

LOCATION & OWNERSHIP MAP  
SPECIFICATIONS

- I. EXCAVATION:
  - A. Bottom Width: The bottom width shall be THREE (3) feet between sta. 20+60 and sta. 49+00. FOUR (4) feet between sta. 49+00 and sta. 71+00.
  - B. Bank Slopes: The ditch bank slopes are to be constructed to at least 2 foot horizontal to 1 foot vertical.
  - C. Alignment: The centerline of the improvement shall be approximately the centerline of the existing ditch unless otherwise indicated on the plan.
  - D. Total Excavation: The total excavation consists of 4,866 cubic yards of earth over 5,034 lineal feet of ditch from sta. 20+60 to sta. 71+00; 1,797 cubic yards from sta. 0+50 to sta. 25+00.
  - E. Excess Yardage: No extra compensation will be paid for such excavation in excess of yardage herein estimated. This estimate was made from cross-sections of the proposed ditch. The contractor should view the proposed work to his own satisfaction.
  - F. The contractor shall be given a right-of-way on each side of the ditch 50 feet from the bank of the ditch at all points.
- II. CLEARING: All trees and/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 shall be removed or cut as low as cutting tools permit. All stumps on the slopes shall be removed. Cleared debris should be disposed of by burning or removed from the right-of-way.
- III. BERM WIDTHS: Unless otherwise noted the berms will have the following minimum widths: four (4) feet wide for ditches up to four (4) foot depth; six (6) feet wide for four to six foot depth; and ten (10) foot depth for ditches over six feet in depth.
- IV. SPOIL BANKS: Excavated material should be deposited and spread along one and/or both sides of the ditch, as determined, except where used for levees, and in overflow areas with timber or brush cover. Slope of the spoil after spreading should be at least 3:1 on the 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 shall 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 Soil Conservation Service Technician.
- VI. SURFACE WATER OUTLETS: Whenever a lateral or a surface ditch enters the main ditch at a higher elevation, protection from erosion should be provided by: drop structures, pipe drops, other suitable structure or grassed waterway. For assistance on outlets see your Soil Conservation Service Techn.
- VII. DITCH BANK SEEDING: The ditch banks will be seeded each day within 4 hours after the clearing and shaping is completed. The berms will be seeded after spoil is spread. Seeding rates per acre:
 

Station <u>20+60</u> to <u>71+00</u> : 2.7 acres	Station <u>0+50</u> to <u>25+00</u> : 1.0 acres
April 1 to September 15 - permanent seeding.	108 lbs + 40 = 148 lbs total
40 pound tall fescue - (Kentucky 30 or Alta)	11 bu. + 4 = 15 bu. total
4 bushel oats	
500 pound 12-12-12 fertilizer or equivalent.	1350 lbs + 500 = 1850 lbs total

Fertilizer will be applied within 24 hours after seeding.  
Seed will be covered by use of adjustable spike tooth harrow.

September 1 to December 14 - temporary seeding.  
3 bushel of rye per acre.

When a temporary seeding is made the above permanent seeding will be made as specified above, in April of the following year.

The establishment of the seeding on the ditch bank and berm shall be the responsibility of the contractor. A minimum of 20 fescue plants per square foot will be considered adequate establishment.
- VIII. Existing culverts will be cleaned and the invert (flow line) lowered to correspond to the proposed ditch grade as indicated on the plan. If necessary, culverts will be enlarged to meet drainage design.
 

Station <u>36+25</u> REPLACE WITH 24" OF 30" R/C	Station <u>56+17</u> REPLACE WITH 36" OF 43 X 68 R/C ELLIPTICAL PIPE
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- IX. ALL OF THE ABOVE SPECIFICATIONS ARE TO BE COMPLETED BEFORE PERFORMANCE IS CERTIFIED.

INDEX TO SMALL PARCELS

SECTION	PARCEL	PROPERTY OWNER	ACRES
21	A	RALPH BLOOMER	2
21-22		SALEM TWP. TRUSTEE	2.4

SUPPORTING DATA

DRAINAGE AREA	400 ACRES
DESIGN COEFFICIENT	$Q_b$ CURVE
LAND USE	GENERAL CROPS
SOIL TYPES	TOLEDO-FULTON
LAND SLOPE	0 - 2%
TYPE DRAINAGE	SURFACE & TILE

HYDRAULIC CALCULATIONS

HEADLOSS IN CULVERTS  $H = \frac{V^2}{2g} (1 + K_e + K_d)$

STATION	36+86	56+17
DRAINAGE AREA ac.	120	350
$Q_b$ FLOW c.f.s.	20	56
DIAMETER in.	30"	43 X 68
TYPE	R/C	R/C
"N"	.013	.013
LENGTH ft.	24	36
X SECTION AREA sq.ft.	4.91	16.50
KP	.0092	.0042
KPL	.22	.151
KE	.50	.50
VELOCITY f.p.s.	4.0	3.4
HEADLOSS ft.	.43	.30

CHANNEL FLOW

$V = 1.486 r^{2/3} s^{1/2}$

REACH	sta.	0+50	36+86	49+00	56+17	71+00
DRAINAGE AREA ac.	to sta.	25+00	20+60	37+04	49+00	56+57
$Q_b$ FLOW c.f.s.		17	20	27	56	61
"N"		0.04	0.04	0.04	0.04	0.04
SLOPE - s (ft/ft)		.0006	.0010	.0010	.0018	.0018
S 1/2		.0245	.0316	.0316	.0424	.0424
Q/S 1/2 = KD		694	633	854	1321	1439
KD VALUE USED		760	641	853	1381	1489
SIDE SLOPE		3:1	2:1	2:1	2:1	2:1
BOTTOM WIDTH ft.		5	3'	3'	4'	4'
DEPTH ft.		1.8	2.1	2.4	2.8	2.9
AREA sq.ft.		18.72	15.14	18.72	26.88	28.44
VELOCITY f.p.s.		0.98	1.32	1.44	2.1	2.14

