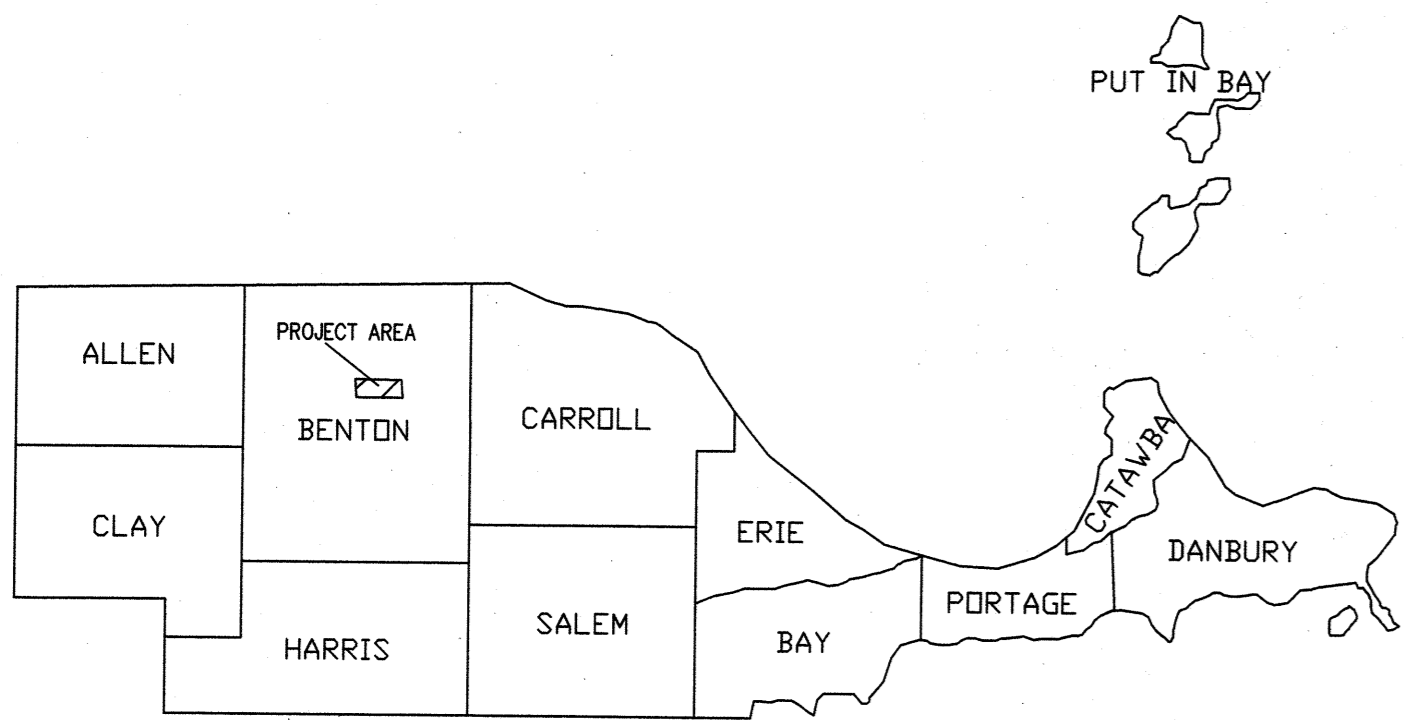
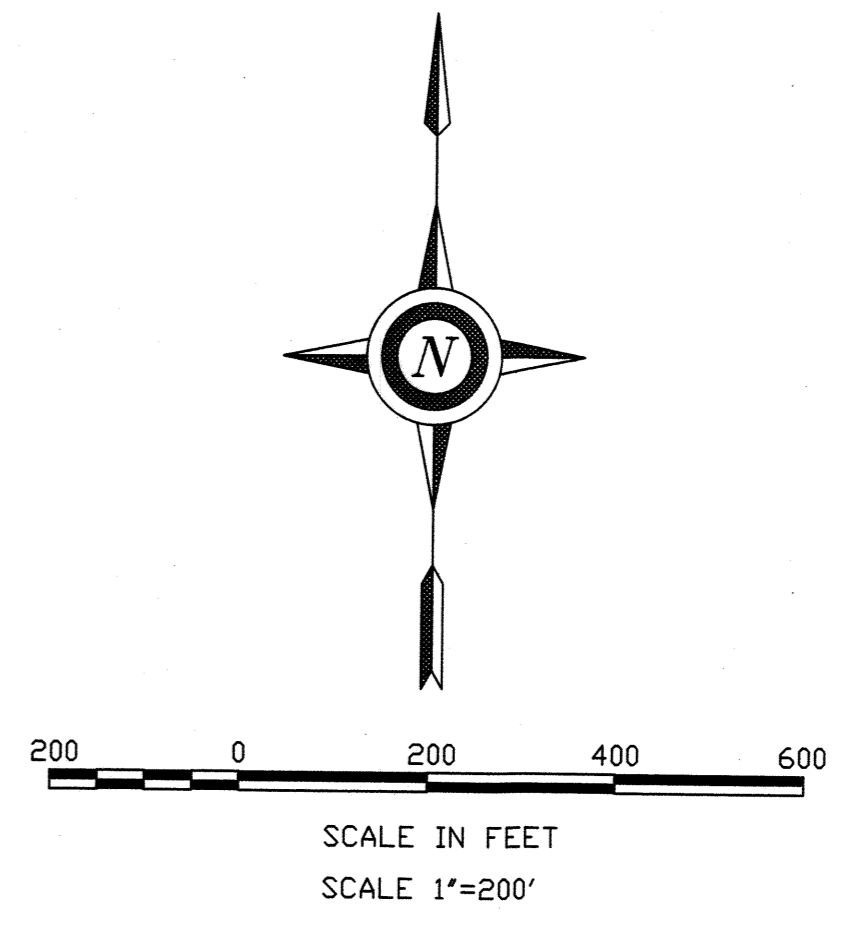
