

# Location Checklist



<b>Operator / #</b>	BAYSWATER EXPLORATION & PRODUCTION LLC / 10261		
<b>Location ID &amp; Name</b>	<a href="#">433862</a> Hirsch Pad/29-C		
<b>County</b>	Weld, CO		
<b>Well Information</b>	Well Name:	Hirsch #1-29	
	Well API #:	<a href="#">05-123-37822</a>	
	Lat/Long as Drilled:	40.551769 / -104.800675	
	Plug Date & Form 6s Doc #:	03/27/2019 & <a href="#">402003082</a>	
<b>Well Information</b>	Well Name:	Hirsch #2-29	
	Well API #:	<a href="#">05-123-37823</a>	
	Lat/Long as Drilled:	40.551739 / -104.800708	
	Plug Date & Form 6s Doc #:	03/26/2019 & <a href="#">402003045</a>	
<b>Facility Entities</b>	<input checked="" type="checkbox"/>	Tank Battery (Off-Site)	Pits
	<input checked="" type="checkbox"/>	Wells	<input checked="" type="checkbox"/> On-Location Flowlines (Form 42) Doc #: <a href="#">401931592</a> , <a href="#">401931595</a>
	<input type="checkbox"/>	Domestic Taps	<input checked="" type="checkbox"/> Off-Location Flowlines (Form 44) Doc #: <a href="#">402018920</a>
<b>Equipment On-Site</b>	<input checked="" type="checkbox"/>	None	Debris
	<input type="checkbox"/>	Pit mouse/rat holes, cellars backfilled	
<b>Access Road</b>	<input checked="" type="checkbox"/>	Regraded	<input checked="" type="checkbox"/> Contoured
	<input type="checkbox"/>	Culverts removed	<input checked="" type="checkbox"/> Gravel removed
	<input type="checkbox"/>	Pre-Existing (Must provide supporting documentation)	
<b>Reclamation Status</b>	<input checked="" type="checkbox"/>	Location and associated disturbances reclaimed	
	<input type="checkbox"/>	Subsidence	
<b>Spills or Releases (Form 19)</b>	<input checked="" type="checkbox"/>	No	<input type="checkbox"/> Yes
<b>Remediation (Form 27/27A)</b>	<input checked="" type="checkbox"/>	No	<input type="checkbox"/> Yes
<b>On-Location Flowlines</b>	<input type="checkbox"/>	No	<input checked="" type="checkbox"/> Yes
<b>Off-Location Flowlines</b>	<input type="checkbox"/>	No	<input checked="" type="checkbox"/> Yes
<b>Inspection Corrective Actions</b>	<input type="checkbox"/>	No	<input checked="" type="checkbox"/> Yes – Pending Re-Inspection
<b>Sundry Notice</b>	Form 4 Doc # & Date:	<a href="#">401272567</a> & 07/03/2017	
	Purpose:	Interim reclamation complete, site ready for inspection.	
	Comments:	Interim Reclamation procedures and associated mitigation measures include stabilization of work areas, revegetation of non-working surface or returning non-working areas back to cropland, physical and/or chemical weed mitigation measures when necessary, and maintenance activities are conducted as necessary. During the most recent Post-Construction stormwater inspection, conducted on 12/27/2016, it was determined the location met Rule 1003.e. requirements and is ready for inspection by the COGCC. Bayswater requests the Interim Reclamation inspection occur during the first favorable growing season.	
	Attachments:	Location Pictures Doc # <a href="#">401273190</a>	
<b>Drone Information</b>	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** 433862

**Location Name** Hirsch Pad/29-C

**Report Date**

15 Nov 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 2024 – Alfalfa

**Quality Assurance & Quality Control Audit**

<b>Auditor</b>	Soil Sage
<b>Audit Date</b>	21 Oct 2024

**Audit Methodology**

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

- ✓ Site Permit Closures provided by Bayswater Exploration & Production
- ✓ 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

<b>Name</b>	Hirsch Pad/29-C		
<b>Location ID</b>	<a href="#">433862</a>		
<b>Operator / #</b>	BAYSWATER EXPLORATION & PRODUCTION LLC / 10261		
<b>Field</b>	WATTENBERG / 90750		
<b>County, State</b>	Weld, CO		
<b>Lat/Long</b>	40.551739 / -104.800709		
	<input checked="" type="checkbox"/>	Planned Location	As Drilled
<b>Facility Status</b>	CL	<b>Location</b>	NWNE 29 7N66W
<b>Facility Status Date</b>	03/27/2019		
<b>Facility Entities</b>	<input checked="" type="checkbox"/>	Tank Battery (Off-Site)	Pits
	<input checked="" type="checkbox"/>	Wells	<input checked="" type="checkbox"/> Off-Location Flowlines ( <b>Form 44</b> )
		Domestic Taps	<input checked="" type="checkbox"/> On-Location Flowlines ( <b>Form 42</b> )
		Electric Utilities	
<b>Equipment on Site</b>	<input checked="" type="checkbox"/>	No	Yes
		If yes, list:	
		Pit mouse/rat holes, cellars backfilled	
<b>Access Road</b>	<input checked="" type="checkbox"/>	Regraded	<input checked="" type="checkbox"/> Contoured
		Culverts Removed	<input checked="" type="checkbox"/> Gravel Removed
		Pre-Existing: must provide supporting documentation	
<b>Environment Incidents &amp; Remediation</b>	<input checked="" type="checkbox"/>	None	Spill or Release ( <b>Form 19</b> )
		Remediation ( <b>Form 27/27A</b> )	
<b>Variance Requests</b>	<b>No Variance Requests were detected during this QA &amp; QC Audit.</b>		
<b>Inspection Corrective Actions (CA)s</b>	<p><b>Corrective Actions (CA)s were detected during the QA &amp; QC Audit.</b></p> <p><b>CA Overall Status:</b> 0 CA Completed</p> <p>1 Factual Review Request</p> <p><b>Form FIRR Doc # &amp; Submittal Date:</b> <a href="#">402165696</a> &amp; 09/09/2019</p> <ul style="list-style-type: none"> <li>○ <b>Overall Status:</b> FRQ</li> <li>○ <b>Originating Field Inspection Report (FIR) Doc #:</b> <a href="#">697500545</a></li> <li>○ <b>CA#:</b> 129979 <b>Date Completed:</b> 06/27/2019</li> </ul> <p><b>Corrective Action:</b> Comply with Rule 1004. Collaborate with the landowner to determine mitigating measures that will allow reclamation work to be conducted in such a manner as to not interfere with agricultural activities or crop production. Corrective</p>		

