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United States Department of Agriculture | Forest Service | Fishlake National Forest Supervisor's Office Fax: (435) 896-9347 | 115 East 900 North Richfield, UT 84701 Phone: (435) 896-9233

File Code: 1950
Date: January 17, 2006

Keep OK
C/0041/0002

Dear Interested Public Land User,

Enclosed is a copy of the Quitchupah Creek Road Final Environmental Impact Statement (FEIS), which has been completed and is now available for review. This is a joint document between the US Forest Service, Fishlake National Forest (Lead Agency), and the Bureau of Land Management, Richfield Field Office (Cooperating Agency).

You are receiving a copy either because you requested to be kept informed of this project, or the US Forest Service or Bureau of Land Management is required to provide you/your agency with a copy.

Regulations implementing the National Environmental Policy Act require a 30-day waiting period prior to issuing a Record of Decision (ROD). The 30-day waiting period will begin on the day that the Notice of Availability of an FEIS is published in the Federal Register. After the 30-day waiting period is completed a ROD will be issued. You/your agency will also receive a copy of the ROD once it is issued.

For further information on this project, contact Rod Lee, Resource Advisor, Bureau of Land Management, Richfield Field Office, 150 East 900 North, Richfield, Utah 84701, (435) 896-1500.

Sincerely,

/S/ MARY C. ERICKSON

MARY C. ERICKSON
Forest Supervisor

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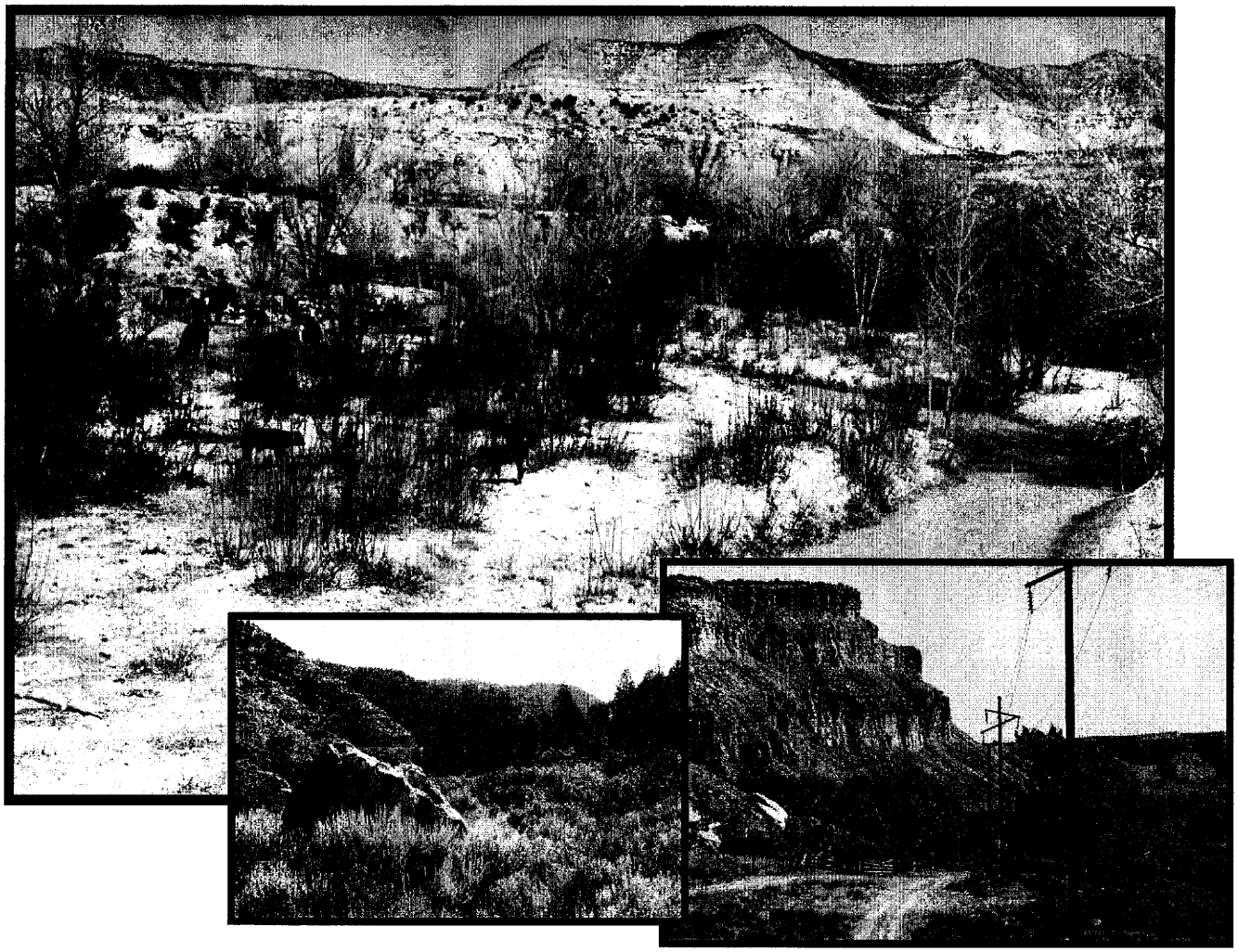

QUITCHUPAH CREEK ROAD

Final Environmental Impact Statement
January 2006

U.S. Department of Agriculture
Forest Service
Fishlake National Forest

U.S. Department of Interior
Bureau of Land Management
Richfield Field Office

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This is an FEIS conducted through the NEPA process on the Fishlake National Forest and on Richfield BLM Public Lands.

QUITCHUPAH CREEK ROAD PROJECT
FINAL
ENVIRONMENTAL IMPACT STATEMENT

Responsible Agencies:	**U.S.D.A. Forest Service (Lead Agency)** Fishlake National Forest **U.S.D.I. Bureau of Land Management** Richfield Field Office	
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ABSTRACT:

This Final Environmental Impact Statement (FEIS) is written in response to a right-of-way application submitted by the Sevier County Special Service District (SSD) to the USFS and the BLM for the construction of the Quitchupah Creek Road, a public road to be utilized primarily as a coal transport route for the SUFCO Mine. The Quitchupah Creek Road FEIS analyzes one Federal action that requires decisions by the responsible officials of the USDA-FS and the USDI-BLM. The Federal action is to consider granting the right-of-way. Four alternatives were considered in this analysis: 1) No Action (Alternative A), 2) Quitchupah Creek Road (Alternative B), 3) Alternate Junction and Alternate Design (Alternative C), and 4) Water Hollow (Alternative D). The responsible officials for the BLM and FS have identified Alternative D as the Preferred Alternative.

January 2006

QUITCHUPAH CREEK ROAD PROJECT FEIS

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LIST OF ACRONYMS & ABBREVIATIONS

AADT	Average Annual Daily Traffic
ACEC	Area of Critical Environmental Concern
ACHP	Advisory Council on Historic Preservation
ADT	Average Daily Traffic
AASHTO	American Association of State Highway and Transportation Officials
AERC	Archaeological Environmental Research Corporation
AIRS	Aerometric Information Resource System
AMSL	Above Mean Sea Level
ATV	All-Terrain Vehicle
AUM	Animal Unit Month
BA	Biological Assessment
BE	Biological Evaluation
BCI	Biotic Condition Index
BLM	Bureau of Land Management
BMP	Best Management Practices
BYU	Brigham Young University
CBR	California Bearing Ratio
CEQ	Council of Environmental Quality
CFR	Code of Federal Regulations
cfs	Cubic Feet Per Second
CO	Carbon Monoxide
COE	U. S. Army Corps of Engineers
$\mathbf{CTQ_a}$	Actual Community Tolerance Quotient
$\mathbf{CTQ_p}$	Predicted Community Tolerance Quotient
dB	Decibel
dBA	Decibel-A weighted
DWQ	Division of Water Quality
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FHWA	Federal Highway Administration
FPU	Forest Planning Unit
gpm	Gallons Per Minute
$\mathbf{g/m^2}$	Grams per Square Meter
IDT	Interdisciplinary Team
I-70	Interstate 70
JBR	JBR Environmental Consultants, Inc.
JW	Jurisdictional Wetland
K	Erodibility Factor
KOP	Key Observation Point
$\mathbf{L_{pt}}$	Sound Pressure Level
$\mathbf{L_{pat}}$	Sound Level
$\mathbf{L_{50}}$	Noise Levels as a Function of Exceeding 50 dBA 50 Percent of the Time

L_{eq}	Equivalent Sound Level
LRMP	Land and Resource Management Plan
mm	Millimeters
mmtpy	Million Tons per Year
MFP	Management Framework Plan
mg/l	milligram per liter
MIS	Management Indicator Species
MOAC	Montgomery Archaeological Consultants, Inc.
MSE	Mechanically Stabilized Earth
MSHA	Mining Safety and Health Administration
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOI	Notice of Intent
NO_x	Oxides of Nitrogen
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
OHWM	Ordinary High Water Mark
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Level
PLS	Pure Live Seed
PM	Particulate Matter
PM_{10}	Particulate Matter Less Than 10 Microns
PNC	Perennial Native Community
PSD	Prevention of Significant Deterioration
RARE	Roadless Area Review and Evaluation
RCMP	Round Corrugated Metal Pipe
RDCC	Resource Development Coordinating Committee
RMP	Resource Management Plan
RNA	Research Natural Area
ROD	Record of Decision
ROS	Recreational Opportunity Spectrum
SCT	Savage Coal Terminal
SEUOHV	Southeastern Utah Off-Highway Vehicle Club
SHPO	State Historic Preservation Office
SITLA	State School and Institutional Trust Lands Administration
SLBM	Salt Lake Base Meridian
SO_2	Sulfur Dioxide
SR-10	State Route 10
SSD	Special Service District
SUFCO	Southern Utah Fuel Company
SWPPP	Storm Water Pollution Prevention Plan
TCP	Traditional Cultural Property
TDS	Total Dissolved Solids
TES	Threatened, Endangered, and Sensitive
TMDL	Total Maximum Daily Load
tpy	Tons Per Year
UDOT	Utah Department of Transportation

UDWR	Utah Division of Wildlife Resources
***ug*/M^3**	micrograms of particles per cubic meter of air
UGS	Utah Geological Survey
UOSH	Utah Occupational Safety and Health Division
UPDES	Utah Pollutant Discharge Elimination System
UP&L	Utah Power and Light Company
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
US GSA	United States General Services Administration
USLE	Universal Soil Loss Equation
UWC	Utah Wilderness Coalition
VdB	Velocity Decibel
VOC	Volatile Organic Compounds
VQO	Visual Quality Objective
VRM	Visual Resource Management
WEG	Wind Erodibility Group
WIU	Wilderness Inventory Units
WSA	Wilderness Study Area
yd^3	Cubic Yards

Executive Summary

EXECUTIVE SUMMARY

INTRODUCTION

This Environmental Impact Statement (EIS) considers a single proposed Federal action, with alternatives, and is a joint document between the United States Forest Service (USFS), Fishlake National Forest (Lead Agency) and the Bureau of Land Management (BLM), Richfield Field Office (Cooperating Agency). This National Environmental Policy Act (NEPA) analysis considers the potential environmental consequences associated with implementing the Proposed Action and Alternatives, as described below.

The Sevier County Special Service District Number 1 (SSD) has submitted right-of-way applications to the USFS and the BLM for the construction of the Quitchupah Creek Road, a public road. The Quitchupah Creek Road would be generally located between the Acord Lakes Road (Sevier County Road #010) and the junction with State Route 10 (SR-10). Lands along the route are administered by the USFS – Fishlake National Forest, the BLM – Richfield Field Office, Utah State School and Institutional Trust Lands Administration (SITLA) – Central Area, all based in Richfield, and private interests.

This EIS addresses the need for Federal decisions approving right-of-way applications, or an alternative, which would cross Federal lands. The Forest Supervisor for the Fishlake National Forest and the Richfield Field Office Manager for the BLM are responsible officials for the EIS. They will make their respective decisions regarding the Proposed Actions after considering the comments, responses, and environmental consequences discussed in the EIS. The rationale for each agency decision will be documented in separate Records of Decision (RODs).

PURPOSE AND NEED

The purpose of the Federal action is to respond to a request from Sevier County SSD for granting a right-of-way to construct a public road. Southern Utah Fuel Company Mine (SUFCO Mine) would then be a toll user of this public road. Due to the SUFCO Mine location in rugged terrain, and the distance to railheads and loadouts, SUFCO Mine relies on truck transport for all of its coal shipments. The need for the road project is to ensure the competitive productivity of the SUFCO Mine, as a source of economic stability for Sevier County, a potential source of additional income and revenue for Emery County, and a source of high quality coal for electrical power generating plants in eastern Utah and the Midwest.

The recently signed National Energy Policy Act 2005 seeks to provide reliable, affordable energy to our nation's consumers, and to lessen the impact on Americans of energy price volatility and supply uncertainty. The demand for electricity in the U.S. is projected to increase by 45% over the next 20 years (National Energy Policy website). Access to coal reserves via any of the road alternatives proposed in this document would reduce fuel consumption by shortening the transport routes, and would help to maintain supplies of diverse and traditional forms of energy within the U.S. (domestic oil, gas and coal). The National Energy Policy promotes such improvements in the productive and efficient use of energy.

SUMMARY OF PROPOSED ROAD

Sevier County SSD has proposed the upgrade and realignment of an existing 9.15 mile road, along Quitchupah Creek, which connects the Acord Lakes Road (Sevier County Road #010) in Convulsion Canyon, Sevier County with SR-10 in Emery County. The land ownership in this corridor is a combination of private, USFS, BLM, and SITLA.

The proposed road (Alternative B) would be 8.9 miles long, with a 28-foot wide paved surface, and an operational right-of-way of 66 feet. Six pullouts for parking off the road shoulder would be provided at various locations (See **Appendix B** - Strip Maps). The construction corridor would vary from 50 feet to 60 feet on the flatter ground (eastern end) to an average 100 feet for the remainder of the road. The road would be designed for a speed of 40 miles per hour, and constructed according to the standards of the American Association of State Highway and Transportation Officials (AASHTO) and the Utah Department of Transportation (UDOT) 2005 Standard Specifications for Road and Bridge Construction.

No facilities would be built in association with this alignment. The total new disturbance within the proposed road corridor would be 92.3 acres. Once reclamation is complete, the net loss of vegetation would be 45 acres that are dedicated to the paved roadbed and road shoulder.

All of the build alternatives would conform to the overall guidance of the Fishlake Land and Resource Management Plan (LRMP) and Final EIS, the BLM San Rafael Resource Management Plan (RMP) and Final EIS, and the BLM Forest Planning Unit Management Framework Plan (FPU MFP). This EIS tiers to the decisions of these Land Use Plans, which are available for review at the USFS and BLM offices, both located in Richfield, Utah. No plan amendments would be required for the USFS Fishlake Plan, the BLM San Rafael Plan, or the BLM FPU MFP for the Proposed Action.

The requested rights-of-way for the permanent road corridor would include 24.3 acres of USFS lands, 18.7 acres of BLM lands, 12.3 acres on SITLA lands, and 33.7 acres private lands. Rights-of-way applications have been submitted to the USFS and BLM. Rights-of-way across private lands are dependent upon individual negotiations.

ISSUES RAISED DURING SCOPING

The agencies initiated public scoping for the Quitchupah Creek Road Project on January 15, 1999, with the intent of preparing an Environmental Assessment (EA). Informal meetings were held in Emery County, including a field meeting March 30, 1999. Other meetings, including the Quitchupah Grazing Association Meeting on January 27, 1999, and the Emery County Public Lands Council Meeting, June 8, 1999, were attended by agency and consultant representatives. Due to the level of public concern for the proposed project, and the issues identified during the scoping process, the USFS and the BLM determined that the proposed project warranted preparation of an EIS. A Notice of Intent (NOI) for the Quitchupah Creek Road EIS was published in the Federal Register on July 1, 1999. The legal scoping notice, Request for Comments, was published in the *Richfield Reaper* July 14, 1999; the *Emery County Progress* July 13, 1999; and the *Salt Lake Tribune* and *Deseret News* July 15, 1999.

A total of 35 comment letters or forms were received as a result of the EIS scoping effort. Approximately 25 comments, previously received during scoping for the EA in January and February 1999, were incorporated into the EIS scoping process for a total of 60 comments. All comments and concerns brought up during scoping can be found in the Scoping Summary and Preparation Plan for the Quitchupah Creek Road Project. As a result of the publication circulation of the Draft EIS in 2001, a total

of 409 comment letters or forms were received during and after the official comment period which was between December 1, 2001 and February 15, 2002. These comments are addressed in Chapter 6.0 of this document and additional information in response to comments has been incorporated into the FEIS.

Issues raised during the scoping and the public comment period that were carried forward in analysis include:

Water Quality - Changes may occur to the water quality in Quitchupah Creek and other creeks within the Project Area due to channel realignment and consequent temporary removal of some of the stream-side hydric fringe and wetlands. Water quality may also diminish due to increased sedimentation from disturbed erodible soil sections. An increase in sedimentation in these creeks may increase salinity due to the presence of saline soils in parts of the Quitchupah Creek drainage. A substantial increase in salinity could affect the salinity management of the Colorado River system.

Soil - The presence of erodible soils and soils unsuitable as material for roadbed may impact the integrity of the roadbed and could contribute sediments and increased salts into the creek.

Wetlands - Some wetlands associated with Quitchupah Creek would be filled during construction of the road. The filled wetlands would not function to filter sediments or absorb flood flows for the creek flow regime. The two proposed filled wetlands presently function as a sediment filter to preserve the water quality of the creek and as flood basins to absorb excess waters and regulate the flows in the channel. The filled wetlands would be mitigated by constructing a small wetland complex, and enhancing an existing wetland within the channel, all at the head of the creek in Convulsion Canyon. The mitigation ratio would be at least 3:1.

A 404 permit would be required from the U.S. Army Corps of Engineers (COE) to fill or impact Waters of the U.S., including wetlands; that agency would take the lead on stream crossings for this project and coordinate with the Utah State Engineers Office.

Riparian Area - Riparian zones within the Project Area and those associated with wetlands would be impacted due to construction of the road. In East Spring Canyon, approximately 1,140 feet of the existing channel would be affected by stream realignment; riparian habitat would be re-established downstream of the culvert crossing for approximately 900 feet. The loss of riparian vegetation could impact wildlife and could cause increased sedimentation in the stream. Surface disturbance could also create direct impacts to vegetation, including the potential to encourage the invasion of noxious weeds and/or exotic plants. The plant communities of the Project Area should be identified and mapped to provide data for a more specific analysis.

Wildlife - The proposed road could interfere with big game use of the winter ranges and agricultural fields through habitat fragmentation. The potential for vehicle-wildlife collisions and possible mortality may increase due to the construction of and travel on the Quitchupah Creek Road.

TES Species - The construction of the road could impact four threatened, endangered, sensitive (TES) plant species.

Range Resources – A livestock trail is needed to facilitate continued livestock movement through the canyon.

Land Use - Landowners along the proposed route are reluctant to provide rights-of-way across their ranch lands.

Visual Resources - The aesthetics and solitude of the remote canyon would be impacted by the high speed roadway and associated increased human activity. The road would dominate the immediate landscape along the route.

Recreation - All-terrain vehicle (ATV) use in the creek area would be affected by the highway by limiting access and blocking use of an existing two-track trail. The remoteness and solitude of the canyon would be eliminated due to easy public access along the highway.

Cultural Resources - Several known historic and prehistoric sites in the narrow canyon could not be avoided by the proposed road. Known rock art sites would be indirectly impacted through ease of public access, coal truck emissions/pollution, and possibly vibrations.

Native American Religious Concerns - During the Native American consultation, the Paiute Tribe stated the entire Convulsion Canyon/Quitchupah Creek area is considered sacred and traditional. The Hopi, who claim affiliation with the Fremont culture, requested that cultural sites remain undisturbed. The Utes requested a one-mile buffer around the rock art sites, and no disturbance of known sites.

Transportation - The proposed road would reduce the round-trip coal transport by 50 miles and remove coal transport traffic from portions of Interstate 70 (I-70) and SR-10.

Socioeconomic - Emery County has questioned the need for the road and the benefits for their residents. The shorter route would greatly reduce SUFCO Mine transport costs and save energy (fuel). The agricultural community could be impacted by the loss of livestock and timing restrictions.

ALTERNATIVES

Based on the issues, four alternatives were considered for analysis in this EIS, as follows:

Alternative A No Action Alternative (**Environmentally Preferred Alternative**)
Alternative B Quitchupah Creek Road Alignment (**Proposed Action**)
Alternative C Alternate Junction with SR-10 and Alternate Design of Quitchupah Route
Alternative D Water Hollow Road Alignment (**Preferred Alternative**)

ALTERNATIVE A - NO ACTION (ENVIRONMENTALLY PREFERRED ALTERNATIVE)

Under the No Action Alternative, coal would continue to be transported from the SUFCO Mine to the Hunter Power Plant and railroad loadouts near Price, Utah via the Acord Lakes Road (Sevier County Road #010), I-70, and SR-10. In 2002, two million tons of coal was transported to the Hunter Power Plant, which equates to 52,631 truck trips. An additional one million tons were transported to the railroad loadouts in Carbon County for shipment to eastern customers. Currently and into the foreseeable future, 4.7 million tons of coal per year would be transported west to Levan Loadout.

Under this Alternative, the environment in Quitchupah Creek would remain unchanged in the foreseeable future.

ALTERNATIVE B - QUITCHUPAH CREEK ROAD (THE PROPOSED ACTION)

The construction of the proposed road would upgrade and realign an existing 9.15 mile long road along Quitchupah Creek, connecting Acord Lakes Road (Sevier County Road #010) in Sevier County with SR-10 in Emery County. The proposed 8.9 mile road is the shortest route of the three project alternatives. It

would reduce the round-trip transport of coal trucks by 55.4 miles as compared to the current Acord Lakes Road route, resulting in a savings of up to 1.6 million gallons of fuel annually.

The route would cross 3.7 miles of private land requiring the acquisition of rights-of-way from six different land owners. At the junction with SR-10, turn lanes and an acceleration lane would need to be added to the highway, which would require widening of the bridge over Quitchupah Creek. Loaded transport trucks would ascend a steep grade on SR-10 that would reduce the speed of northbound traffic (**Figure 1-2**).

No facilities would be built in association with this alignment. There would be temporary impacts to approximately 92.3 acres. Approximately 45 acres would be permanently impacted at the end of construction. The alignment would include 18 primary crossings. Applicant committed measures would include wetland mitigation, construction of a cattle trail, and riparian fencing.

ALTERNATIVE C – ALTERNATE JUNCTION WITH SR-10 AND ALTERNATE DESIGN

This alternate route would detour from the proposed route in the southwest quarter of Section 13, Township 22 South, Range 5 East and proceed east to the junction with SR-10 in the southwest corner of Section 17, Township 22 South, Range 6 East (approximately 1.5 miles north of the proposed Alternative B junction with SR-10). This road would be slightly longer in length (9.1 miles) than the proposed road (Alternative B) but it would bypass the grade on SR-10 that now slows loaded coal trucks, which potentially reduces the speed of other northbound traffic on SR-10. The average grade for this Alternative is 0.6 percent for loaded coal trucks. The loaded coal trucks on Alternative C would access SR-10 at a point 270 feet higher in elevation than the proposed junction near Quitchupah Creek. At the Alternative C junction, the grade for northbound loaded coal trucks on SR-10 is only 0.07 percent. This route would require less elevation change along the travel route and allow loaded coal trucks to utilize their momentum gained while descending Quitchupah Creek Road to ascend the 0.6 percent grade. The route would cross lower Link Canyon channel, as does the proposed route. The total new surface disturbance would be 96.3 acres (**Figure 1-2**).

This Alternate Design would incorporate features to the proposed Quitchupah Creek Road to facilitate livestock movements within allotments, and also facilitate wildlife movements to and from the winter range. The wildlife/livestock facilities would include fencing the road to keep the livestock off the roadway during the grazing season. Approximately 16.3 miles of fence would be installed under this alternate design. It is also proposed that five underpasses approximately 20 feet wide and 70 feet long would be incorporated into this build alternative to facilitate wildlife/livestock access to both sides of the fenced road for grazing purposes. The underpasses would also provide access to Quitchupah Creek, the only watering source in the associated allotments.

Fencing, underpasses, and 1.5 miles of designated livestock trail would allow trailing of livestock along portions of the proposed Quitchupah Creek Road. The alignment would include 22 primary crossings. Applicant committed measures would be the same as for Alternative B.

This road alternative would reduce the coal haul round-trip transport distance by 58.0 miles, as compared to the current Acord Lakes Road route.

ALTERNATIVE D - WATER HOLLOW ROAD ALIGNMENT (THE PREFERRED ALTERNATIVE)

Water Hollow is a large northeast-southwest trending drainage that cuts through Old Woman Plateau on the Fishlake National Forest. The Water Hollow Road would utilize the Quitchupah Creek Road Alignment for 2.0 miles of the westernmost portion of its alignment. At this point, it crosses Quitchupah

Creek and follows to the south of this drainage to Water Hollow. This Alternative then continues in an easterly direction to Water Hollow Benches where it then turns south to the Saleratus Benches. From Saleratus Benches, the Water Hollow Road Alternative then turns north and east to connect with SR-10 (**Figure 1-2**).

The Water Hollow Road Alternative alignment heads at about 7,550 feet above mean sea level (AMSL). The proposed road alignment is 11.25 miles long and drops 1,430 feet in elevation for an average grade of 2.5 percent. The descent into Water Hollow from Acord Lakes Road has an average grade of four percent, and the ascent out of Water Hollow onto Water Hollow Bench is seven percent. This alignment crosses several perennial and ephemeral tributary drainages, for a total of 20 primary crossings. The acreage of new surface disturbance for the Water Hollow Road would be 146.3 acres. In addition to the applicant committed measures described under Alternatives B and C, maintenance of existing road, increased fencing, and seeding rangeland would also be done.

This road alternative would reduce the coal haul round-trip transport distance by 46.7 miles, as compared to the current Acord Lakes Road route.

SUMMARY OF ENVIRONMENTAL IMPACTS

Table 2.7-1 at the end of Chapter 2.0 Alternatives provides a detailed comparison of all impacts.

IMPACTS COMMON TO ALL ALTERNATIVES

Common to all of the alternatives, including the No Action Alternative, is the contract commitment by SUFCO Mine for delivery of coal to the Hunter Power Plant near Castledale. One million tons of coal delivered to Hunter Power Plant in 2001 resulted in 105 loads per day traveling east on existing roads. Two and one half million tons of coal delivered in 2002 resulted in 262 loads per day; the maximum transport of 4.5 million tons of coal to Hunter Power Plant would result in 474 loads per day. Coal truck traffic, wear on the roads, and noise levels on SR-10, and in the roadside communities would continue regardless of which Alternative is selected. The continued delivery of coal to the Hunter Power Plant would result in a positive economic effect for Emery County. The coal would provide an economic benefit to Sevier, Emery, and Carbon Counties.

IMPACTS COMMON TO THE BUILD ALTERNATIVES B, C, AND D

The selection of one of the build alternatives would shift the east-bound truck traffic from portions of I-70 and SR-10 to the new route and also shift noise and human activity to Quitchupah Creek.

The proposed routes for the three build alternatives (B, C, D) junction with Acord Lakes Road (Sevier County Road #010) and traverse east for two miles on a common route dictated by constraints of Convulsion Canyon, the upper canyon of Quitchupah Creek. Within this area there would be impacts to jurisdictional wetlands (JW), riparian zones, and the upper portion of the livestock trail.

Water Quality - Improvements in roadway design for the Quitchupah Creek Road, including: implementation of BMPs for runoff control, erosion/sedimentation control, and maintenance; and distancing the road from the creek where possible in combination with the environmental protection measures, would help to reduce the potential for increasing the amount of total dissolved solids in Quitchupah Creek above current levels, though there would be some localized areas of increased erosion due to increased disturbance.

Wildlife - Wildlife-vehicle collisions would increase along with increased human presence within the Quitchupah Creek drainage and adjacent remote terrains. Habitat fragmentation would also occur. Wildlife-vehicle collisions would be reduced regionally due to decreased coal transport mileage. Fencing and wildlife crossings would help reduce the potential for wildlife-vehicle collisions.

Land Use - Construction and operation of the proposed roadway would change the land use characteristics of the area from a historically remote and rural area to one of increased human activity (i.e., significantly increasing commercial truck traffic) and accessibility.

Visual Resources - The Quitchupah Creek Road under any build alternative would be more visible than the existing two-track roadway and there would be a change in quietness and rural character of area. The proposed road, once constructed, would meet the objectives of both the USFS and BLM visual resource management classes.

Cultural Resources - Historic and prehistoric cultural sites would be directly impacted from the construction of the proposed road under Alternatives B and C. Historic and prehistoric sites, including the rock art sites, may also be indirectly impacted by the increased public visitation of the area as a result of improved public accessibility.

Native American Religious Concerns - Consultation to date by the USFS and BLM has indicated that portions of the area have been historically used by Native Americans and have cultural relevance. The tranquility and solitude of the Quitchupah Creek canyon area, which contains sacred values, would be impacted.

Socioeconomics - Cattle ranchers would have a designated cattle trail for approximately 1.5 miles where the terrain restricts free trailing. There would likely be minimal losses due to livestock-vehicle collision. Mine life would be extended by 3 to 10 years (depending upon alternative) due to the increase in economic feasibility with reduced transportation costs.

Transportation - At the junction with SR-10, turn lanes would need to be added to the highway.

ENVIRONMENTAL PROTECTION MEASURES

The following is a discussion of applicant and agency-committed actions and how they relate to the build Alternatives.

ALTERNATIVES B & C

The applicant committed action of eliminating livestock grazing on 4.7 miles of stream in Quitchupah Creek and in Convulsion Canyon would protect the riparian zone and allow the riparian community to colonize bare sites and mature. A fully vegetated riparian community protects the streambanks, shades the water surface reducing evaporation, provides nesting habitat and feeding areas for many species of birds, provides protective cover for mammals and insects, and filters sheet flow from adjacent uplands to reduce sedimentation to the stream maintaining water quality and aquatic habitats.

The project design also provides measures to eliminate or reduce impacts to wildlife where feasible by constructing various mitigation features. The impacted wetlands would be replaced at a minimum of a 3:1 ratio onsite to maintain habitat for wildlife, and the filled perennial stream channels would be fully replaced with new adjacent realigned channels to maintain the riparian zone and aquatic habitat of the stream. An air bath after loading would be required for the coal trucks traveling on the proposed road in order for the trucks to be free of exterior coal debris. Wildlife underpasses constructed under Alternative

C would allow wildlife to pass under the road to avoid the coal truck traffic, and animal carcasses would be removed from the road daily (see **Section 2.2**) to reduce scavenging on the proposed road. The reclamation of disturbed areas not required for operation of the proposed road would be completed as well as unused portions of the existing road/two-track to partially replace the upland habitats lost to road construction.

The restoration of the riparian zone, and the implementation of an improved road drainage system for the new road would help to reduce effects on downstream water quality. In summary, all the riparian habitats would be replaced or restored as well as all the upland habitats, except that required for operation of the road.

ALTERNATIVE D

The applicant committed action of eliminating livestock grazing on 4.7 miles of stream in Quitchupah Creek and in Convulsion Canyon would protect the riparian zone and allow the riparian community to colonize bare sites and mature. A fully vegetated riparian community protects the streambanks, shades the water surface thereby reducing evaporation, provides nesting habitat and feeding areas for many species of birds, provides protective cover for mammals and insects, and filters sheet flow from adjacent uplands to reduce sedimentation to the stream which maintains water quality and aquatic habitats.

The project design also provides measures to eliminate or reduce impacts to wildlife where feasible by constructing various mitigation features. The impacted wetlands would be replaced at least a 3:1 ratio onsite to maintain critical habitat for wildlife, and the filled perennial stream channels would be fully replaced with new adjacent realigned channels to maintain the riparian zone and aquatic habitat of the stream. The coal trucks traveling on the proposed road would be required, as a performance standard, to be free of exterior coal debris that may become roadside waste and potentially affect water quality in adjacent streams. Bridges would allow wildlife to pass under the road to avoid the coal truck traffic and allow big game movement, and animal carcasses would be removed from the road daily to reduce scavenging on the proposed road.

The reclamation of disturbed areas not required for operation of the proposed road would partially replace the upland habitats lost to road construction.

The restoration of the riparian zone, and implementation of an improved road drainage system would help to minimize downstream water quality impacts. Installing water bars on the existing road, and maintaining those features, would help to reduce some of the ongoing impacts to water quality from the existing road.

In summary, all the critical wildlife habitats would be replaced or restored as well as all the upland habitats except those that are required for operation of the road.

IMPACTS THAT VARY PER ALTERNATIVE B, C, AND D

ALTERNATIVE B - QUITCHUPAH CREEK ROAD

The Quitchupah Creek Road, Alternative B, is the shortest route of the three project alternatives, measuring 8.9 miles in length. Under this Alternative, the improved drainage control design and culverted crossings of the creek could help to reduce sedimentation to the creek as now experienced on the unimproved road that currently has uncontrolled drainage and erosion problems. Forty percent of the route would be in erodible soils adjacent to the creek.

Biological clearance prior to roadway construction would allow for mitigating actions to reduce impacts to threatened, endangered, and sensitive (TES) species habitat. The construction of the road would remove four animal unit months (AUMs) of forage from the grazing allotments and 1.4 acres of cultivated pasture.

There are known cultural resource sites located where the terrain restricts road alignment; these would be impacted by the road construction. There would be the potential for indirect impacts to cultural resource and rock art sites due to accessibility.

The route would cross 3.7 miles of private land requiring the acquisition of rights-of-way from six different landowners. The junction with SR-10 would require widening of the bridge over Quitchupah Creek. Loaded coal trucks must also ascend a steep grade on SR-10 that would reduce the speed of northbound traffic, necessitating the construction of a northbound acceleration lane.

The road would reduce the round-trip coal transport route by 55.4 miles and result in a savings of up to 1.4 million gallons of fuel annually. Economic benefits would accrue to the SUFCO Mine from the cost savings and to the economy of Sevier County due to the increased profitability of the mine.

ALTERNATIVE C - ALTERNATE JUNCTION WITH SR-10 AND ALTERNATE DESIGN

This route is identical to the proposed Quitchupah Creek Road except for the inclusion of additional fencing and underpasses to facilitate wildlife/livestock use of the forage adjacent to the road and for movement of livestock along the creek. Also, the last two miles of this route deviates 1.5 miles to the north to junction with SR-10 above the grade that impedes northbound traffic due to the slowing of the truck traffic.

Impacts are similar to those summarized under Alternative B, except the road would be slightly longer at 9.1 miles. However, it would save 58 miles on the round-trip travel route, as compared to the current Acord Lakes Road route since it ends up 1.5 miles further north on SR-10; saving up to 1.5 million gallons of fuel annually. The route would also be more efficient for the truck transport because the loaded coal trucks would use the momentum gained descending Quitchupah Creek to ascend the 0.6 percent maximum grade and junction with SR-10 at a level grade.

This road alternative has the potential to impact cultural sites along Quitchupah Creek, as described under Alternative B. In addition, implementation of Alternative C has the potential to impact cultural sites located at the Link Canyon crossing.

The road would cross 2.9 miles of private land, requiring the acquisition of rights-of-way from two landowners.

ALTERNATIVE D - WATER HOLLOW ALIGNMENT

The Alternative D road deviates from the proposed Quitchupah Creek Road after exiting Convulsion Canyon by traversing Water Hollow, a perennial stream. It then crosses Water Hollow and Saleratus benches before descending to junction with SR-10 south of Quitchupah Creek. The Alternative D road traverses steeply incised terrain that would require extensive cut and fill construction.

Because the alternative diverges from Quitchupah Creek, it would result in the construction of a new roadway alignment, 11.25 miles in length. Under this scenario, the existing Quitchupah Creek two-track road would remain open up to the Forest boundary. The two-track road would continue to contribute sediments into the Creek, however water bars would be constructed to help control drainage and erosion.

The existing Water Hollow and Saleratus benches provide big game winter range. Under this scenario, the construction of a road across the benches would disturb big game habitat and movement along the road corridor and would greatly increase the potential for wildlife-vehicle collisions. Elk crossings installed in several drainages would help to reduce this potential. The potential to impact habitat for sensitive plant species is low.

Livestock-vehicle collisions would be minimized on the proposed Water Hollow Alignment by fencing. The grazing allotment would be managed as a two pasture allotment. Water would be hauled to both pastures of the allotment on the benches to reduce trailing to water and provide for better distribution of livestock in the allotment. A cattle trail would be constructed along the westernmost 1.5 miles, as it would be for Alternatives B and C.

The road would cross 0.53 miles of private land and require a right-of-way from one landowner. The route would avoid all eligible cultural sites and would not be near known rock art sites.

The Water Hollow Alternative would result in the construction of a slightly longer road than the other alternatives and would require loaded coal trucks to ascend steep 7 percent grades. Under this Alternative, the round-trip coal haul transport distance would be shortened by 46.7 miles, as compared to the current Acord Lakes route. The resulting savings on fuel would be approximately 1.4 million gallons annually. The junction with SR-10 would be on level grade with good sight distance.

Chapter 1

Introduction

1.0 INTRODUCTION

This Environmental Impact Statement (EIS) considers a single proposed Federal action, with alternatives, and is a joint document between the United States Forest Service (USFS), Fishlake National Forest (Lead Agency) and the Bureau of Land Management (BLM), Richfield Field Office (Cooperating Agency). This National Environmental Policy Act (NEPA) analysis will consider the potential environmental consequences associated with implementing the Proposed Action and Alternatives, as described below.

The Sevier County SSD has submitted right-of-way applications to the USFS and the BLM for consideration of the construction of the Quitchupah Creek Road, a public road. The Quitchupah Creek Road would be generally located between the Acord Lakes Road (Sevier County Road #010) and a junction with State Route 10 (SR-10) (**Figure 1-1**). Lands along the proposed route are administered by the USFS, the BLM, and Utah State School and Institutional Trust Lands Administration (SITLA), all headquartered in Richfield, as well as private interests.

The Proposed Action involves consideration of Sevier County Special Service District (SSD) Number 1's right-of-way applications for construction of the Quitchupah Creek Road. NEPA requires that the environmental analysis compare alternatives to satisfy the identified purpose and need of the Proposed Action, to disclose environmental effects, analyze opportunities, and to resolve issues. The resolution of issues related to this project has been an ongoing and lengthy process. After initial public scoping in 1999-2000 (see **Section 1.6**), the Quitchupah Creek Road Draft EIS was circulated for public review and comment at the end of November 2001 (See Chapter 6 – Public Comments and Responses). Although the comment period was from December 1, 2001 through February 15, 2002, comments received after that time were also reviewed and included. Since that time, the EIS has been complicated by a changing BLM and FS staff of resource specialists and managers (due to transfers and retirement), and additional required studies for specific resources, such as the Ethnography Study conducted in 2004. This Final EIS takes into account a plethora of public and agency concerns, issues and views, as well as adapting to changes in land use policy and guidelines.

Decisions to be made, authorizing actions, and a description of the Federal right-of-way application process are further discussed in the following sections.

1.1 Purpose and Need

The purpose of the Federal action is to respond to a request from Sevier County SSD for granting a right-of-way to construct a public road. Southern Utah Fuel Company Mine (SUFCO Mine) would then be a toll user of this public road. Due to the SUFCO Mine location in rugged terrain, and the distance to railheads and loadouts, SUFCO Mine relies on truck transport for all of its coal shipments. The need for the road project is to ensure the competitive productivity of the SUFCO Mine, as a source of economic stability for Sevier County, a potential source of additional income and revenue for Emery County, and a source of high quality coal for electrical power generating plants in eastern Utah and the Midwest.

The recently signed National Energy Policy Act 2005 seeks to provide reliable, affordable energy to our nation's consumers, and to lessen the impact on Americans of energy price volatility and supply uncertainty. The demand for electricity in the U.S. is projected to increase by 45% over the next 20 years (National Energy Policy website). Access to coal reserves via any of the road alternatives proposed in this document would reduce fuel waste by shortening the transport routes, and would help to maintain supplies of diverse and traditional forms of energy within the U.S. (domestic oil, gas and coal). The National Energy Policy promotes such improvements in the productive and efficient use of energy.

The SUFCO Mine, operated by Canyon Fuel Company, LLC was Utah's largest coal producer in 2004, and produced a near-record high of 6.87 million tons. SUFCO and dependent trucking companies provided 20 percent of the non-farm employment and 28 percent of the personal income in Sevier County in 2002. The mine is an important component of local economies. The presence and stability of the SUFCO Mine, and the families who support it, guarantee a continued demand in both Sevier and Emery counties for bank loans, mortgages, utilities, and other goods and services. This adds to the economic stability of both counties.

Profitability of the SUFCO Mine over time ensures that funds are available for further exploration, and maintains the SUFCO Mine's level of production and competitive edge in the marketplace. The added profits, due to reduced transport costs, substantially lower risk of failure for the SUFCO Mine, and provide a buffer to economic consequences for Sevier County and to a lesser extent Emery County.

As companies mine toward the edge of coal deposits, mining is usually stopped because the mining conditions result in the cost of coal production exceeding the market price of coal. The decrease in transportation costs would allow some of the coal that otherwise would not be recovered due to excessive mining costs to be mined profitably without an increase in the selling price. Effective mining of the marginal portions of the SUFCO reserves could result in recovery of an additional 11 to 43.9 million tons of coal if the road were authorized.

Under the Mineral Leasing Act of 1920, regulations provide that any resource recovery and protection plan must achieve maximum economic recovery of the coal resources.

The purpose of this EIS is to evaluate the potential environmental, social, and economic consequences of granting rights-of-way to construct a public road across Federal and other lands.

1.2 General Location and Description of Proposed Road

Sevier County SSD has proposed the upgrade and realignment of an existing 9.15 mile road along Quitchupah Creek, to connect the Acord Lakes Road (Sevier County Road #010) in Sevier County with SR-10 in Emery County. The proposed 8.9-mile Quitchupah Creek Road (Alternative B) would intersect SR-10 in the N½ of Section 30, Township 22 South, Range 6 East, Salt Lake Base Meridian (SLBM). Continuing to the northwest into Sevier County, and then westward, the road would generally follow an existing trail along Quitchupah Creek, into Convulsion Canyon, where it would connect with the paved Acord Lakes Road in SW¼ of Section 11, Township 22 South, Range 4 East, SLBM. **Figure 1-1** presents the project's regional location. The alignments considered for Quitchupah Creek Road are presented in **Figure 1-2**. **Figure 1-3** presents the current transportation route in comparison with the Proposed Action and Alternative routes. Legal descriptions of each of the project components are given in **Appendix A**.

The proposed 8.9 mile road (Alternative B) would be a 28-foot wide paved surface, with an operational right-of-way of 66 feet. Several pullouts would be provided at various locations (see **Appendix B - Strip Maps**). The construction corridor would vary from 50 feet to 60 feet on the flatter ground (eastern end) to an average 100 feet for the remainder of the road. The road would be designed for a speed of 40 miles per hour, constructed according to the standards of the American Association of State Highway and Transportation Officials (AASHTO) and the current Utah Department of Transportation (UDOT) Standard Specifications for Road and Bridge Construction.

No facilities would be built in association with this alignment. The total new surface disturbance under this Alternative would be 92.3 acres. Once reclamation is complete, the net loss of vegetation would be about 45 acres that are dedicated to paved road surface/shoulder.

The Project Area includes all the terrain that would be affected by the proposed road alternatives (B, C, and D). The proposed Quitchupah Creek Road alignment (Alternative B) is generally east-west. Within the span, an approximately 1,600-foot change in elevation occurs. The proposed road junctions with SR-10, a north-south highway route that extends from Interstate 70 (I-70) on the south to U.S. Highway 6 on the north. The Project Area contains a diverse set of climatic, geologic, physiographic, and ecosystem characteristics.

REGIONAL CHARACTERISTICS

From a regional perspective, the Project Area is predominantly located within the Basin and Range - Colorado Plateau Transition Physiographic Province (Stokes, 1986); it is marked by gently rolling or near-flat surfaces, through which drainages have dissected the otherwise gentle topography. The drainages typically form steep canyons cut through sedimentary rock. Adjacent to the High Plateaus, the eastern edge of the Project Area is located within the Mancos Shale Lowlands Subsection of the Canyonlands Section of the Colorado Plateau Province. Topography in this Subsection is influenced by the weak sedimentary rock at the eastern base of the High Plateaus.

The majority of the Project Area can be classified as a Steppeland climate, according to the modified Köppen System (Weber State College, 1981). Steppelands are located between the true desert areas and the higher mountains. They are generally semi-arid, with annual evaporation exceeding annual precipitation; a summer moisture deficit is typical. The western-most edge of the Project Area borders on Undifferentiated Highlands, according to the modified Köppen System, and has a less significant moisture deficit.

The regional physiography and climate influence vegetation characteristics. Located within the Upper Sonoran and Transition Vegetation Zones, the area contains a variety of vegetative types and habitats ranging from forest to brush-dominated communities to sparse small desert shrub lands. The presence of water further modifies these vegetative types, and localized areas of riparian and wetland communities are also found.

LOCAL CHARACTERISTICS

At the upper, western end of the proposed road, the Project Area is still in the southern part of the north-south trending Wasatch Plateau. Following along a major dissection in the Plateau, the Convulsion Canyon/Quitchupah Creek drainage traverses and descends the east side of the Plateau and continues out of canyon confines. The Water Hollow Benches are south of Quitchupah Creek. They are highly dissected with numerous ephemeral drainages that cut through the bench surfaces. The eastern portion of the Project Area crosses shale flats to the alignments' terminus at SR-10. It is here, as each alignment drops from the high plateau country to the flatland, where Project Area characteristics vary significantly.

As mentioned above, the Project Area is associated with a canyon complex that dissects the plateau surface. The proposed Quitchupah Creek Road alignment traverses, and cuts through, numerous sedimentary geologic formations as it makes its way eastward across the plateau. These formations include the Mesaverde Group and the Mancos Shale Group.

The horizontally bedded nature of these formations, as well as textural and lithologic differences in the formations, is evident from the steep canyon walls, escarpments, and badlands visible in the Project Area. Flat ledges, vertical cliffs, and sloping erosional and depositional surfaces all contribute to the varied relief in the Project Area. Faulting and fracturing also affect the local topography, and in fact, the location of Quitchupah Canyon and its tributaries are likely dictated by the geologic structure.

The Project Area is located in the Quitchupah Creek watershed, which is part of the Colorado River system. At its upper end, where it is known as Convulsion Canyon, the watershed collects flows from small tributaries. Water Hollow, the North Fork of Quitchupah Creek, and Link Canyon Wash are three of the larger tributary channels that drain toward the Project Area. The Water Hollow Benches area to the south of Quitchupah Creek has numerous ephemeral drainages that head primarily southeast toward the creek. These drainages and tributaries have had a major influence on the area's topography as they cut down through, and laterally across, the valley bottom sediments.

The climate and physiography within the majority of the Project Area has generally not been conducive to extensive soil development; vegetation is sparse over much of the Project Area. However, at the upper, western-most end, where climate and topography are more amenable, soils with defined horizons and an organic component have developed over time and have not eroded away. They support pine, aspen, scrub oak, and mountain mahogany, as well as significant understory vegetation.

Over most of the rest of the area, significant exposed bedrock occurs adjacent to the proposed and alternate road alignments. Many other areas where soil development has occurred have been subject to extensive erosion by wind and water. These areas support only sparse vegetation, ranging from scattered pinyon and juniper woodlands with sparse understory to low density desert brush lands where shadscale and other salt bush communities dominate. The former floodplain (now terrace) of Quitchupah Creek contains well-developed soils that support sagebrush/grass vegetation communities. The perennially flowing stream corridors of Quitchupah and Water Hollow creeks support a varying mixture of riparian species.

In addition to the function of the Project Area in filling various habitat niches for wildlife, livestock grazing has occurred within the bounds of the Project Area for many years. These land uses are the predominant ones within the sparsely populated region.

1.3 Relationship to USFS/BLM Policies, Plans, and Programs

The San Rafael Resource Management Plan (RMP) (1991) and the Forest Planning Unit Management Framework Plan (FPU MFP) (1982) guide the management of BLM public lands in the area. Under the FPU MFP, decisions on right-of-way applications are made according to analysis of each application. The USDA Fishlake National Forest Land and Resource Management Plan (LRMP) (1986) guides resource management activities for the Fishlake National Forest lands including the western portion of the Project Area. These management plans are currently in the revision process, but remain in effect until that process is finalized. However, while the plans are being revised the actions the agencies can take are limited by 40 CFR 1506.1. Specifically, during the NEPA process, "Until an agency issues a record of decision as provided in 1505.2, no action concerning the proposal shall be taken which would: 1) have an adverse environmental impact; or 2) limit the choice of reasonable alternatives." The BLM Richfield Field Office RMP is expected to be finalized in the spring of 2006 and will provide future direction for managing the public lands in Sevier County and additional areas. The BLM Travel Plan, due out in 2006 after the release of the final RMP, will designate a system of trails for off-highway vehicles (OHVs). The Richfield RMP will designate areas where proposed projects, such as OHV sites, are acceptable on BLM land.

The planning process for the Dixie and Fishlake National Forests (NF) Forest Plan Revision is ongoing and has included numerous public meetings and workshops. The Draft Management Direction Package for the Fishlake National Forest was released April 28, 2005. The Fishlake NF LRMP is expected to be finalized the end of 2006.

The current management prescription for the Forest lands in the Project Area emphasizes livestock grazing via intensive management level D for range resources (See **Section 3.8**, Range Resources). Also included in the Project Area is *Area Travel Restriction C*, which denotes lands closed year-around to all motorized vehicle travel. Travel Area C includes The Cove on Old Woman Plateau and a trail in Water Hollow. However, road system expansion to accommodate mineral activities is allowed. The Fishlake National Forest OHV Route Designation Plan is scheduled to be implemented in the summer of 2006. This Plan will designate roads, trails, and open areas for the use of OHVs. The rules and designations in the Plan will close the Forest to off-route motorized cross-country travel by OHVs, except in the designated areas. This plan will improve management and enforcement of OHV use on Forest land.

There are no designated BLM Areas of Critical Environmental Concern (ACECs) in or near the Project Area. However, the Quitchupah Creek – Trough Hollow ACEC has been nominated under the current land use planning effort for the BLM's Richfield Field Office. The ACEC would include Quitchupah Creek drainage, Link Canyon, and Trough Hollow, and would involve the majority of the EIS Project Area, excepting the Water Hollow and Saleratus benches. Further, Quitchupah Creek, from the Fishlake National Forest boundary to the Sevier/Emery county line (crossing 1.3 miles of BLM land) was determined eligible for possible designation as a Wild and Scenic River during the initial phase of Richfield BLM's land use planning update process.

This EIS tiers to the FEISs of these Land Use Plans, which are available for review at the USFS and BLM offices, both located in Richfield, Utah. See also **Section 3.9** regarding compliance with Emery County and Sevier County planning documents.

1.4 Decisions to be made By Responsible Officials

This EIS addresses the need for Federal decisions approving a right-of-way application, or an alternative, which would cross Federal lands. The Forest Supervisor for the Fishlake National Forest and the Field Manager for the Richfield Field Office of the BLM are the responsible officials for the EIS. They will make their respective decisions regarding the Proposed Actions after considering the comments, responses, and environmental consequences discussed in the EIS. The rationale for each agency decision will be documented in separate Records of Decision (RODs). No plan amendments would be required by either the USFS Fishlake LRMP, the BLM San Rafael RMP, or the BLM Forest Planning Unit MFP in order to implement the Proposed Action or Alternatives.

1.5 Authorizing Actions

In addition to this EIS, approval of the Proposed Action or an Alternative would require authorizing actions from other Federal, State, or local agencies with jurisdiction over the project. Authorizing actions include rights-of-way, land use and environmental permits, and approvals. **Table 1.5-1** presents the principal authorizing actions required for the Proposed Action or an action Alternative.

Table 1.5-1 Summary of Permits and Approvals Required for the Quitchupah Creek Road Project

Permit/Approval	Granting Agency
Permits Required by the Record of Decision	
Public Road Easement issued to Sevier County*	U.S. Forest Service
Right-of-Way Grant*	Bureau of Land Management
Temporary Use Permit*	Bureau of Land Management
Farmland Protection Policy Act Farmland Conversion Impact Rating*	Natural Resources Conservation Service
Clean Water Act Section 404 Permit*	U.S. Army Corps of Engineers
Stream Alteration Permit (may be covered under 404 permit above)	Utah Division of Water Rights Stream Alteration
Section 7 Consultation	U.S. Fish and Wildlife Service
Cultural Resource Concurrence	State Historic Preservation Office
Permits Required for Construction of Road	
Fugitive Dust Control Plan	Utah Department of Environmental Quality
Encroachment Permit	Utah Department of Transportation
Easement Application	Utah School and Institutional Trust Lands Administration
Right-of-Way Acquisition	Private Landowners
National Pollution Discharge Elimination System Permit for Storm Water	Utah Department of Environmental Quality, Division of Water Quality
Surface Disturbance Permit, Air Quality	Utah Department of Environmental Quality, Division of Air Quality
Cultural Resource Concurrence (possibly Research Design/Memorandum of Agreement)	State Historic Preservation Office
Construction Permit	Emery and Sevier Counties

*Federal permit, or other entitlement that must be obtained in implementing the proposal. (40 CFR 1502.25(b))
CFR=Code of Federal Regulations.

1.6 Issues

PUBLIC INVOLVEMENT PROCESS

Public involvement is an important part of the environmental analysis process. The Public Involvement Plan describes the methods and techniques that will be used to involve the public in the environmental analysis. It allows the public to participate actively in the NEPA process and to communicate their concerns regarding the Proposed Action. In addition, involvement of local, State, and other Federal agencies helps these entities to anticipate the effects and benefits that could occur from the project, then make necessary plans and changes in public policy.

The USFS and BLM initiated public scoping for the Quitchupah Creek Road Project on January 15, 1999 with the intent of preparing an EA. Informal meetings were held in Emery County, including a field meeting on March 30, 1999. Other meetings including the Quitchupah Grazing Association Meeting (January 27, 1999) and the Emery County Public Lands Council Meeting (June 8, 1999) were attended by agency and consultant representatives. Due to the level of public concern for the proposed project, and the issues identified during the scoping process, the USFS and the BLM determined that the proposed project warranted preparation of an EIS. A Notice of Intent (NOI) for the Quitchupah Creek Road EIS was published in the Federal Register on July 1, 1999. The legal notice, Request for Comments, was published in the *Richfield Reaper* July 14, 1999; *Emery County Progress* July 13, 1999; *Salt Lake Tribune* and *Deseret News* July 15, 1999.

A public mailing list was compiled and 160 letters were sent to interested individuals, agencies, and groups. Public meetings were held as scheduled in Castle Dale on July 21, 1999 at the Museum of the San Rafael, and in Richfield on July 22, 1999 at the Quality Inn Center. Comment forms were available at the meetings. Over 30 people attended the Castle Dale meeting and 23 people signed in at the Richfield meeting. A complete summary of the public participation is available in the Public Involvement Plan on file at the USFS Fishlake National Forest Office and the BLM Richfield Field Office.

The following official site tours were conducted in Quitchupah Canyon:

June 4, 1999	Representatives of the Paiute Indian Tribe of Utah
June 30, 1999	Agency and Sevier County SSD Representatives
July 15, 1999	Concerned Individuals of Emery County
August 6, 1999	Representatives of the Koosharem Band of the Paiute Indian Tribe of Utah
March 30, 2000	Representatives of the Uinta and Ouray Ute Indian Tribe of Utah
October 18, 2000	Representatives of the Koosharem Band of the Paiute Indian Tribe of Utah
August 22, 2002	Ranchers
June 3, 2003	BLM, USFS, and BLM State Director
August 28, 2003	State of Utah Resource Development Coordinating Committee
September 14, 2004	Representatives of the Paiute Indian Tribe of Utah

Rock art groups and Historical Society members are familiar with and have also visited the canyon.

A total of 35 comment letters or forms were received as a result of the EIS scoping effort. Approximately 25 comments had previously been received during scoping for the EA in January-February 1999. Consultation with interested parties has been on-going throughout the NEPA process, for both the EA and

the EIS. The decision was made by the USFS and BLM to carry over all comments made during the EA scoping into the official record of scoping for the EIS. Those who provided comments on the EA have maintained their standing in the EIS process.

The Quitchupah Creek Road Draft EIS was prepared and circulated for public review and comment in November 2001. Comments received on the Draft EIS were reviewed by the BLM and FS, and based upon these, additional information has been gathered and/or revisions made to the EIS. The 409 correspondences received on the Draft EIS are represented in Chapter 6 along with BLM/FS responses.

KEY ISSUES CARRIED FORWARD IN ANALYSIS

The scoping comments were examined for common themes, then combined, as appropriate, into issues. The issues were further organized by resource or issue topic. Based on internal discussions, the issues were organized by resource into key issues to be carried forward as the focus for analysis in the EIS. See the Summary of Public Scoping (JBR, January 2000) for all the comments, and the Significant Issues Document (JBR, February 2000) for details on the selection of key issues. These documents are on file at the USFS Fishlake National Forest and the BLM Richfield Field Office, Utah.

In addition to issues identified during scoping, the BLM's "Critical Elements" are reviewed in this document. These include: Air Quality, Areas of Critical Environmental Concern, Cultural Resources, Environmental Justice, Floodplains, Invasive and Non-native species, Migratory birds, Native American Religious Concerns, Prime or Unique Farmlands, Special Status Species, Wastes - Hazardous or Solid, Water Quality (surface and ground), Wetlands and Riparian zones, Wild and Scenic Rivers, and Wilderness (including BLM WSAs). The following Critical Elements are resources that are described and dismissed in Section 3.0 as not occurring in the Project Area, or not affected by the proposed project or alternatives: Air Quality, Noise, Environmental Justice, and Wastes – Hazardous or Solid. The other Critical Elements listed above are carried forward for analysis.

Key Issues and Indicators

Water Quality

Changes may occur to the water quality in Quitchupah Creek and other creeks within the Project Area due to channel realignment and consequent temporary removal of some of the stream-side hydric fringe and wetlands. Water quality may also diminish due to increased sedimentation from disturbed erodible soil. Increases in sedimentation in these creeks could increase salinity due to the presence of saline soils in some parts of the Quitchupah Creek drainage. A substantial increase in salinity could affect the salinity management of the Colorado River system.

Improvements in roadway design for the Quitchupah Creek Road, including: implementation of BMPs for runoff control, erosion/sedimentation control, and maintenance; and distancing the road from the creek where possible; along with the proposed riparian protection projects, would help to minimize increases in the amount of total dissolved solids (TDS) in Quitchupah Creek, in spite of some localized areas of increased erosion due to increased area of disturbance.

Indicators: Salinity
Sedimentation potential
Number of potential culverts/crossings

Soils

The presence of highly erodible soils and shrink-swell soils, and consequently potentially unstable soils, in the middle stretches of the Quitchupah Creek area, would increase road design and construction efforts. The proposed road alignment in the Quitchupah Creek area is located on areas of erodible soils as defined by Natural Resources Conservation Service (NRCS). The unstable soil areas will be a high maintenance item in the future as evidenced by maintenance requirements in the unstable areas within the SR-10 alignment. The disturbance of erosive soils also contributes sediments and salts to the creek. Farmland soils would be impacted under Alternatives B and C.

Indicators: Percentage of potentially unstable soils
Acres of farmland soils impacted

Vegetation

Riparian zones within the Project Area and those associated with wetlands would be impacted due to construction of the road, but would be replaced within the replacement channel in East Spring Canyon. The loss of riparian vegetation could impact wildlife and could cause increased sedimentation in the stream. Surface disturbance could also create direct impacts to vegetation, including the potential to encourage the invasion of noxious weeds and/or exotic plants. The plant communities of the Project Area should be identified and mapped to provide data for a more specific analysis. Grazing restrictions could add some protection to riparian areas.

Indicators: Potential acreage of riparian zone impacted
Potential acreage of disturbance susceptible to noxious weed invasion

Wildlife

The proposed road in the Project Area could interfere with big game use of the winter ranges on the benches and in the agricultural fields. Fencing of the road could become a barrier to big game migration and also to daily movements between the fields and cover in the nearby hills. Traffic on the roads in the form of large loaded trucks going downhill would be a hazard to all wildlife, especially big game and raptors.

Raptor nesting within the Project Area could be affected by road construction and operation. The increased activity during critical nesting periods may cause raptors to abandon active nesting sites.

Indicators: Location of big game migration corridors
Raptor nesting locations

Fisheries/Macroinvertebrates

Increased sedimentation and destabilization of Quitchupah Creek and other creeks in the Project Area could impact fisheries and aquatic macroinvertebrates in the stream. The loss of the hydric fringe and stream-side wetlands could affect the reproductive success of fish species and some macroinvertebrates species that depend on vegetation for cover and prey.

Indicators: Stream-length within Project Area
Acreage of hydric fringe/stream-side wetlands potentially impacted
Presence of fish in Quitchupah Creek
Existing macroinvertebrate populations

Threatened, Endangered, and Sensitive Species

Originally four species of threatened, endangered, or sensitive (TES) plants were suspected by BLM of occurring in the Project Area. However, additional information supplied by Lori Armstrong of the BLM and Bob Campbell of the USFS indicates that there is the potential for five species of TES plants to occur in the Project Area. Each TES plant species would need to be identified and mapped in the Project Area to ensure the road design avoids or minimizes impacts to these TES plants.

The flannelmouth sucker and the leatherside chub, State and BLM sensitive fish species, occur in the lower portion of Quitchupah Creek. The bluehead sucker has been recorded in Quitchupah Creek below the Project Area, at the confluence with Ivie Creek. The potential of increased sedimentation and stream destabilization may minimally affect these fish species. Their presence in the existing active, high TDS, flashy stream system suggests some degree of environmental tolerance.

Implementation of the proposed project requires Section 7 Consultation with the U.S. Fish and Wildlife Service (USFWS).

Indicators: Acreage of identified TES plant species habitat within Project Area
USFWS opinion

Range Resources

Livestock grazing is a traditional use of the Project Area. Livestock are wintered in the Quitchupah Creek area on the lower benches and in the agricultural fields. Livestock are moved to and from the summer range on Forest lands by trailing along Quitchupah Creek. The presence of a road would change the way livestock are trailed along the creek, causing changes in traditional ranching methods. The presence of a road would increase the need for the construction of more fences and other facilities to keep livestock off the road and allow them to trail and graze in adjacent areas of forage and water. The additional fences and facilities would increase the operating and maintenance costs for the rancher. There would also need to be parking areas for the livestock trucks and trailers along the road (pullouts are planned for East Spring Canyon). The riparian fencing on public lands would alter the way livestock are watered.

The road presents a hazard, in the form of vehicle-livestock collisions, to any livestock that enter onto the roadway. The ranchers predict an increase in livestock loss due to collisions on the road, similar to what is now being experienced on the Acord Lakes Road. There would be some loss of feed production in the agricultural fields in the Project Area due to the proposed road alignment and the removal of a small acreage of agricultural lands from production.

Indicators: AUMS potentially lost
Acreage of feed production field potentially impacted
Change in area available for livestock to water

Land Use

Land uses in the Project Area would increase. Permitted facilities in the Project Area include the drainfield for the mine wastewater system in Convulsion Canyon, the power line that follows the creek, and the irrigation system for the agricultural fields adjacent to the creek. The road would provide easier access to the area which could increase the types and intensity of land use.

Indicators: Potential land use changes

Visual Resources, Recreation, and Wilderness

The road would change the nature of the Project Area. The aesthetics of a remote but accessible creek area with several scenic canyons would change to an easily accessible area with the possibility of increased public use. There would be a loss of natural beauty and quietness along the creek. The road would be readily visible in the landscape and would attract the attention of the casual visitor, in contrast to the existing two-track road which is barely visible against the landscape. The views in the Project Area would be affected by the presence of the road. The BLM public lands are a Visual Class IV, which means that changes which dominate the landscape are permitted. The National Forest System lands Visual Quality Objective (VQO) is modification, which indicates activities within the area can be visually dominant.

Although access to the public lands and the National Forest System would be made easier with the construction of the proposed road, the recreational experience within the Project Area would be changed. The emphasis on traditional uses of ranching, hunting, trapping, and remote country adventure would change with increased tourism and public use. Those who advocate all-terrain vehicle (ATV) use have requested an ATV trail be constructed alongside the road to allow continued access into the Forest lands. The construction of a paved road on the current road alignment, where ATVs presently travel at will, would restrict access for ATV users. There would be pull-offs and parking along the paved road at several locations, such as near livestock facilities (see Appendix B- Strip Maps). Those who enjoy the peacefulness and solitude of the canyon would see a change. Hunting use may decrease due to the number and frequency of transport truck traffic causing displacement of wildlife.

Wilderness and roadless areas issues were raised but no wilderness or inventoried roadless areas are designated on the Forest or public lands near the Project Area. The Project Area is not affected by the USFS moratorium on road maintenance or construction in inventoried roadless areas.

Indicators: Visual Class and potential compliance
Potential restrictions/changes to recreational opportunities

ACECs and Wild & Scenic Rivers

Quitchupah Creek, from the Fishlake National Forest boundary to the Sevier/Emery county line (crossing 1.3 miles of BLM land) was found to be eligible for possible designation as both an ACEC and a Wild & Scenic River during the initial phase of the Richfield BLM's land use planning update process. The July 2004 evaluation of outstandingly remarkable values determined that the nominated cultural values were outstanding; the nominated ecological values were determined not outstanding. Once values of a possible ACEC or Scenic River (or segment) crossing public lands has been determined eligible, the river corridor is managed to protect the outstandingly remarkable values for which it is nominated, until a suitability determination is made.

Indicators: Potential impacts to eligible ACEC and/or Wild & Scenic Rivers values
Draft RMP determination

Cultural Resources and Paleontology

Numerous cultural resource sites are present in the Project Area and several would likely be impacted by the proposed project. Cultural affiliations include the Archaic, Fremont, and EuroAmerican cultures. Highly visible rock art sites are more susceptible to impacts as these sites become more accessible to the public. The relatively remote nature of the rock art site setting would be compromised by the presence of the paved road.

There is concern for historical sites in the Project Area. Several individuals feel that their historical and personal connection to the Quitchupah Creek area would be greatly affected by the road construction and operation. Historically the area has been used for cattle grazing/trailing. Both Emery and Sevier Counties' economic histories are based on cattle ranching and livestock in general.

Indicators: Number of known NRHP Eligible cultural resource sites potentially impacted
Number of known significant paleontological sites potentially impacted

Native American Concerns
As a result of the Native American consultation, the Paiute, Hopi, and Ute tribes have expressed concern over the proposed project. The Paiute Indian Tribe has stated that the canyon is sacred to them and the rock art sites represent traditional use of the area. The Ute Indian Tribe has expressed concern that the proposed road will lead to impacts to the rock art present in the area and request a one-mile buffer. The Hopi, who claim affiliation with the Fremont culture, have requested that no prehistoric sites be disturbed.

Indicators: Potential sacred values impacted
Potential Traditional Cultural Properties impacted
Potential sites of traditional importance impacted
Potential disturbance to rock art and other cultural resource sites

Transportation
A new rural collector road system would be developed that would link the Acord Lakes Road with SR-10, thus bypassing I-70. The proposed road would facilitate transporting coal to the east by reducing the round-trip distance by more than 50 miles. The road would also reduce the distance for coal mine service providers located in Carbon County traveling to the SUFCO Mine. Carbon County is the center for the coal mine service industry. The proposed road would be an alternate access to the SUFCO Mine providing increased mine safety. The new road would lessen coal truck traffic on a stretch of SR-10 from the I-70 junction north to the new junction near Emery. The coal truck traffic from the Quitchupah Creek area would still be routed through the town of Emery. The road would open access to alternative customers in the local area and in eastern coal markets.

There is concern regarding the location and design of the junction of the proposed Quitchupah Creek Road with SR-10. The proposed junction is adjacent to a bridge that would need to be widened to facilitate the placement of turn and acceleration/deceleration lanes. Just north of the proposed junction is an increase in the grade on Quitchupah Hill that slows northbound trucks and may interfere with the regular movement of traffic. Accelerating trucks may be slowed by the grade, consequently slowing northbound traffic on SR-10.

Reducing the coal transport round-trip east would increase the competitive balance for the SUFCO Mine with the other coal mines in Emery and Carbon Counties that are close to loadouts.

The need for the road on the basis of the round-trip transport distance for the SUFCO Mine, mine safety, and the increased access to the Acord Lakes area has been questioned by project opponents.

Indicators: Potential junction requirements
Potential distance savings

Socioeconomics
Residents of Emery County are concerned whether construction of the road would lead to increased economic benefits to Emery County, and if so, would these benefits from the proposed road outweigh perceived environmental and social impacts?

Coal mining provides economic benefits such as employment, payroll, Federal coal royalties, and tax revenues on a local and regional level. Would these economic benefits change as a result of any of the Alternatives? An economic electrical cost benefit would also accrue, in time, to the electrical energy consuming public and industry.

Indicators: Income and employment
Tax royalties

Issues Not Analyzed In Detail

The following issues identified through the public scoping process were determined to be outside the scope of the Proposed Action, did not drive alternative selection, already decided (by laws, regulations, or Land Use Plan decisions), irrelevant to the decision, or not affected by the Proposed Action or build alternatives. Therefore, these issues were not analyzed in this EIS. Issues not analyzed in detail in this EIS are summarized below; text includes statements or concerns made by the public. The rationale or justification for not analyzing these issues in detail is presented immediately following the summation of each individual issue.

Geology

The surficial geology of the Convulsion Canyon and Quitchupah Creek area would be affected by road construction mainly in areas that require blasting.

- Surface exposures of formations would be impacted by blasting and road construction, but these impacts would be confined to aesthetic ones. The nature of the canyon is one of rocky outcrops and steep, exposed slopes.

Landslide

There is a mapped landslide feature along the north side of Convulsion Canyon at the intersection of the existing Acord Lakes transport road and the jeep trail.

- The landslide is presently stable and not a threat to the Acord Lakes Road. The potential for additional landslides in the Project Area was reviewed and no recognized active landslides were identified.

Noise

The change in nature of a remote area to a readily accessible area with consistent haul truck traffic would be expected to increase the noise level, both in intensity of the noise and frequency of events. This basic change would potentially degrade the recreation experience of those seeking a remote type of recreation and could affect wildlife. The noise level from coal truck traffic in the town of Emery will increase.

- Overall, noise would increase above current natural background levels in the road corridor. Due to the remote and rural nature of the Project Area, noise receptors in the area are limited. Haul truck traffic would be consistent once established. Remote recreation experiences are available throughout this region of Utah; although noise could affect the area close to the haul road, the opportunity for remote recreation experiences in the region would be minimally affected. Initial road construction activity would make the area less desirable to wildlife. Once the road is established, big game in particular, as well as songbirds, would be expected to avoid the noise present in the road corridor. Depending upon need and forage availability, however, big game may utilize habitats alongside the road. Other wildlife are likely to become accustomed to the consistency of truck traffic noise once the road is complete. The same amount of coal will be trucked through the town of Emery whether or not this road is constructed; therefore the proposed project would not further impact noise levels in the town of Emery.

Road Costs

How do the road costs compare and what upgrades would need to be completed for the intersection with SR-10? Is the mileage saved worth the cost? The different alternatives would have different construction costs.

- The toll user would pay for road construction costs, including the intersection with SR-10. The fuel/transport savings would pay for the road within a matter of 5 to 10 years depending on alternative chosen.

Range Resources

Trucking/ Cattle guards

Trucking cattle is not a viable option due to the potential for cow and calf deaths resulting from trampling and also for the potential of cows abandoning calves.

- Trucking cattle is a commonly used method in Utah to move livestock to and from summer ranges, with negligible adverse results.
- Trucking is not necessary since designated livestock trail would be constructed and trailing would be allowed.

Cattle guards are not practical under the use of heavy coal trucks.

- Cattle guard structures are utilized on other coal transport roads and would be designed for use with heavy trucks.

Socioeconomics

Unions

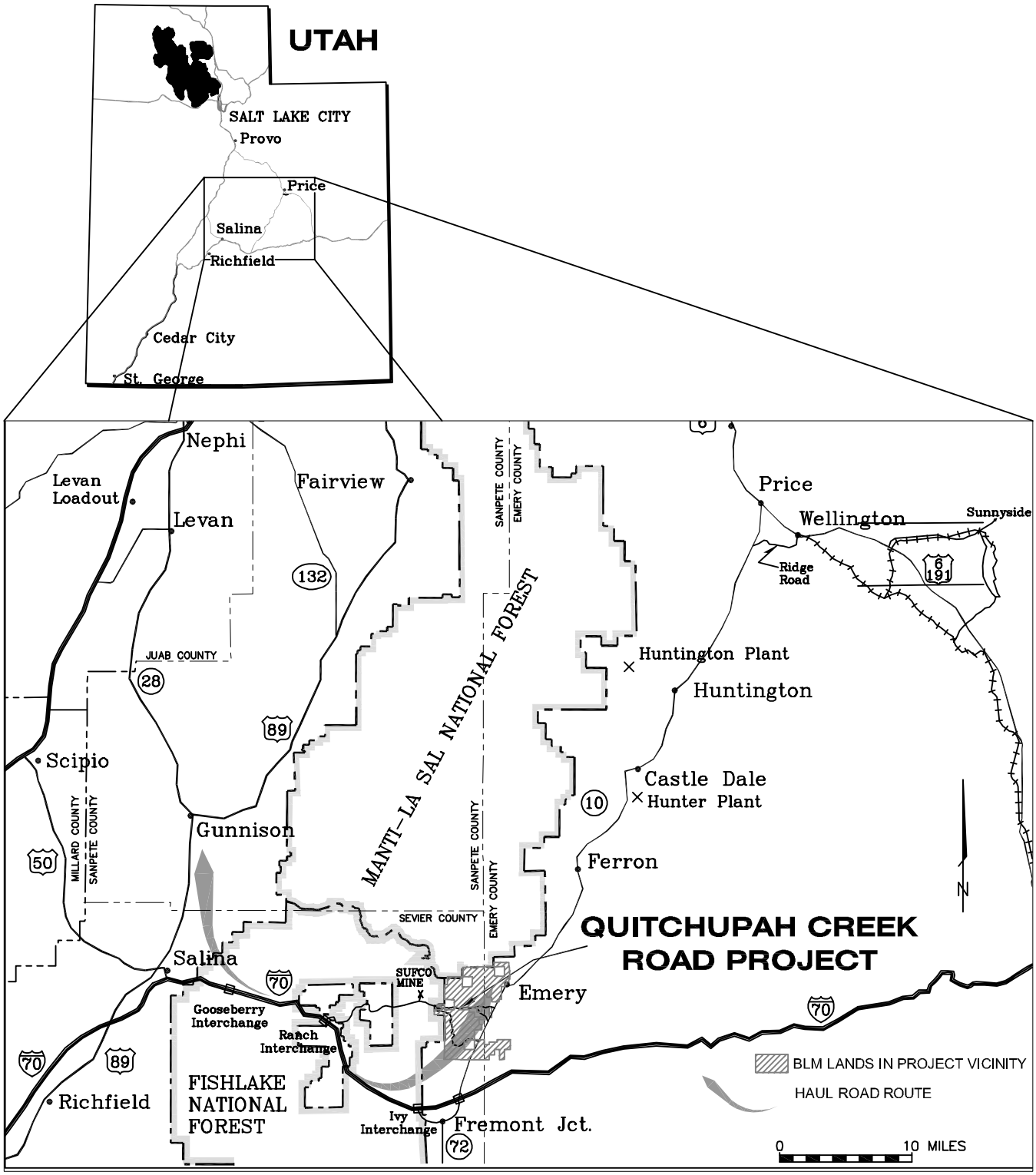
SUFCO Mine is a non-union mine. With the potential for an increased competitive position for markets east of the Plateau, there could be an impact to the union coal mine~~s~~ in Carbon and Emery Counties. Non-union mines could perceive preferential treatment based on this economic advantage.

- Due to closing or declining production from union mines in Carbon and Emery Counties, some coal sales have already shifted to the SUFCO Mine out of necessity and/or competitive advantage.

Private Lands

Some of the private landowners in the Project Area have questioned the need for a road and have not been favorable to granting a right-of-way for the road. The ranchers assert the road would interfere with their ranching operations and reduce the quality of life in the Quitchupah Creek area. The proposed road would cross 3.7 miles of private lands, mostly ranch lands adjacent to the lower creek. Five parcels of undeveloped land adjacent to SR-10 would also be affected.

- Under Alternative B (Proposed Action), a prescriptive easement for the road is in place. Under Alternatives C and D, the associated private landowners are amenable to granting a right-of-way.