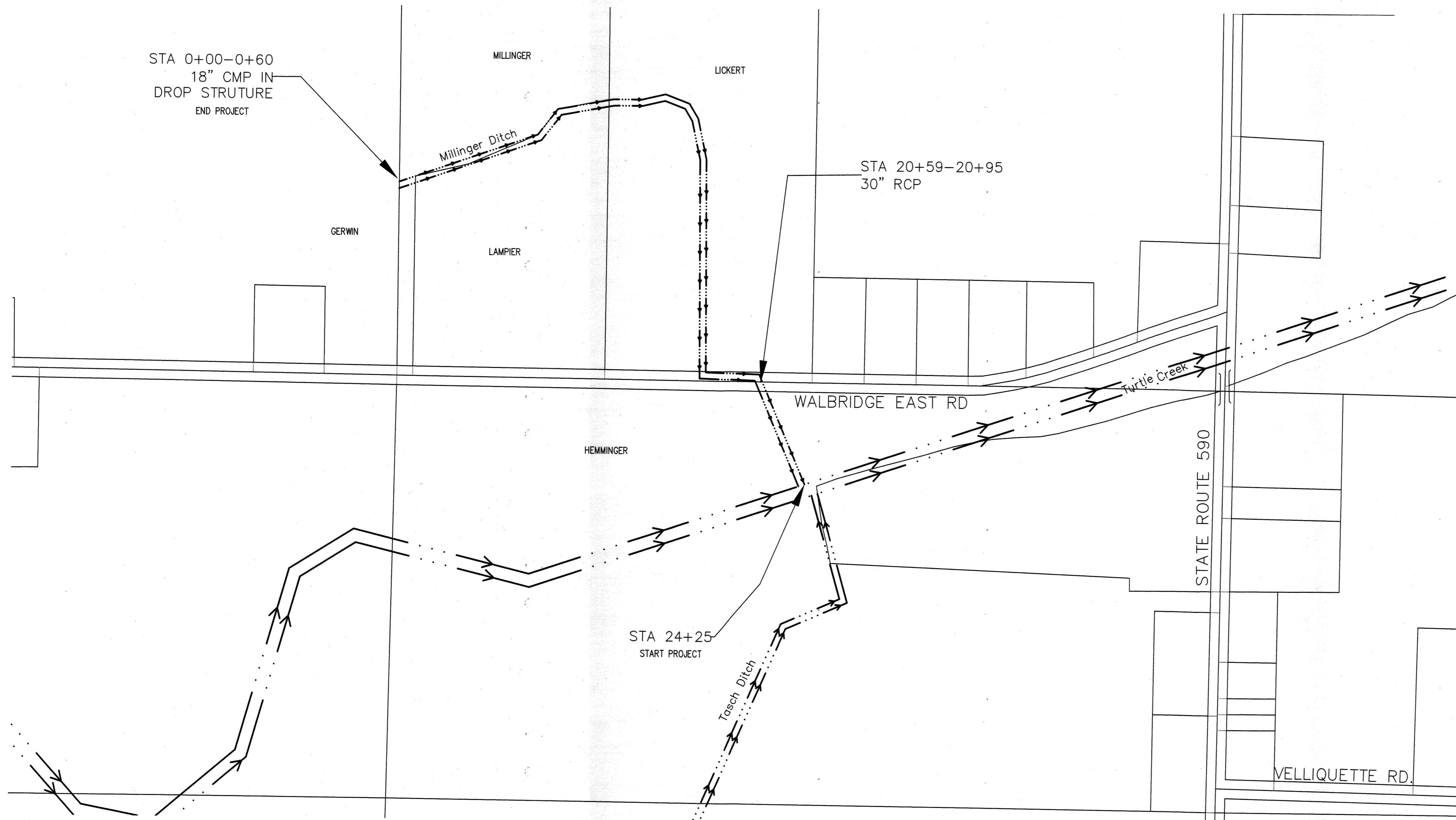


