

**AGENDA**  
**REGULAR DRAINAGE MEETING**  
**Wednesday, September 2, 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:

[08\\_26\\_20 - DRAINAGE MINUTES.PDF](#)

4. DD 14 WO 290 - Discuss W Possible Action - Investigation Summary

Documents:

[DD 14 WO 290 - 6844.4 - INVESTIGATION REPORT - 2020-08-31.PDF](#)

5. DD 22 WO 176 - Discuss W Possible Action - Completion Report

Documents:

[DD 22 - 8712 - FINAL COMPLETION REPORT.PDF](#)

6. Discuss W Possible Action - Drainage Utility Permit Process
7. Discuss W Possible Action - Outstanding Work Order Status Update
8. Other Business
9. Adjourn Meeting

**REGULAR DRAINAGE MEETING**  
**Wednesday, August 26, 2020 9:30 AM**

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

8/26/2020 - Minutes

1. Open Meeting

Hardin County Drainage Chairperson Lance Granzow opened the meeting. Also present were Trustee BJ Hoffman; Trustee Renee McClellan; Michael Pearce, Network Specialist; Lee Gallentine of Clapsaddle-Garber Associates; and Denise Smith, Drainage Clerk.

2. Approve Agenda

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

3. Approve Minutes

Motion by Hoffman to approve the minutes to Drainage Meeting dated 8-19-2020. Second by McClellan. All ayes. Motion carried.

4. DD 26 WO 266 - Discuss W Possible Action - Repair Summary

Smith stated this was one she was directed to verify if seeding and grading was done and to verify if there was a crop damage claim on the 0.14 acres. Smith stated she received a reply from landowner Dave Sweeney that it looked like several more loads of dirt and grading were needed to prevent future breaches and water spill over of the spoil bank. In addition little or no grass took hold so it would need reseeded, Sweeney stated he would forward on the crop damage claim form to his tenant Terry Swenson to see if he would like to pursue a claim for crop damages. Gallentine stated that they looked at it when the work was done and grading was pretty rough, and could understand why Sweeney would want more dirt added, it is far cheaper to bring in a few loads of dirt than to repair a washed out surface drain. Gallentine stated CGA may not necessarily be out there while they spread dirt. Granzow stated we should have CGA look at this when they are done and verify that work is complete.

Motion by Hoffman to have contractor complete dirt work and grading and once CGA signs off on it, bring it back to the Trustees to finalize and approve.

In additional discussion on the motion, Granzow asked which contractor this was, Gallentine stated it was Honey Creek Land Improvement.

All ayes. Motion carried.

5. DD 68 WO 293 - Discuss W Possible Action - Repair Summary

Gallentine stated this was a work order request turned in on DD 68 Lateral 5, it is in the road ditch on the north side of 110th Street, there were problems with the intake not flowing well. Gallentine stated when it was dug up, where the intake was connected to the actual tile was not in good shape and they had essentially inserted an intake into the original concrete instead of pulling it out where it was and connecting up. Gallentine stated we pulled that out and fixed all that, and don't see any issues moving forward, other than the road ditch has lots of sediment in it and CGA recommends it gets cleaned out to the original grade, and there is a box culvert that had about about a foot of dirt in it that needs cleaned out to get it back to the original grade. Gallentine stated we were not out there when they applied any seeding and CGA recommends contacting the contractor regarding reseeding the area just to make sure, and we had a very small area of crop damage of about .02 acres so if someone presents that, Gallentine would recommend paying that, Gallentine stated they may be planted close to the right of way or past it. Gallentine stated this is totally within the road right of way, it is Gallentine's understanding that this would be a secondary roads expense and not a district expense. Granzow stated we will let the landowner deal with that and we will let Secondary Roads know about the issue. Smith asked if any invoices on this work order should be directed to Secondary Roads as the intake repaired was in the ditch, Granzow stated yes, those will go to Secondary Roads.

Motion by Hoffman to acknowledge DD 68 WO 293 Repair Summary, wait for any crop damages to come in, and contact the County Engineer on cleaning out and seeding of the ditch that needs to happen per recommendation and bills goes to Secondary Roads. Second by McClellan. All ayes. Motion carried.

## 6. DD 109 WO 269 - Discuss W Possible Action - Repair Summary

Gallentine stated this is the work order that Denny Prochaska was in the old railroad right of way south of the old Farmland plant, Prochaska initially thought it was private tile but it turned out to be district tile, and Prochaska turned in the bill, but there were trees that needed to be removed. Initially we went out and removed the trees, Gallentine referenced the map included in the summary in which the green line was the district tile, there is a chunk of district tile that has been missing, the reason why they pulled it out is there is still a big chunk of the private tile that is missing, so one is flowing into the other. Gallentine stated the trees have been removed, there is some sediment in the main and some backfall in the main, it is old and we can investigate that if the Trustees would like, but the big issue is the piece of tile that has been removed. Gallentine stated CGA recommends that the landowner be contacted to get the private tile fixed, and then we can get the main fixed also, there is also some issue with Prochaska whether it is his tile or the guy who owns the Farmland plant, Gallentine stated it may just have been the tile for the Farmland plant, and Prochaska may be reluctant to fix it, Gallentine stated we just have a piece of the main that is open. McClellan stated we may just have to fix our own district tile. Granzow stated we need to let Prochaska know that. Gallentine stated there is some crop damage on that, .01 of an acre, and wanted the Trustees to be aware of the small amount of crop damage. McClellan stated if we repair our tile and Prochaska does not repair his it may cause a backup on Prochaska's ground Granzow stated as far as district tile goes we can't leave it open so however Prochaska resolves it is up to them. Granzow stated a letter from the Drainage Clerk would work to notify the landowner to get the private tile repaired. Smith asked if she would need to notify the adjoining landowner who owns Farmland plant. Gallentine stated he thought Prochaska owned land on both sides of the track, and Prochaska's land is where the private tile comes from. McClellan asked where the Farmland plant is located, Gallentine stated it would be off to the right of the location referenced on the map.

Motion by McClellan to direct the Drainage Clerk to notify Denny Prochaska to get the private tile completed so that we can get the district tile repaired, and give Prochaska the opportunity to hook that private tile up now or not, and that hookup would not be at the district's expense. Second by Hoffman.

In additional discussion on the motion, Hoffman asked if we would put a timeline or deadline on that private tile repair. Granzow stated that he believed we need to, and November 30th would work to allow time for the landowner to get crops out. McClellan stated harvest this year may be earlier than usual, and that should be enough time to get the private tile repaired. Smith asked if the Trustees would like to request a reply from Prochaska to let us know that the repair is completed. Granzow stated yes, he would like a reply as he would like to give us enough time to get it closed up before it freezes.

All ayes. Motion carried.

## 7. Discuss W Possible Action - Drainage Utility Permit Process

Gallentine stated we received a response from Alliant on the Permit in DD H-F 1, Alliant put us in contact with the contractor White Construction, who put us in contact with subcontractor JB Edwards who notified us last Thursday that they would be working on it Monday, Gallentine told Edwards to let us know when they would be working near the tile crossing. Gallentine reached out to JB Edwards on Monday and asked if we will still be working on this permit this week, they replied JB Edwards will be working all week, to which Gallentine replied would you like to pay CGA to be on-site and standing around all week, to which Gallentine has not received a reply. Gallentine stated this was a good utility in the sense that they replied, but we are not making progress with the other utilities in getting them to comply. Gallentine has copied Smith in on all the emails. Smith stated Gallentine has done a wonderful job communicating that with the Clerk. Smith has questions for the Trustees, as she prepares the letters to go out to the Drainage Utility Permit holders to invite them to come in for a meeting, to discuss their options on how we will get them to comply with the existing open permits, would the Trustees like legal in on this meeting. Smith is nearly ready to send letters but wanted direction if the Trustees would like attorney Mike Richards present because Smith has spoken with most of the utilities who have said their work is done, and Smith let the permit holders know she would provide them with feedback from the Trustees on the next step, which would be this meeting. Smith stated she did get a reply from the IRUA, we had given all the permit holders 14 days to reply to the certified letter sent out, and Matt Mahler of the IRUA requested an additional week to reply due to the storm damage they received in the Newton area from the derecho, Smith let Mahler know that should not be a problem and expects their reply by the end of this week. Smith stated before she sent the letter out inviting permit holders to the meeting, she would need to check attorney Richards availability for meeting dates if the Trustees would like him in attendance.

McClellan asked how many letters we sent out, Smith stated we sent out 10 letters and received replies back from 7 permit holders, most stating that work is complete, with response pending from IRUA. Granzow asked if the other Trustees would like legal there. Hoffman stated yes, he did not think we could afford to not have legal

present. Smith stated if the Trustees were in agreement, and would like to direct Smith to create that letter and send it out, Smith will let Richards dictate to us what Wednesday he is available, and Smith provided Richards with some options in September, September 16th, September 23rd or September 30th to see which Wednesday he is available, Smith would like to get it on the agenda for the Trustees in September if possible. McClellan asked if Smith has spoken with any of the utilities by phone. Smith has emailed back and forth with those that have replied to the original letter, McClellan asked if Smith had any contact with the three utilities that have not replied, Smith stated that she had not and would like further direction, Smith does have contact information for the utilities as that information was on their original application. Granzow asked who the three utilities were that had not responded, Smith stated it was IRUA whose response was expected later this week, Century Link and did not recall the third at the moment, Granzow stated he would send the letter inviting those three to the meeting as well, the choice to not attend is not speaking on their company's behalf. Hoffman agreed. Smith stated in guiding this letter, the direction the Trustees want to go is they would like to discuss compliance with the existing language on the existing permits, we want to talk about their failure to notify us 24 hours in advance of construction, and what are the goals to get from them now, do we want them to locate the tile after the work is complete. Granzow stated that is what they said they would have done, he wants out of them what they agreed to and if they choose not to do it, it is at their expense, and Granzow believes when we come to this meeting with legal, we will send someone out to verify tile locations at their expense. Gallentine stated his end goal is just to know that the tile isn't damaged. Granzow stated he would also like to know that their crossing is located under our tile, and the problem with IRUA is that they sent us a bunch of wrong information, that is great to go from memory but when they did, they did not know the difference between plastic and concrete and they put it down on a piece of paper. Smith stated having the utilities in attendance will give the Trustees the opportunity to ask of the utilities, tell me why you didn't do it this way and what did you actually do, and that we need documentation of that. McClellan asked if we would make the utilities go back and open up all the places that they did work, that didn't get looked at. Granzow stated I think they have that option and they can choose not to do it and then we will send them the bill. Granzow stated he would like to have Mike Richards tell us if they can sue us for it or not. McClellan asked if we will wait to hear from the IRUA before we do this. Smith stated the IRUA said they would have a reply to us this Friday, so Smith will get letters ready to go out but wanted to check if you wanted Mike Richards in attendance. Granzow stated yes, he would like Richards in attendance.

McClellan asked if we had a received proposed changes to the utility permit language yet, Smith stated Mike Richards is working on that this week, Smith had added to her correspondence with Richards our discussion of last week of the \$1,000 permit application fee as used by Scott & Louisa County to add that language, and Richards has all of that information and his reply to Smith was that he is working on that this week. McClellan stated if this is going to continue happening, we have to have a fee that we can use to cover the cost of opening these things back up, although a \$1,000 fee would not cover the whole cost, Granzow stated if it does not we can up the rate. Gallentine stated it needs to be proactive and not reactive, what happens is if the install over the pipe, are we going to make them relay a half mile of fiber optic, probably not, whereas if we locate the tile ahead of time we eliminate that problem, it would be so much better if we did this on the front side of the permit but the utilities are on the backside of this. Granzow stated we have had them rerun a tile line before because they put it on the wrong side of a hog house. Smith stated the opportunity to have that dialogue with the utilities is a good opportunity to explain those expectations to the utilities, whether they attend in person or by zoom. Hoffman stated he would like some closure and we are starting to see people jump when we say jump, but wants them to ask how high because we are just getting the run around here, McClellan agrees. Gallentine stated he wanted to emphasize some utilities have done very well with the permits, again Heart of Iowa has been excellent to work with, so he does not want to paint all utilities with the same brush. Smith stated in the sample language she sent to Richards from the Scott and Louisa County application, the \$1,000 fee is used for those locating costs, what is not used of the \$1,000 fee is reimbursed to the utility and any expenses incurred beyond that \$1,000 application fee is also charged to the utility as well, Richards has all that language in front of him to look at drafting some similar language, it may be good to have something like that in place in the future permits. Granzow stated when it comes to us doing it, let's use Heart of Iowa as an example, maybe they are the contractor the utilities would choose, so they can charge themselves outside of CGA's fees, which puts us right back to where they were to start with, this would just allow them to be the contractor for me. Smith stated you could include in that language that you can waive that application fee based on your prior experiences with that utility. Granzow stated they could just go out and locate it themselves, Gallentine stated Heart of Iowa has no issues locating the tile, they can talk to us and ask how deep is the district tile, and we might say based of the old profile it is 3' to 6' deep, and Heart of Iowa might say we will go 20' deep then, and we have no issues with that, it is good communication on the front end of the process.

Motion by McClellan to direct the Drainage Clerk to contact attorney Mike Richards for availability to attend a meeting with the utilities and to send a letter inviting utilities to participate in an upcoming meeting for discussion of their outstanding Drainage Utility Permits. Second by Hoffman. All ayes. Motion carried.

## 8. Other Business



DD 22 - Smith stated on her hearing checklist of things to do, was invite legal if needed, Smith asked if the Trustees wanted legal to attend this completion hearing if he is available. The Trustees did not feel legal attendance was needed at this hearing.

DD 121 Landowner Meeting - Smith stated she had the same question on this one, if the Trustees wanted legal to attend the landowner meeting. Granzow asked if Gallentine felt it would be beneficial for legal to attend. Gallentine stated he did not think it was necessary as this is just an informational meeting to make landowners aware of the investigation summary, making them aware of the drainage repair process and see if they wanted to pursue a larger repair.

DD 48 - WO 237 - Smith stated the Trustees had directed her to reach out and see if seeding and grading had been completed, Smith spoke with contractor Seward. Seward stated grading and seeding was completed, seeding was done in a 20' radius out from the repaired area and NRCS was going to put in a new waterway, they may have changed the grade but should have matched what Seward had done. Seward also stated seeding was done and followed by three days of heavy rain and may need retouched in the fall. Gallentine stated this was by the private crossing that belongs to Lowell Skinner, it is the surface drain that washed out where it meets Hwy 65.

DD 11-232 WO 281 - Smith stated the Trustees had directed her to reach out to Secondary Roads, Smith stated Taylor Roll replied he will complete the seeding and look into the culvert that needs repaired in the road ditch.

DD 55-3 Lat 9 - Granzow asked what has been done with the work order in which landowner Scott Thompson had dug out a pond that encroached the road ditch. Smith stated that was in the system before she started and would have to look into that last action on the work order. Granzow stated Thompson built a pond with the Trustees approval, was told what he needed to do to and did it anyway and he also dug into the ditch. Gallentine stated this was right at the outlet that Handsaker's replaced a few years ago near Hubbard. Granzow stated he thought he recalled it was going to go to legal, and wasn't sure if that has been resolved. Smith asked if they would like this on next week's agenda. Granzow stated he would like Smith to contact legal and if we have a reply, bring it back on next week's agenda, he does not want the work order left behind. Gallentine stated he recalled Thompson stated the waterway threatened his septic leach field, so he constructed the pond. Granzow stated there was still a process he needed to go through and Thompson ignored that, he just wants to be sure this is addressed and the discussion of legal made him recall this particular work order. Smith will do some checking and see what is in the work order notes. Granzow stated he would like to review anything else we have left open waiting on legal, Gallentine stated he would have to review the files, and see what else is there. Granzow stated we should review this next week or the following week as we have issued a lot of things and have not gotten answers and those should not be forgotten. Gallentine will look at his list and get back to Smith with what he has, Smith will do the same. Granzow asked if Hoffman had anything to add. Hoffman did not at this time.

#### 9. Adjourn Meeting

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



# Drainage Work Order Request For Repair

## Hardin County

**Date:** 3/31/2020

**Work Order #:** WO00000290

**Drainage District:** DDs\DD 14 (51027)

**Sec-Twp-Rge:** 34-88-22      **Qtr Sec:** SW NE & NW SE

**Location/GIS:** 88-22-34-200-004

**Requested By:** David Sweeney

**Contact Phone:** (641) 373-4340

**Contact Email:** \_\_\_\_\_

**Landowner (if different):** Cynthia loger

**Description:** DD 14- 2 blowouts in waterway, 5' blowout N of drive is 4' deep w broken VCP tile in base, 3' blowout S of drive lane is 3' deep w broken VCP tile in base. Contractor should enter through the farmstead & drive down the lane to back of property.

**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 **3/31/2020** Work Order # \_\_\_\_\_  
 District # **#14** Lateral \_\_\_\_\_ Main Tile \_\_\_\_\_ Fund # \_\_\_\_\_  
 Township \_\_\_\_\_ Section **34** Twp **88** Rge **22** Qtr Sec **SW NE & NW SE**  
 Repair Requested By **David Sweeney**  
 Address **21547 Hwy S27, Alden, IA 50006 (also the repair location)** Phone **641-373-4340**  
 Landowner **Cynthia loerger**  
 Address **19672 Hwy D15, Iowa Falls, IA 50126** Phone **641-640-2191**

Request Taken By \_\_\_\_\_

Available for Repair Now?  Yes Date Available \_\_\_\_\_

Problem Description **Two blowouts in waterway:  
 Blowout north of drive lane is 5 feet in diameter and 4 feet deep with broken VCP tile in the base.  
 Blowout south of drive lane is 3 feet in diameter and 3 feet deep with broken VCP tile in the base.  
 Contractor should enter through the farmstead and drive down the lane to the back of the property.**

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: Hardin County Auditor's Office  
 Attn: Tina Schlemme  
 1215 Edgington Ave, Suite 1  
 Eldora, IA 50627

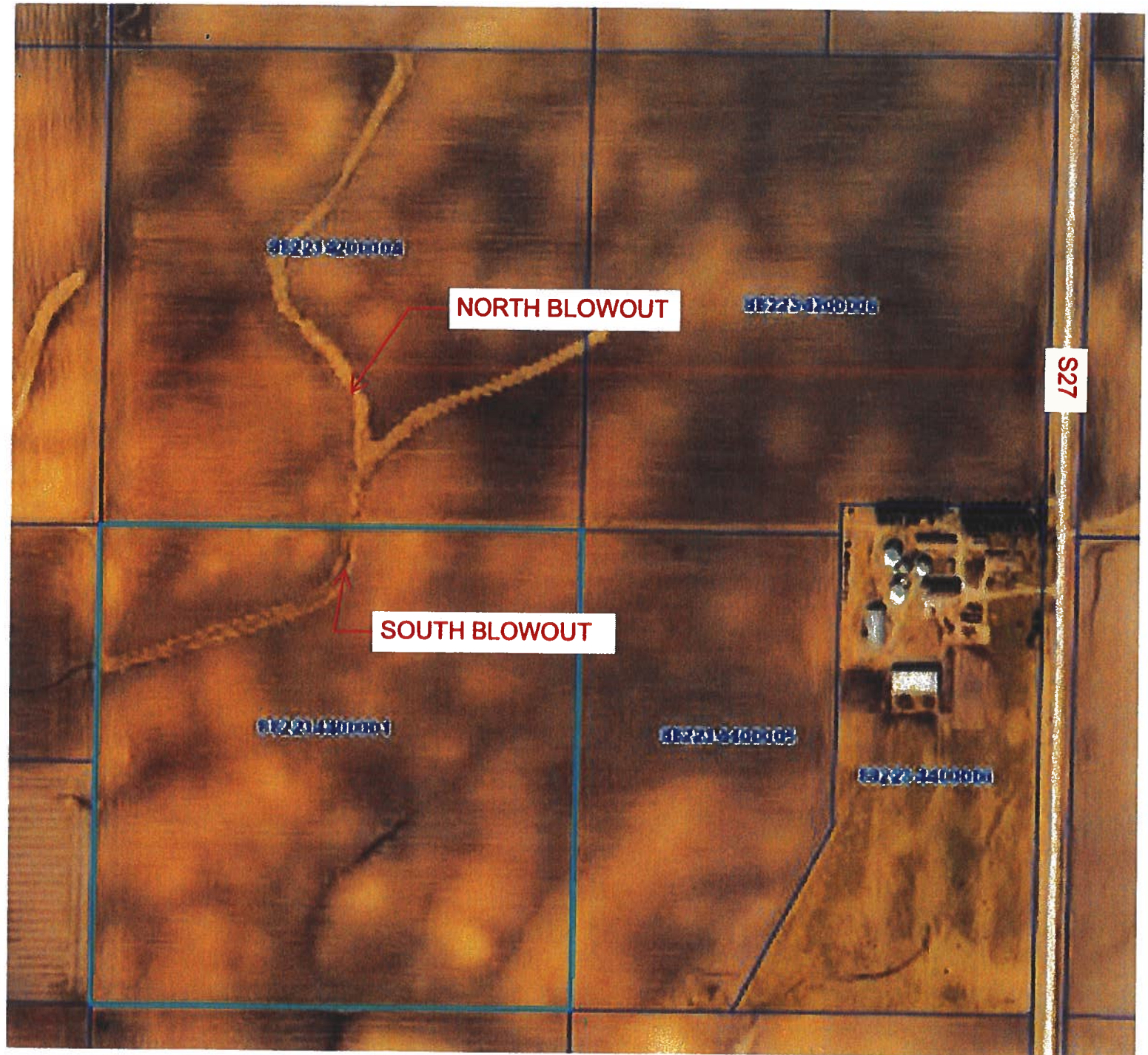
Phone (641) 939-8111  
 Fax (641) 939-8245

For Office Use Only

Approved: \_\_\_\_\_

Date: \_\_\_\_\_





NORTH BLOWOUT

SOUTH BLOWOUT

S27

S122312400002

S122312400016

S122312400001

S122312400002

S122312400003





## Drainage District:

#14

### Investigation Summary:

- Per the earlier recommendations and authorization, CCTV inspected the 15-inch VCP Main Tile starting at existing 3 feet diameter blowout located in the grass waterway approximately 1900 feet east of County Highway S27 and approximately 2650 feet south of County Highway D41.
- Televised 884.9 feet upstream (to the north) from said existing tile blowout and found 17 locations of partial/imminent collapse. (see attached Tabulated Defects sheet)
- Televised 995 feet downstream (to the south) from said existing tile blowout and found 9 locations of partial/imminent collapse. (see attached Tabulated Defects sheet)
- Temporarily repaired 4 tile locations, 2 north and 2 south (1 was at tenant's request) from the start location of the CCTV with 15" Dual Wall HDPE tile with fabric wrapped joints and backfilled the areas with on-site soil.

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

See attached Tabulated Contractor Time and Materials Tabulated Defects sheet.

### Additional Actions Recommended:

It is obvious that the Main tile is in disrepair 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. Therefore, we would recommend doing at least 6 spot repairs which would consist of replacing approximately 570 feet of existing tile. It is our opinion that the total construction cost would be \$35,000-\$45,000. 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.







## Tabulated Contractor Time and Materials

Date	Totals	5/14/2020
Workman (hrs)	18.75	18.75
Mini Excavator (hrs)	6.25	6.25
UTV with camera Equipment (hrs)	6.25	6.25
18" Dual Wall HDPE Tile (ft.)	19.9	19.9
CCTV inspection (ft.)	1878.3	1878.3



## Tabulated Defects

	Total	GPS #177 UPSTREAM	GPS #178 DOWNSTREAM
Total Length Televised (ft)	1879.9	884.9	995
Date:		5/14/2020	5/14/2020
Top crack (ft)	805.3	338.5	466.8
Side crack (ft)	161.4	69.2	92.2
Bottom crack (ft)	805.3	338.5	466.8
Partial or imminent collapse (#)	26	17	9
Full collapse (#)	0	0	0
Debris (ft)	3	3	0
Offset Joint (#)	6	5	1
Soil/voids visible in offset joint (#)	5	4	1
Single Wall HDPE (non-deformed) (ft)	6.2	1.5	4.7
Dual Wall HDPE (ft)	0	0	0
CMP (rusty) (ft)	49.8	34.3	15.5
Holes (non-fixed) (#)	0	0	0
Holes (fixed) (#)	0	0	0
Alligator Cracks (ft)	261.4	0	261.4
Radial Cracks (# of tile)	2	0	2



CONSTRUCTION ENGINEERING  
OBSERVATION REPORT

DATE:

05/14/2020

PROJECT NUMBER: HARDIN DD WO# 6844.4 / DD14

DAYS OF WEEK:

S	M	T	W	<b>F</b>	S
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COUNTY, ROUTE, ROAD: WEST OF CO HWY 527 BETWEEN CO HWY 041 & 220.34 ST

SHEET NO.

1 OF 6

LOCATION: DD#14 MAIN LOCATED SWNE & NWSE 34-88-22 HARDIN COUNTY. INVESTIGATE & TEMPORARILY REPAIR 3 TILE BLOWOUTS

MID 50'S TO UPPER 60'S CLOUDY WITH LIGHT WIND MIST AND FOG IN MORNING & RAIN IN LATE AFTERNOON  
JOB# 6844 DD 14. SURVEY

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

8:30 A.M. LEE CALLED THAT PAUL WOULD BE WORKING ON TELEVISIONING TILE UPSTREAM AND DOWNSTREAM FROM 2 BLOWOUTS 121.4'± TO 160.7'± SOUTH OF GRASS LAWE EAST TO ACRES @ 21547 CO HWY 527 IN GRASS WATERWAY & 1 BLOWOUT 445'± NORTH OF GRASS LAWE EAST TO ACRES @ 21547 CO HWY 527 IN GRASS WATERWAY AND MAKE TEMPORARY REPAIRS UNTIL DISTRICT DECIDES ON HOW MUCH OF TILE TO REPAIR. OBSERVER LOOKED FOR FILE AND UPLOADED IT TO DATA COLLECTOR.

9:45 A.M. LEE TEXT THAT PAULS CREW WAS JUST LEAVING SHOP AND OBSERVER LEFT FOR JOB SITE TOO.

10:25 A.M. OBSERVER ARRIVED ON SITE AND STARTED SETTING GPS BASE ON GPS# 23 3/4" Ø IRON ROD FLUSH IN SW CORNER FIELD DRIVE IN SE QUADRANT OF CO HWY 041 & CO HWY 527.

10:30 A.M. OBSERVER COULD SEE THAT CREW HAD EQUIPMENT UNLOADED AND WERE DRIVING OUT TO REPAIR LOCATION.

10:50 A.M. OBSERVER CHECKED INTO GPS# 21 SURVEY MARK FLUSH IN ALL CO HWY 527 1/2 MILE SOUTH OF CO HWY 041 WITH BOTH HORIZONTAL AND VERTICAL POSITION CHECKING GOOD.

10:55 A.M. OBSERVER ARRIVED AT JOB SITE. PAUL, DOUG, & WILLIAM WAS ON SITE FOR CREW WITH BOBCAT E85 MINI EXCAVATOR AND UTV WITH TELEVISIONING EQUIPMENT IN BACK. CREW HAD TILE EXPOSED IN HOLE #15. 3.0' Ø BLOWOUT IN GRASS WATERWAY (120'± SOUTH GRASS LAWE EAST TO ACRES) AND WAS GETTING SETUP TO TELEVISE UPSTREAM FROM 15" CLAY TILE GPS# 177. TILE HAD ABOUT 5" FLOW

11:05 A.M. CREW STARTED TELEVISIONING UPSTREAM FROM GPS# 177 IN HOLE #15

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

Observer's Signature: Dean Penning Date Prepared: 05/14/2020

Reviewed by: [Signature]  Engineer Date Reviewed: \_\_\_\_\_



CONSTRUCTION ENGINEERING  
OBSERVATION REPORT

DATE:

05/14/2020

PROJECT NUMBER: HARDIN DD WOFF  
6844.4/0014

DAYS OF WEEK:

S M T W T F S

COUNTY, ROUTE, ROAD: WEST OF CO HWY 527 BETWEEN  
CO HWY 041 & 220 THST

SHEET NO.

2 OF 6

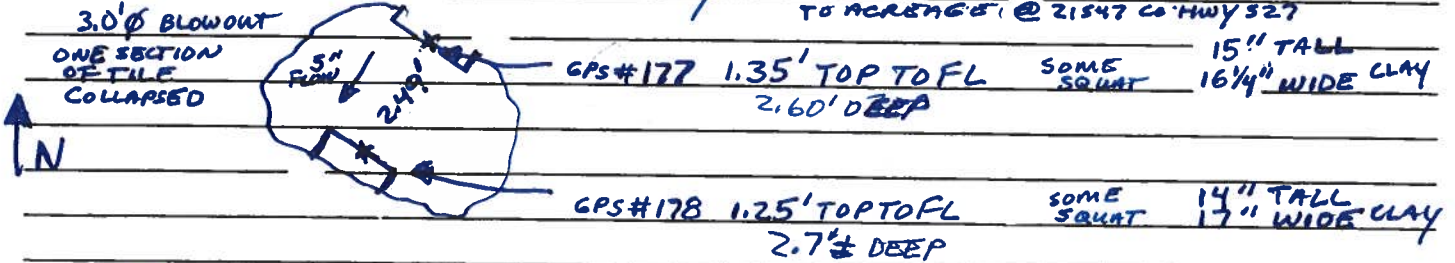
LOCATION: DD14 MANHOLE TILE LOCATED SWNE & NWSE  
34-88-22 HARDIN COUNTY  
INVESTIGATE & TEMPORARILY REPAIR 3 TILE BLOWOUTS

MID 50'S TO UPPER 60'S CLOUDY WITH LIGHT  
WIND MIST & FOG IN MORNING & RAIN  
IN LATE AFTERNOON

JOB # 6844 0014 SURVEY

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

BLOWOUT #15 IN GRASS WATERWAY 120.3'± SOUTH OF E GRASS LANE EAST  
TO ACRE 65 @ 21547 CO HWY 527



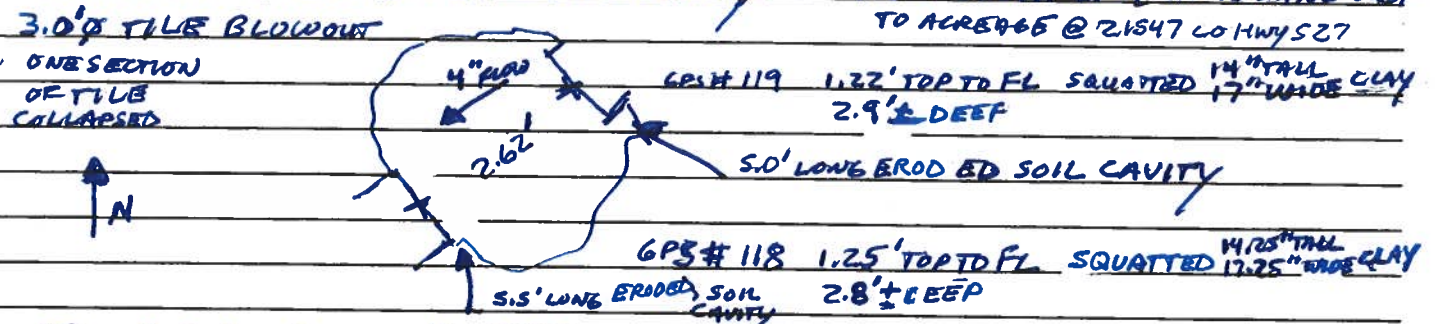
11:25 A.M. CREW STARTED EXCAVATE AT BLOWOUT #2S

11:25 A.M. PICTURE # 3538, 11:28 A.M. PICTURE # 3539, 11:32 A.M.

PICTURE # 3540 SEE PICTURES FOR DETAILS

11:42 A.M. PICTURE # 3541, 11:43 A.M. PICTURE # 3544, 11:48 A.M. PICTURE  
# 3543 & PICTURE # 3544

BLOWOUT #2S IN GRASS WATERWAY 159.9'± SOUTH OF E GRASS LANE EAST  
TO ACRE 65 @ 21547 CO HWY 527



12:07 P.M. PICTURE # 3545 & PICTURE # 3546 SEE PICTURE FOR  
DETAILS.

12:10 P.M. CREW RAN INTO A SECTION OF TILE THAT HAD COMPLETELY  
COLLAPSED.

12:15 P.M. CREW HEADED UP TO BLOWOUT 2N TO EXCAVATE  
& EXPOSE TILE SO CREW COULD LOCATE TILE FURTHER NORTH.

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

Observer's Signature: Dean Penning

Date Prepared: 05/14/2020

Reviewed by:  Engineer

Date Reviewed

CONSTRUCTION ENGINEERING  
OBSERVATION REPORT

DATE:

05/14/2020

DAYS OF WEEK:

S M T W T F S

PROJECT NUMBER: HARDIN DD W0#  
6844.4/0014

COUNTY, ROUTE, ROAD: WEST OF CO HWY 927 BETWEEN  
CON WY DMI 8220 THST

SHEET NO.

3 OF 6

LOCATION: DD14 MANHOLE TILE LOCATED SWNB & NWSE  
34-88-22 HARRIS COUNTY  
INVESTIGATE & TEMPORARILY REPAIR 3 TILE BLOWOUTS

MID 50'S TO UPPER 60'S CLOUDY WITH LIGHT  
WIND MIST & FOG IN MORNING & RAIN  
IN LATE AFTERNOON

JOB # 6844 DD14 SURVEY

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

12:25 P.M. CREW HAD TILE BLOWOUT # 2N EXPOSED AND SECTION OF  
CLAY TILE REMOVED. CREW RELIZED COLLAPSED TILE WAS  
NOT TILE BLOWOUT # 2N.

12:29 P.M. PICTURE # 3547 SEE PICTURE FOR DETAILS.

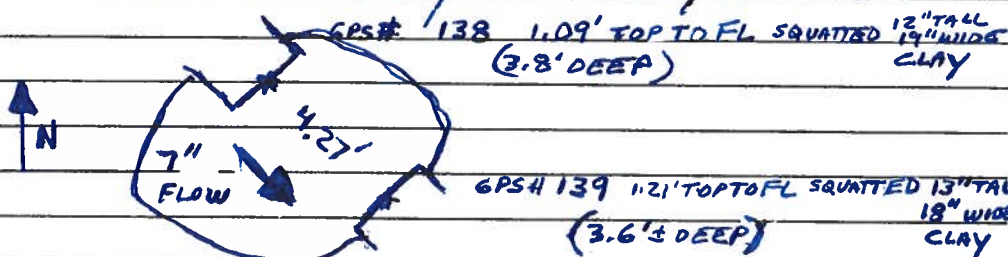
12:30 P.M. CREW LOCATED TILE FROM GPS# 177 NORTH TILE INSIDE  
TILE BLOWOUT # 18 UPSTREAM 537.2' WHERE SECTION OF TILE COLLAPSED  
(GPS 128-131, 133 TO 137)

12:43 P.M. PICTURE # 3548 SEE PICTURE FOR DETAILS.

12:58 P.M. CREW WAS DONE LOCATING TILE AND STARTED TO EXCAVATE  
@ 537.1' WHERE SECTION OF TILE COLLAPSED.

BLOWOUT # 2N IN GRASS WATER WAY 443.5' NORTH OF GRASS WATER  
WAY TO ACREAGE

5.0' Ø TILE BLOWOUT  
2 SECTIONS OF TILE  
COLLAPSED



1:09 P.M. PICTURE # 3549 & 1:10 P.M. PICTURE # 3550 SEE PICTURE FOR DETAILS

1:12 P.M. PICTURE # 3551 & PICTURE # 3552 SEE PICTURE FOR DETAILS.

1:16 P.M. PICTURE # 3553 SEE PICTURE FOR DETAILS.

1:25 P.M. CREW LET WATER FLOW FOR A WHILE & CONTINUED TO TELEVIEW  
UPSTREAM PAST 537.1' TILE COLLAPSE UNTIL CAMERA FOUND A  
BROKEN CLAY TILE CHUNK IN FLOWLINE AND COULD NOT  
GET PAST THE CHUNK @ 883.28' GPS # 145.

1:42 P.M. CREW WAS LOCATING TILE.

1:57 P.M. CREW WAS DONE LOCATING TILE AND PULLING CAMERA BACK.

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

Observer's Signature: Dean Penning

Date Prepared: 05/14/2020

Reviewed by:

Engineer

Date Reviewed



CONSTRUCTION ENGINEERING  
OBSERVATION REPORT

DATE:

05/14/2020

PROJECT NUMBER: HARDIN DD WOFF  
6844.4/0014  
COUNTY, ROUTE, ROAD: WEST OF COUNTY 927 BETWEEN  
CO HWY 041 & 220 TH ST  
LOCATION: DD14 MARIETTA TILE LOCATED SWNE & NWSE  
34-88-22 HARRIS COUNTY  
INVESTIGATE & TEMPORARILY REPAIR 3 TILE BLOWOUTS

DAYS OF WEEK:

S M T W T F S

SHEET NO.

4 OF 6

MID 50'S TO UPPER 60'S CLOUDY WITH LIGHT  
WIND MIST & FOG IN MORNING & RAIN  
IN LATE AFTERNOON

JOB # 6844.0014 SURVEY

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

BLOWOUT # 1N IN GRASS WATERWAY 407.2'± NORTH OF GRASS WATERWAY  
TO ACREAGE  
1 SECTION OF TILE  
COLLAPSED  
GPS # 147 1.05' TOP TO FL 12" TALL  
3.4'± DEEP 19" WIDE CLAY  
SQUATTED  
4.0' LONG  
ERODED  
SOIL CAVITY  
ON WEST SIDE  
2 1/2" FLOW  
N  
GPS # 146 1.32' TOP TO FL 15" TALL  
(3.3'± DEEP) 17" WIDE CLAY

2:05 P.M. PICTURE # 3557 SEE PICTURE FOR DETAILS

2:14 P.M. PICTURE # 3558 & PICTURE # 3559 SEE PICTURE FOR DETAILS.

CREW WILL REMOVE NEXT CLAY TILE SECTION TO NORTH IN  
TILE BLOWOUT # 1N DUE TO CONDITION.

2:33 P.M. PICTURE # 3560 SEE PICTURE FOR DETAILS.

BLOWOUT # 1N IN GRASS WATERWAY 407.2'± NORTH OF GRASS WATERWAY  
TO ACREAGE

TEMPORARY REPAIR TILL  
DISTRICT DECIDES ON REPAIR  
2.0' X 4.5' ENGINEERING  
FABRIC OVER JOINT  
GPS # 152 1.34' TOP TO FL 15.25" TALL  
2 1/2" FLOW 3.3'± DEEP 16" WIDE CLAY  
N  
6.3 LF 15" Ø DUAL WALL  
NONPERF HOPE TILE  
GPS 146 1.32' TOP TO FL 15" TALL  
3.3'± DEEP 17" WIDE CLAY  
2.0' X 4.5' ENGINEERING FABRIC OVER JOINT

2:42 P.M. CREW STARTED TELEVISIONING DOWNSTREAM FROM GPS # 178 IN TILE BLOWOUT # 1S.

CREW WILL REMOVE A CLAY TILE SECTION TO NORTH AND SOUTH IN  
TILE BLOWOUT # 2N DUE TO CONDITION.

3:11 P.M. PICTURE # 3562, 3:14 P.M. PICTURE # 3563, 3:19 P.M. PICTURE # 3564 SEE  
PICTURE FOR DETAILS.

BLOWOUT # 2N IN GRASS WATERWAY 443.5'± NORTH OF GRASS WATERWAY TO ACREAGE  
ENDED UP REMOVING 4 SECTIONS OF TILE  
FOR TEMPORARY REPAIR TILL  
DISTRICT DECIDES ON REPAIR  
GPS # 176 1.39' TOP TO FL 8.5'± DEEP  
2.0' X 4.5' ENGINEERING FABRIC OVER JOINT  
8.5 LF OF 15" Ø DW HOPE NONPERF TILE  
2.0' X 4.5' ENGINEERING FABRIC OVER JOINT  
GPS # 175 1.39' TOP TO FL CLAY 3.6'± DEEP  
3" FLOW

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

Observer's Signature: Dean Penning

Date Prepared: 05/14/2020

Reviewed by: \_\_\_\_\_ Engineer

Date Reviewed \_\_\_\_\_



CONSTRUCTION ENGINEERING  
OBSERVATION REPORT

DATE:

05/14/2020

PROJECT NUMBER:

HARDIN DD W0#

6844.4/0014

COUNTY, ROUTE, ROAD:

WEST OF CO HWY 527 BETWEEN  
CO HWY D41 & 220TH ST

LOCATION:

0041 MAIN TILE LOCATED SWNE & NWSE  
34-88-22 HARDIN COUNTY

INVESTIGATE & TEMPORARILY REPAIR 3 TILE BLOWOUTS

DAYS OF WEEK:

S M T W **D** F S

SHEET NO.

.5 OF 6

MID 50'S TO UPPER 60'S CLOUDY WITH LIGHT  
WIND MIST & FOG IN MORNING & RAIN  
IN LATE AFTERNOON

JOB# 6844 0014 SURVEY

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

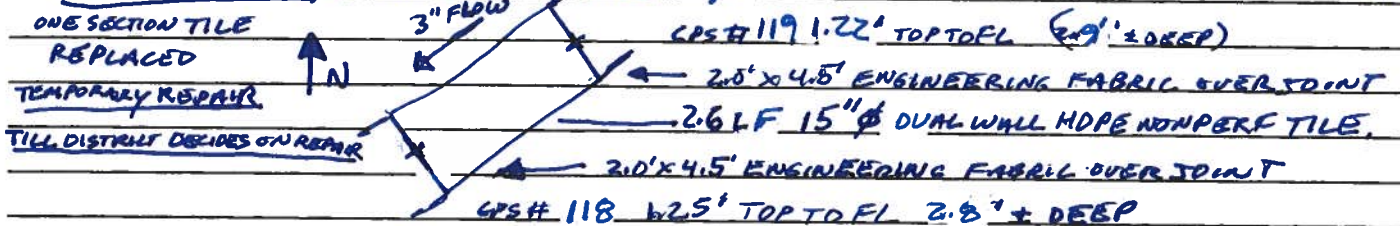
3:33 P.M. PICTURE # 3565 SEE PICTURE FOR DETAILS.

3:35 P.M. CREW WAS DONE BACK FILLING: TILE BLOWOUT #1N & #2N  
AND FINISHED TELE VISING 995' DOWNSTREAM TO END OF  
CAMERA CABLE. CREW STARTED TO LOCATE TILE.

3:50 P.M. CREW WAS DONE LOCATING TILE AND STARTED  
TO RETRIEVE CAMERA.

4:14 P.M. PICTURE # 3566 & PICTURE # 3567 SEE PICTURE FOR DETAILS.

BLOW OUT # 2S IN GRASS WATERWAY 159.9'± SOUTH OF GRASS LANE EAST TO ACRES.



4:19 P.M. PICTURE # 3568 & 4:21 P.M. PICTURE # 3569 SEE PICTURE FOR DETAILS.

BLOWOUT # 1S 120.3'± SOUTH OF  
& GRASS LANE  
EAST TO ACRES



4:29 P.M. PICTURE # 3570 SEE PICTURE FOR DETAILS.

4:45 P.M. CREW LEFT SITE AFTER FINISHING BACK FILLING HOLES.

4:51 P.M. PICTURE # 3571 & 4:52 P.M. PICTURE # 3572. SEE PICTURE FOR DETAILS.

5:00 P.M. OBSERVER TORE DOWN GPS AND LEFT SITE.

SEE QUANTITIES ON SHEET 6

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

Observer's Signature:

*Dean Penning*

Date Prepared:

05/14/2020

Reviewed by:

Engineer

Date Reviewed

CONSTRUCTION ENGINEERING  
OBSERVATION REPORT

DATE:

05/14/2020

PROJECT NUMBER:

HARDIN DD W0#

DAYS OF WEEK:

S M T W **T** F S

COUNTY, ROUTE, ROAD:

6844.4/0014  
WEST OF CO HWY 527 BETWEEN  
CO HWY 041 & 220 EAST

SHEET NO.

6 OF 6

LOCATION:

0041 MAIN TILE LOCATED SWNE & NWSE  
34-88-22 HARDIN COUNTY

MID 50'S TO UPPER 60'S CLOUDY WITH LIGHT  
WIND MIST & FOG 'IN MORNING & RAIN  
IN LATE AFTERNOON

INVESTIGATE & TEMPORARILY REPAIR 3 TILE BLOWOUTS

JOB# 6844 0014 SURVEY

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

QUANTITIES

PAUL 6 1/4 HOURS

DOUG 6 1/4 HOURS

WILLIAM 6 1/4 HOURS

BOBCAT E85 MINI EXCAVATOR 6 1/4 HOURS

UTV WITH CAMERA EQUIPMENT 6 1/4 HOURS

TELEVISED UPSTREAM FROM GPS# 177 883.3 LF

DOWNSTREAM FROM GPS# 178 995.0 LF.

TEMPORARY REPAIR TILE BLOWOUT IN 6.3 LF 15" Ø DW HDPE NONPERF TILE

UNTIL DISTRICT DECIDES

2- 2.0' x 4.5' ENGINEERING FABRIC  
PIECES

ON HOW MUCH TO REPAIR

TILE BLOWOUT 2N 8.5 LF 15" Ø DW HDPE NONPERF TILE

2- 2.0' x 4.5' ENGINEERING FABRIC  
PIECES

TILE BLOWOUT 1S 2.5 LF 15" Ø DW HDPE NONPERF TILE

2- 2.0' x 4.5' ENGINEERING FABRIC  
PIECES

NOTE #1 GPS# 14S REMOVE CLAY

TILE PIECE IN FLOWLINE

② ONCE REPAIR DECIDED  
FIX TEMPORARY REPAIRS

TILE BLOWOUT 2S 2.6 LF 15" Ø DW HDPE NONPERF TILE

2- 2.0' x 4.5' ENGINEERING FABRIC  
PIECES

NOTE: TILE BLOWOUT IN, 2N, & 2S NEED SEEDED

TILE BLOWOUT 1S NEEDS ADDITIONAL SOIL IN 6.0' x 6.0' x 1.0' x

DEEP AREA THEN SEED.

TILE 1 HAS NUMEROUS BAD SPOTS TO NORTH AND SOUTH OF BLOWOUT 1S.

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

Observer's Signature:

*Dream Perry*

Date Prepared:

05/14/2020

Reviewed by:

Engineer

Date Reviewed





COUNTY TILE TELEVISION REPORT

DATE 05 / 14 / 2020

JOB # 6844.4

DD 14 MAIN

UPSTREAM

883.3'

START GPS # 177

END GPS # 145

0.0 CAMERA TIRES IN TILE WITH CAMERA HEAD ABOUT 1.0' +/- INSIDE TILE

FOOTAGE

0.00	GPS # 177	15" CLAY TILE UPSTREAM @ BLOWOUT IS 120.3' BLOWOUT SOUTH OF GRASS LANE EAST TO ACREAGE @ 21547 CO HWY 527.
0.00	(LC) @ 12	
0.9	LONGITUDINAL CRACK & CIRCUMFERENTIAL CRACK.	
11.4	LONGITUDINAL CRACK & CIRCUMFERENTIAL CRACK.	(EC)
18.2	LONGITUDINAL CRACK & CIRCUMFERENTIAL CRACK.	
20.6	LONGITUDINAL CRACK & CIRCUMFERENTIAL CRACK.	
28.8	LONGITUDINAL CRACK & CIRCUMFERENTIAL CRACK.	
31.0	LONGITUDINAL CRACK & CIRCUMFERENTIAL CRACK.	
33.8	LONGITUDINAL CRACK & CIRCUMFERENTIAL CRACK.	
68.7	CLAY TO CMP	



PICTURE # 3538 IS LOOKING SW @ BLOWOUT # 1 IS SHOWING CREW  
TELEVISIONING WASSTREAM FROM GPS# 177



GPS# 178  
TOP 14" TALL  
17" WIDE  
CLAY TILE  
1.25' TOP TO FL



05/14/2020  
11:25

GPS# 177 TOP 15" TALL 16 1/4" WIDE  
1.35' TOP TO FL



GPS# 119  
TOP 14" TALL  
17" WIDE  
CLAY TILE  
1.25' TOP TO FL

ERODED  
SOIL  
CAVITY

05/14/2020  
11:28

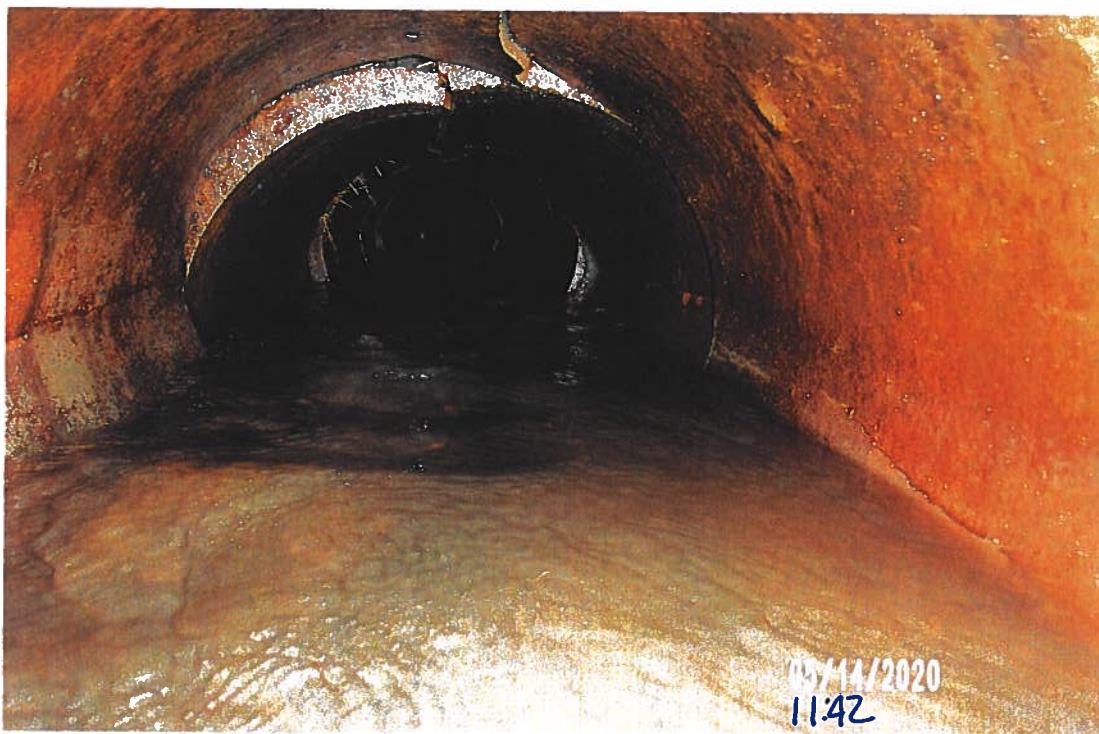
11:28

PICTURE # 3539 IS LOOKING NE @ BLOWOUT # 25 SHOWING A 5.0'  
LONG CAVITY ON EAST SIDE OF TILE WHERE SOIL ERODED  
AWAY



PICTURE #354D IS LOOKING SW IN BLOWOUT #2S SHOWING 5.5' LONG  
ERODED SOIL CAVITY ON EAST SIDE OF TILE

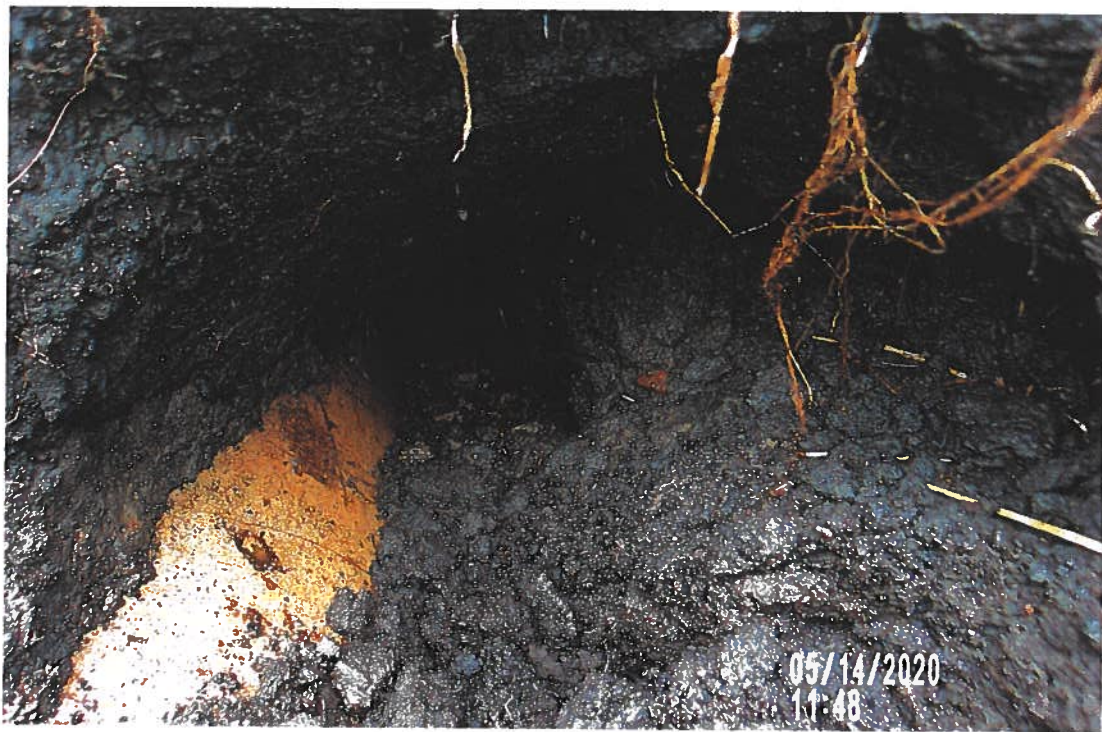
GPS# 118 TOP 14 1/4" TALL X  
17 1/4" WIDE



PICTURE 354I IS LOOKING SW INSIDE CLAY TILE DOWNSTREAM  
INSIDE BLOWOUT 2S SHOWING NEXT COUPLE SECTIONS  
IN BAD SHAPE WITH CRACKS AND LEAVING DOWN. FROM GPS# 118



PICTURE # 3542 IS LOOKING NE INSIDE CLAY TILE UPSTREAM INSIDE BLOWOUT 2S SHOWING NEXT COUPLE SECTIONS IN BAD SHAPE WITH CRACKS AND APPEAR TO BE CAVING DOWN, FROM GPS # 119



PICTURE # 3543 IS LOOKING NE ON EAST SIDE OF TILE AT 5.0' LONG SOIL BROODED CAVITY IN BLOWOUT # 2S FROM GPS # 119



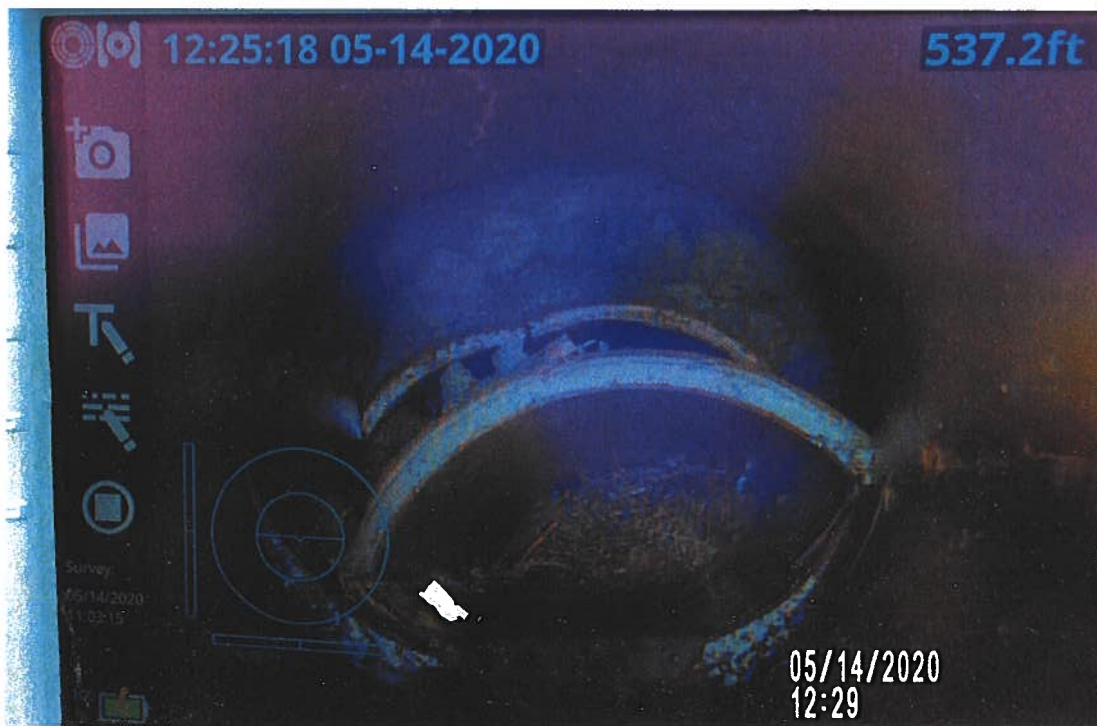
PICTURE # 3544 IS LOOKING SW ON EAST SIDE OF TILE AT 5.5' LONG  
SOIL ERODED CAVITY IN BLOWOUT # 28 FROM GPS # 118



PICTURE # 3545 IS LOOKING NW INSIDE BLOWOUT 2 IN 5.0'  $\phi$  HOLE  
WITH CORNSTALKS AND SOIL IN BOTTOM.



PICTURE # 3546 IS LOOKING SOUTH AT BLOWOUT 2N (5" HOLE) IN GRASS  
WATER WAY BACK TOWARDS GRASSLANE TO ACREAGE



PICTURE # 3547 IS LOOKING UPSTREAM AT COMPLETELY COLLAPSED  
SECTION OF CLAY TILE @ 537.2' WHICH HAD NOT SURFACED  
YET & SOUTH OF TILE BLOWOUT # 2N,



PICTURE# 3548 IS LOOKING SE AT TILE BLOWOUT #2N TILE EXPOSED WITH 5" FLOW.



GPS# 139  
13" TALL  
18" WIDE  
SQUARED  
1.25' TOP TO FL  
(3.6' ± DEEP)

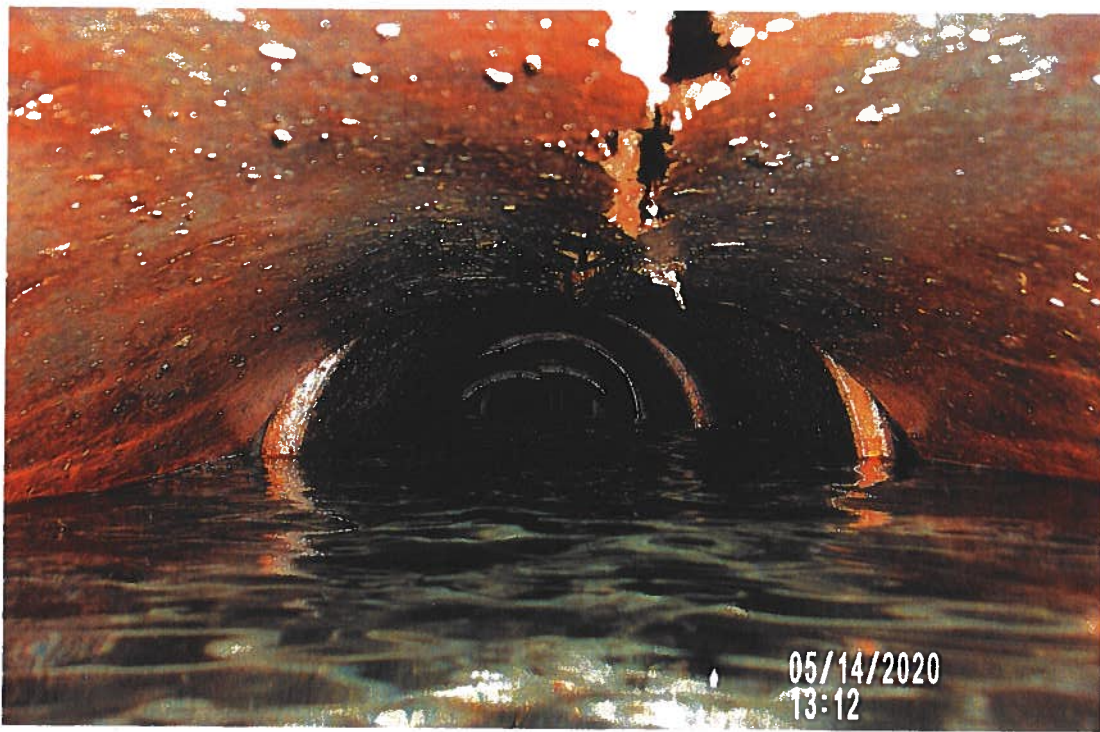
GPS# 138  
12" TALL  
17" WIDE  
SQUARED  
1.09' TOP TO FL  
(3.8' ± DEEP)



PICTURE# 3549 IS LOOKING NW SHOWING VOID UNDER GRASS WATERWAY THAT HAD NEVER SURFACED YET. ONLY 1.0' TO 1.5' OF SOIL OVER VOID @ 537.1' WHERE TILE COMPLETELY



PICTURE # 3550 IS LOOKING NW SHOWING VOID UNDER GRASS WATERWAY @ 537.1' WHERE TILE COMPLETELY COLLAPSED.



