

AGENDA
REGULAR DRAINAGE MEETING
Wednesday, October 14, 2020 9:30 AM
Large Conference Room

Due to Covid-19 health concerns, this meeting is open to the public via conference call only. The meeting date and time will remain the same. You may call at that time to access the meeting by following the instructions below:

To access the meeting call: 1-(312)-626-6799, when prompted enter meeting ID code: 820 7567 2007

You can also access the meeting online at:
<https://us02web.zoom.us/j/82075672007>

1. Open Meeting
2. Approve Agenda
3. Approve Minutes

Documents:

[10_07_2020 - DRAINAGE MINUTES.PDF](#)

4. Approve Claims For Payment

Documents:

[PAYABLES-DRAINAGE PUBLICATION 10_16_20.PDF](#)

5. Discuss W Possible Action - Drainage Utility Permit Process
The Trustees have invited Drainage Utility Permit holders to the meeting to discuss issues with existing permits and how to create a path forward with new permits.

Documents:

[UTILITY PERMIT APPLICATION ACROSS DRAINAGE DISTRICT.PDF](#)

6. DD Big 4 & DD 46 - Discuss W Possible Action - Drainage Utility Permit Application 2020-14 Midland Power Cooperative

Documents:

[WO 2020-14 MIDLAND POWER DRAINAGE UTILITY PERMIT APPLICATION.PDF](#)
[WO 2020-14 MIDLAND POWER DRAINAGE UTILITY PERMIT MAP.PDF](#)
[2020-14 MIDLAND DRAINAGE UTILITY PERMIT 10_06_2020.PDF](#)

7. DD 26 - Discuss W Possible Action - Drainage Utility Permit Application 2020-15

Documents:

[2020-15 DRAINAGE UTILITY PERMIT APPLICATION IRUA.PDF](#)
[2020-15 -WORK ORDER UTILITY PERMIT IRUA.PDF](#)

8. DD 143 - Discus W Possible Action - Drainage Utility Permit Application 2020-13 - UPN
This Drainage Utility Permit Application acknowledges work done by UPN in DD 143 under previous Utility Permit dated 12-30-2014.

Documents:

[UPN DRAINAGE UTILITY PERMIT APPLICATION 9_29_2020.PDF](#)
[2020-13 UPN MAP ZUBLIN AVE - CO HWY S27 HARDIN CO. ASBUILT 10_6_20.PDF](#)
[2020-13 - DD 143 - DRAINAGE UTILITY PERMIT - UPN -10_6_2020.PDF](#)

9. DD 25 - WO 1 Discuss W Possible Action - Pay Estimate #6

Documents:

[DD 25 - 6501 PAY ESTIMATE NO 6 - 10_13_20.PDF](#)
[DD 25 - 6501 PAY ESTIMATE NO 6 - CONTRACTOR, ENGINEER SIGNED 10_13_20.PDF](#)

10. DD 9 WO 229 - Discuss W Possible Action - Contractor Update
11. DD 11 WO 294 - Discuss W Possible Action - Investigation Summary

Documents:

[DD 11 WO 294 INVESTIGATION SUMMARY W CCTV RESULTS 10_06_20.PDF](#)

12. DD 14 WO 291 - Discuss W Possible Action - Investigation Summary

Documents:

[DD 14 WO 291 INVESTIGATION SUMMARY 10_07_20.PDF](#)

13. Other Business
14. Adjourn Meeting

REGULAR DRAINAGE MEETING
Wednesday, October 7, 2020 10:50 AM

This meeting was held electronically and in-person due to Covid-19 concerns.

10/7/2020 - Minutes

1. Open Meeting

Hardin County Trustee BJ Hoffman opened the meeting. Also in attendance were Trustee Renee McClellan; Michael Pearce, Network Specialist, Lee Gallentine of Clapsaddle-Garber Associates (CGA); and Denise Smith, Drainage Clerk. Meeting was originally scheduled at 9:30 AM and was delayed to 10:50 AM due to the 9:00 AM Board of Supervisors meeting running longer than anticipated.

2. Approve Agenda

Motion by McClellan to approve the agenda. Second by Hoffman. All ayes. Motion carried.

3. Approve Claims For Payment

Motion by McClellan to approve the claims for payment with pay date of Friday, October 9, 2020. Second by Hoffman. All ayes. Motion carried.

DD 9 WO 229 Eng Svcs 4/24/20 - 9/25/20	Clapsaddle-Garber Assoc	\$	618.30
DD 11 WO 294 - Engs Svcs - 7/31/20 - 9/25/20	Clapsaddle-Garber Assoc	\$	2,038.60
DD 22 WO 176 & 192 Eng Svcs - 5/16/20 - 9/26/20	Clapsaddle-Garber Assoc	\$	2,409.05
DD 25 WO 209 Eng Svcs - 8/28/20 - 9/25/20	Clapsaddle-Garber Assoc	\$	487.80
DD 55-3 WO 201 Eng Svcs - 8/28/20 - 9/25/20	Clapsaddle-Garber Assoc	\$	632.30
DD 56 WO 3 - Eng Svcs to 9/25/20	Clapsaddle-Garber Assoc	\$	565.80

4. Discuss W Possible Action - Drainage Utility Permit Process

Smith stated we had Casey Huff of Midland Power Cooperative scheduled to join us today, but was unavailable due to a schedule change in meeting time. Smith has invited Huff to join us next week on October 14, 2020 for the Regular Drainage Meeting to discuss the Drainage Utility Permit Process. Smith stated that there had been recent conversations with contractors regarding the Drainage Utility Permit requirements that Smith thought would be good information for this discussion. Gallentine stated he had been contacted by contractors for utility permit holders, most of the contractors ask that CGA come out and flag the tiles so we know where it is at and we will dig it up. Gallentine explained to the contractors that it doesn't work that way, we have 100 year old hand drawn maps and we don't 100% know where they are, but we know that they are there, this issue resulted in both cases today of a contractor responding with "how would I find the tile then?", Gallentine stated he provided them the information on how we would specifically find the tile, and received a contractor reply of "Well that is not in my contract, I don't know if I will be able to do that." Gallentine explained that for the utility company that took out this permit, this is part of the permit, they have to do this, we need to talk to them and figure out if they are going to do it or is it going to be part of their contract, that ends up being a response from the contractor of "oh, we will have to get back to you". Gallentine stated the Trustees need to be aware we are having some communications but the big pain still gets to be that they still think we should know exactly where these tiles are at, and they don't want to take the time, don't have the equipment to locate them themselves. Hoffman asked if this was something that today we could provide our local experts to these people and say we know you have a contract with your ABC contractors but we have some local experts that do this on a regular basis and provide the utilities with the contractor information from our lottery, especially our proven contractors like Paul Williams, Handsaker and Seward and say these are recommended if you don't want to have to train people. Hoffman stated we would really like to keep this moving so we would really prefer to keep it moving, can we say try to use these contractors, would that be something that would be permissible. Gallentine stated it would be helpful, and did mention that, but in both of these cases Gallentine was talking to the utility's contractor, not the permit holder or utility company, so the contractor does not want to sub the work out, as it costs them money, Gallentine told them there are local contractors that find our tile everyday, this is not that tough.

McClellan stated the cost may even out for the contractor as they may spend more time going out to look for the tile than if they just utilized a local contractor. Hoffman asked if McClellan would like to make a motion to have the Drainage Clerk provide that list to the utility companies.

Motion by McClellan to direct the Drainage Clerk to provide the utility companies as permit holders with a list of local contractors along with a letter noting that these contractors are familiar with our Drainage Districts. Second by Hoffman.

In additional discussion on the motion, Hoffman stated this may expedite things for the utilities if they work with someone familiar with Hardin County Drainage tile. Gallentine stated that may be a great interim measure until the Trustees decide if they will implement an application fee, and may be a bridge to help them find the tiles until we get to that point.

All ayes. Motion carried.

Smith referenced an email from Aureon in which Mathew Weiser of Aureon details that they had worked with CGA on some crossings, and Smith was looking for some clarification on this, as Weiser stated in his email he can't recall if CGA was contacted for all crossings or if CGA was on sight for all crossings, Weiser went on that their as-builts don't provide enough details to paint a clear picture on whether or not all crossings were observed, and at what depth they were bored, and did they go over or under district facilities, Weiser asks what steps are required of Aureon next. Smith requested clarification from the Trustees, as we have communicated what the permit requirements are, going back looking at the permit after the fact, what follow up would the Trustees like from Aureon. Gallentine interjected that the first step could be requesting a copy of the as-builts so we have an idea of which districts they crossed, because we don't even know for sure where or if they even crossed district facilities. Smith stated it can be confusing at times as utilities like to say our work is done so we are finished, and that may not be how this works. Smith can request that from Aureon, Gallentine stated once we can review that as-builts, we can review them and see if any locations need to be reviewed and then we can instruct Aureon that this location may need to be exposed. Smith stated she can reach out to Aureon for the as-builts if it is ok with the Trustees, McClellan and Hoffman concurred that would be acceptable.

Smith stated under this topic, that the Trustees had directed Smith to verify availability with Gallentine and attorney Mike Richards for a closed session meeting and she had received some dates of availability from Richards. Gallentine is open on Wednesdays and Richards has availability on October 21, 28 or Nov. 11, the Courthouse is closed on November 11th for Veteran's day. Smith asked if the Trustees had any interest in those dates. Hoffman asked how far out are we willing to look at. Smith stated we have time to extend a date further out as this would be to discuss Drainage Utility Permit process as it pertains to CUECs. Hoffman stated maybe pushing it out farther we could revisit setting a meeting date in the near future, and ask Richards for some dates further out, maybe we will have additional information at that time for Richards to have. Smith will reach out to Richards for possible availability later in November/December.

5. DD H-F 1 - WO 2019-5 - Discuss W Possible Action - Construction Update

This Drainage Utility Permit was filed back in 2019, and Smith and Gallentine have had communication with the utility, Iowa Power & Light/Alliant, Smith had forwarded the Trustees some information, that this was never built in Hardin County, Smith wanted to review this again as we never did an official closure on the permit. Smith stated the utility's contractor provided us information, and Gallentine reviewed and concurred that there was no permit or observation needed as they did not extend their work into Hardin County. Gallentine stated they did not cross any district facilities in Hardin County, the utility applied for the permit not knowing what they would get into, and based on what the utility described, they did not cross anything that needed observation.

Motion by McClellan to close Drainage Utility Permit & Work Order 2019-5. Second by Hoffman. All ayes. Motion carried.

6. DD 14 WO 299 - Discuss W Possible Action - Investigation Summary

Gallentine noted this was DD 41, not DD 14 as it was listed on the agenda. Gallentine provided an update on this work order submitted by Chris Blome on John Littschwager's ground, there was a spot repair in the same vicinity a couple of years ago, it appears that another sinkhole appeared outside of those spot repair limits we previously did, it can easily be repaired through the lottery system. Gallentine noted the sinkhole is located in a waterway and is readily accessible, and is the same issue we have been having is fighting spot repair after spot repair, Gallentine did not know if a larger repair was of interest as was suggested a few years ago, at that time landowners requested continuing with spot repairs. CGA recommends this work order be sent to lottery for repair.

Motion by McClellan to send DD 41 Work Order 299 to the lottery system for repair. Second by Hoffman. All ayes. Motion carried.

7. DD 102 WO 265 - Discuss W Possible Action - Observation Summary

Gallentine updated that this was in DD 102 where they put the wetland into the Perry property. Gallentine stated that the observation report states we didn't use any rock, didn't observe any soil where we felt they needed to use rock, they spooned the tile in nicely and as far as rock bedding goes, everything appeared to be ok. Gallentine stated he has shared this with the Trustees verbally before, this is the official record of that observation.

Motion by McClellan to acknowledge the Observation Summary. Second by Hoffman. All ayes. Motion carried.

8. DD 158 - WO 285 - Discuss W Possible Action - Repair Summary

Gallentine stated this repair took place along K Ave., where they found the water was boiling out and flowing through the road culvert and then going back underground on the east side of the road. Gallentine stated when we got out in the field, nothing was really apparent, so they did some televising, when we televised downstream on the east side of K Ave. you can see where there was some previous repair to the tile. There was actually good size chunk of tile blocking a third to half of the pipe flow, and you could visibility see the water level drop down once it got past. Gallentine stated we dug down and pulled that out, when we televised upstream to the west, we found some previous repairs with corrugated metal that was rusty enough you could see water seeping through the sides of the corrugated metal pipe. Gallentine stated we replaced that also and that is the green on the map on the west side of K Ave., there was another private tile to the south that incurred a little bit of damage while they were out there, so they went ahead and repaired that. Overall the repair went well, Gallentine did note that we would like to have the contractor verify that they seeded the road ditches or have Secondary Roads do the seeding, also there is a decent amount of silt in the road ditch that CGA recommends that Secondary Roads be notified of so they can do an appropriate cleanout of the ditch. Gallentine noted that about 1/3rd of an acre of crop damage was incurred and CGA recommends that if a claim were to be submitted for that, CGA recommends payment of the crop damage claim. McClellan asked about the fiber optic cable noted on the map and if it went through the tile. Gallentine stated no the fiber optic cable did not go through the tile, it was located via One Call, so when they located it, we shot it and it was not impacting the tile. Hoffman directed the Drainage Clerk to make Secondary Roads aware of the issues noted in the Repair Summary.

Motion by McClellan to acknowledge the receipt of the Repair Summary. Second by Hoffman. All ayes. Motion carried.

9. Other Business

One Call - Locate Services - Hoffman asked if we as a group would like to have the conversation about becoming part of the 811 locate service. Gallentine stated that would be a discussion worth having. Hoffman stated this could be addressed after the election at some point. Smith agreed, as we get closer to looking at an all district assessment, that may be one of the things worth taking into consideration, and what does that service cost us as a county, that may be a way to partially fund that service. McClellan stated it may be worth researching with Counties that participate in the service for drainage districts and what those costs look like, but that could be done after the election.

Gallentine stated he is meeting with Jay Duncan of Heart of Iowa to go over their Drainage Utility Permits, Jay is very responsive as always and it is a pleasure working with him. Hoffman stated he visited with Jay and Bryan at Heart of Iowa last week and thanked them for not participating in the meeting last week, and congratulated them for not having to be in attendance at that meeting.

10. Adjourn Meeting

Motion by McClellan to adjourn. Second by Hoffman. All ayes. Motion carried.



Hardin County

Drainage Claims with Pay Date of 10/16/2020

DD 25 WO 1 - Pay Estimate #6

McDowell & Sons Contractors

3,840.57

Total Regular Payables:	0.00
Total Stamped Warrants:	3,840.57



HARDIN COUNTY

1215 EDGINGTON AVE., SUITE 1
ELDORA, IA 50627
(641) 939-8108

HARDIN COUNTY DRAINAGE DISTRICT UTILITY PERMIT APPLICATION

Applicant:

Company Name

Address

City State Zip

Applicant Contact:

Name (_____) _____ - _____
Phone

Email

Utility Type: _____

Drainage District(s) Crossed: _____

Facilities Crossed (specific tile, open ditch): _____

Description of Work: _____

*(Location plan of
proposed utility must
be attached.)*

Pursuant to Code of Iowa Section 468.186, approval is hereby requested for the right, privilege and authority to construct, operate and maintain utilities on, over, across or beneath established Hardin County Drainage Districts, subject to the attached Requirements for Construction On, Over, Across or Beneath Established Drainage District. Failure to comply with said requirements shall be ground for revocation of the permit by the Hardin County Board of Supervisors.

Applicant Signature

Date

Submit Form and Location Plan To:

Hardin County Auditor's Office
Attn: Drainage Clerk
1215 Edgington Ave, Suite 1
Eldora, IA 50627
Fax (641) 939-8225
drainage@hardincountyia.gov

For Office Use Only

Application Approval:

By: _____
Board of Supervisor Chairman, Acting as Drainage District Trustee

Date: _____



APPROVED PERMIT #: _____

REQUIREMENTS FOR CONSTRUCTION ON, OVER, ACROSS OR BENEATH ESTABLISHED DRAINAGE DISTRICT

Upon issuance of a permit for utilities on, over, across or beneath established Hardin County Drainage Districts, the applicant shall be governed by these requirements and shall comply with all conditions contained herein.

SECTION I – Standard Requirements

1. The Applicant shall furnish the Drainage District, or its representative, plats showing the exact location of the proposed construction. If it is found that such locations are in conflict with the present or proposed facilities and that a more desirable location is possible, the Applicant shall review such possible alignment changes. **No construction is to commence with the drainage facility without an approved application.**
2. Applicant shall comply with Iowa One-Call requirements prior to commencing any work.
3. The Drainage District shall provide Applicant access to maps or other information regarding the location of all known drainage district facilities so that reasonable care may be taken by Applicant to avoid un-necessary damage to said drainage district facilities.
4. The Applicant shall hold the Drainage District harmless from any damage that may result to the Drainage District facility because of the construction or maintenance of the utility, and shall reimburse the Drainage District for any expenditures that the Drainage District may have to make on said Drainage District facilities resulting from Applicant's construction and installation of utilities, or their subsequent repair or modification.
5. The Applicant shall take all reasonable precaution during the construction of said utility to protect and safeguard the lives and property of the public and adjacent property owners and shall hold the Drainage District harmless from any damages or losses that may be sustained by adjacent property owners on account of such construction operations. Further, Applicant agrees to replace, repair or reimburse all damages to private property occasioned by Applicant's installation of subsequent modification or repairs.
6. The Drainage District assumes no responsibility for damages to the Applicants property occasioned by any construction or maintenance operation of said Drainage District facilities, subsequent to Applicants installation.
7. A copy of a certificate of insurance naming the County/Drainage District as additional insured for their permit work shall be provided to the County Auditor prior to installation. The limit of liability under the insurance policy shall not be less than \$1,000,000 per occurrence.
8. The Applicant agrees to give the Drainage District twenty-four (24) hours (Saturday and Sunday excluded) notice of its intention to commence construction on any lands within the jurisdiction of the Drainage District. Said notice shall be made in writing to the County Auditor or to the designated Drainage District representative.
9. The Applicant agrees to place permanent, visible markers or monuments at locations where utility crosses Drainage District facilities. These monuments or markers shall identify the owners name, address and phone number.
10. The Drainage District Trustees may appoint a representative to inspect and approve all construction across Drainage District facilities as part of this permit. All compensation, wages, mileage and other expenses for this representative will be paid by the Applicant. It will be the responsibility of the Applicant to make all contacts with private parties (adjacent owners/operators) to determine the location of private drainage facilities. Said representative will also inspect all crossing of Drainage District facilities and may, if required, observe the crossing of private drainage facilities, and shall have the authority to require the Applicant to excavate and expose the crossing of any Drainage District facility where the representative believes it prudent to visually examine Applicants crossing of the Drainage District facility. Further, said representative has the authority to suspend construction and installation by the Applicant within any Drainage District jurisdiction by verbal order to the contractor at the site and a telephone call to Applicants contact person listed on page 1 within six (6) hours of the verbal order



11. The construction and maintenance of Applicants installation shall be carried on in such a manner as to not interfere with or interrupt the function of said Drainage District facilities without the express written consent of the Drainage District Representative. In the event it becomes necessary to temporarily stop the flow of water, the following shall be completed by the Applicant:
 - a. If the crossing involves a tile line, the replacement of tile with approved materials, in the manner approved by the Drainage Districts designated representative, shall be performed as rapidly as possible. If the approved method of repair is impossible and the volume of water flowing in the tile is sufficient to create the possibility of crop loss or property damage, the Contractor will be permitted to temporarily block the tile line to prevent the flow of this tile water into the pipeline, or tile line ditch. In the event this tile line is so temporarily blocked, the Contractor will be expected to provide sufficient pumping equipment to pump the impounded tile water across the construction ditch to the undisturbed tile line. Such temporary blockages of said Drainage District tile lines will be removed as rapidly as possible and any tile repairs caused by this blockage will be immediately repaired at the Applicants expense.
 - b. If the crossing involves an open ditch that is carrying sufficient flow of water to make it necessary to place a temporary dam across said open ditch, such temporary dams may be constructed only upon approval from the Drainage District designated representative. The maximum elevation of this impounded water shall be determined by the designated Drainage District representative and all excess water must be allowed to flow across the construction ditch through either a closed metal culvert pipe or by pumping. All temporary dam structures are to be removed as soon as the crossing is completed. The construction and removal of these dams shall be in such a manner that the smooth and efficient function of the drainage ditch is not impaired, with all costs and damages borne by Applicant.
12. The Applicant will at any time subsequent to the commencement of construction, and at Applicants sole expense, reconstruct or replace its installation as may be necessary to conform to new grade or alignments resulting from maintenance or construction operations by the Drainage District in connection with any of its drainage facilities. Applicant agrees to do this within forty-five (45) days of receipt of written request from the Drainage District, or such longer time period as the Drainage District may specify, without cost to the Drainage District. Such reconstruction or realignment of Applicants improvements shall be made in accordance with and approved by the Drainage District or its designated representative. If the Applicant is unable to comply within the time period specified above, the Drainage District may cause the work to be done and the Applicant will pay the cost thereof upon receipt of a statement of such costs.
13. CROSSING OF OPEN DITCH FACILITIES. Utility crossings shall be constructed as follows, as directed by the designated representative of the Drainage District:
 - a. Passage of installation in a horizontal plane five feet (5') below design grade of drainage ditch, as established by the Drainage District representative.
 - b. The above depth to extend to a point two (2) times the design base width of ditch either side of centerline of drainage ditch (measured along the centerline of utility) unless the existing base width is greater than the design bases width. If the existing base width is greater than the design with, the depth is to extend to a point two (2) times the existing width.
 - c. The rate of slope for transition from normal utility laying depth of crossings of drainage ditches shall not be steeper than 4:1.
 - d. If such ditch crossings occur at points of outlets of Drainage District or private tile lines or within twenty-five feet (25') of said outlets, such outlets must be relocated to a point not less than twenty-five feet (25') from such crossings. Such relocations shall be at the expense of the Applicant and as directed by the representative of the Drainage District.



14. CROSSING OF DRAINAGE DISTRICT TILE LINES. Utility crossings shall be constructed as follows, as directed by the designated representative of the Drainage District:
- a. All proposed installations must be placed under the existing Drainage District tile lines. These requirements may be waived only upon the review by and approval of the designated representative of the Drainage District. Such waiver must be in writing.
 - b. A minimum of one foot (1') clearance below existing Drainage District facilities must be maintained.
 - c. At all crossings of Drainage District tile lines with the proposed utility, one of the following must be used:
 - i. Replace Drainage District tile with reinforced concrete pipe of same or larger diameter than existing tile. Concrete pipe to be 2,000 D strength (Iowa Department of Transportation approved) with standard tongue and groove joints. Pipe to have a minimum of three (3) bolt-type connectors at each joint.
 - ii. Replace Drainage District tile with cathodic protected corrugated metal pipe. Diameter of corrugated metal pipe to be a minimum of two inches (2") larger than outside diameter of tile line being replaced. (Specifications regarding gage, cathodic protection and other details to be subject to review and approval.)
 - iii. Dual wall plastic with specific approval of Drainage District representative.
 - iv. Bore new utility installation; maintain existing tile in an undisturbed state.
 - d. The length of tile to be replaced by any of the above alternates is as follows:
 - i. Eight-inch (8") tile and smaller: Six feet (6') either side of centerline of proposed installation, measured at right angles to the centerline of installation.
 - ii. Ten inch (10") tile and larger: Ten feet (10') either side of centerline of proposed installation, measured at right angles to the centerline of installation.
 - e. At all crossings of Drainage District tile lines where the Drainage District and private tile lines are damaged by the construction, maintenance or repair of Applicants installation shall be repaired as directed by the Drainage Districts designated representative.
15. This permit is subject to existing regulations and statutes of the State of Iowa and future regulations, which may be promulgated or enacted.
16. This application is subject to revocation by Hardin County, if in its judgment it is necessary for legitimate purposes. In such event, written notice shall be provided to permit holder.
17. Applicant agrees to pay all other legitimate costs, fees and expenses associated with its crossing of the Drainage District facility, including but not limited to, publication costs, engineering costs and legal service costs. Said costs will be paid within thirty (30) days of the mailing of the statements to the Applicant.
18. Applicant agrees to provide a copy of as-built plan of the utility route and location, showing route changes that may have taken place during construction.
19. Applicant agrees to include a copy of these requirements to all bidding specifications; or if the construction and installation contract has been let by the time this permit is approved, Applicant agrees to provide a copy of these requirements to the contractor and to advise them that they are bound by the terms of these requirements.



SECTION II – WIND TURBINE REQUIREMENTS

20. This Section shall apply to commercial wind turbine applicants as defined in Hardin County Ordinance 29, Article XXIII.
21. Section I above shall also apply, but to the extent the requirements of Section II herein are incompatible with those in Section I herein, those in Section II shall apply.
22. Prior to approval and issuance of a permit, applicant first shall obtain conditional approval from the Drainage District. The conditional approval shall be for each proposed site and shall require the applicant and the Drainage District to enter into an agreement containing the following terms: (1) At applicant's expense, and at District's direction and conditions, applicant shall televise the District Tile that may be impacted as determined by the District; (2) The applicant shall enter into a damages agreement with the District, per site, that: a. allocates to the applicant a percentage of fault for resulting damages to the Drainage District facilities; b. establishes damages based on replacement cost to the Drainage District; c. establishes a damages deposit; and d. requires the applicant to pay the Drainage District legal fees related to the agreement, including enforcement.
23. No permit shall be approved or issued without first entering a damages agreement as set forth in the previous paragraph. A permit will also include the following requirements:
 - A. At District's discretion, under the District's direction and conditions, and at applicant expense, applicant shall televise the District tile before and after a turbine's construction to review tile conditions;
 - B. Applicant shall use GPS to map crane walks and ingress and egress of all vehicles and equipment with a gross weight of 8,000 lbs. or greater, and shall provide this data to the District in a format approved by the District;
 - C. Applicant shall maintain a two hundred (200) foot setback from the outside of the turbine's footing to any District facilities, including open ditches, to allow for repairs to Drainage facilities;
 - D. At applicant expense, the District shall designate at its discretion an engineer/technician that the applicant shall allow to be present to observe any and all aspects of construction. These costs shall not be passed on to the landowner or District;
 - E. Wind turbine underground accessory facilities, feeder lines and cables shall be bored under District facilities at a depth approved by the District.
 - F. Applicant shall use the District engineer and local contractors approved by the District for all work pertaining to tile televising/inspection, repair and replacement. The District shall maintain a current price list for local contractors' services and rates and shall be provided at the applicant's request.
 - G. Any time a wind turbine undergoes changes, re-powering or re-blading, or any service to the turbine that requires a crane walk, the site will need to be re-televised as required in subparagraph "A" above, as well as new GPS mapping as required in subparagraph "B" above.
 - H. The District has the authority to enter upon the land and service any District facilities at any time, with or without the consent of, or prior notice to the applicant. The applicant is responsible for any cost increase experienced by the District for service and maintenance of District facilities due to a wind turbine and turbine accessory facilities and lines.
 - I. The applicant shall pay any legal costs, including reasonable attorney fees, incurred by the District related to any disputes or enforcement of these permit requirements.
24. The term "Applicant" shall mean the permit applicant, the applicant's agents, heirs, successors, assigns, and facility owners.



HARDIN COUNTY

1215 EDGINGTON AVE., SUITE 1
ELDORA, IA 50627
(641) 939-8108

HARDIN COUNTY DRAINAGE DISTRICT UTILITY PERMIT APPLICATION

Applicant: Midland Power Cooperative
Company Name
PO Box 368
Address
Boone IA 50036
City State Zip
Applicant Contact: Cassey Huff (515) 709-3908
Name Phone
chuff@midlandpower.coop
Email
Utility Type: Primary overhead electrical
Drainage District(s) Crossed: Big 4, DD 46
Facilities Crossed (specific tile, open ditch): _____
Description of Work: Setting poles along B Ave starting at Hwy
D20, Alden Township Sections 16 for
1 mile, heading east along 120m for 1 mile
(Location plan of
proposed utility must
be attached.)

Pursuant to Code of Iowa Section 468.186, approval is hereby requested for the right, privilege and authority to construct, operate and maintain utilities on, over, across or beneath established Hardin County Drainage Districts, subject to the attached Requirements for Construction On, Over, Across or Beneath Established Drainage District. Failure to comply with said requirements shall be ground for revocation of the permit by the Hardin County Board of Supervisors.

[Signature]
Applicant Signature

10/6/20
Date

Submit Form and Location Plan To:

Hardin County Auditor's Office
Attn: Drainage Clerk
1215 Edgington Ave, Suite 1
Eldora, IA 50627
Fax (641) 939-8225
drainage@hardincountyia.gov

For Office Use Only

Application Approval:

By: _____
Board of Supervisor Chairman, Acting as Drainage District Trustee

Date: _____

APPROVED PERMIT #: _____



REQUIREMENTS FOR CONSTRUCTION ON, OVER, ACROSS OR BENEATH ESTABLISHED DRAINAGE DISTRICT

Upon issuance of a permit for utilities on, over, across or beneath established Hardin County Drainage Districts, the applicant shall be governed by these requirements and shall comply with all conditions contained herein.

1. The Applicant shall furnish the Drainage District, or its representative, plats showing the exact location of the proposed construction. If it is found that such locations are in conflict with the present or proposed facilities and that a more desirable location is possible, the Applicant shall review such possible alignment changes. **No construction is to commence with the drainage facility without an approved application.**
2. Applicant shall comply with Iowa One-Call requirements prior to commencing any work.
3. The Drainage District shall provide Applicant access to maps or other information regarding the location of all known drainage district facilities so that reasonable care may be taken by Applicant to avoid un-necessary damage to said drainage district facilities.
4. The Applicant shall hold the Drainage District harmless from any damage that may result to the Drainage District facility because of the construction or maintenance of the utility, and shall reimburse the Drainage District for any expenditures that the Drainage District may have to make on said Drainage District facilities resulting from Applicant's construction and installation of utilities, or their subsequent repair or modification.
5. The Applicant shall take all reasonable precaution during the construction of said utility to protect and safeguard the lives and property of the public and adjacent property owners and shall hold the Drainage District harmless from any damages or losses that may be sustained by adjacent property owners on account of such construction operations. Further, Applicant agrees to replace, repair or reimburse all damages to private property occasioned by Applicant's installation of subsequent modification or repairs.
6. The Drainage District assumes no responsibility for damages to the Applicants property occasioned by any construction or maintenance operation of said Drainage District facilities, subsequent to Applicants installation.
7. A copy of a certificate of insurance naming the County/Drainage District as additional insured for their permit work shall be provided to the County Auditor prior to installation. The limit of liability under the insurance policy shall not be less than \$1,000,000 per occurrence.
8. The Applicant agrees to give the Drainage District twenty-four (24) hours (Saturday and Sunday excluded) notice of its intention to commence construction on any lands within the jurisdiction of the Drainage District. Said notice shall be made in writing to the County Auditor or to the designated Drainage District representative.
9. The Applicant agrees to place permanent, visible markers or monuments at locations where utility crosses Drainage District facilities. These monuments or markers shall identify the owners name, address and phone number.
10. The Drainage District Trustees may appoint a representative to inspect and approve all construction across Drainage District facilities as part of this permit. All compensation, wages, mileage and other expenses for this representative will be paid by the Applicant. It will be the responsibility of the Applicant to make all contacts with private parties (adjacent owners/operators) to determine the location of private drainage facilities. Said representative will also inspect all crossing of Drainage District facilities and may, if required, observe the crossing of private drainage facilities, and shall have the authority to require the Applicant to excavate and expose the crossing of any Drainage District facility where the representative believes it prudent to visually examine Applicants crossing of the Drainage District facility. Further, said representative has the authority to suspend construction and installation by the Applicant within any Drainage District jurisdiction by verbal order to the contractor at the site and a telephone call to Applicants contact person listed on page 1 within six (6) hours of the verbal order.



11. The construction and maintenance of Applicants installation shall be carried on in such a manner as to not interfere with or interrupt the function of said Drainage District facilities without the express written consent of the Drainage District Representative. In the event it becomes necessary to temporarily stop the flow of water, the following shall be completed by the Applicant:
 - a. If the crossing involves a tile line, the replacement of tile with approved materials, in the manner approved by the Drainage Districts designated representative, shall be performed as rapidly as possible. If the approved method of repair is impossible and the volume of water flowing in the tile is sufficient to create the possibility of crop loss or property damage, the Contractor will be permitted to temporarily block the tile line to prevent the flow of this tile water into the pipeline, or tile line ditch. In the event this tile line is so temporarily blocked, the Contractor will be expected to provide sufficient pumping equipment to pump the impounded tile water across the construction ditch to the undisturbed tile line. Such temporary blockages of said Drainage District tile lines will be removed as rapidly as possible and any tile repairs caused by this blockage will be immediately repaired at the Applicants expense.
 - b. If the crossing involves an open ditch that is carrying sufficient flow of water to make it necessary to place a temporary dam across said open ditch, such temporary dams may be constructed only upon approval from the Drainage District designated representative. The maximum elevation of this impounded water shall be determined by the designated Drainage District representative and all excess water must be allowed to flow across the construction ditch through either a closed metal culvert pipe or by pumping. All temporary dam structures are to be removed as soon as the crossing is completed. The construction and removal of these dams shall be in such a manner that the smooth and efficient function of the drainage ditch is not impaired, with all costs and damages borne by Applicant.
12. The Applicant will at any time subsequent to the commencement of construction, and at Applicants sole expense, reconstruct or replace its installation as may be necessary to conform to new grade or alignments resulting from maintenance or construction operations by the Drainage District in connection with any of its drainage facilities. Applicant agrees to do this within forty-five (45) days of receipt of written request from the Drainage District, or such longer time period as the Drainage District may specify, without cost to the Drainage District. Such reconstruction or realignment of Applicants improvements shall be made in accordance with and approved by the Drainage District or its designated representative. If the Applicant is unable to comply within the time period specified above, the Drainage District may cause the work to be done and the Applicant will pay the cost thereof upon receipt of a statement of such costs.
13. CROSSING OF OPEN DITCH FACILITIES. Utility crossings shall be constructed as follows, as directed by the designated representative of the Drainage District:
 - a. Passage of installation in a horizontal plane five feet (5') below design grade of drainage ditch, as established by the Drainage District representative.
 - b. The above depth to extend to a point two (2) times the design base width of ditch either side of centerline of drainage ditch (measured along the centerline of utility) unless the existing base width is greater than the design bases width. If the existing base width is greater than the design with, the depth is to extend to a point two (2) times the existing width.
 - c. The rate of slope for transition from normal utility laying depth of crossings of drainage ditches shall not be steeper than 4:1.
 - d. If such ditch crossings occur at points of outlets of Drainage District or private tile lines or within twenty-five feet (25') of said outlets, such outlets must be relocated to a point not less than twenty-five feet (25') from such crossings. Such relocations shall be at the expense of the Applicant and as directed by the representative of the Drainage District.



14. CROSSING OF DRAINAGE DISTRICT TILE LINES. Utility crossings shall be constructed as follows, as directed by the designated representative of the Drainage District:
- a. All proposed installations must be placed under the existing Drainage District tile lines. These requirements may be waived only upon the review by and approval of the designated representative of the Drainage District. Such waiver must be in writing.
 - b. A minimum of one foot (1') clearance below existing Drainage District facilities must be maintained.
 - c. At all crossings of Drainage District tile lines with the proposed utility, one of the following must be used:
 - i. Replace Drainage District tile with reinforced concrete pipe of same or larger diameter than existing tile. Concrete pipe to be 2,000 D strength (Iowa Department of Transportation approved) with standard tongue and groove joints. Pipe to have a minimum of three (3) bolt-type connectors at each joint.
 - ii. Replace Drainage District tile with cathodic protected corrugated metal pipe. Diameter of corrugated metal pipe to be a minimum of two inches (2") larger than outside diameter of tile line being replaced. (Specifications regarding gage, cathodic protection and other details to be subject to review and approval.)
 - iii. Dual wall plastic with specific approval of Drainage District representative.
 - iv. Bore new utility installation; maintain existing tile in an undisturbed state.
 - d. The length of tile to be replaced by any of the above alternates is as follows:
 - i. Eight-inch (8") tile and smaller: Six feet (6') either side of centerline of proposed installation, measured at right angles to the centerline of installation.
 - ii. Ten inch (10") tile and larger: Ten feet (10') either side of centerline of proposed installation, measured at right angles to the centerline of installation.
 - e. At all crossings of Drainage District tile lines where the Drainage District and private tile lines are damaged by the construction, maintenance or repair of Applicants installation shall be repaired as directed by the Drainage Districts designated representative.
15. This permit is subject to existing regulations and statutes of the State of Iowa and future regulations, which may be promulgated or enacted.
16. This application is subject to revocation by Hardin County, if in its judgment it is necessary for legitimate purposes. In such event, written notice shall be provided to permit holder.
17. Applicant agrees to pay all other legitimate costs, fees and expenses associated with its crossing of the Drainage District facility, including but not limited to, publication costs, engineering costs and legal service costs. Said costs will be paid within thirty (30) days of the mailing of the statements to the Applicant.
18. Applicant agrees to provide a copy of as-built plan of the utility route and location, showing route changes that may have taken place during construction.
19. Applicant agrees to include a copy of these requirements to all bidding specifications; or if the construction and installation contract has been let by the time this permit is approved, Applicant agrees to provide a copy of these requirements to the contractor and to advise them that they are bound by the terms of these requirements.

Name:		Phone 1:		Midland Power Cooperative												W.O. Number: 13327							
Srv Map Loc: 1276--6616		Phone 2:														Job Number:							
Equip Map Loc:		Staked By: CASSANDRA A HUFF		Loan Project: 317-1				City:				TWP: 89N				Section(s): 16				Substation: 12 - Alden		Line Sec:	
911 Addr:				Budget Code#: 01				County: Hardin				Range: 22W				Tax Dist:				Feeder: 1270		Phase: ABC	
Acct #:																							

Pole #	BACK SPAN	*	POLE	#	PRI UNITS	WIRE SIZE	#	MISC UNITS	#	GUY	GUY LD	#	ANCHOR	#	TRANS	KVA	#	SEC UNITS	#	SECONDARY WIRE SIZE	GRND	#	METER	LAT LONG
chuff.1		E	40-3	1	C2.21P-4/0		1	H1.1-1/0	1	E1.1		1	F1.12											42.51432 -93.45979
Remove guy pole		C		1	C7.1-1/0																			

chuff.2	42	C	35-3	1	C6.21-1/0	1/0-ACSR	1	H1.1-#2	3	E1.1		3	F1.12											42.51443 -93.45982
		C				2-ACSR																		

chuff.3	244	C	(3) P1.1-1/0	1	C1.11-1/0	1/0-ACSR	1	H1.1-#2																42.5151 -93.45982
		C	35-3			2-ACSR																		

chuff.4	238	C	40-3	1	C1.11-1/0	1/0-ACSR	1	H5.1-#2																42.51575 -93.45985
		C				2-ACSR																		

chuff.5	225	C	40-3	1	C1.11-1/0	1/0-ACSR	1	H5.1-#2																42.51637 -93.45984
		C				2-ACSR																		

chuff.6	243	C	35-3	1	C1.11-1/0	1/0-ACSR	1	H5.1-#2																42.51703 -93.45983
		C				2-ACSR																		

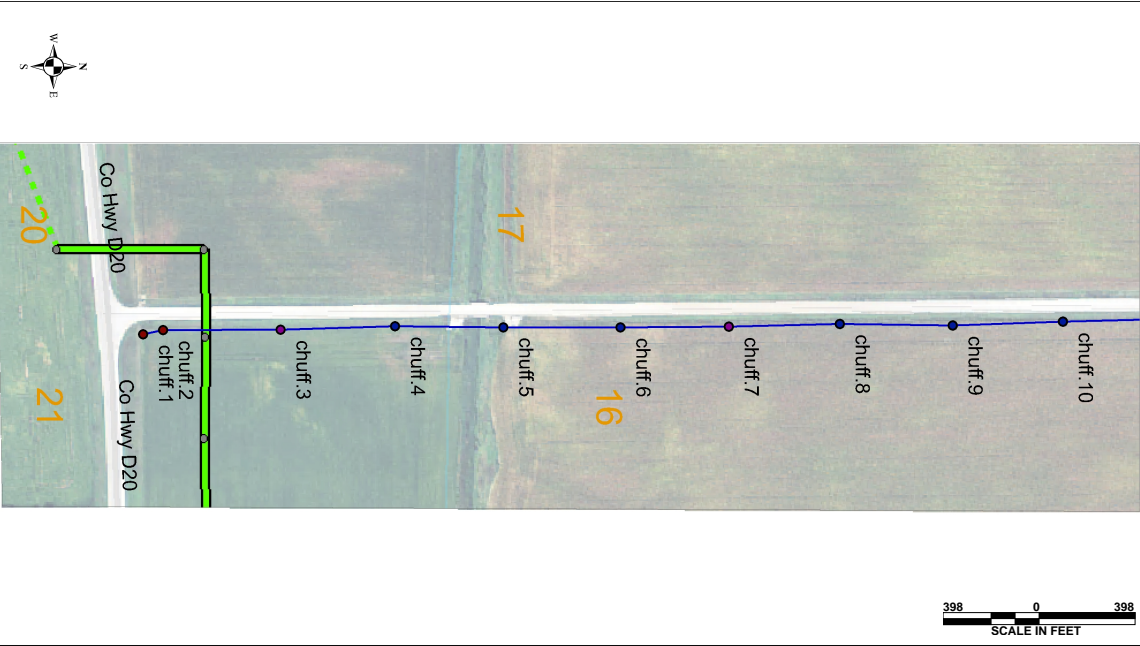
chuff.7	225	C	(3) P1.1-1/0	1	C1.11-1/0	2-ACSR	1	H1.1-#2																42.51765 -93.45984
		C	35-3			1/0-ACSR																		

chuff.8	230	C	35-3	1	C1.11-1/0	1/0-ACSR	1	H5.1-#2																42.51828 -93.45986
		C				2-ACSR																		

chuff.9	234	C	35-3	1	C1.11-1/0	2-ACSR	1	H5.1-#2																42.51893 -93.45984
		C				1/0-ACSR																		

chuff.10	229	C	35-3	1	C1.11-1/0	2-ACSR	1	H5.1-#2																42.51956 -93.45987
		C				1/0-ACSR																		

Name:	Phone 1:	Midland Power Cooperative				W.O. Number: 13327	
Srv Map Loc: 1276--6616	Phone 2:					Job Number:	
Equip Map Loc:	Staked By: CASSANDRA A HUFF	Loan Project: 317-1	City:	TWP: 89N	Section(s): 16	Substation: 12 - Alden	Line Sec:
911 Addr:		Budget Code#: 01	County: Hardin	Range: 22W	Tax Dist:	Feeder: 1270	Phase: ABC
Acct #:							



Comments: 2 mile line rebuild to 1/0-acsr

Directions:

UNITS	REQ.
ADD	
1/0-ACSR	5738
2-ACSR	1910
35-3	7
40-3	2
C1.11-1/0	8
C6.21-1/0	1
C7.1-1/0	1
E1.1	3
F1.12	3
H1.1-#2	3
H5.1-#2	6
P1.1-1/0	6

Name:		Phone 1:		Midland Power Cooperative														W.O. Number: 13327					
Srv Map Loc: 1276--6616		Phone 2:																Job Number:					
Equip Map Loc:		Staked By: CASSANDRA A HUFF		Loan Project: 317-1				City:				TWP: 89N				Section(s): 16				Substation: 12 - Alden		Line Sec:	
911 Addr:				Budget Code#: 01				County: Hardin				Range: 22W				Tax Dist:				Feeder: 1270		Phase: ABC	
Acct #:																							

Pole #	BACK SPAN	*	POLE	#	PRI UNITS	WIRE SIZE	#	MISC UNITS	#	GUY	GUY LD	#	ANCHOR	#	TRANS	KVA	#	SEC UNITS	#	SECONDARY WIRE SIZE	GRND	#	METER	LAT LONG
chuff.11	230	C	35-3	1	C1.11-1/0	2-ACSR	1	H1.1-#2																42.52019 -93.45989
		C	(3) P1.1-1/0			1/0-ACSR																		
chuff.12	227	C	40-3	1	C1.11-1/0	1/0-ACSR	1	H5.1-#2																42.52081 -93.45987
		C				2-ACSR																		
chuff.13	197	C	40-3	1	C1.11-1/0	1/0-ACSR	1	H1.1-#2																42.52135 -93.45986
		C		1	A5.1-1/0	2-ACSR																		
chuff.14	227	C	40-3	1	C1.11-1/0	1/0-ACSR	1	H5.1-#2																42.52197 -93.45991
		C				2-ACSR																		
chuff.15	225	C	35-3	1	C1.11-1/0	1/0-ACSR	1	H1.1-#2																42.52259 -93.45989
		C	(3) P1.1-1/0			2-ACSR																		
chuff.16	231	C	35-3	1	C1.11-1/0	1/0-ACSR	1	H5.1-#2																42.52322 -93.45986
		C				2-ACSR																		
chuff.17	232	C	35-3	1	C1.11-1/0	1/0-ACSR	1	H5.1-#2																42.52386 -93.4599
		C				2-ACSR																		
chuff.18	226	C	35-3	1	C1.11-1/0	2-ACSR	1	H5.1-#2																42.52448 -93.45991
		C				1/0-ACSR																		
chuff.19	222	C	35-3	1	C1.11-1/0	1/0-ACSR	1	H1.1-#2																42.52509 -93.45991
		C	(3) P1.1-1/0			2-ACSR																		
chuff.20	225	C	35-3	1	C1.11-1/0	1/0-ACSR	1	H5.1-#2																42.5257 -93.45992
		C				2-ACSR																		
chuff.52	65	C		1	A6.1-1/0	1/0-ACSR	1	H1.1-1/0	1	E1.1		1	F1.12											42.52137 -93.45962

Name:	Phone 1:	Midland Power Cooperative				W.O. Number: 13327	
Srv Map Loc: 1276--6616	Phone 2:					Job Number:	
Equip Map Loc:	Staked By: CASSANDRA A HUFF	Loan Project: 317-1	City:	TWP: 89N	Section(s): 16	Substation: 12 - Alden	Line Sec:
911 Addr:		Budget Code#: 01	County: Hardin	Range: 22W	Tax Dist:	Feeder: 1270	Phase: ABC
Acct #:							



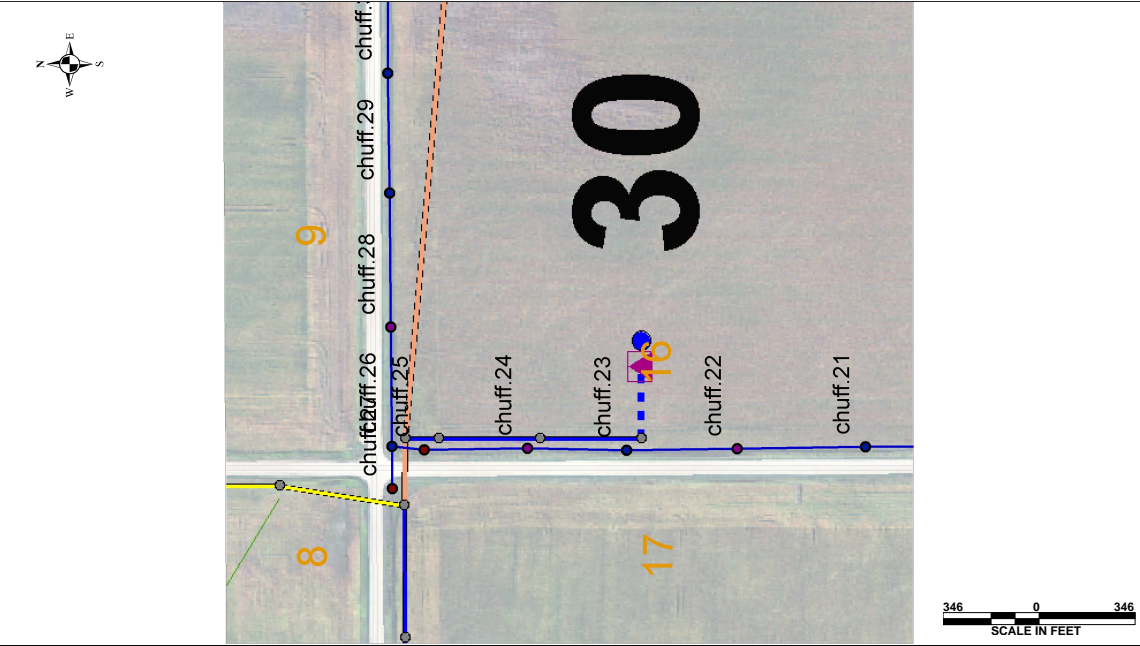
Comments: 2 mile line rebuild to 1/0-acsr
Directions:

UNITS	REQ.
ADD	
1/0-ACSR	6866
2-ACSR	2242
35-3	7
40-3	3
A5.1-1/0	1
A6.1-1/0	1
C1.11-1/0	10
E1.1	1
F1.12	1
H1.1-#2	4
H1.1-1/0	1
H5.1-#2	6
P1.1-1/0	9

Name:		Phone 1:		Midland Power Cooperative													W.O. Number: 13327						
Srv Map Loc: 1276--6616		Phone 2:															Job Number:						
Equip Map Loc:		Staked By: CASSANDRA A HUFF		Loan Project: 317-1				City:				TWP: 89N				Section(s): 16				Substation: 12 - Alden		Line Sec:	
911 Addr:				Budget Code#: 01				County: Hardin				Range: 22W				Tax Dist:				Feeder: 1270		Phase: ABC	
Acct #:																							

Pole #	BACK SPAN	*	POLE	#	PRI UNITS	WIRE SIZE	#	MISC UNITS	#	GUY	GUY LD	#	ANCHOR	#	TRANS	KVA	#	SEC UNITS	#	SECONDARY WIRE SIZE	GRND	#	METER	LAT LONG
chuff.21	221	C	35-3	1	C1.11-1/0	2-ACSR	1	H5.1-#2																42.52631 -93.45992
		C				1/0-ACSR																		
chuff.22	231	C	40-3	1	C1.11-1/0	1/0-ACSR	1	H1.1-#2																42.52694 -93.45994
		C	(3) P1.1-1/0			2-ACSR																		
chuff.23	199	E		1	UA1																			42.52749 -93.45995
1276-030		C	40-3	1	C1.11-1/0	1/0-ACSR	1	H1.1-#2																
		C				2-ACSR																		
chuff.24	179	C	35-3	1	C1.11-1/0	2-ACSR	1	H5.1-#2																42.52798 -93.45993
		C				1/0-ACSR																		
chuff.25	186	C	35-3	1	C6.21-1/0	2-ACSR	1	H1.1-#2	3	E1.1		3	F1.12											42.52849 -93.45994
		C				1/0-ACSR																		
chuff.26	59	C	40-3	1	C1.11-1/0	2-ACSR	1	H1.1-1/0																42.52865 -93.45992
		C		1	C7.1-1/0	1/0-ACSR																		
chuff.27	77	C	40-3	1	C7.1-1/0	1/0-ACSR	1	H1.1-#2	4	E1.1		4	F1.12											42.52865 -93.4602
		C		2	A5.21-1/0	2-ACSR																		
chuff.28	215	C	35-3	1	C1.11-1/0	2-ACSR	1	H1.1-#2																42.52866 -93.45912
		C	(3) P1.1-1/0			1/0-ACSR																		
chuff.29	242	C	35-3	1	C1.11-1/0	2-ACSR	1	H5.1-#2																42.52866 -93.45823
		C				1/0-ACSR																		
chuff.30	216	C	35-3	1	C1.11-1/0	2-ACSR	1	H5.1-#2																42.52867 -93.45742
		C				1/0-ACSR																		

Name:	Phone 1:	Midland Power Cooperative				W.O. Number: 13327	
Srv Map Loc: 1276--6616	Phone 2:					Job Number:	
Equip Map Loc:	Staked By: CASSANDRA A HUFF	Loan Project: 317-1	City:	TWP: 89N	Section(s): 16	Substation: 12 - Alden	Line Sec:
911 Addr:		Budget Code#: 01	County: Hardin	Range: 22W	Tax Dist:	Feeder: 1270	Phase: ABC
Acct #:							



Comments: 2 mile line rebuild to 1/0-acsr

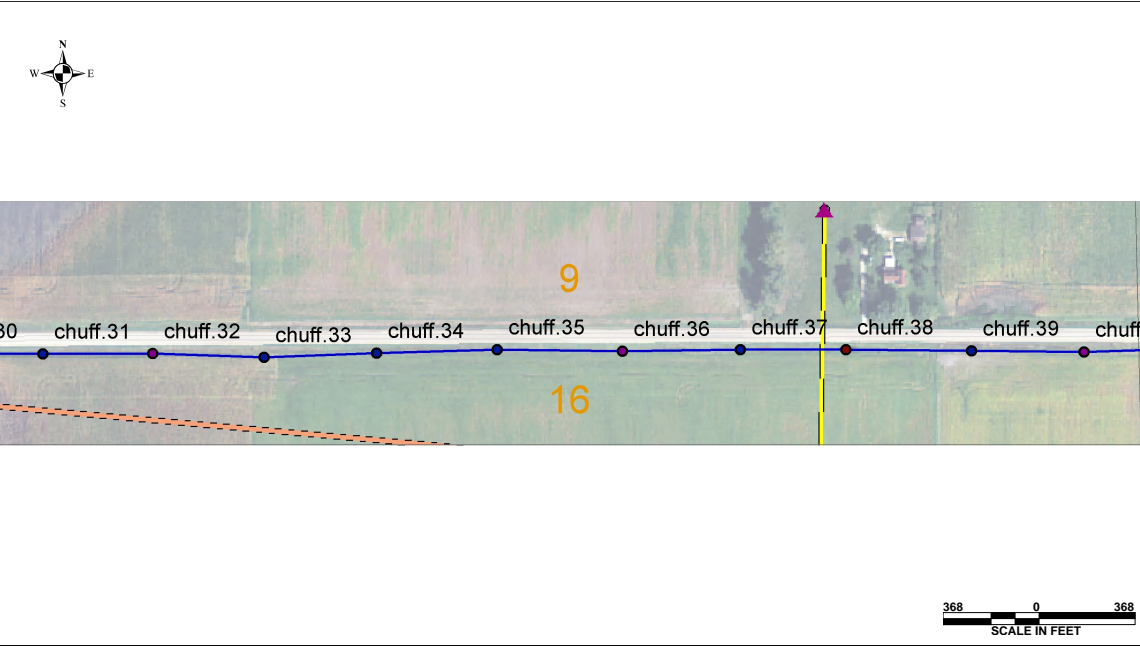
Directions:

UNITS	REQ.
ADD	
1/0-ACSR	5471
2-ACSR	1820
35-3	6
40-3	4
A5.21-1/0	2
C1.11-1/0	8
C6.21-1/0	1
C7.1-1/0	2
E1.1	7
F1.12	7
H1.1-#2	5
H1.1-1/0	1
H5.1-#2	4
P1.1-1/0	6

Name:		Phone 1:		Midland Power Cooperative														W.O. Number: 13327					
Srv Map Loc: 1276--6616		Phone 2:																Job Number:					
Equip Map Loc:		Staked By: CASSANDRA A HUFF		Loan Project: 317-1				City:				TWP: 89N				Section(s): 16				Substation: 12 - Alden		Line Sec:	
911 Addr:				Budget Code#: 01				County: Hardin				Range: 22W				Tax Dist:				Feeder: 1270		Phase: ABC	
Acct #:																							

