



**JACOBSON-WESTERGARD  
& ASSOCIATES, INC.**

Consulting Engineers & Land Surveyors

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***"Bettering Iowa since 1970"***

June 9, 2022

Board of Trustees  
Drainage District No. 37  
Clay County, Iowa

RE: Engineer's Report  
Drainage District No. 37  
JWA Project No: E-18107

Dear Board Members and Landowners:

A drainage petition was filed for Drainage District No. 37 (DD37) on September 12, 2014. An Engineer's Report was filed by Bolton & Menk, Inc. on April 10, 2018 recommending improvements to the Main Open Ditch. If improvements were not constructed, a repair was recommended. At this time the Clay County Board of Supervisors were acting as trustees for DD37. However, on October 4, 2021 DD37 became a trustee district, wherein three owners of lands within the district were elected as trustees. Subsequently, on April 7, 2022 Jacobson-Westergard & Associates, Inc. was hired as the engineer to investigate and make recommendations for repairs to the ditch. We hereby file this Engineer's Report.

**Scope of Work:**

Under Iowa Code 468.126 "b" we are tasked with recommending the "most feasible means" of repairing the DD37 Main Open Ditch, and the probable cost of completing the work. Upon site visits, meetings with trustees and landowners, and other investigations, the biggest repair issue facing the ditch is the presence of trees, branches, and other debris within and just outside the ditch channel. This obstructs and inhibits the proper function of the ditch. The focus for this project is on the trees that are directly impacting flow in the ditch, or may be in the near future. This includes trees/timber in the channel, growing on the banks of the channel, and either very near to the channel or in such a shape that they are likely to enter the channel in the not-too-distant future (leaning over the ditch, old tree, rotted trunk, etc.).

**Tree Count:**

A tree count was completed in the timeframe of May 5<sup>th</sup> – May 20<sup>th</sup>, 2022. Trees inside the ditch channel were counted, but were not marked for safety reasons. Trees outside the channel that were counted for removal were marked with pink ribbon and marking paint. Trees were categorized by diameter per Iowa Statewide Urban Design and Specifications (SUDAS) Table 2010.01. A site map

and tree count table are enclosed. Along the approximately 7-mile ditch a total of 2,758 trees were counted for removal. Nearly two-thirds of the trees counted were 12 inches or less in diameter.

We do not recommend removing tree stumps, as it would leave a gouge (hole) on or near the ditch bank and leave the area prone to erosion. Rather, we recommend application of herbicide to kill the stumps (Rodeo, or other herbicide approved for use near water). Grubbing of stumps was not included in the determination of clearing units.

#### **Ditch Access:**

The biggest hurdle in clearing only the trees that are in or near the channel is accessibility. In some areas the timber extends over 100 feet from the top of bank of the ditch. Many trees will have to be cleared just to get access to the ditch. In addition, unlevelled spoil piles exist along a majority of the ditch. Trees are growing on the spoil pile. It will be difficult to drag trees out over the spoil pile, or to get equipment on the ditch side of the spoil pile. Finally, much of the timber areas have thick brush making access difficult.

We acknowledge that these challenges will certainly make this work more time consuming and more costly (on a per tree basis) than a standard tree clearing project. However, as you well know the total cost of clear cutting the trees and leveling the unlevelled spoil piles is exceedingly expensive. Being a unique situation, it is difficult to estimate the cost with a high degree of certainty.

#### **Tree Disposal:**

Felled trees and other material will be removed from the ditch to avoid interference with drainage, at least 10 feet from the top of bank and out of danger of falling into the channel. We will give the contractor the option of salvaging the logs for use, however we doubt whether this would be desirable for a contractor. Several other options for tree disposal are discussed below.

- A. Leave-in-Place: Once clear of the channel, one option would be to leave the trees and logs in place, which would be the cheapest option. However, this option would make accessing the ditch in the future more difficult than it already is.
- B. Drag & Pile: Pull the trees out of the channel, over the unlevelled spoil pile, through the timber and pile them in areas designated acceptable by the landowner. This will be a challenge for a contractor, and would involve a lot of manual labor. Lanes would likely need to be cut through the timber in order to pull trees through. Felled trees would not be left outside existing limits of timber areas without permission of the landowners.
- C. Burn & Bury: This option is the same as Option B, with the additional step of burning the tree piles, and burying the ashes as well as any leftover residue.

A combination of these methods may be used to suit the situation, and we may consider including each option as a bid alternative and decide based on the bids received.

## Cost Estimate:

### SECTION 1: CONSTRUCTION ASSESSABLE TO PRIVATE LANDS

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
1	Tree Clearing	18,360	UNITS	\$22.00*	\$403,920.00
2	Mobilization	1	LS	\$20,000	\$20,000

ESTIMATED SECTION 1 COST: \$424,000

\*: Unit Price assumes cleared trees will be piled and burned. If trees are left in place we estimate the unit price to be \$2 - 4 lower.

