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TO: Stuart Coles, juwi, Inc.
FROM: Susan Nordstrom, Project Manager
DATE: April 18, 2018
RE: Palmer Solar Project Environmental Survey Findings

WSEO-18-001

MEMORANDUM OF FINDINGS

RE: Wildlife, Wetland, and Cultural Resource Surveys at the Proposed Palmer Solar Project in El Paso County, Colorado

This memorandum reports findings of environmental surveys recently completed on the properties comprising the proposed Palmer Solar Project (Project). It also includes recommendations that can be applied in the planning and development of solar facilities to avoid or minimize impacts to natural resources. The survey limits are defined by the boundary (Palmer Solar Environmental Limits_003.kmz) provided by juwi, Inc. on March 7, 2018.

The Project site encompasses 2,331 acres. The southern entrance is located approximately 4 miles south of Fountain, Colorado, and 1.5 miles east of Fountain Creek and Old Pueblo Road (Figure 1). The site includes Township 16 South, Range 65 West, Sections 22, 23, 25-28, 35, and 36 and Township 16 South, Range 64 West, Sections 30 and 31. Elevations range from 5,360 feet to 5,560 feet. The major land use is rangeland grazing.

BIOLOGICAL RESOURCES

Regulatory Background

Federal

Endangered Species Act

The Endangered Species Act (ESA); 16 U.S. Code [U.S.C.] Section 1531 et seq.) was enacted to protect threatened and endangered species from extinction throughout all or a portion of their known ranges. In addition to other provisions, the ESA makes it unlawful for any governmental agency to harm a species listed as threatened or endangered by organizing, funding, or performing actions that may affect the species itself or its known habitat. Doing so would be considered “take” (i.e., harming, harassing, or wanton killing) of a listed species without permit. The U.S. Fish and Wildlife Service (USFWS) maintains the national list of protected species and acts as regulator and consultant. Provisions under the ESA allow for the authorized “incidental” take of listed species under certain terms and conditions while conducting otherwise lawful activities.

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Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703–712) provides protection for the majority of bird species in the United States, as it applies to nearly all migratory species. The MBTA implements treaties with several other nations and was enacted in response to the decline of migratory bird populations from uncontrolled commercial uses. The MBTA makes it unlawful to pursue, hunt, take, capture, kill, possess, or sell birds listed under the MBTA without appropriate permits. Exotic species are not covered under the MBTA, including the European starling (*Sturna vulgaris*), house sparrow (*Passer domesticus*), and rock pigeon (*Columba livia*), nor are game species such as the wild turkey (*Meleagris gallopavo*). The statute does not discriminate between live or dead birds and grants full protection to any bird parts, including feathers, eggs, and nests, regardless of conservation status.

On December 22, 2017, the U.S. Department of the Interior (DOI) Solicitor’s Office released a new legal opinion, M-37050, addressing the issue of whether incidental “take” (accidental death or destruction of nests, eggs, or young) is covered under the MBTA. This opinion withdraws and replaces a previous M-Opinion (M-37041), on the same topic issued in 2017. The new M-Opinion is contrary to previous DOI interpretation and concludes that, “...consistent with the text, history, and purpose of the MBTA, the statute’s prohibitions on pursuing, hunting, taking, capturing, killing, or attempting to do the same apply only to affirmative actions that have as their purpose the taking or killing of migratory birds, their nests, or their eggs.” (DOI 2017). Accordingly, the current policy of the DOI is that incidental take of migratory birds that results from an activity, such as the construction and operation of a solar facility, but is not the purpose of that activity, is not regulated by the MBTA.

The new M-Opinion indicates that the current administration will provide short-term relief from potential prosecution for incidental take of migratory birds. It could also indicate that USFWS, the Bureau of Land Management (BLM), and other DOI agencies will not require the same level of analysis and mitigation to reduce a project’s impact on migratory birds as under prior interpretation. The new M-Opinion provides no long-term clarity on the uncertainty over the MBTA’s take prohibition, and the new opinion is not a final agency action; the issue can only be resolved by U.S. Supreme Court review or congressional action.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (16 U.S.C. 668–668d, 54 Stat. 250) was enacted in 1940 to preserve eagle populations from wanton killing and population declines. This act makes it illegal to take bald eagles (*Haliaeetus leucocephalus*) or golden eagles (*Aquila chrysaetos*) or to trade in eagle parts, eggs, or feathers. Take has been broadly interpreted to include altering or disturbing nesting habitat. Disturbance is defined by the act as “to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available: 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior” (50 Code of Federal Regulations Part 22). Rule changes made on December 14, 2016, finalized permit regulations to authorize limited take associated with otherwise lawful activities. These new regulations establish permit provisions for intentional take of eagle nests under particular limited circumstances

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State of Colorado

State-listed Threatened or Endangered species are protected under Colorado Statutes. It is unlawful for any person to take, possess, transport, export, process, sell or offer for sale, or ship and for any common or contract carrier to knowingly transport or receive for shipment any species or subspecies of wildlife appearing on the list of wildlife indigenous to this state determined to be endangered or threatened. However, Colorado Parks and Wildlife (CPW) does not afford wildlife species of special concern regulatory protection and does not list any plant species.

Methods

Desktop Analysis

Prior to the site visit, Ecology and Environment, Inc. (E & E) conducted a desktop analysis of potential special status species wildlife within the Project area, as well as documented use of the area. Special status species include those listed as Threatened, Endangered, Proposed, or Candidate under the ESA or threatened, endangered, or species of special concern by the State of Colorado. E & E also conducted an analysis for general wildlife habitats that may occur onsite.

