

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

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BR-12 Reconstruction



BR-12 Dam during the controlled breach – May, 2011

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Table of Contents

CHAPTER 1: PURPOSE AND NEED FOR THE PROPOSED ACTION	4
Introduction.....	4
Purpose and Need	5
The Decision to be Made	5
Scoping	5
Issues Identified for Analysis (Resource Issues)	6
Issues Considered but Eliminated from Further Analysis.....	6
CHAPTER 2: THE PROPOSED ACTION AND ALTERNATIVES	8
Introduction.....	8
Alternative A - No Action.....	8
Alternative B - Proposed Action.....	8
Alternatives Considered but not Carried Forward for Analysis.....	9
Conformance with Land Use Plan	9
Relationship to Statutes, Regulations, or other Plans	9
Summary Comparison of Environmental Impacts.....	10
CHAPTER 3: AFFECTED ENVIRONMENT	11
Introduction.....	11
General Setting.....	11
Relevant Past and Ongoing Actions.....	12
Resource Issues Brought Forward for Analysis.....	13
CHAPTER 4: ENVIRONMENTAL EFFECTS	16
Introduction.....	16
Methodology and Analytical Assumptions.....	16
Cumulative Impacts (All Resources)	21
CHAPTER 5: CONSULTATION AND COORDINATION	25
Introduction.....	25
Persons, Groups, and Agencies Consulted.....	25
List of Preparers.....	25
REFERENCES.....	27
APPENDICES	28
Appendix 1 – BLM Water Developments and Water Rights within the CIAA.....	28

Appendix 2 – Soils in the Project Area..... 29
Appendix 3 – Recommended Seed Mix for Reclamation..... 30
Appendix 4 – Map of the CIAA..... 30
Appendix 5 – BLM Allotments Within or Partially Within the CIAA..... 31

CHAPTER 1

PURPOSE AND NEED FOR THE PROPOSED ACTION

Introduction

Blaine Reservoir #12 (BR-12), Department of the Interior (DOI), Bureau of Land Management (BLM) Project #443716, was originally constructed as a Works Projects Administration (WPA) project in 1936. The dam was constructed for livestock water and flood control. Recently BR-12 has been designated as a watchable wildlife area. Rainbow trout and bluegill were stocked in the reservoir in 2008, but due to the shallow nature of the impoundment, stocking was unsuccessful. The reservoir is located in T34N R21E Section 18, approximately 8 miles north of Zurich, MT (See Figure 1).

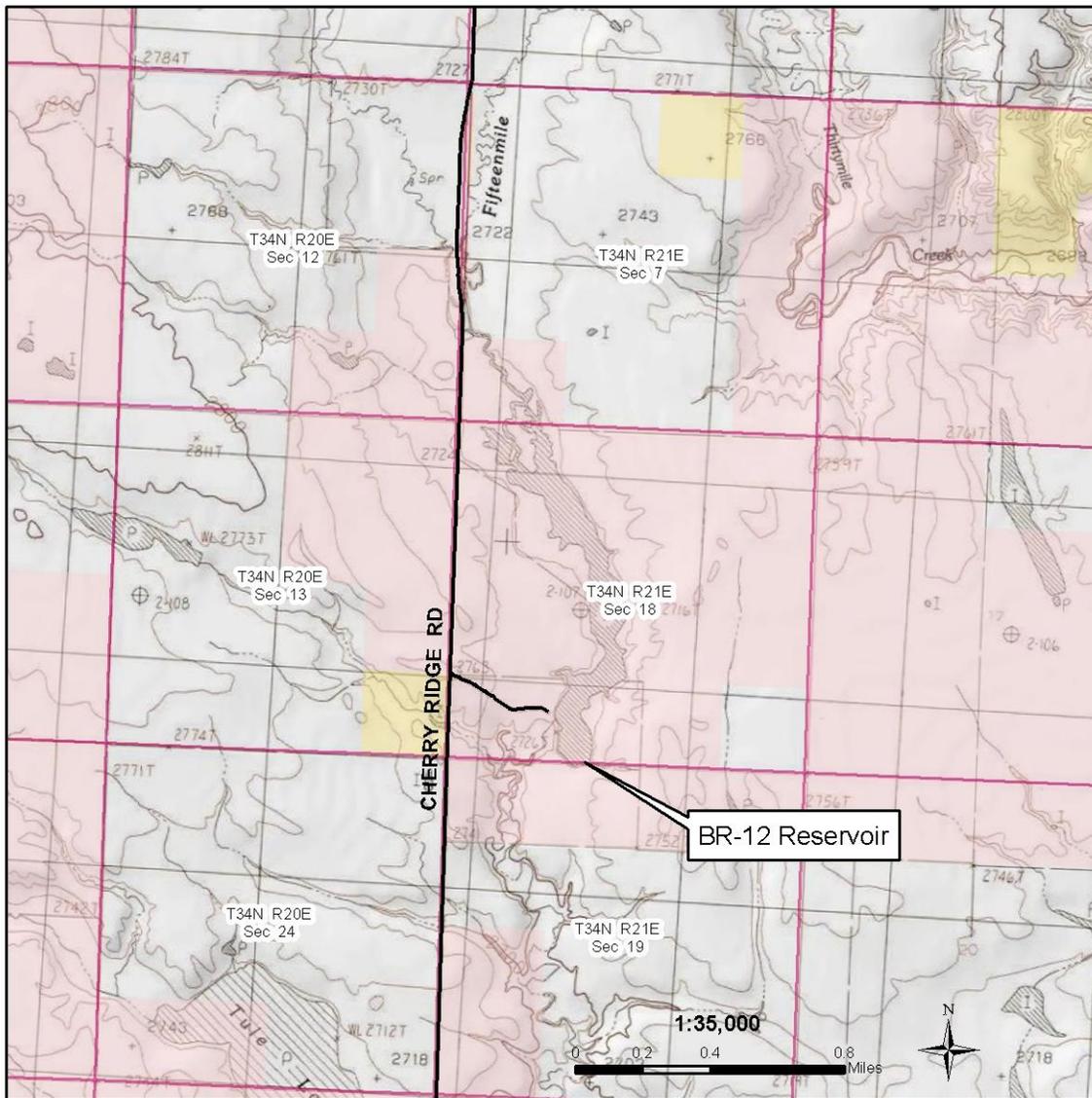


Figure 1. BR-12 Location Map

The BR-12 embankment was altered in 1969 to install three (3) 24 inch pipes for a principal spillway. The structure was altered again in 1983 to remove a non-functioning headgate system from the principle spillway and to remove the original 24” principle pipe which was corroded and leaking.

A 2011 survey of BR-12 completed by DOWL HKM (DOWL HKM, 2011) identified the BR-12 dam as 680 feet long at the crest with a hydraulic height of 18 feet and a structural height of 21 feet. Storage capacity of the reservoir at the height of the auxiliary spillway is 1,280 acre-feet (ac-ft.).

Due to unusually high spring runoff during May, 2011, BR-12 was mechanically breached to avoid an uncontrolled failure. A new auxiliary spillway was constructed approximately 8 feet below the existing spillway elevation which reduced the storage capacity of BR-12 to approximately 125 ac-ft. The Bureau of Land Management-HiLine District Office is proposing to reconstruct BR-12 to the original size and capacity incorporating current design specifications and safety features. Construction would take place during 2016. The dam will be reconstructed in its original location.

Purpose and Need

The purpose of the action is to reconstruct BR-12. The need for the action is to provide flood control and public safety, wildlife habitat, livestock water, and to ensure the BR-12 dam structure meets current standards as outlined in BLM Manual 9177 – Maintenance and Safety of Dams (DOI, 2003).

