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**MINERALS ASSESSMENT REPORT  
WILLOW CREEK PROPERTY  
GUNNISON COUNTY, COLORADO**



**Prepared for  
Gunnison Ranchland Conservation Legacy**

**By  
Sawtooth Resources, LLC**

**August 26, 2025**



## **EXECUTIVE SUMMARY**

Sawtooth Resources has conducted a review of mineral remoteness for the Willow Creek property in Gunnison County, Colorado which is currently being considered for preservation by conservation easement. This report is part of the documentation necessary for placement of a conservation easement and evaluates the probability of surface mining or other mineral extraction activities.

This Mineral Resource Assessment report briefly describes the Willow Creek site and the local geology. It examines the probability of mining based on the type and quantity of minerals identified on the property, and the potential for their extraction. Based on the currently available data and the assessment of the economic resources, my conclusion is that the probability of mineral extraction by any mining method is so remote as to be negligible.

## **LOCATION**

The Willow Creek Property is in Gunnison County 9 miles southwest of Gunnison, Colorado. The conservation easement will address approximately 100.0 acres.

### **Township 49 North, Range 2 West, N.M.P.M.**

Section 34: NE/4NW/4, SW/4NE/4, and S/2NW/4NE/4.

100 acres  
County of Gunnison,  
State of Colorado.

The topographic map of the site shows the ground surface ranging from near 7,530 feet along Willow Creek in the northern area of the ranch to 7,700 feet along the northwest slope of Big Mesa in the southeast part of the property. The site considered for conservation easement is generally undeveloped sagebrush shrublands. The land is primarily used for wildlife habitat. A site visit was not requested, and photographs are not included. Figure 3 is an aerial view of Willow Creek Property.

## **TITLE INVESTIGATION**

There is recorded evidence that part of the mineral estate has been leased, severed, or otherwise conveyed from the surface estate. The U.S. patents identified in the title commitment have no specific mineral reservations identified other than language relating to the right of a proprietor of a vein or lode to extract and remove his ore therefrom should the same be found to penetrate or intersect the premises. (Land Title Guaranty Company; July 3, 2025).

### **Mineral Reservations**

1. July 16, 2007 in Reception 577001.  
Reservation of mineral rights to M. T. Miller.  
T49N, R2W, NMPM  
Section 27: all.  
Section 28: all.  
Section 34: all.



2. March 2, 2010 in Reception 599933.  
Reservation of all rights to any and all minerals, ores and metals of any kind and character, and all coal, oil, gas and other like substances in or under said Property to M. T. Miller.  
T49N, R2W, NMPM  
Section 34: NE/4NW/4, SW/4NE/4, and S/2NW/4NE/4.

## **REGIONAL GEOLOGIC SETTING**

The Willow Creek Property is in southern Gunnison County and is situated adjacent to the Gunnison Mining District of the Colorado Gold Belt. The Vulcan and Good Hope Mines were some of the most prolific mines in the district producing gold and other metals from vein structures in the Dubois Greenstone. Reportedly, a combined 25,000 oz. of gold were produced early in the 1900's. Mines in the Vulcan District, Midway and Goose Creek Districts also produced thorium, silver, copper, tellurium, niobium, and titanium. These districts have been referred to with multiple names including Powderhorn, Cebolla, and White Earth.

Review of Colorado Geologic Survey Resource Series 37 report, Geology and Mineral Resources Gunnison County, Colorado, describes the regional geology as:

“The Middle Tertiary San Juan volcanic field and the similarly aged West Elk volcanic field cover a great portion of southern and western Gunnison County, respectively, with extrusive and volcanoclastic rocks. Most of southern Gunnison County is covered by thick sheets of Oligocene ash-flow tuff overlying pre-ash-flow andesitic lavas and breccias of the extensive San Juan volcanic field to the south. The West Elk volcanic field northwest of Gunnison forms a deeply dissected, south-sloping volcanic plateau. These volcanic deposits are related to Early to Middle Oligocene granodioritic plutons and laccoliths emplaced in the West Elk Mountains. Associated intermediate-composition volcanoes that erupted locally in the West Elk volcanic field are related in time to the larger San Juan volcanic event to the south (Gaskill and others, 1981; Lipman and others, 1969). Although many of these plutons may have vented, volcanic ejecta is preserved only in the southern part of the West Elk Mountains as the West Elk Breccia. No known economic mineral deposits are associated with the lavas and ash-flow tuffs of the San Juan volcanic field that extend northward into Gunnison County. No known mineralization is associated with the West Elk volcanic field.

The geologic map of Figure 5 indicates the predominate formation at the site is the unconsolidated gravelly fan deposits along Willow Creek. Rock types at the site include volcanic tuff deposits of the West Elk Breccia, Blue Mesa Tuff, and the Fish Canyon Tuff.

Data from the U. S. Department of Agriculture's Natural Resource Conservation Service (NRCS) provides the soil types at the Willow Creek Property. The NRCS identifies 3 unique soil types within the site with one unit, the Duffson-Beenom (2GB4) covering 69.5% of the site. Figure 6 contains the NRCS Soils report with map.



## MINERAL RESOURCE POTENTIAL

It is convenient to use a federal mineral resource classification system in this evaluation. Federal minerals are divided into three groups; locatable, leasable, and salable.

- A. *Locatable* minerals include metallic and most non-metallic mineral deposits and are governed by the General Mining Law of 1872, as amended and supplemented. Examples include gold, silver, copper, and uranium.
- B. *Leasable* minerals are governed by the Mineral Leasing Act of 1920, as amended and supplemented. Examples include coal, oil, natural gas, and geothermal resources.
- C. *Salable* minerals include common materials such as sand, gravel, stone, topsoil, and other mineral materials. These minerals may be disposed of at the discretion of the government on a permit basis if they are owned by the government.

