

DNRC - Trust Land Management Division

CHECKLIST ENVIRONMENTAL ASSESSMENT

FOR THE

**BEAVER CREEK CONGLOMERATE TIMBER
SALE**

RECEIVED

APR 28 2006

LEGISLATIVE ENVIRONMENTAL
POLICY OFFICE

Prepared by Chris Pileski
Eastern Land Office-DNRC
January, 2006

**Beaver Creek Conglomerate Timber Sale
Formal Public Review Distribution List**

The Ecology Center

TABLE OF CONTENTS

- I **Checklist Environmental Assessment**

- II **Attachment 1**
**Soils, Hydrology, and Fisheries Report by Jeff Collins, DNRC Soil
Scientist**

- III **Attachment 2**
Vicinity and Proposed Unit and Road Map

CHECKLIST ENVIRONMENTAL ASSESSMENT

Project Name:	Beaver Creek Conglomerate Timber Sale
Proposed Implementation Date:	June 2006 – April 2009
Proponent:	Eastern Land Office of the Department of Natural Resources and Conservation
Location:	All or parts of sections 1,11,12,13,16,23,36 Township 1S Range 45E and sections 7,17,19,31 Township 1S Range 46E, in the Beaver Creek Drainage of the Tongue River in Southeastern Montana.
County:	Powder River

I. TYPE AND PURPOSE OF ACTION

The Eastern Land Office (ELO) of the Montana Department of Natural Resources and Conservation (DNRC) is proposing a commercial timber harvest of ponderosa pine from a harvest area which includes approximately 1200-1700 acres of timber land with approximately 11,250-22,500 tons being considered for harvest. The purpose of the action is to generate revenue for the school trust while promoting appropriate cover types in the area. The proposed harvest area is located within all or parts of eleven sections of state land in Southeastern Montana (Attachment 2, Vicinity Map). The harvest is proposed to remove trees from a range of size classes, while maintaining a healthy stand of ponderosa pine. Approximately 20-25 miles of existing road on both state and private land may be used as designated haul routes. Approximately 10-15 miles of temporary spur roads may be constructed to further accommodate log hauling. Temporary spur roads would be reclaimed through moving the berm back onto the road surface, mechanical surface scarification and surface broadcast seeding of native grass species. DNRC's Rules for Recreational Use of State Land will apply for all existing roads on state land. The silvicultural prescription is predicted to result in a healthy stand of ponderosa pine that could support periodic re-entry. An estimated \$112,500-\$225,000 in revenue to the school trust fund is predicted through the implementation of the Action Alternative.

II. PROJECT DEVELOPMENT

1. PUBLIC INVOLVEMENT, AGENCIES, GROUPS OR INDIVIDUALS CONTACTED:

Provide a brief chronology of the scoping and ongoing involvement for this project.

Letters were sent in February of 2005 to resource professionals and other interested parties seeking comment on the proposed action. A public notice was placed in both the Miles City Star and the Powder River Examiner, and ran for two consecutive weeks. Comments were received from: Kurt Terrett Lessee, Marion Hansen Lessee, Liz MCFarland District Ranger Ashland Ranger District Custer National Forest, The Ecology Center Inc. Scott Hemmer Biologist Montana Fish Wildlife and Parks, Monte Mason DNRC Minerals Management Bureau, Patrick Rennie, Archaeologist, Surface Management Bureau, The Montana Natural Heritage Program, and Jeff Collins, Soil Scientist DNRC.

2. OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION, LIST OF PERMITS NEEDED:

A 124 permit may be required from Montana Department of Fish Wildlife and Parks, for use of two existing crossing sites on Beaver Creek.

3. ALTERNATIVES CONSIDERED:

NO ACTION: Current land use activities of grazing and recreation would continue without change. Increased fire hazard may occur as more ponderosa pine encroachment invades grassland areas and as stands become more heavily stocked and stagnated.

TIMBER HARVEST ALTERNATIVE: This alternative would continue the current land uses of grazing and recreation and would also incorporate a selective timber harvest of 11,250-22,500 tons of ponderosa pine from approximately 1200-1700 acres (Attachment 2, vicinity and project maps). The timber harvest would be an individual tree selection harvest attempting to reduce stocking levels to a more historic, pre-fire suppression stand density, while maintaining the stand size and age class structure. The harvest would attempt to emulate a

low intensity high frequency or Non Lethal fire regime that would historically have been expected on this site. A target Basal Area per acre for these stands would range from 20-40sqft depending on existing stocking levels and stand structure. The remaining stand would consist of trees of all size classes favoring trees with good form, crown, and vigor. The harvest activity may require the construction of approximately 10-15 miles of temporary spur roads and the use of approximately 20-25 miles of existing road on both state and private land as designated haul routes. All temporary spur roads would be closed and reclaimed upon completion of the sale.

III. IMPACTS ON THE PHYSICAL ENVIRONMENT

- *RESOURCES potentially impacted are listed on the form, followed by common issues that would be considered.*
- *Explain POTENTIAL IMPACTS AND MITIGATIONS following each resource heading.*
- *Enter "NONE" if no impacts are identified or the resource is not present.*

4. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE:

Consider the presence of fragile, compactable or unstable soils. Identify unusual geologic features. Specify any special reclamation considerations. Identify any cumulative impacts to soils.

Geology of the area is Fort Union Formation, siltstones, sandstones, clay shale and scoria (porcellinite) which are exposed on ridges. There are several badland bluffs in the area that have natural high rates of erosion, but no unusual geologic features occur on the state tracts and slope stability is not expected to be affected by this project. Soils on forest sites are shallow to moderate deep sandy to clayey in texture with moderate to high erosion risk. Soils disturbance would occur on new temporary roads and to a lesser extent in the skid trail locations. Impacts from skidding activities would be mitigated mostly by the scattered nature of the timber, dispersing the skidding activity over a large area. Planned ground skidding operations should have to low risk of direct, in-direct and cumulative impacts based on the implementing BMP's and mitigation measures. Mitigations include temporary use roads, season of use restrictions, general skid trail planning for selected draw crossing and avoiding steep slopes, protecting isolated wetlands and prompt re-vegetation of roads and landings to protect soil resources. Please refer to Attachment 1, Soils, Hydrology, and Fisheries Report for additional detail.

5. WATER QUALITY, QUANTITY AND DISTRIBUTION:

Identify important surface or groundwater resources. Consider the potential for violation of ambient water quality standards, drinking water maximum contaminant levels, or degradation of water quality. Identify cumulative effects to water resources.

Beaver Creek watershed has Class 3 Water Quality. The area is characterized by low precipitation and tributary streams that flow in spring, but are dry most of the year. Several draws within the sale area contain spring fed seeps along with several reservoirs. Spring fed seeps and reservoirs would be treated as class III streams and would be marked as exclusion or restriction zones on the ground where needed. Due to the low precipitation, the lack of perennial streams, temporary road construction, closure and seeding of the temporary roads after use, and the selective nature of the harvest, there would be a low risk of direct or indirect impacts to water quality, and cumulative impacts are not likely. BMPs and site specific mitigations, to control erosion and protect water quality would be implemented. Planned harvest operations and temporary roads present low risk of direct, in-direct and cumulative impacts based on the implementing BMP's and mitigation measures. Mitigations include temporary use roads, season of use restrictions, protecting isolated wetlands and prompt re-vegetation of roads and landings to protect soil resources. Please refer to Attachment 1, Soils, Hydrology, and Fisheries Report for additional detail.

6. AIR QUALITY:

What pollutants or particulate would be produced? Identify air quality regulations or zones (e.g. Class I air shed) the project would influence. Identify cumulative effects to air quality.

