Environmental Assessment

Proposed Skoglund Gravel Pit Expansion Project in Saguache County, Colorado

Bureau of Land Management – Saguache Field Office

December 2011

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ENVIRONMENTAL ASSESSMENT

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U.S. Department of the Interior
Bureau of Land Management
Saguache Field Office
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Saguache, Colorado 81149

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Acronym List

ACEC	Areas of Critical Environmental Concern
APE	Area of Potential Effects
APEN	Air Pollution Emission Notice
AQCR	Air Quality Control Region
BLM	Bureau of Land Management
BMP	Best Management Practices
CDOT	Colorado Department of Transportation
CDOW	Colorado Division of Wildlife
CDPHE	Colorado Department of Public Heath and Environment
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CNRCS	Colorado Natural Resources Conservation Service
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	US Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FOIA	Freedom of Information Act
FONSI	Finding of No Significant Impact
GAP	Gap Analysis Program
HDPE	high density polyethylene
HMA	hot-mixed asphalt
IF	Isolated finds
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act

NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
OAHP	Office of Archaeology and Historic Preservation
OHV	Off Highway Vehicles
RMC	RMC Consultants, Inc.
SHPO	State Historic Preservation Office
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
VOCs	volatile organic compounds
VRM	Visual Resource Management

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1.0 INTRODUCTION

The National Environmental Policy Act of 1969 (NEPA) (42 U.S. Code 4321 et seq.) requires federal agencies to consider alternatives to proposed actions and to analyze impacts of the proposed action and those alternatives on the human and physical environment. NEPA is implemented through regulations of the Council on Environmental Quality (CEQ) (40 Code of Federal Regulations [CFR] 1500-1508). The Bureau of Land Management (BLM) has, in turn, adopted procedures to comply with NEPA and the CEQ regulations, as found in the BLM National Environmental Policy Act Handbook (H-1790-1), January 2008.

This Environmental Assessment (EA) meets BLM's requirements under NEPA and CEQ regulations to evaluate the impacts of the proposed action (expansion of Skoglund Gravel Pit and possible operation of a temporary asphalt batch plant) and recommend mitigation measures for any identified impacts. The EA assesses whether the proposed action would have any potentially significant effects on the environment. If potentially significant effects on the environment are identified, an Environmental Impact Statement (EIS) would need to be prepared. If the impacts of the proposed action after mitigation are less than significant, a Finding of No Significant Impact (FONSI) would be prepared.

RMC Consultants, Inc. (RMC) has prepared this EA under the BLM (Saguache Field Office) Memorandum of Understanding, regarding roles and responsibilities for a third party environmental analysis and preparation of an EA. RMC has no financial interest in the proposed action or any alternative action evaluated under this contract.

1.1 BACKGROUND

The Skoglund Gravel Pit and the proposed pit expansion area (referred to herein as the subject property) comprise a 40-acre parcel, owned and administered by BLM. The subject property is located in the 1980 Rito Alto Peak 7 ½ minute quadrangle (SE¼ SE¼ of Section 34, Township 44 North, Range 11 East, New Mexico Principal Meridian) and is approximately 2.5 miles northwest of Crestone, Colorado in Saguache County (see Figure 1). The Skoglund Gravel Pit is accessed by County Road 66T, a well maintained gravel surfaced road, which traverses the northern portion of the subject property. A site location map is provided as Figure 2.

Adjacent property consists of BLM, county, and privately owned land. Land use in the area is generally rangeland. There are two gravel pits located adjacent to the Skoglund Pit; neither one is currently active. The gravel pit located to the northeast is privately owned by Mr. Gary Boyce and is sporadically used for private ranch use. The other pit, located to the northwest, is owned by Saguache County. Land ownership for the surrounding area is provided as Figure 3.

The gravel pit at the site has been operational since 1986, before which the subject property was rangeland. The Bureau of Reclamation began operation of the pit to obtain gravel for construction of canals, pipelines, and roads during the Closed Basin Project of the San Luis Valley (Environmental Assessment, 1986). Skoglund Excavating has been operating the pit since 1996. Mr. Ken Skoglund filed the Reclamation Permit Application (Regular 112 Operation) with the State of Colorado, Department of Natural Resources on December 20, 1996. Fifteen of the 40 acres comprising the subject property has been previously mined by Skoglund Excavating. The area of the planned pit expansion consists of approximately 25 acres adjacent to the previously disturbed area. A trench partially filled with asphalt was observed on the northern portion of the subject property, along the north side of County Road 66T (see Figure 4), during the site visit conducted by RMC on March 16, 2011. The asphalt was deposited when wet, not in slabs (i.e.

removed pavement). The asphalt has abundant aggregate. It appears there was a portable asphalt plant located on the northern portion of the subject property, the trench was excavated to provide aggregate, and excess or unusable material dumped back into the trench. Neither BLM nor Skoglund Excavating were aware of any previous asphalt plant operations onsite, therefore it is possible that the asphalt deposit is the result of a trespass on BLM land.

A brief EA was prepared for the site (author unknown) in 1986 as a result of a request by the Bureau of Reclamation for excavation and use of a gravel pit on the subject property. The environmental impacts from the proposed action were identified in the 1986 EA as either short-term or mitigable, with the exception of the permanent loss of gravel and change in surface topography. The EA was reviewed by a representative from the BLM and signed January 13, 1986.

1.2 PURPOSE AND NEED FOR PROPOSED ACTION

This EA has been prepared to evaluate the potential impact from expansion of the existing gravel pit, commonly known as the Skoglund Gravel Pit, on the 40-acre parcel of land owned and administered by BLM, approximately 2.5 miles northwest of Crestone, Colorado in Saguache County (see Figure 1). The proposed action is being requested by Skoglund Excavating, Inc., which has mined approximately 15 of the 40 acres since 1996. The proposed action requires the continued purchase of blocks of gravel from BLM for excavation of the remaining 25 acres, and crush or screen the mined material for sale to various local entities including: the Baca National Wildlife Refuge, Baca Property Owners Association, City of Moffat, City of Crestone, Baca Water and Sanitation, a local solar farm, and private home builders. The mined pit material, consisting of sand, gravel, and rock, provides a local source of material to be used in road surfacing and general construction.

In addition to expanding the gravel pit, Skoglund Excavating is proposing to operate a temporary asphalt batch plant on the site should the opportunity for such activity arise. All asphalt batch plant operations would be performed by a subcontractor to Skoglund Excavating. This component of the proposed action would allow Skoglund Excavating to produce hot-mixed asphalt (HMA) for potential Colorado Department of Transportation (CDOT) or county roadway projects.

The selection of the proposed action would be consistent with the BLM's mandate under the Federal Land Policy and Management Act of 1976 of managing the public lands for multiple use, while protecting the long-term health of the land.

1.3 ISSUES

Issues and concerns regarding the proposed action were identified through input from BLM resource specialists and technical staff, as well as consultation with the U.S. Fish and Wildlife Service (USFWS). Issues were also identified based on federal laws, regulations, and executive orders. BLM does not anticipate any significant opposition to the expansion of Skoglund Gravel Pit. The closest neighbor to the Skoglund Gravel Pit (Boyce residence) is at least 0.5 miles away and has not expressed any concern regarding pit operations.

Issues identified and addressed in the EA include:

1. A need for general mitigation measures to address air quality or prevent the introduction or spread of noxious or invasive weeds.

2. Appropriate permitting required for implementation of proposed action.

3. Reclamation of disturbed areas.

4. Potential for cultural resources.

5. Change in land use with respect to the possible temporary operation of an asphalt batch plant on site.

A brief rationale for the selection of each impact topic is presented below, as well as the justification for dismissing specific topics from further consideration.

1.3.1 Issues Selected for Detailed Analysis

SOILS

Soils at the subject property would be disturbed as a result of the proposed action; therefore, soils are addressed as an impact topic in Section 4.1.1 of this EA.

AIR QUALITY

The proposed action may result in some short-term decreases in air quality associated with dust and equipment emissions, but would not impact long-term air quality. Since air quality is a concern with regards to the proposed action, air quality is addressed as an impact topic in Section 4.1.2 of this EA.

ECOLOGY, VEGETATION AND WILDLIFE COMMUNITIES

NEPA requires an examination of the potential environmental impacts on all components of affected ecosystems. This impact topic addresses all potentially impacted vegetation and wildlife communities. As the proposed action may alter natural resources associated with vegetation and wildlife habitat present within the subject property, biotic communities are addressed as an impact topic in this EA.

CULTURAL RESOURCES

The National Historic Preservation Act of 1966 (NHPA, as amended) and the Archaeological Resource Protection Act of 1979 require that any Federal undertaking consider the potential effects to cultural resources. Federal undertakings include direct agency actions as well as projects that involve permitting and/or funding by a Federal agency. Section 106 of the National Register of Historic Places (NRHP) establishes the processes by which a Federal agency identifies, evaluates and consults on the significance of cultural resources that may be affected by their undertaking. Cultural resources are defined as the physical evidence and remains of prehistoric and historic human activities, and can be sites, buildings, structures, artifacts, and even locations or natural features where important events occurred. Cultural resources are nonrenewable and generally must be over 50 years old to be considered historic.

All cultural resources within the Area of Potential Effect (APE) must be evaluated for potential inclusion in the NRHP. These evaluations are based largely on two concepts: 1) integrity and 2) significance. Four NRHP criteria have been established to evaluate a resource's significance.

Determining a resource's significance is the first step in evaluating its eligibility for the NRHP. To be considered significant, a resource must meet one or more of the following criteria:

1. The resource is associated with events that have made a significant contribution to the broad patterns of our history; or
2. The resource is associated with the lives of significant persons in our past; or
3. The resource embodies 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
4. That has yielded or may be likely to yield, information important in history or prehistory.

Prehistoric and historic archaeological resources are most commonly considered significant under criterion d, however, they may also meet other criteria. Archaeological sites must have the potential to address generally accepted research questions and data gaps, and resources containing features such as hearths or habitation structures, and/or temporally or culturally diagnostic materials are more likely to be considered significant. Historic sites, especially ones with standing structures, can be found eligible under any of the criteria. Linear historic features such as roads, railroad grades and ditches are more likely to be found significant for their association with important events (criterion a) than for archaeological potential.

To qualify for the NRHP, a resource must be significant **and** retain integrity. Integrity refers to a resource's ability to convey those characteristics for which it is significant (NPS 2002). The NRHP defines seven aspects of integrity. These are: 1) location, 2) design, 3) setting, 4) materials, 5) workmanship, 6) feeling, and 7) association. A resource must retain integrity of a majority of these aspects to be considered eligible for inclusion in the NRHP. In practice, the integrity of archaeological sites is typically established by demonstrating the presence of intact subsurface deposits. Once established, integrity and significance are used in conjunction to determine if a resource is *Eligible*, *Not Eligible*, or *Needs Data* for inclusion in the NRHP. *Eligible* resources are characterized by both significance and integrity. *Not Eligible* resources are lacking in significance or integrity, or may lack both requirements. Resources evaluated as *Needs Data* have not been documented to the extent necessary for establishing NRHP eligibility i.e. the presence of intact subsurface materials on an archaeological site is suspected but unproven. *Needs Data* resources must be treated as eligible until final determinations have been made. Resources determined *Not Eligible* normally do not require any additional work; the information contained at the resource is considered to be sufficiently documented.

1.3.2 Issues Dismissed From Detailed Analysis

NATURAL HAZARDS

Potential natural hazards, such as earthquakes, flooding, expansive soils, etc., are not deemed an important consideration or relevant for the expansion of the Skoglund Gravel Pit. Therefore, natural hazards are not considered an impact topic in this EA.

SURFACE WATER RESOURCES

There are no streams, lakes, or ponds within the proposed action area. Nor are there any surface water resources in close proximity of the site. The nearest surface water is San Isabel Creek located approximately 0.5 miles north of the subject property. As a result, there are no concerns associated with erosion and runoff reaching a surface water resource and causing sediment yield increases. Surface water resources are not considered an impact topic for this EA and are eliminated from further evaluation.

However, it should be noted that since there is a possibility of storm water runoff, a Colorado Industrial Stormwater General Permit for Light Industry and/or Sand and Gravel will be required for activities associated with operating the gravel pit and asphalt batch plant. Best management practices (BMPs) will be implemented in accordance with the storm water management plan as required by the industrial permit. The EPA's National Menu of Stormwater BMPs (last updated on January 09, 2008) will be consulted for development of site-specific BMPs, which will address such items as Construction Site Planning and Management, Erosion Control, Runoff Control, Sediment Control, and Good Housekeeping/Materials Management (spill prevention and control plan).

GROUNDWATER

The proposed action is highly unlikely to alter groundwater flow patterns, recharge, or use. The implementation of BMPs and compliance with all federal, state, and local laws/regulations regarding handling of hazardous materials/substances would reduce the potential of the proposed action resulting in groundwater contamination. A spill prevention control and countermeasure plan should also be prepared for the site to effectively reduce the risk of groundwater contamination. Groundwater contamination is therefore dismissed as an impact topic for this EA.

RECREATIONAL RESOURCES

The subject property location is not adjacent to any parks or land used for recreational activities. Consequently, recreational resources are not considered an impact topic for this EA.

ECONOMY AND EMPLOYMENT

Should the proposed action be implemented, there would be economic gains for the local business, Skoglund Excavating, and some individuals and local/regional businesses would benefit from having a nearby source of material for use in road surfacing and general construction operations. An average of one to two employees is needed for operating the Skoglund Gravel Pit. The temporary operation of an asphalt batch plant would be performed by a subcontractor to Skoglund Excavating and consist of a crew limited to several operators.

The proposed action would not affect the economy of the community in ways that would result in impacts to its character. Due to the small-scale nature of the gravel pit operation, socioeconomic values are not evaluated as an impact topic for this EA.

HAZARDOUS MATERIALS

There is currently a 500-gallon fuel tank present on site with a high density polyethylene (HDPE) liner for secondary containment. No other hazardous materials occur on the subject property.

Petroleum-based products used to promote adhesion and bonding of the asphalt to the aggregates would be used during the operation of the asphalt batch plant. Operation of the asphalt batch plant would include the storage of asphalt oil in aboveground heated storage tanks at the site. While releases from the tanks could occur, potentially affecting human health and the environment, the nature of the asphalt oil minimizes the potential severity of a release. The oil must be heated to reduce viscosity. Any accidental release from the tanks would quickly cool, becoming immobile in surrounding soils. In compliance with the Storage Tank Regulations (7 CCR 1101-14) administered in Colorado by the Colorado Department of Labor and Employment, Division of Oil and Public Safety, the applicant would be required to modify their existing Spill Prevention Control and Countermeasure Plan to include asphalt batch plant operations and to document measures to prevent discharges of petroleum products. The possible operation of an asphalt batch plant would include the use of equipment and hazardous materials similar to the currently permitted gravel pit mining operation, and would not significantly increase the risk of an accidental release of hazardous materials beyond existing conditions.

All use, storage, and disposal of hazardous materials/substances would be conducted in accordance with all appropriate federal, state, and local laws/regulations. BMPs and preventative measures for limiting the risk of releases to soil and groundwater will be provided in a Spill Prevention Control and Countermeasure Plan prepared for the site. As a result, no impacts are anticipated and hazardous materials are therefore dismissed as an impact topic for this EA.

FLOODPLAINS

The subject property is not situated within a Federal Emergency Management Agency (FEMA) designated 100-year floodplain, nor is it subject to frequent flooding. The proposed action would have no effects or impacts on floodplains. Therefore, floodplains are dismissed as an impact topic for this EA.

WETLANDS

Executive Order 11990, Protection of Wetlands, requires examination of impacts to wetlands and protection of wetlands. No wetlands or other waters of the United States were identified within the subject area during the site visit performed by RMC on March 16 and 17, 2011. Nor were wetlands identified within a three-quarters mile search radius of the subject property during the database search conducted by Environmental FirstSearch™ (Satisfi, 2011; see Appendix A). As a result, impacts to wetlands are dismissed as an impact topic for this EA.

OTHER NATURAL RESOURCES

Mined pit material from the Skoglund Gravel Pit (consisting of sand, gravel, and rock) has been generally used for road surfacing and general construction material. The proposed action will continue to result in the permanent loss of gravel at the subject property. Other than the continuing operation of a gravel pit, there are no land uses of particular interest associated with this site such as those involving the production of agricultural and timber products, or the presence of rangeland, parkland, open spaces, and wetlands. Since the proposed action involves altering natural resources, as it relates to biotic communities, potentially impacted vegetation and wildlife communities are addressed as an impact topic in this EA. However, there are no other potential impacts to natural resources that require evaluation in this EA.

VISUAL/SCENIC CHARACTER

All lands administered by the BLM are managed to achieve some level of visual or scenic quality. The BLM uses a visual resource management (VRM) system to identify and manage scenic values on federal lands administered by that agency. The VRM system includes a visual resource inventory, which classifies visual resources on BLM land into one of four categories (Class I, II, III, or IV), and sets management objectives through the RMP process. The manner in which the four visual resource inventory classifications are determined is explained in BLM Handbook H-8410-1, Visual Resource Inventory and Handbook H-8431-1, Visual Resource Contrast Rating (USDI BLM 2004). The Saguache Field Office has classified the project area as VRM Class III, which is the least restrictive VRM category (USDI BLM VRM Map2011).

Expanding the Skoglund Gravel Pit is unlikely to result in a significant change to the visual and scenic nature of the site or surrounding area, which is also comprised of two other adjacent gravel pits. The temporary operation of an asphalt batch plant on the site would alter the current visual character of the site, while keeping with the industrial nature of the site. The asphalt batch plant would consist of a mobile unit, smaller in size than a stationary asphalt facility, and would only be present on the site within a 30 to 60 day period during the summer. The presence of a temporary asphalt plant would not result in a permanent or significant change to the visual and scenic nature of the site or surrounding area. Therefore, Visual/Scenic Character is not considered an impact topic for this EA.

THREATENED AND/OR ENDANGERED PLANT AND ANIMAL SPECIES

The 1973 Endangered Species Act, as amended, requires an examination of impacts to all federally listed threatened or endangered species. The database search presented in the Environmental FirstSearch™ Report (Satisfi, 2011) identified the following five federally-listed endangered or threatened species associated with the county of the subject property: Bald Eagle, Black-Footed Ferret, Mountain Plover, Uncompahgre Fritillary Butterfly, and Mexican Spotted Owl. The Bald Eagle and Mountain Plover are both considered a state species of concern by the Colorado Division of Wildlife (CDOW); however, this is not a designation afforded any protection. The Mexican Spotted Owl is also a state-listed threatened species, and the Black-Footed Ferret is a state-listed endangered species.