The Decision to be Made

The BLM HiLine District Manager must decide whether or not to rebuild the BR-12 dam structure to current standards with a new auxiliary spillway.

Scoping

An internal scoping request was sent to the BLM resource specialists responsible for vegetation, soils, cultural resources, recreation and visuals, invasive weeds, wildlife, and hydrology on May 1, 2012. Copies of the scoping request and the specialists’ responses are filed in the administrative record for this environmental assessment (EA). The issues identified from the scoping responses are listed below.

An internal scoping meeting was held at the BLM Havre Field Office on August 23, 2012 to discuss the initial engineering estimate, identify the location of the auxiliary spillway, and to quantify the type and amount of disturbance expected during reconstruction of BR-12.

Issues Identified for Analysis (Resource Issues)

Internal scoping identified the issues considered in this analysis. 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 various alternatives on each issue.

How would the proposed action and the alternatives affect upland vegetation?

Resource Impact Indicator(s):

- Acres of disturbance
- Native species composition

How would the proposed action and the alternatives affect riparian vegetation?

Resource Impact Indicator(s):

- Acres of riparian vegetation

How would the proposed action and the alternatives affect flood control?

Resource Impact Indicator(s):

- Storage capacity of BR-12 (ac-ft.)

How would the proposed action and the alternatives affect the hydrology of the Middle Milk watershed?

Resource Impact Indicator(s):

- Annual runoff captured by BR-12 (ac-ft.)

How would the proposed action and the alternatives affect soils?

Resource Impact Indicator(s):

- Acres of disturbance

How would the proposed action and the alternatives affect recreation activities?

Resource Impact Indicator(s):

- Watchable wildlife area
- Visitor days
- Educational activities

How would the proposed action and the alternatives affect wildlife?

Resource Impact Indicator(s):

- Riparian habitat (acres)
- Native nesting habitat (acres)

Issues Considered but Eliminated from Further Analysis

The following issues were identified during scoping but were eliminated from further study for the reasons outlined below.

How would the proposed action and the alternatives affect invasive species?

The effects of the proposed action on invasive species was considered but not selected for analysis because eradication of invasive species present within the project area is unlikely, and treatment of these invasive species will continue regardless of alternative selected.

Currently, one state listed noxious weed (Canada thistle) and one state regulated plant (Russian olive) occur on or near the site of the proposed action. Russian olive has been treated in the past but will likely reinvade the area via wildlife introductions. Canada thistle will most likely persist to some extent regardless of actions taken to control/eradicate it from the area. If properly mitigated and reclaimed, the disturbance caused by the proposed action would not likely contribute to the proliferation of noxious or invasive species.

How would the proposed action and the alternatives affect cultural and historic resources?

On February 9th 2011, the BLM Havre Field Office intensively inventoried (BR-12 Dam Report #11-MT-066-005) for the presence of cultural resources inside the immediate boundaries of the proposed project located at BR-12. Site # 24BL1803 (BR-12 Dam) was heavily impacted at that time by the excavation of a controlled breach, installation of a coffer dam and three controllable culverts.

Site # 24BL1803 (Not Eligible) identifies the BR-12 Dam. BLM records indicate the Dam was built in 1936. An anecdote in local history suggests that local crews were working under the Works Progress Administration (WPA, 1935-1943) and they constructed all of the features which compose the site. 24BL1803 also contained several piles of rocks that were used and leftover from the riprap along the face and backside of the Dam.

24BL1803 is not eligible for NRHP listing under any criteria (SHPO concurrence 9/7/2012). Furthermore; the integrity of the site has been compromised throughout its life span by multiple rebuilds occurring in the 1960's and 1980's as well as a large scale earth work project associated with the emergency action in 2011.

The surrounding areas near the proposed project have also been intensively inventoried on multiple occasions (04-MT-066-011, 12-MT-066-007) providing an excellent analysis of the immediate area both within the confines of the project and its immediate surroundings. No NRHP eligible properties will be affected by the reconstruction of BR-12.

How would the proposed action affect Native American Concerns?

Through past and ongoing consultation the proposed project area has not been identified as an area of concern for any Native American Tribe.

CHAPTER 2

THE PROPOSED ACTION AND ALTERNATIVES

Introduction

Alternatives were developed based upon National and State BLM direction and policy, existing conditions and resource issues. Resource issues are discussed in Chapter 1. Other factors that influenced alternative development are discussed in Chapter 3.

Alternative A - No Action

Under this alternative, the BLM would not reconstruct BR-12. BR-12 would remain breached and the spillway constructed in 2011 would be lowered to ensure BR-12 would hold less than 50 ac-ft. of water at full pool. The 2.5 acres of vegetation disturbed during the controlled breach in 2011 would be reseeded using a native seed mix (See Appendix 3).

Alternative B - Proposed Action

Under this alternative, the BLM would contract the reconstruction of BR-12 to its original size. A new auxiliary spillway would be constructed on the west side of the embankment to replace the auxiliary spillway currently located on the east side of the embankment. The new spillway would be approximately 150 feet wide by 550 feet long. The spillway would be constructed at 2,272' in elevation (2 feet below the existing auxiliary spillway elevation of 2,724') in order to avoid flooding the Cherry Ridge County Road during high runoff events. The dam embankment would be reconstructed using an appropriately sized gated pipe capable of complete draw-down of the reservoir at full pool in 72 hours. The top of the embankment would be constructed to 16 feet wide with a 3:1 back slope. An emergency action plan (EAP) would be created and implemented as required for hazard class dams.

The following design features will be included with this action:

1. Construction activities shall not be performed during periods when the soil is too wet to adequately support equipment/vehicles. If equipment/vehicles create ruts in excess of 3 inches deep, operations must cease as the soil will be deemed too wet to adequately support equipment/vehicles.
2. Erosion control and sediment containment products (i.e. straw wattles, silt fence, erosion control blankets/mats, sediment stop, etc.) shall be installed, where necessary, to aid in stabilization and capture of sediment until vegetation reestablishes to effectively control erosion and sediment.
3. Design and install measures to minimize headcutting at and below the spillway.
4. Where soils are disturbed, topsoil shall be stripped, separated from subsoil/parent material, and stockpiled for use in reclamation.

5. Site reclamation will 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 instances will grading material and/or subsoil be placed over topsoil. The order of soil replacement will be the reverse of removal, e.g. first off, last on.
6. To protect pronghorn on winter range, surface disturbing or disruptive activities will not be allowed December 1 – 15 May. An exception to this timing mitigation may be requested from the authorized officer. Exception allowances will be based on herd health, existing/forecast winter conditions and Montana Fish, Wildlife and Parks concurrence.
7. All equipment and vehicles used in the construction process will be washed to help prevent the introduction of invasive species seed.
8. All disturbed areas would be reseeded with a mix of native plant species adapted to the site. Only certified weed free seed would be used. A list of recommended species and seeding rates is presented in Appendix 3.
9. Monitoring will occur on the site until desirable vegetation has reclaimed disturbed areas.
10. Temporary electric fencing will be placed around reclaimed areas until vegetation has established to BLM standards.

Alternatives Considered but not Carried Forward for Analysis

Rebuilding BR-12 without the gated outlet pipe was a cost-saving alternative considered but not analyzed because gated outlet pipes are required for emergency draw-down on hazard class dams.

Conformance with Land Use Plan

The public lands in the project area are managed according to decisions in the West HiLine Resource Management Plan (RMP) approved in 1988. The West HiLine RMP can be accessed using the internet at <http://www.blm.gov/mt/st/en/prog/planning.1.html>.