Particulate would be released into the atmosphere when the Slash piles are burned. Slash would only be ignited when ambient air conditions are suitable and air dispersal flows are adequate to lift the smoke into the winds aloft for rapid and thorough dispersal. Environmental conditions required prior to ignition must include

adequate snow cover on the ground surface with a long-term forecast of continued low temperatures during daylight hours. There would likely be no cumulative impacts on air quality as a result of the proposed action.

7. VEGETATION COVER, QUANTITY AND QUALITY:

What changes would the action cause to vegetative communities? Consider rare plants or cover types that would be affected. Identify cumulative effects to vegetation.

The project area consists of mixed grass and Ponderosa Pine types with smaller amounts of Rocky Mountain Juniper interspersed throughout. The Ponderosa Pine generally occurs along the upland areas and in the swale and draw features associated with the uplands. A forest inventory conducted in the proposed harvest area indicates it consists of mostly multi-aged stands of Ponderosa Pine with generally three levels of stand density. The lowest stocked stands averaged approximately 60 Trees per Acre TPA of trees 5" DBH and greater with approximately 40 sqft of Basal Area per acre. The moderately stocked stands have 78 TPA and an average BA/acre of approximately 48 sqft. The most productive sites and those with the highest stocking level have 128 TPA with 78 sqft of BA/acre. In the pre-harvest inventory work, tree ages were sampled by boring trees of all size classes and in all three stocking strata. Tree ages ranged from very young trees of 25-30 years to trees that were 200 years old. Old trees are generally scattered throughout each strata typically being found in stringers along draws and in small clumps on ridges and hillsides. There are no stands within the project area that meet the definition of old growth. DNRC has adopted the old-growth definitions proposed by Green et al (Old Growth Forest Types of the Northern Region, R-1 SES 4/92, USDA Forest Service, Northern Region, Missoula, MT) None of the proposed harvest units are in stands meeting the definition of old growth based on Green et al. A representation of old age trees would be retained in all harvest units where they occur. The silvicultural prescription calls for Individual Tree Selection harvest of trees from all size classes in an attempt to emulate a low intensity high frequency or Non-Lethal fire regime that would have historically occurred on this site prior to intensive fire suppression efforts that the stand has evolved in. The prescription calls for lowering stocking levels to 20-40 square feet of basal area per acre, depending on current stocking levels while maintaining the stands size and age structure by leaving trees from all size and age classes. The long-term plan for this stand is to maintain the multi-aged structure while maintaining the decreased stocking levels through periodic re-entry. The Montana Natural Heritage Program was contacted and their search found no recorded threatened, endangered, or sensitive plant or animal species within their analysis area. Noxious weeds were limited to spot infestations of Canada thistle and henbane. To prevent introduction of new weeds, off-road equipment would be cleaned and inspected prior to entry into harvest areas. Please refer to Attachment 1, Soils, Hydrology, and Fisheries Report for additional detail about weed management. Due to the selective nature of the proposed harvest and contract mitigation measures, no cumulative impacts to vegetative communities are likely to occur as a result of the proposed activity.

8. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS:

Consider substantial habitat values and use of the area by wildlife, birds or fish. Identify cumulative effects to fish and wildlife.

These sections hold the potential for a wide variety of wildlife species. The primary species that inhabit the area are mule deer, whitetail deer, elk, Merriams turkey, toads, cottontail rabbits, raptors, migratory prairie birds and others. The timber harvest operations should produce only minor environmental impacts to wildlife species because of the operational season of use and the layout/location of the harvest units. The project would incorporate mitigations suggested by Montana Fish, Wildlife and Parks. The operating season (June 15 – April 1) should not interfere with fawning, or nesting activities. The harvest plans call for selective harvest of commercial size ponderosa pine. This should result in a very healthy remaining stand of ponderosa pine. Consequently, reduction of canopy cover would not be extensive in any one locale. All existing snags that do not pose a safety risk would be left in place as potential nesting and rest sites. Edge effect within the proposed timber sale should be increased due to the irregular harvest unit boundary layout. Elk, Mule deer and to a lesser extent, whitetail deer may be temporarily displaced during harvest activities but their inherent mobility coupled with surrounding un-harvested areas should provide security and biological needs during the displacement period. No harvest activities are proposed adjacent to any known fish-bearing streams (Attachment 1, Soils, Hydrology, and Fisheries Report). Due to the selective nature of this harvest, the selective

nature of harvest on surrounding ownership, and the surrounding large un-harvested areas, no cumulative impacts on terrestrial, avian, and aquatic habitats are likely to occur as a result of the proposed action.

9. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES:

Consider any federally listed threatened or endangered species or habitat identified in the project area. Determine effects to wetlands. Consider Sensitive Species or Species of special concern. Identify cumulative effects to these species and their habitat.

There are no known threatened and endangered species in this general area. There are no documented studies suggesting the existence of T&E species in this area. There are no limited environmental resources within this area. The Natural Heritage Program was also contacted and they have no records of any T&E species, DNRC listed sensitive species, or any species of special concern on or near this section. The small size and selective nature of the sale and the existing surrounding habitat would create no cumulative impacts as a result of the proposed activity.

10. HISTORICAL AND ARCHAEOLOGICAL SITES:

Identify and determine effects to historical, archaeological or paleontological resources.

During June of 2006, the DNRC staff archaeologist conducted a cultural and paleontologic resources inventory of the subject timber sale area. No cultural or paleontologic resources were identified within areas of project related potential ground disturbance. There would be no effect expected to Heritage Properties with the proposed Beaver Creek Conglomerate Timber Sale. No additional archaeological investigative work is recommended for this proposed state action.

11. AESTHETICS:

Determine if the project is located on a prominent topographic feature, or may be visible from populated or scenic areas. What level of noise, light or visual change would be produced? Identify cumulative effects to aesthetics.

The proposed harvest would produce temporary visual impacts. This effect would be mitigated over time as the disturbed sites recover and the Slash piles are burned. The surrounding region is lightly populated which would result in the temporary visual impact distributed over a limited population size. For these reasons, along with the scattered nature of the timber and grasslands no cumulative impacts are anticipated as a result of the proposed activity.

12. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY:

Determine the amount of limited resources the project would require. Identify other activities nearby that the project would affect. Identify cumulative effects to environmental resources.

The project would not use resources that are limited in the area. The selective harvest on adjacent ownership and vast un-harvested areas would have no cumulative effects on limited resources.

13. OTHER ENVIRONMENTAL DOCUMENTS PERTINENT TO THE AREA:

List other studies, plans or projects on this tract. Determine cumulative impacts likely to occur as a result of current private, state or federal actions in the analysis area, and from future proposed state actions in the analysis area that are under MEPA review (scoped) or permitting review by any state agency.

These sections are leased for livestock grazing and are classified grazing tracts. The lessee's were contacted by letter requesting comments and concerns. All lessee comments and concerns have been documented and have been incorporated in the project design. No concerns were received from the lessee. No cumulative impacts are likely to occur as there are no other current private, state or federal actions occurring. No other state actions are under MEPA scoping that pertain to this analysis area.

IV. IMPACTS ON THE HUMAN POPULATION

- *RESOURCES potentially impacted are listed on the form, followed by common issues that would be considered.*
- *Explain POTENTIAL IMPACTS AND MITIGATIONS following each resource heading.*
- *Enter "NONE" if no impacts are identified or the resource is not present.*

14. HUMAN HEALTH AND SAFETY:

Identify any health and safety risks posed by the project.

Human health would not be impacted by the proposed timber sale or associated activity. Safety considerations and temporary risks would increase for the professional contractors working within the sale area, and possibly for public vehicle traffic on the highway and the county road while log trucks are hauling. There are no unusual safety considerations associated with the proposed timber sale. The general public or local residents should not face increased health or long term safety hazards because of the proposed timber sale.