On May 11, 2011, the USFWS posted in the Federal Register their withdrawal of the proposed rule to list the Mountain Plover as threatened. After a thorough review of all available scientific and commercial information, the USFWS has determined that the Mountain Plover is not threatened or endangered throughout all or a significant portion of its range. Mountain Plover have proven to be adaptable to many human activities, using crop fields for breeding and wintering, and often benefitting from cattle grazing. The USFWS concluded that human land use changes, alone or in combination with climate change, are not likely to result in significant population-level impacts to the Mountain Plover in the foreseeable future.

Melissa Garcia, a BLM Wildlife/Fisheries Biologist, conducted a site visit for this EA and noted evidence of “elk, mule deer, northern pocket gophers, prairie rattle snakes, possibly a badger, and ground and shrub nesting birds”. Based on her site visit, the only species on the BLM Colorado State Director’s Sensitive Species List (updated November 20th, 2009) that potentially could be present at the site are the ground and shrub nesting birds. Evidence of Ferruginous Hawks (e.g., tree nests), Northern Goshawk (e.g., old-growth forests), White-faced Ibis (e.g., marshlands) Western Burrowing Owls (e.g., burrows), Milk Snakes, and foraging bats (e.g., mine shafts, caves, and large abandoned buildings) was not observed at the site.

The Western Snowy Plover and American White Pelican are not known to be in the area per the Colorado Gap Analysis Program (GAP) Project Maps. The site is at the edge of the Bald Eagle and Brewer's Sparrow species habitat elevation and is not known to be in the area per the Colorado GAP Project Map.

Gunnison sage-grouse are possibly in the area per the CDOW species distribution map. Impact to this species due to the proposed mine expansion and proposed addition of a HMA facility should be minimal due to the current surface conditions and commercial activity at the site.

Per the Sensitive Species List, the Western Burrowing Owl is not shown as occurring in the Saguache District where the site is located.

The following three plant species are on the BLM Colorado State Director's Sensitive Species List, updated November 20th, 2009, for the Saguache field office: Slender spiderflower, Bill's neoparrya, and Pale blue-eyed grass. The Slender spiderflower is a somewhat rare plant, and prefers wetter habitats, growing only in alkali wetlands in the western United States. The Pale blue-eyed grass is a rare plant species that grows in moist grassy meadows. Therefore, suitable habitat is not present within the site for either of these two plant species. Bill's neoparrya has not been previously identified in the area of the site. The site lies at least 20 miles east of known distribution areas of Bill's neoparrya plant species as identified in a technical conservation assessment for Neoparrya lithophila Mathia (Bill's neoparrya) prepared for the USDA Forest Service, Rocky Mountain Region, Species Conservation Project in 2004. For these reasons, none of the plants present on the BLM Colorado State Director's Sensitive Species List are likely to occur within the site. Melissa Garcia, a BLM Wildlife/Fisheries Biologist, did not note evidence of any sensitive plant species during a site visit conducted for this EA in March 2011.

Based on review of available information, interviews with BLM resource specialists, and on-site observations, the subject property does not appear to support a habitat for any of the listed species. Therefore, special status species was dismissed as an impact topic for this EA.

MIGRATORY BIRDS

The Migratory Bird Act of 1918 was passed to protect migratory birds and their eggs, nests, and feathers. The primary concern for migratory birds is in regards to the loss or disturbance of occupied nests. Federal agencies are required to consider the effect of projects on migratory birds, and directs agencies to review the list of Birds of Conservation Concern (USFWS, 2008) developed for the Bird Conservation Regions of the United States when assessing species that may occur.

Land associated with the Skoglund Gravel Pit occurs within Bird Conservation Region 16, which encompasses portions of Colorado, New Mexico, Arizona, Utah and Wyoming. Table 1 below summarizes the birds of concern within Region 16, their preferred habitat types, and likely occurrence at the site.

Table 1. Migratory Birds of Conservation Concern

Species	Associated Habitat Types(s)	Occurrence in Analysis Area
Northern Harrier	Agricultural, Grassland, Wetlands	No
Swainson's Hawk	Agricultural, Grassland, Mountain Shrub, Semi-Desert Shrubland, Piñon-Juniper, Mixed-Conifer, Spruce-Fir, Low Elevation Riparian	Possible
Ferruginous Hawk	Grassland, Mountain Shrub, Semi-Desert Shrubland, Sagebrush Shrublands	Possible
Golden Eagle	Agricultural, Grassland, Cliff/Rock/Talus	Possible
Peregrine Falcon	Agricultural, Piñon-Juniper, Spruce-Fir, Ponderosa Pine, Cliff/Rock/Talus, Wetlands	Possible
Prairie Falcon	Agricultural, Grassland, Semi-Desert Shrubland, Cliff/Rock/Talus	Possible
Gunnison's sage-grouse	Mountain Shrub, Sagebrush Shrubland, Low Elevation Riparian	No
Snowy Plover	Wetlands	No
Mountain Plover	Agricultural, Grassland, Semi-Desert Shrubland, Sagebrush Shrubland	Possible
Solitary Sandpiper	Wetlands	No
Marbled Godwit	Wetlands	No
Wilson's Phalarope	Wetlands	No
Yellow-billed Cuckoo	Low Elevation Riparian, Wetlands	No
Flammulated Owl	Aspen, Ponderosa Pine, Mixed-Conifer, Spruce-Fir	No
Burrowing Owl	Grassland, Semi-Desert Shrubland, Sagebrush Shrubland	No
Short-eared Owl	Agricultural, Grassland, Low Elevation Riparian, Wetlands	No
Black Swift	Cliff/Rock/Talus, High Elevation Riparian	No
Lewis's Woodpecker	Ponderosa Pine, Low Elevation Riparian	No
Williamson's Sapsucker	Aspen, Mixed-Conifer, Ponderosa Pine	No
Gray Vireo	Oak woodlands/scrub	No
Piñon Jay	Piñon-Juniper, Ponderosa Pine	Possible
Bendire's Thrasher	Semi-Desert Shrubland	Possible
Crissal Thrasher	Desert Scrub	No
Sprague's pipit	Shortgrass Prairie	No
Virginia's warbler	Mountain Shrub, Piñon-Juniper, Ponderosa Pine, Low Elevation Riparian	No
Black-throated gray warbler	Piñon-Juniper	Possible
Grace's warbler	Ponderosa pine	No
Sage sparrow	Sagebrush Shrubland	Possible
Chestnut-collared longspur	Shortgrass Prairie	No

As shown above, 10 species could breed in or migrate through the study area. Most migratory birds occur in the San Luis Valley during the summer months due to the harsh fall, spring, and winter months. Most birds arrive during late spring (April/May) and migrate from the area in early fall (August/September). The species present during summer are most likely breeding and

rearing young, and then leave as the weather changes in late summer. Most species on the Bird Conservation Region 16 list follow this migration pattern, although some species are present during the winter. Species that spend all or part of the winter in the region may include the short-eared owl, ferruginous hawk, golden eagle, peregrine falcon, prairie falcon, Lewis's woodpecker, and piñon jay.

Impacts to migratory birds from the proposed action are unlikely because of the site's small footprint and lack of productive riparian or upland habitat. The lack of productive riparian or upland habitat is particularly relevant since it provides nesting, cover, roosting and foraging habitat for the migratory birds. Since riparian and upland habitat is lacking in and around the proposed action, migratory bird species is dismissed as an impact topic for this EA.

TRANSPORTATION

Expansion of the Skoglund Gravel Pit is consistent with the current site use and will not affect traffic and transportation into and out of the area of the subject property. The possible temporary operation of an asphalt batch plant on the subject property may result in a temporary increase in traffic on County Road 66T. However, any increase in traffic would be short-term (over a 30 to 60 day period) and would not persist over the course of the gravel pit operations. Transportation is therefore not considered an impact topic for this EA.

NOISE

Noise resulting from the proposed action would be consistent with the level of noise occurring from past site operations conducted over the last 25 years. The gravel pit will be operated during daylight hours and intermittently throughout the year. It is estimated that the gravel pit will operate no more than a maximum of 180 full days per year. Noise associated with the operation of the gravel pit equipment would not cause long-term noise pollution. Nor are there any sensitive noise receptors (e.g., schools, hospitals, nursing homes, etc.) in the immediate vicinity of the subject property. Nearby neighbors (located approximately 0.5 miles away) have not expressed any concern regarding noise from the Skoglund Pit operations and residences in Crestone are over two miles away. Noise is therefore dismissed as an impact topic for this EA.

LAND USE, REGULATIONS, PLANS, AND ZONING

Land use within the subject property would generally remain the same during expansion of the existing gravel pit. The only change in land use would be associated with the possible temporary operation of an asphalt batch plant on site. The proposed action is consistent with local regulations, zoning and associated planning, and therefore this issue is not addressed as an impact topic in this EA. Furthermore, the proposed action (gravel pit expansion and temporary asphalt batch plant operation) conforms to the Approved Resource Management Plan for the San Luis Resource Area (BLM, 1991).

ENVIRONMENTAL JUSTICE

Executive Order 12898, General Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires all federal agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high and adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. The alternatives would not have any health or environmental effects on minorities or low-income populations or communities as defined in the

Environmental Protection Agency (EPA) Environmental Justice Guidance (EPA, 1998). Environmental justice is consequently dismissed as an impact topic for this EA.

PRIME AND UNIQUE FARMLANDS

In August 1980, the CEQ directed that federal agencies assess the effects of their actions on farmland soils classified by the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) as prime or unique. Prime or unique farmland is defined as soil that particularly produces general crops such as common fruits, vegetables, and nuts. Based on NRCS data, the 40 acre parcel is not classified as prime and unique farmland. The current and potential land uses do not include agricultural uses. The topic of prime and unique farmlands is therefore dismissed as an impact topic in this EA.

2.0 PROPOSED ACTION AND ALTERNATIVES

This section describes the proposed action and the no action alternatives that wholly or partially meet the purpose and need for action.

2.1 DESCRIPTION OF PROPOSED ACTION

Skoglund Excavating proposes to expand the existing Skoglund Gravel Pit on 40-acres of land owned and administered by BLM, approximately 2.5 miles northwest of Crestone, Colorado. Skoglund Excavating proposes to expand the gravel pit from the current 15 acres already mined. Gravel pit operations will be consistent with those implemented previously at the site. Excavation will be expanded to continue mining pit run material consisting of sand, gravel, and rock to be crushed or screened for use as road surfacing and general construction material. Mined pit materials will be sold to various local entities including: the Baca National Wildlife Refuge, Baca Property Owners Association, City of Moffat, City of Crestone, Baca Water and Sanitation, a local solar farm, and private home builders (BLM/Skoglund coordination meeting on March 3, 2011). The proposed pit expansion will occur entirely within the existing 40-acre parcel owned by BLM. Planned excavations will proceed from the current disturbed area and continue on the remaining 25 acres. Proposed excavations will not exceed twenty-five feet in depth from the original surface topography. Excavation will generally be conducted by crawler dozers and tracked or rubber tired front end loaders. Additional details regarding proposed pit and equipment are provided in the Mining Plan, Exhibit D of the Regular (112) Construction Materials Operation Reclamation Permit Application dated December 20, 1996.

No new site improvements associated with the continued operation of the gravel pit are proposed. The gravel pit will be operated during daylight hours and intermittently throughout the year. It is estimated that the gravel pit will operate no more than a maximum of 180 full days per year. Skoglund Excavating anticipates 10 to 25 thousand tons of material will be mined from the pit annually.

The proposed action also consists of the possible temporary operation of an asphalt batch plant to produce Hot Mix Asphalt (HMA) on the site should opportunity for such activity arise. All asphalt batch operations would be performed by a subcontractor to Skoglund Excavating. The quantity of HMA generated and duration of an asphalt batch plant operation on site would be job dependent, but not to exceed 25,000 tons a year. Any asphalt batch operations would be seasonal and likely occur within a 30 to 60 day summertime period. The asphalt batch plant will consist of a mobile unit. The location of asphalt batch plant operations and equipment will be dependent upon gravel pit operations occurring at that time, but likely occur inside the gravel pit, on the pit floor. Skoglund Excavating will be responsible for ensuring that asphalt batch plant operations are compliant with all applicable regulatory requirements associated with permitting, handling of hazardous materials, and primary and secondary emission-control systems.

A brief discussion of typical asphalt batch plant operations and materials is provided as follows. There are two basic ingredients in HMA. The first is aggregates (crushed stone, gravel, and sand) which will be mined on-site from the Skoglund Gravel Pit. Approximately 95 percent of the total weight of an asphalt pavement consists of aggregates. The remaining five percent is Asphalt Cement, which is the black liquid that acts as the glue to hold the pavement together. Asphalt Cement is a petroleum product generally obtained from the same refineries that produce gasoline for cars and heating oil for houses. During the manufacturing of HMA, the paving aggregates are dried and heated, then mixed and coated with Asphalt Cement. The HMA is put in silos for short-

term storage, then trucked to the paving site. The primary components that comprise an asphalt batch plant include:

- **Cold feed bins** — Accurately meter the different aggregates used in the mix to the drying drum. Aggregates are usually stored in stockpiles or they may be stored in large silos or bunkers.
- **Asphalt cement storage** — Asphalt cement is stored in tanks that meet stringent regulatory guidelines for spill prevention.
- **Dryer drum** — Dries and heats aggregates by tumbling them through hot air.
- **Emission control system** — Sometimes called a baghouse, this system traps and removes fine sand and dust particles and returns them to the mix.
- **Storage silos** —Batch plants do not require a silo, but often have them to increase plant production. Storage silos are insulated and may be heated to prevent heat loss. A mix may be stored in a silo for days.

Hazardous materials that will be used or stored onsite will include fuel for vehicles and fuel oil for the asphalt batch plant burner, which is the same kind of fuel oil used to heat homes. As a result, a spill prevention control and countermeasure plan should be prepared for the site to effectively reduce the risk of surface and ground water contamination. By federal law, a HMA facility must keep these products, including the fuel oil, either in underground tanks that meet strict EPA standards, or in above-ground tanks surrounded by berms that would hold all the contents in the event of a spill. Asphalt cement, which is one of the heaviest, most viscous parts of petroleum, starts to harden the moment it cools and cannot travel over the ground more than a few feet. Asphalt cement will not penetrate the soil more than an inch or two before solidifying and does not mix with, or become soluble, in water.

All equipment and plants for gravel pit and asphalt batch operations will be portable. All areas disturbed by site operations associated with the Skoglund Gravel Pit operations will be reclaimed and seeded. Reclamation of the disturbed areas will be performed in phases as mining progresses. Details of the reclamation plan for the site are provided as Exhibit E of the Regular (112) Construction Materials Operation Reclamation Permit Application dated December 20, 1996.

2.2 DESCRIPTION OF ALTERNATIVES

The only alternative to the proposed action that was evaluated in this EA was the no action alternative.

2.2.1 No Action Alternative

Under the no action alternative, the Skoglund Gravel Pit would not be expanded and only reclamation activities would continue at the subject property. The proposed action is the preferred alternative for the subject property, which entails the expansion of the Skoglund Gravel Pit and possible temporary operation of an asphalt batch plant.

2.3 ALTERNATIVES DISMISSED FROM FURTHER CONSIDERATION

The proposed action is consistent with previous site operations associated with the mining of the Skoglund Gravel Pit, and also includes the possible temporary operation of an asphalt batch plant. Skoglund Excavating has been operating the gravel pit since 1996 and would like to continue

expansion of the current pit on the remaining 25 acres. Therefore, no other alternatives were evaluated.

2.4 COMPARISON OF ALTERNATIVES

2.4.1 No Action Alternative

Under the no action alternative, expansion of the Skoglund Gravel Pit would not occur and Skoglund Excavating would continue with site reclamation in accordance with the Reclamation Plan, Exhibit E of the Regular (112) Construction Materials Operation Reclamation Permit Application dated December 20, 1996.

2.4.2 Proposed Action

Expanding the Skoglund Gravel Pit and operating a possible temporary asphalt batch plant is the proposed action. Since the proposed action is mostly consistent with site use over the last 25 years, the short and long-term effects will not be considered significant. Site reclamation will help mitigate some of those effects resulting from the proposed action. The proposed action and no action alternatives are compared in Table 2.

Table 2. Comparison of Proposed Action and No Action Alternative

Issue	No Action	Proposed Action
Soils	No additional effect	Short-term effect (while operating gravel pit and temporary asphalt batch plant prior to reclamation)
Air Quality	No additional effect	Short-term effect (while operating gravel pit and temporary asphalt batch plant)
Ecology, Vegetation and Wildlife Communities	No additional effect	Short-term effect
Cultural Resources	No additional effect	No additional effect

3.0 PLAN CONFORMANCE REVIEW

The Proposed Action is subject to and has been reviewed for conformance with the following plan (43 CFR 1610.5, BLM 1617.3):

Name of Plan: San Luis Resource Management Plan

Date Approved: 12/18/91

Land Use Allocation Decision Number: 1-3, 1-4

Decision Language:

1-3: Federal mineral estate on approximately 483,980 acres (99 percent) will be open to entry and location. Mineral entry will be precluded on 1,200 acres within the Pike Stockade/Monte Vista park areas, 200 acres of U. S. Forest Service administrative sites, and 560 acres of eligible National Register of Historic Places (NRHP) sites.

1-4: Federal mineral estate will be open on 486,240 acres (99 percent) and will be available for disposal of mineral materials except in riparian zones.

Management Action Decision Numbers: 1-1, 1-2

Decision Language:

1-1: Require plan of operations for mineral development except casual use in the following locations: a) areas closed to off highway vehicles (OHV), b) acres designated for potential addition to or actual components of the national wild and scenic river site; c) designated areas of critical environmental concern (ACECs); and d) areas withdrawn from operations of the mining laws in which valid existing rights are being exercised.

