

# **Environmental Assessment**

**For The**

## **Tim Burke Two Timber Sale Section 16 T21N R24W**

**Prepared By**

**Dale Peters, Management Forester  
Plains Unit, Northwestern Land Office**

**Montana Department of Natural Resources and Conservation**

**April 2012**



# Table of Contents

<b>Objective Memo</b>	<b>5</b>
<b>Checklist Environmental Assessment</b>	<b>7</b>
<b>Attachment I: Area Maps</b>	<b>15</b>
<b>Attachment II: Resource Analysis</b>	<b>21</b>
• <b>Vegetation Analysis</b>	<b>22</b>
• <b>Watershed and Hydrology Analysis</b>	<b>24</b>
• <b>Soils Analysis</b>	<b>31</b>
• <b>Wildlife Habitat Analysis</b>	<b>38</b>
<b>Attachment III: Harvest Prescriptions</b>	<b>53</b>
<b>Attachment IV: Mitigations</b>	<b>62</b>
<b>Attachment V: Consultants &amp; References</b>	<b>64</b>



## ***MEMORANDUM***

To: Dave Olsen, Forest Management Supervisor, Plains Unit  
Dale Peters, Management Forester, Plains Unit

From: Larry Ballantyne, Plains Unit Resource Program Manager

Date: March 12, 2012

RE: Tim Burke Two Timber Sale Objectives

### ***Primary Objective***

The primary objective of the Tim Burke Two Timber Sale is to generate income for the Common School (CS) trust. The land parcels involved in this proposed project are located in Section 16 T21N, R24W.

### ***Secondary Objectives***

Minimize losses in timber quality and available volume resulting from deteriorating stand conditions in the defined project area as well as surrounding forested land.

Promote the continued presence and/or reestablishment of historically appropriate timber types on Trust land included in this project.

Reduce fire hazard and associated risks of loss to State of Montana and privately owned lands in the area.

### ***Management Directives***

In planning and preparing this project, management direction of the State Forest Land Management Plan and associated Administrative Rules shall be followed. All applicable Streamside Management Zone rules and regulations will be met. Montana Best Management Practices will be applied in all instances. Compliance with operational requirements procedures of Confederated Salish and Kootenai Tribes is also required.



## CHECKLIST ENVIRONMENTAL ASSESSMENT

<b>Project Name:</b>	Tim Burke Two Timber Sale
<b>Proposed Implementation Date:</b>	July, 2012
<b>Proponent:</b>	Plains Unit - Northwestern Land Office Department of Natural Resources and Conservation.
<b>Location:</b>	Section 16, Township 21 North, Range 24 West
<b>County:</b>	Sanders County

### I. TYPE AND PURPOSE OF ACTION

The Department of Natural Resources and Conservation (DNRC) proposes to sell approximately 24,290 tons (3.8 MMBF) of sawlogs from Section 16, T21N, R24W, 12 air miles northeast of Plains, Montana. This action would produce estimated revenue of \$580,000.00 for the Common Schools (C.S.) Trust Grant and an additional estimated \$95,500.00 in Forest Improvement (FI) fees. Under the proposed action, the DNRC harvest activities would maintain and improve forest health, reduce fuel loadings, and increase forest productivity beneficial to future Trust actions. The harvest prescriptions are designed to promote timber types historically found in the area, improve forest health and promote regeneration of the project area (See Attachment I, Area Maps and Project Plan; Attachment III, Harvest Prescriptions). If the Action Alternative is selected, activities would begin July 2012.

In addition to timber harvesting, approximately 1.1 miles of new road would be constructed, approximately 1.1 miles of existing old road beds would be utilized as temporary haul roads and 6.6 miles of the Confederated Salish and Kootenai Tribes (CS&KT) tribal road system would have advanced maintenance preformed. Approximately 0.25 miles of old road and of all terrain vehicle trails would be abandoned and or obliterated (See Attachment I, Area Maps and Project Plan).

Lands involved in this proposed project are held by the State of Montana in trust for the support of specific beneficiary institutions such as the public buildings trust, public schools, state colleges, universities, and other state institutions (Enabling Act of February 22, 1889:1972 Montana Constitution, Article 1 Section11). The Board of Land Commissioners and the Department of Natural Resources and Conservation are required, by law, to administer these trust lands to produce the largest measure of reasonable and legitimate return over the long run for these beneficiary institutions (Section 77-1-202, MCA). DNRC would manage lands involved in this project in accordance with the State Forest Land Management Plan (DNRC 1996), the Administrative Rules for Forest Management (ARM 36.11.401 through 71), and conservation commitments contained in the Montana Forested State Trust Lands Habitat Conservation Plan (HCP) as well as other applicable state and federal laws.

### II. PROJECT DEVELOPMENT

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

*Provide a brief chronology of the scoping and ongoing involvement for this project. List number of individuals contacted, number of responses received, and newspapers in which notices were placed and for how long. Briefly summarize issues received from the public.*

Public involvement has been solicited through newspaper advertisements and through letters sent to adjacent landowners, as well as other known interested parties and organizations, including CS&KT. Public response was received and used to assist in identifying issues surrounding the proposed project.

Five public comments were received for this project:

1. Glen Magera, Sanders County Commissioner, supports the project.
2. Mineral County Board of Commissioners, support the project.
3. CS&KT have a concern regarding the protection of section line fencing.
4. Jim Baker, adjacent landowner, supports the project; concern for the protection of section line fencing, possible trespass and noxious weed control.
5. Wayne King, Hot Springs, regarding the protection of section line fencing and the condition of the upper cattle guard.

Hydrological, soils, wildlife, archaeological, and vegetative concerns were identified by DNRC specialists and field foresters for both the No-Action and the Action Alternatives. Issues and concerns have been resolved or mitigated through project design and/or would be included as specific contractual requirements of the project. Recommendations to minimize direct, indirect, and cumulative impacts have been incorporated in the project design (see Attachment I, Area Maps and Project Plan; Attachment II, Resource Analyses; Attachment III, Harvest Prescriptions; Attachment IV, Mitigations; Attachment V, Consultants and References).

---

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

*Examples: cost-share agreement with U.S. Forest Service, 124 Permit, 3A Authorization, Air Quality Major Open Burning Permit.*

### **CS&KT Temporary Road Use Agreement (TRUP)**

### **CS&KT Cultural Clearance**

### **Montana Department of Environmental Quality (DEQ)**

DNRC is classified as a major open burner by the Montana Department of Environmental Quality (DEQ), and is issued a permit from the DEQ to conduct burning activities on State lands managed by the DNRC. As a major open burning permit holder, DNRC agrees to comply with all of the limitations and conditions of the permit.

### **Montana/Idaho Airshed Group**

DNRC is a member of the Montana/Idaho Airshed Group, which regulates prescribed burning, including both slash and broadcast burning, related to forest management activities done by DNRC. As a member of the Airshed Group, DNRC agrees to burn only on days approved for good smoke dispersion as determined by the Smoke Management Unit in Missoula, MT.

### **Incidental Take Permit – U.S. Fish and Wildlife Service**

In December 2011, the U.S. Fish and Wildlife Service issued DNRC an Incidental Take Permit under Section 10 of the Endangered Species Act. The Permit applies to select forest management activities affecting the habitat of grizzly bear, Canada lynx, and three fish species — bull trout, westslope cutthroat trout, and Columbia redband trout — on project area lands covered under the HCP. DNRC and the USFWS will coordinate monitoring of certain aspects of the conservation commitments to ensure program compliance with the HCP.

---

## **3. ALTERNATIVE DEVELOPMENT:**

*Describe alternatives considered and, if applicable, provide brief description of how the alternatives were developed. List alternatives that were considered but eliminated from further analysis and why.*

**Action:** The Action Alternative is described in Section 1, Type and Purpose of Action. No other action alternatives were identified during project scoping or analysis; therefore only forest product removal and sale are analyzed in the EA Checklist. Recommended actions to reduce environmental effects would be incorporated into the proposed action.

**No Action:** Under the No Action Alternative, no activity would be undertaken. No timber would be harvested and no road construction or improvements would occur. The No Action alternative would result in decreased growth rates, continued decline of stand conditions and increased fuel loading within the timber stands. This alternative would not produce revenue for the Common Schools (C.S.) Trust Grant

### 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 direct, indirect, and cumulative effects to soils.*

A DNRC hydrologist has reviewed the project area, transportation system and harvest plan. Recommendations to minimize direct, indirect and cumulative impacts have been incorporated into the project design. (See Attachment II, Resource Analysis; Soils, Watershed and Hydrology Analysis).

#### 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 direct, indirect, and cumulative effects to water resources.*

Recommendations from DNRC specialists to minimize direct, indirect, and cumulative impacts have been incorporated in the project design (See: Attachment II, Resource Analyses; Attachment IV, Mitigations). As detailed in the Hydrology Analysis, no substantial direct, indirect or cumulative impacts to water quality or downstream beneficial uses are expected to result from the implementation of the Action Alternative.

#### 6. AIR QUALITY:

*What pollutants or particulate would be produced (i.e. particulate matter from road use or harvesting, slash pile burning, prescribed burning, etc)? Identify the Airshed and Impact Zone (if any) according to the Montana/Idaho Airshed Group. Identify direct, indirect, and cumulative effects to air quality.*

The proposed project is located in the Montana State Airshed 2 as designed by the Montana/Idaho Airshed Group. The proposed project is also within the boundaries of the Flathead Indian Reservation Class 1 area.

Efforts would be made to dispose of slash without burning by chipping or grinding logging slash piles. If pile burning should occur, some particulate matter may be introduced into the Airshed from the burning of logging slash. Impacts are expected to be minor and temporary with slash burning to be conducted when conditions favor good to excellent smoke dispersion. All burning would be conducted during times of adequate ventilation within the existing rules and regulations. Thus direct, indirect, and cumulative effects to air quality are expected to be minimal.

---

**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 direct, indirect, and cumulative effects to vegetation.*

Tree removal would cause changes in the vegetative structure of the project area. Silvicultural prescriptions have been developed to keep stands moving towards desired future conditions, while maintaining good tree growth and vigor. Harvest prescriptions also aim to remove diseased and insect infested timber. Recommendations to minimize direct, indirect and cumulative impacts have been incorporated in the project design (see Attachment I, Area Maps and Project Plan: Attachment II, Resource Analysis, Vegetation Analysis, Attachment III, Harvest Prescriptions; Attachment IV, Mitigations). No old growth stands as defined by Green et al. (1992) are present in the project area; therefore the action alternative would not affect old growth. No sensitive plants listed by the Montana Natural Heritage Program have been identified in the project area. Measures to minimize noxious weeds, insects and disease are included in the project design (See Attachment IV, Mitigations). The proposed action alternative would maintain and promote the continued development of the current and desired future cover type of ponderosa pine.

---

**8. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS:**

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

Recommendations from DNRC specialists to minimize direct, indirect, and cumulative impacts have been incorporated in the project design. (Attachment I, Area Maps and Project Plan: Attachment II, Resource Analyses, Wildlife Habitat Analysis, Watershed and Hydrology Analysis: Attachment III, Harvest Prescriptions: Attachment IV, Mitigations).

As detailed in the Wildlife Analysis and the Watershed and Hydrology Analysis, no substantial direct, indirect or cumulative impacts to terrestrial, avian and aquatic species and habitats are expected to result from the implementation of the Action Alternative.

---

**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 direct, indirect, and cumulative effects to these species and their habitat.*

Recommendations from DNRC specialists to minimize direct, indirect, and cumulative impacts have been incorporated in the project design. (Attachment I, Area Maps and Project Plan: Attachment II, Resource Analyses, Wildlife Habitat Analysis: Attachment III, Harvest Prescriptions: Attachment IV, Mitigations). As detailed in the Wildlife Analysis, no substantial direct, indirect or cumulative impacts to unique, endangered, fragile or limited environmental resources are expected to result from the implementation of the Action Alternative.

---

**10. HISTORICAL AND ARCHAEOLOGICAL SITES:** *Identify and determine direct, indirect, and cumulative effects to historical, archaeological or paleontological resources.*

On November 14, 1991 the CS&KT reviewed and approved the State's proposed harvest of the Burke Hill timber sale. This is documented by a letter from the Tribal Chairman, dated November 20, 1991.

The DNRC has no record of cultural resources within the project's area of potential effect. However, a professional inventory of cultural resources has not been conducted. Additionally, because this sale is located within the reservation boundaries, we have an agreement with the CS&KT that we will conduct a cultural resource inventory before timber harvest activities begin.

If previously unknown, cultural or paleontological materials are identified during project related activities, all work will cease until the DNRC Archaeologist is contacted to assess the resource and plan appropriate treatment if needed.

---

**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 direct, indirect, and cumulative effects to aesthetics.*

Topography is rolling terrain, foothills of the mountains; therefore the majority of the sale area would be hidden from view minimizing visual impacts. Portions of the project would be visible from Hot Springs, MT and State Highway 28 as viewed from the north. Openings or disturbance from harvest operations, with overstory ponderosa pine, western larch and Douglas-fir retained throughout most of the project area would likely be visible upon completion of the project. Prescriptions are designed to mimic historic stand conditions, surrounding land management practices and would not have long term adverse visual impact on the area (see: Attachment III, Harvest Prescriptions; Attachment IV, Mitigations).

---

**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 direct, indirect, and cumulative effects to environmental resources.*

No direct, indirect, or cumulative impacts would likely occur under either alternative.

---

**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.*

An Environmental Assessment was prepared in September of 1981 for the Hot Springs - Burke Hill Sale.

An Environmental Assessment was prepared in March of 1992 for the Burke Hill Timber Sale.

---

<b>IV. IMPACTS ON THE HUMAN POPULATION</b>
--

- |  |
|--|
| <ul style="list-style-type: none"><li>• <i>RESOURCES potentially impacted are listed on the form, followed by common issues that would be considered.</i></li><li>• <i>Explain POTENTIAL IMPACTS AND MITIGATIONS following each resource heading.</i></li><li>• <i>Enter "NONE" if no impacts are identified or the resource is not present.</i></li></ul> |
|--|

---

**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. There are no unusual safety considerations associated with the proposed timber sale.

---

**15. INDUSTRIAL, COMMERCIAL AND AGRICULTURE ACTIVITIES AND PRODUCTION:**

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

Timber harvest would provide continuing industrial production in Sanders County.

---

**16. QUANTITY AND DISTRIBUTION OF EMPLOYMENT:**

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

The Montana Bureau of Business and Economic Research estimates that about 10 jobs are supported for one year for every 1 MMBF that is harvested. For this project, that equates to about 38 jobs for one year.

---

**17. LOCAL AND STATE TAX BASE AND TAX REVENUES:**

*Estimate tax revenue the project would create or eliminate. Identify direct, indirect, and 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, there would be no measurable direct, indirect, or cumulative impacts 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 direct, indirect, and cumulative effects of this and other projects on government services*

Log trucks hauling to the purchasing mill would result in temporary increases in traffic on the designated haul route. (See attachment I: Area Maps). This increase is a normal contributor to the activities of the local community and industrial base and cannot be considered a new or increased source. No changes to the level of government services would be needed as a result of this project, therefore it would not contribute to cumulative effects on government services.

---

**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.*

In 1996, the Land Board approved the Record of Decision (ROD) for the State Forest Land Management Plan (SFLMP). The SFLMP provides philosophical basis, consistent policy, technical rationale, and guidance for the management of forested state trust lands. In 2003, DNRC adopted the Administrative Rules for Forest Management (Forest Management Rules; ARM 36.11.401 through 456). The Forest Management Rules are the specific legal resource management standards and measures under which DNRC implements the SFLMP and subsequently its forest management program.

In December 2011, the Land Board approved the Record of Decision (ROD) for the Montana Forested State Trust Lands Habitat Conservation Plan (HCP). Approval of the ROD was followed by the issuance of an Incidental Take Permit (Permit) by the U.S. Fish and Wildlife Service (USFWS). The HCP is a required component of an application for a Permit which may be issued by the U.S. Fish and Wildlife Service or National Marine Fisheries Service to state agencies or private citizens in situations where otherwise lawful activities might result in the incidental take of federally-listed species. The HCP is the plan under which DNRC intends to conduct forest management activities on select forested state trust lands while implementing specific mitigation requirements for managing the habitats of grizzly bear, Canada lynx, and three fish species: bull trout, westslope cutthroat trout, and Columbia redband trout.

---

**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 direct, indirect, and cumulative effects to recreational and wilderness activities.*

Due to the close proximity to the town of Hot Springs, quite a bit of general recreation takes place on this section. This area receives year round hunting pressure from tribal members. The Tribal road system would remain intact while the proposed new road located on state land would be closed. This would not affect the ability of people to recreate on these parcels. Wilderness is not accessed through this tract. Illegal off road vehicle use is expected to decrease while legal use is expected to remain the same with the Action Alternative.

---

**21. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING:**

*Estimate population changes and additional housing the project would require. Identify direct, indirect, and cumulative effects to population and housing.*

There would be no measurable direct, indirect, or cumulative impacts related to population and housing due to the relatively small size of the timber sale, 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 direct, indirect, and cumulative impacts related to social structures and mores would be expected under either alternative.

---

**23. CULTURAL UNIQUENESS AND DIVERSITY:** *How would the action affect any unique quality of the area?*

No direct, indirect, and cumulative impacts related to cultural uniqueness and diversity would be expected under 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 direct, indirect, and cumulative economic and social effects likely to occur as a result of the proposed action.*

Costs, revenues and estimates of return are estimates intended for relative comparison of alternatives. They are not intended to be used as absolute estimates of return. The estimated stumpage is based on comparable sales analysis for limited access sales. This method compares recent sales to find a market value for stumpage. These sales have similar species, quality, average diameter, product mix, terrain, date of sale, distance from mills, road building and logging systems, terms of sale, or anything that could affect a buyer's willingness to pay for the timber. The effect of the proposed project would produce an estimated return to Common Schools (C.S.) Trust for Grant of \$580,000.00 and \$95,500.00 in Forest Improvement (FI) fees under the alternative action. The No Action Alternative does not generate any return to the trust at this time.

<b>EA Checklist Prepared By:</b>	<b>Name:</b> Dale Peters	<b>Date:</b> 4/2012
	<b>Title:</b> Management Forester	

V. FINDING

25. ALTERNATIVE SELECTED:

I select the Action Alternative for implementation

26. SIGNIFICANCE OF POTENTIAL IMPACTS:

No significant impacts have been identified to occur as a result of implementing the Action Alternative.

27. NEED FOR FURTHER ENVIRONMENTAL ANALYSIS:

EIS

More Detailed EA

No Further Analysis

EA Checklist Approved By:	<b>Name:</b> Larry Ballantyne
	<b>Title:</b> Plains Unit Manager
<b>Signature:</b> 	<b>Date:</b> 4/17/12

# **Attachment I**

## **Area Maps and Project Plan**

<b>Vicinity Map</b>	<b>16</b>
<b>Haul Route Map</b>	<b>17</b>
<b>Harvest Plan Map</b>	<b>18</b>
<b>Current Cover Types &amp; Future Desired Conditions Map</b>	<b>19</b>

49°0'0"N

48°0'0"N

115°0'0"W

115°0'0"W

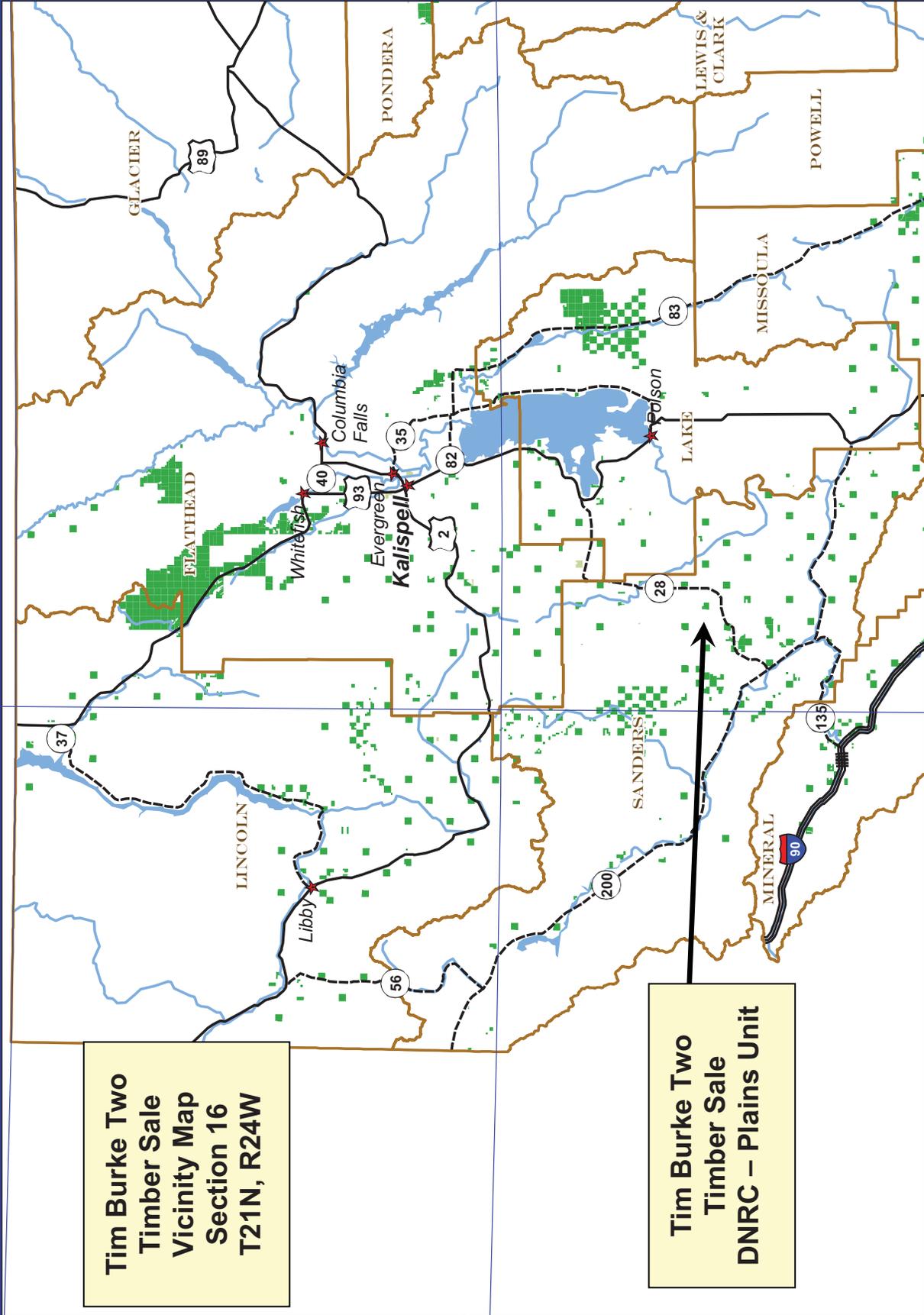
49°0'0"N

48°0'0"N



**Tim Burke Two  
Timber Sale  
Vicinity Map  
Section 16  
T21N, R24W**

**Tim Burke Two  
Timber Sale  
DNRC – Plains Unit**

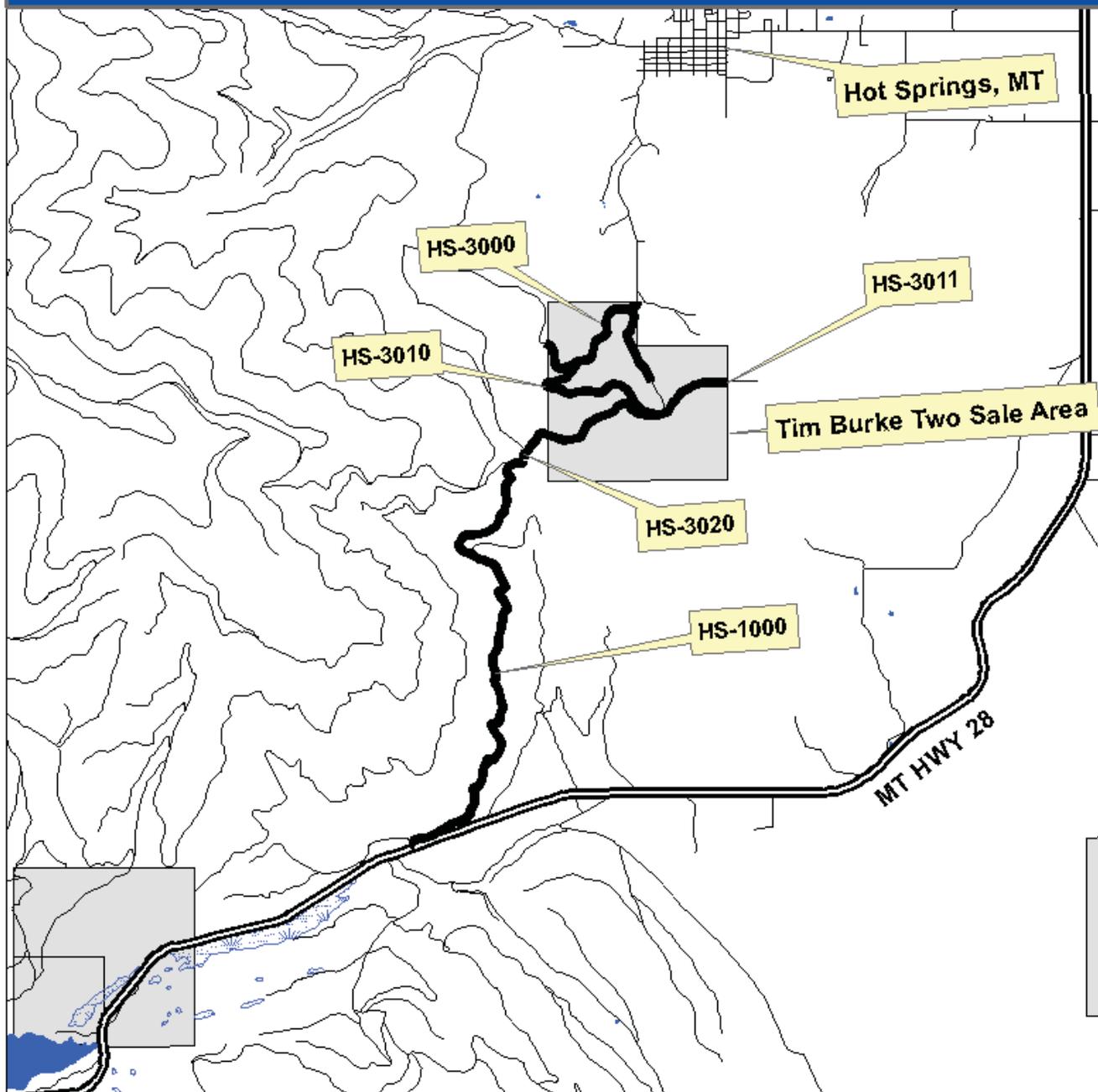


21 February 2007  
Montana DNRC  
Technical Services Section/dr

- Interstate Highway
- U.S. Route
- State Highway
- Rivers
- City
- County
- Lakes
- DNRC managed for timber
- DNRC other



# Tim Burke Two Timber Sale; Haul Route Section 16, T21N, R24W



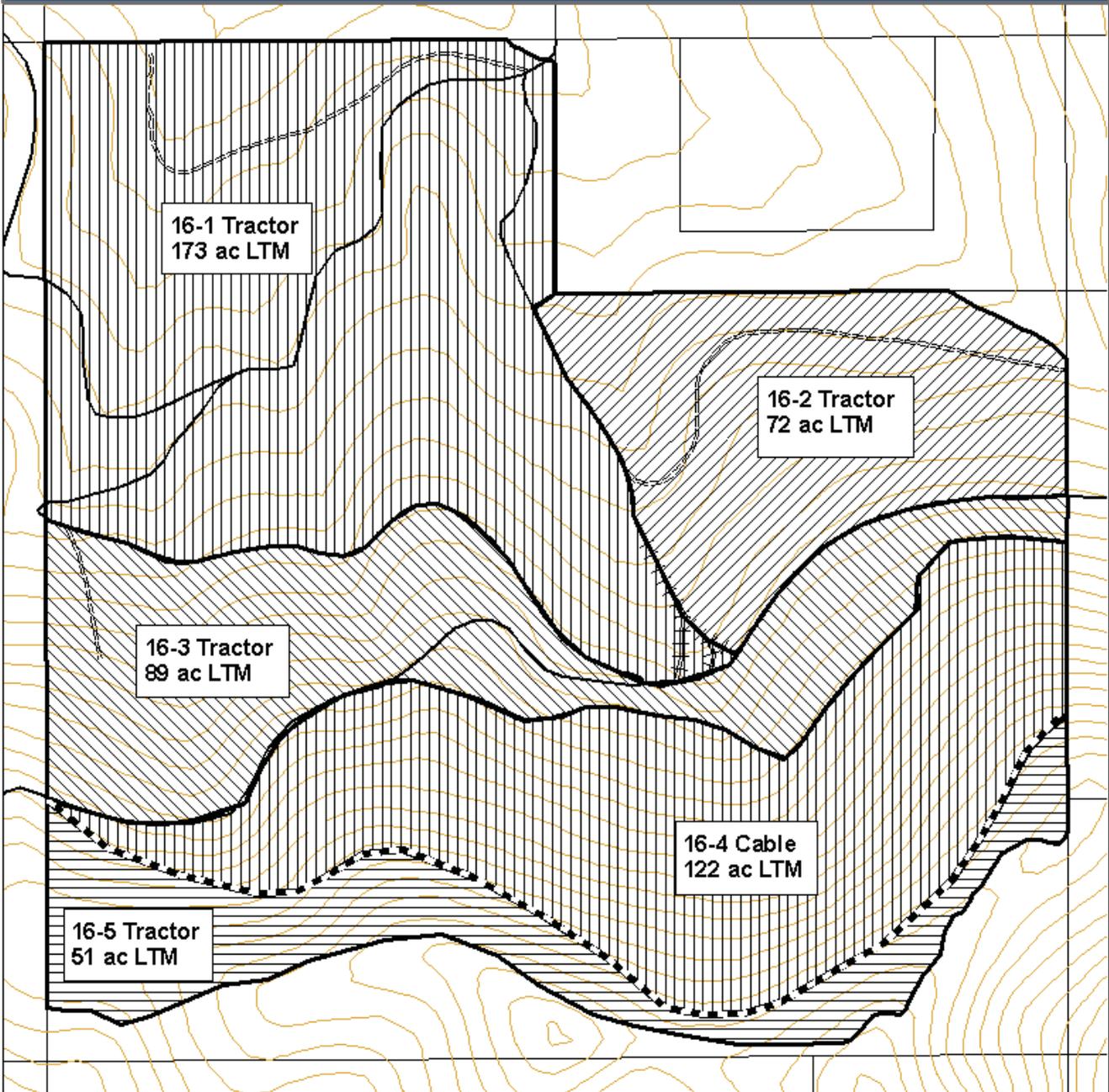
### Legend

- Proposed Haul Route
- DNR Parcels

Montana DNR  
Trust Land Management Division  
Northwestern Land Office  
Plains Unit  
dmp 3/12



Proposed; Tim Burke Two Timber Sale  
Section 16, T21N, R24W

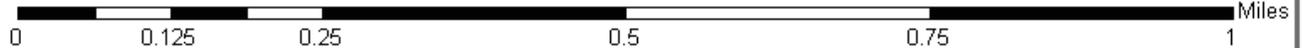


Legend

- Proposed roads
- == Temporary Roads
- ≡≡ Road Obliteration

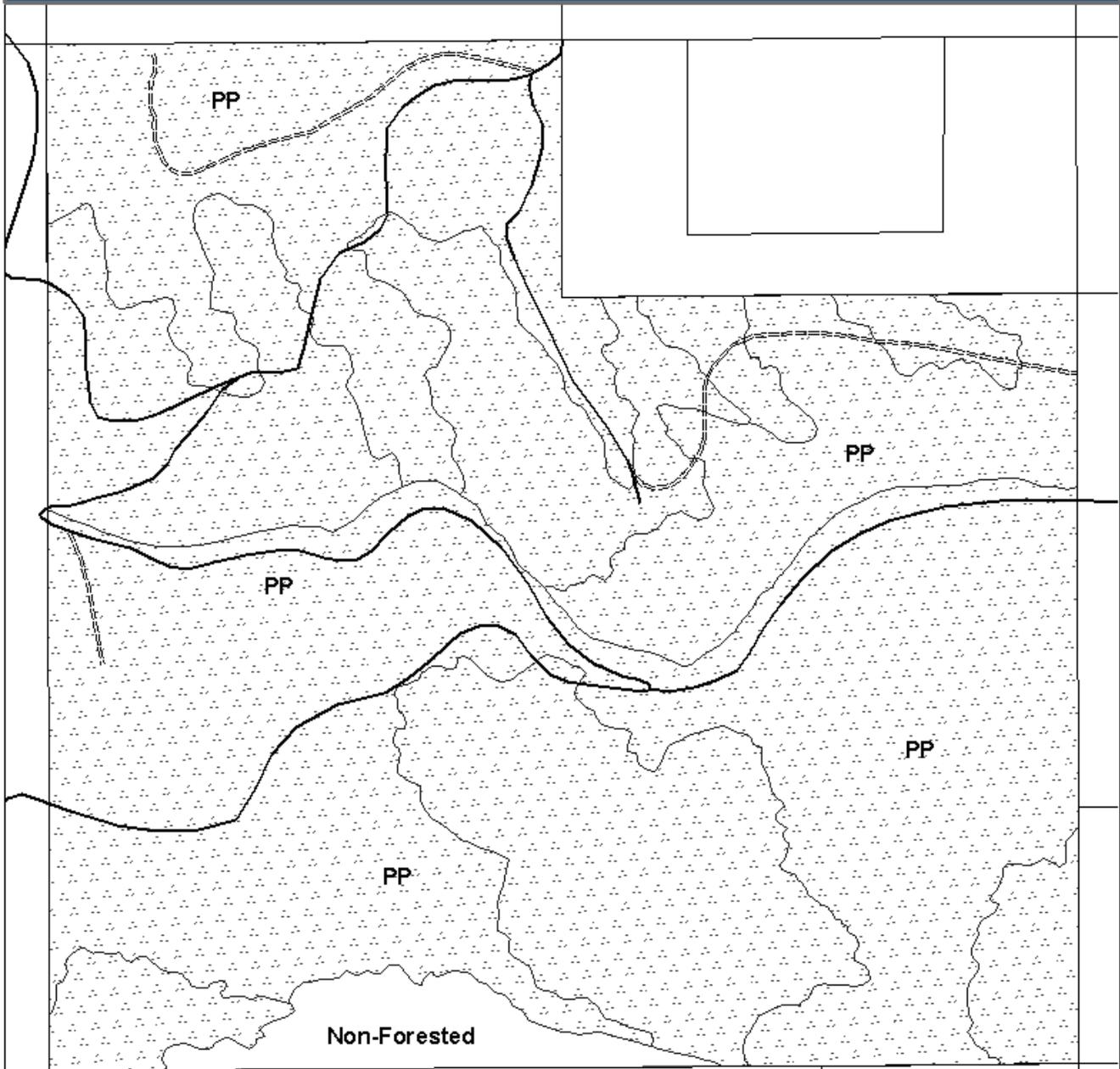
Montana DNRC  
Trust Land Management Division  
Northwestern Land Office  
Plains Unit dmp 3/12

LTM = Leave Tree Marked



# Current Cover Types & Desired future Conditions Section 16, T21N, R24W

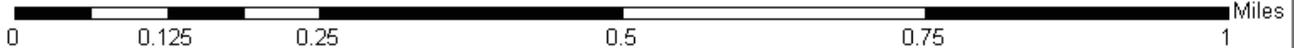
Tim Burke Two



### Legend

- ponderosa pine 542 acres
- Non-Forested 18 acres

Montana DNRC  
Trust Land Management Division  
Northwestern Land Office  
Plains Unit dmp 3/12





## **Attachment II**

### **Resource Analysis**

<b>Vegetation Analysis</b>	<b>22</b>
<b>Watershed and Hydrology Analysis</b>	<b>24</b>
<b>Soils Analysis</b>	<b>31</b>
<b>Wildlife Habitat Analysis</b>	<b>38</b>

**Footnote:** All proposed road miles, harvest boundaries and acreages are close approximations as this proposal has not yet been implemented on the ground.

## Vegetation Analysis

### Introduction

This analysis is designed to disclose the existing condition of the vegetative resource and display the anticipated effects that may result from each alternative of this proposal. During the initial scoping, issues were developed by the public and internally regarding vegetative conditions. The following concerns were expressed from these comments regarding proposed timber harvesting and related activities:

- Concern for maximizing the return to the Common Schools Trust Fund by intensively managing for healthy and biologically diverse forests.
- Improve forest health. Minimize losses in timber volume from mortality due to insect and disease conditions present within the sale area.
- Promote the continued presence and/or reestablishment of historically appropriate timber types on Trust Land included in this project.
- Reduce fire hazard and associated risks of loss to State of Montana, Flathead Indian Reservation, United States Forest Service, and privately owned lands in the area.

### Analysis Area

The analysis area for direct and indirect effects is state section 16 of T21N R24W. This section is located 12 air miles northeast of Plains, Montana, on the Flathead Indian Reservation. Cumulative impacts are considered at the scale of the Plains Unit and will adequately allow for the disclosure of existing conditions, direct, indirect, and cumulative impacts.

### Analysis Method

The Plains Unit typically prepares two to four timber sales per year. Each proposed project is evaluated for its potential effects on lands managed by the DNRC and the surrounding landscape. Methods used in the analysis included review of stand level inventory (SLI) data, field visits, review of scientific literature, aerial photography, and consultation with other professionals.

### Existing Condition

Past and current events have changed the forest conditions on the proposed parcels involved in the project area from what would have been present historically according to Losensky's "Historical Vegetation of Montana" (1997). The area was historically characterized by frequent, low-intensity wildfires prior to the early 1900's. Since the early 1900's, fire has been virtually eliminated from the project area. Logging activity has occurred in the past on this section.

Five large timber sales, (100mbf and greater) have occurred from 1951 to the present.

1,112mbf (966mbf PP, 146mbf DF) was harvested between the years 1951-52.

106mbf (105mbf PP) was harvested in 1975.

395mbf (375mbf PP) was harvested in 1978.

960mbf (885mbf PP, 17mbf WL, 14mbf DF) was harvested in 1983.

1,557mbf (981mbf DF, 478mbf PP, 94mbf WL) was harvested between the years 1993-94.

Small permits have removed a cumulative total of 150mbf from 1945 to the present, along with small amounts of posts, poles, Christmas trees, boughs and firewood collected through the years.

The selective logging of the dominant and co-dominant timber, and lack of low-intensity wildfires has resulted in the development of multi storied stands dominated by ponderosa pine. The mature Douglas-fir exhibits poor quality, genetics and form class and a high incidence of Dwarf mistletoe. There are well established areas of natural regeneration, ponderosa pine & Douglas-fir, as a result of opening up the stand from past harvest activities, as well as shade tolerant Douglas-fir in the understory. Standing wildlife snags are scarce due to the easy access to this section for firewood gatherers. None of the proposed harvest areas are in old growth timber as defined by Green et al.

**Table V-1:** Current cover types and desired future conditions for section 16 T21N R24W.

Cover Type Section 12	Current Acres	DFC Acres	Current minus (-) DFC*
ponderosa pine	542	542	0
non-forested	18	18	0
Totals	560	560	

As shown in Table V-1, the current cover type and the desired future condition of ponderosa pine are of equal acreages.

**Direct and Indirect Effects**

No Action Alternative

No timber harvest or associated activities would occur under this alternative. Timber types would continue to advance towards climax conditions with shade tolerant Douglas-fir continuing to thrive in the understory. Within the next 50 - 100 years this species may replace the current overstory. Growth and vigor of trees present in the analysis area would continue to decline as competition increases. Dwarf mistletoes would be allowed to propagate, thereby perpetuating this pathogen in future generations of timber.

Action Alternative

The proposed action alternative would harvest timber on approximately 507 acres. The proposed harvest would be focused on opening the stand to enhance regeneration of preferred seral species, reducing stocking of shade tolerant climax species, as well as removing species susceptible to dwarf mistletoes. More detailed information for treatment of individual units can be found in Attachment III, Harvest Prescriptions. Gated road closure of the new road and closure of the temporary roads, would help prevent the unauthorized removal of snags and snag recruits. Fuel loadings would be reduced by removal of ladder fuels from the understory and intermediate components of the stand, as well as opened crown spacing in the overstory component. Growth and vigor of the remaining trees is expected to increase as residual tree spacing would allow full light to crowns and more available water. Noxious weeds would be monitored and addressed through the Plains Unit integrated weed management program.

**Table V-2:** Current cover types, desired future conditions, and anticipated post-harvest type distribution for section 16 T21N R24W.

Cover Type Section 12	Current Acres	DFC Acres	Anticipated Post Harvest Acres	Change in Acreage
ponderosa pine	542	542	542	0
non-forested	18	18	18	0
Totals	560	560	560	

As shown in Table V-2, the current cover type, the desired future condition of ponderosa pine and anticipated post harvest acres are the same, thus no net cover type change.

**Cumulative Effects**

No Action Alternative

Under this alternative, stand structure and species composition would move towards a shade tolerant, climax condition. Fuel loadings are expected to increase due to tree mortality from insects and disease outbreaks.

Action Alternative

The Plains Unit has 53,151 Classified Forest acres. Across the Plains Unit there would be no net change of cover types. Treatment would ensure the maintenance of the current cover type and the desired future condition of the ponderosa pine type. The project area would be altered with regard to size class distribution and stocking levels. Fuel loading, ladder fuels, insect and disease incidence would be reduced.

**WATERSHED AND HYDROLOGY ANALYSIS  
FOR THE  
TIM BURKE TWO TIMBER SALE**

**INTRODUCTION**

**Project Area and Project Activities**

The gross project area includes 560 acres of Trust Lands near Hot Springs, Montana. Affected watershed includes unnamed tributaries to Hot Springs Creek, and proposed haul routes are planned in the Cottonwood Creek watershed to the south of the proposed project area. This parcel is within the Hot Springs Creek watershed, which is a tributary to the Little Bitterroot River and eventually the Flathead River. No surface contribution to Hot Springs Creek was identified during field reconnaissance. The project area is adjacent to land managed by the Confederated Salish and Kootenai Tribes (CSKT) and non-industrial private ownership. Proposed project activities would include ground based and cable yarding methods to harvest timber on approximately 513 acres within the project area.

**Resource Description**

Resources potentially at risk in the project area include water yield and sediment delivery. Water yield increases (WYI) can affect channel stability if dramatically altered, and sediment delivery from both in-channel and introduced sources is a primary component of overall water quality in a watershed.

**Issues and Measurement Criteria**

The following issues encompass the specific issues and concerns raised through public comment and scoping of the proposed project. For a specific list of individual comments and concerns, please refer to the project file.

***Sediment Delivery***

Sediment delivery and subsequent water-quality impacts can occur as a result of timber harvesting and related activities, such as road construction and log yarding to landings. Construction of roads, skid trails and landings can generate and transfer substantial amounts of sediment through the removal of vegetation and exposure of bare soil. In addition, removal of vegetation near stream channels reduces the sediment-filtering capacity and may reduce channel stability and the amounts of large woody material. Large woody debris is a very important component of stream dynamics, creating natural sediment traps and energy dissipaters to reduce the velocity and erosive power of stream flows.

Measurement Criteria: Qualitative assessment of road surface drainage Best Management Practices (BMPs), especially near draws. Sediment from harvesting activities and vegetative removal will be analyzed qualitatively through data collected during past statewide and DNRC internal BMP field reviews.

***Water Yield***

Water yield can be affected by timber harvesting and associated activities by affecting the timing, distribution, and amount of water yield in a harvested watershed. Water yields increase proportionately to the percentage of canopy removal (*Haupt 1976*), because removal of live trees reduces the amount of water transpired, leaving more water available for soil saturation and runoff. Water yield is further affected because canopy removal also decreases interception of rain and snow and alters snowpack distribution and snowmelt. Water yield impacts are ameliorated as new trees begin to grow and use water. New growth also begins to return snowpack distribution to pre-harvest levels as stands grow. Higher water yields may lead to increases in peak flows and peak-flow duration, which can result in accelerated streambank

erosion and sediment deposition. Vegetation removal can also reduce peak flows by changing the timing of snowmelt. Openings will melt earlier in the spring with solar radiation and have less snow available in late spring when temperatures are warm. This effect can reduce the synchronization of snowmelt runoff and lower peak flows.

Measurement criteria: Qualitative discussion of potential impacts due to increased water yields in project area draws and streams. Peak flow duration and timing will be addressed qualitatively.

#### ***Fish Habitat***

Fish habitat has been identified in Cottonwood Creek, to the south of the proposed project area. According to the Montana Fisheries Information System (FWP, 2012) and the Confederated Salish and Kootenai Tribes (pers. comm., 2012), a population of genetically pure westslope cutthroat trout exists in Cottonwood Creek downstream from the proposed haul route. The Department of Natural Resources and Conservation has identified westslope cutthroat trout as sensitive species (ARM 36.11.436). Hauling of timber over stream crossings in this watershed could affect spawning habitat if applicable BMPs and erosion control are not in place.

Measurement Criteria: Qualitative assessment of road surface drainage BMPs, especially near fish bearing streams along proposed haul route.

#### **Analysis Area**

##### ***Sediment Delivery***

Analysis area for direct, indirect and cumulative effects to sediment delivery will be analyzed on all existing roads in and leading to the proposed project area. Sediment delivery will be analyzed qualitatively where stream crossings exist within the proposed project area using visual inspection and lineal measurement to determine the road surface area delivering to a stream. Additional sites on proposed haul routes located outside the project area will be assessed qualitatively for their potential to affect downstream water.

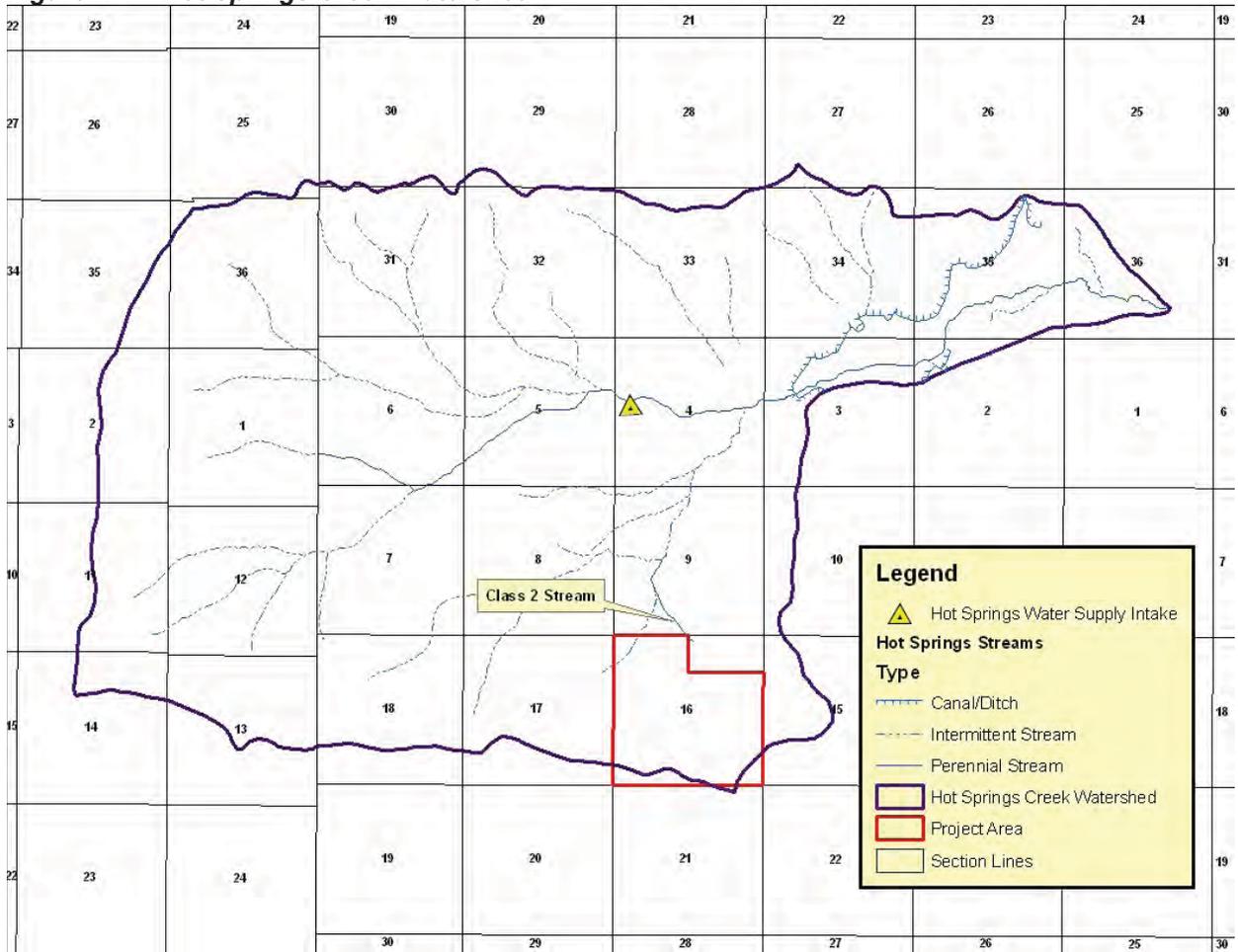
##### ***Water Yield***

Analysis area for direct, indirect and cumulative effects to water yield will be analyzed in the proposed project area, with a qualitative discussion of potential impacts to the Hot Springs Creek watershed. A map of the Hot Springs Creek watershed and its relation to the proposed project area is found below in **Figure H-1**. Visual inspection of the runoff patterns and stream channel stability within the Tim Burke Two parcel were used to assess the impacts of past management to water yield. Aerial photo interpretation was used to determine the extent of past management in these watersheds.

##### ***Fish Habitat***

Analysis area for direct, indirect and cumulative effects to fish habitat will be analyzed on all existing roads leading into the project area from the south (the proposed haul route). None of the proposed DNRC timber harvesting is located within the Cottonwood Creek watershed.

**Figure H-1 – Hot Springs Creek Watershed**



EXISTING CONDITIONS

**Regulatory Framework**

Water Quality Standards:

This portion of the Flathead River basin, including the tributaries to Hot Springs Creek, is classified as B-1 by section 1.3.7 (A)(3) of the Confederated Salish and Kootenai Tribes of the Flathead Reservation Surface Water Quality Standards and Antidegradation Policy (CS&KT, 1995). Water in B-1 classified waterways is suitable for recreation, growth and propagation of salmonid fishes and associated aquatic life, waterfowl, furbearers, as well as agricultural and industrial water supply. Water quality regulations prohibit any increase in sediment above naturally occurring concentration in water classified B-1. “Naturally occurring”, as defined by Tribal water quality regulations (section 1.3.3 (13)), means the range, mean, mode and other appropriate descriptors of seasonal water quality in Reservation waters occurs at levels over which humans have no control or material derived from runoff or percolation over developed land occurs where all reasonable and cost-effective best management practices have been applied.

According to ARM 17.30.608 (1)(c)(iv), this portion of Hot Springs Creek, located below the Hot Springs water supply intake, is classified as C-3. Waters classified C-3 are suitable for bathing, swimming and recreation, marginal growth and propagation of non-salmonid fishes and associated aquatic life, waterfowl, furbearers, as well as agricultural and industrial water supply.

There is one surface water right within the proposed project area for stock watering. One other surface water right for irrigation from a ditch was found approximately 1 mile downstream from the proposed project area.

No beneficial surface water uses were identified within the project area due to a lack of stream channels or lack of delivery to downstream waters.

*Water Quality Limited Waterbodies:*

No portion of the proposed project area is listed in the 2010 List of Waterbodies in Need of Total Maximum Daily Load (TMDL) Development publication produced by the Montana Department of Environmental Quality (DEQ, 2010).

*Montana Streamside Management Zone (SMZ) Law:*

For a map of the streams and their SMZ classification, please refer to **Figure H-1**. By the definition in ARM 36.11.312(4), the stream flowing through the northeast boundary of the proposed project is a class 2 stream, since it has a defined channel, flows more than 6 months per year, but does not contribute to any other lake stream or other body of water. In addition, in the northwest portion of the proposed project area, there is a class 3 stream channel (ARM 36.11.312(5)) that flows less than 6 months per year and does not contribute surface flow to another body of water, and a class 2 stream (ARM 36.11.312(4)) that flows less than 6 months per year, and contributes flow to Hot Springs Creek. All other drainage features found within the proposed project area did not meet the definition of a stream in ARM 36.11.312(20), and are classified as ephemeral draws and swales with no defined channel.

***Sediment Delivery***

Sediment delivery on this parcel was reviewed by a DNRC hydrologist in 2011. One stream channel was identified in this section. In the northeast portion of the project area is a perennial class 2 stream with an approximately 2-foot bankfull width. The stream has a gravel and coarse sand bottom, and grass and forbs for bank vegetation. No areas of down-cut channels were identified during field reconnaissance. This site has been impacted by livestock use, which has kept shrubs from growing on and near streambanks. This stream crosses a small corner of state land, and only flows on DNRC ownership for approximately 50-100 feet.

No sediment delivery to a stream was found from the existing road system. The existing road system in the proposed project area is low to moderate standard native-surfaced road, and generally meets applicable best management practices for surface drainage and erosion control. Most road grades are generally under 8%, but there is one road located in a draw bottom with grades approaching 10-12%. This road is located in a low spot and as such, water cannot be removed from the road surface. There are rills and erosion apparent on the road surface, but all water becomes subsurface before reaching a draw or stream, so no sediment delivery is occurring. The remainder of the road system was constructed to access timber harvesting during past entries. Most of these roads are moderate standard, are built on gentle to moderate grades, and are not causing active erosion.

***Water Yield***

Water yield in the proposed project area will be assessed qualitatively per *ARM 36.11.423*. Lack of stream channels within the project area and a lack of connectivity to downstream water and beneficial uses, a qualitative assessment is deemed adequate to ensure compliance with all water-quality standards, protect beneficial uses, and exhibit a low degree of risk.

Water yield increases can result from past activities in and around the proposed project area, which include timber management and agriculture. These activities have led to reductions in forest canopy cover, and construction of roads.

Evidence of water yield increases was not found during field reconnaissance of the proposed project area. As a result, it was determined that a detailed water yield analysis would not be necessary for the proposed project area. None of the broad ephemeral draws within the proposed project area have any evidence of overland flow (channel scour, re-alignment of litter, definable banks). The defined stream channel in the northeast corner of the project area has a stable, spring-fed flow with no evidence of instability from water yield increases, and very little scouring effect from annual runoff events. As a result, water yield increases resulting from past activities have not been sufficient to destabilize stream channels, or to scour a channel in any of the broad draws throughout the project area.

### ***Fish Habitat***

No fish habitat was identified in the proposed project area due to the ephemeral and/or discontinuous nature of the stream channels. The only fish habitat identified is where the proposed haul route crosses Cottonwood Creek to the south of the project area. This road system is located on land managed by the CSKT, and is not owned or managed by DNRC. The stream has approximately a 6-foot bankfull channel that is braided into multiple threads where the proposed haul route crosses. The stream crossing is a 24" round culvert that is likely a barrier to fish passage. The road grade is elevated over this culvert, so surface drainage is directed away from the crossing, there is also a functioning drain dip approximately 200 feet from the crossing that helps to minimize surface water delivery to the crossing. No sediment delivery was identified during field reconnaissance. Based on discussions with a CSKT fisheries biologist, the only known habitat currently being used by the westslope cutthroat trout is located south of Montana Highway 28, approximately 3 miles below the proposed haul route.

## **DIRECT AND INDIRECT EFFECTS**

### ***No Action Alternative***

Direct and indirect effects of the No Action alternative would be similar to the conditions described under the existing conditions for sediment delivery, water yield and fish habitat. The sediment delivery, water yield and fish habitat would be unaffected by the no action alternative, and streams and ephemeral draws in and near the proposed project area would continue to be affected by natural and pre-existing conditions.

### ***Action Alternative***

The proposed action alternative would harvest timber from approximately 513 acres. The following are the anticipated direct and indirect impacts:

#### **Sediment Delivery**

Sediment delivery risk from the existing and proposed road system is expected to be low. The action alternative would improve and maintain erosion control and surface drainage on all roads proposed for haul. The action alternative proposes to construct approximately 1.2 miles of new road. No new stream crossings would be constructed on the proposed new road. Short-term risk of low levels of erosion and deposition would be increased for approximately 2 to 3 years after completion due to exposure of bare soil during construction, surface drainage improvement and hauling activities. This risk would return to near current levels as road surfaces re-vegetate. Overall, there is a low to moderate risk of short-term low-level increase in erosion and sediment delivery for about 2-3 years from use of new and existing roads. However, water quality standards are expected to be met and there is a low risk of impacts to downstream beneficial uses.

Sediment delivery risk from the proposed timber harvesting is expected to be low. Most of the proposed timber harvesting activities would pose a low risk of sediment delivery to streams since there are no stream channels identified within proposed harvest units. The SMZ law, Administrative Rules for Forest Management, and applicable BMPs would be applied to all harvesting activities, which would minimize the risk of sediment delivery to draws and streams. The Montana BMP audit process has been used to evaluate the application and effectiveness of

forest-management BMPs since 1990; this process has also been used to evaluate the application and effectiveness of the SMZ Law since 1996. During that time, evaluation of ground-based-skidding practices near riparian areas has been rated 92-percent effective, and these same practices have been found effective over 99 percent of the time from 1998 to present (*DNRC 1990 through 2010*). Since 1996, effectiveness of the SMZ width has been rated over 99 percent (*DNRC 1990 through 2010*). As a result, with the application of BMPs and the SMZ Law, proposed activities are expected to have a low to moderate risk of low impacts to sediment delivery.

### **Water Yield**

Water yield increases and associated risks of destabilizing channels from the proposed action alternative are expected to be low and not measurable. The proposed action alternative would harvest timber from approximately 513 acres. No measurable impacts to stream channel stability from water yield increases are anticipated from the proposed harvesting for the following reasons: 1) The well-drained to excessively well-drained nature of the soils would absorb additional on-site moisture and not produce increased surface runoff, and would in turn produce little or no detectable change in water yield from upland sites, 2) The ephemeral draws within the project area are stable and vegetated with a dense mat of grass and forbs vegetation, making them capable of handling potential water yield increases without destabilizing, and 3) The stability of channels where they exist would be sufficient to handle potential increases. It is not expected that possible increases in water yield would create surface flow to any other body of water beyond that occurring under the existing conditions.

### **Fish Habitat**

Impacts to fish habitat would be increased during the period of hauling over the Cottonwood Creek crossing. This risk would be minimized by improving and maintaining all applicable BMPs and erosion control on the proposed haul route to the south of the proposed project area. Overall, there is a low to moderate risk of short-term low-level increase in erosion and sediment delivery for about 2-3 years from continued use of the proposed haul road, which could affect downstream westslope cutthroat trout habitat.

## **CUMULATIVE EFFECTS**

### ***No Action Alternative***

Cumulative effects of the No Action alternative on sediment delivery and water yield would be similar to the situations described in the existing conditions. The sediment delivery and water yield would be unaffected by the No Action alternative, and the streams and ephemeral draws in the proposed project area would continue to be affected by natural and pre-existing conditions.

### ***Action Alternative***

Cumulative effects of past activity in and around the proposed project area has been driven mainly by timber management, grazing and agricultural use. On sites where timber was harvested, there has been substantial vegetative and hydrologic recovery with no apparent impact on water yield increases. The anticipated cumulative effects of the proposed action alternative are summarized below.

### **Sediment Delivery**

Risk of sediment delivery and sediment loading to waters downstream from the proposed project area would be slightly increased from current levels in the short term and similar to current levels in the long term. Maintenance and improvement of existing erosion control and surface drainage on the existing road system would yield similar erosion rates to current levels and maintain a similar risk of sediment delivery to other areas. New road construction would implement all applicable BMPs, so risks of sediment delivery would be increased for 2-3 years after construction, but would decrease to levels similar to the existing road system once bare soil is

vegetated. Due to a lack of stream channels and implementation of all applicable timber harvest BMPs, there would be a low risk of cumulative effects to sediment delivery from timber harvesting proposed with the action alternative. Overall, there is a low to moderate risk of short-term low-level increases in sediment loading for about 2-3 years. However, water quality standards are expected to be met and there is a low risk of impacts to beneficial uses.

#### **Water Yield**

Cumulative effects to water yield from past activity in and around the proposed project area have mainly consisted of timber management and wildfires. On sites where timber was harvested, there has been substantial vegetative and hydrologic recovery with no apparent impact to stream channels or draws from water yield increases.

Cumulative effects to water yield are not anticipated for the following reasons: 1) The well-drained to excessively well-drained nature of the soils would absorb additional on-site moisture and not produce increased surface runoff, and would in turn produce little or no detectable change in water yield from upland sites, 2) The ephemeral draws within the project area are stable and vegetated with a dense mat of grass and forbs vegetation, making them capable of handling potential water yield increases without destabilizing from a combination of past and proposed activities, and 3) All but approximately 1 acre of the proposed harvesting would occur in ephemeral draws and streams with no surface delivery to another body of water. As a result, there would be a low risk of the action alternative, when combined with past and current vegetative changes, leading to water yield increases destabilizing channels beyond the current conditions.

#### **Fish Habitat**

Cumulative effects to fish habitat would include an increased risk of sediment delivery to downstream fish habitat during the period of hauling over the Cottonwood Creek crossing. This risk would be minimized by improving and maintaining all applicable BMPs and erosion control on the proposed haul route to the south of the proposed project area. This risk, combined with other management occurring within the Cottonwood Creek watershed on non-DNRC ownership, could lead to strains on westslope cutthroat trout populations in Cottonwood Creek. This risk is low to moderate, and would be reduced following completion of the proposed project.