QUITCHUPAH CREEK ROAD EIS

FIGURE 1–1
REGIONAL LOCATION MAP

jbr environmental consultants, inc.
Salt Lake City, Utah Cedar City, Utah Reno, Nevada Elko, Nevada

DESIGN BY	TT	DRAWN BY	CP	CH'D BY		SCALE	1"=10 MI

DATE DRAWN	7/29/01
REVISION	9/6/01
	10/6/01
	7/14/05

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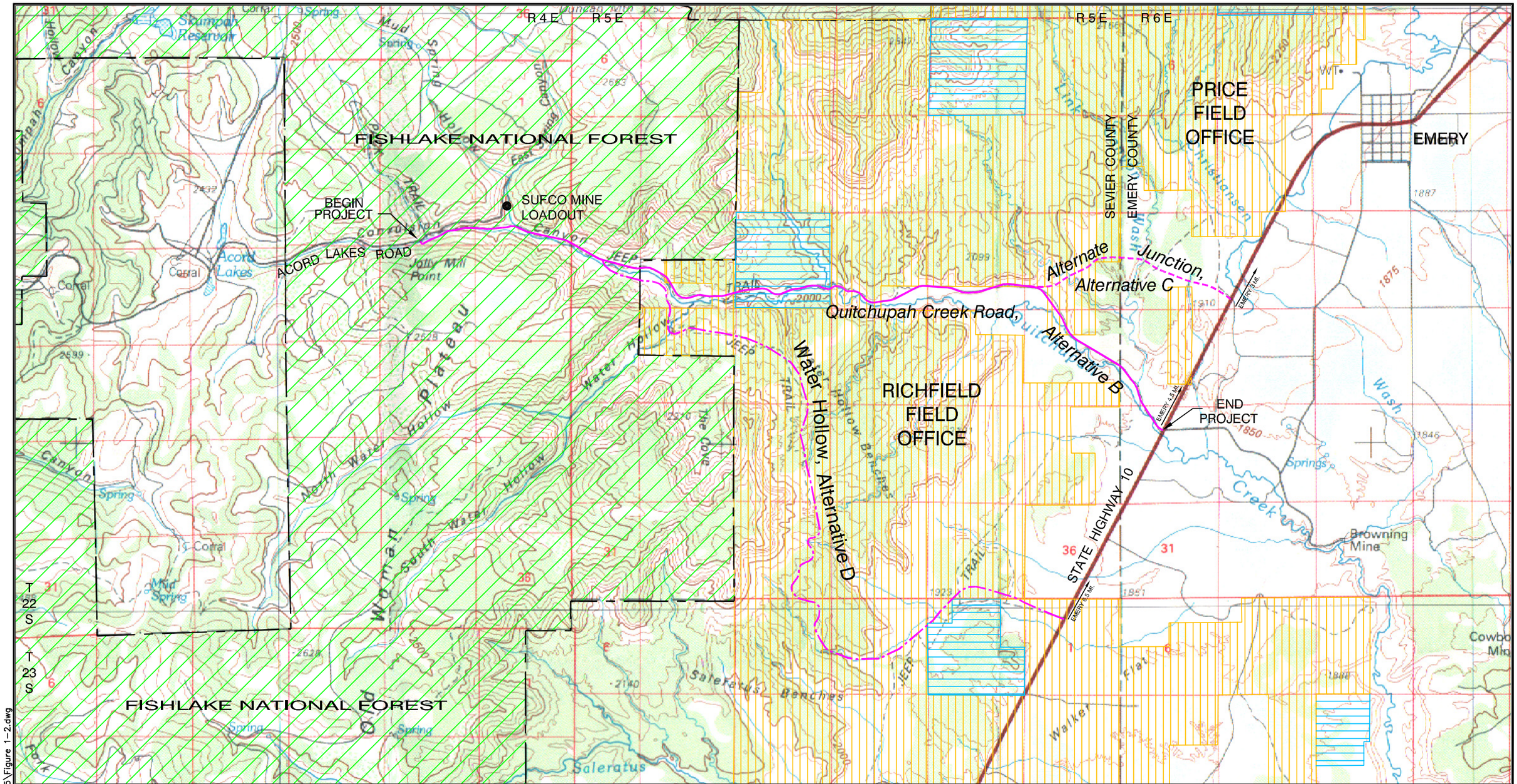

EXPLANATION

- FISHLAKE NATIONAL FOREST BOUNDARY
- QUITCHUPAH CREEK ROAD, ALTERNATIVE B
- ALTERNATE JUNCTION, ALTERNATIVE C
- WATER HOLLOW, ALTERNATIVE D

NOTE: WITH NO ACTION, NONE OF THE ROUTES WOULD BE CONSTRUCTED.

LANDSTATUS

- FISHLAKE NATIONAL FOREST BOUNDARY
- BLM LAND
- STATE LAND
- PRIVATE LAND

N

1 0 1 MILE

QUITCHUPAH CREEK ROAD EIS

FIGURE 1–2
PROJECT AREA AND ALTERNATIVES

jbr environmental consultants, inc.
Salt Lake City, Utah Cedar City, Utah Reno, Nevada Elko, Nevada

DESIGN BY	LM	DRAWN BY	CP	CH'D BY		SCALE 1"=1 MILE

DATE DRAWN	8/05/02
REVISION	11/15/02
	6/13/03
	7/14/05

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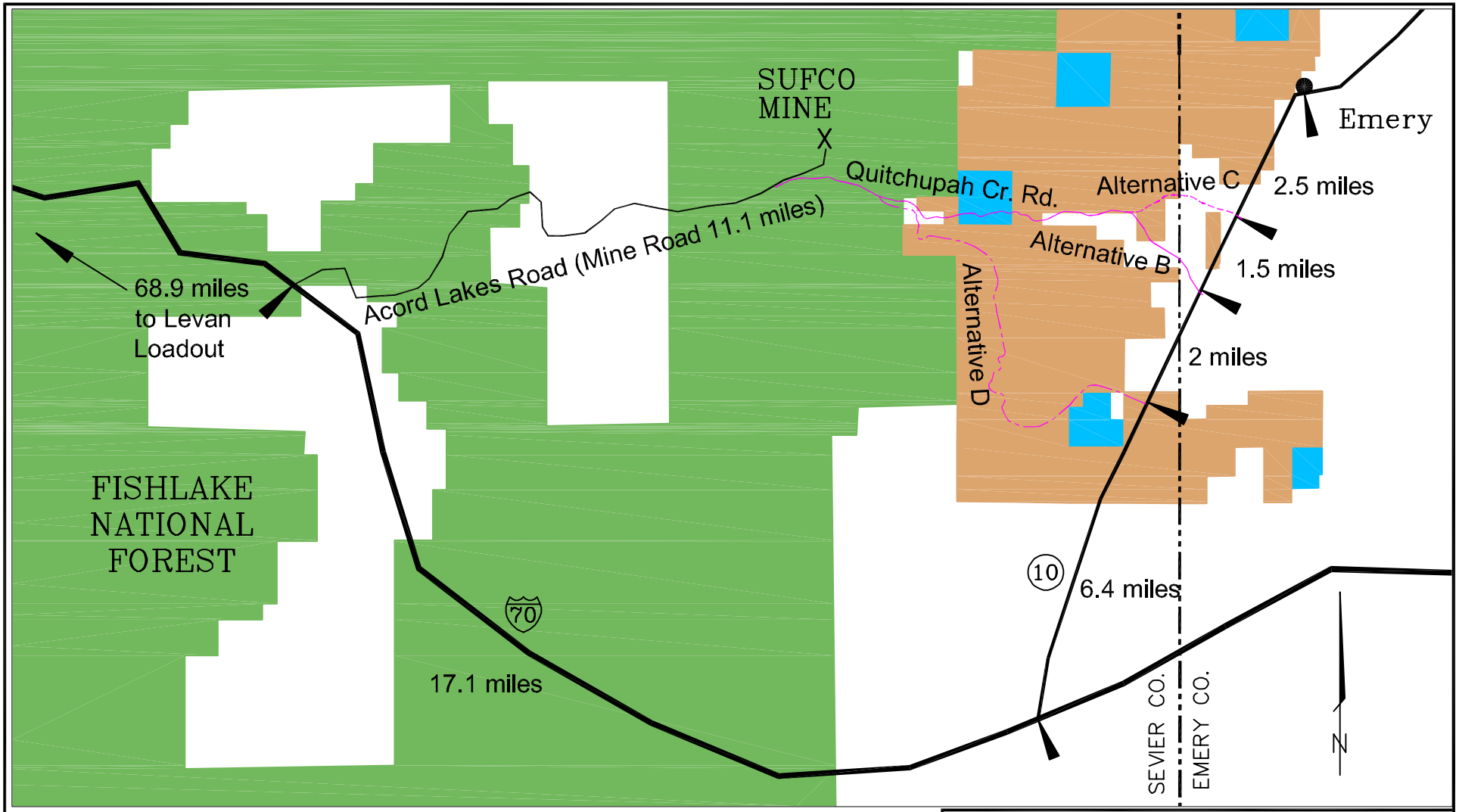


EXPLANATION

- FOREST SERVICE LAND
- PUBLIC LANDS
- STATE LANDS
- PRIVATE LANDS
- DISTANCE MARKER

ALTERNATIVES

- ALTERNATIVE B 8.9 MILES TO SR10
- ALTERNATIVE C 9.1 MILES TO SR10
- ALTERNATIVE D 11.25 MILES TO SR10

QUITCHUPAH CREEK ROAD EIS

FIGURE 1-3
CURRENT ROUTE AND PROPOSED ACTION AND ALTERNATIVE ROUTES

jbr environmental consultants, inc.
Salt Lake City, Utah Cedar City, Utah Reno, Nevada Elko, Nevada

DESIGN BY	JM	DRAWN BY	CP	CH'D BY		SCALE	NTS

DATE DRAWN	7/14/05
REVISION	11/03/05

Chapter 2

Alternatives Including The Proposed Action

2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

The formulation of alternatives was guided by the key focus issues; purpose and need; land use objectives of the Fishlake National Forest LRMP, the BLM San Rafael RMP, and the Forest Planning Unit Management Framework Plan; and the need to comply with Federal, State, and local laws, regulations, and policies. The potential alternatives were evaluated by the Interdisciplinary Team (IDT) to determine whether they addressed the focus issues, met the purpose and need of the project, and were technically and economically feasible.

During the alternatives development process, the IDT reviewed a reasonable range of potential alternatives to the Proposed Action. The alternatives developed encompass the complete spectrum of possible decisions that range from No Action to selection of one of three alignment Alternatives. A variety of factors were examined during the development of the alternatives for the EIS. Consideration was given to avoidance and/or minimization of effects to water (surface and groundwater), wetlands, riparian zones, vegetation, wildlife, special status species, range/livestock, cultural resources, public safety, and aesthetics. However, the sloping to steep natural terrain between the Acord Lakes Road and SR-10 limits the options available for locating roads and other surface facilities.

The following Alternatives are consistent with the Fishlake National Forest LRMP, the BLM San Rafael RMP, and the Forest Planning Unit Management Framework Plan. Four Alternatives were considered for analysis in this EIS, as shown in **Figure 1-2**, and listed as follows:

ALTERNATIVE A - NO ACTION

A public road for the purposes of transporting coal or alternate access to the SUFCO Mine would not be built in Convulsion Canyon/Quitchupah Creek area. The existing road would remain in place and in use. The existing transport route of Acord Lakes Road to I-70 to SR-10 to power plants and railroad loadouts would continue to be utilized. Also the current land uses in the Quitchupah Creek area would continue.

ALTERNATIVE B - QUITCHUPAH CREEK ROAD ALIGNMENT

This alignment generally follows the existing two-track road in Convulsion Canyon/Quitchupah Creek area to the maintained county road in Emery County to junction with SR-10 at the Quitchupah Creek Bridge. This alignment is approximately 8.9 miles long. The legal description is as follows:

Junction Acord Lakes Road:	SW1/4 of Section 11, T.22 South, R.4 East, SLBM
thru:	Section 12, T.22 South, R.4 East, SLBM
	Sections 18, 17, 16, 15, 14, 13, 24, T.22 South, R.5 East, SLBM
	Section 19, T.22 South, R.6 East, SLBM
Junction SR-10:	NW1/4 of Section 30, T.22 South, R.6 East, SLBM

The existing road would be supplanted by the new road for about 5 miles of its length. In areas where the new road alignment is more direct than the existing road, the unused road segments (approximately 4.3 miles of two-track road) would be fully reclaimed and no longer driveable.

ALTERNATIVE C - ALTERNATE JUNCTION WITH SR-10 AND ALTERNATE DESIGN

This alignment follows Alternative B to a point on the western edge of Section 13 T. 22S R. 5E, then turns northeast to gain elevation the last two miles and junction with SR-10 at a favorable grade, 1.5 miles north of the Quitchupah Creek Bridge. The alternate junction allows loaded coal trucks to utilize their momentum to gain elevation and avoid the steep grade on Quitchupah Hill on SR-10. The alternate design includes additional wildlife fencing and underpasses to allow livestock and wildlife to move safely back and forth through the road corridor. The legal description is as follows:

Junction Quitchupah Creek Road:	SW1/4 of Section 13, T.22 South, R.5 East, SLBM
thru:	Section 18, T.22 South, R.6 East, SLBM
Junction SR-10:	SW1/4 of Section 17, T.22 South, R.6 East, SLBM

Under this alignment, about 4.4 miles of the existing road would be supplanted by the new road. Two-track road segments that would be reclaimed total 2.5 miles.

ALTERNATIVE D - WATER HOLLOW ROAD ALIGNMENT

This alignment follows the existing two track road in Convulsion Canyon, then turns southeast at a point near the center of Section 18, T. 22S R. 5E, crosses Convulsion Canyon, then crosses Water Hollow and the Water Hollow and Saleratus Benches. This alignment avoids proximity to Quitchupah Creek and the North Fork Rock Art complex, but it does involve large cuts and fills to cross Water Hollow and a few other large drainages. This road alternative would be 11.25 miles long. The legal description is as follows:

Junction Quitchupah Creek Road:	SE1/4 of Section 18, T.22 South, R.5 East, SLBM
thru:	Sections 18, 17, 20, 21, 28 and 33, T.22 South, R.5 East, SLBM
	Sections 1, 2, 3, 4, T.23 South, R.5 East, SLBM
	Section 35, T.22 South, R.5 East, SLBM
Junction SR-10:	NW1/4 of Section 1, T.23 South, R.5 East, SLBM

Except for the western end where the new road would obliterate the existing road (approximately 2.1 miles), the existing road would remain in place and in use.

Applicant Committed Measures/Best Management Practices

Throughout the document, several terms are used to discuss ways of preventing or alleviating impacts to resources. These terms are defined below and in the glossary.

Applicant or Agency-Committed Measures are steps planned or taken toward the accomplishment of a purpose that the applicant (i.e. SSD and SUFCO Mine) or agency is committed to completing, executing, fulfilling, etc.

Best Management Practices (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce impacts to resources. These practices are defined by research and field testing to be the most effective and practicable methods to achieve desired resource protection.

2.1 Alternative A - No Action

Under this Alternative, the existing uses and environment in Quitchupah Creek and Water Hollow would continue unchanged in the foreseeable future. The historic use of the area for livestock trailing and grazing, the general solitude of the environment, recreational uses, and generally undisturbed condition of the cultural resources would continue. Likewise, current activities in the Project Area would continue; these include livestock trailing and grazing, erosion, and road/power line maintenance. Years of livestock trailing and grazing have impacted riparian and wetland soils by causing detrimental puddling and compaction disturbances. Trailing and grazing have also impacted general vegetation, and water quality (high total dissolved solids). Road erosion has also affected access into the canyon. Erosion due to road and power line construction and maintenance has also affected water quality. Emphasis on livestock grazing via intensive range management as recorded in the Fishlake National Forest LRMP is likely to continue as the primary management for Forest lands in Convulsion Canyon.

Under the No Action Alternative, the current transportation routes would continue to be utilized (**Figure 1-3**). UDOT has initiated studies to determine what is needed on SR-10 to handle the large increase in coal truck traffic from the junction with I-70 to the Hunter and Huntington power generating plants. State Route 57 from Orangeville to SR-10, which formerly was the sole route for coal transport to Hunter Power Plant, was designed and constructed to accommodate coal truck traffic from the adjacent mines to the power generating plants. SR-10, constructed 40 years ago, was not originally designed and constructed to accommodate large volumes of coal truck traffic. To accommodate this increasing coal truck traffic, the southern 20 mile section of SR-10 from I-70 to Muddy Creek would need to be rebuilt and bridges replaced. According to the Utah Department of Transportation (UDOT) online construction reports, the repaving and rehabilitation of the southern 10-mile section of SR-10 from milepost 0 (Fremont Junction, at I-70) to milepost 10 (Quitchupah Hill) (Project # STP-0010(20)0) has been completed. The replacement of Muddy Creek bridge north of Emery was 95 percent complete in October 2005 (Project # BRF-0010(27)16; UDOT 2005).

In addition, passing lanes would need to be constructed at Quitchupah Hill and Rock Creek to improve traffic flow.

According to a study (Parsons Brinkerhoff, 2001), the consequences of increased coal truck traffic (an increase from 20% trucks to 60% trucks in the AADT) on SR-10 highway conditions include severe pavement rutting, pavement cracking, increased pot-holing and patching, accelerated bridge deterioration, ride deterioration, and increased traffic congestion. The build alternatives (B,C,& D) would provide relief from this increased coal truck traffic on the lower portion of SR-10.

The No Action Alternative provides no relief for truck traffic on SR-10; the current coal transport route would continue as the future route. SR-10 is a high maintenance road due to the presence of Mancos shale-derived soils underlying the road base. UDOT/ Emery County expenditures for accelerated maintenance on this road under the No Action Alternative would continue. The emissions from the consumption of 1.4 million gallons of diesel fuel annually would continue.

2.2 Alternative B - Quitchupah Creek Road Alignment

Sevier County SSD has proposed to upgrade the existing road in Quitchupah Creek canyon, which connects the Acord Lakes Road in Sevier County with SR-10 in Emery County. The lands in this corridor are a combination of private, USFS, BLM, and SITLA. Under this Alternative, the round-trip coal hauling transport distance would be decreased by approximately 55.4 miles, which would also shorten the trip for mine services located in Carbon and Emery Counties and would reduce traffic on the southern portion of SR-10. The proposed Quitchupah Creek Road would be located along an existing two-track road through Quitchupah Canyon from SR-10 in Emery County to an existing mine road in Convulsion Canyon, Sevier County. The road would intersect SR-10 in the north half of Section 30, Township 22 South, Range 6 East (**Appendix A**). From SR-10, it would continue to the northwest into Sevier County, and then westward, generally following an existing trail along Quitchupah Creek, into Convulsion Canyon, to where it would connect with the Acord Lakes Road in the southwest quarter of Section 11, Township 22 South, Range 4 East.

The proposed road would be a 28-foot wide paved surface, with an operational right-of-way of 66 feet. Two pullouts for parking off the road shoulder would be provided; one at the Link Canyon channel crossing, and one at the East Springs Creek crossing. The construction corridor would vary from 50 feet to 60 feet on the flatter ground (eastern end) to an average 100 feet for the remainder of the road. The

road would be designed for a speed of 40 miles per hour, and constructed according to the standards of AASHTO, the current UDOT Standard Specifications for Road and Bridge Construction, and any additional requirements of the County. No facilities would be built in association with this alignment. The existing road would be supplanted by the new road for about 5 miles of its length. In areas where the new road alignment is more direct than the existing road, the unused road segments (approximately 4.3 miles of two-track road) would be fully reclaimed and no longer driveable. The details of the engineering design are presented in **Appendix B**.

Lands

The lands crossed by this proposed road include private, USFS, BLM, and SITLA (see **Figures 2-1** and **2-2**). There are several private landowners along the route, listed as follows:

Wynona P. Olsen, Trustee
Patricia Lois and George E. Olsen
Julian Bowman
James V. Olsen, Trustee
Thomas C. Bunn et al.
Castle Valley Ranches, LLC

Table 2.2-1 describes land status, length of proposed road within each jurisdiction, and estimated disturbance.

Table 2.2-1 Quitchupah Creek Road Alignment Land Status and Proposed Disturbance

Land Mgmt.	QCR Road Distance (miles)	County Jurisdiction	Road Construction Disturbance (acres)	Existing Road Disturbance (acres)	Staging Areas (acres)	Pull-Outs (acres)	Total New Surface Disturbance (acres)
USFS	2.3	Sevier	24.0	3.3	5.0	0.3	26.0
BLM	1.8	Sevier	18.4	1.8	5.0	0.3	21.9
SITLA	1.1	Sevier	12.3	0.9	5.0	0	16.4
Private	3.7	Sevier & Emery	33.7	5.7	0	0	28.0
Totals	8.9		88.4	11.7	15.0	0.6	92.3

Road Corridor

The construction corridor for the Quitchupah Creek Road would range from 50 feet to a maximum 220 feet, depending upon terrain, soil stability, and proximity to Quitchupah Creek. Approximately 11.7 acres of the construction right-of-way would be on previously disturbed ground. The total maximum new disturbance under this alternative within the road construction corridor would be 89.0 acres. Approximately 45 acres of land would be dedicated to roadway when the construction has been completed.

The Quitchupah Creek Road alignment would require expansion of the SR-10 bridge crossing over Quitchupah Creek to accommodate additional lanes for acceleration and turning.

Staging Areas
It is anticipated that there would be two to three staging areas associated with this project. These would be located upon USFS and BLM, and/or SITLA administered lands; each would be approximately five acres. Staging areas would be utilized for equipment storage, maintenance, and parking. The staging areas would be bladed, with erosion control provisions installed as necessary. They would be reclaimed at the end of the construction period. Potential staging areas are:

1) existing road north of station 18+00 to 22+00
2) area south of station 220+00 to 224+50
3) area north of station 386+00 to 389+00 (see **Appendix B**, Strips Maps 1,8,13)

Borrow Material Areas
The materials required for construction of the road include 75,000 cubic yards (yd^3) of granular borrow, 40,000 yd^3 of untreated base course, and 20,000 yd^3 of gravel to make asphalt. These materials would be purchased from a local gravel pit or extracted from an existing aggregate borrow source located east of SR-10.

Pullouts
Pullouts are proposed for each of the build alternatives for access to adjoining lands. Each would be 30 feet wide by 100 feet long unless the design is to use the existing road. Pullouts for Alternative B are proposed at the following stations:

Station 12+00 to 13+00	north side of proposed road
Station 60+00 to 63+50	north side, use existing road as pullout
Station 121+00 to 122+00	south side of road
Station 175+50 to 180+00	south side, use existing road as pullout
Station 287+00 to 288+00	south side of road
Station 450+00 to 451+00	north side of road

SR-10 Junction
The proposed road would junction with SR-10 at the existing intersection with the CONSOL Mine Road, an Emery County road 4.5 miles south of the Town of Emery. Because the proposed road and the CONSOL Mine Road would both carry coal truck traffic, both right and left turn lanes would be required for each road. Also, due to the uphill grade for northbound traffic, an extended acceleration and climbing lane of 2,300 feet would be required for the coal truck traffic (**Figure 2-3**). Thus, there would be 4 lanes south of the intersection and 5 lanes north of the intersection. The existing bridge over Quitchupah Creek would need to be widened 8 feet to the west and 32 feet to the east, almost doubling its current width.

An access permit would be required from UDOT for the junction with SR-10. The disturbance for construction of the intersections and additional lanes would occur within the existing UDOT right-of-way or acquired right-of-way.

Construction Procedures
It is anticipated that the road would be built in 10 months using a construction spread that would employ an estimated peak work force of approximately 30 to 50 persons.

The design and construction of the road would be in general conformance with applicable industry standards as determined through engineering design.

The construction sequence includes preparing the right-of-way and roadbed, construction of the road, and restoring the staging areas.

Preparation of the Right-of-Way and Roadbed
Preparation of the construction corridor would involve topographic survey of the right-of way to establish final roadbed grade and staking the centerline of travel. Blading and removing vegetation over the entire length of the right-of-way and at staging areas would occur within the staked limits of the right-of-way. A maximum of 92.3 acres of land would be affected. Spoil and cut vegetation would be temporarily stockpiled along the right-of-way edges. Soil material would be separated by means of windrowing or sidecasting. A minimum of six inches of the upper soil material (topsoil) would be stored along the edge of the bladed right-of-way.

Upon completion of roadbed clearing, crews would begin construction of the roadway subgrade. Road base would be placed along the established roadway and graded to plan. Graders, scrapers, and dozers would be utilized to obtain the necessary grade and alignment. Once the prescribed grade and centerline of travel are constructed to plan, pavement would be placed.

The contractor would not disturb areas outside the staked right-of-way without prior written permission from the appropriate land managing agency or individual owner.

During rehabilitation, this topsoil material would be spread evenly over the disturbed areas.

Soil Stabilization
Upon approval to build the proposed road or alternative, appropriate geotechnical investigations would be performed to determine soil characteristics throughout the roadway. California Bearing Ratio (CBR) values would be determined and used to complete the pavement designs according to methods approved and specified by AASHTO.

Calculated design for the road indicates that no more than a 12-inch thick layer of granular borrow will be necessary below the untreated base course. Calculation of CBR from 16 soil samples collected on the alignments supports the 12-inch granular borrow layer (see **Appendix B** for details). However, some of the soils contain a high percentage of expandable clays that can deform and break up road base and asphalt. UDOT has had extensive experience with these expandable soils under some of the major roads within the area, and recommends up to three feet of granular fill and base on top of them. The use of three feet or more of granular borrow would be an option for sites with particular soil problems. These clayey soils are also strongly saline, so they should not be used as fill or for fill slopes.

If it were determined that unusual subsurface formations or soft soils existed, additional features would be added to the design of the roadway cross-section. These additional features could include: geotextile and/or geogrid between the native soil and the extra depth of placed granular borrow; geotextile and/or geogrid within the placed granular borrow; and/or other soil improvement methods such as compaction grouting, deep dynamic compaction, and lime and cement stabilization methods.

If it is determined that the soils in question are inadequate for subgrade material, the soft soils would be removed and replaced with granular borrow materials that meet the required strength, in conjunction with the use of the methods mentioned above.

In any case, for soil stabilization as well as all other aspects of final road design, USFS and BLM would have final approval on the specific techniques and materials used.

Construction of the Road
After crews have prepared the road subgrade, the contractor would begin hauling, placing, and compacting the granular borrow to an estimated depth of 8 to 12 inches. This is the first phase of the surfacing process. The second phase would involve placement and compaction of an eight-inch lift of untreated base course. **Figures 2-4** and **2-5** show typical cross sections for road construction. **Figure 2-4** is a typical section for the road on suitable soils and **Figure 2-5** is a typical section for road construction on expansive soils.

The completed road would have a 28-foot paved surface width. The road would consist of 6 to 8 inches of untreated base course overlaid by 5-inches of asphalt concrete.

Approximately 400,000 yd^3 of roadway excavation, 41,000 tons of non-rutting asphalt concrete and asphalt mix, 80,000 tons of untreated base course, and 75,000 yd^3 of granular borrow are proposed for the road construction.

Public Access & Safety
During construction of the road, signs would be placed on SR-10 at the Quitchupah Creek Road junction as well as on the Acord Lakes Road, notifying the public of construction activities. The existing two-track road would be available for partial access into the Quitchupah drainage. Provisions would be made for hunter access during big game hunting season, depending upon the status of road construction at that time.

Blasting
The proximity of the Quitchupah Creek Road alignment to rock canyon walls in some areas suggests the need for blasting to remove rock. The areas that may require blasting include:

Station 25+00 to 50+00
Station 80+00 to 81+00
Station 108+00 to 111+00
Station 118+00 to 122+00
Station 156+00 to 174+00
Station 233+00 to 237+00
Station 262+75 to 263+25
Station 275+00 to 283+00

Appendix B contains maps showing the approximate locations of these blast sites.

The contractor must exercise great care in blasting and would be responsible for and assume all liability connected with the blasting and use of explosives. The contractor would be liable for all damage on adjacent property, all injuries, lawsuits, complaints, and any other actual or alleged damages. Blasting would be conducted in accordance with the Labor Commission, Occupational Safety and Health, Hazardous Material, R614-4-18 - Use of Explosives and Blasting Agents. Provision R614-4-18 (A)(3) states: "When blasting is done in congested areas or in close proximity to a structure, or any other installation that may be damaged, the blast shall be covered before firing with a mat constructed so that it is capable of preventing fragments from being thrown." The contractor would observe all safety rules for the handling of explosives, and in no case would blasting caps be stored near the explosives. No blasting would be done outside regular working hours except with special approval. All explosives would be stored in compliance with laws and regulations and all storage places would be properly marked. The

contractor would comply with Utah Occupational Safety and Health (UOSH) construction standards, chapter "U" rules and regulations. The contractor would provide a qualified explosives expert to act as advisor and consultant during drilling and blasting operations. Blasted material would be used for riprap if it meets riprap specifications, otherwise it would be used as fill material.

Erosion and Sediment Control

Erosion due to construction activities would be controlled as necessary by: using energy dissipation at culverts; placing straw wattles, rolled coir logs, or similar structures on steep slopes with fine grained soils; placing or leaving large rock; reseeding fill and cut slopes; and other measures as defined in **Appendix B – BMPs.** In regard to sediment control, silt fences, water bars, or other sediment control structures, as defined in **Appendix B - BMPs**, would be utilized to prevent sediment loading during streambank manipulation and road construction. Some of these controls (both erosion-related and sediment-related) would be left in place until full stabilization of the roadway and slopes have been reached. A Storm Water Pollution Prevention Plan (SWPPP) would be developed prior to construction, as one of the terms of the required storm water discharge permit that would be required by Utah Division of Water Quality (DWQ). It would detail how and when each control device would be utilized. The SWPPP would be developed to ensure that the construction project complies with all permit requirements including the 401 Water Quality Certification Application conditions. **Appendix B** contains the BMPs that would be utilized during and after construction.

Dust Control

Water for dust control and compaction during construction of the lower portions of the road would be solicited from a local irrigation company, depending upon the time of year of construction. In the event no water is available during irrigation season, water would be requested from Emery or other sources and trucked to the site. At the upper end of the road, water would be obtained from the mine pump station by Sta. 65+00.

Stream Crossings and Culverts

The road alignment for Alternative B would require a total of 43 culverted crossings. **Figure 2-6** shows the locations of these crossings. This includes 18 primary crossings and 25 secondary crossings. Primary crossings are designated at perennial, intermittent, or ephemeral watercourses that have large drainage areas and/or defined channels. Secondary crossings are designated at smaller ephemeral watercourses that drain smaller watersheds and/or have little or no channel definition. All of the primary and secondary culvert crossings would be designed to pass the 100-year flow, as calculated by Utah Department of Transportation methodology (UDOT, 2002). **Table 2.2-2** shows the 18 primary culvert locations, design flows and culvert diameters.

Depending upon the season of construction, up to six of these crossings would be expected to be wet. BMPs that would be implemented during culvert design, placement, and maintenance are described in **Appendix B**.

The existing bridge on SR-10 would require widening 8 feet to the west and 32 feet to the east, almost doubling its size. This construction would be under the direction of UDOT and to UDOT and AASHTO standards.

In addition to the crossing culverts, numerous borrow ditch relief culverts would be used to direct and control road and upgradient runoff. They would be spaced at 500-foot intervals or less, depending upon road slope and proximity to stream channels. BMPs that apply to borrow ditch relief and other road drainage issues are contained in **Appendix B**.

Table 2.2-2 Primary Culvert Crossing Information - Alternative B

Station	Design Flow (cubic feet per second)	Culvert Diameter (inches) RCMP unless noted
11+00	123	60
18+00	173	72
66+00	234	84
94+00	252	84
186+50	117	96
190+50	39	42
201+00	123	60
203+50	26	36
213+50	108	60
228+50	1702	3 (108)*
232+50	1702	3 (108)*
250+00	1144	2 (108)*
251+50	2800	300 by 120 (alum. box)*
256+50	2800	300 by 120 (alum. box)*
268+00	282	84
300+00	156	60
323+50	117	60
451+00	586	120

* These crossings would provide fish passage.
Note: At crossings where fish passage is required, specialized culverts may be used, and diameter/type may vary from what is given above. However, in all cases, capacity will be capable of passing the 100-year flow at a minimum.

Stream Re-Alignment

Stream realignment would be required in upper Convulsion Canyon, lower East Spring Canyon, and in Quitchupah Creek at the Rock Art site. The stream realignment process requires a State of Utah Stream Alteration Permit. For this project, because an individual COE permit would also be needed for the wetland fill, the COE has asked to handle all stream realignment and crossing permits under the single COE 404 permit, rather than using the joint state/federal GP40 Permit that is handled under the Stream Alteration rules. The permit would set conditions for hydraulic design of each realigned section to maintain the integrity of the creek both upstream and downstream. Further, **Appendix B** provides BMPs that would be used in the design and construction of these realigned sections.

In upper Convulsion Canyon, the channel would be moved north away from the road fill toe between stations 13+00 and 15+00, for a realignment distance of 200 feet. Just downstream from that location, the channel would be moved south between the new road fill and the steep canyon slope, between Stations 19+00 and 45+00. Based upon this road stationing, channel realignment would be required for approximately 2,600 feet.

In lower East Spring Canyon, the proposed road, between stations 65+00 and 75+00, would interfere with about 1,100 feet of the existing East Spring Canyon channel. A culvert about 170 feet long would replace the existing crossing, and from the mouth of the culvert downstream for approximately 900 feet, the channel would be realigned to the south of this existing location. Depending upon the appropriate morphologic sinuosity of the final designed replacement channel, total length of the realignment, not including culvert, would be about 900 feet.

In Quitchupah Creek at the Rock Art complex, an existing dry meander bend would need to be shortened in order to accommodate the road fill west of North Fork. This would occur between Station 249+00 and 250+00, or 100 feet of roadway. In total, a maximum of 350 feet of channel would require realignment (based upon road stationing, not including any meandering of lost or replaced channel).

In Convulsion Canyon, the realigned segments would be straightened to a grade of approximately 9 percent. They would have a narrower, more uniform channel bottom than the existing channel, and would likely be riprapped and contain grade control to maintain stability. Transitional treatments would be done to insure that, at the downstream end of the realigned reach, velocities and flow area are returned to their original conditions, as described in **Appendix B**.

At approximately 249+00, a short channel realignment in Quitchupah Creek would be required. About 130 feet of meander would be filled, and a maximum of about 350 feet of stream would be placed back in its meander (it was recently cut-off during a flow event). An MSE (mechanically stabilized earth) wall, and other protective measures would be specified in the final design. The diversion of 130 feet of the stream from the cutoff back into the meander would restore 350 feet of the stream channel and decrease the grade from 7.6 percent to 2.3 percent (Strip Map 9).

For the East Spring Canyon realignment, a more naturally functioning channel would be designed, as described in the applicant-committed environmental protection measures later in this Chapter.

Construction Equipment
The following equipment would be utilized during various phases of construction:

- Road grader
- Rubber tired loader
- Conventional scrapers
- Hydraulic excavators (track or wheel)
- Rear dump trucks
- Belly dump trailers
- Asphalt paving machines
- Water truck for dust control
- Steel drum static compactors
- Sheeps foot compactors
- Hand held vibratory plate compactors
- Gravel crushing facility
- Track dozers
- Construction office trailer

Hazardous Materials
The contractor for Sevier County SSD would manage all hazardous materials (including hazardous chemicals, substances, and wastes) in full accordance with all applicable Federal, State, and local regulations. Regulated hazardous materials would be managed in an appropriate manner that protects workers and the public, and prevents accidental releases to the environment. In the event that any such materials were to be released to the environment in excess of the reportable quantities defined under the relevant Federal or State regulations, the required notifications would be made, and required reports would be completed and submitted to the appropriate agencies. In such an event, the USFS and BLM would be provided with copies of any such reports, along with the designated recipient agencies.

Reclamation
Reclamation would consist of recontouring the disturbed areas to blend into surrounding terrain, or as requested by the agencies or landowners. Crews would reseed the staging and borrow areas using seed mixtures as directed by the appropriate land managing agency. Appropriate measures would be taken as necessary to prevent erosion, including the use of water bars (See **Appendix B - BMPs**). Reclamation would be conducted to agency standards and would include monitoring and maintenance to agency satisfaction.

Reclamation would be conducted upon completion of the road (or as specified by the land managing agency), after seedbed preparation, while the growth medium is still comparatively soft and loose. All disturbed areas along the road right-of-way would be reseeded with certified noxious-weed free seed mixtures specified in **Table 2.2-3**. The areas would be drill seeded. In areas where the seed is hand broadcast, the seeding rates listed in **Table 2.2-3** would be doubled. The use of fertilizer is not anticipated at this time. However, a tackifier would be used with the seeding and mulching in order to decrease the potential for erosion and give the seed base a stable environment to grow. The erodible soils on the west end of the alternate route may require the use of erosion matting to protect the soil surface and ensure seed germination on the reclaimed soils in this area.

The existing road and two-track trail not included in the road construction area would be reclaimed to stabilize old road surfaces and reduce erosion and sedimentation. A few small sections may not be reclaimed due to rockiness or very steep slopes around headcuts or to maintain access to other roads. The stabilization of the adjoining proposed road corridor due to reclamation and drainage control would reduce the discharge of sediments onto the reclaimed existing road. The few small unreclaimed sections would be expected to slowly revegetate due to stabilization of adjoining reclaimed road.

No special efforts would be expended on the existing fords on Quitchupah Creek, as they are currently stable and would revegetate slowly when relieved of traffic.

Table 2.2-3 Site-Specific Seed Mixtures for Quitchupah Creek Road

Agency	Common Name	Application Rate (lbs./acre PLS)
USFS/ BLM	Western wheatgrass	2
	Indian ricegrass	2
	Galleta grass	2
	Desert Globemallow	2
	Magnar Great Basin wildrye	2
	Needle and Thread grass	2
	Appar Lewis flax	3
	Delar small burnet	3
	Shadscale	2
	Total	20

[1] PLS = Pure live seed

The reclamation procedures for the old road segments outside the right-of-way would include:

- ripping the old road surface to relieve compaction,
- removing culverts and regrading road to natural grades and drainage,
- installing water bars per agency specifications,
- seeding to establish vegetation,
- mulching/armoring with coarse rock to maximize moisture retention and protect reclaimed surfaces,
- placement of barriers to prevent traffic on reclaimed road surface,
- installing electric fence to exclude livestock from seedings in areas where livestock will roam freely, and
- monitoring and maintenance for at least three years or until bond release.

For reseeding of low elevation saline soils, a more drought and saline tolerant seed mix would be utilized (**Table 2.2-4**).

Table 2.2-4 Seed Mixture for Low Elevation Saline Soils Quitchupah Creek Road*

Agency	Common Name	Application Rate (PLS Pounds per Acre)[1]
BLM	Alkali sacaton	1
	Blue grama - Alma	3
	Galleta grass	3
	Gooseberry globemallow	3
	Castle Valley saltbush	3
	Kochia, prostrate	2
	Total	15

*BLM Mixture [1] PLS = Pure live seed

Quitchupah Creek Road Use

Coal trucks servicing the SUFCO Mine would utilize the proposed road 5 days per week, 24 hours per day, 250 days per year. The rate of use would be dependent upon the amount of coal shipped to eastern markets. In addition, there would be traffic related to employee commutes, mine services, and general or recreational travel.

The coal transport trucks currently in use on the Acord Lakes Road consist of a dual trailer with a loaded weight of 43 tons. These trucks would also be utilized on the Quitchupah Creek Road.

Operation and Maintenance

The proposed road would be maintained primarily by Sevier County SSD, who would be responsible for scheduling of maintenance and repairs. Sevier County SSD would also be responsible for monitoring storm event or runoff damage. The current road maintenance agreement between Sevier and Emery Counties for the easternmost 1.5 miles of Quitchupah Creek Road would be revised. Maintenance on the Emery County portion of the road could be performed by either county, by agreement.

Applicant-Committed Environmental Protection Measures for Alternative B Quitchupah Creek

Wetlands and Waters of the U.S.

The U.S. Army Corps of Engineers (COE) under authority of Section 404 of the Clean Water Act as amended and Executive Order 11990 requires that all impacts to jurisdictional wetlands be mitigated. The b(1) guidelines provide a regular process for determining if the permit to be issued for filling wetlands and the accompanying mitigation plan is in the best interest of the Nation's wetlands. The b(1) guidelines offer three tiered steps: 1) to avoid impacts to wetlands, 2) if avoidance is not possible then minimize impacts, and 3) if avoidance and minimization of impacts is not possible then mitigate impacts.

There are five jurisdictional wetlands in the immediate vicinity of the proposed road; one 0.07-acres wetland at Station 44+00 and one 0.26-acre wetland at Station 67+00 in East Spring Canyon (**Appendix B**, Strip Maps 2,8) would be impacted. The COE has indicated that it would require a mitigation ratio of 3:1 on the acreage in the same watershed, and the conceptual mitigation plan more than meets that. The potential mitigation sites within the Quitchupah Creek watershed are somewhat limited mainly due to the dynamics of the channels, which either makes it difficult to divert sufficient water to establish a wetland, or thwarts efforts to permanently establish a wetland basin or area because of their instability.

In addition to the wetland near East Spring Creek, the creek also has a hydric fringe in the flat bottom of the channel. The proposed route would cover the stream for approximately 1,140 feet at three locations. To compensate for the combined loss of approximately 0.33 acres of wetlands filled at Stations 44+00 and 67+00, three measures would be designed and installed.

1. The existing wetland at Station 48+00 is located at the head of the perennial stream in Convulsion Canyon but downstream of the realigned ephemeral channel in the upper canyon. The source of water for the wetland is subsurface flows surfacing in the channel at Station 41+00 and a spring at the foot of a large rock adjacent to the existing two-track road. Headcutting has begun where the wetland discharges into the stream channel. The installation of a structure to elevate the discharge point four to five feet above the incised stream would enlarge the wetlands capacity by approximately 1,000 yds^3, and a hardened discharge point would stop the headcutting action. The enlarged capacity of the wetlands would allow for retention of the sediments generated upstream by realignment of the ephemeral channel. The enlarged wetlands would cover approximately 0.33 acres (See Strip Map 2 in **Appendix B**).

2. A potential wetland site exists at Station 62+50 where the stream coming out of Convulsion Canyon has created a willow community on a bench with a 2 percent gradient. An in-line wetland system would be created at this location by allowing streamflow to fill behind several shallow dikes constructed across the channel/floodplain area. Upstream of each dike, excavated areas would be dug to increase saturated areas. The resulting ponds and saturated areas would create a diversified wetland complex, ranging from flowing water, ponded open water, and saturated soils. The dikes would be designed with spill points to discharge excess water. The combined wetland acreage to be created would be 1.2 acres. With a combined capacity of 2,000 yds^3 , the diked areas would also serve to retain sediments. They would use approximately 6 percent of the average annual flow of Convulsion Canyon. See Strip Map 2 in **Appendix B**.

Items 1 (0.33 acres) and 2 (1.2 acres) above would result in a total of 1.53 acres of wetlands that would be enhanced or increased as a result of mitigation. Subtracting the 0.31 acres of poor quality wetlands already present at station 48+00 gives a total of new wetland creation of 1.22 acres. Given the loss of 0.33 acres of wetlands due to filling at Stations 44+00 and 67+00, the proposed mitigation would exceed the Corps' minimum 3:1 replacement ratio. Final detailed wetland mitigation designs must be approved by the COE. The above conceptual plans have been discussed with the current COE representative assigned to this project, who has agreed in concept with the mitigation strategy. However, specific approval would not come until the formal application process is undertaken.

3. The East Spring Canyon stream would be brought under the proposed road through a 170-foot long culvert at Station 65+50. From the mouth of the culvert downstream for approximately 900 feet, the channel would be newly constructed and would parallel the road fill to rejoin the existing stream channel upstream of the juncture with Convulsion Canyon. Channel designs would be based upon BMPs given in **Appendix B**. The resultant constructed channel would emulate the existing channel in dimensions, cross-section, and gradient so the flows, hydric fringe, wetlands, and riparian zone would replace that covered with road fill. The placement of check dams, deflectors, and riprap would help stabilize the new channel as it adjusts to the flows. Salvage of riparian vegetation (such as cut willow, sedge clumps, etc.) from the abandoned channel would be used where practical to boost vegetative success along the new channel. The channel would not be as deep as the incised channel; it would be designed to contain bankfull flows, with overbank areas accommodating larger flood events. See Strip Map 2 in **Appendix B**.

Raptor Protection
The haul route would be patrolled daily, during daylight hours, to pick up and dispose of all animal carcasses (wild and domestic, large and small) in order to keep the road surface clear. This would reduce scavenging on the road surface by raptors and vultures. The concern is that scavengers feeding on larger carcasses that aren't readily removed from the road would be subject to coal truck-wildlife collisions. Scavengers present on the road while feeding could cause unnecessary mortality among the protected raptors. The Sevier County Special Services District would be responsible for removing carcasses to a specified disposal area in accordance with the regulations of the State Board of Health. This would continue for the duration of the life of the mine. The SSD or the SSD's contractor would secure and maintain any necessary license or permits required by State or local authorities to perform this service.

Water
As a result of coal loading, coal trucks have coal dust and debris on the exterior of the truck that is blown off as the truck travels; this dust and debris becomes part of sediments along the roadbed. Since coal trucks traveling in Convulsion Canyon would be in close proximity to the stream, fugitive coal dust from the trucks would readily enter the stream system as airborne or waterborne sediments. To prevent this, the coal trucks loading at the SUFCO Mine would be cleaned after loading and prior to entering the public road system to remove fugitive coal particles from the exterior of the truck and trailer.

Livestock
Cattle Trail
In order to accommodate cattle movement along the road corridor, a fenced cattle trail would be constructed within the road right-of-way on Forest lands, on the north side of the alignment, between the underpass at Broad Hollow and Station 60+00, approximately 1½ miles in length. The fenced trail would continue in intermittent sections below this Station (See **Appendix B** – Strip Maps) in areas where terrain restricts movement of cattle outside the right of way. The trail would be 15 to 20 feet wide, and in some places narrowed to 10 feet wide. The trail width would be cleared of vegetation during right-of-way preparation; it would be seeded once road construction is completed. Access to the trail would be gated on either end; cattle would be trailed along the road to the fenced cattle trail entrance in the spring, and cattle would gather at Broad Hollow to be let back on the trail in September. At Station 60+00, the continuous fenced trail would end, but cattle would continue to trail down outside the fenced road right-of-way and into the intermittent fenced sections of cattle trail down to the holding facility at the Forest boundary. Holding facilities would be constructed and maintained by the SSD in Broad Hollow and at the east boundary of the Forest to hold cattle that drift prior to the opening of the cattle trail gate (See Strip Maps 1 & 2 in **Appendix B**). Water would be provided at the holding facilities by the SUFCO Mine.

Riparian Protection
Riparian fencing along Quitchupah Creek would be installed and maintained by the applicant on public lands (BLM, FS, SITLA) adjacent to the road. This includes about 2.4 miles on Fishlake National Forest lands, about 1.2 miles on State lands, and about 1.1 miles on BLM lands contiguous to the State parcel, for a total of about 4.7 miles of Quitchupah Creek that would be fenced. The riparian fencing is expected to be 3-wire 42" standard wildlife fence (See **Appendix B**). Wildlife friendly crossings would be provided on each side of the stream at locations correlated to migration corridors and/or wildlife trails. These crossings would be lodgepole, approximately 33 feet wide, and the same height as the fencing. Fence design, installation, and maintenance would be according to agency specification. Riparian fencing would exclude cattle from the stream except at designated watering areas.

Rock Art
Because the rock art panels are very visible from the existing two-track, they have become well known to locals and rock art associations. The panels include a mixture of Archaic and Fremont styles, very unique for this part of Utah. The main panels are located on State lands administered by SITLA, but other panels are located on adjacent public lands.

Currently the rock art panels are accessible via the Emery County maintained road and the two-track that extends past the site. Because the previously proposed alignment for Alternatives B&C was in close proximity, within 60 feet of the rock art complex at North Fork, a realignment was designed.

The realignment of the proposed road cuts off two-track access to the site and provides the opportunity to limit or regulate public access to the rock art. If the proposed road is constructed, the two-track could be reclaimed and removed from service (See **Appendix B**, Strip Maps 9&10). A gate would be placed along this portion of the fence in order to facilitate cattle grazing on the state land.

The road realignment is designed to begin at station 246+00 and swing south to cross the North Fork approximately 220 feet downstream of the proposed crossing, then proceed east 200 feet to cross Quitchupah Creek and stay south along the slope. The realignment would then proceed northeast to cross the creek on a box culvert and then align to join the proposed route at station 263+00. This realignment is about 1,800 feet long compared to the original proposed alignment of 1,600 feet between stations.

An existing dry meander bend in Quitchupah Creek just west of North Fork would need to be shortened in order to accommodate the road fill. This would occur between Station 249+00 and 250+00, or 100 feet of roadway. At this location, the shortening of the dry meander would be required (from 500 feet currently to 350 feet). The diverting of the stream from an existing cut-off of the meander would actually restore 350 feet of dry channel negating any loss of gradient.

The realigned road would be 300 feet away from the rock art panels and across Quitchupah Creek. This would serve to restrict access to the panels by not providing a convenient stopping place in the close vicinity. The existing two-track could be reclaimed/barricaded (i.e. with strategically placed boulders or other natural material) in this area so it could not be used to directly access the site.

The realignment would also avoid the untested cultural sites near the rock art panels and would cross fluvial affected terrain. There are no eligible sites within the realignment corridor.

Agency-Committed Environmental Protection Measures for Alternative B

The riparian zones of Quitchupah Creek and Convulsion Canyon have been degraded by livestock grazing within the stream bottoms over the years. To alleviate this condition and restore the riparian zones, livestock grazing would be eliminated on approximately 4.7 miles of stream through a combination of grazing permit changes, fencing along the proposed road, and cross-fencing where necessary. The actual fencing would be completed under an applicant-committed measure as described above; the permit actions related to this measure would be handled by the appropriate agencies. Fenced watering points would be provided where underpasses allow livestock to pass under the proposed road and access the stream. The construction of the proposed road is the primary catalyst for the changing management of grazing within the riparian zone.

Specifically, on Forest lands in Convulsion Canyon, the livestock would trail on the fenced livestock trail to and from summer pasture in the Quitchupah Allotment, and would no longer have access to the riparian zone or the mitigation wetlands and stream realignment. The spring trailing would begin in the private

lands at the east boundary of the Forest lands. The fall trailing would begin at the holding facility adjacent to Acord Lakes Road.

Per 43 CFR 4130-2(f), other terms would be incorporated into the grazing permit to cease grazing in the riparian zones along the stream. Five AUMs of forage would be lost along the stream corridor by this action. A combination of road fences, fenced livestock trail, and cross-fencing would restrict livestock access to the stream corridor.

On state lands, a condition of the rights-of-way would restrict livestock grazing in the riparian zone to specific fenced watering points.

The restoration of the riparian zones would improve wildlife and aquatic habitats, reduce sediment discharge to the stream, improve aesthetics, and stabilize the stream channel.

2.3 Alternative C - Alternate Junction with SR-10 and Alternate Design

This alternate route would diverge from the proposed route in the southwest quarter of Section 13, Township 22 South, Range 5 East and proceed east across Section 18, Township 22 South, Range 6 East to the junction with SR-10 in the southwest corner of Section 17, Township 22 South, Range 6 East (**Appendix A**). This route would be 0.2 miles longer than Alternative B but it would bypass the grade on SR-10 that now slows loaded coal trucks and potentially slows all northbound traffic on SR-10. The grade for this Alternative is 0.6 percent for loaded coal trucks. The loaded trucks would junction with SR-10 at a point 270 feet higher than the Alternative B junction where the grade for northbound traffic is 0.07 percent. The Alternative C route would have less elevation change between the Mine and SR-10 and allow loaded coal trucks to utilize their momentum gained while descending Quitchupah Creek Road to ascend the 0.6 percent grade. The route would cross lower Link Canyon channel, as does the Proposed Road route. The total acreage impacted for Alternative C would be 96.3 acres.

The Alternate Design would incorporate additional features to the proposed Quitchupah Creek Road to facilitate livestock movements within allotments, and also facilitate wildlife movements to and from the winter range. The wildlife/livestock facilities would include fencing of the road to keep the livestock off the roadway during the grazing season. Approximately 16.3 miles of fence would be installed under this Alternative design. It is also proposed that five underpasses approximately 20 feet wide, 70 feet long, and 8 feet high would be incorporated into this build Alternative to facilitate wildlife/livestock access to both sides of the fenced road for grazing purposes. The underpasses would also provide access to Quitchupah Creek, the only watering source in the allotments. One additional underpass would be constructed under the existing Acord Lakes Road, adjacent to the intersection with the proposed Quitchupah Creek Road, to allow wildlife/livestock to cross under during the spring and fall trailing.

Under this alignment, about 4.4 miles of the existing road would be supplanted by the new road. Two-track road segments that would be reclaimed total 2.5 miles.

Lands
The lands crossed by this Alternative include private, public, and SITLA. Public lands include those managed by the USFS, Fishlake National Forest, and the BLM, Richfield Field Office (**Figures 2-1** and **2-2**). There are two private landowners along the route, listed as follows:

Castle Valley Ranches, LLC
Kenneth Lee and Earlene R. Christiansen

Table 2.3-1 describes land status, length of Alternative C within each jurisdiction, and estimated disturbance.

Table 2.3-1 Alternative C Alternate Junction with SR-10 and Alternate Design Land Status and Proposed Disturbance

Land Mgmt	Road Distance (miles)	County Jurisdiction	Construction Disturbance (acres)	Existing Road Disturbance (acres)	Staging Areas (acres)	Pull-Outs (acres)	Total New Surface Disturbance (acres)
USFS	2.3	Sevier	24.0	3.3	5	0.3	26.0
BLM	2.8	Sevier	23.6	1.4	5	0.3	27.5
SITLA	1.1	Sevier	12.3	0.9	5	0	16.4
Private	2.9	Sevier & Emery	31.4	5.0	0	0	26.4
Totals	9.1		91.3	10.6	15	0.6	96.3

The road construction corridor and staging area details for this alternative would be similar to the information presented in Alternative B, except this alignment would not require alteration of the SR-10 bridge crossing over Quitchupah Creek since no additional traffic lanes for accelerating and turning vehicles would be necessary at that site.

Pullouts

Pullouts are proposed for each of the build alternatives. Each would be 30 feet wide by 100 feet long unless the design is to use the existing road. Pullouts for Alternative C are proposed at the following stations:

Station 12+00 to 13+00	north side of proposed road
Station 60+00 to 63+50	north side, use existing road as pullout
Station 121+00 to 122+00	south side of road
Station 175+50 to 180+00	south side, use existing road as pullout
Station 287+00 to 288+00	south side of road
Station 430+00 to 431+00	north side of road

SR-10 Junction

The proposed road would junction with SR-10 approximately 3.0 miles south of the Town of Emery, creating a new intersection. Because the proposed road would carry coal truck traffic, both right and left turn lanes would be required for the proposed road. Since there is little grade for northbound traffic, an acceleration lane of 1,380 feet would be required for the coal truck traffic (**Figure 2-7**). Thus, there would be three lanes south of the intersection and four lanes north of the intersection. This construction would be under the direction of UDOT, and to UDOT and AASHTO standards. The disturbance for construction of the intersection and additional lanes would occur within the UDOT right-of-way or acquired right-of-way. An access permit would be required from UDOT for the junction with SR-10.

Construction Procedures

The design, preparation of right-of-way and roadbed, and general construction procedures of this alternative route would be similar to the information presented in Alternative B. BMPs are provided in **Appendix B**.

Stream Crossings and Culverts

The road alignment for Alternative C would require a total of 44 culvert crossings. **Figure 2-8** shows the typical channel realignment and **Figure 2-9** shows the locations of these crossings. This includes 22 primary crossings and 22 secondary crossings. The western-most 34 of these crossings would be the same crossings as would be required under Alternative B. Both primary and secondary culvert crossings would be designed to pass the 100-year flow, as calculated by Utah Department of Transportation methodology (UDOT, 2002). **Table 2.3-2** shows the 22 primary culvert locations, design flows, and culvert diameters.

Depending upon the season of construction, up to six of these crossings would be expected to be wet. BMPs that would be implemented during culvert design, placement, and maintenance are described in **Appendix B**.

In addition to the crossing culverts, numerous borrow ditch relief culverts would be used to direct and control road and upgradient runoff. They would be spaced at 500-foot intervals or less, depending upon road slope and proximity to stream channels. BMPs that apply to borrow ditch relief and other road drainage issues are contained in **Appendix B**.

Table 2.3-2 Primary Culvert Crossing Information - Alternative C

Station	Design Flow (cubic feet per second)	Culvert Diameter (inches) RCMP unless noted
11+00	123	60
18+00	173	72
66+00	234	84
94+00	252	84
186+50	117	96
190+50	39	42
201+00	123	60
203+50	26	36
213+50	108	60
228+50	1702	3 (108)*
232+50	1702	3 (108)*
250+00	1144	2 (108)*
251+50	2800	300 by 120 (box)*
256+50	2800	300 by 120 (box)*
268+00	282	84
300+00	156	60
323+50	117	60
392+00	500	108
410+00	140	84
422+50	220	96
434+50	550	120
463+00	100	60

*These crossings would provide fish passage.
Note: At crossings where fish passage is required, specialized culverts may be used, and diameter/type may vary from what is given above. However, in all cases, capacity will be capable of passing the 100-year flow at a minimum.

Stream Re-Alignment
Stream realignment would be required at all of the same locations as for Alternative B: in upper Convulsion Canyon, lower East Spring Canyon, and in Quitchupah Creek at the Rock Art sites. The stream realignment process requires a State of Utah Stream Alteration Permit. For this project, because an individual COE permit would also be needed for the wetland fill, the COE has asked to handle all stream realignment and crossing permits under the single COE 404 permit, rather than using the joint state/federal GP40 Permit under the Stream Alteration rules. The permit would set conditions for hydraulic design of each realigned section to maintain the integrity of the creek both upstream and downstream. Further, **Appendix B** provides BMPs that would be used in the design and construction of these realigned sections.

Reclamation
Reclamation along the Alternate Junction with SR-10 alignment would be similar to the reclamation procedures identified in Alternative B (See **Appendix B** - BMPs). The erodible soils on the west end of the alternate route would require the use of erosion matting to protect the soil surface and ensure seed germination on the reclaimed soils in this area.

Road Use
Use of the Alternate Junction with SR-10 road alignment would be equivalent to that identified in Alternative B.

Operation and Maintenance
Operation and maintenance actions and requirements along the Alternate Junction with SR-10 would be equivalent to those identified in Alternative B, except that additional maintenance, by the SSD, of wildlife/livestock infrastructure such as fencing and underpasses would also be required. Monitoring of maintenance would be conducted by the BLM.

Applicant-Committed Environmental Protection Measures for Alternative C

These measures would be the same as those for Alternative B with the addition of the following:

1. An underpass for wildlife would be constructed at Station 377+00. Deer use a north-south corridor to move to the agricultural fields and creek for food and water, and return via the same corridor to seek cover in the terrain north of the gap.

Agency-Committed Environmental Protection Measures for Alternative C

These measures would be the same as those for Alternative B.

2.4 Alternative D - Water Hollow Road Alignment

Water Hollow is a large northeast-southwest trending drainage that cuts through Old Woman Plateau on the Fishlake National Forest. The Alternative D - Water Hollow Road would utilize the Quitchupah Creek Road Alignment for 2.0 miles of the westernmost portion of its alignment. At this point, it crosses Quitchupah Creek and follows to the south of this drainage to Water Hollow. This Alternative continues in an easterly direction along an existing jeep trail to Water Hollow Benches where it then turns south to Saleratus Benches. From Saleratus Benches, the Water Hollow Road Alternative then turns north and east to connect with SR-10.

The Water Hollow Road Alternative alignment is about 7,550 feet above mean sea level (AMSL); this alignment is 11.25 miles long and drops 1,430 feet in elevation for an average grade of 2.5 percent. The descent into Water Hollow has an average grade of 4 percent, and the ascent out of Water Hollow onto Water Hollow Bench is 7 percent for 900 feet. The crossing of Water Hollow would require large cuts up to 65 feet deep on both approaches and a large fill 90 feet high and 350 feet wide. This alignment also crosses several other large perennial and ephemeral tributary drainages, for a total of 20 primary crossings. The acreage of impact for the Water Hollow Road is 146.3 acres (**Figure 1-2**). Except for the western end where the Water Hollow road would obliterate the existing two-track road (approximately 2.1 miles), the existing road would remain in place, but signs would be posted ("*NOT MAINTAINED FOR NORMAL TRAFFIC"*) to discourage use. At the Forest boundary, motorized access to the paved road would be restricted.

Lands

The lands crossed by this build alternative include mostly public lands and one parcel of private land (**Appendix A**). Public lands include those managed by the BLM, Richfield Field Office headquartered in Richfield in Sevier County. The National Forest System lands are managed by the Fishlake National Forest headquartered in Richfield, Utah. The private landowner is Castle Valley Ranches, LLC (see **Figures 2-2 and 2-10**).

Table 2.4-1 describes the length of the Water Hollow Road alternative within each jurisdiction and the estimated disturbance.

Table 2.4-1 Alternative D - Water Hollow Road Land Status and Proposed Disturbance

Land Mgmt	Road Distance (miles)	County Jurisdiction	Construction Disturbance (acres)	Existing Road Disturbance (acres)	Staging Areas (acres)	Pull-Outs (acres)	Total New Surface Disturbance (acres)
USFS	2.52	Sevier	30.5	2.6	5.0	0.3	33.2
BLM	7.94	Sevier	95.3	0	10.0	0.6	105.9
SITLA	0.26	Sevier	2.4	0	0	0	2.4
Private	0.53	Sevier	4.8	0	0	0	4.8
Totals	11.25		133.0	2.6	15.0	0.9	146.3

Details for design and construction are available for this alternative alignment (**Appendix B**).

Pullouts

Pullouts are proposed for each of the build alternatives. Each would be 30 feet wide by 100 feet long unless the design is to use the existing road. Pullouts for Alternative D are proposed at the following stations:

Station 12+00 to 13+00	north side of proposed road
Station 60+00 to 63+50	north side, use existing road as pullout
Station 121+00 to 122+00	south side of road
Station 174+50 to 175+50	south side of road
Station 182+00	north side of road, access point from old road
Station 219+00 to 220+00	south side of road
Station 239+00 to 240+00	east side of road
Station 299+00 to 300+00	east side of road
Station 325+00 to 326+00	east side of road
Station 497+00 to 498+00	north side of road

SR-10 Junction

The proposed road would junction with SR-10 approximately 6.5 miles south of Emery Town and 2.0 miles south of Quitchupah Creek bridge, creating a new intersection. Because the proposed road would carry coal truck traffic, both right and left turn lanes would be required for the proposed road. Since there is little grade for northbound traffic, an acceleration lane of 1,380 feet would be required for the coal truck traffic (**Figure 2-11**). Thus, there would be three lanes south of the intersection and four lanes north of the intersection. This construction would be under the direction of UDOT and according to UDOT and AASHTO standards. An access permit would be required from UDOT.

The disturbance for construction of the intersection and additional lanes would occur within the UDOT right-of-way or acquired right-of-way.

Wildlife Bridge Crossings

Big game animals cross this road area to access winter and summer ranges, thus wildlife crossings must be constructed at strategic locations along the route to facilitate migration patterns.

Utah Division of Wildlife Resource guidelines suggest the following: "Structures designed to allow wildlife passage below the road should meet an "openness ratio" of one or greater. This is to say that the width of the bridge multiplied by the height of the bridge, divided by the length of the bridge, should be at least "1". Since these bridges must accommodate mature bull elk, the height of the bridge must be at least 16 feet to allow for antler clearance (Jones, 2005, Letter from Derris Jones, Regional Supervisor, S.E. Region, UDWR, August 31, 2005).

Stream Crossings and Culverts

The road alignment for Alternative D would require a total of 44 culvert crossings and five bridge crossings (as per UDWR recommendations, Mead 2005, email from Leroy Mead, UDWR, 3-30-2005). **Figure 2-12** shows the locations of these crossings. This includes 20 primary crossings and 29 secondary crossings. The western-most 4 of these crossings would be the same crossings as would be required under Alternative B. Both primary and secondary culvert crossings, and bridges, would be designed to pass the 100-year flow, as calculated by UDOT methodology (UDOT, 2002). **Table 2.4-2** shows the primary culvert crossing locations, design flows, and culvert diameters; as well as the recommended wildlife crossing bridge locations. Two additional wildlife bridge crossings are suggested by UDWR and shown in the table. Final number, placement, and design of wildlife bridge crossing structures would be determined during project implementation in consultation with the UDWR and BLM biologists.

Depending upon the season of construction, three of these crossings would be expected to be wet. BMPs that would be implemented during culvert design, placement, and maintenance are described in **Appendix B**.

In addition to the crossing culverts, numerous borrow ditch relief culverts would be used to direct and control road and upgradient runoff. They would be spaced at 500-foot intervals or less, depending upon road slope and proximity to stream channels. BMPs that apply to borrow ditch relief and other road drainage issues are contained in **Appendix B**.

Table 2.4-2 Primary Culvert Crossing Information - Alternative D

Station	Design Flow (cubic feet per second)	Minimum Culvert Diameter (inches)/ Bridge Crossing RCMP unless noted
11+00	123	60
18+00	173	72
66+00	234	84
94+00	252	84
121+50	419	Wildlife Bridge**
131+50	125	72
177+00	1060	Wildlife Bridge**
229+50	52	Wildlife Bridge**
255+00	56	Wildlife Bridge**
306+50	120	Wildlife Bridge**
338+00	75	54
339+50	75	54
341+50	58	48
366+50	66	48
384+50	42	48
412+50	324	72
419+00	9	96
432+00	173	48
463+00	356	96
471+00	53	96
359+40		Wildlife Bridge ** (Additional UDWR suggested)
507+80 or 491+90 or 493+10		Wildlife Bridge ** (Additional UDWR suggested)

*Crossing would provide for fish passage.
** These crossings are addressed in mitigation measures for wildlife.
Note: At crossings where fish passage is required, specialized culverts may be used, and diameter/type may vary from what is given above. However, in all cases, capacity will be capable of passing the 100-year flow at a minimum.
Additional Note: Structures designed to allow wildlife passage below the road should meet an "openness ratio" of one or greater. This is to say that the width of the bridge multiplied by the height of the bridge, divided by the length of the bridge, should be at least "1".

Stream Realignment

Stream realignment would be required at two of the locations proposed under Alternative B or C: in upper Convulsion Canyon (two realigned segments) and in lower East Spring Canyon. There would be no realignment needed in Quitchupah Creek at the Rock Art site. The stream re-alignment process requires a State of Utah Stream Alteration Permit. For this project, because an individual COE permit would also be needed for the wetland fill, the COE has asked to handle all stream realignment and crossing permits under the single COE 404 permit, rather than using the joint state/federal GP40 Permit under the Stream Alteration rules. The permit would set conditions for hydraulic design of each realigned section to maintain the integrity of the creek both upstream and downstream. Further, **Appendix B** provides BMPs that would be used in the design and construction of these realigned sections.

Construction Procedures
Wherever possible, design and construction practices similar to those described for the Quitchupah Creek Road alignment (Alternative B) would be followed. However, the Water Hollow alternative alignment crosses significantly rougher terrain for much of its route and more extensive cuts and fills would be necessary, as well as perhaps more substantial blasting requirements. This may require a longer period of construction. Road operations, maintenance, and usage would be similar to those described for the Quitchupah Creek Road alignment. BMPs are provided in **Appendix B**.

Applicant-Committed Environmental Protection Measures for Alternative D

Wetlands
The plans for replacement of wetlands and riparian communities in the upper section of Alternative D are presented under Alternative B.

Water
The coal truck cleaning measure for this Alternative is the same as was presented in Alternative B.

In addition, the applicant would be responsible for constructing and maintaining water bars along the remaining segments of the existing Quitchupah Creek Road to improve storm drainage, and reduce erosion and sedimentation. These water bars would be constructed to agency specifications in regard to size, location, and outflow considerations. A maintenance schedule would also be stipulated by the agencies.

Raptor Protection
The removal of animal carcasses from the road is same as detailed in Alternative B.

Wildlife Bridge Crossings
Big game animals would need to cross this road alignment in order to access winter and summer ranges, Five wildlife crossing structures are planned for strategic locations along the route to facilitate migration patterns. These structures would be designed to allow wildlife passage below the road, and in order to accommodate mature bull elk, the height of the bridges must be at least 16 feet to allow for antler clearance.

Livestock
The riparian fencing and the managed trailing for livestock on the Forest allotment are the same as presented in Alternative B.

G.L. Olsen Allotment
Since a relatively high number of cattle are concentrated in this small allotment, the proposed road would need to be fenced to restrict cattle access to the road. Also the road in the allotment is mostly cut below the natural grade, creating a wide ditch with steep sideslopes making it difficult for cattle to enter and exit the ditch. To control the cattle and better manage the allotment, the proposed road would be fenced.

The fencing would extend on both sides of the cuts and/or fills from Station 187+00 on the west to Station 275+00 on the east, a distance of 8,800 feet (1.6 miles). Cattleguards on the proposed road and natural barriers at each end of the fence would restrict cattle movement past the fenced portions of the road. On the west, the cliffs and cattleguard would prevent cattle from entering Water Hollow. This would relieve grazing pressure on the narrow riparian zone in Water Hollow and on The Cove tributary. On the east, the cattleguard and natural barriers of the drainages with cliffs would prevent cattle drift into the Saleratus Allotment. Gates located every mile would allow cattle to be moved across the proposed road as needed

and would allow cattle that did accidentally enter upon the roadway to be removed. See Figures PP-07-10 in **Appendix B**.

Since the cattle would be blocked from watering in Water Hollow, and the two ponds on the east are usually dry, a water system would need to be developed to provide water for the cattle during the short grazing season. The system would consist of 5,000 gallon (or larger) water storage tanks located at Stations 223+00 and 261+00 with a pipe system extending to water troughs located 500 to 1,300 feet away from the proposed road on both sides of the road. The system would be gravity-fed with water levels in the troughs controlled by float valves. The SSD would haul water to the storage tanks located along the road during the 4-6 week grazing season. Two watering systems are required because of deep drainages with cliffs blocking movement of cattle between the seedings. See Figures PP-08 & 11 in **Appendix B**.

The allotment, divided by the road, fenced, with watering troughs on both sides of the road, would then be managed as a two pasture allotment. The turn-in pasture would be rotated each year to better manage the forage. The cattle would be moved internally between pastures as stipulated in the allotment management plan and would cross the road at a designated time when coal transport was not scheduled or coal transport was halted to allow for the crossing. Cattle would enter and exit the allotment via a trail directly from Quitchupah Creek to the north.

Saleratus Allotment
Because the cattle concentrate on the lower elevations of this allotment, fencing would be needed to restrict cattle access to the proposed road. The fence would start at Station 435+00 on the west where steep terrain combined with a cattleguard on the road would block westward cattle movement. The fence would extend east across the lower slopes and valleys to Station 594+50 where it would join with the right-of-way fencing along SR-10. A cattleguard would also be installed here to prevent cattle on the road from entering the SR-10 roadway. Gates every mile would allow for any needed cattle movement north and south or removal of trespass cattle on the road. There would be about 19,000 feet (3.6 miles) of fencing.

The cattle would be moved across this road if needed, either by moving when coal transport is not scheduled or scheduling a halt to transport so the cattle would be moved at a designated time.

There would be no fencing on approximately 16,000 feet (about 3 miles) in the rough terrain adjacent to the upper benches.

Livestock Trail
The construction of 1.5 miles of trail for livestock is the same as presented in Alternative B.

Agency-Committed Environmental Protection Measures for Alternative D

These measures would be the same as those for Alternative B in Convulsion Canyon.

2.5 Best Management Practices

General best management practices (BMPs) related to road design, construction, reclamation, and operation are described in detail in **Appendix B**. These practices, based upon sound, tested techniques from established government sources (e.g., US Forest Service, BLM, and State of Utah), would be closely adhered to throughout the Project.

Prior to start of the project, an Alternative-specific BMP Report, which relates specifically to potential resource impacts of that alternative, would be prepared to mitigate for any impacts which might occur during the construction of the road. This BMP report would relate to storm water protection and water quality monitoring. A schedule would be set up for the monitoring of all BMPs, and the construction supervisor, using a checklist, would observe and write down project conditions and compliance with the BMP report. That person would also make recommendations as to the repair or addition of BMPs. The reports would be placed in a central location and made available to any construction inspectors. At the end of the project, the reports would be placed into the As-built Report.

A site plan would be developed which identifies the physical features of the site, the location of the proposed development, and the location of temporary and/or permanent BMPs. The purpose of this would be to minimize earth movement and vegetation removal, avoid steep slopes, and retain natural drainage systems. It also includes maintenance of this plan by updating it regularly as conditions change, and describes grading season and construction practices, access roads, dust control and topsoil management, and designs of temporary and permanent soil stabilization through engineered and bio-engineered techniques.

2.6 Other Scenarios Considered But Eliminated From Detailed Study

Other alternatives or scenarios considered during agency review of the Proposed Action and during public scoping focused on different routes for the road or different methods to ship the coal to market.

Alternate Road Access
Different routes proposed basically considered constructing a road across the Old Woman Plateau or through Link Canyon. The Old Woman Plateau is an area south of the SUFCO Mine portal mostly on National Forest system lands that are managed as a Research Natural Area (RNA), portions of which have restrictions prohibiting vehicle travel, so the construction of a transport road would require modifications of the existing Forest management direction. The route through Link Canyon is located just west of the Town of Emery. Link Canyon has a good county-maintained road to the old mine workings where a portal could be located for loading trucks. The portal was identified in the Pines Tract EIS as a potential site for accessing coal in the Pines Tract. However, under the SUFCO mine plan and mining schedule this site is not economically feasible for construction and operation of a loadout. Issues such as constructing a way through naturally burned or oxidized coal at the portal site and restructuring the mine conveyor system to discharge at this portal site were expensive items. The mine engineers for the BLM in a meeting on June 23, 2000, after reviewing the mine plans and conceptual plans for a Link Canyon Portal, advised the responsible USFS and BLM officials that a portal plan was not economically viable (**Appendix C**).

Conveyor Systems
Different methods to transport coal centered on constructing conveyor systems to convey coal to a loadout facility where trucks would transport the coal to destinations in Carbon County. One conveyor system suggested would begin at the SUFCO Mine portal, traverse down East Spring Canyon to Quitchupah Creek where a loadout facility would be constructed. The terrain in East Springs Creek Canyon is too rugged and steep for a conveyor system so this alternative is not feasible from an engineering standpoint. A conveyor system in Link Canyon was also suggested, because a county road currently exists in the canyon. A conveyor system in Link Canyon would require a loadout facility in the vicinity of Emery Town to load the trucks destined for Carbon County. But because the portal facility was not economically feasible, a conveyor system in Link Canyon becomes a moot point.
A slurry system was also considered but the water demands are beyond the area's capability to provide, so this system was also not considered feasible.

Muddy Creek, a deep canyon on the north side of the Pines Tract, which is now being mined through the SUFCO Mine, was also considered as a possible portal site and coal transport route. However, the two primary problems with this alternative are: 1) a route in the canyon would be rough and steep and located adjacent to a stream that provides culinary water, a problem for maintaining water quality, and 2) the mine plan as explained in the preceding discussion on a portal in Link Canyon is not economically feasible.

2.7 Summary Comparison of Alternatives Relative to Issues

Table 2.7-1 presents a summary comparison of resources potentially affected by each Alternative. The information presented in this table is a summary comparison of the data presented in detail in Chapter 3 of this EIS. The effects identified in this table also assume that applicant-committed measures and mitigation have been implemented. The comparison of effects also includes effects that are common to all build Alternatives to demonstrate the relative effect of each Alternative.

2.8 Past, Present, Reasonably Foreseeable Future Actions

Council of Environmental Quality (CEQ) regulations (40 CFR 1508.7) define cumulative impact as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonable foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

Past, present, and foreseeable future actions in the Quitchupah Creek Road Project Area have been developed, and summaries are included in **Appendix D**. The action, year of occurrence, and estimates of residual, current, or anticipated effects, if any, are presented in tables provided in **Appendix D**. Actions are grouped by resource. The sum of the effects of these actions, in addition to the anticipated direct and indirect effects of the Proposed Action, forms the basis for the cumulative effects analysis.

The cumulative area for most resources is the Quitchupah Creek Road Project Area, which is defined as the Quitchupah Creek watershed west of SR-10 and excluding the North Fork and Link Canyon drainage areas. The Quitchupah Creek watershed area as defined includes Convulsion Canyon, East Spring Canyon (where SUFCO Mine is located), the lower portion of Water Hollow Creek, the drainages on Water Hollow and Saleratus benches, the junction of Quitchupah Creek and North Fork, and the lower portion of Link Canyon. These imposed boundaries generally follow the cliffs and escarpments on either side of Quitchupah Creek and tributaries.

The cumulative area for transportation and socioeconomics includes the tri-county area of Carbon, Emery, and Sevier Counties, the affected area for this project. Cumulative effects are discussed in each resource section in Chapter 3.

