

United States Department of the Interior
Bureau of Land Management

Environmental Assessment (EA) Review and Approval

Project Title:

Weston Hills Road Maintenance and Trail Addition

Location:

T 53-54 N R 71 W, Campbell County, WY

Planning Unit:

Buffalo Field Office/High Plains District

Project Contact:

Name, Title: Allison Barnes, Outdoor Recreation Planner

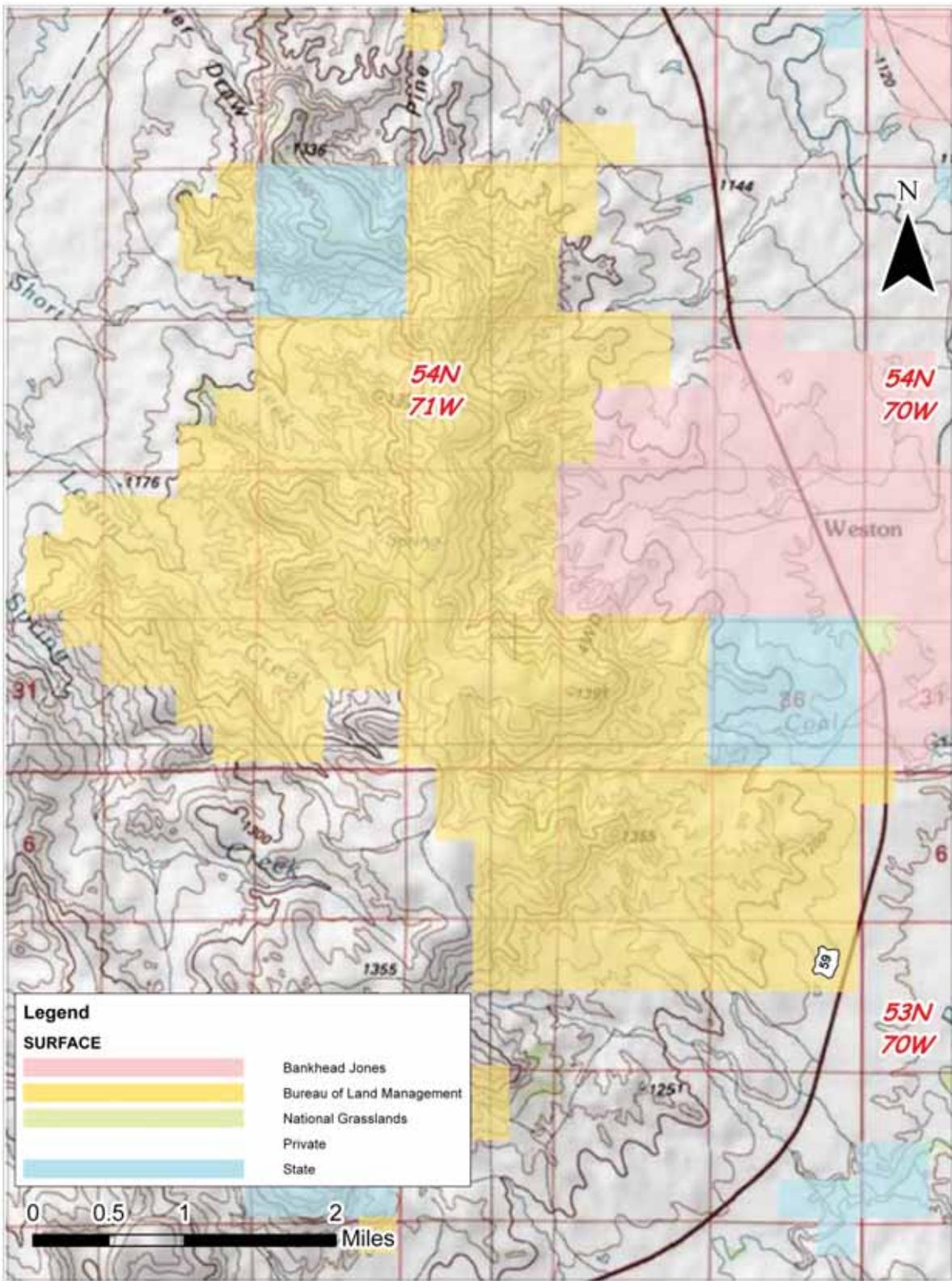
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Figure 1. Weston Hills Area.



ENVIRONMENTAL ASSESSMENT (EA)
for the
WESTON HILLS ROAD MAINTENANCE AND TRAIL ADDITION
WY-070-EA12-36
BUREAU OF LAND MANAGEMENT
BUFFALO FIELD OFFICE

1. INTRODUCTION

This Environmental Assessment (EA) analyzes the environmental impacts of maintaining roads and adding a trail within the Weston Hills management area of the BFO. Three alternatives are considered: the No Action Alternative (Alternative A) and two action alternatives: the Proposed Action (B), and Alternative C. The alternatives would affect existing and proposed roads and off-highway vehicle (OHV) routes on BLM-administered lands within Weston Hills, located in Campbell County near the City of Gillette.

The Weston Hills management area contains approximately 9,500 acres of BLM-administered surface, 1,600 acres managed by US Forest Service (USFS) Thunder Basin National Grassland (TBNG) and 1,280 acres of State land. None of the alternatives or their management recommendations would apply to private, State, Bankhead Jones, or National Grassland surface.

1.1. Background

- a. BLM Office: Buffalo Field Office
- b. Lease/Serial/Case File No.: N/A
- c. Proposed Action Title/Type: Weston Hills Road Maintenance and Trail Addition
- d. Location: T 54N R 71W Sections 1-3, 10-12; T 54N R 71W Sections 11, 14-17, 20-23, 27-30, 31-35 (See Figure 1).
- e. Applicant (if any): BLM Initiated Project

1.2. Purpose and Need for Proposed Action

The management objective for the recreation program is to provide outdoor recreational opportunities on BLM-administered public land while providing for resource protection, visitor services, and the health and safety of public land visitors. Land health concerns, combined with population growth and a proliferation of user-created routes have driven the need to address resource management, access, and transportation at Weston Hills. Additionally, many routes are in a state of deferred maintenance and do not meet current BLM construction standards. The current Weston Hills Travel Management Plan (BLM 1998) and Buffalo Resource Management Plan (updated in 2001) did not anticipate the levels of use at Weston Hills. Residents and visitors are currently using, and discovering new opportunities on, public lands managed by the Buffalo Field Office. This has placed an increasing demand on resources, resulting in user

conflicts and impacts to vegetation, soils, cultural resources, wildlife habitat, and other natural and sensitive resources. The recreation industry has also contributed to the observed increase in use and level of impacts by introducing new technical advancements in modes of travel. Implementation of the proposed action will assist the BLM in meeting its recreation management objectives.

1.3. Decision to be Made

The BLM will decide which roads and trails at Weston Hills are designated to: 1) use for public recreational use; 2) to close and reclaim, and 3) whether or not to provide additional infrastructure for recreational users, and if so, under what terms and conditions.

1.4. Conformance with Applicable Land Use Plan:

This proposed action is subject to the following land use plan:

A: Buffalo Resource Management Plan (RMP) (1985), as amended.

B: Approved Buffalo RMP for Public Lands Administered by the BLM, BFO (2001), as amended.

The proposed activity conforms to the LUP(s), because it is consistent with the following LUP decision(s), objective(s), term(s), or condition(s):

Plan sequential number and page	Language
2001 RMP; p. 28	The management objective of the Weston Hills Recreation Area is to “ensure continued public use and enjoyment of recreation activities while protecting and enhancing natural values...
2001 RMP; p. 29	“Off-highway vehicle use [at Weston Hills] is limited to designated ... roads.”
2001 RMP; p. 29	“An existing (and marked) foot, horse and mountain bike loop is open to ATV use (motorized vehicles 50 inches wide or less). The loop trail will be closed to motorized vehicles from September 15 through October 20. This will limit disturbance to wildlife before and during the big game rifle hunting season.
2001 RMP; p. 29	“ Two additional loop trails for foot, horse, mountain bikes, and motorized vehicles 50 inches wide or less will be considered. Development of these trails could take place after monitoring of the area shows that there is a need and that the appropriate analysis is complete.”

1.5. Scoping and Issues

External public scoping was not conducted for this EA. Collaboration with the Wyoming Game & Fish Department (WGFD) and TBNG indicated a desire to manage seamless recreation opportunities across ownership boundaries, and to uphold fishing and hunting opportunities. While the main entrance road (Weston West) has been annually maintained, other routes are in a state of deferred maintenance and severe route deterioration has occurred in several locations.

The BFO interdisciplinary team (ID team) conducted internal scoping by reviewing the current management plans and data collected at Weston Hills to identify potentially affected resource and land uses. The ID team identified resources and land uses present and affected by the proposed project. This EA will not discuss resources and land uses that are either not present or not affected. Project issues include:

Recreation & Travel Management: Increased visitation over past decade; increased off-road travel by motorized recreationists into closed areas; vandalism and litter.

Soils and Vegetation, Water: site stability, reclamation potential, invasive species, and potential impacts to water quality in riparian areas

Wildlife: Raptor productivity and disturbance to wildlife before and during big game rifle season

Cultural Resources: Unevaluated cultural sites

Rangeland Management: Potential conflict between heritage resources and recreational use

Mineral Development: Potential conflict between lease development and recreational use

Visual Resources: Visual Resources Management Class II

1.6 Public Involvement

The Weston Hills Draft Travel and Transportation Management Plan experienced a 30-day public comment period in May/June of 2012. Three entities responded including WGFD, the Campbell County Conservation District and the Campbell County Commissioners. All three agencies supported the adoption of Alternative B. However, the WGFD was concerned about recreational shooting restrictions at Weston Hills. The BLM presented a summary of the Weston Hills plan at the Campbell County Commissioner's meeting on July 3rd, 2012. Campbell County Conservation District provided a letter of support for the preferred alternative.

A recreational target shooting closure is no longer being considered in this EA. BLM policy (WO IM 2011-106) is to address shooting issues in land use plans which allow for the consideration of a range of alternatives and provide opportunities for public involvement. In addition, BLM decisions on the discharge of firearms must be in compliance with the Federal Land Hunting, Fishing and Shooting Sports Roundtable Memorandum of Understanding (MOU, which requires the BLM to notify shooting organizations and alert them to public comment opportunities). Recreational target shooting will be addressed in the Buffalo Resource Management Plan revision, for which a Draft RMP/Environmental Impact Statement is anticipated for public review winter 2012-13. Finally, the title was amended to better reflect the localized scope of the project.

2. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES:

2.1. Alternative A: No Action

This alternative would continue to implement the “white arrow” designated route system, by which routes open for motorized travel are marked on-the-ground with posts featuring white arrow signs (EA#: WY-065-8-260). This alternative prescribes maintenance for the main access road (Weston West) only, stating that it would be re-crowned and surfaced with four inches of crushed scoria and two or more drainage culverts would be installed. No further route creation, construction or maintenance outside of annual maintenance prescribed by the Federal Assets Management System (FAMS) would occur. The BLM administered surface at Weston Hills currently contains the following assets in FAMS: Weston West Road Segment (L109448, L109446, L1835710, L109445, L109447); Weston Hills Sign Complex (L1177987).

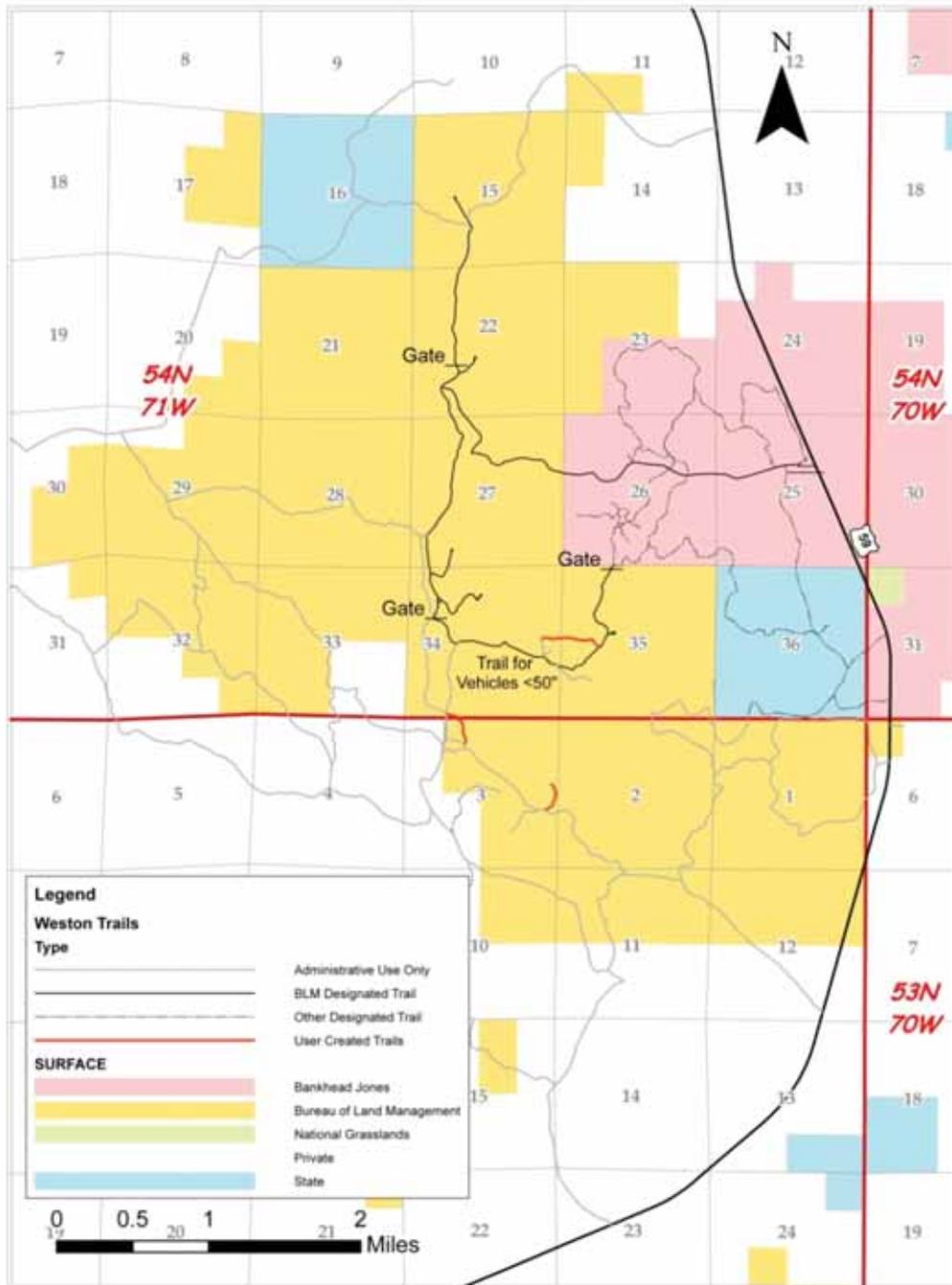
The current approved trail system consists of approximately 8.2 miles of roads and trails on BLM administered surface (Figure 2). Currently one trail, approximately 2 miles in length, is designated for use by vehicles 50” in width or less (T 54 N R 71 W Sections 34 & 35) and provides continuity with USFS travel management decisions. A seasonal closure of the “loop trail” was proposed from September 15 through October 20; however, this closure was never implemented.

Unless otherwise posted, camping is allowed within the entire Buffalo Field Office for up to 14 consecutive days. Hunting, within WGFDD regulations, is allowed at Weston Hills.

Alternative A also specifies that the BLM and TBNG would continue a formal agreement with the Wyoming Trail Riders Association (now defunct) to assist in management of the area, including construction of drainage control devices on all designated motorized routes. This alternative also provides for improved visitor information at the Weston Hills entrance, including provision of contact information for law enforcement posted at the site.

Several existing unlocked gates, primarily for livestock management, would remain at trail junctions. Additional unauthorized user-created routes traverse several hillsides and would continue to be marked as closed. Law enforcement would patrol approximately twice per month and on an as needed basis. Figure 2 illustrates the current locations of existing trails, designated trails, and gates on BLM administered surface.

Figure 2. Existing Trail System at Weston Hills



2.2. Alternative B: Proposed Action

The proposed action would continue use of the currently designated routes and an additional 5.2 mile outer loop for vehicles 50" or less. The proposed action would close and reclaim redundant roads (~3.17 miles) on BLM administered surface that do not provide access

for necessary administrative purposes (i.e. livestock management, stock water facility maintenance, etc.). In total, the proposed action would designate approximately 12.6 miles for public recreational use and about 15.4 mi for administrative use. Areas that can safely accommodate challenging or desired features for motorized recreationists, such as hill climbs or scenic vistas, would be incorporated into the trail system, consistent with other resource objectives.