- BENCH MARK DESCRIPTIONS
- BM-1 TOP OF CHISEL X ON SOUTH END OF WEST HEAD WALL OF 24" CULVERT UNDER STATE ROUTE #19 STA. 0+10 M.S.L. ELEV. 587.57
  - BM-2 TOP OF SPIKE IN SOUTH TAP ROOT OF 30" CHINKAPING OAK TREE NORTH SIDE OF TILE 20' EAST OF WEST LINE OF WOODED AREA. STA. 20+53 M.S.L. ELEV. 585.15
  - BM-3 TOP OF CHISEL X ON WEST END OF HEAD WALL OF STRUCTURE NORTH SIDE OF DITCH STA. 37+12 M.S.L. ELEV. 584.47
  - BM-4 TOP OF IRON HANDLE ON LID OF CATCH BASIN WEST SIDE OF WOODRICK RD. 80' S. OF DITCH STA. 56+20 M.S.L. ELEV. 583.14

LEGEND

- PROPOSED IMPROVEMENT
- HIGHWAYS
- PROPERTY LINE
- SECTION CENTER
- SECTION CORNER
- WATERSHED
- ACRES OWNED
- ACRES BENEFITED
- DITCHES 4'
- COUNTY LINE
- RAIL ROAD
- SUB WATERSHED
- STRUCTURES

THIS PLAN HAS BEEN APPROVED BY:

*John Miller* DATE 4/17/72  
 OTTAWA COUNTY ENGINEER

*Maryann Fisher* DATE 3/22/72  
 SALEM TOWNSHIP TRUSTEES

LOCATION - N. 1/4 OF S. 1/2 OF SEC. 21 N.W. 1/4 OF S.W. 1/4 OF SEC. 22-R 15E-T6N. SALEM TOWNSHIP OTTAWA COUNTY, OHIO.

SURVEYED - FEBRUARY 15 1972 BY SOMMER D. OPFER J. STEINER D. BARDER.

REFERENCE - FIELD NOTES ON FILE IN OTTAWA SOIL & WATER CONSERVATION OFFICE 149 CHURCH OAK HARBOR OHIO.

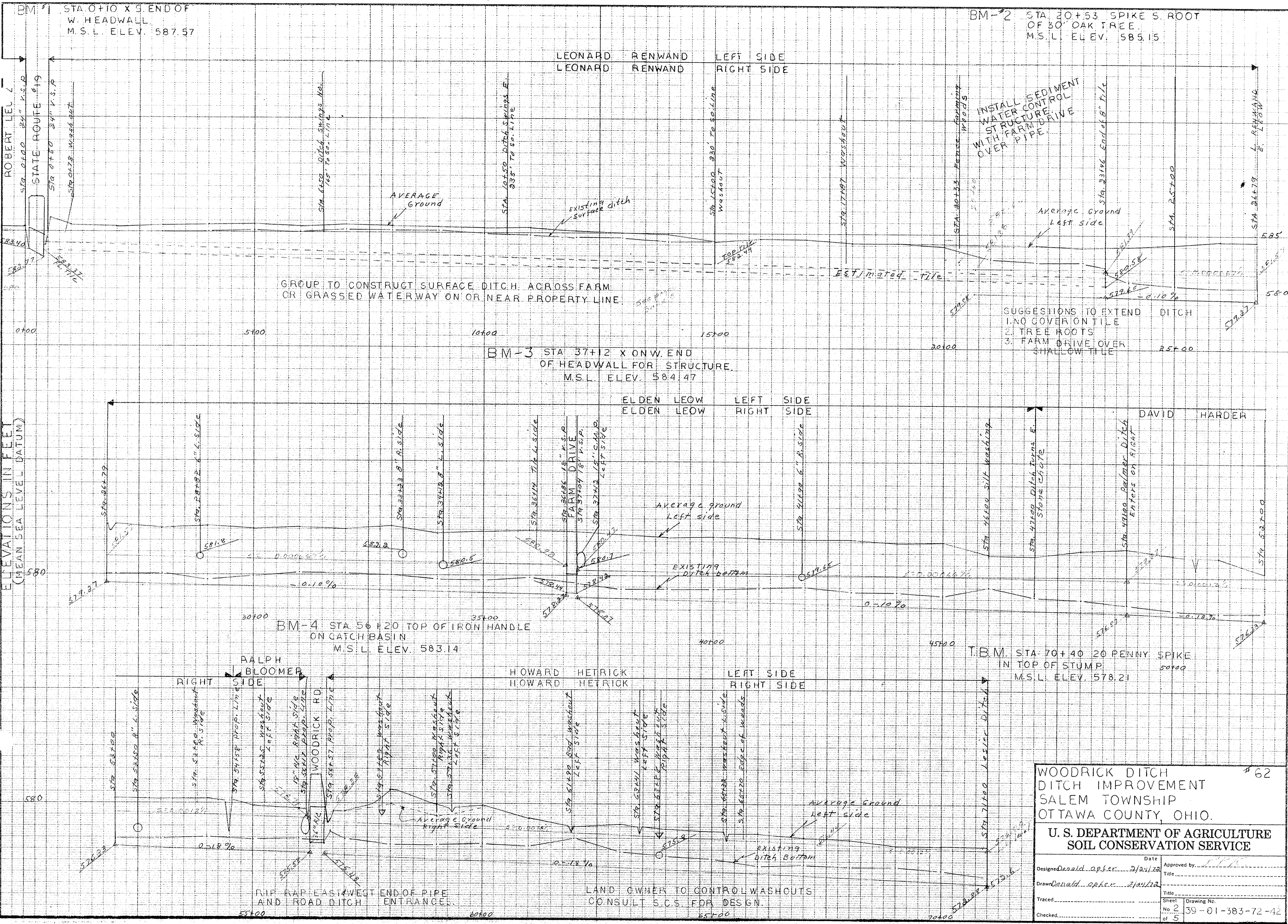
JOB CLASS III GROUP # 62

DITCH IMPROVEMENT  
WOODRICK DITCH  
SALEM TOWNSHIP  
OTTAWA COUNTY, OHIO

U. S. DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE

Designed <u>Donald Opfer</u> 3-7-72	Approved by <u>Donald Opfer</u>
Drawn <u>Donald Opfer</u> 3-7-72	Title <u>Woodrick Ditch</u>
Traced _____	Sheet _____
Checked <u>R.K. Powell</u> 7/17	No. 1 of 5

Drawing No. 39-01-383-72-42

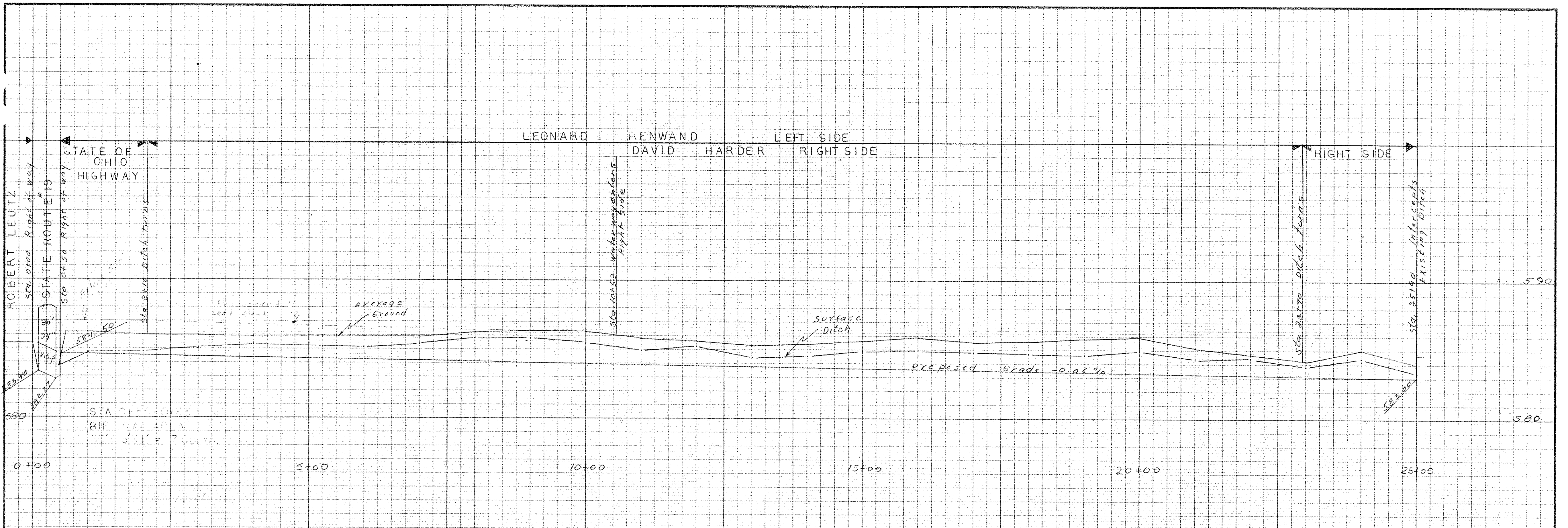


ELEVATIONS IN FEET  
(MEAN SEA LEVEL DATUM)

**WOODRICK DITCH  
DITCH IMPROVEMENT  
SALEM TOWNSHIP  
OTTAWA COUNTY, OHIO.**

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

Date: 2/24/72  
 Approved by: [Signature]  
 Title: [Blank]  
 Designed: Donald, apfer. 2/24/72  
 Title: [Blank]  
 Drawn: Donald, apfer. 2/24/72  
 Title: [Blank]  
 Traced: [Blank]  
 Sheet: 2  
 Drawing No.: 39-01-383-72-42  
 of 5