Table 2.7-1 Comparison of Alternatives

Key Issue	Alternative			
	A - No Action	**B - Proposed Road**	**C - Junction & Design**	**D - Water Hollow Road**
Water Quality				
1- Quitchupah Creek	1 - Erosion continues on exposed existing road surface and from uplands with poor vegetation cover	1 - Accelerated erosion from increased road disturbance; partially offset by BMPs and environmental commitments	1 - Accelerated erosion from increased road disturbance; partially offset by BMPs and environmental commitments	1 - Accelerated erosion from increased road disturbance, large cut/fill requirements, and retention of old road; partially offset by BMPs and greater distance to stream for new alignment
2 - Salinity, Colorado River & 303d listing of lower creek	2 - Salinity in creek continues at existing levels, primarily due to grazing, irrigation, and natural processes	2 - Major sources of salinity continue; potential road contributions minimal in relation to other sources	2 - Major sources of salinity continue; potential road contributions minimal in relation to other sources	2 - Major sources of salinity continue; potential road contributions minimal in relation to other sources
3 - major culverts or crossings	3 - No change in number or type of crossings; no change in consequences due to risk of crossing failure	3 – 18 total primary crossings; assigned rating of consequences due to risk of crossing failure is 1	3 – 22 net primary crossings; calculated rating of consequences due to risk of culvert crossing failure is 1.2	3 – 20 new primary crossings; calculated rating of consequences due to risk of culvert crossing failure is 1.4
4 - sedimentation potential, road <500 feet to creek	4 - 35,400 feet	4 - 33,800 feet	4 - 32,300 feet	4 - 38,900 feet
Soils				
1 – highly erodible soils	1 - 60 percent or 29,200' of the existing two-track road is in erodible soils	1 - 60 percent or 29,200' of the road would be in erodible soils	1 - 65 percent or 32,400' of the road would be in erodible soils	1 - 56 percent or 32,800' of the road would be in erodible soils
2 - shrink-swell soils	2 - 32 percent or 15,700'	2 - 32 percent or 15,700'	2 - 40 percent or 19,400'	2 - 58 percent or 33,900'
3 - Farmland soils	3 - 0.0 acres impacted	3 - 1.4 acres impacted (less than 1% of 145 acres)	3 - 1.4 acres impacted (less than 1% of 145 acres)	3 – 0.0 acres impacted
Vegetation				
1 - riparian	1 - No filling of riparian zone	1 - Approximately 1.0 acre of riparian zone at two locations would be filled	1 - Approximately 1.0 acre of riparian zone at two locations would be filled	1 - Approximately 1.0 acre of riparian zone at two locations would be filled
2 - noxious weeds	2 - The existing scattered colonization would continue	2 - Disturbances in the 8.9 mile road corridor could be subject to noxious weed invasion	2 - Disturbances in the 9.1 mile road corridor could be subject to noxious weed invasion	2 - Disturbances in the 11.25 mile road corridor could be subject to noxious weed invasion
3 - riparian protection through restricted or no grazing	3 - no protection	3- 4.7 miles of protection	3- 4.7 miles of protection	3- 4.7 miles of protection
4 - specific analysis	4 - Impacts to vegetation would occur due to grazing; road maintenance on east end,	4 - The 8.9 mile road corridor would cause disturbance in 5 different plant communities	4 - The 9.1 mile road corridor would cause disturbance in 5 different plant communities	4 - The 11.25 mile road corridor would cause disturbance in 5 different plant communities
5 – Wetlands	5 –Grazing-related impacts to existing wetlands would continue	5 – 0.33 acres of wetland filled, but a greater than 3:1 mitigation ratio proposed	5 – 0.33 acres of wetland filled, but a greater than 3:1 mitigation ratio proposed	5 – 0.33 acres of wetland filled, but a greater than 3:1 mitigation ratio proposed

Table 2.7-1 continued

Key Issue	Alternative			
	A - No Action	**B - Proposed Road**	**C - Junction & Design**	**D - Water Hollow Road**
Wildlife				
1 - road hazard	1 - Road not a hazard to wildlife	1 - Wildlife collisions would be greatly reduced due to fencing along the 8.9 mile road corridor	1 - Wildlife collisions would be greatly reduced due to fencing and underpasses along the 9.1 mile corridor	1 - Wildlife collisions would be greatly reduced due to fencing and underpasses along the 11.25 mile corridor
2 - displacement	2 - Low level of human activity	2 - Human activity along 8.9 mile road corridor would cause displacement of wildlife	2 - Human activity along 9.1 mile road corridor would cause displacement of wildlife	2 - Human activity along 11.25 mile road corridor would cause displacement of wildlife
3 - winter range seeding	3 - no additional seedings	3 - no additional seedings	3 - no additional seedings	3 - up to 700 acres of seedings
4 – fragmentation	4 - minor along existing road/track	4 - 9 miles of divide between uplands and riparian	4 - 7 miles of divide between uplands and riparian	4 - 2 miles of divide between uplands and riparian
5 – noise	5 – manmade noise distant or infrequent	5 – Increase in noise would create wildlife road avoidance zones	5 – Increase in noise would create wildlife road avoidance zones	5 – Increase in noise would create wildlife road avoidance zones
Fisheries				
1 - spills in stream	1 – no increased risk of spill to stream	1 – spill potential small, but if occurred, likely to reach stream	1 - spill potential small, but if occurred, likely to reach stream	1 - spill potential small, and unlikely to reach stream over much of the road length
2 - sediments, TDS, turbidity, etc	2- 35,400' of road within 500' of Quitchupah Creek as potential sediment source with no BMPs imposed	2 – 33,800' of road within 500' of Quitchupah Creek as potential sediment source, risk partially reduced by BMPs	2 – 32,300' of road within 500' of Quitchupah Creek as potential sediment source, risk partially reduced by BMPs	2 – 38,900' of road within 500' of Quitchupah Creek as potential sediment source, risk partially reduced by BMPs (includes existing two-track road that would remain in place)
TES Species				
1 - TES plants	1 - Little potential to impact TES plants	1 - A high potential to impact TES plant habitats	1 - A high potential to impact TES plant habitats	1 - A low potential to impact TES plant habitats
2 - TES fish, impacts due to sedimentation	2 - Continued sedimentation may affect fish populations	2 - Little change in sedimentation throughout Project Area	2 - Little change in sedimentation throughout Project Area	2 - No change in sedimentation throughout Project Area
3 - Section 7	3 - No Effect	3 - No adverse effect (MANLAA)	3 - No adverse effect (MANLAA)	3 - No adverse effect (MANLAA)
4 - MIS species	4 - No additional impacts	4 - >0.1% of sagebrush habitat disturbed	4 - >0.1% of sagebrush habitat disturbed	4 - >0.1% of sagebrush habitat disturbed

Table 2.7-1 continued

Key Issue	Alternative			
	A - No Action	**B - Proposed Road**	**C - Junction & Design**	**D - Water Hollow Road**
Range Resources				
1 - loss of forage due to road construction	1 - 0 AUMs	1 - 4 AUMs	1 - 4 AUMs	1 - 5 AUMs
2 - changes in livestock operations	2 - No changes	2 – Livestock would utilize segments of fenced corridor for trailing	2 - Livestock would utilize segments of fenced corridor for trailing	2 - Livestock would utilize segments of fenced corridor for trailing
3 - road hazard	3 - Not a hazard	3 – Minimal hazard as livestock would be fenced from road	3 - Minimal hazard as livestock would be fenced from road	3 - Minimal hazard as livestock would be fenced from road
4 - feed production on private land	4 - No Effect on impact to pastures	4- The elimination of 1.4 acres of pasture land would reduce feed production slightly (less than 1%)	4 - The elimination of 1.4 acres of pasture land would reduce feed production slightly (less than 1%)	4 - No impact to pastures
5 – changes in in-stream watering	5 – No changes in watering	5 – Riparian fencing would restrict livestock to specific locations for watering in-stream along 4.7 miles of Quitchupah Creek	5 – Riparian fencing would restrict livestock to specific locations for watering in-stream along 4.7 miles of Quitchupah Creek	5 – Riparian fencing would restrict livestock to specific locations for watering in-stream along 4.7 miles of Quitchupah Creek
6 – loss of forage due to riparian fencing	6 – 0 AUMs	6 – 5 AUMs	6 – 5 AUMs	6 – 5 AUMs
7 – Changes to allotments	7 – No changes to allotments	7 – E. Olsen allotment split by fencing of the road; cattle must be moved to each side	7 – E. Olsen allotment split by fencing of the road; underpass provides easy access	7- G.L. Olsen Allotment split by fencing of road; cattle must be moved to each side; water source cut off, therefore water provided by toll user
Land Use and Recreation				
1 - traditional uses	1 - Traditional uses unaffected	1 - The introduction of easy access and industrialization would reduce or eliminate many traditional uses	1 - The introduction of easy access and industrialization would reduce or eliminate many traditional uses	1 - The introduction of easy access and industrialization would reduce or eliminate many traditional uses
2 – ATV/OHV access	2 - Existing road would remain open for use as ATV/OHV route	2 - Existing road would no longer be available as ATV/OHV route	2 - Existing road would no longer be available as ATV/OHV route	2 – Much of the existing road would remain accessible as ATV/OHV route; 2.1 miles of route on FS land not available
3 - roadless (USFS)	3 - No roadless issues in area	3 - No roadless issues in area	3 - No roadless issues in area	3 - No roadless issues in area
4 - other facilities	4 - Facilities built around existing road	4 - Road construction would affect mine wastewater system, fences, and power line	4 - Road construction would affect mine wastewater system, fences, and power line	4 - Road construction would affect mine wastewater system, fences, and power line
5 - private lands	5 - Road easements covered by prescriptive rights-of-way	5 - The road would cross 3.7 miles of private land requiring the acquisition of rights-of-way from six landowners	5 - The road would cross 2.9 miles of private land requiring the acquisition of rights-of-way from two landowners	5 - The road would cross 0.53 miles of private land requiring the acquisition of rights-of-way from one landowner

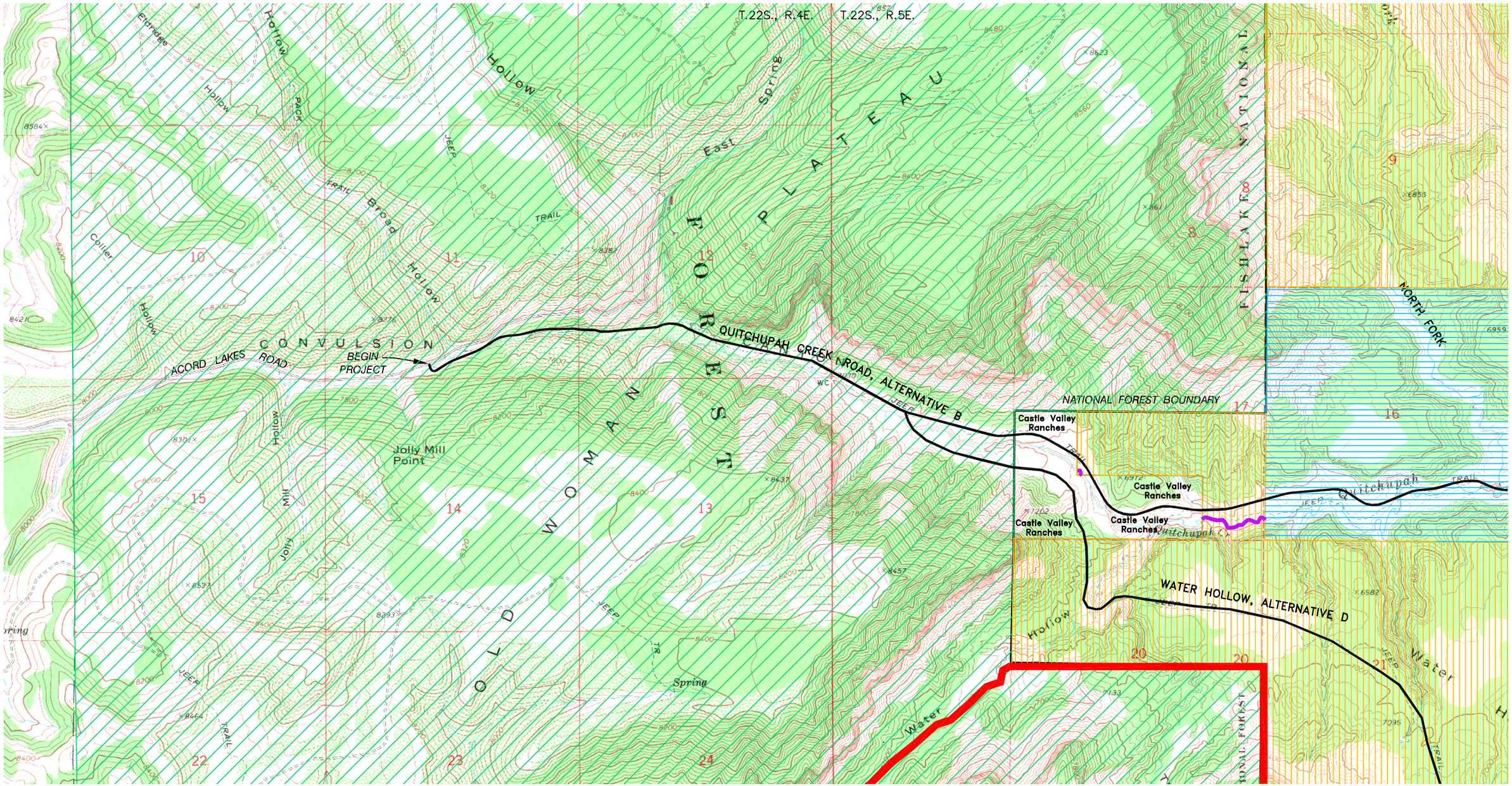
AUM = Animal Unit Month

Table 2.7-1 continued

Key Issue	Alternative			
	A - No Action	**B - Proposed Road**	**C - Junction & Design**	**D - Water Hollow Road**
Visual Resources				
1 - change in aesthetics	1 - Peaceful and remote	1 - The road would change nature and peacefulness of this remote area	1 - The road would change nature and peacefulness of this remote area	1 - The road would change nature and peacefulness of this remote area
2 - road visibility	2 - Hardly visible	2 - The road would be readily visible in the landscape, compared to existing road	2 - The road would be readily visible in the landscape, compared to existing road	2 - The road would be readily visible in the landscape, especially at Water Hollow, compared to existing road
3 - Visual Class	3 - Compatible with Modification and Class IV	3 - Compatible with Modification and Class IV	3 - Compatible with Modification and Class IV	3 - Compatible with Modification and Class IV
ACEC and Wild & Scenic River				
1- Proposed ACEC	1 – No Effect	1 – Impacts to cultural values for which ACEC was nominated	1 – Impacts to cultural values for which ACEC was nominated	1 – No Effect
2- Proposed Wild & Scenic River	2 – No Effect	2 – Impacts to cultural values for which 1.3 mile segment of Wild & Scenic River was nominated	2 – Impacts to cultural values for which 1.3 mile segment of Wild & Scenic River was nominated	2 – No Effect
Cultural Resources				
1 - rock art	1 Continued potential for indirect impacts to known rock art sites	1 – Potential indirect impacts to known rock art sites	1 – Potential indirect impacts to known rock art sites	1 - Continued potential for indirect impacts to known rock art sites
2 - impacts to historic and prehistoric sites	2 - No impacts to sites	2 - Direct impacts to 6 eligible sites, potential indirect impacts to rock art	2 - Direct impacts to 10 eligible sites, potential indirect impacts to rock art	2 - 0 eligible sites impacted
3 - paleontological sites	3 - No impacts to significant paleontological sites	3 - No impacts to significant paleontological sites	3 - No impacts to significant paleontological sites	3 - No impacts to significant paleontological sites
Native American Concerns				
1 - sacred values	1 - No impacts to sacred values	1 - Direct impacts to sacred values in Convulsion Canyon/ Quitchupah Creek	1 - Direct impacts to sacred values in Convulsion Canyon/ Quitchupah Creek	1 - Direct impacts to sacred values in Convulsion Canyon
2 - areas of traditional importance	2 - No impacts to known cultural resource sites	2 - Direct and indirect impacts to known cultural resource sites	2 - Direct and indirect impacts to known cultural resource sites	2 - Direct and indirect impacts to known cultural resource sites

Table 2.7-1 continued

Key Issue	Alternative			
	A - No Action	**B - Proposed Road**	**C - Junction & Design**	**D - Water Hollow Road**
Transportation				
1 - reduce distance	1 - There would be no reduction in the round-trip haul	1 - Would reduce round-trip haul by 55.4 miles	1 - Would reduce round-trip haul by 58 miles	1- Would reduce round-trip haul by 46.7 miles
2 - junction	2 - No change in existing junction	2 - The junction would require widening of bridge, the addition of turn lanes, and a long acceleration lane to ascend grades on SR-10	2 - The junction would require the addition of two turn lanes on level grade	2 - The junction would require the addition of two turn lanes on level grade
3 - SR-10 surface	3 - Coal truck traffic will increase maintenance on SR-10 from milepost 0 to Muddy Creek	3 - Coal truck traffic will increase maintenance on SR-10 from milepost 9 to Muddy Creek	3 - Coal truck traffic will increase maintenance on SR-10 from milepost 10 to Muddy Creek	3 - Coal truck traffic will increase maintenance on SR-10 from milepost 6 to Muddy Creek
Socioeconomics				
1 – Economic benefits, mine production, mine employment	1 - Continued mine production, employment, and revenues due to contract sales to east and addition of Muddy tract	1 - A potential increase in mine production, employment, and revenues due to increased sales to eastern markets and addition of Muddy tract. There are also economic benefits that accrue, in time, for the electrical energy consuming public and industry. Lower cost will allow mine to recover an additional 44 million tons, adding 6 to 10 years to mine life.	1 - A potential increase in mine production, employment, and revenues due to increased sales to eastern markets and addition of Muddy tract. There are also economic benefits that accrue, in time, for the electrical energy consuming public and industry. Lower cost will allow mine to recover an additional 44 million tons, adding 6 to 10 years to mine life.	1 - A potential increase in mine production, employment, and revenues due to increased sales to eastern markets and addition of Muddy tract. There are also economic benefits that accrue, in time, for the electrical energy consuming public and industry. Lower cost will allow mine to recover an additional 20 million tons, adding 3 to 5 years to mine life.
2 -Emery County	2 - Continued economic stimulus and truck traffic due to contract sales	2 - There would be economic benefits for Emery, Carbon, and Sevier Counties	2 - There would be economic benefits for Emery, Carbon, and Sevier Counties	2 - There would be economic benefits for Emery, Carbon, and Sevier Counties
3 - Fuel savings to SUFCO Mine	3 - No fuel savings to SUFCO Mine due to continued use of longer route	3 - The shorter haul route would have fuel savings up to 1.6 million gallons per year.	3 - The shorter haul route would have fuel savings up to 1.7 million gallons per year.	3 - The shorter haul route would have fuel savings up to 1.4 million gallons per year.
4 - Cost savings to SUFCO Mine	4 - No cost savings to SUFCO Mine due to continued use of longer route	4 - $4-10 M annual cost savings due to shorter route	4 - $4-11 M annual cost savings due to shorter route	4 - $4-9 M annual cost savings due to shorter route
5 - Lifestyle impacts	5 - Traditional uses continue in canyon	5 - Impacts to current canyon users would occur	5 - Impacts to current canyon users would occur	5 - Impacts to current canyon users would occur
6 - UDOT Maintenance costs on SR-10	6 - Cost of $1.84 million	6 - Cost of $1.06 million, a savings of $773,000 as compared to No Action	6 - Cost of $0.92 million, savings of $918,000 as compared to No Action	6 - Cost of $1.27 million, savings of $564,000 as compared to No Action
7 – Safety	7 - No second route to SUFCO Mine to lessen congestion and provide additional emergency access	7 - The new road would reduce the traffic density on the other route, which should make the overall shipping process safer because neither route would carry the full traffic load and the resulting high traffic density.	7 - The new road would reduce the traffic density on the other route, which should make the overall shipping process safer because neither route would carry the full traffic load and the resulting high traffic density.	7 The new road would reduce the traffic density on the other route, which should make the overall shipping process safer because neither route would carry the full traffic load and the resulting high traffic density.

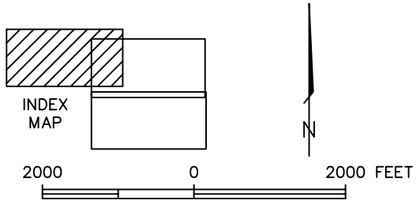


EXPLANATION

- ROAD ALIGNMENT
- OLD WOMAN RNA
- BLM SCENIC RIVER NOMINATION

LAND STATUS

- FOREST SERVICE
- STATE
- BLM
- PRIVATE



QUITCHUPAH CREEK ROAD EIS

FIGURE 2–1
LAND STATUS AND OWNERSHIP MAP

jbr environmental consultants, inc.
Salt Lake City, Utah Cedar City, Utah Reno, Nevada Elko, Nevada

DESIGN BY	LM	DRAWN BY	CP	CH'D BY		SCALE	1"=2000'

DATE DRAWN	7/2/01
REVISION	10/18/01
	7/1/02
	7/14/05

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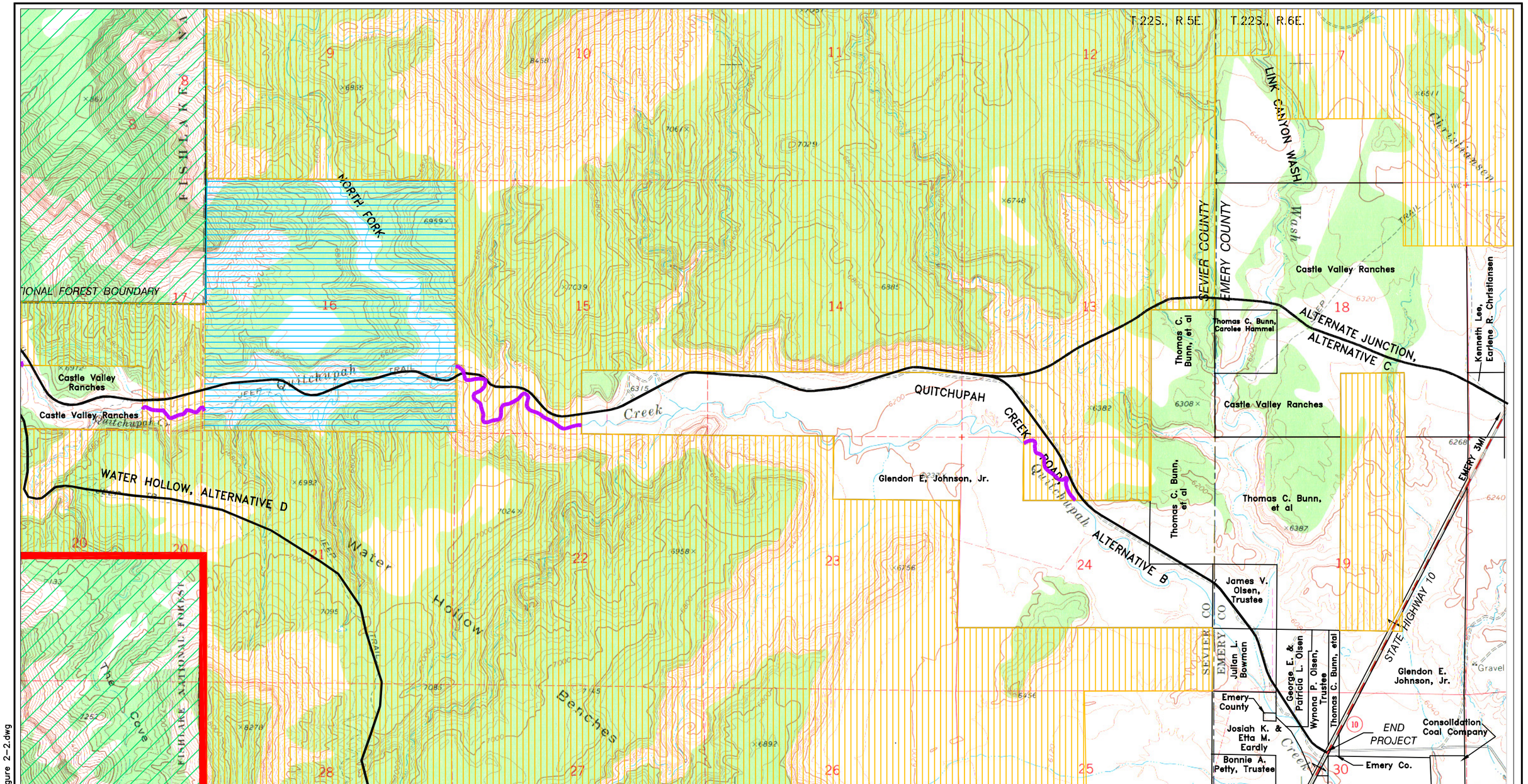

EXPLANATION

- ROAD ALIGNMENT
- OLD WOMAN RNA
- BLM SCENIC RIVER NOMINATION

LAND STATUS

- FOREST SERVICE
- STATE
- BLM
- PRIVATE

INDEX MAP

N

2000 2000 FEET

QUITCHUPAH CREEK ROAD EIS

FIGURE 2–2
LAND STATUS AND OWNERSHIP MAP

jbr environmental consultants, inc.
Salt Lake City, Utah Cedar City, Utah Reno, Nevada Elko, Nevada

DESIGN BY	LM	DRAWN BY	CP	CH'D BY		SCALE	1"=2000'

DATE DRAWN	7/01/02
REVISION	6/13/03
	7/14/05
	9/28/05

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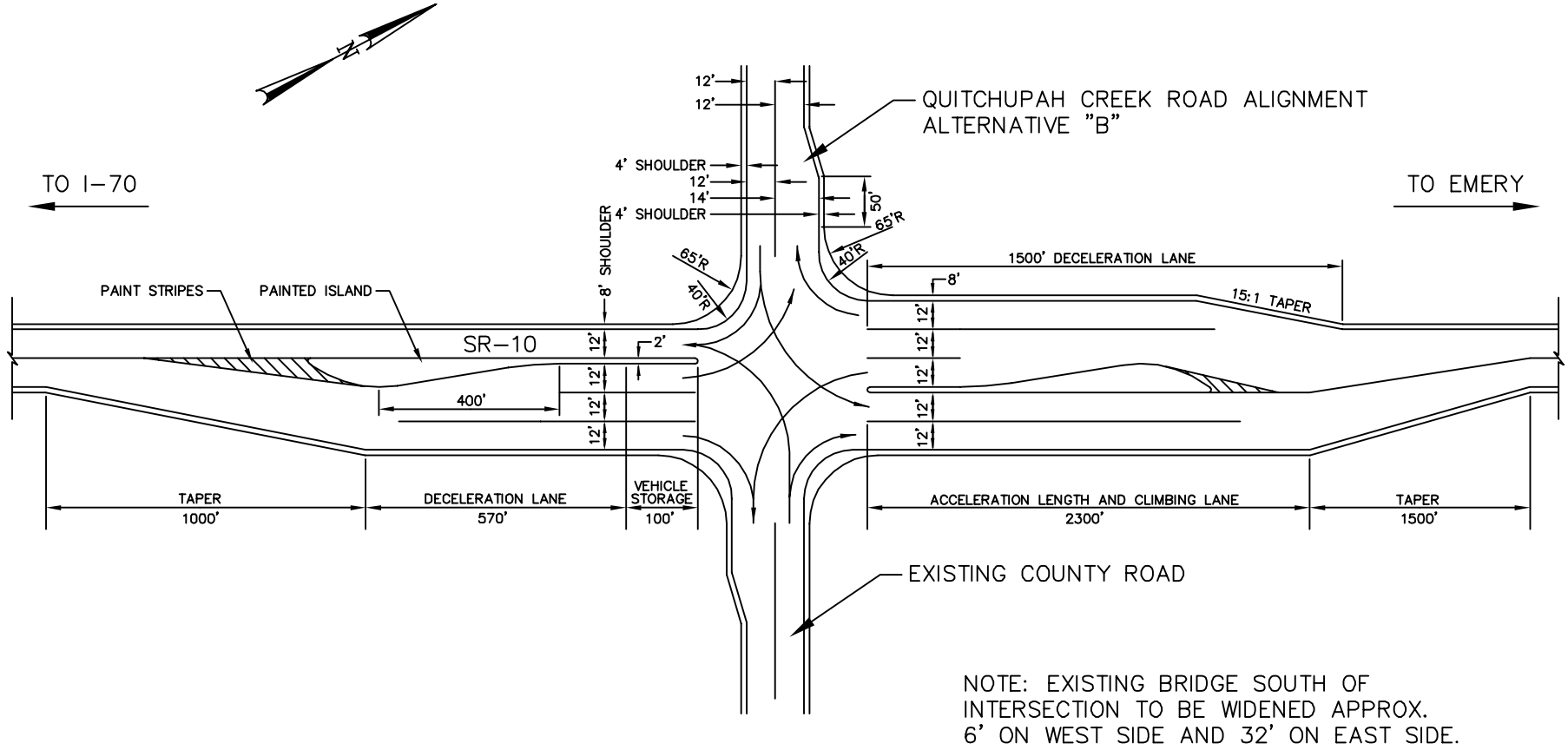

NOTE: EXISTING BRIDGE SOUTH OF INTERSECTION TO BE WIDENED APPROX. 6' ON WEST SIDE AND 32' ON EAST SIDE.

QUITCHUPAH CREEK ROAD EIS

FIGURE 2-3
ALTERNATIVE B SR-10 JUNCTION

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Salt Lake City, Utah Cedar City, Utah Reno, Nevada Elko, Nevada

Drawing Courtesy of Jones & DeMille Engineering

DATE DRAWN 6/13/03

REVISION

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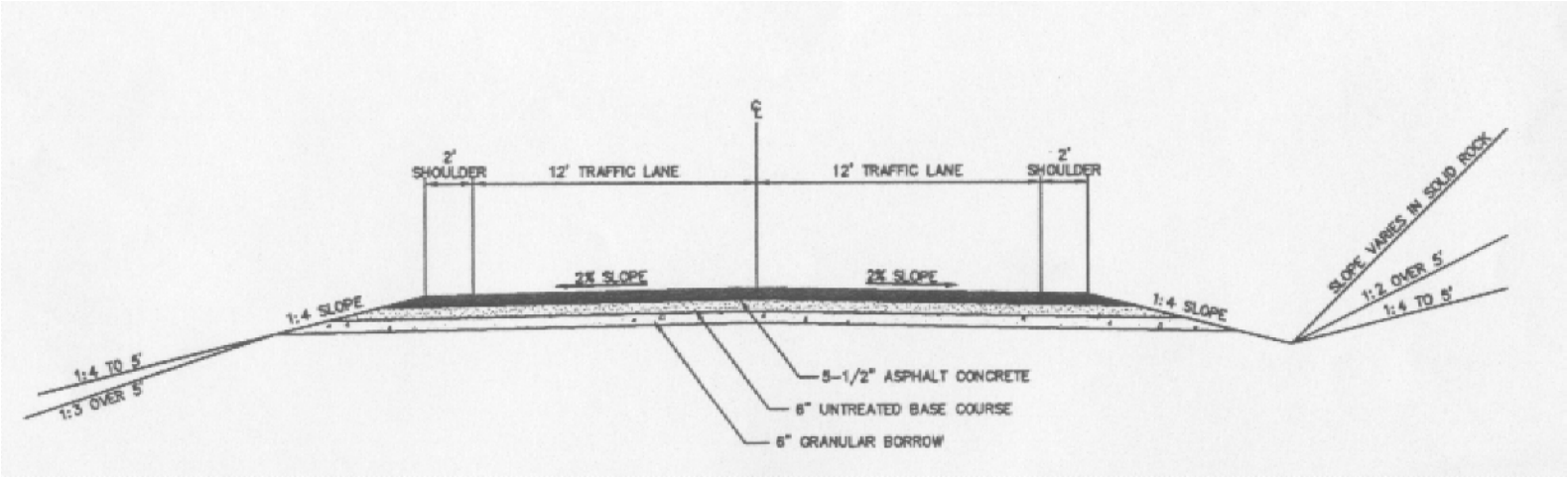

QUITCHUPAH CREEK ROAD EIS

FIGURE 2-4
TYPICAL ROADBED SECTION
FOR SUITABLE SOILS

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Salt Lake City, Utah Cedar City, Utah Reno, Nevada Elko, Nevada

Drawing Courtesy of Jones & DeMille Engineering

DATE DRAWN 6/25/01

REVISION

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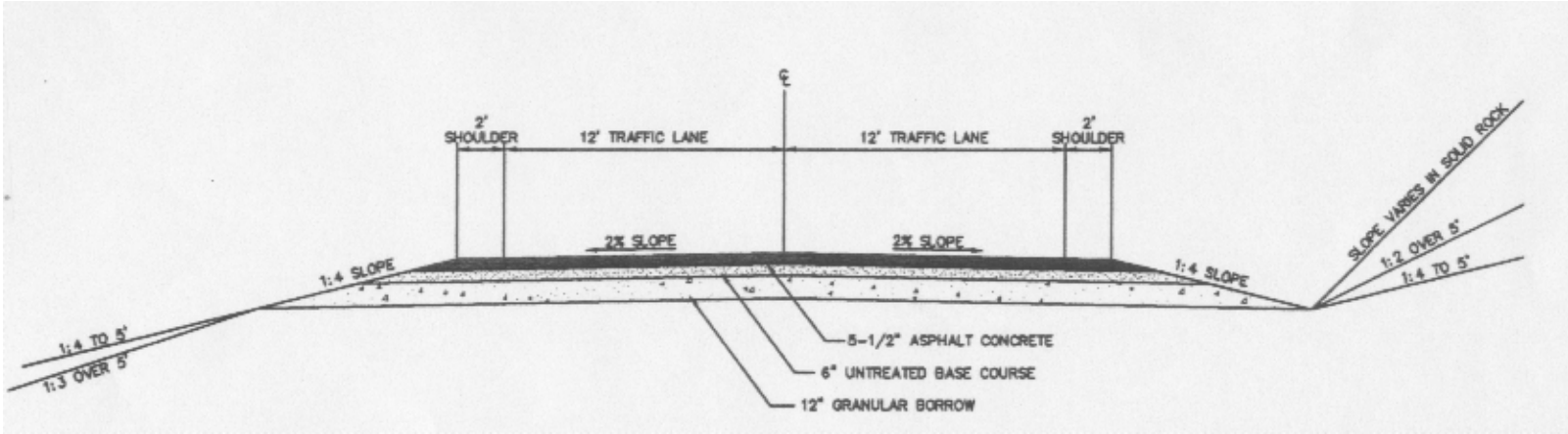

QUITCHUPAH CREEK ROAD EIS

FIGURE 2-5
TYPICAL ROADBED SECTION
FOR UNSUITABLE SOILS

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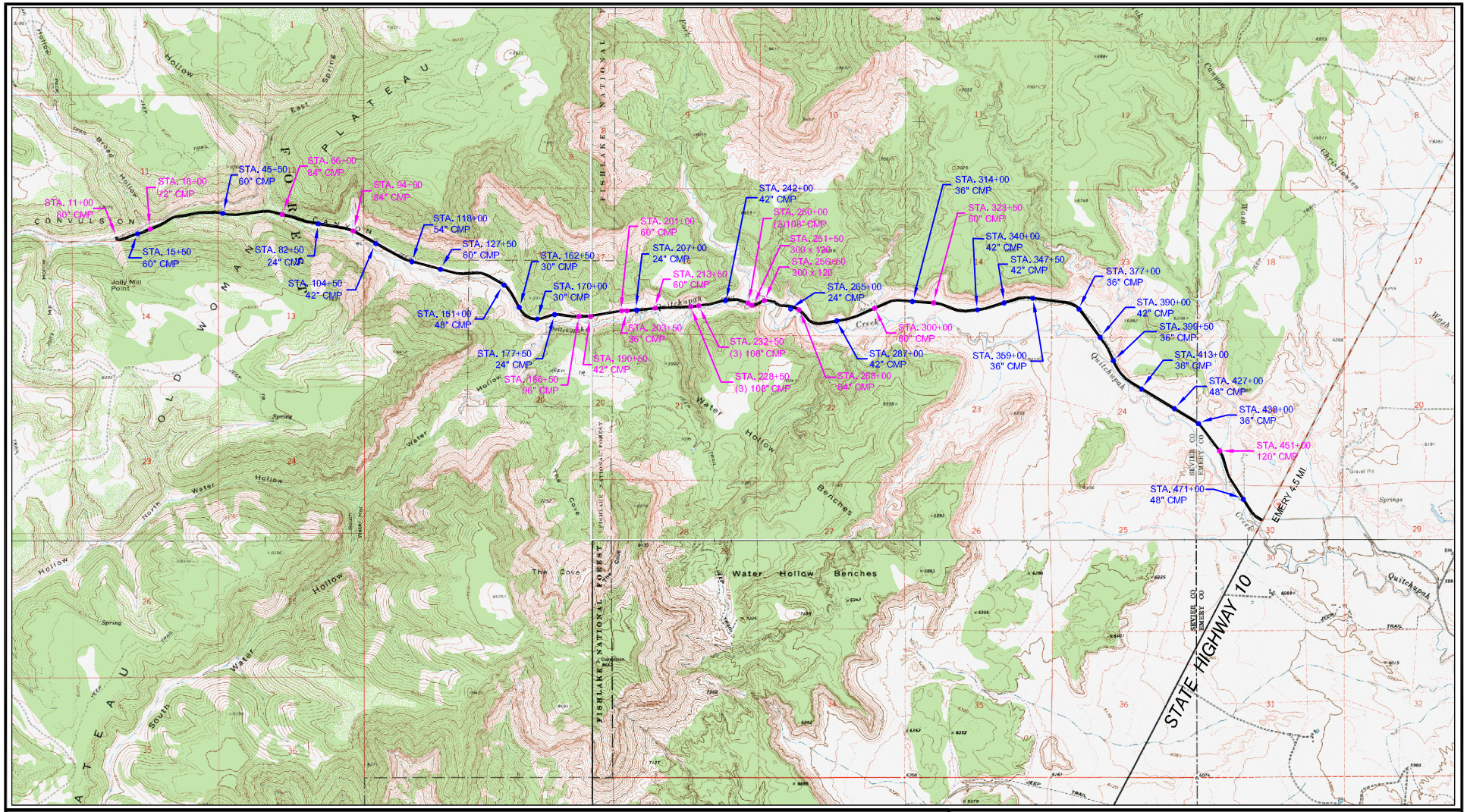

EXPLANATION

QUITCHUPAH CREEK ROAD, ALTERNATIVE B

PRIMARY CULVERT CROSSING

SECONDARY CULVERT CROSSING

1 0 1 MILE

N

QUITCHUPAH CREEK ROAD EIS

FIGURE 2-6
ALTERNATIVE B CULVERT LOCATIONS

jbr environmental consultants, inc.
Salt Lake City, Utah Cedar City, Utah Reno, Nevada Elko, Nevada

Drawing Courtesy of Jones & DeMille Engineering

DATE DRAWN	7/02/02
REVISION	5/05/03
	6/13/03
	9/28/05

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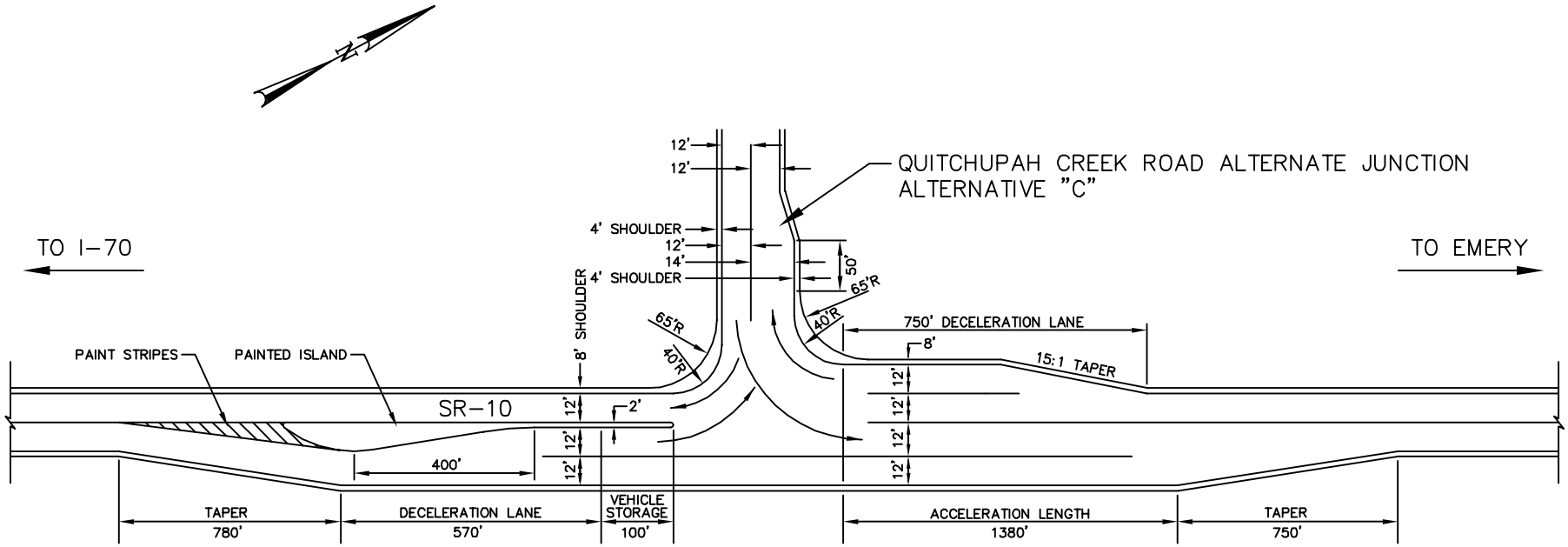

QUITCHUPAH CREEK ROAD EIS

FIGURE 2-7
ALTERNATIVE C SR-10 JUNCTION

jbr environmental consultants, inc.
Salt Lake City, Utah Cedar City, Utah Reno, Nevada Elko, Nevada

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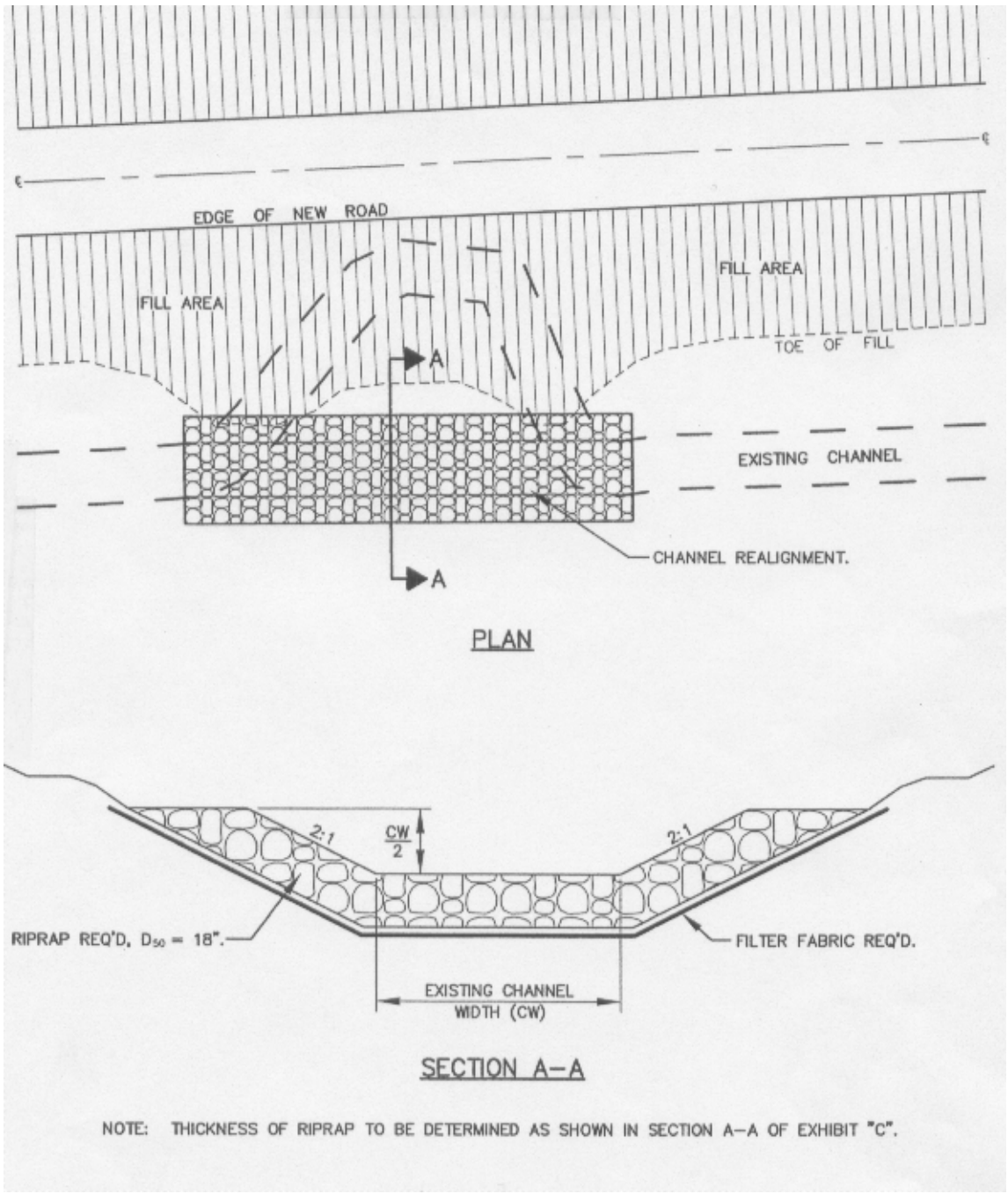
DATE DRAWN 6/13/03

REVISION



QUITCHUPAH CREEK ROAD EIS

FIGURE 2–8
TYPICAL CHANNEL REALIGNMENT

jbr environmental consultants, inc.
Salt Lake City, Utah Cedar City, Utah Reno, Nevada Elko, Nevada

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DATE DRAWN 6/25/01

REVISION

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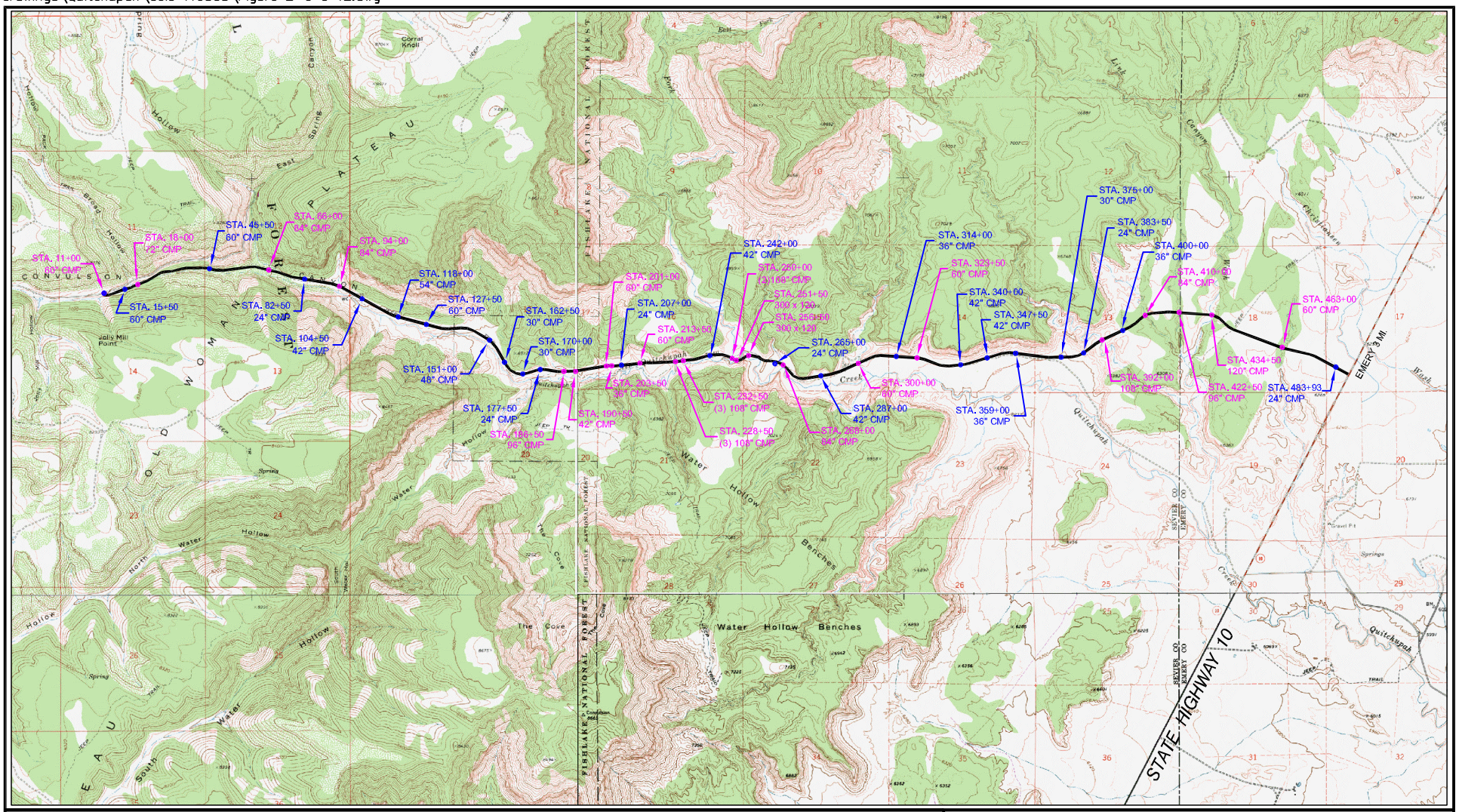

EXPLANATION

ALTERNATE ROUTE, ALTERNATIVE C

PRIMARY CULVERT CROSSING

SECONDARY CULVERT CROSSING

1 0 1 MILE

N

QUITCHUPAH CREEK ROAD EIS

FIGURE 2–9
ALTERNATIVE C CULVERT LOCATIONS

jbr environmental consultants, inc.
Salt Lake City, Utah Cedar City, Utah Reno, Nevada Elko, Nevada

Drawing Courtesy of Jones & DeMille Engineering

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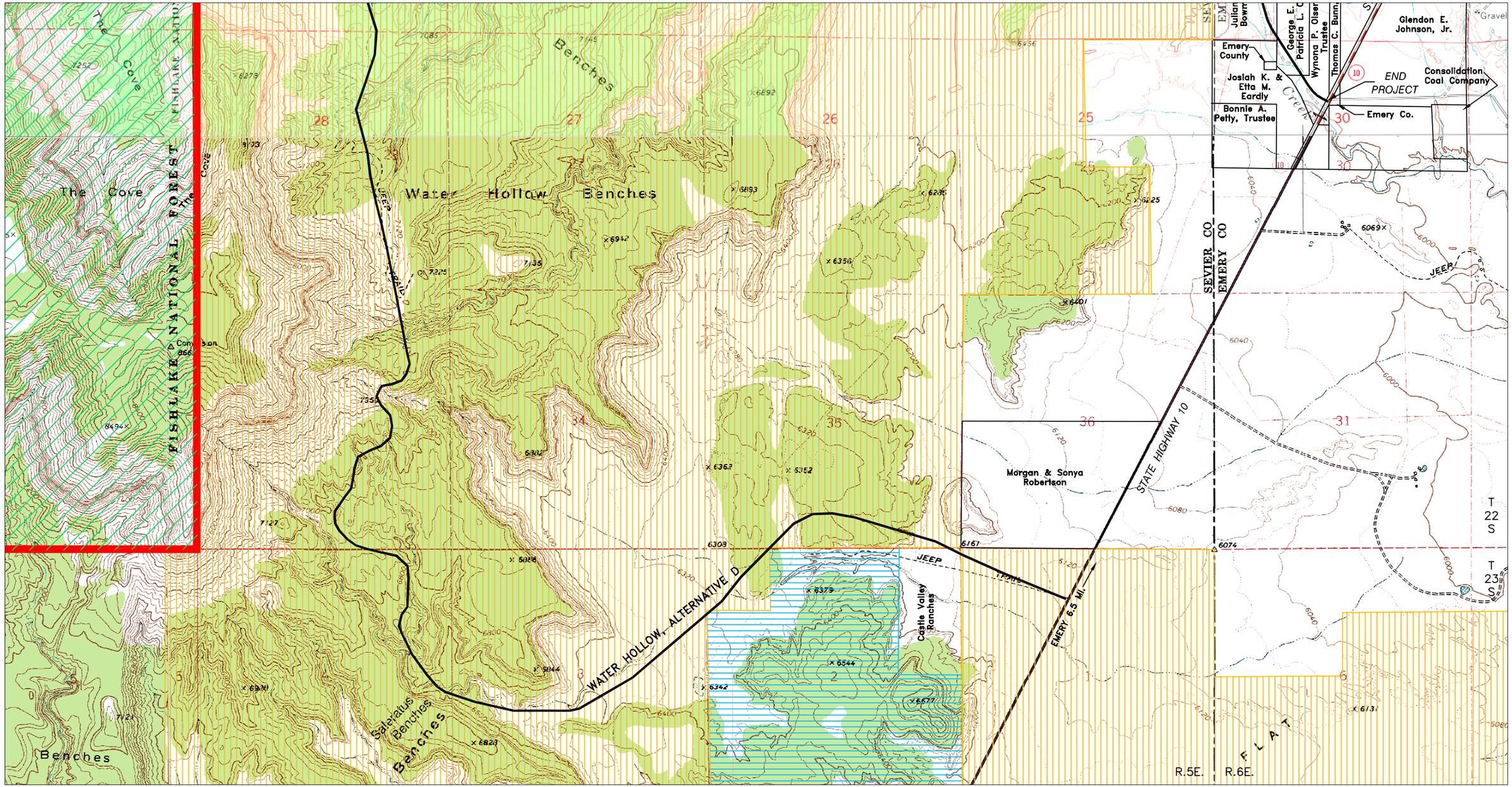
REVISION	5/05/03
	6/13/03
	9/28/05



EXPLANATION

ROAD ALIGNMENT

OLD WOMAN RNA

EXPLANATION

LAND STATUS

FOREST SERVICE

STATE

BLM

PRIVATE

INDEX MAP

N

2000 0 2000 FEET

QUITCHUPAH CREEK ROAD EIS

FIGURE 2–10
LAND STATUS AND OWNERSHIP MAP

jbr environmental consultants, inc.
Salt Lake City, Utah Cedar City, Utah Reno, Nevada Elko, Nevada

DESIGN BY	KK	DRAWN BY	CP	CH'D BY		SCALE	1"=2000'

	DATE
DRAWN	6/30/01
REVISION	10/18/01
	6/13/03
	6/23/03

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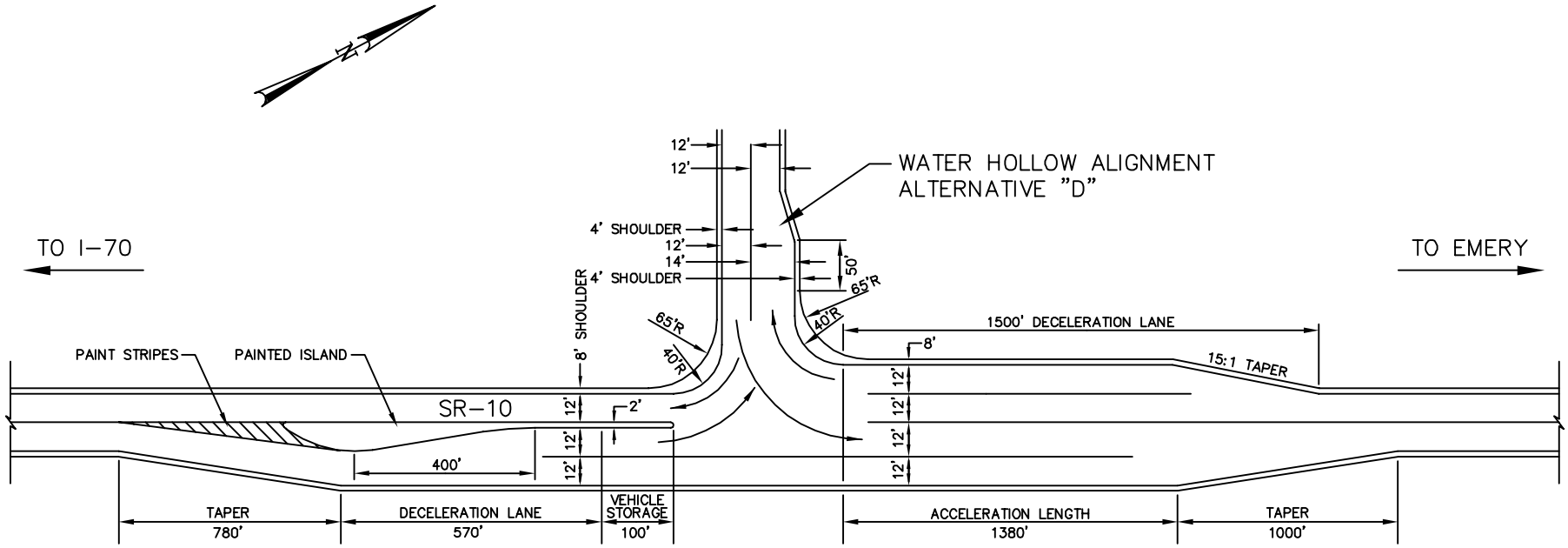

QUITCHUPAH CREEK ROAD EIS

FIGURE 2-11
ALTERNATIVE D SR-10 JUNCTION

jbr environmental consultants, inc.
Salt Lake City, Utah Cedar City, Utah Reno, Nevada Elko, Nevada

Drawing Courtesy of Jones & DeMille Engineering

DATE DRAWN 6/13/03

REVISION

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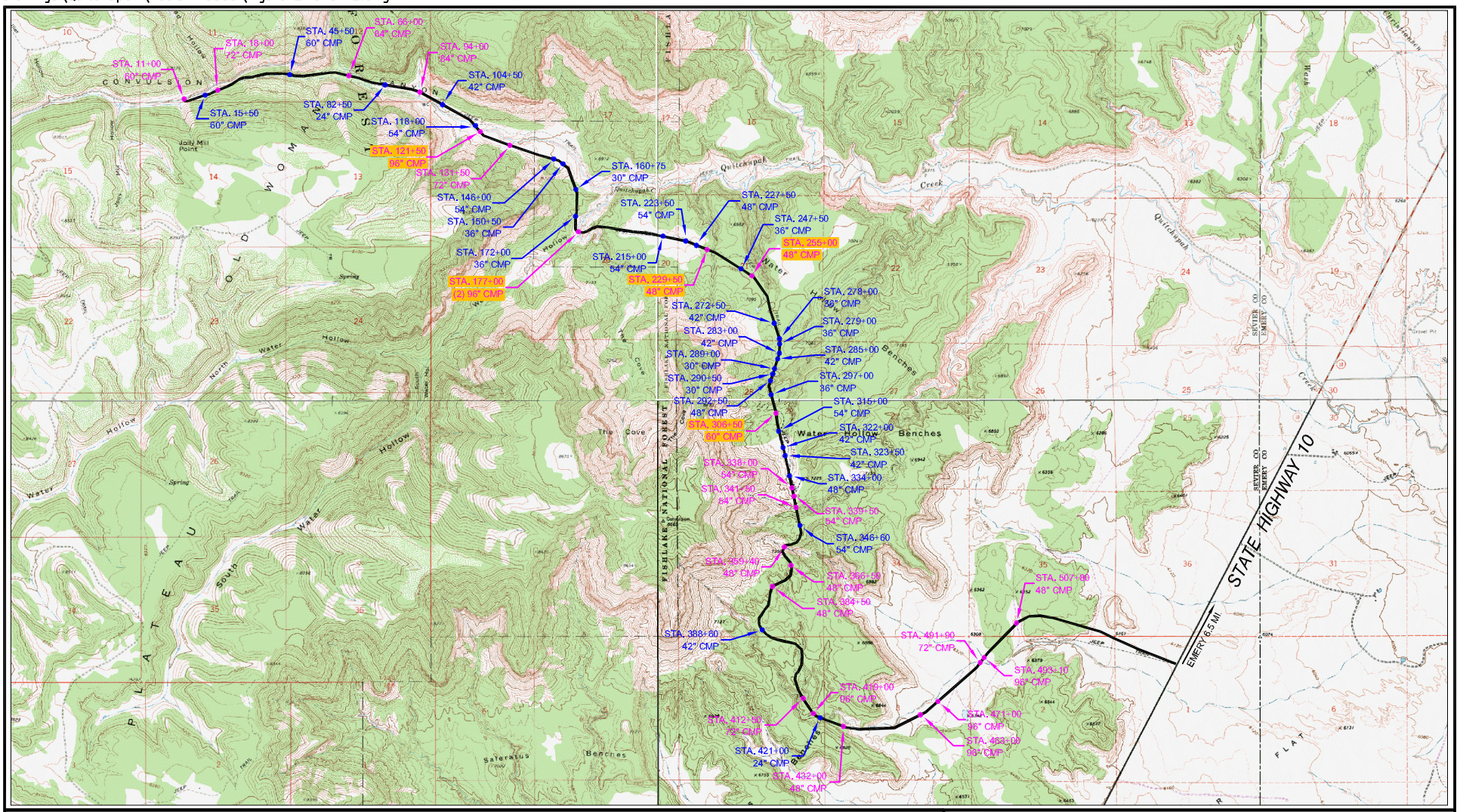


EXPLANATION

WATER HOLLOW, ALTERNATIVE D

PRIMARY CULVERT CROSSING

SECONDARY CULVERT CROSSING

RECOMMENDED WILDLIFE CROSSING

N

1 0 1 MILE

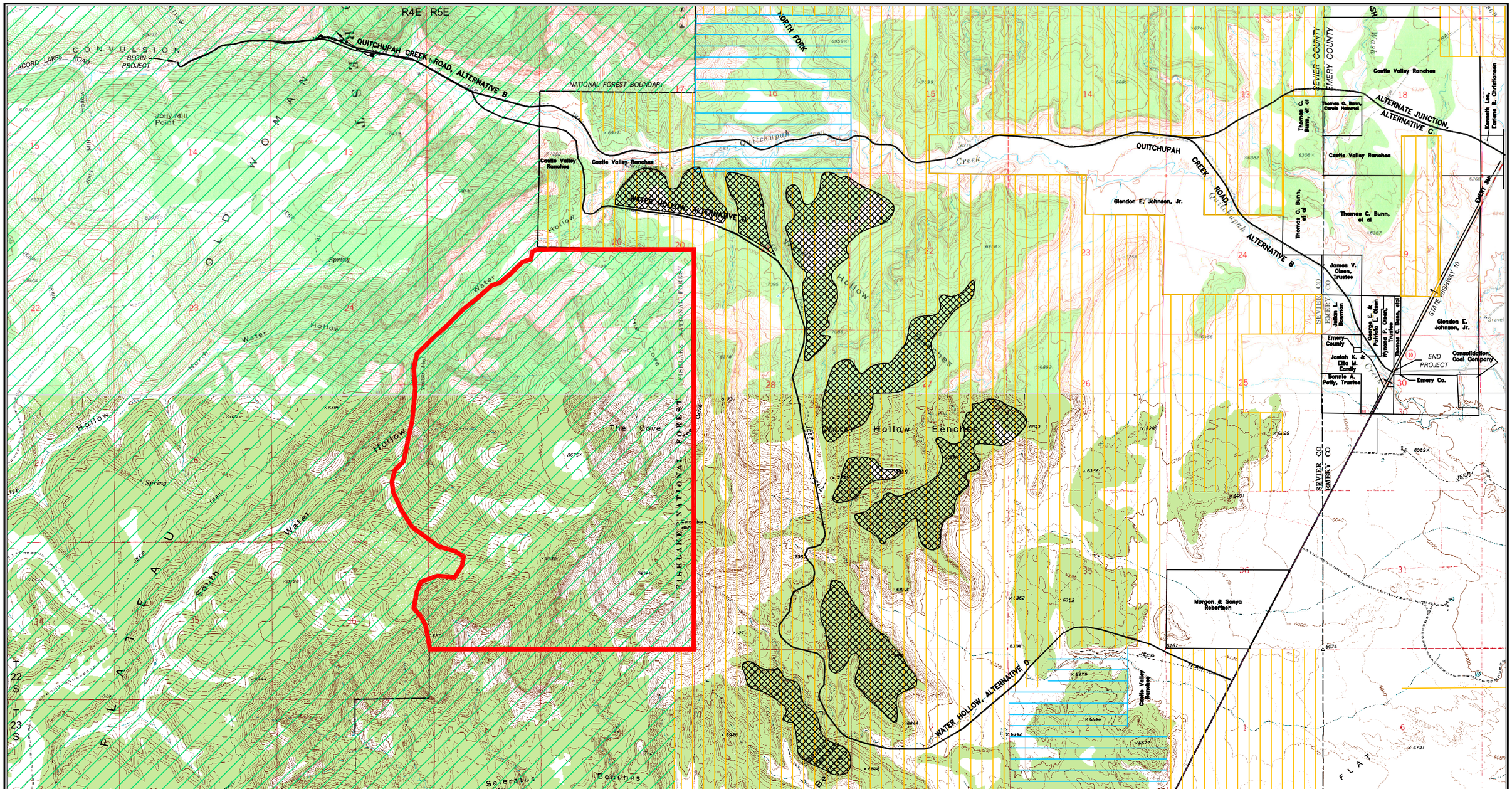
QUITCHUPAH CREEK ROAD EIS

FIGURE 2–12
ALTERNATIVE D CULVERT LOCATIONS

jbr environmental consultants, inc.
Salt Lake City, Utah Cedar City, Utah Reno, Nevada Elko, Nevada

Drawing Courtesy of Jones & DeMille Engineering

DATE DRAWN	7/02/02
REVISION	5/05/03
	6/13/03
	9/28/05



EXPLANATION

- ROAD ALIGNMENT
- OLD WOMAN RNA
- SEEDINGS

LAND STATUS

- FOREST SERVICE
- STATE
- BLM
- PRIVATE

N

3200 3200 FEET

QUITCHUPAH CREEK ROAD EIS

FIGURE 2–13
ELK WINTER RANGE SEEDINGS

jbr environmental consultants, inc.
Salt Lake City, Utah Cedar City, Utah Reno, Nevada Elko, Nevada

DESIGN BY	JJ	DRAWN BY	CP	CH'D BY		SCALE	1"=3200'

	DATE
DRAWN	4/22/02
REVISION	7/02/02
	11/15/02
	6/13/03

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Chapter 3

Affected Environment and Environmental Consequences

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

The following sections describe the existing environment (Affected Environment), as presented by individual resource elements that would be affected by the Proposed Action and Alternatives; and the potential direct and indirect impacts (Environmental Consequences) of the proposed Quitchupah Creek Road. This chapter also evaluates direct and indirect impacts of the Alternatives to the Proposed Action that are designed to reduce or eliminate potential impacts resulting from the Proposed Action.

The BLM's NEPA Handbook (H-1790-1) requires that all EIS documents address certain Critical Elements of the Human Environment. The following Critical Elements are not present or are not affected by the Proposed Action or Alternatives and are not discussed in this EIS:

Critical Elements of the Human Environment Not Carried Forward for Analysis in this EIS

Hazardous or Solid Wastes:

No hazardous or solid waste concerns exist in the Project Area. The Proposed Road would not result in the introduction of hazardous wastes to the area. Further, all Project related solid waste would be disposed of properly.

Drinking Water/Groundwater Quality:

There are no drinking water sources in or near the Project Area watersheds, or downstream of the project, thus drinking water would not be impacted as a result of the Proposed Action or Alternatives. Only minimal, isolated occurrences of groundwater are expected to be intercepted during road construction (i.e. near wetlands and stream crossings) and construction methods would not affect the quality of this groundwater. Road usage would not affect groundwater.

Topography, Geology, and Minerals:

The road construction and operation would not affect overall topography or geology in the area. Changes to topography due to road cuts/fills and changes to exposed rock surfaces due to blasting in the road corridor would be localized. No mining claims are located in the immediate Project Area (BLM records). Each road alternative alignment follows canyon bottoms where locatable mineral deposits would not be economically feasible to mine. None of the authorized Federal oil and gas leases in the Project Area are currently active. The coal leases near the Project Area belong to Canyon Fuel Company, the owners of the SUFCO Mine. There are no other leases for minerals and no authorized disposal sites for saleable minerals, such as sand and gravel. Sand and gravel would be extracted for road construction from an existing aggregate borrow source located on private lands east of SR-10.

Air Quality:

The Clean Air Act Amendments, National Ambient Air Quality Standards (NAAQS), are health-based standards which serve to limit the concentrations of the following air pollutants: particulates less than 10 microns (PM_{10}); sulfur dioxide (SO_2); oxides of nitrogen (NO_X); carbon monoxide (CO); and volatile organic compounds (VOCs) (VOCs are regulated because they are a precursor of ozone). The Project Area is an attainment area for all NAAQS pollutants. No NAAQS would be impacted by the proposed project or alternatives. Additional Federal regulations, Prevention of Significant Deterioration (PSD), limit the degradation of air quality in any area which is attainment for NAAQS. Class II is the most common designation, which applies to the Project Area; this designation would not be impacted by the project. Although

vehicle traffic on the current road results in emissions of criteria pollutants, no standards would be affected by the project. A fugitive dust control plan would be required by the State of Utah to suppress particulate emissions during project implementation.

Noise:

The Project Area is generally characterized as rural or undeveloped. Ambient or background noise in the majority of the Project Area is typically natural outdoor and wildlife sounds. Additional noise at the west end of the Project Area results from mining and coal truck activity associated with the SUFCO Mine. The town of Emery, 3 miles northeast of the Project Area, can be characterized as a rural community. Local traffic and community activity are also noise sources associated with the town of Emery and are classified as ambient noise. Coal from the SUFCO Mine is currently transported through the town of Emery. The CONSOL Mine also transports coal along SR-10 and through Emery, utilizing a road which connects with SR-10 just north of Quitchupah Creek. There would be no additional coal transported in association with this project, and no additional noise in the vicinity of Emery.

Environmental Justice:

Under Executive Order 12898, each Federal Agency must identify and address disproportionately high and adverse human health or environmental effects of its programs on minority populations and low-income populations. There are no high or adverse human or environmental effects from implementation of the Alternatives, and no specific minority or low-income populations would be affected by the Alternatives; therefore, there are no impacts to environmental justice.

Critical Elements of the Human Environment Carried Forward for Analysis

The following Critical Elements are present within the Proposed Action area or may be affected by the Proposed Action or Alternatives, and are carried forward for analysis:

Water Resources and Floodplains - Section 3.2
Soils, including Prime or Unique Farmlands - Section 3.3
Vegetation and Wetlands, including Riparian Zones and Noxious Weeds - Section 3.4
Wildlife Resources - Section 3.5
Fisheries and Aquatic Resources - Section 3.6
Threatened, Endangered, and Sensitive Species - Section 3.7
Range Resources - Section 3.8
Land Use - Section 3.9
Visual, Recreation, and Wilderness - Section 3.10
Areas of Critical Environmental Concern and Wild and Scenic River Eligibility – Section 3.11
Cultural and Paleontological Resources - Section 3.12
Native American Concerns - Section 3.13
Transportation - Section 3.14
Socioeconomic Resources - Section 3.15

The construction and continued operation of the proposed road would result in **irreversible and irretrievable commitments of resources, residual adverse impacts, and cumulative effects**. These types of impacts are described below and addressed for each resource in the Affected Environment.

An **irretrievable commitment of a resource** includes use or consumption of a resource that is neither renewable nor recoverable for use by future generations. An example of this would be the mining and

extraction of coal reserves. An **irreversible commitment of a resource** is a primary or secondary impact that limits the future options for a resource. **Residual adverse impacts** are those effects remaining after implementation of mitigation measures. **Cumulative effects** result from the incremental effects of the Proposed Action or an action Alternative when combined with past, present, and reasonably foreseeable actions.

Implementation of the Proposed Action or Alternatives would cause resources to be consumed, committed, or lost during and after closure of the project. Lands committed to the right-of-way would be irreversibly lost to other uses as the proposed road would be a public road integrated into the public transportation system of Utah. There are no connected actions or other facilities to be built in conjunction with the proposed road.

The USFS and the BLM have reviewed all aspects of the Proposed Action (Alternative B - Quitchupah Creek Road Alignment) and the following Alternatives to the Proposed Action: Alternative A - No Action Alternative; Alternative C - Alternate Junction with SR-10 and Alternate Design of Quitchupah Route; Alternative D - Water Hollow Road. The review included applicant committed measures to avoid, minimize, and reduce adverse impacts to the environment.

3.1 Introduction

From a regional perspective, the Project Area is predominantly located within the Wasatch Plateau Subsection of the Basin and Range-Colorado Plateau Transition Physiographic Province (Stokes, 1986). The Wasatch Plateau is marked by gently rolling or near-flat surfaces on the plateau summits and stream cut canyons on the east flank of the Wasatch Plateau. Adjacent to the Wasatch Plateau, the eastern end of the Project Area is located within the Mancos Shale Lowlands Subsection of the Canyonlands Section of the Colorado Plateau Province. Topography in this Subsection is influenced by easily eroded sedimentary rock at the eastern base of the High Plateaus.

The topography of the area generally includes steep canyon walls, escarpments, and badlands. Flat ledges, vertical cliffs, and sloping erosional and depositional surfaces due to the differential erosion of interbedded shale and sandstones all contribute to the varied relief in the Project Area. Faulting and fracturing also affect the local topography. Topographic relief across the project site ranges from approximately 7,700 feet at the western boundary to 6,000 feet on the east.

All of the Alternative routes for the proposed project would descend from the southeast side of the Wasatch Plateau through canyons into Castle Valley.

Along the Quitchupah Creek Road alignment (Alternative B), most of the alluvial deposits are easily eroded fine sand to silts with minor coarse sand and gravel. The existing road in Quitchupah Creek canyon is subject to the effects of erosion, and at times becomes impassable due to washouts and deposition of alluvial debris on lowlands.

3.2 Water Resources

Introduction

The Project Area is located within the Colorado River Basin near the south end of the Wasatch Plateau. All drainage from the area flows to Quitchupah Creek or its tributaries, including East Spring Canyon, Water Hollow, and North Fork (See **Figure 3-1**). A 1,700-foot or more elevation difference between the upstream and downstream ends of the Project Area influences the flow regimes and fluvial morphology of

the streams within it. Precipitation ranges from averages of nine inches annually near the lower elevations of the Project Area to more than 20 inches annually near the top of the Plateau.

The upstream reach of the Quitchupah Creek stream channel, from the confluence with Water Hollow and continuing upstream, is known as Convulsion Canyon; flow in the highest elevation part of this upstream reach is intermittent, with perennial flow beginning in Convulsion Canyon near the wetland at about station 48+00. As it continues downstream, Quitchupah Creek receives significant amounts of flow from mine discharge into its North Fork, and from irrigation return flow near the eastern project boundary. The SUFCO Mine monitors flow rate and water quality on a quarterly basis at several sites along Quitchupah Creek. Flow rate varies seasonally, but the region's larger perennial streams, such as Quitchupah Creek, typically peak in May and June as a result of snow melt runoff. However, later summer thunderstorms can also produce extremely high flows for short time periods (Thiros and Cordy, 1991). Runoff events in the ephemeral watercourses that feed Quitchupah Creek most commonly occur in July, August, and September from intense thunderstorms. Salinity, as measured by total dissolved solids (TDS), and sulfates increase in a downstream direction in Quitchupah Creek, in part because of geologic changes. Quitchupah Creek is morphologically an active stream, and became entrenched early this century. It conveys high sediment loads, and receives sediments from both upland and in-channel sources. Quitchupah Creek provides water for irrigation and stock watering (water rights are discussed under a separate heading below).

Water Hollow flows into upper Quitchupah Creek from the southwest. It flows perennially, but no stream flow or water quality records are available. The Water Hollow Benches, south of Quitchupah Creek and east of Water Hollow, are dissected by numerous ephemerally flowing channels that drain primarily east and north. These ephemeral channels contribute to a high drainage density that results in extensive hydrologic connectivity of most parts of the watershed, and in turn results in high peak flows and rapid watershed response to intense thunderstorm events. This connectivity can have implications in regard to transfer of eroded materials from upland watershed areas to down-gradient receiving streams.

The headwaters of Quitchupah Creek are close to 9,000 feet above mean sea level (AMSL); at the western end of the proposed project, elevation of the creek is about 7,700 feet. Convulsion Canyon conveys flows from the Broad Hollow, Spring Hollow, and East Spring Canyon tributaries to Quitchupah Creek. These flows join with Water Hollow and the North Fork about midway through the Project Area. Numerous ephemeral channels are also tributary to Quitchupah Creek in the Project Area, including Link Canyon, which crosses the existing road near the eastern project boundary. To the south, the Water Hollow Benches area is drained by steep, entrenched, ephemerally flowing channels that trend primarily northeastward toward Quitchupah Creek. Elevation of Quitchupah Creek at the eastern project boundary is slightly more than 6,000 feet, and at that location, Quitchupah Creek drains an area of about 100 square miles.

Stream Classification

The approximately 2.5 miles of Convulsion Canyon and its tributaries, that are within the boundaries of the Fishlake National Forest, are categorized by the State of Utah as "Category 1 High Quality Water" as defined at R317-2-12.1 in the Utah Water Quality Standards. In general, the State's antidegradation policy calls for Category 1 waters to be maintained at their "existing high quality". However, "Projects such as.... roads will be considered where pollution will result only during the actual construction activity, and where best management practices will be employed to minimize pollution effects" (R317-2-3.2).

Downstream of the Project Area, and upstream of its confluence with Ivie Creek, Quitchupah Creek was listed on the State of Utah's 2004 303(d) list as a TDS-limited stream segment, which means that it did

not support its Class 4 (agriculture) beneficial use designation. (Other beneficial use classes applying to Quitchupah Creek are 2B (secondary contact recreation and aesthetics) and 3A (cold water aquatic wildlife); these uses are apparently supported under the existing water quality of the creek). The Department of Water Quality (DWQ), in its West Colorado Watershed Management Unit Water Quality Assessment Report (UDEQ, 2000), states that the probable sources for TDS in that stretch of Quitchupah Creek were natural and agricultural practices. The recently completed Total Maximum Daily Load (TMDL) (UDEQ, 2004) report for this area echoes that conclusion. As discussed further in the water quality section below, a new site-specific TDS standard has been approved by the State of Utah for Quitchupah Creek below SR10. That stream reach will effectively be removed from the 303(d) list once the proposed rule is formally adopted (UDEQ, 2005).

