Environmental Assessment Checklist

Project Name: Box Canyon Timber Permit
Proposed Implementation Date: July 29th 2020
Proponent: Helena Unit, Central Land Office, Montana DNRC
County: Cascade

Type and Purpose of Action

Description of Proposed Action:
The Helena Unit of the Montana Department of Natural Resources and Conservation (DNRC) is proposing the Box Canyon Timber permit, an amendment the Black Smith Timber Sale Environmental Analysis. The project is located 24 miles south of Great Falls, MT (refer to Attachments) and includes the following sections:

Beneficiary	Legal Description	Total Acres	Treated Acres
Common Schools Trust	**T16N R4E Section 16**	**640**	**~50**

Objectives of the amended project include:

- Generate volume to meet the annual harvest requirement of the DNRC
- Harvest up to an additional up to 300 MBF of timber.
- Generate revenue for the Common School Trust while improving forest health and promoting appropriate cover types
- Promote a fire resilient forest stand structure
- Remove genetically inferior individual trees

Proposed activities in the amended EAC include additional:

Action	Quantity
Proposed Harvest Activities	# Acres
Clearcut	
Seed Tree	75
Shelterwood	
Group Selection	
Commercial Thinning	
Salvage	
Encroachment Reduction	
Total Treatment Acres	
Proposed Forest Improvement Treatment	# Acres
Pre-commercial Thinning	**0**

Action	Quantity
Planting	**0**
Prescribed burning (optional)	
Proposed Road Activities	# Miles
New permanent road construction	0
New temporary road construction (Optional)	
Road maintenance	
Road reconstruction (Optional)	
Road abandoned	0
Road reclaimed	0
Other Activities	
Bridge Installation	0

Duration of Activities:	24 months
Implementation Period:	4 years

The lands involved in this proposed project are held in trust by the State of Montana. (Enabling Act of February 22, 1889; 1972 Montana Constitution, Article X, Section 11). The Board of Land Commissioners and the DNRC are required by law to administer these trust lands to produce the largest measure of reasonable and legitimate return over the long run for the beneficiary institutions (Section 77-1-202, MCA).

The DNRC would manage lands involved in this project in accordance with:

- The State Forest Land Management Plan (DNRC 1996)
- Administrative Rules for Forest Management (ARM 36.11.401 through 471)
- All other applicable state and federal laws.

Project Development

Original EA

SCOPING:

- DATE: 7/28/2016
- PUBLIC SCOPED:
  - The scoping notice was posted on the DNRC Website: http://dnrc.mt.gov/public-interest/public-notices
  - Public scoped: adjacent landowners and statewide scoping lists
- AGENCIES SCOPED:
  - MT FWP, BLM
- COMMENTS RECEIVED:
  - How many:0

DNRC specialists were consulted, including: Jeff Schmalenberg, Ross Baty, Mike Anderson, Patrick Rennie, and Jessica Thiel.

Internal and external issues and concerns were incorporated into project planning and design and would be implemented in associated contracts.

OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION, LIST OF PERMITS NEEDED:

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

- **Montana/Idaho Airshed Group-** DNRC is a member of the Montana/Idaho Airshed Group which was formed to minimize or prevent smoke impacts while using fire to accomplish land management objectives and/or fuel hazard reduction (Montana/Idaho Airshed Group 2006). The Group determines the delineation of airsheds and impact zones throughout Idaho and Montana. Airsheds describe those geographical areas that have similar atmospheric conditions, while impact zones describe any area in Montana or Idaho that the Group deems smoke sensitive and/or having an existing air quality problem (Montana/Idaho Airshed Group 2006). 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.

ALTERNATIVES CONSIDERED:

No-Action Alternative: Deferred harvest: Logging and related activities would not occur in the near future, however, grazing under existing leases would continue.

Action Alternative: DNRC would harvest approximately 610 thousand board feet (MBF) of primarily Douglas-fir trees utilizing seed tree and group selection harvest systems. Forest fire fuels would be reduced substantially (60-70%) within the harvest units providing contiguous fuel breaks on the portions of state land being treated, thus reducing the potential for catastrophic loss of resources on state and adjacent private and public lands. Additionally to reduce Douglas-fir encroachment, aspen stands would have conifers cleared from within colony and 100' around each colony greater than ½ acre to the extent it is economically and operationally feasible. Aspen stands may be encouraged to regenerate using prescribed fire. Grazing under existing leases would continue, but may work with lessee to limit conflict between cattle and timber harvest. All forest improvement work would be dependent on funding.

Impacts on the Physical Environment

Evaluation of the impacts on the No-Action and Action Alternatives including **direct, secondary, and cumulative** impacts on the Physical Environment.

VEGETATION:

Vegetation Existing Conditions: The cover type is Douglas-fir. The habitat type is primarily PSME/CARU, CARU phase. The majority of forested stands are included in fuel model eight. Noxious weed species present in the area include spotted knapweed, Canada thistle, and hound's tongue. Forested stands in this section are 100-130 years old. The age of the stands is less than 200 years old, thus they do not meet DNRC's criteria to be considered old growth. No plant species of concern are known to be in the harvest area based on a query of the Montana Natural Heritage database. Proposed harvest area (~307 acres) is composed of range encroachment, single story mature, and multi-story Douglas-fir. Douglas-fir has been stagnated in the harvest area due to western spruce budworm and drought conditions. Aspen is present in portions of the proposed harvest area, however much of the aspen growth has been stagnated due conifer encroachment and further stunted by grazing pressure attributable to livestock and wildlife.

Vegetation	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Noxious Weeds	x				x				x					
Rare Plants	x				x				x					
Vegetative community	x				x				x					
Old Growth	x				x				x					
Action														
Noxious Weeds		x				x				x			**Yes**	**1**
Rare Plants	x				x				x					
Vegetative community		x				x				x			**Yes**	**2**
Old Growth	x				x				x					

Comments:

1. *Disturbed sites from equipment operation, timber removal and pile burning are receptive seed beds for noxious weeds.*
2. The removal of approximately 610 MBF of timber and temporarily disturbing grasses and forbs present on site.