Pole #	BACK SPAN	*	POLE	#	PRI UNITS	WIRE SIZE	#	MISC UNITS	#	GUY	GUY LD	#	ANCHOR	#	TRANS	KVA	#	SEC UNITS	#	SECONDARY WIRE SIZE	GRND	#	METER	LAT LONG
chuff.31	216	C	35-3	1	C1.11-1/0	1/0-ACSR	1	H5.1-#2																42.52867 -93.45662
		C				2-ACSR																		
chuff.32	211	C	35-3	1	C1.11-1/0	1/0-ACSR	1	H1.1-#2																42.52867 -93.45584
		C	(3) P1.1-1/0			2-ACSR																		
chuff.33	214	C	35-3	1	C1.11-1/0	1/0-ACSR	1	H5.1-#2																42.52865 -93.45505
		C				2-ACSR																		
chuff.34	216	C	35-3	1	C1.11-1/0	2-ACSR	1	H5.1-#2																42.52867 -93.45425
		C				1/0-ACSR																		
chuff.35	231	C	35-3	1	C1.11-1/0	1/0-ACSR	1	H5.1-#2																42.52869 -93.45339
		C				2-ACSR																		
chuff.36	240	C	35-3	1	C1.11-1/0	1/0-ACSR	1	H1.1-#2																42.52868 -93.4525
		C	(3) P1.1-1/0			2-ACSR																		
chuff.37	226	C	40-3	1	C1.11-1/0	1/0-ACSR	1	H5.1-#2																42.52869 -93.45166
		C				2-ACSR																		
chuff.38	203	C	40-3	1	C1.11-1/0	1/0-ACSR	1	H1.1-#2	1	E1.1		1	F1.12	1	G1.3-1/0		1	J2.1T-1/0						42.52869 -93.45091
1276-028		C				2-ACSR																		
chuff.39	241	C	35-3	1	C1.11-1/0	1/0-ACSR	1	H5.1-#2																42.52868 -93.45002
		C				2-ACSR																		
chuff.40	216	C	35-3	1	C1.11-1/0	1/0-ACSR	1	H1.1-#2																42.52867 -93.44921
		C	(3) P1.1-1/0			2-ACSR																		

Name:		Phone 1:		Midland Power Cooperative				W.O. Number: 13327		
Srv Map Loc: 1276--6616		Phone 2:						Job Number:		
Equip Map Loc:		Staked By: CASSANDRA A HUFF		Loan Project: 317-1		City:	TWP: 89N	Section(s): 16	Substation: 12 - Alden	Line Sec:
911 Addr:				Budget Code#: 01		County: Hardin	Range: 22W	Tax Dist:	Feeder: 1270	Phase: ABC
Acct #:										



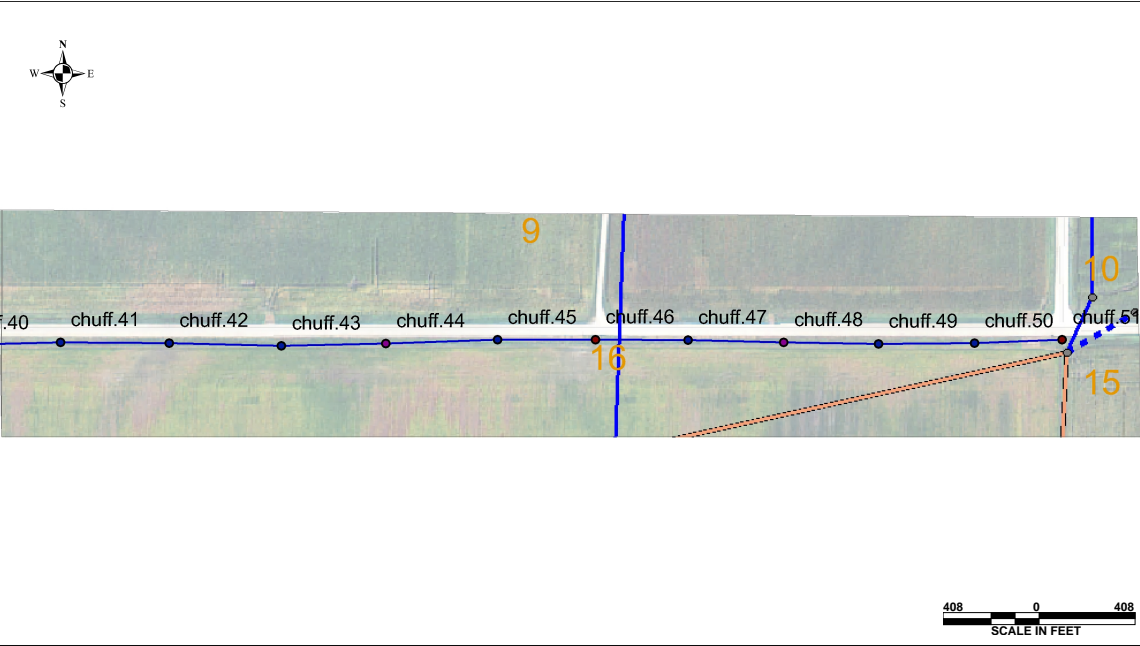
Comments: 2 mile line rebuild to 1/0-acsr
Directions:

UNITS	REQ.
ADD	
1/0-ACSR	6627
2-ACSR	2206
35-3	8
40-3	2
C1.11-1/0	10
E1.1	1
F1.12	1
G1.3-1/0	1
H1.1-#2	4
H5.1-#2	6
J2.1T-1/0	1
P1.1-1/0	9

Name:		Phone 1:		Midland Power Cooperative													W.O. Number: 13327						
Srv Map Loc: 1276--6616		Phone 2:															Job Number:						
Equip Map Loc:		Staked By: CASSANDRA A HUFF		Loan Project: 317-1				City:				TWP: 89N				Section(s): 16				Substation: 12 - Alden		Line Sec:	
911 Addr:				Budget Code#: 01				County: Hardin				Range: 22W				Tax Dist:				Feeder: 1270		Phase: ABC	
Acct #:																							

Pole #	BACK SPAN	*	POLE	#	PRI UNITS	WIRE SIZE	#	MISC UNITS	#	GUY	GUY LD	#	ANCHOR	#	TRANS	KVA	#	SEC UNITS	#	SECONDARY WIRE SIZE	GRND	#	METER	LAT LONG
chuff.41	235	C	35-3	1	C1.11-1/0	1/0-ACSR	1	H5.1-#2																42.52869 -93.44834
		C				2-ACSR																		
chuff.42	231	C	35-3	1	C1.11-1/0	1/0-ACSR	1	H5.1-#2																42.52869 -93.44749
		C				2-ACSR																		
chuff.43	239	C	35-3	1	C1.11-1/0	1/0-ACSR	1	H5.1-#2																42.52868 -93.4466
		C				2-ACSR																		
chuff.44	222	C	35-3	1	C1.11-1/0	1/0-ACSR	1	H1.1-#2																42.52869 -93.44578
		C	(3) P1.1-1/0			2-ACSR																		
chuff.45	237	C	35-3	1	C1.11-1/0	2-ACSR	1	H5.1-#2																42.52872 -93.4449
		C				1/0-ACSR																		
chuff.46	208	C	40-3	1	A5.1-1/0	1/0-ACSR	1	H1.1-#2	2	E1.1		2	F1.12											42.52872 -93.44413
1276-025		C		1	C1.11-1/0	2-ACSR																		
chuff.47	197	C	40-3	1	C1.11-1/0	2-ACSR	1	H5.1-#2																42.52872 -93.4434
		C				1/0-ACSR																		
chuff.48	203	C	35-3	1	C1.11-1/0	2-ACSR	1	H1.1-#2																42.52871 -93.44264
		C	(3) P1.1-1/0			1/0-ACSR																		
chuff.49	201	C	35-3	1	C1.11-1/0	1/0-ACSR	1	H5.1-#2																42.5287 -93.4419
		C				2-ACSR																		
chuff.50	204	C	40-3	1	C1.11-1/0	2-ACSR	1	H5.1-#2																42.52871 -93.44114
		C				1/0-ACSR																		
chuff.51	187	C	40-3	1	C7.1-1/0	2-ACSR	1	H1.1-#2	1	E1.1		1	F1.12											42.52873 -93.44045
		C		1	A5.1-1/0	1/0-ACSR			1	E1.4														
		C		1	UA1																			

Name:	Phone 1:	Midland Power Cooperative				W.O. Number: 13327	
Srv Map Loc: 1276--6616	Phone 2:					Job Number:	
Equip Map Loc:	Staked By: CASSANDRA A HUFF	Loan Project: 317-1	City:	TWP: 89N	Section(s): 16	Substation: 12 - Alden	Line Sec:
911 Addr:		Budget Code#: 01	County: Hardin	Range: 22W	Tax Dist:	Feeder: 1270	Phase: ABC
Acct #:							

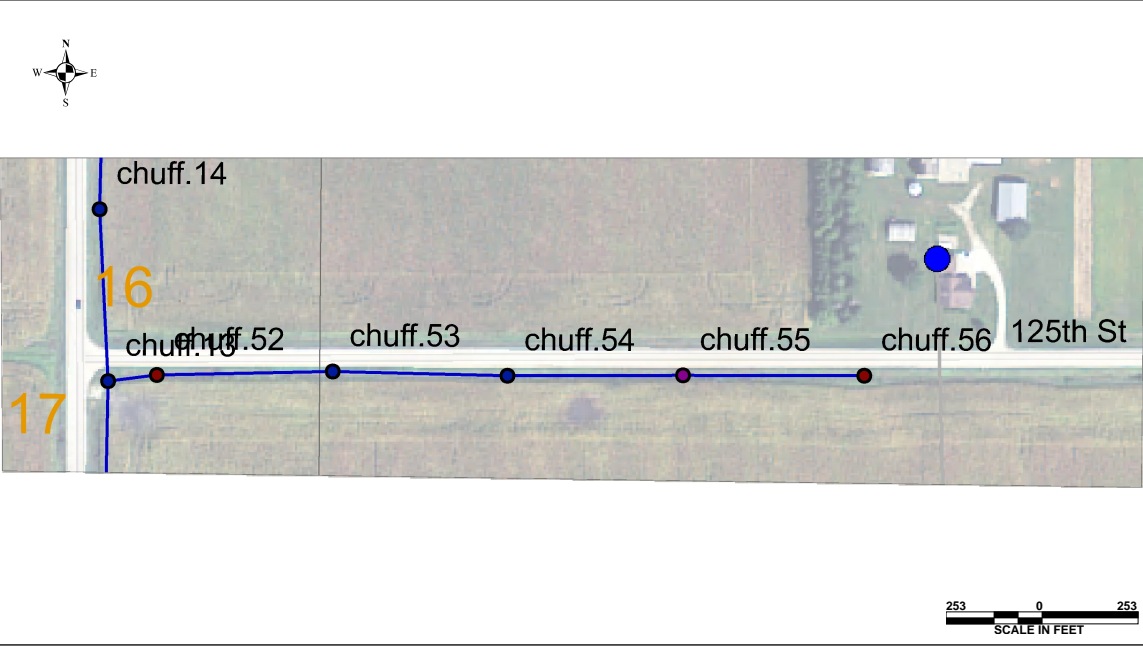


Comments: 2 mile line rebuild to 1/0-acsr
Directions:

UNITS	REQ.
ADD	
1/0-ACSR	7075
2-ACSR	2354
35-3	7
40-3	4
A5.1-1/0	2
C1.11-1/0	10
C7.1-1/0	1
E1.1	3
E1.4	1
F1.12	3
H1.1-#2	4
H5.1-#2	7
P1.1-1/0	6
UA1	1

Name:		Phone 1:		Midland Power Cooperative												W.O. Number: 13327					
Srv Map Loc: 1276--6616		Phone 2:														Job Number:					
Equip Map Loc:		Staked By: CASSANDRA A HUFF		Loan Project: 317-1				City:		TWP: 89N				Section(s): 16				Substation: 12 - Alden		Line Sec:	
911 Addr:				Budget Code#: 01				County: Hardin		Range: 22W				Tax Dist:				Feeder: 1270		Phase: ABC	
Acct #:																					

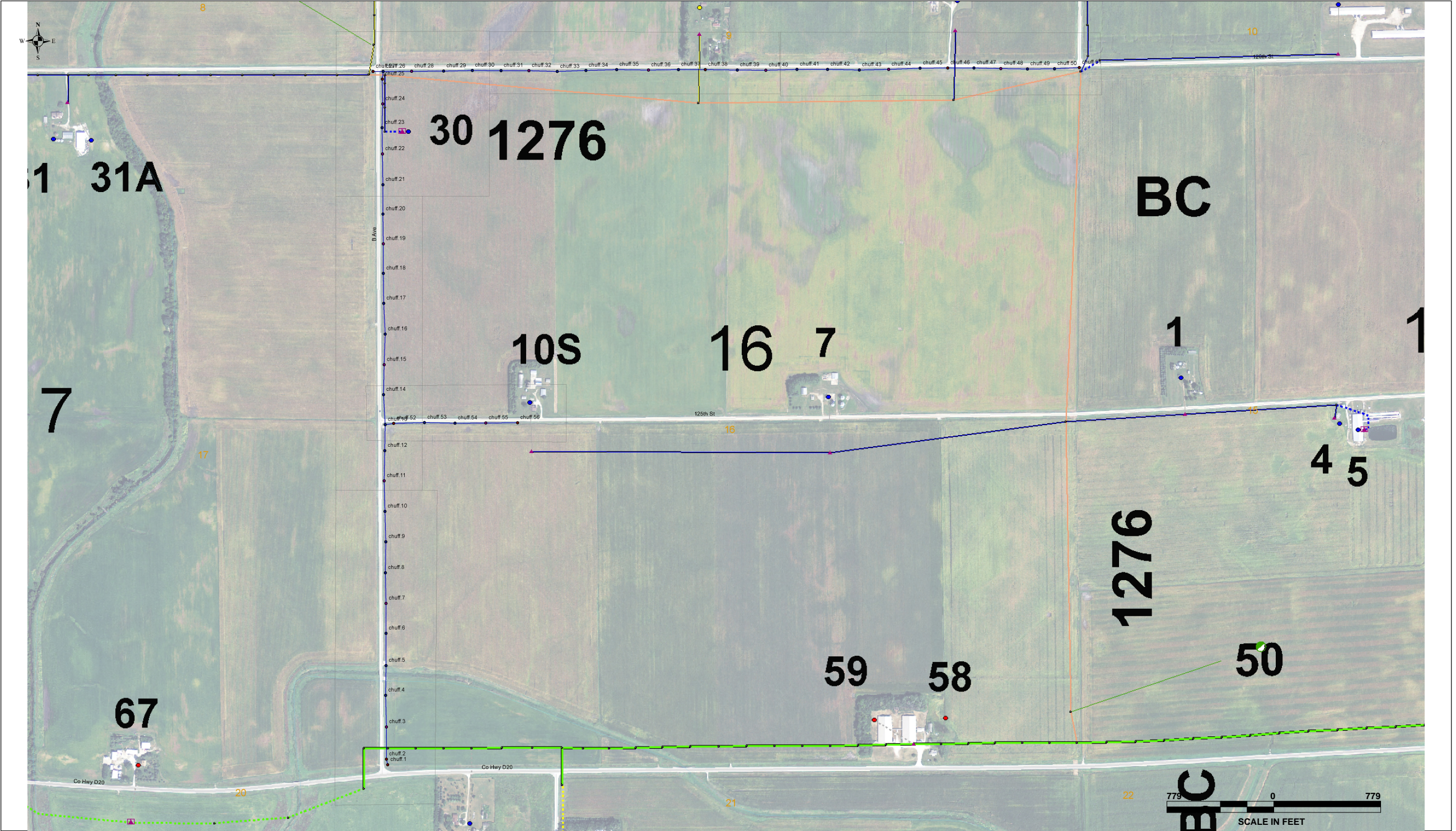
Pole #	BACK SPAN	*	POLE	#	PRI UNITS	WIRE SIZE	#	MISC UNITS	#	GUY	GUY LD	#	ANCHOR	#	TRANS	KVA	#	SEC UNITS	#	SECONDARY WIRE SIZE	GRND	#	METER	LAT LONG
chuff.53	232	C	40-5	1	A1.1-1/0	1/0-ACSR																		42.52139 -93.45876
chuff.54	231	C	40-5	1	A1.1-1/0	1/0-ACSR																		42.52138 -93.45791
chuff.55	232	C	40-5	1	A1.1-1/0	1/0-ACSR	1	H1.1-1/0																42.52138 -93.45705
		C	P1.1-1/0																					
chuff.56	239	R	40-5	1	A4.1-1/0				3	E1.1		3	F1.12											42.52139 -93.45616
1276-010		C	40-5	1	A5.1-1/0	1/0-ACSR	1	H1.1-1/0	3	E1.1		3	F1.12											
		C		1	A6.1-1/0																			



Comments: 2 mile line rebuild to 1/0-acsr

Directions:

UNITS	REQ.
RETIRE	
40-5	1
A4.1-1/0	1
E1.1	3
F1.12	3
ADD	
1/0-ACSR	1862
40-5	4
A1.1-1/0	3
A5.1-1/0	1
A6.1-1/0	1
E1.1	3
F1.12	3
H1.1-1/0	2
P1.1-1/0	1





Drainage Utility Permit Application

Hardin County

Applicant: Casey Huff

Contact Email: chuff@midlandpower.coop

Contact Phone: (515) 709-3908

Utility Type: N/A - Utility Permits Only

Drainage District: DDs\Big 4 Main (51193)

Description of Work: Midland Power Coop - DD Big 4 & DD 46 - Setting poles along B Ave. starting at Hwy D20, Alden twp., Sec. 16 for 1 mile, heading east along 120th for 1 mile.

Pursuant to Code of Iowa Section 468.186, approval is hereby requested for the right, privilege and authority to construct, operate and maintain utilities on, over, across or beneath established Hardin County Drainage Districts, subject to the attached Requirements for Construction On, Over, Across or Beneath Established Drainage Districts. Failure to comply with said requirements shall be ground for revocation of the permit by the Hardin County Board of Supervisors.

Applicant Signature

Date

Submit Form and Location Plan To: Hardin County Auditor's Office
Attn: Drainage Clerk
1215 Edgington Ave, Suite 1
Eldora, IA 50627
Phone (641) 939-8111
Fax (641) 939-8245
drainage@hardincountyia.gov

For Office Use Only

Application Approval:

By: _____ **Date:** _____
Board of Supervisor Chairman, Acting as Drainage District Trustee

APPROVED PERMIT # 2020-14

- ☐ Application in TCM
- ☐ GIS Annotation
- ☐ Approval Emailed



HARDIN COUNTY

1215 EDGINGTON AVE., SUITE 1
ELDORA, IA 50627
(641) 939-8108

HARDIN COUNTY DRAINAGE DISTRICT UTILITY PERMIT APPLICATION

Applicant: Iowa Regional Utilities Association
Company Name
1351 Iowa Speedway Drive
Address
Newton Iowa 50208
City State Zip
Applicant Contact: Gayla E. Hannagan, (800) 400 - 6066
Name Permit Manager Phone
ghannagan@irua.net
Email
Utility Type: Potable Water
Drainage District(s) Crossed: D.D. No. 123 (D.D. 26)
Facilities Crossed (specific tile, open ditch): Installation will not cross any old tile or ditches according to county maps.
Description of Work: Installation of 3" water transmission main.
(Location plan of proposed utility must be attached.)

Pursuant to Code of Iowa Section 468.186, approval is hereby requested for the right, privilege and authority to construct, operate and maintain utilities on, over, across or beneath established Hardin County Drainage Districts, subject to the attached Requirements for Construction On, Over, Across or Beneath Established Drainage District. Failure to comply with said requirements shall be ground for revocation of the permit by the Hardin County Board of Supervisors.

Gayla E. Hannagan
Applicant Signature

10-8-2020
Date

Submit Form and Location Plan To:

Hardin County Auditor's Office
Attn: Drainage Clerk
1215 Edgington Ave, Suite 1
Eldora, IA 50627
Fax (641) 939-8225
drainage@hardincountyia.gov

For Office Use Only

Application Approval:

By: _____
Board of Supervisor Chairman, Acting as Drainage District Trustee

Date: _____

APPROVED PERMIT #: _____



REQUIREMENTS FOR CONSTRUCTION ON, OVER, ACROSS OR BENEATH ESTABLISHED DRAINAGE DISTRICT

Upon issuance of a permit for utilities on, over, across or beneath established Hardin County Drainage Districts, the applicant shall be governed by these requirements and shall comply with all conditions contained herein.

1. The Applicant shall furnish the Drainage District, or its representative, plats showing the exact location of the proposed construction. If it is found that such locations are in conflict with the present or proposed facilities and that a more desirable location is possible, the Applicant shall review such possible alignment changes. **No construction is to commence with the drainage facility without an approved application.**
2. Applicant shall comply with Iowa One-Call requirements prior to commencing any work.
3. The Drainage District shall provide Applicant access to maps or other information regarding the location of all known drainage district facilities so that reasonable care may be taken by Applicant to avoid un-necessary damage to said drainage district facilities.
4. The Applicant shall hold the Drainage District harmless from any damage that may result to the Drainage District facility because of the construction or maintenance of the utility, and shall reimburse the Drainage District for any expenditures that the Drainage District may have to make on said Drainage District facilities resulting from Applicant's construction and installation of utilities, or their subsequent repair or modification.
5. The Applicant shall take all reasonable precaution during the construction of said utility to protect and safeguard the lives and property of the public and adjacent property owners and shall hold the Drainage District harmless from any damages or losses that may be sustained by adjacent property owners on account of such construction operations. Further, Applicant agrees to replace, repair or reimburse all damages to private property occasioned by Applicant's installation of subsequent modification or repairs.
6. The Drainage District assumes no responsibility for damages to the Applicants property occasioned by any construction or maintenance operation of said Drainage District facilities, subsequent to Applicants installation.
7. A copy of a certificate of insurance naming the County/Drainage District as additional insured for their permit work shall be provided to the County Auditor prior to installation. The limit of liability under the insurance policy shall not be less than \$1,000,000 per occurrence.
8. The Applicant agrees to give the Drainage District twenty-four (24) hours (Saturday and Sunday excluded) notice of its intention to commence construction on any lands within the jurisdiction of the Drainage District. Said notice shall be made in writing to the County Auditor or to the designated Drainage District representative.
9. The Applicant agrees to place permanent, visible markers or monuments at locations where utility crosses Drainage District facilities. These monuments or markers shall identify the owners name, address and phone number.
10. The Drainage District Trustees may appoint a representative to inspect and approve all construction across Drainage District facilities as part of this permit. All compensation, wages, mileage and other expenses for this representative will be paid by the Applicant. It will be the responsibility of the Applicant to make all contacts with private parties (adjacent owners/operators) to determine the location of private drainage facilities. Said representative will also inspect all crossing of Drainage District facilities and may, if required, observe the crossing of private drainage facilities, and shall have the authority to require the Applicant to excavate and expose the crossing of any Drainage District facility where the representative believes it prudent to visually examine Applicants crossing of the Drainage District facility. Further, said representative has the authority to suspend construction and installation by the Applicant within any Drainage District jurisdiction by verbal order to the contractor at the site and a telephone call to Applicants contact person listed on page 1 within six (6) hours of the verbal order.



11. The construction and maintenance of Applicants installation shall be carried on in such a manner as to not interfere with or interrupt the function of said Drainage District facilities without the express written consent of the Drainage District Representative. In the event it becomes necessary to temporarily stop the flow of water, the following shall be completed by the Applicant:
 - a. If the crossing involves a tile line, the replacement of tile with approved materials, in the manner approved by the Drainage Districts designated representative, shall be performed as rapidly as possible. If the approved method of repair is impossible and the volume of water flowing in the tile is sufficient to create the possibility of crop loss or property damage, the Contractor will be permitted to temporarily block the tile line to prevent the flow of this tile water into the pipeline, or tile line ditch. In the event this tile line is so temporarily blocked, the Contractor will be expected to provide sufficient pumping equipment to pump the impounded tile water across the construction ditch to the undisturbed tile line. Such temporary blockages of said Drainage District tile lines will be removed as rapidly as possible and any tile repairs caused by this blockage will be immediately repaired at the Applicants expense.
 - b. If the crossing involves an open ditch that is carrying sufficient flow of water to make it necessary to place a temporary dam across said open ditch, such temporary dams may be constructed only upon approval from the Drainage District designated representative. The maximum elevation of this impounded water shall be determined by the designated Drainage District representative and all excess water must be allowed to flow across the construction ditch through either a closed metal culvert pipe or by pumping. All temporary dam structures are to be removed as soon as the crossing is completed. The construction and removal of these dams shall be in such a manner that the smooth and efficient function of the drainage ditch is not impaired, with all costs and damages borne by Applicant.
12. The Applicant will at any time subsequent to the commencement of construction, and at Applicants sole expense, reconstruct or replace its installation as may be necessary to conform to new grade or alignments resulting from maintenance or construction operations by the Drainage District in connection with any of its drainage facilities. Applicant agrees to do this within forth-five (45) days of receipt of written request from the Drainage District, or such longer time period as the Drainage District may specify, without cost to the Drainage District. Such reconstruction or realignment of Applicants improvements shall be made in accordance with and approved by the Drainage District or its designated representative. If the Applicant is unable to comply within the time period specified above, the Drainage District may cause the work to be done and the Applicant will pay the cost thereof upon receipt of a statement of such costs.
13. CROSSING OF OPEN DITCH FACILITIES. Utility crossings shall be constructed as follows, as directed by the designated representative of the Drainage District:
 - a. Passage of installation in a horizontal plane five feet (5') below design grade of drainage ditch, as established by the Drainage District representative.
 - b. The above depth to extend to a point two (2) times the design base width of ditch either side of centerline of drainage ditch (measured along the centerline of utility) unless the existing base width is greater than the design bases width. If the existing base width is greater than the design with, the depth is to extend to a point two (2) times the existing width.
 - c. The rate of slope for transition from normal utility laying depth of crossings of drainage ditches shall not be steeper than 4:1.
 - d. If such ditch crossings occur at points of outlets of Drainage District or private tile lines or within twenty-five feet (25') of said outlets, such outlets must be relocated to a point not less than twenty-five feet (25') from such crossings. Such relocations shall be at the expense of the Applicant and as directed by the representative of the Drainage District.

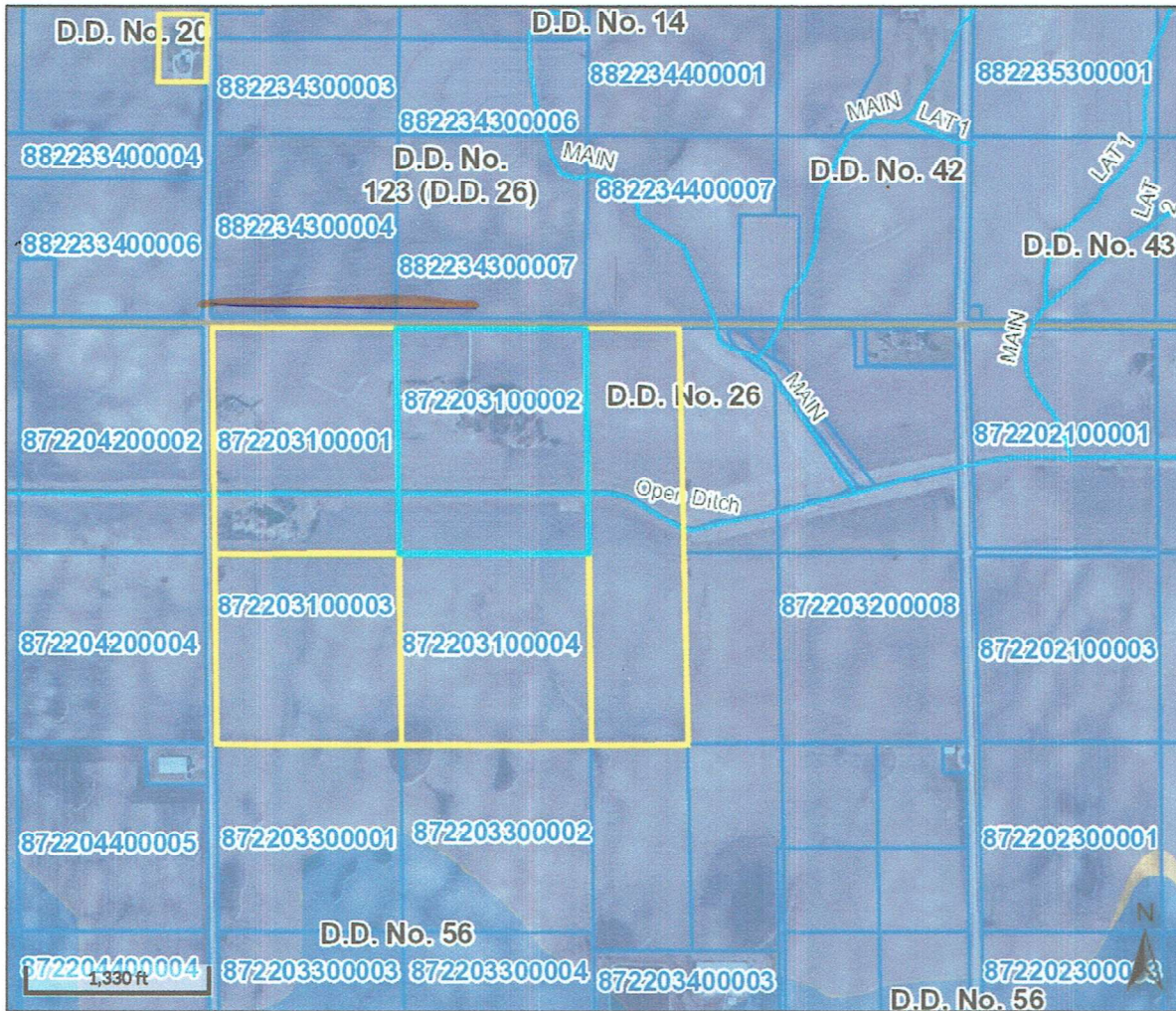


14. CROSSING OF DRAINAGE DISTRICT TILE LINES. Utility crossings shall be constructed as follows, as directed by the designated representative of the Drainage District:
- All proposed installations must be placed under the existing Drainage District tile lines. These requirements may be waived only upon the review by and approval of the designated representative of the Drainage District. Such waiver must be in writing.
 - A minimum of one foot (1') clearance below existing Drainage District facilities must be maintained.
 - At all crossings of Drainage District tile lines with the proposed utility, one of the following must be used:
 - Replace Drainage District tile with reinforced concrete pipe of same or larger diameter than existing tile. Concrete pipe to be 2,000 D strength (Iowa Department of Transportation approved) with standard tongue and groove joints. Pipe to have a minimum of three (3) bolt-type connectors at each joint.
 - Replace Drainage District tile with cathodic protected corrugated metal pipe. Diameter of corrugated metal pipe to be a minimum of two inches (2") larger than outside diameter of tile line being replaced. (Specifications regarding gage, cathodic protection and other details to be subject to review and approval.)
 - Dual wall plastic with specific approval of Drainage District representative.
 - Bore new utility installation; maintain existing tile in an undisturbed state.
 - The length of tile to be replaced by any of the above alternates is as follows:
 - Eight-inch (8") tile and smaller: Six feet (6') either side of centerline of proposed installation, measured at right angles to the centerline of installation.
 - Ten inch (10") tile and larger: Ten feet (10') either side of centerline of proposed installation, measured at right angles to the centerline of installation.
 - At all crossings of Drainage District tile lines where the Drainage District and private tile lines are damaged by the construction, maintenance or repair of Applicants installation shall be repaired as directed by the Drainage Districts designated representative.
15. This permit is subject to existing regulations and statutes of the State of Iowa and future regulations, which may be promulgated or enacted.
16. This application is subject to revocation by Hardin County, if in its judgment it is necessary for legitimate purposes. In such event, written notice shall be provided to permit holder.
17. Applicant agrees to pay all other legitimate costs, fees and expenses associated with its crossing of the Drainage District facility, including but not limited to, publication costs, engineering costs and legal service costs. Said costs will be paid within thirty (30) days of the mailing of the statements to the Applicant.
18. Applicant agrees to provide a copy of as-built plan of the utility route and location, showing route changes that may have taken place during construction.
19. Applicant agrees to include a copy of these requirements to all bidding specifications; or if the construction and installation contract has been let by the time this permit is approved, Applicant agrees to provide a copy of these requirements to the contractor and to advise them that they are bound by the terms of these requirements.

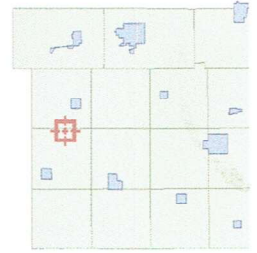


Beacon™

Hardin County, IA



Overview



Legend

- Corporate Limits
- Political Township
- Parcels
- Drainage Tiles
- Drainage Districts
 - <all other values>
 - Big Four
 - D.D. No. 1
 - D.D. No. 10
 - D.D. No. 100
 - D.D. No. 101
 - D.D. No. 102
 - D.D. No. 103
 - D.D. No. 106
 - D.D. No. 108
 - D.D. No. 109
 - D.D. No. 11
 - D.D. No. 110
 - D.D. No. 111
 - D.D. No. 113
 - D.D. No. 114 Ex. of :
 - D.D. No. 116
 - D.D. No. 118-232
 - D.D. No. 119
 - D.D. No. 12
 - D.D. No. 120
 - D.D. No. 121
 - D.D. No. 122
 - D.D. No. 123
 - D.D. No. 124
 - D.D. No. 125
 - D.D. No. 127
 - D.D. No. 128
 - D.D. No. 129
 - D.D. No. 13
 - D.D. No. 130
 - D.D. No. 130 EXT 1
 - D.D. No. 131

- D.D. No. 86
- D.D. No. 88
- D.D. No. 9
- D.D. No. 91
- D.D. No. 93
- D.D. No. 94
- D.D. No. 95
- D.D. No. 98
- D.D. No. 99
- J.D.D. F-H 1
- J.D.D. F-H 2
- J.D.D. F-H 3-47
- J.D.D. F-H 4-53
- J.D.D. F-H 5-75
- J.D.D. H-H 1-103
- J.D.D. H-H 104-222
- J.D.D. H-H 105-216
- J.D.D. H-H 118-232
DIV 2
- J.D.D. H-H 164-294
- J.D.D. H-H 2-104
- J.D.D. H-H 3-110
- J.D.D. H-H 4-122
- J.D.D. H-S 1-35
- J.D.D. H-S 3-58
- J.D.D. H-S 4-112

Parcel ID 872203100002 Sec/Twp/Rng 3-87-22 Property Address 15342 220TH ST HARDIN District 39000 Brief Tax Description NE FRL NW SEC3-T87N-R22W (Note: Not to be used on legal documents)	Alternate ID 4160000001 Class AD Acreage 47.77	Owner Address Schwartz, Vern L 15342 220th St Alden IA 50006-9135
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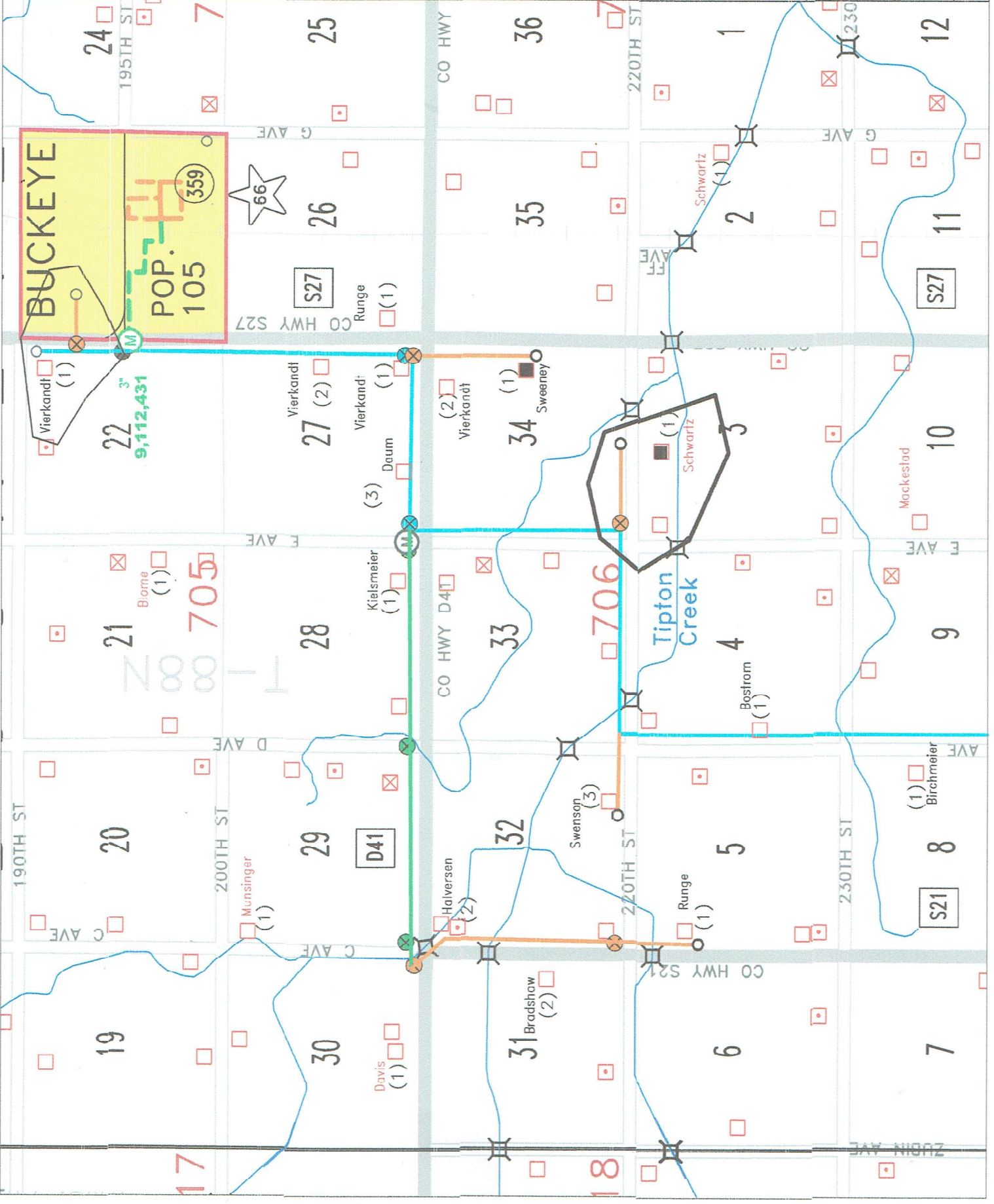
Disclaimer: The maps included in this website do not represent a survey and are compiled from official records, including plats, surveys, recorded deeds, and contracts, and only contain information required for government purposes. No warranties, expressed or implied, are provided for the data herein, its use or its interpretation. Hardin County assumes no responsibility for use or interpretation of the data. Any person that relies on any information obtained from this site does so at his or her own risk. All critical information should be independently verified.

Drainage District Disclaimer: This drainage district information is compiled from official records and available information. The level of information varies for each district. No liability is assumed for the accuracy of the data delineated herein, either express or implied by Hardin County or its employees. This data only contains information required for county purposes. See additional documents and maps for more detailed information. Please contact Hardin County at drainage@hardincountyia.gov or 641-939-8111 for additional information.

Date created: 10/5/2020
 Last Data Uploaded: 10/2/2020 11:37:09 PM

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 GEOSPATIAL

HARDIN COUNTY



IOWA REGIONAL UTILITIES ASSOCIATION
1351 IOWA SPEEDWAY DRIVE, NEWTON, IOWA
50208-82454(641) 792-7011

DRAWN BY
GAK
1/22/2019

REVISED BY

T87N
R22W

SHEET
719
PARTIAL

HARDIN COUNTY

1" = 500'
N





HARDIN COUNTY

Auditor's Office

JESSICA LARA | COUNTY AUDITOR
& COMMISSIONER OF ELECTIONS

1215 EDGINGTON AVE., SUITE 1
ELDORA, IA 50627
641.939.8108
JLARA@HARDINCOUNTYIA.GOV

September 29, 2020

Iowa Regional Utility Association
1351 Iowa Speedway Drive
Newton, IA 50208

Attention: Dan McGinnis, Gayla E. Hannagan, Matt Mahler

To Whom It May Concern,

The Hardin County Board of Supervisors acting as Drainage Trustees, met on September 23, 2020, and discussed a request received from landowner Vernon Schwartz for water service connection at 15342 220th St., Alden, Iowa through the Iowa Regional Utilities Association (IRUA). The Trustees have directed me to contact you and let you know that the Trustees have no objections to the service connection at Mr. Schwartz's address if the connection would be made as Mr. Schwartz presented it to me, with the IRUA service connection coming in from the corner of E Avenue and 220th Street to the west of his building site and passing through Mr. Schwartz's parcels or the road ROW. Please see enclosed map, detailing Mr. Schwartz's proposed route. This route, although within the boundaries of DD 26, will not cross district tile, and so the Trustees have no objections to this installation.

However, the IRUA will have to file a Utility Permit application with the County Engineer and a Drainage Utility Permit Application with the Drainage Clerk for this service connection. Although it was Mr. Schwartz who presented this request to the Drainage Clerk, these applications must be filed by the IRUA and can't be filed by a landowner on behalf of the IRUA.

I have passed along this same communication to Mr. Schwartz so he is aware of the Trustee's position and knows that the IRUA will need to file the Utility Permit and Drainage Utility Permit applications for review and approval before work commences.

Please let me know if you have any other questions or concerns, I can be of assistance with, you can reach me by email at drainage@hardincountyia.gov or by phone at the number below.

Thank you,

A handwritten signature in blue ink that reads "Denise Smith".

Denise Smith



DENISE SMITH

DRAINAGE CLERK

HARDIN COUNTY

1215 EDGINGTON AVENUE

ELDORA, IOWA 50627

AUDITOR'S OFFICE

OFFICE: 641.939.8111

FAX: 641.939.8245

[HTTP://WWW.HARDINCOUNTYIA.GOV](http://www.hardincountyia.gov)

Enclosure



Drainage Utility Permit Application

Hardin County

Applicant: IRUA - Gayla Hannagan

Contact Email: ghannagan@irua.net

Contact Phone: (800) 400-6066

Utility Type: N/A - Utility Permits Only

Drainage District: DDs\DD 26 (51049)

Description of Work: IRUA - DD 26 - Installation of 3" water transmission main for V. Schwartz, parcel #872203100002.

Pursuant to Code of Iowa Section 468.186, approval is hereby requested for the right, privilege and authority to construct, operate and maintain utilities on, over, across or beneath established Hardin County Drainage Districts, subject to the attached Requirements for Construction On, Over, Across or Beneath Established Drainage Districts. Failure to comply with said requirements shall be ground for revocation of the permit by the Hardin County Board of Supervisors.

Applicant Signature

Date

Submit Form and Location Plan To: Hardin County Auditor's Office
Attn: Drainage Clerk
1215 Edgington Ave, Suite 1
Eldora, IA 50627
Phone (641) 939-8111
Fax (641) 939-8245
drainage@hardincountyia.gov

For Office Use Only

Application Approval:

By: _____ **Date:** _____
Board of Supervisor Chairman, Acting as Drainage District Trustee

APPROVED PERMIT #: 2020-15

- ☐ Application in TCM
- ☐ GIS Annotation
- ☐ Approval Emailed



HARDIN COUNTY

1215 EDGINGTON AVE., SUITE 1
ELDORA, IA 50627
(641) 939-8108

HARDIN COUNTY DRAINAGE DISTRICT UTILITY PERMIT APPLICATION

Applicant: Unite Private Networks, LLC
Company Name
7200 NW 86th St, Suite M
Address
Kansas City MO 64153
City State Zip
Applicant Contact: Charlene White (816) 591 - 5095
Name Phone
charlene.white@upnfiber.com
Email
Utility Type: Fiber Optic
Drainage District(s) Crossed: Drainage District 143
Facilities Crossed (specific tile, open ditch): tile
Description of Work: Installation of 1-1.25" SDR 13.5 HDPE Conduit with a single 96 count armored fiber
(Location plan of proposed utility must be attached.) optic cable occupying Hwy 175 between Hamilton County Line and County Hwy S-27
and S-27 between Hwy 175 and 1885' North of 288th St.

Pursuant to Code of Iowa Section 468.186, approval is hereby requested for the right, privilege and authority to construct, operate and maintain utilities on, over, across or beneath established Hardin County Drainage Districts, subject to the attached Requirements for Construction On, Over, Across or Beneath Established Drainage District. Failure to comply with said requirements shall be ground for revocation of the permit by the Hardin County Board of Supervisors.

Charlene A. White
Applicant Signature

9/29/2020
Date

Submit Form and Location Plan To:

Hardin County Auditor's Office
Attn: Drainage Clerk
1215 Edgington Ave, Suite 1
Eldora, IA 50627
Fax (641) 939-8225
drainage@hardincountyia.gov

For Office Use Only

Application Approval:

By: _____
Board of Supervisor Chairman, Acting as Drainage District Trustee

Date: _____

APPROVED PERMIT #: _____



REQUIREMENTS FOR CONSTRUCTION ON, OVER, ACROSS OR BENEATH ESTABLISHED DRAINAGE DISTRICT

Upon issuance of a permit for utilities on, over, across or beneath established Hardin County Drainage Districts, the applicant shall be governed by these requirements and shall comply with all conditions contained herein.

1. The Applicant shall furnish the Drainage District, or its representative, plats showing the exact location of the proposed construction. If it is found that such locations are in conflict with the present or proposed facilities and that a more desirable location is possible, the Applicant shall review such possible alignment changes. **No construction is to commence with the drainage facility without an approved application.**
2. Applicant shall comply with Iowa One-Call requirements prior to commencing any work.
3. The Drainage District shall provide Applicant access to maps or other information regarding the location of all known drainage district facilities so that reasonable care may be taken by Applicant to avoid un-necessary damage to said drainage district facilities.
4. The Applicant shall hold the Drainage District harmless from any damage that may result to the Drainage District facility because of the construction or maintenance of the utility, and shall reimburse the Drainage District for any expenditures that the Drainage District may have to make on said Drainage District facilities resulting from Applicant's construction and installation of utilities, or their subsequent repair or modification.
5. The Applicant shall take all reasonable precaution during the construction of said utility to protect and safeguard the lives and property of the public and adjacent property owners and shall hold the Drainage District harmless from any damages or losses that may be sustained by adjacent property owners on account of such construction operations. Further, Applicant agrees to replace, repair or reimburse all damages to private property occasioned by Applicant's installation of subsequent modification or repairs.
6. The Drainage District assumes no responsibility for damages to the Applicants property occasioned by any construction or maintenance operation of said Drainage District facilities, subsequent to Applicants installation.
7. A copy of a certificate of insurance naming the County/Drainage District as additional insured for their permit work shall be provided to the County Auditor prior to installation. The limit of liability under the insurance policy shall not be less than \$1,000,000 per occurrence.
8. The Applicant agrees to give the Drainage District twenty-four (24) hours (Saturday and Sunday excluded) notice of its intention to commence construction on any lands within the jurisdiction of the Drainage District. Said notice shall be made in writing to the County Auditor or to the designated Drainage District representative.
9. The Applicant agrees to place permanent, visible markers or monuments at locations where utility crosses Drainage District facilities. These monuments or markers shall identify the owners name, address and phone number.
10. The Drainage District Trustees may appoint a representative to inspect and approve all construction across Drainage District facilities as part of this permit. All compensation, wages, mileage and other expenses for this representative will be paid by the Applicant. It will be the responsibility of the Applicant to make all contacts with private parties (adjacent owners/operators) to determine the location of private drainage facilities. Said representative will also inspect all crossing of Drainage District facilities and may, if required, observe the crossing of private drainage facilities, and shall have the authority to require the Applicant to excavate and expose the crossing of any Drainage District facility where the representative believes it prudent to visually examine Applicants crossing of the Drainage District facility. Further, said representative has the authority to suspend construction and installation by the Applicant within any Drainage District jurisdiction by verbal order to the contractor at the site and a telephone call to Applicants contact person listed on page 1 within six (6) hours of the verbal order.



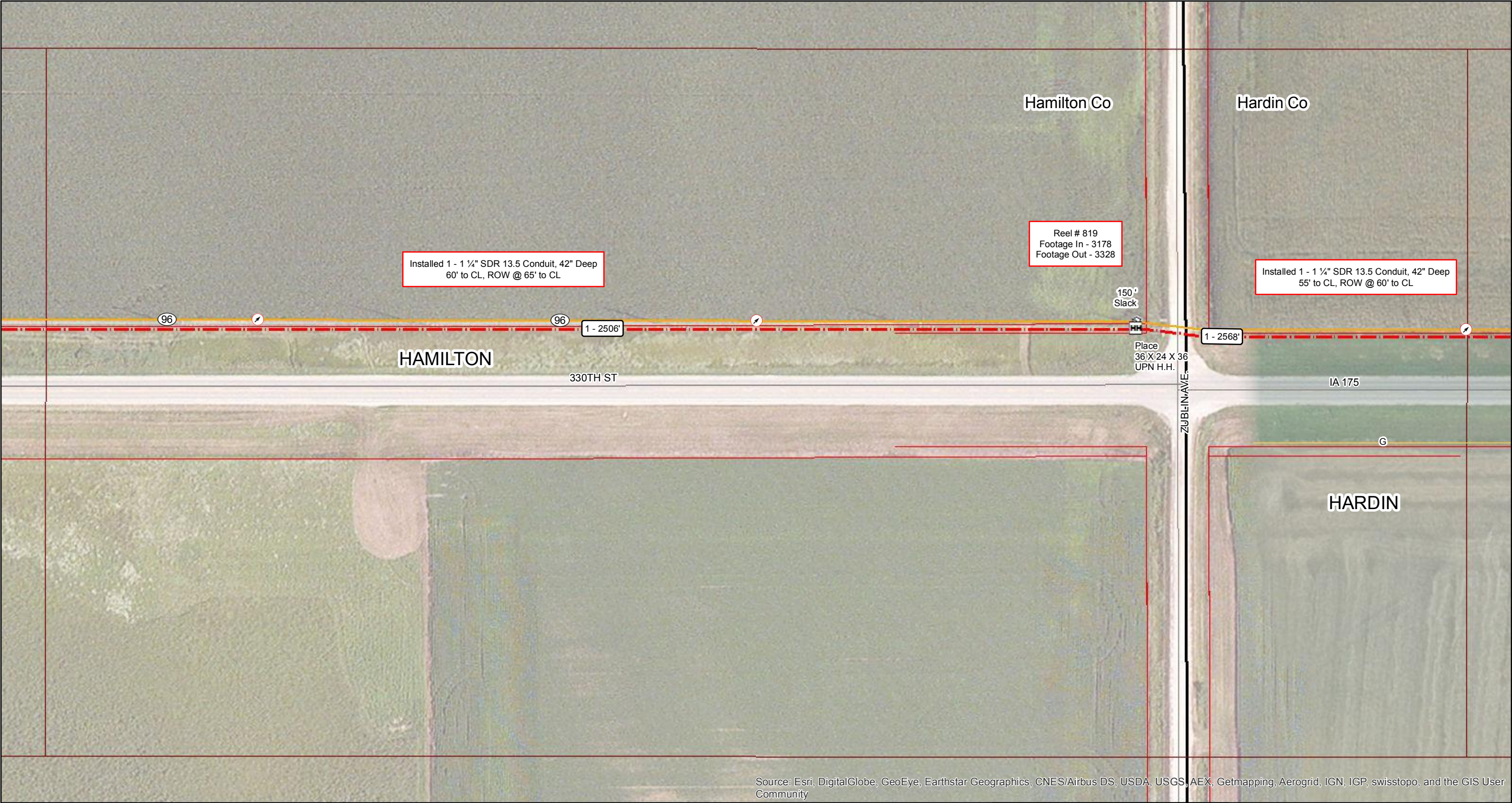
HARDIN COUNTY

1215 EDGINGTON AVE., SUITE 1
ELDORA, IA 50627
(641) 939-8108




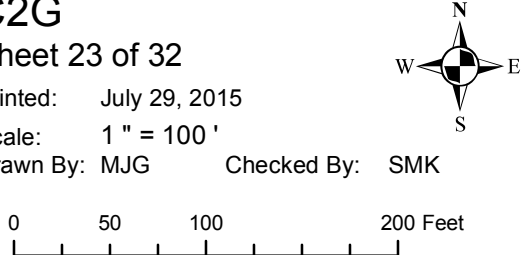
11. The construction and maintenance of Applicants installation shall be carried on in such a manner as to not interfere with or interrupt the function of said Drainage District facilities without the express written consent of the Drainage District Representative. In the event it becomes necessary to temporarily stop the flow of water, the following shall be completed by the Applicant:
 - a. If the crossing involves a tile line, the replacement of tile with approved materials, in the manner approved by the Drainage Districts designated representative, shall be performed as rapidly as possible. If the approved method of repair is impossible and the volume of water flowing in the tile is sufficient to create the possibility of crop loss or property damage, the Contractor will be permitted to temporarily block the tile line to prevent the flow of this tile water into the pipeline, or tile line ditch. In the event this tile line is so temporarily blocked, the Contractor will be expected to provide sufficient pumping equipment to pump the impounded tile water across the construction ditch to the undisturbed tile line. Such temporary blockages of said Drainage District tile lines will be removed a rapidly as possible and any tile repairs caused by this blockage will be immediately repaired at the Applicants expense.
 - b. If the crossing involves an open ditch that is carrying sufficient flow of water to make it necessary to place a temporary dam across said open ditch, such temporary dams may be constructed only upon approval from the Drainage District designated representative. The maximum elevation of this impounded water shall be determined by the designated Drainage District representative and all excess water must be allowed to flow across the construction ditch through either a closed metal culvert pipe or by pumping. All temporary dam structures are to be removed as soon as the crossing is completed. The construction and removal of these dams shall be in such a manner that the smooth and efficient function of the drainage ditch is not impaired, with all costs and damages borne by Applicant.
12. The Applicant will at any time subsequent to the commencement of construction, and at Applicants sole expense, reconstruct or replace its installation as may be necessary to conform to new grade or alignments resulting from maintenance or construction operations by the Drainage District in connection with any of its drainage facilities. Applicant agrees to do this within forty-five (45) days of receipt of written request from the Drainage District, or such longer time period as the Drainage District may specify, without cost to the Drainage District. Such reconstruction or realignment of Applicants improvements shall be made in accordance with and approved by the Drainage District or its designated representative. If the Applicant is unable to comply within the time period specified above, the Drainage District may cause the work to be done and the Applicant will pay the cost thereof upon receipt of a statement of such costs.
13. CROSSING OF OPEN DITCH FACILITIES. Utility crossings shall be constructed as follows, as directed by the designated representative of the Drainage District:
 - a. Passage of installation in a horizontal plane five feet (5') below design grade of drainage ditch, as established by the Drainage District representative.
 - b. The above depth to extend to a point two (2) times the design base width of ditch either side of centerline of drainage ditch (measured along the centerline of utility) unless the existing base width is greater than the design bases width. If the existing base width is greater than the design with, the depth is to extend to a point two (2) times the existing width.
 - c. The rate of slope for transition from normal utility laying depth of crossings of drainage ditches shall not be steeper than 4:1.
 - d. If such ditch crossings occur at points of outlets of Drainage District or private tile lines or within twenty-five feet (25') of said outlets, such outlets must be relocated to a point not less than twenty-five feet (25') from such crossings. Such relocations shall be at the expense of the Applicant and as directed by the representative of the Drainage District.

