



**DEPARTMENT OF THE ARMY**  
U.S. ARMY CORPS OF ENGINEERS, SACRAMENTO DISTRICT  
1325 J STREET  
SACRAMENTO CA 95814-2922

CESPK-RDI-U

3 April 2025

**MEMORANDUM FOR RECORD**

**SUBJECT:** US Army Corps of Engineers (Corps) Approved Jurisdictional Determination in accordance with the "Revised Definition of 'Waters of the United States'"; (88 FR 3004 (January 18, 2023) as amended by the "Revised Definition of 'Waters of the United States'; Conforming" (8 September 2023) ,<sup>1</sup> [SPK-2023-00249]

**BACKGROUND.** An Approved Jurisdictional Determination (AJD) is a Corps document stating the presence or absence of waters of the United States on a parcel or a written statement and map identifying the limits of waters of the United States on a parcel. AJDs are clearly designated appealable actions and will include a basis of JD with the document.<sup>2</sup> AJDs are case-specific and are typically made in response to a request. AJDs are valid for a period of five years unless new information warrants revision of the determination before the expiration date or a District Engineer has identified, after public notice and comment, that specific geographic areas with rapidly changing environmental conditions merit re-verification on a more frequent basis.<sup>3</sup>

On January 18, 2023, the Environmental Protection Agency (EPA) and the Department of the Army ("the agencies") published the "Revised Definition of 'Waters of the United States,'" 88 FR 3004 (January 18, 2023) ("2023 Rule"). On September 8, 2023, the agencies published the "Revised Definition of 'Waters of the United States'; Conforming", which amended the 2023 Rule to conform to the 2023 Supreme Court decision in *Sackett v. EPA*, 598 U.S., 143 S. Ct. 1322 (2023) ("*Sackett*").

This Memorandum for Record (MFR) constitutes the basis of jurisdiction for a Corps AJD as defined in 33 CFR §331.2. For the purposes of this AJD, we have relied on Section 10 of the Rivers and Harbors Act of 1899 (RHA),<sup>4</sup> the 2023 Rule as amended, as well as other applicable guidance, relevant case law, and longstanding practice in evaluating jurisdiction.

**1. SUMMARY OF CONCLUSIONS.**

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<sup>1</sup> While the Revised Definition of "Waters of the United States"; Conforming had no effect on some categories of waters covered under the CWA, and no effect on any waters covered under RHA, all categories are included in this Memorandum for Record for efficiency.

<sup>2</sup> 33 CFR 331.2.

<sup>3</sup> Regulatory Guidance Letter 05-02.

<sup>4</sup> USACE has authority under both Section 9 and Section 10 of the Rivers and Harbors Act of 1899 but for convenience, in this MFR, jurisdiction under RHA will be referred to as Section 10.

CESPK-RDI-U

SUBJECT: 2023 Rule, as amended, Approved Jurisdictional Determination in Light of *Sackett v. EPA*, 143 S. Ct. 1322 (2023), [SPK-2023-00249]

a. Provide a list of each individual feature within the review area and the jurisdictional status of each one (i.e., identify whether each feature is/is not a water of the United States and/or a navigable water of the United States).

(1) Wetland A-1 is a 2-acre palustrine emergent wetland that is not a water of the U.S. and not jurisdictional under CWA Section 404.

(2) Wetland A-2 is a 0.02-acre palustrine emergent wetland that is not a water of the U.S. and not jurisdictional under CWA Section 404.

(3) Wetland B is a 0.12-acre riverine emergent wetland that is not a water of the U.S. and not jurisdictional under CWA Section 404.

(4) Pond 1 is a 0.02-acre intermittent open water feature that is not a water of the U.S. and not jurisdictional under CWA Section 404.

(5) PL-1 is a 5.03-acre intermittent playa feature that is not a water of the U.S. and not jurisdictional under CWA Section 404.

(6) PL-2 is a 2.42-acre intermittent playa feature that is not a water of the U.S. and not jurisdictional under CWA Section 404.

(7) PL-3 is a 0.12-acre intermittent playa feature that is not a water of the U.S. and not jurisdictional under CWA Section 404.

(8) PL-4 is a 2.09-acre intermittent playa feature that is not a water of the U.S. and not jurisdictional under CWA Section 404.

(9) PL-5 is a 0.22-acre intermittent playa feature that is not a water of the U.S. and not jurisdictional under CWA Section 404.

(10) PDD-1 is a 433-linear-foot perennial channel that is not a water of the U.S. and not jurisdictional under CWA Section 404.

(11) PHS-1 is a 55-linear-foot perennial channel that is not a water of the U.S. and not jurisdictional under CWA Section 404.

(12) E-1 is a 4,493-linear-foot non-relatively permanent (ephemeral) channel that is not a water of the U.S. and not jurisdictional under CWA Section 404.

(13) E-2 is a 4,805-linear-foot non-relatively permanent (ephemeral) channel that is not a water of the U.S. and not jurisdictional under CWA Section 404.

CESPK-RDI-U

SUBJECT: 2023 Rule, as amended, Approved Jurisdictional Determination in Light of *Sackett v. EPA*, 143 S. Ct. 1322 (2023), [SPK-2023-00249]

(14) E-3 is a 3,922-linear-foot non-relatively permanent (ephemeral) channel that is not a water of the U.S. and not jurisdictional under CWA Section 404.

(15) E-4 is a 533-linear-foot non-relatively permanent (ephemeral) channel that is not a water of the U.S. and not jurisdictional under CWA Section 404.

(16) E-5 is a 2,847-linear-foot non-relatively permanent (ephemeral) channel that is not a water of the U.S. and not jurisdictional under CWA Section 404.

(17) E-6 is a 1,543-linear-foot non-relatively permanent (ephemeral) channel that is not a water of the U.S. and not jurisdictional under CWA Section 404.

(18) E-7 is a 2,874-linear-foot non-relatively permanent (ephemeral) channel that is not a water of the U.S. and not jurisdictional under CWA Section 404.

(19) E-8 is a 862-linear-foot non-relatively permanent (ephemeral) channel that is not a water of the U.S. and not jurisdictional under CWA Section 404.

(20) E-9 is a 1,829-linear-foot non-relatively permanent (ephemeral) channel that is not a water of the U.S. and not jurisdictional under CWA Section 404.

(21) E-10 is a 1,325-linear-foot non-relatively permanent (ephemeral) channel that is not a water of the U.S. and not jurisdictional under CWA Section 404.

(22) E-11 is a 653-linear-foot non-relatively permanent (ephemeral) channel that is not a water of the U.S. and not jurisdictional under CWA Section 404.

(23) E-12 is a 188-linear-foot non-relatively permanent (ephemeral) channel that is not a water of the U.S. and not jurisdictional under CWA Section 404.

(24) E-13 is a 852-linear-foot non-relatively permanent (ephemeral) channel that is not a water of the U.S. and not jurisdictional under CWA Section 404.

(25) I-1 is a 1,629-linear-foot seasonal (intermittent) channel that is not a water of the U.S. and not jurisdictional under CWA Section 404.

(26) I-2 is a 503-linear-foot seasonal (intermittent) channel that is not a water of the U.S. and not jurisdictional under CWA Section 404.

(27) I-3 is a 1,593-linear-foot seasonal (intermittent) channel that is not a water of the U.S. and not jurisdictional under CWA Section 404.

CESPK-RDI-U

SUBJECT: 2023 Rule, as amended, Approved Jurisdictional Determination in Light of *Sackett v. EPA*, 143 S. Ct. 1322 (2023), [SPK-2023-00249]

(28) I-4 is a 209-linear-foot seasonal (intermittent) channel that is not a water of the U.S. and not jurisdictional under CWA Section 404.

(29) I-5 is a 110-linear-foot seasonal (intermittent) channel that is not a water of the U.S. and not jurisdictional under CWA Section 404.

## 2. REFERENCES.

a. "Revised Definition of 'Waters of the United States,'" 88 FR 3004 (January 18, 2023) ("2023 Rule")

b. "Revised Definition of 'Waters of the United States'; Conforming" 88 FR 61964 (September 8, 2023)

c. *Sackett v. EPA*, 598 U.S., 143 S. Ct. 1322 (2023)

3. REVIEW AREA. The 2,035.85-acre review area is located within Crescent Valley, approximately 32 miles southeast of Battle Mountain, Latitude 40.3207, Longitude - 116.4605, Eureka and Lander Counties, Nevada (AJD MFR Enclosure 1). The review area is contained entirely within the Cottonwood Creek-Crescent Valley Watershed, a closed drainage basin with no outlet. No previous JDs were found within the review area. However, multiple AJDs have been completed for sites within this watershed and all identified aquatic features have been determined to be non-jurisdictional waters due to the lack of connectivity to a TNW. The delineation maps are attached as AJD MFR Enclosure 2.

4. NEAREST TRADITIONAL NAVIGABLE WATER (TNW), THE TERRITORIAL SEAS, OR INTERSTATE WATER TO WHICH THE AQUATIC RESOURCE IS CONNECTED. N/A. Aquatic resources within the review area do not flow north into the Humboldt River which has downstream connectivity to the Humboldt Lake, a Navigable in Fact Traditionally Navigable Waterway (SPK-2023-00332).

5. FLOWPATH FROM THE SUBJECT AQUATIC RESOURCES TO A TNW, THE TERRITORIAL SEAS, OR INTERSTATE WATER. N/A. Aquatic resources within the review area do not flow to a TNW. All delineated features would have to travel at least 20 miles across desert valley floor and dry lakebed to reach the nearest jurisdictional water (Humboldt River), which flows into Humboldt Lake, the nearest TNW (AJD MFR Enclosure 3).



CESPK-RDI-U

SUBJECT: 2023 Rule, as amended, Approved Jurisdictional Determination in Light of *Sackett v. EPA*, 143 S. Ct. 1322 (2023), [SPK-2023-00249]

6. SECTION 10 JURISDICTIONAL WATERS<sup>5</sup>: N/A.

7. SECTION 404 JURISDICTIONAL WATERS:

- a. Traditional Navigable Waters (TNWs) (a)(1)(i): N/A.
- b. The Territorial Seas (a)(1)(ii): N/A.
- c. Interstate Waters (a)(1)(iii): N/A.
- d. Impoundments (a)(2): N/A.
- e. Tributaries (a)(3): N/A.
- f. Adjacent Wetlands (a)(4): N/A.
- g. Additional Waters (a)(5): N/A.

8. NON-JURISDICTIONAL AQUATIC RESOURCES AND FEATURES

a. Describe aquatic resources and other features within the review area identified in the 2023 Rule as amended as not “waters of the United States” even where they otherwise meet the terms of paragraphs (a)(2) through (5). Include the type of excluded aquatic resource or feature, the size of the aquatic resource or feature within the review area and describe how it was determined to meet one of the exclusions listed in 33 CFR 328.3(b).<sup>6</sup> N/A.

b. Describe aquatic resources and features within the review area that were determined to be non-jurisdictional because they do not meet one or more categories of waters of the United States under the 2023 Rule as amended (e.g., tributaries that are non-relatively permanent waters; non-tidal wetlands that do not have a continuous surface connection to a jurisdictional water). Wetlands A-1, A-2, B, and C, totaling 2.18 acres, occur in drainage swales that dissipate within or not far outside the review area boundary. Wetland A-1 (2 acres on the south side of Danna Road) and Wetland A-2 (0.02 acre on the north side of Danna Road) are connected via culvert under Danna Road. Wetland A extends off site to the northwest and contributes seasonal flow to the larger Crescent Valley Playa feature or dissipates before reaching it. Wetland B (0.12

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<sup>5</sup> 33 CFR 329.9(a) A waterbody which was navigable in its natural or improved state, or which was susceptible of reasonable improvement (as discussed in § 329.8(b) of this part) retains its character as “navigable in law” even though it is not presently used for commerce or is presently incapable of such use because of changed conditions or the presence of obstructions.

<sup>6</sup> 88 FR 3004 (January 18, 2023)

CESPK-RDI-U

SUBJECT: 2023 Rule, as amended, Approved Jurisdictional Determination in Light of *Sackett v. EPA*, 143 S. Ct. 1322 (2023), [SPK-2023-00249]

acre) is located in the drainage channel of Crescent Fault Hot Spring, which is just outside the review area. Moving down gradient, Wetland B becomes a channel with intermittent flow (I-1), then ephemeral flow (E-9), and finally spreads out and dissipates off site. Wetland C (0.03 acre) is located in the drainage channel of an unnamed hot spring. Moving down gradient, Wetland C becomes a channel with intermittent flow (I-2), then ephemeral flow (E-13), and finally spreads out and dissipates within the review area. All four wetland features have no continuous surface connection to a jurisdictional water.

Pond 1 sits in a small depression parallel to the north side of Danna Road and is intermittently inundated. There are no apparent signs of frequent inflow or outflow, and the hydrology sources are primarily precipitation and seasonal high water table. Any potential drainage from the pond would flow northwest toward Crescent Valley Playa. Only a small portion of the pond (0.02 acre) is within the review area boundary.

The two segments of perennial channel in the review area, consisting of PDD-1 (433 linear feet) and PHS-1 (55 linear feet), flow generally northwest and transition to intermittent and ephemeral channels before dissipating entirely in uplands. These channels have no potential connection to downstream jurisdictional waters.

Intermittent/seasonal channel segments within the review area consist of I-1 through I-5 and total 4,044 linear feet. These channels flow generally northwest and transition to ephemeral channels before dissipating entirely in uplands. These channels have no potential connection to downstream jurisdictional waters.

Non-relatively permanent (ephemeral) channel segments within the review area consist of E-1 through E-13 and total 26,725 linear feet. These channels flow generally northwest and dissipate entirely in uplands. These channels have no potential connection to downstream jurisdictional waters.

9. DATA SOURCES. List sources of data/information used in making determination. Include titles and dates of sources used and ensure that information referenced is available in the administrative record.

a. [REDACTED], Inc. 2024. "Aquatic Resource Delineation-Crescent Valley Geothermal Development Project". The consultant prepared the wetland delineation report in accordance with the U.S. Army Corps of Engineers 1987 Wetland Delineation Manual and the USACE Regional Supplement for the Arid West Region. The Corps disagreed with some of the wetland and channel boundaries in the applicant's initial delineation submitted on February 9, 2023. Through coordination with the agent, the Corps accepted the May 16, 2024 revised delineation for the site.

CESPK-RDI-U

SUBJECT: 2023 Rule, as amended, Approved Jurisdictional Determination in Light of *Sackett v. EPA*, 143 S. Ct. 1322 (2023), [SPK-2023-00249]

b. Google Earth 7.3.6.10201. Aerial images dated June 1994, May 2006, August 2010, May 2014, and October 2024. Accessed April 8, 2024 and April 2, 2025.

c. LiDAR - National Layer in the National Regulatory Viewer for the South Pacific Division. Accessed April 2, 2025.

d. USACE, OMBIL Regulatory Module, 2023. Corpsmap. Accessed April 2, 2025. (<https://orm.ops.usace.army.mil/>).

e. Office evaluations conducted April 8, 2024 and April 2, 2025.

10. OTHER SUPPORTING INFORMATION. All delineated features within the review area flow generally northwest and terminate in either upland/alluvial fan areas or in the Crescent Valley Playa. A review of available information demonstrated that flows terminating in the Crescent Valley playa are not sufficient to leave the HUC 10 watershed or flow north into the Humboldt River. Per the Amended 2023 Water Rule, all aquatic resources within the review area meet the definition of intrastate waters with no downstream continuous surface connection to TNW. Multiple previous AJDs within this watershed, such as SPK-2017-00476 (February 16, 2024), have made this same finding and further support the non-jurisdictional status of delineated features on site.

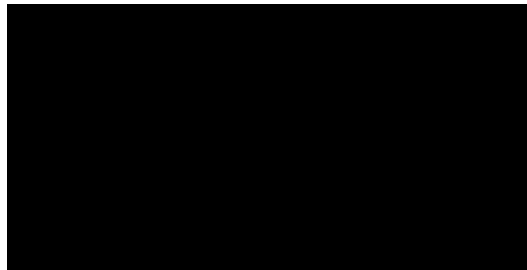
11. NOTE: The structure and format of this MFR were developed in coordination with the EPA and Department of the Army. The MFR's structure and format may be subject to future modification or may be rescinded as needed to implement additional guidance from the agencies; however, the approved jurisdictional determination described herein is a final agency action.