### A. Locatable Minerals

The site is situated adjacent to the historic Gunnison Mining District, part of the Colorado Gold Belt. Two well-known mining subdistricts and one lesser known subdistrict is the Gunnison Mining District. The Vulcan Mining District is southeast of the site and includes one active lode mineral lease on the northeastern part of the site. The Vulcan District operated primarily from 1898 through 1930 with primary production of tellurium, sulfur, gold, and silver. References to the Vulcan District also identify it as the Domingo-Vulcan District, Cebolla, and White Earth. The Vulcan Mine and neighboring Good Hope Mine were the largest producers of gold in the entire Gunnison Gold Belt, with more than 25,000 ounces of gold equivalent from 1898 to 1902, with more in 1919 and some production continuing into the 1930's. The deposit has been described as a lens of massive sulfide within bleached sericite schists. The Vulcan Mine is known for its suite of rare minerals, particularly tellurium and selenium-bearing minerals. Reportedly there were attempts of heap leaching for the spoils or waste rock piles.

South of the site and part of the Gunnison Mining District are the Midway Mining District and the historic Midway Mine which operated 1894-1902. Other mines in this small subdistrict include Ute Trail, Gold Pick, Gold Coin, and Diamond K. Lack of high-grade ore led to the demise of the mines, mill, and town. The Goose Creek District is less than one mile west of the site and generally operated from 1880 to 1934. It has also been referred to as the Madera District and was the location for the Anaconda Silver, Copper King, Ironcap, and other mines.

A search of the available mining records from BLM and the Colorado DRMS yielded no recorded evidence of permits or activities specifically associated with the site.

There are two active claims 6 miles north and six active claims 5 miles south of the site. Figure 7 depicts the active claims and the Willow Creek Property.

1. Paymaster, CMC291023 and CMC 291024; 20 acre placer and 21 acre lode claims owned by GRE Inc. and listed as No. 1 on Figure 7.
2. Happy Hour, CMC291022; 21 acre placer claim owned by GRE Inc. listed as No. 2 on Figure 7.



3. TSL No. 8, CMC293949; 21 acre lode claim owned by L. Fullmer and listed as No. 3 on figure 7.
4. TSL No. 7, CMC252948; 21 acre lode claim owned by L. Fullmer and listed as No. 4 on Figure 7.
5. TSL No. 9, CMC293838; 21 acre lode claim owned by L. Fullmer and listed as No. 5 on figure 7.
6. TSL No. 10, CMC293951; 21 acre lode claim owned by L Fullmer and listed as No. 6 on Figure 7.
7. TSL No. 11, CMC293958; 21 acre lode claim owned by J. R. Fullmer and listed as No. 7 on Figure 7.
8. TSL No. 13, CMC293960; 21 acre lode claim owned by J. R. Fullmer and listed as No. 8 on Figure 7.

A search of the available mining records from the Bureau of Land Management and the Colorado Division of Reclamation, Mining, and Safety yielded no recorded evidence of permits or activities specifically associated with the site.

The closest active mining claims are adjacent to or within proximity to the site within 3 miles north of the site. The inactive claims are listed on Figure 8.

1. Heap #1, CMC165399, the claim was relinquished in 1986.
2. Stinky, CMC164502, the claim was relinquished in 1982.
3. Moon Face, CMC164507, the claim was relinquished in 1982.
4. Soggy Muff, CMC195579, the claim was relinquished in 1991.
5. Oliver Boliver Butt, CMC164512, the claim case was closed in 1982.

There has been historic mining within the regional vicinity of the site since the 1800's, however the potential for mineable mineral occurrence can be considered poor with the known geologic conditions. It is reasonable to characterize the potential for mineral and surface mining potential at the Willow Creek Property as low.

#### **B. Leasable Minerals**

The Willow Creek site is 9 miles west of the town of Gunnison within Gunnison County. A Colorado Geological Survey Resource Report (RS-37, 1999) by R. K. Streurfert and the Oil and Gas Fields of Colorado (Wray and others, 2002) indicates that the site is outside of any known field with oil reserves likely capable of producing economically viable quantities of oil. The closest oil and gas leases are 37 miles northwest held by Vessels Coal Gas.

A review of the Colorado Energy and Carbon Management Commission (ECMC) records indicate that sporadic exploration for oil and gas has been performed in this general area of Gunnison County. The data for the well is listed below.



1. Tom Lively #1; API# 05-051-05000. Located in SE/4SW/4 S13 T50N R1W. The well was drilled in 1964 by Wayne N. Allison to a depth of 797 feet into the Mancos Shale. The hole was drilled, encountered water, plugged and abandoned in July of 1964. The well is identified as “1” on Figure 9.

ECMC records indicate that there are currently no permits or applications pending for drilling within the site, or in the adjacent Sections. Figure 9 is the ECMC Map for the Willow Creek area.

The site is not within or adjacent to any known coal fields or deposits. The nearest active producing mine with current leases is the West Elk Mine within the Somerset Coal Field located 31 miles northwest of the site.

Oil shale deposits of western Colorado occur in the Tertiary Green River formation. There are no oil shale bearing strata contained within the site.

There are no identified geothermal resources located on the site. The nearest geothermal lease is 26 miles east at the Tomichi Dome. Double Heart Lodge has the Geothermal Lease COC 075274. There are no other known geothermal leases within proximity to the site.

The potential for any mining of leasable minerals occurring on the site is low based on local geology and structure, known mineral occurrences located nearby, mineral exploration development, and recent production activities.

### **C. Salable Minerals**

Salable minerals include sand, gravel, aggregate, dimensional stone, or other industrial or construction materials. The reserved mineral rights for the site do not list reservations for sand, gravel or other minerals. A review of Colorado DRMS, USGS, and the CGS sources indicate that none of these have been mined on the site.

There is one closed sand and gravel pit and one sandstone quarry near the Town of Gunnison that have been permitted by the Colorado Division of Reclamation, Mining and Safety (DRMS). DRMS does not identify any active sand or gravel pits within proximity to the site.