MILLINGER DITCH MAINTENANCE PROJECT 2017

BENTON TOWNSHIP SECTIONS 3 & 10



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. OUPS member utilities will be contacted by calling oups (1-800-362-2764 or 811)
2. Each Limited Basis Participant and the Ohio Oil and Gas Producers Underground Protection Service (1-800-925-0988) will be contacted by the excavator using the telephone number provided.

2 WORKING DAYS - 2 CALLS
BEFORE YOU DIG

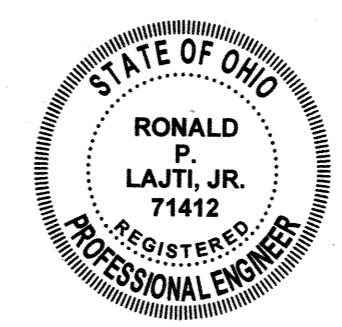
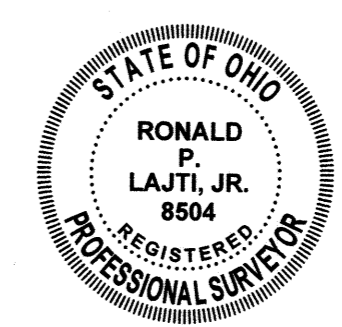
CALL TOLL FREE 800-362-2764 or 811
OHIO UTILITIES PROTECTION SERVICE

CALL TOLL FREE 800-925-0988
Ohio Oil and Gas Producers Underground Protection Service (OUPPS)

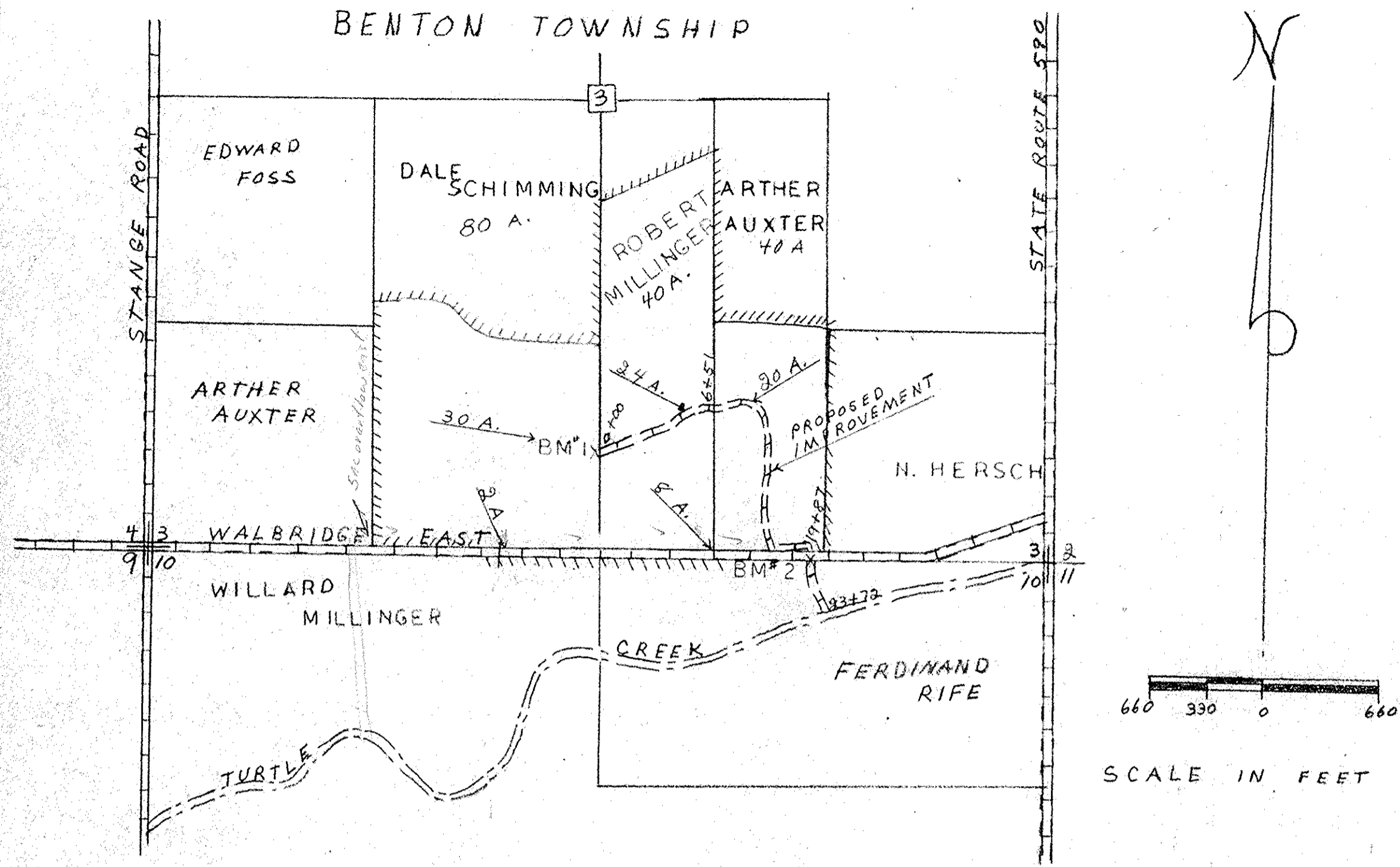
I HEREBY APPROVE THESE PLANS.

