Appendix 6(4)

King II

March 19, 2021

(TR-30)

Memo

To: Sarah Vance and Jordan McCourt (GCC Energy)

From: Samantha Bohn and Sean Moore (SME Environmental, Inc.)

Date: March 12, 2021

Re: Assessment of Soils and Vegetation on the Barn Staging Site for the East Alkali Gulch Low Cover Crossing Project

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SME Environmental, Inc. (SME) was procured by GCC Energy to conduct an assessment of soils and vegetation on the barn staging site, just south of the access road for the East Alkali Gulch Low Cover Crossing Projec. This report is being prepared per a request by the Colorado Division of Reclamation, Mining and Safety (CDRMS). A road vicinity map has been provided as Figure 1, and a topographic location map has been provided as Figure 2.

Soils

SME reviewed the GCC soils and vegetation map along with soils data obtained from the USDA NRCS. A soils map with data from the USDA NRCS within the barn staging site is included as Figure 3 and the GCC soils and vegetation map has been provided as Appendix B. Per the GCC map and the NRCS data, the barn staging area is located within the mapped *Lazear-Rock outcrop complex, 12-65% slopes* soils unit. This mapped soils unit is not considered hydric based on major or minor components in the map unit (State Soil Data Access Hydric Soils List, NRCS 2021). A description of the soil unit from the NRCS has been provided below.

La Plata County Area, Colorado

Map Unit: 42—Lazear-Rock outcrop complex, 12 to 65 percent slopes

Component: Lazear (50%)

The Lazear component makes up 50 percent of the map unit. Slopes are 12 to 40 percent. This component is on edges breaks, edges mesas. The parent material consists of residuum and/or slope alluvium derived from sandstone and shale. Depth to a root restrictive layer, bedrock, lithic, is 10 to 20 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 7s. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 8 percent. There are no saline horizons within 30 inches of the soil surface.

Component: Rock outcrop (30%)

Generated brief soil descriptions are created for major soil components. The Rock outcrop is a miscellaneous area.

Component: Pulpit (10%)

Generated brief soil descriptions are created for major soil components. The Pulpit soil is a minor component.

Component: Other soils (10%)

Generated brief soil descriptions are created for major soil components. The Other soils soil is a minor component.

A quick overall field assessment of the soils revealed light grey clay soils that have washed down from the two-track road as well as a more brown soil with some clay and gravel/sandstone fragments mixed in. As stated in the NRCS data above, this would be relatively consistent with the specified soils unit as the parent material consists of residuum and/or slope alluvium derived from sandstone and shale. However, it should be noted that the barn staging area looks to have been disturbed in the past. Gravel has been deposited on site and the site experiences disturbance from adjacent road plowing, making it difficult to isolate the native soil.

Vegetation

SME reviewed the GCC soils and vegetation map along with vegetation data obtained from the USDA NRCS. Per the GCC soils and vegetation map (Appendix B), the barn staging site is located within mapped Pinyon-Juniper Woodland. According to NRCS, native vegetation for the Lazear-Rock outcrop complex, 12-65% slopes soils unit consists mainly of “western wheatgrass, Indian ricegrass, needleandthread, muttongrass/Mormon-tea, junegrass, pinyon, Rocky Mountain Juniper, and big sagebrush.” It is also stated that “seeding and deferring grazing facilitate revegetation of areas depleted by heavy grazing and other disturbances” and that “seeding should be done by and broadcasting or aerial methods”. This description matches the described Pinyon-Juniper Woodland description on the GCC soils and vegetation map.

In addition to the desktop research, SME also conducted a site visit of the referenced project on March 11, 2021 to assess the vegetative cover of the barn staging site. As stated in the soils section above, the barn staging area appears to have been disturbed in the past, which has encouraged the growth of weedy species and ruderal forbs. SME found that vegetation on site was dominated by smooth brome (*Bromus inermis*), tall hedge-mustard (*Sisymbrium altissimum*), and lamb’s quarters (*Chenopodium album*). Other species observed include nodding plumeless-thistle/musk thistle (*Carduus nutans*), Mexican-fireweed (*Bassia scoparia*), red-root/red root pigweed (*Amaranthus retroflexus*), rubber rabbitbrush (*Ericameria nauseosa*), common stork’s-bill (*Erodium cicutarium*), cheatgrass (*Bromus tectorum*), and western-wheat grass (*Pascopyrum smithii*). The site was surrounded by Rocky Mountain juniper (*Juniperus scopulorum*) and Utah juniper (*Juniperus osteosperma*) as well as pinyon pine (*Pinus edulis*). Overall, the site appears to be about 65 to 70 percent vegetated. The vegetation observed at this site is relatively consistent with the vegetation described by the NRCS for the designated soils unit and is characteristic for a disturbed area in this environment.

