

# Trinity Oilfield Services & Rentals, LLC



December 19<sup>th</sup>, 2024

Oil Conservation Division, District I  
1625 N. French Drive  
Hobbs, NM 88240

Re: **Remediation Plan Request**  
**State 20B to Jenna**  
**Tracking #: NAPP2427440858**

Trinity Oilfield Services (Trinity), on behalf of Longfellow Energy, LP, hereby submits the following Remediation Plan Request in response to a release that occurred at the above-referenced location, and further described below.

Site Information	
Incident ID	NAPP2427440858
Site Name	State 20B to Jenna
Lease ID	E009500005
Company	Longfellow Energy, LP
Contact Name	David Cain
Contact Email	david.cain@longfellowenergy.com
Contact Telephone	972-590-9918
County	Eddy
ULSTR	D-09-17S-29E
GPS Coordinates (NAD 83)	32.855489,-104.088339
Landowner	State

## RELEASE BACKGROUND

On 09/30/2024, Longfellow Energy, LP reported a release at the State 20B to Jenna. The release was caused by a blow out. Approximately 3,094 sqft. of the Pasture was found to be damp upon initial inspection.

Release Information	
Date of Release	04/07/2024
Type of Release	Produced Water
Source of Release	Pipeline
Volume Released – Produced Water	70 bbls
Volume Recovered – Produced Water	65 bbls
Volume Released – Crude Oil	0 bbls
Volume Recovered – Crude Oil	0 bbls
Affected Area – Damp Soil	Pasture - Approximately 3,094 sqft.
Site Location Map	Attached

## CULTURAL AND BIOLOGICAL COMPLIANCE

A comprehensive analysis was conducted to ensure both cultural and biological parameters are fully addressed and appropriate for proposed activities at the site location.



### Cultural Properties Protection:

An ARMS inspection and survey request was submitted to a state-permitted third-party archaeological consultant. The subject site underwent a Class III Archaeological Survey, which concluded with negative results and was cleared via email on 10/30/2024.

### Biological Compliance:

A desktop review of the site location was conducted using two key environmental assessment tools: the New Mexico Department of Game and Fish Environmental Review Tool (ERT) and the U.S. Fish and Wildlife Service's Information for Planning and Consultation (IPaC).

The review analyzed environmental factors within the area of interest. The evaluation results indicate that there are no critical habitats, important plant areas, or important bird areas located within the boundaries of the site. This suggests that the site does not host significant ecological features or sensitive species that would require special consideration or protection under current environmental regulations.

Critical habitats refer to areas essential for the conservation of species defined in the Endangered Species Act. Important plant areas in New Mexico are designated sites that either harbor a significant variety of vulnerable plant species or represent the last known habitats of the state's most endangered plants. Important bird areas are habitats that provide essential resources or support significant populations of bird species, particularly those of conservation concern. The absence of these critical ecological features in the site location implies that the proposed activities or developments can proceed with a lower risk of negatively impacting important natural resources.

Environmental Assessment	
NM Riparian Habitat Map	Negative
NMDGF Fish Management Plan Waters	Negative
Riparian Corridors	Negative
NM SWAP Conservation Opportunity Areas	Negative
NM Audubon Important Bird Areas	Negative
NM Important Plant Areas	Negative
USFWS Critical Habitat	Negative
USFWS Refuges	Negative
NM State Forestry Priority Landscapes	Negative

The IPaC report identifies the following species as potentially susceptible to impacts from activities proposed at this location.

Species	Status
Mexican Spotted Owl	Threatened
Northern Aplomado Falcon	Experimental Population, Non-essential
Piping Plover	Threatened
Texas Hornshell	Endangered
Monarch Butterfly	Candidate
Lee Pincushion Cactus	Threatened
Sneed Pincushion Cactus	Endangered

The report indicates that no critical habitats for these species are present within the site. The report further highlights that no migratory Bird of Conservation Concern (BBC) in the United States is expected within the area of interest.

Additional analysis utilizing mapping services from the Bureau of Land Management (BLM) reinforces that the habitats of the Lesser Prairie-Chicken and the Dunes Sagebrush Lizard are not affected by the release area. This cross-referenced data from BLM serves to validate the initial findings and ensures that significant habitats for these species remain undisturbed by the planned activities.



**SITE CHARACTERIZATION AND CLOSURE CRITERIA****Depth to Groundwater/Wellhead Protection:**

Data Source	Well Number	Data Date	Depth (ft.)
NM OSE	NA	NA	NA
USGS	NA	NA	NA
Soil Bore	NA	NA	NA

A search of the groundwater well databases maintained by the New Mexico Office of the State Engineer (NMOSE) and the United States Geological Survey (USGS) was conducted to determine if any registered groundwater wells are located within a 1/2 mile of the release site. The search revealed that Zero (0) wells occurred in the databases that meet the NMOCD criteria for the age of data, the distance of the data point well from the release point, and a data point well having a diagram of construction.

**General Site Characterization:**

Site Assessment	
Karst Potential	High
Distance to Watercourse	943 ft. to Stream
Within 100 yr Floodplain	No
Pasture Impact	Yes

A risk-based site assessment/characterization was performed following the New Mexico Oil Conservation Division (NMOCD) Rule (Title 19 Chapter 15 Part 29) for releases on oil and gas development and production in New Mexico (effective August 14, 2018). To summarize the site assessment/characterization evaluation, the affected area has High potential for cave and karst, and no other receptors (residence, school, hospital, institution, church, mining, municipal, or other ordinance boundaries) were located within the regulatorily promulgated distances from the site.

Soil Assessment	
Soil Series	Kimbrough-Stegall
Fragile Soil Interpretive Class	Not Rated
Erodibility Value	0.43
Wind Erodibility Group	5
Badland Soils	No
Gypsum Soils	No
Representative Slope	2%
Depth to Restrictive Feature	23 cm
Depth to Bedrock	> 200 cm
Severe Wildland Burn	No

A soil assessment/characterization was performed following the New Mexico State Land Office Environmental Compliance Office (ECO) Spill and Release Reporting Guidelines (Part 2 Letter D).

**Closure Criteria:**

Off-Site   Recommended Remedial Action Levels (RRALs)	
Chlorides	600 mg/kg
TPH (GRO and DRO and MRO)	100 mg/kg
TPH (GRO and DRO)	NA
BTEX	50 mg/kg
Benzene	10 mg/kg

A reclamation standard of 600 mg/kg chloride and 100 mg/kg TPH will be applied to the entire release area.



**INITIAL ASSESSMENT AND REMEDIATION ACTIVITIES****Initial Sample Activities:**

<b>Delineation Summary</b>	
Delineation Dates	11/27/2024
Depths Sampled	0' - 7'
Delineation Map	Attached
Laboratory Results	Table 1

All soil samples were placed into laboratory-supplied glassware, labeled, and maintained on ice until delivery to an NMOCD-approved laboratory (Cardinal Laboratories of Hobbs, NM) for the analysis of chloride using Method SM4500 Cl-B, Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) by EPA Method 8021 B and Total Petroleum Hydrocarbon (TPH) constituents the by EPA 8015M.

**Confirmation Activities:**

<b>Remediation Proposal</b>	
Remediation Dates	Within 90 Days of NMOCD Approval
Liner Variance Request	None
Deferral Request	None
Proposed Depths Excavated	0.3' - 7'
Proposed Area of 5-point Confirmation Samples – Floors and Walls	400 sqft.
Estimated Total Volume of Excavated Soil	658 yards

Impacted soil within the release margins will be excavated and temporarily stockpiled on-site on a 6-mil plastic sheeting, pending final disposition. Unless a Variance Request has been approved, all Floor and Walls of the excavated area will be advanced until laboratory analytical results from confirmation soil samples indicate Chloride, Benzene, BTEX, and TPH concentrations are below the RRAL NMOCD Closure Criteria listed in the Table above. Confirmation soil samples (five-point composites representing no more than 400 sqft. of the excavated area) will be collected from the floor and sidewalls.

Upon receiving laboratory analytical data showing that confirmation soil samples for the excavated areas yield results below the selected NMOCD Table I Closure Criteria, the impacted soil will be transported under manifest to an NMOCD-approved disposal facility. Upon approval, the excavated area will be backfilled with locally sourced, non-impacted “like” material.

**SITE RECLAMATION AND RESTORATION**

Areas affected by the release and the associated remediation activities will be restored to a condition which existed prior to the release to the extent practicable. The affected area will be contoured and/or compacted to provide erosion control, stability, and preservation of surface water flow. The area will be fenced off to mitigate grazing and soil compaction by cattle.

Affected areas disturbed by remediation on native land, not on production pads and/or lease roads, will be reseeded with a prescribed NMSLO seed mixture for Loamy (L) soils as defined in SLO Seed Mix Version 1-200808 during the first favorable growing season following the closure of the site. Reclamation on State Trust Land will also be documented and monitored for successful vegetation growth and invasive/noxious weed populations. Final reclamation of the well pad shall take place in accordance with 19.15.29.13 NMAC once the site is no longer being used for oil and gas operations.



**REQUEST FOR REMEDIATION PLAN APPROVAL**

Supporting Documentation	
Delineation Map	Attached
Depth to Groundwater Maps and Source	Attached
US NWI Map	Attached
FEMA Flood Hazard Map	Attached
USDA Soil Survey	Attached
SLO Seed Mix	Attached
Site Photography	Attached
Laboratory Analytics with COCs	Attached

The corrective actions will be completed within 90 days of receipt of approval of this proposal by the NMOCD. Upon completion of the proposed tasks, a Remediation Closure Request will be submitted, documenting remediation activities and results of confirmation samples.

Trinity Oilfield Services respectfully requests that the New Mexico Oil Conservation Division grant approval for this detailed Remediation Plan.

Sincerely,

*Dan Dunkelberg*

Dan Dunkelberg  
Project Manager

*Cynthia Jordan*

Cynthia Jordan  
Project Scientist





Stephanie Garcia Richard  
COMMISSIONER

*State of New Mexico*  
**Commissioner of Public Lands**

310 OLD SANTA FE TRAIL  
P.O. BOX 1148  
SANTA FE, NEW MEXICO 87504-1148

COMMISSIONER'S OFFICE  
Phone (505) 827-5760  
Fax (505) 827-5766  
www.nmstatelands.org

November 6, 2024

Longfellow Energy, LP  
8115 Preston Road, Suite 800  
Dallas, TX 75225

Attn: David Cain

Re: Right-of-Entry Permit No.: **RE-7260 State 20B to Jenna**

Dear Applicant:

Enclosed is the completed captioned Right-of-Entry permit. If any corrections are necessary, please let us know and we will retype or amend this permit as necessary.

**The New Mexico State Land Office requires you to notify any surface lessees that will be impacted by your project prior to construction.**

If you have any questions, or if we may be of further assistance, please do not hesitate to contact Samantha Martinez of my staff at (505) 827-4003.

Sincerely,

  
James S. Bordegaray  
Director, Commercial Resources Division

JSB/sm





**NEW MEXICO STATE LAND OFFICE**  
**Commissioner of Public Lands**  
**Stephanie Garcia Richard**  
**New Mexico State Land Office Building**  
**P.O. Box 1148, Santa Fe, NM 87504-1148**

**RIGHT OF ENTRY PERMIT**  
**CONTRACT NO. RE – 7260**

This Agreement is made and entered into between the COMMISSIONER OF PUBLIC LANDS (the "Commissioner") and

**Longfellow Energy, LP**  
**8115 Preston Road, Suite 800**  
**Dallas, TX 75225**

("Permittee"). The parties agree as follows:

**1. RIGHT OF ENTRY ("ROE")**

The Commissioner grants to Permittee, and its authorized representatives, employees, and contractors, permission to use the state trust lands identified below (the "Premises"), and ingress and egress to the Premises, for the sole purposes of (1) surveying/conducting an environmental investigation due to a crude oil and produced water release on or adjacent to the site of the **State 20B to Jenna (Incident # nAPP2427440858)** and (2) conducting surface reclamation activities, including removal of equipment and debris, and any required remediation per 19.15.29.12 NMAC.

The Premises are situated in the following location in **Eddy County**, New Mexico:

Section	Township	Range	Subdivision	County	Longitude/Latitude
09	17S	29E	NW4NW4	Eddy	32.855489/-104.08833

**2. TERM AND TERMINATION**

Right of entry is granted for a term of **180 days**, commencing on the execution date of this document by the Commissioner of Public Lands.

**3. FEES**

\$ 50.00 Application Fee  
 \$ 500.00 Permit Fee  
 \$ 550.00 Total Fee

RE-7260



#### **4. CONDITIONS OF USE**

- A. The issuance of this ROE does not guarantee that any subsequent lease, permit, or any other instrument will be issued to Permittee for the Premises.
- B. No blading or widening of any roads that provide access to the Premises is permitted under this ROE.
- C. No sale of any material extracted from the Premises is allowed under this ROE.
- D. Permittee shall observe all applicable federal, state, and local laws and regulations.
- E. Permittee shall take all reasonable precautions to prevent and suppress forest, brush, and grass fires and prevent pollution of waters on or in the vicinity of the Premises.
- F. Permittee shall not block or disrupt roads or trails commonly in use.
- G. This ROE is subject to any and all easements and rights-of-way previously granted and now in force and effect.
- H. Permittee shall be responsible for repair and restitution for damage to any Premises or improvements as a result of activities related to the ROE.
- I. Prior to entering the Premises, Permittee must identify and contact any existing surface lessees. The grant of this ROE does not allow access across private lands.
- J. Permittee may utilize this ROE upon its execution for inspection of the Premises and to conduct any necessary tests or inspections. Permittee may not conduct remediation or reclamation work until it has submitted a written plan for such work, and received State Land Office approval.
- K. Personnel present on Premises: **Longfellow Energy, LP Personnel and contractors.**
- L. Equipment and materials present on Premises: **Vehicles, heavy equipment, and associated equipment.**

#### **5. SITE CONDITIONS**

- A. No surface disturbance, other than soil tests, except as described in a reclamation plan submitted to and approved by the State Land Office.
- B. Access to the Premises shall be over existing roads.
- C. The natural environmental conditions that exist contemporaneously with this grant of ROE shall be preserved and protected. Permittee must follow all applicable environmental and cultural resource protection laws and regulations.

#### **6. INDEMNITY**

Permittee shall save, hold harmless, indemnify, and defend the State of New Mexico, the Commissioner and Commissioner's employees, agents and contractors, in both their official and individual capacities, from any and all liability, claims, losses, damages, or expenses of any character or nature whatsoever, including but not limited to attorney's fees, court costs, loss of land value or use, third party claims, penalties, or removal, remedial or restoration costs arising out of, or alleged to arise out of Permittee's operations or presence on the Premises (or operations or presence of his representatives, employees, or contractors).

#### **7. SURVIVAL OF TERMS**

Permittee's obligations regarding indemnity, site conditions, and compliance with applicable standards and laws, shall survive the termination, cancellation or relinquishment of this Agreement, and any cause of action of the Commissioner to enforce any right, liability, claim, loss, damage or expense under those paragraphs shall not be deemed to accrue until the Commissioner's actual discovery of said right, liability, claim, loss, damage or expense.

#### **8. NOTIFICATION**

Permittee must notify the State Land Office immediately in the event Permittee or his representatives, employees, or contractors observe any spill, fire, or other emergency on the Premises, or if Permittee or his representatives, employees, or contractors experience any serious injury while on the Premises.

RE-7260



WITNESS the hands of PERMITTEE and COMMISSIONER on the day(s) and year entered below.

David Cain

PERMITTEE SIGNATURE

DATE: 11/1/24

David Cain

Eng Tech & Regulatory Specialist

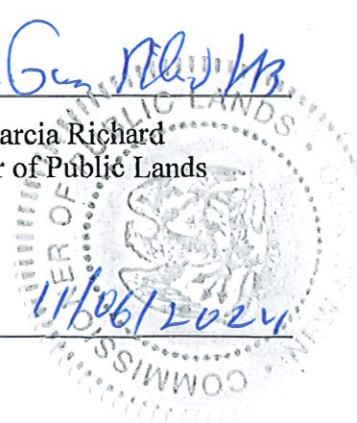
PERMITTEE NAME AND TITLE (PRINT)

SEAL:

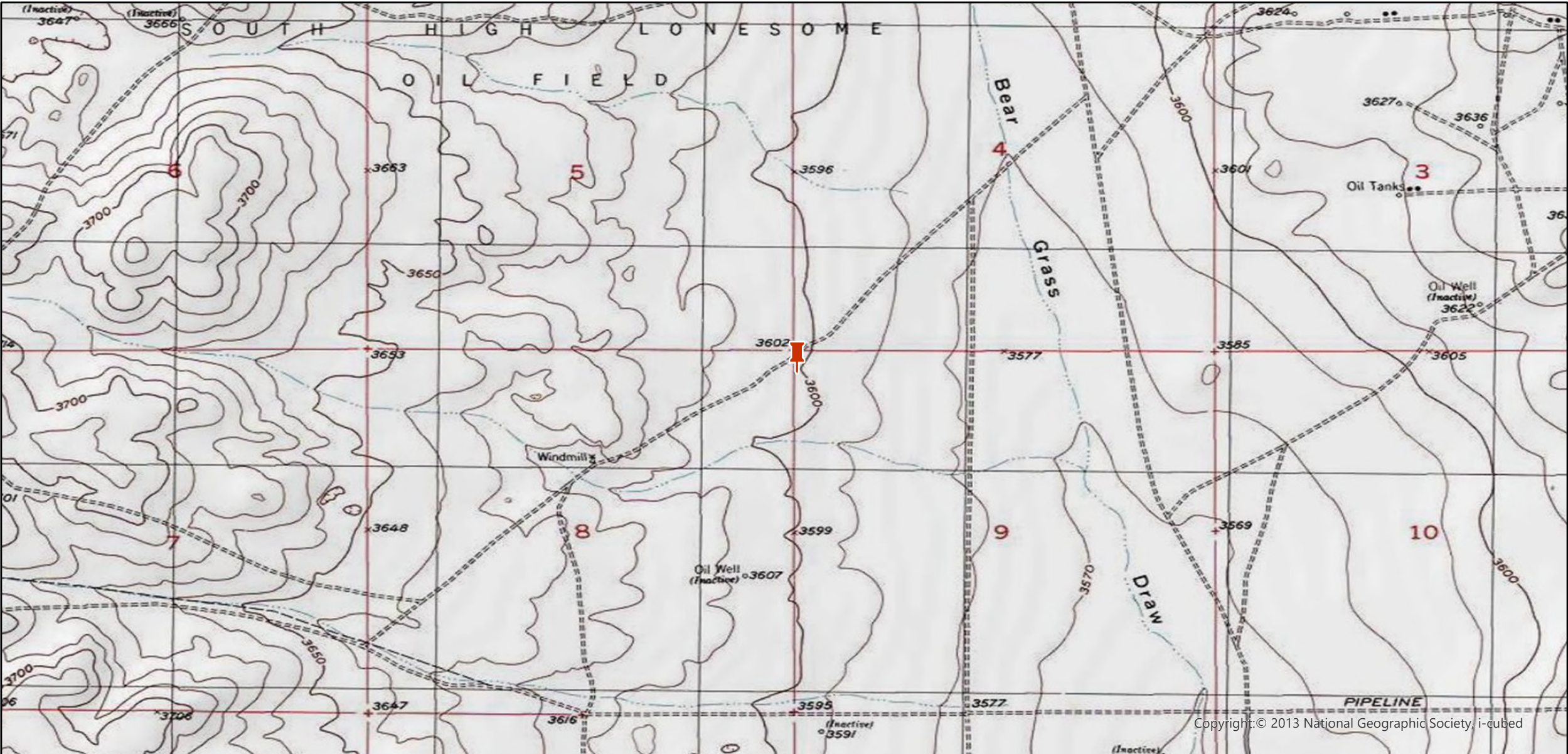
BY: Stephanie Garcia Richard

Stephanie Garcia Richard  
Commissioner of Public Lands

DATE: 11/06/2024



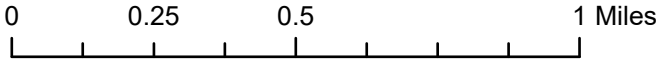




**Legend:**

 Site Location

Site Location Map  
Longfellow Energy, LP  
State 20B to Jenna  
32.855489, -104.088339  
Eddy County, New Mexico  
NMOCD Reference # NAPP2427440858





**TABLE 1**  
**CONCENTRATIONS OF BENZENE, BTEX, TPH & CHLORIDE IN SOIL**

LONGFELLOW ENERGY, LP  
STATE 20B TO JENNA  
EDDY COUNTY, NEW MEXICO  
NMOCD REFERENCE #: NAPP2427440858



SAMPLE LOCATION	SAMPLE DEPTH (BGS)	SAMPLE DATE	VERTICAL/ HORIZONTAL	OFF-SITE/ ON-SITE	SAMPLE TYPE	SOIL STATUS	CHLORIDE (mg/Kg)	TPH C6-C36 (mg/Kg)	GRO+ DRO (mg/kg)	GRO C6-C10 (mg/Kg)	DRO C10-C28 (mg/Kg)	MRO C28-C36 (mg/Kg)	TOTAL BTEX (mg/Kg)	BENZENE (mg/Kg)
<b>On-Site, &amp; Deeper than 4' Pasture</b>							<b>600</b>	<b>100</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>50</b>	<b>10</b>
<b>Delineation Special Circumstance, NMOCD Delineation Limits Pasture to 4'</b>							<b>600</b>	<b>100</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>50</b>	<b>10</b>
<b>Vertical Delineation</b>														
DV-001.0-00.0-P	0	11/27/2024	Vertical	Off-Site	Grab	In-Situ	16.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
DV-001.0-02.0-P	2	11/27/2024	Vertical	Off-Site	Grab	In-Situ	32.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
DV-001.0-04.0-P	4	11/27/2024	Vertical	Off-Site	Grab	In-Situ	64.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
DV-002.0-00.0-P	0	11/27/2024	Vertical	Off-Site	Grab	In-Situ	48.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
DV-002.0-04.0-P	4	11/27/2024	Vertical	Off-Site	Grab	In-Situ	16,800.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
DV-002.0-05.0-P	5	11/27/2024	Vertical	Off-Site	Grab	In-Situ	352.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
DV-002.0-06.0-P	6	11/27/2024	Vertical	Off-Site	Grab	In-Situ	304.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
DV-003.0-00.0-P	0	11/27/2024	Vertical	Off-Site	Grab	In-Situ	368.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
DV-003.0-04.0-P	4	11/27/2024	Vertical	Off-Site	Grab	In-Situ	17,600.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
DV-003.0-06.0-P	6	11/27/2024	Vertical	Off-Site	Grab	In-Situ	1,390.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
DV-003.0-07.0-P	7	11/27/2024	Vertical	Off-Site	Grab	In-Situ	432.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
<b>Horizontal Delineation</b>														
DH-001.0-00.5-P	0.5	11/27/2024	Horizontal	Off-Site	Grab	In-Situ	48.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
DH-002.0-00.5-P	0.5	11/27/2024	Horizontal	Off-Site	Grab	In-Situ	16.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
DH-003.4-00.5-P	0.5	11/27/2024	Horizontal	Off-Site	Grab	In-Situ	272.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
DH-004.1-00.5-P	0.5	11/27/2024	Horizontal	Off-Site	Grab	In-Situ	32.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
DH-005.0-00.5-P	0.5	11/27/2024	Horizontal	Off-Site	Grab	In-Situ	96.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
DH-006.0-00.5-P	0.5	11/27/2024	Horizontal	Off-Site	Grab	In-Situ	48.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
DH-007.0-00.5-P	0.5	11/27/2024	Horizontal	Off-Site	Grab	In-Situ	96.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0