1. Lloyd’s Firewood Sandstone Quarry Pit, DRMS Permit M2001032. The permit has been terminated and the site reclaimed.
2. Southway Construction – Stage Stop Pit, DRMS Permit M1984025. The permit has been terminated and the site reclaimed.

There is one active sand and gravel pit two miles northeast of the site that has been permitted by the Colorado Division of Reclamation, Mining and Safety (DRMS).

3. Dickerson Pit, DRMS Permit M1978305. The permit is active.



The Willow Creek site may potentially contain small amounts of sand or gravel in the Willow Creek drainage. The quality and composition of the gravel resource would be similar to the commercial and private pits currently in use. However, the landowner retains the right to the sand and gravel deposits. Current data on mineral ownership, potential resource availability, and economic viability of extraction indicates there is low potential for surface mining of any salable minerals.

### Summary

Sawtooth Resources has reviewed numerous public documents related to potential resource occurrences and development for the Willow Creek Property. It is my opinion that the resource potential for locatable, leasable and salable minerals is low.

Based on review of available public data, current and historic surface mining operations on the site, my knowledge of the local geologic settings, and economic and technical constraints, it is my opinion that the extraction or removal of minerals by any surface mining methods at the site are so remote as to be negligible.

A handwritten signature in blue ink that reads "Wendell A. Koontz".

**Wendell A. Koontz**  
**CPG No. 10334**  
**SME Registered Member No. 04068184**





## REFERENCES

Burnell, J.R., 2015, Historic mining districts of Colorado: Colorado Geological Survey Online Report ON-007-08.

Carroll, C. J., Coal Fields and Resources of Colorado, Colorado Geologic Survey Map Series 43, 2006.

Colorado Coalition of Land Trusts, 2008, Mineral Development and Land Conservation, A handbook for Conservation Professionals, ISBN 978-0-9821785-0-8.

Colorado Division of Reclamation Mining and Safety, 2025, website <http://mining.state.co.us/>

Colorado Energy and Carbon Management Commission, 2025 website;  
<http://coecmcweb.state.co.us/>

Keller, TerBest, and Garrison, Colorado Geological Survey (Open File Report 03-07, 2003).

Land Title Guaranty Company, County Road 31, Gunnison, Colorado 7/03/2025.

Streufert, R. K., Eakins, W. and Hemborg, H. T.; 1999. Geology and Mineral Resources of Gunnison County, Colorado. Colorado Geological Survey Resource Series 37.

Steven, T.A., Lipman, P.W., and Olson, J.C., 1974, Ash-flow stratigraphy and caldera structures in the San Juan volcanic field, southwestern Colorado.

The Diggings, 2025, web site <https://thediggings.com/usa/colorado/Gunnison-co051/>

The Coal Fields, 2025, web site <https://thecoalfields.com/usa/colorado/Gunnison-co051/>

Tweto, Ogden 1979, Geologic Map of Colorado: U.S. Geological Survey Special Geologic Map.

United States Department of Agriculture, Natural Resource Conservation Service, Gunnison Area, Colorado –Gunnison County, 2025, <http://websoilsurvey.nrcs.usda.gov/app/>

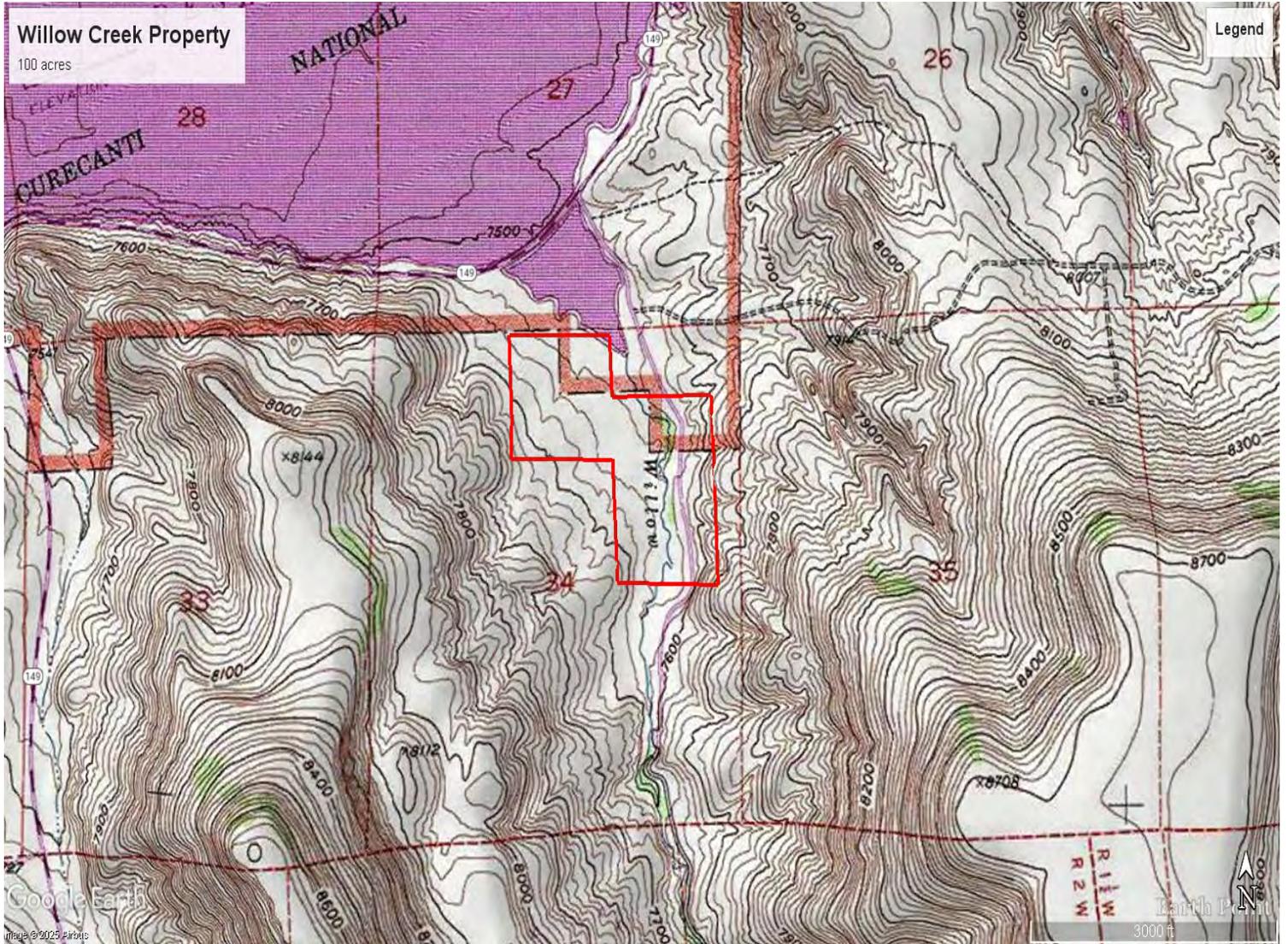
United States Geologic Survey, Mineral Resource Data System, 2025, website  
<http://tin.er.usgs.gov/mrds/>