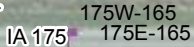


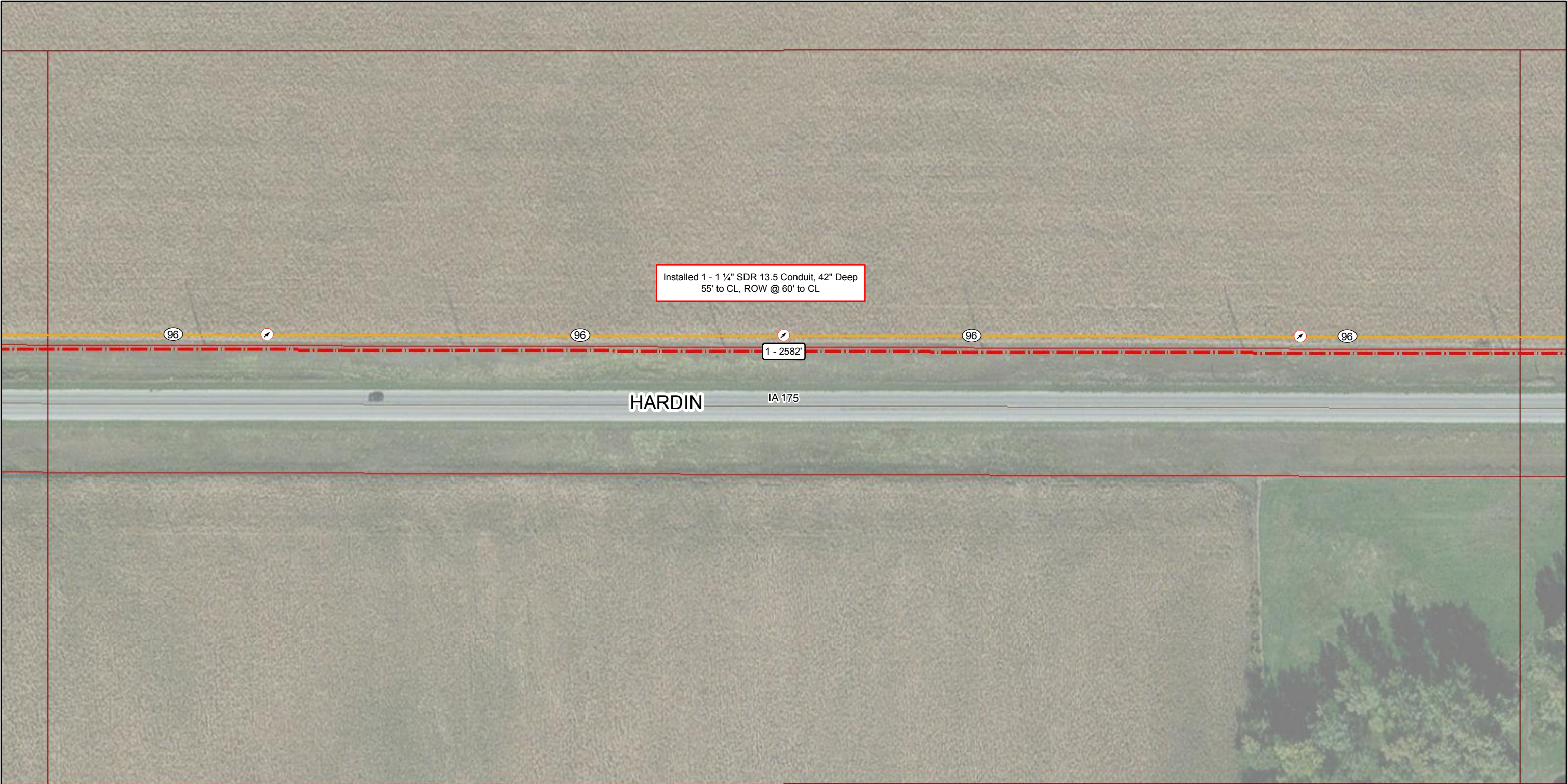
14. CROSSING OF DRAINAGE DISTRICT TILE LINES. Utility crossings shall be constructed as follows, as directed by the designated representative of the Drainage District:
- a. All proposed installations must be placed under the existing Drainage District tile lines. These requirements may be waived only upon the review by and approval of the designated representative of the Drainage District. Such waiver must be in writing.
 - b. A minimum of one foot (1') clearance below existing Drainage District facilities must be maintained.
 - c. At all crossings of Drainage District tile lines with the proposed utility, one of the following must be used:
 - i. Replace Drainage District tile with reinforced concrete pipe of same or larger diameter than existing tile. Concrete pipe to be 2,000 D strength (Iowa Department of Transportation approved) with standard tongue and groove joints. Pipe to have a minimum of three (3) bolt-type connectors at each joint.
 - ii. Replace Drainage District tile with cathodic protected corrugated metal pipe. Diameter of corrugated metal pipe to be a minimum of two inches (2") larger than outside diameter of tile line being replaced. (Specifications regarding gage, cathodic protection and other details to be subject to review and approval.)
 - iii. Dual wall plastic with specific approval of Drainage District representative.
 - iv. Bore new utility installation; maintain existing tile in an undisturbed state.
 - d. The length of tile to be replaced by any of the above alternates is as follows:
 - i. Eight-inch (8") tile and smaller: Six feet (6') either side of centerline of proposed installation, measured at right angles to the centerline of installation.
 - ii. Ten inch (10") tile and larger: Ten feet (10') either side of centerline of proposed installation, measured at right angles to the centerline of installation.
 - e. At all crossings of Drainage District tile lines where the Drainage District and private tile lines are damaged by the construction, maintenance or repair of Applicants installation shall be repaired as directed by the Drainage Districts designated representative.
15. This permit is subject to existing regulations and statutes of the State of Iowa and future regulations, which may be promulgated or enacted.
16. This application is subject to revocation by Hardin County, if in its judgment it is necessary for legitimate purposes. In such event, written notice shall be provided to permit holder.
17. Applicant agrees to pay all other legitimate costs, fees and expenses associated with its crossing of the Drainage District facility, including but not limited to, publication costs, engineering costs and legal service costs. Said costs will be paid within thirty (30) days of the mailing of the statements to the Applicant.
18. Applicant agrees to provide a copy of as-built plan of the utility route and location, showing route changes that may have taken place during construction.
19. Applicant agrees to include a copy of these requirements to all bidding specifications; or if the construction and installation contract has been let by the time this permit is approved, Applicant agrees to provide a copy of these requirements to the contractor and to advise them that they are bound by the terms of these requirements.





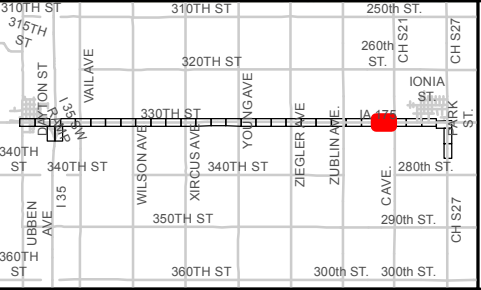
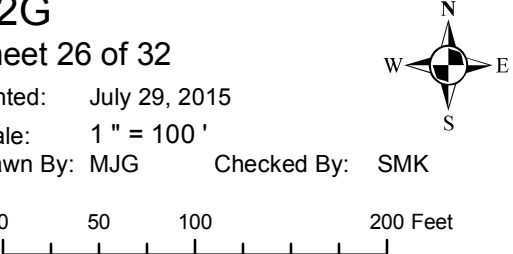
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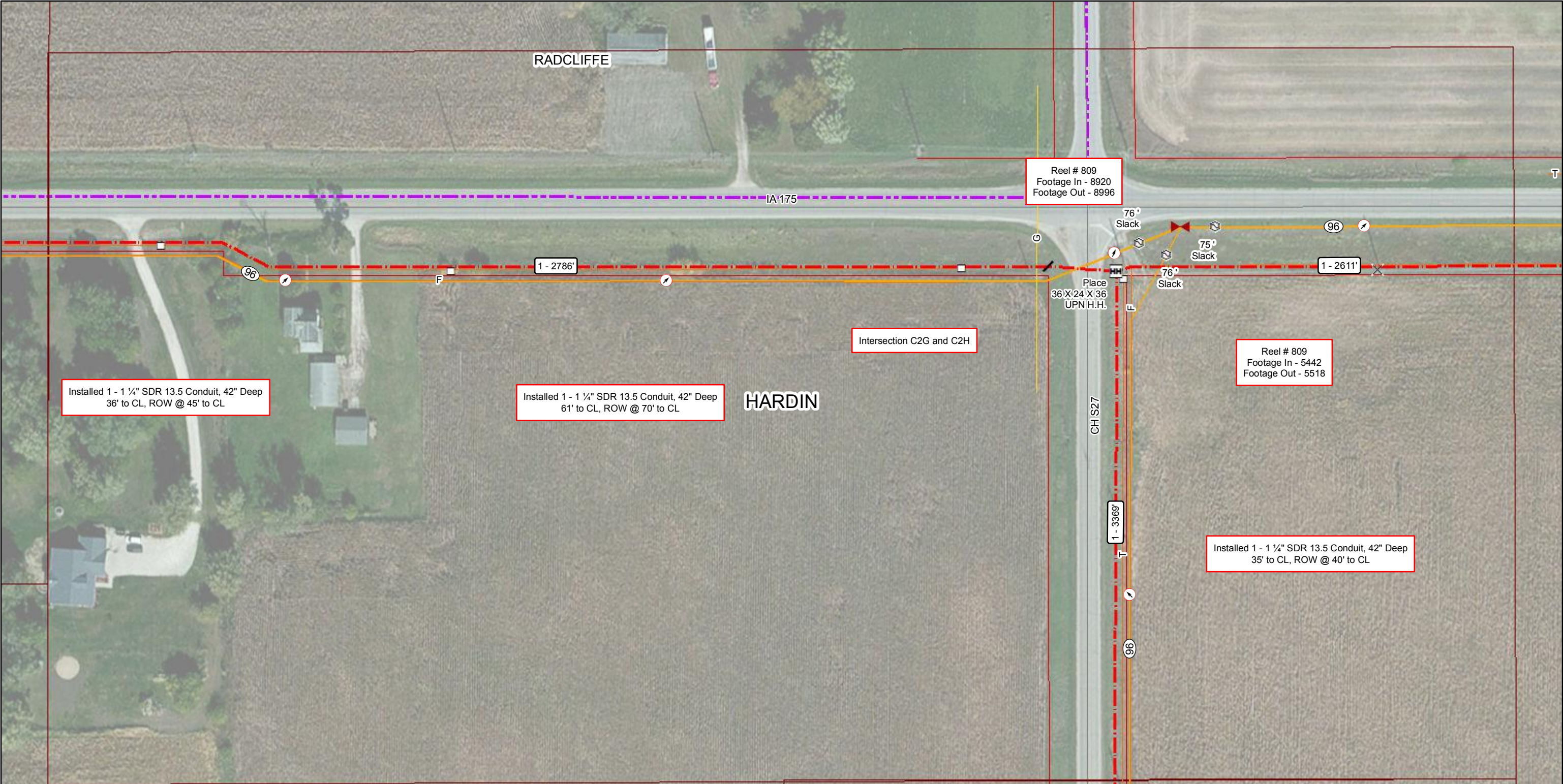
 <p>6000 GRAND AVENUE DES MOINES, IA 50312 (515) 274-9611</p>	 <p>120 SOUTH STEWART ROAD LIBERTY, MO 64068 (866) 813-3608</p>		<p>Ames - Waterloo Hamilton County Hardin County Connector 2 Section G As Bulit</p>		<p>C2G Sheet 23 of 32 Printed: July 29, 2015 Scale: 1" = 100' Drawn By: MJG Checked By: SMK</p> 
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Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

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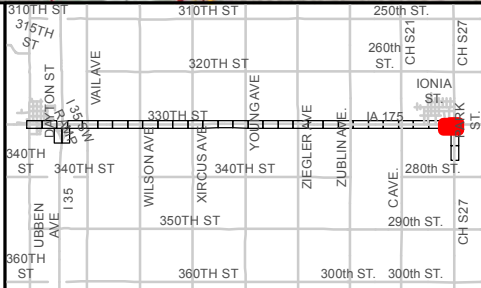


6000 GRAND AVENUE
DES MOINES, IA 50312
(515) 274-9611



120 SOUTH STEWART ROAD
LIBERTY, MO 64068
(866) 813-3608

Ames - Waterloo
Hamilton County
Hardin County
Connector 2 Section G
As Bulit



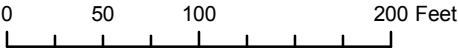
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Sheet 30 of 32

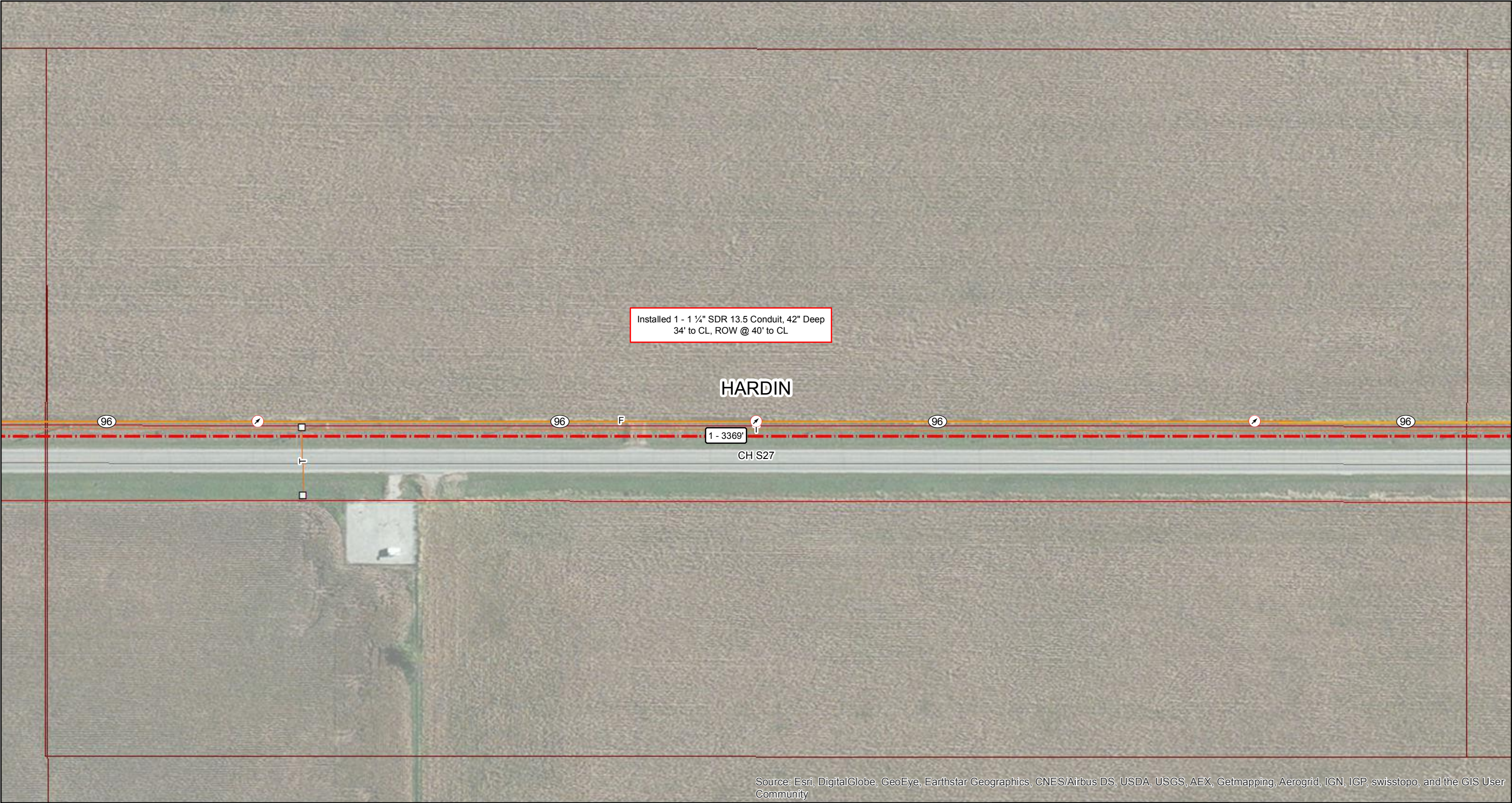
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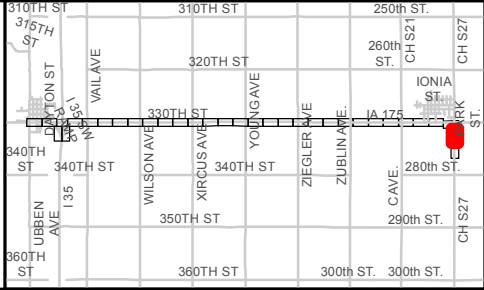
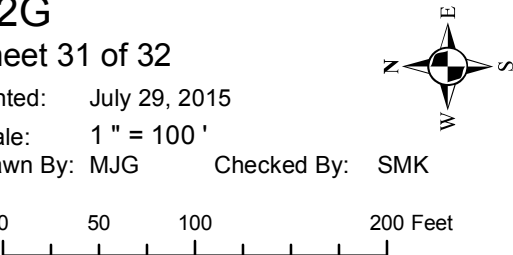
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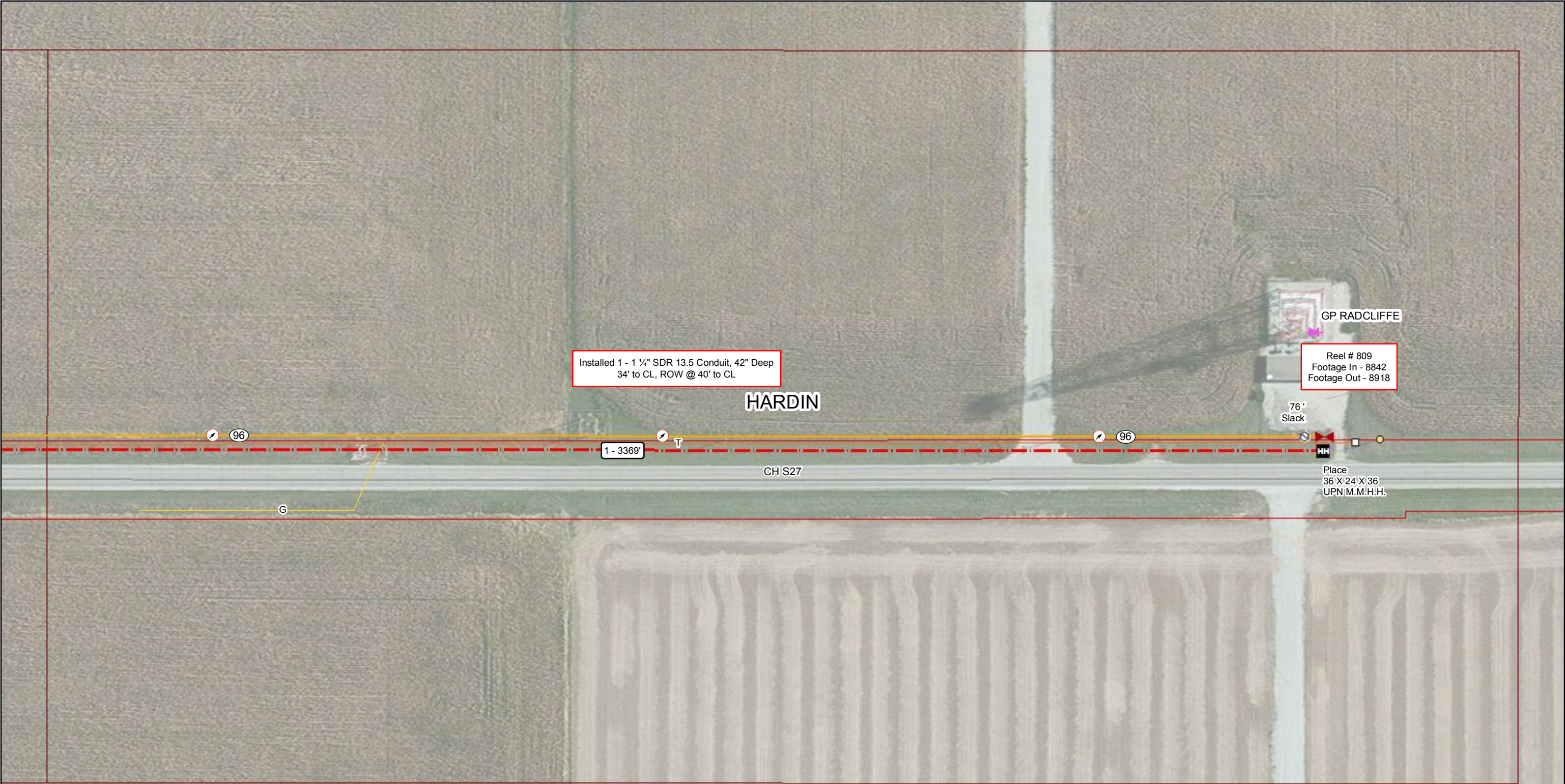
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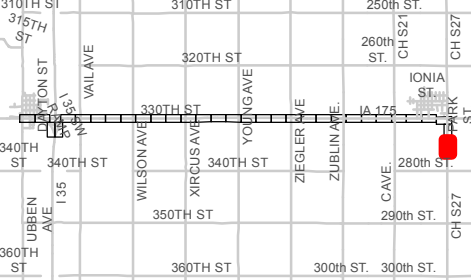
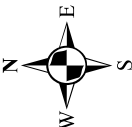



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Drainage Utility Permit Application

Hardin County

Applicant: Charlene White

Contact Email: charlene.white@upnfiber.com

Contact Phone: (816) 591-5095

Utility Type: N/A - Utility Permits Only

Drainage District: DDs\DD 143 (51157)

Description of Work: UPN - DD 143 - WO is acknowledgement of work done w orig Utility Permit dated 12-30-14. UPN Telecom line went thru DD tile in N ROW of Hwy 175 UPN repaired Damage noted WO 261. Repair needs to be revisited by CGA/UPN to ensure meets Drg Permit standards.

Pursuant to Code of Iowa Section 468.186, approval is hereby requested for the right, privilege and authority to construct, operate and maintain utilities on, over, across or beneath established Hardin County Drainage Districts, subject to the attached Requirements for Construction On, Over, Across or Beneath Established Drainage Districts. Failure to comply with said requirements shall be ground for revocation of the permit by the Hardin County Board of Supervisors.

Applicant Signature

Date

Submit Form and Location Plan To: Hardin County Auditor's Office
Attn: Drainage Clerk
1215 Edgington Ave, Suite 1
Eldora, IA 50627
Phone (641) 939-8111
Fax (641) 939-8245
drainage@hardincountyia.gov

For Office Use Only

Application Approval:

By: _____ **Date:** _____
Board of Supervisor Chairman, Acting as Drainage District Trustee

APPROVED PERMIT #: 2020-13

- ☐ Application in TCM
- ☐ GIS Annotation
- ☐ Approval Emailed

PAY ESTIMATE NO. 6
REPAIRS TO MAIN TILE AND LATERAL 3 DD#25 & REPAIRS TO MAIN TILE DD#1, HARDIN CO.
PROJECT NUMBER: 6501
DATE: 10-5-20

CONTRACTOR

McDowell and Sons Contractors, Inc.
10214 Hwy 65
Iowa Falls, Iowa 50126

OWNER

Trustees of Drainage District #25 & DD#1
Hardin County Courthouse
1215 Edgington Ave., Suite 1
Eldora, Iowa 50627

ENGINEER

Clapsaddle-Garber Associates
739 Park Avenue
Ackley, Iowa 50601

<u>Item No.</u>	<u>Description</u>	<u>Estimated Quantity</u>	<u>Unit</u>	<u>Installed Quantity</u>	<u>Unit Price</u>	<u>Extended Price</u>
<u>DISTRICT BASE BID ITEMS</u>						
1	24" Ø RCP Tile	260	LF	260	\$ 70.00	\$ 18,200.00
2	Type PC-2 Concrete Collar	14	EA	14	\$ 500.00	\$ 7,000.00
3	Private Tile Connection	2	EA	2	\$ 600.00	\$ 1,200.00
4	Tile Removal	260	LF	260	\$ 10.00	\$ 2,600.00
5	Permanent Seeding	0.3	AC	0.3	\$ 3,500.00	\$ 1,050.00
6	Seeding Warranty	1	LS	1	\$ 1,000.00	\$ 1,000.00
<u>LATERAL 3 DIVISION ALTERNATE BID</u>						
101ALT	12" Ø RCP Tile	780	LF	819.9	\$ 38.00	\$ 31,156.20
102ALT*	24" Ø Steel Casing (Jack & Bore)	0	LF	0	\$ 380.00	\$ -
103ALT*	12" Ø DIP Tile	0	LF	0	\$ 77.00	\$ -
104ALT^^	Intake Junction Structure	2	EA	2	\$ 1,750.00	\$ 3,500.00
105ALT^^	CCTV Tile Inspection	0	LF	0	\$ 3.25	\$ -
106ALT	Type PC-2 Concrete Collar	4	EA	3	\$ 350.00	\$ 1,050.00
107ALT	Private Tile Connection	4	EA	3	\$ 600.00	\$ 1,800.00
108ALT^^	Grading	1	STA	0.5	\$ 350.00	\$ 175.00
109ALT^^	Tile Removal	363	LF	363	\$ 6.00	\$ 2,178.00
110ALT^^	Tile Abandonment	100	LF	100	\$ 14.00	\$ 1,400.00
111ALT^^	12" Ø Hickenbottom Intake	0	EA	0	\$ 1,000.00	\$ -
112ALT	RRPermitting,Flagging,Insurance,Coordination	1	LS	1	\$ 6,500.00	\$ 6,500.00
113ALT^^	Locate Existing	14.74	STA	14.74	\$ 90.00	\$ 1,326.60
114ALT^^	Intake Removal	0	EA	0	\$ 300.00	\$ -
115ALT*^^	30" Ø Steel Casing (Jack &	110.5	LF	110.5	\$ 560.00	\$ 61,880.00
116ALT*^^	18" Ø DIP Tile	135.2	LF	135.2	\$ 120.00	\$ 16,224.00
117ALT^^	10" Ø Private Tile Repair	27.8	LF	27.8	\$ 25.00	\$ 695.00
<u>LATERAL 3 DIVISION ADDITIONAL ALTERNATE BID</u>						
201ALT***^	12" Ø RCP Tile	756.3	LF	756.3	\$ 38.00	\$ 28,739.40
202ALT	Type PC-2 Concrete Collar	4	EA	4	\$ 350.00	\$ 1,400.00
203ALT^^	Private Tile Connection	3	EA	2	\$ 600.00	\$ 1,200.00
204ALT	Grading	1	STA	0.5	\$ 350.00	\$ 175.00
205ALT**^	Tile Removal	0	LF	0	\$ 6.00	\$ -
206ALT^^	12" Ø Hickenbottom Intake	0	EA	0	\$ 1,000.00	\$ -
207ALT^^	Locate Existing Lateral Tile	21.2	STA	21.2	\$ 90.00	\$ 1,908.00
208ALT^	CCTV Mobilization	1	LS	1	\$ 1,530.00	\$ 1,530.00
209ALT^^	10" Ø Private Tile Repair	75.2	LF	75.2	\$ 25.00	\$ 1,880.00
<u>LATERAL 3 DIVISION SOUTH PORTION BID</u>						
401ALT**	12" Ø RCP Tile	1257	LF	1257	\$ 47.00	\$ 59,079.00
402ALT***^	Type PC-2 Concrete Collar	1	EA	1	\$ 350.00	\$ 350.00
403ALT**	Tile Removal	5	LF	5	\$ 9.00	\$ 45.00
404ALT^^	5" Ø Private Tile Repair	18.7	LF	18.7	\$ 10.00	\$ 187.00
405ALT^^	Locate Existing Lateral Tile	12.57	STA	12.57	\$ 90.00	\$ 1,131.30
<u>MAIN 1 DIVISION BID</u>						
301	24" Ø Polypropylene Tile	123	LF	123	\$ 55.00	\$ 6,765.00
302	34" Ø Steel Casing (Jack & Bore)	50	LF	50	\$ 707.00	\$ 35,350.00
303	22 1/2" x 24" Ø Polypropylene Bend	3	EA	3	\$ 450.00	\$ 1,350.00
304	11 1/4" x 24" Ø Polypropylene Bend	1	EA	1	\$ 450.00	\$ 450.00
305	Intake Junction Structure	1	EA	1	\$ 1,750.00	\$ 1,750.00
306	Type PC-2 Concrete Collar	1	EA	1	\$ 350.00	\$ 350.00
307	Private Tile Connection	1	EA	1	\$ 600.00	\$ 600.00
308	Grading	2	STA		\$ 350.00	\$ -
309	Tile Removal	49	LF	49	\$ 10.00	\$ 490.00
310^^	Tile Abandonment	58.5	LF	58.5	\$ 25.00	\$ 1,462.50
311	Traffic Control	1	LS	1	\$ 1,650.00	\$ 1,650.00
312	Seeding	0.3	AC	0.3	\$ 3,500.00	\$ 1,050.00
313	Seeding Warranty	1	LS	1	\$ 1,000.00	\$ 1,000.00
314	12" Ø Hickenbottom Intake	1	EA	1	\$ 1,000.00	\$ 1,000.00

I have reviewed the work claimed to be completed by the Contractor as reflected above and recommend payment of

\$ 3,840.57

to the Contractor.

Lee Gallentine, Project Engineer

TOTAL WORK COMPLETED TO DATE \$ 309,827.00
10% RETENTION \$ 30,982.70
AMOUNT DUE LESS RETENTION \$ 278,844.30
PREVIOUSLY PAID \$ 275,003.73

AMOUNT DUE AT THIS TIME \$ 3,840.57

Contractor

Note: For pay estimate #1, \$26,696.97 was for DD 25.
For pay estimate #2, \$1,845.00 was for DD 25.
For pay estimate #3, \$46,095.75 was for DD 1.
For pay estimate #4, \$56,584.17 was for DD 25.
For pay estimate #5, \$143,781.84 was for DD 25.
For pay estimate #6, \$3,840.57 was for DD 25.

* - Approved as part of Change Order #2
** - Approved as part of Change Order #3
^ - Approved as part of Change Order #6
^^ - Approved as part of Change Order #7



PAY ESTIMATE NO. 6
REPAIRS TO MAIN TILE AND LATERAL 3 DD#25 & REPAIRS TO MAIN TILE DD#1, HARDIN CO.
PROJECT NUMBER: 6501
DATE: 10-5-20

CONTRACTOR

McDowell and Sons Contractors, Inc.
 10214 Hwy 65
 Iowa Falls, Iowa 50126

OWNER

Trustees of Drainage District #25 & DD#1
 Hardin County Courthouse
 1215 Edgington Ave., Suite 1
 Eldora, Iowa 50627

ENGINEER

Clapsaddle-Garber Associates
 739 Park Avenue
 Ackley, Iowa 50601

Item No.	Description	Estimated Quantity	Unit	Installed Quantity	Unit Price	Extended Price
DISTRICT BASE BID ITEMS						
1	24" O RCP Tile	260	LF	260	\$ 70.00	\$ 18,200.00
2	Type PC-2 Concrete Collar	14	EA	14	\$ 500.00	\$ 7,000.00
3	Private Tile Connection	2	EA	2	\$ 600.00	\$ 1,200.00
4	Tile Removal	260	LF	260	\$ 10.00	\$ 2,600.00
5	Permanent Seeding	0.3	AC	0.3	\$ 3,500.00	\$ 1,050.00
6	Seeding Warranty	1	LS	1	\$ 1,000.00	\$ 1,000.00
LATERAL 3 DIVISION ALTERNATE BID						
101ALT	12" O RCP Tile	780	LF	819.9	\$ 38.00	\$ 31,156.20
102ALT*	24" O Steel Casing (Jack & Bore)	0	LF	0	\$ 380.00	\$ -
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105ALT	CCTV Tile Inspection	0	LF	0	\$ 3.25	\$ -
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107ALT	Private Tile Connection	4	EA	3	\$ 600.00	\$ 1,800.00
108ALT	Grading	1	STA	0.5	\$ 350.00	\$ 175.00
109ALT	Tile Removal	363	LF	363	\$ 6.00	\$ 2,178.00
110ALT	Tile Abandonment	100	LF	100	\$ 14.00	\$ 1,400.00
111ALT	12" O Hickenbottom Intake	0	EA	0	\$ 1,000.00	\$ -
112ALT	RR Permitting, Flagging, Insurance, Coordination	1	LS	1	\$ 6,500.00	\$ 6,500.00
113ALT	Locate Existing	14.71	STA	14.71	\$ 90.00	\$ 1,326.60
114ALT	Intake Removal	0	EA	0	\$ 300.00	\$ -
115ALT*	30" O Steel Casing (Jack & Bore)	110.5	LF	110.5	\$ 560.00	\$ 61,880.00
116ALT*	18" O DIP Tile	135.2	LF	135.2	\$ 120.00	\$ 16,224.00
117ALT	10" O Private Tile Repair	27.8	LF	27.8	\$ 25.00	\$ 695.00
LATERAL 3 DIVISION ADDITIONAL ALTERNATE BID						
201ALT**	12" O RCP Tile	756.3	LF	756.3	\$ 38.00	\$ 28,739.40
202ALT	Type PC-2 Concrete Collar	4	EA	4	\$ 350.00	\$ 1,400.00
203ALT	Private Tile Connection	3	EA	2	\$ 600.00	\$ 1,200.00
204ALT	Grading	1	STA	0.5	\$ 350.00	\$ 175.00
205ALT**	Tile Removal	0	LF	0	\$ 6.00	\$ -
206ALT	12" O Hickenbottom Intake	0	EA	0	\$ 1,000.00	\$ -
207ALT	Locate Existing Lateral Tile	21.2	STA	21.2	\$ 90.00	\$ 1,908.00
208ALT	CCTV Mobilization	1	LS	1	\$ 1,530.00	\$ 1,530.00
209ALT	10" O Private Tile Repair	75.2	LF	75.2	\$ 25.00	\$ 1,880.00
LATERAL 3 DIVISION SOUTH PORTION BID						
401ALT**	12" O RCP Tile	1257	LF	1257	\$ 47.00	\$ 59,079.00
402ALT**	Type PC-2 Concrete Collar	1	EA	1	\$ 350.00	\$ 350.00
403ALT**	Tile Removal	5	LF	5	\$ 9.00	\$ 45.00
404ALT	5" O Private Tile Repair	18.7	LF	18.7	\$ 10.00	\$ 187.00
405ALT	Locate Existing Lateral Tile	12.57	STA	12.57	\$ 90.00	\$ 1,131.30
MAIN 1 DIVISION BID						
301	24" O Polypropylene Tile	123	LF	123	\$ 55.00	\$ 6,765.00
302	34" O Steel Casing (Jack & Bore)	50	LF	50	\$ 707.00	\$ 35,350.00
303	22 1/2" x 24" O Polypropylene Bend	3	EA	3	\$ 450.00	\$ 1,350.00
304	11 1/2" x 24" O Polypropylene Bend	1	EA	1	\$ 450.00	\$ 450.00
305	Intake Junction Structure	1	EA	1	\$ 1,750.00	\$ 1,750.00
306	Type PC-2 Concrete Collar	1	EA	1	\$ 350.00	\$ 350.00
307	Private Tile Connection	1	EA	1	\$ 600.00	\$ 600.00
308	Grading	2	STA		\$ 350.00	\$ -
309	Tile Removal	49	LF	49	\$ 10.00	\$ 490.00
310	Tile Abandonment	58.5	LF	58.5	\$ 25.00	\$ 1,462.50
311	Traffic Control	1	LS	1	\$ 1,650.00	\$ 1,650.00
312	Seeding	0.3	AC	0.3	\$ 3,500.00	\$ 1,050.00
313	Seeding Warranty	1	LS	1	\$ 1,000.00	\$ 1,000.00
314	12" O Hickenbottom Intake	1	EA	1	\$ 1,000.00	\$ 1,000.00

I have reviewed the work claimed to be completed by the Contractor as reflected above and recommend payment of \$ 3,840.57 to the Contractor.

Lee Gallentine, Project Engineer

Contractor

TOTAL WORK COMPLETED TO DATE \$ 309,827.00

10% RETENTION \$ 30,982.70

AMOUNT DUE LESS RETENTION \$ 278,844.30

PREVIOUSLY PAID \$ 275,003.73

AMOUNT DUE AT THIS TIME \$ 3,840.57

Note: For pay estimate #1, \$26,696.97 was for DD 25.
 For pay estimate #2, \$1,845.00 was for DD 25.
 For pay estimate #3, \$46,095.75 was for DD 1.
 For pay estimate #4, \$56,584.17 was for DD 25.
 For pay estimate #5, \$143,781.84 was for DD 25.
 For pay estimate #6, \$3,840.57 was for DD 25.

* - Approved as part of Change Order #2
 ** - Approved as part of Change Order #3
 / - Approved as part of Change Order #6
 / - Approved as part of Change Order #7





Drainage Work Order Request For Repair

Hardin County

Date: 5/1/2020

Work Order #: WO00000294

Drainage District: DDs\DD 11 (51024)

Sec-Twp-Rge: 13-88-22 **Qtr Sec:** _____

Location/GIS: 88-22-13-300-003

Requested By: Robert Smuck

Contact Phone: (641) 640-0132

Contact Email: _____

Landowner (if different): _____

Description: DD 11 - Robert Smuck reports 2' tile blowout along fenceline in SW corner of parcel # 882213300003, along fenceline shared with Shirley Madole's parcel to the south. Smuck had Gehrke out to look, and Gehrke states it is DD tile.

Repair labor, materials and equipment: _____

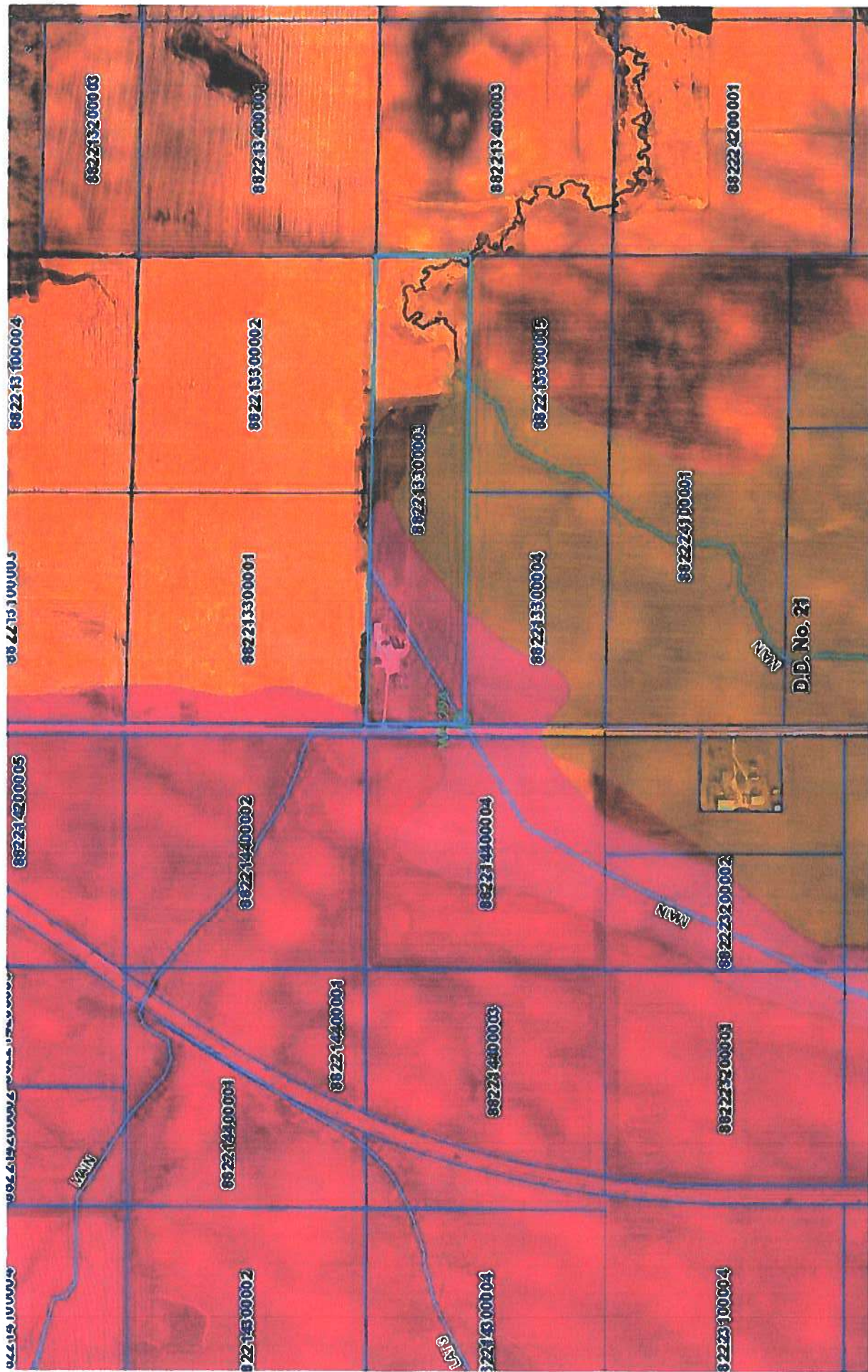
Repaired By: _____ **Date:** _____

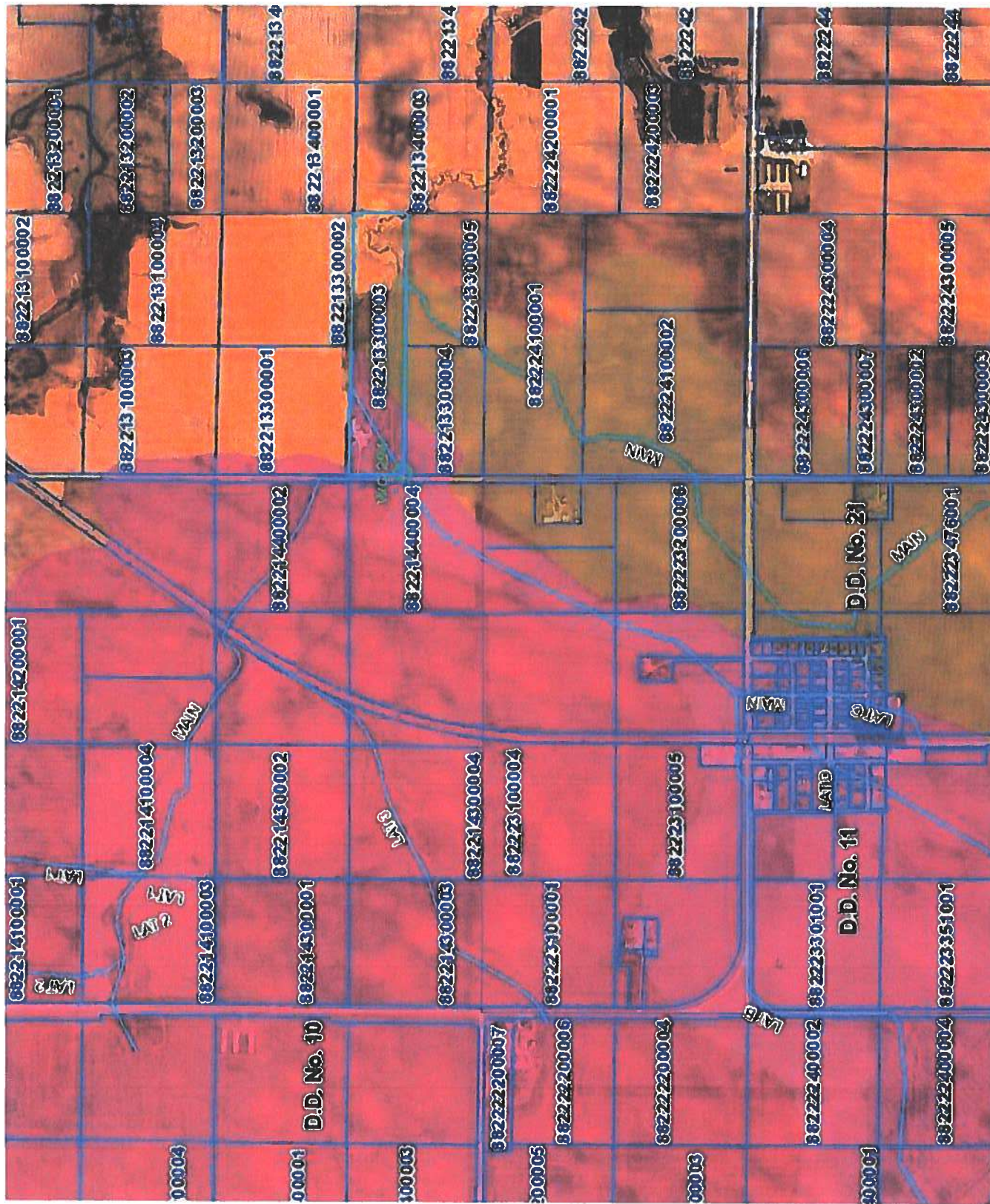
Please reference work order # and send statement for services to:

Hardin County Auditor's Office
Attn: Drainage Clerk
1215 Edgington Ave, Suite 1
Eldora, IA 50627
Phone (641) 939-8111
Fax (641) 939-8245

For Office Use Only

Approved: _____ **Date:** _____





Drainage District:

#11

Investigation Summary:

- Per the earlier recommendation and authorization, CCTV inspected the 21-inch VCP Main Tile starting at the existing 5 feet diameter by 2 feet deep blowout located in the NE¼ of Section 23, Township 88 North, Range 22 West. CCTV'ed for approximately 1320 feet west of G Avenue and approximately 1500 feet north of 195th Street.
- Televised 976 feet upstream (to the northeast) from said existing blowout and found 13 partial/imminent collapses. (see attached Tabulated Defects sheet)
- Televised 607 feet downstream (to the southwest) from said existing tile blowout and found 13 partial/imminent collapses. (see attached Tabulated Defects sheet)
- Temporarily repaired said existing blowout with 24-inch Dual wall HDPE tile with fabric wrapped joints and backfilled the area with on-site soil.

Contractor Time and Materials (spent while CGA was on-site):

See attached Tabulated Contractor Time and Materials

Additional Actions Recommended:

It is obvious that the Main Tile is at the end of its useful lifecycle and needs to be repaired based on the CCTV results and the history of repairs in the area. If nothing is done, the tile's condition will only continue to deteriorate which will result in future blowouts and sinkholes that will impact the drainage capacity of the Main Tile and could result in siltation of the same. Therefore, we would recommend repairing the 26 collapse areas identified through 11 spot repairs which would consist of replacing approximately 475 feet of existing tile. It is our opinion that the total construction cost would be \$40,000-\$49,000. This cost is low enough that neither a hearing nor Engineer's Report would be required. Alternatively, the District Trustees could pursue replacement of the Main tile for its entire length of CCTV, the cost of which would exceed \$50,000 and require a hearing and Engineer's Report.

As noted on the Tabulated Contractor Time and Materials, crop damage was incurred. It is recommended that the District Trustees pay any damage claim brought forth.



Tabulated Contractor Time and Materials

Date	Totals	6/16/2020	6/17/2020	6/18/2020
Workman (hrs)	73 3/7	15 2/3	30 1/2	27 1/4
Mini Excavator (hrs)	21	6 1/2	7 1/2	7
Skidloader (hrs)	21	6 1/2	7 1/2	7
1" Clean Bedding Rock	Yes			
Concrete Collars	No			
24" Dual Wall HDPE Tile (ft.)	41 4/5			41 4/5
Crop Damage	1 1/4		1 1/4	

Tabulated Defects

	Total	GPS #392 UPSTREAM	GPS #394 DOWNSTREAM
Total Length Televised (ft)	1546.2	939.2	607
Date:		6/17/2020	6/17/2020
Top crack (ft)	1427	921.5	505.5
Side crack (ft)	489.6	196.1	293.5
Bottom crack (ft)	1427	921.5	505.5
Partial or imminent collapse (#)	26	13	13
Full collapse (#)	0	0	0
Debris (ft)	0	0	0
Offset Joint (#)	1	0	1
Soil/voids visible in offset joint (#)	1	0	1
Single Wall HDPE (non-deformed) (ft)	0	0	0
Dual Wall HDPE (ft)	0	0	0
CMP (rusty) (ft)	18.1	0	18.1
Holes (non-fixed) (#)	0	0	0
Holes (fixed) (#)	1	1	0
Alligator Cracks (ft)	0	0	0
Radial Cracks (# of tile)	0	0	0
Top of pipe missing(repaired with bats)#	0	0	0

CONSTRUCTION ENGINEERING
OBSERVATION REPORT

DATE:

06/16/2020

PROJECT NUMBER: HARDIN DDWO # 294

DAYS OF WEEK:

S M T W T F S

COUNTY, ROUTE, ROAD: 6756.7/ DD#11
ALONG 1/4-1/4 LINE WEST
OF GAVE 19TH TO 19 1/2 NORTH
OF E 19TH ST

SHEET NO.

1 OF 4

LOCATION: NW 1/4 NE 1/4 & W 1/2 NE 1/4 23-88-22

LOW 60'S TO MID 80'S

INVESTIGATE TILE BLOWOUT ON DD#11 MAIN

SUNNY & BREEZY

JOB# 6756 BUCKEYE SURVEY

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB
NAME, ITEM NO. AND LOCATION

11:30 A.M. CREW AND OBSERVER ARRIVED ON SITE. ADAM, CARSON AND PERRY WITH KOLBELCO SK85LS MIN EXCAVATOR, AND CAT 299D XHP TRACKED SKIDLOADER.

11:40 A.M. ADAM MET WITH BOB SMUCK EARLIER THIS MORNING AND LOOKED AT REPAIR. ADAM WAS STILL TRYING TO CONTACT LAND OWNER ON EAST SIDE OF REPAIR TO INFORM OF REPAIR.

11:45 A.M. OBSERVER WALKED OUT TO REPAIR TO LOOK AT REPAIR AND TAKE SOME BEFORE REPAIR PICTURES.

12:00 P.M. PICTURE # 3774 & 12:03 P.M. PICTURE # 3775 SEE PICTURE FOR DETAILS.

12:28 P.M. PICTURE # 3776, 12:30 P.M. PICTURE # 3777, & 12:32 P.M. PICTURE # 3778 SEE PICTURE FOR DETAILS.

12:50 P.M. OBSERVER LEFT SITE TO SET UP GPS BASE ON HARDIN COUNTY GPS MONUMENT #8016 IN N.W. QUADRANT OF EAVE & 190TH ST

1:00 P.M. JEFF ARRIVED ON SITE.

1:20 P.M. OBSERVER HAD GPS BASE SET UP AND CHECKED INTO GPS #320 1/2" Ø IRON ROD (0.1' DEEP) 2.8'± WEST OF PP GUY ANCHOR ON WEST SIDE OF MAPLE STREET IN LINE WITH SOUTH ACC EDGE FOR ELLSWORTH AVENUE TO EAST. BOTH HORIZONTAL AND VERTICAL POSITION CHECKED GOOD.

1:30 P.M. OBSERVER BACK ON SITE. CREW WAS STILL PREPPING FOR TILE REPLACEMENT WITH 4 TILE REMOVED FOR REPLACEMENT SO FAR.

1:40 P.M. ADAM LEFT SITE TO GET ROCK AND DIFFERENT EXCAVATOR BUCKET.

1:55 P.M. PICTURE # 3779 & 1:56 P.M. PICTURE # 3781 SEE PICTURE FOR DETAILS.

2:15 P.M. CARSON AND PERRY LEFT SITE TO GET CONCRETE AND SOME OTHER SUPPLIES. JEFF CONTINUED TO REMOVE TILE TO GET TO GOOD TILE TO TIE INTO ON NE END.

I Certify that the work described in this report was incorporated into this contract unless otherwise noted.

Observer's Signature: Dean Penning

Date Prepared:

06/16/2020

Reviewed by:

☐ Engineer

Date Reviewed

CONSTRUCTION ENGINEERING
OBSERVATION REPORT

DATE:

06/16/2020

PROJECT NUMBER: HARDIN DD WD # 294

DAYS OF WEEK:

S M T W T F S

COUNTY, ROUTE, ROAD: 6756.7/ DD # 11

SHEET NO.

2 OF 4

LOCATION: NW 1/4 NE 1/4 & W 1/2 NE 1/4 E 1/4 23-88-22
INVESTIGATE TILE BLOWOUT ON DD # 11 MAIN

LOW 60'S TO MID 80'S

SUNNY & BREEZY

JOB# 6756 BUCKEYE SURVEY

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB
NAME, ITEM NO. AND LOCATION

2:20 P.M. OBSERVER CALLED LEE ABOUT TILE
BLOWOUT DUE TO TILE BEING CRACKED AND SIDES OF TILE HAVING VOIDS WITH
NO SIDE SUPPORT CAUSING TILE TO COLLAPSE. TILE DOWNSTREAM IS IN BAD
IN CONDITION. LEE SAID TO CONTINUE EXCAVATE DOWNSTREAM
BUT STOP BEFORE REPAIR GETS TO BE 50'. IF IT GETS
TO BE 50 FT THEN WILL HAVE TO TALK TO SUPERVISORS
OR DISTRICT BEFORE ANY MORE WORK IS DONE.

2:24 P.M. PICTURE # 3781, 2:46 P.M. PICTURE # 3782, 2:48 P.M. PICTURE #
3783 & 2:51 P.M. PICTURE # 3784 SEE PICTURE FOR DETAILS,
3:30 P.M. ADAM BACK ON SITE WITH LOAD OF ROCK & ANOTHER
EXCAVATOR BUCKET.

3:47 P.M. PICTURE # 3786 & 3:57 P.M. PICTURE # 3787. SEE PICTURE FOR DETAILS.

4:05 P.M. PICTURE # 3789, 4:07 P.M. PICTURE # 3790, & 4:08 P.M. PICTURE # 3791 SEE PICTURE
FOR DETAILS.

4:15 P.M. PICTURE # 3792 & 4:22 P.M. PICTURE # 3793 SEE PICTURE FOR DETAILS.

4:21 P.M. OBSERVER CONTACTED LEE AND INFORMED HIM THAT CREW
IS UP TO 26 FT DOWNSTREAM OF GPS 392 WITH TILE
STILL HAVING ISSUES WITH CRACKS & CAVING DOWN.
TILE STILL HAS WIDE JOINTS COVERED WITH TILE PIECES ON TOP
BUT NOT ON SIDES CAUSING VOIDS ON OUTER BEWDS OF TILE.
LEE SAID TO KEEP EXCAVATING FOR GOOD TILE BUT
STOP @ 50' TO DISCUSS WITH DISTRICT AFTER THAT.

4:51 P.M. PICTURE # 3794, 5:09 P.M. PICTURE # 3795 SEE PICTURE FOR DETAILS.

5:26 P.M. PICTURE # 3796, 5:27 P.M. PICTURE # 3796, PICTURE # 3797, & PICTURE # 3798 SEE PICTURE
FOR DETAILS.

5:30 P.M. PERRY BACK ON SITE AFTER GETTING SUPPLIES

5:34 P.M. PICTURE # 3799, 5:45 P.M. PICTURE # 3800, 5:47 P.M. PICTURE # 3801
SEE PICTURE FOR DETAILS.

5:47 P.M. OBSERVER CONTACTED LEE THAT CREW EXPOSED TILE TO 41.8' DOWNSTREAM
OF GPS # 392 WITH VOIDS STILL ON SIDE AND CLAY TILE ABOVE TOP OF JOINT

I Certify that the work described in this report was incorporated into this contract unless otherwise noted.

Observer's Signature: Dean Penning

Date Prepared:

06/16/2020

Reviewed by:

☐ Engineer

Date Reviewed

CONSTRUCTION ENGINEERING
OBSERVATION REPORT

DATE:

06/16/2020

PROJECT NUMBER:

HARDIN DD WD # 294

DAYS OF WEEK:

S M T W T F S

COUNTY, ROUTE, ROAD:

6756.7/ DD # 11
ALONG 1/4-1/4 LINE WEST
OF GAVE 1871 TO 1912 NORTH
OF E 135TH ST

SHEET NO.

3 OF 4

LOCATION:

NW 1/4 NE 1/4 & W 1/2 NE 1/4 E 1/4 23-88-22
INVESTIGATE TILE BLOWOUT ON DD # 11 MAIN

LOW 60'S TO MID 80'S

SUNNY & BREEZY

JOB # 6756 BUCKEYE SURVEY

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB
NAME, ITEM NO. AND LOCATION

WITH TILE CRACKING & APPEARING TO BE CAVING DOWN.

5:50 P.M. CALLED LEE IF CREW COULD START ON REPAIR. LEE SAID
TELEVISIONING COULD SHOW A LARGER REPAIR AND WOULD HAVE
TO BID OUT PROJECT. ADAM WANTED TO START TELEVISIONING
1ST THING IN MORNING BUT LEE SAID IT WAS NOT A GOOD
IDEA SINCE NOT APPROVED FOR YET AND IF NOT APPROVED
WHO PAYS FOR TELEVISIONING

5:56 PICTURE # 3802, & 6:29 P.M. PICTURE # 3803 SEE PICTURE FOR DETAILS.
06/16/2020 PICTURE # 1 SEE PICTURE FOR DETAILS.

6:00 P.M. CREW WAS DONE FOR DAY & LEFT SITE. OBSERVER
SHOT LANE CROP DAMAGES OUT TO REPAIR AND TORE DOWN
GPS AND LEFT SITE.

QUANTITIES

ADAM 4 2/3 HOURS

CARSON 2 3/4 HOURS

PERRY 3 1/4 HOURS

JEFF 5 HOURS

1 3/4 HOUR GETTING LOAD OF 1 1/2" ROCK
? CARSON NEEDED
BACK TO SITE WITH PICKUP &
DUMP TRAILER

3 1/4 HOURS GETTING SUPPLIES

KOLBELCO SK8SCS MINI EXCAVATOR 6 1/2 HOURS

CAT 299D XHP TRACKED SKIDLOADER 6 1/2 HOURS

CONCRETE INC. TICKET # 43614 HARDIN AGGREGATE 1 1/2 CRUEL 8.2 TONS

PICKUP & TRIPLE AXLE DUMP TRAILER GETTING ROCK

NOTE: LEE IS TALKING TO DISTRICT/SUPERVISORS ABOUT TELEVISIONING
LINE TOMORROW AT MEETING

I Certify that the work described in this report was incorporated into this contract unless otherwise noted.

Observer's Signature:

Dean Penning

Date Prepared:

06/16/2020

Reviewed by:

Engineer

Date Reviewed

CONSTRUCTION ENGINEERING
OBSERVATION REPORT

DATE:

06/16/2020

PROJECT NUMBER:

HARDIN DD WD # 294

DAYS OF WEEK:

S M T W T F S

COUNTY, ROUTE, ROAD:

6756.7/ DD # 11
ALONG 1/4-1/4 LINE WEST
OF GAVE 1871 TO 1912 NORTH
OF E 195TH ST

SHEET NO.

4 OF 4

LOCATION:

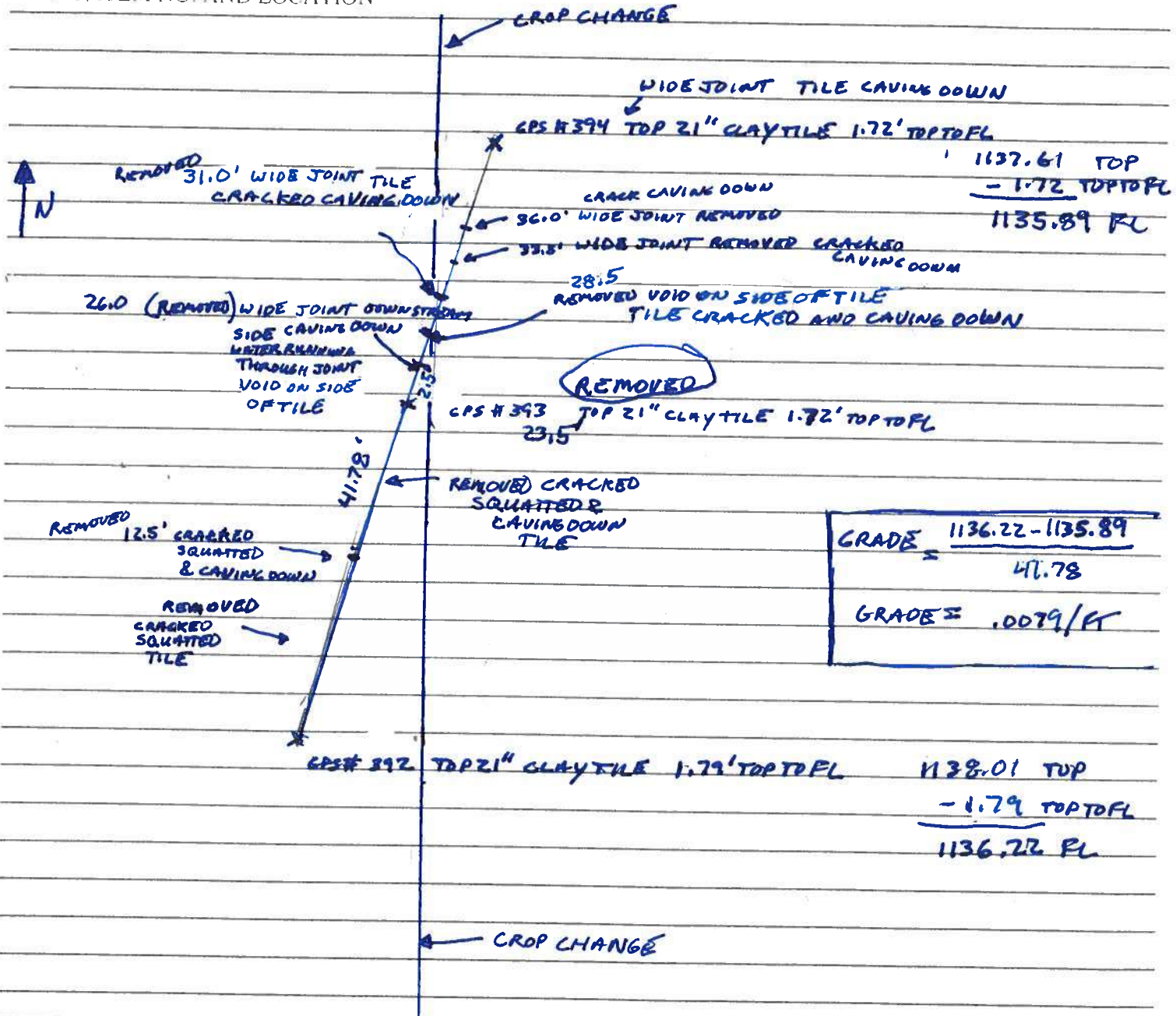
NW 1/4 NE 1/4 & W 1/2 NE 1/4 E 1/4 23-88-22
INVESTIGATE TILE BLOWOUT ON DD # 11 MAIN

LOW 60'S TO MID 80'S

SUNNY & BREEZY

JOB # 6756 BUCKEYE SURVEY

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB
NAME, ITEM NO. AND LOCATION



I Certify that the work described in this report was incorporated into this contract unless otherwise noted.

Observer's Signature:

Dean Penning

Date Prepared:

06/16/2020

Reviewed by:

☐ Engineer

Date Reviewed

Beacon™ Hardin County, IA

Layers - Map Search Comp Search Results Comp Results Report Pictometry Imagery

Layer List Legend
Quick Links:
Property Search
View Map
Drainage District Search

Layers:
☐ Address
☒ Corporate Limits
☒ Political Townships
☐ Geographic Townships
☐ Sections
☐ Subdivision Annotation
☐ Subdivisions
☐ Lot Annotation
☐ Lot Lines
☐ Road Dimensions
☒ Roads
☐ Road ROW
☐ Railroad Annotation
☐ Railroads
☐ Railroad ROW
☐ Water
☐ Parcel Dimensions
☒ Parcels



Parcel ID	8822232000004	Alternate ID	235000000
Sec/Twp/Rng	23-88-22	Class	R
Property Address	19131 GAVE	Acreage	4.24
District	HARDIN		
Brief Tax Description	63000 COMM COR S51°E BEG NW442.5' S456.85' NE442.5' N445° BEG SEC23-T88N-R22W (Note: Not to be used on legal documents)		

Results	Period ID - 8822232000004 Alt ID - 235000000 Address - 19131 GAVE Owner - Smuck, Robert J (Deed) Acres - 4.24 View Report Pictometry Imagery
---------	--

Owner Address	Smuck, Robert J 19131 G Ave Alden IA 50006
---------------	--

PICTURE#3774 IS LOOKING EAST TOWARDS ACREAGE @19131
G AVE - SHOWING 5.0' ϕ X 2.0' DEEP BLOWOUT IN BEAN
GROUND JUST WEST OF CROP CHANGE.



PICTURE#3775 IS LOOKING SOUTH TOWARDS 195TH STREET
AT 5.0' ϕ X 2.0' DEEP BLOWOUT IN BEAN GROUND
(WEST SIDE) OF CROP CHANGE

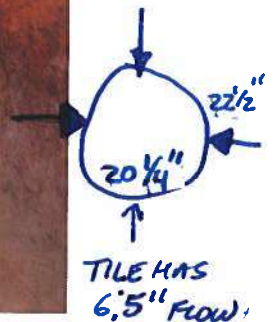
PICTURE #3776 IS LOOKING SW SHOWING EXISTING CLAY TILE
EXPOSED NEAR TILE BLOWOUT WITH NO VISIBLE ISSUES YET
(JOINT IS TIGHT)



TILE
SECTION
COLLAPSING
& BROKEN

PICTURE #3777 IS LOOKING SLIGHTLY NW SHOWING EXISTING
CLAY TILE TO SW IN GOOD SHAPE AND SECTION OF CLAY
TILE COLLAPSED (GOOD CLAY AROUND TILE)

PICTURE # 3778 IS LOOKING NE SHOWING TILE EXPOSED WHERE
SECTION OF TILE IS BROKEN & COLLAPSING NEAR BLOWOUT HOLE,



PICTURE # 3779 IS LOOKING SW UPSTREAM FROM GPS#392.
INSIDE- 21" CLAY TILE WITH SMOOTH CRACKS @ 6 & 12 O'CLOCK,
TILE IS CRACKED, SLIGHTLY SQUATTED, BUT DOES NOT APPEAR TO BE LEAVING DOWN.

PICTURE # 3780 IS LOOKING NE DOWNSTREAM APPROXIMATELY 12.5'
FROM GPS # 392 SHOWING TILE STILL CRACKED, SQUATTED,
AND CAVING DOWN. AFTER APPROXIMATELY 5 SECTIONS OF
TILE REMOVED



PICTURE # 3781 IS LOOKING NE DOWNSTREAM APPROXIMATELY
(23.5' FROM GPS # 392) (GPS # 393) SHOWING TILE STILL CRACKED, SQUATTED,
AND CAVING DOWN AFTER 4 SECTIONS OF TILE REMOVED.

PICTURE# 3782 IS LOOKING SLIGHTLY NW SHOWING $1\frac{1}{2}$ " TO 2" WIDE JOINT ON CLAY TILE @ 28.5' ± DOWNSTREAM FROM GPS#392 WITH CLAY PIECES OVER JOINT AND UPSTREAM TILE CAVING DOWN.



PICTURE# 3783 IS LOOKING NW SHOWING TOP OF CLAY TILE CRACKED AND CAVING DOWN @ 26.0' DOWNSTREAM FROM GPS#392.

PICTURE #3784 IS LOOKING SW SHOWING WIDE GAP & TOP OF TILE CRACKED AND CAVING DOWN

GPS #393 TOP 21" CLAY TILE



TOP TILE
CRACKED
& CAVING
DOWN.

1 1/2" TO 2"
WIDE GAP
@ 28.5' ±
FROM GPS #392

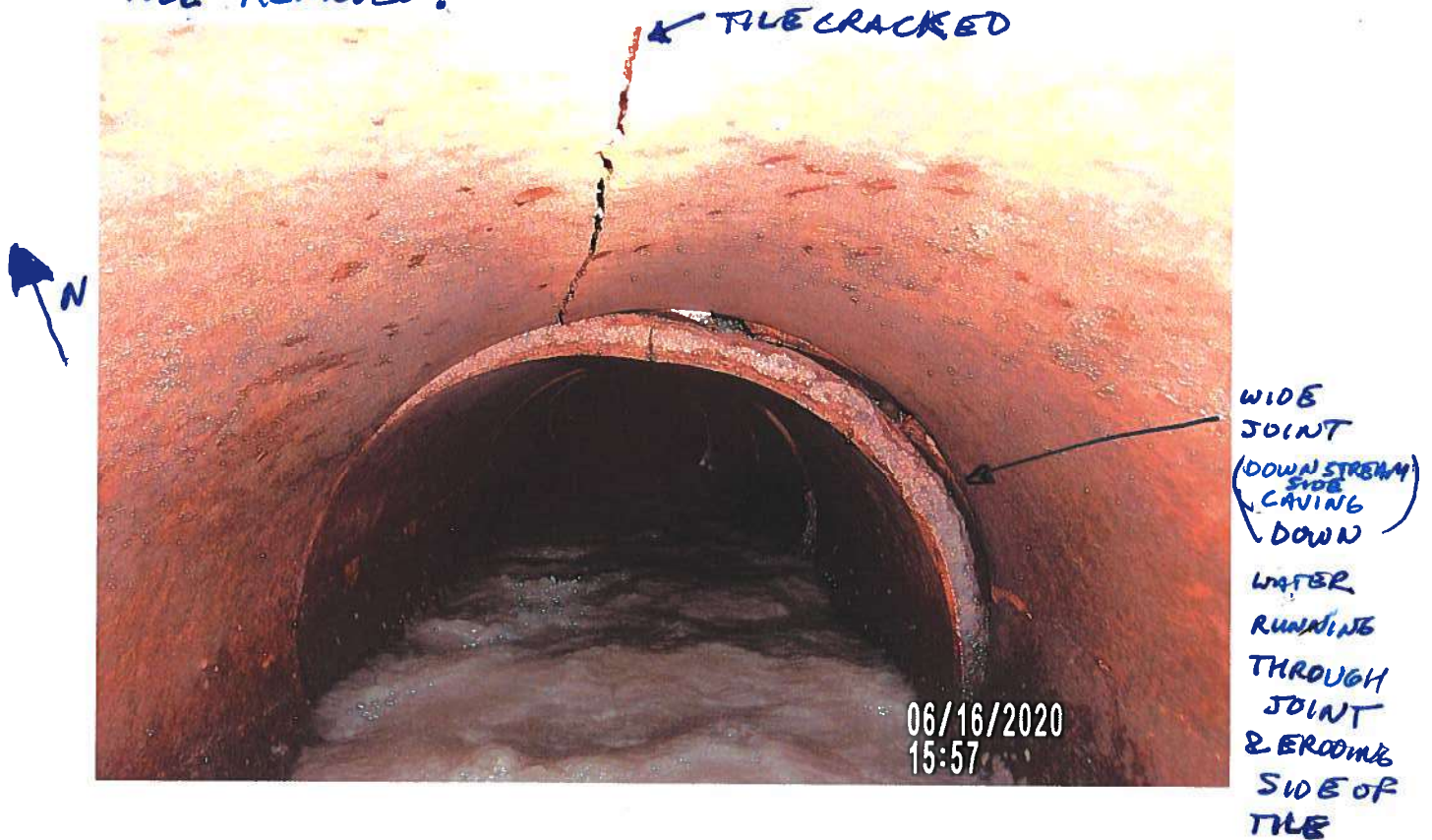
06/16/2020
14:51



06/16/2020
15:17

PICTURE #3786 IS LOOKING NE FROM GPS #393 INSIDE 21" CLAY TILE SHOWING TOP TILE CRACKED AND CAVING DOWN WITH JOINT O/S & WIDE JOINT 2 JOINTS DOWNSTREAM.

PICTURE #3787 IS LOOKING NE (2.5' NE OF GPS#393) SHOWING
INSIDE 21" CLAY TILE AFTER ANOTHER SECTION CLAY
TILE REMOVED.



PICTURE #3789 IS LOOKING SOUTH SHOWING TILE CAVING
DOWN 5.0' DOWN STREAM FROM GPS#393.

PICTURE # 3790 IS LOOKING DOWN STREAM FROM 28.5'± DOWNSTREAM
FROM GPS # 392 SHOWING TILE STILL CRACKED AND CAVING
DOWN



PICTURE # 3791 IS LOOKING ON WEST SIDE OF 21" TILE
SHOWING VOID BESIDE TILE @ WIDE JOINT (28.5'± DOWNSTREAM
FROM GPS # 392)

PICTURE # 3792 IS LOOKING SOUTH SHOWING BOOT HOLE AFTER
CONTRACTOR STEPPED ABOVE VOID ON EAST SIDE OF TILE
31' DOWNSTREAM OF GPS # 392!



PICTURE # 3793 IS LOOKING EAST SHOWING 2" WIDE
JOINT WITH CLAY PIECES OVER ON EAST SIDE OF TILE (31' DOWNSTREAM
OF GPS # 392. CLAY PIECES ARE JUST ON TOP OF JOINT BUT NOT ON SIDES.
CAUSING VIDS ON SIDES

PICTURE# 3794 IS LOOKING NORTH @ 21" CLAY TILE SHOWING
TILE STILL CRACKED AND CAVING DOWN

31.00' DOWN STREAM FROM GPS#
392

N ↑



N ↑



PICTURE# 3795 IS LOOKING NORTH SHOWING TRENCH WITH
DAMAGED TILE REMOVED.

GPS # 392 TOP 21" CLAY TILE
SOUTHEAST

PICTURE# 3796 IS LOOKING NW SHOWING JOINTS @ 33.5' & 36' DOWN STREAM FROM GPS #392 HAVING WIDE JOINTS



PICTURE# 379.7 IS LOOKING SW SHOWING TILE EXPOSED @ GPS 13 WITH TILE STILL CRACKED AND CAVING DOWN, (NO DIFFERENCE ON CONDITION) JOINTS ARE TIGHTER,

PICTURE# 3798 CLOSER UP PICTURE OF TILE CONDITION
TIGHTER JOINT BUT STILL CRACKED AND CAVING
DOWN.

N
↓

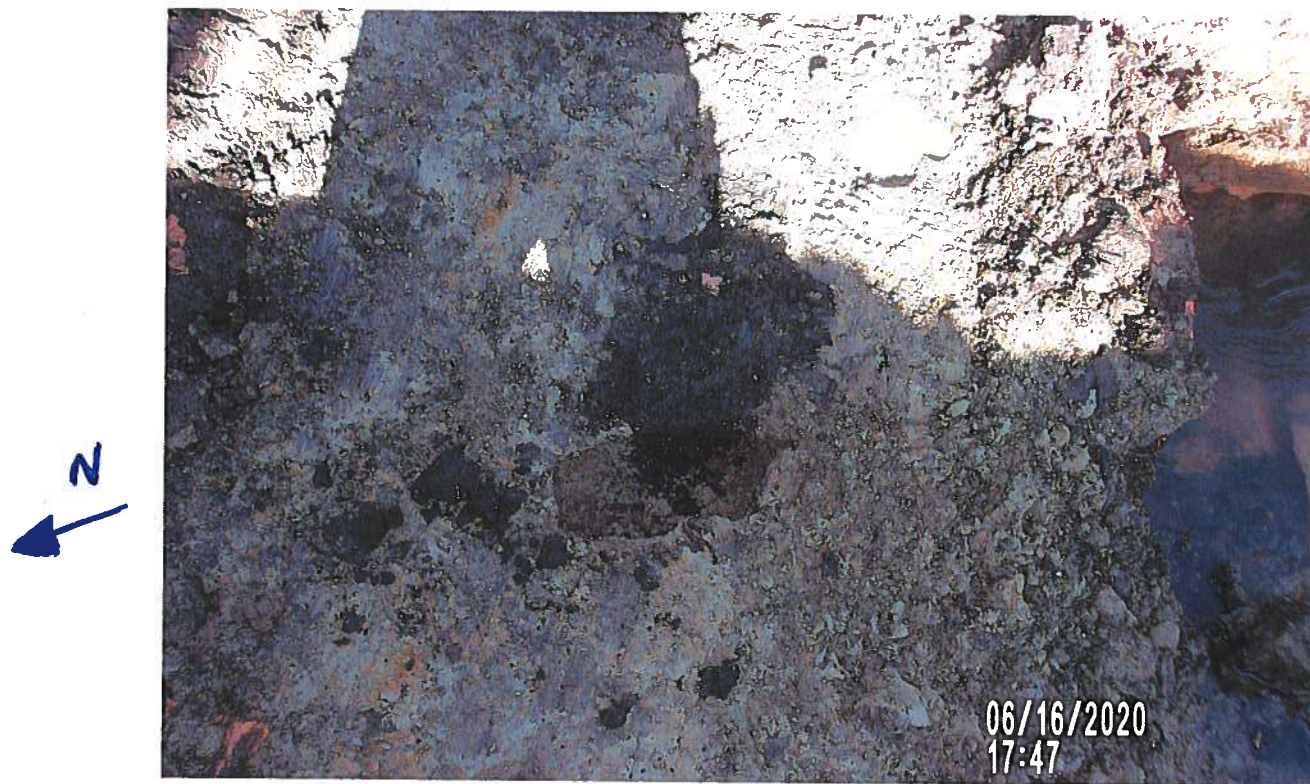


N
↑



PICTURE# 3799 IS LOOKING NE SHOWING TILE STILL
CRACKED, SQUATTED AND CAVING DOWN

PICTURE# 3800 IS LOOKING NORTH SHOWING ANOTHER WIDE JOINT
AT GPS# 394.



PICTURE# 3801 IS LOOKING SE SHOWING ANOTHER VOID BESIDE
WEST SIDE OF TILE

PICTURE # 3802 IS LOOKING NE FROM GPS # 394 SHOWING INSIDE OF 21" CLAY TILE WITH TOP CRACKED AND CAVING DOWN. APPEARS NEXT 3 JOINTS ARE IN SAME CONDITION BUT ARE CLOSE TO OUR 50' MAX REPAIR LIMIT. LEE WILL TALK

TO SUPERVISORS IN MORNING ABOUT TELEVISIONING LINE,



(41.8' DOWNSTREAM FROM GPS # 392)



CPS # 394 TOP 21" CLAY TILE (5.4' DEEP)



CPS # 392 TOP 21" CLAY TILE (4.8' ± DEEP)

PICTURE # 3803 IS LOOKING NE SHOWING 41.8 LF OF TILE REMOVED WITH NEXT THREE DOWNSTREAM TILE IN SAME CONDITION. CREW IS WAITING ON DECISION FROM DRAINAGE DISTRICT ON HOW FAR TO REPLACE TILE

PICTURE #1 ROCK TO BE USED FOR
BEDDING UNDER AND AROUND TILE
FOR TILE REPAIR.

CONCRETE, INC. 43614		28295 4TH AVE. GIFFORD, IA 50259 PHONE 641-858-5637	
A42512 HARDIN AGG			
TRUCK NO.	CHGE.	CASH	MONTH
	<input checked="" type="checkbox"/>		
		6	16
			20
SOLD TO Adam Seward			
ADDRESS			
DELIVERED TO			
ADDRESS			
14110 FA WASHED SAND	GROSS	DDY	
FILE SAND	16,300/2020	102:40 PM	
SURFACING	30780	10 630/294	
PEA GRAVEL	TARE	14220	
1 1/2 GRAVEL		16560	
OVERSIZE			
OTHER			
PU	NET		
TRUCK RATE			
DRIVER SIGNATURE		TONS	AMOUNT
		8.2	
		SALES TAX	
		HAULING	
		TOTAL	

06/16/2020

CONSTRUCTION ENGINEERING
OBSERVATION REPORT

DATE:

06/17/2020

PROJECT NUMBER: HARDIN DDWD # 294

DAYS OF WEEK:

S M T W T F S

COUNTY, ROUTE, ROAD: 6756.7/ DD#11

SHEET NO.

1 OF 4

LOCATION: NW 1/4 NE 1/4 & W 1/2 NE 1/4 E 1/4 23-88-22
INVESTIGATE TILE BLOWOUT ON DD#11 MAIN

UPPER 50'S TO MID 80'S

SUNNY & WINDY

JOB# 6756 BUCKEYE SURVEY

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB
NAME, ITEM NO. AND LOCATION

10:43 A.M. OBSERVER RECEIVED A TEXT FROM LEE THAT BOARD OF
SUPERVISORS APPROVED TELEVISIONING AND TO GO TO JOB SITE
ASAP.

10:45 A.M. OBSERVER LEFT OFFICE FOR SITE.

11:25 A.M. OBSERVER ARRIVED ON SITE WITH JEFF, CARSON, PERRY
& ADAM ON SITE AND CAT 299D XP TRACKED SKID LOADER
& KOLBELCO SK 85CS MINI EXCAVATOR. JEFF WAS
ON SITE @ 9 WITH CARSON, ADAM, & PERRY ON SITE @ 9:30 A.M.
CREW WAS CLEANING UP TRENCH BANKS AND WAITING FOR
APPROVAL TO TELEVIEW LINE.

11:00 A.M. PAUL WITH TELEVISIONING CAMERA ARRIVED ON SITE

11:50 A.M. PAUL STARTED TELEVISIONING DOWNSTREAM FROM GPS#
394 (TOP 21" CLAY TILE 1.72' TOP TO FL
BACK WHEELS AT END OF TILE) (SOME OBSERVATIONS SEEN IN FIELD
WHILE TELEVISIONING)

1.0' START TELEVIEW DOWNSTREAM.

13.4 CIRCUMFERENTIAL CRACKS (12 TO 12)

21.0 CRACKED CAVING DOWN (9 TO 1)

24.8 CLAY TO CMP

41.8 CMP TO CLAY (546 @ CMP TO CLAY)

47.8

49.9 TILE TOP TILE (CAVE DOWN)

54.8 MULTIPLE CRACKS (CAVE DOWN)

59.1 WIDE GAP LEFT

61.2 CAVE DOWN

108.4 STILL CAVING DOWN

117.2 CRACKED CAVING DOWN

124.2

147.0 BROKEN PIECE (CAVING IN)

160.0 STILL CRACKED (CAVE IN)

170.4 TILE SUNK DOWN

194.2 TILE BROKE LEFT SIDE

207.9 LOWER RIGHT CRACKED

227.2 CAVE DOWN

228.2

230.1 GRADE CHANGE

240.0 CRACKED CAVING DOWN

252.0 CRACKED CAVING DOWN

266.0 TILE LOOKED GOOD AS SAID

279.5

I Certify that the work described in this report was incorporated into this contract unless otherwise noted.

Observer's Signature

Dean Penning

Date Prepared

06/17/2020

Reviewed by

Engineer

Date Reviewed

CONSTRUCTION ENGINEERING
OBSERVATION REPORT

DATE:

06/17/2020

PROJECT NUMBER: HARDIN DD WD # 294

DAYS OF WEEK:

S M T W T F S

COUNTY, ROUTE, ROAD: 6756.7 / DD # 11

SHEET NO.

2 OF 4

LOCATION: NW 1/4 NE 1/4 & W 1/2 NE 1/4 E 1/4 23-88-22
INVESTIGATE TILE BLOWOUT ON DD # 11 MIN

UPPER 50'S TO MID 80'S

SUNNY & WINDY

JOB # 6756 BUCKEYE SURVEY

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB
NAME, ITEM NO. AND LOCATION

300.0

412.8 CRACKED (CAVE DOWN)

315.5 CRACKS IN TILE

425.0 BETTER PIPE AGAIN

326.2 WIDE JOINT BATT'S OVER JOINT

475.0 CRACKED (CAVE DOWN)

332.0

550-562 CRACKED CAVING IN

335.3 CRACKED CAVING DOWN

562-569.5 TILE COLLAPSING DOWN /
(3, 9, 212)

331.6 CRACKED CAVING DOWN

586.5 TO 602 CRACKED CAVING DOWN

359.8 CRACKED CAVING DOWN

603.6 CHUNK CLAY TILE IN FLOW LINE
(TOP TILE CRACKED) END CAMERA
CAMERA CAN NOT GO PAST
CHUNK TILE IN FLOW LINE

370.8 BETTER TILE (MORE ROUND LESS SQUATTED)

382.8

395.8

1:05 P.M. PAUL WAS DONE WITH TELEVISIONING DOWNSTREAM AND
STARTED TO LOCATE TILE.

1:05 P.M. OBSERVER HEADED TO SET UP GPS BASE ON GPS # 8016
AT NW QUADRANT OF E AVE & 190TH ST.

1:35 P.M. OBSERVER HAD GPS BASE SET UP AND CHECKED INTO GPS # 320
1/2" Ø IRON ROD (0.1' ± DEEP) 2.8' ± WEST OF GUY ANCHOR ON WEST
SIDE OF MAPLE STREET IN LINE WITH WITH SOUTH ACC EDGE FOR ELLSWORTH
AVE TO EAST WITH BOTH HORIZONTAL AND VERTICAL POSITION
CHECKING GOOD.

1:40 P.M. OBSERVER BACK ON SITE AND CREW WAS DONE
LOCATING TILE DOWNSTREAM AND WAS PULLING CAMERA
BACK. OBSERVER SHOT TILE LOCATES (GPS # 394 TO GPS # 411)

2:04 P.M. PICTURE # 3810 SEE PICTURE FOR DETAILS.

2:20 P.M. PAUL HAD CAMERA TRAYTOR SET IN UPSTREAM TILE AND
READY TO START TELEVISIONING UPSTREAM FROM GPS # 392

2:25 P.M. PICTURE # 3811 SEE PICTURE FOR DETAILS.

I Certify that the work described in this report was incorporated into this contract unless otherwise noted.

Observer's Signature: Dean Penning

Date Prepared

06/17/2020

Reviewed by:

☐ Engineer

Date Reviewed

CONSTRUCTION ENGINEERING
OBSERVATION REPORT

DATE:

06/17/2020

PROJECT NUMBER:

HARDIN DD WO # 294

DAYS OF WEEK:

S M T W T F S

COUNTY, ROUTE, ROAD:

6756.7/ DD#11
ALONG 1/4-1/4 LINE WEST
OF GAVE 1871 TO 1912 NORTH
OF E 1ST ST

SHEET NO.

3 OF 4

LOCATION:

NW 1/4 NE 1/4 & W 1/2 NE 1/4 E 1/4 23-88-22
INVESTIGATE TILE BLOWOUT ON DD#11 MAIN

UPPER 50'S TO MID 80'S

SUNNY & WINDY

JOB# 6756 BUCKEYE SURVEY

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB
NAME, ITEM NO. AND LOCATION

2:27 P.M. PAUL STARTED TELEVISIONING UPSTREAM

FROM GPS # 392 TOP 21" CLAY TILE (1.79' TO TOP FL) (BACK OF WHEELS
ON CAMERA AT END OF TILE) (SOME OBSERVATIONS SEEN IN FIELD WHILE TELEVISIONING)

1.5' START TELEVISION UPSTREAM. LONGITUDINAL CRACKS @ 12 START
(SLIGHT SQUAT)

4.7 LONGITUDINAL CRACK @ 12 SLIGHT SQUAT

8.8 LONGITUDINAL CRACK @ 6

15.2 LONGITUDINAL CRACK @ 12 (CAVING DOWN)

44.3 LONGITUDINAL CRACK @ 12 (CAVING DOWN)

55.9 LONGITUDINAL CRACK @ 12 (CAVING DOWN)

67.9 LONGITUDINAL CRACK @ 12 (CAVING DOWN)

129.6 LONGITUDINAL CRACK @ TOP SQUATTING START

163.0 LONGITUDINAL CRACK (CAVING DOWN)

175.9 LC (CAVING DOWN)

191.2 LC (CAVING DOWN)

199.7 TO 205.1 LC (CAVING DOWN)

261.9 LC (CAVING DOWN)

300.6 TO 337.1 LC (CAVING DOWN)

340.8 LC (CAVING DOWN)

378.8 LC (CAVING DOWN)

473.8 TO 479.7 LC (CAVING DOWN)

516.0 TO 518.8 LC (SQUATTING)

526.7 TO 543.3 LC (CAVING DOWN)

552.0 LC (CAVING DOWN)

580.0 TO 754.2 LC (CAVING DOWN)

667.2 LATERAL LEFT (9 TO 10)

914.2 TO 929.8 LC (CAVING DOWN)

936.6 TO 945.9 LC (CAVING DOWN)

3:52 P.M. 976+1 END CAMERA (OUT OF CABLE) CREW STARTED LOCATING
TILE UPSTREAM

I Certify that the work described in this report was incorporated into this contract unless otherwise noted

Observer's Signature

Dean Penning

Date Prepared

06/17/2020

Reviewed by

Engineer

Date Reviewed

CONSTRUCTION ENGINEERING
OBSERVATION REPORT

DATE:

06/17/2020

PROJECT NUMBER: HARDIN DD WD # 294

DAYS OF WEEK:

S M T W T F S

COUNTY, ROUTE, ROAD: 6756.71 DD#11

SHEET NO.

4 OF 4

LOCATION: NW 1/4 NE 1/4 & W 1/2 NE 1/4 E 1/4 23-88-22

UPPER 50'S TO MID 80'S

INVESTIGATE TILE BLOWOUT ON DD#11 MAIN

SUNNY & WINDY

JOB# 6756 BUCKEYE SURVEY

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB NAME, ITEM NO. AND LOCATION

4:22 P.M. PICTURE# 3812 & 4:23 P.M. PICTURE# 3814 SEE PICTURE FOR DETAILS.

4:28 P.M. CREW DONE LOCATING TILE & SHOOTING TILE LOCATES.

PAUL WAS PULLING CAMERA BACK TO BEGINNING AGAIN.

4:40 P.M. PAUL HAD CAMERA STUCK IN TILE AROUND 608 FT. ON PULLBACK BUT AFTER PULLING ON CABLE PAUL DID GET CAMERA UNSTUCK.

5:00 P.M. ADAMS CREW QUIT FOR DAY. PAUL WAS GETTING EQUIPMENT PUT AWAY. OBSERVER SHOT CORN AND BEAN DAMAGES FOR TILE REPAIR AND ACCESS TO REPAIR.

5:30 P.M. PAUL HAD EQUIPMENT PUT AWAY AND LEFT SITE.

5:56 P.M. PICTURE# 3815, 6:20 P.M. PICTURE# 3816, & 6:21 P.M. PICTURE# 3817 SEE PICTURES FOR DETAILS.

6:00 P.M. OBSERVER TORE DOWN GPS & LEFT SITE.

QUANTITIES

JEFF 8 HOURS

ADAM 7 1/2 HOURS

PERRY 7 1/2 HOURS

CARSON 7 1/2 HOURS

CAT 299D XHP TRACKED SKID LOADER

KOLBELCO SK 85 CS MINI EXCAVATOR

NOTE: MOST OF DAY WAS

TELEVISIONG TO FIGURE OUT HOW MUCH TO REPAIR.

7 1/2 HOURS

7 1/2 HOURS

PAUL & CAMERA EQUIPMENT 6 1/2 HOURS

CORN DAMAGE 465, 469, 463, 462, 461, 460, 431-433, 435, 0.324 AC

BEAN DAMAGE 428, 441, 444-448, 440, 439, 436, 431, 433, 435, 438, 441, 444, 443, 442, 437, 430, 0.946 AC

I Certify that the work described in this report was incorporated into this contract unless otherwise noted

Observer's Signature

Dean Penning

Date Prepared

06/17/2020

Reviewed by

Engineer

Date Reviewed



PN _____
 Computed By _____ Date _____
 Checked By _____ Date _____
 Subject _____

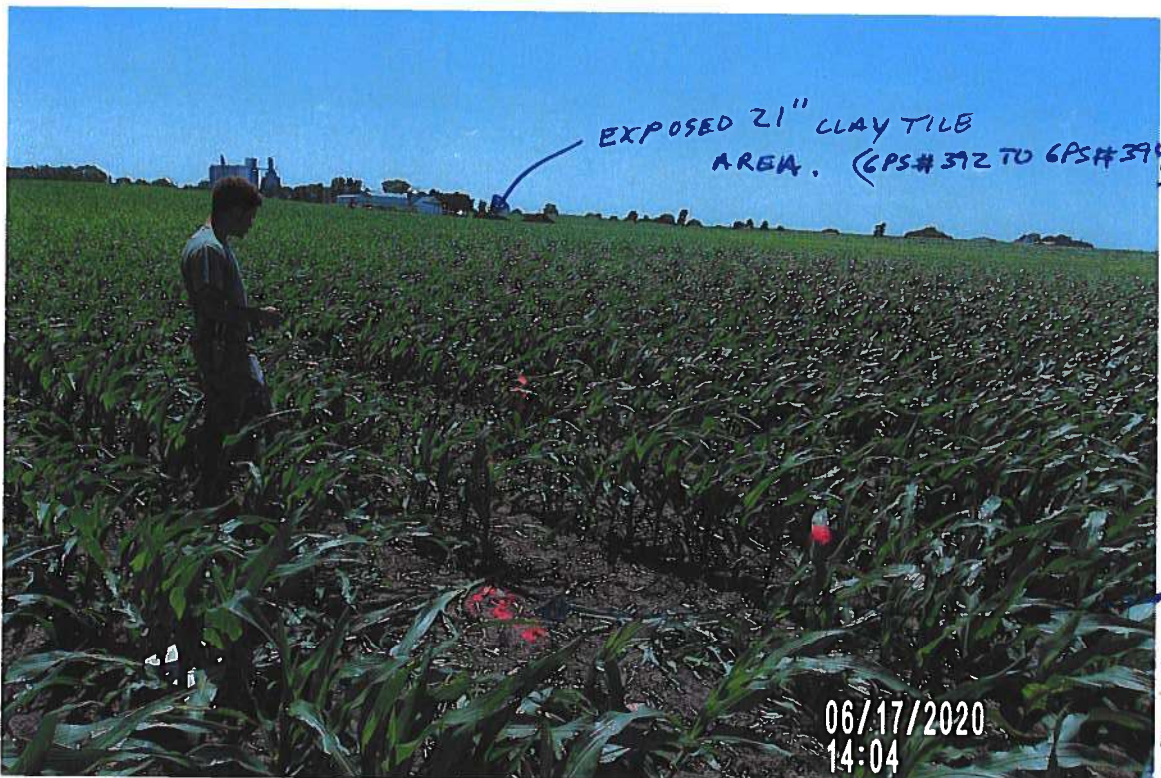


PICTURE# 3809 IS LOOKING NE SHOWING DOWN STREAM
 END OF EXPOSED TILE WHERE PAUL STARTED TELEVISIONING
 DOWN STREAM FROM WITH CAMERA IN TILE READY TO TELEVIEW.

GPS # 394 TOP 21" CLAY TILE
 1.72' TOP TO
 FL



06/17/2020
 11:51



EXPOSED 21" CLAY TILE
 AREA. (GPS# 392 TO GPS# 394)

06/17/2020
 14:04

GPS# 412
 GS TILE LOCATE
 CHUNK TILE
 IN FL
 CAMERA
 UNABLE TO
 GET PASSED -
 LT

PICTURE# 3810 IS LOOKING SW SHOWING TILE LOCATES FROM
 GPS# 394 TILE BLOWOUT UP TO CHUNK TILE IN FLOWLINE
 WITH CAMERA UNABLE TO GET PASSED @ 603.5'

PICTURE #3811 IS LOOKING SW SHOWING CAMERA TRACTOR
IN UPSTREAM SIDE TILE OF BLOWOUT AND READY
TO START TELEVISING UPSTREAM.
GPS# 392 TOP 21" CLAY TILE (4.8' DEEP)



(1.79' TOP
TO RL)



PICTURE #3812 IS LOOKING NE FROM END OF CABLE
TILE LOCATE GPS# 429 TOWARD TILE BLOWOUT START
OF LOCATES (976.0')

PICTURE#3814 IS LOOKING WEST TOWARDS 402 PRAIRIE AVENUE
FROM LOCATION OF END TILE LOCATE (END OF CABLE)



✓ CPS# 429 END OF TILE LOCATE
(END OF CABLE)



PICTURE#3815 IS LOOKING SOUTH AT BEAN & CORN DAMAGE
ON ACCESS LANE OUT TO TILE REPAIR

PICTURE # 3816 IS LOOKING NORTH FROM 195TH ST / PRAIRIE ST
(GRAVEL ROAD) @ CORN/BEAN DAMAGE ON ACCESS LANE OUT TO TILE
REPAIR.



PICTURE 3817 IS LOOKING NW AT BEAN / CORN DAMAGE
FROM FIELD ENTRANCE ON NORTH SIDE 195TH ST / PRAIRIE ST
(GRAVEL ROAD) TO ACCESS LANE OUT TO TILE REPAIR.

CONSTRUCTION ENGINEERING
OBSERVATION REPORT

DATE:

06/18/2020

PROJECT NUMBER:

HARDIN DD WD # 294

DAYS OF WEEK:

S M T W T F S

COUNTY, ROUTE, ROAD:

ALONG 1/4-1/4 LINE WEST
OF GAVE 1871 TO 1921 NORTH
OF E 195TH ST

SHEET NO.

1 OF 4

LOCATION:

NW 1/4 NE 1/4 & W 1/2 NE 1/4 E 1/4 23-88-22
INVESTIGATE TILE BLOWOUT ON DD#11 MAIN

MID 60'S TO MID 80'S

CLOUDY & WINDY

JOB# 6756 BUCKEYE SURVEY

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB
NAME, ITEM NO. AND LOCATION

6:50 A.M. OBSERVER LEFT OFFICE FOR JOBSITE.

7:20 A.M. OBSERVER ON SITE AND SET GPS BASE ON HARDIN COUNTY
GPS MONUMENT #8016 IN NW QUADRANT OF EAVE & 190TH ST.

7:40 A.M. GPS BASE SET UP AND CHECKED INTO GPS #320 1/2" IRON
RE ROD (0.1' DEEP) 2.8' ± WEST OF GUY ANCHOR ON WEST SIDE OF MAPLE
STREET IN LINE WITH SOUTH ^{PP} EDGE FOR ELLSWORTH AVENUE TO EAST
BOTH HORIZONTAL AND VERTICAL POSITION CHECKED GOOD.

7:45 A.M. OBSERVER AT REPAIR LOCATION TO TEMPORARY REPAIR
TILE UNTIL DISTRICT MAKES DECISION ON HOW MUCH
TO REPAIR. ADAM, JEFF, PERRY & CARSON ON SITE
WITH KOLBELCO SK85 CS MINI EXCAVATOR & CAT 299XHP
TRACKED SKIDLOADER ON SITE FOR EQUIPMENT. CREW
SAID THEY ARRIVED ON SITE ABOUT 7:00 A.M.

7:55 A.M. PICTURE #3818 SEE PICTURE FOR DETAILS.

8:09 A.M. PICTURE #3819 SEE PICTURE FOR DETAILS.

8:15 A.M. CREW WAS GRADING BOTTOM OF TRENCH
REMOVING SOME OF MUCK & PLACING ENOUGH ROCK
FOR A FIRM BOTTOM.

9:53 A.M. PICTURE #3820 SEE PICTURE FOR DETAILS.

9:30 A.M. BOB SMUCK WAS AT REPAIR LOCATION CHECKING ON
REPAIR. OBSERVER TOLD BOB THAT THERE IS A LOT OF
CRACKED AND CAVING DOWN SECTIONS OF TILE IN VIDEO
BOTH 976' UPSTREAM AND 605' ± DOWNSTREAM. AS OF NOW
WE ARE MAKING TEMPORARY REPAIRS UNTIL DISTRICT
DECIDES HOW MUCH TO REPAIR. OTHER ISSUE IS THE
CLAY TILE HAS VOIDS WHERE SOIL HAS ERODED AWAY ON OUTSIDE

I Certify that the work described in this report was incorporated into this contract unless otherwise noted.

Observer's Signature:

Dean Penning

Date Prepared

06/18/2020

Reviewed by:

Engineer

Date Reviewed

CONSTRUCTION ENGINEERING
OBSERVATION REPORT

DATE:

06/18/2020

PROJECT NUMBER: HARDIN DD WD # 294

DAYS OF WEEK:

S M T W T F S

COUNTY, ROUTE, ROAD: ALONG 1/4-1/4 LINE WEST OF GAVE 1871 TO 1912 NORTH OF E 19TH ST

SHEET NO.

2 OF 4

LOCATION: NW 1/4 NE 1/4 & W 1/2 NE 1/4 E 1/4 23-88-22 INVESTIGATE THE BLOWOUT ON DD#11 MAIN

MID 60'S TO MID 80'S

CLOUDY & WINDY

JOB# 6756 BUCKEYE SURVEY

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB NAME, ITEM NO. AND LOCATION

BENDS OF TILE DUE TO WIDE JOINTS. THIS CAUSES TILE TO CAVE DOWN IN NUMEROUS SPOTS TO WEAKEN TILE DUE TO LACK OF SIDE SUPPORT. PROBABLY EVERY BEND ON OUTSIDE EDGE COULD BE DOING THIS.

9:45 A.M. CREW IS PREPPING REST OF TRENCH BY REMOVING MUCK AND PLACING ENOUGH ROCK TO GET A FIRM BOTTOM FOR TILE TO SIT IN

10:50 A.M. OBSERVER CHECKED GRADE ON DOWNSTREAM END OF 1ST FULL SECTION DOWNSTREAM INSTALLED

GPS# 452 TOP 24" HDPE DW NONPERF TILE 1138.18

PLAN FL = 1136.22 - (19.02 X .0079) = 1136.07 - 2.14

1136.04' FL 24" TILE

.03' LOW PER GPS WITHIN REASON

10:58 A.M. PICTURE# 3822 & PICTURE# 3823 SEE PICTURE FOR DETAILS

11:32 A.M. PICTURE# 3824 & 11:33 A.M. PICTURE# 3825 SEE PICTURE FOR DETAILS.

11:25 A.M. OBSERVER CHECKED GRADE ON UPSTREAM END OF FULL SECTION INSTALLED.

GPS# 453 TOP 24" HDPE DW NONPERF TILE 1138.15

PLAN FL = 1136.22 - (24.12 X .0079) = 1136.03 - 2.14

.02' LOW PER GPS WITHIN REASON

1138.01

11:30 A.M. CHECKED TOP OF SMALL SECTION BY PLANING TOP OF FULL SECTION. CREW TAMPED A LOT OF BEDDING ROCK UNDER BUTT CONNECTION TO MAKE SURE IT STAYED IN PLACE & WRAPPED A 2.0' X 5.0' PIECE OF FABRIC OVER BUTT CONNECTION JOINT FOR TEMPORARY REPAIR.

I Certify that the work described in this report was incorporated into this contract unless otherwise noted.

Observer's Signature: Dean Penning

Date Prepared:

06/18/2020

Reviewed by:

☐ Engineer

Date Reviewed

CONSTRUCTION ENGINEERING
OBSERVATION REPORT

DATE:

06/18/2020

PROJECT NUMBER: HARDIN DDWD #294

DAYS OF WEEK:

S M T W T F S

COUNTY, ROUTE, ROAD: 6756.7/ DD#11

SHEET NO.

3 OF 4

LOCATION: NW 1/4 NE 1/4 & W 1/2 NE 1/4 E 1/4 23-88-22
INVESTIGATE TILE BLOWOUT ON DD#11 MAIN

MID 60'S TO MID 80'S

CLOUDY & WINDY

JOB# 6756 BUCKEYE SURVEY

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB
NAME, ITEM NO. AND LOCATION 11:44 A.M. PICTURE# 3826 & 11:51 A.M. PICTURE# 3827 SEE PICTURE FOR DETAILS.

11:50 A.M. RESHOT A COUPLE SHOTS OUT FURTHER FOR CROP
DAMAGES.

12:30 P.M. ADAM AND OBSERVER HEADED TO 6845 DD31 TO
CHECK ON COUPLE SINKHOLES JACK RUNGE STOPPED BY
AND TALKED TO ADAM ABOUT FROM PREVIOUS REPAIR. CREW
CONTINUED BACKFILLING TRENCH AND DRESSING
UP REPAIR AREA.

1:15 P.M. ADAM HEADED BACK TO REPAIR. OBSERVER
CHECKED ON DD26 SURFACE DRAIN REPAIR.

1:30 P.M. OBSERVER BACK ON SITE WITH CREW JUST FINISHING
UP DRESSING UP REPAIR AREA.

1:51 P.M. PICTURE# 3842, 1:52 P.M. PICTURE# 3843, 1:53 P.M.
PICTURE# 3844 & PICTURE# 3845, 1:58 P.M. PICTURE# 3846.

2:00 P.M. CREW HAD EQUIPMENT LOADED UP WITH
OBSERVER AND CREW LEAVING SITE.

NOTE IF NO PERMANENT REPAIRS DONE WILL NEED TO REMOVE CHUNK OF CLAY IN FLOW
LINE @ GPS# 412 WHEN CROPS ARE OUT.

QUANTITIES

ADAM 7-12:30 6 1/4 HOURS

JEFF 7-2 7 HOURS

PERRY 7-2 7 HOURS

CARSON 7-2 7 HOURS

KOLBELCO SK85CS MINI EXCAVATOR

CAT 299D XHP TRACKED SKIDLOADER

TEMPORARY REPAIR DUE TO CONDITION OF TILE 24" DW HDPE NONPERF TILE 41.8 LF

(NEED TO FIGURE OUT HOW MUCH TO REPLACE) 3-2.0' X 5.0' ENGINEER FABRIC

FABRIC TO FILL BELL JOINT

2.0' X 2.0' ENGINEERING FABRIC

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Observer's Signature

Dean Penning

Date Prepared

06/18/2020

Reviewed by

Engineer

Date Reviewed

CONSTRUCTION ENGINEERING
OBSERVATION REPORT

DATE:

06/16/2020

PROJECT NUMBER:

HARDEN DDW#294

DAYS OF WEEK:

S M W T F S

COUNTY, ROUTE, ROAD:

6756.1/00#11

SHEET NO.

4 OF 4

LOCATION:

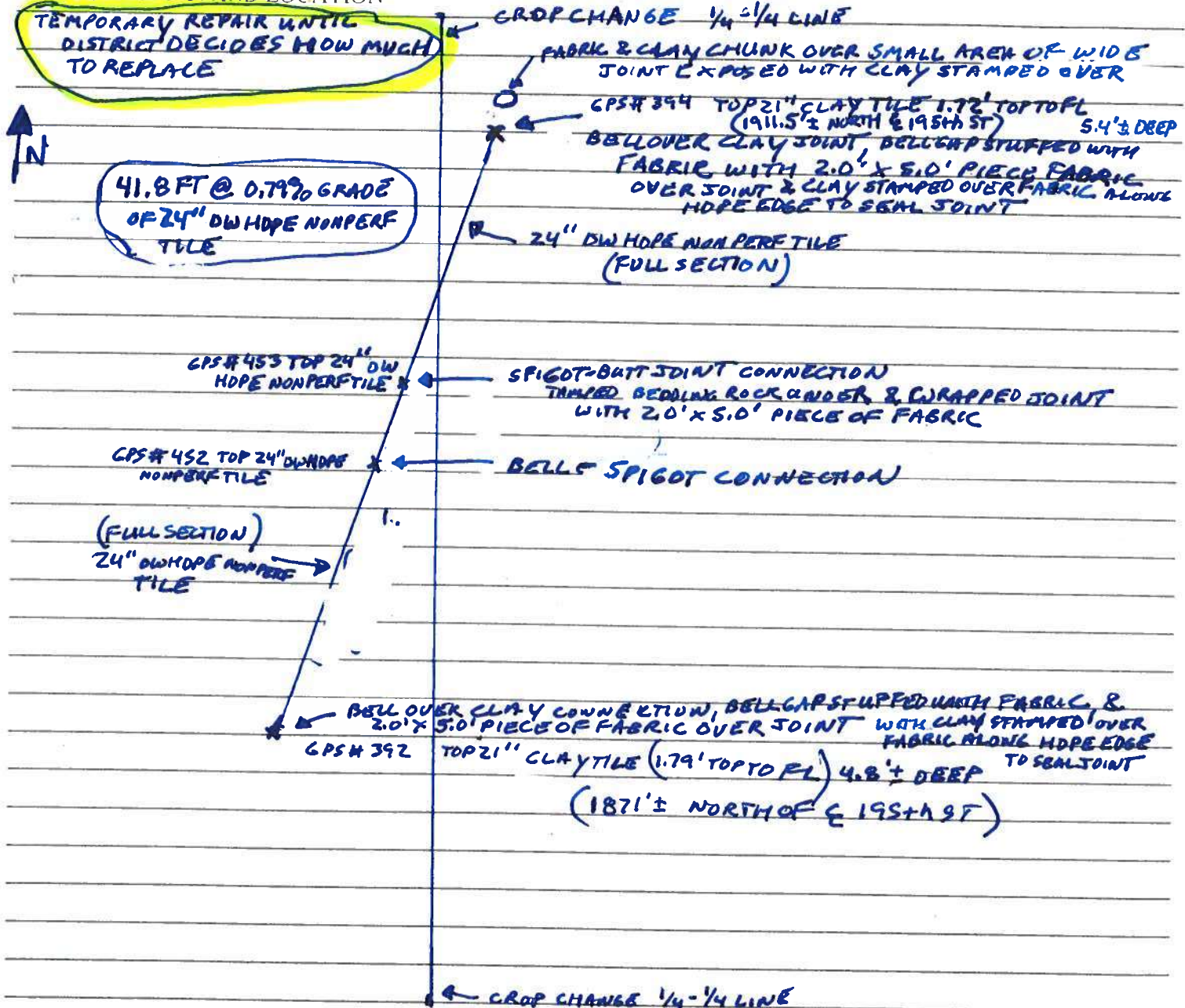
ALONG $\frac{1}{4}$ $\frac{1}{4}$ LINE WEST
OF GAVE 1871'± TO 1916'±
NORTH OF E 195TH ST
NW $\frac{1}{4}$ NE $\frac{1}{4}$ & W $\frac{1}{2}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ 23-8822

MID 60'S TO MID 80'S

CLOUDY & WINDY

JOB# 6756 BUCKEYE SURVEY

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB
NAME, ITEM NO. AND LOCATION



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Observer's Signature:

Dean Pomy

Date Prepared:

06/16/2020

Reviewed by:

Engineer

Date Reviewed

PICTURE# 3818 SHOWING CREW DRILL HOLES IN
 BOTTOM OF 24" DW HOPE NONPERF TILE BEFORE
 INSTALLED TO PREVENT TILE FROM FLOATING UP,



(TEMPORARY REPAIR)
 PICTURE# 3819
 IS LOOKING SOUTH UPSTREAM
 OUT OF BOTTOM OF TRENCH & READY TO INSTALL
 24" HOPE DW NONPERF TILE. BOTTOM IS SOFT IN AREAS AND WILL USE SOME ROCK
 TO FIRM UP ON INSTALLATION
 GPS# 392 TOP 21" CLAY TILE (1.71' TOP TO FL)
 4.8' ± DEEP
 GPS# 394 TILE TOP 21" CLAY (1.72' TOP TO FL)
 5.4' ± DEEP
 WITH MUCK CLEANED

(TEMPORARY REPAIR)
 PICTURE # 3820 IS LOOKING NE SHOWING FIRST

FULL SECTION OF 24" DW HDPE NONPERF TILE IN PLACE
 WITH BELL END ON UPSTREAM END WITH JUST ENOUGH ROCK
 TO GET FIRM BOTTOM OF TRENCH. HDPE TILE WAS SET SO

INSIDE
 BOTTOM
 OF BELL
 IS RESTING
 ON BOTTOM
 OF CLAY
 TILE
 AT TIE IN



06/18/2020
 09:53

GPS # 392 TOP 21" CLAY TILE (1.74' TO TOP FL)
 4.8' ± DEEP

GPS # 392



06/18/2020
 10:54

GPS # 452
 TOP 24" DW
 HDPE
 NONPERF
 TILE
 2.14' TO TOP FL

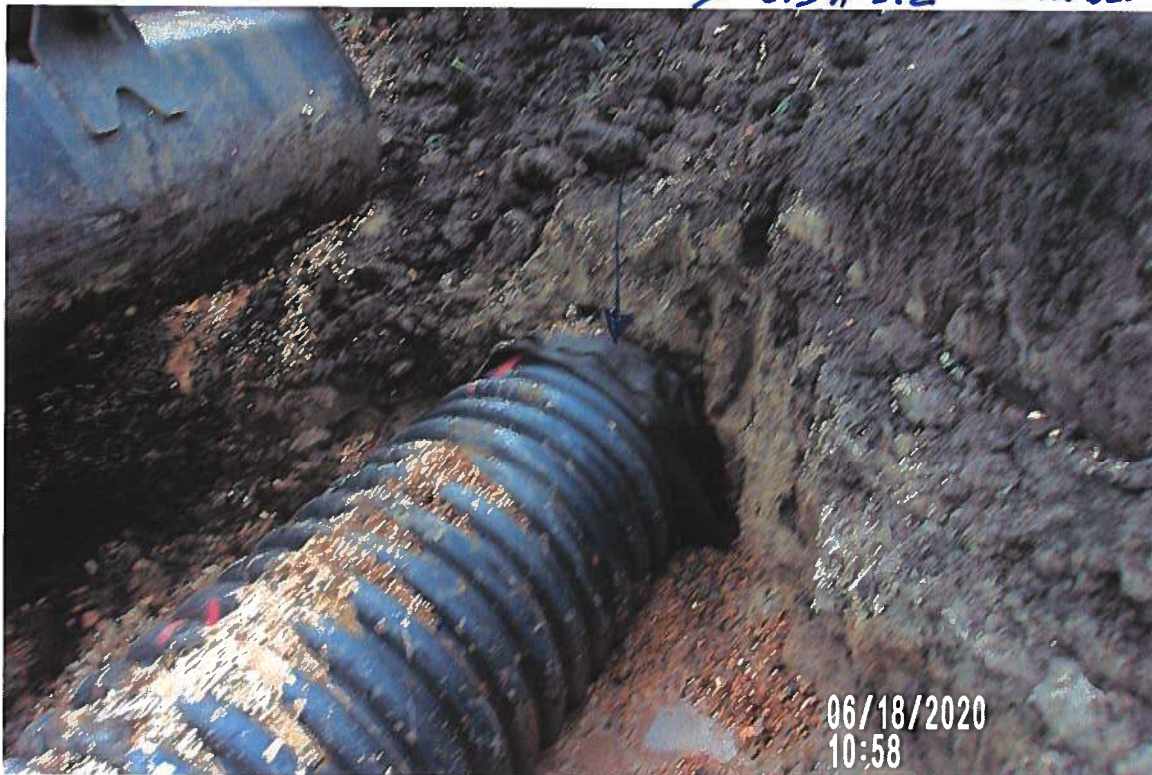


PICTURE # 3821

IS LOOKING SW AT FULL SECTION INSTALLED FROM
 DOWNSTREAM END (BELL END AT CLAY TILE TIE IN) WITH BELL END OF SMALL
 SECTION OF 24" DW HDPE NONPERF TILE INSTALLED ON SPIGOT END OF UPSTREAM SECTION
 & BUTT CONNECTION ON SPIGOT END FROM DOWNSTREAM FULL SECTION.