**Legend:**

- |  |   |
|--|---|
| <span style="color: pink;">●</span> Vertical Delineation   | Above-Ground Lines                        |
| <span style="color: blue;">●</span> Horizontal Delineation   | <span style="color: brown;">—</span> Poly |
| <span style="background-color: #ccccff; border: 1px solid black; display: inline-block; width: 20px; height: 10px;"></span> Release Area |   |

**Delineation Map**  
**Longfellow Energy, LP**  
**State 20B to Jenna**  
**32.855489, -104.088339**  
**Eddy County, New Mexico**  
**NMOCD Reference # NAPP2427440858**







## Initial Release

Off-Site:



Off-Site:







## Initial Release

### Off-Site:



### Off-Site:

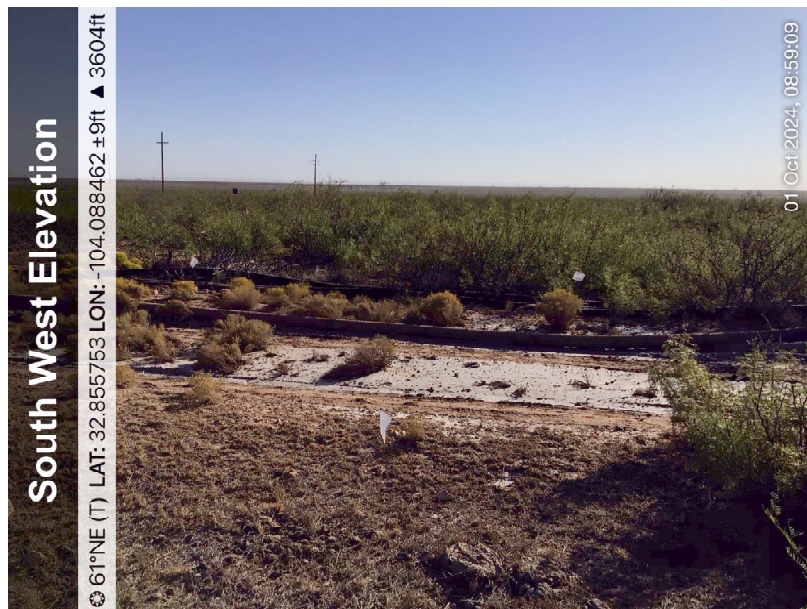






## Initial Release

### Off-Site:



### Off-Site:







## Initial Release

### Off-Site:



### Off-Site:







## Initial Release

### Off-Site:



### Off-Site:







## Initial Release

### Off-Site:



### Off-Site:

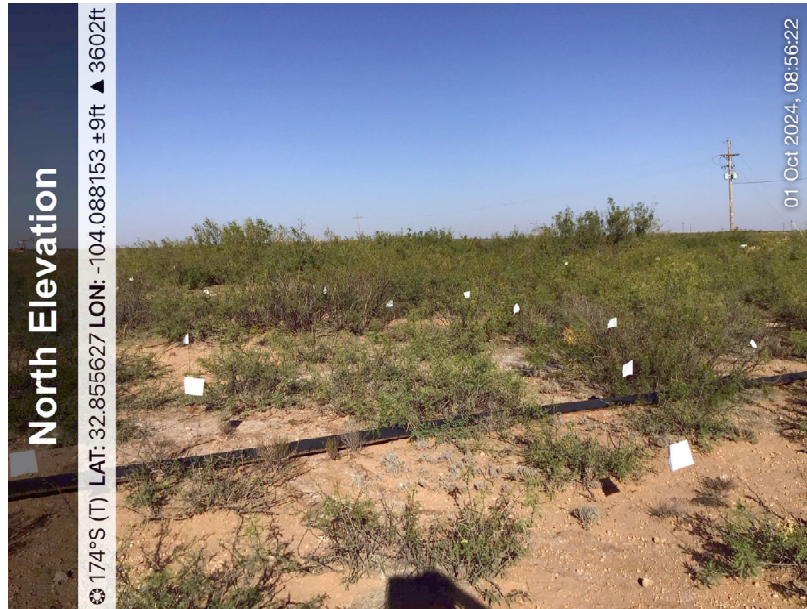






## Initial Release

### Off-Site:



### Off-Site:







## Initial Release

### Off-Site:

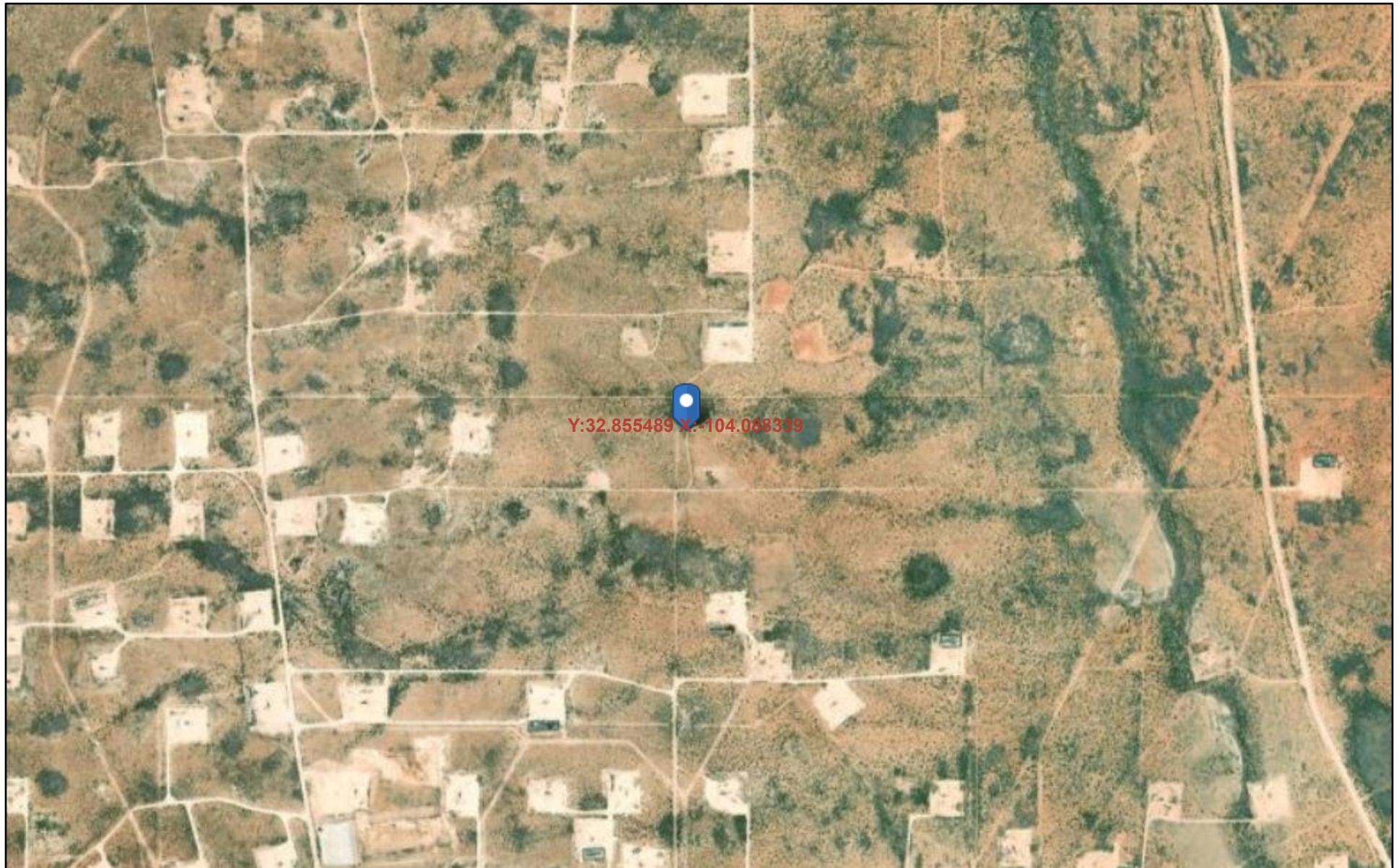


### Off-Site:

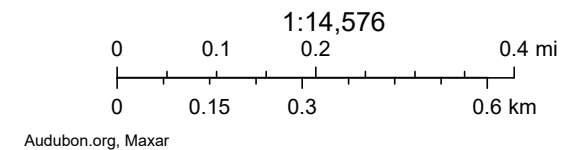
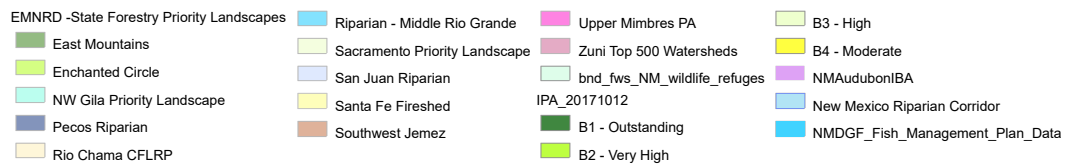




## NAPP2427440858 | STATE 20B TO JENNA

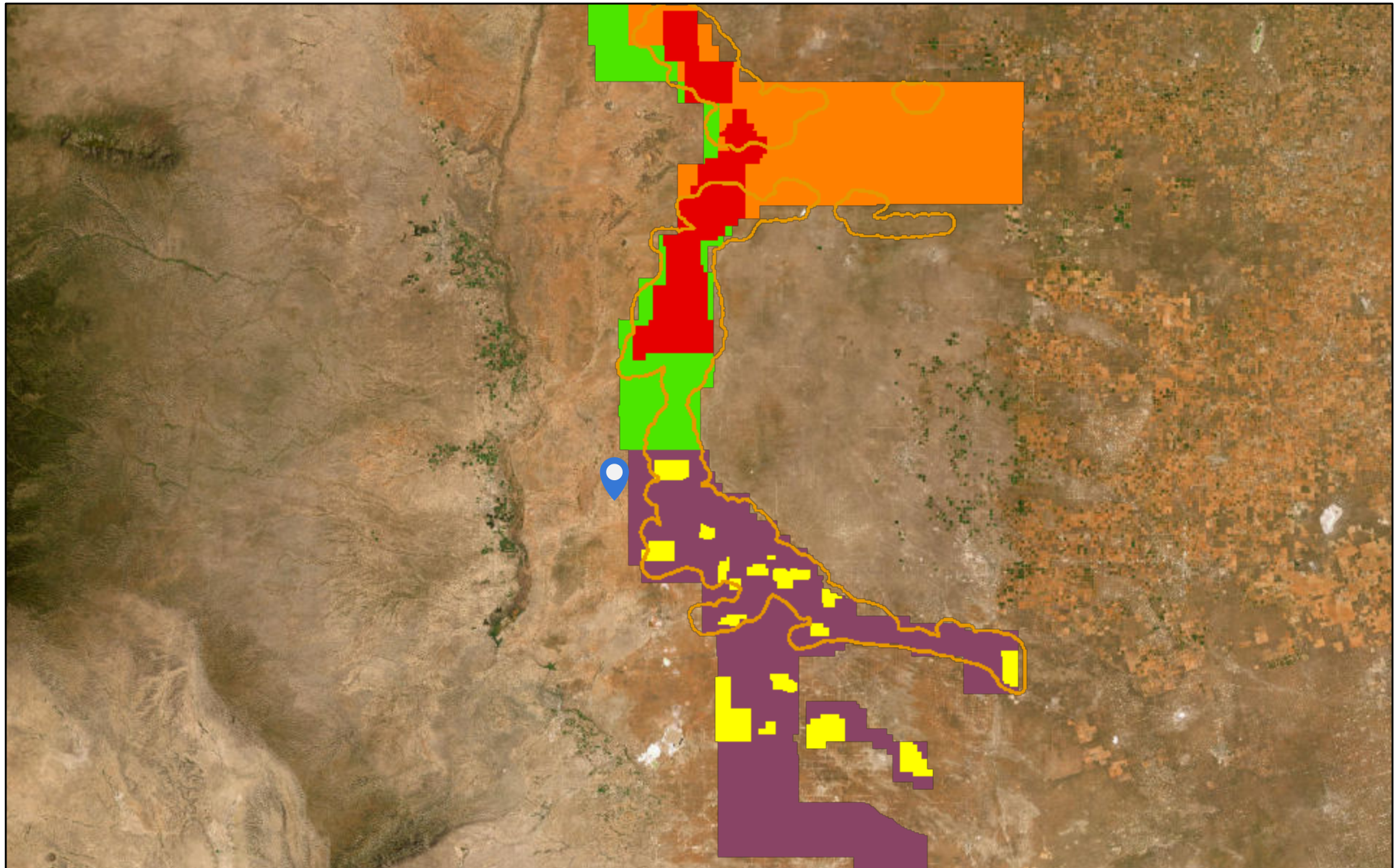


December 16, 2024












## NAPP2427440858 | STATE 20B TO JENNA



12/16/2024

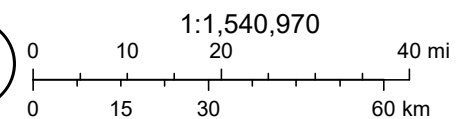
- |  |  |
|--|--|
|  Dunes Sage Brush Lizard Habitat |  Primary Population Area              |
|  Lesser Prairie Chicken Habitat  |  Sparse and Scattered Population Area |
|  Core Management Area            | World Imagery  |
|  Habitat Evaluation Area         | Low Resolution 15m Imagery   |
|  Isolated Population Area        |  |

High Resolution 60cm Imagery

High Resolution 30cm Imagery

Citations

150m Resolution Metadata



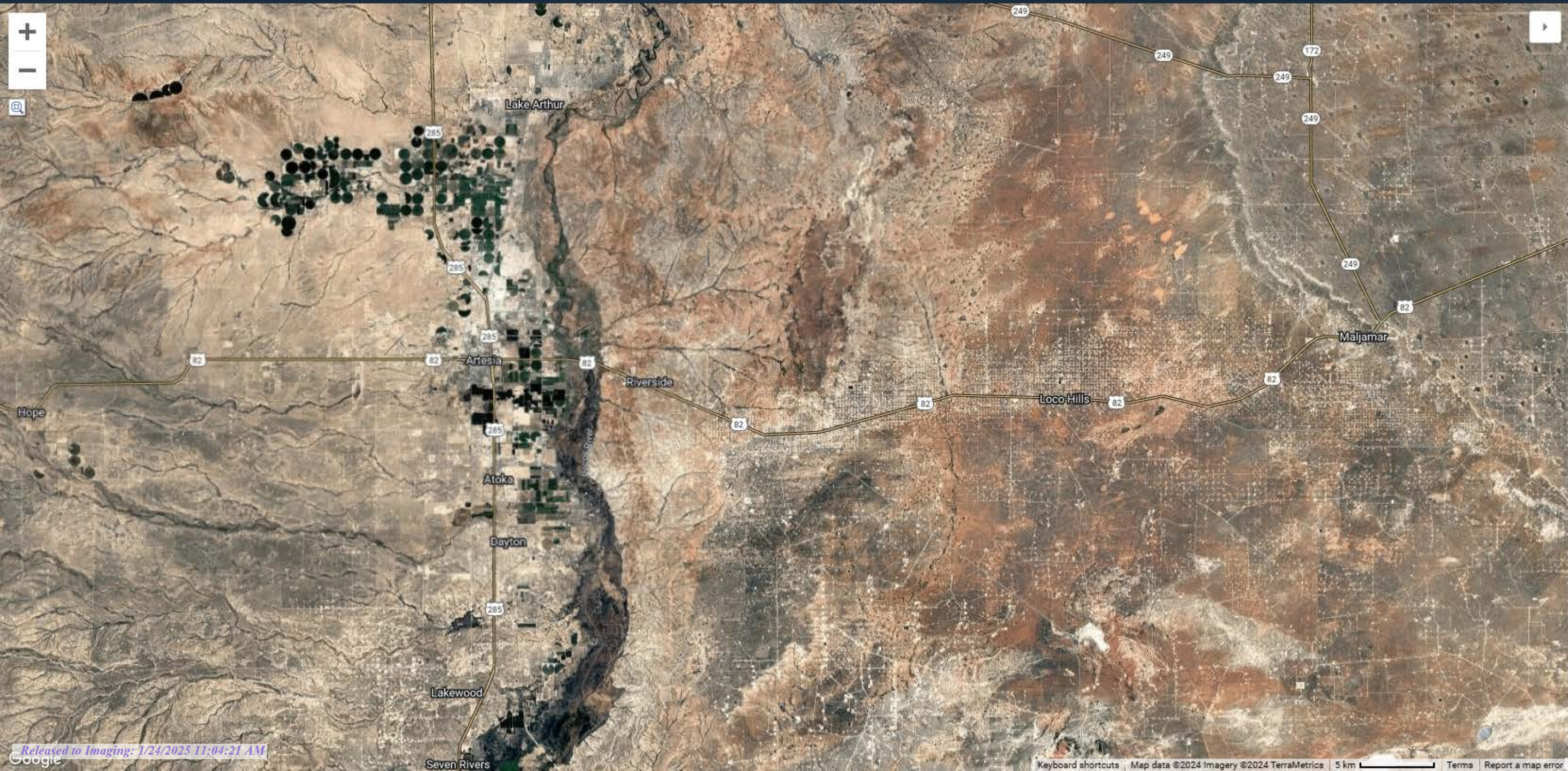
Earthstar Geographics, Bureau of Land Management - New Mexico State Office



Species:

DATE: Year-round, Past 10 years

LOCATION:



- ☐ Zoom Tool
- ☒ Full species range

- ☐ Terrain
- ☐ Street
- ☐ Satellite
- ☒ Hybrid

- ☐ Explore rich media  
Only show locations with photos, audio, or video
- ☐ Show Points Sooner  
Display points at broader scales when possible (2000 points max)
- ☐ Exclude Escapees \*

**FREQUENCY**  
Exotic range shown in orange ?

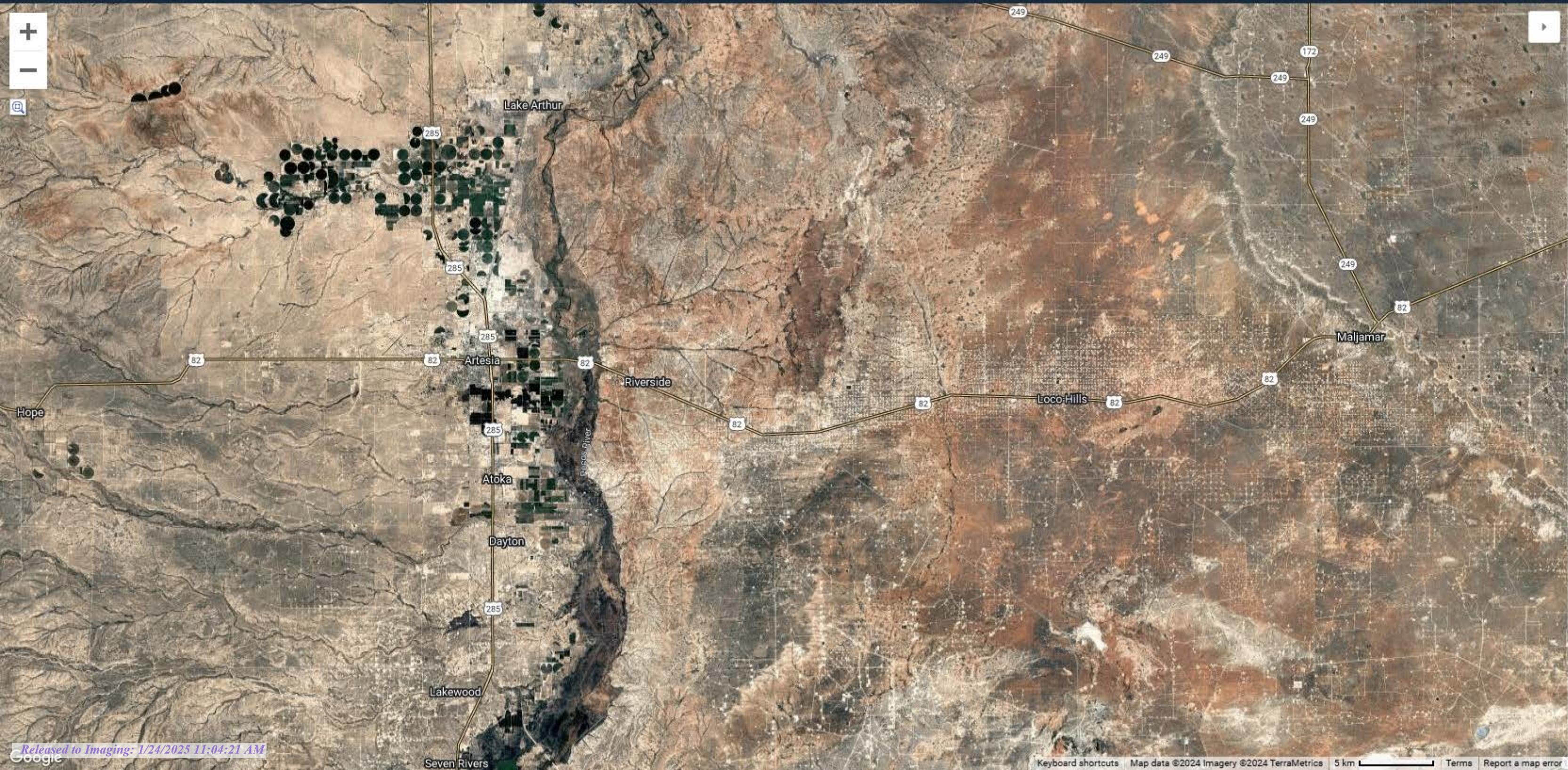
<div></div>	40% - 100%
<div></div>	25% - 40%
<div></div>	10% - 25%
<div></div>	2% - 10%
<div></div>	0% - 2%
<div></div>	Not reported <input checked="" type="checkbox"/>



Species:

DATE: Year-round, Past 10 years

LOCATION:



☒ Zoom Tool

☒ Full species range

☐ Terrain

☐ Street

☐ Satellite

☒ Hybrid

☐ Explore rich media

Only show locations with photos, audio, or video

☐ Show Points Sooner

Display points at broader scales when possible (2000 points max)

☐ Exclude Escapees \*

☐ Exclude all exotics \* \* \*

RECENT

Birding Hotspot

Personal Location

OLDER (30+ days)

Birding Hotspot

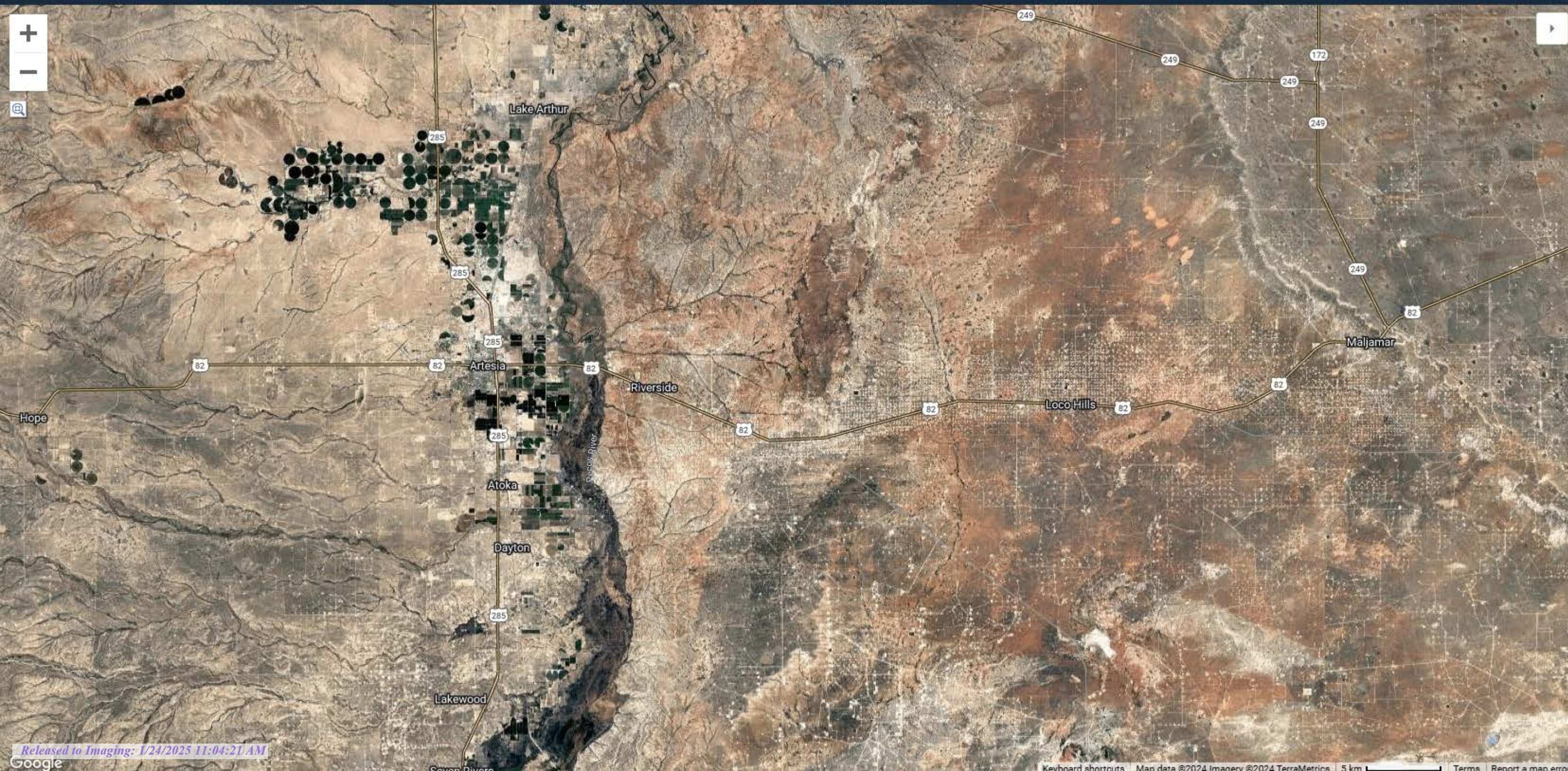
Personal Location





Species:

DATE: Year-round, Past 10 years

LOCATION:



 Zoom Tool

 Full species range

☐ Terrain

☐ Street

☐ Satellite

☒ Hybrid

☐ Explore rich media

Only show locations with photos, audio, or video


☐ Show Points Sooner


Display points at broader scales when possible (2000 points max)

☐ Exclude Escapees


☐ Exclude all exotics


RECENT

 Birding Hotspot

 Personal Location

OLDER (30+ days)

 Birding Hotspot

 Personal Location

Released to Imaging: 1/24/2025 11:04:21 AM

Google

Keyboard shortcuts Map data ©2024 Imagery ©2024 TerraMetrics 5 km [Terms](#) [Report a map error](#)



# IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

## Location

Eddy County, New Mexico



## Local office

New Mexico Ecological Services Field Office

☎ (505) 346-2525

📅 (505) 346-2542



2105 Osuna Road Ne  
Albuquerque, NM 87113-1001

NOT FOR CONSULTATION



# Endangered species

**This resource list is for informational purposes only and does not constitute an analysis of project level impacts.**

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species<sup>1</sup> and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries<sup>2</sup>).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

- 
1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).



2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

## Birds

NAME	STATUS
Mexican Spotted Owl <i>Strix occidentalis lucida</i> Wherever found There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/8196">https://ecos.fws.gov/ecp/species/8196</a>	Threatened
Northern Aplomado Falcon <i>Falco femoralis septentrionalis</i> No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/1923">https://ecos.fws.gov/ecp/species/1923</a>	<a href="#">EXPN</a>
Piping Plover <i>Charadrius melodus</i> There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/6039">https://ecos.fws.gov/ecp/species/6039</a>	Threatened

## Clams

NAME	STATUS
Texas Hornshell <i>Popenaias poppeii</i> Wherever found There is <b>proposed</b> critical habitat for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/919">https://ecos.fws.gov/ecp/species/919</a>	Endangered

## Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> Wherever found There is <b>proposed</b> critical habitat for this species. <a href="https://ecos.fws.gov/ecp/species/9743">https://ecos.fws.gov/ecp/species/9743</a>	Proposed Threatened

## Flowering Plants

NAME	STATUS
------	--------



Lee Pincushion Cactus *Coryphantha sneedii* var. *leei* Threatened

Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/2504>

Sneed Pincushion Cactus *Coryphantha sneedii* var. *sneedii* Endangered

Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/4706>

## Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

## Bald & Golden Eagles

There are no documented cases of eagles being present at this location. However, if you believe eagles may be using your site, please reach out to the local Fish and Wildlife Service office.

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds  
<https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide conservation measures for birds  
<https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC  
<https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>



### What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply). To see a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

### What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

### What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the [Eagle Act](#) should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

## Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act<sup>1</sup> and the Bald and Golden Eagle Protection Act<sup>2</sup>.

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:



- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds  
<https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC  
<https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

The [data](#) in this location indicates there are no migratory [birds of conservation concern](#) expected to occur in this area.

There may be migratory birds in your project area, but we don't have any survey data available to provide further direction. For additional information, please refer to the links above for recommendations to minimize impacts to migratory birds or contact your local FWS office.

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

**What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?**

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).



## What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

## How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the [RAIL Tool](#) and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

## What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

## Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact



[Caleb Spiegel](#) or [Pam Loring](#).

### What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

### Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

## Facilities

### National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

### Fish hatcheries

There are no fish hatcheries at this location.



# Wetlands in the National Wetlands Inventory (NWI)

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

This location did not intersect any wetlands mapped by NWI.

**NOTE:** This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

## Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

## Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

## Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies.

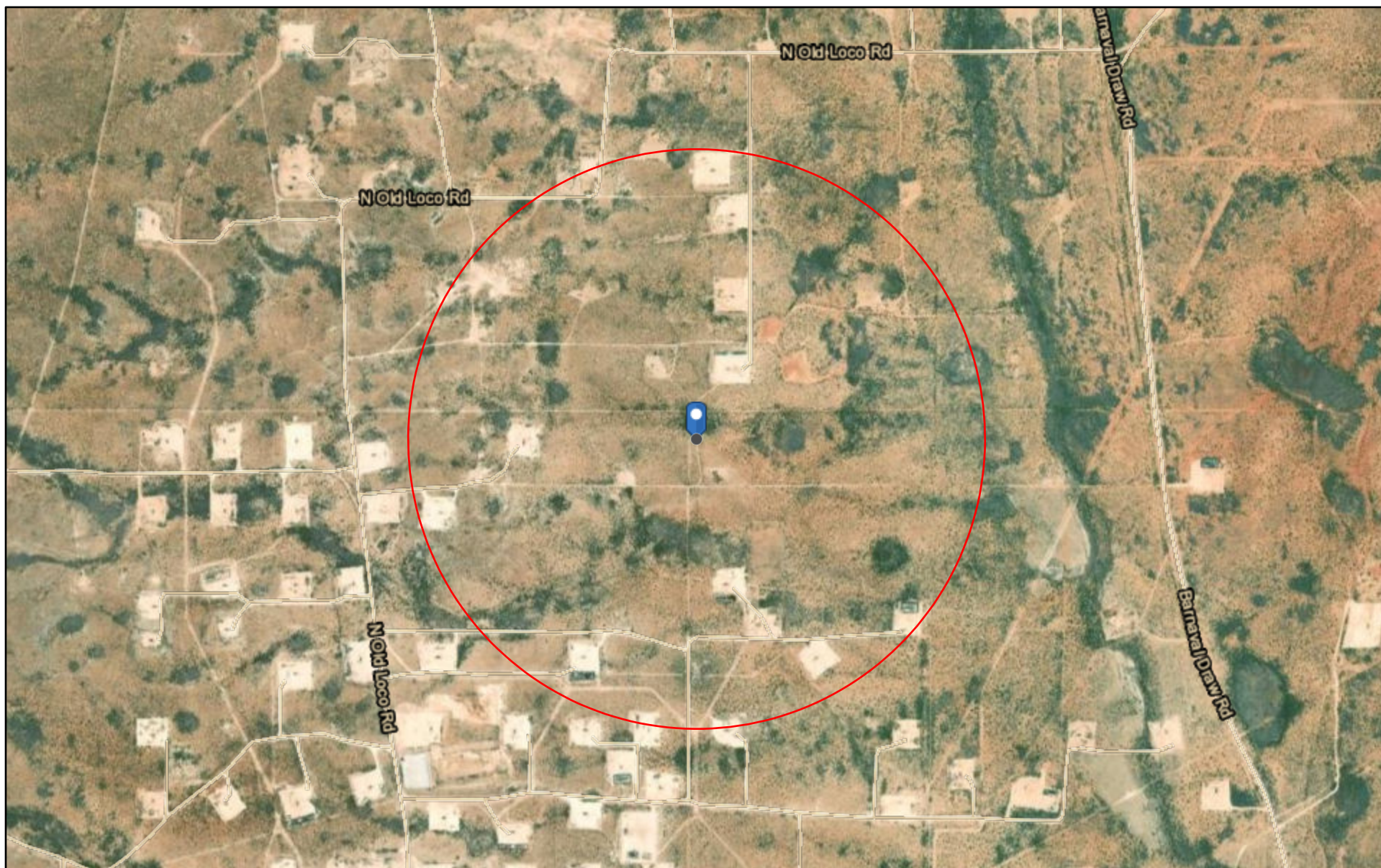


Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

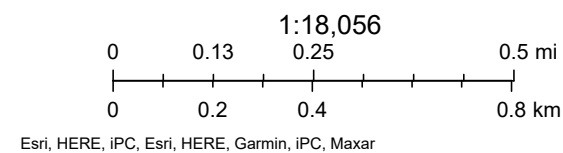
NOT FOR CONSULTATION



# NAPP2427440858 | STATE 20B TO JENNA



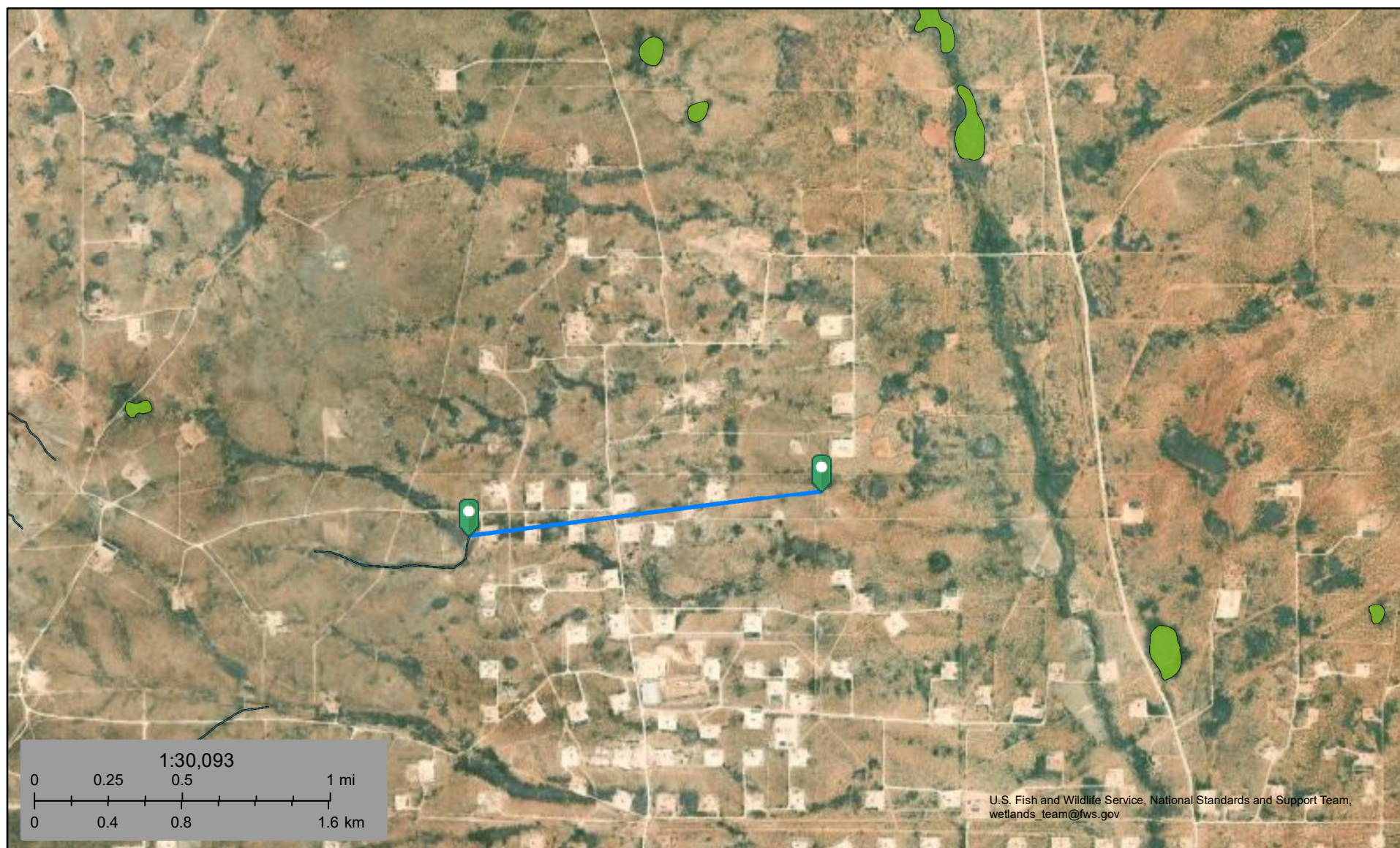
12/12/2024, 3:08:37 PM







NAPP2427440858 | STATE 20B TO JENNA



December 12, 2024

**Wetlands**

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond

- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.



# National Flood Hazard Layer FIRMette



104°5'37"W 32°51'35"N



0 250 500 1,000 1,500 2,000 Feet

1:6,000

104°4'59"W 32°51'5"N

## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
		Area of Undetermined Flood Hazard Zone D
GENERAL STRUCTURES		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
		Profile Baseline
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

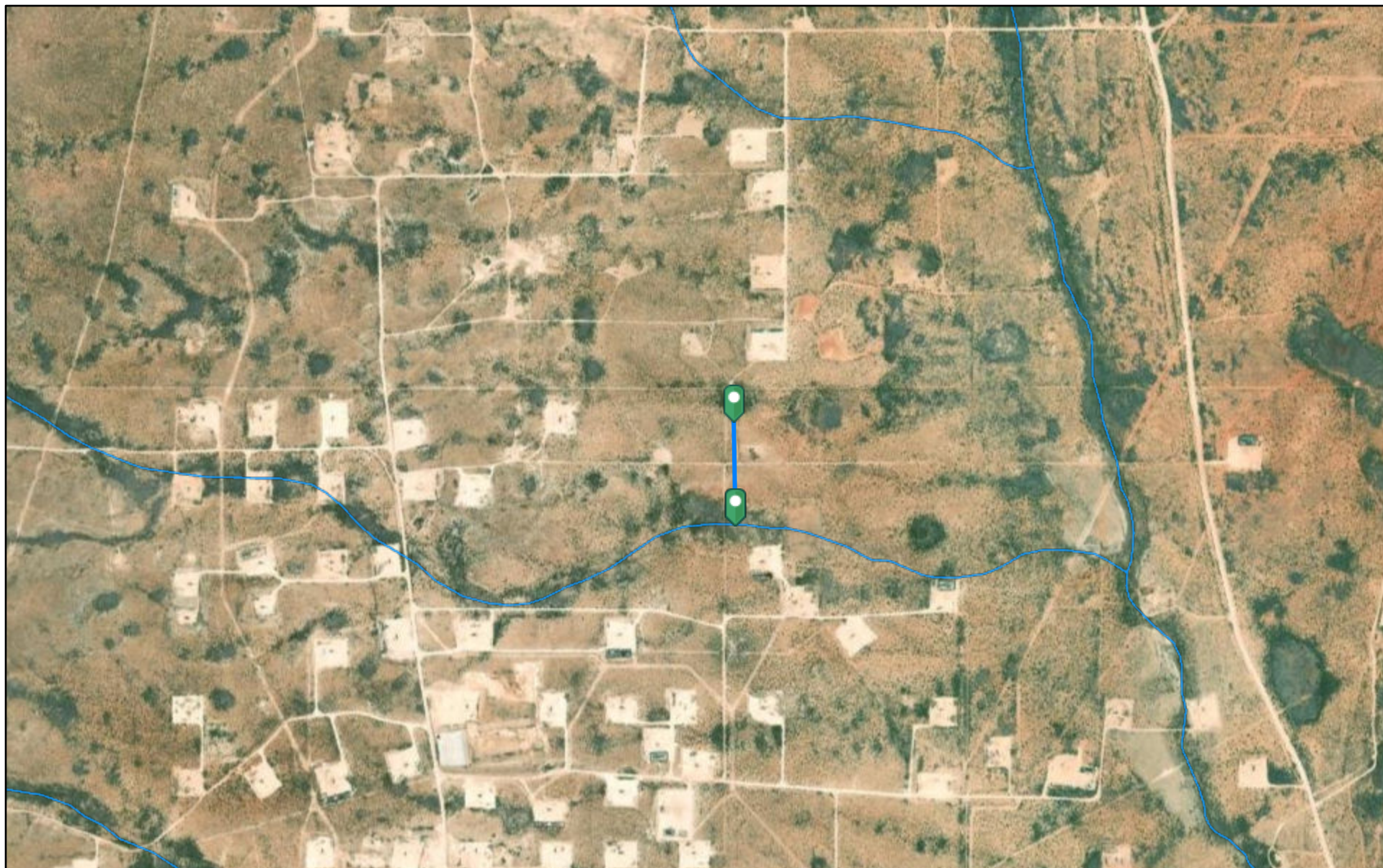
This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **12/12/2024 at 10:14 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

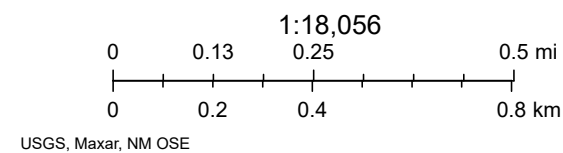


# NAPP2427440858 | STATE 20B TO JENNA



12/16/2024, 2:31:25 PM

— OSE Streams








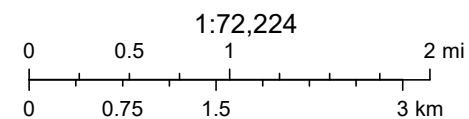
# NAPP2427440858 | STATE 20B TO JENNA



12/12/2024, 3:13:09 PM

Karst Occurrence Potential

	High		Medium
			Low



BLM, OCD, New Mexico Tech, Earthstar Geographics





United States  
Department of  
Agriculture

NRCS

Natural  
Resources  
Conservation  
Service

A product of the National  
Cooperative Soil Survey,  
a joint effort of the United  
States Department of  
Agriculture and other  
Federal agencies, State  
agencies including the  
Agricultural Experiment  
Stations, and local  
participants

# Custom Soil Resource Report for Eddy Area, New Mexico

NAPP2427440858 | STATE 20B  
TO JENNA



December 16, 2024



# Preface

---

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist ([http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2\\_053951](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951)).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require



alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.



# Contents

---

<b>Preface</b> .....	2
<b>How Soil Surveys Are Made</b> .....	5
<b>Soil Map</b> .....	8
Soil Map.....	9
Legend.....	10
Map Unit Legend.....	11
Map Unit Descriptions.....	11
Eddy Area, New Mexico.....	13
KT—Kimbrough-Stegall loams, 0 to 3 percent slopes.....	13
RA—Reagan loam, 0 to 3 percent slopes.....	14
<b>Soil Information for All Uses</b> .....	17
Suitabilities and Limitations for Use.....	17
Soil Health.....	17
Fragile Soil Index.....	17
Soil Properties and Qualities.....	25
Soil Chemical Properties.....	25
Gypsum.....	25
Soil Erosion Factors.....	29
K Factor, Whole Soil.....	29
Wind Erodibility Group.....	34
Wind Erodibility Index.....	38
Soil Qualities and Features.....	42
Depth to Bedrock.....	42
Depth to Any Soil Restrictive Layer.....	47
Representative Slope.....	51
<b>References</b> .....	56



## How Soil Surveys Are Made

---

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil



## Custom Soil Resource Report

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and



## Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.



