

**AGENDA**  
**DRAINAGE DISTRICT 14 LANDOWNER MEETING**  
**Wednesday, November 18, 2020 12:00 PM**  
**Large Conference Room**

**Due to Covid-19 health concerns, this meeting is open to the public via conference call and in-person attendance. 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. Introductions/Attendance
4. DD 14 WO 290 - Explanation Of Investigation Summary

This informational meeting is to discuss the issue of 3 reported blowouts/sinkholes with cracked/collapsed VCP main tile and the history of 7 blowouts/sinkholes reported on this tile in the last 3 years, one of which included monitoring of a failing road crossing instead of replacement. The Investigation Report of 8/31/2020, reports CCTV results of 26 locations of partial or imminent collapse within 1900' of tile, temporary repairs were made in four locations. Landowner input and feedback are requested to discuss options and/or see if there is interest in a larger district project/repair.

Documents:

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

5. DD 14 WO 291 - Discuss W Possible Action - Investigation Summary  
Work Order 291's initial report was of slow drainage and standing water, further investigation did not reveal a clear-cut issue, potholing was done on Lateral 2 and Main Tile to find problem locations. Two private tile connections were found to have been inserted too far into the main tile directly across from one another, creating an obstruction that caught trash and debris causing the back ups. Repair was made and Investigation Summary is included here for review and discussion at the Landowners Meeting.

Documents:

[DD 14 WO 291 INVESTIGATION AND REPAIR SUMMARY 10\\_07\\_20.PDF](#)  
[DD 14 WO 291 INVESTIGATION SUMMARY 05\\_11\\_20.PDF](#)

6. Comments/Discussion
7. Possible Action
8. Other Business
9. Adjourn Meeting



# 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 Ioerger**

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:

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

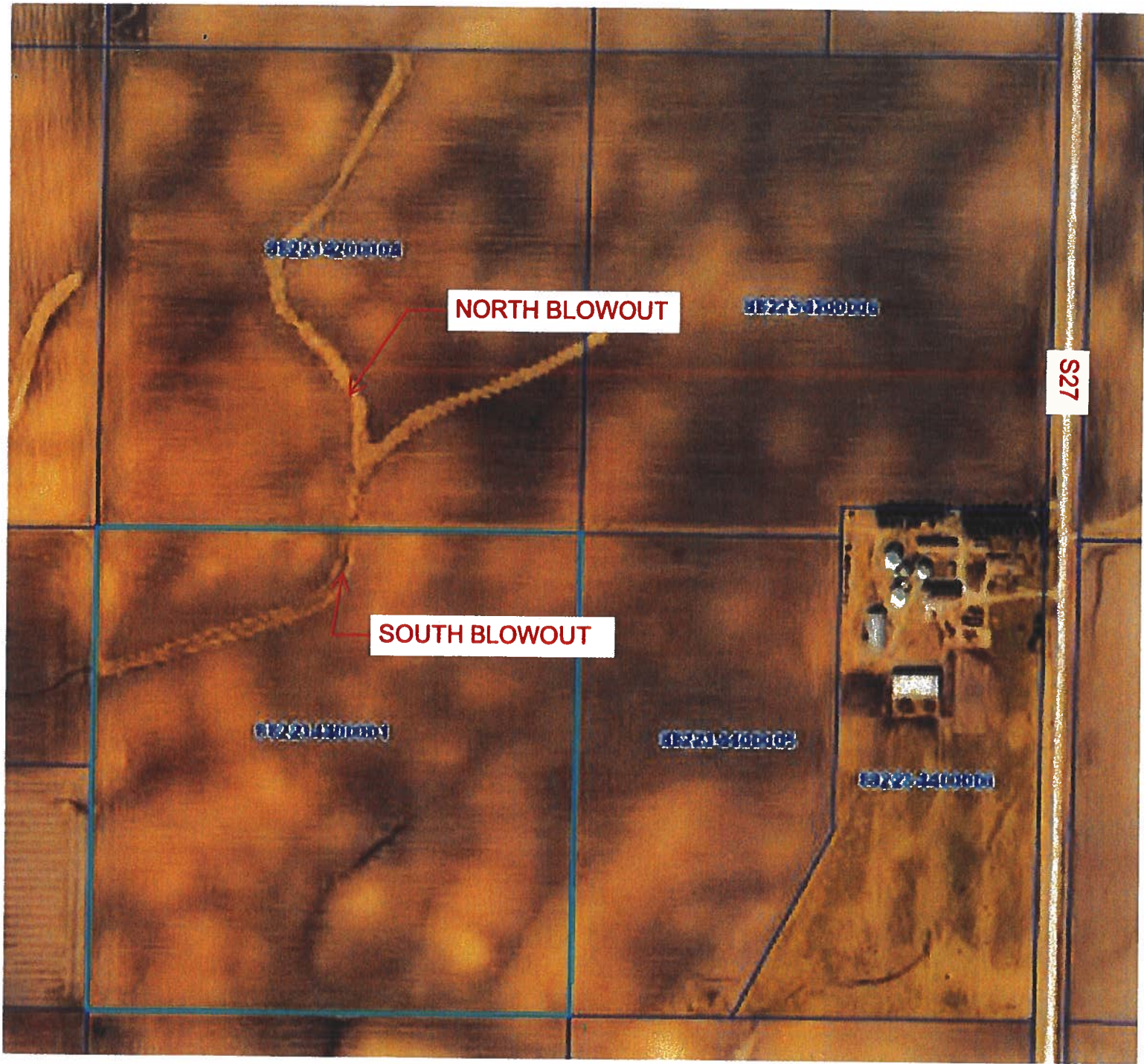
Hardin County Auditor's Office  
Attn: Tina Schlemme  
1215 Edgington Ave, Suite 1  
Eldora, IA 50627

For Office Use Only

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

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





612231200002

NORTH BLOWOUT

612231200001

S27

SOUTH BLOWOUT

612231200001

612231200002

612231200001



## 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 T F S

COUNTY, ROUTE, ROAD: WEST OF CO HWY 527

BETWEEN CO HWY 041

LOCATION: DD#14 MAIN LOCATED SWNE & NWSE

34-88-22 HARDIN COUNTY

SHEET NO.

1 OF 6

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 TELEVISING  
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  
AC 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 TELEVISING 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 TELEVISING 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:

Engineer

Date Reviewed



CONSTRUCTION ENGINEERING  
OBSERVATION REPORT

DATE:

05/14/2020

PROJECT NUMBER: HARDIN DDWOFF  
6844.4/0014

DAYS OF WEEK:

S M T W T F S

COUNTY, ROUTE, ROAD: WEST OF CO HWY 327 BETWEEN  
CON HWY 041 & 220 TH ST

SHEET NO.

2 OF 6

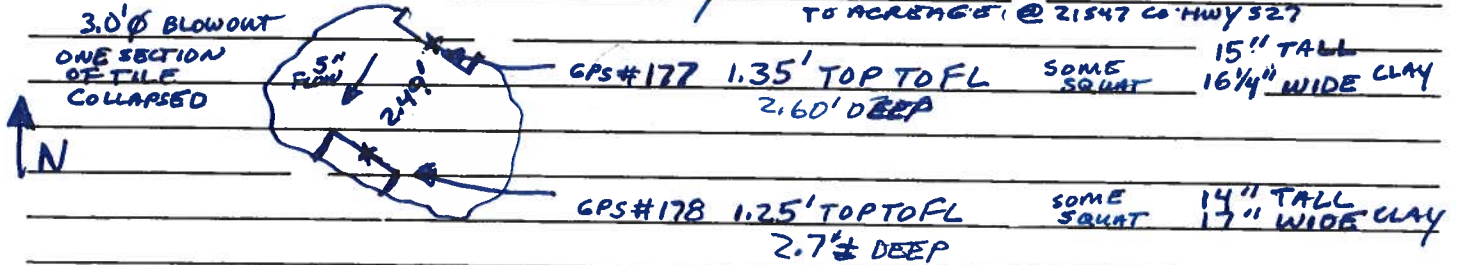
LOCATION: DD14 MARIETTA TILE LOCATED SWNE & NWSE  
34-88-22 HARDIN COUNTY  
INVESTIGATE & TEMPORARILY REPAIR 3 TILE BLOWOUTS

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

JOB # 6844 DD14 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 ACREAGE @ 21547 CO HWY 327



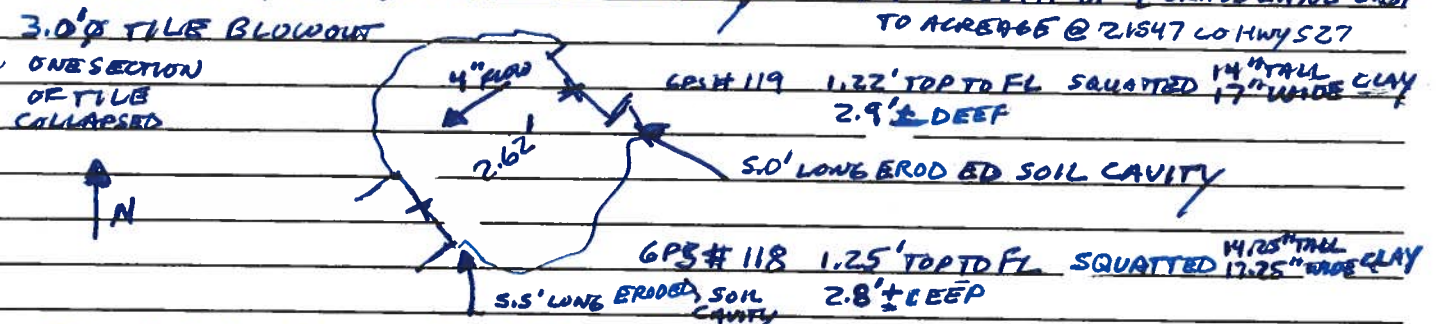
11:25 A.M. CREW STARTED EXCAVATE AT BLOWOUT #2S

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

PICTURE #3540 SEE PICTURE 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 ACREAGE @ 21547 CO HWY 327



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

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 927 BETWEEN  
CO HWY 041 & 220 TH ST

SHEET NO.

3 OF 6

LOCATION: DD14 MARIETTA TILE LOCATED SWNB & 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 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 REALIZED COLLAPSED TILE WAS  
NOT TILE BLOWOUT #2N.

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

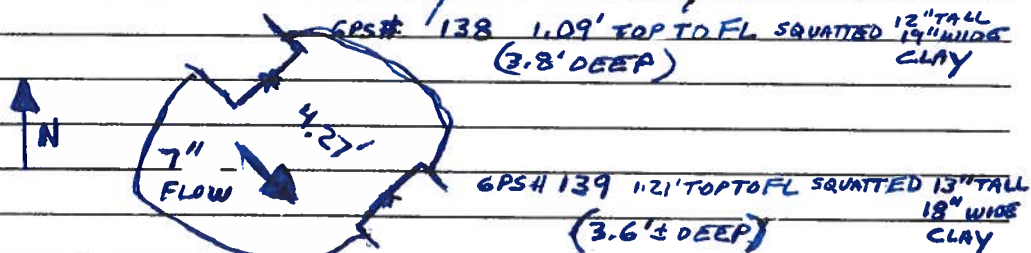
12:30 P.M. CREW LOCATED TILE FROM GPS#177 NORTH TILE INSIDE  
TILE BLOWOUT #18 UPSTREAM 537.2' WHERE SECTION OF TILE COLLAPSED  
(GPS 128-131, 133 TO 137)

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: Dem Penning

Date Prepared:

05/14/2020

Reviewed by:

☐ Engineer

Date Reviewed



CONSTRUCTION ENGINEERING  
OBSERVATION REPORT

DATE:

05/14/2020

PROJECT NUMBER: HARDIN DD W014  
6844.4/0014  
COUNTY, ROUTE, ROAD: WEST OF CO HWY 927 BETWEEN  
CO HWY 041 & 220 TH ST  
LOCATION: DD14 MARIETTA TILE LOCATED SWNE & NWSE  
34-88-22 HARDIN 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 DD14 SURVEY

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

BLOWOUT # 1N IN GRASS WATERWAY

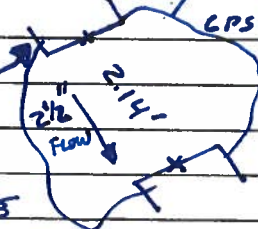
407.2'± NORTH OF GRASS WATERWAY  
TO ACREAGE

1 SECTION OF TILE

COLLAPSED



4.0' LONG  
ERODED  
SOIL CAVITY  
ON WEST SIDE



GPS # 147 1.05' TOP TO FL 12" TALL  
3.4'± DEEP 19" WIDE CLAY  
SQUATTED

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

6.3 LF 15" Ø DUAL WALL  
NONPERF. HDPE TILE

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

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

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 16.5'± DEEP  
2.0' X 4.5' ENGINEERING FABRIC OVER JOINT  
8.5 LF OF 15" Ø DW HDPE NONPERF TILE  
2.0' X 4.5' ENGINEERING FABRIC OVER JOINT  
GPS # 175 1.39' TOP TO FL CLAY 3.6'± DEEP

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 WO#

6844.4/0014

COUNTY, ROUTE, ROAD:

WEST OF HWY 527 BETWEEN

CO HWY 41 & 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 Th 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.

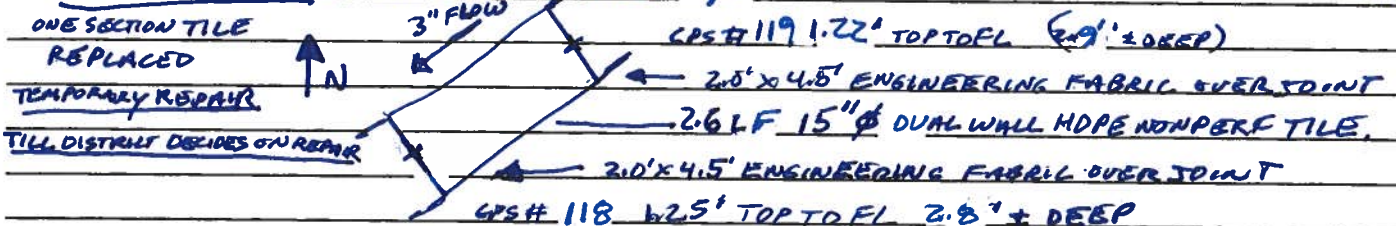
3:35 P.M. CREW WAS DONE BACK FILLING: TILE BLOWOUT #1N & #2N  
AND FINISHED TELEVISING 995' DOWNSTREAM TO END OF  
CAMERA CABLE. CREW STARTED TO LOCATE TILE.

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.

BLOW OUT # 1S

120.3'± SOUTH OF  
GRASS LANE  
EAST TO ACRES

GPS # 177 1.35' TOP TO FL (2.60'± DEEP)



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:

D. Dean Penning

Date Prepared:

05/14/2020

Reviewed by:

Engineer

Date Reviewed

CONSTRUCTION ENGINEERING  
OBSERVATION REPORT

DATE:

05/14/2020

PROJECT NUMBER:

HARDIN DD W011

DAYS OF WEEK:

S M T W T F S

COUNTY, ROUTE, ROAD:

6844.4/0014  
WEST OF CO HWY 527 BETWEEN  
CO HWY 41 & 220TH ST

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 DD14 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 MINIE excavator 6 1/4 HOURS

UTV WITH CAMERA EQUIPMENT 6 1/4 HOURS

TELEVIEWED 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  
ON HOW MUCH TO REPAIR PIECES

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# 145 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:

D. Ram Pemaing

Date Prepared:

05/14/2020

Reviewed by:

☐ Engineer

Date Reviewed



# Beacon™ Hardin County, IA

Layer List Legend

- Quick Links:
- ☒ Property Search
  - ☒ View Map
  - ☒ Drainage District Search

Layers:

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



# 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. (EC)
0.00	(LC) @ 12	
0.9	LONGITUDINAL CRACK & CIRCUMFERENTIAL CRACK	
11.4	JT 0/5 LEFT	
11.4	FINE ROOTS (B TO 10)	
18.2	LC @ 12	
20.6	CLAY TO PLASTIC SW (COLLAPSED DOWN)	
28.8	PLASTIC TO CLAY SW (END COLLAPSED DOWN)	NEEDS REPLACED
31.0	LC @ (12 TO 1)	
33.8	LC @ (12 TO 1)	
68.7	CLAY TO CMP	



PICTURE # 3538 IS LOOKING SW @ BLOWOUT #18 SHOWING CREW  
TELEVISIONING WASTEWATER 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

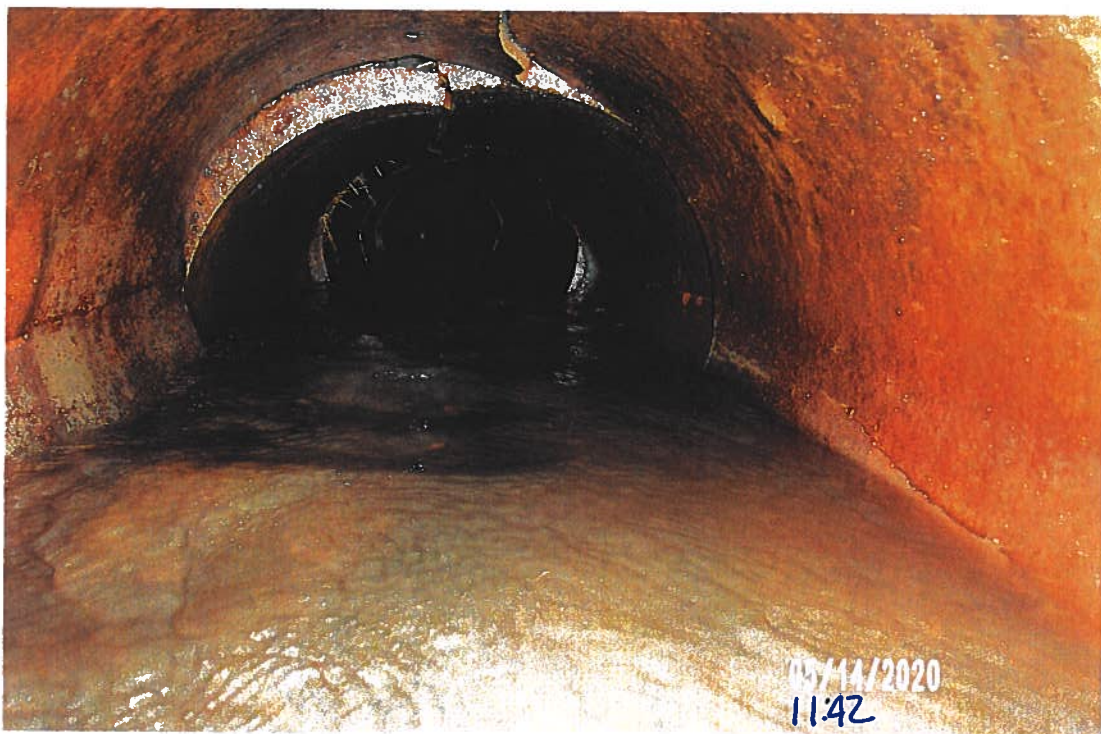
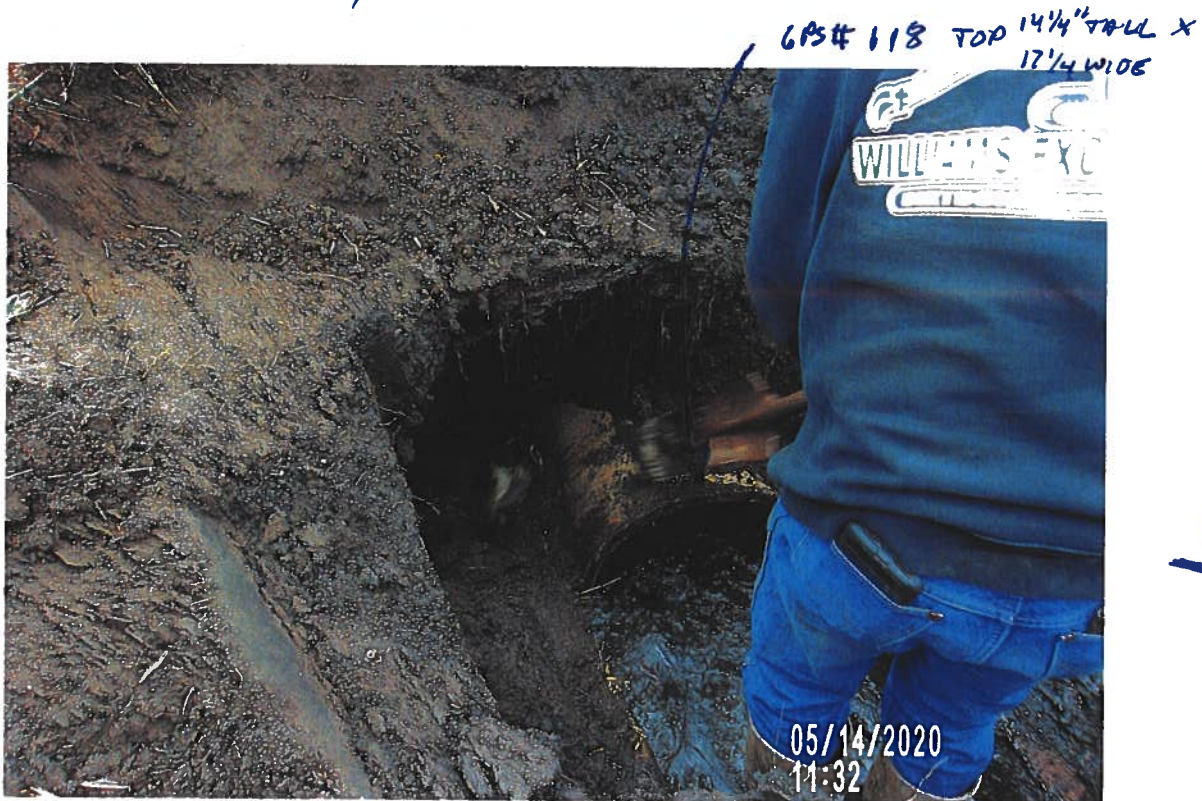
05/14/2020  
11:28

11:28

PICTURE # 3539 IS LOOKING NE @ BLOWOUT # 28 SHOWING A 5.0'  
LONG CAVITY ON EAST SIDE OF TILE WHERE SOIL ERODED  
AWAY



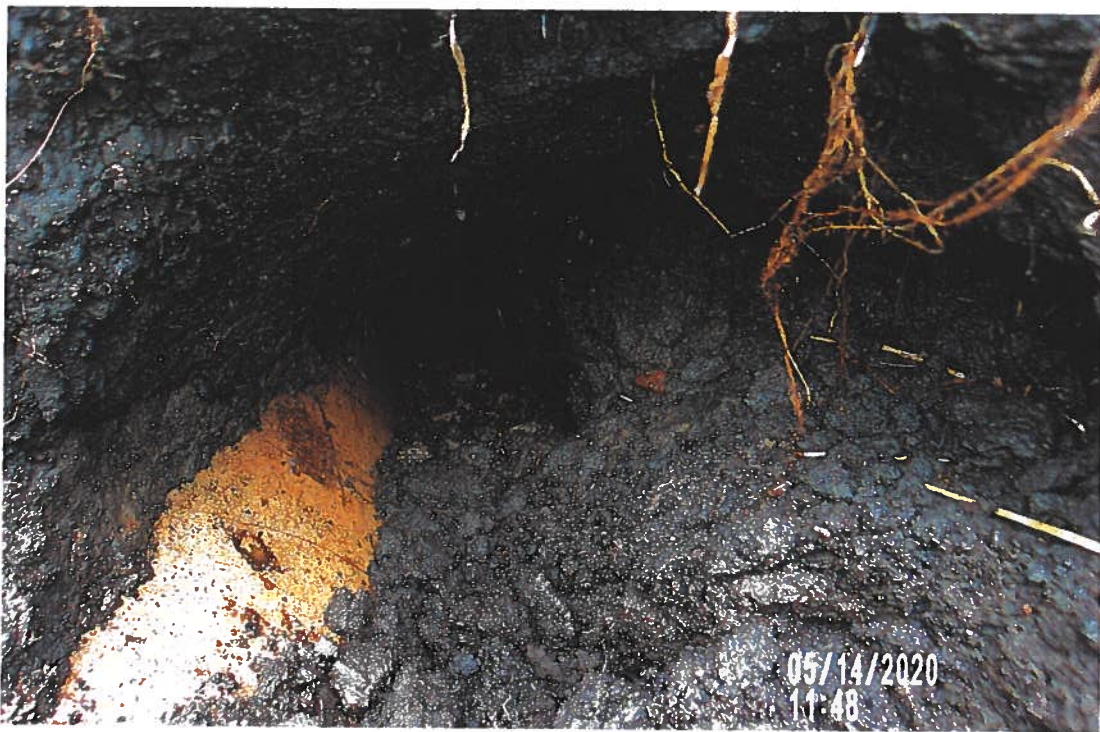
PICTURE#354D IS LOOKING SW IN BLOWOUT #2S SHOWING 5.5' LONG  
ERODED SOIL CAVITY ON EAST SIDE OF TILE



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 ERODED 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 2N 5.0' Ø HOLE  
WITH CORNSTALKS AND SOIL IN BOTTOM.



PICTURE# 3546 IS LOOKING SOUTH AT BLOWOUT 2N (5' Ø HOLE) IN GRASS  
WATERWAY 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,



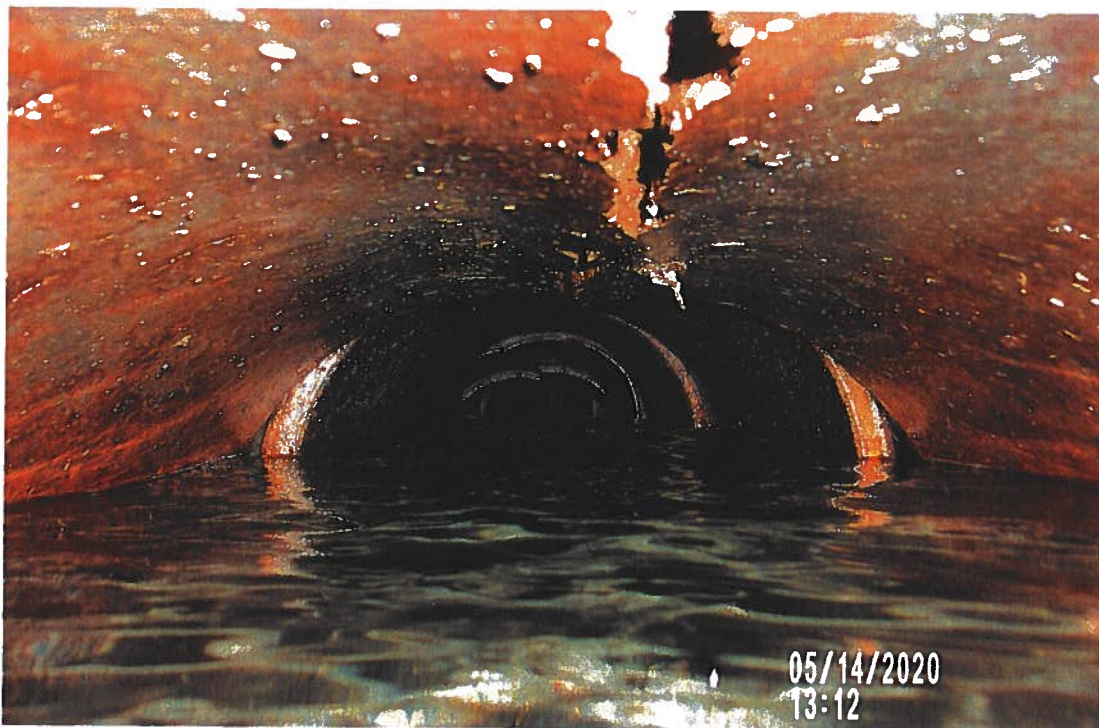
PICTURE# 3548 IS LOOKING SE AT TILE BLOWOUT #2N TILE  
EXPOSED WITH 5" FLOW.



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 INTO THE GROUND.



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



N  
↓



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



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



PICTURE #3559 IS LOOKING NW INSIDE CLAY TILE FROM GPS#  
147 IN TILE BLOWOUT # 1N SHOWING TOP CRACKED AND CAVING  
DOWN



PICTURE # 3560 IS LOOKING NW INSIDE CLAY TILE FROM GPS # 152  
IN TILE BLOWOUT # 1N 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 PERF HDPE TILE INSTALLED  
IN TILE BLOWOUT #1N WITH BOTH JOINTS WRAPPED WITH FABRIC.



N  
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)

05/14/2020  
14:40



N

05/14/2020  
15:11

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 ↑



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)

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" 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 SEEDS



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



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  
BACK FILLED AND DRESSED UP BUT NEEDS SEED  
YET.



PICTURE # 3572 IS LOOKING NORTH SHOWING BLOWOUT IS  
BACK FILLED. HOLE IS STILL SHORT OF SOIL IN 6.0' X 6.0'  
X 2.0'± DEEP AREA. NEED TO BACK FILL MORE SOIL AND SEED

# Inspection Report

Produced on behalf of – HARDIN CO

Site location – ,

Survey reference – W/O 290

Date – 140520

WILLIAMS UNDERGROUND SVCS.

102 INDUSTRIAL DRIVE, ACKLEY, IOWA

50601,

641-485-3925

## Contents

<b>1</b>	<b>Drain / Sewer Survey .....</b>	<b>Error! Bookmark not defined.</b>
1.1	Site information .....	<b>Error! Bookmark not defined.</b>
1.2	Drain / Sewer Details .....	<b>Error! Bookmark not defined.</b>
1.3	Survey Details .....	<b>Error! Bookmark not defined.</b>
1.4	Drain / Sewer Diagram .....	<b>Error! Bookmark not defined.</b>
1.5	Observations .....	<b>Error! Bookmark not defined.</b>
1.6	Photographs.....	<b>Error! Bookmark not defined.</b>
<b>2</b>	<b>Drain / Sewer Survey .....</b>	<b>Error! Bookmark not defined.</b>
2.1	Site information .....	<b>Error! Bookmark not defined.</b>
2.2	Drain / Sewer Details .....	<b>Error! Bookmark not defined.</b>
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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>

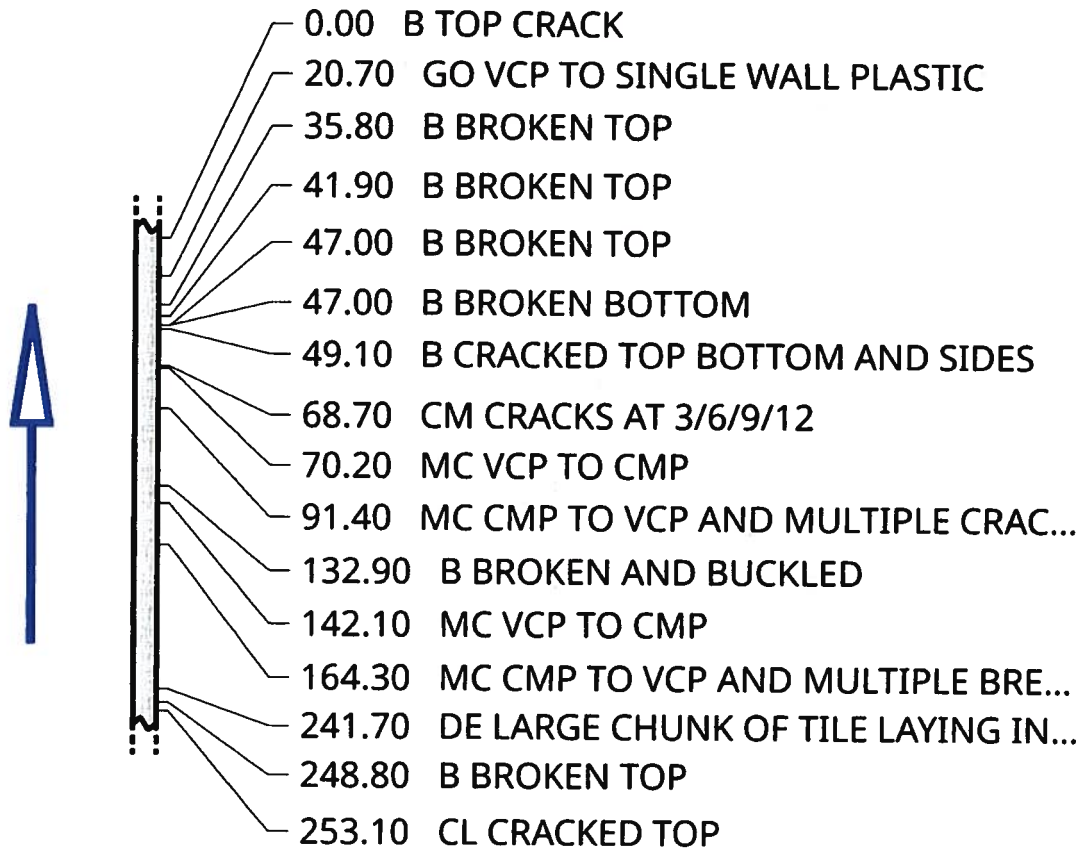
# 1 Drain / Sewer Survey

## 1.1 Survey Header

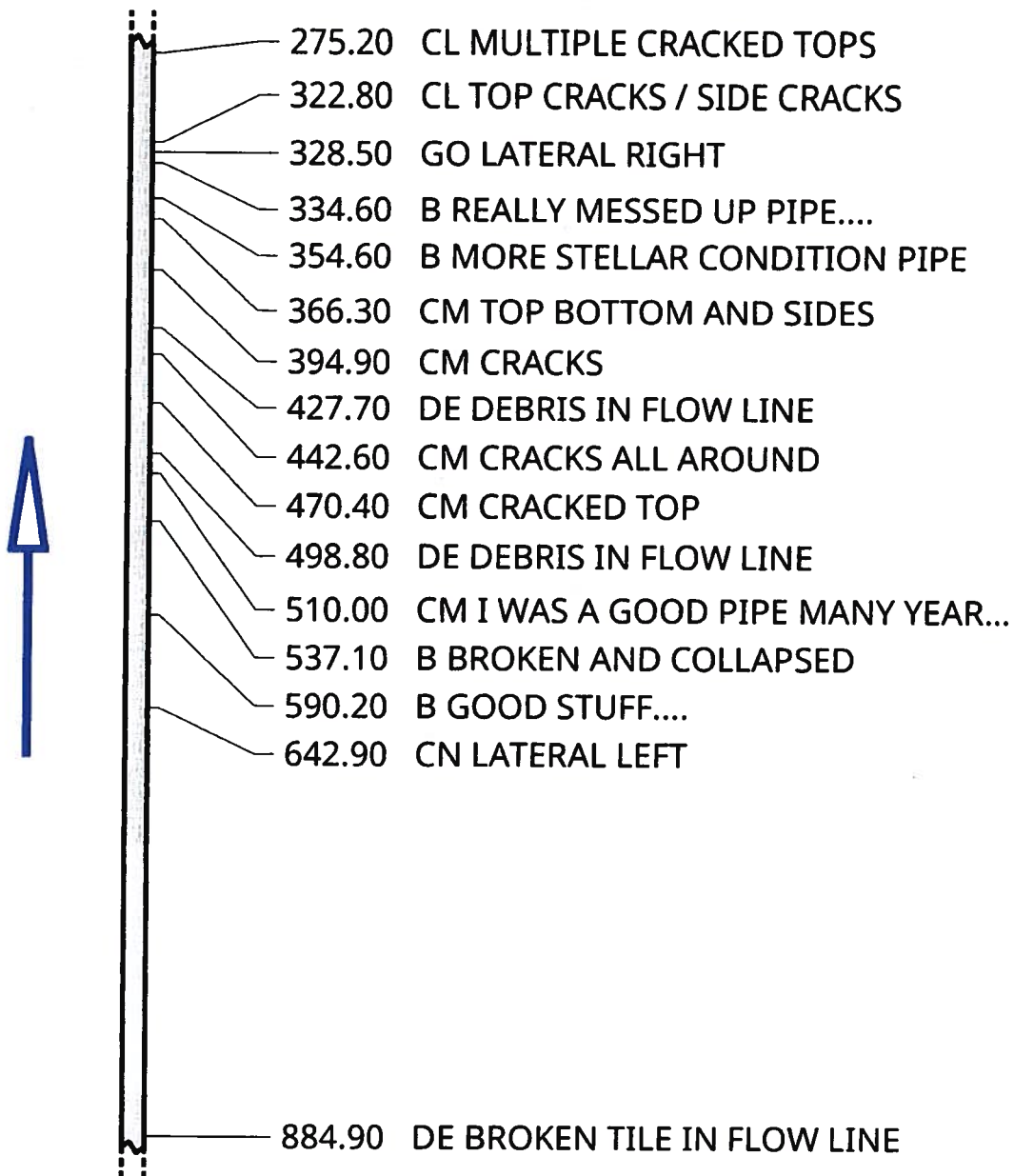
1.1.1	Surveyed by (Operator)	PAUL
1.1.2	Contract no.	
1.1.3	Job no.	W/O 290
1.1.4	Catchment (Drainage area)	DD14
1.1.5	Division	
1.1.6	District	DD14
1.1.7	Pipeline length ref	1000
1.1.8	Date	140520
1.1.9	Time	11:03
1.1.10	Location	
1.1.11	Start manhole no.	
1.1.12	Start depth	m
1.1.13	Start cover level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