ESTIMATED SUBTOTAL CONSTRUCTION COST: \$424,000

CONSTRUCTION CONTINGENCIES \$42,000

ESTIMATED TOTAL CONSTRUCTION COST \$466,000

ESTIMATED TOTAL ASSESSABLE CONSTRUCTION COST \$466,000

#### NON-CONSTRUCTION COSTS

ENGINEERING - (REPORT, HEARINGS, PLANS & SPECS, BID LETTING, CONSTRUCTION, COMPLETION) \$25,000

LEGAL, PUBLICATIONS, MAILINGS, ETC. \$2,000

DAMAGES (15 Acres @ \$1,400/AC) \$21,000

INTEREST \$26,000

ESTIMATED TOTAL DISTRICT COST \$540,000

AVG COST PER ACRE FOR EXISTING DISTRICT (BASED ON 7,983 ACRES): \$68

AVERAGE COST PER ACRE PER YEAR AT 5% INTEREST FOR 10 YEARS: \$9

AVERAGE COST PER ACRE PER YEAR AT 5% INTEREST FOR 20 YEARS: \$5

## Recommendations:

This report confirms the need for repairs to the Main Open Ditch of Drainage District No. 37. It is recommended that the Board of Trustees take appropriate action, to accomplish the following:

- Tentatively approve this amended engineer's report
- Schedule a formal hearing on the proposed repairs
- Approve the plans and specifications and direct the engineer to proceed toward a bid letting

Sincerely,

JACOBSON-WESTERGARD & ASSOCIATES, INC.



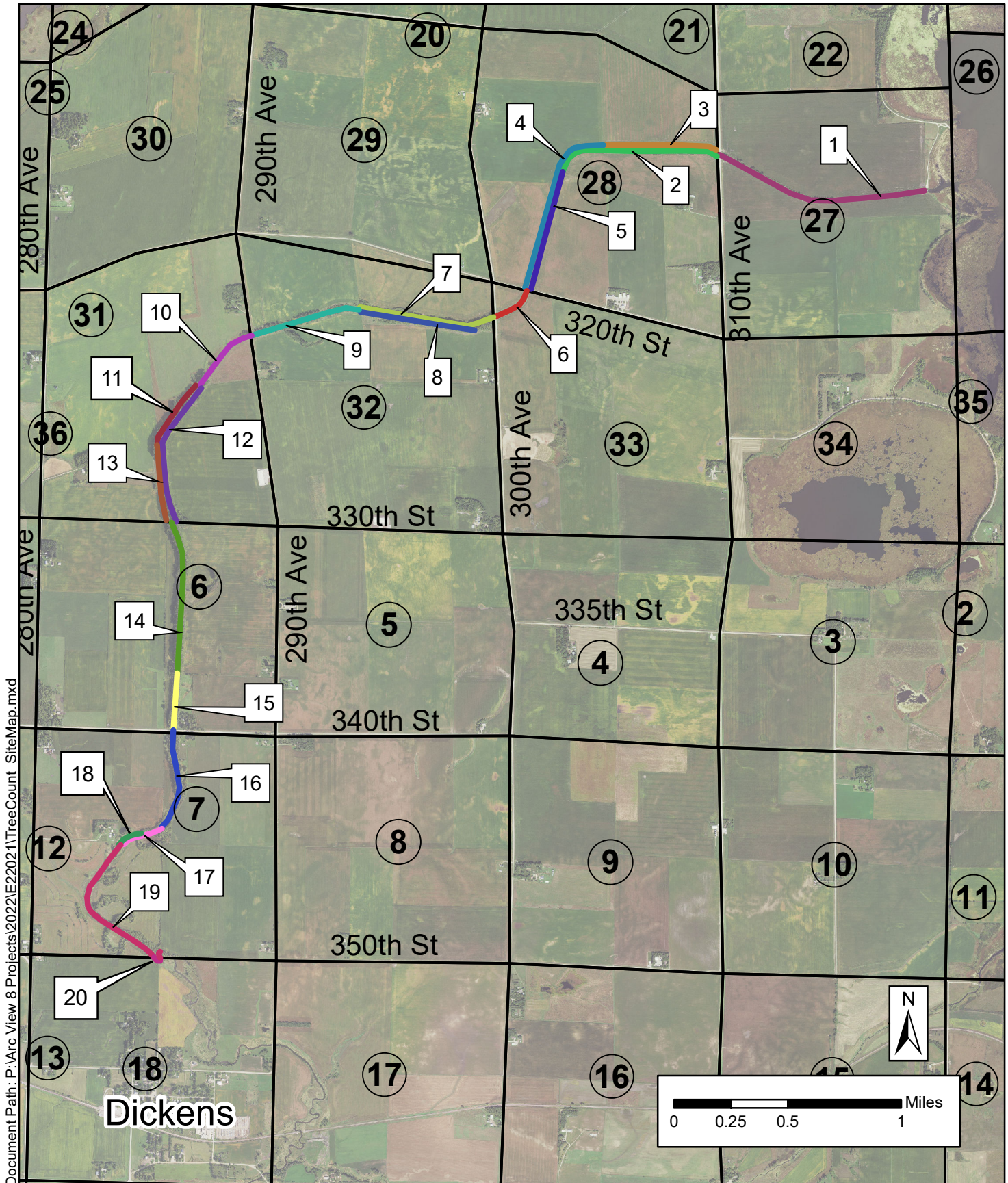
Collin J. Klingbeil, P.E.

