Twentymile Coal, LLC
Foidel Creek Mine
29515 RCR 27
Oak Creek, CO 80467
970.879.3800

August 22, 2023

Ms. Hunter Ridley, Environmental Protection Specialist
Division of Reclamation, Mining, and Safety
1313 Sherman Street, Room 215
Denver, Colorado 80203
720-868-7757

RE: Twentymile Coal, LLC - Foidel Creek Mine (Permit No. C-82-056), Minor Revision (MR23-323), Additional Exploration Coreholes, Adequacy Response #1

Dear Ms. Ridley:

In response to your two adequacy reviews, Twentymile Coal, LLC (TC) is providing the below response:

DRMS Adequacy Review #1

1. Please update the submitted PAP text to explain the method of sealing that will be used in the abandonment of the propose coreholes. Alternatively, point out if this method is explained elsewhere in the PAP.
    a. This information is provided on page 2.05-17.4 (paragraph 1) of the PAP. Exact sealing of the coreholes is unknown until the holes are drilled and the water layers are assessed. Worst case scenario would require the entire corehole to be plugged with Portland cement. Coreholes will be drilled at 8 ¾" hole up to the last 60 feet which will be drilled at 5 7/8".

2. Please update the PAP text to explain how much sediment will be contained by the proposed wattles, sediment fences, or berms and/or what storm event frequency these structures will be able to contain. If a SEDCAD model was performed, please provide the results.
    a. This project is proposed to take place during September which is known to be a dryer time of year. TC plans to use BMPs through out the project and for every disturbance. All disturbances where the vegetation is removed will be surround by wattles or silt fence or a combination of the best feasible product available. Products used will depend on the location and its surroundings. If pad sites have a large reporting area above them extra precautions will be made with additional sediment control products. When installed correctly some product are said to reduce as much as 98% of sediment from water flows due to storm events. If larger storms are forecasted TC will act on the BMPs and put more controls in place. No SEDCAD was performed since TC plans to minimize disturbance as much as possible.
    b. A new page 2.05-17.3 has been provided with this submittal.

DRMS Adequacy Review #2

1. More information is needed to clarify proposed activities in relation to the bond calculation. Please provide the following:
    a. Max acreage of access roads outside of pre-existing ranch roads which may need to be constructed to complete the proposed corehole drilling

i. The max acreage of access road area to be utilized outside of the pre-existing ranch roads is 2.15 acres. This acreage will only be lightly disturbed with minimal traffic. No topsoil will be stripped from the areas and TC will reseed the areas once the project is complete.

b. Acreage, volume, and quantity of mud pits to be constructed.
    i. The Mud pits will be approximately 35' x 16' x 10'D. This amounts to a volume of 207 Cubic yards of holding capacity per location. Until drilling commences TC is unsure if all proposed locations will be constructed.

c. Diameter in inches of drill holes to be completed. If an exact measurement is not available for this specific drilling project, the Division will bond for worst case scenario as outlined in the PAP, which is a corehole diameter of 10.7 inches
    i. The diameter of the proposed coreholes is 9-5/8" from 0 to 60 feet below the surface and then it will be reduced to 8 ¾" until the last 60 feet in which it will be reduced again to 5 7/8 for the actual core extraction.

d. What depth of topsoil will be stripped and replaced on drill pad, access road, and mud pit locations?
    i. 12 inches of topsoil will be stripped from mud pit areas and areas needing to be leveled for the drill rig.

2. Please provide the Division with a copy of the Class III survey which is referenced to be 'in progress' with Metcalf Archeological Consultants.
    a. The Metcalf Class III survey is attached.

We appreciate your consideration, cooperation, and assistance in facilitating timely review and approval of this Minor Revision application. Please feel free to contact me with any questions or to discuss submittal materials or related matters.

Sincerely,

Miranda Kawcak

Miranda Kawcak
Environmental Manager
mkawcak@peabodyenergy.com
970-870-2718

PEABODY / TWENTYMILE COAL, LLC:

CLASS III CULTURAL RESOURCE INVENTORY OF EIGHT PROPOSED DRILL PADS, ACCESS ROUTES, AND A BLEEDER SITE, ROUTT COUNTY, COLORADO

By:
Garrett Williams

Prepared for:

Peabody /
Twentymile Coal, LLC
29515 Routt County Rd #27
Oak Creek, CO 80467

Division of Reclamation, Mining, and Safety
Department of Natural Resources, Denver, CO

Under permit:

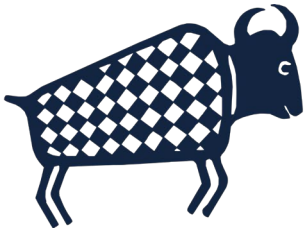
State of Colorado
Permit #82438 (expires 2/29/2024)

Metcalf Project No. 2023.CO.066

Metcalf Archaeological Consultants, Inc.
Eagle, Colorado

Principal Investigator:
Melissa Elkins

August 2023



Metcalf
ARCHAEOLOGICAL CONSULTANTS

ABSTRACT

Metcalf Archaeological Consultants, Inc. has completed a Class III cultural resource inventory for Peabody / Twentymile Coal, LLC, for eight proposed drill pads, associated access routes, and a bleeder site in Routt County, Colorado. The project area is located in Twentymile Park on both State of Colorado and privately-owned surface and subsurface minerals. The Colorado Division of Reclamation, Mining, and Safety (DRMS) is the agency reviewing the project. Class III inventory consisted of several dispersed linear and small block parcels totaling 42.014 acres (33.4 acres on State of Colorado lands and 7.8 acres on private lands). The inventory resulted in a revisit to one previously recorded segment of the Denver and Rio Grande "Energy Spur" railroad, site 5RT3259, and the documentation of a new segment, 5RT3259.4. No additional cultural resources were found. Site 5RT3259.4 is recommended to be not eligible for inclusion on the National Register of Historic Places (NRHP) under any criteria; the overall portion of this railroad recorded as 5RT3259.1 in 2014 near the project area has also been recommended as not NRHP eligible. Furthermore, no development is proposed within the railroad corridor for this project and the railroad bed will not be altered or affected. Accordingly, Metcalf recommends a finding of *no historic properties affected* for the Twentymile's proposed drill pads, associated access routes, and bleeder site project.

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Colorado Office of Archaeology and Historic Preservation
CULTURAL RESOURCE SURVEY MANAGEMENT INFORMATION FORM

Federal acres of Potential Effect/Project:		Acres surveyed:	
State acres of Potential Effect/Project:	33.48	Acres surveyed:	33.48
Private acres of Potential Effect/Project:	7.87	Acres surveyed	7.87
TOTAL	**42.014**	**TOTAL**	**42.014**

Legal Location of Project *(attach additional pages if necessary)*

Principal Meridian: 6th
County: Routt
USGS Quad Name: Milner (1971)

Township	5N	Range	86W	Section	8	NE	1/4	NE	1/4
Township	5N	Range	86W	Section	8	SE	1/4	NE	1/4
Township	5N	Range	86W	Section	8	NE	1/4	SE	1/4
Township	5N	Range	86W	Section	9	NW	1/4	NW	1/4
Township	5N	Range	86W	Section	9	SW	1/4	NW	1/4
Township	5N	Range	86W	Section	9	SE	1/4	NW	1/4
Township	5N	Range	86W	Section	9	SE	1/4	NE	1/4
Township	5N	Range	86W	Section	9	SW	1/4	NE	1/4
Township	5N	Range	86W	Section	9	NW	1/4	SW	1/4
Township	5N	Range	86W	Section	9	NE	1/4	SW	1/4
Township	5N	Range	86W	Section	9	NW	1/4	SE	1/4
Township	5N	Range	86W	Section	14	SW	1/4	NW	1/4
Township	5N	Range	86W	Section	14	NW	1/4	SW	1/4
Township	5N	Range	86W	Section	15	NE	1/4	SE	1/4
Township	5N	Range	86W	Section	15	NW	1/4	SE	1/4

Site Number	Site Type				Eligibility							Effect			Treatment / Management Recommendations								Comments
	Prehistoric	Historic	Paleontological	Unknown	Eligible	Needs Data	Not Eligible	Contributing	Non-Contributing	Supporting	Non-Supporting	No Historic Properties Affected	No Adverse Effect	Adverse Effect	No Further Work	Avoid / Preserve	Monitor	Test	Excavate	Archival Research	Archival Documentation	Other	
SITES																							
5RT.3259.4		X					X					X			X								
ISOLATED FINDS																							