	<p>action date is being back-dated to when all final reclamation work should have been completed.</p> <p><b>Response:</b> FACTUAL REVIEW REQUEST</p> <p><b>Operator Comment:</b> Bayswater completed the battery removal and site reclamation on or around 4/18/2019. Bayswater coordinated with the landowner and tenant farmer at this location. Bayswater provided topsoil and contouring to the landowner/tenant farmer's satisfaction. Due to the late timing of this past growing season, the tenant farmer elected not to plant this past spring. The farmer has communicated plans to cultivate this location next growing season. Bayswater believes that Rule 1004 has been complied with to the extent possible at this time.</p> <p><b>ECMC Decision:</b> Not Approved</p>
	<p><b>Complete ECMC Inspection Search Results:</b> <a href="#">Link</a></p>
<p><b>Sundry Notice (Form 4)</b></p>	<p><b>Form 4 Doc # &amp; Date:</b> <a href="#">401272567</a> &amp; 07/03/2017</p> <ul style="list-style-type: none"> <li>○ <b>Purpose:</b> Interim reclamation complete, site ready for inspection. Per Rule 1003.e(3) describe interim reclamation procedure in</li> <li>○ <b>Comments:</b> Interim Reclamation procedures and associated mitigation measures include stabilization of work areas, revegetation of non-working surface or returning non-working areas back to cropland, physical and/or chemical weed mitigation measures when necessary, and maintenance activities are conducted as necessary. During the most recent Post-Construction stormwater inspection, conducted on 12/27/2016, it was determined the location met Rule 1003.e. requirements and is ready for inspection by the COGCC. Bayswater requests the Interim Reclamation inspection occur during the first favorable growing season.</li> <li>○ <b>Attachments:</b> Location Pictures Doc # <a href="#">401273190</a></li> </ul>
<p><b>On Location Flowlines (Form 42)</b></p>	<p><b>Form 42s were detected during the QA &amp; QC Audit.</b> See individual scout card data for details.</p>
<p><b>Off-Location Flowlines (Form 44)</b></p>	<p><b>Form 44 Doc # &amp; Date:</b> <a href="#">402018920</a> &amp; 04/24/2019</p> <ul style="list-style-type: none"> <li>○ <b>Purpose:</b> Abandonment</li> <li>○ <b>Abandonment Date:</b> 03/27/2019</li> <li>○ <b>ECMC Approval Date &amp; Signee:</b> 04/24/2019 by Jeff Robbins</li> <li>○ <b>Operator Comments:</b> None</li> <li>○ <b>Note:</b> This Form 44 includes data for two Off-Location Flowlines: <a href="#">460709</a> and <a href="#">460708</a>. This Location is connected to both below.</li> </ul>

	<p><b>Flowline Facility Information</b></p> <ul style="list-style-type: none"> <li>○ <b>ECMC Flowline ID:</b> <a href="#">460709</a></li> <li>○ <b>Operator Flowline ID:</b> Hirsch 2-29</li> <li>○ <b>Status &amp; Date:</b> CL &amp; 03/27/2019</li> <li>○ <b>Flowline Type:</b> Production Line</li> <li>○ <b>Type of Fluids Transported:</b> Multiphase</li> <li>○ <b>Start Point Location ID:</b> <a href="#">433862</a></li> <li>○ <b>Start Point Riser Lat/Long:</b> 40.551750/-104.800698 (Hirsch #2-29 Well)</li> <li>○ <b>Equipment at Start Point:</b> Well</li> <li>○ <b>End Point Location ID:</b> <a href="#">434021</a></li> <li>○ <b>End Point Riser Lat/Long:</b> 40.552516/-104.802195 (Hirsch Facility/29-C Production Facilities)</li> <li>○ <b>Equipment at End Point Riser:</b> Separator</li> </ul>
	<p><b>Flowline Facility Information</b></p> <ul style="list-style-type: none"> <li>○ <b>ECMC Flowline ID:</b> <a href="#">460708</a></li> <li>○ <b>Operator Flowline ID:</b> Hirsh 1-29</li> <li>○ <b>Status &amp; Date:</b> CL &amp; 03/27/2019</li> <li>○ <b>Flowline Type:</b> Production Line</li> <li>○ <b>Type of Fluids Transported:</b> Crude Oil</li> <li>○ <b>Start Point Location ID:</b> <a href="#">433862</a></li> <li>○ <b>Start Point Riser Lat/Long:</b> 40.551779/-104.800655 (Hirsch #1-29 Well)</li> <li>○ <b>Equipment at Start Point:</b> Well</li> <li>○ <b>End Point Location ID:</b> <a href="#">434021</a></li> <li>○ <b>End Point Riser Lat/Long:</b> 40.552552/-104.802233 (Hirsch Facility/29-C Production Facilities)</li> <li>○ <b>Equipment at End Point Riser:</b> Separator</li> </ul>
<p><b>Field Inspection Form (Form INSP)</b></p>	<p><b>Form INSP Doc # &amp; Date:</b> <a href="#">697500545</a> &amp; 09/20/2019</p> <ul style="list-style-type: none"> <li>○ <b>Status Summary:</b> FOLLOW UP INSPECTION REQUIRED</li> <li>○ <b>Inspected Facilities:</b> Hirsch Pad 29-C (Location)</li> <li>○ <b>Inspection Status:</b> RI</li> <li>○ <b>Inspection Date &amp; Inspector:</b> 08/29/2019 by Chris Binschus</li> <li>○ <b>Comments:</b> This is a Final Reclamation Inspection for PA Well</li> </ul>

