# Location Checklist

SOIL SAGE

| | | | | |
|---|---|---|---|---|
| **Operator / #** | CRESTONE PEAK RESOURCES OPERATING LLC / 10633 | | | |
| **Location ID & Name** | 330432 Williams 18-16 | | | |
| **County** | WELD, CO | | | |
| **Well Information** | Well Name: | WILLIAMS #18-16 | | |
| | Well API #: | 05-123-19113 | | |
| | Lat/Long as Drilled: | 40.134175 / -105.040220 | | |
| | Plug Date & Form 6s Doc #: | 03/21/2018, 401611324 | | |
| **Well Information – Abandoned Location** | Well Name: | WILLIAMS #4-6-18 | | |
| | Well API #: | 05-123-32523 | | |
| | Lat/Long as Planned: | 40.134130 / -105.040210 | | |
| | Form 4 – AL Doc # & Date: | 400995443 & 04/04/2016 | | |
| **Well Information – Abandoned Location** | Well Name: | Williams #8-6-18 | | |
| | Well API #: | 05-123-32525 | | |
| | Lat/Long as Planned: | 40.134190 / -105.040210 | | |
| | Form 4 – AL Doc # & Date: | 400995452 & 04/04/2016 | | |
| **Well Information – Abandoned Location** | Well Name: | Williams #8-8-18 | | |
| | Well API #: | 05-123-32528 | | |
| | Lat/Long as Planned: | 40.134110 / -105.040210 | | |
| | Form 4 – AL Doc # & Date: | 400995459 & 04/04/2016 | | |
| **Well Information – Abandoned Location** | Well Name: | WILLIAMS #6-4-18 | | |
| | Well API #: | 05-123-32529 | | |
| | Lat/Long as Planned: | 40.134220 / -105.040210 | | |
| | Form 4 – AL Doc # & Date: | 401643810 & 08/01/2018 | | |
| **Facility Entities** | x | Tank Battery (Off-Site) | | Pits |
| | x | Wells | x | On-Location Flowlines (Form 42) Doc #: 401569893 |
| | | Domestic Taps | x | Off-Location Flowlines (Form 44) Doc #: 401931413 |
| **Equipment On-Site** | x | None | | Debris |
| | | Pit mouse/rat holes, cellars backfilled | | |
| **Access Road** | x | Regraded | x | Contoured |
| | | Culverts removed | x | Gravel removed |
| | | Pre-Existing (Must provide supporting documentation) | | |
| **Reclamation Status** | x | Location and associated disturbances reclaimed | | |
| | | Subsidence | | |
| **Spills or Releases (Form 19)** | x | No | | Yes |
| **Remediation (Form 27/27A)** | x | No | | Yes |
| **On-Location Flowlines** | | No | x | Yes |
| **Off-Location Flowlines** | | No | x | Yes |
| **Inspection Corrective Actions** | x | No | | Yes |
| **Sundry Notice** | Form 4 Doc # & Date: | 402196930 & 10/23/2019 | | |
| | Purpose: | Final reclamation complete, site ready for inspection. Per Rule 1004.c(4) describe final reclamation procedure in Comments below or provide as an attachment. | | |

| | | | |
|---|---|---|---|
| | Comments: | This form was prepared to document successful completion of final reclamation efforts. Please see the attached report for reclamation activities, details on the completed vegetation assessment, and required photo documentation. | |
| | Attachments: | Vegetation Assessment Report Doc #402196941 | |
| **Drone Information** | Make & Model | | DJI M300/DJI Mavic 3 Multispectral |
| | Image Processing Software | | Pix4dfields – RGB/Multispectral Imagery & Pix4dmatic – RGB Imagery |
| | Pilot Name & FAA Certificate # | | Sam Streeter, #4100157 |
| | Date of FAA Certificate Issuance | | 23 Dec 2023 |

# SITE-SPECIFIC QUALITY ASSURANCE & QUALITY CONTROL AUDIT

## Final Reclamation Complete Notice – Cropland Drone Imagery

## PERMIT CLOSURE REPORT – CROPLAND

**Location ID** 330432
**Location Name** Williams 18-16

### Report Date

24 Jan 2024

Soil Sage has conducted a thorough data audit as part of our Quality Assurance and Quality Control (QA/QC) protocols. This report was developed in accordance with the ECMC Operator Guidance – Operator supplied cropland drone imagery and information for submitting a final reclamation complete notice.

### Crop Year and Type

Crop 2023 – Corn
Crop 2022 – Corn

### Quality Assurance & Quality Control Audit

| | |
|---|---|
| **Auditor** | Soil Sage |
| **Audit Date** | 05 Jan 2024 |

### Audit Methodology

The following source materials were consulted during the QA and QC audit process:

- ✓ Site Permit Closures provided by CIVITAS Resources
- ✓ Colorado Oil & Gas Information System – COGIS Database
- ✓ On-site Evaluation and Proprietary Soil Sage Drone Imagery data collection
- ✓ Review of legacy imagery for site location and facility parameters

All pertinent data, imagery, and materials are included at the end of this report.

## Site Description

| | | | | |
|---|---|---|---|---|
| **Name** | Williams 18-16 | | | |
| **Location ID** | 330432 | | | |
| **Operator / #** | CRESTONE PEAK RESOURCES OPERATING LLC / 10633 | | | |
| **Field** | WATTENBERG / 90750 | | | |
| **County, State** | WELD, CO | | | |
| **Lat/Long** | 40.134160 / -105.040210 | | | |
| | X | Planned Location | | As Drilled |
| **Facility Status** | CL | **Location** | | SESE 18 2N68W |
| **Facility Status Date** | 05/17/2018 | | | |
| **Facility Entities** | X | Tank Battery (Off-Site) | | Pits |
| | X | Wells | X | Off-Location Flowlines (**Form 44**) |
| | | Domestic Taps | X | On-Location Flowlines (**Form 42**) |
| | | Electric Utilities | | |
| **Equipment on Site** | X | No | | Yes |
| | | If yes, list: | | |
| | | Pit mouse/rat holes, cellars backfilled | | |
| **Access Road** | X | Regraded | X | Contoured |
| | | Culverts Removed | X | Gravel Removed |
| | | Pre-Existing: must provide supporting documentation | | |
| **Environment Incidents & Remediation** | X | None | | Spill or Release (**Form 19**) |
| | | Remediation (**Form 27/27A**) | | |
| **Variance Requests** | **No Variance Requests were detected during this QA & QC Audit.** | | | |
| **Inspection Corrective Actions (CA)s** | **No Corrective Actions (CA)s were detected during the QA & QC Audit.** | | | |
| | **Complete ECMC Inspection Search Results:** Link | | | |
| **Sundry Notice (Form 4)** | **Form 4 Doc # & Date:** 402196930 & 10/23/2019<br>○ **Purpose:** Final reclamation complete, site ready for inspection. This form was prepared to document successful completion of final reclamation efforts. Please see the attached report for reclamation activities, details on the completed vegetation assessment, and required photo documentation.<br>○ **Attachments:** OTHER Doc #402196941 | | | |

