

Topsoil Protection Plan

Sammons Ranch
Helium Gas Well 315310C



October 2021

This Topsoil Protection Plan (Plan) has been prepared by Vecta Oil & Gas, Ltd. (Vecta) for its Sammons Ranch helium gas well development in Las Animas County, Colorado. The Plan addresses the Colorado Oil & Gas Conservation Commission (COGCC) requirement at Rule 304.c.(14) to prepare a Topsoil Protection Plan, the topsoil protection criteria in Rule 1002.c, and COGCC guidance.

1.0 Certification

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


Mathew Goolsby, Geologist

10/7/21

Date

2.0 Aerial Photograph and Disturbance Acreage

The extent of the disturbed area is shown on 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 in Table 1.

Table 1. Estimated Disturbance Acreages

Designation	Estimated Acreage	Description
Oil and Gas Location	1.1	New Disturbance
Access Road – New	0.4	New Disturbance
Flowline	0	Constructed Within Roadway
LOCATION TOTAL	1.5	
Existing Access Road ¹	0.6 ac	

¹The existing disturbance from an existing ranch road will provide common access to the Sammons Ranch locations from Colorado Highway 109 for the first 0.25 mile (0.6 ac) of access. The existing road is shown on the Form 2, Access Road Map.

3.0 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

WeB – Wiley Silt Loam, 0 to 3 percent slopes

The existing access road will cross:

WC – Plughat-Villegreen Complex

BaA – Baca Silt Loam, 0 to 3 percent slopes

The new access road will cross:

WC – Plughat-Villegreen Complex

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

WC – Plughat-Villegreen Complex

BaA – Baca Silt Loam

NRCS soil unit figures and descriptions are shown in the Form 2A, NRCS Map Unit Description.

4.0 Topsoil Depth

An on-site evaluation of topsoil depth was conducted on behalf of Vecta by the District Conservationist and Resource Team Lead, NRCS-Walsenburg and Trinidad Field Office, on July 1, 2021. The NRCS specialist selected a location representative of actual field conditions for the Oil and Gas Location in terms of soil and slope. NRCS measured a topsoil depth of 2 inches for the location shown on Figure 1.

The topsoil depth measured by NRCS is consistent with the soil unit descriptions below for the Oil and Gas Location, which range from 0 to 6 inches.

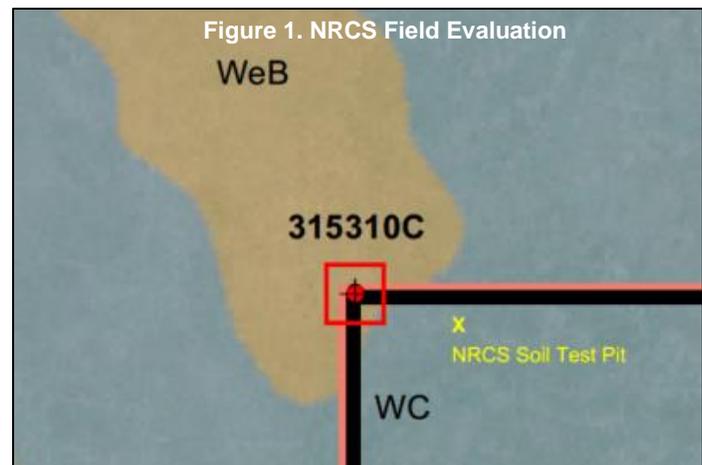
WC – Plughat-Villegreen Complex

A-horizon 0 to 6 inches

WeB – Wiley Silt Loam

A-horizon 0 to 4 inches

Prior to construction, on location soil test pits will be dug. Soil samples will be analyzed for analytes identified by COGCC. A diagram is attached showing where test pits will be located within the disturbance and for each affected soil unit.



5.0 Evaluation of Soils

NRCS soil unit characteristics are listed below.