GPS # 453 TOP 24" DW HDPE NONPERF
 TILE 2.14' TO TOP FL

PICTURE #. 3822 IS LOOKING SE SHOWING BELL END OF 24" DW
 HDPE NONPERF TILE AT UPSTREAM TIE IN CONNECTION
 WITH FABRIC STUFF BETWEEN INSIDE BELL & OUTSIDE OF CLAY
 GPS # 392 WITH BEDDING ROCK



TAMPED
 IN UNDER
 HDPE TILE
 AND 2.0'
 X 5.0' PIECE
 ENGINEERING
 FABRIC OVER
 JOINT



GPS # 392



PICTURE # 3823 IS LOOKING EAST AT ENGINEER FABRIC STUFFED
 IN JOINT & OVER JOINT. CREW STOMPED IN CLAY AROUND
 HDPE EDGE BEFORE BACK FILLING SOIL IN TRENCH. BEDDING ROCK
 TAMPED IN UNDER TILE TO KEEP IT IN PLACE.

PICTURE# 3824 IS LOOKING SW SHOWING CREW BACKFILLING
SOIL AROUND NEW TILE WITH CREW TAMPING IN SOIL
AROUND HAUNCH OF TILE. SOIL IS GETTING LITTLE MURKY DUE
TO WATER AROUND TILE BUT WITH FIRM BOTTOM UNDER TILE;



N
↓



BUTT JOINT
CONNECTION
WRAPPED
WITH FABRIC

GPS#453

GPS#452

06/18/2020
11:33

PICTURE#3825 IS LOOKING NE SHOWING SMALL SECTION 24" Ø
HDPE NONPERF TILE WITH BELL-SPIGOT CONNECTION & SPIGOT
BUTT CONNECTION ON DOWN STREAM END WITH JOINT WRAPPED WITH
FABRIC & BEDDING ROCK TAMPED UNDER CONNECTION

PICTURE # 3826 SHOWING A PIECE OF FABRIC WITH CLAY TILE PIECES OVER A EXPOSED TILE JOINT THAT IS WIDER THAN NORMAL JOINT FOR NEXT JOINT NORTH OF TIE IN



CONNECTION,
CREW STAMPED
CLAY OVER
TOO.



BEDDING ROCK
TAMPED UNDER
HDP TILE
TO KEEP BOTTOM
OF INSIDE OF
BELL TIGHT
UP TO BOTTOM
OF CLAY TILE

PICTURE # 3827 AS LOOKING SW SHOWING LOOSE SOIL BEING BACKFILLED AROUND TILE. CREW STUFFED FABRIC IN GAP BETWEEN INSIDE BELL AND TOP OF CLAY. CREW PLACED 2.0' x 5.0' PIECE OF ENGINEERING FABRIC OVER JOINT AND STAMPED CLAY AROUND EDGE OF TILE BEFORE BACKFILLING

GPS # 394 DOWNSTREAM END TIE IN

PICTURE # 3842 IS LOOKING SOUTH SHOWING BEAN DAMAGE
IN REPAIR WITH AREA CLEANED UP.



↓ N



PICTURE # 3843 IS LOOKING SOUTH SHOWING CORN DAMAGE
IN REPAIR AREA WITH AREA CLEANED UP

PICTURE# 3844 IS LOOKING SOUTH AT BEAN/CORN
DAMAGE TO ACCESS LANE WITH AREA CLEANED
UP



PICTURE# 3845 IS LOOKING SE SHOWING BEAN DAMAGE
TO ACCESS LANE WITH AREA CLEANED UP

PICTURE # 3846 IS LOOKING SOUTH AT BEAN
DAMAGE TO ACCESS LANE WITH AREA
CLEANED UP.



Inspection Report

Produced on behalf of – HARDIN CO

Site location – ,

Survey reference – 6756.7

Date – 170620

WILLIAMS UNDERGROUND SVCS.

102 INDUSTRIAL DRIVE, ACKLEY, IOWA

50601,








641-485-3925

1 Drain / Sewer Survey

1.1 Survey Header

1.1.1	Surveyed by (Operator)	PAUL
1.1.2	Contract no.	
1.1.3	Job no.	6756.7
1.1.4	Catchment (Drainage area)	DD 11
1.1.5	Division	MAIN
1.1.6	District	
1.1.7	Pipeline length ref	1000
1.1.8	Date	170620
1.1.9	Time	11:43
1.1.10	Location	HOLE 394
1.1.11	Start manhole no.	
1.1.12	Start depth	m
1.1.13	Start cover level	
1.1.14	Start invert level	
1.1.15	Finish manhole no.	
1.1.16	Finish depth	m
1.1.17	Finish cover level	
1.1.18	Finish invert level	
1.1.19	Use of Drain	
1.1.20	Direction	D
1.1.21	Size 1 (diameter/height)	21mm
1.1.22	Size 2 (width)	mm
1.1.23	Shape	O
1.1.24	Material	VC
1.1.25	Lining	
1.1.26	Pipe length	1000m
1.1.27	Total length	
1.1.28	Year laid	
1.1.29	Video cassette number	
1.1.30	Comments: General	
1.1.31	Purpose	
1.1.32	Sewer category	
1.1.33	Pre-cleaning	
1.1.34	Weather	
1.1.35	Location code	
1.1.36	Further location details	

1.3 Observations

Video Ref	Dist (ft)	Cont Defect	Code	Photo Ref	Diameter/ Dimension	Clock		Intrusion		Remarks
						At	To	%	mm	
0:03:54	13.4	YES	CM	2020_06_17-11_56_45_767.jpg 		12	11			
0:04:50	21.0		CL	2020_06_17-11_58_15_486.jpg 		12				TOPCRACKED BADLY
0:05:30	24.8		MC	2020_06_17-12_00_19_434.jpg 						VCP TO CMP PIPE CHANGE
0:06:46	42.4		MC	2020_06_17-12_02_13_273.jpg 						CMP TO VCP PIPE CHANGE
0:11:03	49.9	YES	B	2020_06_17-12_06_51_666.jpg 		12	11			MULTIPLE CRACKS ALL AROUND AS FAR AS CAMERA CAN SEE
0:14:24	108.4	YES	B	2020_06_17-12_12_01_891.jpg 		12	11			LOTS OF BROKEN PIPE AS FAR AS VISIBLE
0:15:06	118.4		B	2020_06_17-12_13_30_307.jpg 		12	11			BROKEN AN BUCKLING DOWN
0:19:23	194.2		B	2020_06_17-12_18_17_103.jpg 		06	09			TILE HAS BROKEN OFF AND INTRUDING INTO PIPE.
0:24:18	252.0		B	2020_06_17-12_23_57_456.jpg 		12	12			BROKEN AT ALL CLOCK POSITIONS AND SQUATTING DOWN
0:31:32	335.3		B	2020_06_17-12_32_05_562.jpg		11	12			MULTIPLE BREAKS ALL

1.4 Photographs

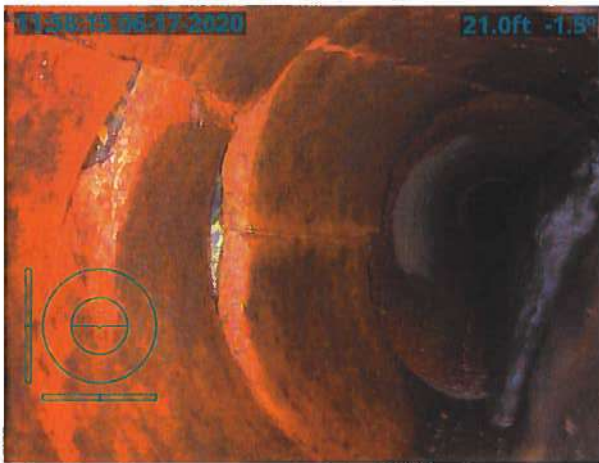
CM 2020_06_17-11_56_45_767.jpg



MC 2020_06_17-12_02_13_273.jpg



CL 2020_06_17-11_58_15_486.jpg



B 2020_06_17-12_06_51_666.jpg



MC 2020_06_17-12_00_19_434.jpg



B 2020_06_17-12_12_01_891.jpg



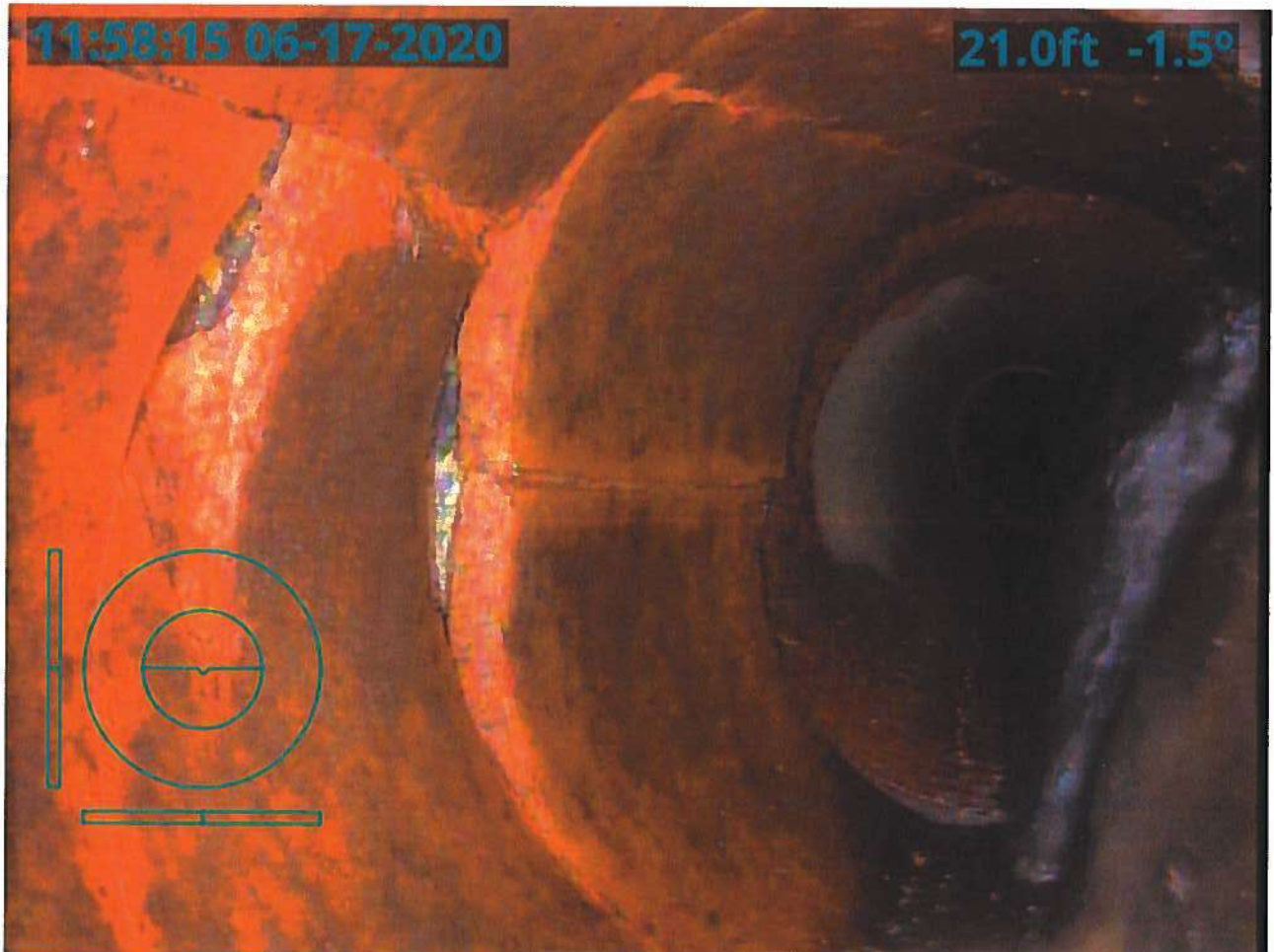
11:56:45 06-17-2020

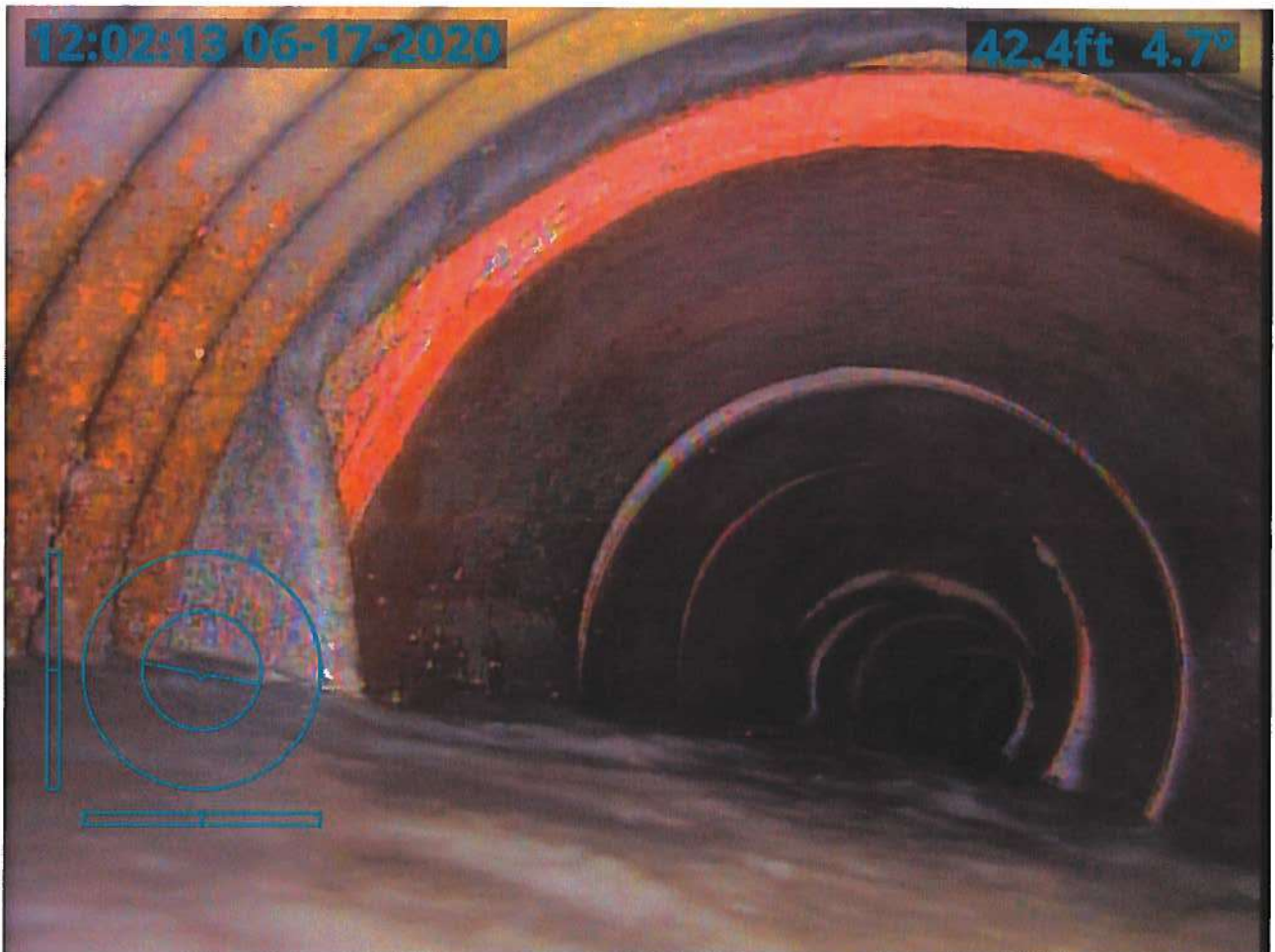
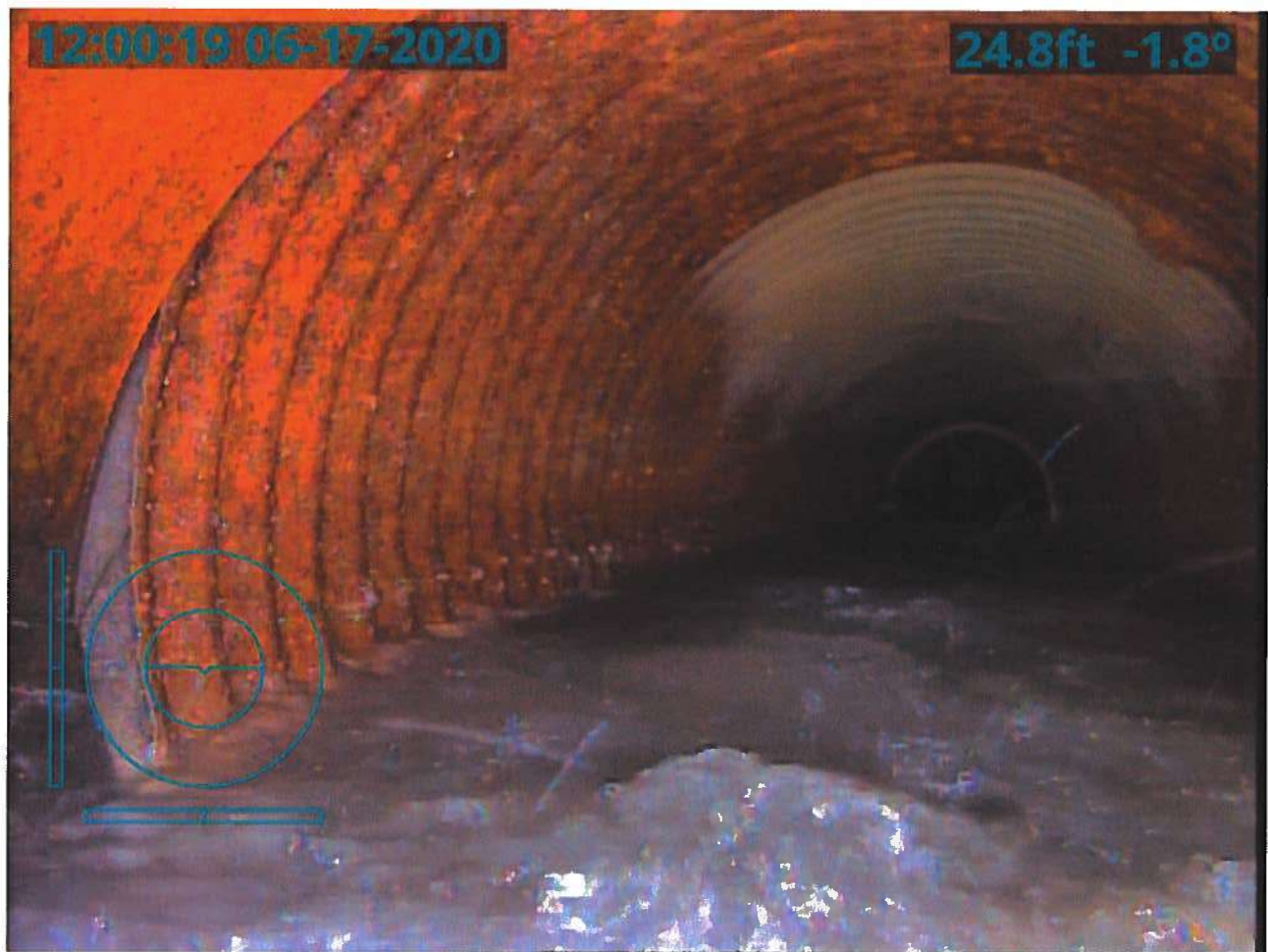
13.4ft -2.4°



11:58:15 06-17-2020

21.0ft -1.5°





12:06:51 06-17-2020

49.9ft -0.8°



12:12:01 06-17-2020

108.4ft -2.0°



12:13:30 06-17-2020

118.4ft -0.6°



12:18:16 06-17-2020

194.2ft -4.1°



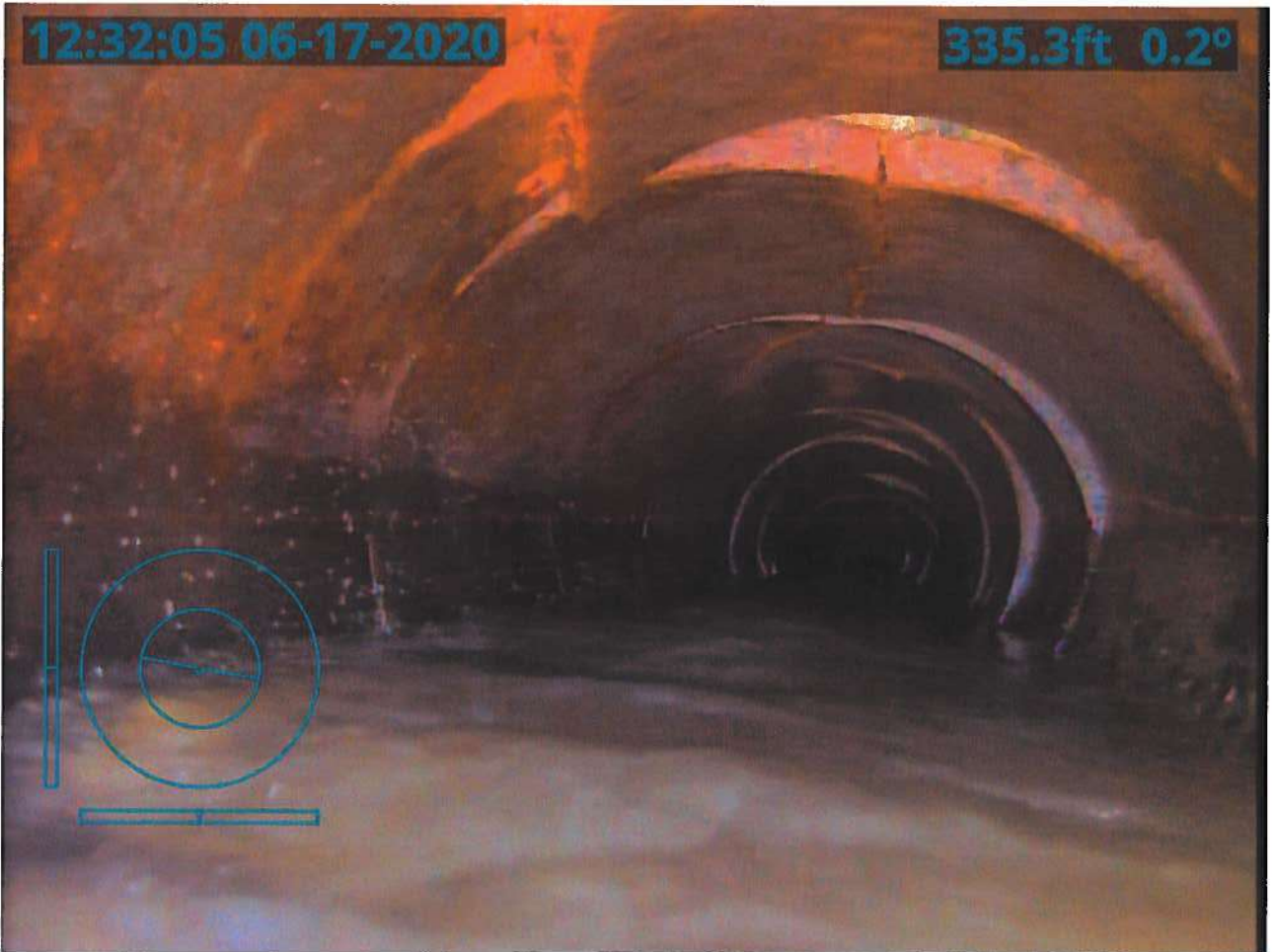
12:23:57 06-17-2020

252.0ft -0.3°



12:32:05 06-17-2020

335.3ft 0.2°



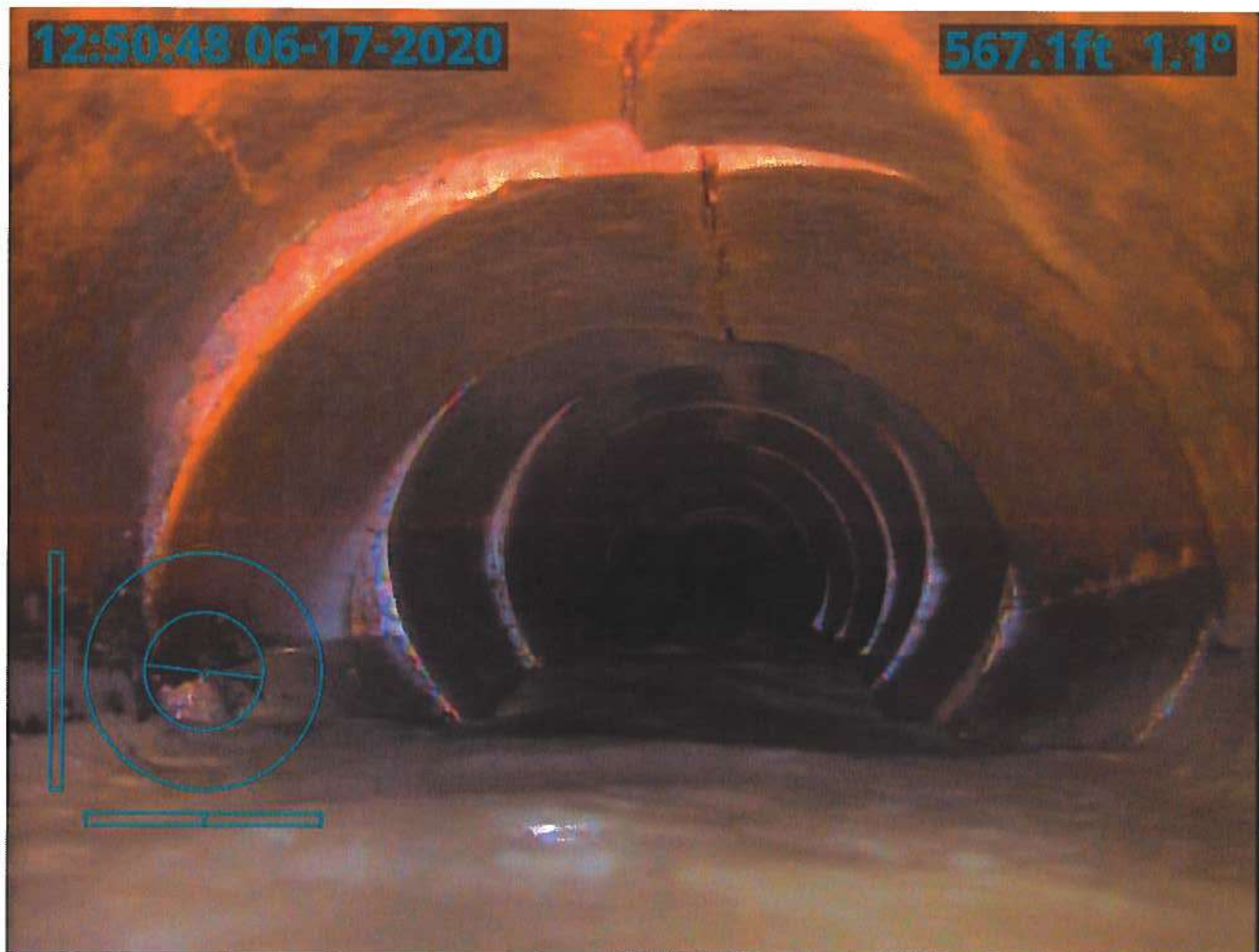
12:49:10 06-17-2020

562.2ft -3.1°



12:50:48 06-17-2020

567.1ft 1.1°



Inspection Report

Produced on behalf of – HARDIN CO

Site location – ,

Survey reference – W/O 295

Date – 170620

WILLIAMS UNDERGROUND SVCS.

102 INDUSTRIAL DRIVE, ACKLEY, IOWA

50601,

641-485-3925

Contents

1	Drain / Sewer Survey	Error! Bookmark not defined.
1.1	Site information	Error! Bookmark not defined.
1.2	Drain / Sewer Details	Error! Bookmark not defined.
1.3	Survey Details	Error! Bookmark not defined.
1.4	Drain / Sewer Diagram	Error! Bookmark not defined.
1.5	Observations	Error! Bookmark not defined.
1.6	Photographs.....	Error! Bookmark not defined.
2	Drain / Sewer Survey	Error! Bookmark not defined.
2.1	Site information	Error! Bookmark not defined.
2.2	Drain / Sewer Details	Error! Bookmark not defined.
2.3	Survey Details	Error! Bookmark not defined.
2.4	Drain / Sewer Diagram	Error! Bookmark not defined.
2.5	Observations	Error! Bookmark not defined.
2.6	Photographs.....	Error! Bookmark not defined.

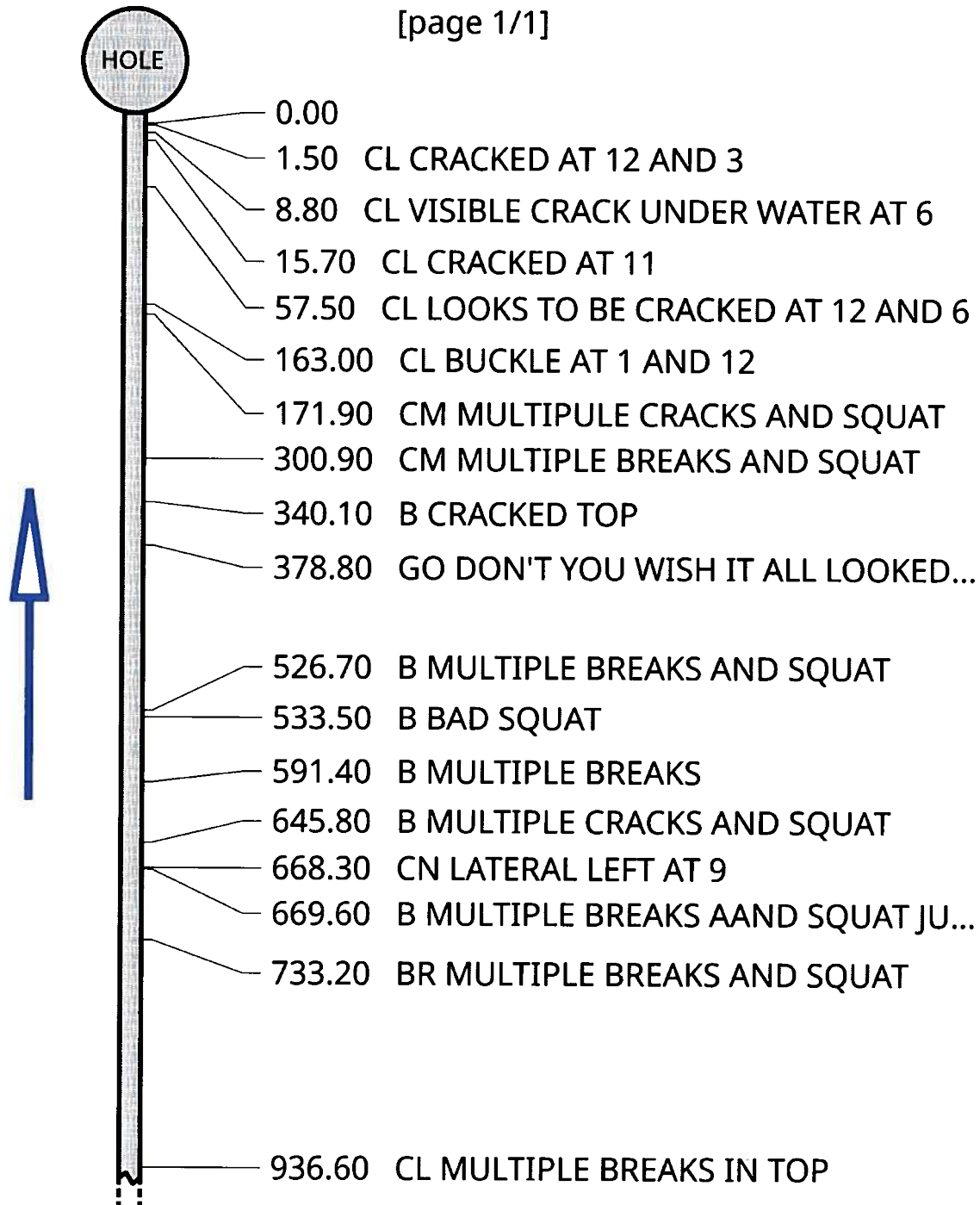
1 Drain / Sewer Survey

1.1 Survey Header



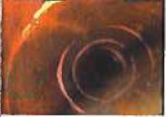






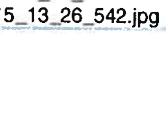
1.1.1	Surveyed by (Operator)	PAUL
1.1.2	Contract no.	6756.7
1.1.3	Job no.	W/O 295
1.1.4	Catchment (Drainage area)	DD 11
1.1.5	Division	
1.1.6	District	
1.1.7	Pipeline length ref	1000
1.1.8	Date	170620
1.1.9	Time	14:23
1.1.10	Location	
1.1.11	Start manhole no.	HOLE 392
1.1.12	Start depth	m
1.1.13	Start cover level	
1.1.14	Start invert level	
1.1.15	Finish manhole no.	
1.1.16	Finish depth	m
1.1.17	Finish cover level	
1.1.18	Finish invert level	
1.1.19	Use of Drain	W
1.1.20	Direction	U
1.1.21	Size 1 (diameter/height)	21mm
1.1.22	Size 2 (width)	mm
1.1.23	Shape	C
1.1.24	Material	VC
1.1.25	Lining	
1.1.26	Pipe length	1000m
1.1.27	Total length	
1.1.28	Year laid	
1.1.29	Video cassette number	
1.1.30	Comments: General	
1.1.31	Purpose	F
1.1.32	Sewer category	Z
1.1.33	Pre-cleaning	
1.1.34	Weather	
1.1.35	Location code	
1.1.36	Further location details	








1.2 Diagram

[page 1/1]



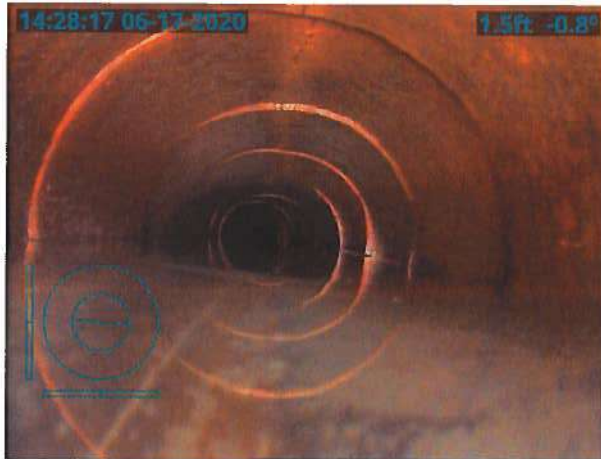
1.3 Observations

Video Ref	Dist (ft)	Cont Defect	Code	Photo Ref	Diameter/ Dimension	Clock		Intrusion		Remarks
						At	To	%	mm	
0:01:04	1.5		CL	2020_06_17- 14_28_17_621.jpg 		12				CRACKED AT 12 AND 3
0:02:19	8.8		CL	2020_06_17- 14_30_17_404.jpg 		06				VISIBLE CRACK UNDER WATER AT 6
0:03:15	15.7		CL	2020_06_17- 14_31_45_663.jpg 		11				CRACKED AT 11
0:07:08	57.5		CL	2020_06_17- 14_36_00_095.jpg 		00				LOOKS TO BE CRACKED AT 12 AND 6
0:13:54	163.0		CL	2020_06_17- 14_43_22_128.jpg 		01				BUCKLE AT 1 AND 12
0:14:28	171.9		CM	2020_06_17- 14_44_27_712.jpg 		12	03			MULTIPLE CRACKS AND SQUAT
0:24:08	300.9		CM	2020_06_17- 14_54_52_873.jpg 		12	11			MULTIPLE BREAKS AND SQUAT
0:26:54	340.1		B	2020_06_17- 14_58_24_390.jpg 		12	12			CRACKED TOP
0:28:53	378.8		GO	2020_06_17- 15_01_02_821.jpg 						DON'T YOU WISH IT ALL LOOKED LIKE THIS?
0:40:16	526.7		B	2020_06_17- 15_13_26_542.jpg 		10	06			MULTIPLE BREAKS AND

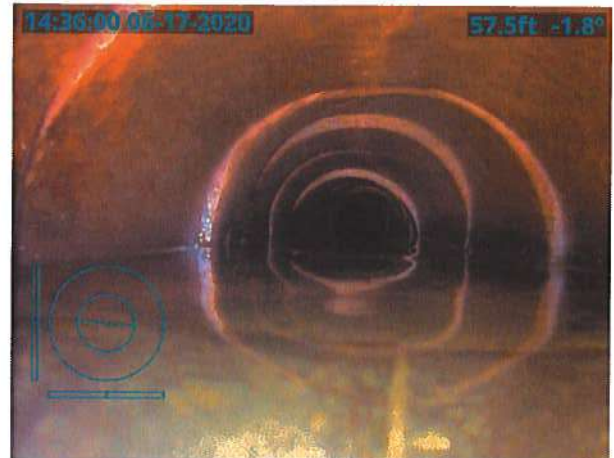
Video Ref	Dist (ft)	Cont Defect	Code	Photo Ref	Diameter/ Dimension	Clock		Intrusion		Remarks
						At	To	%	mm	
										SQUAT
0:41:11	533.5		B	2020_06_17- 15_15_35_850.jpg 		10	06			BAD SQUAT
0:49:35	591.4		B	2020_06_17- 15_24_28_350.jpg 		12	11			MULTIPLE BREAKS
0:53:26	645.8		B	2020_06_17- 15_28_43_526.jpg 		06	05			MULTIPLE CRACKS AND SQUAT
0:55:10	668.3		CN	2020_06_17- 15_31_02_162.jpg 	6?	09				LATERAL LEFT AT 9
0:55:50	669.6		B	2020_06_17- 15_33_04_893.jpg 		12	11			MULTIPLE BREAKS AAND SQUAT JUST UPSTREAM OF LATERAL LEFT
0:59:39	733.2		BR	2020_06_17- 15_37_42_522.jpg 	9	09	03			MULTIPLE BREAKS AND SQUAT
1:10:12	936.6		CL	2020_06_17- 15_49_14_555.jpg 		01				MULTIPLE BREAKS IN TOP