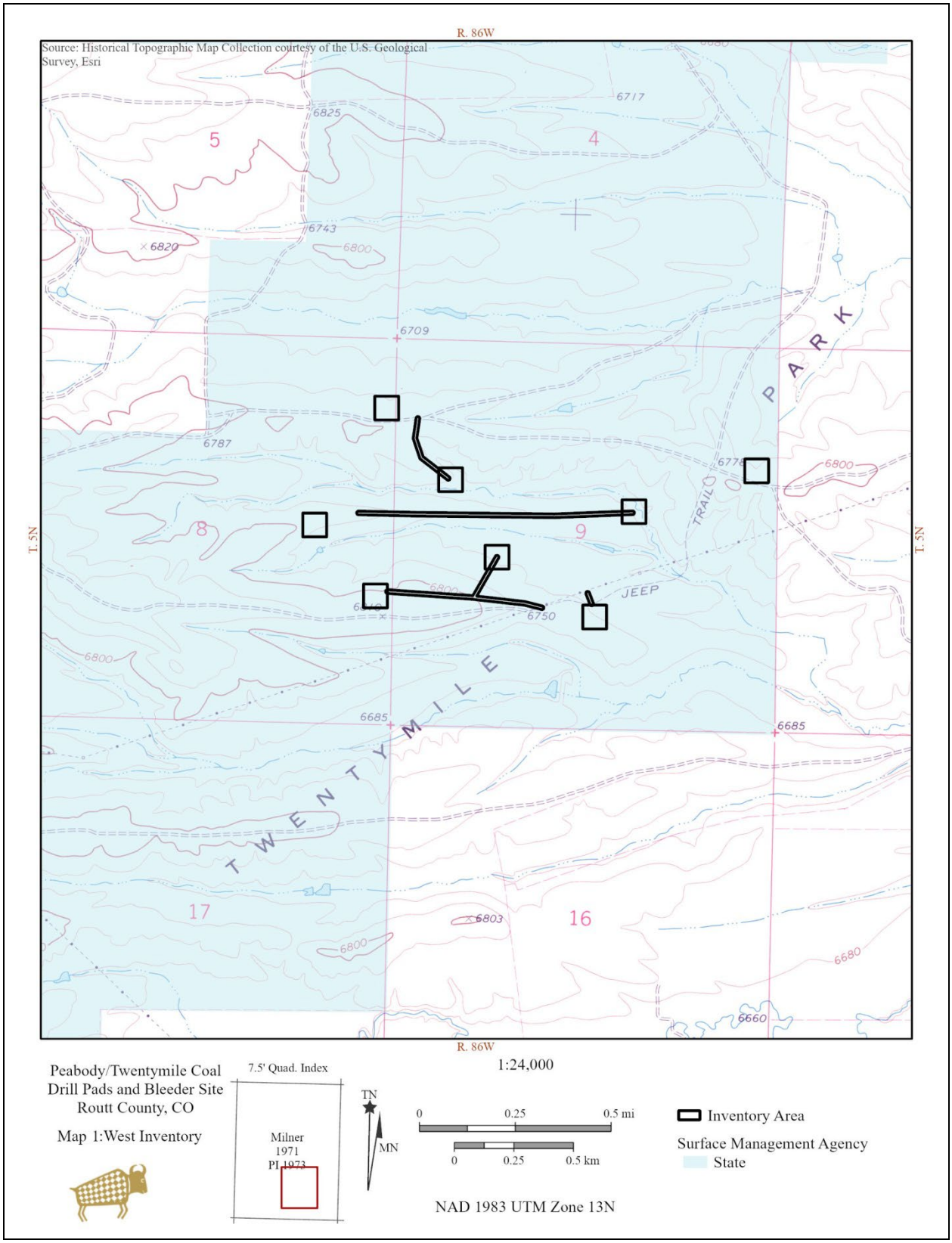

Figure 1. Project location map western portion, proposed drill pads and access roads.

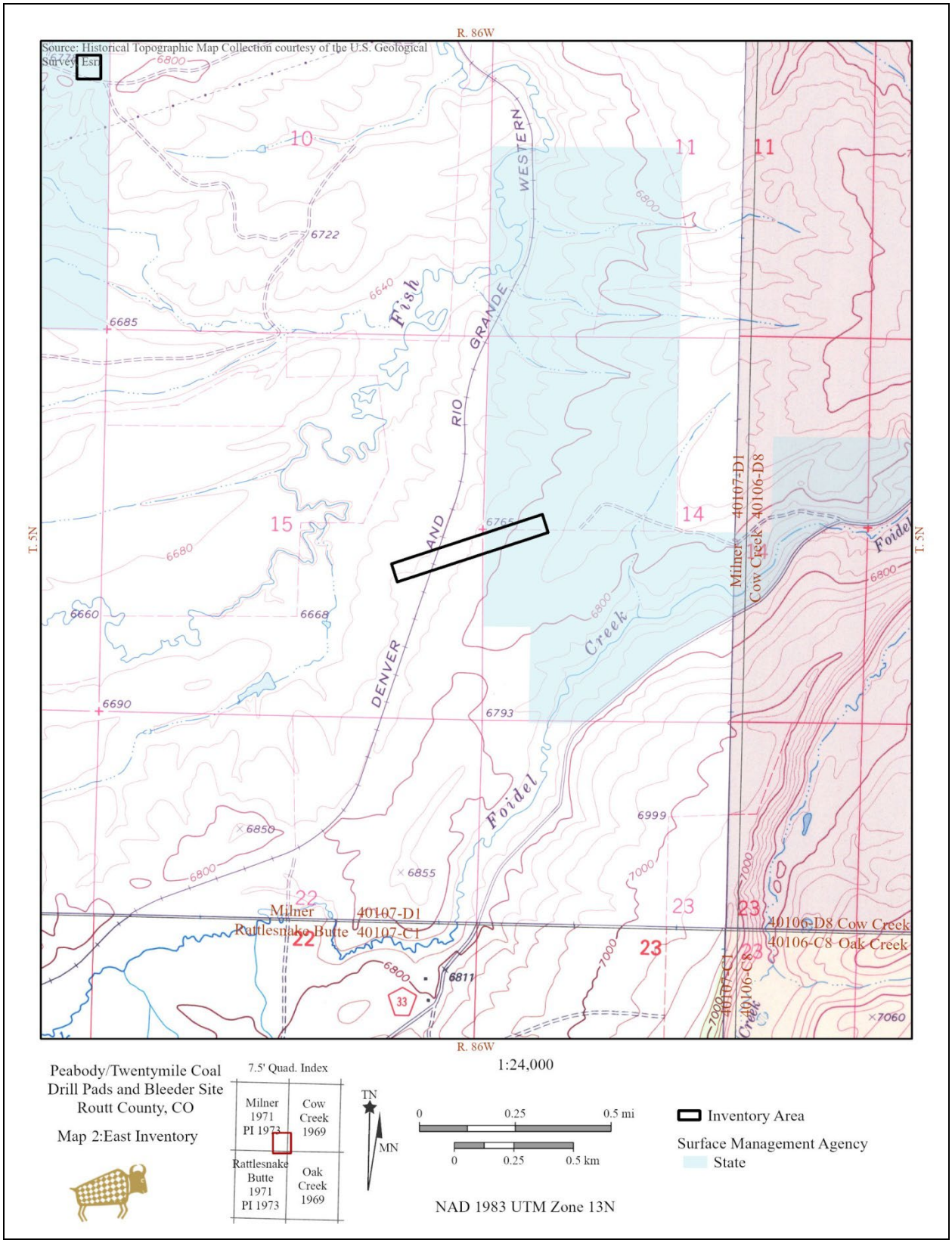

Figure 2. Project location map eastern portion, proposed bleeder site.

INTRODUCTION

Metcalf Archaeological Consultants, Inc. (Metcalf) has completed a Class III cultural resource inventory for Peabody / Twentymile Coal, LLC, for eight proposed drill pads, associated access routes, and a bleeder site in Routt County, Colorado. The project area (Figure 1, Figure 2) is located in Twentymile Park in northern Colorado, in the 6th PM, Township 5N, Range 86W, sections 8, 9, 14, and 15. Class III inventory consisted of several linear and small block parcels totaling 42.014 acres, situated on both State of Colorado (33.4 acres) and privately owned surface (7.8 acres) and subsurface minerals. The Colorado Division of Reclamation, Mining, and Safety (DRMS) is the agency reviewing the project. The area of potential affect (APE) for the project is defined as the Class III inventoried area.

Per information received from the client, the proposed project involves a small amount of surface disturbance at eight one acre square drill pad locations and an oblong bleeder site. The inventoried area for the bleeder site is larger than the planned disturbance area, because the actual location of the work within that area has not yet been determined.

The drill pad sites are for exploration coreholes. The maximum pad site will be 150 x 150 feet. Twentymile does not plan to construct level padsites and will only be leveling spots large enough for the drill rig to set up. Mud pits for the drilling will be dug and 3000 gallon water holding tanks will be placed temporarily on the surface for the drilling process. Reclamation, hole abandonment, and seeding will immediately follow the extraction of the cores. Topsoil will be stripped from mud pit areas and any areas leveled for equipment. It is estimated that each location will be drilled, cored, and reclaimed within 2-3 weeks.

The bleeder site is for more long-term use. A level pad approximately 200 x 200 feet will be constructed and a borehole will be drilled into the mine. Propane powered venting equipment will then be placed at the top of the borehole on the pad site. The pad site will be graveled and all best management practices will be followed during all stages of construction, operation, and reclamation.

Construction of the above facilities will be by an excavator and dozer. The associated access routes that Metcalf surveyed will not be developed or upgraded. They are either existing roads, or the vehicles will drive cross-country in the designated areas over the surface with minimal disturbance (Miranda Kawcak, personal communication, August 2023).

The investigation reported here is required by the DRMS to facilitate compliance with Section 106 of the National Historic Preservation Act (NHPA) and other applicable federal legislation and regulations by providing information on the presence of cultural resources, recommendations about resource eligibility to the National Register of Historic Places (NRHP), and recommendations for Section 106 findings pertaining to effect when historic properties are present. DRMS will review this report and then send it to Colorado's Office of Archaeology and Historic Preservation (OAHP) for review.

Fieldwork for this project was conducted July 17-18 and August 8, 2023, by Metcalf archaeologist Garrett Williams. Shea Houston and Zack Guttman prepared field and report maps and created GIS data shapefiles for the project. Melissa Elkins served as the Principal Investigator for the project. Metcalf conducted all work under the terms of the company's State of Colorado cultural resource permit #82438 (expires 2/29/2024). All field documentation, maps, and photographs for this project are on file at Metcalf's office in Eagle, Colorado. No artifacts were collected for this project.

ENVIRONMENT

TOPOGRAPHY AND GEOLOGY

The project area is located in Twentymile Park of northwestern Colorado, approximately eight miles south of the Yampa River. The Williams Fork Mountains rise to the west of the project area. Broadly, the area is a high, dissected plateau with rugged mountainous areas, broad river valleys, and rolling upland parks. Specifically, the project area consists of rolling grass and sage-covered hills with relatively little relief compared to the rugged surrounding areas. Elevation varies from about 6,720 – 6,800 feet (Figures 3 and 4).