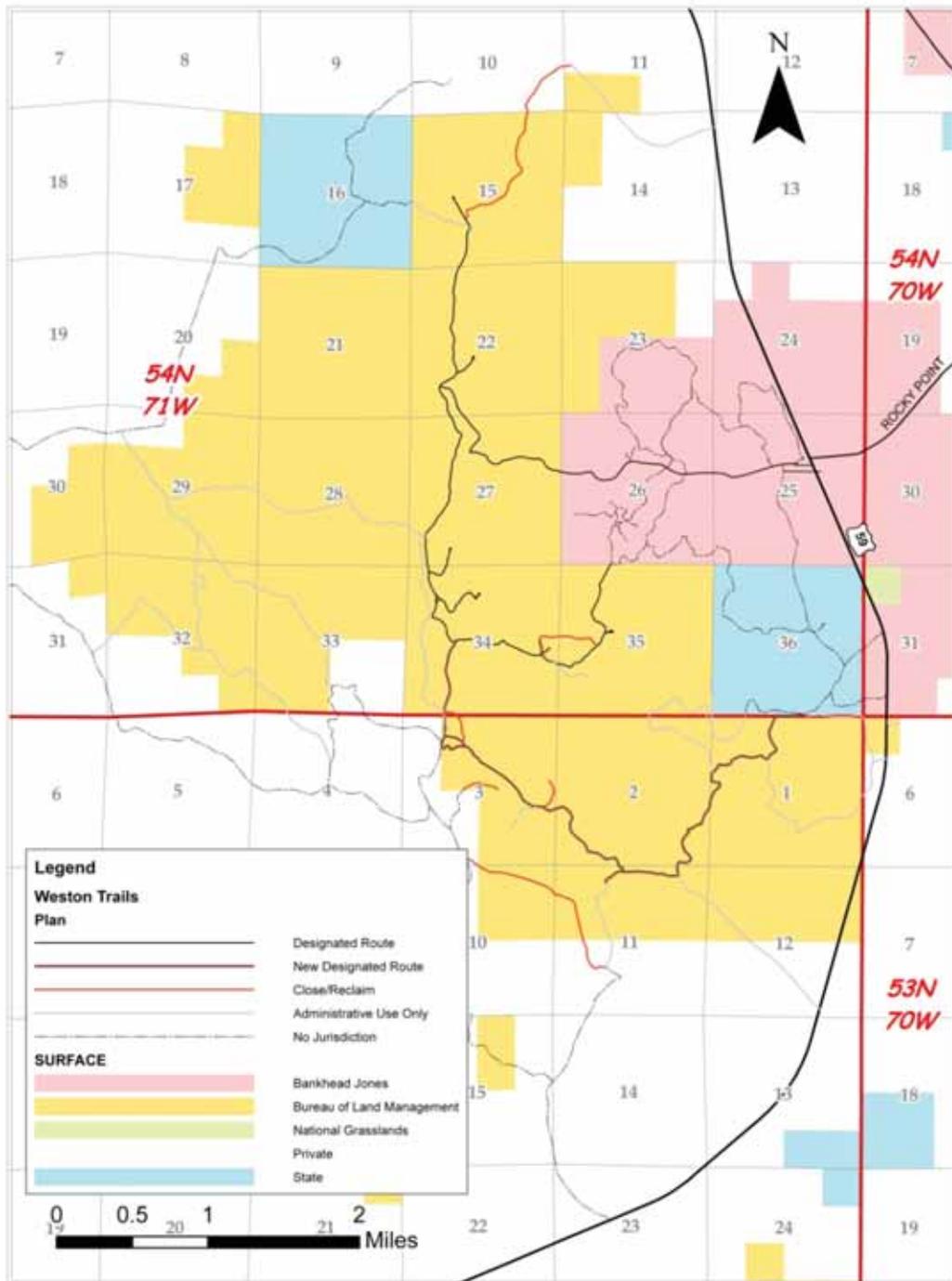
All roads and trails would be entered into FAMS and maintained on an as needed basis according to engineering surveys and standards. The main access road (Weston West) would be re-crowned and surfaced with gravel, rather than crushed clinker (scoria). Additional drainage features would be installed along with a guardrail on ~500 feet of the Weston West road. Ditches would be cleaned out where appropriate to a minimum depth of 12". A unique identifier (i.e. road number) would be generated for each route, and would be incorporated into plans and maps.

The white arrow marking system would be replaced by routes that are numbered and assigned for specific types of vehicular traffic (passenger vehicle, 4WD, Vehicles 50" or less, etc.). A corresponding motor vehicle use map would be made available on-site, at the BFO, and on the BFO recreation website (http://www.blm.gov/wy/st/en/field_offices/Buffalo/recreation.html). Signs would be placed at trail junctions. Existing vehicle gates along the designated route system would be replaced with cattle guards to provide a more seamless recreation experience and to prevent inadvertent livestock management issues. Additional walk-through gates would provide non-motorized access. Gates may be placed on administrative use routes to prevent unauthorized use.

There would be no seasonal closure on the ATV loop trails (trails would remain open year-round) unless resource conditions warrant temporary closures. Figure 3 illustrates the layout of the proposed trail system and notes the location of the addition to the existing designated route system as well as proposed closures.

The BLM would cooperate with the TBNG to create a mutually beneficial Memorandum of Understanding related to the management of Weston Hills. Additional written agreements with interested parties such as WGFD or local organizations would be encouraged, dependent on interest. This alternative would provide for improved visitor information at the Weston Hills entrance, including provision of interpretive information as time and funding allow. Law enforcement would continue to make patrols approximately 2 times per month and on an as needed basis.

Figure 3. Weston Hills Road and Trails Upgrade – Proposed Action.



Dispersed camping is available throughout the entire Weston Hills area, so long as camp sites are established at least 200 feet from water sources. Vehicles may not travel more than 300 feet from designated routes for campsite selection. Dispersed campsites, particularly those located near the main road, would be upgraded with picnic tables and/or fire rings. In some cases these upgraded campsites would also be strategically placed to discourage repeated off-road travel (i.e. to block user created hill climbs). Dispersed camping for up to 14 days would continue to be allowed in the Weston Hills Recreation Area. After the 14 day period, visitors who wish to continue camping on BLM administered surface must relocate to an area at least one mile outside of the Weston Hills boundary.

2.3. Alternative C

Under Alternative C, all existing routes would be managed as open for recreational use. There would be no differentiation between public and administrative use. Additionally, routes would be open to all types of motorized use, and designations for type of vehicle (ATV, motorcycle, 4WD, and passenger vehicle) would not vary by route. This alternative would result in approximately 32.8 miles of designated roads and trails on BLM administered surface (Figure 4).

Gates would be placed at approximately fifteen intersections of BLM administered land and private land to deter trespass onto adjacent private lands. All roads and trails would be entered into FAMS and maintained on an as needed basis according to engineering surveys and standards. Additional recreational management would be largely custodial). A map of all existing routes would be made available at the BFO, and on the BFO recreation website (http://www.blm.gov/wy/st/en/field_offices/Buffalo/recreation.html). User created routes that cause resource damage would be marked as closed and enforced through patrols. There would be no seasonal closure on routes- routes would remain open year-round, unless resource conditions warrant temporary closures.

No additional visitor services (picnic tables, fire rings, informational kiosk etc.) would be provided on BLM administered surface. A corresponding motor vehicle use map would be made available on-site, at the BFO and on the BFO recreation website (http://www.blm.gov/wy/st/en/field_offices/Buffalo/recreation.html). Signs would be placed at trail junctions. There would be no seasonal closure on the ATV loop trails- trails would remain open year-round, unless resource conditions warrant seasonal closures.

Dispersed camping would be allowed for up to 14 days within Weston Hills. Visitors would be allowed to travel off of designated routes for up to 300 feet for necessary tasks including campsite selection and game retrieval.

The BLM would not pursue formal agreements with other agencies or organizations, but would continue work cooperatively through volunteer workdays and public meetings on an as needed basis. Law enforcement would respond to complaints and reports on an as needed basis.

Figure 4. Weston Hills Road and Trails Upgrade – Alternative C.

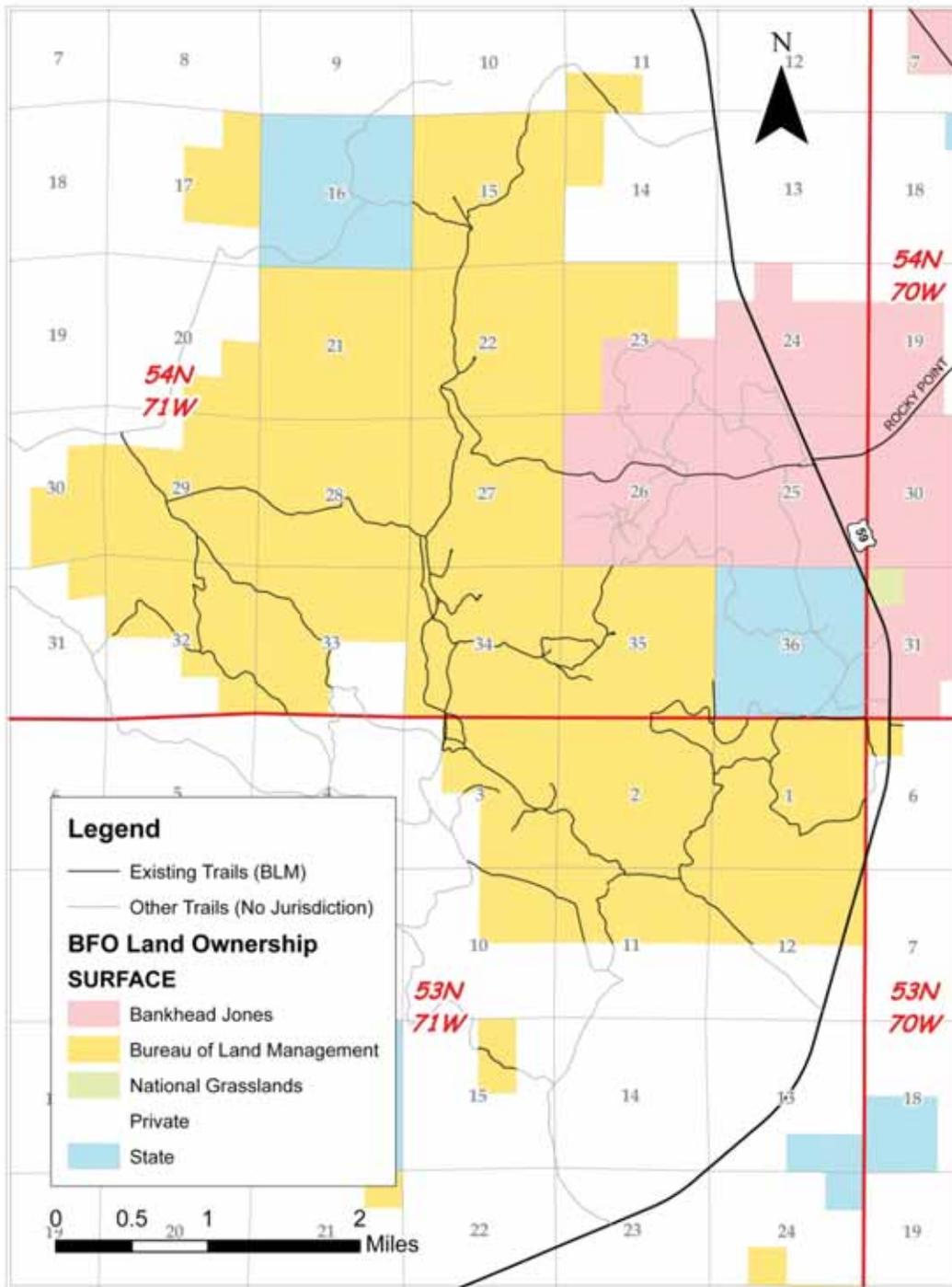


Table 1 summarizes the miles of designated routes in each alternative, and estimates the acreage of disturbance assuming that maintenance for each route may include up to a 20 ft. wide corridor. The actual area of surface disturbance would be smaller.

Table 1. Summary of Designated Routes and Area of Disturbance for each Alternative

Alternative	Alternative A: No Action	Alternative B: Proposed Action	Alternative C: Resource Development Alternative
Miles of Designated Routes for Public Use	8.2	12.6	32.8
Acres of Disturbance for Designated Routes (miles of routes x 20 ft wide)	19.8	30.1	79.5

3. DESCRIPTION OF THE AFFECTED ENVIRONMENT:

Weston Hills is a developed recreation site located approximately 25 miles north of Gillette, Wyoming and is accessible via Highway 59. The Weston Hills management area is approximately 9,500 acres bounded on the north, west and south by State and private lands, on the east by Thunder Basin National Grassland and Highway 59.

The terrain consists of steep drainages with ponderosa pine forest, and sage-steppe vegetation communities. The area is within easy traveling distance of the city of Gillette, Wyoming and is accessible year round. It is affected by the wildland-urban interface and associated pressures and issues. The sights and sounds of human activity from highways, coal mines, oil and gas development, flight paths associated with a nearby airport, power lines, agricultural uses, and motorized recreation uses are evident throughout the region.

The area has become a destination site for many recreationists who use motorized vehicles. Uses of the area includes ATV riding, technical four-wheel driving, motorcycle riding, hunting, camping, mountain biking, hiking, livestock grazing, Christmas tree cutting or firewood gathering, rights of way management/operation/maintenance, BLM and Forest Service administrative purposes, and other uses. Use is heavily influenced by the regional population growth. Approximately 13 miles of trails designated for recreational use exist on lands managed by USFS and the State of Wyoming.

3.1. Recreation Resources

Weston Hills Recreation Area is a community destination primarily used for motorized recreation, hunting, camping, and fishing. The growing population of Gillette, Wyoming has stimulated an increase in recreationists seeking motorized recreational opportunities. Visitor use on BLM administered lands at Weston Hills is currently estimated at approximately 2,780 visits per year (RMIS 2011).

Developed recreation facilities are predominately located on lands managed by the USFS. Facilities at the site include several staging/parking areas, a fishing pond, and a double vault outhouse.

3.2. Soils, Vegetation and Water Resources

Major ecological sites affected by the project are Shallow Loamy, Loamy, Shallow Clayey and Clayey. For more information on soils and ecological sites, see NRCS Soil Survey WY705.

Vegetation includes juniper, sagebrush, smooth brome, western wheatgrass, needleandthread grass, and fringed sage. Ponderosa pine is the primary tree species present as well as scattered juniper trees. There are scattered cottonwood trees in the drainages, also. Most of the ponderosa pine forest is considered as low value commercial timber.

Noxious and invasive weed species present include Canada thistle (*Cirsium arvense*) and downy brome (*Bromus tectorum*). Other weeds observed in the vicinity include houndstongue (*Cynoglossum officinale*) and common mullein (*Verbascum thapsus*).

The BLM, TBNG and WGFD cooperatively constructed and filled the Weston Hills Fishing Pond in 2005 to increase fishing opportunities at Weston Hills. Several drainages with intermittent water exist within the management area including Coal Creek, Short Creek and Logan Creek. Several stock water ponds also exist within the management area. There is a spring next to the current OHV trail, T 54 N R 71 W Sec 35.

3.3. Wildlife: Threatened/Endangered, Sensitive Species, Big Game, Migratory Birds.

3.3.1 Threatened, Endangered and Candidate Species

There is no habitat suitable for Ute Ladies-tresses orchid, a federally threatened species. Habitat for greater sage-grouse (sage-grouse), a Candidate for federal listing, is found in the eastern portion of the recreation area. There is a Greater Sage-Grouse Focus Area overlapping Section 15 and the BLM lands in Section 23 in the northeast (T54 R71W) and a very small sliver within Greater Sage-Grouse Core Habitat Area on the southeastern border on the east side of the State Highway. See Instruction Memorandum WY-2012-019 for an explanation of terms(p.2), and Core Area guidance. The majority of the BLM trails in Weston Hills are in forested areas that do not constitute sage-grouse habitat.

Figure 5. Weston Hills and Greater Sage-Grouse Habitats.



3.3.2. Big Game and Common Non-game Species

Mule deer and pronghorn antelope are the most common big game species within the project area. The area supports additional species such as mountain lion, bobcat, and coyote. Common birds of prey include golden eagles, red-tailed hawk, and American kestrel. Wild turkey, and sharp-tailed grouse are likely the most common game birds within the project perimeter.

The area is yearlong range for both antelope and mule deer. Western portions of the area are winter-yearlong range for mule deer. Yearlong range is where a population of animals makes general use of suitable documented habitat sites on a year round basis. Animals may leave the area under severe conditions. Winter-Yearlong is when a population or a portion of a population of animals makes general use of the documented suitable habitat on a year-round basis. During the winter months there is a significant influx of additional animals into the area from other seasonal ranges.

The project area intersects the following Wyoming Game and Fish Department (WGFD) big game hunt areas: pronghorn (Unit 17) mule deer (Unit 18). Populations of pronghorn antelope, mule deer, are above WGFD objectives for each hunt unit. The rifle hunting season for Unit #17 and 18 is from October 1-October 31.

While the 2001 RMP Update prescribes a seasonal closure of the ATV loop trail to provide refuge for big game, that management action has not been implemented. For purposes of this EA, the existing environment reflects no closure to ATVs.

3.3.3. Migratory Birds

Migratory birds migrate for breeding and foraging at some point in the year. The BLM-FWS MOU (2010) promotes the conservation of migratory birds, as directed through Executive Order 13186 (Federal Register V. 66, No. 11). BLM includes migratory birds in every NEPA analysis of actions having potential to affect migratory bird species of concern to fulfill obligations under the Migratory Bird Treaty Act (MBTA).