Summary

Per the request of CDRMS, vegetation and soils were assessed within the barn staging site as part of the East Alkali Gulch Low Cover Crossing Project. Based on SME’s field observations, vegetation and soils that were seen on site are similar to what was found on both the GCC soils and vegetation maps and the USDA NRCS data. The barn staging site has been previously disturbed, and the soils and weedy vegetation found on site are consistent with a disturbed environment in this area. The only soils map unit present within the barn staging site was the *Lazear-Rock outcrop complex, 12-65% slopes*. Dominant vegetation included smooth brome (*Bromus inermis*), tall hedge-mustard (*Sisymbrium altissimum*), and lamb’s quarters (*Chenopodium album*).

Limitations

This report assesses soils and vegetation at the site at the time of our review and does not address conditions at a given time in the future. SME makes no other warranties, either expressed or implied, and our report is not a recommendation to buy, sell or develop the property.

References

USDA NRCS. 2021. Web Soil Survey. Available at: http://websoilsurvey.nrcs.usda.gov/.

USDA NRCS. 2021. Soil Data Access (SDA) Hydric Soils List. Available at: https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcseprd1316620.html

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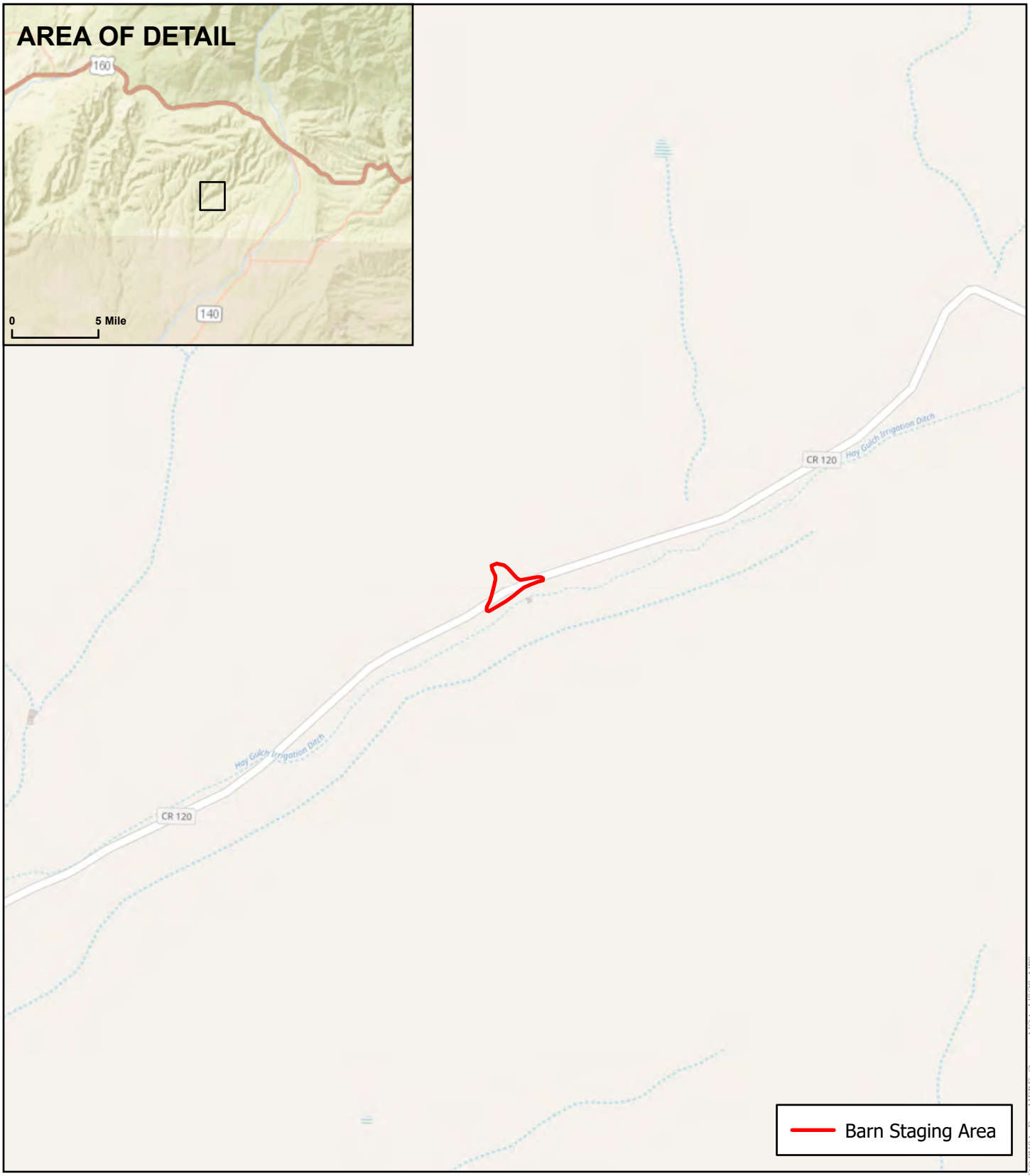
APPENDIX A
Figures