United States Geologic Survey, Land and Federal mineral ownership coverage for northwestern Colorado, 2025, website <https://pubs.usgs.gov/of/1999/ofr-99-0553-a/nwcoown.htm>

# Figure 1 Location Map Willow Creek Property



# Figure 2 Topographic Map Willow Creek Property



 Willow Creek  
Easement Property

Preparer: Wendell A. Koontz Date: August 15, 2025

Data source: Earth Point Topo

Public Access should not be inferred from this map. This map is not a survey and should not be construed as one.



# Figure 3 Aerial Photo Willow Creek Property



 Willow Creek  
Easement Property

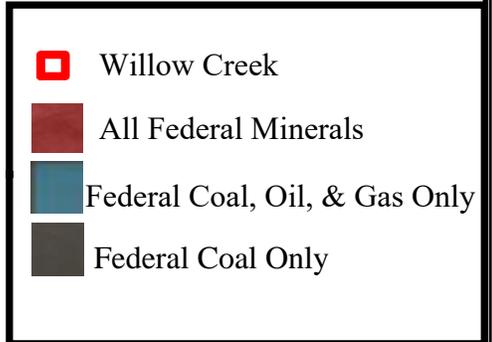
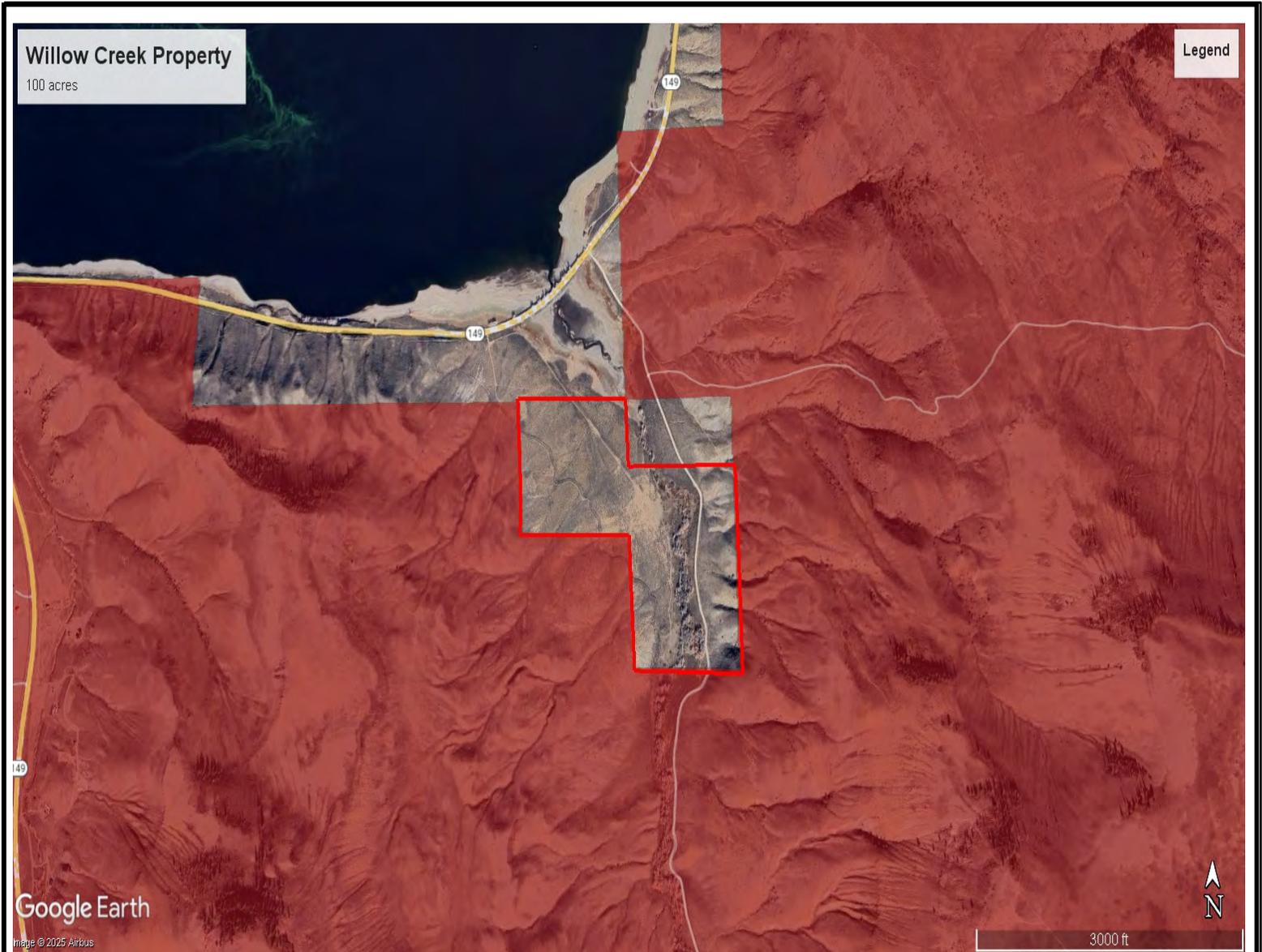
Preparer: Wendell A. Koontz Date: August 15, 2025

Data source: Google Earth 2020

Public Access should not be inferred from this map. This map is not a survey and should not be construed as one.