| | |
|---|---|
| | **Form 4s were detected during the QA & QC Audit.** See individual scout card data for details. |
| **On Location Flowlines (Form 42)** | **Form 42s were detected during the QA & QC Audit.** See individual scout card data for details. |
| **Off-Location Flowlines (Form 44)** | **Form 44 Doc # & Date:** 401931413 & 02/27/2019<br>○ **Purpose:** Abandonment<br>○ **Abandonment Date:** 06/26/2018<br>○ **ECMC Approval Date & Signee:** 02/27/2019 by Jeff Robbins<br>○ **Operator Comments:** Flowline was disconnected from wellhead and from separator. Both ends plugged below ground. Flowline was flushed with 25bbls fresh water prior to plugging. Line was verified free of hydro carbons with LEL monitor. Line was cut below ground level. Line was capped on both ends with 120lbs of slurry per state NTO, then backfilled on both ends.<br>**Flowline Facility Information**<br>○ **ECMC Flowline ID:** 459990<br>○ **Operator Flowline ID:** 061220182<br>○ **Status & Date:** AC & 12/01/2023<br>○ **Flowline Type:** Wellhead Line<br>○ **Type of Fluids Transported:** Multiphase<br>○ **Start Point Location ID:** 330432<br>○ **Start Point Riser Lat/Long:** 40.134156 / -105.040217 (Williams 18-16 Well)<br>○ **Equipment at Start Point:** Well<br>○ **End Point Location ID:** 458552<br>○ **End Point Riser Lat/Long:** 40.135163 / -105.041267 (Williams 18-16 Production Facilities)<br>○ **Equipment at End Point Riser:** Separator |
| **Field Inspection Form (Form INSP)** | **Form INSP Doc # & Date:** 682400336 & 01/28/2016<br>○ **Status Summary:** No Follow Up Inspection Required<br>○ **Inspected Facilities:** Wells Williams 4-6-18, Williams 8-6-18, Williams 8-8-18 and Williams 6-4-18<br>○ **Inspection Status:** 3 Wells: XX, Williams 6-4-18: AL<br>○ **Inspection Date & Inspector:** 01/28/2016 by Chris Binschus<br>○ **Comments:** This is an abandoned location inspection on an active location. See COGCC comments. This is an abandoned location and |

| | |
|---|---|
| | expired APDs inspection at Location ID 330432 for the AL status of 123-32529 and the expired APDs 123-32523, 123-32525, and 123-32528. It appears 123-32529, 123-32523, 123-32525, and 123-32528. were never built at location. This is a well release on an active location.<br>○ **Attachments:** Inspection Photos Doc #682400337<br>**Form INSP Doc # & Date:** 670900660 & 04/21/2015<br>○ **Status Summary:** No Follow Up Inspection Required<br>○ **Inspected Facilities:** Well Williams 18-16<br>○ **Inspection Status:** PR<br>○ **Inspection Date & Inspector:** 04/21/2015 by Tom Peterson<br>○ **Comments:** PR. Bradenhead is exposed at surface.<br>○ **Attachments:** None |
| **COGIS Tank Facilities Information (Scout Card)** | **Tank Battery Name:** Williams 18-16<br>**FACILITY ID:** 458552<br>○ **Status & Date**: AC & 12/01/2023<br>○ **Lat/Long**: 40.135163 / -105.041267<br>○ **Notes:** The tank battery at Location ID 458552 is a shared tank battery with two other locations and is still active at the time of this QA/QC Audit. The other locations are 305851 (one PA well) and 336376 (two PR wells). |
| **COGIS Well Information (Scout Card)** | **Well Name**: WILLIAMS #18-16<br>**API#**: 05-123-19113<br>**FACILITY ID**: 251310<br>○ **Status & Date**: PA & 03/21/2018<br>○ **Lat/Long As Drilled**: 40.134175 / -105.040220<br>○ **Form 6 Doc # & Date:** 401611324 & 02/12/2019<br>○ **Form 4 Doc # & Date:** 401587944 & 03/27/2018<br>**Purpose:** Digital Well Log Upload<br>○ **Form 42 Doc # & Date:** 401569893 & 03/09/2018<br>**Purpose:** Start of Plugging Operations – 48-hour notice required |
| | **Well Name**: WILLIAMS #4-6-18<br>**API#**: 05-123-32523<br>**FACILITY ID**: 420249<br>○ **Status & Date**: AL & 02/24/2016 |

| | |
|---|---|
| | ○ **Lat/Long As Planned**: 40.134130 / -105.040210<br>○ **Form 4 Doc # & Date:** 400995443 & 04/04/2016<br>**Purpose:** Abandon Permit: WELL: Abandon Application for Permit-to-Drill (Form2) – Well API Number 05-123-32523-00 has not been drilled. |
| | **Well Name**: Williams #8-6-18<br>**API#**: 05-123-32525<br>**FACILITY ID**: 420259<br>○ **Status & Date**: AL & 02/24/2016<br>○ **Lat/Long As Planned**: 40.134190 / -105.040210<br>○ **Form 4 Doc # & Date:** 400995452 & 04/04/2016<br>**Purpose:** Abandon Permit: WELL: Abandon Application for Permit-to-Drill (Form2) – Well API Number 05-123-32525-00 has not been drilled. |
| | **Well Name**: Williams #8-8-18<br>**API#**: 05-123-32528<br>**FACILITY ID**: 420265<br>○ **Status & Date**: AL & 02/24/2016<br>○ **Lat/Long As Planned**: 40.134110 / -105.040210<br>○ **Form 4 Doc # & Date:** 400995459 & 04/04/2016<br>**Purpose:** Abandon Permit: WELL: Abandon Application for Permit-to-Drill (Form2) – Well API Number 05-123-32528-00 has not been drilled. |
| | **Well Name**: WILLIAMS #6-4-18<br>**API#**: 05-123-32529<br>**FACILITY ID**: 420267<br>○ **Status & Date**: AL & 05/17/2018<br>○ **Lat/Long As Planned**: 40.134220 / -105.040210<br>○ **Form 4 Doc # & Date:** 401643810 & 08/01/2018<br>**Purpose:** Abandon Permit: WELL: Abandon Application for Permit-to-Drill (Form2) – Well API Number 05-123-32529-00 has not been drilled. |

**ECMC Abbreviations:** Location & Facility Status Codes, Inspection Types & Statuses and ECMC Help.

## Audit Key Findings – Designation Land Use Observations

| PREVIOUS LAND USE | CURRENT LAND USE |
|---|---|
| **Reference Imagery for Infrastructure:**<br>USGS 2010 | **Remotely Sensed Imagery:**<br>21 Aug 2023; 03 Apr 2023 |
| **Designation:**<br>Oil & Gas Facility | **Designation:**<br>Cropland |

**The following imagery sources were reviewed during this audit:**

EarthExplorer, DRCOG 2002 - 2014, NAIP Imagery 2011, 2013, 2015, 2017, 2019, 2021, ESRI Maxar and Remotely Sensed Imagery Sep 2022

## Site Observation Notes

No additional information.

## Closure Information

WILLIAMS #18-16 well (API #05-123-19113) is located in Weld County, Colorado near the intersection of County Road 20 ½ and E County Line Road. There are 4 Wells that are Abandoned Locations at this Location. There is an Off-Location Flowline between this well and the tank battery at Location ID 458552.

WILLIAMS #18-16 well (API #05-123-19113) was plugged and abandoned on 03/21/2018. The well access road was reclaimed at this time. WILLIAMS #4-6-18 (API #05-123-32523) was abandoned on 02/24/2016. Williams #8-6-18 (API #05-123-32525) was abandoned on 02/24/2016. Williams #8-8-18 (API #05-123-32528) was abandoned on 02/24/2016. WILLIAMS #6-4-18 (API #05-123-32529) was abandoned on 05/17/2018.