In addition, all tributaries to the Colorado River, including Quitchupah Creek are managed under the Colorado River Salinity Control Act. The goal of this act is to reduce sediment and salt loading in the Colorado River Basin.

Stream Channel Descriptions

Within the Fishlake National Forest, the upstream reaches of Convulsion Canyon/Quitchupah Creek and most of its tributaries are contained within narrow corridors between steep canyon walls. Functional flood plains in these upper reaches are essentially non-existent due to the canyon confinement, basin position, gradient, and flow regime. The stream-side areas where floods occur are not extensive, flat-surfaced overbank areas, nor do they possess extensive stream-lain alluvium, bar features, or other characteristics indicative of a functioning floodplain. Instead they are typically narrow extensions of the active channel where flood flows are conveyed within the confinement of the canyon walls.

Typically, once out of the confines of the canyons, these types of streams are generally freer to develop a floodplain. The extent of the floodplain depends in part upon the flow regime and the available material to construct the floodplain. At one time, Quitchupah Creek appears to have been a small, narrow stream with adjacent floodplains that supported homesteading and farming activities (Historical Committee of Emery, 1981).

Currently, Quitchupah Creek within much of the State of Utah, BLM, and private land areas is confined within a relatively narrow corridor between terraces, having vertically abandoned its historic floodplain. The stream was formerly at the surface of relatively thick, aggraded alluvium overlying the bedrock. But, as is typical of many streams in the region, it incised dramatically through that alluvium. This resulted in an entrenched channel with a new base level with banks 50 or more feet high. Much of that incision apparently occurred as a result of a single runoff event in 1912 (Historical Committee of Emery, 1981). The magnitude of the event was likely affected by the overgrazing that had occurred since the turn of the century. Since that time, a limited floodplain has formed and it functions between the incised banks. Field observations indicate that tributary channels have also been, and continue to be, undergoing rejuvenation to match this base elevation. In addition, the flashy, widely fluctuating stream flows, and the large amount of available sediments available for transport, make the possibility of Quitchupah Creek obtaining a true, dynamic equilibrium relatively unlikely without changes in land management (i.e. grazing) and the passage of time. Down-cutting and head-cutting through the terrace materials are still occurring, although apparently to a lesser degree than during the main period of incision. The terrace materials, barren and over-steepened, are also subject to significant sloughing and mass wasting into the channel. These areas are sensitive to alterations, including such outside influences as: removing the toe slope through meander adjustments; loading of top surfaces such as could occur with road construction; and locally modifying runoff that could cause piping and headcutting. The latter influences are currently occurring along the existing road.

These over-steepened terrace slopes, as well as other upland slopes at or near angle of repose, appear to be subject to periodic sloughing or other forms of mass wasting. Whether the result of head-cutting from the mainstem or side tributaries, piping due to runoff, rock toppling, or other mechanisms, alteration of the terrain on the small scale appears common and frequent in the general area. The existing road also appears to exacerbate this type of erosion as well.

Stream stability ratings have been described in the Final Water Resources Technical Report Quitchupah Creek Road EIS (JBR, 2001b) and provide information about the stability of Quitchupah Creek at this "newer" base level. Quitchupah Creek's stability generally decreases with distance downstream; the more stable reaches are those within national forest lands. No reaches were rated as excellent; the majority were within the fair range. In general though, the reaches show signs of recovery (as indicated by riparian vegetation growth) within the newer base level of the active stream. It is interesting to note that the three Quitchupah Creek aquatic sites (**Section 3.6** Fisheries & Aquatics) were generally rated more stable than the nearby reaches. The lower Water Hollow site had the second-best rating out of all locations studied. The implication of these ratings is that the already less stable reaches may be more susceptible to alterations in flow, sediment loading, or bank/bed manipulation by the installation of stream crossings or similar disturbances. Damage to the more stable reaches, although less likely, could still occur.

The median diameter of the bed particles (grain size) at the bed surface of each of the locations where the stream stability ratings were done indicates that the uppermost sites are generally sand and smaller sizes. The majority of the reaches were within the medium gravel sizes. These particle sizes would be readily moved as either suspended load or bedload during moderate runoff events.

The relative fineness of the bed particles reflects a stream system that conveys large quantities of sediments. Field observations during what appeared to be a fairly typical thunderstorm runoff event provide an indication of the level of sediments Quitchupah Creek conveys. While mapping channel features and collecting bed materials as part of the fisheries investigation (JBR, 2001c), an increase in bed deposits of approximately 0.75 feet vertical height was noted on the inside of a meander bed after a slightly more than bankfull flow event. The source of this material, while not known specifically, could easily have been from upland sources (tributary channels were observed to be running very turbid, overland flow was sediment laden), in-channel erosion of old terrace banks, or in-channel rearrangement of previously deposited sediments from further upstream channel bed, banks, or bars. Highly erodible soils are present throughout much of the watershed (JBR, 2001d) and provide upland sources of sediment. Past and current land uses, including grazing, have likely altered runoff and also contribute to high sediment yields in the watershed. In summary, there is no shortage of available, easily transported sediment sizes currently in the system, due either to natural sources or long term land uses.

Flow Information

Quitchupah Creek has been the subject of numerous studies where flow monitoring has occurred over recent years. Much of this data has been reported and analyzed by Mayo and Associates (1997).

Flow measurements near the upper end of Convulsion Canyon (Station 046 on **Figure 3-1**), made by Canyon Fuel Company on a quarterly schedule since 1983 (Canyon Fuel Company, 1999a), range from 0.01 cubic feet per second (cfs) to 0.52 cfs. Downstream from that location, flows from East Spring Canyon, a pump house that discharges excess water from a water well, discharge from a mine sediment pond in East Spring Canyon, and numerous small ephemeral tributaries can all contribute flow to Quitchupah Creek above its confluence with the North Fork. The channel in East Spring Canyon drains an area of about 8.5 square miles; Thiros and Cordy (1991) predict its average annual flow at about 1.8

cfs, and its 10-year peak at about 191 cfs. The SUFCO Mine (Canyon Fuel Company, 1999a) records of quarterly flow monitoring since 1983 show flows at the mouth of East Spring Canyon (Station 047A on **Figure 3-1**) ranging from 0.09 cfs to 1.1 cfs.

Observations of lower Water Hollow in winter 2000 indicated that, at least during those observed base flow conditions, this tributary to Quitchupah Creek supplies an amount of flow at least equal to the amount of flow in the main stem channel.

The North Fork is one of the primary tributaries to Quitchupah Creek. It is the receiving stream for the current Utah Pollutant Discharge Elimination System (UPDES) discharge point of about 1,000 to 1,500 gallons per minute (gpm) of groundwater intercepted from the existing SUFCO Mine. The discharge is essentially constant at that rate, and is anticipated to continue for at least the next several years. Generally, flow from the North Fork, including the mine discharge water, supplies about two-thirds to three-fourths of the flow in Quitchupah Creek at its confluence with the North Fork, according to Mayo and Associates (1997) and according to analysis of SUFCO mine water quality records submitted to the Utah Division of Oil, Gas and Mining.

Irrigation also affects flows in Quitchupah Creek and in the lowermost reach of Link Canyon. **Figure 3-1** shows two locations where canal diversions remove water from Quitchupah Creek on a seasonal basis. Further, field observations show that irrigation return flow from the Muddy Creek Canal enters both Link Canyon and Quitchupah Creek near the eastern project boundary.

Stream flows in the ephemeral channels that drain the Water Hollow Benches are not recorded, but can be expected to be erratic and flashy due to the nature of the precipitation events that produce them.

Water Quality Information

The Colorado River Basin Salinity Control Act, as amended in 1995, requires that USFS and BLM focus on minimizing salt contributions to the Colorado River from the lands that they administer. TDS concentrations are a measure of salinity. Specific conductance, and therefore, TDS varies seasonally within Quitchupah Creek (Thiros and Cordy, 1991). It also varies spatially, with a noted increase in a downstream direction. Both concentration and type of major ions change as the geology through which the flow passes changes, experiencing a dramatic difference as flow crosses the Mancos Shale area, noted for highly soluble salts. Mayo and Associates (1997) note that Quitchupah Creek begins to cross through Mancos Shale approximately one-half mile downstream of its confluence with the North Fork, and they further note that Mancos Shale is known "to greatly increase the TDS of creek waters". Thiros and Cordy (1991) state that:

> "The predominant chemical constituents found in surface water upstream from the lower part of the Blackhawk Formation in the Quitchupah Creek drainage area are calcium, magnesium, and bicarbonate plus carbonate. Surface water collected downstream, having flowed across the lower part of the Blackhawk Formation, Star Point Sandstone, and the upper part of the Mancos Shale, shows an increase in the concentration of sulfate."

In addition, analysis of water monitoring information obtain from the SUFCO mine and from the State of Utah's electronic data base (UDOGM, 2005) shows that on average, TDS increases from about 600 mg/l just below the confluence of the North Fork and Quitchupah to about 900 mg/l at the Highway 10 crossing. Using this same source of information, total TDS load in Quitchupah downstream of Highway 10 and the unnamed drainage encompassing Water Hollow and upstream of Christiansen Wash, averages about 7,900 tons/year. Based upon information from the recent TMDL report(UDEQ 2004), by far the

biggest nonpoint sources of TDS loading at this location are natural or ambient sources (about 1,800 tons/year), upland surface erosion (about 1,600 tons/year, and irrigation (about 900 tons/year). Smaller nonpoint sources would included existing roads and streambank erosion.

The noted TDS in the ranges in Quitchupah Creek, just above the confluence of the North Fork, apparently do not hinder the existing beneficial uses of stock watering and irrigation. Other designated beneficial uses of Quitchupah include secondary contact recreation and aesthetics and cold water aquatic wildlife; these uses do not have associated TDS standards.

The segment of Quitchupah Creek that is located immediately downstream of the Project Area is on the State of Utah's 2004 303(d) list as being water quality limited for TDS. This means that this stream segment is thought to be unable to support its agricultural beneficial uses due to elevated TDS levels. The State of Utah recently completed a Total Maximum Daily Load (TMDL) study for the portion of the West Colorado Watershed Management Unit that includes Quitchupah Creek (UDEQ 2004). The TMDL report concluded that, even with the successful implementation of recommended BMPs and waste load allocations, the agricultural TDS standard of 1,200 mg/l cannot be met in Quitchupah Creek. This is due to the large quantity of natural, ambient TDS sources that contributes to the overall salt load. Therefore, the State of Utah has approved the TMDL recommended change in the TDS standard in Quitchupah Creek, immediately downstream of the Project Area, to a site-specific limit of 2,600 mg/l. (The TDS standard in the upstream reaches of Quitchupah Creek, alongside the existing Quitchupah Creek Road, would remain at 1,200 mg/l.) This change in the standard will effectively remove Quitchupah Creek (UDEQ 2005) from the 303(d) list, although the 303(d) reports itself will not be generated again until 2006.

The DWQ has the regulatory authority for the Storm Water Discharge Permits that would be required for the proposed project; they would also have to provide 401 Water Quality Certifications for any wetland (Section 404) permits that the project would require. Further, the State Division of Water Rights would be required to ensure that any Stream Alteration Permits (SAP) they grant for road crossings would meet water quality certification requirements.

The existing water quality in Quitchupah Creek below its confluence with the North Fork is influenced by SUFCO's permitted release of mine discharge water, which apparently comprises the majority of the North Fork flow. This discharge averages about 4.3 cfs and represents about three-fourths of the flow in Quitchupah Creek below the Quitchupah/North Fork confluence. TDS at the mouth of the North Fork averages about 560 mg/l, based upon an average of three samples per year since 1983. TDS in Quitchupah Creek above the North Fork averages 680 mg/l, based upon a similar number of samples during the same time period. In effect, the mine discharge water serves to improve the natural water salinity at that location as measured by concentration; however total salt load is increased. SUFCO recently obtain a new UPDES discharge permit for this release, after DWQ performed a "Total Maximum Daily Load Analysis" (TMDL) to ensure that the receiving water quality and its beneficial use designations would be maintained. Since its flow generally contributes most of the flow in the North Fork, the average 560 mg/l TDS is well within the existing water quality standard of 1,200 mg/l for TDS for Class 4 uses for this upper reach of Quitchupah Creek, and within the new site-specific standard for the downstream reaches.

The aforementioned SUFCO Mine data do not include sediment analysis. However, suspended sediment data from various locations in the upper Quitchupah watershed show that area streams typically convey highly sediment-laden water during thunderstorm events; the Quitchupah Creek watershed seems particularly prone to this given the prevalence of highly erodible soils (JBR, 2001d).

While some of this sediment load may be from natural sources, geology, soil chemistry, climate, and especially historic land uses have exacerbated this. Grazing, instream cattle watering, slumping terraces, and the proximity of the existing, unstable Quitchupah Creek Road are all potential causes of increased sediment loading. Because some of the erodible watershed soils are also saline (JBR, 2001d), sources of sediment must also be considered as sources of TDS.

Data are not available for Water Hollow, but it likely has a similar water quality to upper Quitchupah Creek above the North Fork, given the similar geology through which it flows.

Groundwater Resources

As noted in the Final Geology Technical Report for this project (JBR, 2001e), the Quitchupah Creek Road alignment would be constructed primarily on Quaternary fluvial deposits and gravel terrace deposits adjacent to Quitchupah Creek. These unconsolidated alluvial and colluvial deposits are generally permeable, but are discontinuous and of varying thicknesses. Given these characteristics, they historically functioned as minor valley aquifers with rapid recharge and discharge capabilities, and were closely tied to streamflow, storm runoff, and precipitation patterns. Currently, much of the alluvium is separated vertically from Quitchupah Creek's active fluvial system (as a result of its incision). Once storing enough groundwater to enhance farming activities (Historical Committee of Emery, 1981), these abandoned floodplains now only function as terraces; these materials no longer represent a source of shallow groundwater.

Bedrock formations that are adjacent to (or are overlain by) the alluvial deposits through which all of the road Alternatives (B, C, and D) would cross are the lower Blackhawk Formation, Star Point Sandstone, and three members of the Mancos Shale Formation (the Masuk Shale, the Emery Sandstone, and the Blue Gate Shale). These formations consist of interbedded horizons of varying thicknesses of sandstone, siltstone, mudstone, and shales. The coarser of these horizons support groundwater, while the more impermeable, finer beds impede its vertical movement and redirect its horizontal flow. Movement and discharge of groundwater is stratigraphically controlled by these interbedded layers and by secondary permeability via faults and fractures. Recharge areas are spatially limited. For these reasons, as demonstrated by others (Mayo and Associates, 1997; Thiros and Cordy, 1991), groundwater in the general vicinity of the Project Area is typically localized within small, perched zones, and is inactive. Consequently, the Project Area does not overlie any regional aquifers capable of supporting significant water usage.

Water Rights

Information from the Utah State Engineers' office indicates that there are numerous water rights held in the vicinity of all of the alternate road alignments. A listing of water rights was presented in the Water Resources Technical Report prepared for this project (JBR Environmental Consultants, Inc. 2001b). The majority of these are rights for stock watering directly on Quitchupah Creek, Water Hollow, and their ephemeral tributaries. In fact, essentially all water courses, both perennial and ephemeral, within the Project Area are subject to these in-channel stock watering rights. Typically, these surface water rights for stock water do not give specific quantities of water; instead, they specify a stream reach and duration whereupon a given number of livestock may drink.

Two points of diversion of irrigation water from the creek are also located near the proposed road upgrade, as shown on **Figure 3-1**. The quantity of water associated with the upstream diversion is four cubic feet per second (cfs).

Environmental Consequences To Water Resources

The Environmental Consequences of each Alternative, in regard to water resources, are discussed below. First, regulatory consequences are described and then potential impacts to the resource itself.

REGULATORY

NO ACTION - ALTERNATIVE A

There would be no change to the current state of water resources and existing influences on it as a result of the No Action Alternative in regard to regulatory impacts. No Stream Alteration Permits would be needed under this Alternative. There would be no change in water quality as a result of No Action that would have implications in regard to the State's High Quality Water category for the streams on national forest lands. There would be no change in water quality as a result of No Action that would have implications in regard to the State's 303(d) listing – or its de-listing - for Quitchupah Creek downstream of the Project Area. However, existing sources of accelerated erosion would continue to affect the High Quality Water and 303(d) reaches of Quitchupah. Further, there would be no potential to impact the regulatory issues of water rights or floodplains, should the No Action Alternative be chosen.

QUITCHUPAH CREEK ROAD ALIGNMENT - ALTERNATIVE B

The Army Corps of Engineers (COE) requires that individual federal permits be obtained for all dredge and fill activities taking place within the nation's waters ("Waters of the U.S."). Waters of the U.S. include all wetlands, defined by saturated soils and the presence of obligate wetland plants, as well as all waters having a current or past use in interstate or foreign commerce. A General Permit for Storm Water Discharges would need to be obtained during construction activities as well as numerous approvals for work in Waters of the U.S. For this project, the COE has indicated that it would take the lead for all of the wetland and Waters of the U.S. permitting so that Stream Alteration Permits from the State would not be needed. Other state regulatory considerations would be related to Utah water quality designations of High Quality Category I waters on national forest lands and 303(d) listed waters downstream of the Project Area. As noted in **Section 3.4**, the reaches of Quitchupah Creek that are on the current 303(d) list are likely to be removed during the 2006 cycle due to completion of the TMDL and enactment of a greater site-specific TDS standard. Lastly, floodplains and existing water rights would also be regulatory issues, discussed in more detail under the Potential Impacts section (below).

ALTERNATE JUNCTION AND ALTERNATE DESIGN - ALTERNATIVE C

Regulatory impacts would generally be the same as for Alternative B.

WATER HOLLOW ALTERNATE ALIGNMENT - ALTERNATIVE D

Regulatory impacts would generally be the same as for Alternative B.

Potential Impacts To Water Resources

The proposed road would be engineered to meet AASHTO standards, in order to ensure its long-term stability. BMPs that would be required under any of the build Alternatives would further help to ensure that impacts related to sediment, salinity, erosion, drainage crossings, and other water quality and quantity impacts would be reduced as much as possible. These BMPS are mentioned throughout Chapter 2 and are contained in total in **Appendix B**; they include construction, operation, and maintenance aspects of the proposed road project. The elimination of livestock grazing from 4.7 miles of the riparian corridor within the public land stretches of Quitchupah Creek would eventually benefit the stream ecosystem.

The high level of expected use of this toll road means that the proponents have a large stake in seeing that the road remains driveable at all times, at least during the initial years while the mine is still operating.

Culvert failure, fill erosion, or even a temporary ditch/culvert overflow situation could easily render the road impassable, thus, halting traffic and becoming an unacceptable situation for economic reasons. Therefore, engineering designs that include specific measures for a high degree of water and sediment management have minimized the potential for these types of failures. Further, the monitoring and inspection procedures that would be adopted along with each of the build Alternatives would result in rapid identification of problems and ensure their timely correction. While the proponents' primary interest in keeping the road passable may be economic, the resultant effect is that water-caused damage that introduces sediments to the stream system would also be minimized by those same design, BMP, monitoring, and maintenance features. These considerations are taken into account in the impacts assessments for each Alternative.

The fact that an existing road is in place and is currently in poor condition is also relevant to this analysis of Alternatives. The existing road is a source of sediment and runoff alteration, and it receives little or no maintenance. Under Alternative B, all but about one mile of this existing road would be obliterated or reclaimed. Under Alternative C, all but about 3.7 miles of the existing road would be obliterated or reclaimed. Under Alternative D, approximately 7 miles of the existing road's 9.15 mile length would remain unreclaimed, minimally maintained, and in use.

Lastly, predicted impacts are based upon detailed road designs, BMPs, construction techniques, reclamation, aggressive monitoring, timely maintenance schedules, and other environmental commitments as provided in Chapter 2, **Appendix B**, and the Monitoring Plan. **Appendix D** includes discussions on other foreseeable actions upon which cumulative impact analysis is based.

NO ACTION - ALTERNATIVE A

There would be no change to the current state of water resources and existing influences on it as a result of the No Action Alternative. The existing road alongside Quitchupah Creek crosses erodible soils, is in close proximity to the stream for much of its length, and relies upon the native unconsolidated terrace deposits for much of its substrate. As a result, it currently adds sediment to the stream. Under No Action, Quitchupah Creek would continue to convey sediments at occasionally high concentrations, the existing road would continue to be a source of sediment to the stream, and the stream would, at least in the near-term, continue to be susceptible to destabilization. The salinity of the stream would also continue to be influenced by sedimentation due to the erosion of saline soils. The existing road would remain in place and in use, and the existing 16 primary watercourse crossings (8 perennial and 8 ephemeral) would remain as fords (or culvert, in the case of the East Spring Canyon crossing). Most of the perennial stream fords appear to be fairly stable; many of the ephemeral fords appear to be subject to failure through headcutting, piping, and down-road diversion. Maintenance does not appear to be frequent or very successful along the existing road, which is inconsistent with BMPs for pollutant sources under the Clean Water Act. At times, these existing crossing problems, as well as other road drainage problems, cause the existing road to be impassable. This would be expected to continue in the future under the No Action Alternative.

QUITCHUPAH CREEK ROAD ALIGNMENT - ALTERNATIVE B

Stream Crossing Impacts

The proposed Quitchupah Creek Road alignment would require 18 primary watercourse crossings and 25 secondary crossings. Six primary crossings of perennial waters would be required: 4 culverted Quitchupah Creek crossings; 1 culverted crossing at East Spring Canyon; and 1 culverted crossing at North Fork. Two additional primary crossings would be required at the upper end of Convulsion Canyon, which flows intermittently. Ten defined ephemeral wash primary crossings would be needed, including at Link Canyon. These make up the afore-mentioned 18 primary crossings. The remaining secondary crossings would be ephemerally flowing minor channel or swale crossings.

As noted above, the existing Quitchupah Creek road already has a total of 16 primary crossings (8 perennial and 8 ephemeral); all of those crossings would be either replaced with culverts on the new road, or abandoned and reclaimed where the new road diverges from the existing road. Therefore, the net increase in number of primary crossings would be two (18-16). **Table 3.2-1** shows the number of primary crossings on the existing Quitchupah Creek road alignment, the number required for this Alternative, and the net based upon whether the existing primary road crossings would remain or be replaced/removed.

All crossing culverts (both primary and secondary) would be designed to pass the 100-year peak flow, as well as associated sediment and debris. In addition, as described in Chapter 2 and in **Section 3.5**, several of these culverts would be designed (based on input from the Utah Division of Wildlife Resources) so that fish passage would not be hindered. Various other BMPs that would be applied to culverted crossing during construction and operation are described in **Appendix B**; these would reduce impact potential from culverts during the design flow and during more regular flows.

Table 3.2-1 Primary Watercourse Crossings - Alternative B: Proposed Quitchupah Creek Road

Stream Regime	Alternative A Existing Quitchupah Creek Road (denotes primary crossings that are currently in place)	Alternative B Proposed Quitchupah Creek Road (denotes number of primary crossings placed during construction of new road)	Existing Primary Crossings that would be removed or replaced during construction	Net number of Primary Crossings after construction of new road and removal of existing road
Perennial	8	6	8	6
Intermittent	0	2	0	2
Ephemeral	8	10	8	10
Total	16	18	16	18

Note that all but one of the existing primary crossings on the existing Quitchupah Creek Road are fords; the only culvert that is currently in place is at the East Spring Canyon Crossing. As discussed above under the No Action Alternative, most of the existing perennial stream fords appear to be relatively stable, in contrast with many of the ephemeral wash crossings, where erosion and runoff problems are often apparent.

Table 3.2-2 provides measurements made in the field at selected larger crossings associated with Alternative B. Most of these are designated primary crossings; the majority of secondary crossings would not affect waters of the U.S. The volume per foot column represents the approximate volume of defined waters (under or stream-ward of the Ordinary High Water Mark (OHWM)) per foot through the width of the crossing that would be filled either by the culvert itself or associated back fill. The total volume of fill associated with each crossing would be greater than the amount that is relevant to the Stream Alteration Permit; there would also be fill associated with each crossing that is placed above the elevation of the OHWM to up to the roadbed elevation. The total volume of fill at each crossing would be indicative of sediment levels that could be contributed to the stream should the crossing fail entirely.

Table 3.2-2 Waters of the U.S. or State at Selected Crossings - Alternative B Quitchupah Creek Road

Station	OHWM Width (inches)	OHWM Depth (inches)	Volume per Foot below OHWM (cu. ft.)	Fill Length (feet)	Channel Description
11+00	30	6	1.25	60	Intermittent Section of Quitchupah Creek
18+00	30	6	1.25	180	Intermittent Section of Quitchupah Creek
66+00	40	11	3.06	170	East Spring Canyon (perennial)
94+00	40/23	2	0.44	200	ephemeral tributary
186+50	52/42	6	1.95	350	ephemeral tributary
201+00	33/21	8	1.60	250	ephemeral tributary
213+50	32/21	8	1.50	250	ephemeral tributary
228+50	108/48	18	9.75	210	Quitchupah Creek (perennial)
232+50	108/48	18	9.75	250	Quitchupah Creek (perennial)
250+00	156/72	30	23.75	80	North Fork (perennial)
251+50	166	18	20.75	130	Quitchupah Creek (perennial)
256+50	166	18	20.75	80	Quitchupah Creek (perennial)
271+00	102/78	10	6.25	200	ephemeral tributary
268+00	57/48	5	1.82	90	ephemeral tributary
451+00	114/97	12	8.79	250	Link Canyon (ephemeral)

The risk associated with these culvert installations, defined here as the likelihood that culvert capacity will be exceeded, can be quantified by using the recurrence interval of the design flow and the assumed design life of the project. For all proposed primary and secondary culverts on the Quitchupah Creek Road, the former is 100 years and the latter is assumed to be 20 years. Applying the formula given below, the probability of failure is thus 18 percent that culvert capacity would be exceeded, or, conversely, 82 percent that it wouldn't be exceeded. Although there would be a one percent chance of exceedance in any given year, the probability of failure over 20 years would be 18 percent. (As will be seen in the sections discussing Alternatives C and D, because design recurrence interval and design life are the same for all of the build Alternatives, all have an equivalent calculated probability of failure.)

$$P_n = 1-((T_r-1)/T_r)^n$$

where:
P_n = probability of occurrence
T_r = recurrence interval in years
n = design life in years

Should capacity of a given culvert be exceeded, it may or may not fail or be completely washed out. However, assuming a total wash-out of all fill material placed in association with the culverts, a comparison of the consequences of accepting the 18 percent risk among the various build Alternatives can be based upon the total approximate volume of fill at all crossings for a given Alternative. Because this does not in any way imply that these actual total quantities of materials would enter a stream system, either over time or in one instance, volumes are not given here. Instead, Alternative B is given a ranking of 1, and the other Alternatives are compared to this ratio. Alternative A has minimal existing road fills and would have no new construction fills. As such, Alternative A ratio is >0 and <1. As will be seen in the discussions of Alternatives C and D, Alternative B has the lowest ranking of any of the build Alternatives.

The perennial stream reaches where most of the primary culverted crossings would occur are located in the western half of the Project Area. The Phankuch (1978) method of stability rating was used in analysis and these "procedures were developed to systemize measurements and evaluations of the resistive capacity of mountain stream channels to the detachment of bed and bank materials and to provide information about the capacity of the streams to adjust and recover from potential changes in flow and/or increases in sediment production." These reaches coincide with areas of the stream that were rated better in the Phankuch stability rating than the eastern reaches, where no perennial and few other primary watercourse crossings would be required. The better Phankuch rating, in general, means that these reaches should adapt better to presence of the culvert than a lower reach with poorer stability. However, even in these more adaptable reaches, proper design, placement, and maintenance would be key to ensuring that these reaches maintain their current stability. The upstream reaches also, in general, convey less sediment, so sediment plugging would be less likely to occur in these culverts. (Note that westernmost reach of stream - which received the highest Phankuch rating - would be obliterated by the road alignment and replaced essentially by a road ditch; in this case, the resiliency and adaptability of the original channel, as described by its rating, has no bearing on the future stability or instability of the replacement conveyance.)

Commonly, culverted crossings, and other road drainage features, serve to extend the drainage network and result in higher local runoff rates and volumes. However, crossing and road drainage BMPs given in Chapter 2 and **Appendix B** would function to reduce those potential effects.

Lastly, in regard to the fact that perennial crossings would only be required in the upper reaches, is the issue of fish passage. As described in the Aquatics Technical Report (JBR, 2001c), few fish were found in the upper reaches, both in number and in diversity. In order to not further contribute to reduced number, where fish were found during baseline surveys, culvert passage (either meaning sufficient depth during low flows or reduced velocities during high flows) would be provided for in the final design phase based upon the fish species present and their specific seasonal requirements as determined through consultation with the Utah Division of Wildlife Resources. This is discussed further in **Section 3.5**.

The existing Quitchupah Creek bridge on SR-10 near the terminus of the alignment would need to be widened 8 feet to the west and 32 feet to the east, almost doubling its current width, and the COE 404 issues would have to be considered as part of that activity.

Realignment/Floodplain Impacts

Primarily in the upstream reaches of the project, some areas of overbank or floodplain fill would also be associated with the culvert crossings, as well as with stream impingement in the Convulsion Canyon, East Spring Canyon, and Rock Art realignment areas, and with reaches along Quitchupah Creek where the

road toe may infringe on a channel meander bend. Avoidance of all impingement or realignment is not feasible given the topographic constraints. However, filling of such areas will be avoided to the extent possible, and would be restricted to areas directly associated with the required road alignment where needed due to topographic constraints. As described in Chapter 2 and in **Appendix B**, the realigned channels and reaches where the road fills toe out in or close to stream channels, would be designed to minimize the potential for redirecting flows and stream energy to opposite banks, instigating bed/bank scour. Any wetlands associated with these areas would be properly dealt with through the COE 404 permitting process as described in the Vegetation Technical Report (JBR, 2001k) and in Section 3.6.

These upstream overbank areas may not be floodplains in the morphological sense of an extensive alluvial overbank area subject to frequent reworking by stream flows; however, they may be considered floodplains in a regulatory sense. The existing so-called floodplain areas do not function as a morphological floodplain feature more typical in the downstream valley areas (there are not extensive alluvial deposits that retain flood flows, hold overbank water for riparian uses, or reduce flood peaks), therefore impacts to these flood plains would be expected to be negligible in the upstream reaches where realignment is proposed, not withstanding the fact that during realignment, the active and overbank channels would be obliterated. In the downstream valley area on the eastern half of the project, there are few if any encroachments due to the road alignment and design, however potential impacts due to redirecting flows would also be minimized through the stated BMPs and design features should these encroachments occur. Impacts due to realignment of the Convulsion Canyon and East Spring Canyon reaches are discussed below.

The approximately 2,800 feet (from road stations 13+50 to 15+50 and 19+00 to 45+00) of Convulsion Canyon channel that would require realignment flows intermittently. These reaches are currently confined between the steep canyon slope on one side and the existing Quitchupah Creek road on the other side. Gradient is currently approximately 7.5 percent, with very little meandering. The cross section of the bed is generally flat and contains riparian vegetation; the banks are steep and oversteepened with sloughing present in areas. The single Phankuch stability rating done within this segment had the highest rating of any along the Project Area (however, given the intermittent nature of the stream in this location it was not well suited to the methodology).

Given the topographic constraints, the realigned segment would be straightened to a grade of approximately 9 percent, and would likely be more ditch-like, and have a narrower, more uniform channel bottom that the existing channel has. (During final design for this section, slight meanders may be placed should topography allow; however initial designs indicate this would not be possible, therefore impact analysis assumes the same.) To accommodate the higher velocities associated with new cross section and profile, an engineered channel, using a combination of riprap, grade control, and/or vegetation, would be placed to maintain stability. There would be a loss of riparian vegetation (see Vegetation Impacts Section), and erosion of the intercepted steep natural slope would likely contribute sediments to the channel in this location. The resiliency of this stream reach as inferred by the high Phankuch rating would be lost as the reach is replaced by a more ditch-like channel. Where appropriate, the BMPs listed in **Appendix B** would be used to minimize this potential for erosion/sediment impacts. Transitional treatments would be done to ensure that, at the downstream end of the realigned reach, velocities and flow area are returned to their original conditions, as described in **Appendix B**. Some of the sediments contributed by this reach would eventually be trapped within the wetland mitigation area immediately downstream of the realigned reach.

Approximately 1,100 feet (between 65+00 and 75+00) of East Spring Canyon that would be filled and require realignment flows perennially. Because the topographic constraints are not as overwhelming in

this area as on the Convulsion Canyon realignment, a more naturally functioning stream can be designed as described in Chapter 2. After an initial period of adjustment, this stream realignment would not be expected to be impacted or impact adjacent stream reaches.

A portion of an existing meander and cutoff channel, that recently diverted the stream from its former course through a meander bend in Quitchupah creek just upstream of the original junction with North Fork, would be shortened 130 feet in order to accommodate the road fill. This would occur between stations 249+00 to 250+00. Since the cutoff of the meander is a recent event, the remaining dry portion of the meander still retains an unobstructed channel downstream to the original junction with North Fork. The north curve of the meander where the cutoff channel is located would be filled and the meander shortened slightly due to the fill. The diversion of 130 feet of the stream from the cutoff back into the meander would restore about 350 feet of the stream channel and decrease the grade from 7.6 percent to 2.3 percent (Strip Map 9).This realignment would be designed to maintain velocities and bed elevations. After an initial period of adjustment, it would not be expected to cause stream instability. The planned monitoring would insure that unforeseen impacts would be corrected.

Erosion, Sedimentation and Salinity Impacts

Road construction and related ground disturbing activities can often cause accelerated erosion and introduction of sediment into stream channels. Given the geologic environment of the Project Area, introduction of sediments also results in introduction of salts (dissolved solids). Various types of erosion and sediment controls, described as BMPs in **Appendix B**, would be implemented in order to maintain water quality during and immediately after construction. These controls include such structures as silt fences, and such practices as limiting the areas for construction activities. When properly implemented, such techniques can dramatically reduce potential sediment and dissolved solids loads. Thus, the use of BMPs as contained in **Appendix B**, and required designed criteria as specified in Chapter 2, are anticipated to substantially reduce the potential delivery of sediment and salts during and following construction. Even with the BMPs and other design criteria, sediment levels would likely be higher than background conditions, based upon increased area of disturbance at the least. However, the riparian fencing along 4.7 miles of Quitchupah Creek would, over time, have the potential to enhance the stream's stability. Fencing will begin within the intermittent reach and continue to the FS boundary, 2.4 miles. It will also be fenced along 1.1 miles of BLM land and 1.2 miles of SITLA land. The length of riparian fencing on each side of the stream would be 4.7 miles, for a total length of 9.4 miles.

Once construction has been completed, disturbances associated with the finished roadway can also provide a source of sediment and salts to streams. The disturbance corridor would be reclaimed, including areas no longer in use as well as road fill, slope, and borrow areas (Section 2.4, Reclamation). Surfaces immediately adjacent to the paved roadway (i.e. shoulders/borrow areas) may revegetate fairly quickly, because they receive additional runoff water from the road surface. Larger, steeper fills and cuts may reclaim more slowly and some erosion may occur. BMPs in **Appendix B** for other slope treatments would minimize erosion potential. And as also described in **Appendix B**, these reclaimed areas would be protected from grazing with electric fence, in order to facilitate revegetation efforts. Sediment loading from rilling or from small mass failures such as slumps occurring on these fill- and cut-slopes could contribute additional sediment to the stream. In turn, this sediment could also contribute increased dissolved solids that could degrade water quality. Once again, slope treatment BMPs, planned monitoring of the road drainage system, and a commitment to timely maintenance are all designed to reduce these events.

Any changes in water quality (as expressed by sediment or dissolved solids loading) due to the proposed road or Alternatives would be difficult to reasonably quantify. In part, this is due to the variable - but

often high - dissolved solids and sediment loads currently conveyed by the stream, and the lack of data on contributing sources. Any prediction of erosion rates (from surface sheet erosion, mass failure, or culvert failure, for example) would be highly speculative due to the geologic, land use, and topographic complexities and interactions, and the existing spatial and temporal variability in the Quitchupah watershed. Further, once the erosion rate was predicted, sediment loading would also have to be modeled, with additional uncertainties introduced. Finally, based upon that prediction, salinity loading estimates would be needed, and would have to account for the fact that different sediment sources produce differing levels of salinity, again adding layers of estimation without adequate data. While it would be possible to model, all of these uncertainties would require that the final predictions be given in the form of a wide range of predicted values.

Given the scale of the Quitchupah Creek watershed at the downstream project boundary (100 square miles) in relation to the area of disturbance (92.3 acres), the predicted modeled background range would be much greater than any additional incremental impact from the small percentage of disturbance that would be predicted, as well as the incremental improvement resulting from the closure and reclamation of the existing road. Even at a finer scale typical of one of the small ephemeral drainages crossed, the percentage of the watershed to be newly disturbed by the road is quite small (in the range of one percent maximum), making an accurate modeling prediction unrealistic. However, these smaller watersheds are, in reality, where greater impacts typically occur; relative increases in stream flows, energy, and sediments can be extreme at these scales, due to drainage areas being increased through draining ditch lines, increased hydrologic connectivity, and other means. The design measures in Chapter 2 and the BMPs in **Appendix B** would reduce these potential effects by spacing cross drains adequately, avoiding drainage capture, and insuring effective dispersal mechanisms, among other means. The planned monitoring and maintenance of the road drainage features would further minimize these kinds of effects.

Qualitatively, we know that: (1) the existing road surface and nearby surfaces are already experiencing erosion at “above background” rates; (2) the new disturbances associated with the construction corridor and cut/fill slopes for the new road would also have the potential to erode at “above background” rates; and (3) the larger contributions of sediments from the watershed are currently coming from sources other than roads. Given the design criteria, BMPs, required monitoring, and the applicant-committed environmental protection measure to install riparian fencing, is it reasonable to assume that, on balance, accelerated erosion associated with the proposed road project would occur but may be less than other contributing factors.

In any case, the closer the road is to the stream, the more likely it is that any eroded material could make its way to the stream and degrade water quality. To provide a relative indication of this, **Table 3.2-3** provides a comparison of the existing condition (equivalent to No Action) and the other Alternatives in regard to proximity to a perennial stream reach. Using this information, the distance of the road from the stream channels can be used as a quantitative means to compare and contrast Alternatives, rather than attempting to model predicted salt or sediment loads.

Table 3.2-3 Proximity to Perennial Stream - Quitchupah Creek Road and Alternatives

Proximity to Stream	Existing Road (Same as Alternative A) (feet)	Alternative B (with existing road reclaimed) (feet)	Alternative C (with much of the existing road reclaimed) (feet)	Alternative D (with much of the existing road left unreclaimed) (feet)
<50 feet	2,500	2000	2000	2500
<500 feet	35,400	33,800	32,300	38,900

In essence, construction of Alternative B would result in a reduction of the length of Quitchupah Creek roadway within 50 feet of perennial stream by 500 feet. It would result in a reduction of length within 500 feet by 1,600 feet.

While the total road width and extent cut and fill slopes associated with the proposed road would be much greater than the width associated with the existing road, the engineering and construction techniques of the new road (constructed to AASHTO & UDOT Standards), coupled with the BMPs contained in **Appendix B** for road drainage, construction reclamation, and maintenance), as well as the aggressive monitoring and maintenance plan that would be implemented, would tend to negate the width difference as far as sediment or runoff concerns. (It is important to note that while revegetation of the existing road reaches that would be abandoned, construction corridor areas, and cut/fill slopes would be done where possible, vegetation is not the primary mechanism for soil stabilization in this area, nor would it be relied up totally to provide erosion control. As discussed in **Appendix B**, other techniques and materials would be used as well as vegetation; and where used, vegetation efforts would be a continuing maintenance item where needed.)

A compacted roadway with proper control of drainage and storm runoff, and use of imported materials such as rock, fill, and/or retaining walls, where necessary, would be an improvement over the current road situation with its native, un-engineered substrate and no drainage controls. However, a tradeoff would be the risks associated with primary and secondary channel crossings as described previously. Further, the existing road receives little or no maintenance through most of its length and little usage. This means that problems that currently develop on it, such as head-cutting up from a side-drainage, go unnoticed and add sediments to the stream on a chronic basis. In contrast, the proposed road would have frequent traffic, primarily with trucks that are dependant upon the road to get their product out, so maintenance would be frequent and problems would be quickly reported and rectified.

It is important to note that the upper terrace banks along Quitchupah Creek are often very unstable, sediment loads are currently high, the stream channel is active, and the stream flow regime is very flashy, so there is always potential for large channel changes caused by changes in its watershed or by rare flow events.

Under normal, typical circumstances, the road may perform well, and cause little or no increase in sedimentation. However, during rare events, destabilization could occur and result in a short term, larger pulse of sediment into the stream. Using a culvert failure as an example, should a greater-than-design event occur, streamflow would likely overtop the road. It may (1) simply cross the road, and continue across the fill without major damage, (2) result in a wedge of roadway and associated fill being eroded away, or (3) it could result in a catastrophic breach. Assuming proper design, placement, and maintenance of culverts (which would be assured by agency review of design specifications, and

implementation of the BMPs contained in **Appendix B**), the calculated risk associated with failure is based upon probabilities, as discussed under the *Stream Crossing Impacts* section above.

Culvert failure could result in a pulse of sediment into the stream. Depending upon circumstance, such a pulse would immediately be carried downstream, or be redeposited close to the failure, or some combination of transport/deposition over some undetermined amount of time. Large, longer term instabilities as a result of crossing failure, such as headcutting back up the drainage that failed, would not be expected because timely repair and maintenance would be done in order to keep the road operational. A larger, more catastrophic failure could have more significant effects, but such a failure is considered unlikely given the specified design criteria, implemented BMPs, and the aggressive monitoring/maintenance programs.

Impacts to Category 1 Waters and 303(d) Listed Waters

Any sediment increases would indirectly have the potential to increase TDS, a parameter of concern in the 2004 303(d) listed stream segment downstream of the property. This would depend upon the nature of the eroded materials, which is further discussed in the Soils Technical Report (JBR, 2001d). As noted above, salinity greatly increases in a downstream direction already, and the Utah Division of Water Quality, in its West Colorado Watershed Management Unit Water Quality Assessment Report (UDEQ, 2000) and its companion TMDL (UDEQ 2004), states that the dominant sources for TDS in the 303(d) listed stretch of Quitchupah Creek were natural and agricultural practices.

The implications of the Quitchupah Creek reach downstream of the project being on the 2004 303(d) list, of the uppermost part of Quitchupah Creek within the Project Area being a Category 1 stream, and the entire Project Area being subject to the Colorado River Salinity Control Act all represent potential regulatory issues related to introduction of TDS. Because the 303(d)-listed reach is likely to have a TDS site-specific standard in place by the time the project would be constructed, and because this new (higher) standard would be the basis for DWQ project water quality assessment, as described in Chapter 3, the 303(d) issue may be a moot point. The Division of Water Quality would oversee this aspect of the permitting through its issuance of a permit for storm water discharges during construction, through any issuance of Stream Alteration Permits associated with any crossings and realignments where waters of the State are present, and through the State's 401C Water Quality Certification needed for any wetland permits. Potential temporary, construction related impacts are allowed to occur in streams that have these designations, as long as measures are used to reduce those impacts to the extent feasible. These measures are partially described in BMPs in **Appendix B** and would be further developed with the preparation of the Storm Water Pollution Prevention Plan that would be required. However, some construction-related sediment loading may occur even with these BMPs. This project would not require any new point source discharges of wastewater, which would be much more difficult or impossible to permit in Category 1 or 303(d) listed segments. However, the upper reaches of Convulsion Canyon (a Category 1 reach) that would require realignment may represent a longer term, post-construction source of sediments and salts entering the stream from ongoing erosion of the intercepted steep natural slope adjacent to the realigned channel segments. The wetland enhancement and replacement efforts immediately downstream of the realigned reaches, the agency committed measures, and applicant-committed environmental protection measure for the irrigated areas would help to reduce these potential impacts.

Other Water Quality Impacts

Vehicle accidents that result in release of coal, fuel, or other transported materials would be possible on the proposed road, as they are on any road or highway where trucks travel. During most accident occurrences, roadside ditches, cross drains, and many of the culvert crossings would likely be dry. In those instances, should spillage of coal, fuel, or other materials occur, it should be able to be cleaned and

mitigated without contacting storm water runoff or perennial waters. However, there would be some potential for an accident to result in direct release of pollutants such as coal or fuel to Quitchupah Creek itself, either by spilling into the stream itself, or into a culvert crossing during a runoff event. Standard response and cleanup for this type of spill would occur, as directed by a BMP specific to this occurrence as described in **Appendix B**, but there could be some short term effects on water quality and biotic stream components. However, the potential for such accidents to occur would be low. According to SUFCO, over the past five years, only two truck accidents have occurred on the steep, winding Acord Lakes Road, out of an estimated 50 trucks per hour at peak times.

Sand, mixed with deicing chemicals such as commonly used road salt, would be needed during the winter to insure safe driving conditions. BMPs, as described in **Appendix B**, would be applied to ensure that these materials are used in an appropriate manner to minimize contributions to stream sedimentation and salinity, and to protect riparian vegetation and stream biota from the effects of excess salt.

Snow removal would be done according to agency standards so as to minimize effects to stream channels and vegetation.

As specified in the **Appendix B** BMPs, coal trucks would be cleaned prior to entering the road, so their potential to chronically contribute coal dust or other coal particulates would be reduced. However, some minimal potential for coal introduction would always remain.

Other effects on water quality, as indicated by bacteriological, radiological, organic, and trace metal parameters, that are regulated for recreation or cold water aquatics beneficial uses, are not expected to occur as a result of the proposed project. This is because no sources for these types of constituents would be expected to be conveyed along the route on any kind of routine basis.

Water Quantity/Flow Impacts

As noted, while it has not been subject to long term stream flow gauging, Quitchupah Creek is known to experience a wide fluctuation in stream flow due to intense storm activity. In part, this is due to the watershed characteristics and condition, which primarily result in a high ratio of runoff to precipitation. In general, disturbances such as road construction tend to locally increase runoff within the area of disturbance when compared to the pre-disturbed condition, and this would be the case for this road as well. In addition, road drainage features such as cross drains, ditches, etc. typically increase the hydrologic connectivity of the system, increasing (at least locally) peak flows associated with any given event. Currently, the existing road has a high degree of connectivity with Quitchupah Creek; because it would be reclaimed, the connectivity it currently provides would diminish. The proposed road would not have a high degree of connectivity due to the planned storm drainage features such as draining ditch lines before they reach channels so that water and sediments can infiltrate/redeposit, draining ditch lines frequently to prevent concentrated overland flow, and other related BMPs described in **Appendix B**.

Whether or not the proposed road would locally increase peak flows would be dependent on the net effect of: (1) removing some of the existing connectivity that occurs from the existing road; (2) minimizing connectivity due to new road drainage features; (3) increasing the distance of the road away from the channel over what is currently; (4) increasing the width of disturbance and runoff production potential; and (5) improving riparian conditions due to grazing reductions. On balance, at least some increase in localized peak flow would be likely. However, the net affect on the hydrologic regime in Quitchupah Creek, already noted to be extremely flashy and variable in flow, and which is and would remain dominated by precipitation patterns and current soil/vegetation characteristics, would likely go unnoticed (Section 2.2 Stream Crossing and Road Culverts).

Water Rights Impacts
Water right holders currently have the authority to use Quitchupah Creek waters for instream stock watering and irrigation. The integrity and functioning of the irrigation system would be maintained with the construction of the road; access to those features would be maintained. Although the applicant-committed measure to install riparian fencing and watering stations may redirect instream stock-watering to specific locations on- or off-stream, water right holders' ability to use their water rights would not be compromised. Further, the project would not reduce the amount or quality of available water to meet those rights.

Groundwater Impacts
Impacts to groundwater would be minimal, if any, due to its limited extent and depth. Road cuts and drainage ditches are not likely to intercept or redirect groundwater. Field vegetative evidence, direct observations of existing near-road surfaces during various seasons, and soil survey information all indicate little potential for any extensive areas of shallow groundwater that would be likely to be intercepted. However, some very localized areas of seasonal shallow subsurface water related to snow melt may appear at some cut faces. If so, it would be expected to enter inner roadway ditches and be directed to the nearest ditch relief culvert. Any groundwater associated with the impacted wetlands would be minimal in extent and those impacts would be mitigated under the COE 404 permit, as discussed in the wetlands section of the Vegetation Technical Report (JBR, 2001k) and in **Section 3.4**.

ALTERNATE JUNCTION AND ALTERNATE DESIGN - ALTERNATIVE C
Potential impacts would generally be the same as for Alternative B, although as shown in **Table 3.2-4**, this alternative would require four more primary crossings than would Alternative B. Further, construction of Alternative C would result in a reduction of the length of Quitchupah Creek roadway within 50 feet of perennial stream by 500 feet as compared with the No Action existing condition. It would result in a reduction of length within 500 feet by 3,100 feet as compared with the No Action existing condition. When compared to Alternative B, Alternative C would result in the same amount of perennial stream within 50 feet of the roadway, and somewhat less within 500 feet as was shown in **Table 3.2-3**.

Table 3.2-4 Primary Stream Crossings - Alternative C - Alternate Junction

Stream Regime	Alternative A Existing Quitchupah Creek Road (denotes primary crossings that are currently in place)	Alternative C Alternate Junction (denotes primary number of crossing placed during construction of new road)	Existing Primary Crossings that would be removed or replaced during construction	Net number of Primary Crossings after construction of Alternative C and removal of existing road
Perennial	8	6	8	6
Intermittent	0	2	0	2
Ephemeral	8	14	8	14
Total	16	22	16	22

Table 3.2-5 provides measurements made in the field at selected larger crossings associated with Alternative C. Most of these are designated primary crossings; the majority of secondary crossings would not likely affect waters of the U.S. The volume per foot column represents the approximate volume of defined waters (under or stream-ward of the OHWM) per foot through the width of the crossing that

would be filled either by the culvert itself or associated back fill. The total volume of fill associated with each crossing would be greater than the amount that is relevant to the waters of the U.S. permitting; there would also be fill associated with each crossing that is placed above the elevation of the OHWM to up to the roadbed elevation. The total volume of fill at each crossing would be indicative of sediment levels that could be contributed to the stream should the crossing fail entirely.

Table 3.2-5 Waters of the U.S. or State at Selected Crossings – Alternative C Quitchupah Creek Road - Alternative Junction

Station	OHWM Width (inches)	OHWM Depth (inches)	Volume per Foot below OHWM (cu. ft.)	Fill Length (feet)	Channel Description
11+00	30	6	1.25	30	Intermittent Section of Quitchupah Creek
18+00	30	6	1.25	180	Intermittent Section of Quitchupah Creek
66+00	40	11	3.06	170	East Spring Canyon (perennial)
94+00	40/23	2	0.44	200	ephemeral tributary
186+50	52/42	6	1.95	350	ephemeral tributary
201+00	33/21	8	1.60	250	ephemeral tributary
213+50	32/21	8	1.50	250	ephemeral tributary
228+50	108/48	18	9.75	210	Quitchupah Creek (perennial)
232+50	108/48	18	9.75	250	Quitchupah Creek (perennial)
250+00	156/72	30	23.75	80	North Fork (perennial)
251+50	166	18	20.75	130	Quitchupah Creek (perennial)
256+50	166	18	20.75	80	Quitchupah Creek (perennial)
271+00	102/78	10	6.25	200	ephemeral tributary
268+00	57/48	5	1.82	90	ephemeral tributary
392+00	240	18	30	150	ephemeral wash
410+00	70	8	6	150	ephemeral wash
422+50	220	18	27	200	ephemeral wash
434+50	180	12	15	200	Link Canyon
463+00	180	12	15	240	ephemeral wash

The calculated probability of failure associated with these culvert installations would be a one percent chance of exceedance in any given year; the probability of failure over 20 years would be 18 percent. Using the means of comparison described previously, the consequences of accepting the 18 percent risk under Alternative C is 1.2 times the assigned Alternative B ranking of 1.

WATER HOLLOW ALTERNATE ALIGNMENT - ALTERNATIVE D

Under Alternative D, the majority of the existing Quitchupah Creek Road would remain in place and the 16 existing primary watercourse crossings would continue to be used by local traffic. The existing unpaved and little-maintained road would not be reclaimed. However, it would receive increased maintenance and slightly improved drainage with the applicant committed measure to construct water bars, but it would continue to be an erosion/sedimentation source to Quitchupah Creek. In addition, construction of the Water Hollow alignment would require primary watercourse crossings in 20 locations, as shown in **Table 3.2-6**, or two more than in Alternative B. Appropriate permitting and consultations with the COE would be required at some of these. **Table 3.2-7** provides measurements made in the field at the majority of the crossings.

Table 3.2-6 Primary Stream Crossings -Alternative D - Water Hollow Alternate Alignment

Stream Regime	Alternative A Existing Quitchupah Creek Road (denotes primary crossings that are currently in place)	Alternative D Water Hollow Alternate Route (denotes number of primary crossing placed during construction of new road)	Existing Primary Crossings that would be removed or replaced during construction	Net number of Primary Crossings after construction of Alternative D and partial removal of existing road
Perennial	8	3	1	10
Intermittent	0	2	0	2
Ephemeral	8	15	1	20
Total	16	20	2	32

Table 3.2-7 Waters of the U.S. or State at Selected Crossings – Alternative D - Water Hollow Alternate Alignment

Station	OHWM Width (inches)	OHWM Depth (inches)	Volume per Foot below OHWM (cu. ft.)	Fill Length (feet)	Channel Description
11+00	30	6	1.25	60	Intermittent Section of Quitchupah Creek
18+00	30	6	1.25	180	Intermittent Section of Quitchupah Creek
66+00	40	11	3.06	170	East Spring Canyon (perennial)
94+00	40/23	2	0.44	200	ephemeral tributary
121+50	120	12	10.0	250	Quitchupah Creek
177+00	120	12	10.0	400	Water Hollow
229+50	36	5	1.25	200	Unnamed Ephemeral Wash
255+00	60	8	2.1	150	Unnamed Ephemeral Wash
338+00	12	4	0.3	270	Unnamed Ephemeral Wash
339+50	48	6	2.0	130	Unnamed Ephemeral Wash

Station	OHWM Width (inches)	OHWM Depth (inches)	Volume per Foot below OHWM (cu. ft.)	Fill Length (feet)	Channel Description
341+50	60	6	2.5	150	Unnamed Ephemeral Wash
366+50	72	10	5.0	270	Unnamed Ephemeral Wash
384+50	30	5	1.0	300	Unnamed Ephemeral Wash
412+50	10	4	0.3 cu. ft.	150	Unnamed Ephemeral Wash
419+00	48	6	2.0 cu. ft.	150	Unnamed Ephemeral Wash
432+00	96	6	4.0 cu. ft.	250	Unnamed Ephemeral Wash
463+00	48	10	3.3 cu. ft.	300	Unnamed Ephemeral Wash
471+00	48	10	3.3 cu. ft.	350	Unnamed Ephemeral Wash

Where wildlife crossings (either bridges or large culverts) would supplant 5 of these crossings, fill volume may differ from that listed above.

The calculated probability of failure associated with these culvert installations, is 18 percent that culvert capacity would be exceeded, or, conversely, 82 percent that it wouldn't be exceeded, the same as for Alternative B. Using the means of comparison described above for Alternative B, the consequences of accepting the 18 percent risk under Alternative D is 1.4 times the Alternative B ranking of 1 and 1.17 times the Alternative C ranking. For the five crossings where wildlife bridges would be used, probability of culvert failure would not apply.

Crossings on the Water Hollow alignment would in general have greater total amounts of fill, and the roadway itself would have steeper and longer cut and fill slopes, when compared to Alternative B, because the Water Hollow Alternative contains more highly dissected topography. Consequently, the effectiveness of many of the BMPs under this Alternative may be more difficult to ensure.

This route would avoid the majority of Quitchupah Creek, including its middle and lower reaches that are most susceptible to instability impacts. As shown in **Table 3.3-3**, construction of Alternative D would result in no change in length of roadway within 50 feet of perennial stream, and a net increase of 3,500 feet of roadway within 500 feet of perennial stream. These numbers include both the new road corridor and the portions of the old road which would remain. Because this alternative would result in larger cut and fill slopes, greater crossing risk, higher connectivity near Water Hollow crossing, and because the existing road would remain, it may result in greater impacts associated with erosion and sedimentation than under Alternatives B and C. However, risk to perennial waters due to truck spills and due to subsidence of soluble salt-laden soils would be less under this alternative than under Alternatives B and C.

Impacts due to the realignment of the upper stream reaches would be the same as for Alternative B, as would the implications of the High Quality Waters Category 1 areas.

This Alternative would not require any activities associated with the Quitchupah Creek bridge crossing at SR-10. The Water Hollow crossing would be designed to allow passage of fish through the culvert at this

location. Due to the design constraints associated with this fill and crossing, the road as it approaches Water Hollow would be below grade for over 2500 feet, consequently road runoff, sediments, deicing substances, and any spilled materials would drain directly to Water Hollow.

Wetland mitigation activities, impacts to water right holders, and ground water impacts would be the same for this alternative as previously described for Alternative B.

MITIGATION AND MONITORING FOR BUILD ALTERNATIVES

Required design criteria, applicant-committed environmental protection measures, and BMPs are identified in Chapter 2 and in **Appendix B**. The potential impacts discussions and conclusions assume that these measures are implemented and effective. All of these measures would be monitored and the treatment repeated or redesigned until satisfactory results occur, as described in the Monitoring Plan. Unintended or unforeseen impacts revealed by monitoring would be remedied to the satisfaction of the landowners.

A monitoring program for the stream realignment at East Spring Canyon would be implemented as described in the Monitoring Plan for Alternatives B and C. A monitoring program to track water quality changes due to the improved irrigation efficiencies is also described in the Monitoring Plan for Alternatives B and C.

To reduce the impacts of accidents and spills, a spill prevention program would be developed and all coal truck drivers would be instructed on what to do in the event of a spill. A spill prevention plan would include a checklist of necessary equipment to be carried on each truck hauling coal. Some examples of equipment to be carried include fire extinguisher, shovel, and absorbent material. In addition, all trucks would need to pass routine inspections and have proper maintenance performed on them regularly. Spills, leaks, and contaminated soils would be cleaned up as per a SUFCO Mine program, to prevent pollution to surface or ground waters. BMPs would be utilized and are described in **Appendix B** and/or in permits obtained in associated with the Proposed Action in **Table 1.5-1**.

IRREVERSIBLE OR IRRETRIEVABLE COMMITMENT OF RESOURCES AND RESIDUAL ADVERSE IMPACTS

Provided that the BMPs, the applicant-committed environmental protection measures, and the aggressive monitoring/maintenance programs are effective, impacts due to construction would be short term for all alternatives. Over the long term, all alternatives would have the potential to contribute sediment and salts to Quitchupah Creek, as this would be inherent in any road project. However, the use of BMPS, applicant-committed environmental protection measures, and the aggressive monitoring/maintenance programs would reduce this potential as much as possible. Truck accidents could introduce coal and fuel into the streams, however this would be minimized by BMPs for spill kits, training, and rapid response. In some instances however, a spill could produce residual adverse impacts to water resources from Alternatives B, C or D. Alternative D's generally greater distance from perennial waters would reduce this possibility. Construction of any of these build alternatives would be expected to require a substantial commitment of maintenance time and expense for Sevier County, both during and after its use as a coal road, as outlined in the Monitoring Plan.

CUMULATIVE EFFECTS

For the purposes of water resources, the cumulative area is defined as the Quitchupah Creek watershed and tributaries downstream to the location where SR-10 crosses the stream. This represents the downstream location of the proposed project.

Several types of past, present, and ongoing land uses (i.e. livestock grazing/trailing, mining, recreation, etc.) occur within the Quitchupah Creek watershed in the vicinity of the Project Area. These uses and related activities may have contributed to upland watershed conditions and exacerbated erosion of already erosion-prone soils. Grazing is a likely cause of erosion; disturbances associated with the SUFCO mine may also be prone to erode. While the SUFCO mine's erosion is mitigated by BMPs and includes sedimentation reduction treatments such as silt fences, erosion from grazing remains untreated and may be more likely to contribute sediments to receiving streams. The proposed project would also have the potential to contribute sediments; under Alternatives B and C, however, much of the existing sediment contribution from the existing road would be eliminated. Under all build alternatives, the BMPs and applicant committed measures have been designed to reduce sediment loading to the extent possible. The applicant committed measure to install riparian fencing on public land adjacent to Quitchupah Creek could also provide reductions in erosion and sediment loading over time. Any increases in sediment from the proposed road would add to the remaining base load, but should be small assuming BMPs are effective and monitoring allows adaptations as needed.

Sediment sources are also sources of salinity. The TMDL study for this area notes high background, ambient salinity loading. The primary point source contributors of TDS in the area are a combined 3,600 tons/year from the SUFCO and CONSOL mine discharges. Using information obtained from the TMDL study, surface erosion and irrigation are responsible for 37 and 21 percent, respectively, of the nonpoint TDS loading in the Quitchupah Creek area. The riparian fencing would also reduce salt loading over time, though the TMDL study indicates that less than one percent of the nonpoint salt loading comes from streambank erosion. Any increases in salt load from the proposed road would add to the remaining base load, but should be small assuming BMPs are effective.

All of these land uses have also contributed (and will continue) to alterations in flow rates in Quitchupah: upland grazing due to vegetation and soils disturbance; irrigation due to withdrawals; and the mine due to discharge of groundwater. The proposed project would be negligible compared with these.

3.3 Soils

The Quitchupah Creek Road alignment and all proposed Alternatives would traverse a total of three soil mapping units within Fishlake National Forest (which have been mapped and described by the USFS) and 39 soil mapping units on lands administered by the BLM, SITLA, and private lands (which were surveyed by NRCS in 2000). Soil boundaries and mapping unit designations within the entire Project Area are presented in Final Soils Technical Report, Quitchupah Creek Road EIS (JBR, 2001d).

Near the east end of the existing road are Quaternary deposits consisting of coarse sands to cobbles and boulders with minor fine sand and silt. These alluvial deposits make a substantial portion of the existing road surface.

Throughout the location of the proposed project there may be the possibility of slumping, soil creep, and rock fall that have not been identified on a published map or specifically observed in the field. Numerous slides, slumps, mass movement, and rock fall have occurred in the area in the past and would continue to take place in the future.

Shales and clays are interbedded with sandstones. These clays would have the potential of buckling, warping, slumping, and offsetting of the proposed road surface. Proper road construction techniques and construction designs would be implemented and followed in order to minimize these types of movements. Erosion and salinity are of particular importance to the project. Soil erodibility is based only upon the

physical characteristics of a given soil. For water, erodibility is described by the erodibility factor (K) factor; it rates a soil's susceptibility to detachment and transport by rainfall and runoff. The rating is based upon the interaction of a given soil's properties, including texture, structure, and permeability; because it is based upon inherent soil properties, the K factor is not affected by vegetation that may or may not be present on a soil surface. K values can range from 0.02 to 0.69, with greater values representing higher inherent erodibility. Erosion hazard (by water) is a qualitative ranking that takes into account the soil's inherent erodibility (K value), the slope of the land on which the soil typically occurs, and the soil's permeability class. A given soil may have a high inherent erodibility (as described by its K value), but if it occurs on flat or low gradient slopes and has a rapid permeability, it would have a low erosion hazard ranking. Because of the presence of erodible saline soils, sediments produced by the erosion of saline soils can affect surface water quality.

Similarly, a Wind Erodibility Group (WEG) value is a wind erodibility grouping that indicates a soil's susceptibility to wind erosion based upon its particle resistance as described by the percentage of dry soil aggregates larger than 0.033 inches. WEG values range from one to eight with one being the most erodible; one subgroup is indicated by the letter L, denoting the presence of lime.

Salinity is a measure of a soil's soluble salts as measured by its electrical conductivity. Salinity can range from 0 to greater than 16 millimhos/centimeter. **Table 3.3-1** provides correlations for erodibility and salinity rating values and their standard qualitative descriptors of level.

Soils with water soluble minerals (salts) can be a special concern in road building due to uneven settling caused by improper road drainage.

Table 3.3-1 Soil Ratings and Descriptors

Numerical Rating	Description of Level	Numerical Rating	Description of Level	Numerical Rating	Description of Level
Wind Erodibility Group		**K Value**		**Salinity**	
8	non	.20 or less	low	0 to 2	non-saline
5,6,7	slight	.21-.40	moderate	2 to 4	slightly
3,4,4L	moderate	> .40	high	4 to 8	moderately
2	high			8 to 16	strongly
1	very high			> 16	very strongly

A summary of the soils present within the Project Area is presented in **Appendix G**. Their locations within the Proposed Action area are presented in **Figure 3-2.**

Limitations

The NRCS has developed criteria by which they assess the limitations of various soil types in regard to their potential uses. These limitations are typically contained in tables within published soil surveys. Because the Project Area soils mapping has not been conducted (Sevier County) or is in the initial stages (Emery County) (NRCS 2005), these tables have not yet been developed. However, because many of the soils are equivalent to soils in the Carbon Area survey, that information is applicable to much of the Project Area. In addition, some of the limitation-type information can be inferred from the soils descriptions even where the limitations tables have not been derived. Therefore, **Table 3.3-2** provides,

where available or through synthesis of applicable data, some indication of limitations of the soils in regard to the proposed road construction project. Where information is not available, or cannot be derived from the available information, the symbol N/A (not available) is used.

Table 3.3-2 Soil Characterizations and Limitations Regarding Proposed Project

Soil Name	Typically poor for road fill[1]	Shrink swell concern[2]	Frost heave concern[3]	Inundation Class[4]	Erodibility Ratings[5]		Salinity Rating[6]
					Wind	Water	
Beebe	No	No	No	Rare	X	XX	X
Cabba	Yes	No	Yes	None	–	--	--
Chipeta	Yes	Yes	No	None	X	XX	XX
Chupadera	Yes	No	Yes	None	X	X	--
Clifsand	No	No	No	None	--	X	--
Colorow	No	No	Yes	Rare	X	X	--
Comodore	Yes	No	Yes	None	--	--	--
Datino Var.	Yes	No	Yes	None	--	--	--
Doney	Yes	No	Yes	None	--	--	--
Ferron	No	No	Yes	None	--	XX	XX
Gerst	Yes	Yes	Yes	None	--	--	--
Glenberg	No	No	Yes	None	X	X	--
Green River	No	No	Yes	Frequent	X	XX	--
Greybull	Yes	No	No	None	X	X	--
Haverdad	No	Yes	Yes	None	X	X	--
Hernandez	No	No	Yes	None	X	X	--
Hunting	No	Yes	Yes	None	X	XX	XX
Juva Var.	No	No	Yes	None	X	X	--
Lazear	Not Known	No	No	None	--	X	--
Libbings	Yes	Yes	Yes	None	X	XX	XX
Minchey	No	Yes	Yes	None	X	X	--
Mivida	No	No	Yes	None	X	XX	--
Moffat	No	No	No	None	X	X	--
Pathead	Yes	No	Yes	None	--	--	–
Penoyer	No	No	Yes	None	X	XX	--

Soil Name	Typically poor for road fill[1]	Shrink swell concern[2]	Frost heave concern[3]	Inundation Class[4]	Erodibility Ratings[5]		Salinity Rating[6]
					Wind	Water	
Beebe	No	No	No	Rare	X	XX	X
Persayo	Yes	Yes	No	None	X	X	XX
Pherson	No	No	Yes	None	X	X	--
Pinon	N/A	No	No	None	--	X	--
Podo	Yes	No	Yes	None	--	--	--
Ravola	No	No	No	None	X	XX	X
Shupert	No	Yes	Yes	None	--	X	--
Stormitt	Yes	No	Yes	None	--	--	--
Strych	No	No	Yes	None	--	--	--
Toddler	N/A	N/A	N/A	None	--	X	XX
Travessilla	Yes	No	Yes	None		X	--
Trook	No	No	No	None	X	X	--
USFS 21A	Yes	No	No	None	--	X	--
USFS 69	No	No	No	Rare	XX	XX	--
USFS 78	Yes	No	No	None	--	–	--
Utaline	N/A	N/A	N/A	N/A	--	X	--
Winetti	No	No	Yes	No	--	--	--

-- = not of concern X = moderate XX = high for erodibility, strongly saline for salinity

[1]Soils may have properties that may adversely affect the stability of the roadbed.

[2]The shrinking of soil when dry and swelling when wet may affect roadbed stability.

[3]Frost heave causes the soil to expand upward affecting structures.

[4]The frequency of flooding at the soil surface.

[5]The susceptibility of the soil surface to erosion by water and wind.

[6]The relative amount of soluble salts in the soil profile.

Where the available data indicate a range of values that span different ratings, the upper value was used to determine the limitation.

Prime or Unique Farmlands

Several soils in the Project Area, in the vicinity of Quitchupah Creek, are classed by the NRCS as Prime Farmlands. Prime or unique farmlands are lands best suited to produce food, feed, fiber, forage, and oilseed crops. These soils meet the criteria only when irrigated. When not irrigated, these soils would be neither Prime Farmland nor would they be considered to be of "Statewide Importance" by the NRCS in Utah. They are mapping units TY (Green River-Juva Variant Complex), PeB (Penoyer Variant loam), TrC (Trook gravelly fine sandy loam), RIA2 (Ravola -Toddler Complex), RIB (Ravola loam), and CIC

(Shupert-Winetti Complex). Only the Trook soil is irrigated. Within the Project Area, there are 20 acres of irrigable land and 145 acres of cultivated land.

Potential Impacts To Soils

The Environmental Consequences of each Alternative, in regard to soils, are discussed below. First, regulatory consequences are described and then potential impacts to the resource itself.

REGULATORY

The COE would oversee regulatory requirements in the areas where hydric soils are located (JBR, 2001d). Construction and related soil disturbance within areas mapped as Prime or Unique Farmlands would come under the Farmland Protection Policy Act, which regulates to minimize the impact Federal actions have on the unnecessary and irreversible conversion of farmland to non-agricultural use.

NO ACTION - ALTERNATIVE A

Soil resources would continue to respond to natural forces in the way they currently do, should the No Action Alternative be chosen. Soils that are erodible would continue to have the potential to easily erode, and saline soils would continue to supply salts to surface waters via runoff and sediments. Erosion of unmaintained two-track road would continue to produce sediments and salinity to Quitchupah Creek.

QUITCHUPAH CREEK ROAD ALIGNMENT - ALTERNATIVE B

Table 3.3-3 shows soil mapping units and approximate linear feet of each unit that would be disturbed for this alignment. It is organized by the approximate order in which the soils are encountered from west to east. Note that much of the area is within the existing road footprint and thus has been previously disturbed.

A comparison of **Tables 3.3-2** and **3.3-3** indicates that: approximately 9,200 feet or 19 percent of this alignment may cross soils that are typically poor for road fill; approximately 15,700 feet or 32 percent of this alignment may cross soils that have shrink-swell concerns; 17,300 feet or 36 percent of this alignment may cross soils that have frost heave concerns; and 5,800 feet or 12 percent of this alignment may have rare flooding problems and potential subsidence due to soluble salts. All of these soil characteristics can adversely affect the stability of the roadbed. The incorporation of 12 inches of granular borrow in the roadbed, and the option to use up to 36 inches of granular borrow and geotextile fabric in the construction of the roadbed in particularly unstable areas would, by design, overcome the poor soils conditions underlying the roadbed (JBR 2001d).

Approximately 40,700 feet or 87 percent of this alignment has the potential to cross soils with moderate or severe erodibility ratings and 9,000 feet or 18 percent has the potential to cross moderate to strongly saline soils. These numbers do not include the soils for which this information is not available. In addition, several of the soil mapping units in this area include rock outcrop and badlands, for which soils descriptions are not applicable because these miscellaneous land types are not considered as soil. Rock outcrops are stable and non-eroding, while Badlands are erodible and saline.

These limitations suggest that many of the areas presently disturbed by road construction activities have experienced increased erosion, either by wind or water. Given the proximity of the present alignment to Quitchupah Creek, increased erosion could be increasing sediment loading and increasing salinity to the stream. The inclusion of BMPs in the proposed road design for drainage control and subsequently for erosion and sedimentation, and reclamation of the existing road would help to reduce sediment loading and salinity in the creek from this source.

Table 3.3-3 Soil Disturbance by Mapping Units - Alternative B

Mapping Unit Designation	Major Soils In Unit	Approximate linear feet of disturbance
21A	Torriorthents with rock outcrop	1,700
69	Haplustolls	11,500
CIC	Shupert, Winetti	2,900
255	Gerst, Travessilla , Strych, Rock Outcrop	2,000
224	Mivida	2,500
569	Gerst, Strych, Badland	1,200
OCA2	Haverdad	3,700
GLC	Glenberg, Pherson, Colorow	4,500
TrC	Trook	5,000
131	Persayo, Badland, Rock Outcrop	2,800
RlA2	Ravola, Toddler	5,200
SMD2	Stormitt, Minchey	1,500
BeB	Beebe	1,000
PeB	Penoyer Variant	1,200
TY	Green River, Juva Variant	300
	Total	47,000

A simple application of the Universal Soil Loss Equation (USLE) was done to provide a general indication of the order-of-magnitude change in erosion rate from sheet erosion processes that may occur as a result of roadway disturbances (without the application of the proscribed BMPs). USLE calculates long-term average annual erosion rate in tons/acre/year based upon inputs of rainfall factor, soil erodibility factor, slope length/steepness factor, and cover/practices factor.

To perform this application, a conservative, worst-case type approach was used. By this, the steepest planned road cut or fill slope, of 2h:1v, was used to provide the slope steepness factor. A K factor represented by the worst-case native soils on the Project Area was used in the calculation, and the cover/practice factor was based upon essentially compacted, bare ground that has been seeded but with negligible growth.

Factors used were:

R = 30 (from old SCS statewide R factor map for Utah)
K = .55 (from NRCS mapping information)
LS = 9.5 based upon 2:1 slopes over a 30' length
CP = .8

This results in an estimated sheet erosion rate of 125 tons per acre per year from the disturbed road cut/fill areas. Using a conservative, appropriate area-derived sediment delivery ratio of .4, this estimate results in 50 tons/acre/year of sediment entering Quitchupah Creek from the disturbed, unreclaimed road fill/cut slope areas.

In contrast, the USLE equation was run using more of an existing scenario, assuming a typical plot of ground where the road disturbance would be would have the same R and K values, but that native slope would be 10 percent, length 100' and CP .29 due to some vegetative cover. This results in a background erosion rate of 2 tons/acre/year. Applying the same sediment delivery ratio of 0.4 gives an estimate of .8 tons/acre per year currently from that type of slope.

It is important to note that, for the background and for the roadbed conditions, the calculation represents only one scenario; in reality many other numbers for most of those factors would occur through both the entire watershed and the roadway disturbance, and expected calculation results would vary. Further, application of all of the applicant-committed measures and BMPs would greatly reduce this USLE calculated number; it is presented for illustrative purposes only.

It is also important to note that USLE predicts sheet erosion, not gullying or other forms or slope failure or mass wasting.

Soil characteristics and disturbance figures in **Tables 3.3-2** and **3.3-3** suggest that disturbed areas would experience moderate to severe erosion potential, either by wind or water. Erosion of soils would lead to localized declines in soil quantity, fine litter, and coarse woody debris, as well as increases in bulk density from compaction. Declines in the upper layer of soil, litter, and debris would diminish the quality of the soil structure by the loss of organic matter necessary for supporting vegetative growth. Vegetation would thus be less likely to establish and stabilize the soil, increasing the potential for further erosion. Increases in bulk density from compaction would lead to decreased infiltration and increased runoff, which may increase the TDS load to Quitchupah Creek (see Water Quality, Section 3.2). Measures would be implemented for erosion control, however, to reduce soil losses and compaction (see **Appendix B**).

Approximately 14,600 feet of this alignment would cross soils mapped as Prime or Unique Farmlands, none of which is currently irrigated, and therefore not considered Prime or Unique Farmland at this location. Approximately 600 linear feet (1.4 acres) of the alignment would be within irrigated pasture mapped as Trook gravelly fine sandy loam, a Prime or Unique Farmland.

ALTERNATE JUNCTION AND ALTERNATE DESIGN - ALTERNATIVE C

Table 3.3-4 shows soil mapping units and approximate linear feet of each unit that would be disturbed for this Alternative. Note that a significant part of the area is within the existing road footprint and so has been previously disturbed.

Table 3.3-4 Soil Disturbance by Mapping Units - Alternative C

Mapping Unit Designation	Major Soils In Unit	Approximate linear feet of disturbance
21A	Torriorthents with rock outcrops	1,700
69	Haplustolls	11,500
CIC	Shupert, Winetti	2,900
255	Gerst, Travessilla , Strych, Rock Outcrop	1,400
224	Mivida	8350
569	Gerst, Strych, Badland	4350
OCA2	Haverdad	3,700
GLC	Glenberg, Pherson, Colorow	1150
TrC	Trook	4550
131	Persayo, Badland, Rock Outcrop	6850
SlD2	Clifsand	250
MsB	Minchey, Clifsand	1550
NFE	Lazear, Pinyon, Gerst	200
NNE2	Gerst, Lazear, Badland	1,200
	Total	49,650

This alignment is the same as for Alternative B, except for the easternmost leg. Therefore, the impacts would be similar. A comparison of **Tables 3.3-2** and **3.3-4** indicates that: approximately 10,700 feet or 22 percent of this alignment may cross soils that are typically poor for road fill; approximately 19,400 feet or 40 percent of this alignment may cross soils that have shrink-swell concerns; 18,200 feet or 37 percent of this alignment may cross soils that have frost heave concerns; and 2,400 feet or five percent may have occasional flooding problems. The incorporation of 12 inches of granular borrow in the roadbed, and the option to use up to 36 inches of granular borrow in the construction of the roadbed in particularly unstable areas would, by design, overcome the poor soils conditions underlying it.