	<p>API#<a href="#">123-37822</a> and API#<a href="#">123-37823</a>. Wells were plugged and abandoned on 3/26/2019 and 3/27/2019. This location is not in compliance with Rule 1004. Reclamation rules require reclamation activities to be conducted within three months of plugging on cropland. The last well was plugged 3/27/2019. Operator has failed to perform Final Reclamation activities at the tank battery location. Refer to the attached inspection photos.</p> <ul style="list-style-type: none"> <li>○ <b>Attachments:</b> Inspection Photos Doc # <a href="#">697500546</a></li> </ul> <p><b>Form INSP Doc # &amp; Date:</b> <a href="#">668703176</a> &amp; 05/31/2015</p> <ul style="list-style-type: none"> <li>○ <b>Status Summary:</b> None Checked</li> <li>○ <b>Inspected Facilities:</b> Hirsch 1-29, Hirsch 2-29 (Wells)</li> <li>○ <b>Inspection Status:</b> PR</li> <li>○ <b>Inspection Date &amp; Inspector:</b> 05/28/2015 by Gary Helgeland</li> <li>○ <b>Comments:</b> Interim reclamation inspection only. Well located on cropland under cultivation.</li> </ul>
<p><b>COGIS Tank Facilities Information (Scout Card)</b></p>	<p><b>No Tank Battery documents were detected during this QA/QC Audit.</b> However, the Tank Battery is referenced in Form 44 Doc # <a href="#">402018920</a> as the end point location and is located at Location ID <a href="#">434021</a>.</p>
<p><b>COGIS Well Information (Scout Card)</b></p>	<p><b>Well Name:</b> Hirsch #1-29  <b>API#:</b> <a href="#">05-123-37822</a>  <b>FACILITY ID:</b> 433859</p> <ul style="list-style-type: none"> <li>○ <b>Status &amp; Date:</b> PA &amp; 03/27/2019</li> <li>○ <b>Lat/Long as Drilled:</b> 40.551769 / -104.800675</li> <li>○ <b>Form 6 Doc # &amp; Date:</b> <a href="#">402003082</a> &amp; 06/03/2019</li> <li>○ <b>Form 42 Doc # &amp; Date:</b> <a href="#">401931592</a> &amp; 02/06/2019  <b>Purpose:</b> START OF PLUGGING OPERATIONS - 48-hour notice required. Date: 02/08/2019.</li> </ul> <hr/> <p><b>Well Name:</b> Hirsch #2-29  <b>API#:</b> <a href="#">05-123-37823</a>  <b>FACILITY ID:</b> 433861</p> <ul style="list-style-type: none"> <li>○ <b>Status &amp; Date:</b> PA &amp; 03/26/2019</li> <li>○ <b>Lat/Long as Drilled:</b> 40.551739 / -104.800708</li> <li>○ <b>Form 6 Doc # &amp; Date:</b> <a href="#">402003045</a> &amp; 06/03/2019</li> </ul>

	<ul style="list-style-type: none"> <li>○ <b>Form 42 Doc # &amp; Date:</b> <a href="#">401931595</a> &amp; 02/06/2019</li> <li><b>Purpose:</b> START OF PLUGGING OPERATIONS - 48-hour notice required. Date: 02/12/2019.</li> </ul>
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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
<b>Reference Imagery for Infrastructure:</b> Microsoft 2011; DRCOG 2014	<b>Remotely Sensed Imagery:</b> 8 Sep 2024
<b>Designation:</b> Oil & Gas Facility	<b>Designation:</b> 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.

In accordance with ECMC guidance, this cropland evaluation has demonstrated that this location has been returned to its original condition and crops are reflective of the cropland reference areas.

## Closure Information

Location ID [433862](#) Hirsch Pad/29-C is in Weld County, Colorado near the intersection of County Road 78 and County Road 29. There are two plugged and abandoned wells (Hirsch #1-29, API # [05-123-37822](#), Hirsch #2-29, API # [05-123-37823](#)). There are Off-Location Flowlines between these wells and the Production Facility at Location ID [434021](#).

There was a Corrective Action at this location on August 29<sup>th</sup>, 2019, due to Comply with Rule 1004, Collaborate with the landowner to determine mitigating measures that will allow reclamation work to be conducted in such a manner as to not interfere with agricultural activities or crop production. This Corrective Action is pending re-inspection at the time of this audit.

Hirsch #1-29 well (API # [05-123-37822](#)), was plugged and abandoned on March 27<sup>th</sup>, 2019, and Hirsch #2-29 well (API # [05-123-37823](#)) was plugged and abandoned on March 26<sup>th</sup>, 2019. The well access road was reclaimed at this time. The related production facility, Location ID [434021](#), was closed and reclaimed in April 2019.

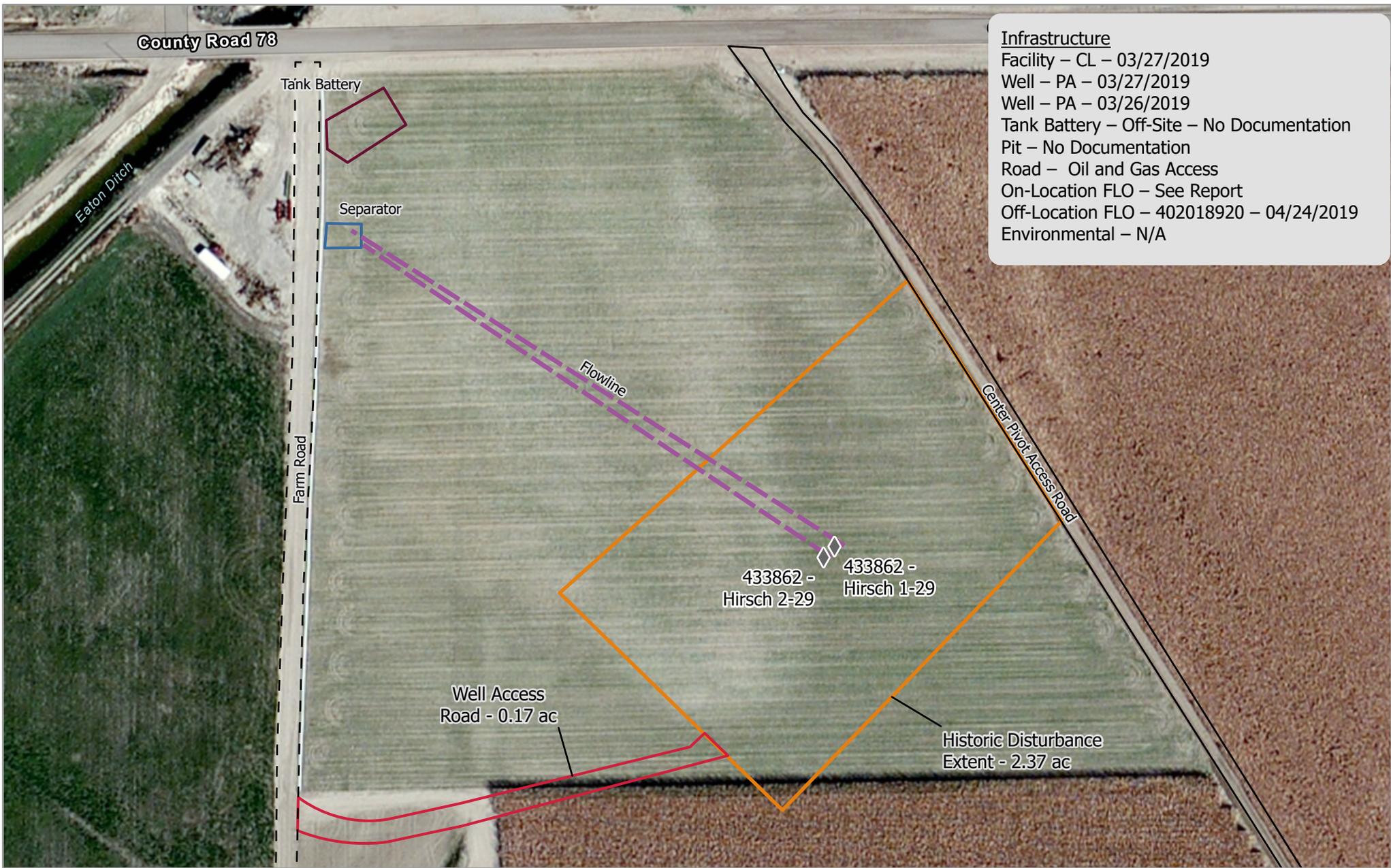
Soil Sage drone imagery confirms that no equipment was left on site at this location after reclamation activities occurred.