PICTURE # 3551 IS LOOKING NW SHOWING 1ST SECTION OF TILE WITH SEVERE LONGITUDINAL CRACK AND CAVING DOWN. UPSTREAM FROM GPS# 138 WITH SEVERAL OTHER TILE CRACKED AND CAVING DOWN SEVERAL FEET UPSTREAM.



PICTURE # 3552 IS LOOKING SE SHOWING 1ST SECTION OF CLAY TILE WITH LONGITUDINAL CRACKS AND CAVING DOWN DOWNSTREAM FROM CPS# 139 WITH REST OF SECTIONS OF TILE NOT LOOKING TOO BAD



CPS# 147  
 12" TALL  
 19" WIDE  
 SANDY CLAY  
 1.05' TOP TO FL:  
 3.5' ± DEEP

CPS# 146  
 15" TALL  
 17" WIDE  
 CLAY  
 1.32' TOP TO FL  
 3.3' ± DEEP

PICTURE # 3553 IS LOOKING NE SHOWING COLLAPSED SECTION OF TILE REMOVED AND NOW FLOWING GOOD IN BLOWOUT. IN



PICTURE# 3557 IS LOOKING NW SHOWING 4.0' LONG ERODED SOIL CAVITY ON WEST SIDE OF TILE IN IN TILE BLOWOUT # IN FROM GPS# 147



N ↗



↙ 2

PICTURE# 3558 IS LOOKING SE INSIDE CLAY TILE IN TILE BLOWOUT # IN FROM GPS# 146 SHOWING TILE CRACKED BUT NOT GIVING DOWN,



PICTURE #3559 IS LOOKING NW INSIDE CLAY TILE FROM GPS# 147 IN TILE BLOWOUT # IN SHOWING TOP CRACKED AND CAVING DOWN



PICTURE # 3560 IS LOOKING NW INSIDE CLAY TILE FROM GPS # 152 IN TILE BLOWOUT # IN SHOWING TILE CRACKED BUT NOT CAVING DOWN.



PICTURE # 3561 IS LOOKING NW SHOWING TEMPORARY REPAIR OF 6.3 LF OF 15" Ø DUAL WALL NON PERFORATED TILE INSTALLED IN TILE BLOWOUT # 1N WITH BOTH JOINTS WRAPPED WITH FABRIC.



GPS#152  
TOP 15.25" TALL  
16" WIDE  
CLAY  
(1.34' TOP TO FL)

GPS#146  
TOP 15" TALL  
17" WIDE  
CLAY  
(1.32' TOP TO FL)



PICTURE # 3562 IS LOOKING SE INSIDE CLAY TILE FROM GPS# 175 IN TILE BLOWOUT # 2N SHOWING TILE WITH FINE CRACKS BUT NOT CAVING DOWN



PICTURE #3563 IS LOOKING NW INSIDE CLAY TILE FROM GPS #176  
 IN TILE BLOWOUT # 2N SHOWING TILE WITH FINE CRACKS BUT  
 NOT CAVING DOWN IN 1ST TWO SECTIONS BUT NEXT TWO SECTIONS  
 APPEAR TO BE CAVING DOWN. CREW ENDED UP REMOVING



2 SECTIONS  
 OF CLAY  
 TILE ON  
 NORTH END  
 DUE TO NEXT  
 SECTION  
 COLLAPSING  
 DURING  
 REMOVAL  
 N ↑

05/14/2020  
 15:14



GPS#176  
 15.75" TALL  
 16" WIDE  
 CLAY  
 (1.36' TOP TO FL)  
 ↑ N

GPS#175  
 15" TALL  
 15.75" WIDE  
 CLAY  
 (1.36' TOP TO FL)

05/14/2020  
 15:19

PICTURE # 3564 IS LOOKING NORTH SHOWING CREW INSTALLED 8.5 LF  
 OF 15" Ø DUAL WALL NONPERF TILE IN BLOWOUT # 2N WITH BOTH  
 JOINTS WRAPPED WITH FABRIC FOR TEMPORARY REPAIR UNTIL DISTRICT



PICTURE # 3567 IS LOOKING NW SHOWING TILE BLOWOUT #2N  
 BACK FILLED AND DRESSED UP IN GRASS WATERWAY BUT  
 STILL NEEDS SEEDED



GPS # 119  
 14" TALL  
 17" WIDE  
 SQUARED CLAY  
 (1.22' TOP TO FL)

GPS # 118  
 14.25" TALL  
 17.25" WIDE  
 SQUARED CLAY  
 (1.25' TOP TO FL)  
 (DUAL)

PICTURE # 3568 IS LOOKING NE SHOWING 2.6 LF OF 15" Ø DUAL  
 WALL HOPE NONPERF TILE INSTALLED WITH BOTH JOINTS  
 WRAPPED WITH FABRIC FOR TEMPORARY REPAIR IN BLOWOUT #2S



PICTURE# 3565 IS LOOKING NE INSIDE CLAY TILE UPSTREAM INSIDE  
BLOWOUT# 1S SHOWING TILE CRACKED BUT NOT CAVING DOWN FROM  
GPS# 177

↑N



↑N

PICTURE# 3566 IS LOOKING NW SHOWING TILE BLOWOUT# 1.N  
BACK FILLED AND DRESSED UP IN GRASS WATERWAY BUT  
STILL NEEDS SEEDED



PICTURE#3569 IS LOOKING SW INSIDE CLAY TILE DOWNSTREAM  
 INSIDE BLOWOUT#15 SHOWING TILE CRACKED AND CAVING DOWN  
 SOME FROM GPS# 178



N  
 ↘



N  
 ↗

GPS# 177  
 15" TALL  
 16.25" WIDE  
 CLAY  
 (1.35' TOP TO FL)

GPS# 178 14" TALL 17" WIDE CLAY (1.24' TOP TO FL)

PICTURE# 3570 IS LOOKING NW SHOWING 2.5 LF OF 15" Ø  
 DUAL WALL HOPE NONPERF TILE WITH BOTH JOINTS WRAPPED WITH FABRIC  
 FOR TEMPORARY REPAIR IN BLOWOUT # 15.



PICTURE # 3571 IS LOOKING NORTH SHOWING BLOWOUT 2S  
BACKFILLED AND DRESSED UP BUT NEEDS SEEDS  
YET.



PICTURE # 3572 IS LOOKING NORTH SHOWING BLOWOUT IS  
BACKFILLED. HOLE IS STILL SHORT OF SOIL IN 6.0' X 6.0'  
& 1.0'± DEEP AREA. NEED TO BACK FILL MORE SOIL AND SEED



WRc MSCC Third Edition

# Inspection Report

Produced on behalf of – HARDIN CO

Site location – ,

Survey reference – W/O 290

Date – 140520

WILLIAMS UNDERGROUND SVCS.

102 INDUSTRIAL DRIVVE, ACKLEY, IOWA

50601,

641-485-3925



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1.3	Survey Details .....	<b>Error! Bookmark not defined.</b>
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2.2	Drain / Sewer Details .....	<b>Error! Bookmark not defined.</b>
2.3	Survey Details .....	<b>Error! Bookmark not defined.</b>
2.4	Drain / Sewer Diagram .....	<b>Error! Bookmark not defined.</b>
2.5	Observations .....	<b>Error! Bookmark not defined.</b>
2.6	Photographs.....	<b>Error! Bookmark not defined.</b>

# 1 Drain / Sewer Survey

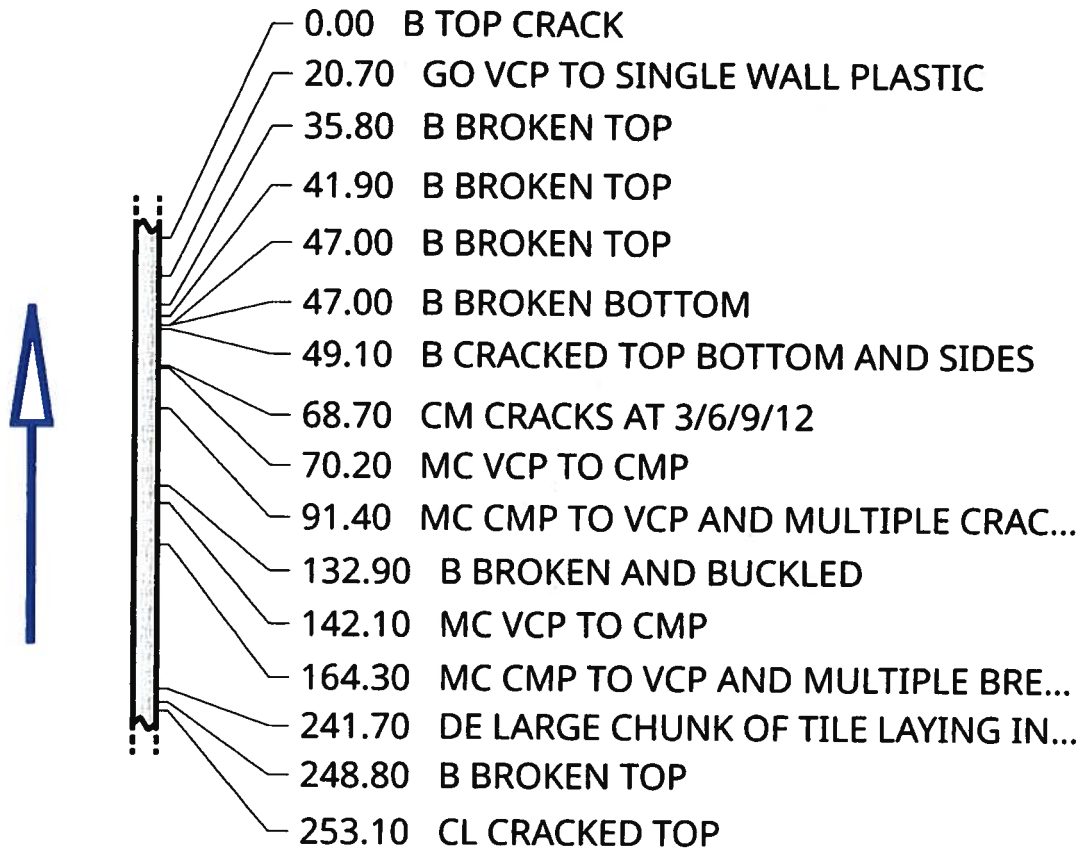
## 1.1 Survey Header

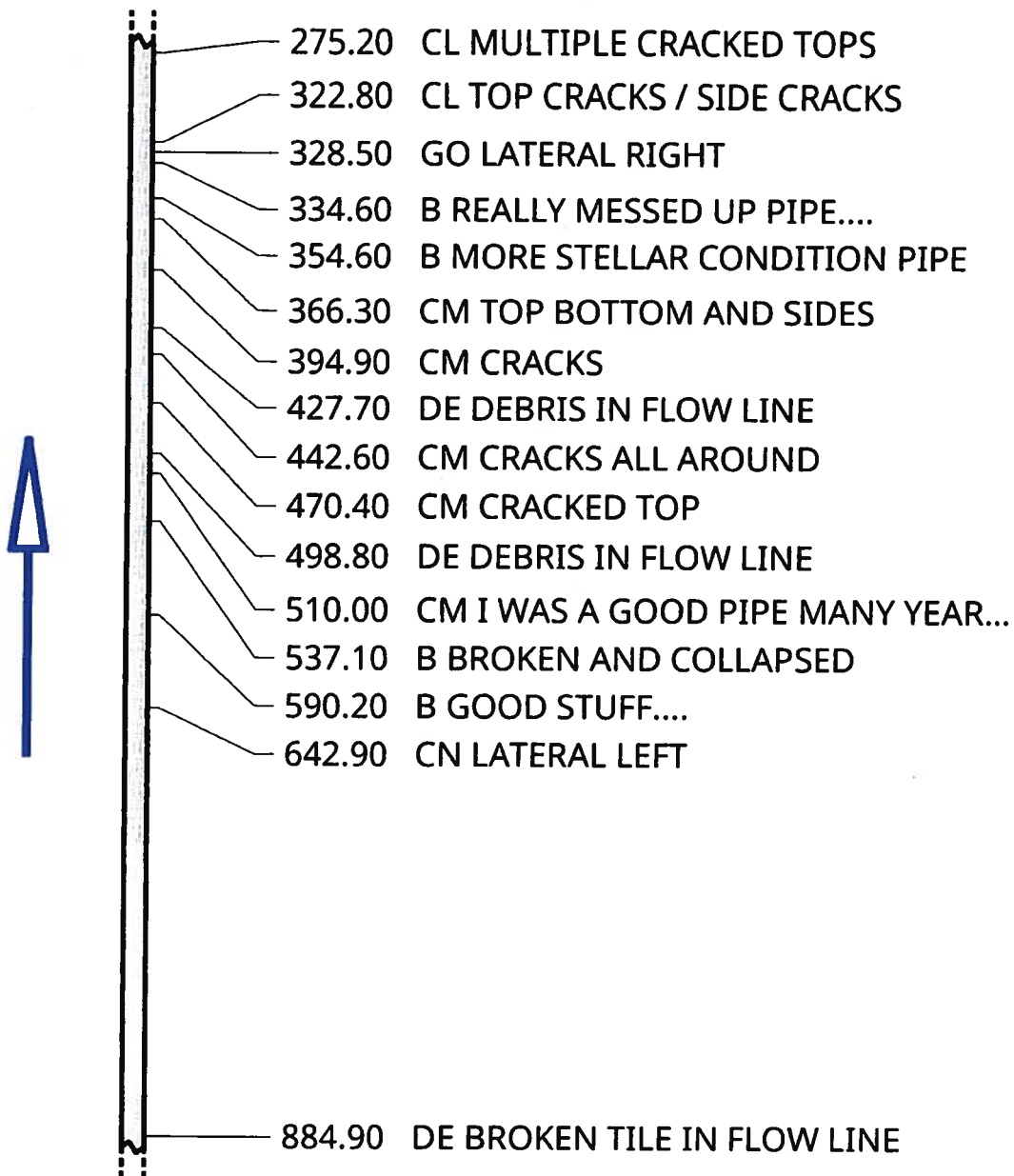
1.1.1	Surveyed by (Operator)	PAUL
1.1.2	Contract no.	
1.1.3	Job no.	W/O 290
1.1.4	Catchment (Drainage area)	DD14
1.1.5	Division	
1.1.6	District	DD14
1.1.7	Pipeline length ref	1000
1.1.8	Date	140520
1.1.9	Time	11:03
1.1.10	Location	
1.1.11	Start manhole no.	
1.1.12	Start depth	m
1.1.13	Start cover level	
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	U
1.1.21	Size 1 (diameter/height)	18mm
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	F
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











[page 1/2]








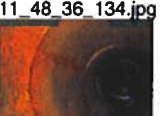









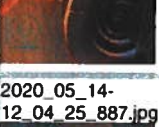
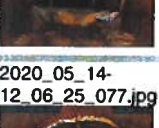
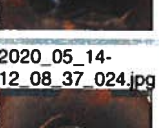
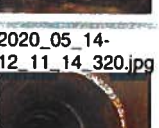
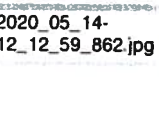







### 1.3 Observations

Video Ref	Dist (ft)	Cont Defect	Code	Photo Ref	Diameter/ Dimension	Clock		Intrusion		Remarks
						At	To	%	mm	
0:00:32	0.0		B	2020_05_14-11_06_59_253.jpg 		12	12			TOP CRACK
0:03:23	20.7		GO	2020_05_14-11_10_19_975.jpg 						VCP TO SINGLE WALL PLASTIC
0:10:12	35.8		B	2020_05_14-11_18_15_064.jpg 		11	01			BROKEN TOP
0:11:09	41.9		B	2020_05_14-11_19_50_872.jpg 		12	01			BROKEN TOP
0:11:54	47.0		B	2020_05_14-11_20_59_932.jpg 		12	02			BROKEN TOP
0:12:24	47.0		B	2020_05_14-11_21_48_750.jpg 		06	06			BROKEN BOTTOM
0:12:56	49.1		B	2020_05_14-11_22_48_871.jpg 		12	11			CRACKED TOP BOTTOM AND SIDES
0:16:39	68.7		CM	2020_05_14-11_27_25_733.jpg 		11	10			CRACKS AT 3/6/9/12
0:17:04	70.2		MC	2020_05_14-11_28_55_319.jpg 						VCP TO CMP
0:19:04	91.4		MC	2020_05_14-11_31_33_629.jpg 						CMP TO VCP AND MULTIPLE

Video Ref	Dist (ft)	Cont Defect	Code	Photo Ref	Diameter/ Dimension	Clock		Intrusion		Remarks
						At	To	%	mm	
										CRACKS ALL AROUND
0:21:14	132.9		B	2020_05_14-11_34_21_116.jpg 		12	11			BROKEN AND BUCKLED
0:21:48	142.1		MC	2020_05_14-11_35_23_408.jpg 						VCP TO CMP
0:22:45	164.3		MC	2020_05_14-11_36_46_142.jpg 						CMP TO VCP AND MULTIPLE BREAKS AT ALL CLOCK POSITIONS
0:27:05	241.7		DE	2020_05_14-11_42_18_623.jpg 				35%		LARGE CHUNK OF TILE LAYING IN FLOW LINE
0:28:47	248.8		B	2020_05_14-11_45_05_840.jpg 		12	12			BROKEN TOP
0:29:39	253.1		CL	2020_05_14-11_46_32_650.jpg 		12				CRACKED TOP
0:31:09	275.2		CL	2020_05_14-11_48_36_134.jpg 		12				MULTIPLE CRACKED TOPS
0:33:47	322.8		CL	2020_05_14-11_51_44_890.jpg 		12				TOP CRACKS / SIDE CRACKS
0:35:01	328.5		GO	2020_05_14-11_53_44_167.jpg						LATERAL RIGHT



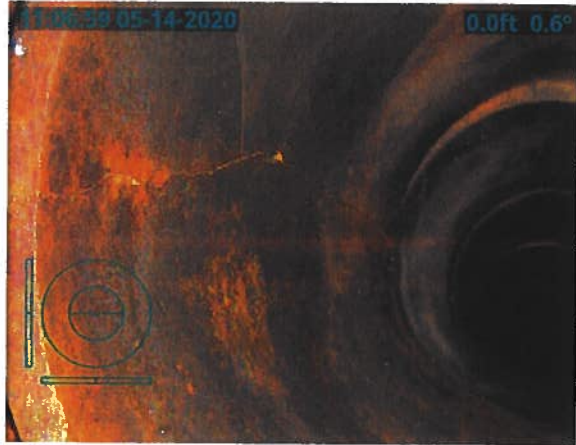
Video Ref	Dist (ft)	Cont Defect	Code	Photo Ref	Diameter/ Dimension	Clock		Intrusion		Remarks
						At	To	%	mm	
										
0:35:36	334.6		B	2020_05_14-11_56_23_311.jpg 		12	11			REALLY MESSED UP PIPE....
0:36:50	354.6		B	2020_05_14-11_58_15_678.jpg 		11	12			MORE STELLAR CONDITION PIPE
0:37:47	366.3		CM	2020_05_14-11_59_48_835.jpg 		11	12			TOP BOTTOM AND SIDES
0:39:47	394.9		CM	2020_05_14-12_02_18_136.jpg 		11	12			CRACKS
0:41:19	427.7		DE	2020_05_14-12_04_25_887.jpg 				25%		DEBRIS IN FLOW LINE
0:42:27	442.6		CM	2020_05_14-12_06_25_077.jpg 		11	12			CRACKS ALL AROUND
0:44:01	470.4		CM	2020_05_14-12_08_37_024.jpg 		12	02			CRACKED TOP
0:46:09	498.8		DE	2020_05_14-12_11_14_320.jpg 				25%		DEBRIS IN FLOW LINE
0:47:23	510.0		CM	2020_05_14-12_12_59_862.jpg		11	12			I WAS A GOOD PIPE MANY YEARS AGO...

Video Ref	Dist (ft)	Cont Defect	Code	Photo Ref	Diameter/ Dimension	Clock		Intrusion		Remarks
						At	To	%	mm	
										
0:50:12	537.1		B	2020_05_14-12_16_39_476.jpg 		08	03			BROKEN AND COLLAPSED
1:19:44	590.2		B	2020_05_14-13_24_29_424.jpg 		10	12			GOOD STUFF....
1:21:51	642.9		CN	2020_05_14-13_27_02_815.jpg 	4?	10				LATERAL LEFT
1:31:25	884.9		DE	2020_05_14-13_37_34_943.jpg 				50%		BROKEN TILE IN FLOW LINE



## 1.4 Photographs

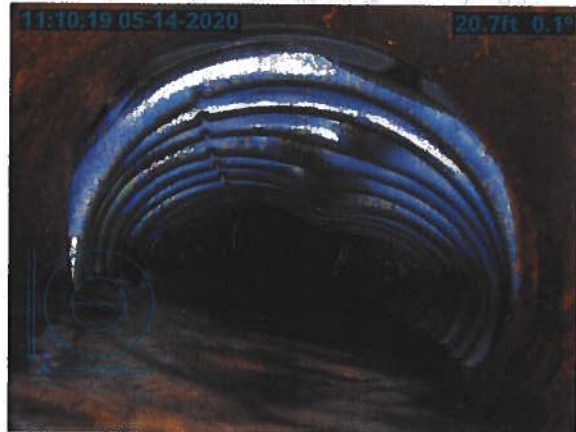
B 2020\_05\_14-11\_06\_59\_253.jpg



B 2020\_05\_14-11\_19\_50\_872.jpg



GO 2020\_05\_14-11\_10\_19\_975.jpg



B 2020\_05\_14-11\_20\_59\_932.jpg



B 2020\_05\_14-11\_18\_15\_064.jpg



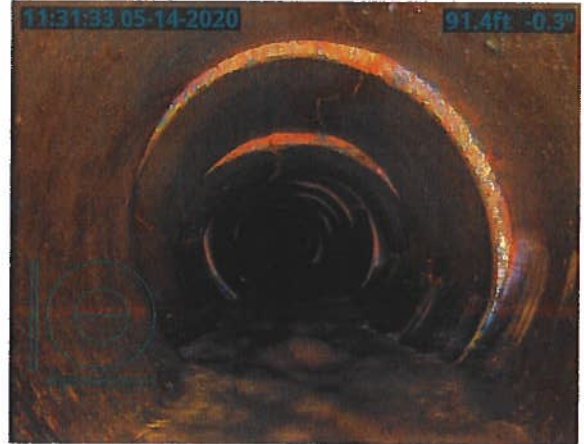
B 2020\_05\_14-11\_21\_48\_750.jpg



B 2020\_05\_14-11\_22\_48\_871.jpg



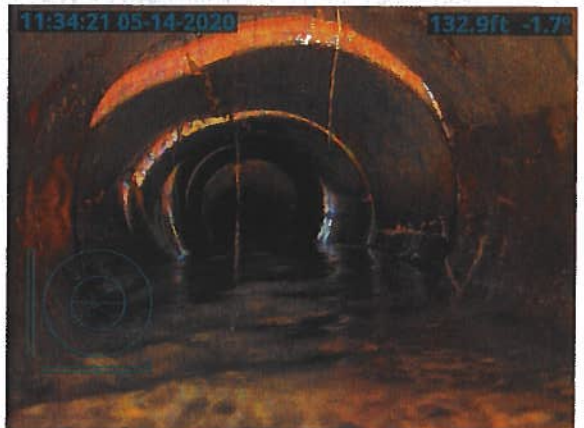
MC 2020\_05\_14-11\_31\_33\_629.jpg



CM 2020\_05\_14-11\_27\_25\_733.jpg



B 2020\_05\_14-11\_34\_21\_116.jpg



MC 2020\_05\_14-11\_28\_55\_319.jpg

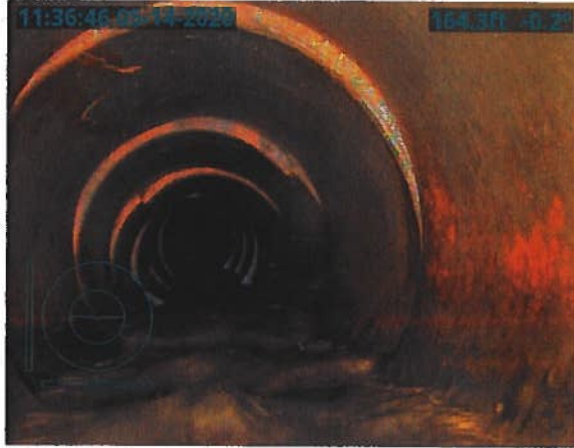


MC 2020\_05\_14-11\_35\_23\_408.jpg

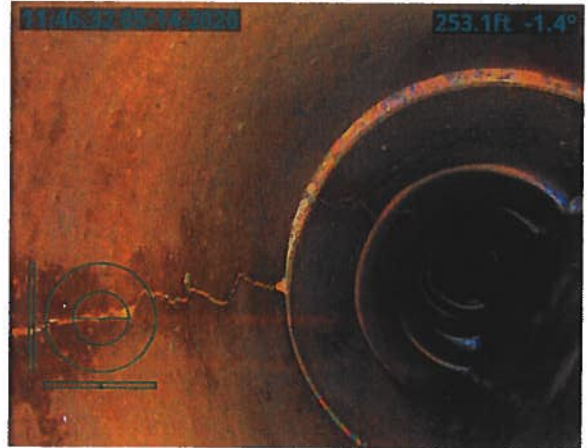




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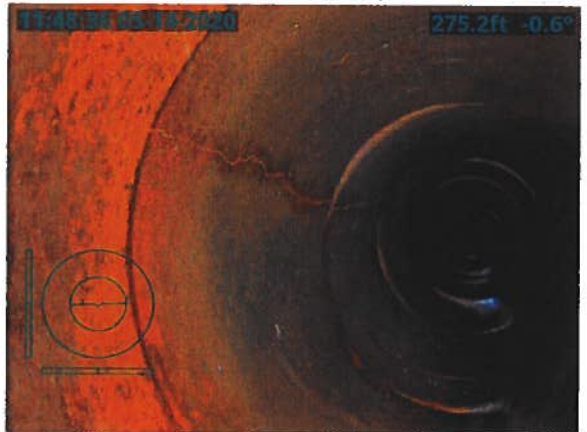
CL 2020\_05\_14-11\_46\_32\_650.jpg



DE 2020\_05\_14-11\_42\_18\_623.jpg



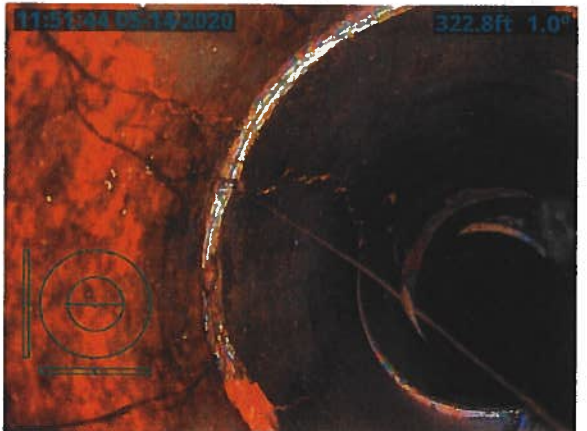
CL 2020\_05\_14-11\_48\_36\_134.jpg



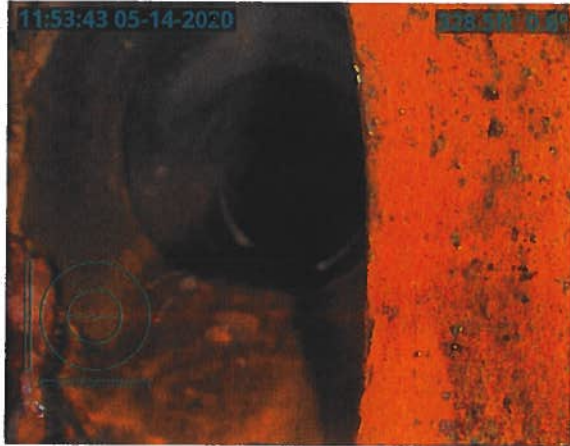
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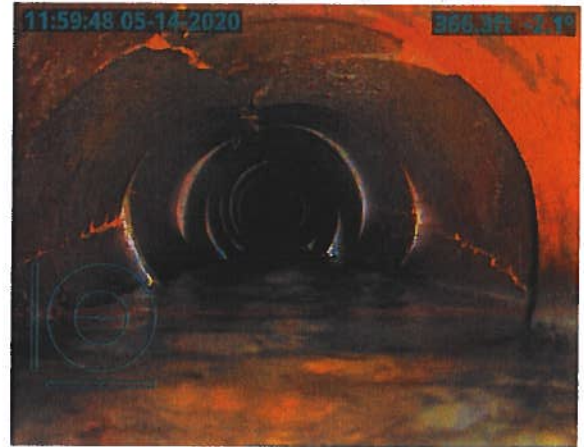
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GO 2020\_05\_14-11\_53\_44\_167.jpg



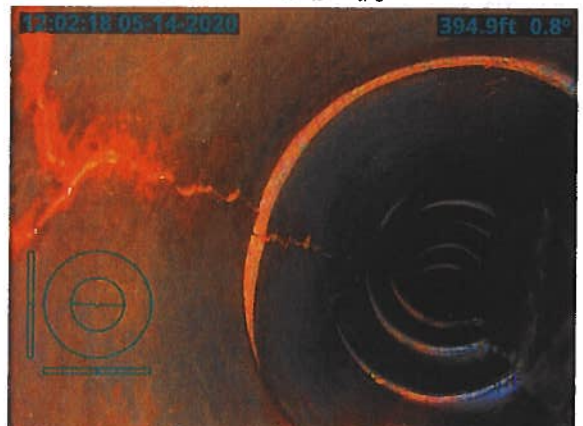
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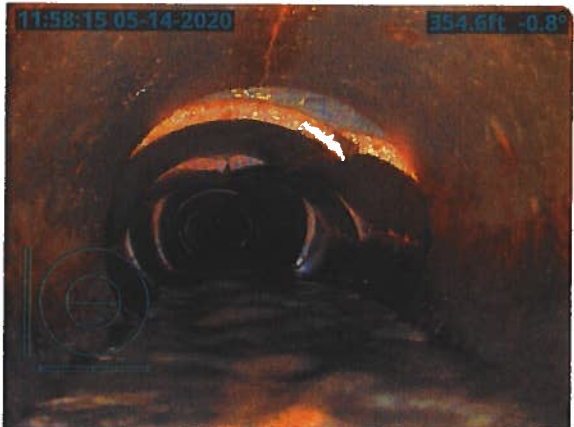
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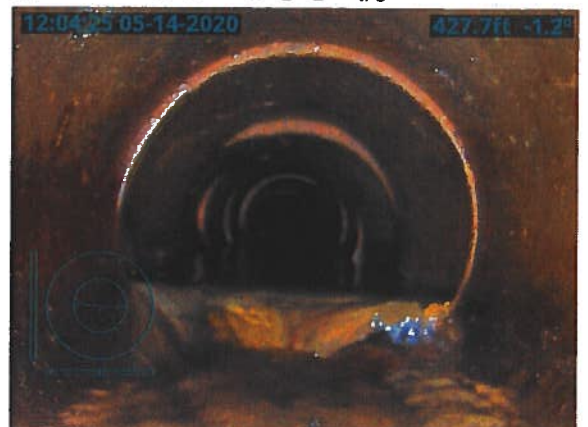
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B 2020\_05\_14-11\_58\_15\_678.jpg

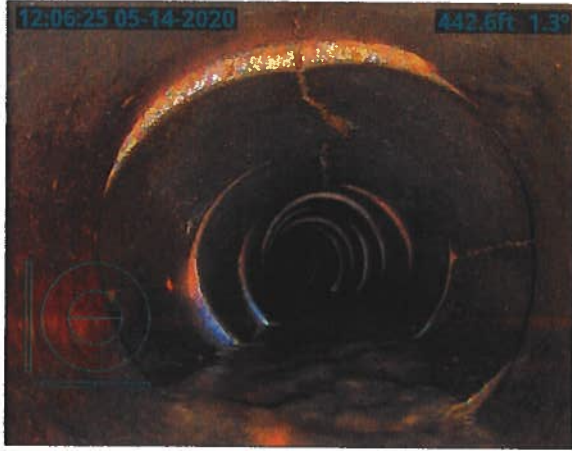


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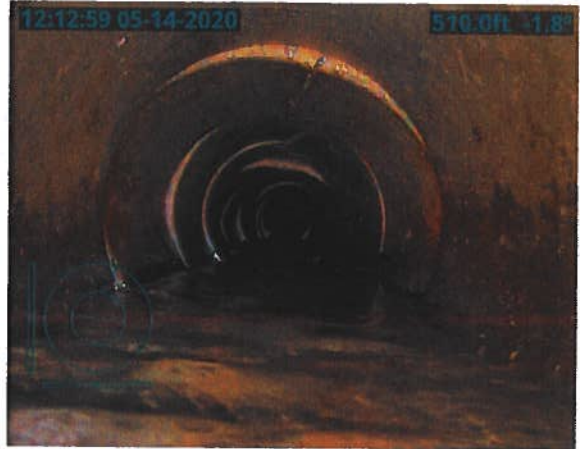




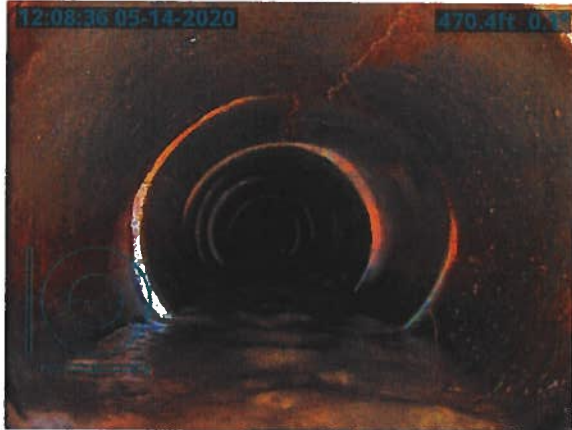
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CM 2020\_05\_14-12\_12\_59\_862.jpg



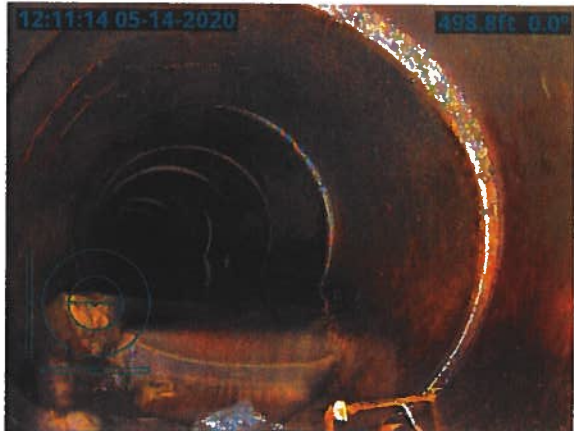
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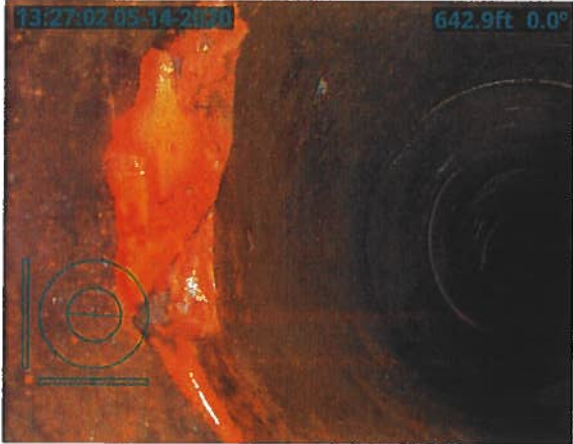
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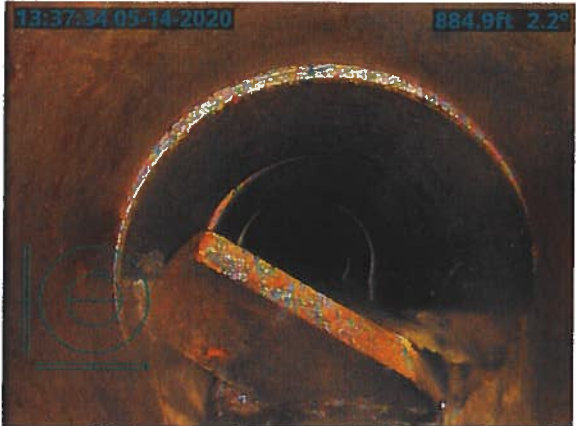
B 2020\_05\_14-13\_24\_29\_424.jpg



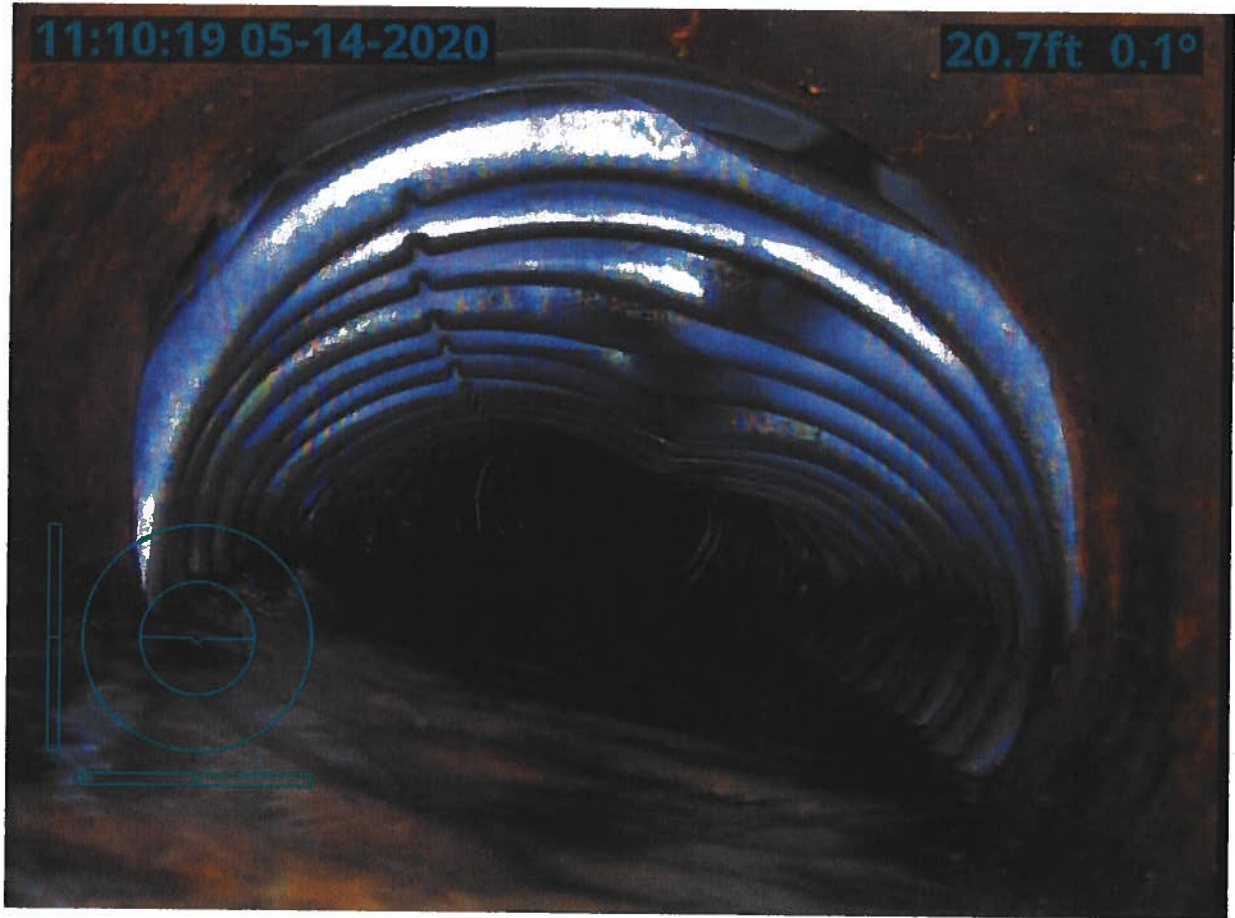
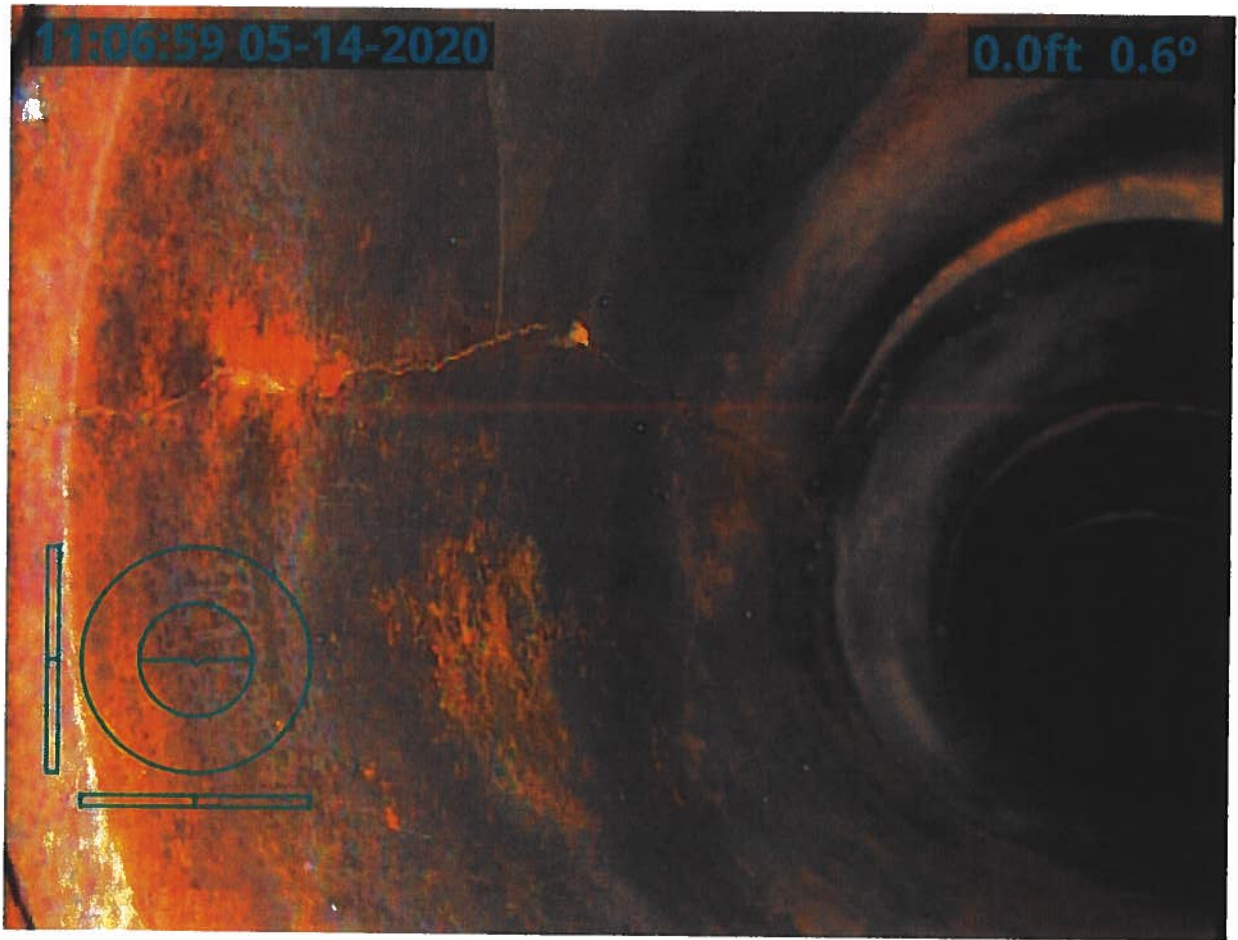
CN 2020\_05\_14-13\_27\_02\_815.jpg



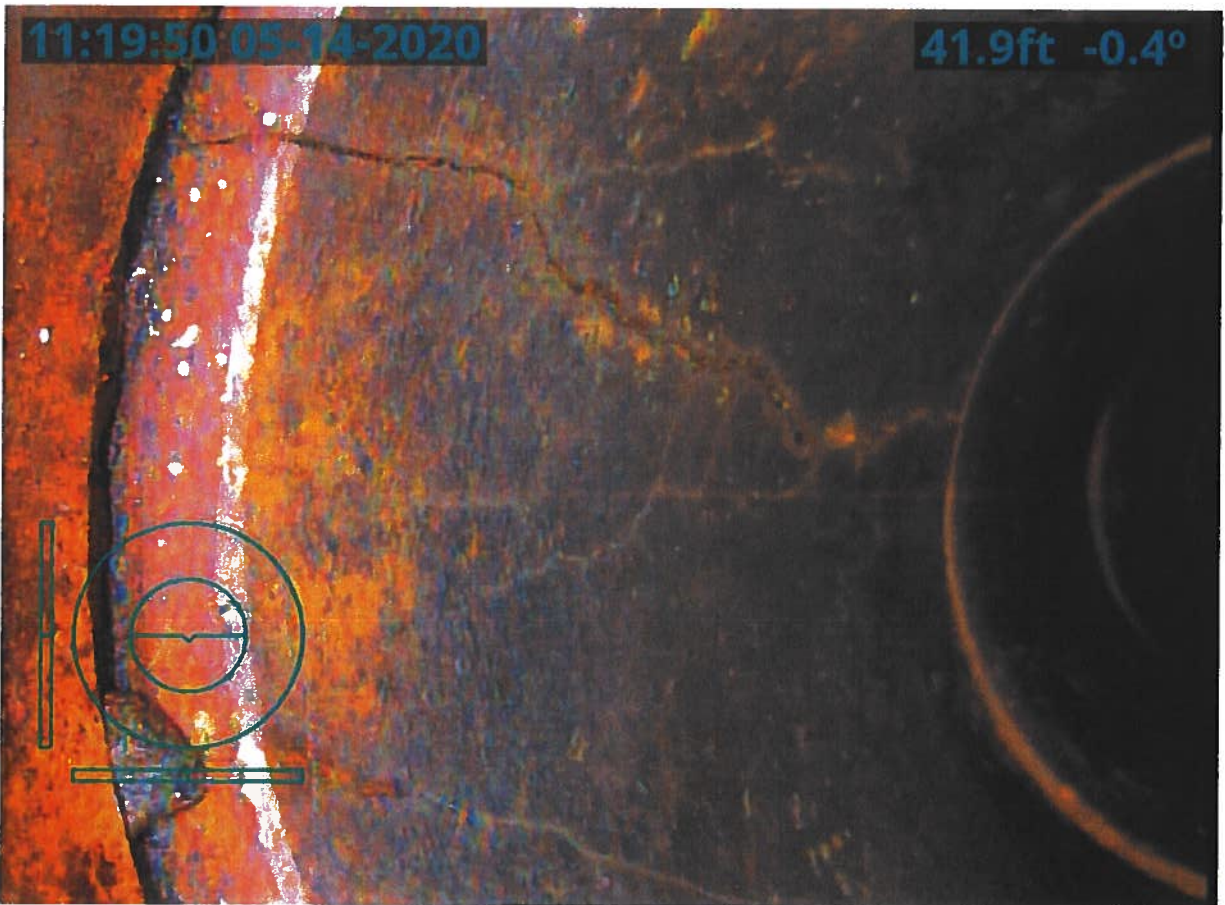
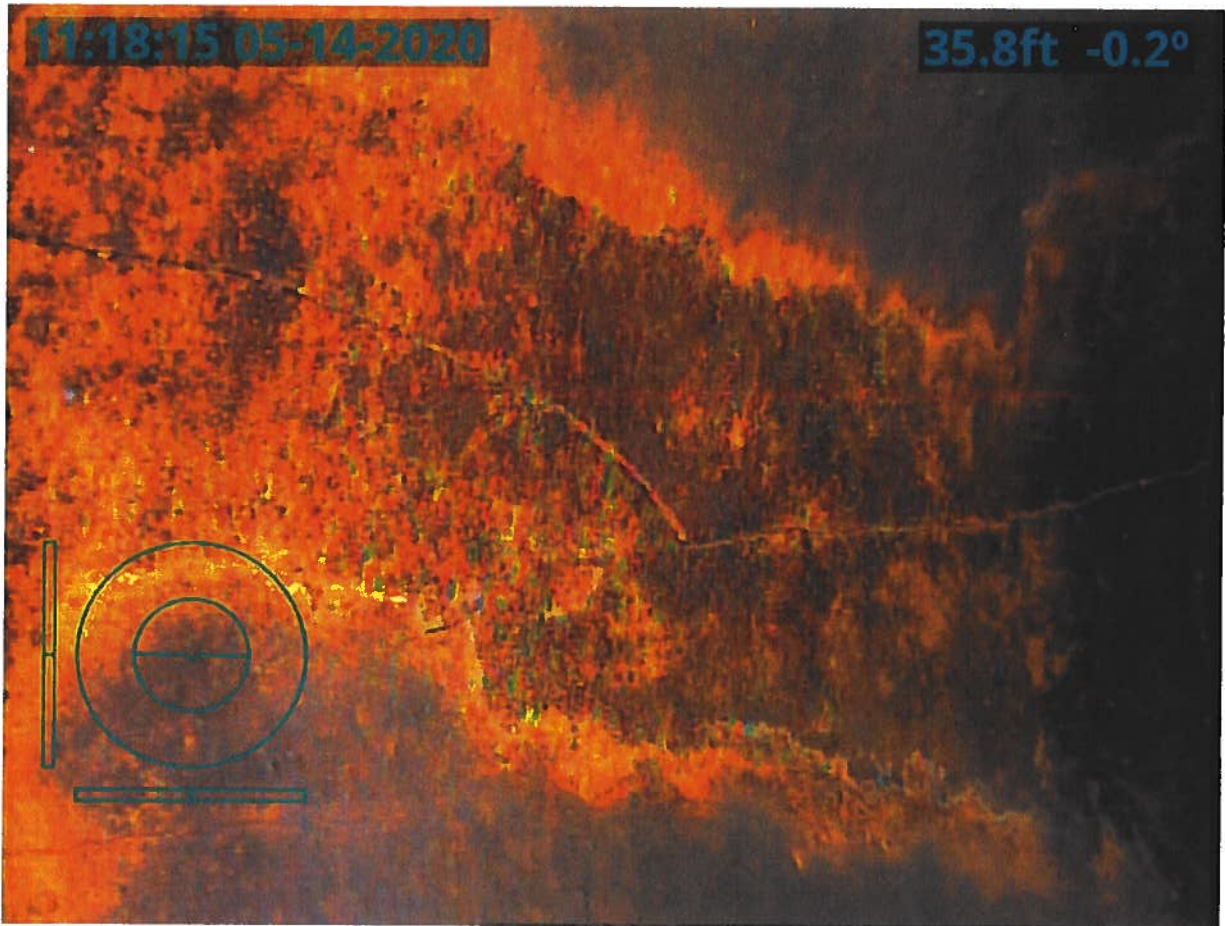
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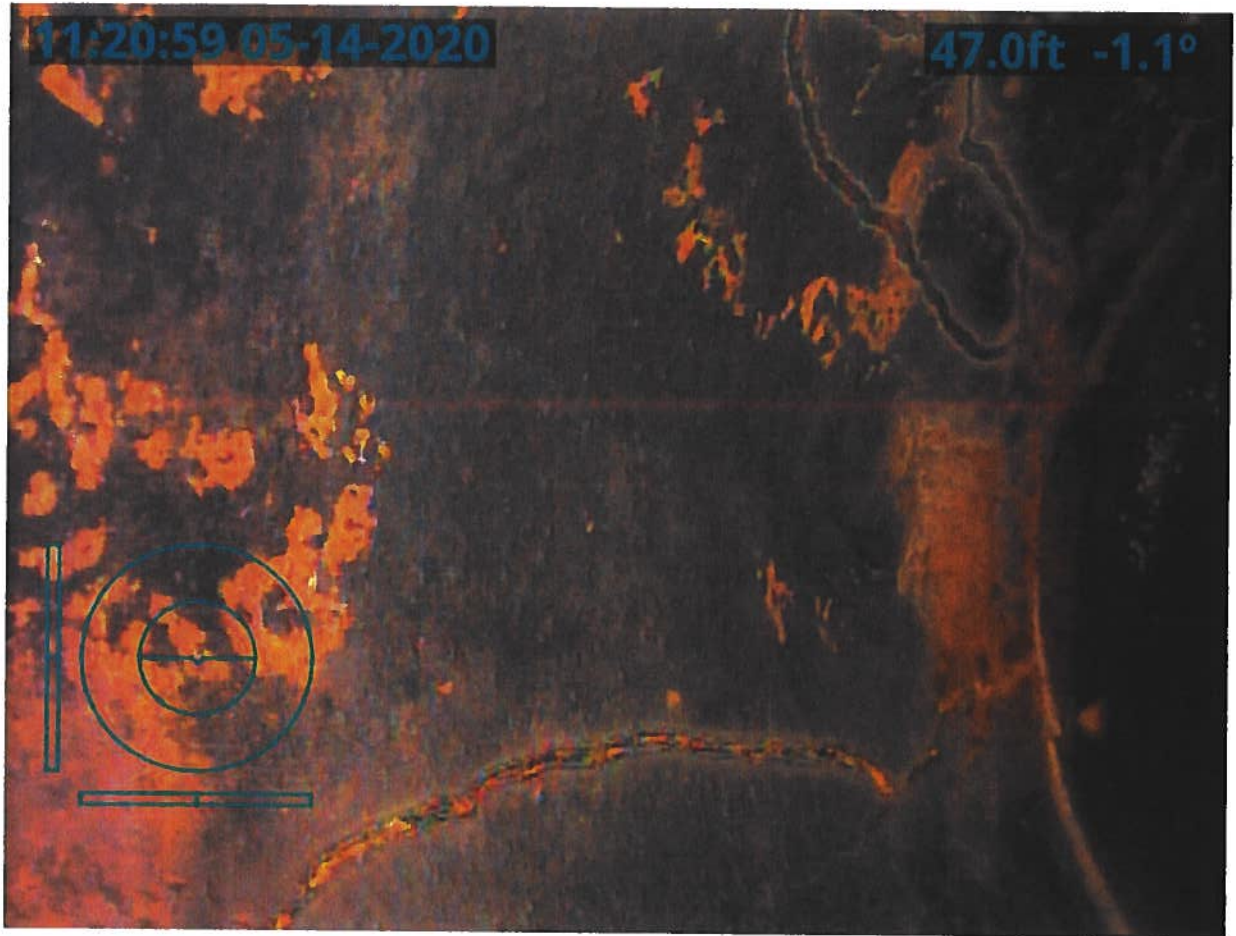