15. INDUSTRIAL, COMMERCIAL AND AGRICULTURE ACTIVITIES AND PRODUCTION:

Identify how the project would add to or alter these activities.

The sections involved with the proposed timber sale are classified grazing land. The primary grazing period or season of use is late May through late summer. The current amount of available livestock forage would temporarily be reduced. Over a short period of time the disturbed and re-seeded sites would recover and forage levels should return to their present levels or beyond.

16. QUANTITY AND DISTRIBUTION OF EMPLOYMENT:

Estimate the number of jobs the project would create, move or eliminate. Identify cumulative effects to the employment market.

People are currently employed in the wood products industry in the region. Due to the relatively small size of the timber sale program, there would be no measurable cumulative impact from this proposed action on employment.

17. LOCAL AND STATE TAX BASE AND TAX REVENUES:

Estimate tax revenue the project would create or eliminate. Identify cumulative effects to taxes and revenue.

People are currently paying taxes from the wood products industry in the region. Due to the relatively small size of the timber sale program, there would be no measurable cumulative impact from this proposed action on tax revenues.

18. DEMAND FOR GOVERNMENT SERVICES:

Estimate increases in traffic and changes to traffic patterns. What changes would be needed to fire protection, police, schools, etc.? Identify cumulative effects of this and other projects on government services

There would be no measurable cumulative impacts related to demand for government services due to the relatively small size of the timber sale program, the short-term impacts to traffic, the small possibility of a few people temporarily relocating to the area, and the lack of other timber sales in the adjacent area.

19. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS:

List State, County, City, USFS, BLM, Tribal, and other zoning or management plans, and identify how they would affect this project.

On June 17, 1996, the Land Board approved the State Forest Land Management Plan (SFLMP). The SFLMP provides the philosophy adopted by DNRC through programmatic review (DNRC, 1996). The DNRC will manage the lands in this project according to this philosophy, which states:

Our premise is that the best way to produce long-term income for the trust is to manage intensively for healthy and biological diverse forests. Our understanding is that a diverse forest is a stable forest that will produce the most reliable and highest long-term revenue stream... In the foreseeable future, timber management will continue to be our primary source of revenue and our primary tool for achieving biodiversity objectives.

On March 13, 2003, the DNRC adopted Administrative Rules for Forest Management (Rules) (Administrative Rules of Montana [ARM] 36.11.401 through 450). The Rules provide DNRC personnel with consistent policy, direction, and guidance for the management of forested trust lands. Together, the SFLMP and Rules define the programmatic framework for this project.

20. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES:

Identify any wilderness or recreational areas nearby or access routes through this tract. Determine the effects of the project on recreational potential within the tract. Identify cumulative effects to recreational and wilderness activities.

Several of the tracts in this proposal are legally accessible by county road according to the DNRC Rules for Recreational Use of State Lands. These accessible tracts receive a substantial amount of recreation use from the general public. The Cook Mountain Hiking and Riding Area of the Ashland Ranger District of the Custer National Forest is immediately south of the proposed project area. Currently access to some of the National Forest and adjacent state lands is limited by both existing roads on private land that have no legal easements for public use, or existing roads that cross state lands where motorized vehicle use is restricted according to the Rules for Recreational Use of State Lands. Opportunities exist to provide additional or improved public access for recreation to both state and National Forest lands through the potential designation of "open roads", or through negotiation of easements or rights-of-way on existing roads within the project area. Temporary spur roads that may be identified as having the potential to improve access may be considered for designation, easement or right-of-way. Those potential proposals would be considered through a separate review process. The remaining tracts are generally inaccessible to the general public and receive little or no recreational use. Due to the selective nature of the proposed harvest there should be little or no impact to the recreation potential of this area. Cumulative effects are not likely to occur as a result of the proposed action.

21. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING:

Estimate population changes and additional housing the project would require. Identify cumulative effects to population and housing.

There would be no measurable cumulative impacts related to population and housing due to relatively small size of the timber sale program, and the fact that people are already employed in this occupation in the region

22. SOCIAL STRUCTURES AND MORES:

Identify potential disruption of native or traditional lifestyles or communities.

No impacts would be expected with either alternative.

23. CULTURAL UNIQUENESS AND DIVERSITY:

How would the action affect any unique quality of the area?

No impacts would be expected with either alternative.

24. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES:

Estimate the return to the trust. Include appropriate economic analysis. Identify potential future uses for the analysis area other than existing management. Identify cumulative economic and social effects likely to occur as a result of the proposed action.

The proposed economic return to the trust for this sale would be approximately \$112,250-\$225,000, which was calculated by taking the estimated 11,250-22,500 tons multiplied by the estimated minimum bid rate. The estimated minimum bid rate was estimated by using comparable sales analysis.

Costs, revenues, and estimates of return are estimates intended for relative comparison of alternatives. They are not to be used as absolute estimates of return.

For FY 03, ELO had revenue to cost ratio of 3.84:1 and statewide DNRC had a ratio of 1.75:1.

EA Checklist Prepared By:	Name: Chris Pileski	Date: January 20, 2006
	Title: Forester	

V. FINDING

25. ALTERNATIVE SELECTED:

The timber harvest alternative is the selected Alternative.

26. SIGNIFICANCE OF POTENTIAL IMPACTS:

The proposed harvest of approximately 11,250-22,500 Tons of commercial size ponderosa pine on the State section within approximately 1200-1700 acres would not result in nor cause significant environmental impacts. The predicted environmental impacts would be adequately mitigated through the proposed timber sale plan, harvest prescription, operating period, unit boundaries, road layout and contract stipulations. For these reasons, an environmental assessment checklist is the appropriate level of analysis for the proposed action. The general public was officially notified of the proposed timber sale by published public notice and appropriate comments and concerns were incorporated into the proposed timber sale. The lessees of record were contacted and their comments and or concerns were also incorporated into the proposed timber sale. Agency specialists were contacted and appropriate comments and concerns were incorporated into the proposed timber sale. The sale meets the intent, standards, and guidance of the SFLMP and administrative rules. The proposed harvest would satisfy the trust fiduciary mandate and treat the natural resources to increase long term production.

27. NEED FOR FURTHER ENVIRONMENTAL ANALYSIS:

EIS More Detailed EA No Further Analysis

EA Checklist Approved By:	Name: Rich Strohmeyer	
	Title: ELO Area Manager	
Signature:	Rich Strohmeyer	Date: 4-11-06

December 7, 2005

TO: Chris Pileski, Timber Sale Specialist, ELO
Rick Strohmeier, Area Manager, ELO
Gary Frank, Supervisor, Resource Management Section

FROM: Jeff Collins, Soil Scientist, Forest Management Bureau

SUBJECT: BEAVER CREEK CONGLOMERATE TIMBER SALE
Sections 1, 11, 12, 16, 23, 36 of T 1S R 45E,
Sections 7, 17, 19, 31 of T 1S R 46E.
Soils, Hydrology and Fisheries Report

INTRODUCTION

The following document contains background information for the soils, watershed, fisheries and noxious weed portions of the proposed Beaver Creek Conglomerate Timber Sale Environmental Assessment. This analysis includes an existing conditions and effects assessment of watercourses draining the sale area. We used a coarse filter screening approach for watershed evaluation and several on-site field reviews of contributing areas within the proposed sale area. The proposed project includes

Proposed selective harvest of 1.5-3 MMBF of ponderosa pine
Harvest area includes approximately 1200-1700 acres of
Existing roads would be used plus construction of 10-15 miles of temporary spur roads
Temporary roads would be minimal excavation and revegetated after use

Potential Issues

Geology/Soils

Equipment operations and timber harvest can result in soil impacts that affect soil erosion and tree growth productivity depending on area and degree of physical effects.

Water Quality:

What are the current conditions and expected effects of the project on water quality?

