



JACOBSON-WESTERGARD & ASSOCIATES, INC.
Consulting Engineers & Land Surveyors

105 South 6th Street
Estherville IA 51334
Phone (712) 362-2647
www.jacobson-westergard.com

PRELIMINARY ENGINEERING REPORT

**DRAINAGE DISTRICT NO. 41
OPEN DITCH CLEANOUT
PALO ALTO COUNTY, IOWA**

JWA PROJECT NO: E16136



I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Richard A. Hopper Date 5/22/17

Richard A. Hopper, P.E., License number 8106

My license renewal date is December 31, 2017

Pages or sheets covered by this seal: Title, Pg 1 & 2 and drawings 5

I. INTRODUCTION/HISTORY

On August 4, 1909, the Board of Supervisors met in response to a petition filed for establishment of Drainage District No. 41. They appointed an engineer to survey the land. He filed his report on September 16, 1909, stating the district should be established. He estimated the cost at \$7,059.70, and found there was 3680 acres in the watershed. The board approved the report and gave notice to those involved. The records then skip to August 6, 1918, with the Appraisers' Report in response to a different petition and different engineer. There are then several objections filed to the establishment of Drainage District No. 41 on October 9, 1918. The resolution to establish Drainage District No. 41 was done by the Board of Supervisors on October 11, 1918. The board awarded the contract for construction of the ditch and tile on September 3, 1919. Furnishing the tile was awarded in the amount of \$5,788.00 laying the tile would cost \$5,490.00, and construction of the open ditch was 16.5 cents/cubic yard. There were several objections filed to the proposed assessment of benefits one year later. The assessment schedule showed a total amount of \$44,115.00. A final pay estimate filed for construction of the ditch on November 5, 1920.

The history books then skip to the 1970's. A preliminary engineering report was dated January 20, 1970 in accordance with the board's action August, 1969. This was in response to a petition filed for cleanout. During their investigation, Kruse Engineering found no evidence that Laterals C and D, as shown on the 1918 plat, were ever built. The proposed plans from Kruse Engineering showed cleaning out the ditch to its original 1918 grade; a bottom width of 8 feet from the outlet to the west side of Section 19, Nevada Township (Highway No. 4); bottom width of 6 feet through Sections 24 and south half of 14; and bottom width of 4 feet from the south line of the north half of Section 14 to the north end of the open ditch in the southeast quarter of Section 3, Great Oak Township. The project was bid and awarded to Flannegan Conservation Service November 30, 1971. The engineer certified the work November 4, 1972. The final contract amount was \$16,236.34. The board accepted the work as complete on December 19, 1972.

Most recently there were two petitions filed on Drainage District No. 41. On September 27, 2016, the board appointed Rick Hopper, Jacobson-Westergard & Associates, to prepare a study on Drainage District No. 41; and directed the County Engineer to work with Rick to get estimates for tree removal.

II. STARTING POINT, ROUTE AND TERMINUS

Drainage District No. 41 main ditch begins 1250 feet west and 2110 feet north of the southeast corner of Section 3-95-33, Great Oak Township and runs southeast approximately 5020 feet to a point located 2110 feet east and 1500 feet south of same said corner. The ditch then turns and runs at a slightly southeast direction for 6600 feet to a point located 660 feet east of the center of Section 14-95-32, Nevada Township, before making a gentle curve southeast to a point located 660 feet east and 530 feet south of the northwest corner of Section 24-95-32. The ditch then continues in a southeast direction approximately 15,180 feet before outletting into the Des Moines River.

III. EXISTING IMPROVEMENTS

There are currently a few drainage districts located within the current boundary of Drainage District No. 41. They include the following: Drainage District No. 143, Drainage District No. 162, Drainage District No. 172 and Drainage District No. 119.

III. PROPOSED REPAIRS

The repairs proposed include cleanout of the silt from the main open ditch and repair of several outlet pipe. The depth of silt is as much as 2.8 feet with much of the ditch having at least one foot of silt.

IV. RIGHT-OF-WAY

All repairs will be performed on existing right-of-way for the district.

V. COST ESTIMATES

The estimated cost for restoring the open ditch is found below:

ITEM NO.	ITEM DESCRIPTION	QUANTITY & UNIT	UNIT PRICE	TOTAL PRICE
1.	Excavation	13,422 C.Y.	\$ 3.50	\$ 46,977.00
2.	Outlet Repair (replaces 20'):			
	a) 8" x 20' CMP	1 Each	\$ 600.00	\$ 600.00
	b) 12" x 20' CMP	3 Each	\$ 700.00	\$ 2,100.00
	c) 30" x 20' CMP	1 Each	\$ 1,000.00	\$ 1,000.00
	d) 36" x 20' CMP	1 Each	\$ 2,000.00	\$ 2,000.00
3.	Burn & Bury Tree Piles:	L.S.	\$ 7,500.00	\$ 7,500.00
4.	Seeding & Fertilizing	1 L.S.	\$ 3,500.00	\$ 3,500.00
SUBTOTAL CONSTRUCTION COST				\$ 63,677.00
CONTINGENCIES (10%)				\$ 6,368.00
ENGINEERING, LEGAL, ADMINISTRATION				\$ 16,500.00
RECLASSIFICATION				\$ 10,000.00
INTEREST				\$ 3,200.00
ESTIMATED TOTAL PROJECT COST				<u>\$ 99,745.00</u>
AVERAGE COST PER ACRE = \$27.10/acre (Based on 3680 acres)				

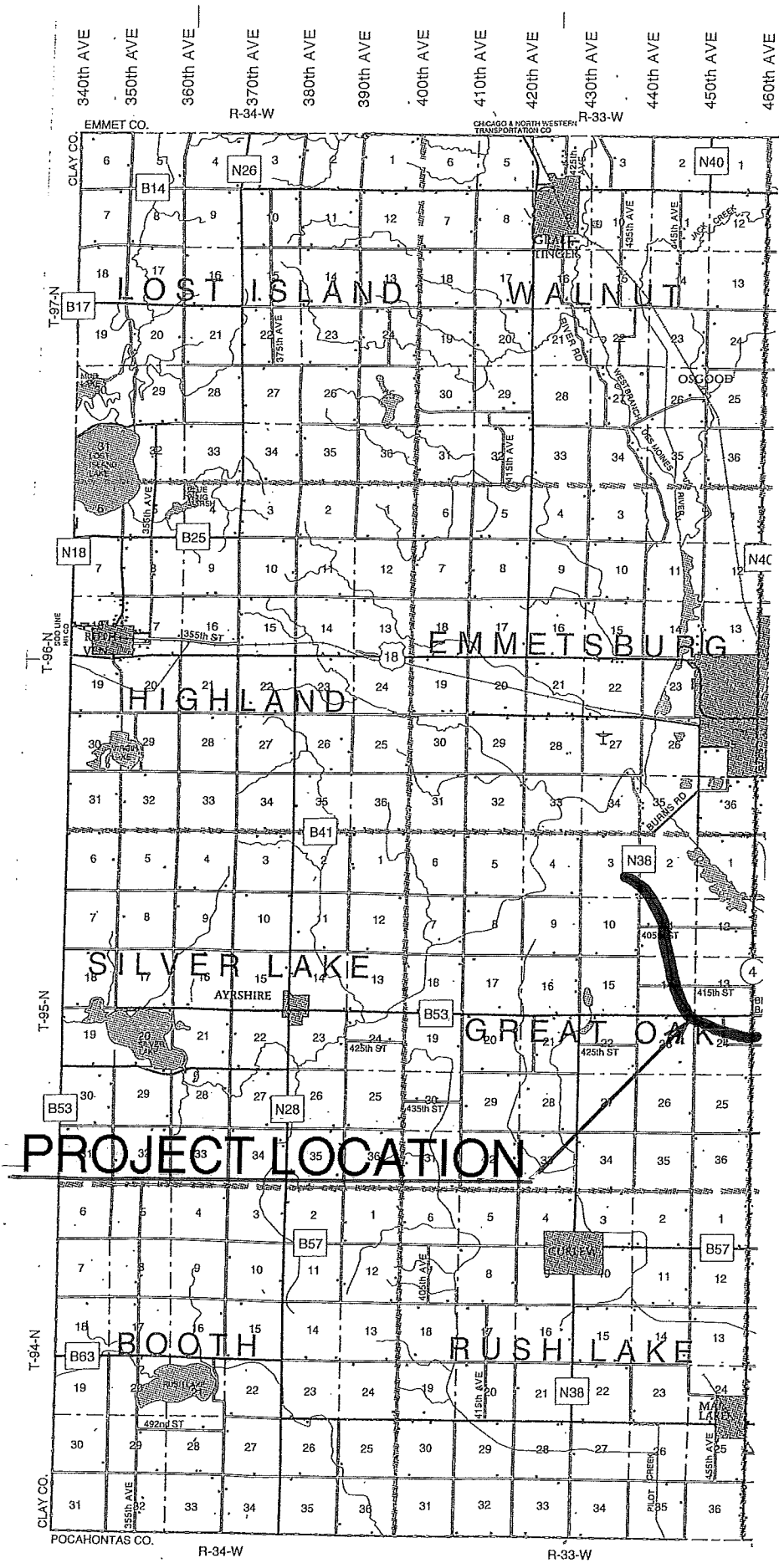
VI. CONCLUSION/RECOMMENDATION

The open ditch of this district has silted in to the point of causing loss of capacity and restriction of outlets. The district must be maintained.