The tank battery at Location ID 458552 is a shared tank battery with two other locations and is still active at the time of this QA/QC Audit. The other locations are 305851 (one PA well) and 336376 (two PR wells).

Soil Sage drone imagery confirms that no equipment was left on site at this location after reclamation activities occurred.

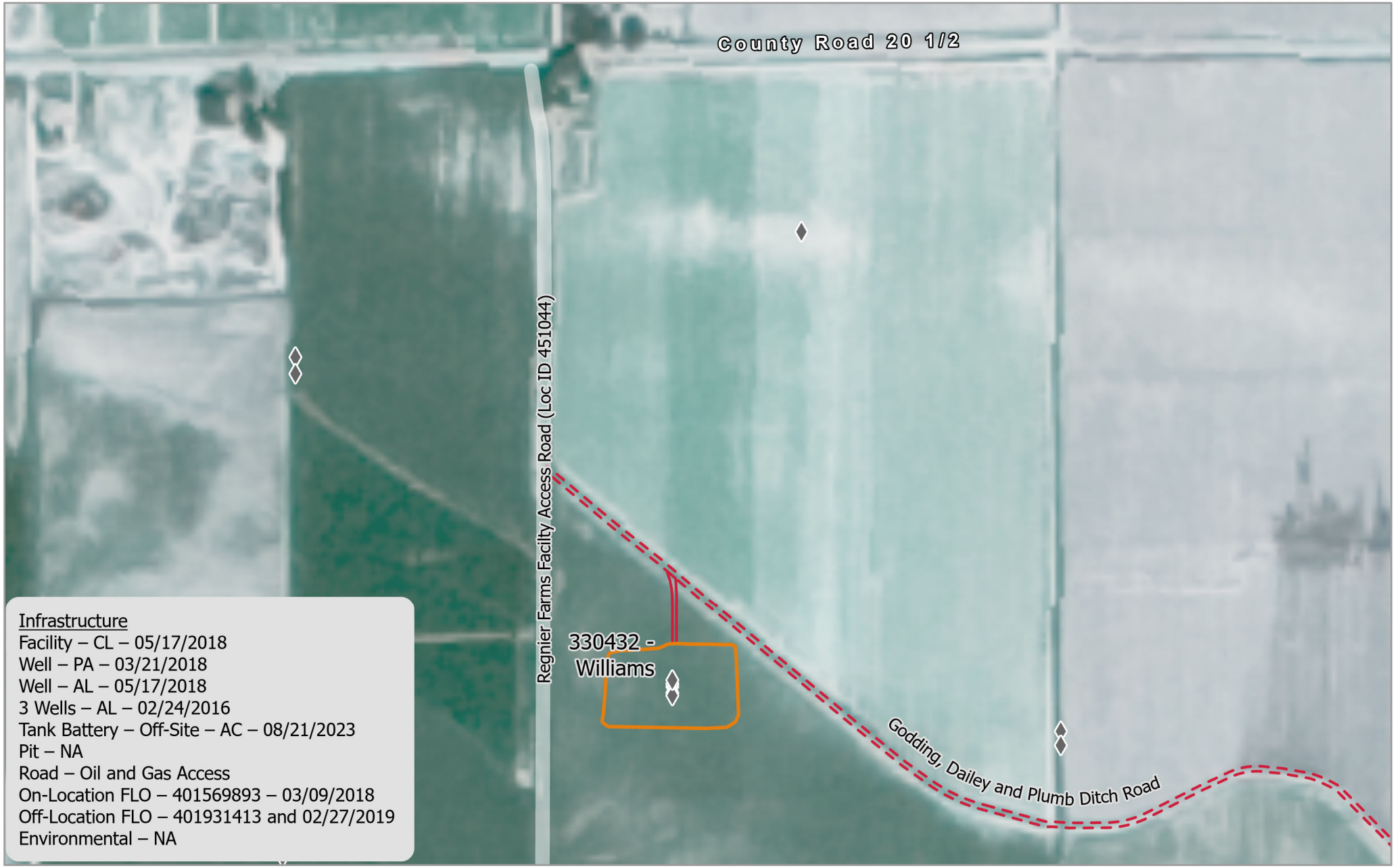
## Summary Acreage Table

| Description | Acres |
|---|---|
| Historic Disturbance Extent | 1.65 |
| Access Road | 0.05 |
| Flowline | Not Included |
| Tank Battery | Off-Site (Loc ID 458552) |
| Well Pad | 1.60 |

## Drone Information

| | |
|---|---|
| **Make** | DJI |
| **Model** | M300/Mavic 3 Multispectral |
| **Image Processing Software** | Pix4dfields – RGB/Multispectral Imagery & Pix4dmatic – RGB Imagery |
| **Pilot Name** | Sam Streeter |
| **Pilot FAA Certificate Number** | 4100157 |
| **Date of FAA Certificate Issuance** | 23 Dec 2023 |

## Pre-Infrastructure Location Overview




**CIV - 330432- Williams 18-16**
**Map Extent - Pre-Existing Infrastructure Overview**

Imagery: USGS
Imagery Date: 5 Sep 1988
Map Date: 05 Jan 2024
Datum: WGS 1984 UTM Zone 13N
POC: Soil Sage