The proposed action is in conformance with the West HiLine RMP. While not specifically addressed, the proposed action is consistent with management objectives for soils (page 8), water resource (page 8), vegetation (both upland and riparian areas) (page 11), wildlife and fisheries (page 14), cultural resources and protection of traditional cultural values (page 15), and recreation (page 16).

Relationship to Statutes, Regulations, or other Plans

The Proposed Action is in conformance with the federal grazing regulations that state in Subchapter D – Range Management at 43 CFR 4120.3-1 (a): Range improvements shall be installed, used, maintained, and/or modified on the public lands, or removed from these lands, in a manner consistent with multiple-use management.

Federal Land Policy and Management Act of 1976, Section 401 (b)(1) (P.L. 94-579; 42 U.S.C 1751, as amended)

Taylor Grazing Act of 1934, Section 315(b) (43 U.S.C. 315-315r, as amended)

Environmental Assessment MT-M01300-2009-0036 proposes to enhance the wildlife viewing experience at BR-12 by constructing a primitive parking area, creating a walking path and wildlife viewing point, and installing an interpretive panel.

Summary Comparison of Environmental Impacts

Table 1. Summary Comparison of Impacts by Resource

Resource Impact Indicator	Alternative A – No Action	Alternative B – Reconstruction
Upland Vegetation Disturbance	2.5 acres	~7 acres
Riparian Plant Community	5-20 acres	30-45 acres
Flood Control (Storage)	<50 ac-ft. total storage, non-releasable	340 ac-ft. storage, 450 ac-ft. of additional flood storage, releasable
Hydrology (Annual runoff captured)	Approximately 48 ac-ft. of runoff captured annually (2.5% of the Middle Milk subwatershed mean annual runoff)	Approximately 259 ac- ft. of runoff captured annually (14% of the Middle Milk subwatershed mean annual runoff)
Soils Disturbance	2.5 acres	~7 acres
Recreation	~0-50 visitor use days	~300 visitor use days
Wildlife (Lentic Riparian Habitat)	~5 acres	30 – 45 acres
Wildlife (Upland Nesting Habitat Reclaimed)	0 acres	~7 acres
Cost	\$2700	\$1,200,000

CHAPTER 3

AFFECTED ENVIRONMENT

Introduction

The affected environment section describes the existing condition and trend of issue-related elements of the human environment that may be affected by implementing the proposed action or an alternative. This discussion is organized by the resource issues that were identified in Chapter 1 and provides the baseline for comparison of impacts/consequences described in Chapter 4.

General Setting

BR-12 is located approximately 8 miles north of Zurich, MT in T34N R21E Section 18. It is located within the BR-12/NW 30 Mile #6064 BLM grazing allotment (See Figure 2.). In total BR-12/NW 30 Mile contains 2,602 acres and 469 Animal Unit Months (AUMs). There are 2,032 acres of public land (156 acres of public domain (PD), and 1,876 acres of Bankhead Jones Land Utilization Lands (LU)), and 358 public Animal Unit Months (AUMs), and 570 acres of private land and 111 AUMs of private forage. The BR-12/NW 30 Mile allotment is permitted for use between May 15 and October 30; however, the BR-12 pasture is a special management pasture that receives grazing for only 14 days during the grazing year.

Elevation in the Middle Milk subwatershed varies from 2,380 feet where Fifteenmile Creek meets the milk river near Zurich to about 3,560 feet at West Butte near the northern eastern end of the subwatershed. The average annual precipitation is 12 inches, and the average temperature is 43 degrees Fahrenheit. The average growing season is 115 days. The area is dominated by short and mid-grass prairie associated with the northern glaciated plains.

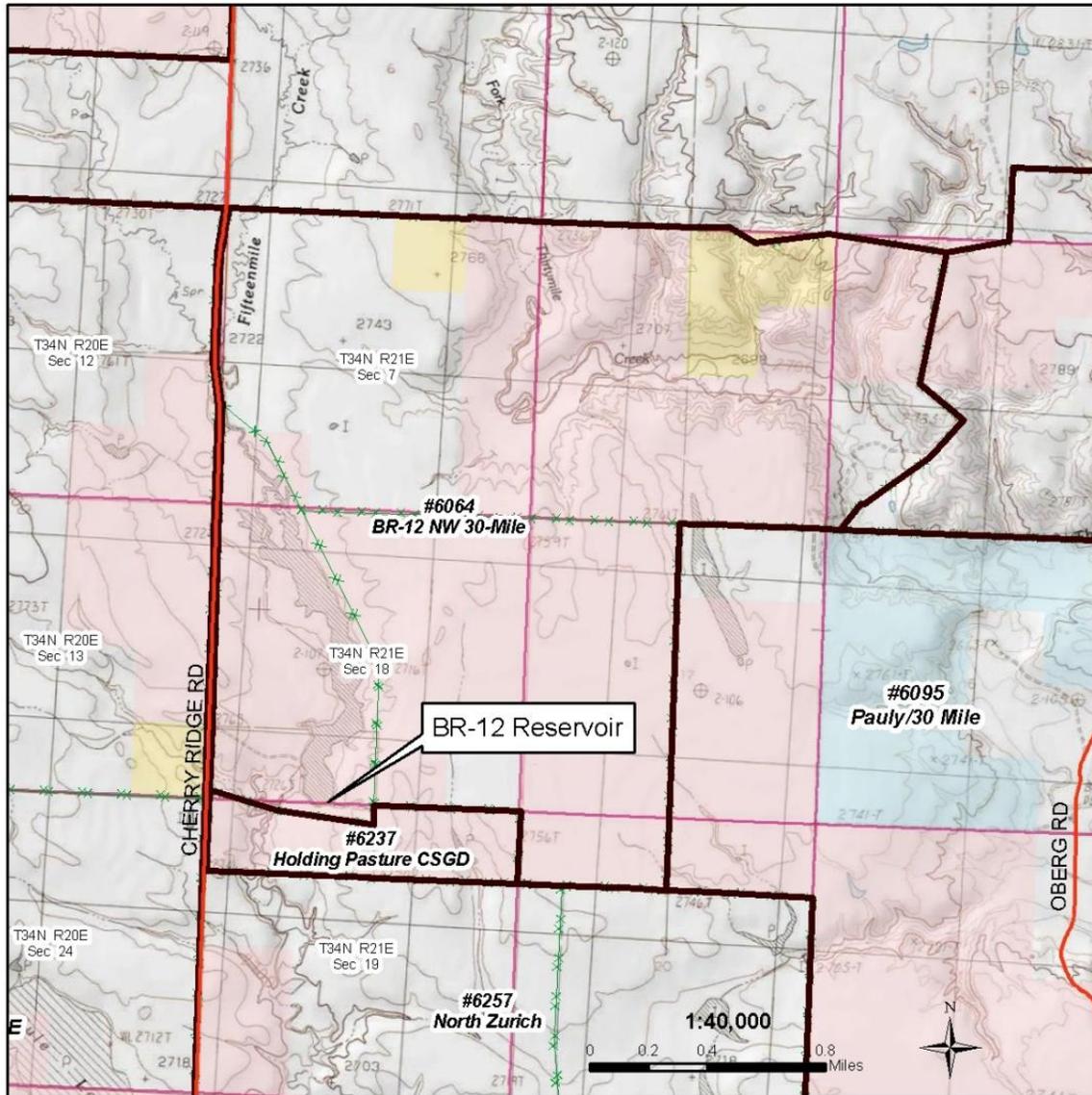


Figure 2. BR-12 and BR-12 / NW 30 Mile Allotment #6064

Relevant Past and Ongoing Actions

The BR-12 area has been grazed by domestic livestock since the late 1800's; therefore, the vegetation present today is partially a result of a long grazing history. The dominant land uses in the area are farming and ranching. Infrastructure development has been limited, although there are private and county roads, power lines, livestock water facilities, and limited gas and oil development in the area.