Approximately 42,800 feet or 86 percent of the alignment has the potential to cross soils with moderate or severe erodibility ratings and 6,000 feet or 12 percent has the potential to cross moderate to strongly saline soils. These limitations suggest that many of the areas presently disturbed by road construction activities have experienced increased erosion, either by wind or water. Given the proximity of the present alignment to Quitchupah Creek, increased erosion could be increasing sediment loading and increasing salinity to the stream. The inclusion of BMPs in the proposed road design for drainage control and subsequently for erosion and sedimentation, and reclamation of existing road would help to reduce sediment loading and salinity in the creek from this source.

The effects of soil loss and sediment production would be similar to that of Alternative B.

Approximately 10,400 feet of this alignment would cross soils mapped as Prime or Unique Farmlands; none of which is currently irrigated, and therefore not considered Prime or Unique Farmland at this

location. Approximately 600 linear feet (1.4 acres) of the alignment would be within irrigated pasture mapped as Trook gravelly fine sandy loam, a Prime and Unique Farmland.

WATER HOLLOW ALTERNATE ALIGNMENT - ALTERNATIVE D

Table 3.3-5 shows soil mapping units and approximate linear feet of each unit that would be disturbed for this Alternative.

Table 3.3-5 Soil Disturbance by Mapping Units - Alternative D

Mapping Unit Designation	Major Soils In Unit	Approximate linear feet of disturbance
21A	Torriorthents with rock outcrops	1,700
69	Haplustolls	9,200
78	Ustorthents and rubblelands	2,400
CIC	Shupert, Winetti	2,300
MUE	Podo, Caba, Doney	400
261	Cabba, Strych, Badland	2,300
569	Gerst, Strych, Badland	4,100
OCA2	Haverdad	2,600
254	Gerst, Travessilla, Chupadera	19,800
AKC2	Hernandez, Chupadera	1,000
NNE2	Gerst, Lazear, Badland	3,000
255	Gerst, Travessilla, Strych, Rock Outcrop	1,100
522	Moffat	3,000
Not Mapped	Not Mapped	6,500
	Total	59,400

The first two miles of this alignment would be the same as for Alternative B & C. Approximately 10 percent of the alignment would be in soils that have not yet been mapped by the NRCS. For the remaining soils, a comparison of **Tables 3.3-2** and **3.3-5** indicates that: approximately 31,700 feet or 54 percent of this alignment would cross soils that are typically poor for road fill; approximately 33,900 feet or 58 percent of this alignment would cross soils that have shrink-swell concerns; and 36,000 feet or 61 percent of this alignment would cross soils that have frost heave concerns. The incorporation of 12 inches of granular borrow in the roadbed, and the option to use up to 36 inches of granular borrow in the construction of the roadbed in particularly unstable areas would, by design, overcome the poor soils conditions underlying the roadbed.

Approximately 42,000 feet or 71 percent of alignment has the potential to cross soils with moderate or severe erodibility ratings. No moderate to strongly saline soils are crossed by this alignment. Several of the soil mapping units crossed by the alignment include rock outcrop and badlands, for which soils descriptions are also unavailable. Rock outcrops are stable and badlands erosive and saline.

Effects of soil loss would be similar to Alternative B, although potential sediment introduction relative to Alternative B would be reduced. The incorporation of BMPs for drainage and erosion control would help to reduce the production of sediments from the road corridor. This alignment's distance from perennial waters would reduce the potential for eroded material to result in increased sediment loading.

Approximately 2,300 feet of this alignment would cross soils mapped as Prime or Unique Farmlands, none of which is currently irrigated, and therefore not considered Prime or Unique Farmland at this location.

MITIGATION AND MONITORING FOR BUILD ALTERNATIVES

Sources of fill material would need to be aggregate based and non-saline to reduce the potential for increased salinity within Quitchupah Creek (See **Appendix B)**. The road drainage system would be monitored for three years minimum to ensure it is fully functional; thus, reducing sediment discharge into the natural drainages.

IRREVERSIBLE OR IRRETRIEVABLE COMMITMENT OF RESOURCES AND RESIDUAL ADVERSE IMPACTS

Depending on the alignment selected, between 45 and 55 acres of permanent disturbance would occur to soil resources. The selected Alternative would result in 92.3 to 146.3 total acres of disturbance, of which approximately 57 to 106 acres of soil resources would be reclaimed depending on the Alternative alignment that is selected. The Proposed Action would cross 600 feet of irrigated and 14,600 feet of non-irrigated Prime Farmland. For Alternative C, the same 600 feet of irrigated Prime and Unique Farmland would be crossed; however, 10,400 feet of non-irrigated Prime Farmland would be affected. Alternative D crosses 2,300 feet of non-irrigated Prime and Unique Farmland.

CUMULATIVE EFFECTS

Past and present impacts to soils include erosion due to the Quitchupah Creek road, livestock trailing/grazing, mining, and recreation. These uses and related activities may have contributed to exacerbated erosion of already erosion-prone soils. Approximately 25 to 30 percent of the proposed road alignment in the Quitchupah Creek area is located on erodible soils as defined by NRCS. The disturbance of erosive soils contributes sediments and salts to the creek. The Proposed Action would stabilize some of this erosion. Unstable soil areas could be a high maintenance item in the future as evidenced by maintenance requirements in the unstable areas within the SR-10 alignment. Reclaimed portions of the existing road surfaces (7.6, 5.6, or 1.8 acres depending on Alternative) would become available through natural processes for productivity. While the SUFCO mine's erosion is mitigated by BMPs and includes sedimentation reduction treatments such as silt fences, erosion from grazing remains untreated. The proposed project would also have the potential to contribute to erosion. Under all build alternatives, the BMPs and applicant committed measures have been designed to reduce soil erosion to the extent possible. The applicant committed measure to install riparian fencing on public land adjacent to Quitchupah Creek could also provide reductions in erosion over time. There would be no cumulative effects to soils.

3.4 Vegetation and Wetlands

VEGETATION

Vegetation within the Project Area varies from the greasewood community at lower elevations to the Douglas-fir woodland on north slopes at the junction with Acord Lakes Road (**Figure 3-3**). Vegetation types within the corridor include cultivated pastures, riparian zones along Quitchupah Creek, wetlands, and big sagebrush flats. Signs of heavy grazing are evident in the condition of understory vegetation, lack of vegetation, and soil disturbance.

The Proposed Action (Alternative B) crosses Douglas fir woodland and mountain brush at the upper elevations, wetlands, pinyon-juniper, greasewood, and basin big sagebrush, as well as irrigated pasture.

Alternative C follows Alternative B through the above-listed vegetation types, and then turns to the north and traverses a series of drainages as well as Link Canyon Wash. This area is mainly sparse pinyon-juniper with limited understory; greasewood occurs in the main washes.

Vegetation on the Water Hollow Benches, along Alternative D, consists of an open pinyon-juniper community with an underlying black sagebrush shrub cover, and various grasses and forbs. Chaining to improve wildlife habitat occurred on these benches about 40 years ago.

In the draws, serviceberry, mountain mahogany, and yucca are present on north facing slopes. Nearest the Water Hollow route junction with SR-10 is an area of open pinyon-juniper "parkland" with low sage providing fairly sparse ground cover, and grasses which reflect heavy grazing. Other plants include yucca, Mormon tea, cactus, and the more common variety of townsendia (Jones). Soils on many areas of this route are cryptogamic. The bottomlands are cut by deep gullies similar to the active downcutting in the Quitchupah drainage.

Following is a brief description of each community in the Project Area. Lists of plant species recorded during field review of each Alternative are included in **Appendix H**.

Greasewood Community
The greasewood community is present throughout the lower elevation portions of the Project Area, in combination with shadscale and/or sagebrush, rabbitbrush, and patchy understory grasses. Included in this type are pockets of a low shrub community (shadscale and sagebrush) where greasewood is lacking.

Low Shrub Community
This low, desert shrub community occurs as inclusions in the greasewood community and is also found on the gently sloping bench at the junction of Alternative C and SR-10. It includes Castle Valley saltbush, low sage, Mormon tea, snakeweed, and various forbs, grasses, and cacti.

Pinyon-Juniper Community
The pinyon-juniper community type includes areas of sparse juniper on the steep, rocky slopes above Quitchupah Creek Road, as well as the pinyon and juniper present on slopes in the upper parts of the canyon.

Mountain Brush Community
The mountain brush community occurs in the bottom areas of the upper canyon and includes patches of gambel's oak as well as bigtooth maple, serviceberry, woods rose, Oregon grape, sagebrush, rabbitbrush, and manzanita.

Douglas Fir Woodland
Near the junction of Quitchupah Creek Road and Acord Lakes Road at about 7,600 feet elevation, the vegetation on the north facing slopes transitions to a Douglas Fir Woodland, with Mountain Brush in the drainage bottom. Across the Acord Lakes Road on south facing slopes, the pinyon-juniper community predominates, and includes mountain mahogany.

Invasive Species and Noxious Weeds
The Utah State Noxious Weed List includes plants that have been determined to be especially injurious to public health, crops, livestock, land, or other property. Under the Utah Administrative Code, R68-9, the following weeds have been officially listed as noxious for the State of Utah:

Common Name	Scientific Name	Common Name	Scientific Name
Bermudagrass	*Cynodon dactylon*	perennial pepperweed	*Lepidium latifolium*
Canada thistle	*Circium arvense*	perennial sorghum	*Sorghum halepense*
diffuse knapweed	*Centaurea diffusa*	purple loosestrife	*Lythrum salicaria L.*
Dyers woad	*Isatis tinctoria*	quackgrass	*Agropyron repens*
field bindweed	*Convolvulus arvensis*	Russian knapweed	*Centaurea repens*
hoary cress	*Cardaria draba*	Russian olive*	*Elaeagnus angustifolia*
Johnsongrass	*Sorghum halepense*	Scotch thistle	*Onopordum acanthium*
leafy spurge	*Euphorbia esula*	spotted knapweed	*Centaurea maculosa*
Medusahead	*Taeniatherum caput-medusae*	squarrose knapweed	*Centaurea squarrosa*
musk thistle	*Carduus nutans*	yellow starthistle	*Centaurea solstitalis*

*Sevier County (UDAF 2003)

Neither Sevier County nor Emery County maintains a separate, additional list; both counties have adopted the official State list. The Utah State list added a county noxious weeds addendum list in 2003; Russian olive is listed as an additional noxious weed for Sevier County. According to the Digital Atlas of the Vascular Plants of Utah, field bindweed and hoary cress are the two plants that have been located in Emery and/or Sevier County. These plants could be present in the Project Area but were not located during field inventories.

Threatened, Endangered, and Sensitive (TES) Species

Several TES plant species have the potential to occur in the Project Area. A full discussion of those species is contained in **Section 3.7** and the Final Special Status Species Technical Report, Quitchupah Creek Road EIS (JBR, 2001f).

WETLANDS

The upland plant community is a sagebrush *(Artemisia sp.)* - grass community located on unsurveyed coarse textured soils and unsurveyed fine textured erodible soils of the terraces and benches. A riparian plant community dominated by tamarisk (*Tamarix pentandra)* and willows (*Salix exigua*) exists on the banks of Quitchupah Creek. The stream in Convulsion Canyon from the juncture of East Spring Canyon is deeply incised and riparian zones are limited and narrow.

The most common wetland community at the upper elevations is a herbaceous community of grasses, sedge (*Carex aquatilis)*, water cress (*Rorripa nasturtium-aquaticum*), and willows. The wetland community at the lower elevations consists of salt grass (*Distichlis spicata),* rush (*Juncus arcticus*), and tamarisk. The wetland community at the lower elevations consisted of salt grass, virgins bower (*Clematis ligusticifolia*), woods rose (*Rosa woodsii*), silverberry (*Elaeagnus commutata*), marestail (*Hippuris vulgaris*), and *Viola sp.* This wetland community is generally found on sandy alluvial soils and loams of the floodplains. The wetland community or hydric fringe along the stream banks is absent due to scouring in some places, and well developed at other sites.

Five Jurisdictional Wetlands (JW) were delineated within the survey area. A Jurisdictional Wetland is a wetland determined to be under the jurisdiction of the U.S. Army Corps of Engineers (COE) according to established guidelines. Each is located on the floodplain associated with the stream channel. One wetland is located in an oxbow, not directly connected to the channel. A summary for each wetland is shown in **Table 3.4-1** and map locations are on **Figure 3-3.**

Table 3.4-1 Jurisdictional Wetlands Types and Acreages

JW Area	Site	Hydrology	Acreage
44+00*	floodplain	seep	0.07
48+00*	floodplain	spring	0.31
67+00*	floodplain	stream	0.26
213+00	floodplain - oxbow	stream	0.46
255+00	floodplain	stream	0.34
*These JWs are common to all of the action alternatives			

Potential Impacts To Vegetation And Wetlands

The Environmental Consequences of each Alternative, in regard to vegetation and wetlands, are discussed below. First, regulatory consequences are described and then potential impacts to the resource itself.

REGULATORY

The 404 permitting process would include verification and approval by the COE of the JW delineation for the Quitchupah Creek Road corridor and of the proposed mitigation plan. An individual 404 permit would be required to fill any wetlands. The design under all alternatives would fill two wetlands: the one located at 44+00 (.07 acres) and the one at 67+00 (.26 acres). The individual 404 permit would also include any non-wetland Waters of the U.S. impacts. (The COE has indicated that it would take the lead for all of the wetland and Waters of the U.S. permitting for this project, thus Stream Alteration Permits from the State would not be needed per se, instead, they would be tied to the individual COE permit.)

An individual federal permit from the COE is required when dredge and fill activities are expected to have significant impacts on wetlands or other Waters of the U.S. The Clean Water Act, Section 404, provides direction for this permitting process. The granting of a permit is a "federal action" for purposes of the Endangered Species Act, such that if a listed species may be affected, a 404 permit request triggers the need for consultation with the relevant agency (i.e. USFWS or NMFS). The district engineer makes a decision to issue or deny the permit, and makes a 'statement of finding document' available to the public which explains how the permit decision was made.

NO ACTION - ALTERNATIVE A

The vegetation communities in the Project Area would not be disturbed by the proposed road construction. Current land uses such as grazing would continue to impact the vegetation communities. Wetlands would not be disturbed, nor would they be enhanced under this alternative.

POTENTIAL IMPACTS

Impacts Common to All Alignments:

It is estimated that approximately 0.33 acres of Jurisdictional Wetlands in the Convulsion Canyon drainage would be filled by road construction.

Additionally, 1 acre of riparian habitat in the Convulsion Canyon drainage would be impacted by road construction. Removal of streamside vegetation in the upper parts of the Canyon has the potential to increase stream temperature, however the majority of the streamlength below the Forest is fairly open and lacking cover; any minimal increase in stream temperature would not be expected to affect stream habitats or aquatic populations downstream.

QUITCHUPAH CREEK ROAD ALIGNMENT - ALTERNATIVE B

Approximately 92.3 acres of vegetation would be disturbed by construction of the road, pull-outs, and staging areas. This would include 64.5 acres greasewood community, 1.0 acre pinyon-juniper, 25 acres mountain brush, 0.5 acres Douglas-fir woodland, and 1.3 acres wetland/riparian. Of the total 92.3 acres, it is expected that 47 acres of uplands would be reclaimed. A discussion of reclamation procedures is provided in Section 2.2.

The 92.3 acres of disturbance would be subject to noxious weed invasion until construction was complete and reclamation had stabilized the disturbed acreage.

Additional vegetation would be disturbed during the construction of the SR-10 junction. This disturbance would occur within the UDOT right-of-way or acquired right-of-way.

ALTERNATE JUNCTION AND ALTERNATE DESIGN - ALTERNATIVE C

Under this Alternative, total disturbed acreage would be slightly more than Alternative B. This 96.3 acres would include approximately 49.3 acres greasewood, 18.2 acres pinyon-juniper, 25 acres mountain brush, 0.5 acres Douglas-fir woodland, 2.0 acres of low shrub, and 1.3 acres wetland/riparian. Approximately 50 acres of uplands would be reclaimed.

The 96.3 acres of disturbance would be subject to noxious weed invasion until construction was complete and reclamation had stabilized the disturbed acreage.

Additional vegetation would be disturbed during the construction of the SR-10 junction. This disturbance would occur within the UDOT right-of-way or acquired right-of-way.

WATER HOLLOW ALTERNATE ALIGNMENT - ALTERNATIVE D

Approximately 146.3 acres of vegetation would be disturbed by construction of the road. This would include approximately 0.5 acres Douglas-fir woodland, 1.3 acres wetland/riparian, 85 acres pinyon-juniper, 23 acres low shrub, and 36.5 acres mountain brush. Approximately 91 upland acres of the 146.3-acre disturbance would be reclaimed.

The 146.3 acres of disturbance would be subject to noxious weed invasion until construction was complete and reclamation had stabilized the disturbed acreage.

Additional vegetation would be disturbed during the construction of the SR-10 junction. This disturbance would occur within the UDOT right-of-way or acquired right-of-way.

MITIGATION AND MONITORING FOR BUILD ALTERNATIVES

A noxious weed control plan would be developed in cooperation with the land management agencies and implemented as necessary. Mitigation and monitoring for impacts to wetlands within the Proposed Action area would be coordinated with the COE during Clean Water Act Section 404 Permitting. The constructed wetland complex and the one enhanced wetland would be monitored for a minimum of five years to insure functioning JWs are established. The reclaimed areas would also be monitored and tested to insure the goal of cover and secondary succession are achieved prior to release (see Quitchupah Creek Monitoring Plan).

Under the proposed wetlands mitigation plan (See Section 2.2), 1.2 acres of willow/weed community would be converted to wetlands, and 1.0 acres of sagebrush community would be converted to a wetlands/riparian community due to realignment of East Spring Canyon.

IRREVERSIBLE OR IRRETRIEVABLE COMMITMENT OF RESOURCES AND RESIDUAL ADVERSE IMPACTS

Approximately 45 to 55 acres of permanent disturbance to vegetation communities would occur as a result of the proposed road. Of the 92.3 to 146.3 acres of total disturbance that would occur as a result of the Proposed Action or Action Alternatives, a total of 47 to 91 acres of upland vegetation would be reclaimed. A total of 0.33 acres of wetland and approximately 1.0 acre of riparian vegetation would be disturbed as a result of the Proposed Action or Alternatives but would be mitigated through construction of 1.22 acres of wetlands and overall improvement of the riparian corridor through fencing from grazing. No residual adverse impacts were identified for vegetation or wetland resources within the Project Area.

CUMULATIVE EFFECTS

The past land practices of grazing and farming have changed the plant communities in the Project Area through overgrazing of vegetation, chainings, seedings, and agricultural development. The current grazing system will reinforce these changes in the future. The Agency Committed Measures, discussed in Chapter 2, would restrict grazing in riparian areas, thereby allowing some recovery of vegetation in these areas over time. While the permanent loss of vegetated acreage would accrue due to the construction of the road, the project would not affect changes in the overall plant communities. Reasonably foreseeable actions such as exploration of federal oil and gas leases could disturb additional acreage in the future but disturbance would be reclaimed unless discovery leads to development. The removal of grazing from 4.7 miles of stream corridor would restore the riparian zone in this reach of the stream.

3.5 Wildlife Resources

The following description of the existing affected environment includes the Proposed Action and Alternatives. Unless otherwise specifically noted, there are no substantial differences in the wildlife resources above the confluence with Water Hollow and Quitchupah drainages, where Alternative D diverges from Alternatives B and C.

MAMMALS

The diversity of mammal species includes members of the rodent family, bats, intermediately sized species such as skunks, coyotes, badgers, bobcats, cottontails,
and jackrabbits, and big animals including elk, mule deer, mountain lion, and bear.

Big Game

Elk (*Cervus canadensis*) and mule deer (*Odocoileus hemionus*) are highly visible mammals that commonly occur in the area. The Project Area is within the Manti-Nebo Herd Unit (#16) for elk and mule deer. Elk population estimates are conducted yearly by the UDWR utilizing air and ground based observations. Based upon yearly census data, an elk herd of approximately 700-1200 individuals reside within and adjacent to the Project Area year round (personal communication, Jeff Grandison and Leon Bogedahl, UDWR, 2002). In 1998, a total of 1,211 elk were observed within and near the Project Area and a total of 894 elk were observed in 2001, a heavy snow year. Sightings of elk utilizing the Project Area are found in **Figure 3-4.** UDWR does not conduct census data for mule deer in the Project Area.

The UDWR has identified various types of ranges for each species, including critical and high value winter ranges. Critical and high value winter use and high value summer use areas for elk, and critical and high value winter use areas for deer occur within the Quitchupah Creek drainage (**Figure 3-4**). These types of ranges are defined as:

> Critical or crucial ranges are sensitive use areas that are limited in availability or provide unique qualities for high interest wildlife. These areas constitute irreplaceable, critical requirements for these species.
>
> High value ranges are intensive use areas that due to relatively wide distribution do not constitute critical values but which are highly important to high interest wildlife.

Elk winter range use occurs on snow-free open areas, such as the grassland and sagebrush vegetation types associated with lower elevations and drainage bottoms. Mule deer use the south-facing slopes, mountain shrub communities, and riparian areas in the drainage. The mule deer move out of the area to higher elevations in spring to heavier cover for fawning and areas of greater herbaceous and shrub cover for summer.

High value summer range for deer occurs adjacent to the Project Area south of Convulsion Canyon. The Water Hollow Benches area, through which an alternate alignment (Alternate D) would pass, is also within critical and high value elk and deer winter range. In high snow years, this area is classified as critical elk winter range. Ground based surveys in the 1980's through the early 1990's showed elk (150-300 individuals) regularly utilizing the Water Hollow Benches and drainage area, including the Alternative D alignment (personal communication, Ron Hodson, UDWR, 2002). In the 1991-1992 elk census, 287 elk utilized the Water Hollow Benches area. A 1997 elk census reported a concentration of elk on the Saleratus Benches area, located between the Water Hollow Benches and SR-10. Critical elk winter range occurs adjacent to the Project Area, in high snow years the high value elk winter range in the Project Area is reclassified as critical elk winter range.

The Project Area is within big game migration summer and winter range routes. The migration route runs generally in a west-east direction from the highlands to lowlands and benches. Big game may roam in a north-south pattern in the winter season. The Quitchupah Creek Road alignments (Alternative B and Alternative C) run parallel to the migration route. The Water Hollow road alignment (Alternative D) would bisect the migration route.

In the 1950's, vegetative chainings and seedings were completed on Water Hollow and Saleratus Benches in order to attempt to improve forage for wildlife and livestock. These areas are now in poor condition and do not support any more forage for elk than the adjacent unseeded sagebrush and pinyon-juniper communities. However, these benches continue to support fairly large numbers of wintering elk and deer.

In addition to elk and deer, several moose (*Alces alces*) have been relocated into the Fishlake National Forest with marginal success. One moose has been known to travel through the Quitchupah drainage during the winter months (Rasmussen, 1999). Black bear (*Ursus americanus*) are also known to occasionally occur at the higher elevations of the Quitchupah Creek drainage, but are not very common.

Wildlife and Noise

Currently there is a minimally used dirt road/trail through Quitchupah Canyon and a lesser used dirt track/trail on the Water Hollow Benches. Traffic related noise is currently distant mining and coal traffic activity and infrequent/sporadic to non-existent localized man-made noise in the Project Area.

Wildlife species are often less common or absent near roads, which effectively results in a “road-avoidance zone” (Forman et al. 2003). The road-avoidance zone is interpreted as mainly due to traffic noise, rather than the existence of the road itself, and is evident from correlations of wildlife density with

distance from roads (Forman et al. 2003). This zone varies by species. Deer appear to have an avoidance zone of 100-300 meters (328 – 984 feet) from roads and elk may have a road-avoidance zone several hundred meters (984 feet+) wide depending on the number of vehicles passing per day.

Bats

Riparian areas within the Quitchupah Creek drainage provide foraging habitat for a variety of bat species. The forested areas and surrounding escarpments provide roosting sites for summer resident bats and hibernation sites for year-long resident bats. Bats use riparian areas extensively for foraging due to the abundance of insects. The Townsend's big-eared bat (*Corynorhinus townsendii*) and the spotted bat (*Euderma maculatum*), both sensitive forest species, are discussed in greater detail in **Section 3.7** and the Final Special Status Species Technical Report, Quitchupah Creek Road EIS (JBR, 2001f).

BIRDS

A variety of vegetation types throughout the Project Area provide habitats for many species of birds. While each vegetation type offers important habitat components, the riparian areas that occur along Quitchupah Creek are the most heavily utilized by the birds in the area. The riparian areas are important during migration as these are often the only habitats within the arid west that have similar characteristics of more mesic habitats found outside the Intermountain region. The abundance of insects makes riparian areas important foraging habitats for species that nest in the grass or shrublands adjacent to the riparian areas.

On the Water Hollow Benches, south of Quitchupah Creek, birds associated with the dominant Pinyon-Juniper/Mountain Brush communities are most likely to occur.

Raptors

The timbered areas within the upper drainage area of Quitchupah Creek, as well as escarpments in the Project Area, provide numerous nesting opportunities for raptors. Foraging opportunities for raptors are also plentiful and occur throughout the various habitat types found within the area. The aerial survey performed by UDWR in 2000 identified 13 raptor nests within one mile of the proposed Quitchupah Creek Road alignment: one prairie falcon (*Falco mexicanus*) nest and 12 golden eagle (*Aquila chrysaetos*) nests. Of the 12 golden eagle nests, three were listed as active, seven as inactive, and two were tended. The prairie falcon nest was listed as active during the 2000 aerial survey. The recommended seasonal (i.e., timing restriction) and spatial (i.e., proximity restriction) buffers for the prairie falcon and golden eagle are 4/1-8/31 and 0.25 miles, and 1/1-8/31 and 0.5 miles, respectively (Romin and Muck 2002). Nine of the 13 nests (all golden eagle) were located within 0.5 miles (the spatial buffer zone distance required for active golden eagle nests during the dates of January 1 through August 31) of proposed activities and five of those were either tended or active in 2000.

The survey also identified four raptor nests within one-half mile of portions of the Water Hollow alignment (Alternative D) that occur apart from the Quitchupah Creek Road area: two tended golden eagle nests, one active great horned-owl nest (0.25 mile buffer, 12/1-9/31), and one American kestrel (buffer not necessary) nest. Raptor surveys conducted in Spring 2005 showed eight inactive golden eagle nests within 0.5 mile of the Proposed Quitchupah Creek Road and one tended golden eagle nest near the top of the route in Convulsion Canyon (UDWR 2005). Helicopter surveys over the Water Hollow benches recorded four inactive golden eagle nests, two tended golden eagle nests, and one great horned owl nest.

Several other raptors, such as red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), and sharp-shinned hawk (*Accipiter striatus*) may nest in the aspen or conifer stands, or forage within the various vegetation types of the analysis area.

Upland Game Birds
Ruffed grouse (*Bonasa umbellus*) have been found in the upper reaches of the Quitchupah Creek drainage area. No known sage grouse (*Centrocercus urophasianus*) leks are located within the Project Area or the general vicinity. Chukar (*Alectoris chukar*) do occur in the drainage area, but are not abundant.

AMPHIBIANS
UDWR identified seven amphibian species that could potentially occur within the Project Area: one salamander (tiger salamander - *Ambystoma tigrinum*), four toads (Great Basin Spadefoot toad - *Spea intermontanus*, boreal toad - *Bufo boreas*, Great Plains toad - *Bufo cognatus*, Woodhouse's toad - *Bufo woodhousei*), and two frogs (boreal chorus frog - *Pseudacris maculata*, northern leopard frog - *Rana pipiens*). Amphibians' dependence on water limits their distribution in the Project Area. Perennial water is available in Quitchupah Creek and associated springs, as well as lower portions of East Spring Canyon Creek and lower Water Hollow Creek at their confluences with Quitchupah Creek. Ephemeral water sources occur in minor drainages that are tributary to Quitchupah Creek. These sites are used as breeding sites and areas where the young develop.

One amphibian species was observed during the amphibian surveys conducted in the Quitchupah Creek drainage in 1999. Numerous tadpoles and young Great Basin Spadefoot Toads (*Spea intermontanus*) were discovered in a wetland area south of Quitchupah Creek, located in the SW¼ of Section 16, Township 22 South, Range 5 East. No other amphibian species were observed within the Quitchupah Creek Road alignments (Alternatives B and C). Amphibian surveys were not conducted within the Water Hollow Benches area since appropriate habitat is not present. Similar species to those potentially found in the Quitchupah Creek Road alignment also have the possibility of being found within the Water Hollow area, however, the lack of riparian/wetland habitat limits their potential abundance.

REPTILES
Because of the different habitat types found within the Project Area, the potential for a variety of reptile species to occur is fairly high. Based upon habitat requirements, of the 36 species of reptiles that occur in southeastern Utah, less than half could potentially occur within the area. The sagebrush lizard (*Sceloporus graciosus*) and western terrestrial garter snake (*Thamnophis elegans*) were two of the common reptiles observed during various field studies.

MANAGEMENT INDICATOR SPECIES
This Fishlake National Forest Plan designates certain species as "management indicator species" (MIS). There are both high interest MIS (such as elk, mule deer, Bonneville cutthroat trout], and ecological indicator MIS (such as northern goshawk cavity nesters, macroinvertebrates and resident trout). These species are monitored at the Forest plan level in order to determine the effects of forest management under the plan on habitats and wildlife species.

A complete description of each plan-designated MIS and the forest's monitoring results are contained in the Technical Report Addendum and a more recently prepared report, Life History and Analysis of Endangered, Threatened, Candidate, Sensitive, and MIS for Fishlake NF (February 2004).

Potential Impacts To Wildlife
The Environmental Consequences of each Alternative, in regard to wildlife, are discussed below. First, regulatory consequences are described and then potential impacts to the resource itself.

REGULATORY

Although specific permits would not be required for construction activities in regard to wildlife resources, UDWR has been consulted and consultation with UDWR would continue for mitigation and reclamation requirements for impacted big game range use areas and other wildlife related issues. These requirements would likely include construction timing limitations to prevent impacts to big game and raptors during key seasons.

NO ACTION - ALTERNATIVE A

Selection of the No Action Alternative would not result in any direct, indirect, or cumulative impacts to wildlife resources in the Project Area. The road would not be constructed in the Quitchupah Creek drainage and no disturbance would be anticipated. The existing environment in the Quitchupah Creek drainage would remain unchanged and current uses would be expected to continue for the near future.

QUITCHUPAH CREEK ROAD ALIGNMENT - ALTERNATIVE B

Wildlife

The proposed road in the Project Area could interfere with big game use of the winter ranges on the benches and in the agricultural fields. Traffic on the roads in the form of large loaded trucks driving downhill would be a hazard to all wildlife, especially big game and raptors.

Raptor nesting within the Project Area could be affected by road construction; however, the UDWR buffer periods for raptors during critical nesting times would minimize this potential impact. Birds that are established in the area would be less likely to be affected by the increased activity and disturbance related to road construction outside of the critical nesting season.

The Project Area is home to a wide variety of wildlife species that could be impacted by the construction of the road and subsequent haul truck traffic.

As described in the water resources section, there would be some potential for increases in sedimentation and further destabilization of Quitchupah Creek and other creeks in the Project Area that could impact fisheries and aquatic macroinvertebrates in the streams. The loss of the hydric fringe and stream-side wetlands until reclamation and mitigation were completed could temporarily affect the reproductive success of fish species and some macroinvertebrates species that depend on vegetation for cover and prey.

Habitat fragmentation would occur along the alignment. Numerous studies have shown that many species of small mammals avoid roads (Adams, 1983; Conrey 2001; Mader 1984). The effect of the road would essentially divide these populations. Many studies have found that roadways decrease the diversity, spatial distribution, and density of wildlife that avoid roads. Studies suggest that the effect of habitat fragmentation is worse for a four lane road than a two lane road; however, the frequency of traffic along these roads plays a more important role for the effect on animal populations (Noss, 2002). Species dependant on Quitchupah Creek for forage and reproduction would have to cross the roadway. Road kills of small mammals, reptiles, and amphibians would likely increase. Animals attracted to the roads, such as reptiles for basking, small mammals attracted to roadside vegetation, birds using road gravel for digestion, and wildlife that use roads for travel corridors, would be more susceptible for vehicular collisions (Noss, 2002).

Additional studies have documented that suitable habitat adjacent to roads experience a loss of overall populations of wildlife, especially small mammals, reptiles, amphibians (Reh and Seitz 1990), and birds

(Reijnen and Foppen, 1994; Van Der Zande et. al., 1980; Reijnen, Foppen, Thissen, 1995). Most of the adjacent riparian habitat, which was identified as poor quality riparian habitat, would be near the proposed road alignment. Though no quantitative studies of riparian avian species, amphibians, reptiles, or small mammals have been conducted in the Project Area, it can be assumed that the habitat may be under-utilized after construction of the road. The loss of wildlife to vehicle collisions may reduce the overall populations of wildlife in the area even though the habitat in the area is improved. Without long term trend data on the species of wildlife that occur in the area, it is difficult to quantify the loss of wildlife populations and the effects of the proposed roadway.

MAMMALS

Big Game

Road construction activities would result in total new surface disturbance of 92.3 acres. All disturbances would occur within deer and elk high value or critical winter range (See **Figure 3-4**). After reclamation of some of the disturbance associated with construction in the road corridor, and reclamation of all of the staging areas, there would be a net permanent loss of 45 acres. Complete revegetation of the 47 reclaimed acres would probably require several years.

Displacement of resident big game would occur during construction activities. However, the majority of construction activities would occur during the summer and fall when big game are not as abundant in the Project Area, thus limiting the displacement impact.

After construction, big game would likely avoid or move away from the disturbance (i.e. vehicle traffic and noise) caused by the road to other suitable habitat areas as elk tend to avoid roads. Habitat near the road would be underused as the big game animals would tend to be displaced from this area. According to studies, the density of animals and overall species richness decrease with increasing proximity to a road (USFWS, 1999). This displacement could alter the natural distribution patterns and result in the overuse of other habitat areas if big game animals become concentrated, especially during winter.

Wildlife fencing would exclude the majority of animals (wildlife and livestock) from the road, therefore mortality and injury of big game resulting from collisions with vehicles is unlikely to occur. Also, this alignment runs parallel to the migration route for big game which would further reduce the likelihood of vehicle collisions to migrating big game as compared to the Alternative D alignment.

As vegetation becomes reestablished in the reclaimed portions of the road construction corridor, game may be attracted toward the road by palatable species growing within the corridor; agency-specified seed mixes that include alfalfa, yellow sweet clover, and crested wheatgrass would attract big game animals to the road side during certain times of the year. Fencing would keep them off the road but would likely allow access to some of the reclamation areas.

Bats

Impacts would occur to suitable foraging areas for bats within riparian habitat. Approximately 1.0 acre of riparian habitat and .33 acres of wetlands (potential foraging habitat) would be impacted by the construction activities. The forested areas and surrounding escarpments that potentially provide roosting sites for summer resident bats and hibernation sites for year-long resident bats might temporarily be impacted by blasting activities that may be required during construction.

BIRDS

Several of the habitat types used by birds in the Project Area would be impacted by construction activities. Of the 92.3 acres of proposed new surface disturbance, most of the disturbance would occur

within habitats that are abundant throughout the Quitchupah Creek drainage. However, the riparian habitat that would be impacted near the western end of the alignment would be reclaimed with riparian plantings. The types of birds that currently use this riparian area may leave the area during construction activities but would return when mitigation is complete.

Construction activities would cause displacement of birds to similar adjacent areas and would likely have minor impacts to the displaced birds. Increased mortality from vehicle collisions would also be likely to occur.

Raptors
The buffer zones and seasonal construction restrictions would be required by UDWR in regard to active nest sites would prevent impacts to nesting raptors due to construction activities. Abundant foraging opportunities exist adjacent to the proposed project, thus limiting the impacts caused by the proposed new surface disturbance. The presence of a paved road would likely increase road kill in the area, resulting in an additional food source that could increase raptor populations in the area. However, the road would be fenced with 8-foot tall wire mesh fencing, to keep most larger mammals out of the road corridor. Further, small and large animal carcasses would be removed from the road daily to minimize potential scavenging on the roadway by raptors.

AMPHIBIANS
Impacts would occur to some, but not all, of the suitable amphibian habitat throughout the Quitchupah Creek drainage. Approximately 0.33 acres of wetlands and 1,140 feet of riparian zone in East Spring Canyon would be affected by the construction of the road. However, the wetland area, in which the Great Basin spadefoot toads were observed during the summer surveys, would not be disturbed. After construction, the paved road and increased traffic would cause increased mortalities to amphibians, especially after periods of rainfall when amphibians are most active and could venture onto the road. Species dependant upon Quitchupah Creek and East Spring Canyon creek would experience habitat fragmentation as a result of the road alignment. The creation and enhancement of 1.22 acres (net) of new wetlands would provide habitat to increase amphibian populations in the area, as would the new stream alignment.

REPTILES
New surface disturbance during construction activities would displace, kill, or injure reptiles within the area. After construction, the paved road and increased traffic would cause increased mortalities. Displaced reptiles would reestablish in undisturbed habitats away from the road.

MANAGEMENT INDICATOR SPECIES
Approximately 3.0 acres of sagebrush habitat out of approximately 380 acres in the vicinity would be affected by Alternative B. Displacement of sagebrush dependant migratory and resident species would likely occur. Very few sagebrush dependant species were observed during 2002 surveys (see Supplemental Technical Report); therefore, impacts to sagebrush dependant species would likely be minimal.

No spruce/fir/aspen forested areas, which are habitat for cavity nesters, would be impacted by Alternative B. No dedicated cavity nesting species surveys have been conducted within the Project Area.

Approximately 1.0 acre of riparian vegetation would be impacted by Alternative B. Although no dedicated surveys for riparian dependant bird species have been conducted in the Project Area, it is likely that some of these species would be displaced by construction of the road. The creation and enhancement of 1.22 (net) acres of new wetlands habitat and replacement of riparian in East Spring Canyon would

enhance the habitat from current conditions that may support a greater population of riparian dependant species. In addition, these wetlands would serve as sediment traps, enhancing overall water quality that would be beneficial to macroinvertebrate and fish species.

ALTERNATE JUNCTION WITH SR-10 AND ALTERNATE DESIGN - ALTERNATIVE C

Impacts to wildlife resources would be similar to those described for the Alternative B with the exception of impacts to big game and raptors. Under this alternative, underpasses to facilitate big game movements would be installed, reducing the potential impacts to big game caused by vehicle collisions. The box culvert underpasses would be designed to allow passage of deer and elk. In addition, this alternative would also reduce the susceptibility of raptors from vehicle collisions. Installation of the wildlife underpasses would presumably result in less road-killed wildlife for the raptors to feed on, thus decreasing the likelihood of raptors foraging on the road.

WATER HOLLOW ALTERNATE ALIGNMENT - ALTERNATIVE D

Impacts to wildlife resources would be similar to those described for Alternative B, except that an additional 54 acres (bringing the total to 146.3 acres) of impacts to wildlife habitat would occur under this alignment. In addition, according to UDWR population counts, the Saleratus Benches appear to winter greater elk numbers than the Quitchupah drainage, so impacts to that species may be greater for this alternative than for Alternatives B or C. Since the road alignment across Water Hollow Benches would be fenced, deer and elk would be deterred from entering the road, thus reducing frequency of collisions with vehicles during winter months. Also, the loaded coal trucks would be traveling at slower speeds across these benches due to weight and road grade, while empty coal trucks would be ascending the grade, factors which allow drivers more time to avoid colliding with big game that do end up on the road.

Big game would, however, need to cross the road to reach summer/winter ranges. The movement of big game through these ranges would be affected by the placement of the five wildlife bridge crossings.

MITIGATION AND MONITORING FOR BUILD ALTERNATIVES B, C, and D

A new wetland complex area would be created and one wetlands area would be enhanced to replace the wetlands and the hydric fringe along the realigned creek segments as a result of the construction of the roadway. One existing wetlands area would be enlarged and stabilized, the other would be created by diking perennial flows and forming shallow ponds with marsh borders. All of the water sources for the wetlands would be perennial natural flows. A total of 1.22 acres would be created (see Section 2.2). Species dependant on wetlands habitat including amphibians, birds, small mammals, and reptiles, may increase in population numbers. The replacement channel would provide all the habitat values of the original channel in East Spring Canyon.

Wildlife fencing would be installed on both sides of the road alignment to prevent big game access to the road corridor. The fencing would be 8-feet tall woven wire fence (See **Appendix B**). Escape structures would be provided every mile.

Although fencing is intended to restrict big game access to the road, the haul route would be patrolled daily, during daylight hours, to pick up and dispose of any animal carcasses (wild and domestic, large and small) in order to keep the road surface clear. As outlined in the Applicant Committed Measures in Chapter 2, this would reduce scavenging on the road surface by raptors and vultures. The Sevier County SSD would be responsible for removing carcasses to a specified disposal area in accordance with the regulations of the State Board of Health. The SSD or the SSD's contractor would secure and maintain any necessary license or permits required by State or local authorities to perform this service.

Continued monitoring of MIS species by the Fishlake National Forest would be conducted to ensure that the populations remain in stable conditions. Wetland sites, one enhanced site and one created site, the stream realignment and riparian zones in East Spring Canyon and reclamation of land disturbed by the road construction activities would be monitored to ensure revegetation efforts are met (see Chapter 2).

MITIGATION SPECIFIC TO BUILD ALTERNATIVE D – WATER HOLLOW ROAD

In addition to road fencing for wildlife as described above, five bridges have been recommended by UDWR for installation in selected drainages across the Water Hollow benches to allow for elk passage. The locations of these structures/culverts are shown on the strip maps in **Appendix B**; the design of these structures would meet the UDWR standards for minimum size and openness.

A conversion of 700 acres of pinyon-juniper woodlands at six sites on Water Hollow and Saleratus Benches would provide additional forage for elk and deer. These sites would be seeded and monitored with a goal of sufficient forage to maintain 400 elk and 100 deer during severe winters. These proposed seedings would move the elk and deer away from the road and provide adequate forage to maintain the present herds during winters of heavy snow. Proper management and manipulation of vegetation would improve forage for wildlife as well as livestock, while improving soil erosion and watershed conditions (BLM, 1991). BLM prescriptions for mechanical and burning treatments of vegetation as well as seeding can be found in the *Final Environmental Impact Statement Vegetation Treatment on BLM Lands in Thirteen Western States* (BLM, 1991).

A maximum of about 700 acres in eight locations could be seeded to provide additional forage for wintering elk (**Figure 2-13**). However, the four main soils on the benches have varying capacity to support grasses (see list below). The Travesilla soils support black sage, shadscale, and pinyon-juniper, so reseeding to grasses would not be as productive as the other soils and would require careful range management practices to maintain the reseeded grass community. Since most of the seeding sites are on the bench and mesa terrains, the Chupadera and Hernandez soils would support most of the seedings. The selected locations for reseeding are all downslope from the proposed road with adjacent thermal cover so big game using these seedings would not need to cross the road on a daily basis (**Figure 2-13**).

The Environmental Assessment for the seeding would tier off this EIS and BLM Vegetation EIS.

The dominant plants for each soil based on NRCS characteristic vegetation are as follows:

Chupadera Series:	western wheatgrass, basin big sagebrush, Indian ricegrass, needle and thread grass, muttongrass
Gerst Series:	shadscale, Salina wildrye, galleta, western wheatgrass
Hernandez Series:	western wheatgrass, big sagebrush, Indian ricegrass, needle and thread, muttongrass
Travessilla Series:	black sagebrush, Indian ricegrass, galleta, shadscale

Table 3.5-1 Water Hollow Bench Soil Capabilities

Soil Series	Assumed Range Site	Assumed Forage dry weight lb/acre*	Present Plant Community	Desired Plant Community
Chupadera	Upland Loam	1100	big sagebrush	Grass
Gerst	Semidesert Shallow Clay	550	pinyon - juniper	Shrub-grass
Hernandez	Semidesert Loam	700	pinyon - juniper	Grass
Travessilla	Semidesert Shallow Loam	400	pinyon - juniper	Shrub

*These forage production rates are for areas of improved management.

The range sites and forage weights in **Table 3.5-1** are based upon the best available information at this time, given that the soils survey for this area has not been finalized or published. Range sites may vary somewhat from the above depending upon the exact position in the landscape. For example, while Chupadera may occur either in an upland or a semidesert range site, the existing NRCS information indicates that the upland site is correct for this area, though new information could change that assumption. Field studies (see step 1 below) would result in refinement of range site descriptions and specific acreages of each soils to be seeded. Mid-level (normal year as opposed to best or poor years) forage values were used based upon NRCS information for the soils, and in any case should not be presumed to be anything other than a reasonable estimate based upon NRCS studies. To provide a conservative estimate of seeding benefit, it has been assumed that 80% of the soils in the proposed seedings have an average annual production of forage of 700 lb/acre dry weight and 20 percent would have a forage of 400 lb/acre dry weight. This results in an estimate of 640 lb/acre dry weight combined (**Table 3.5-1**). That would result in the 700 acres of seeding providing support to 230 elk/month. Since the seedings would only receive concentrated use during periodic heavy snow years, the use factor could jump to 80% without damaging the forage; the seedings could support 230 elk for 2 months in heavy snow years.

An additional 180 acres has potential for seeding on the Saleratus Bench to provide forage for approximately 60 elk for 2 months.

To provide the full forage potential of the seedings and the existing plant communities, spring cattle grazing would need to be managed carefully. Spring grazing of grasses removes early growth that then does not allow the plants to reach their full forage potential, which cannot be replaced prior to the winter season. For the best results, no grazing should occur on seeding areas for two full growing seasons (BLM, 1991).

The following steps would be taken in order to establish the seedings.

1. Field-verify the location of the Chupadera and Hernandez soils and adjust seeding locations as needed to maximize their coverage in the area to be seeded.
2. Determine area out of all the terrain suitable for seedings in the target areas.
3. Conduct cultural surveys and T&E plant species surveys on proposed seedings.
4. Remove, eliminate, or destroy all of the shrub and tree cover within the proposed seedings.
5. Broadcast hay mulch and fertilizer over the bare soil surface. (Fertilizer promotes the growth of seeded grasses over other plants.)

6. Drill seed mixture (**Table 3.5-2**) into terrain suitable for drilling. The action of the seed drill will turn the hay mulch and fertilizer into the mineral soil.
7. Broadcast seed in terrain not suitable for drilling and cover seed with harrow.
8. Establish photo points for monitoring.

Table 3.5-2 Species Mixture for Wildlife Winter Range Seedings

Common Name	Latin Name	Amount
blue grama	*Bouteloua gracilis*	2 lb/acre
western wheatgrass	*Pascopyrum smithii*	5 lb/acre
muttongrass	*Poa fendleriana*	3 lb/acre
Salina wildrye	*Agropyron salinii*	4 lb/acre
needle and thread	*Stipa comata*	4 lb/acre
alfalfa	*Medicago sativa* - var. *ladak* or *nomad*	2 lb/acre
antelope bitterbrush	*Purshia tridentata*	3 lb/acre
fourwing saltbush	*Atriplex canescens*	3 lb/acre
Mormon tea	*Ephedra viridis*	3 lb/acre
mountain mahogany	*Cercocarpus ledifolius*	3 lb/acre
winterfat	*Krascheninnikovia lanata*	3 lb/acre
Utah serviceberry	*Amelanchier utahensis*	3 lb/acre
TOTAL		**38 lb/acre**

IRREVERSIBLE OR IRRETRIEVABLE COMMITMENT OF RESOURCES AND RESIDUAL ADVERSE IMPACTS

Depending on the Alternative selected, between 45 and 55 acres of permanent disturbance to habitat would occur as a result of the Proposed Action and Action Alternatives. Of the 92 to 146 acres of total disturbance that would occur as a result of the Proposed Action, between approximately 57 to 106 acres of habitat would be reclaimed based on which alternative is selected. Residual adverse impacts under Alternatives B, C, and D include habitat fragmentation and increased road kill.

CUMULATIVE EFFECTS

Past and present actions that have impacted wildlife include mining, road development, and construction of fencing along SR-10. Increased public access in the Quitchupah Creek area would occur as a result of the Proposed Action, which would increase noise and also disturbance to wildlife habitat. The reasonably foreseeable action of exploration and drilling of federal oil and gas leases may occur. Reclamation would occur on sites that do not enter into production.

The construction of fencing along Quitchupah Creek would impede wildlife movement in the area. Additional habitat fragmentation would likely occur due to continued road building, for developments such as gas or mineral exploration, possibly reducing small mammal, reptile, amphibian, and bird species populations along the Quitchupah Creek corridor. Applicant Committed Measures, discussed in Chapter

2 and earlier in this section, would prohibit grazing along 4.7 miles of riparian zones beginning two years from project approval. The protection of 4.7 miles of stream corridor would enhance the degraded riparian zone, increasing the extent and quality of wildlife habitats along the stream. The Salina Creek Vegetation Plan, on the fringes of the Cumulative Effects area in upper Broad Hollow, would manipulate the structure and composition of vegetation creating a mix of younger, more vigorous stands intermixed with mature vegetation (USFS, 2002). This project would contribute to improving forage and habitat conditions for wildlife and domestic livestock in the area.

3.6 Fisheries and Aquatic Resources

The following is a summary description of the existing affected environment for aquatic resources in Quitchupah Creek and lower Water Hollow Creek. A full description is presented in the Final Aquatic Resources Technical Report, Quitchupah Creek Road EIS (JBR, 2001c). Quitchupah Creek is classified as supporting cold water aquatic wildlife under beneficial use class 3A. Additional water resources information, including existing water quality data, is in **Section 3.2**.

FLOW RATES

Flow rate measurements were taken at two different times of the year for the Quitchupah stations and once in Water Hollow Creek. At the Quitchupah stations, the first set of flow rate measurements coincided with the fish electroshocking and macroinvertebrate sampling in July 1999 and the second set of flow rate measurements were taken in early October 1999 when flow rates were expected to be near the lowest of the year. The single flow rate measurement in Water Hollow Creek coincided with the fish electroshocking and macroinvertebrate sampling in November 2000. **Table 3.6-1** displays the flow rates from the sampling periods. The locations of the aquatic sampling stations are presented in **Figure 3-1**. For additional flow information, see **Section 3.2** Water Resources.

Table 3.6-1 Flow Rate Measurements for Aquatic Sampling Stations

Stations	Flow Rates (cfs)	
	July	October or November
Quitch-01	3.0 cfs	6.26 cfs*
Quitch-02	7.86 cfs	6.00 cfs
Quitch-03	0.81 cfs	0.70 cfs
Quitch-04	0.13 cfs	0.10 cfs
WH-01	not taken	0.50 cfs

* Increase in flow presumably caused by decrease in irrigation upstream of station and flow from Muddy Creek return canal into Quitchupah Creek (not flowing during July flow rate measurement).

FISH SAMPLING

Fish were only captured at the three lowest stations (Quitch-01, Quitch-02, and Quitch-03). No fish were captured at the highest stations, WH-01 and Quitch-04. A large natural waterfall barrier (>40 feet high) occurs in Quitchupah Creek upstream of both Quitch-03 and the confluence of Water Hollow, but downstream of Quitch-04. The waterfall presumably prevents fish from reaching the upper parts of the creek (Quitch-04) and associated tributaries above this point. However, the waterfall would not affect fish ability to reach WH-01 from QC-03, and it is not known why fish were not observed at WH-01 during the fish sampling in 2001. USFS personnel reported observing fish in Water Hollow in 2002.

A baseline fisheries study was conducted on Quitchupah, Water Hollow, and East Spring Canyon Creeks. A total of five stations were selected (Quitch-01 through Quitch-04 and WH-01) and sampled via electrofishing. The greatest diversity (4 species) and highest numbers of fish (142) were found at the

lowest station (Quitch-01). Speckled dace were the most common fish caught, occurring at three stations and in the highest number. In addition, speckled dace were the only species captured at stations Quitch-02 and Quitch-03. Additional electroshocking conducted by USFS personnel on Quitchupah Creek below the confluence with Water Hollow Creek, as well as Water Hollow Creek upstream from this confluence in August 2003 recorded only a few speckled dace. These same stretches were sampled again (electroshocked) in September 2004, with similar results; speckled dace were found to be more common in the Quitchupah Creek stretch than in Water Hollow Creek (Whelan, 2005 and 2004).

The UDWR noted finding bluehead sucker in Quitchupah Creek below the Project Area, at the confluence with Ivie Creek (Walker, 2005). Bluehead sucker were noted to be 'rare'. The bluehead sucker is on UDWR's Utah Sensitive Species list. Two other fish species listed on UDWR's Utah Sensitive Species List, the flannelmouth sucker and the leatherside chub, were caught during the surveys at the lowest station (Quitch-01).

MACROINVERTEBRATE SAMPLING

A range of between 10 to 16 different species of macroinvertebrates were found at the five stations sampled on Quitchupah, Water Hollow, and East Spring Canyon Creeks; station Quitch-01 had the lowest diversity and station Quitch-03 had the highest diversity of species. Quitch-04 (East Spring Canyon Creek) had the highest grams/square meter of the five stations. Not surprisingly, the highest number of macroinvertebrates was of those species with high tolerance quotients. The high tolerance quotients are a strong indication that the majority of species in Quitchupah Creek are accustomed to stressed environmental conditions. The Biotic Condition Index (BCI) data for these stations indicate that they are at or near their potential, and that given the existing stream and watershed conditions, these stations are about as good as expected. However, there is potential that the aquatic macroinvertebrate community could be degraded below current levels by eliminating the few intolerant and moderately tolerant taxa present, reducing the numbers of taxa, or by reducing their biomass. The Shannon-Weaver Index (used to measure the diversity of a community) results are typically higher than found within the project site when the community is in better condition. However, the lower results can easily be attributed to the minimum number of samples (3) taken.

Station Quitch-03 contains 16 taxa, many of which have low tolerance quotients. The lowest station Quitch-01 exhibits very few sensitive taxa. In fact, the single specimens of *Drunella doddsi* and *Isoperla* could have drifted down from above and are probably not indicators of established populations.

Station Quitch-04 contained many taxa that are indicators of a more lentic or slow flowing water habitat. Organisms such as the micro caddisfly family Hydroptilidae, the Odonata, *Argia* and *Cordulagaster* and the tiny clam shrimp, Ostracoda, indicate that the system is not a fast flowing creek. The system contains the relatively rare aquatic insects *Cordulagaster* (dragonfly) and *Oxyethira* (caddisfly).

WH-01 had four taxa that were not present in the Quitchupah stations. For three of these, their presence was essentially a factor of the season of collection (Baumann, 2000).

The results of the 1999 and 2000 sampling were compared with results from the 1980 to 1982 sampling (Winget, 1983) where applicable. No sampling had occurred previously in Water Hollow Creek and therefore no comparisons are made for station WH-01.

The Quitchupah Creek drainage was in about the same aquatic condition in1999 as it was in 1980-1982. Comparable stations showed similar diversity and BCI values. The organisms were essentially the same

and the species that were different exhibit similar tolerance quotients. Water Hollow Creek is in worse condition when compared to Quitchupah Creek, but is still in relatively good condition (Baumann, 2000).

SEDIMENT SAMPLING

During the data collection effort, sediment mobility and active erosion/deposition that affects habitat features was evident. A flash flood, with a peak just over bank full, occurred during the sampling, and the following day, one of the pools that had been selected for sampling was no longer present. The stream as a whole appears to be very active, and habitat features appear to undergo frequent modifications.

Riffles or runs were the most common feature observed; pools were much less prevalent in number, and where noted, were generally small, shallow, poorly formed, and did not tend to span the width of the channel. It appeared that many of the identified pools were low flow features only, and would not be identifiable in a high flow event. Perhaps related to the poor quality and low number of pools, and the active frequent modifications that the channel undergoes, pools with identifiable tails typical of salmonid spawning sites were minimal.

The most notable conclusion from the sampling was that, out of the 37 samples collected at the Quitchupah stations, all had greater than 30 percent fines (less than 6 Millimeters (mm)). Previous study of sediments in the bed of Quitchupah Creek has shown similar results. Over a two-year period in the early 1980s, Winget (1983) collected four stream bed sediment samples from two locations on Quitchupah Creek. One location was below the mouth of East Spring Canyon Creek, and the other was just upstream of the confluence with the North Fork. Information on sampling methodology, site selection, or other collection details is not available, but the particle size distribution data presented in the report indicate high levels of fine sediments at both stream locations. An examination of Winget's (1983) data show that, for the eight samples, the range in the percent smaller than 4.75 mm was 31 to 74 percent, and the average was 56 percent. The riffle samples from latest study showed essentially the same, with a range from 32 to 72 percent and an average of 50 percent.

Comparisons between the four stations could not be readily made due to the varying number of samples and due to the varying habitat types sampled within each reach. However, based upon the range of fines reported for only the riffle samples collected from each station, there was not an identifiable difference between stations. The prevalence of fines at the sampling stations is indicative of high sediment transport in the stream system.

Potential Impacts To Fisheries

The Environmental Consequences of each Alternative, in regard to fisheries, are discussed below. First, regulatory consequences are described and then potential impacts to the resource itself. Water Hollow samples were generally similar to Quitchupah Creek samples. Any differences would not be expected to be statistically meaningful.

REGULATORY

Regulatory issues regarding potential aquatic impacts would be limited to those relating to wetlands issues (COE 404 process), and water quality issues (Clean Water Act as implemented by the Utah Division of Water Quality). The permitting for this project would require an individual 404 permit to mitigate loss of wetlands and filling in "Waters of the U.S." The sensitive fish species present are not afforded protection required under the ESA for Federally listed threatened or endangered species. The common speckled dace is not protected by law.

POTENTIAL IMPACTS

Impacts to, and issues on, resources related to aquatic resources are described in the Vegetation and Wetlands (**Section 3.4**) for impacts to wetlands and riparian zones; in the Water Resources (**Section 3.2**) impacts to water quality, flood plains, and related subjects; and in the Wildlife Resources (**Section 3.5**) impacts to species such as amphibians are discussed.

NO ACTION - ALTERNATIVE A

Selection of the No Action Alternative would not result in any change in direct, indirect, or cumulative impacts to aquatic resources in the Project Area. The new road would not be constructed in the Quitchupah Creek drainage or the adjacent Water Hollow Bench area. The existing road would remain as a sediment source to the stream, and the existing environment in the Quitchupah Creek drainage would continue for the near future. There would be no relief of grazing in the riparian zone.

QUITCHUPAH CREEK ROAD ALIGNMENT - ALTERNATIVE B

Quitchupah Creek is currently an active stream that conveys significant amounts of sediment and dissolved solids, as reflected by the fish and macroinvertebrate species present in its waters, particularly in the lower reaches of the Project Area. Speckled dace are found in all the lower stream reaches, conditioned to the sediment laden waters and salinities. The high tolerance quotient and generally low biotic index in the macroinvertebrates community indicates an aquatic environment that is under stress. **Table 3.6-2** gives a summary of the macroinvertebrate community by station to indicate the poor condition of the aquatic ecosystem in Quitchupah Creek.

Table 3.6-2 Macroinvertebrate Community Indicators

Station	CTQa[1]	Percent of BCI[2]	Condition of Ecosystem	1980-81 CTQa	1980-81 BCI
01	87	86	Poor	78/97	103/82
02	77	97	Fair	82/92	95/102
03	67	112	Good	-	-
04	99	74	Poor	-	-
WH-01	75	100	Good	-	-

1. Community Tolerance Quotients is average of community tolerance, high numbers indicate pollutant tolerance species dominate community.
2. Percentage of predicated stream condition, low percentage indicates poor condition of aquatic ecosystem.

As described further in water resources (**Section 3.2**), there would be some potential for increases in sedimentation and destabilization of Quitchupah Creek. Under unexpected circumstances (such as if a culvert were to fail during a greater-than-design event) where a pulse of sediment could be introduced, the highly tolerant species present in the stream system would be expected to absorb such an occurrence, as they do currently (for example, when tributaries dump heavily-laden storm water runoff into the stream).

Impacts to the aquatic resources as a result of increased traffic, transport of coal materials, fuels, etc. would not be expected during the normal course of use. In the event of a truck accident, coal and fuels could inadvertently be introduced to the stream. Should such an event occur in the vicinity of station Quitch-04, where the more unusual and specialized macroinvertebrates were found, any degradation of the habitat would likely impact them by rendering their habitat unsuitable. Under Alternative B the 8.9 miles of road are all in close association with the stream so the risk of a spill to the stream would exist anywhere along this proposed road. Aquatic habitat fragmentation could occur as a result of required crossings of the Proposed Road, therefore all culverts in fish habitat would be designed to allow for fish passage and 100-year flood events (**Appendix B** - BMPs).

The removal of livestock grazing from 4.7 miles of stream would protect the riparian zone and allow the plant community to expand and stabilize the streambanks and shade the water improving the aquatic habitat in the middle stretch of Quitchupah Creek and all of Convulsion Canyon.

The enhanced and created wetlands would trap sediments generated in the upper watersheds of Convulsion Canyon, thus, aiding water quality. The 1.22 acres of new wetlands would provide additional habitat for species of macroinvertebrates that favor the slow-moving waters.

ALTERNATE JUNCTION AND ALTERNATE DESIGN - ALTERNATIVE C

Potential impacts to aquatic resources would generally be the same as for Alternative B, including the protection of 4.7 miles of stream corridor. As described in Water Resources (**Section 3.2**), the proximity of the road to the stream, the number of required crossings, and the risk to the stream from implementation of Alternatives B and C are similar. The road under this alternative is in close proximity to the stream for 7 of the 9 miles, somewhat less of a risk for spills than the proposed road.

The enhanced and created wetlands would trap sediments generated in the upper watersheds of Convulsion Canyon, thus, aiding water quality. The 1.22 acres of new wetlands would provide additional habitat for species of macroinvertebrates that favor the slow-moving waters.

WATER HOLLOW ALTERNATE ALIGNMENT - ALTERNATIVE D

The Water Hollow Road alignment would be placed further away from Quitchupah Creek than either Alternative B or Alternative C. This would mean that any erosion that occurred as a result of road construction, or of failure of road features due to drainage or stability problems, would be less likely to affect Quitchupah Creek. Further, any spills of coal or fuels would be less likely to reach Quitchupah Creek than they would be under Alternative B or C. This alternative would avoid the majority of Quitchupah Creek, including its middle and lower reaches that are most susceptible to instability impacts. However, it is important to note that the existing two-track along Quitchupah Creek would remain open and in its current unstable state under this alternative, and would thus continue to contribute sediments to the stream. The applicant committed measure to install and maintain waters bars along the existing two-track road would help reduce sediment loading from that source. Water Resources (**Section 3.2**) discusses the net effect of building the Water Hollow alignment and leaving the two-track road. However, a spill at the Water Hollow crossing would affect this stream and reach Quitchupah Creek. This alternative would be in close proximity to the stream in Convulsion Canyon for about 2.1 miles where there would be a risk of spill to the stream. Livestock would be restricted from grazing along 4.7 miles of riparian area, which over time could improve aquatic habitat. Instream watering and riparian grazing in Quitchupah Creek on private lands will continue.

The enhanced and created wetlands would trap sediments generated in the upper watersheds of Convulsion Canyon, thus, aiding water quality. The 1.22 acres of new wetlands would provide additional habitat for species of macroinvertebrates that favor the slow-moving waters.

MITIGATION AND MONITORING FOR BUILD ALTERNATIVES

No mitigation or monitoring, beyond what is described in **Section 3.2** Water Resources, the BMPs (**Appendix B**), and the Environmental Protection Measures, are necessary for the Proposed Action or build Alternatives. The Water Hollow crossing would allow for fish passage through installation of a bridge.

IRREVERSIBLE OR IRRETRIEVABLE COMMITMENT OF RESOURCES AND RESIDUAL ADVERSE IMPACTS

An improved road design would help to minimize sedimentation and salt loading into the drainages from the existing environment. Truck accidents could introduce coal and fuel into the streams even with

mitigation and monitoring measures in place. This would produce residual adverse impacts to fisheries and aquatics from Alternatives B, C, or D.

CUMULATIVE EFFECTS
Past and present impacts to fisheries and aquatics include habitat degradation due to sediment loading and destabilization of Quitchupah Creek, creating the poor condition of the aquatic ecosystem. Increased public access to the Project Area as a result of the proposed road would produce cumulative impacts to fisheries and aquatic resources. These cumulative impacts would primarily occur from sediment loading/erosion impacts, salinity, or fuel spills generated by the public.

The increased flow of mine discharge water in North Fork has stabilized the flows in that tributary so fish would be able to inhabit more of the stream on a year-round basis. However, the irrigation diversions downstream of the North Fork junction can, during periods of dry years, deplete the flow of Quitchupah Creek so the aquatic habitat is degraded. The restoration of the 4.7 miles of riparian zones over time would improve the aquatic habitat.

3.7 Threatened, Endangered, and Sensitive Species

The area of analysis for special status species encompasses the Project Area. As required by the Endangered Species Act (ESA), a Biological Assessment (BA) has been prepared under separate cover and is on file at the Fishlake National Forest Office and the BLM Richfield Field Office in Richfield, Utah. The BA evaluates the potential effects of a Proposed Action on Federally listed threatened, endangered, proposed and candidate species, and determines whether any such species and habitat are likely to be adversely affected by the action. The species accounts and discussion of potential impacts on these species resulting from the Proposed Action and alternatives, as discussed below, are taken from the BA.

The USFS requires a Biological Evaluation (BE) for the assessment/summary of the effects of a Proposed Action on USFS Sensitive Species. The information presented below has been utilized by the USFS for preparing a BE of the Proposed Action and alternatives.

In the case of species which occur or may occur in the Project Area, and species which may be directly or indirectly affected by the Proposed Action or alternatives, a further evaluation of potential impacts was prepared.

THREATENED, ENDANGERED, AND CANDIDATE SPECIES
A total of 10 Federally protected plant and animal species and one candidate species were listed by the USFWS as having the potential to occur within Emery and Sevier Counties and are shown in **Table 3.7-1**. The following discussion evaluates the likelihood for these species to occur in the area, based on habitats present, known occurrences, and the results of dedicated surveys for these species. If a species is known to occur in the area or has the potential to occur, the potential impacts resulting from the Project on that species are discussed.

A literature search reviewed the preferred habitats, elevational ranges, and occurrence records for each of these species. Based upon this information, a determination was made regarding the potential for each species to occur within the Project Area, or to be directly or indirectly affected by the Proposed Action or alternatives (i.e. for the species to occur within the Action Area). The basis for these determinations is presented in the following discussion. In the case of species that clearly do not occur in the Project Area and have no potential to be directly or indirectly impacted by the Proposed Action or alternatives (e.g. plant species occurring only at high elevations), a "No Effect" determination was made.

In the case of species that occur or may occur in the Project Area and species that may be directly or indirectly affected by the Proposed Action or alternatives, a further evaluation of potential impacts was prepared.

Table 3.7-1 Federally Listed and Candidate Species Potentially Occurring within the Project Area

Common Name	Specific Name	Federal Status
Jones Cycladenia	*Cycladenis humilis* var. *jonesii*	Threatened
Maquire Daisy	*Erigeron maguirei*	Threatened
Last Chance Townsendia	*Townsendia aprica*	Threatened
Barneby Reed-Mustard	*Schoenocrambe barnebyi*	Endangered
San Rafael Cactus (Despain Footcactus)	*Pediocactus despainii*	Endangered
Winkler Cactus (Winkler Footcactus)	*Pediocactus winkleri*	Threatened
Wright Fishhook Cactus	*Sclerocactus wrightae*	Endangered
Heliotrope Milkvetch	*Astragalus montii*	Threatened
Bald Eagle	*Haliaeetus leucocephalus*	Threatened
Mexican Spotted Owl	*Strix occidentalis lucida*	Threatened
Western Yellow-billed Cuckoo	*Coccyzus americanus occidentalis*	Candidate

THREATENED AND ENDANGERED PLANTS

Several of the listed plant species which have the potential to occur in the Project Area are restricted to, or most commonly occur on, particular soil or geological formation types. Soils in the area are generally derived by deposits of Quaternary alluvium and gravel deposits. The Project Area cuts through numerous sedimentary geologic formations that include the Mesaverde Group and the Mancos Shale.

Jones Cycladenia (*Cycladenia humilis* var. *jonesii*) - Threatened

Welsh et al. (1987) refer to this species as a "gypsophile" (occurring on gypsum-derived soils), found on "semibarren tracts on geological formations with poor water relationships." The species occurs in Eriogonum-Ephedra mixed desert shrub, and juniper communities at 4,400 to 6,000 feet AMSL. As Welsh suggests, the species is found in gypsiferous, saline soils of the Cutler, Summerville and Chinle formations. Flowering occurs in May and June.

This species occurs at lower elevations than those found in the Project Area (4,400 to 6,000 feet vs. 6,000 to 7,600 feet in the Project Area) and on formations and soil types which do not occur in the area. Therefore, this species would not be expected to occur in the Project Area.

Maguire Daisy (*Erigeron maguirei*) - Threatened

This perennial daisy grows in canyon bottoms in Wingate and Navajo formations, at elevations of 5,380 to 5,700 feet (Welsh et al., 1987). Atwood et al. (1991) cite a higher elevational range, of between 5,600 and 7,200 feet. Cronquist et al. (1994) states that the species grows in cliff crevices and the sandy bottoms of washes. Flowering occurs in June and July. The species also occurs in cool, moist mesic

wash bottoms and dry, partially shaded slopes of eroded sandstone cliffs in the Wingate, Chinle, and Navajo sandstone formation or in dry, rocky, sandy canyon bottoms in the Navajo and Wingate Sandstone formations (Atwood et al., 1991).

The upper elevational range of this species, as reported by Atwood et al. (1991), is within the elevations of the Project Area and suitable habitat for this species (cliff crevices and the sandy bottoms of washes) does occur within the Project Area, but the geologic formations from which the species has been reported (Wingate, Chinle, and Navajo sandstone formations) are not found in the area. Therefore, this species is believed to be absent from the Project Area.

Last Chance Townsendia (*Townsendia aprica*) - Threatened
This species grows in salt desert shrub and pinyon-juniper habitats on clay or clay-silt exposures of the Arapien and the Blue Gate member of the Mancos Shale, at elevations between 6,100 to 8,000 feet (Welsh et al., 1987; Atwood et al., 1991). Flowering occurs in April and May. This species is known from locations near the Project Area (Section 13 of Township 22 South, Range 5 East) and habitat exists in portions of the project corridor. Field surveys in May 1999 and May 2003, however, did not find any occurrence of this species within the project corridor.

San Rafael Cactus (*Pediocactus despainii*) – Endangered
This species is generally solitary, though it may occur in colonies. Habitat for this cactus is open pinyon-juniper communities on limestone gravels, at an elevation of approximately 6,000 to 6,200 feet (Welsh et al., 1987; Atwood et al., 1991). Flowering occurs from late April to early May. The species occurs at elevations within those found in the Project Area (6,000 to 6,200 feet compared to 6,000 to 7,600 feet in the Project Area). Conversations with the Botanist for the BLM's Richfield Field Office, indicate that this species has the potential to occur within the Project Area (Armstrong, personal communication June 15, 1999); however, none were located during a May 1999 field visit.

Winkler Cactus (*Pediocactus winkleri*) – Threatened
This diminutive species, also known as the Winkler footcactus, is usually solitary. The species occurs in salt desert shrub communities at 4,800 to 5,200 feet AMSL, in fine textured, poor-quality saline substrates (Welsh et al., 1987). Flowering occurs in late March to mid-May.

The Winkler cactus generally occurs at elevations below that found in the Project Area. Although this species may be found near the lower boundary of the Project Area (Armstrong, personal communication June 15, 1999), a May 1999 field survey confirmed none were located within the Project Area.

Heliotrope Milkvetch (*Astragalus montii*) - Threatened
Welsh et al. (1987) states that the heliotrope milkvetch is known only from the Flagstaff Limestone on the Wasatch Plateau, at an elevation of approximately 11,000 feet. Atwood et al. (1991) cites the habitat for this species as being alpine areas in a mixed grass-forb community on windblown ridges and snowdrift sites, at elevations of 10,500 to 11,000 feet. Flowering occurs July to August. The heliotrope milkvetch would not be expected to occur in the Project Area, where elevations reach only about 7,600 feet.

Barneby Reed-Mustard (*Schoenocrambe barnebyi*) - Endangered
Welsh et al. (1987) report that the Barneby reed-mustard occurs in mixed shadscale, *Eriogonum* and *Ephedra* communities in the Chinle Formation between approximately 5,600 and 5,700 feet AMSL. Flowering occurs in May.

This species occurs at elevations below those found in the Project Area and on soils derived from the Chinle Formation, which does not occur in the Project Area. The species is thus not expected to occur within the Project Area.

Wright Fishhook Cactus (*Sclerocactus wrightae*) - Endangered
Habitat for this species is salt desert shrub and shrub-grass to juniper communities on the Mancos Shale (Blue Gate, Tununk, Emery and Ferron members), Dakota, Morrison, Summerville, and Entrada formations, at elevations of between 4,800 to 6,100 feet (Welsh et al., 1987). Flowering occurs in April to May.

The small yellowish (to pink or white dorsally) flowers and short spines are diagnostic. Recorded locations of this plant in the project vicinity are south of I-70 and east of the Project Area on the San Rafael Swell, but not west of SR-10. Intermediates with Whipple fishhook (*S. whipplei*) occur occasionally in Emery County near the Sevier County line at the boundary between shale and sandstone members of the Mancos Shale Formation. This species has been found in soils not in the Project Area, but at elevations that coincide with the Project Area elevation (4,800 to 6,100 feet vs. 6,000 to 7,600 feet in the Project Area). However, the Wright fishhook cactus was not observed during a May 1999 field survey.

THREATENED AND ENDANGERED WILDLIFE
Only three Federally listed wildlife species were identified by the USFWS has having the potential to occur within the Project Area. All three species are birds. They include: the bald eagle, Mexican spotted owl, and western yellow-billed cuckoo.

Bald Eagle (*Haliaeetus leucocephalus*) - Threatened
The bald eagle is also known as the American eagle, black eagle, fishing eagle, gray eagle, Washington eagle, white-headed eagle, and white-headed sea eagle (Terres, 1980). During their breeding season, bald eagles are closely associated with water occurring along coasts, lakeshores, or riverbanks, where they feed primarily on fish. Bald eagles typically nest in large trees, primarily cottonwoods (*Populus* sp.) and conifers, although they have also been known to nest on projections or ledges of cliff faces (Call, 1978). Due to the large size of their nests, bald eagles usually build these structures in a tree which is the largest or stoutest in the immediate vicinity (Call, 1978). Two characteristics common to most nesting sites are a clear flight path to at least one side of the nest and excellent visibility, often with an unobstructed view of water. Most nests are in the top third of a living tree, with live foliage above the nest providing shade and protection during poor weather (Green, 1985). Breeding territories, including the nest tree and favored nearby perches, are defended against other eagles. Alternate nests are also common within the territory. Breeding territories are typically 250 to 500 acres in size (Swenson et al., 1986).

No bald eagle nests are known to occur within or in the general vicinity of the Project Area. Most sightings have been made in the Joes Valley Reservoir and Huntington Canyon areas, the closest of which (Joes Valley Reservoir) is approximately 20 miles north of the Project Area (USDA-USFS, 2000). A bald eagle nest has been reported in the vicinity of Castle Dale, approximately 20 miles northeast of the Project Area boundary. No roost sites have been found in the Project Area, and bald eagles are not expected to occur in the area except as transient birds, most commonly occurring in the winter months.

Mexican Spotted Owl (*Strix occidentalis lucida*) - Threatened
The Mexican spotted owl (MSO) is the only subspecies of spotted owl that occurs in Utah. The owl is known to nest only in steep-walled canyons of the Colorado Plateau eco-region and adjacent portions of the Utah Mountains eco-region. The closest known nest site to the area is located approximately 40 miles east, at the north end of Capitol Reef National Park.

According to the 14 August 2002 federally protected species by county list for Utah, MSOs are not listed in Sevier County, but are listed in Emery County. Potentially suitable habitat does occur within portions of the Project Area within Sevier County, but not within the portions of the Project Area within Emery County. Nonetheless, dedicated surveys for the MSO were conducted according to USFWS protocol, a total of four times in May and June of 2002. No MSOs were detected during these surveys.

Western Yellow-billed Cuckoo (Coccyzus americanus occidentalis) - Candidate
In Utah, the yellow-billed cuckoo was historically uncommon to rare. Habitat for this species in Utah typically consists of large blocks (20+ acres) of riparian habitat that includes cottonwood trees below an elevation of 6,000 feet (personal communication between Fishlake National Forest and USFWS on September 5, 2001). Two recent breeding records in Utah have been documented: one on the Green River in 1992 and the second within the Matheson Wetland Preserve near Moab in 1994 (USFWS 12-month petition finding July 25, 2001). Three yellow-billed cuckoos were also recorded during an intensive survey effort conducted throughout the Salt Lake Valley prior to 1988. Dedicated surveys for the yellow-billed cuckoo were not required because habitat for this species is essentially nonexistent within the area. There are no 20+ acre blocks of riparian deciduous forest in or near the Project Area. Subsequently, the yellow-billed cuckoo is not expected to occur in the Project Area or general vicinity.

SENSITIVE SPECIES
Each land management agency maintains their own region-specific sensitive species lists. The purpose of the listings for sensitive species is to identify those species in the managed area that are the most vulnerable to population or habitat loss. Typically, the conservation strategies recommend that proposed developments avoid sensitive species and their habitat so as not to render the species potentially threatened or endangered species under the ESA. The sensitive listed species are not afforded protection required under the ESA for Federally listed threatened or endangered species. Based upon agency consultation, it has been determined that the sensitive species shown in **Table 3.7-2** have the potential to occur within the Project Area.