Cumulative Watershed Effects:

Will the proposed harvest result in cumulative watershed effects?

Cold Water Fisheries:

Are there sensitive fisheries in the project area and will the proposed project impact fish habitat?

Noxious weeds-

Do noxious weeds occur on the site and what combination of prevention and control measures would be used for noxious weed management?

Affected Environment-Watersheds

The proposed Beaver Creek Conglomerate Timber Sale project area occurs entirely within the Beaver Creek drainage of the Lower Tongue River (4th code HUC 10090102). The Tongue River is a tributary to the Yellowstone River. The state sections are surrounded by private land, BLM and USFS ownership land in the headwaters of Beaver Creek (see Appendix map 1). Beaver Creek is a third order watershed and is a Class I perennial stream under the Montana Streamside Management Zone (SMZ) Law and Rules.

The Beaver Creek watershed covers approximately 59,398 acres, (refer to Table 1) of which less than 25% is forested ('forested' is defined in this assessment as having 50% or greater tree canopy cover). Forest types are primarily dry site Ponderosa pine encroachment on rangeland with lesser areas of

established forest stands. Precipitation ranges from approximately 14-24 inches annually and occurs as snow and rain. Most State lands are at lower elevations of 3000-3400 within the drainage.

The perennial reach of Beaver Creek is approximately 30.4 miles in length from the confluence with the Tongue River to the headwaters on the North side of Cook Mountain on Custer National Forest lands. Perennial tributaries of Beaver Creek are Ash Creek, Cabin Creek and short segments of unnamed streams. Cottonwood Creek, Dugout Creek, and others have seasonal flow mainly during spring runoff or in response to high rainfall, then dry out most of the year except for springs and short segments of perennial flow that serve as stock water sources. The headwaters of these streams are in coulees and draws and the drainages range from about ¼ mile to 3 miles in width.

Table 1 Beaver Creek Watershed Existing Conditions Analysis					
Beaver Creek is a 59,398 acre watershed portion of the Lower Tongue River (Huc 10090102)					
Watershed	Drainage pattern	Watershed Acres	DNRC Acres	Existing Road Miles	Watershed Percent Forested
Lower Beaver Creek	Class 1 and ephemeral	15,071	960	1.7 mi 1.15 mi/sq mi	Less Than 5%
Middle Beaver Creek	Class 1 and ephemeral	18,869	3320	5.4 mi 1.96 mi/sq mi	Less Than 20%
Ash Creek	Class 1 and ephemeral	10,773	1562	1.9 mi 1.5 mi/sq mi	Less Than 25%
Upper Beaver Creek	Class 1 and ephemeral	14,288	No Activities Planned		
Total Watershed Acres		59,398			

*Note: Analysis area was limited to subwatershed portions of the Beaver Creek drainage where activities are proposed and does not include lands above Cabin Creek, where no action is proposed.

Regulatory Framework:

This portion of the Yellowstone River Basin including the Beaver Creek drainage portion of the Tongue River drainage, is classified C-3 in the Montana Water Quality Standards. Waters classified C-3 are to be maintained suitable for bathing, swimming and recreation, and growth and propagation of non-salmonid fishes and associated aquatic life, waterfowl and furbearers. The quality of these waters is naturally marginal for drinking, culinary and food processing purposes, agriculture and industrial water supply. Degradation which will impact established beneficial uses will not be allowed. (ARM 17.30.609 1(f)). No increases are allowed above naturally occurring concentrations of sediment or suspended sediment (except as permitted in MCA 75-5-318), settleable solids, oils or floating solids, which will or are likely to create a nuisance or render the waters harmful, detrimental, or injurious to public health, recreation, safety, welfare, livestock, wild animals, birds, fish, or other wildlife.

Naturally occurring means conditions or materials present from runoff or percolation over which man has no control or from developed land where all reasonable land, soil and water conservation practices have been applied. Reasonable land, soil and water conservation practices include methods, measures or practices that protect present and reasonably anticipated beneficial uses. The State of Montana has adopted Forestry Best Management Practices (BMP's) through its Non-Point Source Management Plan as the principal means of meeting Water Quality Standards.

Existing beneficial uses in the immediate vicinity of the proposed sale area include water rights for the following uses of groundwater sources: stock, lawn and garden, irrigation, and domestic uses. Surface water sources include stock water and irrigation uses.

There are no water quality-limited segments within the analysis area (as per Section 303(d) of the Clean Water Act) in the 305(b) report. The Montana Streamside Management Zone Law (MCA 77-5-301) and Rules affect all streams described in the site-specific design recommendations. The 124 permitting process will be implemented for the existing Beaver Creek Stream as per the Montana Stream Protection

Act (MCA 87-5-501), yet no stream crossings are proposed. See Appendix Map 1 Beaver Creek Project Area.

Existing Conditions

Soils/Geology:

The proposed sale area is located soils derived from Fort Union deposits of sandstone, siltstones, shales, clayey deposits, coal seams, and scoria. All material is common excavation. The terrain is dissected mesa/terraces with gentle to moderate sloping alluvial fans that are deeply dissected by dry and ephemeral draws. The uplands are more complex dissected terrain that includes some short steep slopes and badland / breakland slopes > 50%. The badland areas of marginal slope stability are relatively small in size, supporting few trees and are not part of planned harvest units or in locations that affect existing or proposed roads. No especially unusual or unique geologic features were identified in the proposed harvest area. Soils data was collected from the NRCS Powder River County Soil Survey and verified on site. Soil interpretations are included in Appendix A.

Forest area includes ponderosa pine savanna's (grasslands with scattered trees) and forest stands with trees mainly on north aspects and along draws and swales. Primary forest soils in the project area are complexes of Ringling and Cabba soil series on 20-60% slopes. Ringling slaty loam soils are deep silt loams with slaty broken scoria/porcelanite on hilly sideslopes and uplands. Porcelanite is fused clay and shales that occur in the roof and floor of burned coal seams. Topsoils are gravel to silt loams and are droughty. Ringling soils support moderate to low productivity Ponderosa pine stands and native grass. Erosion risk associated with bare soil is moderate and increases for slopes over 35%. Cabba soils occur on steeper sideslopes and are shallow to shale, silts and sandstone. Erosion potential is higher on bare skid trails and roads on the Cabba soils. Erosion can be controlled by outsloping trails and roads, and installing standard drainage features where needed, or distributing slash on trails. These soils are subject to rutting and compaction if operated on when wet, but typically dry out quickly in the spring and have a long season of use.

Ground based equipment is well-suited on slopes up to 45%. Short steep slopes may require a combination of felling trees to more moderate slopes, winching and skid trail planning as directed by Forest Officer. Both Cabba and Ringling soils have high risk of seedling mortality, especially on south slopes. Surface soils are subject to displacement and rutting if operated on when wet.

The Vona-Remmitt soils are fine sandy loams that occur on broad alluvial fans and moderate footslopes over sandstones with slopes of 4-15%. These soils are occur mainly on range sites and open forest stands. These soils are well drained and droughty. Erosion hazard is low to moderate and there are no soil imitations. The sandy soils favor pine encroachment on range sites.

Most existing access roads access are two track roads across grass range sites with little if any excavation. Most roads are well vegetated from only occasional range access use, but runoff down tire tracks has resulted in erosion on some sites. Where clay seams are exposed, there is low traction and risk of rutting if operated on when wet.

Water Quality: A DNRC resource specialist evaluated stream channels and ephemeral draw bottoms draining the proposed sale area for water quality concerns. The proposed harvest units, road locations and stream/draw crossings where also evaluated for existing conditions and past impacts. Each unnamed tributary definable by the USGS quadrangle map, within the proposed project was reviewed.