3 Enclosures

AJD MFR Encl 1- Vicinity Map

AJD MFR Encl 2- Delineation Maps

AJD MFR Encl 3- TNW Map





117.071°W  
41.032°N

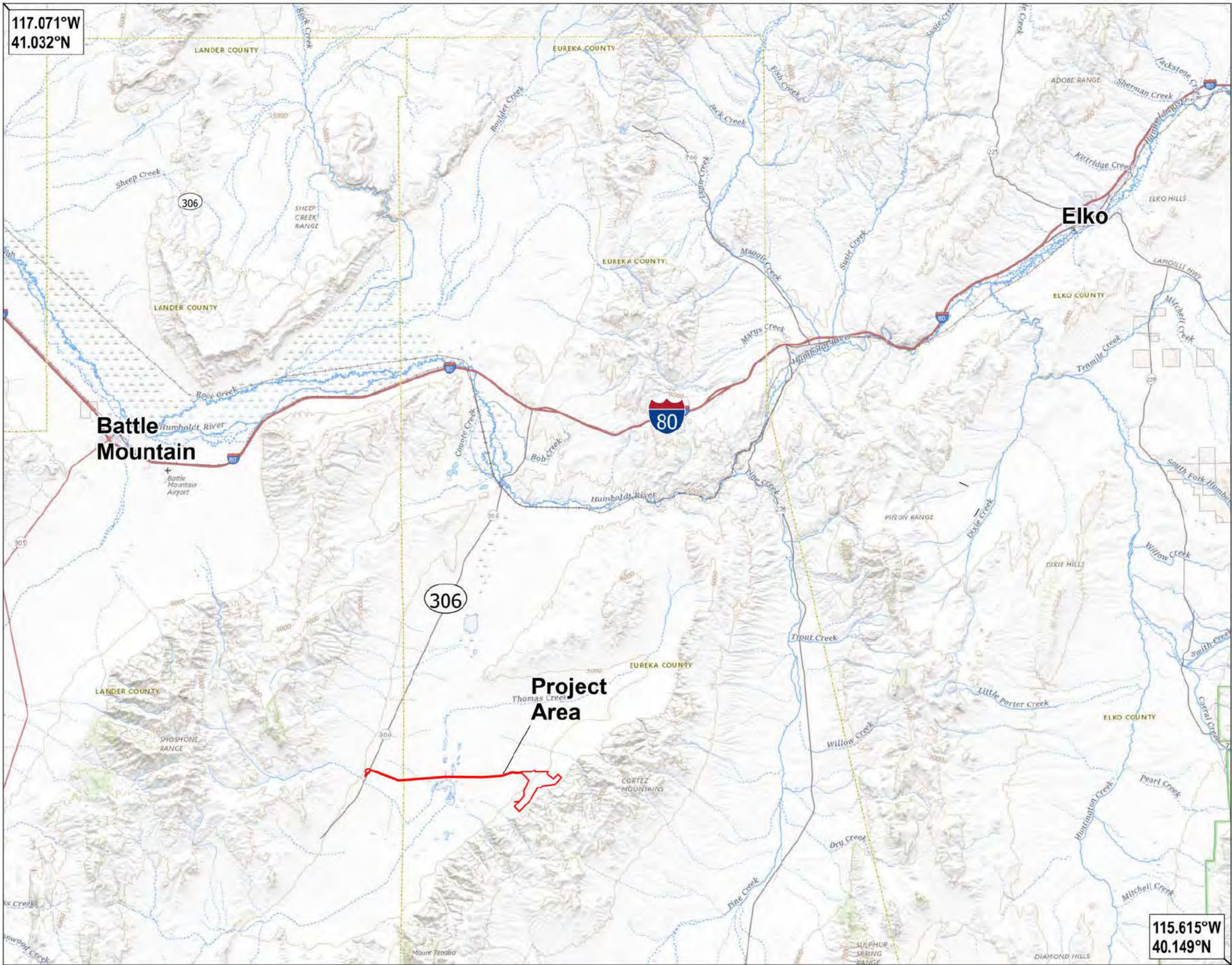


Figure No.

1

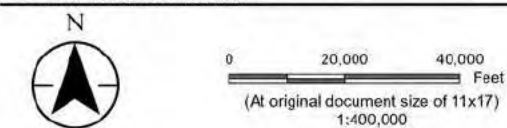
Title

Project Vicinity

Client/Project

Crescent Valley Geothermal Development Project  
Aquatic Resource Delineation Report

Project Location S2-S, S8-10, S17 T28N R49E; S1-6 T28N R48E; S1-2 T28N 47E;  
S35 T29N 47E; Eureka & Lander Co., NV Prepared by [REDACTED] on 4/25/2024



## Legend

Project Area



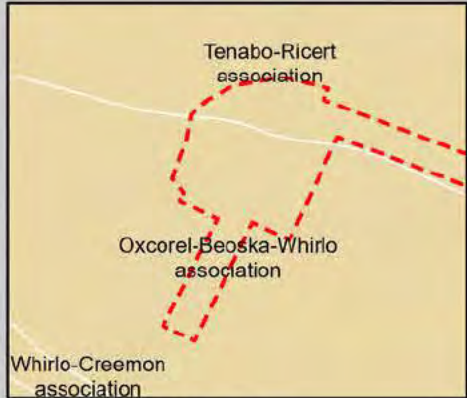
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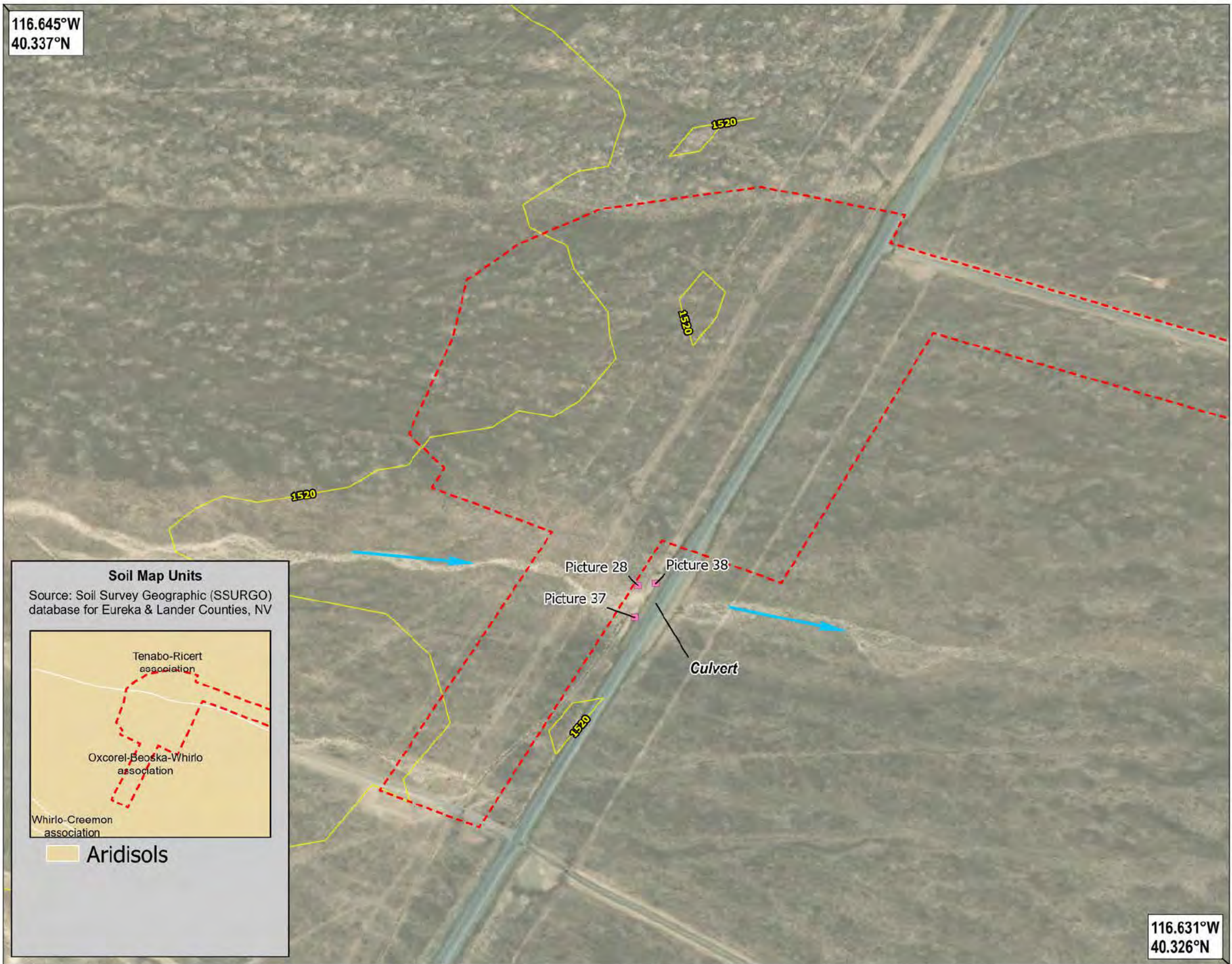
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40.337°N

**Soil Map Units**

Source: Soil Survey Geographic (SSURGO) database for Eureka & Lander Counties, NV



**Aridisols**

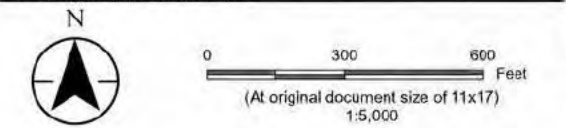


116.631°W  
40.326°N

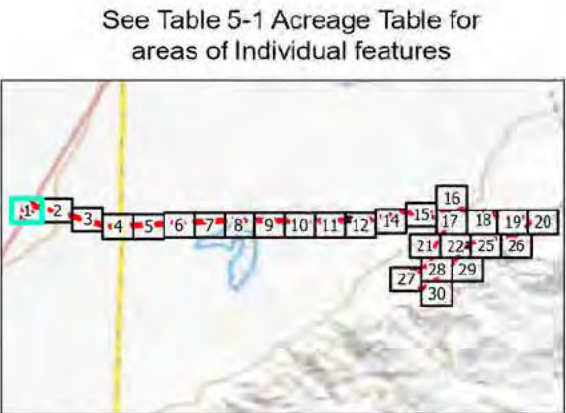
Appendix  
**A**  
Title  
**Potentially Jurisdictional Waters**

Client/Project  
Crescent Valley Geothermal Development Project  
Aquatic Resource Delineation Report

Project Location  
S2-5, S8-10, S17 T28N R49E; S1-6 T28N R48E; S1-2 T28N 47E;  
S35 T29N 47E; Eureka & Lander Co., NV



- Legend**
- Other Project Features**
- Delineation Area (2035.85ac total)
  - Photo points
  - Flow Direction
- Topographic Features**
- Contours (20m)



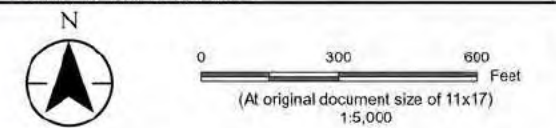
Notes

- Coordinate System: GCS WGS 1984
- Data Sources: NRCS
- Background: ESRI, MAXAR
- Field Delineated August 2022, Revised April 2024



116.631°W  
40.337°N

Client/Project  
Crescent Valley Geothermal Development Project  
Aquatic Resource Delineation Report  
Project Location  
S2-5, S8-10, S17 T28N R49E; S1-6 T28N R48E; S1-2 T28N 47E;  
S35 T29N 47E; Eureka & Lander Co., NV



- Legend**
- Other Project Features**
- Delineation Area (2035.85ac total)
- Topographic Features**
- Contours (20m)

**Soil Map Units**

Source: Soil Survey Geographic (SSURGO) database for Eureka & Lander Counties, NV

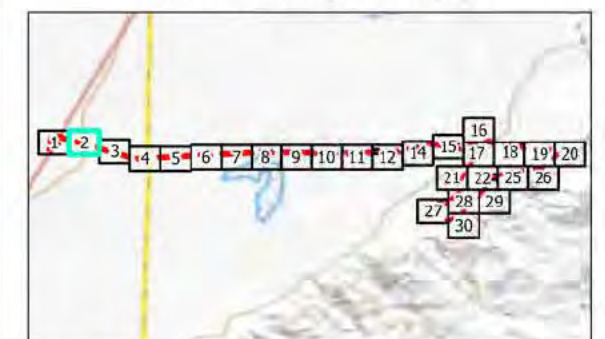
Tenabo-Ricert association

Oxcorel-Beoska-Whirlo association

Aridisols

116.617°W  
40.326°N

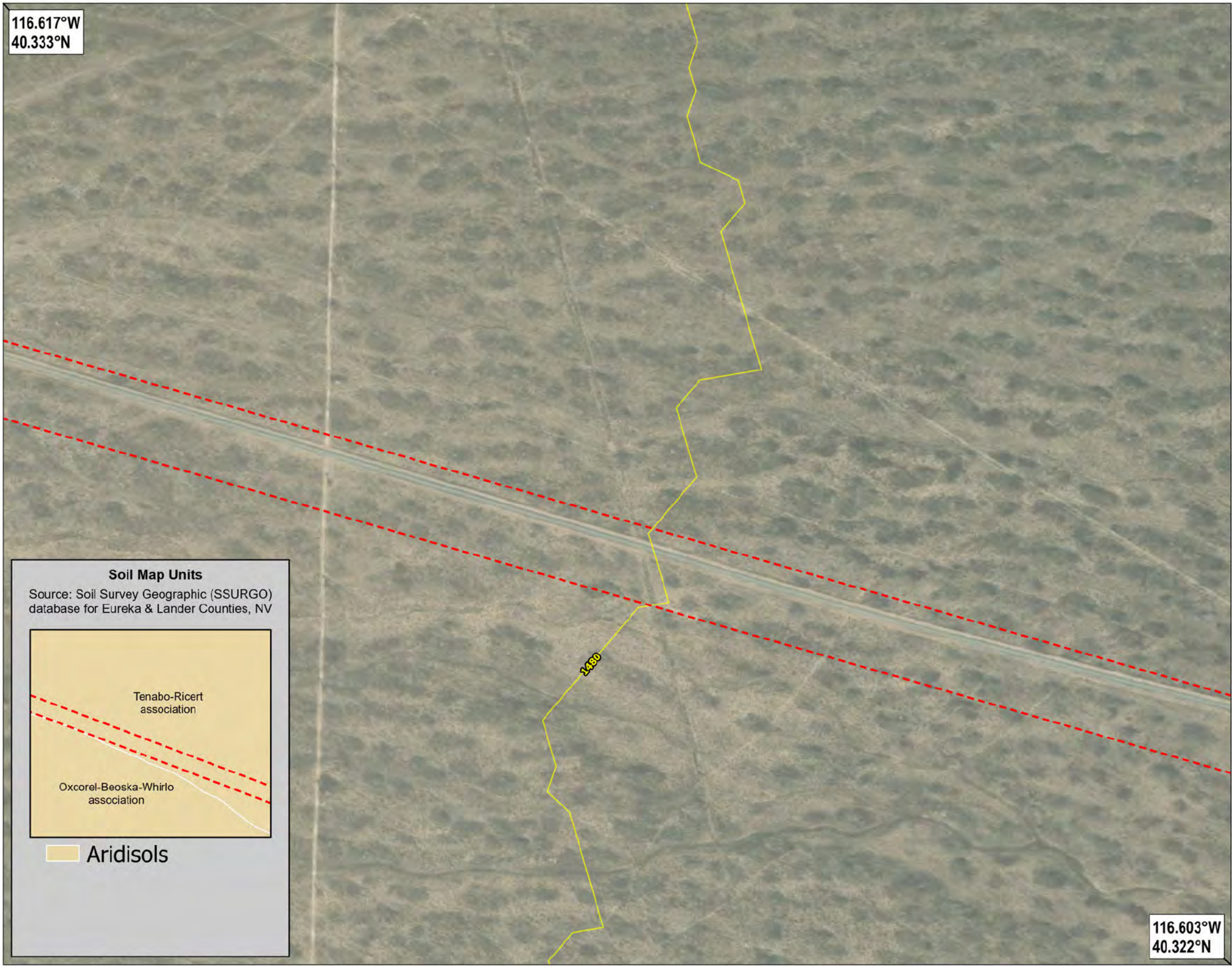
See Table 5-1 Acreage Table for areas of individual features



- Notes**
- Coordinate System: GCS WGS 1984
  - Data Sources: NRCS
  - Background: ESRI, MAXAR
  - Field Delineated August 2022, Revised April 2024

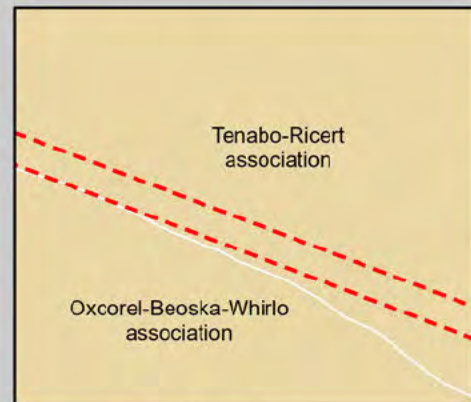


116.617°W  
40.333°N



#### Soil Map Units

Source: Soil Survey Geographic (SSURGO)  
database for Eureka & Lander Counties, NV



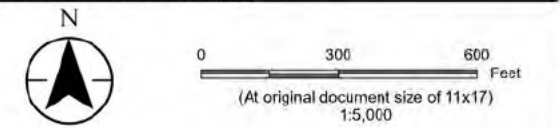
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Appendix A Sheet No. 3

### Potentially Jurisdictional Waters

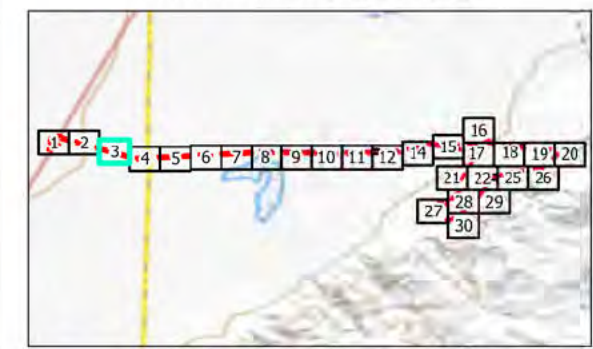
Client/Project  
Crescent Valley Geothermal Development Project  
Aquatic Resource Delineation Report

Project Location  
S2-5, S8-10, S17 T28N R49E; S1-6 T28N R48E; S1-2 T28N 47E;  
S35 T29N 47E; Eureka & Lander Co., NV



- ### Legend
- #### Other Project Features
- Delineation Area (2035.85ac total)
- #### Topographic Features
- Contours (20m)

See Table 5-1 Acreage Table for  
areas of individual features



- Notes
- Coordinate System: GCS WGS 1984
  - Data Sources: NRCS
  - Background: ESRI, MAXAR
  - Field Delineated August 2022, Revised April 2024



116.603°W  
40.33°N

**Soil Map Units**

Source: Soil Survey Geographic (SSURGO) database for Eureka & Lander Counties, NV

Tenabo-Ricert association

Tenabo-Ricert association

Oxcorel-Beoska-Whirlo association

Whirlo-Creemon association

Whirlo-Creemon association

**Aridisols**

Appendix  
**A**

Sheet No.  
**4**

Title  
**Potentially Jurisdictional Waters**

Client/Project  
Crescent Valley Geothermal Development Project  
Aquatic Resource Delineation Report

Project Location  
S2-5, S8-10, S17 T28N R49E; S1-6 T28N R48E; S1-2 T28N 47E;  
S35 T29N 47E; Eureka & Lander Co., NV

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**Legend**

**Other Project Features**

Delineation Area (2035.85ac total)

**Topographic Features**

Contours (20m)

See Table 5-1 Acreage Table for areas of individual features

Notes

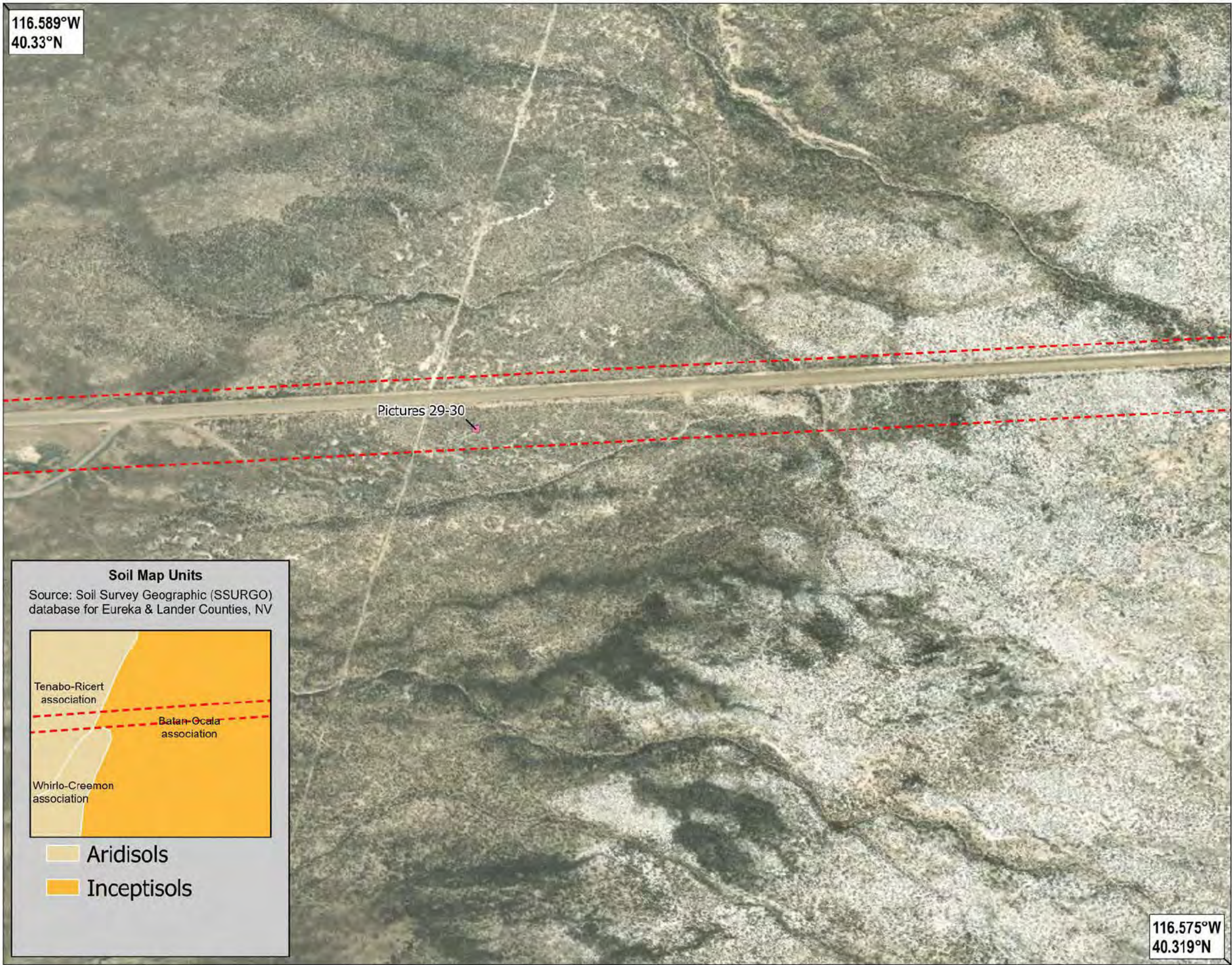
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- Data Sources: NRCS
- Background: ESRI, MAXAR
- Field Delineated August 2022, Revised April 2024

116.589°W  
40.319°N

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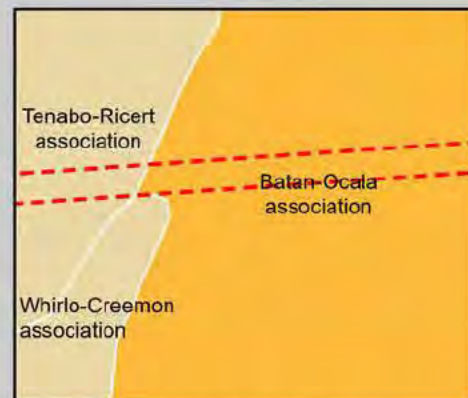


116.589°W  
40.33°N



#### Soil Map Units

Source: Soil Survey Geographic (SSURGO)  
database for Eureka & Lander Counties, NV



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116.575°W  
40.319°N

Appendix A Sheet No. 5

## Potentially Jurisdictional Waters

Client/Project

Crescent Valley Geothermal Development Project  
Aquatic Resource Delineation Report

Project Location

S2-5, S8-10, S17 T28N R49E; S1-6 T28N R48E; S1-2 T28N 47E;  
S35 T29N 47E; Eureka & Lander Co., NV



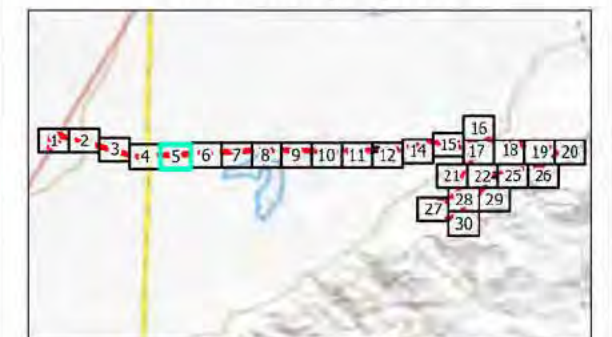
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## Legend

### Other Project Features

- Delineation Area (2035.85ac total)
- Photo points

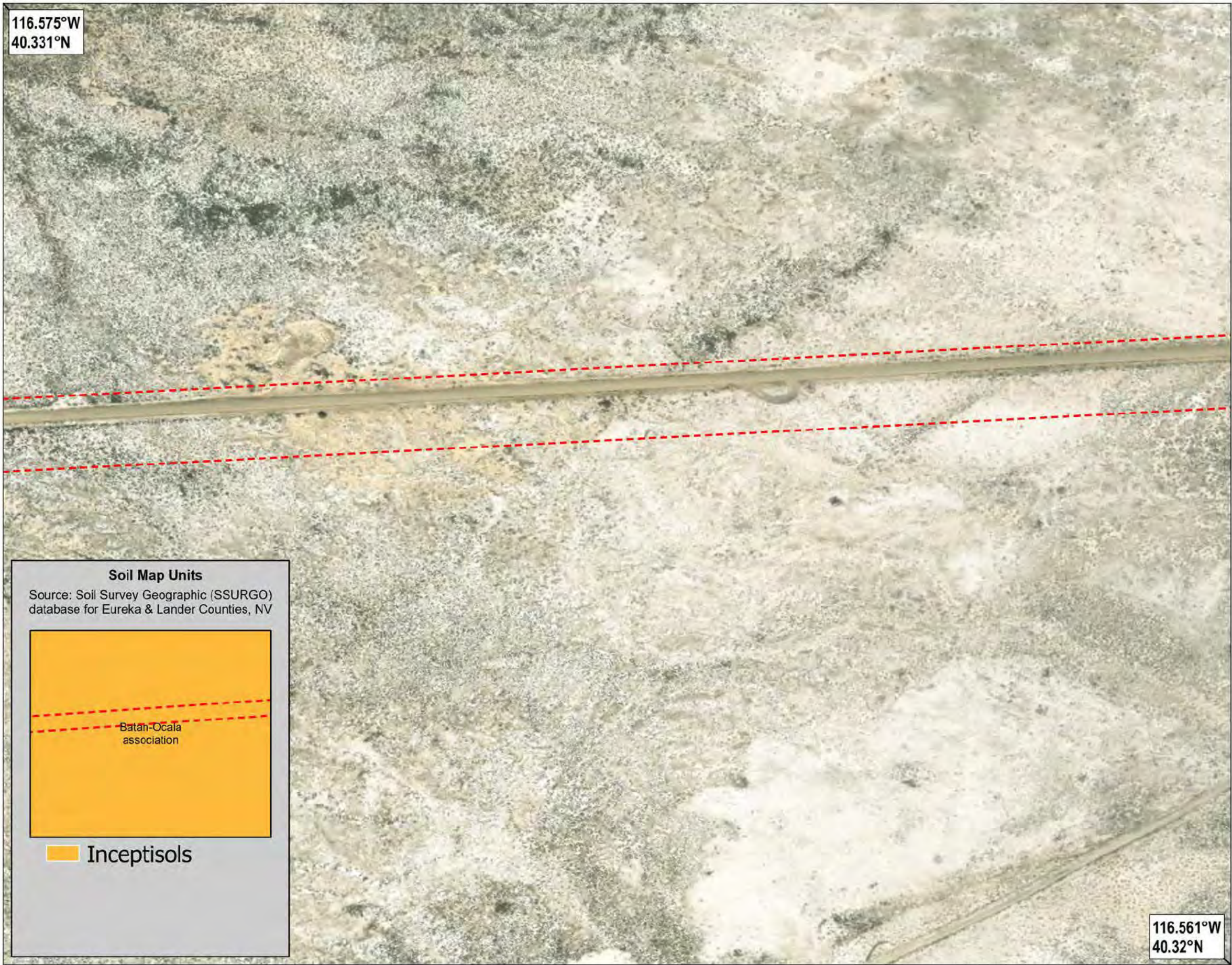
See Table 5-1 Acreage Table for  
areas of individual features



Notes  
1. Coordinate System: GCS WGS 1984  
2. Data Sources: [redacted] NRCS  
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4. Field Delineated August 2022, Revised April 2024

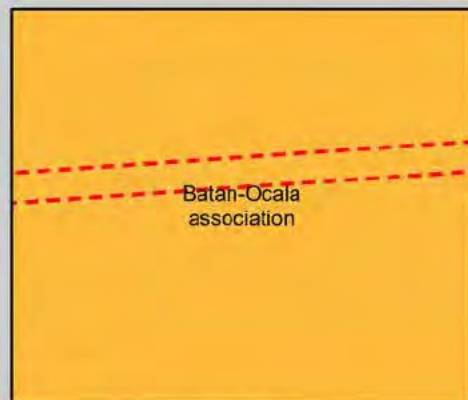


116.575°W  
40.331°N



#### Soil Map Units

Source: Soil Survey Geographic (SSURGO)  
database for Eureka & Lander Counties, NV



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Appendix Sheet No.

A 6

## Potentially Jurisdictional Waters

Client/Project

Crescent Valley Geothermal Development Project  
Aquatic Resource Delineation Report

Project Location

S2-5, S8-10, S17 T28N R49E; S1-6 T28N R48E; S1-2 T28N 47E;  
S35 T29N 47E; Eureka & Lander Co., NV



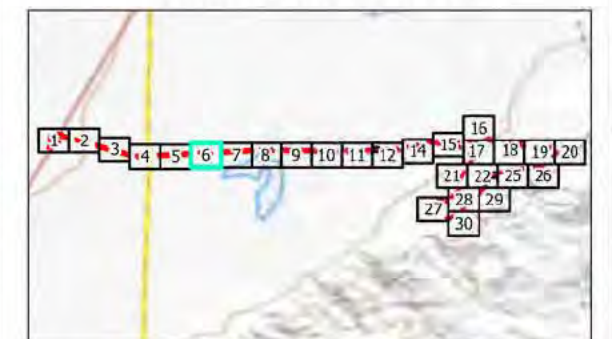
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## Legend

### Other Project Features

Delineation Area (2035.85ac total)

See Table 5-1 Acreage Table for  
areas of individual features



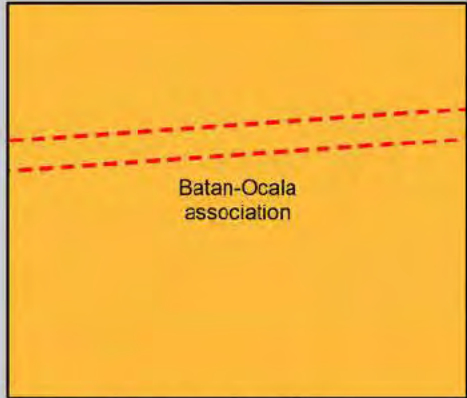
Notes  
1. Coordinate System: GCS WGS 1984  
2. Data Sources: NRCSS  
3. Background: ESRI, MAXAR  
4. Field Delineated August 2022, Revised April 2024

116.561°W  
40.32°N



116.561°W  
40.331°N

**Soil Map Units**  
Source: Soil Survey Geographic (SSURGO) database for Eureka & Lander Counties, NV

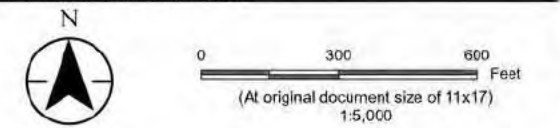


Batan-Ocala association

Inceptisols

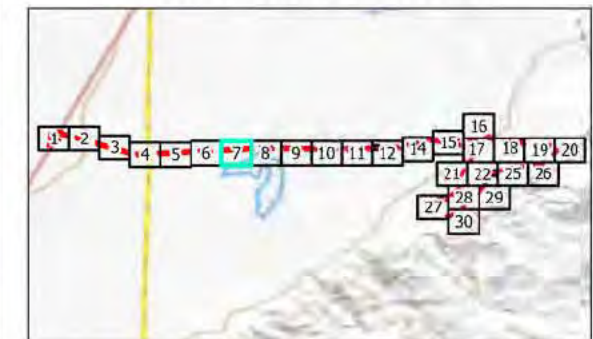
Client/Project  
Crescent Valley Geothermal Development Project  
Aquatic Resource Delineation Report

Project Location  
S2-5, S8-10, S17 T28N R49E; S1-6 T28N R48E; S1-2 T28N 47E;  
S35 T29N 47E; Eureka & Lander Co., NV



- Legend**
- Other Project Features**
- Delineation Area (2035.85ac total)
- Topographic Features**
- Contours (20m)

See Table 5-1 Acreage Table for areas of individual features



- Notes
- Coordinate System: GCS WGS 1984
  - Data Sources: NRCSS
  - Background: ESRI, MAXAR
  - Field Delineated August 2022, Revised April 2024

116.547°W  
40.32°N

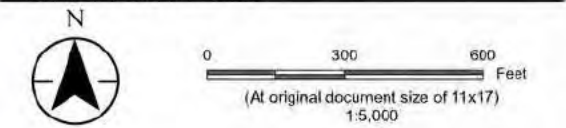
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116.547°W  
40.331°N

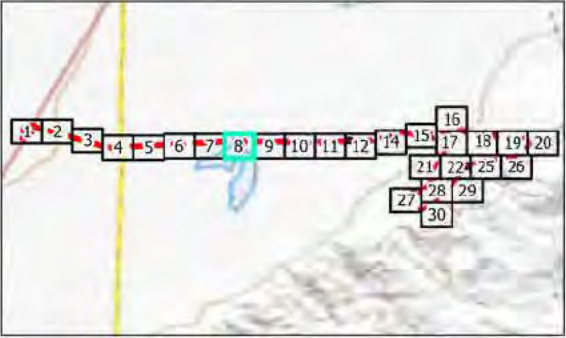


Client/Project  
Crescent Valley Geothermal Development Project  
Aquatic Resource Delineation Report  
Project Location  
S2-5, S8-10, S17 T28N R49E; S1-6 T28N R48E; S1-2 T28N 47E;  
S35 T29N 47E; Eureka & Lander Co., NV



- Legend**
- Other Project Features**
- Delineation Area (2035.85ac total)
  - Wetland Data Points
  - Photo points
  - Flow Direction
- Potentially Jurisdictional Waters**
- Playa Lake
- Topographic Features**
- Contours (20m)

See Table 5-1 Acreage Table for areas of individual features

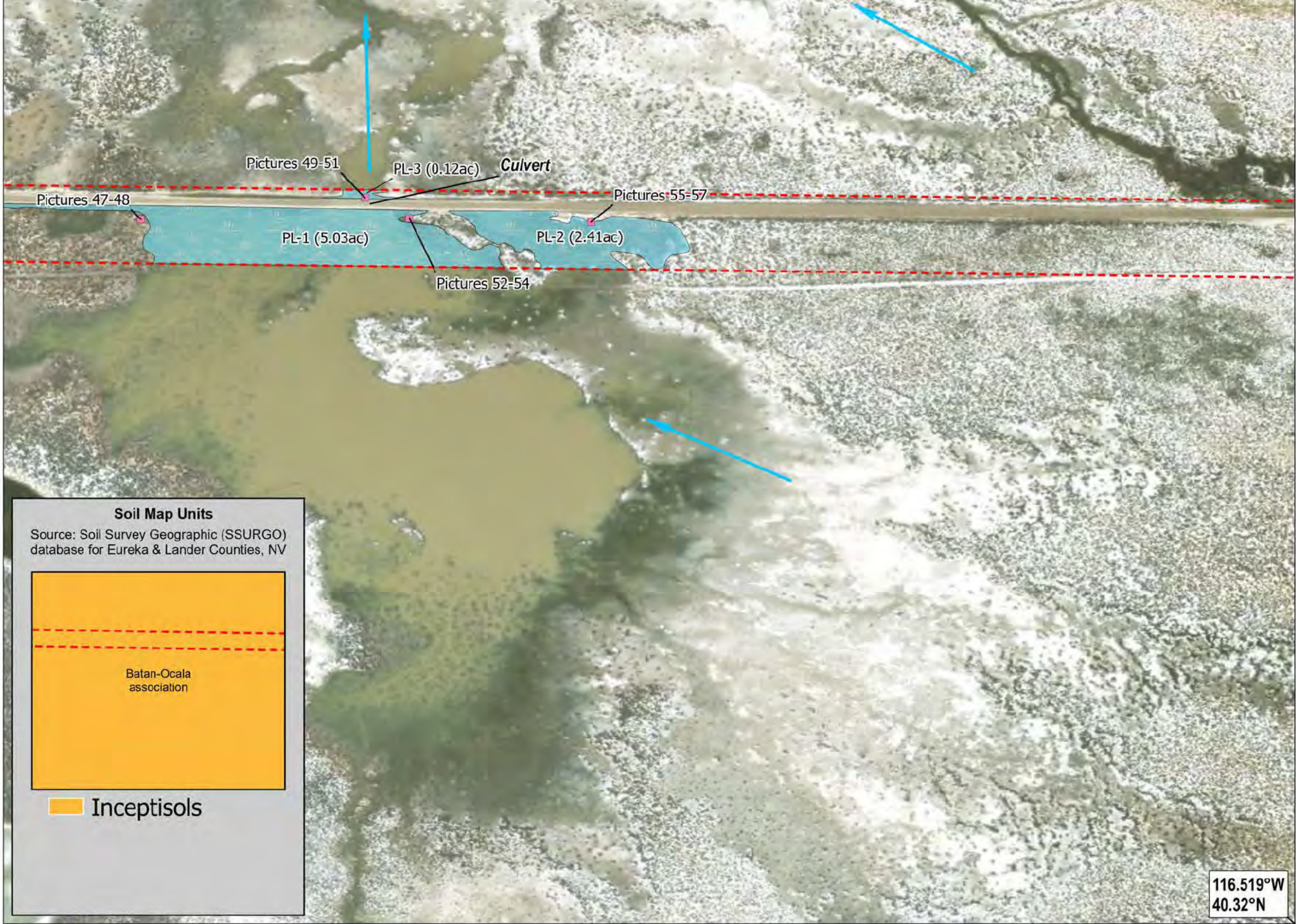


Notes  
1. Coordinate System: GCS WGS 1984  
2. Data Sources: NRCS  
3. Background: ESRI, MAXAR  
4. Field Delineated August 2022, Revised April 2024

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116.533°W  
40.331°N



#### Soil Map Units

Source: Soil Survey Geographic (SSURGO)  
database for Eureka & Lander Counties, NV

Batan-Ocala  
association

Inceptisols

Appendix Sheet No.