## Summary Acreage Table

Description	Acres
Historic Disturbance Extent	2.54
Access Road	0.17
Flowline	Not Included
Tank Battery	Off-Site (Loc ID <a href="#">434021</a> )
Well Pad	2.37

## 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



**Infrastructure**  
 Facility – CL – 03/27/2019  
 Well – PA – 03/27/2019  
 Well – PA – 03/26/2019  
 Tank Battery – Off-Site – No Documentation  
 Pit – No Documentation  
 Road – Oil and Gas Access  
 On-Location FLO – See Report  
 Off-Location FLO – 402018920 – 04/24/2019  
 Environmental – N/A

**Bayswater - 433862- Hirsch Pad  
 Map Extent - Pre-Infrastructure Overview**

Imagery: Microsoft  
 Imagery Date: 21 Apr 2011  
 Map Date: 12 Nov 2024  
 Datum: WGS 1984 UTM Zone 13N  
 POC: Soil Sage

◆ Wells	▭ Tank Battery
— Flowline	▭ Separator
▭ Historic Disturbance Extent	▭ Center Pivot Access Road
▭ Well Access Road	- - - Farm Road

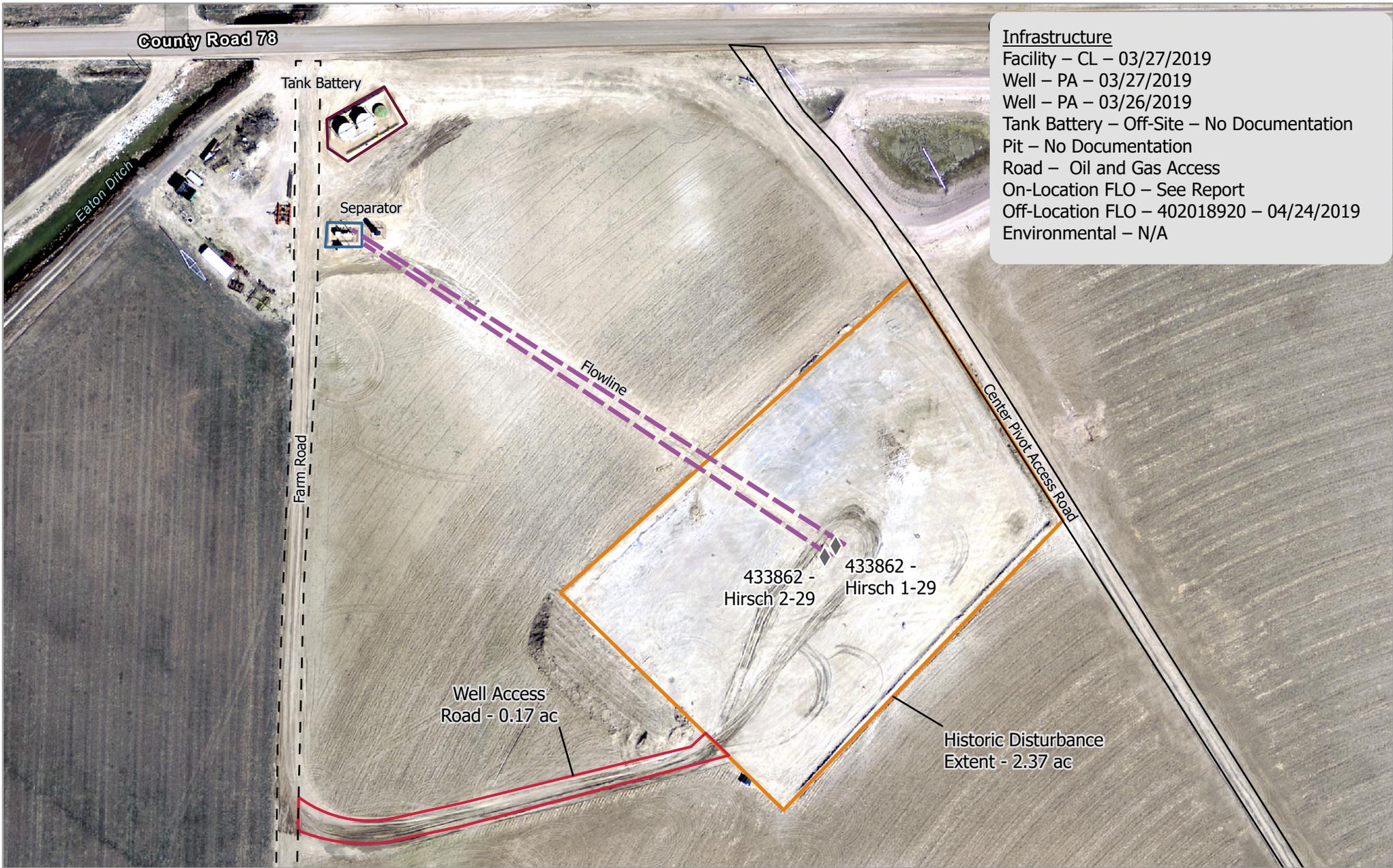
0 20 40 80 Meters

Total Disturbance: 2.54 Acres  
 Scale: 1:1,400

Pad Location:  
 40.551739  
 -104.800709

N

Service Credits - esri, imagery, Maxar, Microsoft, Esri Community Maps Contributors, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc., METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS



**Infrastructure**  
 Facility – CL – 03/27/2019  
 Well – PA – 03/27/2019  
 Well – PA – 03/26/2019  
 Tank Battery – Off-Site – No Documentation  
 Pit – No Documentation  
 Road – Oil and Gas Access  
 On-Location FLO – See Report  
 Off-Location FLO – 402018920 – 04/24/2019  
 Environmental – N/A

**Bayswater - 433862- Hirsch Pad  
 Map Extent - Pre-Plugging Overview**

Imagery: DRCOG  
 Imagery Date: 5 March 2014  
 Map Date: 12 Nov 2024  
 Datum: WGS 1984 UTM Zone 13N  
 POC: Soil Sage

