

Cow Canyon CC Cluster Form 2A Kinder Morgan CO2 Company, LP

INTRODUCTION

This Form 2A stormwater report includes the Best Management Practices (BMPs) and reclamation plans for Kinder Morgan's proposed Cow Canyon CC Cluster site in accordance with the Colorado Oil and Gas Conservation Commission's Form 2A requirements. BMP diagrams and additional general stormwater information is included with Kinder Morgan's Master Stormwater Management Plan (MSWMP) for oil and gas construction activities for McElmo Dome and Doe Canyon. The MSWMP can be obtained from Kinder Morgan and is in accordance with Colorado Department of Public Health and Environment (CDPHE) stormwater guidelines. Phil Kennedy is the Kinder Morgan contact person and his contact information is listed below:

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PROJECT DESCRIPTION

The proposed cluster site would be located on an active agricultural field. The proposed access road would connect the well pad to County Road 8. Slopes within the proposed project average 0 to 2 percent. Disturbance would include the removal of topsoil to create the cluster site (5 acres) and a 100-foot easement connecting the access road to the site via a corridor.

ESTIMATED TOTAL AREA OF THE SITE TO UNDERGO CLEARING, EXCAVATION, OR GRADING

The maximum disturbance associated with the proposed cluster site would be 5 acres plus the access road connecting the site to County Road 8.

EXISTING SOIL

Parent materials found at the project site and surrounding areas include eolian deposits derived from sandstone. The surveyed soil map unit for the project area consists of Wetherill loam, 1 to 6 percent slopes, which is not highly erodible by wind or water and is well drained (NRCS 2014¹).

¹ Natural Resources Conservation Service (NRCS). 2014. Web Soil Survey. Available online at <http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>. Accessed April 2014.

DESCRIPTION OF EXISTING VEGETATION AND ESTIMATE OF PERCENT OF GROUND COVER

The proposed cluster site and access road would be located on active agricultural land that has been tilled and planted for the spring.

NAME OF RECEIVING WATER AND TYPE OF OUTFALLS

The nearest perennial water—indicated on the U.S. Geological Survey topographic map—is Dove Creek, located approximately 7 mile south of the project area. Drainage from the proposed project area generally flows southwest through unnamed intermittent drainages to Dove Creek. There are no perennial water sources, wetlands, seeps, springs, or riparian areas within the proposed cluster site.

PROJECT-SPECIFIC BMPs

The following BMPs are site-specific BMPs identified by Ecosphere Environmental Services during a field visit on April 2, 2014. BMP diagrams are included in the MSWMP. BMPs would be maintained or amended by Kinder Morgan as site conditions change throughout the construction and reclamation process. Stormwater inspections would occur as stipulated in the MSWMP and as required by the CDPHE. A map showing the BMP locations is attached. Site-specific BMPs will be installed pre-construction and during the construction process; BMPs will continue to be maintained until the site is finally stabilized per CDPHE requirements. Table 1 describes the structural BMPs used at the CC Cluster.

Table 1. Structural BMPs

BMP	How It Works	Location
Bonded Fiber Matrix (Tackifier)	Bonding agents provide durability to minimize water and wind erosion, while also allowing for optimal rainwater penetration into soil for vegetative growth.	When needed on disturbed areas surrounding well pad.
Culvert Protection	Inlet and outlet protection prevent soil and debris from entering storm drain inlets and preventing scouring at outlets by reducing flow.	At culverts along access road.
Erosion Control Logs	Erosion control logs are made of fibrous material and work by trapping sediment. Erosion control logs must be trenched into the ground to be effective.	Around perimeter of the cluster.
Diversion Ditch with Wattles	The diversion ditch diverts surface run on around the cluster.	Diversion ditch would be located along east and south sections of the cluster. Wattles would be located every 50 feet in diversion ditch.
Fuel and Chemical Containment	Fuel and chemicals stored on-site will be within secondary containments to reduce the potential for spills or off-site releases.	Where needed.
Tracking Control	An effective vehicle tracking control helps remove sediment (mud or dirt) from vehicle tires, reducing the potential for tracking onto off-site paved roadways.	Where needed.

BMP	How It Works	Location
Rock Check Dams	Rock check dams are constructed across a ditch to catch sediment.	Where needed.

