User Guide for TVW Ranch Map

Overview

The TVW Ranch map is a cloud based, interactive geographic information system (GIS) application. It allows the user to overlay geographic data over various map backgrounds. Logical collections of geographic data that are used to create maps and scenes are referred to as layers. Collections of similar layers are considered groups.

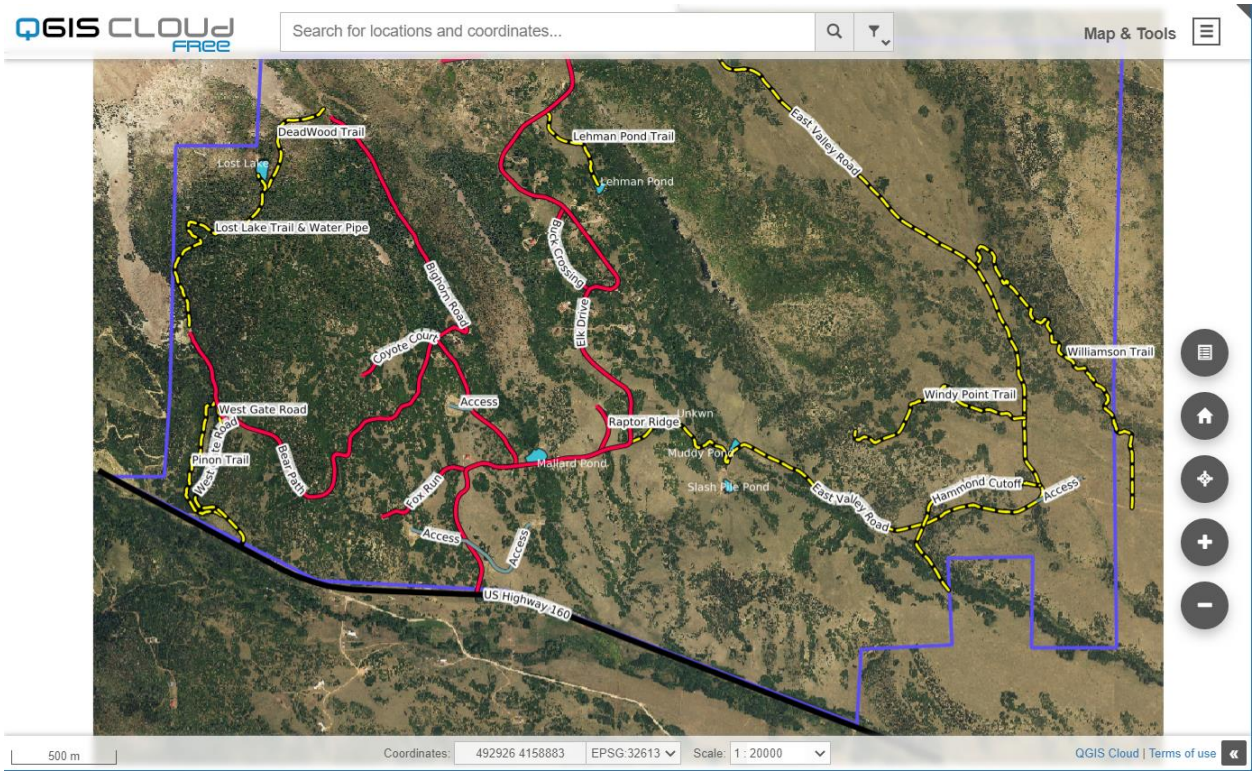
The user interface for this browser-based application is very basic but if you have never used a program like this, the guide will go over its features and provide instructions on its use.

This application has been tested on Macintosh computers and iPads using Safari and on PCs using the Edge, Chrome, Firefox and Opera browsers. Although this application works fine on an iPad, given how they are different from laptops (i.e., no mouse) some interaction can be a bit more cumbersome.

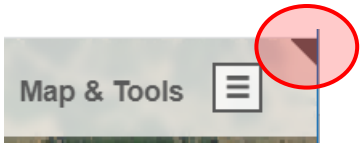
Since this application is cloud-based, performance is highly dependent on the quality and speed of your internet connection. There is a slight delay in loading data and this can be impacted by your available speed and bandwidth.

Getting Started

1. Enter the following URL in your browser: https://qgiscloud.com/TVWWeb/TVW_WebMap
2. The following screen will be displayed.