WC – Plughat-Villegreen Complex

Loam and silt loam

WeB – Wiley Silt Loam

Silt loam

BaA – Baca Silt Loam

Silt loam

6.0 Topsoil Stockpile Location

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

7.0 Topsoil to be Salvaged in Cubic Yards

The Oil and Gas Location will disturb portions of a 1.1-acre area, with salvage of up to an estimated 74 cubic yards of topsoil. Salvaged topsoil will be mounded on the Oil and Gas Location with a slope of approximately 1:3. The maximum height of the stockpile will be an estimated 4.2 feet. 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. It will be marked with a labeled surveyor stake to distinguish it from the surrounding area. Vecta will further protect potentially stockpiled topsoil in the following ways:

- **Contamination**

Vecta will keep the area surrounding the stockpile clear of stored materials and vehicle parking. There otherwise are no hydrocarbons or produced water associated with the helium gas wells. Therefore, there is no potential for leaks or spills from storage tanks from mixing with and contaminating the topsoil.

- **Compaction**

The topsoil stockpile will be placed on the edge of the well pad to avoid the risk that equipment will be operated over the stockpile.

- **Wind and Water Erosion**

The stockpile will be consolidated and mounded to minimize loose soils. It will be located on a portion of the well pad surface that promotes natural drainage and avoids ponding and stormwater runnels. Surface roughening and an erosion control blanket will be used if necessary to contain loose soils, while maintaining soil microbial activity.

The flowline trench will be an estimated 18 inches deep, 6 feet wide, and approximately 1,220 feet long to support installation of a 4-inch diameter polyethylene helium gas flowline. Approximately 542 cubic yards of soil will be salvaged during flowline installation. Soil will be windrowed along the flowline trench to be replaced over the flowline following installation and integrity testing.

8.0 Best Management Practices

Table 2. Best Management Practices

Short-Term
<ul style="list-style-type: none"> • Vegetation removal and soil disturbance on the Oil and Gas Location will be minimized to the area sufficient to site and level a water well-sized drill rig and equipment for shallow vertical well drilling.
<ul style="list-style-type: none"> • The operator will salvage and segregate topsoil based on soil characteristics of texture, color, structure, consistency, and organic matter.
<ul style="list-style-type: none"> • Salvaged topsoil will be mounded on the Oil and Gas Location with a slope of approximately 1:3.
<ul style="list-style-type: none"> • Vehicle tracking perpendicular to the slope angle will be used to improve short term stabilization.
<ul style="list-style-type: none"> • Topsoil will be protected from contamination by stockpiling it in a location free from drilling, fuel storage, and parking.
<ul style="list-style-type: none"> • Soil removed during flowline trenching will be segregated based on changes in physical characteristics. The soil layers will be windrowed adjacent to the trench.
<ul style="list-style-type: none"> • Soils from the flowline trench will be replaced promptly in the same order in which they were removed.
Long-Term
<ul style="list-style-type: none"> • The topsoil stockpile will be protected from compaction by designating it with surveyor staking and flagging as topsoil for reclamation.
<ul style="list-style-type: none"> • 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.
<ul style="list-style-type: none"> • 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.
<ul style="list-style-type: none"> • Vegetation will be allowed to establish, with crimped straw mulching, in order to stabilize the stockpile, outcompete weeds, and promote soil microbial activity.

- 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.

9.0 Weed Control

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

Attachment

Topsoil Test Pit Diagram

LAS ANIMAS COUNTY
 CSW SEC. 10
 T31S R53W 6TH P.M.