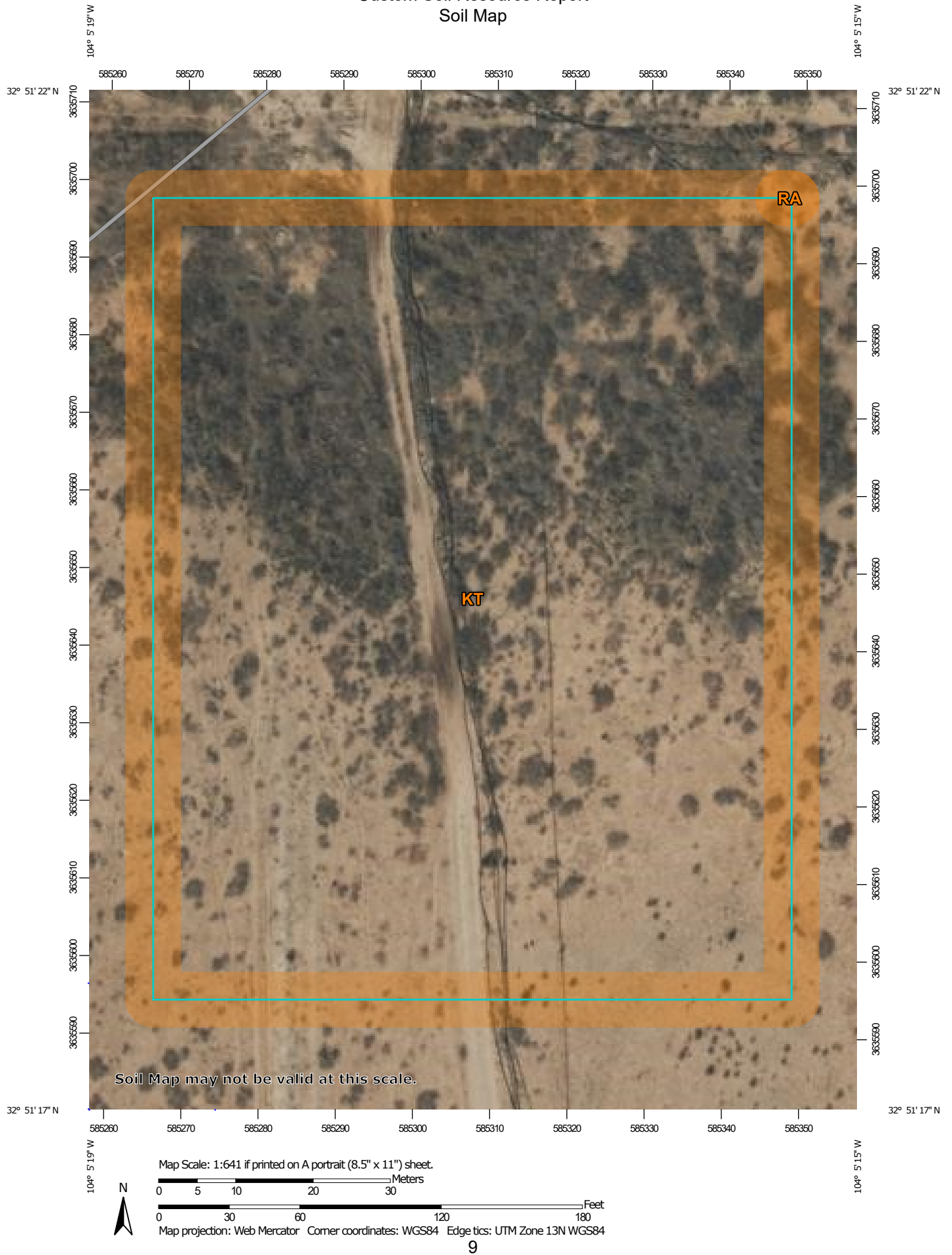
## Soil Map

---

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.



# Custom Soil Resource Report Soil Map






## Custom Soil Resource Report

## MAP LEGEND

## Area of Interest (AOI)

 Area of Interest (AOI)


## Soils


 Soil Map Unit Polygons


 Soil Map Unit Lines


 Soil Map Unit Points

## Special Point Features

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water


 Perennial Water

 Rock Outcrop


 Saline Spot

 Sandy Spot

 Severely Eroded Spot


 Sinkhole

 Slide or Slip


 Sodic Spot

 Spoil Area

 Stony Spot


 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

## Water Features

 Streams and Canals

## Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

## Background

 Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL:  
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Eddy Area, New Mexico  
Survey Area Data: Version 20, Sep 3, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Nov 12, 2022—Dec 2, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.



## Custom Soil Resource Report

## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
KT	Kimbrough-Stegall loams, 0 to 3 percent slopes	2.1	100.0%
RA	Reagan loam, 0 to 3 percent slopes	0.0	0.0%
<b>Totals for Area of Interest</b>		<b>2.1</b>	<b>100.0%</b>

## Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,



## Custom Soil Resource Report

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.



## Custom Soil Resource Report

**Eddy Area, New Mexico****KT—Kimbrough-Stegall loams, 0 to 3 percent slopes****Map Unit Setting**

*National map unit symbol:* 1w4t  
*Elevation:* 2,750 to 5,000 feet  
*Mean annual precipitation:* 8 to 16 inches  
*Mean annual air temperature:* 57 to 70 degrees F  
*Frost-free period:* 180 to 230 days  
*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Kimbrough and similar soils:* 70 percent  
*Stegall and similar soils:* 25 percent  
*Minor components:* 5 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Kimbrough****Setting**

*Landform:* Alluvial fans, plains  
*Landform position (three-dimensional):* Rise, talf  
*Down-slope shape:* Linear, convex  
*Across-slope shape:* Linear  
*Parent material:* Mixed alluvium and/or eolian sands

**Typical profile**

*H1 - 0 to 3 inches:* loam  
*H2 - 3 to 9 inches:* loam  
*H3 - 9 to 60 inches:* indurated

**Properties and qualities**

*Slope:* 0 to 3 percent  
*Depth to restrictive feature:* 8 to 20 inches to petrocalcic  
*Drainage class:* Well drained  
*Runoff class:* Very high  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 15 percent  
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)  
*Sodium adsorption ratio, maximum:* 1.0  
*Available water supply, 0 to 60 inches:* Very low (about 1.3 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 7s  
*Hydrologic Soil Group:* D  
*Ecological site:* R070BC025NM - Shallow  
*Hydric soil rating:* No



## Custom Soil Resource Report

**Description of Stegall****Setting**

*Landform:* Plains, alluvial fans  
*Landform position (three-dimensional):* Rise  
*Down-slope shape:* Convex, linear  
*Across-slope shape:* Linear  
*Parent material:* Mixed alluvium and/or eolian sands

**Typical profile**

*H1 - 0 to 5 inches:* loam  
*H2 - 5 to 28 inches:* clay loam  
*H3 - 28 to 32 inches:* indurated  
*H4 - 32 to 60 inches:* variable

**Properties and qualities**

*Slope:* 0 to 3 percent  
*Depth to restrictive feature:* 20 to 40 inches to petrocalcic  
*Drainage class:* Well drained  
*Runoff class:* Medium  
*Capacity of the most limiting layer to transmit water (Ksat):* Low to moderately high  
 (0.01 to 0.60 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 90 percent  
*Maximum salinity:* Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)  
*Sodium adsorption ratio, maximum:* 1.0  
*Available water supply, 0 to 60 inches:* Low (about 4.8 inches)

**Interpretive groups**

*Land capability classification (irrigated):* 3e  
*Land capability classification (nonirrigated):* 3e  
*Hydrologic Soil Group:* C  
*Ecological site:* R070BC007NM - Loamy  
*Hydric soil rating:* No

**Minor Components****Simona**

*Percent of map unit:* 5 percent  
*Ecological site:* R070BD002NM - Shallow Sandy  
*Hydric soil rating:* No

**RA—Reagan loam, 0 to 3 percent slopes****Map Unit Setting**

*National map unit symbol:* 1w5c  
*Elevation:* 1,100 to 4,400 feet



## Custom Soil Resource Report

*Mean annual precipitation:* 7 to 14 inches  
*Mean annual air temperature:* 60 to 70 degrees F  
*Frost-free period:* 200 to 240 days  
*Farmland classification:* Farmland of statewide importance

**Map Unit Composition**

*Reagan and similar soils:* 98 percent  
*Minor components:* 2 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Reagan****Setting**

*Landform:* Fan remnants, alluvial fans  
*Landform position (three-dimensional):* Rise  
*Down-slope shape:* Convex, linear  
*Across-slope shape:* Linear  
*Parent material:* Alluvium and/or eolian deposits

**Typical profile**

*H1 - 0 to 8 inches:* loam  
*H2 - 8 to 60 inches:* loam

**Properties and qualities**

*Slope:* 0 to 3 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Runoff class:* Low  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 2.00 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 40 percent  
*Maximum salinity:* Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)  
*Sodium adsorption ratio, maximum:* 1.0  
*Available water supply, 0 to 60 inches:* Moderate (about 8.2 inches)

**Interpretive groups**

*Land capability classification (irrigated):* 2e  
*Land capability classification (nonirrigated):* 6e  
*Hydrologic Soil Group:* B  
*Ecological site:* R070BC007NM - Loamy  
*Hydric soil rating:* No

**Minor Components****Atoka**

*Percent of map unit:* 1 percent  
*Ecological site:* R070BC007NM - Loamy  
*Hydric soil rating:* No

**Upton**

*Percent of map unit:* 1 percent  
*Ecological site:* R070BC025NM - Shallow  
*Hydric soil rating:* No



Custom Soil Resource Report



# Soil Information for All Uses

---

## Suitabilities and Limitations for Use

The Suitabilities and Limitations for Use section includes various soil interpretations displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each interpretation.

## Soil Health

Soil health interpretations are designed to be used as tools for evaluating and managing a soil's capacity to function as a vital living ecosystem that sustains plants, animals, and humans. Example interpretations include compaction, surface sealing, carbon sequestration, resistance and resilience, management systems and practices, and cover crops.

## Fragile Soil Index

SOH - Soil Health

Soils can be rated based on their susceptibility to degradation in the "Fragile Soil Index" interpretation. Fragile soils are those that are most vulnerable to degradation. In other words, they can be easily degraded they have a low resistance to degradation processes. They tend to be highly susceptible to erosion and can have a low capacity to recover after degradation has occurred (low resilience). Fragile soils are generally characterized by a low content of organic matter, low aggregate stability, and weak soil structure. They are generally located on sloping ground, have sparse plant cover, and tend to be in arid or semiarid regions. The index can be used for conservation and watershed planning to assist in identifying soils and areas highly vulnerable to degradation.

Depending on inherent soil characteristics and the climate, soils can vary from highly resistant, or stable, to vulnerable and extremely sensitive to degradation. Under stress, fragile soils can degrade to a new altered state, which may be less favorable or unfavorable for plant growth and less capable of performing soil functions. To assess the fragility of the soil, indicators of vulnerability to degradation



## Custom Soil Resource Report

processes are used. They include organic matter, soil structure, rooting depth, vegetative cover, slope, and aridity.

The organic matter content indicates the capacity of the soil to resist and/or recover from degradation processes. Organic matter improves the soil pore structure, increases water infiltration, and reduces soil compaction and soil erosion. Soil structure indicates the capacity of the soil to resist degradation from accelerated water erosion (by increasing the amount of infiltration). Pore structure is the most important aspect of soil structure as pores provide habitat for organism. Shallow soils are more vulnerable to degradation processes because they have limited rooting depth and have a reduced amount of material from which to form new soil. As erosion removes the upper soil profile, productivity will decline if the subsoil is limiting for crop growth. Vegetative cover is very important as uncovered soil is most vulnerable to the processes of soil erosion, both by wind and water. Slope (a measure of the steepness or the degree of inclination) indicates the degree of vulnerability to erosion and mass movement. Aridity is defined by the shortage of moisture. Lack of water is a main factor limiting biological processes and the ability of the soil to resist and/or recover from degradation.

Soils are placed into interpretive classes based on their index rating, which ranges from 0 to 1. An index rating of 1 is the most fragile, while a rating of zero is the least fragile. Interpretative classes are as follows:

Not Fragile (index rating less than or equal to 0.009) These soils have a very high potential to resist degradation and be highly resilient. They are highly structured with an organic matter content greater than 5.7%, are nearly level, are deep or very deep, have greater than 85% vegetative cover, and are in a climate that is wet or very wet.

Slightly Fragile (index rating less than 0.009 and less than or equal to 0.209) These soils have a high potential to resist degradation and be resilient. They are:

- Poorly structured to weakly structured soils that have an extremely low to moderate content of organic matter, are very deep, have high vegetative cover, occur on nearly level ground, and are in wet or very wet climates;
- Highly structured soils that have a very high content of organic matter, are very shallow to moderately deep, have high vegetative cover, occur on nearly level ground, and are in wet or very wet climates;
- Highly structured soils that have a very high content of organic matter, are very deep, have low to moderately high vegetative cover, occur on nearly level ground, and are in wet or very wet climates;
- Highly structured soils that have a very high content of organic matter, are very deep, have high vegetative cover; are on slopes greater than 3%, and are in wet or very wet climates; or
- Highly structured soils that have a very high content of organic matter, are very deep, have high vegetative cover; occur on nearly level ground, and in semi-dry to mildly wet climates;



## Custom Soil Resource Report

Moderately Fragile (index rating greater than 0.209 and less than or equal to 0.409) These soils have a moderate potential to resist degradation and be moderately resilient. They are:

— Highly structured soils that have a very high content of organic matter, are very shallow, have high vegetative cover, occur in nearly level to moderately sloping areas, and are in semi-dry climates;

— Poorly structured soils that have an extremely low content of organic matter, are deep, have low vegetative cover, occur in nearly level areas, and are in wet or very wet climates;

— Poorly structured soils that have an extremely low content of organic matter, occur on gentle to very steep slopes, have high vegetative cover, and are in wet or very wet climates;

— Weakly structured soils that have a very low content of organic matter, are deep, occur in nearly level to gently sloping areas, have high vegetative cover, and are in semi-dry climates; or

— Weakly structured soils that have a very low content of organic matter, are very shallow to very deep, occur in nearly level to strongly sloping areas, have high vegetative cover, and are in mildly wet climates.

Fragile (index rating greater than 0.409 and less than or equal to 0.609) These soils have a low potential to resist degradation and low resilience. They are:

— Well structured soils that have a low content of organic matter, are shallow to very deep, have moderate to moderately high vegetative cover, occur on steep slopes, and are in dry climates;

— Well structured soils that have a low content of organic matter, are shallow to very deep, have a low vegetative cover, occur in nearly level to gently sloping areas, and are in dry climates;

— Well structured soils that have a low content of organic matter, are deep, have low vegetative cover, occur on nearly level to very steep slopes, and are in a semi-dry climate;

— Moderately structured soils that have a very low content of organic matter, are deep, have moderately high vegetative cover, occur on moderately steep to very steep slopes, and are in semi-dry climates; or

— Weakly structured soils that have a low content of organic matter, occur on moderately steep to very steep slopes, have low vegetative cover, and are in wet or very wet climates.

Very Fragile (index rating greater than 0.609 and less than or equal to 0.809) These soils have a very low potential to resist degradation and very low resilience. They are:



## Custom Soil Resource Report

— Weakly structured soils that have an extremely low content of organic matter, are deep, have low vegetative cover, occur on nearly level to very steep slopes, and are in dry climates;

— Weakly structured soils that have an extremely low content of organic matter, are shallow to very deep, have low vegetative cover, occur on nearly level to very steep slopes, and are in very dry climates; or

— Poorly structured soils that have an extremely low content of organic matter, are very shallow, have no vegetative cover, occur on steep slopes, and are in mildly wet to wet climates.

Extremely Fragile (index rating greater than 0.809 and less than or equal to 1.0)  
These soils can have no potential to resist degradation and no resilience. They are:

— Poorly structured soils that have an extremely low content of organic matter, are very shallow, have low vegetative cover, occur on very steep slopes, and are in dry or very dry climates;

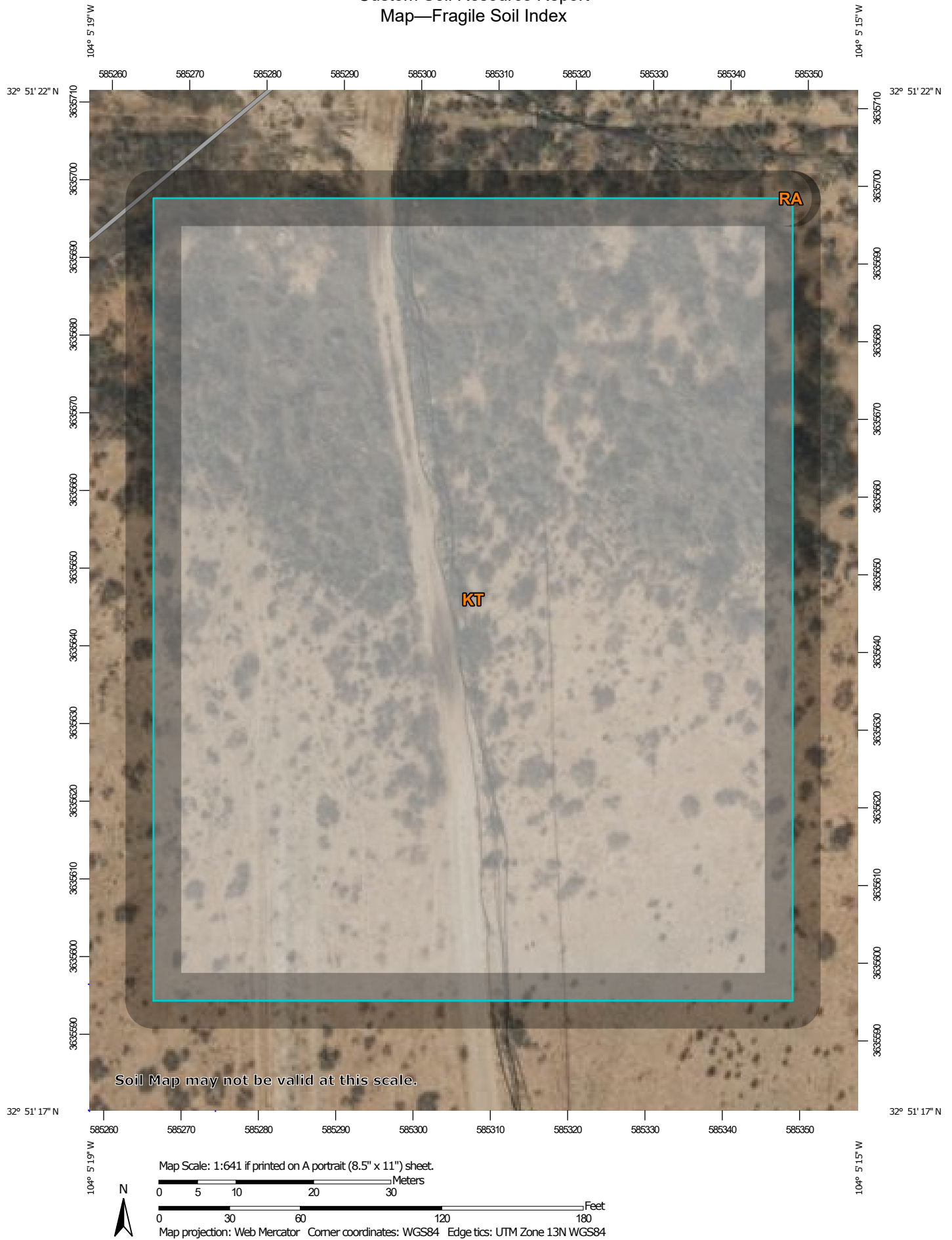
— Weakly structured soils that have a very low content of organic matter, are nearly level to very deep, have low vegetative cover, occur on very steep slopes, and are in dry climates; or

— Very shallow soils on steep slopes.

The interpretive rating is based on soils that occur in the dominant land use for the map unit component and may not represent soils that occur in site-specific land uses.



Custom Soil Resource Report  
Map—Fragile Soil Index






## Custom Soil Resource Report








## MAP LEGEND

## Area of Interest (AOI)

 Area of Interest (AOI)

## Soils






## Soil Rating Polygons


-  Extremely fragile
-  Highly fragile
-  Fragile
-  Moderately fragile
-  Slightly fragile
-  Not fragile
-  Not rated or not available

## Soil Rating Lines


-  Extremely fragile
-  Highly fragile
-  Fragile
-  Moderately fragile
-  Slightly fragile
-  Not fragile
-  Not rated or not available

## Soil Rating Points






-  Extremely fragile
-  Highly fragile
-  Fragile
-  Moderately fragile
-  Slightly fragile
-  Not fragile

 Not rated or not available


## Water Features

 Streams and Canals

## Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

## Background

 Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL:  
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Eddy Area, New Mexico  
Survey Area Data: Version 20, Sep 3, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Nov 12, 2022—Dec 2, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.



## Custom Soil Resource Report

## Tables—Fragile Soil Index

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
KT	Kimbrough-Stegall loams, 0 to 3 percent slopes	Not rated	Kimbrough (70%)		2.1	100.0%
			Stegall (25%)			
			Simona (5%)			
RA	Reagan loam, 0 to 3 percent slopes	Not rated	Reagan (98%)		0.0	0.0%
			Atoka (1%)			
			Upton (1%)			
Totals for Area of Interest					2.1	100.0%

Rating	Acres in AOI	Percent of AOI
Null or Not Rated	2.1	100.0%
<b>Totals for Area of Interest</b>	<b>2.1</b>	<b>100.0%</b>

## Rating Options—Fragile Soil Index

*Aggregation Method:* Dominant Condition

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Condition" first groups like attribute values for the components in a map unit. For each group, percent composition is set to the sum of the percent composition of all components participating in that group. These groups now represent "conditions" rather than components. The attribute value associated with the group with the highest cumulative percent composition is returned. If more than one group shares the highest cumulative percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher group value should be returned in the case of a percent composition tie. The result returned by



## Custom Soil Resource Report

this aggregation method represents the dominant condition throughout the map unit only when no tie has occurred.

*Component Percent Cutoff: None Specified*

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

*Tie-break Rule: Higher*

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.



## Custom Soil Resource Report

## Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

## Soil Chemical Properties

Soil Chemical Properties are measured or inferred from direct observations in the field or laboratory. Examples of soil chemical properties include pH, cation exchange capacity, calcium carbonate, gypsum, and electrical conductivity.