Beaver Creek and its tributaries, have segments of accelerated rates of sedimentation. Natural rates of erosion are typically high on the Fort Union sediment deposits. Both the existing road systems and cattle grazing have contributed to these impacts. Approximately 15 miles of existing county, state and private ranch roads provide access to ranches, homes and grazing areas and the proposed harvest area. Main County roads are graveled and well drained. Secondary access roads are mainly stable grassy two-track roads across rangeland sites. Portions of these roads lack adequate road surface drainage, may not meet current BMP standards and can be impassable when wet. Isolated segments of road surface erosion and delivery to streams and draws were noted, that can be improved with drainage and revegetation. Marshy areas occur in all of the tributaries and act as traps for naturally occurring sediments.

Stream Crossings. There are 2 existing stream crossings of importance noted in the Beaver Creek watershed. The first site is an existing County road crossing of Beaver Creek in Section 18, T1S, R46E. The existing culvert has a shallow gravel fill depth and the County should be notified of the need to increase the gravel surfacing depth as part of their maintenance.

The second crossing site is an existing ford of Beaver Creek in DNRC Section 11 that accesses the Cottonwood Creek tributary drainage. The ford was improved in 2002 by installing rock armoring on the road crossing approaches and stream bottom to control sediment for private timber hauling and is suitable for continued use. No existing sedimentation problems were noted at the crossing site.

There are several road crossings of dry draws that have seasonal flow and were not flowing at time of field review that occurred during an above average precipitation event. As an example, the lowest road crossing on Cottonwood Creek in section 14, T1S, R45E is an incised, grass filled draw with no defined channel or evidence of scour. Below the crossing site the drainage has reaches of both Class II & III stream segments. The majority of the drainage is dry. Further up the drainage some short segments of seasonal flow and isolated "wet" areas occur with seeps and hold a minor amount of surface water, but no evidence of continuous surface flow exists.

Cumulative Watershed Effects:

A coarse filter cumulative watershed effects (CWE) analysis was completed by DNRC to determine the existing conditions of the watershed, affected by the proposed timber sale. The cumulative watershed effects analysis area includes the watersheds of Lower Beaver creek, Cottonwood Creek, Middle Beaver Creek, and Ash Creek. The combined area of these drainages is 45,110 acres of which DNRC ownership is about 13% and the land is predominately grass range. This analysis area was chosen because it was determined to be the most appropriate scale to detect cumulative watershed effects as outlined in the Forest Management Rules (36.11.423) concerning watershed management. The coarse filter approach consisted of assessing the extent of past harvest activities, through the use of maps, aerial photographs and on-site evaluations of streams, roads and forest stand conditions.

Past management activities in the Beaver Creek drainage include: grazing, agriculture, timber harvest fire suppression and road construction. Timber harvest activities have been moderate over the past 15 years. Harvest on private ownership has been mainly selective harvest and salvage prescriptions with an interest in increasing grass forage. Grazing activities have been rather extensive, including grazing of riparian areas within the watershed. Field observations indicate that past timber harvest, roads and grazing activities within the proposed sale watershed analysis area have resulted in some impacts to water quality. These impacts are limited to road surface erosion and subsequent sediment delivery to drainages, and are restricted to stream crossings and isolated segments of existing roads.

The extent of forest cover and existing harvest is below those levels normally associated with detrimental water yield increases. The Beaver Creek drainage is dominated by range and pine encroachment, and it is generally accepted that up to 20-30% of the watershed area can be harvested before detectable increases in magnitude or duration in peak flows occurs. Refer to Table 1 for existing conditions of the Beaver Creek watershed.

Cold Water Fisheries:

Fisheries counts have been completed on selected segments of Beaver Creeek, but not for the complete drainage area. Known fish species are Brassy, Western Silvery Minnow and White Sucker based on 2001 stream counts. Fathead Minnow, Flathead Chub and Western Silvery/Plains Minnow are expected to occur in Beaver Creek based on extrapolated survey data (MFISH internet reference). No cold water or sensitive fish species are known to occur in this watershed.

Environmental Consequences

The proposed State Timber Sale is comprised of a No Action and an Action Alternative.
Alternative A is No Action

Alternative B- Action Alternative: The ground based harvest prescription is to treat approximately 1200-1700 acres to capture value and improve tree spacing, forest health and reduce fuel loadings. This treatment includes commercial thinning, group selection and individual tree selection of Ponderosa Pine. Harvest would be ground based skidding during dry or frozen periods to minimize soil effects. Existing roads would be maintained during use and have additional drainage installed where needed. Up to 15 miles of temporary spur roads would be constructed. Most of the existing road and proposed temporary roads would cross range sites with shallow slopes and minimal excavation. No new stream crossings are proposed. On existing ephemeral draw crossings road drainage features (drain-dips, seeding) would be implemented as necessary and maintained concurrently with road use to minimize sediment. Road grading will be limited to segments that rutted or require drainage, and the emphasis will be on revegetation of roads following use.

Soil Resources:

Under the No Action Alternative, there would be no direct effects to soils or geology. Segments of existing roads with inadequate drainage would continue to erode without maintenance. Downcutting of ephemeral draws may be initiated or continue to erode as natural functions of severe storm/runoff events in the steeper badland breaks of terrain, but this risk is within natural range of conditions be low.

Under the action alternative, the primary risks to long-term soil productivity are rutting and displacement of surface soils by equipment operation and road construction. Potential effects are increased erosion, difficulty with regeneration and reduced growth, depending on the area and degree of effects. Erosion hazard is moderate within harvest units and can be controlled with standard drainage practices and limiting the area of disturbance. Tractor operations during harvest and slash disposal should be limited to moderate slopes and periods when soils are dry, frozen or snow covered to minimize the area and degree of detrimental soil effects (disturbance and compaction). Most of the planned harvest is on slopes of 40% or less. Wet sites and draws will be avoided. Draw crossing sites will be located on most stable locations and have drainage installed where needed. The action alternative will implement site-specific mitigation measures to roads and harvest units to further reduce risk of slope instability.

Road use will be monitored and limited to similar dry or frozen season of use to limit rutting. Road drainage is to be installed and maintained concurrent with operations.

Cumulative effects to soils can occur from repeated ground skidding entries into the harvest area and additional road construction. There was limited previous harvest and post cutting and no apparent soil impacts. Implementation of skidding and slash disposal mitigation measures will limit the area impacted, and therefore presents low risk of cumulative effects. Slash disposal operations are planned to control erosion, and trample and retain a portion of slash to maintain long-term soil productivity.

Water Quality:

Under the No Action Alternative, existing segments of substandard roads with inadequate surface drainage and buffer zones may continue to impact water quality and downstream beneficial uses unless mitigation and remedial actions are undertaken.

Timber harvest units can directly impact water quality if not properly located or buffered from stream channels. The majority of the watershed is dominated by ephemeral draws, coulees, swales that lack discernable stream channels. Under the action alternative, most harvest unit boundaries are located away from the few streams in the area. Where harvest units are adjacent to streams, the boundaries will be located to meet the requirements of the Streamside Management Zone (SMZ) Law and Forest Management Rules to provide adequate sediment buffers to adjacent streams and wetlands, principally in section 36 of Ash Creek. The proposed harvest activities are expected to have minimal impacts to the relatively short segments of SMZ involved, provided all requirements of the law are met. Where needed, equipment restrictions and designated crossings would minimize impacts and help protect all wet areas and ephemeral draws.

Recommended drainage repairs to the existing private and state access roads are expected to improve road drainage compared to the current conditions and protect water quality during the proposed activities.

However these improvements may not solve the long-term impacts or problems associated with third party use of some segments of the existing roads.

The existing ford crossing site on Beaver Creek in Section 11 has a rock armored base and approaches that were improved for log hauling of private timber several years ago. This improved rock ford minimizes sediment introduction into the stream. Hauling will be monitored during on-going harvest administration and if the crossing begins to degrade during use, it will be repaired to control sediment during period of use and as required by a 124 permit if necessary.