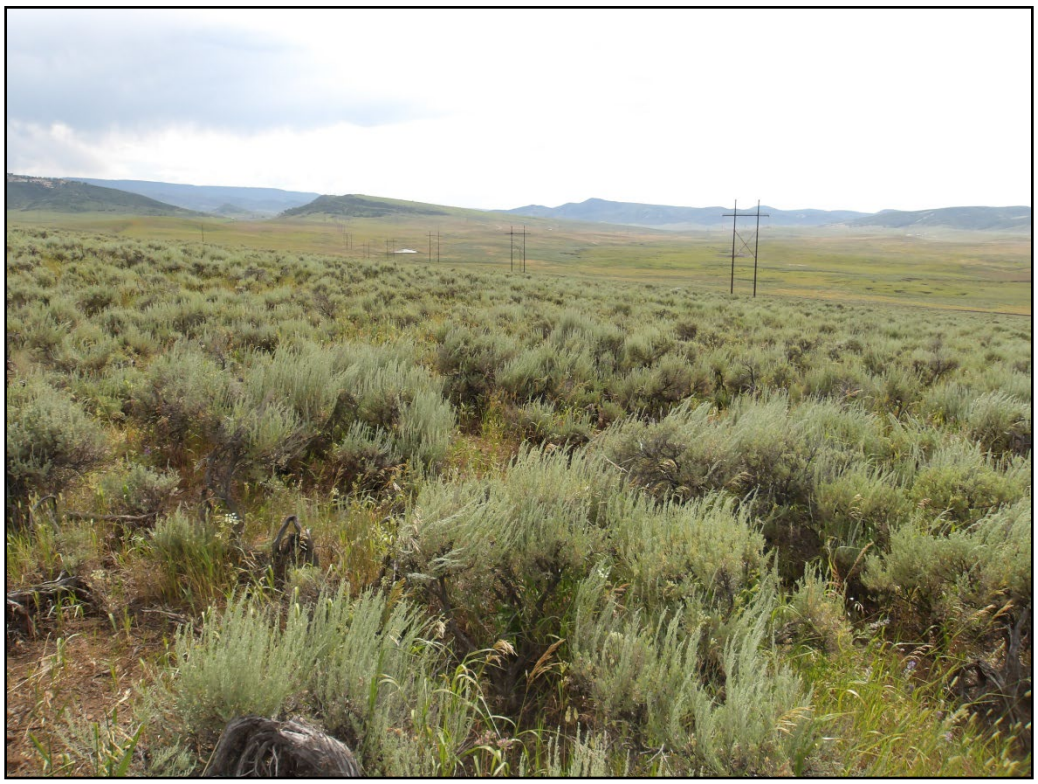

Figure 3. Project overview of proposed bleeder area, facing southwest from the northeast corner (23-806, image 4; G. Williams, 07/17/2023).

Figure 4. Representative project overview of proposed drill pads area, facing east from the westernmost pad (23-806, image 10; G. Williams, 07/18/2023).

The entire project area is drained by Fish Creek and intermittent tributaries of Fish Creek. Fish Creek flows generally southwest to northeast between the two primary project areas. It is a tributary of Trout Creek, which in turn flows north to the Yampa River. The Yampa River is part of the greater Colorado River system.

The bedrock geology of the project area consists of Cretaceous-aged Lewis Shale and sandstone, coal beds, and shale of the Williams Fork Formation (Tweto 1979). Dispersed pebbles, cobbles, and small boulders of sandstone and shale were observed during the field inventory, as well as common rounded quartzite cobbles and isolated pieces of white quartz, the latter solely toward the western project area.

Ecologically, the project is located near the eastern edge of the Rolling Sagebrush Steppe of the Wyoming Basin, although it is very closely bordered by Southern Rockies ecoregions as well to the west and south (Chapman et al. 2006). The Rolling Sagebrush Steppe ecoregion is characterized by rolling plains with hills, cuestas, mesas, terraces, and near the footslopes, alluvial fans and outwash fans. Vegetation typically includes sagebrush steppe with areas of bitterbrush shrubland and scattered juniper woodland at higher elevations. Associated vegetation may include western wheatgrass, needle-and-thread, blue grama, Sandberg bluegrass, Junegrass, rabbitbrush, fringed sage, Wyoming big sagebrush, silver and black sagebrush in lowlands, and mountain big sagebrush at the higher elevations (Chapman et al. 2006). Sagebrush and mixed grasses comprise the dominant vegetation observed during the field inventory.

SOILS

Broadly, the rugged hilly areas surrounding Twentymile Park contain thick colluvial deposits overlying residuum on the slopes and adjacent to drainage bottoms. Alluvium has accumulated in the drainage bottoms and thin aeolian deposits have accumulated in the hills, especially on the leeward sides of ridges. Specifically, as mapped by the United States Department of Agriculture, National Resource Conservation Service (USDA-NRCS), the bleeder area portion is mapped as nearly entirely Rabbitears loam, 3 to 12 percent slopes. This soil series is commonly found on hills and slopes, and consists of variations of loam, sandy clay loam, and gravelly clay loam. It has a parent material of slope alluvium derived from sandstone and shale (USDA-NRCS 2023).

The vastly dominant soil series on and around the proposed drill pads area is the Impass silty clay loam, 12 to 25 percent slopes. This unit is commonly found on hills and slopes and consists of colluvium derived from sandstone and shale. Minor soil series in this area include the Impass silty clay loam, 3 to 12 percent slopes, which is - as the name indicates – highly similar to the afore-mentioned soil series but which has a parent material of slope alluvium derived from sandstone and shale. Other minor soil series include Routtskin silty clay loam, 3 to 12 percent slopes; Lintim loam, 12 to 25 percent slopes; and Elkhead clay loam, 0 to 3 percent slopes (USDA-NRCS 2023). During the inventory, Metcalf typically observed variants of grayish brown gravelly sandy loam and gravelly sandy or silty clay loam. No areas exhibiting high potential for subsurface cultural materials were observed.

FLORA AND FAUNA

The Twentymile Park area contains an abundance of diverse flora and fauna. Flora in the area varies by elevation and topographic context. Stands of aspen trees and thick shrubs are found at the higher elevations on north facing slopes while sagebrush, grasses, and mixed forbs are found in the parks and along drainages at the lower elevations and on south facing slopes.

Sagebrush, mixed grasses, cactus, and various forbs comprise the dominant vegetation observed during the field inventory. The bleeder project area was dominated by dense low sagebrush, while the drill pads area exhibited little sagebrush but common sparse grasses. As a result, ground surface visibility was very good to excellent, approximately 75 to 90 percent, for the drill pad areas and fair, about 50 percent, for the bleeder area. Within these areas, ground visibility varied considerably with vegetation cover.

Fauna in the region includes large ungulates, black bear, coyote, fox, and several species of small and medium-sized mammals. Numerous avian species also inhabit or utilize the area, and hawks were commonly observed during the inventory.

LAND USE PATTERNS/BUILT ENVIRONMENT

The Twentymile Park area is utilized predominantly for ranching, agriculture, and energy extraction. Stock grazing and coal mining are the dominant activities, and both project areas are within active cattle pastures. As such, within the project area, developments are largely limited to dirt roads and trails, barb wire fences, and small earthen stock dams, although the drill pad area is crossed by two high-voltage, overhead, steel lattice structure transmission lines and the bleeder site area is crossed by a smaller wooden H-Structure transmission line and a railroad spur

that leads to the Twentymile coal mine. Various infrastructure related to coal mining surrounds the project area.

CULTURE HISTORY AND PREVIOUS WORK

CULTURE HISTORY

Prehistoric Overview

The current project area is contained in the Northern Colorado River Basin prehistoric context, which encompasses all of northwestern Colorado (Reed and Metcalf 1999). The prehistory of this area is briefly summarized here; however, the reader is referred to Reed and Metcalf (1999), Grady (1984), and LaPoint (1987) for more detail.

The prehistory of the northern Colorado River basin is divided into four eras: Paleoindian (11,500 - 6500 BC), Archaic (6400 - 400 BC), Formative (400 BC – A. D. 1300), and Protohistoric (A. D. 1300 - 1881). Each of these eras is further subdivided into several traditions, periods, or phases.

The Paleoindian era consists of four traditions: Clovis (11,500 - 10,500 BC), Goshen (11,000 - 10,700 BC), Folsom (10,800 - 9500 BC), and Foothill-Mountain (9500 - 6400). These four traditions are characterized largely by projectile point morphology and, to a lesser degree, subsistence strategy. Evidence for Paleoindian occupation within the context area is limited, although it has been increasing in the years since the prehistoric context was published. Within the area of Twentymile Park, evidence of Paleoindian inhabitants consists of rare finds of diagnostic artifacts, including one Cody point from 5RT139 and a Cody Knife found at 5MF156. Clovis, Goshen, and Folsom points are all large, lanceolate, and fluted to varying degrees. Goshen points are distinguished from Clovis by basal thinning, while Folsom points are more finely crafted than either of the former. Foothill-Mountain tradition points are also large and lanceolate in shape, but they are unfluted with a restricted stem and indented base. Both Clovis and Goshen hunters tended to focus on megafauna (now extinct), while Folsom people hunted large, now extinct bison. Foothill-Mountain tradition people were more generalized, with an emphasis on smaller game such as bighorn sheep, deer, and pronghorn, with some exploitation of plant resources. Settlement patterns for Paleoindian occupation of the montane regions are hard to model due to a paucity of data, and extrapolation from Plains Paleoindian sites is problematic due to differing environmental constraints. The leading hypotheses, however, indicate these groups were highly mobile with large territories and low population densities. Evidence from Middle Park indicates some Paleoindian groups occupied the high country year-round. In recent decades, some archaeologists have questioned the traditional view of Paleoindian subsistence economy and land use as having been greatly different from later prehistoric hunter-gatherers (Naze 2013).