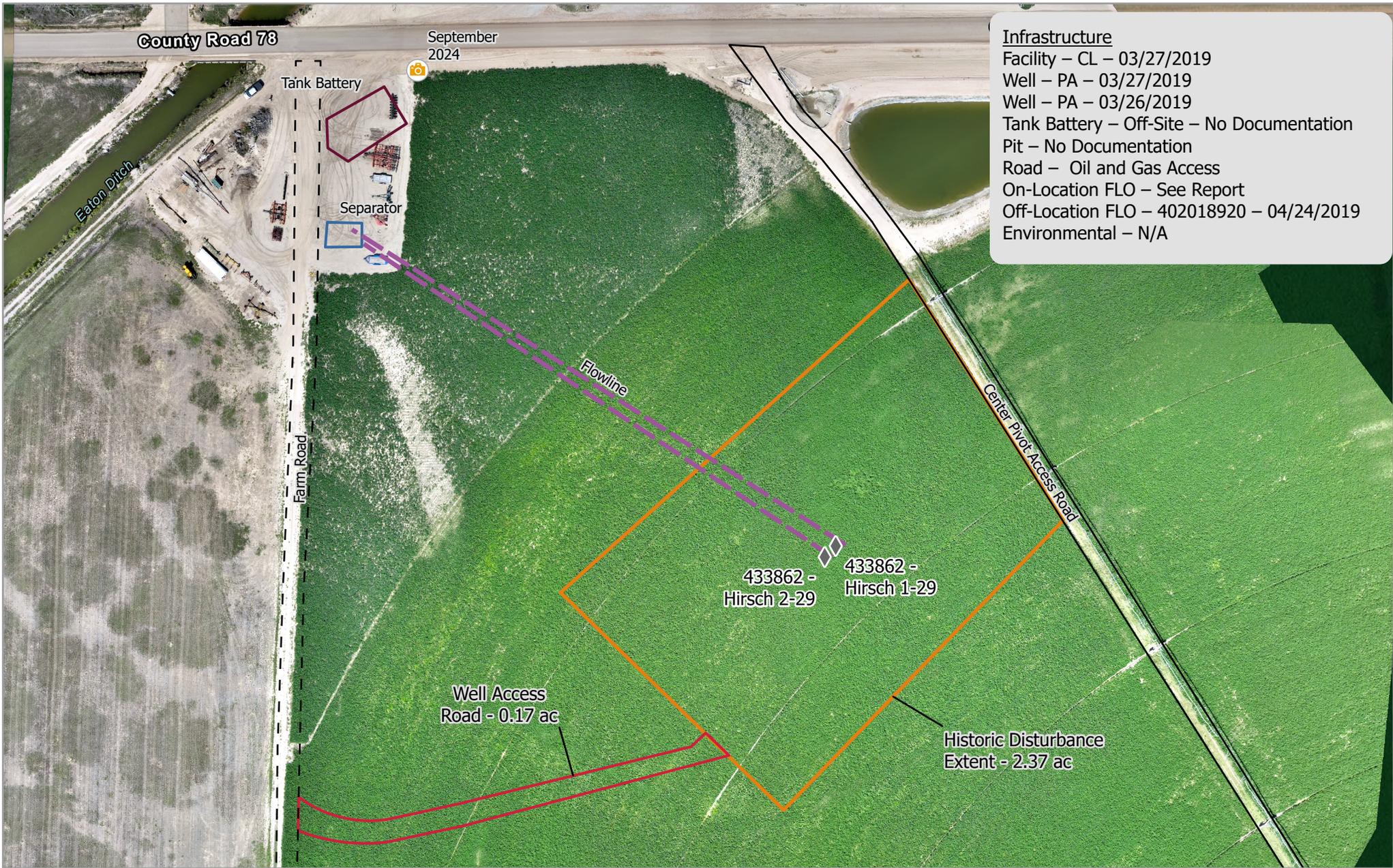
- |                               |                            |
|-------------------------------|----------------------------|
| ◆ Wells                       | □ Tank Battery             |
| — Flowline                    | □ Separator                |
| □ Historic Disturbance Extent | □ Center Pivot Access Road |
| □ Well Access Road            | □ Farm Road                |

0 20 40 80 Meters

Total Disturbance: 2.54 Acres  
 Scale: 1:1,400

Pad Location:  
 40.551739  
 -104.800709

N



**Infrastructure**  
 Facility – CL – 03/27/2019  
 Well – PA – 03/27/2019  
 Well – PA – 03/26/2019  
 Tank Battery – Off-Site – No Documentation  
 Pit – No Documentation  
 Road – Oil and Gas Access  
 On-Location FLO – See Report  
 Off-Location FLO – 402018920 – 04/24/2019  
 Environmental – N/A

**Bayswater - 433862- Hirsch Pad  
 Map Extent - Post-Plugging Overview**

Imagery: RS Orthomosaic  
 Imagery Date: 8 Sep 2024  
 Map Date: 12 Nov 2024  
 Datum: WGS 1984 UTM Zone 13N  
 POC: Soil Sage

- Wells
- Observation Points
- Flowline
- Historic Disturbance Extent
- Well Access Road
- Tank Battery
- Separator
- Center Pivot Access Road
- Farm Road

0      20      40      80 Meters

Total Disturbance: 2.54 Acres      Pad Location: 40.551739  
 Scale: 1:1,400      -104.800709

N

# Cardinal Directional Drone Photos & Reference Area Photos

*Site Investigation and Photos Date*

08 Sep 2024

*Drone Photo Height*

110 feet

Cardinal directional photos of the site. Reference overview map.