The 15 miles of proposed temporary road construction for the Action Alternative are considered to have minimal risk to water quality and beneficial uses, provided site-specific design and erosion control measures are implemented. Erosion and sediment control measures would be applied concurrent with operations as needed.

Temporary roads are located well away from all streams and considered to have a lower long-term effect, since they are minimal excavation and would be stabilized, revegetated and not subject to continued traffic or maintenance needs. Similar low standard roads were used on recent DNRC timber sales and quickly stabilized and revegetated with minimal on-site erosion and no sediment delivery to draws.

There is a low risk that short-term impacts to water quality may occur due to sediment induced at stream crossing sites and ephemeral draw bottoms, during or shortly after new road construction activities. As examples, the existing stream bottom crossing sites on Cottonwood and Riddle Creeks are dry grass covered swales with no discernable channel at the drive through crossing and no apparent offsite delivery. No new stream crossings or culverts installations are proposed.

There is low risk of exceeding C-1 water quality standards with the proposed timber harvest and road construction. Proper application of BMP's and site-specific designs and mitigation measures will reduce erosion and potential water quality impacts to an acceptable level as defined by the water quality standards. Acceptable levels are defined under the Montana Water Quality Standards as those conditions occurring where all reasonable land, soil and water conservation practices have been applied.

Cumulative Watershed Effects:

The No Action Alternative would have minimal effects to cumulative watershed effects. Existing cumulative watershed impacts appear to be limited to sedimentation resulting from historic roads on some poor locations in draws, road design and high run-off or flood events, and cattle grazing.

For the Action Alternative, there are no cumulative effects constraints associated with the proposed sale area. This is due to the following reasons

- The Beaver Creek watershed is largely drained by ephemeral and intermittent streams.
- Low precipitation region with low runoff and no projected water yield effects.
- Forested sites represent a small proportion (less than 25%) of the total watershed and are spotty. The majority of existing harvest contains selective or partial crown removal on private lands.
- Overall road density is low at less than 2 miles of road/ sq mile.
- New road construction is temporary and located well away from streams.
- The proposal is for a selective harvest in forest stands that are overstocked, and largely range encroachment, compared to natural pre-fire suppression stands

Fisheries:

Under The No Action Alternative the potential impacts to downstream warm water fishery habitat associated with segments of bank instability, erosion and sedimentation from existing roads, grazing operations and occasional storm events would continue.

Timber harvest, road construction and road use can impact fish habitat primarily by accelerating sediment delivery above natural levels to local stream channels, reducing in stream shade cover and by decreasing large woody debris through the removal of recruitable trees near stream channels.

The proposed action activities have low risk of increasing sediment input to dry draws, coulees and tributary stream channels during the short term. Recommended mitigation measures aimed at stabilizing existing roads, skid trails and riparian retention will control erosion and sediment and will prevent long-term impacts to water quality and potential fish habitat. Streamside harvest is minimal and there would be low risk of sediment delivery to fishery streams or loss of woody debris.

Extensive reaches of Beaver Creek and tributaries are on range sites and have no stream shading. It is unlikely that the proposed actions will impact shade, temperature or large woody debris recruitment of fish bearing streams. This is due to the fact that no harvest activities are proposed adjacent to any known fish-bearing streams. Implementation of the SMZ Law and Rules, Best Management Practices, and site-specific design recommendations of DNRC resource specialist will help minimize any potential direct or in-direct impacts to area streams that may affect downstream fisheries. There is low risk of detrimental impacts to potential downstream minnow and chub fish habitat, occurring due to cumulative watershed effects under the proposed action alternative.

Noxious Weeds Existing Condition:

Currently, the project area is relatively weed free and dominated by stable native vegetation. There are only spotty thistle patches occurring along roads, adjacent sections, and in some dry, grassland sites within the proposed project area.

Weed Management

Spots of Canada Thistle and Henbane were identified in the project area. Under the no action alternative noxious weeds may increase in a spots and would be managed under the grazing lease requirements.

Under the Action Alternative, DNRC would follow an integrated weed management approach to help prevent the introduction and establishment of noxious weeds. The emphasis would be on prevention of new weeds and include a combination of revegetation and spot weed treatments implemented to reduce the possible infestation and spread of weeds associated with this project.

Recommended Mitigation Measures

The following recommended mitigation measures would help minimize risk of impacts during the proposed activities. These mitigation measures are standard practices for application to all harvest activities associated with the proposed Beaver Creek Conglomerate Timber Sale. The action alternative would implement minimum BMP standards and site-specific mitigation measures to protect soil and water resources.

General Design and Mitigations for Roads:

* Construct drain dips, grade rolls and other drainage features where necessary to ensure adequate road surface drainage concurrent with road construction and use. Install and maintain all road surface drainage concurrent with new road construction, existing reconstruction and reconditioning to comply with BMP's. Drain dips constructed on sustained road grades greater than 8% may require more frequent spacing site-specific drainage features to function properly.

* All road construction and drainage improvements should be completed by the fall prior to winter operations. Ensure that all hauling operations are suspended during wet periods before rutting occurs.

* Build road cut-slopes at stable angles and stabilize newly constructed road cuts and fills by grass seeding. Apply seed as soon as conditions permit to promote establishment of grass cover. Local professional judgment and consideration for temperature and precipitation would determine when seeding is likely to be most successful.

* Temporary or abandoned roads and crossing sites should be left in a condition that will provide adequate drainage and will not require future maintenance by installing drain-dips or water bars where needed. Roads that are abandoned should be partially obliterated through ripping and seeding. Where it is available, slash should be scattered across ripped road surface.

* Construct additional drainage features as needed on all approaches to draw crossings to avoid concentrating runoff at crossing sites. Drainage features should be located close enough to the crossing to minimize the runoff contributing area, but at an adequate distance away from the crossing to provide for effective sediment filtering.

General Design and Mitigations for Harvest Units:

* Use minimum SMZ width required under Rule # 36.11.425 for moderate erosion risk sites. The SMZ widths prescribed in Watershed Rule are dependent on the erosion potential of soils at the site, the steepness of the side slopes and the presence of any topographic breaks.

* Equipment restriction zones (ERZ) should be marked and maintained along steep ephemeral draws and wet areas. Operation of tracked or wheeled equipment should be limited to designated crossings. Minimize number of crossings and space at 200 feet, where feasible. This will minimize soil disturbance within the vicinity of the draws.

* The logger and sale administrator should agree to a general skidding plan prior to equipment operations on complex terrain or draw crossings.

* Limit equipment operations to periods when soils are relatively dry to minimize soil rutting, compaction and maintain drainage features.

* On moderate to densely stocked stands, whole tree skidding can reduce slash hazard, but also remove a portion of nutrients from growing sites. Harvest operations should retain a portion of available slash to provide for erosion control on trails where needed and nutrient cycling to maintain soil productivity. Target woody debris levels are to retain 2 tons/acre well distributed on site while meeting the requirements for fire protection.

Noxious Weed Control Mitigations

* All road construction and harvest equipment should be cleaned of plant parts, mud and weed seed to prevent the introduction of noxious weeds. Equipment will be subject to inspection by forest officer prior to moving on site.

* All newly disturbed soils on road cuts and fills will be promptly reseeded to site adapted grasses to reduce weed encroachment and stabilize roads from erosion.

* DNRC should monitor the project area after completion of harvest activities to identify occurrence of any noxious weeds on site. If noxious weeds occur, a weed treatment plan should be developed and implemented to control noxious weeds.

References

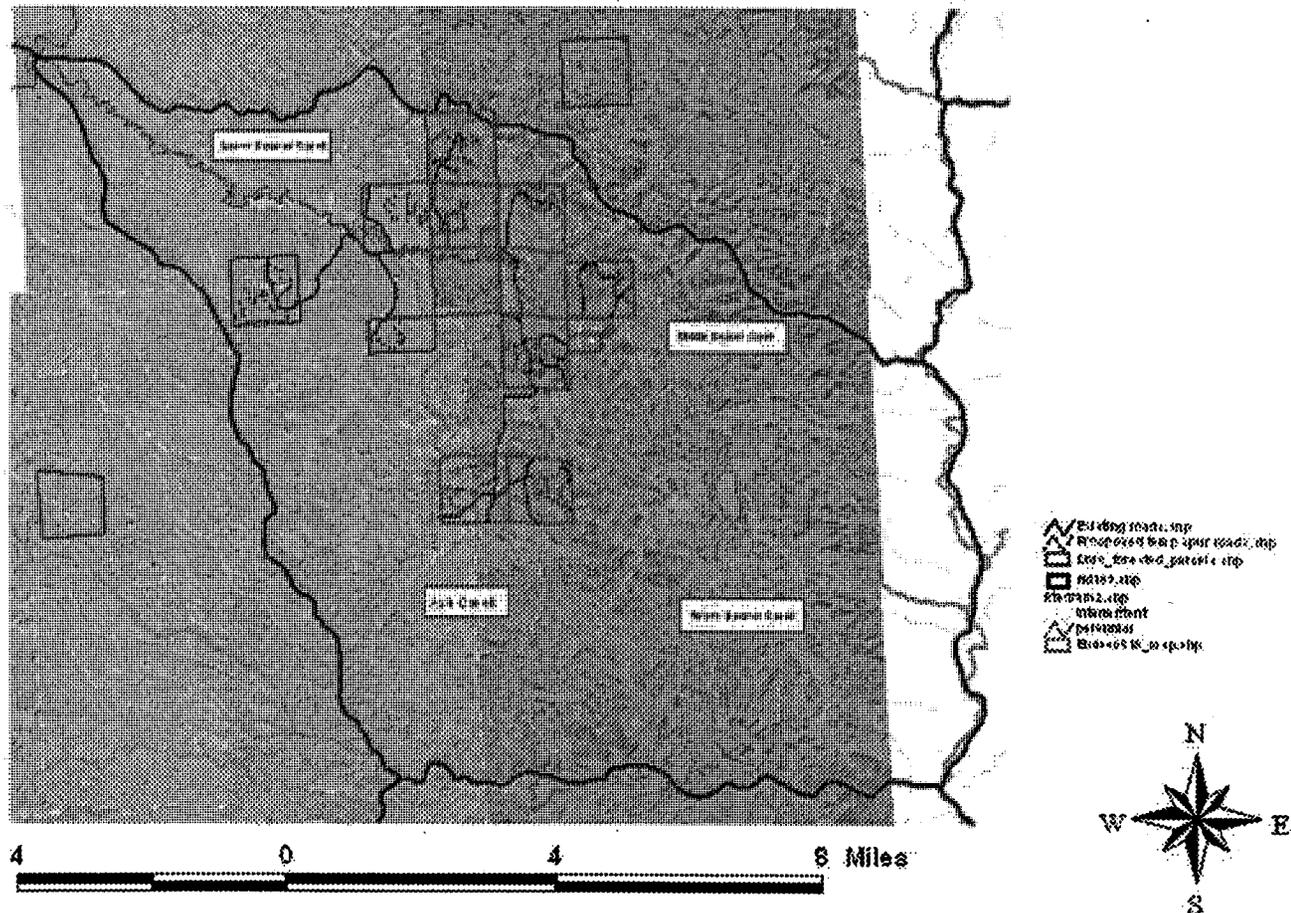
NRIS- Internet Database references for Water Quality, Fish Species and Fish Counts.
USDA 1971 Powder River County Soil Survey

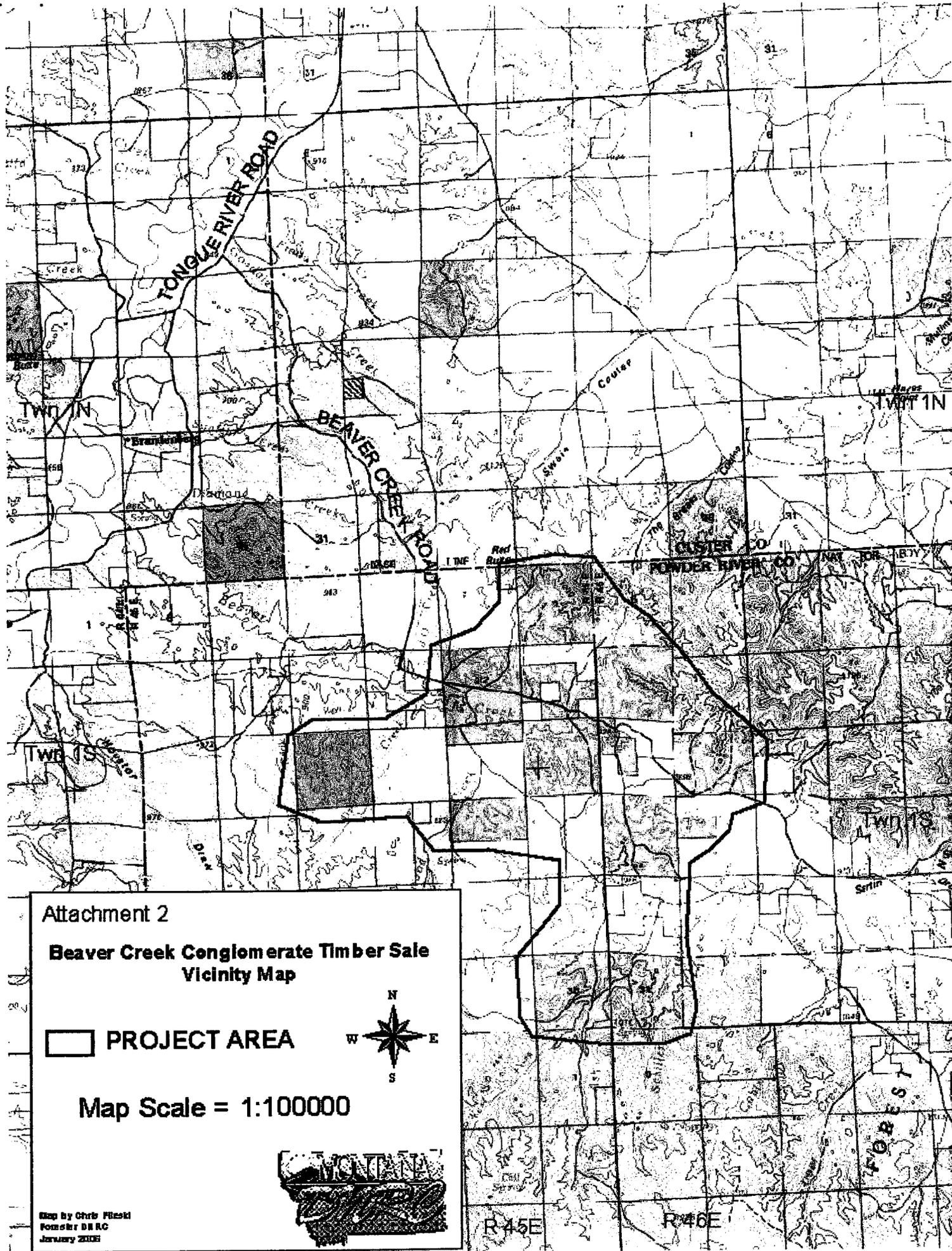
Recommended Checklist format for Soils and Noxious Weeds

II. IMPACTS ON THE PHYSICAL ENVIRONMENT	
RESOURCE	[Y/N] POTENTIAL IMPACTS AND MITIGATION MEASURES N = Not present or No Impact will occur. Y = Impacts may occur (explain below)
<p>4. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE: Are fragile, compactable or unstable soils present? Are there unusual geologic features? Are there special reclamation considerations? Are cumulative impacts likely to occur as a result of this proposed action?</p>	<p>[Y] Geology is Fort Union Formation, siltstones, sandstones, clay shale and scoria (porcellinite) which are exposed on ridges. There are several badland bluffs in the area that have natural high rates of erosion, but no unusual geologic features occur on the state tracts and slope stability is not expected to be affected by this project. Soils on forest sites are shallow to mod. deep sandy to clayey in texture with moderate to high erosion risk. Soils disturbance will occur on new temporary roads and to a lesser extent in the skid trail locations. Impacts from skidding activities will be mitigated mostly by the scattered nature of the timber, dispersing the skidding activity over a large area. Planned ground skidding operations should have to low risk of direct, in-direct and cumulative impacts based on the implementing BMP's and mitigation measures. Mitigations include temp. use roads, season of use restrictions, general skid trail planning for selected draw crossing and avoiding steep slopes, protecting isolated wetlands and prompt revegetation of roads and landings to protect soil resources.</p>
<p>5. WATER QUALITY, QUANTITY AND DISTRIBUTION: Are important surface or groundwater resources present? Is there potential for violation of ambient water quality standards, drinking water maximum contaminant levels, or degradation of water quality? Are cumulative impacts likely to occur as a result of this proposed action?</p>	<p>[Y] Beaver Creek watershed has Class 3 Water Quality. The area is characterized by low precipitation and tributary streams that flow in spring, but are dry most of the year. Several draws within the sale area contain spring fed seeps along with several reservoirs. Spring fed seeps and reservoirs will be treated as class III streams and will be marked as exclusion or restriction zones on the ground where needed. Due to the low precipitation, the lack of perennial streams, temporary road construction, closure and seeding of the new roads after use, and the selective nature of the harvest, there will be low risk of direct or indirect impacts to water quality, and cumulative impacts are not likely. BMPs and site specific mitigations, to control erosion and protect water quality will be implemented. Planned harvest operations and temporary roads present low risk of direct, in-direct and cumulative impacts based on the implementing BMP's and mitigation measures. Mitigations include temp. use roads, season of use restrictions, protecting isolated wetlands and prompt revegetation of roads and landings to protect soil resources.</p>
<p>7. VEGETATION COVER, QUANTITY AND QUALITY: Will vegetative communities be permanently altered? Are any rare plants or cover types present? Are cumulative impacts likely to occur as a result of this proposed action?</p>	<p>[N] Vegetation Analysis, Stand conditions, Old growth analysis etc.....</p> <p>Noxious Weeds- Noxious weed were limited to spot infestations of thistle and herbane. To prevent introduction of new weeds, off-road equipment will be cleaned and inspected prior to entry into harvest areas. There is low risk of in-direct or cumulative impacts to weeds</p>

APPENDIX 1 Watershed Map

Beaver Creek Watershed and State Parcels with Road System





Attachment 2

**Beaver Creek Conglomerate Timber Sale
Vicinity Map**

 PROJECT AREA



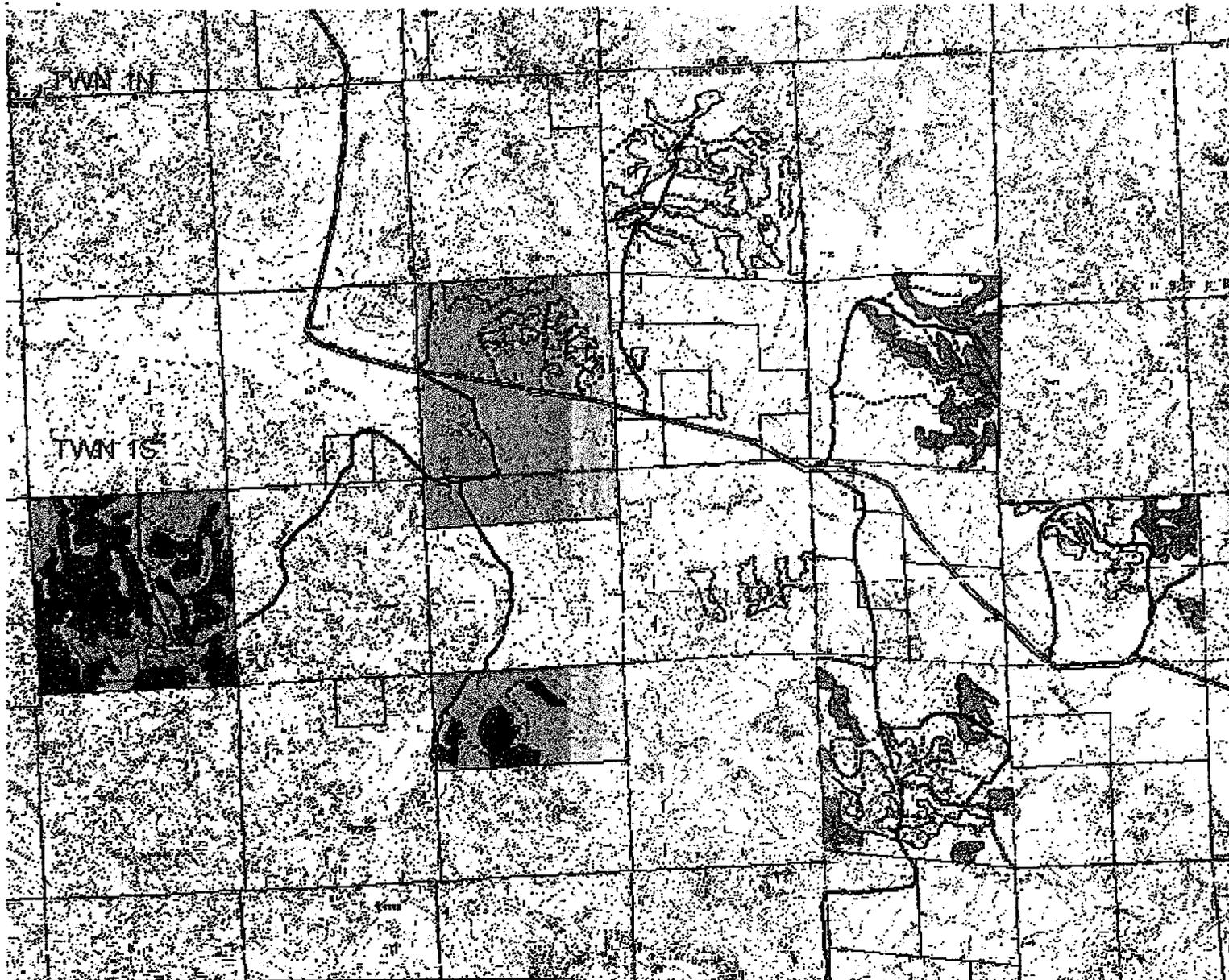
Map Scale = 1:100000



Map by Chris Plesch
Foster BEAC
January 2008

R 45E

R 46E



Attachment 2

**Beaver Creek Conglomerate Timber Sale
Proposed Harvest Units and Roads**

- ROADS**
- County
 - Existing
 - Proposed Temporary Spur
- PROPOSED HARVEST UNITS**
- Poorly Stocked Stands
 - Moderately Stocked Stands
 - Well Stocked Stands
- Ownership**
- STATE
 - FOREST SERVICE
 - BLD
 - PRIVATE



Map Scale 1.27 inches = 1 Mile



Map by Chris Pileski
Forester DNRC
January 2006

RNG 45 E

RNG 45 E