Ronald P. Lajti, Jr.
RONALD P. LAJTI, JR., P.E., P.S.
OTTAWA COUNTY ENGINEER

12/8/17
DATE

MILLINGER DITCH MAINTENANCE PROJECT OTTAWA SOIL & WATER CONSERVATION DISTRICT	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">DATE</td> <td style="width: 50%;">DATE</td> </tr> <tr> <td>DESIGNED</td> <td>DESIGNED</td> </tr> <tr> <td>DRAWN</td> <td>DRAWN</td> </tr> <tr> <td>REDLINED</td> <td>REDLINED</td> </tr> <tr> <td>CHECKED</td> <td>CHECKED</td> </tr> <tr> <td>APPROVED</td> <td>APPROVED</td> </tr> <tr> <td>TITLE</td> <td>TITLE</td> </tr> <tr> <td>CONSTRUCTION APPROVED</td> <td>CONSTRUCTION APPROVED</td> </tr> <tr> <td>TITLE</td> <td>TITLE</td> </tr> </table>	DATE	DATE	DESIGNED	DESIGNED	DRAWN	DRAWN	REDLINED	REDLINED	CHECKED	CHECKED	APPROVED	APPROVED	TITLE	TITLE	CONSTRUCTION APPROVED	CONSTRUCTION APPROVED	TITLE	TITLE
DATE	DATE																		
DESIGNED	DESIGNED																		
DRAWN	DRAWN																		
REDLINED	REDLINED																		
CHECKED	CHECKED																		
APPROVED	APPROVED																		
TITLE	TITLE																		
CONSTRUCTION APPROVED	CONSTRUCTION APPROVED																		
TITLE	TITLE																		
CAD FILE I.D.																			
DRAWING NUMBER																			
Sheet 1 of 2																			



LOCATION AND OWNERSHIP MAP

DRAINAGE AREA 84 ACRES
 LAND USE --- GENERAL FARMING
 SOIL TYPE --- TOLEDO-FULTON
 LAND SLOPE --- 0 - 2%
 TYPE DRAINAGE --- SURFACE & TILE
 DESIGN COEFFICIENT - Q_b CURVE

LEGEND

PROPOSED DRAINAGE	=====
HIGHWAYS	=====
ACRES IN WATERSHED	00 A.
WATERSHED BOUNDARIES	
STREAM	~~~~~
SECTION CORNER	⊗
SECTION CENTER	⊙