The analysis included a review of local, state, and federal web-based databases, including:

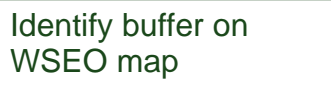
- The USFWS Information, Planning, and Conservation System (IPaC) listing of Threatened, Endangered, Proposed, and Candidate (ESA) Species for El Paso County, Colorado;
- The CPW list of State Threatened and Endangered Species and Species of Special Concern; and
- Natural Diversity Information Source (NDIS) mapping and data information for big game crucial ranges and parturition areas and other wildlife resources, as appropriate.

Site Visit

An E & E wildlife biologist conducted a site visit on March 30, 2018. All portions of the Project area were reviewed for potential occurrence of special status species and/or for potential habitat. The Project area and up to a 0.50-mile buffer from the boundary were checked for occurrence raptor nests, as a 0.50-mile buffer follows the recommended buffer guidance for raptor nests by CPW.

Results

Identify buffer on WSEO map



Desktop Analysis

According to the LANDFIRE vegetation cover data, 93 percent of the land cover in the Project area is Western Great Plains Shortgrass Prairie. This ecological system occurs over much of eastern Colorado. The next most prevalent land cover (comprising approximately 4 percent of the Project area) is composed of Western Great Plains Foothill and Piedmont Grassland, which is similar to the shortgrass prairie, but includes taller prairie grasses.

Results of the IPaC review indicate the possible occurrence of one ESA-listed plant species (USFWS 2018) within the site, the Ute Ladies'-tresses (*Spiranthes diluvialis*). Likewise, upon further review of vegetation communities (habitat) present at the site and current land use, one ESA-listed wildlife species, Preble's meadow jumping mouse (*Zapus hudsonius preblei*) was considered for additional onsite assessment.

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In addition, the IPaC desktop analysis indicated that four ESA species occur downstream of the Project site, on the Platte River in Nebraska:

- least tern (*Sterna antillarum*);
- piping plover (*Charadrius melodus*);
- whooping crane (*Grus americana*); and
- pallid sturgeon (*Scaphirhynchus albus*).

These species would need to be considered further only if the Project were to involve water-related activities in the South Platte River basin that could affect them, or deplete waters from the basin (USFWS 2018). Because Project activities are not anticipated to affect the South Platte River or tributaries, or result in depletions to these waters, impacts to these species are not anticipated. Likewise, no designated critical habitat for these species intersects the Project area.

Possible CPW special status species that could occur on the site are the state threatened burrowing owl (*Athene cunicularia*), and three species of special concern: ferruginous hawk (*Buteo regalis*), swift fox (*Vulpes velox*), and black-tailed prairie dog (*Cynomys ludovicianus*). However, species of Special Concern do not have additional protections in Colorado.

CPW also indicates that two game ranges overlap the far western edge of the Project: a white-tailed deer (*Odocoileus virginianus*) concentration area and a winter concentration area for mule deer (*Odocoileus hemionus*).

Site Visit

The majority of the vegetation within the Project boundary consists of shortgrass prairie, which is dominated by blue grama (*Chondrosom gracile*), cholla cactus (*Opuntia imbricata*), and alkali sacaton (*Sporobolus airoides*). This vegetation community is composed of common species that are not unique to the region.

E & E checked all drainage segments for presence of habitat for the ESA-listed plant species, Ute Ladies'-tresses. Ute Ladies'-tresses typically occurs in sub-irrigated alluvial soils along streams and floodplains (CNHP 2013); however, conditions necessary to support this plant were not observed within the Project boundary. Likewise, no appropriate habitat was determined to be present on the site for Preble's meadow jumping mouse.

One CPW special status species was observed onsite, the black-tailed prairie dog (Figure 1). Habitats onsite may also support the presence of burrowing owls and swift fox, but neither species was observed.

White-tailed and mule deer (game species) ranges associated with riparian habitat of Fountain Creek barely reach the western portion of the Project area, and no riparian habitat occurs on the west side.

Three active great horned owl (*Bubo virginianus*) nests were found: two on the Project boundary, and one within the boundary (Figure 1).

identify on the WSEO map so avoidance can occur

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Recommendations

- Clearing and other disturbance activities may impact breeding birds (or appropriate habitat) during the breeding season (defined as March through July in Colorado). If construction must occur at any time during the breeding season pre-construction nesting surveys or “sweeps” may be employed to avoid impacts to nesting birds. To accomplish this, a pedestrian survey by a qualified biologist is sufficient, unless otherwise recommended by a regulatory agency. To conduct a pedestrian survey or “sweep” of the site, staging areas, access roads, and any other areas of vegetation removal or ground disturbance are site-checked for the presence of nests. If detected, “active” nests (those that are occupied with eggs or young) are marked using a GPS, flagged, and buffered typically by 150 feet to alert construction crews of the activity and prevent accidental “take” (destruction or death of nests, eggs, and young).
- CPW recommends that raptor nests within a 0.50-mile radius of construction areas should be resurveyed for activity between February 1 and July 15. To avoid impacts to raptors are actively nesting, nests should be buffered from disturbance of construction activities. The buffer distance varies by species.
- Although not observed during this site visit, burrowing owls may inhabit active prairie dog colonies. If burrowing owls are confirmed to be present in a prairie dog colony, there are two options for protecting them are recommended by CPW: (1) Wait to initiate activities until after November 1st or until it can be confirmed that the owls have left the prairie dog town; or (2) Monitor the activities of the owls, noting and marking which burrows they are using. When all active burrowing owl burrows have been located and marked, construction activity can proceed in areas greater than 150 feet from the burrows.

Add this note to WESO plan

identify seasonal buffer on WESO Map

Which will be completed? Add a note to the WSEO Plan

PRELIMINARY WATERS OF THE U.S., INCLUDING A WETLANDS/FLOODPLAIN INVESTIGATION

Methods

Desktop Analysis

E & E assembled and reviewed the following information:

- National Agriculture Imagery Program (NAIP) aerial imagery (USDA 2009);
- The U.S. Geological Survey (USGS) National Hydrography Dataset (USGS 2017);
- USFWS National Wetlands Inventory (NWI) (USFWS 2017);
- The USFWS IPaC listing of Threatened, Endangered, Proposed, and Candidate (ESA) Species for El Paso County, Colorado;
- USGS – Earth Resources Observation and Science Center LANDFIRE vegetation cover data (USGS-EROS 2013);
- Natural Resources Conservation Service (NRCS) soils maps for hydric soils; and
- Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map Database.

