

**Township 8S, Range 40E**  
**SECTION 30**

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*Cliff Features*

**CLIFF FEATURE: C\_0022**



Photo: 1\_16\_06\_06

**Looking Northwest**

<b>FEATURE TYPE:</b>	Cliff		
<b>GEOMETRIC DIMENSIONS:</b>	Length: 30 ft	Height: 30 ft	
<b>LOCATION:</b>	Township: 8S	Range: 40E	Section: 30
<b>HANDHELD GPS POINTS:</b>	<b>Northing</b>	<b>Easting</b>	
	<b>8015</b>	411294.03	2679068.44
	<b>8016</b>	411293.19	2679042.63
	<b>8017</b>	411286.49	2679060.93

**SUBSTRATE:** Siltstone/sandstone

**EXPOSURE:** Southern facing slope

**DESCRIPTION OF FEATURE:** This type of cliff is very common throughout the entire permit area. This feature consists of a hard sandstone/siltstone rock layer on top of a highly erosive sandy silt layer. As weathering and erosion occurs, the rock shelf is left exposed, leaving an overhang. In many areas, this overhang eventually cantilevers far enough to cause the rock to fracture and fall down the steep sidehill.

**CLIFF FEATURE: C\_0023**



Photo: 1\_16\_06\_10

**Looking West**

**FEATURE TYPE:** Cliff

**GEOMETRIC DIMENSIONS:** Length: 70 ft      Height: 20 ft

**LOCATION:** Township: 8S      Range: 40E      Section: 30

**HANDHELD GPS POINTS:**

	<b>Northing</b>	<b>Easting</b>
<b>8025</b>	411504.90	2678490.52
<b>8026</b>	411463.12	2678440.22
<b>8027</b>	411482.02	2678460.27

**SUBSTRATE:** Soft Sandstone

**EXPOSURE:** Southern facing slope

**DESCRIPTION OF FEATURE:** The cliff feature shown above has a solid sandstone rock face that is pocketed with holes and crevices caused by weathering. The soil surrounding this feature is a sandy silt, and the rock face itself is composed of softer sandstone.



**CLIFF FEATURE: C\_0024**



Photo: 1\_16\_06\_12

**Looking West**

**FEATURE TYPE:** Cliff

**GEOMETRIC DIMENSIONS:** Length : 100 ft      Height: 15 ft

**LOCATION:** Township: 8S      Range: 40E      Section: 30

**HANDHELD GPS POINTS:**

	<b>Northing</b>	<b>Easting</b>
<b>8031</b>	411433.73	2678211.24
<b>8032</b>	411412.13	2678108.60
<b>8033</b>	411431.53	2678144.14

**SUBSTRATE:** Siltstone/sandstone

**EXPOSURE:** Southern facing slope

**DESCRIPTION OF FEATURE:** This feature is an exposed rock layer that is approximately fifteen feet thick. The exposure of the rock creates a very steep, solid rock face. This cliff occurs at the top of a moderately steep slope.

**CLIFF FEATURE: C\_0030**



Photo: 1\_17\_06\_11

**Looking Southwest**

**FEATURE TYPE:** Cliff

**GEOMETRIC DIMENSIONS:** Length : 40 ft      Height: 10 ft

**LOCATION:** Township: 8S      Range: 40E      Section: 30

**HANDHELD GPS POINTS:**

	<b>Northing</b>	<b>Easting</b>
<b>9025</b>	410813.85	2674870.15
<b>9026</b>	410824.11	2674849.15
<b>9027</b>	410780.22	2674845.41

**SUBSTRATE:** Siltstone/sandstone

**EXPOSURE:** Southern facing slope

**DESCRIPTION OF FEATURE:** The feature shown above has been listed as a cliff feature because of the geometry of the rock and the fact that the feature is embedded in the side of a hill. This rock face is jagged and overlooks a small tributary draw to South Fork Spring Creek.