Vegetation Mitigations:

- A minimum of one snag and one snag recruit per acre, of the largest diameter class, would be retained. Cull live trees and cull snags would be retained where possible given human safety considerations.
- Retain live, healthy older trees and stand attributes suitable for old growth development where available and applicable. Retain leave trees in a clumped distribution where possible.
- Pre-harvest and post-harvest herbicide applications would be made to manage noxious weeds in the sale area. All herbicide applications would follow label instructions.

Treatments may continue for up to 3 years after pile burning is concluded depending on amount of noxious weed infestation.

- Grass seed disturbed sites (landings, slash piles, major skid trails) at the completion of each harvest unit. Seed mix used would be appropriate for site applied.
- All logging equipment would be power washed and free of soil and organic material prior to being brought on site.

SOIL DISTURBANCE AND PRODUCTIVITY:

Soil Disturbance and Productivity Existing Conditions: The sale area is located on moderate to steep slopes with underlying geologic structure forming the terrain morphology. The project area is within a semi-arid precipitation zone (18-24") though the probability for high intensity rain events are significant. There are no especially unusual or unique geologic features in the proposed harvest area. Slopes are stable. Rock outcrops occur on ridges and convex slopes and limit equipment operation and skid trail location in some areas.

The primary soils within the sale area are Sheege-Whitore soil complex, a rocky loam with slopes of 15-40%. Erosion and displacement risk is moderate on most slopes with increased risk as slopes exceed 40%. There is a moderate risk of soil compaction from equipment operations on these soils. The primary soil concern is limiting displacement of the shallow surface soils during equipment operations and providing slash cover on exposed mineral soil when operations are complete. The sites proposed for management have low to moderate productivity due to the cold and semi-arid nature of the location. Coarse woody debris levels were observed to be 5-10 tons/acre with low variation is size class and spatial distribution. No areas of previous harvest are proposed for re-entry.

Soil Disturbance and Productivity	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Physical Disturbance (Compaction and Displacement)	x				x				x					
Erosion	x				x				x					
Nutrient Cycling	x				x				x					
Slope Stability	x				x				x					
Soil Productivity		x				x				x				
Action														
Physical Disturbance (Compaction and Displacement)		x			x				x				**Yes**	**1**
Erosion		x			x				x				**Yes**	**2**
Nutrient Cycling		x				x			x				**Yes**	**3**

Soil Disturbance and Productivity	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
Slope Stability	x				x				x					
Soil Productivity		x				x			x				Yes	1

Comments:

1) Monitoring of DNRC timber harvest shows the level of total detrimental soil impacts averages 6.2% of a harvest area using cable harvest systems and 13.2% for traditional ground based operations (DNRC 2011). Detrimental soil impacts are considered substantive when they exceed 20 percent of a harvest area (DNRC 1996). Soil productivity is expected to be maintained when soil function is maintained within 80% of a harvest unit.
2) Standard implementation of forest management BMP's to control erosion concurrent with harvest activities would mitigate any erosion concerns in the project area. Primary or highly impacted skid trails would be covered with slash and debris using water bars only as needed to provide adequate drainage.
3) Slash greater than 3" in diameter would be left at a rate of 10 tons an acre within the harvest units where feasible. Retain 1-2 large diameter (18-24") logs per acre facilitate moisture retention and creation of micro growing sites.

Soil Mitigations:

- Ground based equipment operations limited to slopes less than 45% with cable harvest systems employed on slopes greater than 45%.
- Limiting season of use to periods when soils are relatively dry (less than 20%), frozen or snow covered to minimize soil compaction and maintain drainage features.
- Minimizing ground scarification to the extent needed to meet silvicultural objectives.
- Forest Officer and Purchaser would agree to a general skidding plan prior to equipment operations and designate skid trails within complex areas.
- Road drainage would be improved on existing and reconstructed roads with new construction complying with Forest Management BMP's.

WATER QUALITY AND QUANTITY:

Water Quality and Quantity Existing Conditions: The project area is entirely within the Smith River – Deep Creek watershed (HUC 100301030906). This watershed is 44 mi^2, approximately 22% forested and receives upwards of 24 inches of precipitation annually with an average elevation of approximately 4,900 feet. Water use for this watershed is classification in rule by DEQ as B-1. Waters classified B-1 are to be maintained suitable for drinking, culinary, and food processing purposes, after conventional treatment; bathing, swimming, and recreation; growth and propagation of salmonid fishes and associated aquatic life, waterfowl and furbearers; and agricultural and industrial water supply.

Due to the cold and dry nature of the project area, no streams channels are present on state land. An ephemeral draw drains the northwest quarter of the project area that rarely, if ever, contributes surface flow stream to the Smith River.

Water Quality & Quantity	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Water Quality	**x**				**x**				**x**					
Water Quantity	**x**				**x**				**x**					
Action														
Water Quality		**x**				**x**				**x**			**Yes**	**1**
Water Quantity	**x**				**x**				**x**					**2**

Comments:

1. Due to the harvest system utilized, location of harvest units relative to stream channels, magnitude of new road construction, implementation of Forest Management BMP's and the low precipitation within the project area there is a low risk of direct, secondary or cumulative water quality impacts.
2. Forest stands are not likely to be a major influence on the hydrology and flow regimes of the streams draining the proposed timber sale area. Many of the trees in the proposed harvest units have been affected by spruce budworm or mountain pine beetle. The proposed harvest is not expected to substantially decrease the levels of canopy interception or evapotranspiration potential over that likely to occur in these watersheds under no action. The levels of harvest proposed are also well below those cumulative levels associated with detrimental increases in water yield. Due to these factors, no direct, secondary or cumulative impacts to water quantity are anticipated under the proposed action.