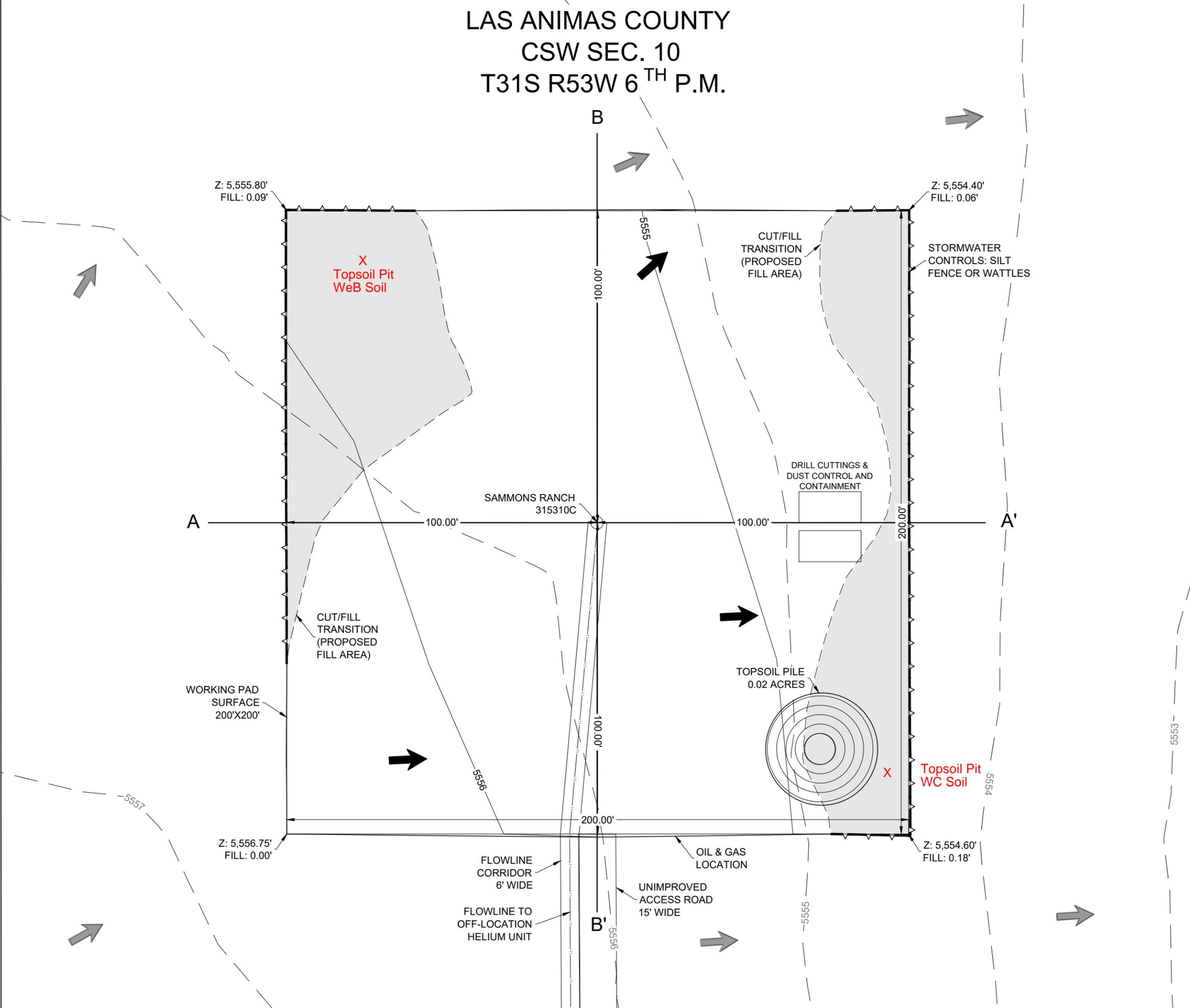
SCALE: 1" = 30'
 0' 15' 30'

- EXISTING 1' CONTOUR
- PROPOSED 1' CONTOUR
- STORMWATER CONTROLS: FENCE OR WATTLES
- █ CUT/FILL AREA
- WELLHEAD
- ➔ PROPOSED DRAINAGE
- ➔ EXISTING DRAINAGE

WELLHEAD ELEVATIONS
 GRADED ELEVATION: 5,555.75'
 UNGRADED ELEVATION: 5,555.75'

EARTHWORK QUANTITIES:

CUT:	145 CY
FILL:	71 CY
TOPSOIL (2"):	74 CY
EXPORT:	0 CY
FILL FACTOR:	1.15
WORKING PAD SURFACE:	±1.00 ACRES
OIL & GAS LOCATION:	±1.10 ACRES
UNIMPROVED ACCESS ROAD:	0.42 ACRES
FLOWLINE DISTURBANCE:	0.00 ACRES (TRENCH LOCATED WITHIN ROAD ALIGNMENT)



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CONSTRUCTION LAYOUT - PLAN VIEW

SAMMONS RANCH 315310C

VECTA OIL & GAS, LTD.

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DATE:	08/30/21
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REVIEWED BY:	CCC
SCALE:	1" = 30'
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