A 9

### Potentially Jurisdictional Waters

Client/Project

Crescent Valley Geothermal Development Project  
Aquatic Resource Delineation Report

Project Location

S2-5, S8-10, S17 T28N R49E; S1-6 T28N R48E; S1-2 T28N 47E;  
S35 T29N 47E; Eureka & Lander Co., NV



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(At original document size of 11x17)  
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### Legend

#### Other Project Features

--- Delineation Area (2035.85ac total)

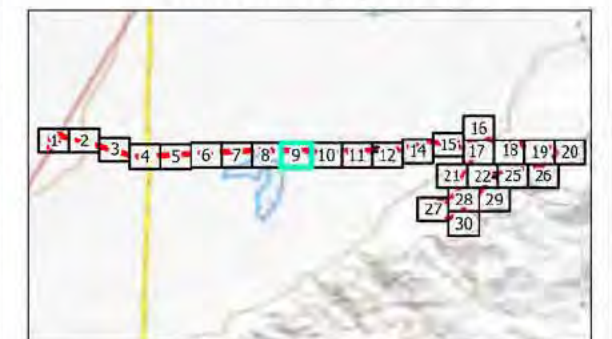
■ Photo points

→ Flow Direction

#### Potentially Jurisdictional Waters

Playa Lake

See Table 5-1 Acreage Table for  
areas of individual features



Notes  
1. Coordinate System: GCS WGS 1984  
2. Data Sources: NRCS  
3. Background: ESRI, MAXAR  
4. Field Delineated August 2022, Revised April 2024

116.519°W  
40.32°N

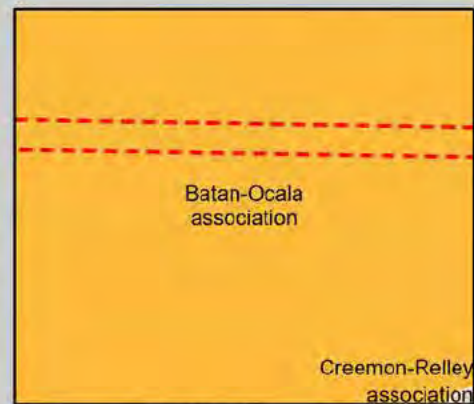


116.519°W  
40.331°N

Wetland A-2 (0.02ac)  
Pictures 58-59  
DP-3  
DP-2  
Pictures 9-10  
Pictures 7-8  
Pictures 60-63  
Culvert  
Pictures 64-65  
Wetland A-1 (2.00ac)  
Wetland Outside of Project Area (2.27ac)

#### Soil Map Units

Source: Soil Survey Geographic (SSURGO)  
database for Eureka & Lander Counties, NV



Aridisols  
Inceptisols

Appendix Sheet No.

A 10

### Potentially Jurisdictional Waters

Client/Project

Crescent Valley Geothermal Development Project  
Aquatic Resource Delineation Report

Project Location

S2-S, S8-10, S17 T28N R49E; S1-6 T28N R48E; S1-2 T28N 47E;  
S35 T29N 47E; Eureka & Lander Co., NV



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1:5,000

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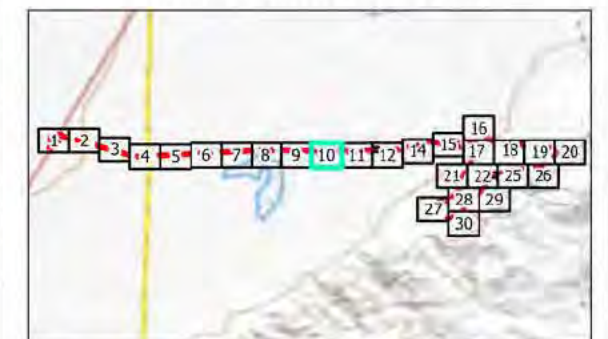
#### Other Project Features

- Delineation Area (2035.85ac total)
- Wetland Data Points
- Photo points
- Flow Direction

#### Potentially Jurisdictional Waters

- Wetland
- Wetland Outside of Project Area

See Table 5-1 Acreage Table for  
areas of individual features

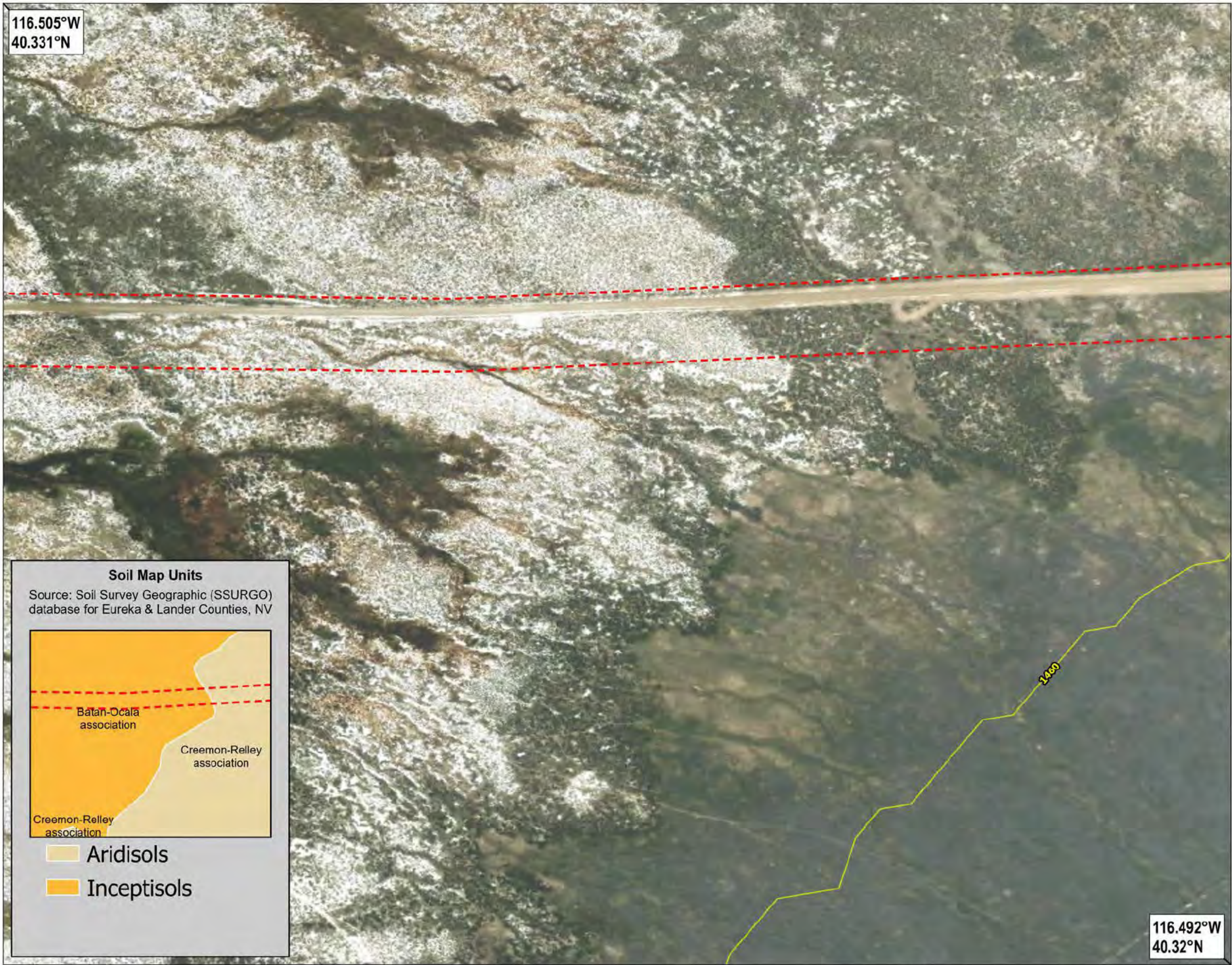


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2. Data Sources: [redacted], NRCS  
3. Background: ESRI, MAXAR  
4. Field Delineated August 2022, Revised April 2024

116.505°W  
40.32°N

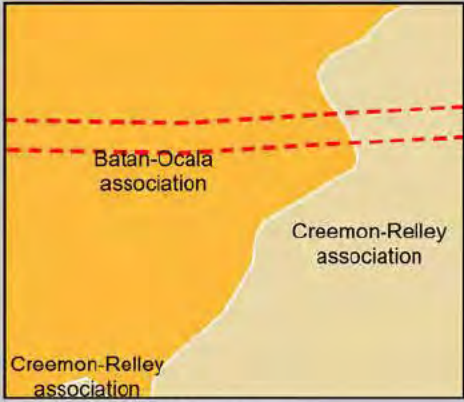


116.505°W  
40.331°N



**Soil Map Units**

Source: Soil Survey Geographic (SSURGO)  
database for Eureka & Lander Counties, NV



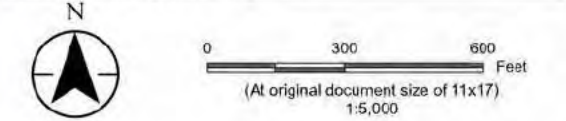
Aridisols  
Inceptisols

Appendix A Sheet No. 11

**Potentially Jurisdictional Waters**

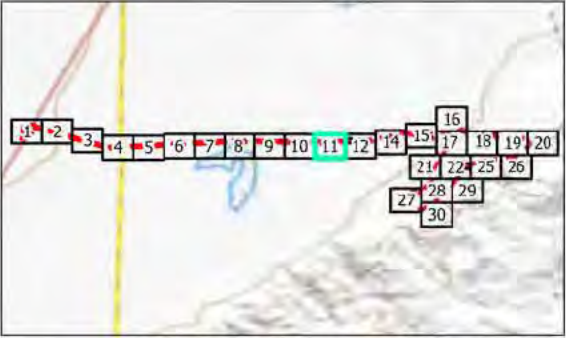
**Client/Project**  
Crescent Valley Geothermal Development Project  
Aquatic Resource Delineation Report

**Project Location**  
S2-5, S8-10, S17 T28N R49E; S1-6 T28N R48E; S1-2 T28N 47E;  
S35 T29N 47E; Eureka & Lander Co., NV



- Legend**
- Other Project Features**
- Delineation Area (2035.85ac total)
- Topographic Features**
- Contours (20m)

See Table 5-1 Acreage Table for  
areas of individual features

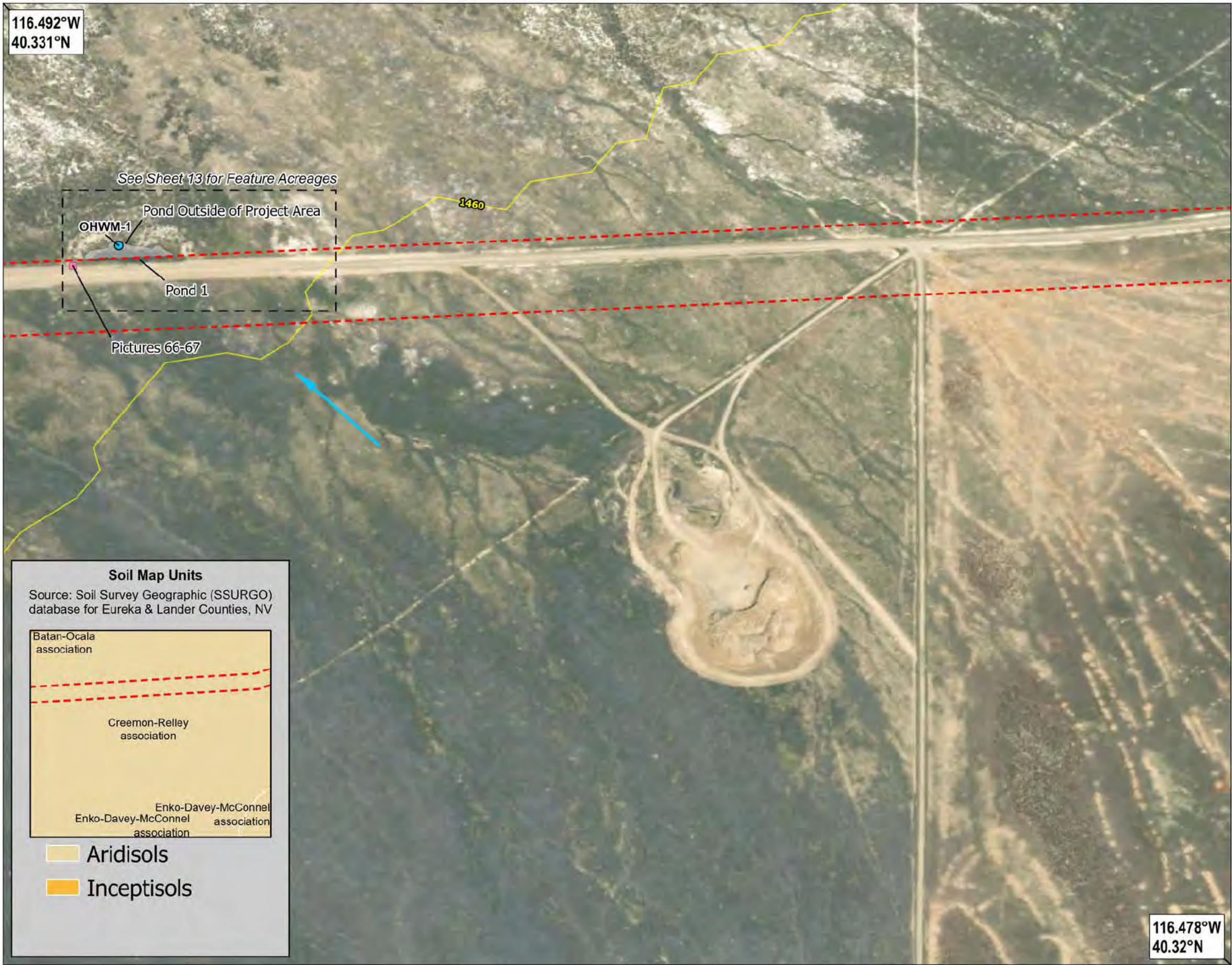


- Notes**
- 1. Coordinate System: GCS WGS 1984
  - 2. Data Sources: [redacted], NRCS
  - 3. Background: ESRI, MAXAR
  - 4. Field Delineated August 2022, Revised April 2024

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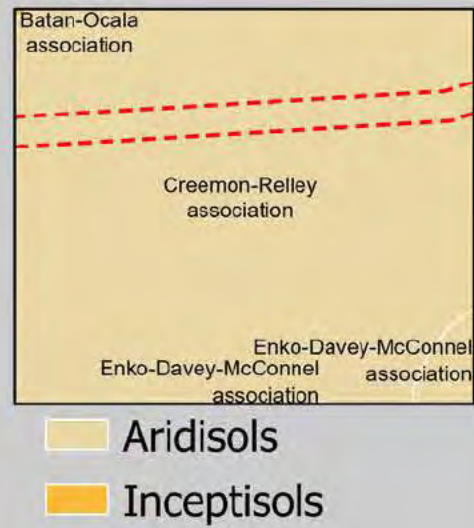


116.492°W  
40.331°N



#### Soil Map Units

Source: Soil Survey Geographic (SSURGO) database for Eureka & Lander Counties, NV



Appendix Sheet No.

A 12

#### Potentially Jurisdictional Waters

Client/Project

Crescent Valley Geothermal Development Project  
Aquatic Resource Delineation Report

Project Location

S2-5, S8-10, S17 T28N R49E; S1-6 T28N R48E; S1-2 T28N 47E;  
S35 T29N 47E; Eureka & Lander Co., NV



0 300 600 Feet  
(At original document size of 11x17)  
1:5,000

#### Legend

##### Other Project Features

- Delineation Area (2035.85ac total)
- OHWM Data Points
- Photo points
- Flow Direction

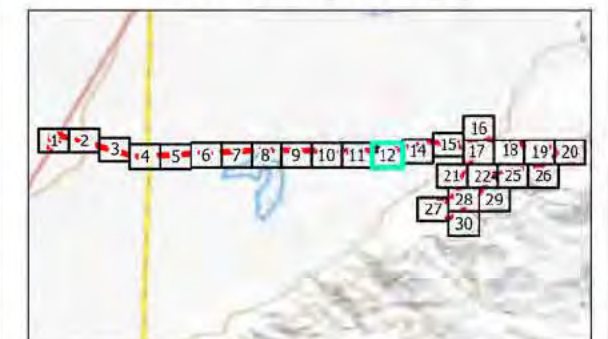
##### Potentially Jurisdictional Waters

- Pond
- Pond Outside of Project Area

##### Topographic Features

- Contours (20m)

See Table 5-1 Acreage Table for  
areas of individual features



Notes  
1. Coordinate System: GCS WGS 1984  
2. Data Sources: [redacted] NRCS  
3. Background: ESRI, MAXAR  
4. Field Delineated August 2022, Revised April 2024



116.492°W  
40.329°N

OHWM-1

Other Waters Outside of Project Area (0.29ac)

Pictures 66-67

Pond 1 (0.02ac)

#### Soil Map Units

Source: Soil Survey Geographic (SSURGO)  
database for Eureka & Lander Counties, NV

Cremon-Relley  
association

Aridisols

Appendix Sheet No.