Encl. Tree Count Site Map  
Tree Count Site Guide  
Tree Count Table



# Drainage District No. 37 Tree Count Sites

Clay County, Iowa



# Tree Count Site Guide

Site #	Landowner	Bank	Location Description	S-T-R
1	Jacques Farms, LLC	Both	From outlet of Trumbull to County Rd N14	27-97-35
2	Swan, Robert & Lynn Hunter	Right	From N14 downstream 4,000 ft	28-97-35
3	Crouse Family Trust	Left	From N14 downstream 2,700 ft	28-97-35
4	Wyatt, Jean & David Farms	Left	From Crouse property line to 320th St	28-97-35
5	Metcalf, John	Right	From Swan property line to 320th St	28-97-35
6	Metcalf, John	Both	From 320th St to 300th Ave crossing	33-97-35
7	Kendall, Loretta Trust	Left	From 300th Ave about 3,150 ft west	32-97-35
8	Derner, Kathleen	Right	From about 600 ft west of 300th Ave about 2,500 ft west	32-97-35
9	Melanie's LLC	Both	from Kendall & Derner property line west to 290th Ave	32-97-35
10	Hanson, Lanny & Nancy	Both	From 290th Ave to south parcel line (~1,700 ft)	31-97-35
11	Hanson, Lanny & Nancy	Left	From end of site 10 about 1,850 ft downstream	31-97-35
12	BWT Holdings, LLLP	Right	From end of site 10 to south line of S31 (~3,500 ft)	31-97-35
13	Groenewold, Sherry	Left	From end of site 11 to south line of S31	31-97-35
14	Toland	Both	From south line of S31 south about 3/4 mile	6-96-35
15	Sorenson, Jon & Linda, Baum Diane	Both	From site 14 south to 340th St (about 1/4 mile)	6-96-35
16	Sorenson, Jon & Linda, Baum Diane	Both	From 340th St south about 2,300 ft	7-96-35
17	Loudermilk, Jennifer	Both/Right	Both sides From site 16 downstream 500 ft, then right bank for another 500 ft	7-96-35
18	Galbraith, Lynn L	Left	left bank opposite 500 feet from site 17	7-96-35
19	Chambers, Colleen	Both	From site 17/18 downstream to south line of S7	7-96-35
20	Jo's Family Farms, LLC	Both	Meander in NE NE 1/4 of section 18	18-96-35

# Drainage District No. 37 Tree Count Table

Clay County, Iowa

Count Completed May 2022



Tree Category / Site Number	1	2	3 & 4	5	6	7	8	9	10	11	12	13	14	15	16	17 & 18	19	Total Trees	Total Clearing Units
Over 6 in. to 9 in. incl.	78	Not Counted, Trees to be Removed by Landowner	72	6	0	123	90	61	52	74	87	29	139	136	105	31	124	1,207	1,328
Over 9 in. to 12 in. incl.	20		11	0	0	72	49	20	25	19	44	17	74	76	54	31	36	548	1,041
Over 12 in. to 15 in. incl.	11		2	0	0	25	27	18	12	10	14	8	48	33	40	22	37	307	860
Over 15 in. to 18 in. incl.	8		1	0	0	13	13	6	5	7	12	4	31	19	17	20	17	173	813
Over 18 in. to 24 in. incl.	5		1	0	0	6	10	7	4	6	3	2	30	20	12	10	20	136	1,142
Over 24 in. to 30 in. incl.	10		0	0	0	4	5	7	1	5	5	6	22	16	9	4	16	110	1,254
Over 30 in. to 36 in. incl.	10		0	0	0	3	5	8	1	2	7	0	28	7	7	3	10	91	2,002
Over 36 in. to 42 in. incl.	2		0	0	0	6	0	4	0	6	4	0	22	2	3	0	3	52	1,560
Over 42 in. to 48 in. incl.	0		0	0	0	3	1	2	0	7	6	3	23	6	0	1	3	55	2,200
Over 48 in. to 60 in. incl.	3		0	0	0	4	1	1	1	6	7	3	17	0	0	2	1	46	2,760
Over 60 in. to 72 in. incl.	1		0	0	0	1	1	2	1	3	0	1	4	0	0	0	0	14	1,120
Over 72"	2		0	0	0	1	0	0	0	4	2	3	7	0	0	0	0	19	2,280
Total Trees Counted	150		87	6	0	261	202	136	102	149	191	76	445	315	247	124	267	2,758	N/A
Tree Clearing Units	1,128		119	7	0	1,305	760	918	369	1,870	1,531	931	5,452	1,280	857	604	1,229	N/A	18,360