

Petroglyph Energy, Inc.
Well Pad Final Reclamation Evaluation

Well Name: Anselmo 18-03

Evaluation Date: July 14, 2015

Evaluated by: Lindsey Brandt; Senior Environmental Scientist; Habitat Management, Inc.

Current Condition

Vegetation on the Anselmo 18-03 pad is generally well established including perennial grasses with vegetation coverage typical for the region. However, weed and erosion issues will prohibit long-term success of the vegetation community and should be addressed.

The noxious weed common mullein (*Verbascum thapsus*) is abundant on the pad, as well as scattered redstem stork's bill (*Erodium cicutarium*.) While no cheatgrass (*Bromus tectorum*) occurs on the pad itself, cheatgrass does occur on and adjacent to the long access road. Field bindweed (*Convolvulus arvensis*) is also abundant on the access road.

A small area at the northern tip of the pad is dominated by the weedy annual tall tumbled mustard (*Sisymbrium altissimum*), while the access road has several patches of the weedy annual western tansymustard (*Descurainia pinnata*.)

The cut slope on the edge of the pad has some established vegetation but it is quite sparse. There are gullies in the eastern corner of the pad due to drainage onto the cut slope. Also, drainage onto the access road is causing major movement and deposition of sediment.

Recommended Actions

The entire well pad should be treated in the fall of 2015 to minimize the cheatgrass infestation. Prior to herbicide application the site should be mowed to remove the standing dead annual vegetation and allow for effective soil contact of herbicides. A pre-emergent herbicide should be applied to prevent germination of this winter annual. Mullein and bindweed should be spot-sprayed with appropriate herbicides to prevent their continued spread.

The cut slope should be furrowed on the contour and reseeded with the approved seed mix. Erosion fabric or WoodStraw mulch applied at a target rate of 70% cover may facilitate establishment. Stormwater conveyance structures and BMPs should be installed to control gulley erosion on the eastern corner of the well pad and handle water running onto the site from the access road.

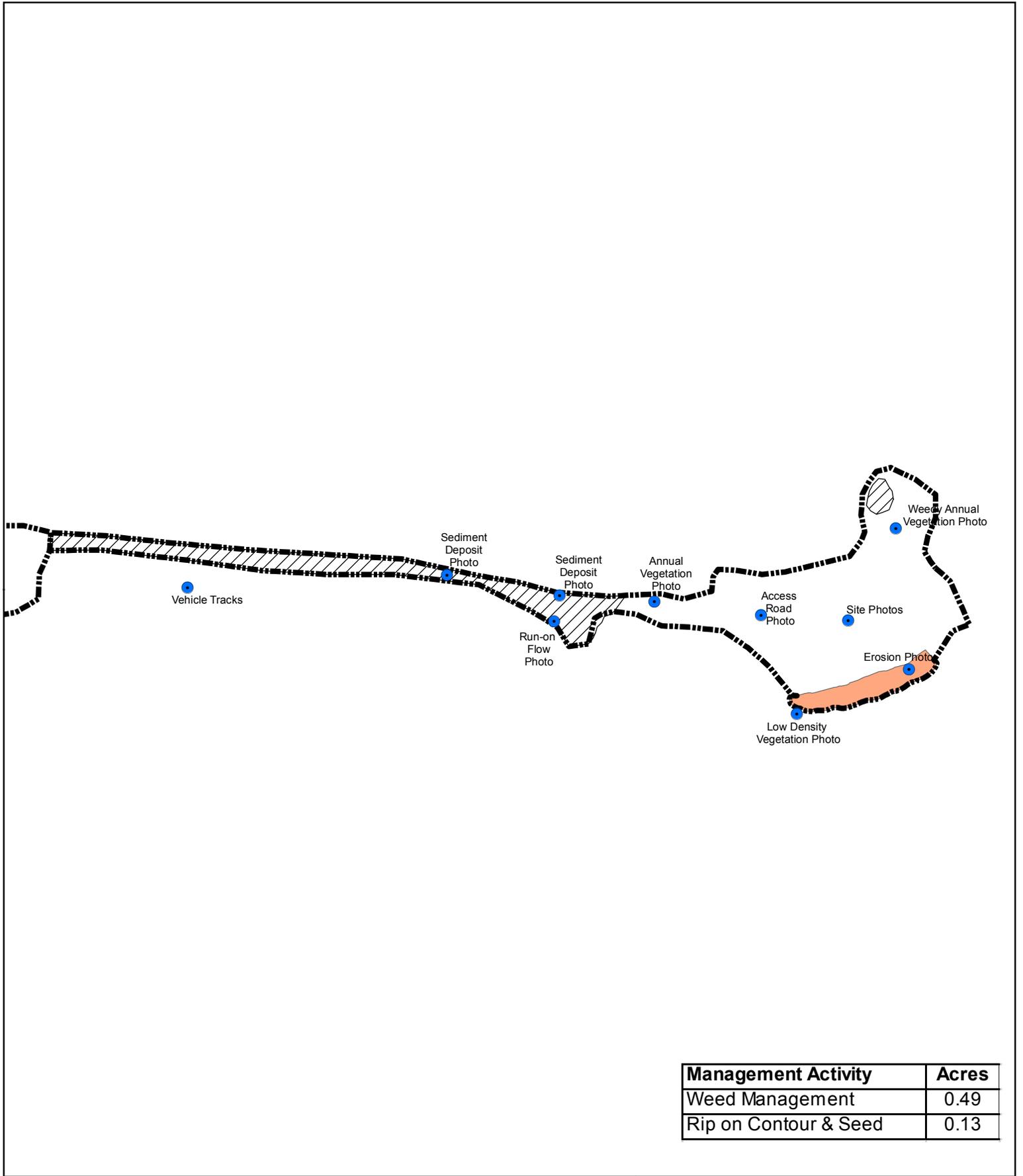
These northern tip of the access road should be mowed and reseeded. Mulching is optional.