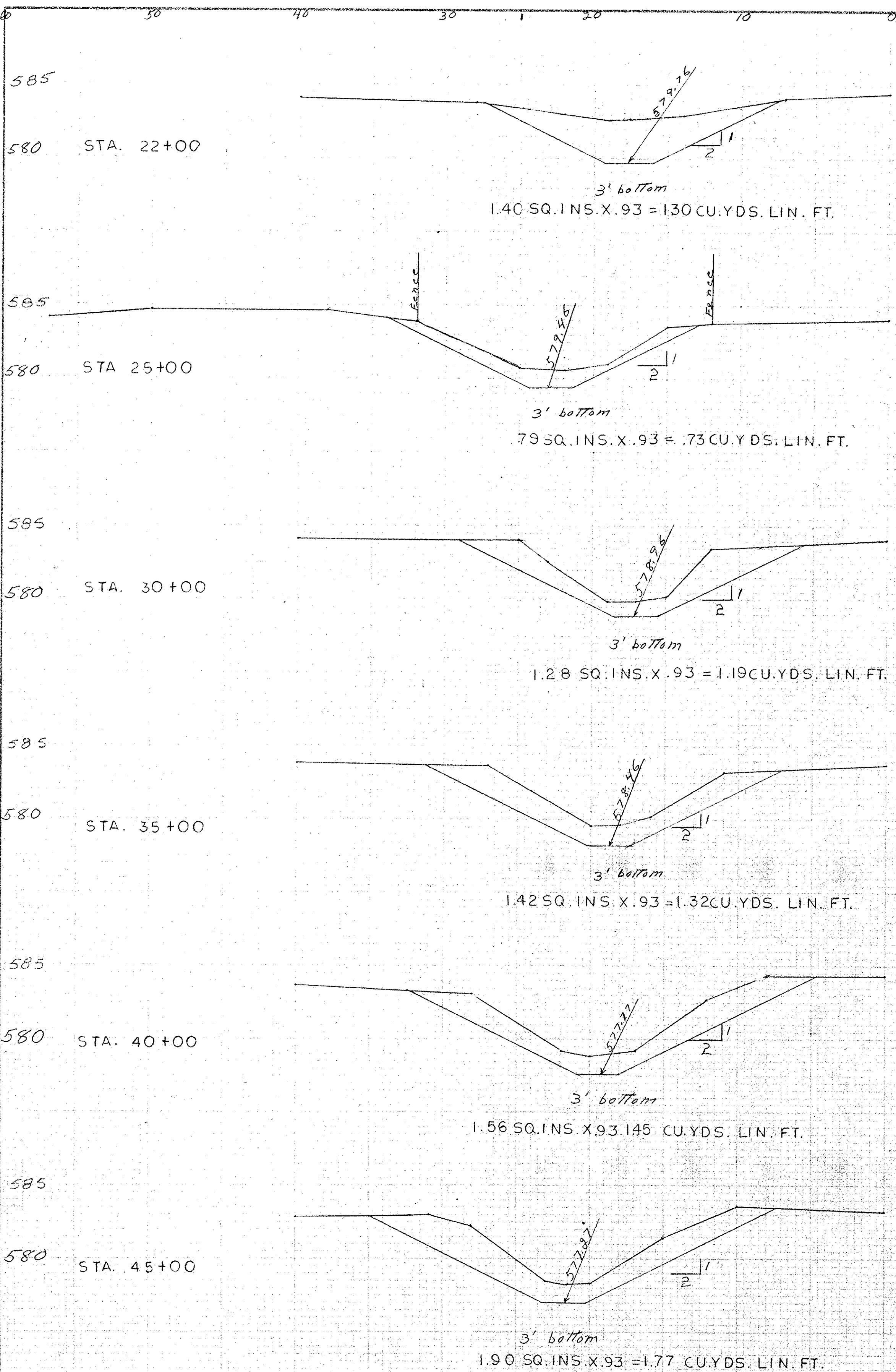


ALTERNATE PLAN OF SHALLOW SURFACE DITCH  
(ON PROPERTY LINE)

WOODRICK DITCH  
SHALLOW SURFACE DITCH  
SALEM TOWNSHIP  
OTTAWA COUNTY, OHIO.

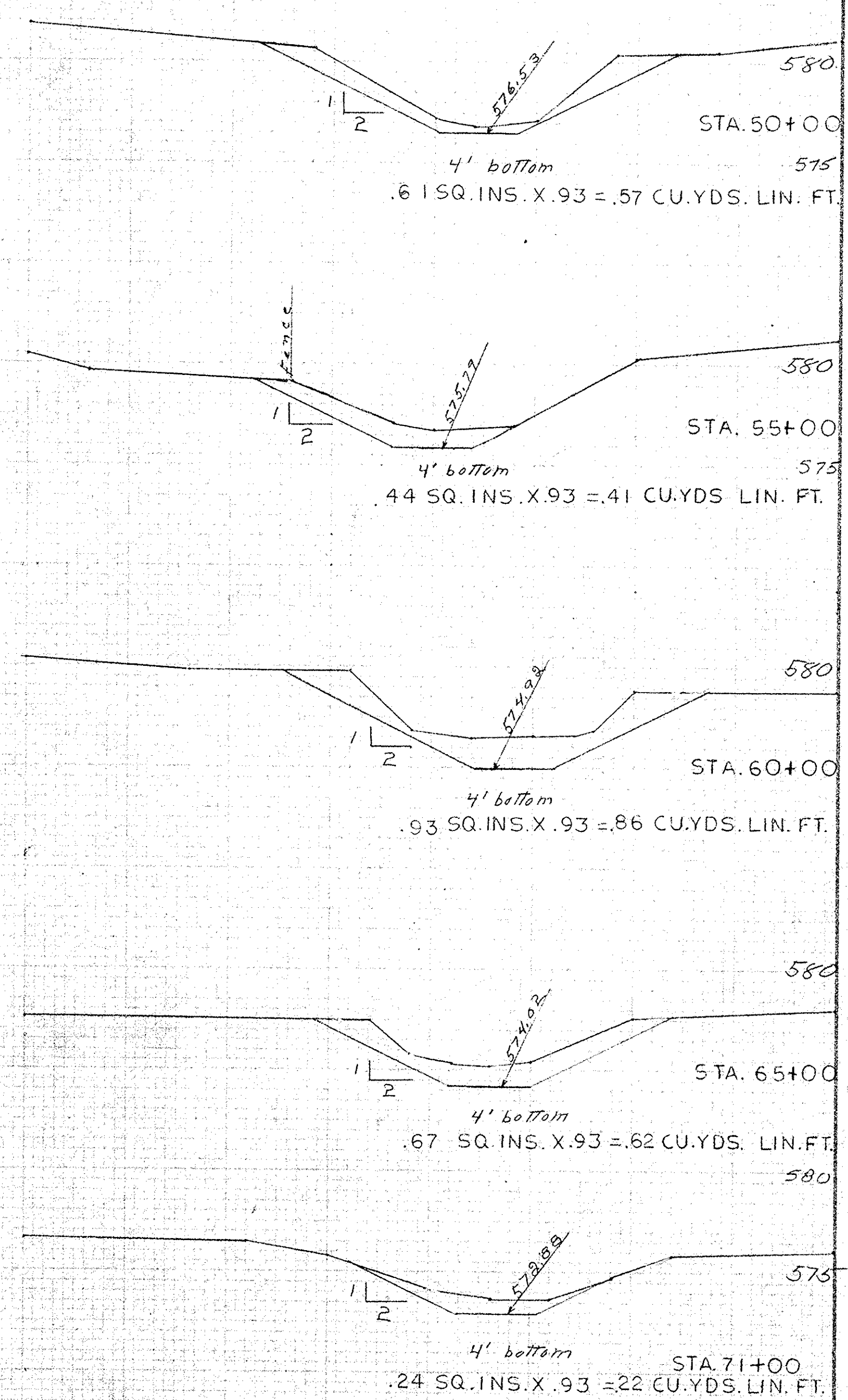
U. S. DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE

Designed.....	Date.....	Approved by.....
Drawn <i>Donald episc</i> .....	<i>2-7-72</i>	Title.....
Traced.....	Sheet.....	Drawing No.....
Checked.....	No. <i>3</i> of <i>5</i>	<i>39-01-383-72-42</i>



**YARDAGE TABLE**

STATION	SQUARE INCHES	CU. YDS. LIN. FT.	AVE. CU. YDS.	DISTANCE	TOTAL YARDS
71+00	2.4	.22	.42	600	252
65+00	.67	.62	.74	500	370
60+00	.93	.86	.64	500	320
55+00	.44	.41	.49	500	245
50+00	.61	.57	.61	500	305
45+00	1.90	1.77	1.61	500	805
40+00	1.56	1.45	1.39	500	695
35+00	1.42	1.32	1.26	500	630
30+00	1.28	1.19	.96	500	480
25+00	.79	.73	.73	154	112
22+60	1.40	1.30	1.30	286	372
YARDS TO TILE					4,494
YARDS TO STRUCTURE					4,866
YARDS IN SHALLOW SURFACE DITCH					1,737
					6,663

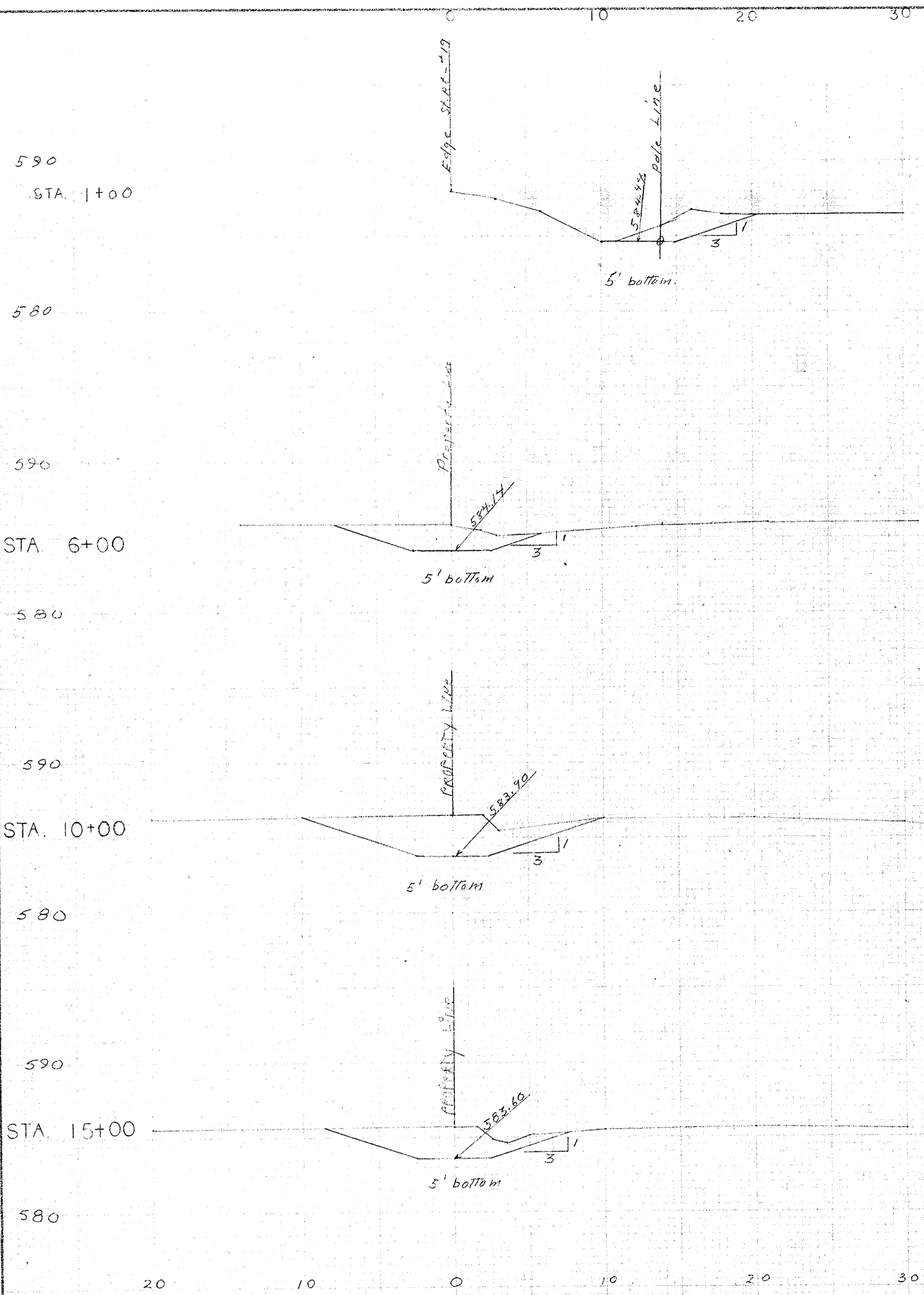


#62

**WOODRICK DITCH  
DITCH IMPROVEMENT  
SALEM TOWNSHIP  
OTTAWA COUNTY, OHIO.**

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

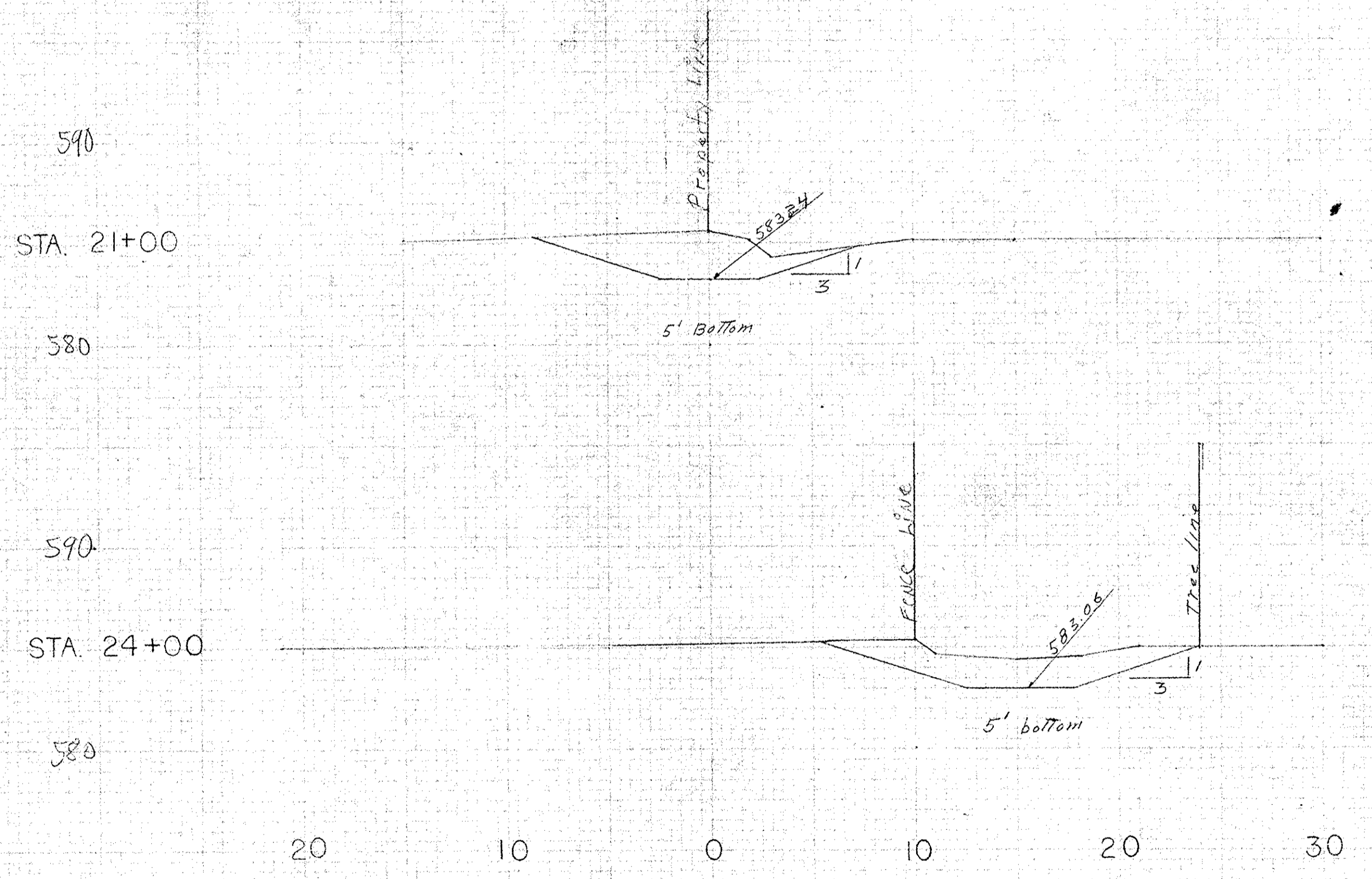
Designe <i>Donald Opfer</i> 3/23/72	Date 3/23/72	Approved by <i>[Signature]</i>
Drawn <i>Donald Opfer</i> 3/23/72	Title	Title
Traced	Sheet	Drawing No.
Checked	No. 4	39-01-383-72-42
	of 5	



**YARDAGE TABLE**

station	square inches	cu. yds lin. ft.	ave. cu. yds.	distance	total yards
0+50					
1+00	40	.37	.37	160	69
2+10					
6+00	.50	.47	.47	390	179
10+00	1.20	1.12	.93	500	465
15+00	.80	.74	.76	500	380
20+00	.84	.78	.77	400	308
24+00	.82	.76	.76	100	76
25+00	.82	.76			
<b>TOTAL YARDS</b>					<b>1,797</b>