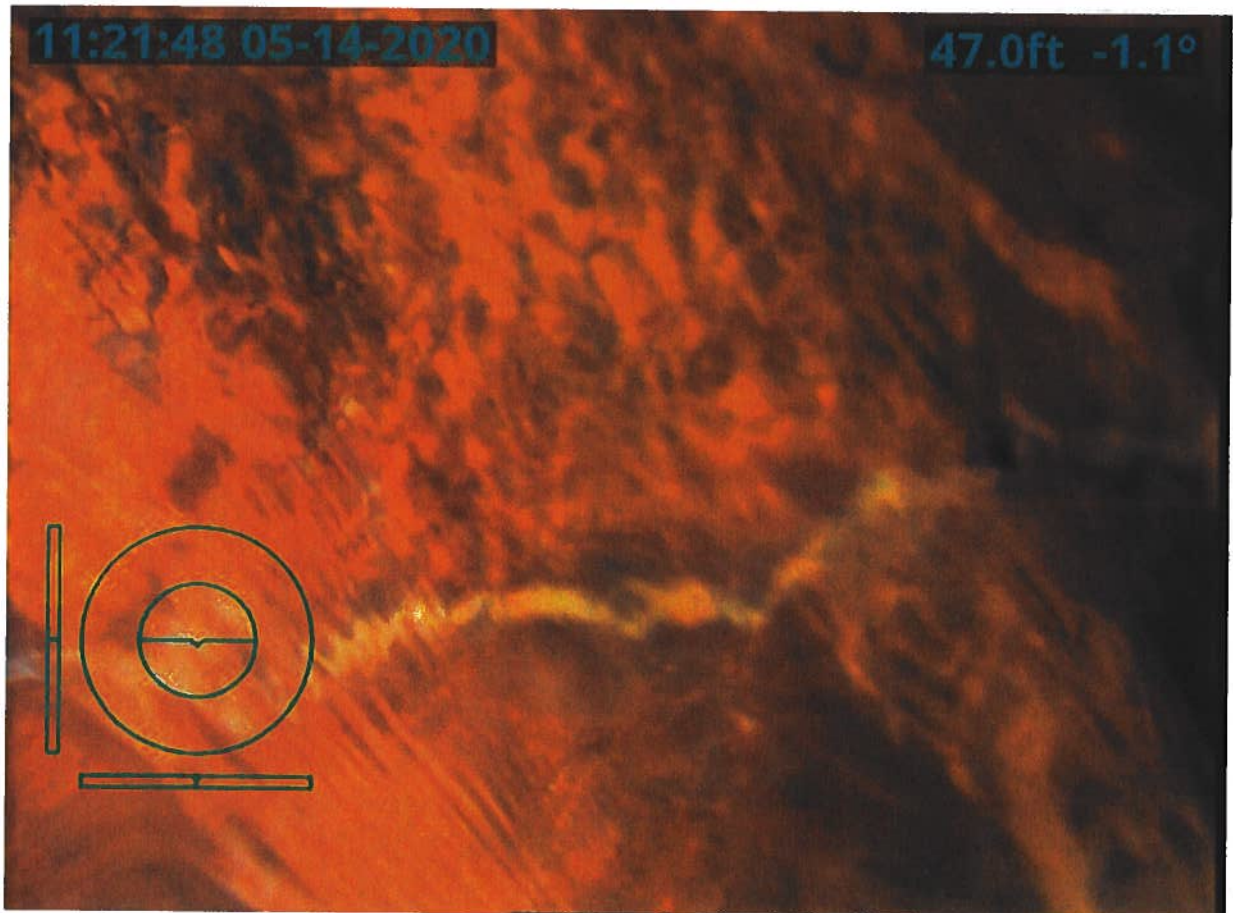
11:20:59 05-14-2020

47.0ft -1.1°

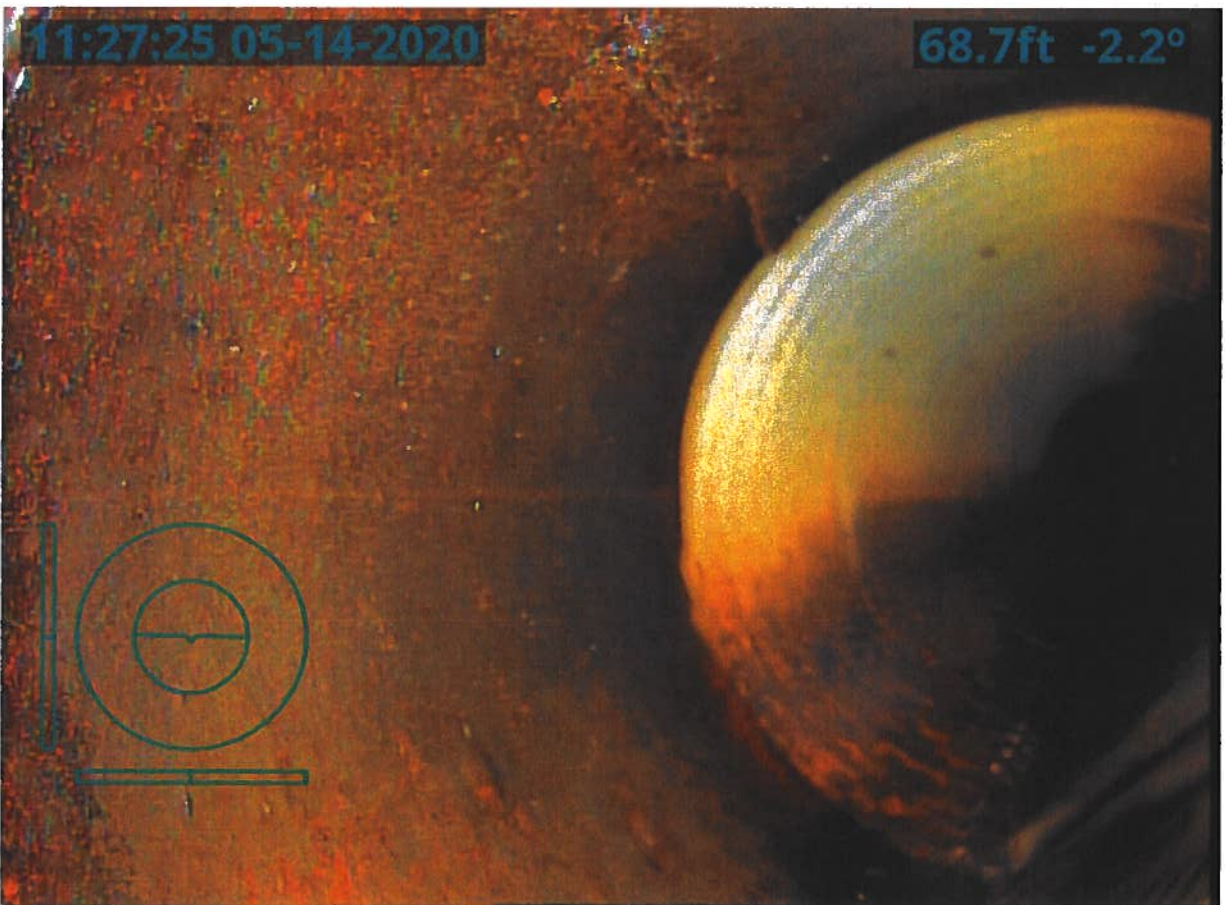


11:21:48 05-14-2020

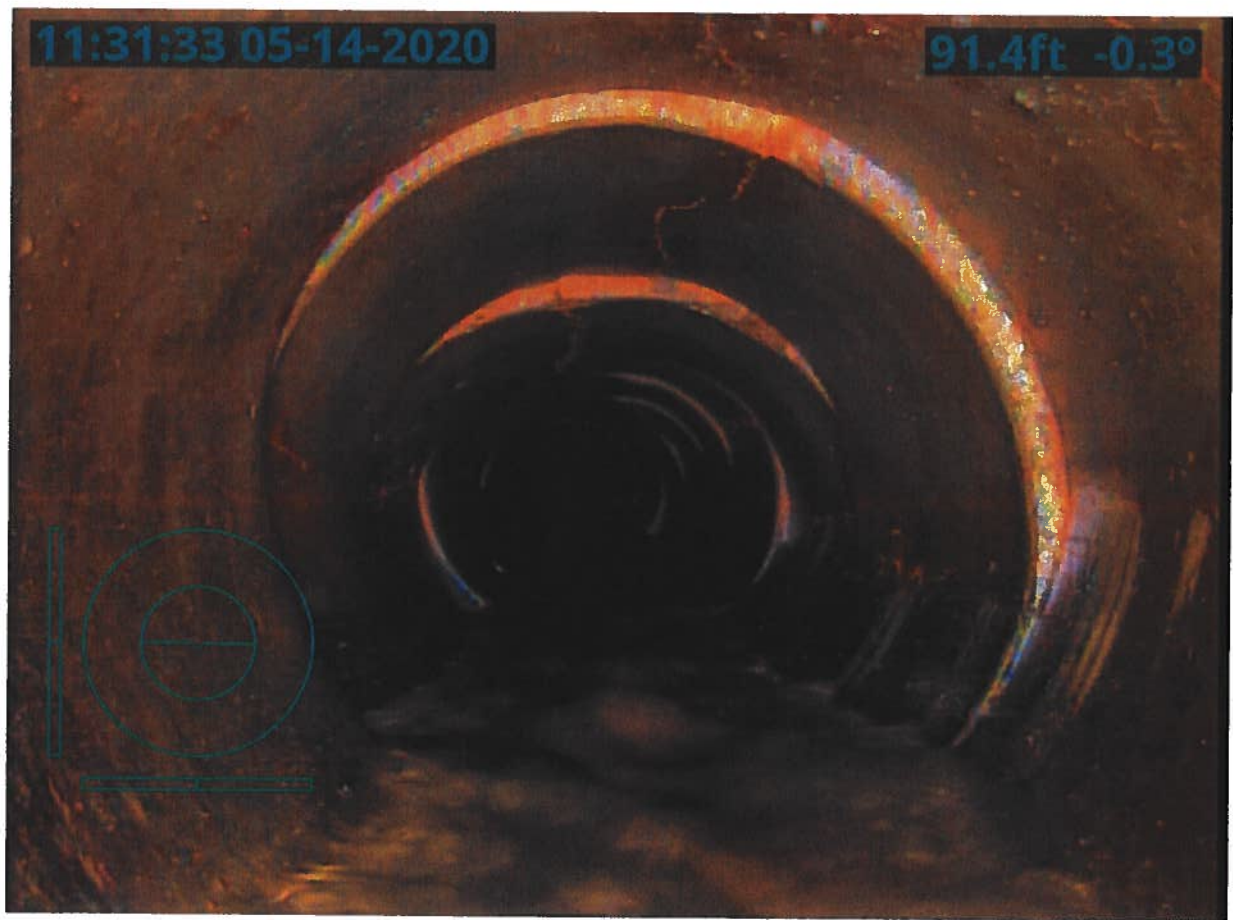
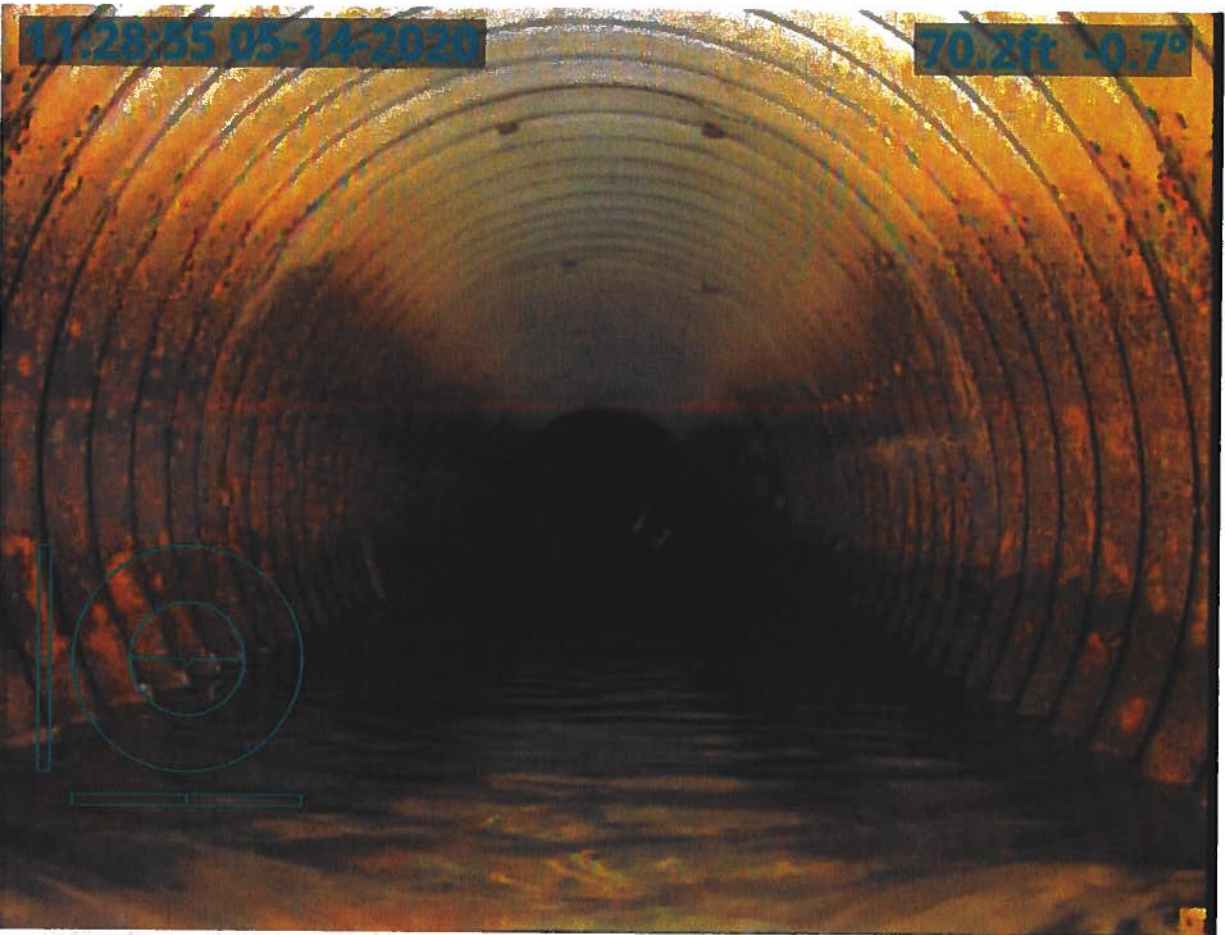
47.0ft -1.1°

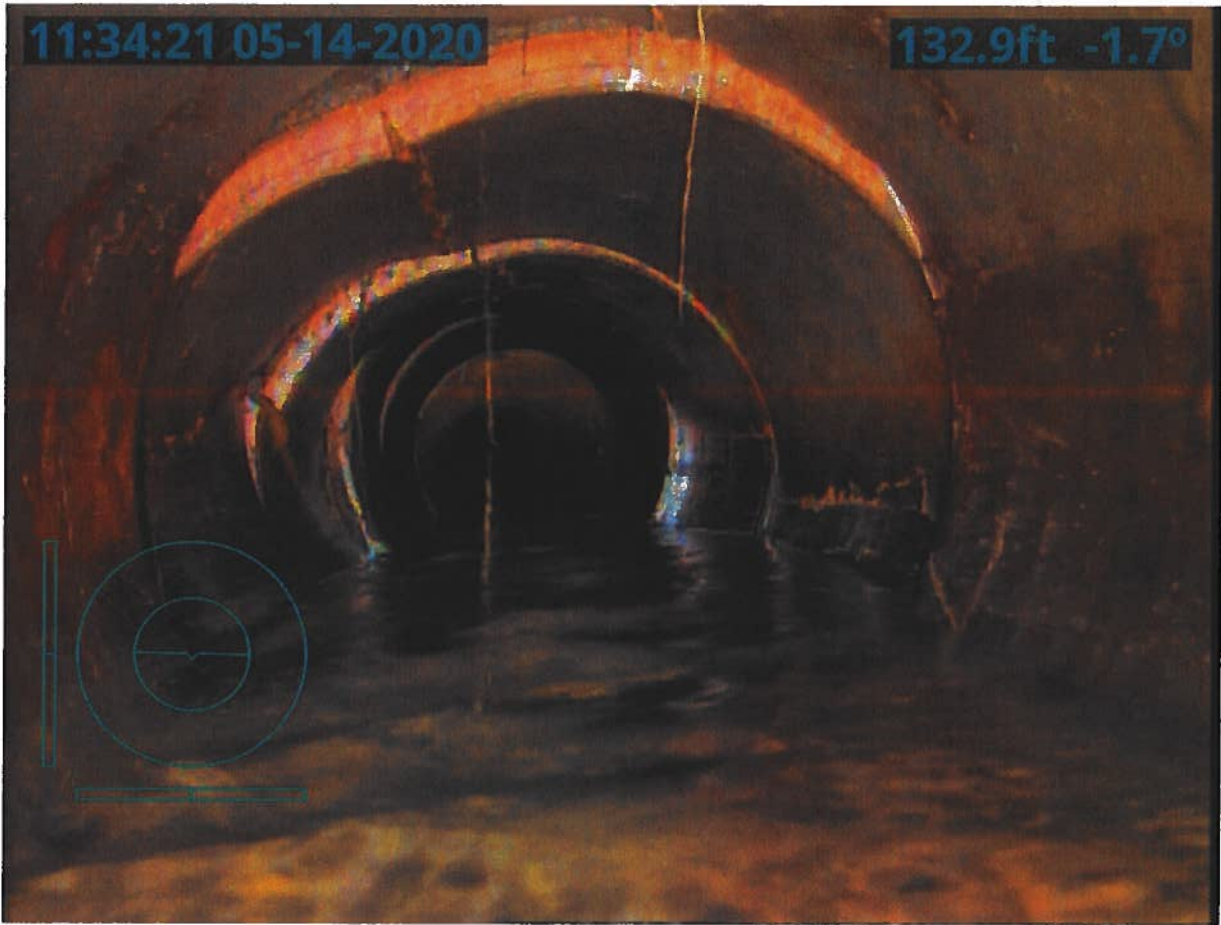








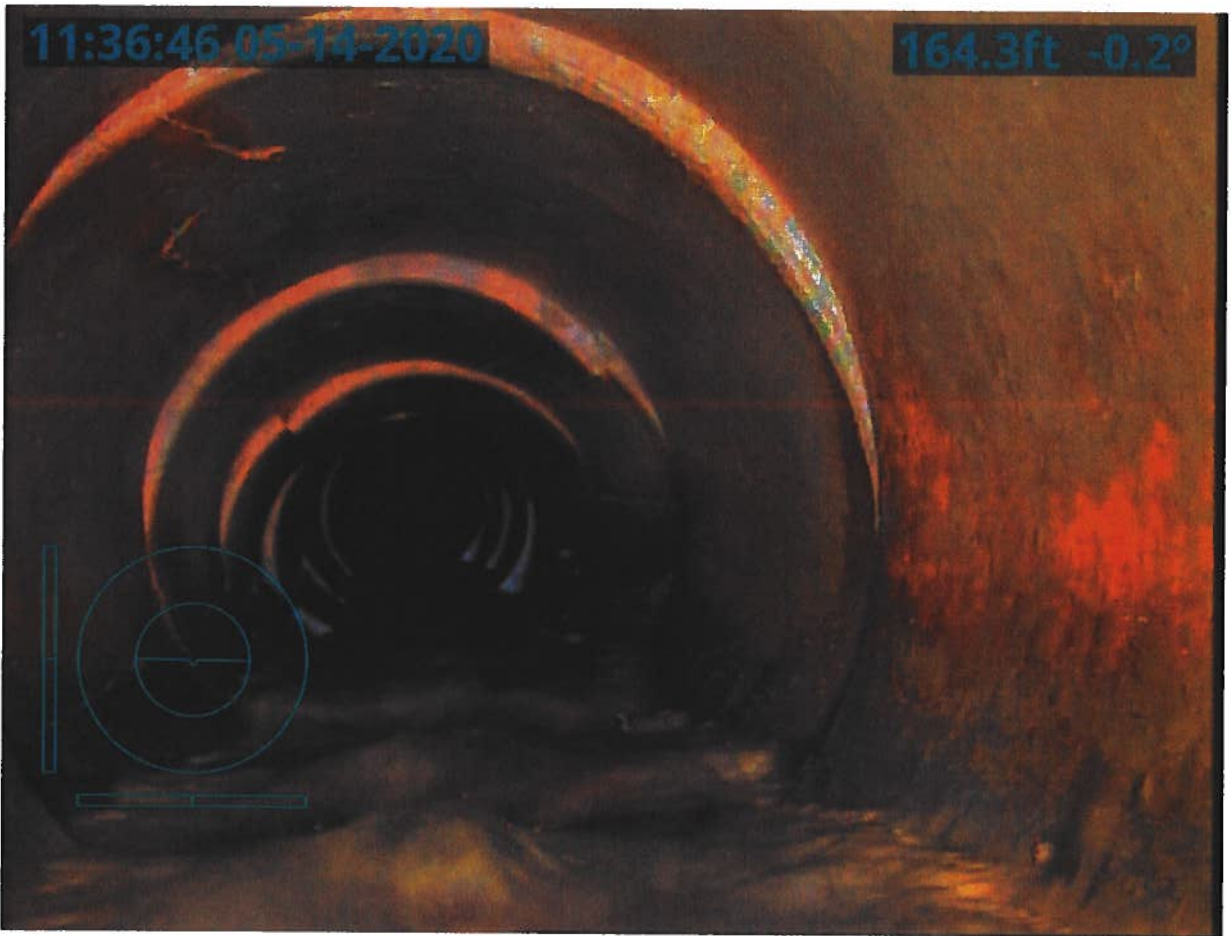






11:36:46 05-14-2020

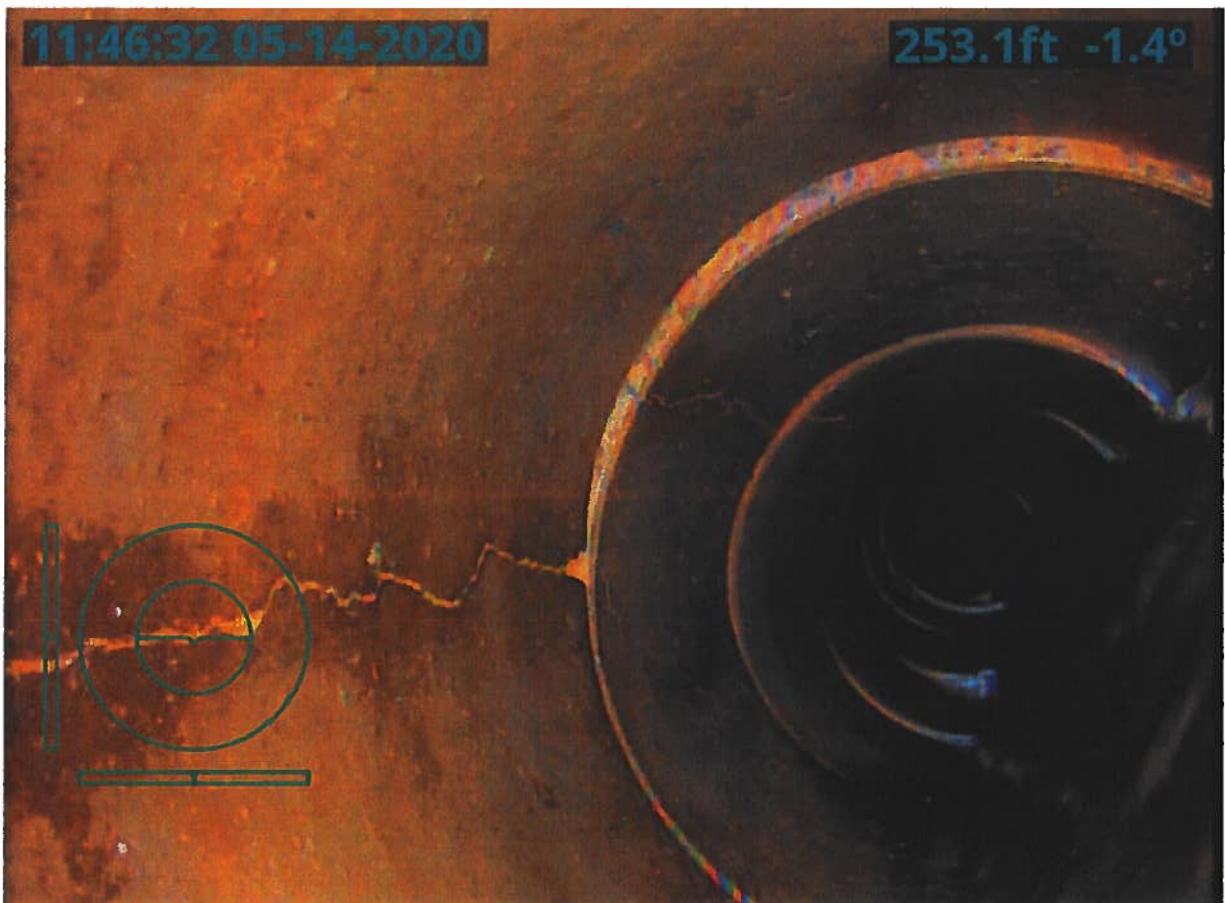
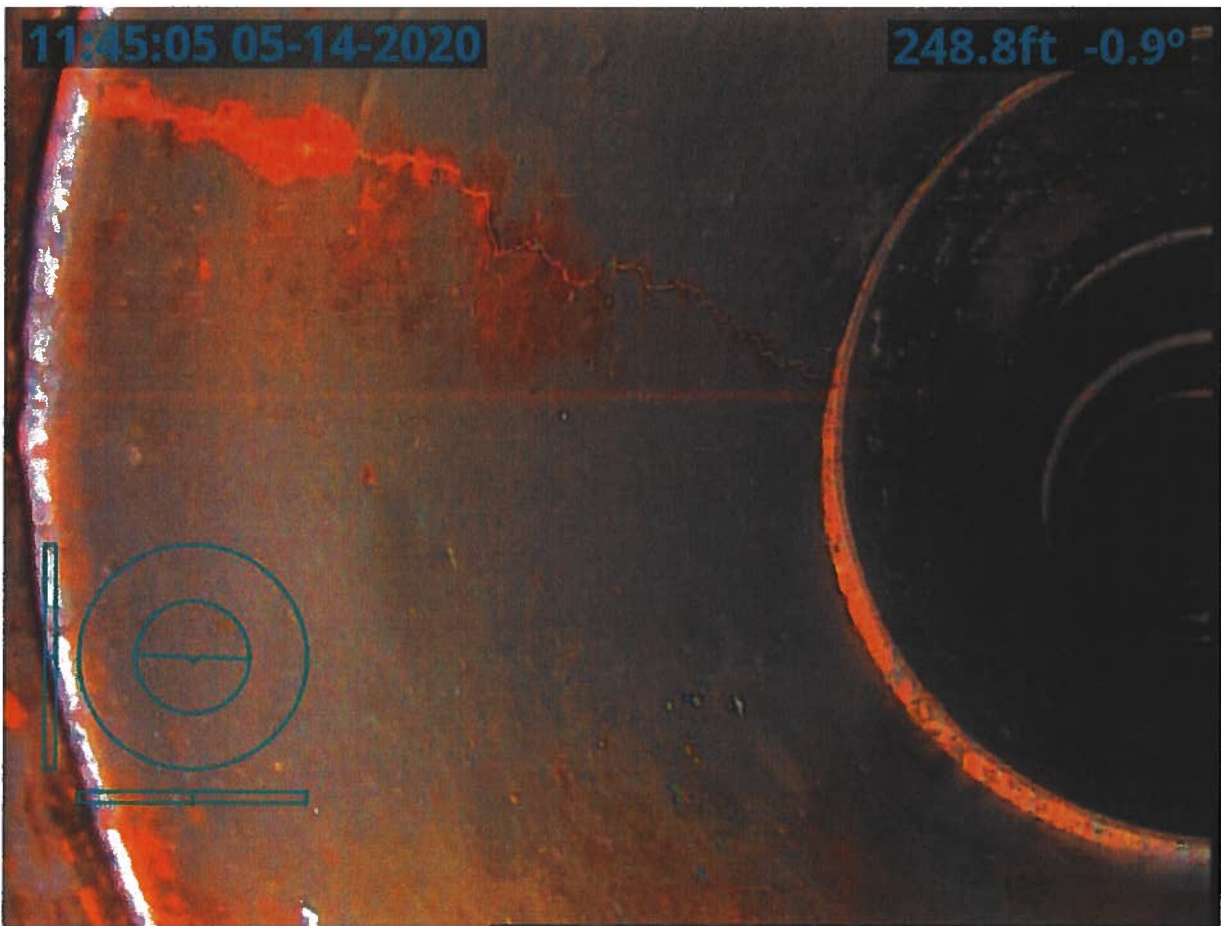
164.3ft -0.2°



11:42:18 05-14-2020

241.7ft 0.5°

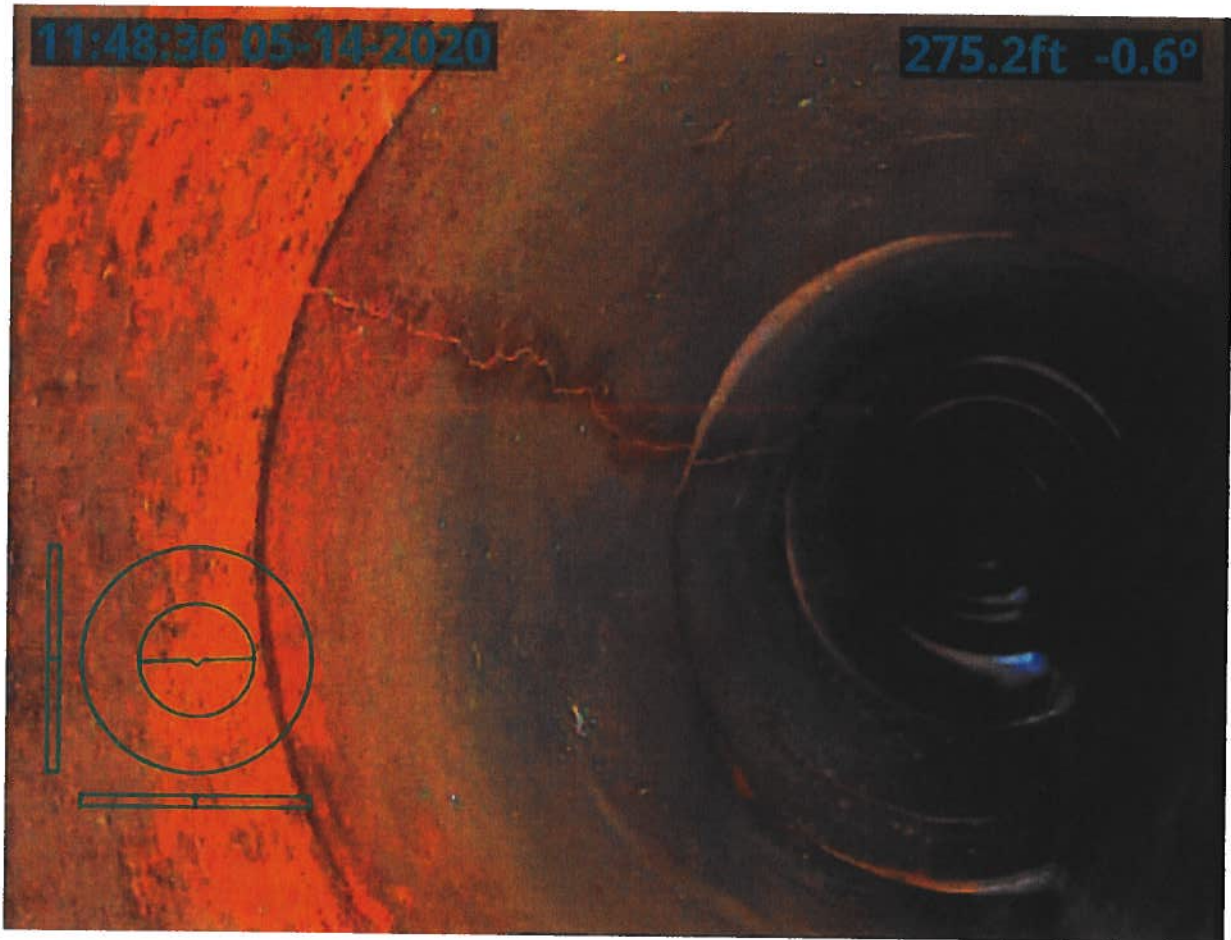






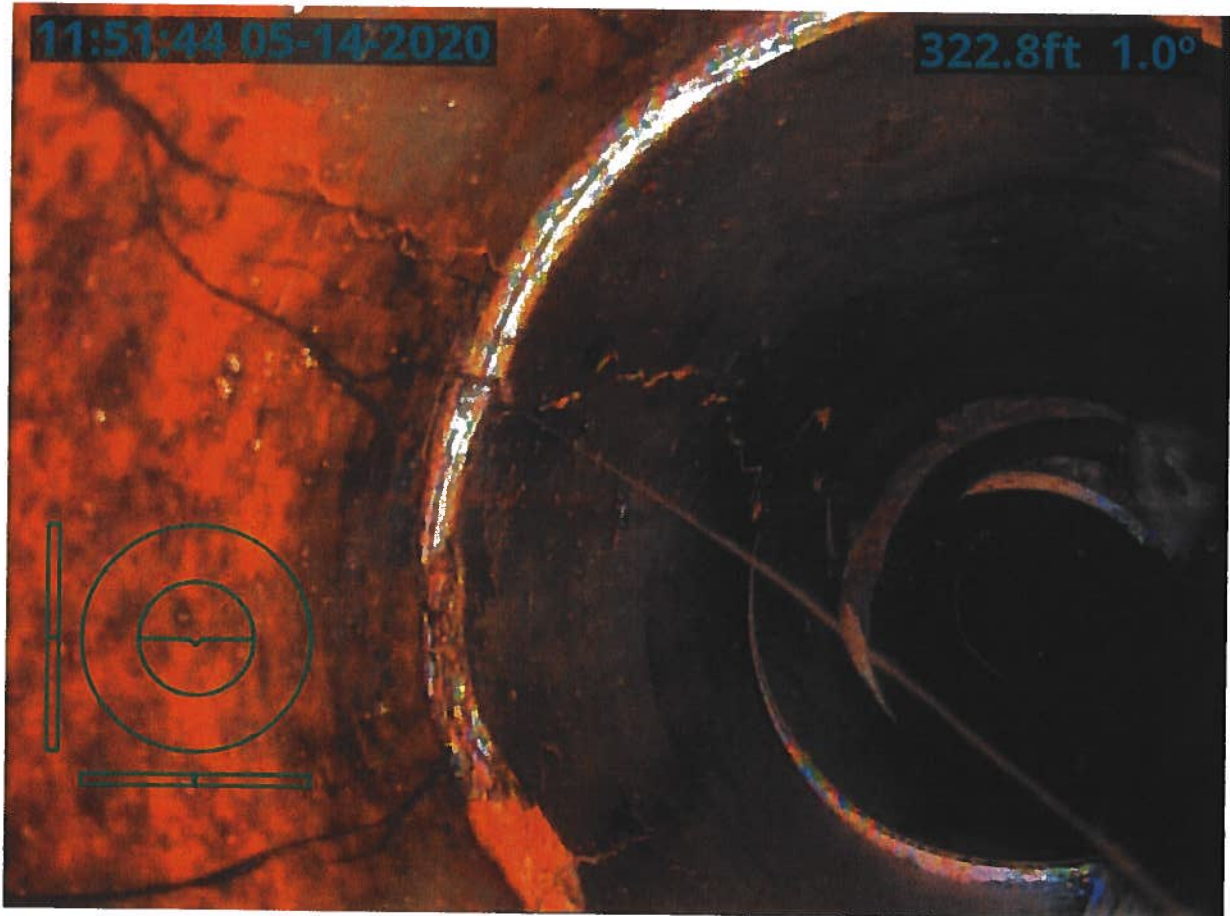
11:48:36 05-14-2020

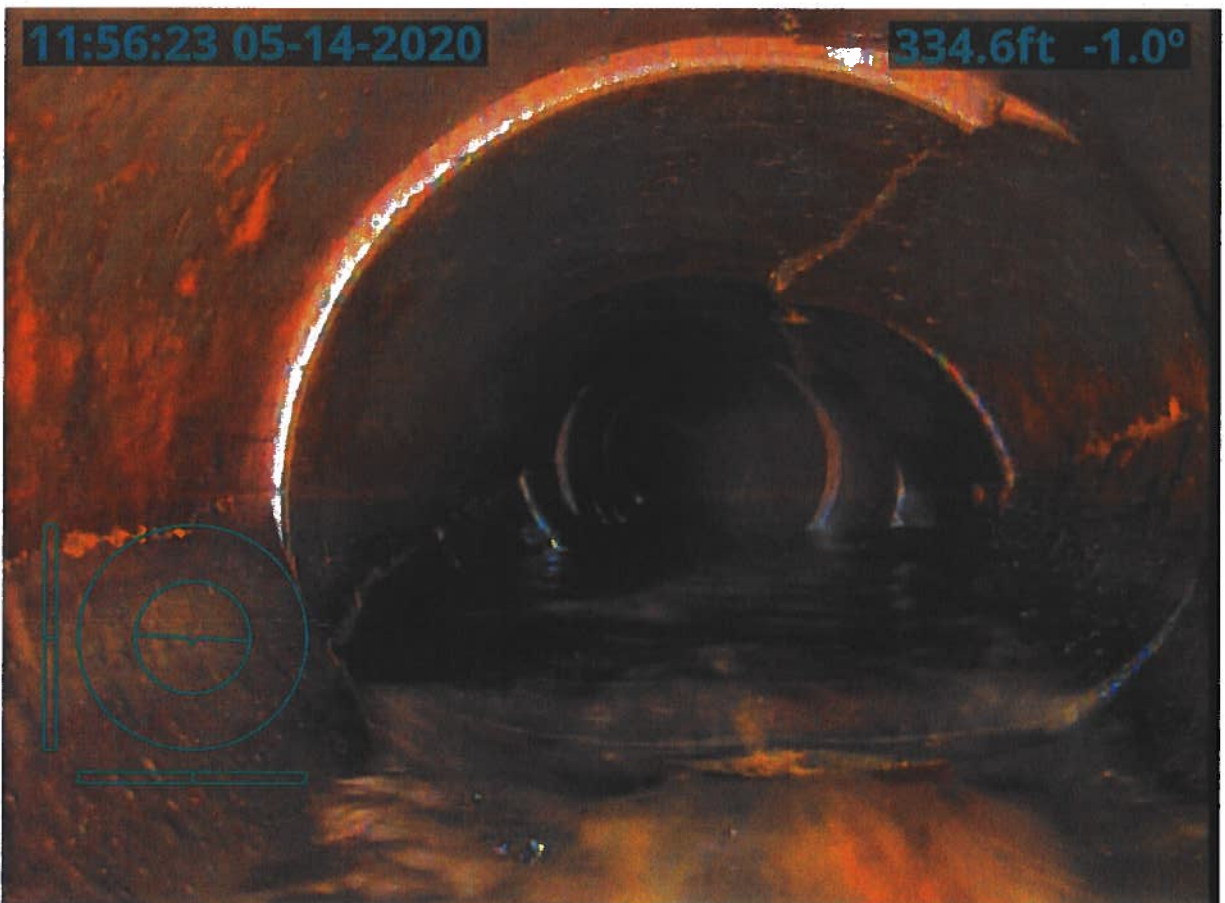
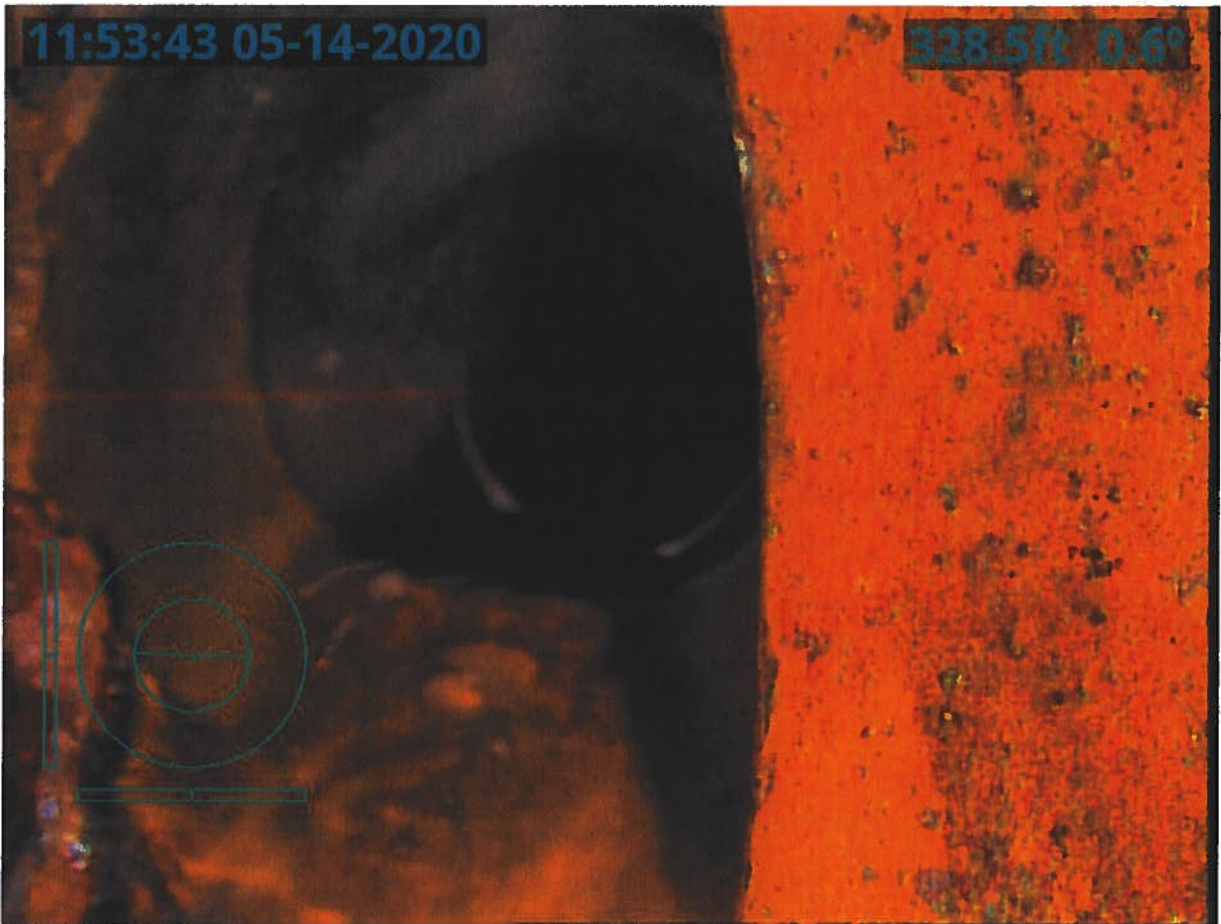
275.2ft -0.6°