Habitats occurring in the Weston Hills area include sage-brush steppe grasslands, mixed grass prairie, juniper scrub, and mature ponderosa pines. Many species of concern use these areas for their primary breeding habitats (Saab and Rich 1997). Nationally, grassland and shrubland bird populations have declined in abundance and distribution more consistently than any other ecological association of birds over the last 30 years (WGFD 2009). The FWS's Birds of Conservation Concern (BCC 2008) report identifies species of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act. Species in this list that have the potential to occur in the project area and are BLM sensitive include: Brewer's sparrow, Baird's sparrow, sage thrasher, loggerhead shrike, and possibly northern goshawk.

3.4. Cultural

The majority of the project area has not been inventoried for cultural resources; it is not known if significant cultural resources are present. Known sites include four non-eligible lithic scatters, and one unevaluated lithic scatter. Class III cultural resource inventory would be performed prior to surface disturbance.

3.5. Rangeland Management

All or portions of the following BLM grazing leases occur within the planning area:

Allot. #	Allot Name	Livestock #	Kind	Season	AUMs
02239	Norfolk John	25	Cattle	3/1-2/28	300
12066	Flying U Ranch	511	Cattle	5/15-8/16	821
12063	Weston SW	6 Horse/Staggered use for Cattle; up to 300 cattle per period	Cattle/Horse	3/1-2/28 with staggered use	829

3.6. Minerals

Weston Hills is located on the eastern edge of the Powder River Basin coal seam. According to Wyoming Oil and Gas Conservation Commission, 13 wells exist within Weston Hills on BLM-administered surface. Of these, nine are plugged and abandoned, three were unapproved applications for permits to drill and only one is a producing oil well. Approximately 2,235 acres (24% of the management area) is currently leased for oil and gas development. The lease parcels range from 40 acres to several hundred acres and at least one parcel intersects a trail currently designated for vehicles 50 inches or less.

While mineral development is not necessarily incompatible with motorized recreation, there are safety concerns related to integrating industrial traffic and recreational traffic.

3.7. Visual Resources

The project area is classified as Visual Resource Management (VRM) Class II. The objective of VRM Class II is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low.

The BFO Visual Resources Inventory describes the area as “a rough landscape with complex forms and complex drainage patterns. Exposed cliff faces, steep slopes, moderately diverse vegetation. A feature landscape as seen from adjacent highway and county roads” (BLM 2010). The landforms were classified as light buff to light gray or light brown and the vegetation is Yuma and Covert Green, light green to beige depending on the season.

The main access road (Weston West) that leads to the higher elevations on BLM administered surface is in the middleground and intermittently visible to passing vehicles along Highway 59. This road was last resurfaced in 2009 with red clinker rock. The remainder of the current designated trail system is not visible from county roads or the highway.

4. DESCRIPTION OF IMPACTS:

4.1. Effects on Recreation

Motorized recreation can lead to conflicts among different land users-both OHV users and people seeking non-motorized forms of recreation-within OHV-use areas and nearby areas. Members outside of the OHV community often list noise as their predominant complaint about motorized recreation. Additionally, OHV use and associated noise can diminish hunting and wildlife viewing opportunities within a localized area. Finally, without an appropriate spectrum of challenge on various trails, crowding within designated OHV areas can sometimes foster unauthorized use in closed areas (USGS, 2007).

The primary activities at Weston Hills would likely continue to be OHV recreational use and hunting over the long term. The effects of a 14 day camping limit are not expected to vary by alternative, and prevent exclusive use of an area.

4.1.1 Impacts from Alternative A – Minor Beneficial

The main access road would be upgraded to accommodate passenger vehicles and would provide access to campsites and other recreational opportunities on BLM administered surface for visitors outside of the OHV community.

The trail system outside of the main access road would not likely receive reconstruction above the prescribed maintenance in FAMS and would likely continue to deteriorate over the long-term. Without incorporation of additional trails and challenging features, users would likely continue to seek opportunities off-trail. Provision of varying types of routes (4WD, passenger, ATV only) decreases user conflicts. Under Alternative A, current user conflict levels would remain fairly static, as would the satisfaction levels of visitors.

The current trail system is limited to the eastern third of the BLM administered surface at Weston Hills. Motorized use has been accommodated and populations of big game are above WGF D objectives for their respective hunt areas. Implementation of a seasonal closure could improve the hunting experience, but would also prevent motorized use for game retrieval along the ATV loop trail.

Enforcement of motorized restrictions is more difficult under a “white arrow” system as it requires constant patrol of the area to replace white arrows and closure signs. Entering into partnerships with other agencies such as TBNG could improve the BLM’s ability to provide quality recreational experiences through strategic planning and sharing of resources.

4.1.2 Impacts from Alternative B – Major Beneficial

The proposed action would increase opportunities for motorized recreation and would localize OHV riding opportunities, thereby reducing impacts to relevant natural resource values and reducing the need for additional road maintenance. Periodic maintenance would reduce and stabilize eroding areas. Incorporation of positive control points such as scenic vistas and hill climbs would increase the satisfaction of motorized recreationists and could decrease unauthorized use. Improvement of the trail system may increase visitation at Weston Hills. However, it is estimated that current trail users would also comprise the majority of the additional outer loop trail users, thus the overall increase in visitor use is expected to remain consistent with years past. The current parking area, located on TBNG, is expected to accommodate any additional use.

The main access road would be upgraded to accommodate passenger vehicles and would provide access to campsites and other recreational opportunities on BLM administered surface for visitors outside of the OHV community. Guardrails and drainage features would improve the safety of visitors to the main access road. An additional outer loop would add challenging recreational opportunities in an area currently closed to public motorized use. Closures of redundant and unauthorized routes would protect other resource values.

A designated and numbered trail system that corresponds with a publicly available motor vehicle use map is simpler to understand and to enforce compared to the white arrow system. Provision of varying types of routes (4WD, passenger, ATV only) decreases user conflicts. Replacing gates along designated routes with cattle guards allows riders to avoid dismounting during rides and would improve visitor satisfaction.

Even with the additional loop trail, the trail system would be limited to the eastern ~40% of the BLM administered surface at Weston Hills. Motorized use has been historically accommodated and populations of big game are above WGFD objectives for their respective hunt areas. While allowing year-round OHV use on trails could displace game in the immediate area and reduce hunter satisfaction along trails, increased ability to retrieve game could facilitate the hunting experience. Alternative B would support temporary closures if documented resource conditions warrant brief exclusion of public motorized use.

Entering into partnerships with other agencies such as TBNG and WGFD could improve the BLM's ability to provide quality recreational experiences through strategic planning and sharing of resources. Use of educational materials, such as Tread Lightly, can increase compliance with BLM policies and regulations without issuance of citations. Improving the quality of information provided on site can also improve the visitor experience.

4.1.3 Impacts from Alternative C – Moderate Adverse

Allowing all currently existing routes for public recreational use would increase motorized recreation opportunities. The existing trail system traverses the vast majority of BLM administered surface at Weston Hills.

The trail system would not likely receive reconstruction above the prescribed maintenance in FAMS and would likely continue to deteriorate over the long-term. Without incorporation of positive control points and challenging features, users would likely continue to seek opportunities off of existing trails. Failure to designate varying types of routes (4WD, passenger, ATV only) may increase user conflicts and would likely degrade the existing routes that are not upgraded to accommodate 4WD use.

Alternative C would decrease the quality of non-motorized recreational opportunities, especially wildlife-dependent activities such as hunting or wildlife viewing. The increase in motorized use would likely affect the movement of big game. There would be more opportunities for motorized access to hunt and less opportunities for walk-in or horseback hunting.

Enforcement of OHVs under Alternative C would be more difficult, due to the dispersion of visitors and the increase in the mileage of trails available for recreation. Noise associated with OHV use would likely reach nearby residences and inadvertent trespass would be likely given the configuration of existing routes and land tenure. Without formal agreements with other agencies, the likelihood of quality strategic planning and sharing of resources is limited.

4.2. Effects on Soils, Vegetation and Water Resources

OHV activity can increase soil compaction and erosion, which reduce the ability to support vegetation. In turn, decreases in vegetative cover often accelerate soil erosion. The effects of OHV activities on water quality can include sedimentation, increased turbidity, and introduction of pollutants within affected watersheds (USGS, 2007).

Surface disturbance associated with reconstruction of roads and trails may result in removal of herbaceous vegetation and a short term increase in the exposure of soils to erosion agents. Exposure of additional mineral soil would increase the potential for establishment of invasive species such as cheatgrass. However, ponderosa pine seedling establishment is also favored when mineral soil is exposed.

Over the long term, vegetation would establish in the disturbed areas alongside the roadbed, but some erosion would continue through continued use of the motorized trail system.

4.2.1 Impacts from Alternative A – Minor Adverse

Since there would be less than twenty acres of total disturbance in a 9,500 acre management area, soil erosion loss would be insignificant except at the localized area. The steep slopes could result in accelerated soil erosion from disturbed sites. Historic off-trail use has been difficult to reclaim. Mitigation measures such as trail and road maintenance, water control measures and weed control would minimize these effects.

4.2.2 Impacts from Alternative B – Minor Adverse

Effects would be similar to those in Alternative A, except that Alternative B would result in 12.6 miles of routes for public use, thus requiring maintenance. There is low potential that sediment removed from the majority of the trail system by a flood event could reach the fishing pond at lower elevations and adversely impact water quality. The proposed action largely occurs outside of riparian or wetland areas. The outer loop would cross the headwaters of Coal Creek. Aside from the potential indirect effect of accelerated soil erosion discussed above, wetland and riparian areas would not be significantly affected by implementing the proposed action. Mitigation measures such as trail and road maintenance, water control measures and weed control would minimize these effects.

4.2.3 Impacts from Alternative C – Moderate Adverse

Alternative C would result in 32.8 miles of existing routes (approximately 80 acres of disturbance) for recreational use. Increased erosion associated with recreational use would have an adverse effect on soil resource. Additionally, some of the administrative access routes traverse steep slopes and highly erosive soils. Mitigation measures such as trail and road maintenance, water control measures and weed control would minimize these effects.

4.3. Effects on Wildlife, Sensitive, and Threatened/Endangered Species

Motorized recreation can affect wildlife through mortality from collisions, physiological stress from the presence of OHVs and associated noise, and displacement from native habitat. Trail systems can fragment habitat, which may have consequences for predator-prey relationships, species that require large tracts of intact habitat, and disruption of animal movement affecting overall population dynamics. Wildlife can also be disturbed by noise associated with OHV use. Disturbance effects can lead to declines in local population size, survivorship, and productivity (USGS, 2007).

Maintenance of roads and trails is likely to cause minor short-term disturbance and/or displacement to wildlife. Timing restrictions for grouse and raptors will limit these disturbances to periods outside birthing seasons. Long-term displacement of wildlife may occur after construction, depending on the amount of use on the trail system once the project is complete.

All alternatives would have *no effect* on Ute Ladies'-tresses orchid. All alternatives would not jeopardize the continued existence of Greater Sage-grouse.

Under all alternatives, trail construction and maintenance would take place outside the grouse, big game, raptor and migratory bird breeding/birthing seasons. In the future, if construction and maintenance is needed between March 1 and July 31, then clearance surveys would be completed prior to beginning the work.

4.3.1 Impacts from Alternative A

4.3.1.1 Sensitive Species – Minor Adverse

The impacts to sage-grouse from the no action alternative would continue the existing uses and impacts to this species. Under the no action, the ATV trail in BLM Focus Area (Section 15) would remain open.

4.3.1.2 Big game – Minor Beneficial

The no action alternative includes a seasonal closure prior to the big-game seasons. This closure has not been implemented. If the no action alternative is selected, and the seasonal closure is enforced, there could be a minor benefit to big game by allowing more use of forage in the closed area. Continuation of the existing management, not enforcing the seasonal closure, would result in no change to big game.

4.3.1.3 Migratory Birds – Minor Adverse

Use of the trail system could have negative impacts on migratory birds by rendering otherwise suitable habitat adjacent to trails unsuitable. The level of this impact would be directly correlated to the length of trails that remain open, the sensitivity of the species, and the attractiveness of the habitat.

Unauthorized use, or off-trail riding, can result in direct mortality of migratory birds, as well impacts to adjacent habitat as discussed above. Off-trail use can crush shrub or ground nests. In addition, species that select nesting areas away from existing trails are likely more susceptible to impacts from disturbance.

4.3.2 Impacts from Alternative B – Minor Adverse

4.3.2.1 Sensitive Species – Minor Adverse

Alternative B has the least impact to sage-grouse. Closure and reclamation of the route through Section 15, in a Focus Area, would benefit sage-grouse by reducing noise, dust, and human presence in that section.

The other proposed actions in Alternative B would lessen impacts to sage-grouse through a reduction in off-trail use. The management actions in Alternative B are, in part, intended to increase the diversity and challenge of the approved trails, which should reduce off-trail use. As mentioned in the migratory bird section, ground nests can be crushed by off-trail use as well as cause birds to experience increased physical stress.

4.3.2.2 Big game – Minor Adverse

Alternative B is essentially continuation of current management as the seasonal closure has not been implemented. Continuation of the existing management, not enforcing the seasonal closure, would result in no significant effects to big game. The addition of the 5.2 mile outer loop trail will expose additional big game habitat to OHVs, most likely resulting in some displacement of deer from those sections.

4.3.2.3 Migratory Birds – Minor Adverse

Under all alternatives, trail construction and maintenance would take place outside the breeding/nesting season, or include clearance surveys if work was scheduled between March 1 and July 31. The same reduction in impacts discussed in the sage-grouse section would apply to migratory birds. Concentrating OHV use on designated trails would allow more of the Weston Hills area to be productive habitat for migratory birds.

4.3.3 Impacts from Alternative C – Minor to Moderate Adverse

4.3.3.1 Sensitive Species – Moderate Adverse

Alternative C would result in the greatest impact to sage-grouse relative to the other alternatives. Using the route through the Focus Area, Section 15 could impact nesting sage-grouse through increased noise, dust and human activity. Increasing the amount of trails to 32.8 miles may disrupt sage-grouse in a similar manner within the eastern portion of the Weston Hills.

4.3.3.2 Big Game –Minor Adverse

Alternative C is the most adverse alternative for big game. The increase in trails would lower the quality of adjacent habitat due to increased human presence and noise which would displace big game. The miles of trails more than double compared to Alternative B, resulting in most of the Weston Hills area being open to motorized access for hunting. Big game take and displacement would increase during the hunting season.

4.3.3.3 Migratory Birds –Minor Adverse

Under all alternatives, trail construction and maintenance would take place outside the breeding/nesting season, or include clearance surveys if work was scheduled between March 1 and July 31. Keeping all existing routes open would lessen the habitat available for migratory bird nesting.

4.4. Effects on Cultural Resources

Any activity that removes vegetation or creates surface disturbance can cause impacts to cultural resources. Removal of stabilized vegetation cover through trail construction may increase erosion which would increase the rate of natural deterioration of cultural resources. Increased visitation to the area may also enhance the potential for collection and the consequent loss of valuable cultural data.

Class III inventory would be conducted prior to authorizing any surface disturbing activity associated with the project. If significant cultural resources cannot be avoided then mitigation of adverse effects must take place. If contractors or BLM specialists observe any cultural values, they will be left intact and the Buffalo Field Manager notified. Standard mitigation (See section 5.3) explains further discovery procedures.

4.4.1 Impacts from Alternative A – Negligible adverse

There would be no additional impacts to cultural resources through implementation of this alternative.

4.4.2 Impacts from Alternative B – Minor to Moderate adverse

It is unknown if impacts to cultural resources would increase through implementation of this alternative. However, due to the increased amount of proposed surface disturbance it is possible that impacts would increase over those found in Alternative A.

4.4.3 Impacts from Alternative C – Minor to Moderate adverse

It is unknown if impacts to cultural resources would increase through implementation of this alternative. However, due to the increased amount of proposed surface disturbance it is possible that impacts would increase over those found in Alternatives A and B.

4.5. Effects on Rangeland Management

Alternatives A and B are unlikely to have any significant effect on livestock grazing management within the project area. Alternative C would likely result in more interaction between the public and cattle. There are no proposed changes to the number or seasons of use for livestock under this EA.

4.5.1 Impacts from Alternative A – Minor Adverse

There would be no additional impacts to Rangeland Management through implementation of this alternative.

4.5.2 Impacts from Alternative B – Minor Adverse

The development of an additional loop trail may increase the exposure of livestock to motorized recreationists, which could stress the cattle. Conversely, limiting travel to specified routes can also benefit to range management by reducing illegal and unexpected off-road travel and protecting the forage on which cattle depend. ATV cattle guards will be installed to prevent gates being left open.

4.5.3 Impacts from Alternative C- Moderate Adverse

There would be moderate adverse impacts from this alternative. More livestock would be affected and stressed due to the increased motorized vehicle on the larger number of open trails. The biggest negative impact would come from additional gates being left open between neighboring grazing allotments resulting in livestock mixing between different grazing lessees.

4.6. Effects on Mineral Development

There is historic oil and gas development in the project area and mineral development is expected to continue in the area.

4.6.1 Impacts from Alternative A – No effect

There would be no foreseen impacts to mineral development through implementation of this alternative.