1-2: Continue to inventory mineral material disposal resources and develop appropriate common use areas and community pits

4.0 AFFECTED ENVIRONMENT

The affected environment provides the baseline for comparison of impacts/consequences of the proposed action and no action alternatives. Information on the affected environment was obtained and summarized from the site visit, interviews with BLM resource specialists, and existing documents that included the following:

- Reclamation Permit Application (Regular 112 Operation) filed with the State of Colorado, Department of Natural Resources on December 20, 1996;
- 1986 Environmental Assessment for a proposed gravel pit, prepared at the request of the Bureau of Reclamation for BLM;
- 1991 BLM Resource Management Plan for the San Luis Resource Area;
- 2011 Environment FirstSearch™ Report for Skoglund Gravel Pit;
- 1986 Cultural Resource Survey for San Luis Valley Project, Closed Basin Division—Aggregate Quarry on Bureau of Land Management Lands in Crestone Vicinity, prepared by Bureau of Reclamation for BLM;
- 1985 Deposits of Prehistoric Archaeological Artifacts within the Impact Area of the U.S. Bureau of Reclamation San Luis Valley Project – Closed Basin Division, Stages 4 and 5, prepared by Bureau of Reclamation, Southwest Regional Office;
- 1999 Colorado Prehistory: A Context for the Rio Grande River Basin, prepared by Colorado Council of Professional Archaeologists, Denver, and;
- 2010 Class III Cultural Resource Inventory of Old Spanish National Historic Trail Segments, Crestone to Wild Cherry Creek, Saguache County, San Luis Valley, Colorado, prepared by RMC for BLM.

4.1 SOILS

According to the U.S. Department of Agriculture (USDA), Colorado Natural Resources Conservation Service (CNRCS) Web Soil Survey, two main soil types occur within the subject property boundaries. The two soil map units are briefly outlined below and based on information obtained from the Soils Survey of Saguache County Area (USDA, 1984). Further soil descriptions are provided in the aforementioned soil survey and Exhibit I, Soils Information, of the Regular (112) Construction Materials Operation Reclamation Permit Application dated December 20, 1996.

Derrick — Soil Map Unit 20: This soil unit is a very gravelly loam, characterized by slopes between 0 to 3 percent. The Derrick soils occur on fans and terraces on alluvial valley floors. Permeability is moderate and available water capacity is low. Surface runoff is considered slow, and the hazard of erosion is slight.

Space City — Soil Map Unit 70: This soil unit is a loamy sand, characterized by slopes between 0 to 6 percent. This deep, somewhat excessively drained soil occurs along margins of intermountain valleys and basins on alluvial valley floors. Space City soils formed in eolian sand. Permeability is rapid and available water capacity is low. Surface runoff is considered slow, and the hazard of soil blowing is high.

The Derrick and Space City soil units occupy the northwestern and southeastern portions of the subject property, respectively. Surface and subsurface soil material are stockpiled during the mining process and later used for reclamation activities. Seeding procedures used for the stability of stockpiles and reclamation of disturbed areas are provided in the Reclamation Plan, Exhibit E of the of the Regular (112) Construction Materials Operation Reclamation Permit Application dated December 20, 1996.

4.2 AIR QUALITY

Because air quality is a regional issue, the study area for this resource includes Saguache County and the five other counties comprising the San Luis Intrastate Air Quality Control Region of Colorado. EPA classifies air quality in an air quality control region (AQCR) according to whether the concentration of criteria pollutants in ambient air exceeds the primary or secondary National Ambient Air Quality Standards (NAAQS). All areas within each AQCR are designated as either attainment, nonattainment, or unclassified for each of the criteria pollutants. Attainment means that the air quality is better than the NAAQS for a criteria pollutant. Conversely, nonattainment indicates that air quality exceeds or is worse than the NAAQS. An unclassified air quality designation means there is not enough information to appropriately classify an AQCR. All Colorado communities are currently in attainment of all NAAQS, with the exception of the Front Range ozone control area, which is nonattainment for the 8-hour ozone standard.

A Criteria Area Pollutant Report for Saguache County (http://scorecard.goodguide.com and provided in Appendix B) presents information about the six criteria air pollutants (carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter, sulfur dioxide) that have National Ambient Air Quality Standards established by the Clean Air Act. The report allows users to rank communities across the U.S. based on pollutant emissions, exposures and potential health risks, and evaluate which pollutants and which sources contribute most to criteria air pollution problems. The report's emissions and exposure information for criteria air pollutants is derived from two U.S. EPA sources: the National Emissions Trend database and the Aerometric Information Retrieval System database. Air quality rankings for the six criteria air pollutants monitored in Saguache County were generally on the end of the spectrum representing Cleanest/Best Counties in the U.S. Of the six criteria air pollutants, volatile organic compound (VOC) emissions reported for Saguache County ranked lowest in the 0 to 10 percentile and PM-10 emissions ranked highest between the 30 and 40 percentile. Further details of the Criteria Area Pollutant Report rankings and descriptions for Saguache County are provided in Appendix B, Supporting Information.

4.3 ECOLOGY, VEGETATION, AND WILDLIFE COMMUNITIES

Site vegetation, as documented during the 1986 EA, consists primarily of rabbitbrush (Chrysohamnus) with an understory of blue grama (Bouteloua gracilis). Occurring in lesser amounts are prickly-pear, yucca, apache-plume, three-awn, and various lichens. Grasses such as dropseed, Indian rice grass, and squirreltail occur in trace amounts, as do other forbs (Environmental Assessment, 1986). Invasive weeds, Russian thistle and kochia, were identified on old soil stockpiles and around the Skoglund Gravel Pit during a weed inventory conducted by Mr. Dario Archuleta, Invasive Weeds Coordinator for the San Luis Valley Public Lands Center, at the subject property on March 31, 2011. The inventory determined that there are no state-listed noxious weeds present on the subject property. Vegetation on the subject property has been classified as Mountain Outwash and Sandy Bench range site (USDA, 1984). The major limiting factor for plant growth on the subject property is lack of water. Details on characteristic vegetation for the dominate soil types at the subject property are presented in Exhibit J, Vegetation Information, of the Regular (112) Construction Materials Operation Reclamation Permit Application dated December 20, 1996.

Wildlife observed on or near the subject property during site visits conducted in conjunction with this and previous environmental analysis includes birds, antelopes, coyotes and jackrabbits. There were no signs of prairie dogs evident during the site visit conducted by RMC on March 16, 2011. Raptor species likely use the area for foraging opportunities, but no nests or nesting activities were observed on the subject property during the RMC site visit. The subject property

is not a known nesting or roosting area for Bald Eagles nor is the subject property associated with any critical or sensitive habitats for species of concern. Most of the subject property has been disturbed, therefore limiting the extent of wildlife presented at the subject property.

4.4 CULTURAL RESOURCES

Skoglund Excavating contracted RMC in February 2011 to conduct a Class III cultural resource intensive pedestrian inventory of the 40 acre project area. Fieldwork was conducted March 16 and 17, 2011. The inventory resulted in the documentation of two isolated finds (one prehistoric, one historic). Isolated finds (IF) represent locations of limited human activity, and are not normally considered eligible for the NRHP. Neither of the IFs located in the project area are recommended eligible for the NRHP. Due to the sensitive nature of cultural resources, the exact locations of the resources are not included in this EA and the inventory report is not available for public distribution. Cultural resource reports containing locational information are exempt from the Freedom of Information Act (FOIA). The two IFs located in the project area are described below:

- IF 5SH4115 consists of one complete mano; one metate fragment; three conjoined fragments of a slab metate; and one translucent chert flake fragment. All materials are widely dispersed and occur within the previously mined and reclaimed (Open Basin Project) portion of the gravel pit. Due to the heavy disturbance, the artifacts lack any context.

- IF 5SH4116 consists of two fragments of a hinged-lid rectangular tobacco can; three fragments of clear window glass; one fence staple; and one 10-penny wire nail. All materials are located within approximately 10 square meters at the extreme southwest corner of the property, at the junction of the west and southern boundary fence lines.

See Appendix B for more cultural resource supporting information, including, file and literature searches, the 106 process, cultural history summary, and prehistoric and historic context.

5.0 ENVIRONMENTAL EFFECTS OF PROPOSED ACTION AND ALTERNATIVES

This section presents a description of the natural and man-made environments existing within and immediately surrounding the subject property. It also presents the potential environmental impacts for the proposed action and no action alternatives, including issues identified during scoping and any other issues that have become apparent in the course of analysis.

The potential impacts of each environmental issue were identified and assessed by describing the impacts in terms of type, context, duration, and intensity as compared to the no action alternative. Impacts are defined in general terms and are qualified as adverse or beneficial and as short or long term. Short-term impacts are those that have brief or temporary effects, while long-term impacts result in permanent effects or those of long duration.

Impacts were also assessed for direct, indirect, and cumulative effects. Direct effects are caused by an action and occur at the same time and place as the action. Indirect effects are caused by the action and occur later in time or are further removed from the place of impact, but are reasonably foreseeable. Cumulative impacts are the impacts on the environment that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts can occur as a result of minor individual but collectively significant actions that occur over a long period of time. Proposed mitigation measures to reduce potential impacts are also summarized for impacted resources.

5.1 PHYSICAL CHARACTERISTICS

5.1.1 Soils

EFFECTS ANALYSIS

Direct, Indirect and Cumulative Effects of No Action

The no action alternative would not result in any direct or indirect effects on soils in the subject area. The effects of no action, in combination with future reclamation activities, would likely result in cumulative effects of possible long-term beneficial impact from revegetation of disturbed areas, therefore eliminating or reducing the potential for future soil erosion.

Direct, Indirect and Cumulative Effects of Proposed Action

Soils in the project area would be directly impacted by the expansion of the Skoglund Gravel Pit due to mixing of subsurface soil horizons and loss of soil structure. The incremental disturbance to soils would occur on the 25 remaining acres that have not yet been mined. Surface soil has been previously disturbed on the majority of the subject property; the extent of visible disturbance is depicted in Figure 4. The proposed action would destroy existing vegetation, increase soil exposure to short-term erosional processes, and increase compaction in some areas. Increased compaction combined with reduced vegetation would further decrease infiltration rates and increase the potential for runoff (overland flows), erosion, and raindrop impact during storm events. Site rehabilitation and reclamation would be completed to stabilize and prepare soils for revegetation. BMPs and mitigation measures, such as dust suppression and seeding to stabilize stockpiles, would be implemented onsite to minimize potential negative effects to air quality from soil disturbance. Mitigation measures outlined in the site storm water management plan would also minimize sedimentation and control/reduce erosion.

The effects of the proposed action, in combination with future reclamation activities, would likely result in cumulative effects of possible long-term beneficial impact from revegetation completed for disturbed areas, therefore eliminating or reducing the potential for future soil erosion.

SIGNIFICANCE DETERMINATION

No Action Alternative

The no action alternative would not change or impact soils within the subject property.

Proposed Action

In general, soil disturbance and compaction caused by excavating the gravel pit would affect soils in the short term by reducing water infiltration rates, water retention capabilities, and by potentially increasing localized soil erosion. Overall, the proposed action would not result in any significant impacts associated with erosion or runoff due to BMPs and site reclamation activities.

5.1.2 Air Quality

EFFECTS ANALYSIS

Direct, Indirect and Cumulative Effects of No Action

The no action alternative would have no direct or indirect effects on air quality. The effects of no action, in combination with future reclamation activities, would likely result in cumulative effects of possible long-term beneficial impacts from revegetation of disturbed areas, by eliminating or reducing the potential for future soil erosion and the occurrence of fugitive dust, and thereby improving air quality in the immediate vicinity of the subject property.

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Direct, Indirect and Cumulative Effects of Proposed Action

Short- and long-term impacts would occur to air quality from activities associated with implementation of the proposed action. An increase in hydrocarbon and particulate emissions (PM_{10}) may result from heavy equipment involved in mining activities and associated dust. This increase in emissions would be minor because of the relatively small scale of activities, and long-term, continuing intermittently (a maximum of 180 days a year) during site operations until completion of reclamation activities. BMPs, such as dust suppression and emission-control systems, would be employed during site operations to decrease the direct and indirect effects to air quality. The operation of a temporary asphalt batch plant while excavating the Skoglund Gravel Pit would further increase the degree of air quality degradation in the vicinity of the subject property.

Site operations must comply with the air emission reporting and permitting requirements as regulated by the Air Pollution Control Division of the Colorado Department of Public Health and Environment (CDPHE). Air emissions for site operations/equipment will need to be reported through the submission of an Air Pollution Emission Notice (APEN) to the Air Pollution Control Division. Surfacing mining activities that mine 70,000 tons or fewer of product material per year (as with the Skoglund Gravel Pit) are specifically exempt from air permitting requirements per Regulation 3, Section III.D.1.g (www.cdphe.state.co.us/ap/sbap.asp). However, site equipment is evaluated separately from the surface mining activities, and therefore equipment such as screens and crushers may require an APEN and air permit even if the surface mining activities do not.

All Colorado HMA plants constructed or modified after June 11, 1973 must file an APEN and obtain an air permit, regardless of the level of pollutants emitted at the site (www.cdphe.state.co.us/ap/sbap.asp), and are subject to New Source Performance Standards set forth in 40 CFR Part 60, Subpart I. In accordance with this standard, asphalt plants must undergo stack tests for particulate concentrations and opacity tests in order to obtain a Final Approval permit. HMA plants have the potential to emit various pollutants. Potential emissions include VOCs, carbon monoxide, nitrogen oxides, sulfur dioxide if sulfur is present in the fuel, and particulate matter. Asphalt plants are required to install control systems or take other measures to reduce harmful air emissions. These measures and controls may include counter-flow mixing equipment technology, baghouse systems to control particulate emissions, enclosed or partially enclosed conveyor systems, and top-of-silo emission recovery systems. In addition, BMPs to minimize emissions during HMA production have been established by the asphalt industry. These BMPs include guidance on facility operation and maintenance to maximize efficiency and minimize emissions. Skoglund Excavating will be responsible for ensuring that asphalt batch plant operations are compliant with all applicable regulatory requirements. Any additional permits would be obtained, and all stipulations would be adhered to.

SIGNIFICANCE DETERMINATION

No Action Alternative

The no action alternative would not change or impact air quality.

Proposed Action

Although significant air quality degradation is not expected if the proposed action is selected, there is the potential for continued minor air quality degradation due to fugitive dust, equipment emissions, and pollutant emissions associated with HMA production in the immediate vicinity of the subject property.

5.2 BIOLOGICAL CHARACTERISTICS

5.2.1 Ecology, Vegetation and Wildlife Communities

EFFECTS ANALYSIS

Direct, Indirect and Cumulative Effects of No Action

The no action alternative would not significantly change the existing ecology, vegetation or wildlife communities within the expansion area of the subject property. However, site reclamation would continue, per the site reclamation plan (Exhibit E of the Regular 112 Construction Materials Operation Reclamation Permit Application dated December 20, 1996), and the subject property would return to a grazing lot sooner than if the proposed action was implemented.

Direct, Indirect and Cumulative Effects of Proposed Action

Vegetation on the subject property would be directly impacted by the expansion of mining activities. The incremental short-term and long-term disturbance to the Mountain Outwash and Sandy Bench range vegetation community would total less than 25 acres on the subject property. The majority of the proposed pit expansion area appears to have been previously disturbed (see

Figure 4 for extent of visible disturbance). Due to the small area of affected environment, the disturbance to or short-term loss of this vegetation would be negligible to minor for this community type present in the BLM Front Range District. In the long-term (upon completion of mining activities), all disturbed land would be reclaimed. Under successful revegetation with desirable, native plant species (using seed mixtures approved by the BLM and listed in the site reclamation plan), the proposed action alternative would lower the risk of noxious and invasive weed infestation. General mitigation measures should be in place to prevent the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area or actions that may promote the introduction, growth, or expansion of the range of such species (Federal Noxious Weed Control Act and Executive Order 13112). Mitigation measures should include yearly inspections of the gravel pit and monitoring to ensure successful revegetation of disturbed areas, spraying weeds in and around the pit, and cleaning site equipment prior to working at or leaving the subject property.

Temporary loss or alteration of the existing vegetation cover would impact the existing wildlife habitat. However, the expansion of the Skoglund Gravel Pit will have no appreciable effect on forage availability for livestock or wildlife. Some wildlife within the subject property would be directly impacted by mining activities. Slower animals (reptiles) and any small mammals in burrows may be run over or buried during mining activities. More mobile animals, such as birds and larger mammals, would likely be displaced into similar and less disturbed habitats on adjacent properties. Populations of wildlife species affected by the proposed action would not be adversely affected in the long term due to the limited amount of habitat affected and the small number of individuals potentially impacted by this alternative. No special status animal species are known to occur within the project area and there are no critical habitats designated by the USFWS associated with the subject property. Negative effects to populations or habitats of special status species are not expected.

Although the expansion of the gravel pit and operation of a temporary asphalt batch plant would result in an impact to the biotic community, the cumulative effects would be minimal due to the industrial nature of site activities that have occurred on the subject property over the last 25 years and the small amount of habitat affected. The proposed action would have minor short-term adverse cumulative effects to biotic communities with possible long-term beneficial cumulative effects associated with the planned reclamation of the disturbed areas (i.e., restoring native vegetation). For example, reseeding of the site with native grasses during site reclamation may provide better habitat for wildlife than currently exists on the subject property.

SIGNIFICANCE DETERMINATION

No Action Alternative

The no action alternative would not adversely impact the ecology, vegetation or wildlife within the subject area.

Proposed Action

Although biotic communities would be affected by the proposed action, impacts would be minimal as similar, suitable habitat can be found in the adjacent properties. Furthermore, industrial activity (i.e., pit mining) has occurred intermittently at the subject property over the last 25 years. The proposed action would not be considered disruptive to the present wildlife community.

5.2.2 Cultural Resources

EFFECTS ANALYSIS

Direct, Indirect and Cumulative Effects of No Action

The no action alternative would not impact cultural resources.

Direct, Indirect and Cumulative Effects of Proposed Action

Only resources determined eligible or potentially eligible for listing in the NRHP can be adversely impacted. Cultural resources determined to be not eligible require no further work for a project to proceed. Since no eligible or potentially eligible resources were located within the project area, project actions will have no adverse effect on cultural resources. No mitigation measures for cultural resources are required for the implementation of the proposed action.

Education and Discovery Stipulation: All persons in the area who are associated with this project shall be informed that any person who, without a permit, injures, destroys, excavates, appropriates or removes any historic or prehistoric ruin, artifact, object of antiquity, Native American remains, Native American cultural item, or archaeological resources on public lands is subject to arrest and penalty of law (16 USC 433, 16 USC 470, 18 USC 641, 18 USC 1170, and 18 USC 1361). Strict adherence to the confidentiality of information concerning the nature and location of archeological resources would be required of the proponent and all of their subcontractors (Archaeological Resource Protection Act, 16 U.S.C. 470hh).