A 13

## Potentially Jurisdictional Waters

Client/Project

Crescent Valley Geothermal Development Project  
Aquatic Resource Delineation Report

Project Location

S2-S, S8-10, S17 T28N R49E; S1-6 T28N R48E; S1-2 T28N 47E;  
S35 T29N 47E; Eureka & Lander Co., NV



0 60 120 Feet  
(At original document size of 11x17)  
1:1,000

## Legend

### Other Project Features

--- Delineation Area (2035.85ac total)

● OHWM Data Points

■ Photo points

### Potentially Jurisdictional Waters

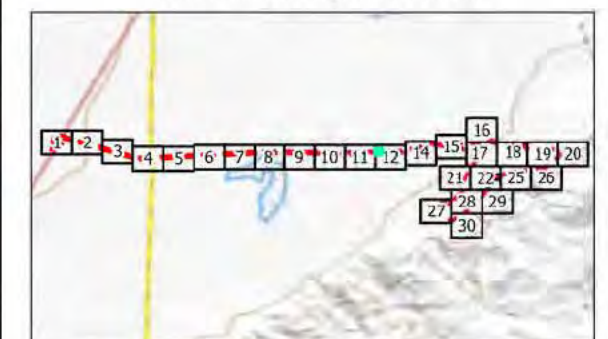
Pond

Pond Outside of Project Area

### Topographic Features

Contours (20m)

See Table 5-1 Acreage Table for  
areas of individual features



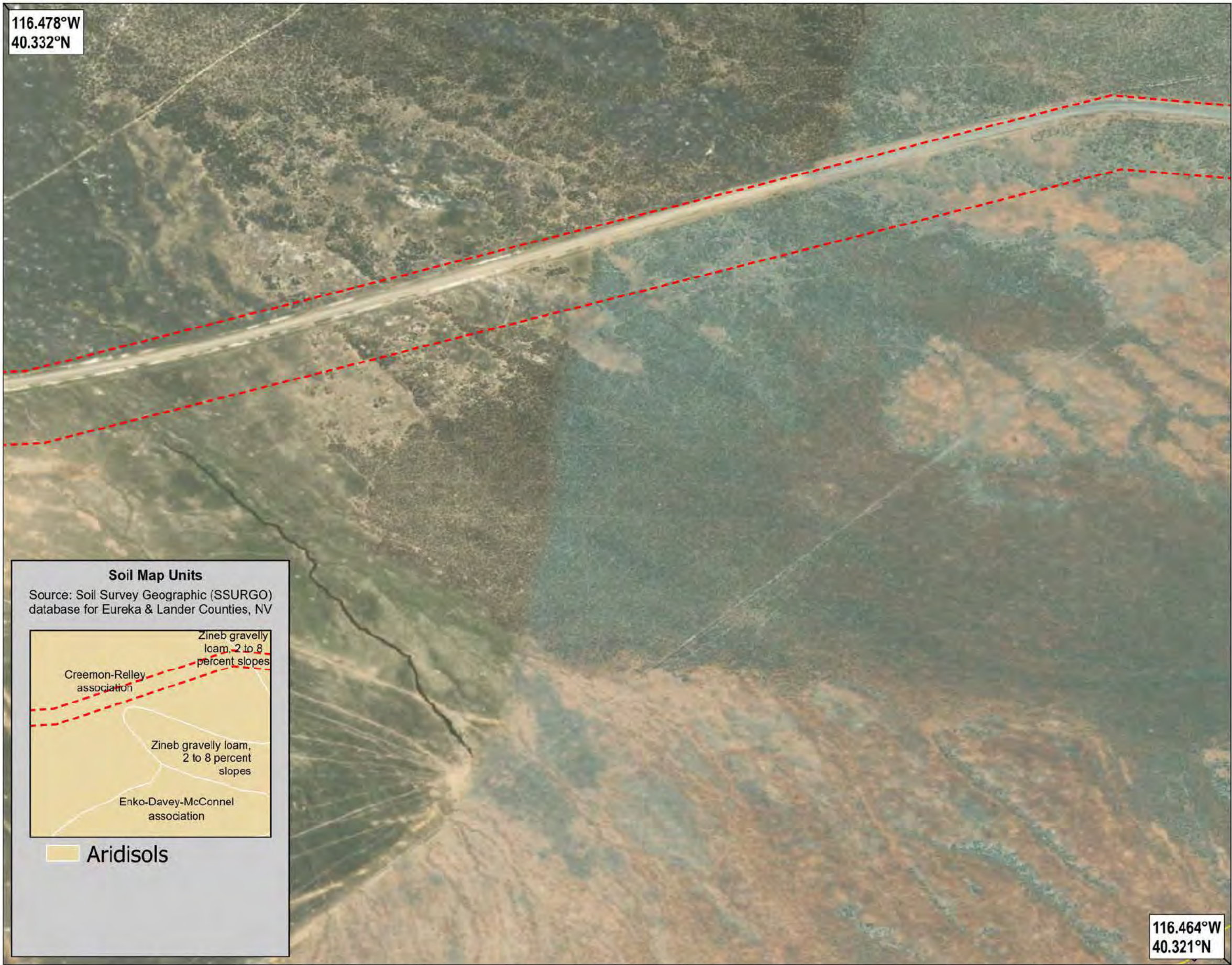
Notes  
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2. Data Sources: [redacted] NRCS  
3. Background: ESRI, MAXAR  
4. Field Delineated August 2022, Revised April 2024

116.489°W  
40.326°N

1460

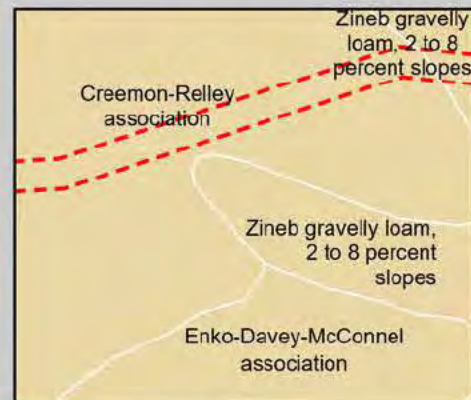


116.478°W  
40.332°N



#### Soil Map Units

Source: Soil Survey Geographic (SSURGO)  
database for Eureka & Lander Counties, NV



Aridisols

116.464°W  
40.321°N

Appendix Sheet No.

A 14

### Potentially Jurisdictional Waters

Client/Project

Crescent Valley Geothermal Development Project  
Aquatic Resource Delineation Report

Project Location

S2-5, S8-10, S17 T28N R49E; S1-6 T28N R48E; S1-2 T28N 47E;  
S35 T29N 47E; Eureka & Lander Co., NV



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### Legend

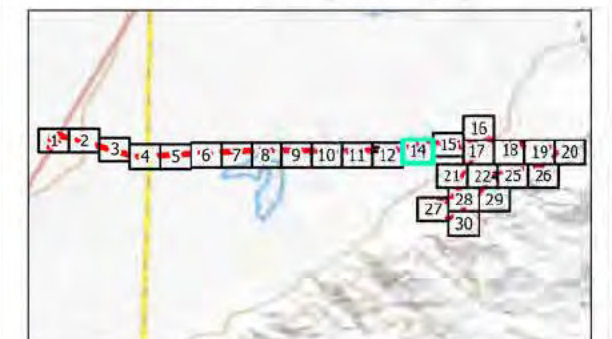
#### Other Project Features

Delineation Area (2035.85ac total)

#### Topographic Features

Contours (20m)

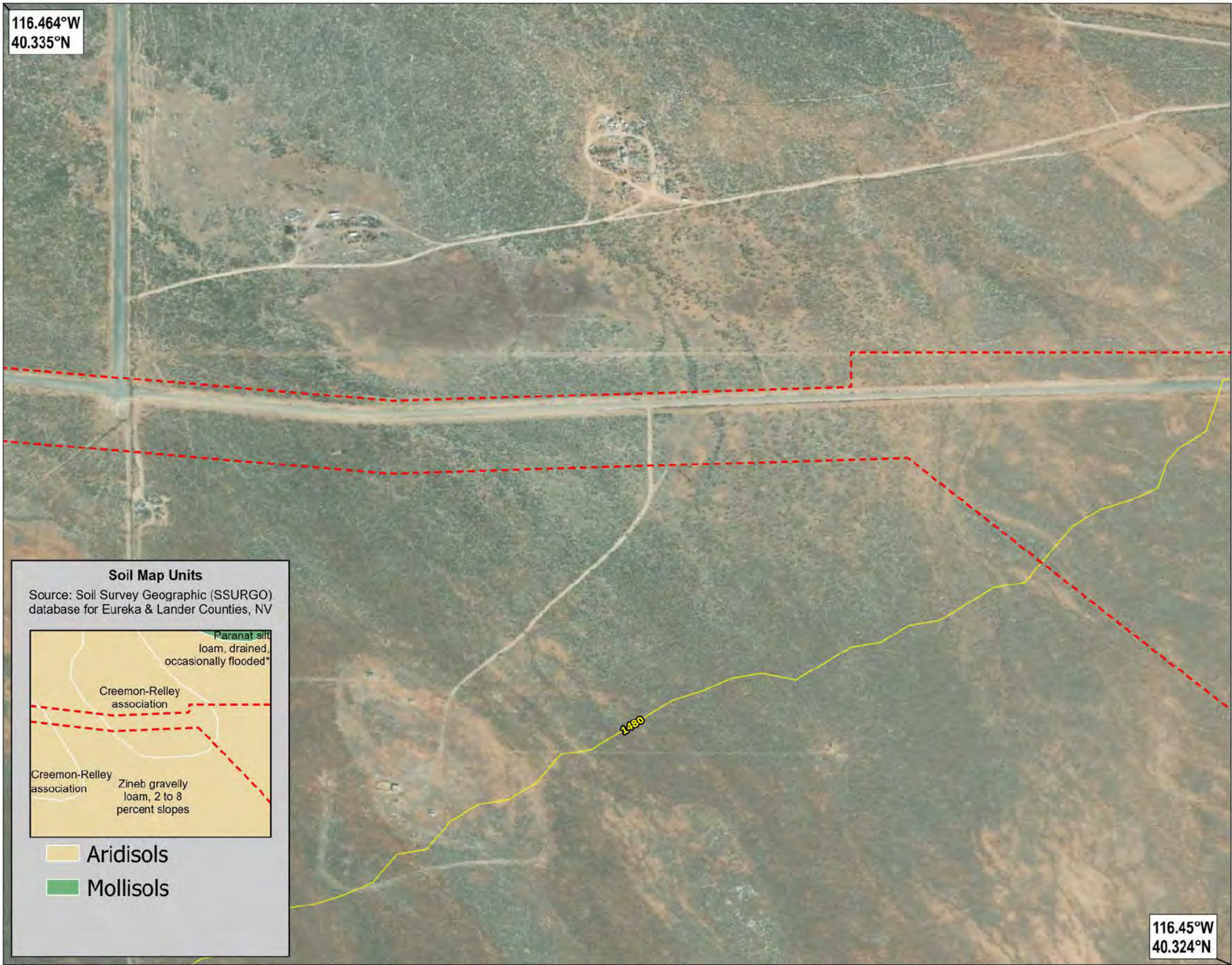
See Table 5-1 Acreage Table for  
areas of individual features



Notes  
1. Coordinate System: GCS WGS 1984  
2. Data Sources: [redacted], NRCS  
3. Background: ESRI, MAXAR  
4. Field Delineated August 2022, Revised April 2024



116.464°W  
40.335°N



Appendix Sheet No.

A 15

**Potentially Jurisdictional Waters**

Client/Project

Crescent Valley Geothermal Development Project  
Aquatic Resource Delineation Report

Project Location

S2-5, S8-10, S17 T28N R49E; S1-6 T28N R48E; S1-2 T28N 47E;  
S35 T29N 47E; Eureka & Lander Co., NV



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**Legend**

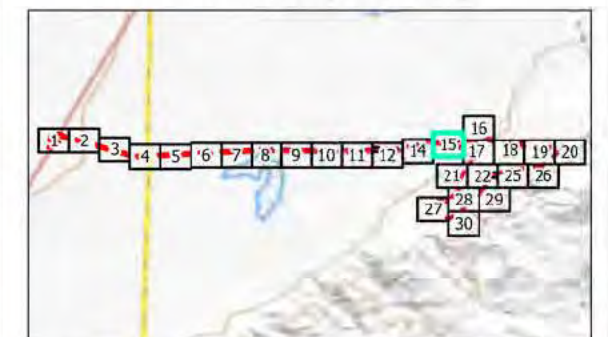
**Other Project Features**

Delineation Area (2035.85ac total)

**Topographic Features**

Contours (20m)

See Table 5-1 Acreage Table for  
areas of individual features



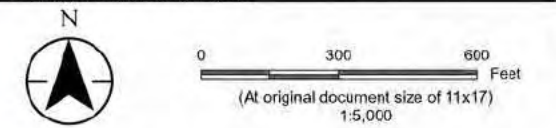
**Notes**  
1. Coordinate System: GCS WGS 1984  
2. Data Sources: [redacted], NRCS  
3. Background: ESRI, MAXAR  
4. Field Delineated August 2022, Revised April 2024

116.45°W  
40.324°N



116.45°W  
40.343°N

Appendix A Sheet No. 16  
Title  
**Potentially Jurisdictional Waters**  
Client/Project  
Crescent Valley Geothermal Development Project  
Aquatic Resource Delineation Report  
Project Location  
S2-5, S8-10, S17 T28N R49E; S1-6 T28N R48E; S1-2 T28N 47E;  
S35 T29N 47E; Eureka & Lander Co., NV



**Legend**  
**Other Project Features**  
Delineation Area (2035.85ac total)  
**Topographic Features**  
Contours (20m)

**Soil Map Units**  
Source: Soil Survey Geographic (SSURGO) database for Eureka & Lander Counties, NV

Tulase silt loam, 2 to 8 percent slopes	Batan silt loam*	Zineb gravelly loam, 2 to 8 percent slopes
Paranat silt loam, drained, occasionally flooded*		
Zineb gravelly loam, 2 to 8 percent slopes		

**Legend**  
Aridisols  
Entisols  
Mollisols

See Table 5-1 Acreage Table for areas of individual features

**Notes**  
1. Coordinate System: GCS WGS 1984  
2. Data Sources: NRCS  
3. Background: ESRI, MAXAR  
4. Field Delineated August 2022, Revised April 2024

116.436°W  
40.332°N

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116.45°W  
40.332°N

**Soil Map Units**  
Source: Soil Survey Geographic (SSURGO) database for Eureka & Lander Counties, NV

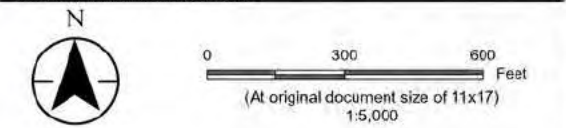
Zineb gravelly loam, 2 to 8 percent slopes

Tomera loam, 4 to 8 percent slopes

**Aridisols**

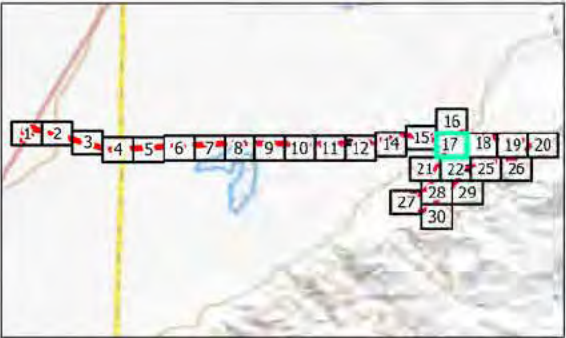
Client/Project  
Crescent Valley Geothermal Development Project  
Aquatic Resource Delineation Report

Project Location  
S2-S, S8-10, S17 T28N R49E; S1-6 T28N R48E; S1-2 T28N 47E;  
S35 T29N 47E; Eureka & Lander Co., NV



- Legend**
- Other Project Features**
- Delineation Area (2035.85ac total)
- Topographic Features**
- Contours (20m)