# Figure 4 Federal Mineral Ownership Willow Creek Property

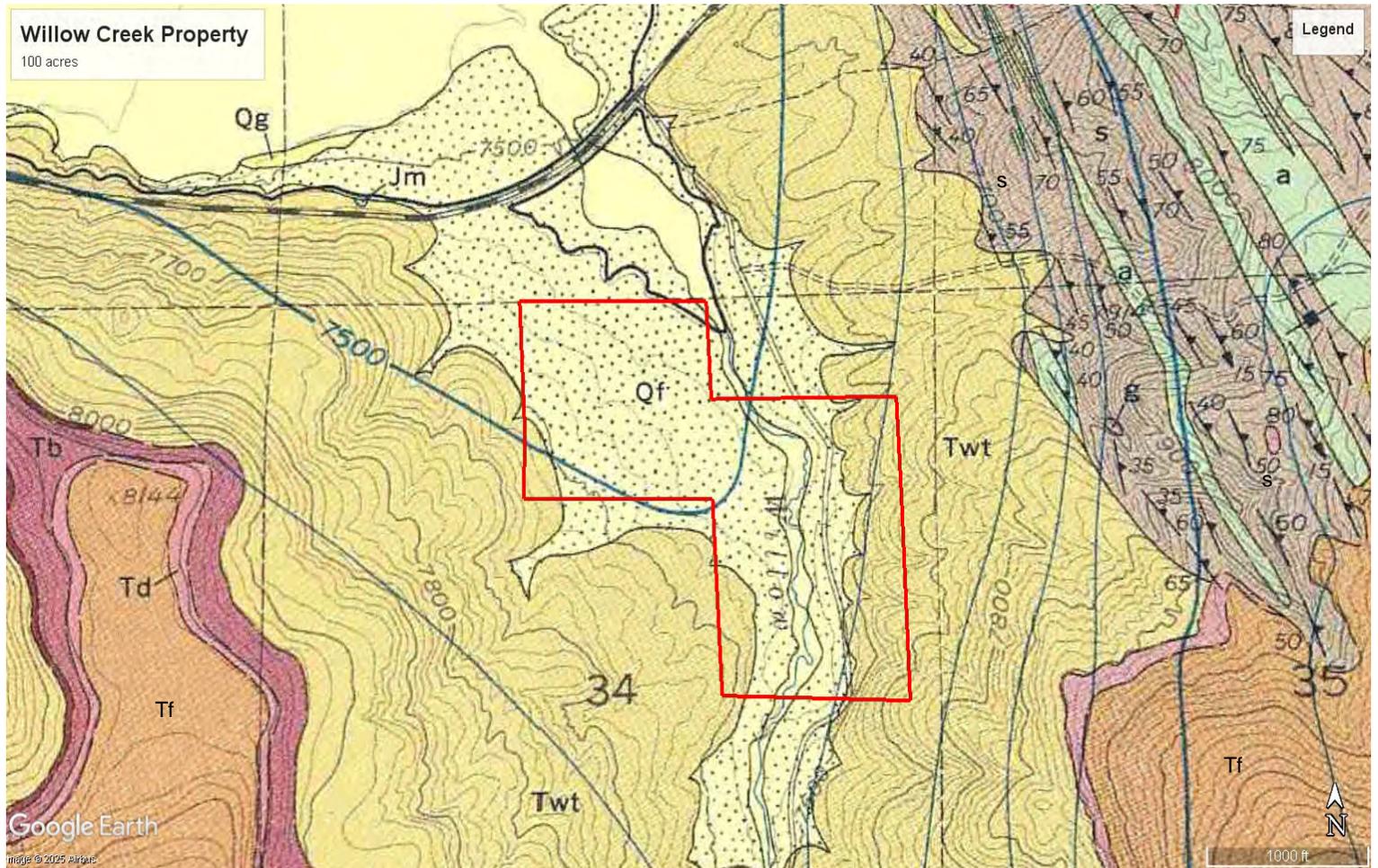


Preparer: Wendell A. Koontz Date August 15, 2025

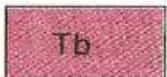
Data source: Bureau of Land Management

Public Access should not be inferred from this map. This map is not a survey and should not be construed as one.

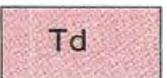
# Figure 5 Geologic Map Willow Creek Property



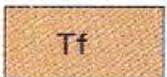
## LEGEND



Tb: Blue Mesa Tuff. Pale reddish-brown ash flow tuff.



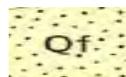
Td: Nonwelded air-fall ash. Very light gray and pumiceous.



Tf: Fish Canyon Tuff. Light-gray welded ash shard.



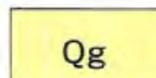
s: Precambrian Metamorphic Rocks. Quartz biotite, schist, gneiss, and migmatite.



Qf: Torrential fan deposits.



Twt: West Elk Breccia. Volcanic breccia and tuff with interbeds of conglomerate.