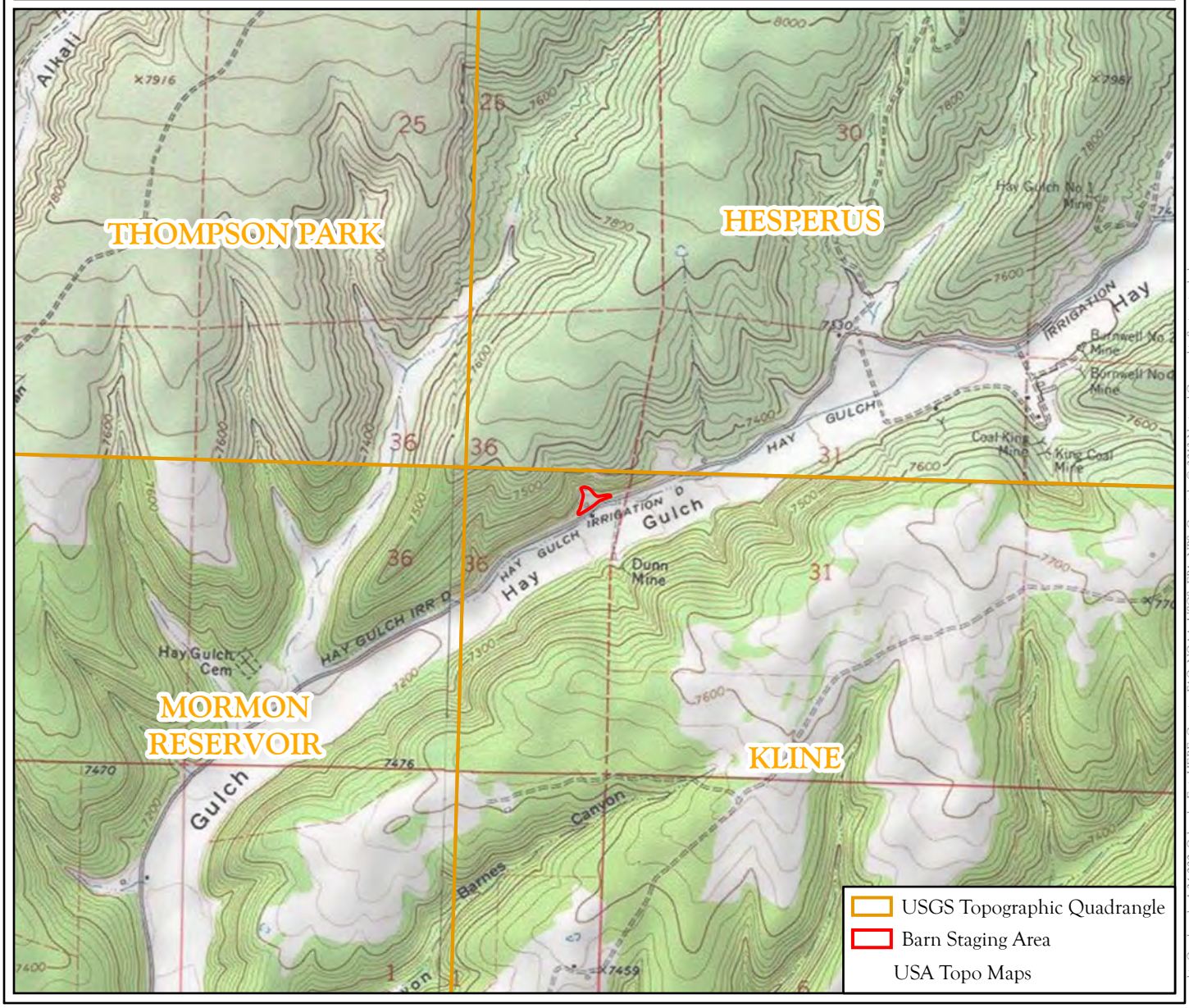
SME ENVIRONMENTAL CONSULTANTS 679 East 2nd Ave. Unit E2, Durango, Colorado 81301 www.sme-env.com (970) 259-9595	Drawn by: S. Bohn Rvwd. by: S. Moore Project No.: 180043 Date: 3/12/2021 Rsvd. Date: NA Scale: 1:12,000 N 0 500 1,000 Feet	ROAD VICINITY MAP SOILS AND VEGETATION MEMO BARN STAGING AREA- EAST ALKALI GULCH LOW COVER CROSSING PROJECT LA PLATA COUNTY, COLORADO	FIGURE 1