See Table 5-1 Acreage Table for areas of individual features



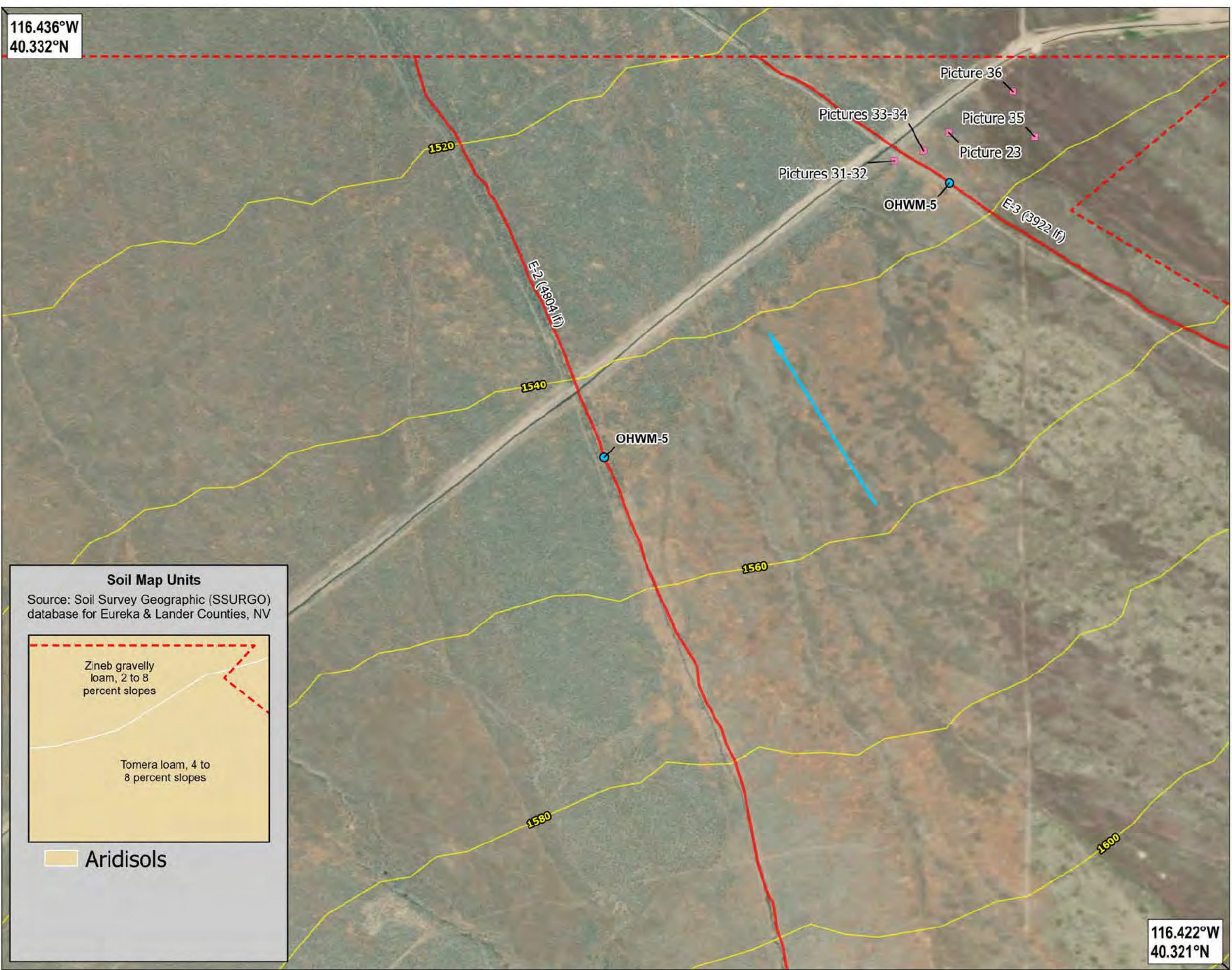
- Notes**
- Coordinate System: GCS WGS 1984
  - Data Sources: NRCS
  - Background: ESRI, MAXAR
  - Field Delineated August 2022, Revised April 2024

116.436°W  
40.321°N

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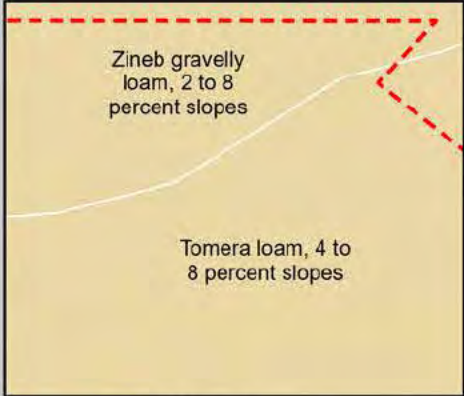


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40.332°N



**Soil Map Units**

Source: Soil Survey Geographic (SSURGO) database for Eureka & Lander Counties, NV



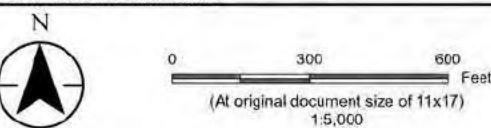
Aridisols

Appendix A Sheet No. 18

**Potentially Jurisdictional Waters**

Client/Project  
Crescent Valley Geothermal Development Project  
Aquatic Resource Delineation Report

Project Location  
S2-5, S8-10, S17 T28N R49E; S1-6 T28N R48E; S1-2 T28N 47E;  
S35 T29N 47E; Eureka & Lander Co., NV



**Legend**

**Other Project Features**

- Delineation Area (2035.85ac total)
- OHWM Data Points
- Photo points
- Flow Direction

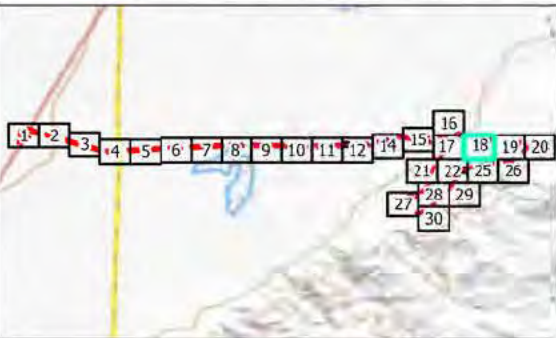
**Potentially Jurisdictional Waters**

Ephemeral

**Topographic Features**

Contours (20m)

See Table 5-1 Acreage Table for areas of individual features



- Notes
- Coordinate System: GCS WGS 1984
  - Data Sources: NRCS
  - Background: ESRI, MAXAR
  - Field Delineated August 2022, Revised April 2024

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116.422°W  
40.332°N

**Soil Map Units**

Source: Soil Survey Geographic (SSURGO) database for Eureka & Lander Counties, NV

Zineb gravelly loam, 2 to 8 percent slopes

Tomera loam, 4 to 8 percent slopes

Chen-Singletree-Jivas association

Aridisols

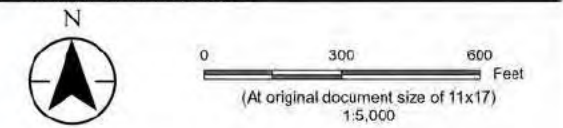
Mollisols

Client/Project

Crescent Valley Geothermal Development Project  
Aquatic Resource Delineation Report

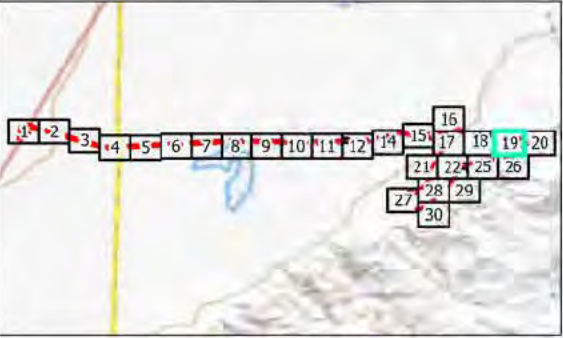
Project Location

S2-5, S8-10, S17 T28N R49E; S1-6 T28N R48E; S1-2 T28N 47E;  
S35 T29N 47E; Eureka & Lander Co., NV



- Legend**
- Other Project Features**
- Delineation Area (2035.85ac total)
  - Wetland Data Points
  - OHWM Data Points
  - Photo points
  - Flow Direction
- Potentially Jurisdictional Waters**
- Ephemeral
  - Intermittent
  - Perennial
- Topographic Features**
- Contours (20m)

See Table 5-1 Acreage Table for areas of individual features



Notes

1. Coordinate System: GCS WGS 1984

2. Data Sources: [redacted] NRCS

3. Background: ESRI, MAXAR

4. Field Delineated August 2022, Revised April 2024

116.408°W  
40.321°N

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116.408°W  
40.332°N

**Soil Map Units**

Source: Soil Survey Geographic (SSURGO) database for Eureka & Lander Counties, NV

Tomera loam, 4 to 8 percent slopes

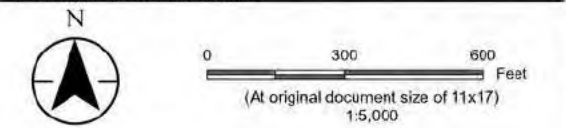
Chen-Singletree-Jivas association

Aridisols

Mollisols

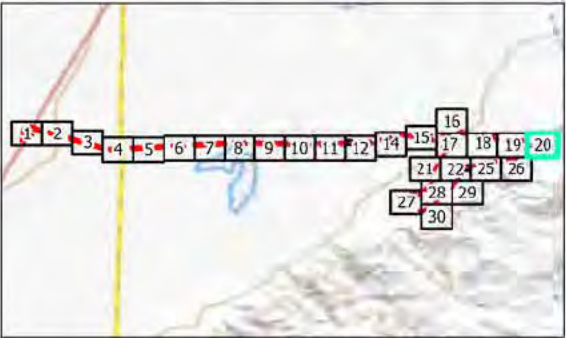
Client/Project  
Crescent Valley Geothermal Development Project  
Aquatic Resource Delineation Report

Project Location  
S2-5, S8-10, S17 T28N R49E; S1-6 T28N R48E; S1-2 T28N 47E;  
S35 T29N 47E; Eureka & Lander Co., NV



- Legend**
- Other Project Features**
- Delineation Area (2035.85ac total)
- Topographic Features**
- Contours (20m)

See Table 5-1 Acreage Table for areas of individual features



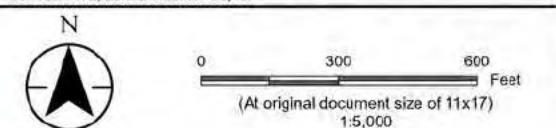
- Notes
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  - Data Sources: [redacted] NRCS
  - Background: ESRI, MAXAR
  - Field Delineated August 2022, Revised April 2024

116.394°W  
40.321°N



116.462°W  
40.321°N

Client/Project  
Crescent Valley Geothermal Development Project  
Aquatic Resource Delineation Report  
Project Location  
S2-5, S8-10, S17 T28N R49E; S1-6 T28N R48E; S1-2 T28N 47E;  
S35 T29N 47E; Eureka & Lander Co., NV



- Legend**
- Other Project Features**
- Delineation Area (2035.85ac total)
- Topographic Features**
- Contours (20m)

**Soil Map Units**

Source: Soil Survey Geographic (SSURGO) database for Eureka & Lander Counties, NV

Zineb gravelly loam, 2 to 8 percent slopes

Tomera loam, 4 to 8 percent slopes

**Aridisols**

See Table 5-1 Acreage Table for areas of individual features

**Notes**

1. Coordinate System: GCS WGS 1984
2. Data Sources: [redacted], NRCS
3. Background: ESRI, MAXAR
4. Field Delineated August 2022, Revised April 2024

116.448°W  
40.31°N

C:\Users\mtomazewski\OneDrive\Documents\Crescent Valley ARD\Crescent Valley ARD\Crescent Valley ARD.aprx Revised: 2024-05-10 By [redacted]



116.448°W  
40.321°N

**Soil Map Units**

Source: Soil Survey Geographic (SSURGO) database for Eureka & Lander Counties, NV

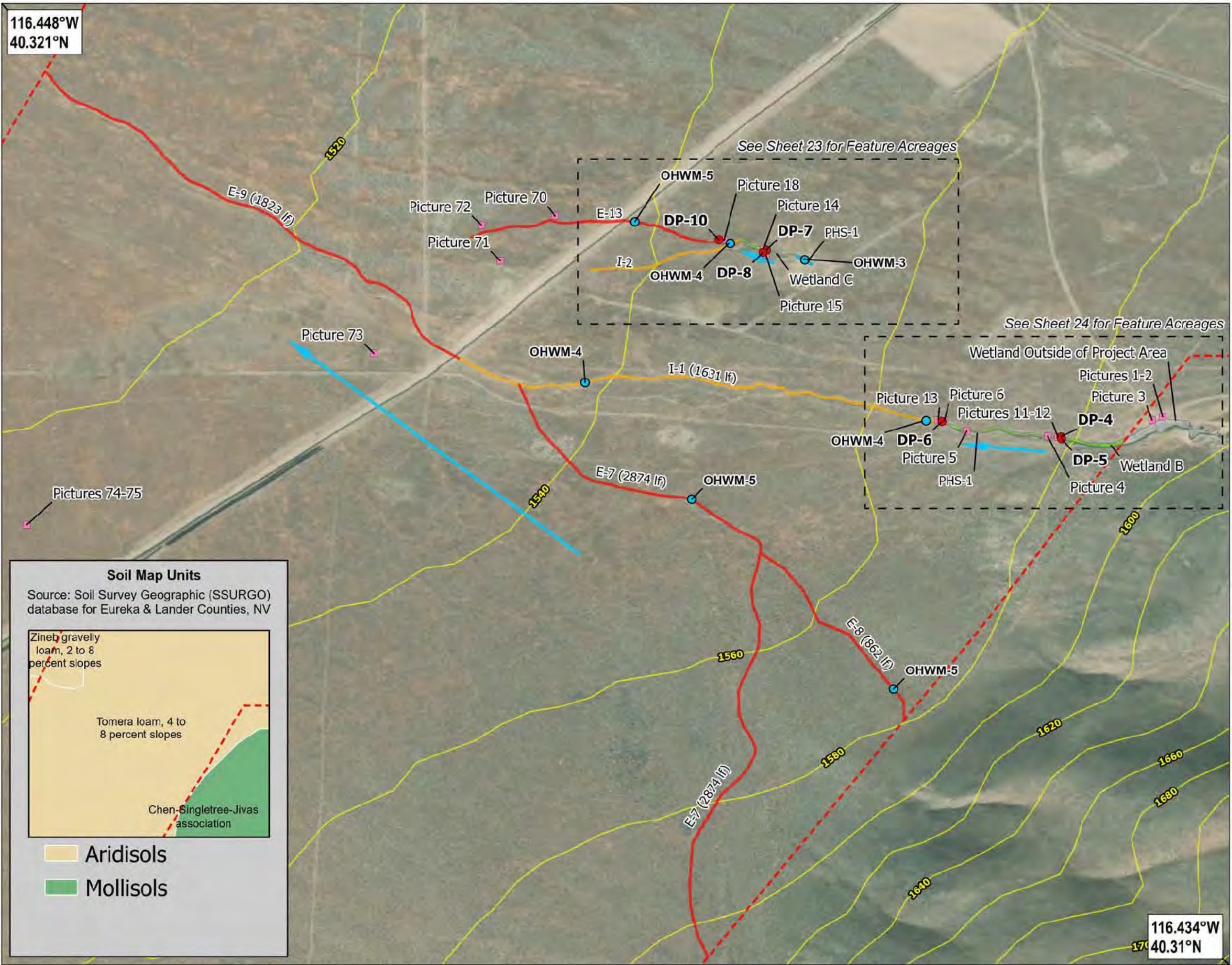
Zineb gravelly loam, 2 to 8 percent slopes

Tomera loam, 4 to 8 percent slopes

Chen-Singletree-Jivas association

Aridisols

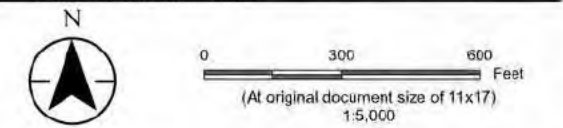
Mollisols



Appendix  
**A**  
Title  
**Potentially Jurisdictional Waters**

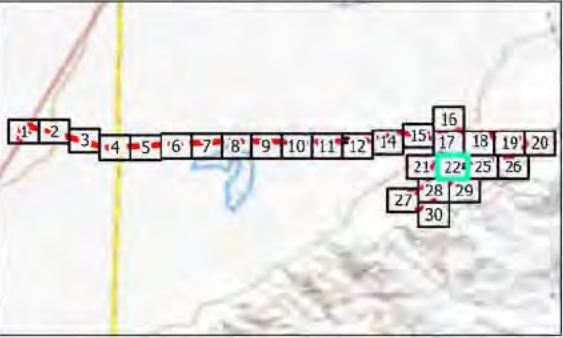
Client/Project  
[Redacted] Inc.  
Crescent Valley Geothermal Development Project  
Aquatic Resource Delineation Report

Project Location  
S2-5, S8-10, S17 T28N R49E; S1-6 T28N R48E; S1-2 T28N 47E;  
S35 T29N 47E; Eureka & Lander Co., NV



- Legend**
- Other Project Features**
- Delineation Area (2035.85ac total)
  - Wetland Data Points
  - OHWM Data Points
  - Photo points
  - Flow Direction
- Potentially Jurisdictional Waters**
- Wetland
  - Wetland Outside of Project Area
  - Ephemeral
  - Intermittent
  - Perennial
- Topographic Features**
- Contours (20m)

See Table 5-1 Acreage Table for areas of individual features



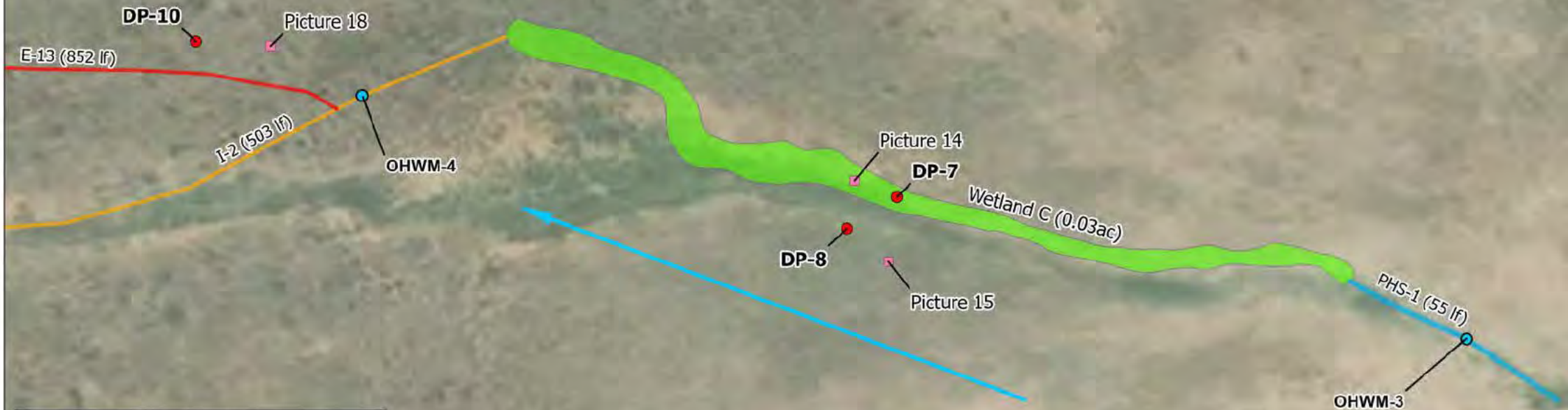
Notes

- Coordinate System: GCS WGS 1984
- Data Sources: [Redacted], NRCS
- Background: ESRI, MAXAR
- Field Delineated August 2022, Revised April 2024