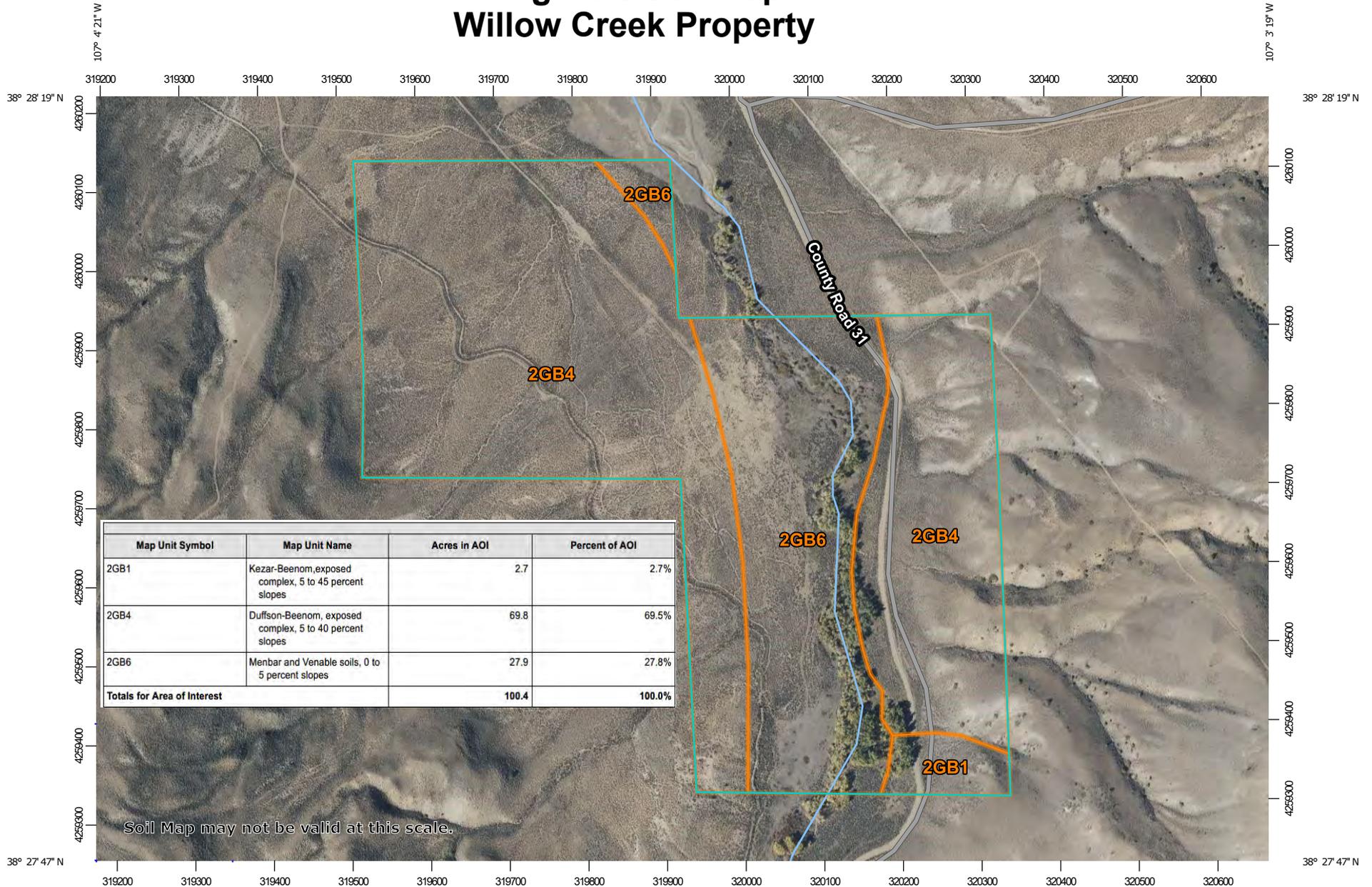
Qg: Terrace and pediment gravels.



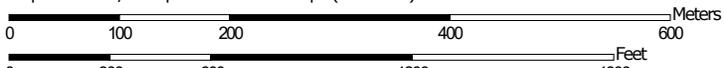
a: Amphibolite, black to greenish-black. Occurs in elongated and discontinuous bodies parallel to surrounding rocks.



# Figure 6 Soil Map Willow Creek Property



Map Scale: 1:6,820 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

# 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 1:24,000.

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: Gunnison Area, Colorado, Parts of Gunnison, Hinsdale, and Saguache Counties  
Survey Area Data: Version 17, Sep 6, 2024