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An E & E wetland ecologist talked with a land manager at Colorado Springs Utilities (CSU) to learn more about recent land use history on the CSU portions of the Project area (Pers. Comm., Warren Seese 3-29-18).

Site Visit

Guided by the results of the desktop review, an E & E ecologist visited the Project area on March 30, 2018. The entire site was traversed by vehicle to get an overview of vegetation and wetlands, and then by foot to survey nine different drainage segments to evaluate specific conditions. The ecologist observed each drainage segment for signs of hydrology that would support wetland vegetation, looked for vegetation species that are indicative of wetlands, checked for indications of ordinary high water mark, and noted any habitat for special status plant species. Detailed wetland delineations were not performed.

Results

Desktop Analysis

The National Hydrography Database indicates that two agricultural ditches and four intermittent stream drainages traverse the Project area (Figure 1). Except for one, these are either tributaries to, or have surface connection with, Fountain Creek. It is therefore highly likely that the U.S. Army Corps of Engineers (USACE) would determine them to be jurisdictional Waters of the U.S. The drainage that does not appear to have surface connection with Fountain Creek is the drainage downstream of Calhan Reservoir. Maps and imagery show it as possibly terminating in uplands near a sewage treatment facility. However, USACE may determine it to be jurisdictional, based on its connection to Calhan Reservoir.

The NWI shows four stock ponds located throughout the Project area, classified as temporarily flooded. The NWI also labels the unnamed drainage downstream of Calhan Reservoir as being seasonally flooded, and a ditch immediately east as semi-permanently flooded. The remainder of the drainages are classified as intermittent (Figure 1).

Approximately 0.4 percent of the Project area contains herbaceous vegetation that occurs on floodplains, and approximately 0.1 percent is comprised of shrubs that could occur on floodplains. The NRCS Soil Survey (NRCS 2018) indicates one area of hydric soil in the drainage downstream of Calhan Reservoir. The NRCS defines hydric soils as those that formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper part. The only mapped FEMA floodplain in the Project area occurs on Williams Creek.

Site Visit

All of the drainages except one (see description of Wetland A below) contain upland prairie grassland throughout, with no hydrophytic vegetation (i.e., vegetation that occurs in wetlands) observed (Photo 1). Culverts have been installed beneath gravel roads in some locations, which indicates that water does flow periodically. However, it appears that the water does not pond or remain long enough to develop hydric soils or support wetland vegetation (Photo 2). Along Williams Creek on the eastern part of the Project area, a channel has been eroded, but the substrate consists of bare soil, and wetland vegetation is not present (Photo 3). Man-made impoundments are dry and overgrown with upland vegetation.

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Hydrophytic vegetation and saturated soils were observed in only one location, downstream of Calhan Reservoir (Wetland Area A on Figures 1 and 2). This area is dominated by hydrophytic plants: common threesquare (*Schoenoplectus pungens*), broad-leaf cattail (*Typha latifolia*), soft-stem bulrush (*Schoenoplectus tabernaemontani*), Canada wildrye (*Elymus canadensis*), and inland saltgrass (*Distichlis spicata*) (Photos 4 and 5).

verify potential wetland and ponded areas is mapped on WSEO map plan-

The entirety of Wetland Area A, except areas of standing water, is covered with a noxious weed, common teasel (*Dipsacus fullonum*) (Photo 6). Although it is not classified as hydrophytic, it often occurs in areas of moist soils.

The approximate boundary of Wetland Area A was recorded with a hand-held GPS unit. There is single location where the wetland narrows down from a broad area to a narrow channel approximately 5 feet in width (Figure 2; Photos 7 and 8).

Didn't the Core state no permit required for the two power poles- No permit was requested for the remainder of the site.? Map pond areas on WSEO map- Preservation of natural features and habitat is a component of the Policy Plan.

An active irrigation ditch that appears to have been excavated recently runs on the northwest side of, and empties into, Wetland Area A (Figure 2). Another ditch immediately east of the wetland area carries water for approximately half of its length within the Project area, and then becomes dry (Figure 2). Hydrophytic vegetation does not appear to be present along this ditch, although it would need to be surveyed in greater detail during the summer months to determine if it exhibits the qualities of a jurisdictional wetland. The total width, including the channel and vegetation on each side, averages approximately 10 feet. Another ditch east of this area appears to have been filled recently (Photo 9).

Recommendations

- The part of Wetland Area A that is contained in a narrow channel may present an opportunity for siting a utility line crossing that would have the least wetland impact.
- Assuming that disturbance in Wetland Area A, if it occurs, would be related to utility lines, a USACE Nationwide Permit #12 and wetland delineation would be required for any wetland impacts greater than 0.1 acre. However, it is not definitive that the wetland is a jurisdictional Water of the U.S. The USACE does not respond to questions about jurisdiction unless connected with a permit request. Given these uncertainties, it is recommended that the wetland permitting issue be revisited when more is known about the estimated area of wetland impact.
- Common teasel is on the Colorado Noxious Weed B-List, and by state law is required to be controlled (CDOA 2018).
- Aboveground structures should not be located within the FEMA 100-year floodplain along Williams Creek.