If subsurface cultural values are uncovered during operations, all work in the vicinity of the resource will cease and the authorized officer with the BLM notified immediately. The operator shall take any additional measures requested by the BLM to protect discoveries until they can be adequately evaluated by the permitted archaeologist. Within 48 hours of the discovery, the SHPO and consulting parties will be notified of the discovery and consultation will begin to determine an appropriate mitigation measure. BLM in cooperation with the operator will ensure that the discovery is protected from further disturbance until mitigation is completed. Operations may resume at the discovery site upon receipt of written instructions and authorization by the authorized officer.

Pursuant to 43 CFR 10.4(g), the holder must notify the authorized officer, by telephone, with written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony on federal land. Further, pursuant to 43 CFR 10.4 (c) and (d), the holder must stop activities in the vicinity of the discovery that could adversely affect the discovery. The holder shall make a reasonable effort to protect the human remains, funerary items, sacred objects, or objects of cultural patrimony for a period of thirty days after written notice is provided to the authorized officer, or until the authorized officer has issued a written notice to proceed, whichever occurs first.
Pre-Implementation Stipulation: If any new actions are planned, such as expansion of operations or additional, new ground disturbance outside of previous NEPA, cultural resource assessment is required to determine if additional survey is needed prior to implementation.

SIGNIFICANCE DETERMINATION

No Action Alternative

The no action alternative would not adversely impact cultural resources within the subject property.

Proposed Action

The effects of the proposed action in combination with the reclamation of the site would not result in any cumulative effects on cultural resources.

5.3 OVERALL CUMULATIVE IMPACT ANALYSIS

The actions considered in the EA were considered within the context of past, present, and reasonably foreseeable future. Cumulative impacts are those changes to the physical, biological, and socioeconomic environments that would result from a proposed action when added to other past, ongoing, and reasonably foreseeable actions, regardless of what agency of government or person undertakes such other actions (40 CFR 1508.7). CEQ Regulations provide that the terms "cumulative impacts" and "cumulative effects" are synonymous (40 CFR § 1508.8[b]).

The cumulative impact analysis performed on the physical and biological characteristics evaluated in Sections 4.1 and 4.2 includes the past, present, and reasonably foreseeable actions at the Skoglund Gravel Pit that may have effects additive to the effects of the proposed action and that have had, continue to have, or would be expected to have some impact to the natural and human environment. These actions include past gravel pit operations dating back to 1986, present gravel pit operations, and the future expansion of the gravel pit and possible operation of an asphalt batch plant, followed by future site reclamation activities. A review of the proposed action's effects on the resources evaluated in Sections 4.1 and 4.2 when combined with the aforementioned past, present and reasonably foreseeable actions has determine that there are no significant impacts to the environment and public health.

6.0 LIST OF PREPARERS, REVIEWERS, AGENCIES, AND PERSONS CONSULTED

Individuals responsible for the preparation of this EA are summarized in Table 3.

Table 3. List of Preparers

Name Company/Affiliation	Expertise/Experience	Role in Preparation
Nick Sandoval Project Manager/Geologist BLM, San Luis Valley Public Land Center	Project Management	Oversight/Coordination and Document Review Provide Background Information on Site
Erin Leifield Archaeologist BLM	Cultural Resources	Coordination, Document Review
David Killam Project Manager, Cultural Resources Division RMC Consultants, Inc.	Cultural Resources	Preparation of Limited-Results Cultural Resource Survey
Eric Hendrickson Archaeologist/GIS Specialist RMC Consultants, Inc.	Cultural Resources	Assist with Limited-Results Cultural Resource Survey
Jennifer Hussey Senior Geologist RMC Consultants, Inc.	Environmental Site Investigations	Preparation of EA
David Groy Program Manager/Vice President RMC Consultants, Inc.	Environmental Program/Project Management	Oversight and Document Review

The following agencies and/or individuals were contacted/consulted during the preparation of this EA:

- Bureau of Land Management
  The following BLM representatives were consulted during preparation of this EA: Nick Sandoval (Project Manager), Dario Archuleta (Invasive Weeds Coordinator), Melissa Garcia (Wildlife Biologist), Mark Swinney (Range Specialist), Negussie Tedela (Hydrologist), Erin Leifeld (Archaeologist), Matt Anderson (Acting Field Office Manager), and Steve Sanchez (Natural Resource Specialist).

- Mr. Ken Skoglund
  RMC contacted Ken Skoglund, owner of Skoglund Excavating, to discuss site use, previous gravel pit mining activities, and the possible operation of a temporary asphalt batch plant. Mr. Skoglund also provided RMC with copies of the Reclamation Permit Application and attachments, and the 1986 EA.

- Colorado Department of Public Health and Environment
  RMC contacted the Water Quality Control Division to discuss types of Colorado Industrial Stormwater General Permits. RMC was informed that a light industry and sand and gravel permit would be applicable for the control of storm water at a site

with asphalt batch plant and gravel pit operations. RMC also reviewed requirements listed in Colorado's Stormwater Program Fact Sheet prepared by CDPHE.

- Office of Archaeology and Historic Preservation, Colorado Historical Society
  RMC examined cultural resources records for information on previous cultural resource investigations

7.0 REFERENCES

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Figures

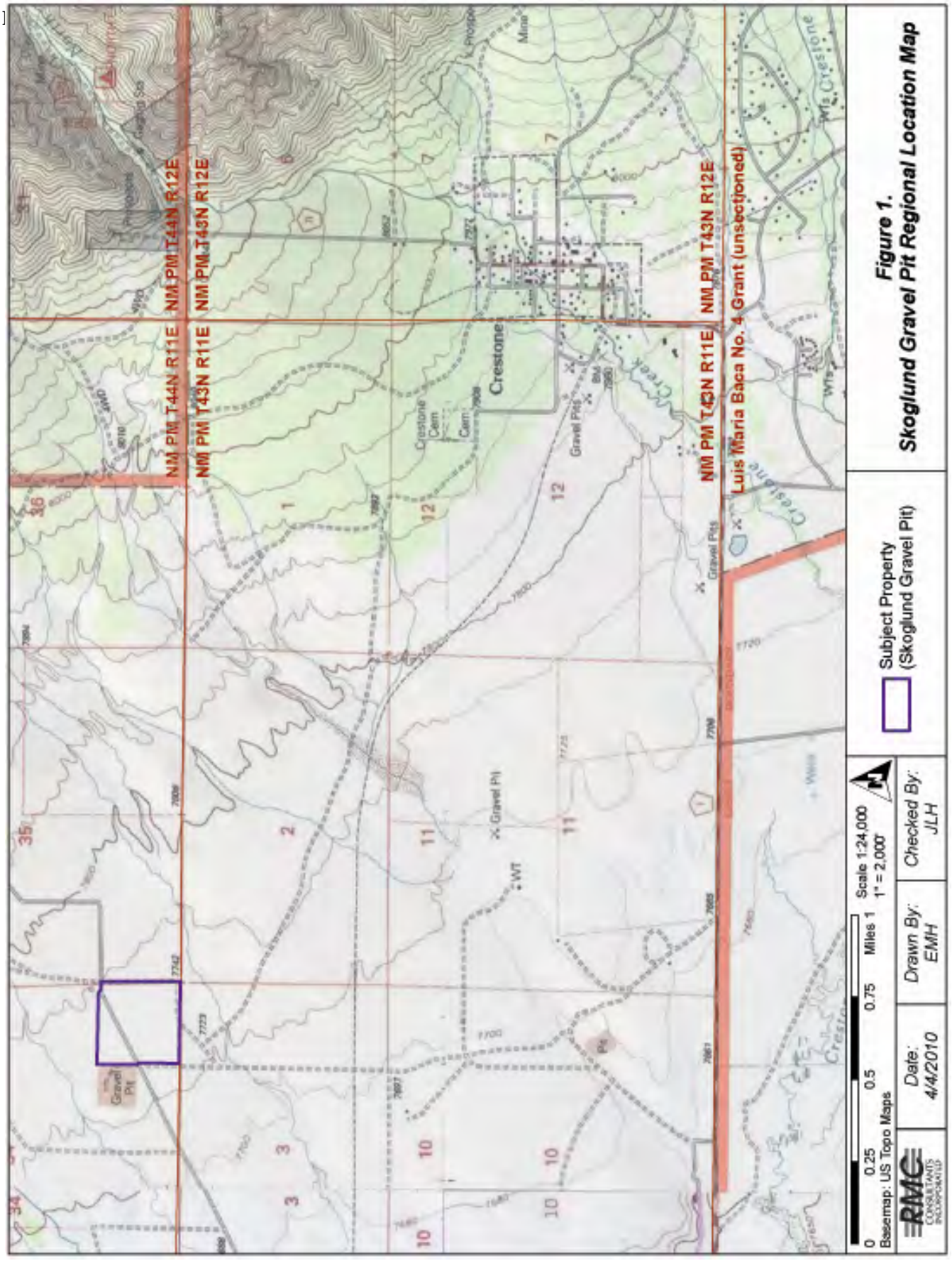

Figure 1.
Skoglund Gravel Pit Regional Location Map

Figure 2. Skoglund Gravel Pit Site Map

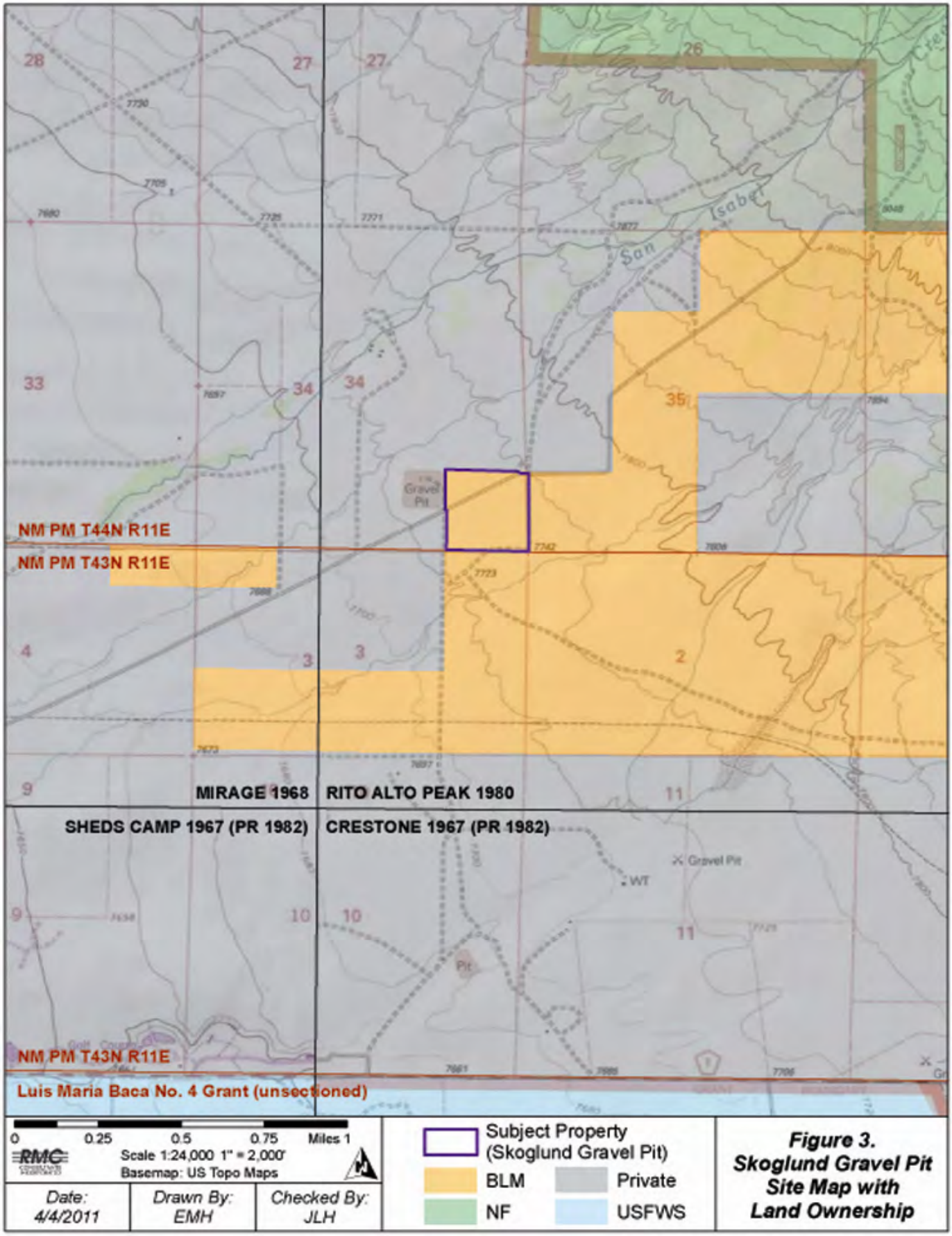

Figure 3. Skoglund Gravel Pit Site Map with Land Ownership

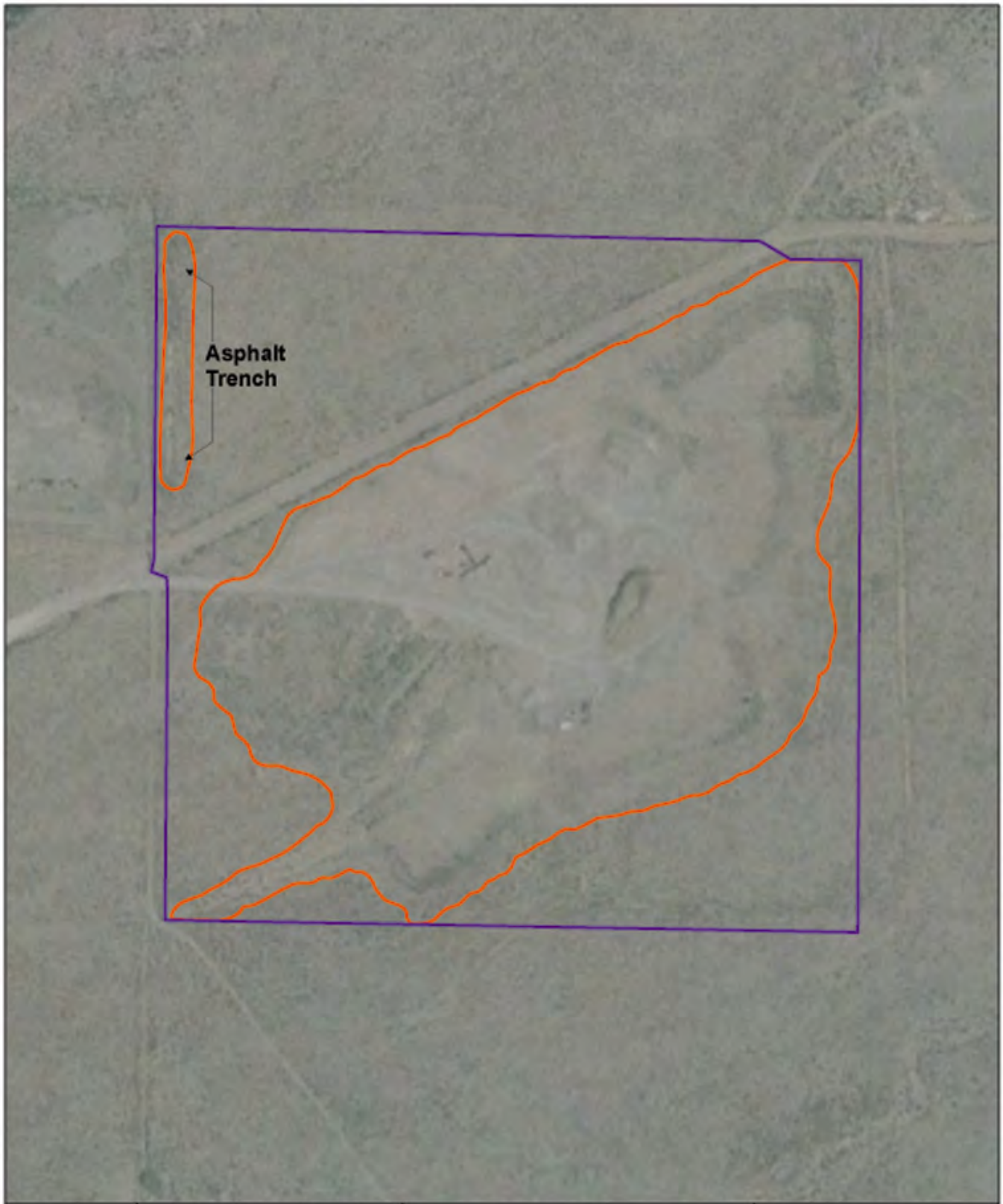

Figure 4.
Skoglund Gravel Pit
Site Features

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Appendix A
Environmental FirstSearch™ Report

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InfoMap
Technologies Incorporated

Environmental FirstSearch ™ Report

Target Property: SKOGLAND GRAVEL PIT

CRESTONE CO 81143

Job Number: C11.001.132, TASK 1

PREPARED FOR:

RMC Consultants, Inc

12295 W 48th Avenue, Unit A

Wheat Ridge, CO 80033

by Satisfi, Inc

720-200-9472

03-01-11

Tel: (610) 430-7530 *Fax: (610) 430-7535*

Environmental FirstSearch
Site Information Report

Request Date:	03-01-11	**Search Type:**	COORD
Requestor Name:	Brian Peterson	**Job Number:**	C11.001.132, TASK 1
Standard:	ASTM-05 ADD 1/4, NEPA	**Filtered Report**	

Target Site:

CRESTONE CO 81143

Demographics

Sites:	1	**Non-Geocoded:**	1	**Population:**	NA
Radon:	0.7 PCI/L				

Site Location

	Degrees (Decimal)	**Degrees (Min/Sec)**		**UTMs**
Longitude:	-105.741451	-105:44:29	**Easting:**	434912.231
Latitude:	38.013255	38::48	**Northing:**	4207339.35
Elevation:	7739		**Zone:**	13

Comment

Comment:

Additional Requests/Services

Adjacent ZIP Codes: 0 Mile(s)

ZIP Code	City Name	ST	Dist/Dir	Sel

Services:

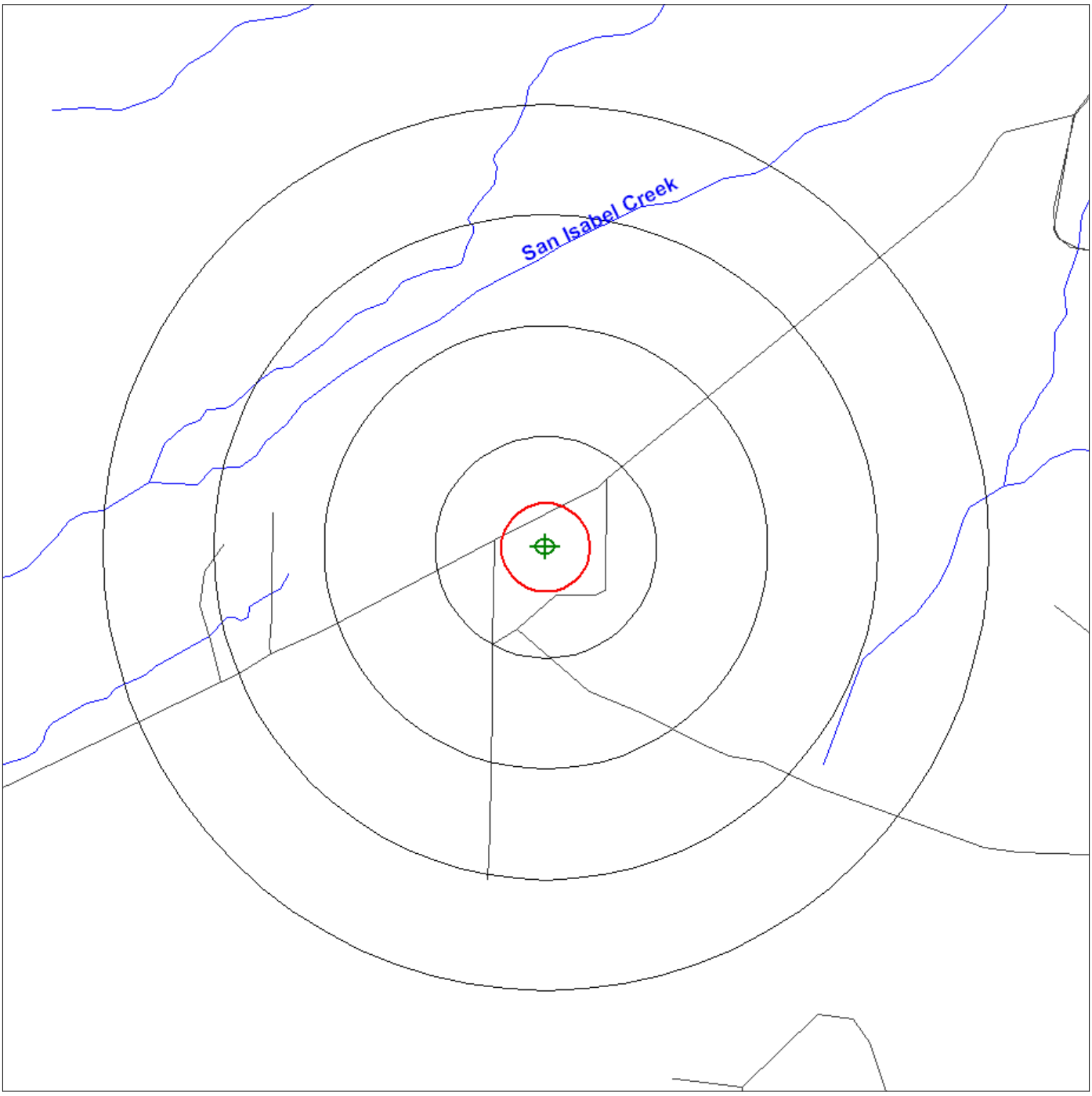
	Requested?	Date
Fire Insurance Maps	No	
Aerial Photographs	No	
Historical Topos	No	
City Directories	No	
Title Search/Env Liens	No	
Municipal Reports	No	
Online Topos	No	

Environmental FirstSearch

1 Mile Radius

Single Map:

, CRESTONE CO 81143



Source: 2005 U.S. Census TIGER Files

Target Site (Latitude: 38.013255 Longitude: -105.741451) .....

Identified Site, Multiple Sites, Receptor .....

NPL, DELNPL, Brownfield, Solid Waste Landfill (SWL), Hazardous Waste

Triballand.....

National Historic Sites and Landmark Sites .....

Railroads .....

Black Rings Represent 1/4 Mile Radius; Red Ring Represents 500 ft. Radius

Area of Critical Environmental Concern (ACEC), Protected Open Spaces

Estimated Habitats of Rare Wetlands Wildlife, Vernal Pool .....

Floodplains: 100 Year, 500 Year .....

Wetlands .....

Fed. Land Use: Wilderness Areas, Wildlife Preserves .....

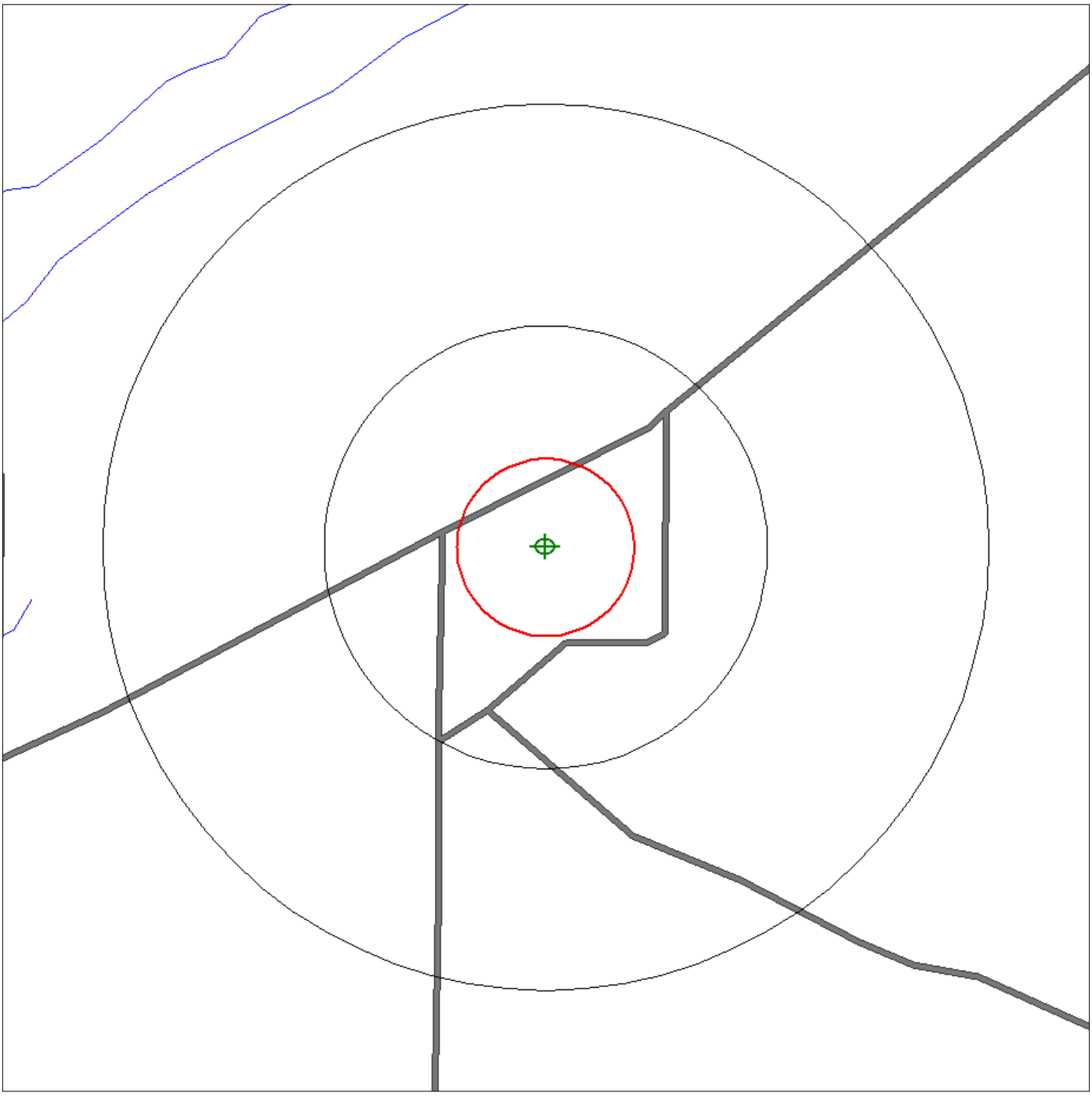
Fed. Land Use: Amer. Indian Sacred Sites, Endangered Species' Habitats..

Environmental FirstSearch

.5 Mile Radius

Single Map:

, CRESTONE CO 81143



Source: 2005 U.S. Census TIGER Files

Target Site (Latitude: 38.013255 Longitude: -105.741451) .....

Identified Site, Multiple Sites, Receptor .....

NPL, DELNPL, Brownfield, Solid Waste Landfill (SWL), Hazardous Waste

Triballand.....

National Historic Sites and Landmark Sites .....

Railroads .....

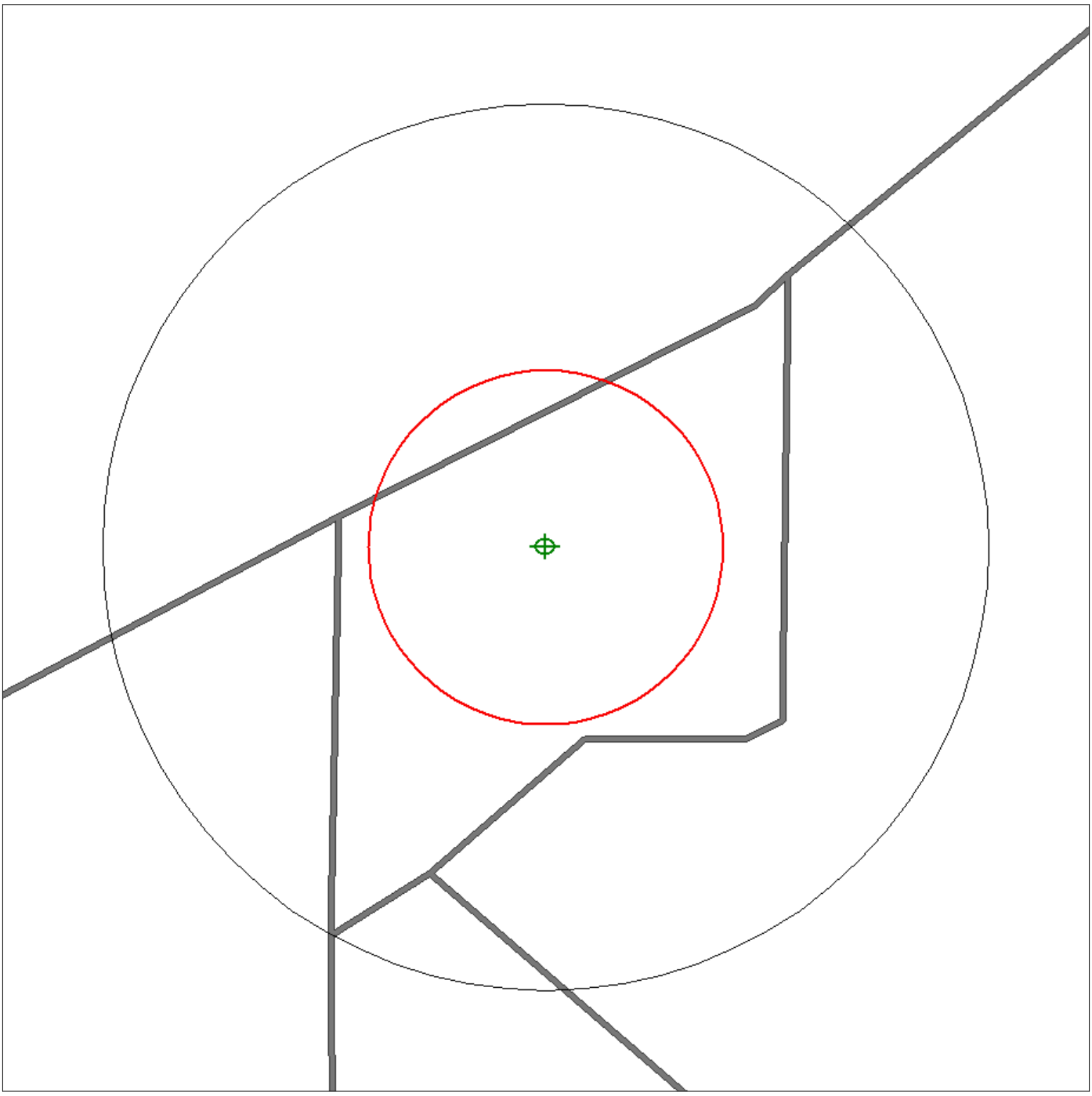
Black Rings Represent 1/4 Mile Radius; Red Ring Represents 500 ft. Radius

Environmental FirstSearch

.25 Mile Radius

Single Map:

, CRESTONE CO 81143



Source: 2005 U.S. Census TIGER Files

Target Site (Latitude: 38.013255 Longitude: -105.741451) .....

Identified Site, Multiple Sites, Receptor .....

NPL, DELNPL, Brownfield, Solid Waste Landfill (SWL), Hazardous Waste

Triballand.....

National Historic Sites and Landmark Sites .....

Railroads .....

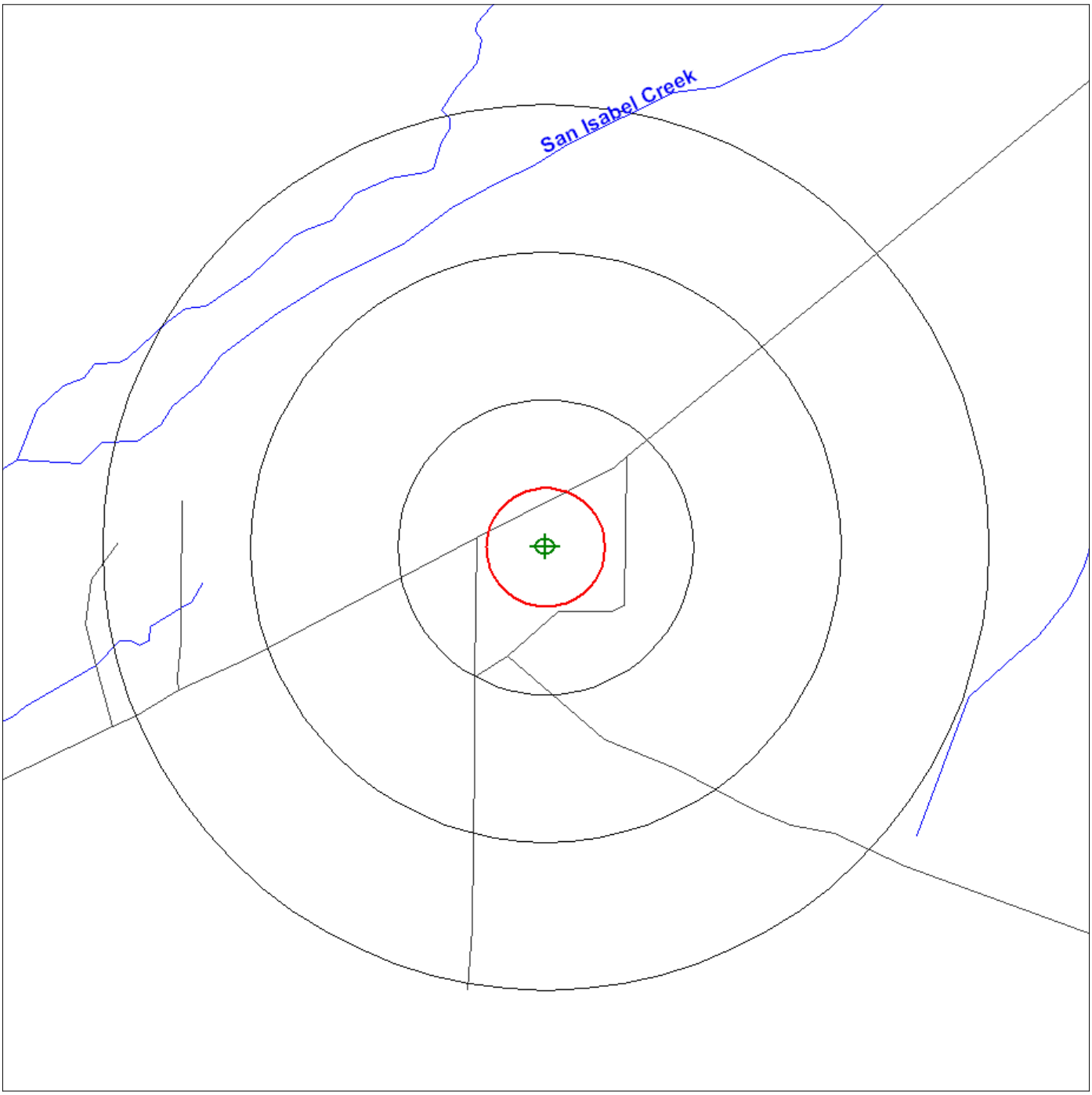
Black Rings Represent 1/4 Mile Radius; Red Ring Represents 500 ft. Radius

Environmental FirstSearch

.75 Mile Radius

NEPA Map: WETLANDS

, CRESTONE CO 81143



Source: 2005 U.S. Census TIGER Files

Target Site (Latitude: 38.013255 Longitude: -105.741451) ..

Identified Site, Multiple Sites, Receptor .....

Wetlands .....

Railroads .....