The Archaic era is separated into four periods, including the Pioneer (6400 - 4500 BC), Settled (4500 - 2500 BC), Transitional (2500 - 1000 BC), and Terminal (1000 - 400 BC). Evidence for the Archaic era within the context area is extensive and increasing with additional work. Within the general project area, Archaic-age lithic scatters and open camps have been recorded as well as some rock art panels thought to be Archaic in age. Metcalf's excavations at

the Red Army Rockshelter (5RT345), located just southeast of the project area, recovered evidence of seven components in five time periods including two basin houses within the shelter, with radiocarbon ages ranging from 7300 to 1080 BP and spanning the Pioneer Archaic through the Protohistoric (Pool 1997).

The defining characteristic of the Archaic is one of cultural continuity with brief periods of cultural change. The changes that mark the endings and beginnings of the eras both prior to and following the Archaic are subtle. The end of the Paleoindian period (Foothill-Mountain tradition) was characterized by a more settled population that exploited a broader and more local variety of both plant and animal resources. This strategy continued into the Pioneer period of the Archaic, with increasing emphasis on more stable occupation areas. Architectural features such as basin houses first appear in the archaeological record during the Archaic and become more frequent through time. There is also evidence of food storage and supply caching, suggesting variations to the forager-collector model of subsistence and settlement. Both of these feature types (basin houses and storage pits) indicate the population became less mobile, with smaller territories to exploit. This "settling in" has been cited as a reason for the explosion of variability noted in projectile point forms. Exploitation of plant resources also became increasingly important through time, with incipient horticulture evident in the period that transitions from the end of the Archaic into the beginning of the Formative era.

The Formative era is divided into four traditions: Anasazi (A. D. 900 - 1100), Fremont (A. D. 200 - 1500), Gateway (400 BC – A. D. 1300), and Aspen (A. D. 1 - 1300). Numerous Formative era Aspen tradition-age lithic scatters and open camps have also been recorded in the general project area, as have Protohistoric and Historic Ute or Shoshone rock art sites. Although lifeways practiced during the Archaic continued into the Formative era, there are some notable changes. These changes include a variable reliance on horticulture, the introduction of the bow and arrow technology and attendant changes to the projectile point types, construction of habitation structures, the introduction of pottery, and more elaborate storage systems. The Anasazi tradition is concentrated mostly in the southern portion of the context area, although pottery characteristic of the Anasazi has been found as far north as southwestern Wyoming. The Fremont tradition is extremely variable throughout the context area. In the north, it is characterized by variable reliance on horticulture with more hunting and gathering evident, short-term occupation sites, distinctive ceramics, and a distinctive rock art style. The Gateway tradition is located in west-central Colorado and is characterized as having influences from both the Fremont and Anasazi although there are some significant differences. Reliance on horticulture was very limited, ceramics were apparently acquired through trade rather than originally manufactured, residences were circular masonry rooms, pit structures were also potentially inhabited, and the rock art styles were influenced by both the Fremont and Anasazi. The Aspen tradition is coterminous with the Gateway tradition, but occurs in the northwestern part of the state. It is distinguished from the other three traditions by a lessened reliance on horticulture, no apparent native production of ceramics, small corner-notched projectile points indicative of the use of bow and arrow technology, and an increase in the frequency of visible and datable sites, suggestive of higher population densities.

The Protohistoric era consists of the Canalla phase (A. D. 1100 - 1650) and the Antero phase (A. D. 1650 - 1881). This era is defined by the return to a highly mobile hunter-gatherer

lifeway due to a contraction of the horticulturalists' territories, the appearance of new immigrants in the area, construction of wooden structures such as wickiups, the production of a brown ware ceramics (e.g., Uncompaghre Brown), and use of small side-notched and unnotched stone projectile points prior to contact and trade with Europeans in the early 17th century. Post-contact, Protohistoric people such as the Eastern Ute adopted horses, which changed their lifeways and vastly expanded their territories. The Canalla phase represents the Ute lifeways previous to the adoption of the horse, while the Antero phase encompasses the Ute following horse adoption, when greater contact with Europeans and other Native American groups became more common. The era ends with the final expulsion of the Ute from Colorado.

Historic Overview

Comprehensive historic contexts have been written for the general area of the project. The most recent can be found in *Colorado Mountains Historic Context* (Mehls 1984) and *Colorado History: A Context for Historical Archaeology* (Church et al. 2007). The following information is a synthesis of these resources.

The United States obtained the Louisiana Purchase, which included the territory that is now Colorado, in 1803 and sent expeditions west to document this new territory. It is during this time frame that the "contact-traditional cultures" were building economic relationships with the Spanish and other European traders. The period between 1820 and 1860 was characterized by more intensive migrations westward of American settlers as a result of the Louisiana Purchase. This movement led to heightened competition for resources and thus more cross-cultural conflicts. The fur trade was dwindling, and gold was discovered in the Colorado High Country in 1859, starting the Colorado Gold Rush. Although the Gold Rush did not greatly affect the northwest portion of Colorado directly, it did move settlers closer to the area and prompted Congress to establish the Colorado Territory in 1861.

The Late Contact phase (1860-1881) of the Protohistoric era is characterized by the initiation of U.S. Government and Indian relations, including displacement of Indian nations onto reservations to stabilize new western territories for settlement. The Homestead Act was passed in 1862, opening new lands in the Colorado Territory and the west. In 1876, Colorado was established as a state, and by 1881, the Utes were relocated from western Colorado to eastern Utah.

With the relocation of Native Americans further west, American settlements grew rapidly in western Colorado. This growth was further fueled by oil and coal extraction, which began in 1872 in much of the state, although it did not take off in northwestern Colorado until the 1880s. The mining industry boom led to the expansion of commerce, transportation, and support industries in the west.

Completion of the Transcontinental Railroad across southern Wyoming in 1869 contributed greatly to increased settlement in northwestern Colorado, and the Denver & Rio Grande Railroad Company had developed lines from Denver to Salt Lake City, Utah, by 1883. These railways provided market access that had been previously unavailable to the farmers and cattle and sheep ranchers of the area, as well as the coal mines. Roadways were also expanding further west, bringing increasing volumes of homesteaders, ranchers, and small settlements.

During this time period, the mining and logging industries were at the forefront of the Colorado economy.

By the early 20th century, energy exploration was an important part of the economy in this northwest corner of the state. Coal production went through periods of boom and bust in the Yampa Valley from 1900 to 1930, and oil speculation was strong from about 1913 to 1930. Although Colorado, like the rest of the nation, experienced difficulties during the depression years of 1930 to 1940 and during WWII (1941-1945), oil and gas discoveries began to be developed in western Colorado in the late 1930s. By the late 1940s, the gas and oil fields of the area began to be more heavily exploited.

Recreation, including activities such as hunting and fishing, has also played a prominent role in northwest Colorado. The region boasts large herds of game animals and plentiful streams and rivers. Camping, hiking, and biking are favored activities as well. In addition, nearby Steamboat Springs offers opportunities for skiing as well as numerous hot springs.

Within the project area, ranching, limited farming, and coal mining are the dominant historic themes. Sites related to these activities show up in the files search and were expected during inventory.

PREVIOUS WORK AND HISTORIC RESEARCH

Prior to fieldwork, Metcalf requested files search data from the Colorado Office of Archaeology and Historic Preservation (OAHP) consisting of the project area plus a one-mile buffer. The data included previously recorded cultural resources and previous cultural resource inventories. Files search results are summarized below.

The file search shows 46 previous inventories near the project area, the vast majority of which were done for permitting for Twentymile Coal Company's mining developments. Only very small portions of these inventories, many of which were conducted in the 1980s and early 1990s (and later) intersect the current project area. One overlapping inventory was conducted by Metcalf Archaeological Consultants in 2014 for proposed sand coal strips (OAHP Project # RT.LM.R118); it resulted in the recording of a segment of the Energy Spur railroad (5RT.3259.1) which was revisited and updated for the current project.

The file search shows 160 previously recorded resources in the area, including 38 sites, 112 isolated finds, and 10 resources that are recorded in OAHP's data but have no information listed as to their type. Of these resources, just one previously recorded site (5RT3259.1, the Energy Spur railroad segment) lies within the current project boundary. It was revisited and updated for the current project. The sites include 12 that are historic and 19 that are prehistoric. The remaining seven sites have no information about their type. Historic sites consist of water control features, a ranch, a habitation, a foundation, two railroad segments, unspecified architecture, and the Huchinson coal mine. Prehistoric sites consist of open camps and lithic scatters. The isolated finds are dominated by prehistoric artifacts (n=107), with only four historic artifacts. One remaining isolated find has no specific information in OAHP data as to its type.

Additionally, historic General Land Office (GLO) plats for Township 5N, Range 86W, and historic USGS topographic quadrangle maps were inspected for historic cultural resources (Table 1). A search of these historic maps revealed early ranches appearing along Fish Creek by 1882 and more development by the early 20th-century, including roads, irrigation ditches, and reservoirs (all outside of the current project area). Historic features that appear to be in the project area consist of the historic "Denver and Rio Grande Western" railroad (site 5RT3259, updated this project), a power line, and an unnamed trail, all of which are first depicted on the Milner 1971 USGS 1:24000 quadrangle. Per OAHP guidance, the informal unnamed trail does not require further documentation (and it would date to the 1970s based on map research), and two substantial, parallel, overhead, high-voltage, steel lattice structure transmission lines currently occupy the approximate location of the historic power line, and as such are assumed to have replaced it. No evidence of the historic powerline was found in the project area during the inventory.

Table 1. Summary of additional files search findings.