Water Quality Mitigations:

- Best Management Practices for Forestry would be implemented and monitored for effectiveness concurrent with all forest management activities.
- Implementation of Montana Administrative Rules for Forest Management and Streamside Management Zones.
- Ephemeral draw crossings would be kept to a minimum and skidding down topographic convergences (draw bottoms) would be prohibited.
- Major skid trails would be grass seeded, closed with slash and debris and/or barriers, and adequate drainage provided.

FISHERIES:

Fisheries Existing Conditions: There are no fish bearing streams in the project area. Ephemeral draws are the only drainage features in the project area and rarely, if ever, contribute surface flow to the Smith River. Due to this consideration all fisheries related issues will be dismissed.

No-Action: No direct, indirect, or cumulative impacts would occur to affected fish species or affected fisheries resources.

Action Alternative (see Fisheries table below):

Fisheries	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Sediment	x				x				x					
Flow Regimes	x				x				x					
Woody Debris	x				x				x					
Stream Shading	x				x				x					
Stream Temperature	x				x				x					
Connectivity	x				x				x					
Populations	x				x				x					
Action														
Sediment		x				x				x			**Yes**	**1**
Flow Regimes	x				x				x					
Woody Debris	x				x				x					**1**
Stream Shading	X				X				X					**1**
Stream Temperature	x				x				x					**1**
Connectivity	x				x				x					
Populations	x				x				x					

Comments:

1. The primary risks to fisheries would be sediment delivery draw bottoms. The Action Alternative would maintain adequate equipment restriction zones and low soil disturbance harvest systems adjacent to drainage feature. Areas of soil disturbance are low for potential erosion and sediment delivery which would be monitored and mitigated promptly as discussed in the Water Quality and Soils analysis. Locations of new road construction are on dry sites and no new stream crossings are proposed. Because of these factors there is a low risk of direct, secondary and cumulative impacts to fisheries resources by implementing the action alternative.

Fisheries Mitigations:

- Best Management Practices for Forestry would be implemented and monitored for effectiveness concurrent with all forest management activities.
- Implementation of Montana Administrative Rules for Forest Management and Streamside Management Zones.

WILDLIFE:

Evaluation of the impacts of the No-Action and Action Alternatives including **direct, indirect, and cumulative** effects on Wildlife.

Wildlife Existing Conditions: The project area is dominated by Douglas-fir stands of differing ages and aspen groves. Much of the existing forested area on the project area is present due to

range encroachment during the last 50 years. Relatively recent clearcut units (~20 years old) on the project area are generally well-stocked and are providing good to excellent hiding and escape cover. Large live trees exist in the project area. However, large snags occur in relatively low numbers (<1.0 per ac) due to the relatively young age of most stands on the project area. Coarse woody debris amounts are also generally low (<5 tons per acre) due to the young age of stands and community types. The project area occurs along a forest grassland ecotone providing habitat for many native song birds, raptors, big game species, and predators. Several prominent limestone rock outcrop features occur in the project area, which provide likely roosting sites for several bat species. The Smith River lies approximately one air mile from the project area, which likely provides desirable foraging areas for local bats. Big game winter range and summer habitats exist in the project area. Considerable evidence of use of the project area by elk and mule deer was observed during the field review on 5/2/2018. Both mule deer and wild turkeys were observed during the field review.

No-Action: No potential for disturbance to wildlife would be anticipated. No timber management activities would be conducted, thus no appreciable changes to existing habitats would occur. No changes in snag or large live tree availability would be anticipated. Continued maturation within existing stands could improve hiding cover and thermal cover for elk and mule deer, and other wildlife species that use forest cover to meet their life requisites. No direct effects would occur and negligible indirect, or cumulative effects would occur.

Action Alternative (see Wildlife table below):

Wildlife	Impact								Can Impact be Mitigated?	Comment Number
	Direct and Indirect				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High		
Threatened and Endangered Species										
Grizzly bear *(Ursus arctos)* Habitat: Recovery areas, security from human activity		**X**				**X**			**Y**	**W-1**
Canada lynx (*Felix lynx)* Habitat: Subalpine fir habitat types, dense sapling, old forest, deep snow zone	**X**				**X**					**W-2**
Sensitive Species										
Bald eagle *(Haliaeetus leucocephalus)* Habitat: Late-successional forest within 1 mile of open water	**X**				**X**					**W-2**

Wildlife	Impact								Can Impact be Mitigated?	Comment Number
	Direct and Indirect				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High		
Black-backed woodpecker *(Picoides arcticus)* Habitat: Mature to old burned or beetle-infested forest	**X**				**X**					**W-2**
Black-tailed prairie dog (*Cynomys ludoviscianus*) Habitat: grasslands, short-grass prairie, sagebrush semi-desert	**X**				**X**					**W-2**
Flammulated owl *(Otus flammeolus)* Habitat: Late-successional ponderosa pine and Douglas-fir forest	**x**				**x**					**W-2**
Gray Wolf *(Canis lupus)* Habitat: Ample big game populations, security from human activities	**X**				**X**					**W-4**
Harlequin duck *(Histrionicus histrionicus)* Habitat: White-water streams, boulder and cobble substrates	**X**				**X**					**W-2**
Northern bog lemming *(Synaptomys borealis)* Habitat: Sphagnum meadows, bogs, fens with thick moss mats	**X**				**X**					**W-2**
Mountain plover (*Charadrius montanus*) Habitat: short-grass prairie & prairie dog towns	**X**				**X**					**W-2**
Peregrine falcon	**X**				**X**					**W-3**