Verify floodplain mapping is correct on WSEO map plan

CULTURAL CLASS I LITERATURE REVIEW AND RECORDS SEARCH (DESKTOP REVIEW)

The Project area is characterized by ridges and basins interspersed with agricultural lands. Williams Creek crosses through the Project area, draining into Fountain Creek to the west. Soils are various loams derived from alluvium and eolian parent materials (NRCS 2018).

clearly identify all streams, drainage ways on WSEO map

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Prehistoric people have inhabited the Arkansas River Basin for at least 11,500 years. Archaeologists have divided the Prehistoric period into several temporal units based on variability in technological and subsistence attributes. The prehistory of the Arkansas River Valley has been summarized by Zier and Kalasz (1999). Table 1 presents Zier and Kalasz’s temporal framework. All stages of prehistory are present within the area. The majority of prehistoric sites are located on terraces of major drainages, such as Fountain Creek, which is located west of the Project area.

Table 1. Prehistoric Chronological Sequence for the Arkansas River Basin

Cultural Taxon	Temporal Range
Paleoindian Stage	>11,500–7800 BP
Pre-Clovis Period	>11,500 BP
Clovis Period	11,500–10,950 BP
Folsom Period	10,950–10,250 BP
Plano Period	10,250–7,800 BP
Archaic Stage	7,800–1,850 BP (AD 100)
Early Archaic Period	7,800–5,000 BP
Middle Archaic Period	5,000–3,000 BP
Late Archaic Period	3,000–1,850 BP (AD 100)
Late Prehistoric Stage	1,850–225 BP (AD 100–1725)
Developmental Period	1,850–900 BP (AD 100–1050)
Diversification Period	900–500 BP (AD 1050–1450)
Apishapa Phase	900–500 BP (AD 1050–1450)
Sopris Phase	900–750 BP (AD 1050–1200)
Protohistoric Period	500–225 BP (AD 1450–1725)

The history of the Arkansas River Valley is chronicled in *Colorado Southern Frontier Historic Context* (Mehls and Carter 1984) and in *Land of Contrast: The History of Southeast Colorado* (Athearn 1985). The following paragraphs provide a brief history that has been taken from these sources, as well as Lecompte (1978), Abbott et al. (1994), and West (1998).

The Historic Stage begins with the arrival of Spaniards in the Southwest in the early 1500s. The first Spanish expedition into Colorado probably occurred in 1664 by Juan de Archuleta. The Pueblo Revolt of 1680 (Knaut 1995) temporarily halted any further Spanish incursions into Colorado. The 18th and 19th centuries were characterized by skirmishes between the Spanish and the Comanche, the Pike Expedition, and increased trapping. Four conditions led to the eventual permanent settlement of the Arkansas Valley and the Pueblo area (Anderson 1989). These conditions included removal of the Native American populations to reservations, the Pikes Peak gold rush, the Homestead Act of 1862 and Desert Land Act of 1877, and improved transportation, including stage and railroad routes.

By the late 1860s, many of the Native Americans had left the area, and the Pikes Peak gold rush began, which brought more settlers to southeastern Colorado (West 1998). Most of the towns in

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southeastern Colorado were founded between the 1870s and the 1890s. . The city of Colorado Springs was laid out in 1871 by a subsidiary of the Denver and Rio Grande Railroad Company. It was originally developed as a vacation destination because of its pristine natural setting (Ubbelohde et al. 2001:118). By the late 1890s, Colorado Springs was a booming tourist destination that rivaled Denver. The development of the nearby Cripple Creek gold fields added to this and made Colorado Springs one of Colorado’s major cities (Ubbelohde et al. 2001:201). After World War II, Fort Carson and what is now Peterson Air Force Base were opened and quickly followed by the Air Force Academy in 1954 and the North American Air Defense Command in 1957. Schriever Air Force base was added in 1987. These installations made Colorado Springs into a major military town, which it continues to be today.

A files search was conducted at the Colorado Office of Archaeology and Historic Preservation (OAH) to identify any previously recorded cultural resources or any previously conducted investigations that have occurred within a 1-mile buffer around the Project area. This files search was conducted on April 2, 2018. Twenty-eight sites and 41 isolated finds are present within the buffered area (Table 2). Nine of the sites are recommended as eligible for inclusion in the National Register of Historic Places (NRHP). Fourteen sites are recommended as not eligible for inclusion in the NRHP, and 5 sites are listed as needing additional data prior to an eligibility determination. The 41 isolated finds are all listed as not eligible for inclusion in the NRHP. Site types include historic canals or ditches, homesteads, railroads, trash dumps, windbreaks, lithic scatters, open camps, and multicomponent sites.

Map the nine eligible and the 5 potential on the WESO so avoidance can be assured.

Table 2. Previously Recorded Cultural Resources within 1-mile of the Project Area

Site No.	Site Type	NRHP Status	Survey Organization	Within APE
5EP2181.8	Historic Railroad	Eligible	Metcalf Archaeological Consultants	No
5EP3296.1	Historic Ditch	Not Eligible	Metcalf Archaeological Consultants	Yes
5EP3296.2	Historic Canal	Not Eligible	Metcalf Archaeological Consultants	No
5EP3297.1	Historic Homestead	Not Eligible	Metcalf Archaeological Consultants	No
5EP3299	Historic Homestead	Needs Data	Colorado Division of Wildlife; ERO Resources Corporation; Metcalf Archaeological Consultants	No
5EP3715	Isolated Find	Not Eligible	Metcalf Archaeological Consultants	No
5EP3716	Isolated Find	Not Eligible	Metcalf Archaeological Consultants	No
5EP3982	Isolated Find	Not Eligible	Metcalf Archaeological Consultants	Yes
5EP4238	Isolated Find	Not Eligible	Metcalf Archaeological Consultants	No
5EP4239	Isolated Find	Not Eligible	Metcalf Archaeological Consultants	No
5EP4422	Isolated Feature	Not Eligible	Metcalf Archaeological Consultants	No
5EP4425	Isolated Find	Not Eligible	Metcalf Archaeological Consultants	No
5EP4717	Historic Windbreak	Not Eligible	Western Cultural Resource Management, Inc. (WCRM)	No
5EP4719	Isolated Find	Not Eligible	City of Colorado Springs; Western Cultural Resource Management, Inc. (WCRM)	Yes
5EP4720	Isolated Find	Not Eligible	City of Colorado Springs; Western Cultural Resource Management, Inc. (WCRM)	No