Township/Range	Map Date/Name/Type	Findings
T5N, R86W	1882 GLO Plat – original survey	A few ranches in the surrounding area; nothing in the APE
	1915 GLO Plat – dependent resurvey	Roads, fences, and irrigation ditches in surrounding area; nothing in the APE
	1924 and 1926 Mount Harris USGS 1:62,500 quad	Roads, trails, buildings in surrounding area; nothing in the APE
	Craig USGS 1:250,000 quads (1957, 1958, 1960, 1962, 1964)	Roads, ranches in surrounding area; nothing in the APE
	1971 Milner USGS 1:24,000 quad	"Denver and Rio Grande Western" railroad, unnamed trail, power line corridor, in the APE

STATEMENT OF OBJECTIVES AND RESEARCH DESIGN

Following state and federal policies and regulations implementing the NHPA (Public Law 89-665) as amended, the project area was inventoried to identify any cultural resources within the APE. Any discovered cultural resources were to be evaluated for eligibility to the NRHP under the Criteria for Eligibility (36 CFR 60.4). Register eligibility is evaluated in terms of the integrity of the resource in relation to four specific criteria: (**A**) are associated with events that have made a significant contribution to the broad patterns of our history; or (**B**) are associated with the lives of persons significant in our past; or (**C**) embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or (**D**) have yielded, or may be likely to yield information important in prehistory or history.

Prehistoric resources are most often evaluated under Criterion D, for their potential to yield information important to studies of prehistory. Information from a potentially significant prehistoric site often stems from data recovered from intact surface components and subsurface cultural deposits or discrete activity areas that can be securely associated with a temporal period

or named cultural group. The potential for intact deposits or cultural/temporal associations may be inferred from surface evidence of cultural features or undisturbed deposits, and the presence of temporally or culturally diagnostic artifacts.

Historic resources may be evaluated under any of the criteria. However, in the absence of structural features or documented association with significant historic events or important contributions of persons significant in history, historical resources are evaluated under essentially the same criteria as prehistoric resources.

Anticipated results of the inventory were based on file search data, Metcalf's previous work in the region, historic documentation, and topographical and environmental characteristics. These factors suggested that both prehistoric and historic resources were possible in the current project area, but that isolated finds were more likely than sites.

FIELD METHODS

Metcalf conducted all inventory and site recording in accordance with the terms of the company's State of Colorado cultural resource permit #82438 (expires 2/29/2024) which fulfills Colorado Office of Archaeology and Historic Preservation (OAHP) guidelines and stipulations.

SURVEY METHODOLOGY

The project area was inventoried by one archaeologist walking standard zig-zag pedestrian transects spaced at no more than 20 meters across the inventory area. In-field navigation of the inventory area was via GIS data on a handheld Trimble GeoXT 6000 GPS unit with real-time WAAS correction of approximately 2 to 5 meters and post-processed correction to sub-meter. Careful attention was given to areas of high surface exposure, such as anthills, rodent back-dirt piles, and animal trails and areas of subsurface exposure, such as drainage cuts and cutbanks. Additionally, representative photographs of the project area were taken and recorded on a photograph log noting the view and direction.

Upon discovery of cultural materials, the surrounding area was intensively examined to determine the nature and extent of the resource, define a boundary, and determine whether the resource should be considered a site or isolated find. For this project, Metcalf followed the Bureau of Land Management (BLM) guidelines to define sites and isolates, which fulfills Colorado OAHP requirements.

Sites are defined as:

- the locus of previous (50 year age minimum) human activity at which the preponderance of evidence suggests repeated and patterned use over time or multiple classes of activities. Certain cultural resources that represent single activity may also be defined as sites.
    a) Isolated thermal features such as hearths are to be designated as sites, even though they may represent a single event, due to the interpretable function of such utilization and the potential for chronometric and economic data recovery;

b) Single element rock art panels are to be designated as sites due to the interpretable nature of such an event and the potential diagnostic value of the motif;
c) Isolated human burials; or
d) Loci exhibiting ground stone and flaked stone in association.

Isolates are defined as:

- the location of previous (50 year age minimum) human activity at which are found one or more culturally modified and transportable objects representing a single activity and not found in the context of a site as defined above. *Note that this definition makes no reference to an absolute quantitative standard for the site/isolate distinction.*

Once defined, resources were recorded using the appropriate Colorado OAHP site forms. Sites were mapped with a handheld Trimble GeoXT 6000 GPS unit and photographed from various areas along the site boundary. All GPS readings were georeferenced to UTM zone 13N, NAD 83 (post-processed to sub-meter accuracy). Lithic tools, diagnostic or unique artifacts, and features were photographed as well. All resources were plotted on the relevant 7.5' USGS quadrangle while in the field to help establish possible patterns to site and/or isolate location. No artifacts were collected. All field notes, maps, and digital photograph files are on file at the Metcalf office in Eagle, Colorado.

INVENTORY RESULTS

Field conditions at the time of survey were very good for the discovery and recording of cultural resources with warm weather and clear skies. Inventory resulted in a revisit to one previously recorded segment of the "Energy Spur" railroad, site 5RT3259 (Table 2), and the documentation of a new segment of the railroad, 5RT3259.4. No additional cultural resources were found. Site 5RT3259 has been previously evaluated as not eligible for inclusion on the NRHP under any criteria, and Metcalf observed nothing during the revisit to warrant a change to its extant status of not eligible. Site descriptions are summarized below. Resource location maps are depicted in Appendix A. Site forms are found in Appendix B.

Table 2. Newly recorded and updated resources during inventory.

Site #	Temp #	Period	Age/Date	Description	NRHP Recommendation
5RT3259.4	n/a	Historic	1960s	Energy Spur Railroad	Not eligible

SITES

5RT3259.4

Site 5RT3259.4 is a newly recorded segment of the "Energy Spur" railroad of the historic Denver and Rio Grande Western Railroad. The site was originally recorded in 2013 by Metcalf (as 5RT3259.1), and at that time, the railroad was described as consisting of steel rails, spikes, and footings, along with wooden ties, on top of a rocky berm. The rocky grade, made up of imported angular small cobbles, measures 3 to 4 feet high. Modern barbed wire fencing is located about 18 feet from the edge of the grade on both sides of the railroad and marks the edge of the railroad easement (Stahl 2013). The entire site was recommended as not eligible for

inclusion on the NRHP, with CO OAHP concurrence, because it failed to meet any of the criteria for eligibility. The site was also revisited by Metcalf in 2014, and they reported no changes to the railroad or its NRHP eligibility, but further documented a series of culverts and electrical boxes and signal lights (Slaughter 2014).

The historic and archival information for this site has been discussed in Stahl (2013) and is summarized here. In brief, 12. 2 miles of tracks were laid for the "Energy Spur" in 1962, and it has since served to transport coal from the Twentymile mine and load-out facility to the main line near Milner, Colorado, which is along Highway 40 between Steamboat Springs and Hayden.

During the current project, Metcalf revisited an approximate 800 foot segment of the railroad that falls entirely within previously recorded segment 5RT3259.1. It is oriented generally northeast-southwest and is located between Fish Creek to the west and Foidel Creek to the east. It is in excellent condition and appears identical to its initial documentation. Further, Metcalf observed no features during the revisit, apart from the railroad grade, the actual rail line, and the paralleling barb wire fences. No historic artifacts or features were found in association. It is crossed by an overhead transmission line and a dirt road. Surrounding surface sediments consist of grayish brown silt or silty clay with sparse subrounded gravels and cobbles. The area is used for grazing and is vegetated in the surrounding area by low sagebrush steppeland with mixed grasses and various forbs.

NRHP Recommendation and Integrity Assessment

Site 5RT3259 was recommended as not eligible for inclusion on the NRHP when initially documented in 2013, with Colorado OAHP concurrence. The spur line was built in 1962 after the initial boom of coal mining in the area and was not an important part of the early transportation history of the region. It is not likely to possess any features that display unique construction methods, or are exemplary examples of railroad construction, or otherwise meet Criterion C along the portions of the railroad not recorded. Although the railroad is related to the larger Denver and Rio Grande Railroad network, which is NRHP eligible, it was not in operation during that railway's historic period of significance (early to mid-1900s). Therefore, the spur line is not associated with known significant historical events or persons (Criteria A and B), and it does not possess additional research potential (Criterion D). Accordingly, Metcalf recommends that newly recorded railroad segment 5RT3259.4 continue to be managed as not eligible for inclusion on the NRHP. The railroad will not be altered or disturbed in any way for the current project's planned construction. No further work is recommended.

ISOLATED FINDS

No isolated finds were discovered during the field inventory.

SUMMARY AND CONCLUSIONS

Metcalf Archaeological Consultants, Inc. has completed a Class III cultural resource inventory for Peabody / Twentymile Coal, LLC, for eight proposed drill pads, associated access routes, and a bleeder site in Routt County, Colorado. The project area is located in Twentymile

Park on both State of Colorado and privately-owned surface and subsurface minerals. The Colorado Division of Reclamation, Mining, and Safety (DRMS) is the agency reviewing the project. Class III inventory consisted of several dispersed linear and small block parcels totaling 42.014 acres (33.4 acres on State of Colorado lands and 7.8 acres on private lands). The inventory resulted in a revisit to one previously recorded segment of the Denver and Rio Grande "Energy Spur" railroad, site 5RT3259, and the documentation of a new segment, 5RT3259.4. No additional cultural resources were found. Site 5RT3259.4 is recommended to be not eligible for inclusion on the National Register of Historic Places (NRHP) under any criteria; the overall portion of this railroad recorded as 5RT3259.1 in 2014 near the project area has also been recommended as not NRHP eligible. Furthermore, no development is proposed within the railroad corridor for this project and the railroad bed will not be altered or affected. Accordingly, Metcalf recommends a finding of *no historic properties affected* for the Twentymile's proposed drill pads, associated access routes, and bleeder site project.

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Slaughter, Stephanie
2014 *Twentymile Coal Company LLC: A Class III Cultural Resources Inventory of Proposed Coal Sand Strips in Routt County, Colorado.* Prepared for Twentymile Coal, LLC, Oak Creek, Colorado. On file at the Bureau of Land Management, Little Snake Field Office, Craig.

