DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE

Designed by DONALD OFFER 9/67	Approved by K. J. Meyer
Drawn by Donald Offer 4/19/67	
Checked by R. J. Croft 10/67	
Sheet No. 5	Drawing No. 10H-183-67-



DITCH IMPROVEMENT  
 EPLING DITCH #  
 OTTAWA COUNTY, OHIO.  
 U. S. DEPARTMENT OF AGRICULTURE  
 SOIL CONSERVATION SERVICE

Designed <u>Donald D. Speer</u> 7/67	Date	Approved by <u>K. M. [Signature]</u>
Drawn <u>Ronald G. [Signature]</u> 1/20/67	Title	
Traced	Sheet	Drawing No.
Checked <u>R. Coft</u> 1/67	No. 6 of 8	OH-1-83-67

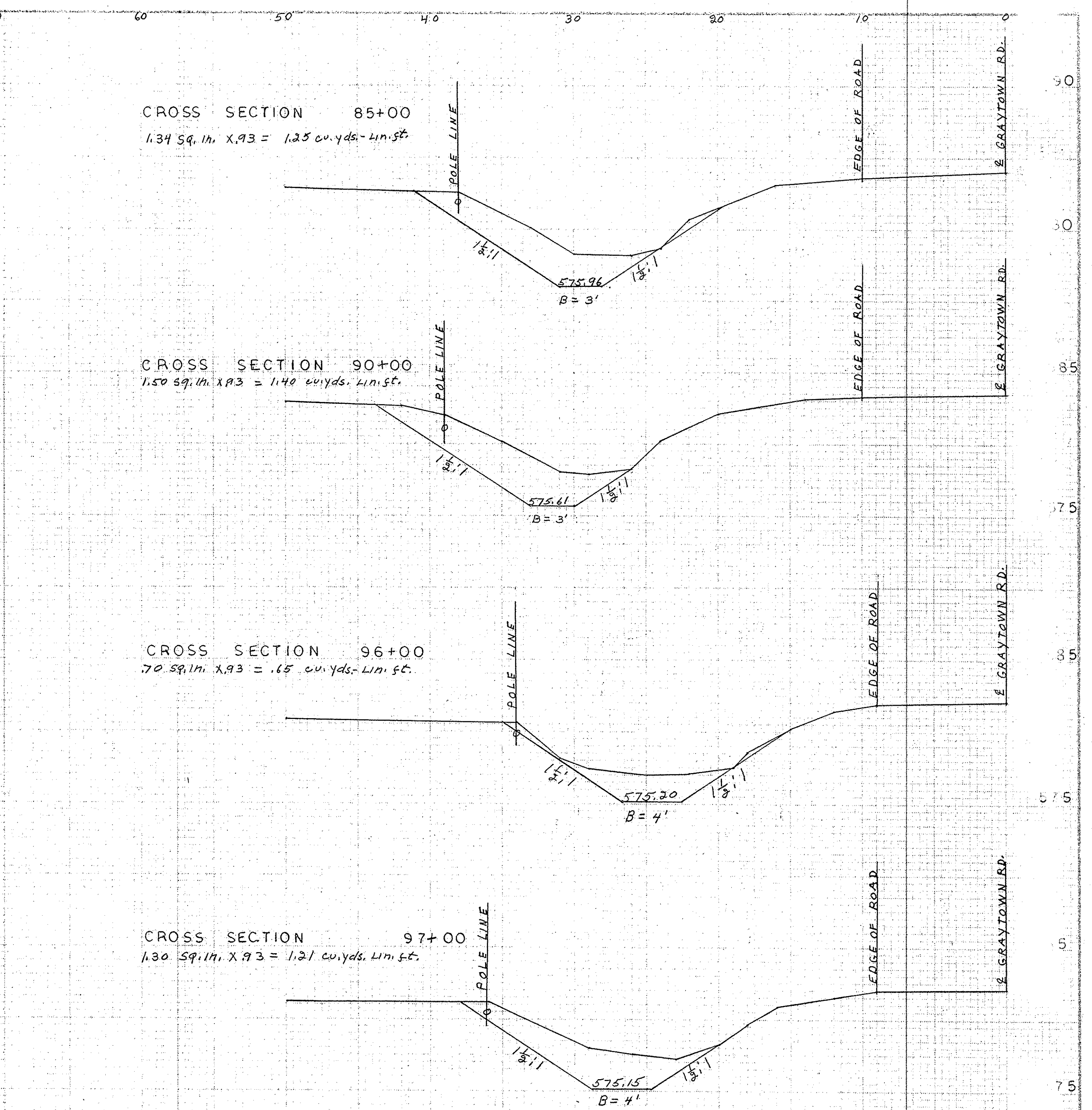


CROSS SECTION 85+00  
 $1.34 \text{ sq. ft.} \times .93 = 1.25 \text{ cu. yds. - lin. ft.}$

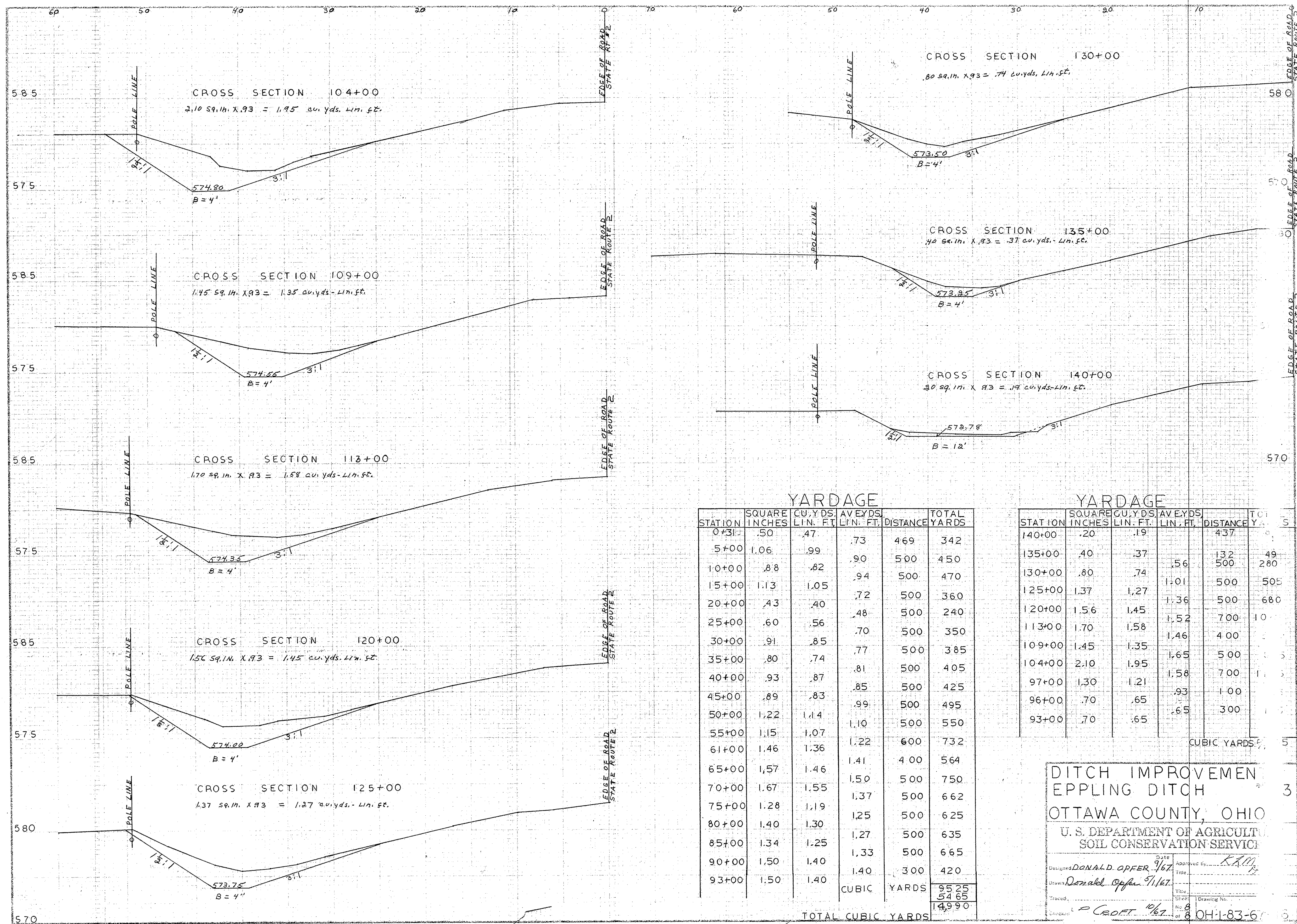
CROSS SECTION 90+00  
 $1.50 \text{ sq. ft.} \times .93 = 1.40 \text{ cu. yds. - lin. ft.}$