Under Policy Number W2AQ-4, the UDWR also develops and maintains a list of sensitive species. Designated as the Utah Sensitive Species List, it identifies sensitive species as belonging to one of the following defined categories: extinct, extirpated, State-endangered, State-threatened, of special concern, or conservation species.

In addition, the Utah Natural Heritage Program maintains a list of "rare" species. Several of the listed rare species are also land management agency sensitive species and are addressed below. However, those species that are not sensitive are not afforded protection under the ESA or any land management agency conservation strategy and are, therefore, not discussed further.

Table 3.7-2 USFS, BLM, & UDWR State Sensitive Species Potentially Occurring in the Project Area

Common Name	Specific Name
Fishlake National Forest Sensitive Species	
Elsinore Buckwheat	*Eriogonum batemanii var. ostundii*
Ward Beardtongue	*Penstemon wardii*
Sevier Townsendia	*Townsendia jonesii var. lutea*
Rabbit Valley Gilia	*Gilia caespitosa*

Common Name	Specific Name
Fishlake National Forest Sensitive Species	
Elsinore Buckwheat	*Eriogonum batemanii var. ostundii*
Townsend's Big-eared Bat	*Corynorhinus townsendii*
Spotted Bat	*Euderma maculatum*
Peregrine Falcon	*Falco peregrinus*
Northern Goshawk	*Accipiter gentiles*
Flammulated Owl	*Otus flammeolus*
Northern Three-toed Woodpecker	*Picoides tridactylus*
Colorado Cutthroat Trout	*Oncorhynchus clarki var. pleuriticus*
BLM Richfield Field Office Sensitive Species	
Basalt Milkvetch	*Astragalus subcinereus var. basalticus*
Flannelmouth sucker	*Catostomus latipinnis*
Leatherside chub	*Gila copei*
UDWR State Sensitive Species	
Bluehead sucker	*Catostomus discobolus*
Flannelmouth sucker	*Catostomus latipinnis*

FISHLAKE NATIONAL FOREST SENSITIVE SPECIES

Elsinore Buckwheat (*Eriogonum batemanii var. ostundii*)

Elsinore buckwheat, endemic to Piute and Sevier Counties, is known to occur within shadscale, mixed desert shrub, sagebrush, juniper, and ponderosa pine communities (Atwood et al., 1991). This species usually occurs on igneous gravels between 5,495 to 6,512 feet in elevation. Flowering occurs from July to September.

No igneous gravels occur within the general vicinity and therefore, this species is believed to be absent from the area.

Ward Beardtongue (*Penstemon wardii*)

Ward beardtongue, endemic to Sanpete, Millard, and Sevier Counties, is known to occur within desert shrub, pinyon-juniper, shadscale, sagebrush, and greasewood communities on the Bald Knoll and Arapien Shale formations (Atwood et al., 1991). This species usually occurs between 5,495 to 6,810 feet in elevation. Flowering occurs from May to July.

Neither of the two formations on which this species is usually found occurs within the area; thus it is believed to be absent from the area.

Sevier Townsendia (*Townsendia jonesii* var. *lutea*)

Sevier townsendia, endemic to the Great Basin, is known to occur within desert shrub and juniper communities on Arapien shale and clays in volcanic rubble (Atwood et al., 1991). This species usually occurs between 5,500 to 6,000 feet in elevation. Flowering occurs from May to June.

Arapien shale and clays in volcanic rubble do not occur in the Project Area, therefore the species is not expected to occur within it.

Rabbit Valley Gilia (*Gilia caespitosa*)
Rabbit Valley gilia, endemic to Utah in Wayne County, is known to occur within pinyon-juniper communities on the Carmel and Navajo formations (Atwood et al., 1991). This species usually occurs between 5,200 to 8,515 feet in elevation. Flowering occurs from June to July.

The Carmel and Navajo formations do not occur in the Project Area. In addition, the Project Area does not occur within Wayne County, the only county in which this species has been discovered to date. Therefore, this species is not expected to occur within the Project Area.

Townsend's Big-eared Bat (*Corynorhinus townsendii*)
The Townsend's big-eared bat is also known as Western big-eared bat, western long-nosed bat, and western lump-nosed bat (Kunz and Martin, 1982). This species ranges throughout North America from British Columbia to central Mexico, with isolated populations reaching the Ozarks and Appalachia (Pierson et al., 1991). This bat occurs in juniper-pine forests, shrub-steppe grasslands, deciduous forests, and mixed coniferous forests from sea level to 10,000 feet in elevation (USDA-USFS, 1991). Although this species occurs in a variety of habitats and appears to be an adaptable forager, it is generally thought to be a moth specialist (Kunz and Martin, 1982). Townsend's big-eared bats are considered to be so sensitive to human disturbance that simple entry into a nursery roost can induce site abandonment by a colony (Humphrey and Kunz, 1976). According to Pierson et al. (1991) and Brown and Berry (1991), mine shafts/adits are the most important roosting habitat for Townsend's big-eared bats and other sensitive bat species, and should be protected from human disturbance where possible.

In 1992, Townsend big-eared bats were found using inactive coal mines as hibernacula on the Ferron Ranger District. They have also been found roosting in buildings of the Ferron/Price Ranger District in the town of Ferron during late summer of 1992. In the summer of 1997, bat surveys were conducted by Genwal Resources Incorporated in areas within Huntington Canyon (Crandall Canyon, Biddlecome Hollow, Tie Fork, Huntington Canyon, Mill Fork, and Bear Creek Canyon), approximately 25 to 30 miles north of the Project Area. No Townsend's Big-eared bats were located in those areas (Johansson et al., 1997).

Dedicated bat surveys in Quitchupah Creek have not been conducted; however, surveys in 1997 in Link Canyon (Perkins and Peterson, 1997) detected no big-eared bat use of the area. Perkins and Peterson concluded potential for the occurrence of big-eared bats in the area was low, and suitable big-eared bat habitat was not present.

Spotted Bat (*Euderma maculatum*)
This species is also known as the pinto bat (Watkins, 1977). Spotted bats occur in a variety of habitats including open ponderosa pine (*Pinus ponderosa*), desert scrub, pinyon-juniper, and open pasture and hay fields (Leonard and Fenton, 1983). Most often, they are found in dry, rough desert terrain (Watkins, 1977). Spotted bats roost alone in rock crevices high up on steep cliff faces. They have been recorded from 187 feet below sea level to the high transition zone of Yosemite National Park (Goodwin and Holloway, 1972). Critical roosting sites are cracks and crevices from 0.8 to 2.2 inches in width in limestone or sandstone cliffs (USDA-USFS, 1991). Spotted bat populations may be limited by the availability of suitable roosting sites. Generally, spotted bats are found in relatively remote, undisturbed areas, suggesting that they may be sensitive to human disturbance (USDA-USFS, 1991).

In the summer of 1997, surveys conducted by Genwal Resources Incorporated detected spotted bats utilizing habitats within Mill Fork Canyon, Crandall Canyon, Biddlecome Hollow, Tie Fork, Huntington Canyon, and Bear Creek Canyon, approximately 25 to 30 miles north of the Project Area. Foraging areas were located at relatively low elevation sites associated with riparian vegetation within Huntington Canyon. Specific individual roost sites were not located, but general roosting areas were identified on the cliff faces/rock outcrops in Crandall and Mill Fork Canyons. Additional roosting areas were identified throughout the Huntington Canyon drainage among sizeable cliff faces (Johansson et al., 1997).

Other known observations of spotted bats on the Ferron/Price Ranger District have been at Joes Valley Reservoir and at Emerald Lake. Surveys by Perkins and Peterson (1997) documented spotted bat use in Link Canyon; however, no surveys have been conducted within the Project Area.

Peregrine Falcon (*Falco peregrinus*)
The peregrine falcon is a wide ranging species which utilizes a variety of habitats. Peregrines usually nest on large rock cliffs in open country; preferred sites overlook water and allow an extensive view of the surrounding terrain (Herron et al., 1985). In the Rocky Mountain southwest, the walls of canyons and gorges are often used for nest sites (Call, 1978). Reintroduced birds regularly nest on man-made structures such as towers and high-rise buildings (USDA-USFS, 1991). Peregrine falcons use riparian areas for hunting (McCarthy et al., 1986) and often hunt birds that frequent undergrowth or occupy coniferous forest habitats (Craig, 1986). The most frequently used nesting cliffs exceed 100 feet in height, are often at the top of a high talus slope, and have ledges or caves with gravelly or sandy floors. Peregrines nest directly on this material in a shallow depression or scrape (Call, 1978).

The closest known peregrine falcon eyrie, located in Link Canyon approximately five miles to the north, was found active in 1997; however, the eyrie has not been active since that time based upon surveys conducted by UDWR in 1998 and 1999.

Northern Goshawk (*Accipiter gentilis*)
In most areas, the northern goshawk occupies montane forests in spring and summer, with some altitudinal migration into foothills and valleys in the winter (Terres, 1980). Nest trees of this species are commonly located on benches or basins surrounded by much steeper slopes (Call, 1978). The goshawk usually nests on a horizontal branch next to the trunk of mature conifers, aspen (*Populus tremuloides*), cottonwood, or other deciduous stream bottom trees (Call, 1978), about 20 to 60 feet up in the tree canopy (Terres, 1980). Reynolds (1983) found nests in Oregon were generally located in multi-layered, mature, or old-growth coniferous forest. Nests were usually located near water, on areas of moderate slope, often with a northerly aspect. Forest openings were generally located nearby. The same nest may be used for several seasons, but alternate nests are common within a single territory. Adjacent understory is usually fairly open (Call, 1978). This large accipiter usually requires an extensive home range (Johnsgard, 1990). Goshawks are very protective of their young in the nest and loudly defend them against intruders. They are very sensitive to human disturbance and have abandoned nests and young due to human activities that take place too close to their nest (Kennedy and Stahlecker, 1989; Hennessey, 1978). Goshawks are not known to nest within the Quitchupah Creek canyon or Water Hollow Project Areas; dedicated surveys were deemed unnecessary because of limited suitable habitat. However, goshawks could occasionally use portions of the Project Area for foraging opportunities.

Flammulated Owl (*Otus flammeolus*)
This diminutive owl, approximately six inches in length, inhabits the montane coniferous forests of North and Central America, ranging from southern British Columbia to Guatemala (Ryser, 1985). In most areas, this owl occurs in close association with ponderosa pine (*Pinus ponderosa*) and Jeffery pine (*Pinus*

jefferyi), though it has been recorded less commonly in other forest types (Johnsgard, 1988). This small and secretive owl is a cavity nester, and thus requires natural or woodpecker-excavated cavities as a component of its habitat. Flammulated owls are almost exclusively insectivorous, preying on small to medium sized moths, beetles, caterpillars, and crickets (Reynolds and Linkhart, 1987; Johnsgard, 1988; Bull et al., 1990). Like most insectivores, but unlike most owls, flammulated owls are migratory (Winter, 1974; Balda et al., 1975; Collins et al., 1986; Gaines, 1988).

Flammulated owls have been found in the Quitchupah Creek drainage on the Old Woman Plateau, located at the upper, western end of the Project Area. Suitable habitat, although limited, does occur within and adjacent to the Project Area.

Three-toed Woodpecker (*Picoides tridactylus*)
The three-toed woodpecker is a permanent resident of the taiga or circumboreal forests of Eurasia and North America, ranging southward into the continental United States (Ryser, 1985). The species is found in northern coniferous and mixed forest types up to 9,000 feet elevation. Forests containing spruce, grand fir, ponderosa pine, tamarack and lodgepole pine are used. Nests may be found in spruce, tamarack, pine, cedar, and aspen trees. Three-toed woodpeckers forage mainly on dead trees, although they will feed in live trees. About 75 percent of their diet is woodboring insect larvae, mostly beetles, but they also eat moth larvae. Three-toed woodpeckers are major predators of the spruce bark beetle, especially during epidemics.

Three-toed woodpeckers are known to occur in the general area from dedicated surveys conducted during 1992 through 1996 throughout suitable habitat in adjacent forested areas. Limited habitat occurs within or adjacent to the upper portions of the Project Area.

Colorado Cutthroat Trout (*Oncorhynchus clarki* var. *pleuriticus*)
This species requires clear, cool water. Optimum habitat consists of suitable 1:1 pool to riffle ratio and slow, deep water with vegetated streambanks for shade, bank stability, and cover. This species could also inhabit lakes. Habitat for this species is not found within the Project Area. Furthermore, electroshocking in Quitchupah and lower Water Hollow creeks provided no evidence that these species would occur in the area (JBR, 2001c).

BLM RICHFIELD FIELD OFFICE SENSITIVE SPECIES
Basalt Milkvetch (*Astragalus subcinereus var. basalticus*)
The Basalt milkvetch is known to occur within pinyon-juniper and ponderosa pine communities between 4,520 to 7,970 feet elevation (Atwood et al., 1991). Because the appropriate habitat and the Mancos Shale formation for this species does occur within the Project Area, preconstruction surveys for this species will be conducted during appropriate flowering times in the spring/summer prior to construction activities in suitable habitat.

UDWR UTAH SENSITIVE SPECIES LIST
The UDWR Utah Sensitive Species List includes several fish species that are endemic to the Colorado River Basin in which the Project Area occurs, or whose known historical range does not exclude the Project Area. These species are: bonytail (*Gila elegans*), Colorado squawfish (*Ptychocheilus lucius*), humpback chub (*Gila cypha*), razorback sucker (*Xyrauchen texanus*), woundfin (*Plagopturus argantissumus*), Lahontan cutthroat trout (*Oncorhynchus clarki henshawi*), roundtail chub (*Gila robusta*), leatherside chub (*Gila copei*), flannelmouth sucker (*Catostomus latipinnus*), bluehead sucker (*Catostonus discobolus*), Colorado River cutthroat trout (*Oncorhynchus clarki pleuriticus*), Bonneville cutthroat trout (*Oncorhynchus clarki utah*), Virgin spinedace (*Lepidomeda mollispinis*), and least chub (*Iotichthys phlegethontis*). The flannelmouth sucker and leatherside chub are also on the BLM sensitive species list.

The bluehead sucker and flannelmouth sucker are covered under a Range-Wide Conservation Agreement (UDWR, 2004) under which several western states have agreed to work cooperatively on conservations measures to ensure the persistence of these species.

As discussed in more detail in the Final Aquatic Resources Technical Report (JBR, 2001c), two of these listed fish species were found in Quitchupah Creek during July 1999 fish sampling. At one out of five total locations that were electroshocked, 13 individual flannelmouth suckers and one leatherside chub were captured. At the other four locations, these species were absent. During 2004 surveys, flannelmouth suckers were determined as 'not present' in Quitchupah Creek (UDWR, 2005a). None of the other fish species on the Utah Sensitive Species List were found during the fish sampling. However, the bluehead sucker was found during a separate survey by UDWR at the confluence of Quitchupah Creek with Ivie Creek.

Potential Impacts To Threatened, Endangered, And Sensitive Species

The Environmental Consequences of each Alternative, in regard to TES species, are discussed below. First, regulatory consequences are described and then potential impacts to the resource itself.

REGULATORY

The BA has been reviewed and approved by the USFWS (**Appendix F**). A Biological Opinion was not required as the determination was that none of the threatened or endangered plant or animal species or habitat would be impacted or adversely affected by the proposed project. Similar review and approval of the BE by the USFS was conducted. Appropriate environmental measures as outlined in Chapter 2 and monitoring as detailed in Monitoring Plan would be implemented if sensitive species might be impacted by the proposed project.

POTENTIAL IMPACTS TO SPECIAL STATUS SPECIES

This assessment evaluates the potential for each Special Status Species to be directly or indirectly impacted by the Alternatives. This assessment is based on a review of the species' preferred habitats and their recorded occurrence. Based upon this information, a determination can be made regarding the potential for each species to be directly or indirectly affected by the Alternatives.

In the case of species that clearly do not occur in the Project Area and have no potential to be directly or indirectly impacted by the Alternatives (plant species occurring at elevations outside that of the Project Area, for example), a "No Effect" (in the case of listed species) or "No Impact" (in the case of Sensitive Species) determination was made. In the case of species that occur or may occur in the Project Area and which may be directly or indirectly affected by the Alternatives, a further evaluation of potential impacts was prepared.

NO ACTION ALTERNATIVE - ALTERNATIVE A

Selection of the No Action Alternative would not result in any direct, indirect, or cumulative impacts to Federally listed or sensitive species occurring in the Project Area. The road would not be constructed in the Quitchupah Creek drainage or the Water Hollow Benches area, and thus related disturbances would not occur in those areas. The existing land uses and environment in the Quitchupah Creek drainage would continue for the near future.

QUITCHUPAH CREEK ROAD ALIGNMENT - ALTERNATIVE B

Threatened, Endangered, and Candidate Species

Table 3.7-3, developed from the BA, summarizes the occurrence and effects analysis for threatened, endangered, and candidate species potentially occurring in the Project Area. This table includes the rationale for the determinations shown.

Dedicated surveys for the Mexican spotted owl, following USFWS protocol, were conducted within the Project Area in May and June of 2002 (JBR, 2002 Technical Addendum). Surveys were conducted in suitable nesting habitat on Alternatives B and D. No Mexican spotted owls were detected or observed during these surveys.

Wintering bald eagles may utilize the roadway for the scavenging of big game road kill. This would lead to potential collisions of bald eagles with coal trucks. As outlined the Applicant-Committed Environmental Protection Measures in Section 2.2, all animal carcasses would be removed daily from the roadway to minimize the potential of bald eagle collisions with coal trucks.

Sensitive Species

Table 3.7-4 summarizes the occurrence and effects analysis for Sensitive Species potentially occurring in the Project Area. The table also includes the rationale for the determinations shown.

Limited suitable habitat for the northern goshawk, flammulated owl, and three-toed woodpecker would be impacted. In addition, approximately 1.0 acre of riparian habitat and .33 acres of wetlands, potential foraging habitat for spotted bats, northern goshawks, and flammulated owls that would be disturbed during construction would be replaced. Blasting during road construction activities could also temporarily impact spotted bats (if present) as potential roosting sites could be destroyed or disturbed. Dedicated surveys for these species were not requested by the Fishlake National Forest as little suitable habitat was in or adjacent to the Project Area.

Impacts to potentially suitable habitat for the Basalt milkvetch could occur. However, direct impacts to this species should not occur, as preconstruction surveys would identify the location of these species within proposed disturbance areas and appropriate mitigation measures would be implemented to avoid potential impacts.

ALTERNATE JUNCTION WITH SR-10 AND ALTERNATE DESIGN - ALTERNATIVE C

Similar impacts to Federally listed and sensitive species would occur as described for Alternative B. However, the likelihood of impacts to habitat for *Townsendia aprica* is increased.

Table 3.7-3 Potential Occurrence and Effects Analysis of Federally Listed Species - Summary of BA

Species	ALT A	ALT B	ALT C	ALT D	RATIONALE
Jones Cycladenia	NE	NE	NE	NE	Not known to occur in the Project Area; geologic formations on which this species occurs do not occur in the Project Area.
Maguire Daisy	NE	NE	NE	NE	Not known to occur in the Project Area; geologic formations on which this species occurs do not occur in the Project Area.
Last Chance Townsendia	NE	MA-NLAA	MA-NLAA	NE	Suitable habitat near Project Area, but not discovered during dedicated surveys. No critical habitat has been designated for this species.
Barneby Reed-Mustard	NE	NE	NE	NE	Not known to occur in the Project Area; geologic formations on which this species occurs are not found in the Project Area.
San Rafael Cactus	NE	MA-NLAA	MA-NLAA	MA-NLAA	Not known to occur within the Project Area. No critical habitat has been designated for this species.
Winkler Cactus	NE	NE	NE	NE	Not known to occur within the Project Area. No critical habitat has been designated for this species.
Wright Fishhook Cactus	NE	NE	NE	NE	Not known to occur within the Project Area.
Heliotrope Milkvetch	NE	NE	NE	NE	Not known to occur in the Project Area.
Bald Eagle	NE	MA-NLAA	MA-NLAA	MA-NLAA	Does not make regular use of the Project Area; construction impacts would not alter the limited use. Animal carcasses would be removed daily from the roadway but still may attract foraging eagles. No critical habitat has been designated for this species.
Mexican Spotted Owl	NE	NE	NE	NE	Suitable habitat near Project Area, but none were discovered during 2002 dedicated surveys.
Yellow-billed Cuckoo	NE	NE	NE	NE	Does not occur in Project Area.

NE = No Effect
MA-NLAA = May Affect -Not Likely to Adversely Affect
MA-LAA = May Affect -Likely to Adversely Affect
BE = Beneficial Effect

Table 3.7-4 Potential Occurrence and Effects Analysis of Sensitive Species - Summary of BE

Species	ALT A	ALT B	ALT C	ALT D	RATIONALE
Elsinore Buckwheat	NI	NI	NI	NI	Not known to occur in the Project Area; suitable habitat not present.
Ward Beardtongue	NI	NI	NI	NI	Not known to occur in the Project Area; suitable habitat not present.
Sevier Townsendia	NI	NI	NI	NI	Not known to occur in the Project Area; suitable habitat not present.
Rabbit Valley Gilia	NI	NI	NI	NI	Not known to occur in the Project Area; suitable habitat not present.
Townsend's Big-eared Bat	NI	MIIH	MIIH	MIIH	Not recorded in Project Area, but suitable roosting and habitat may be present.
Spotted Bat	NI	MIIH	MIIH	MIIH	Not recorded in Project Area, but suitable roosting and foraging habitat occurs in Project Area.
Peregrine Falcon	NI	NI	NI	NI	Known eyrie in Link Canyon area, approximately 5 miles to the north, not recorded in Project Area.
Northern Goshawk	NI	MIIH	MIIH	MIIH	Not recorded in Project Area, but suitable foraging habitat occurs in general area.
Flammulated Owl	NI	MIIH	MIIH	MIIH	Limited available habitat in area, foraging areas could be impacted.
Northern Three-toed Woodpecker	NI	MIIH	MIIH	MIIH	Known to occur in general area, available habitat could be impacted.
Colorado Cutthroat Trout	NI	NI	NI	NI	Does not occur in Project Area; historic range includes North Fork.
Basalt Milkvetch	NI	MIIH	MIIH	MIIH	Unknown to occur within the Project Area; however low potential suitable habitat does occur; preconstruction surveys would be conducted.

NI = No Impact **BI** = Beneficial Impact
MIIH = May Impact Individuals or Habitat, But Will Not Likely Contribute to a Trend Towards Federal Listing or of Viability to the Population or Species
WIFV = Will Impact Individuals or Habitat with a Consequence such that the Action May Contribute to a Trend Toward Federal Listing or Loss of Viability to the Population or Species

WATER HOLLOW ALTERNATE ALIGNMENT - ALTERNATIVE D
Similar impacts to Federally listed and sensitive species would occur as described for Alternative B.

MITIGATION AND MONITORING FOR BUILD ALTERNATIVES
As outlined in the Applicant Committed Measures in Chapter 2, the haul route would be patrolled daily, during daylight hours, to pick up and dispose of all animal carcasses (wild and domestic, large and small) in order to keep the road surface clear. This would reduce scavenging on the road surface by raptors and vultures.

Mitigation for the creation and enhancement of wetlands and riparian zones described in Section 2.2 would be identical for all Alternatives, and in the case of wetlands would provide additional habitat for wildlife. The agency-committed environmental protection measure of eliminating livestock grazing on 4.7 miles of stream would restore the degraded riparian zone, providing additional quality habitat for wildlife.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES AND RESIDUAL ADVERSE IMPACTS
No irreversible commitment of habitats for TES species are anticipated to occur as a result of the Alternatives. An increase in noise levels and human activity would occur within the Alternatives area as a result of vehicle travel. No residual adverse impacts were identified for TES species within the Alternatives area.

CUMULATIVE EFFECTS
Past range improvements, such as the reservoir on Saleratus Bench, has provided a water source that benefits certain TES species. Increased public access would occur as a result of the Alternatives, which would increase noise and also disturbance to TES species' habitat. Increased hunting could occur as a result of increased public access. Reasonably foreseeable activities could include federal oil and gas lease exploration and drilling. Reclamation would occur on drilling sites that do not enter into production. A producing gas field would require additional roads increasing access to lands within the watershed.

The removal of livestock grazing on 4.7 miles of stream corridor would protect the riparian plant community allowing it to reach its full potential along this stretch of Quitchupah Creek, this would provide additional habitat for many TES species including spotted bats.

3.8 Range Resources

There are five grazing allotments within the Project Area; E. Olsen, G.L. Olsen, Johnson, Quitchupah, and Saleratus. Livestock winter on the lower rangeland slopes adjacent to SR-10 and/or on the nearby irrigated fields, then move up the Quitchupah Creek canyon to a State-owned land section for spring grazing. Quitchupah Creek serves as the source of water for livestock in the winter and spring and again in the fall. In the late spring, livestock are trailed up the creek to summer pasture on the Fishlake National Forest, outside of the Project Area. Cattle return to Quitchupah Creek in the fall and trail down to winter pastures. In order to travel to and from summer pastures, the cattle must cross the Acord Lakes Road in Convulsion Canyon near Broad Hollow. Livestock also graze along this paved road, and an unknown number of cattle are killed each year by coal trucks that travel the Acord Lakes Road to and from the SUFCO mine.

In the Water Hollow Benches area, the G. L. Olsen Allotment is grazed from May 16 to June 30. The cattle are trailed from the early spring pasture to this allotment and then trailed to the summer Quitchupah Allotment.

The livestock movement within each allotment is currently controlled by fences, natural slope and terrain barriers, and the watering sources (i.e. Quitchupah Creek and Water Hollow drainage). Thus, livestock are generally confined to an area within one mile of the creeks during spring and fall grazing seasons. Livestock movements during trailing are generally controlled by the permittees who push the larger herds of cattle along the existing unpaved road adjacent to Quitchupah Creek and Convulsion Canyon. The trailing of livestock in the spring and fall is confined to the existing road and two-track because it is part of a traditional livestock trail, and because the terrain generally confines trailing to the existing road and immediate vicinity. The smaller herds and stragglers move on their own along the creeks until they reach their destination.

The boundary fence running north-south across the Convulsion Canyon bottom on the Fishlake National Forest border prevents livestock from entering the Quitchupah Allotment in the spring until the allotted turn-in date. In the fall, the gate is open to allow livestock to drift down the canyon and off the allotment. The lower fence runs north-south in the middle of Section 15 and along the west boundary of the patent land and the irrigated croplands. This fence is used to prevent livestock from entering the croplands until so desired. The lower fence is also used as a drift fence to hold livestock trailing down the canyon in the fall so they can be corralled and separated for transfer to winter ranges. In the spring, this fence also prevents livestock from drifting off of winter ranges onto spring range until the allotted turn-in date.

A drift fence is also located across lower Water Hollow to keep cattle from drifting down the stream and into Quitchupah Creek. A small corral is located adjacent to this drift fence to aid in the gathering of cattle.

FISHLAKE NATIONAL FOREST

The management prescription for the Forest lands in the Project Area emphasizes livestock grazing via intensive management level D for range resources. One allotment, the Quitchupah Allotment, provides the summer forage for livestock trailing out of Quitchupah Creek to Fishlake National Forest lands. Most of the summer pasture is located on Duncan and Little Duncan mountains, and the Skutumpah basin. The grazing season is from June 11 to September 30 annually for 813 cattle plus calves (4,042 AUMs). The cattle are owned by five permittees who live or have ranches near the mouth of Quitchupah Creek. Traditionally the ranchers take turns herding their cattle up the Quitchupah Creek drainage to the Convulsion Canyon trail so that mother cows and calves can stay together. It takes one to two weeks of trailing the cattle up the creek to arrive at the higher elevation summer pastures. Cattle take one to two weeks of trailing and drifting to come off the summer pastures in the fall. The off-date, September 30, is the date that cattle are supposed to be completely off the Forest. During the round up, cattle are gathered and herded to Broad Hollow and pushed down Convulsion Canyon to Quitchupah Creek. There will be several large gathers and cattle are headed down the canyon at different times. If cattle are stirred up or winter type weather arrives, cattle may head or drift down the canyon on their own. Cattle may be found drifting down the trail at any time during the grazing season. During trailing the cattle graze along the creek in Convulsion Canyon and along Quitchupah Creek.

BLM PRICE FIELD OFFICE

Four BLM allotments are located in the Quitchupah Creek watershed. The large Saleratus Allotment which includes the valley and benches south of Quitchupah Creek is used as winter range. The Johnson Allotment that includes the benches north of the creek is also used as winter range. The G. L. Olsen

Allotment on the Water Hollow Benches is a late spring - early summer allotment. The E. Olsen Allotment is used as spring range. These allotments provide 2,286 AUMs. See **Table 3.8-1** for specific information on each allotment. See **Figure 3-5** for allotment boundaries. Water sources in the allotments include Quitchupah Creek and the stream in Water Hollow.

Table 3.8-1 Grazing Allotment Information

Allotment Name	Permittee	Season of Use (acres per AUM)	Head of Cattle	AUMs*
BLM Allotment				
E. Olsen	Glendon E. Johnson (Castle Valley Ranch)	April 16-June 15 (22.1 acres)	20	20
Saleratus	L.D. Jensen	November 1- March 31 (12.5 acres)	69	308
	Josiah K. Eardley		108	483
	George U. Lewis		28	126
	Glendon E. Johnson		156	698
	J.R. Lawrence		49	219
G.L. Olsen	L.D, Jensen	May 16-June 30 (6.8 acres)	165	250
Johnson	John L. Byars	October 16-December 31 (30.6 acres)	72	182
Forest Service Allotment				
Quitchupah	Castle Valley Ranches, LLC Josiah K. Eardley Gary Petty Morgan Robertson John Sundstrom L.D. Jensen	June 11 – September 30	813	4,042

* An AUM is calculated as the forage needed to sustain one head of cattle for one month.

STATE LANDS

The State lands in Section 16 are used in the spring at the discretion of the permit holder (L.D. Jensen), as part of the Saleratus Allotment. Since the State lands are not fenced separately, they are managed in the same manner as the BLM allotment (Ron Torgeson, SITLA, personal communication 2005).

Potential Impacts To Range

The Environmental Consequences of each Alternative, in regard to range, are discussed below. First, regulatory consequences are described and then potential impacts to the resource itself.

REGULATORY

These allotments are operated under the Utah State open range law, which requires those who wish to exclude livestock from their lands or facilities to fence the livestock out. Although Utah is a fence-out state, it is up to the counties to enforce it. Often ranchers depend on their insurance to cover their livestock losses due to vehicle collision. In order to exclude livestock and minimize the incidence of vehicle-livestock collision, the proposed roadway would be fenced, and a 1.5-mile cattle trail would be constructed along the north side of the westernmost portion of the road.

The construction and operation of the road would have no affect on the permits to graze in the respective allotments under provisions of the Federal Land Policy and Management Act.

The applicant committed measure to remove grazing in the riparian zone on public lands would consist of 4.7 miles of fencing of riparian area on BLM, FS, and State lands and would occur through terms and conditions of the Saleratus and E. Olsen allotment permits. As a result of this, there would be a total loss of five AUMs. Trailing permits and fencing would restrict livestock access to the riparian zones on National Forest, State, and public lands. Fenced access points at underpasses on Alternative C would allow livestock access to water in the stream, and access points to water would be located along the 4.7 miles of riparian fencing. Altogether approximately 4.7 miles of stream corridor would be protected from stream grazing.

POTENTIAL IMPACTS

NO ACTION - ALTERNATIVE A

The coal trucks would still use the Acord Lakes Road, I-70, and SR-10 to transport coal to the Hunter Power Plant and Banning loadout. The livestock grazing would continue in traditional ways with generally unrestricted access to most of the Quitchupah Creek area. Livestock trailing between summer and winter pastures would continue in the traditional manner along the creek corridor. Straggling livestock crossing the Acord Lakes Road at Broad Hollow would be at risk of truck-livestock collisions.

QUITCHUPAH CREEK ROAD ALIGNMENT - ALTERNATIVE B

The temporary loss of forage would amount to a total of 8 AUMs in four allotments (Quitchupah, Saleratus, Johnson, and E. Olsen) based on the net disturbance of 92.3 acres due to road construction. Once reclamation was complete and the seeded vegetation has matured, the net loss would be 4 AUMs, due to 45 acres of paved roadbed.

This road alignment would cross 600 feet of cultivated pasture owned by Castle Valley Ranches. Approximately 1.4 acres of pasture, out of approximately 145 acres, would be lost for livestock (and wildlife) winter forage. The construction of the road would require relocating the corrals and portions of the lower drift fence.

Riparian fencing would preclude livestock from in-stream watering along 4.7 miles of Quitchupah Creek on public lands. Livestock would have access to the streams for watering purposes at fenced sites, so livestock grazing along the proposed road would be restricted from accessing the stream corridor except at these fenced points.

The construction and operation of a heavily traveled road over and adjacent to the traditional livestock trail would render most of the trail unusable by cattle. A designated livestock trail along 1.5 miles of the western segment of the road would provide a trailing corridor in the terrain restricted portions of the canyon. Along the remaining portion of the trailing route, livestock would simply trail outside of the fenced road corridor. Holding facilities near Broad Hollow, in Convulsion Canyon, and Quitchupah Creek would keep stragglers off the proposed road. The holding facilities would disturb about one acre total at two sites. Short drift fences in Broad Hollow would guide cattle through a culvert under the Acord Lakes Road; thus, negating the potential for collisions with coal trucks.

ALTERNATE JUNCTION WITH SR-10 AND ALTERNATE DESIGN - ALTERNATIVE C

The Alternate Junction with SR-10 would disturb slightly more land (96.3 acres), but temporarily affect an equivalent amount of AUMs (8), as described for Alternative B, in the four allotments. Once reclamation were complete, the net loss would be 4 AUMs, due to 45 acres of roadbed.

The Alternative design to provide underpasses for wildlife/livestock would significantly reduce the potential for vehicle-wildlife/livestock collisions. The fencing and underpasses would allow livestock to graze freely in the allotments and have access to Quitchupah Creek except for where the cattle would be confined to the cattle trail. The fencing, in a few places, could restrict livestock use of forage located between the proposed road and the plateaus to the north. Riparian fencing would preclude livestock from in-stream watering along 4.7 miles of Quitchupah Creek. Livestock would have access to the streams for watering purposes at fenced sites along that 4.7 miles.

The road alignment across the E. Olsen Allotment would bisect the allotment creating two pastures by blocking access north and south for livestock. An underpass on the west end would alleviate the blocking in that area but not further east, unless the large culverts would serve as underpasses for livestock.

WATER HOLLOW ALTERNATE ALIGNMENT - ALTERNATIVE D

The initial temporary loss of forage would amount to 12 AUMs based on the total disturbance of 146.3 acres due to road construction; approximately 4.5 AUMs (1.8 percent of total allotment) in the G. L. Olsen Allotment and 7.5 AUMs (0.4 percent of total allotment) in the Saleratus Allotment on Water Hollow Bench. Once reclamation is complete and the seeded vegetation has matured, the net loss would be 5 AUMs (less than 1 percent losses of total allotments) due to an unreclaimed area of 55 acres of paved road. Much of the proposed route through the Saleratus Allotment is in rugged terrain where there is little use of forage by cattle, although in the flats adjacent to SR-10 there is considerable grazing in the winter.

Cattle in the G. L. Olsen Allotment water in Water Hollow drainage and trail in and out daily to graze on the benches above the creek. The large fill for the proposed road crossing and fencing would block livestock access to Water Hollow drainage so a water distribution system would be installed and operated during the grazing season.

Fencing the road throughout the G.L. Olsen Allotment would divide the allotment into a two-pasture system. The rotation of grazing between the pastures and the placement of watering troughs in the pastures would promote better distribution of cattle and proper use of the forage. Currently, the seedings are heavily used on the west end because the only source of water is located in that area. With the water distribution system there would be four troughs, two in each pasture, so cattle could potentially graze the seedings (See **Section 3.5** Wildlife) located in the east and northeast portions of the allotment.

Since the seedings within the G.L. Olsen Allotment would be enhanced and expanded to provide forage for wintering big game, additional forage would be produced that would also benefit cattle. The use of forage by cattle would need to be managed to allow sufficient forage to remain for big game use in critical snow years. The forage provided by the seedings would offset the AUMs lost by road construction.

The fencing of the proposed road on the flats in the Saleratus Allotment would keep cattle off the roadway. When cattle need to be moved within the allotment, this would be on a coordinated schedule with the SUFCO Mine.

Movement of livestock would occur as it would under Alternatives B and C using a constructed cattle trail, fencing, and holding facilities.

Riparian fencing would preclude livestock from in-stream watering along 4.7 miles of Quitchupah Creek. Livestock would have access to the streams for watering purposes at fenced sites.

MITIGATION AND MONITORING FOR BUILD ALTERNATIVES

The construction of livestock trail, road fencing, and underpasses along the roadway would mitigate impacts to livestock. Palatable species would be seeded along the underpasses to entice livestock to utilize the underpasses to cross the roadway. A noxious weed control plan would be developed in cooperation with the land management agencies prior to construction and then implemented as necessary.

Monitoring for a minimum of three years, as discussed in the Mitigation and Monitoring Plan, would ensure the stability and operation of the trail, fences, underpasses, seedings, water distribution systems, and reclamation in the Project Area.

The loss of livestock due to vehicle-livestock collisions will likely continue in the future, even with the livestock trail and fencing. Ranchers are compensated for livestock loss through the open-range law, but often depend on insurance to cover livestock losses since collisions are not always reported.

IRREVERSIBLE OR IRRETRIEVABLE COMMITMENT OF RESOURCES AND RESIDUAL ADVERSE IMPACTS

Unreclaimed disturbance from construction and operation of the public road would mean irreversible losses of range forage as follows: Alternative A - 0 AUMs, Alternative B - 4 AUMs, Alternative C - 4 AUMs, and Alternative D - 5 AUMs. Under all build alternatives, an additional 5 AUMs would be lost due to agency commitment not to allow grazing in the riparian zone along 4.7 miles of public lands. For Alternative D the additional forage developed in the seedings for big game would compensate for loss of AUMs in the G.L. Olsen Allotment.

CUMULATIVE EFFECTS

Past livestock improvements, including the development of a reservoir on Saleratus Bench, have increased water distribution for livestock. The loss of livestock due to vehicle-livestock collisions has been on-going through the past and present, and will likely continue in the future. Ranchers would be compensated for livestock loss through the open-range law; therefore, it is not an undue impact on the rancher. Future vehicle-livestock collisions along the proposed road would be minimized by a designated livestock trail and fencing of the road corridor.

There are eight authorized federal oil and gas leases in the Project Area (see **Section 3.9** Land Use). Gas and oil exploration and drilling could occur and may affect allotment forage. Reclamation would occur on sites that do not enter into production.

The removal of livestock grazing from 4.7 miles of stream corridor would allow those sections of Quitchupah Creek to stabilize over time, thus reducing their current contributions to sediment and salt loading. Livestock would not be able to graze on reclaimed areas until the agencies have accepted reclamation and revegetation as successful.

The proposed fencing and underpasses would control movement of livestock along SR-10 and Acord Lakes Road.

3.9 Land Use

HISTORICAL BACKGROUND

Quitchupah Creek, described as a long narrow valley of sagebrush and greasewood, coyotes and prairie dogs, was opened for homesteading in the 1880s. Within a few years several ranches were established, growing alfalfa, wheat, oats, and barley in the fields, and raising sheep and cattle. Goods were traded in nearby Emery town. A terrible storm in 1912 drastically changed the nature of the valley, and the placid Quitchupah Creek was transformed into a deeply gouged wash with many deep gullies. Over time, although the settlers attempted to utilize a dam and canals, the fields were drained by the wash, and the families began to leave Quitchupah Creek (Historical Committee of Emery, 1981). Other ranchers purchased lands both north and south of the creek. The nearby community of Emery was incorporated as a town in 1901.

LAND STATUS

The lands that would be crossed by the proposed road include private, public, and SITLA, as shown on **Figures 2-1, 2-2,** and **2-10**. Public lands include those managed by the USFS, Fishlake National Forest and the BLM, Richfield Field Office.

Private landowners along the existing Quitchupah Creek Road include: Castle Valley Ranches LLC, Thomas C. Bunn, et al., James V. Olsen, Julian Bowman, George E. and Patricia L. Olsen, and Wynona P. Olsen. Private landowners along the proposed Alternate Junction with SR-10 include: Castle Valley Ranches, LLC; and Kenneth Lee & Earlene F. Christiansen. Private landowners in the area that would be crossed by the Water Hollow Alternative include Castle Valley Ranches, LLC. These landowners do not currently reside on those lands, but typically use them in conjunction with their livestock operations.

Table 3.9-1 provides a summary of land status and an estimate of new surface disturbance for the proposed Quitchupah Creek Road (Alternative B). **Tables 3.9-2** and **3.9-3**, that follow, provide similar summaries for the Alternate Junction and Alternate Design Alternative (Alternative C), and the Water Hollow Alternate Alignment (Alternative D).

Table 3.9-1 Land Status and Proposed Disturbance - Alternative B

Land Mgmt.	QCR Road Distance (miles)	County Jurisdiction	Road Construction Disturbance (acres)	Existing Road Disturbance (acres)	Staging Areas (acres)	Pull-Outs (acres)	Total New Surface Disturbance (acres)
USFS	2.3	Sevier	24.0	3.3	5.0	0.3	26
BLM	1.8	Sevier	18.4	1.8	5.0	0.3	21.9
SITLA	1.1	Sevier	12.3	0.9	5.0	0	16.4
Private	3.7	Sevier & Emery	33.7	5.7	0	0	28.0
Totals	8.9		88.4	11.7	15.0	0.6	92.3

Table 3.9-2 Land Status and Proposed Disturbance - Alternative C

Land Mgmt.	Road Distance (miles)	County Jurisdiction	Construction Disturbance (acres)	Existing Road Disturbance (acres)	Staging Areas (acres)	Pull-Outs (acres)	Total New Surface Disturbance (acres)
USFS	2.3	Sevier	24.0	3.3	5.0	0.3	26.0
BLM	2.8	Sevier	23.6	1.4	5.0	0.3	27.5
SITLA	1.1	Sevier	12.3	0.9	5.0	0	16.4
Private	2.9	Sevier & Emery	31.4	5.0	0	0	26.4
Totals	9.1		91.3	10.6	15.0	0.6	96.3

Table 3.9-3 Land Status and Proposed Disturbance - Alternative D

Land Mgmt	Road Distance (miles)	County Jurisdiction	Construction Disturbance (acres)	Existing Road Disturbance (acres)	Staging Areas (acres)	Pull-Outs (acres)	Total New Surface Disturbance (acres)
USFS	2.52	Sevier	30.5	2.6	5.0	0.3	33.2
BLM	7.94	Sevier	95.3	0	10.0	0.6	105.9
SITLA	0.26	Sevier	2.4	0	0	0	2.4
Private	0.53	Sevier	4.8	0	0	0	4.8
Totals	11.25		133.0	2.6	15.0	0.9	146.3

Land Use And Land Use Plans

Historical and ongoing land uses and rights in the Project Area include homesteading, livestock trailing and grazing, wildlife migration and wintering, mining, instream livestock watering rights, irrigation water rights, cultivated pasture, agriculture, and recreation.

The management of public lands within the Project Area is guided and directed by the San Rafael RMP (USDI-BLM, 1991), FPU MFP (BLM, 1982), and the Fishlake National Forest LRMP (USDA-USFS, 1986).

Although the Richfield Field Office is ultimately responsible for management of the BLM-administered lands in the Project Area, management guidance comes from the BLM Forest Planning Unit MFP (BLM, 1982) and San Rafael RMP (USDI-BLM, 1991) produced and implemented by the BLM's Price Field Office. The Richfield Field Office is currently updating the RMP and it is scheduled to be completed in the spring of 2006.

Management of the SITLA lands in the Project Area is directed by the Richfield Office of SITLA.

Land management decisions on private lands in Sevier and Emery Counties are guided by county land use plans, and zoning ordinances and regulations. As described in the Emery County General Plan, Emery County is committed to preservation of a rural lifestyle, and citizens place great value upon open space, history, and preservation of their heritage. Maintaining access to, and use of, public lands within the county is also a commitment of the plan. The Sevier County General Plan (Sevier County, 1998) similarly expresses a desire to maintain access to public lands in their county, and to encourage multiple uses within those lands.

Zoning
The Emery County lands in the Project Area are zoned M&G-1, Mining and Grazing. This zone generally covers the dry mountain and desert areas of the county historically used for grazing on the open range, and mining and mineral exploration. The characteristics and conditions on these lands make them suited for a continuation of these uses. However, because of the relatively fragile balance of nature in the area, all permitted activities must be carried out in a manner consistent with the limitations of the environment (Zoning Ordinance for Emery County, 1999).

The Sevier County lands in the Project Area are zoned GRF-40, Grazing, Recreation, and Forestry. As described in the Sevier County Code (Sevier County, 1995), this zone has been established as a district in which the primary use of the land is for grazing, recreational, forestry, and wildlife purposes. Density requirements of structures within this zone are one unit per 40 acres. The code does not mention roads as a land use that is either automatically or conditionally permitted in this zone.

Access
The Quitchupah Creek area is accessed either from the east at SR-10, or from the west off the paved Acord Lakes Road, which is used as coal transport road by the SUFCO Mine. The Water Hollow Benches area is accessed off of the existing Quitchupah Creek Road, or off of a jeep trail leaving SR-10 south of the Quitchupah Creek Road. However, vehicle access to the Water Hollow Benches is possible only with ATVs, and then only in some areas. The existing road along Quitchupah Creek is unpaved and prone to washouts and rutting as a result of storm events. Along portions of the road, it is unmaintained and occasionally impassable.

Structures and Utilities
The most noticeable man-made structure along Quitchupah Creek is the UP&L Company power line, a 9.6-mile long 69 kV tap line for SUFCO, completed about 1977. It provides power to the SUFCO Mine. The right-of-way for this power line is 25 feet, or 12.5 feet on either side of its centerline. Three other major power transmission lines cross the eastern part of the Project Area.

Other existing structures within the Quitchupah Creek Road corridor, related to agricultural/livestock uses, include irrigation canals, corrals, livestock fences, and a baling yard. A metal water pump house building and a septic leach field, both related to the SUFCO Mine are adjacent to the Quitchupah Creek Road corridor. Water lines between the spring collection area and the pumphouse and between the pumphouse and the SUFCO Mine pass under the roadway. There are no structures near the Water Hollow alternate alignment (Alternative D).

A telephone line has been installed underground along the Quitchupah Creek Road from the east to the Emery County line, and then strung from the existing UP&L poles up to the SUFCO Mine.

Minerals – Oil & Gas
Texaco had an oil, gas, and hydrocarbon lease on the State land Section 16 - ML#47105. This lease was to expire in 2005 but was cancelled for non-payment on January 2, 2004. According to SITLA, no work was ever conducted under this lease (Bonner, personal communication 2005). SITLA included this section in the January 6, 2005 Competitive Lease Offering for Oil, Gas, Hydrocarbon, and other Mineral Commodities and it is currently under lease (**Table 3.9-4**).

There are several oil and gas leases held on public lands in the area, as noted in the following table.

Table 3.9-4 Oil & Gas Leases

Agency	Lease #	Leasee	Location	Township, Range
BLM	UTU - 075067	Texaco	Section 17,18	T22S, R6E
BLM	UTU - 075062	Texaco	Section 13,14,15	T22S, R5E
BLM	UTU -074819	Texaco	Section 17,20,21,22	T22S, R5E
BLM	UTU - 072583	Texaco	Section 27,28,33,34	T22S, R5E
BLM	UTU- 075224	Texaco	Section 25,26,34,35	T22S, R5E
BLM	UTU - 075063	Texaco	Section 1, 12,14	T23S, R5E
BLM	UTU - 072753	Texaco	Section 3,4,5,8,9,10	T23S, R5E
BLM	UTU - 073214	Texaco	Section 2	T23S, R5E
SITLA	ML 49664	Greg Klurfeld	Section 16	T22S, R5E

Potential Impacts To Land Use

The Environmental Consequences of each Alternative, in regard to land use, are discussed below. First, regulatory consequences are described and then potential impacts to the resource itself.

REGULATORY

Existing permitted uses on the lands in the Project Area, such as grazing and water rights, would continue. In Emery County, permitted activities must be carried out in a manner consistent with the limitations of the environment (Zoning Ordinance for Emery County, 1999). In Sevier County the primary uses must be preserved.

The proposed project is in compliance with the San Rafael RMP and FUP MFP for the public lands and the Fishlake National Forest Land and RMP for Forest lands (See Section 1.3). Currently, the planning process for the Dixie and Fishlake National Forests Forest Plan Revision is ongoing and has included several public meetings and workshops. The Draft Management Direction Package for the Fishlake National Forest was released April 28, 2005. The projected date for plan decision is winter 2006/2007.

POTENTIAL IMPACTS

NO ACTION - ALTERNATIVE A

There would be no effects to land use along the existing two-track road along Quitchupah Creek or along the Water Hollow Benches. Current land uses would continue.

QUITCHUPAH CREEK ROAD ALIGNMENT - ALTERNATIVE B

Under this Alternative, it is estimated that new disturbance would affect 26.0 acres of USFS land, 21.9 acres of BLM land, 16.4 acres of State land, and 28 acres of private land, for a total of 92.3 acres. The requested rights-of-way for the permanent road corridor would include 18.4 acres of USFS lands, 15.2 acres of BLM lands, 8.8 acres on State lands, and 31.2 acres private lands. The FS would issue a Public Road Easement and the BLM would issue a right-of-way grant. Right-of-way applications have been submitted to the USFS and BLM. The right-of-way for the existing road consists of prescriptive easements. Rights-of-way across seven private land parcels (six landowners) are dependent upon individual negotiations.

In addition, an encroachment permit would have to be obtained from UDOT in order to construct the junction with SR-10. The disturbance for construction of the intersections and additional lanes would occur within the UDOT right-of-way or acquired right-of-way.

Fences and corrals would be removed from the road corridor during right-of-way preparations, and the necessary replacements or repairs made as agreed upon. Similarly, the baling yard would be modified or relocated to an agreed upon area.

The irrigation canal currently supplying the agricultural fields south of the road would be impinged upon by the new road footprint in several locations, necessitating realignment or culverting of about 0.5 mile of total canal length. This would affect the canal/pipe in the following locations: near station 290+00, from stations 302+00 to 308+50, from stations 321+00 to 324+00, and from stations 333+00 to 350+00 (see **Appendix B**, Engineering Details). Approximately 1.4 acres (out of 145 acres – less than 1 percent) of prime farmland soils would be impacted as the road crosses over the corner of the agricultural fields.

Preliminary design indicates that a power pole adjacent to station 166+30 may need to be relocated. All power pole relocations would be performed by the owning power company (UP&L) and would be relocated to suitable locations as determined by UP&L. The relocations would be within either the road or power line rights-of-way.

The Emery County telephone line, buried along the road east of the County line, may be affected by grading and right-of-way preparation. The same line would be affected by the above power pole relocation. This would require the telephone company to repair or replace any of the damaged cable.

Mineral or fuel exploration and development efforts in the State lands section could be furthered by the presence of a paved road; however, no plans for exploration are currently proposed.

ALTERNATE JUNCTION AND ALTERNATE DESIGN - ALTERNATIVE C

This alterative includes the same road corridor as Alternative B, except for the easternmost two miles. Under this Alternative, it is estimated that new disturbance would affect 26.0 acres of USFS land, 27.5 acres of BLM land, 16.4 acres of State land, and 26.4 acres of private land for a total of 96.3 acres. Rights-of-way across two private land parcels are dependent upon individual negotiations. After reclamation, 46 acres would be dedicated to the road right-of-way.

In addition, an encroachment permit would have to be obtained from UDOT in order to construct the junction with SR-10. The disturbance for construction of the intersections and additional lanes would occur within the UDOT right-of-way or acquired right-of-way.

Other impacts would be the same as described for Alternative B, except that the planned buried telephone line would not be affected. Further, the safe movement of wildlife and livestock across the road would be facilitated by fencing and under passes.

WATER HOLLOW ALTERNATE ALIGNMENT - ALTERNATIVE D

Except for the westernmost two miles of road, where this Alternative shares the same alignment as Alternatives B and C, lands along Quitchupah Creek would not be affected by the Water Hollow alignment. Total new disturbance would affect 33.2 acres of USFS land, 105.9 acres of BLM land, 2.4 acres of State land, and 4.8 acres of private land for a total of 146.3 acres. Right-of-way across one private land parcel is dependent upon individual negotiations.

In addition, an encroachment permit would have to be obtained from UDOT in order to construct the junction with SR-10. The disturbance for construction of the intersections and additional lanes would occur within the UDOT right-of-way or acquired right-of-way. After reclamation, a total of 55 acres would be dedicated to road right-of-way.

An outside source for borrow materials would likely be required under this Alternative, borrow materials would be excavated from private lands off-site, in an area where such use is allowed.

MITIGATION AND MONITORING FOR BUILD ALTERNATIVES
All new roads across Federal, State, or local lands would be constructed to or exceeding applicable standards. The road drainage system and reclamation of disturbed lands would be monitored for a minimum of three years, and require achieving certain goals prior to release (see Monitoring Plan).

IRREVERSIBLE OR IRRETRIEVABLE COMMITMENT OF RESOURCES AND RESIDUAL ADVERSE IMPACTS
Due to the proposed road being a public road under the jurisdiction of Sevier County SSD, the road would remain in service as a rural collector road in the State road system after the mine has ceased transporting coal, and be an irreversible use of the land committed to a right-of-way.

Loss of private ownership of the right-of-way would be an irretrievable and residual impact to the private landowners. In addition, fragmentation of private property would be an irretrievable impact.

CUMULATIVE EFFECTS
Past and present land uses include mining, grazing, agriculture, utilities and road rights-of-way, and recreation. The proposed project would dedicate an additional 45-55 acres of land to roadway. There are eight authorized federal oil and gas leases in the Project Area. SITLA has leased Section 16 in the Project Area for the exploration and development of coal-bed methane gas resources. The proposed road on public lands would traverse Section 16 and would provide improved access for future exploration and development. Potential gas reserves on public lands would also be accessible. Future land use changes such as gas field development would be compatible with and supported by road development.

3.10 Visual Resources, Recreation, and Wilderness

3.10.1 Visual Resources

Visual resources are a composite of basic terrain, geologic features, water features, vegetative patterns, and land use effects that typify an area and influence the visual appeal that the area may have to people (Forest Plan). The scenic quality of the Project Area is influenced by the canyons which dissect the Wasatch Plateau, and various geologic formations providing a range of textures and colors evident in escarpments, canyon walls, and badlands. The horizontally bedded nature of these formations, as well as their component range of texture classes, is evident from the steep canyon walls, escarpments, and badlands visible in the Project Area. Flat ledges, vertical cliffs, and sloping erosional and depositional surfaces all contribute to the varied relief in the Project Area. The presence of the meandering Quitchupah Creek, its flood plain, and its terrace features also contribute to the visual diversity of the lower elevations of the Project Area.

The nature of vegetation in the landscape is consistently low and shrubby in the bottomlands, and blankets the valleys with a consistent cover, contrasting with the dotted juniper on reddish-brown eroding slopes. White to grey slopes present in some parts of the Project Area have less evident, sparse vegetative

cover. Water courses are generally accented with willows, tamarisk, and cottonwood trees; along lower Quitchupah Creek, portions of the flood plain lack noticeable vegetation, but have extensive areas of bright white alkali deposits that provide for visual variation. The upper Quitchupah drainage transitions from the pinyon-juniper slopes to oak scrub and conifers, with aspen and dense willow patches in the narrow drainage bottom. The contrast of agricultural fields is another feature present in parts of the Project Area. Facilities in the viewshed include roads (SR-10 and Quitchupah Road), fences, power lines, transmission lines, corrals, mine structures, and fairly constant coal truck traffic. The landscape within and surrounding the Project Area, as well as the remote and peaceful nature of the Quitchupah and Water Hollow areas, and historical/cultural ties to the area contribute to the people's sense of important aesthetic values in this area.

The objective of Visual Resource Management (VRM) for BLM lands in the San Rafael Resource Area is "to provide design standards that protect or enhance designated VRM classes" (USDI-BLM, 1991). Visual Resource Management Classes I-IV are described as follows:

Class I	Preserve existing character of landscape; very limited management activity; low levels of change to the characteristic landscape.
Class II	Retain existing character of landscape; management activities should not attract attention; changes must blend with the natural landscape.
Class III	Partially retain existing character of landscape; moderate level of change allowed; management activities should not dominate the view; changes should blend with the natural landscape.
Class IV	Provision for management activities which require major modification of existing character of landscape; high level of change allowed; activities may dominate the view.

The areas of BLM public lands in the Quitchupah Creek area within Sevier County are classified as VRM Class IV. This classification provides for management activities which require major modification of the existing character of the landscape. In Emery County, the BLM portion of Section 19, Township 22 South, Range 6 East, is designated as VRM Class III. The closest VRM Class II area is near the junction of SR-10 and I-70. The I-70 scenic corridor to the east of SR-10 in Emery County is designated as Class I.

National Forest lands are typically inventoried based upon a system of Visual Quality Objectives (VQOs) as part of the forest unit planning process. The VQOs are categories of acceptable landscape alteration measured in degrees of deviation from the natural landscape (Forest Plan). They are similar in concept to the BLM classes of management, and are described as follows:

Preservation (P)	Ecological change only.
Retention (R)	Human activities should not be evident to the casual Forest visitor.
Partial Retention(PR)	Human activities may be evident but must remain subordinate to the characteristic landscape.
Modification (M)	Human activity may dominate the characteristic landscape, but at the same time must utilize naturally occurring elements of the landscape including form, line color, and texture.
Maximum Modification (MM)	Human activity may dominate the characteristic landscape, but should appear as a natural occurrence when viewed as a background.

Forest lands in the Project Area have been designated under the VQO system as Modification.

Key Observation Points

Key Observation Points (KOP) were established as the predominant points from which viewers would be most likely to observe changes imposed by the proposed project. Three KOPs involve views from SR-10 towards the Project Area (See **Figure 3-5**). One KOP (#1) was established at the point where Quitchupah Creek Road meets SR-10; the second KOP (#2) was taken from the point where the proposed Water Hollow route would join SR-10. The third KOP (#3) was established at the Alternate Junction with SR-10. Although these would not be designated view areas, traffic turning onto the proposed Quitchupah Creek road, Water Hollow road, or Alternate Junction from SR-10 would be forced to slow considerably, and most likely provide an opportunity for viewing the project changes (see **Figure 3-5**).

Two KOPs were also established within the Project Area at the junction of the Alternative Junction and Quitchupah Creek Road (#4) and along the proposed Water Hollow Route (#5).

Potential Impacts To Visual Resources

The Environmental Consequences of each Alternative, in regard to visual resources, are discussed below. First, regulatory consequences are described and then potential impacts to the resource itself.

REGULATORY

The project would have no regulatory implications for visual resources. There would be no effects on visual classifications, a regulated land use planning criteria.

POTENTIAL IMPACTS TO VISUAL RESOURCES

NO ACTION - ALTERNATIVE A

There would be no effects to existing visual and aesthetic qualities of the Project Area. Views from SR-10 would remain as they currently exist, including the steady stream of coal trucks along SR-10 during hours of SUFCO Mine operation.

QUITCHUPAH CREEK ROAD ALIGNMENT - ALTERNATIVE B

The proposed Quitchupah Creek road itself would be visible in the immediate foreground as a paved lane entering SR-10, but would not be obvious unless viewed from the hill on SR-10 to the northeast, or passing directly across the intersection while traveling on SR-10. The dominant terrain at the intersection is stream terraces supporting tall brush. The haul truck traffic (trucks every 1.5 to 3 minutes) through lower Quitchupah Creek may be visible for a few minutes in the background south of the intersection by northbound travelers on SR-10. The background view is dominated by shrub-covered flats, low hills, and small mesas. Road cut and fill disturbance from construction would be visible in the immediate foreground from within the canyon, however, these contrasts would fade somewhat over time, with soil/rock weathering, and reclamation.

The project does meet the standards for BLM's VRM Class IV and the USFS's VQO activity of Modification. None of the visual classifications would need to be changed to accommodate the project.

The aesthetic qualities of the canyon, including its peaceful and remote nature, would be altered forever. However, the degree to which individuals are affected by the intrusion of a paved road and associated coal truck traffic would be personal and may vary depending upon reasons for using the canyon, as well as personal ties to the history of the area.

The new junction with SR-10 would require additional lanes for turning and acceleration at an existing intersection from the east with the CONSOL Mine Road. These changes would not affect the existing visual and aesthetic qualities of the Project Area.

ALTERNATE JUNCTION AND ALTERNATE DESIGN - ALTERNATIVE C

Visual and aesthetic implications of Alternative C would be similar to those of the Alternative B in the majority of the canyon. Additional structures in the form of concrete underpasses would be visible to travelers on the road, however they would not dominate the view. Between the Sevier County/Emery County line and the junction with SR-10, this route crosses low shrub-covered gentle slopes adjacent to SR-10 and dissected tree-covered slopes on the western portion. The existing character of the landscape would be partially retained in this area.

A new junction with SR-10 would be required for this Alternative with additional lanes for turning and acceleration along SR-10. These changes would not effect the existing recreation, visual and aesthetic qualities of the Project Area.

WATER HOLLOW ALTERNATE ALIGNMENT - ALTERNATIVE D

Views from KOP #1 at the Quitchupah Creek Road junction with SR-10 would remain unaffected by this Alternative. From KOP #2, the road would be obvious mainly in the foreground of low shrub-covered valley slopes. The road would essentially disappear into the hills and bluffs to the west as it crosses behind some low tree-covered rugged hills less than one mile from SR-10.

Within the Water Hollow Benches, the visual changes would be dramatic, with the large cut and fill volumes needed to cross the many deep drainage cuts across these benches. The changes due to large cut and fills would be within management activities criteria for VRM Class IV (**Figure 3-5**). The scenery within the Project Area consists of large mesas, wide benches, and deep dissected slopes. Views from the road on the Benches would be panoramic scenes of the valley below and mountains in the distance.

A new junction with SR-10 would be required for this Alternative with additional lanes for turning and acceleration along SR-10. These changes would not effect the existing visual and aesthetic qualities of the Project Area.

MITIGATION AND MONITORING FOR BUILD ALTERNATIVES

Careful consideration has been given to the siting of the proposed alignments to reduce adverse visual impacts to the maximum extent possible. The reclamation of disturbed areas along with monitoring to ensure successful reclamation and to prevent erosion would over time allow the bare areas to revegetate and emulate the native plant communities. No further mitigation or monitoring activities are described for the Proposed Action or Alternatives.

IRREVERSIBLE OR IRRETRIEVABLE COMMITMENT OF RESOURCES AND RESIDUAL ADVERSE IMPACTS

The aesthetic qualities of Quitchupah Creek would be altered forever. Residual adverse impacts would be the presence, form, and line of a paved road in the Quitchupah drainage or Water Hollow Benches.

CUMULATIVE EFFECTS

The Proposed Action, in conjunction with past, present, and reasonably foreseeable future actions would result in additional surface disturbance. Surface disturbance in the past has resulted from the development of the old two-track road, mining facilities, and power transmission lines. Once the reclamation has occurred, a large portion of the new surface disturbance would not be noticeable to the casual observer. Exploration for gas may require additional roads and disturbance. The proposed road would contribute a cumulative impact to visual resources.

3.10.2 Recreation

The majority of the Project Area is located within Sevier County with a small portion located in Emery County. The project proposes to upgrade the existing USFS Road 006 that is classified as an unimproved road (Class 4). A Class 4 road is defined by the USFS as a native surface, unimproved, jeep trail-high clearance road (Reed, 1999). The BLM portion of the road is identified as BLM Road #908.

The dominant recreation activities within the Project Area are hunting in the fall and ATV use year-round as conditions permit. The Project Area lies within the Manti Management Unit for elk and deer. In 1999, the large Manti Management Unit as a whole, reported about 16,500 deer hunters afield, with a 32 percent success rate, and almost 11,000 elk hunters with a 23 percent success rate, according to UDWR (2001). The Project Area has much less hunting effort than most of the Manti Unit. Local guides provide guided hunting trips in the Project Area for deer, elk, and mountain lion. Upland game is also hunted. Trapping for bobcat and coyote also occurs in the Project Area.

ATV use occurs both by individual local riders, and by organized clubs who gather regularly to ride in the area. One of those groups, the Southeastern Utah Off-Highway Vehicle (SEUOHV) Club has proposed that a series of two-track dirt roads across southeastern Utah be placed within a single system called the Castle Valley Trail System (Peterson, 1999). Included in the proposed Castle Valley Trail System is USFS Road 006, the existing dirt road within Quitchupah Creek canyon. The proposed trail system has been submitted to both the USFS and the BLM for approval. The SEUOHV Club currently has approximately 160 members which use the existing Quitchupah Creek road seasonally between April 15 and November 15. This two-track road is important to ATV users because it is one of the few ways that USFS land is accessed by ATVs from communities in Emery County (Peterson, 1999). Portions of the Water Hollow Benches and the flats to the east are accessible to ATVs; other portions are too rugged and dissected for vehicle use. The BLM has not designated vehicle routes. There are seasonal restrictions on vehicle use on some of the public lands for wildlife concerns.

BLM regulations, at 43 CFR 8340, outline the requirements for managing off-highway vehicles (OHVs) on public lands. The 1991 San Rafael RMP directed the Price Field Office to designate routes within the "limited to designated roads and trails" category through a public process. The route designations apply only to public lands, and are not applicable on state lands and private land inholdings. Other roads that have existing rights-of-way (ROW) will retain the restrictions or stipulations provided in the ROW.

In February of 2003 the BLM established the San Rafael Route Designation Plan which includes part of the proposed Project Area. The Plan provides a comprehensive system of open OHV routes with the BLM and County Class B road systems to provide more than 2,000 miles of roads and trails for recreation. The proposed Project Area is enveloped by the OHV categories “Open Areas” and “Limited to Designated Routes”. The Quitchupah Creek Road is currently designated a “Road - Not subject to Recreational Designations”. Also, part of the proposed Project Area is within designated Seasonal Limitations for Deer and Elk range. Travel is limited in these Seasonal Limitations for Deer and Elk areas between December 1 and April 15 of each year.

The BLM Travel Plan, due out in 2006 after the release of the final RMP, will designate a system of trails for OHVs, including ATVs. The Richfield RMP will designate areas where proposed uses, such as OHV sites, are acceptable on BLM land.

The Fishlake National Forest OHV Designation Plan is scheduled to be implemented in the summer of 2006. This Plan will designate roads, trails, and open areas for the use of OHVs. The rules and designations in the Plan will close the Forest to off-route motorized cross-country travel by OHVs except in designated areas. This Plan will improve management and enforcement of OHV use on Forest land.

Less dominant recreational uses in the general vicinity include dispersed camping, hiking, mountain bike riding, horseback riding, and sightseeing. There are no designated camp grounds or specific destination sites within the Project Area. Roads within the Quitchupah Creek Road Project Area are primarily four-wheel drive roads.

The public land in the Project Area has been classed by Recreational Opportunity Spectrum (ROS) Classes. According to the Fishlake National Forest LRMP, the majority of the USFS-administered lands in the Project Area are designated as having a semi-primitive motorized recreational opportunity (USDA-USFS, 1986). According to the San Rafael RMP (USDI-BLM, 1991), the BLM-managed lands along the existing two-track Quitchupah Creek Road are classed as Roaded Natural (about equal opportunities for affiliation with other use groups and for isolation from sights and sounds of man), and the Water Hollow Benches area is within Roaded Natural and Semi-primitive Motorized (some opportunity for isolation from the sights and sounds of man) ROS categories.

The Acord Lakes recreational area located to the west of the Project Area has approximately 100 seasonal homes.

The USFS has conducted various Roadless Area Review and Evaluations (RARE) on Forest lands. The nearest designated RARE are areas located 2.5 to 3 miles north and northwest of the Project Area, in the Manti-La Sal and Fishlake National Forests.

Potential Impacts To Recreation

REGULATORY

Increased access would likely increase use and may increase unauthorized use of areas restricted from motorized use. RMP ROS classes may require revision; these adjustments may be included in the updated RMP due to be released in 2006.

NO ACTION - ALTERNATIVE A

The dispersed recreation use would continue in this area.

QUITCHUPAH CREEK ROAD ALIGNMENT - ALTERNATIVE B

Implementation of the proposed project would improve access to the area for big and upland game hunters and other recreationists. Allocated harvest numbers set forth by UDWR for the Manti Management Unit would remain unaffected by the proposed Quitchupah Creek Road project, but the number of hunters in the area could increase. Local guided hunting trips in the area would likely decrease with easier access to the area, while poaching opportunities from the paved road could potentially increase. However, construction activity and increased traffic can negatively impact wildlife and, if so, hunting opportunities may decline if wildlife numbers decrease due to collisions with vehicles or avoidance of the area.

Other recreationists, including campers, hikers, and sightseers would also have improved access to public land due to the proposed road, however, the quality of these dispersed recreation activities may be reduced due to noise from construction or traffic, or if wildlife avoids the area. The greater access from the east that the road would afford to the Acord Lakes recreational areas could be an economic benefit to Sevier County.

During weekdays coal trucks would be traveling on the road at 1.5 - 3.0 minute intervals depending upon the volume of coal transported to eastern markets and power plants. This concentration of traffic would influence any recreational uses adjacent to or on the road. During most weekends the road would be free of coal trucks. Dispersed recreation use in an isolated setting would no longer be available in Quitchupah Creek.

Under this alternative, the new paved Quitchupah Creek road from Highway 10 to the coal mine would be open to licensed, street-legal vehicles only. This would affect the proposed SEUOHV Castle Valley Trail system, since OHV access would be eliminated on the new paved road. The potential opportunity for designated OHV routes in the Water Hollow Benches area would remain. There would be no impact to the San Rafael Route Designation Plan.

ALTERNATE JUNCTION AND ALTERNATE DESIGN - ALTERNATIVE C

Under this alternative, the new paved Quitchupah Creek road from Highway 10 to the coal mine would be open to licensed, street-legal vehicles only. This would affect the proposed SEUOHV Castle Valley Trail system, since OHV access would be eliminated on the new paved road. The potential opportunity for designated OHV routes in the Water Hollow Benches area would remain. There would be no impact to the San Rafael Route Designation Plan.

WATER HOLLOW ALTERNATE ALIGNMENT - ALTERNATIVE D

Under this alternative, the new paved Quitchupah Creek road from Highway 10 to the coal mine would be open to licensed, street-legal vehicles only. The existing Quitchupah Creek road from Highway 10 to the National Forest boundary would remain accessible to the public, but only from the eastern end at the Highway 10 entrance. Motorized access from the existing Quitchupah Creek road at the National Forest boundary to the proposed new paved road would be eliminated. This alternative would affect the proposed SEUOHV Castle Valley Trail system, since OHV access would be eliminated on the new paved road and there would be no designated OHV route accessing the Water Hollow Benches. Current OHV and equestrian recreation use is low in the Water Hollow Benches area, and these users would likely be affected by reduced solitude and isolation that construction of the road and heavy coal truck traffic would bring. There would be no impact to the San Rafael Route Designation Plan.

MITIGATION AND MONITORING FOR BUILD ALTERNATIVES

No further mitigation or monitoring activities are proposed for recreation resources for the Proposed Action. Under Alternative D, the big game winter range would increase through seedings supporting a larger wintering population of elk and deer. This action could increase big game numbers available for hunting.

IRREVERSIBLE OR IRRETRIEVABLE COMMITMENT OF RESOURCES AND RESIDUAL ADVERSE IMPACTS

Implementation of the Proposed Action would result in a loss of the natural, roaded, and semi-primitive motorized dispersed type of recreation.

The loss of semi-primitive recreation opportunities, as the current dominant recreation opportunity in the area, adjacent to the proposed road would be a residual adverse impact.

CUMULATIVE EFFECTS

The development of the proposed road and possible future exploration/development of gas fields would permanently change the access to the area and increase industrial activity in a remote isolated area. As the area becomes more accessible, especially after the life of the mine, recreational use of the area would increase. As more recreationists utilize the area, it is likely that recreation experiences would be impacted for some. The area would be less remote. Recreation activities, such as hunting, would be affected by more intense use.

3.10.3 Wilderness and Congressionally Designated Areas

There are four types of wilderness designations/proposals in Utah: designated Wilderness Areas; Wilderness Study Areas (WSA); Wilderness Inventory Units (WIU) (lands identified in 1999 by the BLM as having wilderness characteristics); and proposed wilderness areas (HR 1732 lands proposed by the Utah Wilderness Coalition (UWC).

According to the BLM (Finger, 2001), WSAs are managed under the Interim Management Policy and Guidelines for Lands Under Wilderness Review. The general standard for interim management of those lands is that they must be managed so their suitability for designation is not impaired. WIUs are lands inventoried and determined to have wilderness characteristics. These areas are presently being considered for WSA status through a land-use planning process. The Department of Interior policy is that while the planning process is being completed, the management prescriptions of existing land use plans will apply to these inventory units. The BLM policy is to pay careful and particular attention to proposals that could limit Congress' ability to designate the units as wilderness. Therefore, BLM considers actions proposed in these lands on a case-by-case basis to determine potential impacts to wilderness characteristics. The HR 1732 lands are not given special consideration under present Federal government policy (Finger, 2001). The Project Area does not occur within a designated Wilderness Study Area (WSA). The closest proposed WSA is Devils Canyon, approximately 10 to 15 miles southeast of the Project Area (USDI-BLM, 1991).

There are no wilderness designations/nominations or Roadless Areas in the Project Area. The closest WSAs (BLM) are located about 15 to 20 miles southeast of the Project Area in the San Rafael Swell, as is the western boundary of the proposed San Rafael Swell National Conservation Area. The nearest Roadless Areas (USFS) are located 2.5 to 3 miles north and northwest of the Project Area in the Manti LaSal and Fishlake National Forests. However, the Fishlake National Forest does not allow motorized vehicle travel in an area that generally coincides with the Old Woman Research Natural Area (RNA), located about 0.5 mile west of the Water Hollow alternate alignment.

A Research Natural Area (RNA) is located near the Project Area on Fishlake National Forest land. RNAs are tracts of land that approximate pristine conditions and are designated for scientific and educational uses. The RNA, referred to as Old Woman Cove, was officially designated in November 1998 (USDA-USFS, 1998). It encompasses approximately 2,520 acres and is located about 0.5 mile west and south of the Water Hollow alternate alignment.

There are no non-WSA lands with or likely to have wilderness characteristics in the general vicinity of the Project Area.

Potential Impacts To Wilderness

NO ACTION - ALTERNATIVE A

There would be no effect upon any WSA, WIU, UWC proposed areas, or RNA.

BUILD ALTERNATIVES - ALTERNATIVE B, C, D

No roadless areas are affected by the proposed Quitchupah Creek Road project or Alternatives. There would be no effect upon any WSA, WIU, UWC proposed areas, or RNA by this project.

IRREVERSIBLE OR IRRETRIEVABLE COMMITMENT OF RESOURCES AND RESIDUAL ADVERSE IMPACTS
No irreversible or irretrievable commitment of resources would occur as a result of the Proposed Action. No residual adverse impacts to wilderness resources are anticipated from any of the Alternatives as analyzed above.

CUMULATIVE EFFECTS
The implementation of the Proposed Action, in conjunction with past, present, and reasonably foreseeable future actions would not conflict with wilderness resources. There would be no cumulative effects to wilderness resources under the proposed road.

3.11 Areas of Critical Environmental Concern (ACECs) and Wild and Scenic River Eligibility

3.11.1 ACECs

Areas of Critical Environmental Concern (ACECs) are those areas managed for specific and substantial unique resource values. Areas with the potential for ACEC designation, protection, and management are identified through the BLM's resource management planning process.

The Quitchupah Creek – Trough Hollow ACEC has been nominated under the current land use planning effort for the BLM's Richfield Field Office. The ACEC would include Quitchupah Creek drainage, Link Canyon, and Trough Hollow, and would involve the majority of the EIS Project Area, excepting the Water Hollow & Saleratus benches. Under the ACEC nomination process, when both criteria (relevance and importance) are met, the area is a potential ACEC to be reviewed in the Draft RFP. The nominated ACEC met the criteria of relevance due to significant evidence of prehistoric occupation and use. The importance criterion is satisfied by significance of the cultural sites and their sensitivity to development and access. Other values include bald eagle habitat and presence of BLM sensitive Creutzfeldt flower and Federally listed last chance Townsendia.

The cultural values for the canyon are the many documented Fremont and Archaic habitation sites and use areas as well as the more recent historic activity.

This area overlaps the Old Woman Plateau that includes the Old Woman Cove RNA, found relevant and important for relict value. The Forest Service designates and manages a network of special areas on Forest lands that are permanently protected and maintained in natural conditions, for the purposes of conserving biological diversity, conducting non-manipulative research and monitoring, and fostering education. RNAs include: high quality examples of widespread ecosystems, unique ecosystems or ecological features, and/or rare or sensitive species of plants and animals and their habitat. The Old Woman Cove RNA is not within the proposed Project Area.

<u>Potential Impacts To ACEC's</u>
NO ACTION - ALTERNATIVE A
There would be no impacts to the proposed Quitchupah Creek – Trough Hollow ACEC under the No Action Alternative. Current impacts (erosion, grazing, etc.) to these values would continue.