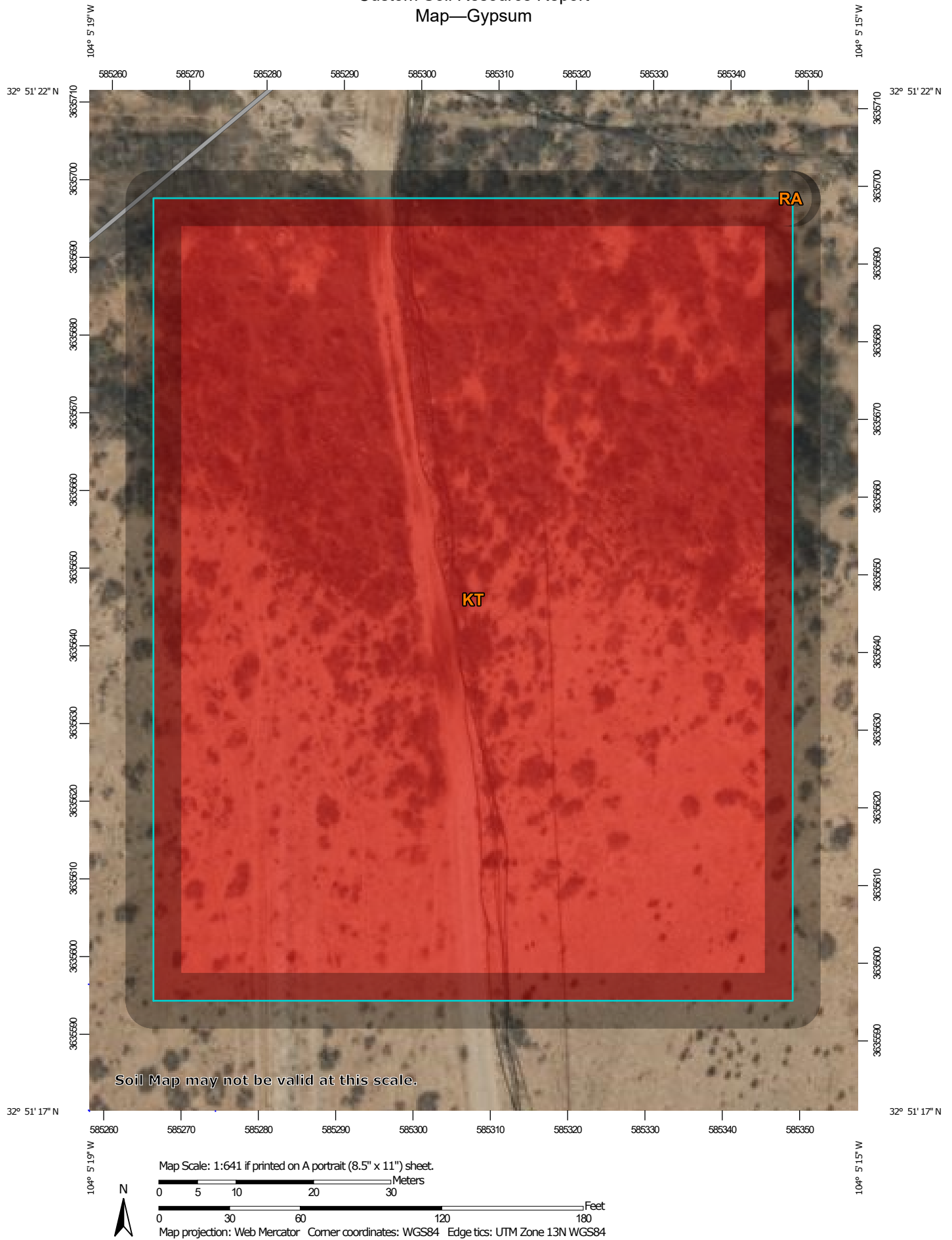
### Gypsum

The content of gypsum is the percent, by weight, of hydrated calcium sulfates in the fraction of the soil less than 20 millimeters in size. Gypsum is partially soluble in water. Soils high in content of gypsum, such as those with more than 10 percent gypsum, may collapse if the gypsum is removed by percolating water. Gypsum is corrosive to concrete.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.





Custom Soil Resource Report  
Map—Gypsum






## Custom Soil Resource Report

**MAP LEGEND****Area of Interest (AOI)**
 Area of Interest (AOI)
**Soils****Soil Rating Polygons**
 = 0

 Not rated or not available
**Soil Rating Lines**
 = 0



 Not rated or not available
**Soil Rating Points**
 = 0

 Not rated or not available
**Water Features**
 Streams and Canals
**Transportation**
 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads
**Background**
 Aerial Photography
**MAP INFORMATION**

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL:  
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Eddy Area, New Mexico  
Survey Area Data: Version 20, Sep 3, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Nov 12, 2022—Dec 2, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.



## Custom Soil Resource Report

**Table—Gypsum**

Map unit symbol	Map unit name	Rating (percent)	Acres in AOI	Percent of AOI
KT	Kimbrough-Stegall loams, 0 to 3 percent slopes	0	2.1	100.0%
RA	Reagan loam, 0 to 3 percent slopes	0	0.0	0.0%
<b>Totals for Area of Interest</b>			<b>2.1</b>	<b>100.0%</b>

**Rating Options—Gypsum**

*Units of Measure:* percent

*Aggregation Method:* Dominant Component

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Component" returns the attribute value associated with the component with the highest percent composition in the map unit. If more than one component shares the highest percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher attribute value should be returned in the case of a percent composition tie. The result returned by this aggregation method may or may not represent the dominant condition throughout the map unit.

*Component Percent Cutoff:* None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

*Tie-break Rule:* Higher



## Custom Soil Resource Report

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

### *Interpret Nulls as Zero: Yes*

This option indicates if a null value for a component should be converted to zero before aggregation occurs. This will be done only if a map unit has at least one component where this value is not null.

### *Layer Options (Horizon Aggregation Method): Surface Layer (Not applicable)*

For an attribute of a soil horizon, a depth qualification must be specified. In most cases it is probably most appropriate to specify a fixed depth range, either in centimeters or inches. The Bottom Depth must be greater than the Top Depth, and the Top Depth can be greater than zero. The choice of "inches" or "centimeters" only applies to the depth of soil to be evaluated. It has no influence on the units of measure the data are presented in.

When "Surface Layer" is specified as the depth qualifier, only the surface layer or horizon is considered when deriving a value for a component, but keep in mind that the thickness of the surface layer varies from component to component.

When "All Layers" is specified as the depth qualifier, all layers recorded for a component are considered when deriving the value for that component.

Whenever more than one layer or horizon is considered when deriving a value for a component, and the attribute being aggregated is a numeric attribute, a weighted average value is returned, where the weighting factor is the layer or horizon thickness.

## Soil Erosion Factors

Soil Erosion Factors are soil properties and interpretations used in evaluating the soil for potential erosion. Example soil erosion factors can include K factor for the whole soil or on a rock free basis, T factor, wind erodibility group and wind erodibility index.

### K Factor, Whole Soil

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). 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.

"Erosion factor Kw (whole soil)" indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

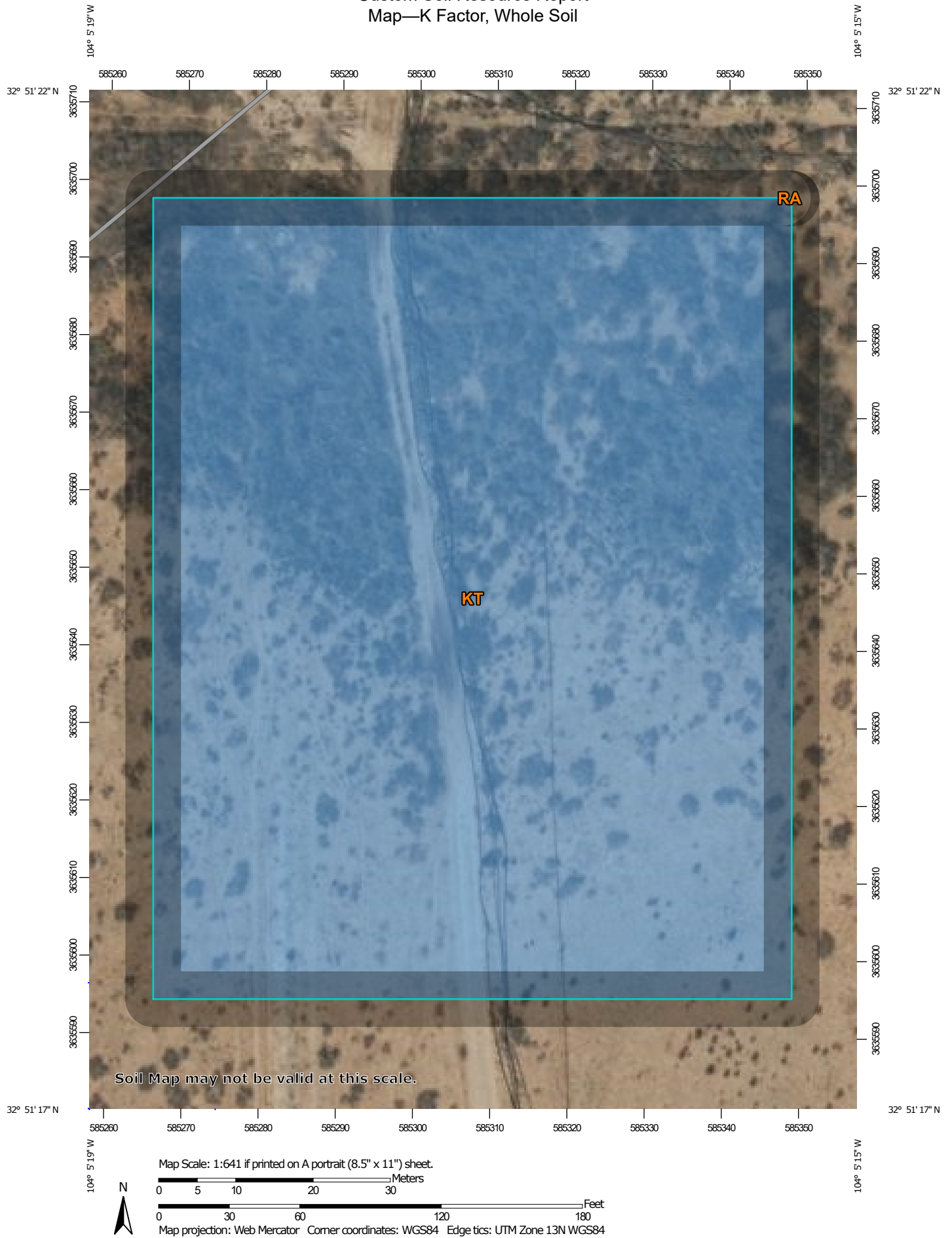


## Custom Soil Resource Report

Factor K does not apply to organic horizons and is not reported for those layers.

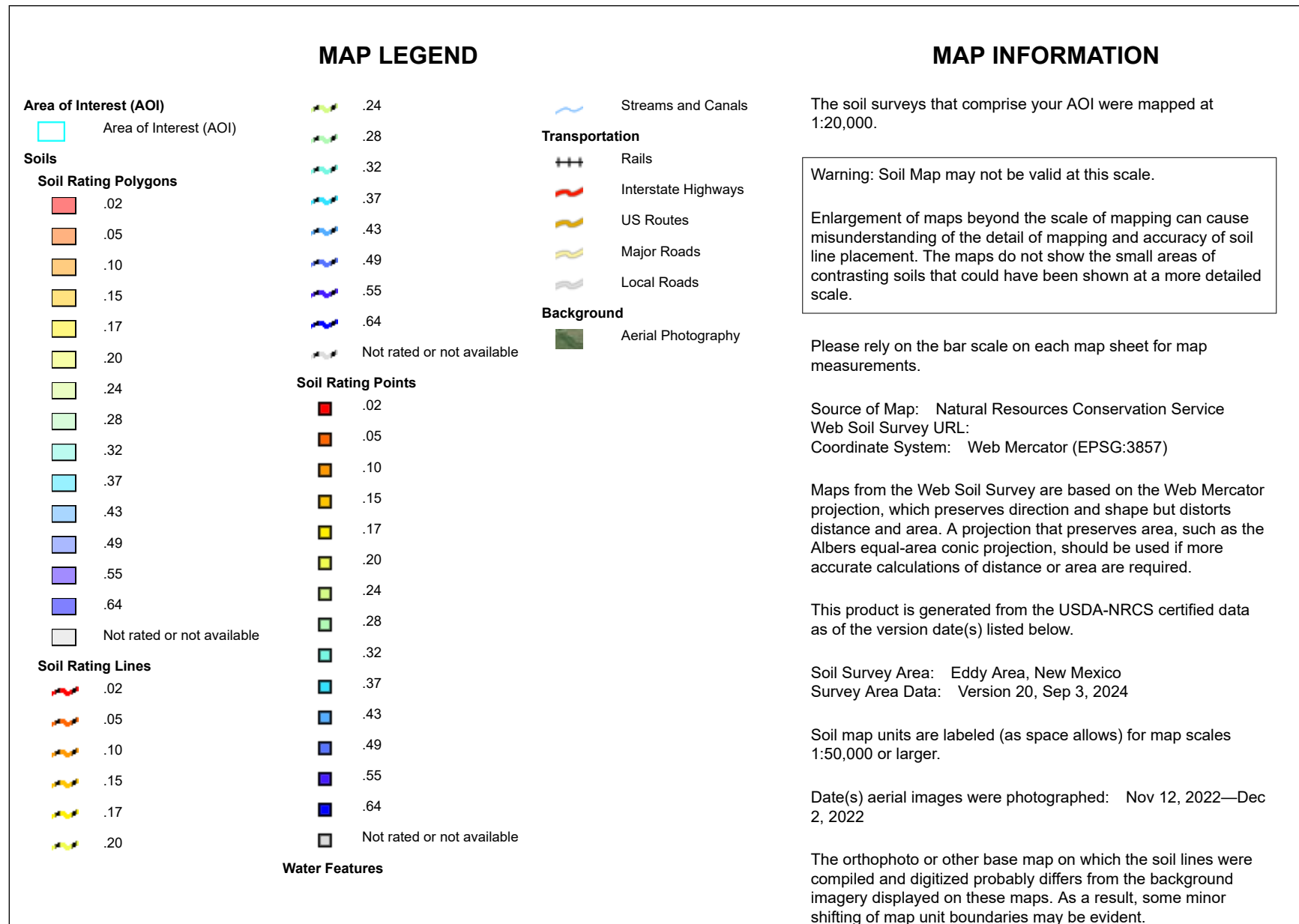


Custom Soil Resource Report  
Map—K Factor, Whole Soil





## Custom Soil Resource Report





## Custom Soil Resource Report

**Table—K Factor, Whole Soil**

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
KT	Kimbrough-Stegall loams, 0 to 3 percent slopes	.43	2.1	100.0%
RA	Reagan loam, 0 to 3 percent slopes	.32	0.0	0.0%
<b>Totals for Area of Interest</b>			<b>2.1</b>	<b>100.0%</b>

**Rating Options—K Factor, Whole Soil***Aggregation Method: Dominant Condition*

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Condition" first groups like attribute values for the components in a map unit. For each group, percent composition is set to the sum of the percent composition of all components participating in that group. These groups now represent "conditions" rather than components. The attribute value associated with the group with the highest cumulative percent composition is returned. If more than one group shares the highest cumulative percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher group value should be returned in the case of a percent composition tie. The result returned by this aggregation method represents the dominant condition throughout the map unit only when no tie has occurred.

*Component Percent Cutoff: None Specified*

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

*Tie-break Rule: Higher*



## Custom Soil Resource Report

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

*Layer Options (Horizon Aggregation Method):* Surface Layer (Not applicable)

For an attribute of a soil horizon, a depth qualification must be specified. In most cases it is probably most appropriate to specify a fixed depth range, either in centimeters or inches. The Bottom Depth must be greater than the Top Depth, and the Top Depth can be greater than zero. The choice of "inches" or "centimeters" only applies to the depth of soil to be evaluated. It has no influence on the units of measure the data are presented in.

When "Surface Layer" is specified as the depth qualifier, only the surface layer or horizon is considered when deriving a value for a component, but keep in mind that the thickness of the surface layer varies from component to component.

When "All Layers" is specified as the depth qualifier, all layers recorded for a component are considered when deriving the value for that component.

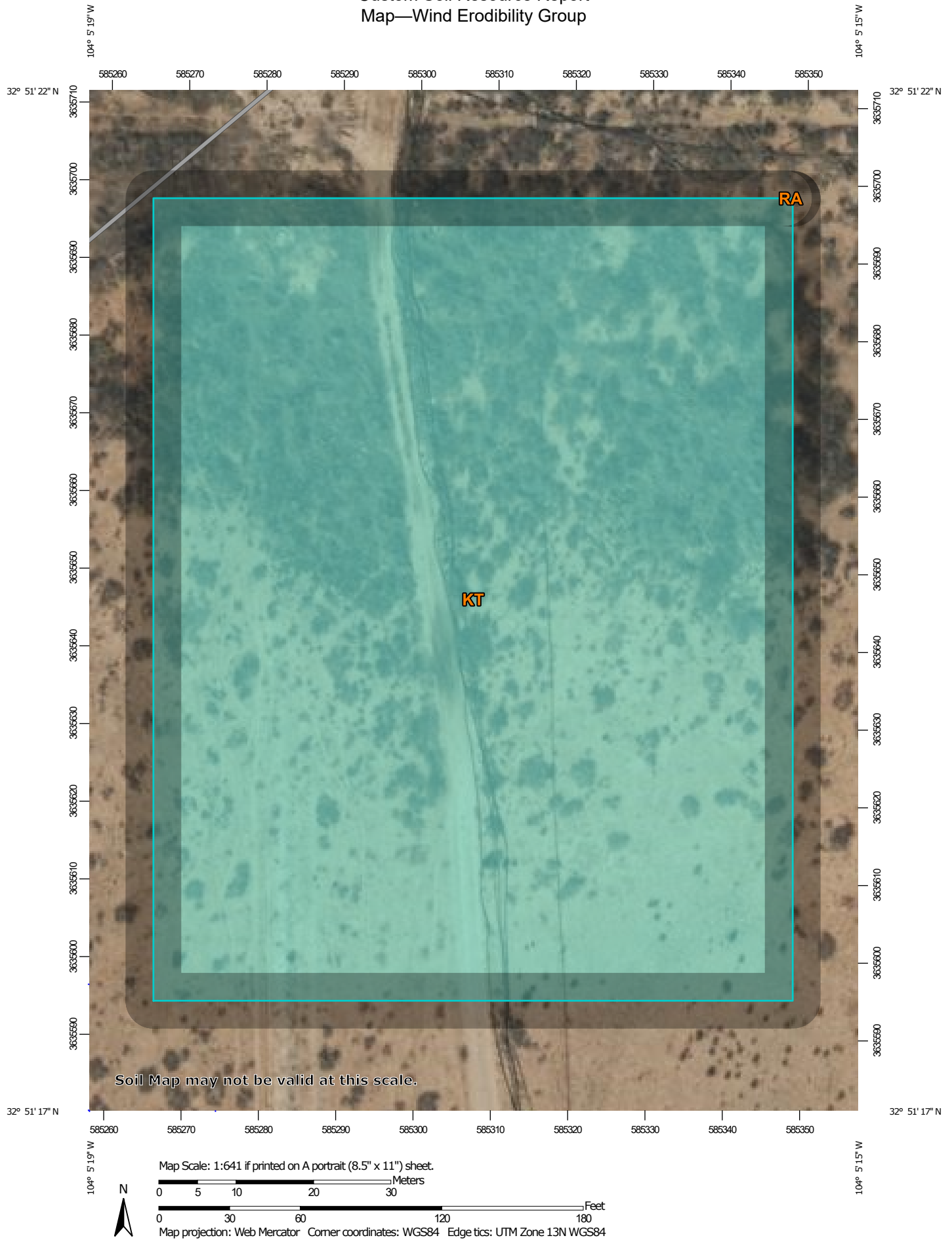
Whenever more than one layer or horizon is considered when deriving a value for a component, and the attribute being aggregated is a numeric attribute, a weighted average value is returned, where the weighting factor is the layer or horizon thickness.

## Wind Erodibility Group

A wind erodibility group (WEG) consists of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible.



Custom Soil Resource Report  
Map—Wind Erodibility Group






## Custom Soil Resource Report









## MAP LEGEND

## Area of Interest (AOI)











 Area of Interest (AOI)

## Soils

## Soil Rating Polygons

- |   |                            |
|---|----------------------------|
|  | 1                          |
|  | 2                          |
|  | 3                          |
|  | 4                          |
|  | 4L                         |
|  | 5                          |
|  | 6                          |
|  | 7                          |
|  | 8                          |
|  | Not rated or not available |

## Soil Rating Lines

- |   |                            |
|---|----------------------------|
|    | 1                          |
|    | 2                          |
|    | 3                          |
|  | 4                          |
|  | 4L                         |
|  | 5                          |
|  | 6                          |
|  | 7                          |
|  | 8                          |
|  | Not rated or not available |



## Soil Rating Points

- |   |                            |
|---|----------------------------|
|  | 1                          |
|  | 2                          |
|  | 3                          |
|  | 4                          |
|  | 4L                         |
|  | 5                          |
|  | 6                          |
|  | 7                          |
|  | 8                          |
|  | Not rated or not available |


## Water Features

 Streams and Canals

## Transportation

- |  |                     |
|--|---------------------|
|   | Rails               |
|   | Interstate Highways |
|   | US Routes           |
|   | Major Roads         |
|  | Local Roads         |

## Background

 Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL:  
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Eddy Area, New Mexico  
Survey Area Data: Version 20, Sep 3, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Nov 12, 2022—Dec 2, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.



## Custom Soil Resource Report

**Table—Wind Erodibility Group**

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
KT	Kimbrough-Stegall loams, 0 to 3 percent slopes	5	2.1	100.0%
RA	Reagan loam, 0 to 3 percent slopes	7	0.0	0.0%
<b>Totals for Area of Interest</b>			<b>2.1</b>	<b>100.0%</b>

**Rating Options—Wind Erodibility Group**

*Aggregation Method:* Dominant Condition

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Condition" first groups like attribute values for the components in a map unit. For each group, percent composition is set to the sum of the percent composition of all components participating in that group. These groups now represent "conditions" rather than components. The attribute value associated with the group with the highest cumulative percent composition is returned. If more than one group shares the highest cumulative percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher group value should be returned in the case of a percent composition tie. The result returned by this aggregation method represents the dominant condition throughout the map unit only when no tie has occurred.

*Component Percent Cutoff:* None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

*Tie-break Rule:* Lower



## Custom Soil Resource Report

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

### Wind Erodibility Index

The wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.