Wildlife	Impact								Can Impact be Mitigated?	Comment Number
	Direct and Indirect				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High		
(Falco peregrinus) Habitat: Cliff features near open foraging areas and/or wetlands										
Pileated woodpecker *(Dryocopus pileatus)* Habitat: Late-successional ponderosa pine and larch-fir forest		**X**			**X**				**Y**	**W-5**
Greater Sage grouse (*Centrocercus urophasianus*) Habitat: sagebrush semi-desert	**X**				**X**					**W-6**
Townsend's big-eared bat *(Plecotus townsendii)* Habitat: Caves, caverns, old mines		**X**				**X**			**Y**	**W-9**
Wolverine *(Gulo gulo)* Habitat: Alpine tundra and high-elevation boreal forests that maintain deep persistent snow into late spring	**X**				**X**					**W-2**
Big Game Species										
Elk		**X**				**X**			**Y**	**W-7**
Whitetail		**X**				**X**			**Y**	**W-7**
Mule Deer		**X**				**X**			**Y**	**W-7**
Other	**X**				**X**					
Other Species or Issues										
Snags		**X**				**X**			**Y**	**W-8**
Large Live Trees		**X**				**X**			**Y**	**W-8**

Comments:

W-1 The project area is 53 miles east of the Northern Continental Divide Ecosystem Grizzly Bear Recovery Zone. Grizzly bears have been recently documented as far east as

Stanford, Montana (MNHP May 2018). Thus, it is possible that individual animals could occasionally venture out to the project area. However, appreciable use of the project area by grizzly bears at this time is unlikely given the current density and distribution of grizzly bears.

No new permanent roads would be constructed with this project; approximately 1 miles of temporary road would be constructed that would be rendered unusable following proposed treatments. Further, access to this parcel is controlled by the neighboring private land owner, minimizing the risk of appreciable motorized access by the public. Adverse direct, indirect and cumulative impacts to grizzly bears as a result of this project would be expected to be minimal.

W-2 The project area is either out of the range of the normal distribution for this species or suitable habitat and/or key habitat structures are not present (eg. documented nest sites or roosting structures etc.). Thus, no direct, indirect, or cumulative effects would be anticipated.

W-3 Potential for peregrine falcon habitat exists in the project area. Some suitable habitats exist in the cumulative effects analysis area, including limestone cliffs. However, there are no known peregrine falcon nesting sites in the harvest area. The proposed activities would have negligible effects on peregrine falcons.

W-4 While wolves have not been documented in the immediate vicinity, wolves could occasionally travel through the area. No known den or rendezvous sites occur in the project area, but some use of the project area by wolves could occasionally occur for breeding, hunting, or other life requirements. Big game species exist in the vicinity of the project area much of the year and some winter range exists in the project area. Any wolves using the area could be disturbed by proposed activities and are most sensitive at den and rendezvous sites, which are not known to occur in the project area or within 1 mile of the project area. Should either a den or rendezvous site be identified within 1 mile of the project area, a DNRC biologist would be consulted to determine if additional mitigations would be necessary. In the short-term, the proposed activities could lead to slight shifts in big game use, which could lead to a shift in wolf use of the area should they be present. Proposed activities would alter canopy closure, summer big game habitat, and big game winter range habitat, which could alter some big game use of the area, but would not be expected to alter wolf prey abundance.

W-5 Pileated woodpeckers are potentially present; however, the project area is relatively near the edge of their distribution. Elements of the forest structure important for nesting pileated woodpeckers, including snags (minimum of 1 snag per acre of the largest diameter class), coarse woody debris, numerous leave trees, and snag recruits (minimum of 1 recruit per acre of the largest diameter class) would be retained in the proposed harvest areas. Cull live trees and cull snags would be retained where possible given human safety considerations. Given the location of the project area in relation to the normal distribution of pileated woodpeckers in Montana, the potential for adverse direct, indirect and cumulative effects would be low.

W-6 The project area is outside of the general habitat boundary for the greater sage-grouse. Activities would be restricted to the forested portions of the section. Given the type of the project and location of the project, no direct, indirect or cumulative effects to sage grouse would be anticipated.

W-7 The project area contains suitable habitat for white-tailed deer, mule deer and elk. Winter range for elk exists in the project area, which is part of a larger winter range in the area. Douglas-fir stands in the project area are providing attributes facilitating use of the project area by wintering big game. Logging activities are most likely to occur during non-winter periods. Thus, no disturbance to wintering big game would likely occur. No long-term effect to winter range carrying capacity or factors that would create long-term displacement or reduced numbers of big game would be anticipated. Proposed activities would reduce thermal cover and hiding cover on roughly 175 acres of elk/deer winter range. Following proposed activities, the capacity of these stands to intercept snow and provide thermal cover for big game would be largely removed, reducing habitat quality for wintering big game. Proposed activities would not prevent big game movement through the project area appreciably in winter and could stimulate browse production in the units. No changes in open roads would occur that would alter availability of existing secure habitat. Adverse direct, indirect and cumulative effects to elk and deer would be expected to be minor.

W-8 Numerous large live trees and snags exist in the project area 27.01 trees per acre of 15-20” diameter and 6.125 trees per acre of 20”+ diameter. While the action alternative would represent a reduction in available large trees and snags on about 175 acres in the project area, the proposed activities would retain approximately 10 trees per acre greater than 15” in diameter numbers of large trees and snags where present; the continued presence of these resources in the project area could facilitate continued use by those wildlife species that use large trees and snags.

W-9 It is unknown if Townsend’s big-eared bats occur in the vicinity of the project area. However, several large limestone outcrop features occur in the project area that could provide suitable roosting sites for a number of native bat species. Observations of little brown myotis bats were recently made near the Smith River (MNHP May 2018). Logging activity could disturb roosting bats on the project area during project activities, however, the features would not be altered in any way. Numerous large trees would also be retained as leave trees and on inoperable sites on the project area that could offer usable roost sites for forest-dwelling bat species. Given the small scope and limited duration of the project, any adverse direct, indirect or cumulative effects to native bats would be expected to be minor.