Wells
Historic Disturbance Extent
Road

0 60 120 240 Meters

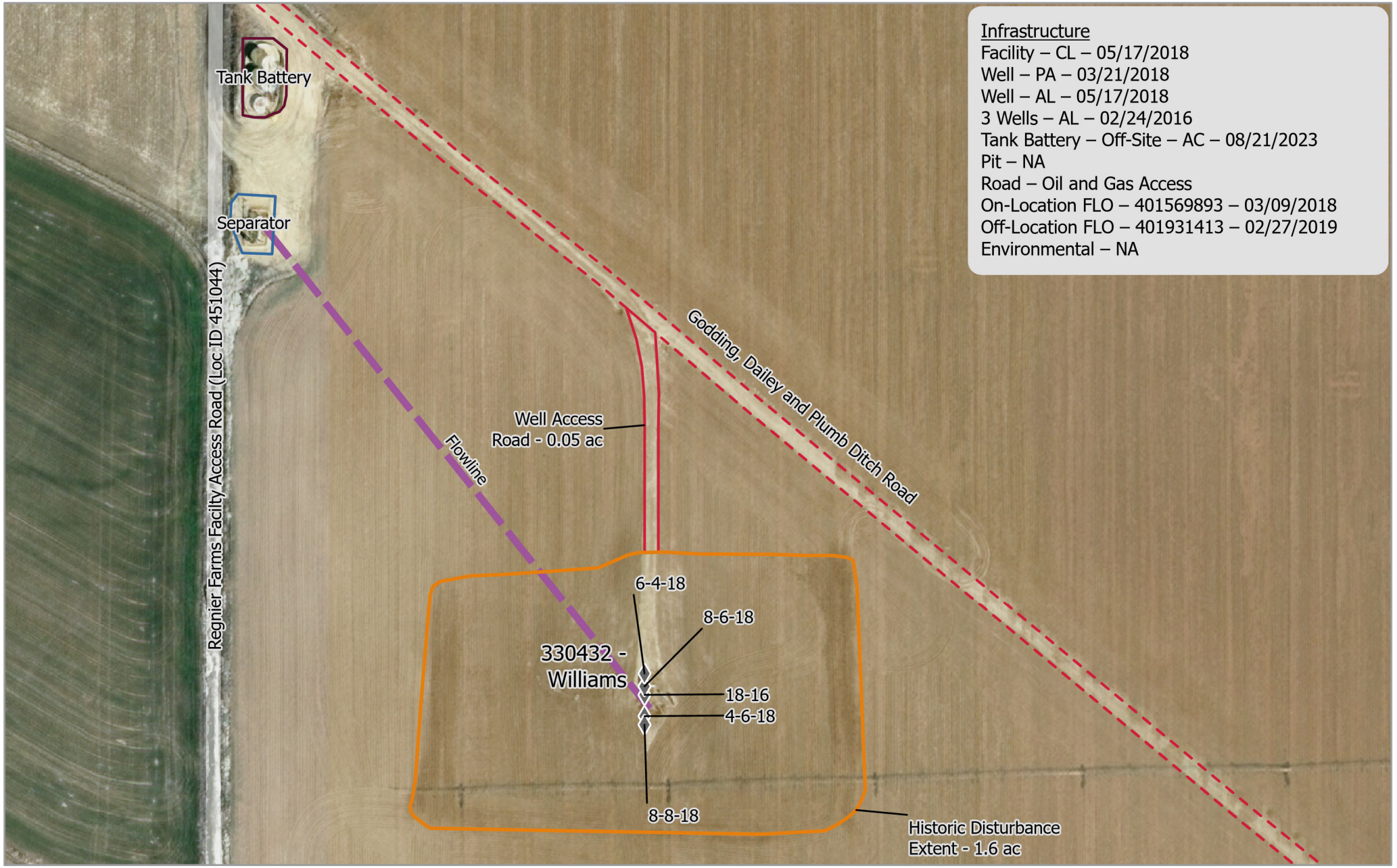
Disturbance Extent:
1.65 Acres

Scale: 1:4,000

Pad Location:
40.134160
-105.040210

N

## Pre-Plugging Active Operations Location Overview




**CIV - 330432- Williams 18-16**
**Map Extent - Pre-Plugging Overview**

Imagery: USGS
Imagery Date: 1 Mar 2010
Map Date: 05 Jan 2024
Datum: WGS 1984 UTM Zone 13N
POC: Soil Sage

- Wells
- Flowline
- Historic Disturbance Extent
- Road
- TankBattery
- Separator

0 15 30 60 Meters

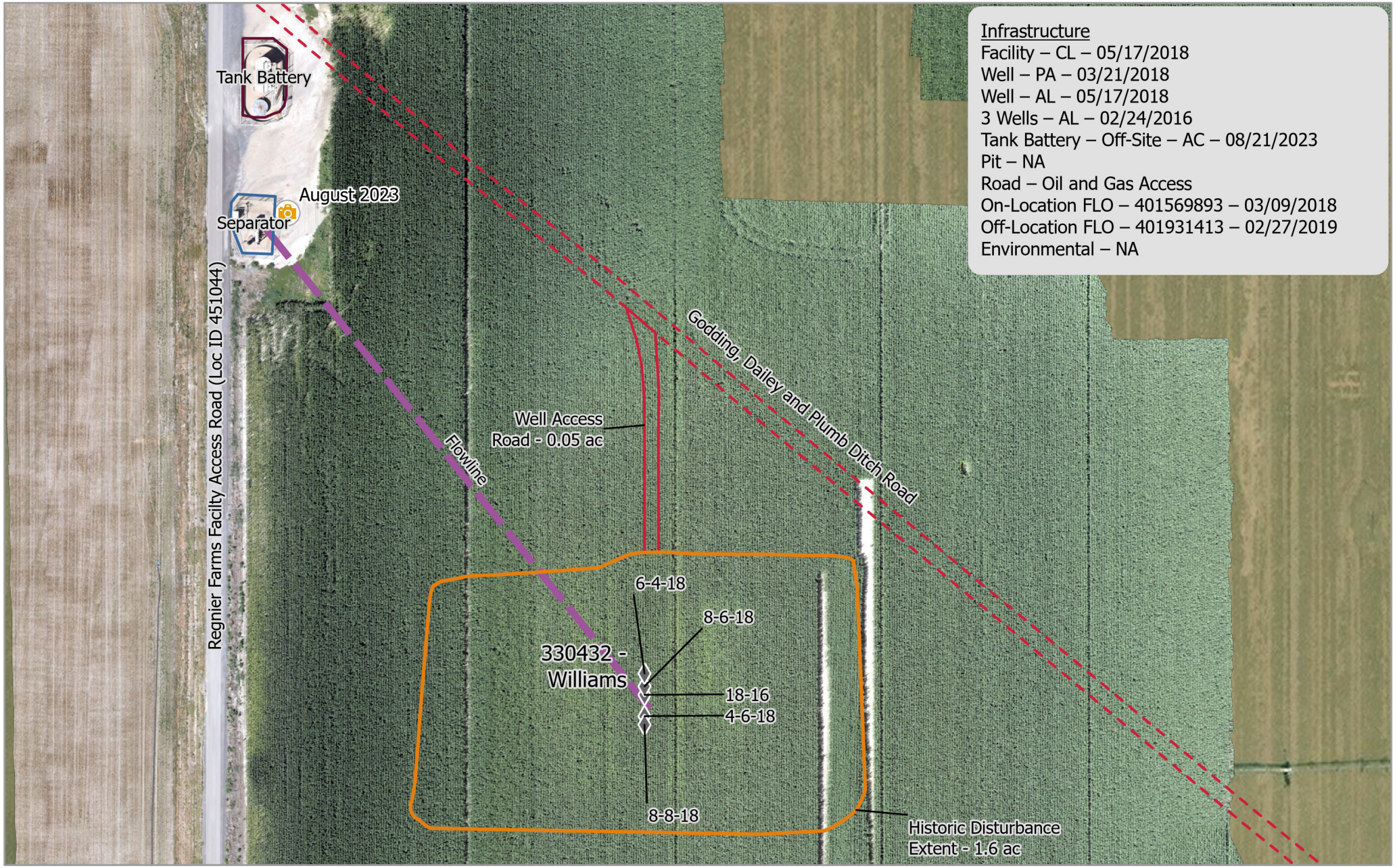
Disturbance Extent:
1.65 Acres

Scale: 1:1,200

Pad Location:
40.134160
-105.040210

N

## Post-Plugging and Abandonment Location Overview




**CIV - 330432- Williams 18-16**
**Map Extent - Post-Plugging Overview**

Imagery: RS Orthomosaic and DSM
Imagery Date: 21 Aug 2023
Map Date: 05 Jan 2024
Datum: WGS 1984 UTM Zone 13N
POC: Soil Sage

Wells
Photo Points
Flowline
Historic Disturbance Extent
Road
TankBattery
Separator

0 15 30 60 Meters

Disturbance Extent:
1.65 Acres

Scale: 1:1,200

Pad Location:
40.134160
-105.040210

N

# Cardinal Directional Drone Photos & Reference Area Photos

*Site Investigation and Photos Date*

21 Aug 2023

*Drone Photo Height*

160 feet

Cardinal directional photos of the site. Reference overview map.

**In View –** Well, Tank Battery, Access Road, Flowline **NORTH** – 40.133423 / -105.040133

*Active Facilities in photo associated with Loc ID 458552 Williams 18-16.

**In View –** Well, Access Road, Flowline **EAST** – 40.133933 / -105.041011

**In View –** Well, Access Road, Flowline **SOUTH** – 40.135399 / -105.040214

*Active Facilities in photo associated with Loc ID 455340 Rinn Valley West.