**Township 8S, Range 40E**  
**SECTION 30**

*Rock Outcrop Features*



**ROCK OUTCROP FEATURE: RO\_0067**



Photo: 1\_16\_06\_03

**Looking North**

<b>FEATURE TYPE:</b>	Rock Outcrop		
<b>GEOMETRIC DIMENSIONS:</b>	Length : 85 ft	Height: 5 ft	
<b>LOCATION:</b>	Township: 8S	Range: 40E	Section: 30
<b>HANDHELD GPS POINTS:</b>	<b>Northing</b>	<b>Easting</b>	
	<b>8007</b>	410932.27 2679271.51	
	<b>8008</b>	410967.60 2679347.87	
	<b>8009</b>	410937.01 2679304.95	

**SUBSTRATE:** Siltstone/sandstone

**EXPOSURE:** Southern facing slope

**DESCRIPTION OF FEATURE:** The rock outcrop shown above occurs in a relatively flat region. The siltstone/sandstone outcrop lies in a long, narrow formation. The rocks in this feature are relatively low-lying and highly fractured.



**ROCK OUTCROP FEATURE: RO\_0068**



Photo: 1\_16\_06\_04

**Looking North**

**FEATURE TYPE:** Rock Outcrop

**GEOMETRIC DIMENSIONS:** Area of Outcrop: 0.02 acres

**LOCATION:** Township: 8S                      Range: 40E                      Section: 30

**HANDHELD GPS POINTS:**

	<b>Northing</b>	<b>Easting</b>
<b>8010</b>	411374.45	2679406.84
<b>8011</b>	411355.13	2679373.89
<b>8012</b>	411414.27	2679397.78

**SUBSTRATE:** Sand, Silt, and Siltstone/Sandstone

**EXPOSURE:** Southern facing slope

**DESCRIPTION OF FEATURE:** This rock outcrop does not contain rocks of significant size or uniqueness; however, the soil beneath the rocks is soft, sandy silt, allowing animals to use the rocks to burrow between. The steep sidehill contains frequent holes where animals have previously resided.

**ROCK OUTCROP FEATURE: RO\_0069**



Photo: 1\_16\_06\_05

**Looking North**

<b>FEATURE TYPE:</b>	Rock Outcrop		
<b>GEOMETRIC DIMENSIONS:</b>	Length: 120 ft	Height: 5 ft	
<b>LOCATION:</b>	Township: 8S	Range: 40E	Section: 30
<b>HANDHELD GPS POINTS:</b>	<b>Northing</b>	<b>Easting</b>	
	<b>8013</b>	411253.27	2679271.30
	<b>8014</b>	411300.90	2679166.39
<b>SUBSTRATE:</b>	Siltstone/sandstone		
<b>EXPOSURE:</b>	Southern facing slope		
<b>DESCRIPTION OF FEATURE:</b>	The outcrop shown above is the result of a very thin rock layer being exposed by erosion and weathering. A small overhang has been created below the siltstone/sandstone rock.		



**ROCK OUTCROP FEATURE: RO\_0070**



Photo: 1\_16\_06\_07

**Looking Northwest**

**FEATURE TYPE:** Rock Outcrop

**GEOMETRIC DIMENSIONS:** Length : 410 ft      Height: 15 ft

**LOCATION:** Township: 8S      Range: 40E      Section: 30

**HANDHELD GPS POINTS:**

	<b>Northing</b>	<b>Easting</b>		<b>Northing</b>	<b>Easting</b>
<b>8018</b>	411543.18	2678879.40	<b>8020</b>	411402.34	2679033.88
<b>8019</b>	411428.86	2678952.91	<b>8021</b>	411353.77	2679221.50

**SUBSTRATE:** Scoria

**EXPOSURE:** Southern facing slope

**DESCRIPTION OF FEATURE:** In many areas around the minesite, the peaks of hillsides are capped with a highly fractured scoria rock. This feature is an example of one of these scoria caprocks.

**ROCK OUTCROP FEATURE: RO\_0071**



Photo: 1\_16\_06\_08

**Looking Northeast**

<b>FEATURE TYPE:</b>	Rock Outcrop		
<b>GEOMETRIC DIMENSIONS:</b>	Length: 110 ft	Height: 10 ft	
<b>LOCATION:</b>	Township: 8S	Range: 40E	Section: 30
<b>HANDHELD GPS POINTS:</b>	<b>Northing</b>	<b>Easting</b>	
	<b>8022</b>	411611.24 2678618.80	
	<b>8023</b>	411552.34 2678713.74	
	<b>8024</b>	411580.39 2678679.24	
<b>SUBSTRATE:</b>	Soft Sandstone		
<b>EXPOSURE:</b>	Southern facing slope		
<b>DESCRIPTION OF FEATURE:</b>	The soft sandstone that makes up this rock outcrop is very similar to the rock in feature C_0023. The sandstone has been eroded away at the bottom, leaving an overhang and pockets. Picture 1_16_06_09 on the next page shows a closer view of this feature.		



