



LOCATION & OWNERSHIP MAP

LEGEND

PROPOSED IMPROVEMENT	=====
HIGHWAYS	=====
PROPERTY LINES	-----
SECTION CENTER	⊠
SECTION CORNER	⊕
WATERSHED	-----
ACRES OWNED	OO A.
ACRES BENEFITED	OO A.
LARGE STREAM	~~~~~
DITCHES	=====

SUPPORTING DATA

DRAINAGE AREA	100 ACRES
DESIGN COEFFICIENT	Q _b CURVE
LAND USE	GENERAL CROPS
SOIL TYPE	HOYTVILLE TOLEDO
LAND SLOPE	0-2 %
TYPE DRAINAGE	SURFACE TILE

BENCH MARK DESCRIPTIONS

BM #1 STA. 0+20	TOP OF SPIKE IN EAST SIDE OF UTILITY POLE 20' NORTH OF DRIVEWAY IN JOHN DREYERS YARD M.S.L. ELEV. 605.13
BM #2 STA. 9+29	TOP OF SPIKE IN WEST SIDE OF POWER POLE EAST SIDE OF OPFER LENTZ RD. AT MYERS & SCHESSLER PROPERTY LINE M.S.L. ELEV. 605.53
BM #3 STA. 18+79	TOP OF U.S.G.S. SQUARE CUT IN CENTER OF NORTH EAST WING WALL OF BRIDGE OVER PACKER CREEK ON OPFER LENTZ ROAD M.S.L. ELEV. 605.42

INDEX TO SMALL PARCELS

SECTION	PARCEL	PROPERTY OWNER	ACRES
26		CLAY TOWNSHIP TRUSTEES	

CONSTRUCTION DATA

STATION	% GRADE	BOTTOM WIDTH	SIDE SLOPES	CUBIC YARDS	AVERAGE DEPTH
13+16	0.05	3'	1 1/2 : 1	768	4.5'
18+21	0.10	3'	1 1/2 : 1	434	5.5'
				1,202	

- ### SPECIFICATIONS
- EXCAVATION**
 A. Bottom Width: The bottom width shall be THREE (3') feet between sta. 0+00 and sta. 18+21.
 B. Bank Slopes: The ditch bank slopes are to be constructed to at least 1 1/2 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 plan.
 D. Total excavation: The total excavation consists of 1,202 cubic yards of earth over 1,821 lineal feet of ditch. (the plan).
 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.
 - 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 should be removed or cut as low as cutting tools permit. Cleared debris should be disposed of by burning or removed from the right-of-way.
 - BERM WIDTHS**
 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 foot depth; and ten (10) foot wide for ditches over six feet in depth.
 - SPOIL BANKS**
 Excavated material should be deposited and spread along the field side 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.
 - 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 Technician. All tile outlets shall have adequate outlets before performance is certified.
 - 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 Technician.
 - DITCH BANK SEEDING**
 The ditch banks will be seeded, immediately after each day's work, to tall fescue (Kentucky 31 or A1ta) 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.
 - CULVERTS**
 Existing culverts will be cleaned and the inverts (flow line) lowered to correspond to the proposed ditch grade as indicated on the plan.

Station <u>9+23</u>	Station <u>13+16</u>	Station <u>16+10</u>	Station <u>18+21</u>
REMOVE & LOWER TO GRADE	TO BE CLEANED	REMOVE & LOWER TO GRADE	REPAIR LAST TWO SECTIONS OF 33" R/C

HYDRAULIC CALCULATIONS

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

	9+23	13+16	16+10	18+21
STATION	9+23	13+16	16+10	18+21
DRAINAGE AREA AC.	60	95	100	100
Q & FLOW CFS.	10	16	17	17
DIAMETER IN.	30"	30"	30"	30"
TYPE	STEEL	R/C	R/C	R/C
"N"	.013	.013	.013	.013
LENGTH FT.	15'	40'	16'	58'
X SEC. AREA SQ.FT.	4.91	4.91	4.91	4.91
KP	.0092	.0092	.0092	.0092
KPL	.14	.37	.15	.53
KE	0.5	0.5	0.5	0.5
VELOCITY FPS.	2.0	3.3	3.5	3.5
HEADLOSS FT.	.10	.32	.31	.39

CHANNEL FLOW

MAXIMUM VELOCITY 5 FPS. $V = \frac{1.486}{N} R^{2/3} S^{1/2}$

REACH	STA. TO STA.	TO STA.	TO STA.
	0+00	13+48	18+21
DRAINAGE AREA AC.	95	100	100
Q & FLOW CFS.	16	17	17
"N"	.04	.04	.04
SLOPE FT./FT.	.0005	.0038	.0038
5-1/2	.0224	.0616	.0616
Q/S ^{1/2} = KD	714	276	276
KD VALUE USED	722	319	319
SIDE SLOPE	1 1/2 : 1	1 1/2 : 1	1 1/2 : 1
BOTTOM WIDTH FT.	3'	3'	3'
DEPTH OF FLOW FT.	2.4	1.6	1.6
AREA SQ.FT.	15.84	8.64	8.64
VELOCITY FPS.	1.0	1.97	1.97

THIS DITCH PLAN HAS BEEN APPROVED BY

John A. Pappas 6/20/69
 OTTAWA COUNTY ENGINEER DATE

CLAY TOWNSHIP TRUSTEES DATE

LOCATION - E 1/2 OF N.E. 1/4 OF SEC. 26
 R 13 E T 7 N CLAY TOWNSHIP
 OTTAWA COUNTY, OHIO.

SURVEYED - 4/3/69 DOYLE SOMMER
 EDWARD CAMPBELL
 DONALD OPFER

REFERENCE - FIELD NOTES ON FILE IN OTTAWA
 SOIL AND WATER CONSERVATION DISTRICT
 OFFICE 149 CHURCH STREET OAK
 HARBOR, OHIO.

JOB CLASS II GROUP NO 45

OPFER LENTZ ROAD DITCH #1
 DITCH IMPROVEMENT
 CLAY TOWNSHIP
 OTTAWA COUNTY, OHIO.

U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

Designed <u>Donald Opfer</u> 4/69	Approved by <u>Russell K. Brown</u>
Drawn <u>Donald Opfer</u> 4/69	Title <u>Ditch Improvement</u>
Traced	Sheet
Checked <u>R.K. Rowe</u>	Drawing No. <u>34-01-83-69-10</u>