Sources: © OpenStreetMap (and) contributors, CC-BY-SA, Esri, HERE, Garmin, NGA, USGS, NPS

Document Path: S:\Projects\180043 Alkali Gulch Crossing\GIS\alkali gulch crossing\alkali gulch crossing.aprx; Coordinate System:

PROJECT LOCATION:
Township 34 North, Range 10 West, NEL2 Quarter of Section 1;
New Mexico Principal Meridian
La Plata County, Colorado.

Barn Staging Area Centroid (NAD 1983):
Latitude: 37.248988°
Longitude: -108.119559°



Sources: USGS Basin Mountain 7.5-minute Topographic Quadrangle, 1:24,000, Colorado, Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS, Copyright© 2013 National Geographic Society, i-cubed

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Drawn by:	Rvwd. by:	Project No.:
S. Bohn	S. Moore	180043
Date:		Scale:
3/12/2021		1:24,000

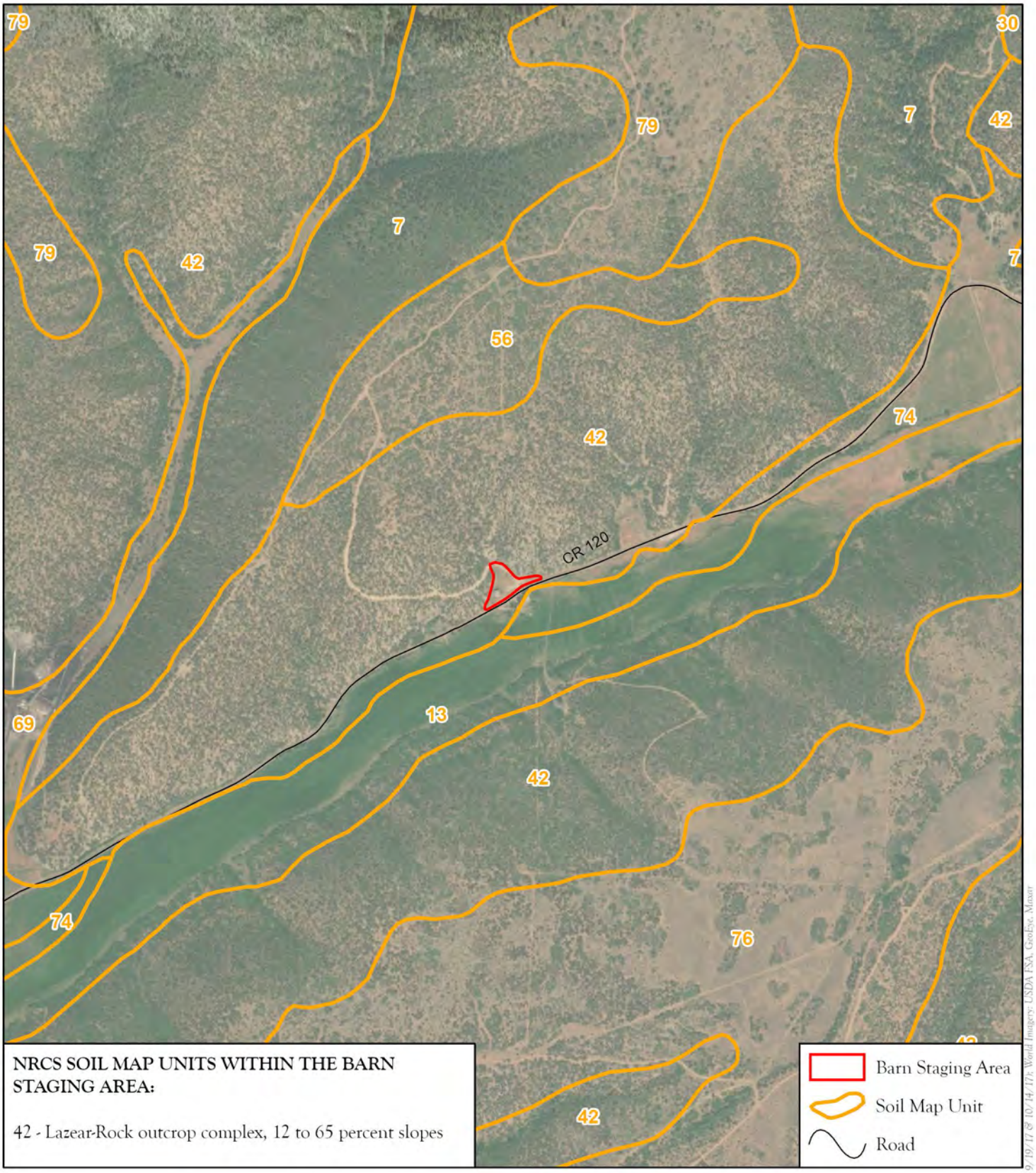
N
0 1,000 2,000
Feet

TOPOGRAPHIC SITE LOCATION MAP

SOILS AND VEGETATION MEMO
BARN STAGING AREA- EAST
ALKALI GULCH LOW COVER CROSSING PROJECT
LA PLATA COUNTY, COLORADO

FIGURE 2

Document Path: S:\Projects\180043 Alkali Gulch Crossing\GIS\alkali gulch crossing\alkali gulch crossing.aprx



NRCS SOIL MAP UNITS WITHIN THE BARN STAGING AREA:

42 - Lazear-Rock outcrop complex, 12 to 65 percent slopes

Barn Staging Area
Soil Map Unit
Road

SME
ENVIRONMENTAL CONSULTANTS
679 East 2nd Ave. Unit E2, Durango, Colorado 81301
www.sme-env.com (970) 259-9595

Drawn by:	Rvwd. by:	Project No.:
S. Bohn	S. Moore	180043
Date:	Rsvd. Date:	Scale:
3/12/2021	NA	1:12,000