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Table 2. Previously Recorded Cultural Resources within 1-mile of the Project Area

Site No.	Site Type	NRHP Status	Survey Organization	Within APE
5EP4721	Isolated Find	Not Eligible	Western Cultural Resource Management, Inc. (WCRM)	No
5EP4831	Isolated Feature	Not Eligible	City of Colorado Springs Parks and Recreation; Western Cultural Resource Management, Inc. (WCRM)	No
5EP4832	Open Camp	Needs Data	City of Colorado Springs; Western Cultural Resource Management, Inc. (WCRM)	No
5EP4833	Open Architectural	Eligible	City of Colorado Springs; Western Cultural Resource Management, Inc. (WCRM)	No
5EP4834	Historic Trash Dump	Not Eligible	City of Colorado Springs; Western Cultural Resource Management, Inc. (WCRM)	No
5EP4835	Prehistoric Open Camp; Historic Trash Scatter	Eligible	City of Colorado Springs; Western Cultural Resource Management, Inc. (WCRM)	No
5EP4836	Lithic Scatter	Eligible	City of Colorado Springs; Western Cultural Resource Management, Inc. (WCRM)	No
5EP4837	Open Camp	Not Eligible	City of Colorado Springs; Western Cultural Resource Management, Inc. (WCRM)	No
5EP4838	Lithic Scatter	Needs Data	City of Colorado Springs; Western Cultural Resource Management, Inc. (WCRM)	No
5EP4839	Open Camp	Not Eligible	City of Colorado Springs; Western Cultural Resource Management, Inc. (WCRM)	No
5EP4840	Open Camp	Eligible	City of Colorado Springs; Western Cultural Resource Management, Inc. (WCRM)	No
5EP4841	Prehistoric Open Camp; Historic Corral	Not Eligible	City of Colorado Springs; Western Cultural Resource Management, Inc. (WCRM)	No
5EP4842	Prehistoric Lithic Scatter; Historic Trash Scatter	Not Eligible	City of Colorado Springs; Western Cultural Resource Management, Inc. (WCRM)	No
5EP4843	Open Camp	Not Eligible	City of Colorado Springs; Western Cultural Resource Management, Inc. (WCRM)	No
5EP4844	Open Camp	Eligible	City of Colorado Springs; Western Cultural Resource Management, Inc. (WCRM)	No
5EP4846	Prehistoric Open Camp; Historic Isolated Find	Not Eligible	City of Colorado Springs; Centennial Archaeology, Inc.; Western Cultural Resource Management, Inc. (WCRM)	Yes

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Table 2. Previously Recorded Cultural Resources within 1-mile of the Project Area

Site No.	Site Type	NRHP Status	Survey Organization	Within APE
5EP4847	Prehistoric Lithic Scatter; Historic Agricultural Complex	Eligible	City of Colorado Springs; Western Cultural Resource Management, Inc. (WCRM)	No
5EP4848	Prehistoric Open Camp; Historic Isolated Find	Needs Data	City of Colorado Springs; Western Cultural Resource Management, Inc. (WCRM)	No
5EP4851	Open Camp	Eligible	City of Colorado Springs; Western Cultural Resource Management, Inc. (WCRM)	No
5EP4854	Isolated Find	Not Eligible	City of Colorado Springs; Western Cultural Resource Management, Inc. (WCRM)	No
5EP4855	Isolated Find	Not Eligible	City of Colorado Springs; Western Cultural Resource Management, Inc. (WCRM)	No
5EP4856	Isolated Find	Not Eligible	City of Colorado Springs; Western Cultural Resource Management, Inc. (WCRM)	No
5EP4857	Isolated Find	Not Eligible	City of Colorado Springs; Western Cultural Resource Management, Inc. (WCRM)	No
5EP4858	Isolated Find	Not Eligible	City of Colorado Springs; Western Cultural Resource Management, Inc. (WCRM)	No
5EP4859	Isolated Find	Not Eligible	City of Colorado Springs; Western Cultural Resource Management, Inc. (WCRM)	No
5EP4860	Isolated Find	Not Eligible	City of Colorado Springs; Western Cultural Resource Management, Inc. (WCRM)	No
5EP4861	Isolated Find	Not Eligible	City of Colorado Springs; Western Cultural Resource Management, Inc. (WCRM)	No
5EP4862	Isolated Find	Not Eligible	City of Colorado Springs; Western Cultural Resource Management, Inc. (WCRM)	No
5EP4864	Isolated Find	Not Eligible	City of Colorado Springs; Western Cultural Resource Management, Inc. (WCRM)	No
5EP4866	Isolated Find	Not Eligible	City of Colorado Springs; Western Cultural Resource Management, Inc. (WCRM)	No
5EP4867	Isolated Find	Not Eligible	City of Colorado Springs; Western Cultural Resource Management, Inc. (WCRM)	Yes

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Table 2. Previously Recorded Cultural Resources within 1-mile of the Project Area