(SHALLOW SURFACE DITCH)

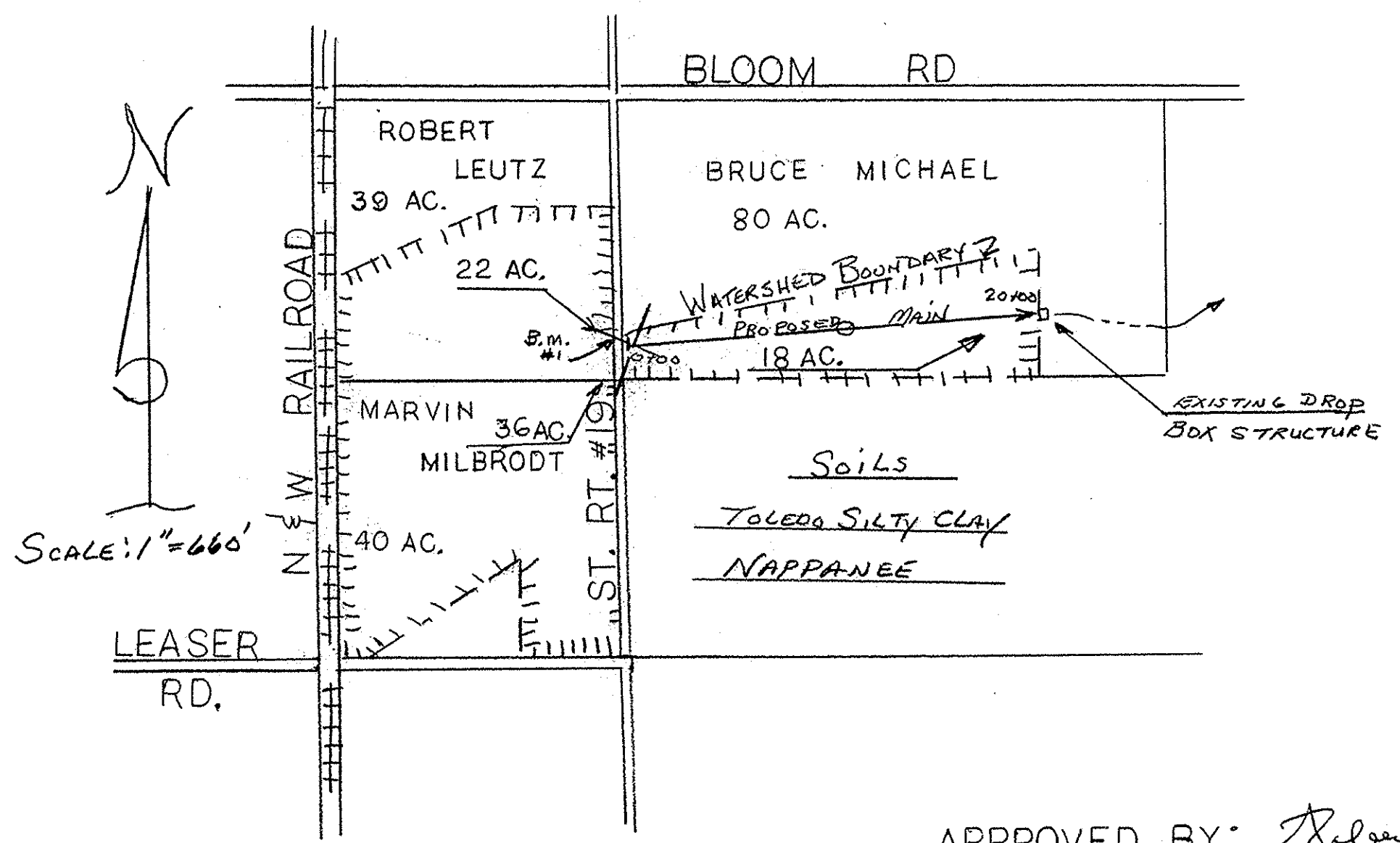


**WOODRICK DITCH  
SHALLOW SURFACE DITCH.  
SALEM TOWNSHIP  
OTTAWA COUNTY, OHIO.**

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

Designed <i>Donald Apter</i> 8-4-72	Date	Approved by
Drawn <i>Ed Kaiser</i> 8-4-72	Title	Title
Traced	Title	Title
Checked	Sheet No. <i>5</i>	Drawing No. <i>39-01-383-72-42</i>
	of <i>5</i>	

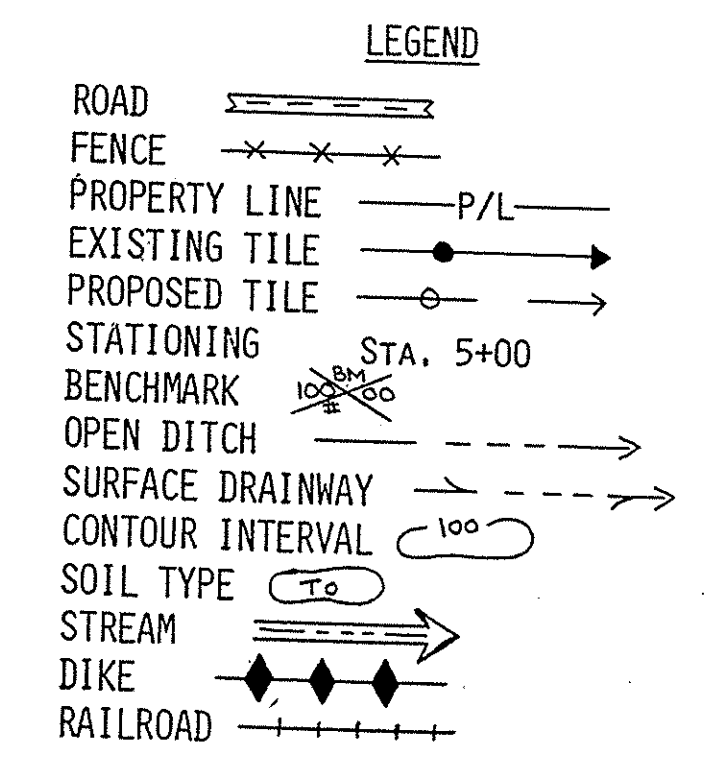
LOCATION & WATERSHED MAP  
SALEM TWP. SEC. 20, & 21