[page 2/2]
















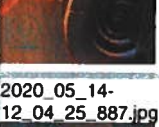
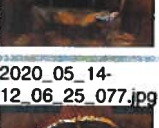
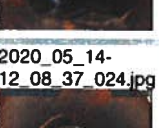
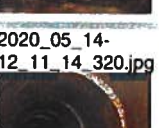
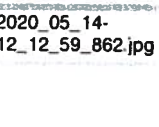


### 1.3 Observations





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

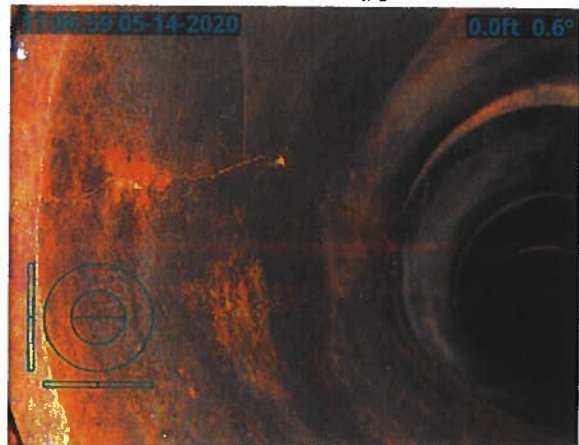
Video Ref	Dist (ft)	Cont Defect	Code	Photo Ref	Diameter/ Dimension	Clock		Intrusion		Remarks
						At	To	%	mm	
0:35:36	334.6		B	 2020_05_14-11_56_23_311.jpg		12	11			REALLY MESSED UP PIPE....
0:36:50	354.6		B	 2020_05_14-11_58_15_678.jpg		11	12			MORE STELLAR CONDITION PIPE
0:37:47	366.3		CM	 2020_05_14-11_59_48_835.jpg		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



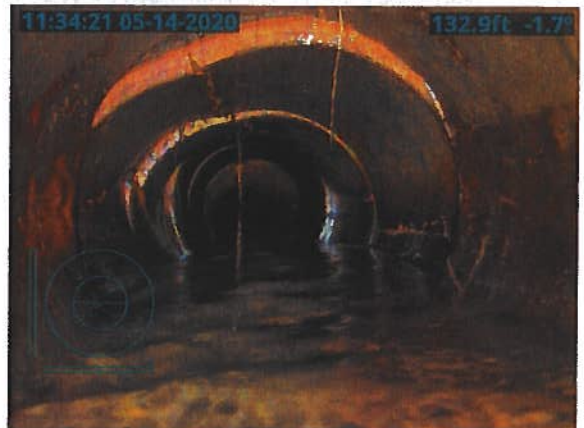
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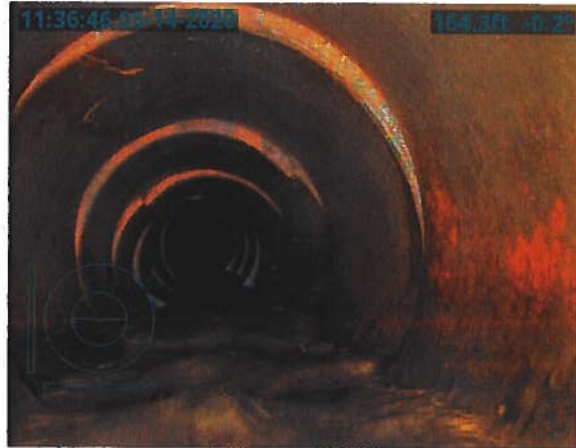
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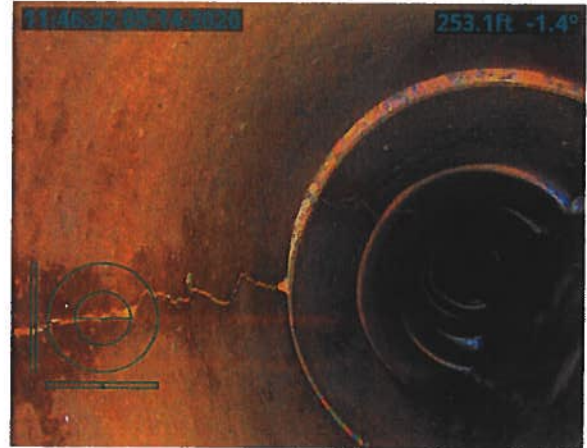
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MC 2020\_05\_14-11\_36\_46\_142.jpg



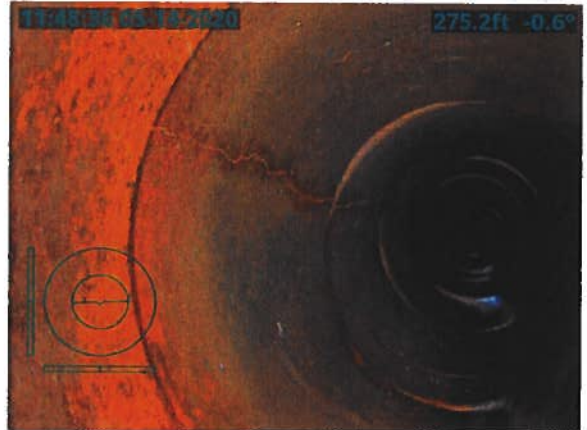
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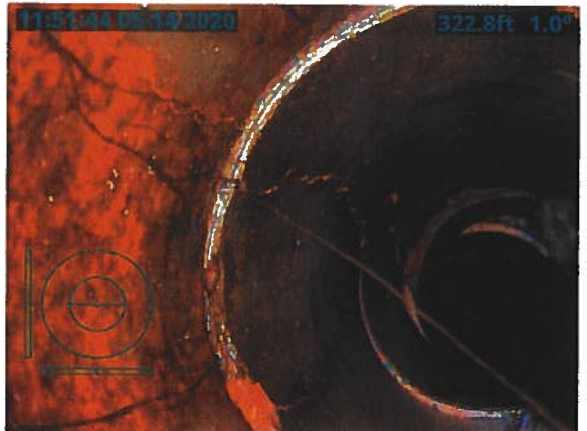
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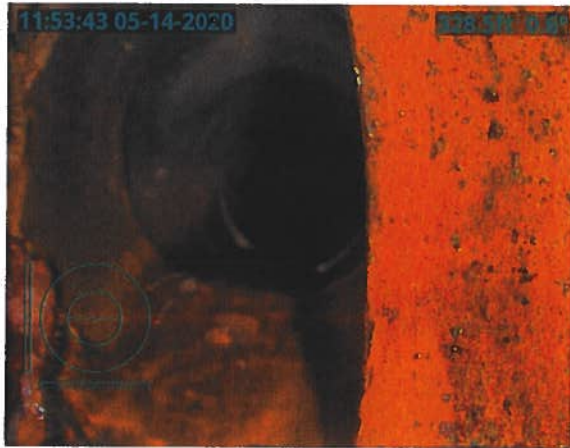


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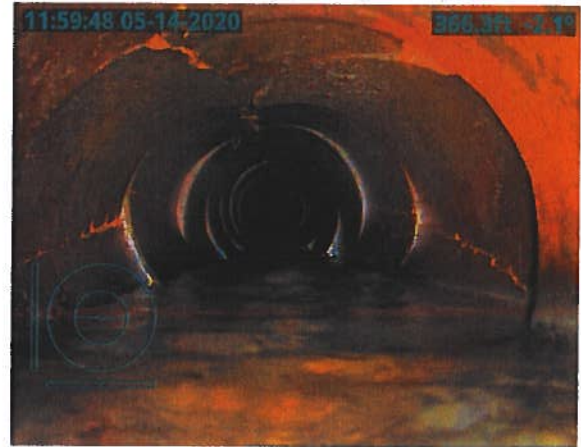




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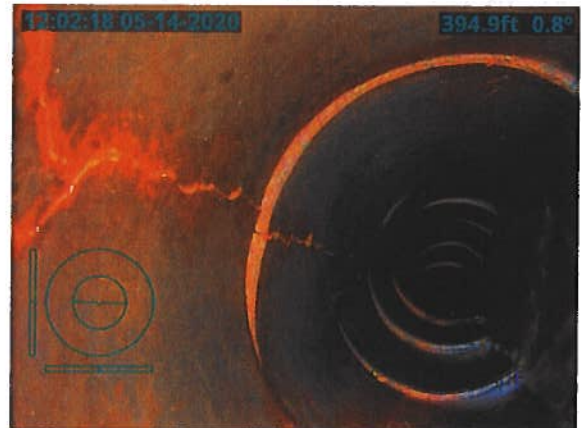
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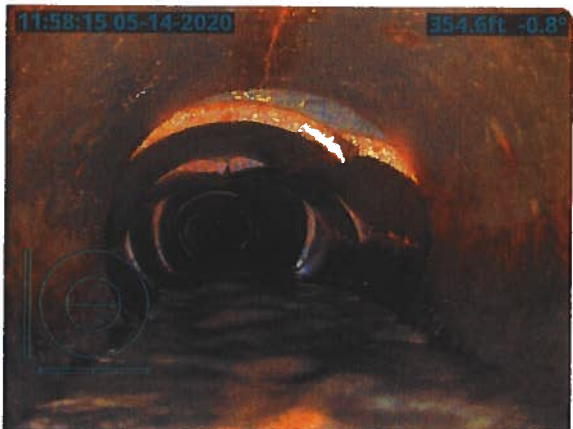
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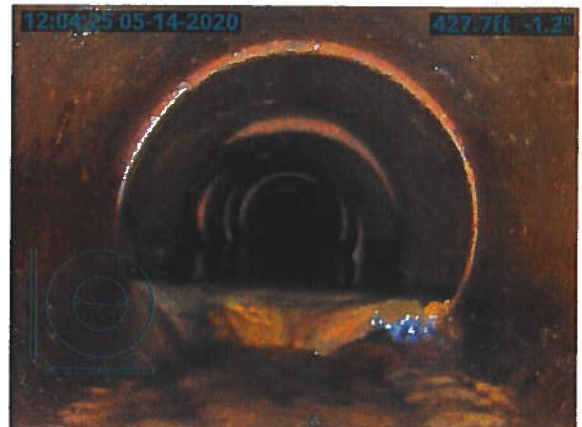
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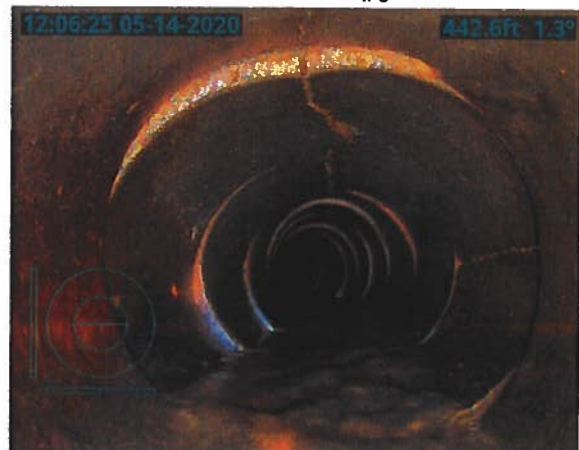
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DE 2020\_05\_14-12\_04\_25\_887.jpg



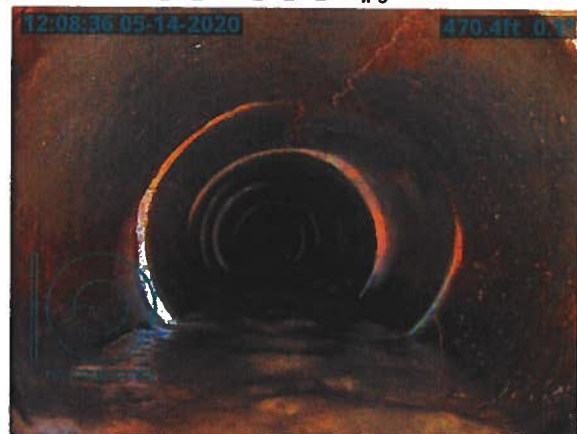
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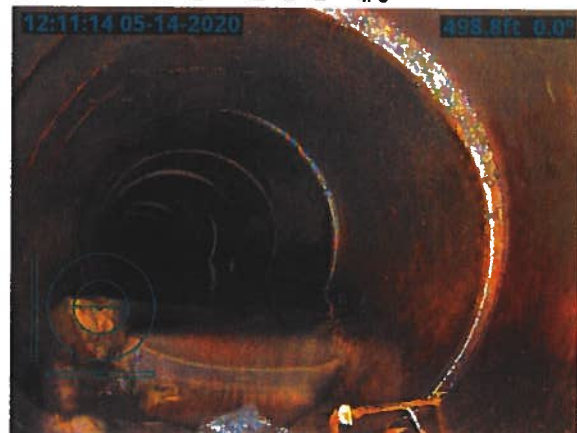
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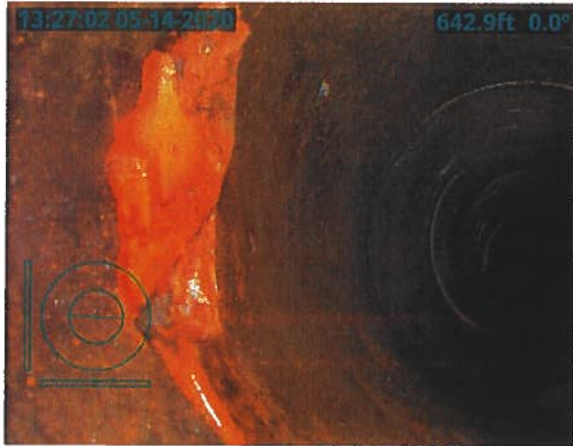


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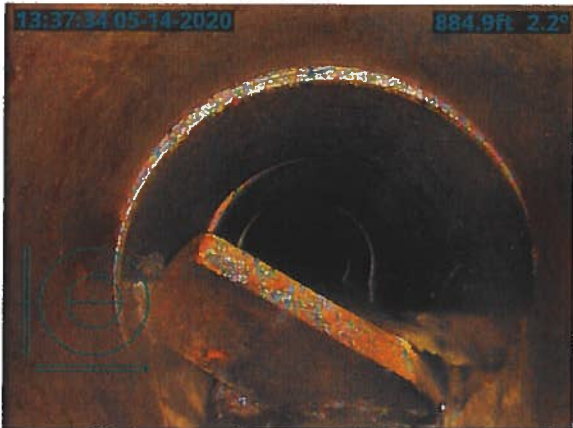


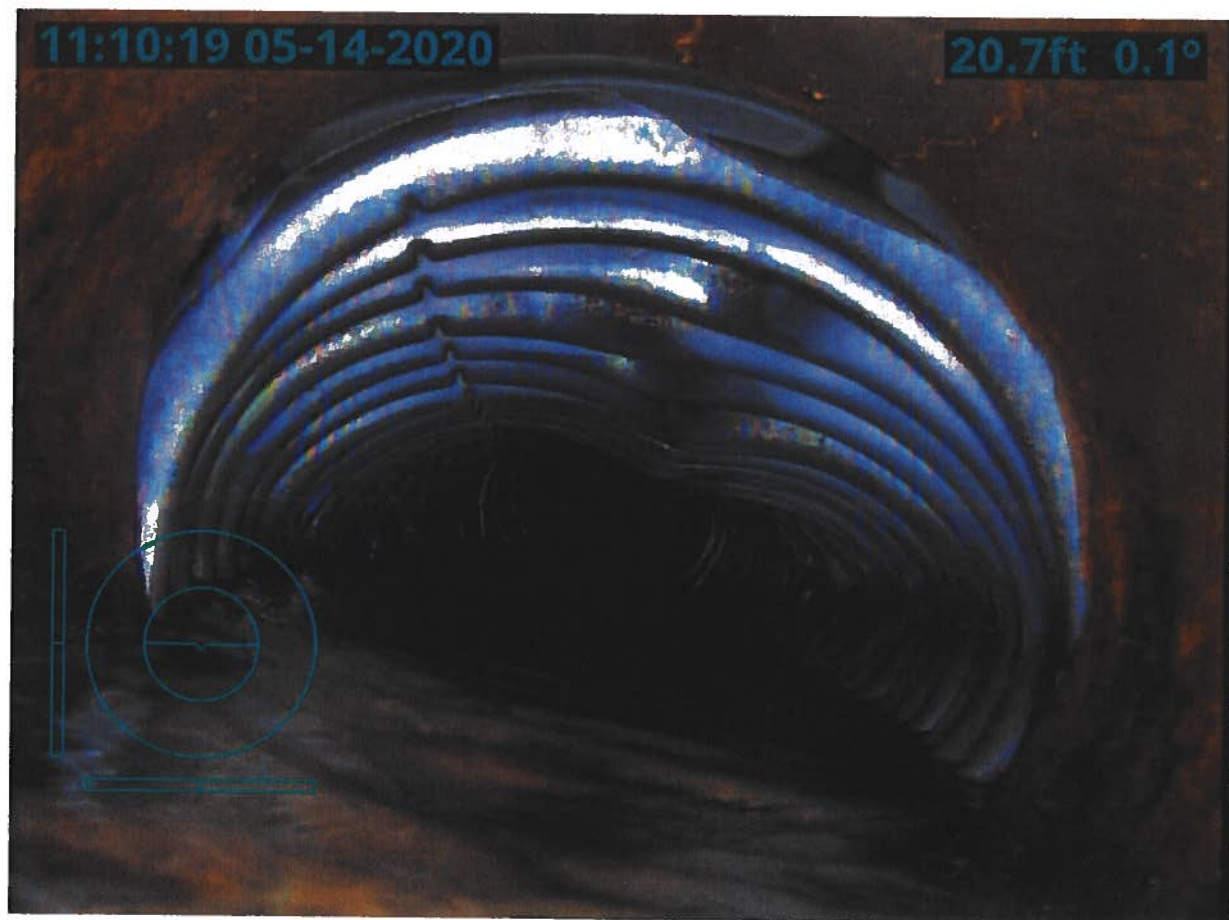
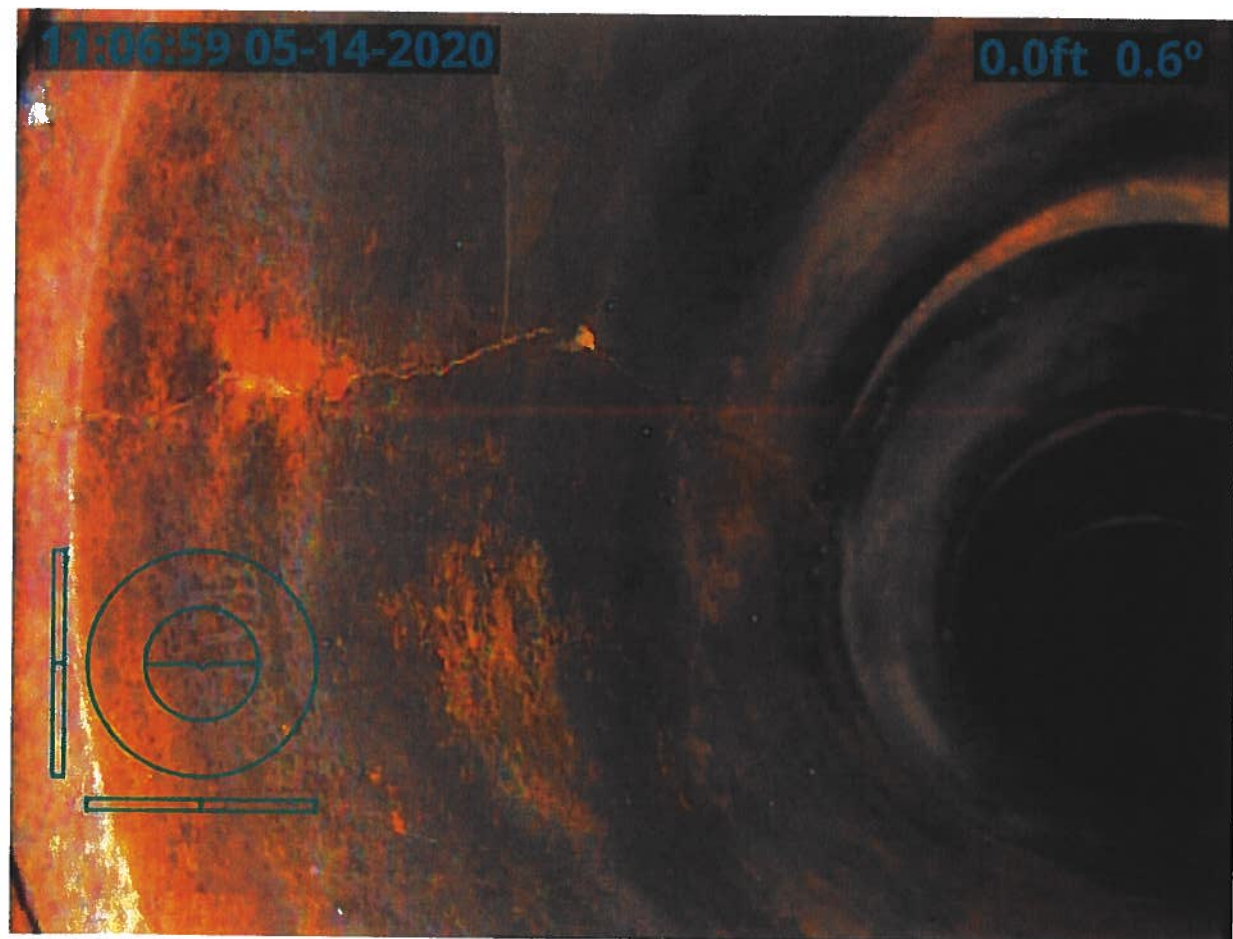


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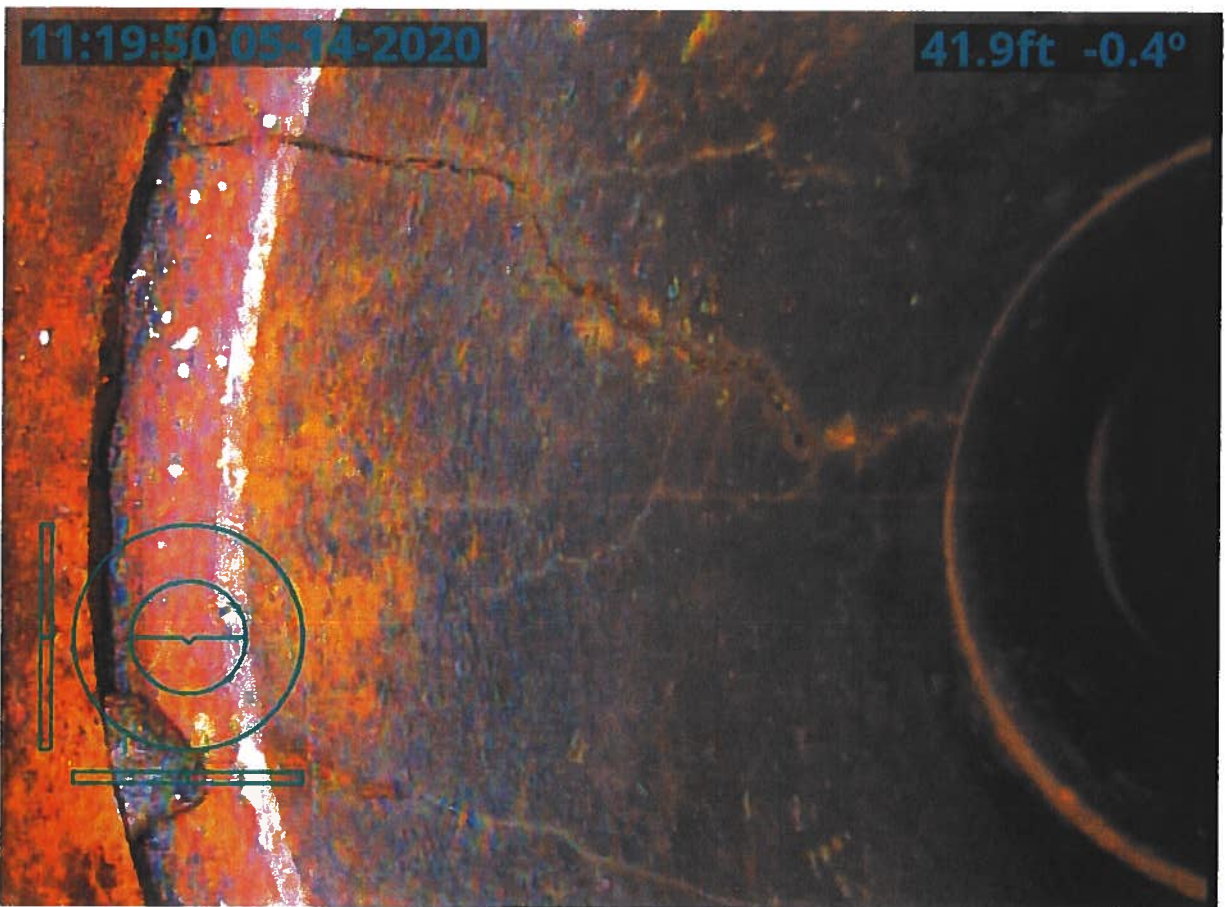


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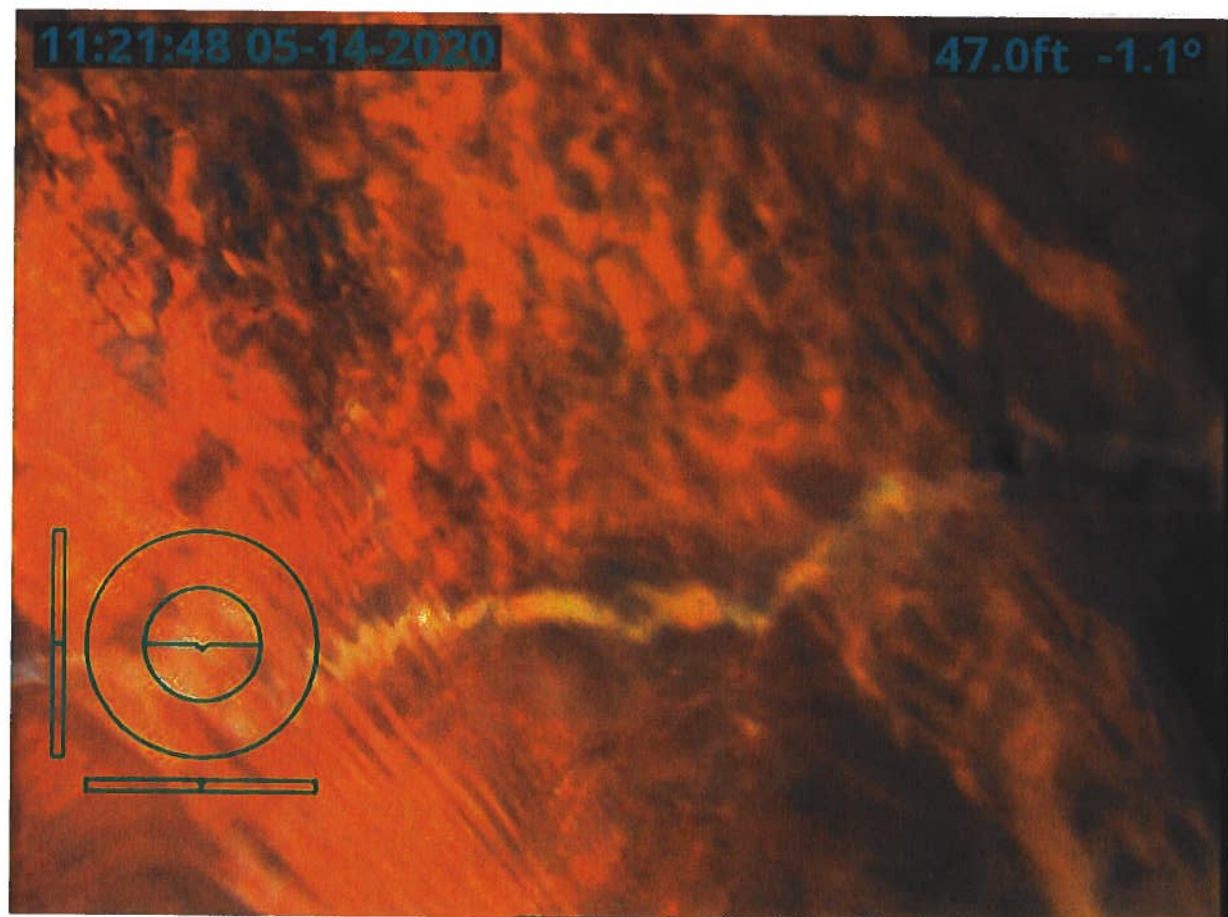
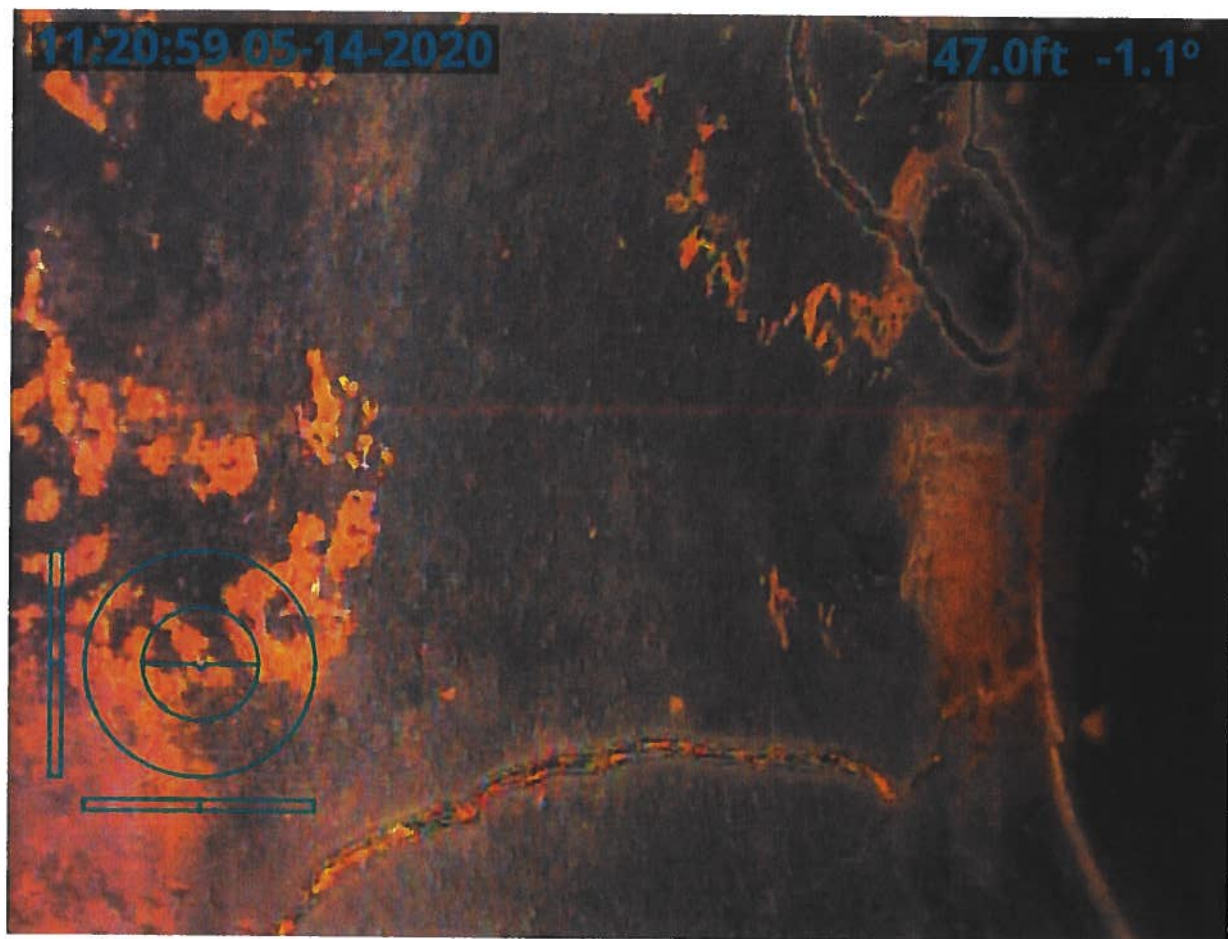