Resource Issues Brought Forward for Analysis

Upland Vegetation

The BR-12 embankment was constructed on a silty-steep ecological site; however the majority of the allotment consists of silty or dense clay ecological sites within the 10-14 inch precipitation zone. The embankment area has been reseeded in the past using crested wheatgrass. Therefore, vegetation around the dam site consists of mostly crested wheatgrass with some native grasses and forbs that have naturally reestablished within the original project area. Vegetation throughout the pasture and allotment is typical of what would be expected in within the specified soil types in the northern glaciated plains. Grasses found in the area consist of western wheatgrass, needleandthread, green needlegrass, blue grama, and junegrass. Predominant shrubs are silver sagebrush, winterfat, rubber rabbitbrush, and broom snakeweed. A variety of native forbs including scarlet globemallow, scurfpea, woolly plantain, sunflower, and cactus (succulent) are also found in the area. Rangeland health assessments completed for the BR-12/NW 30 Mile #6064 allotment in 2004 and a rangeland health determination completed in 2005 confirmed that all Standards of Rangeland Health were being met at that time.

Because the BR-12 pasture is grazed for only 14 days throughout the grazing season, upland vegetation within this pasture is typically exhibits high vigor. Adequate precipitation during the past few growing seasons has also aided upland plant communities. Plant communities within the BR-12 pasture would be rated as mid- to late seral.

Riparian Vegetation

Before the breach of BR-12 in 2011, the reservoir supported an emergent riparian community consisting of hardstem bulrush, cattail, spike rush, and various other obligate wetland plant species. When assessed in 2009, the lentic community supported by BR-12 was in proper functioning condition. The size of this riparian community varied between 30 and 45 acres depending on water levels in the reservoir.

Flood Control

BR-12 was constructed for wildlife, stockwater, and flood control. When the embankment was functioning, BR-12 was capable of holding up to 940 ac-ft. of water in emergency flood storage (storage above the principle pipe level, but below the auxiliary spillway). However, the headgate on the principle pipe was removed, which allowed water to pass once the height of the principle pipe was reached.

Hydrology

BR-12 is located on Fifteenmile Creek, and ephemeral stream which flows through the BR-12-NW 30 Mile #6064 grazing allotment. Fifteenmile Creek is located in the Middle Milk subwatershed.

There are 33 water impoundments on BLM land within the Middle Milk subwatershed and 62 water rights claimed by the BLM for livestock and wildlife for these developments. In total the

BLM water rights total 201.2 ac-ft. claimed for wildlife and livestock within the Middle Milk subwatershed. All of the existing impoundments are functioning properly according to their capability.

The surface area of the Middle Milk subwatershed is approximately 53.6 square miles. Using the region 1 runoff regression equation from Omang and Parrot (1984) the Middle Milk watershed produces approximately 1,850 ac-ft. of runoff annually. Therefore, BR-12 stored approximately 18.4% of the mean annual runoff of the Middle Milk watershed and 0.09% of the mean annual runoff from the entire Milk River watershed. Based on surface water lost to evaporation, BR-12 would have captured approximately 259 ac-ft. or 14% of the mean annual runoff produced in the Middle Milk subwatershed before it was breached in 2011. Appendix 1 offers insight into the locations of existing BLM water developments within the Middle Milk subwatershed and the current water rights claimed by the BLM.

Soils

Soils were identified from the USDA-NRCS SSURGO dataset and the Soil Data Mart (SDM) website (<http://soildatamart.nrcs.usda.gov/>). Soil surveys were performed by the Natural Resource Conservation Service according to National Cooperative Soil Survey 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) within the project area are the: Map unit: 67 - Hillon clay loam, 25 to 45 percent slopes and Map unit: 98 - Phillips-Elloam complex, 4 to 8 percent slopes.

Appendix 2 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.

Soils on and around the reservoir area were disturbed at the time of the original construction and then subsequently flooded and when it was mechanically breached; therefore, they are anthropic and do not have the same characteristics as in a natural state. Soils along the access road are compacted and productivity is limited.

Recreation

BR-12 is a Watchable Wildlife site featured in the “Montana Wildlife Viewing Guide” which features 89 of the best wildlife viewing sites across Montana. A Watchable Wildlife sign directs visitors to the site from U.S. Highway 2. Wildlife viewing activities are a popular pastime in Montana and BR-12 provides an easily accessible opportunity for residents and nonresidents alike. The site is also promoted as a BLM recreation area on the HiLine recreation website. Some developments have been added to the site for visitor use including a parking area and a boundary fence to exclude cattle when the site is not being grazed. The 2001-2002 survey of nonresident visitors done by the Institute for Tourism and Recreation Research (ITRR) found that more than 20% (22% in Hill County, 26% in nearby Missouri River Country travel region) of nonresident visitors to the area participate in some form of wildlife watching. A 2005 study by ITRR found that over 30% of Montana residents participate in wildlife watching activities.

In addition to tourism and outdoor recreation, BR-12 is a destination for school groups and other organizations for environmental education field trips. The site's proximity to Chinook and easy access from a maintained county road makes this an ideal site for outdoor classroom activities. Organizations that have visited this area include Boy Scouts, Chinook 4-H, and Great Falls and HiLine Audubon groups. Waterfowl tours with Montana Fish, Wildlife and Parks have also been held at the reservoir. The majority of recreation and environmental education visits to BR-12 are dependent on the diversity of the wetland habitat available which supports a more varied assortment of wetland plants, wildlife, and aquatic insects than most of the other reservoirs in the area.

Wildlife

BR-12 is designated as a Watchable Wildlife Area. During spring and fall migrations a wide variety of waterfowl can be observed in the area and include Tundra swan, Canada geese; as well as both diving and dabbling ducks. In addition, during the nesting season, shorebirds are common along the shallows of BR-12 and terns and gulls are quite common.

The sagebrush/grassland habitat present is a minor component of larger adjacent habitat for Neotropical Migratory Birds. The species present are those common to the short and mid-grass prairie and sagebrush grasslands. The area around BR-12 has a high suitability modeling for Sprague's pipit nesting habitat.

Upland game can be found near BR-12 and include Hungarian partridge, sharp-tailed grouse and ring-necked pheasant.

Pronghorn, along with mule deer are common in the area, and the associated habitat is designated pronghorn winter range. Swift fox are common in the area and denning occurs in close proximity of BR-12.

CHAPTER 4

ENVIRONMENTAL EFFECTS

Introduction

Potential effects include direct, indirect and cumulative effects. Direct effects are those which are caused by the action and occur at the same time and place. Indirect effects are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Cumulative effects result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions.

Methodology and Analytical Assumptions

The effects analysis is based on scientific literature, professional judgment, experience, and field measurements. This analysis is organized by resource issues. Under each resource issue, the estimated effects common to the alternatives or those unique to a particular alternative are described. The analysis of effects focuses on the predicted or anticipated change to the resource impact indicator(s) identified for each resource issue in Chapter 1 and brought forward for analysis in Chapter 3.

How would the proposed action and the alternatives affect upland vegetation?

Alternative A - No Action

Under this alternative, there would be no additional disturbance to vegetation at the BR-12 site. The 2.5 acres disturbed during the controlled breach in 2011 would be reseeded with a native seed mix (See Appendix 3).

Alternative B - Proposed Action

Under this alternative, approximately 7 acres of vegetation would be removed during the reconstruction of BR-12 (See Figure 3). Approximately 2.5 acres of vegetation were removed during the emergency breaching of BR-12 in 2011. These disturbed areas are included in this estimate. It is also important to note that Figure 3 shows the maximum possible disturbance (14.6 acres); however, because only one spillway will be constructed, the actual disturbance will be approximately half of that shown. The areas that would be disturbed consist almost entirely of crested wheatgrass as a result of seeding during past construction or reconstruction activities of the BR-12 embankment. Removal of this vegetation followed by reclamation activities including reseeded with a seed mix (See Appendix 3) of native species suitable to the specific soil type would result in a plant community more desirable for this area.

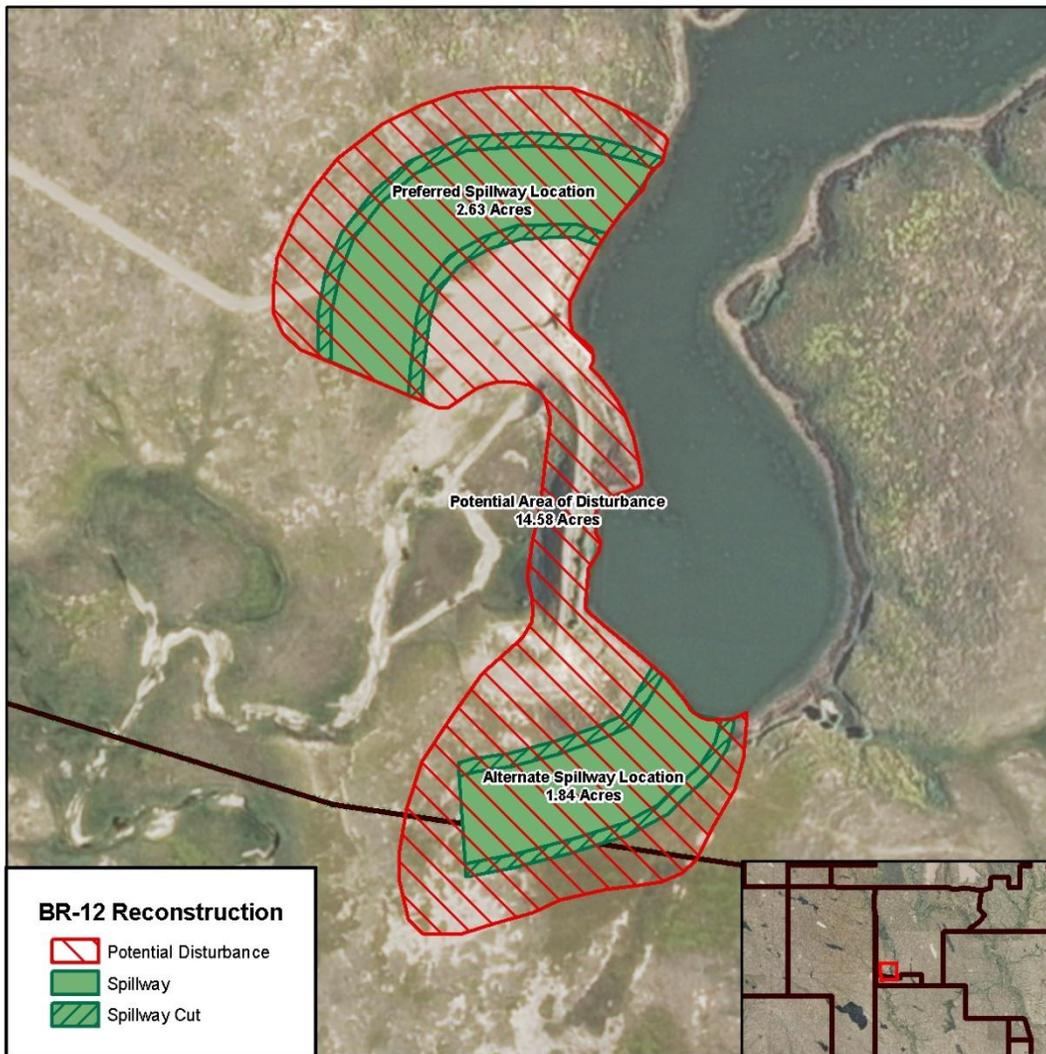


Figure 3. Potential Disturbance Area for the Reconstruction of BR-12

Cumulative Impact Analysis

Same as cumulative impacts discussed under all resources.

How would the proposed action and the alternatives affect riparian vegetation?

Alternative A - No Action

Under this alternative, the existing lentic community of approximately 30-45 acres would be reduced in size to approximately 5 acres due to dewatering of the area previously flooded by BR-12.

Alternative B - Proposed Action

Under this alternative, the existing lentic community of approximately 30-45 acres would be maintained at the current size. Reconstruction of BR-12 would flood these areas with shallow water adequate to provide season-long moisture for obligate wetland plants.

How would the proposed action and the alternatives affect flood control?

Alternative A - No Action

Under this alternative, the storage capacity of BR-12 would be less than 50 ac-ft. Runoff in excess of that required to fill BR-12 would be passed through the auxiliary spillway created after the controlled breach of the reservoir during 2011. This passed water would eventually flow into the Milk River near Zurich, MT. There would be no releasable storage or ability to store runoff from large storm events in BR-12.

Alternative B - Proposed Action

Under this alternative, BR-12 would be reconstructed to pre-breach size capable of storing approximately 340 ac-ft. of water. BR-12 would have an emergency flood storage capacity of an additional 450 ac-ft. of water (reduced to 790 ac-ft. due to the lower elevation of the new auxiliary spillway). In addition, the reconstructed embankment would incorporate an appropriately sized principle pipe with a manually operated headgate. This would allow for the controlled release of water during large storm events. This may benefit downstream landowners in instances like 2011, where the additional flows from the Middle Milk watershed would have been enough to flood downstream areas in Zurich, Harlem, and Fort Belknap.

How would the proposed action and the alternatives affect the hydrology of the Middle Milk watershed?

Alternative A - No Action

Under this alternative, BR-12 would hold less than 50 ac-ft. of water at full pool. The original BR-12 embankment had principle pipes which passed water through the embankment once the reservoir reached full pool. Because the reservoir would be much smaller under this alternative, more water would pass through the reservoir and augment the flows of Fifteenmile Creek. Using evaporative loss to estimate annual runoff captured (amount of water required to refill the reservoir to full pool), BR-12 would capture approximately 2.5% (48 ac-ft.) of the runoff from the Middle Milk subwatershed annually.

Alternative B - Proposed Action

Under this alternative, BR-12 would be capable of storing 340 ac-ft. of water at full pool. Because the reservoir would be drained completely during construction, it can be assumed approximately 35% (340 ac-ft.) of the annual upstream runoff produced in the Middle Milk subwatershed will be captured by BR-12 during the first year post construction. After the first

season, BR-12 would capture approximately 14% (259 ac-ft.) of the runoff from the Middle Milk subwatershed annually. Therefore, this alternative results in a reduction of 211 ac-ft. of water available augment the flows of Fifteenmile Creek below BR-12.

Cumulative Impact Analysis

Under the proposed alternative, BR-12 would capture approximately 259 ac-ft. of runoff annually from the Middle Milk subwatershed in addition to other existing water impoundments located within the subwatershed.

Mitigation and Residual Impacts

An additional 290 ac-ft. of water would be stored in BR-12 under the proposed alternative. BR-12 would capture approximately 12% (229 ac-ft.) more runoff from the middle milk watershed under the proposed alternative.

How would the proposed action and the alternatives affect soils?

Alternative A - No Action

There would be no additional disturbance to soils at the BR-12 site. The 2.5 acres of soil disturbed during the controlled breach in 2011 would be reclaimed using a native seed mix (See Appendix 3).

Alternative B - Proposed Action

Soils would be affected by means of surface disturbances to reconstruct the BR-12 embankment and spillway. Approximately 7 acres would be disturbed. Surface disturbances would occur on and adjacent to the embankment areas, borrow areas, and the access road (See Figure 3). Direct effects would include removal of vegetation, exposure of the soil, mixing of soil horizons, loss of topsoil productivity, soil compaction, and increased susceptibility to wind and water erosion. A headcut could occur at the outlets of the spillway due to the erodible nature of the bare soils. Once construction is completed and vegetation is re-established, through reclamation efforts, soils should return to a productive state at/around the reservoir disturbance area.

Equipment/vehicles associated with the project would cause soil compaction. Severity would be directly related to soil moisture, frequency, and weight (lbs. per sq. inch) of equipment. Compaction alters soil structure; decreasing porosity, infiltration rate, air space and available water holding capacity, vegetation health, and also affects re-vegetation.

Soil productivity would remain limited within the traveled-way of the existing access road for the life of the road.

Soils could also be effected by fluid spills, including engine oil, hydraulic oil, and fuel (gasoline or diesel), etc. These spills could severely affect soil in localized areas; excessive concentrations may be capable of soil sterilization.

Cumulative Impact Analysis

Same as cumulative impacts discussed under all resources.

How would the proposed action and the alternatives affect recreation?

Alternative A - No Action

Under this alternative, the available wetland habitat will remain at 5 acres rather than 30-45 acres. The site will lose its diversity of aquatic vegetation and other wetland dependent species which make the site unique and provide the major recreational and environmental education uses at the site. As a result, the site would lose its Watchable Wildlife designation and the directional sign would be removed from U.S. Highway 2. The site would no longer provide a unique recreational experience for BLM visitors and would not be promoted as a BLM recreation area and no additional facilities would be developed for visitor use. Visitor opportunities and use would become similar to those available on other BLM administered lands in the area.

Alternative B - Proposed Action

Under this alternative, the site would continue to be promoted as a Watchable Wildlife Area as well as a BLM recreation area. Visitor days would likely return to pre-breach levels. Recreational facilities would be maintained and additional improvements would be considered if warranted by public demand.

Cumulative Impact Analysis

Environmental Assessment MT-M01300-2009-0036 proposes to enhance the wildlife viewing experience at BR-12 by constructing a primitive parking area, creating a walking path and wildlife viewing point and installing an interpretive panel. Under Alternative A these enhancements would not be developed and this interpretive opportunity would not be available.

Under Alternative B the environmental education and interpretive features would be developed which would enhance the wildlife viewing experience but would also increase ground disturbance (approximately 1.5 acres).

Mitigation and Residual Impacts

Under Alternative A there would be no required mitigation. Environmental education and interpretive activities may shift to other areas that offer diverse wildlife habitat.

Under Alternative B there would be no required mitigation or residual impacts since recreational use would return to pre-breach activities.

How would the proposed action and the alternatives affect wildlife habitat?

Alternative A - No Action

Under this alternative, there would be no additional disturbance to vegetation at BR-12. However, the undisturbed habitat is primarily crested wheatgrass with some volunteer native vegetation intermixed. This habitat is marginal for waterfowl or grassland birds nesting habitat.

The BR-12 pool would decrease and this would reduce the associated lentic riparian habitat to approximately 5 acres. This would be 600% less riparian habitat compared to the proposed action.

Alternative B - Proposed Action

Under this alternative, there would be a short-term disturbance of 7 acres. This nesting habitat will not be available for several years until native vegetation has reestablished. The long-term benefit will be a restored native nesting habitat for waterfowl and grassland birds.

The BR-12 pool would return to the existing pool size prior the May 2011 inundation and breach. Under this alternative, there would be 30 – 45 acres of lentic riparian habitat depending on the water run-off year.

Mitigation and Residual Impacts

Under Alternative A there would be no required mitigation.

Under Alternative B there would be no required mitigation or residual impacts. All surface disturbing activities will occur in the footprint of the existing disturbance; habitat that is not currently important to nesting or winter range habitat.

Cumulative Impacts (All Resources)

Geographic Scope

The cumulative impacts analysis area (CIAA) for environmental effects consists of the fifth order Middle Milk subwatershed corresponding to the Hydrologic Unit Code (HUC) #10050004070 (DNRC, 2011) unless otherwise noted. This watershed totals 34,303 acres (53.6 square miles) and is a subwatershed within the Milk River watershed. The Milk River watershed includes parts of Alberta, and Saskatchewan, and Montana, and totals 15,232,000 acres (23,800 square miles) (Milk River Watershed Council Canada, 2008). This geographic area was used because it includes the entire BR-12 drainage area. Appendix 4 shows a map of the CIAA.

Temporal Scope

The typical lifespan of pits and reservoirs is approximated at 15 years (BLM, 1986). Therefore, the timeframe for this cumulative impacts analysis is limited to 15 years after water development

construction unless otherwise stated. The existing BR-12 embankment has been in place for 75 years, and while the reconstructed embankment will likely exist for more than 15 years, it is difficult to estimate development trends past a 15 year timeframe.

Affected Environment

The affected environment for this analysis is the Middle Milk watershed where BR-12 was and potentially will be located again. The native vegetation within the drainage area is similar and typical of what would be found in the northern mixed grass prairie.

There are 19 BLM allotments located within, or partially within the CIAA. The allotment name, number, acreage, and BLM management category are listed in Appendix 5. Surface ownership within the CIAA is split between BLM and private lands (See Appendix 4). The BLM manages 10,201 acres (29.7%), private landowners control 24,101 (70.3%) of the land within the CIAA.

Past Actions

There are 86 surface water developments located within the CIAA according to the Montana Department of Natural Resources and Conservation (DNRC) (DNRC, 2011). The BLM has a total of 32 water developments: 15 reservoirs, 7 pits, and 10 pits with retention dams. Private landowners have a total of 54 water developments: 35 reservoirs, 9 pits, and 10 pits with retention dams. The vast majority of the water right claims are for stockwater, although a few are for wildlife or irrigation. Water development size data is not available for all water developments; however, averaging developments with data available (DNRC, 2011) results in a size estimate of 2.1 surface acres and 8.3 ac-ft. of storage per development. Therefore, approximately 181 acres of soil and upland vegetation has been disturbed (from construction and/or from flooding) due to water development construction within the CIAA.

The CIAA has 47 gas and oil developments. The 47 developments consist of: 28 plugged and abandoned wells (reclamation complete), 8 producing gas wells, 3 producing oil wells, 6 shut-in gas wells, 1 shut-in oil well, and 1 current drilling location. Based on average well pad size, road access, and flow lines, these 36 developments have resulted in approximately 244 acres of soil and upland vegetation disturbance within the CIAA. Post reclamation and abandonment of the gas and oil sites results in approximately 43 acres of long-term soil and upland vegetation disturbance.

There are 114.3 miles of verified road for vehicle travel within the CIAA. There are 1.2 miles of US highway, 24.3 miles of improved county road, and 88.8 miles of unimproved two-track or private road. Based on the standard 60 foot right-of-way (ROW), (DOI, 1985), county roads resulted in soil and upland vegetation disturbance of 177 acres. Long term disturbance of country roads (ditches reclaimed) results in disturbance of 88 acres of vegetation. Two-track and private roads have resulted in 129 acres of long-term soil and upland vegetation disturbance assuming a 12 foot width.

One of the major land uses for private land in this area is farming. Based on digitizing polygons from 2011 satellite imagery, approximately 29% of the CIAA is farmed (cereal grains or hay),

enrolled in the conservation reserve program (CRP), or tame pasture. Therefore, production agriculture has disturbed 5,202 acres of native upland vegetation on private lands. Of the BLM managed land within the CIAA, all but about 67 acres are classified as Bankhead-Jones Land Utilization Act Lands (LU). LU lands were patented to homesteaders and then came back to the government. Therefore, it is possible that some of these lands were once disturbed by some type agricultural activity.

Present Actions

Farming, ranching, and gas and oil exploration are ongoing within the CIAA. A geophysical exploration contract covering 13,356 acres of the CIAA was completed during the summer and fall of 2012. All areas explored during the geophysical operations were classified as low potential areas for gas and oil development.

Reasonably Foreseeable Actions

District wide, it is predicted that the BLM will need to rebuild or replace approximately 100 reservoirs or pits per year. Using this estimate and extrapolating it to include private land, there will be approximately 1.4 reservoirs built or repaired each year within the CIAA. This estimate results in approximately 21 reservoirs built or repaired within the CIAA during the next 15 years. Using the past surface area disturbance (vegetation disturbed during construction as well as flooding) results in a potential soil and vegetation disturbance of an additional 44 acres.

There are 2 different potential classes for gas and oil development potential within the CIAA. There are 24,450 acres of low potential, and 9,853 acres of moderate potential. Based on estimates for future development of these potential classes there may be as many as 20 new wells placed within the CIAA during the next 15 years. The new wells would result in approximately 106 acres of short-term soil and vegetation disturbance, and approximately 19 acres of long-term soil and vegetation disturbance.

Most new road construction is associated with energy development. Therefore, soil and vegetation disturbance for new roads has already been included in the gas and oil estimates.

Farming is a major land use within the CIAA. While recent cereal grain prices have been strong within Montana and the rest of the United States, the Farm Service Agency for Blaine County only reported about 90 acres per year for 2011 and 2012. It is possible that acres being put into cereal grain production are coming from lands under expiring CRP contracts or tame pasture. However, producers that do not participate in federal farm programs are not required to report sodbusting. However, using this for a baseline, farming will disturb approximately 1,350 acres of soil and vegetation over the next 15 years.

There are no foreseeable cumulative impacts to any cultural resources as a result of this project.

A summary of the difference in disturbance for each alternative can be seen below in Table 2.

Table 2. Soil and vegetation disturbance for each alternative.

	Soil and Vegetation Disturbance			Alternative 1 – No Action Disturbance (ac.)	Alternative 2 – Proposed Action Disturbance (ac.)
	Past	Present	Future		
Water Developments	181	-	44	2.5	7.0
Gas and Oil Development	244	-	106	-	-
Road Construction	306	-	*	-	-
Farming	5,202	-	1,350	-	-
Change in vegetation disturbance (%)				0.04%	0.12%

*Included in Gas and Oil Development Estimate.

CHAPTER 5 CONSULTATION AND COORDINATION

Introduction

A notice of availability regarding this EA was posted on the Havre Field Office NEPA log available online at <http://www.blm.gov/mt/st/en/info/nepa.html> on November 21, 2012. A press release announcing the availability of this EA will be issued in early February, 2013.

Persons, Groups, and Agencies Consulted

The following individuals, organizations and agencies were provided an opportunity to participate in the BR-12 Reconstruction planning process and/or were provided a copy of this environmental assessment.

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Janet Ellis

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BR-12/NW 30 Mile #6064 Grazing Allotment

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List of Preparers

The BR-12 Reconstruction Interdisciplinary (ID) Team prepared this environmental analysis. ID Team membership is detailed below:

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Stanley Jaynes, Havre Field Manager

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APPENDICES

Appendix 1 – BLM Water Developments and Water Rights within the CIAA

Development Name	Town.	Range	Sec.	Water Right No.	Purpose	Volume (ac.-ft.)
BR-118 Reservoir	34N	20E	10	40J 65709 00	WILDLIFE	11.31
				40J 65710 00	STOCK	0.69
Unnamed Reservoir	35N	20E	33	40J 66054 00	WILDLIFE	1.31
				40J 66055 00	STOCK	0.69
Unnamed Pit	34N	20E	3	40J 65702 00	WILDLIFE	0.31
				40J 65701 00	STOCK	0.69
Pedro Reservoir	34N	21E	19	40J 65775 00	WILDLIFE	2.31
				40J 65776 00	STOCK	0.69
BR-12 Reservoir	34N	21E	18	40J 65771 00	STOCK	0.69
				40J 65772 00	WILDLIFE	104.31
Slick Pit	34N	20E	10	40J 51187 00	STOCK	1.91
Arts Pit	34N	20E	22	40J 62831 00	STOCK	1.90
				40J 78491 00	STOCK	1.50
BR-117 Reservoir	33N	20E	12	40J 65495 00	WILDLIFE	2.31
				40J 65496 00	STOCK	0.69
Corners Reservoir	34N	20E	25	40J 65742 00	WILDLIFE	5.31
				40J 65741 00	STOCK	0.69
BR-106 Reservoir	36N	21E	32	40J 66302 00	WILDLIFE	1.31
				40J 66303 00	STOCK	0.69
North Pedro Pit	34N	21E	18	40J 30045177	STOCK	1.10
Boots Reservoir	33N	21E	7	40J 65504 00	STOCK	0.69
				40J 65503 00	WILDLIFE	3.87
Old Reservoir	34N	20E	1	40J 65685 00	STOCK	0.69
				40J 65686 00	WILDLIFE	3.31
Windy Pit	34N	20E	23	40J 51191 00	STOCK	1.91
Lulu Reservoir	34N	20E	13	40J 65721 00	STOCK	0.69
				40J 65722 00	WILDLIFE	2.31
BR-88 Reservoir	34N	21E	28	40J 65789 00	STOCK	0.69
				40J 65790 00	WILDLIFE	1.31
Stank Reservoir	35N	20E	34	40J 66057 00	WILDLIFE	2.31
				40J 66056 00	STOCK	0.69
Arch Reservoir	34N	20E	3	40J 65695 00	STOCK	0.69
				40J 65696 00	WILDLIFE	3.31
Brooklyn Reservoir	34N	21E	17	40J 65763 00	STOCK	0.69
				40J 65764 00	WILDLIFE	0.31
East Reservoir	34N	20E	2	40J 65691 00	STOCK	0.69
				40J 65692 00	WILDLIFE	1.31
Stutz Reservoir	35N	21E	5	40J 66061 00	STOCK	0.69
				40J 66063 00	WILDLIFE	1.31
Unnamed Pit	34N	20E	1	40J 65688 00	STOCK	0.69
				40J 65687 00	WILDLIFE	0.31
Steer Pit	33N	20E	2	40J 51184 00	STOCK	0.61