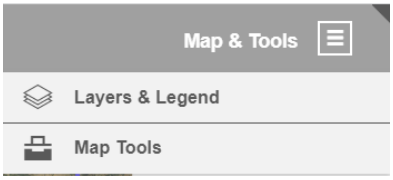
3. Selecting the highlighted object in the upper right corner will put the display in full screen mode. Select again to return to default.



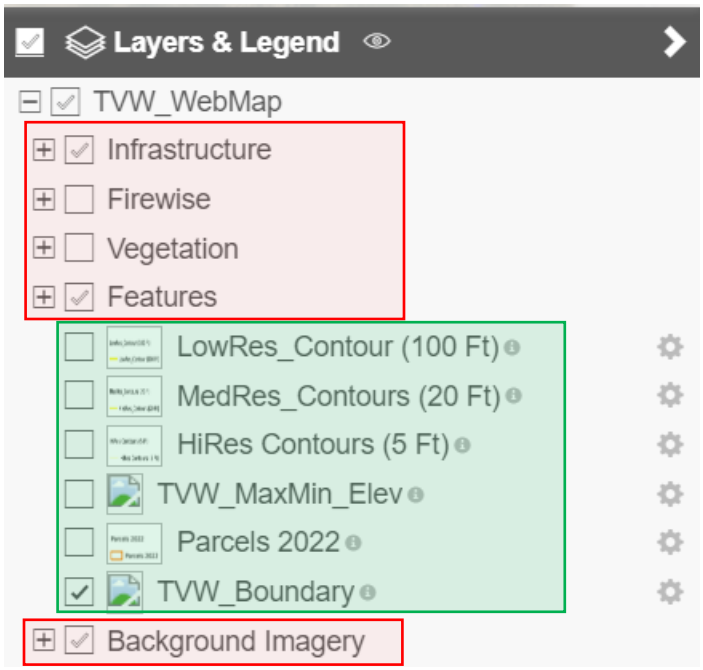
Interface

The following section describes the various controls in the application interface.

1. Selecting the **Map & Tools** button in the upper right will show the 2 options available.



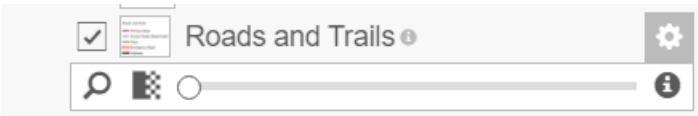
   a. Selecting **Layers & Legends** will display the following window. Groups are outlined in **RED** and layers are outlined in **GREEN.** See **Appendix A** for detailed description of layers.



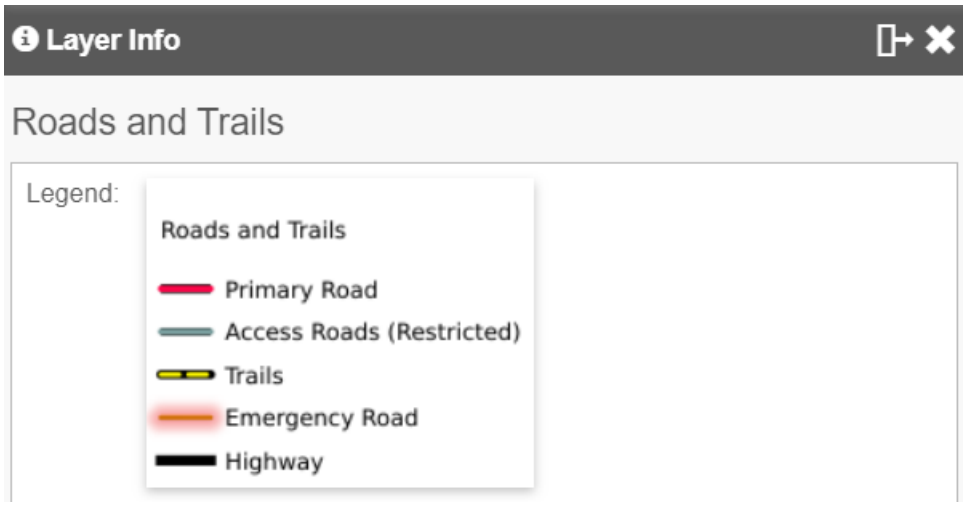
The **+** sign indicates that this group can be expanded to show the available layers.

If a box has a check mark in it ☑ that indicates that the layer is being displayed.