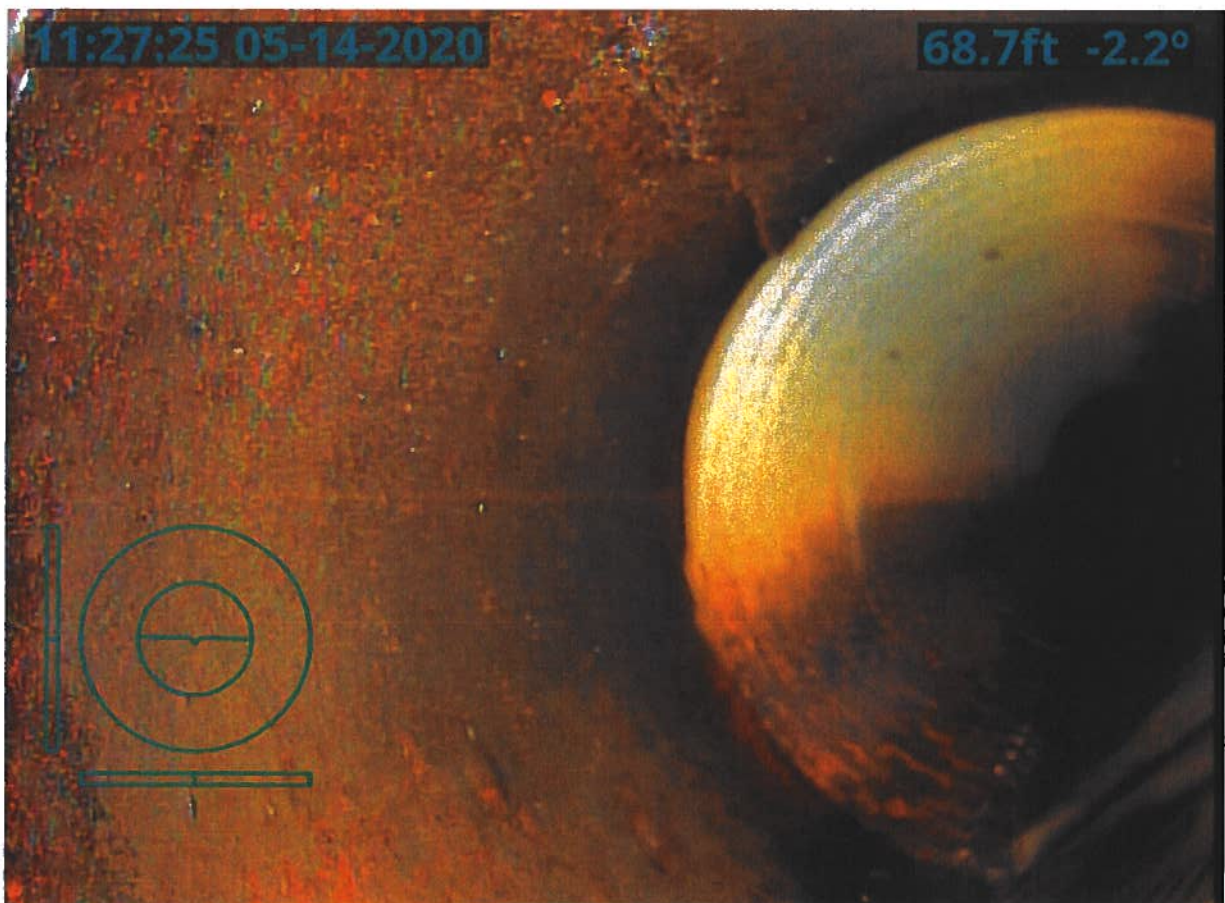
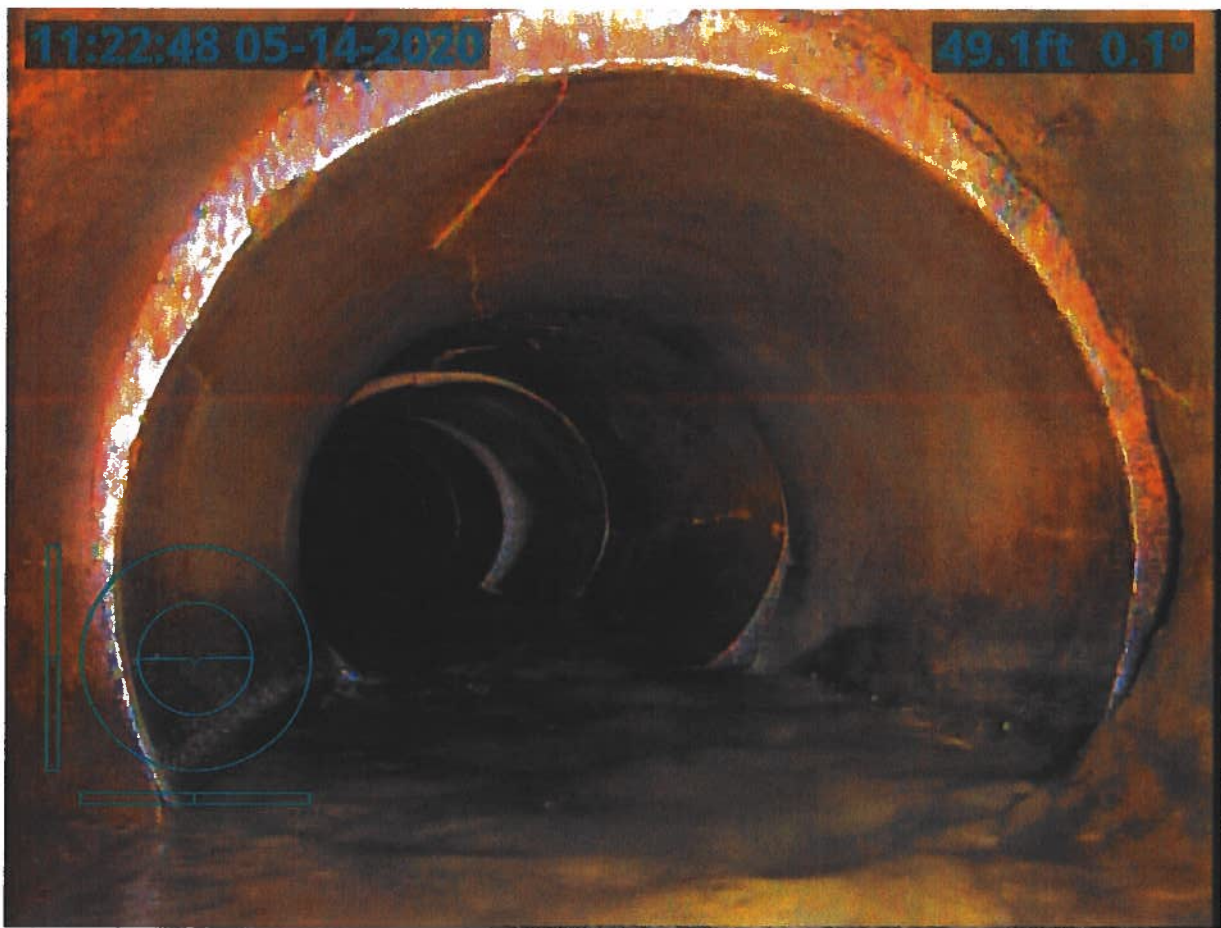




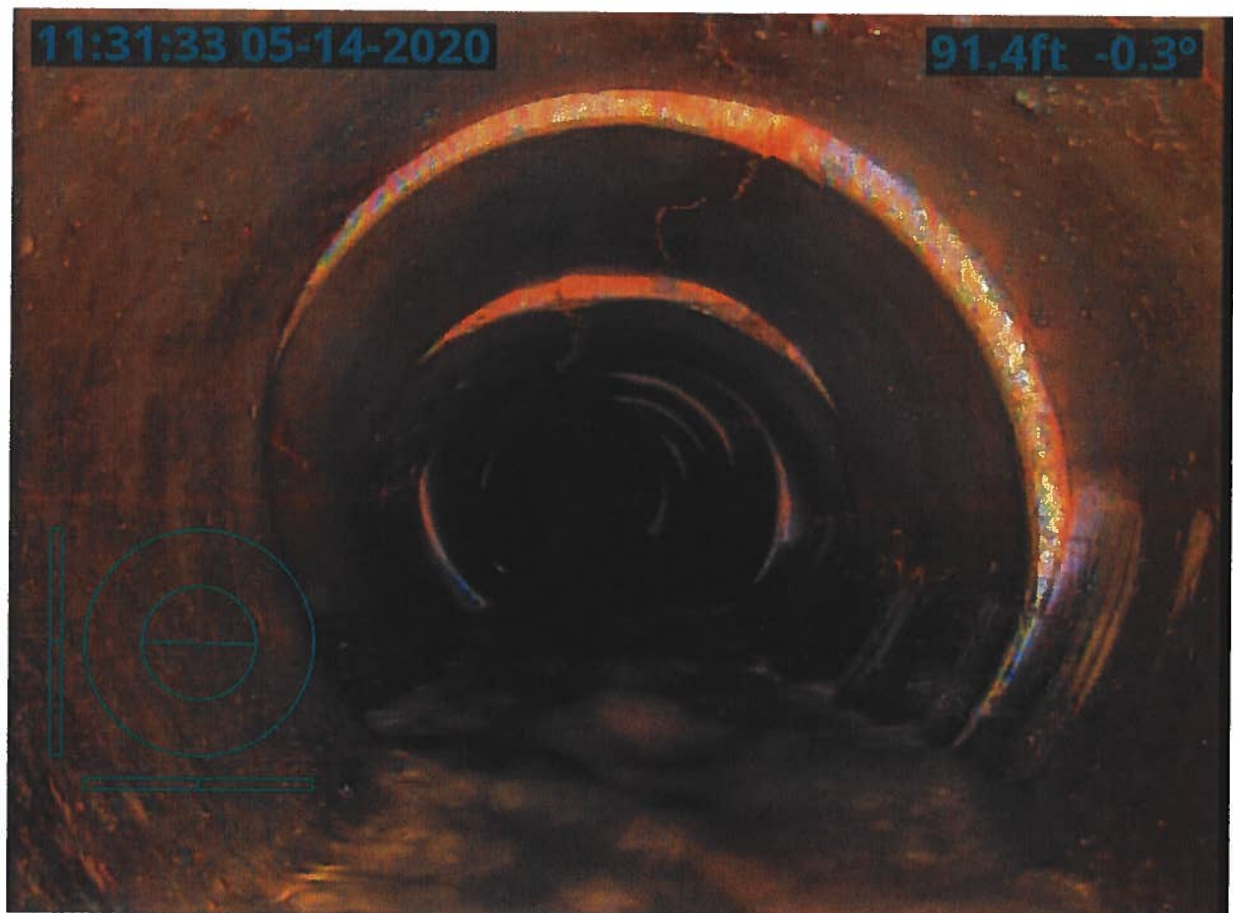
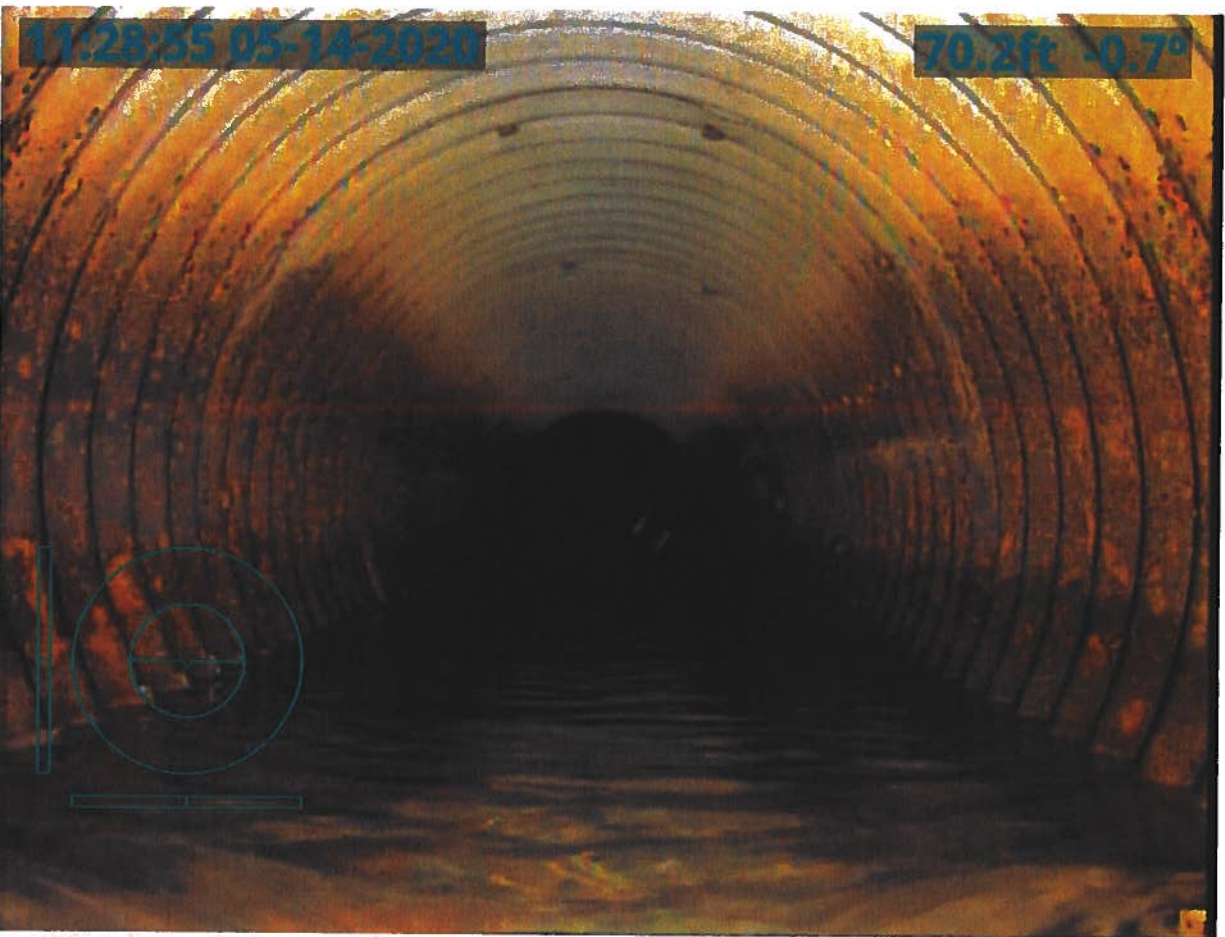




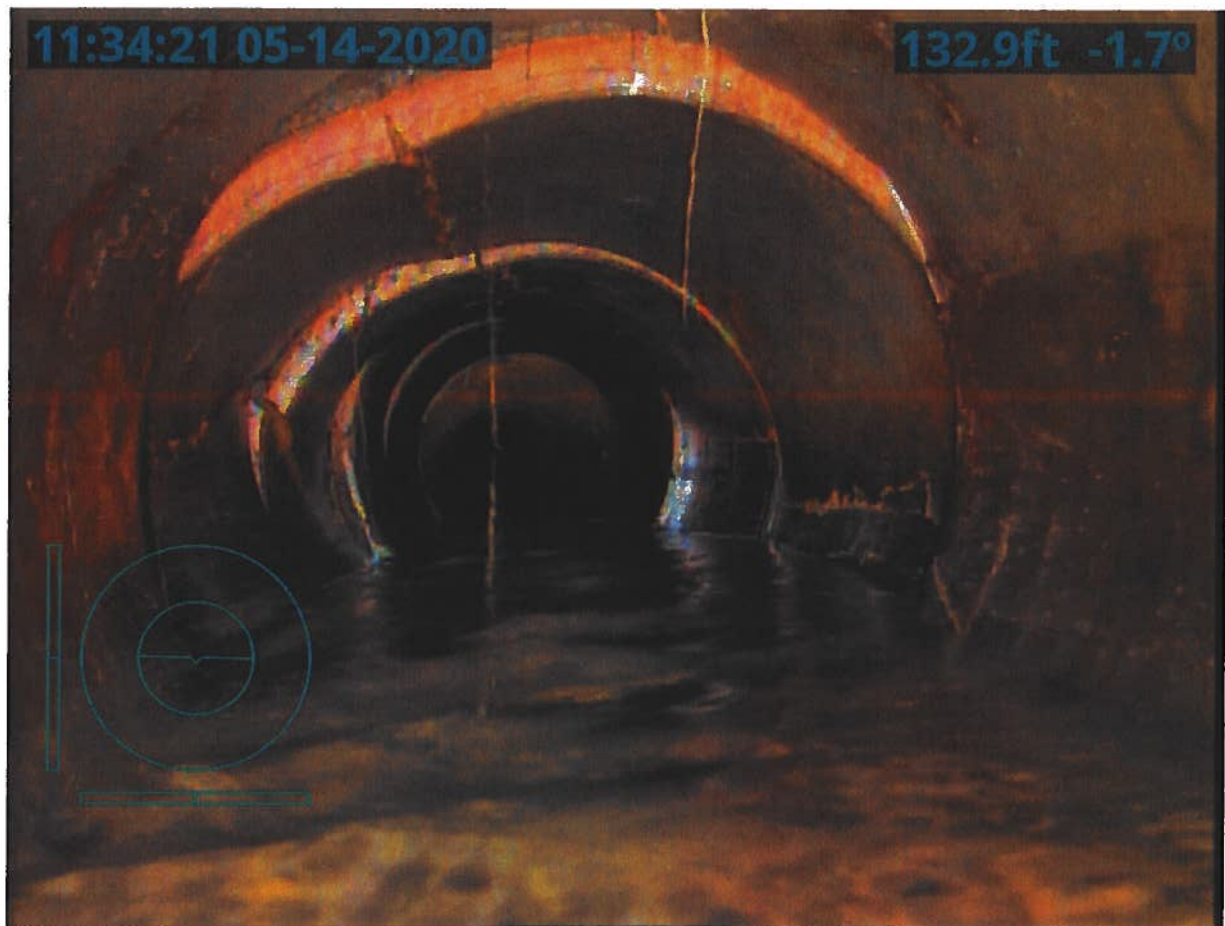


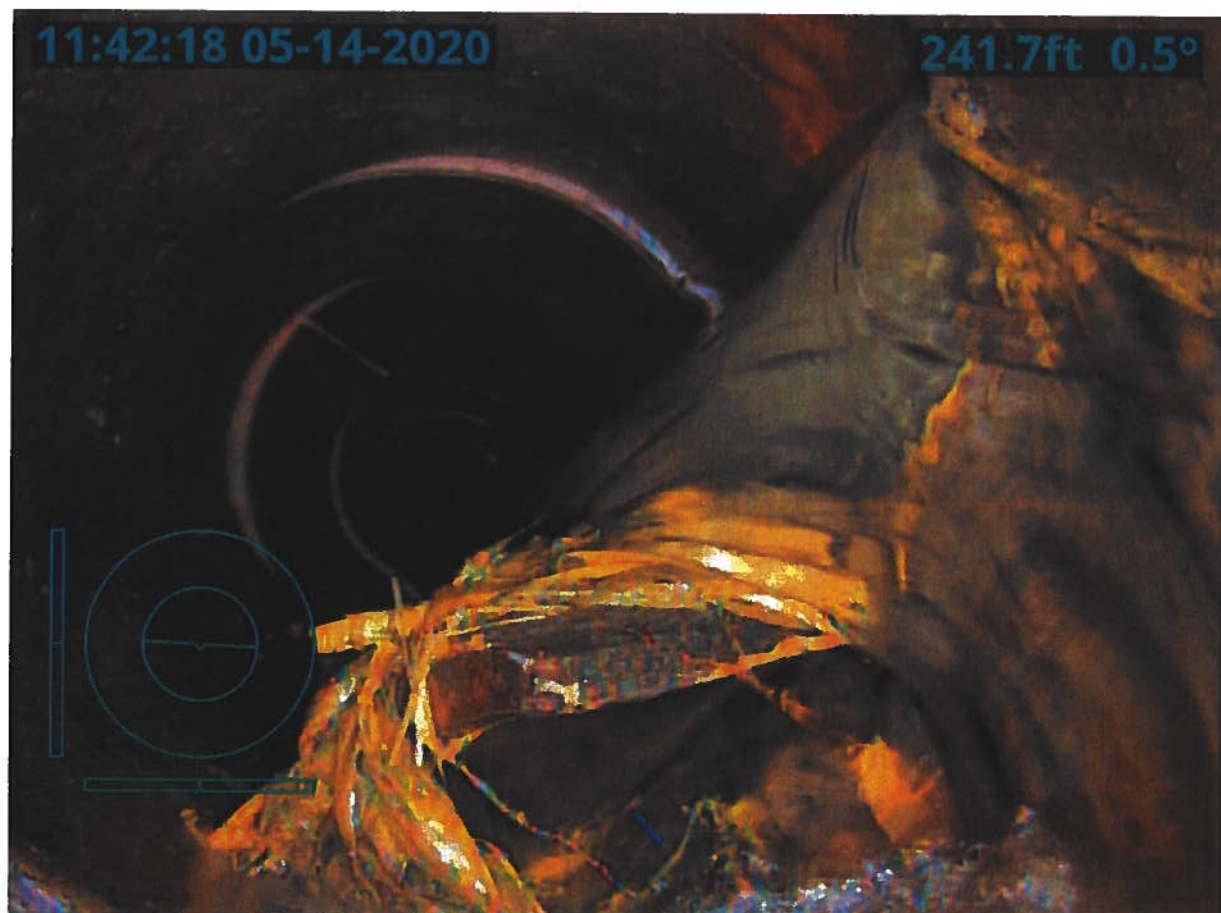
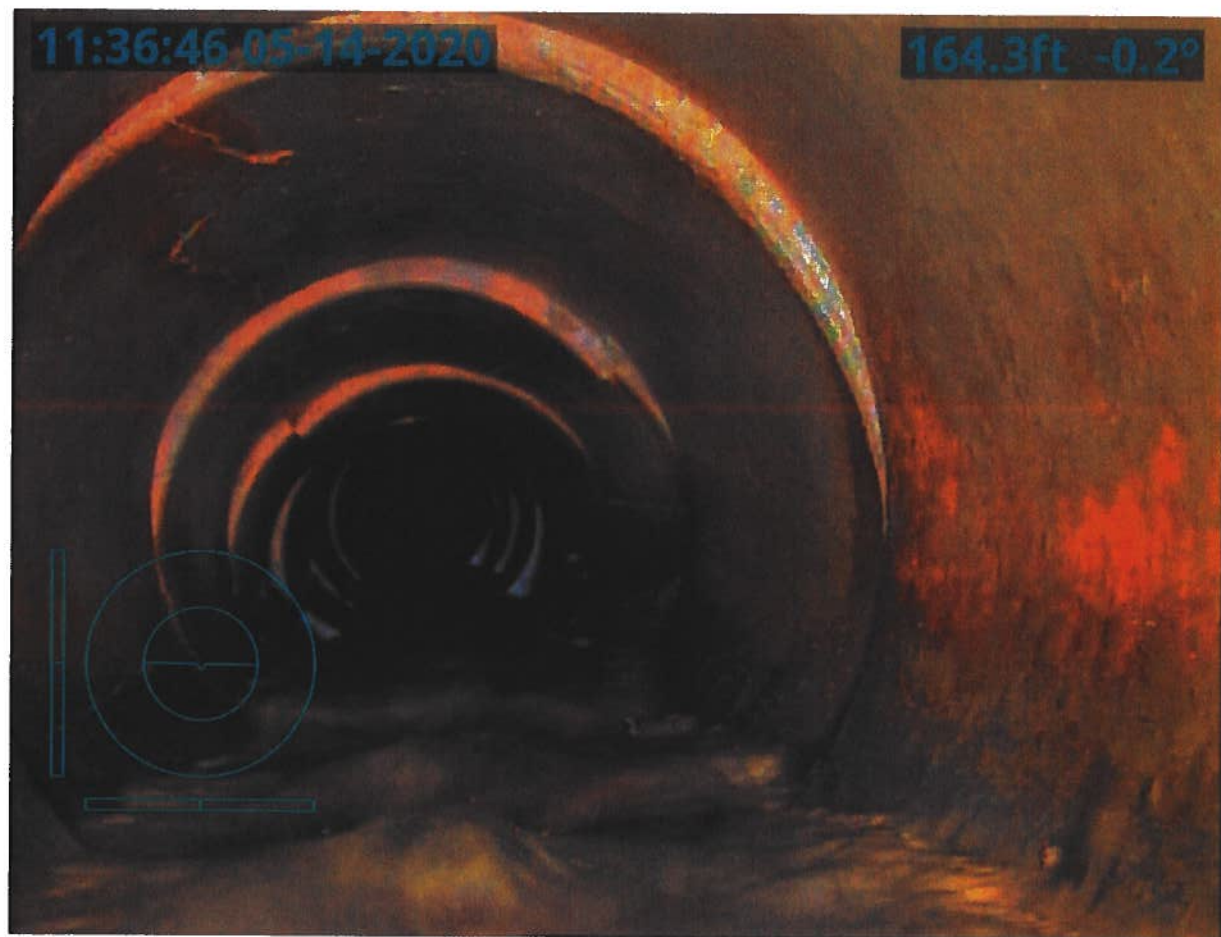




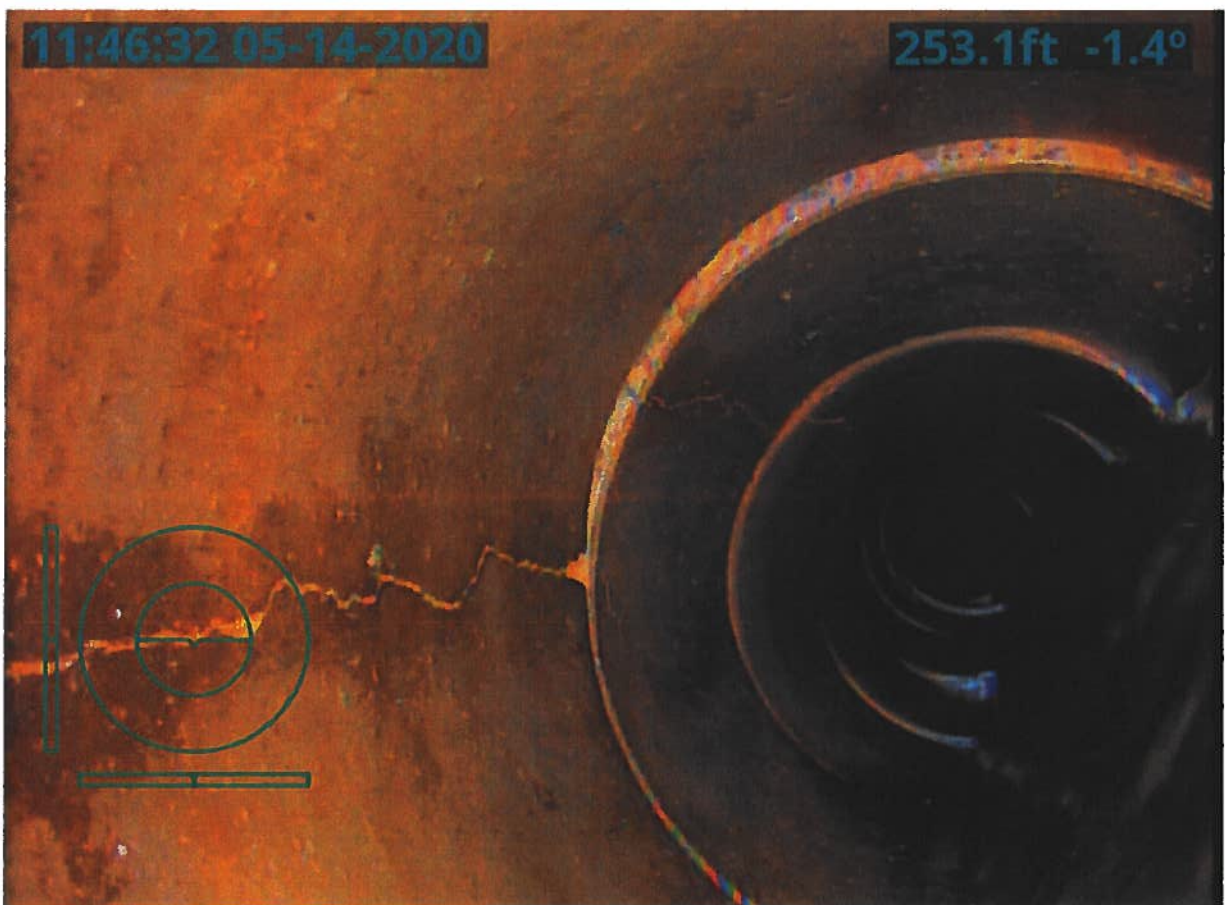
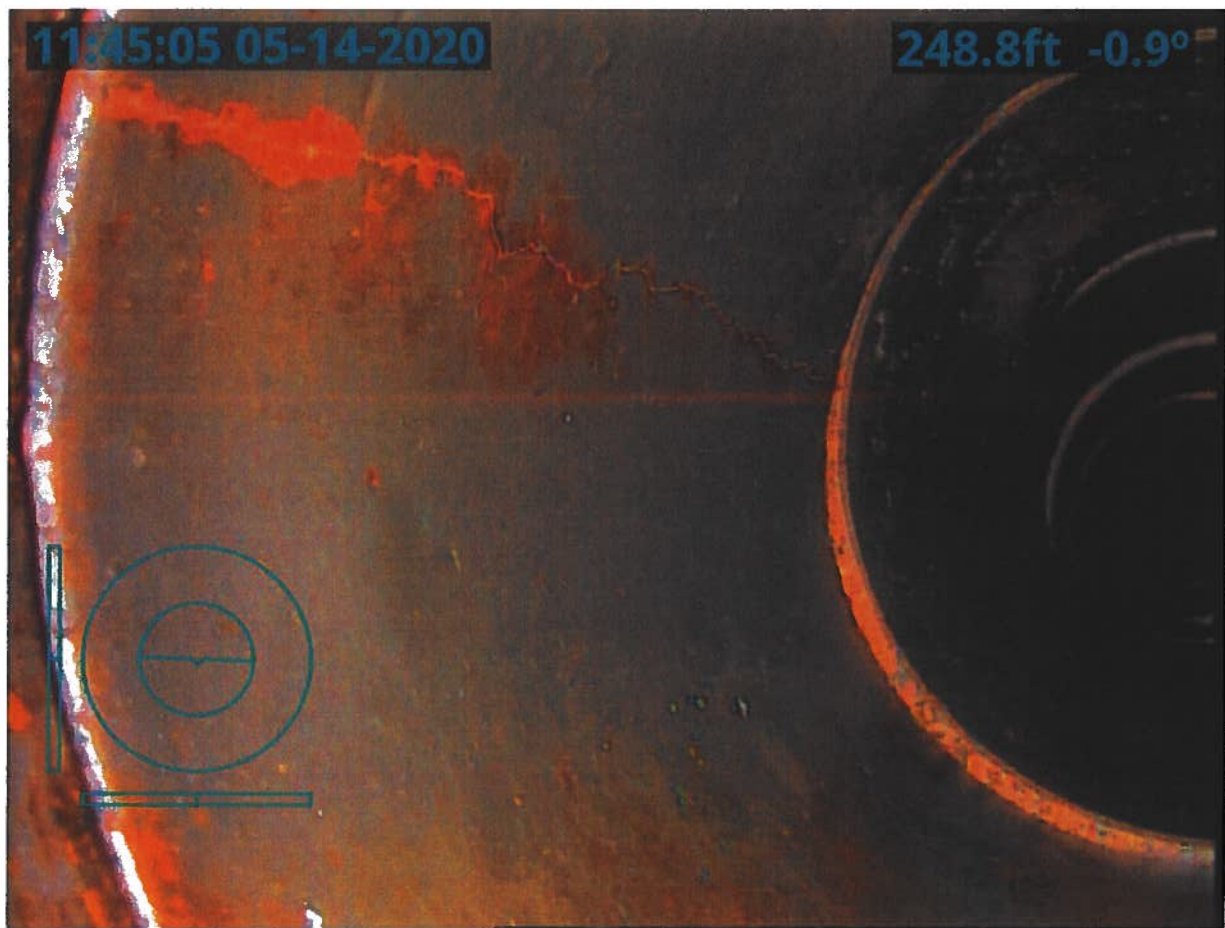


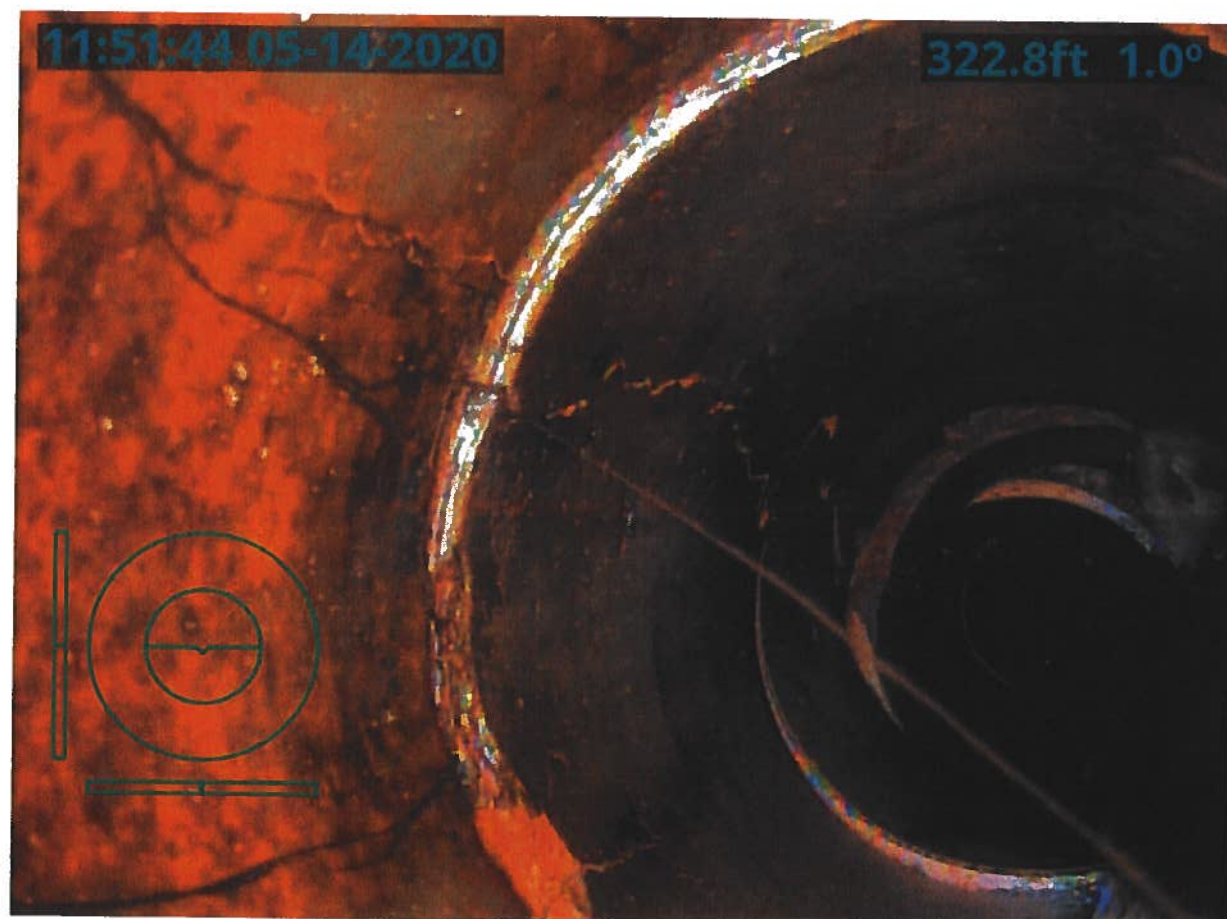
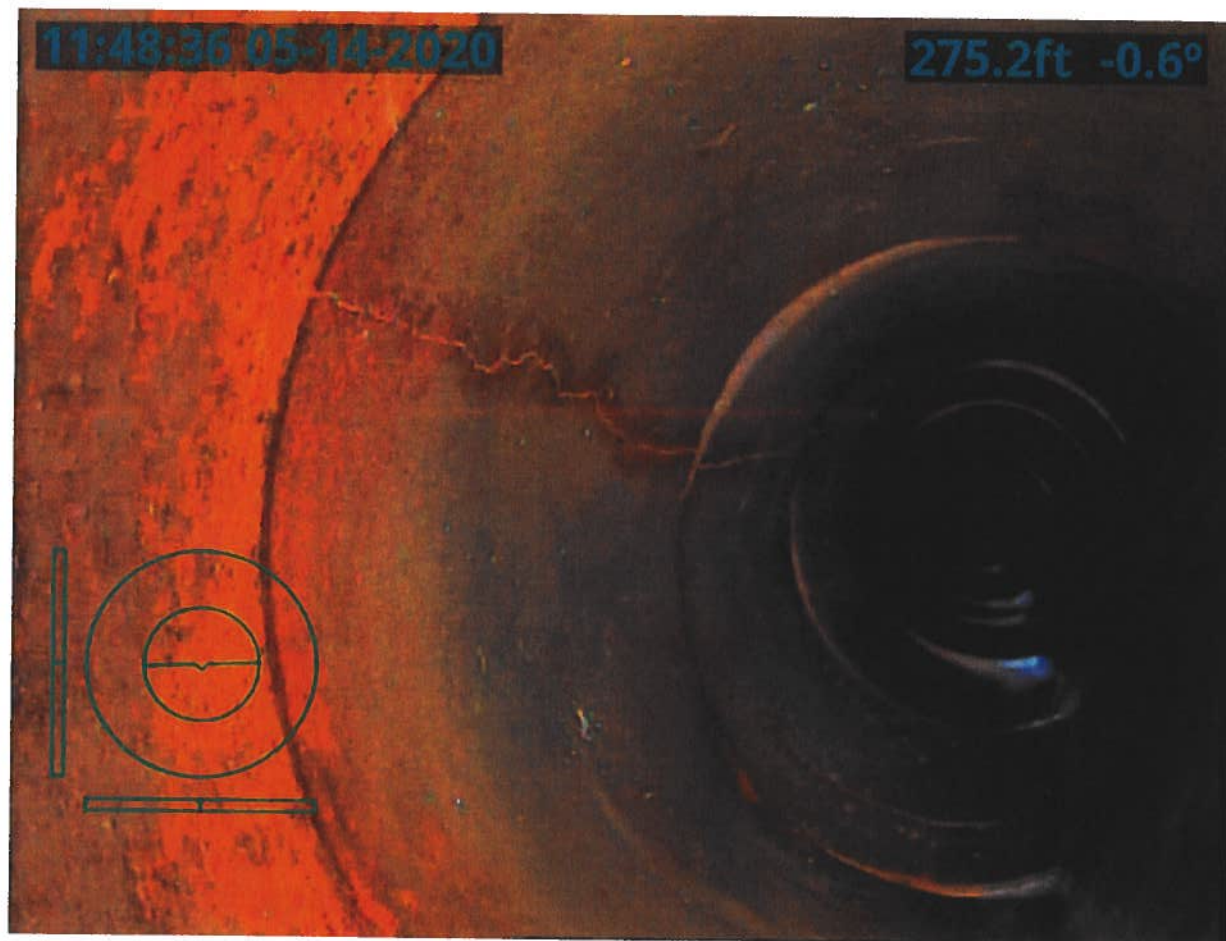