				40J 68506 00	STOCK	0.77
Unnamed Pit	34N	20E	1	40J 65689 00	WILDLIFE	0.31
				40J 65690 00	STOCK	0.69
Fifteenmile Reservoir	34N	20E	23	40J 65736 00	WILDLIFE	3.31
				40J 65735 00	STOCK	0.69
BR-99 Reservoir	36N	21E	34	40J 66306 00	STOCK	0.69
				40J 66307 00	WILDLIFE	1.31
Taint Pit	34N	20E	35	40J 51190 00	STOCK	1.91
BR-47 Reservoir	34N	21E	31	40J 65794 00	WILDLIFE	9.31
				40J 65793 00	STOCK	0.69
Sharple Reservoir	35N	21E	5	40J 66060 00	WILDLIFE	3.31
				40J 66062 00	STOCK	0.69
Drag Reservoir	34N	21E	30	40J 65791 00	STOCK	0.69
				40J 65792 00	WILDLIFE	0.31
BR-130 Reservoir	33N	21E	7	40J 65505 00	WILDLIFE	1.31
				40J 65506 00	STOCK	0.69
BR-129 Reservoir	35N	20E	35	40J 66058 00	STOCK	0.69
				40J 66059 00	WILDLIFE	2.31
Knight Reservoir	34N	20E	12	40J 65719 00	STOCK	0.69
				40J 65720 00	WILDLIFE	1.31

Appendix 2 – Soils in the Project Area

Map unit: 67 - Hillon clay loam, 25 to 45 percent slopes

The Hillon component makes up 85 percent of the map unit. Slopes are 25 to 45 percent. This component is on hills. The parent material consists of till. 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 high. 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 1 percent. This component is in the R052XC220MT Thin Hilly (th) 10-14" P.z. ecological site. Nonirrigated land capability classification is 7e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 10 percent.

Map unit: 98 - Phillips-Elloam complex, 4 to 8 percent slopes

The Phillips component makes up 60 percent of the map unit. Slopes are 4 to 8 percent. This component is on till plains. The parent material consists of till. 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 high. 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 R052XC217MT Silty (si) 10-14" P.z. ecological site. Nonirrigated land capability classification is 3e. Irrigated land capability classification is 3e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 10 percent.

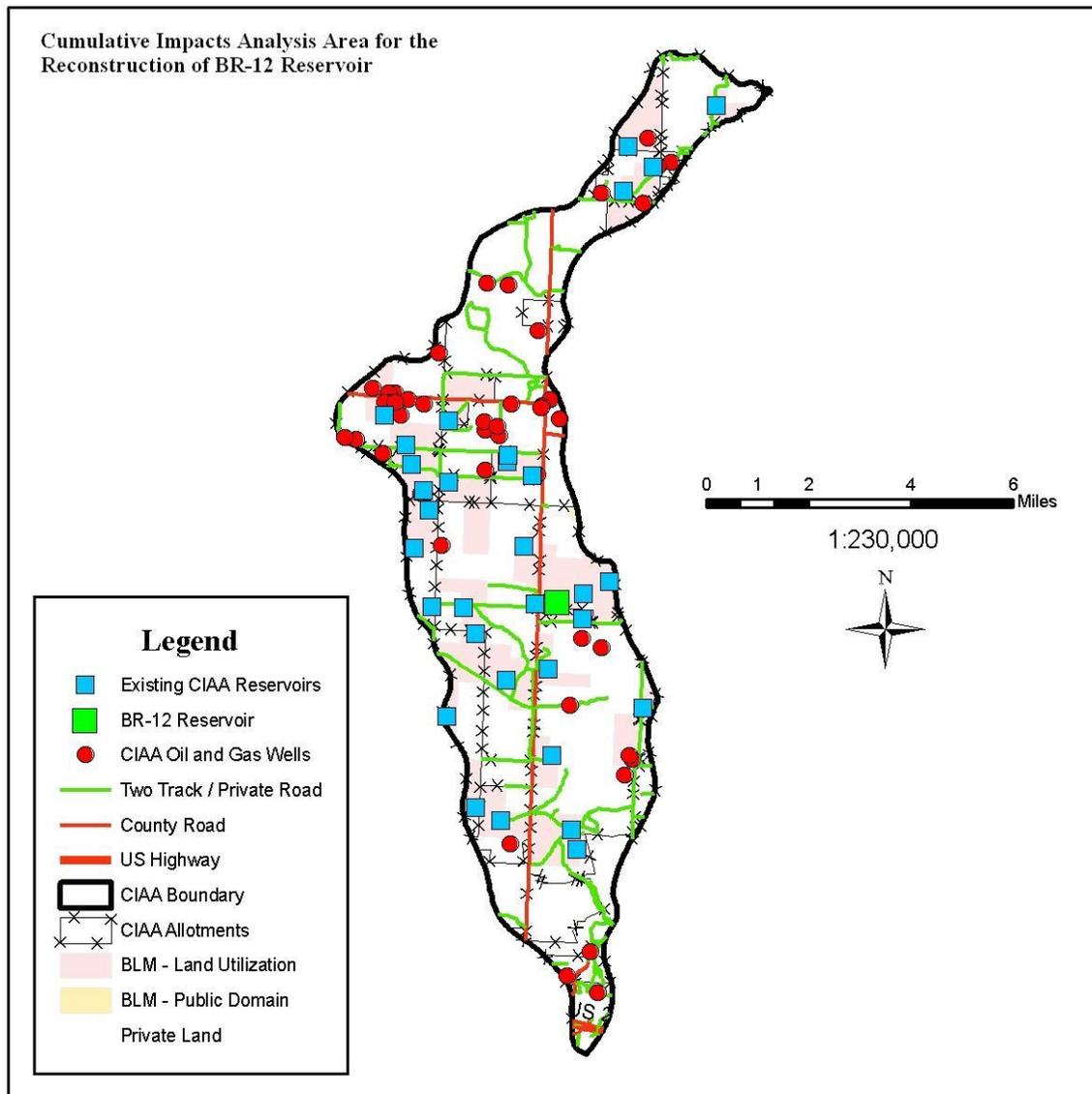
The Elloam component makes up 20 percent of the map unit. Slopes are 4 to 8 percent. This component is on till plains. The parent material consists of till. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches is moderate. Shrink-swell potential is 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 R052XC206MT Dense Clay (dc) 10-14" P.z. ecological site. Nonirrigated land capability classification is 6s. Irrigated 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.

Appendix 3 – Recommended Seed Mix for Reclamation

Common Name	Scientific Name	Recommended Cultivar	PLS lbs. Per acre	% species composition	PLS lbs/acre
western wheatgrass	<i>Psascopyrum smithii</i>	Rosana	6	40	2.4
needleandthread	<i>Stipa comata</i>		7	25	1.0
blue grama	<i>Bouteloua gracillis</i>	Bad River	3	15	.6
Sandberg bluegrass	<i>Poa secunda</i>	High Plains	1	10	.1
scarlet globemallow	<i>Sphaeralcea coccinea</i>		2.2	5	.1
purple prairie clover	<i>Petalostemon purpureum</i>	Kaneb	3.8	5	.2

Appendix 4 – Map of the CIAA



Appendix 5 – BLM Allotments Within or Partially Within the CIAA

Allotment Number	Allotment Name	Acres (Within CIAA)*	Management Category
0959	Haugo SE/Dagnl NE	148.9	M
6015	Upper 30 Mile	357.5	M
6039	Haugo-03	1525.9	M
6040	Diagonal-03	274.0	I
6058	Chouteau Coulee	3500.2	I
6059	Boot Reservoir	480.2	M
6060	Nelson Place	342.0	M
6061	Fifteen Mile Coulee	641.1	M
6064	BR-12 NW 30-Mile	1536.5	I
6066	Hammer	656.4	I
6085	Coal Coulee	545.6	M
6087	North Coal Coulee	962.5	M
6089	Pond CL/15 Mile	5717.0	I
6090	Zurich Park	239.0	M
6095	Pauly/30 Mile	10.9	M
6226	Sharples Place	711.4	M
6237	Holding Pasture CSGD	155.7	I
6246	Zurich/Cherry Ridge Rd.	227.4	I
6257	North Zurich	7062.1	M

*Acres include both public and private lands.