Stahl, Jenny
2013 *Twentymile Coal Company's Proposed Core Holes, Associated Access, 7-Right Well Pad, and 6/7-Right Pipeline: Class III Cultural Resource Inventory, Routt County, Colorado*. Metcalf Archaeological Consultants, Inc. Prepared for Twentymile Coal, LLC, Oak Creek, Colorado. On file at the Bureau of Land Management, Little Snake Field Office, Craig.

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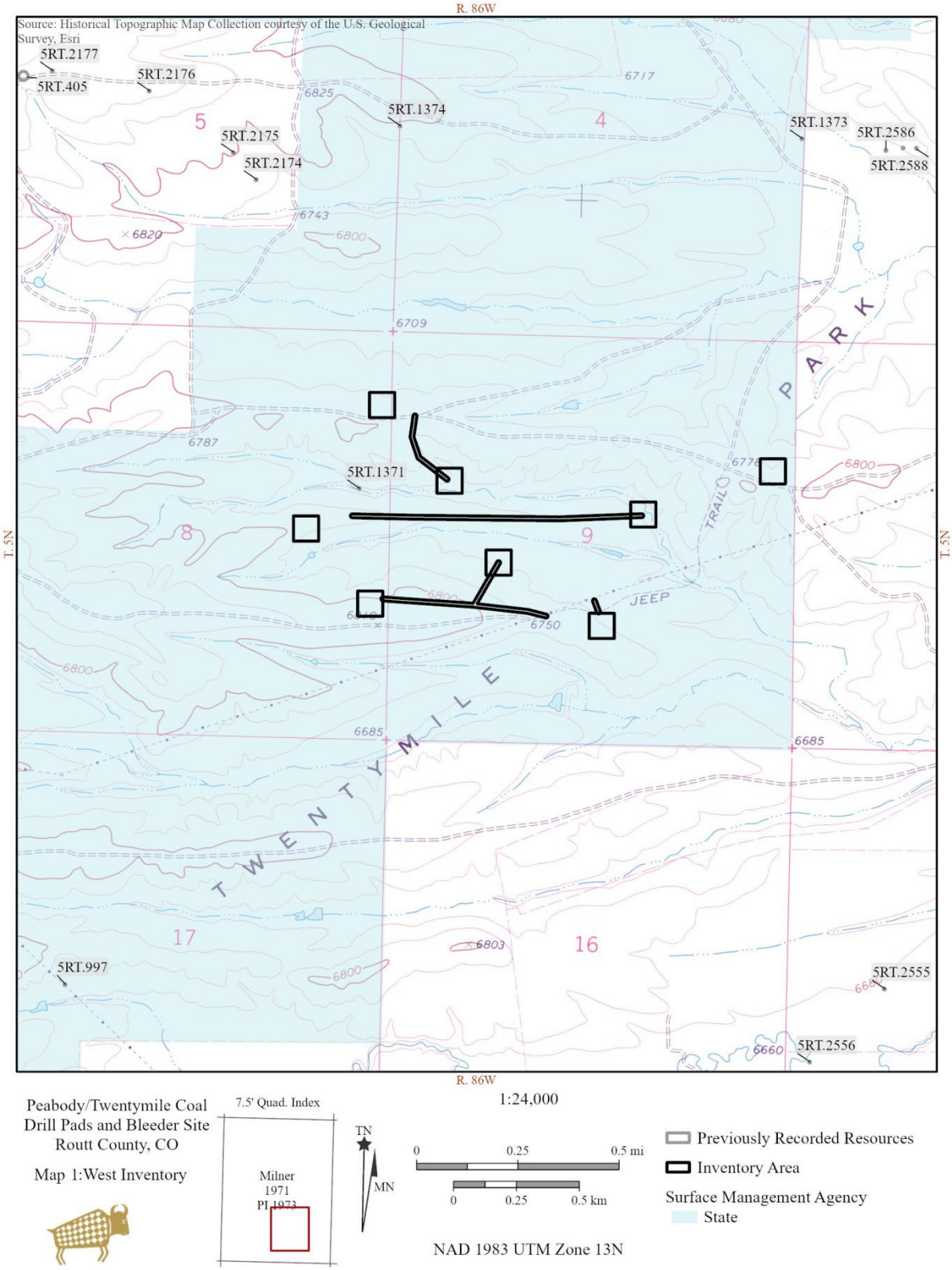
United States Department of Agriculture Natural Resources Conservation Service (USDA NRCS)
2023 National Resources Conservation Service Soil Survey Program website. Electronic document, http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx, accessed August 17, 2023.

APPENDIX A

Cultural Resource Location Maps and Site Sketch Map
(under separate cover; agency copies only; not for public distribution)


R. 86W
Source: Historical Topographic Map Collection courtesy of the U.S. Geological Survey, Esri
5RT.2177
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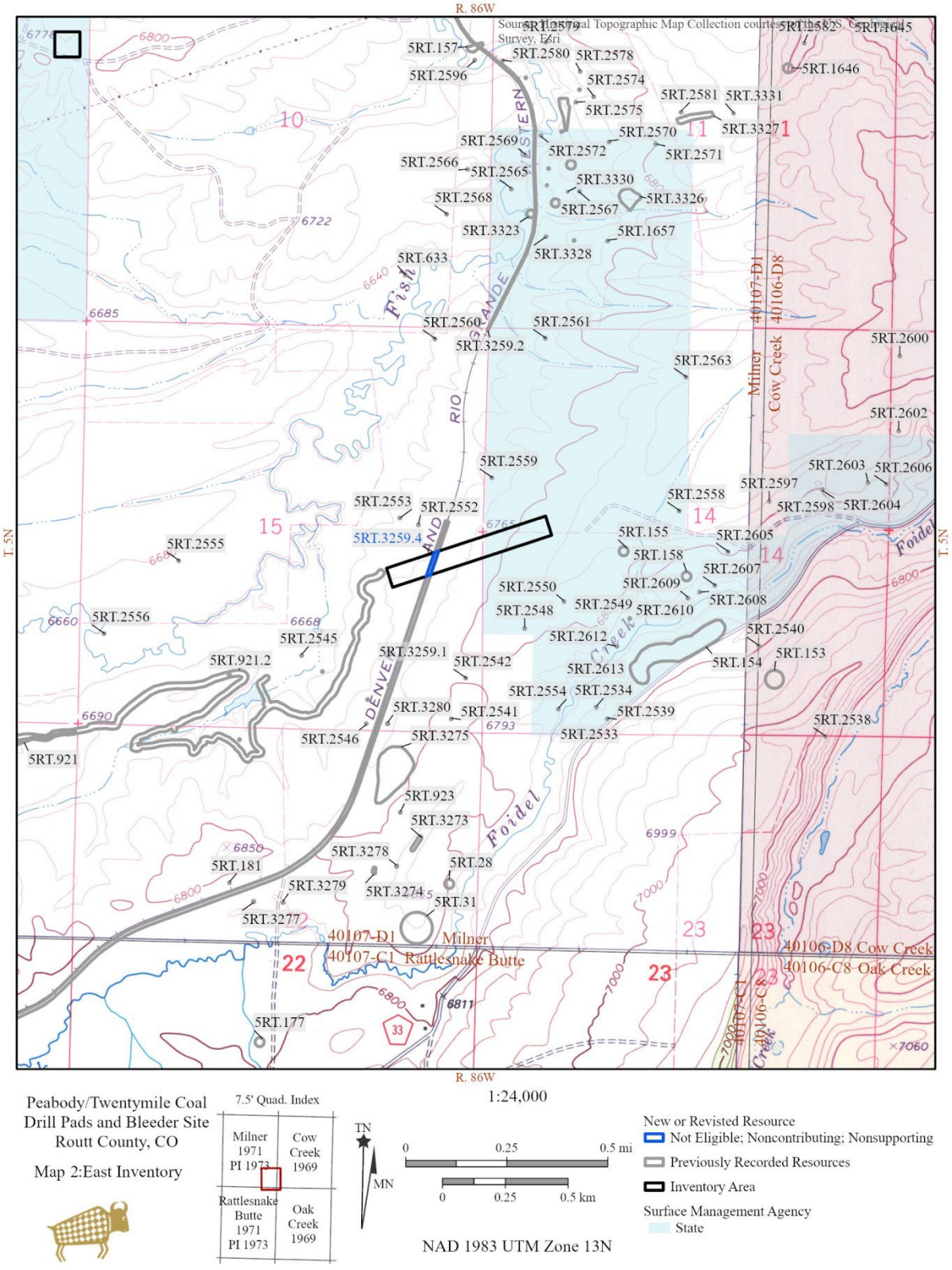
5RT.997
5RT.2555
5RT.2556
T. 5N
R. 86W
1:24,000
Peabody/Twentymile Coal Drill Pads and Bleeder Site
Routt County, CO
Map 1:West Inventory
7.5' Quad. Index
Milner 1971
PI 1973
TN
MN
0 0.25 0.5 mi
0 0.25 0.5 km
NAD 1983 UTM Zone 13N
Previously Recorded Resources
Inventory Area
Surface Management Agency
State