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116.44°W  
40.319°N



### Soil Map Units

Source: Soil Survey Geographic (SSURGO)  
database for Eureka & Lander Counties, NV

Tomera loam, 4 to  
8 percent slopes

Aridisols

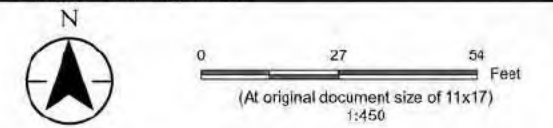
116.439°W  
40.318°N

Appendix  
**A** Sheet No.  
**23**

## Potentially Jurisdictional Waters

Client/Project  
[REDACTED] Inc.  
Crescent Valley Geothermal Development Project  
Aquatic Resource Delineation Report

Project Location  
S2-S, S8-10, S17 T28N R49E; S1-6 T28N R48E; S1-2 T28N 47E;  
S35 T29N 47E; Eureka & Lander Co., NV



## Legend

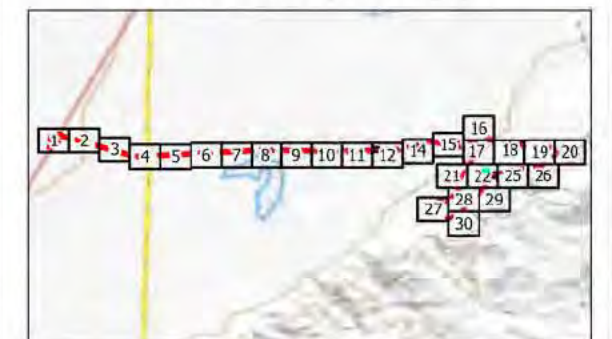
### Other Project Features

- Delineation Area (2035.85ac total)
- Wetland Data Points
- OHWM Data Points
- Photo points
- Flow Direction

### Potentially Jurisdictional Waters

- Wetland
- ~ Ephemeral
- ~ Intermittent
- ~ Perennial

See Table 5-1 Acreage Table for  
areas of individual features

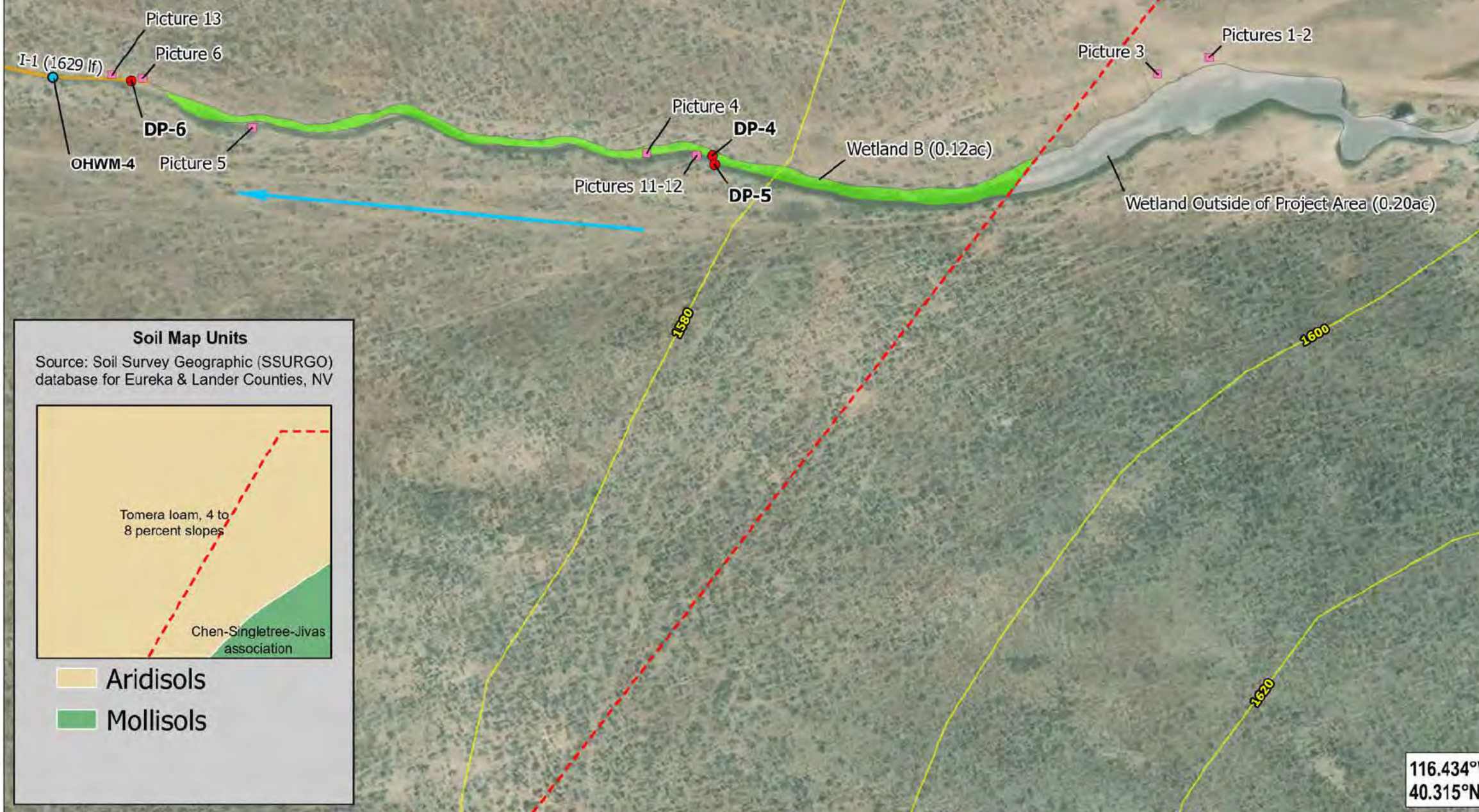


- Notes
1. Coordinate System: GCS WGS 1984
  2. Data Sources: [REDACTED] NRCS
  3. Background: ESRI, MAXAR
  4. Field Delineated August 2022, Revised April 2024

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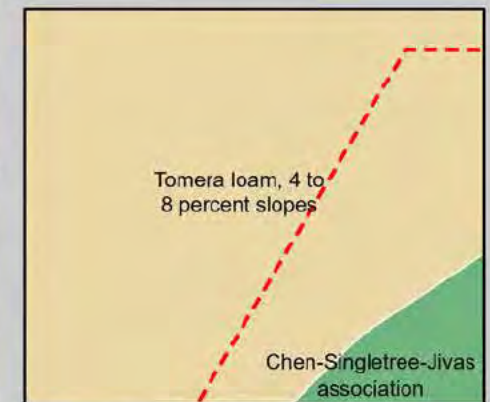


116.438°W  
40.317°N



#### Soil Map Units

Source: Soil Survey Geographic (SSURGO) database for Eureka & Lander Counties, NV



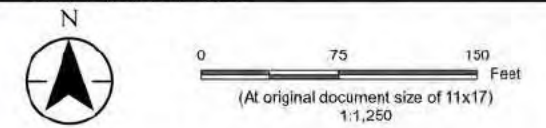
Aridisols  
Mollisols

Appendix  
**A** Sheet No.  
**24**

### Potentially Jurisdictional Waters

Client/Project  
Crescent Valley Geothermal Development Project  
Aquatic Resource Delineation Report

Project Location  
S2-5, S8-10, S17 T28N R49E; S1-6 T28N R48E; S1-2 T28N 47E;  
S35 T29N 47E; Eureka & Lander Co., NV



### Legend

#### Other Project Features

- Delineation Area (2035.85ac total)
- Wetland Data Points
- OHWM Data Points
- Photo points
- Flow Direction

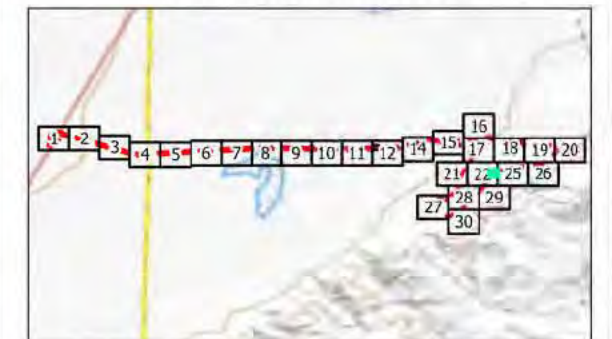
#### Potentially Jurisdictional Waters

- Wetland
- Wetland Outside of Project Area
- Intermittent

#### Topographic Features

- Contours (20m)

See Table 5-1 Acreage Table for areas of individual features



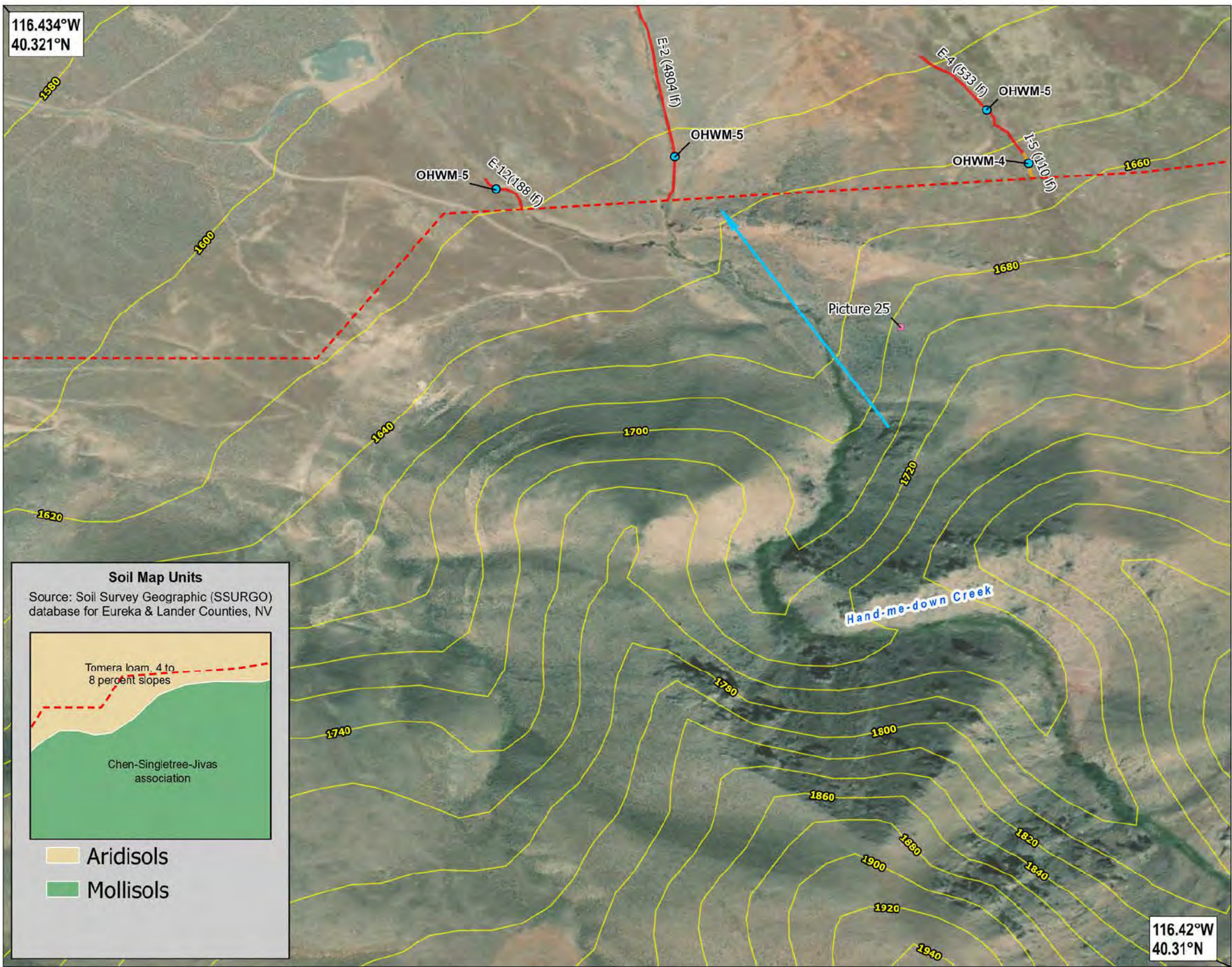
Notes  
1. Coordinate System: GCS WGS 1984  
2. Data Sources: [redacted] NRCS  
3. Background: ESRI, MAXAR  
4. Field Delineated August 2022, Revised April 2024

116.434°W  
40.315°N

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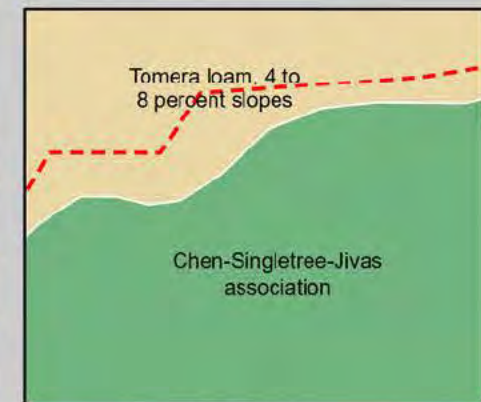


116.434°W  
40.321°N



#### Soil Map Units

Source: Soil Survey Geographic (SSURGO) database for Eureka & Lander Counties, NV



Aridisols  
Mollisols

Appendix Sheet No.

A 25

#### Potentially Jurisdictional Waters

Client/Project

Crescent Valley Geothermal Development Project  
Aquatic Resource Delineation Report

Project Location

S2-5, S8-10, S17 T28N R49E; S1-6 T28N R48E; S1-2 T28N 47E;  
S35 T29N 47E; Eureka & Lander Co., NV



0 300 600 Feet  
(At original document size of 11x17)  
1:5,000

#### Legend

##### Other Project Features

- Delineation Area (2035.85ac total)
- OTHM Data Points
- Photo points
- Flow Direction

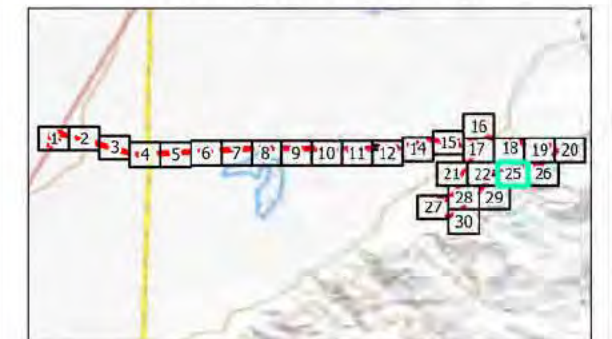
##### Potentially Jurisdictional Waters

- Ephemeral
- Intermittent

##### Topographic Features

- Contours (20m)

See Table 5-1 Acreage Table for  
areas of individual features

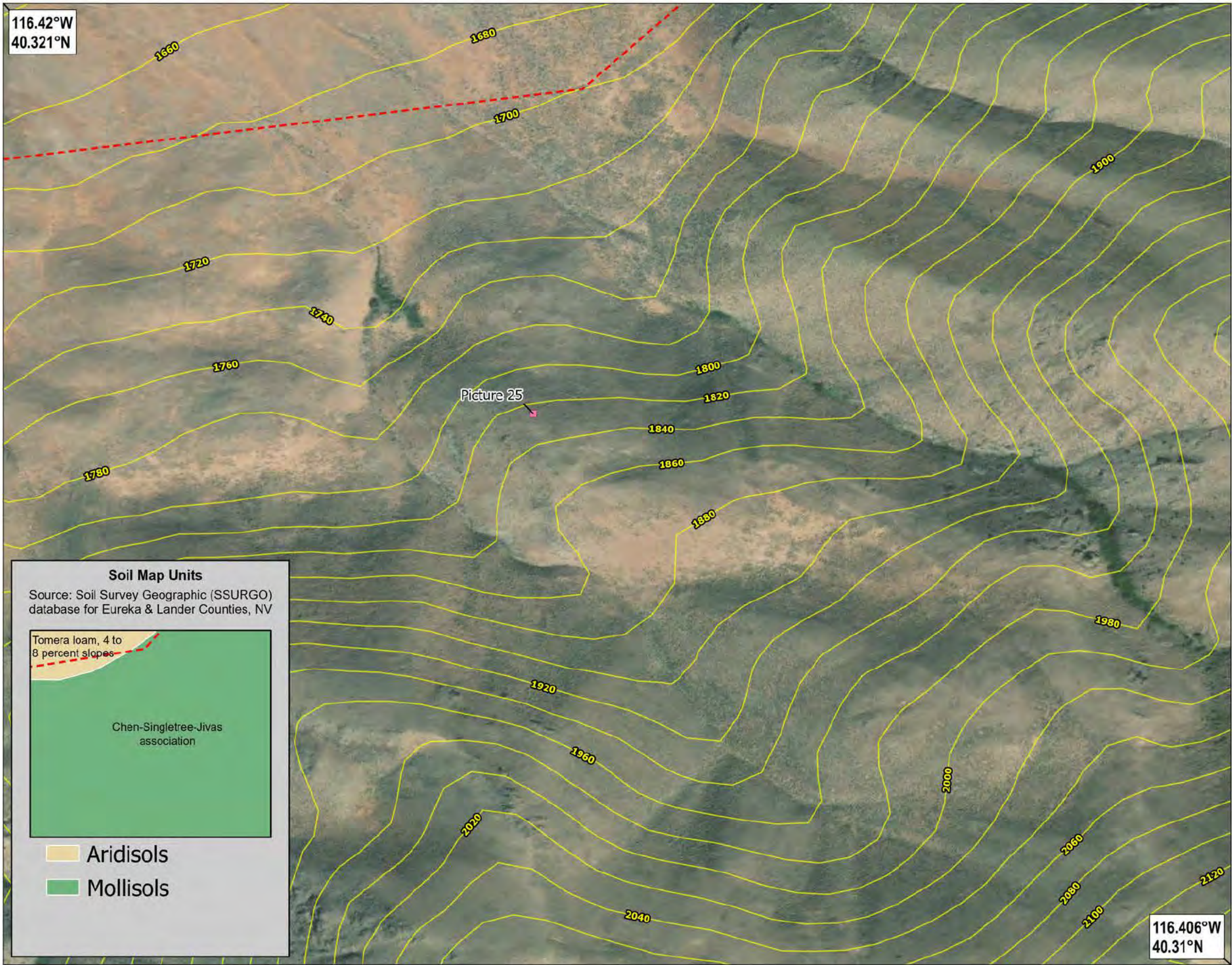


- Notes
- Coordinate System: GCS WGS 1984
  - Data Sources: [redacted] NRCS
  - Background: ESRI, MAXAR
  - Field Delineated August 2022, Revised April 2024