Custom Soil Resource Report  
Map—Wind Erodibility Index






## Custom Soil Resource Report













## MAP LEGEND

## Area of Interest (AOI)










 Area of Interest (AOI)

## Soils

## Soil Rating Polygons

	0
	38
	48
	56
	86
	134
	160
	180
	220
	250
	310
	Not rated or not available

## Soil Rating Lines













	0
	38
	48
	56
	86
	134
	160
	180
	220

 250


 310

 Not rated or not available




## Soil Rating Points

	0
	38
	48
	56
	86
	134
	160
	180
	220
	250
	310
	Not rated or not available

## Water Features

 Streams and Canals

## Transportation

	Rails
	Interstate Highways
	US Routes
	Major Roads
	Local Roads

## Background

 Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL:  
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Eddy Area, New Mexico  
Survey Area Data: Version 20, Sep 3, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Nov 12, 2022—Dec 2, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.



## Custom Soil Resource Report

**Table—Wind Erodibility Index**

Map unit symbol	Map unit name	Rating (tons per acre per year)	Acres in AOI	Percent of AOI
KT	Kimbrough-Stegall loams, 0 to 3 percent slopes	56	2.1	100.0%
RA	Reagan loam, 0 to 3 percent slopes	38	0.0	0.0%
<b>Totals for Area of Interest</b>			<b>2.1</b>	<b>100.0%</b>

**Rating Options—Wind Erodibility Index**

*Units of Measure:* tons per acre per year

*Aggregation Method:* Dominant Condition

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Condition" first groups like attribute values for the components in a map unit. For each group, percent composition is set to the sum of the percent composition of all components participating in that group. These groups now represent "conditions" rather than components. The attribute value associated with the group with the highest cumulative percent composition is returned. If more than one group shares the highest cumulative percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher group value should be returned in the case of a percent composition tie. The result returned by this aggregation method represents the dominant condition throughout the map unit only when no tie has occurred.

*Component Percent Cutoff:* None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be



## Custom Soil Resource Report

considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

*Tie-break Rule:* Higher

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

## Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

## Depth to Bedrock

The term bedrock in soil survey refers to a continuous root and water restrictive layer of rock that occurs within the soil profile.

There are many types of restrictions that can occur within the soil profile but this theme only includes the three restrictions that use the term bedrock. These are:

- 1) Lithic Bedrock
- 2) Paralithic Bedrock
- 3) Densic Bedrock

Lithic bedrock and paralithic bedrock are comprised of igneous, metamorphic, and sedimentary rocks, which are coherent and consolidated into rock through pressure, heat, cementation, or fusion. Lithic bedrock represents the hardest type of bedrock, with a hardness of strongly coherent to indurated. Paralithic bedrock has a hardness of extremely weakly coherent to moderately coherent. It can occur as a thin layer of weathered bedrock above harder lithic bedrock. Paralithic bedrock can also be much thicker, extending well below the soil profile.

Densic bedrock represents a unique kind of bedrock recognized within the soil survey. It is non-coherent and consolidated, dense root restrictive material, formed by pressure, heat, and dewatering of earth materials or sediments. Densic bedrock differs from densic materials, which formed under the compaction of glaciers, mudflows, and or human-caused compaction.

If more than one type of bedrock is described for an individual soil type, the depth to the shallowest one is given. If no bedrock is described in a map unit, it is represented by the "greater than 200" depth class.

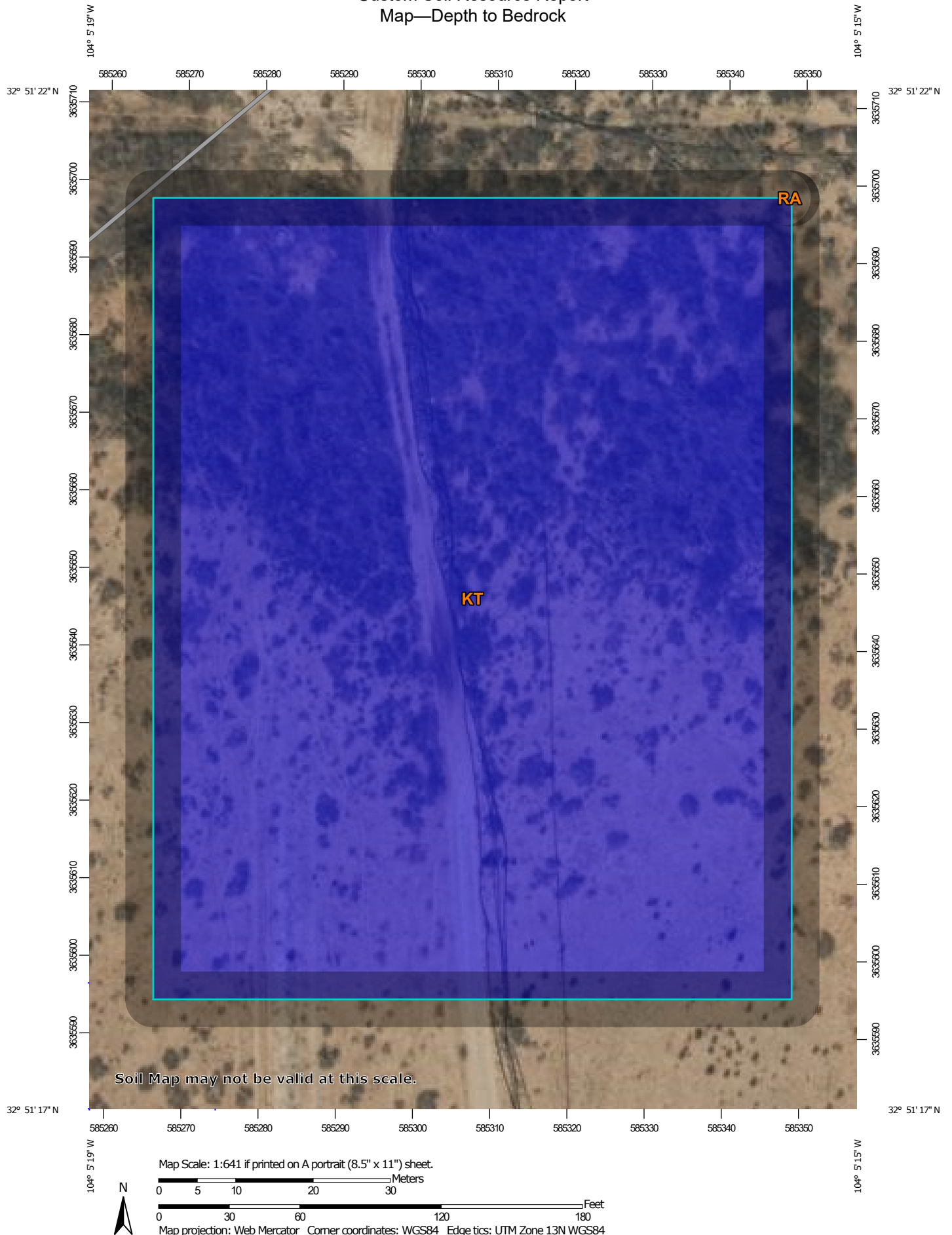


## Custom Soil Resource Report

Depth to bedrock is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

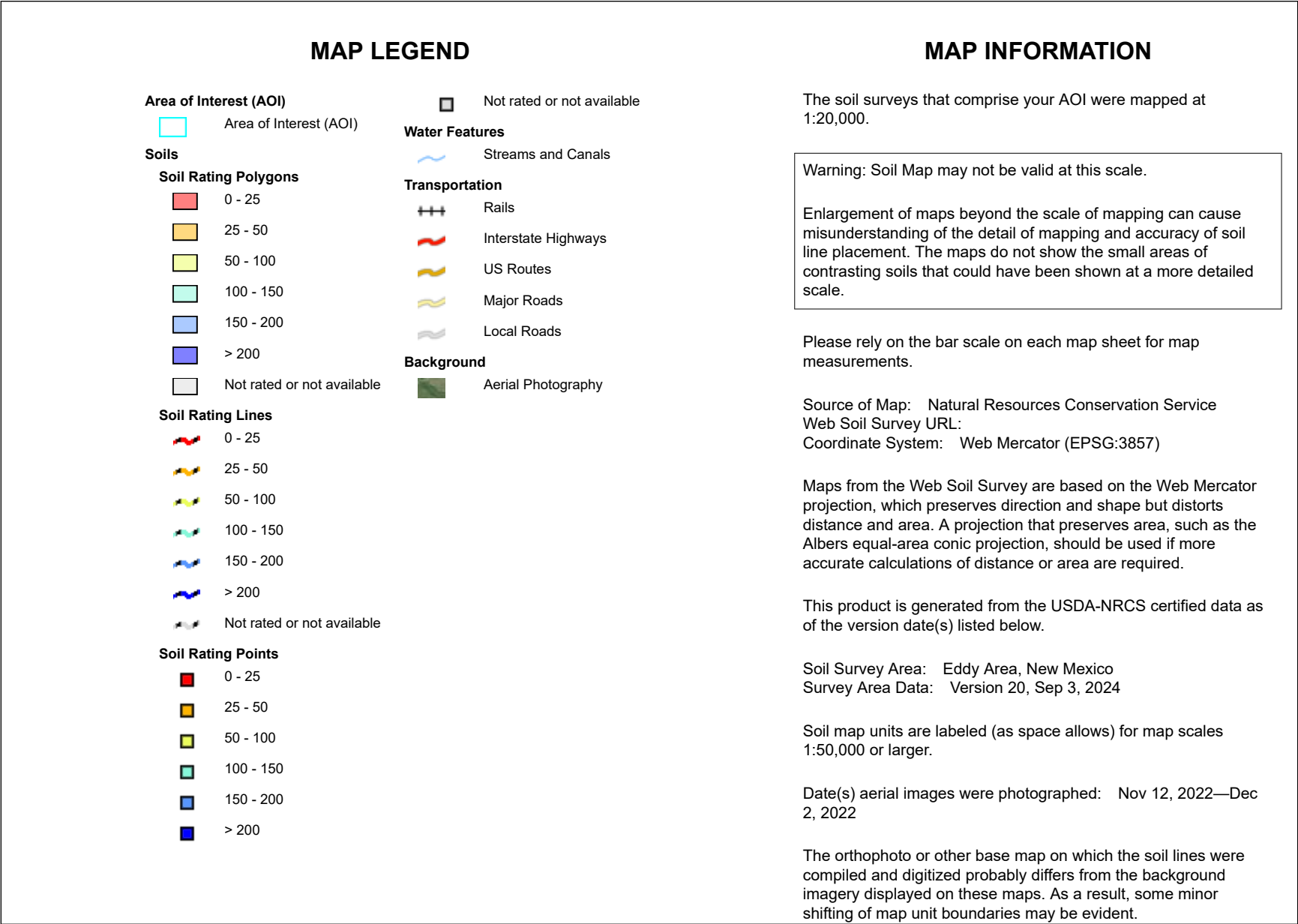


Custom Soil Resource Report  
Map—Depth to Bedrock





Custom Soil Resource Report





## Custom Soil Resource Report

**Table—Depth to Bedrock**

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
KT	Kimbrough-Stegall loams, 0 to 3 percent slopes	>200	2.1	100.0%
RA	Reagan loam, 0 to 3 percent slopes	>200	0.0	0.0%
<b>Totals for Area of Interest</b>			<b>2.1</b>	<b>100.0%</b>

**Rating Options—Depth to Bedrock**

*Units of Measure:* centimeters

*Aggregation Method:* Dominant Component

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Component" returns the attribute value associated with the component with the highest percent composition in the map unit. If more than one component shares the highest percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher attribute value should be returned in the case of a percent composition tie. The result returned by this aggregation method may or may not represent the dominant condition throughout the map unit.

*Component Percent Cutoff:* None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

*Tie-break Rule:* Lower



## Custom Soil Resource Report

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

*Interpret Nulls as Zero: No*

This option indicates if a null value for a component should be converted to zero before aggregation occurs. This will be done only if a map unit has at least one component where this value is not null.

**Depth to Any Soil Restrictive Layer**

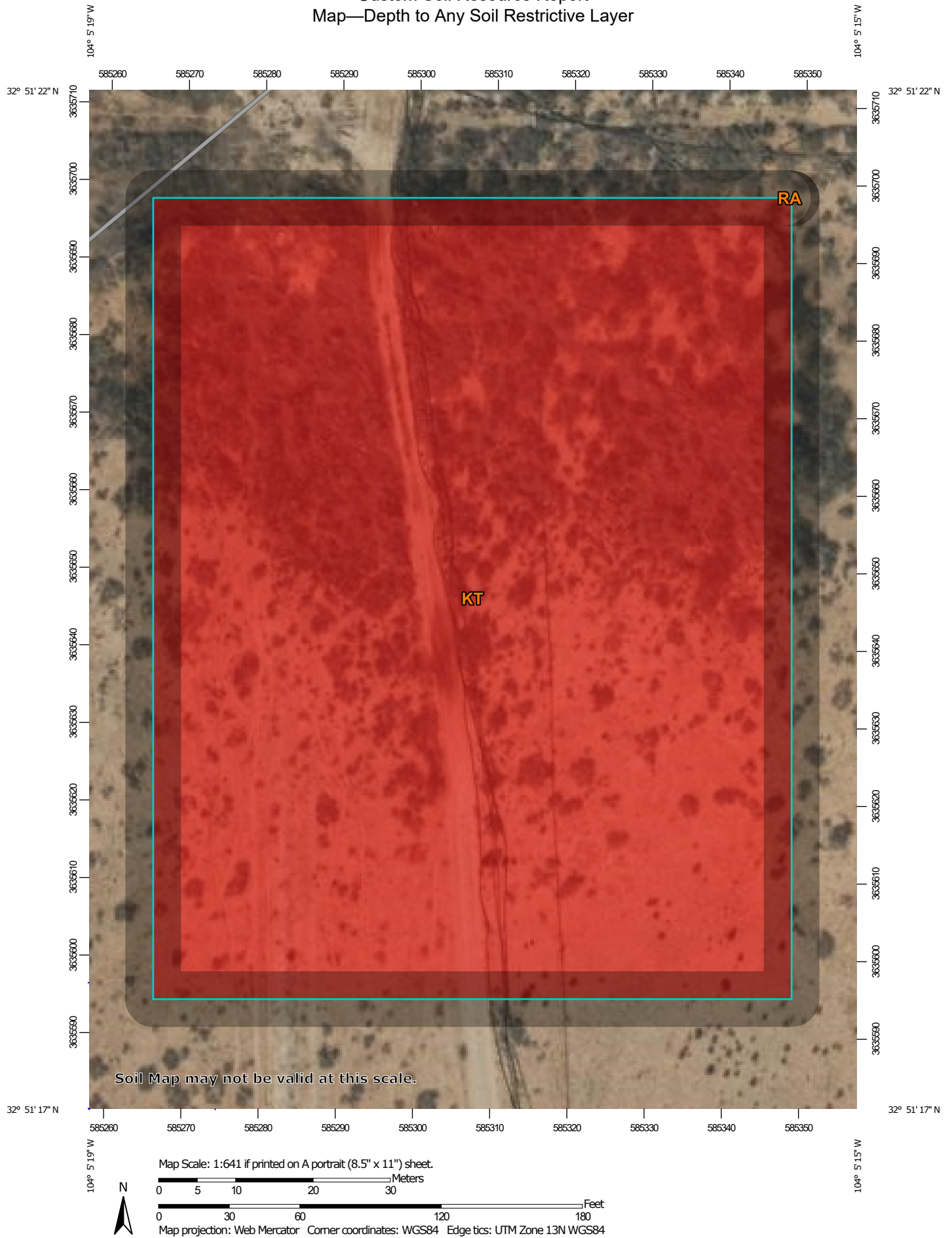
A "restrictive layer" is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers.

This theme presents the depth to any type of restrictive layer that is described for each map unit. If more than one type of restrictive layer is described for an individual soil type, the depth to the shallowest one is presented. If no restrictive layer is described in a map unit, it is represented by the "greater than 200" depth class.

This attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.



Custom Soil Resource Report  
Map—Depth to Any Soil Restrictive Layer






## Custom Soil Resource Report

## MAP LEGEND

## Area of Interest (AOI)




 Area of Interest (AOI)

## Soils







## Soil Rating Polygons


-  0 - 25
-  25 - 50
-  50 - 100
-  100 - 150
-  150 - 200
-  > 200
-  Not rated or not available

## Soil Rating Lines


-  0 - 25
-  25 - 50
-  50 - 100
-  100 - 150
-  150 - 200
-  > 200
-  Not rated or not available

## Soil Rating Points






-  0 - 25
-  25 - 50
-  50 - 100
-  100 - 150
-  150 - 200
-  > 200

 Not rated or not available


## Water Features

 Streams and Canals

## Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

## Background

 Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL:  
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Eddy Area, New Mexico  
Survey Area Data: Version 20, Sep 3, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Nov 12, 2022—Dec 2, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.



## Custom Soil Resource Report

**Table—Depth to Any Soil Restrictive Layer**

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
KT	Kimbrough-Stegall loams, 0 to 3 percent slopes	23	2.1	100.0%
RA	Reagan loam, 0 to 3 percent slopes	>200	0.0	0.0%
<b>Totals for Area of Interest</b>			<b>2.1</b>	<b>100.0%</b>

**Rating Options—Depth to Any Soil Restrictive Layer**

*Units of Measure:* centimeters

*Aggregation Method:* Dominant Component

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Component" returns the attribute value associated with the component with the highest percent composition in the map unit. If more than one component shares the highest percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher attribute value should be returned in the case of a percent composition tie. The result returned by this aggregation method may or may not represent the dominant condition throughout the map unit.

*Component Percent Cutoff:* None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

*Tie-break Rule:* Lower



## Custom Soil Resource Report

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

*Interpret Nulls as Zero:* No

This option indicates if a null value for a component should be converted to zero before aggregation occurs. This will be done only if a map unit has at least one component where this value is not null.

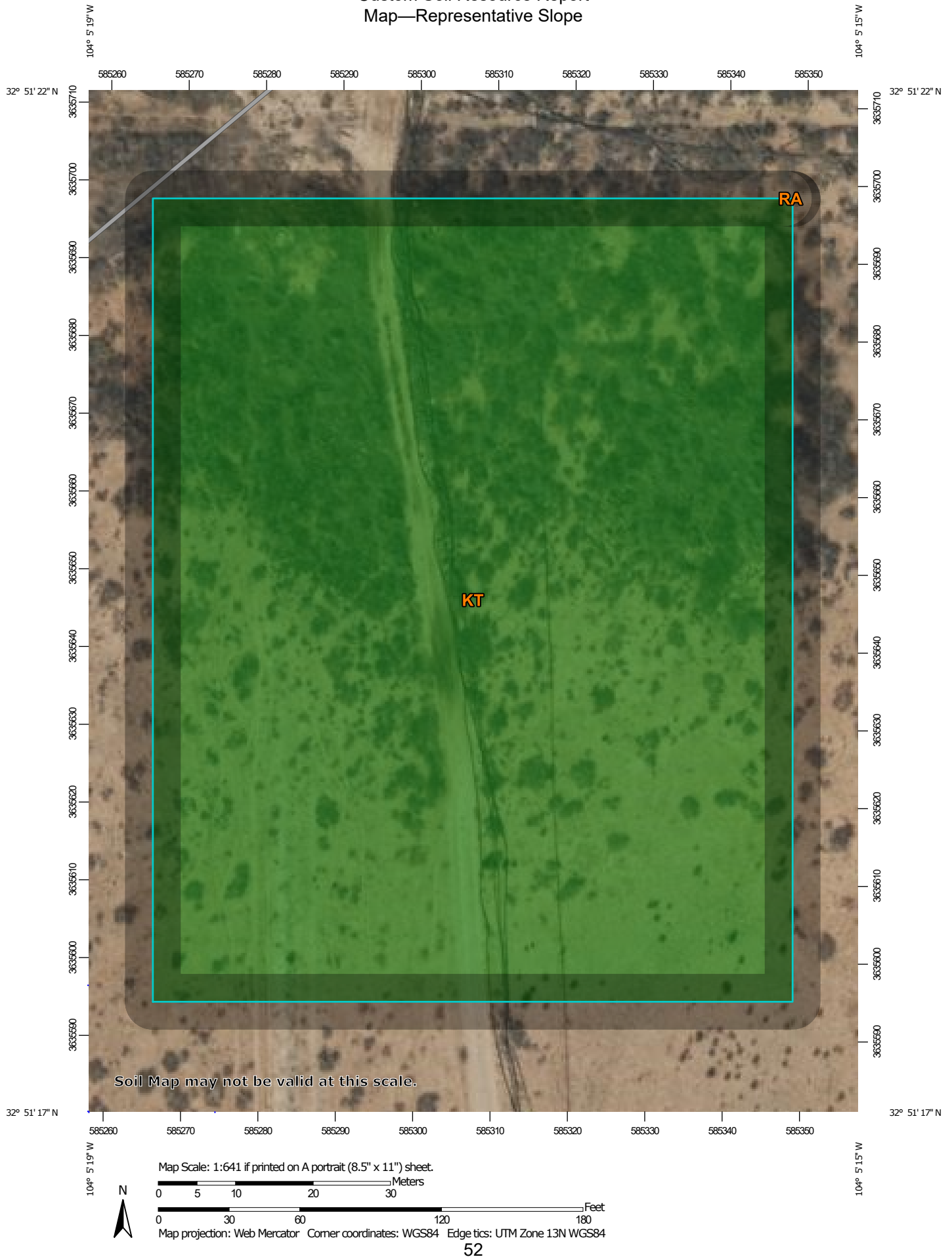
## Representative Slope

Slope gradient is the difference in elevation between two points, expressed as a percentage of the distance between those points.

The slope gradient is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

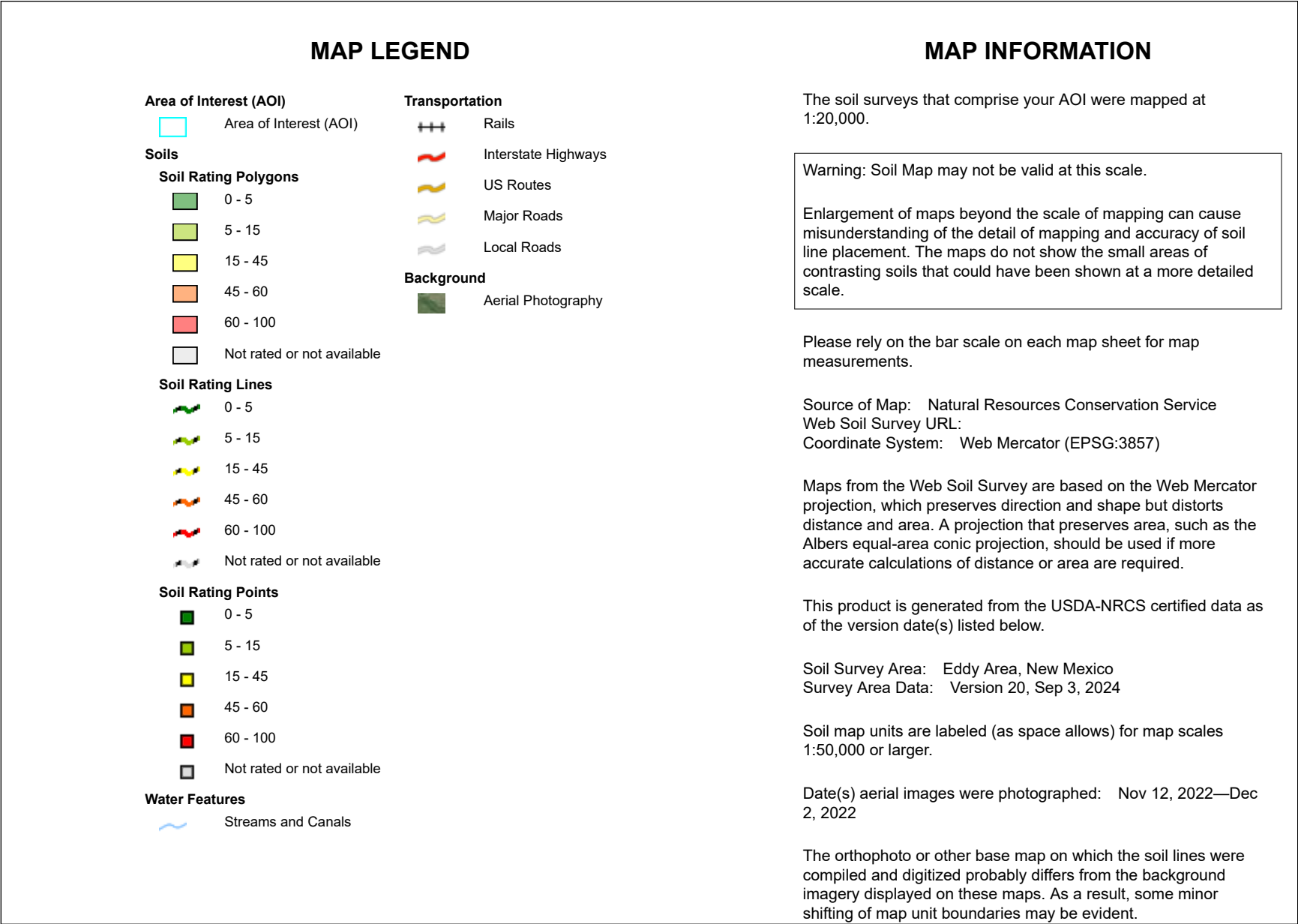


Custom Soil Resource Report  
Map—Representative Slope





Custom Soil Resource Report





## Custom Soil Resource Report

**Table—Representative Slope**

Map unit symbol	Map unit name	Rating (percent)	Acres in AOI	Percent of AOI
KT	Kimbrough-Stegall loams, 0 to 3 percent slopes	2.0	2.1	100.0%
RA	Reagan loam, 0 to 3 percent slopes	2.0	0.0	0.0%
<b>Totals for Area of Interest</b>			<b>2.1</b>	<b>100.0%</b>

**Rating Options—Representative Slope**

*Units of Measure:* percent

*Aggregation Method:* Dominant Component

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Component" returns the attribute value associated with the component with the highest percent composition in the map unit. If more than one component shares the highest percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher attribute value should be returned in the case of a percent composition tie. The result returned by this aggregation method may or may not represent the dominant condition throughout the map unit.

*Component Percent Cutoff:* None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

*Tie-break Rule:* Higher



## Custom Soil Resource Report

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

### *Interpret Nulls as Zero: No*

This option indicates if a null value for a component should be converted to zero before aggregation occurs. This will be done only if a map unit has at least one component where this value is not null.



## References

---

- American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.
- American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.
- Federal Register. July 13, 1994. Changes in hydric soils of the United States.
- Federal Register. September 18, 2002. Hydric soils of the United States.
- Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.
- National Research Council. 1995. Wetlands: Characteristics and boundaries.
- Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\\_054262](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262)
- Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\\_053577](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577)
- Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\\_053580](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580)
- Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.
- United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.
- United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2\\_053374](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374)
- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>



## Custom Soil Resource Report

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2\\_054242](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242)

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\\_053624](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624)

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. [http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs142p2\\_052290.pdf](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf)



**NMSLO Seed Mix****Loamy (L)****LOAMY (L) SITES SEED MIXTURE:**

COMMON NAME	VARIETY	APPLICATION RATE (PLS/Acre)	DRILL BOX
<b>Grasses:</b>			
Black grama	VNS, Southern	1.0	D
Blue grama	Lovington	1.0	D
Sideoats grama	Vaughn, El Reno	4.0	F
Sand dropseed	VNS, Southern	2.0	S
Alkali sacaton	VNS, Southern	1.0	
Little bluestem	Cimarron, Pastura	1.5	F
<b>Forbs:</b>			
Firewheel ( <i>Gaillardia</i> )	VNS, Southern	1.0	D
<b>Shrubs:</b>			
Fourwing saltbush	Marana, Santa Rita	1.0	D
Common winterfat	VNS, Southern	0.5	F
<b>Total PLS/acre</b>		<b>18.0</b>	

S = Small seed drill box, D = Standard seed drill box, F = Fluffy seed drill box

VNS = Variety Not Stated, PLS = Pure Live Seed

- Seed mixes should be provided in bags separating seed types into the three categories: small (S), standard (D) and fluffy (F).
- VNS, Southern – Seed should be from a southern latitude collection of this species.
- Double seed application rate for broadcast or hydroseeding.
- If one species is not available, contact the SLO for an approved substitute; alternatively the SLO may require other species proportionately increased.
- Additional information on these seed species can be found on the USDA Plants Database website at <http://plants.usda.gov>.







PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

---

December 09, 2024

DAN DUNKELBERG

TRINITY OILFIELD SERVICES & RENTALS, LLC

P. O. BOX 2587

HOBBS, NM 88241

RE: STATE 20 B TO JENNA

Enclosed are the results of analyses for samples received by the laboratory on 12/03/24 15:09.

Cardinal Laboratories is accredited through Texas NELAP under certificate number TX-C24-00112. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is fluid and cursive, with the first name "Celey" and last name "Keene" clearly distinguishable.

Celey D. Keene

Lab Director/Quality Manager





PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

**Analytical Results For:**

TRINITY OILFIELD SERVICES & RENTALS, LLC  
 DAN DUNKELBERG  
 P. O. BOX 2587  
 HOBBS NM, 88241  
 Fax To: NONE

Received: 12/03/2024  
 Reported: 12/09/2024  
 Project Name: STATE 20 B TO JENNA  
 Project Number: NOT GIVEN  
 Project Location: LONGFELLOW - EDDY CO NM

Sampling Date: 11/27/2024  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Shalyn Rodriguez

**Sample ID: DV-001.0-00.0-P (H247349-01)**

BTX 8021B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/05/2024	ND	2.02	101	2.00	2.06	
Toluene*	<0.050	0.050	12/05/2024	ND	2.11	105	2.00	1.91	
Ethylbenzene*	<0.050	0.050	12/05/2024	ND	2.08	104	2.00	1.09	
Total Xylenes*	<0.150	0.150	12/05/2024	ND	6.57	109	6.00	0.953	
Total BTX	<0.300	0.300	12/05/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 104 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: CT					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	12/05/2024	ND	448	112	400	3.64	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/04/2024	ND	225	112	200	0.536	
DRO >C10-C28*	<10.0	10.0	12/04/2024	ND	204	102	200	2.13	
EXT DRO >C28-C36	<10.0	10.0	12/04/2024	ND					

Surrogate: 1-Chlorooctane 107 % 48.2-134

Surrogate: 1-Chlorooctadecane 104 % 49.1-148

Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager





PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

**Analytical Results For:**

TRINITY OILFIELD SERVICES & RENTALS, LLC  
 DAN DUNKELBERG  
 P. O. BOX 2587  
 HOBBS NM, 88241  
 Fax To: NONE

Received: 12/03/2024  
 Reported: 12/09/2024  
 Project Name: STATE 20 B TO JENNA  
 Project Number: NOT GIVEN  
 Project Location: LONGFELLOW - EDDY CO NM

Sampling Date: 11/27/2024  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Shalyn Rodriguez

**Sample ID: DV-001.0-02.0-P (H247349-02)**

BTEX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/05/2024	ND	2.11	105	2.00	4.03		
Toluene*	<0.050	0.050	12/05/2024	ND	2.04	102	2.00	2.66		
Ethylbenzene*	<0.050	0.050	12/05/2024	ND	2.04	102	2.00	1.85		
Total Xylenes*	<0.150	0.150	12/05/2024	ND	6.11	102	6.00	1.67		
Total BTEX	<0.300	0.300	12/05/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 97.8 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: CT						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	12/05/2024	ND	448	112	400	3.64		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/04/2024	ND	225	112	200	0.536	
DRO >C10-C28*	<10.0	10.0	12/04/2024	ND	204	102	200	2.13	
EXT DRO >C28-C36	<10.0	10.0	12/04/2024	ND					

Surrogate: 1-Chlorooctane 102 % 48.2-134

Surrogate: 1-Chlorooctadecane 94.8 % 49.1-148

Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager





PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

**Analytical Results For:**

TRINITY OILFIELD SERVICES & RENTALS, LLC  
 DAN DUNKELBERG  
 P. O. BOX 2587  
 HOBBS NM, 88241  
 Fax To: NONE

Received: 12/03/2024  
 Reported: 12/09/2024  
 Project Name: STATE 20 B TO JENNA  
 Project Number: NOT GIVEN  
 Project Location: LONGFELLOW - EDDY CO NM

Sampling Date: 11/27/2024  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Shalyn Rodriguez

**Sample ID: DV-001.0-04.0-P (H247349-03)**

BTEX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/05/2024	ND	2.11	105	2.00	4.03		
Toluene*	<0.050	0.050	12/05/2024	ND	2.04	102	2.00	2.66		
Ethylbenzene*	<0.050	0.050	12/05/2024	ND	2.04	102	2.00	1.85		
Total Xylenes*	<0.150	0.150	12/05/2024	ND	6.11	102	6.00	1.67		
Total BTEX	<0.300	0.300	12/05/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.7 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: CT						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	12/05/2024	ND	448	112	400	3.64		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/04/2024	ND	225	112	200	0.536	
DRO >C10-C28*	<10.0	10.0	12/04/2024	ND	204	102	200	2.13	
EXT DRO >C28-C36	<10.0	10.0	12/04/2024	ND					

Surrogate: 1-Chlorooctane 97.8 % 48.2-134

Surrogate: 1-Chlorooctadecane 91.8 % 49.1-148

Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager





PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

**Analytical Results For:**

TRINITY OILFIELD SERVICES & RENTALS, LLC  
 DAN DUNKELBERG  
 P. O. BOX 2587  
 HOBBS NM, 88241  
 Fax To: NONE

Received: 12/03/2024  
 Reported: 12/09/2024  
 Project Name: STATE 20 B TO JENNA  
 Project Number: NOT GIVEN  
 Project Location: LONGFELLOW - EDDY CO NM

Sampling Date: 11/27/2024  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Shalyn Rodriguez

**Sample ID: DV-002.0-00.0-P (H247349-04)**

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/05/2024	ND	2.11	105	2.00	4.03		
Toluene*	<0.050	0.050	12/05/2024	ND	2.04	102	2.00	2.66		
Ethylbenzene*	<0.050	0.050	12/05/2024	ND	2.04	102	2.00	1.85		
Total Xylenes*	<0.150	0.150	12/05/2024	ND	6.11	102	6.00	1.67		
Total BTEx	<0.300	0.300	12/05/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.1 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: CT						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	12/05/2024	ND	448	112	400	3.64		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/04/2024	ND	225	112	200	0.536	
DRO >C10-C28*	<10.0	10.0	12/04/2024	ND	204	102	200	2.13	
EXT DRO >C28-C36	<10.0	10.0	12/04/2024	ND					

Surrogate: 1-Chlorooctane 100 % 48.2-134

Surrogate: 1-Chlorooctadecane 96.2 % 49.1-148

Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager





PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

**Analytical Results For:**

TRINITY OILFIELD SERVICES & RENTALS, LLC  
 DAN DUNKELBERG  
 P. O. BOX 2587  
 HOBBS NM, 88241  
 Fax To: NONE

Received: 12/03/2024  
 Reported: 12/09/2024  
 Project Name: STATE 20 B TO JENNA  
 Project Number: NOT GIVEN  
 Project Location: LONGFELLOW - EDDY CO NM

Sampling Date: 11/27/2024  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Shalyn Rodriguez

**Sample ID: DV-002.0-04.0-P (H247349-05)**

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/05/2024	ND	2.11	105	2.00	4.03		
Toluene*	<0.050	0.050	12/05/2024	ND	2.04	102	2.00	2.66		
Ethylbenzene*	<0.050	0.050	12/05/2024	ND	2.04	102	2.00	1.85		
Total Xylenes*	<0.150	0.150	12/05/2024	ND	6.11	102	6.00	1.67		
Total BTEX	<0.300	0.300	12/05/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 100 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: CT						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16800	16.0	12/05/2024	ND	448	112	400	3.64		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/04/2024	ND	225	112	200	0.536	
DRO >C10-C28*	<10.0	10.0	12/04/2024	ND	204	102	200	2.13	
EXT DRO >C28-C36	<10.0	10.0	12/04/2024	ND					

Surrogate: 1-Chlorooctane 104 % 48.2-134

Surrogate: 1-Chlorooctadecane 99.2 % 49.1-148

Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager





PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

**Analytical Results For:**

TRINITY OILFIELD SERVICES & RENTALS, LLC  
 DAN DUNKELBERG  
 P. O. BOX 2587  
 HOBBS NM, 88241  
 Fax To: NONE

Received: 12/03/2024  
 Reported: 12/09/2024  
 Project Name: STATE 20 B TO JENNA  
 Project Number: NOT GIVEN  
 Project Location: LONGFELLOW - EDDY CO NM

Sampling Date: 11/27/2024  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Shalyn Rodriguez

**Sample ID: DV-002.0-05.0-P (H247349-06)**

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/05/2024	ND	2.11	105	2.00	4.03		
Toluene*	<0.050	0.050	12/05/2024	ND	2.04	102	2.00	2.66		
Ethylbenzene*	<0.050	0.050	12/05/2024	ND	2.04	102	2.00	1.85		
Total Xylenes*	<0.150	0.150	12/05/2024	ND	6.11	102	6.00	1.67		
Total BTEx	<0.300	0.300	12/05/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.7 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: CT						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	352	16.0	12/05/2024	ND	448	112	400	3.64		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/04/2024	ND	225	112	200	0.536	
DRO >C10-C28*	<10.0	10.0	12/04/2024	ND	204	102	200	2.13	
EXT DRO >C28-C36	<10.0	10.0	12/04/2024	ND					

Surrogate: 1-Chlorooctane 106 % 48.2-134

Surrogate: 1-Chlorooctadecane 101 % 49.1-148

Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager





PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

**Analytical Results For:**

TRINITY OILFIELD SERVICES & RENTALS, LLC  
 DAN DUNKELBERG  
 P. O. BOX 2587  
 HOBBS NM, 88241  
 Fax To: NONE

Received: 12/03/2024  
 Reported: 12/09/2024  
 Project Name: STATE 20 B TO JENNA  
 Project Number: NOT GIVEN  
 Project Location: LONGFELLOW - EDDY CO NM

Sampling Date: 11/27/2024  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Shalyn Rodriguez

**Sample ID: DV-002.0-06.0-P (H247349-07)**

BTEx 8021B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/05/2024	ND	2.11	105	2.00	4.03	
Toluene*	<0.050	0.050	12/05/2024	ND	2.04	102	2.00	2.66	
Ethylbenzene*	<0.050	0.050	12/05/2024	ND	2.04	102	2.00	1.85	
Total Xylenes*	<0.150	0.150	12/05/2024	ND	6.11	102	6.00	1.67	
Total BTEX	<0.300	0.300	12/05/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.6 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: CT						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	304	16.0	12/05/2024	ND	448	112	400	3.64		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/04/2024	ND	225	112	200	0.536	
DRO >C10-C28*	<10.0	10.0	12/04/2024	ND	204	102	200	2.13	
EXT DRO >C28-C36	<10.0	10.0	12/04/2024	ND					

Surrogate: 1-Chlorooctane 105 % 48.2-134

Surrogate: 1-Chlorooctadecane 100 % 49.1-148

Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager





PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

**Analytical Results For:**

TRINITY OILFIELD SERVICES & RENTALS, LLC  
 DAN DUNKELBERG  
 P. O. BOX 2587  
 HOBBS NM, 88241  
 Fax To: NONE

Received: 12/03/2024  
 Reported: 12/09/2024  
 Project Name: STATE 20 B TO JENNA  
 Project Number: NOT GIVEN  
 Project Location: LONGFELLOW - EDDY CO NM

Sampling Date: 11/27/2024  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Shalyn Rodriguez

**Sample ID: DV-003.0-00.0-P (H247349-08)**

BTEX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/05/2024	ND	2.11	105	2.00	4.03		
Toluene*	<0.050	0.050	12/05/2024	ND	2.04	102	2.00	2.66		
Ethylbenzene*	<0.050	0.050	12/05/2024	ND	2.04	102	2.00	1.85		
Total Xylenes*	<0.150	0.150	12/05/2024	ND	6.11	102	6.00	1.67		
Total BTEX	<0.300	0.300	12/05/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.0 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: CT						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	368	16.0	12/05/2024	ND	448	112	400	3.64		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/04/2024	ND	203	101	200	2.41	
DRO >C10-C28*	<10.0	10.0	12/04/2024	ND	205	102	200	1.45	
EXT DRO >C28-C36	<10.0	10.0	12/04/2024	ND					

Surrogate: 1-Chlorooctane 102 % 48.2-134

Surrogate: 1-Chlorooctadecane 113 % 49.1-148

Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager





PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

**Analytical Results For:**

TRINITY OILFIELD SERVICES & RENTALS, LLC  
 DAN DUNKELBERG  
 P. O. BOX 2587  
 HOBBS NM, 88241  
 Fax To: NONE

Received: 12/03/2024  
 Reported: 12/09/2024  
 Project Name: STATE 20 B TO JENNA  
 Project Number: NOT GIVEN  
 Project Location: LONGFELLOW - EDDY CO NM

Sampling Date: 11/27/2024  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Shalyn Rodriguez

**Sample ID: DV-003.0-04.0-P (H247349-09)**

BTEX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/05/2024	ND	2.11	105	2.00	4.03		
Toluene*	<0.050	0.050	12/05/2024	ND	2.04	102	2.00	2.66		
Ethylbenzene*	<0.050	0.050	12/05/2024	ND	2.04	102	2.00	1.85		
Total Xylenes*	<0.150	0.150	12/05/2024	ND	6.11	102	6.00	1.67		
Total BTEX	<0.300	0.300	12/05/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.6 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: CT						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	17600	16.0	12/05/2024	ND	448	112	400	3.64		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/04/2024	ND	203	101	200	2.41	
DRO >C10-C28*	<10.0	10.0	12/04/2024	ND	205	102	200	1.45	
EXT DRO >C28-C36	<10.0	10.0	12/04/2024	ND					

Surrogate: 1-Chlorooctane 107 % 48.2-134

Surrogate: 1-Chlorooctadecane 120 % 49.1-148

Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager





PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

**Analytical Results For:**

TRINITY OILFIELD SERVICES & RENTALS, LLC  
 DAN DUNKELBERG  
 P. O. BOX 2587  
 HOBBS NM, 88241  
 Fax To: NONE

Received: 12/03/2024  
 Reported: 12/09/2024  
 Project Name: STATE 20 B TO JENNA  
 Project Number: NOT GIVEN  
 Project Location: LONGFELLOW - EDDY CO NM

Sampling Date: 11/27/2024  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Shalyn Rodriguez

**Sample ID: DV-003.0-06.0-P (H247349-10)**

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/05/2024	ND	2.11	105	2.00	4.03		
Toluene*	<0.050	0.050	12/05/2024	ND	2.04	102	2.00	2.66		
Ethylbenzene*	<0.050	0.050	12/05/2024	ND	2.04	102	2.00	1.85		
Total Xylenes*	<0.150	0.150	12/05/2024	ND	6.11	102	6.00	1.67		
Total BTEX	<0.300	0.300	12/05/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.5 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: CT						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1390	16.0	12/05/2024	ND	448	112	400	3.64		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/04/2024	ND	203	101	200	2.41	
DRO >C10-C28*	<10.0	10.0	12/04/2024	ND	205	102	200	1.45	
EXT DRO >C28-C36	<10.0	10.0	12/04/2024	ND					

Surrogate: 1-Chlorooctane 107 % 48.2-134

Surrogate: 1-Chlorooctadecane 121 % 49.1-148

Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager





PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

**Analytical Results For:**

TRINITY OILFIELD SERVICES & RENTALS, LLC  
 DAN DUNKELBERG  
 P. O. BOX 2587  
 HOBBS NM, 88241  
 Fax To: NONE

Received: 12/03/2024  
 Reported: 12/09/2024  
 Project Name: STATE 20 B TO JENNA  
 Project Number: NOT GIVEN  
 Project Location: LONGFELLOW - EDDY CO NM

Sampling Date: 11/27/2024  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Shalyn Rodriguez

**Sample ID: DV-003.0-07.0-P (H247349-11)**

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/05/2024	ND	2.11	105	2.00	4.03		
Toluene*	<0.050	0.050	12/05/2024	ND	2.04	102	2.00	2.66		
Ethylbenzene*	<0.050	0.050	12/05/2024	ND	2.04	102	2.00	1.85		
Total Xylenes*	<0.150	0.150	12/05/2024	ND	6.11	102	6.00	1.67		
Total BTEx	<0.300	0.300	12/05/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.8 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: CT						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	432	16.0	12/05/2024	ND	448	112	400	3.64		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/04/2024	ND	203	101	200	2.41	
DRO >C10-C28*	<10.0	10.0	12/04/2024	ND	205	102	200	1.45	
EXT DRO >C28-C36	<10.0	10.0	12/04/2024	ND					

Surrogate: 1-Chlorooctane 93.1 % 48.2-134

Surrogate: 1-Chlorooctadecane 106 % 49.1-148

Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager





PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

**Analytical Results For:**

TRINITY OILFIELD SERVICES & RENTALS, LLC  
 DAN DUNKELBERG  
 P. O. BOX 2587  
 HOBBS NM, 88241  
 Fax To: NONE

Received: 12/03/2024  
 Reported: 12/09/2024  
 Project Name: STATE 20 B TO JENNA  
 Project Number: NOT GIVEN  
 Project Location: LONGFELLOW - EDDY CO NM