HYDRAULIC CALCULATION

CHANNEL FLOW $V = \frac{1.486}{N} R^{2/3} S^{1/2}$

REACH	STA.	0+00	20+19
	TO STA.	19+87	23+00
DRAINAGE AREA (AC)		82	84
Q_b FLOW (C.F.S.)		13.8	14.1
"N"		.04	.04
SLOPE -S (FT./FT)		.0005	.0060
S 1/2		.0224	.0775
$Q/S^{1/2} = KD$		611	182
KD VALUE USED		663	183
SIDE SLOPE		1 1/2 : 1	1-1/2 : 1
BOTTOM WIDTH (FT)		3'	3'
DEPTH (FT)		2.3	1.2
AREA (SQ. FT.)		14.85	5.76
VELOCITY = Q/A (FPS)		.93	2.44

BM#1 TOP OF EAST END OF 12" CLAY TILE LOCATED AT WEST END DITCH
 M.S.L. ELEV. 576.28

BM#2 TOP OF SOUTH END OF 30" CMP UNDER WALBRIDGE EAST ROAD 1400 FT. WEST ST. RT. 590.
 M.S.L. ELEV. 576.50

SPECIFICATIONS

- I EXCAVATION
 - A: BOTTOM WIDTH: THE BOTTOM WIDTH SHALL BE (3') THREE FEET BETWEEN STA. 0+00 AND 23+00.
 - B: BANK SLOPES: THE 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.
 - D: TOTAL EXCAVATION: TOTAL EXCAVATION CONSIST OF 2557 CUBIC YARDS OF EARTH OVER 2300 FEET OF DITCH.
 - E: EXCESS YARDAGE: NO EXTRA COMPENSATION WILL BE PAID FOR SUCH EXCAVATION IN EXCESS OF YARDAGE HEREIN ESTIMATED.
- 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 DRAGLINE OPERATION.
- III BERM WIDTHS: FOUR (4) FEET WIDE FOR DITCH UP TO FOUR (4) FOOT DEPTH SIX (6) FEET WIDE FOR FOUR (4) FOUR TO SIX (6) FOOT DEPTH TEN (10) FEET FOR DITCH OVER SIX (6) FOOT DEPTH.
- IV SPOIL BANKS: EXCAVATED MATERIALS SHOULD BE DEPOSITED AND SPREAD ALONG ONE OR BOTH SIDES OF THE DITCH AS DETERMINED 3:1 ON CHANNEL SIDE 4:1 ON FIELD SIDE NOT TO EXCEED ONE FOOT ABOVE AVERAGE GROUND. OPENINGS SHALL BE PROVIDED FOR SURFACE WATER INLETS.
- V TILE OUTLETS: LAND OWNERS SHALL PROTECT THEIR TILE OUTLETS WITH A SECTION OF CONTINUOUS RIGID PIPE AND RODENT GUARD.
- VI SURFACE WATER OUTLETS: WHERE A LATERAL OR SURFACE DITCH ENTERS THE MAIN DITCH AT A HIGHER ELEVATION, PROTECTION FROM EROSION SHOULD BE PROVIDED.
- VII DITCH BANK SEEDING: THE DITCH BANKS WILL BE SEEDDED 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 / ACRES OF DITCH BANK SEEDING WILL BE REQUIRED.
- VIII CULVERTS AND BRIDGES: EXISTING CULVERTS AND BRIDGES WILL BE CLEANED AND THE INVERTS (FLOWLINE) LOWERED TO CORRESPOND TO THE PROPOSED DITCH GRADE.
 STA. 19+87

CULVERTS

HEAD LOSS IN FEET $H = \frac{V^2}{2g} (1 + KE + KPL)$

STATION	19+87
DRAINAGE AREA AC.	82
Q_b FLOW (C.F.S.)	13.8
DIAMETER (IN)	30"
TYPE	C.M.P.
"N"	.025
LENGTH (FT)	32'
X-SECTIONAL AREA	491
KP	.034
KPL	1.088
KE	.5
VELOCITY (F.P.S.)	2.8
HEAD LOSS (FT)	.32

THIS DITCH PLAN HAS BEEN APPROVED BY
John G. Papcun 11/25/66
 OTTAWA COUNTY ENGINEER DATE

LOCATION - S.W. 1/4 OF S.E. 1/4 & S.E. 1/4 OF S.W. 1/4 OF SEC. 3 N. 1/4 OF N.E. 1/4 OF SEC. 10

SURVEYED - D. OPFER E. CAMPBELL 9-29-1966

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

JOB CLASS "II"

**DITCH IMPROVEMENT
 MILLINGER DITCH
 OTTAWA COUNTY, OHIO**

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

Designed DONALD OPFER	Date 7/22/66	Approved by Richard R. Nagel
Drawn DONALD OPFER	Traced 7/22/66	Title Civil Engineer
Checked RICHARD R. NAGEL	Sheet 19/19/66	Drawing No. OH-1-83-66-21