

**United States Department of the Interior
Bureau of Land Management**

**Finding of No Significant Impact (FONSI)
for
North Cabin Creek Stock Water Pipeline and Fence
Environmental Assessment
DOI-BLM-MT-L070-2012-0011-EA**

INTRODUCTION:

The Bureau of Land Management (BLM) has prepared this Environmental Assessment (EA) to analyze the environmental consequences of installing stock water pipeline system and replacing an existing pasture boundary fence within the North Cabin Creek #05607 Grazing Allotment.

The North Cabin Creek Grazing Allotment is located in northcentral Montana in the southwest corner of Phillips County, the very northeast corner of the Monument, north of the Missouri River and west of Highway 66. The size of the Allotment is 2,394 acres which includes 1,111 acres of public land and 1,283 acres of private land.

The North Cabin Creek Grazing Allotment consists of five pastures; three of private land, one of public land and one of mixed public and private land. Installation of the proposed range improvement projects would enable the BLM and grazing permittee to implement a five-pasture deferred rotation grazing system combining both the private and public land pastures under one management system. On public land the North Cabin Creek Pipeline consists of installing 1.6 miles of buried pipeline and two 10 foot diameter stock tanks. The pipeline route follows and would be within the width of existing roads and vehicle trails. Pipeline construction would consist of ripping in 1½ to 2 inch, flexible, polyethylene pipe to a depth of five to six feet. The pipeline system would provide a reliable source of water to all five pastures and would be available for use throughout the grazing period when existing reservoirs are typically dry. Livestock currently water out of earthen dam reservoirs constructed on public land in 1975. These are small, have nearly silted full and are dry by late summer and during dry years.

The North Cabin Creek Fence is an existing barb wire fence (1.5 miles in length) that would be removed and replaced with a permanent 3 or 4-strand barb wire fence. The fence serves as a pasture boundary fence and has deteriorated to where extensive repairs are required annually to maintain the fence in a functional condition.

PLAN CONFORMANCE AND CONSISTENCY:

The North Cabin Creek Grazing Allotment is located within the Upper Missouri River Breaks National Monument. The Monument was established by Proclamation issued by President Clinton on January 17, 2001. The Record of Decision and Approved Plan for the Upper Missouri River Breaks National Monument became effective on December 4, 2008 (Monument Plan).

The Monument Plan addresses range improvements (primarily reservoirs, other water facilities, fences and land treatments) on page 50 stating new range improvements could be built to support activity plans, enhance Monument resources, or meet overall management goals.

FINDING OF NO SIGNIFICANT IMPACT DETERMINATION:

Based upon a review of the North Cabin Creek Stock Water Pipeline and Fence EA, I have determined that Alternative B, the Proposed Action, is not a major federal action having a significant effect on the human environment, individually or cumulatively with other actions in the general area. For this reason no environmental impact statement needs to be prepared. This finding is based on the following rationale and discussion of context and intensity of the action.

Context:

The Proposed Action Alternative, Alternative B, would occur within the North Cabin Creek Grazing Allotment, Upper Missouri River Breaks National Monument, and would have local impacts on the resources similar to and within the scope of those described and considered in the Record of Decision and Approved Plan for the Upper Missouri River Breaks National Monument (2008). The project is an action directly involving 1,111 acres of public land. This action, by itself does not have international, national, regional or state-wide importance.

Intensity:

The following discussion is based on the ten significant criteria described in 40 CFR 1508.27 and supplemental instruction memorandum, acts, regulation and executive orders. The following has been considered in evaluating this proposal:

1. Impacts may be both beneficial and adverse. A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial.

North Cabin Creek Stock Water Pipeline and Fence EA analyzed the impacts to affected resources in Chapter 4 beginning on page 12. Design features, starting on page 6, are listed to minimize or eliminate the impacts to resources likely to be affected by implementing Alternative B. None of the environmental effects discussed in detail in the EA are considered significant, nor do the effects exceed those described in the Record of Decision and Approved Plan for the Upper Missouri River Breaks National Monument (2008). Implementing Alternative B would enable the BLM and grazing permittee to implement a five-pasture deferred rotation grazing system combining both the private and public land pastures under one management system. The pipeline system would provide a reliable source of water to all five pastures and would be available for use throughout the grazing period when existing reservoirs are typically dry.

2. The degree to which the selected alternative will affect public health or safety.

No concerns were identified or known instances where public health or safety has been affected. The North Cabin Creek Grazing Allotment is located within a rural setting. The amount of forage allocated to grazing and livestock stocking levels have been fairly stable over the last 30 to 40 years and has occurred in combination with other human activities (OHV, hunting, hiking, and natural gas development).

3. Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farm lands, wetlands, wilderness, wild and scenic rivers, or ecologically critical areas.

A discussion of characteristics and resources unique to the North Cabin Creek Grazing Allotment was described in Chapter 3 beginning on page 8 of the EA. Based on the EA I have determined that the selected alternative will not have a significant impact on those values within the affected area.

4. The degree to which the effects on the quality of the human environment are likely to be highly controversial.

Issues raised during the analysis were identified during internal scoping (BLM staff) and with staff from the Natural Resource Conservation Service and the grazing permittee. After review of the comments and issues identified from the scoping process and those analyzed in the EA, I have determined that the effects described in the EA are not highly controversial and Alternative B (Proposed Action) conforms to current BLM land use plan guidance.

5. The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.

Livestock grazing within the Monument is not unique or unusual and is a widespread action authorized by the BLM. The effects to the human environment were thoroughly analyzed in the EA. The predicted effects from implementing Alternative B are not considered to be highly uncertain or involve unique or unknown risks.

6. The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.

The actions presented in Alternative B were developed and analyzed by an Interdisciplinary Team (ID Team). The installation, use, maintenance and modification to range improvement projects located on public land is cited in BLM's grazing regulations under Title 43, Code of Federal Regulations, Part 4100. "The Bureau of Land Management may enter into a cooperative range improvement agreement with a person, organization, or other government entity for the installation, use, maintenance, and/or modification of permanent range improvements or rangeland developments to achieve management or resource condition objectives." A complete disclosure of the effects of Alternative B is contained in Chapter 4 beginning on page 12 of the EA.

7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts – which include connected actions regardless of land ownership.

An ID Team evaluated the proposed actions in Alternative B in context of past, present and reasonably foreseeable actions. A cumulative effects analysis was conducted as part of the EA, and it determined that there were no cumulatively significant effects identified or predicted with implementation of Alternative B.

8. The degree to which the action may adversely affect districts, sites, highways, structures, or other objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.

Based on previous cultural surveys and through mitigation by avoidance, no adverse impacts to cultural resources were identified or anticipated. There are no known features within the project area, listed or eligible for listing in the National Register of Historic Places that would be adversely affected by implementation of Alternative B.

9. The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act (ESA) of 1973.

There are no threatened or endangered species present and no designated critical habitat for any listed species within the project area.

10. Whether the action threatens a violation of a federal, state, local, or tribal law, regulation or policy imposed for the protection of the environment, where nonfederal requirements are consistent with federal requirements.

Implementation of Alternative B does not violate any known federal, state, local or tribal law or requirement imposed for the protection of the environment.

Zane Fulbright

Zane Fulbright, Acting Upper Missouri River Breaks National Monument Manager

9/20/2012

Date

**United States
Department of the Interior
Bureau of Land Management**

***Upper Missouri River Breaks
National Monument***

**North Cabin Creek
Stock Water Pipeline and Fence**

Environmental Assessment
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Chapter 1

PURPOSE AND NEED FOR ACTION

1.1 Introduction

The Bureau of Land Management (BLM) has prepared this Environmental Assessment (EA) to analyze the environmental consequences of the North Cabin Creek Stock Water Pipeline and Fence. This EA is a site-specific analysis of potential impacts that are expected with the implementation of the proposed action alternative. The EA assists the BLM in project planning and ensuring compliance with the National Environmental Policy Act (NEPA), and in making a determination as to whether any “significant” impacts could result from the analyzed actions. “Significance” is defined by the National Environmental Policy Act and is found in regulation 40 CFR 1508.27. An EA provides evidence for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI). If the decision maker determines that this project has “significant” impacts following the analysis in the EA, then an EIS would be prepared for the project. If not, a Decision Record (DR) would be signed for the EA approving the proposed action alternative. A DR, including a FONSI statement, documents the reasons why implementation of the proposed action alternative would not result in “significant” environmental impacts (effects) beyond those already addressed in the Upper Missouri River Breaks National Monument Record of Decision and Approved Resource Management Plan, 2008.

1.2 Background

The Bureau of Land Management in cooperation with the Natural Resources Conservation Service (NRCS) and BLM grazing permit holder (Thomas Montgomery), propose to install 1.6 miles of buried pipeline and two 10 foot diameter stock tanks and replace 1.5 miles of existing barb wire fence. NRCS is contributing both financial and technical assistance through the Environmental Quality Incentives Program (EQUIP). The program assists local producers with the installation and maintenance of various conservation projects to improve grazing management systems on public and private lands. The grazing permittee would be responsible for installing the pipeline, stock tanks and fence with a portion of these costs reimbursed by NRCS. If approved, at the earliest construction would begin in the fall of 2012.

The proposed projects are located within the North Cabin Creek #05607 Grazing Allotment, in Phillips County, north of the Missouri River, east of Cow Creek in the northeast corner of the Upper Missouri River Breaks National Monument (T25N, R22E, Sections 25 & 26; map attached).

1.3 Need for the Proposed Action

The BLM received an application from Thomas Montgomery (grazing permittee) to install a stock water pipeline and replace an existing fence on public land in the North Cabin Creek Grazing Allotment. The BLM is required to respond to requests for installing and/or maintaining range improvements on BLM administered lands.

1.4 Purpose of the Proposed Action

The North Cabin Creek Grazing Allotment consists of five pastures; three of private land, one of public land and one of mixed public and private land. Installation of the proposed range improvement projects would enable the BLM and grazing permittee to implement a five-pasture deferred rotation grazing system combining both the private and public land pastures under one management system. The pipeline system would provide a reliable source of water to all five pastures and would be available for use throughout the grazing period when existing reservoirs are typically dry. Livestock currently water out of earthen dam reservoirs constructed on public land in 1975. These are small, have nearly silted full and are dry by late summer and during dry years.

The barb wire fence scheduled to be replaced serves as a pasture boundary fence and has deteriorated to where extensive repairs are required annually to maintain the fence in a functional condition.

1.5 Conformance with Existing Land Use Plans

The North Cabin Creek Grazing Allotment is located within the Upper Missouri River Breaks National Monument. The Monument was established by Proclamation issued by President Clinton on January 17, 2001. The Record of Decision and Approved Plan for the Upper Missouri River Breaks National Monument became effective on December 4, 2008 (Monument Plan).

The Monument Plan addresses range improvements (primarily reservoirs, other water facilities, fences and land treatments) on page 50 stating new range improvements could be built to support activity plans, enhance Monument resources, or meet overall management goals.

1.6 The Decision to be Made

The Upper Missouri River Breaks National Monument Manager (Monument Manager) will either approve or deny the application to construct the proposed range improvement projects on public land within the North Cabin Creek Grazing Allotment.

The Monument Manager must also determine if the proposed action alternative is a federal action that significantly affects the quality of the human environment. If it is, then an EIS must be prepared. If not, then a Finding of No Significant Impact (FONSI) would be issued.

1.7 Scoping

August 11, 2011 - meeting with NRCS staff and the grazing permittee to survey the pipeline route and stock tank locations and discuss design features to minimize resource impacts.

May 14, 2012 - internal scoping request routed to BLM staff and resource specialists to identify issues and analysis.

1.8 Issues Identified for Analysis (Resource Issues)

Issues raised for analysis were identified during internal scoping and meetings with NRCS and the grazing permittee (cooperator). For each resource issue identified, one or more impact indicators are described. These indicators will be used to describe the affected environment and to evaluate the environmental consequences of implementing the proposed action alternative. The following section is a list of issues relevant to this analysis.

1.8.1 Wildlife Habitat

Resource Issue #1. What affect would the implementation of the proposed action alternative have on habitat for pronghorn antelope, mule deer and elk?

Resource Issue #2. What affect would the proposed action alternative have on migratory and other ground nesting birds?

1.8.2 Vegetation

Resource Issue #3. How many acres of native vegetation would be disturbed, temporarily and/or permanently lost?

1.8.3 Soils

Resource Issue #4. How many acres of new soil disturbance would occur and would the impacts be short-term, long-term or permanent?

1.8.4 Visual Resources

Resource Issue #5. What affect would the proposed action alternative have on visual resources within the project

area?

1.9 Issues Considered but Eliminated from Further Analysis

Invasive Species

State listed noxious weeds do not occur within the project area. Impacts associated with installation of the stock water pipeline and stock tanks would provide freshly disturbed areas for the establishment of noxious weeds, invasive plants and non-native plants. However, the risk would be minimal and mitigated through implementation of best management practices. Design features, described on page 6 under *Invasive Plants*, would be stipulated as a term and condition in the Cooperative Range Improvement Agreement issued to the cooperator.

1.10 Summary

This chapter presented the purpose and need of the proposed action, as well as the relevant issues. The No Action and Proposed Action alternatives are presented in Chapter 2. The potential environmental impacts or consequences resulting from the implementation of each alternative are then analyzed in Chapter 4 for each of the identified issues.

Chapter 2

2.0 DESCRIPTION OF ALTERNATIVES

Alternatives were developed based on the applicant's request to construct range improvements on public land, existing conditions and resource issues identified through internal scoping. Resource issues were discussed in Chapter 1. Other factors that influenced alternative development are discussed in Chapter 3.

2.1 Features Common to Alternative B (Proposed Action)

Invasive Plants

The management of noxious weeds and invasive plants would continue as prescribed in the Upper Missouri River Breaks National Monument: Guidelines for Integrated Weed Management (BLM 2001b) and subsequent updates.

Equipment and vehicles would be thoroughly washed and cleaned before entering public lands.

If used, reclamation and erosion prevention materials must be certified weed free or made from a weed free source.

Structural Improvements

Air vents, curb stops and other above-ground fixtures associated with the pipeline, would be designed to minimize visual contrast. Above-ground pipe would be dark colored and air vents, curb stops and covers, etc. would be installed as close to the ground as possible and protected and screened by rock.

The stock tank color would be designated by the BLM using the Standard Environmental Color chart to minimize the visual contrast.

Fences replaced on public land would conform to the guidelines described in BLM's fencing handbook H-1741-1 for fences located in deer, elk and pronghorn antelope habitat.

Permits required by the State and county government would be obtained before any construction activities would be approved.

Only native, certified weed-free seed would be used for reclamation of disturbed areas.

Projects would have a visual contrast rating worksheet completed as a part of the environmental analysis.

The stock tanks located on public land would remain on throughout the grazing period for use by resident wildlife.

Construction activities would not be performed during periods when the soil is too wet to support equipment/vehicles. If equipment/vehicles create ruts in excess of three inches operations would cease.

Erosion control and sediment containment products (straw wattles, silt fence, erosion control blankets/mats, sediment stop, etc.) would be installed where necessary to aid in stabilization and capture of sediment until vegetation reestablishes to effectively control erosion and sediment. Products would be installed in accordance with manufacturer's specifications/instructions.

Where soils are disturbed, topsoil would be stripped, separated from subsoil/parent material and stockpiled for use in reclamation.

Site reclamation would initiate with the ripping to an appropriate depth (generally below the root zone) of any compacted areas and grading to blend with the adjacent site characteristics and topography. In no instance would grading material and/or subsoil be placed over topsoil. The order of soil replacement would be the reverse of removal; first off, last on.

Maintenance of the stock water pipeline, stock tanks and fence would be assigned to the grazing permittee and cooperative agreements completed before construction would occur.

Wildlife escape ramps would be installed in all new stock water tanks.

Water Resources

Installation of any stock tanks on public land would be added as places of use to the existing water right. The holder of the water right would be required to file the necessary applications. In the event the public land grazing permit is transferred, the transferee would be entitled to use and maintain the pipeline for the purpose of watering livestock as stipulated in the cooperative agreement.

2.2 Alternative A (No Action)

The applicants request to install a stock water pipeline system and replace an existing fence located on public land would be denied.

2.3 Alternative B (Proposed Action)

The North Cabin Creek Fence is an existing barb wire fence (1.5 miles in length) that would be removed and replaced with a permanent 3 or 4-strand barb wire fence. Either type of fence would be constructed to BLM standards in areas with pronghorn antelope, elk and mule deer. Vehicles used for hauling materials to the site would be limited to existing roads. Blading, mechanical line clearing and other surface disturbing activities, such as tree and brush removal, would not be authorized.

The Natural Resources Conservation Service (NRCS) is contributing both financial and technical assistance through the Environmental Quality Incentives Program (EQIP) for construction of the North Cabin Creek Pipeline. The program assists local producers with the installation and maintenance of various conservation projects to improve grazing management systems on public and private lands. On public land the North Cabin Creek Pipeline consists of installing 1.6 miles of buried pipeline and two 10 foot diameter stock tanks. The pipeline route follows and would be within the width of existing roads and vehicle trails. Pipeline construction would consist of ripping in 1½ to 2 inch, flexible, polyethylene pipe to a depth of five to six feet. The grazing permittee would be responsible for installing the pipeline and stock tanks with a portion of these costs reimbursed by NRCS.

2.4 Alternatives Considered but Eliminated from Further Analysis

Planning for other types of stockwater developments were considered and dropped from further analysis due to cost, environmental concerns and problems associated with construction. Implementing a grazing management system should include a reasonable expectation that water would be available for livestock throughout the grazing period (summer/fall), of sufficient quantity for the amount of livestock grazing the area and of adequate quality for livestock and wildlife use.

One option included reconstruction of existing man-made reservoirs that were constructed during the 1970's. The storage capacities of the structures have been severely reduced from the buildup of silt making them only a temporary or seasonal source of stockwater. Even if repaired, because of their limited size and capacity, they would still be unreliable as a source of stockwater in late summer and early fall and may be dry when needed most.

Constructing new stockwater reservoirs was another option considered. Suitable sites were not available due to erosive soils, poor access for construction equipment, steep topography and inadequate overland flow.

Chapter 3 AFFECTED ENVIRONMENT

3.1 Introduction

Chapter 3, beginning on page 175 in the Upper Missouri River Breaks National Monument Proposed Resource Management Plan and Final Environmental Impact Statement, Volume 1, dated January 2008, provides a description of the affected environment for the physical, biological, cultural, economic and social conditions. A copy of the plan can be obtained from the following website:

http://www.blm.gov/mt/st/en/fo/lewistown_field_office/um_rmp_process/rmp.html

A more detailed description of the resource values most likely to be affected by the proposed action alternative is included in the following sections.

3.2 General Setting

The North Cabin Creek Grazing Allotment is located in northcentral Montana in the southwest corner of Phillips County, the very northeast corner of the Monument, north of the Missouri River and west of Highway 66. The size of the Allotment is 2,394 acres which includes 1,111 acres of public land and 1,283 acres of private land.

There are a wide variety of plant community and habitat types influenced by soil type, elevation, slope and aspect occurring within the North Cabin Creek Grazing Allotment. Timbered areas contain both ponderosa pine (*Pinus ponderosa*) and Douglas fir (*Pseudotsuga menziesii*) habitat types. Douglas fir is more common on north-facing (wetter) slopes while ponderosa pine tolerates drier sites such as south and west-facing slopes. Probably the most common rangeland vegetation community is the sagebrush/grassland type. These occur on open ridges in timbered areas and cover large areas of the landscape that are nearly level to slightly sloping.

Average annual precipitation ranges from 12 to 14 inches. The greatest amount of precipitation occurs mostly in the form of rainfall during the months of May through September. Snow generally falls between November and April. Winter temperatures can be as low as -40 degrees F. Temperatures in the summer can reach over 100 degrees F. Frost free time periods range from 90 to 110 days. The average date of the first frost in the fall occurs in mid-September. The average date of the last frost is in late May.

3.3 Affected Resources Brought Forward for Analysis

The North Cabin Creek Grazing Allotment is divided into five pastures and grazed from May 16th to September 15th with 69 cow-calf pairs. Public land carrying capacity totals 246 Animal Unit Months (AUMs).

Structural Improvements

There are three man-made stock water reservoirs located on public land that were constructed in 1975. Their availability and use is dependent on overland flow during spring runoff and from intense rainfall events. When reservoirs are critically short of water, a common occurrence during dry years and late in the grazing season, one or more pastures may not be available resulting in the removal of livestock and/or shorter grazing periods than planned.

Vegetation

The most common upland plant community within the project area is the sagebrush/grassland complex. This habitat type features a canopy of Wyoming big sagebrush (*Artemisia tridentata* subsp. *wyomingensis*) with an herbaceous understory dominated by rhizomatous grasses, junegrass (*Koeleria macrantha*) and Sandberg bluegrass (*Poa secunda*). Bunchgrasses such as bluebunch wheatgrass (*Agropyron spicatum*) and green needlegrass (*Nassella viridula*) are still present but in smaller amounts. Green needlegrass appears more in areas receiving additional moisture such as along swales or coulee bottoms. Bluebunch wheatgrass prefers well-drained loamy soils and is most common on south facing slopes. Rhizomatous grasses, mostly western wheatgrass (*Pascopyron smithii*) and

some thickspike wheatgrass (*Agropyron dasystachyum*), are the most common. In some areas the shrub canopy also includes small percentages of rubber rabbitbrush, an important big game browse species.

Timbered areas contain ponderosa pine and Douglas fir as the dominant overstory tree species. The ponderosa pine type is common on drier south and west-facing slopes. On sites with a fairly open canopy, the understory is most often dominated by bluebunch wheatgrass and sun sedge (*Carex heliophila*) with only a small amount of shrubs and forbs. In slightly wetter areas where ponderosa pine forms a more closed canopy, although grasses still dominate the understory, shrubs become more prominent and would include western snowberry (*Symphoricarpus occidentalis*), Woods' rose (*Rosa woodsii*), common juniper (*Juniperus communis*) and horizontal juniper (*Juniperus horizontalis*) and skunkbrush sumac (*Rhus trilobata*).

Douglas fir prefers wetter aspects and is mostly restricted to north-facing slopes. This type has an understory of littleseed ricegrass (*Oryzopsis micrantha*), green needlegrass, western wheatgrass, horizontal and Rocky Mountain juniper (*Juniperus scopulorum*), western snowberry, Woods' rose, chokecherry (*Prunus virginiana*) and skunkbrush sumac. The combination of these plants in the understory depends on slope, moisture and the density of the overstory (open or closed canopy). On many sites, lichen and moss can be prominent covering extensive areas of the ground.

The project area does not contain any known populations of noxious weeds or non-native species.

No BLM Threatened and Endangered or special status plant species were found within the project area or likely to occur within the North Cabin Creek Grazing Allotment. The Montana Natural Heritage Program has identified five BLM sensitive plant species that occur or could occur within Phillips County. These include hot spring phacelia (*Phacelia thermalis*), Slender-branched popcorn-flower (*Plagiobothrys leptocladus*), dwarf woolly-heads (*Psilocarphus brevissimus*), long-sheath waterweed (*Elodea bifoliata*) and slender bulrush (*Schoenoplectus heterochaetus*). None of these plant species were found during assessment of the pipeline route, where the stock tanks would be located and along the section of fence line to be replaced.

Soils

Soils were identified from the Natural Resources Conservation Service's (NRCS) Soil Survey Geographic (SSURGO) dataset and the Soil Data Mart (SDM) website (<http://soildatamart.nrcs.usda.gov/>). Soil surveys were performed by the NRCS according to National Cooperative Soil Survey (NCSS) standards. Pertinent information for review and analysis is from the SDM and the National Soils Information System (NASIS) database for the area.

The primary soil map units (SMU) the proposed actions would occur on are the: Map Unit 1392B - Creed-Gerdrum-Absher association, 0 to 4 percent slopes; Map Unit 251C - Bascovy-Neldore clays, 2 to 8 percent slopes; Map Unit 392B - Creed-Gerdrum complex, 0 to 4 percent slopes; Map Unit 1251E - Neldore-Bascovy association, 8 to 35 percent slopes; and, Map Unit 30A - Marvan clay, 0 to 2 percent slopes.

Appendix 1 provides a description of the major soils that occur in a SMU. Descriptions of non-soil (miscellaneous areas) and minor SMU components are not included.

Soil productivity is limited within the roads and existing trails, where the pipeline would be installed, due to compaction and vehicle disturbance.

Wildlife - General

The North Cabin Creek Grazing Allotment contains upland habitat types typical of the Missouri River Breaks including sagebrush/grassland and timbered coulees that support a variety of wildlife species. Mule deer, elk, pronghorn antelope, raptors, furbearers, reptiles and amphibians are common throughout the area.

BLM Montana Designated Sensitive Species

BLM Sensitive Species are designated by BLM State Directors with input from BLM, State and Natural Heritage Program Biologists, and other recognized specialists. This species list includes federally designated candidate

species, species proposed for listing and delisted species for the five years following their removal from the list. Sensitive species are species requiring special management considerations to promote their conservation and reduce the likelihood and need for future listing under the Endangered Species Act (ESA). Most Montana BLM Designated Sensitive Species (BLM, 2004b) have no suitable habitat within the project area; these species are not considered to be part of the affected environment.

Northern goshawk, bald and golden eagle, long-legged and long-eared myotis and Townsends big-eared bats all have habitat and could occur within available habitat; however, there are no documented roosting or nesting sites within the project area. Loggerhead shrike and red-headed woodpecker likely occur within the project area but have not been documented. The greater short-horned lizard, Northern leopard frog and plains spade-foot toad occur in the project area.

Migratory Birds

The Migratory Bird Treaty Act (16 USC 703-711) protects all migratory birds including those listed as BLM Sensitive Species. The sagebrush/grassland and ponderosa pine/Douglas-fir habitat types within the project area are considered minor components of the larger adjacent habitat for Neotropical Migratory Birds. The species present are those common to these habitat types within northcentral Montana.

Threatened or Endangered Species

There are no threatened or endangered species present and no designated critical habitat for any listed species within the project area.

Visual Resources

The BLM uses a Visual Resource Management (VRM) system to inventory and manage visual resources on public land. The primary objectives of VRM are to help identify visual (scenic) values and to minimize visual impacts on BLM land from proposed projects and management activities. The VRM classification system uses four classes to describe the different degrees of modification allowed to the landscape. VRM classes are based on a process that considers scenic quality, sensitivity to changes in the landscape and distance zone. The four VRM classes are numbered I to IV; the lower the number the more sensitive and scenic the area. The proposed projects fall within Classes II through IV.

The affected VRM Class Objectives are defined as follows:

Class II Objective - the objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color and texture found in the predominant natural features of the characteristic landscape.

Class III Objective - the objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

Class IV Objective - the objective of this class is to provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance and repeating the basic elements.

Wilderness Study Areas

The proposed stock water pipeline and two stocks tanks and the proposed fence to be replaced are not located within a Wilderness Study Area (WSA).

3.4 Description of Relevant Non-Affected Resources

Climate Change

Current conditions regarding climate and the effects of greenhouse gases on climate change for the Monument can be found in the Upper Missouri River Breaks National Monument Proposed Resource Management Plan and Final Environmental Impact Statement on pages 176 and 271. Liebig et al. (2010) found that net reductions in greenhouse gas emissions can most effectively be achieved by moderate stocking rates on native vegetation in the northern Great Plains. However, given the variability in climate and trends over such short time frames, the effects of the proposed action alternative described in this EA on climate change are impossible to predict.

Recreation

Recreation use within the project area is generally dispersed recreational activities such as hunting, hiking, scenic and wildlife viewing and driving for pleasure. There are no developed recreation sites in the area. The proposed action alternative would not affect the ability for dispersed recreational activities to continue. Current upland Special Recreation Permits are all outfitter services for hunting. These are all located west and south of the project area.

Cultural Resources

Through past and ongoing consultation the proposed project area has not been identified as an area of concern for any Native American Tribe, so there would be no impact to Native American concerns from the proposed action alternative. A more complete description of cultural resources can be found starting on page 176 of the Upper Missouri River Breaks National Monument Proposed Resource Management Plan and Final Environmental Impact Statement (January, 2008).

On August 11, 2011, the Havre Field Office Archaeologist performed a Class III inventory of the project area. Cultural Resource Report #11-MT-070-002 documents the findings of this inventory in detail. No historic properties were discovered or located within the project area. Therefore, there would be no impact to cultural resources from the proposed action alternative.

Chapter 4

ENVIRONMENTAL CONSEQUENCES

4.1 Introduction

The following sections present the predicted effects related to Resource Issue #1 through #4 for each alternative. The cumulative effects analysis considers the consequences of the Alternatives when added to other past, present and reasonably foreseeable future actions within the project area.

4.2 Predicted Effects of Alternatives

4.2.1 Predicted Effects of Alternative A (No Action)

This alternative is a continuation of current management. The application submitted by the grazing permittee to construct a stock water pipeline system and replace an existing pasture boundary fence would be denied.

Resource Issue #1 and #2 - Wildlife Habitat

Wildlife

Man-made and natural water sources would remain the same providing habitat for larva of the Western Encephalitis mosquito which may be carriers of West Nile Virus (WNV). This mosquito prefers shallow, still water with emergent vegetation. Man-made reservoirs with emergent vegetation may favor this species but also provide important habitat for many birds, invertebrate and amphibian predators of the mosquito species and its larva. This alternative would not increase or reduce habitat for the Western Encephalitis mosquito (BLM, Instruction Bulletin MT-2011-033, July 2011).

Habitat conditions and impacts to big game species, migratory birds and BLM Designated Sensitive Species would remain the same as currently exists, with some degradation of habitat near existing water sources and the limitation of accessible water for big game during late summer or periods of drought. What limited herbaceous vegetation exists near earthen reservoirs would continue to be heavily impacted by livestock, with little left for use by any wildlife species. As these reservoirs silt in, they would become more suitable for the Western Encephalitis mosquito, with little suitable habitat for amphibians and birds which could restrict their numbers. These reservoirs are within five miles of occupied greater sage grouse habitat.

Resource Issue #3 and #4 - Vegetation/Soils

Structural Improvements

The man-made stock water reservoirs were constructed for livestock use and to a large degree provide most of the daily requirements for the pastures containing public land. Eventually the existing reservoirs located on public land would silt full severely reducing their storage capacity and usefulness.

The condition of the pasture boundary fence would continue to decline eventually to the point where repairs could not be made and the fence would no longer provide adequate stock control.

Vegetation and Soils

Problems with livestock distribution, uneven grazing patterns and stock water shortages later in the grazing season and during dry years would continue. Emergent cover around the shoreline of each reservoir and water quality would remain the same.

There would be no additional effects to soils under this alternative.

Resource Issue #5 - Visual Resource Management

There would be no additional effects to visual resources under this alternative.

4.2.2 Predicted Effects of Alternative B (Proposed Action)

The installation of a stock water pipeline system and replacement of the existing pasture boundary fence would be approved under this alternative.

Structural Improvements

Installing a stock water pipeline system would provide reliable water throughout the entire grazing period and permit implementation of a five-pasture deferred rotation grazing system. Knowing that water for livestock would always be available provides the management flexibility to graze pastures at different times rather than scheduling their use when water is available. Pastures short of water are often scheduled for grazing early in the season and often end up being grazed during the same time period for several consecutive years.

Replacing the pasture boundary fence would allow implementation of a pasture rotation system and avoid unscheduled grazing use.

Resource Issue #1 and #2 - Wildlife Habitat

Man-made and natural water sources would remain the same providing habitat for larva of the Western Encephalitis mosquito which may be carriers of West Nile Virus (WNV). This mosquito prefers shallow, still water with emergent vegetation. Steep sided stock tanks are not considered good habitat. Man-made reservoirs with emergent vegetation may favor this species but also provide important habitat for many other species, including many birds, invertebrate and amphibian predators of the mosquito species and its larva. This alternative would not increase or reduce habitat for the Western Encephalitis mosquito (BLM, Instruction Bulletin MT-2011-033, July 2011).

Livestock use at existing stock water reservoirs would decrease. Emergent cover around the shoreline of each stock water reservoir would increase and water quality would improve. Increases in riparian-wetland vegetation would benefit many wildlife species by providing additional forage, nesting and escape cover. This would benefit migratory birds and amphibians. There would be an increase in habitat for aquatic and terrestrial invertebrates providing food for many bird, reptile and amphibian species. Man-made reservoirs with emergent vegetation is often favorable mosquito breeding habitat, but also provides important habitat for many bird, invertebrate and amphibian predators of the mosquito species and its larva.

Extending the existing stock water pipeline and adding stock tanks would provide reliable water for big game in areas without natural water. Benefits to big game would be most notable during drought years. Improved grazing management through use of fencing and reliable stock water would improve habitat conditions throughout the allotment for big game, some BLM Designated Sensitive Species and many migratory and resident birds. Flexibility to graze any pasture when needed would reduce risks from wildfire or invasive grasses that could become established. These have the potential to reduce the quality of habitat for many species within the allotment and areas adjacent to this allotment.

Resource Issue #3 and #4 - Vegetation/Soils

During installation, vegetation would be disturbed in the immediate area of the ripping operation, up to a width of two to three feet. The effect to vegetation in the disturbed area would be short-term and minimal with recovery to existing conditions within one or two growing seasons. Total disturbance is estimated to be 4 acres. Vegetation in and around the proposed stock tank locations would be permanently lost. The combined disturbance for the two stock tank locations is estimated to be less than ¼ acre.

Soil would be impacted from disturbance during installation of the stock water pipeline and compaction associated with construction equipment and vehicles. There would be approximately 4 acres disturbed; however, the number

of acres directly affected would be much less since the pipeline route follows the centerline of existing resource roads. The roads are already compacted and the vegetation altered from frequent vehicle use.

Ripping in the pipeline would result in minimal disturbance to soils. Ripping slices the soil without extensive excavation. A noticeable berm (approximately 2 feet high) and wheel and dozer tracks would be created. Very little bare ground would be exposed during the ripping process and any disturbed areas should quickly recover in one to two growing seasons.

Soils could also be impacted by fluid spills, including engine oil, hydraulic oil and fuel. These spills could severely affect soil in localized areas; excessive concentrations may be capable of soil sterilization.

Soil erosion from wind and water would be minimal during project construction. Erosion rates would return to natural levels once vegetation is re-established.

There would be long-term soil compaction from livestock congregation in the immediate vicinity where the stock tanks would be installed.

Resource Issue #5 - Visual Resource Management

Impacts to visual resources would be reduced by burying the pipeline in the existing two-track road within VRM Class II, III and IV areas. The two stock tanks have been located a short distance from existing roads and trails, in small depressions, behind hills or screened by vegetation to reduce the visual contrast. All the stock tanks are located within VRM Class IV areas. Their color would be designed and selected by the BLM to blend in with the vegetation further reducing the visual contrast. Air vents, curb stops and other above-ground fixtures associated with the pipeline, would be designed to minimize visual contrast as described under Design Features on page 6.

No additional surface disturbing effects have been identified with replacement of the existing pasture fence. The fence would be replaced in its current location. All green steel posts would be used to reduce visibility.

4.3 Cumulative Effects for All Alternatives

4.3.1 Past and Present Actions

Cumulative effects are defined as the impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person who undertakes such other actions.

A number of modifications to the landscape have occurred within this area of the Monument as part of past and current management activities. These include road construction and maintenance, routes created by off-road vehicle use, range improvement project construction and maintenance (fences, reservoirs) and natural gas development. Current resource conditions are described under the "Affected Environment" in Chapter 3.

Some of the earliest widespread grazing in the Missouri River Breaks began during the early 1880's (Mackie 1970). Cattle and domestic sheep were common although the latter declined rapidly because of market conditions and high levels of predation in the breaks. Horses were once a problem in the 1930's and 1940's. Abandoned by homesteaders leaving the area, their numbers grew and "horse gathering" was a source of income for local ranch families (local ranchers, personal communication). Today there are far fewer ranch families and the amount of livestock grazing the area has been largely reduced over historic levels.

As indicated in the Monument Plan, all motorized and mechanized off road vehicle use, except for emergency or authorized administrative purposes, is prohibited. For administrative purposes travel is authorized off road and on closed roads for BLM, other federal agencies, state and county agencies, lessees and permittees. Administrative purposes will be limited to those activities necessary to administer the permit or lease. As for livestock grazing permit holders, building or maintaining fences and water facilities, delivering salt or supplements, moving livestock, checking wells and pipelines, or other activities directly associated with the implementation of a grazing lease or permit.

There are no existing oil and gas leases within the North Cabin Creek Grazing Allotment. The Proclamation does not allow for new oil and gas leases in the Monument. Oil and gas activity will eventually cease to exist (page 208, Monument Plan, Volume 1).

There are a variety of range improvement projects constructed on private, state and public land within the North Cabin Creek Grazing Allotment to facilitate the management and control of livestock grazing. There are pasture and allotment boundary fences, largely 3 and 4-strand barb wire, and earthen dam reservoirs have been built. Portions of these are checked and repaired annually during the period of livestock use.

4.3.2 Reasonable Foreseeable Future Actions

Livestock grazing within the North Cabin Creek Grazing Allotment would still comply with the Standards of Rangeland Health and Guidelines for Livestock Grazing Management. Currently, land health standards are being met. Future management changes could occur if the Standards would not be met and grazing is identified as the cause. Maintenance of existing range improvements would still continue in essentially the same manner and degree as in the past. New range improvements could be considered if needed to support implementation of grazing management strategies, enhance Monument resources or meet overall management goals.

That portion of the stock water pipeline constructed on private land consists of six miles of buried line and three stock tanks. The route is also within the width of existing roads and two-track trails, which are already disturbed from vehicle use, minimizing any new or additional surface disturbance. Loss of vegetation and impacts to soils, such as compaction, from installing the three stock tanks is estimated to be less than ¼ acres.

4.3.3 Cumulative Effects of Alternative A (No Action)

Structural Improvements

No additional impacts would result under this alternative. The request to construct a stock water pipeline system and replacement of the existing pasture boundary fence would be denied.

Vegetation and Soils

Surface disturbing activities affecting vegetation and soil compaction would likely remain static under this alternative. These effects are localized around stock water reservoirs and where livestock concentrate and trail to and from existing water sources.

Wildlife

Existing livestock fences would continue to be obstacles for wildlife movement and have the potential to cause mortality.

The presence of disturbance activities, notably traffic, impact the security of big game and reduce the quality of habitat for breeding, nesting and brood rearing of birds. Vehicle strikes are also a common impact affecting birds, reptiles and small mammals. These effects would likely remain at current levels.

Man-made and natural water sources would remain the same providing habitat for larva of the Western Encephalitis mosquito which may be carriers of West Nile Virus (WNV). Man-made reservoirs with emergent vegetation may favor this species, but also provide important habitat for many other species, including many birds, invertebrate and amphibian predators of the mosquito species and its larva. This alternative would not increase or reduce habitat for the Western Encephalitis mosquito (BLM, Instruction Bulletin MT-2011-033, July 2011).

Visual Resources

No additional effects to scenic quality would occur to the landscape under this alternative.

4.3.4 Cumulative Effects of Alternative B (Proposed Action)

Structural Improvements

An existing barb wire fence (1.5 miles in length) would be removed and replaced with a permanent 3 or 4-strand barb wire fence. The stock water pipeline project consists of installing 1.6 miles of buried pipeline and two 10 foot diameter stock tanks.

Vegetation and Soils

The cumulative effect to vegetation and soils from implementation of the proposed action alternative is negligible. The disturbance to vegetation and soils from installing the pipeline is temporary with a return to existing conditions within a short time. The pipeline route and the projected disturbance would be within the boundary of existing road beds. The amount of vegetation permanently lost from installation and use of the stock tanks is very small, less than ¼ acres.

The project would not result in any increased livestock use, increase in the number of grazing animals or change in the season of use.

The proposed action would not shift livestock into areas not previously grazed.

Wildlife

Fences constructed on public land would be subject to BLM fencing standards for areas within big game habitat to facilitate their movement and potentially decrease the number injured and killed.

The project would not result in any increased conflicts between livestock and wildlife, modification or fragmentation of habitat.

The resource road accessing the westernmost stock tank is seasonally closed from December 1st to March 31st to reduce the disturbance to wintering big game. The road is open to vehicle use during the period livestock are authorized to graze the Allotment. Access to the easternmost stock tank is on a BLM closed road. However, the road is currently used by the grazing permittee to check livestock, maintain fences and deliver salt and supplements. Vehicle activity would not be expected to increase above current levels and the period of use, when livestock are grazing the Allotment, would not occur during the big game seasonal closure.

Visual Resources

The proposed range improvement projects would not cause any additional modification or alteration to scenic quality. The pipeline route follows existing roads and the stock tanks, located on public land within a Class IV area, would be hidden from casual observation and their color designed to blend in with nearby vegetation.

Chapter 5 Consultation & Coordination

5.1 List of Preparers

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5.2 Reviewed By

Josh Sorlie; Soil Scientist, Malta Field Office

5.3 Persons and Agencies Consulted

1. Natural Resources Conservation Service (NRCS) - initial meetings with agency personnel were conducted in January 2011.

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APPENDIX 1 - SOILS

Map unit: 30A - Marvan clay, 0 to 2 percent slopes

The Marvan component makes up 90 percent of the map unit. Slopes are 0 to 2 percent. This component is on fans, terraces, drainageways. The parent material consists of alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches is moderate. Shrink-swell potential is high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This component is in the R052XC205MT Clayey (cy) 10-14" precipitation zone ecological site. Nonirrigated land capability classification is 4e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 6 percent. The soil has a moderately saline horizon within 30 inches of the soil surface. The soil has a moderately sodic horizon within 30 inches of the soil surface.

Map unit: 251C - Bascovy-Neldore clays, 2 to 8 percent slopes

The Bascovy component makes up 55 percent of the map unit. Slopes are 2 to 8 percent. This component is on hillslopes. The parent material consists of residuum weathered from shale. Depth to a root restrictive layer, bedrock, paralithic, is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches is low. Shrink-swell potential is high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. This component is in the R058AC041MT Clayey (cy) Rru 58a-c 11-14" precipitation zone ecological site. Nonirrigated land capability classification is 4e. The calcium carbonate equivalent within 40 inches, typically, does not exceed 3 percent. The soil has a moderately sodic horizon within 30 inches of the soil surface.

The Neldore component makes up 30 percent of the map unit. Slopes are 2 to 8 percent. This component is on hillslopes. The parent material consists of residuum weathered from shale. Depth to a root restrictive layer, bedrock, paralithic, is 10 to 20 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is very low. Shrink-swell potential is high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. This component is in the R058AC059MT Shallow Clay (swc) Rru 58a-c 11-14" precipitation zone ecological site. Nonirrigated land capability classification is 6s. This soil does not meet hydric criteria.

Map unit: 392B - Creed-Gerdrum complex, 0 to 4 percent slopes

The Creed component makes up 50 percent of the map unit. Slopes are 0 to 4 percent. This component is on fans, terraces. The parent material consists of alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is moderate. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. This component is in the R052XC204MT Claypan (cp) 10-14" precipitation zone ecological site. Nonirrigated land capability classification is 4s. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 10 percent. The soil has a moderately saline horizon within 30 inches of the soil surface. The soil has a moderately sodic horizon within 30 inches of the soil surface.

The Gerdrum component makes up 40 percent of the map unit. Slopes are 0 to 4 percent. This component is on fans, terraces. The parent material consists of alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches is moderate. Shrink-swell potential is high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. This component is in the R052XC204MT Claypan (cp) 10-14" precipitation zone ecological site. Nonirrigated land capability classification is 6s. This soil does not meet hydric criteria. The calcium carbonate

equivalent within 40 inches, typically, does not exceed 10 percent. The soil has a moderately saline horizon within 30 inches of the soil surface. The soil has a moderately sodic horizon within 30 inches of the soil surface.

Map unit: 1251E - Neldore-Bascovy association, 8 to 35 percent slopes

The Neldore component makes up 50 percent of the map unit. Slopes are 8 to 35 percent. This component is on hills. The parent material consists of residuum weathered from shale. Depth to a root restrictive layer, bedrock, paralithic, is 10 to 20 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is very low. Shrink-swell potential is high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. This component is in the R058AC059MT Shallow Clay (swc) Rru 58a-c 11-14" precipitation zone ecological site. Nonirrigated land capability classification is 7e. This soil does not meet hydric criteria.

The Bascovy component makes up 25 percent of the map unit. Slopes are 8 to 35 percent. This component is on hillslopes. The parent material consists of residuum weathered from shale. Depth to a root restrictive layer, bedrock, paralithic, is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches is low. Shrink-swell potential is high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. This component is in the R058AC047MT Clayey-steep (cystp) Rru 58a-c 11-14" precipitation zone (Deleted). Refer to R058A ecological site. Nonirrigated land capability classification is 6e. The calcium carbonate equivalent within 40 inches, typically, does not exceed 3 percent. The soil has a moderately sodic horizon within 30 inches of the soil surface.

Map unit: 1392B - Creed-Gerdrum-Absher association, 0 to 4 percent slopes

The Creed component makes up 35 percent of the map unit. Slopes are 0 to 4 percent. This component is on fans, terraces. The parent material consists of alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is moderate. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. This component is in the R052XC204MT Claypan (cp) 10-14" precipitation zone ecological site. Nonirrigated land capability classification is 4s. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 10 percent. The soil has a moderately saline horizon within 30 inches of the soil surface. The soil has a moderately sodic horizon within 30 inches of the soil surface.

The Gerdrum component makes up 30 percent of the map unit. Slopes are 0 to 4 percent. This component is on fans, terraces. The parent material consists of alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches is moderate. Shrink-swell potential is high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. This component is in the R052XC204MT Claypan (cp) 10-14" precipitation zone ecological site. Nonirrigated land capability classification is 6s. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 10 percent. The soil has a moderately saline horizon within 30 inches of the soil surface. The soil has a moderately sodic horizon within 30 inches of the soil surface.

The Absher component makes up 25 percent of the map unit. Slopes are 0 to 4 percent. This component is on fans, terraces. The parent material consists of alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches is low. Shrink-swell potential is high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. This component is in the R052XC206MT Dense Clay (dc) 10-14" precipitation zone ecological site. Nonirrigated land capability classification is 7s. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 10 percent. The soil has a strongly saline horizon within 30 inches of the soil surface. The soil has a strongly sodic horizon within 30 inches of the soil surface.