**In View –** Well, Access Road, Flowline **WEST** – 40.134068 / -105.038571

**In View –** Well, Access Road, Flowline **NORTH –** 40.133424 / -105.040134

**In View –** Well, Access Road, Flowline **EAST –** 40.133935 / -105.041010

**In View –** Well, Access Road, Flowline **SOUTH –** 40.135377 / -105.040218

**In View –** Well, Access Road, Flowline **WEST –** 40.134061 / -105.039191

**In View –** Well, Tank Battery, Access Road, Flowline **NORTHWEST –** 40.133451 / -105.039831

*Active Facilities in photo associated with Loc ID 458552 Williams 18-16.

**In View –** Well, Tank Battery, Access Road, Flowline **SOUTHEAST –** 40.136105 / -105.041878
*Active Facilities in photo associated with Loc ID 455340 Rinn Valley West.

**In View –** Crop **OVERHEAD –** 40.133908 / -105.040031

**In View –** Crop **OVERHEAD –** 40.133906 / -105.040027

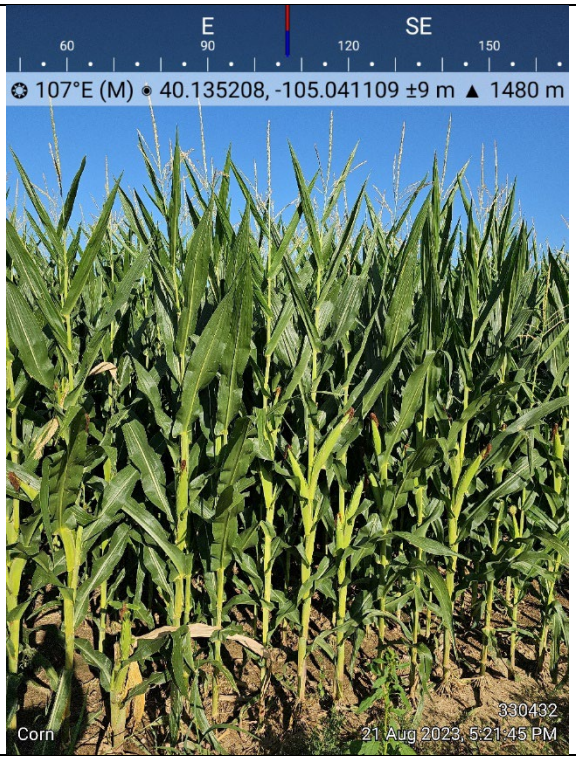
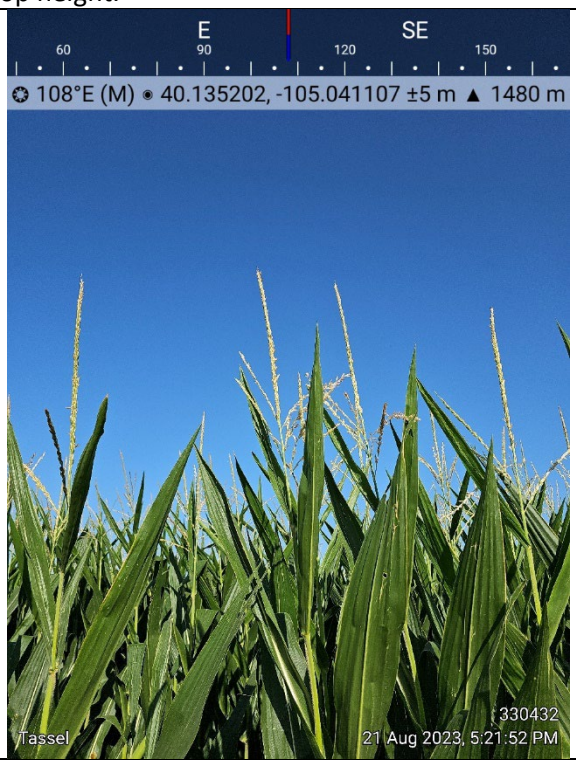
**In View –** Crop **OVERHEAD –** 40.133908 / -105.040032

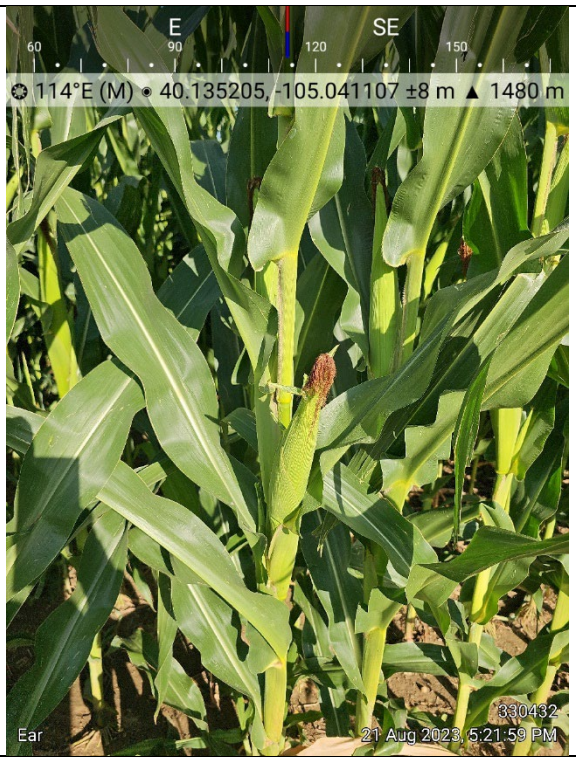
# Well – Handheld Photographic Evidence

*Site Investigation and Photos Date*

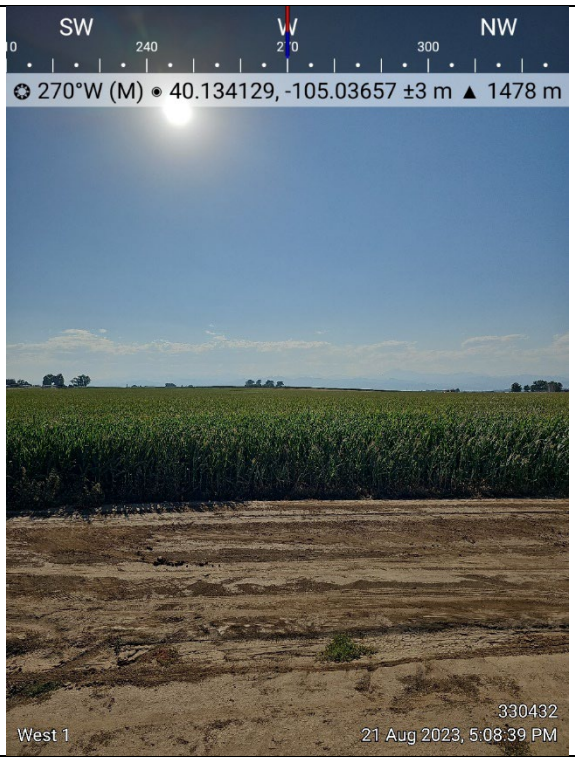
21 Aug 2023

Handheld photos taken from multiple locations, including from Regnier Farms Facility Access Road looking East and South towards Williams 18-16 wellhead, from Loc ID 455340 looking North towards wellhead and from Rinn Valley West Access Road looking West towards wellhead. No handheld photos taken from Williams 18-16 wellhead location due to crop height.

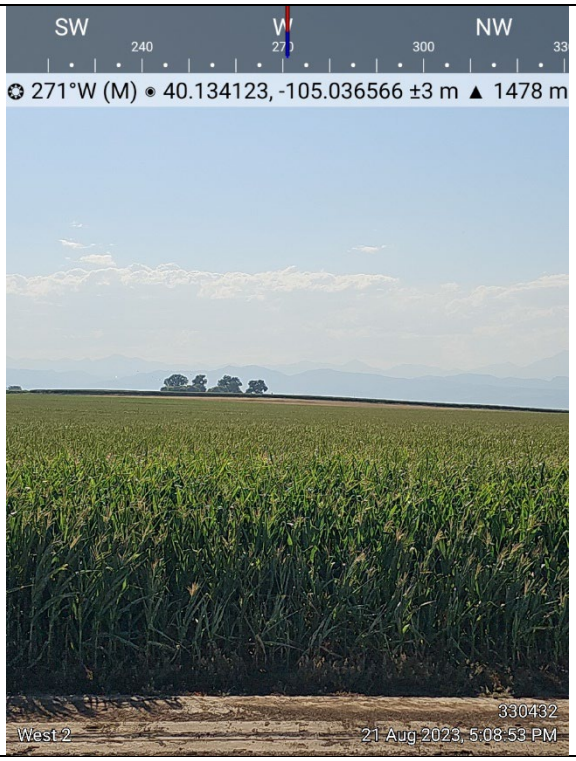
| | |
|---|---|
|  |  |
| Looking at corn towards wellhead from Regnier Farms Facility Access Road and tank battery location – 40.135208 / -105.041109 | Corn tassel – 40.135202 / -105.041107 |



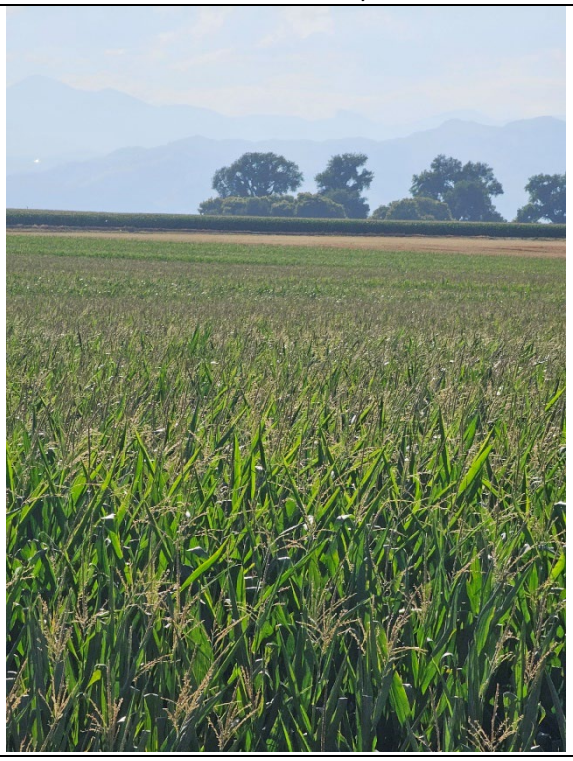

Corn ear – 40.135205 / -105.041107




Looking West from Rinn Valley West Access Road towards wellhead – 40.134129 / -105.036570




Looking West from Rinn Valley West Access Road towards wellhead – 40.134123 / -105.036566



Looking West from Rinn Valley West Access Road towards wellhead – 40.134119 / -105.036560

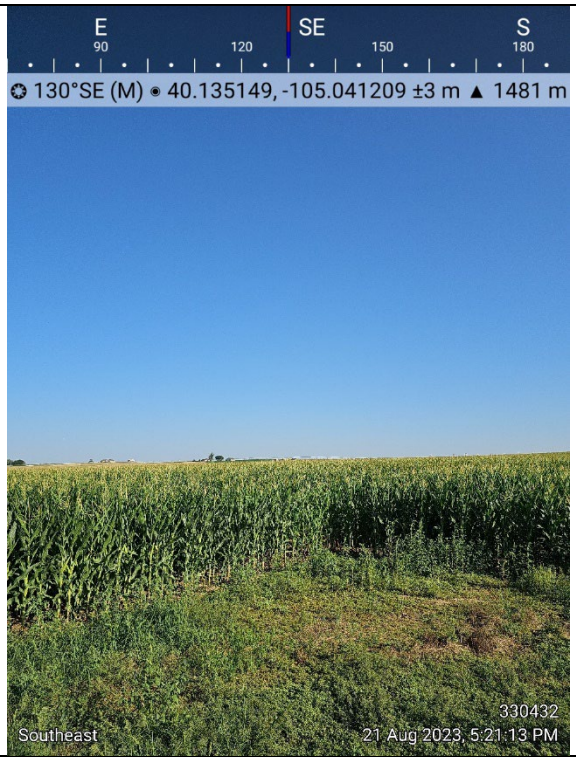
| | |
|---|---|
|  |  |
| Looking North from Loc ID 455340 towards wellhead – 40.131979 / -105.040226 | Looking North from Loc ID 455340 towards wellhead – 40.131982 / -105.040224 |

# Off-Location Tank Battery Outside of the Cropland – Handheld Photographic Evidence

*Site Investigation and Photos Date*

21 Aug 2023

Handheld photos taken from Tank Battery looking into field towards wellhead. Tank Battery Loc ID 458552 is a shared tank battery and still active.

| | |
|---|---|
|  |  |
| Looking East from Regnier Farms Facility Access Road and tank battery location towards wellhead – 40.135155 / -105.041215 | Looking Southeast from Regnier Farms Facility Access Road and tank battery location towards wellhead – 40.135149 / -105.041209 |

# Cardinal Directional Drone Photos Showing No Equipment Remaining

*Site Investigation and Photos Date*

03 Apr 2023

*Drone Photo Height*

350 feet

Cardinal directional photos of the site. Reference overview map. No Equipment at the Well.

**In View –** Well, Tank Battery, Access Road, Flowline **NORTH** – 40.132308 / -105.040369

**In View –** Well, Tank Battery, Access Road, Flowline **EAST** – 40.134624 / -105.042964

**In View –** Well, Tank Battery, Access Road, Flowline **SOUTH** – 40.136118 / -105.040593

*Active Facilities in photo associated with Loc ID 455340 Rinn Valley West.