11:51:44 05-14-2020

322.8ft 1.0°

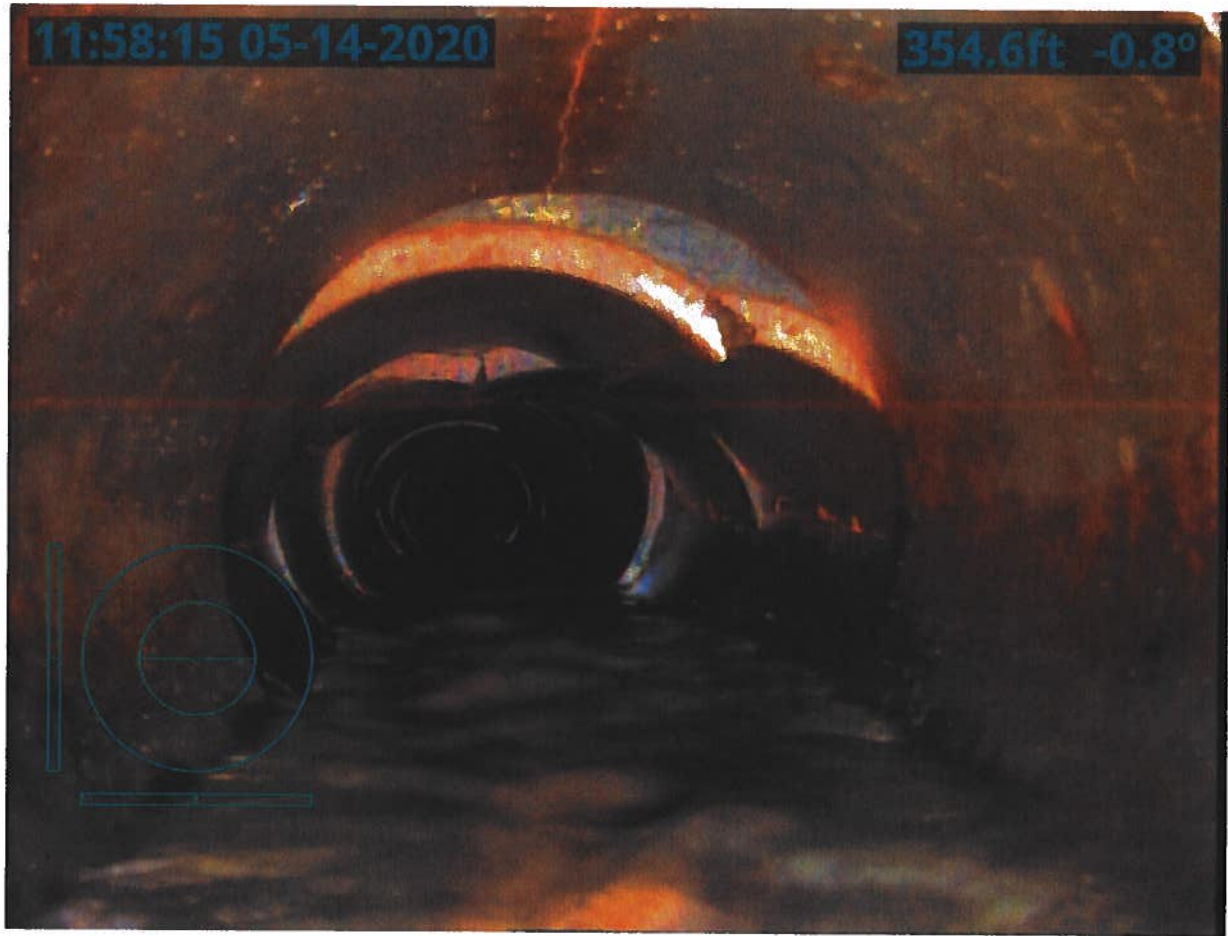






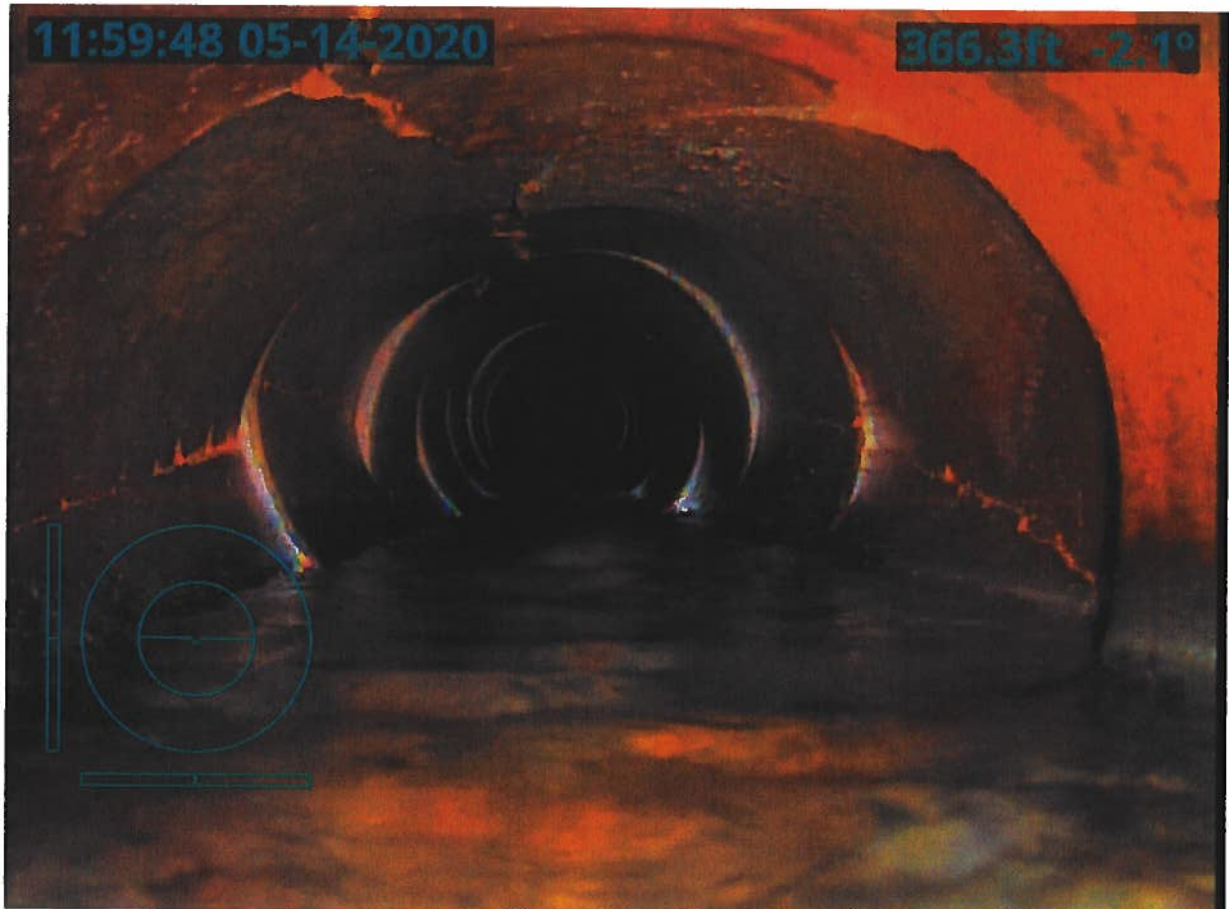
11:58:15 05-14-2020

354.6ft -0.8°



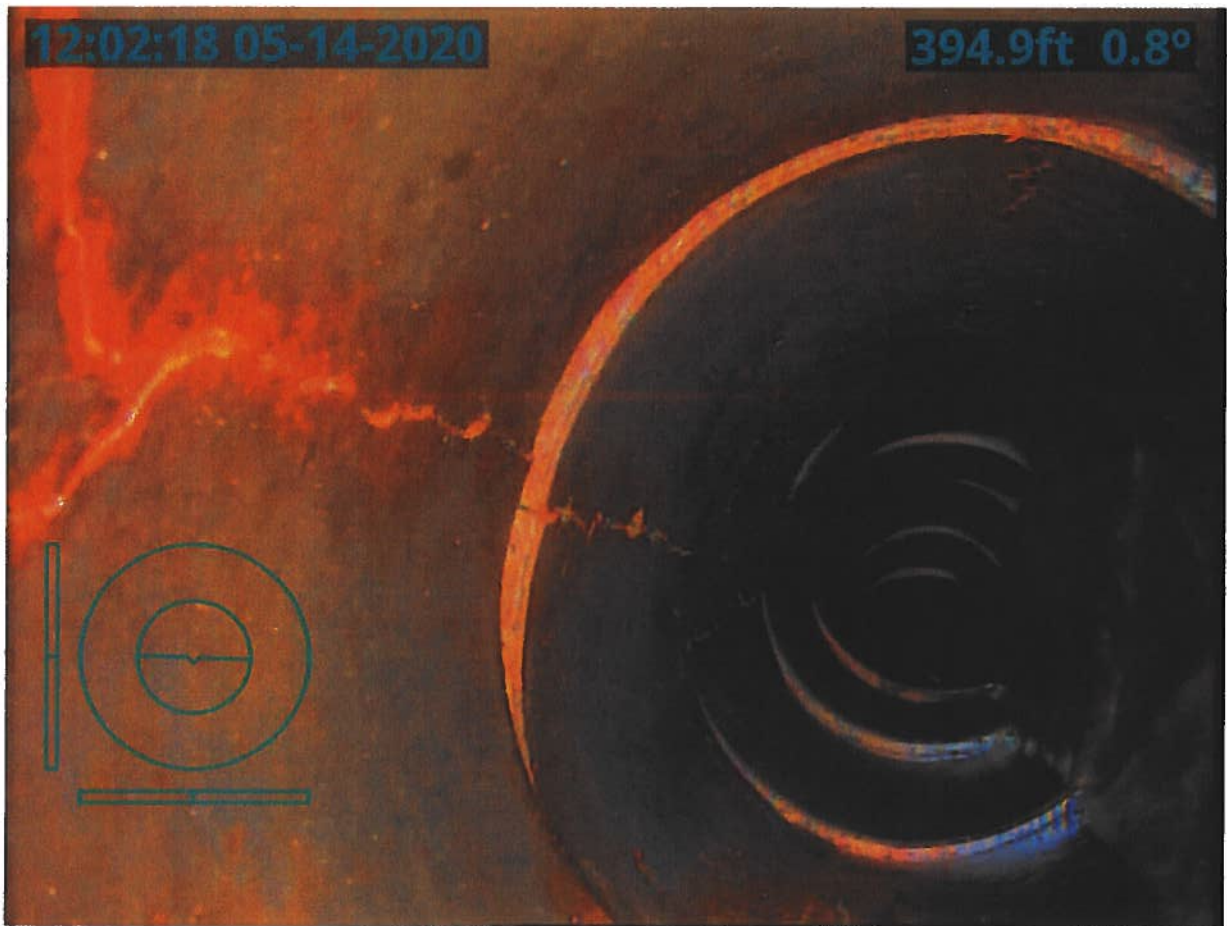
11:59:48 05-14-2020

366.3ft -2.1°



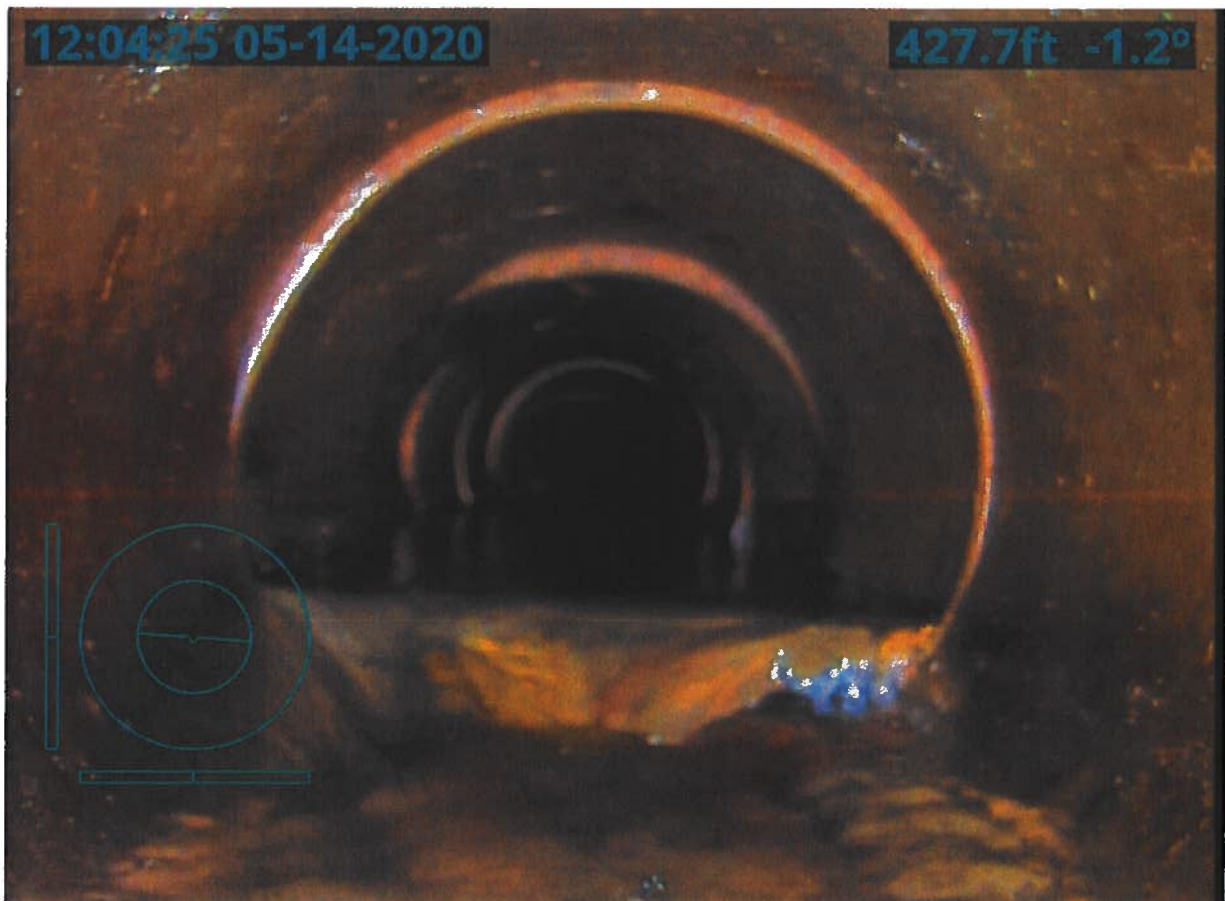
12:02:18 05-14-2020

394.9ft 0.8°



12:04:25 05-14-2020

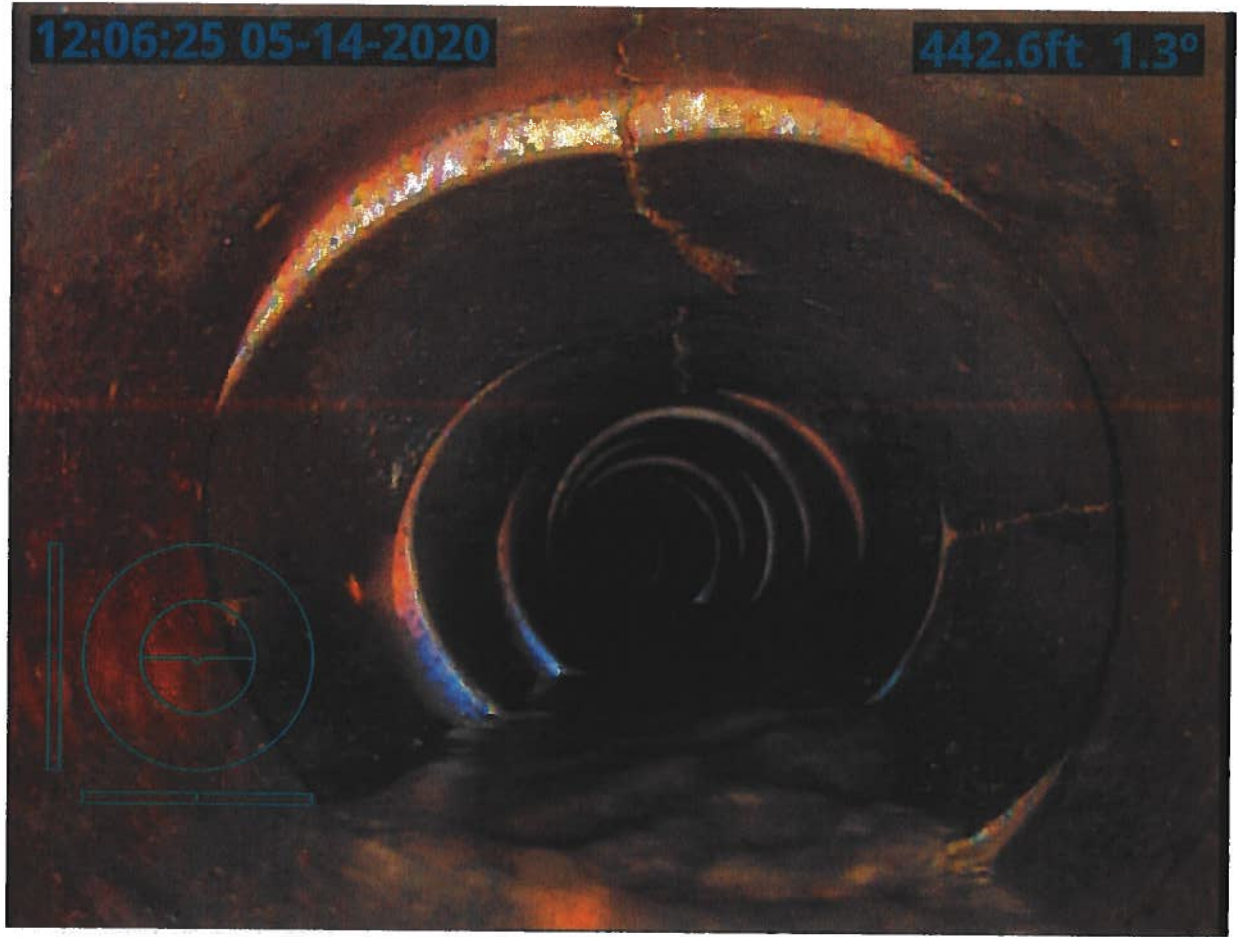
427.7ft -1.2°





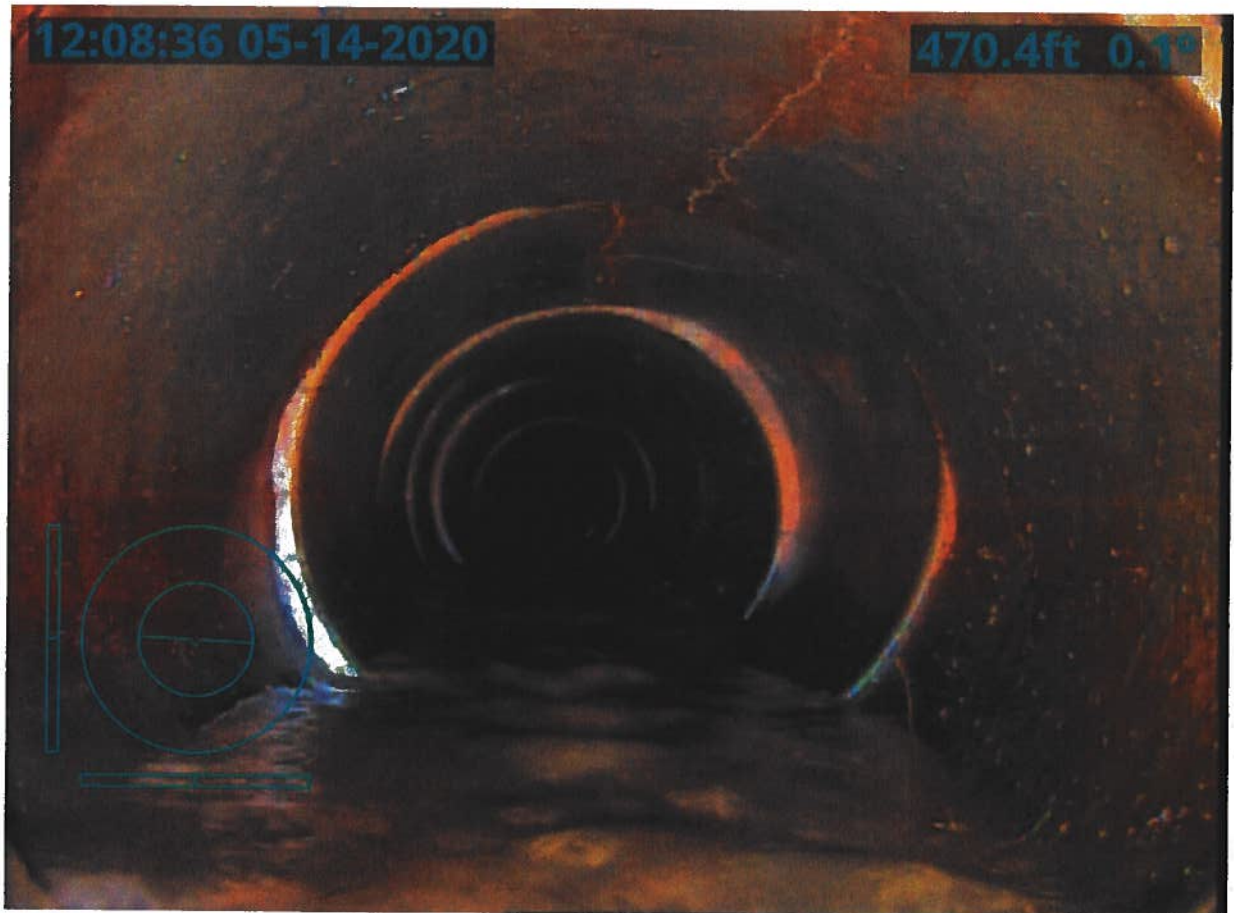
12:06:25 05-14-2020

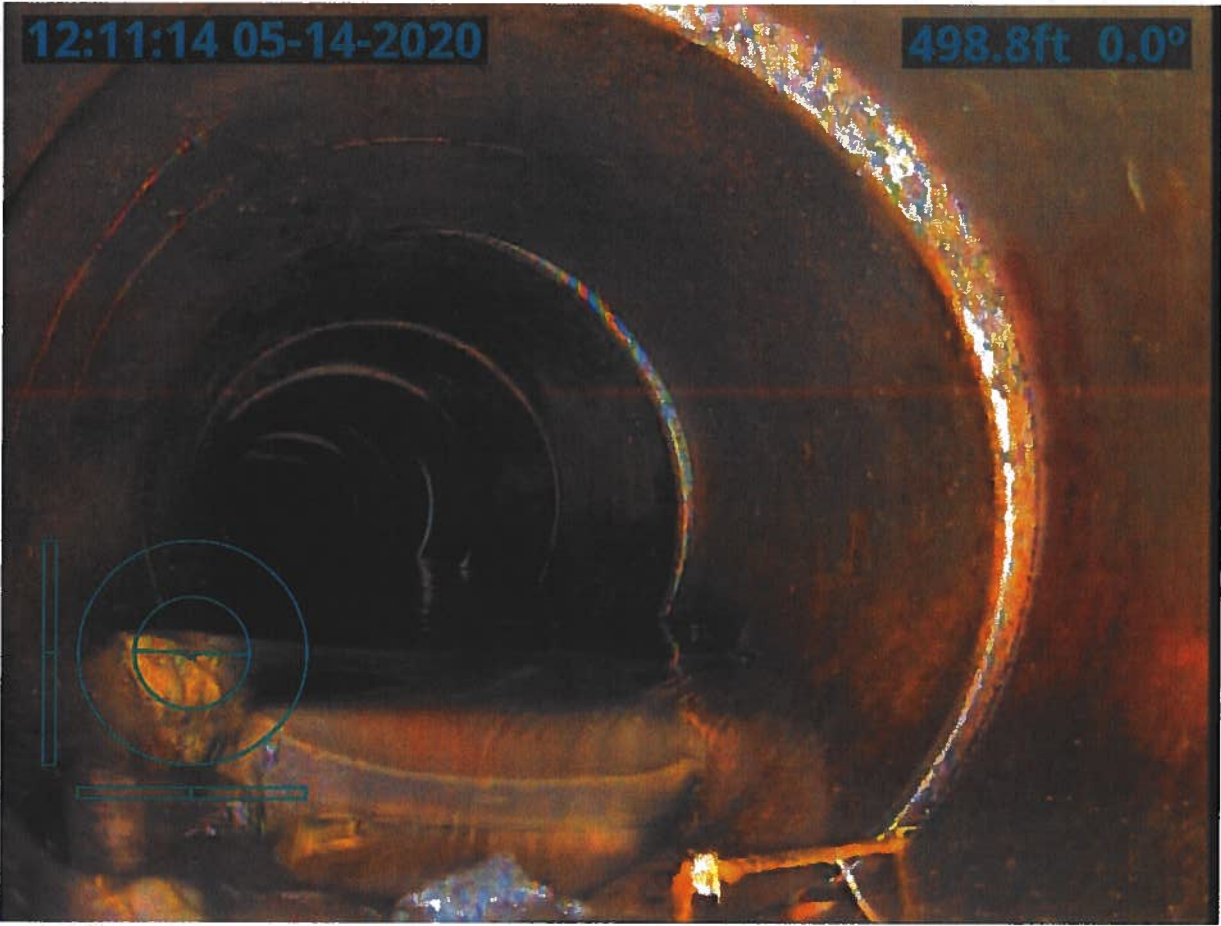
442.6ft 1.3°



12:08:36 05-14-2020

470.4ft 0.1°

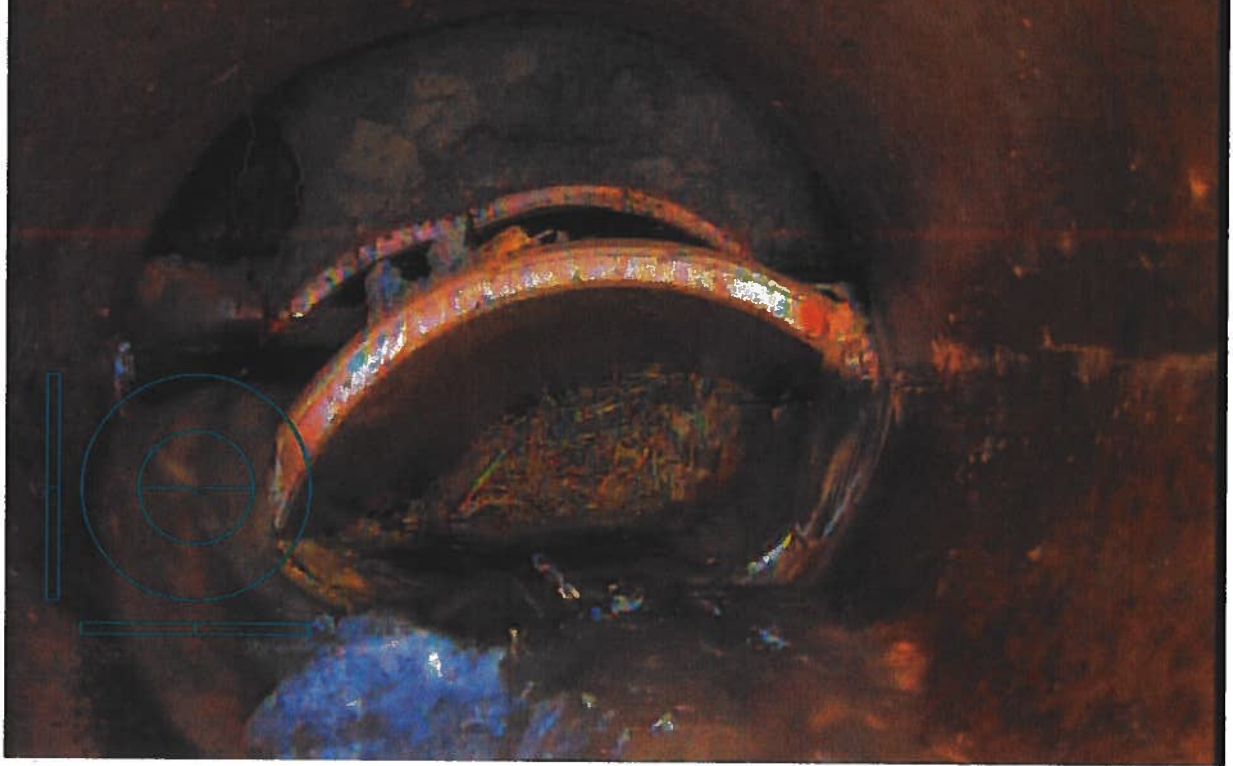






12:16:39 05-14-2020

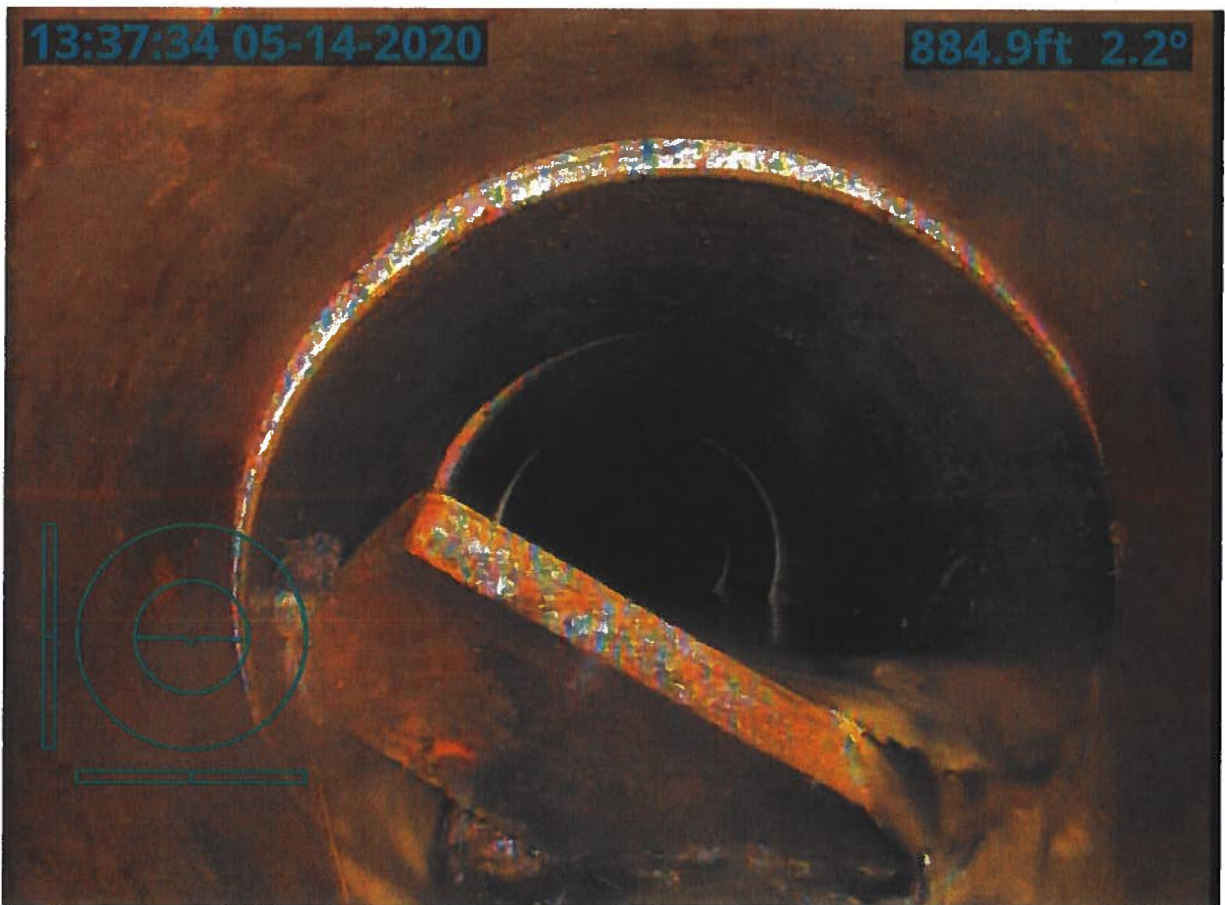
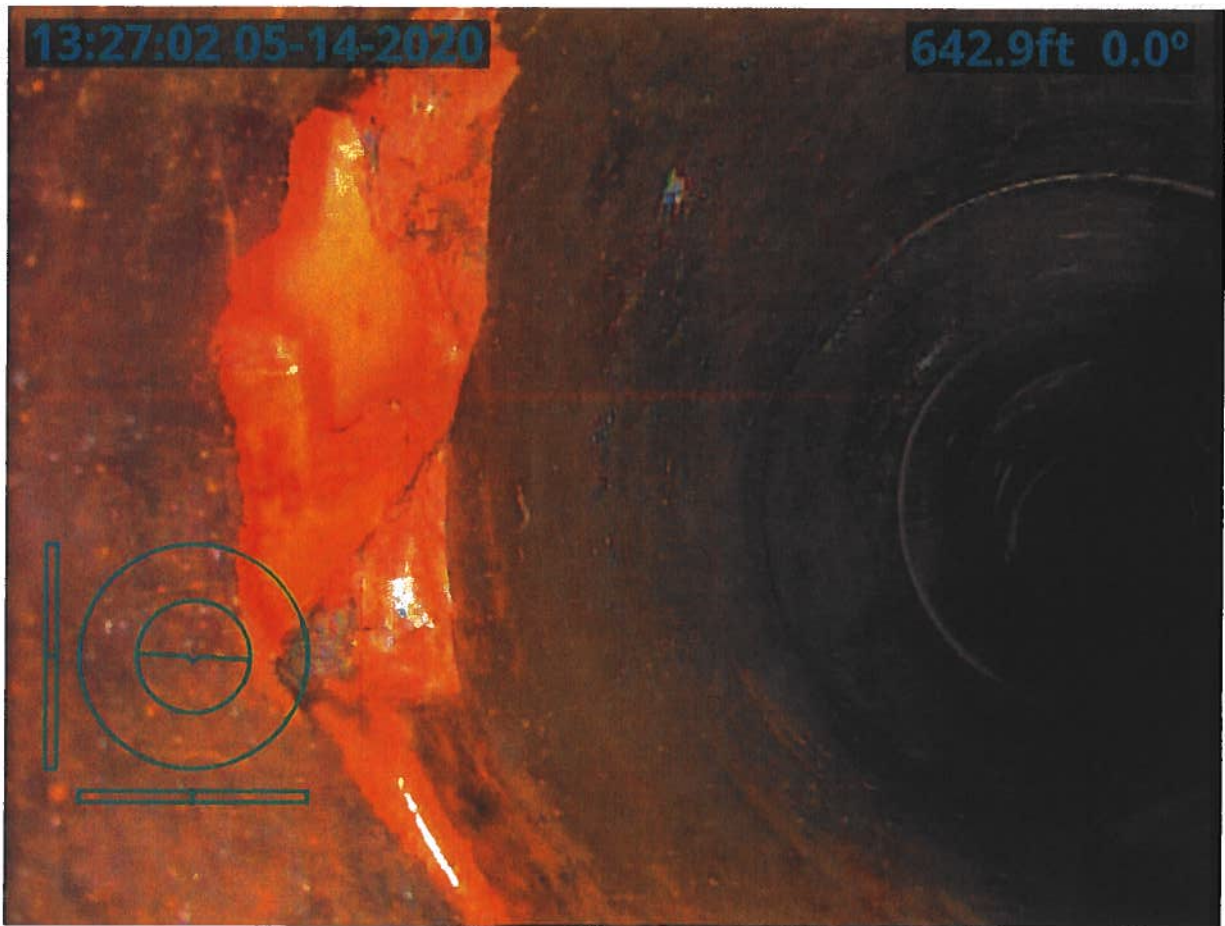
537.1ft 0.2°



13:24:29 05-14-2020

590.2ft 1.4°







# Inspection Report

Produced on behalf of – HARDIN

Site location – ,

Survey reference –

Date – 140520

WILLIAMS UNDERGROUND SVCS.

102 INDUSTRIAL DRIVVE, 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.**



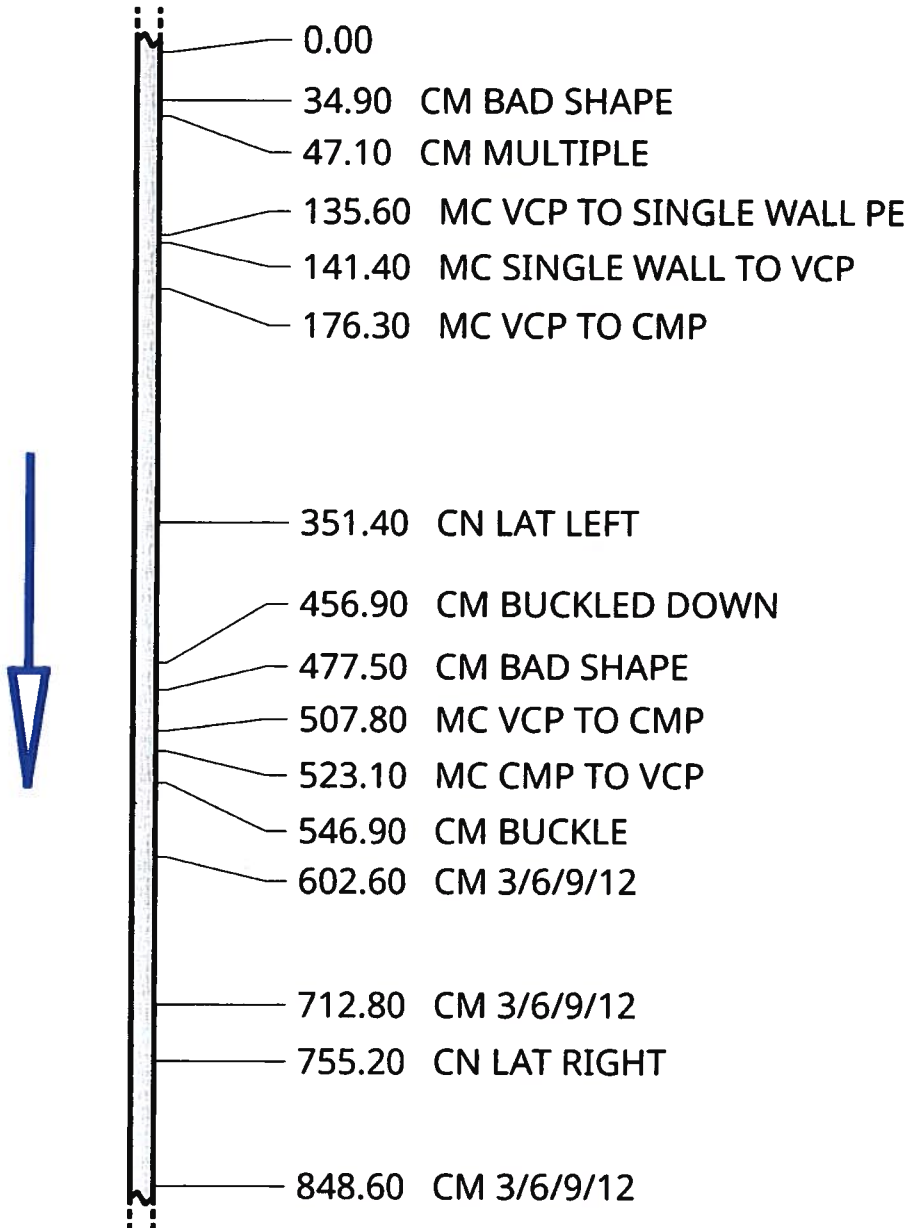
# 1 Drain / Sewer Survey

## 1.1 Survey Header

1.1.1	Surveyed by (Operator)	PAUL
1.1.2	Contract no.	
1.1.3	Job no.	
1.1.4	Catchment (Drainage area)	DD14
1.1.5	Division	
1.1.6	District	HOLE #1
1.1.7	Pipeline length ref	1000
1.1.8	Date	140520
1.1.9	Time	14:40
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)	15mm
1.1.22	Size 2 (width)	POSSIBLY 18mm
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







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### 1.3 Observations

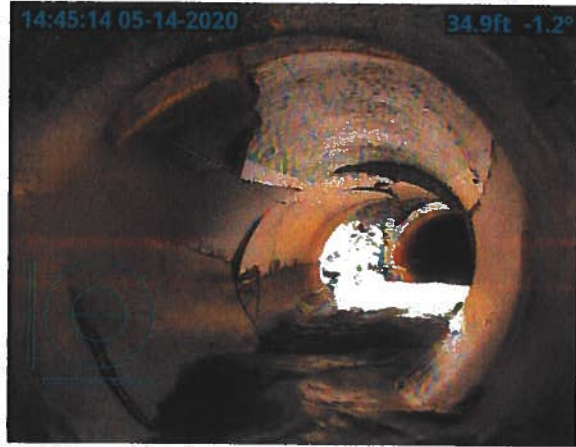
Video Ref	Dist (ft)	Cont Defect	Code	Photo Ref	Diameter/ Dimension	Clock		Intrusion		Remarks
						At	To	%	mm	
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0:03:29	47.1		CM	2020_05_14-14_46_35_553.jpg 		08	04			MULTIPLE
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Video Ref	Dist (ft)	Cont Defect	Code	Photo Ref	Diameter/ Dimension	Clock		Intrusion		Remarks
						At	To	%	mm	
										
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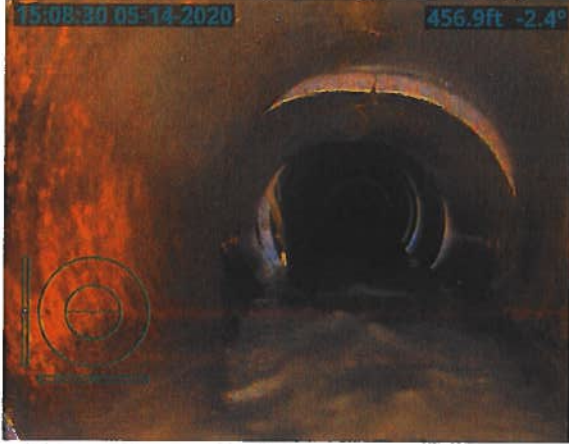
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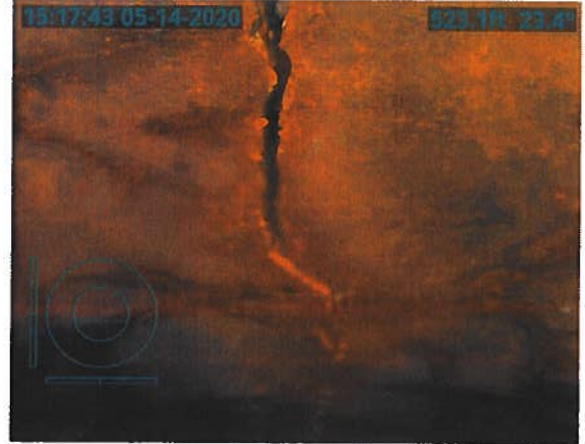
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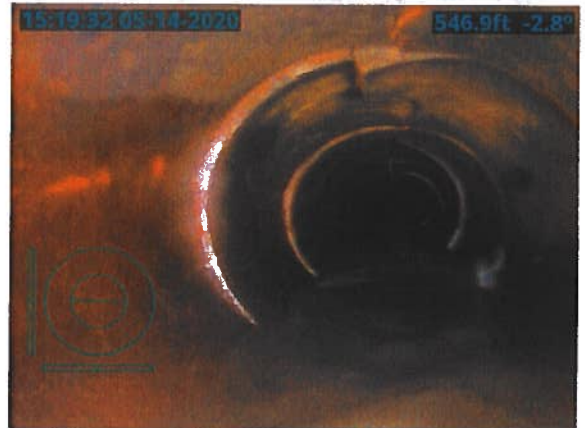
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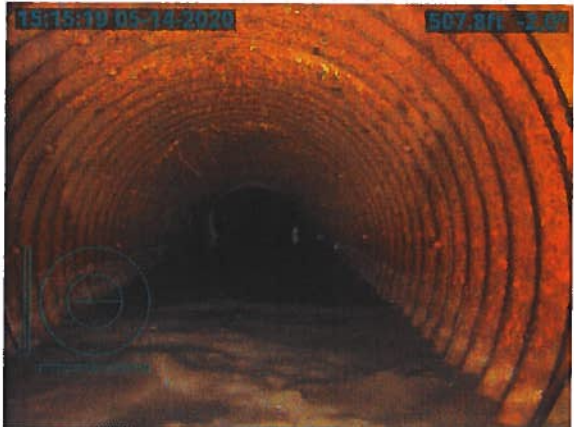
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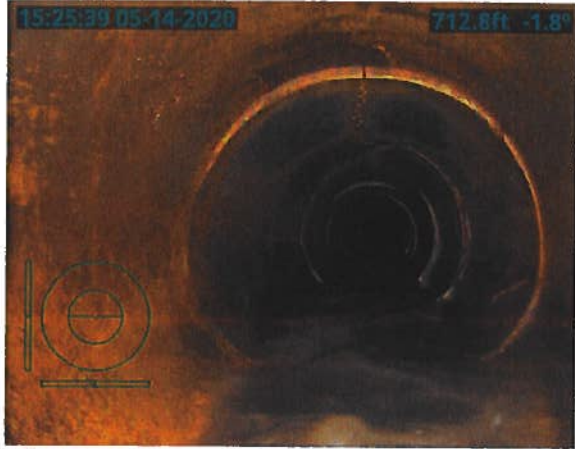


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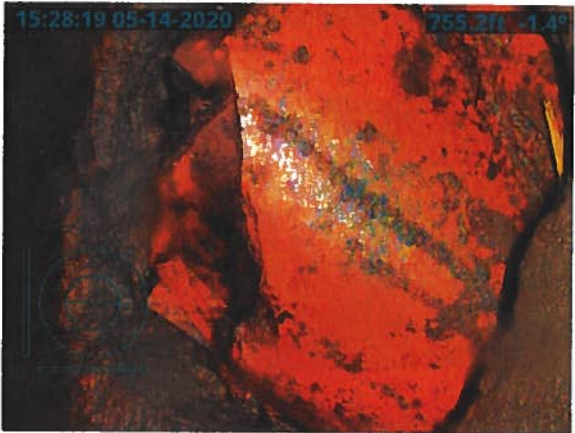




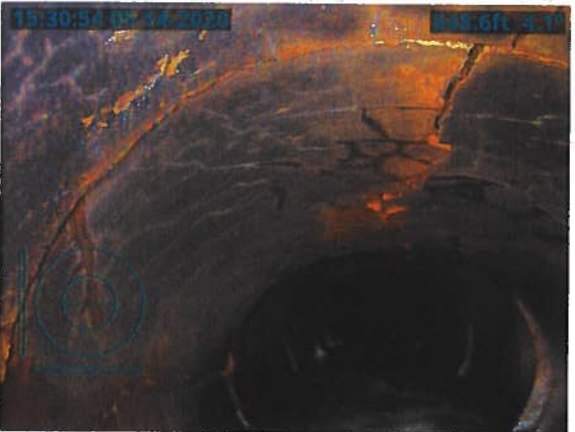
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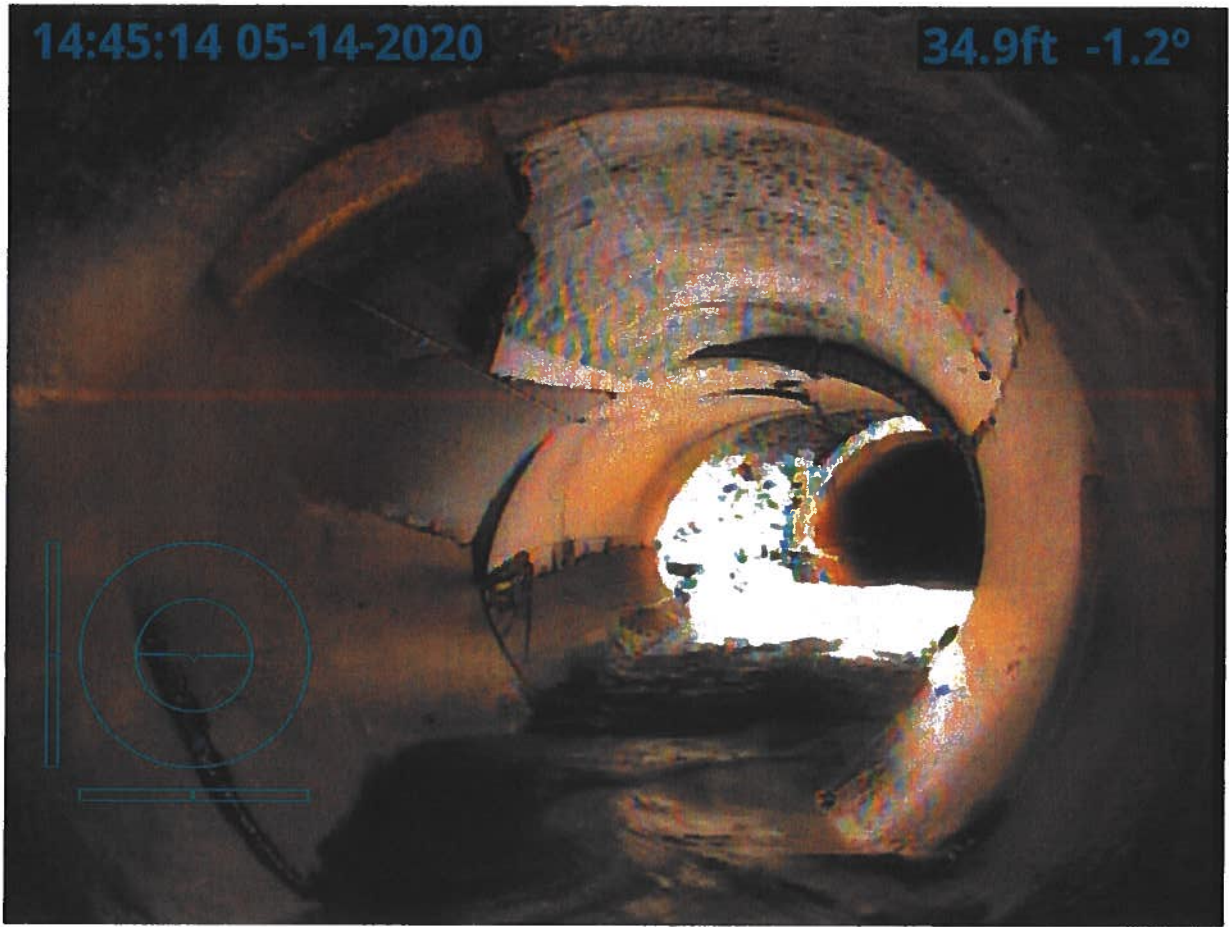


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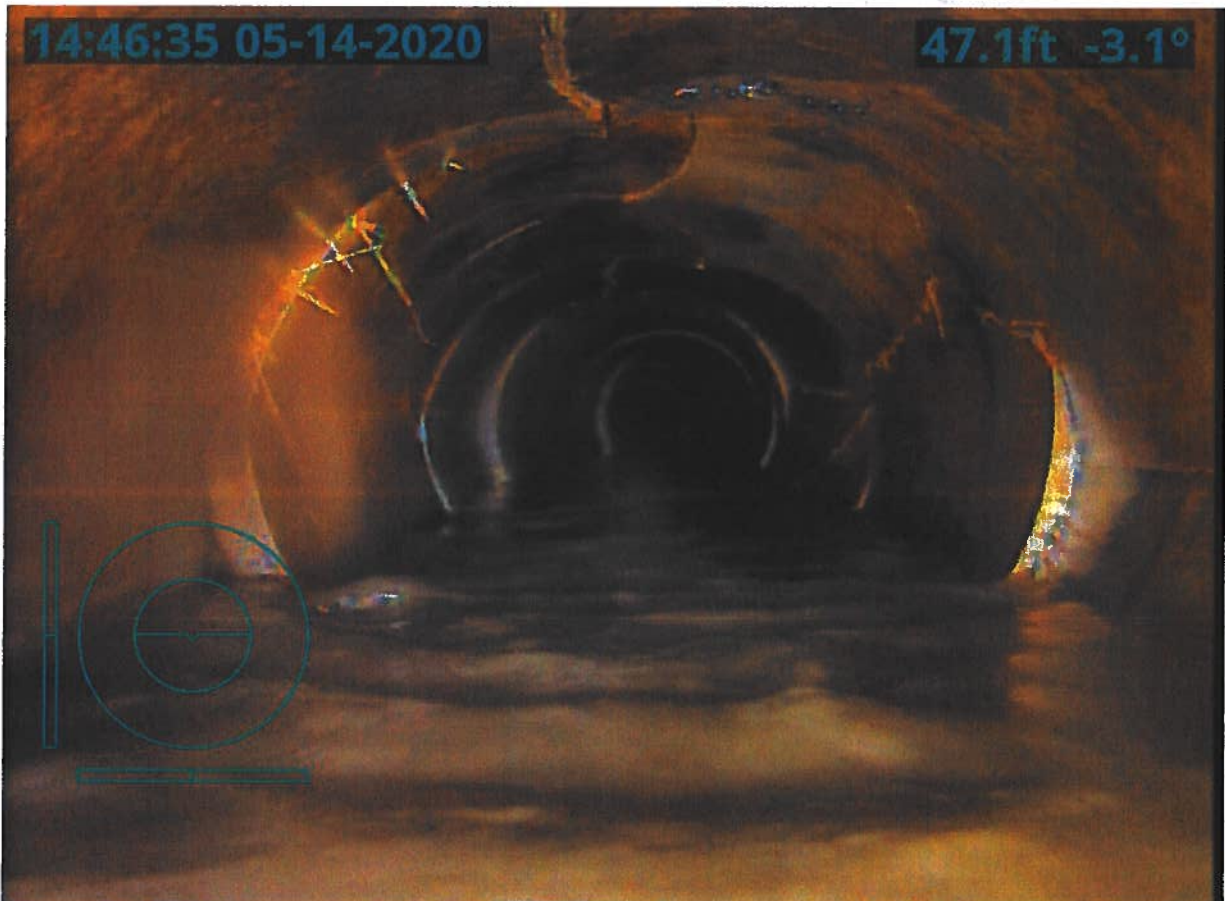
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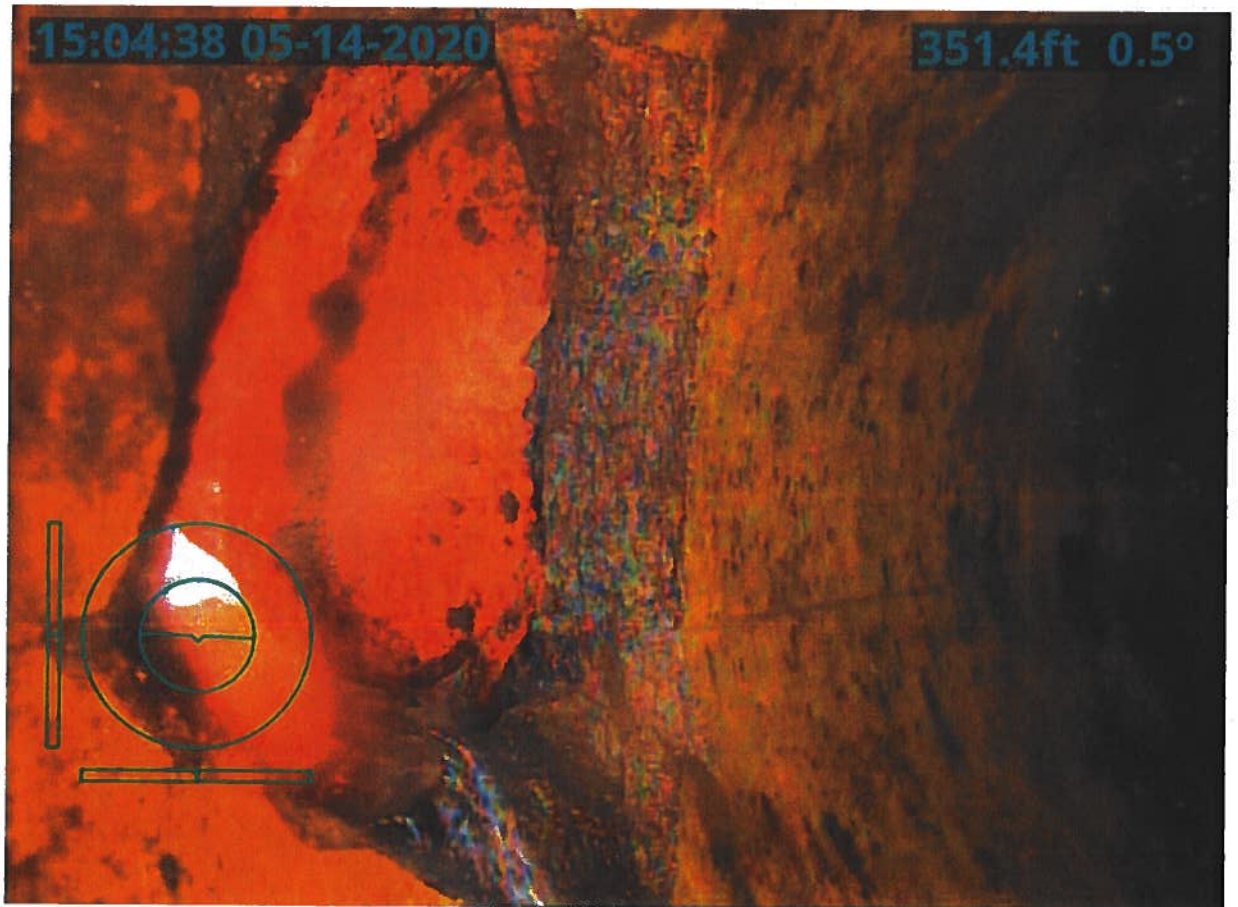
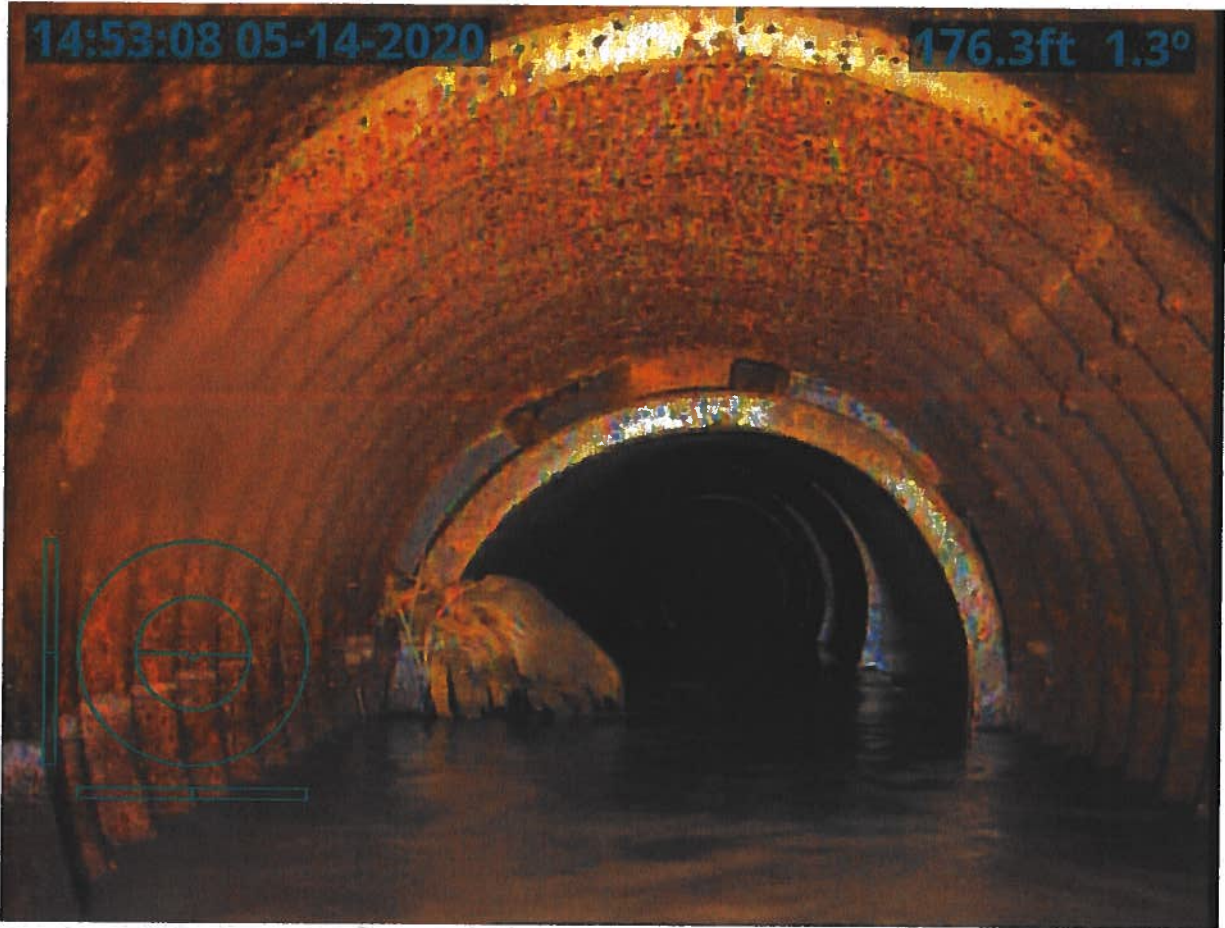
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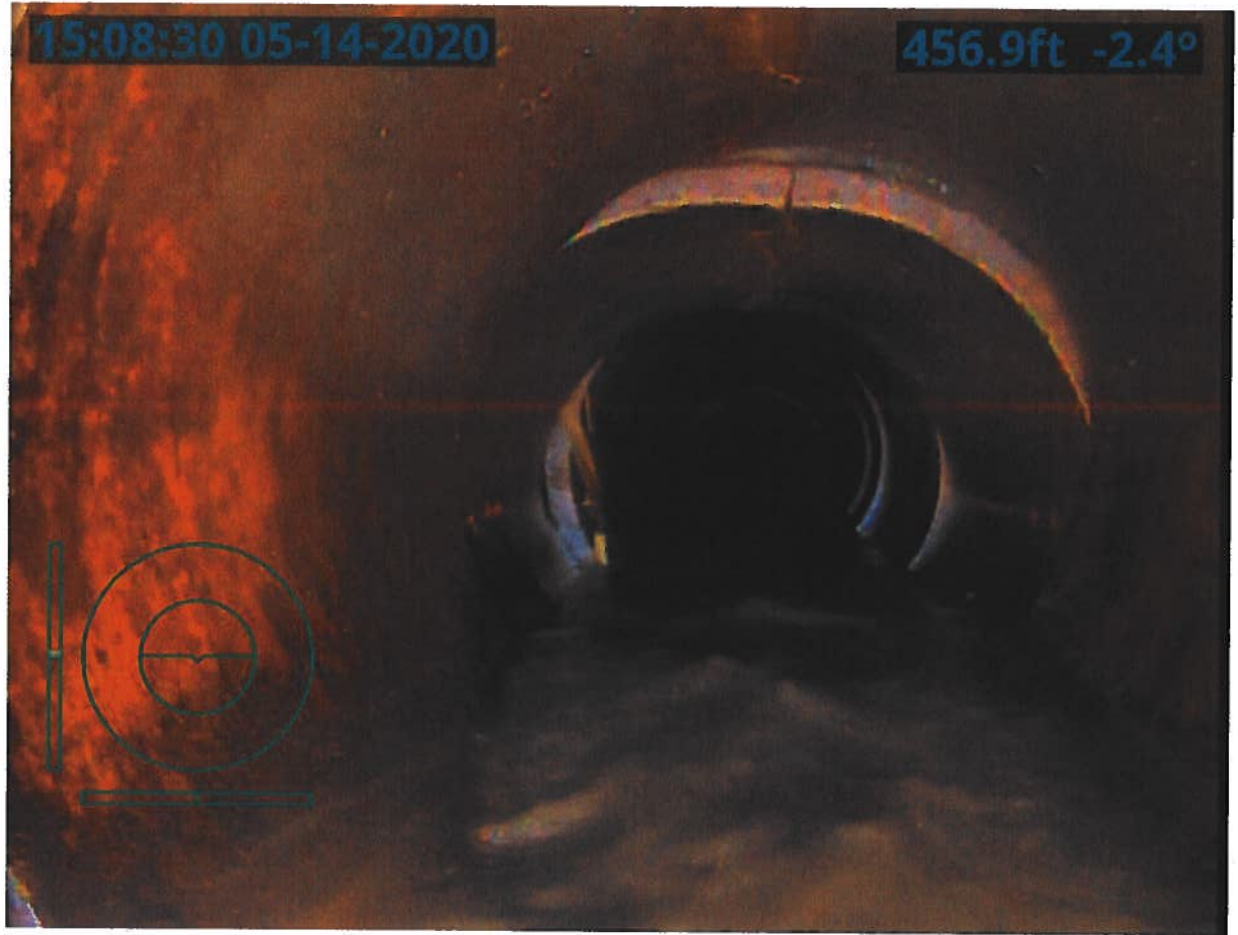






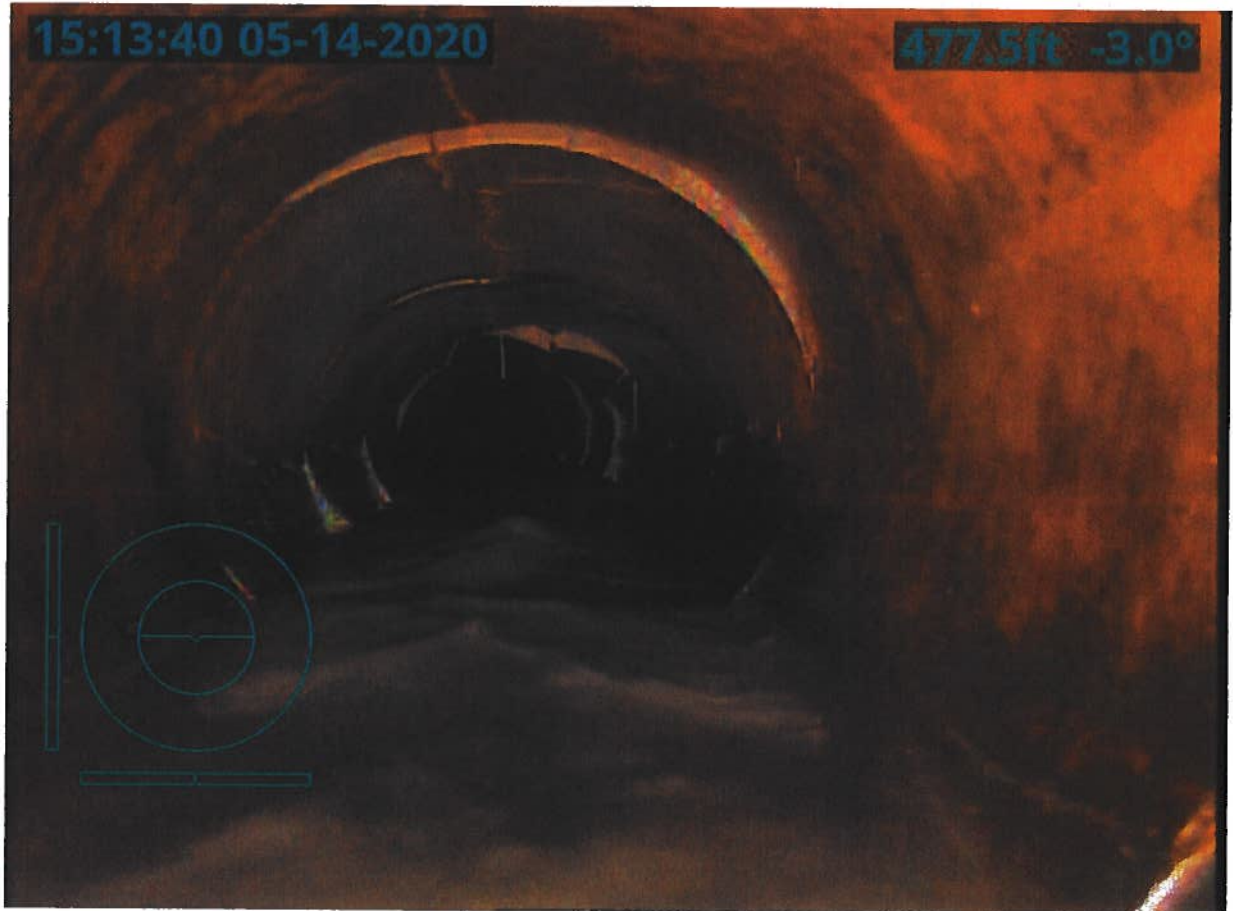
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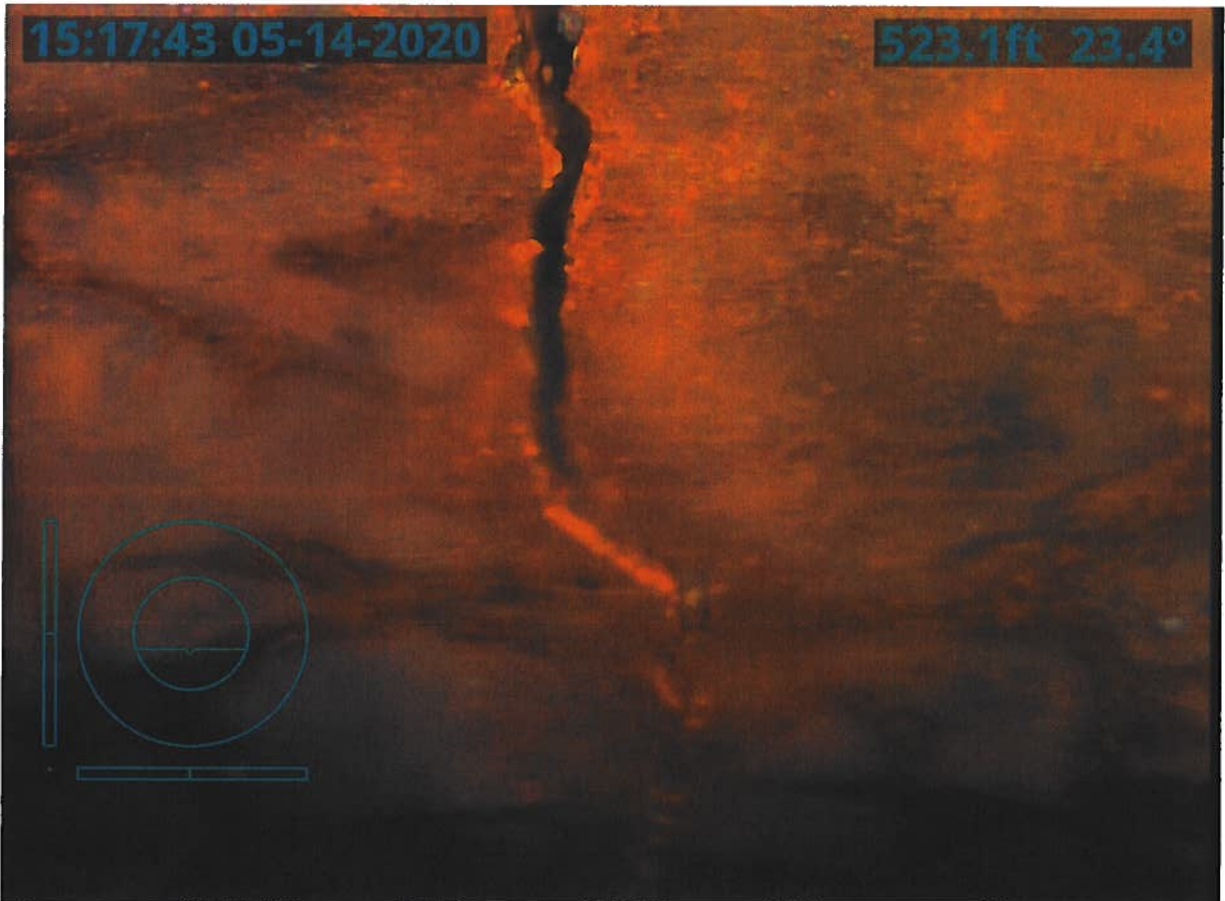
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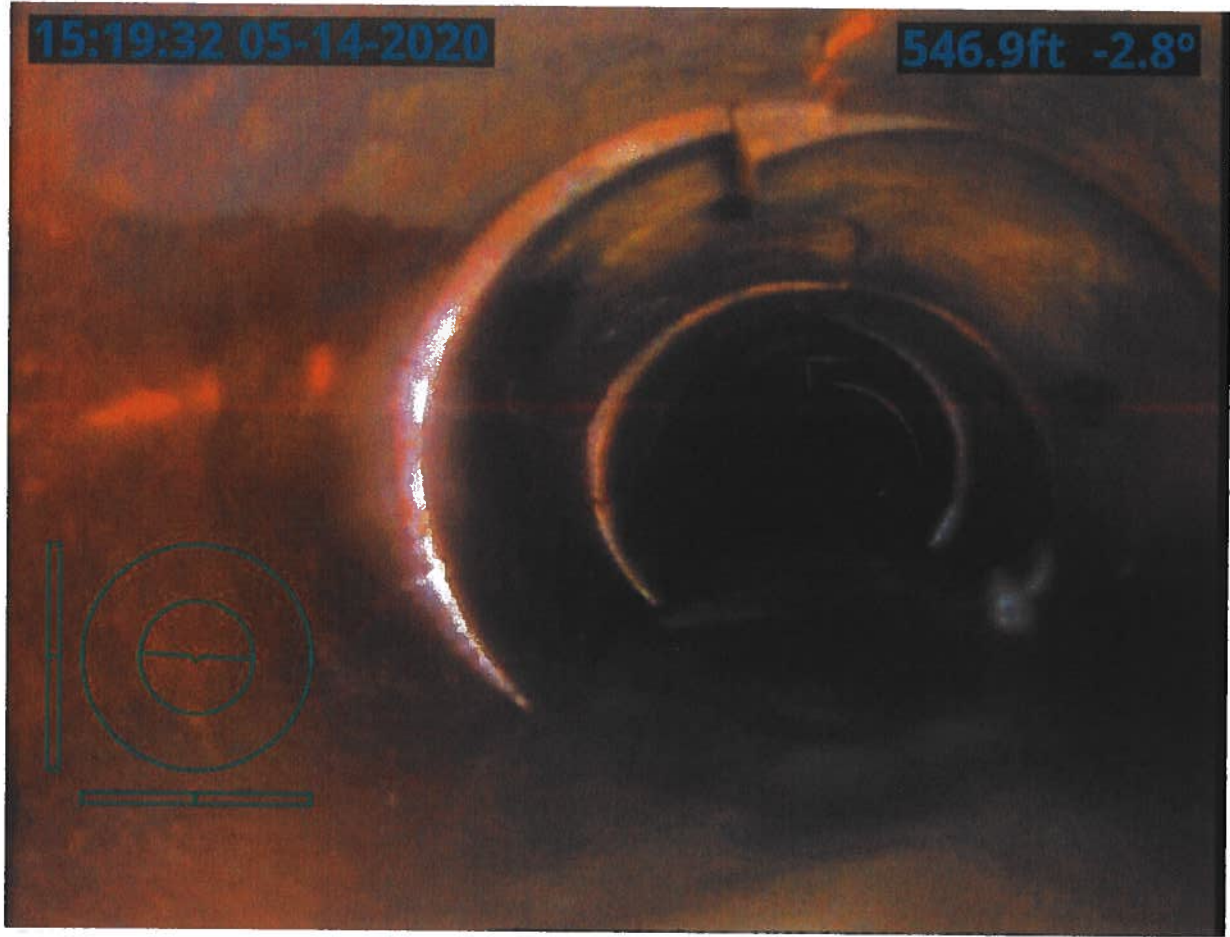






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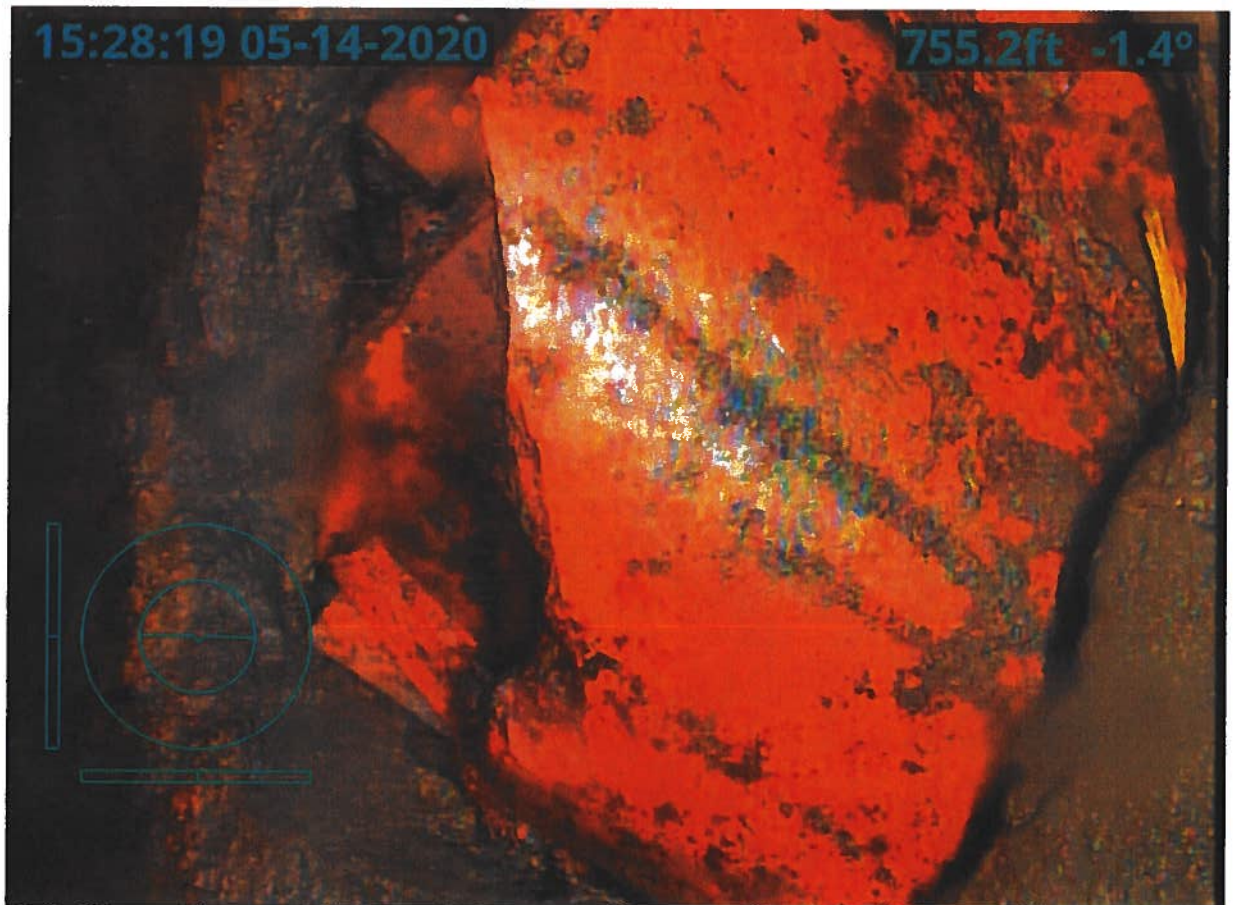
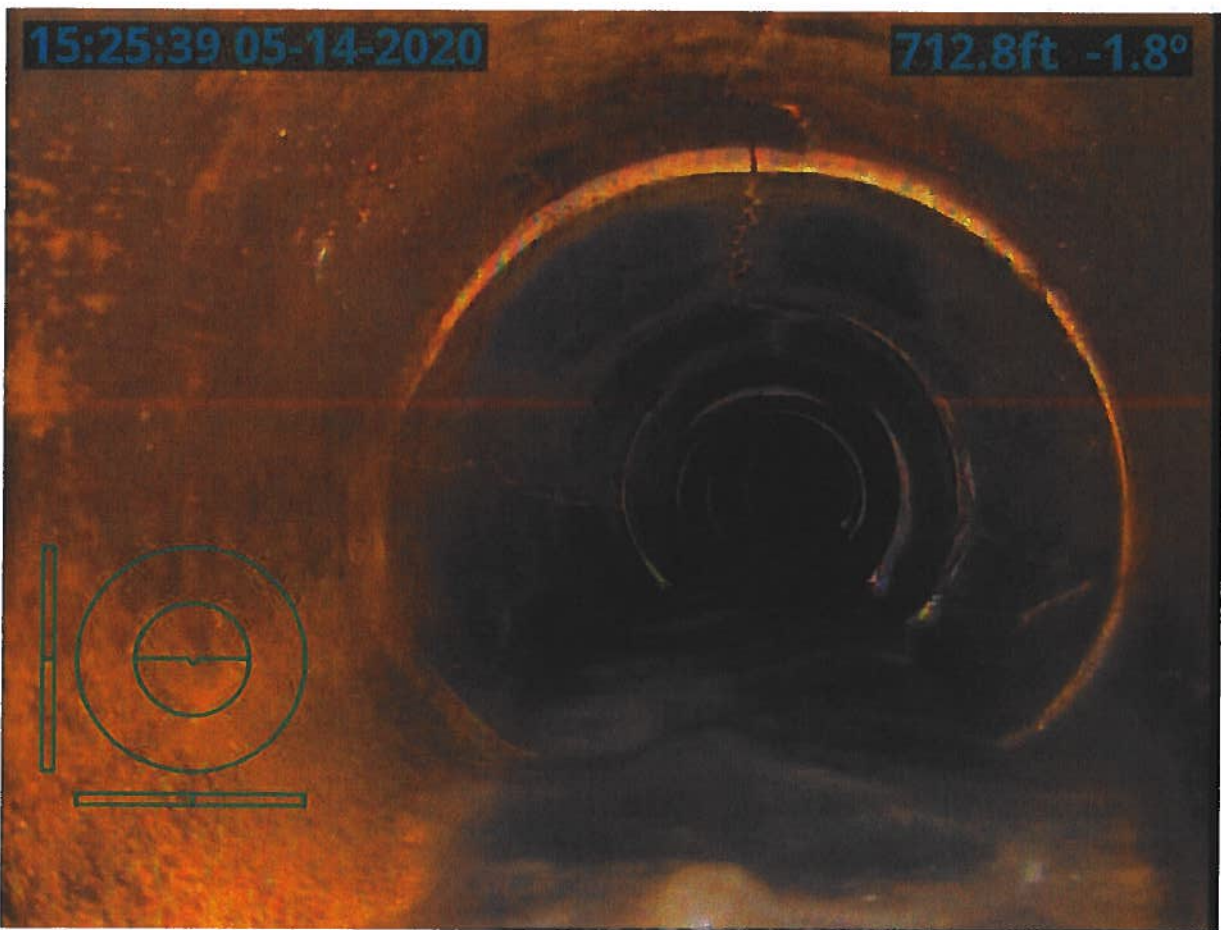
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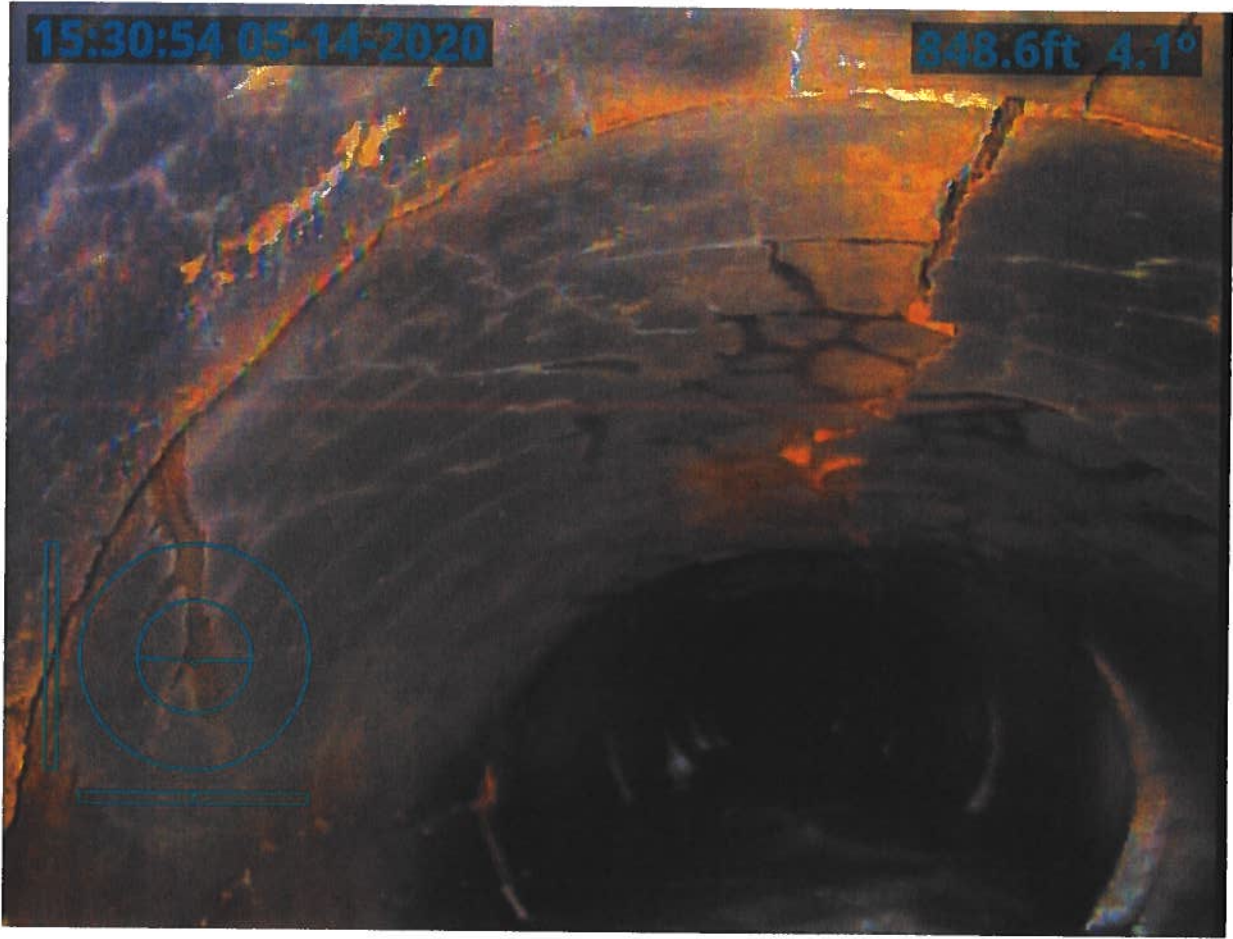






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848.6ft 4.1°



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 9,3606807.989,4950160.633,1143.206,FENCE E-W  
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 21,3605484.284,4952146.915,1142.370,SURVEY MARK NAIL  
 22,3606802.079,4952129.144,1147.964,FENCE S&W  
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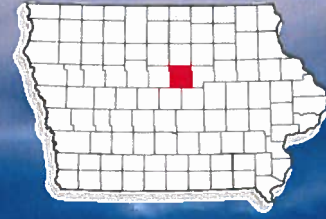
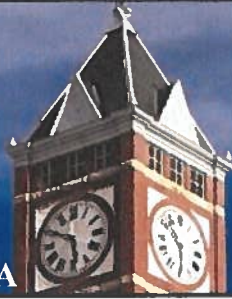


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HARDIN COUNTY, IOWA



2020



**COMPLETION REPORT ON  
MAIN TILE REPAIRS TO  
DRAINAGE DISTRICT 22  
FACILITIES  
HARDIN COUNTY, IOWA  
(PROJECT NOS. DD-6532.2 AND 8712)**



I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA

*Heather Ann Thomas*  
HEATHER ANN THOMAS, P.E.