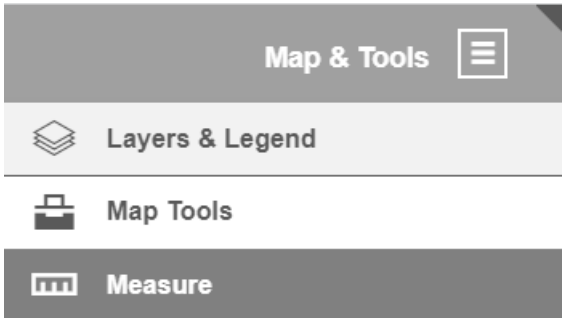
The small wheel  to the right will access additional tools. In this case an opacity slider. Click and drag the circle to change opacity.



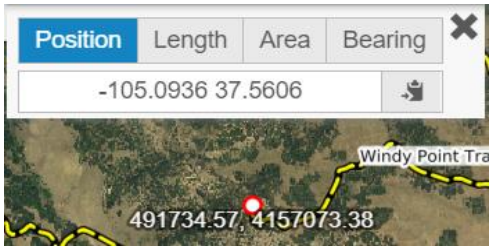
The ***i*** will display the layer info / legend.

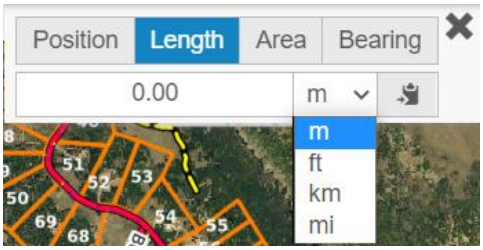


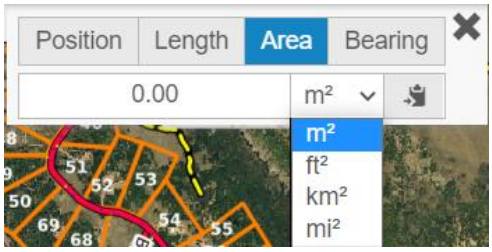
b. Selecting **Map Tools** will display the **Measure** tool button.

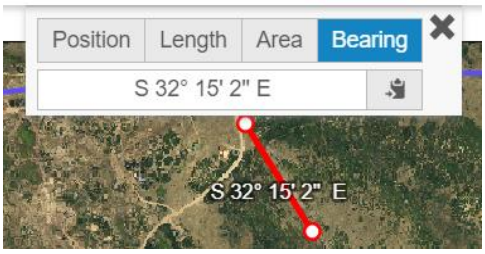


The **Measure** tool window has 4 options: **Position, Length, Area and Bearing**. Length and Area allow for changing the units, as shown. To use the **Length** and **Area** tool, position cursor on spot, click then move. Double click to end. For **Position,** just position cursor on spot and click. To use **Bearing**, position cursor at starting point, then click. Now move to ending point, then click