**In View –** Well, Tank Battery, Access Road, Flowline **WEST** – 40.134237 / -105.037934

# ATTACHMENTS

## Maps and Figures

*Area Maps*

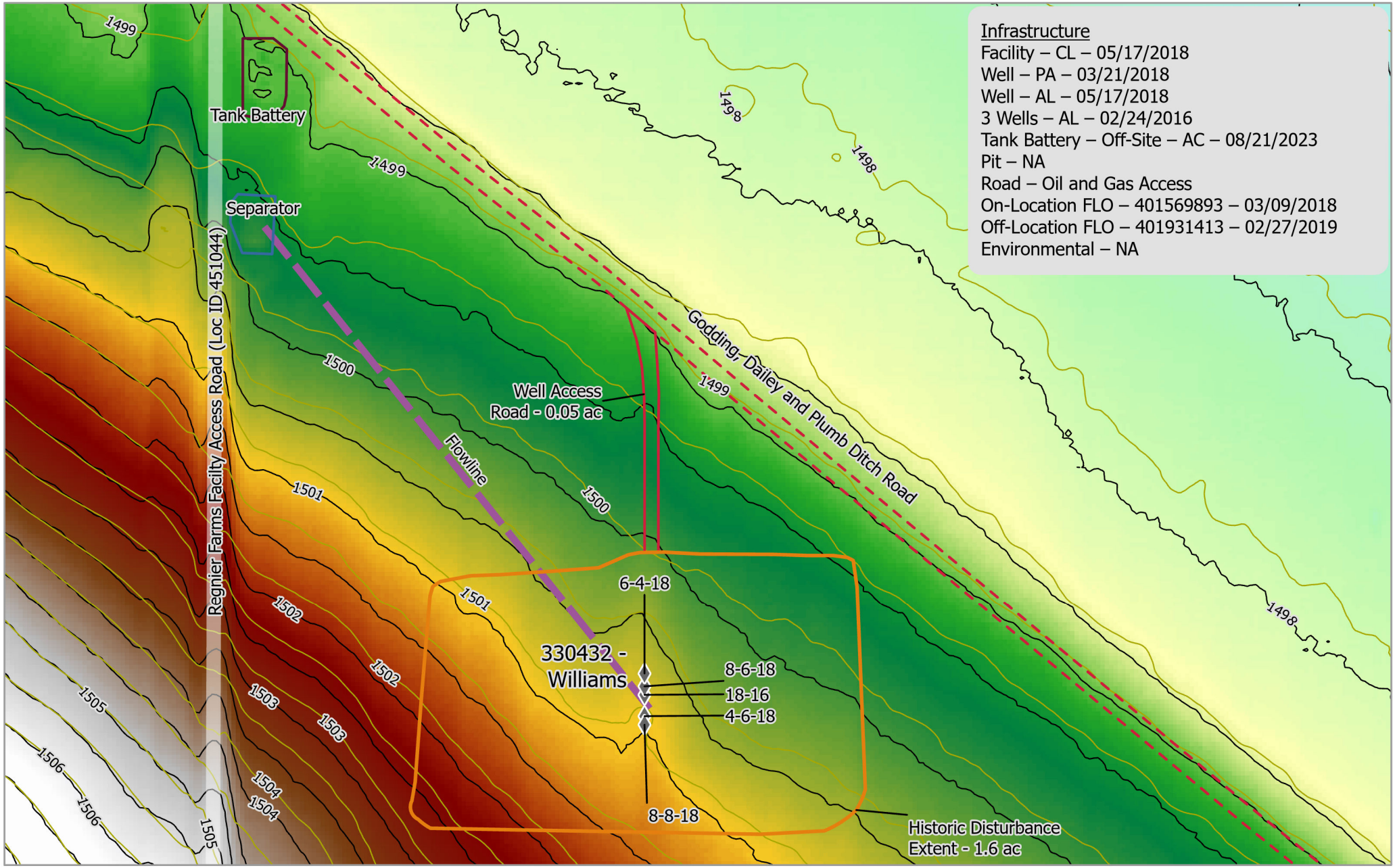
Elevation & Contours

Hydrology

## Background Information

*Natural Resources Conservation Service (NRCS) Map Unit Description*

Reference Soil Document




**CIV - 330432- Williams 18-16**
**Map Extent - Elevation & Contours**

Imagery: USGS, DRCOG
Imagery Date: 2014, 2020
Map Date: 05 Jan 2024
Datum: WGS 1984 UTM Zone 13N
POC: Soil Sage

Wells
Flowline
0.5 Meter Contours (2014)
0.5 Meter Contours (2020)
Historic Disturbance Extent
Road
TankBattery
Separator
Elevation
Value
1530
1491

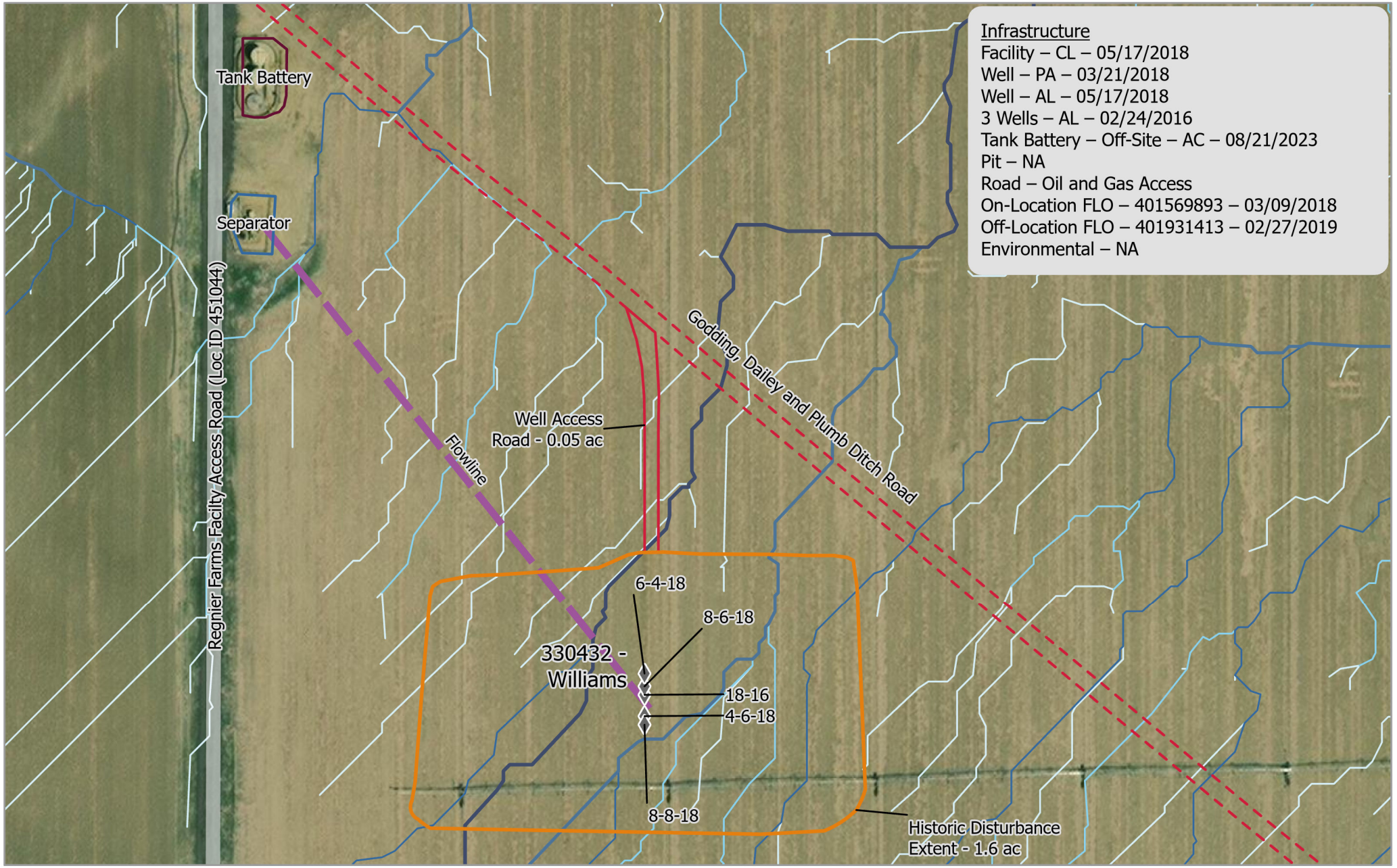
0 15 30 60 Meters

Disturbance Extent:
1.65 Acres

Scale: 1:1,200

Pad Location:
40.134160
-105.040210

N




**CIV - 330432- Williams 18-16**
**Map Extent - Hydrology**

Imagery: DRCOG, RS Orthomosaic
Imagery Date: 2020, 21 Aug 2023
Map Date: 05 Jan 2024
Datum: WGS 1984 UTM Zone 13N
POC: Soil Sage

| | |
|---|---|
| Wells | Stream Order |
| Flowline | 1 |
| Historic Disturbance Extent | 2 |
| Road | 3 |
| TankBattery | 4 |
| Separator | 5 |