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0 500 1,000
Feet

AERIAL SITE VICINITY AND SOILS MAP

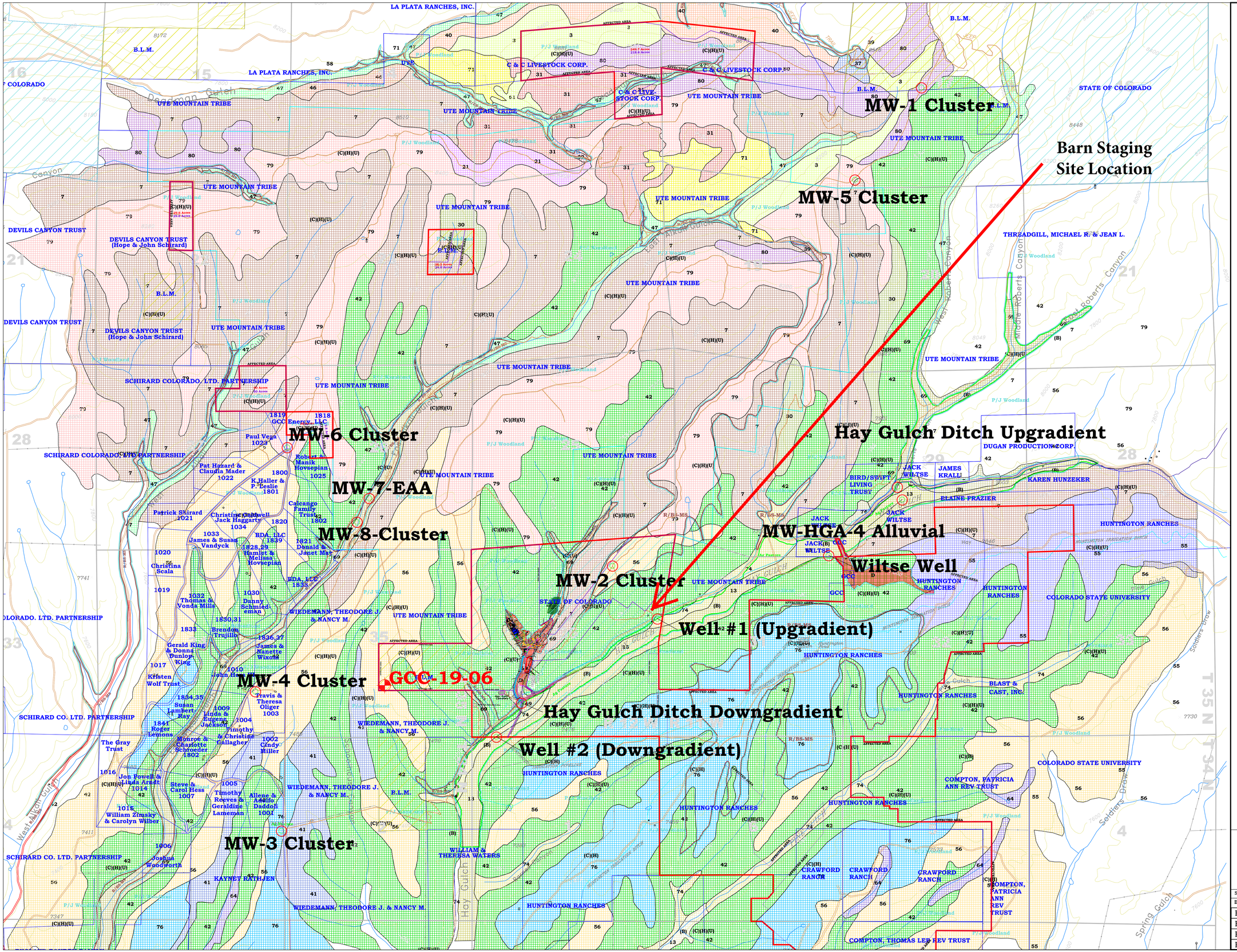
SOILS AND VEGETATION MEMO
BARN STAGING AREA- EAST
ALKALI GULCH LOW COVER CROSSING PROJECT
LA PLATA COUNTY, COLORADO

FIGURE 3

Sources: DigitalGlobe Aerial Imagery (acquired 9/19/17 & 10/14/17); World Imagery: USDA FSA, GeoEye, Maxar

Document Path: S:\Projects\180043 Alkali Gulch Crossing\GIS\alkali gulch crossing\alkali gulch crossing.aprx; Coordinate System: NAD 1983 StatePlane Colorado South FIPS 0503 Feet