QUITCHUPAH CREEK ROAD ALIGNMENT - ALTERNATIVE B
Alternative B would negatively impact six eligible cultural resource sites (See **Section 3.12**) through archaeological excavation and destruction due to construction of the proposed road. This would impact the values for which the ACEC was nominated in Quitchupah Creek drainage. However, current impacts to these values would be lessened through erosion control, livestock trail and fencing, and other management.

ALTERNATE JUNCTION AND ALTERNATE DESIGN - ALTERNATIVE C
Alternative C would negatively impact ten eligible cultural resource sites (See **Section 3.12**) through archaeological excavation and destruction due to construction of the proposed road. This would impact the values for which the ACEC was nominated in both Quitchupah Creek drainage and Link Canyon. However, current impacts to these values would be lessened through erosion control, livestock trail and fencing, and other management.

WATER HOLLOW ALTERNATE ALIGNMENT - ALTERNATIVE D
Under Alternative D, the proposed road would avoid the eligible cultural resource sites in the Quitchupah Creek drainage and Link Canyon. It would not compromise the values for which the ACEC was nominated. Further, current impacts to these values would be lessened through erosion control, livestock trail and fencing, and other management.

3.11.2 Wild and Scenic River Eligibility

Quitchupah Creek, from the Fishlake National Forest boundary to the Sevier/Emery county line (crossing 1.4 miles of BLM land) was found to be eligible for possible designation as a wild and scenic river during the initial phase of Richfield BLM's land use planning update process. The March 2005 Wild and Scenic River Eligibility and Tentative Classification Report determined that the river was eligible for its outstandingly remarkable cultural resource value. It was tentatively classified as a recreational river. Once a river segment crossing public lands has been determined as eligible, the river corridor is managed to protect the outstandingly remarkable values for which it is nominated, until a suitability determination is made.

Potential Impacts To Wild And Scenic River Eligibility

NO ACTION - ALTERNATIVE A
There would be no impacts to the eligible values of the nominated Scenic River segment under the No Action Alternative. Current impacts (erosion, grazing, etc.) to these values would continue.

QUITCHUPAH CREEK ROAD ALIGNMENT - ALTERNATIVE B
Alternative B would impact six eligible cultural resource sites (see **Section 3.12**) through mitigative archaeological excavation and subsequent destruction due to construction of the proposed road. This would impact the eligible values for which the Scenic River segment was nominated in Quitchupah Creek drainage. However, current impacts to these values would be lessened through erosion control, livestock trail and fencing, and other management.

ALTERNATE JUNCTION AND ALTERNATE DESIGN - ALTERNATIVE C
Alternative C would impact five eligible cultural resource sites through mitigative archaeological excavation and subsequent destruction due to construction of the proposed road. This would impact the eligible values for which the Scenic River segment was nominated in Quitchupah Creek drainage. However, current impacts to these values would be lessened through erosion control, livestock trail and fencing, and other management.

WATER HOLLOW ALTERNATE ALIGNMENT - ALTERNATIVE D

Under Alternative D, the proposed road would avoid the eligible cultural resource sites in the Quitchupah Creek drainage. It would not compromise the eligible values for which the Scenic River segment was nominated. Further, current impacts to these values would be lessened through erosion control, livestock trail and fencing, and other management.

3.12 Cultural and Paleontological Resources

Cultural resources are districts, sites, structures, objects, and other evidence of some importance to a culture, a subculture, or a community for scientific, traditional, religious, and other reasons. These resources and relevant environmental data are important for describing and reconstructing past lifeways, for interpreting human behavior, and for predicting future courses of cultural development (McGimsey and Davis 1977:110).

Paleontological resources are the recognizable remains, such as bones, shells, leaves, or other evidence, such as tracks, burrows, or impressions, of past life on Earth (USGS 2004).

REGULATORY FRAMEWORK

The National Historic Preservation Act (NHPA) and Executive Order (EO) 11593 require the protection and enhancement of cultural resources by the Federal government. The Section 106 process of the NHPA requires consultation with the appropriate agencies to develop and evaluate Alternatives or modifications to all of the proposed undertakings for this project in order to avoid, minimize or mitigate adverse effects on all historic properties.

Section 106 Regulations 36 CFR 800.5 and 800.6 detail the process by which agencies determine whether undertakings will adversely affect historic properties and how the agencies consult to avoid, minimize, or mitigate the adverse effects in order to meet Section 106 requirements. The Advisory Council on Historic Preservation's (ACHP) Section 106 Regulations Archeology Guidance document states: "Methods for recovering information from archeological sites, particularly large-scale excavation, are by their nature destructive. The site is destroyed as it is excavated. Therefore management of archaeological sites should be conducted in a spirit of stewardship for future generations, with full recognition of their non-renewable nature and their potential multiple uses and public values...Given the non-renewable nature of archeological sites, it follows that if an archaeological site can be practically preserved in place for future study or other use, it usually should be..." Data recovery in the form of excavation or artifact collection is considered an adverse effect. Therefore, data recovery may not always be considered a viable mitigation possibility to achieve no adverse effects for impacts to eligible cultural resource sites.

Consultation with Native American tribes has been on-going throughout the NEPA process and has been conducted under the approach that Quitchupah Creek and surrounding areas, not just the individual sites, are the important component for Native American concerns. Native American consultation is addressed in **Section 3.13**, Native American Concerns.

AFFECTED ENVIRONMENT

Previous inventories conducted in the Project Area have resulted in the identification and recordation of numerous site types including historic cabins/ranches, historic road segments, historic debris scatters, historic inscriptions, as well as prehistoric villages, campsites, rockshelters, and rock art (petroglyphs and pictographs). The rock art represents the Archaic, Fremont, Ute, and possibly Paiute cultures. The data suggests that the identified sites along the proposed Quitchupah Creek Road were primarily occupied

during the Formative Fremont culture. More limited occupations are also suggested for the preceding Archaic period. Little evidence of the Numic period has been found at the sites identified in the Project Area, but may be evident in the rock art present in the canyon.

Cultural resource inventories specific to the proposed build alternatives were conducted. Inventory corridors were wider than the actual proposed construction corridor in order to provide some flexibility to avoid sites.

Past and present impacts to cultural resources within the Project Area include cattle grazing/trailing, power line construction and maintenance, road maintenance, recreational activities (ATV use), vandalism, collection of artifacts, and erosion. Construction of the existing road and power line has directly damaged, and in one case buried, cultural resource sites.

PREHISTORY

A number of overviews have been written for the region and adjacent regions including Jennings et al. (1974, 1978, 1980, 1986), and Aikens (1970), Madsen (1980), and Aikens and Madsen (1986). Madsen (1982) also presents a model of the prehistory of the region that includes the following: Paleoindian (12,000-9,000 Before Present (B.P.)), Archaic (8,500-1,600 B.P.), Formative Fremont (1,600-650 B.P.), and Numic (700 B.P.-present). Below is a brief summary and overview of the periods represented in the prehistoric sites in the Project Area.

Archaic

The Archaic period (8,500-1,600 B.P.) is well represented in Utah. The Archaic lifeway was highly adaptive, based on hunting and gathering subsistence practices. Archaic subsistence included a wide array of food sources. During the earlier stages of this period, Archaic people resided around pluvial lake margins and riverine environments. Later, in response to the decline of these ecozones, population shifted to upland areas to take advantage of available resources. Cultural remains from this period include items such as metates, baskets, bone implements, and variety of diagnostic projectile points. Common point types include Elko and Humboldt series, Pinto, Sudden Side-notched, and Gypsum. Evidence of the Archaic period is exhibited by recorded surface sites and rockshelters throughout the region. Rockshelters and cave sites have been the primary means for defining what is known about the culture.

Fremont

The Fremont inhabited the region between 1,600-650 B.P. (Jennings et al. 1978). They were horticulturalists with varying dependencies on corn, beans, and squash. The Fremont also hunted small and large game animals and utilized wild plant foods. They built semi-subterranean pit houses, surface jacal and masonry habitation units and coursed adobe granaries. The remains of the structures often appear as low-lying mounds in valleys, and on alluvial fans and ridge tops. Diagnostic artifacts from this period include the Utah type metate, clay figurines and small to medium size corner-notched projectile points. Ceramics consist mostly of graywares, but also include some corrugated, incised, and black-on-white styles.

Numic

Numic speaking groups appear to have replaced the Fremont after about 700 B.P., during the late Prehistoric period. These groups relied on a hunter-gatherer lifestyle, similar to that of the Archaic. They lived in temporary brush wickiups and rockshelters (Steward 1938). These groups depended on a variety of wild plants, and employed seasonal movements; gathering resources produced in various ecological zones. Evidence of the Late Prehistoric period comes from surface sites, containing light artifact remains, and shallow rockshelter deposits. Diagnostic artifacts include non-painted brownware ceramics and the Desert Side-notched point.

Site Summary for the Quitchupah Creek Road (Alternative B)
Six projects were previously completed in the proposed Quitchupah Creek Road corridor (Alternative B), resulting in 24 sites in the Convulsion Canyon/Quitchupah Creek area. James Gunnerson performed the earliest archaeological work along Quitchupah Creek, in the 1950's, during his explorations of central Utah (Gunnerson, 1969). His work recorded some of the more major sites in the canyon. These sites were revisited by Brigham Young University (BYU) crews in 1977 and again by Archaeological Environmental Research Corporation (AERC) in 1995.

A power line corridor for Utah Power was inventoried in 1977 by BYU. Eight sites were identified during that inventory (Berge, 1977). Many of these sites were revisited and site forms updated by AERC (Hauck, 1995) for SUFCO Mine as part of the Quitchupah Creek Road Project. AERC inventoried a 200 foot wide corridor, expanding to 1,200 feet between the Water Hollow junction and the North Fork junction, along the length of the existing 9.15 mile Quitchupah Creek Road. Another small inventory was completed by Montgomery Archaeological Consultants, Inc. (MOAC) in 2002, south of the rock art area (Raney and Montgomery, 2002). MOAC inventoried an area 1,200 feet by 350 feet wide south of the AERC corridor in order to reroute the proposed road away from rock art. Three new sites were encountered and one previously recorded site was updated within the inventory area. The BLM recorded sites in 1985 that were not associated with a particular project. In 2003, one site within the Quitchupah Creek Road corridor was re-inventoried and re-evaluated by JBR Environmental Consultants, Inc. (Prince-Mahoney, 2003).

In total, 24 sites were recorded as a result of these inventories, 18 prehistoric sites, 5 historic sites, and 1 multi-component historic/prehistoric site. Of the sites encountered, 16 are eligible for the NRHP. The remaining eight sites are ineligible. Generally, the prehistoric sites represent Archaic and Fremont cultures. Six of the 24 sites contain rock art. **Table 3.12-1** presents a summary of the six cultural resource sites in the proposed road construction corridor.

Table 3.12-1 Eligible Cultural Resource Sites within the Quitchupah Creek Road Corridor, Alternative B

Site Type	Affiliation	Land Status
Occupation/Lithic Scatter*	Unknown	BLM
Rockshelter/Occupation*	Unknown	BLM/private
Occupation*	Unknown	SITLA
Ghost Figure Rock Art Site*	Archaic	BLM
Ranch Site*	Euro-American	Private
Pithouses	Fremont	Private

* These sites would also be impacted under Alternative C

In the Quitchupah Creek area there is an abundance of rock art, both petroglyphs and pictographs; these represent the Archaic (Barrier Canyon Style, Glen Canyon Style 5), Fremont, Ute, and possibly Paiute cultures (Sucec, 2002). Three of these prominent sites include the North Fork Rock Art site, the West Point site, and the Ghost Figure site. The presence of several rock art styles indicates that the area was utilized for thousands of years. The styles exhibited and the groups associated illustrate a common attraction and uniqueness to the area.

Rock art can reveal much information about prehistoric use, including who utilized the area and when, movement over time and space of cultures, and possibly interactions between the cultures. As the study of rock art continues, these sites have the potential to provide information such as temporal association,

settlement patterns, technology, knowledge of seasons and calendars, cultural interactions or transformations, and possibly visual communication systems.

One study of the rock art in the Quitchupah Creek area discusses the different styles present as including the Barrier Canyon Style, Glen Canyon Style 5, later Basketmaker, figures with a strong Rochester Creek Style flavor, two different periods of Fremont, and Ute (Warner, 1991). The Archaic time period, to which the Glen Canyon Style 5 and the Barrier Canyon Style are attributed, has a proposed beginning date of about 6,000 years ago (Cole, 1990). The other rock art styles represent time periods of A.D. 450 to 750-800 (later Basketmaker), A.D. 400 to 1500 (Fremont), and A.D. 1600 to 1880 (Ute) (Cole, 1990).

According to the Utah Archaeological Research Institute, this location of the Glen Canyon Style 5 images is one of the most northwestern sites of this style (Manning, 2002). In addition, the combinations of Barrier Canyon Style and Fremont Style suggest interactions of the various cultures (Manning, 2002) or possibly the transformation of a people from hunting and gathering to a more settled lifeway (Sucec, 2002). The variety of images and cultural associations represented make these panels distinctive and valuable for the information they may provide to our knowledge of the prehistory of the area as well as the prehistory of the western United States.

Site Summary for the Alternate Junction And Alternate Design (Alternative C)
The Class I file search found no previously recorded sites located within the Alternate Junction segment (Alternative C) corridor. The previous projects completed in the area include those described for the Quitchupah Creek (Alternative B) corridor. A Class III inventory was completed for Alternative C in July 2001 (Patterson and Montgomery, 2001). In 2003, another Class III field survey was completed by MOAC (Guilfoyle and Montgomery, 2003) for a reroute of Alternative C further to the north. This northern route is now the desired route for Alternative C, in order to avoid a private land parcel.

A total of 15 sites were recorded along this inventory corridor. MOAC (Guilfoyle and Montgomery, 2003) identified a total of 14 newly recorded sites and one previously recorded site. The inventory corridor was 500 feet wide and then slightly expanded at the drainages. Twelve prehistoric and three historic cultural resource sites were encountered; all twelve prehistoric sites are eligible for the NRHP and the three historic sites are ineligible. Four of the prehistoric sites are affiliated with the Fremont culture; the remaining eight are of unknown affiliation. The historic sites include a segment of the *Quitchumpah to Emery Road,* a possible Numic Indian trail, and a historic trash scatter. **Table 3.12-2** identifies the eligible cultural resource sites within the proposed Alternative Junction with SR-10 segment of the Alternative C construction corridor. In addition, five of the six sites (**Table 3.12-1**) impacted under Alternative B would also be impacted by Alternative C where the two alternatives are within the same corridor.

Table 3.12-2 Eligible Cultural Resource Sites within the Alternate Junction with SR-10 Segment of Alternative C

Site Type	Cultural Affiliation	Land Status
Campsite	Fremont	BLM
Lithic and Ceramic Scatter	Fremont	BLM
Lithic and Ceramic Scatter	Fremont	BLM
Campsite	Unknown	Private
Campsite	Unknown	Private

Site Summary for the Water Hollow Alternate Alignment (Alternative D)
The Class I file search identified that four previous inventories were conducted in the vicinity of the Water Hollow Road, Alternative D corridor. These projects included the 1977 powerline inventory, a sampling inventory, a seismic line project inventory, and the 1995 Quitchupah Creek Road inventory. Only one previously recorded site was noted to be within the route corridor. The class III inventory was completed for the Water Hollow route in 2000 by JBR Environmental Consultants, Inc. (Crosland and Billat, 2001).

The survey corridor for this alignment varied from 500 to 1,000 feet in width so that the proposed road corridor could be routed to avoid all cultural resources. Nineteen sites were identified by JBR during the Class III field inventory conducted in 2000 (Crosland and Billat, 2001) along the Water Hollow Route. Of the 19 sites encountered, 12 are prehistoric, 2 are multi-component prehistoric/historic, and 5 are historic. The prehistoric sites with diagnostic artifacts are associated with the Fremont culture. Ten of the sites are eligible for the NRHP, nine are ineligible. All 19 of these sites would be avoided by Alternative D as they are outside the proposed construction corridor.

Paleontological Resources
A file search performed by the Utah Geological Survey (UGS) indicated that no paleontological localities had been previously recorded along any of the possible project corridors (Hayden, 1999-2000). Formations exposed in the right-of-way include the Blue Gate Shale Member, Emery Sandstone Member, and Masuk Shale Member of the Mancos Shale; the Star Point Sandstone; and the lower part of the Blackhawk Formation. There is a slight possibility of vertebrate fossils and dinosaur tracks in the Blackhawk Formation which is located on the very west end of the project, near Acord Lakes Road. Overall, there is a low potential for significant fossil localities to be found within the Project Area.

A paleontological inventory was performed on Alternative B and Alternative C corridors in July 2002 (Hamblin, 2002a). The inventory resulted in the recordation of several invertebrate marine and plant fossil sites within Emery Sandstone. No significant fossil localities were encountered. Dinosaur tracks were noted in rocks that had rolled down from the Blackhawk Formation (outside project corridor) to their present location. This track site is considered "important" in that it is an indicator that dinosaur tracks can be expected within the Blackhawk Formation, but is not in-situ within the corridor. Alternative D traverses the same geologic formations described above and similar sites could be expected. The paleontological report can be found in the Technical Report Addendum (JBR, 2002).

Potential Impacts To Paleontological And Cultural Resources

The Environmental Consequences of each Alternative, in regard to these resources, are discussed below. First, impacts to paleontological resources and then cultural resources.

POTENTIAL IMPACTS TO PALEONTOLOGICAL RESOURCES

All Alternatives
Unless significant fossil localities are discovered as a result of construction activities, this project would have no direct, indirect, or cumulative impact on significant paleontological resources. No significant in-situ fossil locations have been identified in the Project Area.

POTENTIAL IMPACTS TO CULTURAL RESOURCES

Direct impacts to cultural resources, depending on the Alternative chosen, could include site destruction, loss of integrity, and increased erosion. See **Section 3.3 Soils** for a discussion on erosion within the Project Area. Indirect impacts include possible collection of artifacts and vandalism from increased accessibility and use of the area.

NO ACTION - ALTERNATIVE A

No cultural resources would be impacted by this proposal under the No Action Alternative. Cultural resources in the Project Area have been impacted by power line construction and maintenance, road construction and maintenance, mining activities, farming and grazing activities, recreational uses (hunting, ATVs, etc.), vandalism, and erosion. These impacts would likely continue under the No Action Alternative.

QUITCHUPAH CREEK ROAD ALIGNMENT - ALTERNATIVE B

Of the 24 cultural resources sites within the Alternative B corridor, six NRHP eligible cultural resource sites would be within the construction corridor of the proposed Quitchupah Creek Road (**Table 3.12-1**). The remaining identified 18 sites are either ineligible for the NRHP or are outside the construction corridor.

Direct impacts to eligible cultural resource sites within the Alternative B route would be major and irreversible. A total of six eligible cultural resource sites within the Alternative B corridor could not be avoided and would be destroyed by construction activities. These impacts could be mitigated through excavation and data recovery. Under this Alternative, the land managing agency, in coordination with the State Historic Preservation Office (SHPO) and consulting parties (tribes), would need to design measures to minimize or mitigate impacts to the sites. The loss of the in-situ site is considered an "Adverse Effect". These in-situ cultural resource sites would be irreversibly lost.

The alignment would place the proposed road about 300 feet away and across the creek from the majority of the rock art panels, which are located north of the creek. Though these rock art panels would be avoided, indirect impacts to these resources would be an important issue upon completion of a paved road.

Indirect impacts, such as erosion, unauthorized excavation, collecting, and vandalism, to nearby eligible cultural resource sites would remain similar to existing levels.

Because of the steep and variable topography of the canyon itself, sections of the road alignment would be filled or cut into the canyon bottom. Buried cultural materials could possibly be encountered during these excavation activities. Applicant committed measures would include a monitoring plan to be implemented during project construction for the discovery of unknown buried cultural remains.

The junction of the proposed road with SR-10 would require UDOT right-of-way or acquired right-of-way. This area would need to be inventoried for cultural resources prior to any construction activities; therefore potential impacts for this area are not known at this time.

ALTERNATE JUNCTION AND ALTERNATE DESIGN - ALTERNATIVE C

Direct and indirect impacts to sites along the Alternative C route would be similar to those discussed in Alternative B. Five of the eligible sites along Alternative B (**Table 3.12-1**) and another five eligible sites along Alternative C (**Table 3.12-2**) would be directly impacted if this route were selected. These sites could not be avoided and would be destroyed by construction activities. Under this Alternative, the land managing agency, in coordination with the State Historic Preservation Office (SHPO) and consulting parties (tribes), would need to design measures to minimize or mitigate impacts to the sites. The loss of the in-situ site is considered an "Adverse Effect". These cultural resource sites would be irreversibly lost.

Indirect impacts, such as erosion, unauthorized excavation, collecting, and vandalism, to nearby eligible cultural resource sites would remain similar to existing levels.

The junction of the proposed road with SR-10 would require UDOT right-of-way or acquired right-of-way. This area would need to be inventoried for cultural resources prior to any construction activities; therefore potential impacts for this area are not known at this time.

WATER HOLLOW ALTERNATE ALIGNMENT - ALTERNATIVE D

No eligible cultural resource sites are located within the proposed construction corridor; therefore, there would be no direct impacts to cultural resource sites as a result of Alternative D. Indirect impacts could occur as a result of increased public access and use of the area for recreational purposes. These indirect impacts would be similar to those discussed in Alternatives B and C.

The junction of the proposed road with SR-10 would require UDOT right-of-way or acquired right-of-way. This area would need to be inventoried for cultural resources prior to any construction activities; therefore potential impacts for this area are not known at this time.

MITIGATION AND MONITORING FOR BUILD ALTERNATIVES

Paleontological Sites

Monitoring for paleontological resources would be required on the west end of the proposed road, near Acord Lakes Road, if excavation were to occur in the Blackhawk formation. A qualified paleontologist should be present to look for dinosaur tracks and other vertebrate fossils. There would be a possibility of encountering Pleistocene fossils in the alluvium in the canyon. If fossils were encountered during construction, work in that area would be halted until a qualified paleontologist could evaluate it and make recommendations. Once agency-approved appropriate mitigation were executed and completed, work could resume.

Cultural Resources

For site preservation, avoidance of impacts to eligible and unevaluated cultural resource sites is the preferred method of site preservation. However, when disturbance of NRHP eligible sites is unavoidable, direct and/or indirect impacts could be mitigated through data recovery, site monitoring, and research in accordance with standards and guidelines outlined in NHPA Section 106 (36 CFR 800.5 and 800.6) and the ACHP's Recommended Approach for Consultation on Recovery of Significant Information from Archaeological Sites. Mitigation would need to be agreed upon by the land managing agency (USFS, BLM, SITLA), SHPO, the Native American tribes (consulting parties), and ACHP. However, both direct and indirect impacts would result in permanent loss of site context, and especially in the case of indirectly impacted sites, potential loss of information and artifacts.

Specific cultural mitigation would be dependant on which Alternative were chosen but may include data recovery, additional recordation/mapping, historic research, oral interviews, site enhancement/conservation, and/or public exhibits and education. The mitigation required would compensate, reduce, or eliminate impacts to eligible cultural resources. After the RODs are issued, a Research Design would be required for the sites along the chosen Alternative and approved by the SHPO and administering land agency (BLM, USFS, SITLA). A Memorandum of Agreement between the SHPO, Federal agency(ies), and other consulting parties, such as Native American tribes, would need to be completed. Consultation with the tribes would be on going during this process.

Costs and time involved for mitigation would vary greatly depending on the Alternative chosen. Cultural resource mitigation for Alternatives B and C would likely be more extensive than Alternative D. Alternatives B and C have several NRHP eligible cultural resource sites within the construction corridor, whereas Alternative D has no NRHP eligible sites within the corridor. Alternatives B and C would cause direct impacts to eligible sites; Alternative D would possibly contribute to indirect impacts to sites outside

the corridor. Monitoring for subsurface cultural deposits during construction activities, by a qualified archaeologist, would be required for Alternatives B, C, and D, as stated in the Mitigation and Monitoring Plan.

IRREVERSIBLE OR IRRETRIEVABLE COMMITMENT OF RESOURCES AND RESIDUAL ADVERSE IMPACTS

Data recovery and subsequent road construction would result in the permanent loss of the in-situ cultural resource. Loss of cultural resource sites, artifacts, or context would be irretrievable. Filling over cultural resource sites would be an irreversible adverse impact. Residual adverse impacts to cultural resources would include compromised site integrity due to physical damage to the sites during construction or use of the proposed road. The presence of a new road could lead to increased access to site locations resulting in site disturbance, artifact collection, and vandalism.

CUMULATIVE EFFECTS

Past actions concerning cultural resources within the Project Area include cultural resource surveys that have identified prehistoric and historic sites. Construction of the existing dirt road and power line has damaged, and in one case buried, cultural resource sites. Cattle grazing, ATV use, and possibly other recreational activities have also disturbed the cultural resources. Additional adverse impacts are the result of unauthorized excavations, surface collection, and vandalism of cultural resource sites. Present and future impacts will be attributed to these same factors. The direct impacts under the Proposed Action and Alternative C would essentially destroy or compromise the integrity of several eligible sites within the road corridor; these impacts could be mitigated through data recovery. Indirect impacts could compromise the integrity of other nearby sites, including the rock art sites. Cumulative impacts to cultural resources under Alternatives B and C would likely be substantial and significant.

Past actions concerning cultural resources along the Alternative D route include cultural resource surveys that have identified prehistoric and historic sites, some of which are recommended eligible for inclusion on the NRHP. Cattle grazing, chaining and seeding, ATV use, and possibly other recreational activities have disturbed the archaeological resources. Additional adverse impacts are the result of unauthorized excavations, surface collection, and vandalism of archaeological sites. Present and future impacts will be attributed to these same causes. In addition, there could be impacts from future oil and gas exploration (see **Section 3.9** Land Use). There would be no direct impacts from implementation of Alternative D to cultural resources sites to add to cumulative effects. Indirect impacts, such as surface collection and vandalism, could compromise the integrity of nearby sites. Cumulative adverse impacts to cultural resources under Alternative D would likely be minor. Degradation and loss of integrity to cultural resource sites will continue to increase with the development of the area.

3.13 Native American Concerns

INTRODUCTION

Consultation with Native American tribes has been on-going throughout the NEPA process and has been conducted under the approach that Quitchupah Creek and surrounding areas, not just the cultural resource sites, are the important component for Native American concerns. The BLM Richfield Field Office has been the primary contact with the Native Americans for this project.

REGULATORY FRAMEWORK

Federal agencies are required by law (National Historic Preservation Act (NHPA) of 1966) and regulation to consult with Native Americans on actions that may affect their traditions or uses of public lands. Specifically the agencies are required to follow the Section 106 process as recorded in 36 CFR 800 - Subpart B as amended August 5, 2004. Native Americans should comment on proposed actions and

participate in decisions prior to implementation, as the product of consultation. The goal of the BLM Manual Section 8160 is to "assure that tribal governments, Native American communities, and individuals whose interests might be affected have a sufficient opportunity for productive participation in BLM planning and resource management decision making." To this end, the Richfield Field Office BLM, in conjunction with Fishlake National Forest, has engaged in consultation with the Native Americans. Native American consultation included the Paiute Indian Tribe of Utah, the Ute Indian Tribe, the Hopi Tribe, and the Navajo Nation.

The Archaeological Resources Protection Act (ARPA) of 1979 applies to any agency that receives information that a direct or federally assisted activity could cause irreparable harm to prehistoric, historic, or archaeological data. ARPA is enacted if a project requires issuance of a permit for the excavation and removal of archaeological resources. The consultation requirement in ARPA pertains to the issuance of permits.

The American Indian Religious Freedom Act (AIRFA) of 1978 states "...henceforth it shall be the policy of the United States to protect and preserve for American Indians their inherent right to freedom to believe, express, and exercise the traditional religions of the American Indian, Eskimo, Aleut, and Native Hawaiians, including but not limited to access to sites, use and possession of sacred objects, and the freedom to worship through ceremonial and traditional rites [42 United States Code (U.S.C.) 1996]." Agencies are required to review their policies and procedures in consultation with traditional native religious leaders.

Executive Order (EO) 13007 - Indian Sacred Sites requires agencies to accommodate access to and ceremonial use of Indian sacred sites and to avoid adversely affecting the physical integrity of said sites. According to EO 13007, a sacred site is defined as "any specific, discrete, narrowly delineated location on Federal land that is identified by an Indian tribe, or Indian individual determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion; provided that the tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site." Sacred sites may consist of a variety of places and landscapes, such as springs, mountains, canyons, caves, and archaeological sites.

There are many places on Federal lands where Indians practice their religions. Many of the lawful activities that are permitted and authorized on Federal lands can compromise the integrity of sacred places and the privacy of religious practices. With this in mind, EO 13007 was signed, "in order to protect and preserve Indian religious practices". The order obligates Federal land managers to work with Indian tribes to help protect their basic rights and practice their religions. When planning and implementing land uses, agencies generally have the ability to accommodate tribal access to sacred sites and to prevent physical damage or intrusions that might impede their use – if it is known that the sites exist.

The discretion of the Federal land manager is exercised in guaranteeing access to the site and in how or if the physical integrity of the sacred site is preserved. EO 13007 states that impacts to the physical integrity of sacred sites are to be avoided "to the extent practicable, permitted by law, and not clearly inconsistent with essential agency functions". The policy created by this clause says the Federal land manager will do as much as possible to protect sacred sites from harm, in light of the conditions at hand and using the technical means available, while acting within agency authority and fulfilling the agency's public purpose.

AFFECTED ENVIRONMENT

Section 3.12 Cultural and Paleontological Resources contains a prehistory of the region. The cultural resource sites, as discussed in **Section 3.12**, indicate long-term use of the Project Area by Native Americans. The rock art and diagnostic artifacts present indicate use of the area by Archaic, Fremont, Ute, and possibly Paiute cultures.

Historic General Land Office maps of the area also indicate use of the area by Native Americans. GLO maps from 1873, 1874, and 1891 note "Indian Trails" through and in the vicinity of the Quitchupah Creek area.

NATIVE AMERICAN CONSULTATION

Native American consultation has been ongoing during the NEPA process. The tribes actively involved in the Native American consultation have been the Paiute and Ute, while the Navajo and Hopi have deferred to the Paiute. The Paiute and Ute tribes accepted consulting party status. Field meetings, presentations at tribal council meetings, agency-tribal meetings, and verbal and written communication have been utilized to keep the tribes informed and apprised of the proposed project.

The Paiute claim the Quitchupah Creek area as sacred and oppose the proposed road in the canyon. The Hopi have expressed interest in the Fremont sites and any activities that may affect them. Generally the Ute's concern extends to all of the sites in the canyon but focuses on the rock art; they have requested a 0.5 mile buffer for protection of the rock art sites. The Navajo support the claims of the Paiute and Hopi. Details of the Native American consultation can be found in **Appendix E**.

In summary, the tribes actively involved in the Native American consultation were the Paiute, Ute, and Hopi tribes, all of whom have expressed that they want all of the identified cultural resource sites within the Project Area to remain undisturbed and intact, especially the rock art complex at North Fork. The Navajo and Hopi have deferred to the Paiute Tribe and support their claims.

ETHNOGRAPHIC STUDY OF THE QUITCHUPAH CREEK AREA

During consultation, the Paiute Tribe expressed that the Quitchupah Creek area is sacred to them. As stated in EO 13007, a sacred site is "any specific, discrete, narrowly delineated location on federal land that is identified by an Indian tribe, or Indian individual determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion." There exist different professional positions as to the affiliation between Fremont peoples and Numic peoples, geographic distribution of the Indian Tribes, and the accuracy of assigning rock art to cultural periods without studies that include datable materials. EO13007 directs federal agencies to provide access to and use of sacred sites and to avoid adversely affecting the physical integrity of them but does not mandate a review of sacred claims by a federal agency. In order to document and clarify the sacred site, an ethnographic study of the Paiute and their association with the Quitchupah Creek area was undertaken (Stoffle et al., 2004). This study, *Quitchupah Creek Ethnographic Study for the Proposed Quitchupah Creek Coal Haul Road*, was headed by Dr. Richard Stoffle of the University of Arizona.

The field studies occurred between May 18 and May 21, 2004; studies included a visit to the Quitchupah Creek area by Tribal elders, ethnographers, and the archaeologist from the Richfield Field Office BLM. During this time, the group visited fourteen prehistoric archaeological sites. These areas were selected based on the potential impacts the Action Alternatives would have on these locations. These sites comprise six Indian "places", as denoted by the Paiutes. A "place" is derived from the power it exhibits. The power that defines a "place" can be significant inherent natural qualities, or the production and

recognition of meanings in particular places, or events that have taken place at that location. Interviews with Tribal elders were conducted at each of these "places". Interviews focused on cultural, religious, traditional, and other connections with specific places (site interview); significance of rock art to the individual and the Tribe (rock art interview); and associations, paths, and connections between localized portions of the Study Area (cultural landscape interview). This information was then contextualized to provide insight into the significance of the entire area and the importance of specific places.

Many of the sites visited by the elders were described as having connections to other sites within the canyon, and at least one of the sites was an aggregate of multiple sites comprising a much larger single site or "place". The elders voiced concerns for a variety of resources such as archaeology sites, plants, animals, water, and the canyon itself. Each of these resources has significance in Southern Paiute culture. Archaeology sites are respected as places their ancestors used. Plants have significance for their many uses. Plant communities at a site can increase its cultural significance for Indian people, in that many plants are still used by members of the community. Further, animals are significant both as a resource and as entities to be reckoned with or as co-residents of an area. Water is significant because it is necessary for the survival of all creatures, and it carries "puha", the energy essence of the universe, down from the mountains. Also, geographic features such as the canyon itself are important to Indian people. Canyons are places within mountains, and are therefore conduits for "puha" to flow from the mountains for the use of people. Often canyons are places that offer a unique combination of resources, which Indian people need for their physical and spiritual well-being.

In summary, the ethnographic study supports the Quitchupah Creek area as sacred to the Paiute Indian Tribe of Utah. According to the ethnography, the area contains medicine/spiritual places, social and plant gathering places, and farming areas. The topographic features of the area contribute to the sacredness in relation to the flow and convergence of "puha" (Stoffle et al., 2004). According to the ethnographic study, the area was utilized for ceremonial activities in response to the presence of "puha". In a letter dated October 5, 2004, the Paiute Tribe expressed their satisfaction with the ethnographic study and stated their support of Alternative D, the Water Hollow route.

Potential Impacts To Native American Concerns

REGULATORY

AIRFA and EO 13007 do not specify criteria for determining whether a project will affect sacred sites or religious sites. That determination must be made by the Native Americans themselves. Sacred sites are not subject to the review that is common with compliance with Section 106 of the National Historic Preservation Act. Section 106 compliance typically includes detailed review by not only the involved Federal agency, but also the appropriate SHPO and the Advisory Council on Historic Preservation and deals mainly with project effect on and mitigation of cultural resources. There is no such review in the case of sacred sites. They are a National Environmental Policy Act issue and have to be treated carefully in any land-use planning and decision-making. Many of the lawful activities that are permitted on Federal lands can compromise the integrity of sacred places and the privacy of religious practices. With this in mind, EO 13007 on Indian Sacred sites was signed "in order to protect and preserve Indian religious practices". The order obligates Federal land managers to work with Indian tribes to help protect their basic rights and practice their religions. For the purposes of this project, a project effect is considered significant if it restricts access to or affects the physical integrity of such sites. Once areas of Native American concern were established, effects were considered on the following significance criteria:

- access reduced or lost (EO 13007)
- physical disturbance or destruction (EO 13007, NHPA)

- alteration of its setting (NHPA)
- visual, noise, or other elements that are out of character for the area (NHPA)
- area rendered unsuitable or unusable for traditional/religious use (EO 13007)

The following Native American concerns were identified:

- Sacred sites (as defined in EO 13007) - Quitchupah Creek and canyon
- Traditional Cultural Properties (TCPs) (as defined in NHPA) – Quitchupah Creek and canyon have been recommended for special management designation by the Paiutes, possibly as a TCP (Stoffle et al. 2004)
- Locations of traditional importance - Rock art complex near Quitchupah Creek (see also **Section 3.12**, Cultural Resources)

NO ACTION - ALTERNATIVE A

There will be no adverse effects to Native American concerns under Alternative A - No Action. Adverse impacts to locations of traditional importance resulting from recreational activities, possible vandalism, and cattle grazing/trailing would continue.

QUITCHUPAH CREEK ROAD - ALTERNATIVE B

This Alternative would be in conflict with Native American concerns, as expressed during consultation with the tribes. Quitchupah Creek and canyon, considered sacred to the Paiute, would be physically disturbed and the setting would be altered. As elicited during Native American consultation, the rock art complex, an area of traditional use, would be adversely impacted by alteration to its setting and the introduction of noise (coal trucks) and visual elements (paved road and truck traffic) not characteristic of the area. According to the Paiute Tribe of Utah, this would render the area unsuitable for traditional uses.

ALTERNATE JUNCTION AND ALTERNATE DESIGN - ALTERNATIVE C

This Alternative shares the route with Alternative B except for the easternmost two miles where it deviates northeasterly to cross Link Canyon and junction with SR-10. This alternative would be in conflict with Native American concerns, as detailed in Alternative B.

WATER HOLLOW ROUTE - ALTERNATIVE D

This alternative may be acceptable in relation to Native American concerns, as physical disturbance and construction in most of Quitchupah Creek and canyon would be avoided other than the uppermost two miles. This alternative would alter the setting of the canyon due to the presence of coal trucks passing through the upper portion of the canyon heading up Water Hollow and onto the upper benches, which would be visible and audible from Quitchupah Creek and canyon. In a letter dated October 5, 2004, the Paiute Tribe has expressed support of this action alternative.

MITIGATION AND MONITORING FOR BUILD ALTERNATIVES

No mitigation or monitoring is proposed for Native American Concerns.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES AND RESIDUAL ADVERSE IMPACTS

According to comments received from the Tribes during consultation and the ethnographic data, the sacred nature of the Quitchupah Creek area, including elements such as the rock art and remoteness of the area, would be irretrievably and possibly irreversibly altered by the construction and operation of a public road under Alternatives B and C. An area identified for traditional use would be rendered unusable under Alternatives B and C; this would be an irretrievable loss. The presence of a road and the subsequent truck traffic would be a residual adverse impact.

CUMULATIVE EFFECTS
Past actions affecting Native American concerns within the Project Area include construction of the existing road and power line. Vandalism to the rock art and other prehistoric sites, unauthorized excavation of sites, recreational use, and cattle grazing/trailing have also impacted the area. Excavation of cultural resource sites as mitigation for cultural resource impacts would further affect Native American Concerns. According to concerns stated during the Native American consultation and the ethnographic study, cumulative adverse impacts to Native American concerns under implementation of Alternatives B and C would likely be substantial; cumulative effects to Native American concerns under Alternative D would likely be minor to moderate.

3.14 Transportation

The existing road in Quitchupah Creek was originally an old wagon road prior to 1900. It served ranches, allowed access to the forest up on the plateau, and provided a route for east-west travel. The road was possibly graded in the 1940's, and the earliest road maintenance logs are dated 1968. More recently Emery County maintains a gravel surface for the first half-mile going west from SR-10, with the remainder being a native surface. The easements for the road are based upon use (Funk, 1999).

Alternatives B and C would be located along the existing two-track road, the Quitchupah Creek Road #908, through Convulsion Canyon and Quitchupah Creek canyon. The alignment begins near the SUFCO Mine on the Acord Lakes Road and heads east down Convulsion Canyon on FS road 40006 to BLM road #908 to SR-10 (**Figure 1-1**). Currently, this road has a native (dirt) surface with some gravel on the last 0.5 mile before the highway and in other areas which have resulted from scarifying activities. Where this road enters SR-10, the highway is an uphill grade heading north. The alternate junction (Alternative C) of the proposed Quitchupah Creek road diverges from the existing dirt road alignment for the final two miles on the eastern end to avoid the uphill grade on SR-10 by intersecting it north of the crest of the hill.

The Water Hollow alternate alignment (Alternative D) involves leaving the existing Quitchupah Creek Road two miles east of its western end, crossing Water Hollow drainage and climbing up, then crossing the Water Hollow Benches and Saleratus Benches. The road alignment then turns north and east to intersect SR-10. Unlike the other two Alternatives, the majority of the Water Hollow road alignment does not follow an existing road or trail.

Currently, the traffic from the mine travels southwest on the Acord Lakes Road to I-70. The coal trucks going west travel I-70 to Salina and then north on Highways 89 and 28 to the railroad loadout near Levan, while the coal trucks heading east take I-70 to Fremont Junction and then turn north on SR-10 to the Hunter Power Plant near Castledale or the Savage Coal Terminal (SCT) loadout near Price. SR-10 is a north-south highway that connects the central Utah area on the eastern side of the Wasatch Plateau. This two-lane paved highway extends from Fremont Junction on I-70 north to Price. About four miles south of Price, coal trucks traveling to SCT turn east on SR-1306, Ridge Road.

STATE ROUTE 10
SR-10 is a north-south highway that connects Fremont Junction on I-70 with Price, Utah. It is an asphaltic concrete, generally two-lane highway that varies greatly in use depending upon the locality. It passes through the towns of Emery, Clawson, Ferron, Castle Dale, and Huntington. It is the primary road of interest since all Alternatives would lead to this road.

SR-10 is an older road built on moisture sensitive soils, the most notorious of which are soils derived from Mancos shales. The road follows the ups and downs of the terrain. There was not a lot of earthwork to eliminate the hills and valleys when this road was built more than 40 years ago. Hence the roadway is susceptible to expansion that may occur within the native soils. Between I-70 and Emery Town the pavement structure is a mix of strengths. Some areas are rated as strong, others as medium, and between milepost 9 and 11 as weak. Under existing traffic, the years to fatigue average nine with four years being worst case.

According to Utah Department of Transportation (UDOT) records, the southern 10-mile section of SR-10 has been repaved and a bridge north of Emery is being replaced. A statewide ongoing construction report listed a 4-inch pavement overlay on 10 miles of SR-10, from milepost 0 (Fremont Junction, at I-70) to milepost 10 (Quitchupah Hill), and was planned for completion by October 2004 (Project # STP-0010(20)0/70418; UDOT 2004a). A chip seal coat was planned over this improved section in spring 2005. According to a September 2005 UDOT Status of Road Construction schedule, 100 percent of this project had been completed (UDOT 2005a). The replacement of Muddy Creek bridge north of Emery began in early summer 2005 (Project # BRF-0010(27)16; UDOT 2005a) and is 95 percent complete. Additional segments of SR-10 are scheduled to be repaved in 2008 (UDOT 2005b).

Two other county roads, newly constructed or scheduled for construction, that would affect traffic patterns on SR-10 are the South Moore Cut-off Road and the CONSOL Road in Emery County. The South Moore Cut-off Road, once completed, will be a shortcut for traffic from I-70 to the east to intersect with SR-10 at Moore and avoid travel on SR-10 between Moore and Fremont Junction 15 miles to the south. The road is being constructed in phases and is not expected to be completely paved for several years. The CONSOL Road serves the CONSOL Mine, which began operation in October 2002, for coal transport. The road intersects the east side of SR-10 at Quitchupah Creek; currently all of the CONSOL Mine coal is hauled north from this intersection.

Traffic Volumes on SR-10

The UDOT collects Average Annual Daily Traffic (AADT) information at various points throughout the State. The AADT is defined as the total volume passing a point or segment of a highway facility, in both directions, for one year, divided by the number of days in the year. There are no AADT data for the existing Acord Lakes Road, Quitchupah Creek Road, or Ridge Road. However, the Acord Lakes Road does experience periodic congestion, which has about 50 trucks per hour at peak times (Sorensen, 1999). The current volumes for all vehicular traffic for SR-10 are presented in **Table 3.14-1** and include the present SUFCO Mine related traffic (Christensen, 1999). Predicted AADT for 2020 includes any additional traffic as a result of future coal transport on SR-10.

Table 3.14-1 SR-10 Highway Traffic Volumes

From Interchange/ Junction	To Interchange/ Junction	AADT 2002	AADT 2003	AADT 2004 – % Trucks[1]	AADT 2020 - % Trucks @ Max. Haul[2]
Sevier Emery County Line	West Emery	520	515	1,230- 70	1,507 - 67
West Emery	East Emery	1,605	1,580	1,655 – 32	2,107 - 49
East Emery	South Ferron	1,980	1,650	1,725 – 25	4,007 - 24
South Ferron	North Ferron	3,760	3,695	3,860 – 26	8,507 - 12

From Interchange/ Junction	To Interchange/ Junction	AADT 2002	AADT 2003	AADT 2004 – % Trucks[1]	AADT 2020 - % Trucks @ Max. Haul[2]
North Ferron	Clawson	3,080	3,030	3,170 – 21	7,407 - 22
Clawson	Junction SR-57	4,389	4,315	4,510 -16	
South Castle Dale	North Castle Dale	7,560	4,845	5,065 – 16	7,400 - 07
North Castle Dale	Junction SR-29	5,505	5,410	6,420 – 14	6,500 - 12
Junction SR-155	Junction SR-1306 Ridge Road	9,973	5,005	5,035 - 23	12,700 - 11

Source: UDOT
1. Truck is defined as combination unit truck
2. Maximum haul would be 4.5 million tons annually to Hunter Power Generating Plant at SR-57.

The current volumes of traffic, pavement conditions, safety, and traffic service levels include the coal transport, workers commuting to the mine, vendors providing equipment and supplies to the mine, and the general public on SR-10. The CONSOL Mine contributes 100 to 120 trucks per day five days a week to traffic on SR-10. According to the 2004 UDOT Highway Traffic Book, 32 percent of traffic on SR-10 between the Sevier-Emery County line north to Emery is combination unit truck traffic with a total truck traffic (single and combination units) of 42 percent. Between Clawson and the junction with SR-57, the truck traffic is 16 percent combination unit with a total truck traffic of 22 percent.

Bridges on SR-10

There are 14 bridges crossing SR-10 between Fremont Junction and Price. Of the 14 bridges, 11 are in good shape; two are rated as deficient; one (Muddy Creek) is currently being replaced. The two that need replacing are located at Rock Canyon Wash (Reference Post 32.16), and Poulsen Wash (Reference Post 33.04).

Acord Lakes Road

At the present time, all vehicles accessing the SUFCO Mine use the Acord Lakes Road, a county road that extends from I-70 past a mountain homes development to the SUFCO Mine, a distance of about 11.1 miles. This road is classified as a rural collector road in the State collector system. It was upgraded by the SUFCO Mine in 1977 from a dirt USFS road to 28 feet wide with an asphaltic concrete surface, designed for a traffic speed of 40 miles per hour. The road section consists of 17.5 inches of untreated base course overlaid by 2.5 inches of gravel sub-base. The asphaltic concrete surface consists of a 3-inch base course overlaid by a 4.5-inch thick surface course. At least one surface seal coat with 0.75-inch chips provides a wear surface. No acid or toxic materials were used in the road surfacing (Duncan, 1982). The Acord Lakes Road is maintained by the SUFCO Mine in cooperation with Sevier County SSD and UDOT. SUFCO repairs the road surface, blades the adjacent drainage ditches, fills potholes, and resurfaces the road. SUFCO spends approximately $139,000 per year maintaining the Acord Lakes Road. The road is maintained consistent with a USFS Level 4 maintenance program (USDA-USFS, 1992). Drainage along the road is controlled by roadside drainage channels and culverts. The culverts were constructed in accordance with manufacturer recommendations. These culverts have sustained soil pressures, vehicular loads, and drainage flows. No significant structural problems have been observed with the culverts.

Traffic from the Acord Lakes Road must proceed either east or west on I-70. The majority of coal trucks head west to Salina and the Levan loadout. However, in the past as much as one million tons a year of the coal from the SUFCO Mine has been transported east to Fremont Junction and then north on SR-10 to railroad loadouts near Price. In 2002, an additional 2.5 mmtpy were transported on this route between the SUFCO Mine and Pacificorp's Hunter Power Plant.

For loaded coal trucks, the route on Acord Lakes Road southwest to I-70 is generally down-gradient; then the route east on I-70 crosses the Emigrant Pass summit at 8,030 feet elevation, a climb of 1,300 feet in 7.5 miles. After Emigrant Pass, the route east on I-70 to Fremont Junction is down-gradient and the route north on SR-10 is level with short steep grades over hills. The ascent of the Emigrant Pass summit on I-70 can be difficult in the winter during inclement weather and periodically the road is closed by heavy snows or ice on the road surface.

Ridge Road

Ridge Road, SR-1306, is classified as a "rural major collector" that was completed in 1989 to bypass Price for traffic eastbound to Wellington and US-6. It is 7.3 miles long and has 12-foot wide lanes in each direction, 4-foot shoulders, 5.5 inches of bituminous surface course, and 6 inches of untreated base course. There is some confusion by the regulatory agencies about whether Carbon County or the State owns the road; however, UDOT performs the maintenance on it. It is used for coal transport only for the first couple of miles to access the SCT coal loadout but continues on to terminate at the east side of Wellington at US-6.

Potential Impacts To Transportation

REGULATORY

The proposed transportation routes to transport coal and service the SUFCO Mine would be required to meet the regulations from several entities who would be affected or have jurisdictional control. The project would adhere to the Emery County planning process and local ordinance 8-7-85A. The existing Quitchupah Creek Road is covered under an interlocal agreement for maintenance between Emery and Sevier Counties (Funk, 1999), but the agreement would likely be revised if the proposed project were constructed. If the construction corridor were to expand beyond the county-granted easement of 100 feet for Class B roads, then Sevier County would need to file an easement application with SITLA to cover the portion that may be outside the existing easement. With a changed road use, UDOT would require an Encroachment Permit for entrance on to SR-10 (Laws, 1999). In addition, the SR-10 right-of-way width is limited, which may necessitate the acquisition of additional right-of-way width.

NO ACTION - ALTERNATIVE A

Existing traffic patterns in the area of interest would remain essentially the same except for the proportional amount attributed to future increased mine production. Essentially the increase in coal truck traffic to the east is dictated by coal contracts to power plants and would continue on the present road system. The Acord Lakes Road would continue to experience periodic congestion when carrying about 50 trucks per hour at peak times.

Coal purchased from SUFCO Mine by Pacificorp for use at the Hunter Power Generating Plant would continue to be transported via the current route. Thus, road wear due to heavy coal trucks would continue on I-70 between the Acord Lakes Road Junction and Fremont Junction, and especially on SR-10.

Beginning in 2002, the minimum amount of coal transported to Emery County destinations was two million tons annually. That was the minimum amount that Pacificorp had contracted to purchase for use in the Hunter Power Plant near Castle Dale, Utah. The maximum amount that Pacificorp will purchase

from the SUFCO Mine is 4.5 mmtpy. In 2004, Hunter purchased 4.2 mm short tons of Utah coal, mostly from SUFCO. This contract will be filled whether or not the proposed project is approved. The one million tons hauled to railroad loadouts in Carbon County is dependent upon railroad price structures. Estimated increases in AADT on SR-10 from coal truck traffic range from 372 to 1024, depending on the amount of coal trucked to the Hunter Power Plant and the Carbon County railroad loadouts. This is an increase in the range of 8 to 23 percent over the current AADT on SR-10 between Ferron and SR-57, and an increase in the range of 70 to 170 percent over the current AADT on SR-10 south of Emery (**Table 3.14-1**). When compared to the AADT predicted for 2020, the range of increase is 8 to 14 percent on SR-10 at Castledale, and 70 to 128 percent on SR-10 at Emery.

The existing roads on Forest and public lands would continue to be the road system for Convulsion and Quitchupah Creek. This would adequately serve the livestock operators and few recreationists in the Project Area according to the Convulsion Canyon Road Analysis (USFS, 2002).

QUITCHUPAH CREEK ROAD ALIGNMENT - ALTERNATIVE B

The primary impact of the Quitchupah Creek Road on transportation would be the reduction of coal truck traffic on I-70 between the Acord Lakes Road junction and Fremont Junction and on eight miles of SR-10 south of the Quitchupah Creek Road. Additionally, where the current Quitchupah Creek Road intersects SR-10, major modifications, in the form of turn lanes, to the highway and bridge would be necessary to allow all traffic to converge safely. Slow moving trucks that enter the highway must be avoided by oncoming traffic and allowed to gain highway speed before merging into the traffic flow.

Because of the northbound uphill grade on SR-10 north of the proposed junction, loaded coal trucks would need a long acceleration lane to prevent traffic delays. At Quitchupah Hill, a passing lane on the northbound uphill grade is presently needed to accommodate the coal truck traffic and would also be required for the proposed Quitchupah Creek Road.

The proposed road would junction with SR-10 at the existing intersection with the CONSOL Mine Road, an Emery County road 4.5 miles south of the Town of Emery. Because the proposed road and the CONSOL Mine Road would both carry coal truck traffic, both right and left turn lanes would be required for each road. Also, due to the uphill grade for northbound traffic an extended acceleration and climbing lane of 2,300 feet would be required for the coal truck traffic (**Figure 2.3**). Thus, there would be 4 lanes south of the intersection and 5 lanes north of the intersection. The existing bridge over Quitchupah Creek would need to be widened 8 feet to the west and 32 feet to the east, almost doubling its current width.

It is unlikely that the junction between the proposed road and SR-10 would cause traffic flow interruptions. The addition of turn lanes and an acceleration lane would keep the coal trucks from pulling into moving traffic and give enough distance to pick up speed before moving into the through-lanes. Traffic exiting SR-10 would also utilize the turn lanes, thereby avoiding traffic interruption. These elements would provide safety and smooth traffic flow. The disturbance for construction of the intersections and additional lanes would occur within the UDOT right-of-way or acquired right-of-way.

The route in Convulsion Canyon and Quitchupah Creek is all downgradient for loaded coal trucks, dropping 1600 feet in elevation. This route would allow loaded coal trucks to avoid the ascent of the Emigrant Pass summit on I-70.

Pacificorp currently purchases coal from the SUFCO Mine for the Hunter Power Generating Plant. Building the Quitchupah Creek Road would shorten the one-way transportation distance from the SUFCO Mine to destinations in Emery and Carbon Counties by an average of 55.4 miles round-trip, lowering the cost of coal delivery (See **Section 3.15**, Socioeconomics). The Quitchupah Creek Road would remove coal trucks from I-70 between the Acord Lakes Road Junction and Fremont Junction and from SR-10 south of the junction with the Quitchupah Creek Road. Wear on these sections of road would decrease as compared to the No Action Alternative.

The construction of Quitchupah Creek Road would alleviate coal truck traffic on 17 miles of I-70 between Acord Lakes Road Junction and Fremont Junction and the 8.4 mile section of SR-10 between I-70 and the intersection with the Proposed Road. This would lessen wear and surface cracking on that portion of road, decreasing repairs and maintenance costs. The proposed Quitchupah Creek Road would lessen the round-trip haul by about 55.4 miles.

ALTERNATE JUNCTION AND ALTERNATE DESIGN - ALTERNATIVE C

This Alternative is identical to the above except for the final (easternmost) two miles. This route diverges from the proposed route near the west boundary of Section 13, Township 22 South, Range 5 East and proceeds generally east across that section on public lands, continuing through Section 18 on private lands, Township 22 South, Range 6 East, to intersect SR-10 in the southwest corner of Section 17, Township 22 South, Range 6 East. Where the loaded trucks would enter SR-10, the grade for northbound traffic is only 0.07 percent. Significantly fewer modifications to SR-10 would be needed for this alternative. This junction with SR-10 allows loaded coal trucks to avoid the steep grades on Quitchupah Hill.

The proposed road would junction with SR-10 approximately 3.0 miles south of the Town of Emery creating a new intersection. Because the proposed road would carry coal truck traffic, both right and left turn lanes would be required for the proposed road. Thus, there would be 3 lanes south of the intersection and 4 lanes north of the intersection. Since there is little grade for northbound traffic, an acceleration lane of only 1,380 feet would be required for the coal truck traffic (**Figure 2.7**).

It is unlikely that the junction between the proposed road and SR-10 would cause traffic flow interruptions. The addition of turn lanes and an acceleration lane would keep the coal trucks from pulling into moving traffic and give enough distance to pick up speed before moving into the through-lanes. Traffic exiting SR-10 would also utilize the turn lanes, thereby avoiding traffic interruption. These elements would provide safety as well as ensure smooth traffic flow. The disturbance for construction of the intersection and additional lanes would occur within the UDOT right-of-way or acquired right-of-way.

The route in Convulsion Canyon and Quitchupah Creek is all downgradient for loaded coal trucks, dropping 1600 feet in elevation. This route would allow loaded coal trucks to avoid the ascent of the Emigrant Pass summit on I-70.

The number of trucks transporting coal from the SUFCO Mine through Emery and Carbon Counties would be the same as under Alternatives A and B. Therefore, the estimated AADT on SR-10 as a result of coal truck traffic would be the same as Alternative B.

The Quitchupah Creek Road with an Alternative Junction would shorten the round-trip distance from the SUFCO Mine to Emery and Carbon County destinations by about 58 miles. As with Alternative B, coal truck traffic would be removed from I-70 for 17 miles between the Acord Lakes Road Junction and Fremont Junction and then about 10 miles on SR 10 between Fremont Junction and the proposed

Quitchupah Creek Road with Alternative Junction. Wear on these sections of road due to coal truck traffic would decrease.

WATER HOLLOW ALTERNATE ALIGNMENT - ALTERNATIVE D

Under Alternative D, the number of trucks transporting coal from the SUFCO Mine through Emery and Carbon Counties would be the same as under Alternatives A, B, and C. Therefore, the estimated AADT on SR-10 as a result of coal truck traffic would be the same as Alternative B.

The proposed road would junction with SR-10 approximately 6.5 miles south of Emery Town and 2.0 miles south of Quitchupah Creek Bridge creating a new intersection. Because the proposed road would carry coal truck traffic, both right and left turn lanes would be required for the proposed road. Thus, there would be 3 lanes south of the intersection and 4 lanes north of the intersection. Since there is little grade for northbound traffic, an acceleration lane of only 1,380 feet would be required for the coal truck traffic (**Figure 2-11**).

It is unlikely that the junction between the proposed road and SR-10 would cause traffic flow interruptions. The addition of turn lanes and an acceleration lane would keep the coal trucks from pulling into moving traffic and give enough distance to pick up speed before moving into the through-lanes. Traffic exiting SR-10 would also utilize the turn lanes, thereby avoiding traffic interruption. These elements would provide safety as well as ensure smooth traffic flow. The disturbance for construction of the intersection and additional lanes would occur within the UDOT right-of-way or acquired right-of-way.

The Water Hollow Alternative route is mostly downgradient for loaded coal trucks, dropping 1,600 feet in elevation; however, crossing Water Hollow drainage would require loaded coal trucks to ascend a 5-7 percent grade for about 1,200 feet. This ascent would slow loaded coal trucks traveling across the Water Hollow Bench.

This route also would allow loaded coal trucks to avoid the ascent of the Emigrant Pass summit on I-70.

The Water Hollow Road would reduce the round-trip distance from the SUFCO Mine to Emery and Carbon County destinations by 46 miles. As with Alternatives B and C, coal truck traffic would be removed from I-70 for 17 miles between the Acord Lakes Road Junction and Fremont Junction, and removed from SR-10 for six miles from Fremont Junction north to two miles south of Quitchupah Creek. Wear on these sections of road due to coal truck traffic would decrease.

MITIGATION AND MONITORING FOR BUILD ALTERNATIVES

All new roads across Federal, State, or local lands would be constructed to AASHTO, UDOT, or agency standards. The drainage control system would be monitored for at least three years to insure proper function and implement any repairs or design changes necessary for long term stability (see Quitchupah Creek Road Monitoring Plan, Alternative D). Also, there would be conditions in the right-of-way document that would require SSD to perform maintenance and repairs to keep the road in compliance with the Highway Safety Act.

IRREVERSIBLE OR IRRETRIEVABLE COMMITMENT OF RESOURCES AND RESIDUAL ADVERSE IMPACTS

Under any of the build alternatives, a public roadway would be constructed dedicating 45-55 acres of land to roadway. Under Alternatives B or C, the current dirt/two-track roadway along Quitchupah Creek would no longer be available. Coal trucks would utilize the roadway to travel to eastern loadouts rather than other roadways. The public could also use this roadway for access. The proposed road would be a rural collector road in the State road system joining Acord Lakes Road with SR-10.

CUMULATIVE EFFECTS
Because coal mining and related activities have been occurring in the region for several decades, many access roads are evident within the surrounding area. Users, ranchers, recreationists, miners, and others have and may continue to create unauthorized roads. Some roads may become deteriorated or impassable through inactivity. The new public roads in the area include the South Moore Cut-off Road which may reduce traffic from 50 to 200 AADT on SR-10 due to the shortcut east to I-70. Another new road is the realignment of the CONSOL Mine Road which carries coal truck traffic from CONSOL Mine to markets north on SR-10. This additional coal truck traffic joins with the existing coal truck traffic northbound on SR-10 near the Quitchupah Creek bridge.

The cumulative effect would be that additional acreage (45-55 acres) would be dedicated to roadway. Additional maintenance of roads would be required in the Proposed Action area and the possibility of increased traffic accidents and delays may result.

The duration of effects (e.g., increased traffic volume, increased potential for accidents, increased traffic delays, and road degradation) resulting from past, present, and reasonably foreseeable actions combined with the Proposed Action or any Action Alternative would peak for the length of time coal is transported (20+ years), but continue for as long as the rural collector road is in service.

3.15 Social and Economic Resources

The socioeconomic Study Area surrounding the proposed Quitchupah Creek Road consists of Carbon, Emery, and Sevier Counties in central Utah. Carbon and Emery Counties are closely tied economically, while Sevier County's economy is more removed from the economy of the other two counties. This section describes relevant socioeconomic elements of the Study Area and sets the stage for the socioeconomic impact analysis.

Quitchupah Creek Area
This area is characterized as a quiet, undeveloped steep canyon area lying east of the SUFCO mine, opening to SR-10 in Emery County. The area around the upper reaches of the creek is administered by the Forest Service and the BLM; the lower area is privately owned. The Quitchupah Creek area currently has an unimproved two track road throughout its length. At the present time the primary socioeconomic uses of the Quitchupah Creek area are public (Forest Service and BLM) and private grazing, dispersed recreation (including hunting and sightseeing), and irrigated pasture activity in the lower reaches. ATV activity occurs in the canyon although this area is not currently regulated as an official ATV use area by either the Forest Service or BLM.

Utah Coal Industry
The 13 Utah underground coal mines combined produced 19.7 million metric tons (mt) (21.7 million short tons (st)) of coal in 2004, 6.5 % less than in 2003 (Utah Energy Office 2004). All of the mines and facilities are located in east-central Utah. The underground mines in the Wasatch and Book Cliffs coal fields, located mostly in Carbon and Emery Counties, produce almost all of the coal which is marketed throughout the west. The largest coal producer in 2004 was the SUFCO Mine, which produced a near-record high of 6.87 million mt.

The Utah coal mining industry has a direct, significant impact on local economies where mining occurs. In 2004, mining companies respectively employed 706, 701, and 399 persons in Carbon, Emery, and Sevier Counties (OSM 2005). In Sevier County, Canyon Fuel Company was the third largest employer.

According to the 2004 Summary of Mineral Activity in Utah (Bon and Krahulec, 2004): "Over half of Utah's coal was consumed in-state by three electric utilities in 2004. Coal was also used for industrial purposes within the state and shipped to electric utilities and industrial users in other states. The export market to Pacific Rim countries, which had accounted for up to 5.0 million mt of production in 1996, dwindled to less than 0.45 million mt in 2002, and to none in 2003 and 2004, mainly due to foreign competition. No overseas coal exports are anticipated in the next several years."

Federal Coal Royalty Payments in the Study Area

Mining companies extracting coal from Federal coal deposits pay a royalty to the Federal government (**Table 3.15-1**). The coal mining companies in Utah pay approximately $33 million annually in royalties. In 1999, coal royalties represented 53 percent of Federal mineral lease payments in Utah. Fifty percent of Federal mineral lease payments are returned to the state of origin. States have full discretion as to distribution of mineral lease payments, as long as priority is given to areas with social and/or economic impacts as a result of mineral lease activity.

Table 3.15-1 Utah Coal Production and Royalties on Federal Lands

Description	1998	1999	2000	2001
Carbon County, Utah				
Sales Volume (tons)	2,890,078	4,735,288	5,016,679	3,084,196
Royalties ($)	8,958,849	6,069,579	6,177,243	4,211,025
Disbursed to State ($)	4,479,425	3,034,789	3,088,621	2,105,513
Emery County, Utah				
Sales Volume (tons)	6,225,733	14,223,543	11,672,643	10,522,326
Royalties ($)	17,603,597	19,011,504	14,199,103	12,876,284
Disbursed to State ($)	8,801,799	9,505,752	7,099,551	6,438,142
Sevier County, Utah				
Sales Volume (tons)	2,566,422	6,014,967	5,632,331	7,268,525
Royalties ($)	7,356,402	8,407,485	9,314,751	12,238,148
Disbursed to State ($)	3,678,201	4,203,742	4,657,375	6,119,074

Source: Federal Mineral Revenue Disbursements by State and County, Minerals Management Service, Fiscal Years as indicated.

SUFCO Mine

Coal production at the SUFCO Mine was 7.1 million tons in 2003, 27 percent of the total coal production in Utah. In 2004, SUFCO was the largest coal producer in Utah, with a near-record high of 6.87 million mt. SUFCO Mine intends to increase annual production at the SUFCO Mine to a maximum of 8.5 million tons, market conditions allowing. The SUFCO Mine is an industry leader in efficiency, producing coal at the rate of nearly 100 tons per man-shift compared to the industry average of 55 tons per man shift (SUFCO Mine Information and Data Book, 2001 Coal Report). The efficiency of production helps offset the high transport costs due to the distance from loadouts and consumers, and has kept the SUFCO Mine competitive with the other major coal mines in Carbon and Emery Counties.

At an average annual production of 26 million tons the Utah coal industry has revenues of $450 million plus. The revenues at the SUFCO Mine, based on 7.1 million tons, in 2002 were about $124 million. The recently acquired Muddy tract is expected to increase SUFCO Mine life by 11 years at the current production rate (Utah Energy Office, 2004).

The SUFCO Mine relies on truck transport for all of its coal shipments because it is located far from railheads and loadouts. Coal is either transported west 82 miles to the Levan Loadout or east 62 miles to Hunter Power Plant or east 83 miles to the Savage Loadout. To overcome the disadvantage of distance the SUFCO Mine operates very efficiently, to produce high BTU, low sulfur coal needed by the electrical power producing plants to derive the greatest amount of power per ton of coal yet satisfy the requirements of air quality permits.

To comprehend the burden of truck transport of coal, the SUFCO Mine and Sevier County are investing a lot of effort planning and permitting a railroad from Levan to Salina to reduce the westward coal truck transport distance by about 53 miles.

SUFCO Mine Employment

The SUFCO Mine is located in Sevier County ten miles west of Emery. Mine employment in 2002 was 290. That employee count, by county of residence, is shown in **Table 3.15-2** for the years 1999 through 2002. Mine employment in 2003 was 281.

Table 3.15-2 SUFCO Mine Employment by County of Residence

County	End of Year 1999		End of Year 2000		End of Year 2001		End of Year 2002	
	Number	Proportion	Number	Proportion	Number	Proportion	Number	Proportion
Sevier	158	67.5%	163	64.7%	163	59.1%	164	56.5%
Sanpete	68	29.1%	72	28.6%	72	26.1%	84	29.0%
Emery	0	0.0%	8	3.2%	27	9.8%	27	9.3%
Juab	7	3.0%	7	2.8%	7	2.5%	8	2.7%
Carbon	0	0.0%	0	0.0%	4	1.4%	5	1.7%
Millard	1	0.4%	1	0.4%	1	0.4%	1	0.3%
Uintah	0	0.0%	0	0.0%	1	0.4%	0	0.0%
Wayne	0	0.0%	1	0.4%	1	0.4%	1	0.3%
Totals	234		252		276		290	

Source: SUFCO Coal Mine (April, 2003)

As this table shows, employment in Sevier County held fairly steady during the period 1998-2002 while, at the same time, total employment increased. This led to a drop in the proportion of mine employees residing in Sevier County. However, during this same time period the number of employees residing in Emery County increased from 0 to 27. This raised Emery County from one of the three lowest counties to the third highest in terms of SUFCO mine employment. Employment at the SUFCO Mine in both Carbon and Sanpete Counties increased in 2002.

SUFCO Mine is the largest single coal producer in Utah, and supplies coal to major power plants in Utah, Nevada, California, and Midwest. Other markets include cement, lime, and gypsum plants, other

industrial users, governmental, and residential users in the West. As stated previously, SUFCO Mine is an industry leader in efficiency, producing coal at the rate of nearly 100 tons per man-shift compared to the industry average in Utah of 50 tons per man-shift (SUFCO Mine Information and Data Book). The coal itself is unique and valued because of its low ash and sulfur content; this coal is utilized by electrical power generating plants in a mix with lower quality coal to reduce emissions of environmentally hazardous materials and maintain compliance with air quality permit requirements.

The SUFCO Mine as a coal mine has a "direct effect employment multiplier" of 5.5 (Utah State and Local Government Fiscal Impact Model working Paper Series: 2001-1 Multipliers for Utah; Prepared by: Governor's Office of Planning and Budget Demographic and Economic Analysis Section). This means the SUFCO Mine employment alone contributes some 1,600 jobs (290 x 5.5, which includes the jobs at the mine). For every person employed at SUFCO Mine, 4.5 additional jobs (1,273 jobs) are created. Many of the additional workers (about 204) are employed to transport the coal to end users.

The SUFCO Mine will most likely expand to the 8.0 to 8.5 million tons per year level over the next 10 years; at that production level, employment is expected to increase to about 310 employees (Wes Sorensen, SUFCO mine).

Since the Hunter Power Plant is a major market for the SUFCO Mine, competition from other mines nearer to the plant could adversely affect the market for coal mined at the SUFCO Mine. The coal production in Utah is steady because there is a limited regional market that determines the level of production. To enter this market, a new mine or increased production from an existing mine must replace an existing producer. Within 20-30 miles of the Hunter and Huntington power plants, there is one new mine and two large coal reserves scheduled for development and production. If these new mines were to match the efficiency of the SUFCO Mine, they would have a competitive advantage based on transport costs. The savings on transport costs for a mine at 30 miles one-way distance over the current SUFCO transport of 62 miles one-way would be $2.24 per ton or about 13 percent of market value which was $17.54 per ton in 2001; for a mine at 20 miles one-way distance the savings would be $2.94 per ton or 17 percent of market value.

In comparison, the SUFCO Mine transport cost of $1.85 per ton due to the shorter distance on the Quitchupah Creek Road would reduce the transport cost differential to $0.39 per ton for 30 miles and $1.09 for 20 miles. This would allow the SUFCO Mine to remain competitive with the newer mines and maintain its share of the market. According to statements made at the Utah Coal Conference in 2001 the market for Utah coal in the future is a "well defined market with marginal growth".

Land Ownership

The counties of Sevier, Carbon, and Emery are contiguous, with Carbon County being immediately north of Emery County, and Sevier County being immediately west of the southern half of Emery County. None of the counties are considered part of a Metropolitan Statistical Area. Government is a significant landowner in each of the three counties (**Table 3.15-3**).

Table 3.15-3 Land Ownership

Description	Carbon County, UT	Emery County, UT	Sevier County, UT
Acres	947,632	2,850,356	1,222,107
Federal	47.5%	79.8%	76.0%
State	13.1%	11.8%	4.9%
Private/Local Government	39.4%	8.4%	19.1%

Source: Federal Land Payments in Utah, Governor's Office of Planning and Budget

Population

Sevier County is the most populous of the three counties, with a 2004 estimated population of 19,415, followed by Carbon County with an estimated 2004 population of 19,385. Emery County had a 2004 estimated population of 10,493. Over the past twenty years, the populations of Carbon and Emery Counties have decreased slightly while Sevier County's population has grown by 1.4 percent annually.

Population projections through the year 2030 indicate an expected average increase of 0.8 percent per year in the three counties (**Table 3.15-4**). The three communities on the transport route from the SUFCO Mine to the Hunter Power Plant (Clawson, Emery, and Ferron) are projected to have a combined average annual increase in population of 0.7 percent between now and 2030. Castle Dale, Clawson, Emery, Ferron, Huntington, Price, and the other municipalities directly impacted by the transport of coal from the SUFCO Mine to railroad loadouts near Price, are projected to collectively increase in population by 0.7 percent annually until 2030.

Table 3.15-4 Population Projections

	2005	2010	2020	2030
Castle Dale City	1,753	1,829	2,005	2,113
Clawson Town	164	171	187	197
Emery Town	299	312	342	360
Ferron City	1,669	1,742	1,910	2,012
Huntington City	2,014	2,102	2,304	2,428
Price City	9,670	10,151	10,842	11,481
Carbon County	22,951	24,091	25,732	27,248
Emery County	10,772	11,243	12,322	12,984
Sevier County	20,635	22,155	24,598	26,498
Tri-County Area (Carbon/Emery/Sevier)	54,358	57,489	62,652	66,730

Source: Governor's Office of Planning and Budget

Study Area Employment and Income

Approximately 11.1 percent of the total nonagricultural employment (1,842 jobs) in the tri-county area is due to mining according to 2001/2002 detailed data (Utah Department of Workforce Services, 1999). Trade, transportation, and utilities accounted for 25.9% of the total nonagricultural employment (5,067 jobs) and government accounted for 24.7% (4860 jobs). Mining accounted for 19.2 percent of total nonagricultural wages in the three counties in 2002, while trade transportation and utilities accounted for 28.7% and government employment accounted for 22.8%. Each of these three industries pays higher than average wages.

Unemployment in Carbon and Emery Counties tends to be higher than that in Sevier County. From 1990-2003, unemployment in Carbon County was in the range of 5.9 percent to 7.8 percent, while unemployment in Emery County was between 6.5 percent and 11 percent. Unemployment in Sevier County declined from 4.8 percent in 1994 to 3.9 percent in 2000, and then rose to 5.4 percent in 2003.

Nonagricultural employment in Sevier County rose steadily from 4,616 in 1980 to 7,311 in 2002, an average annual increase of 2.2 percent, then dropped off to 7,160 in 2003. Nonagricultural employment in Carbon County rose from 8,523 in 1980 to 8,918 in 2002, then dropped to 8,602 in 2003. In 2003, mining accounted for 8.6 percent of the nonagricultural employment in Carbon County. Nonagricultural employment in Emery County was 4,501 in 1980, and declined to 3,498 in 2003. In 2003, mining was the second largest industrial sector (in terms of employment) with 648 employees or 18.5 percent of total

employment in Emery County. Transportation and public utilities, which includes the Hunter and Huntington Power Plants, were estimated to have approximately 902 employees, 25.8 percent of 2003 total employment in Emery County.

Emery County has the highest average monthly wage of the subject counties. From 1980 to 1998, Emery County's average monthly nonagricultural wage increased at an annual rate of 2.9 percent. The average monthly wage in Carbon County and Sevier County increased at 3.1 percent and 3.2 percent, respectively. From 1998 to 2003, mean rates of increase were smaller, as the average monthly wage in Emery, Carbon, and Sevier County increased at rates of 1.4, 2.2, and 2.8 percent, respectively.

Although Emery County had the highest average monthly wage in 2003 ($2,831 vs. $2,551 for state), Carbon County had the highest per capita personal income of the three counties. Per capita personal income in Carbon County was $23,365 in 2002, as compared to $18,776 in Emery County, and $18,828 in Sevier County. Per capita income for the state in 2002 was an average of $24,639, for the nation it was $30,906.

The three counties vary widely in median household income. Emery County had the highest median household income in 2002 ($40,759), followed by Sevier County ($36,721), and Carbon County ($36,132). Emery County has the smallest number of households in the three lowest income brackets as well as the highest number in the three upper income brackets, according to 2003 federal tax return data.

In one year, 2002, direct wages at SUFCO Mine totaled $32.9 million. The jobs created on the foundation of mine employment added another $30.0 million in wages, for a total of $62.9 million of wages tied to the mine.

Agriculture

Agriculture plays a role in the economy of each of the three counties. Sevier County produced over $39 million worth of agricultural products in 1997, while Carbon County produced $3.6 million, and Emery County $11 million. The value of production is dominated by livestock in each of the three counties, with cattle being the product with the highest total value in each of the counties.

Sevier County

Sevier County is a mostly rural county in central Utah. Recently Sevier County has been in economic limbo with jobs growing at a rate of 0 to 1.25 percent annually. In 2004, the unemployment rate of 4.9 percent was just above the state average of 4.8 percent and below the national average of 5.5 percent. The population has grown slowly at a rate of 0.3 to 2.2 percent annually, below the state average of 2.4 percent (County Trends December 2004, Sevier).

Among the list of the largest employers in Sevier County, Barney Trucking is #2 and SUFCO Mine is #3 (Utah Department of Workforce Services, 2002). Both of these companies derive their income from the sale and transport of coal.

The SUFCO Mine and dependant trucking companies pay about 28 percent of the property taxes in Sevier County. In 2002, SUFCO Mine purchased $64.6 million in goods and services, much of this from Sevier and Carbon Counties. Sevier County has received over $1.0 million from the Federal coal royalties paid by SUFCO Mine.

Emery County
Emery County's economy steadily increased in 2003 and 2004. The increase in nonfarm jobs was 4.7 percent from 2003 to 2004 (Department of Workforce Services). The current unemployment rate is 8.7 percent, while the Utah rate for unemployment is 4.8 percent and the national rate 5.5 percent (County Trends December 2004, Emery).

The mining industry has lost 24 jobs or 3.6 percent of the total employment in mining between 2003 and 2004, as the last figures available. The utilities industries have gained 19 jobs in the same period. The trucking industry lost a few jobs in 2004 (Utah Department of Workforce Services).