0 15 30 60 Meters

Disturbance Extent:
1.65 Acres

Scale: 1:1,200

Pad Location:
40.134160
-105.040210

N

# Soil Properties

## USDA Soil Description

### Reference Soil Information

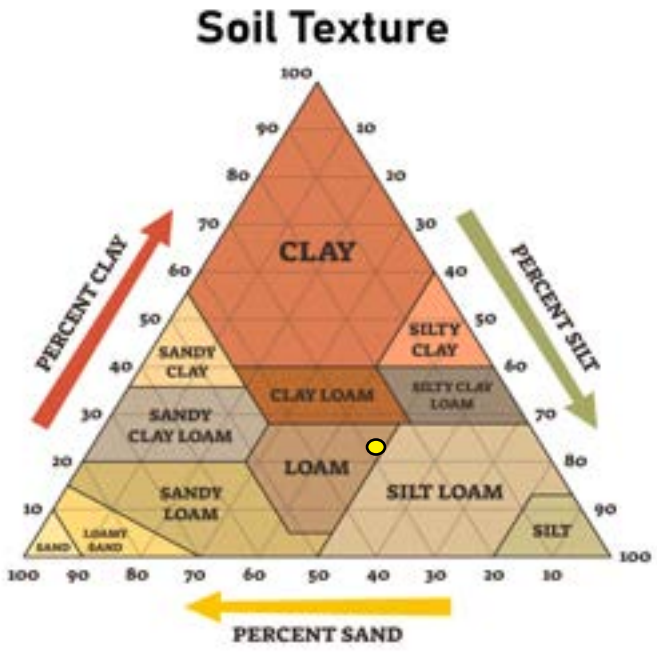
The location of the site is contained within two soil types, Colby loam and Olney fine sandy loam.

### Map Unit 16 Reference Soil information - Colby loam

This soil is formed from calcareous eolian deposits. Landform is ridges, hills, with the Loamy Plains Ecological Site. Soils are well drained with a high water holding capacity, and slope 3-5 percent.

| | Physical | | | Chemical | | | |
|---|---|---|---|---|---|---|---|
| **Depth (in)** | **Texture** | **Bulk Density** | **Partical Size Percent sand, silt, clay** | **pH** | **EC** | **SAR** | **OM%** |
| 0-10 | Loam | 1.30 | 29-49-21 | 7.9 | 0.0 | 0.0 | 1.11 |
| 10-20 | Silt Loam | 1.23 | 9-68-23 | 7.9 | 0.0 | 0.0 | 0.75 |
| 20-30 | Silt Loam | 1.23 | 9-68-23 | 7.9 | 0.0 | 0.0 | 0.75 |
| 30-40 | Silt Loam | 1.23 | 9-68-23 | 7.9 | 0.0 | 0.0 | 0.75 |
| 40-50 | Silt Loam | 1.23 | 9-68-23 | 7.9 | 0.0 | 0.0 | 0.75 |
| 50 + | Silt Loam | 1.23 | 9-68-23 | 7.9 | 0.0 | 0.0 | 0.75 |

### Soil Texture Triangle reflect the 0-10 in depth




### Erosion Potential (10 inches)

- K Factor, Whole soil - .43. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.
- Wind Erodibility Group – 6. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible.

# Soil Properties

## USDA Soil Description

### Reference Soil Information

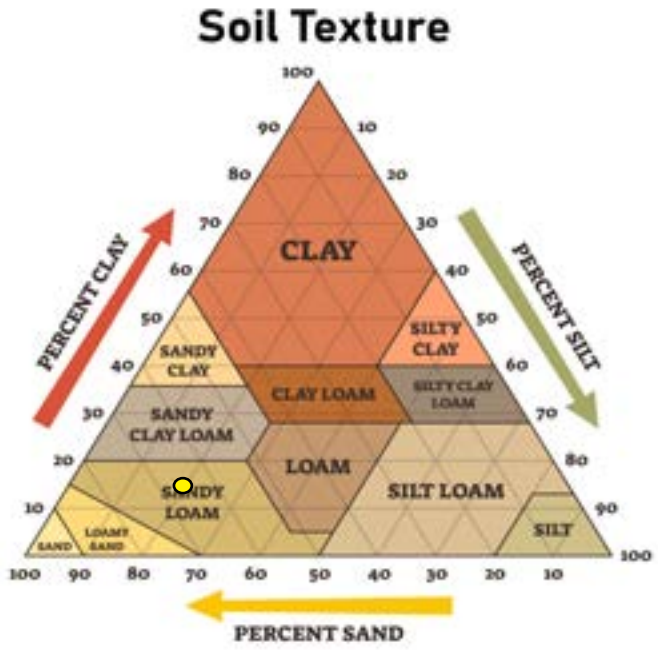
The location of the site is contained within two soil types, Colby loam and Olney fine sandy loam.

### Map Unit 47 Reference Soil information - Olney fine sandy loam

This soil is formed from mixed deposit outwash. Landform is plains, with the Sandy Plains Ecological Site. Soils are well drained with a moderate water holding capacity, and slope 1-3 percent.

| | Physical | | | Chemical | | | |
|---|---|---|---|---|---|---|---|
| **Depth (in)** | **Texture** | **Bulk Density** | **Partical Size Percent sand, silt, clay** | **pH** | **EC** | **SAR** | **OM%** |
| 0-10 | Fine Sandy Loam | 1.43 | 65-20-15 | 7.2 | 0.0 | 0.0 | 0.75 |
| 10-20 | Sandy Clay Loam | 1.23 | 56-17-27 | 7.2 | 0.0 | 0.0 | 0.75 |
| 20-30 | Sandy Clay Loam | 1.41 | 62-22-16 | 8.3 | 1.0 | 0.0 | 0.25 |
| 30-40 | Fine Sandy Loam | 1.50 | 64-26-10 | 8.5 | 1.0 | 0.0 | 0.25 |
| 40-50 | Fine Sandy Loam | 1.50 | 64-26-10 | 8.5 | 1.0 | 0.0 | 0.25 |
| 50 + | Fine Sandy Loam | 1.50 | 64-26-10 | 8.5 | 1.0 | 0.0 | 0.25 |

### Soil Texture Triangle reflect the 0-10 in depth




### Erosion Potential (10 inches)

- K Factor, Whole soil - .24. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.
- Wind Erodibility Group – 3. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible.

# Soil Reference Information

There is a general relationship of soil bulk density to root growth based on soil texture. Bulk densities ideal for root growth are less than 1.60 g/cc for sandy textures, less than 1.40 g/cc for loamy textures, and less than 1.10 g/cc for clayey textures. Bulk densities that restrict root growth are greater than 1.80 g/cc for sandy textures, 1.65 g/cc for loamy textures, and 1.47 g/cc for clayey textures.