We recommend proceeding with the repairs summarized in this report as soon as possible.

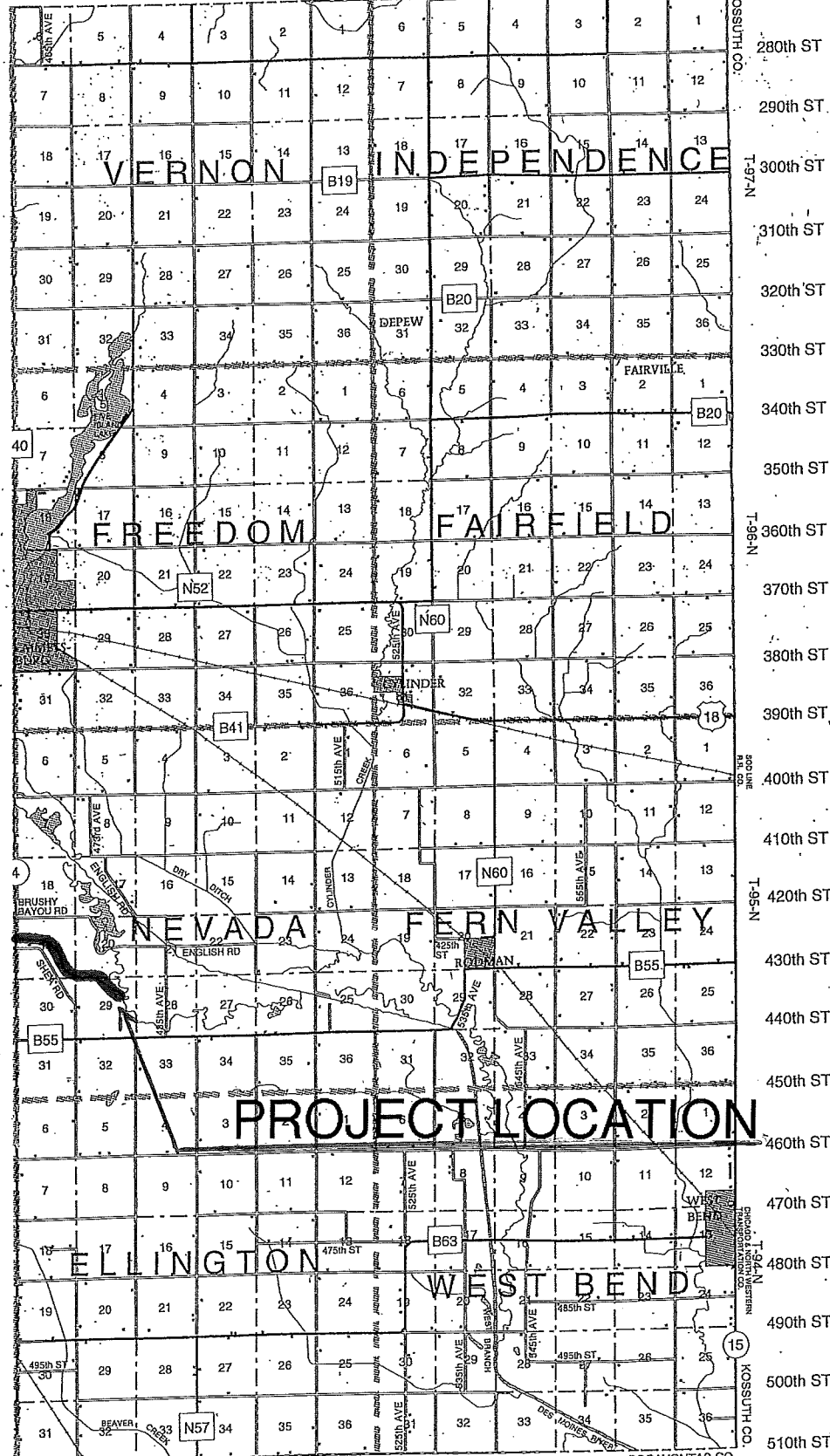
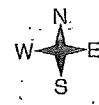
The Board of Supervisors for Palo Alto County should accept this report and set a date for a hearing on the report. Since this is a repair project and found to be necessary, a bid letting for the work could be held immediately following the hearing on the report. We would recommend this.

Reclassification for the current project will not be mandatory, but should be highly considered in order to ensure costs are distributed fairly.



490th AVE
470th AVE
480th AVE
490th AVE
500th AVE
510th AVE
520th AVE
530th AVE
540th AVE
550th AVE
560th AVE
570th AVE
580th AVE

R-32-W
R-31-W
EMMET CO.



CHICAGO & NORTH WESTERN TRANSPORTATION CO.
R-32-W
R-31-W
POCAHONTAS CO.