1.4 Photographs

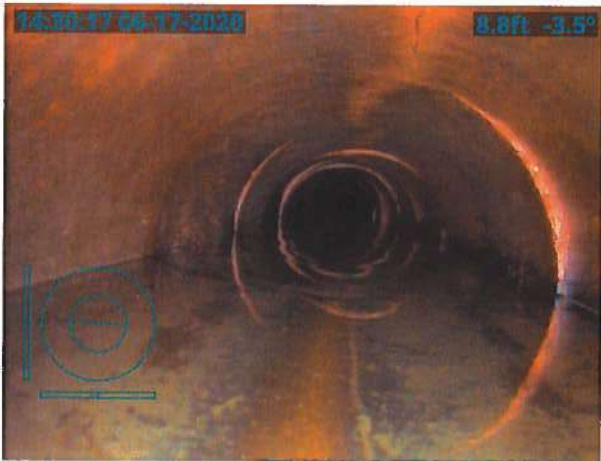
CL 2020_06_17-14_28_17_621.jpg



CL 2020_06_17-14_36_00_095.jpg



CL 2020_06_17-14_30_17_404.jpg



CL 2020_06_17-14_43_22_128.jpg



CL 2020_06_17-14_31_45_663.jpg



CM 2020_06_17-14_44_27_712.jpg



CM 2020_06_17-14_54_52_873.jpg



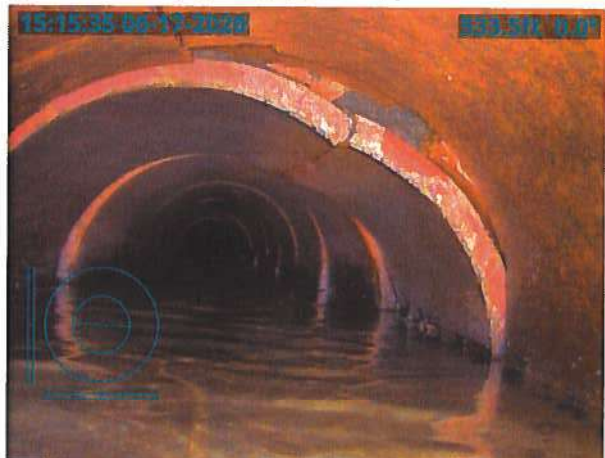
B 2020_06_17-15_13_26_542.jpg



B 2020_06_17-14_58_24_390.jpg



B 2020_06_17-15_15_35_850.jpg



GO 2020_06_17-15_01_02_821.jpg



B 2020_06_17-15_24_28_350.jpg



B 2020_06_17-15_28_43_526.jpg



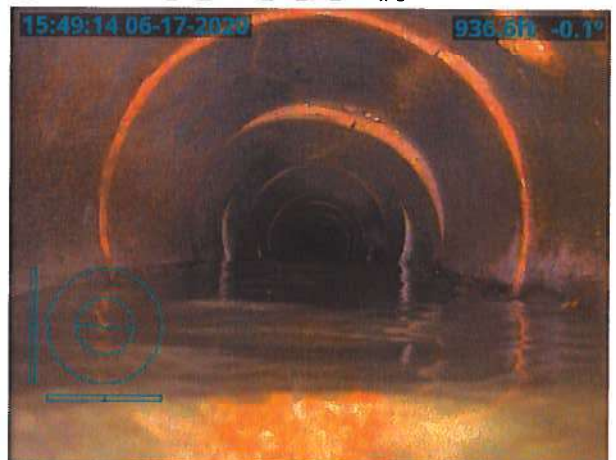
BR 2020_06_17-15_37_42_522.jpg



CN 2020_06_17-15_31_02_162.jpg



CL 2020_06_17-15_49_14_555.jpg

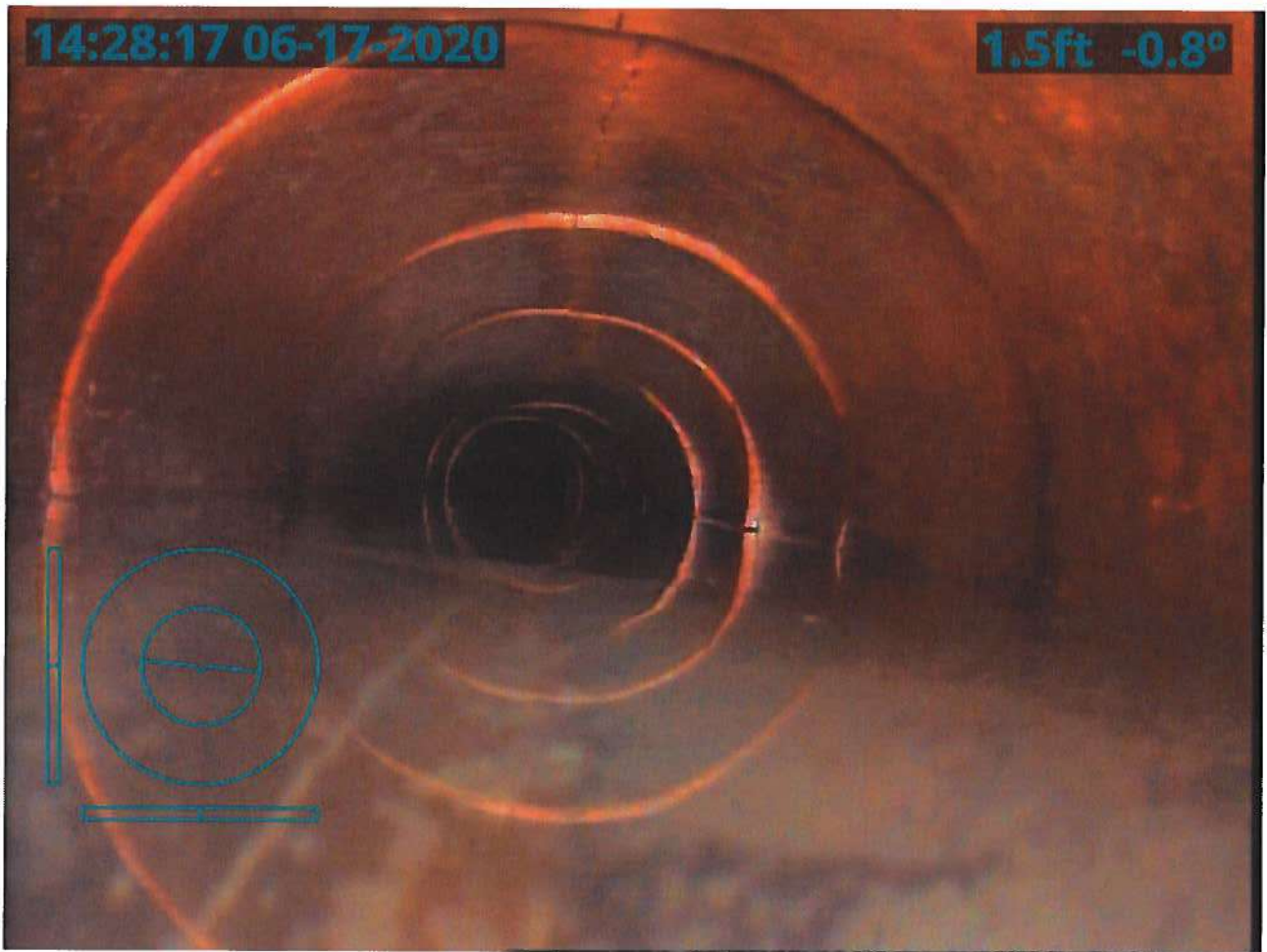


B 2020_06_17-15_33_04_893.jpg



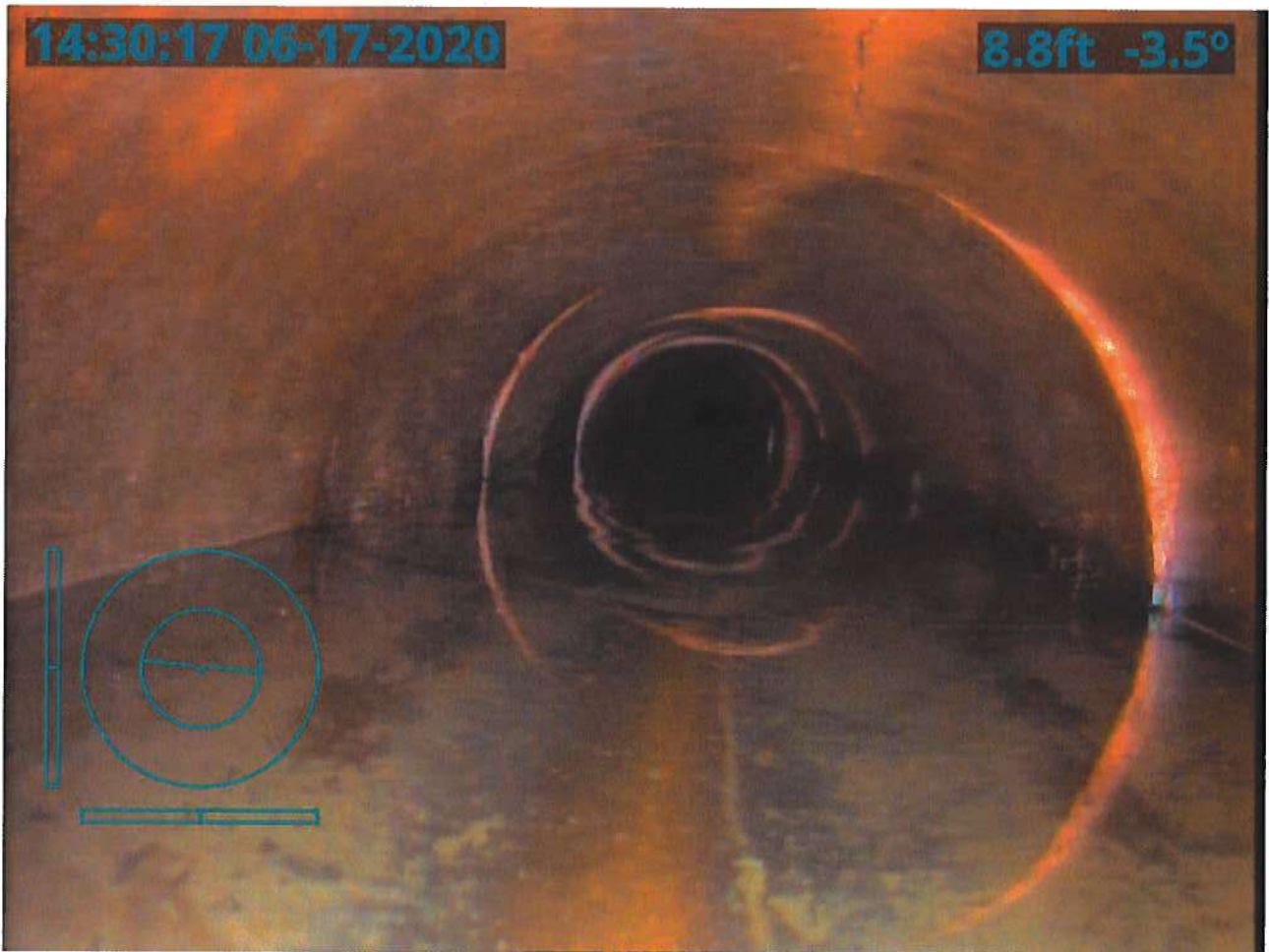
14:28:17 06-17-2020

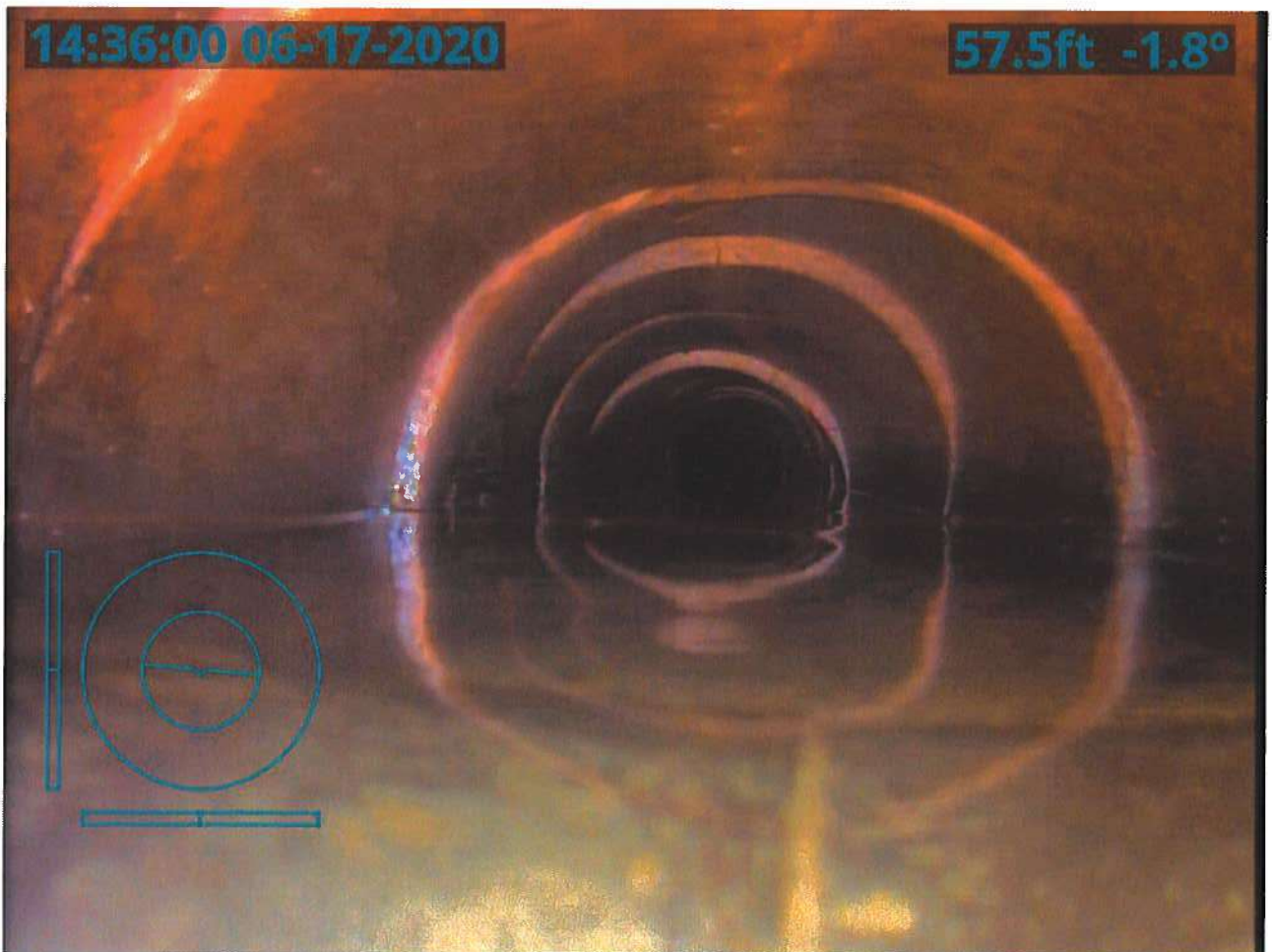
1.5ft -0.8°



14:30:17 06-17-2020

8.8ft -3.5°





14:43:22 06-17-2020

163.0ft 0.0°



14:44:27 06-17-2020

171.9ft -0.3°



14:54:52 06-17-2020

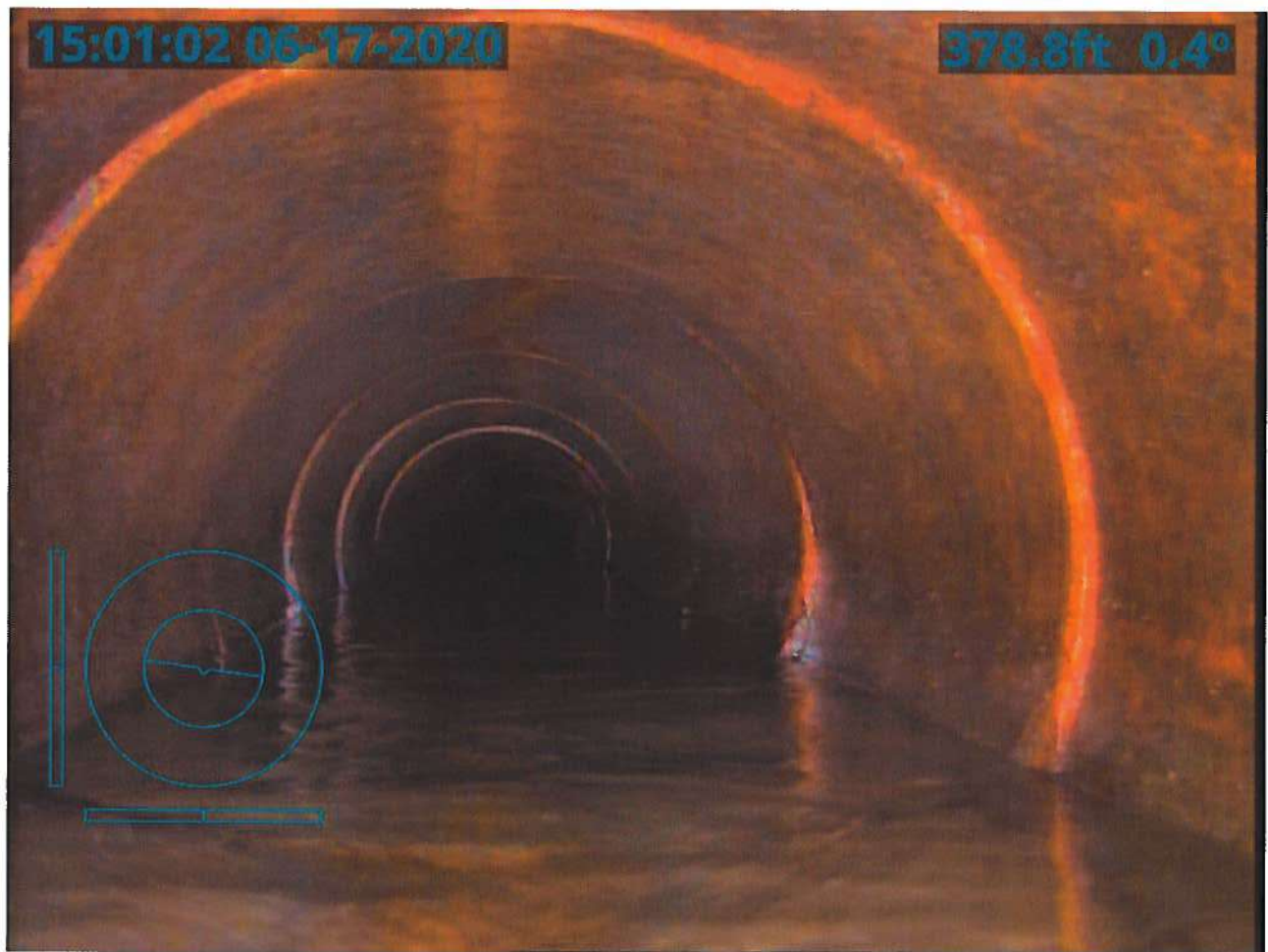
300.9ft -0.1°

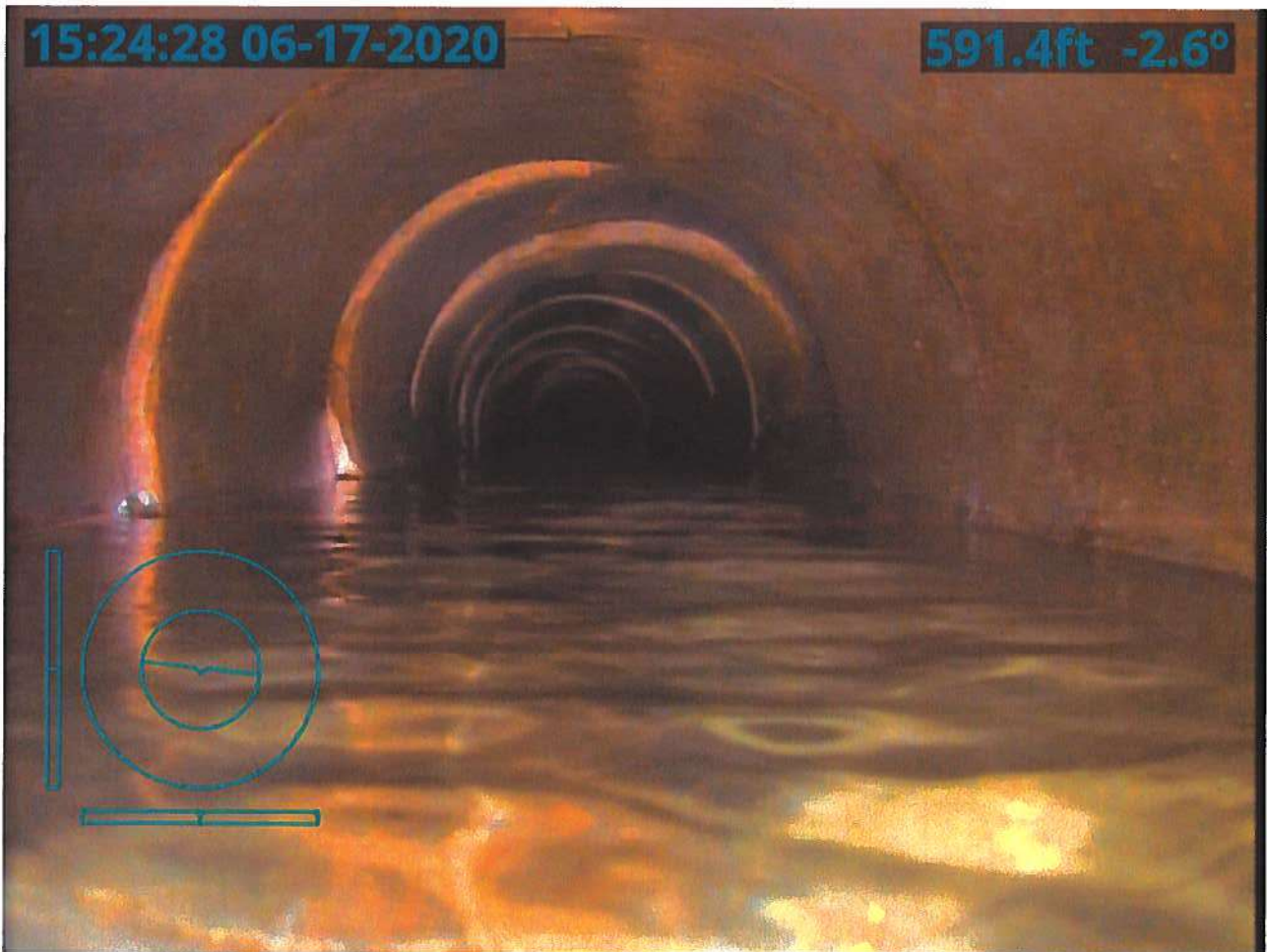


14:58:24 06-17-2020

340.1ft 0.8°







15:28:43 06-17-2020

645.8ft -1.6°



15:31:02 06-17-2020

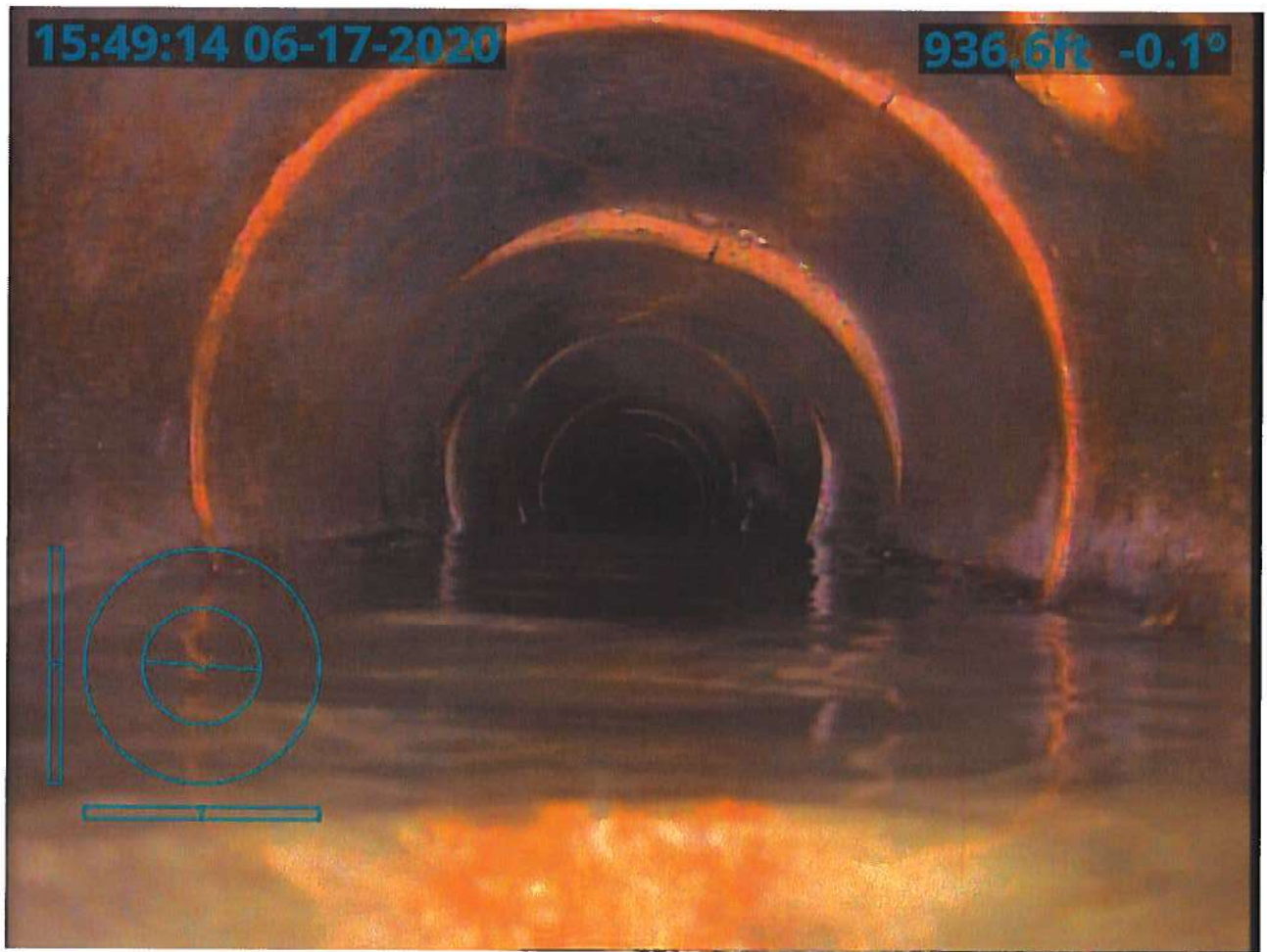
668.3ft -1.0°





15:49:14 06-17-2020

936.6ft -0.1°



6756 BUCKEYE 2020-06-18 DP

320,3615120.403,4954117.674,1156.066,CPT 1/2 IRS
 390,3617794.436,4956071.863,1142.777,gs above tile
 391,3617829.995,4956083.523,1142.984,gs above tile
 392,3617804.485,4956075.353,1138.008,TILE TOP 21" CLAY 1.79'TOPTOFL
 393,3617827.092,4956081.777,1137.820,TILE TOP 21" CLAY 1.72'TOPTOFL
 394,3617844.617,4956086.984,1137.608,TILE TOP 21" CLAY 1.72'TOPTOFL
 395,3617886.545,4956099.047,1142.190,GS TILE LOCATE
 396,3617933.617,4956131.299,1142.097,GS TILE LOCATE
 397,3617963.536,4956155.836,1141.948,GS TILE LOCATE
 398,3617996.131,4956185.693,1141.928,GS TILE LOCATE
 399,3618015.397,4956203.794,1141.719,GS TILE LOCATE
 400,3618048.658,4956235.273,1141.479,GS TILE LOCATE
 401,3618076.049,4956260.655,1141.334,GS TILE LOCATE
 402,3618108.393,4956291.219,1141.113,GS TILE LOCATE
 403,3618132.895,4956313.630,1141.013,GS TILE LOCATE
 404,3618155.157,4956334.848,1140.998,GS TILE LOCATE
 405,3618189.746,4956367.039,1141.057,GS TILE LOCATE
 406,3618209.505,4956383.766,1141.097,GS TILE LOCATE
 407,3618232.271,4956404.513,1141.047,GS TILE LOCATE
 408,3618247.334,4956418.358,1140.795,GS TILE LOCATE
 409,3618264.056,4956433.994,1140.737,GS TILE LOCATE
 410,3618282.303,4956448.945,1140.650,GS TILE LOCATE
 411,3618288.853,4956454.033,1140.588,GS TILE LOCATE
 412,3618305.947,4956468.984,1140.448,GS TILE LOCATE END TILE IN FL
 413,3617756.520,4956059.852,1142.659,GS TILE LOCATE
 414,3617710.224,4956044.598,1142.672,GS TILE LOCATE
 415,3617659.684,4956028.147,1142.704,GS TILE LOCATE
 416,3617609.085,4956010.781,1142.812,GS TILE LOCATE
 417,3617560.396,4955996.027,1143.225,GS TILE LOCATE
 418,3617506.870,4955979.096,1143.461,GS TILE LOCATE
 419,3617444.177,4955958.398,1143.936,GS TILE LOCATE
 420,3617378.699,4955936.642,1144.379,GS TILE LOCATE
 421,3617328.456,4955920.863,1144.660,GS TILE LOCATE
 422,3617270.743,4955902.120,1144.857,GS TILE LOCATE
 423,3617208.776,4955882.235,1145.286,GS TILE LOCATE
 424,3617144.452,4955862.030,1145.791,GS TILE LOCATE
 425,3617085.209,4955844.107,1146.181,GS TILE LOCATE
 426,3617026.303,4955826.141,1146.867,GS TILE LOCATE
 427,3616963.566,4955807.859,1147.270,GS TILE LOCATE
 428,3616903.614,4955789.317,1147.106,GS TILE LOCATE
 429,3616874.365,4955779.766,1147.225,GS TILE LOCATE END CABLE
 430,3617551.528,4956070.130,1144.595,GS BEAN DAMAGE
 431,3617900.958,4956083.145,1142.359,GS BEAN/CORN DAMAGE
 432,3617766.676,4956083.960,1143.649,GS BEAN/CORN DAMAGE
 433,3617738.753,4956083.917,1143.965,GS BEAN/CORN DAMAGE
 435,3617570.610,4956084.472,1145.082,GS BEAN/CORN DAMAGE
 436,3617570.029,4956089.061,1145.138,GS CORN DAMAGE
 437,3617213.073,4956073.029,1150.058,GS BEAN DAMAGE

6756 BUCKEYE 2020-06-18 DP

438,3617213.491,4956087.438,1149.850,GS BEAN/CORN DAMAGE
 439,3617213.134,4956091.061,1149.693,GS CORN DAMAGE
 440,3616570.170,4956092.512,1149.778,GS CORN DAMAGE
 441,3616570.654,4956087.991,1149.804,GS BEAN/CORN DAMAGE
 442,3616572.458,4956075.955,1149.901,GS BEAN DAMAGE
 443,3615982.348,4956078.511,1149.331,GS BEAN DAMAGE
 444,3615981.966,4956090.214,1149.024,GS BEAN/CORN DAMAGE
 445,3615982.820,4956137.156,1148.983,GS CORN DAMAGE
 446,3616010.475,4956115.325,1148.071,GS CORN DAMAGE
 447,3616029.785,4956100.250,1148.066,GS CORN DAMAGE
 448,3616052.361,4956094.171,1148.223,GS CORN DAMAGE
 449,3615933.139,4956081.434,1152.817,CL GRAVEL
 450,3617844.616,4956086.984,1135.890,EXIST FL
 451,3617804.485,4956075.353,1136.220,EXIST FL
 452,3617822.763,4956080.623,1138.178,TILE TOP 24"HDPE NONPERF 2.14'OPTOFL
 453,3617827.657,4956082.050,1138.145,TILE TOP 24"HDPE NONPERF 2.14'OPTOFL
 454,3617613.055,4956058.222,1143.332,GS BEAN DAMAGE
 455,3617660.592,4956037.001,1142.797,GS BEAN DAMAGE
 456,3617677.742,4956007.776,1142.806,GS BEAN DAMAGE
 457,3617823.637,4956007.117,1142.592,GS BEAN DAMAGE
 458,3617900.967,4956037.523,1142.409,GS BEAN DAMAGE
 459,3617883.065,4956006.874,1142.794,GS BEAN DAMAGE
 460,3617869.234,4956126.122,1142.584,GS CORN DAMAGE
 461,3617797.977,4956125.120,1143.827,GS CORN DAMAGE
 462,3617778.361,4956105.990,1143.881,GS CORN DAMAGE
 463,3617737.438,4956106.252,1144.433,GS CORN DAMAGE
 464,3617710.142,4956088.792,1144.271,GS CORN DAMAGE
 465,3617626.187,4956088.866,1144.690,GS CORN DAMAGE
 8016,3618659.060,4946889.650,1169.720,GPS MON8016
 8016_GNSS,3618659.060,4946889.650,1169.720,Autonomous Setup



Drainage Work Order Request For Repair

Hardin County

Date: 4/15/2020

Work Order #: WO00000291

Drainage District: DDs\DD 14 (51027)

Sec-Twp-Rge: 34-88-22 Qtr Sec: E1/2 NE NE

Location/GIS: 88-22-34-200-003

Requested By: James Sweeney/Cynthia Ioger/Jim & Ron Vierkandt

Contact Phone: (641) 847-3273

Contact Email: jsweeney@cgaconsultants.com

Landowner (if different): Ron/Jim Vierkandt/Cynthia Ioger 641-323-4051

Description: DD 14- Sweeney reports plugged main tile in Jim & Ron's parcels, Sheldahl called in to pothole/explore tile on S side of D41, likely main tile. Intake further E of D41 & S27 intersection where tile goes under road needs repair. See Add'l Req in docs- lack of drg downstream of intersection of Lat 2/main tile. Last 3 years, Lat 2 has lacked enough drg to effectively farm area it should drain. Potholes dug by landowners in Sects 34/35 do not drain. Also, broken intake @ Lat 2 intersection w D41 in Sect. 35.

Repair labor, materials and equipment: _____

Repaired By: _____ Date: _____

Please reference work order # and send statement for services to:

Hardin County Auditor's Office
Attn: Drainage Clerk
1215 Edgington Ave, Suite 1
Eldora, IA 50627
Phone (641) 939-8111
Fax (641) 939-8245

For Office Use Only

Approved: _____ Date: _____



Drainage Work Order Request For Repair

Hardin County

Date 4/20/2020

Work Order # _____

District # #14

Lateral Lat 2 & Main

Fund # _____

Township _____

Section 27, 34, 35wp 88

Rge 22 Qtr Sec _____

Repair Requested By Cynthia Iorger, Ronald Vierkandt, James Vierkandt

Address 15898 Co Hwy D41

Phone _____

Landowner Same

Address Same

Phone _____

Request Taken By _____

Available for Repair Now? ☒ Yes

Date Available _____

Problem Description **There is a lack of drainage somewhere downstream of the intersection of Lateral 2 and the main tile. Last three or so years the Lateral 2 tile has lacked enough drainage effectively farm the area it is supposed to drain. Pot-holes were dug by the landowners in sections 34 and 35, and water just sits in said holes without draining.**

Also, there is a broken intake where Lateral 2 intersects D41 in section 35

Repair labor, materials and equipment _____

Potential Wetlands? ☐ Yes-Repair existing tile only

☐ No-Repair and maintain tile

Repaired By: _____

Date: _____

Please send statement for services to:

Phone (641) 939-8111

Fax (641) 939-8245

Hardin County Auditor's Office

Attn: Tina Schlemme

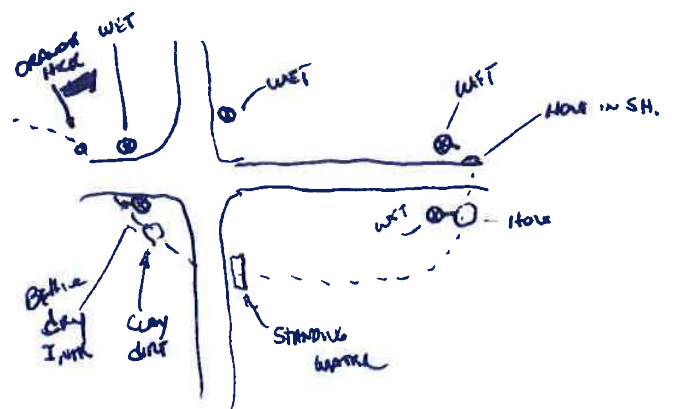
1215 Edgington Ave, Suite 1

Eldora, IA 50627

For Office Use Only

Approved: _____

Date: _____



226300002

D. No. 42

23100002

235100004

Drainage District:

#14 Main and Lateral 2

Investigation and Repair Summary:

- Per the earlier recommendations and authorization of the previous Investigation Summary, inspected the Main Tile and Lateral 2 Tile in the NE¼ of Section 34 and NW¼ of Section 35, Township 88 North, Range 22 West.
- Used beehive intake located approximately 300 ft west of County Highway S27 and in the south ditch of County Highway D41, inserted tile locator and hit obstruction approximately 180 ft downstream from said intake. Excavated hole at said obstruction and found nothing, water was flowing good. Drainage problem is farther upstream from beehive intake.
- Excavated on Lateral 2 Tile where the Iowa Rural Water Associations (IRWA) watermain crosses drainage district tile approximately 400 ft west of County Highway S27 on the north side of County Highway D41. Found 14" VCP flowing with no obstructions. However, watermain only clears the Lateral 2 Tile by approximately 1/4 feet. Repaired tile with 15" DW HDPE and concrete collars. Drainage problem is farther upstream.
- Visually observed standing water on the east side County Highway S27 approximately 330 ft south of County Highway D41. Excavated a hole on west side of County Highway S27, found Lateral 2 Tile – 4" SW HDPE tile to inspect condition of tile and water started surcharging into hole. Problem is farther downstream. Repaired tile with 2 HDPE couplers.
- Found Lateral 2 Tile on the south side of County Highway D41 at approximately 32 ft from the centerline of said County Highway D41. Removed section of 8" VCP Lateral 2 tile, used push tile locator to locate tile. Hit obstruction approximately 21 ft upstream from inspection hole. CCTV upstream from inspection hole and found two 5" HDPE private laterals directly across from each other protruding into Lateral 2 Tile 19 ft from said inspection hole. The private laterals are completely blocking the flow in the Lateral 2 Tile. Permanently repaired private tile connections to Lateral 2 tile with two 5"x8"x8" HDPE tees, one 4"x5"x5" HDPE tee, 3 HDPE couplers of varies sizes, 4" SW HDPE, 5" SW HDPE, and 8" DW HDPE. Rock bedding was used and concrete collars at all connections.
- Also, CCTV downstream from inspection hole on south side of County Highway D41 for approximately 70 ft to the Lateral 2 Tile connection with the Main Tile. Lateral 2 Tile appears to be in adequate physical condition.
- Inspected beehive intake approximately 540 ft east of County Highways S27 and on the south side of County Highway D41. Intake appears to be near the end of Lateral 2 Tile and has a sinkhole on the east side between intake and Lateral 2 tile. Excavated at sinkhole and found 6" VCP tile from intake to 6" HDPE tee on Lateral 2 tile. VCP tile connection with Lateral 2 Tile appears to be damaged. Replaced damaged VCP tile connection tile with 6" SW HDPE tile and concrete collars at both ends.
- There also appears to be another sinkhole by County Highway D41, but it appears to be caused by the 18" RCP culvert under the road.
- Also, the hickenbottom intake on the north side of County Highway D41 at approximately 375 ft from County Highway S27 appears to be full of dirt/debris and was not repaired at this time.
- After all repairs where done, the water on the east side of County Highway S27 appears to have down gone now that the restriction has been removed.



Contractor Time and Materials (spent while CGA was on-site):

See attached Tabulated Contractor Time and Materials sheet.

Additional Actions Recommended:

1. Verify that contractor performed fine grading and seeding of the south and north ditch of County Highway D41, the west ditch of County Highway S27, and wetland area that was disturbed by these repairs.
2. Inform Secondary Roads that the hickenbottom intake on the north side of County Highway D47 may need to be repaired as it currently has dirt/ debris in it.
3. Inform Secondary Roads that the sink hole over the 18" Culver needs repaired.
4. If desired by the District Trustees, inform IRUA that their watermain appears not to meet the original permit requirements.
5. As noted on the Tabulated Contractor Time and Materials, Crop damage was incurred. It is recommended that the District Trustees pay any damage claim brought forth.



Tabulated Contractor Time and Materials

Date	Totals	7/7/2020	7/8/2020	7/9/2020	7/13/2020
Workman (hrs)	82 2/3	20	21 3/4	36 1/4	4 2/3
Mini Excavator (hrs)	25 1/3	6 1/3	7	9	3
Skidloader (hrs)	26	6 1/3	7 3/4	9	3
CCTV inspection (ft.)	90		90		
4" Single Wall HDPE Tile (ft.)	162/5			162/5	
5" Single Wall HDPE Tile (ft.)	82/3			82/3	
6" Single Wall HDPE Tile (ft.)	22/5				22/5
8" Dual Wall HDPE Tile (ft.)	7 1/2			7 1/2	
15" Dual Wall HDPE Tile (ft.)	23/5			23/5	
4"x5"x5" HDPE Tee (ea.)	1			1	
5"x8"x8" HDPE Tee (ea.)	2			2	
4" Coupler (ea.)	3			3	
5" Coupler (ea.)	2			2	
6" Coupler (ea.)	1				1
Rock Bedding	Yes				
Concrete Collars	Yes				
Rock Bedding	Yes				
Crop Damage (ac.)	1/2			1/2	

Tabulated Defects

	Total	GPS #254 UPSTREAM	GPS #255 DOWNSTREAM	GPS #255 UPSTREAM
Total Length Televised (ft)	69.9	18.5	9.5	41.9
Date:		7/8/2020	7/8/2020	7/8/2020
Top crack (ft)	2.1	0.8	0	1.3
Side crack (ft)	0	0	0	0
Bottom crack (ft)	0	0	0	0
Partial or imminent collapse (#)	0	0	0	0
Full collapse (#)	0	0	0	0
Debris (ft)	5	4	0	1
Offset Joint (#)	21	7	3	11
Soil/voids visible in offset joint (#)	9	7	2	0
Single Wall HDPE (non-deformed) (ft)	1.5	1.5	0	0
Dual Wall HDPE (ft)	0	0	0	0
CMP (rusty) (ft)	0	0	0	0
Holes (non-fixed) (#)	0	0	0	0
Holes (fixed) (#)	0	0	0	0
Alligator Cracks (ft)	0	0	0	0
Radial Cracks (# of tile)	0	0	0	0

CONSTRUCTION ENGINEERING
OBSERVATION REPORT

DATE:

07/07/2020

DAYS OF WEEK:

S M ☒ W T F S

PROJECT NUMBER:

HARDIN DD WO # 292

COUNTY, ROUTE, ROAD:

6844.5 / DD # 14
INTERSECTION OF CO HWY
S-27 & CO HWY D-41

SHEET NO.

1 OF 4

LOCATION:

SE 1/4 SE 1/4 27-88-22, NE 1/4 NE 1/4 34-88-22,
& NW 1/4 NW 1/4 35-88-22 INVESTIGATE
FOR PLUGGED TILE DD 14 MAIN OR LAT 2

LOW 70'S TO LOW 90'S SUNNY
WITH LIGHT WINDS

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB
NAME, ITEM NO. AND LOCATION

JOB # 6844 DD 14 SURVEY

2:40

P.M. OBSERVER AND CREW ARRIVED

ON SITE. CREW STARTED UNLOADING EQUIPMENT WITH ADAM,
PERRY, & DYLAN ON SITE AND KOLBELCO SK85CS MINI EXCAVATOR
& CASE TR340 TRACKED SKIDLOADER FOR EQUIPMENT. OBSERVER
SET GPS BASE ON GPS # 23 3/4" ϕ IRON ROD 0.2' \pm DEEP
SW CORNER OF FIELD DRIVE IN SE QUADRANT OF CO HWY D-41 &
CO HWY S-27.

3:00 P.M.

GPS BASE WAS SET UP WITH OBSERVER LOOKING OVER
INFORMATION FOR A GOOD PLACE TO START CHECKING.

CREW WAS NOW @ INTERSECTION OF ^{CO HWY D-41} & CO HWY S-27 WITH EQUIPMENT.

OBSERVER TOLD CREW TO CHECK INTAKES TO SEE IF THEY ARE DRY OR
WET & THEN START RUNNING LOCATOR CABLE THROUGH
INTAKES TO FIND OBSTRUCTION.

3:10 P.M.

RON VIERKANDT STOPPED AND CHECKED HOW INVESTIGATION
WAS GOING, OBSERVER TOLD RON THAT WE JUST ARRIVED ON SITE
AND WERE CHECKING WHICH INTAKES ARE STILL WET THEN TRY
RUNNING LOCATE CABLE DOWN INTAKES TO FIND POSSIBLE
OBSTRUCTION.

3:20 P.M.

FOUND BEE HIVE INTAKE IN SOUTH DITCH OF CO HWY D-41
297' \pm WEST OF $\frac{1}{2}$ CO HWY S-27 WITH 6" CLAY TILE OUTLET TO WEST
WAS DRY. CREW WILL TRY RUNNING LOCATE CABLE INTO
TILE FROM THIS LOCATION.

3:30 P.M.

OBSERVER CHECKED GPS INTO GPS # 21 SURVEY MARK NAIL
FLUSH IN AGE IN CO HWY S-27 ABOUT 2632' \pm SOUTH OF $\frac{1}{2}$ CO HWY D-41 WITH
BOTH HORIZONTAL AND VERTICAL POSITION CHECKING GOOD.

3:35 P.M.

OBSERVER NOTICED A HOLE STILL OPEN ON EAST SIDE OF EAST
ROW FENCE FOR CO HWY S-27 322' \pm SOUTH OF CO HWY D-41. EXCAVATED

I Certify that the work described in this report was incorporated into this contract unless otherwise noted.

Observer's Signature:

Dean Penning

Date Prepared:

07/07/2020

Reviewed by:

☐ Engineer

Date Reviewed

CONSTRUCTION ENGINEERING
OBSERVATION REPORT

DATE:

07/07/2020

DAYS OF WEEK:

S M W T F S

PROJECT NUMBER: HARDIN DD WO# 292

6844.5/DD#14

COUNTY, ROUTE, ROAD: INTERSECTION OF CO HWY
S-27 & CO HWY D41

LOCATION: SE 1/4 SE 1/4 27-88-22, NE 1/4 NE 1/4 34-88-22,
R. NW 1/4 NW 1/4 35-88-22, INVESTIGATE
FOR PLUGGED TILE DD14 MAIN OR LAT 2

SHEET NO.

2 OF 4

LOW 70'S TO LOW 90'S SUNNY WITH
LIGHT WINDS

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB
NAME, ITEM NO. AND LOCATION

JOB# 6844 DD14, SURVEY
HOLE HAS 2.0' TO 2.5' OF WATER SITING IN

HOLE. OBSERVER ALSO NOTICED THAT FL OF DITCH ON BOTH EAST
& WEST SIDES OF CO HWY S27 IN SAME AREA WAS SATURATED
BUT NO WATER STANDING IN DITCH. OBSERVER CALLED ADAM
THAT HOLE THAT SOMEONE PREVIOUSLY EXCAVATED HAS
WATER SITING IN IT AND BOTH DITCHES ARE SATURATED SO
I WOULD SAY TILE IS PLUGGED DOWN STREAM.

3:44 P.M. PICTURE #404B SEE PICTURE FOR DETAILS.

3:50 P.M. OBSERVER AND CREW STARTED PUSHING LOCATE CABLE
THROUGH BEEHIVE INTAKE. LOCATE CABLE HIT A SPOT WHILE
PUSHING WITH SOME RESISTENCE BUT PUSHED THROUGH THIS
AREA (GPS# 235 @ 65.7') (OFFSET JOINT?). OBSERVER LOCATED
THIS SPOT FOR DOCUMENTATION, OBSERVER CONTINUED TO
PUSH LOCATE CABLE UNTIL IT HIT SOMETHING HARD. THIS TIME
CABLE COULD NOT PUSH ANY FURTHER DOWNSTREAM.

5:20 P.M. OBSERVER HAD LOCATING DEVICE HOOKED UP AGAIN AND STARTED
TO LOCATE TILE IN FIELD AND SHOOTING WITH GPS. SINCE
LOCATING END WAS NOT CABLE OBSERVER GUESSED WHERE HEAD
WAS LOCATED BY SIGNAL STRENGTH, OBSERVER TAPED CABLE AT
INSIDE EDGE OF INTAKE ABOVE TOP OF 6" CLAY TILE OUTLET AND
PULLED CABLE OUT OF TILE. OBSERVER LAYED CABLE ALONG
GRAVEL SHOULDER AND SHOT LENGTH WITH GPS FROM TAPE
TO END OF CABLE. OBSERVER CREATED A POINT ON POLYLINE
AT THIS FOOTAGE.

6:00 P.M. CREW ASKED OBSERVER WHICH WAY WAS SHORTER TO GET
OUT IN FIELD TO EXCAVATE AT OBSTRUCTION. OBSERVER SAID
ALONG LOCATES FROM N ROW OF CO HWY D-41. OBSERVER

I Certify that the work described in this report was incorporated into this contract unless otherwise noted.

Observer's Signature:

Dean Penning

Date Prepared

07/07/2020

Reviewed by:



Engineer

Date Reviewed

CONSTRUCTION ENGINEERING
OBSERVATION REPORT

DATE:

07/07/2020

PROJECT NUMBER: HARDIN DD WO # 292
6844.5 / DD # 14
COUNTY, ROUTE, ROAD: INTERSECTION OF CO HWY
S-27 & CO HWY D-41
LOCATION: SE 1/4 SE 1/4 27-88-22, NE 1/4 NE 1/4 34-88-22,
8, NW 1/4 NW 1/4 35-88-22, INVESTIGATE
FOR PLUGGED TILE DD 14 MAIN OR LAT 2

DAYS OF WEEK:

S M W T F S

SHEET NO.

3 OF 4

LOW 70'S TO LOW 90'S SUNNY WITH
LIGHT WINDS

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB
NAME, ITEM NO. AND LOCATION

JOB # 6844 DD14, SURVEY

HELD UP POLE ABOVE CORN FOR THEM TO
SEE WHERE CABLE LOCATE ENDED, RON VIERKANDT ALREADY
TOLD CONTRACTOR HE COULD MAKE A PATH IN CORN TO FIX TILE
SINCE IT NEEDS TO BE FIXED. CREW CAME THROUGH FROM JIM VIERKANDT.
DRIVE OFF CO HWY D-41. OBSERVER ASKED THE REASON FOR
THIS WAY (DAMAGED A LOT MORE CROPS) WAS IT WOULD BE
BETTER TO GET ROCK OUT TO REPAIR.

6:30 P.M. CREW STARTED EXCAVATING TO EXPOSE TILE @
OBSTRUCTION (GPS # 246). 159.1' INTO FIELD.

7:10 P.M. CREW HAD TILE EXPOSED AT POSSIBLE OBSTRUCTION.
TILE LOOKED GOOD UPSTREAM AND DOWNSTREAM WITH 3"
OF GOOD FLOW. TILE LOCATE CABLE MUST HAVE HIT AN OFFSET JOINT.

7:15 P.M. PICTURE # 4049 &

PICTURE # 4050 SEE PICTURE FOR DETAIL

7:30 P.M. FINISHED REELING LOCATE CABLE BACK ONTO REEL.

8:00 P.M. PERRY AND DYLAN LEFT SITE FOR DAY.

8:15 P.M. OBSERVER & ADAM PUSHED LOCATE CABLE 100' DOWNSTREAM
FROM GPS # 247 & 100' UPSTREAM FROM GPS # 248 WITH NO OBSTRUCTIONS
SINCE TILE IS FLOWING GOOD THEN OBSTRUCTION MUST BE FURTHER UPSTREAM.

8:20 P.M. ADAM STARTED EXCAVATING IN NORTH DITCH OF CO HWY D-41 TO
FIND TILE AND EXCAVATED AROUND 6" HICKEN BOTTOM. ADAM FOUND
6" CLAY TILE ^{OUTLET WAS} BROKEN & COMPLETELY FULL OF SOIL (BOTTOM OF HICKEN BOTTOM
WAS COMPLETELY FULL OF SOIL TOO).

8:50 P.M. ADAM STARTED EXCAVATING FOR TILE NEAR WM/TILE CROSSING
BUT IRUA WILL NOT BE ON SITE UNTIL TOMORROW @ 8:00 AM. TO CHECK
IF WATER MAIN IS CAUSING AN ISSUE. PROBED DOWN TO TILE BY WATER MAIN AND THIS
IS IN GOOD SHAPE.

9:00 P.M. OBSERVER AND ADAM LEFT SITE.

QUANTITIES

ADAM 2:40 - 9 6 1/3 HOURS
PERRY 2:40 - 8 5 1/3 HOURS
DYLAN 2:40 - 8 5 1/3 HOURS

KOLBELO 5K85CS MINI EXCAVATOR 6 1/3 HOURS
CASE TR-340 TRACKED SKIDLOADER 6 1/3 HOURS

I Certify that the work described in this report was incorporated into this contract unless otherwise noted.

Observer's Signature:

Dean Penning

Date Prepared:

07/07/2020

Reviewed by:



Engineer

Date Reviewed

CONSTRUCTION ENGINEERING
OBSERVATION REPORT

DATE:

07/07/2020

PROJECT NUMBER: HARDIN DD WO # 292

DAYS OF WEEK:

S M W T F S

COUNTY, ROUTE, ROAD: 6844.5 / DD # 14
INTERSECTION OF CO HWY
S-27 & CO HWY D41

SHEET NO.

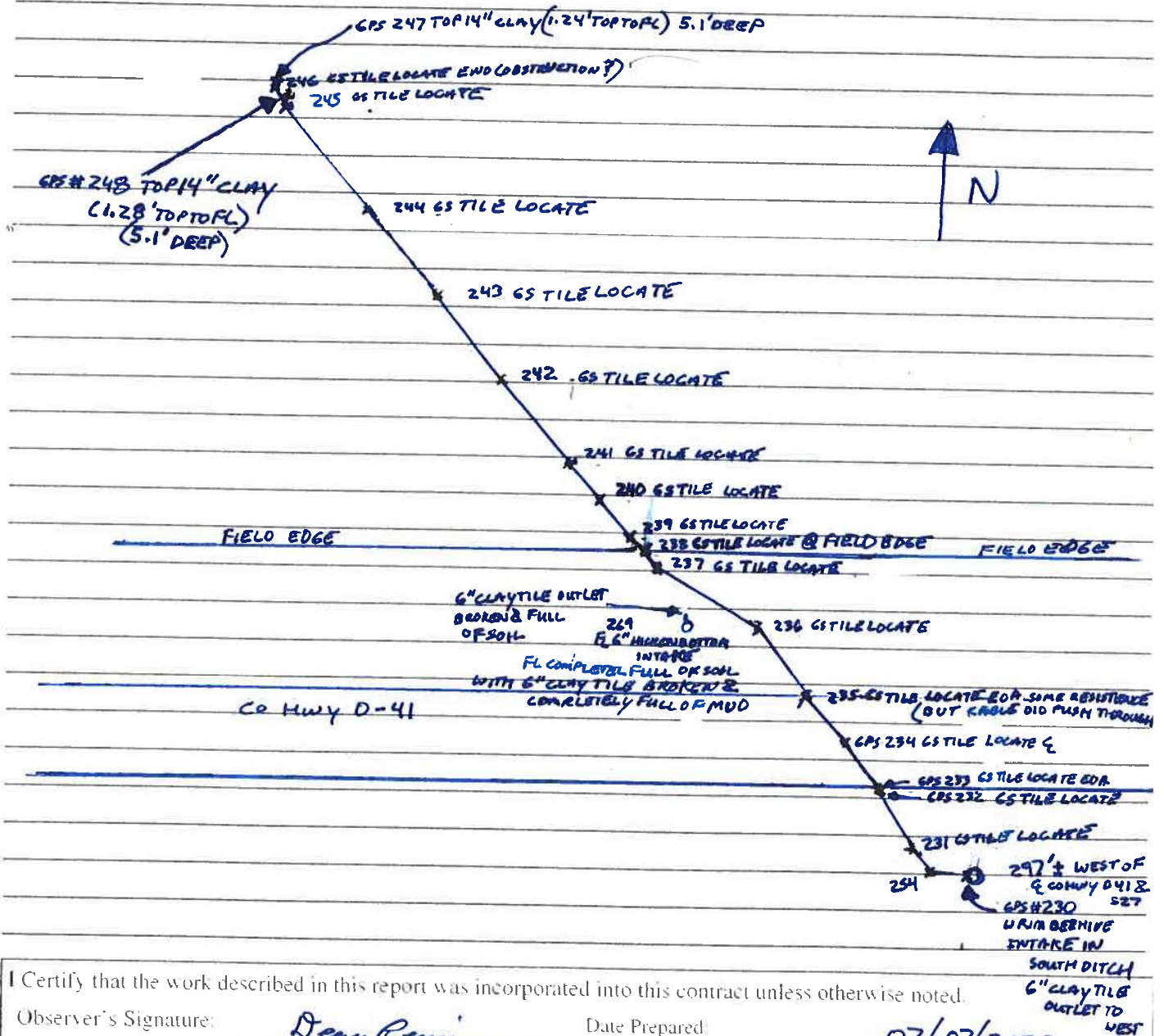
4 OF 4

LOCATION: SE 1/4 SE 1/4 27-88-22 NE 1/4 NE 1/4 34-88-22
& NW 1/4 NW 1/4 35-88-22 INVESTIGATE
FOR PLUGGED TILE DD 14 MAIN OR LAT 2

LOW 70'S TO LOW 90'S SUNNY
WITH LIGHT WINDS

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB
NAME, ITEM NO. AND LOCATION

JOB # 6844 DD14 SURVEY



I Certify that the work described in this report was incorporated into this contract unless otherwise noted.

Observer's Signature:

Dean Penning

Date Prepared:

07/07/2020

Reviewed by:

Engineer

Date Reviewed

PICTURE # 4048 IS LOOKING NORTH ALONG EASTROW FENCE
322'± SOUTH OF CO HWY D-41 SHOWING WATER SITING IN HOLE



PICTURE # 4049 IS LOOKING NW UPSTREAM INSIDE 14" CLAY
TILE (GPS# 248 1.28' TOPTOFL). TILE IS IN GOOD SHAPE
WITH 3" FLOW (5.1" DEEP)

PICTURE # 4050 IS LOOKING NW. DOWN STREAM INSIDE 14" CLAY
(5.1' ± DEEP)
TILE (GPS# 247 1.24' TO TOP FL) TILE IN GOOD SHAPE
WITH 3" FLOW TILE HAS A LONGITUDINAL CRACK @ 12 O'CLOCK BUT

NOT
CAVING
DOWN



N ↗

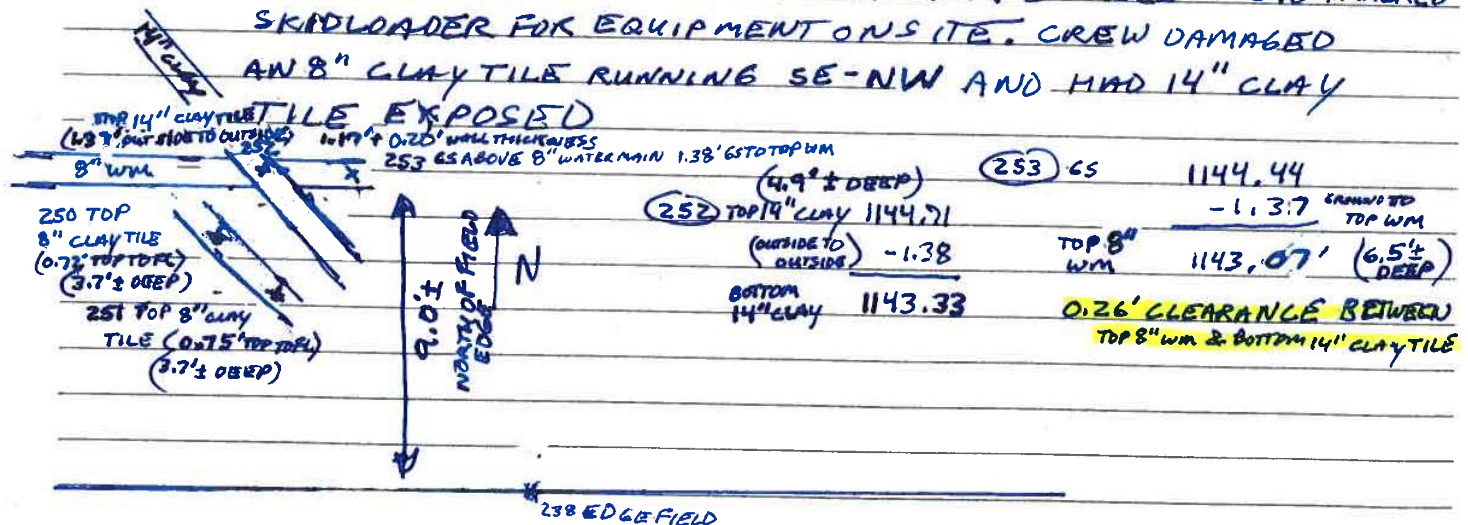
07/08/2020

S	M	T	W	T	F	S
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1 OF 5

JOB# 6844 0014. survey

8:35 A.M. OBSERVER ARRIVED AT WATERMAIN/TILE CROSSING WITH ROWMERKANT, JASON WITH TRUA, ADAM, DYLAN, PERRY ON SITE AND KOLBELCO SK 85CS MINIEXCAVATOR & CASE TR340 TRACKED SKIDLOADER FOR EQUIPMENT ON SITE. CREW DAMAGED AN 8" CLAY TILE RUNNING SE-NW AND HAD 14" CLAY



07/08/2020

Date Reviewed

CONSTRUCTION ENGINEERING
OBSERVATION REPORT

DATE:

07/08/2020

PROJECT NUMBER:

HARROW DOWNS # 292

DAYS OF WEEK:

S M T W T F S

COUNTY, ROUTE, ROAD:

6844.5 / DD#14
INTERSECTION OF CO HWY
S-27 & CO HWY D41

SHEET NO.

2 OF 5

LOCATION:

SE 1/4 SE 1/4 27-88-22, NE 1/4 NE 1/4 34-88-22,
& NW 1/4 NW 1/4 35-88-22. INVESTIGATE
FOR PLUGGED TILE DD14 MAIN OR LATER

LOW 70'S TO MID 90'S SUNNY WITH LIGHT
WINDS

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB
NAME, ITEM NO. AND LOCATION

JOB # 6844 DD14, SURVEY

8:51 A.M. PICTURE # 4051, 8:52 A.M. PICTURE # 4052

& PICTURE # 4053 SEE PICTURES FOR DETAILS.

9:00 A.M. OBSERVER THOUGHTS ARE HOLE SHOULD HAVE FILLED UP
WITH WATER IF TILE WAS PLUGGED DOWNSTREAM FURTHER & NW
HOLE WHERE TILE EXPOSED FLOW IS GOOD. OBSERVER WILL
CHECK BEEHIVE INTAKE IN DITCH NORTH OF HWY D-41 & WEST
OF S-27. THIS BEEHIVE INTAKE OUTLET TILE TO SOUTH WAS
DRY. OBSERVER WILL HAVE CREW EXCAVATE & EXPOSE
TILE WEST OF BEEHIVE INTAKE SO LOCATE CABLE CAN
BE RAN UPSTREAM IN TILE TO SE TO CHECK IF PLUGGED

9:56 A.M. PICTURE # 4054 SEE PICTURE FOR DETAILS.

10:15 A.M. LATERAL # 2 8" CLAY TILE WAS EXPOSED NW
OF BEEHIVE INTAKE WITH A SECTION OF 8" TILE REMOVED.

10:16 A.M. PICTURE # 4055 & PICTURE # 4056 SEE PICTURE FOR DETAILS.

10:25 A.M. CREW RAN LOCATE CABLE UPSTREAM INSIDE 8" CLAY TILE
FROM GPS # 254 UNTIL IT HIT SOMETHING IN TILE @ 21.3'
CABLE IS UNABLE TO PUSH THROUGH THIS LOCATION.

10:35 A.M. CREW WAS HEADING TO WEST DITCH OF CO HWY 527
330'± SOUTH OF & CO HWY D41 TO CHECK CONDITION & FLOW
IN TILE BEFORE EXCAVATING IN FIELD IN CASE JUST A JOINT
OFFSET.

10:40 A.M. MID COUNTRY EQUIPMENT ON SITE & OBSERVER TRYING
TO RUN LOCATOR CABLE THROUGH INTAKE TO FIND OBSTRUCTION
IN LATERAL # 2. OBSERVER IS UNABLE TO MAKE BEND WITH
LOCATE CABLE INTO LATERAL # 2. CREW WILL EXCAVATE TO
FIND LATERAL # 2 TO RUN LOCATE CABLE DOWNSTREAM
TO PLUG. ADAM

11:03 A.M. PICTURE # 4058 SEE PICTURE FOR DETAILS.

I Certify that the work described in this report was incorporated into this contract unless otherwise noted.

Observer's Signature:

Dean Penning

Date Prepared:

7/08/2020

Reviewed by:

Engineer

Date Reviewed

CONSTRUCTION ENGINEERING
OBSERVATION REPORT

DATE:

07/08/2020

PROJECT NUMBER:

HARDIN DDW0#252

DAYS OF WEEK:

S M T W T F S

COUNTY, ROUTE, ROAD:

6844.5/DD#14
INTERSECTION OF HWY
5-27 & CO HWY 041

SHEET NO.

3 OF 5

LOCATION:

SE 1/4 SE 1/4 27-28-22, NE 1/4 NE 1/4 34-28-22,
8 NW 1/4 NW 1/4 35-28-22 INVESTIGATE
FOR PLUGGED TILE DD14 MAIN OR LAT 2

LOW 70's TO MID 90's SUNNY WITH LIGHT
WINDS

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB
NAME, ITEM NO. AND LOCATION

JOB# 6844 DD14, SURVEY

11:15 A.M. BEFORE CREW COULD GET DOWN TO
TILE WATER WAS SQUIRTING OUT OF CRACK IN SOIL & FILLING HOLE UP.
CREW DECIDED TO CHECK TILE ON WEST SIDE OF WATERMAIN/
TILE CROSSING.

11:26 A.M. PICTURE # 4059 SEE PICTURE FOR DETAILS.

11:35 A.M. CREW CUT A 4" HOLE SW PERF TILE RUNNING N-S
IN FIELD. BEFORE CREW REACHED TILE, WATER WAS...
SQUIRTING OUT OF GROUND.

11:45 A.M. DUE TO WATER PRESSURE AT THIS LOCATION, RESTRICTION
IS FURTHER DOWNSTREAM AND CREW WILL EXCAVATE
AT LOCATION WHERE CABLE COULD NOT PUSH THROUGH
21.3' ± SE OF BEEHIVE INTAKE IN SOUTH DITCH OF CO HWY
D-41. ADAM HAD PAUL SCHEDULED TO COME TELEVIEW
TILE TO PIN POINT ISSUE AT 1:00 P.M. SINCE NO ISSUE FOUND YET.

11:50 P.M. OBSERVER MARKED OUT EXACT LOCATION OF POSSIBLE OBSTRUCTION,
IN TILE. RON LEFT SITE AND ASKED TO LET HIM KNOW
WHEN PAUL WAS ON SITE TO TELEVIEW TILE.

12:05 P.M. CREW ROLLED ONE OF TRACKS OFF ^{MINI} EXCAVATOR HEADING BACK
TO EXCAVATE AT POSSIBLE OBSTRUCTION.

12:15 P.M. ADAM LEFT SITE TO GET A BAR TO HELP PUT TRACK BACK
ON. PERRY AND DYLAN LEFT FOR LUNCH. OBSERVER SHOT
LOCATION OF POSSIBLE OBSTRUCTION.

12:45 P.M. DYLAN AND PERRY BACK ON SITE FROM LUNCH

12:50 P.M. PAUL ON SITE WITH CAMERA EQUIPMENT TO TELEVIEW
UPSTREAM AND DOWNSTREAM FROM GPS #254 & #255 WEST
OF BEEHIVE INTAKE IN SOUTH DITCH OF CO HWY 041. CREW WAS UNABLE
TO GET POSSIBLE OBSTRUCTION EXCAVATED & EXPOSED BEFORE PAUL ARRIVED
DUE TO EQUIPMENT ISSUES. OBSERVER NOTIFIED RON PAUL WAS ON SITE

I Certify that the work described in this report was incorporated into this contract unless otherwise noted.

Observer's Signature:

Dean Perry

Date Prepared:

7/08/2020

Reviewed by:

Engineer

Date Reviewed

CONSTRUCTION ENGINEERING
OBSERVATION REPORT

DATE:

07/08/2020

PROJECT NUMBER:

HARDIN DDWO# 292

DAYS OF WEEK:

S M T W T F S

COUNTY, ROUTE, ROAD:

6844.5/DD#14

SHEET NO.

4 OF 5

LOCATION:

56 1/4 SE 1/4 27-88-22, NE 1/4 NE 1/4 34-88-22,
8 NW 1/4 NW 1/4 35-88-22 INVESTIGATE
FOR PLUGGED TILE DD14 MAIN OR LAT 2

LOW 70'S TO MID 90'S SUNNY WITH LIGHT
WINDS

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB
NAME, ITEM NO. AND LOCATION

JOB# 6844 DD14, SURVEY

1:13 P.M. PAUL HAD GENERATOR STARTED

TO START TELEVISIONING TILE UPSTREAM.

1:15 P.M. ADAM BACK ON SITE PUTTING TRACK BACK ON MINI EXCAVATOR

1:20 P.M. PAUL TELEVISIONING UPSTREAM FROM GPS # 254 (FIELD OBSERVATION)

1.0' CAMERA BACK TIRE @ END OF 8" CLAY TILE

19.0' END TELEVISION 5" HDPE SW PERF TILE FROM WEST & FROM EAST

THAT TIE IN AT SAME LOCATION WITH CLAY TILE SIDES CRACKED

& TOP APPEARS TO BE CAVING DOWN. TILE PLUGGED & ALMOST NO FLOW

FROM UPSTREAM

1:33 P.M. PICTURE # 4060 SEE PICTURE FOR DETAILS.

1:45 P.M. CREW HAD TRACKS BACK ON MINI EXCAVATOR

1:55 P.M. PAUL HAD CAMERA TRACTOR BACK OUT OF TILE.

1:55 P.M. CREW WAS STARTING TO EXCAVATE TO REMOVE OBSTRUCTION

2:00 P.M. PAUL TELEVISIONING DOWNSTREAM FROM GPS # 255 (FIELD OBSERVATION)

1.0' CAMERA BACK OF TIRE @ END OF 8" CLAY TILE

10.1' LATERAL LEFT

LATERAL RIGHT @ 2 O'CLOCK

84.1' CHUNK OF TILE IN FL

2:16 P.M. 69.8' TEE. END CAMERA. PAUL ENDED CAMERA THINKING

IF HE WENT ANY FURTHER CAMERA WOULD GET STUCK IN CONNECTION

8" TO 14" CONNECTION IN GOOD CONDITION WITH GOOD FLOW

IN MAIN. PAUL AND OBSERVER LOCATED APPROXIMATE LOCATION

OF MAIN/LAT 2 CONNECTION AND SHOT WITH GPS.

2:20 P.M. PAUL WAS BACKING CAMERA OUT AND PUTTING AWAY EQUIPMENT

2:39 P.M. PICTURE # 4061, PICTURE # 4062 & 2:41 P.M. PICTURE # 4064 SEE PICTURE FOR DETAILS

3:01 P.M. PICTURE # 4065 SEE PICTURE FOR DETAILS.

3:10 P.M. PAUL WAS WONDERING IF ANYTHING ELSE NEEDS TELEVISIONED. LEE

SAID SINCE WE HAVE BLOCKAGE ISSUE RESOLVED THERE IS NO REASON

TO TELEVISION ANYTHING MORE. PAUL LEFT SITE FOR DAY. PAUL WILL DROP

OFF TELEVISIONED
VIDEO AT OUR
OFFICE.

I Certify that the work described in this report was incorporated into this contract unless otherwise noted.

Observer's Signature:

Dean Penny

Date Prepared:

7/08/2020

Reviewed by:

Engineer

Date Reviewed

CONSTRUCTION ENGINEERING
OBSERVATION REPORT

DATE:

07/08/2020

PROJECT NUMBER:

HARDIN DD W0 #292

DAYS OF WEEK:

S M T W T F S

COUNTY, ROUTE, ROAD:

6844.5/00H14
S-27 & CO HWY 041

SHEET NO.

5 OF 5

LOCATION:

SE 1/4 SE 1/4 27-38-22, NE 1/4 NE 1/4 34-58-22
& NW 1/4 NW 1/4 35-08-22 INTERSECTION
FOR PLUGGED THE DD14 MAIN OR LAT 2

LOW 70'S TO MID 90'S SUNNY WITH
WINDS

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB
NAME, ITEM NO. AND LOCATION

JOB # 6844 DD14 SURVEY

3:25 P.M. RON & JIM VIERKANDT LEFT SITE.

3:45 P.M. PICTURE # 4066 & 3:46 P.M. PICTURE # 4067 SEE PICTURE FOR DETAILS.

3:45 P.M. CREW WAS GETTING 5" HDPE SW PERF TILE AREA PREPARED
FOR MAKING CONNECTIONS

4:15 P.M. PERRY AND DYLAN LEFT SITE

4:30 P.M. ADAM LEFT SITE. CREW NEED TO GET SUPPLIES
FOR 5" HDPE SW PERF TILE CONNECTIONS TO 8" CLAY TILE.

5:00 P.M. OBSERVER LEFT SITE AFTER SHOOTING EXISTING 4" & 5" HDPE
SW PERF TILE FOR NEW TIE IN CONNECTION TO 8" CLAY TILE
LAT 2 CONNECTION.

QUANTITIES

ADAM 8-12:15 1:45-4:30 7 HOURS 12:15-1:15 HOUR GETTING BAR
1:15-1:45 1/2 HOUR LETTING TRACK BACK ON MINI EXCAVATOR
PERRY 8-12:15, 12:45-4:15 7 3/4 HOUR
12:15-12:45 1/2 HOUR LUNCH
DYLAN 8-12:15, 12:45-4:15 7 3/4 HOUR
12:15-12:45 1/2 HOUR

PAUL WITH CAMERA EQUIPMENT 2 1/3 HOURS

KOLBELCO SK 85CS MINI EXCAVATOR 7 HOURS

CASE TR 340 TRACKED SKID LOADER 7 3/4 HOURS

I Certify that the work described in this report was incorporated into this contract unless otherwise noted.

Observer's Signature:

Dean Penning

Date Prepared:

07/08/2020

Reviewed by:

Engineer

Date Reviewed



Clapsaddle-Garber Associates, Inc.

16 East Main Street, Marshalltown, Iowa 50158, ph 641-752-6701
1523 South Bell Avenue, Suite 101, Ames, Iowa 50010, ph 515-232-1784
5106 Nordic Drive, Cedar Falls, Iowa 50613, ph 319-266-0258
739 Park Avenue, Ackley, Iowa 50601, ph 641-847-3273
511 Bank Street, Webster City, Iowa 50595, ph 515-832-1876
800-542-7981, www.cgaconsultants.com

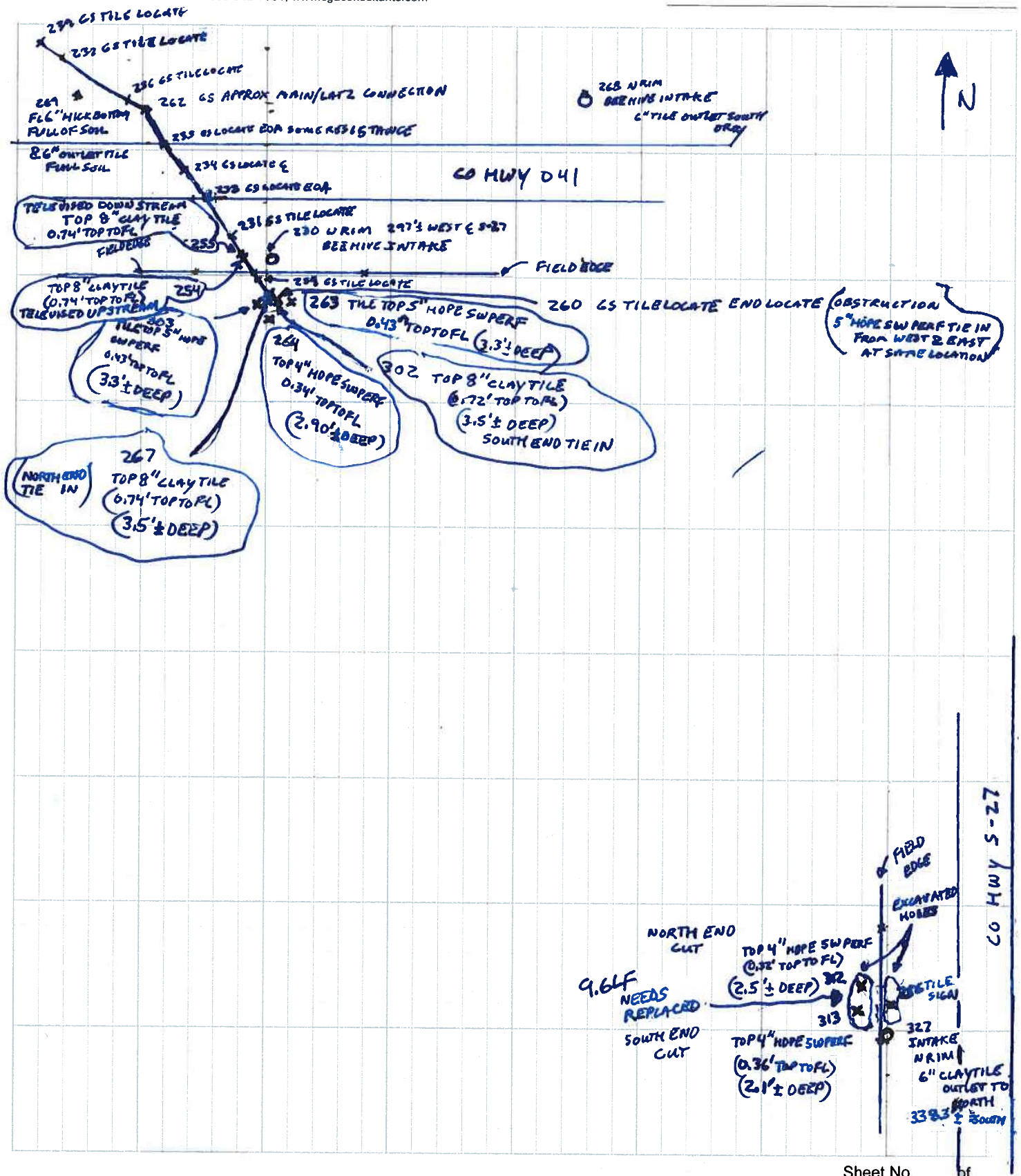
365.6
300.657

6844.5 / DO#14

07/08/2020

D.R.A.

PN _____
Computed By _____ Date _____
Checked By _____ Date _____
Subject _____



PICTURE# 4051 IS LOOKING SW SHOWING 8" CLAY TILE THAT WAS DAMAGED WHILE EXCAVATING TO EXPOSE 14" CLAY @ LOCATION WHERE WATERMAIN GOES UNDER TILE



(3.7' ± DEEP)

GPS# 251
TOP 8" CLAY
TILE
(6.75' TO TOP)
3.7' ± DEEP



GPS# 252 TOP 14" CLAY TILE
(4.9' ± DEEP)



PICTURE# 4052 IS LOOKING NW UPSTREAM INSIDE 8" CLAY TILE WITH 2" ± OF MUD IN FLOWLINE FROM GPS# 250. TILE IS IN GOOD SHAPE WITH FEW FINE ROOTS AND A FEW OFFSET JOINTS

PICTURE# 4053 IS LOOKING SE DOWNSTREAM INSIDE 8" CLAY TILE
WITH 2"± OF MUD IN FLOWLINE FROM GPS# 251. TILE HAS A
LITTLE POPOUT AT NEXT JOINT AND IS IN GOOD SHAPE WITH 2" MUD
IN FLOWLINE AND COMPLETELY FULL DOWNSTREAM. RON



THINKS
THIS TILE
IS
ABANDONED



07/08/2020
08:52

PICTURE #4054 IS LOOKING EAST IN SOUTH DITCH CO HWY 04/
297[±] WEST OF E CO HWY 5-27 SHOWING CREW EXPOSING LATZ TILE
WEST OF BEEHIVE INTAKE SO CREW CAN RUN LOCATE CABLE UPSTREAM
TO CHECK FOR PLUGGED TILE.



PICTURE #4055 IS LOOKING ^{NW} DOWNSTREAM INSIDE 8" CLAY TILE
FROM GPS # 255' SHOWING TILE IN GOOD CONDITION WITH $\frac{3}{4}$ " OF
WATER AND NOT MUCH FLOW. TILE IS 3.1' \pm DEEP.

PICTURE# 4056 IS LOOKING SE UPSTREAM INSIDE 8" CLAY TILE
 SHOWING TILE IN GOOD CONDITION WITH $\frac{3}{4}$ " WATER IN FL &
 NOT MUCH FLOW. TILE IS 3.11' ± DEEP.
 ↑ 6" CLAY TILE INLET FROM BEEHIVE INTAKE.



PICTURE# 4057 IS LOOKING NW SHOWING SECTION OF 8" CLAY
 TILE ROLLED OUT IN SOUTH DITCH OF CO HWY 041 NW OF BEEHIVE INTAKE
 FOR CREW TO RUN LOCATOR CABLE UPSTREAM TO FIND PLUG
 IN TILE.

PICTURE #4058 IS LOOKING NORTH - SHOWING CREW EXCAVATING
ALONG FIELD EDGE IN WEST DITCH OF HWY-27 TO EXPOSE
TILE TO CHECK CONDITION, FLOW AND RUN LOCATE CABLE
THROUGH IT.



WATER
FILLING
UP
IN
HOLE,
EXCAVATED
ON EAST
SIDE OF
WATER MAIN

PICTURE #4059 IS LOOKING NORTH SHOWING CREW NOW
EXCAVATING ON WEST SIDE OF WATER MAIN TO CHECK IF
WATER MAIN IS THE CAUSE.

PICTURE # 4060 IS LOOKING UPSTREAM INSIDE 8" CLAY TILE @ 21.3' UPSTREAM FROM BEEHIVE INTAKE SHOWING 5" PERF SW HOPE TILE FROM EAST & FROM WEST CONNECTING AT SAME LOCATION WITH SIDES CRACKED AND TOP CAVING DOWN WITH TILE PLUGGED UPSTREAM WITH SOIL & ROOTS



PICTURE # 4061 IS LOOKING SW AT EXPOSED LOCATION WHERE 5" HOPE SW PERF TILE FROM EAST & FROM WEST TIE INTO 8" CLAY TILE LATERAL 2

PICTURE # 4062 IS LOOKING SE AT TOP VIEW OF 5" HDPE
SW PERF TILE FROM WEST & EAST TIEING INTO SAME LOCATION
INTO BROKEN 8" CLAY TILE AND PLUGGED LINE



PICTURE # 4064 IS LOOKING SW SHOWING WATER GUSHING FROM
UPSTREAM END OF 8" CLAY TILE AT 5" HDPE TILE CONNECTIONS
AFTER BLOCKAGE REMOVED

PICTURE# 4065 IS LOOKING SOUTH SHOWING 5" HOPE TILE CONNECTION WITH 5" HOPE TILE FROM WEST HAVING A SAC OR HUMPE UP IN A SPOT.



PICTURE# 4066 IS LOOKING NORTH SHOWING WATER GONE NOW IN EXCAVATED HOLE IN WEST DITCH OF COMHWY 527 ALONG FIELD EDGE EAST OF WATER MAIN N-S

PICTURE#4067 IS LOOKING NORTH SHOWING PREVIOUSLY
EXCAVATED HOLE EAST OF EAST ROW FENCE FOR CO. HWY
527 & SOUTH OF CO HWY D41



N
GPS#253
TOP 8" CLAY TILE
GPS#254
TOP 8" CLAY
TILE

PICTURE# 4068 IS LOOKING NW SHOWING TILE FLOWING
IN SOUTH DITCH OF CO. HWY D41

PICTURE #4069 IS LOOKING EAST SHOWING 5" HOPE SW PERF
TILE CONNECTION AREA. 8" CLAY TILE STILL FLOWING
GOOD.



5" HOPE SUPER TILE



PICTURE #4070 IS LOOKING NW FROM CO HWY 041
SHOWING AREA IN NORTH DITCH EXCAVATED AND HOLE EXCAVATED
IN FIELD AT TILE/WATERMAIN CROSSING.

PICTURE # 4071 IS LOOKING SE TOWARDS CO HWY 04/
SHOWING 14" CLAY TILE FLOWING GOOD



GPS#248
TOP 14" CLAY
(1.20' TOP TO FL)
N
↓

07/08/2020
17:32

GPS#247 TOP 14" CLAY 1.24' TOP TO FL



268
NRIM
BEEHIVE
INTAKE

N
→

07/08/2020
17:39

PICTURE # 4072 IS LOOKING WEST SHOWING BEEHIVE
INTAKE IN NORTH DITCH OF CO HWY 04/ 170.8' ± WEST OF &
CO HWY 5-27

CONSTRUCTION ENGINEERING
OBSERVATION REPORT

DATE:

07/09/2020

PROJECT NUMBER: HARDIN DD WD# 292
6844.5/00#14
COUNTY, ROUTE, ROAD: INTERSECTION OF CO HWY
S-27 & CO HWY D41
LOCATION: SE 1/4 SE 1/4 27-88-22 NE 1/4 NE 1/4 34-88-22,
& NW 1/4 NW 1/4 35-88-22 INVESTIGATE
FOR PLUGGED TILE DD14 MAIN OR LAT 2

DAYS OF WEEK:

S M T W Th F S

SHEET NO.

1 OF 6

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB
NAME, ITEM NO. AND LOCATION

7:40 A.M. OBSERVER LEFT OFFICE FOR JOBSITE
8:20 A.M. OBSERVER ARRIVED ON SITE AND SET GPS BASE ON GPS#23
3/4" IRON ROD 0.2' DEEP SW CORNER FIELD DRIVE IN SE QUADRANT
OF CO HWY D41 & CO HWY S27.
8:40 A.M. ADAM ON SITE AND DROPPED OFF CONCRETE MIXER
8:45 A.M. OBSERVER HAD GPS BASE SETUP AND CHECKED INTO GPS#21 SURVEY
MARK NAIL FLUSH IN AGL IN CO HWY S-27 ABOUT 2632' ± SOUTH OF
& CO HWY D-41 WITH BOTH HORIZONTAL AND VERTICAL POSITION CHECKING
GOOD.
8:58 A.M. PICTURE#4088, 9:08 A.M. PICTURE#4089, & 9:18 A.M. PICTURE#4090 SEE PICTURE
FOR DETAILS.
9:30 A.M. OBSERVER STARTED SHOOTING CORN DAMAGE ON NORTH SIDE
OF CO HWY D41. ADAM LEFT SITE TO GET ANOTHER
LOAD OF 1" CLEAN ROCK WITH TRUCK AND DUMP TRAILER.
9:30 A.M. PICTURE#4091, 9:38 A.M. PICTURE#4092 SEE PICTURES FOR DETAILS
9:40 A.M. RON VIERKANDT STOPPED ON SITE AND OBSERVER INFORMED
9:45 A.M. RON THAT CREW WILL BE WORKING ON MAKING TILE TODAY
10:00 A.M. PERRY AND DYLAN ARRIVED ON SITE WITH TILE FOR REPAIR.
OBSERVER FINISHED SHOOTING CORN DAMAGE #1 SHOTS
(SEE SHEET FOR LOCATION OF CORN DAMAGE#1) GPS#270 TO GPS#300 0.371 ACRES. ALSO ADAM WAS
BACK WITH LOAD OF 1" CLEAN ROCK, SITE WAS
ALSO RECEIVING RAIN (RADAR SHOWED IT WOULD NOT LAST LONG)
10:20 A.M. RAIN WAS DONE AT SITE
10:55 A.M. PICTURE#4093 AND PICTURE#4094 SEE PICTURE FOR DETAILS
10:30 A.M. CREW WAS PREPPING 14" CLAY TILE REPAIR 168' ± NORTH
OF & OF CO HWY D41 IN FIELD.
11:56 A.M. PICTURE#4095, 12:02 PICTURE#4096, & 12:03 PICTURE#4097 SEE PICTURE FOR DETAILS
11:00 A.M. CARSON ARRIVED ON SITE
12:34 P.M. PICTURE#4098 & 12:43 PICTURE#4099 SEE PICTURE FOR DETAILS.

I Certify that the work described in this report was incorporated into this contract unless otherwise noted.

Observer's Signature:

Dean Penning

Date Prepared:

07/09/2020

Reviewed by:



Engineer

Date Reviewed

07/09/2020

S	M	T	W	Th	F	S
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2 OF 6

MID 60'S TO LOW 80'S CLOUDY
MID MORNING & MID AFTERNOON RAIN/
SHOWER WITH SUNSHINE BY LATE AFTERNOON
& LIGHT WIND JOB# 6844 DD14.SURVEY

168' ± NORTH OF & CONTINUED

FL 1142.99
GPS 147 TOP 14" CLAY 1.24' TOP TO FL (5.1' DEEP)
2.6 LF 15" OW HOPE NON PERF TILE
GPS 148 TOP 14" CLAY 1.28' TOP TO FL (5.1' DEEP)
FL 1143.03

FIELD EDGE

GRADE

1.83%

21' OF 8" ON HOPE PERITILE

330.4' NORTH OF E CO HWY 041

229.5' TILE LOCATE E6A

340.4' WEST OF E CO HWY S-27

PL 1145.20

EL 1145.16

229

FL 6" HICK BOTTOM

229.5' TILE LOCATE E6A

D41

SOME RESISTANCE

1:00 P.M. CREW STARTED FIXING TILE ON SOUTH SIDE OF CONCRETE D4/

1:20 P.M. PICTURE # 4102, 1:27 PICTURE # 4103 SEE PICTURE FOR DETAILS

1:58^{PM} PICTURE# 4104 & 2:02 PICTURE# 4105 & PICTURE# 4106 SEE PICTURE FOR DETAILS

2:08 PM PICTURE # 4107 & 2:21 PM PICTURE # 4108 SEE PICTURE FOR DETAILS.

SOUTH DITCH CONDUIT 041
9.5' WEST OF BEEHIVE
INTAKE REPAIR

6PS# 255 TOP 8" CLAY TILE 0.74' TOPTOFL
ORIGINAL FL 1144.01 (3.1' DEEP)

ORIGINAL
8" CLAY
TILE ROLLED
BACK INTO
PLACE

6/5# 254 TOP 8" CLAY TILE 0.74' TOP TO FL
FL 1143.94 (3.16' DEGP)

3:03 P.M. PICTURE# 4109, 3:07 P.M. PICTURE# 4110, 3:20 P.M. PICTURE# 4111, PICTURE# 4112, & PICTURE# 4113 SEE PICTURE FOR DETAILS.

Observer's Signature: _____

Date Prepared:

Reviewed by:

Engineer

Date Reviewed

07/09/2020

S	M	T	W	Th	F	S
---	---	---	---	-----------	---	---

3 OF 6

MID 60's TO LOW 80's CLOUDY
MID MORNING & MID AFTERNOON RAIN!
SHOWER WITH SUNSHINE BY LATE AFTERNOON
& LIGHT WIND JOB# 6844 DD14.SURVEY

3:26 P.M. PICTURE# 4114 & 3:46 P.M. PICTURE#

Row

5th HOPE SWPCT
THE TIE IN
CONNECTIONS TO
LATERAL HZ

OUT JOINT CONNECTION
3/4 CONCRETE COLLAR

(295' ± WEST OF E CO HWY 5-27)
465' ± SOUTH OF E CO HWY 041
267 TOP 8" CLAY TILE (0.74' TOP TO FL) 3.5' ± TO

2.2 LF OF 5" HOPE
PERFITLE

GPS#307 TOP 5" x 5" X 1/4"
HONEY TREE
3.5' LOOP

$\frac{3}{4}$ concrete
column

5" ^{HDPE} INTERNAL
SNAP COUPLER

6PS# 303 TOP EXISTING
5" HOPE PERK
THE (0.4)' TOP TO
3.3' ± DEEP
FL 1144.59'

CPS 305
TOP 8" x 8" x 5"
HOPE TEE
(3.55" OVER)

3/4 CONCRETE COLLAR
1.0' x 1.5' 6" x 6" SQUARE
WIRE MESH
2.0' x 2.0' FABRIC

~~MISSING FL 1144.61~~

GPS # 263 TOP 5" HOPS PERE
0.43' TOP TO FL 3.1' DIA

GPS#308 TOP 5" HOPE PERF TILE @ TRF

1.2 LF OF 8" DW HOPE NON PERFTILE
CPS # 302 TOP 8" CLAY TILE

0.72' TOPTO FL
(3147' DEEP)

BUTT JOINT CONNECTION (3147°)
WITH 3/4 CONCRETE
COLLAR

4" HOPE INTERNAL
SMA COUPLER

0.34' TOP TO FL 2.9' ± DEEP
FL 1145.091

6PS#302 TOP 8" CLAY 1144.85
-0.72
1144.13

$$\frac{1144.13 - 1144.03}{3.30} = .0303/\text{FT} \quad \text{GRADE 8" LATERAL\#2}$$

GPS# 267 TOP 8" CLAY 1144.77
- 0.74
1144.03

Observer's Signature: _____

Date Prepared:

Reviewed by:

☐ Engineer

Date Reviewed

CONSTRUCTION ENGINEERING
OBSERVATION REPORT

DATE:

07/09/2020

PROJECT NUMBER: HARDIN DD WO# 292
6844.5/00#14
COUNTY, ROUTE, ROAD: INTERSECTION OF CO HWY
S-27 & CO HWY D41
LOCATION: SE 1/4 SE 1/4 27-88-22 NE 1/4 NE 1/4 34-88-22
& NW 1/4 NW 1/4 35-88-22 INVESTIGATE
FOR PLUGGED TILE DD14 MAIN OR LAT 2.

DAYS OF WEEK:

S M T W Th F S

SHEET NO.

4 OF 6

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB
NAME, ITEM NO. AND LOCATION

3:48 P.M. CREW DONE POURING 3/4 CONCRETE
COLLARS FOR 5" HOPE PERF TILE TIE IN CONNECTION AND START
WORKING ON TILE REPAIRS ON EAST & WEST SIDE OF CO HWY
S-27.
3:51 P.M. PICTURE # 4116 SEE PICTURE FOR DETAILS
4:00 P.M. PICTURE # 4117 & 4:01 P.M. PICTURE # 4119 SEE PICTURES FOR DETAILS
4:03 P.M. PICTURE # 4120 & 4:06 P.M. PICTURE # 4121 SEE PICTURE FOR DETAILS
4:58 P.M. PICTURE # 4122 SEE PICTURE FOR DETAILS
5:26 P.M. PICTURE # 4123 & 5:36 P.M. PICTURE # 4124 SEE PICTURE FOR DETAILS
5:56 P.M. PICTURE # 4125 & PICTURE # 4126 SEE PICTURE FOR DETAILS
6:11 P.M. PICTURE # 4127 & 6:15 P.M. PICTURE # 4128 SEE PICTURE FOR DETAILS
7:40 P.M. PICTURE # 4129, 7:41 P.M. PICTURE # 4130 SEE PICTURE FOR
7:42 P.M. PICTURE # 4131 & PICTURE # 1 SEE PICTURE FOR DETAILS
7:00 P.M. CREW LEFT SITE. CREW WILL FINISH BACK FILLING
TRENCHES TOMORROW.

QUANTITIES

ADAM 8:40-9:30, 10 TO 7 9 3/4 HOURS
DYLAN 9:45 TO 7 9 1/4 HOURS PERRY 9:45 TO 7 9 1/4 HOURS
LARSON 11 TO 7 8 HOURS
KOLBELCO SK 85CS MINI EXCAVATOR 10 TO 7 9 HOURS
CASE TR 340 TRACKED SKIDLOADER 10 TO 7 9 HOURS
CONCRETE MIXER ON SKIDLOADER 14" CLAY REPAIR N. OF D41 1/2 HOUR
8" CLAY REPAIR N. OF D41 1/2 HOUR
8" CLAY REPAIR SOUTH D41 1/2 HOUR
REST OF CONCRETE COLLARS. 1 HOUR

REPAIRS

① 14" CLAY TILE REPAIR (NORTH OF D41) 2.6 LF 15" Ø DW HOPE WOOD PERF TILE
2- 2.0 X 3.5' ENGINEERING FABRIC
11.0' X 4.0' & 1.5' X 4.0' 6" X 6" SQUARE WIRE MESH

I Certify that the work described in this report was incorporated into this contract unless otherwise noted.

Observer's Signature:

Dean Penning

Date Prepared:

07/09/2020

Reviewed by:

☐ Engineer

Date Reviewed

CONSTRUCTION ENGINEERING
OBSERVATION REPORT

DATE:

07/09/2020

PROJECT NUMBER:

HARDIN DD W0# 292

DAYS OF WEEK:

S M T W Th F S

COUNTY, ROUTE, ROAD:

6844.5/00H14

SHEET NO.

5 OF 6

LOCATION:

SE 1/4 SE 1/4 27-88-22 NE 1/4 NE 1/4 24-88-22,
& NW 1/4 NW 1/4 35-88-22 INVESTIGATE
FOR PLUGGED TILE DD14 MAIN OR LAT 2

MID 60'S TO LOW 80'S CLOUDY
MID MORNING & MID AFTERNOON RAIN/
SHOWER WITH SUNSHINE BY LATE AFTERNOON
& LIGHT WIND JOB# 6844 DD14 SURVEY

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB
NAME, ITEM NO. AND LOCATION

② 8" CLAY TILE REPAIR (NORTH OF D41)

2.0' X 3.0' ENGINEER FABRIC
1.5' X 2.0' 6" X 6" SQUARE WIRE MESH
2.1 LF 8" DW HDPE NONPERF TILE
8- 60LB BAGS OF QUIKRETE HIGH STRENGTH CONCRETE

③ 8" CLAY ROLL BACK IN (SOUTH DITCH OF D41) REPAIR

1.5' X 2.0' 6" X 6" SQUARE WIRE MESH
2.0' X 2.0' ENGINEERING FABRIC
5- 60LB BAGS OF QUIKRETE HIGH STRENGTH CONCRETE

④ S" HDPE PERF TILE TIE IN REPAIR

(HA) 8" MAIN 1.2 LF 8" DW NONPERF TILE, HDPE 8" X 8" X 5" TEE,
(TOTAL 5.35 LF) 0.7 LF 8" DW NONPERF TILE, HDPE 8" X 8" X 5" TEE
& 1.0 LF 8" DW NONPERF TILE

④B EAST 5" PERF TILE TIE IN

5" HDPE INTERNAL SNAP COUPLER
3.8 LF OF 5" HDPE PERF TILE

④C WEST 5" PERF TILE TIE IN

2.2 LF OF 5" DW HDPE SW PERF TILE, 5" X 5" X 4" HDPE TEE,
2.7 LF OF 5" DW HDPE SW PERF TILE, 5" DW HDPE INTERNAL
SNAP COUPLER, 6.6 LF OF 4" HDPE PERF TILE,
8.4" HDPE INTERNAL SNAP COUPLER

④D 3/4 CONCRETE COLLARS

8" CLAY TO 8" HDPE NONPERF NORTH END 1.5' X 1.5' 6" X 6" WIRE MESH
2.0' X 2.0' ENGINEER FABRIC
SOUTH END 1.5' X 1.5' 6" X 6" WIRE MESH
2.0' X 2.0' ENGINEER FABRIC

I Certify that the work described in this report was incorporated into this contract unless otherwise noted.

Observer's Signature:

Dean Penning

Date Prepared:

07/09/2020

Reviewed by:

Engineer

Date Reviewed

CONSTRUCTION ENGINEERING
OBSERVATION REPORT

DATE:

07/09/2020

PROJECT NUMBER:

MADON DD WO # 292

DAYS OF WEEK:

S M T W 0 F S

COUNTY, ROUTE, ROAD:

6844.5/DD#14
INTERSECTION OF CO
HWY 5-27 & CO HWY D41

SHEET NO.

6 OF 6

LOCATION:

SE 1/4 SE 1/4 27-88-22 NE 1/4 NE 1/4 27-88-22
2 NW 1/4 NW 1/4 35-88-22 INVESTIGATE
FOR PLUGGED TILE DD#14 MAIN DITCH

NO 60'S TO LOW 80'S CLOUDY
NO MORNING & MID AFTERNOON
RAIN SHOWER WITH SUNSHINE & LATE
AFTERNOON

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB
NAME, ITEM NO. AND LOCATION

- JOB # 6844. DD#14 SURVEY
- 1.5 X 2.0' ENGINEERING FABRIC OVER BOTH 8" X 8" X 15" HOPE TEE TO 5" HOPE SW PERF TILE SLID IN CONNECTION
 - 1.5 X 2.0' ENGINEER FABRIC OVER BOTH 5" HOPE TO 5" HOPE INTERNAL COUPLER CONNECTIONS.
 - 1.5' X 2.0' ENGINEERING FABRIC OVER 4" HOPE TO 4" HOPE INTERNAL COUPLER CONNECTION, 4" HOPE SLID IN CONNECTION ON 5" X 5" X 4" HOPE TEE, & AROUND 5" X 5" X 4" TEE CONNECTIONS
 - 26 - 60 LB BAGS OF QUIKRETE HIGH STRENGTH CONCRETE.

⑤ HOLE IN 8" HOPE NON PERF TILE REPAIR

2.0 X 2.0 ENGINEER FABRIC

1.0 X 2.0' 6" X 6" SQUARE WIRE MESH

4 - 60 LB BAGS OF QUIKRETE HIGH STRENGTH CONCRETE.

⑥ 4" HOPE PERF TILE REPAIR

9.8 LF 4" HOPE PERF TILE WITH 2 4" INTERNAL ^{SNAP} COUPLERS

LOAD #1 MARTIN MARIETTA TICKET # 302243 1" CLEAN ROCK 7.58 TONS

LOAD #2 MARTIN MARIETTA TICKET # 1" CLEAN ROCK TONS

CORN DAMAGE #1 0.371 AC CORN DAMAGE #2 0.043 AC CORN DAMAGE #3 0.051 AC

ADDITIONAL ACTIONS - FINE GRADE & SEED; SOUTH DITCH CO HWY D41,
NORTH DITCH CO HWY D41, & WEST DITCH CO HWY 527
WET LAND AREA DISTURBED BY REPAIR

- 14" CLAY TILE REPAIR (NOF D41) SOIL WAS MIXED WITH CORN STALKS
NOW EXTRA SOIL BUT WILL SETTLE DUE TO STALKS MIXED WITH SOIL.
- 8" CLAY TILE AT GPS# 250 TO GPS# 251 (BELOW MAIN TILE) (ABOVE MAIN TILE) WAS CROSSING NORTH D41 APPEARS TO BE
ABANDONED
- 6" HILKEN BOTTOM FULL OF SOIL ALONG WITH OUTLET TILE BEING
CRACKED AND FULL OF SOIL (MAY NEED REPLACED SOMETIME) (GPS# 269)
STILL HAVE BEEHIVE INTAKE TO EAST IN NORTH DITCH OF CO HWY D41
(11TH & WEST OF CO HWY 527)

I Certify that the work

in this report was incorporated into this contract unless otherwise noted.

Observer's Signature:

Dean Penny

Date Prepared:

07/09/2020

Reviewed by:

Engineer

Date Reviewed

6844.5/DO#14 07/09/2020 CORN DRAINAGE #2 VERSUS 10 01-21-21, 0.073 ACRES
CORN DRAINAGE #3 (6844.5/DO#14 07/09/2020) 0.051 ACRES

- Layers:
- ☐ Address
 - ☒ Corporate Limits
 - ☒ Political Townships
 - ☐ Geographic Townships
 - ☐ Sections
 - ☐ Subdivision Annotation
 - ☐ Subdivisions
 - ☐ Lot Annotation
 - ☐ Lot Lines
 - ☒ Road Dimensions
 - ☐ Road ROW
 - ☐ Railroad Annotation
 - ☐ Railroads
 - ☐ Railroad ROW
 - ☐ Water
 - ☐ Parcel Dimensions
 - ☒ Parcels
 - ☐ Drainage Tiles
 - ☐ Drainage Districts
 - ☐ Cartography
 - ☐ Landuse
 - ☐ Soils
 - ☐ Enterprise Zones
 - ☐ Conservation Property
 - ☐ Structures
 - ☐ Garden Winds Turbines
 - ☐ Airport Protected
 - ☐ Airspace Surfaces
 - ☐ Two Mile Boundary
 - ☐ School Districts
 - ☐ Voting Districts
 - ☐ LOMR



Parcel ID	882234200003	Alternate ID	ID2840100000	Owner	Address/Vietandt, Ronald R - Trust	Vietandt, Carol Jean - Trust
Sec/Twp/Rng	34-88-22	Class	AD		15898 Highway D41	
Property Address	15898 CO HWY D41	Acreage	18.69		Alden IA 50006-9141	
District	HARDIN					
Other Tax Description						

13000
E1/2 NE NE
SEC34-T88N-R22W
(Note: Not to be used on legal documents)

Results:
Parcel ID - 882234200003
Alt ID - 2840100000
Address - 15898 CO HWY D41
Owner - Vietandt, Ronald R - Trust (Deed)
Trust (Deed)
Acreage - 18.69
View Report | Pictometry Imagery



PICTURE # 4088 SHOWING PILE OF DEBRIS PULLED OUT OF TILE
 (WHERE 8" CLAY TILE SECTION WAS ROLLED OUT IN SOUTH DITCH OF
 CO HWY D41) BEFORE IT WENT DOWNSTREAM AFTER PLUGGED
 TILE WAS OPENED



N ↑



PICTURE # 4089 IS LOOKING NE INSIDE TILE WYE ACCESS LID
 ON SOUTH SIDE OF CO HWY D41 1195.6' ± WEST OF E CO HWY S27
 SHOWING TILE IS STILL FLOWING GOOD AT THIS LOCATION

GPS # 88

(GPS#269)
 PICTURE# 4090 SHOWING 6" HICKEN BOTTOM WITH TOP COMPLETELY
 BROKE OFF AND FL COMPLETELY FULL OF SOIL WITH 6" CLAY
 TILE OUTLET BROKE AND COMPLETELY FULL OF SOIL. PICTURE
 IS LOOKING WEST IN NORTH DITCH OF CO HWY 041



PICTURE#4091 IS LOOKING EAST FROM GRAVEL DRIVE FOR
 20825 CO HWY 527 OFF OF CO HWY 041 SHOWING CORN DAMAGE
 OUT TO TILE REPAIR.

PICTURE# 4092 IS LOOKING NW FROM SOUTH DITCH
OF CO HWY D41 SHOWING CORN DAMAGE / OUT TO
TILE REPAIR.



↑
NW



→
W

PICTURE# 4093 IS LOOKING WEST SHOWING CORN DAMAGE /
TO TILE REPAIR - LOOKING TOWARDS 20825th CO HWY 527
GRAVEL DRIVE OFF CO HWY D41.

PICTURE # 4094 IS LOOKING SE TOWARDS CONWY041
 @ CORN DAMAGE / TO TILE REPAIR



PICTURE # 4095 IS LOOKING SE SHOWING 2.6 LF. PIECE
 OF 15" Ø DW HDPE NONPERF TILE IN PLACE FOR REPAIR
 WITH BEDDING ROCK UNDER TILE

PICTURE# 4096 IS LOOKING NW SHOWING FABRIC & MESH OVER NORTH & SOUTH TIE IN JOINTS FOR 14" CLAY TILE REPAIR NORTH OF COMWAY D41

615# 2.0'x3.5' FABRIC WITH 1.0'x4.0' WIRE MESH OVER JOINT BEFORE COLLARS POURED



615# 2.0'x3.5' FABRIC & 1.5'x4.0' WIRE MESH OVER JOINT BEFORE COLLARS POURED

07/09/2020
12:02



N

07/09/2020
12:03

PICTURE# 4097 IS LOOK NW SHOWING CREW POURING 3/4 CONCRETE COLLARS FOR 14" CLAY TILE REPAIR FROM QUIKRETE BAGS MIXED IN A CONCRETE MIXER THAT ATTACHES TO A SKIDLOADER.

PICTURE #4098 IS LOOKING SE DOWNSTREAM FROM GPS #251
 TOP 8" CLAY TILE (0.75' TOPTOFL) AFTER ANOTHER DAMAGED
 40' SECTION OF TILE WAS REMOVED. 2" MUD IN FL TO COMPLETELY
 FULL OF MUD. RON SAYS TILE HAS BEEN ABANDONED BUT



WILL CONNECT
 TOGETHER
 IN CASE
 ANY TILE
 UPSTREAM
 IS CONNECTED
 YES



07/09/2020
 12:34



GPS #251

TILE TOP 8" CLAY

0.75' TOPTOFL
 2" MUD IN FL
 (3.7' ± DEEP)



GPS #250

TILE TOP 8" CLAY

0.75' TOPTOFL
 2" MUD IN FL
 3.7' ± DEEP

07/09/2020
 12:43

PICTURE #4099 IS LOOKING SE SHOWING 2.1LF 8" OW HOPE PERP TILE
 IN PLACE WITH 2.0' X 3.0' FABRIC & 1.5' X 2.0' 6" X 6" WIRE MESH
 OVER JOINTS BEFORE 3/4 CONCRETE COLLAR POURED

PICTURE # 4100 IS LOOKING SW AT FINISHED $\frac{3}{4}$ CONCRETE COLLAR FOR 8" CLAY TILE REPAIR 55'± NORTH OF E HWY D41. CREW USED 8-60LB QUIKRETE HIGH STRENGTH CONCRETE BAGS.



PICTURE #4101 IS LOOKING NW AT FINISHED $\frac{3}{4}$ CONCRETE COLLAR FOR 14" CLAY TILE REPAIR 168'± NORTH OF E HWY D41. CREW USED 18-60LB QUIKRETE HIGH STRENGTH CONCRETE BAGS FOR CONCRETE COLLARS.

PICTURE #4102 IS LOOKING NW IN SOUTH DITCH OF CO HWY
 041 9.5' ± WEST OF WEST RIM OF BEEHIVE INTAKE
 SHOWING 8" CLAY TILE SECTION ROLLED BACK IN PLACE.



GPS#255
 TOP 8" CLAY
 TILE
 (0.74' TOP TO FL)
 3.1' ± DEEP

NA

GPS#254
 TOP 8" CLAY
 TILE
 (0.74' TOP TO FL)



PICTURE #4103 IS LOOKING UPSTREAM INSIDE 8" CLAY TILE
 WITH ABOUT 1" FLOW AT GPS #302 (TOP 8" CLAY TILE) (0.72' TOP
 TO FL)

PICTURE #4104 IS LOOKING NW SHOWING 2.0'X2.0' ENGINEERING FABRIC & 1.5'X20' 6"X6" SQUARE WIRE MESH OVER JOINT FOR 8" CLAY TILE SECTION ROLLED BACK INTO PLACE BEFORE $\frac{3}{4}$ CONCRETE COLLAR POURED.



PICTURE #4105 IS LOOKING DOWN STREAM INSIDE 8" CLAY TILE WITH ABOUT 2"± OF SLOW WATER FLOW.

PICTURE # 4106 IS LOOKING NORTH SHOWING $\frac{3}{4}$ " CONCRETE COLLAR POURED FOR 8" CLAY TILE SECTION ROLLED BACK INTO PLACE 9'5" WEST OF BEHIND ENTRANCE. CREW USED 5-60LB BAGS OF QUIKRETE HIGH STRENGTH / GSH255



CONCRETE ON COLLAR

GSH255



PICTURE # 4107 IS LOOKING NORTH SHOWING BEDDING ROCK BACKFILLED AROUND $\frac{3}{4}$ " CONCRETE COLLAR IN SOUTH DITCH OF HWY D41 FOR 8" CLAY TILE SECTION ROLLED BACK INTO PLACE.

PICTURE # 4108 IS LOOKING SW SHOWING 8" CLAY TILE REMOVED WITH BEDDING ROCK IN PLACE TO TIE IN 5" SW HOPE PERF TILE LINES INTO 8" CLAY TILE LATERAL



PICTURE # 4109 IS LOOKING WEST AT 8" DW HOPE NONPERF TILE INSTALLED WITH A 8" x 8" x 5" HOPE TEE EAST & WEST & 5" HOPE PERF TILE INSTALLED INTO TEE WITH 5" x 5" x 4" HOPE TEE INSTALLED ON IT WITH BEDDING ROCK UNDER CONNECTION.

PICTURE #4110 IS LOOKING WEST AT NORTH & SOUTH TIES
IN CONNECTIONS ON 8" LATZ BEFORE 3/4 CONCRETE COLLARS
POURED

GPS# 307 TOP HOPE 5"X5"X4" HOPE TEE



GPS#304
TOP HOPE
8"X8"X5"
TEE



GPS#267
TOP 8" CLAY
0.74' TOP TO FL
1.5' X 1.5'
6" X 6"
WIRE MESH
2.0' X 2.0'
FABRIC
OVER JOINT
BEFORE 3/4
CONCRETE
COLLAR
POURED

GPS#305
TOP HOPE
8"X8"X5"
TEE

GPS #302
TOP 8" CLAY 0.88' TOP TO FL
1.5' X 1.5' 6" X 6" WIRE MESH
& 2.0' X 2.0' FABRIC OVER
JOINT BEFORE 3/4 CONCRETE COLLAR POURED



GPS#263
TOP 5" HOPE
PERF TILE
0.43' TOP TO FL



302

PICTURE #4111 IS LOOKING NW SHOWING 3/4 CONCRETE COLLARS
POURED AT CONNECTIONS FOR 5" HOPE SW PERF TILE TIE
INS. CREW USED 17-60 LB BAGS OF QUIKRETE HIGH STRENGTH

PICTURE #4112 IS LOOKING E EAST SHOWING $\frac{3}{4}$ CONCRETE COLLARS POWRED (USED 17 QUIKRETE HIGH STRENGTH CONCRETE BAGS



GPS# 264
TOP 4" HOPE
PERF
0.34' TOP TO FL
(2.9' ± DEEP)

GPS# 303 TOP 5"
HOPE PERF TILE
0.43' TOP TO FL

4" HOPE INTERNAL SNAP COUPLER
GPS# 264
TOP 4" HOPE PERF (2.9' ± DEEP)
0.34' TOP TO FL



N ↓

6' 6" LF OF
4" HOPE SW
PERF TILE

GPS# 303
TOP 5" HOPE
PERF TILE
0.43' TOP TO FL

GPS# 302 TOP OF
5" 85" x 4" HOPE
TEE

07/09/2020
15:20

21' LF OF 5" HOPE PERF TILE

PICTURE # 4113

IS LOOKING SE SHOWING 4" HOPE PERF TILE TIED INTO 5" HOPE PERF TILE TIED INTO 8" HOPE NOW PERF LAT 2 WITH $\frac{3}{4}$ CONCRETE COLLARS (USED 17 QUIKRETE CONCRETE BAGS)

PICTURE #4114 IS LOOKING NE SHOWING 5" HDPE SW PERF TILE TIE IN CONNECTION INTO 8" HDPE LATERAL #2.

GPS#263 TOP 5" HDPE PERF TILE
0.43' TO TOP OF FL



5" HDPE
INTERNAL
SNAP COUPLER

3.0 LF OF
5" HDPE
PERF TILE

GPS# 304 TOP 8" x 8" x 5"
HDPE TEE



GPS#263
5" HDPE
SW PERF
TILE

GPS#304 TOP 8" x 8" x 5"
HDPE TEE

PICTURE #4115

IS LOOKING SE AT 5" HDPE SW PERF TILE TIE IN CONNECTIONS $\frac{3}{4}$ CONCRETE COLLARS. (USED 9-6016 BAGS OF QUIKRETE HIGH STRENGTH CONCRETE)

PICTURE # 4116 IS LOOKING EAST SHOWING HOLE IN TOP OF 8" HOPE NONPERF TILE EXCAVATED BY ANOTHER CONTRACTOR AND LEFT OPEN 322'± SOUTH OF COMWY 041 & 9.6'±



EAST OF
EAST ROW
FENCE
COMWY
S-27
IN WETLAND
AREA



GPS #311
TOP 8" HOPE
NONPERF

07/09/2020
15:51



07/09/2020
16:00

PICTURE # 4117 IS LOOKING DOWNSTREAM (FROM GPS #311) INSIDE 8" TILE SHOWING CHANGE OF MATERIAL. TILE LOOKS GOOD SHAPE WITH WATER LEVEL AT 4" (SLOW FLOW). ALSO FLOWLINE HAS SOFT MUCK BUT SHOULD FLUSH OUT NOW TILE OPEN.

PICTURE # 4119 IS LOOKING UPSTREAM (FROM GPS #311) INSIDE 8" TILE
 SHOWING TILE IN GOOD SHAPE BUT CHANGED TO CLAY WITH
 WATER LEVEL AT 4" (SLOW FLOW). ALSO FLOWLINE HAS SOFT MUCK
 BUT SHOULD FLUSH OUT NOW THAT IT IS
 OPEN,



GPS #311

N

PICTURE # 4120 IS LOOKING EAST SHOWING FABRIC &
 1.0' X 1.5' WIRE MESH OVER HOLE BEFORE $\frac{3}{4}$ CONCRETE
 COLLAR POURED OVER HOLE IN TILE.

PICTURE #4121 IS LOOKING AT FINISHED $\frac{3}{4}$ CONCRETE COLLAR OVER HOLE IN 8" SW HOPE NON PERF TILE. CREW USED 4 - 60 LB BAGS OF QUIKRETE HIGH STRENGTH CONCRETE ON COLLAR



PICTURE #4122 IS LOOKING NW SHOWING 4" SW HOPE PERF TILE THAT NEEDS REPLACED AFTER CUTTING TILE WHILE EXCAVATING TO CHECK LAT #2 TILE FLOW STATUS ON EAST SIDE OF CO HWY S-27.

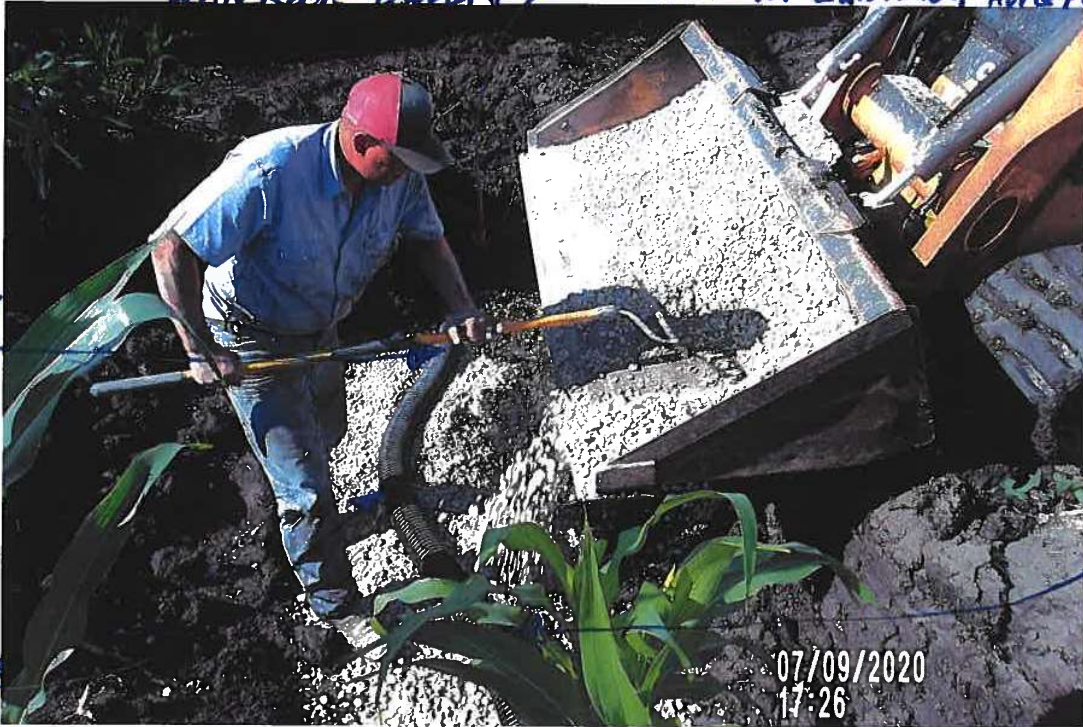
PICTURE # 4123 IS LOOKING NORTH SHOWING 9.8 LF
 OF 4" HDPE SW PERF TILE INSTALLED WITH 4" HDPE
 INTERNAL COUPLERS AND OFF TO SIDE SOME FOR FIRMER GROUND & BEDDED
 WITH ROCK UNDER. GPS # 312 TOP EXISTING 4" HDPE PERF TILE

(0.32' TOP TO FL
 GRADE ON
 TILE
 2.02%

↑ N

GPS # 313
 TOP 4" HDPE
 PERF TILE
 0.38' TOP TO
 FL

GPS # 316
 TOP 4" HDPE
 PERF TILE
 0.38' TOP TO FL



GPS # 317
 TOP 4" HDPE
 PERF TILE
 0.38' TOP TO FL

GPS # 313 TOP EXISTING 4" HDPE
 PERF TILE 0.36' TOP TO FL



↑

PICTURE # 4124 IS LOOKING NORTH WEST SIDE OF CO HWY 327
 SHOWING 4" HDPE PERF TILE REPAIR BEDDED WITH ROCK.

PICTURE#4125 IS LOOKING NORTH SHOWING DITCH WEST SIDE COMWY S-27 BACK FILLED & GRADED.



PICTURE#4126 IS LOOKING WEST FROM COMWY S27 ABOUT 330'± SOUTH E COMWY D41 SHOWING 4" HDPE SUPER TILE REPAIR BACK FILLED & GRADED. ALSO SHOWS 0.043 AC CORN DAMAGE (GPS# 320 - #324) DURING REPAIR.

PICTURE# 4127 IS LOOKING EAST SOUTH OF SOUTH
ROW OF COMWY D41 SHOWING 5" HDPE PERF TILE
THE INS BEDDED WITH ROCK TO TOP OF TILE



PICTURE# 4128 IS LOOKING NW SHOWING NORTH 14" CLAY TILE EXPOSED TRENCH WITH TILE BEDDED WITH ROCK TO TOP OF TILE

PICTURE# 4129 IS LOOKING EAST IN NORTH DITCH OF
CO HWY D41 SHOWING DITCH STILL NEEDS GRADED.



PICTURE# 4130 IS LOOKING EAST SHOWING PILE OF
EXTRA SOIL THAT WAS USED TO BACKFILL (14" CLAY TILE NORTH OF
TILE TRENCH. CORN STALKS WERE MIXED WITH SOIL CREATING CO HWY D41)
VOIDS AND EXTRA SOIL AREA WILL SETTLE DUE TO THIS.

PICTURE#4131 IS LOOKING SE SHOWING 5" HOPE TIE IN
TRENCH THAT NEEDS BACK FILLED YET. PICTURE
SHOWS 0.051 ACRES CORN DAMAGE DURING REPAIR



(GPS#331 TO
GPS#330)

N
↙

[illegible]

CONSTRUCTION ENGINEERING
OBSERVATION REPORT

DATE:

07/13/2020

PROJECT NUMBER:

HARDIN DD WO# 292

DAYS OF WEEK:

S M T W T F S

COUNTY, ROUTE, ROAD:

6844.5 DD#14
538.5' ± EAST OF CO HWY
527 & 42 ± SOUTH OF E CO HWY D41

SHEET NO.

1 OF 2

LOCATION:

35-88-22. NW 1/4 NW 1/4. INVESTIGATE
BLOWOUT SOUTH DITCH EAST OF
18" BEEHIVE INTAKE

UPPER 50'S TO MID 80'S
SUNNY & BREEZY

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB
NAME, ITEM NO. AND LOCATION 07/10/2020 PERRY AND TR 340 TRACKED SKIDLOADER
FINISHED BACKFILLING REST OF HOLES LEFT OPEN 2 HOURS

7:15 A.M. ADAM CALLED OBSERVER THAT HE WILL BE ON SITE

AROUND 10:00 A.M. TO REPAIR BLOWOUT IN SOUTH DITCH

OF D41 EAST OF BEEHIVE INTAKE

7:20 A.M. OBSERVER NOTIFIED LEE THAT ADAMS CREW WOULD BE
WORKING TODAY

8:40 A.M. OBSERVER LEFT OFFICE FOR JOBSITE

9:10 A.M. OBSERVER ARRIVED ON SITE AND SET GPS BASE ON GPS #23

3/4" Ø IRON REBAR 0.2' ± DEEP SW CORNER OF FIELD DRIVE

IN SE QUADRANT OF CO HWY D-41 & CO HWY 5-27.

9:40 A.M. OBSERVER HAD GPS BASE SET UP AND CHECKED INTO

GPS #21 SURVEY MARK NAIL FLUSH IN ACC IN CO HWY 5-27

ABOUT 2632' ± SOUTH OF E CO HWY D41 WITH BOTH HORIZONTAL

AND VERTICAL POSITIONS CHECKING GOOD

9:45 A.M. OBSERVER STARTED TO LOOK FOR REPAIR AREA.

9:50 A.M. PERRY ARRIVED ON SITE.

10:00 A.M. ADAM ARRIVED ON SITE WITH KOLBELCO SK85 CS MINI

EXCAVATOR & CASE TR340 TRACKED SKIDLOADER FOR EQUIPMENT

PERRY WENT TO HELP ADAM UNLOAD EQUIPMENT.

10:01 A.M. PICTURE #4138 & 10:02 A.M. PICTURE #4139 SEE PICTURE FOR DETAILS

10:17 A.M. PICTURE #4140 SEE PICTURE FOR DETAILS.

10:20 A.M. OBSERVER SHOT CULVERT, BEEHIVE INTAKE IN NORTH

AND SOUTH DITCH OF CO HWY D41 & SINK HOLE IN NORTH

SHOULDER OF CO HWY D41.

10:25 A.M. UPON FURTHER INVESTIGATION SINK HOLE IN NORTH SHOULDER

IS DIRECTLY ABOVE 18" RCP ABOUT 11.7' ± SOUTH OF NORTH

END OF RCP SO SINK HOLE IS A CULVERT ISSUE (COUNTY ROAD
DEPARTMENT)

I Certify that the work described in this report was incorporated into this contract unless otherwise noted.

Observer's Signature:

Adam Perry

Date Prepared:

07/13/2020

Reviewed by:

☐ Engineer

Date Reviewed

CONSTRUCTION ENGINEERING
OBSERVATION REPORT

DATE:

07/13/2020

PROJECT NUMBER:

HARROWDOWN #292

DAYS OF WEEK:

S M T W T F S

COUNTY, ROUTE, ROAD:

6844.5 DDH14
538.5' ± EAST OF COMWY
527 & 42' SOUTH OF ECHWYD1

SHEET NO.

2 OF 2

LOCATION:

35-88-22 NW 1/4 NW 1/4 INVESTIGATE
BLINDOUT SOUTH DITCH EAST OF
18" BEEHIVE INTAKE

UPPER 50'S TO MID 80'S
SUNNY & BREEZY

JOB # 68440014 SURVE

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB NAME, ITEM NO. AND LOCATION

11:06 AM PICTURE #4141 & 11:08 AM PICTURE #

4142. SEE PICTURE FOR DETAILS.

11:30 A.M. CREW LEFT SITE TO GET SUPPLIES FOR REPAIR.

11:32 AM PICTURE #4144, 11:45 A.M. PICTURE #4145, 11:46 AM
PICTURE #4147 SEE PICTURE FOR DETAILS.

1:10 PM CREW BACK ON SITE WITH SUPPLIES

1:46 PM PICTURE #4148, 1:56 PICTURE #4149, 1:59 PICTURE #4150 SEE PICTURE FOR DETAILS.

2:15 PM PICTURE #4151 & 2:35 PICTURE #4152 SEE PICTURE FOR DETAILS.

2:30 PM OBSERVER AND CREW LEFT SITE.

QUANTITIES

PERRY, 9:50 - 11:30 1:10 - 2:30 3 HOURS
ADAM 11:30 - 1:10 1 1/2 HOURS GETTING SUPPLIES

KOLBELLO SK85CS MIN EXCAVATOR 3 HOURS

CASETR 340 TRACKED SKID LOADER 3 HOURS

2.4 LF OF 6" HDPE SW PERF TILE, 6" HDPE INTERNAL SNAP COUPLER

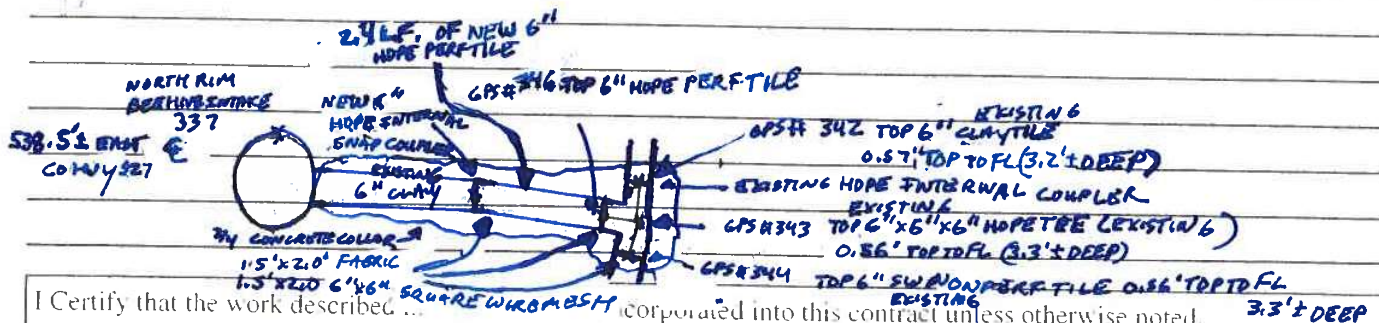
3 - 1.5' X 2.0' ENGINEER FABRIC & 3 - 2.0' X 1.5' 6" X 6" SQUARE

WIRE MESH, 8.5 - 60 LB BAGS QUIKRETE HIGH STRENGTH CONCRETE
MIX

OUTLET DRY
TILE

CO-MAN

340 18" BEEHIVE N RIM
341 TOP 18" ACP 1.71' TOP TO FL
339 63 BLINDOUT SHOULDER
041
338 TOP 18" CMP 1.54' TOP TO FL



I Certify that the work described... incorporated into this contract unless otherwise noted.

Observer's Signature:

Dianna Penning

Date Prepared:

07/13/2020

Reviewed by:

Engineer

Date Reviewed

PICTURE# 4138 IS LOOKING EAST SHOWING SMALL
SINKHOLE ON EAST SIDE OF BEEHIVE INTAKE PER RANDY'S REPORT
AREA LOOKED LIKE IT HAD BEEN EXCAVATED AT ONE TIME

GPS# 337
18" BEEHIVE
INTAKE
N RIM



DIP IN
GRAVEL
SHOULDER
WITH
FRESH
ROCK

PICTURE# 4139 IS LOOKING WEST ON NORTH SHOULDER
OF CD HWY 41 SHOWING SINK HOLE PER RANDY'S REPORT
WITH A LITTLE DIP IN ALL 2 GRAVEL AND APPEARS SOMEONE HAS
PUT FRESH ROCK IN SINK HOLE.

PICTURE# 4140 IS LOOKING NORTH TOWARDS CO HWY D41
 SHOWING 18" CMP OUTLET FOR CULVERT UNDER CO HWY D41
 & 18" BEEHIVE INTAKE IN SOUTH DITCH OF CO HWY D41 WITH SINKHOLE
 GPS# 337 NRM BEEHIVE INTAKE / GPS# 338 TOP 18" CMP TO EAST, 1.54' TO TOP FL

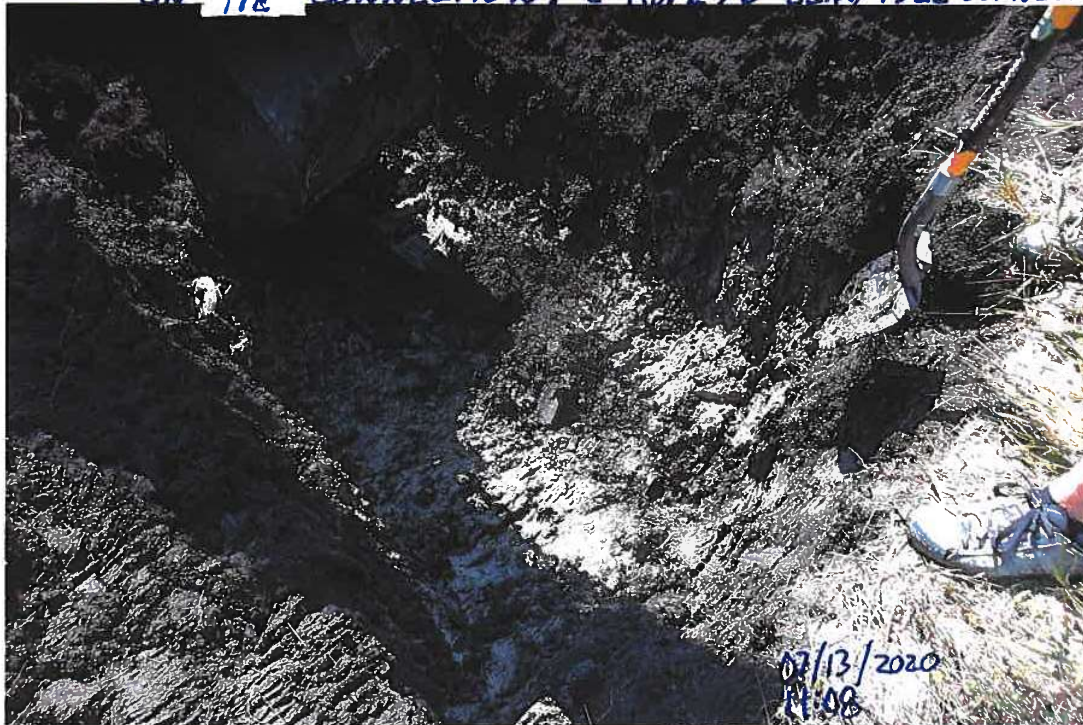


SINKHOLE
 EAST OF
 BEEHIVE
 INTAKE

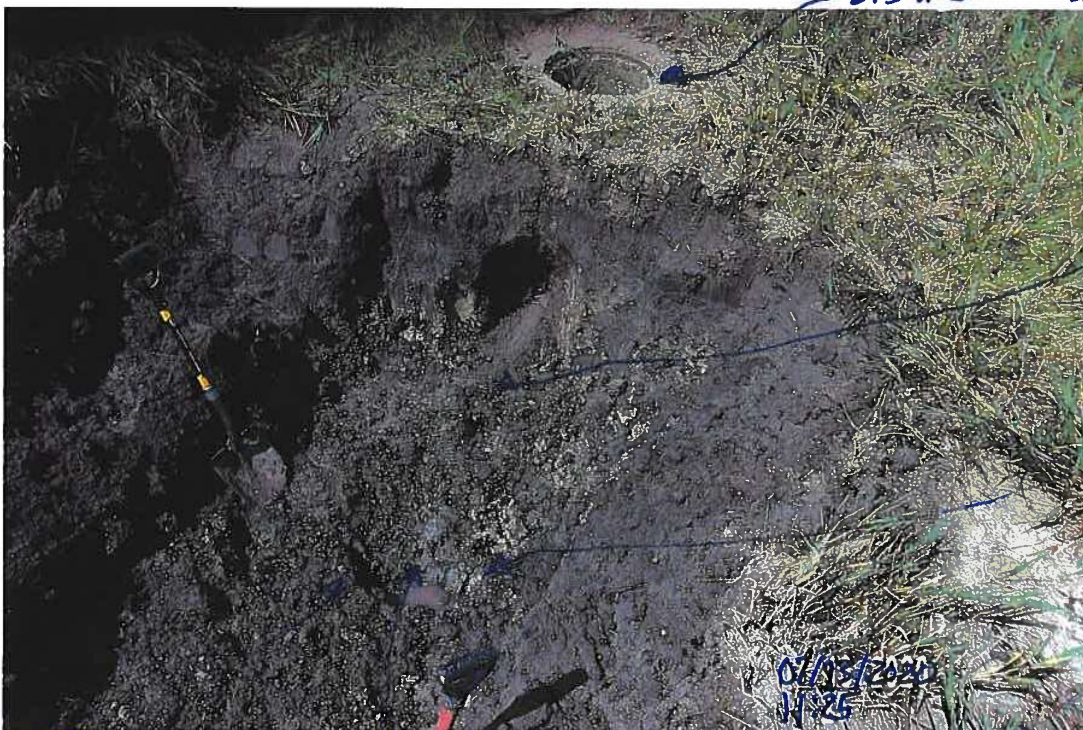


PICTURE# 4141 IS LOOKING EAST ON EAST SIDE OF
 BEEHIVE INTAKE SHOWING 6" HDPE PERF TILE CONNECTION
 TO 6" CLAY TILE OUTLET EAST FROM BEEHIVE INTAKE,

PICTURE# 4142 IS LOOKING SE SHOWING 6" HDPE PERF
TILE CONNECTION TO 6" CLAY TILE EAST OF BEEHIVE
INTAKE. PICTURE SHOWS CREW EXCAVATING TO CHECK
ON TILE CONNECTION. 6" HDPE / 6" CLAY TILE CONNECTION CLAY
TILE
BROKE
& WILL
NEED
REPLACED.



GPS# 337 18" BEEHIVE INTAKE
N RIM



GPS# 345
TOP 6" CLAY
TILE (0.57'
TOP TO FL)
2.65' DEEP

GPS# 342
TOP 6" CLAY
TILE
(0.57' TOP TO FL)
3.72' ± DEEP

07/13/2020
11:25

GPS# 344
TOP 6" SW HDPE
NON PERF TILE
(0.56' TOP TO FL)
(3.3' ± DEEP)

GPS# 343 TOP 6" x 6" x 6" HDPE TEE (0.56' TOP TO FL) (3.3' ± DEEP)

PICTURE# 4143 IS LOOKING AT 6" x 6" x 6" HDPE TEE CONNECTION
WITH 6" HDPE / 6" CLAY CONNECTION DAMAGE AND NEEDS REPLACED

PICTURE # 4144 IS LOOKING WEST SHOWING 6"x6"x6" HOPE TEE CONNECTION & 6" HOPE PERFTILE / 6" CLAY TILE WITH ISSUE BETWEEN PLASTIC & CLAY TILE



GPS # 344 TOP 6" HOPE PERFTILE
GPS # 343 TOP 6"x6"x6" HOPE (0.56' TOP TO FL)
GPS # 342 TOP 6" CLAY (0.57' TOP TO FL)



PICTURE # 4145 IS LOOKING SW ON SOUTH SIDE OF HWY 041 SHOWING DITCH GRADED TO INTAKE & TRENCH BACKFILL & GRADED. EXTRA SOIL PILED UP. BLEND EXTRA SOIL AROUND

PICTURE #4147 IS LOOKING WEST SHOWING NORTH DITCH
GRADED ABOVE TRENCH



GPS# 345
TOP 6" CLAY
TILE
(0.57'
TOPTD
FL.)



GPS# 346
TOP 6" HDPE
PERF TILE

6" HDPE
INTERNAL
COUPLER

2.4 LF
OF 6" SUPERF
TILE

PICTURE # 4148

IS LOOKING NE SHOWING 6" HDPESM PERF TILE
SLIDE INTO TEE & TIED UPSTREAM INTO 6" CLAY TILE WITH
6" HDPE INTERNAL COUPLER.

PICTURE# 4149 IS LOOKING SW SHOWING $\frac{3}{4}$ CONCRETE COLLAR
POURED ON BEEHIVE INTAKE TILE OUTLET TIE IN WITH
3' - 20X15' 6"x6" WIRE MESHES OVER JOINTS & 3' - 1.5' X 20'
FIBERGLASS FABRIC OVER JOINTS WITH 5-60 LB BAGS OF HIGH STRENGTH
CONCRETE



337
N/A
BEEHIVE
INTAKE



PICTURE# 4150 IS LOOKING SE SHOWING: $\frac{3}{4}$ CONCRETE COLLAR
POURED OVER BEEHIVE OUTLET TILE TIE IN CONNECTION.

PICTURE# 4151 IS LOOKING WEST SHOWING DITCH
GRADED TO BEEHIVE INTAKE



PICTURE# 4152 IS LOOKING NORTH SHOWING TRENCH
BACKFILLED EAST OF EAST ROW LHWY 527 & SOUTH D41
IN WETLAND DUG BY PREVIOUS CONTRACTOR

Inspection Report

Produced on behalf of – HARDIN CO

Site location – ,

Survey reference –

Date – 080720

WILLIAMS UNDERGROUND SVCS.

102 INDUSTRIAL DRIVE, ACKLEY, IOWA

50601,

641-485-3925

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1	Drain / Sewer Survey	Error! Bookmark not defined.
1.1	Site information	Error! Bookmark not defined.
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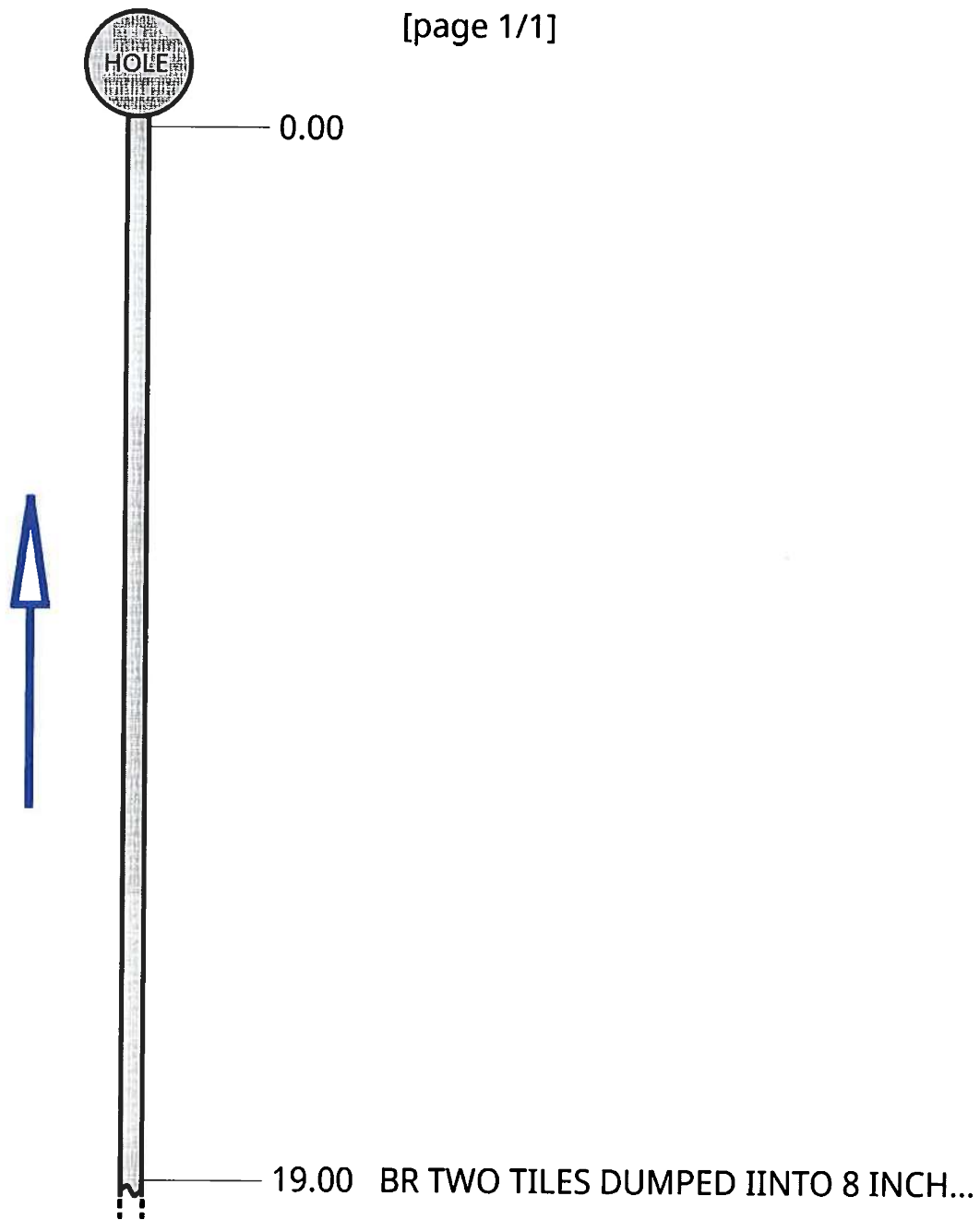
1 Drain / Sewer Survey

1.1 Survey Header


1.1.1	Surveyed by (Operator)	PAUL
1.1.2	Contract no.	
1.1.3	Job no.	
1.1.4	Catchment (Drainage area)	DD14
1.1.5	Division	LAT 2
1.1.6	District	
1.1.7	Pipeline length ref	1000
1.1.8	Date	080720
1.1.9	Time	13:16
1.1.10	Location	
1.1.11	Start manhole no.	HOLE #254
1.1.12	Start depth	m
1.1.13	Start cover level	
1.1.14	Start invert level	
1.1.15	Finish manhole no.	
1.1.16	Finish depth	m
1.1.17	Finish cover level	
1.1.18	Finish invert level	
1.1.19	Use of Drain	
1.1.20	Direction	U
1.1.21	Size 1 (diameter/height)	8mm
1.1.22	Size 2 (width)	mm
1.1.23	Shape	C
1.1.24	Material	VC
1.1.25	Lining	
1.1.26	Pipe length	m
1.1.27	Total length	
1.1.28	Year laid	
1.1.29	Video cassette number	
1.1.30	Comments: General	
1.1.31	Purpose	
1.1.32	Sewer category	
1.1.33	Pre-cleaning	
1.1.34	Weather	
1.1.35	Location code	
1.1.36	Further location details	

1.2 Diagram

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1.3 Observations

Video Ref	Dist (ft)	Cont Defect	Code	Photo Ref	Diameter/ Dimension	Clock		Intrusion		Remarks
						At	To	%	mm	
0:00:00	19.0		BR	2020_07_08- 13_30_01_583.jpg 	4	09	03			TWO TILES DUMPED IINTO 8 INCH CLAY TILE

1.4 Photographs

BR 2020_07_08-13_30_01_583.jpg



Inspection Report

Produced on behalf of – HARDIN CO

Site location – ,

Survey reference – W/O 292

Date – 080720

WILLIAMS UNDERGROUND SVCS.

102 INDUSTRIAL DRIVE, ACKLEY, IOWA

50601,

641-485-3925

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 1.6 *Photographs*.....**Error! Bookmark not defined.**

2 **Drain / Sewer Survey**Error! Bookmark not defined.

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 2.3 *Survey Details***Error! Bookmark not defined.**

 2.4 *Drain / Sewer Diagram***Error! Bookmark not defined.**

 2.5 *Observations***Error! Bookmark not defined.**

 2.6 *Photographs*.....**Error! Bookmark not defined.**

1 Drain / Sewer Survey

1.1 Survey Header

1.1.1	Surveyed by (Operator)	PAUL
1.1.2	Contract no.	6844.5
1.1.3	Job no.	W/O 292
1.1.4	Catchment (Drainage area)	DD14
1.1.5	Division	
1.1.6	District	LAT 2
1.1.7	Pipeline length ref	1000
1.1.8	Date	080720
1.1.9	Time	13:39
1.1.10	Location	
1.1.11	Start manhole no.	
1.1.12	Start depth	m
1.1.13	Start cover level	
1.1.14	Start invert level	
1.1.15	Finish manhole no.	
1.1.16	Finish depth	m
1.1.17	Finish cover level	
1.1.18	Finish invert level	
1.1.19	Use of Drain	
1.1.20	Direction	D
1.1.21	Size 1 (diameter/height)	8mm
1.1.22	Size 2 (width)	mm
1.1.23	Shape	C
1.1.24	Material	VC
1.1.25	Lining	
1.1.26	Pipe length	m
1.1.27	Total length	
1.1.28	Year laid	
1.1.29	Video cassette number	
1.1.30	Comments: General	
1.1.31	Purpose	
1.1.32	Sewer category	
1.1.33	Pre-cleaning	
1.1.34	Weather	
1.1.35	Location code	
1.1.36	Further location details	

1.2 Observations

Video Ref	Dist (ft)	Cont Defect	Code	Photo Ref	Diameter/ Dimension	Clock		Intrusion		Remarks
						At	To	%	mm	

Inspection Report

Produced on behalf of – HARDIN CO

Site location – ,

Survey reference – W/O 292

Date – 080720

WILLIAMS UNDERGROUND SVCS.

102 INDUSTRIAL DRIVE, ACKLEY, IOWA

50601,

641-485-3925

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1.6 Photographs.....*Error! Bookmark not defined.*

2 Drain / Sewer SurveyError! Bookmark not defined.

2.1 Site information*Error! Bookmark not defined.*

2.2 Drain / Sewer Details*Error! Bookmark not defined.*

2.3 Survey Details*Error! Bookmark not defined.*

2.4 Drain / Sewer Diagram*Error! Bookmark not defined.*

2.5 Observations*Error! Bookmark not defined.*

2.6 Photographs.....*Error! Bookmark not defined.*

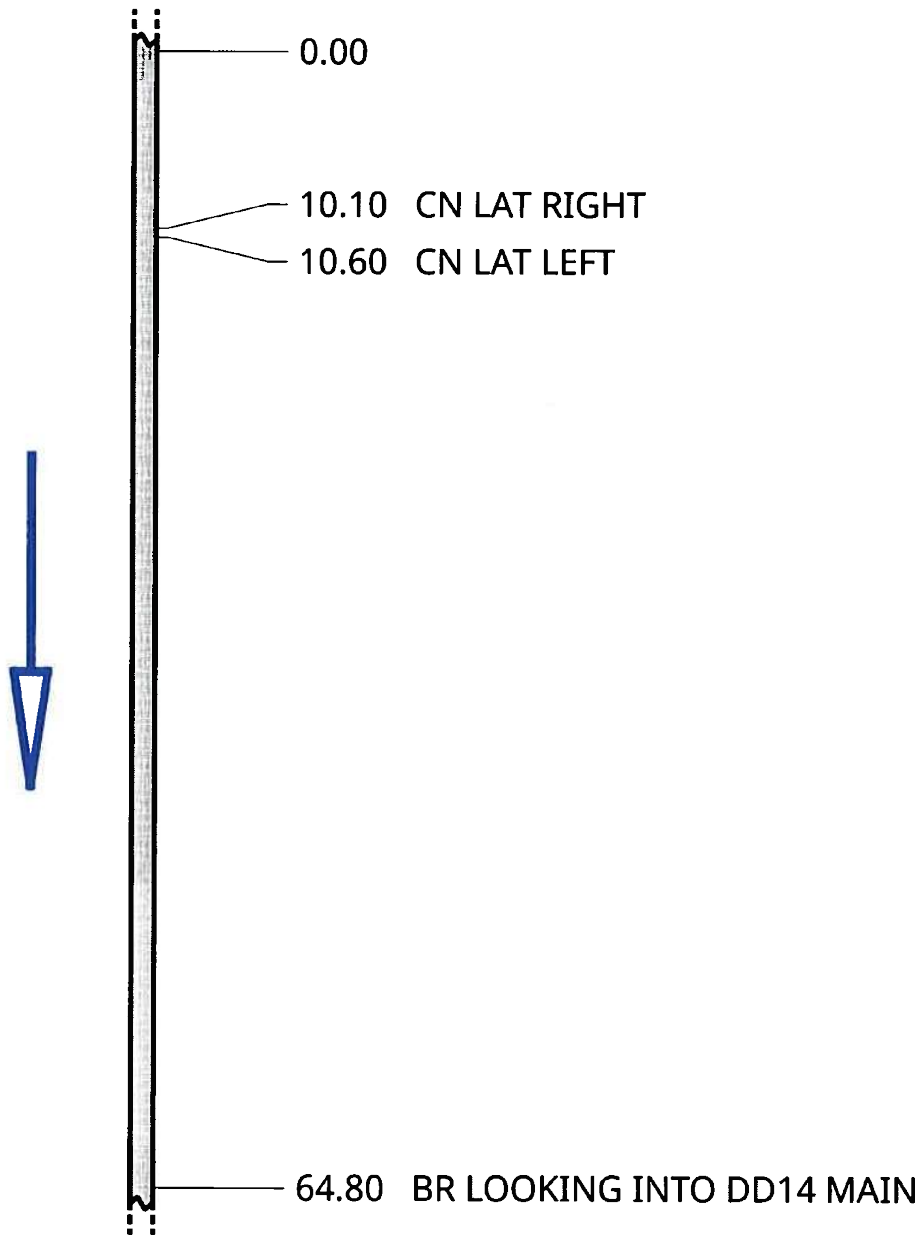
1 Drain / Sewer Survey

1.1 Survey Header




1.1.1	Surveyed by (Operator)	PAUL
1.1.2	Contract no.	66844.5
1.1.3	Job no.	W/O 292
1.1.4	Catchment (Drainage area)	DD 14
1.1.5	Division	LAT 2
1.1.6	District	
1.1.7	Pipeline length ref	1000
1.1.8	Date	080720
1.1.9	Time	14:00
1.1.10	Location	HOLE 255
1.1.11	Start manhole no.	
1.1.12	Start depth	m
1.1.13	Start cover level	
1.1.14	Start invert level	
1.1.15	Finish manhole no.	
1.1.16	Finish depth	m
1.1.17	Finish cover level	
1.1.18	Finish invert level	
1.1.19	Use of Drain	
1.1.20	Direction	D
1.1.21	Size 1 (diameter/height)	8mm
1.1.22	Size 2 (width)	mm
1.1.23	Shape	C
1.1.24	Material	VC
1.1.25	Lining	
1.1.26	Pipe length	m
1.1.27	Total length	
1.1.28	Year laid	
1.1.29	Video cassette number	
1.1.30	Comments: General	
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1.1.34	Weather	
1.1.35	Location code	
1.1.36	Further location details	

1.2 Diagram

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1.3 Observations

Video Ref	Dist (ft)	Cont Defect	Code	Photo Ref	Diameter/ Dimension	Clock		Intrusion		Remarks
						At	To	%	mm	
0:00:00	10.1		CN	2020_07_08-14_04_12_399.jpg 	4	02				LAT RIGHT
0:00:00	10.6		CN	2020_07_08-14_07_01_027.jpg 	4	08				LAT LEFT
0:03:32	64.8		BR	2020_07_08-14_13_23_027.jpg 	?					LOOKING INTO DD14 MAIN

1.4 Photographs

CN 2020_07_08-14_04_12_399.jpg



CN 2020_07_08-14_07_01_027.jpg



BR 2020_07_08-14_13_23_027.jpg



- 1,3603240.750,4962602.710,1176.370,HC GPSMON 8026
- 2,3603240.750,4962602.710,1176.370,Autonomous Setup
- 3,3618688.957,4946916.051,1169.764,HC GPS 8016
- 4,3605705.123,4952677.153,1135.516,TOP 12"VCP JOINT 1.06'TOP TO FL
- 5,3606415.768,4950139.889,1135.574,GS TILE BLOWOUT N SIDE
- 6,3606436.207,4950151.534,1135.854,GS TILE BLOWOUT N SIDE
- 7,3606433.594,4950154.282,1135.676,GS TILE BLOWOUT N SIDE
- 8,3606806.866,4950366.902,1140.171,FENCE E-W
- 9,3606807.989,4950160.633,1143.206,FENCE E-W
- 10,3606808.684,4950069.741,1147.297,FENCE E-W
- 11,3606418.172,4950139.776,1130.823,TOP 15" VCP TILE JOINT (1.35'TOFTO FL)
- 12,3606416.527,4950138.554,1130.832,TOP 15" TILE (1.35' TOP TO FL
- 13,3606433.374,4950151.026,1130.931,TOP 15" TILE (1.30' TOP TO FL
- 14,3606431.767,4950149.817,1130.912,TOP 15" TILE (1.35' TOP TO FL
- 15,3606430.189,4950148.568,1130.898,TOP 15" TILE (1.33' TOP TO FL
- 16,3605706.138,4952688.229,1139.481,GS
- 17,3605704.925,4952670.361,1139.347,GS
- 18,3605480.270,4952811.838,1148.799,FENCE E-W
- 19,3605485.212,4952217.754,1137.030,FENCE E-W
- 20,3608115.762,4952199.343,1155.903,MAG NAIL
- 21,3605484.284,4952146.915,1142.370,SURVEY MARK NAIL
- 22,3606802.079,4952129.144,1147.964,FENCE S&W
- 23,3608053.507,4952267.497,1152.132,CPT 34 IR 0.2'D
- 24,3607989.169,4950926.173,1140.628,TOP EXISTING 15"CMP
- 25,3608049.542,4950961.076,1141.017,TOP 14" VCP (1.17'TOFTOFL)
- 26,3608053.288,4950963.091,1140.699,TOP 14" VCP (0.96'TOFTOFL)
- 27,3607983.653,4950923.063,1140.661,TOP 14" VCP (1.21'TOFTOFL)
- 28,3608080.752,4950995.945,1141.522,TOP EXISTING 15" SW HDPE TILE
- 29,3608083.253,4950994.402,1141.500,TOP 6"SW CPP (0.49'TOFTOFL)
- 30,3608092.799,4951005.494,1141.648,TOP 15" CMP (1.23' TOP TO FL)
- 31,3608077.605,4950993.300,1145.298,GS
- 32,3608060.368,4950969.312,1145.175,GS
- 33,3608037.548,4950953.803,1145.213,GS
- 34,3608015.699,4950941.810,1145.088,GS
- 35,3607980.101,4950921.322,1144.873,GS
- 36,3608000.481,4950932.767,1140.940,TOP 15" HDPE PERFTILE (0.67'NTOBELL)(1.35'TOFTO FL)
- 37,3608084.607,4950949.402,1145.388,GS FIELD/DITCH
- 38,3608084.599,4950983.584,1145.143,GS FIELD/DITCH
- 39,3608082.212,4951024.307,1146.627,GS FIELD/DITCH
- 40,3608100.133,4950999.532,1145.416,FL 4'*2'TALL CONC BOX
- 41,3608089.162,4950987.889,1148.373,TOP 6" HICKENBOTTOM INTAKE (6.31' TOP TO FL)
- 42,3608017.662,4950942.112,1141.078,TOP 15" HDPE PERF TILE (1.35'TOFTO FL)
- 43,3608034.233,4950952.510,1141.216,TOP 15" HDPE PERF TILE (1.35'TOP TO FL)
- 44,3608051.197,4950962.357,1141.350,TOP 15" HDPE TILE (1.35'TOFTOFL
- 45,3608033.829,4950950.107,1140.548,TOP 6" PERF TILE (0.51'TOFTO FL)
- 46,3608034.571,4950947.776,1140.544,TOP 6" PERF TILE (0.51'TOFTO FL)
- 47,3608034.608,4950940.382,1140.602,TOP 6" PERF TILE (0.51'TOFTO FL)
- 48,3608034.739,4950934.740,1140.530,TOP 6" PERF TILE (0.51'TOFTO FL)

49,3608034.707,4950928.336,1140.460,T0P 6" PERF TILE (0.51'TOPTO FL)
 50,3608034.827,4950922.605,1140.417,T0P 6" PERF TILE (0.51'TOPTO FL)
 51,3608128.896,4949539.459,1151.696,MAG NAIL
 52,3608060.852,4950968.394,1141.418,TOP 15" HDPE TILE 22.5BEND (1.35'TOPTO FL)
 53,3608066.056,4950977.043,1141.487,TOP 15" DW HDPE TILE (1.35'TOPTOFL)
 54,3608077.936,4950992.725,1141.629,TOP 15" DW HDPE TILE (1.35'TOPTOFL)
 55,3608086.285,4951003.294,1141.742,TOP 15" DW HDPE TILE 22.5 BEND (1.35'TOPTOFL)
 56,3608091.951,4951005.247,1141.780,TOP 15"*15"*15" HDPE WYE
 57,3608081.157,4950995.861,1141.444,TOP 6" HDPE SADDLE TAP
 58,3608081.696,4950995.452,1141.576,TOP 6" HDPE EXTERNAL COUPLER
 59,3608085.434,4951011.982,1145.974,GS
 60,3608089.265,4950998.392,1145.365,GS
 61,3608034.172,4950949.577,1140.537,T0P 6" PERF TILE (0.51'TOPTO FL)
 62,3608033.230,4950951.027,1140.591,T0P 6" DW TILE (0.55'TOPTO FL)
 63,3608079.348,4951335.208,1151.564,GS BEAN DAMAGE
 64,3608033.743,4951335.117,1150.834,GS BEAN DAMAGE
 65,3608046.530,4951310.109,1150.762,GS BEAN DAMAGE
 66,3608057.991,4951262.988,1149.769,GS BEAN DAMAGE
 67,3608057.119,4951206.321,1148.555,GS BEAN DAMAGE
 68,3608053.376,4951189.795,1148.130,GS BEAN DAMAGE
 69,3608051.635,4951142.339,1147.931,GS BEAN DAMAGE
 70,3608031.595,4951129.695,1147.612,GS BEAN DAMAGE
 71,3608031.998,4951105.324,1147.754,GS BEAN DAMAGE
 72,3608050.176,4951073.771,1147.711,GS BEAN DAMAGE
 73,3608049.722,4951053.602,1147.324,GS BEAN DAMAGE
 74,3608036.030,4951011.428,1146.382,GS BEAN DAMAGE
 75,3608019.553,4951003.326,1146.204,GS BEAN DAMAGE
 76,3608020.181,4950994.983,1146.039,GS BEAN DAMAGE
 77,3607959.756,4950955.599,1145.266,GS BEAN DAMAGE
 78,3607940.555,4950929.442,1144.729,GS BEAN DAMAGE
 79,3607940.652,4950910.000,1144.641,GS BEAN DAMAGE
 80,3607979.594,4950877.412,1144.902,GS BEAN DAMAGE
 81,3608039.390,4950886.414,1145.489,GS BEAN DAMAGE
 82,3608085.975,4950915.943,1145.790,GS BEAN DAMAGE/DITCH
 83,3608081.452,4951072.899,1147.693,GS BEAN DAMAGE/DITCH
 84,3608081.095,4951139.433,1148.235,GS BEAN DAMAGE/DITCH
 85,3608081.027,4951239.536,1149.007,GS BEAN DAMAGE/DITCH
 86,3608079.743,4951304.686,1150.586,GS BEAN DAMAGE/DITCH
 88,3608087.940,4951003.741,1145.460,CENTER ACCESS CASTING
 89,3608176.604,4951135.886,1148.318,gs wl locate 93"d
 90,3608176.050,4951076.885,1146.497,gs wl locate 112"d
 91,3608175.129,4951061.949,1146.637,gs wl locate 108"d
 92,3608173.187,4951047.397,1146.547,gs wl locate 105"d
 93,3608172.919,4951040.333,1146.503,gs wl locate 101"d (15" tile)
 94,3608172.828,4951032.374,1146.529,gs wl locate 108"d
 95,3608160.046,4951031.601,1145.991,wws ciwa stamp 13N (TILE LINE BELOW)
 96,3608176.411,4951123.190,1149.042,GS CL 20825 CO HWY S27 GRAVEL DRIVE ABOVE WL
 100,3608173.775,4951794.097,1142.090,TOP WATERMAIN
 101,3608172.970,4951806.421,1144.607,TOP 14"CLAY

102,3606801.876,4950336.843,1134.500,TOP 15" CLAY 1.38' TOPTOFL
 103,3606776.447,4950322.423,1139.240,GS ABOVE TILE
 104,3606801.246,4950330.369,1139.443,GS
 105,3606785.751,4950322.663,1139.572,GS
 106,3606781.230,4950330.843,1139.443,GS
 107,3606800.988,4950343.062,1139.717,GS
 108,3606806.097,4950348.422,1140.101,FENCE E-W
 109,3606806.277,4950329.481,1140.050,FENCE E-W
 110,3606812.666,4950342.795,1139.661,GS
 111,3606808.337,4950339.736,1138.919,GS
 112,3606784.008,4950326.675,1134.306,TOP 15" CLAY 1.31' TOPTOFL
 113,3606784.164,4950326.703,1134.338,TOP 15" HDPE PERF TILE
 114,3606798.454,4950335.076,1134.431,TOP 15" HDPE PERF TILE
 115,3606801.757,4950336.845,1134.463,TOP 15" HDPE PERF TILE
 116,3605345.937,4950152.361,1122.926,GS ABOVE TILE
 117,3605340.655,4950146.152,1122.854,GS ABOVE TILE
 118,3605342.974,4950149.013,1120.006,TILE TOP 14.25*17.25" SQUAT CLAY (1.25'TOP TO FL)
 119,3605344.620,4950151.047,1120.026,TILE TOP 14*17" SQUAT CLAY (1.22'TOP TO FL)
 120,3605385.960,4950177.421,1123.131,GS ABOVE TILE
 121,3605379.508,4950173.853,1123.177,GS ABOVE TILE
 122,3605414.981,4950167.886,1124.101,GS WATERWAY
 123,3605371.837,4950148.276,1123.621,GS WATERWAY
 124,3605332.279,4950112.525,1122.863,GS WATERWAY
 125,3605309.994,4950133.091,1122.804,GS WATERWAY
 126,3605355.127,4950171.596,1123.269,GS WATERWAY
 127,3605414.606,4950191.842,1123.890,GS WATERWAY
 128,3605452.781,4950199.659,1124.464,GS TILE LOCATE
 129,3605507.884,4950208.120,1125.500,GS TILE LOCATE
 130,3605566.488,4950211.914,1125.840,GS TILE LOCATE
 131,3605624.107,4950214.918,1126.524,GS TILE LOCATE
 133,3605683.158,4950217.229,1126.920,GS TILE LOCATE
 134,3605750.126,4950216.561,1127.637,GS TILE LOCATE
 135,3605805.896,4950206.324,1128.247,GS TILE LOCATE
 136,3605869.322,4950185.200,1128.558,GS TILE LOCATE
 137,3605907.201,4950164.902,1128.683,GS TILE LOCATE END CAMERA
 138,3605951.503,4950135.957,1125.608,TILE TOP 12*19" SQUAT CLAY (1.09'TOP TO FL)
 REMOVED
 139,3605948.015,4950138.425,1125.762,TILE TOP 13*18 SQUAT "CLAY (1.21'TOP TO FL)
 REMOVED
 140,3606002.087,4950097.117,1129.897,GS TILE LOCATE
 141,3606047.969,4950060.252,1130.485,GS TILE LOCATE
 142,3606093.946,4950024.079,1131.195,GS TILE LOCATE
 143,3606148.452,4949995.916,1131.594,GS TILE LOCATE
 144,3606194.832,4949987.959,1131.959,GS TILE LOCATE
 145,3606198.408,4949987.796,1132.012,GS TILE LOCATE END LOCATE
 146,3605911.704,4950162.539,1125.405,TILE TOP 15*17 " CLAY 1.32'TOPTOFL
 147,3605913.527,4950161.426,1125.261,TILE TOP 12*19" SQUAT CLAY 1.05'TOPTOFL REMOVED
 148,3605905.139,4950166.616,1128.680,GS ABOVE TILE

149,3605914.838,4950160.561,1128.801,GS ABOVE TILE
 150,3605945.044,4950140.580,1129.365,GS ABOVE TILE
 151,3605953.724,4950134.445,1129.394,GS ABOVE TILE
 152,3605917.145,4950159.407,1125.461,TILE TOP 15.25*16" CLAY 1.34'TOFTOFL
 153,3605957.056,4950121.773,1129.527,GS WATERWAY
 154,3605918.162,4950152.972,1128.826,GS WATERWAY
 155,3605846.419,4950191.394,1128.563,GS WATERWAY
 156,3605692.445,4950210.179,1127.221,GS WATERWAY
 157,3605572.291,4950198.841,1126.518,GS WATERWAY
 158,3605481.505,4950182.506,1125.016,GS WATERWAY
 159,3605480.915,4950202.881,1124.880,GS WATERWAY
 160,3605493.194,4950208.150,1125.264,GS WATERWAY
 161,3605492.050,4950234.982,1126.183,GS WATERWAY
 162,3605516.988,4950233.467,1126.920,GS WATERWAY
 163,3605521.214,4950215.654,1126.130,GS WATERWAY
 164,3605535.721,4950214.240,1126.077,GS WATERWAY
 165,3605627.973,4950230.113,1126.487,GS WATERWAY
 166,3605650.168,4950236.977,1126.710,GS WATERWAY
 167,3605705.205,4950290.733,1127.666,GS WATERWAY
 168,3605742.239,4950280.558,1127.890,GS WATERWAY
 169,3605735.245,4950245.369,1127.709,GS WATERWAY
 170,3605735.412,4950240.914,1127.535,GS WATERWAY
 171,3605823.622,4950228.426,1127.666,GS WATERWAY
 172,3605893.923,4950204.258,1128.704,GS WATERWAY
 173,3605948.734,4950172.433,1129.588,GS WATERWAY
 174,3606004.304,4950123.863,1130.051,GS WATERWAY
 175,3605946.237,4950139.603,1125.854,TILE TOP 15*15.75" CLAY 1.36'TOFTOFL
 176,3605953.253,4950134.826,1125.849,TILE TOP 15.75*16" CLAY 1.39'TOFTOFL
 177,3605384.208,4950176.364,1120.543,TILE TOP 15*16.25" squat CLAY 1.35'TOFTOFL
 178,3605382.068,4950175.088,1120.425,TILE TOP 14*17" squat CLAY 1.24'TOFTOFL
 179,3605308.552,4950098.525,1122.265,GS TILE LOCATE
 180,3605283.080,4950047.286,1121.952,GS TILE LOCATE
 181,3605264.542,4949992.162,1121.779,GS TILE LOCATE
 182,3605246.456,4949937.507,1121.209,GS TILE LOCATE
 183,3605227.996,4949883.706,1120.689,GS TILE LOCATE
 184,3605208.491,4949829.163,1120.112,GS TILE LOCATE
 185,3605187.171,4949775.725,1119.631,GS TILE LOCATE
 186,3605162.969,4949720.465,1119.157,GS TILE LOCATE
 187,3605138.529,4949666.755,1118.794,GS TILE LOCATE
 188,3605115.421,4949616.282,1118.212,GS TILE LOCATE
 189,3605091.558,4949566.464,1118.417,GS TILE LOCATE
 190,3605060.423,4949517.341,1118.346,GS TILE LOCATE
 191,3605044.705,4949495.848,1118.377,GS TILE LOCATE
 192,3605007.736,4949448.293,1116.480,GS TILE LOCATE
 193,3604971.956,4949403.645,1115.997,GS TILE LOCATE
 194,3604933.158,4949356.696,1115.465,GS TILE LOCATE
 195,3604902.280,4949319.604,1115.271,GS TILE LOCATE END
 196,3605007.109,4949493.659,1118.634,FNL N-S
 197,3605066.434,4949494.540,1117.773,FNL N-S

198,3606042.834,4950084.321,1130.491,GS WATERWAY
 199,3606092.572,4950032.226,1130.980,GS WATERWAY
 200,3606145.664,4950000.670,1131.473,GS WATERWAY
 201,3606210.807,4949998.901,1132.203,GS WATERWAY
 202,3606214.261,4949964.616,1132.458,GS WATERWAY
 203,3606132.656,4949976.520,1131.497,GS WATERWAY
 204,3606052.849,4950031.398,1130.741,GS WATERWAY
 205,3605988.156,4950092.948,1129.841,GS WATERWAY
 206,3605267.201,4950069.065,1122.129,GS WATERWAY
 207,3605228.432,4949964.232,1121.465,GS WATERWAY
 208,3605197.938,4949866.193,1120.875,GS WATERWAY
 209,3605163.386,4949760.174,1119.578,GS WATERWAY
 210,3605125.162,4949640.384,1118.926,GS WATERWAY
 211,3605110.716,4949585.173,1118.333,GS WATERWAY
 212,3605100.210,4949499.905,1117.402,GS WATERWAY
 213,3605122.963,4949510.205,1118.127,GS WATERWAY
 214,3605495.092,4949501.521,1129.346,FNL N-S&W
 215,3605133.332,4949555.621,1118.404,GS WATERWAY
 216,3605178.871,4949717.223,1119.920,GS WATERWAY
 217,3605241.192,4949906.375,1121.016,GS WATERWAY
 218,3605271.139,4950005.075,1121.944,GS WATERWAY
 219,3605312.635,4950088.007,1122.763,GS WATERWAY
 220,3605504.519,4950234.224,1126.183,Cogo
 230,3608084.124,4951902.308,1147.445,W RIM BEEHIVE
 231,3608089.801,4951888.318,1147.847,GS TILE LOCATE
 232,3608104.983,4951879.465,1154.112,GS TILE LOCATE
 233,3608106.624,4951878.417,1154.184,GS TILE LOCATE EOA
 234,3608117.917,4951869.070,1154.547,GS TILE LOCATE CL
 235,3608129.210,4951858.971,1154.234,GS TILE LOCATE EOA SOME RESISTENCE
 236,3608146.621,4951845.243,1148.110,GS TILE LOCATE
 237,3608161.933,4951817.422,1149.628,GS TILE LOCATE
 238,3608165.220,4951813.473,1149.904,GS TILE LOCATE FIELD EDGE
 239,3608168.579,4951809.460,1149.604,GS TILE LOCATE
 240,3608178.369,4951801.269,1149.377,GS TILE LOCATE
 241,3608188.241,4951791.528,1149.576,GS TILE LOCATE
 242,3608209.740,4951773.387,1149.698,GS TILE LOCATE
 243,3608231.610,4951755.411,1149.682,GS TILE LOCATE
 244,3608253.737,4951735.679,1149.571,GS TILE LOCATE
 245,3608280.557,4951712.028,1149.410,GS TILE LOCATE
 246,3608284.668,4951708.431,1149.364,GS TILE LOCATE END OBSTRUCTION?
 247,3608285.090,4951708.634,1144.232,TILE TO 14"CLAY 1.24'TOPTOFL
 248,3608283.091,4951710.319,1144.305,TILE TO 14"CLAY 1.28'TOPTOFL
 249,3608289.834,4951703.250,1149.599,GS
 250,3608172.054,4951804.330,1145.918,TILE TOP 8" CLAY 0.72'TOPTOFL
 251,3608170.627,4951805.930,1145.912,TILE TOP 8"CLAY 0.75'TOPTOFL
 252,3608173.804,4951805.527,1144.706,TILE TOP 14" CLAY 1.38'TOPTOFL
 253,3608174.204,4951808.223,1144.440,WM 1.38'GSTOTOP WM
 254,3608084.572,4951892.856,1144.681,TILE TOP 8"CLAY 0.74'TOPTOFL
 255,3608085.478,4951892.193,1144.745,TILE TOP 8"CLAY 0.74'TOPTOFL

256,3607786.141,4952154.305,1148.855,GS SIGN TILE LINE
 259,3608076.855,4951898.654,1148.210,GS TILE LOCATE
 260,3608067.662,4951905.816,1148.319,GS TILE LOCATE OBSTRUCTION?
 261,3608079.284,4951896.646,1149.016,GS EDGE FIELD
 262,3608143.074,4951852.200,1148.498,GS APPROX TILE MAIN LAT 2 CONNECTION
 263,3608067.743,4951910.457,1145.035,TILE TOP 5" HDPE PERF 0.43'TOPTOFL
 264,3608059.621,4951902.767,1145.428,TILE TOP 4" HDPE PERF 0.34'TOPTOFL
 267,3608069.254,4951904.084,1144.770,TILE TOP 8"CLAY 0.74'TOPTOFL
 268,3608151.043,4952028.550,1147.989,INTAKE BEEHIVE N RIM
 269,3608148.458,4951824.752,1145.486,FL 6" HICKENBOTTOM INTAKE
 270,3608356.513,4951135.356,1147.339,GS CORN DAMAGE 1
 271,3608349.998,4951198.416,1147.156,GS CORN DAMAGE 1
 272,3608342.105,4951272.849,1147.785,GS CORN DAMAGE 1
 273,3608337.421,4951324.659,1148.118,GS CORN DAMAGE 1
 274,3608335.119,4951375.990,1148.173,GS CORN DAMAGE 1
 275,3608331.695,4951427.177,1148.383,GS CORN DAMAGE 1
 276,3608329.218,4951534.790,1148.667,GS CORN DAMAGE 1
 277,3608326.276,4951625.404,1149.140,GS CORN DAMAGE 1
 278,3608306.692,4951650.463,1149.366,GS CORN DAMAGE 1
 279,3608279.429,4951677.110,1149.468,GS CORN DAMAGE 1
 280,3608259.987,4951696.313,1149.684,GS CORN DAMAGE 1
 281,3608260.177,4951716.006,1149.489,GS CORN DAMAGE 1
 282,3608166.019,4951798.622,1149.708,GS CORN DAMAGE 1
 283,3608163.719,4951845.257,1149.910,GS CORN DAMAGE 1
 284,3608193.655,4951845.248,1149.929,GS CORN DAMAGE 1
 285,3608195.478,4951803.739,1149.599,GS CORN DAMAGE 1
 286,3608270.710,4951727.264,1149.451,GS CORN DAMAGE 1
 287,3608280.575,4951736.489,1149.435,GS CORN DAMAGE 1
 288,3608292.462,4951732.982,1149.389,GS CORN DAMAGE 1
 289,3608311.870,4951716.945,1149.271,GS CORN DAMAGE 1
 290,3608312.299,4951692.591,1149.298,GS CORN DAMAGE 1
 291,3608344.022,4951684.697,1149.142,GS CORN DAMAGE 1
 292,3608344.617,4951440.966,1148.243,GS CORN DAMAGE 1
 293,3608347.083,4951432.959,1148.166,GS CORN DAMAGE 1
 294,3608349.318,4951400.370,1148.110,GS CORN DAMAGE 1
 295,3608349.618,4951364.090,1148.024,GS CORN DAMAGE 1
 296,3608352.051,4951359.720,1148.086,GS CORN DAMAGE 1
 297,3608352.082,4951310.589,1148.041,GS CORN DAMAGE 1
 298,3608357.674,4951281.382,1147.847,GS CORN DAMAGE 1
 299,3608361.609,4951234.904,1147.412,GS CORN DAMAGE 1
 300,3608368.174,4951167.004,1147.332,GS CORN DAMAGE 1
 301,3608385.227,4951136.275,1147.398,GS CORN DAMAGE 1
 302,3608064.858,4951907.140,1144.848,TILE TOP 8"CLAY 0.72'TOPTOFL
 303,3608065.976,4951899.316,1145.016,TILE TOP 5" HDPE PERF 0.43'TOPTOFL
 304,3608066.325,4951906.090,1144.804,TILE TOP 8"*8"*5" HDPE TEE
 305,3608067.955,4951905.120,1144.767,TILE TOP HDPE 8"*8"*5" TEE
 306,3608067.368,4951904.522,1144.650,TILE TOP 5" HDPE PERF @ TEE 0.43'TOPTOFL
 307,3608066.483,4951902.291,1144.813,TILE TOP 5"*5"*4" HDPE TEE
 308,3608066.794,4951906.637,1144.618,TILE TOP 5" HDPE PERF @ TEE 0.43'TOPTOFL

309,3607822.096,4952238.535,1149.727,FNL N-S
 310,3607798.155,4952237.894,1149.855,FNL N-S
 311,3607793.814,4952247.403,1145.203,TILE TOP 8" HDPE NONPERF (HOLE)
 312,3607794.478,4952141.899,1147.273,TILE TOP 4" HDPE PERF 0.32'TOPTOFL
 313,3607784.928,4952141.448,1147.506,TILE TOP 4" HDPE PERF 0.36'TOPTOFL
 316,3607789.071,4952140.770,1147.444,TILE TOP 4" HDPE PERF 0.38'TOPTOFL
 317,3607786.252,4952141.423,1147.519,TILE TOP 4" HDPE PERF 0.38'TOPTOFL
 318,3607792.952,4952141.702,1147.384,TILE TOP 4" HDPE PERF 0.38'TOPTOFL
 320,3607772.108,4952149.515,1149.663,GS CORN DAMAGE 2
 321,3607765.439,4952132.040,1149.471,GS CORN DAMAGE 2
 322,3607766.323,4952110.312,1149.537,GS CORN DAMAGE 2
 323,3607811.039,4952111.921,1149.513,GS CORN DAMAGE 2
 324,3607818.925,4952152.088,1149.858,GS CORN DAMAGE 2
 325,3607810.601,4952181.593,1154.265,EOA
 326,3607748.957,4952180.166,1154.283,EOA
 327,3607777.446,4952152.857,1148.859,INTAKE BEEHIVE N RIM
 328,3607772.871,4952153.571,1149.545,GS SIGN TILE LINE
 329,3607759.653,4952202.415,1154.498,EOA
 330,3607835.381,4952204.204,1154.372,EOA
 331,3608080.006,4951941.286,1148.184,GS CORN DAMAGE 3
 332,3608057.015,4951932.847,1148.177,GS CORN DAMAGE 3
 333,3608039.389,4951920.646,1148.462,GS CORN DAMAGE 3
 334,3608040.271,4951891.508,1148.649,GS CORN DAMAGE 3
 335,3608056.992,4951872.352,1148.722,GS CORN DAMAGE 3
 336,3608078.679,4951872.507,1148.701,GS CORN DAMAGE 3
 337,3608073.676,4952737.840,1148.917,INTAKE 18" BEEHIVE N RIM
 338,3608084.796,4952746.455,1150.538,CMP TOP 18" 1.54'TOPTOFL
 339,3608124.706,4952745.934,1155.472,GS BLOWOUT SHOULDER
 340,3608147.597,4952746.884,1149.178,INTAKE 18" BEEHIVE N RIM
 341,3608136.448,4952746.150,1151.386,RCP TOP 18" 1.71'TOPTOFL
 342,3608073.094,4952744.578,1145.664,CLAY TOP 6" 0.57'TOPTOFL
 343,3608072.372,4952744.584,1145.604,TEE TOP HDPE 6"*6"*4" 0.56'TOPTOFL
 344,3608071.838,4952744.372,1145.598,TILE TOP 6" SW HDPE NONPERF 0.56'TOPTOFL
 345,3608072.542,4952741.735,1146.267,TILE TOP 6" CLAY 0.57'TOPTOFL
 346,3608072.419,4952743.936,1145.716,TILE TOP 4" CLAY 0.38'TOPTOFL