Mitigation measures such as well placement and access to future wells, consistent with other resource objectives, could allow for continued mineral development and provision of recreation opportunities.

4.6.2 Impacts from Alternative B – Minor adverse

There would be limited impacts to mineral development through implementation of this alternative. The visitor experience desired for Weston Hills is compatible with some mineral development. However, access roads would need to accommodate continued and safe recreational use of Weston Hills, which may affect well placement and may require directional drilling. Mitigation measures such as well placement and access to future wells, consistent with other resource objectives, would allow for mineral development.

4.6.3 Impacts from Alternative C – No effect

There would be no foreseen impacts to mineral development through implementation of this alternative. Mitigation measures such as well placement and access to future wells, consistent with other resource objectives, could allow for continued mineral development and provision of recreation opportunities.

4.7. Effects on Visual Resources

Visual impacts from major transportation routes, such as Highway 59 and Rocky Point Road, would be minimal as topography screens the majority of the project area from the highway. Linear features such as roads and trails contrast with the natural contours of the landscape. Aggregate materials used for resurfacing, particularly clinker, may also contrast with the natural color and command the attention of the casual observer. The visual impact of route reconstruction is expected to be most noticeable immediately following construction. Trail design should use natural topography and follow contours wherever possible.

4.7.1 Impacts from Alternative A – Minor Adverse

The main access road (Weston West) is currently surfaced with red clinker rock, which contrasts with the taupe and light green shades of the natural environment. Under Alternative A, additional maintenance would only be prescribed through FAMS and the road would not likely be resurfaced for several years, resulting in continuation of contrast on the main access road.

4.7.2 Impacts from Alternative B – Minor Adverse

Under Alternative B, the main access road (Weston West) would be resurfaced with gravel, resulting in a benefit to the visual resources along that transportation corridor. However, the installation of a galvanized guardrail could also increase the visibility of the route from Highway 59. Additionally, disturbance associated with reconstruction along other trails would result in a short term adverse effect to visual resource, which would diminish over time.

4.7.3 Impacts from Alternative C – Moderate Adverse

Alternative C would allow travel on all existing routes, resulting in an increase of use and subsequent increased disturbance along designated routes.

There would be an increase in contrast of linear features over the long term. The main access road (Weston West) is currently surfaced with red clinker rock, which contrasts with the taupes and light greens of the natural environment. Under Alternative C, additional maintenance would only be prescribed through FAMS and the road would not likely be resurfaced for several years, resulting in continuation of contrast on the main access road.

4.8. Cumulative Impacts

The Wyoming Department of Transportation is currently widening Highway 59. Short term effects include increased erosion and fugitive dust. Long-term effects include a slight increase in impervious cover along the highway corridor, which can affect storm runoff on the local level.

Cumulative impacts from route construction and maintenance were considered in the Buffalo 2001 RMP. The proposed action is not anticipated to contribute to the loss of sage-grouse viability in Northeastern Wyoming. Cumulative impacts to big game, migratory birds, and cultural resources are anticipated to be minimal based on the scope and intensity of the action.

5. MITIGATION/MONITORING

5.1 Standard Mitigation Measures

- 5.1.1. All (ORVs) must display a current State of Wyoming ORV sticker, regardless if the ATV or Motorcycle has a current license plate (WS 31-2-703 (a)).
- 5.1.2. Operators and riders under 18 years old must wear a Department of Transportation approved helmet.
- 5.1.3. All Off-highway vehicles must be equipped with a muffler with an SAE (Society of Automotive Engineers) approved spark arrester; when operated on both trails and roads.

5.2 Soils, Vegetation and Water Resource Mitigation Measures

- 5.2.1. The trail system must observe the construction standards included in Appendix A.

5.3 Wildlife Mitigation Measures

5.3.1 Raptors

The following conditions will alleviate impacts to raptors:

- No surface-disturbing activity shall occur from February 1 through July 31, annually, prior to a raptor nest occupancy survey for the current breeding season.
- If surface disturbance is proposed during the raptor breeding season, then surveys to document nest occupancy will be conducted by a biologist following BLM protocol, between April 15 and June 30. All survey results shall be submitted in writing to a Buffalo BLM biologist and approved prior to surface-disturbing activities. Surveys outside this window may not depict nesting activity. If a survey identifies active

raptor nests, a 0.5 mile timing buffer will be implemented. The timing buffer restricts surface-disturbing activities within 0.5 mile of occupied raptor nests from February 1 to July 31.

- If an undocumented raptor nest is located during project construction or operation, the Buffalo Field Office (307-684-1100) shall be notified within 24 hours.

5.3.2 Greater Sage-grouse

- No surface disturbing activities are permitted during sage-grouse breeding and nesting periods (March 15 – June 30).

5. 4 Cultural Mitigation Measures

5.3.1. If any cultural values [sites, artifacts, human remains (Appendix L FEIS and ROD)] are observed during implementation of the proposed alternative, they will be left intact and the Buffalo Field Manager notified. The authorized officer (AO) will conduct an evaluation of the cultural values to establish appropriate mitigation, salvage or treatment. If work is performed by contractors, the contractors are responsible for informing all persons in the area who are associated with this project that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If historic or archaeological materials are uncovered during construction, the operator is to immediately stop work that might further disturb such materials, and contact the authorized BLM officer. Within five working days, weather permitting, the AO will inform the contractor as to:

- whether the materials appear eligible for the National Register of Historic Places;
- the mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not necessary); and,
- a time-frame for the AO to complete an expedited review under 36 CFR 800.11 to confirm, through the State Historic Preservation Officer, that the findings of the AO are correct and that mitigation is appropriate.

5.3.2. If paleontological resources, either large or conspicuous, and/or a significant scientific value are discovered during implementation of the proposed alternative, the find will be reported to the AO immediately. Surface disturbance will be suspended within 250 feet of said find. An evaluation of the paleontological discovery will be made by a BLM approved professional paleontologist within five (5) working days, weather permitting, to determine the appropriate action(s) to prevent the potential loss of any significant paleontological values. Operations within 250 feet of such a discovery will not be resumed until written authorization to proceed is issued by the Authorized Officer. The applicant will bear the cost of any required paleontological appraisals, surface collection of fossils, or salvage of any large conspicuous fossils of significant scientific interest discovered during the operation.

6. CONSULTATION

Other Coordinating Persons/Agencies: *Erika Peckham, Wyoming Game & Fish Department; Marcia Rose-Ritchie, USDA Forest Service Thunder Basin National Grassland*

Preparer(s): Allison Barnes, Outdoor Recreation Planner

Reviewers: *Thomas Bills, NEPA Coordinator*
Seth Lambert, Archeologist
Scott Jawors, Wildlife Biologist
Stacy Gunderson, PE, Civil Engineer
Dan Sellers, Natural Resource Specialist
Bill Ostheimer, Supervisory Natural Resource Specialist
Kay Medders, Rangeland Management Specialist

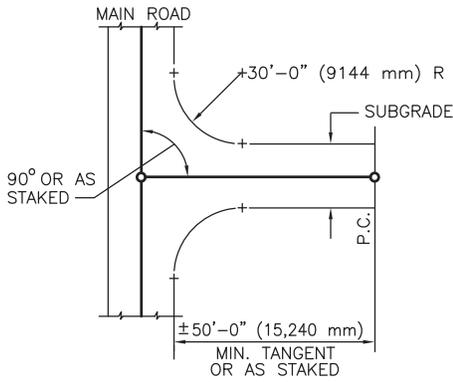
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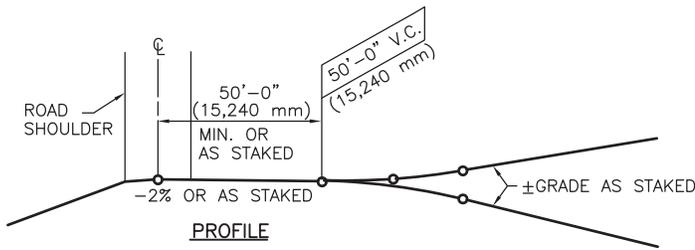
- U.S. Department of the Interior, Bureau of Land Management, Buffalo Field Office. 1998. Weston Hills Off-Highway Vehicle Management Plan and Environmental Assessment. Prepared by the United States Department of the Interior, Bureau of Land Management, Buffalo Field Office, September 1998.
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- U.S. Geological Survey. Ouren, D.S., Haas, Christopher, Melcher, C.P., Stewart, S.C., Ponds, P.D., Sexton, N.R., Burris, Lucy, Fancher, Tammy, and Bowen, Z.H., 2007, Environmental effects of off-highway vehicles on Bureau of Land Management lands: A literature synthesis, annotated bibliographies, extensive bibliographies, and internet resources: U.S. Geological Survey, Open-File Report 2007-1353, 225 p.

Appendix A

Construction Standards



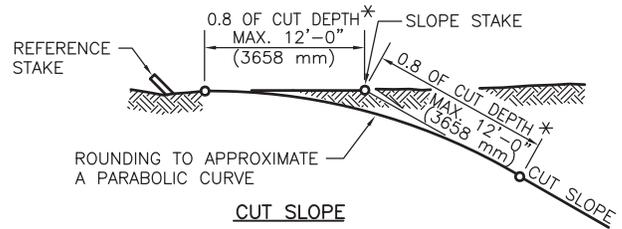
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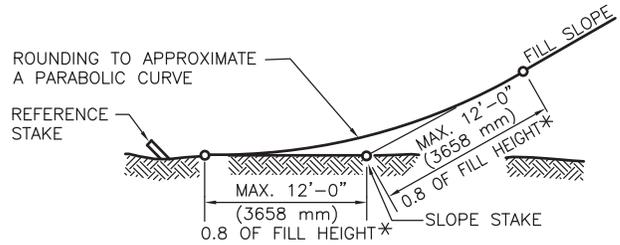
PROFILE

LOCATION OF ROAD APPROACH CONNECTIONS AS SHOWN ON THE DRAWINGS ARE SUBJECT TO ADJUSTMENT. EXACT LOCATIONS WILL BE STAKED IN THE FIELD.

TYPICAL ROAD APPROACH



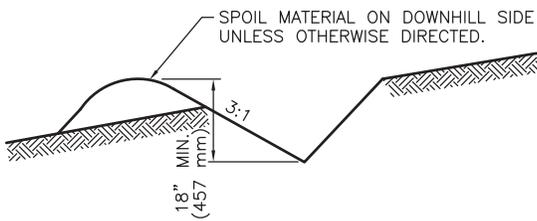
CUT SLOPE



FILL SLOPE

* IN HEAVY BRUSH & FOR TIMBER AREAS, LENGTH SHALL BE SHORTENED TO APPROX. 5'-0" (1524 mm) UNLESS OTHERWISE SPECIFIED.

SIDE SLOPE ROUNDING



TYPICAL FURROW DITCH

NOTE:

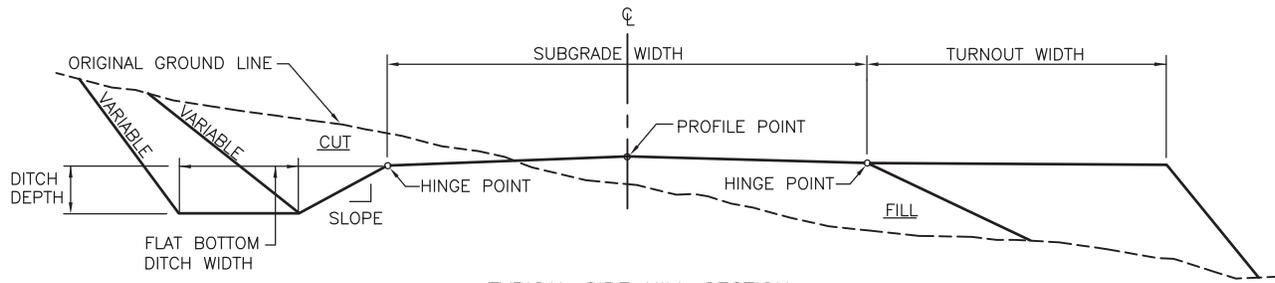
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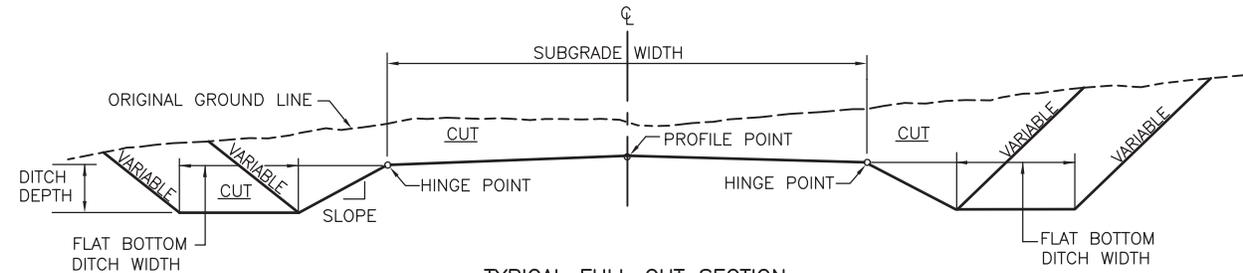
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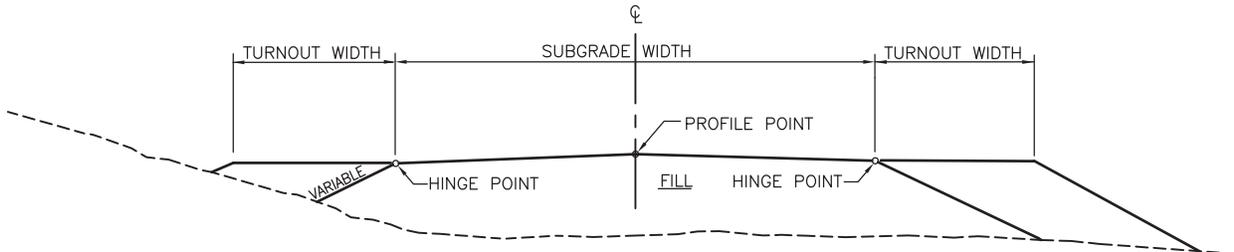
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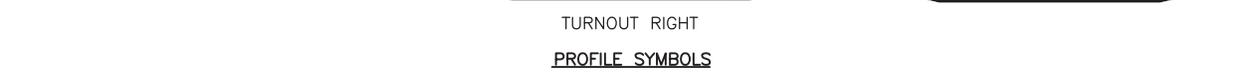
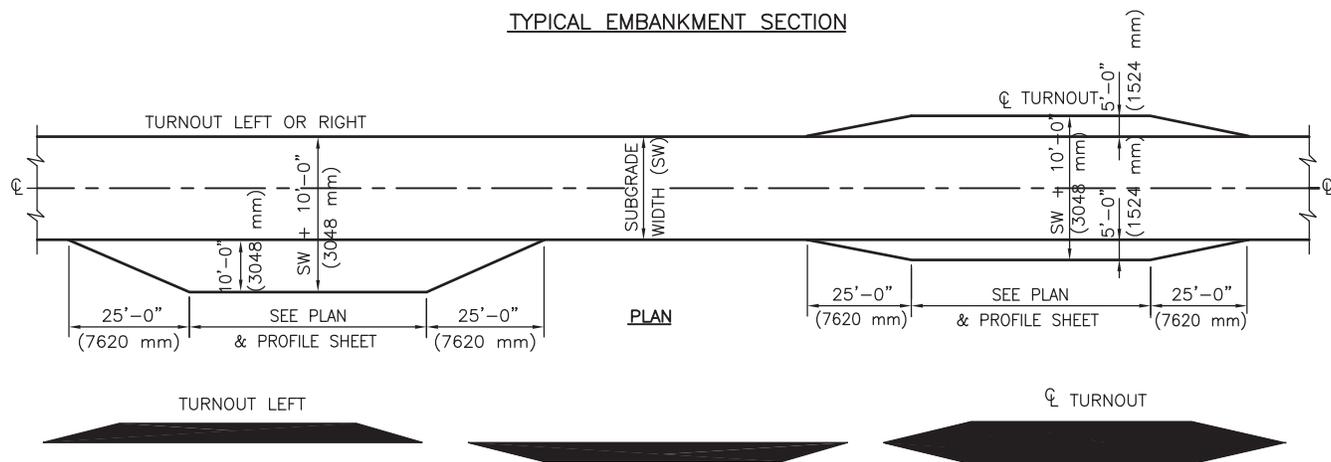
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TYPICAL FULL CUT SECTION