Peabody/Twentymile Coal
Drill Pads and Bleeder Site
Routt County, CO

Map 2:East Inventory

7.5' Quad. Index

Milner 1971 PI 1973	Cow Creek 1969
Rattlesnake Butte 1971 PI 1973	Oak Creek 1969

TN MN

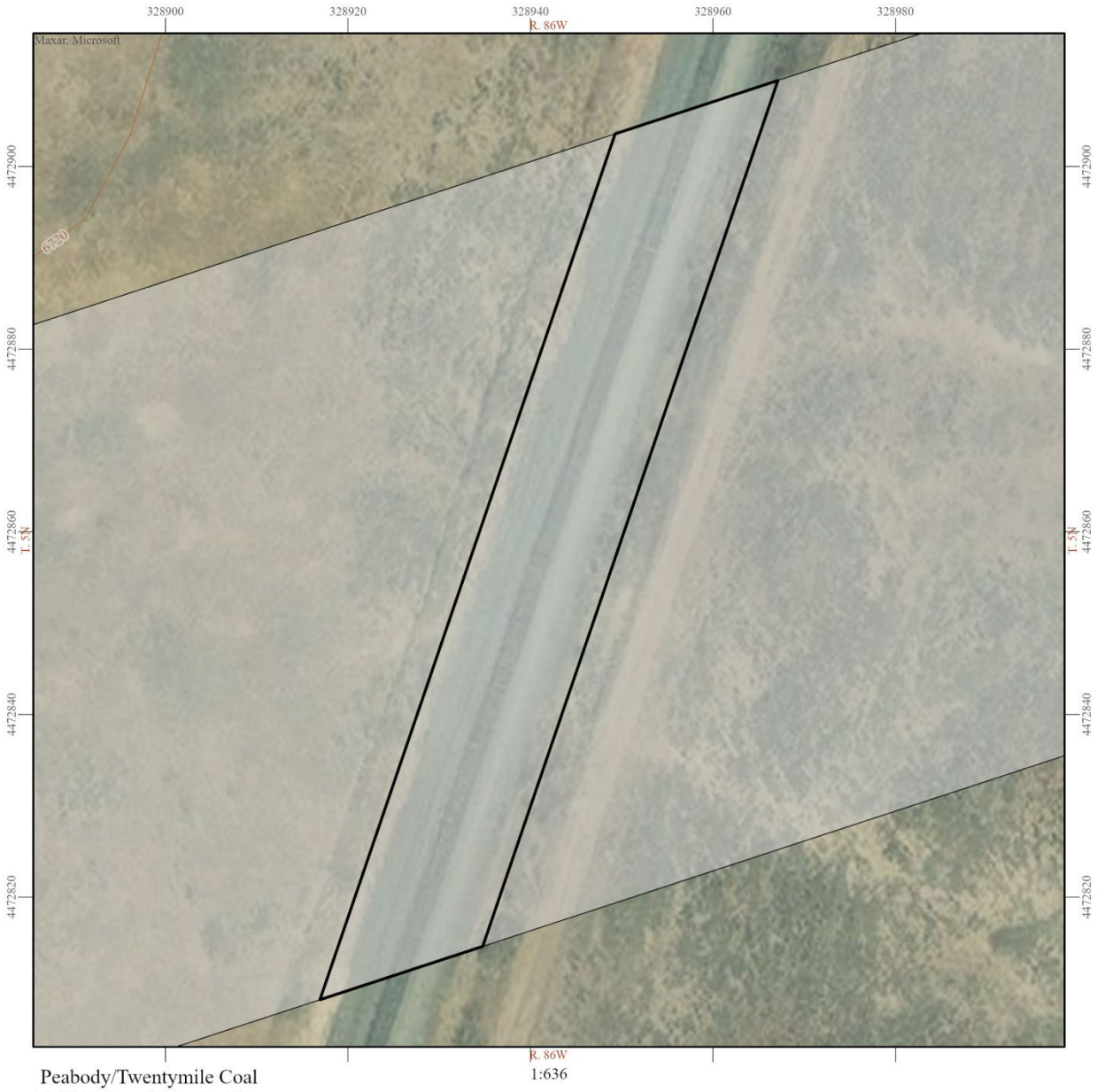
1:24,000

0 0.25 0.5 mi

0 0.25 0.5 km

NAD 1983 UTM Zone 13N

New or Revisted Resource
Not Eligible; Noncontributing; Nonsupporting
Previously Recorded Resources
Inventory Area
Surface Management Agency
State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328920
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R. 86W
Maxar, Microsoft
4472900
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4472840
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6720
T. 5N
R. 86W
1:636
Peabody/Twentymile Coal
Drill Pads and Bleeder Site
Routt County, CO
5RT.3259.4
TN
MN
0
100 ft
0
20 m
New or Revisted Resource
Inventory Area
NAD 1983 UTM Zone 13N

APPENDIX B

OAHP Cultural Resource Forms
(under separate cover; agency copies only; not for public distribution)

Cultural Resource Re-Visitation Form

A Re-Visitation Form can only be used when a Management Data Form and component forms have been previously filed with the land managing agency and/or the Colorado Office of Archaeology and Historic Preservation and no substantive changes to the character of the site are required as a result of the current re-visitation. Please use the Management Data Form and supporting forms (archaeological component, linear, vandalism, etc.) when changes are required to:

- Site type
- Linear resources
- Additional artifact assemblages and/or features
- Boundary size
- Vandalism
- NRHP recommendations

Official determination (OAHP use only)

☐ Determined Eligible NR\SR
☐ Determined Not Eligible NR\SR
☐ Nominated
☐ Need Data NR\SR
☐ Contributing to NR Dist.\SR Dist.
☐ Not Contributing to NR Dist.\SR Dist.
☐ Supports overall linear eligibility NR\SR
☐ Does not support overall linear eligibility NR\SR

1. **Resource Number**: 5RT3259.4 2. **Temporary Resource Number**: n/a

3. **Resource Name**: Energy Spur of the Denver and Rio Grande Western Railroad

4. **Project Name/Number**: Peabody / Twentymile Coal, LLC: Class III Cultural Resource Inventory of Eight Proposed Drill Pads, Access Routes, and a Bleeder Site, Routt County, Colorado

5. **Government Involvement**: ☐ Local ☒ State ☐ Federal
   Agency: Colorado Division of Reclamation, Mining, and Safety (DRMS); Colorado Office of Archaeology and Historic Preservation (OAHP)

6. **Site Categories**: (Check as many as apply)
   Prehistoric: ☐ Archaeological site ☐ Paleontological site
   In existing National Register District? ☐ Yes ☐ No Name:
   Local Landmark? ☐ Yes ☐ No Name:
   Historic: ☒ Archaeological site ☐ Building (s) ☐ Structure(s) ☐ Object(s)
   In existing National Register District? ☐ Yes ☒ No Name:
   Local Landmark? ☐ Yes ☒ No Name:

7. **Owner(s) Name and Address**: Private; Union Pacific Railroad, 1400 Douglas St., Omaha, NE 68179

8. **Was the site relocated?** ☒ Yes ☐ No If no, why? (100% collected in previous recording, ground disturbance, etc.)

9. **Previous recordings**: The site was initially documented by Metcalf in 2013 (Stahl 2013), and was subsequently revisited by Metcalf in 2014 (Slaughter 2014). More details about these recordings may be found below in #17: Site Description/Update.

10. **Most recent National Register Eligibility Assessment**: ☐ Eligible ☒ Not Eligible ☐ Need Data
Explain: Site 5RT3259 was recommended as not eligible for inclusion on the NRHP under any criteria when initially documented in 2013, with CO OAHP concurrence. The spur line was built in 1962 after the initial boom of coal mining in the area and was not an important part of the early transportation history of the region. It is not likely to possess any features that display unique construction methods, or are exemplary examples of railroad construction, or otherwise meet Criterion C along the portions of the railroad not recorded. Although the railroad is related to the larger Denver and Rio Grande Railroad network, which is NRHP eligible, it was not in operation during that railway's historic period of significance (early to mid-1900s). Therefore, the spur line is not associated with known significant historical events or persons (Criteria A and B), and it does not possess additional research potential (Criterion D). Accordingly, Metcalf recommends that railroad segment 5RT3259.4 be managed as not eligible for inclusion on the NRHP. No further work is recommended.

11. **Listed on Register**: ☐ National ☐ State ☒ None
    Date Listed:

12. **Condition (describe)**: Site is in excellent condition.

13. **Threats to Resource**: ☐ Water Erosion ☐ Wind Erosion ☐ Grazing ☐ Neglect ☐ Vandalism

☐ Recreation ☐ Construction ☐ Other (specify):

14. **Existing Protection**: ☒ None ☐ Marked ☒ Fenced ☐ Patrolled ☐ Access controlled ☐ Other (specify):
Comments:

15. **Recorder's Management Recommendations**: No further work is recommended.

16. **Known Collections, Reports, or Interviews**:

Stahl, Jenny
2013 *Twentymile Coal Company's Proposed Core Holes, Associated Access, 7-Right Well Pad, and 6/7-Right Pipeline: Class III Cultural Resource Inventory, Routt County, Colorado*. Metcalf Archaeological Consultants, Inc. Prepared for Twentymile Coal, LLC, Oak Creek, Colorado. On file at the Bureau of Land Management, Little Snake Field Office, Craig.

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17. **Site Description/Update**:

Site 5RT3259.4 is a newly recorded segment of the "Energy Spur" railroad of the historic Denver and Rio Grande Western Railroad. The site was originally recorded in 2013 by Metcalf, and at that time, the railroad was described as consisting of steel rails, spikes, and footings, along with wooden ties, on top of a rocky berm. The rocky grade, made up of imported angular small cobbles, measures 3 to 4 ft high. Modern barbed wire fencing is located about 18 ft from the edge of the grade on both sides of the railroad and marks the edge of the railroad easement (Stahl 2013). The entire site was recommended as not eligible for inclusion on the NRHP, with CO OAHP concurrence, because it failed to meet any of the criteria for eligibility. The site was also revisited by Metcalf in 2014, who reported no changes to the railroad or its NRHP eligibility, but further documented a series of culverts and electrical boxes and signal lights (Slaughter 2014).

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During the current project, Metcalf revisited an approximate 800 foot long segment of the railroad that falls entirely within previously recorded segment 5RT3259.1. It is oriented generally northeast-southwest and is located between Fish Creek to the west and Foidel Creek to the east. It is in excellent condition and appears identical to its initial documentation. Further, Metcalf observed no features during the revisit, apart from the railroad grade, the actual rail line, and the paralleling barb wire fences. No historic artifacts or features were found in association. It is crossed by an overhead transmission line and a dirt road. Surrounding surface sediments consist of grayish brown silt or silty clay with sparse subrounded gravels and cobbles. The area is used for grazing and is vegetated in the surrounding area by low sagebrush steppeland with mixed grasses and various forbs.