Site No.	Site Type	NRHP Status	Survey Organization	Within APE
5EP4868	Isolated Find	Not Eligible	City of Colorado Springs; Western Cultural Resource Management, Inc. (WCRM)	Yes
5EP4870	Isolated Find	Not Eligible	City of Colorado Springs; Western Cultural Resource Management, Inc. (WCRM)	Yes
5EP4871	Isolated Find	Not Eligible	City of Colorado Springs; Western Cultural Resource Management, Inc. (WCRM)	Yes
5EP4872	Isolated Find	Not Eligible	City of Colorado Springs; Western Cultural Resource Management, Inc. (WCRM)	No
5EP4873	Isolated Feature	Not Eligible	City of Colorado Springs; Western Cultural Resource Management, Inc. (WCRM)	No
5EP4874	Isolated Find	Not Eligible	City of Colorado Springs; Western Cultural Resource Management, Inc. (WCRM)	No
5EP4876	Isolated Find	Not Eligible	City of Colorado Springs; Western Cultural Resource Management, Inc. (WCRM)	Yes
5EP4878	Isolated Find	Not Eligible	City of Colorado Springs; Western Cultural Resource Management, Inc. (WCRM)	No
5EP4884	Isolated Feature	Not Eligible	City of Colorado Springs; Western Cultural Resource Management, Inc. (WCRM)	No
5EP4886	Isolated Find	Not Eligible	City of Colorado Springs; Western Cultural Resource Management, Inc. (WCRM)	No
5EP5126	Isolated Find	Not Eligible	Hoffman and Associates	No
5EP5127	Open Camp	Needs Data	Hoffman and Associates	No
5EP5128	Isolated Find	Not Eligible	Hoffman and Associates	No
5EP5129	Isolated Find	Not Eligible	Hoffman and Associates	No
5EP6123	Isolated Find	Not Eligible	State of Colorado; Centennial Archaeology, Inc.	No
5EP6124	Isolated Find	Not Eligible	Centennial Archaeology, Inc.	No
5EP6126	Open Camp	Not Eligible	Centennial Archaeology, Inc.	No
5EP6127	Open Camp	Not Eligible	Centennial Archaeology, Inc.	No
5EP6327	Lithic Scatter	Eligible	RMC Consultants, Inc.	No
5EP6329	Isolated Find	Not Eligible	RMC Consultants, Inc.	No
5EP6912.1	Prehistoric Lithic Scatter; Historic Canal	Not Eligible	Smith Environmental, Inc.	No
5EP6913	Isolated Find	Not Eligible	Smith Environmental, Inc.	No
5EP6914	Isolated Find	Not Eligible	Smith Environmental, Inc.	No

**Memorandum of Findings for the Wildlife, Wetland, and Cultural Resource Surveys at the
Proposed Palmer Solar Project in El Paso County, Colorado**

Two sites and seven isolated sites are located within the Project area. The sites include a prehistoric open camp (5EP4846) and a segment of the Chilcott Ditch (5EP3296.1). Both sites are recommended as not eligible for inclusion in the NRHP.

Seventeen previous cultural resource inventories have been conducted within the buffered Project area (Table 3). The projects were conducted in support of oil and gas projects, water projects, and utility projects and were completed between 1999 and 2017. Approximately 474 acres within the Project area have been previously inventoried, approximately 20 percent of the 2,331-acre Project area.

Table 3. Previous Cultural Resource Inventories within 1-mile of the Project Area

Project Number	Project Name	Organization	Year
EP.E.R4	Colorado Interstate Gas Company Nixon Lateral Pipeline: Class III Cultural Resource Inventory, El Paso County, Colorado	Metcalf Archaeological Consultants	1999
EP.E.R5	Colorado Interstate Gas Company Midway Pipeline Intensive Inventory for Cultural Resources El Paso County, Colorado. (Original and Addendums)	Metcalf Archaeological Consultants	2000
MC.CH.R96	A Cultural Resource Survey of Interstates 25, 70, 225, and 270, U.S. Highways 34 and 160, and State Highways 13 and 470, for the Proposed Adesta Communications Fiber Optic System, Colorado (C SW00-102)	Centennial Archaeology, Inc.	2000
MC.E.R35	Colorado Interstate Gas Company's Proposed Valley Line Expansion and 5C-24 Central Pipelines: Cultural Resource Inventory and Evaluation in Adams, Arapahoe, Douglas, Elbert, El Paso & Weld Counties, Colorado (Original and Addendums)	Metcalf Archaeological Consultants	2000
MC.FC.NR6	Paleontological Review and Survey of Selected Sections Along the I-25 Right of Way for Adesta/CDOT I-25 Fiber Optic Project from Pueblo, Colorado to the Wyoming State Line, Pueblo, El Paso, Douglas, Adams, Larimer and Weld Counties, Colorado	Paleontological Investigations, Inc.	2000
EP.E.R8	Intensive Cultural Resource Inventory of the Proposed Midway Expansion Project, El Paso County, Colorado	Metcalf Archaeological Consultants	2002
EP.R.R2	Southern Delivery System Geotechnical Corridor - Report 2: Class III Cultural Resource Inventory of Approximately 157 Acres in El Paso County, Colorado (NWH-TKD5/03-B-065)	Western Cultural Resource Management, Inc. (WCRM)	2005

**Memorandum of Findings for the Wildlife, Wetland, and Cultural Resource Surveys at the
Proposed Palmer Solar Project in El Paso County, Colorado**

Table 3. Previous Cultural Resource Inventories within 1-mile of the Project Area