TYPICAL EMBANKMENT SECTION



PROFILE SYMBOLS

TURNOUTS

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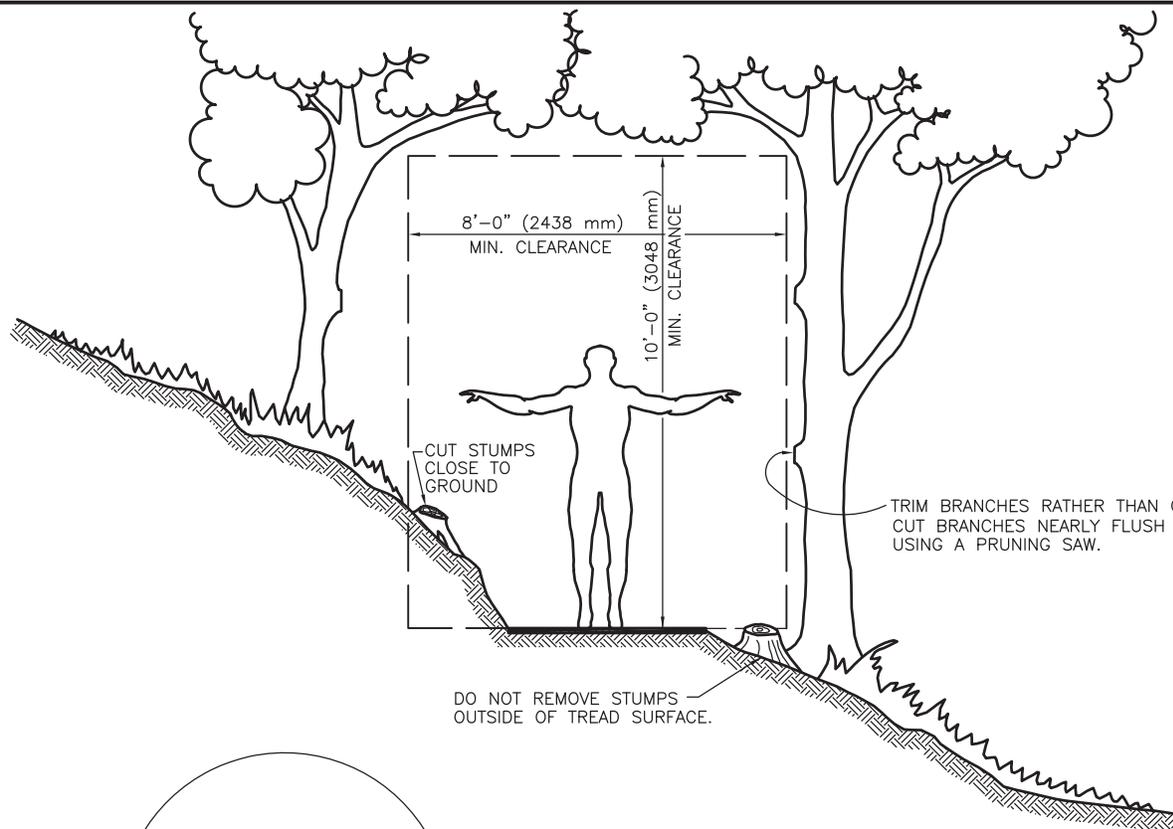
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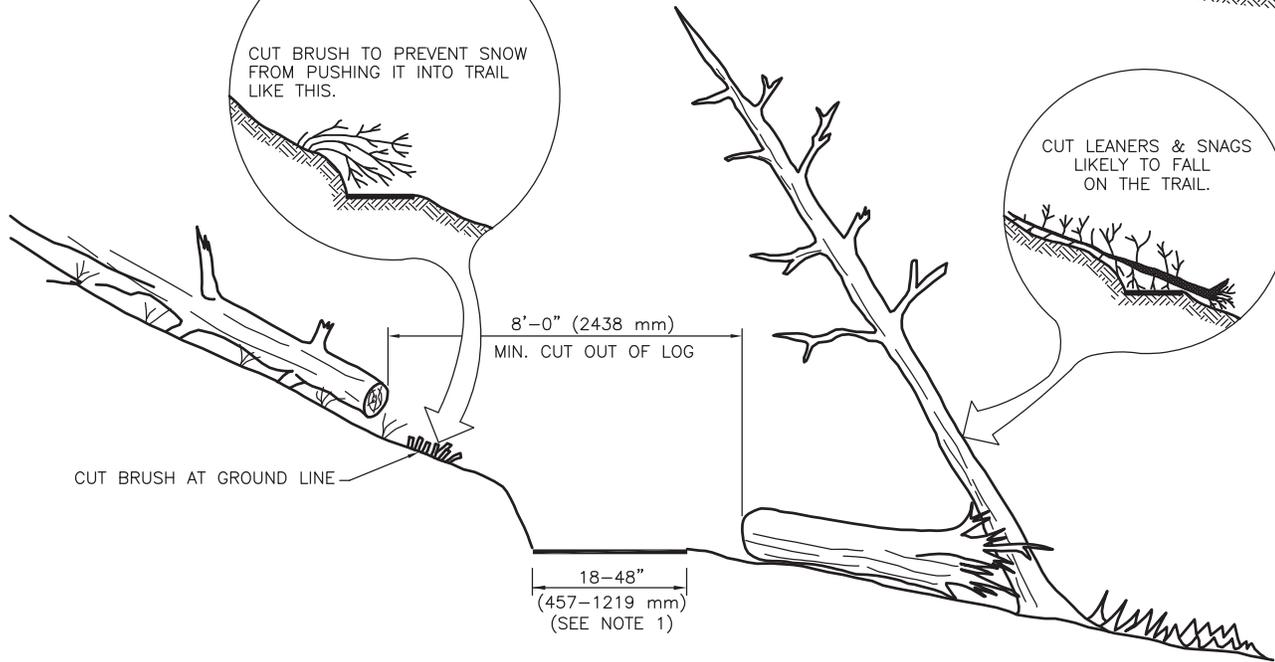
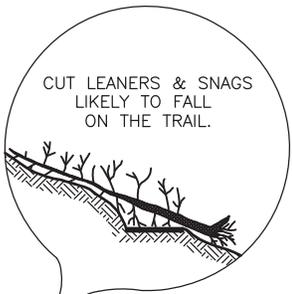
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TYPICAL ROAD DATA

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TRIM BRANCHES RATHER THAN CUT TREE. CUT BRANCHES NEARLY FLUSH WITH TRUNK, USING A PRUNING SAW.



NOTES:

1. ALONG A PRECIPICE OR HAZARDOUS AREA, THE TRAIL TREAD WIDTH SHALL BE 48"-60" (1219-1524 mm).
2. THE METRIC CONVERSIONS ARE PROVIDED IN PARENTHESIS FOLLOWING THE ENGLISH UNITS.

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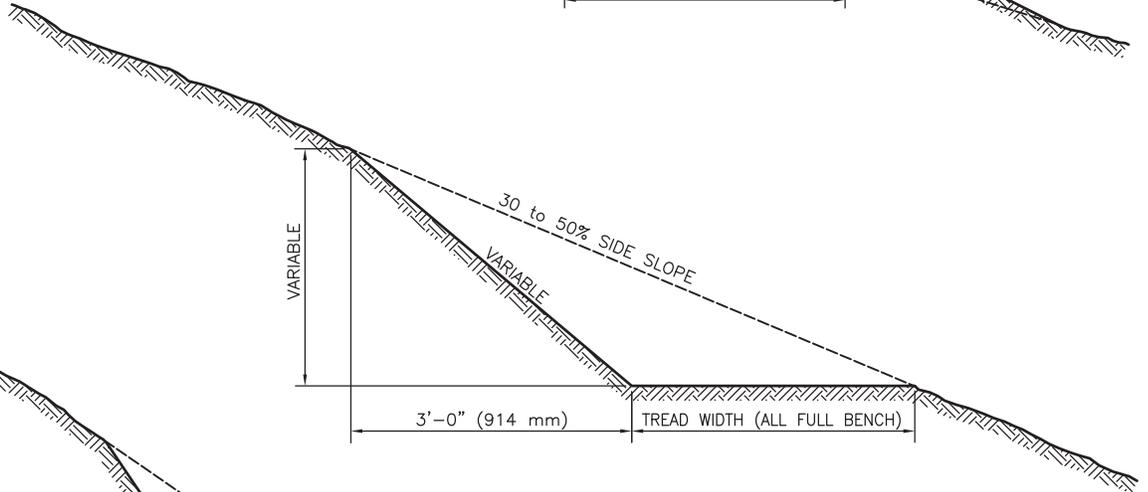
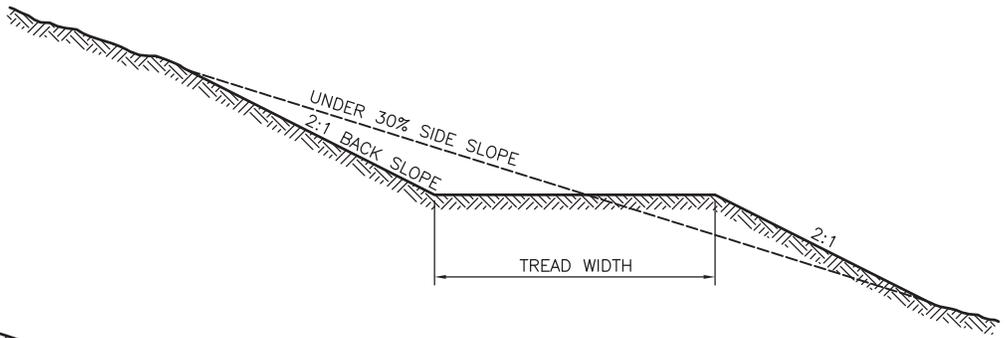
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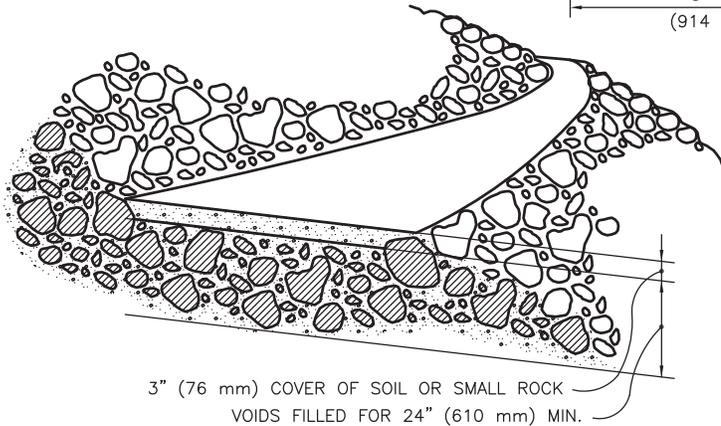
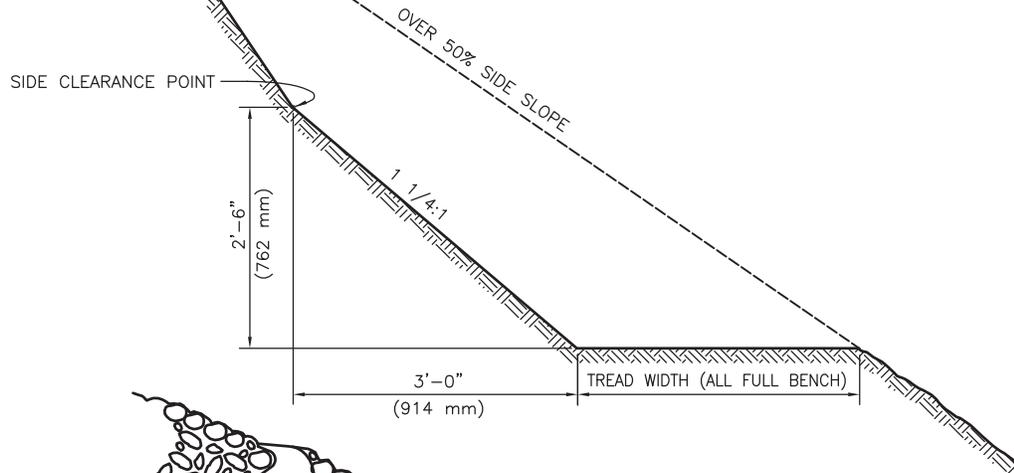
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TRAIL CLEARING
 AND GRUBBING



VARIABLE SLOPE

- 3/4:1 COMMON
- 1/2:1 HARDPAN-SOFT ROCK
- 1/4:1 HARD ROCK



ROCK OR TALUS SLIDE SIDE SLOPE

NOTES:

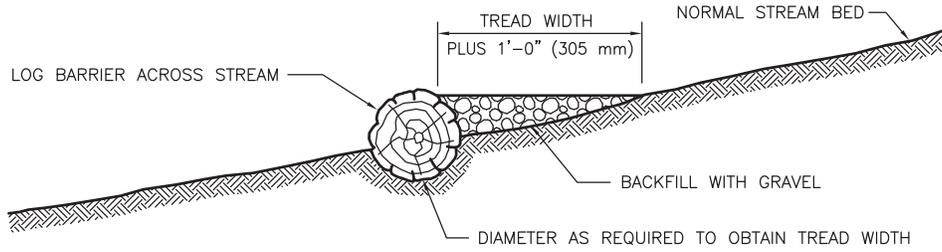
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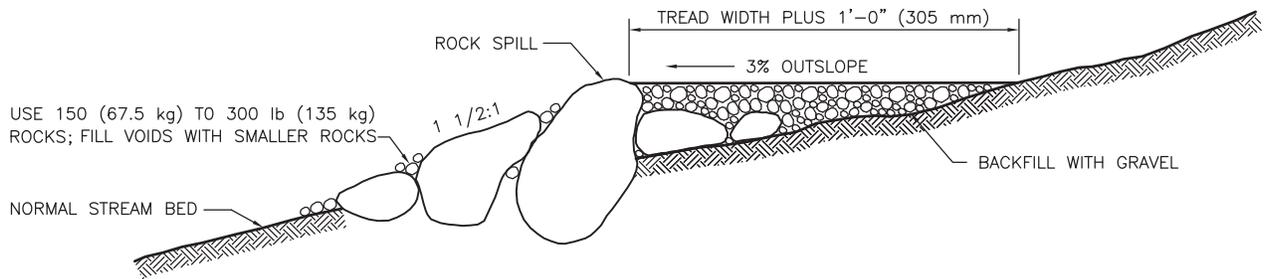
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TRAIL CROSS-SECTIONS	



LOG FORD



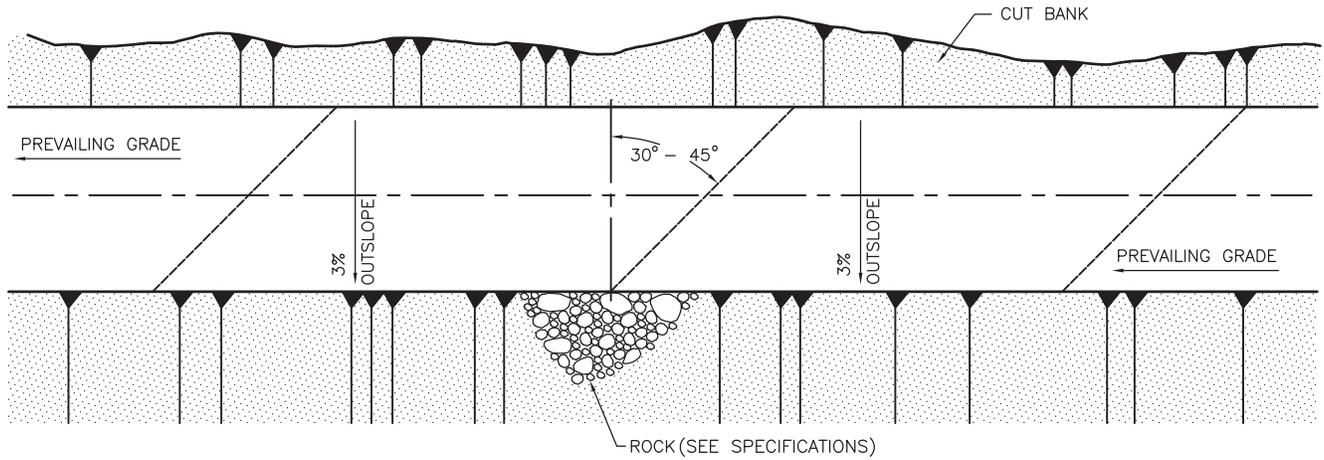
ROCK FORD

NOTES:

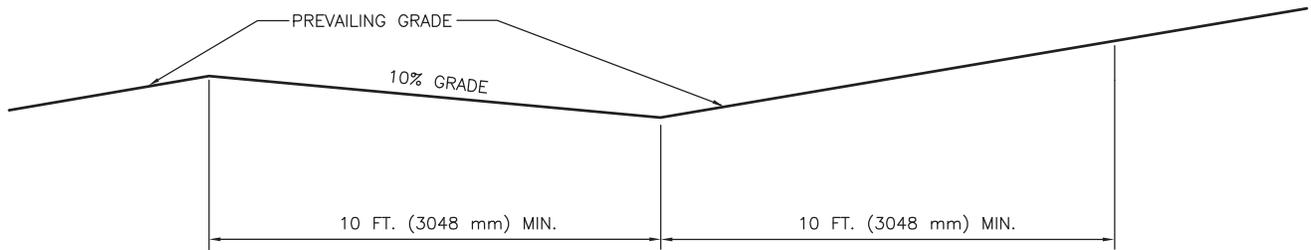
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PROFILE