*08/28/2020*  
DATE

LICENSE NUMBER: 23208  
MY LICENSE RENEWAL DATE IS DECEMBER 31, 2021  
PAGES OR SHEETS COVERED BY THIS SEAL:  
SHOWN ON TABLE OF CONTENTS



**CLAPSADDLE-GARBER ASSOCIATES OFFICE LOCATIONS**

16 East Main Street, PO Box 754 | Marshalltown, IA 50158  
1523 S. Bell Avenue, Suite 101 | Ames, IA 50010  
5106 Nordic Drive | Cedar Falls, IA 50613  
739 Park Avenue | Ackley, IA 50601  
511 Bank Street | Webster City, IA 50595

**Project Office**  
739 Park Avenue  
Ackley, IA. 50601  
Phone: 641-847-3273  
Fax: 641-847-2303

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- A – As Built Plan Sheets
- B – Project Change Orders
- C – Final Quantities Pay Estimate #6 (Approved 04/29/20)
- D – Proposed Release of Retainage Pay Estimate #7
- E – Landowner / County Split of Project Construction Cost
- F – Lien Waivers



## Project Timeline

The Hardin County Board of Supervisors, acting as District Trustees, requested Clapsaddle-Garber & Associates, Inc. (CGA) investigate and provide recommendations to Drainage District 22. CGA reviewed available information and previous investigative work performed to make a recommendation to address failures in the drainage tile installed in 2011 in Drainage District 22. The District Trustees and Landowners met on October 25<sup>th</sup>, 2017 and went through recommendations. In an effort to be cognizant of financial constraints, the landowners desired to proceed with a project to replace the 30-inch tile and decided to handle any other issues on the smaller diameter 2011 installed tile as a spot repair or work order in the future, as they were identified. At that time, the estimated costs (in 2017 dollars) came to \$487,250.

Additional concerns were later brought about on the original main due to the formation of a sinkhole and CGA was directed to have the line televised, review the condition of that line, and propose options. The District Trustees and Landowners met on March 2<sup>nd</sup>, 2018 and April 11<sup>th</sup>, 2018 to review options presented by CGA. It was decided to proceed with the original plan of replacing the 30-inch tile (Supplemental or Parallel Main) and perform spot repairs on the Original Main. Estimated project costs totaled \$841,000. The trustees authorized CGA to proceed with completion of project plans and specifications and proceed with a bid letting. The Trustees directed CGA to bid the project with alternative pipe materials (RCP or Polypropylene) and also several Add Alternates.

CGA completed plans and specifications and a bid letting date of July 25<sup>th</sup>, 2018 was set by the Trustees. A landowner meeting was held August 1<sup>st</sup>, 2018 to review bids received and the District recommending awarding the RCP pipe material with rock bedding and both Add Alternates 4 & 6. The following tabulation shows the bid prices for that selected material and add alternates:

	<b>Contractor</b>	<b>RCP Alternate with Rock</b>	<b>Add Alternate #4</b>	<b>Add Alternate #6</b>
1.	Gehrke, Inc. of Eldora, Iowa	\$ 539,778.50	\$ 4,554.00	\$ 5,000.00
2.	Lodge Construction, Inc. of Clarksville, Iowa	\$ 619,245.00	\$ 8,420.00	\$ 9,500.00
3.	Wunsch Construction, Inc. of Greene, Iowa	\$653,675.25	\$ 4,800.00	\$ 2,000.00

The District Trustees identified Gehrke, Inc. as the lowest responsible bidder for the project and awarded the project with the above shown options at a construction contract price of \$549,332.50. The contract was signed on August 16<sup>th</sup>, 2018.

The contract was written to allow, but not require a Contractor to begin construction in 2018. Gehrke, Inc planned to start in the Spring of 2019. The start of construction activities was delayed due to very wet weather conditions. The saturated ground coupled with the area being previously disturbed made for challenging construction conditions. Construction activities were started on July 26<sup>th</sup>, 2019. The weather conditions did push back the completion date as described within the change orders.

Substantial completion was achieved on April 10<sup>th</sup>, 2020. As-built plan sheets are as shown in Appendix A.

There are several warranties and a maintenance bond on this project as described below:

1. The seeding warranty for County Ditches is in effect from April 1<sup>st</sup>, 2020 to March 31<sup>st</sup>, 2021.
2. The seeding warranty for Travis Reyerson's yard is in effect from April 10<sup>th</sup>, 2020 to April 9<sup>th</sup>, 2021.
3. The 2-year Maintenance Bond started April 10<sup>th</sup>, 2020 and will be in effect through April 9<sup>th</sup>, 2022.

## Observations on 2011 Project

A portion of this project (being the replacement of the 2011 installed supplemental main tile) was the result of a previous project and lawsuit settlement. The Drainage District Trustees requested the Contractor and Construction Observer note some of the observed issues and inconsistencies. These are summarized below:

1. The 2011 installed 30" HDPE tile was not installed with rock bedding support throughout the project, including through the road crossings.
2. While removing the 2011 "egg-shaped" tile, it appeared there was no undisturbed spoon shaped earthen support. The bottom of the previous trench appeared flat.
3. In several locations, it appeared soil that was in the area of the haunch had not been compacted during the initial installation. What was observed was consistent with a backfill being dumped over the pipe and not appropriately compacted around the pipe, under and up to the springline. Installing HDPE in this manner is known to cause the pipe to become "egg-shaped" initially and then it can further crush and flatten out under the weight of the soil backfill above and settling of the ground over time.
4. The 2011 installed tile that was removed "snaked" back and forth horizontally. This snaking appeared not only to be side to side of the 2011 dug trench but also the trench itself. The alignment was not laid with smooth curves and consistent joint deflections.
5. Records on location of the installed 2011 tile were very sparse, which made locating and following the route difficult.
6. Several stretches of the 2011 30" HDPE tile had back fall; the pipe was not laid at a consistent grade.
7. During construction, additional private tile lines were located that were not shown on the 2011 as built. Some were attached to the 2011 supplemental main tile and some were never connected in 2011 to the supplemental main tile. It is important to note that it is possible some of those found that were connected may have been connected after the conclusion of the 2011 project.
8. The connections made in 2011 between the HDPE tile and structures were poor and not solid. When disconnecting the 2011 30" HDPE tile, the concrete collar used to connect to the structure crumbled apart.
9. The alignment of the supplemental main tile ran directly through the Ryerson property septic field. There are no records of and no evidence was observed in the field that the septic field was fixed in 2011.



## Project Change Orders

This project followed the authorized plans and specifications, with the following change orders. Additional information on each can be seen in Appendix B.

1. Approved Equivalent #1 –  
Approved equal for ADS Insert-A-Tee Connection and reduction of Bid Item 10A, “24” x 18” RCP Reducer – For spot Repairs” (-\$442.00)
2. Change Order #2 –  
Additional Spot Repair Necessary Due to Lack of Field Alignment Knowledge. As-Built plans of the supplemental main showed a 15-foot offset from the original main tile, this was not the case. (+\$1,184.00)
3. Change Order #3 –  
Adjust Contract Quantities to reflect field installed quantities for spot repairs. The allowed spot repair quantities were greater than what was determined needed in the field. The contract quantities were adjusted. (-17,992.00)
4. Change Order #4 –  
Allow native backfill be utilized for road crossings. Recommendation and allowance was obtained from the Hardin County Engineer. (\$0.00)
5. Change Order #5 –  
Allow for exploratory excavation to lessen needed changes or damaging the original supplemental main. (+\$1,749.00)
6. Change Order #6 –  
Completion date was extended to December 1<sup>st</sup>, 2019. (+\$0.00)
7. Change Order #7 –  
Repair Travis Ryerson’s septic system (+\$1,650.00)
8. Change Order #8 -  
During the 30-inch tile replacement, a 6” private tile, running longitudinally with the 30” tile needed removed and replaced. (+\$3,150.00)
9. Change Order #9 –  
3-inch rock bedding material was needed to provide pipe support in an area of poor soil. (+\$360.00)
10. Change Order #10 – Quantity Adjustments  
The original contract, as bid, was largely completed (with the exception of seeding, clean-up, and other miscellaneous work that was unable to be completed with the winter weather/frozen ground conditions) as of January 13<sup>th</sup>, 2020. The quantities installed to date and the anticipated work remaining for the Spring was compiled to determine the projected final quantities. (-\$1,896.00)
11. Change Order #11 –  
Completion date was extended to May 31<sup>st</sup>, 2020. This change order also establishes a completion date for Change Order #12 of November 30<sup>th</sup>, 2020. (+\$0.00)

12. Change Order #12 – Overflow Cross Connections

Landowners voted to add extra work not in the original project scope by adding several overflow connections at structures to connect the main and supplemental tile.

(+\$20,492.00)

Final Project Costs

The final project construction cost came to \$557,587.50, as shown below. Engineering costs (not including televising investigation completed by others) are estimated at \$148,000. The total project cost may increase depending upon any damage claims brought forth at the completion hearing and do not include the one damage claim approved to date. It should also be noted that these costs shown herein are also without any administrative costs, legal fees paid by the district, televising paid by the district, or interest on construction warrants. The total project cost, without the above items, is \$705,557.50, as detailed below:

	Project, as bid by Contractor	\$ 549,332.50
	Approved Equivalent #1	- (\$ 442.00)
	Change Order #2	+ \$ 1,184.00
	Change Order #3	- (\$ 17,992.00)
	Change Order #4	-
	Change Order #5	+ \$ 1,749.00
	Change Order #6	-
	Change Order #7	+ \$ 1,650.00
	Change Order #8	+ \$ 3,150.00
	Change Order #9	+ \$ 360.00
	Change Order #10	- (\$ 1,896.00)
	Change Order #11	-
	Change Order #12	+ \$ 20,492.00
	<b>Total Construction Contract Amount</b>	<b>\$ 557,587.50</b>
	<b>Estimated Engineering @ End of Completion Hearing</b>	<b>\$ 148,000.00</b>
	<b>TOTAL PROJECT COST</b>	<b>\$ 705,587.50</b>

The cost of this project is taken on by two separate entities, being the Landowners and Hardin County. Hardin County covers any materials within the Right of Way of any road. The Landowners cover the remaining costs. See Appendix E for a breakdown of the construction costs between Landowners and Hardin County which resulted in 91.57% of the costs being the Landowner share and 8.43% being the County’s share. When applied to the Total Project Cost amount above, Landowners are responsible for \$646,106.47 and the county is responsible for \$59,481.03.

The landowner share of \$646,106.47 is less than the \$717,002.00 as discussed with the Landowners on April 11<sup>th</sup>, 2018, when it was voted to proceed with the project.



## Crop Damage

Crop damaged was incurred by 5 property owners on this project. Crops impacted were beans and corn. The following table shows which property owners were impacted, which type of crops were impacted, and the number of acres of crops that were damaged/removed.

<b>Property Owner</b>	<b>Corn Damage (Acres)</b>	<b>Bean Damage (Acres)</b>
Annette Ioerger	2.216	
Royle & Jo Duncan		2.323
Randy Silvest		8.992
Lee Anderson	2.841	
Marvin Krause Trust		3.411

An aerial of these areas can also be found in Appendix A (the As-Built Plan Sheets) on Sheet 4 of 19 (A.04-“Crop Damage”).

## Pending Items

As of the writing of this report, this project is complete (including punch list items) in general accordance with the authorized plans and specifications and lien waivers for suppliers have been submitted by the general contractor (as attached in Appendix F).

After the completion hearing, final payment (release of remaining retainage) for the project needs to be authorized by the Trustees. The last payment made to the Contractor was on April 29, 2020 and is included as Appendix C. The final payment due is as shown on Pay Estimate #7, included as Appendix D.

It is my recommendation that the project be accepted.

I also recommend that the entire project be walked and reviewed just prior to the expiration of the seeding warranties and Maintenance Bond for any items that may need to be remedied by the contractor. These dates are listed below.

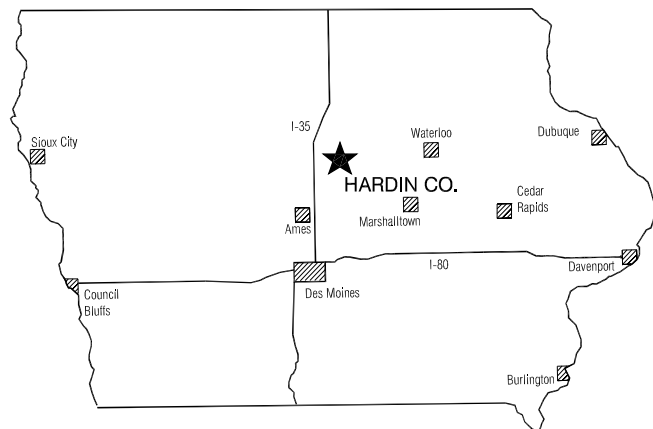
- Seeding warranty for County Ditches is in effect from April 1<sup>st</sup>, 2020 to March 31<sup>st</sup>, 2021.
- Seeding warranty for Travis Reyerson’s yard is in effect from April 10<sup>th</sup>, 2020 to April 9<sup>th</sup>, 2021.
- The 2-year Maintenance Bond is in effect from April 10<sup>th</sup>, 2020 through April 9<sup>th</sup>, 2022.

It should be noted that if the Trustees decide to exercise this recommendation, there are no engineering fees included in the above Final Project Costs to cover this service.

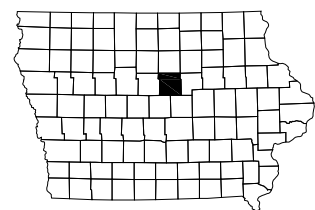
# APPENDIX A



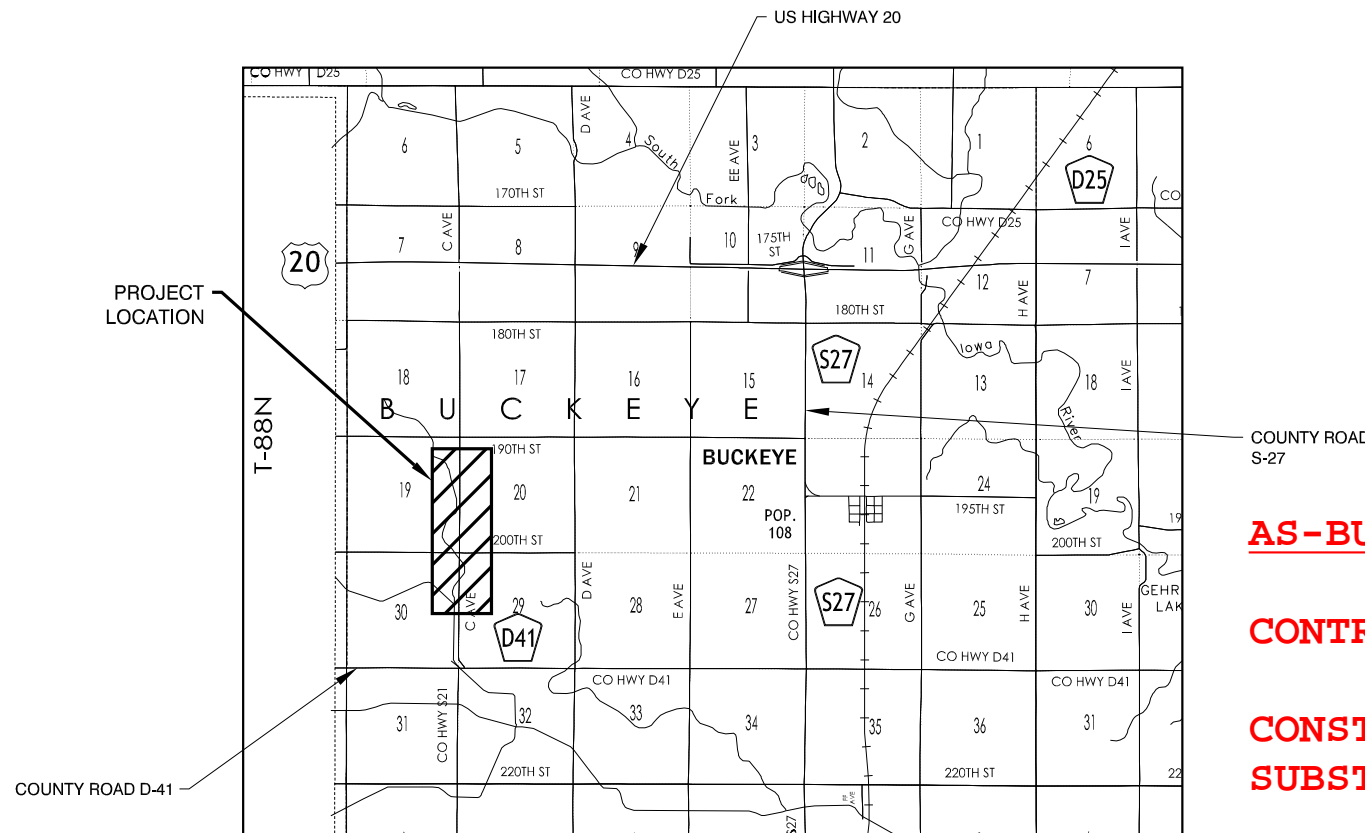
# MAIN TILE REPAIRS DRAINAGE DISTRICT NO. 22 HARDIN COUNTY, IOWA 2018



LOCATION MAP



HARDIN COUNTY, IOWA



VICINITY MAP

NOT TO SCALE

SHEET NO.	INDEX OF SHEETS DESCRIPTION
A.01	TITLE SHEET
A.02	LAYOUT PLAN
B.01-B.06	DETAILS
C.01-C.02	ESTIMATE OF QUANTITIES AND REFERENCE INFORMATION
D.01-D.03	TILE REPLACEMENT PLAN AND PROFILE
D.04-D.05	TILE SPOT REPAIRS

**AS-BUILT PLAN SET 08/28/2020**

**CONTRACTOR: GEHRKE, INC.**

**CONSTRUCTION START: JULY 26, 2019  
SUBSTANTIAL COMPLETION: APRIL 10, 2020**

**CONSTRUCTION OBSERVATION  
PROVIDED BY:**

**CLAPSADDLE-GARBER-ASSOCIATES  
RANDY BROCKA &  
GARRETT JACOBS**

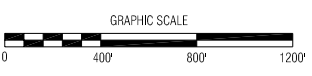
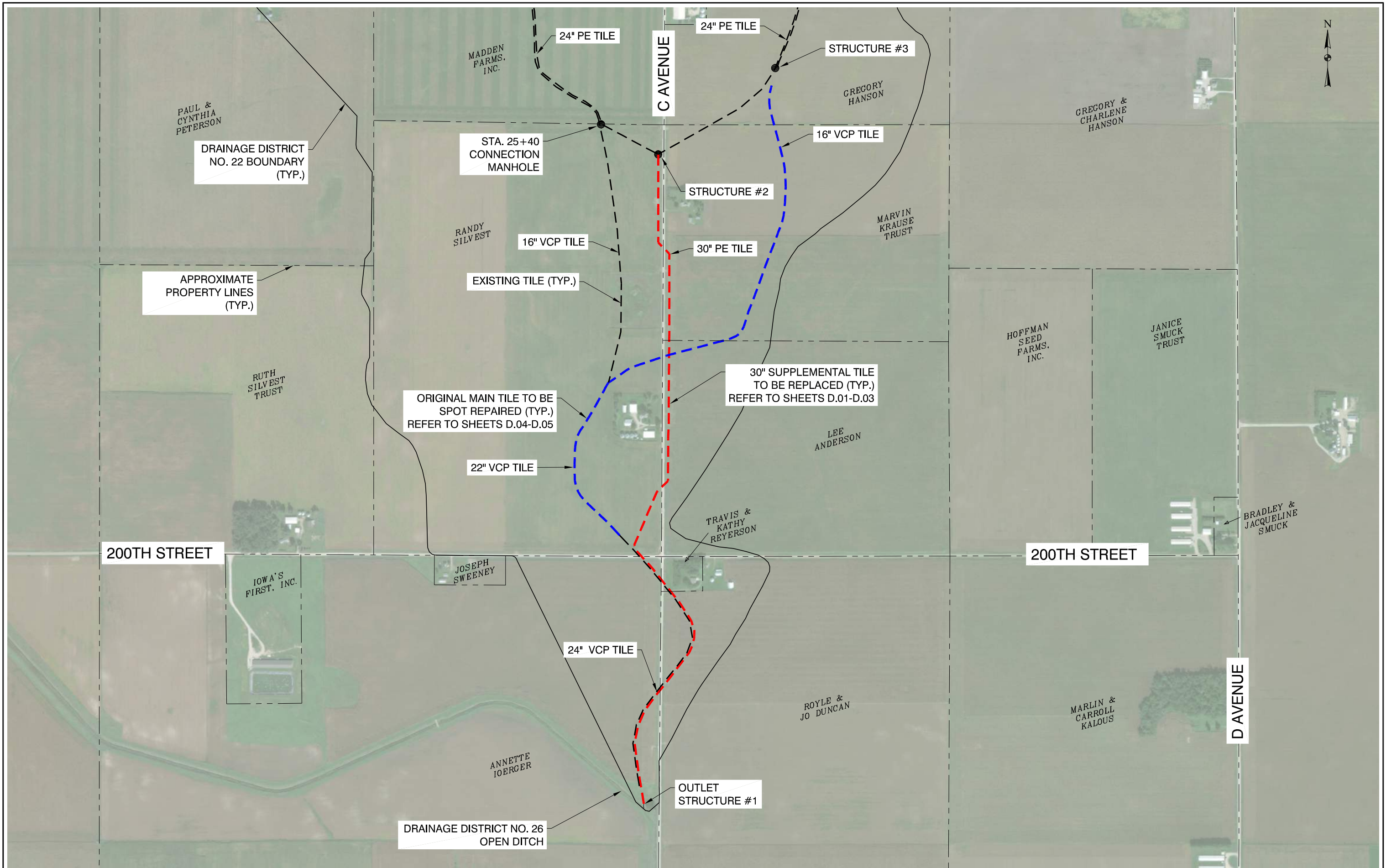


**1-800-292-8989**  
[www.iowaonecall.com](http://www.iowaonecall.com)



Clapsaddle-Garber Associates, Inc  
739 Park Avenue  
Ackley, Iowa 50601  
Phone 641-847-3273  
[www.cgaconsultants.com](http://www.cgaconsultants.com)

	I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa. Signature: <u>Heather Ann Thomas</u> Date: <u>08/28/2020</u>
	Signature: Heather A. Thomas, PE Iowa License Number 23208 My license renewal date is December 31, 2019
Pages or sheets covered by this set: <u>19 Sheets As Built Set</u>	



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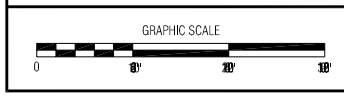
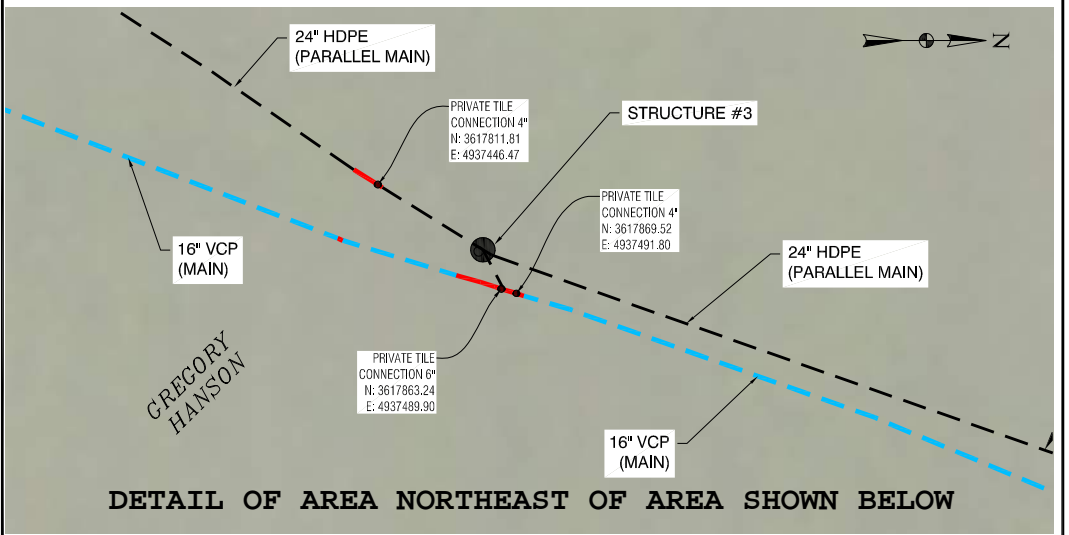
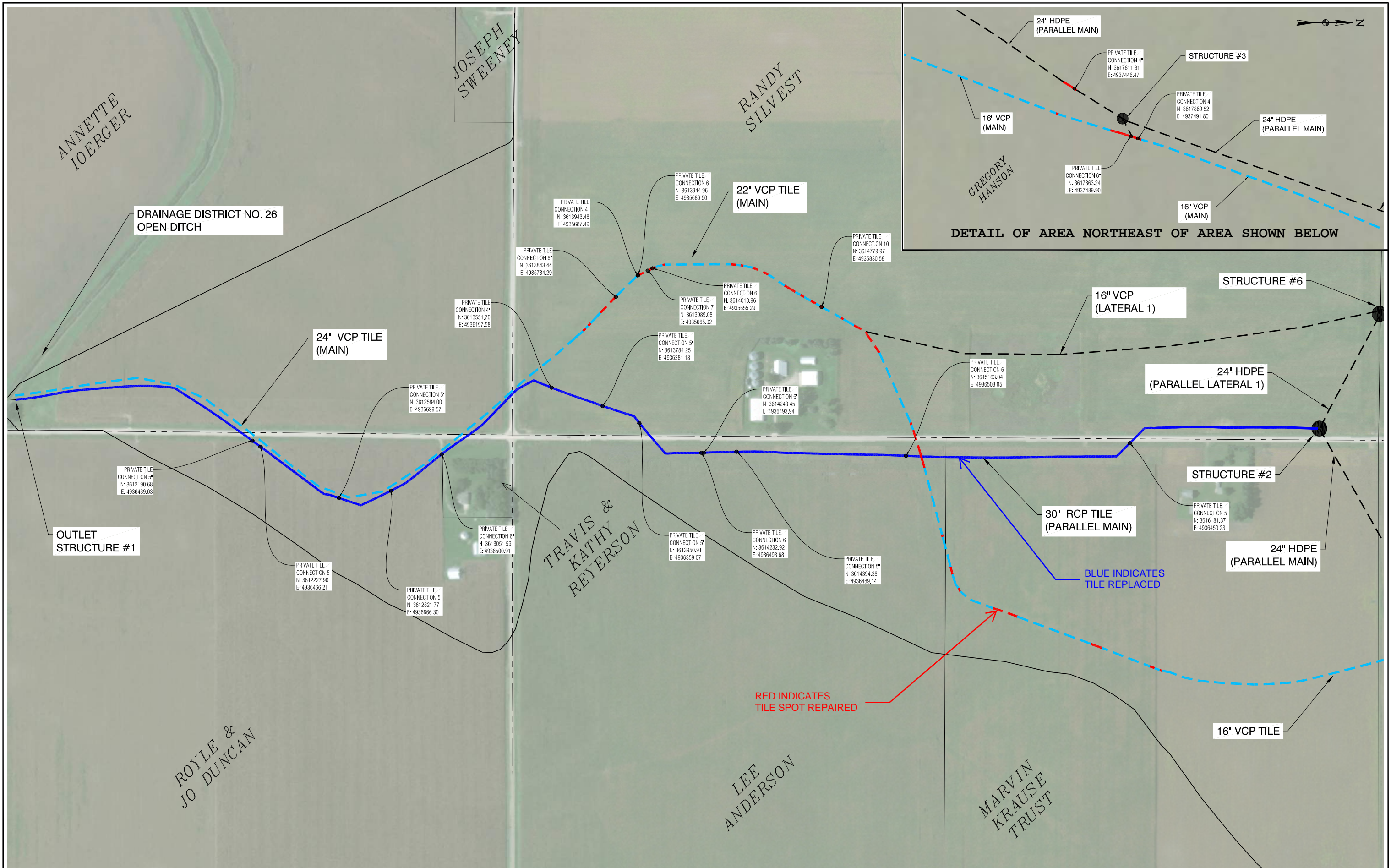
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**MAIN TILE REPAIRS - DD #22**  
 HARDIN COUNTY, IOWA

**LAYOUT PLAN**

PROJECT NO. 8712  
 SHEET NO. A.02





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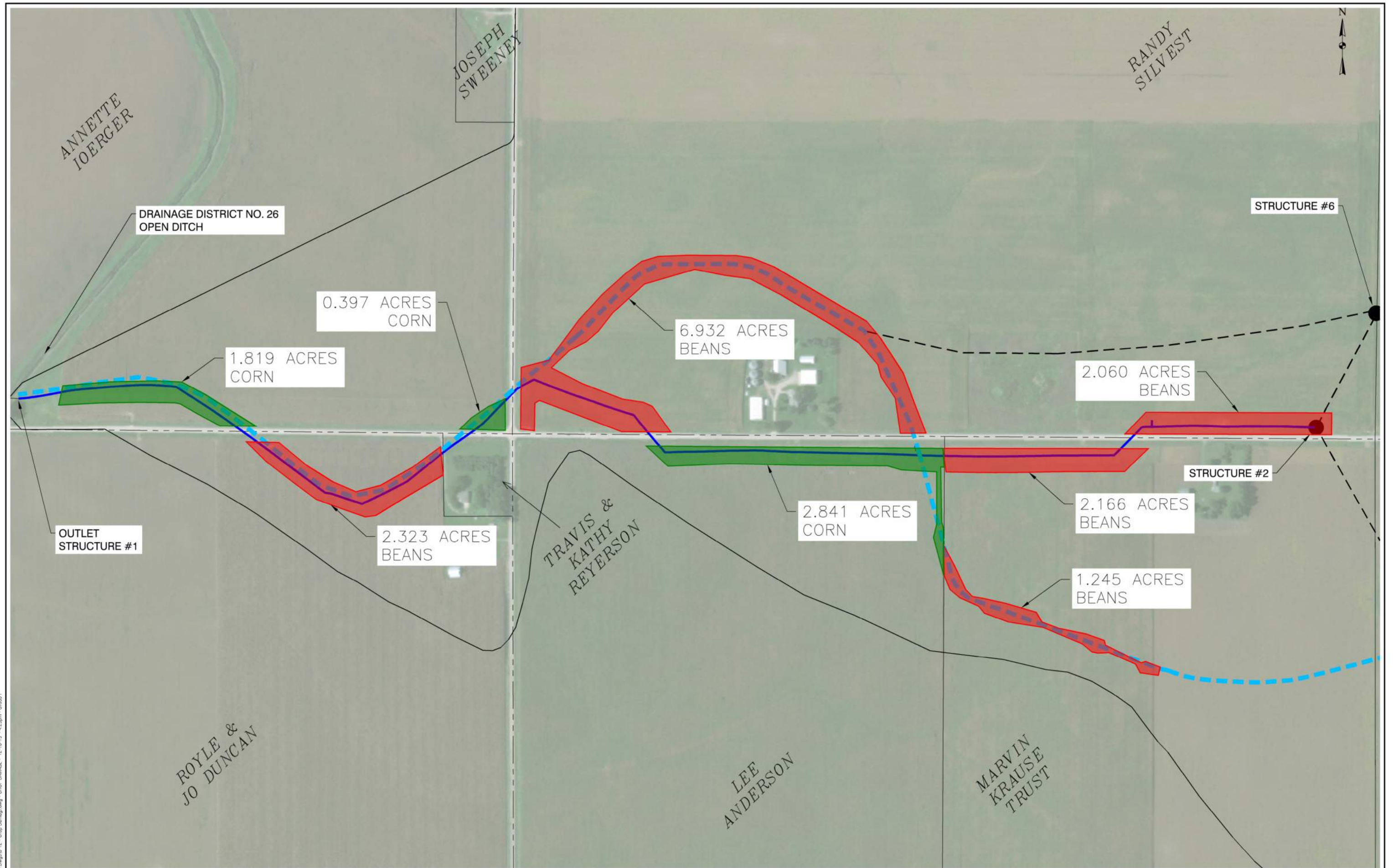
**MAIN TILE REPAIRS - DD #22**  
 HARDIN COUNTY, IOWA

**AS-BUILT OVERVIEW**

PROJECT NO. 8712  
 SHEET NO. A.03

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DRAINAGE DISTRICT NO. 26  
OPEN DITCH

STRUCTURE #6

0.397 ACRES  
CORN

6.932 ACRES  
BEANS

1.819 ACRES  
CORN

2.060 ACRES  
BEANS

OUTLET  
STRUCTURE #1

2.323 ACRES  
BEANS

TRAVIS &  
KATHY  
REYERSON

2.841 ACRES  
CORN

STRUCTURE #2

2.166 ACRES  
BEANS

1.245 ACRES  
BEANS

ROYLE &  
JO DUNCAN

LEE  
ANDERSON

MARVIN  
KRAUSE  
TRUST

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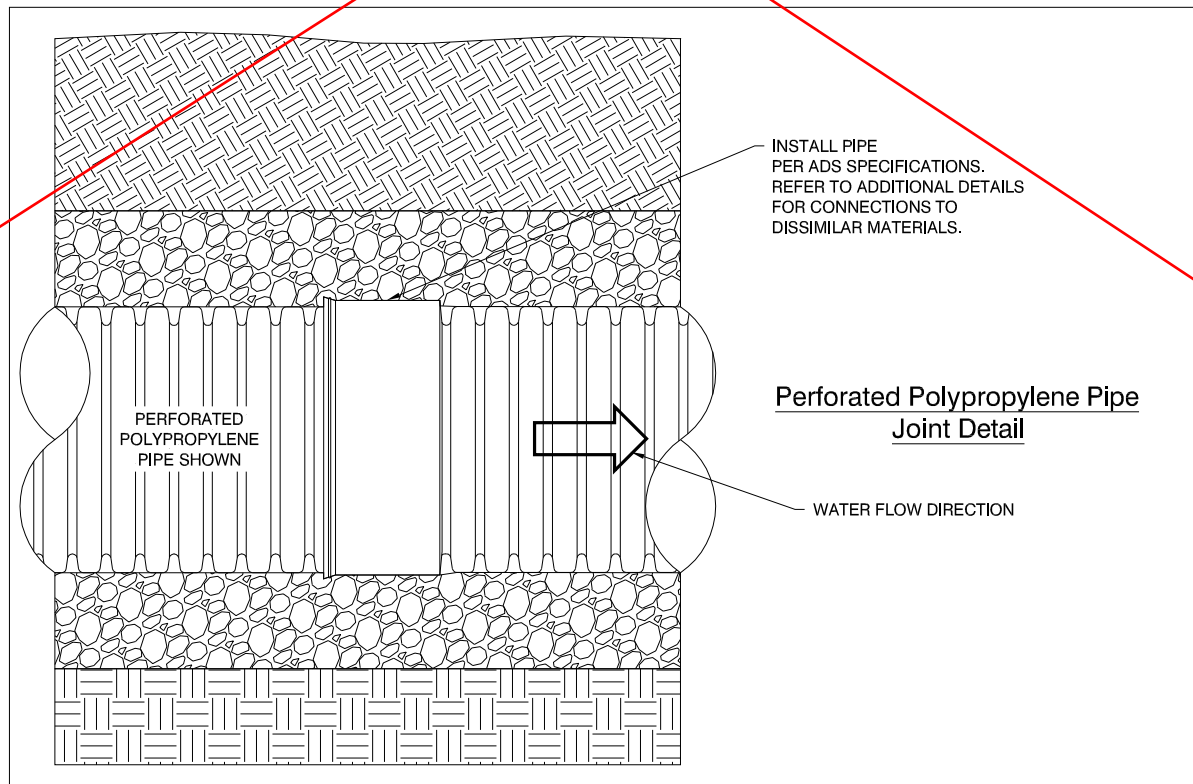
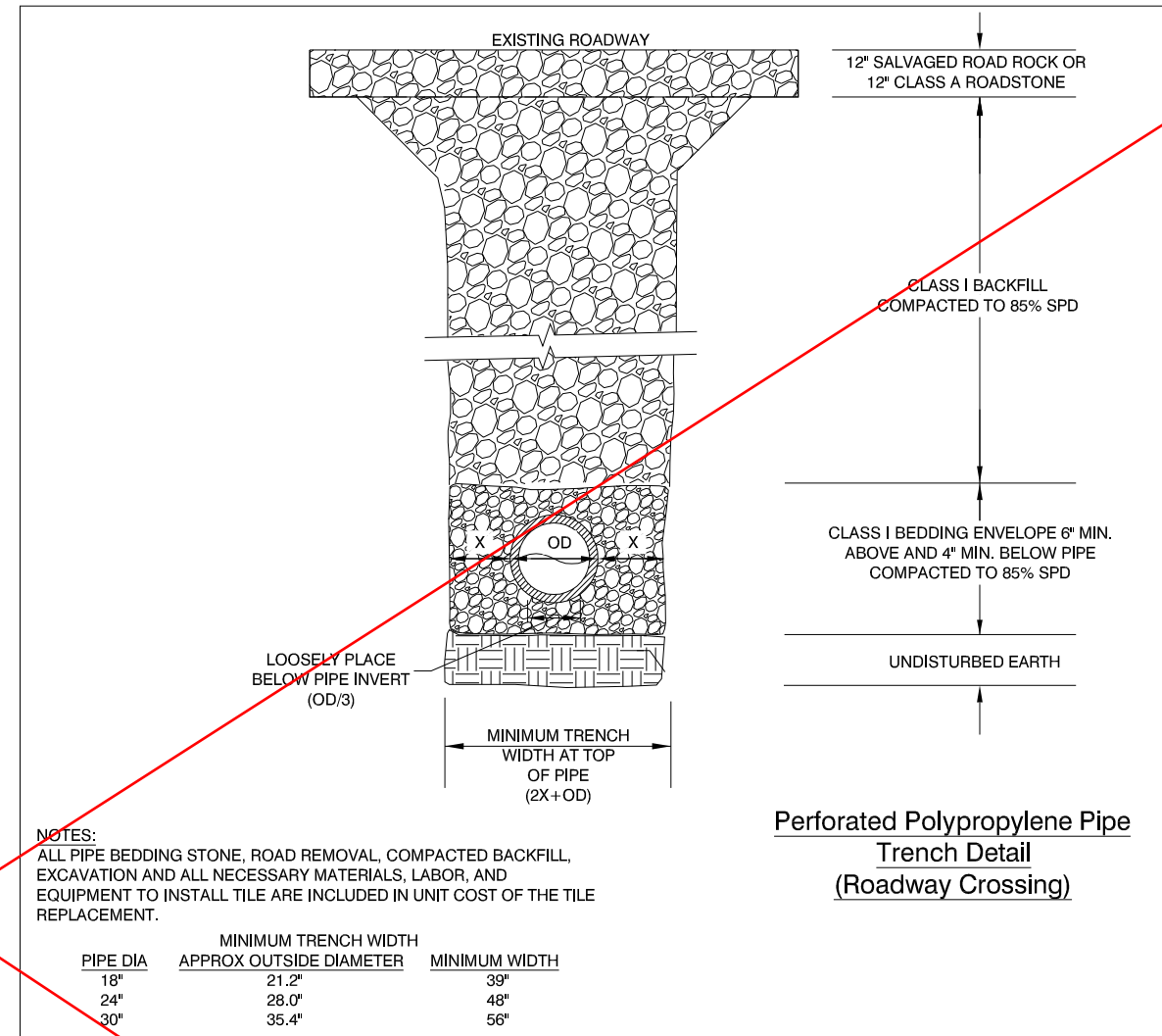
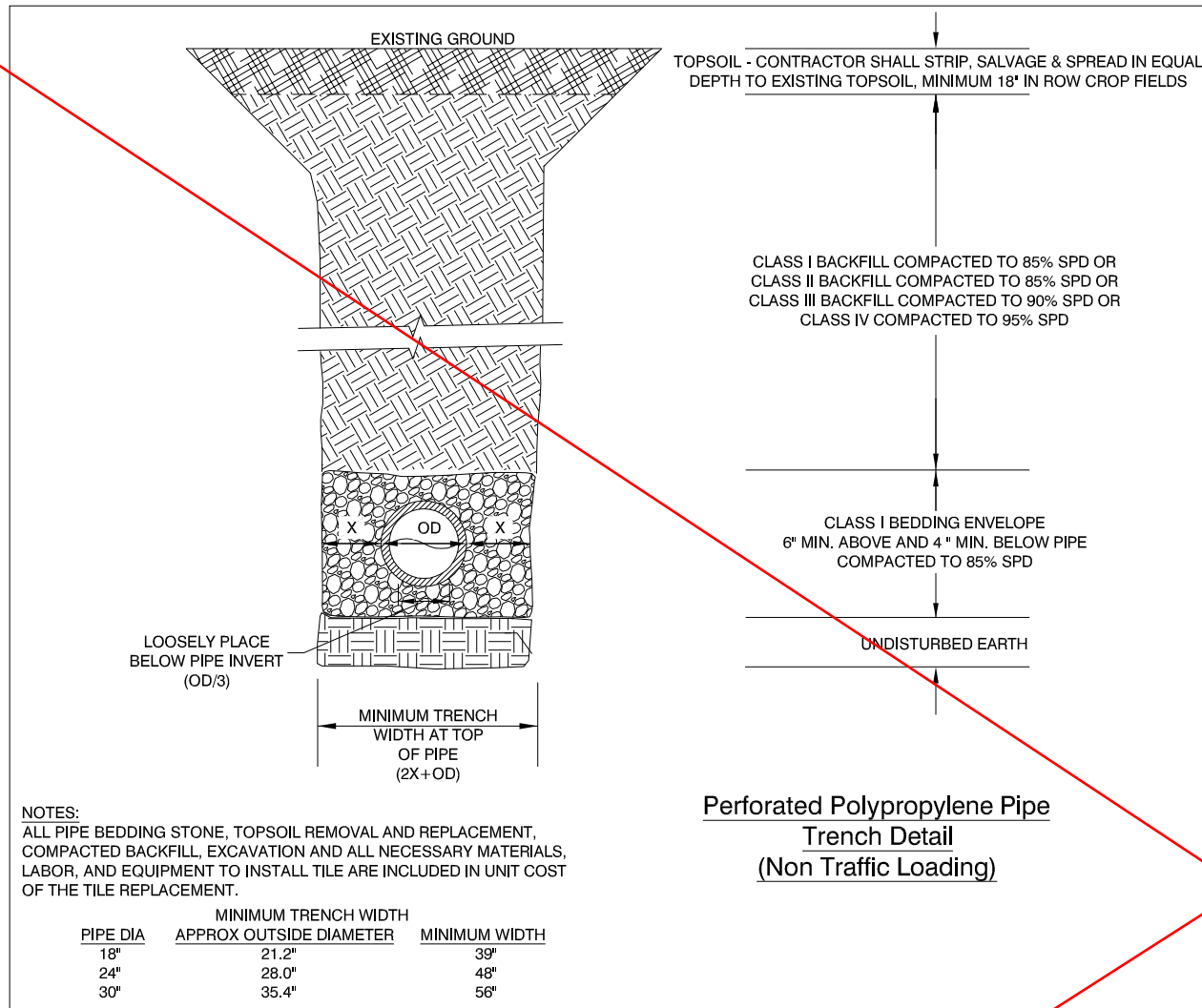
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**MAIN TILE REPAIRS - DD #22**  
HARDIN COUNTY, IOWA

**CROP DAMAGE**

PROJECT NO.  
8712  
SHEET NO.  
A.04





NOTE:  
MINIMUM TRENCH WIDTHS SHOWN ARE MINIMUM. CONTRACTOR MAY REQUIRE GREATER WIDTH IN ORDER TO ADEQUATELY COMPACT HAUNCH SUPPORT.

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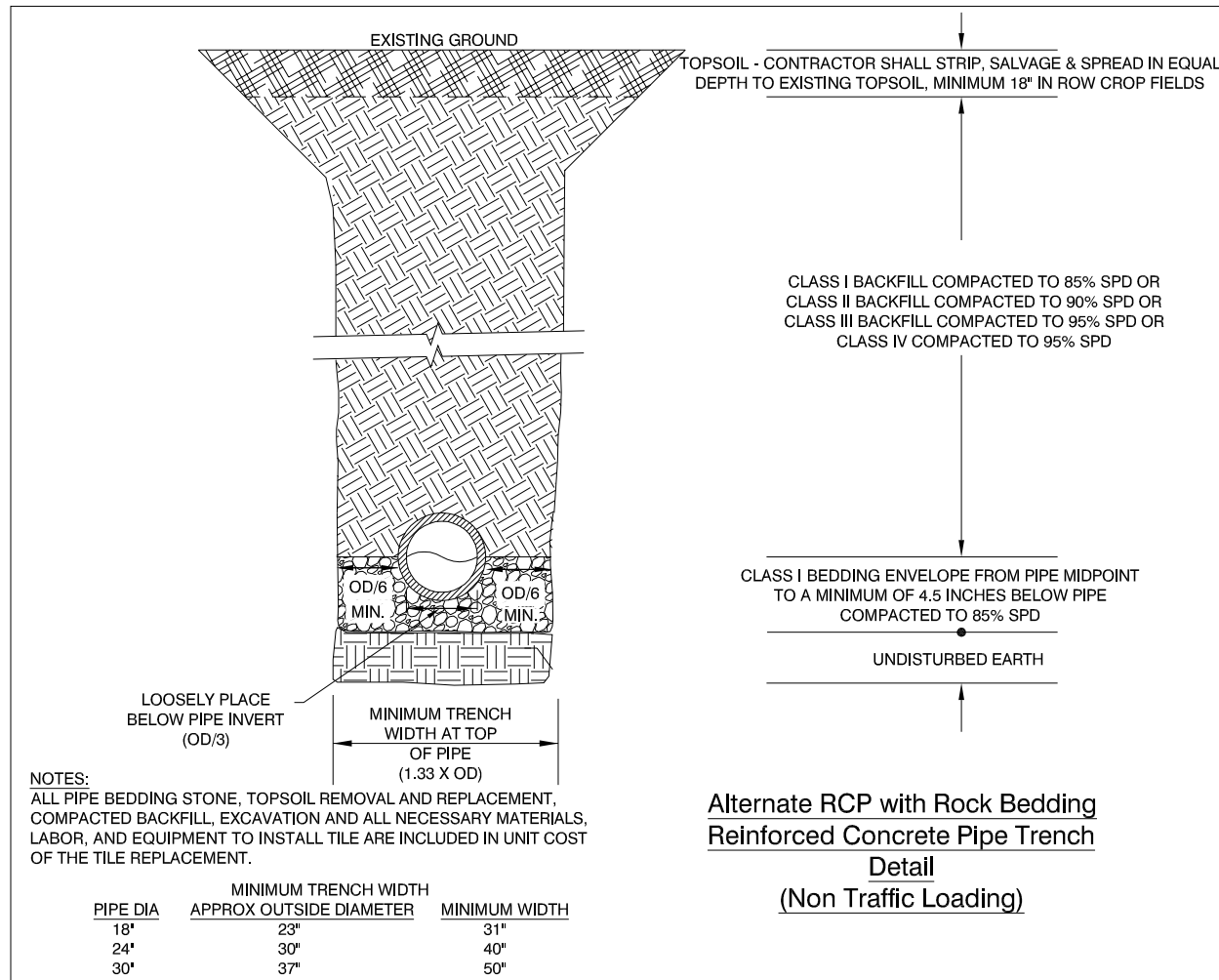


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**MAIN TILE REPAIRS - DD #22**  
 HARDIN COUNTY, IOWA

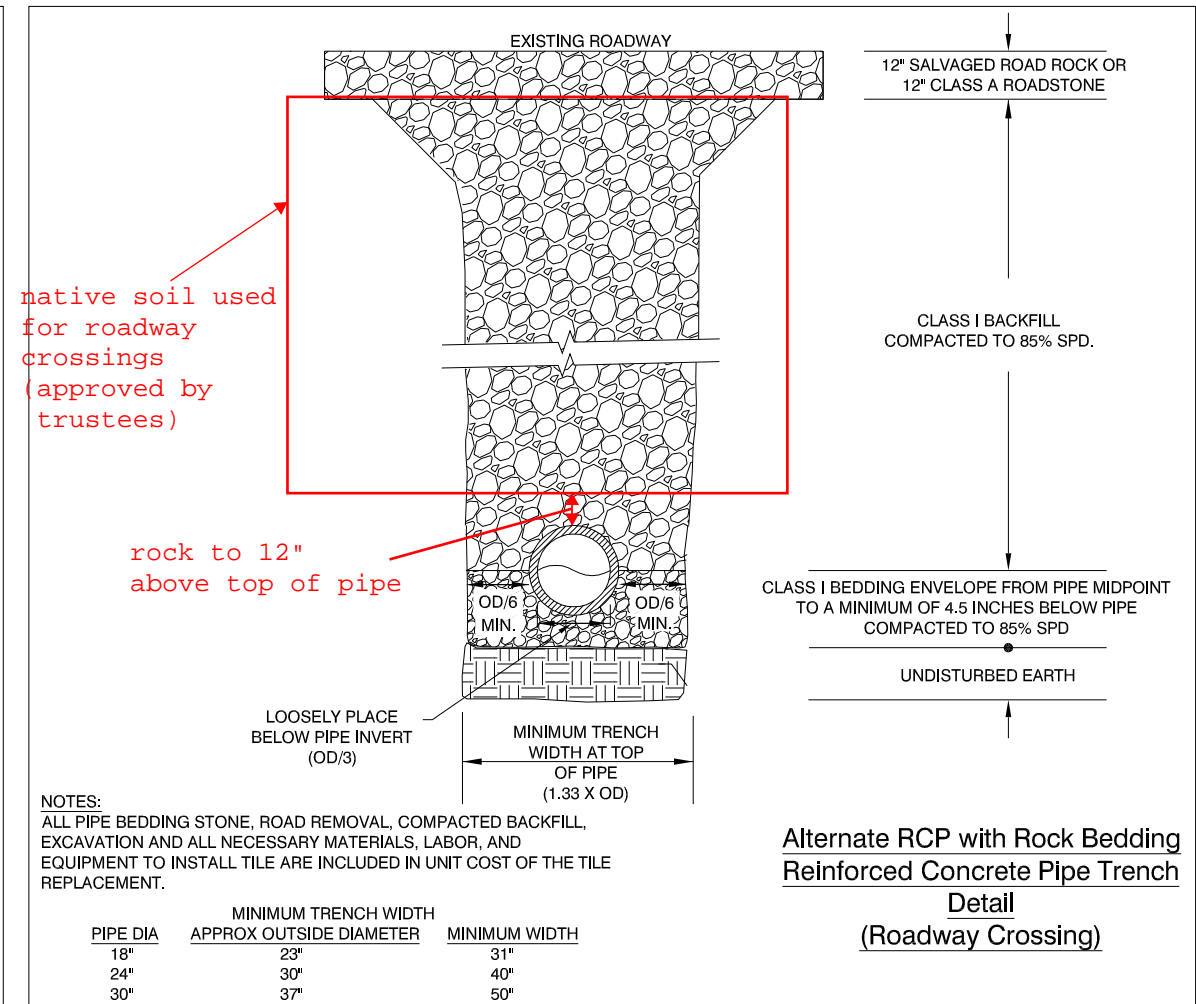
**DETAILS: POLYPROPYLENE PIPE**

PROJECT NO. 8712  
 SHEET NO. B.01



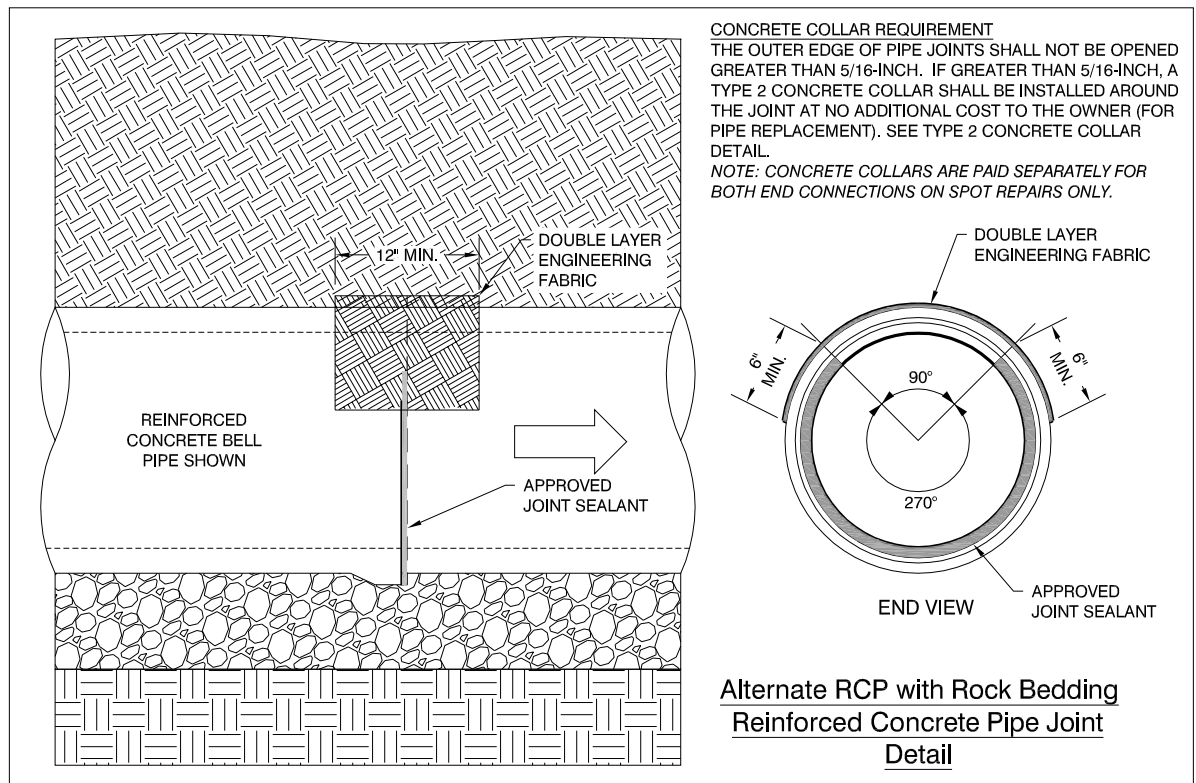
NOTES:  
ALL PIPE BEDDING STONE, TOPSOIL REMOVAL AND REPLACEMENT, COMPACTED BACKFILL, EXCAVATION AND ALL NECESSARY MATERIALS, LABOR, AND EQUIPMENT TO INSTALL TILE ARE INCLUDED IN UNIT COST OF THE TILE REPLACEMENT.

