

HARDIN COUNTY, IOWA

2025



**UPDATED
ENGINEER'S
REPORT ON
REPAIRS TO
MAIN TILE,
DRAINAGE
DISTRICT NO. 67
HARDIN COUNTY**



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

Lee O. Gallentine, P.E. *Jan 20, 2025*
LEE O. GALLENTINE, P.E. DATE

LICENSE NUMBER: 15745
MY LICENSE RENEWAL DATE IS DECEMBER 31, 2026
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Updated Engineer's Report on Repairs to Main Tile, Drainage District No. 67 Hardin County, Iowa

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Updated Engineer's Report on Repairs to Main Tile, Drainage District No. 67 Hardin County, Iowa

1.0 INTRODUCTION

- **SCOPE OF WORK** – The District Trustees, requested Clapsaddle-Garber Associates to investigate and report concerning repairs to the Main tile of Drainage District No. 67. This report will summarize the history of improvements and repairs, investigate the necessity and feasibility of said repairs, and present opinions of probable construction costs associated with said repairs. As a result, the District Trustees requested Clapsaddle-Garber Associates move ahead with an investigation and report concerning repairs to the Main tile and a hearing was held. At that hearing, the tile replacement option was selected and Clapsaddle-Garber Associates was directed to draft plans for the same along with conducting a bid letting from interested contractors. A bid letting was conducted on February 28, 2019 and the project was awarded to Gehrke, Inc from Eldora, Iowa. However, construction never started due to litigation over the proposed Main tile reclassification. Shortly after said litigation, Iowa Code was clarified relative to the apportionment of costs related to drainage district facilities on railroad property. As a result, the District Trustees requested that this report be updated related to the tile replacement option.
- **LOCATION** – The area of investigation is the same as the original report and was limited to the lower portion of the Main tile that had CCTV inspection performed on it.

The Main tile is located in Sections 28 and 33, Township 89 North (T89N), Range 21 West (R21W), Hardin County, Iowa. Specifically, the downstream limit of said Main tile is where it discharges into the Main of Drainage District No. 3. This point is a few hundred feet west of I Avenue and a few hundred feet north of the south line of said Section 28. Said Main tile then goes south across Section 28 and crosses into Section 33 at a few hundred feet west of I Avenue. It then continues south and crosses the former CRIP Railroad a few hundred feet west of I Avenue. After said crossing, it goes southwest across Section 33 to a point approximately 1/8 mile west of I Avenue and 1/8 mile north of 155th Street. From this point, it goes southeast and crosses 155th Street a few hundred feet west of I Avenue. It then terminates on the south side of 155th Street. For reference, copies of the Investigation Map showing the entire Main tile and the area of investigation is included in Appendix A of the original report.

2.0 DISTRICT HISTORY – The following is a summary of the pertinent history of Drainage District No. 67 as obtained from the Hardin County Auditor’s drainage minutes and records.