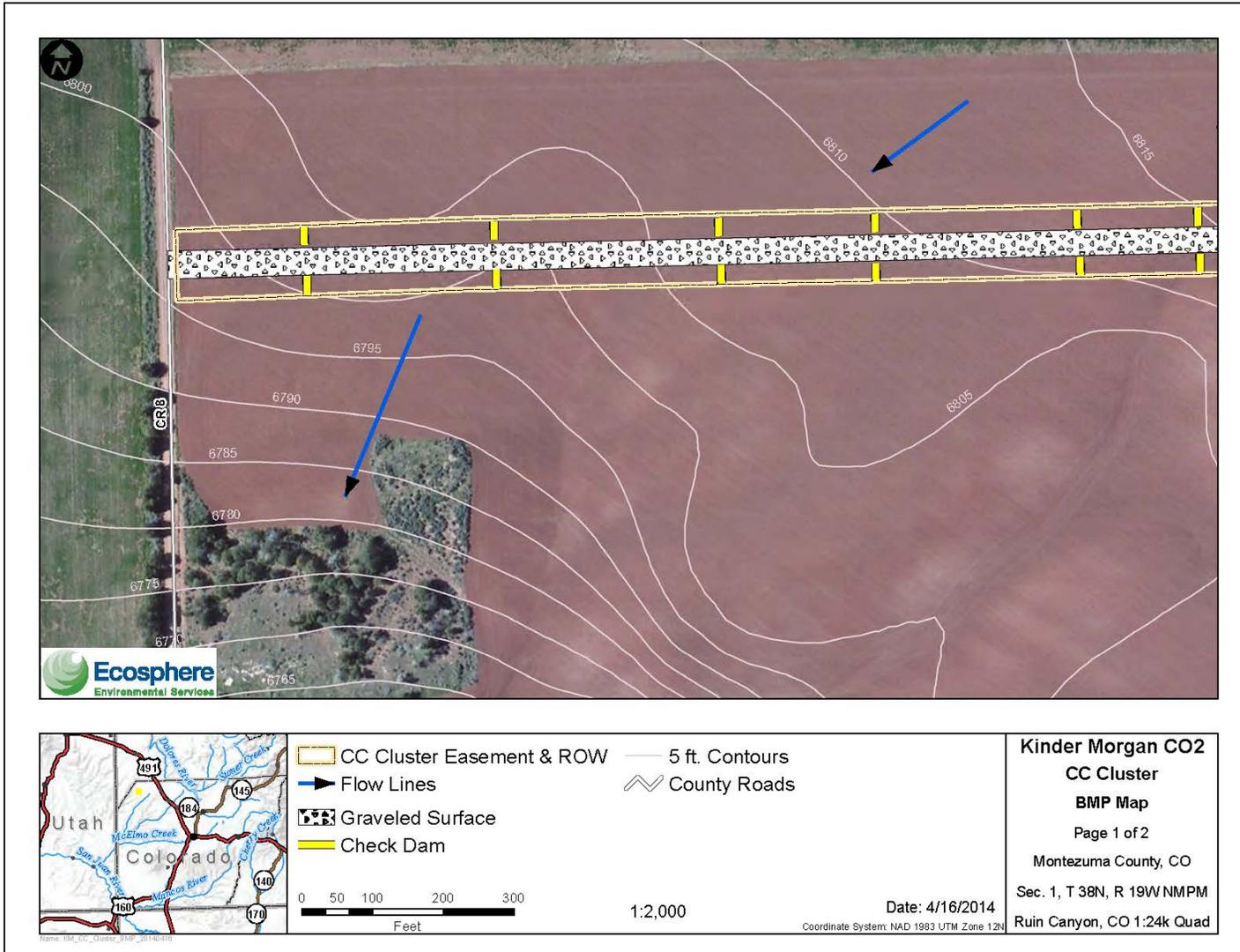
NON-STRUCTURAL BMPs

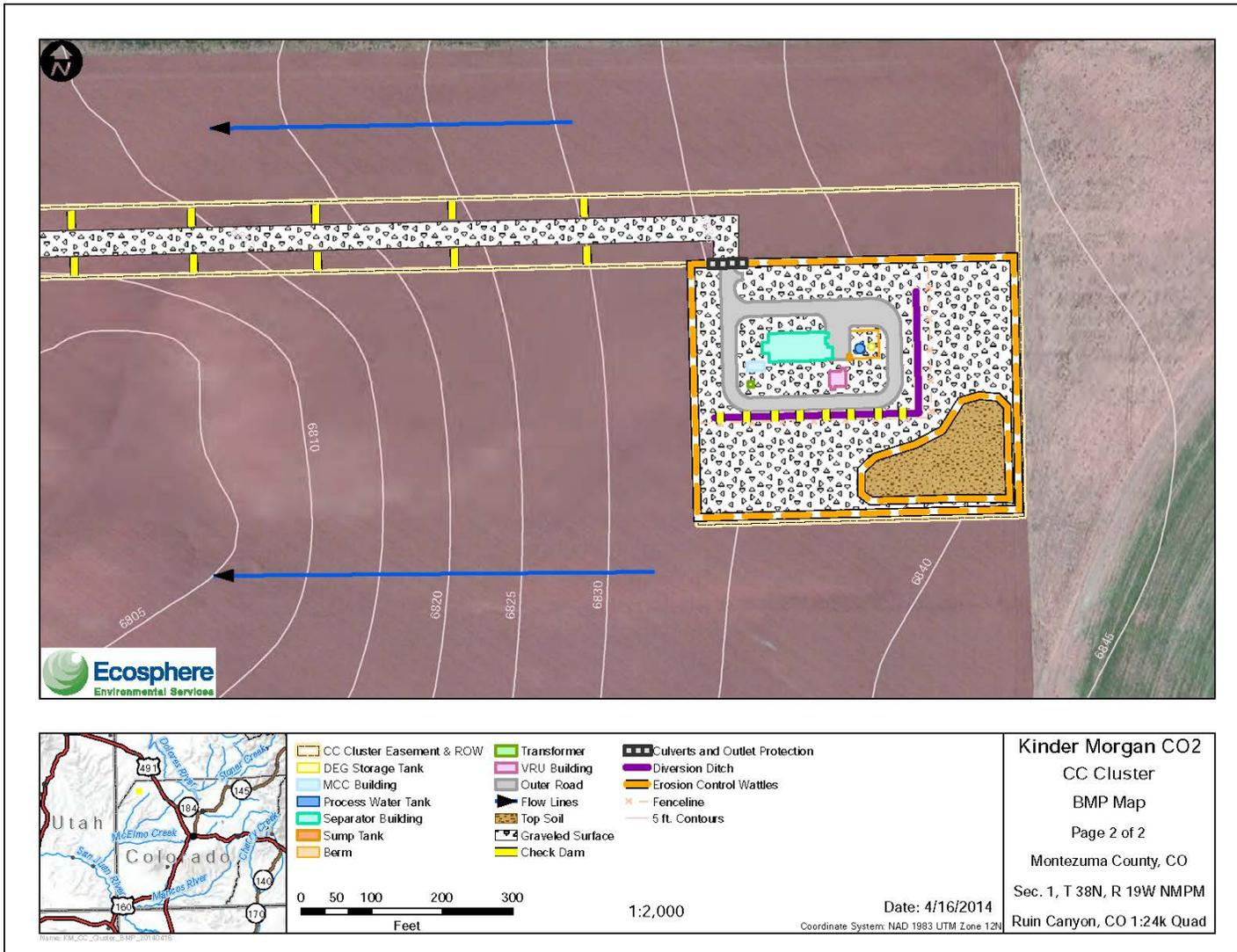
Table 2 includes non-structural BMPs that will be applied to the entire project area where needed beginning with construction and continuing until final stabilization is reached.

Table 2. Non-Structural BMPs

BMP	How It Works	Location
Soil Roughening	Surface roughening creates small ridges and gullies with the teeth of the bucket on the front-end loader or with the grooves of tracked equipment. These ridges and gullies go across the slope (or along the contour of the slope), trapping stormwater and helping with revegetation. To create these ridges/gullies with tracked equipment, the equipment should be run up/down the slope.	All disturbed areas where needed.
Equipment Storage	All equipment will be contained within the ROW disturbance.	Within disturbance area where needed.
Rapid Reclamation	Rapid reclamation (surface contouring, surface roughening, seeding, and weed control) help to stabilize soil with vegetation and reduce runoff.	Within disturbance area where needed.
Dust Mitigation	Whenever needed, a water truck will be used to add moisture to the soil that will prevent the soil from becoming airborne and leaving the site.	Within disturbance area where needed.

Project BMP Maps





CC Cluster Easement & ROW	Transformer	Culverts and Outlet Protection
DEG Storage Tank	VRU Building	Diversion Ditch
MCC Building	Outer Road	Erosion Control Wattles
Process Water Tank	Flow Lines	Fenceline
Separator Building	Top Soil	5 ft. Contours
Sump Tank	Graveled Surface	
Berm	Check Dam	

0 50 100 200 300
Feet

1:2,000

Date: 4/16/2014

Coordinate System: NAD 1983 UTM Zone 12N

Kinder Morgan CO2
CC Cluster
BMP Map
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Montezuma County, CO
Sec. 1, T 38N, R 19W NMPM
Ruin Canyon, CO 1:24k Quad