PIPE DIA	MINIMUM TRENCH WIDTH APPROX OUTSIDE DIAMETER	MINIMUM WIDTH
18"	23"	31"
24"	30"	40"
30"	37"	50"



NOTES:  
ALL PIPE BEDDING STONE, ROAD REMOVAL, COMPACTED BACKFILL, EXCAVATION AND ALL NECESSARY MATERIALS, LABOR, AND EQUIPMENT TO INSTALL TILE ARE INCLUDED IN UNIT COST OF THE TILE REPLACEMENT.

PIPE DIA	MINIMUM TRENCH WIDTH APPROX OUTSIDE DIAMETER	MINIMUM WIDTH
18"	23"	31"
24"	30"	40"
30"	37"	50"



**CONCRETE COLLAR REQUIREMENT**  
THE OUTER EDGE OF PIPE JOINTS SHALL NOT BE OPENED GREATER THAN 5/16-INCH. IF GREATER THAN 5/16-INCH, A TYPE 2 CONCRETE COLLAR SHALL BE INSTALLED AROUND THE JOINT AT NO ADDITIONAL COST TO THE OWNER (FOR PIPE REPLACEMENT). SEE TYPE 2 CONCRETE COLLAR DETAIL.  
NOTE: CONCRETE COLLARS ARE PAID SEPARATELY FOR BOTH END CONNECTIONS ON SPOT REPAIRS ONLY.

NOTE:  
MINIMUM TRENCH WIDTHS SHOWN ARE MINIMUM. CONTRACTOR MAY REQUIRE GREATER WIDTH IN ORDER TO ADEQUATELY COMPACT HAUNCH SUPPORT.

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NO.	REVISION	BY	DATE	NO.	REVISION	BY	DATE

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Ackley, Iowa 50611  
Ph 641-947-3273  
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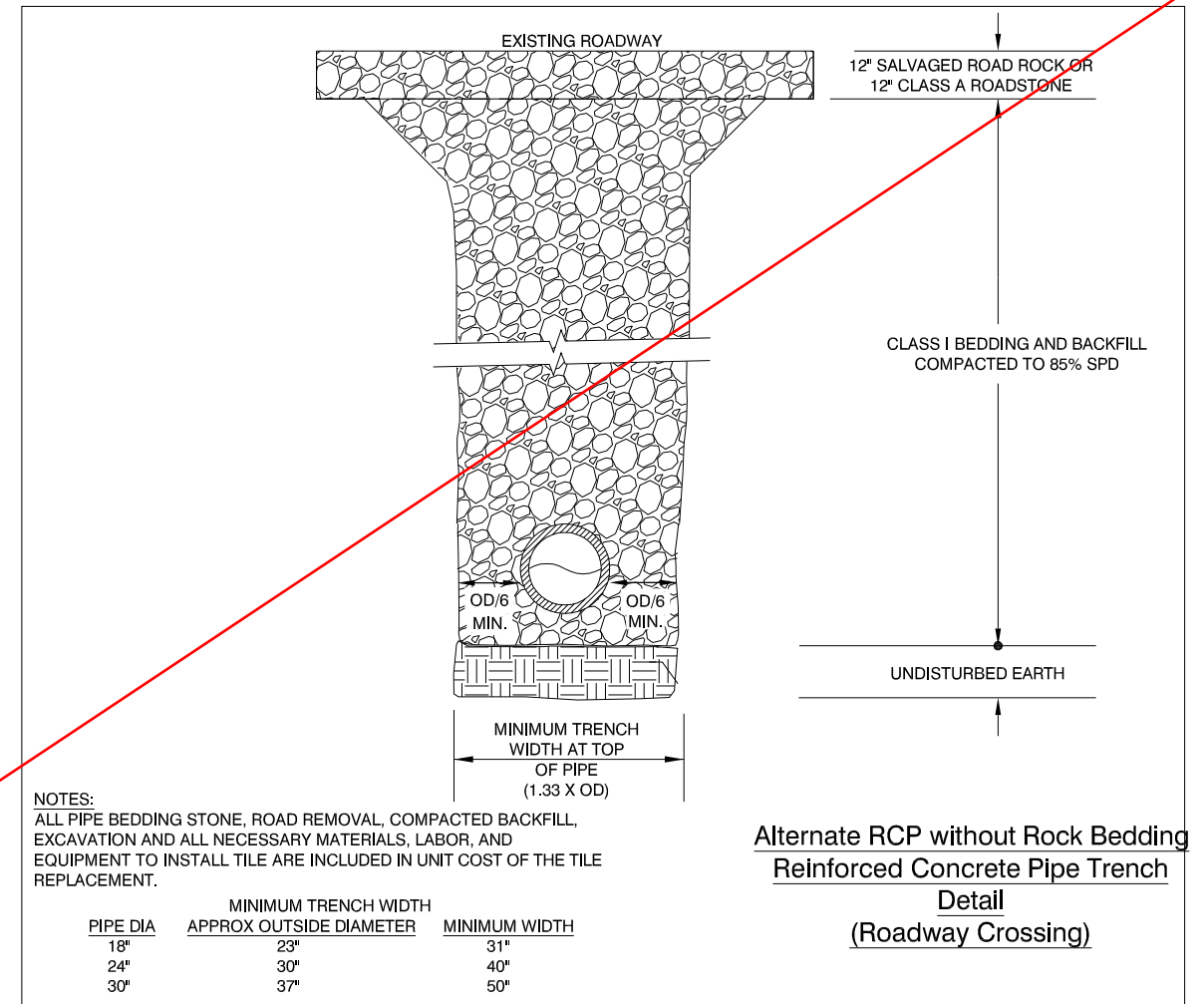
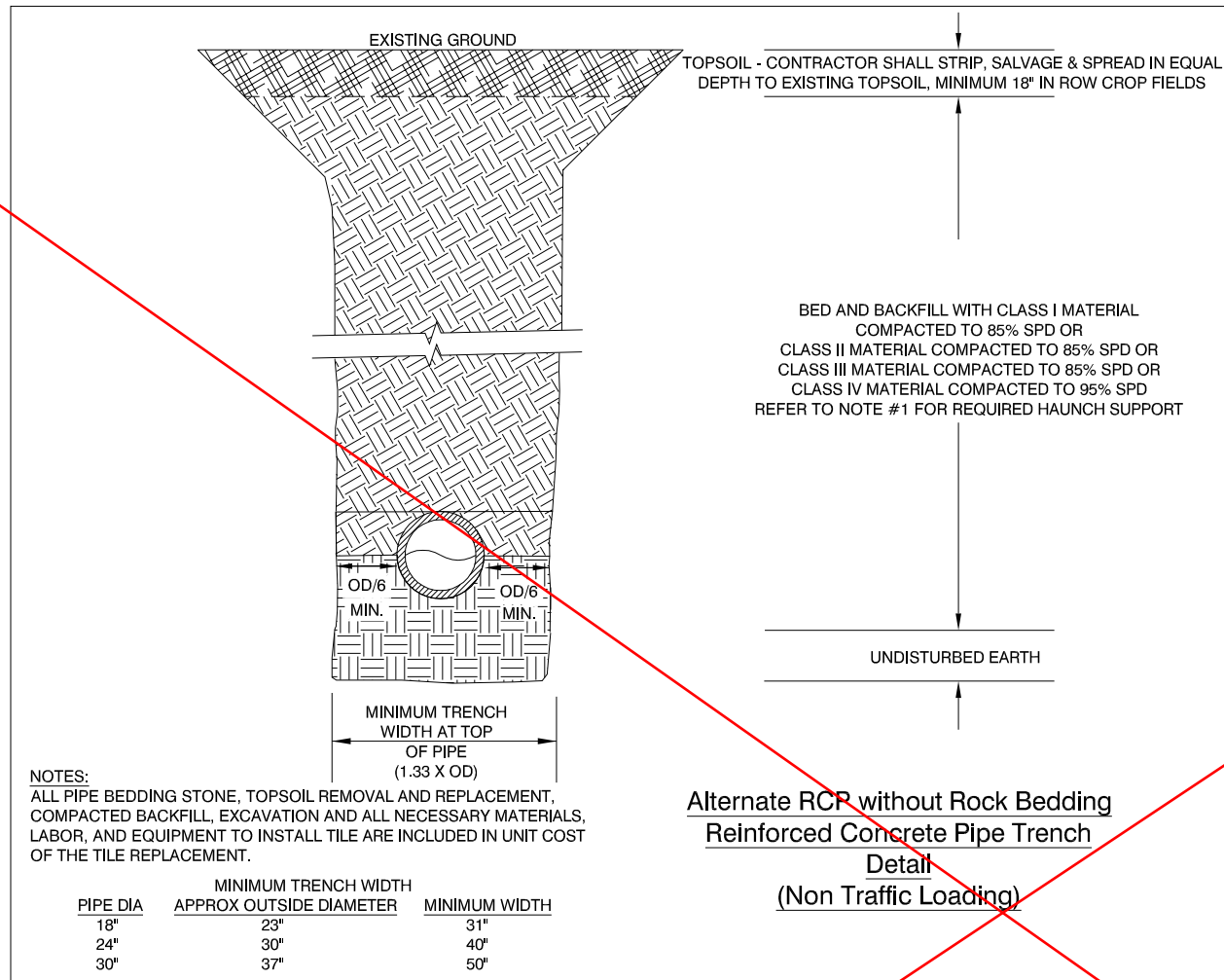
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**MAIN TILE REPAIRS - DD #22**  
HARDIN COUNTY, IOWA

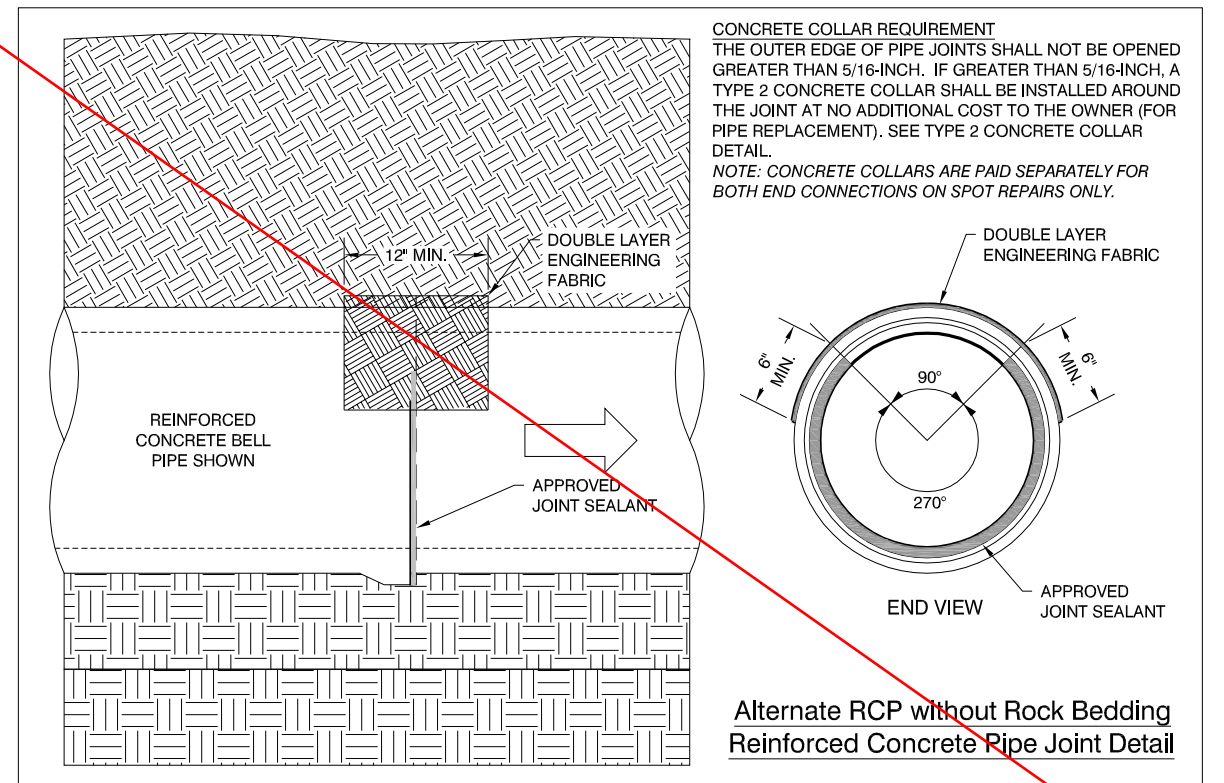
**DETAILS: ALTERNATE RCP  
WITH ROCK BEDDING**

PROJECT NO. 8712  
SHEET NO. B.02





- NOTES:
- SUPPORT THE PIPE BY ADEQUATELY COMPACTING BEDDING AND HAUNCH SUPPORT. USE SPOONING OR OTHER METHODS TO PROVIDE FIRM BEARING SURFACE FOR PIPE.
  - MINIMUM TRENCH WIDTHS SHOWN ARE MINIMUM. CONTRACTOR MAY REQUIRE GREATER WIDTH IN ORDER TO ADEQUATELY COMPACT HAUNCH SUPPORT



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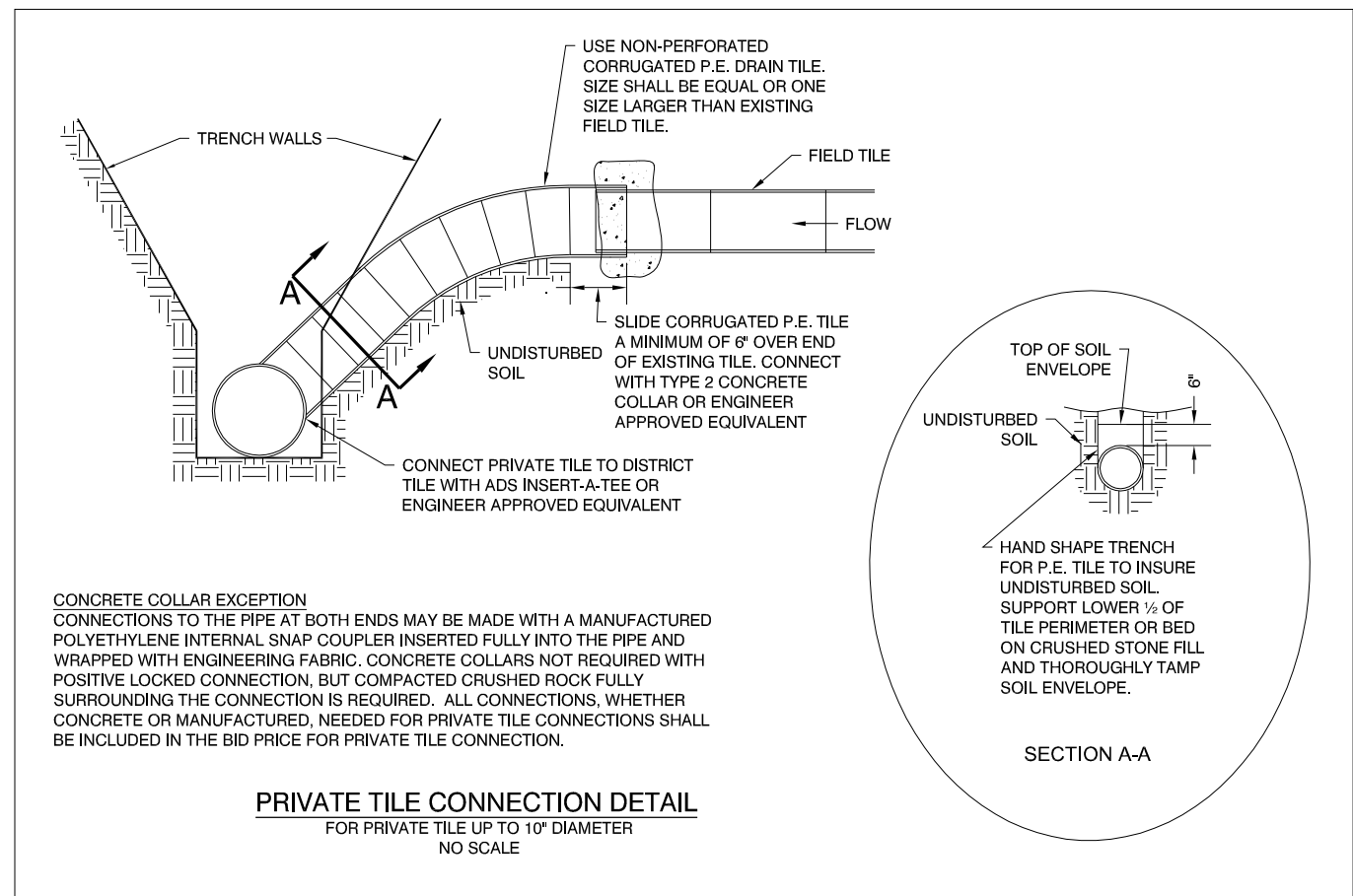
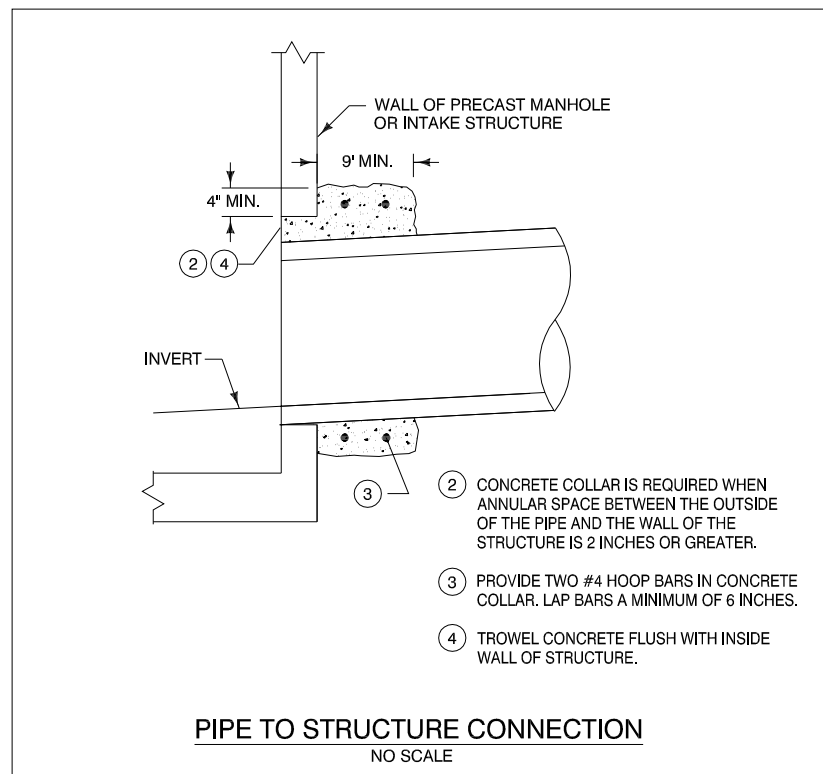
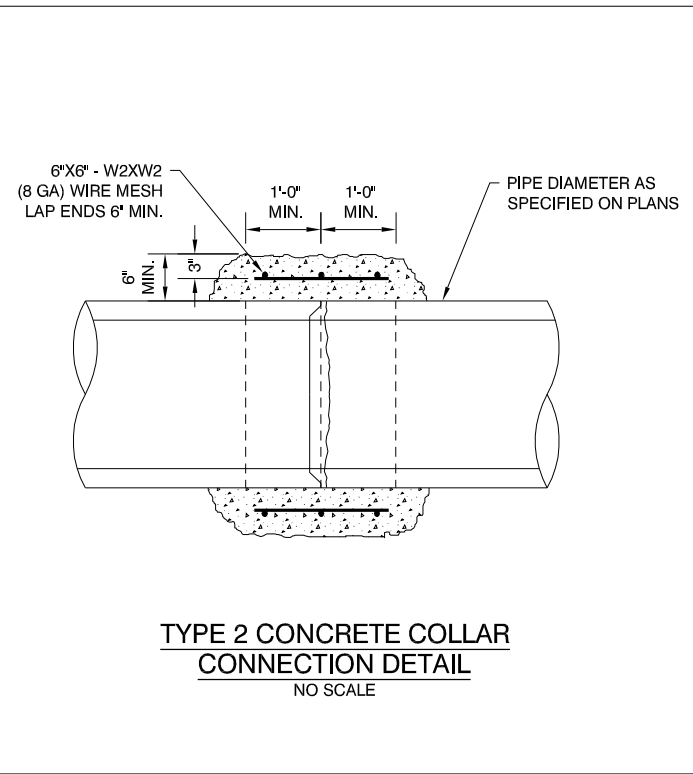


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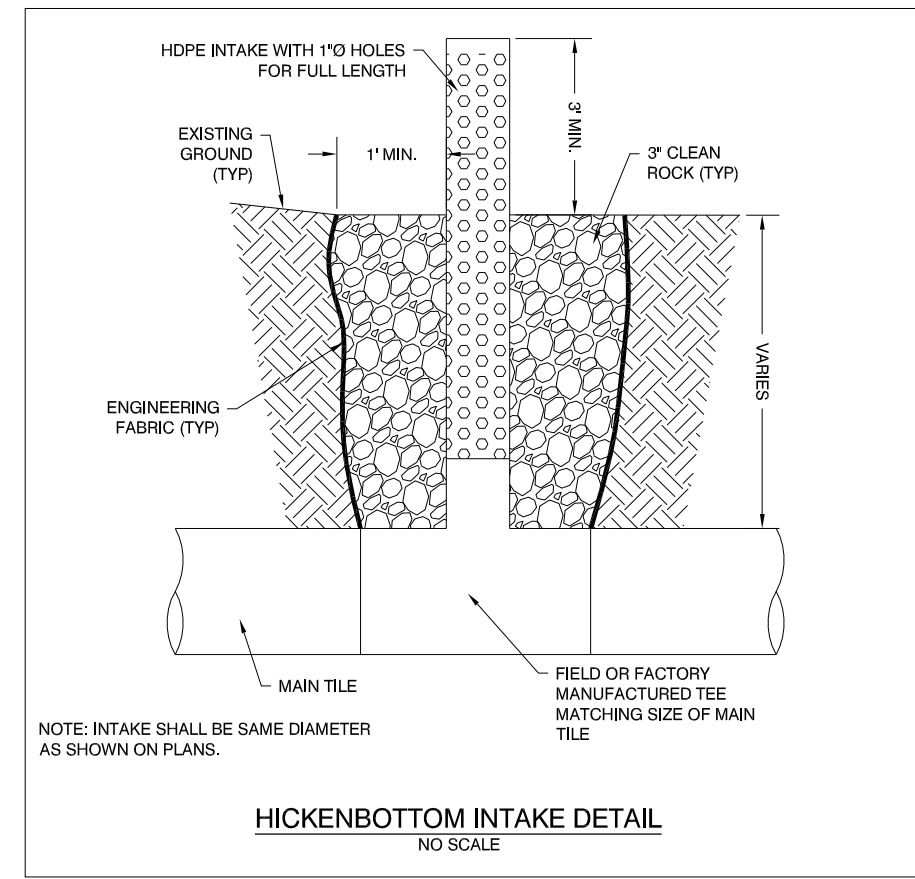
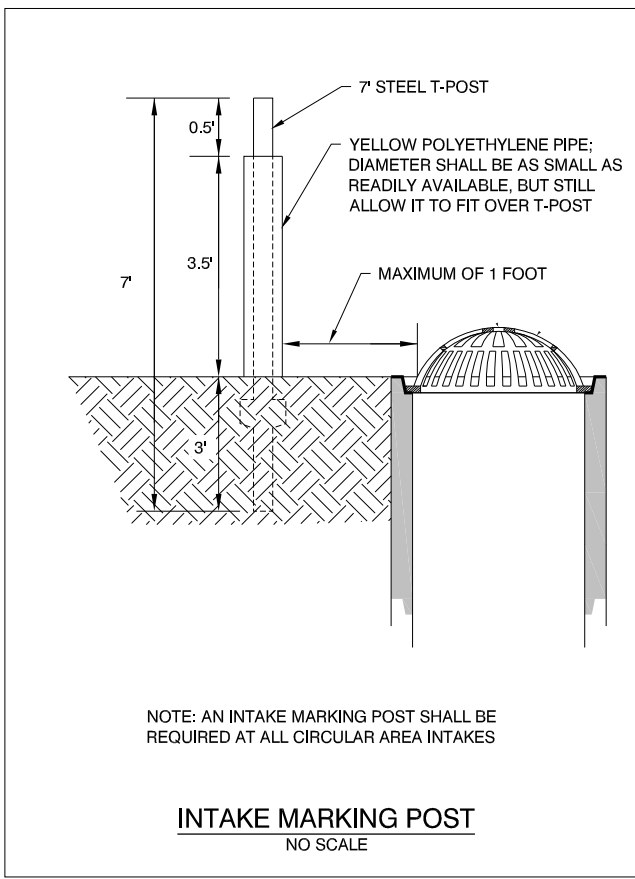
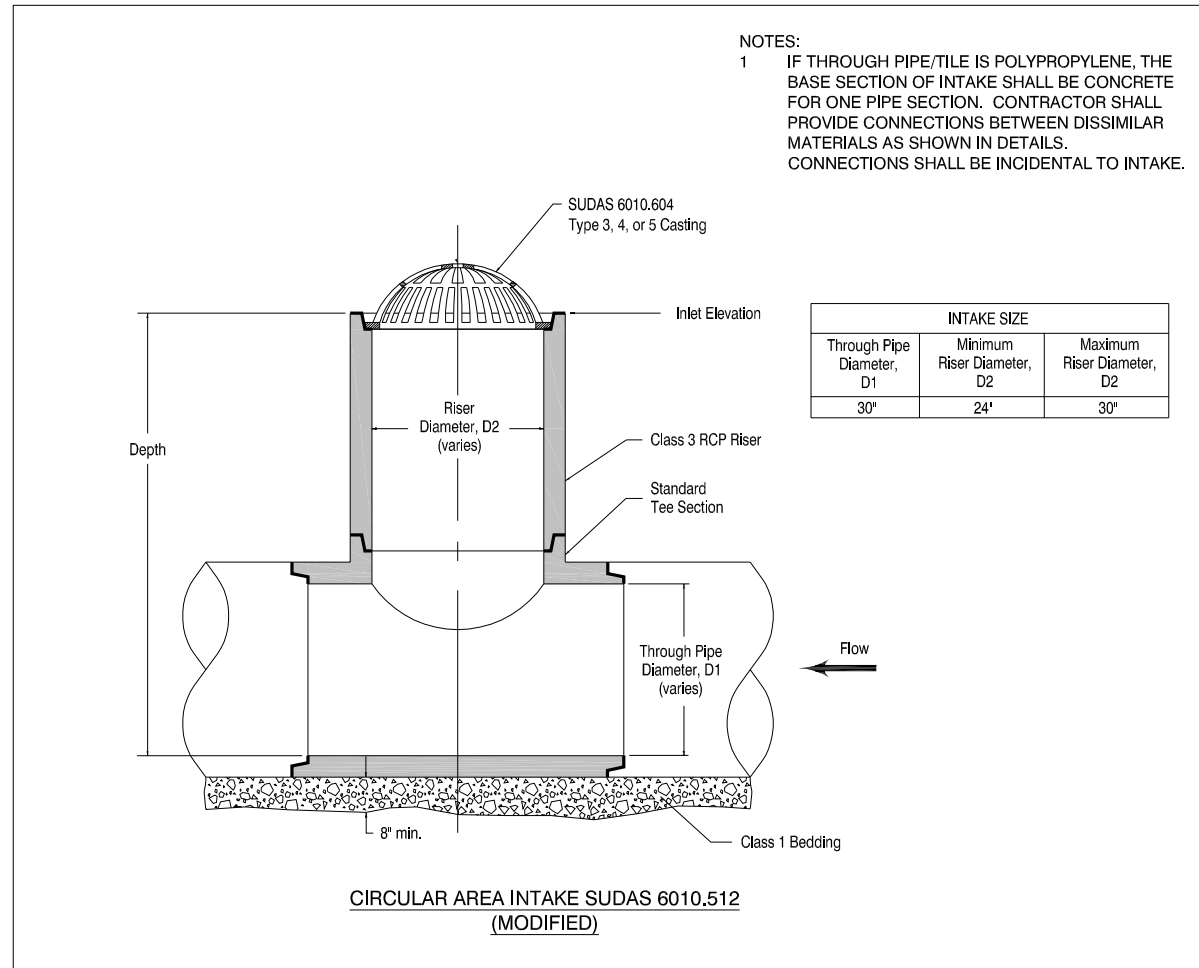
**MAIN TILE REPAIRS - DD #22**  
 HARDIN COUNTY, IOWA

**DETAILS: ALTERNATE RCP WITHOUT ROCK BEDDING**

PROJECT NO. 8712  
 SHEET NO. B.03



**CONCRETE COLLAR EXCEPTION**  
CONNECTIONS TO THE PIPE AT BOTH ENDS MAY BE MADE WITH A MANUFACTURED POLYETHYLENE INTERNAL SNAP COUPLER INSERTED FULLY INTO THE PIPE AND WRAPPED WITH ENGINEERING FABRIC. CONCRETE COLLARS NOT REQUIRED WITH POSITIVE LOCKED CONNECTION, BUT COMPACTED CRUSHED ROCK FULLY SURROUNDING THE CONNECTION IS REQUIRED. ALL CONNECTIONS, WHETHER CONCRETE OR MANUFACTURED, NEEDED FOR PRIVATE TILE CONNECTIONS SHALL BE INCLUDED IN THE BID PRICE FOR PRIVATE TILE CONNECTION.



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Arling, Iowa 50601  
Ph 641-947-3273  
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**MAIN TILE REPAIRS - DD #22**  
HARDIN COUNTY, IOWA

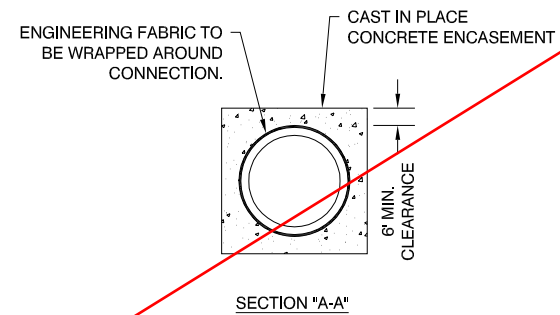
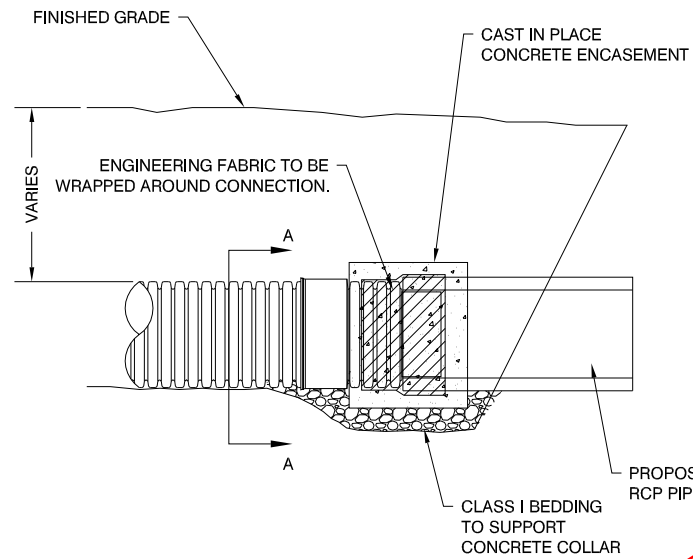
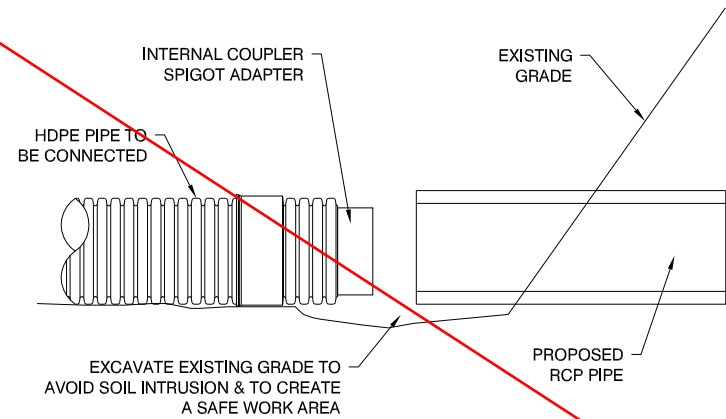
**DETAILS**

PROJECT NO. 8712  
SHEET NO. B.04



**NOTES:**

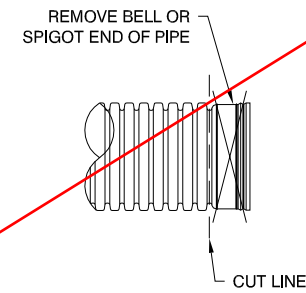
1. CONNECTION AND PIPE TO BE BACKFILLED PER ASTM D2321.
2. INTERNAL CYLINDER ADAPTER IS NOT RECOMMENDED FOR DOWNSTREAM CONNECTIONS.
3. DETAIL IS FOR UPSTREAM CONNECTIONS ONLY. DOWNSTREAM CONNECTIONS SHALL BE MADE WITH TYPE 2 CONCRETE COLLAR CONNECTION.



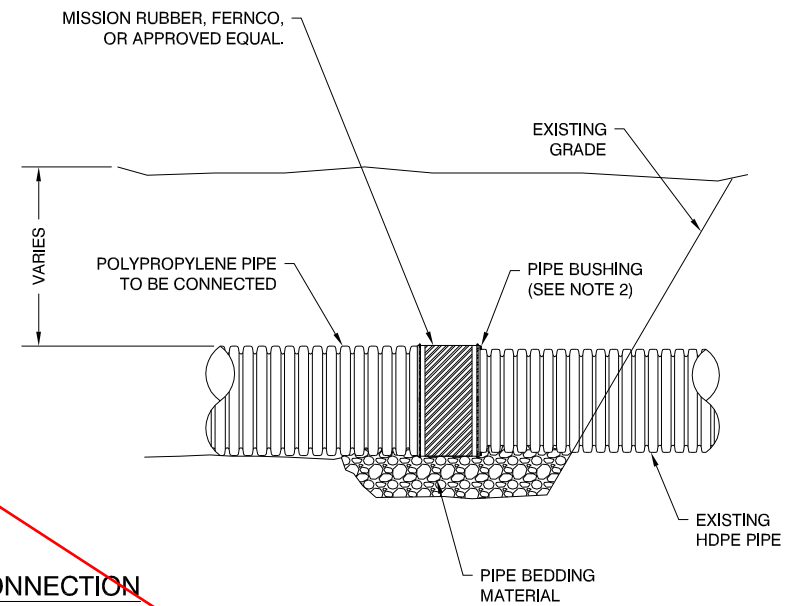
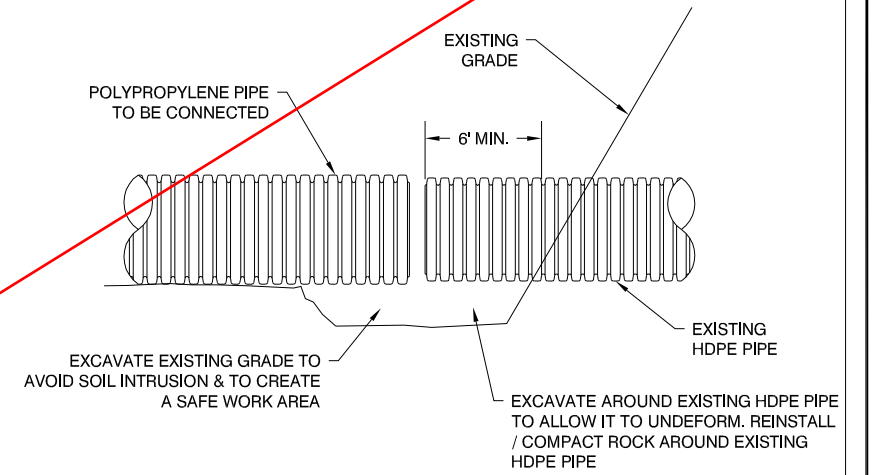
**UPSTREAM CONNECTIONS  
RCP TO HDPE OR POLYPROPELENE  
PIPE CONNECTION**

**NOTES:**

1. CONNECTION AND PIPE TO BE BACKFILLED PER ASTM D2321.
2. FOR CONNECTIONS WHERE THE OUTSIDE DIAMETERS OF THE TWO CONNECTING PIPES ARE DIFFERENT, THE COUPLER MANUFACTURER MAY RECOMMEND THE USE OF A PIPE BUSHING. THE PIPE BUSHING SIZE WILL BE AT THE DISCRETION OF THE COUPLER MANUFACTURER AND IS BASED ON THE PIPE DIMENSIONS.
3. IF THE HDPE IS DEFORMED AND DOES NOT SPRING BACK TO THE ORIGINAL SHAPE WITHIN 24 HOURS, THE CONNECTION SHALL BE MADE WITH A TYPE 2 CONCRETE COLLAR CONNECTION.



**POLYPROPYLENE PIPE TO HDPE PIPE CONNECTION**



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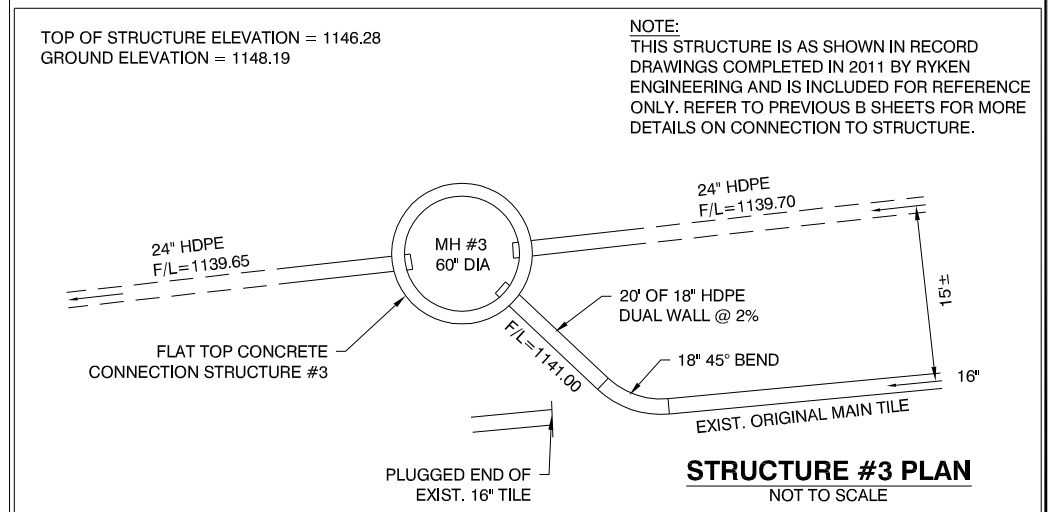
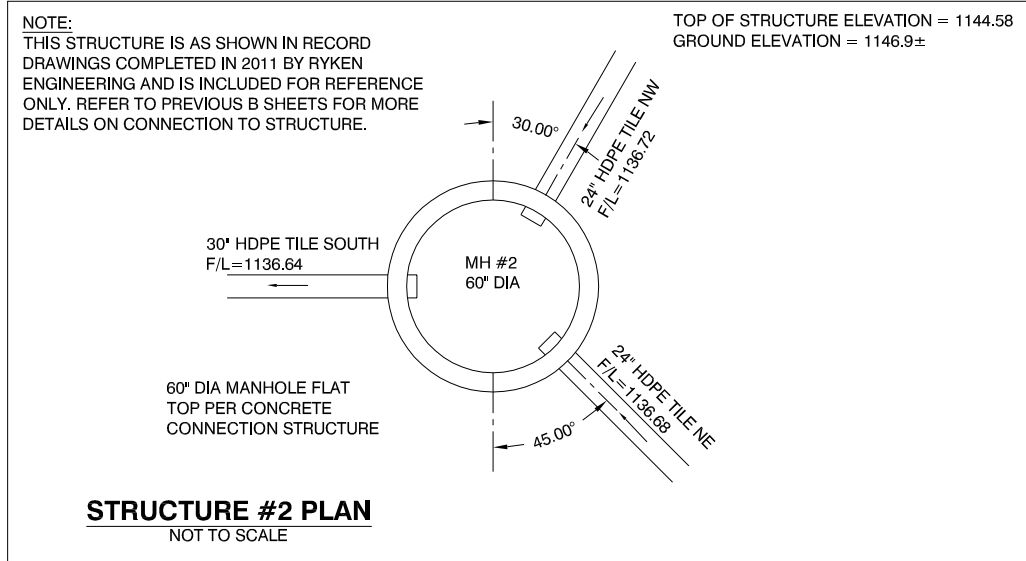
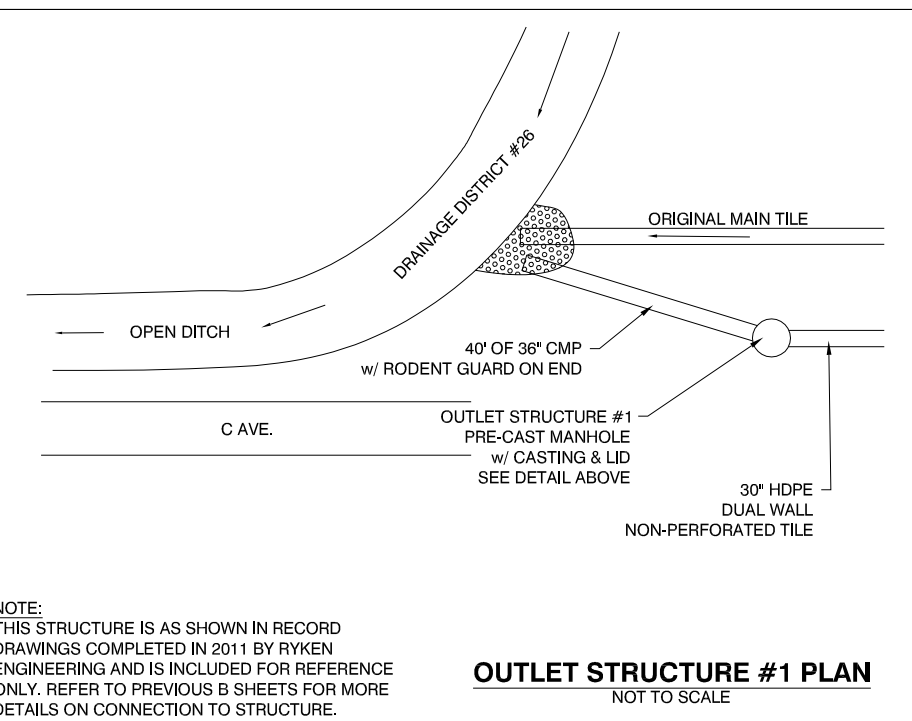
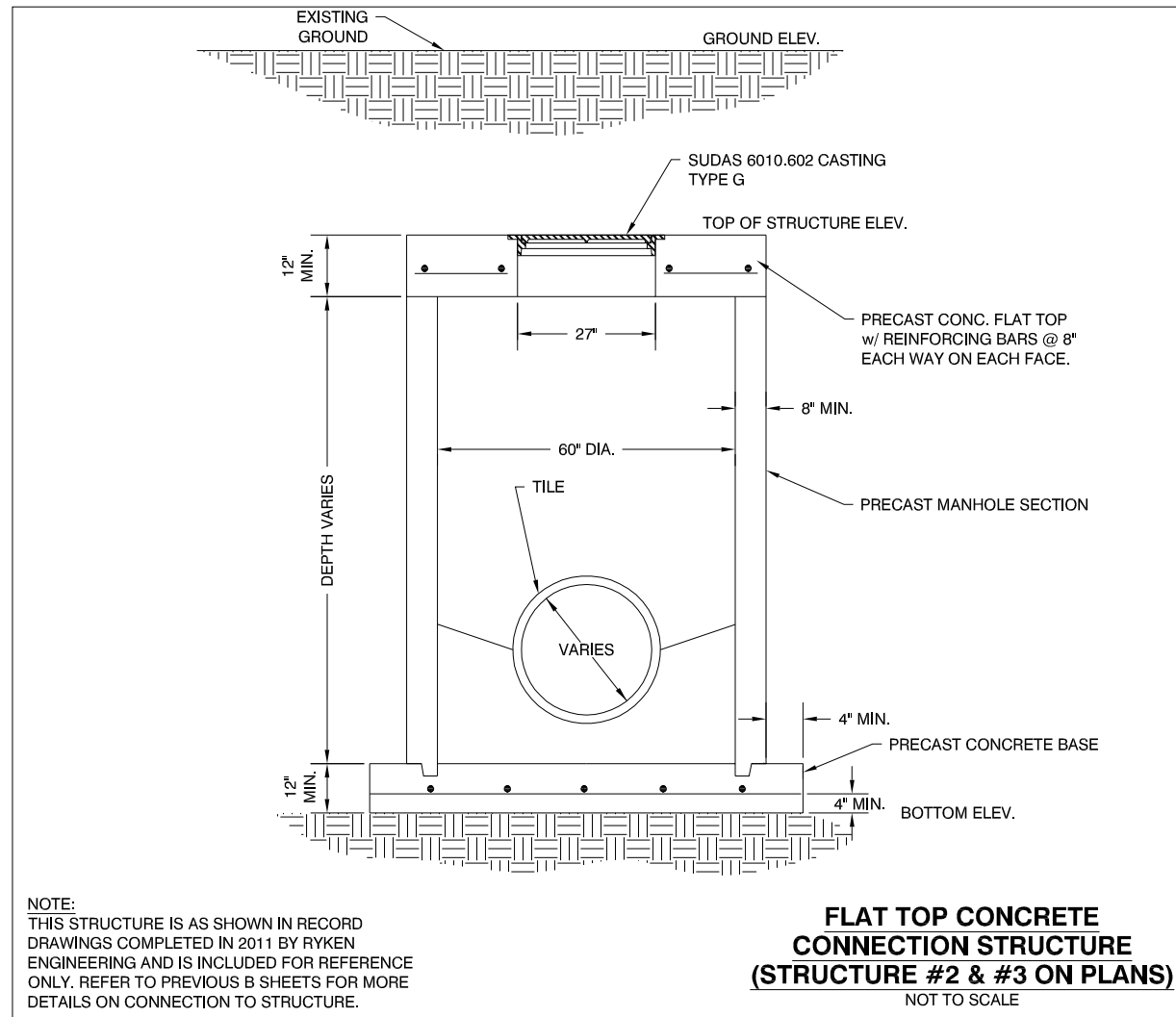
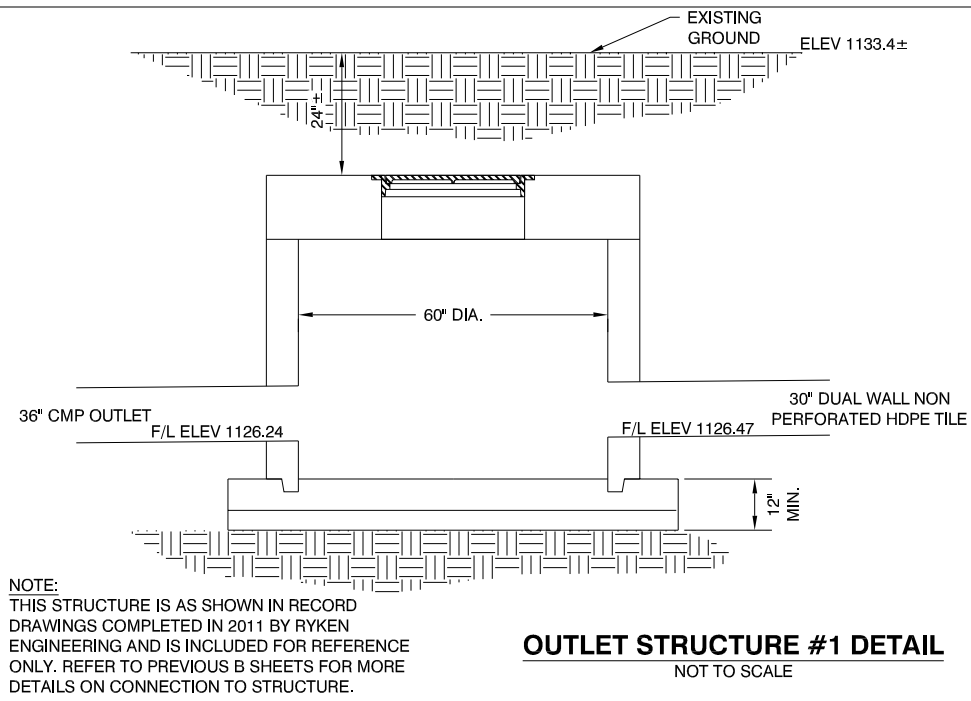
**CGA** Clapsaddle-Garber Associates, Inc.  
739 Park Avenue  
Arling, Iowa 50601  
Ph 641-947-3273  
www.cgaconsultants.com

DESIGNED: \_\_\_\_\_ DATE: \_\_\_\_\_  
DRAWN: \_\_\_\_\_ DATE: \_\_\_\_\_  
CHECKED: \_\_\_\_\_ DATE: \_\_\_\_\_  
APPROVED: \_\_\_\_\_ DATE: \_\_\_\_\_

**MAIN TILE REPAIRS - DD #22**  
HARDIN COUNTY, IOWA

**DETAILS**

PROJECT NO. 8712  
SHEET NO. B.05



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NO.	REVISION	BY	DATE	NO.	REVISION	BY	DATE

**CGA** Clapsaddle-Garber Associates, Inc.  
739 Park Avenue  
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**MAIN TILE REPAIRS - DD #22**  
HARDIN COUNTY, IOWA

**DETAILS**

PROJECT NO. 8712  
SHEET NO. B.06



BASE BID PROJECT QUANTITIES				
ITEM NO.	ITEM	UNIT	ESTIMATED QUANTITY	AS-BUILT QUANTITY
1	30" Ø, POLYPROPYLENE TILE, PERFORATED - FOR TILE REPLACEMENT	LF	6087	
2	30" Ø, POLYPROPYLENE TILE ROAD CROSSING, PERFORATED - FOR TILE REPLACEMENT	LF	310	
3	CCTV INSPECTION OF ROADWAY CROSSING TILE - FOR TILE REPLACEMENT	LF	310	
4	CONNECTION TO ROAD CROSSING TILE TO REMAIN - FOR TILE REPLACEMENT	EACH	10	
5	REMOVAL AND DISPOSAL OF SUPPLEMENTAL TILE - FOR TILE REPLACEMENT	LF	6397	
6	24" Ø POLYPROPYLENE TILE, PERFORATED - FOR SPOT REPAIRS	LF	689	
7	18" Ø POLYPROPYLENE TILE, PERFORATED - FOR SPOT REPAIRS	LF	666	
8	18" Ø POLYPROPYLENE TILE ROAD CROSSING, PERFORATED - FOR SPOT REPAIRS	LF	50	
9	24" x 18" POLYPROPYLENE WYE - FOR SPOT REPAIRS	EACH	1	
10	24" x 18" POLYPROPYLENE REDUCER - FOR SPOT REPAIRS	EACH	1	
11	TYPE 2 CONCRETE COLLAR - FOR SPOT REPAIRS	EACH	51	
12	CONNECTION TO EXISTING STRUCTURE	EACH	2	
13	PRIVATE TILE CONNECTION	EACH	15	
14	INTAKE, 30" Ø CIRCULAR AREA	EACH	5	
15	INTAKE, 12" Ø HICKENBOTTOM	EACH	5	
16	INTAKE, 8" Ø HICKENBOTTOM	EACH	2	
17	CLEANUP, SHAPING, AND PERMANENT SEEDING	LS	1	
18	SEEDING WARRANTY	LS	1	

RCP WITHOUT ROCK BEDDING ALTERNATE BID PROJECT QUANTITIES				
ITEM NO.	ITEM	UNIT	ESTIMATED QUANTITY	AS-BUILT QUANTITY
1B	30" Ø, RCP TILE WITHOUT ROCK BEDDING, PERFORATED - FOR TILE REPLACEMENT	LF	6087	
2B	30" Ø, RCP TILE ROAD CROSSING, PERFORATED - FOR TILE REPLACEMENT	LF	310	
3B	CCTV INSPECTION OF ROADWAY CROSSING TILE - FOR TILE REPLACEMENT	LF	310	
4B	CONNECTION TO ROAD CROSSING TILE TO REMAIN - FOR TILE REPLACEMENT	EACH	10	
5B	REMOVAL AND DISPOSAL OF SUPPLEMENTAL TILE - FOR TILE REPLACEMENT	LF	6397	
6B	24" Ø RCP TILE WITHOUT ROCK BEDDING, PERFORATED - FOR SPOT REPAIRS	LF	689	
7B	18" Ø RCP TILE WITHOUT ROCK BEDDING, PERFORATED - FOR SPOT REPAIRS	LF	666	
8B	18" Ø RCP TILE ROAD CROSSING, PERFORATED - FOR SPOT REPAIRS	LF	50	
9B	24" x 18" RCP WYE WITHOUT ROCK BEDDING - FOR SPOT REPAIRS	EACH	1	
10B	24" x 18" RCP REDUCER WITHOUT ROCK BEDDING - FOR SPOT REPAIRS	EACH	1	
11B	TYPE 2 CONCRETE COLLAR - FOR SPOT REPAIRS	EACH	51	
12B	CONNECTION TO EXISTING STRUCTURE	EACH	2	
13B	PRIVATE TILE CONNECTION	EACH	15	
14B	INTAKE, 30" Ø CIRCULAR AREA	EACH	5	
15B	INTAKE, 12" Ø HICKENBOTTOM	EACH	5	
16B	INTAKE, 8" Ø HICKENBOTTOM	EACH	2	
17B	CLEANUP, SHAPING, AND PERMANENT SEEDING	LS	1	
18B	SEEDING WARRANTY	LS	1	

RCP WITH ROCK BEDDING ALTERNATE BID PROJECT QUANTITIES				
ITEM NO.	ITEM	UNIT	ESTIMATED QUANTITY	AS-BUILT QUANTITY
1A	30" Ø, RCP TILE, PERFORATED - FOR TILE REPLACEMENT	LF	6087	
2A	30" Ø, RCP TILE ROAD CROSSING, PERFORATED - FOR TILE REPLACEMENT	LF	310	
3A	CCTV INSPECTION OF ROADWAY CROSSING TILE - FOR TILE REPLACEMENT	LF	310	
4A	CONNECTION TO ROAD CROSSING TILE TO REMAIN - FOR TILE REPLACEMENT	EACH	10	
5A	REMOVAL AND DISPOSAL OF SUPPLEMENTAL TILE - FOR TILE REPLACEMENT	LF	6397	
6A	24" Ø RCP TILE, PERFORATED - FOR SPOT REPAIRS	LF	689	
7A	18" Ø RCP TILE, PERFORATED - FOR SPOT REPAIRS	LF	666	
8A	18" Ø RCP TILE ROAD CROSSING, PERFORATED - FOR SPOT REPAIRS	LF	50	
9A	24" x 18" RCP WYE - FOR SPOT REPAIRS	EACH	1	
10A	24" x 18" RCP REDUCER - FOR SPOT REPAIRS	EACH	1	
11A	TYPE 2 CONCRETE COLLAR - FOR SPOT REPAIRS	EACH	51	
12A	CONNECTION TO EXISTING STRUCTURE	EACH	2	
13A	PRIVATE TILE CONNECTION	EACH	15	
14A	INTAKE, 30" Ø CIRCULAR AREA	EACH	5	
15A	INTAKE, 12" Ø HICKENBOTTOM	EACH	5	
16A	INTAKE, 8" Ø HICKENBOTTOM	EACH	2	
17A	CLEANUP, SHAPING, AND PERMANENT SEEDING	LS	1	
18A	SEEDING WARRANTY	LS	1	

**SEE NEXT SHEET FOR AS BUILT QUANTITIES**

ADD ALTERNATE 1: CCTV INSPECTION OF TILE REPLACEMENT - 1 MONTH POST CONSTRUCTION PROJECT QUANTITIES				
ITEM NO.	ITEM	UNIT	ESTIMATED QUANTITY	AS-BUILT QUANTITY
100	CCTV INSPECTION OF TILE REPLACEMENT - 1 MONTH POST CONSTRUCTION	LF	6397	

ADD ALTERNATE 2: CCTV INSPECTION OF TILE REPLACEMENT - 12 MONTHS POST CONSTRUCTION PROJECT QUANTITIES				
ITEM NO.	ITEM	UNIT	ESTIMATED QUANTITY	AS-BUILT QUANTITY
200	CCTV INSPECTION OF TILE REPLACEMENT - 12 MONTHS POST CONSTRUCTION	LF	6397	

ADD ALTERNATE 3: PP CROSS CONNECTION ADDITION PROJECT QUANTITIES				
ITEM NO.	ITEM	UNIT	ESTIMATED QUANTITY	AS-BUILT QUANTITY
300	18" Ø POLYPROPYLENE TILE, PERFORATED - FOR SPOT REPAIRS	LF	40	
301	18" x 18" POLYPROPYLENE WYE - FOR SPOT REPAIRS	EACH	1	
302	TYPE 2 CONCRETE COLLAR - FOR SPOT REPAIRS	EACH	3	

ADD ALTERNATE 4: RCP WITH ROCK BEDDING CROSS CONNECTION ADDITION PROJECT QUANTITIES				
ITEM NO.	ITEM	UNIT	ESTIMATED QUANTITY	AS-BUILT QUANTITY
400	18" Ø RCP TILE, PERFORATED - FOR SPOT REPAIRS	LF	40	
401	18" x 18" RCP WYE - FOR SPOT REPAIRS	EACH	1	
402	TYPE 2 CONCRETE COLLAR - FOR SPOT REPAIRS	EACH	3	

**SEE NEXT SHEET FOR AS BUILT QUANTITIES**

ADD ALTERNATE 5: RCP WITHOUT ROCK BEDDING CROSS CONNECTION ADDITION PROJECT QUANTITIES				
ITEM NO.	ITEM	UNIT	ESTIMATED QUANTITY	AS-BUILT QUANTITY
500	18" Ø RCP TILE WITHOUT ROCK BEDDING, PERFORATED - FOR SPOT REPAIRS	LF	40	
501	18" x 18" RCP WYE WITHOUT ROCK BEDDING - FOR SPOT REPAIRS	EACH	1	
502	TYPE 2 CONCRETE COLLAR - FOR SPOT REPAIRS	EACH	3	

**SEE NEXT SHEET FOR AS BUILT QUANTITIES**

ADD ALTERNATE 6: 2 YEAR MAINTENANCE BOND PROJECT QUANTITIES				
ITEM NO.	ITEM	UNIT	ESTIMATED QUANTITY	AS-BUILT QUANTITY
600	2 YEAR MAINTENANCE BOND	LS	1	

**UTILITY COMPANIES**

THE FOLLOWING UTILITIES ARE PRESENT ON THIS PROJECT

Windstream Communications Locate Desk	800-289-1901	Midland Power Cooperative Bruce Keeney	515-386-4111	Radcliffe Telephone Company Ed Drake	515-899-2341
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NO.	REVISION	BY	DATE	NO.	REVISION	BY	DATE



DESIGNED: \_\_\_\_\_ DATE: \_\_\_\_\_  
 DRAWN: \_\_\_\_\_ DATE: \_\_\_\_\_  
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**MAIN TILE REPAIRS - DD #22**  
 HARDIN COUNTY, IOWA

**ESTIMATE OF QUANTITIES AND REFERENCE INFORMATION**

PROJECT NO. 8712  
 SHEET NO. C.01

Tabulation of Construction Quantities								
Main Tile Repairs to Drainage District 22 Facilities								
Hardin County, Iowa								
Period Ending: August 28, 2020								
Item No	Description	Unit	Unit Bid Price	Adjusted Contract		Completed		
				Quantity	Amount	Quantity	Amount	
1A	30" Ø RCP Tile, Perforated - For Tile Replacement	LF	\$53.00	""	6,155	\$326,215.00	6,155	\$326,215.00
2A	30" Ø RCP Tile Road Crossing, Perforated - For Tile Replacement	LF	\$46.00	""	280	\$12,880.00	280	\$12,880.00
3A	CCTV Inspection Of Roadway Crossing Tile - For Tile Replacement	LF	\$3.00	""	0	\$0.00	-	\$0.00
4A	Connection To Road Crossing Tile To Remain - For Tile Replacement	Each	\$400.00	""	0	\$0.00	-	\$0.00
5A	Removal And Disposal Of Supplemental Tile - For Tile Replacement	LF	\$6.50	""	6,435	\$41,827.50	6,435	\$41,827.50
6A	24" Ø RCP Tile, Perforated - For Spot Repairs	LF	\$78.00	** ,***	564	\$43,992.00	564	\$43,992.00
7A	18" Ø RCP Tile, Perforated - For Spot Repairs	LF	\$67.00	*** ,""	521	\$34,907.00	521	\$34,907.00
8A	18" Ø RCP Tile Road Crossing, Perforated - For Spot Repairs	LF	\$134.50		50	\$6,725.00	50	\$6,725.00
9A	24" X 18" RCP Wye - For Spot Repairs	Each	\$600.00		1	\$600.00	1	\$600.00
10A	24" X 18" RCP Reducer - For Spot Repairs	Each	\$800.00	*	0	\$0.00	-	\$0.00
11A	Type 2 Concrete Collar - For Spot Repairs	Each	\$358.00	*** ,*** ,"" ,""	53	\$18,974.00	53	\$18,974.00
12A	Connection To Existing Structure	Each	\$2,000.00	""	4	\$8,000.00	4	\$8,000.00
13A	Private Tile Connection	Each	\$500.00	""	26	\$13,000.00	26	\$13,000.00
14A	Intake, 30" Ø Circular Area	Each	\$1,000.00		5	\$5,000.00	5	\$5,000.00
15A	Intake, 12" Ø Hickenbottom	Each	\$1,100.00		5	\$5,500.00	5	\$5,500.00
16A	Intake, 8" Ø Hickenbottom	Each	\$525.00		2	\$1,050.00	2	\$1,050.00
17A	Cleanup, Shaping, And Permanent Seeding	LS	\$8,300.00		1	\$8,300.00	1	\$8,300.00
18A	Seeding Warranty	LS	\$300.00		1	\$300.00	1	\$300.00
400	18" Ø RCP Tile with Rock Bedding, Perforated - For Spot Repairs	LF	\$67.00	""	22	\$1,474.00	22	\$1,474.00
401	18" X 18" RCP Wye with Rock Bedding - For Spot Repairs	Each	\$800.00		1	\$800.00	1	\$800.00
402	Type 2 Concrete Collar - For Spot Repairs	Each	\$358.00		3	\$1,074.00	3	\$1,074.00
600	2 Year Maintenance Bond	LS	\$5,000.00		1	\$5,000.00	1	\$5,000.00
CO1	Exploratory Excavation	HR	\$300.00	^ ,""	7.83	\$2,349.00	7.83	\$2,349.00
CO2	Septic Repair	LS	\$1,650.00	^^	1	\$1,650.00	1	\$1,650.00
CO3	Private Tile Replacement, 6" Dual Wall Tile	LF	\$9.00	^^^	350	\$3,150.00	350	\$3,150.00
CO4	3-inch Bedding Rock	Tons	\$24.00	"	15	\$360.00	15	\$360.00
CO5	12" Dia. Dual Wall HDPE Tile w/ Rock, Perforated	LF	\$241.00	""	60	\$14,460.00	60	\$14,460.00
<b>Total</b>						<b>\$557,587.50</b>		<b>\$557,587.50</b>
*denotes quantity adjustment made in Approved Equivalent #1								
** denotes quantity adjustment made in Change Order #2								
*** denotes quantity adjustment made in Change Order #3								
^ denotes quantity adjustment made in Change Order #5								
^^ denotes quantity adjustment made in Change Order #7								
^^^ denotes quantity adjustment made in Change Order #8								
" denotes quantity adjustment made in Change Order #9								
"" denotes quantity adjustment made in Change Order #10								
"""" denotes quantity adjustment made in Change Order #12								
Prepared by								
Clapsaddle-Garber Associates, Inc.								
Marshalltown, Iowa								



\* THIS INFORMATION IS PROVIDED FOR REFERENCE ONLY BASED ON RECORD DRAWINGS COMPLETED AT THE TIME THE TILE WAS INITIALLY INSTALLED. CONTRACTOR SHALL FIELD VERIFY ALL ELEVATIONS AND DEPTHS PRIOR TO ORDERING MATERIALS, SUCH AS INTAKES, WHERE DEPTH IS CRITICAL.

SUPPLEMENTAL MAIN TILE REPLACEMENT - AVERAGE DEPTHS*	
STATION TO STATION	AVERAGE DEPTH TO FLOWLINE(FT)
0+50 TO 1+00	6.8
1+00 TO 2+00	6.8
2+00 TO 3+00	6.9
3+00 TO 4+00	7.0
4+00 TO 5+00	7.2
5+00 TO 6+00	7.4
6+00 TO 7+00	7.5
7+00 TO 8+00	7.7
8+00 TO 9+00	7.8
9+00 TO 10+00	7.9
10+00 TO 11+00	8.0
11+00 TO 12+00	8.4
12+00 TO 13+00	8.8
13+00 TO 14+00	8.7
14+00 TO 15+00	8.6
15+00 TO 16+00	8.6
16+00 TO 17+00	8.7
17+00 TO 18+00	8.7
18+00 TO 19+00	8.6
19+00 TO 20+00	8.5
20+00 TO 21+00	8.6
21+00 TO 22+00	8.6
22+00 TO 23+00	8.6
23+00 TO 24+00	8.4
24+00 TO 25+00	8.0
25+00 TO 26+00	8.2
26+00 TO 27+00	8.6
27+00 TO 28+00	8.7
28+00 TO 29+00	9.0
29+00 TO 30+00	10.0
30+00 TO 31+00	10.7
31+00 TO 32+00	11.1
32+00 TO 33+00	11.2
33+00 TO 34+00	10.7
34+00 TO 35+00	11.1
35+00 TO 36+00	10.8
36+00 TO 37+00	10.5
37+00 TO 38+00	10.7
38+00 TO 39+00	11.6
39+00 TO 40+00	12.4
40+00 TO 41+00	12.1
41+00 TO 42+00	11.5
42+00 TO 43+00	10.9
43+00 TO 44+00	10.4
44+00 TO 45+00	10.0
45+00 TO 46+00	9.6
46+00 TO 47+00	9.4
47+00 TO 48+00	9.3
48+00 TO 49+00	9.3
49+00 TO 50+00	9.4
50+00 TO 51+00	9.6
51+00 TO 52+00	10.0
52+00 TO 53+00	10.2
53+00 TO 54+00	9.7
54+00 TO 55+00	9.4
55+00 TO 56+00	9.7
56+00 TO 57+00	9.1
57+00 TO 58+00	9.1
58+00 TO 59+00	9.2
59+00 TO 60+00	9.3
60+00 TO 61+00	9.5
61+00 TO 62+00	9.5
62+00 TO 63+00	9.3
63+00 TO 64+00	9.3
64+00 TO 64+50	9.2

← flipped locations

TILE INTAKES*							
TILE	ROAD	SIDE OF ROAD	APPROXIMATE DITCH STATIONING	APPROXIMATE DITCH FLOWLINE ELEVATION	APPROXIMATE TILE FLOWLINE AT DITCH	DIFFERENCE IN ELEVATION (FT)	PROPOSED TYPE OF INTAKE
SUPPLEMENTAL MAIN TILE	C AVENUE	WEST	11+20.9	1133.0	1127.9	5.1	30" CIRCULAR AREA INTAKE SUDAS 6010.512
SUPPLEMENTAL MAIN TILE	C AVENUE	EAST	11+88.1	1133.0	1128.0	5.0	12" HICKENBOTTOM INTAKE
SUPPLEMENTAL MAIN TILE	C AVENUE	EAST	23+28.7	1137.3	1129.6	7.7	30" CIRCULAR AREA INTAKE SUDAS 6010.512
SUPPLEMENTAL MAIN TILE	C AVENUE	WEST	23+88.8	1137.3	1129.7	7.6	12" HICKENBOTTOM INTAKE
SUPPLEMENTAL MAIN TILE	200TH STREET	SOUTH	26+00.7	1137.0	1130.0	7.0	12" HICKENBOTTOM INTAKE
SUPPLEMENTAL MAIN TILE	200TH STREET	NORTH	26+49.5	1137.0	1130.0	7.0	30" CIRCULAR AREA INTAKE SUDAS 6010.512
SUPPLEMENTAL MAIN TILE	C AVENUE	WEST	33+25.0	1138.0	1131.0	7.0	12" HICKENBOTTOM INTAKE
SUPPLEMENTAL MAIN TILE	C AVENUE	EAST	33+79.0	1138.0	1131.1	6.9	30" CIRCULAR AREA INTAKE SUDAS 6010.512
SUPPLEMENTAL MAIN TILE	C AVENUE	EAST	55+43.4	1142.0	1134.7	7.3	30" CIRCULAR AREA INTAKE SUDAS 6010.512
SUPPLEMENTAL MAIN TILE	C AVENUE	WEST	56+16.4	1142.0	1134.8	7.2	12" HICKENBOTTOM INTAKE
ORIGINAL MAIN TILE	C AVENUE	WEST	DOWNSTREAM GPS #70	FIELD DETERMINE	FIELD DETERMINE	FIELD DETERMINE	8" HICKENBOTTOM INTAKE
ORIGINAL MAIN TILE	C AVENUE	EAST	DOWNSTREAM GPS #70	FIELD DETERMINE	FIELD DETERMINE	FIELD DETERMINE	8" HICKENBOTTOM INTAKE

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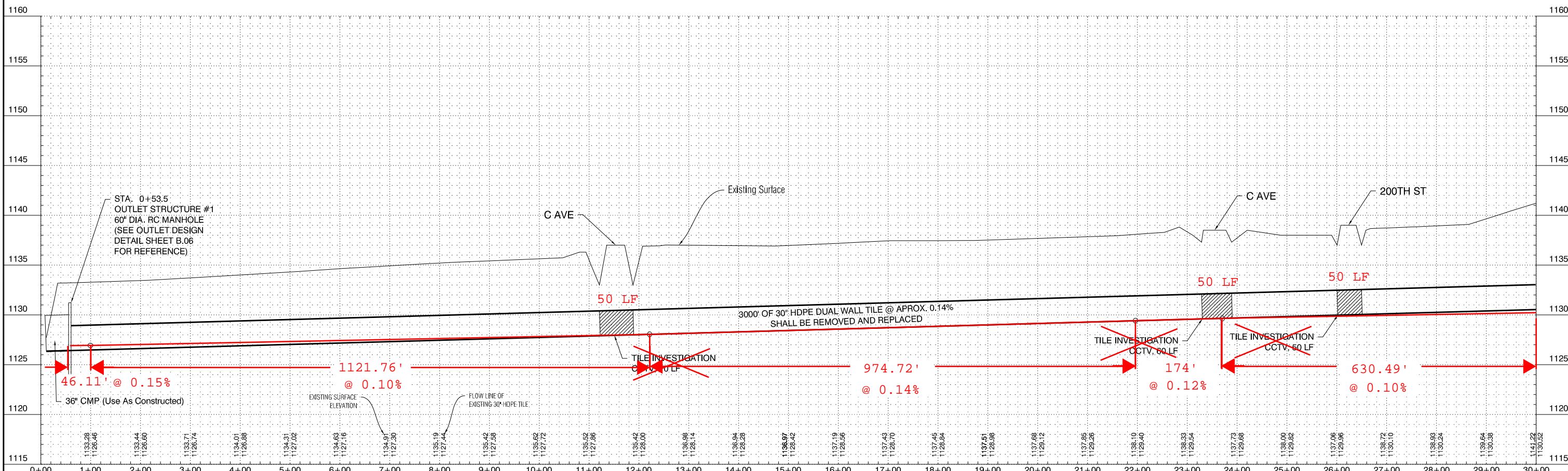
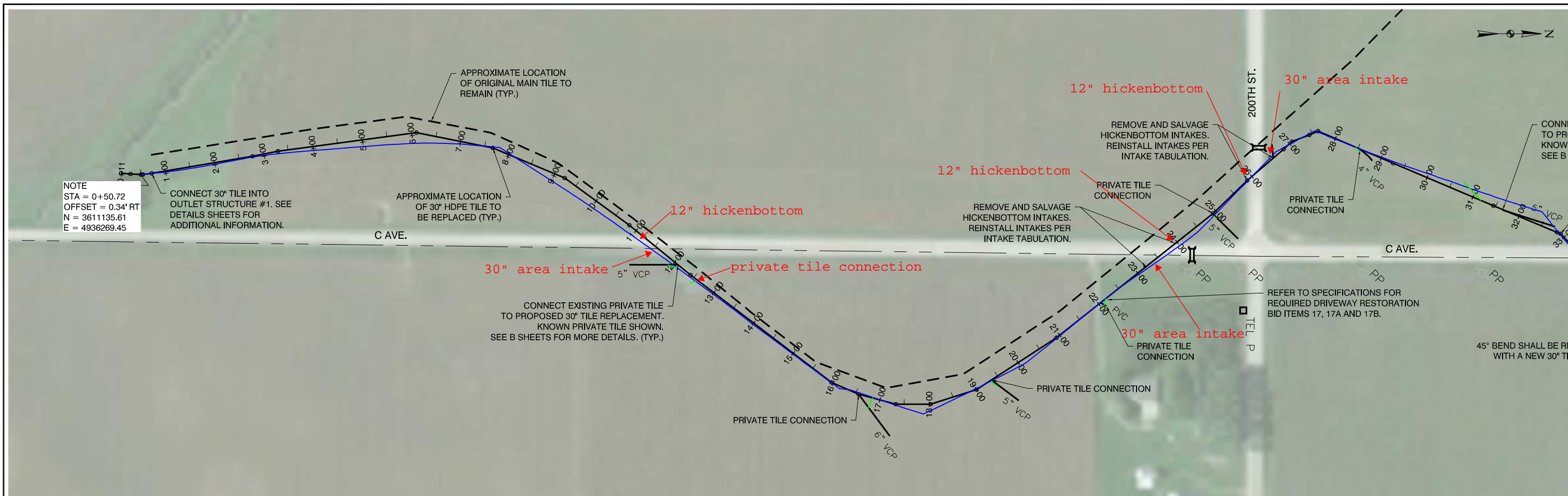
**CGA** Clapsaddle-Garber Associates, Inc  
 16 East Main Street  
 Marshalltown, Iowa 50158  
 Ph 641-752-6701  
 www.cgaconsultants.com

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**MAIN TILE REPAIRS - DD #22**  
 HARDIN COUNTY, IOWA

**ESTIMATE OF QUANTITIES AND REFERENCE INFORMATION**

PROJECT NO. 8712  
 SHEET NO. C.02

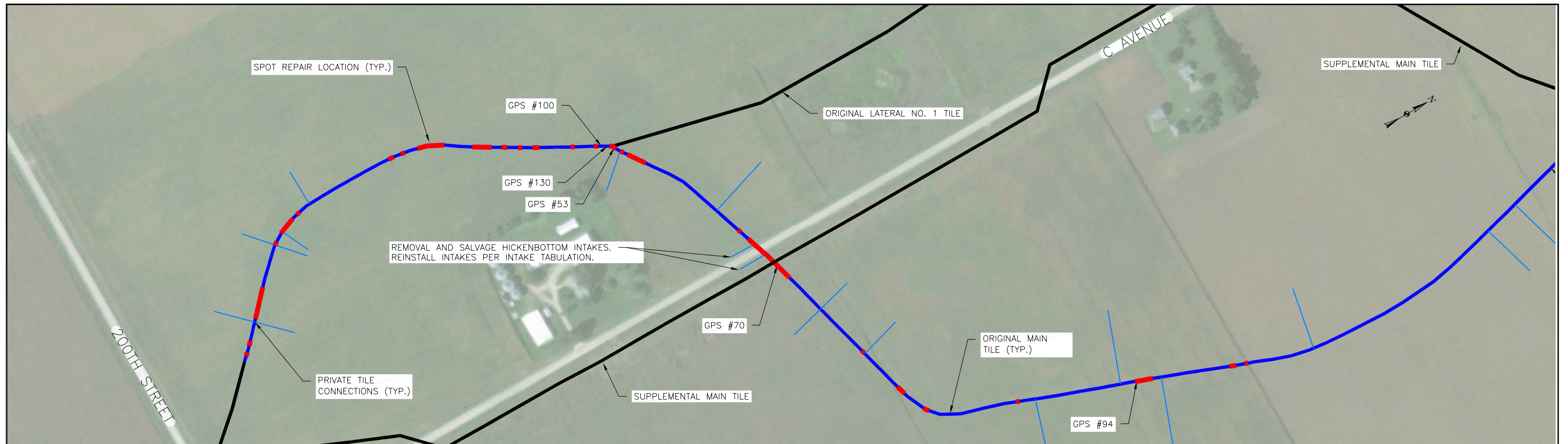


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NO.	REVISION	BY	DATE																																					
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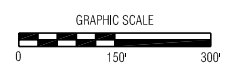


ORIGINAL MAIN TILE SPOT REPAIR SCHEDULE										
START LOCATION		END LOCATION		FROM REFERENCE POINT	REPLACE WITH 18" TILE	REPLACE WITH 24" TILE	CONCRETE COLLARS	MISCELLANEOUS FITTING	REASON FOR REPLACEMENT	
LF	LOCATION	LF	LOCATION	GPS POINT #	LF	LF	EACH			
1447	DOWNSTREAM	1435	DOWNSTREAM	GPS 100	16.6	<del>12</del>	2		VCP PARTIALLY COLLAPSED	
1414	DOWNSTREAM	1399	DOWNSTREAM	GPS 100	16.75	<del>15</del>	2		VCP PARTIALLY COLLAPSED	
1330	DOWNSTREAM	1231	DOWNSTREAM	GPS 100	104.97	<del>99</del>	2		VCP PARTIALLY COLLAPSED	
1098	DOWNSTREAM	1086	DOWNSTREAM	GPS 100	96.4	<del>12</del>	<del>X</del> 1	(2) PRIVATE TILE CONNECTION	VCP PARTIALLY COLLAPSED	
1057	DOWNSTREAM	1000	DOWNSTREAM	GPS 100		<del>52</del>	<del>X</del> 1	(1) PRIVATE TILE CONNECTION	VCP PARTIALLY COLLAPSED	
971	DOWNSTREAM	959	DOWNSTREAM	GPS 100	10.99	<del>12</del>	2		VCP PARTIALLY COLLAPSED	
655	DOWNSTREAM	638	DOWNSTREAM	GPS 100	20.96	<del>17</del>	2		VCP PARTIALLY COLLAPSED	
614	DOWNSTREAM	602	DOWNSTREAM	GPS 100	13.16	<del>12</del>	2		VCP PARTIALLY COLLAPSED	
561	DOWNSTREAM	479	DOWNSTREAM	GPS 100	78.42	<del>82</del>	2		VCP PARTIALLY COLLAPSED	
393	DOWNSTREAM	334	DOWNSTREAM	GPS 100	57.06	<del>59</del>	2		VCP PARTIALLY COLLAPSED	
303	DOWNSTREAM	287	DOWNSTREAM	GPS 100	18.75	<del>16</del>	2		VCP PARTIALLY COLLAPSED	
253	DOWNSTREAM	241	DOWNSTREAM	GPS 100	25.17	<del>12</del>	2		VCP PARTIALLY COLLAPSED	
209	DOWNSTREAM	189	DOWNSTREAM	GPS 100	19.03	<del>20</del>	2		VCP PARTIALLY COLLAPSED	
93	DOWNSTREAM	81	DOWNSTREAM	GPS 100	13.16	<del>12</del>	2		VCP PARTIALLY COLLAPSED	
23	DOWNSTREAM	11	DOWNSTREAM	GPS 100		<del>12</del>	2 <del>X</del>	(1) 24"x18" WYE (1) 24"x18" REDUCER	VCP PARTIALLY COLLAPSED	
7	UPSTREAM	105	UPSTREAM	GPS 53	<del>X</del> 110.76		2		VCP PARTIALLY COLLAPSED	
457	UPSTREAM	467	UPSTREAM	GPS 53	<del>10</del> 12.69		2		VCP PARTIALLY COLLAPSED	
498	UPSTREAM	54	UPSTREAM	GPS 70	<del>13</del> 180.90		2	(2) 8" HICKENBOTTOM INTAKES & ROAD CROSSING	VCP & HDPE PARTIALLY COLLAPSED	
367	UPSTREAM	377	UPSTREAM	GPS 70	<del>30</del> 10.69		2		VCP PARTIALLY COLLAPSED	
521	UPSTREAM	551	UPSTREAM	GPS 70	<del>30</del> 35.69		2		VCP PARTIALLY COLLAPSED	
623	UPSTREAM	642	UPSTREAM	GPS 70	<del>16</del> 15.60		2		VCP PARTIALLY COLLAPSED	
814	UPSTREAM	924	UPSTREAM	GPS 70	<del>10</del> 114.30		2		VCP PARTIALLY COLLAPSED	
0	UPSTREAM	51	UPSTREAM	GPS 94	<del>51</del> 51.81		2		VCP PARTIALLY COLLAPSED	
287	UPSTREAM	307	UPSTREAM	GPS 94	<del>20</del> 23.03		2		VCP PARTIALLY COLLAPSED	
334	UPSTREAM	344	UPSTREAM	GPS 94	<del>10</del> 10.42		2		VCP PARTIALLY COLLAPSED	
TOTALS					536	565.89	49	491.42	51	48

13.00' done at contractor's expense

includes the 13.00' done at contractor's expense

NOTE:  
1. PIPE LENGTH QUANTITIES SHOWN ARE BASED ON REPAIRS NEEDED FROM CCTV FOOTAGE. ADDITIONAL QUANTITIES RESULTING FROM LENGTHENING THE SPOT REPAIR SHALL BE AUTHORIZED BY THE OWNER OR OWNER'S ON-SITE REPRESENTATIVE. BID QUANTITIES INCLUDE AN ALLOWANCE OF AN ADDITIONAL 160 LINEAR FEET OF 18-INCH AND 240 LINEAR FEET OF 24-INCH TILE FOR AUTHORIZED ADDITIONAL SPOT REPAIRS.



NO.	REVISION	BY	DATE	NO.	REVISION	BY	DATE



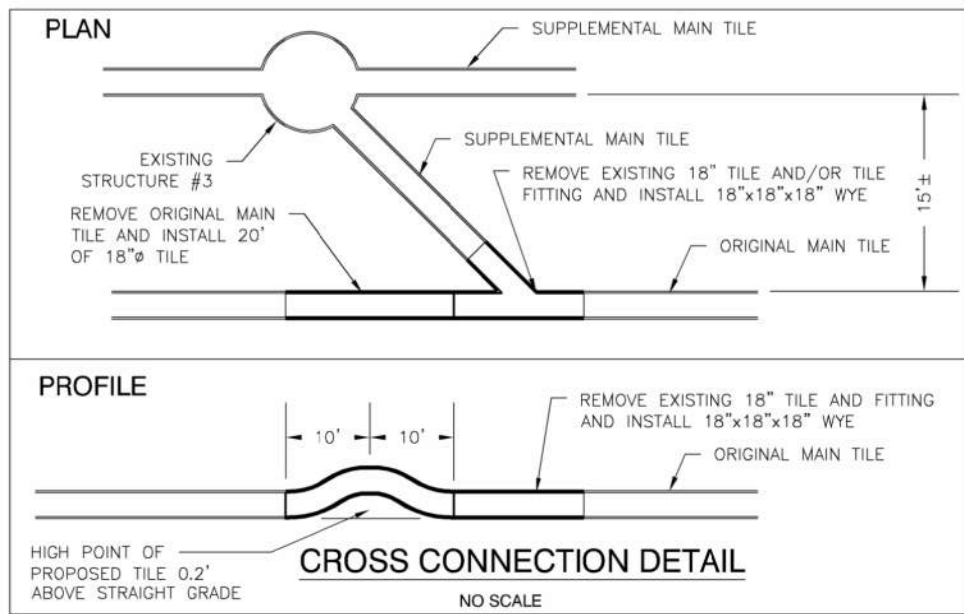
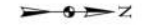
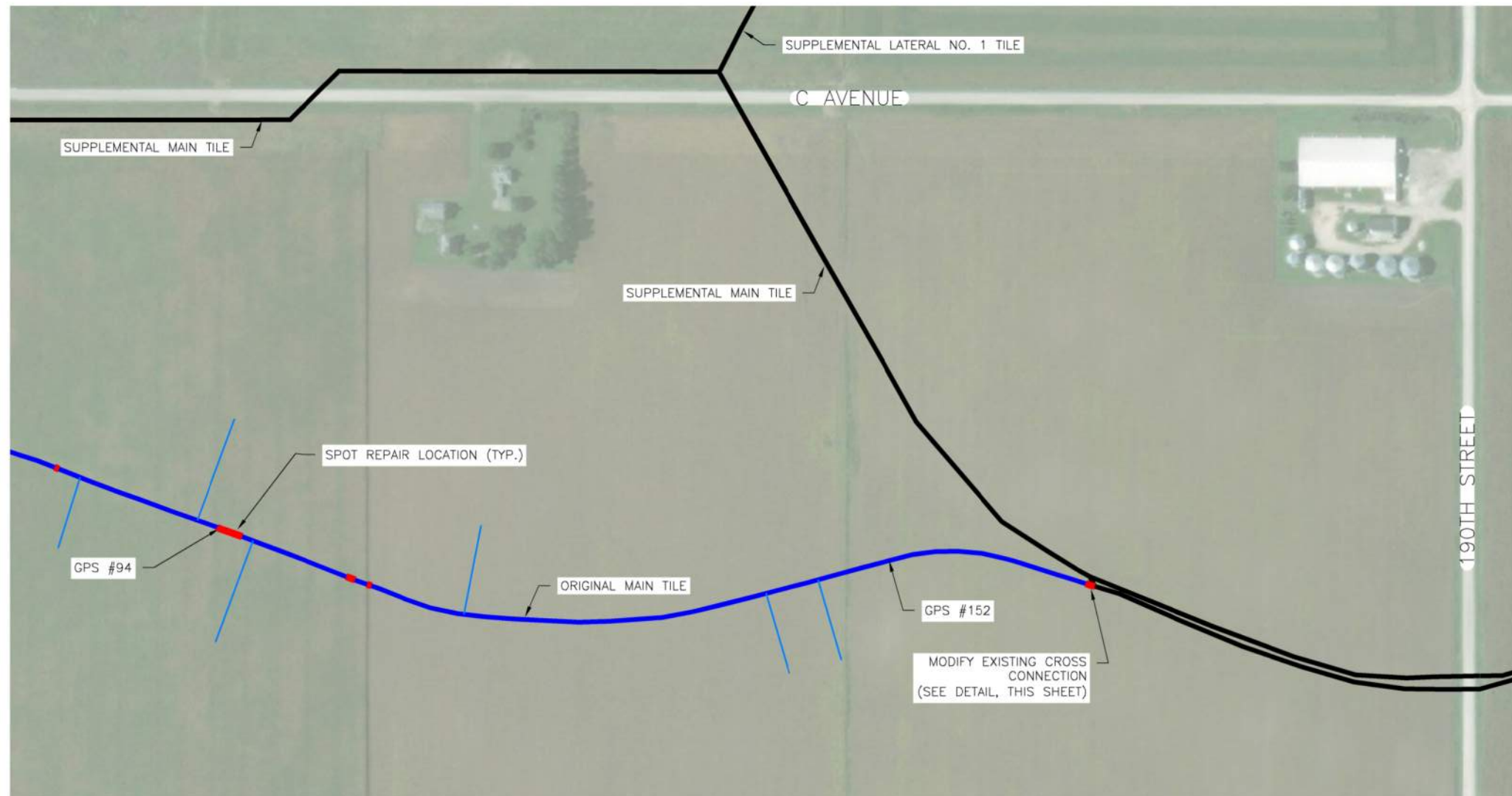
DESIGNED: \_\_\_\_\_ DATE: \_\_\_\_\_  
 DRAWN: \_\_\_\_\_ DATE: \_\_\_\_\_  
 CHECKED: \_\_\_\_\_ DATE: \_\_\_\_\_  
 APPROVED: \_\_\_\_\_ DATE: \_\_\_\_\_

**MAIN TILE REPAIRS - DD #22**  
 HARDIN COUNTY, IOWA

**TILE SPOT REPAIRS**

PROJECT NO. 8712  
 SHEET NO. D.04





CROSS CONNECTION ADDITION								
START LOCATION		END LOCATION		FROM REFERENCE POINT	REPLACE WITH 18" TILE	CONCRETE COLLARS	MISCELLANEOUS FITTING	REASON FOR REPLACEMENT
LF	LOCATION	LF	LOCATION	GPS POINT #	LF	EACH		
418±	UPSTREAM	438±	UPSTREAM	GPS 152	20	3	(1) 18"x18" WYE	ADDING CROSS CONNECTION
TOTALS					20	3		

**NOTES:**

1. PIPE LENGTH QUANTITIES SHOWN ARE BASED ON CROSS CONNECTION DETAIL AS SHOWN. ADDITIONAL QUANTITIES RESULTING FROM LENGTHENING THE SPOT REPAIR SHALL BE AUTHORIZED BY THE OWNER OR OWNER'S ON-SITE REPRESENTATIVE. BID QUANTITIES INCLUDE AN ALLOWANCE OF AN ADDITIONAL 20 LINEAR FEET OF 18-INCH TILE FOR AUTHORIZED ADDITIONAL SPOT REPAIRS.
2. CONNECTIONS BETWEEN PROPOSED CROSS CONNECTION AND EXISTING PIPE MAY BE MADE WITH MANUFACTURED FITTINGS/COUPLINGS. IF DISSIMILAR PIPE SIZE/MATERIAL OR GAPS REQUIRE THE USE OF A CONCRETE COLLAR, THEY SHALL BE PAID FOR IN THE APPLICABLE BID ITEM.

**SEE NEXT SHEET FOR AS-BUILT CROSS CONNECTION AND CALCULATIONS.**



NO.	REVISION	BY	DATE	NO.	REVISION	BY	DATE



DESIGNED: \_\_\_\_\_ DATE: \_\_\_\_\_  
 DRAWN: \_\_\_\_\_ DATE: \_\_\_\_\_  
 CHECKED: \_\_\_\_\_ DATE: \_\_\_\_\_  
 APPROVED: \_\_\_\_\_ DATE: \_\_\_\_\_

**MAIN TILE REPAIRS - DD #22**  
 HARDIN COUNTY, IOWA

**TILE SPOT REPAIRS**

PROJECT NO. 8712  
 SHEET NO. D.05



**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  
 103 East State Street, Suite 430, Mason City, Iowa 50402, ph 641-423-1451  
 800-542-7981, www.cgaconsultants.com

PN 8712  
 Computed By G.T.J. Date 12/16/19  
 Checked By \_\_\_\_\_ Date \_\_\_\_\_  
 Subject \_\_\_\_\_



**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  
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 103 East State Street, Suite 430, Mason City, Iowa 50402, ph 641-423-1451  
 800-542-7981, www.cgaconsultants.com

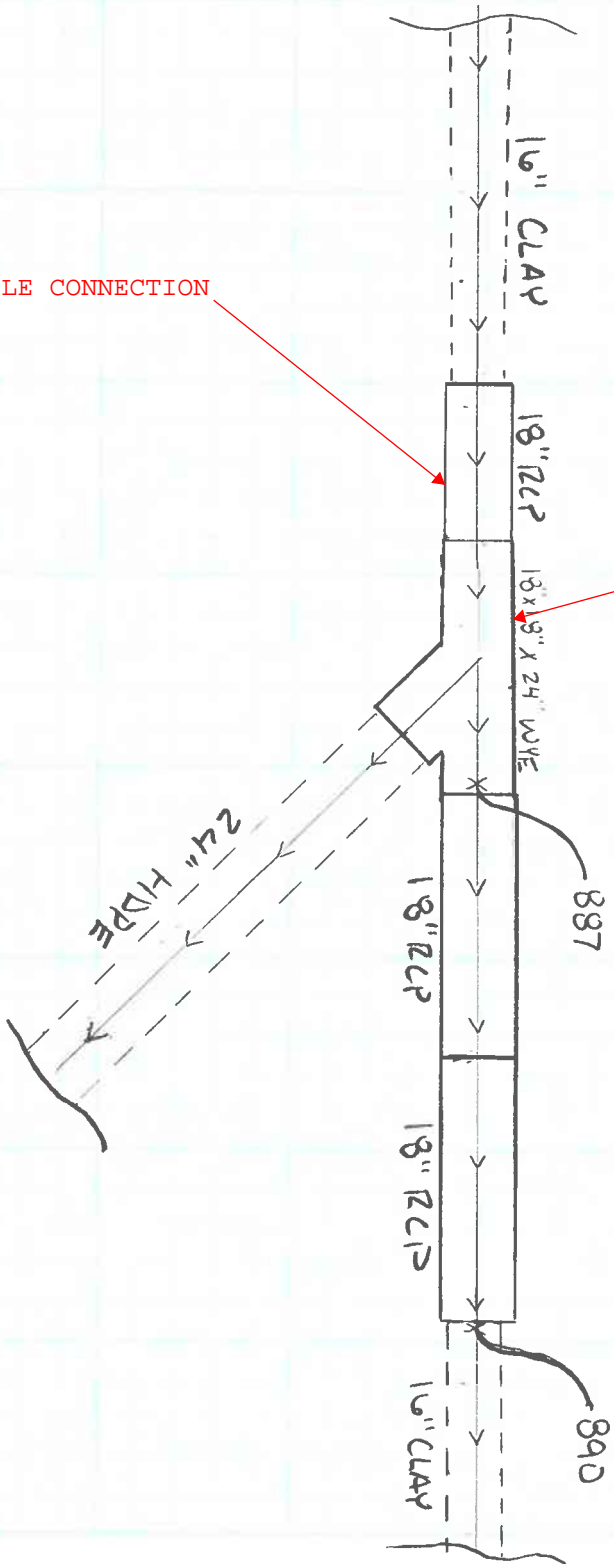
PN 8712  
 Computed By G.T.J. Date 12/16/19  
 Checked By \_\_\_\_\_ Date \_\_\_\_\_  
 Subject \_\_\_\_\_

AS BUILT CROSS CONNECTION



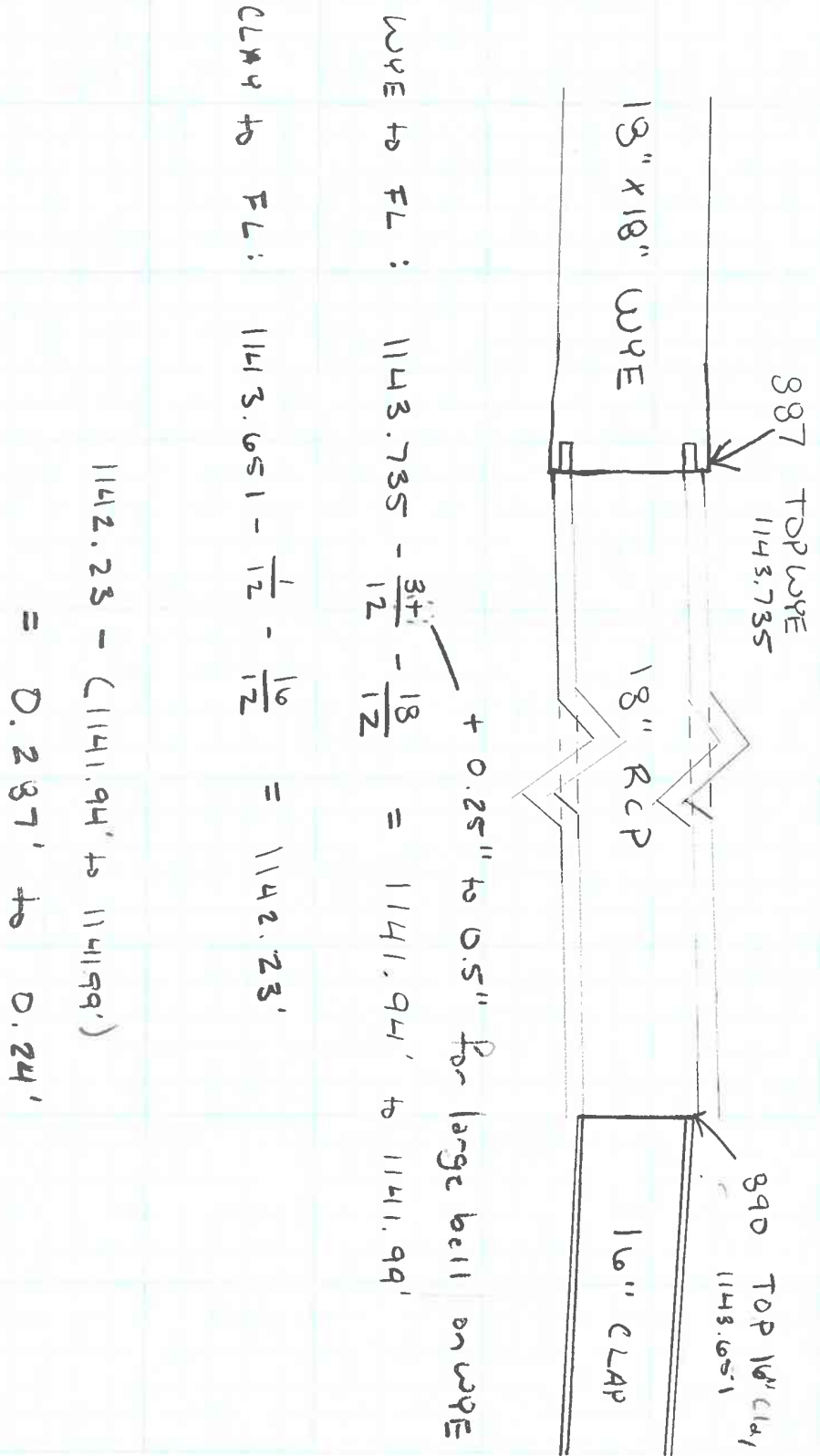
PRIVATE TILE CONNECTION

PRIVATE TILE CONNECTION



\* SEE SHEET 2 FOR CALCULATIONS

AS - BUILT CROSS CONNECTION

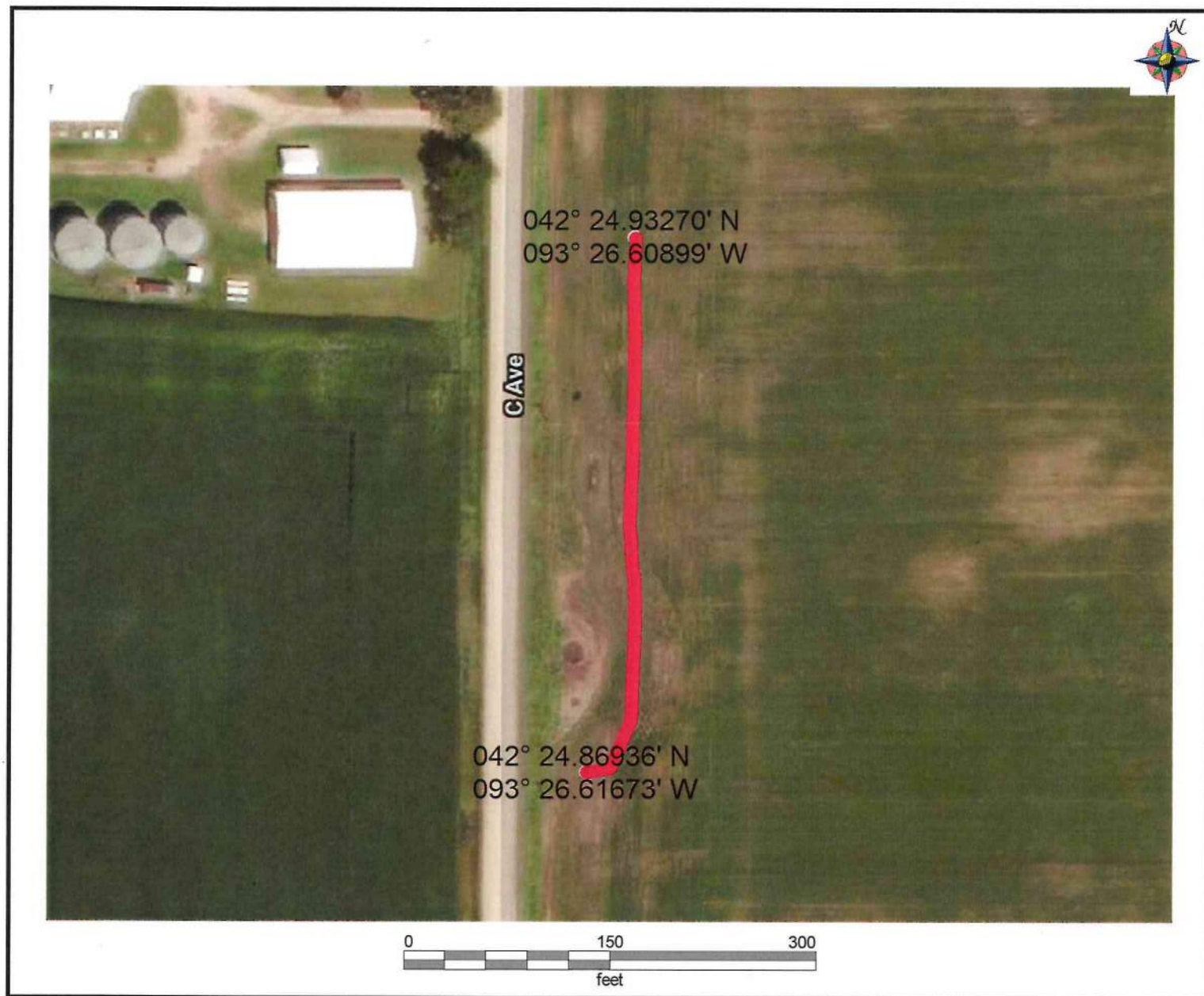


CLAY TO FL:  $1143.651 - \frac{1}{2} - \frac{1}{2} = 1142.23'$

WYE TO FL:  $1143.735 - \frac{34}{12} - \frac{18}{12} + 0.25" \text{ to } 0.5" \text{ for large bell on WYE} = 1141.94' \text{ to } 1141.99'$

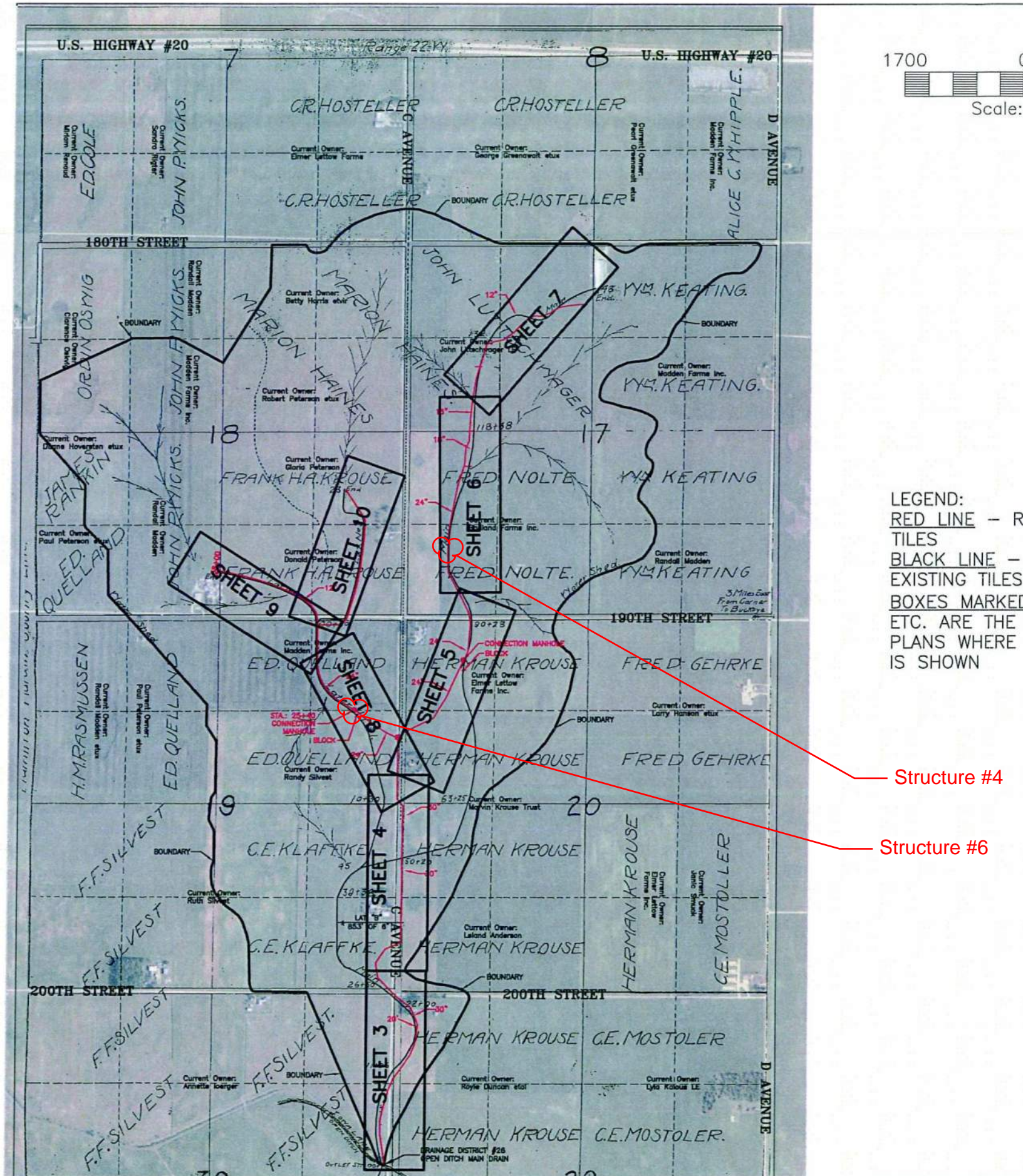
$1142.23 - (1141.94' \text{ to } 1141.99') = 0.237' \text{ to } 0.24'$





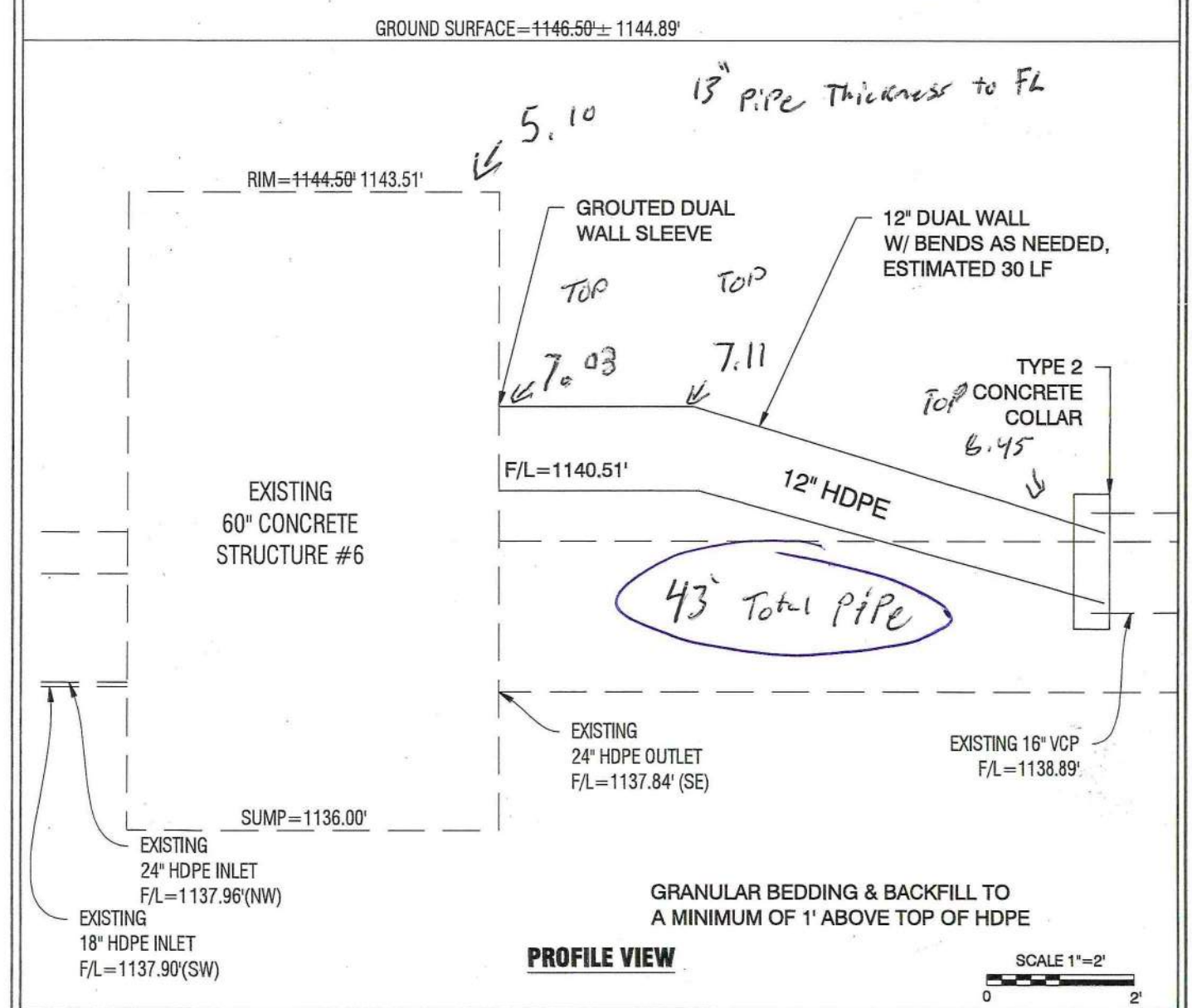
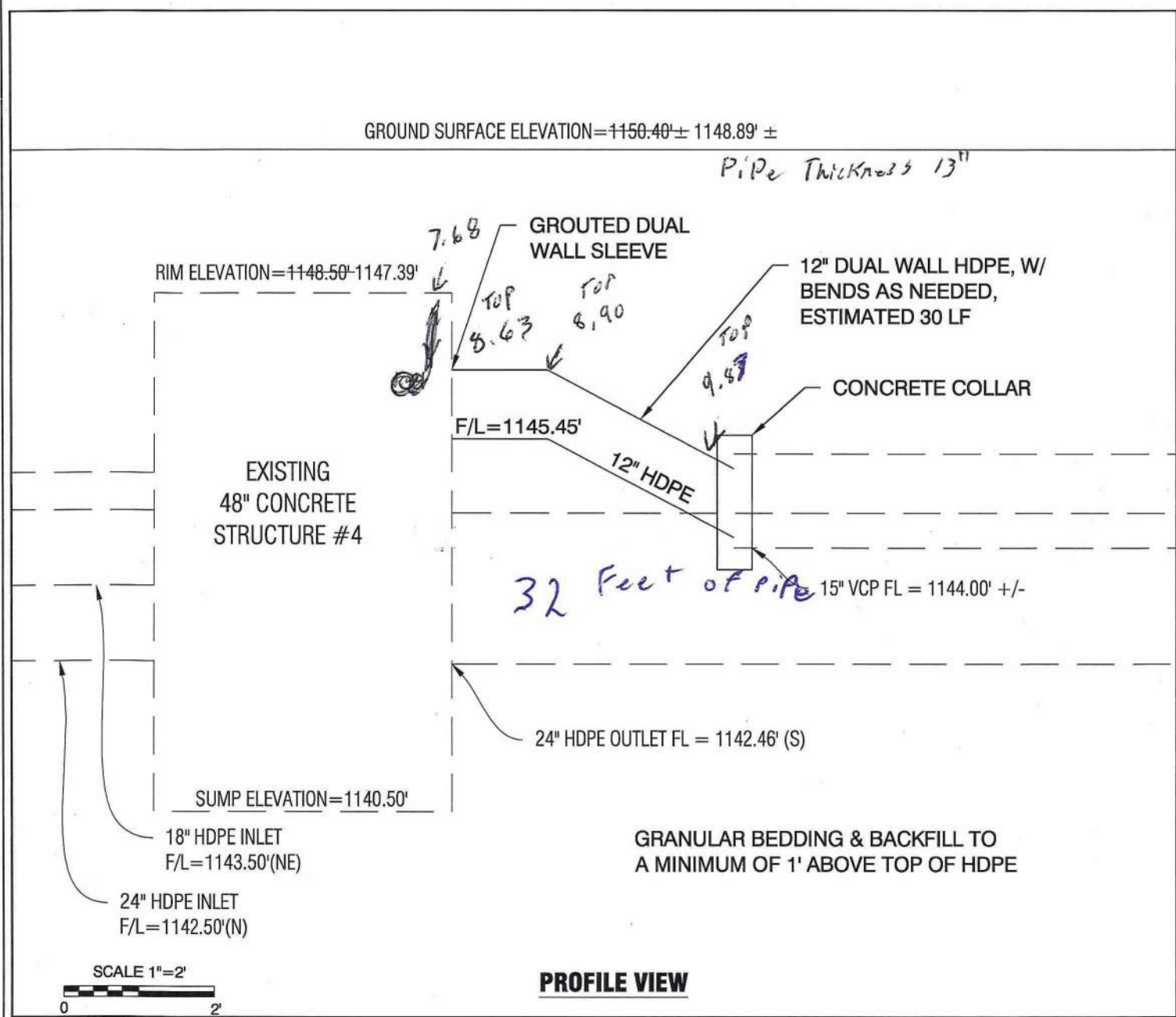
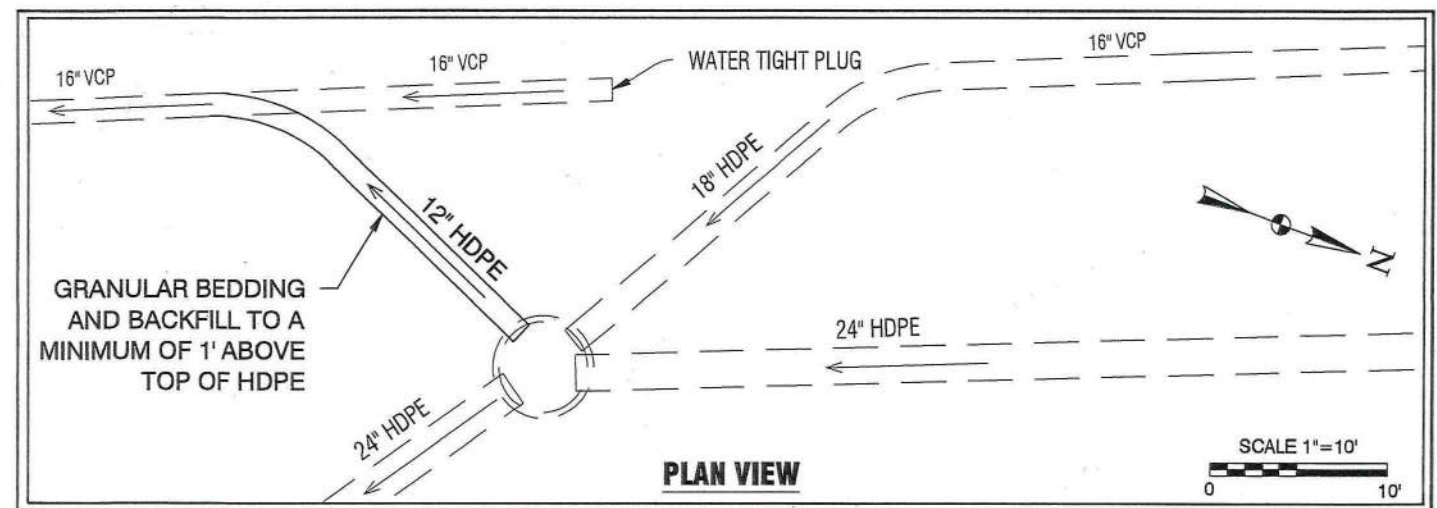
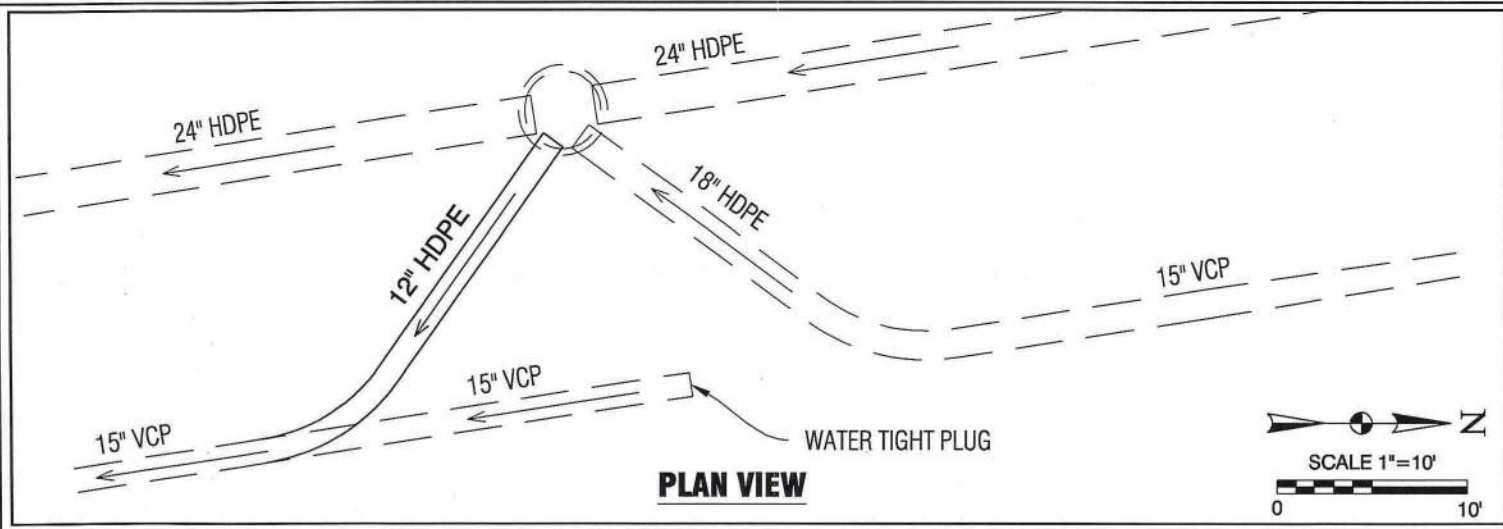
Hardin Co.  
DD #22  
6" Tile

12/21/2019



THIS AS BUILT INFORMATION IS DIRECT FROM GEHRKE, INC.  
CGA NOT PRESENT FOR THIS WORK. - AS BUILT ADD SHEET 20





**CGA** Clapsaddle-Garber Associates, Inc  
 16 East Main Street  
 Marshalltown, Iowa 50158  
 Ph 641-752-6701  
 www.cgaconsultants.com

**STRUCTURE #4**  
 N: 3,619,576  
 E: 4,937,209

**CGA** Clapsaddle-Garber Associates, Inc  
 16 East Main Street  
 Marshalltown, Iowa 50158  
 Ph 641-752-6701  
 www.cgaconsultants.com

**STRUCTURE #6**  
 N: 3,617,336  
 E: 4,935,891

THIS AS BUILT INFORMATION IS DIRECT FROM GEHRKE, INC.  
 CGA NOT PRESENT FOR THIS WORK. - AS BUILT ADD SHEET 21

# APPENDIX B





Project: Main Tile Repairs to Drainage District 22 Facilities	CGA PN: 8712	Change Order # 2
Owner: Hardin County, Iowa	Contract Date: August 16 <sup>th</sup> , 2018	
Contractor: Gehrke, Inc.	Contract Amount: \$549,332.50	

**List below or on a separate sheet each change proposed in this order describing briefly and giving reasons for the changes. Attach copy of supplemental agreement covering any contract amendment.**