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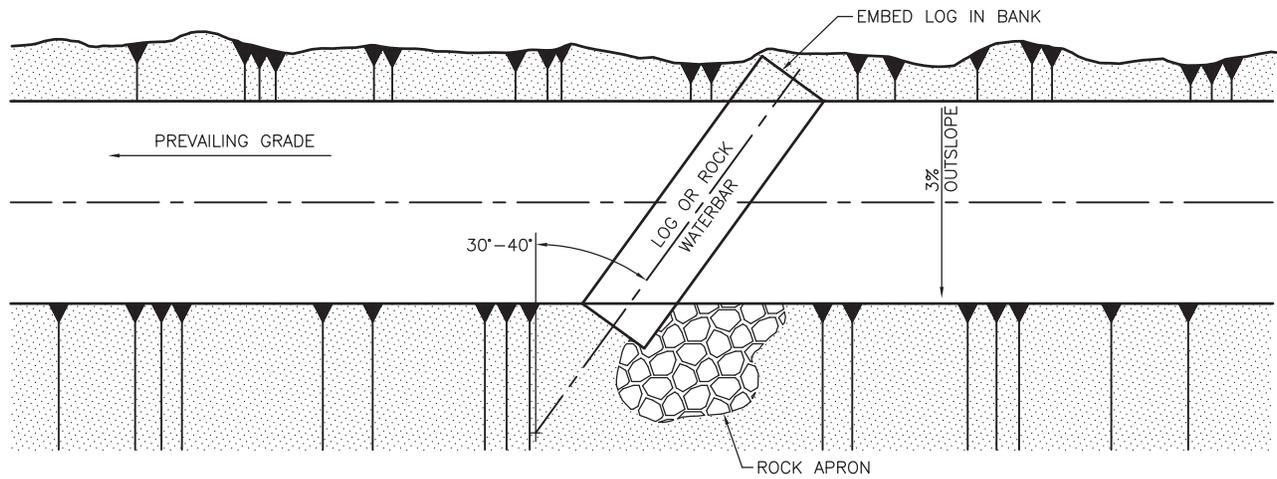
ALWAYS THINK SAFETY

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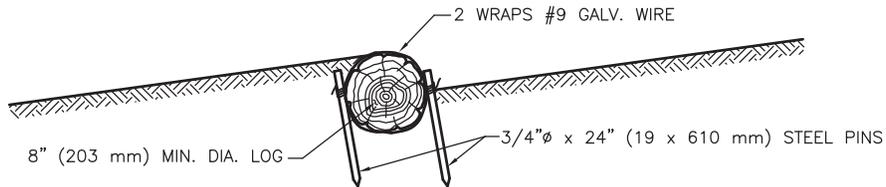
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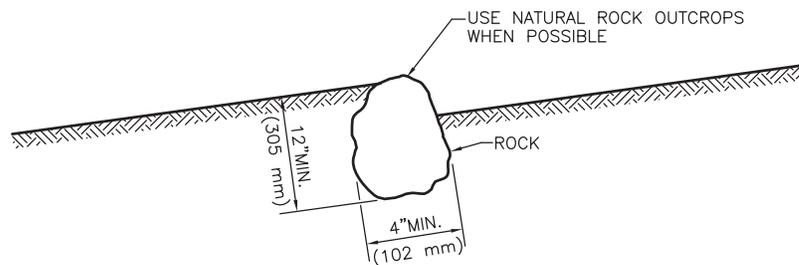
TRAIL
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PROFILE FOR LOG



PROFILE FOR ROCK

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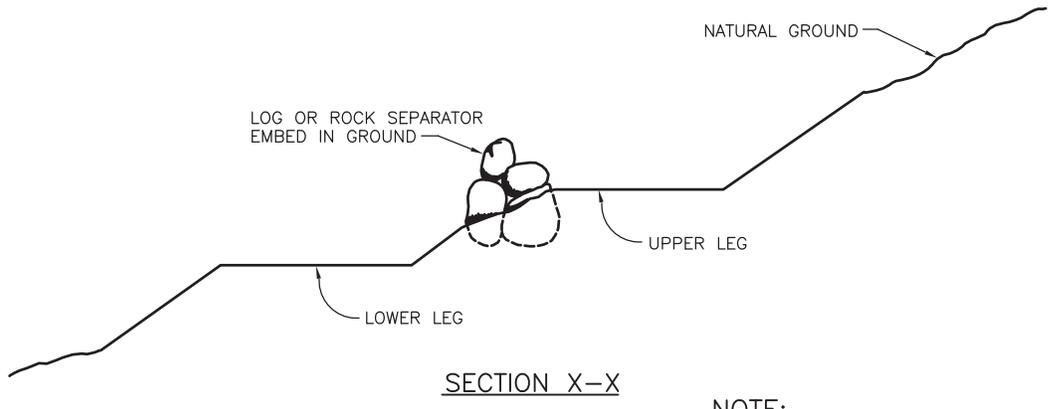
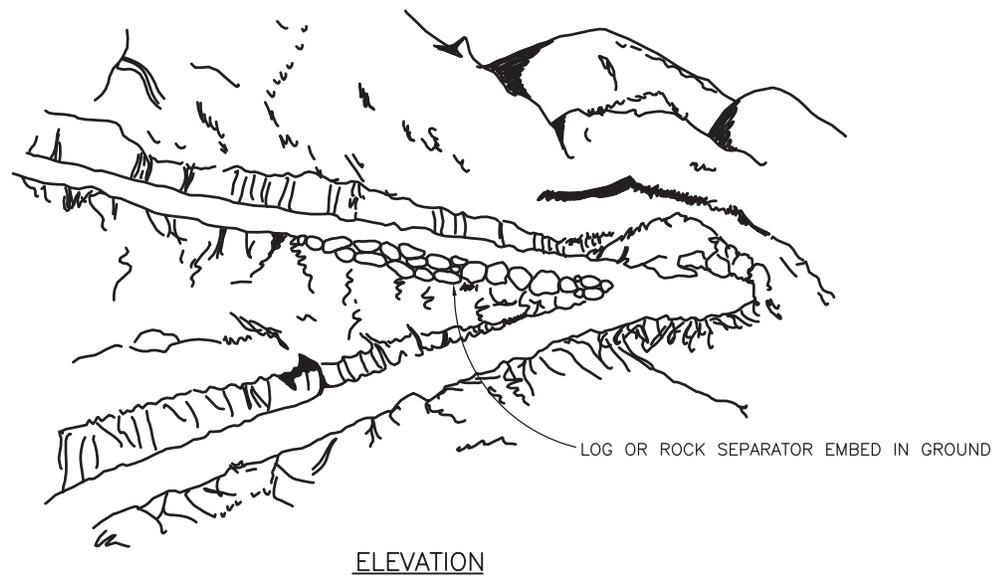
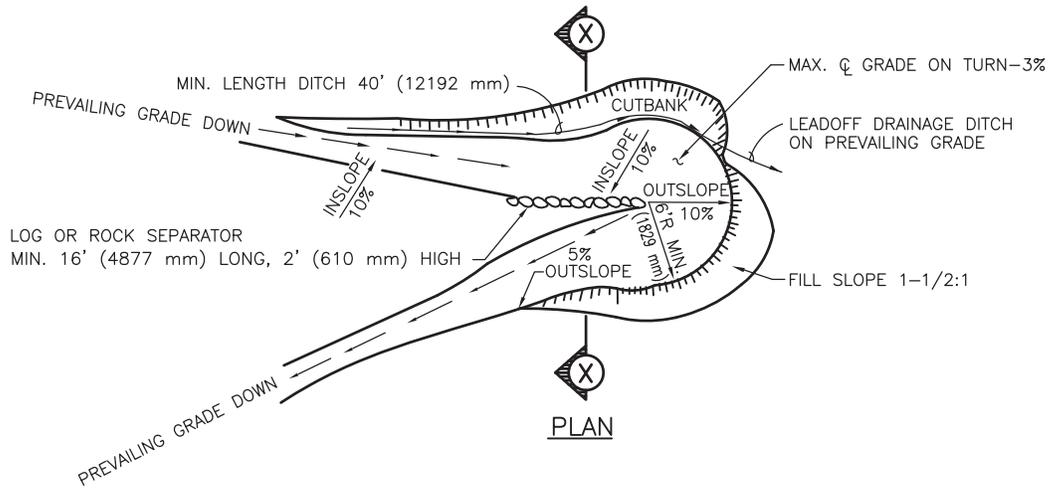
STANDARD DETAIL DRAWING NO. 02796-5

ALWAYS THINK SAFETY

△	METRIC CONVERSION ADDED	9/30/97	LJP
△	FORMAT UPDATE	7/31/09	RTH
REV. NO.	DESCRIPTION	DATE	APPROVED

UNITED STATES DEPARTMENT OF THE INTERIOR
 BUREAU OF LAND MANAGEMENT

TRAIL TREAD
 DRAINAGE LOG OR
 ROCK WATERBAR



NOTE:

1. THE METRIC CONVERSIONS ARE PROVIDED IN PARENTHESIS FOLLOWING THE ENGLISH UNITS.

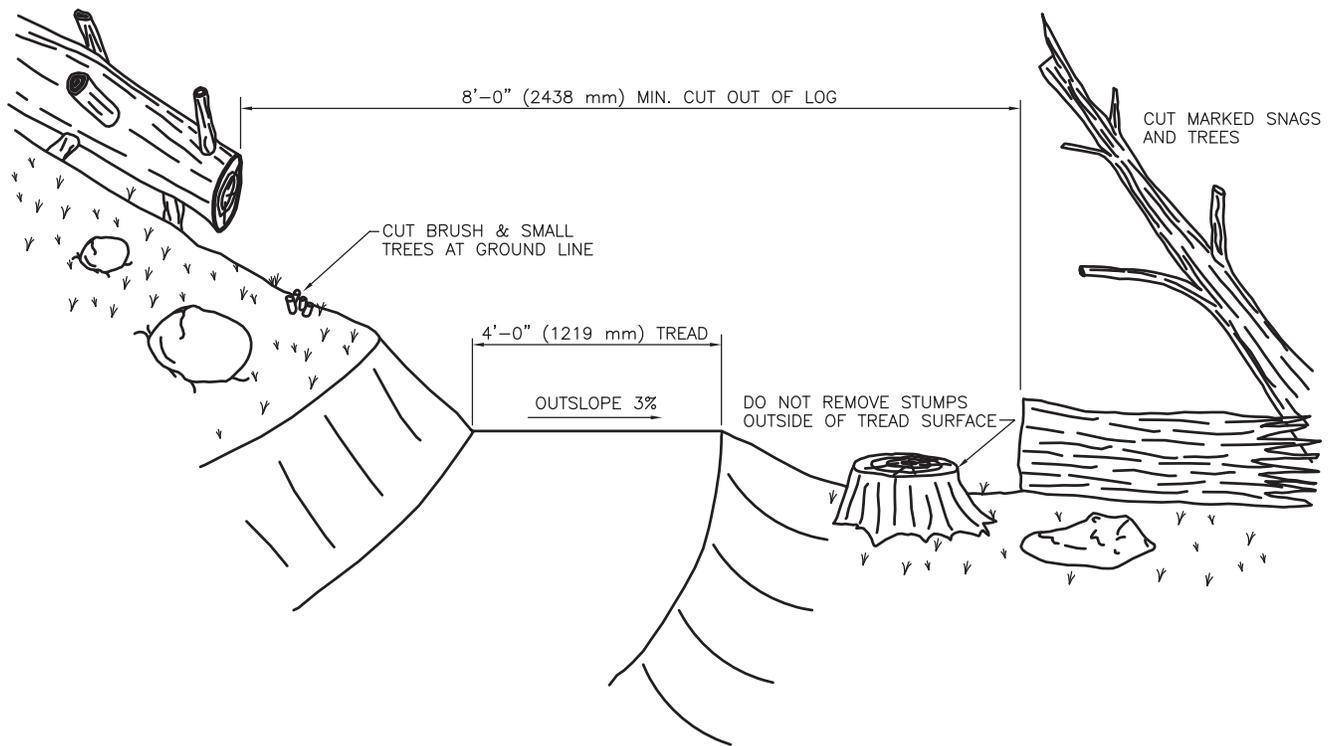
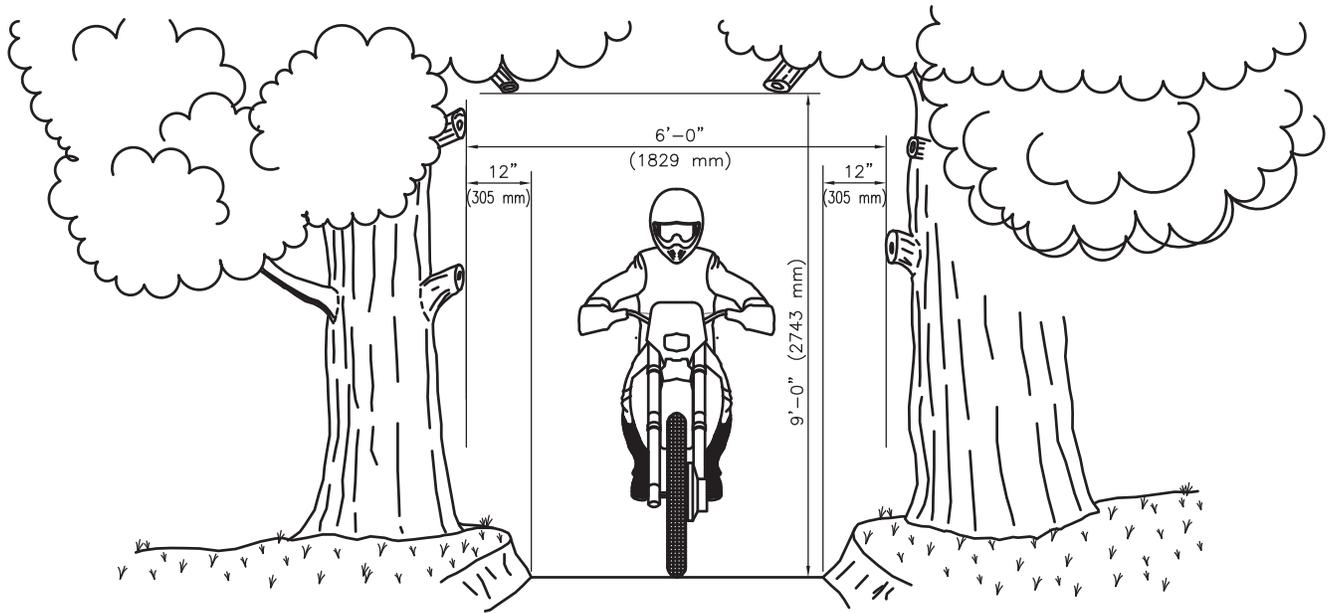
N:\PROJECTS\STANDARD DRAWINGS\STDDWG2009\02796-6.DWG

DESIGNED BY OTHERS	_____
REVIEWED	_____
APPROVED	_____
DRAWN BY:	SCALE: NONE
DATE: MAY 31, 1997	SHEET: 1 OF 1
STANDARD DETAIL DRAWING NO. 02796-6	

ALWAYS THINK SAFETY			
△	METRIC CONVERSION ADDED	9/30/97	LJP
△	FORMAT UPDATE	7/31/09	RTH
REV. NO.	DESCRIPTION	DATE	APPROVED

UNITED STATES DEPARTMENT OF THE INTERIOR
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**TRAIL
SWITCHBACK SECTION**



NOTE:

1. THE METRIC CONVERSIONS ARE PROVIDED IN PARENTHESIS FOLLOWING THE ENGLISH UNITS.

DESIGNED BY OTHERS _____
 REVIEWED _____
 APPROVED _____

DRAWN BY: _____ SCALE: NONE
 DATE: MAY 31, 1997 SHEET: 1 OF 1

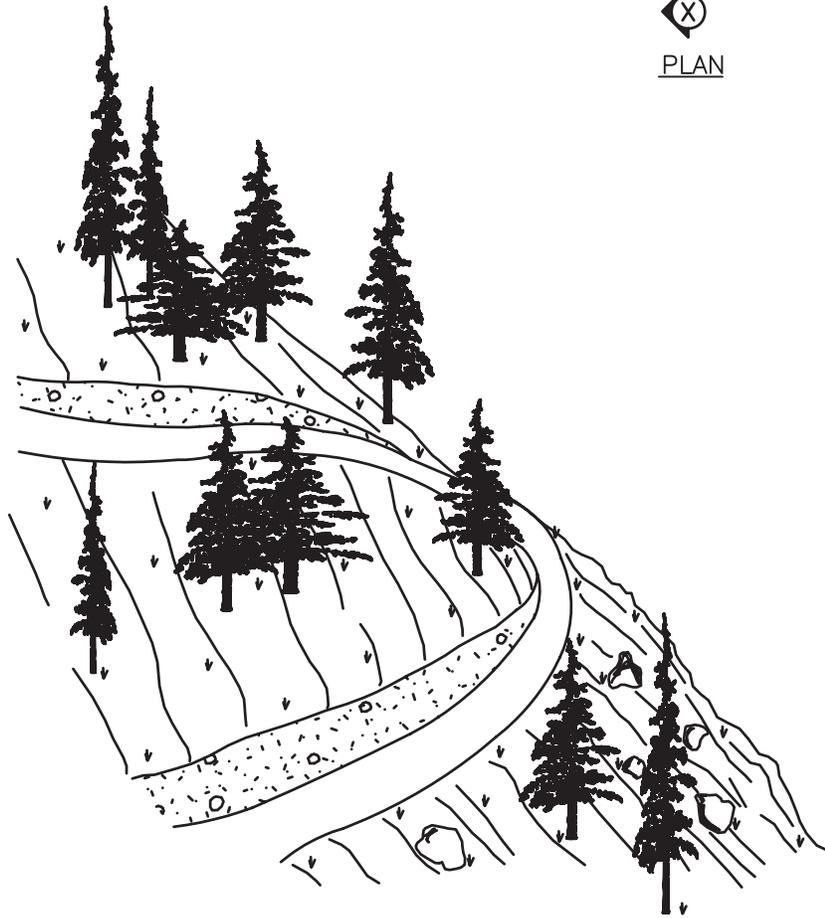
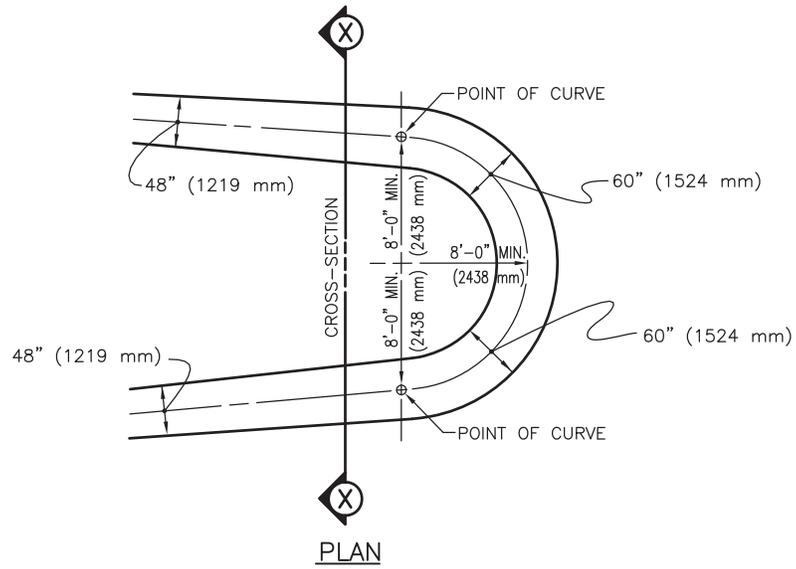
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ALWAYS THINK SAFETY