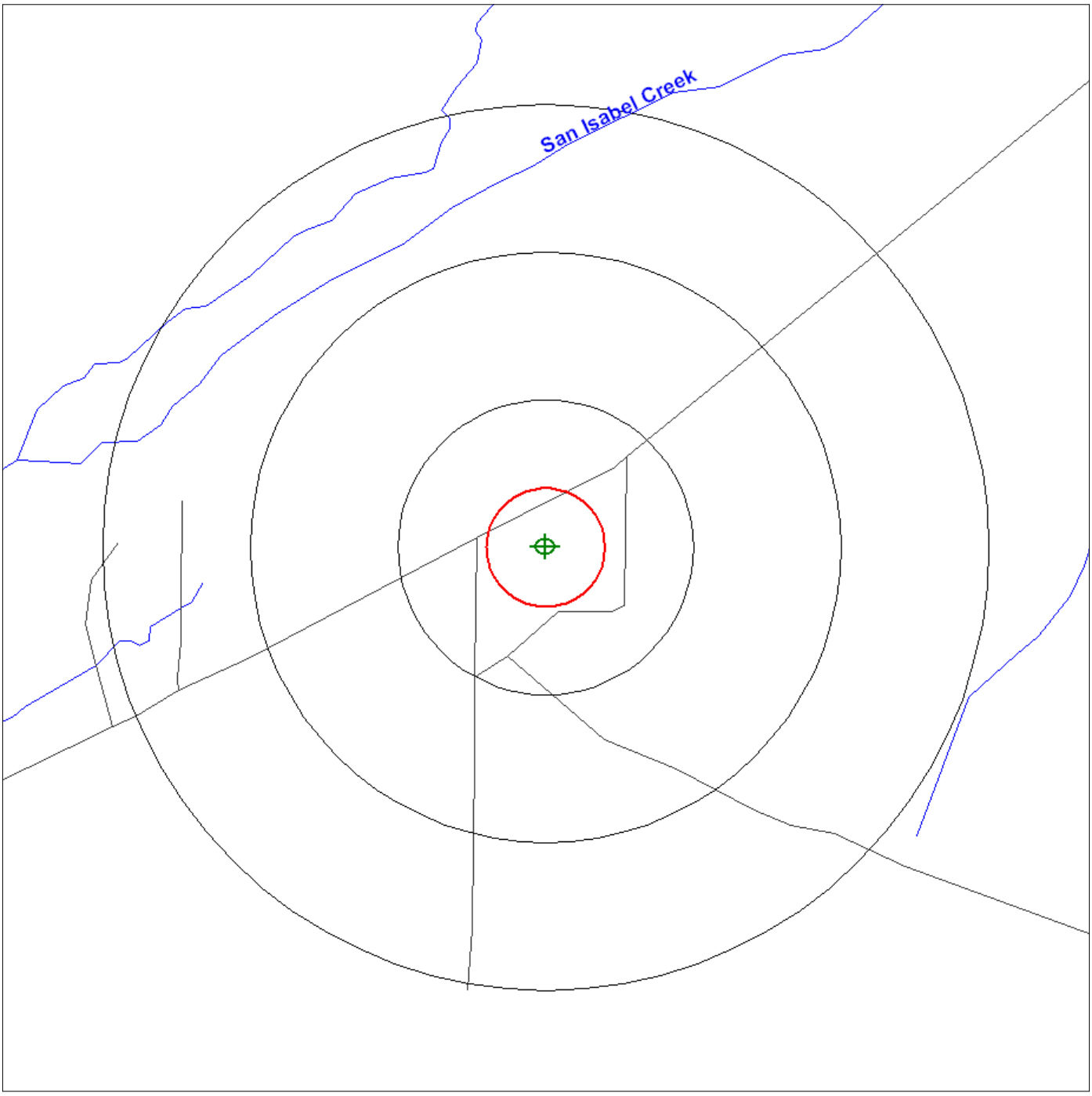
Black Rings Represent 1/4 Mile Radii; Red Ring Represents 500 ft. Radius

Environmental FirstSearch

.75 Mile Radius

NEPA Map: FLOODPLAINS

, CRESTONE CO 81143



Source: 2005 U.S. Census TIGER Files

Target Site (Latitude: 38.013255 Longitude: -105.741451) .....

Identified Site, Multiple Sites, Receptor .....

Floodplains: 100 Year, 500 Year .....

Railroads .....

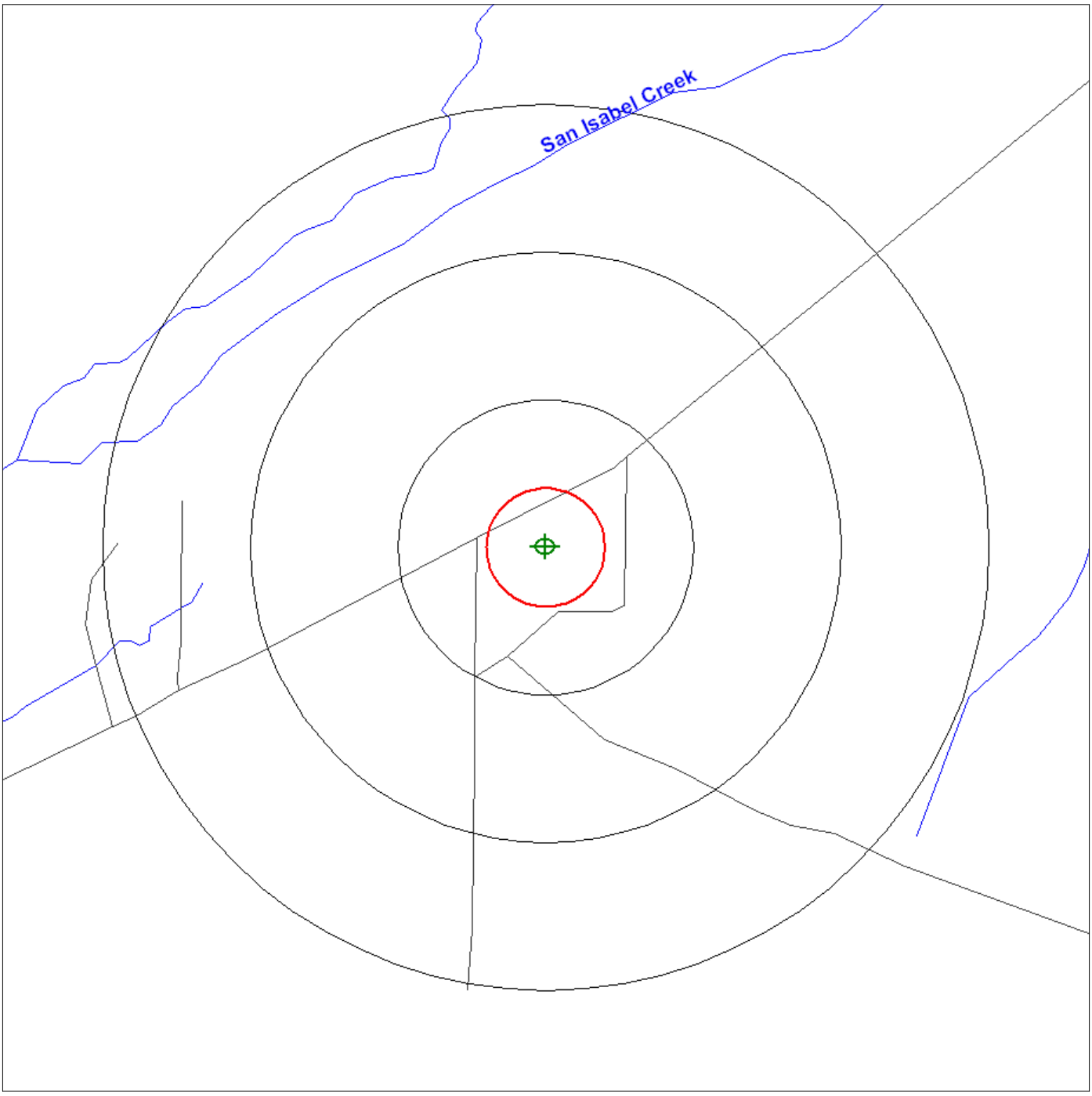
Black Rings Represent 1/4 Mile Radii; Red Ring Represents 500 ft. Radius

Environmental FirstSearch

.75 Mile Radius

NEPA Map: ACEC SITES

, CRESTONE CO 81143



Source: 2005 U.S. Census TIGER Files

Target Site (Latitude: 38.013255 Longitude: -105.741451) .....

Receptor .....

Area of Critical Environmental Concern (ACEC), Protected Open Spaces

Railroads .....

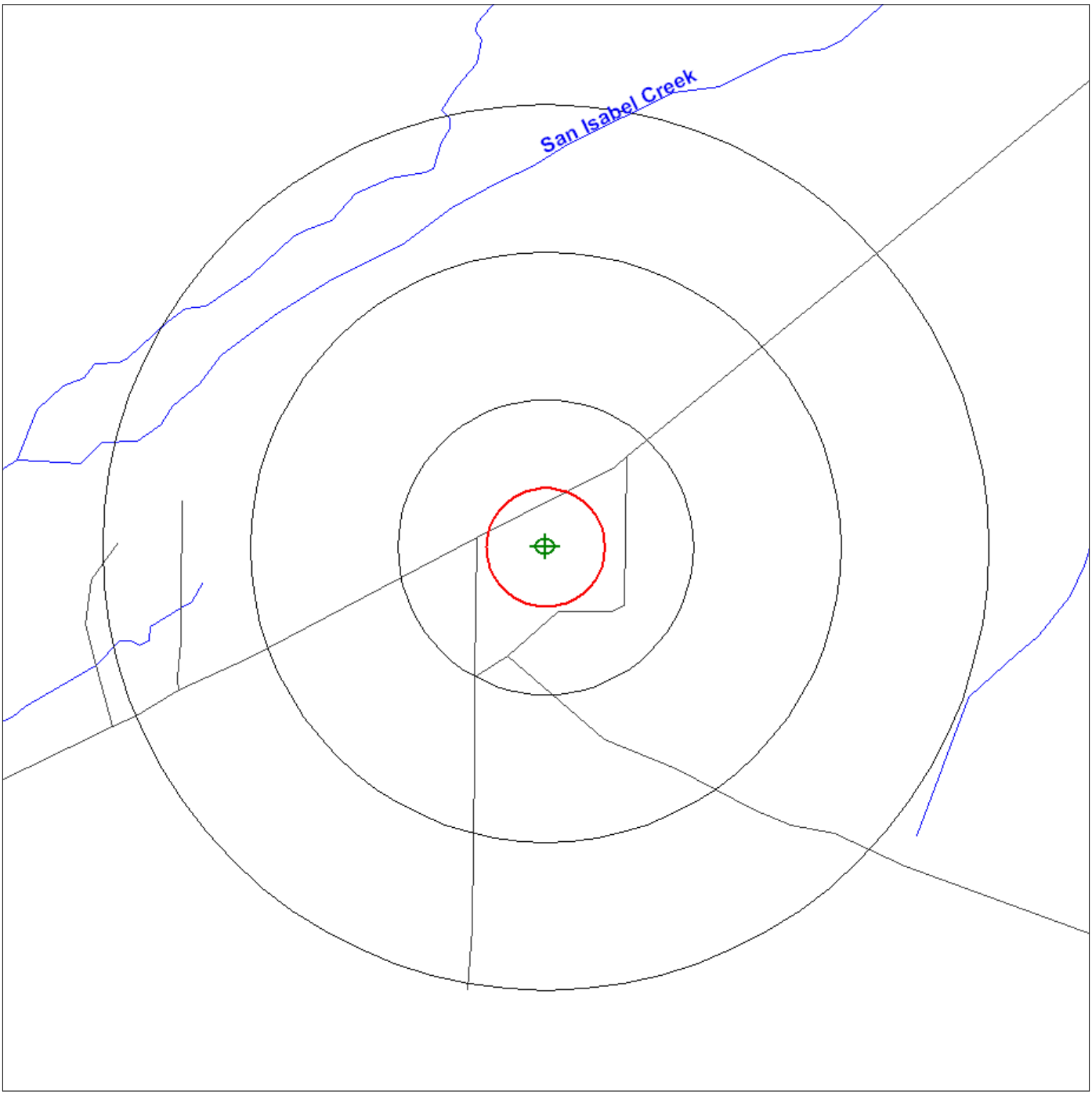
Black Rings Represent 1/4 Mile Radii; Red Ring Represents 500 ft. Radius

Environmental FirstSearch

.75 Mile Radius

NEPA Map: HISTORIC SITES

, CRESTONE CO 81143



Source: 2005 U.S. Census TIGER Files

Target Site (Latitude: 38.013255 Longitude: -105.741451) .....

Receptor .....

National Historic Sites and Landmark Sites .....

Railroads .....

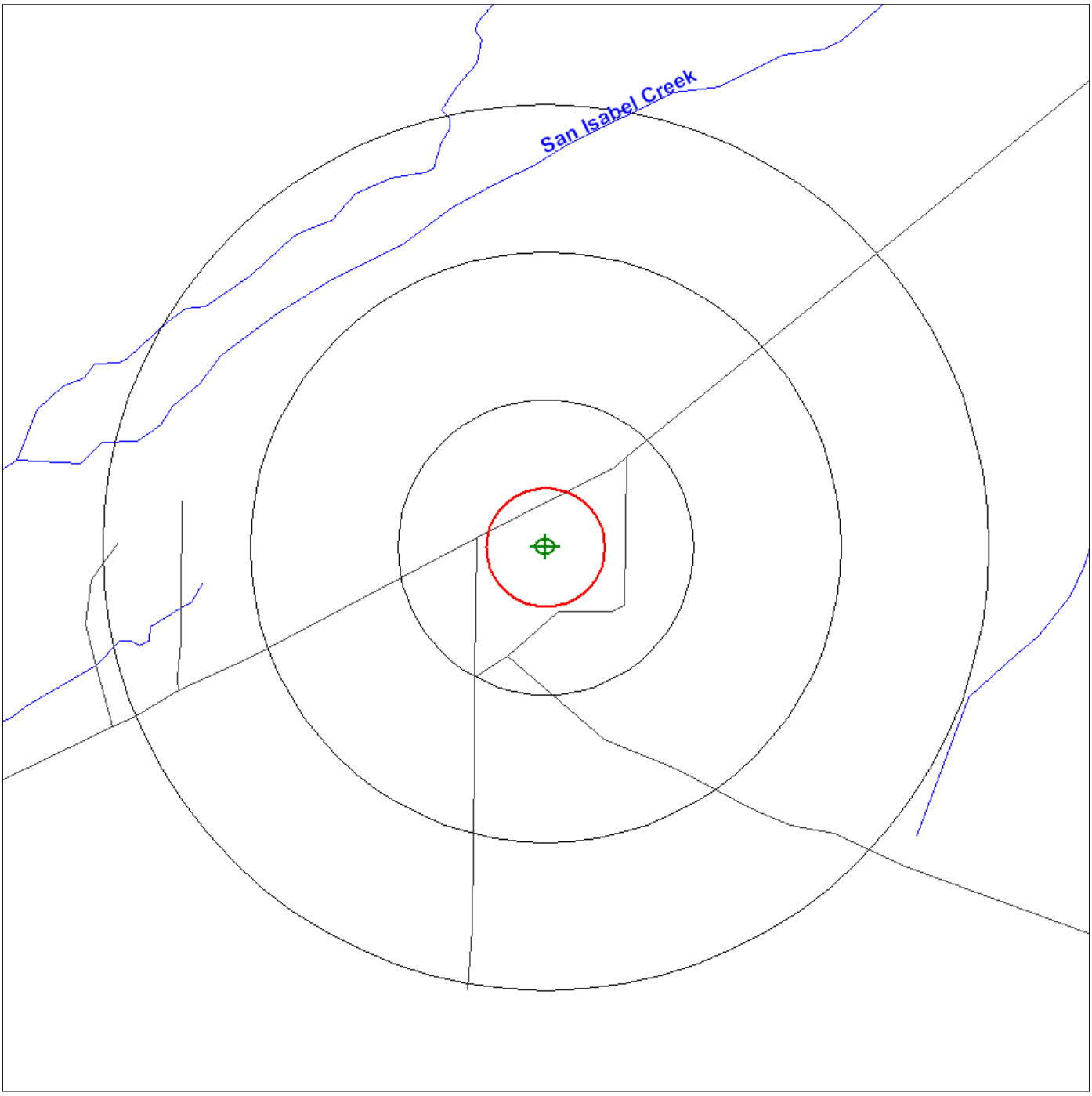
Black Rings Represent 1/4 Mile Radii; Red Ring Represents 500 ft. Radius

Environmental FirstSearch

.75 Mile Radius

NEPA Map: LANDUSE

, CRESTONE CO 81143



Source: 2005 U.S. Census TIGER Files

Target Site (Latitude: 38.013255 Longitude: -105.741451) .....

Receptor .....

Fed. Land Use: Wilderness Areas .....

Fed. Land Use: Wildlife Preserves .....

Fed. Land Use: Amer. Indian Sacred Sites.....

Fed. Land Use: Endangered Species' Habitats.....

Railroads .....