Wildlife Mitigations:

- A DNRC biologist would be consulted if a threatened or endangered species is encountered to determine if additional mitigations that are consistent with the administrative rules for managing threatened and endangered species (ARM 36.11.428 through 36.11.435) are needed.
- Snags, snag recruits, and coarse woody debris would be managed according to *ARM 36.11.411* through *36.11.414*, particularly favoring ponderosa pine. Clumps of existing snags could be maintained where they exist to offset areas without sufficient snags. Coarse woody debris retention would emphasize retention of downed logs of 15-inch diameter or larger.

- Minimize potential disturbance to resident wildlife by completing activities in an expeditious manner.
- Contractors and purchasers conducting contract operations would be prohibited from carrying firearms while on duty.
- Food, garbage, and other attractants would be stored in a bear-resistant manner.
- Following project work, temporary roads would be rendered unusable and existing restricted roads would remain closed to motorized public access.

AIR QUALITY:

Air Quality	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Smoke	**x**				**x**				**x**					
Dust	**x**				**x**				**x**					
Action														
Smoke		**x**				**x**				**x**			**Yes**	**1**
Dust		**x**				**x**				**x**			**Yes**	**2**

Comments:

1) Slash consisting of tree limbs and tops and other vegetative debris would be piled throughout the project area during harvesting. Slash would ultimately be burned after harvesting operations have been completed. Burning would introduce particulate matter into the local airshed, temporarily affecting local air quality. Over 70% of emissions emitted from prescribed burning is less than 2.5 microns (National Ambient Air Quality PM 2.5). High, short-term levels of PM 2.5 may be hazardous. Within the typical column of biomass burning, the chemical toxics are: Formaldehyde, Acrolein, Acetaldehyde, 1,4 Butadiene, and Polycyclic Organic Matter.

2) Harvesting and hauling logs could create dust, which may affect local air quality. However, because dust would be localized to skid trails and haul roads and operating seasons would be short in duration, effects to air quality as a result of dust generated during harvest activities are expected to be low.

Air Quality Mitigations: Burning within the project area would be short in duration and would be conducted when conditions favor good to excellent ventilation and smoke dispersion as determined by the Montana Department of Environmental Quality and the Montana/Idaho Airshed Group. DNRC, as a member of the Montana/Idaho Airshed Group, would burn only on approved days.

ARCHAEOLOGICAL SITES / AESTHETICS / DEMANDS ON ENVIRONMENTAL RESOURCES:

Will Alternative result in potential impacts to:	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Historical or Archaeological Sites	x				x				x					
Aesthetics	x				x				x					
Demands on Environmental Resources of Land, Water, or Energy	x				x				x					
Action														
Historical or Archaeological Sites	x				x				x					1
Aesthetics	x				x				x					
Demands on Environmental Resources of Land, Water, or Energy	x				x				x					

Comments:
Montana Tribal Nations were scoped but none identified a specific cultural resource concern. A Class III cultural and paleontological resources inventory was conducted of the area of potential effect on state land. Despite a detailed examination, no cultural or fossil resources were identified and no additional archaeological or paleontological investigative work is recommended. The proposed project will have *No Effec*t to *Antiquities* as defined under the Montana State Antiquities Act. A formal report of findings has been prepared and is on file with the DNRC and the Montana State Historic Preservation Officer.

However, if previously unknown cultural or paleontological materials are identified during project related activities, all work will cease until a professional assessment of such resources can be made.

Mitigations: If an unanticipated cultural resource is discovered, all project related activities would cease until the resource can be adequately evaluated.

OTHER ENVIRONMENTAL DOCUMENTS PERTINENT TO THE AREA:

- State Forest Land Management Plan

Impacts on the Human Population

Evaluation of the impacts on the proposed action including **direct, secondary, and cumulative** impacts on the Human Population.

Will Alternative result in potential impacts to:	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Health and Human Safety	x				x				x					
Industrial, Commercial and Agricultural Activities and Production	x				x				x					
Quantity and Distribution of Employment	x				x				x					
Local Tax Base and Tax Revenues	x				x				x					
Demand for Government Services	x				x				x					
Access To and Quality of Recreational and Wilderness Activities	x				x				x					
Density and Distribution of population and housing	x				x				x					
Social Structures and Mores	x				x				x					
Cultural Uniqueness and Diversity	x				x				x					
Action														
Health and Human Safety	x				x				x					
Industrial, Commercial and Agricultural Activities and Production	x				x				x					
Quantity and Distribution of Employment	x				x				x					
Local Tax Base and Tax Revenues	x				x				x					
Demand for Government Services	x				x				x					
Access To and Quality of Recreational and Wilderness Activities	x				x				x					
Density and Distribution of	x				x				x					

Will Alternative result in potential impacts to:	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
population and housing														
Social Structures and Mores	x				x				x					
Cultural Uniqueness and Diversity	x				x				x					

Comments: N/A

*Mitigations:*N/A

Locally Adopted Environmental Plans and Goals:

N/A

Other Appropriate Social and Economic Circumstances:

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. 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.

No Action: The No Action alternative would not generate any return from timber harvest to the trust at this time.

Amended Action: The timber harvest would generate additional revenue for the Common School Trust. The estimated return to the trust for the proposed harvest is $1808 based on an estimated harvest of 300 MBF and an overall stumpage value of $7.74 per ton. An additional estimated $1069 would be raised for the Forest Improvement Account. 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.

References

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DNRC, 2011. DNRC compiled soils monitoring report on timber harvest projects, 2006-2010, 1st Edition. Department of Natural Resources and Conservation, Forest Management Bureau, Missoula, MT.

DNRC, 2016. Montana DNRC Trust Lands Forest Management Old Growth Handbook, 2016 revision. Department of Natural Resources and Conservation, Forest Management Bureau, Missoula, MT.

Anderson, Hal E. Aids to Determining Fuel Models for Estimating Fire Behavior. USDA Forest Service Gen. Tech Report. INT-122. Ogden, Utah1982.