**In View** – Well, Access Road, Flowline

**NORTH** – 40.551130 / -104.800719



**In View** – Well, Access Road, Flowline

**EAST** – 40.551589 / -104.801349



**In View** – Well, Access Road, Flowline

**SOUTH** – 40.552062 / -104.800711



**In View** – Well, Access Road, Flowline

**WEST** – 40.551675 / -104.800206



**In View** – Tank Battery (Location ID [434021](#)), Flowline

**NORTH** – 40.551806 / -104.802194



In View – Tank Battery (Location ID [434021](#)), Flowline

EAST – 40.552729 / -104.802984



In View – Tank Battery (Location ID [434021](#)), Flowline

SOUTH – 40.553236 / -104.802358



**In View** – Tank Battery (Location ID [434021](#)), Flowline

**WEST** – 40.552704 / -104.801619



**In View** – Well, Tank Battery (Location ID [434021](#)), Access Road, Flowline

**SOUTHEAST** – 40.553237 / -104.802357



**In View** – Well, Tank Battery (Location ID [434021](#)), Access Road, Flowline      **NORTHWEST** – 40.551286 / -104.800333

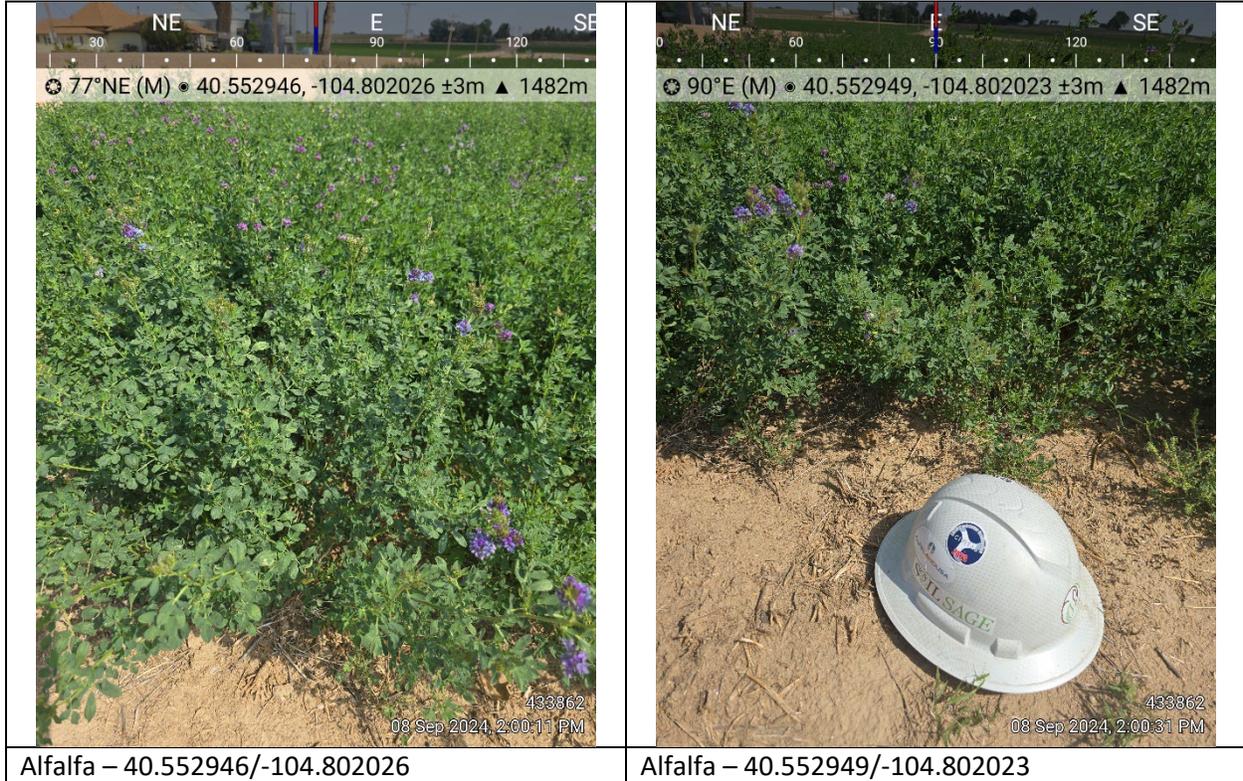
## Location – Handheld Photographic Evidence

### *Site Investigation and Photos Date*

08 Sep 2024

Handheld photos taken from the access road to the north looking Location ID [433862](#) wellhead.

No handheld photos taken from Location ID [433862](#) wellhead location due to crop height.