**ROCK OUTCROP FEATURE: RO\_0071**



Photo: 1-16-06-09

**Looking North**

**ROCK OUTCROP FEATURE: RO\_0072**



Photo: 1\_16\_06\_11

**Looking North**

**FEATURE TYPE:** Rock Outcrop

**GEOMETRIC DIMENSIONS:** Area of outcrop: 0.01 acres

**LOCATION:** Township: 8S      Range: 40E      Section: 30

**HANDHELD GPS POINTS:**

	<b>Northing</b>	<b>Easting</b>
<b>8028</b>	411476.10	2678279.61
<b>8029</b>	411498.72	2678302.12
<b>8030</b>	411490.34	2678268.81

**SUBSTRATE:** Siltstone/sandstone

**EXPOSURE:** Southern facing slope

**DESCRIPTION OF FEATURE:** These large sandstone/siltstone rocks are positioned near the middle of this moderate slope. This feature is located on soft, sandy silt soil and is not surrounded by significant vegetation.



**ROCK OUTCROP FEATURE: RO\_0073**



Photo: 1\_16\_06\_13

**Looking West**

**FEATURE TYPE:** Rock Outcrop

**GEOMETRIC DIMENSIONS:** Length : 580 ft      Height: 15 ft

**LOCATION:** Township: 8S      Range: 40E      Section: 30

**HANDHELD GPS POINTS:**

	<b>Northing</b>	<b>Easting</b>		<b>Northing</b>	<b>Easting</b>
<b>8034</b>	411487.13	2678059.64	<b>8036</b>	411720.36	2677829.80
<b>8035</b>	411544.50	2678029.34	<b>8037</b>	411866.90	2677626.06

**SUBSTRATE:** Scoria

**EXPOSURE:** Southern facing slope

**DESCRIPTION OF FEATURE:** In many areas around the minesite, the peaks of hillsides are capped with a highly fractured scoria rock. This feature is an example of one of these scoria caprocks, however, it is longer than typical scoria outcrops in the area.

**ROCK OUTCROP FEATURE: RO\_0074**



Photo: 1\_16\_06\_15

**Looking Northwest**

**FEATURE TYPE:** Rock Outcrop

**GEOMETRIC DIMENSIONS:** Area of outcrop: 0.63 acres

**LOCATION:** Township: 8S Range: 40E Section: 30

**HANDHELD GPS POINTS:**

	<b>Northing</b>	<b>Easting</b>		<b>Northing</b>	<b>Easting</b>
<b>8038</b>	411047.37	2678665.73	<b>8040</b>	411152.97	2678437.48
<b>8039</b>	411193.96	2678797.85	<b>8041</b>	411051.95	2678582.90

**SUBSTRATE:** Silstone/sandstone

**EXPOSURE:** Southern facing slope

**DESCRIPTION OF FEATURE:** This outcrop sits on a highly erosive sand and silt soil. Due to runoff from the adjacent hill, the rocks have been exposed. The average rock thickness is approximately 4 feet. The rocks have fallen into the stream channel in areas where the soil beneath the rocks has been eroded.



**Township 8S, Range 40E**  
**SECTION 30**

*Riparian Areas*

**RIPARIAN FEATURE: R\_0032**



Photo: 1\_17\_06\_12

**Looking South**

**FEATURE TYPE:** Riparian Area

**GEOMETRIC DIMENSIONS:** See attached topographic map

**LOCATION:** Township: 8S Range: 40E Section: 30

**HANDHELD GPS POINTS:**

	<b>Northing</b>	<b>Easting</b>
<b>9028</b>	410926.12	2674956.92

**SUBSTRATE:** Not Applicable

**EXPOSURE:** Drainage runs in a northerly direction

**DESCRIPTION OF FEATURE:** The draw shown above is a tributary stream channel to South Fork Spring Creek. At the head of the draw the channel slope is relatively shallow. The channel in this area could be characterized as a swale. As the draw nears the South Fork Spring Creek channel, however, the walls of the channel and the channel slope itself become steeper and more prominent.

**Township 8S, Range 40E**  
**SECTION 30**

*Other Features*

**This section does not contain any Other Features.**