Pfister, Robert D., Kovalchic, Bernard L., Arno, Stephen F., Presby, Richard C. Forest Habitat Types of Montana, USDA Forest Service General Technical Report INT-34 Ogden Utah 1977

McCallum, D. A. 1994. Review of technical knowledge: flammulated owls. Pages 14-46 *in* G. D. Hayward and J. Verner, tech eds. Flammulated, boreal, and great gray owls in the United States: a technical conservation assessment. USDA Forest Service Gen. Tech. Rep. RM-253. Fort Collins, Colorado.

MNHP. 2018. Montana Natural Heritage Program Environmental Summary Query and Species Occurrence Report. May 2018.

Does the proposed action involve potential risks or adverse effects that are uncertain but extremely harmful if they were to occur?
No.

Does the proposed action have impacts that are individually minor, but cumulatively significant or potentially significant?
No.

Environmental Assessment Checklist Prepared By:

Name: Devin Healy
Title: Helena Unit Forester
Date: 2020

Finding

Alternative Selected

The Amended Action alternative: The action alternative to harvest approximately an additional 300 thousand board feet (MBF) of timber from approximately 75 acres of State Trust Land.

Significance of Potential Impacts

No substantial or unacceptable, detrimental impacts to water, soil, fisheries or T & E or Sensitive Species are anticipated as a result of the proposed action.

The proposed timber sale complies with the following:

The State Forest Land Management Plan (DNRC 1996)

Administrative Rules for Forest Management (ARM 36.11.401 through 471)
All other applicable state and federal laws

Need for Further Environmental Analysis

	EIS		More Detailed EA	X	No Further Analysis

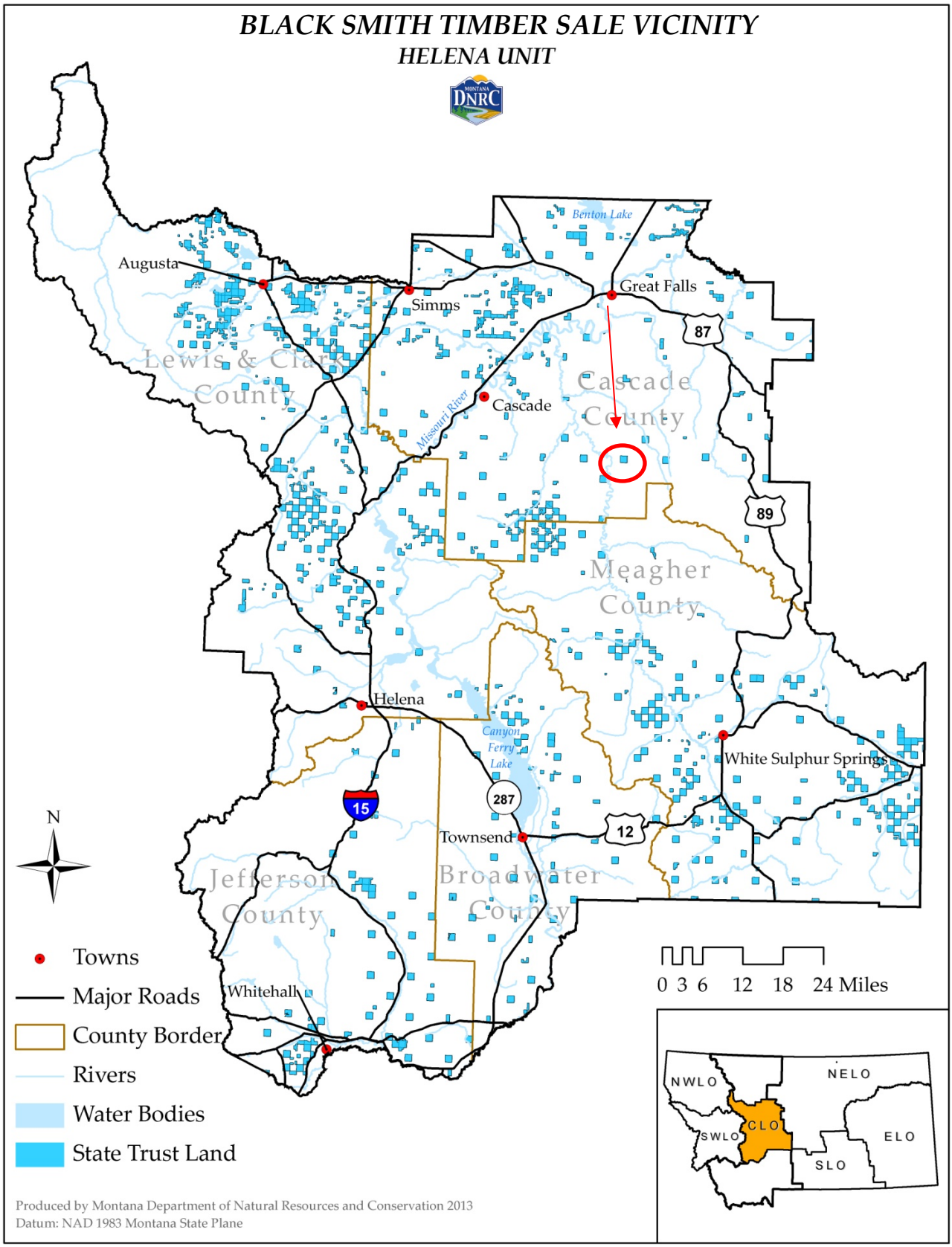
Environmental Assessment Checklist Approved By:

Name: Heidi Crum
Title: Helena Unit Manager, DNRC
Date: July 28, 2020

Signature:

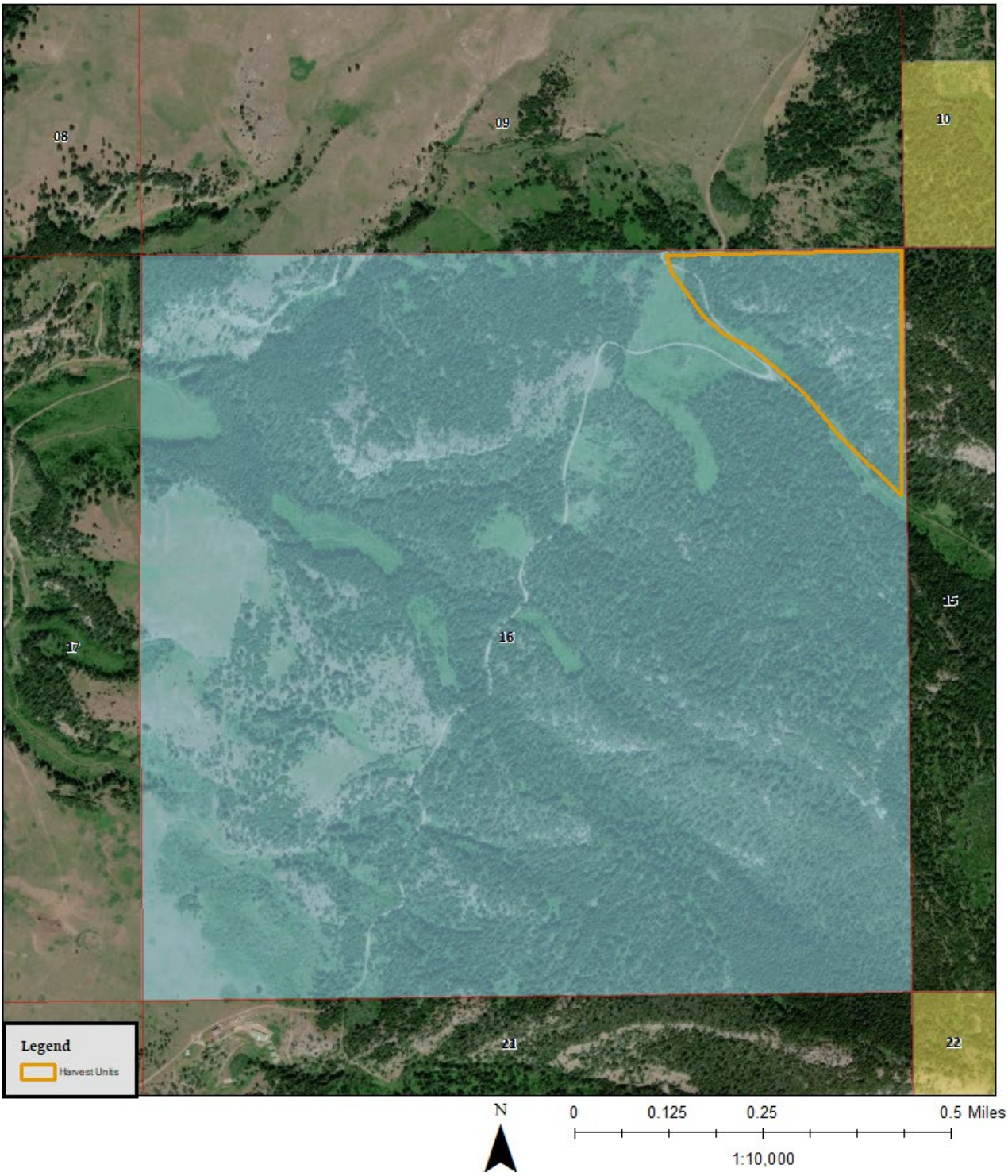
Attachment A - Maps

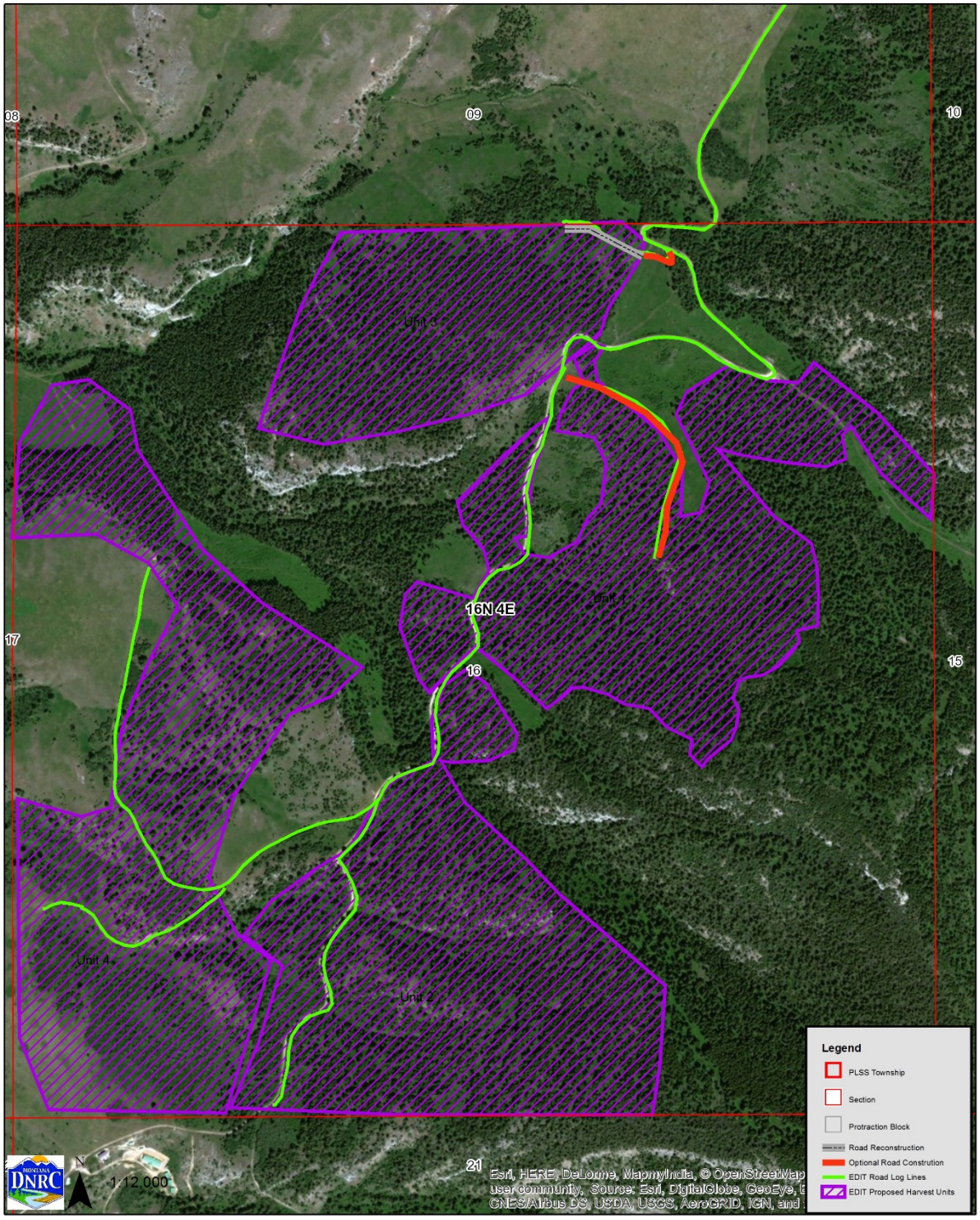
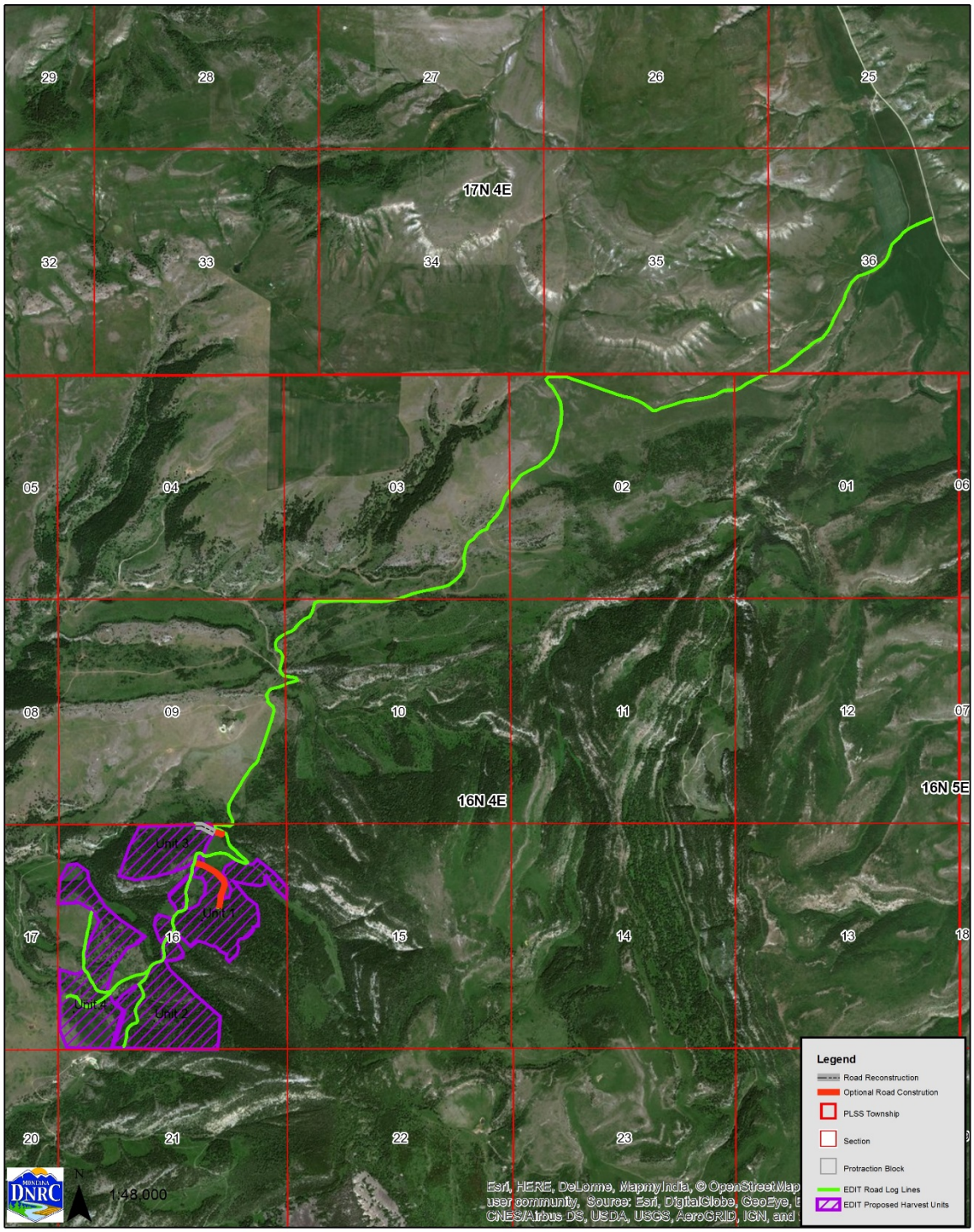
A-1: Timber Sale Vicinity Map



A-2: Timber Sale Harvest Units

Box Canyon Timber Permit
16N 4E Section 16




08
09
10
17
15
16
21
16N 4E
Unit 3
Unit 1
Unit 4
Unit 2
Legend
PLSS Township
Section
Protraction Block
Road Reconstruction
Optional Road Constrution
EDIT Road Log Lines
EDIT Proposed Harvest Units
1:12,000
N
Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap
user community, Source: Esri, DigitalGlobe, GeoEye,
CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and

A-3: Haul Route