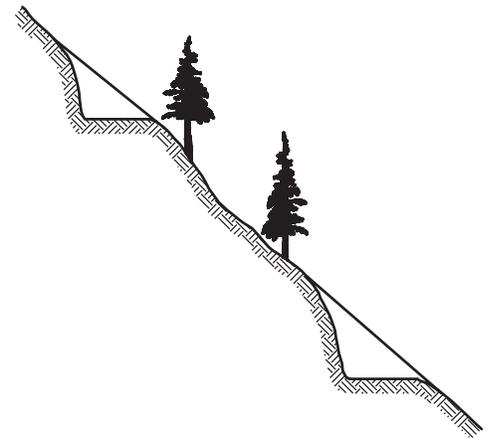
⚠	METRIC CONVERSION ADDED	9/30/97	LJP
⚠	FORMAT UPDATE	7/31/09	RTH
REV. NO.	DESCRIPTION	DATE	APPROVED

UNITED STATES DEPARTMENT OF THE INTERIOR
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ORV TRAIL CLEARING



ELEVATION



SECTION X-X

NOTE:

1. THE METRIC CONVERSIONS ARE PROVIDED IN PARENTHESIS FOLLOWING THE ENGLISH UNITS.

DESIGNED BY OTHERS _____
 REVIEWED _____
 APPROVED _____

DRAWN BY: _____ SCALE: NONE
 DATE: MAY 31, 1997 SHEET: 1 OF 1

STANDARD DETAIL DRAWING NO. 02796-8

ALWAYS THINK SAFETY

△	METRIC CONVERSION ADDED	9/30/97	LJP
△	FORMAT UPDATE	7/31/09	RTH
REV. NO.	DESCRIPTION	DATE	APPROVED

UNITED STATES DEPARTMENT OF THE INTERIOR
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ORV
 CLIMBING TURN

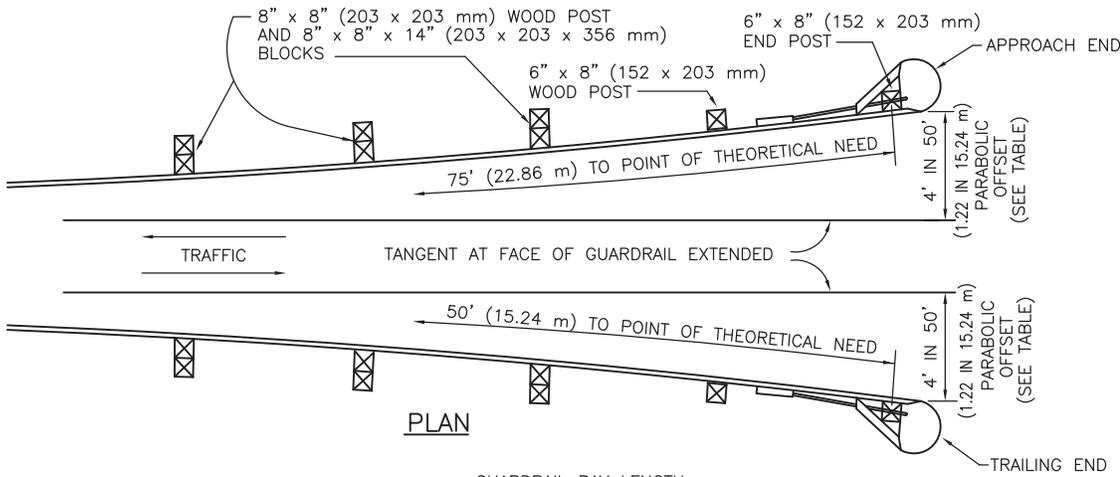
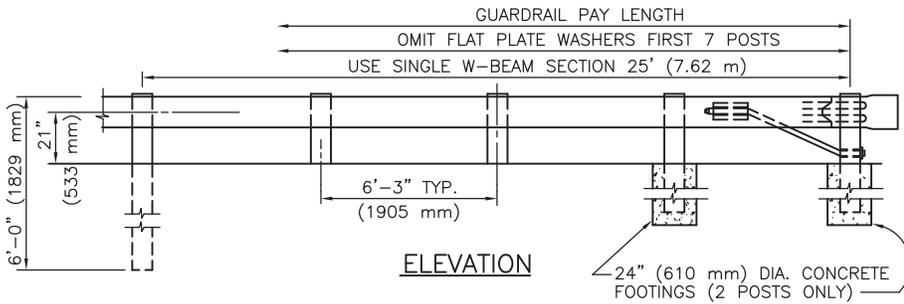


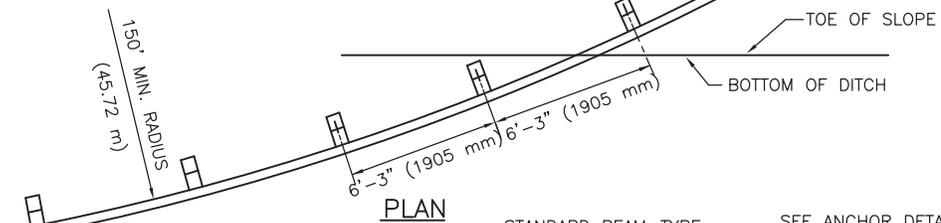
TABLE OF OFFSETS
50'-0" (15.24 m) PARABOLA

1st Post	0.06' (18 mm)
2nd	0.25' (76 mm)
3rd	0.56' (171 mm)
4th	1.00' (305 mm)
5th	1.56' (475 mm)
6th	2.25' (686 mm)
7th	3.06' (933 mm)
8th	4.00' (1219 mm)

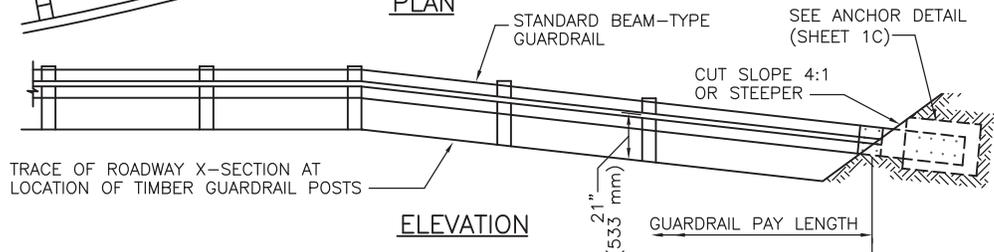
PLAN



ELEVATION



PLAN



ELEVATION

NOTES:

1. A FILL ANCHOR SHALL CONSIST OF A TERMINAL SECTION ANCHOR PLATE CABLE ASSEMBLY, AND MISCELLANEOUS HARDWARE NECESSARY FOR A COMPLETE INSTALLATION.
2. A CUT ANCHOR SHALL CONSIST OF THE CONCRETE BLOCK, THE 4' (1219 mm) SECTION OF W-BEAM GUARDRAIL, AND THE REBAR NECESSARY FOR A COMPLETE INSTALLATION.
3. A BRIDGE ANCHOR SHALL CONSIST OF THE ADDITIONAL LARGER POSTS, TERMINAL SECTION, AND MISCELLANEOUS HARDWARE NECESSARY FOR COMPLETE INSTALLATION.
4. CONCRETE FOR THE ANCHOR SHALL CONFORM TO SECTION 602 OF FP-79.
5. CABLE AND CONNECTING HARDWARE SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M30 EXCEPT THAT THE CABLE SHALL BE 3/4 INCH (19 mm) 6 x 19 INDEPENDENT-WIRE-ROPE CORE (1 WRC), CLASS A, GALVANIZED, RIGHT-REGULAR LAY MANUFACTURED OF IMPROVED PLOW STEEL WITH A MINIMUM BREAKING STRENGTH OF 42,800 POUNDS (19,414 kg), UNLESS SPECIFIED OTHERWISE.
6. THE ANCHOR PLATE, ANCHOR ASSEMBLY, AND OTHER MISCELLANEOUS HARDWARE SHALL BE FABRICATED FROM STEEL CONFORMING TO ASTM A 36.
7. BOLTS, NUTS, WASHERS, TERMINAL SECTIONS, AND RAIL ELEMENTS SHALL CONFORM TO AASHTO M 180.
8. TERMINAL SECTIONS SHALL BE OF THE SAME CLASS AND TYPE OF MATERIAL AS THE BEAM TO WHICH IT ATTACHES.
9. THE METRIC CONVERSIONS ARE PROVIDED IN PARENTHESIS FOLLOWING THE ENGLISH UNITS.

DESIGNED BY OTHERS _____
 REVIEWED _____
 APPROVED _____

DRAWN BY: _____ SCALE: NONE
 DATE: NOVEMBER 6, 1990 SHEET: 1 OF 3

STANDARD DETAIL DRAWING NO. 02842-1A

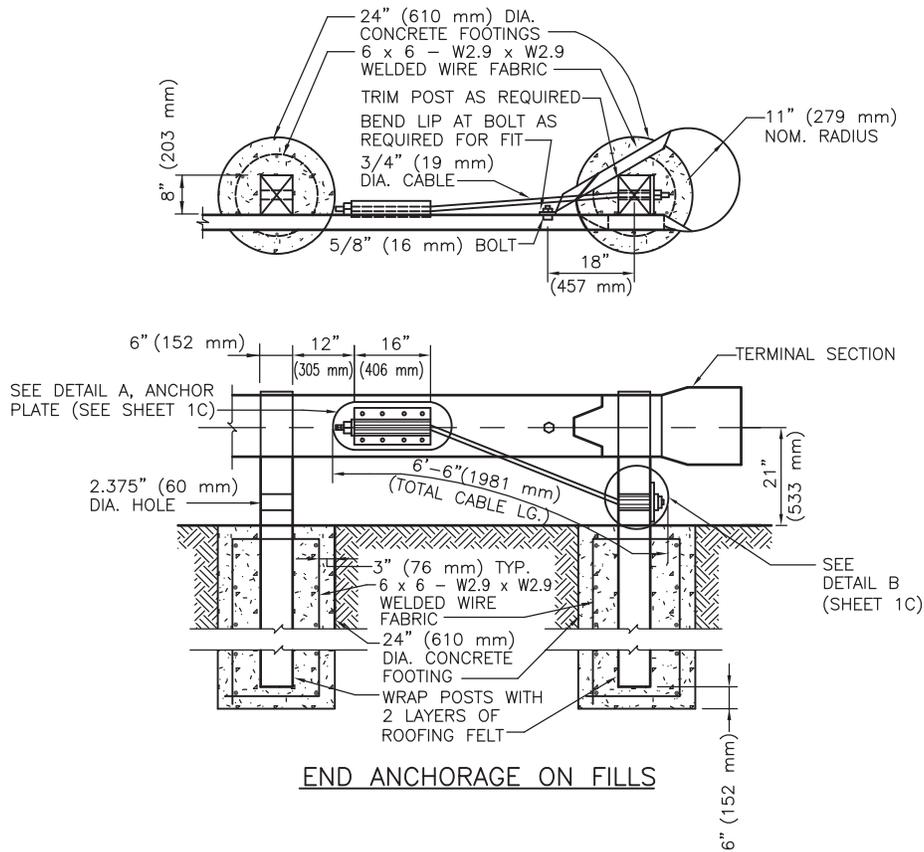
ALWAYS THINK SAFETY

△	METRIC CONVERSION ADDED	9/30/97	LJP
△	FORMAT UPDATE	7/31/09	RTH

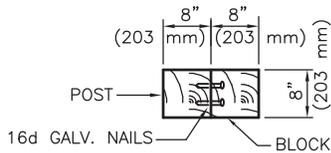
REV. NO. DESCRIPTION DATE APPROVED

UNITED STATES DEPARTMENT OF THE INTERIOR
 BUREAU OF LAND MANAGEMENT

GUARDRAIL
 W-BEAM



END ANCHORAGE ON FILLS



NORMAL POST INSTALLATION

NOTE:

1. THE METRIC CONVERSIONS ARE PROVIDED IN PARENTHESIS FOLLOWING THE ENGLISH UNITS.

DESIGNED BY OTHERS _____
 REVIEWED _____
 APPROVED _____

DRAWN BY: _____ SCALE: NONE
 DATE: NOVEMBER 6, 1990 SHEET: 2 OF 3

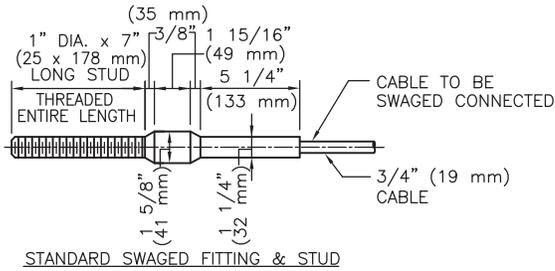
STANDARD DETAIL DRAWING NO. 02842-1B

ALWAYS THINK SAFETY

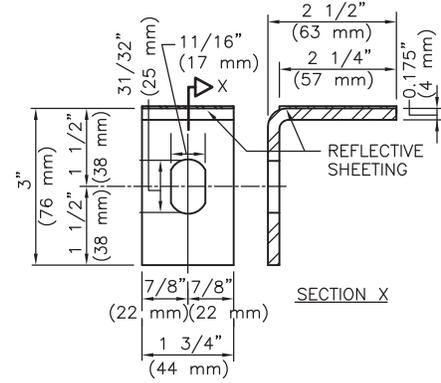
△	METRIC CONVERSION ADDED	9/30/97	LJP
△	FORMAT UPDATE	7/31/09	RTH
REV. NO.	DESCRIPTION	DATE	APPROVED

