

TOPSOIL PROTECTION PLAN

Twin Bridges Resources LLC has prepared this Topsoil Protection Plan for the Red Rocks 1-13 exploratory helium gas well development in Las Animas County, Colorado. The sections below correspond to Colorado Oil & Gas Conservation Commission (COGCC) requirements in Rule 304.c.(14) to prepare a Topsoil Protection Plan consistent with the criteria listed in Rule 1002.c and guidance provided by COGCC.

1. CERTIFICATION

This Topsoil Protection Plan has been prepared under the supervision of a person with relevant expertise in field soil identification and reclamation techniques and standards.


Andrew Payton, Geologist

7-8-2021
Date

2. AERIAL PHOTOGRAPH AND DISTURBANCE ACREAGE

The extent of the disturbed area is shown on the Form 2A, Construction Layout Drawing and Form 2A, Related Location and Flowline Map. The figures show the Oil and Gas Location, access road, and related flowline. The estimated disturbance acreages are shown below.

Table 1. Estimated Acreages

Designation	Estimated Acreage	Description
Oil and Gas Location	1	New Disturbance
Access Road	0.5	Existing Disturbance
Flowline	2.3	New Disturbance
TOTAL	3.8	

3. NRCS SOIL SURVEY

The Natural Resource Conservation Service (NRCS) soil type at the Oil and Gas Location is WC – Plughat-Villegreen Complex, 1 to 4 percent slopes.

The existing access road will cross WC – Plughat-Villegreen Complex soils.

Production from the helium gas well would require construction of a helium gas flowline to a skid-mounted helium purification unit. The flowline corridor is shown on the Form 2A, Related Location and Flowline Map. The flowline corridor will cross the following soil types:

WC – Plughat-Villegreen Complex

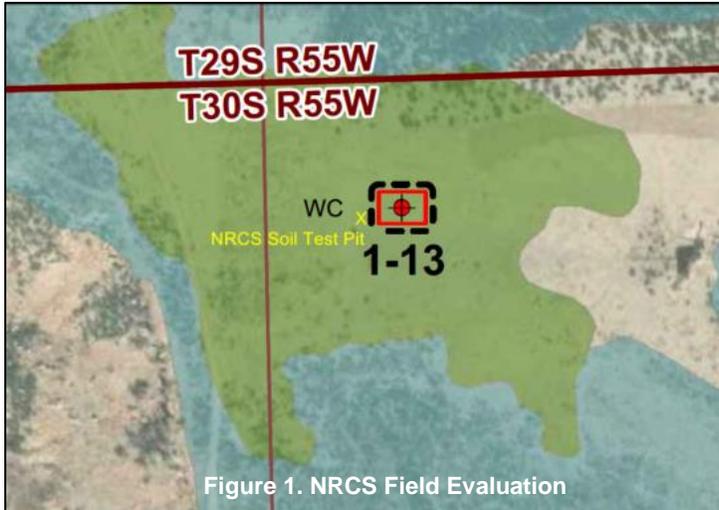
DaE - Dalerose-Rock Outcrop Complex

CC – Chacuaco-Capulin Loams, 1 to 4 percent slopes

NRCS soil unit descriptions and a Soil Unit Map are provided with the Form 2A.

4. TOPSOIL DEPTH

A site-specific on-site evaluation of topsoil depth was conducted on behalf of Twin Bridges by the District Conservationist and Resource Team Lead, NRCS-Walsenburg and Trinidad Field Office, on July 1, 2021. The NRCS specialist measured the representative topsoil depth as 3 inches at the location shown on Figure 1.



The topsoil depth measured by NRCS is consistent with the soil unit descriptions below, which range from 0 to 8 inches and have a median of 3 inches of topsoil.

WC – Plughat-Villegreen Complex, A-horizon 0-6 inches

DaE - Dalerose-Rock Outcrop Complex, A-horizon 0-5 inches

CC – Chacuaco-Capulin Loams, A-horizon 0-8 inches

5. EVALUATION OF SOILS

The NRCS soil unit characteristics are listed below. During its on-site evaluation, NRCS determined that WC – Plughat-Villegreen Complex is predominant in the area.

WC – Plughat-Villegreen Complex, silt loam and loam

DaE - Dalerose-Rock Outcrop Complex, gravelly fine sandy loam

CC – Chacuaco-Capulin Loams, loam

Prior to well pad construction, on location soil test pits will be dug. Soil samples will be analyzed for analytes identified by COGCC.

6. TOPSOIL STOCKPILE LOCATION

The topsoil stockpile location is shown on the Form 2A, Construction Layout Drawing.

7. TOPSOIL TO BE SALVAGED IN CUBIC YARDS

The Oil and Gas Location will disturb portions of a 1-acre area, with salvage of up to an estimated 98 cubic yards of topsoil. Areas for disturbance will be cleared of vegetation. Topsoil will be stripped and segregated based on characteristics, such as texture, color, structure, consistency, and organic matter. The topsoil stockpile will be protected by segregating it on the Oil and Gas Location, surface roughening, and an erosion control blanket, if necessary, while maintaining soil microbial activity.

The flowline trench will be an estimated 18 inches deep, 6 feet wide, and up to approximately 3 miles long to support installation of a 6-inch diameter polyethylene helium gas flowline. Approximately 934 cubic yards of topsoil will be salvaged during flowline installation. Topsoil will be windrowed along the flowline trench to be replaced over the flowline following flowline installation and integrity testing.

8. BEST MANAGEMENT PRACTICES

Short-term

- The Oil and Gas Location will be prepared for well drilling just sufficient to provide access for a water well-sized drill rig and equipment for a shallow vertical helium gas well. There is anticipated to be minimal vegetation clearing, blading for a level surface, and cut and fill areas of approximately 5 feet, or less.
- The operator will salvage and segregate topsoil based on the depth identified by the NRCS on-site evaluation and soil characteristics of texture, color, structure, consistency, and organic matter.
- Salvaged topsoil will be mounded on the Oil and Gas Location with a slope not greater than 1:3.
- Topsoil will be protected from contamination by stockpiling it in a location free from drilling, fuel storage, and parking.
- Soil removed during flowline trenching will be segregated based on changes in physical characteristics. The soil layers will be windrowed adjacent to the trench.
- Soils from the flowline trench will be replaced promptly in the same order in which they were removed.

Long-term

- The topsoil stockpile will be protected from compaction by designating it with surveyor staking and flagging as topsoil for reclamation.
- The topsoil stockpile will be protected from wind degradation by mounding at an approximately 1:3 steepness to prevent loose soils while promoting continued microbial activity.
- The topsoil stockpile will be protected from erosion by ensuring that stormwater controls and diversions are installed, as needed, to divert stormwater away from the stockpile.
- The duration of stockpiled topsoil is not anticipated to exceed one growing season because the Oil and Gas Location will support a single vertical helium gas well. Reclamation will occur during the first growing season after the well is drilled.

9. WEED CONTROL

The topsoil stockpile will be monitored for weed management during the weed management monitoring conducted for the Oil and Gas Location.