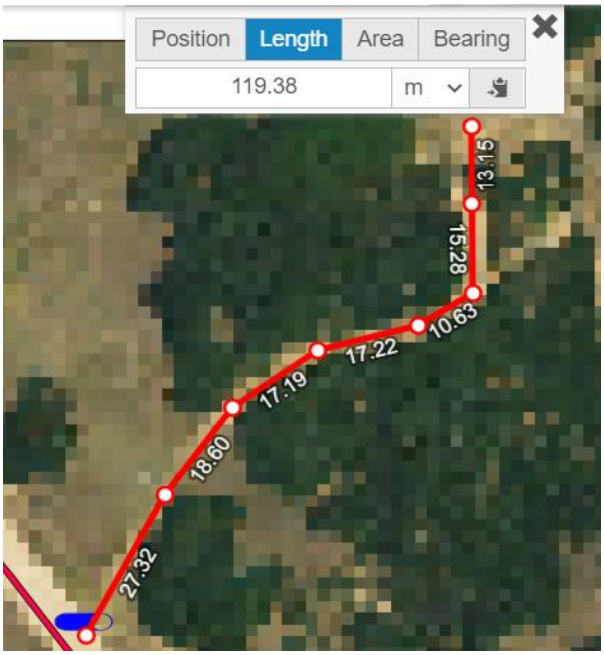




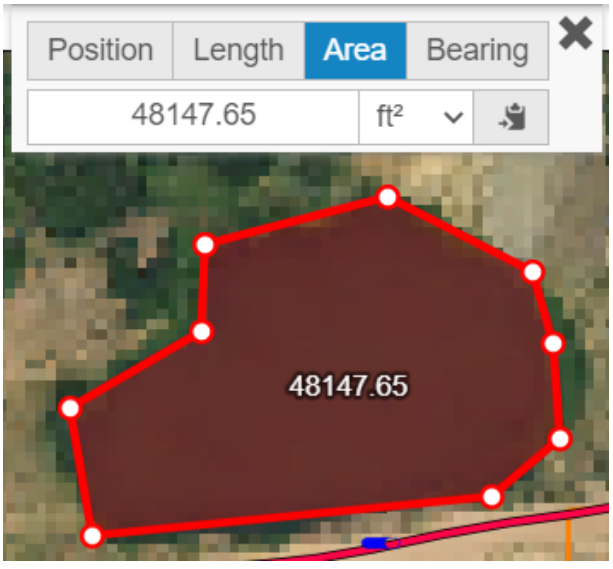


Example Length Calculation

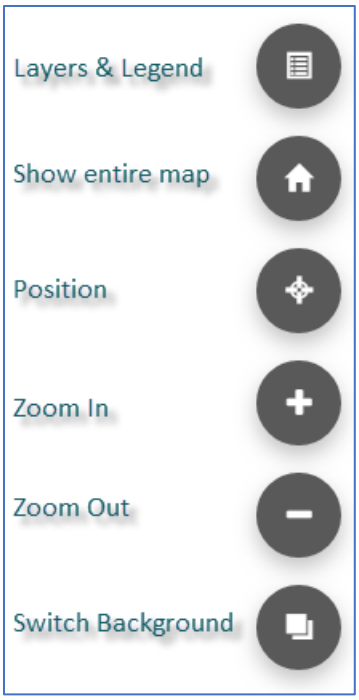
Lengths of multiple segments can be calculated as shown.



Example Area Calculation



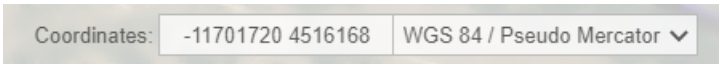
2. Lower-right control buttons



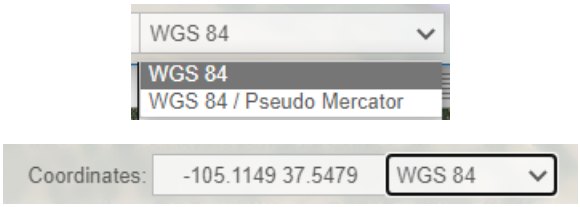
Layers & Legend	Display map legend and layer controls
Show entire map	Resize and position map to center of screen
Position	N/A
Zoom In	Zoom in on map at center point
Zoom Out	Zoom out on map at center point
Switch Background	Change background imagery

3. Default **Coordinates** display – Tracks the geographic location of the cursor as the user moves around the display. Default projection reports location in meters.

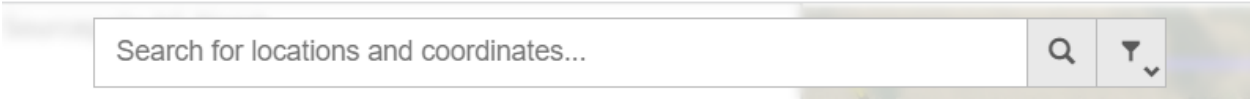
   Scale shows the map scale based on the zoom level of the image.



   Change coordinate system: Select dropdown and change to WGS 84 to report in latitude and longitude.



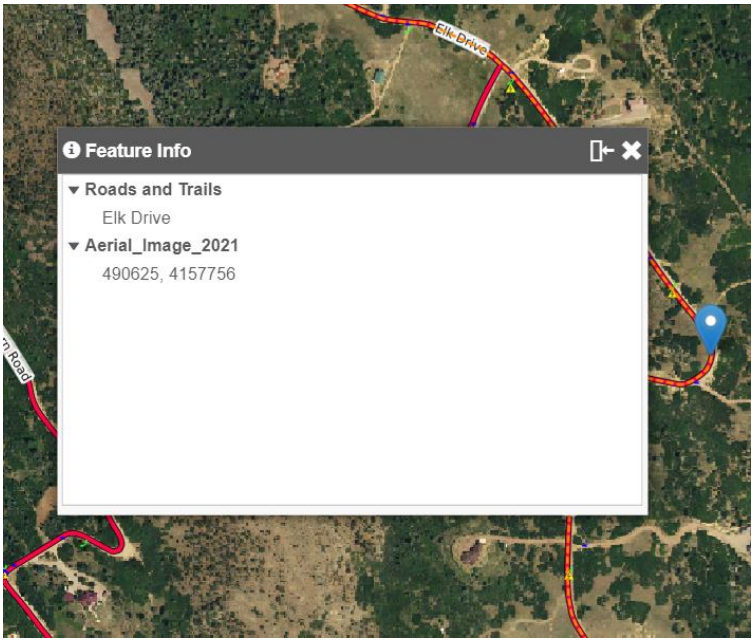
4. **Search** Tool – This tool uses a free geographic database of the world called OpenStreetMap. Information about TVW is not part of this database. Ensure that the Open Street Map background is selected (**Switch Background**). Coordinate searches do work for the TVW database. If you know the coordinates of an object you can enter that. For example, entering **-105.1136 37.5537** will position the map and mark the front gate.



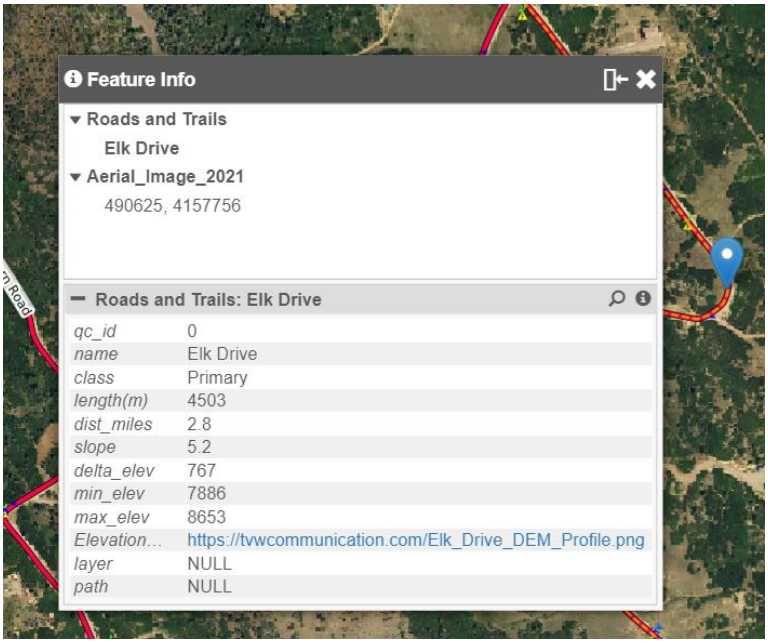
Extracting Information

An important feature of a GIS application is the ability to extract information about a particular feature of interest. Examples might be the area of a lake or the length of a road.

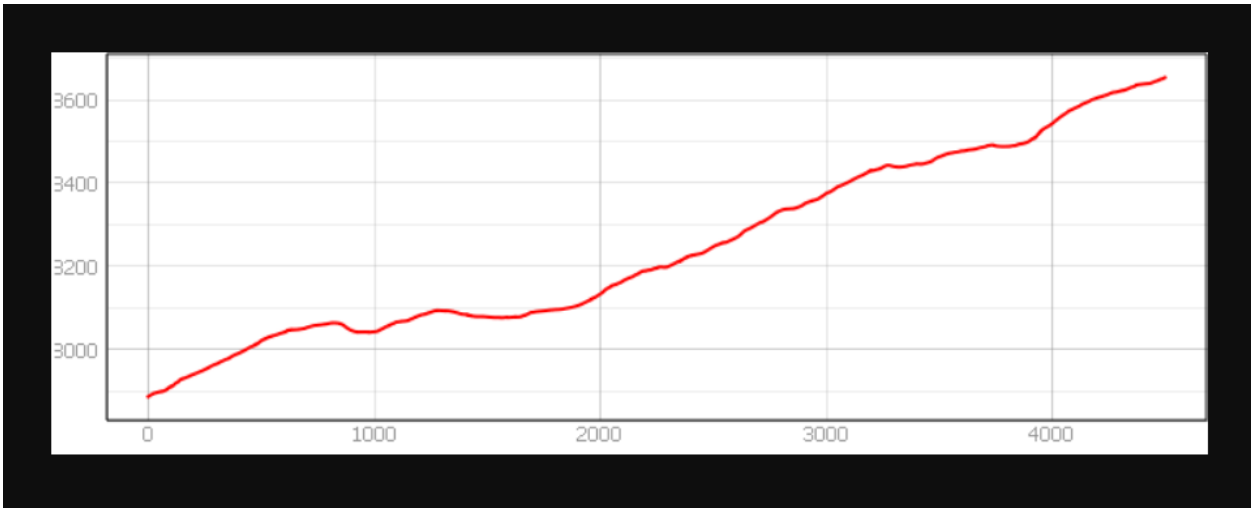
In order to extract this information, it is as simple as positioning the cursor on the particular object (as shown in this example) and click. In this case we see 2 features since there are two unique features at the chosen point.