Sampling Date: 11/27/2024  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Shalyn Rodriguez

**Sample ID: DH-001.0-00.5-P (H247349-12)**

BTEX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/05/2024	ND	2.11	105	2.00	4.03		
Toluene*	<0.050	0.050	12/05/2024	ND	2.04	102	2.00	2.66		
Ethylbenzene*	<0.050	0.050	12/05/2024	ND	2.04	102	2.00	1.85		
Total Xylenes*	<0.150	0.150	12/05/2024	ND	6.11	102	6.00	1.67		
Total BTEX	<0.300	0.300	12/05/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.4 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: CT						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	12/05/2024	ND	448	112	400	3.64		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/04/2024	ND	203	101	200	2.41	
DRO >C10-C28*	<10.0	10.0	12/04/2024	ND	205	102	200	1.45	
EXT DRO >C28-C36	<10.0	10.0	12/04/2024	ND					

Surrogate: 1-Chlorooctane 107 % 48.2-134

Surrogate: 1-Chlorooctadecane 119 % 49.1-148

Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager





PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

**Analytical Results For:**

TRINITY OILFIELD SERVICES & RENTALS, LLC  
 DAN DUNKELBERG  
 P. O. BOX 2587  
 HOBBS NM, 88241  
 Fax To: NONE

Received: 12/03/2024  
 Reported: 12/09/2024  
 Project Name: STATE 20 B TO JENNA  
 Project Number: NOT GIVEN  
 Project Location: LONGFELLOW - EDDY CO NM

Sampling Date: 11/27/2024  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Shalyn Rodriguez

**Sample ID: DH-002.0-00.5-P (H247349-13)**

BTEX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/05/2024	ND	2.11	105	2.00	4.03		
Toluene*	<0.050	0.050	12/05/2024	ND	2.04	102	2.00	2.66		
Ethylbenzene*	<0.050	0.050	12/05/2024	ND	2.04	102	2.00	1.85		
Total Xylenes*	<0.150	0.150	12/05/2024	ND	6.11	102	6.00	1.67		
Total BTEX	<0.300	0.300	12/05/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.9 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: KV						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	12/04/2024	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/04/2024	ND	203	101	200	2.41	
DRO >C10-C28*	<10.0	10.0	12/04/2024	ND	205	102	200	1.45	
EXT DRO >C28-C36	<10.0	10.0	12/04/2024	ND					

Surrogate: 1-Chlorooctane 108 % 48.2-134

Surrogate: 1-Chlorooctadecane 120 % 49.1-148

Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager





PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

**Analytical Results For:**

TRINITY OILFIELD SERVICES & RENTALS, LLC  
 DAN DUNKELBERG  
 P. O. BOX 2587  
 HOBBS NM, 88241  
 Fax To: NONE

Received: 12/03/2024  
 Reported: 12/09/2024  
 Project Name: STATE 20 B TO JENNA  
 Project Number: NOT GIVEN  
 Project Location: LONGFELLOW - EDDY CO NM

Sampling Date: 11/27/2024  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Shalyn Rodriguez

**Sample ID: DH-003.4-00.5-P (H247349-14)**

BTEX 8021B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/05/2024	ND	2.11	105	2.00	4.03	
Toluene*	<0.050	0.050	12/05/2024	ND	2.04	102	2.00	2.66	
Ethylbenzene*	<0.050	0.050	12/05/2024	ND	2.04	102	2.00	1.85	
Total Xylenes*	<0.150	0.150	12/05/2024	ND	6.11	102	6.00	1.67	
Total BTEX	<0.300	0.300	12/05/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.1 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: KV						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	272	16.0	12/04/2024	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/04/2024	ND	203	101	200	2.41	
DRO >C10-C28*	<10.0	10.0	12/04/2024	ND	205	102	200	1.45	
EXT DRO >C28-C36	<10.0	10.0	12/04/2024	ND					

Surrogate: 1-Chlorooctane 109 % 48.2-134

Surrogate: 1-Chlorooctadecane 120 % 49.1-148

Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager





PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

**Analytical Results For:**

TRINITY OILFIELD SERVICES & RENTALS, LLC  
 DAN DUNKELBERG  
 P. O. BOX 2587  
 HOBBS NM, 88241  
 Fax To: NONE

Received: 12/03/2024  
 Reported: 12/09/2024  
 Project Name: STATE 20 B TO JENNA  
 Project Number: NOT GIVEN  
 Project Location: LONGFELLOW - EDDY CO NM

Sampling Date: 11/27/2024  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Shalyn Rodriguez

**Sample ID: DH-004.1-00.5-P (H247349-15)**

BTEX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/05/2024	ND	2.11	105	2.00	4.03		
Toluene*	<0.050	0.050	12/05/2024	ND	2.04	102	2.00	2.66		
Ethylbenzene*	<0.050	0.050	12/05/2024	ND	2.04	102	2.00	1.85		
Total Xylenes*	<0.150	0.150	12/05/2024	ND	6.11	102	6.00	1.67		
Total BTEX	<0.300	0.300	12/05/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 100 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: KV						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	12/04/2024	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/04/2024	ND	203	101	200	2.41	
DRO >C10-C28*	<10.0	10.0	12/04/2024	ND	205	102	200	1.45	
EXT DRO >C28-C36	<10.0	10.0	12/04/2024	ND					

Surrogate: 1-Chlorooctane 110 % 48.2-134

Surrogate: 1-Chlorooctadecane 121 % 49.1-148

Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager





PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

**Analytical Results For:**

TRINITY OILFIELD SERVICES & RENTALS, LLC  
 DAN DUNKELBERG  
 P. O. BOX 2587  
 HOBBS NM, 88241  
 Fax To: NONE

Received: 12/03/2024  
 Reported: 12/09/2024  
 Project Name: STATE 20 B TO JENNA  
 Project Number: NOT GIVEN  
 Project Location: LONGFELLOW - EDDY CO NM

Sampling Date: 11/27/2024  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Shalyn Rodriguez

**Sample ID: DH-005.0-00.5-P (H247349-16)**

BTEX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/05/2024	ND	2.11	105	2.00	4.03		
Toluene*	<0.050	0.050	12/05/2024	ND	2.04	102	2.00	2.66		
Ethylbenzene*	<0.050	0.050	12/05/2024	ND	2.04	102	2.00	1.85		
Total Xylenes*	<0.150	0.150	12/05/2024	ND	6.11	102	6.00	1.67		
Total BTEX	<0.300	0.300	12/05/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 100 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: KV						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	96.0	16.0	12/04/2024	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/04/2024	ND	203	101	200	2.41	
DRO >C10-C28*	<10.0	10.0	12/04/2024	ND	205	102	200	1.45	
EXT DRO >C28-C36	<10.0	10.0	12/04/2024	ND					

Surrogate: 1-Chlorooctane 112 % 48.2-134

Surrogate: 1-Chlorooctadecane 124 % 49.1-148

Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager





PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

**Analytical Results For:**

TRINITY OILFIELD SERVICES & RENTALS, LLC  
 DAN DUNKELBERG  
 P. O. BOX 2587  
 HOBBS NM, 88241  
 Fax To: NONE

Received: 12/03/2024  
 Reported: 12/09/2024  
 Project Name: STATE 20 B TO JENNA  
 Project Number: NOT GIVEN  
 Project Location: LONGFELLOW - EDDY CO NM

Sampling Date: 11/27/2024  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Shalyn Rodriguez

**Sample ID: DH-006.0-00.5-P (H247349-17)**

BTEX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/05/2024	ND	2.11	105	2.00	4.03		
Toluene*	<0.050	0.050	12/05/2024	ND	2.04	102	2.00	2.66		
Ethylbenzene*	<0.050	0.050	12/05/2024	ND	2.04	102	2.00	1.85		
Total Xylenes*	<0.150	0.150	12/05/2024	ND	6.11	102	6.00	1.67		
Total BTEX	<0.300	0.300	12/05/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.3 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: KV						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	12/04/2024	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/04/2024	ND	203	101	200	2.41	
DRO >C10-C28*	<10.0	10.0	12/04/2024	ND	205	102	200	1.45	
EXT DRO >C28-C36	<10.0	10.0	12/04/2024	ND					

Surrogate: 1-Chlorooctane 115 % 48.2-134

Surrogate: 1-Chlorooctadecane 127 % 49.1-148

Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager





PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

**Analytical Results For:**

TRINITY OILFIELD SERVICES & RENTALS, LLC  
 DAN DUNKELBERG  
 P. O. BOX 2587  
 HOBBS NM, 88241  
 Fax To: NONE

Received: 12/03/2024  
 Reported: 12/09/2024  
 Project Name: STATE 20 B TO JENNA  
 Project Number: NOT GIVEN  
 Project Location: LONGFELLOW - EDDY CO NM

Sampling Date: 11/27/2024  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Shalyn Rodriguez

**Sample ID: DH-007.0-00.5-P (H247349-18)**

BTEX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/05/2024	ND	2.11	105	2.00	4.03		
Toluene*	<0.050	0.050	12/05/2024	ND	2.04	102	2.00	2.66		
Ethylbenzene*	<0.050	0.050	12/05/2024	ND	2.04	102	2.00	1.85		
Total Xylenes*	<0.150	0.150	12/05/2024	ND	6.11	102	6.00	1.67		
Total BTEX	<0.300	0.300	12/05/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 100 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: KV						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	96.0	16.0	12/04/2024	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/04/2024	ND	203	101	200	2.41	
DRO >C10-C28*	<10.0	10.0	12/04/2024	ND	205	102	200	1.45	
EXT DRO >C28-C36	<10.0	10.0	12/04/2024	ND					

Surrogate: 1-Chlorooctane 108 % 48.2-134

Surrogate: 1-Chlorooctadecane 121 % 49.1-148

Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager





---

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

---

### Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

---

Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

A handwritten signature in cursive script, appearing to read "Celey D. Keene", written in black ink.

---

Celey D. Keene, Lab Director/Quality Manager



Page 21 of 22



Page 22 of 22



Sante Fe Main Office  
Phone: (505) 476-3441

General Information  
Phone: (505) 629-6116

Online Phone Directory  
<https://www.emnrd.nm.gov/ocd/contact-us>

State of New Mexico  
Energy, Minerals and Natural Resources  
Oil Conservation Division  
1220 S. St Francis Dr.  
Santa Fe, NM 87505

QUESTIONS

Action 423517

QUESTIONS

Operator: LONGFELLOW ENERGY, LP 8115 Preston Road Dallas, TX 75225	OGRID: 372210
	Action Number: 423517
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

QUESTIONS

Prerequisites	
Incident ID (n#)	nAPP2427440858
Incident Name	NAPP2427440858 STATE 20B TO JENNA @ 0
Incident Type	Produced Water Release
Incident Status	Remediation Plan Received

Location of Release Source	
Please answer all the questions in this group.	
Site Name	State 20B to Jenna
Date Release Discovered	09/29/2024
Surface Owner	State

Incident Details	
Please answer all the questions in this group.	
Incident Type	Produced Water Release
Did this release result in a fire or is the result of a fire	No
Did this release result in any injuries	No
Has this release reached or does it have a reasonable probability of reaching a watercourse	No
Has this release endangered or does it have a reasonable probability of endangering public health	No
Has this release substantially damaged or will it substantially damage property or the environment	No
Is this release of a volume that is or may with reasonable probability be detrimental to fresh water	No

Nature and Volume of Release	
Material(s) released, please answer all that apply below. Any calculations or specific justifications for the volumes provided should be attached to the follow-up C-141 submission.	
Crude Oil Released (bbls) Details	Not answered.
Produced Water Released (bbls) Details	Cause: Blow Out   Pipeline (Any)   Produced Water   Released: 70 BBL   Recovered: 65 BBL   Lost: 5 BBL.
Is the concentration of chloride in the produced water >10,000 mg/l	Yes
Condensate Released (bbls) Details	Not answered.
Natural Gas Vented (Mcf) Details	Not answered.
Natural Gas Flared (Mcf) Details	Not answered.
Other Released Details	Not answered.
Are there additional details for the questions above (i.e. any answer containing Other, Specify, Unknown, and/or Fire, or any negative lost amounts)	Not answered.



Sante Fe Main Office  
Phone: (505) 476-3441

General Information  
Phone: (505) 629-6116

Online Phone Directory  
<https://www.emnrd.nm.gov/ocd/contact-us>

**State of New Mexico**  
**Energy, Minerals and Natural Resources**  
**Oil Conservation Division**  
**1220 S. St Francis Dr.**  
**Santa Fe, NM 87505**

QUESTIONS, Page 2

Action 423517

**QUESTIONS (continued)**

Operator: LONGFELLOW ENERGY, LP 8115 Preston Road Dallas, TX 75225	OGRID: 372210
	Action Number: 423517
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

**QUESTIONS**

<b>Nature and Volume of Release (continued)</b>	
Is this a gas only submission (i.e. only significant Mcf values reported)	No, according to supplied volumes this does not appear to be a "gas only" report.
Was this a major release as defined by Subsection A of 19.15.29.7 NMAC	Yes
Reasons why this would be considered a submission for a notification of a major release	From paragraph A. "Major release" determine using: (1) an unauthorized release of a volume, excluding gases, of 25 barrels or more.
With the implementation of the 19.15.27 NMAC (05/25/2021), venting and/or flaring of natural gas (i.e. gas only) are to be submitted on the C-129 form.	

**Initial Response**

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury.

The source of the release has been stopped	True
The impacted area has been secured to protect human health and the environment	True
Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices	True
All free liquids and recoverable materials have been removed and managed appropriately	True
If all the actions described above have not been undertaken, explain why	Not answered.

Per Paragraph (4) of Subsection B of 19.15.29.8 NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please prepare and attach a narrative of actions to date in the follow-up C-141 submission. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see Subparagraph (a) of Paragraph (5) of Subsection A of 19.15.29.11 NMAC), please prepare and attach all information needed for closure evaluation in the follow-up C-141 submission.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

I hereby agree and sign off to the above statement	Name: David Cain Title: Engineering Technologist Email: david.cain@longfellowenergy.com Date: 01/21/2025
--	---



Sante Fe Main Office  
Phone: (505) 476-3441

General Information  
Phone: (505) 629-6116

Online Phone Directory  
<https://www.emnrd.nm.gov/ocd/contact-us>

**State of New Mexico**  
**Energy, Minerals and Natural Resources**  
**Oil Conservation Division**  
**1220 S. St Francis Dr.**  
**Santa Fe, NM 87505**

QUESTIONS, Page 3

Action 423517

**QUESTIONS (continued)**

Operator: LONGFELLOW ENERGY, LP 8115 Preston Road Dallas, TX 75225	OGRID: 372210
	Action Number: 423517
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

**QUESTIONS**

<b>Site Characterization</b>	
<i>Please answer all the questions in this group (only required when seeking remediation plan approval and beyond). This information must be provided to the appropriate district office no later than 90 days after the release discovery date.</i>	
What is the shallowest depth to groundwater beneath the area affected by the release in feet below ground surface (ft bgs)	Between 51 and 75 (ft.)
What method was used to determine the depth to ground water	Estimate or Other
Did this release impact groundwater or surface water	No
<b>What is the minimum distance, between the closest lateral extents of the release and the following surface areas:</b>	
A continuously flowing watercourse or any other significant watercourse	Between 500 and 1000 (ft.)
Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)	Greater than 5 (mi.)
An occupied permanent residence, school, hospital, institution, or church	Greater than 5 (mi.)
A spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes	Between 1 and 5 (mi.)
Any other fresh water well or spring	Between 1 and 5 (mi.)
Incorporated municipal boundaries or a defined municipal fresh water well field	Greater than 5 (mi.)
A wetland	Between 1 and 5 (mi.)
A subsurface mine	Greater than 5 (mi.)
An (non-karst) unstable area	Greater than 5 (mi.)
Categorize the risk of this well / site being in a karst geology	High
A 100-year floodplain	Between ½ and 1 (mi.)
Did the release impact areas not on an exploration, development, production, or storage site	Yes

<b>Remediation Plan</b>	
<i>Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.</i>	
Requesting a remediation plan approval with this submission	Yes
<i>Attach a comprehensive report demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined, pursuant to 19.15.29.11 NMAC and 19.15.29.13 NMAC.</i>	
Have the lateral and vertical extents of contamination been fully delineated	Yes
Was this release entirely contained within a lined containment area	No
<b>Soil Contamination Sampling:</b> (Provide the highest observable value for each, in milligrams per kilograms.)	
Chloride (EPA 300.0 or SM4500 Cl B)	17600
TPH (GRO+DRO+MRO) (EPA SW-846 Method 8015M)	0
GRO+DRO (EPA SW-846 Method 8015M)	0
BTEX (EPA SW-846 Method 8021B or 8260B)	0
Benzene (EPA SW-846 Method 8021B or 8260B)	0
<i>Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.</i>	
On what estimated date will the remediation commence	01/24/2025
On what date will (or did) the final sampling or liner inspection occur	01/24/2025
On what date will (or was) the remediation complete(d)	04/25/2025
What is the estimated surface area (in square feet) that will be reclaimed	3094
What is the estimated volume (in cubic yards) that will be reclaimed	658
What is the estimated surface area (in square feet) that will be remediated	3094
What is the estimated volume (in cubic yards) that will be remediated	658
<i>These estimated dates and measurements are recognized to be the best guess or calculation at the time of submission and may (be) change(d) over time as more remediation efforts are completed.</i>	
<i>The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.</i>	



Sante Fe Main Office  
Phone: (505) 476-3441

General Information  
Phone: (505) 629-6116

Online Phone Directory  
<https://www.emnrd.nm.gov/ocd/contact-us>

**State of New Mexico**  
**Energy, Minerals and Natural Resources**  
**Oil Conservation Division**  
**1220 S. St Francis Dr.**  
**Santa Fe, NM 87505**

QUESTIONS, Page 4

Action 423517

**QUESTIONS (continued)**

Operator: LONGFELLOW ENERGY, LP 8115 Preston Road Dallas, TX 75225	OGRID: 372210
	Action Number: 423517
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

**QUESTIONS**

<b>Remediation Plan (continued)</b>	
<i>Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.</i>	
<b>This remediation will (or is expected to) utilize the following processes to remediate / reduce contaminants:</b>	
<i>(Select all answers below that apply.)</i>	
(Ex Situ) Excavation and <b>off-site</b> disposal (i.e. dig and haul, hydrovac, etc.)	Yes
Which OCD approved facility will be used for <b>off-site</b> disposal	R360 ARTESIA LLC LANDFARM [FEEM0112340644]
<b>OR</b> which OCD approved well (API) will be used for <b>off-site</b> disposal	Not answered.
<b>OR</b> is the <b>off-site</b> disposal site, to be used, out-of-state	Not answered.
<b>OR</b> is the <b>off-site</b> disposal site, to be used, an NMED facility	Not answered.
(Ex Situ) Excavation and <b>on-site</b> remediation (i.e. On-Site Land Farms)	Not answered.
(In Situ) Soil Vapor Extraction	Not answered.
(In Situ) Chemical processing (i.e. Soil Shredding, Potassium Permanganate, etc.)	Not answered.
(In Situ) Biological processing (i.e. Microbes / Fertilizer, etc.)	Not answered.
(In Situ) Physical processing (i.e. Soil Washing, Gypsum, Disking, etc.)	Not answered.
Ground Water Abatement pursuant to 19.15.30 NMAC	Not answered.
OTHER (Non-listed remedial process)	Not answered.
<i>Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.</i>	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
I hereby agree and sign off to the above statement	Name: David Cain Title: Engineering Technologist Email: david.cain@longfellowenergy.com Date: 01/22/2025
<i>The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.</i>	



Sante Fe Main Office  
Phone: (505) 476-3441

General Information  
Phone: (505) 629-6116

Online Phone Directory  
<https://www.emnrd.nm.gov/ocd/contact-us>

State of New Mexico  
Energy, Minerals and Natural Resources  
Oil Conservation Division  
1220 S. St Francis Dr.  
Santa Fe, NM 87505

QUESTIONS, Page 5  
  
Action 423517

QUESTIONS (continued)

Operator:  LONGFELLOW ENERGY, LP 8115 Preston Road Dallas, TX 75225	OGRID:  372210
	Action Number:  423517
	Action Type:  [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

QUESTIONS

Deferral Requests Only	
Only answer the questions in this group if seeking a deferral upon approval this submission. Each of the following items must be confirmed as part of any request for deferral of remediation.	
Requesting a deferral of the remediation closure due date with the approval of this submission	No



Sante Fe Main Office  
Phone: (505) 476-3441

General Information  
Phone: (505) 629-6116

Online Phone Directory  
<https://www.emnrd.nm.gov/ocd/contact-us>

State of New Mexico  
Energy, Minerals and Natural Resources  
Oil Conservation Division  
1220 S. St Francis Dr.  
Santa Fe, NM 87505

QUESTIONS, Page 6

Action 423517

QUESTIONS (continued)

Operator: LONGFELLOW ENERGY, LP 8115 Preston Road Dallas, TX 75225	OGRID: 372210
	Action Number: 423517
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

QUESTIONS

Sampling Event Information	
Last sampling notification (C-141N) recorded	{Unavailable.}

Remediation Closure Request	
Only answer the questions in this group if seeking remediation closure for this release because all remediation steps have been completed.	
Requesting a remediation closure approval with this submission	No



Sante Fe Main Office  
Phone: (505) 476-3441

General Information  
Phone: (505) 629-6116

Online Phone Directory  
<https://www.emnrd.nm.gov/ocd/contact-us>

**State of New Mexico**  
**Energy, Minerals and Natural Resources**  
**Oil Conservation Division**  
**1220 S. St Francis Dr.**  
**Santa Fe, NM 87505**

CONDITIONS

Action 423517

**CONDITIONS**

Operator: LONGFELLOW ENERGY, LP 8115 Preston Road Dallas, TX 75225	OGRID: 372210
	Action Number: 423517
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

**CONDITIONS**

Created By	Condition	Condition Date
scott.rodgers	The Remediation Plan is Conditionally Approved. All samples must be analyzed for all constituents listed in Table I of 19.15.29.12 NMAC. Floor confirmation samples should be delineated/excavated to meet closure criteria standards for site assessment/characterization/proven depth to water determination. Sidewall samples should be delineated/excavated to 600 mg/kg for chlorides and 100 mg/kg for TPH to define the edge of the release. Due to the size of the spill and the high karst designation, the request to collect samples every 400' is denied. Confirmation samples should be collected every 200 ft2. All off pad areas must meet reclamation standards set forth in the OCD Spill Rule. The work will need to occur in 90 days after the work plan has been reviewed.	1/24/2025