Areas of poor vegetation establishment indicated on the attached map should be re-seeded using a no-till drill or harrow and broadcast method. The approved seed mix should be used at the approved target rate. Seeding can occur any time from late fall to early spring, as ground conditions allow.

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Vehicle traffic on this pad is affecting establishment of the vegetation on the access road and should be prevented or minimized.

After management activities are completed the site should be checked periodically to verify germination of newly seeded areas, for infestations of other noxious weeds, and for other issues that may arise and impact the reclamation area.



Management Activity	Acres
Weed Management	0.49
Rip on Contour & Seed	0.13

 Weed Management
  Photo Point

 Rip on Contour + Seed

 Well Pad Boundary

0 100 200 400 Feet

N

Petroglyph Energy 2015

Anselmo 18-03


 Habitat Management
 www.habitatmanagementinc.com

Evaluated: 7/15/15
 Drawn: 12/14/15
 Drawn By: RFB

Anselmo 18-03



Access road

Photo Date 7/14/2015

Lat: 37.5280480324 Long: -104.8268893113



Annuals on access road

Photo Date 7/14/2015

Lat: 37.5280973143 Long: -104.827384826



Erosion

Photo Date 7/14/2015

Lat: 37.5278454711 Long: -104.8262023889



Flow onto access road.

Photo Date 7/14/2015

Lat: 37.528024687 Long: -104.827851532



Looking East

Photo Date 7/14/2015

Lat: 37.528027722 Long: -104.8264842879



Looking North

Photo Date 7/14/2015

Lat: 37.528027722 Long: -104.8264842879



Looking South

Photo Date 7/14/2015

Lat: 37.528027722 Long: -104.8264842879



Looking West

Photo Date 7/14/2015

Lat: 37.528027722 Long: -104.8264842879

Anselmo 18-03



Low vegetation density

Photo Date 7/14/2015

Lat: 37.5276815022 Long: -104.8267237963



Noxious weeds

Photo Date 7/14/2015

Lat: Long:



Noxious weeds

Photo Date 7/14/2015

Lat: Long:



Sediment deposition on road

Photo Date 7/14/2015

Lat: 37.5281973503 Long: -104.8283504365



Sediment deposition onto access road

Photo Date 7/14/2015

Lat: 37.5281220882 Long: -104.8278263984



Vehicle tracks/ruts

Photo Date 7/14/2015

Lat: 37.5281543301 Long: -104.8295584978



Weedy annual vegetation

Photo Date 7/14/2015

Lat: 37.528368486 Long: -104.8262615933



Weedy annual vegetation

Photo Date 7/14/2015

Lat: Long: