



Legend

- Proposed Access Road
- Proposed Oil and Gas Location
- One Mile Buffer
- 19, Keith-Richfield silt loams, 0 to 2 percent slopes
- 39, Satanta-Colby complex, 3 to 5 percent slopes

Source: NRCS July 2020

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0

0.25

0.5

Miles

Wavetech Energy, Inc.
1 Wavetech Harker-Family 14-26
Sec. 26 T12S R43W (SW/4 SW/4)
Cheyenne County, Colorado
Surface: Fee
SOILS

Coordinate System: NAD 83 StatePlane
Colorado South FIPS 0503 Feet

Prepared By:

Cheyenne County, Colorado

19—Keith-Richfield silt loams, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2s7w6

Elevation: 3,940 to 4,590 feet

Mean annual precipitation: 15 to 24 inches

Mean annual air temperature: 50 to 57 degrees F

Frost-free period: 140 to 190 days

Farmland classification: Prime farmland if irrigated

Map Unit Composition

Keith and similar soils: 50 percent

Richfield and similar soils: 30 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Keith

Setting

Landform: Plains

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Interfluve

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Loess

Typical profile

Ap - 0 to 6 inches: silt loam

Bt1 - 6 to 10 inches: silty clay loam

Bt2 - 10 to 25 inches: silty clay loam

C - 25 to 79 inches: silt loam

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water

(Ksat): Moderately high (0.20 to 0.60 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 10 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Very high (about 12.6 inches)

Interpretive groups

Land capability classification (irrigated): 2e

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: C

Ecological site: R067BY002CO - Loamy Plains

Hydric soil rating: No

Description of Richfield

Setting

Landform: Plains

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Interfluve

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Loess

Typical profile

Ap - 0 to 6 inches: silt loam

Bt1 - 6 to 18 inches: silty clay loam

Bt2 - 18 to 24 inches: silty clay loam

Bk - 24 to 79 inches: silt loam

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water

(Ksat): Moderately high (0.20 to 0.60 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 14 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Very high (about 12.6 inches)

Interpretive groups

Land capability classification (irrigated): 2e

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: C

Ecological site: R067BY002CO - Loamy Plains

Hydric soil rating: No

Minor Components

Goshen

Percent of map unit: 10 percent

Landform: Swales

Landform position (two-dimensional): Footslope, toeslope

Landform position (three-dimensional): Base slope

Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R067BY002CO - Loamy Plains
Hydric soil rating: No

Ulysses

Percent of map unit: 5 percent
Landform: Rises
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: R067BY002CO - Loamy Plains
Hydric soil rating: No

Satanta

Percent of map unit: 5 percent
Landform: Plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: R067BY002CO - Loamy Plains
Hydric soil rating: No

Data Source Information

Soil Survey Area: Cheyenne County, Colorado
Survey Area Data: Version 23, Aug 31, 2021

19—Keith-Richfield silt loams, 0 to 2 percent slopes						
Keith	R067BY002CO: Loamy Plains	1,800	1,300	600	Blue grama	25
					Sideoats grama	20
					Western wheatgrass	20
					Buffalograss	15
					Big bluestem	5
					Little bluestem	5
					Switchgrass	3
					Slimflower scurfpea	2
					Engelmann daisy	2
					Catclaw sensitive briar	1
					Heath aster	1
					Western ragweed	1
Richfield	R067BY002CO: Loamy Plains	1,800	1,300	600	Blue grama	25
					Western wheatgrass	20
					Sideoats grama	20
					Buffalograss	15
					Big bluestem	5
					Little bluestem	5
					Switchgrass	3
					Engelmann daisy	2
					Slimflower scurfpea	2
					Catclaw sensitive briar	1
					Western ragweed	1
					Heath aster	1

Cheyenne County, Colorado

39—Satanta-Colby complex, 3 to 5 percent slopes

Map Unit Setting

National map unit symbol: 354v

Elevation: 3,000 to 6,500 feet

Mean annual precipitation: 12 to 25 inches

Mean annual air temperature: 45 to 57 degrees F

Frost-free period: 130 to 200 days

Farmland classification: Prime farmland if irrigated

Map Unit Composition

Satanta and similar soils: 50 percent

Colby and similar soils: 20 percent

Minor components: 30 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Satanta

Setting

Landform: Paleoterraces

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium

Typical profile

A - 0 to 8 inches: loam

Bt - 8 to 16 inches: clay loam

Bk - 16 to 60 inches: loam

Properties and qualities

Slope: 3 to 5 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water

(Ksat): Moderately high to high (0.60 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 10 percent

Available water supply, 0 to 60 inches: High (about 9.8 inches)

Interpretive groups

Land capability classification (irrigated): 2e

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: B

Ecological site: R067BY002CO - Loamy Plains

Hydric soil rating: No

Description of Colby

Setting

Landform: Hills

Landform position (three-dimensional): Side slope

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Loess

Typical profile

A - 0 to 3 inches: silt loam

C - 3 to 60 inches: silt loam

Properties and qualities

Slope: 3 to 5 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water

(Ksat): Moderately high to high (0.57 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 15 percent

Available water supply, 0 to 60 inches: High (about 10.8 inches)

Interpretive groups

Land capability classification (irrigated): 4e

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: B

Ecological site: R067BY002CO - Loamy Plains

Hydric soil rating: No

Minor Components

Manter

Percent of map unit: 15 percent

Sampson

Percent of map unit: 15 percent

Data Source Information

Soil Survey Area: Cheyenne County, Colorado

Survey Area Data: Version 23, Aug 31, 2021



Cheyenne County, Colorado



Map unit symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		<i>Lb/ac</i>	<i>Lb/ac</i>	<i>Lb/ac</i>		<i>Pct</i>
39—Satanta-Colby complex, 3 to 5 percent slopes						
Satanta	R067BY002CO: Loamy Plains	1,600	1,200	800	Western wheatgrass	15
					Needleandthread	10
					Green needlegrass	10
					Miscellaneous perennial forbs	5
					Prairie sandreed	5
					Blue grama	—
Colby	R067BY002CO: Loamy Plains	1,600	1,100	600	Western wheatgrass	25
					Sideoats grama	10
					Green needlegrass	10
					Little bluestem	5
					Sand dropseed	5
					Needleandthread	5
					Blue grama	—