Looking Southeast – 40.552955/-104.802005



Looking Southeast – 40.552952/-104.802006

# ATTACHMENTS

## Maps and Figures

### *Area Maps*

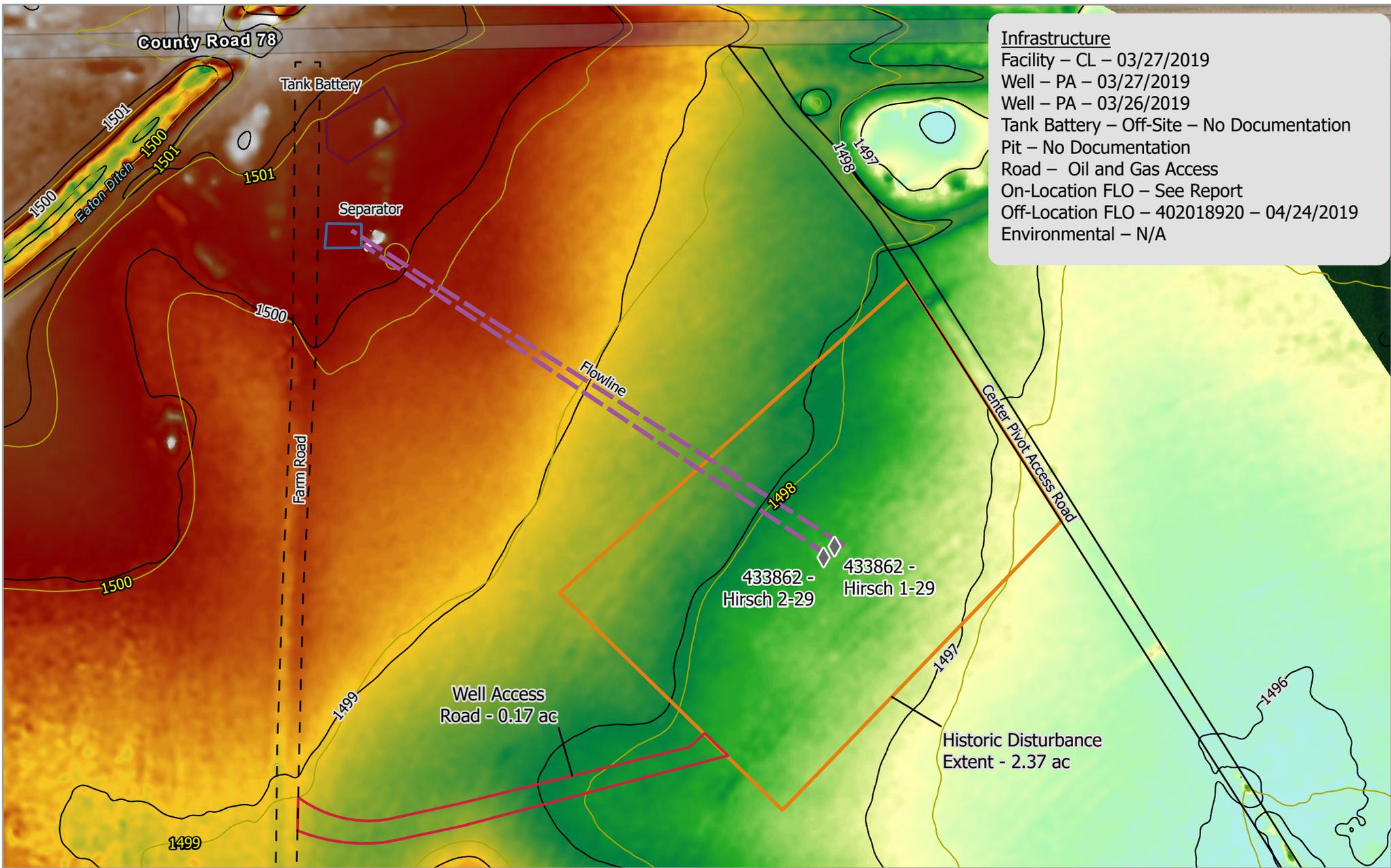
Elevation & Contours

Hydrology

## Background Information

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

Reference Soil Document



**Infrastructure**  
 Facility – CL – 03/27/2019  
 Well – PA – 03/27/2019  
 Well – PA – 03/26/2019  
 Tank Battery – Off-Site – No Documentation  
 Pit – No Documentation  
 Road – Oil and Gas Access  
 On-Location FLO – See Report  
 Off-Location FLO – 402018920 – 04/24/2019  
 Environmental – N/A

**Bayswater - 433862- Hirsch Pad  
 Map Extent - Elevation & Contours**

Imagery: RS DSM, CWCB  
 Imagery Date: 2024, 2018  
 Map Date: 12 Nov 2024  
 Datum: WGS 1984 UTM Zone 13N  
 POC: Soil Sage

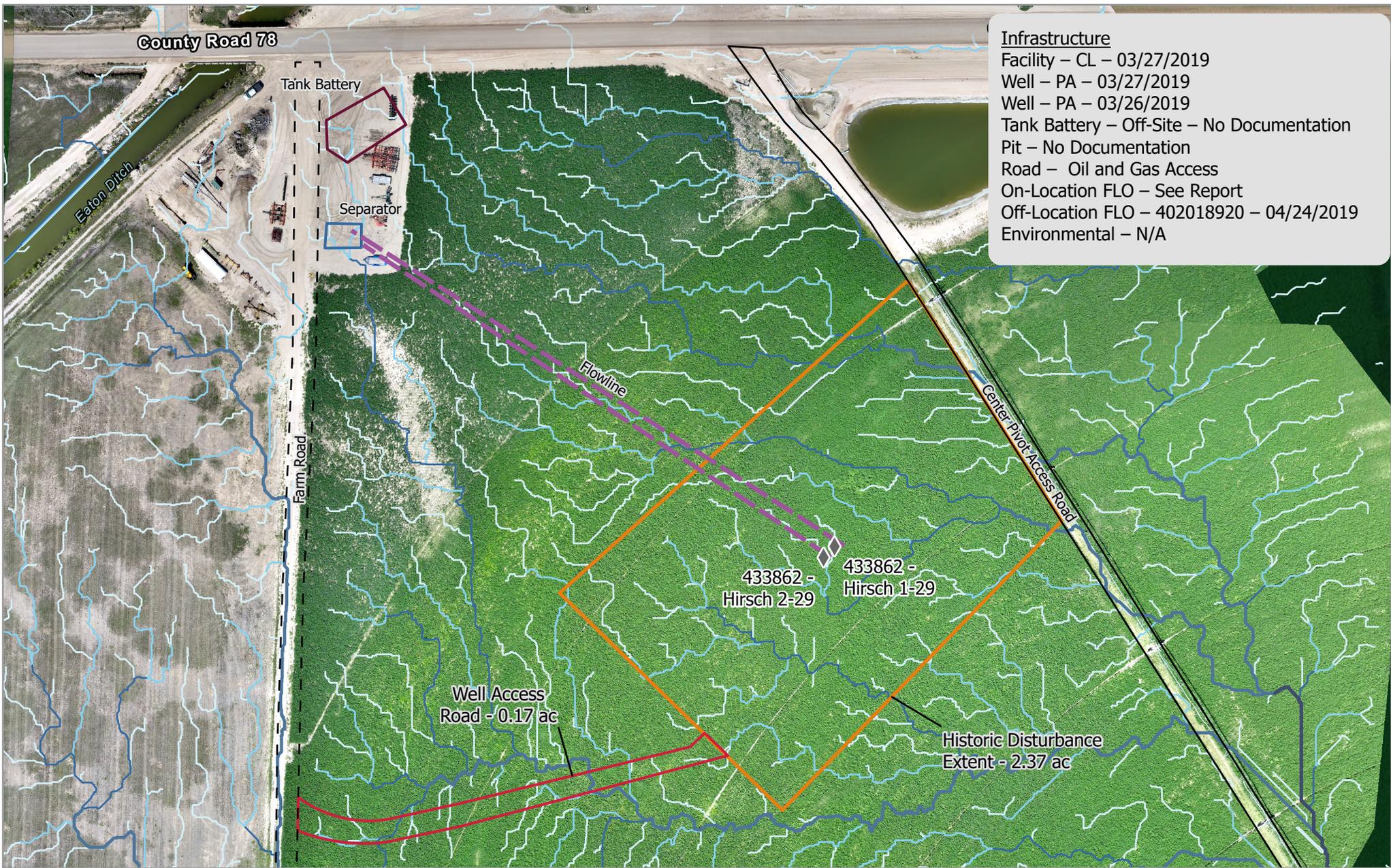
◆ Wells	▭ Separator
— Flowline	▭ Center Pivot Access Road
~ 1 Meter Contours (2018)	▭ Farm Road
~ 1 Meter Contours (2024)	Elevation
▭ Historic Disturbance Extent	Meters
▭ Well Access Road	1507
▭ Tank Battery	1494

0 20 40 80 Meters

Total Disturbance: 2.54 Acres  
 Scale: 1:1,400

Pad Location:  
 40.551739  
 -104.800709

N



**Infrastructure**  
 Facility – CL – 03/27/2019  
 Well – PA – 03/27/2019  
 Well – PA – 03/26/2019  
 Tank Battery – Off-Site – No Documentation  
 Pit – No Documentation  
 Road – Oil and Gas Access  
 On-Location FLO – See Report  
 Off-Location FLO – 402018920 – 04/24/2019  
 Environmental – N/A

**Bayswater - 433862- Hirsch Pad  
 Map Extent - Hydrology**

Imagery: RS DSM, RS Orthomosaic  
 Imagery Date: 29 Oct 2024, 8 Sep 2024  
 Map Date: 12 Nov 2024  
 Datum: WGS 1984 UTM Zone 13N  
 POC: Soil Sage