Project Number	Project Name	Organization	Year
MC.R.R81	Bureau of Reclamation and Colorado Springs Utilities Southern Delivery System Geotechnical Corridor Report 14: Class III Cultural Resources Inventory of Approximately 50 Acres in El Paso and Pueblo Counties, Colorado	Western Cultural Resource Management, Inc. (WCRM)	2005
EP.EP.R1	Class III Cultural Resource Survey of Proposed Squirrel Creek Energy Power Plant: North Site, El Paso County, Colorado	Historic Preservation Consultants	2006
EP.R.NR6	Southern Delivery System: Class III Cultural Resources Inventory of 1.56 Acres for Two Proposed Water Well Locations and Associated Access Road, El Paso County, Colorado (MWH-TKG)	Western Cultural Resource Management, Inc. (WCRM)	2008
MC.R.R82	A Class I and Class III Cultural Resources Inventory of the Southern Delivery System Project, Chaffee, El Paso, Fremont, and Pueblo Counties, Colorado (Volumes 1-3) (Original and 4 Addendums)	Western Cultural Resource Management, Inc. (WCRM)	2008
MC.E.R95	A Class III Cultural Resource Inventory and Test Excavation for the Proposed Raton 2010 Expansion Project in Las Animas, Huerfano, Pueblo, and El Paso Counties, Colorado (Original and Addendum)	Centennial Archaeology, Inc.	2009
MC.FH.R1	Class III Cultural Resource Inventory of Lincoln to Midway 230kv Transmission Line, Lincoln, Elbert, and El Paso Counties, Colorado	RMC Consultants, Inc.	2009
EP.CO.R2	The Harold D. Thompson Regional Water Reclamation Facility Cultural Resource Survey, El Paso County, Colorado	Smith Environmental and Engineering	2011
EP.RE.R1	Midway to Geesen OPGW Installation Project Class III Cultural Resource Inventory	Tetra Tech EC, Inc.	2011
EP.R.R17	Cultural Resources Survey of Upper Williams Creek Pump Station Power Supply Southern Delivery System Project, El Paso County, Colorado	ERO Resources Corporation	2012
EP.SC.NR45	El Paso County Limited-Results Cultural Resource Survey Report on Private Lands	NRCS Natural Resources Conservation Service	2017

A search of the General Land Office (GLO) online patent records was conducted to identify the original patentees within the Class I Project area (BLM 2018). These records were used to determine whether these Project lands were associated with events that had made a significant

**Memorandum of Findings for the Wildlife, Wetland, and Cultural Resource Surveys at the
Proposed Palmer Solar Project in El Paso County, Colorado**

contribution to the broad patterns of our history (Criterion A) or were associated with the lives of significant persons in our past (Criterion B). The land patent records search identified 14 patents issued to 10 people between 1873 and 1895. The patentees were local ranchers or homesteaders who were not prominent figures in regional history. These patents were made under the authority of the Sale-Cash Entry Act of 1820 and the Scrip/Warrant Act of 1842.

The GLO plat maps for the Project area were examined for any historic features that may be of historical significance. The original plat maps for Township 16S, Range 64W were drawn in 1871, and Township 16S, Range 65W were drawn in 1864. No historic features were present on the original 1871 plat map. An unnamed trail or road was present through Section 28 on the 1864 plat map.

The Project area is unlikely to contain significant prehistoric sites. If sites are present, they will be located along Williams Creek. Several unrecorded segments of historic ditches or canals cross the Project area. The Project is located entirely on private land; therefore, there is no federal nexus and requirement to comply with Section 106 of the National Historic Preservation Act. Pursuant to Colorado Revised Statutes 24-80-1302 (Discovery of human remains), if unmarked burials are encountered during Project construction, all work must cease and the sheriff, coroner, and state archaeologist should be contacted immediately.

- In accordance with Colorado State Law Title 24, Part 13 of the Colorado Revised Statutes, if any person discovers suspected skeletal remains, the County Coroner or County Sherriff should be contacted immediately to determine the origin, historical context, and/or significance of the remains and determine whether the human remains represent a recent homicide or a historic or prehistoric burial. In the event that human remains or other archaeological deposits are exposed, all work must cease; the State Archaeologist at History Colorado’s Office of Archaeology and Historic Preservation should be notified to assess and possibly oversee the appropriate protective measure or removal of the cultural material.
 - It is recommended that an Unanticipated Discovery Plan be developed to lay out procedures and relevant contact information in the event human remains are discovered during the construction and operational phases of the Project. E& E could prepare a an Unanticipated Discovery Plan on behalf of juwi for internal use and for other entities such as constriction teams or other government agencies, such as El Paso County, if requested.

Add a note to the WESO plan to this effect

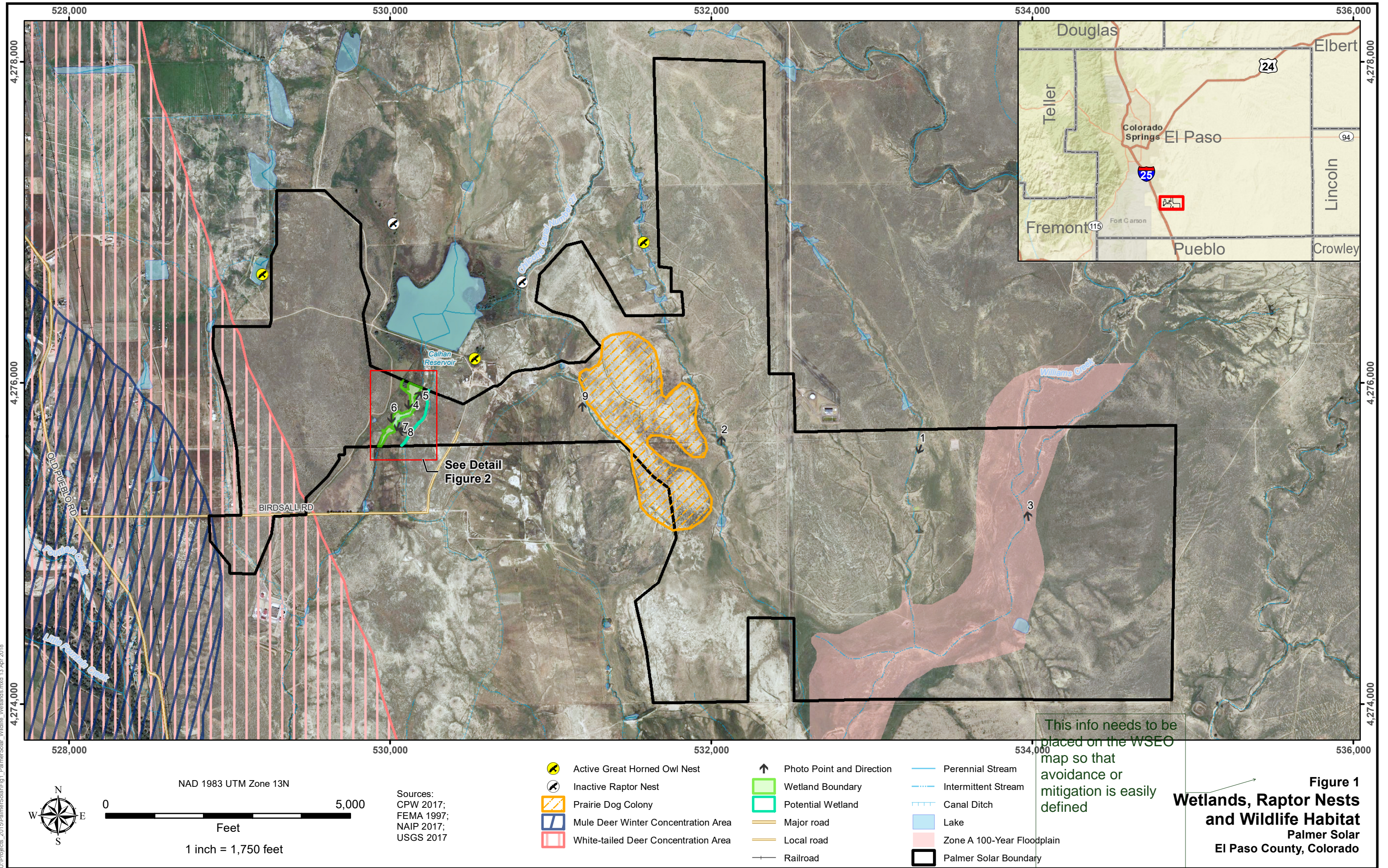
**Memorandum of Findings for the Wildlife, Wetland, and Cultural Resource Surveys at the
Proposed Palmer Solar Project in El Paso County, Colorado**