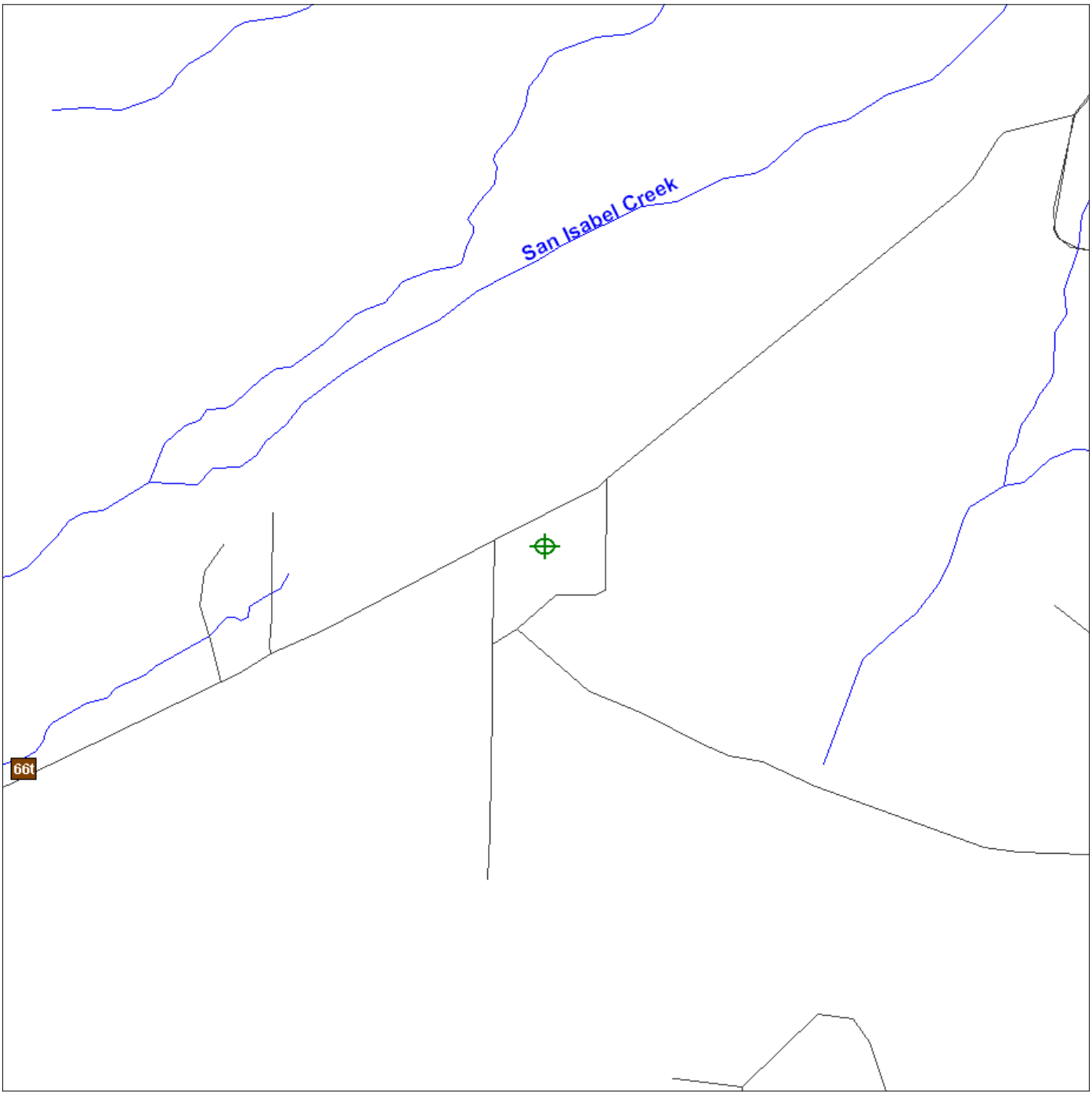
Black Rings Represent 1/4 Mile Radii; Red Ring Represents 500 ft. Radius

Environmental FirstSearch

1 Mile Radius

Site Locus Map:

, CRESTONE CO 81143



Source: 2005 U.S. Census TIGER Files

Target Site (Latitude: 38.013255 Longitude: -105.741451) .....

Identified Site, Multiple Sites, Receptor .....

NPL, DELNPL, Brownfield, Solid Waste Landfill (SWL), Hazardous Waste

Triballand.....

Railroads .....

Black Rings Represent 1/4 Mile Radius; Red Ring Represents 500 ft. Radius

Environmental FirstSearch
Search Summary Report

Target Site:

CRESTONE CO 81143

FirstSearch Summary

Database	Sel	Updated	Radius	Site	1/8	1/4	1/2	1/2>	ZIP	TOTALS
NPL	Y	10-21-10	1.25	0	0	0	0	0	0	0
NPL Delisted	Y	10-21-10	0.75	0	0	0	0	0	0	0
CERCLIS	Y	11-30-10	0.75	0	0	0	0	0	0	0
NFRAP	Y	11-30-10	0.75	0	0	0	0	0	0	0
RCRA COR ACT	Y	11-10-10	1.25	0	0	0	0	0	0	0
RCRA TSD	Y	11-10-10	0.75	0	0	0	0	0	0	0
RCRA GEN	Y	11-10-10	0.50	0	0	0	0	-	0	0
RCRA NLR	Y	11-10-10	0.50	0	0	0	0	-	0	0
Federal Brownfield	Y	12-10-10	0.50	0	0	0	0	-	0	0
ERNS	Y	01-24-11	0.50	0	0	0	0	-	0	0
Tribal Lands	Y	12-01-05	1.25	0	0	0	0	0	0	0
State/Tribal Sites	Y	08-01-07	1.25	0	0	0	0	0	0	0
State Spills 90	Y	01-06-11	0.50	0	0	0	0	-	0	0
State/Tribal SWL	Y	01-15-05	0.75	0	0	0	0	0	0	0
State/Tribal LUST	Y	01-04-11	0.75	0	0	0	0	0	0	0
State/Tribal UST/AST	Y	01-04-11	0.50	0	0	0	0	-	0	0
State/Tribal EC	Y	01-04-11	0.50	0	0	0	0	-	0	0
State/Tribal VCP	Y	11-11-10	0.75	0	0	0	0	0	0	0
State ACEC	Y	NA	0.75	0	0	0	0	0	0	0
Wetlands	Y	11-20-00	0.75	0	0	0	0	0	0	0
Floodplains	Y	NA	0.75	0	0	0	0	0	0	0
Historic Landmarks	Y	08-01-10	0.75	0	0	0	0	0	0	0
Federal Land Use	Y	08-01-06	0.75	0	0	0	0	0	1	1
FAA/FTC Towers	Y	01-04-11	0.75	0	0	0	0	0	0	0
Federal IC/EC	Y	11-04-10	0.50	0	0	0	0	-	0	0
Meth Labs	Y	10-21-10	0.50	0	0	0	0	-	0	0
- TOTALS -				0	0	0	0	0	1	1

Notice of Disclaimer

Due to the limitations, constraints, inaccuracies and incompleteness of government information and computer mapping data currently available to InfoMap Technologies, certain conventions have been utilized in preparing the locations of all federal, state and local agency sites residing in InfoMap Technologies's databases. All EPA sites are depicted by a rectangle approximating their location and size. The boundaries of the rectangles represent NPL and state landfill the eastern and western most longitudes; the northern and southern most latitudes. As such, the mapped areas may exceed the actual areas and do not represent the actual boundaries of these properties. All other sites are depicted by a point representing their approximate address location and make no attempt to represent the actual areas of the associated property. Actual boundaries and locations of individual properties can be found in the files residing at the agency responsible for such information.

Waiver of Liability

Although InfoMap Technologies uses its best efforts to research the actual location of each site, InfoMap Technologies does not and can not warrant the accuracy of these sites with regard to exact location and size. All authorized users of InfoMap Technologies's services proceeding are signifying an understanding of InfoMap Technologies's searching and mapping conventions, and agree to waive any and all liability claims associated with search and map results showing incomplete and or inaccurate site locations.

Environmental FirstSearch
Sites Summary Report

Target Property: CRESTONE CO 81143

JOB: C11.001.132, TASK 1

TOTAL: 1 **GEOCODED:** 0 **NON GEOCODED:** 1 **SELECTED:** 1

Map ID	Dist/Dir	DB Type	Site Name/ID/Status	Address	ElevDiff	Page No.
	NON GC	*LANDUSE*	*ENDANGERED SPECIES 08109-81143/NEPA*	*UNKNOWN MOFFAT CO 81143*	*N/A*	*0*

Environmental FirstSearch
Site Detail Report

Target Property: CRESTONE CO 81143

JOB: C11.001.132, TASK 1

LANDUSE

SEARCH ID: 1 **DIST/DIR:** NON GC **ELEVATION:** **MAP ID:**

NAME: ENDANGERED SPECIES
ADDRESS: UNKNOWN
MOFFAT CO 81143
SAGUACHE
CONTACT:
SOURCE: EPA

REV: 12/31/99
ID1: 08109-81143
ID2: 08109
STATUS: NEPA
PHONE:

EPA ENDANGERED SPECIES

COMMON NAME: EAGLE, BALD
SCIENTIFIC NAME: HALIAEETUS LEUCOCEPHALUS
EXISTENCE OF SPECIES: KNOWN **SPECIES STATUS:** THREATENED
TAXONOMIC GROUP : BIRD **ACTION:** LISTING
DATE FILE RELEASED: 1/31/2000 **FAMILY:** ACCIPITRIDAE
FINAL FWS LISTING: 78-02-14

COMMON NAME: FERRET, BLACK-FOOTED
SCIENTIFIC NAME: MUSTELA NIGRIPES
EXISTENCE OF SPECIES: POSSIBLE **SPECIES STATUS:** ENDANGERED, NONESSENTIAL EXPERIMENTAL POPULATION
TAXONOMIC GROUP : MAMMAL **ACTION:** LISTING
DATE FILE RELEASED: 1/31/2000 **FAMILY:** MUSTELIDAE
FINAL FWS LISTING: 67-03-11

COMMON NAME: PLOVER, MOUNTAIN
SCIENTIFIC NAME: CHARADRIUS MONTANUS
EXISTENCE OF SPECIES: KNOWN **SPECIES STATUS:** THREATENED
TAXONOMIC GROUP : BIRD **ACTION:** PROPOSED
DATE FILE RELEASED: 1/31/2000 **FAMILY:** CHARADRIDAE
FINAL FWS LISTING: 99-02-16

COMMON NAME: BUTTERFLY, UNCOMPAHGRE FRITILLARY
SCIENTIFIC NAME: BOLORIA ACROCNEMA
EXISTENCE OF SPECIES: KNOWN **SPECIES STATUS:** ENDANGERED
TAXONOMIC GROUP : INSECT **ACTION:** LISTING
DATE FILE RELEASED: 1/31/2000 **FAMILY:** NYMPHALIDAE
FINAL FWS LISTING: 91-06-24

COMMON NAME: OWL, MEXICAN SPOTTED
SCIENTIFIC NAME: OWL, MEXICAN SPOTTED
EXISTENCE OF SPECIES: POSSIBLE **SPECIES STATUS:** THREATENED
TAXONOMIC GROUP : BIRD **ACTION:** LISTING
DATE FILE RELEASED: 1/31/2000 **FAMILY:**
FINAL FWS LISTING: 93-03-16

ENDANGERED SPECIES INFORMATION IS OBTAINED AT THE COUNTY LEVEL AND MAY OR MAY NOT BE APPLICABLE TO THIS TARGET SITE.

Environmental FirstSearch Descriptions

NPL: ***EPA*** NATIONAL PRIORITY LIST - The National Priorities List is a list of the worst hazardous waste sites that have been identified by Superfund. Sites are only put on the list after they have been scored using the Hazard Ranking System (HRS), and have been subjected to public comment. Any site on the NPL is eligible for cleanup using Superfund Trust money.
A Superfund site is any land in the United States that has been contaminated by hazardous waste and identified by the Environmental Protection Agency (EPA) as a candidate for cleanup because it poses a risk to human health and/or the environment.
FINAL - Currently on the Final NPL
PROPOSED - Proposed for NPL

NPL DELISTED: ***EPA*** NATIONAL PRIORITY LIST Subset - Database of delisted NPL sites. The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.
DELISTED - Deleted from the Final NPL

CERCLIS: ***EPA*** COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY INFORMATION SYSTEM (CERCLIS)- CERCLIS is a database of potential and confirmed hazardous waste sites at which the EPA Superfund program has some involvement. It contains sites that are either proposed to be or are on the National Priorities List (NPL) as well as sites that are in the screening and assessment phase for possible inclusion on the NPL.
PART OF NPL- Site is part of NPL site
DELETED - Deleted from the Final NPL
FINAL - Currently on the Final NPL
NOT PROPOSED - Not on the NPL
NOT VALID - Not Valid Site or Incident
PROPOSED - Proposed for NPL
REMOVED - Removed from Proposed NPL
SCAN PLAN - Pre-proposal Site
WITHDRAWN - Withdrawn

NFRAP: ***EPA*** COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY INFORMATION SYSTEM ARCHIVED SITES - database of Archive designated CERCLA sites that, to the best of EPA's knowledge, assessment has been completed and has determined no further steps will be taken to list this site on the National Priorities List (NPL). This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.
NFRAP – No Further Remedial Action Plan
P - Site is part of NPL site
D - Deleted from the Final NPL
F - Currently on the Final NPL
N - Not on the NPL
O - Not Valid Site or Incident
P - Proposed for NPL
R - Removed from Proposed NPL
S - Pre-proposal Site
W – Withdrawn

RCRA COR ACT: ***EPA*** RESOURCE CONSERVATION AND RECOVERY INFORMATION SYSTEM SITES - Database of hazardous waste information contained in the Resource Conservation and Recovery Act Information (RCRAInfo), a national program management and inventory system about hazardous waste handlers. In general, all generators, transporters, treaters, storers, and disposers of hazardous waste are required to provide information about their activities to state environmental agencies. These agencies, in turn pass on the information to regional and national EPA offices. This regulation is governed by the Resource Conservation and Recovery Act (RCRA), as amended by the Hazardous and Solid Waste Amendments of 1984.
RCRAInfo facilities that have reported violations and subject to corrective actions.

RCRA TSD: ***EPA*** RESOURCE CONSERVATION AND RECOVERY INFORMATION SYSTEM TREATMENT, STORAGE, and DISPOSAL FACILITIES. - Database of hazardous waste information contained in the Resource Conservation and Recovery Act Information (RCRAInfo), a national program management and inventory system about hazardous waste handlers. In general, all generators, transporters, treaters, storers, and disposers of hazardous waste are required to provide information about their activities to state environmental agencies. These agencies, in turn pass on the information to regional and national EPA offices. This regulation is governed by the Resource Conservation and Recovery Act (RCRA), as amended by the Hazardous and Solid Waste Amendments of 1984.
Facilities that treat, store, dispose, or incinerate hazardous waste.

RCRA GEN: ***EPA/MA DEP/CT DEP*** RESOURCE CONSERVATION AND RECOVERY INFORMATION SYSTEM GENERATORS - Database of hazardous waste information contained in the Resource Conservation and Recovery Act Information (RCRAInfo), a national program management and inventory system about hazardous waste handlers. In general, all generators, transporters, treaters, storers, and disposers of hazardous waste are required to provide information about their activities to state environmental agencies. These agencies, in turn pass on the information to regional and national EPA offices. This regulation is governed by the Resource Conservation and Recovery Act (RCRA), as amended by the Hazardous and Solid Waste Amendments of 1984.
Facilities that generate or transport hazardous waste or meet other RCRA requirements.
LGN - Large Quantity Generators
SGN - Small Quantity Generators
VGN – Conditionally Exempt Generator.
Included are RAATS (RCRA Administrative Action Tracking System) and CMEL (Compliance Monitoring & Enforcement List) facilities.
CONNECTICUT HAZARDOUS WASTE MANIFEST – Database of all shipments of hazardous waste within, into or from Connecticut. The data includes date of shipment, transporter and TSD info, and material shipped and quantity. This data is appended to the details of existing generator records.
MASSACHUSETTES HAZARDOUS WASTE GENERATOR – database of generators that are regulated under the MA DEP.
VQN-MA = generates less than 220 pounds or 27 gallons per month of hazardous waste or waste oil.
SQN-MA = generates 220 to 2,200 pounds or 27 to 270 gallons per month of waste oil.
LQG-MA = generates greater than 2,200 lbs of hazardous waste or waste oil per month.

RCRA NLR: ***EPA*** RESOURCE CONSERVATION AND RECOVERY INFORMATION SYSTEM SITES - Database of hazardous waste information contained in the Resource Conservation and Recovery Act Information (RCRAInfo), a national program management and inventory system about hazardous waste handlers. In general, all generators, transporters, treaters, storers, and disposers of hazardous waste are required to provide information about their activities to state environmental agencies. These agencies, in turn pass on the information to regional and national EPA offices. This regulation is governed by the Resource Conservation and Recovery Act (RCRA), as amended by the Hazardous and Solid Waste Amendments of 1984.
Facilities not currently classified by the EPA but are still included in the RCRAInfo database. Reasons for non classification:
Failure to report in a timely matter.
No longer in business.
No longer in business at the listed address.
No longer generating hazardous waste materials in quantities which require reporting.

ERNS: ***EPA/NRC*** EMERGENCY RESPONSE NOTIFICATION SYSTEM (ERNS) - Database of incidents reported to the National Response Center. These incidents include chemical spills, accidents involving chemicals (such as fires or explosions), oil spills, transportation accidents that involve oil or chemicals, releases of radioactive materials, sightings of oil sheens on bodies of water, terrorist incidents involving chemicals, incidents where illegally dumped chemicals have been found, and drills intended to prepare responders to handle these kinds of incidents. Data since January 2001 has been received from the National Response System database as the EPA no longer maintains this data.

Tribal Lands: ***DOI/BIA*** INDIAN LANDS OF THE UNITED STATES - Database of areas with boundaries established by treaty, statute, and (or) executive or court order, recognized by the Federal Government as territory in which American Indian tribes have primary governmental authority. The Indian Lands of the United States map layer shows areas of 640 acres or more, administered by the Bureau of Indian Affairs. Included are

Federally-administered lands within a reservation which may or may not be considered part of the reservation.
BUREAU OF INDIAN AFFIARS CONTACT - Regional contact information for the Bureau of Indian Affairs offices.

State/Tribal Sites: ***CDPHE*** CO SPL - Colorado does not have an official State Priority List (SPL). However, there are a number of sites that the state seems to place in this sort of category. Some are officially a Natural Resource Damages Site (NRDS) or Private Cleanup Site (Non-Superfund), but they're listed on the state's web page of Superfund sites (www.cdphe.state.co.us/hm/sf_sites.htm). Others are UMTRA (Uranium Mill Tailing Remedial Action) mill tailing cleanup sites (www.cdphe.state.co.us/hm/umsites.htm). Thousands of UMTRA "vicinity properties" have also been identified where mill tailings were used as sand in concrete, roadbase, trenches, bricks, etc. Such properties have been remediated in Durango, Grand Junction, Fruita, Palisade, Gunnison, Maybell, Naturita and Rifle, but some unidentified tailings may still remain in and around these communities. CDPHE's list of vicinity properties is not publicly available and was not searched for this report. Property-specific information is available through the CDPHE Grand Junction office. See www.cdphe.state.co.us/hm/rptailng.htm.

State Spills 90: ***CDPHE*** ENVIRONMENTAL RELEASE AND INCIDENT DATABASE - This is a database of reported spills in Colorado.