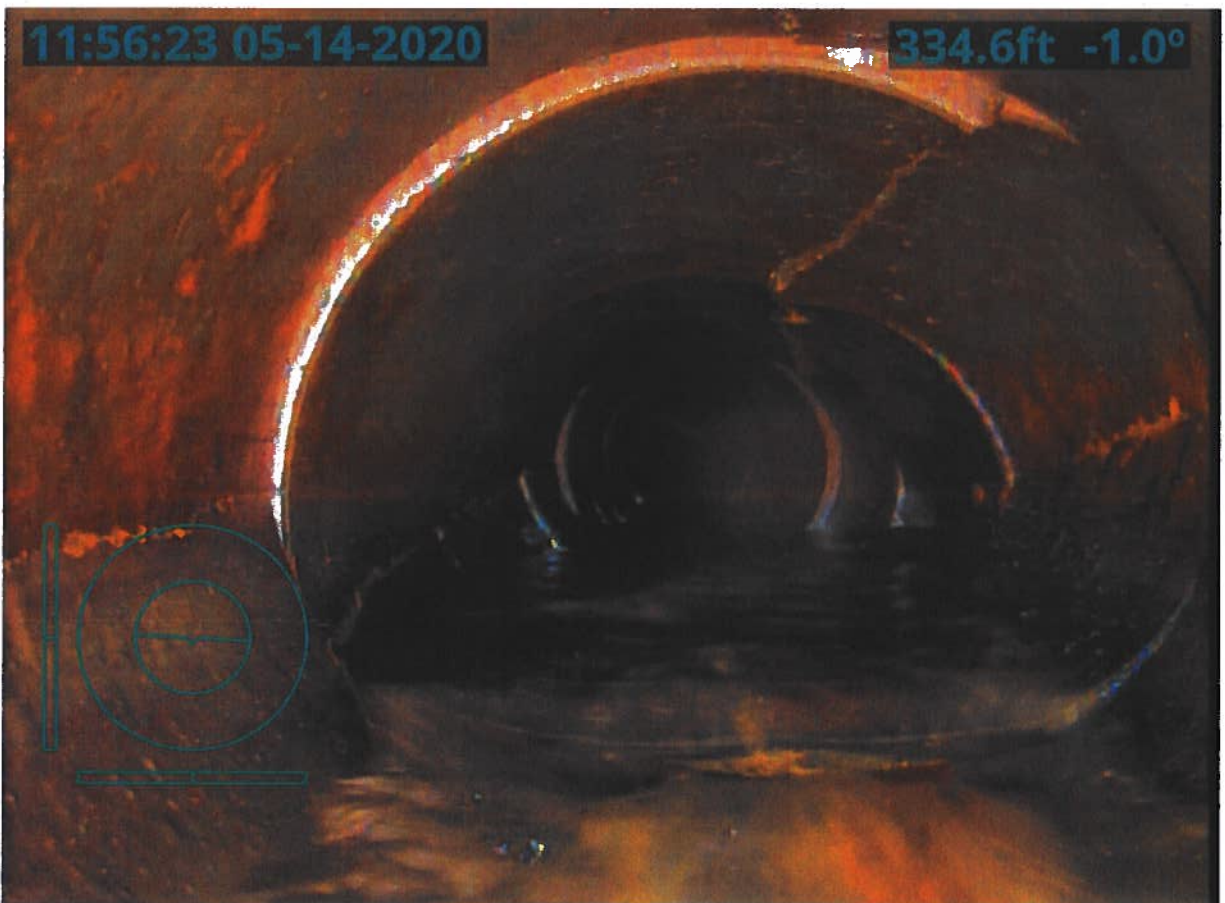
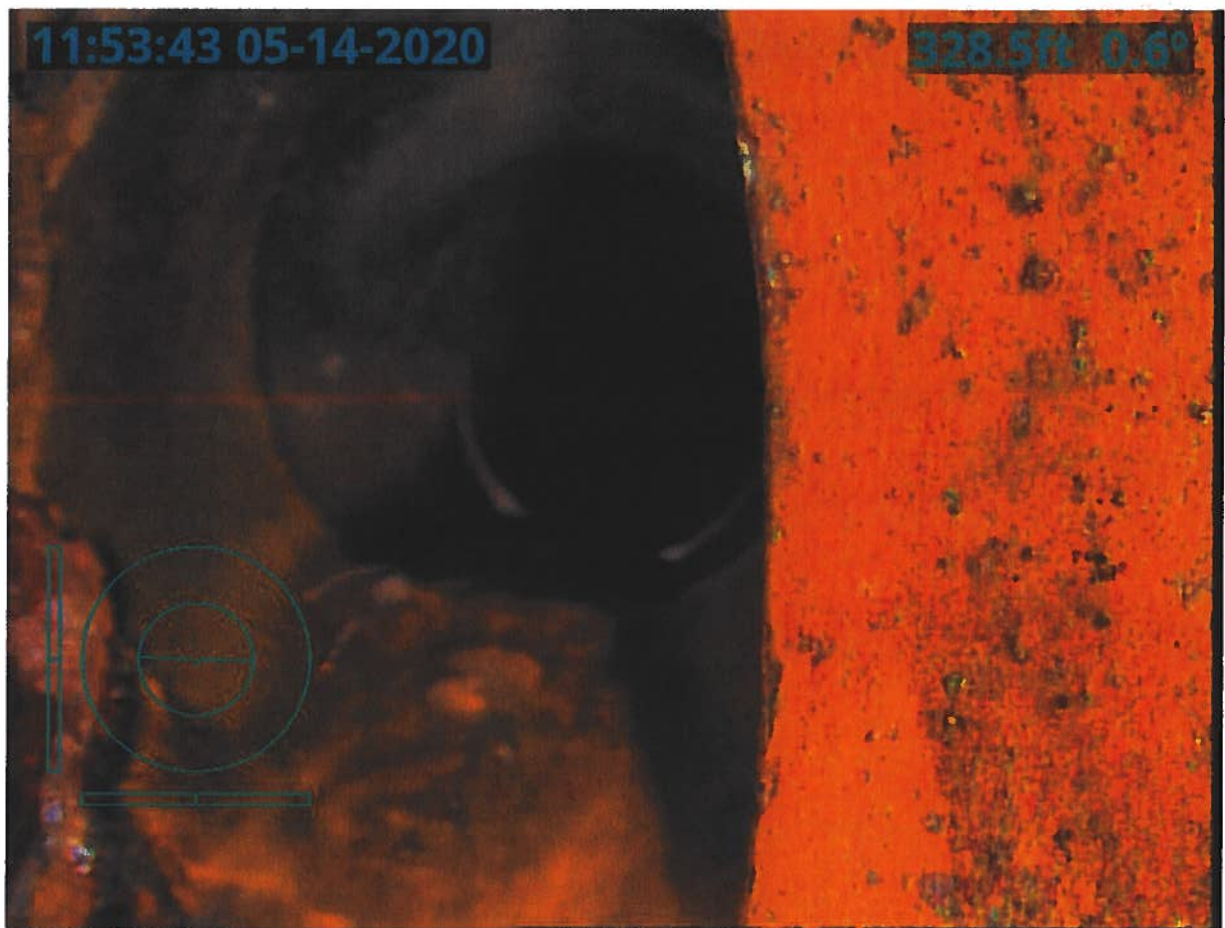






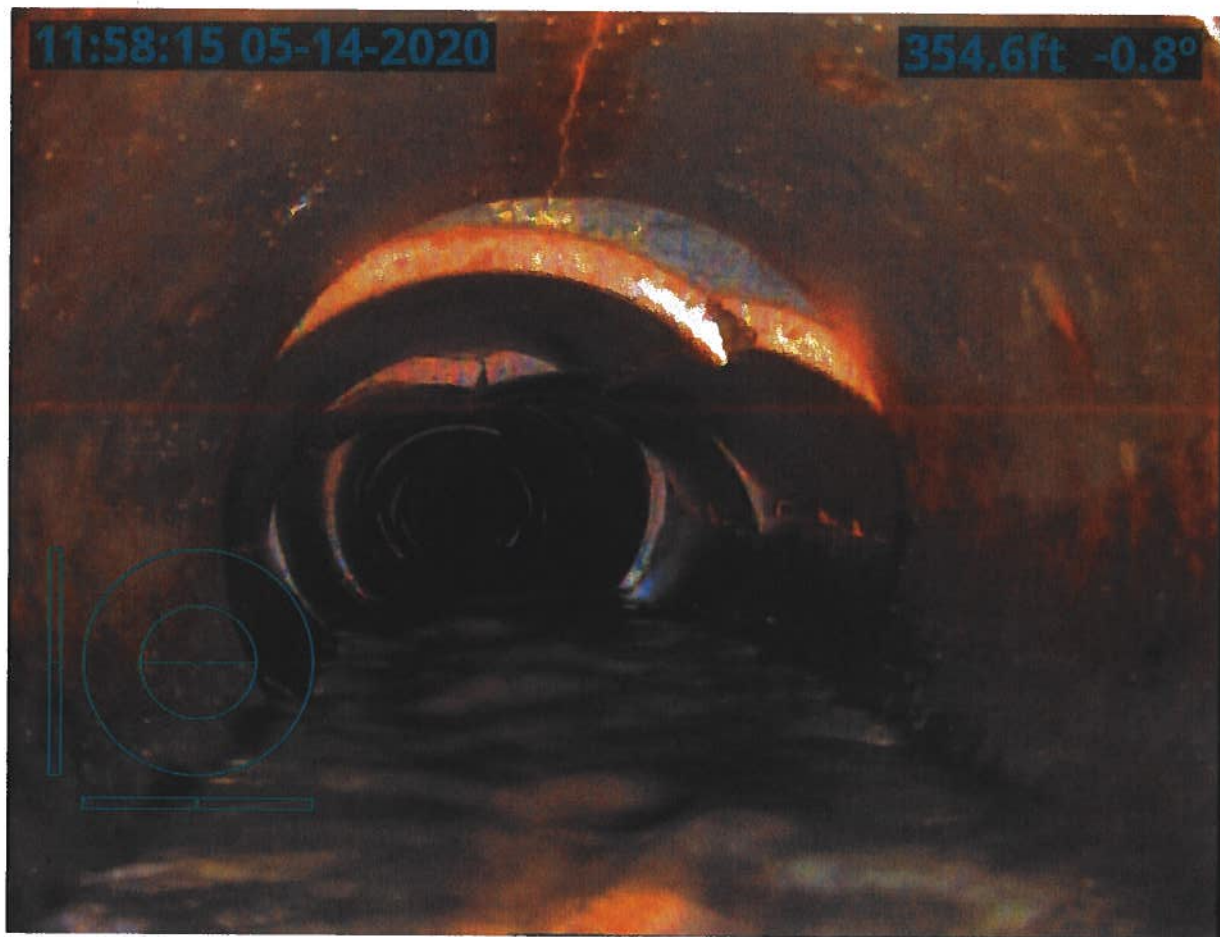






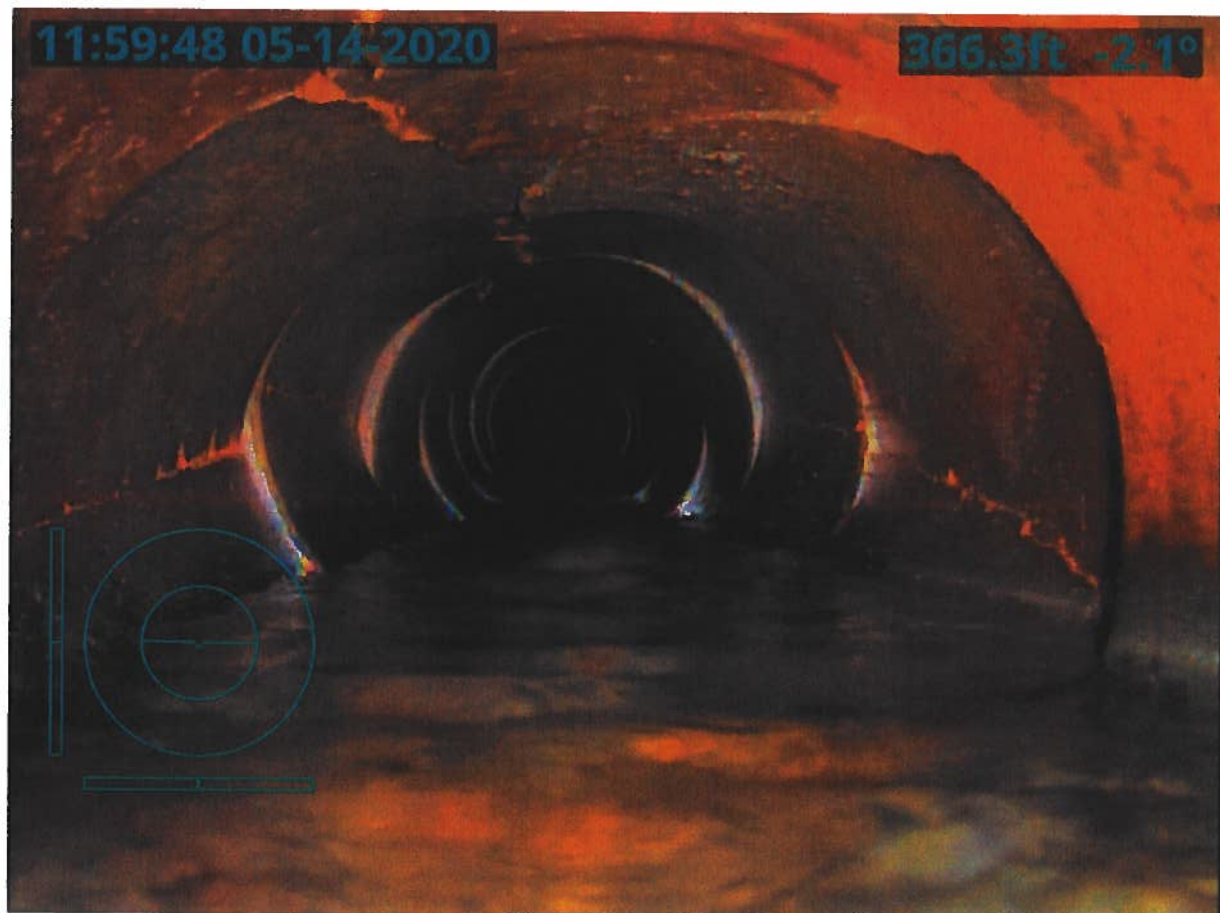
11:58:15 05-14-2020

354.6ft -0.8°

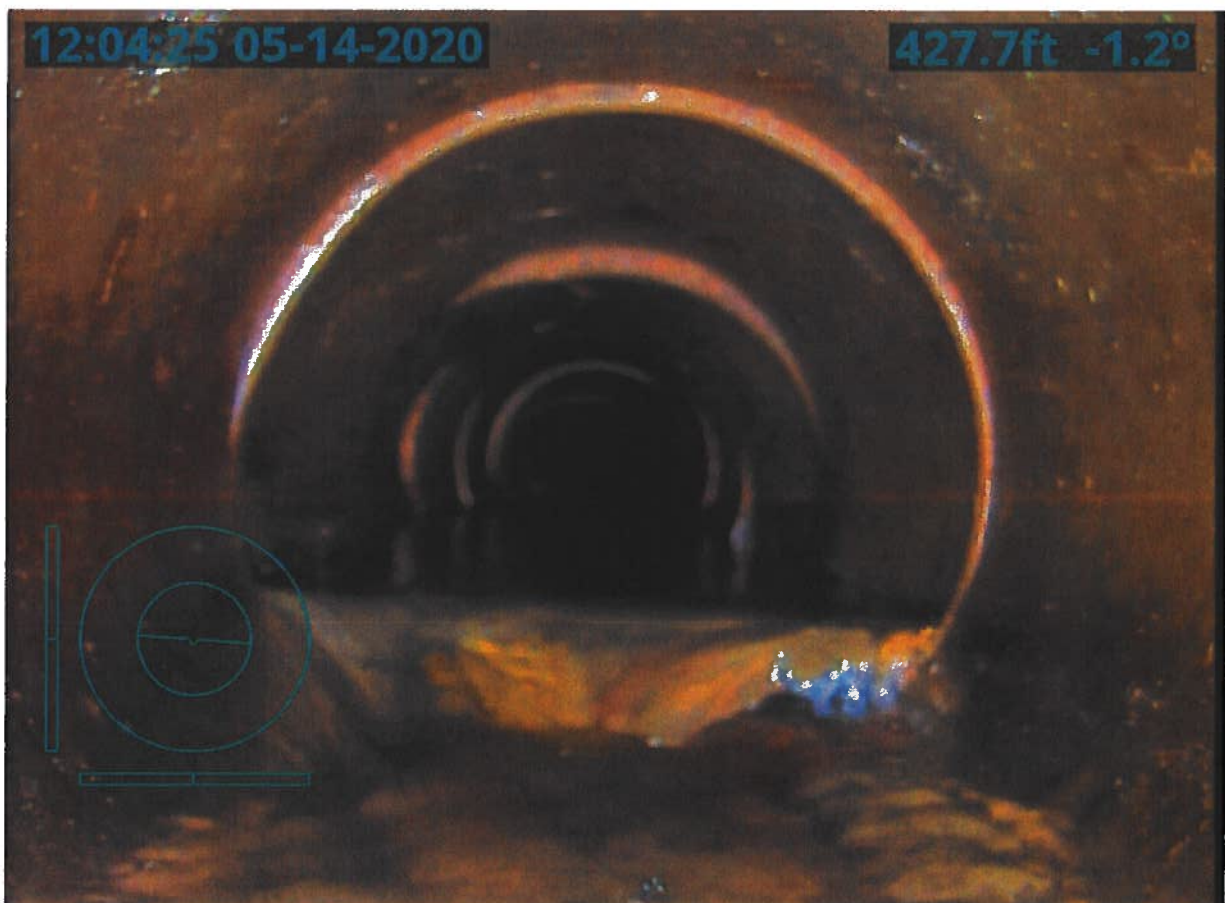


11:59:48 05-14-2020

366.3ft -2.1°

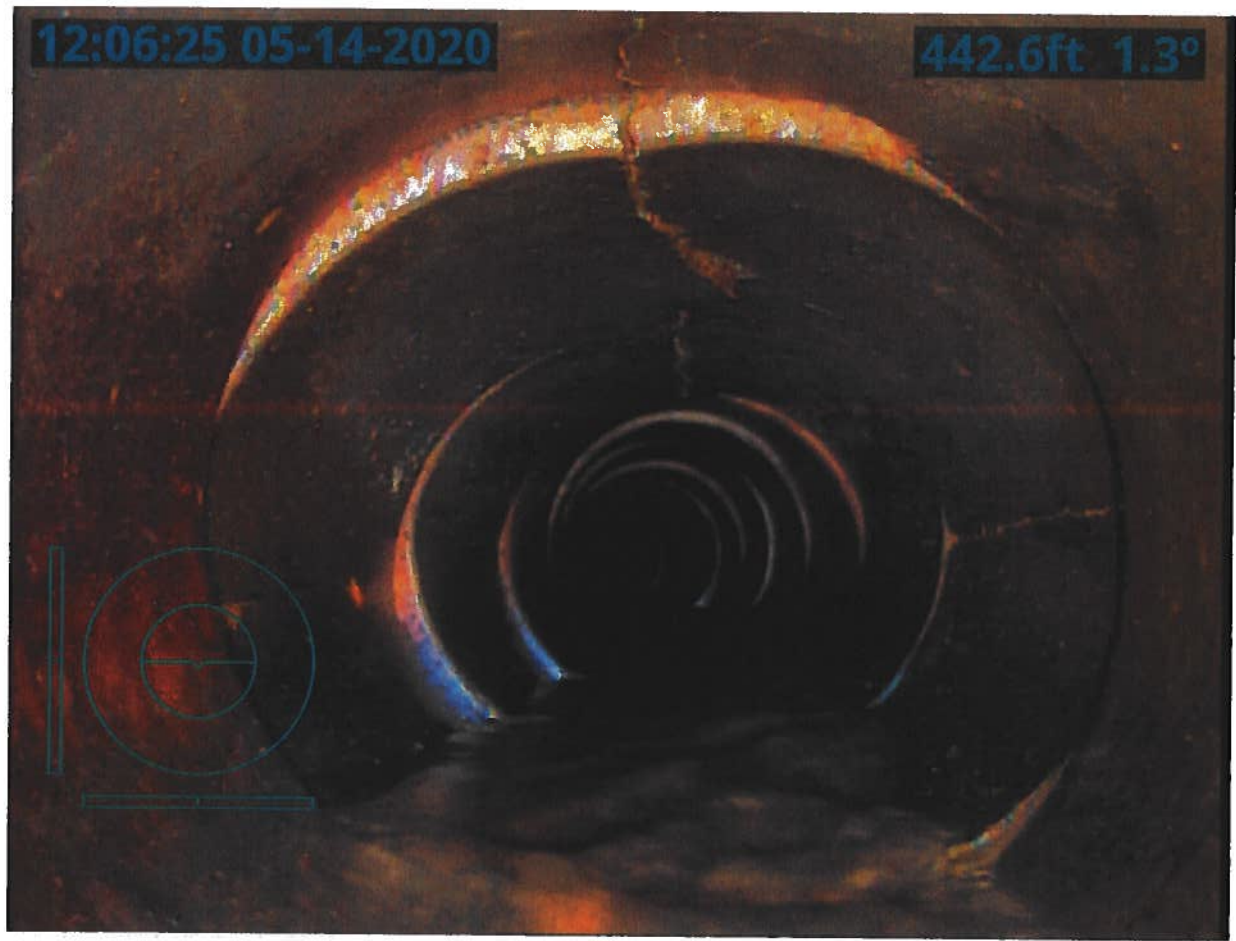






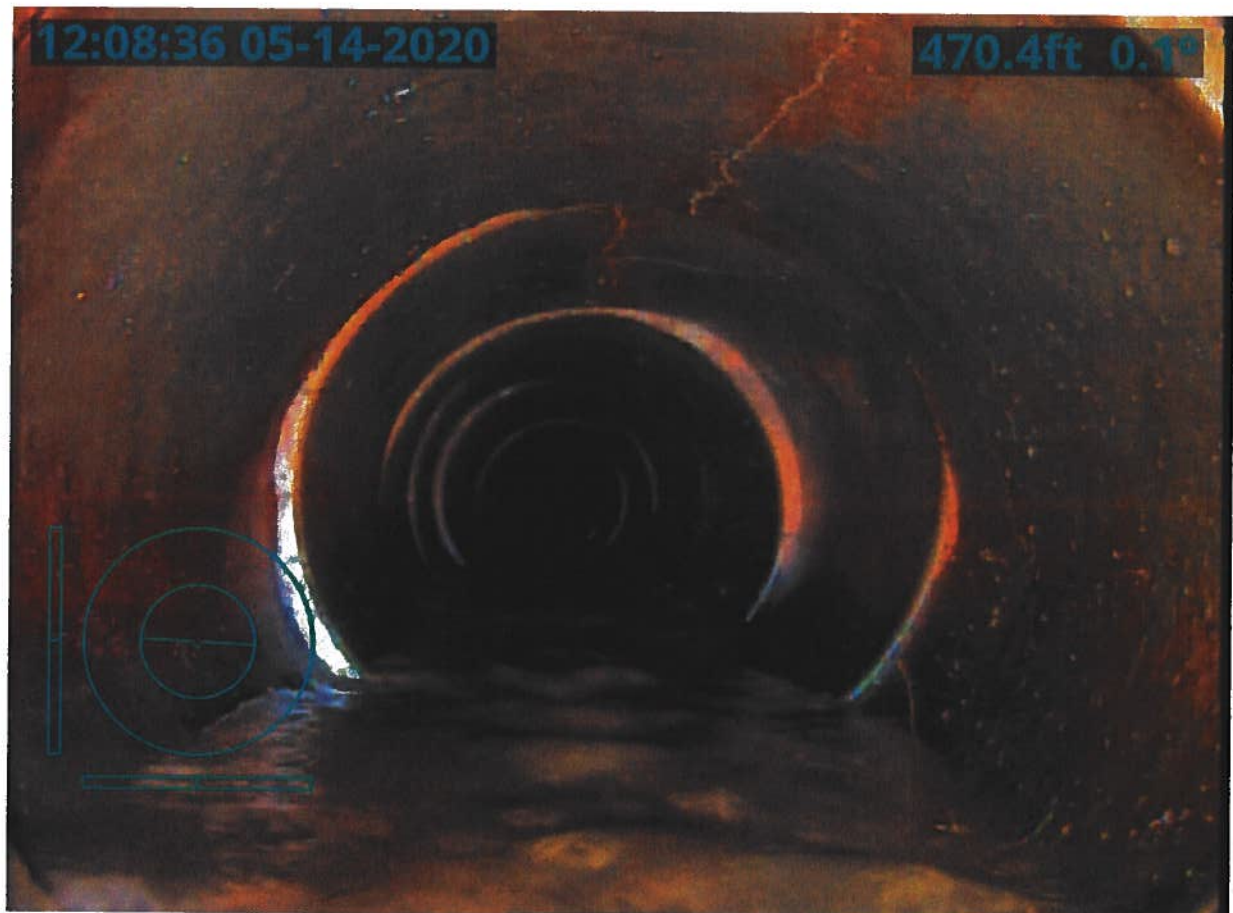
12:06:25 05-14-2020

442.6ft 1.3°

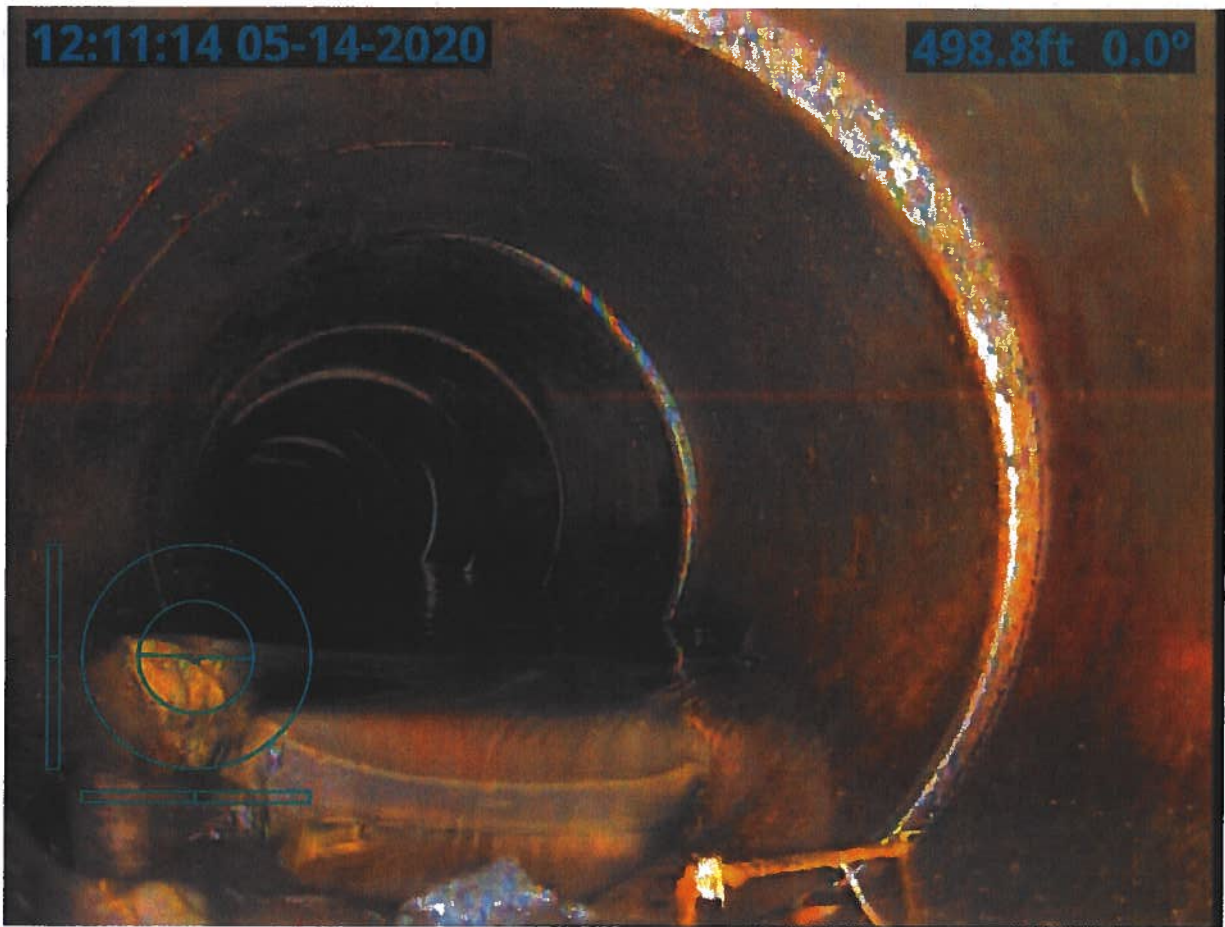


12:08:36 05-14-2020

470.4ft 0.1°







12:16:39 05-14-2020

537.1ft 0.2°

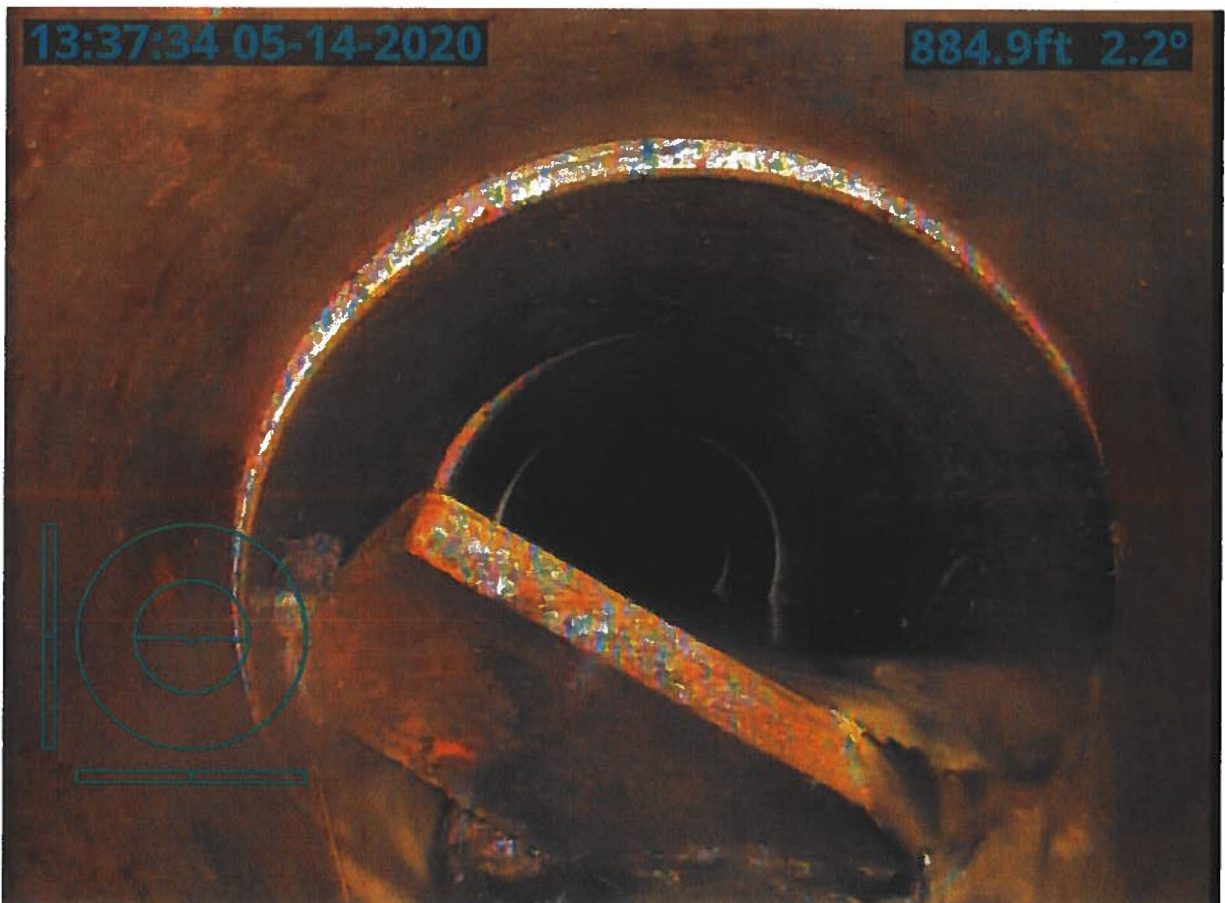
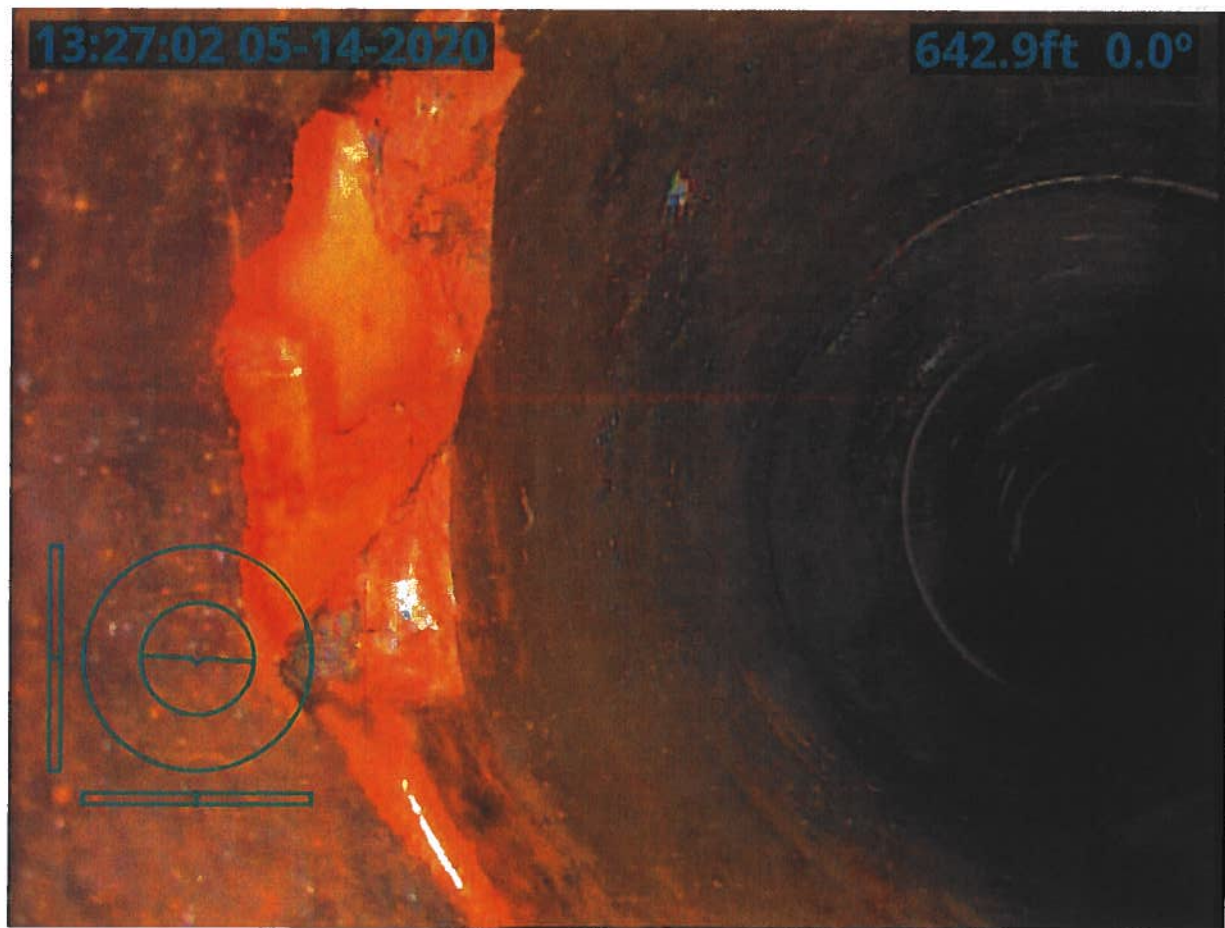


13:24:29 05-14-2020

590.2ft 1.4°







# Inspection Report

Produced on behalf of – HARDIN

Site location – ,

Survey reference –

Date – 140520

WILLIAMS UNDERGROUND SVCS.

102 INDUSTRIAL DRIVE, ACKLEY, IOWA

50601,

641-485-3925



Contents

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

    1.1    *Site information* .....**Error! Bookmark not defined.**

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

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

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

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

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

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

    2.1    *Site information* .....**Error! Bookmark not defined.**

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

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

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

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

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

# 1 Drain / Sewer Survey

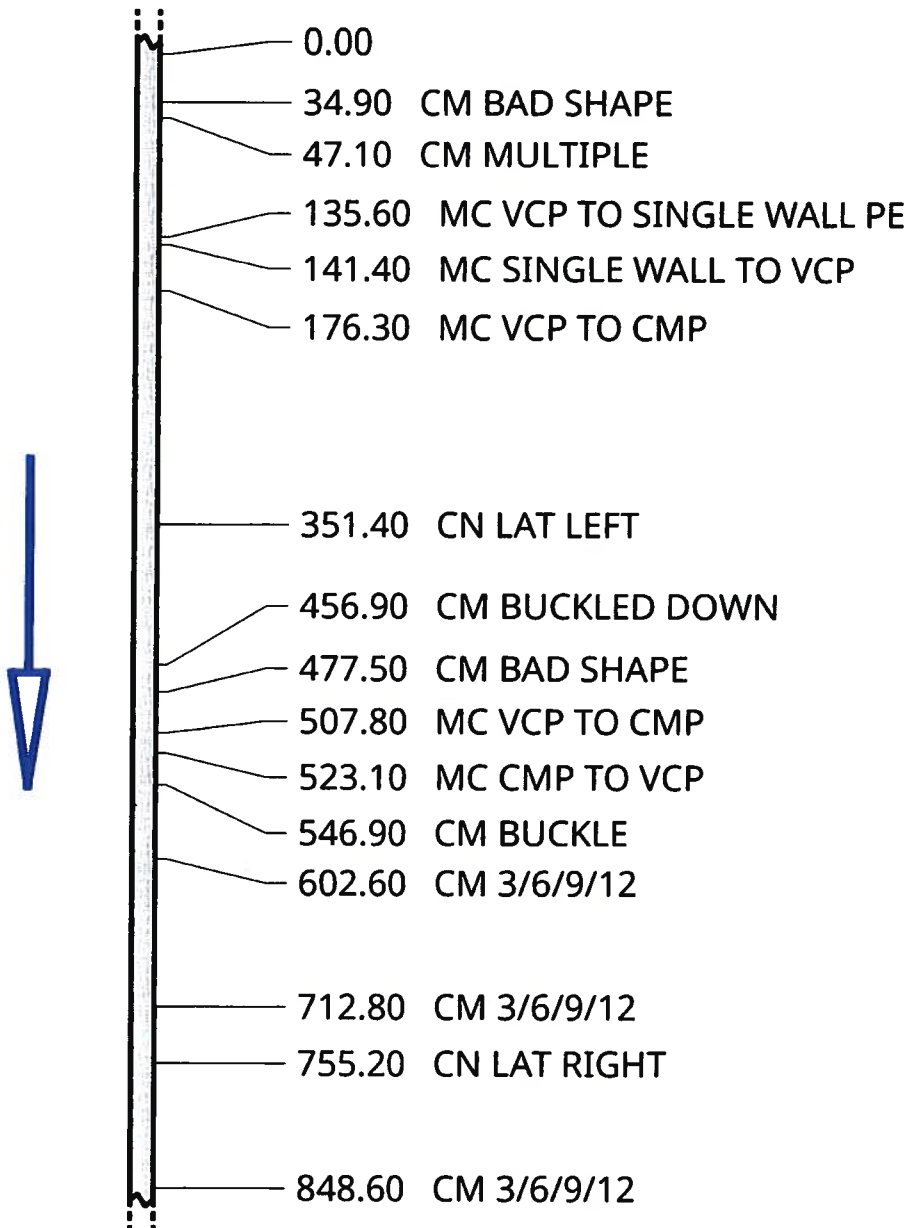
## 1.1 Survey Header

1.1.1	Surveyed by (Operator)	PAUL
1.1.2	Contract no.	
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	










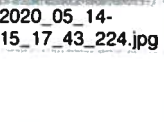


## 1.2 Diagram





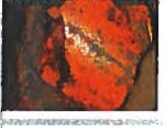
[page 1/1]



## 1.3 Observations

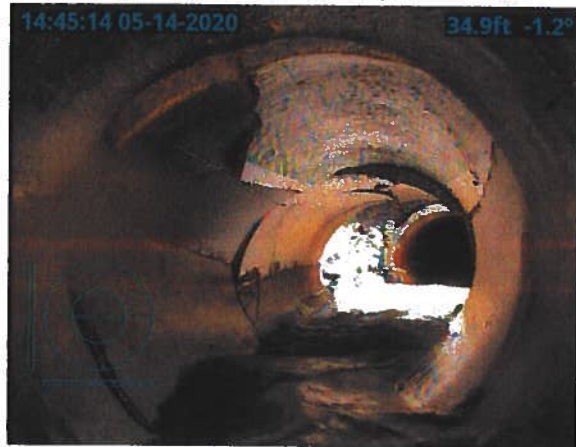
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						At	To	%	mm	
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0:03:29	47.1		CM	2020_05_14- 14_46_35_553.jpg 		08	04			MULTIPLE
0:06:19	135.6		MC	2020_05_14- 14_49_57_525.jpg 						VCP TO SINGLE WALL PE
0:07:03	141.4		MC	2020_05_14- 14_51_51_164.jpg 						SINGLE WALL TO VCP
0:08:02	176.3		MC	2020_05_14- 14_53_09_064.jpg 						VCP TO CMP
0:19:16	351.4		CN	2020_05_14- 15_04_38_643.jpg 	4?	10				LAT LEFT
0:22:26	456.9		CM	2020_05_14- 15_08_30_218.jpg 		08	04			BUCKLED DOWN
0:23:48	477.5		CM	2020_05_14- 15_13_40_522.jpg 		08	03			BAD SHAPE
0:25:02	507.8		MC	2020_05_14- 15_15_19_324.jpg 						VCP TO CMP
0:27:07	523.1		MC	2020_05_14- 15_17_43_224.jpg 						CMP TO VCP



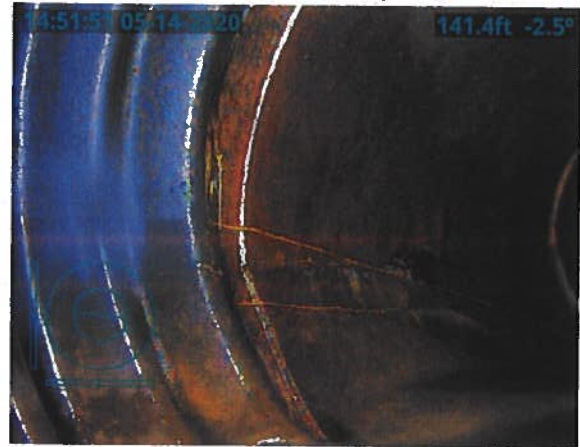
Video Ref	Dist (ft)	Cont Defect	Code	Photo Ref	Diameter/ Dimension	Clock		Intrusion		Remarks
						At	To	%	mm	
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0:30:08	602.6		CM	 2020_05_14-15_21_29_661.jpg		12	11			3/6/12
0:33:47	712.8		CM	 2020_05_14-15_25_39_785.jpg		01	12			3/6/12
0:35:56	755.2		CN	 2020_05_14-15_28_19_497.jpg	4?	02				LAT RIGHT
0:38:02	848.6		CM	 2020_05_14-15_30_54_138.jpg		01	12			3/6/12

## 1.4 Photographs

CM 2020\_05\_14-14\_45\_14\_552.jpg



MC 2020\_05\_14-14\_51\_51\_164.jpg



CM 2020\_05\_14-14\_46\_35\_553.jpg



MC 2020\_05\_14-14\_53\_09\_064.jpg



MC 2020\_05\_14-14\_49\_57\_525.jpg

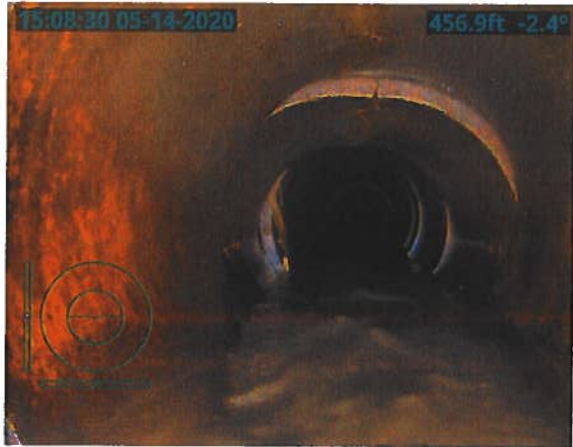


CN 2020\_05\_14-15\_04\_38\_643.jpg

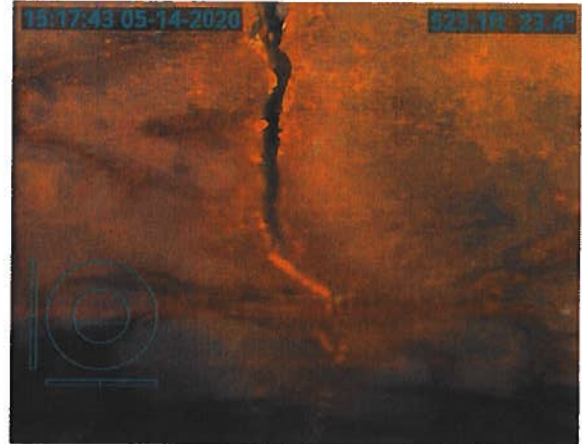




CM 2020\_05\_14-15\_08\_30\_218.jpg



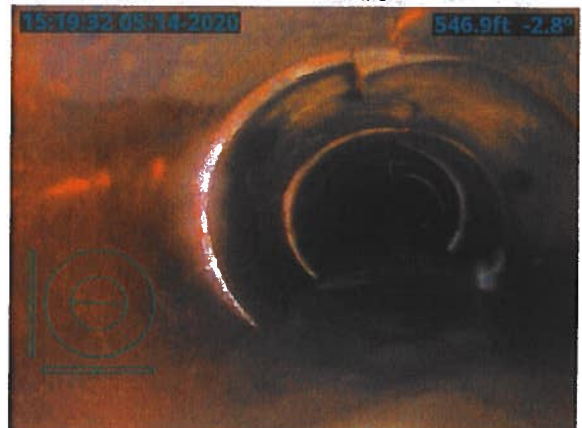
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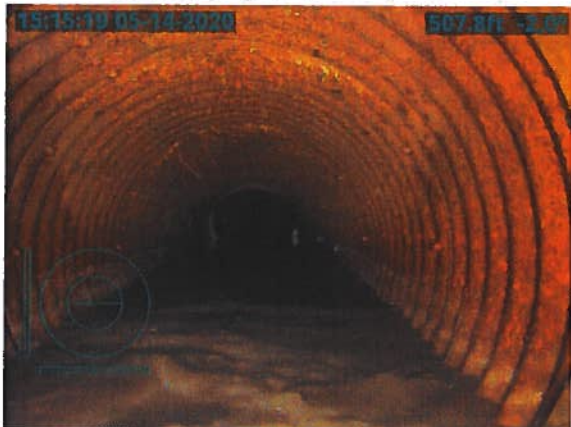
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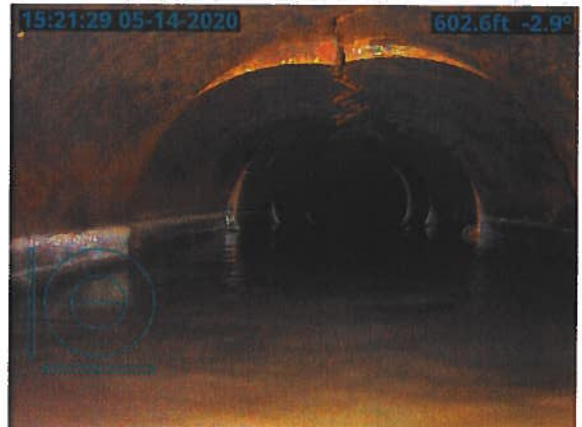
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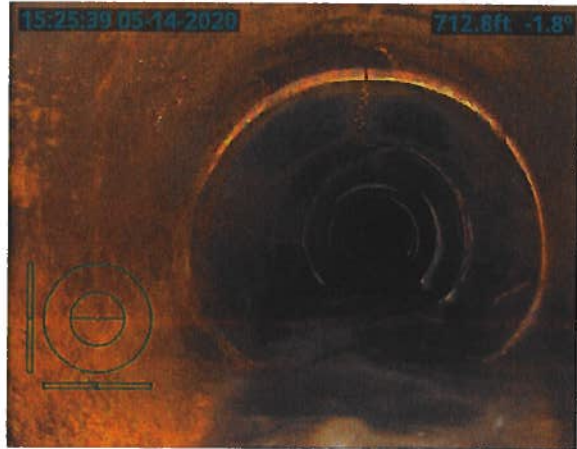
MC 2020\_05\_14-15\_15\_19\_324.jpg



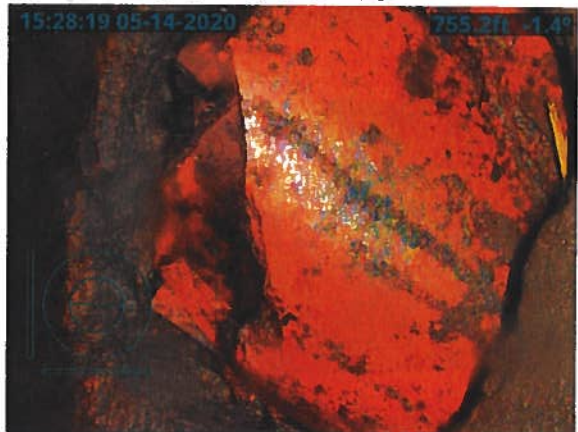
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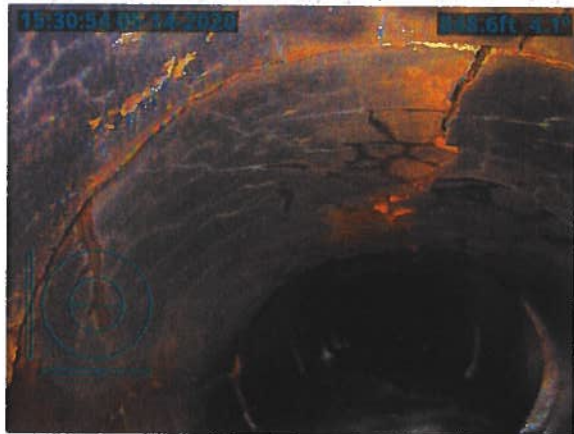
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CN 2020\_05\_14-15\_28\_19\_497.jpg



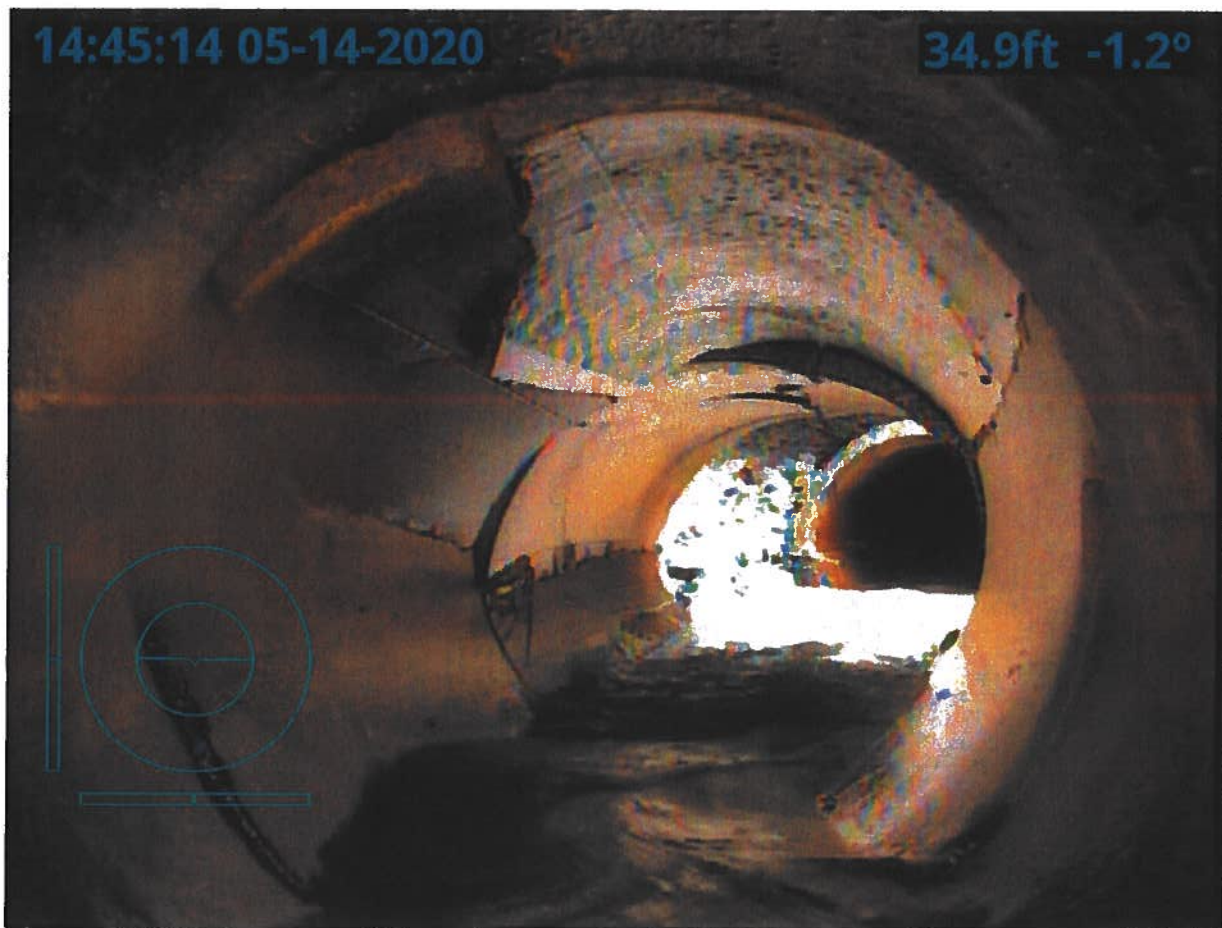
CM 2020\_05\_14-15\_30\_54\_138.jpg





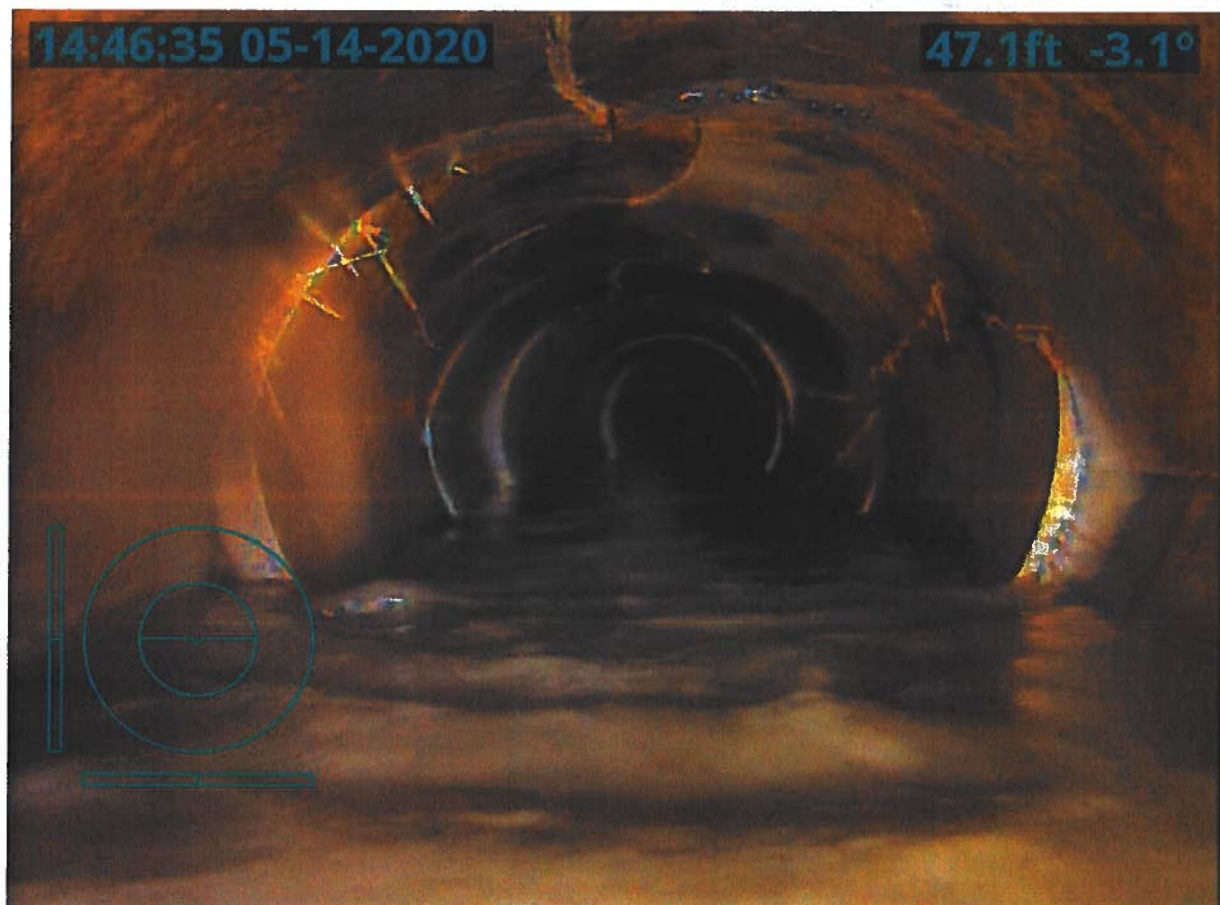
14:45:14 05-14-2020

34.9ft -1.2°



14:46:35 05-14-2020

47.1ft -3.1°



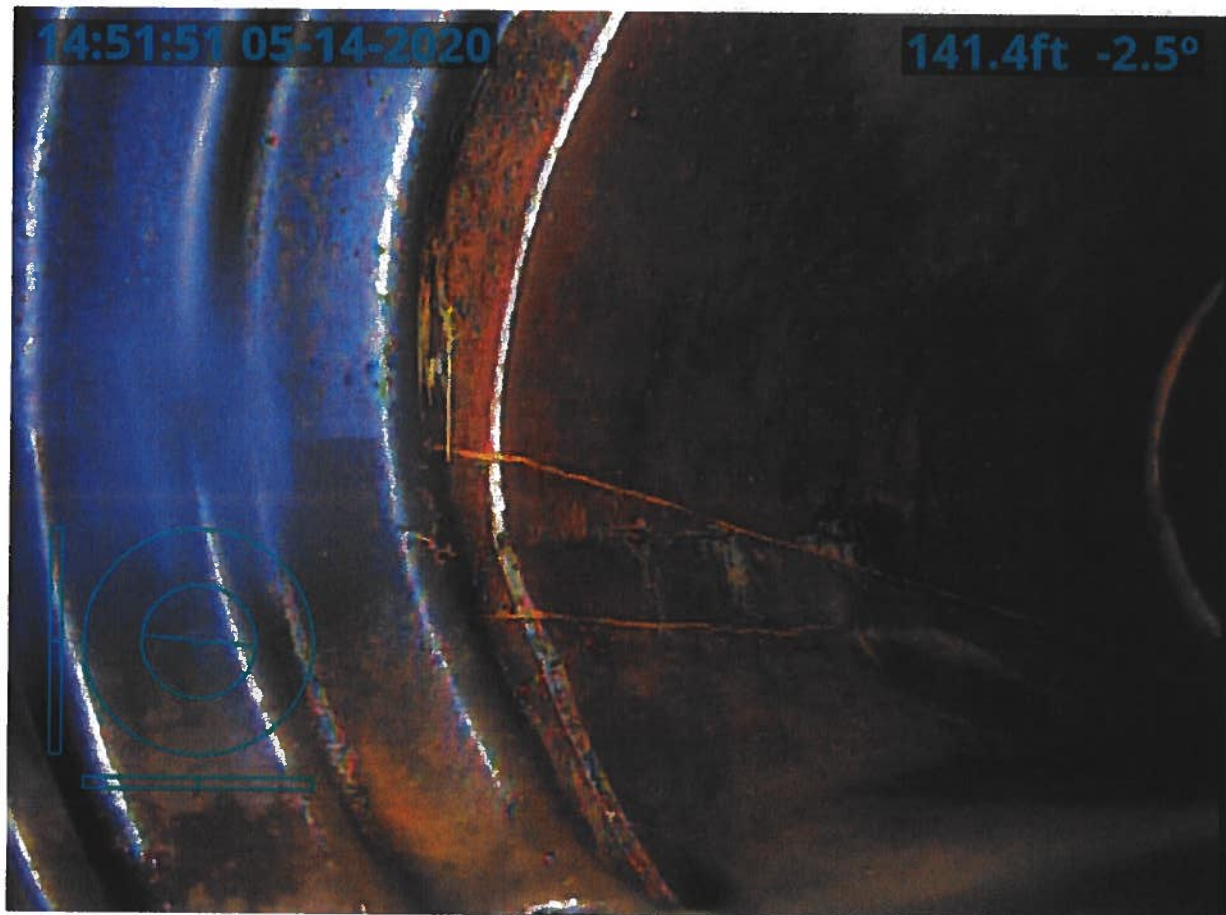
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135.6ft -0.7°

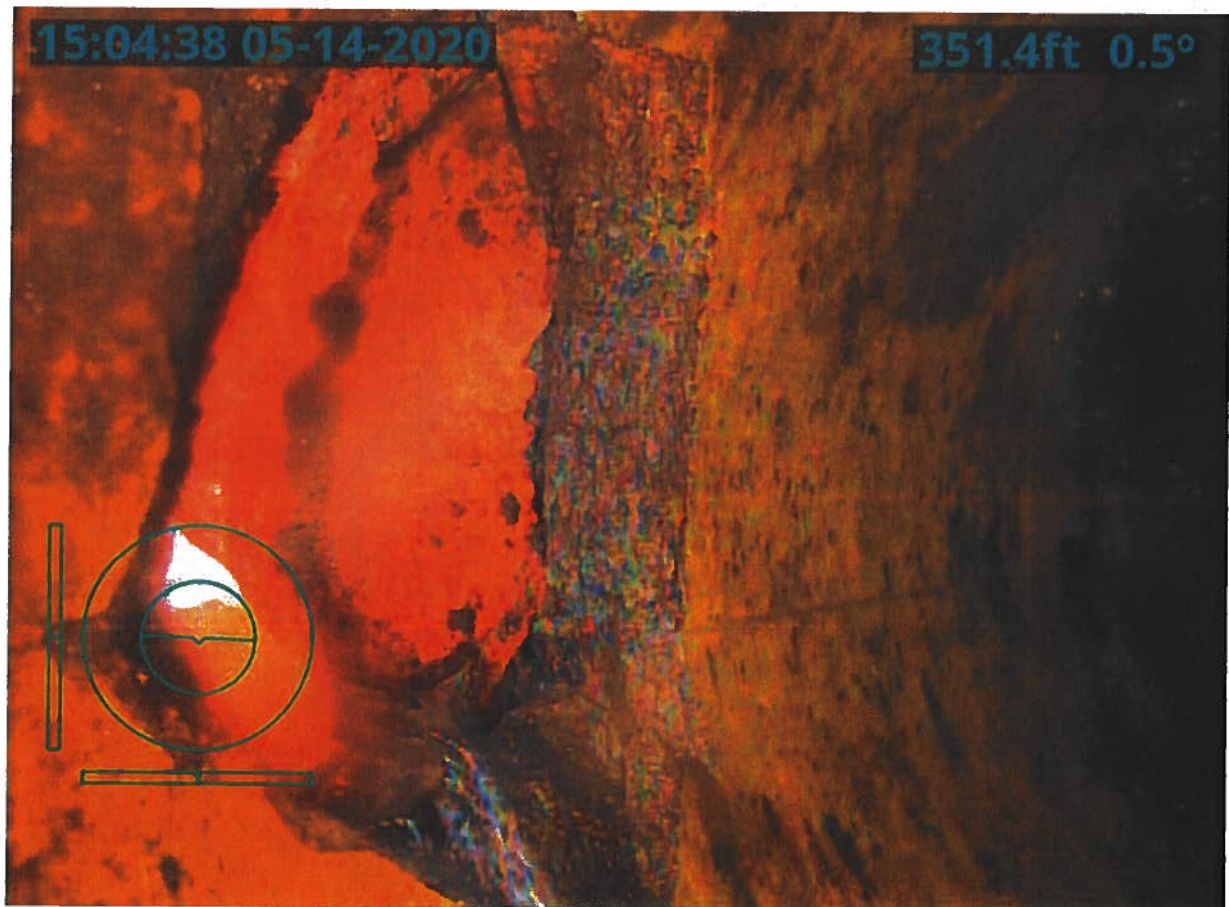
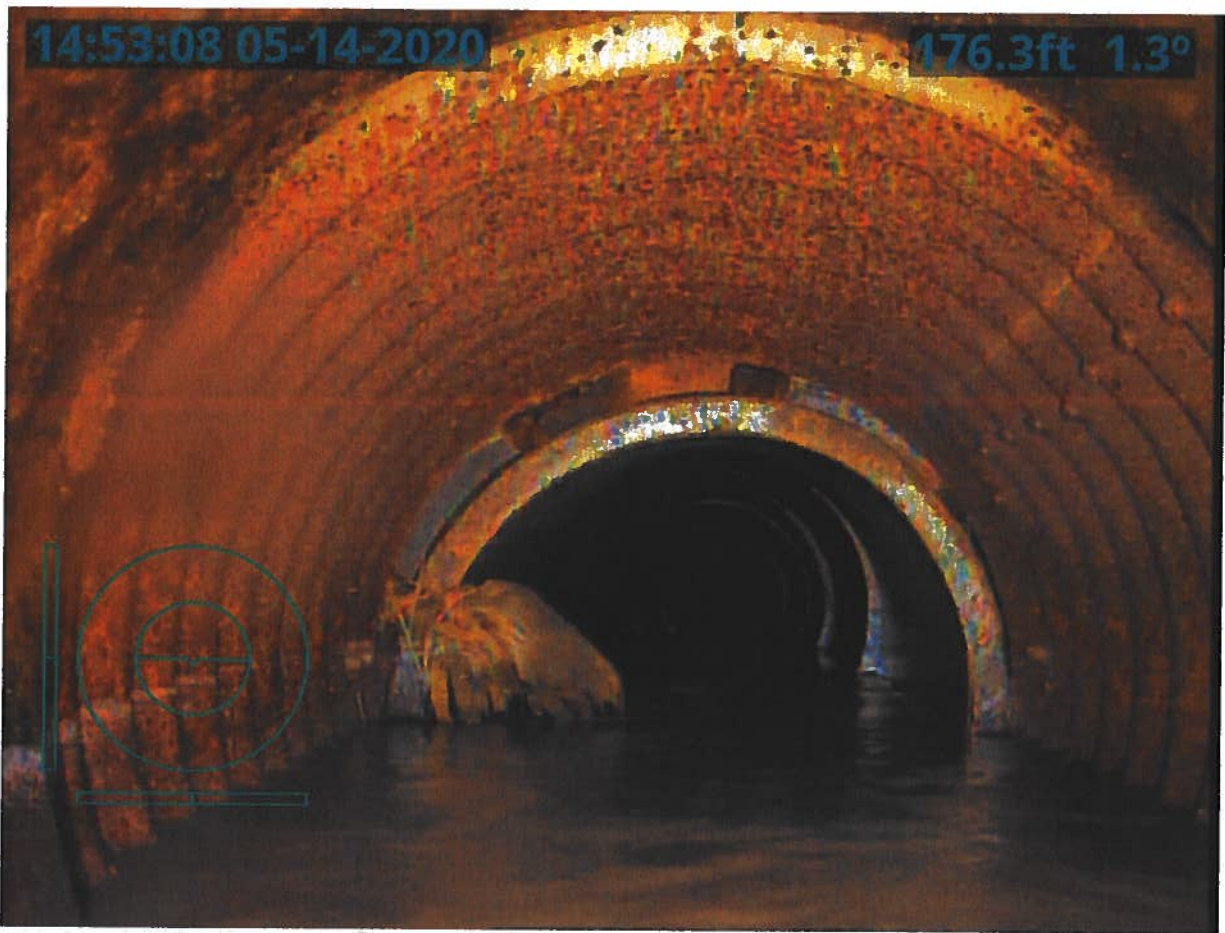