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**Memorandum of Findings for the Wildlife, Wetland, and Cultural Resource Surveys at the
Proposed Palmer Solar Project in El Paso County, Colorado**

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This info needs to be placed on the WSEO map so that avoidance or mitigation is easily defined

Figure 1
Wetlands, Raptor Nests
and Wildlife Habitat
Palmer Solar
El Paso County, Colorado



530,000

4,276,000

4,276,000

Ditch

Wetland Area A

5

4

6

7

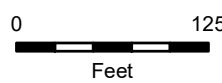
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Ditch

530,000



NAD 1983 UTM Zone 13N



1 inch = 125 feet

Sources:
NAIP 2017

-  Photo Point and Direction
-  Wetland Boundary
-  Potential Wetland
-  Palmer Solar Boundary

Figure 2
Wetland Survey
Palmer Solar
El Paso County, Colorado

U:\Projects_2015\PalmerSolar\Fig2_PalmerSolar_WetlandSurvey.mxd 13 Apr 2018



Photo 1. Intermittent stream, typical of those in the Project Area, containing upland prairie grasses. 3-30-18



Photo 2. Foreground: typical area where water has ponded briefly. 3-30-18



Photo 3. Eroded channel of Williams Creek, looking upstream/north. 3-30-18



Photo 4. Wetland Area A looking downstream/south. 3-30-18



Photo 5. Wetland Area A, looking upstream/north. 3-30-18



Photo 6. The noxious weed common teasel in Wetland Area A. 3-30-18



Photo 7. Wetland Area A, where the wetland narrows to a channel. Looking south/southwest. 3-30-18



Photo 8. Looking west toward the narrow channel of Wetland Area A, which is behind where the biologist is standing. The broad wetland areas are visible to the left and right of the biologist. Beyond the narrow channel there is an upland area. 3-30-18



Photo 9. Ditch that appears to have been filled recently. 3-30-18

Markup Summary

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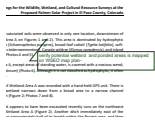
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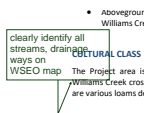
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Didn't the Core state no permit required for the two power poles- No permit was requested for the remainder of the site.? Map pond areas on WSEO map- Preservation of natural features and habitat is a component of the Policy Plan.



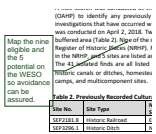
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verify potential wetland and ponded areas is mapped on WSEO map plan-



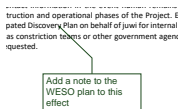
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clearly identify all streams, drainage ways on WSEO map



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Map the nine eligible and the 5 potential on the WSEO so avoidance can be assured.



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Add a note to the WSEO plan to this effect



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This info needs to be placed on the WSEO map so that avoidance or mitigation is easily defined

2
wildlife biologist conducted a site visit on March 30, 2018. All pr
viewed for potential occurrence of special status species and/or
area and up to a 0.50-mile buffer from the boundary were checked
a 0.50-mile buffer follows the recommended buffer guidance f
Identify buffer on
WSEO map

3 Analysis
to the LANDFIRE vegetation cover data, 93 percent of the land
in Great Plains Shrubland Prairie. This ecological system occu
a. The most recent groundcover cover (comprising approximat
comprised of Western Great Plains Foothill and Piedmont Gra
tains prairie, but includes late prairie grasses.

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Identify buffer on WSEO map

me species) ranges associated with riparian habitat of Fountain
portion of the Project area, and no riparian habitat occurs on the
Identify on the WSEO
map so avoidance can occur

4

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identify on the WSEO map so avoidance can occur

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1.7 Limitations
1.8 Acknowledgments
1.9 References
1.10 Appendix A: Wetland/Floodplain
1.11 Appendix B: Wetland/Floodplain
1.12 Appendix C: Wetland/Floodplain
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1.35 Appendix Z: Wetland/Floodplain

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Add this note to WESO plan

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identify seasonal buffer on WESO Map

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Which will be completed? Add a note to the WSEO Plan

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Verify floodplain mapping is correct on WSEO map plan

Steve Kuehster (1)

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