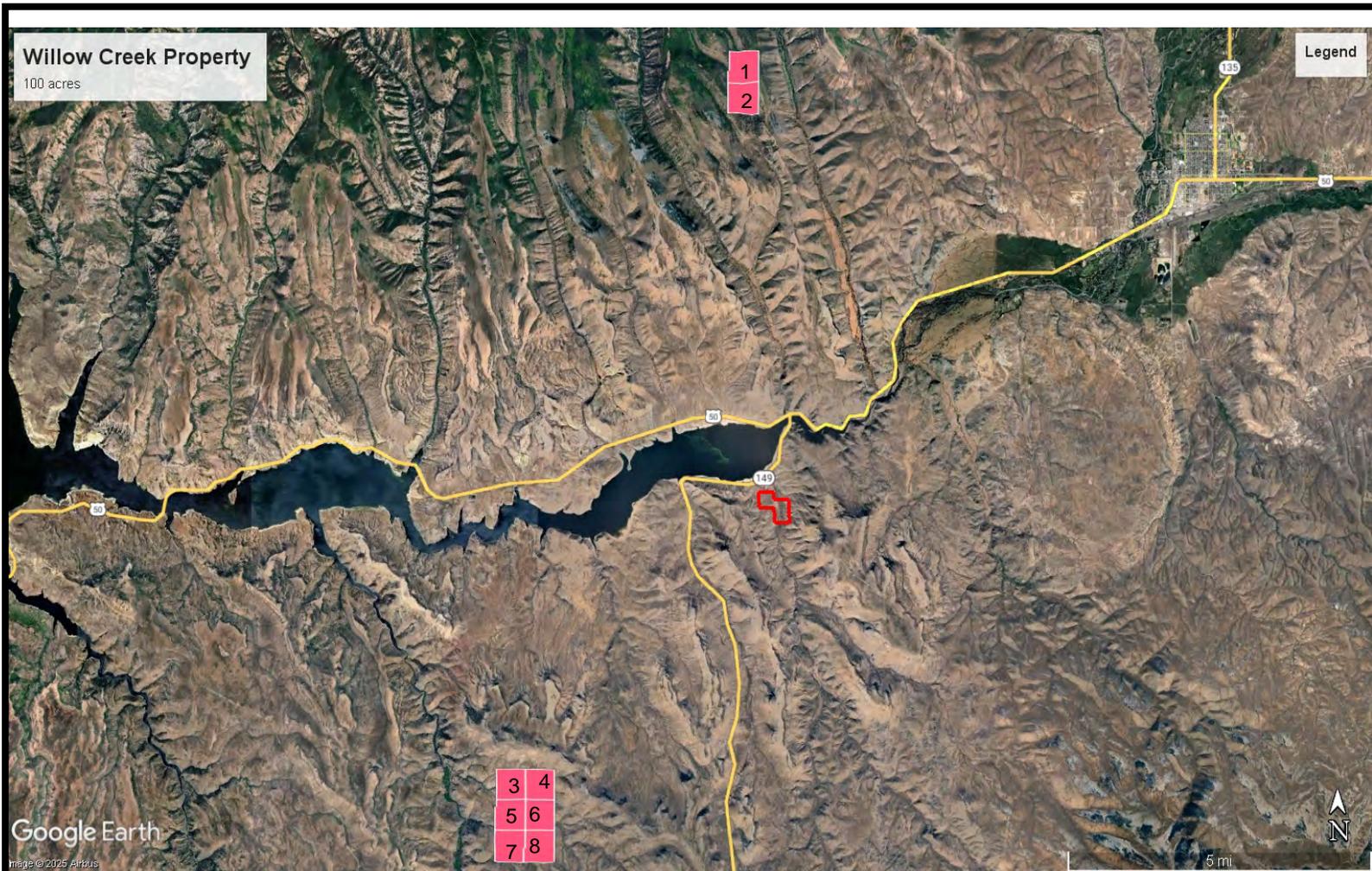
Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 17, 2021—Sep 22, 2021

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.