18. **Photograph Numbers**: 23-806, images 1-3
Digital files at: Metcalf Archaeological Consultants, Eagle, CO

19. **Artifact and Field Documentation Storage Location**: Metcalf Archaeological Consultants, Eagle, CO

20. **Report Title**: Peabody / Twentymile Coal, LLC: Class III Cultural Resource Inventory of Eight Proposed Drill Pads, Access Routes, and a Bleeder Site, Routt County, Colorado

21. **Recorder(s)**: Garrett Williams
Date: July 17, 2023

22. **Recorder Affiliation**: Metcalf Archaeological Consultants, Inc.
Phone Number/Email: 970-328-6244/mac@metcalfarchaeology.com

Note: Please attach a sketch map, a photocopy of the USGS quad. map indicating resource location, and photographs.

Resource Number: 5RT3259.4 **Temporary Resource Number**: n/a

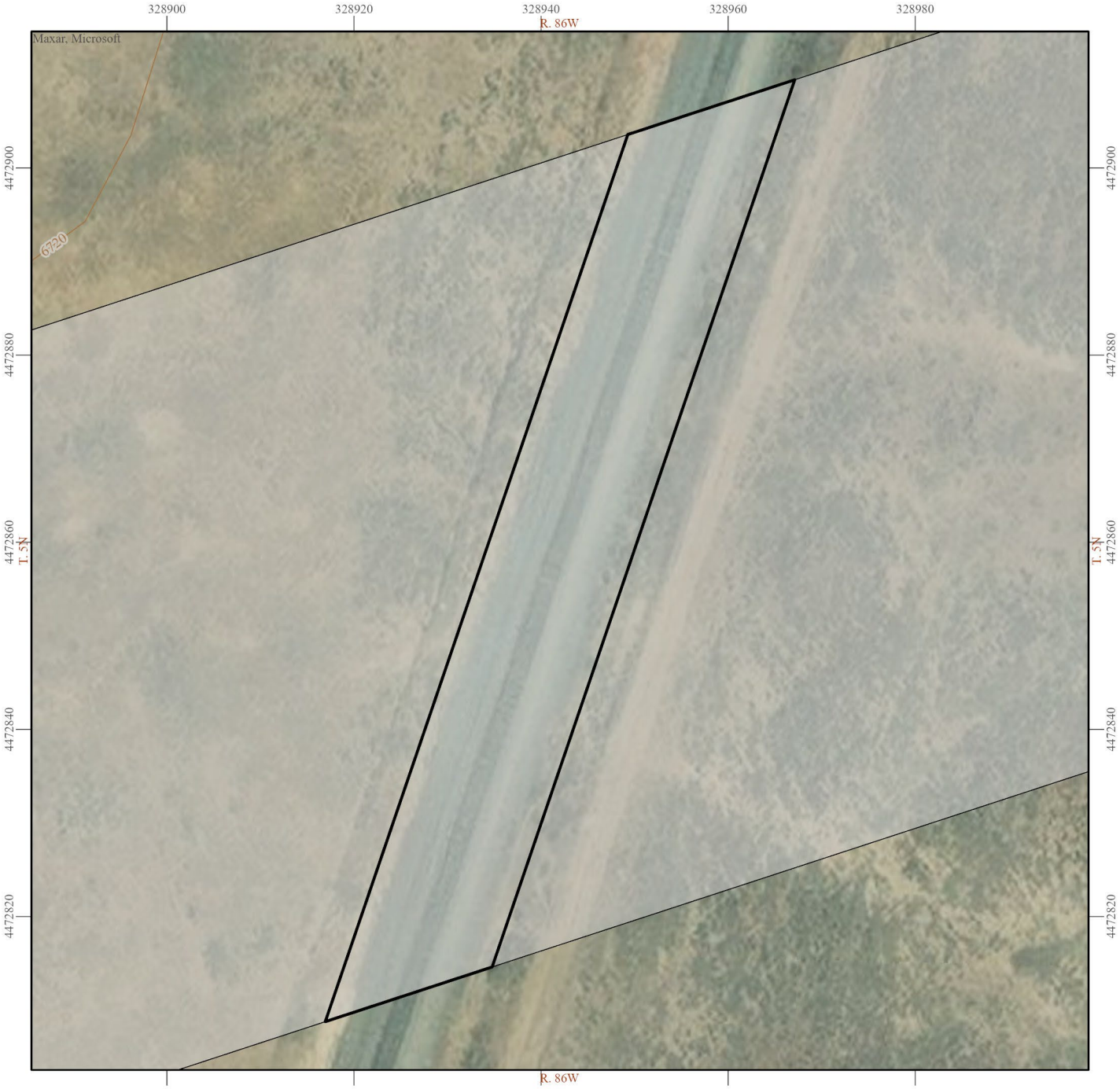
SITE PHOTOS

5RT.3259.4. Overview of railroad facing southwest from east end of revisited segment; (Roll 23-806, image 1).

5RT.3259.4. Overview of railroad facing northeast from west end of revisited segment; (Roll 23-806, image 3).

Resource Number: 5RT3259.4 **Temporary Resource Number**: n/a

SITE SKETCH MAP



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Peabody/Twentymile Coal
Drill Pads and Bleeder Site
Routt County, CO
5RT.3259.4

TN
MN

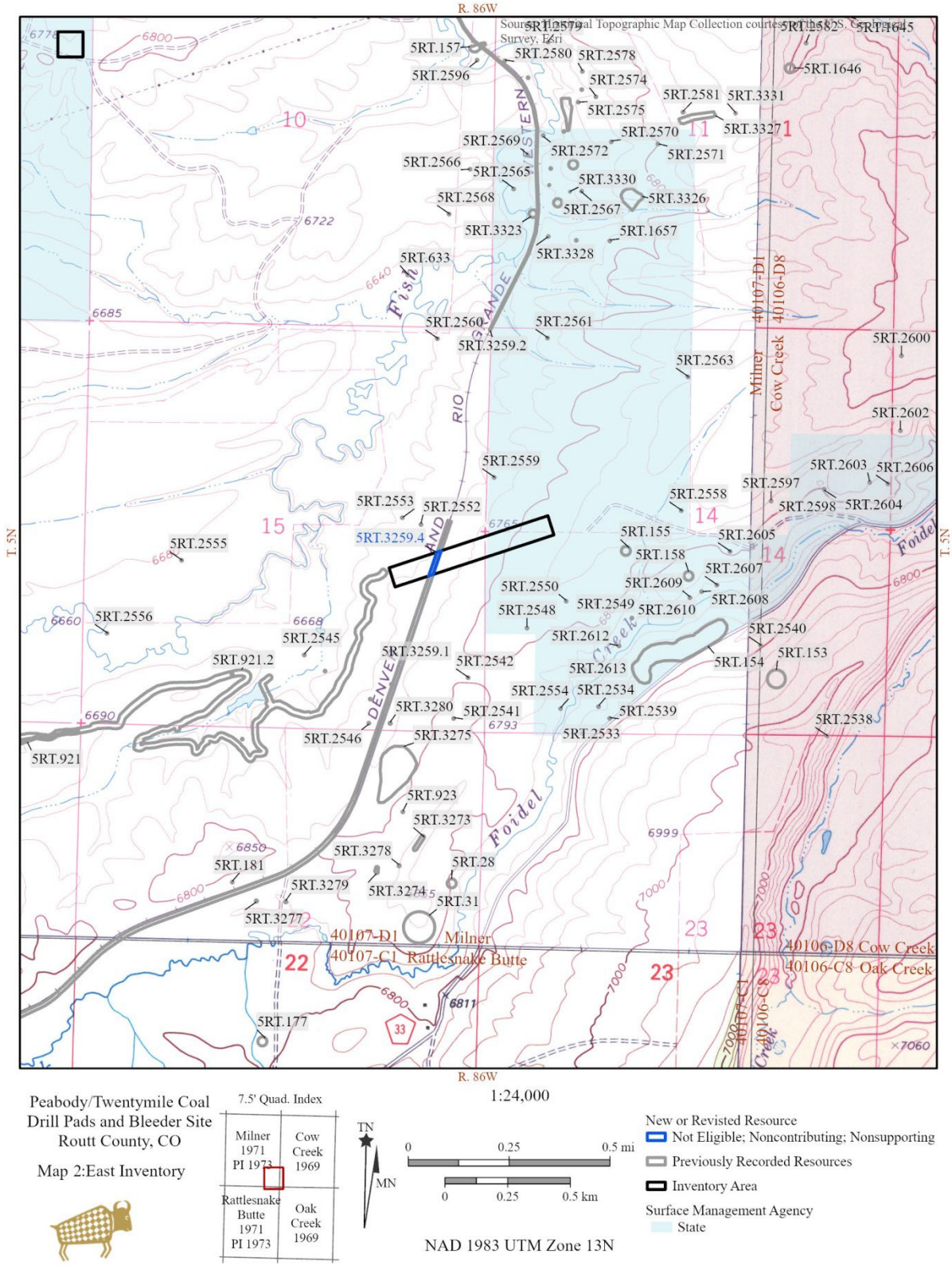
0 100 ft
0 20 m

New or Revisted Resource
Inventory Area

NAD 1983 UTM Zone 13N

Resource Number: 5RT3259.4 **Temporary Resource Number**: n/a

SITE LOCATION MAP



Peabody/Twentymile Coal Drill Pads and Bleeder Site
Routt County, CO

Map 2:East Inventory

7.5' Quad. Index

Milner 1971 PI 1973	Cow Creek 1969
Rattlesnake Butte 1971 PI 1973	Oak Creek 1969

TN MN

1:24,000

0 0.25 0.5 mi

0 0.25 0.5 km

NAD 1983 UTM Zone 13N

New or Revisted Resource
Not Eligible; Noncontributing; Nonsupporting
Previously Recorded Resources
Inventory Area
Surface Management Agency
State