PROPOSED CHANGES	Amount Increase or Decrease		
<p><u>Additional Spot Repair Necessary Due to Lack of Field Alignment Knowledge</u></p> <p>Minimal horizontal alignment information of the Original Main (clay) Tile and Parallel Main (HDPE) Tile is available. The known locations of what survey information we were able to obtain from Ryken Engineering are staked in the field; however, there are a lot of curves and the Parallel Main was installed with significant snaking of the pipe.</p> <p>The 2011 installed Parallel Main was specified to be located at a 15' offset from the Original Main. Conditions found in the field have locations where that separation is not present and is less than 10-foot.</p> <p>While installing new RCP Tile adjacent to the Parallel Main (HDPE), the 24" Original Main (clay) Tile was struck. In this location, the Original Main was almost directly under the assumed alignment of the Parallel Main based on the survey stakes. It was also determined the Parallel HDPE and Original Clay had less than the minimal separation.</p> <p>This resulted in a repair, similar to those accounted for in the Spot Repair portion of this project. Because of the lack of knowledge as to the precise alignment of the Clay and HDPE Tiles, this is a justifiable extra work.</p> <ul style="list-style-type: none"> <li>• Item No. 6A – 24" RCP Tile, Perforated – For Spot Repairs Increase 6 LF @ \$78.00 / LF</li> <li>• Item No. 11A – Type 2 Concrete Collar – For Spot Repairs Increase 2 EA @ \$358.00 / EA</li> </ul> <p>Additional field exploratory excavation was completed to lessen the chance of this occurring again. Due to snaking of the HDPE, the specified replacement alignment being directly in-line or at a minimum offset in lieu of installing RCP in a straighter configuration with field bends as necessary.</p>	<p>Increase \$468.00</p> <p>Increase \$716.00</p>		
Net Change This Order (+ or -)	+ \$1,184.00		
Net Changes Previous Approved Orders (#1):	- \$ 442.00		
Total Net Changes to Date:	+ \$ 742.00		
Total Contract Time (Days)	Days Increased	Days Decreased	Total

**If and when approved, I hereby accept this order both as to work to be performed and prices on which payment shall be based.**

Contractor: Gehrke, Inc.		Date: 9/10/19	
By: <i>Serena M. Thomas</i>	Title: <i>V.P.</i>		
Recommended	By: <i>Heather Thomas</i> Heather Thomas, PE	Title: Project Manager	Date: 9/10/19
Approved	By:	Title:	Date:

Clapsaddle-Garber Associates, Inc.  
Engineers & Land Surveyors  
P.O. Box 754  
Marshalltown, IA 50158



Project: Main Tile Repairs to Drainage District 22 Facilities	CGA PN: 8712	Change Order # 3
Owner: Hardin County, Iowa	Contract Date: August 16 <sup>th</sup> , 2018	
Contractor: Gehrke, Inc.	Contract Amount: \$549,332.50	

**List below or on a separate sheet each change proposed in this order describing briefly and giving reasons for the changes. Attach copy of supplemental agreement covering any contract amendment.**

PROPOSED CHANGES	Amount Increase or Decrease
<p><u>Adjust Contract Quantities to reflect field installed quantities for spot repairs (1 Spot Repair in progress and remains to be completed)</u></p> <p>The allowed spot repair quantities were greater than what was determined needed in the field. The contract quantities shall be adjusted as follows:</p> <ul style="list-style-type: none"> <li>• Item No. 6A – 24” RCP Tile, Perforated – For Spot Repairs Decrease 131 LF @ \$78.00 / LF</li> <li>• Item No. 7A – 18” RCP Tile, Perforated – For Spot Repairs Decrease 100 LF @ \$67.00 / LF</li> <li>• Item No. 11A – Type 2 Concrete Collar – For Spot Repairs Decrease 3 EA @ \$358.00 / EA</li> </ul> <p>Additional adjustments will be made once the 18-inch spot repair that remains to be finished is completed. This is not anticipated until the Parallel Main is replaced in the same vicinity.</p>	<p>Decrease (\$10,218.00)</p> <p>Decrease (\$6,700.00)</p> <p>Decrease (\$1,074.00)</p>

Net Change This Order (+ or -)	- \$ 17,992.00
Net Changes Previous Approved Orders (#1, #2):	+ \$ 742.00
<b>Total Net Changes to Date:</b>	<b>- \$ 17,250.00</b>

Total Contract Time (Days)	Days Increased	Days Decreased	Total

**If and when approved, I hereby accept this order both as to work to be performed and prices on which payment shall be based.**

Contractor: Gehrke, Inc.		Date: 9/10/19	
By: <i>Seremy Adams</i>		Title: <i>V.P.</i>	
Recommended	By: <i>Heather Thomas</i> Heather Thomas, PE	Title: Project Manager	Date: 9/10/19
Approved	By:	Title:	Date:

Project: Main Tile Repairs to Drainage District 22 Facilities	CGA PN: 8712	Change Order # 4
Owner: Hardin County, Iowa	Contract Date: August 16 <sup>th</sup> , 2018	
Contractor: Gehrke, Inc.	Contract Amount: \$549,332.50	

**List below or on a separate sheet each change proposed in this order describing briefly and giving reasons for the changes. Attach copy of supplemental agreement covering any contract amendment.**

PROPOSED CHANGES	Amount Increase or Decrease
<p><u>Allow native backfill be utilized for Road Crossings</u></p> <p>Defer recommendation to support Hardin County Engineer's recommendation.</p> <p>Current discussion for allowance is as follows. The specified detail is shown below. Allow the Class 1 material to be used for bedding and backfill to 1' above the top of pipe. From there, allow native soil to be used to backfill if compacted it with a vibratory plate compactor in 1-foot lifts and then top it with 12-inches of road rock.</p> <p style="text-align: center;">Alternate RCP with Rock Bedding Reinforced Concrete Pipe Trench Detail (Roadway Crossing)</p> <p>The current contract in regards to this bid item is as follows:</p> <ul style="list-style-type: none"> <li>Item No. 2A – 30” RCP Tile Road Crossing, Perf – Tile Replacement Contract: 310 LF @ \$46.00 / LF</li> </ul>	\$ 0.00

Net Change This Order (+ or -)	\$ 0.00
Net Changes Previous Approved Orders (#1, #2, #3):	- \$ 17,250.00
Total Net Changes to Date:	- \$ 17,250.00

Total Contract Time (Days)	Days Increased	Days Decreased	Total

**If and when approved, I hereby accept this order both as to work to be performed and prices on which payment shall be based.**

Contractor: Gehrke, Inc.		Date: 9/10/19	
By: <i>Jeremy M... [Signature]</i>	Title: <i>V.P.</i>		
Recommended	By: Defer to Hardin County Engineer	Title:	Date: 9/10/19
Approved	By:	Title:	Date:

**Clapsaddle-Garber Associates, Inc.**  
Engineers & Land Surveyors  
P.O. Box 754  
Marshalltown, IA 50158



Project: Main Tile Repairs to Drainage District 22 Facilities	CGA PN: 8712	Change Order # 5
Owner: Hardin County, Iowa	Contract Date: August 16 <sup>th</sup> , 2018	
Contractor: Gehrke, Inc.	Contract Amount: \$549,332.50	

**List below or on a separate sheet each change proposed in this order describing briefly and giving reasons for the changes. Attach copy of supplemental agreement covering any contract amendment.**

PROPOSED CHANGES	Amount Increase or Decrease
<p>Exploratory Excavation</p> <p>Refer to additional information included in Change Order #2. Exploratory Excavation was used to lessen chance of hitting Main (clay) Tile in areas where its location was unknown.</p> <p>This was done by a means of using a locating device run as far as it would go through the exposed tile and marking it on the ground with flags as well as potholing in various spots with a backhoe and another crew member probing for the line.</p> <p>Friday, August 30<sup>th</sup> (<i>The day the Main was hit that required spot repair.</i>)  Locating (20 Minutes)  Potholing/Excavation (3 Hours)</p> <p>Tuesday, September 3<sup>rd</sup>  Locating (15 Minutes)</p> <p>Wednesday, September 4<sup>th</sup>  Potholing/Excavation (2 Hours, 15 Minutes)</p> <p>A total of 5.83 hours were spent performing exploratory excavation and Gehrke successfully avoided the main since.</p> <p>The following is the anticipated impact to construction costs which will be made by this item addition:</p> <ul style="list-style-type: none"> <li>CO1 - Exploratory Excavation  Increase 5.83 HRS @ \$300 / HR</li> </ul>	<p>Increase  (\$1,749.00)</p>
Net Change This Order (+ or -)	+ \$1,749.00
Net Changes Previous Orders (#1, #2, #3, #4):	- \$ 17,250.00
Total Net Changes to Date:	- \$ 15,501.00

Total Contract Time (Days)	Days Increased	Days Decreased	Total

**If and when approved, I hereby accept this order both as to work to be performed and prices on which payment shall be based.**

Contractor: Gehrke, Inc.		Date: 9/10/19	
By: <i>Jeremy [Signature]</i> V.D	Title: Design Engineer		
Recommended	By: <i>Heather Thomas</i> Heather Thomas, PE	Title: Project Manager	Date: 9/10/19
Approved	By:	Title:	Date:

Project: Main Tile Repairs to Drainage District 22 Facilities	CGA PN: 8712	Change Order # 6
Owner: Hardin County, Iowa	Contract Date: August 16 <sup>th</sup> , 2018	
Contractor: Gehrke, Inc.	Contract Amount: \$549,332.50	

**List below or on a separate sheet each change proposed in this order describing briefly and giving reasons for the changes. Attach copy of supplemental agreement covering any contract amendment.**

PROPOSED CHANGES	Amount Increase or Decrease
<p><b>Adjust Contract Completion Date; Current Contract Completion Language:</b>  <i>Once started, the Contractor shall remain on the job and make continuous progress until work is completed or until work is suspended due to winter-shut down. As winter approaches, the Contractor shall stage work appropriately to complete all areas of work that had been started prior to shut down and also allow the tile to operate through winter shut down. Any construction that interferes with crop production shall be limited to a single crop season for each individual field. Substantial completion shall be prior to <u>September 1, 2019</u>. Substantial completion shall be when all bid items, with the exception of Add Alternate 2 (CCTV Inspection of Tile Replacement – 12 Months Post Construction) have been completed. The Contractor shall pay said District Five Hundred (\$500.00) per day as liquidated damages for each calendar day the work remains uncompleted after the completion date stated above in addition to additional expenses to the District for crop damage, engineering, observation, or construction surveying services, as noted in Article 4.03B of the Agreement between District and Contractor.</i></p> <p>Contractor requests extension due to weather conditions.  *NOAA reports the period of June 2018 – May 2019 was the wettest 12-month period in Iowa since official records began in 1895. NOAA issued precipitation ranks on September 6<sup>th</sup> stating that despite recent dry conditions, Iowa precipitation from September 2018-August 2019 still ranked 122 (out of 124) for the wettest 12-months.</p> <ul style="list-style-type: none"> <li>• Gehrke started spot repairs 07/26/19.</li> <li>• Gehrke started tile replacement 08/16/19.</li> <li>• From the period 08/16/19 – 09/07/19 (23 Calendar Days, 16 Tile Install Days), Gehrke has installed 2,438 feet tile. (106 ft tile / calendar day &amp; 152 ft tile / tile install day).</li> <li>• An estimated 3,960 feet remain, in addition to private tile connections, intakes, seeding, and cross connection.</li> </ul>	<p>Extend Project Completion to December 1, 2019</p>
Net Change This Order (+ or -)	\$ 0.00
Net Changes Previous Orders (#1, #2, #3, #4, #5):	- \$ 15,501.00
Total Net Changes to Date:	- \$ 15,501.00

Total Contract Time (Days) Completion: 09/01/2019	Days Increased 91 Days	Days Decreased	Total Completion: 12/01/2019
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**If and when approved, I hereby accept this order both as to work to be performed and prices on which payment shall be based.**

Contractor: Gehrke, Inc.		Date: 9/10/19	
By: <i>Serena [Signature]</i>	Title: <i>V.P.</i>		
Recommended	By: <i>Heather Thomas [Signature]</i> Heather Thomas, PE	Title: Project Manager	Date: 9/10/19
Approved	By:	Title:	Date:

**Clapsaddle-Garber Associates, Inc.**  
Engineers & Land Surveyors  
P.O. Box 754  
Marshalltown, IA 50158



Project: Main Tile Repairs to Drainage District 22 Facilities	CGA PN: 8712	Change Order # 7
Owner: Hardin County, Iowa	Contract Date: August 16 <sup>th</sup> , 2018	
Contractor: Gehrke, Inc.	Contract Amount: \$549,332.50	

**List below or on a separate sheet each change proposed in this order describing briefly and giving reasons for the changes. Attach copy of supplemental agreement covering any contract amendment.**

PROPOSED CHANGES	Amount Increase or Decrease
<p>The 30-inch tile replacement in the front yard of Travis Ryerson impacted the existing septic system leach field. Gehrke shall perform repair to the septic system in coordination and with approval of the County Environmental Health Department.</p> <p>Initial Estimate of Repair: Gehrke, Inc to repair septic lines on the Ryerson property with an estimated cost of \$3,680. The Contractor will investigate the laterals to determine consistent spacing to reinstall the two laterals that were excavated out; it is estimated that each lateral will be 60 feet or less and will be bed in 1-inch clean rock. Hardin County Environmental Health Department also has an Onsite Wastewater Treatment System Application w/ \$250 fee. Drainage District Trustees authorized up to \$4,000 at their December 4<sup>th</sup>, 2019 meeting.</p> <p>During construction and further investigation into the laterals that were impacted, we coordinated with Jessica Sheridan to perform the required repair, which was less than initially estimated. Total cost of the repair</p> <ul style="list-style-type: none"> <li>• Add Item CO2 – Septic Repair (Lump Sum)</li> </ul>	+\$1,650.00
Net Change This Order (+ or -)	+ \$ 1,650.00
Net Changes Previous Orders (#1, #2, #3, #4, #5, #6):	- \$ 15,501.00
Total Net Changes to Date:	- \$ 13,851.00

Total Contract Time (Days)	Days Increased	Days Decreased	Total Completion: 12/01/2019
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**If and when approved, I hereby accept this order both as to work to be performed and prices on which payment shall be based.**

Contractor: Gehrke, Inc.		Date: 1-22-2020	
By:	Title: V.P.		
Recommended	By:  Heather Thomas, PE	Title: Project Manager	Date: 01/22/2020
Approved	By:	Title:	Date:

Project: Main Tile Repairs to Drainage District 22 Facilities	CGA PN: 8712	Change Order # 8
Owner: Hardin County, Iowa	Contract Date: August 16 <sup>th</sup> , 2018	
Contractor: Gehrke, Inc.	Contract Amount: \$549,332.50	

**List below or on a separate sheet each change proposed in this order describing briefly and giving reasons for the changes. Attach copy of supplemental agreement covering any contract amendment.**

PROPOSED CHANGES	Amount Increase or Decrease
<p>Additional tile replacement necessary due to existing private tile being located above the excavation for a portion of the 30-inch tile replacement. Unit price includes mobilization, private tile connection to the main, and providing/installing the tile.</p> <p>Trustees authorized up to 400 LF of private tile replacement at \$9/LF at the December 16, 2019 meeting. Actual installed quantity was 350 LF.</p> <ul style="list-style-type: none"> <li>Add Item CO3 – Private Tile Replacement, 6” Dual Wall Tile Add 350 LF @ \$9.00 / LF</li> </ul>	+\$3,150.00
Net Change This Order (+ or -)	+ \$ 3,150.00
Net Changes Previous Orders (#1, #2, #3, #4, #5, #6, #7):	- \$ 13,851.00
Total Net Changes to Date:	- \$ 10,701.00

Total Contract Time (Days)	Days Increased	Days Decreased	Total Completion: 12/01/2019
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**If and when approved, I hereby accept this order both as to work to be performed and prices on which payment shall be based.**

Contractor: Gehrke, Inc.		Date: 1-22-2020	
By:	Title: V.P.		
Recommended	By:	Title: Project Manager	Date: 01/22/2020
Approved	By:	Title:	Date:

Project: Main Tile Repairs to Drainage District 22 Facilities	CGA PN: 8712	Change Order # 9
Owner: Hardin County, Iowa	Contract Date: August 16 <sup>th</sup> , 2018	
Contractor: Gehrke, Inc.	Contract Amount: \$549,332.50	

**List below or on a separate sheet each change proposed in this order describing briefly and giving reasons for the changes. Attach copy of supplemental agreement covering any contract amendment.**

PROPOSED CHANGES	Amount Increase or Decrease
<p>Beginning on Saturday, November 16, 2019, the Contractor got into an area where the blue clay at the bottom of the trench for the 30-inch tile replacement was disappearing and what remained was a very soupy sand that was not able to provide adequate support for the concrete tile. The Contractor requested authorization to put a layer of larger rock (3") approximately 6-inches along the bottom of the trench to provide an adequate bottom for pipe support at a cost of \$24 / ton. Trustees authorized its use as needed and verified need/placement by CGA.</p> <p>Approximately 12 Tons were needed and placed on November 18<sup>th</sup> and 3 Tons were needed and placed on November 19<sup>th</sup>.</p> <ul style="list-style-type: none"> <li>Add Item CO4 – 3-inch Bedding Rock Add 15 Tons @ \$24.00 / Ton</li> </ul>	+\$ 360.00
Net Change This Order (+ or -)	+ \$ 360.00
Net Changes Previous Orders (#1, #2, #3, #4, #5, #6, #7, #8):	- \$ 10,701.00
Total Net Changes to Date:	- \$ 10,341.00

Total Contract Time (Days)	Days Increased	Days Decreased	Total Completion: 12/01/2019
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**If and when approved, I hereby accept this order both as to work to be performed and prices on which payment shall be based.**

Contractor: Gehrke, Inc.		Date: 1-22-2020	
By:	Title: V.P.		
Recommended	By:	Title: Project Manager	Date: 01/22/2020
Approved	By:	Title:	Date:

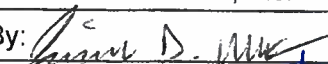



Project: Main Tile Repairs to Drainage District 22 Facilities	CGA PN: 8712	Change Order # 10
Owner: Hardin County, Iowa	Contract Date: August 16 <sup>th</sup> , 2018	
Contractor: Gehrke, Inc.	Contract Amount: \$549,332.50	

**List below or on a separate sheet each change proposed in this order describing briefly and giving reasons for the changes. Attach copy of supplemental agreement covering any contract amendment.**

PROPOSED CHANGES	Amount Increase or Decrease		
The original contract, as bid, was largely completed (with the exception of seeding, clean-up, and other miscellaneous work that was unable to be completed with the winter weather/frozen ground conditions) as of January 13 <sup>th</sup> , 2020. The quantities installed to date and the anticipated work remaining for the Spring was compiled to determine the projected final quantities. The contract quantities are hereby adjusted as follows:			
<ul style="list-style-type: none"> <li>• Increase Item 1A – 30" Ø RCP Tile, Perforated - For Tile Replacement <ul style="list-style-type: none"> <li>○ 68.0 LF @ \$53.00 / LF</li> </ul> </li> <li>• Decrease Item 2A – 30" Ø RCP Tile Road Crossing, Perforated - For Tile Replacement <ul style="list-style-type: none"> <li>○ 30.0 LF @ \$46.00 / LF</li> </ul> </li> <li>• Decrease Item 3A – CCTV Inspection of Roadway Crossing Tile - For Tile Replacement <ul style="list-style-type: none"> <li>○ 310.0 LF @ \$3.00 / LF</li> </ul> </li> <li>• Decrease Item 4A – Connection to Road Crossing Tile to Remain - For Tile Replacement <ul style="list-style-type: none"> <li>○ 10 Each @ \$400.00 / Each</li> </ul> </li> <li>• Increase Item 5A – Removal and Disposal of Supplemental Tile - For Tile Replacement <ul style="list-style-type: none"> <li>○ 38.0 LF @ \$6.50 / LF</li> </ul> </li> <li>• Decrease Item 7A – 18" Ø RCP Tile, Perforated - For Spot Repairs <ul style="list-style-type: none"> <li>○ 45.0 LF @ \$67.00 / LF</li> </ul> </li> <li>• Decrease Item 11A – Type 2 Concrete Collar - For Spot Repairs <ul style="list-style-type: none"> <li>○ 2 Each @ \$358.00 / Each</li> </ul> </li> <li>• Increase Item 13A – Private Tile Connection <ul style="list-style-type: none"> <li>○ 11 Each @ \$500.00 / Each</li> </ul> </li> <li>• Decrease Item 400 – 18" Ø RCP Tile with Rock Bedding, Perforated - For Spot Repairs <ul style="list-style-type: none"> <li>○ 18.0 LF @ \$67.00 / LF</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>+ \$ 3,604.00</li> <li>- \$ 1,380.00</li> <li>- \$ 930.00</li> <li>- \$ 4,000.00</li> <li>+ \$ 247.00</li> <li>- \$ 3,015.00</li> <li>- \$ 716.00</li> <li>+ \$ 5,500.00</li> <li>- \$ 1,206.00</li> </ul>		
Net Change This Order (+ or -)	- \$ 1,896.00		
Net Changes Previous Orders (#1, #2, #3, #4, #5, #6, #7, #8, #9):	- \$ 10,341.00		
Total Net Changes to Date:	- \$ 12,237.00		
Total Contract Time (Days)	Days Increased	Days Decreased	Total Completion: 12/01/2019

**If and when approved, I hereby accept this order both as to work to be performed and prices on which payment shall be based.**

Contractor: Gehrke, Inc.		Date: 1-22-2020	
By: 	Title: V.P.		
Recommended	By:  Heather Thomas, PE	Title: Project Manager	Date: 01/22/2020
Approved	By:	Title:	Date:

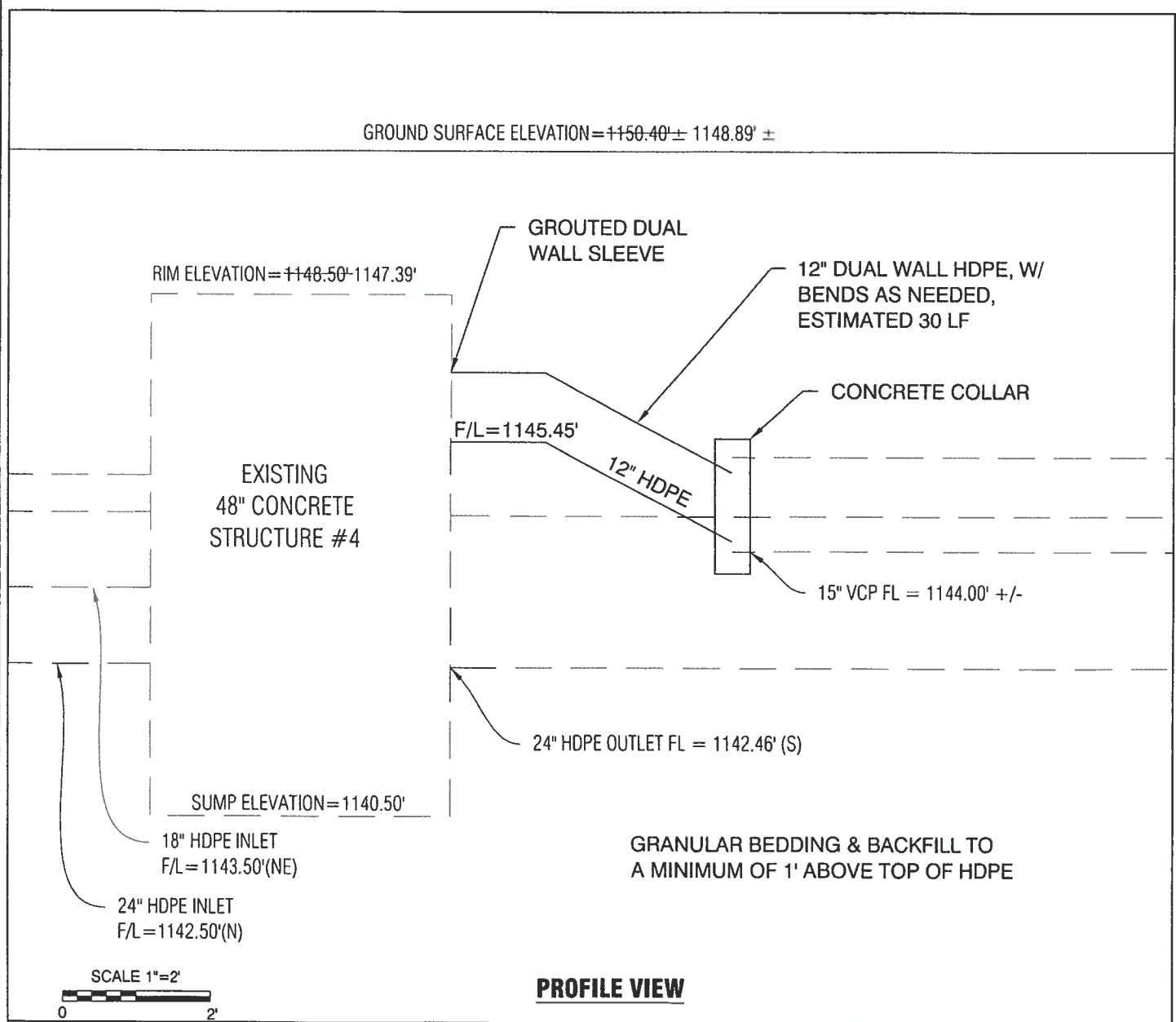
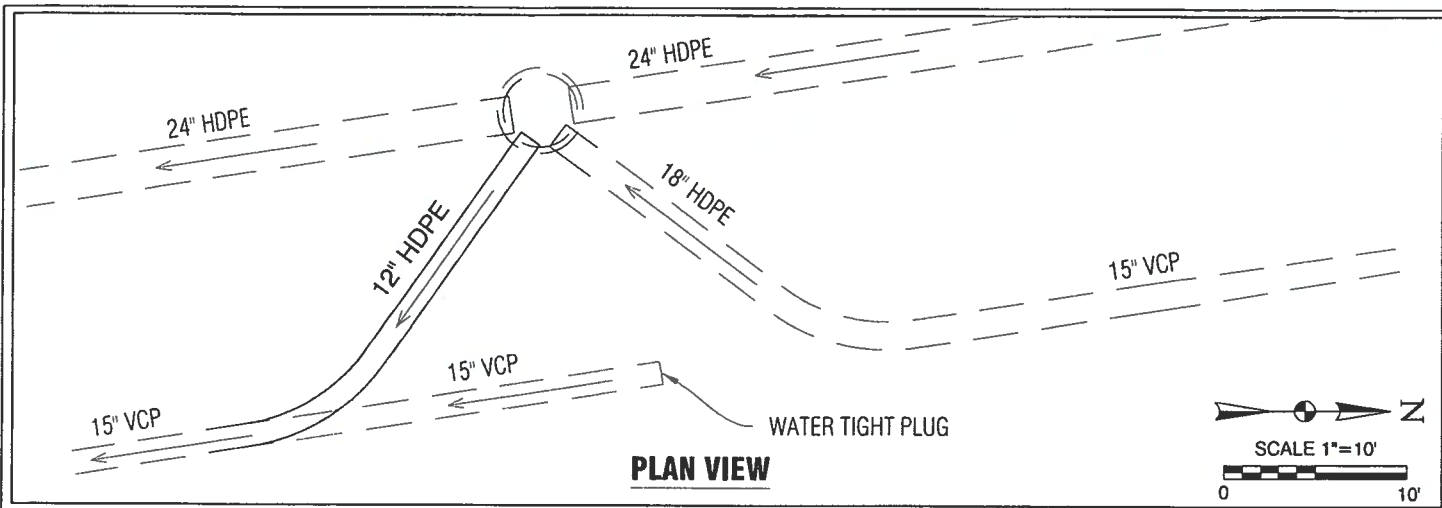


Project: Main Tile Repairs to Drainage District 22 Facilities	CGA PN: 8712	Change Order # 12
Owner: Hardin County, Iowa	Contract Date: August 16 <sup>th</sup> , 2018	
Contractor: Gehrke, Inc.	Contract Amount: \$549,332.50	

**List below or on a separate sheet each change proposed in this order describing briefly and giving reasons for the changes. Attach copy of supplemental agreement covering any contract amendment.**

PROPOSED CHANGES			Amount Increase or Decrease
Refer to attached exhibits for additional information. Note: Quantities below are estimates.			
<b><u>Overflow Connection @ Structure #4</u></b>			
11A) Increase 'Type 2 Concrete Collar – For Spot Repairs' – 2 Each			\$ 716.00
12A) Increase 'Connection to Existing Structure' – 1 Each			\$ 2,000.00
CO1) Increase 'Exploratory Excavation' – 1 HR			\$ 300.00
CO3) Add 12" Dia. Dual Wall HDPE Tile w/ Rock, Perforated – Est. 30 LF at \$241.00/LF			\$ 7,230.00
<b><u>Overflow Connection @ Structure #6</u></b>			
11A) Increase 'Type 2 Concrete Collar – For Spot Repairs' – 2 Each			\$ 716.00
12A) Increase 'Connection to Existing Structure' – 1 Each			\$ 2,000.00
CO1) Increase 'Exploratory Excavation' – 1 HR			\$ 300.00
CO3) Add 12" Dia. Dual Wall HDPE Tile w/ Rock, Perforated – Est. 30 LF at \$241.00/LF			\$ 7,230.00
Net Change This Order (+ or -)			+ \$ 20,492.00
Net Changes Previous Orders (#1, #2, #3, #4, #5, #6, #7, #8, #9, #10)			- \$ 12,237.00
Total Net Changes to Date:			+ \$ 8,255.00
Total Contract Time (Days)	Days Increased	Days Decreased	Total Completion: 11/30/2020
<b>If and when approved, I hereby accept this order both as to work to be performed and prices on which payment shall be based.</b>			
Contractor: Gehrke, Inc.			Date: 1-22-2020
By: <i>Jim D. Weger</i>		Title: V.P.	
Recommended	By: <i>Heather Thomas</i> Heather Thomas, PE	Title: Project Manager	Date: 01/22/2020
Approved	By:	Title:	Date:

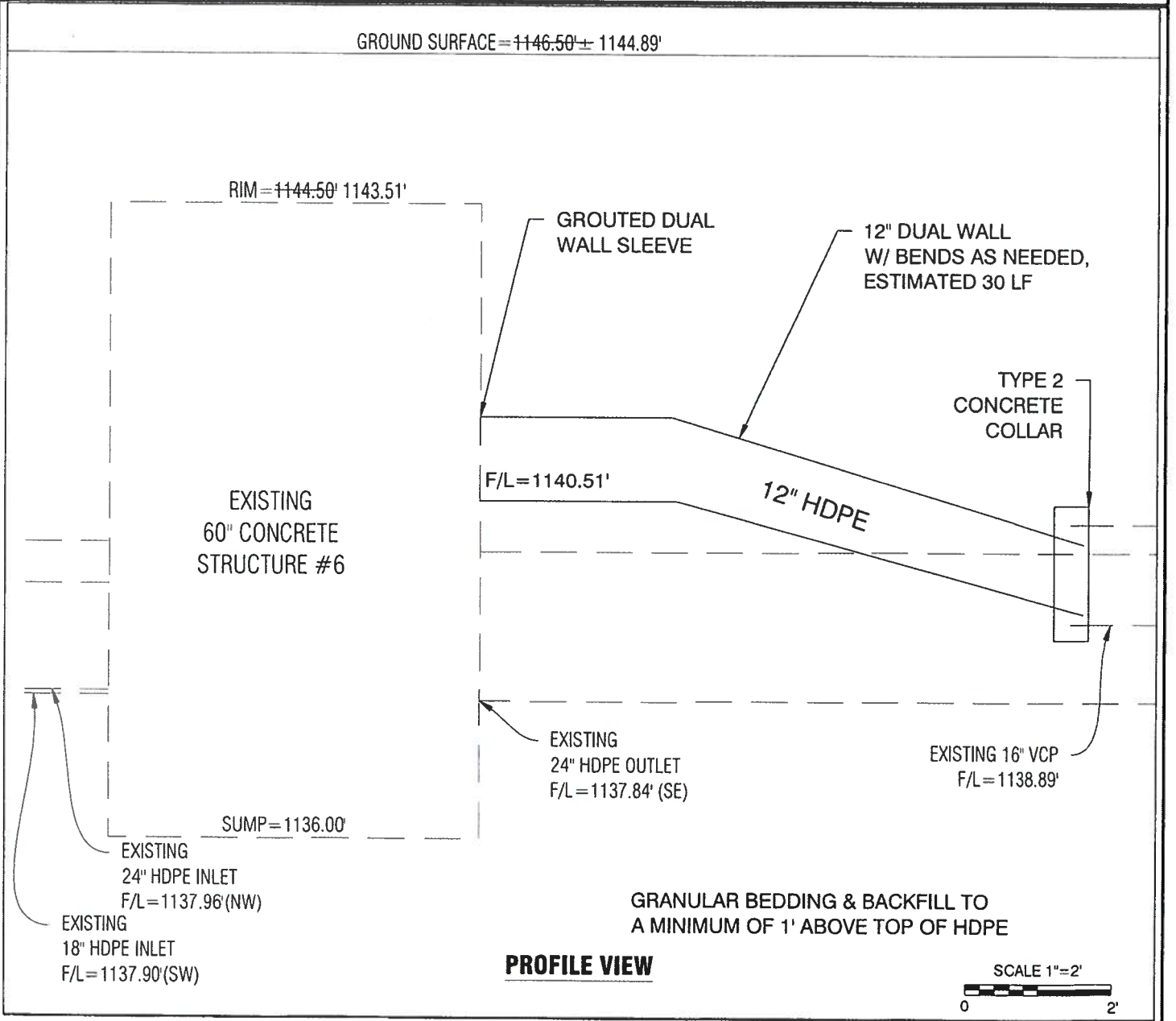
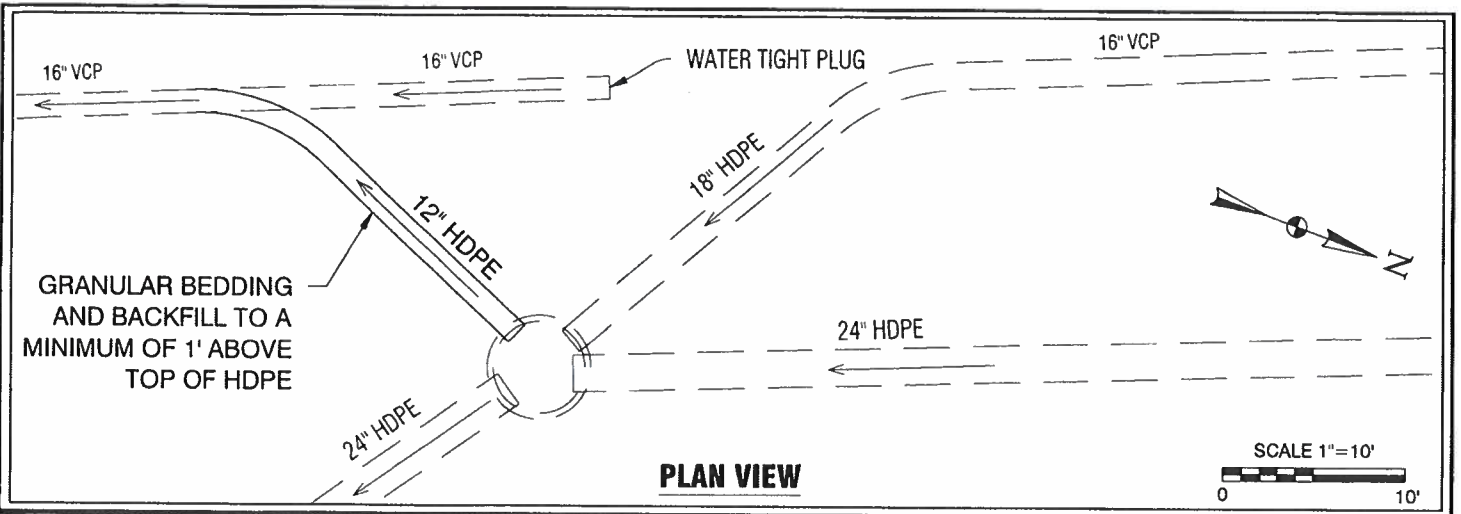




Clapsaddle-Garber Associates, Inc  
 16 East Main Street  
 Marshalltown, Iowa 50158  
 Ph 641-752-6701  
 www.cgaconsultants.com

**STRUCTURE #4**

N: 3,619,576  
 E: 4,937,209



**CGA** Clapsaddle-Garber Associates, Inc  
 16 East Main Street  
 Marshalltown, Iowa 50158  
 Ph 641-752-6701  
 www.cgaconsultants.com

**STRUCTURE #6**  
 N: 3,617,336  
 E: 4,935,891

# APPENDIX C



## CONSTRUCTION PROGRESS REPORT

**Project Description:** Main Tile Repairs to Drainage District 22 Facilities  
Hardin County, Iowa  
Project Nos. DD-6532.2 and 8712

**Estimate:** No. 6

**Date of Contract:** August 16, 2018

**Completion Date:** 9/1/2019 - Updated to 12/1/2019 per Change Order #6 - Updated to 11/30/2020 per Change Order #11

**Contractor:** Gehrke, Inc.  
Eldora, IA

**Owner:** Hardin County Trustees  
of Drainage District 22

Base Contract Price	\$549,332.50	Construction Completed ( See Attached Tab)	\$557,587.50
Approved Equivalent #1	-\$442.00	Total Amount Earned	\$557,587.50
Change Order #2	\$1,184.00		
Change Order #3	-\$17,992.00	Less 2% Retainage	<u>\$11,151.75</u>
Change Order #4	\$0.00	(Note Retainage % Reduced per CO #11)	
Change Order #5	\$1,749.00		
Change Order #6	\$0.00	Subtotal	\$546,435.75
Change Order #7	\$1,650.00		
Change Order #8	\$3,150.00	Less Previous Payment	<u>\$519,542.59</u>
Change Order #9	\$360.00		
Change Order #10	-\$1,896.00	AMOUNT DUE THIS ESTIMATE	\$26,893.16
Change Order #11	\$0.00		
Change Order #12	\$20,492.00		
<b>Total Contract Amount</b>	<b>\$557,587.50</b>		

*Requested by Contractor:*

  
Gehrke, Inc.

Vice President  
Title

4-22-2020  
Date

*Recommended by Engineer:*

  
Heather A. Thomas  
Clapsaddle-Garber Associates, Inc.

Project Engineer  
Title

4/22/2020  
Date

*Approved by Owner:*

  
Hardin County Supervisors

Trustee Chairperson  
Title

4/29/20  
Date

Prepared by:  
Clapsaddle-Garber Associates  
Marshalltown, Iowa 50158

CGA Project No. 8712 06  
January 13, 2020

Tabulation of Construction Quantities								
Main Tile Repairs to Drainage District 22 Facilities								
Hardin County, Iowa								
Period Ending: April 20, 2020								
Item No	Description	Unit	Unit Bid Price	Adjusted Contract		Completed		
				Quantity	Amount	Quantity	Amount	
1A	30" Ø RCP Tile, Perforated - For Tile Replacement	LF	\$53.00	""	6,155	\$326,215.00	6,155	\$326,215.00
2A	30" Ø RCP Tile Road Crossing, Perforated - For Tile Replacement	LF	\$46.00	""	280	\$12,880.00	280	\$12,880.00
3A	CCTV Inspection Of Roadway Crossing Tile - For Tile Replacement	LF	\$3.00	""	0	\$0.00	-	\$0.00
4A	Connection To Road Crossing Tile To Remain - For Tile Replacement	Each	\$400.00	""	0	\$0.00	-	\$0.00
5A	Removal And Disposal Of Supplemental Tile - For Tile Replacement	LF	\$6.50	""	6,435	\$41,827.50	6,435	\$41,827.50
6A	24" Ø RCP Tile, Perforated - For Spot Repairs	LF	\$78.00	** ***	564	\$43,992.00	564	\$43,992.00
7A	18" Ø RCP Tile, Perforated - For Spot Repairs	LF	\$67.00	***, ""	521	\$34,907.00	521	\$34,907.00
8A	18" Ø RCP Tile Road Crossing, Perforated - For Spot Repairs	LF	\$134.50		50	\$6,725.00	50	\$6,725.00
9A	24" X 18" RCP Wye - For Spot Repairs	Each	\$600.00		1	\$600.00	1	\$600.00
10A	24" X 18" RCP Reducer - For Spot Repairs	Each	\$800.00	*	0	\$0.00	-	\$0.00
11A	Type 2 Concrete Collar - For Spot Repairs	Each	\$358.00	* ** *** "" ""	53	\$18,974.00	53	\$18,974.00
12A	Connection To Existing Structure	Each	\$2,000.00	""	4	\$8,000.00	4	\$8,000.00
13A	Private Tile Connection	Each	\$500.00	""	26	\$13,000.00	26	\$13,000.00
14A	Intake, 30" Ø Circular Area	Each	\$1,000.00		5	\$5,000.00	5	\$5,000.00
15A	Intake, 12" Ø Hickenbottom	Each	\$1,100.00		5	\$5,500.00	5	\$5,500.00
16A	Intake, 8" Ø Hickenbottom	Each	\$525.00		2	\$1,050.00	2	\$1,050.00
17A	Cleanup, Shaping, And Permanent Seeding	LS	\$8,300.00		1	\$8,300.00	1	\$8,300.00
18A	Seeding Warranty	LS	\$300.00		1	\$300.00	1	\$300.00
400	18" Ø RCP Tile with Rock Bedding, Perforated - For Spot Repairs	LF	\$67.00	""	22	\$1,474.00	22	\$1,474.00
401	18" X 18" RCP Wye with Rock Bedding - For Spot Repairs	Each	\$800.00		1	\$800.00	1	\$800.00
402	Type 2 Concrete Collar - For Spot Repairs	Each	\$358.00		3	\$1,074.00	3	\$1,074.00
600	2 Year Maintenance Bond	LS	\$5,000.00		1	\$5,000.00	1	\$5,000.00
CO1	Exploratory Excavation	HR	\$300.00	^, ""	7.83	\$2,349.00	7.83	\$2,349.00
CO2	Septic Repair	LS	\$1,650.00	^^	1	\$1,650.00	1	\$1,650.00
CO3	Private Tile Replacement, 6" Dual Wall Tile	LF	\$9.00	^^^	350	\$3,150.00	350	\$3,150.00
CO4	3-inch Bedding Rock	Tons	\$24.00	"	15	\$360.00	15	\$360.00
CO5	12" Dia. Dual Wall HDPE Tile w/ Rock, Perforated	LF	\$241.00	""	60	\$14,460.00	60	\$14,460.00
<b>Total</b>						<b>\$557,587.50</b>		<b>\$557,587.50</b>
*denotes quantity adjustment made in Approved Equivalent #1								
** denotes quantity adjustment made in Change Order #2								
*** denotes quantity adjustment made in Change Order #3								
^ denotes quantity adjustment made in Change Order #5								
^^ denotes quantity adjustment made in Change Order #7								
^^^ denotes quantity adjustment made in Change Order #8								
" denotes quantity adjustment made in Change Order #9								
"" denotes quantity adjustment made in Change Order #10								
"""" denotes quantity adjustment made in Change Order #12								
Prepared by								
Clapsaddle-Garber Associates, Inc.								
Marshalltown, Iowa								

# APPENDIX D



# CONSTRUCTION PROGRESS REPORT

*Project Description:* Main Tile Repairs to Drainage District 22 Facilities  
 Hardin County, Iowa  
 Project Nos. DD-6532.2 and 8712

*Estimate:* No. 7

*Date of Contract:* August 16, 2018

*Completion Date:* 9/1/2019 - Updated to 12/1/2019 per Change Order #6 - Updated to 11/30/2020 per Change Order #11

*Contractor:* Gehrke, Inc.  
 Eldora, IA

*Owner:* Hardin County Trustees  
 of Drainage District 22

Base Contract Price	\$549,332.50	Construction Completed ( See Attached Tab)	\$557,587.50
Approved Equivalent #1	-\$442.00		
Change Order #2	\$1,184.00	Total Amount Earned	\$557,587.50
Change Order #3	-\$17,992.00		
Change Order #4	\$0.00	Less Retainage	<u>\$0.00</u>
Change Order #5	\$1,749.00	<i>RELEASE RETAINAGE</i>	
Change Order #6	\$0.00		
Change Order #7	\$1,650.00		
Change Order #8	\$3,150.00	Subtotal	\$557,587.50
Change Order #9	\$360.00		
Change Order #10	-\$1,896.00	Less Previous Payment	<u>\$546,435.75</u>
Change Order #11	\$0.00		
Change Order #12	\$20,492.00	<b>AMOUNT DUE THIS ESTIMATE</b>	<b>\$11,151.75</b>
<b>Total Contract Amount</b>	<b>\$557,587.50</b>		

*Requested by Contractor:*

\_\_\_\_\_  
 Gehrke, Inc.

\_\_\_\_\_  
 Title

\_\_\_\_\_  
 Date

*Recommended by Engineer:*

\_\_\_\_\_  
 Heather A. Thomas  
 Clapsaddle-Garber Associates, Inc.

\_\_\_\_\_  
 Project Engineer  
 Title

\_\_\_\_\_  
 Date

*Approved by Owner:*

\_\_\_\_\_  
 Hardin County Supervisors

\_\_\_\_\_  
 Title

\_\_\_\_\_  
 Date

Prepared by:  
 Clapsaddle-Garber Associates  
 Marshalltown, Iowa 50158

CGA Project No. 8712.06  
 August 28, 2020

Tabulation of Construction Quantities								
Main Tile Repairs to Drainage District 22 Facilities								
Hardin County, Iowa								
Period Ending: August 28, 2020								
Item No	Description	Unit	Unit Bid Price	Adjusted Contract		Completed		
				Quantity	Amount	Quantity	Amount	
1A	30" Ø RCP Tile, Perforated - For Tile Replacement	LF	\$53.00	""	6,155	\$326,215.00	6,155	\$326,215.00
2A	30" Ø RCP Tile Road Crossing, Perforated - For Tile Replacement	LF	\$46.00	""	280	\$12,880.00	280	\$12,880.00
3A	CCTV Inspection Of Roadway Crossing Tile - For Tile Replacement	LF	\$3.00	""	0	\$0.00	-	\$0.00
4A	Connection To Road Crossing Tile To Remain - For Tile Replacement	Each	\$400.00	""	0	\$0.00	-	\$0.00
5A	Removal And Disposal Of Supplemental Tile - For Tile Replacement	LF	\$6.50	""	6,435	\$41,827.50	6,435	\$41,827.50
6A	24" Ø RCP Tile, Perforated - For Spot Repairs	LF	\$78.00	** ***	564	\$43,992.00	564	\$43,992.00
7A	18" Ø RCP Tile, Perforated - For Spot Repairs	LF	\$67.00	***, ""	521	\$34,907.00	521	\$34,907.00
8A	18" Ø RCP Tile Road Crossing, Perforated - For Spot Repairs	LF	\$134.50		50	\$6,725.00	50	\$6,725.00
9A	24" X 18" RCP Wye - For Spot Repairs	Each	\$600.00		1	\$600.00	1	\$600.00
10A	24" X 18" RCP Reducer - For Spot Repairs	Each	\$800.00	*	0	\$0.00	-	\$0.00
11A	Type 2 Concrete Collar - For Spot Repairs	Each	\$358.00	* ** *** "" ""	53	\$18,974.00	53	\$18,974.00
12A	Connection To Existing Structure	Each	\$2,000.00	""	4	\$8,000.00	4	\$8,000.00
13A	Private Tile Connection	Each	\$500.00	""	26	\$13,000.00	26	\$13,000.00
14A	Intake, 30" Ø Circular Area	Each	\$1,000.00		5	\$5,000.00	5	\$5,000.00
15A	Intake, 12" Ø Hickenbottom	Each	\$1,100.00		5	\$5,500.00	5	\$5,500.00
16A	Intake, 8" Ø Hickenbottom	Each	\$525.00		2	\$1,050.00	2	\$1,050.00
17A	Cleanup, Shaping, And Permanent Seeding	LS	\$8,300.00		1	\$8,300.00	1	\$8,300.00
18A	Seeding Warranty	LS	\$300.00		1	\$300.00	1	\$300.00
400	18" Ø RCP Tile with Rock Bedding, Perforated - For Spot Repairs	LF	\$67.00	""	22	\$1,474.00	22	\$1,474.00
401	18" X 18" RCP Wye with Rock Bedding - For Spot Repairs	Each	\$800.00		1	\$800.00	1	\$800.00
402	Type 2 Concrete Collar - For Spot Repairs	Each	\$358.00		3	\$1,074.00	3	\$1,074.00
600	2 Year Maintenance Bond	LS	\$5,000.00		1	\$5,000.00	1	\$5,000.00
CO1	Exploratory Excavation	HR	\$300.00	^, ""	7.83	\$2,349.00	7.83	\$2,349.00
CO2	Septic Repair	LS	\$1,650.00	^^	1	\$1,650.00	1	\$1,650.00
CO3	Private Tile Replacement, 6" Dual Wall Tile	LF	\$9.00	^^^	350	\$3,150.00	350	\$3,150.00
CO4	3-inch Bedding Rock	Tons	\$24.00	"	15	\$360.00	15	\$360.00
CO5	12" Dia. Dual Wall HDPE Tile w/ Rock, Perforated	LF	\$241.00	""	60	\$14,460.00	60	\$14,460.00
<b>Total</b>						<b>\$557,587.50</b>		<b>\$557,587.50</b>
*denotes quantity adjustment made in Approved Equivalent #1								
** denotes quantity adjustment made in Change Order #2								
*** denotes quantity adjustment made in Change Order #3								
^ denotes quantity adjustment made in Change Order #5								
^^ denotes quantity adjustment made in Change Order #7								
^^^ denotes quantity adjustment made in Change Order #8								
" denotes quantity adjustment made in Change Order #9								
"" denotes quantity adjustment made in Change Order #10								
"""" denotes quantity adjustment made in Change Order #12								
Prepared by								
Clapsaddle-Garber Associates, Inc.								
Marshalltown, Iowa								

# APPENDIX E



Item No	Description	Unit	Unit Bid Price	Landowner Share		County Share	
				Quantity	Amount	Quantity	Amount
1A	30" RCP Tile, Perforated - For Tile Replacement	LF	\$ 53.00	6029	\$ 319,537.00	126	\$ 6,678.00
2A	30" RCP Tile Road Crossing, Perforated - For Tile Replacement	LF	\$ 46.00	0	\$ -	280	\$ 12,880.00
3A	CCTV Inspection of Roadway Crossing Tile - For Tile Replacement	LF	\$ 3.00	0	\$ -	0	\$ -
4A	Connection to Road Crossing Tile to Remain - For Tile Replacement	EA	\$ 400.00	0	\$ -	0	\$ -
5A	Removal and Disposal of Supplemental Tile - For Tile Replacement	LF	\$ 6.50	6029	\$ 39,188.50	406	\$ 2,639.00
6A	24" RCP Tile, Perforated - For Spot Repairs	LF	\$ 78.00	564	\$ 43,992.00	0	\$ -
7A	18" RCP Tile, Perforated - For Spot Repairs	LF	\$ 67.00	502	\$ 33,634.00	19	\$ 1,273.00
8A	18" RCP Tile Road Crossing, Perforated - For Spot Repairs	LF	\$ 134.50	0	\$ -	50	\$ 6,725.00
9A	24" x 18" RCP Wye - For Spot Repairs	EA	\$ 600.00	1	\$ 600.00	0	\$ -
10A	24" x 18" RCP Reducer - For Spot Repairs	EA	\$ 800.00	0	\$ -	0	\$ -
11A	Type 2 Concrete Collar - For Spot Repairs	EA	\$ 358.00	53	\$ 18,974.00	0	\$ -
12A	Connection to Existing Structure	EA	\$ 2,000.00	4	\$ 8,000.00	0	\$ -
13A	Private Tile Connection	EA	\$ 500.00	25	\$ 12,500.00	1	\$ 500.00
14A	Intake, 30" Circular Area	EA	\$ 1,000.00	0	\$ -	5	\$ 5,000.00
15A	Intake, 12" Hickenbottom	EA	\$ 1,100.00	0	\$ -	5	\$ 5,500.00
16A	Intake, 8" Hickenbottom	EA	\$ 525.00	0	\$ -	2	\$ 1,050.00
17A	Cleanup, Shaping, and Permanent Seeding	LS	\$ 8,300.00	0.5	\$ 4,150.00	0.5	\$ 4,150.00
18A	Seeding Warranty	LS	\$ 300.00	0.5	\$ 150.00	0.5	\$ 150.00
400	18" RCP Tile with Rock Bedding, Perforated - For Spot Repairs	LF	\$ 67.00	22	\$ 1,474.00	0	\$ -
401	18" x 18" RCP Wye with Rock Bedding - For Spot Repairs	EA	\$ 800.00	1	\$ 800.00	0	\$ -
402	Type 2 Concrete Collar - For Spot Repairs	EA	\$ 358.00	3	\$ 1,074.00	0	\$ -
600	2 Year Maintenance Bond	LS	\$ 5,000.00	0.91	\$ 4,550.00	0.09	\$ 450.00
CO1	Exploratory Excavation	HR	\$ 300.00	7.83	\$ 2,349.00	0	\$ -
CO2	Septic Repair	LS	\$ 1,650.00	1	\$ 1,650.00	0	\$ -
CO3	Private Tile Replacement, 6" Dual Wall Tile	LF	\$ 9.00	350	\$ 3,150.00	0	\$ -
CO4	3-Bedding Rock	Tons	\$ 24.00	15	\$ 360.00	0	\$ -
CO5	12" Diameter Dual Wall HDPE Tile w/ Rock, Perforated	LF	\$ 241.00	60	\$ 14,460.00	0	\$ -

<b>TOTAL</b>	<b>\$ 510,592.50</b>	<b>\$ 46,995.00</b>
<b>TOTAL CONSTRUCTION COSTS \$ 557,587.50</b>	91.57%	8.43%

# APPENDIX F

**WAIVER OF LIEN**

State of Iowa

Date: 6-2-20

I/We, the undersigned, have been employed by Gehrke Inc. P.O. Box 228, Eldora, Iowa 50627 to furnish labor and/or materials as described below for the construction, repair or reconstruction of the property or improvements to the property known as Main Tile Repairs to DD #22, in Hardin County, State of Iowa.

Description of work or materials provided: Seeding

Amount \$ 3,500.00 to date shown above. Final  Partial

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For and in consideration of my/our employment to furnish said labor and/or materials. I/We do hereby waive and release any and all my/our rights, or claim of rights, to file and establish a mechanics lien against the above mentioned property, and improvements to the property, given to me/us under the provisions of the statutes and laws of the State of Iowa, relating to mechanic's liens on account of labor or materials, or both furnished, or which may be furnished by me/us for, and on, the above mentioned property and improvements to the same.

Executed at Forest City, Iowa, this 25 day of June 2020.

Lakeside Construction, Inc.  
Company Name

[Signature]  
By



Quick Supply

**WAIVER OF LIEN**

State of Iowa

Date: 6-2-20

I/We, the undersigned, have been employed by Gehrke Inc. P.O. Box 228, Eldora, Iowa 50627 to furnish labor and/or materials as described below for the construction, repair or reconstruction of the property or improvements to the property known as Main Tile Repairs to DD #22, in Hardin County, State of Iowa.

Description of work or materials provided: Geotextile

Amount \$ 2744.36 to date shown above. Final  Partial

For and in consideration of my/our employment to furnish said labor and/or materials. I/We do hereby waive and release any and all my/our rights, or claim of rights, to file and establish a mechanics lien against the above mentioned property, and improvements to the property, given to me/us under the provisions of the statutes and laws of the State of Iowa, relating to mechanic's liens on account of labor or materials, or both furnished, or which may be furnished by me/us for, and on, the above mentioned property and improvements to the same.

Executed at Des Moines, Iowa, this 24<sup>th</sup> day of June 2020.

Quick Supply  
Company Name

Jessica Duff  
By

Concrete Inc.

**WAIVER OF LIEN**

State of Iowa

Date: 6-2-20

I/We, the undersigned, have been employed by Gehrke Inc. P.O. Box 228, Eldora, Iowa 50627 to furnish labor and/or materials as described below for the construction, repair or reconstruction of the property or improvements to the property known as Main Tile Repairs to DD #22, in Hardin County, State of Iowa.

Description of work or materials provided: Concrete

Amount \$ 16,579.14 to date shown above. Final  Partial

For and in consideration of my/our employment to furnish said labor and/or materials. I/We do hereby waive and release any and all my/our rights, or claim of rights, to file and establish a mechanics lien against the above mentioned property, and improvements to the property, given to me/us under the provisions of the statutes and laws of the State of Iowa, relating to mechanic's liens on account of labor or materials, or both furnished, or which may be furnished by me/us for, and on, the above mentioned property and improvements to the same.

Executed at Marshalltown, Iowa, this 2<sup>nd</sup> day of June 2020.

Concrete Inc  
Company Name

[Signature]  
By

**WAIVER OF LIEN**

State of Iowa

Date: 6-2-20

I/We, the undersigned, have been employed by Gehrke Inc. P.O. Box 228, Eldora, Iowa 50627 to furnish labor and/or materials as described below for the construction, repair or reconstruction of the property or improvements to the property known as Main Tile Repairs to DD #22, in Hardin County, State of Iowa.

Description of work or materials provided: Rock / Aggregates

Amount \$ 209.38 to date shown above. Final  Partial

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For and in consideration of my/our employment to furnish said labor and/or materials. I/We do hereby waive and release any and all my/our rights, or claim of rights, to file and establish a mechanics lien against the above mentioned property, and improvements to the property, given to me/us under the provisions of the statutes and laws of the State of Iowa, relating to mechanic's liens on account of labor or materials, or both furnished, or which may be furnished by me/us for, and on, the above mentioned property and improvements to the same.

Executed at \_\_\_\_\_, Iowa, this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_.

Gehrke Quarries  
Company Name

[Signature]  
By



Forterra

**WAIVER OF LIEN**

State of Iowa

Date: 6-2-20

I/We, the undersigned, have been employed by Gehrke Inc. P.O. Box 228, Eldora, Iowa 50627 to furnish labor and/or materials as described below for the construction, repair or reconstruction of the property or improvements to the property known as Main Tile Repairs to DD #22, in Hardin County, State of Iowa.

Description of work or materials provided: Pipe / Fittings

Amount \$ 238,105.86 to date shown above. Final  Partial

For and in consideration of my/our employment to furnish said labor and/or materials. I/We do hereby waive and release any and all my/our rights, or claim of rights, to file and establish a mechanics lien against the above mentioned property, and improvements to the property, given to me/us under the provisions of the statutes and laws of the State of Iowa, relating to mechanic's liens on account of labor or materials, or both furnished, or which may be furnished by me/us for, and on, the above mentioned property and improvements to the same.

Executed at Myrtle Grove, <sup>Mo</sup>Iowa, this 2 day of June 2020.

Forterra  
Company Name

By [Signature]

Brown Supply Co.

**WAIVER OF LIEN**

State of Iowa

Date: 6-2-20

I/We, the undersigned, have been employed by Gehrke Inc. P.O. Box 228, Eldora, Iowa 50627 to furnish labor and/or materials as described below for the construction, repair or reconstruction of the property or improvements to the property known as Main Tile Repairs to DD #22, in Hardin County, State of Iowa.

Description of work or materials provided: Pipe + Fittings

Amount \$ 4,108.03 to date shown above. Final  Partial

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For and in consideration of my/our employment to furnish said labor and/or materials. I/We do hereby waive and release any and all my/our rights, or claim of rights, to file and establish a mechanics lien against the above mentioned property, and improvements to the property, given to me/us under the provisions of the statutes and laws of the State of Iowa, relating to mechanic's liens on account of labor or materials, or both furnished, or which may be furnished by me/us for, and on, the above mentioned property and improvements to the same.

Executed at Ames, Iowa, this 2nd day of June 2020.

Brown Supply Co  
Company Name

[Signature]  
By

*Martin Marietta*

**WAIVER OF LIEN**

State of Iowa

Date: 6-2-20

I/We, the undersigned, have been employed by Gehrke Inc. P.O. Box 228, Eldora, Iowa 50627 to furnish labor and/or materials as described below for the construction, repair or reconstruction of the property or improvements to the property known as Main Tile Repairs to DD #22, in Hardin County, State of Iowa.

Description of work or materials provided: Rock / Aggregates

Amount \$ 883.61 to date shown above. Final  Partial

For and In consideration of my/our employment to furnish said labor and/or materials. I/We do hereby waive and release any and all my/our rights, or claim of rights, to file and establish a mechanics lien against the above mentioned property, and improvements to the property, given to me/us under the provisions of the statutes and laws of the State of Iowa, relating to mechanic's liens on account of labor or materials, or both furnished, or which may be furnished by me/us for, and on, the above mentioned property and improvements to the same.

Executed at Dallas, <sup>Texas</sup>~~Iowa~~, this 5<sup>th</sup> day of June 2020

*Martin Marietta*  
Company Name

*[Signature]*  
By