14:51:51 05-14-2020

141.4ft -2.5°

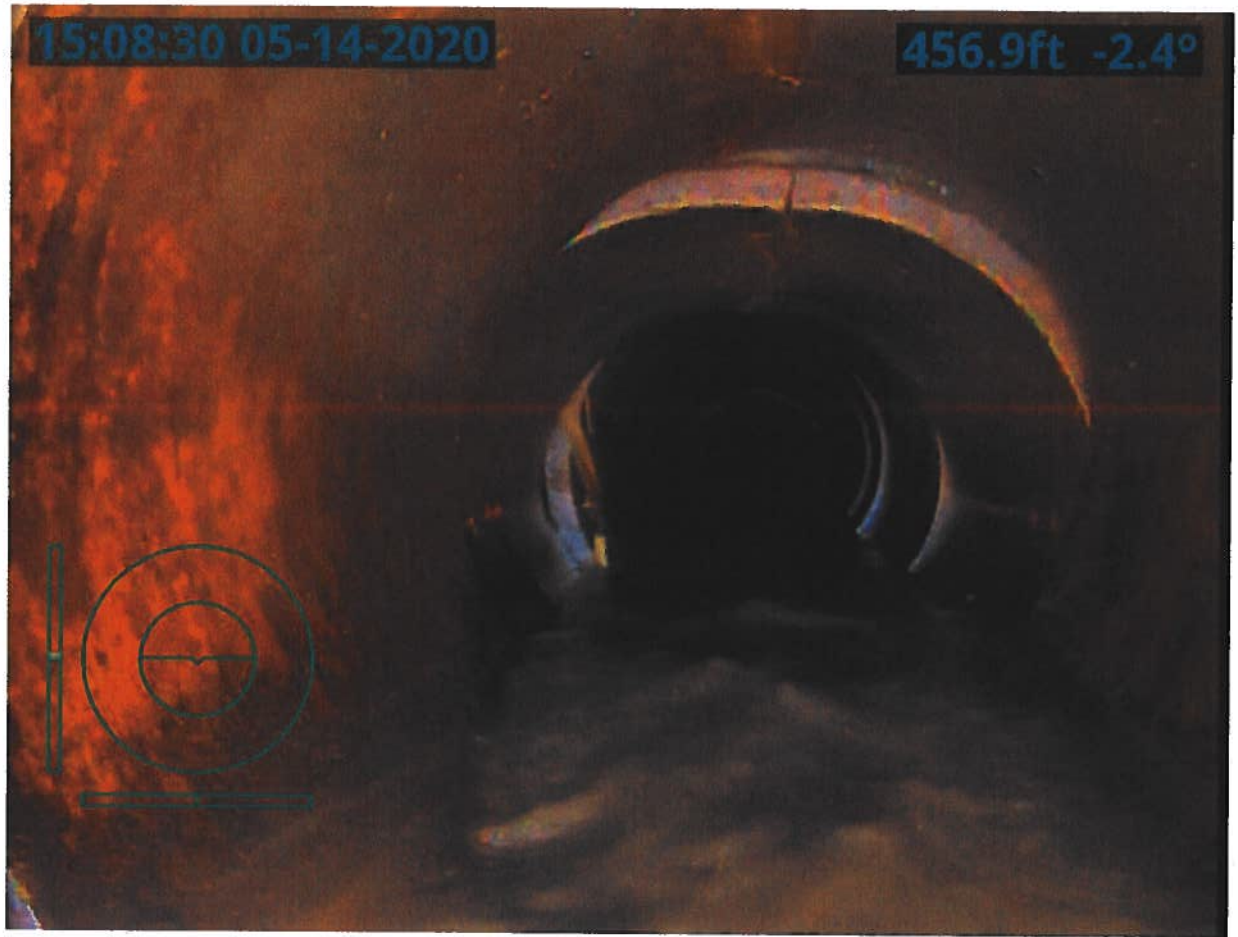






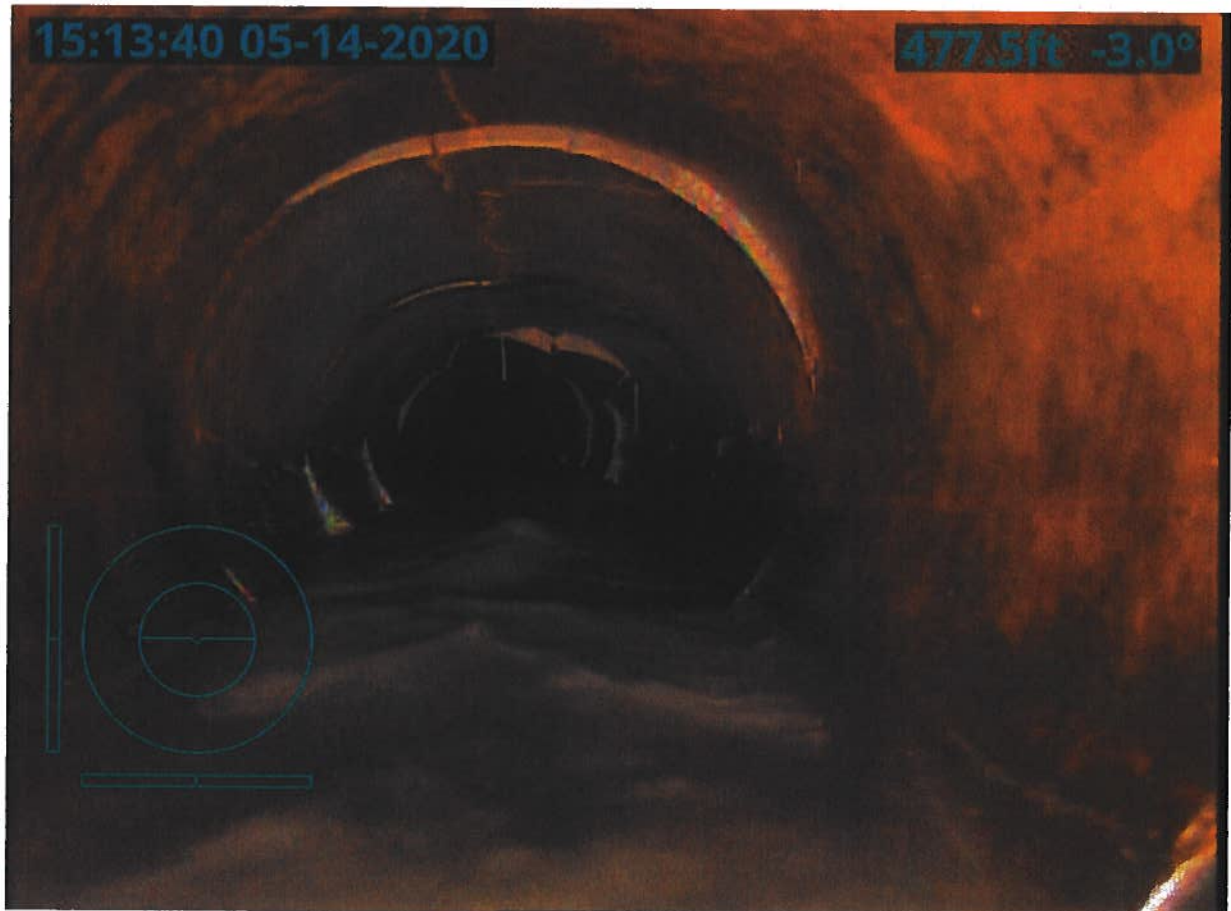
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456.9ft -2.4°

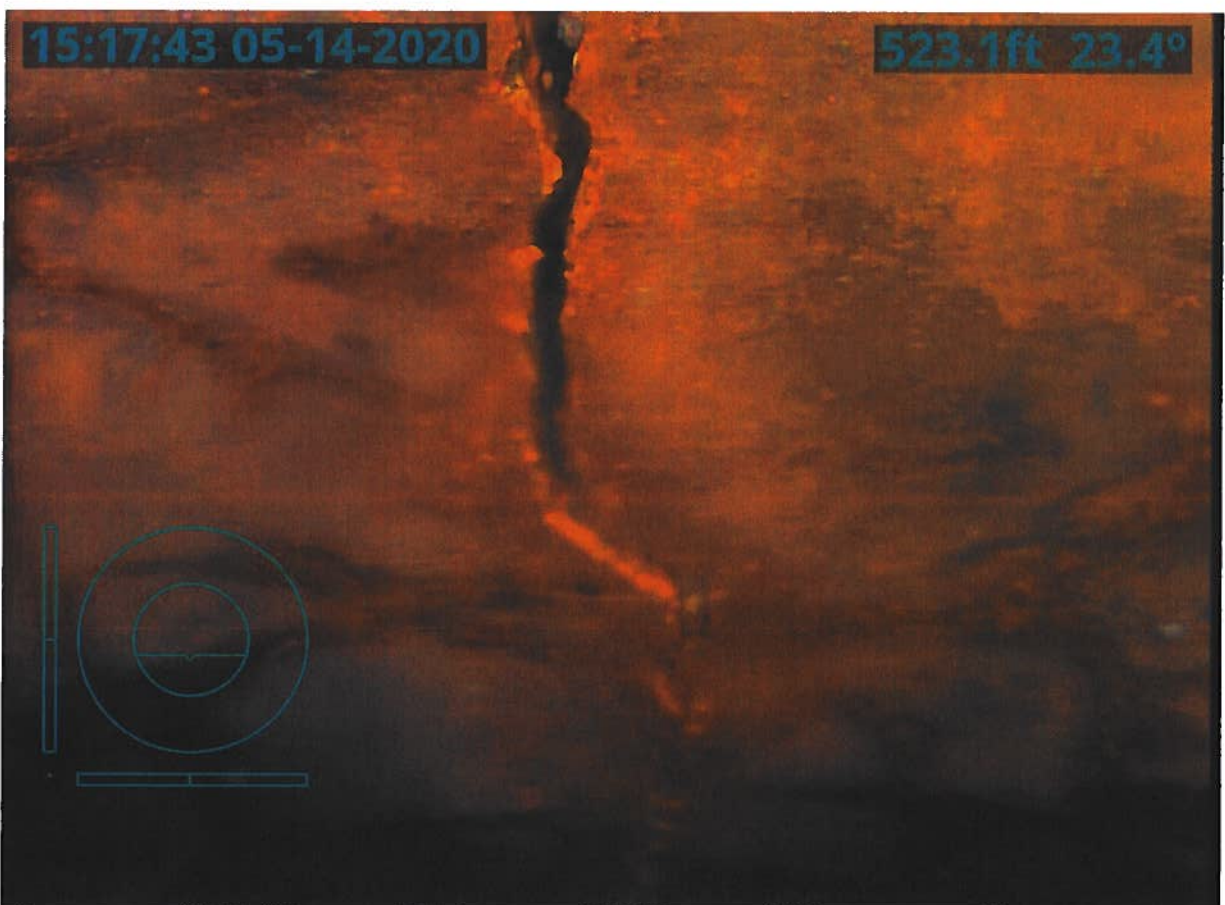


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477.5ft -3.0°

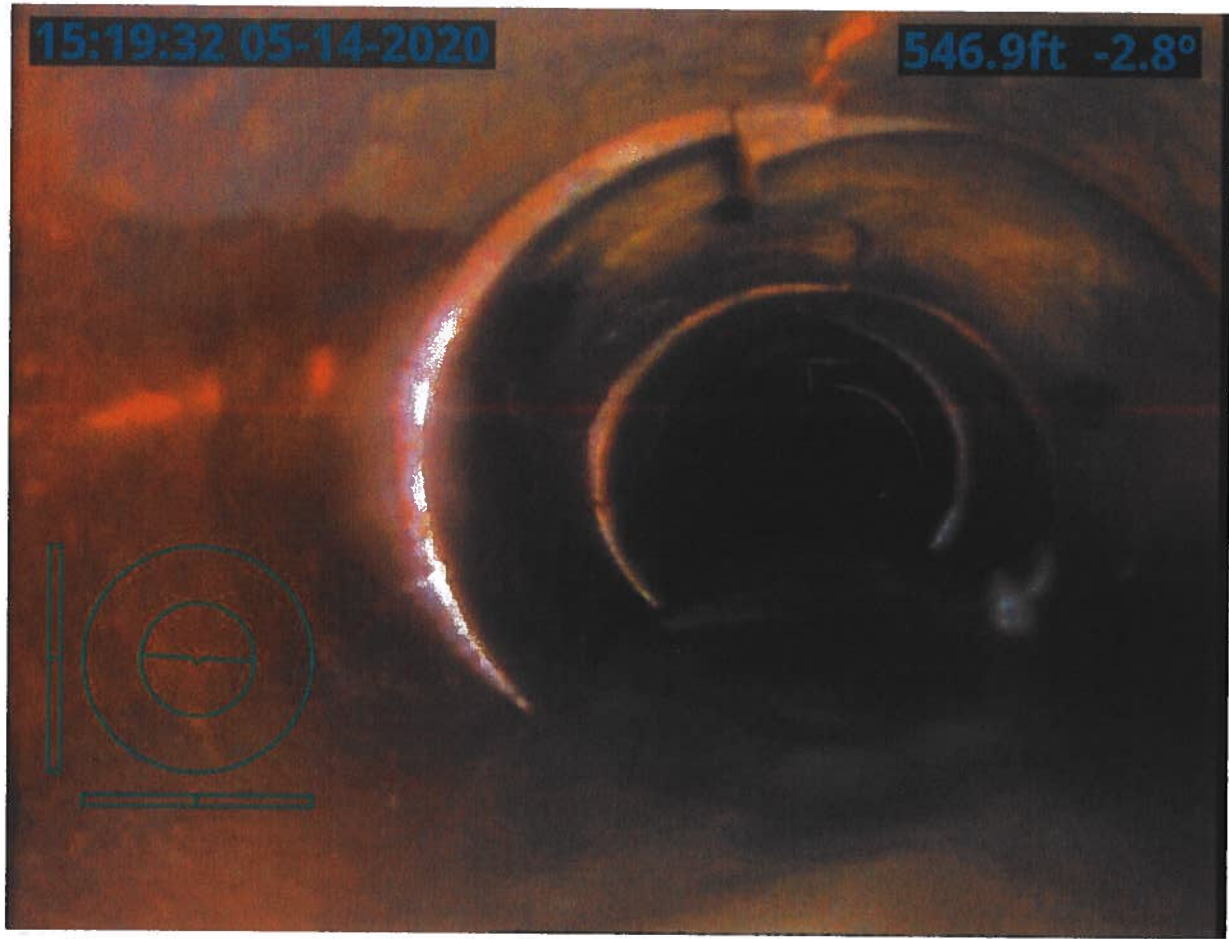






15:19:32 05-14-2020

546.9ft -2.8°

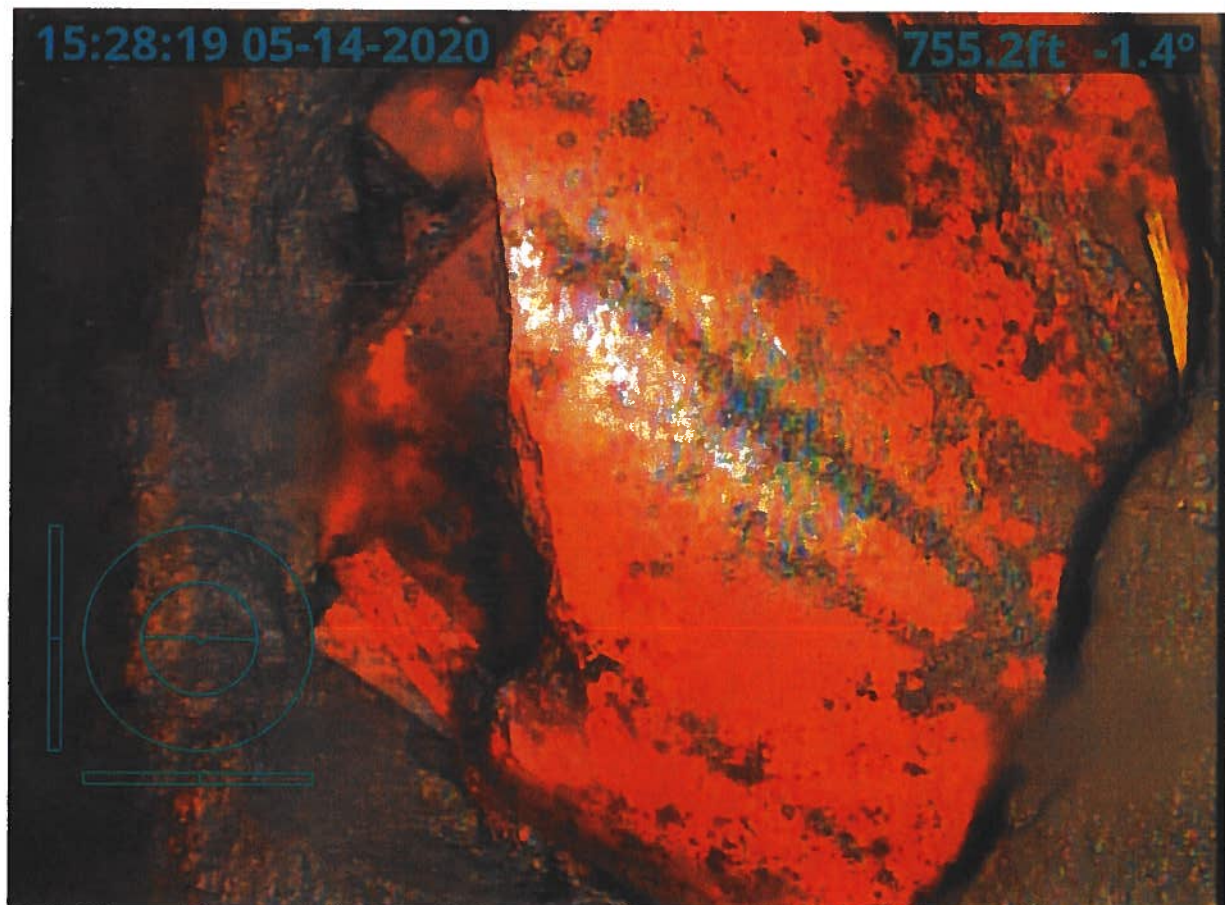
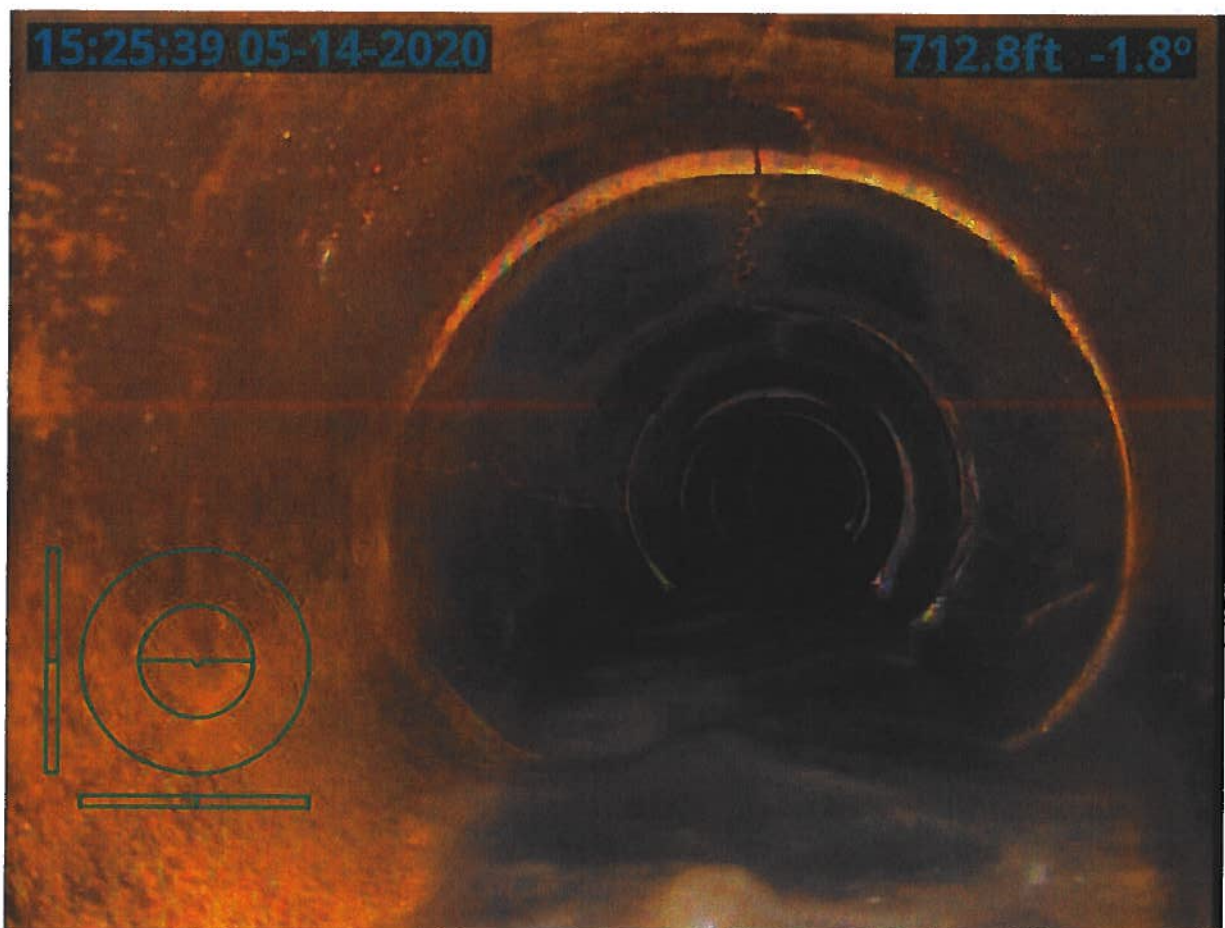


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602.6ft -2.9°

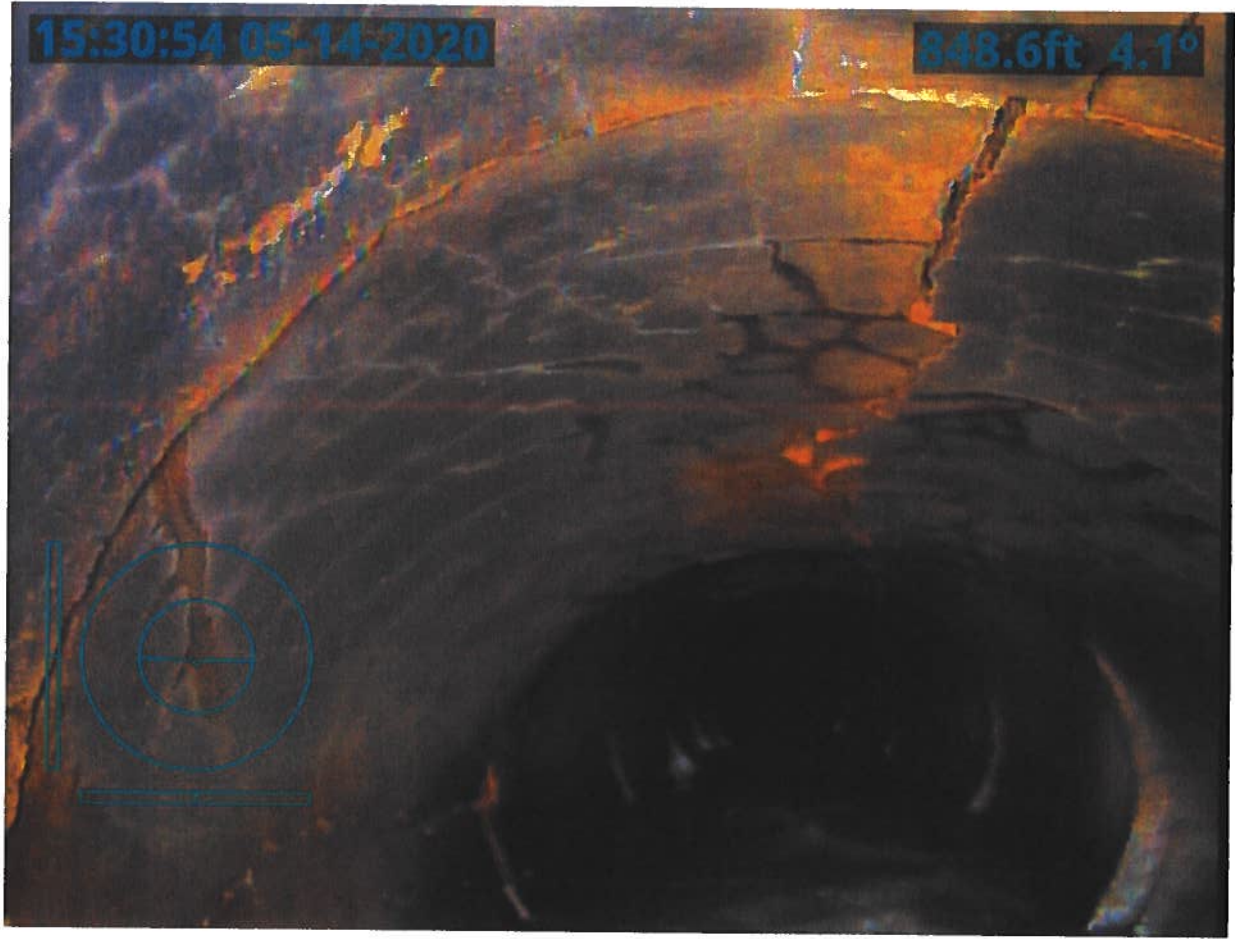






15:30:54 05-14-2020

848.6ft 4.1°





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

102,3606801.876,4950336.843,1134.500,TOP 15" CLAY 1.38' TOPTOFL  
 103,3606776.447,4950322.423,1139.240,GS ABOVE TILE  
 104,3606801.246,4950330.369,1139.443,GS  
 105,3606785.751,4950322.663,1139.572,GS  
 106,3606781.230,4950330.843,1139.443,GS  
 107,3606800.988,4950343.062,1139.717,GS  
 108,3606806.097,4950348.422,1140.101,FENCE E-W  
 109,3606806.277,4950329.481,1140.050,FENCE E-W  
 110,3606812.666,4950342.795,1139.661,GS  
 111,3606808.337,4950339.736,1138.919,GS  
 112,3606784.008,4950326.675,1134.306,TOP 15" CLAY 1.31' TOPTOFL  
 113,3606784.164,4950326.703,1134.338,TOP 15" HDPE PERF TILE  
 114,3606798.454,4950335.076,1134.431,TOP 15" HDPE PERF TILE  
 115,3606801.757,4950336.845,1134.463,TOP 15" HDPE PERF TILE  
 116,3605345.937,4950152.361,1122.926,GS ABOVE TILE  
 117,3605340.655,4950146.152,1122.854,GS ABOVE TILE  
 118,3605342.974,4950149.013,1120.006,TILE TOP "CLAY (1.25'TOP TO FL)  
 119,3605344.620,4950151.047,1120.026,TILE TOP "CLAY (1.22'TOP TO FL)  
 120,3605385.960,4950177.421,1123.131,GS ABOVE TILE  
 121,3605379.508,4950173.853,1123.177,GS ABOVE TILE  
 122,3605414.981,4950167.886,1124.101,GS WATERWAY  
 123,3605371.837,4950148.276,1123.621,GS WATERWAY  
 124,3605332.279,4950112.525,1122.863,GS WATERWAY  
 125,3605309.994,4950133.091,1122.804,GS WATERWAY  
 126,3605355.127,4950171.596,1123.269,GS WATERWAY  
 127,3605414.606,4950191.842,1123.890,GS WATERWAY  
 128,3605452.781,4950199.659,1124.464,GS TILE LOCATE  
 129,3605507.884,4950208.120,1125.500,GS TILE LOCATE  
 130,3605566.488,4950211.914,1125.840,GS TILE LOCATE  
 131,3605624.107,4950214.918,1126.524,GS TILE LOCATE  
 133,3605683.158,4950217.229,1126.920,GS TILE LOCATE  
 134,3605750.126,4950216.561,1127.637,GS TILE LOCATE  
 135,3605805.896,4950206.324,1128.247,GS TILE LOCATE  
 136,3605869.322,4950185.200,1128.558,GS TILE LOCATE  
 137,3605907.201,4950164.902,1128.683,GS TILE LOCATE END CAMERA  
 138,3605951.503,4950135.957,1125.608,TILE TOP "CLAY (1.09'TOP TO FL) REMOVED  
 139,3605948.015,4950138.425,1125.762,TILE TOP "CLAY (1.21'TOP TO FL) REMOVED  
 140,3606002.087,4950097.117,1129.897,GS TILE LOCATE  
 141,3606047.969,4950060.252,1130.485,GS TILE LOCATE  
 142,3606093.946,4950024.079,1131.195,GS TILE LOCATE  
 143,3606148.452,4949995.916,1131.594,GS TILE LOCATE  
 144,3606194.832,4949987.959,1131.959,GS TILE LOCATE  
 145,3606198.408,4949987.796,1132.012,GS TILE LOCATE END LOCATE  
 146,3605911.704,4950162.539,1125.405,TILE TOP "CLAY 1.32'TOPTOFL  
 147,3605913.527,4950161.426,1125.261,TILE TOP "CLAY 1.05'TOPTOFL REMOVED  
 148,3605905.139,4950166.616,1128.680,GS ABOVE TILE  
 149,3605914.838,4950160.561,1128.801,GS ABOVE TILE  
 150,3605945.044,4950140.580,1129.365,GS ABOVE TILE  
 151,3605953.724,4950134.445,1129.394,GS ABOVE TILE



201,3606210.807,4949998.901,1132.203,GS WATERWAY  
202,3606214.261,4949964.616,1132.458,GS WATERWAY  
203,3606132.656,4949976.520,1131.497,GS WATERWAY  
204,3606052.849,4950031.398,1130.741,GS WATERWAY  
205,3605988.156,4950092.948,1129.841,GS WATERWAY  
206,3605267.201,4950069.065,1122.129,GS WATERWAY  
207,3605228.432,4949964.232,1121.465,GS WATERWAY  
208,3605197.938,4949866.193,1120.875,GS WATERWAY  
209,3605163.386,4949760.174,1119.578,GS WATERWAY  
210,3605125.162,4949640.384,1118.926,GS WATERWAY  
211,3605110.716,4949585.173,1118.333,GS WATERWAY  
212,3605100.210,4949499.905,1117.402,GS WATERWAY  
213,3605122.963,4949510.205,1118.127,GS WATERWAY  
214,3605495.092,4949501.521,1129.346,FNL N-S&W  
215,3605133.332,4949555.621,1118.404,GS WATERWAY  
216,3605178.871,4949717.223,1119.920,GS WATERWAY  
217,3605241.192,4949906.375,1121.016,GS WATERWAY  
218,3605271.139,4950005.075,1121.944,GS WATERWAY  
219,3605312.635,4950088.007,1122.763,GS WATERWAY



# Drainage Work Order Request For Repair

## Hardin County

Date: 4/15/2020

Work Order #: WO00000291

Drainage District: DDs\DD 14 (51027)

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

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

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

Contact Phone: (641) 847-3273

Contact Email: jsweeney@cgaconsultants.com

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

### Description:

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

Repair labor, materials and equipment: \_\_\_\_\_

Repaired By: \_\_\_\_\_ Date: \_\_\_\_\_

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

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

For Office Use Only

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





# Drainage Work Order Request For Repair

## Hardin County

Date 4/20/2020

Work Order # \_\_\_\_\_

District # #14

Lateral Lat 2 & Main

Fund # \_\_\_\_\_

Township \_\_\_\_\_

Section 27, 34, 35wp 88

Rge 22 Qtr Sec \_\_\_\_\_

Repair Requested By Cynthia Iorger, Ronald Vierkandt, James Vierkandt

Address 15898 Co Hwy D41

Phone \_\_\_\_\_

Landowner Same

Address Same

Phone \_\_\_\_\_

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

Available for Repair Now? ☒ Yes

Date Available \_\_\_\_\_

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

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


Repair labor, materials and equipment \_\_\_\_\_

Potential Wetlands? ☐ Yes-Repair existing tile only

☐ No-Repair and maintain tile

Repaired By: \_\_\_\_\_

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

Please send statement for services to:

Phone (641) 939-8111

Fax (641) 939-8245

Hardin County Auditor's Office

Attn: Tina Schlemme

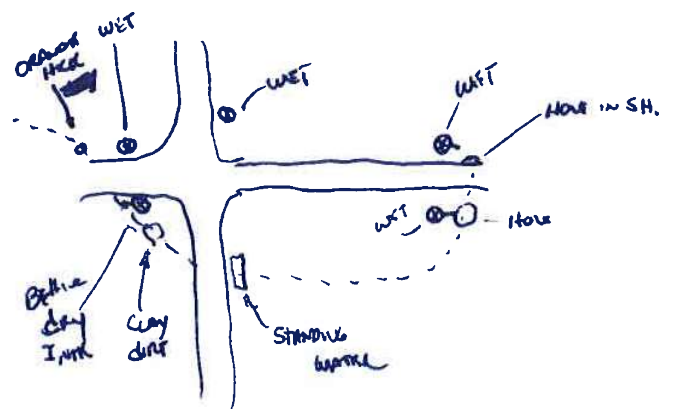
1215 Edgington Ave, Suite 1

Eldora, IA 50627

For Office Use Only

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

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





226300002

D. No. 42

23100002

235100004

## Drainage District:

#14 Main and Lateral 2

## Investigation and Repair Summary:

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





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

See attached Tabulated Contractor Time and Materials sheet.

### Additional Actions Recommended:

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



## Tabulated Contractor Time and Materials

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



## Tabulated Defects

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

CONSTRUCTION ENGINEERING  
OBSERVATION REPORT

DATE:

07/07/2020

DAYS OF WEEK:

S M ☒ W T F S

PROJECT NUMBER:

HARDIN DD WO # 292

COUNTY, ROUTE, ROAD:

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

SHEET NO.

1 OF 4

LOCATION:

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

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

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

JOB # 6844 DD 14 SURVEY

2:40 P.M. OBSERVER AND CREW ARRIVED  
ON SITE. CREW STARTED UNLOADING EQUIPMENT WITH ADAM,  
PERRY, & DYLAN ON SITE AND KOLBELCO SK85CS MINI EXCAVATOR  
& CASE TR340 TRACKED SKIDLOADER FOR EQUIPMENT. OBSERVER  
SET GPS BASE ON GPS # 23 3/4"  $\phi$  IRON ROD 0.2'  $\pm$  DEEP  
SW CORNER OF FIELD DRIVE IN SE QUADRANT OF CO HWY D-41 &  
CO HWY S-27.

3:00 P.M. GPS BASE WAS SET UP WITH OBSERVER LOOKING OVER  
INFORMATION FOR A GOOD PLACE TO START CHECKING.  
CREW WAS NOW @ INTERSECTION OF CO HWY D-41  
& CO HWY S-27 WITH EQUIPMENT.  
OBSERVER TOLD CREW TO CHECK INTAKES TO SEE IF THEY ARE DRY OR  
WET & THEN START RUNNING LOCATOR CABLE THROUGH  
INTAKES TO FIND OBSTRUCTION.

3:10 P.M. RON VIERKANDT STOPPED AND CHECKED HOW INVESTIGATION  
WAS GOING, OBSERVER TOLD RON THAT WE JUST ARRIVED ON SITE  
AND WERE CHECKING WHICH INTAKES ARE STILL WET THEN TRY  
RUNNING LOCATE CABLE DOWN INTAKES TO FIND POSSIBLE  
OBSTRUCTION.

3:20 P.M. FOUND BEE HIVE INTAKE IN SOUTH DITCH OF CO HWY D-41  
297'  $\pm$  WEST OF E CO HWY S-27 WITH 6" CLAY TILE OUTLET TO WEST  
WAS DRY. CREW WILL TRY RUNNING LOCATE CABLE INTO  
TILE FROM THIS LOCATION.

3:30 P.M. OBSERVER CHECKED GPS INTO GPS # 21 SURVEY MARK NAIL  
FLUSH IN AGE IN CO HWY S-27 ABOUT 2632'  $\pm$  SOUTH OF CO HWY D-41 WITH  
BOTH HORIZONTAL AND VERTICAL POSITION CHECKING GOOD.

3:35 P.M. OBSERVER NOTICED A HOLE STILL OPEN ON EAST SIDE OF EAST  
ROW FENCE FOR CO HWY S-27 322'  $\pm$  SOUTH OF CO HWY D-41. EXCAVATED

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

Observer's Signature:

Dean Penning

Date Prepared:

07/07/2020

Reviewed by:

☐ Engineer

Date Reviewed



CONSTRUCTION ENGINEERING  
OBSERVATION REPORT

DATE:

07/07/2020

DAYS OF WEEK:

S M ☒ W T F S

PROJECT NUMBER: HARDIN DD WO# 292

6844.5/DD#14

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

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

SHEET NO.

2 OF 4

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

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

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

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

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

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

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

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

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

Observer's Signature:

Dean Penning

Date Prepared

07/07/2020

Reviewed by:



Engineer

Date Reviewed



CONSTRUCTION ENGINEERING  
OBSERVATION REPORT

DATE:

07/07/2020

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

DAYS OF WEEK:

S M W T F S

SHEET NO.

3 OF 4

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

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

JOB# 6844 DD14, SURVEY

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

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

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

7:15 P.M. PICTURE # 4049 &

PICTURE # 4050 SEE PICTURE FOR DETAIL

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

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

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

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

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

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

QUANTITIES

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

KOLBELO SK85CS MINI EXCAVATOR 6 1/3 HOURS  
CASE TR-340 TRACKED SKIDLOADER 6 1/3 HOURS

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

Observer's Signature:

Dean Penning

Date Prepared:

07/07/2020

Reviewed by:



Engineer

Date Reviewed



CONSTRUCTION ENGINEERING  
OBSERVATION REPORT

DATE:

07/07/2020

PROJECT NUMBER: HARDIN DD WO # 292

DAYS OF WEEK:

S M W T F S

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

SHEET NO.