APPENDIX B
GCC Soils and Vegetation Map


MW-1 Cluster
MW-5 Cluster
Barn Staging Site Location
MW-6 Cluster
MW-7-EAA
Hay Gulch Ditch Upgradient
MW-8-Cluster
MW-HGA-4 Alluvial
MW-2 Cluster
Wiltse Well
Well #1 (Upgradient)
MW-4 Cluster
GCC-19-06
Hay Gulch Ditch Downgradient
Well #2 (Downgradient)
MW-3 Cluster
LA PLATA RANCHES, INC.
C & C LIVESTOCK CORP.
UTE MOUNTAIN TRIBE
B.L.M.
STATE OF COLORADO
DEVILS CANYON TRUST
DEVILS CANYON TRUST (Hope & John Schirard)
SCHIRARD COLORADO, LTD. PARTNERSHIP
SCHIRARD CO. LTD. PARTNERSHIP
THREADGILL, MICHAEL R. & JEAN L.
DUGAN PRODUCTION CORP.
JAMES KRALL
JACK WILTSE
BIRD/SWIFT LIVING TRUST
KAREN HUNZEKER
ELAINE FRAZIER
HUNTINGTON RANCHES
COLORADO STATE UNIVERSITY
BLAST & CAST, INC.
COMPTON, PATRICIA ANN REV TRUST
CRAWFORD RANCH
WILLIAM & THERESA WATERS
KAYNET KATHLEEN
WIEDEMANN, THEODORE J. & NANCY M.
COMPTON, THOMAS LEE REV TRUST
Robert Manik Hovespian 1025
Paul Vega 1023
GCC Energy, LLC 1819
1818
Pat Hazzard & Claudia Mader 1022
K Haller & P Leslie 1801
1800
Calcango Family Trust 1802
Patrick Skirard 1021
Christina Scala 1020
James & Susan Vandyck 1033
Thomas & Vonda Mills 1032
Danny Schmied-mann 1030
Brendon Trujillo 1830,31
Gerald King & Donna Dunlop-King 1833
Kristen Wolf Trust 1017
Travis & Theresa Oliger 1003
Susan Lambert-Ray 1834,35
Roger Lemons 1841
Linda & Eugene Jackson 1009
Timothy & Christine Gallagher 1004
Cindy Miller 1002
Monroe & Charlotte Schroeder 1802
The Gray Trust
Jon Powell & Linda Arndt 1016
Steve & Carol Hess 1007
Timothy Reeves & Geraldine Lamemann 1005
Allene & Adolfo Daddon 1001
William Zimsky & Carolyn Wilber 1015
Joshua Woodworth 1006
Christine Powell & Jack Haggarty 1034
BDA, LLC 1939
Hamlet & Melissa Hovespian 1828,29
Donald & Janet Mas 1821
BDA, LLC 1838
Christina Scala 1019
Kristen Wolf Trust 1017
John Zimsky 1010
WIEDEMANN, THEODORE J. & NANCY M.
UTE MOUNTAIN TRIBE
Hay Gulch
Middle Roberts Canyon
East Roberts Canyon
West Roberts Canyon
Soldiers Brow
Spring Gulch
Dugan Canyon
West Mesa Gulch
Ute Mountain Ute Tribe Boundary
Affected Area
Access Road
Haul Road
Pipeline
Fence
Ditch
Trail
Arroyo
Wash
Gully
Canyon
Creek
Gulch
Mesa
Woodland
Pasture
Meadow
Shrubland
Sagebrush
Rangeland
Cultivated
Developed
Undeveloped
Water
Wetland
Barren
Forest
Grassland
Scrub
Urban
Industrial
Commercial
Residential
Recreational
Agricultural
Mining
Quarry
Landfill
Cemetery
Golf Course
Airport
Railroad
Road
Highway
Interstate
Bridge
Tunnel
Culvert
Dam
Reservoir
Pond
Lake
River
Stream
Creek
Gulch
Mesa
Canyon

APPENDIX C
Barn Staging Site Photos

Select Photos from Field Assessment
Barn Staging Site- East Alkali Gulch Low Cover Crossing Project
Photos taken by Nathan Kirker, SME Wildlife Biologist on March 11, 2021

Photo Point 1 (PP1) is looking north near the two-track dirt road (photo right) and at the small barn structure located on site. The vegetation on site is dominated by smooth brome (*Bromus inermis*), tall hedge-mustard (*Sisymbrium altissimum*), and lamb's quarters (*Chenopodium album*).

PP2 is looking south towards County Road 120 (CR 120) at the large barn and surrounding vegetation in the center of the site.

Select Photos from Field Assessment
Barn Staging Site- East Alkali Gulch Low Cover Crossing Project
Photos taken by Nathan Kirker, SME Wildlife Biologist on March 11, 2021

PP3 is looking northeast at the small barn feature near the two-track dirt road and the surronding vegetation.

PP4 is looking south towards CR 120 at the vegetation between the two track dirt road and the large barn structure.

Select Photos from Field Assessment
Barn Staging Site- East Alkali Gulch Low Cover Crossing Project
Photos taken by Nathan Kirker, SME Wildlife Biologist on March 11, 2021

PP5 is looking north/northeast from across CR 120 at the large barn structure and surrounding vegetation.