- 1915, July 6th Petition and Bond for establishment of Drainage District was filed. Said petition indicated that a district be established with laterals as properly needed. Drainage improvement was to commence in the SE¼ SE¼ Section 28, travel in a Southerly direction, and terminate in Section 33.
- 1915, Jul. 9 E.W. Edwards was appointed as Engineer.
- 1916, Feb. 5 Engineer’s Report by E.W. Edwards called for the tile drain beginning at the main tile of Drainage District No. 3 at a point 250 feet upstream of the east line of Section 28 and running southerly across the SE¼ SE¼ of Section 28. From there, it went southerly across the E½ NE¼ of Section 33 and terminated in the NE¼ SE¼ of said Section 33 for a total distance of 3,800 feet. At the crossing with the CRIP Railroad, the reported recommended that 24 feet of 12 inch cast iron pipe be used immediately under the railroad tracks. This crossing was located at the location of the natural waterway and low point. The estimated total cost of construction for the Main and the Lateral 1 was \$1,200.
- 1916, Feb. 25 Publication of Notice of hearing on establishment.
- 1916, Mar. 28 E.L. Chamberlain was appointed Construction Engineer.
- 1916, Mar. 30 Publication of Notice to Contractors for construction of drainage district facilities.
- 1916, Apr. 4 Tile Contract with Eldora Pipe and Tile Company for \$533.82 for supplying tile was entered.
- 1916, Apr. 13 Construction contract with L.P. Debe for \$652.78 for construction of drainage district facilities was entered.
- 1916, Apr. 27 Signed contract between the CRIP Railroad and Drainage District Trustees for construction of the railroad crossing and also agreeing to the location of the Main tile provided by the CRIP Railroad. Said contract indicated that CRIP Railroad may supply 30 feet of cast iron pipe for installation directly under the railroad tracks and embankment. It also indicated that the drainage district would install said cast iron pipe, keep the district tile in “good repair”, and assess the expense for repairs to “all parties” within the drainage district.
- 1916, May 29 E.L.Chamberlain resigned as Construction Engineer.
- 1916, July 27 Bond for J.H. Farrington as Construction Engineer.
- 1916, Oct. 7 Appointment of classification commission.
- 1917, Jan.15 Publication of Notice of Assessment of Benefits.
- 1953, Jan. 28 Bill for repair located in NE¼ Section 33.
- 1956, July 5 Bill for repair of intakes located in SE¼ NE¼ Section 33.
- 1956, July 24 Bill for repair of tile located in SE¼ NE¼ Section 33.
- 1957, Jan. 10 Bill for repair located in SE¼ NE¼ Section 33.
- 1974, May 23 Bill for repair of washed out intake in NE¼ NE¼ Section 33.
- 1979, Jun. 21 Bill for repair of broken tile located in Section 33.

- 3.0 INVESTIGATION – The investigation portion of this report is the same as the original report. For the investigation, field and office investigations were performed. The field portion was limited to visual observation (with excavation), GPS mapping of district facilities, and CCTV inspection of approximately 1125 feet of the Main tile (approximately 30%). For details see the pictures and coordinates contained in Appendix B of the original report, the CCTV inspection tabulation and reports in Appendix C of the original report, and exact locations of CCTV inspection contained in Investigation Map included in Appendix A of the original report.

For the office investigation, available copies of the above mentioned Engineer's Report, Plans and Profiles along with the district history were reviewed. Said review showed that relatively few repairs have been performed (only six from 1953 to 1979). The history did not contain any documented repairs since 1979. Even with the size of the district, this gap is probably not an indication of lack of repairs, but instead an indication of lack of documentation of repair work performed since 1979.

- 4.0 DISCUSSION AND CONCLUSIONS – Based on the above, it is still obvious that the Main tile in the areas of investigation has exceeded its useful lifecycle. Much, if not all the existing VCP tile is cracked which is definitely an indication of nearing the end of lifecycle. More concerning are the many issues listed that restricted drainage. These are an indication of the pipe exceeding its useful lifecycle. Said CCTV inspection and visual observations identified the following key issues:

- 1 full collapsed tile.
- 1 radially cracked tile.
- 10 partially collapsed tile.
- 30 offset joints with voids, rocks, or soil visible.
- 48' of previous repair with single wall HDPE. 5' of this is deformed.
- 609'± of soil and debris in flowline.
- Unable to CCTV inspect under railroad tracks due to debris. Said debris appears to be entering under said railroad tracks, which could indicate a tile collapse under said railroad tracks.

If repairs are not performed, the lower end of the Main tile will continue to deteriorate/collapse and will continue to allow soil to enter the Main tile. All of this will manifest itself as more sinkholes and soil infiltration. When all these issues are combined, it will lead to further reduced drainage for landowners in the drainage district.

- 5.0 REPAIR METHODS – To repair the lower end of the existing Main tile, the District Trustees have previously determined that the following option is the most straightforward one available:

Tile Replacement

- For the lower end of the Main tile, remove and replace the existing tile for the entire length of investigation.
- The above repairs would be in the same location as the existing Main tile in order to preserve connections with private tile. The exception to this would be the railroad crossing, where the location of the Main tile would be dictated by railroad standards. For reference, the route and locations are shown on the map included in Appendix D of the original report.

With the above-mentioned repair methods, the following should be noted:

- For both the above options, the current railroad crossing would not be removed, but would be abandoned and a new crossing will be installed at a location dictated by railroad standards.
- For both the above options trees within 50' of the locations of the repaired Main tile would be removed to stop infiltration of tree roots.
- The pipe sizes used are those that are currently manufactured that most closely meet the current Main tile size.
- The Tile Replacement option would allow for lower maintenance costs in the future as the entire length of investigation is new Main tile.
- The Tile Replacement option would remove all soil and debris in the existing tile for the entire the length of investigation.
- The above repairs are for the identified lower portion of the Main tile only. No repairs are proposed for the remainder of the existing Main tile.
- Repairs have historically been viewed as not having an impact on jurisdictional wetlands. As such, individual landowners should consult with applicable staff at the Hardin County NRCS offices to verify the existence of said jurisdictional wetlands and that there will be no impact on them

Per Iowa Code Chapter 468.126, any of the above actions that do not increase capacity would be considered a repair. As such, Subsection 1, paragraph c of Chapter 468.126 states "If the estimated cost of the repair does not exceed fifty thousand dollars, the board may order the work done without conducting a hearing on the matter. Otherwise, the board shall set a date for a hearing. . ." The opinion of probable construction cost contained in the next section of this report exceeds said \$50,000 limit. Therefore, a hearing will be required. Per Iowa Code Chapter 468.126.1.g, the right of remonstrance does not apply to the proposed repairs.

- 6.0 OPINION OF PROBABLE CONSTRUCTION COSTS – Using the above method of repair, an updated itemized list of project quantities and associated opinion of probable construction costs was compiled and is included in Appendix W of this report. A summary of said costs (to the nearest dollar) are as follows:

| METHOD | DISTRICT COST | RAILROAD COST |
|-------------------------|--------------------------|--------------------------|
| Tile Replacement | \$156,446 | \$135,850 |

It should be noted that said costs include materials, labor, and equipment supplied by the contractor to complete the necessary repair and includes applicable engineering, construction observation, and project administration fees by Clapsaddle-Garber Associates. However, said costs do not include any interest, legal fees, county administrative fees, crop damages, other damages, previous repairs, fees to date, wetland mitigation fees, right of way acquisition, or reclassification fees (if applicable). As always, all costs shown are opinions of Clapsaddle-Garber Associates based on previous lettings on other projects. Said costs are just a guideline and are not a guarantee of actual costs.

- 7.0 OWNERSHIP AND CLASSIFICATIONS – Any and all information concerning ownership of lands and classifications of said lands within Drainage District No. 67 can be obtained from the Hardin County Auditor's offices.

It should be noted that Iowa Code Chapter 468.65 states "When, after a drainage . . . district has been established . . ." and ". . . a repair . . . has become necessary, the board may consider whether the existing assessments are equitable as a basis for payment of the expense of . . . making the repair . . ." and "If they find the same to be inequitable in any particular . . . they shall . . . order a reclassification . . ." Based on this, it is our opinion that a reclassification may be required if the repair were to move forward.

- 8.0 RECOMMENDATIONS – There is a definite need to perform the above-mentioned repairs. The actions would remove the current restrictions to the Main tile, extend the lifespan of the same, and ensure drainage for future years. Therefore, it is recommended that the District Trustees, should take action to accomplish the following:

- Approve the Updated Engineer's Report as prepared by Clapsaddle-Garber Associates.
- Hold the required hearing on the proposed repair.
- Adopt the recommendation of the Engineer's Report.
- Direct that the plans and specifications for the proposed repair be prepared by Clapsaddle-Garber Associates.
- Consult legal counsel to properly notify the railroad to proceed with their construction per Iowa Code 468.109 and 468.110.
- Notify the railroad to proceed with their construction per Iowa Code 468.109 and 468.110.
- Proceed with receiving bids from interested contractors by Clapsaddle-Garber Associates or amend the existing contract with Gehrke.
- Award contract to the lowest responsible contractor.



By: Z.J.S.
 Date: 3/5/2018
 Checked By: L.O.G.
 Date: 3/24/2018
 Updated By: L.O.G.
 Date: 1/17/2025

Updated Engineer's Opinion of Probable Construction Cost
Project: Main tile Repair for D.D. #67
 Location: Sections 28 and 33, T89N, R21W, Hardin County, Iowa

| TILE REPLACEMENT | ITEM # | DESCRIPTION | Unit Cost | Units | Quantity | Units | Total Cost |
|------------------|--|---|---------------------------------------|-------|----------|-------|---------------|
| | DISTRICT CONSTRUCTION COSTS | | | | | | |
| | 201 | 12" RCP OR POLYPROPYLENE WALL TILE | \$ 45.00 | LF | 1347 | LF | \$ 60,615.00 |
| | 202 | INTAKE JUNCTION STRUCTURE | \$ 5,000.00 | EA | 1 | EA | \$ 5,000.00 |
| | 203 | 22 ½° X 12" RCP OR POLYPROPYLENE BEND | \$ 1,000.00 | EA | 3 | EA | \$ 3,000.00 |
| | 204 | 11 ¼° X 12" RCP OR POLYPROPYLENE BEND | \$ 1,000.00 | EA | 2 | EA | \$ 2,000.00 |
| | 205 | CONCRETE COLLARS | \$ 500.00 | EA | 4 | EA | \$ 2,000.00 |
| | 206 | PRIVATE TILE CONNNECTION | \$ 1,000.00 | EA | 4 | EA | \$ 4,000.00 |
| | 207 | TILE REMOVAL | \$ 10.00 | LF | 1347 | LF | \$ 13,470.00 |
| | 208 | TREE REMOVAL | \$ 20,000.00 | LS | 1 | LS | \$ 20,000.00 |
| | 209 | LOCATE EXISTING TILE | \$ 200.00 | STA | 13.47 | STA | \$ 2,694.00 |
| | 210 | SEEDING | \$ 1,000.00 | LS | 1 | LS | \$ 1,000.00 |
| | | | DISTRICT CONSTRUCTION SUBTOTAL | | | | \$ 113,779.00 |
| | | | Contingency (10%) | | | | \$ 11,377.90 |
| | | | DISTRICT CONSTRUCTION TOTAL | | | | \$ 125,156.90 |
| | | | Engr. & Const. Observation (25%) | | | | \$ 31,289.23 |
| | | | DISTRICT TOTAL | | | | \$ 156,446.13 |
| | ITEM # | DESCRIPTION | Unit Cost | Units | Quantity | Units | Total Cost |
| | INSIDE RAILROAD RIGHT OF WAY CONSTRUCTION COSTS | | | | | | |
| | RR1 | 24" JACK AND BORE TILE (RAILROAD CROSSING) | \$ 600.00 | LF | 100 | LF | \$ 60,000.00 |
| | RR2 | 12" DIP TILE | \$ 80.00 | LF | 100 | LF | \$ 8,000.00 |
| | RR3 | RAILROAD PERMITTING, FLAGGING, MONITORING, INSURANCE, ETC | \$ 30,000.00 | LS | 1 | LS | \$ 30,000.00 |
| | RR4 | ABANDON EXISTING TILE (RAILROAD CROSSING) | \$ 300.00 | LF | 85 | LF | \$ 25,500.00 |
| | | | RAILROAD CONSTRUCTION SUBTOTAL | | | | \$ 123,500.00 |
| | | | Contingency (10%) | | | | \$ 12,350.00 |
| | | | RAILROAD CONSTRUCTION TOTAL | | | | \$ 135,850.00 |

Note: Per Iowa Code 468.111, railroad crossings (highlighted pink) are not typically a district expense at locations agreed to by the railroad or at the location of natural waterways.