



Real People. Real Solutions.

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July 11, 2017

Board of Supervisors
Palo Alto County Courthouse
1010 Broadway Street
Emmetsburg, IA 50536

RE: Summary of Engineer's Report
Proposed Lower Main Open Ditch Improvements
Drainage District No. 61
Project No.: P12.112073

Dear Board Members:

The following is a summary of the Engineer's Report filed May 16, 2017.

Issues:

- Undersized channel cross section results in extended high water depths in the ditch.
- Small cross section results in high velocities which contributes to meandering and bank damage.
- A large portion of the contributing watershed is unassessed for maintenance of the channel.
- Large areas of adjacent land are subject to overflow during relatively small storm flows.

Recommendations:

- Widening of the ditch will reduce flow depths, reduce velocities and reduce overflow of adjacent lands
- 50' base Improvement – Recommended
 - Recommended improvement from 475th St to 460th St.
 - Total estimated project cost - \$850,000 – average cost of \$24/acre over full watershed
- 40' base Improvement – Alternate
 - Recommended improvement from 475th St to 460th St.
 - Total estimated project cost - \$771,000 – average cost of \$22/acre over full watershed
- Recommend purchase of additional Right-of-way – 15.95 acres

Conceptual Alternatives:

- Downstream Channel Improvement
 - Remove high flows more quickly
 - Contains low flows to existing channel
 - Grade some portions to remain farmable
 - Greatest benefit derived by lands along the High-Overflow Channel
 - Improves function of the 475th St bridge and upstream channel.
- Potential Stream Channel Mitigation
 - Recommended channel improvement could be modified to offset USACE channel impacts in the work area
 - Not included as part of this project

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- Potential Wetland Mitigation
 - Wetland acres could be constructed along the lower main open ditch to mitigate wetland impacts resulting from the project.
 - Not currently included with this project.

Regulatory Compliance:

- USACE Permits required for the recommended improvement and for conceptual high-overflow channel.
- NRCS wetland mitigation may be necessary as a result of improving drainage of farmed wetland acres
- FSA buffer strip nesting season waivers will be necessary for lands disturbed along the ditch

Annexation:

- Recommended that all lands which drain to DD 61 should be annexed to help build the improvements and maintain the ditch in the future.
- Most annexed lands are far from the proposed work and would be assessed relatively low \$/ac for the recommended improvements

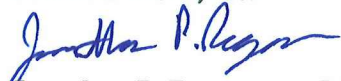
Reclassification:

- Recommend a one-time assessment schedule to pay for proposed improvement.
- All subsequent major channel improvements should use a similar one-time use schedule to spread benefits.
- This schedule would spread the highest benefit and cost to the lands nearest the improved channel reach, but all lands in the district would be assessed.
- Future maintenance schedule would be similar to the existing spread of DD 61 assessments – it may be possible to use the classifications currently assigned and add in all new lands using a similar spread.

This summary does not include all details from the report. If there are further questions than are described here, please review the report on file in the Auditor's office or contact our office at 515-580-5075.

Sincerely,

Bolton & Menk, Inc.



Jonathan P. Rosengren, P.E.

Senior Project Engineer