UNITED STATES DEPARTMENT OF THE INTERIOR
 BUREAU OF LAND MANAGEMENT

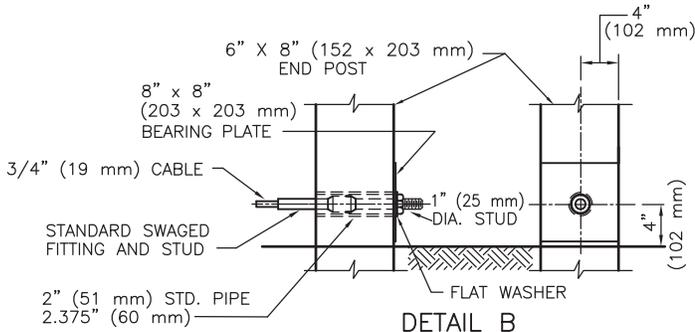
GUARDRAIL
 W-BEAM



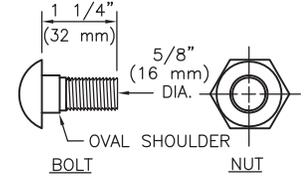
CABLE DETAIL



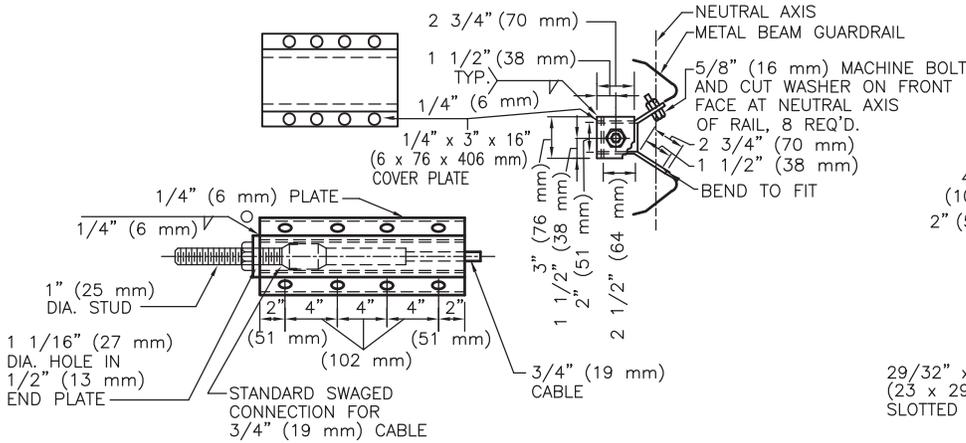
WASHER WITH REFLECTOR TAB



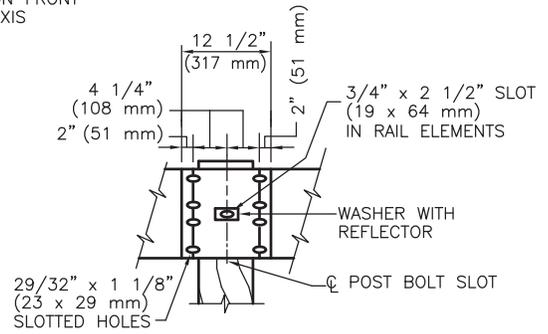
DETAIL B



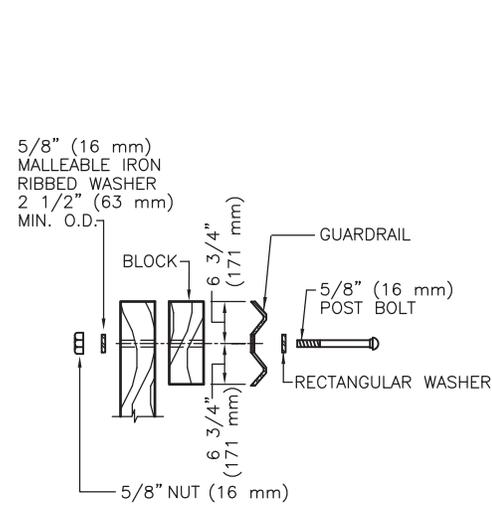
SPLICE BOLT AND NUT



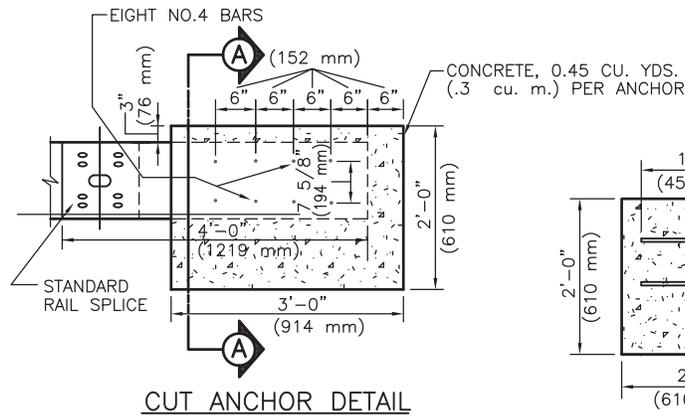
DETAIL A-ANCHOR PLATE



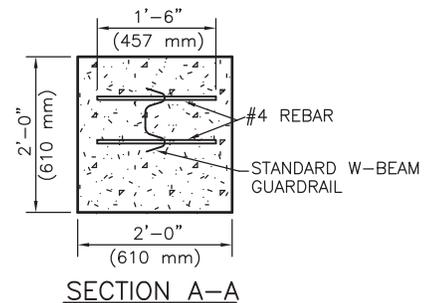
RAIL SPLICE



POST BOLT HARDWARE



CUT ANCHOR DETAIL



SECTION A-A

NOTE:

1. THE METRIC CONVERSIONS ARE PROVIDED IN PARENTHESIS FOLLOWING THE ENGLISH UNITS.

DESIGNED BY OTHERS _____
 REVIEWED _____
 APPROVED _____

DRAWN BY: _____ SCALE: NONE
 DATE: NOVEMBER 6, 1990 SHEET: 3 OF 3

STANDARD DETAIL DRAWING NO. 02842-1C

ALWAYS THINK SAFETY

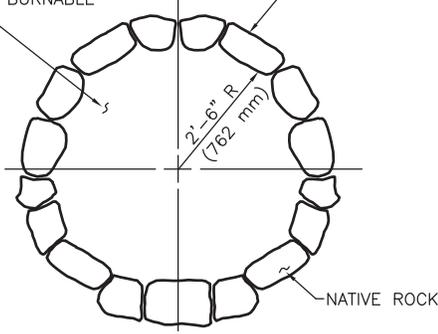
△	METRIC CONVERSION ADDED	9/30/97	LJP
△	FORMAT UPDATE	7/31/09	RTH
REV. NO.	DESCRIPTION	DATE	APPROVED

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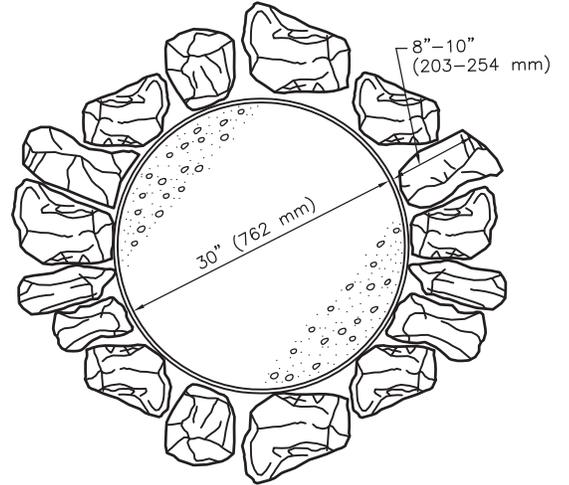
**GUARDRAIL
 W-BEAM**

SOIL INSIDE FIRE CIRCLE TO BE CLEARED OF ALL VEGETATIVE & BURNABLE MATERIAL

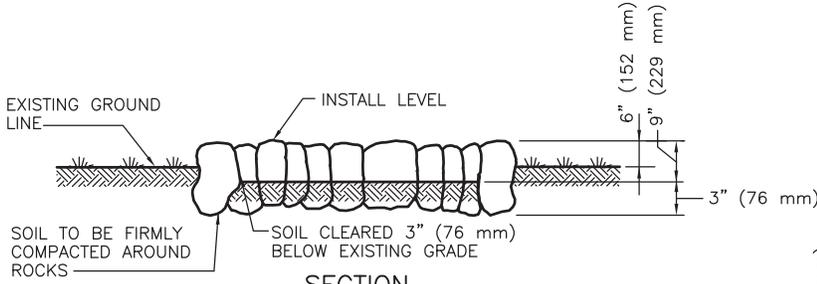
ROCK SIZE - 12" Ø (305 mm) MIN.



PLAN

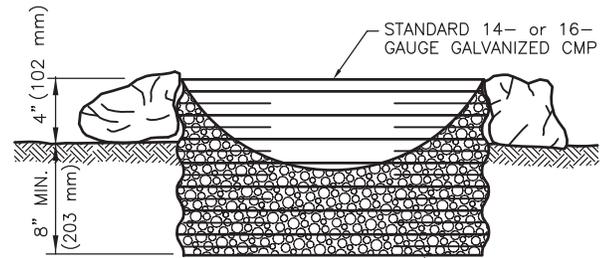


PLAN



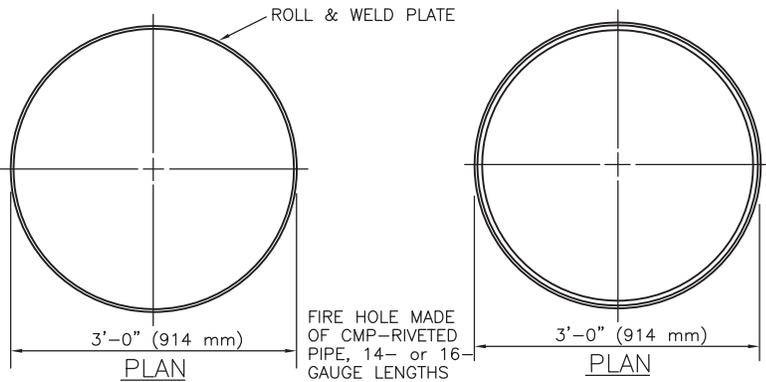
SECTION

FIRE CIRCLE



SECTION

GRAVEL FILL WITHIN CMP

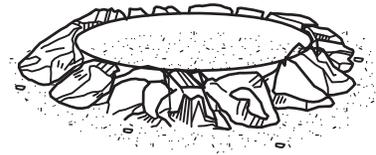


PLAN

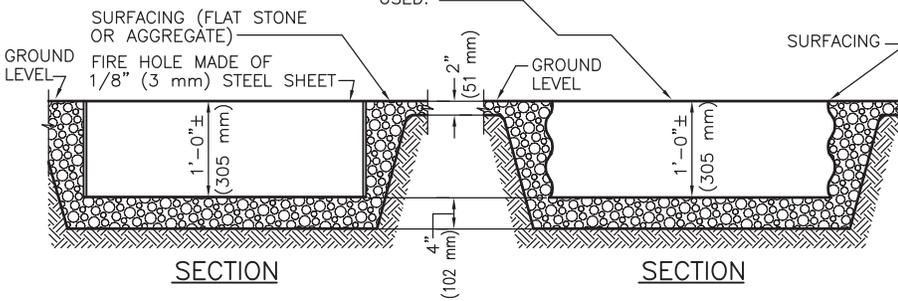
PLAN

FIRE HOLE MADE OF CMP-RIVETED PIPE, 14- or 16 GAUGE LENGTHS OF PIPE OR COLLARS MAY BE USED.

PERSPECTIVE



FIRE CIRCLE
W/ CORRUGATED METAL PIPE (CMP)



SECTION

SECTION

FIRE HOLE

NOTE:

1. THE METRIC CONVERSIONS ARE PROVIDED IN PARENTHESIS FOLLOWING THE ENGLISH UNITS.

N:\PROJECTS\STANDARD DRAWINGS\STDDWG52009\02877-3.DWG

DESIGNED BY OTHERS _____
 REVIEWED _____
 APPROVED _____

DRAWN BY: _____ SCALE: NONE
 DATE: OCTOBER 25, 1990 SHEET: 1 OF 1

STANDARD DETAIL DRAWING NO. 02877-3

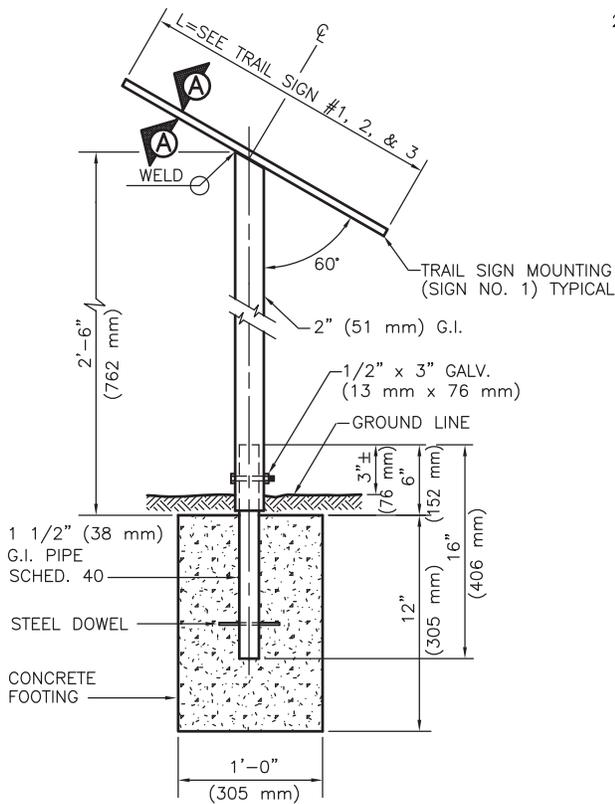
ALWAYS THINK SAFETY

△	METRIC CONVERSION ADDED	9/30/97	LJP
△	FORMAT UPDATE	7/31/09	RTH

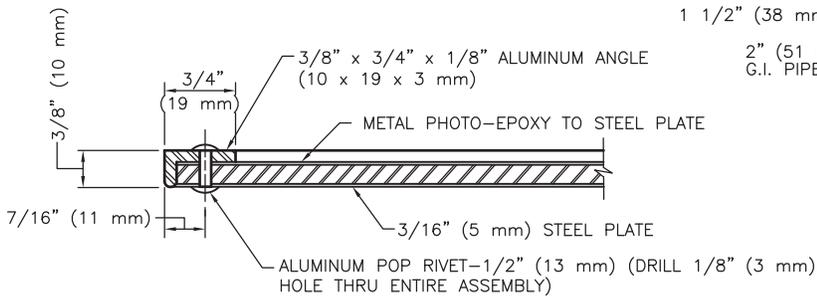
REV. NO. DESCRIPTION DATE APPROVED

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 BUREAU OF LAND MANAGEMENT

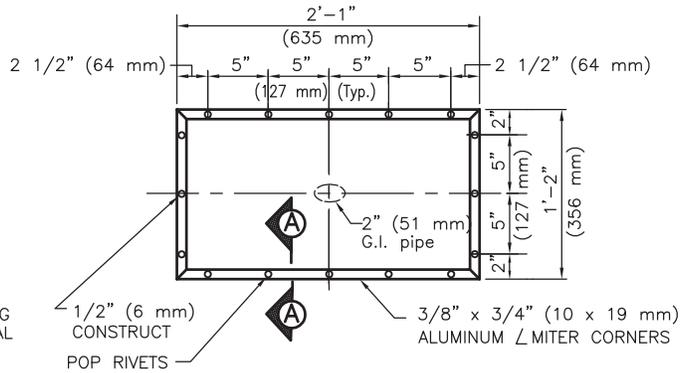
**FIRE CIRCLES
 AND HOLE**



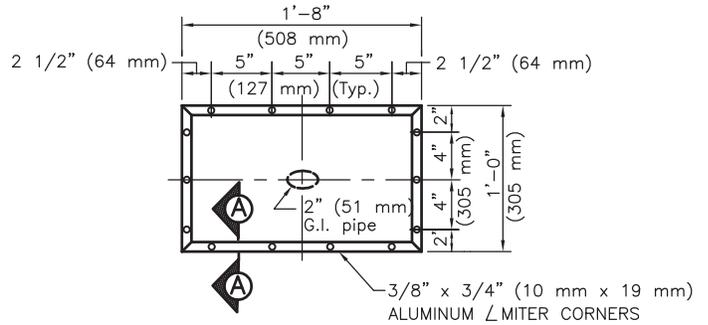
ELEVATION



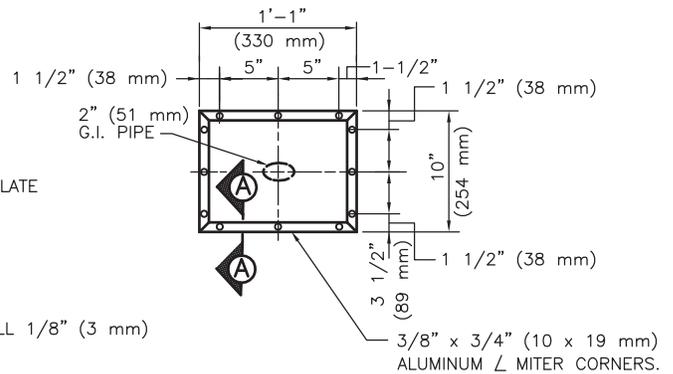
SECTION A-A



TRAIL SIGN NO. 1



TRAIL SIGN NO. 2



TRAIL SIGN NO. 3

STEEL PLATE SIZES

- SIGN NO. 1 2'-0 3/4" x 1'-1 3/4" (629 mm x 349 mm)
- SIGN NO. 2 1'-7 3/4" x 11 3/4" (502 mm x 298 mm)
- SIGN NO. 3 1'-0 3/4" x 9 3/4" (324 mm x 248 mm)
- METAL PHOTO SIZES SAME AS STEEL PLATES.

WELDING SYMBOL LEGEND



NOTES:

- EXPOSED METAL, EXCEPT ALUMINUM, SHALL BE TREATED WITH 2 COATS OF RUST-RESISTANT BROWN PAINT.
- METAL PHOTO TO BE FASTENED TO STEEL PLATE WITH AN EPOXY RESIN.
- SIGNS MAY BE ROTATED 90° ABOUT SUPPORT TO SUIT PARTICULAR SITUATIONS.
- THE METRIC CONVERSIONS ARE PROVIDED IN PARENTHESIS FOLLOWING THE ENGLISH UNITS.

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 REVIEWED _____
 APPROVED _____

DRAWN BY: _____ SCALE: NONE
 DATE: APRIL 26, 1997 SHEET: 1 OF 1

STANDARD DETAIL DRAWING NO. 02890-4

ALWAYS THINK SAFETY

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△	FORMAT UPDATE	7/31/09	RTH
REV. NO.	DESCRIPTION	DATE	APPROVED

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TRAIL SIGN