◆ Wells	▭ Farm Road
— Flowline	Stream Order
▭ Historic Disturbance Extent	— 1
▭ Well Access Road	— 2
▭ Tank Battery	— 3
▭ Separator	— 4
▭ Center Pivot Access Road	— 5

0 20 40 80 Meters

Total Disturbance: 2.54 Acres  
 Scale: 1:1,400

Pad Location: 40.551739  
 -104.800709

N

# Soil Properties

## USDA Soil Description

### Reference Soil Information

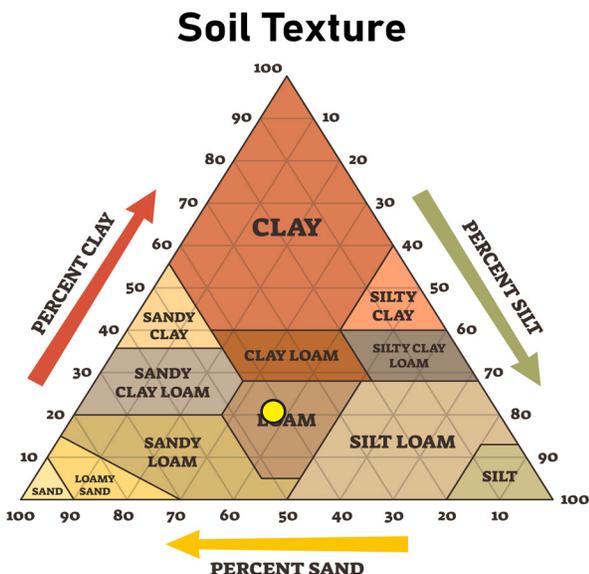
The location of the site is contained within one soil type, Kim Loam.

### Map Unit 32 Reference Soil information - Kim Loam

This soil is formed from mixed eolian deposits derived from sedimentary rock. Landform is alluvial fans and plains. Ecological Site Description is Loamy Plains. Soils are well-drained with a moderate water holding capacity, and slope 1 to 3 percent.

Depth (in)	Physical			Chemical			
	Texture	Bulk Density	Particle Size Percent sand, silt, clay	pH	EC	SAR	OM%
0-12	Loam	1.33	42-37-21	7.9	0.0	0.0	0.75
12-40	Loam	1.33	42-37-21	7.9	0.0	0.0	0.75
40-60	Fine Sandy Loam	1.43	65-20-15	7.9	0.0	0.0	0.25

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



### Erosion Potential (10 inches)

- K Factor, Whole soil - .28. 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 – 4L. 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

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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.

# Vegetation

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## Reference vegetation – Loamy Plains Ecology

### Climate

Average Annual Precipitation 14 to 17 inches annually

Average Annual Air Temperature 50 degrees F

Drought conditions in effect

Long-term effects of these latest drought events have yet to be determined. Growth of native cool-season plants begin about April 1 and continue to mid-June. Native warm-season plants begin growth about May 1 and continue to about August 15. Regrowth of cool-season plants occur in September in most years, depending on moisture.

### Reference dynamics

The Reference State is characterized by co-dominant warm-season shortgrass (blue grama), and cool-season midgrass (western wheatgrass, green needlegrass). The Warm-Season Shortgrass State is characterized by a warm-season short bunchgrass (blue grama) and stoloniferous grass (buffalograss). The Increased Bare Ground State is characterized by early successional warm-season bunchgrass (Fendler threeawn), cool-season short bunchgrass (squirreltail), annual grasses, and annual forbs.

Drought has increased mortality of blue grama and buffalo grasses in some locations

The major grasses in the Reference Plant Community include western wheatgrass, green needlegrass, and blue grama. Western wheatgrass is a major cool-season grass in this plant community and is a valuable forage plant in late spring and/or early summer. Sub-dominant grasses include needle and thread, buffalograss, and sand dropseed. Major forbs include American vetch, upright prairie coneflower, scarlet globemallow, and dotted blazingstar (dotted gayfeather). A minor amount of shrubs such as fourwing saltbush and winterfat may also occur.

Well suited for carbon sequestration

# Vegetation

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## Reference Vegetation – Loamy Plains Ecology

### At Risk Plant Community

Key species from the Reference Plant Community, such as green needlegrass, western wheatgrass, American vetch, fourwing saltbush, and winterfat have been reduced in production. Blue grama and buffalograss have increased in abundance, are beginning to dominate the community, and will begin to exhibit a sod-bound appearance. Sand dropseed, red threeawn, sixweeks fescue, plains pricklypear, hairy false goldenaster, and bottlebrush squirreltail also have increased. This plant community is at risk of losing the cool-season grasses, key forbs such as American vetch and purple prairie clover, and key shrubs.

Total aboveground biomass has been reduced. Reduction of rhizomatous wheatgrass, nitrogen-fixing forbs, and the shrub component, and increased warm-season shortgrasses have begun to alter the biotic integrity of this community. Water and nutrient cycles may be impaired.

### Loamy Plains Ecosystem Vegetative Community Composition

Common Name	Scientific Name
Western Wheatgrass	<i>Pascopyrum smithii</i>
Green Needlegrass	<i>Nassella viridula</i>
Indian Ricegrass	<i>Achnatherum hymenoides</i>
Needle and Thread	<i>Hesperostipa comata</i>
Blue Grama	<i>Bouteloua gracilis</i>
Buffalograss	<i>Bouteloua dactyloides</i>
Sand Dropseed	<i>Sporobolus cryptandrus</i>
Sideoats Grama	<i>Bouteloua curtipendula</i>
Little Bluestem	<i>Schizachyrium scoparium</i>
Little Barley	<i>Hordeum pusillum</i>
Sixweeks Fescue	<i>Vulpia octoflora</i>
American Vetch	<i>Vicia americana</i>
Purple Prairie Clover	<i>Dalea purpurea</i> var. <i>purpurea</i>
White Locoweed	<i>Oxytropis sericea</i>
Slimflower Scurfpea	<i>Psoralidium tenuiflorum</i>
Scarlet Globemallow	<i>Sphaeralcea coccinea</i>
Broadbeard Beardtongue	<i>Penstemon angustifolius</i>
Lacy Tansyaster	<i>Machaeranthera pinnatifida</i> ssp. <i>pinnatifida</i> var. <i>pinnatifida</i>
Dotted Blazing Star	<i>Liatris punctata</i>
Upright Prairie Coneflower	<i>Rativida columnifera</i>
Rush Skeletonplant	<i>Lygodesmia juncea</i>