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218 11th Street SW Plaza  
Spencer, IA 51301

Ph: (712) 580-5075  
Bolton-Menk.com

## PROJECT AT A GLANCE

### PROPOSED DRAINAGE IMPROVEMENTS

DRAINAGE DISTRICT NO. 74

POCAHONTAS COUNTY, IOWA

BMI PROJECT NO. A16.120745

#### **A. Project Description:**

This project addresses the petition for drainage relief in Drainage District No. 74 (DD74) filed with the Board of Supervisors on February 5<sup>th</sup>, 2020. DD74 has an open ditch, and several tile facilities that drain a total of approximately 5,445 acres in Dover Township (T-91-N, R-34W) in Pocahontas County, Iowa. Proposed improvements would benefit approximately 3,645 acres within the district.

#### **B. Analysis of the Existing Tile System:**

The existing tile systems serving DD74 are generally inadequate relative to the modern standard for drainage, and are in need of double or more the existing flow capacity. However, some reaches of tile are adequate, or near adequate, assuming they are in good repair. For further details see pages 4 – 7 of the Engineer's Report.

#### **C. Analysis of the Main Open Ditch:**

A ditch cleanout was completed 5 years ago (2016). The existing ditch is nearly 2.5 miles in length, ranges in design bottom width of 5-6 feet, in grade 0.10 – 0.49%, and has side slopes of 1.5:1. The upper end of the ditch often submerges the Main Tile outlet, and restricts upstream drainage. See pages 2 – 4 of the Engineer's Report for further details.

#### **D. Farmed Wetlands:**

Over 50% of the potentially benefited land area has submitted wetland determinations. See map in Appendix A of the engineer's report. No farmed wetlands have been identified for the lands associated with the wetland determinations received. The owners of all farmed wetlands known at the time of the hearing and which the USDA eventually determines will be converted by the drainage district project will be credited or paid up to \$7,500 per acre of converted farmed wetland. This is intended to offset a part of the cost of mitigation.

#### **E. Proposed Work:**

To provide a freer outlet to the Main Tile system, and its branches, we are recommending deepening the upper 5,000 feet of the Main Open Ditch. To do this we would flatten the ditch bottom grade from 0.10% to 0.06%, which would result in an additional 2 feet of depth at the start of the ditch. To maintain the same flow capacity of the ditch in this reach, we would widen the bottom from 5 feet to 8 feet. The benefit of this work would be to the Main Tile system, and the open ditch would not incur an expense for the construction.

We recommend replacement of the existing Drainage District No. 74 Main Tile, and Branches 1, 5, 6, 7, 10, & 12 with a system designed according to modern standards. We also recommend construction of a new Branch 14 tile.

**F. Cost Estimate:**

See the Engineer's Opinion of Probable Costs (EOPC) and economic analysis in Appendix C of the Engineer's Report for full details. We estimate the project cost to be \$3,985,000 in total, or \$1,096/benefited acre on average. Note that some assessments could be as high as 2 to 2 ½ times the average. See the pre-classification report, for preliminary estimates of parcel-by-parcel project costs, for the combined recommended project, and for each individual facility proposed to be improved.

We do acknowledge that the estimated cost of this project is high, and thus several lower cost alternatives are presented. Construction costs are in a volatile state and have increased dramatically over the past year due to inflation, labor shortages, and supply chain issues, among other things. We are hopeful that the prices will stabilize soon. Our cost estimate is a reflection of what we believe to be a reasonable price increase considering the current environment but is quite possibly lower than what the project would bid for at the time of filing this report. If the project moves forward and the bids come in excessively high, the Board may opt to reject all bids and re-bid at a later date.

With the potential cost of this project, it is important to carefully weigh the benefits vs. the costs. We have completed a financial analysis of the likely payment period based on yield increases resulting from this project, see Appendix C. Iowa State University and University of Minnesota research indicates a likely average yield increase of 10 – 20% or more for an improvement of this type. Conservatively assuming corn averages \$3.00/bushel over the next 20 years and using only the increase in revenue from an assumed 10% yield increase, an average assessment for the recommended improvements could be repaid in approximately twenty years. If corn averages \$5.00/bushel over the next 20 years with a 10% yield increase, the payback period would be approximately twelve years. The proposed improvements would likely continue to function well for another century plus, bringing continued benefit to future generations of owners. The market value of the land should also increase.

**G. Annexation & Re-classification:**

It appears as though there are approximately 322 acres within parcels benefited by the district facilities that are not currently on the assessment schedule. A separate Annexation Report and hearing would be required to further analyze the lands and give final recommendations.

Drainage District No. 74 has never been reclassified, and all facilities are included in a single assessment schedule. This is inequitable. It has become common practice with reclassification to separate all facilities within a district into individual schedules to prevent landowners who receive no benefit from a particular named facility from having to pay to maintain that facility.

The Board has directed the Engineer to develop a pre-classification similar to what the Benefit Commission would consider at the end of the project. It is included in a separate report. Please be reminded that a pre-classification is an estimate only. The final approved distribution would still be subject to a recommendation of the Commission appointed by the Board, and to the final adjustments made by the Board at the reclassification public hearing at the end of the project.

Sincerely,

**BOLTON & MENK, INC.**

**Collin J. Klingbeil, P.E.**

Project Engineer