## MAP LEGEND

# Figure 7 Active Mining Claims Willow Creek Property

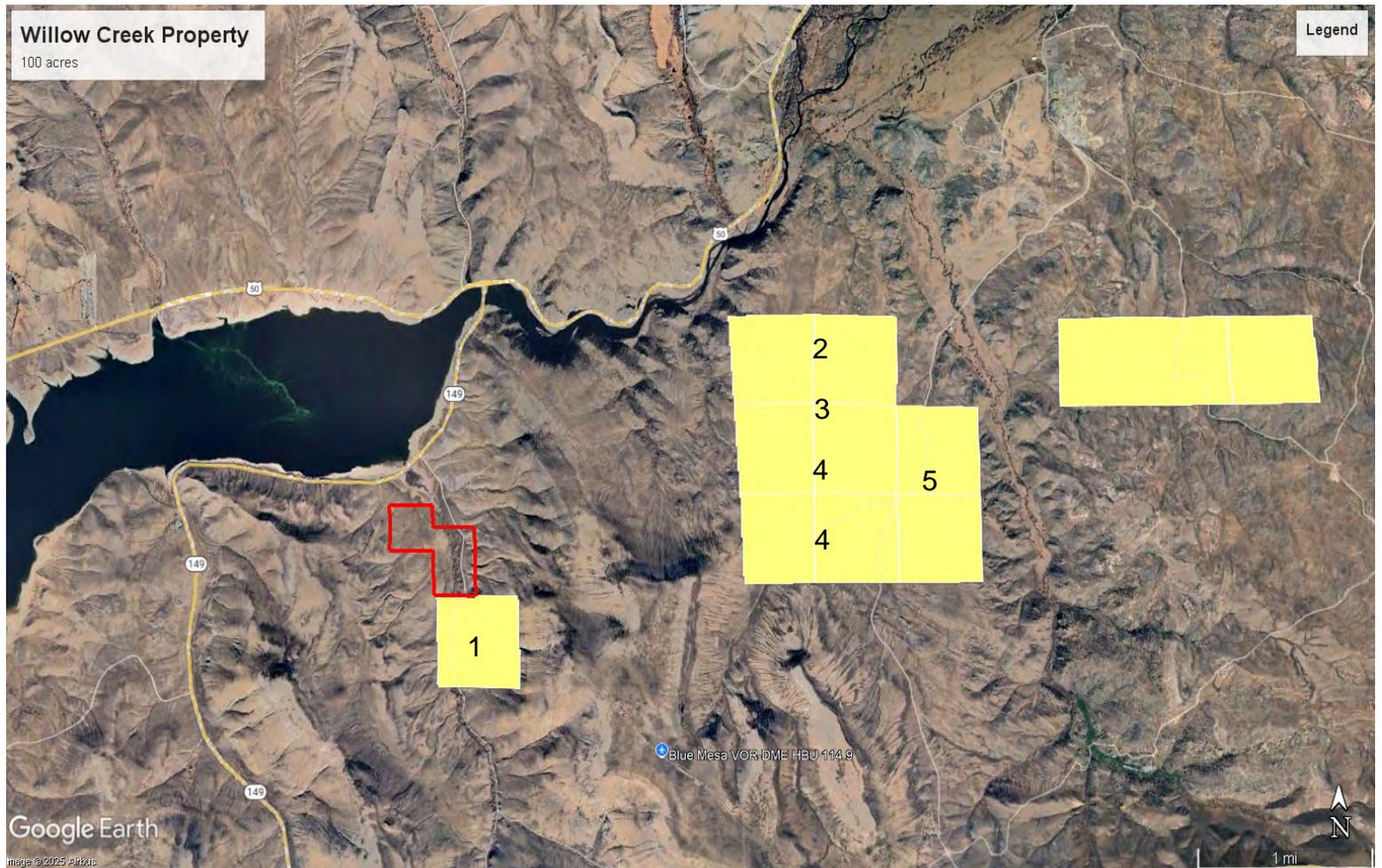


## Active Mining Claims

1. Paymaster; CMC291023 and CMC 291024. 20 acre placer and 21 acre lode claims.
2. Happy Hour; CMC291022, 21 acre placer claim.
3. TSL No. 8; CMC293949, 21 acre lode claim.
4. TSL No. 7; CMC293948, 21 acre lode claim.
5. TSL No. 9; CMC293950, 21 acre lode claim.
6. TSL No. 10; CMC293951, 21 acre load claim.
7. TSL No. 11; CMC293958, 21 acre load claim.
8. TSL No. 13; CMC293960, 21 acre lode claim.

-  Willow Creek Easement Property
-  Active Mining Claim

# Figure 8 Inactive Mining Claims Willow Creek Property

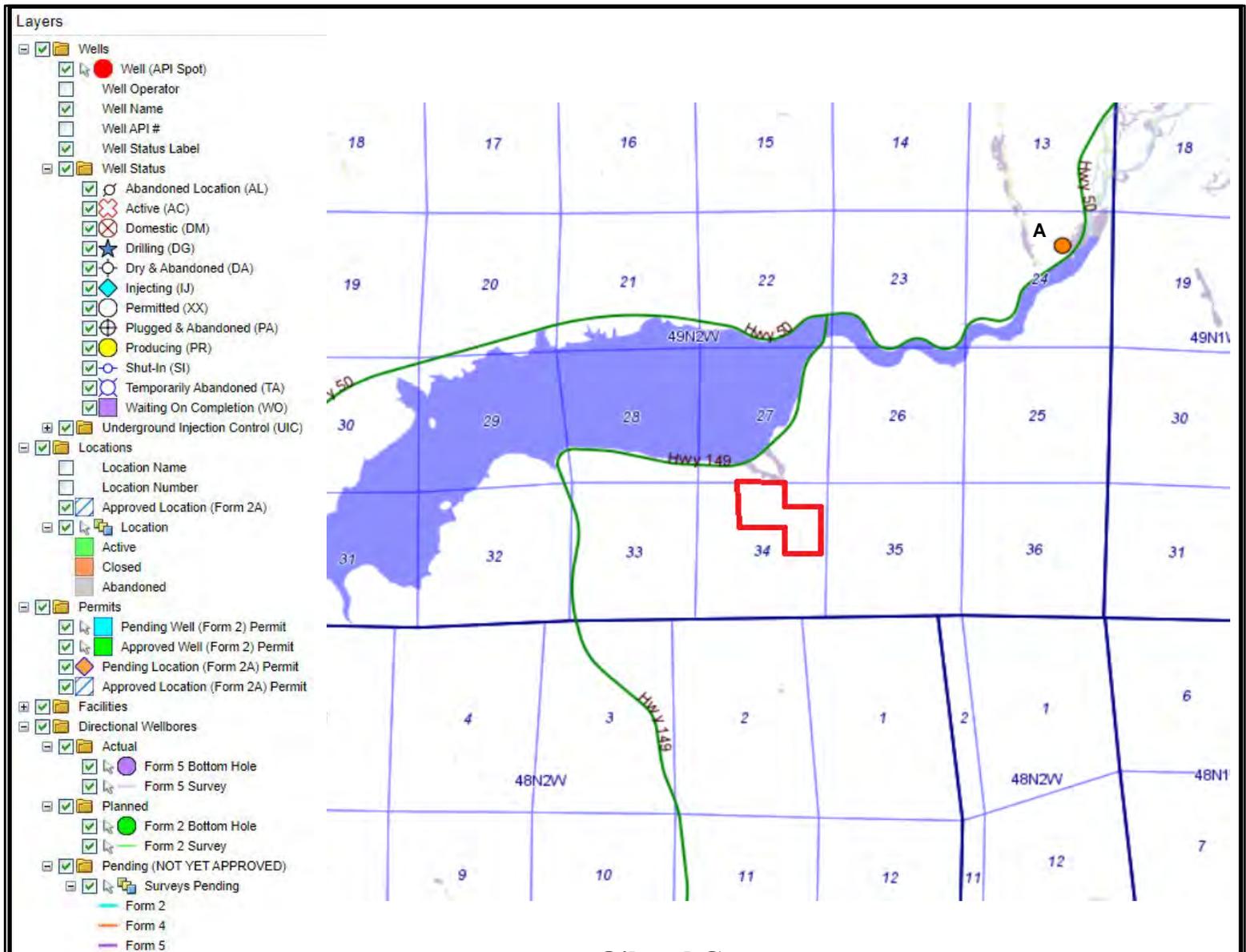


## Inactive Mining Claims

1. Heap #1; CMC165399, Relinquished 1986.
2. Stinky; CMC164502, Relinquished 1982.
3. Moon Face; CMC164507, Relinquished 1982.
4. Soggy Muff; CMC195579, Relinquished 1991.
5. Oliver Boliver Butt; CMC164512, Relinquished 1982.



# Figure 9 ECMC Map Willow Creek Property



## Oil and Gas

1. Tom Lively #1, API# 05-051-050000. Drilled and abandoned in 1964. Located 12 miles northeast.

## Gravel Pits

A. Dickerson Pit, DRMS Permit M1978305. Active.