CROSS SECTION 96+00  
 $.70 \text{ sq. ft.} \times .93 = .65 \text{ cu. yds. - lin. ft.}$

CROSS SECTION 97+00  
 $1.30 \text{ sq. ft.} \times .93 = 1.21 \text{ cu. yds. - lin. ft.}$



DITCH IMPROVEMENT		3
EPPLING DITCH		
OTTAWA COUNTY, OHIO		
U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE		
By DONALD OFFER	Date 7/67	Approved by R.H.
Drawn by Donald Offer	5/1/67	
Checked R. COET	7/67	
Sheet 7 of 8		Drawing No. OH-183-67 6



**YARDAGE**

STATION	SQUARE INCHES	CU. YDS. LIN. FT.	AVE YDS. LIN. FT.	DISTANCE	TOTAL YARDS
0+31	.50	.47	.73	469	342
5+00	1.06	.99	.90	500	450
10+00	.88	.82	.94	500	470
15+00	1.13	1.05	.72	500	360
20+00	.43	.40	.48	500	240
25+00	.60	.56	.70	500	350
30+00	.91	.85	.77	500	385
35+00	.80	.74	.81	500	405
40+00	.93	.87	.85	500	425
45+00	.89	.83	.99	500	495
50+00	1.22	1.14	1.10	500	550
55+00	1.15	1.07	1.22	600	732
61+00	1.46	1.36	1.41	400	564
65+00	1.57	1.46	1.50	500	750
70+00	1.67	1.55	1.37	500	662
75+00	1.28	1.19	1.25	500	625
80+00	1.40	1.30	1.27	500	635
85+00	1.34	1.25	1.33	500	665
90+00	1.50	1.40	1.40	300	420
93+00	1.50	1.40			
				CUBIC YARDS	9525
					5465
					14990
				TOTAL CUBIC YARDS	

**YARDAGE**

STATION	SQUARE INCHES	CU. YDS. LIN. FT.	AVE YDS. LIN. FT.	DISTANCE	TOTAL YARDS
140+00	.20	.19		437	
135+00	.40	.37	.56	132	49
130+00	.80	.74	1.01	500	280
125+00	1.37	1.27	1.36	500	505
120+00	1.56	1.45	1.52	500	680
113+00	1.70	1.58	1.46	700	1000
109+00	1.45	1.35	1.46	400	
104+00	2.10	1.95	1.65	500	300
97+00	1.30	1.21	1.58	700	1100
96+00	.70	.65	.93	100	
93+00	.70	.65	.65	300	
				CUBIC YARDS	5000

**DITCH IMPROVEMENT  
EPLING DITCH  
OTTAWA COUNTY, OHIO**

U. S. DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE

Designed <b>DONALD D. OFFER</b> 9/67	Approved by <b>K.A.M.</b>
Drawn <b>Donald Offer</b> 9/1/67	Title
Traced	Sheet
Checked <b>C. COFF</b> 10/67	Drawing No.
	No. <b>8</b>
	of <b>8</b>

OH-1-83-67  
FORM SCS-315