UNDERGROUND UTILITIES AT EXCAVATION SITE				
Utility			Member OUPS	Limited Basis Participants
Name	Address	Phone No.		

OUPS I.D. # 1218-021-025

**NOTE TO EXCAVATOR**  
Excavator must notify all utilities at least 48 hours and not more than 10 days prior to the planned commencement of excavation.  
1. Member utilities will be contacted by calling OUPS (1-800-362-2764).  
2. Each Limited Basis Participant and members of the Ohio Oil and Gas Association will be contacted by the excavator using the telephone number provided.



APPROVED BY: Robert J. Terenillo 2/14/97  
OTTAWA CO. ENGINEER DATE

CONSTRUCTION APPROVED BY: \_\_\_\_\_  
TITLE DATE

PROPERTY OF  
OTTAWA COUNTY ENGINEER'S  
OFFICE

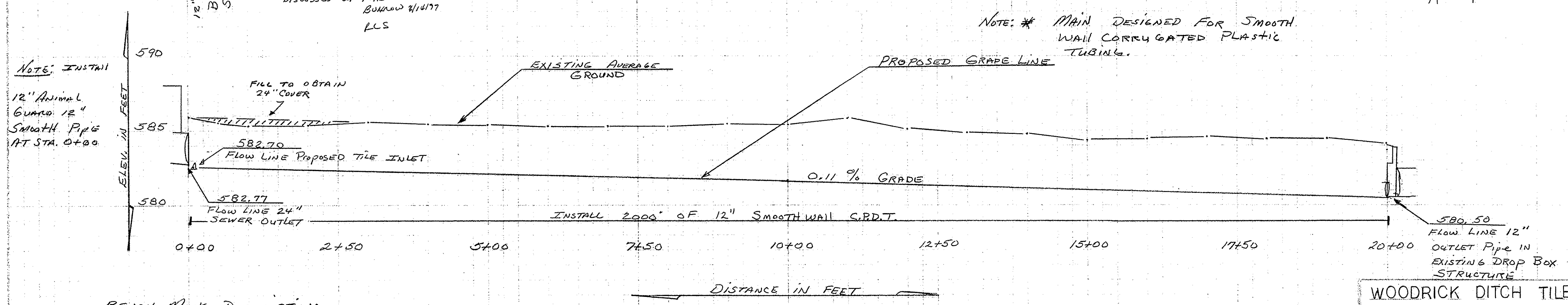
SOME GRADING & RIP RAP MAY NECESSARY AT JCT OF 24" & 12" ON EAST SIDE OF S.L. No. 19 TO ALLOW OVERFLOW TO GO INTO OPEN DITCH.  
DISCUSSED W/ MIKE BUKAROW 2/14/97  
LLS

**DESIGN CHART**

STA.	SIZE TILE	% GRADE	CAP. 3/8 24 Hrs.	Acvs. DRAINER	ELEVS.
0+00	12"	0.11%	76.0	76.0	582.70
20+00	-	-	-	-	580.50

12" TILE EXTENSION ENDS AT DROP BOX STRUCTURE ENTRANCE TO WOODRICK DITCH  
INSTALL 12" ANIMAL GUARD AT OUTLET INTO STRUCTURE BOX.

**PROPOSED TILE EXTENSION PROFILE**



NOTE: INSTALL 12" ANIMAL GUARD 12" SMOOTH PIPE AT STA. 0+00

NOTE: \* MAIN DESIGNED FOR SMOOTH WALL CORRUGATED PLASTIC TUBING.

JOB CLASS III

**BENCH MARK DESCRIPTIONS**

B.M. #1  
TOP OF E. OF HEADWALL LOCATED ON THE EAST OF ST. RT. #19 AT STA. 0+00  
M.S.L. ELEV. 587.09

B.M. #2  
TOP OF WIER OF DROP-BOX STRUCTURE LOCATED AT STA. 20+00 OR OUTLET OF THE TILE MAIN.  
M.S.L. ELEV. 582.79

**NOTICE TO LANDOWNERS AND CONTRACTORS**  
Preparation of a plan by the USDA Natural Resources Conservation Service or the Ottawa Soil and Water Conservation District does not include needed construction permits.  
Before construction begins, the landowner must obtain construction permits from the Ohio Department of Transportation, the Ottawa County Engineer, or applicable Township Trustees, if any work is to be done on or through road right-of-ways.

**BILL OF MATERIALS**  
2000' - 12" SMOOTH WALL C.P.D.T.  
2 - 12" ANIMAL GUARDS  
NOTE: See attached construction and material specifications entitled "Subsurface Drain-606" for more information.

WOODRICK DITCH TILE EXTENSION DRAINAGE PROJECT GROUP #193  
SALEM TWP. SEC. 20, 21 OTTAWA CO.  
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE  
Designed by M. Butlow 12/96  
Checked by M. Butlow 12/96  
Drawn by J. Harlan 12/96  
59-CV-383-97-5