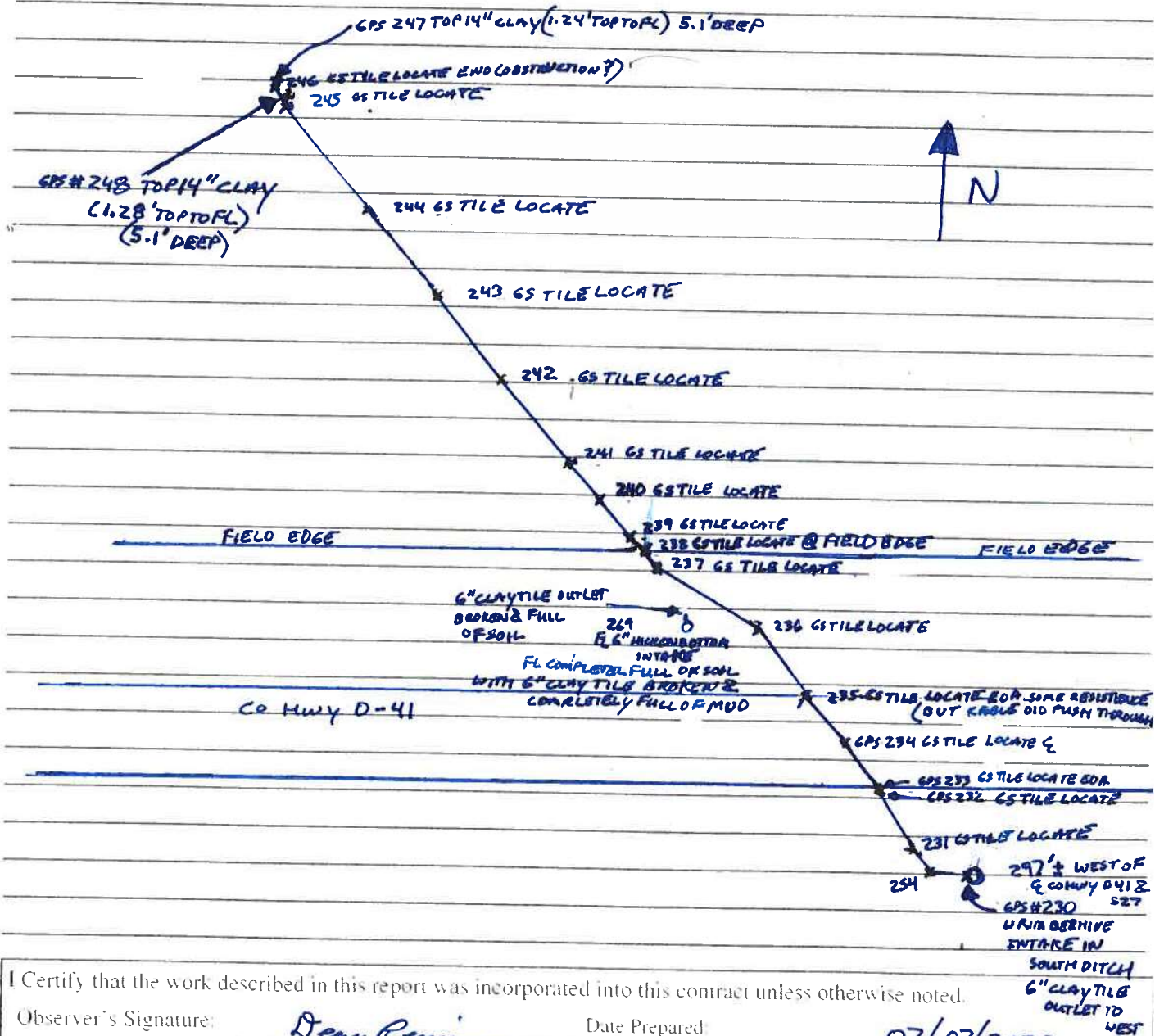
4 OF 4

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

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

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

JOB # 6844 DD14 SURVEY



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

Observer's Signature:

Dean Penning

Date Prepared:

07/07/2020

Reviewed by:

Engineer

Date Reviewed



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



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



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

NOT  
CAVING  
DOWN



N ↗

07/08/2020

S	M	T	W	T	F	S
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1 OF 5

JOB# 6844 0014. SURVEY

Users: Ryken Standard Forms and Procedures\Company Forms\Construction Engineering Observation Report (1)



CONSTRUCTION ENGINEERING  
OBSERVATION REPORT

DATE:

07/08/2020

PROJECT NUMBER:

NARROW DOWN # 292

6844.5/DD#14

COUNTY, ROUTE, ROAD:

INTERSECTION OF CO HWY  
S-27 & CO HWY D41

LOCATION:

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

DAYS OF WEEK:

S M T W T F S

SHEET NO.

2 OF 5

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

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

JOB # 6844 DD14, SURVEY

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

& PICTURE # 4053 SEE PICTURES FOR DETAILS.

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

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

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

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

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

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

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

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

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

Observer's Signature:

Dean Penning

Date Prepared:

7/08/2020

Reviewed by:

Engineer

Date Reviewed



CONSTRUCTION ENGINEERING  
OBSERVATION REPORT

DATE:

07/08/2020

PROJECT NUMBER:

HARDIN DDW0#252

DAYS OF WEEK:

S M T W T F S

COUNTY, ROUTE, ROAD:

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

SHEET NO.

3 OF 5

LOCATION:

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

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

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

JOB# 6844 DD14, SURVEY

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

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

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

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

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

12:05 P.M. CREW ROLLED ONE OF TRACKS OFF <sup>MINI</sup> EXCAVATOR HEADING BACK  
TO EXCAVATE AT POSSIBLE OBSTRUCTION.

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

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

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

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

Observer's Signature:

Dean Perry

Date Prepared:

7/08/2020

Reviewed by:

Engineer

Date Reviewed



CONSTRUCTION ENGINEERING  
OBSERVATION REPORT

DATE:

07/08/2020

PROJECT NUMBER:

HARDIN DDWO# 292

DAYS OF WEEK:

S M T W T F S

COUNTY, ROUTE, ROAD:

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

SHEET NO.

4 OF 5

LOCATION:

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

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

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

JOB# 6844 DD14, SURVEY

1:13 P.M. PAUL HAD GENERATOR STARTED  
TO START TELEVISIONING TILE UPSTREAM.

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

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

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

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

THAT TIE IN AT SAME LOCATION WITH CLAY TILE SIDES CRACKED

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

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

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

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

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

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

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

10.1' LATERAL LEFT

LATERAL RIGHT @ 2 O'CLOCK

84.1' CHUNK OF TILE IN FL

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

IF HE WENT ANY FURTHER CAMERA WOULD GET STUCK IN CONNECTION

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

IN MAIN. PAUL AND OBSERVER LOCATED APPROXIMATE LOCATION

OF MAIN/LAT 2 CONNECTION AND SHOT WITH GPS.

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

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

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

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

SAID SINCE WE HAVE BLOCKAGE ISSUE RESOLVED THERE IS NO REASON  
TO TELEVISION ANYTHING MORE. PAUL LEFT SITE FOR DAY. PAUL WILL DROP

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

Observer's Signature:

Dean Penny

Date Prepared:

7/08/2020

Reviewed by:

Engineer

Date Reviewed



CONSTRUCTION ENGINEERING  
OBSERVATION REPORT

DATE:

07/08/2020

PROJECT NUMBER:

HARDIN DD W0 #292

DAYS OF WEEK:

S M T W T F S

COUNTY, ROUTE, ROAD:

6844.5/00H14  
5-27 & CO HWY 041  
INTERSECTION OF COMWY

SHEET NO.

5 OF 5

LOCATION:

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

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

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

JOB # 6844 DD14 SURVEY

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

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

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

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

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

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

QUANTITIES

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

PAUL WITH CAMERA EQUIPMENT 2 1/3 HOURS

KOLBELCO SK 85CS MINI EXCAVATOR 7 HOURS

CASE TR 340 TRACKED SKID LOADER 7 3/4 HOURS

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

Observer's Signature:

Dean Penning

Date Prepared:

07/08/2020

Reviewed by:

Engineer

Date Reviewed





**Clapsaddle-Garber Associates, Inc.**

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

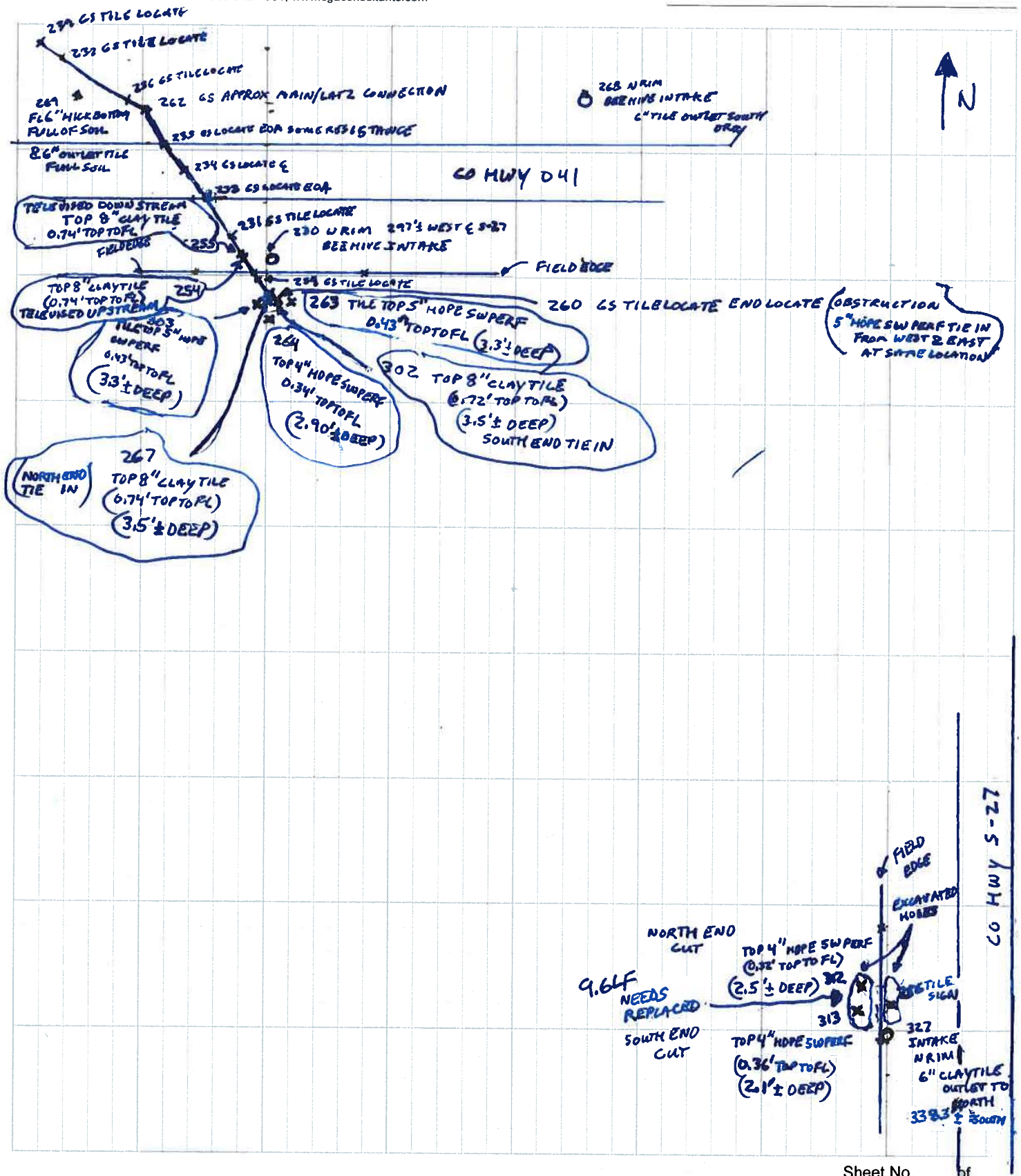
365.6  
300.657

6844.5 / DO#14

07/08/2020

D.R.A.

PN \_\_\_\_\_  
Computed By \_\_\_\_\_ Date \_\_\_\_\_  
Checked By \_\_\_\_\_ Date \_\_\_\_\_  
Subject \_\_\_\_\_



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



(3.7' ± DEEP)

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

07/08/2020  
08:51

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



N

07/08/2020  
08:52

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



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



THINKS  
THIS TILE  
IS  
ABANDONED

N  
↓

07/08/2020  
08:52

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



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



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



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



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



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

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



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



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



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



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



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



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



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



N

GPS#253  
TOP 8" CLAY TILE

GPS#254  
TOP 8" CLAY  
TILE

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



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



5" HOPE SUPER TILE



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



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



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

07/08/2020  
17:32

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



268  
NRIM  
BEEHIVE  
INTAKE

N  
→

07/08/2020  
17:39

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



CONSTRUCTION ENGINEERING  
OBSERVATION REPORT

DATE:

07/09/2020

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

DAYS OF WEEK:

S M T W Th F S

SHEET NO.

1 OF 6

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

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

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

Observer's Signature:

Dean Penning

Date Prepared:

07/09/2020

Reviewed by:



Engineer

Date Reviewed



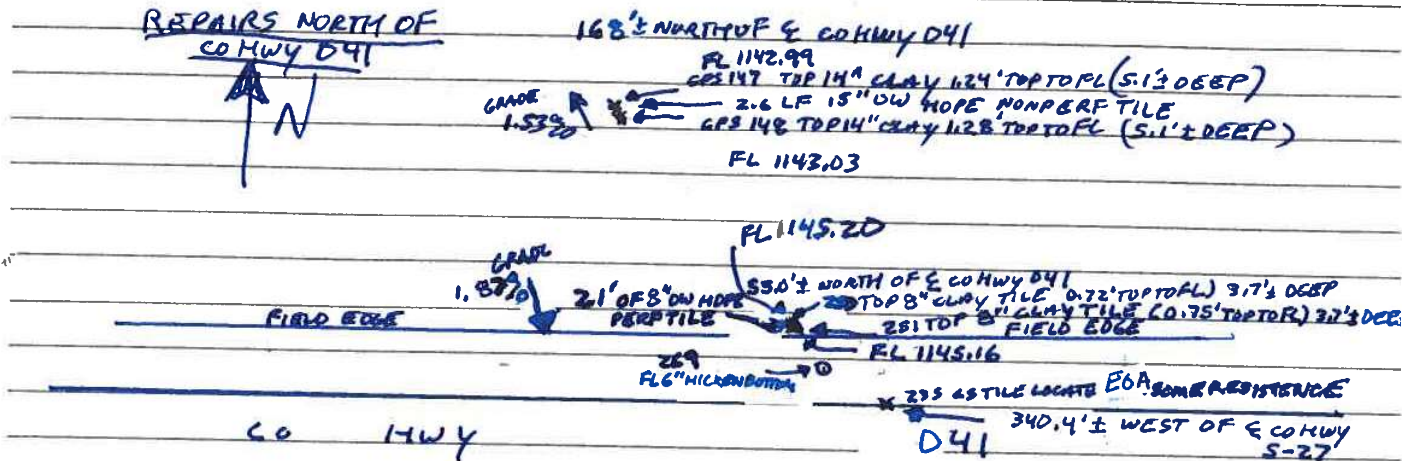
07/09/2020

S	M	T	W	<b>Th</b>	F	S
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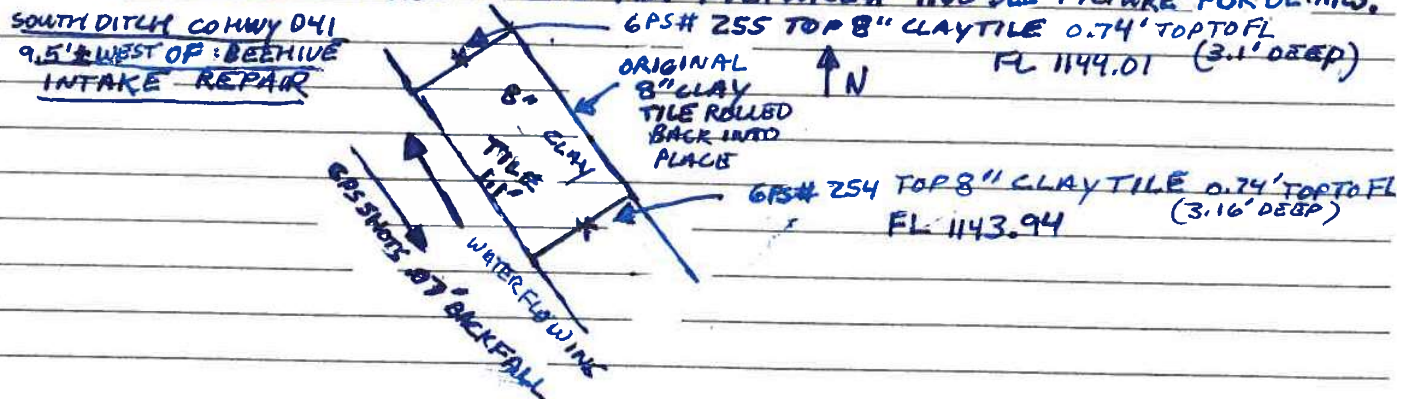
2 OF 6

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

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB  
NAME, ITEM NO. AND LOCATION 12:52 P.M. PICTURE # 4100 & 12:56 P.M. PICTURE # 4101  
SEE PICTURE FOR DETAILS.



1:00 P.M. CREW STARTED FIXING TILE ON SOUTH SIDE OF CONCRETE D4/  
1:20 P.M. PICTURE # 4102, 1:27 PICTURE # 4103 SEE PICTURE FOR DETAILS  
1:58 P.M. PICTURE # 4104 & 2:02 PICTURE # 4105 & PICTURE # 4106 SEE PICTURE FOR DETAILS  
2:08 P.M. PICTURE # 4107 & 2:21 P.M. PICTURE # 4108 SEE PICTURE FOR DETAILS.



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

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

Observer's Signature: Dean Penning

Date Prepared:

07/09/2020

Reviewed by:

Engineer

Date Reviewed



07/09/2020

S	M	T	W	<b>Th</b>	F	S
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3 OF 6

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

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

Row

5<sup>th</sup> HOPE SWPCT  
THE TIE IN  
CONNECTIONS TO  
LATERAL HZ

OUT JOINT CONNECTION  
3/4 CONCRETE COLLAR

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

2.2 LF OF 5" HOPE  
PERFITLE

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

3/4 concrete  
column

5" HDPE  
INTERNAL  
SNAP COUPLER

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

GPS 305  
TOP 8" x 8" x 3  
HOPE TREE  
(3.55' OVER)

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

FL 1144.61

GPS # 263 TOP 5" MOPE PERE  
0.43' TOP TO FL 3.11' DIA

GPS#308 TOP 5" HOPE PERF TILE @ TRF

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

0.72' TOPTO FL  
(3.47' DEEP)

WITH 3/4 CONCRETE COLLAR

4" HOPE INTERNAL  
SMA COUPLER

8.34' TOP TO FL 2.9' ± DEEP  
FL 1145.091

GPS# 302 TOP 8" CLAY 1144.85  
-0.72  
1144.13

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

GPS# 267 TOP 8" CLAY 1144.77  
- 0.74  
1144.03

Observer's Signature: \_\_\_\_\_

Date Prepared:

Reviewed by:

Engineer

Date Reviewed



CONSTRUCTION ENGINEERING  
OBSERVATION REPORT

DATE:

07/09/2020

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

DAYS OF WEEK:

S M T W Th F S

SHEET NO.

4 OF 6

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

3:48 P.M. CREW DONE POURING 3/4 CONCRETE  
COLLARS FOR 5" HOPE PERF TILE TIE IN CONNECTION AND START  
WORKING ON TILE REPAIRS ON EAST & WEST SIDE OF CO HWY  
S-27.

3:51 P.M. PICTURE # 4116 SEE PICTURE FOR DETAILS

4:00 P.M. PICTURE # 4117 & 4:01 P.M. PICTURE # 4119 SEE PICTURES FOR DETAILS

4:03 P.M. PICTURE # 4120 & 4:06 P.M. PICTURE # 4121 SEE PICTURE FOR DETAILS

4:58 P.M. PICTURE # 4122 SEE PICTURE FOR DETAILS

5:26 P.M. PICTURE # 4123 & 5:36 P.M. PICTURE # 4124 SEE PICTURE FOR DETAILS

5:56 P.M. PICTURE # 4125 & PICTURE # 4126 SEE PICTURE FOR DETAILS

6:11 P.M. PICTURE # 4127 & 6:15 PICTURE # 4128 SEE PICTURE FOR DETAILS

7:40 P.M. PICTURE # 4129, 7:41 P.M. PICTURE # 4130 SEE PICTURE FOR  
DETAILS

7:42 P.M. PICTURE # 4131 & PICTURE # 1 SEE PICTURE FOR DETAILS

7:00 P.M. CREW LEFT SITE. CREW WILL FINISH BACK FILLING  
TRENCHES TOMORROW.

QUANTITIES

ADAM 8:40-9:30, 10 TO 7 9 3/4 HOURS  
GETTING LOAD OF 1" CEMENT ROCK WITH DUMP TRAILER 1/2 HR

DYLAN 9:45 TO 7 9 1/4 HOURS PERRY 9:45 TO 7 9 1/4 HOURS

LARSON 11 TO 7 8 HOURS

KOLBELCO SK 85 CS MINI EXCAVATOR 10 TO 7 9 HOURS

CASE TR 340 TRACKED SKIDLOADER 10 TO 7 9 HOURS

CONCRETE MIXER ON SKIDLOADER 14" CLAY REPAIR N. OF D41 1/2 HOUR

8" CLAY REPAIR N. OF D41 1/2 HOUR

8" CLAY REPAIR SOUTH D41 1/2 HOUR

REST OF CONCRETE COLLARS. 1 HOUR

REPAIRS

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

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

Observer's Signature:

Dean Penning

Date Prepared:

07/09/2020

Reviewed by:

☐ Engineer

Date Reviewed



CONSTRUCTION ENGINEERING  
OBSERVATION REPORT

DATE:

07/09/2020

PROJECT NUMBER:

HARDIN DD W0# 292

DAYS OF WEEK:

S M T W Th F S

COUNTY, ROUTE, ROAD:

6844.5/00H14  
INTERSECTION OF CO HWY  
S-27 & CO HWY D41

SHEET NO.

5 OF 6

LOCATION:

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

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

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

② 8" CLAY TILE REPAIR (NORTH OF D41)

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

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

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

④ S" HDPE PERF TILE TIE IN REPAIR

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

④B EAST 5" PERF TILE TIE IN

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

④C WEST 5" PERF TILE TIE IN

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

④D 3/4 CONCRETE COLLARS

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

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

Observer's Signature:

Dean Penning

Date Prepared:

07/09/2020

Reviewed by:

Engineer

Date Reviewed



CONSTRUCTION ENGINEERING  
OBSERVATION REPORT

DATE:

07/09/2020

PROJECT NUMBER:

MADON DD WO # 292

DAYS OF WEEK:

S M T W 0 F S

COUNTY, ROUTE, ROAD:

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

SHEET NO.

6 OF 6

LOCATION:

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

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

JOB # 6844. DD#14 SURVEY

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

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

⑤ HOLE IN 8" HOPE NON PERF TILE REPAIR

2.0 X 2.0 ENGINEER FABRIC

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

4 - 60 LB BAGS OF QUIKRETE HIGH STRENGTH CONCRETE.

⑥ 4" HOPE PERF TILE REPAIR

9.8 LF 4" HOPE PERF TILE WITH 2 4" INTERNAL <sup>SNAP</sup> COUPLERS

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

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

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

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

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

I Certify that the work

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

Observer's Signature:

Dean Penny

Date Prepared:

07/09/2020

Reviewed by:

Engineer

Date Reviewed







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

- Quick Links:  
Property Search  
View Map  
Drainage District Search
- Layers:  
☐ Address  
☒ Corporate Limits  
☒ Political Townships  
☐ Geographic Townships  
☐ Sections  
☐ Subdivision Annotation  
☐ Subdivisions  
☐ Lot Annotation  
☐ Lot Lines  
☒ Road Dimensions  
☐ Road ROW  
☐ Railroad Annotation  
☐ Railroads  
☐ Railroad ROW  
☐ Water  
☐ Parcel Dimensions  
☒ Parcels

002234200002

100 ft

002234200003

002234200003

15898 Co Hwy D41

CORN DRAINAGE #3

CORN DRAINAGE #2

Co Hwy D41

Co Hwy D27

4951922.B8, 3607641.D9

esri

Parcel ID: 882234200003  
Alt ID: 2840100000  
Address: 15898 CO HWY D41  
Owner: Verhardt, Ronald R - Trust Verhardt, Carol Jean - Trust (Deed)  
Acres: 18.69  
View: Report | Pictometry Imagery

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

Parcel ID: 882234200003  
Sec/Twp/Rng: 34-88-22  
Property Address: 15898 CO HWY D41  
HARDIN  
Class: AD  
Acreage: 18.69  
Alternate ID: 2840100000  
Owner Address: Verhardt, Ronald R - Trust Verhardt, Carol Jean - Trust  
15898 Highway D41  
Alden IA 50006-9141



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



N ↑



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

GPS # 88



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



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



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



↑  
NW



→  
W

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



PICTURE # 4094 IS LOOKING SE TOWARDS CONWYD4  
 @ CORN DAMAGE / TO TILE REPAIR



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



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

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



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

07/09/2020  
12:02



07/09/2020  
12:03

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



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



WILL CONNECT  
 TOGETHER  
 IN CASE  
 ANY TILE  
 UPSTREAM  
 IS CONNECTED  
 YES



GPS #251

TILE TOP 8" CLAY

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



GPS #250

TILE TOP 8" CLAY

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

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



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



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



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



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

NA

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



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



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



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



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



CONCRETE ON COLLAR

GSH254



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



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



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



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

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



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



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

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

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



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



302

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



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



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

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

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



N ↓

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

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

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

07/09/2020  
15:20

21' LF OF 5" HOPE PERF TILE

PICTURE # 4113

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



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

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



5" HDPE  
INTERNAL  
SNAP COUPLER

3.0 LF OF  
5" HDPE  
PERF TILE

GPS# 304 TOP 8"x8"x5"  
HDPE TEE



GPS#263  
5" HDPE  
SW PERF  
TILE

GPS#304 TOP 8"x8"x5"  
HDPE TEE

PICTURE #4115

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



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



EAST OF  
EAST ROW  
FENCE  
COM HWY  
S-27  
IN WETLAND  
AREA



GPS #311  
TOP 8" HOPE  
NONPERF

07/09/2020  
15:51



07/09/2020  
16:00

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



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



GPS #311

N

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



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



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



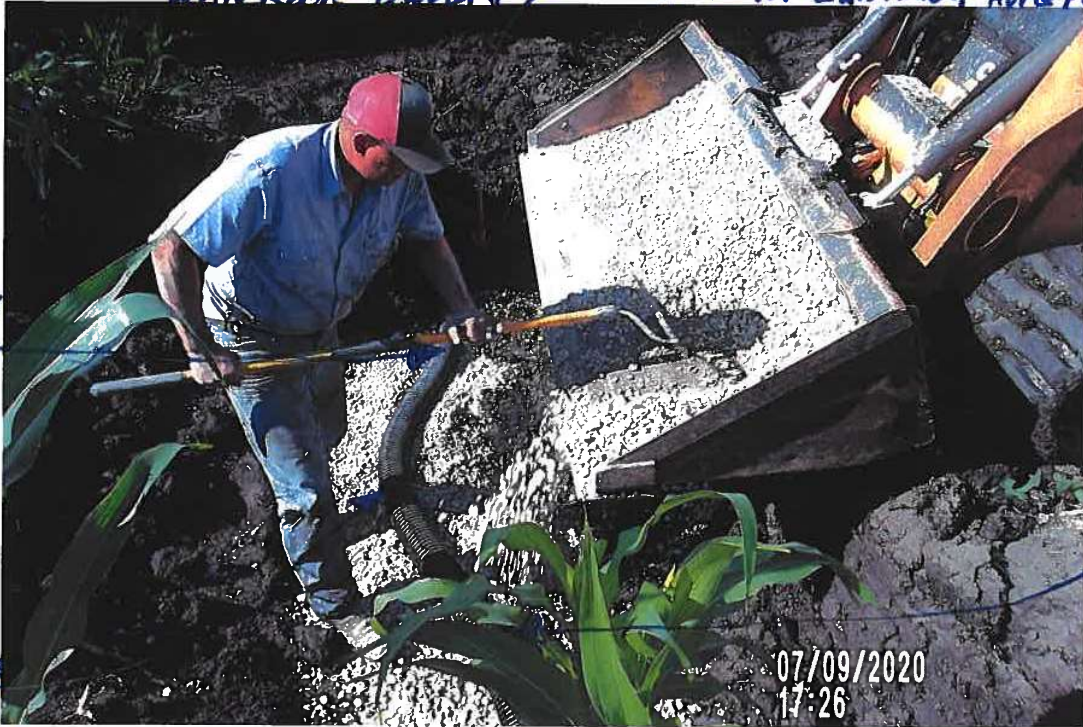
PICTURE # 4123 IS LOOKING NORTH SHOWING 9.8 LF  
 OF 4" HDPE SW PERF TILE INSTALLED WITH 4" HDPE  
 INTERNAL COUPLERS AND OFF TO SIDE SOME FOR FIRMER GROUND & BEDDED  
 WITH ROCK UNDER. GPS # 312 TOP EXISTING 4" HDPE PERF TILE

(0.32' TOP TO FL)  
 GRADE ON  
 TILE  
 2.02%

↑ N

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

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



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

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



↑

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



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



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



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



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



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



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

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



(GPS#331 TO  
GPS#330)

N  
↙



[illegible]

CONSTRUCTION ENGINEERING  
OBSERVATION REPORT

DATE:

07/13/2020

PROJECT NUMBER:

HARDIN DD WO# 292

DAYS OF WEEK:

S M T W T F S

COUNTY, ROUTE, ROAD:

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

SHEET NO.

1 OF 2

LOCATION:

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

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

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

JOB# 6844 DD14 SURVEY  
07/10/2020 PERRY AND TR340 TRACKED SKIDLOADER  
FINISHED BACKFILLING REST OF HOLES LEFT OPEN 2 HOURS

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

AROUND 10:00 A.M. TO REPAIR BLOWOUT IN SOUTH DITCH  
OF D41 EAST OF BEEHIVE INTAKE

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

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

9:10 A.M. OBSERVER ARRIVED ON SITE AND SET GPS BASE ON GPS #23  
3/4" Ø IRON REBAR 0.2' ± DEEP SW CORNER OF FIELD DRIVE  
IN SE QUADRANT OF CO HWY D-41 & CO HWY 5-27.

9:40 A.M. OBSERVER HAD GPS BASE SET UP AND CHECKED INTO  
GPS #21 SURVEY MARK NAIL FLUSH IN ACC IN CO HWY 5-27  
ABOUT 2632' ± SOUTH OF E CO HWY D41 WITH BOTH HORIZONTAL  
AND VERTICAL POSITIONS CHECKING GOOD

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

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

10:00 A.M. ADAM ARRIVED ON SITE WITH KOLBELCO SK85 CS MINI  
EXCAVATOR & CASE TR340 TRACKED SKIDLOADER FOR EQUIPMENT.  
PERRY WENT TO HELP ADAM UNLOAD EQUIPMENT.

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

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

10:20 A.M. OBSERVER SHOT CULVERT, BEEHIVE INTAKE IN NORTH  
AND SOUTH DITCH OF CO HWY D41 & SINK HOLE IN NORTH  
SHOULDER OF CO HWY D41.

10:25 A.M. UPON FURTHER INVESTIGATION SINK HOLE IN NORTH SHOULDER  
IS DIRECTLY ABOVE 18" RCP ABOUT 11.7' ± SOUTH OF NORTH  
END OF RCP SO SINK HOLE IS A CULVERT ISSUE (COUNTY ROAD  
DEPARTMENT)

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

Observer's Signature:

*Adam Perry*

Date Prepared:

07/13/2020

Reviewed by:

☐ Engineer

Date Reviewed



07/13/2020

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

2 OF 2

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

JOB # 6844 DD K/SURVE

1106 AM PICTURE #4141 & 1108 AM PICTURE #

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

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

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

2:30 P.M. OBSERVER AND CREW LEFT SITE

## QUANTITIES

PERRY,  
ADAM

9:50 - 11:30

1:10 - 2:30

3 HOURS

1 2/3 HOURS GETTING SUPPLIES

KOLBELLO SK 85CS MINI EXCAVATOR 3 HOURS

CASE TR 340 TRACKED SKID LOADER 3 HOURS

2.4 LFOF 6" HDPE SW PERF TILE, 6" HDPE INTERNAL SNAP COUPLER

3- 1.5' x 2.0' ENGINEER FABRIC & 3- 2.0' x 1.5' 6"x6" SQUARE

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

OUTLET ORY  
TITLE

340 18" BEEHIVE N RIM

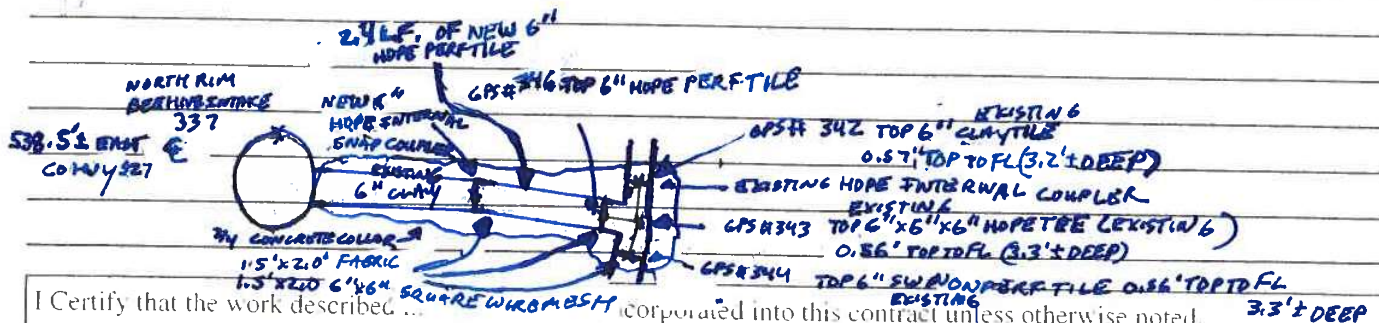
341 TOP 18" RCP 11.31 TOP TOP RL

### 339 CS Blower Shoulder

04

538 TOP 18" CMP 1.54' TOP TO FLOW

$\uparrow N$



I Certify that the work described in 105 NEW YORK STATE FILE DISK TO  
SQUIRE WILSON LLP incorporated into this contract unless otherwise noted.

Observer's Signature: \_\_\_\_\_

Date Prepared:

Reviewed by:

Engineer

Date Reviewed



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

GPS# 337  
18" BEEHIVE  
INTAKE  
N RIM



DIP IN  
GRAVEL  
SHOULDER  
WITH  
FRESH  
ROCK

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



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



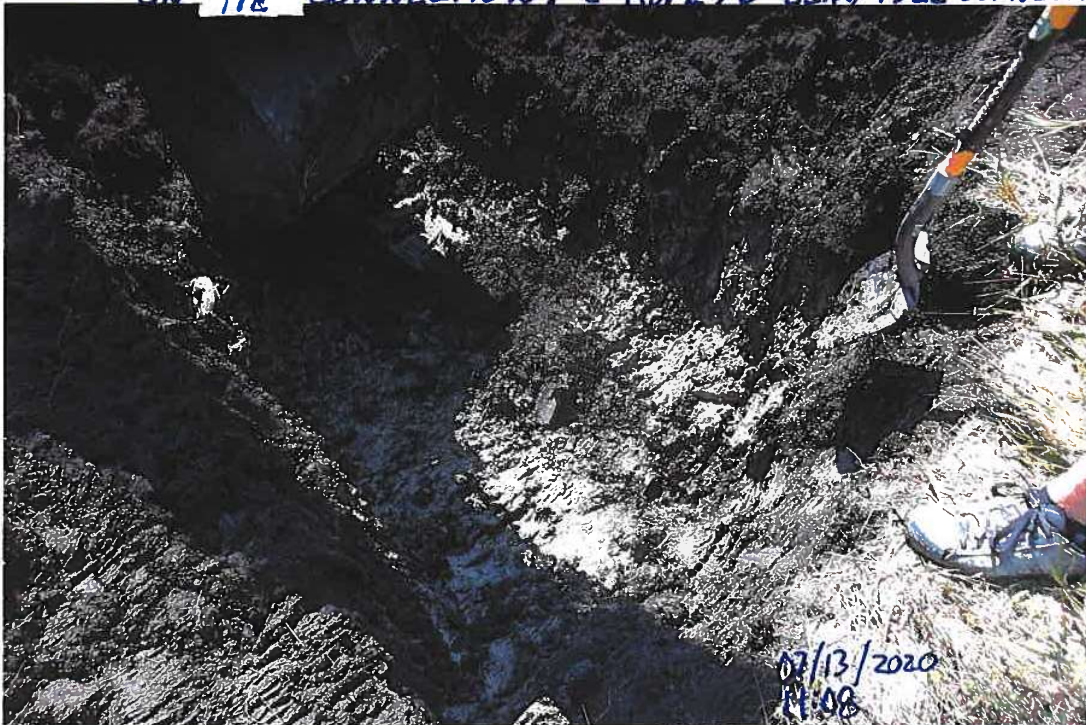
SINKHOLE  
 EAST OF  
 BEEHIVE  
 INTAKE



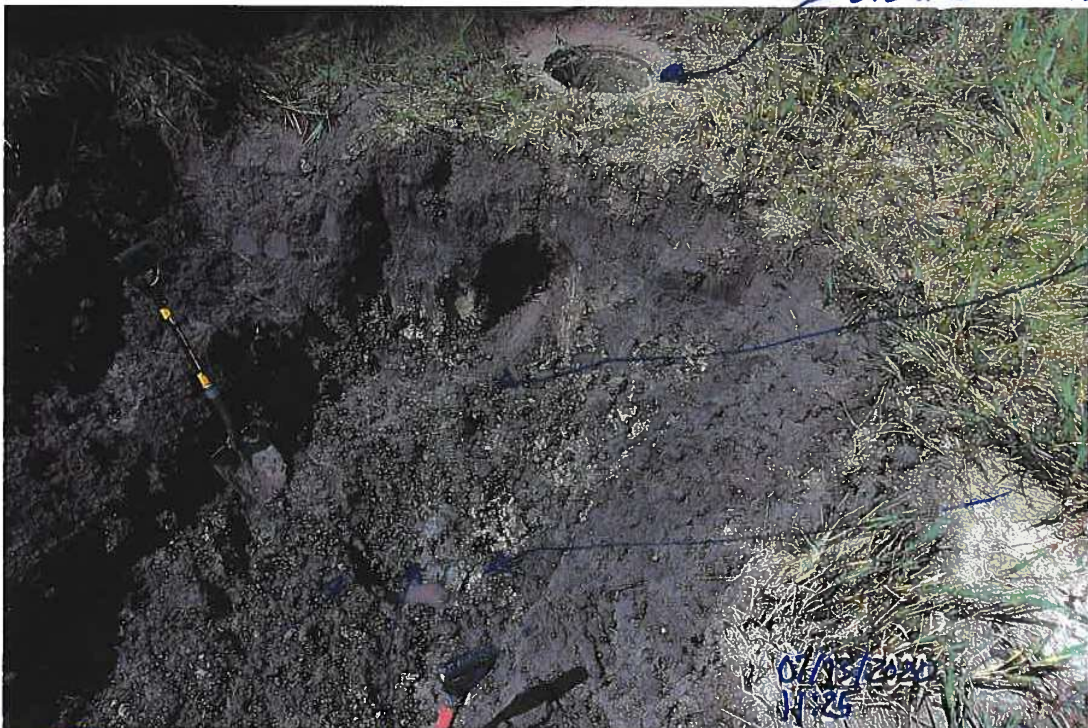
PICTURE# 4141 IS LOOKING EAST ON EAST SIDE OF  
 BEEHIVE INTAKE SHOWING 6" HDPE PERF TILE CONNECTION  
 TO 6" CLAY TILE OUTLET EAST FROM BEEHIVE INTAKE,



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



GPS# 337 18" BEEHIVE INTAKE  
N RIM



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

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

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

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

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



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



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



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



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



07/13/2020  
11:46

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



07/13/2020  
13:46

GPS# 346  
TOP 6" HDPE  
PERF TILE

6" HDPE  
INTERNAL  
COUPLER

2.4 LF  
OF 6" SUPERF  
TILE

PICTURE # 4148

IS LOOKING NE SHOWING 6" HDPE<sup>SM</sup> PERF TILE  
SLIDE INTO TEE & TIED UPSTREAM INTO 6" CLAY TILE WITH  
6" HDPE INTERNAL COUPLER.



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



337  
NRMS  
BEEHIVE  
INTAKE



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



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



PICTURE# 4152 IS LOOKING NORTH SHOWING TRENCH  
BACKFILLED EAST OF EAST ROW LHWY 327 & SOUTH D41  
IN WETLAND DUG BY PREVIOUS CONTRACTOR



# Inspection Report

Produced on behalf of – HARDIN CO

Site location – ,

Survey reference –

Date – 080720

WILLIAMS UNDERGROUND SVCS.

102 INDUSTRIAL DRIVE, ACKLEY, IOWA

50601,

641-485-3925

## Contents

<b>1</b>	<b>Drain / Sewer Survey .....</b>	<b>Error! Bookmark not defined.</b>
1.1	Site information .....	<b>Error! Bookmark not defined.</b>
1.2	Drain / Sewer Details .....	<b>Error! Bookmark not defined.</b>
1.3	Survey Details .....	<b>Error! Bookmark not defined.</b>
1.4	Drain / Sewer Diagram .....	<b>Error! Bookmark not defined.</b>
1.5	Observations .....	<b>Error! Bookmark not defined.</b>
1.6	Photographs.....	<b>Error! Bookmark not defined.</b>
<b>2</b>	<b>Drain / Sewer Survey .....</b>	<b>Error! Bookmark not defined.</b>
2.1	Site information .....	<b>Error! Bookmark not defined.</b>
2.2	Drain / Sewer Details .....	<b>Error! Bookmark not defined.</b>
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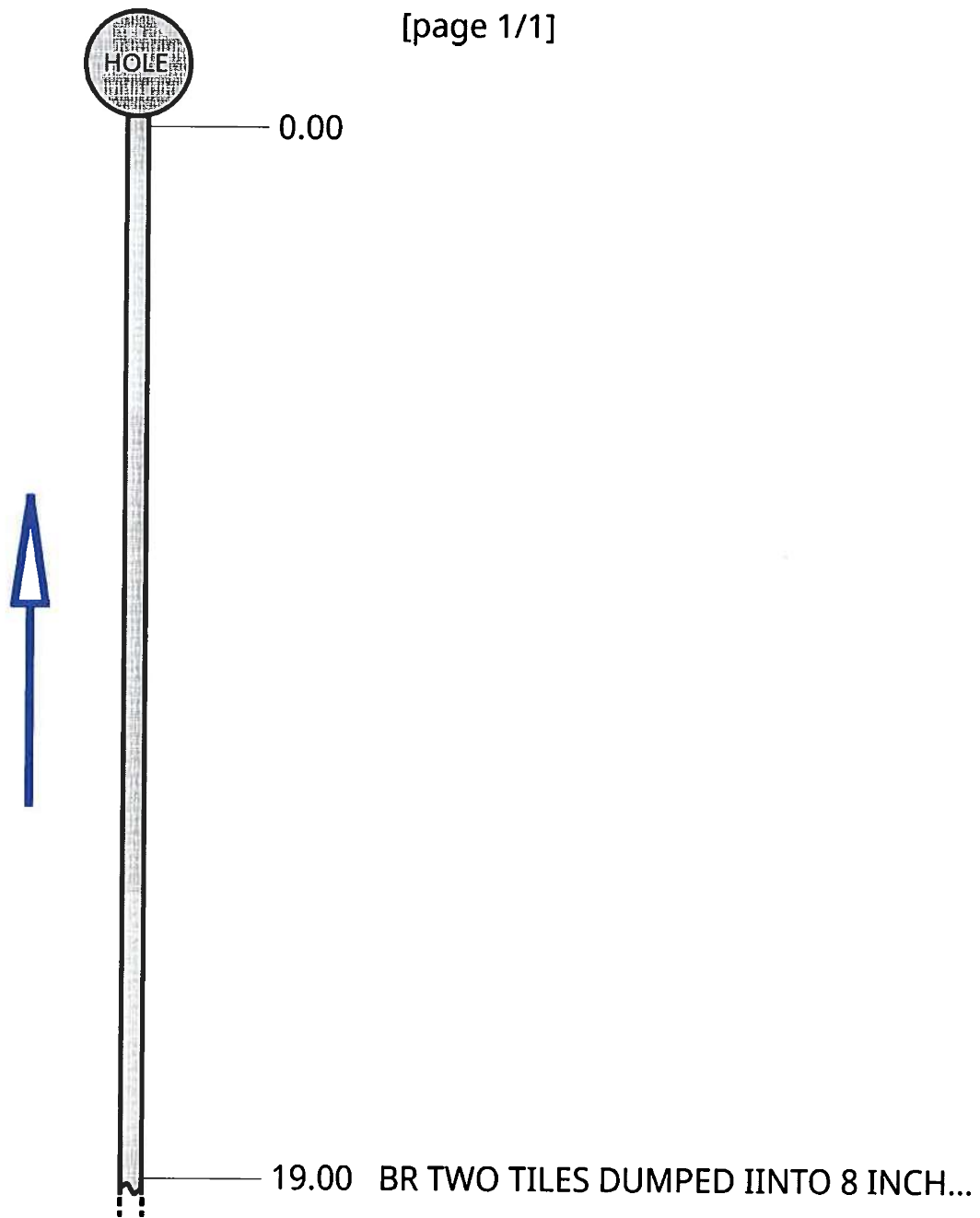
# 1 Drain / Sewer Survey

## 1.1 Survey Header

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


## 1.2 Diagram

[page 1/1]





### 1.3 Observations

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

## 1.4 Photographs

BR 2020\_07\_08-13\_30\_01\_583.jpg





# Inspection Report

Produced on behalf of – HARDIN CO

Site location – ,

Survey reference – W/O 292

Date – 080720

WILLIAMS UNDERGROUND SVCS.

102 INDUSTRIAL DRIVE, ACKLEY, IOWA

50601,

641-485-3925

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

## 1.2 Observations

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



# Inspection Report

Produced on behalf of – HARDIN CO

Site location – ,

Survey reference – W/O 292

Date – 080720

WILLIAMS UNDERGROUND SVCS.

102 INDUSTRIAL DRIVE, ACKLEY, IOWA

50601,

641-485-3925

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.*



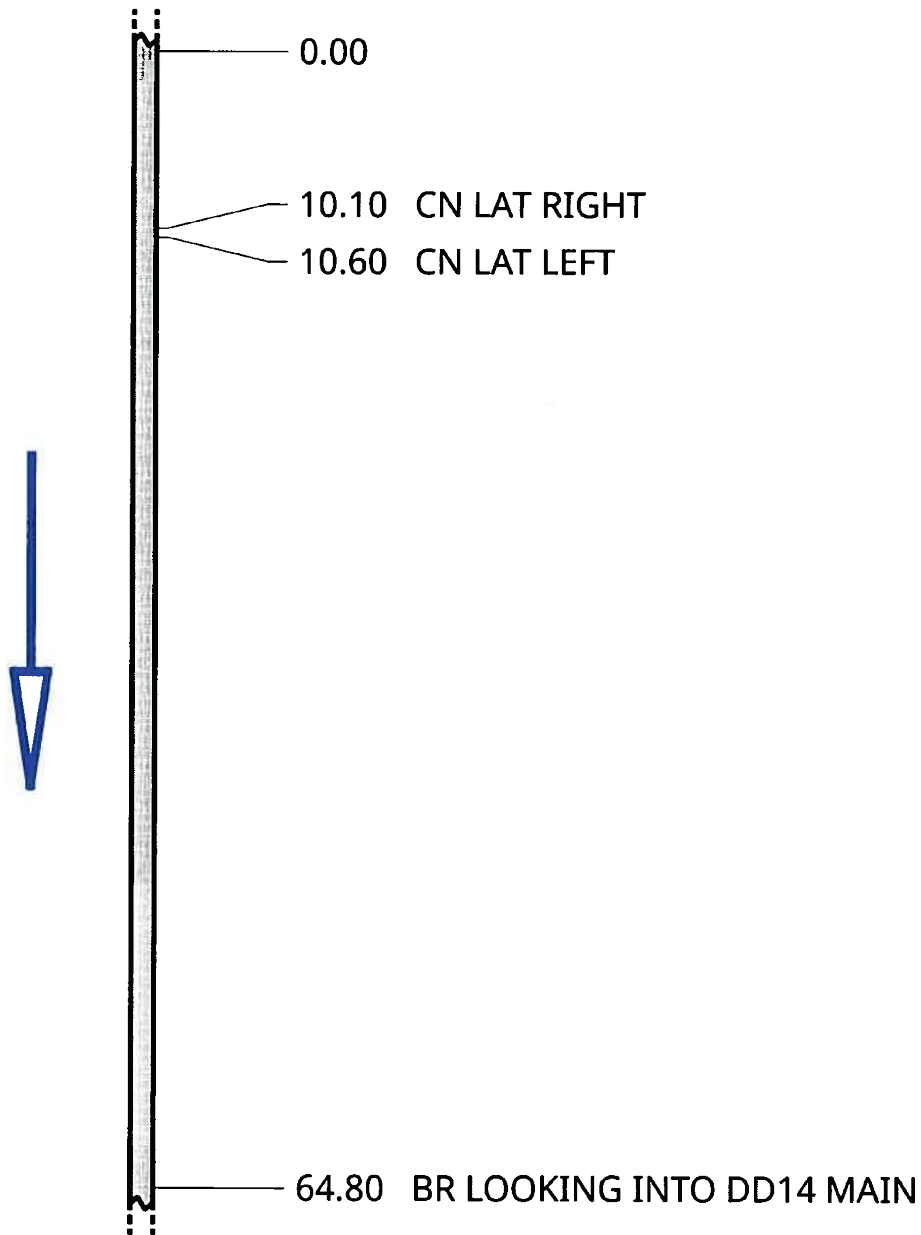
# 1 Drain / Sewer Survey

## 1.1 Survey Header

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




## 1.2 Diagram

[page 1/1]





### 1.3 Observations

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

## 1.4 Photographs

CN 2020\_07\_08-14\_04\_12\_399.jpg



CN 2020\_07\_08-14\_07\_01\_027.jpg



BR 2020\_07\_08-14\_13\_23\_027.jpg





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

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



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

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



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

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



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

## Drainage District:

#14 Main and Lateral 2

## Investigation/Repair Summary:

- Landowners and tenants in the NE¼ of Section 34 and NW¼ of Section 35, Township 88 North, Range 22 West reported restricted drainage at intersection of County Highways D41 and S27 along the assumed Main and Lateral 2 tile routes.
- Visual observation found all intakes on assumed Main tile and Lateral 2 tile routes in all 4 quadrants of the intersection to have standing water, but intakes on assumed Main tile route downstream of the road intersection appeared to be dry and functioning.

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

None recorded as only visual observation was done.

## Additional Actions Recommended:

Something at the road intersection is restricting drainage in at least the Main tile and possibly the Lateral 2 tile also. However, it is not clear how many restrictions there are or what constitutes those restrictions without excavation. It is recommended that excavations at the road intersection be performed using available contractors from the lottery system. It should also be noted that this area has had several utilities (i.e. rural water and others) installed in recent years which may or may not be contributing to the restricted drainage.







# Drainage Work Order Request For Repair

## Hardin County

**Date:** 4/15/2020

**Work Order #:** WO00000291

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

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

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

**Requested By:** James Sweeney/Cynthia loger/Jim & Ron Vierkandt

**Contact Phone:** (641) 847-3273

**Contact Email:** jsweeney@cgaconsultants.com

**Landowner (if different):** Ron/Jim Vierkandt/Cynthia loger

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

**Repair labor, materials and equipment:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Repaired By:** \_\_\_\_\_ **Date:** \_\_\_\_\_

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

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

For Office Use Only

**Approved:** \_\_\_\_\_ **Date:** \_\_\_\_\_



# Drainage Work Order Request For Repair

## Hardin County

Date 4/20/2020 Work Order # \_\_\_\_\_

District # #14 Lateral Lat 2 & Main Fund # \_\_\_\_\_

Township \_\_\_\_\_ Section 27, 34, 35 Township 88 Rge 22 Qtr Sec \_\_\_\_\_

Repair Requested By Cynthia Iorger, Ronald Vierkandt, James Vierkandt

Address 15898 Co Hwy D41 Phone \_\_\_\_\_

Landowner Same

Address Same Phone \_\_\_\_\_

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

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

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

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


Repair labor, materials and equipment \_\_\_\_\_

Potential Wetlands? ☐ Yes-Repair existing tile only ☐ No-Repair and maintain tile

Repaired By: \_\_\_\_\_

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

Please send statement for services to:

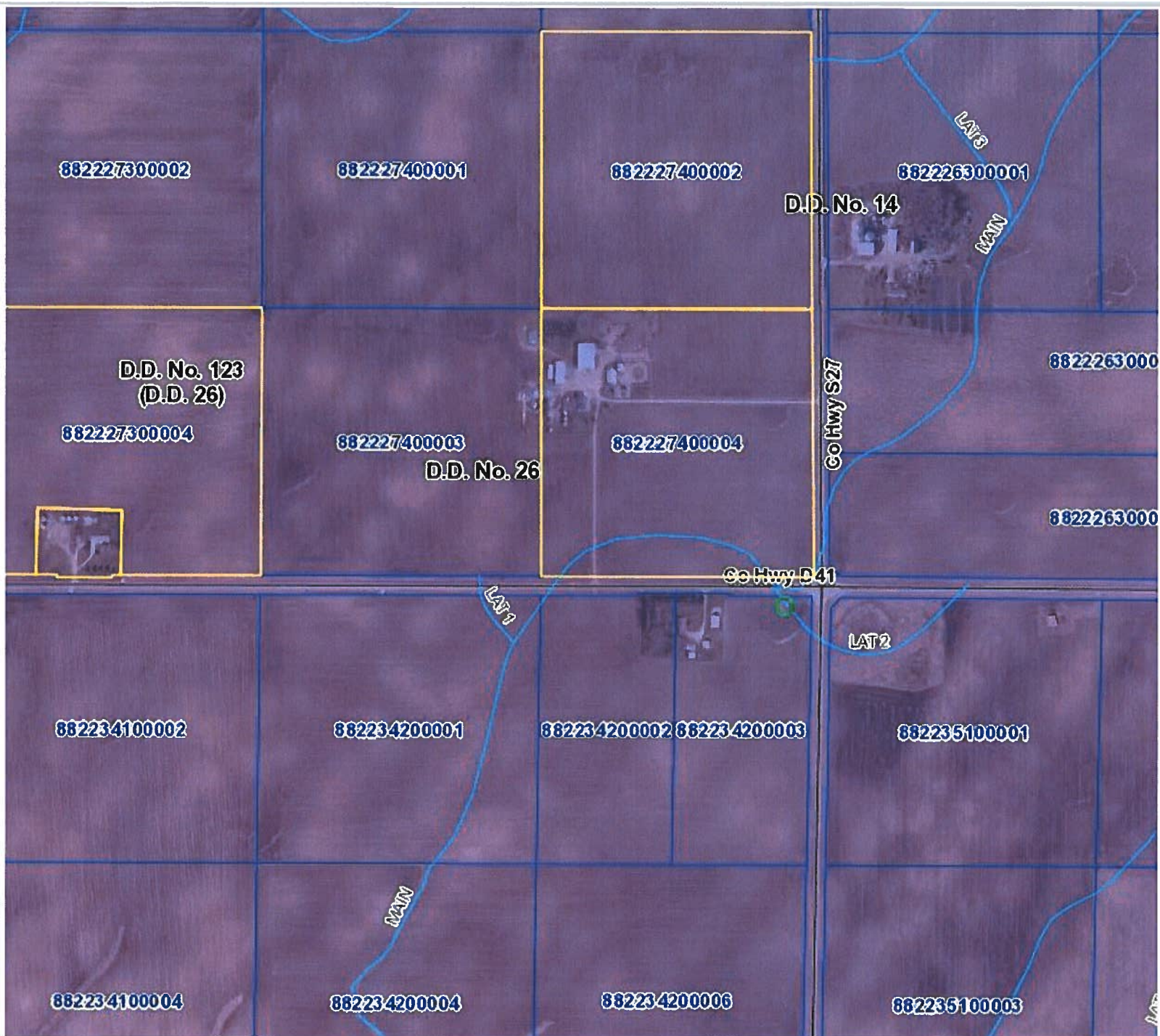
Phone (641) 939-8111  
Fax (641) 939-8245

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

For Office Use Only

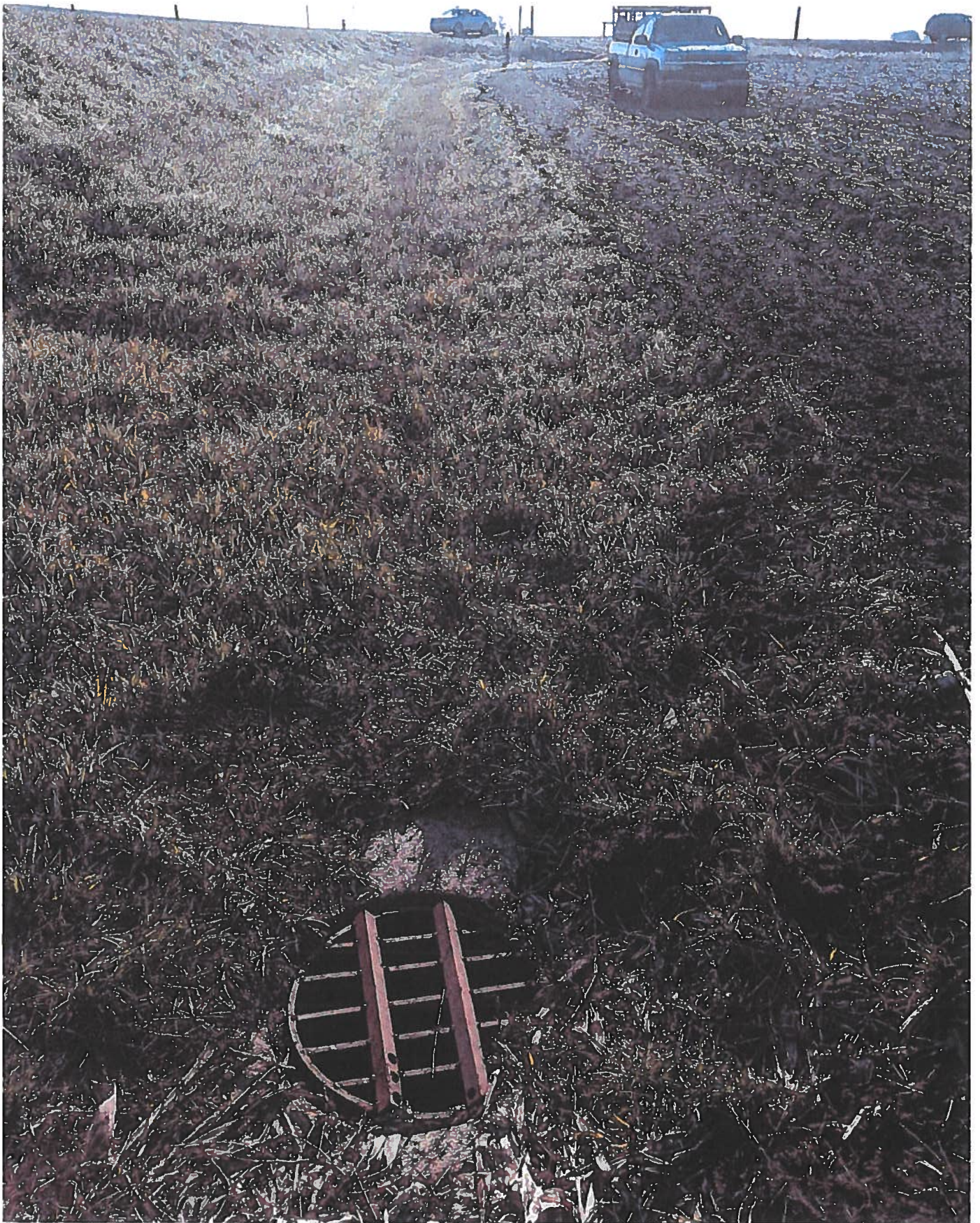
Approved: \_\_\_\_\_ Date: \_\_\_\_\_







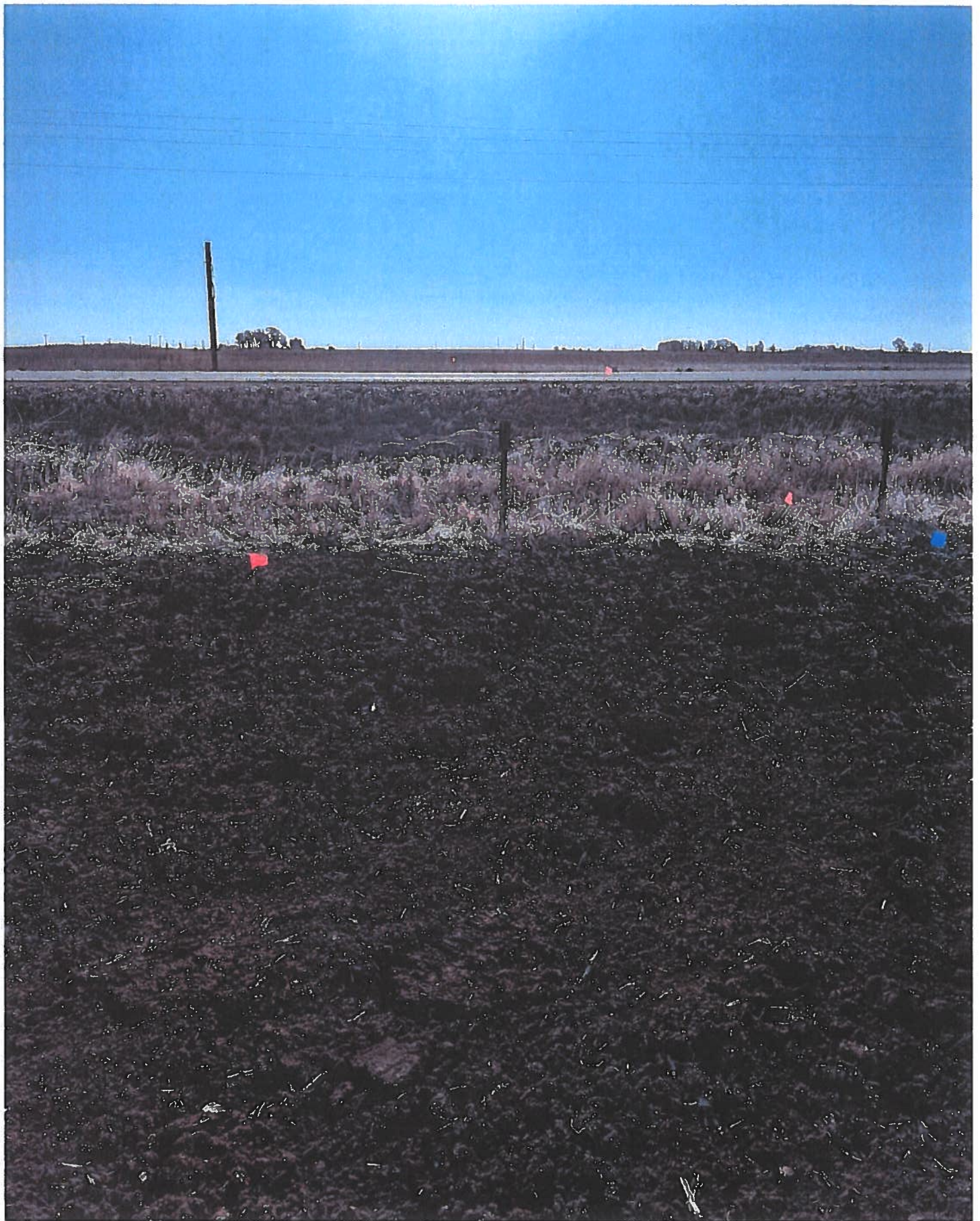




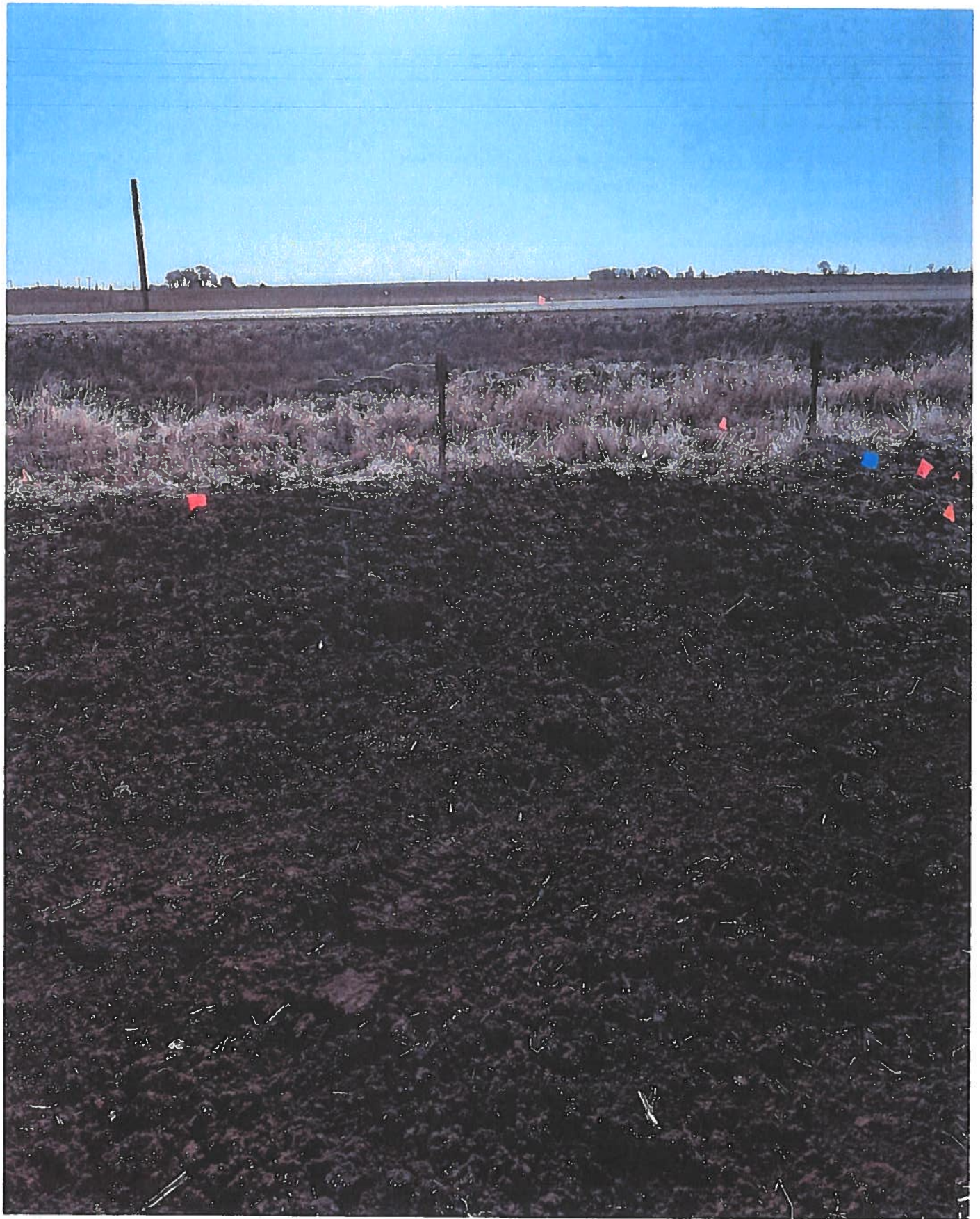






























CONSTRUCTION ENGINEERING  
OBSERVATION REPORT

DATE:

4/29/20

DAYS OF WEEK:

S M T W T F S

SHEET NO.

OF

PROJECT NUMBER:

6844.5 WO 291

COUNTY, ROUTE, ROAD:

DD 14 MAIN + LAT 2

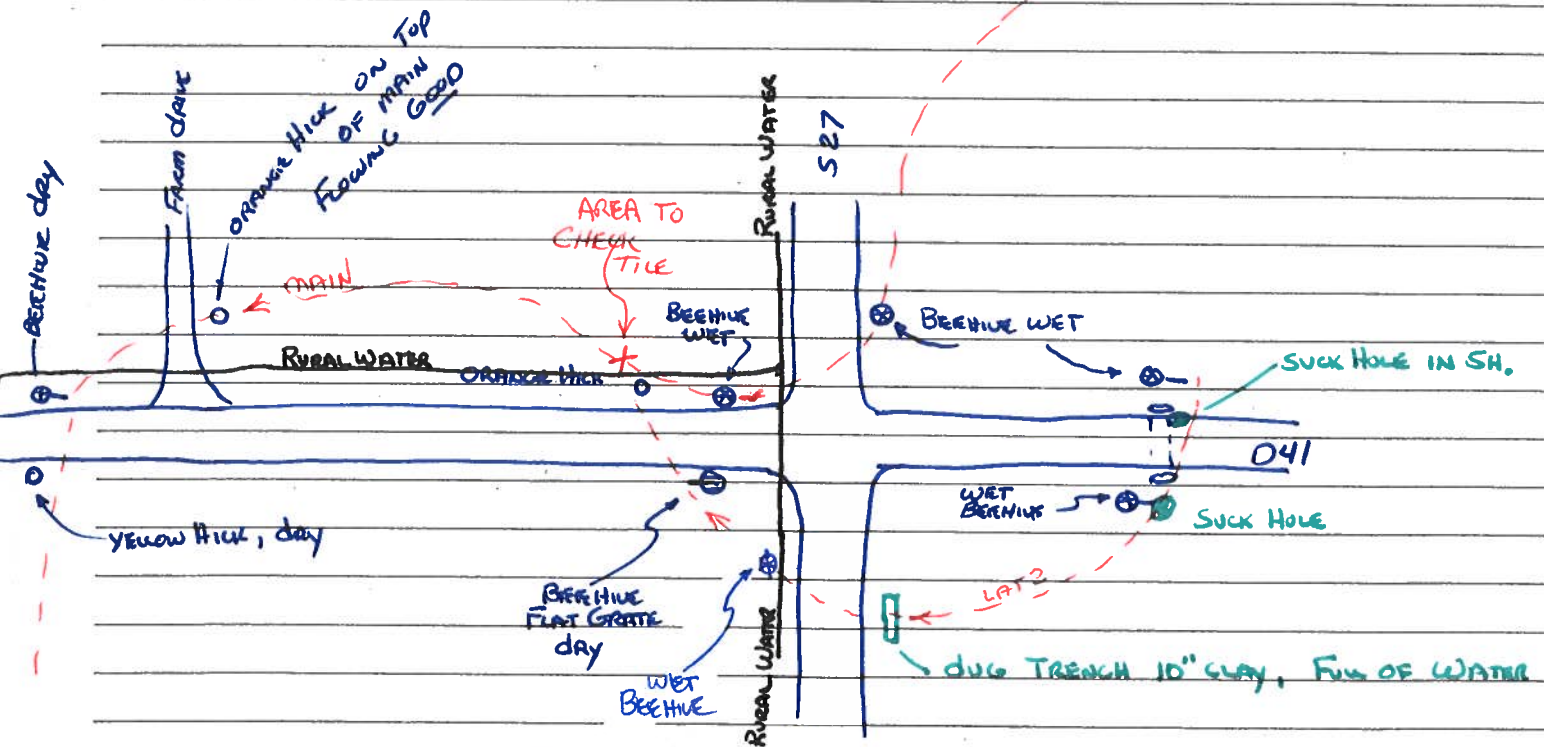
LOCATION:

S27 AND D41 INTERSECTION

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

LAT 2 HAS RESTRICTION @ D41 (N. OR S. SIDE?). NEED TO DIG ON NORTH SIDE 1ST, TRY AND FIND LAT 2 CONNECTION TO MAIN. INTAKES ON MAIN @ FARM DRIVE LOOK GOOD WITH FLOWING WATER IN MAIN

TALKED TO RON VIKRAM (80 YRS OLD) HE AGREED WITH ME THAT THE LAT 2 CONNECTION SHOULD BE CHECKED, BUT HE HAD NO IDEA WHERE IT WAS AT.



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

Observer's Signature:

*[Signature]*

Date Prepared:

4/29/20

Reviewed by:

☐ Engineer

Date Reviewed



LOOKING WEST OVER S27 ON LATZ





Looking E. @ 10" clay on lat 2, E. of S27





TRENCH ON LAT 2 , E SIDE S27





LOOKING EAST @ BEEHIVE WITH HOLE ON LAT2, S.SIDE D41 By CRP





S. SIDE D41 , HOLE ON LAT 2 , LOOKING N.





LOOKING WEST ON S. ditch D41





SURF. DRAIN RCP WITH SUCK HOLE OVER TOP RCP AND LAT 2





LOOKING S. ON LAT 2 ROUTE, FLAG ON SIXK HOLE ON N.S.H. D41





INTAKE ON N. SIDE D41 ON LAT 2, FULL OF WATER





LOOKING E @ S27, BEEHIVE IN N DITCH D41





LOOKING UPSIDEAM ON MAIN, S. OF D41, T13T SET ON MAIN BY REPAIR





Looking W. on N<sup>R</sup>/<sub>4</sub> D41, Just W. of S27





ORANGE HICK ON LAT 2? ON N ditch D41





Dry INTAKE ON LAT 2 , S. ditch 041 (W. of S27)





LAT 2, WET BEETHIVE, W. SIDE S27