116.42°W  
40.31°N

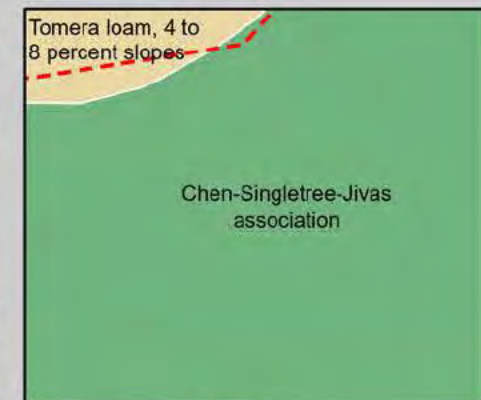


116.42°W  
40.321°N



#### Soil Map Units

Source: Soil Survey Geographic (SSURGO)  
database for Eureka & Lander Counties, NV



Aridisols  
Mollisols

Appendix  
A

Sheet No.  
26

#### Potentially Jurisdictional Waters

Client/Project

Crescent Valley Geothermal Development Project  
Aquatic Resource Delineation Report

Project Location

S2-5, S8-10, S17 T28N R49E; S1-6 T28N R48E; S1-2 T28N 47E;  
S35 T29N 47E; Eureka & Lander Co., NV



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#### Legend

##### Other Project Features

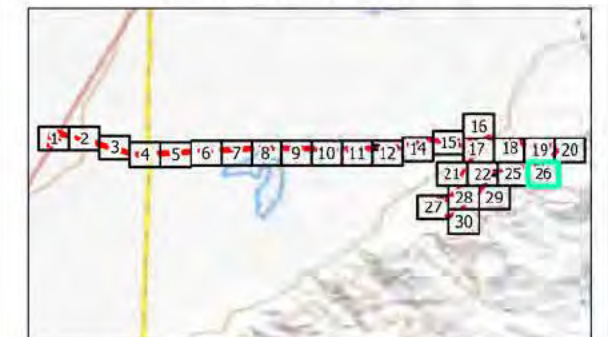
Delineation Area (2035.85ac total)

Photo points

##### Topographic Features

Contours (20m)

See Table 5-1 Acreage Table for  
areas of individual features

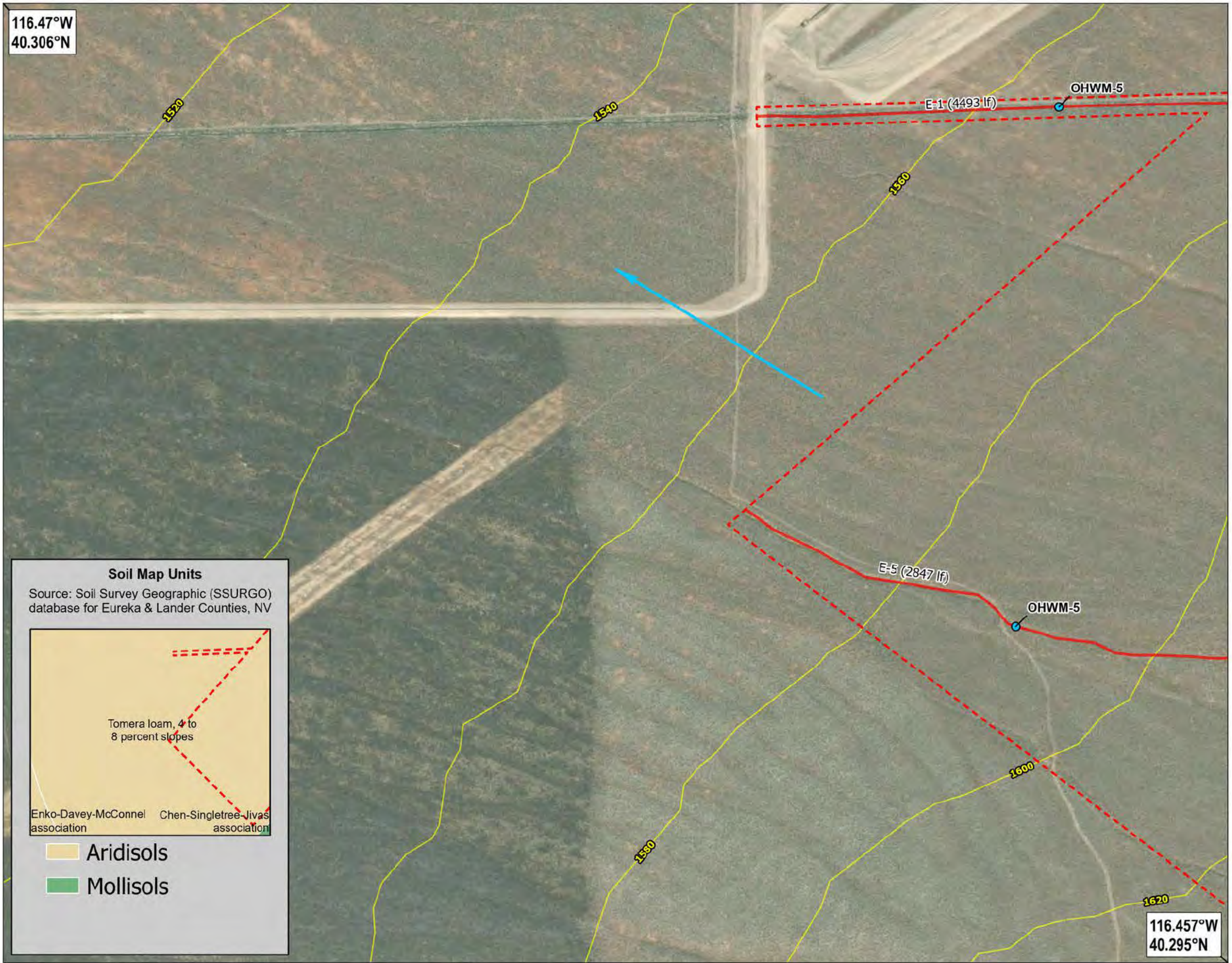


Notes  
1. Coordinate System: GCS WGS 1984  
2. Data Sources: [redacted], NRCS  
3. Background: ESRI, MAXAR  
4. Field Delineated August 2022, Revised April 2024



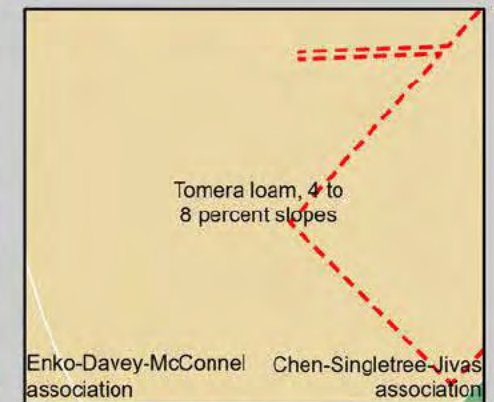


116.47°W  
40.306°N



#### Soil Map Units

Source: Soil Survey Geographic (SSURGO) database for Eureka & Lander Counties, NV



Aridisols  
Mollisols

Appendix Sheet No.

A 27

#### Potentially Jurisdictional Waters

Client/Project

Crescent Valley Geothermal Development Project  
Aquatic Resource Delineation Report

Project Location

S2-5, S8-10, S17 T28N R49E; S1-6 T28N R48E; S1-2 T28N 47E;  
S35 T29N 47E; Eureka & Lander Co., NV



0 300 600 Feet  
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#### Legend

##### Other Project Features

Delineation Area (2035.85ac total)

OHWM Data Points

Flow Direction

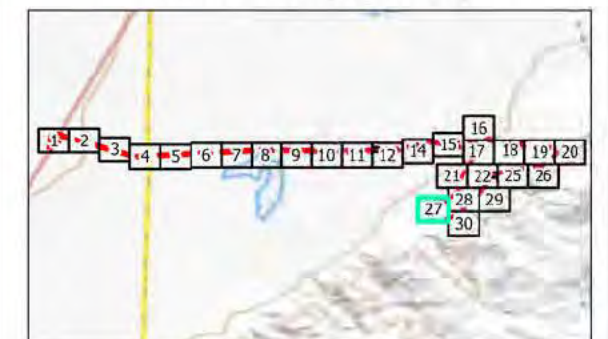
##### Potentially Jurisdictional Waters

Ephemeral

##### Topographic Features

Contours (20m)

See Table 5-1 Acreage Table for  
areas of individual features



Notes  
1. Coordinate System: GCS WGS 1984  
2. Data Sources: NRCS  
3. Background: ESRI, MAXAR  
4. Field Delineated August 2022, Revised April 2024



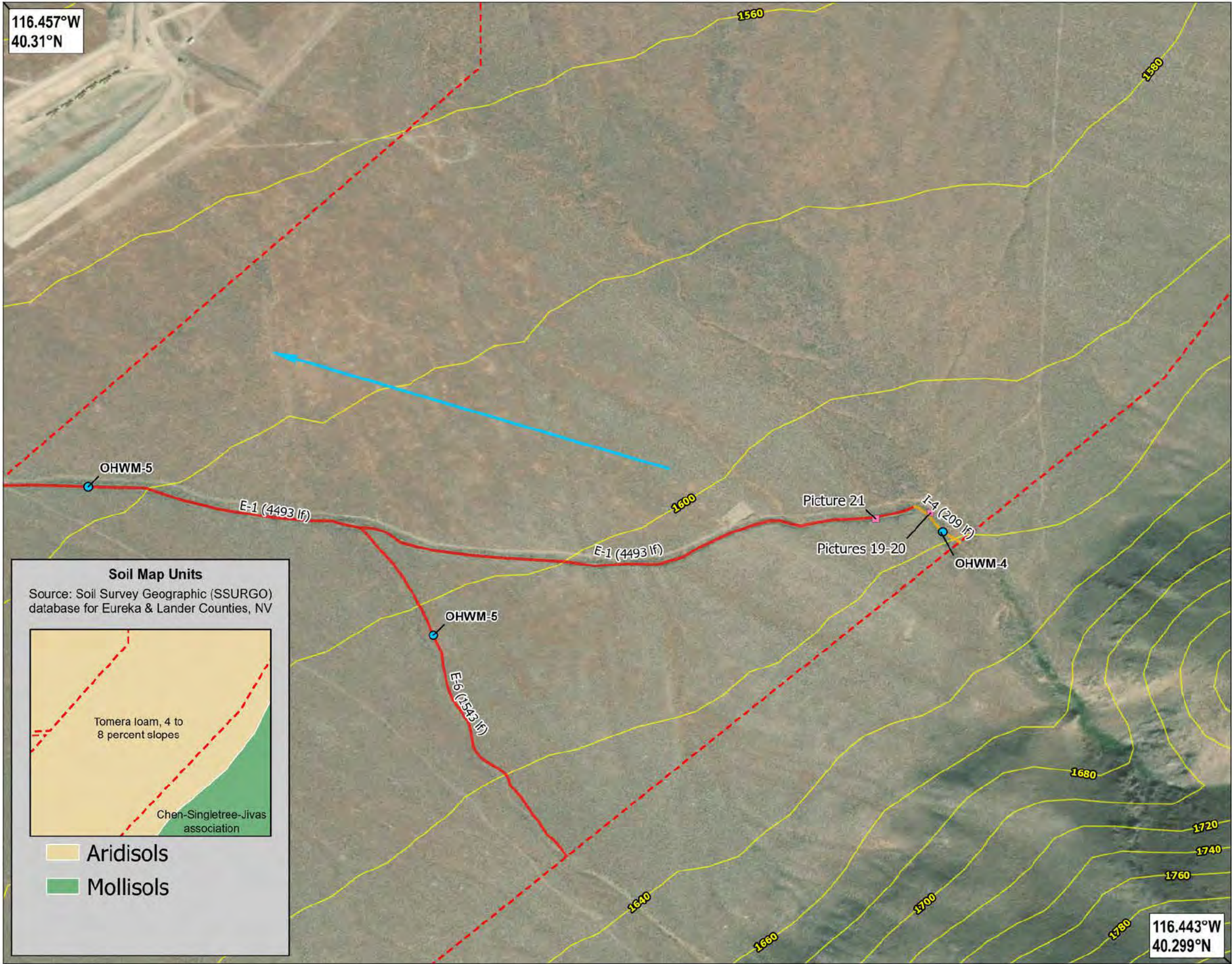
116.457°W  
40.31°N

**Soil Map Units**

Source: Soil Survey Geographic (SSURGO) database for Eureka & Lander Counties, NV

**Aridisols**

**Mollisols**



Appendix  
**A**

Sheet No.  
**28**

Title  
**Potentially Jurisdictional Waters**

Client/Project  
Crescent Valley Geothermal Development Project  
Aquatic Resource Delineation Report

Project Location  
S2-5, S8-10, S17 T28N R49E; S1-6 T28N R48E; S1-2 T28N 47E;  
S35 T29N 47E; Eureka & Lander Co., NV

N

(At original document size of 11x17)  
1:5,000

- Legend**
- Other Project Features**
- Delineation Area (2035.85ac total)
- OHWM Data Points
- Photo points
- Flow Direction
- Potentially Jurisdictional Waters**
- Ephemeral
- Intermittent
- Topographic Features**
- Contours (20m)

See Table 5-1 Acreage Table for  
areas of individual features

Notes

1. Coordinate System: GCS WGS 1984
2. Data Sources: [redacted] NRCS
3. Background: ESRI, MAXAR
4. Field Delineated August 2022, Revised April 2024

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116.443°W  
40.31°N

**Soil Map Units**

Source: Soil Survey Geographic (SSURGO) database for Eureka & Lander Counties, NV

Tomera loam, 4 to 8 percent slopes

Chen-Singletree-Jivas association

Aridisols

Mollisols

Appendix  
**A**

Sheet No.  
**29**

Title  
**Potentially Jurisdictional Waters**

Client/Project  
Crescent Valley Geothermal Development Project  
Aquatic Resource Delineation Report

Project Location  
S2-5, S8-10, S17 T28N R49E; S1-6 T28N R48E; S1-2 T28N 47E;  
S35 T29N 47E; Eureka & Lander Co., NV

N

0300600

Feet

(At original document size of 11x17)  
1:5,000

**Legend**

**Other Project Features**

Delineation Area (2035.85ac total)

**Topographic Features**

Contours (20m)

See Table 5-1 Acreage Table for areas of individual features

**Notes**

- Coordinate System: GCS WGS 1984
- Data Sources: Starline, Ormat, NRCS
- Background: ESRI, MAXAR
- Field Delineated August 2022, Revised April 2024

116.429°W  
40.299°N

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116.457°W  
40.299°N

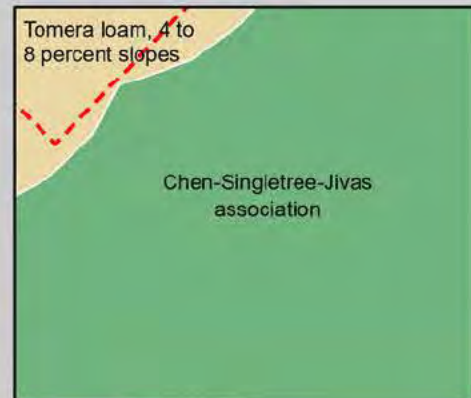
E-5 (2847 lf)

OHWM-4

Picture 22

### Soil Map Units

Source: Soil Survey Geographic (SSURGO)  
database for Eureka & Lander Counties, NV



Aridisols  
Mollisols

Appendix  
A  
Sheet No.  
30

## Potentially Jurisdictional Waters

Client/Project

Crescent Valley Geothermal Development Project  
Aquatic Resource Delineation Report

Project Location

S2-5, S8-10, S17 T28N R49E; S1-6 T28N R48E; S1-2 T28N 47E;  
S35 T29N 47E; Eureka & Lander Co., NV



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(At original document size of 11x17)  
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## Legend

### Other Project Features

- Delineation Area (2035.85ac total)
- OHWM Data Points
- Photo points
- Flow Direction

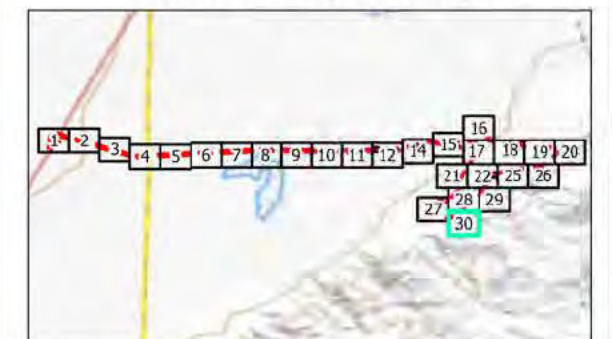
### Potentially Jurisdictional Waters

Ephemeral

### Topographic Features

Contours (20m)

See Table 5-1 Acreage Table for  
areas of individual features



#### Notes

- Coordinate System: GCS WGS 1984
- Data Sources: [redacted], NRCS
- Background: ESRI, MAXAR
- Field Delineated August 2022, Revised April 2024



116.443°W  
40.288°N



# Humboldt River

Flow Path to TNW

## Legend

-  Humboldt River
-  Review Area