Selecting the feature name (Elk Drive) will display all the attributes of this feature.



In the case where there is a hypertext link, as shown here, that image will be opened in a new window when selected. In this instance, it shows an elevation profile that graphically represents the steepness of the road.



Appendix A

The following tables list the groups and layers and contain a detailed description of each of the layers available on the TVW Ranch Map.

Infrastructure Group

Valves	Control valves for the domestic water distribution pipes
PRV_Spring	Pressure relief valves for the domestic water distribution pipes and underground springs
TVW_Gas_Wells	The CO2 gas wells as reported in the state of Colorado database
Electric Box	The locations of all the San Isabel electrical transformers
Telephone Box	The locations of all the Century Link telephone boxes
Culverts_2019	The locations of all culverts and their reported condition as of 2019
Roads and Trails	All drivable roads and trails on the ranch providing information such as road type, length, elevation and slope.

Firewise Group

Mitigation Areas	The areas on the ranch where wildfire mitigation work h been done
Structures	All structures on the ranch with information regarding the status of a Home Ignition Zone (HIZ) Assessment and creation of defensible space
TVW_BurnScar	The areas of the ranch that were burned from the Spring Fire in 2018

Vegetation Group

Reforestation Area	The area of the Spring Fire burn scar that is going to be part of the reforestation project.
Noxious Weed Locations (2021)	The reported locations and types of noxious weeds on the ranch as of the Fall of 2021, classified by whether they were treated or not.
Noxious Weed Extents (2021)	The **estimated** extent of the noxious weed infestation on the ranch as of the Fall of 2021

Features

ManMade Features	The location of several man-made features on the ranch which include water storage tanks, security gates, fire hydrant, water treatment facility, communication towers (Internet), dumpsters and slash pile.
Natural Features	The location of naturally occurring features on the ranch which includes the rock slides, topographic features (Windy Point, Elk Knoll, Gills Hill) and 3 underground springs.
Intermittent Streams	The location of intermittent streams as defined by the National Hydrography Dataset (NHD) of the United States Geological Survey (USGS)
Ponds	The location and size of the 6 ponds on the ranch. Size is based on the extent of water determined in 2017 and acts only as an estimate of each ponds size.

Background Imagery

Elevation_Map	A color-coded image representing the elevation of the ranch. The image is derived from high resolution LiDAR data collected, post fire, in 2018 for the USGS.
Aerial_Image_2021	Color image from the National Agriculture Imagery Program (NAIP), United States Department of Agriculture (USDA) Farm Service Agency (FSA). Imagery is collected on a 2-year repeat cycle.
Shaded_Relief	A derived image that simulates the effect of sunlight on a terrain that creates a more realistic 3D representation of the elevation.
OpenStreetMaps	OpenStreetMap is a free geographic database of the world that represents physical features on the ground (e.g., roads or buildings)

Non-grouped Layers

LowRes_Contour (100 Ft)	Low resolution elevation contours derived from LiDAR data. Interval is 100 ft. They are ideal when looking at large areas such as the entire ranch image.
MedRes_Contours (20 Ft)	Medium resolution elevation contours derived from LiDAR data. Interval is 20 ft. They are ideal when looking at moderately sized areas such as the East Valley.
HiRes_Contours (5 Ft)	High resolution elevation contours derived from LiDAR data. Interval is 5 ft. They are ideal when looking at small areas such as an individual parcel.
TVW_MaxMin_Elev	Point features that mark the maximum and minimum elevation points on the ranch.
Parcels 2022	Individual lots on the ranch. Initial data was from Huerfano County in 2017 but has been updated to reflect the current owners. The quality of this database is questionable so exact parcel corners and property lines may not reflect the actual location.
TVW_Boundary	The TVW property boundary from Huerfano County. The quality of this database is questionable so exact parcel corners and property lines may not reflect the actual location.