State/Tribal SWL: ***CDPHE*** DATABASE OF ACTIVE SOLID WASTE MANAGEMENT FACILITIES - Listing of Active solid waste facilities and transfer stations.
DATABASE OF ACTIVE SOLID WASTE MANAGEMENT FACILITIES - Listing of Active solid waste facilities and transfer stations.
CO Historic Landfills - This proprietary database represents a compilation of eleven local, regional and state agency sources. The agencies generated these lists on a one-time basis and do not expect to update them. A more detailed description of the applicable source is included with any findings reported from this database. The eleven sources are:
1. Adams County CO Old Landfills
2. Arapahoe County CO Old Landfills
3. Douglas County CO Old Landfills
4. Weld County CO Old Landfills
5. Boulder County CO Old Landfills
6. Jefferson County CO Old Landfills
7. Denver CO Methane Study
8. CO Methane Study
9. DRCOG Methane Study
10. Denver CO Old Fil Sites
11. CO Old Waste Sites

State/Tribal LUST: ***COSTIS*** DATABASE OF LEAKING UNDERGROUND STORAGE TANKS - Colorado Department of Labor and Employment’s Colorado Storage Tank Information System (COSTIS) provides this data.
LUST Trust Tanks - This is an old list of locations where tank leaks were suspected and LUST (Leaking Underground Storage Tank) Trust funds were used in an effort to identify the source. Often, the facility responsible for the leak was found nearby, and that facility was then entered into the LUST database. In other cases, however, the source was never identified, and nothing was ever entered into the LUST database. When responsibility for the tank program was transferred from CDPHE (Colorado Department of Public Health & Environment) to CDLE (Colorado Department of Labor & Employment) in the '90s, this old LUST Trust list was never entered into the new COSTIS database (Colorado Storage Tank Information System). Few people at CDLE are aware of this old list, and any files associated with the listings have apparently been discarded or misplaced.

State/Tribal UST/AST: ***COSTIS*** DATABASE OF UNDERGROUND STORAGE TANKS - Colorado Department of Labor and Employment’s Colorado Storage Tank Information System (COSTIS) provides this data.

State/Tribal EC: ***CDPHE*** ENVIRONMENTAL COVENANTS - Senate Bill 01-145 gave authority to the Colorado Department of Public Health and Environment to approve requests to restrict the future use of a property using an enforceable agreement called an environmental covenant. When a contaminated site is not cleaned up completely, land use restrictions may be used to ensure that the selected cleanup remedy is

adequately protective of human health and the environment.

State/Tribal VCP: ***CDPHE*** THE VOLUNTARY CLEANUP AND REDEVELOPMENT PROGRAM PROGRAM - The Voluntary Cleanup and Redevelopment program was created in 1994. The objective of the program is to facilitate the redevelopment and transfer of contaminated properties. Cleanup decisions are based on existing standards and the proposed use of the property. The actual cleanup and verification is the owner's responsibility.

RADON: ***NTIS*** NATIONAL RADON DATABASE - EPA radon data from 1990-1991 national radon project collected for a variety of zip codes across the United States.

Meth Labs: ***US DOJ*** NATIONAL CLANDESTINE LABORATORY REGISTER - Database of addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the U.S. Department of Justice ("the Department"), and the Department has not verified the entry and does not guarantee its accuracy. All sites that are included in this data set will have an id that starts with NCLR.

Environmental FirstSearch Database Sources

NPL: ***EPA*** Environmental Protection Agency

Updated quarterly

NPL DELISTED: ***EPA*** Environmental Protection Agency

Updated quarterly

CERCLIS: ***EPA*** Environmental Protection Agency

Updated quarterly

NFRAP: ***EPA*** Environmental Protection Agency.

Updated quarterly

RCRA COR ACT: ***EPA*** Environmental Protection Agency.

Updated quarterly

RCRA TSD: ***EPA*** Environmental Protection Agency.

Updated quarterly

RCRA GEN: ***EPA/MA DEP/CT DEP*** Environmental Protection Agency, Massachusetts Department of Environmental Protection, Connecticut Department of Environmental Protection

Updated quarterly

RCRA NLR: ***EPA*** Environmental Protection Agency

Updated quarterly

ERNS: ***EPA/NRC*** Environmental Protection Agency

Updated annually

Tribal Lands: ***DOI/BIA*** United States Department of the Interior

Updated annually

State/Tribal Sites: ***CDPHE*** The Colorado Department of Public Health and Environment Hazardous Materials and Waste Management Division

Updated annually

State Spills 90: ***CDPHE*** CDPHE Hazardous Materials and Waste Management Division

Updated annually

State/Tribal SWL: ***CDPHE*** The Colorado Department of Public Health and Environment Hazardous Materials and Waste Management DivisionPublic Safety

Updated annually

State/Tribal LUST: ***COSTIS*** The Colorado Department of Labor and Employment/Division of Oil and Public Safety

Updated semi-annually

State/Tribal UST/AST: ***COSTIS*** The Colorado Department of Labor and Employment/Division of Oil and Public Safety

Updated semi-annually

State/Tribal EC: ***CDPHE*** rado Department of Public Health and Environment Hazardous Materials and Waste Management Division

Updated annually

State/Tribal VCP: ***CDPHE*** The Colorado Department of Public Health and Environment Hazardous Materials and Waste Management Division

Updated annually

RADON: ***NTIS*** Environmental Protection Agency, National Technical Information Services

Updated periodically

Meth Labs: ***US DOJ*** U.S. Department of Justice

Updated when available

Appendix B
Supporting Information

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B.1 Cultural Resources

A cultural resources file search was conducted in March 2011 with the Office of Archaeology and Historic Preservation (OAHP) COMPASS online database and the BLM online Federal Land Records website. The archival research indicated one cultural resource investigation had been conducted for the project area in 1986 by Eugene Hinds for the Bureau of Reclamation on behalf of the BLM. The report is titled *Cultural Resource Survey for San Luis Valley Project, Closed Basin Division—Aggregate Quarry on Bureau of Land Management Lands in Crestone Vicinity.* This investigation was conducted for the initial permitting of the project area for gravel quarrying; no resources were located within the project area. In the general region, one additional investigation associated with the Closed Basin Project was conducted in 1985, entitled *Deposits of Prehistoric Archaeological Artifacts Within the Impact Area of the U.S. Bureau of Reclamation San Luis Valley Project – Closed Basin Division, Stages 4 and 5.* More recently, RMC conducted investigations for BLM in 2010 entitled *A Class III Cultural Resource Inventory of Old Spanish National Historic Trail Segments, Crestone to Wild Cherry Creek, Saguache County, San Luis Valley, Colorado.*

The records searches indicated that two previously recorded prehistoric resources are located to the west of the current project area: 5SH988, Big Buck Site and 5SH989, Eureka Site. Sites 5SH988 and 5SH989 are both described as prehistoric Open Camp sites. Both were recorded in 1984 by the Bureau of Reclamation Closed Basin Division. According to the Colorado Historical Society cultural resource database, no NRHP assessment was included on either form. As a result, NRHP eligibility status has not been determined for either site. Site 5SH988 was considered in poor condition/heavy disturbance at the time of original recording, while 5SH989 was fair condition/moderate disturbance. Both sites are located approximately 750 meters east of the project area. One historic railroad grade is located to the south of the current project area: 5SH1029, Crestone Branch Line. One unrecorded prehistoric resource is reportedly located to the east (outside) of the current project area; the nature and location of this "site lead" is unconfirmed. No other previously recorded sites or isolated finds were found to be located within the current project vicinity.

Skoglund Excavating contracted RMC in February 2011 to conduct a Class III cultural resource intensive pedestrian inventory of the 40 acre project area. Fieldwork was conducted March 16 and 17, 2011. The inventory resulted in the documentation of two isolated finds (one prehistoric, one historic). Isolated finds (IF) represent locations of limited human activity, and are not normally considered eligible for the NRHP. Neither of the IFs located in the project area are recommended eligible for the NRHP. Due to the sensitive nature of cultural resources, the exact locations of the resources are not included in this EA and the inventory report is not available for public distribution. Cultural resource reports containing locational information are exempt from the Freedom of Information Act (FOIA). The two IFs located in the project area are described below:

- IF 5SH4115 consists of one complete mano; one metate fragment; three conjoined fragments of a slab metate; and one translucent chert flake fragment. All materials are widely dispersed and occur within the previously mined and reclaimed (Open Basin Project) portion of the gravel pit. Due to the heavy disturbance, the artifacts lack any context.

- IF 5SH4116 consists of two fragments of a hinged-lid rectangular tobacco can; three fragments of clear window glass; one fence staple; and one 10-penny wire nail. All materials are located within approximately 10 square meters at the extreme southwest corner of the property, at the junction of the west and southern boundary fence lines.

The primary component of the Section 106 process is consultation with the State Historic Preservation Officer (SHPO) regarding the significance (eligibility) of and potential impacts to resources that may be affected by federal actions. The lead agency, in this case BLM, has the responsibility of making eligibility determinations. Normally, resources determined not eligible for the NRHP require no further work; all data is considered to have been recorded. BLM will submit the resource documentation to SHPO and request concurrence with the eligibility determinations.

B.2 Culture History Summary

In order to further understand the significance of a resource, it is necessary to place the resource in the framework of the larger culture history of the region, to identify its role in the trends and patterns of history. The following context description is summarized from Martorano et al. (1999), Wunderlich et al. (2010), and Anderson (2005). The prehistoric culture history of Colorado is divided into the four major watersheds of the state; the Colorado River basin (north and south), the Arkansas River basin, the Platte River basin, and the Rio Grande River basin. This project area falls within the Rio Grande River basin context area, and the culture history below is summarized from that context (Martorano et al. 1999). Martorano et al. divide the cultural chronology of the Rio Grande Basin into several broad stages. Periods, the internal subdivisions of stages, have not been defined for the Rio Grande Basin due to the lack of information necessary to do so, such as dated, stratified sites or diagnostic artifacts in direct association with dateable features. However, many of the artifacts encountered in the Rio Grande Basin are identified with reference to typologies from surrounding regions. These surrounding regions have cultural chronologies that are more refined than that for the Rio Grande Basin, and associated artifact typologies are therefore typically discussed in terms of temporal periods rather than stages. It is considered useful to retain the use of periods as subdivisions of stages when discussing specific artifact types and the cultural or temporal affiliations of associated sites, so a cultural chronology that combines the stages of the Rio Grande Basin with the period subdivisions of the Platte River Basin (Chenault 1999:3) is used in this report. The cultural chronology of the Platte River Basin is borrowed for this report because it is the only context area that does not define periods (especially the later ones) based on subsistence practices and architectural patterns that appear to never have been prevalent in the Rio Grande Basin. The following table gives a brief summary of the prehistoric and historic sequences of the area surrounding the project area. It is possible for resources from any period or stage to occur within the project area.

Table 1. Summary of Prehistoric and Historic Sequences of the Surrounding Area

STAGE	PERIOD	DATE RANGE
Historic		AD 1860 - 1950
Protohistoric		AD 1600 - 1860
Late Prehistoric	Middle Ceramic	800 – 350 B.P. (AD 1150 – 1600)
	Early Ceramic	1450 – 800 B.P. (AD 500 - 1150)
Archaic	Late Archaic	3000 – 1450 B.P.
	Middle Archaic	5000 – 3000 B.P.
	Early Archaic	7450 – 5000 B.P.
Paleoindian	Late Paleoindian	10,200 B.P. – 7450 B.P.
	Folsom	10,900 – 10,200 B.P.
	Clovis	11,500 – 10,900 B.P.
Pre-Clovis		>11,500 B.P.

For more detailed description of the culture history of the region, see Colorado Prehistory: A Context for the Rio Grande River Basin (1999), and Colorado History: A Context for Historical Archaeology (2007).

B.1.1 Prehistoric Context

The earliest well-established occupation of the region occurred at least 11,500 years B.P. It is possible that occupation occurred as early as 18,000 years B.P. (e.g., Holen 2006). Given the ages of the earliest occupation and the Qes1 deposits, it is possible that these deposits could potentially contain Paleoindian deposits. If it exists, the pre-Clovis Period may be distinguished by a well-developed technology for reducing and shaping bone from Pleistocene megafauna (Holen 2006). The presence of neither Clovis nor pre-Clovis has been previously documented within the actual project area, although Clovis points and mammoth remains have been reported from several locations in the San Luis Valley (Jodry 1999:87). In 2010, RMC located a Clovis point and two associated tools at site 5SH3834 located just NNW of Crestone Colorado (Wunderlich et al. 2010).

The subsequent stages are distinguished by evolving stone projectile point styles. Evidence for all of the Paleoindian periods suggests a high degree of mobility. In some locations, sand dunes were used for trapping bison, leaving large deposits of bone (Frison 1991). While ground stone is known from Paleoindian contexts, their low frequencies, coupled with the strong emphasis on flaked lithic technology and large foraging areas, have prompted the suggestion that the subsistence system was mainly based on large-mammal exploitation. There are several important Folsom sites in the vicinity of the project area, including the Stewart's Cattle Guard (Jodry 1999; Jodry and Stanford 1992), the Linger Site (Hurst 1943), and the Zapata Site (Cassells 1997, Jodry 1999, Wormington 1955).

Ages of materials from the subsequent Archaic Period range from 7450 to 1450 years B.P. Evidence for all of the Archaic periods suggests a high degree of mobility, with occasional use of temporary shelters (Reed and Metcalf 1999). The use of ground stone became very common. High frequencies of ground stone tools, coupled with a decrease in the areas over which lithic materials were collected, suggest that the subsistence system de-emphasized hunting of large mammals and emphasized collection and processing of plant resources. A number of projectile point styles used in this stage have been located in and around the current project area.

The Late Prehistoric Stage dates from 1450 to 350 years B.P. During this stage, domesticated plants were commonly grown on the Plains to the east and in the Southwest region, lower on the Rio Grande drainage. In those areas, this is associated with the use of ceramic vessels, increased sedentism, and the use of architecture.

The Protohistoric stage dates from AD 1600 to 1860. The first date approximately corresponds with the date of 1598 when Don Juan de Oñate and 400 people settled the middle reaches of the Rio Grande Valley. Ethnographic research indicates that the Ute and Jicarilla Apache people were present in the San Luis Valley on a regular seasonal basis by the time of Spanish contact and influence in the area. The area was also used by northern Pueblo, Navajo, and Comanche people as well, and occasionally by Cheyenne, Arapaho, Kiowa, and Kiowa-Apache people. At this time, the indigenous peoples of the San Luis Valley would have gained access to Euro-American goods such as metal tools and vessels, glass beads, and eventually horses. Other materials associated with the Protohistoric stage include horse tack, wickiups, culturally peeled trees, Uncompahgre Brown ware ceramics, rock art exhibiting horses and riders, and small corner-notched, side-notched, and un-notched points (Martorano et al. 1999). Related cultural resources have been identified within the area, including culturally peeled trees, wickiups, Puebloan, Ute, and Apache ceramics (Bevilacqua et al. 2007).

B.1.2 Historic Context

Documented Spanish expeditions to the region began in 1540. In 1598, a party led by Don Juan de Oñate entered the San Luis Valley. Spanish settlers founded Santa Fe, New Mexico in 1609, and anticipated other settlements further north. The Spanish first claimed portions of Southern Colorado, including the San Luis Valley, in the mid-1600s (Church et al. 2007). In subsequent years, Spanish exploratory parties passed through the San Luis Valley, including Don Diego de Vargas in 1694. By the early 1700s, French trade goods were reported in the area. French intrusion into the region and Native American raids on outlying settlements during the mid-eighteenth century resulted in further Spanish efforts to gain control of the area.

The 1803 Louisiana Purchase focused much attention of the United States on the resources of the newly-acquired territory west of the Mississippi. In 1806, Lieutenant Zebulon M. Pike led an expedition to investigate the southwestern part of the region. In the two hundred years since the Spanish made their first excursions into the San Luis Valley, little had changed. Indigenous peoples still occupied it and no Euroamerican settlements had been established.

In 1821, the San Luis Valley became independent of Spain. American traders and trappers immediately sought access to the new lands and markets of Taos, Santa Fe, and points south, encroaching upon the northern New Mexican lands. Further threatening the New Mexican north was the 1836 emancipation of Texas from Mexico. Texas claimed the Rio Grande as its western

border, including the eastern half of the San Luis Valley. This conflict was finally settled in 1846 when General Stephen Watts Kearny took possession of Santa Fe for the United States.

Initial efforts to expand northward were undertaken by the Mexican government before the United States took possession of New Mexico, although Indians repeatedly drove out the settlers. To facilitate the process, Mexico established land grants in different areas of the San Luis Valley, provided they were colonized and continuously occupied. Some grants were actually made after the land belonged to the United States.

In 1833, land along the Conejos River was granted to a group of Hispanic settlers with the condition that they establish a colony on the land. Unfortunately, hostile Navajos prevented any colonization. Subsequent efforts to colonize also were undermined by Indian hostilities, and the settlers lived only intermittently on the land. In the 1860s, the United States government disallowed the grant.

Mexico subsequently made additional land grants in the San Luis Valley. The Sangre de Cristo tract in the east central part of the Valley is where the first permanent settlements in Colorado were begun in 1849 on Costilla Creek and 1850 on Culebra Creek. The Baca Grant Number Four was a tract of land set aside for the descendants of Luis Maria de Baca in 1860. This is on the west side of the Sangre de Cristo Mountains around Crestone. Eventually, the grant became known as the Crestone Estate and is now within Great Sand Dunes National Park and Preserve. In 1852, Colorado's first water right was recorded, and named the San Luis People's Ditch.

The earliest Hispanic settlement occurred in the southern parts of the San Luis Valley and also on the Valley floor at spring sites, such as the Zapata and Medano Springs (example, Teofilo Trujillo 5SH791, occupied ca. 1866). Other settlement occurred along rivers where it was expected that grazing and other farming activities would be productive. Mormons leaving Nauvoo, Illinois, were the first American citizens to visit the San Luis Valley (Simmons 1999). Settlement of the Valley accelerated with speculation of anticipated riches to be mined from the mountains. Small towns, such as Duncan, were settled around the Valley's edge at places convenient to the many prospectors and small mines. Stage routes over La Veta, Mosca, and Poncha passes on the east and north facilitated travel and transport of goods.

In 1877, the Denver and Rio Grande Railroad reached the Valley floor over La Veta Pass. In 1880, the D&RG started a southern extension from Alamosa to Espanola. The railroad was built west to Del Norte in 1881. Also in 1881, the railroad began construction south from the Poncha Pass line to Villa Grove, finally reaching Alamosa by following a route along the west side of San Luis Creek in 1890. Moffat, a railroad stop and farm center that developed along the line, became a post office in 1890 and a shipping point and wye (a triangular-shaped arrangement of rail tracks with a switch or set of points at each corner) for a branch line to the Crestone Estate on the Baca Grant Number Four.