Carbon County
Carbon County in the last decade had one of the slowest population growth rates of any county in Utah. The county population declined 1.5 percent in 2003. The economy is based on coal mining, utilities, transportation, and government. Coal mining and associated mining services had seen a decline in jobs until 2002, when mining added 180 jobs (County Trends, Dec. 2002), but mining again lost jobs (50) from 2003 to 2004. Carbon County is the center of mining services for the coal industry in Utah, and Joy Technologies, Inc., a mining service company, is named seventh on the list of largest employers in the county (Utah Department of Workforce Services).

According to 2003 figures, the average monthly wage in Carbon County is only 90% of the average wage for Utah, and the county is listed as tenth in the state for average monthly wage. Within Carbon County, mining is the leader in average monthly wage. Unemployment rates in Carbon County have consistently been higher than the state rate (Utah Department of Workforce Services).

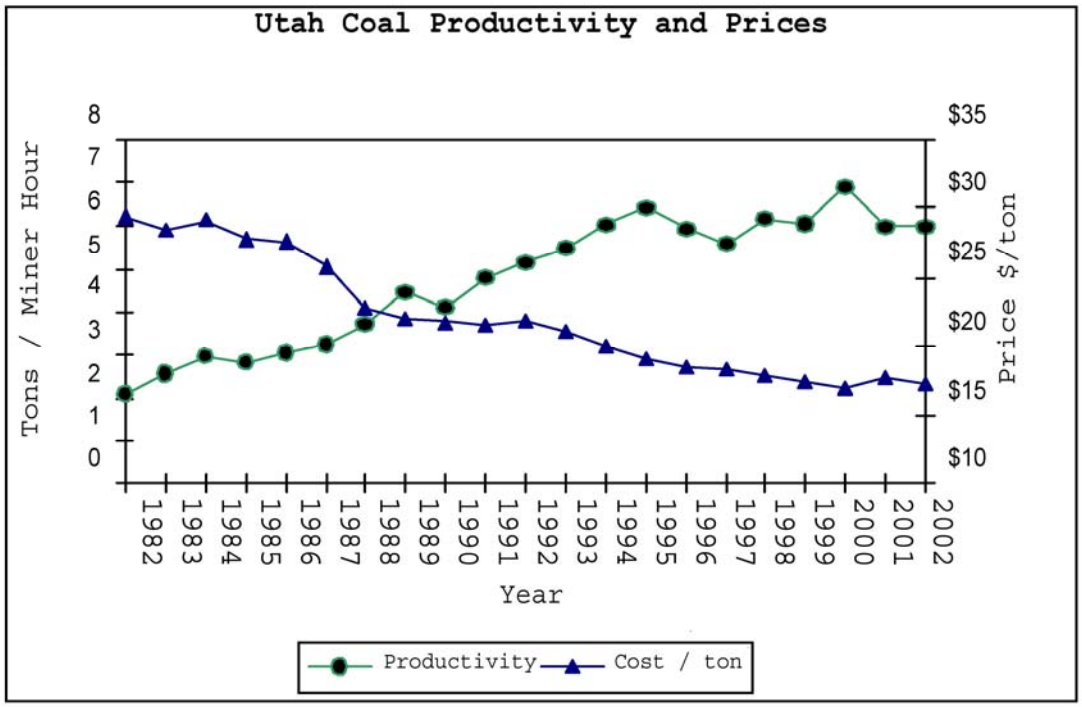
Transportation Costs
Region 4 of the UDOT estimates that for normal existing traffic volume on I-70 for the 17 miles between Exit 72 and Exit 89 they spent $500,000 in 2001 for surface seal and $50,000 in 2004 for surface rejuvenation. A major rehabilitation of this section of I-70 is scheduled for 2006 and will cost between $10 and $13 million. I-70, although 28 years old, is in good condition and is expected to be able to handle forecasted increases in traffic volume without additional routine maintenance costs. A typical schedule for this interstate highway includes surface rejuvenation at three year intervals, alternating with surface seal at six year intervals, structural overlays at 15 year intervals, and new pavement structure at 48 years.

Region 4 of UDOT estimates that for normal existing traffic volume on SR-10 from the Fremont Junction (I-70 Exit 79) to south of the town of Emery, they will spend $200,000 for a chip seal coat in 2005 and $20,000 in 2008 for surface rejuvenation under the existing traffic regime. SR-10 is an old narrow road built on poor soil materials, follows the contour of the land in hilly terrain, and has weak to medium strength pavement structure. Under existing traffic the years to fatigue average nine, with four years being the worst-case scenario (Scott Goodwin, Region 4, UDOT, 2001).

Potential Impacts To Social and Economic Resources

The SUFCO Mine operates in a very competitive energy market. As shown in the graph below, the increase in productivity in Utah coal mining has led to lower coal prices. These lower coal prices have provided for more reasonable electrical energy prices for the public.

Reviewing the financial performance (and stock prices) of coal companies shows the increased productivity has not added significantly to corporate margins or bottom-line profitability. The Skyline Mine, owned by the same parent company as SUFCO, closed temporarily in 2004 due to low prices.



Data from page 2 of the *2001 Annual Review and Forecast of UTAH COAL Production and Distribution, January 2003*, by the Utah Geological Survey and Utah Energy Office of the Department of Natural Resources (2002 projected).

Similar results would be expected for the Quitchupah Creek Road Project coal transportation cost savings. Although there would be some initial increased profitability for the mining company, the competitive nature of the market should again ensure that the added profit margin would be reduced to historic or prevailing levels. The fuel savings would then pass to the generating station and historically then to the consuming public due to the regulated or open market nature of electrical power generation.

In addition, the decreased transportation cost would allow the SUFCO Mine to recover more of the coal resource and increase the overall recovery. SUFCO Mine personnel have projected up to 11 million additional tons of coal could be recovered if the Quitchupah Creek Road were built, adding some 1.3 years to the life of the mine. These 11 million tons could provide for the electrical needs of some 1.7 million average residential customers for the 1.3 years. This is an energy resource that would otherwise be lost because it would be uneconomic to recover.

Production levels that are predetermined by in-place contracts are expected to occur under the No Action alternative (Alternative A) as well as with the build alternatives (Alternatives B, C, D). Consequently, employment and payroll at the SUFCO mine would not change as a direct result of any of the alternatives. However, employment and payroll could change in the future to accommodate production fluctuations associated with the Pacificorp contract and to accommodate any additional SUFCO contracts that are either signed or canceled. It is expected that SUFCO employment would increase from the current level of 290 to approximately 310 over the next several years once the mine reaches its maximum production of 8.5 million tons per year.

There would be no differences attributable to any of the alternatives in terms of the Study Area's:

- population growth estimates,
- land ownership (Federal, state, private),
- agricultural production,
- Federal coal royalty payments to counties.

Additionally, there will be an increase in noise, truck traffic, and probability of accidents through the communities of Emery, Ferron, Huntington, Clawson, and Castle Dale on SR-10 due to the delivery of coal to Hunter Power Plant.

The value of the Quitchupah Creek Road to the SUFCO Mine is measured in the reduction in trip costs and the reduced effort to transport coal. The round trip from the SUFCO Mine to the Hunter Generating Power Plant would be reduced by an average of about 50 miles (43 percent), depending on the build alternative. The cost to transport one ton of coal on the round trip to Hunter was 25 percent of the market value of the one ton of coal in 2001. The 43 percent reduction in mileage would save 11 percent of the market value of a ton of coal, thus potentially increasing profits. The 11 percent savings for an annual transport of 4.1 mmtpy means a considerable cost advantage for the coal producer, allowing the SUFCO Mine to remain competitive in the coal markets to the East.

The segment of I-70 on which SUFCO coal trucks now transport to the east is structurally sound and capable of handling expected increases in truck traffic without any additional maintenance costs. Therefore, there are no differences expected in I-70 maintenance costs regardless of whether SUFCO trucks operate on this segment of the highway (i.e. No Action alternative) or not (i.e. Alternatives B, C, D) (Scott Goodwin, UDOT, Region 4, 2001).

SR-10 is in need of improvements to handle existing and future coal truck traffic between I-70 and Price, including pavement overlays, bridge construction, and improvements in curves and passing lanes. These improvements include a number of projects already scheduled to be completed within the next few years along the full length of SR-10, projects that are needed regardless of the alternative chosen, and would cost approximately $30,000,000 (Scott Goodwin, UDOT, 2001). In order to accurately compare the costs among alternatives associated with upgrading SR-10, it is necessary to focus on the segment of road, and associated costs, that would experience differences attributable to the four alternatives. This means looking at the first 10.1 miles of SR-10 which would take the analysis to the northernmost junction of the proposed road, the Alternative C junction. Any impacts occurring to the north of that point would be common to all alternatives. With this in mind, the proposed route down Quitchupah Creek would result in eliminating SUFCO coal truck traffic on the segment of SR-10 between I-70 and the proposed SR-10 intersections. See **Figures 1-2** and **1-3** for the location of the three possible intersections with SR-10 associated with Alternatives B/C/D. By eliminating coal truck traffic on this segment of SR-10 south of these proposed intersection locations, there would be savings on SR-10 under alternatives B, C, and D as compared to the No Action alternative. These savings are discussed below under the respective impact sections. There would be no significant difference among any of the four alternatives in routine maintenance costs (e.g. chip seal, surface rejuvenation) on the first 10.1 miles of SR-10.

Figures 2-3, **2-7**, and **2-11** show the junctions with SR-10 by Alternative. The Alternative B junction with SR-10 (**Figure 2-3**) would require the widening of the existing bridge in order for it to meet standards and carry the needed turn lanes. The new bridge would be approximately double the width that it is currently. Alternatives C and D junctions with SR-10 (**Figures 2-7** and **2-11**) would not require the widening of the bridge spanning Quitchupah Creek, nor would either require the long acceleration lane since they are in areas of low grade. The costs for construction of these improvements would be the responsibility of the SSD rather than UDOT (See **Table 2.7-1**).

NO ACTION - ALTERNATIVE A

Under this alternative, coal would continue to be transported to the east under the current transportation route. This route leaves the SUFCO Mine via the Acord Lakes Road, heads east on I-70, and then north on SR-10 to the Hunter Power Plant and to the rail loadout near Price, Utah (**Figure 1-3**).

The solitude and overall character of Quitchupah Creek canyon would not change under this alternative.

Fuel savings for the SUFCO mine would not occur under this alternative because there would not be a reduction in the round-trip mileage as compared to Alternatives B, C, and D (see those sections below for a discussion of SUFCO fuel savings, by alternative).

Ranching use in the Quitchupah Creek canyon would continue as is, with no changes to ranching operations.

Under this alternative the commuting distance from communities to the east of the SUFCO Mine would not decrease for vendors traveling to the mine or for the Carbon and Emery County residents employed at the mine.

Table 3.15-5 Annual Estimated Fuel Consumption Under Alternative A

Coal Transported per Year		Number of Truck Trips	
Year	**Tons**	**Number of Trips**	**Consumed Fuel Gallons**
2001	2,000,000	52,632	1,450,304
2002	3,000,000	78,947	2,175,428
2003 or max	5,500,000	144,737	3,988,308
Assumptions: 38 tons of coal per haul, 4.5 miles per gallon.			

The distance from the SUFCO Mine to Salina, in Sevier County, is approximately 30 road miles. The road mile distance from the SUFCO Mine to the town of Emery (population 289) is currently 39.8 miles, and 53.6 miles to Ferron (population 1,611). No savings to fuel consumption and coal transport costs, up to $10M annually, would occur under the No Action Alternative resulting in no competitive advantage to the SUFCO Mine.

Under the No Action alternative current SUFCO Mine coal truck traffic would continue to occur along SR-10 to coal destinations in Emery and Carbon Counties. This alternative does not, when compared to alternatives B, C, D, allow for a reduction in SUFCO Mine coal truck traffic from Fremont Junction on I-70 north along SR-10 to the three possible intersections (**Figure 1-2**) of the proposed Quitchupah Creek coal road with SR-10. In response to this, UDOT Region 4 installed a 3.5 inch pavement overlay to handle the increase in truck traffic from the SUFCO Mine along the first 10.1 miles of SR-10. This upgrade should help to avoid premature fatigue under the No Action alternative in order to accommodate the production associated with the recently signed SUFCO Mine/Pacificorp contract.

Under the No Action alternative SUFCO would not have an alternate means of transporting coal to destinations east of the mine (e.g. Hunter Power Plant and the rail loadout near Price). This alternative would not provide for an alternate coal transport route during any road closures on I-70 (weather, accidents), if a problem were to occur on the existing Acord Lakes road out of the mine, or in the event of an emergency at the mine.

QUITCHUPAH CREEK ROAD ALIGNMENT - ALTERNATIVE B

Alternative B involves upgrading the existing road in Quitchupah Creek. The projected construction cost is $5.5 million. The distance upgraded would be 8.9 miles and the round-trip route from the SUFCO Mine to destinations in Emery and Carbon Counties would be reduced by 55.4 miles or 44 percent of the round-trip to the Hunter Power Plant.

In addition, the projected cost to construct the junction with SR-10 is $2.0 million. This includes widening of the bridge over Quitchupah Creek and the long acceleration lane, as well as the necessary turn lanes. These construction costs would be the responsibility of the SSD; future maintenance would be UDOT's responsibility.

Fuel

The shorter transport route also means fuel savings as indicated in **Table 3.15-6**.

Table 3.15-6 Annual Estimated Fuel Conservation Under Alternative B

Coal Transported per Year		Reduction in Fuel Required		
Year	**Tons**	**Number of Trips**	**Consumed Fuel Gallons**	**Gallons Conserved as Compared to No Action**
2001	2,000,000	52,632	865,503	584,800
2002	3,000,000	78,947	1,298,239	877,188
2003 or max	5,500,000	144,737	2,380,120	1,608,188
Assumptions: Reduction in round trip of 50 miles, 38 tons of coal per trip, 4.5 miles per gallon, 11.1 gallons saved per trip.				

A typical truck transporting coal with double trailers holds 38 tons of coal. The actual fuel mileage of coal trucks varies upon a number of factors such as cargo weight, road grade, and route. An average fuel mileage of 4.5 miles per gallon was assumed based upon conversations with officials in the trucking industry. The projected savings in fuel consumption, as compared to the No Action Alternative, are listed in **Table 3.15-7**. At 5.5 million tons per year, the projected saving in diesel fuel would be 1,608,188 gallons. Savings to fuel consumption and other transport costs under Alternative B as compared to the No Action Alternative would be substantial.

The value of the proposed Quitchupah Creek Road to the SUFCO Mine is measured in the reduction in transport costs and the reduced effort to haul coal. The 55.4 miles saved in travel means the round trip from the SUFCO Mine to the Hunter Generating Power Plant is from 124 miles round trip to 69 miles round trip. This would save about 75 minutes on the round trip. The reduction in mileage would save about 10 percent of the market value of a ton of coal, thus potentially increasing profits by 10 percent. The 10 percent savings for an annual transport of 2-4.5 mmtpy means a considerable cost advantage for the coal producer.

The round trip distance to Hunter Power Generating Plant from the SUFCO Mine is 124 miles, at a cost $0.07/mile/ton the cost for transporting one ton is $4.34 (62 x $0.07 = $4.34). The average price for coal in 2001 was $17.54 per ton (Utah Energy Office, 2001), so the $4.34 transport costs represents 25 percent of the value of a ton of coal in 2001. The proposed Quitchupah Creek Road would reduce the round trip haul distance by 55.4 miles or by 44 percent, and the cost to transport one ton would be reduced by $1.75 or 10 percent of the value of the ton of coal. The SUFCO Mine could save between $4 and 10.8 million annually on transport costs under Alternative B, depending upon tonnage transported.

Table 3.15-7 Annual Coal Transport Cost Savings

Year	Eastern[1] Markets mmtpy	No. of[2] Trips per year	Alternative[3] A savings per trip $0.00	Alternative[4] B savings per trip $75.25	Alternative[5] C savings per trip $79.76	Alternative[6] D savings per trip $63.21
2001	2.0	52,632	$0.00	$3,960,558	$4,197,283	$4,016,927
2002	2.5	65,190	$0.00	$4,950,698	$5,247,410	$4,158,586
2003 or max.	5.5	144,737	$0.00	$10,891,459	$11,544,223	$9,148,825

1. 1.0 mmtpy to Savage Loadout + 1.0 mmtpy to Hunter Plant in 2001, 3.1 mmtpy in 2002, 4.5 mmtpy or maximum in 2003
2. Mmtpy divided by 38 ton standard haul load
3. 0 miles less travel x $3.01/load/mile savings (based on industry cost of $0.07/ton/mile) = $0.00
4. 25.0 miles less travel loaded x $3.01/load/mile = $75.25 savings per load
5. 26.5 miles less travel loaded x $3.01/load/mile = $79.76 savings per load
6. 21.0 miles less travel loaded x $3.01/load/mile = $63.21 savings per load

The Quitchupah Road would reduce the burden of transport so the SUFCO Mine could increase profits and remain competitive in the coal industry. Increased profits mean increased capital for exploration of adjacent coal fields to maintain reserves for mine longevity and increased coal resource recovery.

The reduced cost of transporting coal via the proposed Quitchupah Creek Road translates into several opportunities for the SUFCO Mine:

1. The opportunity to remain competitive in a limited coal market.
2. The opportunity to increase profits and attract investors to fund an adequate capital budget.
3. The opportunity to continue to expand coal production and exploration to increase reserves.

The long-term stability of the SUFCO Mine ensures that one-quarter of the Sevier County payroll would continue and one-fifth of the workers would remain employed.

The construction and operation of a public highway in Quitchupah Creek would shorten the commute route from Emery County to the SUFCO Mine by over 50 miles. Emery County has a resource of unemployed experienced coal miners that could benefit from an easier commute to work. Currently 27 miners from Emery County work at the SUFCO Mine. The travel distance from the SUFCO Mine to the Town of Emery would be 12 miles, to Ferron 27 miles, Castledale 34 miles, and Huntington 43 miles. Currently the nearest town to the SUFCO Mine is Salina in Sevier County at a travel distance of 29 miles. With the proposed Quitchupah Creek Road, Emery would be much closer than Salina, the traditional base for the SUFCO Mine.

An economic electrical cost benefit would also accrue, in time, to the electrical energy consuming public and industry. This is achieved through the following means:
The coal company passes the savings on to the power station. The savings is passed on because the company operates in a very competitive energy market segment.

The generating station passes the savings on to the electrical energy consumer. The power companies operate in a regulated environment with a maximum/minimum return on investment or in an open market environment which reacts very quickly to electrical supply and demand forces.

In addition, the decreased transportation cost would allow the SUFCO Mine to recover more of the coal resource and increase the overall recovery. SUFCO Mine personnel have projected up to 11 million additional tons of coal could be recovered if the Quitchupah Creek Road were built, adding some 1.3 years to the life of the mine. These 11 million tons could provide for the electrical needs of some 1.7 million average residential customers for the 1.3 years. This is an energy resource that would otherwise be lost because it would be uneconomic to recover.

Transportation

Under Alternative B, savings in highway maintenance costs would occur on SR-10, as compared to the No Action alternative. Again, the first 10.1 mile segment of SR-10 is of concern since all impacts to the highway north of that point are common to all alternatives. The first 8.5 miles of this segment of SR-10 north from I-70 would require a 2" overlay up to the Alternative B junction with SR-10. The remaining 1.6 miles would require a 3.5" overlay. These saving figures, compared to the No Action alternative, are shown below.

Alternative B:	8.5 miles of 2" overlay @ $90,909/mile =	$772,727
	1.6 miles of 3.5" overlay @ $181,181/mile =	$290,909
	Total Cost =	$1,063,656
No Action:	10.1 miles of 3.5" overlay @ $181,181/mile =	$1,836,362
Alternative B savings compared to the No Action alternative =		$772,72

In addition, there would be costs of approximately $600,000 to install a passing lane on Quitchupah Hill (Scott Goodwin, UDOT, Region 4).

This alternative would eliminate the probability of traffic collisions with SUFCO coal trucks traveling east on I-70 and on the first 8.5 miles of SR-10.

Under this alternative, the commuting distance from communities to the east of the SUFCO Mine would decrease for vendors traveling to the mine and for Carbon and Emery County residents employed at the mine (5 and 27 respectively).

Agriculture

Alternative B is estimated to reduce available forage by 8 AUMs during road construction. Upon reclamation, the final net loss of forage is estimated to be 4 AUMs. This loss represents an insignificant economic impact to the livestock industry in the Study Area. The corrals/holding pens would be constructed as part of this alternative. Livestock trailing would continue as present, with the addition of fenced trail above the Forest Service boundary.

ALTERNATE JUNCTION AND ALTERNATE DESIGN - ALTERNATIVE C

Alternative C diverges from the existing Quitchupah Creek Road about 2 miles west of SR-10 and proceeds east to intercept SR-10, approximately 10.1 miles north of the I-70/SR-10 junction (i.e. a point 1.6 miles north of the proposed Quitchupah Creek road junction with SR-10 described under Alternative B). The total round-trip distance saved in transporting coal from the SUFCO Mine to destinations in Emery and Carbon Counties would be 58 miles or 47 percent of the round-trip to the Hunter Power Plant. The projected construction cost is $5.9 million.

In addition, the projected cost to construct the junction with SR-10 is $0.8 million and includes the addition of turn lanes. These construction costs would be the responsibility of the SSD; future maintenance would be UDOT's responsibility.

Fuel
The shorter transport route also means fuel savings as indicated in **Table 3.15-8**.

Table 3.15-8 Annual Estimated Fuel Conservation Under Alternative C

Coal Transported per Year		Reduction in Fuel Required		
Year	**Tons**	**Number of Trips**	**Consumed Fuel Gallons**	**Gallons Conserved as Compared to No Action**
2001	2,000,000	52,632	830,416	619,888
2002	3,000,000	78,947	1,245,608	929,820
2003 or max.	5,500,000	144,737	2,283,628	1,704,608
Assumptions: Reduction in round trip of 53 miles, 38 tons of coal per trip, 4.5 miles per gallon, 11.8 gallons saved per trip.				

The projected savings in fuel consumption, over the No Action Alternative, are listed in **Table 3.15-8**. At 5.5 million tons per year, the projected saving in diesel fuel would be 1,704,608 gallons. Savings to fuel consumption and other hauling costs under Alternative C as compared to the No Action Alternative would result in a substantial competitive advantage to the SUFCO Mine.

Costs
The cost savings are similar to those described under Alternative B. For Alternative C, the cost advantage would increase to 10.5 percent. The total transport cost savings annually for the SUFCO Mine would range from $4 to $11 million depending upon tonnage transported.

The dispersed type of recreational activity that is presently enjoyed in Quitchupah Creek would be impacted by traffic and associated noise from the proposed road. However, opportunities for increased passenger vehicle access would occur under this alternative. Additionally, the sense of solitude in the canyon would experience negative impacts caused by increased traffic, noise, and access. These represent changes to the lifestyles of individuals presently using the canyon for these purposes.

Transportation
Under Alternative C, savings in highway maintenance costs would occur on SR-10, as compared to the No Action alternative. Again, the first 10.1 mile segment of SR-10 is examined since all impacts to the highway north of that point are common to all alternatives. The entire 10.1 miles of this segment of SR-10 north from I-70 would require a 2" overlay up to the Alternative C junction with SR-10. There would be no 3.5" overlay needed on this segment. These saving figures, compared to the No Action alternative, are shown below.

Alternative C:	10.1 miles of 2" overlay @ $90,909/mile =	$918,181
	0 miles of 3.5" overlay @ $181,181/mile =	$0
	Total Cost =	$918,181
No Action:	10.1 miles of 3.5" overlay @ $181,181/mile =	$1,836,362
Alternative C savings compared to the No Action alternative =		$918,181

Additionally, by locating the entrance of the proposed road onto SR-10 approximately 1.6 miles north of that proposed for Alternative B, costs of $600,000 for a passing lane on Quitchupah Hill would be avoided (Scott Goodwin, UDOT, Region 4).

This alternative would eliminate the probability of traffic collisions with SUFCO coal trucks traveling east on I-70 and on the first 10.1 miles on SR-10.

Under this alternative the commuting distance from communities to the east of the SUFCO Mine would decrease for vendors traveling to the mine and for Carbon and Emery County residents employed at the mine.

Agriculture
Alternative C is estimated to impact the same amount of land and forage as Alternative B. The corrals/holding pens would be constructed as part of this alternative. Livestock trailing would continue as present, with the addition of the fenced trail above the Forest Service boundary.

WATER HOLLOW ALTERNATE ALIGNMENT - ALTERNATIVE D
Alternative D follows Quitchupah Creek for 2 miles from the Acord Lakes Road, then follows and crosses Water Hollow south to Water Hollow Benches and Saleratus Benches. The route then turns north to connect with SR-10 at a point about 6.2 miles north of the SR-10 intersection with I-70. The round-trip distance saved would be 46.7 miles or 34 percent of the round-trip from the SUFCO mine to the Hunter Power Plant. The projected construction cost is $13.5 million.

In addition, the projected cost to construct the junction with SR-10 is $0.9 million and includes the addition of turn lanes. These construction costs would be the responsibility of the SSD; future maintenance would be UDOT's responsibility.

Fuel
The shorter transport route also means fuel savings as indicated in **Table 3.15-9**.

Table 3.15-9 Annual Estimated Fuel Conservation Under Alternative D

Coal Hauled per Year		Reduction in Fuel Required		
Year	Tons	Number of Trips	Consumed Fuel Gallons	Gallons Conserved as Compared to No Action
2001	2,000,000	52,632	959,072	491,232
2002	3,000,000	78,947	736,839	736,839
2003 or max.	5,500,000	144,737	2,637,429	1,350,879
Assumptions: Reduction in round trip of 42 miles, 38 tons of coal per trip, 4.5 miles per gallon, 9.33 gallons saved per haul.				

The projected fuel savings to SUFCO, compared to the No Action Alternative, are listed in **Table 3.15-9**. At 5.5 million tons per year, the projected saving in diesel fuel would be 1,350,879 gallons. Savings to fuel consumption and other transport costs under Alternative D as compared to the No Action Alternative would result in a substantial competitive advantage to the SUFCO Mine.

Costs
The cost savings are similar to those described in Alternatives B and C.

Transportation
Under Alternative D, savings in highway maintenance costs would occur on SR-10, as compared to the No Action alternative. Again, the first 10.1 mile segment of SR-10 is examined since all impacts to the highway north of that point are common to all alternatives. The first 6.2 miles of this segment of SR-10 north from I-70 would require a 2" overlay up to the Alternative D junction with SR-10. The remaining 3.9 miles would require a 3.5" overlay. These savings figures, compared to the No Action alternative, are shown below.

Alternative D:	6.2 miles of 2" overlay @ $90,909/mile =	$563,636
	3.9 miles of 3.5" overlay @ $181,181/mile =	$709,090
	Total Cost =	$1,272,726
No Action:	10.1 miles of 3.5" overlay @ $181,181/mile =	$1,836,362
Alternative D savings compared to the No Action alternative =		$563,636

In addition, there would be costs of approximately $600,000 to install a passing lane on Quitchupah Hill. (Scott Goodwin, UDOT, Region 4).

This alternative would eliminate the probability of traffic collisions with SUFCO coal trucks traveling east on I-70 and on the first 6.2 miles on SR-10.

Under this alternative the commuting distance from communities to the east of the SUFCO Mine would decrease for vendors traveling to the mine and for Carbon and Emery County residents employed at the mine.

Agriculture
Under Alternative D, there would be an initial loss of 12 AUMs and after reclamation a minimal loss of 5 AUMs. Livestock trailing would continue as present with the addition of the fenced trail above the Forest Service boundary.

MITIGATION AND MONITORING

No Action Alternative:
No mitigation would be necessary.

Alternatives B, C, D:
The fenced trail would minimize costs due to livestock-road collisions.

Alternative D:
No mitigation is planned.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

NO ACTION ALTERNATIVE

The existing SUFCO fuel consumption and associated costs to truck coal via the existing routes on Acord Lakes/I-70/SR-10 would continue. As compared to the build alternatives (B, C, D), the difference in fuel consumption would be irreversibly and irretrievably lost under the No Action alternative.

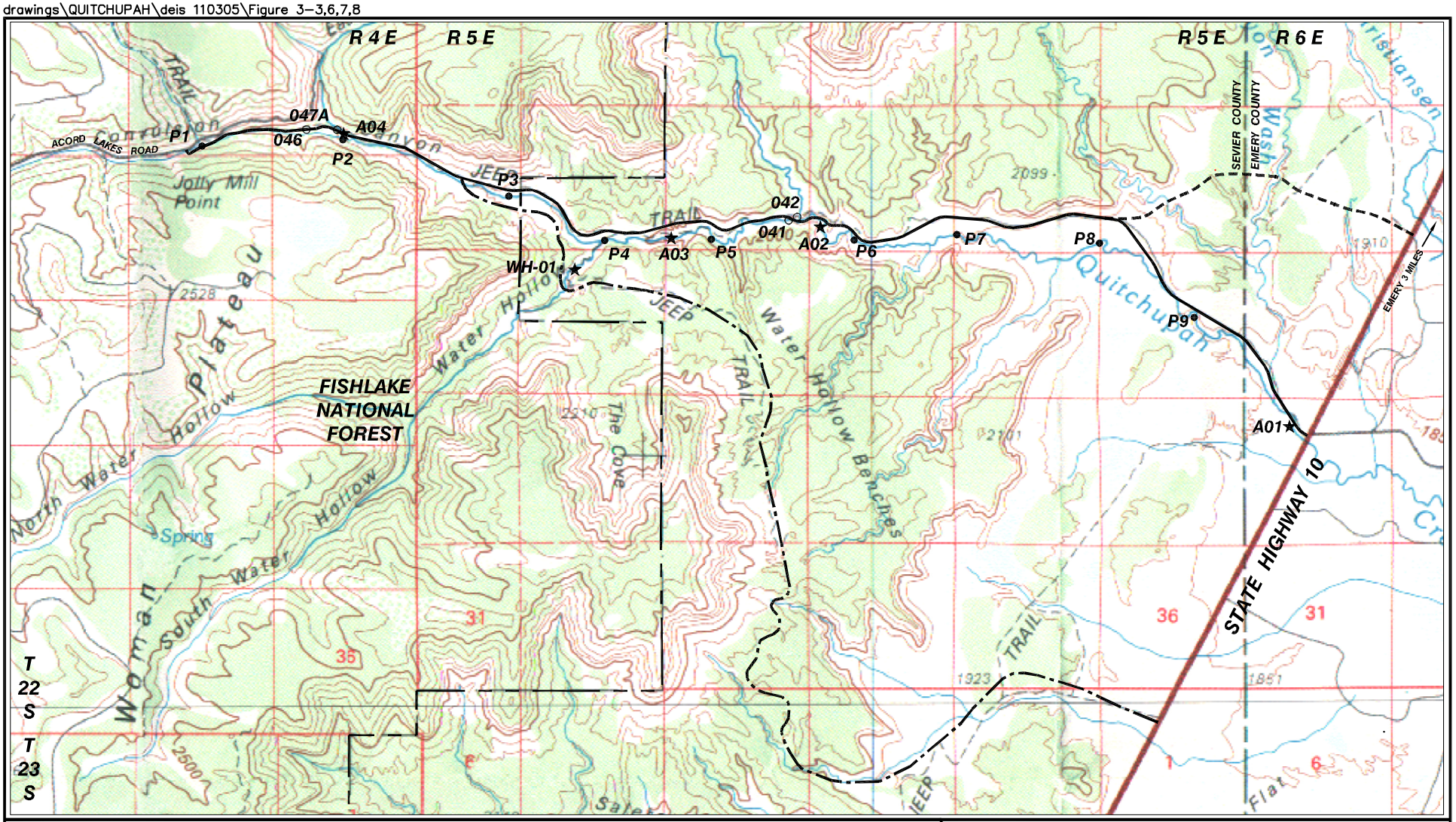
Alternatives B, C, D
The solitude, recreation opportunities, and overall remote character of Quitchupah Creek canyon would be irretrievably lost to those individuals using the canyon for those purposes.

The loss of AUMs would be irretrievably lost with construction of a road through the canyon.

CUMULATIVE EFFECTS
The SUFCO Mine may continue to increase coal production due to an expanding market for coal-fired electrical generation regardless of the alternative selected. This could lead to other coal tracts being leased and mined, in addition to the Muddy tract. Coal-fired electrical generation plants in the Midwest and east have an increased need for low-sulfur, high-btu coal to meet the requirements of the Clean Air Act, generating another eastern market for Utah coal.

The transport of coal from the CONSOL Mine in Emery County would combine with the coal truck traffic from the SUFCO Mine to increase coal truck traffic on SR-10 and through the towns of Emery, Ferron, Clawson, and Castledale. This may lead to increased spending on SR-10 to maintain the highway, as well as increased noise and traffic hazards for this stretch of SR-10. The increased coal production would also increase revenues and subsequent expenditures in Carbon, Emery, and Sevier Counties.

drawings\QUITCHUPAH\deis 110305\Figure 3-3,6,7,8



EXPLANATION

- QUITCHUPAH CREEK ROAD, ALTERNATIVE B
- ALTERNATE JUNCTION, ALTERNATIVE C
- WATER HOLLOW, ALTERNATIVE D
- PFANKUCH STABILITY RATING SITE
- AQUATIC STUDY REACH
- CANYON FUELS MONITORING STATIONS

N

1 0 1 MILE

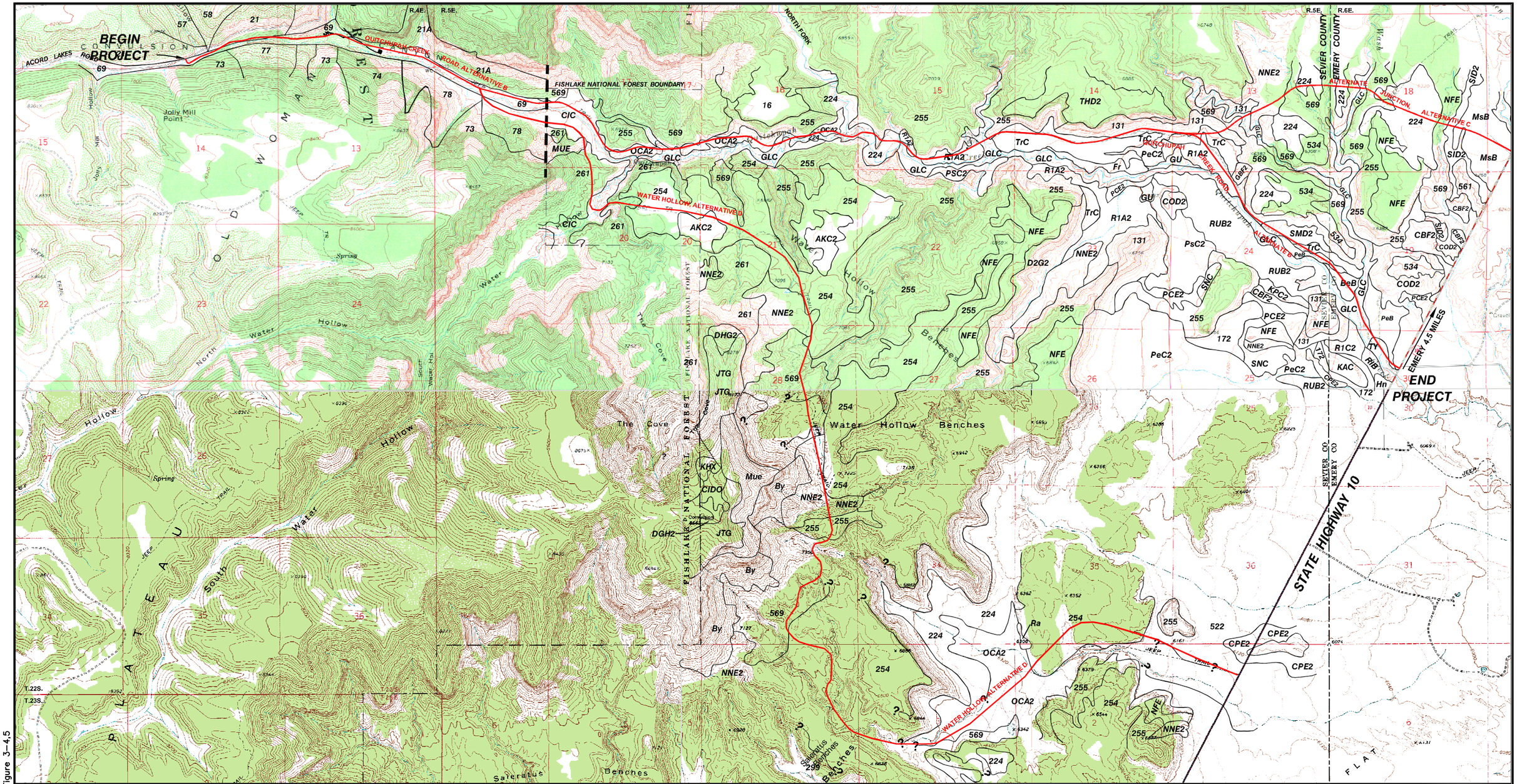
QUITCHUPAH CREEK ROAD EIS

FIGURE 3-1
HYDROLOGY MAP

jbr environmental consultants, inc.
Salt Lake City, Utah Cedar City, Utah Reno, Nevada Elko, Nevada

DESIGN BY	KK	DRAWN BY	CP	CH'D BY		SCALE 1"= 1 Mile

DATE DRAWN	12/09/02
REVISION	6/13/03
	07/14/05
	11/03/05



EXPLANATION

ROAD ALIGNMENT

SOIL MAPPING UNIT BOUNDARY

? UNSURVEYED AREAS

RIB UNIT IDENTIFICATION

SOIL SURVEY BOUNDARY

NOTE: SOIL SURVEY BASED ON PRELIMINARY MAPS FROM N.R.C.S & U.S.F.S. – SUBJECT TO CHANGE

N

3200 0 3200 FEET

QUITCHUPAH CREEK ROAD EIS

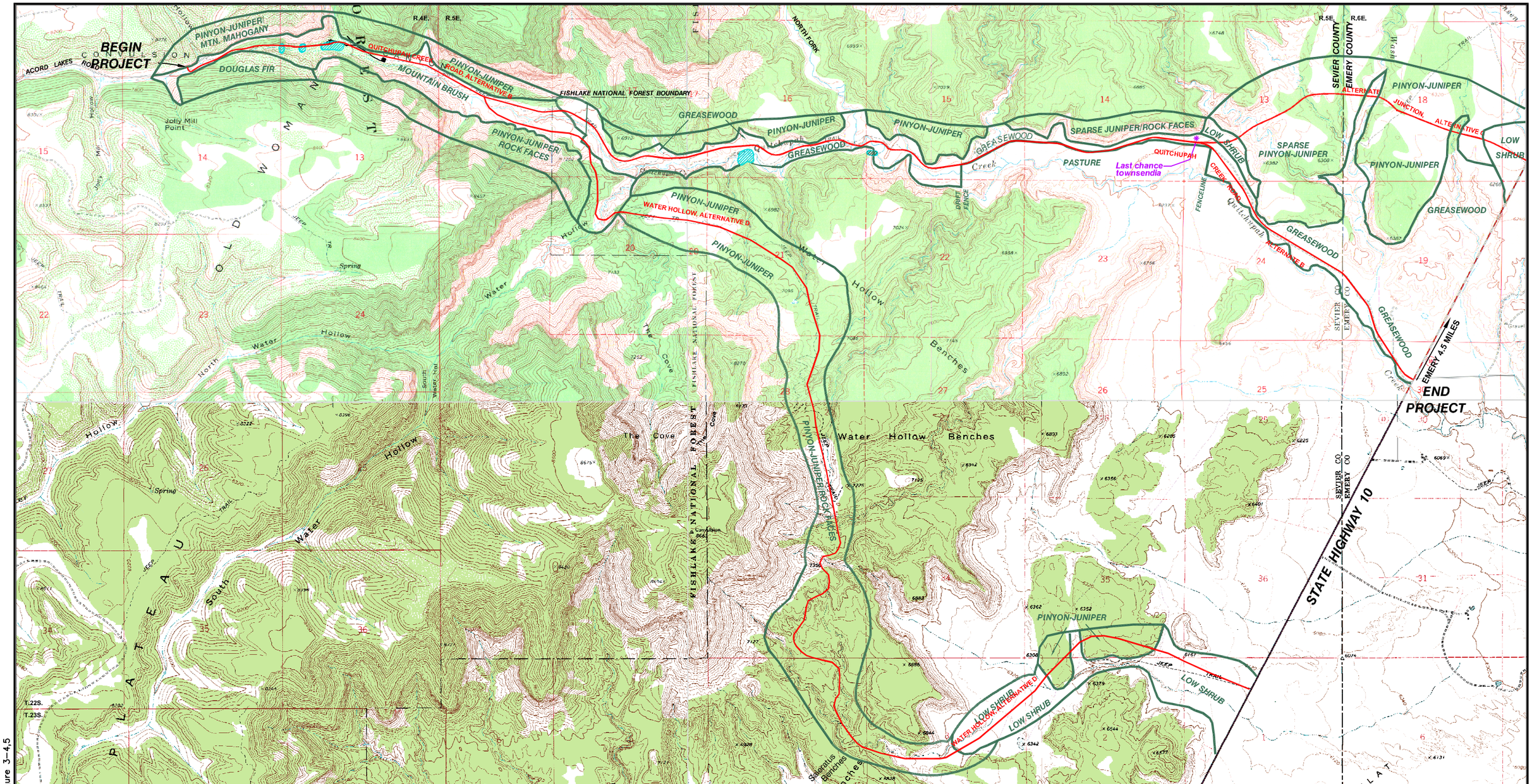
FIGURE 3–2
SOILS MAP

jbr environmental consultants, inc.
Salt Lake City, Utah Cedar City, Utah Reno, Nevada Elko, Nevada

DESIGN BY	KK	DRAWN BY	CP	CH'D BY		SCALE	1"=3200'

	DATE
DRAWN	7/01/02
REVISION	11/09/02
	6/13/03
	10/18/01

drawings\QUITCHUPAH\deis 110305\Figure 3–4,5



EXPLANATION

ROAD ALIGNMENT

VEGETATION

VEGETATION MAPPING UNIT BOUNDARY

WETLAND

PREVIOUSLY RECORDED TES PLANT LOCATION

N

3200 0 3200 FEET

QUITCHUPAH CREEK ROAD EIS

FIGURE 3–3
VEGETATION

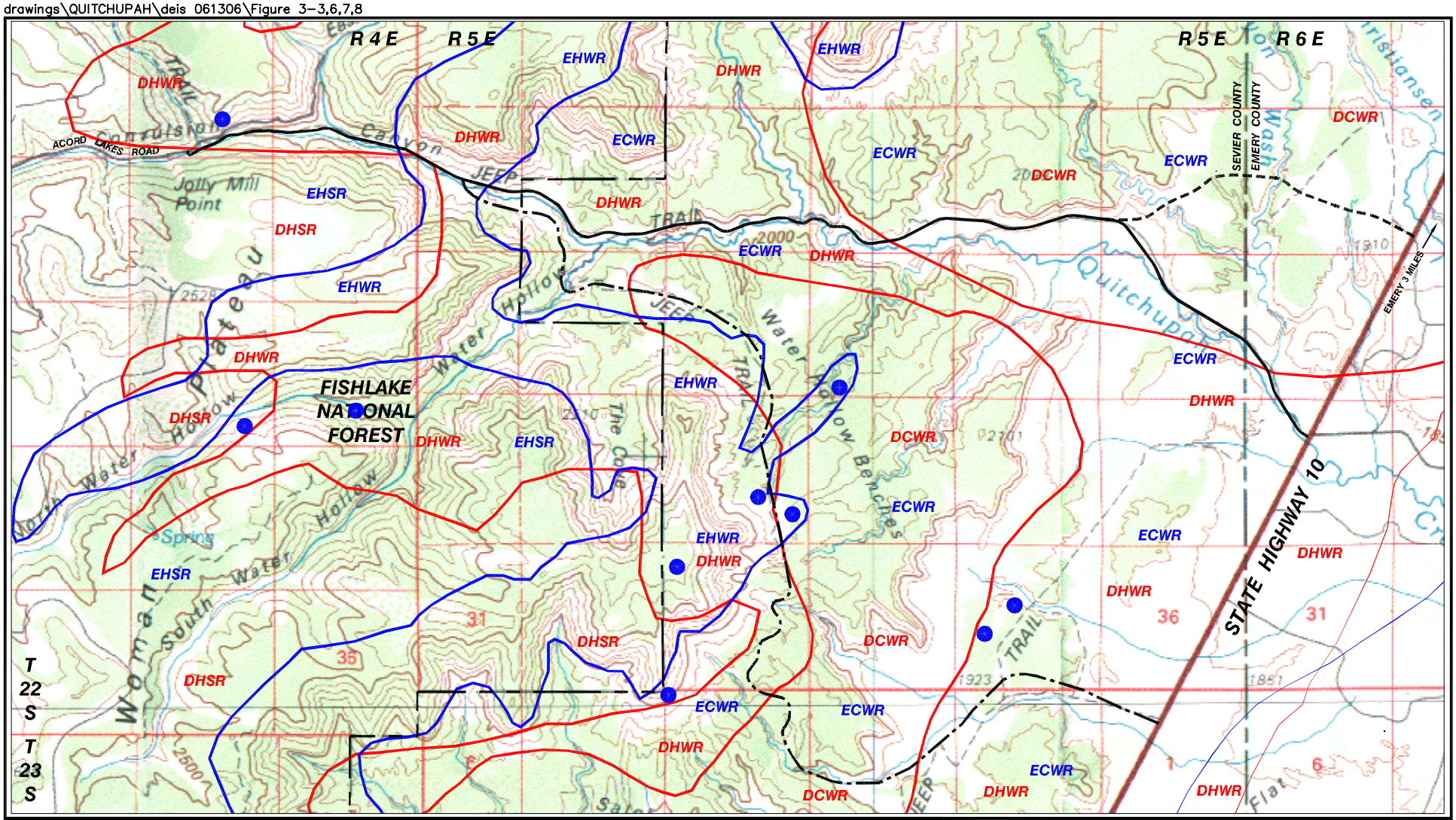
jbr environmental consultants, inc.
Salt Lake City, Utah Cedar City, Utah Reno, Nevada Elko, Nevada

DESIGN BY	LM	DRAWN BY	CP	CH'D BY		SCALE	1"=3200'

DATE DRAWN	6/11/03
REVISION	6/13/03
	7/14/05
	11/03/05

drawings\QUITCHUPAH\deis 110305\Figure 3–4,5

drawings\QUITCHUPAH\deis 061306\Figure 3-3,6,7,8



REFERENCE: STATE OF UTAH NATURAL RESOURCES, DIVISION OF WILDLIFE RESOURCES, MULE DEER HABITAT UDWR 1/2001

EXPLANATION

- QUITCHUPAH CREEK ROAD, ALTERNATIVE B
- ALTERNATE JUNCTION, ALTERNATIVE C
- WATER HOLLOW, ALTERNATIVE D
- DEER SUMMER & WINTER RANGE BOUNDARIES
- DHSR DEER HIGH VALUE SUMMER RANGE
- DHWR DEER HIGH VALUE WINTER RANGE
- DCWR DEER CRITICAL WINTER RANGE
- ELK SUMMER & WINTER RANGE BOUNDARIES
- EHSR ELK HIGH VALUE SUMMER RANGE
- EHWR ELK HIGH VALUE WINTER RANGE
- ECWR ELK CRITICAL WINTER RANGE
- ELK HELICOPTER COUNTS 1997 (UDWR)

NOTE: BOUNDARIES ARE APPROXIMATE

1 0 1 MILE

N

QUITCHUPAH CREEK ROAD EIS

FIGURE 3-4
DEER AND ELK HIGH VALUE SUMMER AND WINTER RANGES

jbr environmental consultants, inc.
Salt Lake City, Utah Cedar City, Utah Reno, Nevada Elko, Nevada

DESIGN BY	GB	DRAWN BY	CP	CH'D BY		SCALE	1"=1 Mile

DATE DRAWN	8/05/02
REVISION	12/09/02
	6/13/03
	11/03/05

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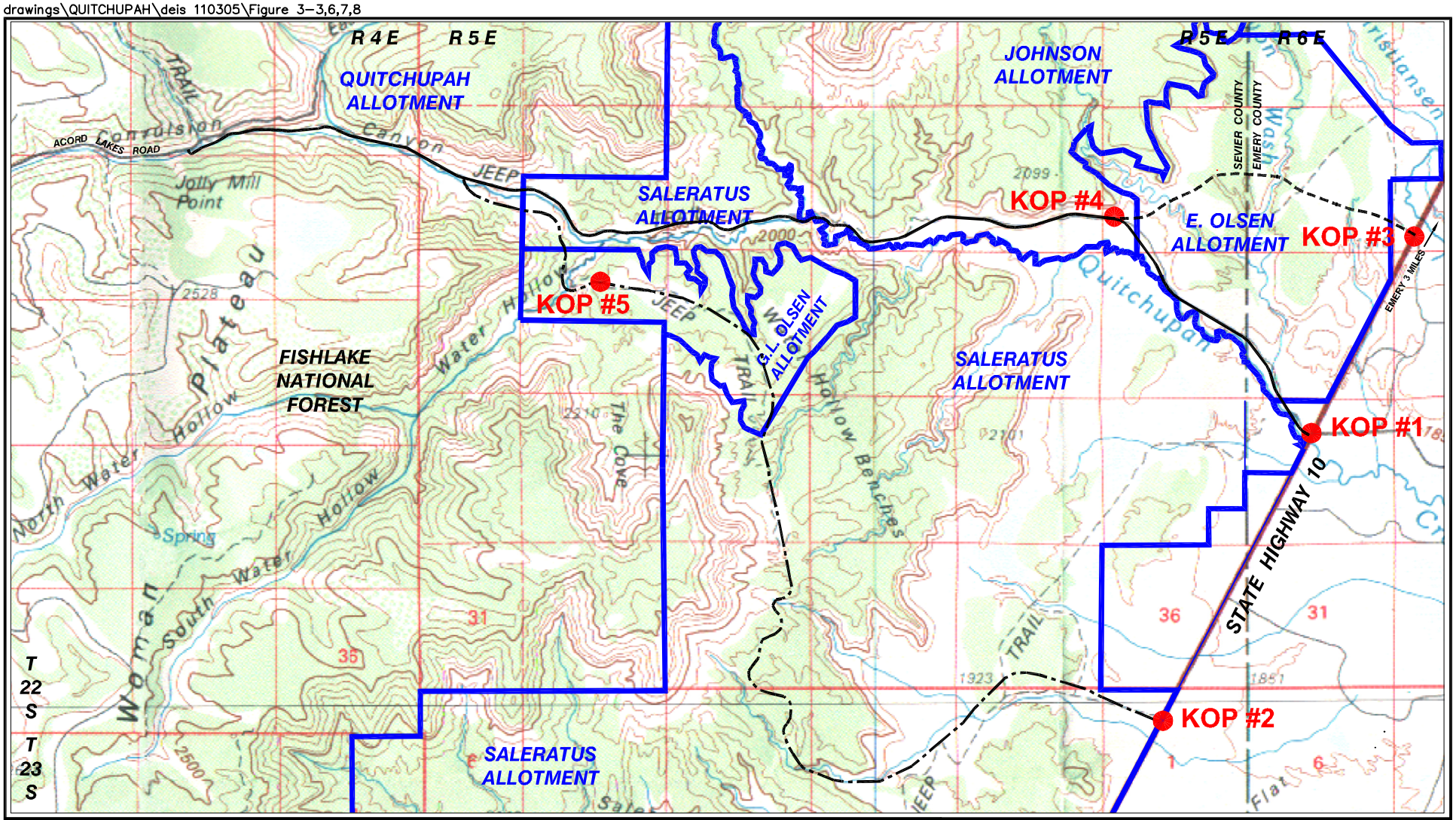

EXPLANATION

- QUITCHUPAH CREEK ROAD, ALTERNATIVE B
- ALTERNATE JUNCTION, ALTERNATIVE C
- WATER HOLLOW, ALTERNATIVE D
- GRAZING ALLOTMENT BOUNDARY
- KEY OBERVATION POINT (KOP)

1 0 1 MILE

N

QUITCHUPAH CREEK ROAD EIS

FIGURE 3-5
GRAZING ALLOTMENT MAP
AND KOP LOCATIONS

jbr environmental consultants, inc.
Salt Lake City, Utah Cedar City, Utah Reno, Nevada Elko, Nevada

DESIGN BY	KK	DRAWN BY	CP	CH'D BY		SCALE 1"= 1 Mile

DATE DRAWN	6/13/03
REVISION	6/27/03
	9/28/05
	11/03/05

Chapter 4

Consultation and Coordination

4.0 CONSULTATION AND COORDINATION

4.1 Scoping Summary

Issues and concerns were identified through solicitation of public and internal scoping comments. The public and internal comments were then categorized into issues. The issues were examined to determine if they were outside the scope of the Proposed Action or analysis, already decided (by law or regulation, etc.), irrelevant to the decision, or not affected by the Proposed Action. Issues determined to fall into one of these categories were dropped from further analysis. The remaining issues became key issues to be analyzed in the EIS.

Issues have been identified through the scoping process. This process included contact with interested citizens, groups, organizations, and agencies, which included the following:

BLM & Forest permittees and cooperators;
BLM & Forest visitors;
BLM & Forest employees;
Federal, State, and local elected officials;
Federal, State, and local agencies;
Affected landowners;
Key members of the community (opinion leaders);
Industry contacts;
Affected Native American tribes;
Environmental community contacts; and
Interested individuals

SUMMARY OF COMMENTS
A total of 35 comment letters or forms were initially received as a result of the EIS scoping effort. Approximately 25 comments had previously been received during scoping for the EA in January-February 1999. Consultation with interested parties has been ongoing throughout the NEPA process. The decision was made by the USFS and BLM to carry over all comments made during the EA scoping into the official record of scoping for the EIS. Comments received cover a large area of concern involving many resource issues. The Summary of Scoping Document, on file at the Fishlake National Forest Office and the BLM Richfield Field Office in Richfield, Utah, contains a summary of the scoping issues and all of the comments received during scoping.

After release of the Draft EIS, 409 public comment letters or forms were received. The comment period extended from December 1, 2001 through February 15, 2002, although additional letters were received and addressed after that time. The letters were examined for key issues and comments. Each comment letter was addressed accordingly. Comment letters and responses can be found in Chapter 6 of this document.

4.2 Public Involvement Plan Summary

Public involvement is an important part of the NEPA process. The purpose of the Public Involvement Plan is to describe in detail the methods and techniques used to involve the public in development of the Quitchupah Creek Road EIS. It allows the public to participate actively in the NEPA process and to communicate their concerns regarding the Proposed Action. In addition, involvement by local governments helps the agencies anticipate the effects and benefits that could occur from the project and allows them to make necessary plans and changes in public policy. The goal of the Public Involvement Plan is to gain public understanding and participation in the analysis and decision-making process regarding the proposed Quitchupah Creek Road Project. The goal is also to assure that the public's concerns are evaluated and addressed in the EIS being prepared for this road construction, and to detail how public input will be encouraged through the process.

IMPLEMENTATION

A Public Involvement Plan was prepared for the Quitchupah Creek Road Project documenting how the public will be kept informed during the EIS process. The phases of public participation included the following:

- Early and widespread notice of the Proposed Action
- Identification of public issues and concerns to be expressed in the analysis
- Identification of those issues not to be analyzed with an explanation why
- Sharing of resources and analytical data with the public
- Solicitation and incorporation of public input in development of Alternatives
- Prediction of environmental impacts in areas of concern raised by the public
- Invite public review and obtain formal public comment on the DEIS
- Analyze and respond to DEIS public comments in the FEIS

4.3 Agencies, Organizations, and Persons to Whom Copies of the Statement Are Sent

The original mailing list for the Quitchupah Creek Road EA was generated on January 15, 1999. Subsequently, the USFS and BLM determined that the proposed project warranted the preparation of an EIS. On July 7, 1999, a revised EIS mailing list was generated and encompassed 213 parties. This list represented all individuals, agencies, or groups who have expressed interest in similar projects. The mailing list has been continuously revised by either adding individuals who did respond or deleting individuals who did not respond (either verbally or in writing) to the scoping letter, legal notices, Notice of Intent, or amended Notice of Intent, or Draft EIS.

Commenters on the November 2001 Draft EIS were added to the mailing list when mailing addresses were provided. A follow-up post card mailing to the commenters and those from the above-described list (from scoping) in spring 2002 provided for commenting parties and others with standing in the EIS process to update their mailing address, or choose to be removed from the mailing list. The Final EIS distribution list is presented on the following pages.

Federal Agencies:

(NOTE: Number in parenthesis indicates number of hardcopies sent. A number followed by "cd" indicates number of cd copies sent. An asterisk (*) indicates that the agency wishes to be notified of EIS posting to the web.)

Advisory Council on Historic Preservation (*)
Director, Planning and Review
1100 Pennsylvania Ave., NW
Suite 809
Washington, DC 20004

Bureau of Land Management
Washington Office (2)
1849 C Street NW
Washington DC 20240

Bureau of Land Management
Utah State Office (2)
P.O. Box 45155
Salt Lake City, UT 84145-0155

Bureau of Land Management
Price Field Office (1)
125 South 600 West
Price, UT 84501

Bureau of Land Management
Richfield Field Office (1)
Cornell Christiansen, Field Manager
150 East 900 North
Richfield, UT 84701

Bureau of Land Management
State Archaeologist (cd or *)
Portillo, Garth J.
324 South State St.
Salt Lake City, UT 84111

Environmental Protection Agency
Office of Federal Activities
EIS Filing Section (5)
Mail Code 2252-A, Room 7241
Ariel Rios Building
(South Oval Lobby)
1200 Pennsylvania Ave., NW
Washington, DC 20460

Environmental Protection Agency
Region 8 (5)
EIS Review Coordinator
999 18th Street, Suite 500
Denver, CO 80202-2466

Federal Aviation Administration
Northwest Mountain Region (*)
Regional Administrator
1601 Lind Avenue, SW
Renton, WA 98055-4056

Federal Highway Administration
Division Administrator (*)
2520 West 4700 South, Suite 9A
Salt Lake City, UT 84118-1847

Forest Service - USDA (3)
Ecosystem Management Coordinator
P.O. Box 96090
Washington, DC 20090-6090

Forest Service - USDA (1)
Linda L. Jackson, District Ranger
Chino Valley Ranger District
Prescott National Forest
735 N Hwy 89
Chino Valley, AZ 86323

Forest Service – USDA (1 cd)
Intermountain Region
324 25th Street
Ogden, UT 84401

Forest Supervisor
Manti-LaSal National Forest (1)
599 West Price River Drive
Price, UT 84501

Natural Resource Cons. Service
District Conservationist (1)
350 North 400 East
Price, UT 84501

Natural Resource Cons. Service
National Environmental
Coordinator (*)
U.S. Dept. Of Agriculture
P.O. Box 2890, Room 6158-S
Washington, DC 20013-2890

U.S. Army Corps of Engineers (1)
Nancy Kang
533 West 2600 South Suite 150
Bountiful, UT 84010

.U.S. Army Corps of Engineers (1)
Matt Hirkala
Sacramento District
Utah Regulatory Office
533 West 2600 South, Suite 150
Bountiful, UT 84010

U.S. Army Engineer Division, South Pacific
CESPD-CMP (*)
333 Market Street, Rm 1101
San Francisco, CA 94105-2195

U.S. Coast Guard (USCG)
Environmental Impact Branch (*)
Marine Environmental Protection Division
G-MEP
2100 2nd Street, SW
Washington, DC 20593

U.S. Department of Energy
Director, Office of NEPA Policy and Compliance (*)
1000 Independence Avenue, SW
Mail Code EH-442, Room 3E094
Washington, DC 20585

U.S. Department of the Interior
Office of Environmental Policy and Compliance,
Director (1, *)
Main Interior Bldg., MS-2340
1849 C Street, NW
Washington D.C. 20240

U.S. Fish & Wildlife Service
Henry Maddux, Field Supervisor (1)
2369 West Orton Circle
West Valley City, UT 84119

U.S. Fish & Wildlife Service (1)
Susan Linner
Colorado Field Office
P.O. Box 25486, DFC
Denver, CO 80225

U.S. Navy (USN)
Office of Chief of Navy Operations (*)
Environmental Protection Division
ATTN: OP-45
Washington, DC 20350

USDA APHIS PPD/EAD (*)
Deputy Director
4700 River Rd. Unit 149
Riverdale, MD 20737-1238

USDA, National Agric. Library (1, 2 cd, *)
Head, Acquisitions & Serials Branch
10301 Baltimore Blvd., Rm.002
Beltsville, MD 20705

State and Local Agencies, Officials, and Interest Groups:

(NOTE: One cd of EIS sent to each address unless otherwise indicated.)

Alliance for the Wild Rockies
Dave Bell
P.O. Box 8421
Missoula, MT 59807

American Fisheries Society
Executive Director
5410 Grosvenor Lane
Bethesda, MD 20814

Back Country Horsemen Of Central Utah
P. O. Box 621
Richfield, UT 84701

Beaver County Commission
P. O. Box 392
Beaver, UT 84713

Castle Valley Special Service District - Darrel Leamaster
P. O. Box 877
Castle Dale, UT 84513

Forest Guardians
1411 Second Street
Santa Fe, NM 87505

Governor Jon Huntsman Jr.
P.O. Box 142220
Salt Lake City, UT 84114-2220

Mayor Wade Bradshaw
Beaver City
P. O. Box 271
Beaver, UT 84713

Mayor of Fillmore
P.O. Box 687
Fillmore, UT 84631
Mayor of Loa
P. O. Box 183
Loa, UT 84747

Mayor Michael J. Williams
Emery City
15 South Center
Emery, UT 84522

Cameron, Charles
BIA Uintah and Ouray
988 S. 7500 E.
Ft. Duchesne, UT 84026

Castledale Library (1)
145 North 100 East
Castledale, UT 84513

City of Emery
P. O. Box 108
Emery, UT 84522

Commissioner G. LaVar Cox
Six County Assoc. of Gov't.
P. O. Box 820
Richfield, UT 84701

Congressman James V. Hansen
301 Creamer-Nobel Building
435 East Tabernacle
St. George, UT 84770

Congressman Chris Cannon
51 South University Avenue, #317
Provo, UT 84606

Emery County Commission
75 East Main
Castle Dale, UT 84513

Emery County Economic Dev.
P.O. Box 297
Castle Dale, UT 84513

Emery County Public Lands
Ray Peterson, Director
75 East Main Street
P.O. Box 1298
Castle Dale, UT 84513

Emery County Road Department
Rex Funk, Director
300 North 1st West
P. O. Box 889
Castle Dale, UT 84513

Emery Water Conservancy District
Jay Mark Humphrey
P. O. Box 998
Castle Dale, UT 84513

Burshia, Ben - Field Rep.
BIA Southern Paiute Office
180 N. 200 E., Suite 111
St. George, UT 84771

Betsy Chapoose
Cultural Rights and Protection Dept. Director
Ute Indian Tribe
P. O. Box 190
Fort Duchesne, UT 84026

Hopi Tribal Council, Chairperson
P. O. Box 123
Kykotsmovi, AZ 86039

Mineral Resource Specialist
John Blake
State Trust Lands Admin.
675 East 500 South, Ste. 500
Salt Lake City, UT 84102

Paiute Indian Tribe of Utah
Lora Tom, Chair
440 North Paiute Drive
Cedar City, UT 84720

Paiute County Commission
550 North Main Street
Junction, UT 84740

Raven Rock Art Tours
Craig Barney
P.O. Box 1397
Moab, UT 84532

Representative Bradley T. Johnson
30 North Main St.
P. O. Box 122
Aurora, UT 84620

Sanpete County Commission
160 North Main Street
Manti, UT 84642

Senator Robert F. Bennett
51 South University Ave, #310
Provo, UT 84601

Senator Orrin G. Hatch
51 South University Ave, #320
Provo, UT 84601

Sevier County Commission (1)
250 North Main Street
Richfield, UT 84701

Sevier County Special Service District #1 (1)
250 North Main
Richfield, Utah 84701

Sevier Co. Public Lands
R. Okerlund & G. Mason
250 North Main
Richfield, Utah 84701

Sierra Club-Ogden Group
Frank R. Chas
2587 W. 5950 S.
Roy, UT 84067

Six County AOG
Sevier County Courthouse
250 North Main
Richfield, Utah 84701

Southeastern Utah Association of Local Governments
Bill Howell, Executive Director
P. O. Drawer 1106
Price, UT 84501

Skyline Mine (1)
Wess Sorensen, Gen. Manager
HC 35 Box 380
Helper, UT 84526

SUFCO Mine (1)
Ken May, General Manager
397 S. 800 W.
Salina, UT 84654

Southern Utah Wilderness (1)Alliance – Liz Thomas
P.O. Box 968
Moab, UT 84532

Triune, Inc.
2328 I-70 Frontage Road
Grand Junction, CO 81505

Utah Dept. of Community & Economic Development
Division of Indian Affairs
Forrest S. Cuch
Executive Director
324 South State Street, # 500
Salt Lake City, UT 84111

Utah Dept. of Env. Quality
Dianne R. Nielson
P.O. Box 144810
Salt Lake City, UT 84114-4810

Utah Dept. of Env. Quality
Division of Water Quality
Walter L. Baker, Director
P.O. Box 144870
Salt Lake City, UT 84114-4870

Utah Dept. of Env. Quality
Division of Water Quality
Rand Fisher, Env. Scientist
P.O. Box 144870
Salt Lake City, UT 84114-4870

Utah Dept. of Transportation
Ross Christenson, District Engineer
708 South 100 West
Richfield, UT 84701

Utah Dept. of Transportation R4
Hugh Kirkham
Price District Director
940 South Carbon Ave.
Price, UT 84501

Utah DNR Div. of Water Rights, Southeast Regional Office
Mark Page, Regional Engineer
P. O. Box 718
Price, UT 84501-0718

Val Payne
5110 State Office Building, Public Lands
Salt Lake City, UT 84114

Utah DNR DOGM
John Baza, Director
PO Box 145801
Salt Lake City, Utah 84114

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Rassmusen, Steven
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Chapter 5

Preparers and Reviewers

5.0 PREPARERS AND REVIEWERS

5.1 List of Preparers

Joseph A. Jarvis. Project Manager, JBR Environmental Consultants, Inc. B.S. and M.S. Wildlife Biology, Humboldt State College. Thirty years of environmental experience, including preparation of numerous NEPA documents, baseline data collection reports, and permitting for right-of-ways. *No longer active in project.*

Linda Matthews. Environmental Analyst/ Project Manager, JBR Environmental Consultants, Inc. B.S. in Environmental Studies, Utah State University, graduate studies in forest ecology, Utah State University. Over 20 years of experience researching, preparing, and managing NEPA documents.

Catherine Clark. Assistant Project Manager, JBR Environmental Consultants, Inc. B.A. Geography, California State University Northridge, M.S. Environmental Resource Management, University of Nevada, Reno. Over 11 years of experience in the environmental field. *No longer active in project.*

Greg Brown. Biologist, JBR Environmental Consultants, Inc. B.S. Natural Resource Management, University of Nevada, Reno. Over ten years of experience of performing surveys for special status plant and animal species, baseline surveys for wildlife and vegetation studies, seep and spring surveys, and water sampling for chemical and water quality analysis.

Erin Hallenburg. Air Quality Specialist, JBR Environmental Consultants, Inc. B.S. Biology, Mt. Union College, B.S. Civil Engineering, University of New Mexico. Over 16 years of experience in the environmental and engineering field, including air dispersion modeling, regulatory compliance, and air quality studies.

Alan Isaacson. Economist, Isaacson and Associates. B.S. Metallurgical Engineering, M.B.A. Over 15 years experience in economic field.

Karla Knoop. Professional Hydrologist, JBR Environmental Consultants, Inc. B.S. Watershed Science, Utah State University. Seventeen years of experience in surface water hydrology and erosion studies. Experience includes channel restoration projects, drinking water investigations, storm water permitting, and baseline watershed studies.

Amy Linnerooth. Environmental Analyst, JBR Environmental Consultants, Inc. B.A. Biology, Gustavus Adolphus College, M.S. Biology, University of Nevada, Reno. Over six years experience conducting biological surveys. Additional experience includes preparation of documents for compliance with NEPA. *No longer active in project.*

Bill Millar. Geologist, JBR Environmental Consultants, Inc. B.S. Environmental Science, University of Virginia, M.S. Geology, University of Georgia. Over 16 years of experience in environmental site assessment and geological and hydrogeological assessments. *No longer active in project.*

Nancy Nething. Geologist, JBR Environmental Consultants, Inc. B.S. Geology, Oregon State. Over twenty years of experience conducting environmental studies, basin analysis, water resource management, environmental compliance and permit applications, and erosion control. *No longer active in project.*

Jenni Prince Mahoney. Environmental Analyst/Archaeologist, JBR Environmental Consultants, Inc. B.A. Anthropology, University of California San Diego. Over thirteen years of experience in cultural resource management and four years of research and preparation of NEPA documents.

Jim Sage. Geologist, JBR Environmental Consultants, Inc. B.S. Geology, Fort Lewis College. Over three years of experience in geology/engineering including soils testing and surveying.

David Worley. Biologist, JBR Environmental Consultants, Inc. B.S. Biology, University of Nevada, Reno, M.S. Zoology, University of Nevada, Reno. Over 20 years of experience conducting environmental baseline surveys for a wide variety of wildlife and plant species including raptors, big and small game, bats, aquatic habitat investigations and describing terrestrial and stream ecosystems.

5.2 List of Reviewers

Lori Armstrong. Associate Field Manager, USDI-BLM Richfield Field Office. M.S. in Botany/Ecology. Over eleven years experience. *No longer active in project*.

Daniel Bond. USDA-USFS. Roads Engineer. Thirty-two years of experience.

Loren Cabe. Economist, Washington Office Planning Staff. USDI-BLM. M.S. in Resource Economics. Thirty years of experience in economics. *No longer active in project.*

LaRell Chappell. Soil Scientist, USDI-BLM. B.S. in Agronomy. Thirty-three years of experience in soil resources. Retired 2001. *No longer active in project.*

Cornell Christensen. Ecosystem Staff Officer/ Richfield Field Office Manager. USDA-USFS Fishlake National Forest. Twenty-five years experience in Natural Resource Management.

Ellen Daniels. Editorial Assistant, USDA-USFS. Over ten years of professional experience.

Dale Deiter. Hydrologist, USDA-USFS Fishlake National Forest. B.S. in Forestry. M.S. in Forestry. Eight years of experience as a hydrologist and over 17 years experience in natural resource management.

Kay Erickson. Realty Specialist, USDI-BLM Richfield Field Office. Twenty-two years of experience in land management. Retired May 2003. *No longer active in project*.

Mary Erickson. Forest Supervisor, USDA-USFS. B.S. Forest Management, M.S. Forest Economics. Over 20 Years experience in forest management.

Frank Fay. Planner, USDA-USFS. B.S. in Forest Management. Eighteen years of experience in planning and NEPA preparation. *No longer active in project.*

Timothy Finger. Outdoor Recreation Planner, USDI-BLM. B.S. in Zoology. Ten years of experience in recreation and visual resource management. *No longer active in project.*

Jerry Goodman. Field Manager, USDI-BLM Richfield Field Office. B.S. in Wildlife. Thirty-four years of experience in management. *No longer active in project.*

Larry Greenwood. Wildlife Biologist, USDI-BLM Richfield Field Office. B.S. in Wildlife Biology; M.S. in Botany/Range Science. Twenty-two years experience as Wildlife Biologist; four years experience as Range Conservationist.

Gary Hall. Assistant Field Manager, USDI-BLM Richfield Field Office. B.S. Range Management. Over 26 years experience in land management. *No longer active in project.*

Craig Harmon. Archaeologist, USDI-BLM Richfield Field Office. M.A. in Anthropology. Thirty-four years of experience in cultural resources.

Jeanne Higgins. District Ranger, USDA-USFS. B.S. in Forestry. Fifteen years of experience. *No longer active in project.*

Karl Ivory. Rangeland Management Specialist, USDI-BLM Price Field Office. B.S. in Range Science. Seventeen years of experience.

Linda Jackson. Public Affairs Officer, USDA-USFS. B.S. in Geology and Natural Science. Nine years of experience in public relations. *No longer active in project.*

Michael Jackson. Geologist, USDI-BLM Richfield Field Office. M.S. in Geology. Sixteen years of experience in geology and mineral resources.

Rod Lee. Nonrenewable Resource Advisor, USDI-BLM Richfield Field Office. Thirty-one years of experience in lands, realty, and NEPA compliance.

Dick Manus. Field Manager, USDI-BLM Price Field Office. *No longer active in project.*

Jerry Meredith. Field Manager, USDI-BLM Richfield Field Office. B.A. in Communications. Thirty years of experience. *No longer active in project.*

Rob Mrowka. Forest Supervisor, USDA-USFS. B.S. Resource Management, M.S. Forest Ecology. Over 30 years experience. *No longer active in project.*

Robert M. Neilsen. Industry Economist. BLM Utah State Office. *No longer active in project.*

E. Stanley Perkes. Mining Engineer. BLM Utah State Office. *No longer active in project.*

Garth Portillo. Archaeologist, BLM Utah State Office.

Kreig Rasmussen. Wildlife Biologist, USDA-USFS. B.S. in Wildlife and Range Science. Thirteen years of experience in wildlife biology.

Aden Seidlitz. Field Manager, USDI-BLM Richfield Field Office. B.S. Petroleum Engineering. Twenty years of experience. *No longer active in project.*

Michael Smith. Soil Scientist, USDA-USFS. B.S. in Soil Sciences and Natural Resource Management. Twenty-four years of experience in soil science.

Gene Terland. Director (acting), Utah State Bureau of Land Management Office.

George Tetreault. Mining Engineer. BLM Price Field Office. *No longer active in project.*

Bob Tuttle. Range, USDA-USFS. B.S. in Range Management. Twenty-five years of experience in Rangeland Management.

Jim Whelan. Fisheries Biologist, USDA-USFS. B.S. in Fisheries/Wildlife. Twelve years of experience.

Christopher Wehrli. Assistant Environmental Coordinator, Fishlake National Forest, Richfield, Utah.

Sally Wisely. Director, Utah State Bureau of Land Management Office. *No longer active in project.*

Chapter 6

Public Comments and Responses

6.0 PUBLIC COMMENTS AND RESPONSES

This chapter contains copies of public comments received in response to the Quitchupah Creek Road Draft EIS. The responses to comments are provided adjacent to the reproduced comment letters. Four hundred and nine public comment letters were received on the DEIS. The letters are organized in this chapter by Federal Agency, State Agency, Native American, Local Entity, Group, and Individual. Letter numbers were designated in the order comment letters arrived at the agency office. Since the letters have been organized into groups, the letters will not necessarily appear in this chapter in numerical order.

A table matrix has been provided to illustrate public concerns in each letter. Group and page number where letters can be found are listed within this table. Group form letters make up 85% of the comment letters received. The following is a list of the letter groups and associated pages:

Federal Agency Letters - pages 6-8 through 6-33
State Agency Letters - pages 6-34 through 6-42
Native American Letters - pages 6-43 through 6-47
Local Entity Letters - pages 6-48 through 6-61
Group Letters - pages 6-62 through 6-129
Individual Letters - pages 6-130 through 6-169

Public Concerns by Letter

Letter #	Page #	Name	Letter Category Section	Concerns										
				Editorial	Purpose & Need	Policies	Air & Noise	Cultural/ Paleo	Livestock Trail	Socio-Economic	TES/ Wildlife	Visual/ Recrea-tion	Water/ Soils/ Geology	Wetland/ Riparian/ Vegetation
1	132	Mark Belles	I											
2	133	Merlin H. Christiansen	I						X					
3, 12-95, 273, 373	63	Robinson Transport	G							X				
4	35	Division of Oil & Gas	SA	X										
5	133-134	Thomas C. Bunn	I	X				X		X				
6-9	64	Barney Trucking	G							X				
10	65	Barney Trucking	G							X				
11	135-136	Thomas C. Bunn	I	X				X		X				
96	137	Jeannine Baker	I					X						
97	138-140	Morgan Robertson	I	X					X	X				
98, 104, 148, 274	66	Triune, Inc.	G							X				
99	141-142	Robert E. Anderson	I				X		X	X				
100	67-68	RMA Sales Mgt. Co.	G		X		X		X	X				
101	36	Representative Bradley T. Johnson	SA							X				
102	69-72	Forest Guardians	G								X		X	

Letter #	Page #	Name	Letter Category Section	Concerns										
				Editorial	Purpose & Need	Policies	Air & Noise	Cultural/ Paleo	Livestock Trail	Socio-Economic	TES/ Wildlife	Visual/ Recrea-tion	Water/ Soils/ Geology	Wetland/ Riparian/ Vegetation
103	143	Paul Niemeyer	I								X			
104	144	M.K. Axelgard	I							X				
105	37	UDOT	SA							X				
106	145	Wesley K. Sorensen	I						X					
107	73	Western Mine Tools	G							X				
108-146, 150-179	74	Local Citizens	G							X				
146	146	Kathy Bastian	I											
147	75	Southeastern Utah OHV Club	G					X				X		
149	76	Morgantown Machine & Hydrolics of Utah, Inc.	G							X				
180-267, 277-298, 304-336, 339	77	SUFCO Mine	G							X				
268	44-45	Hopi Tribe	NA					X						
269	147	Ken Christiansen	I						X					
270	49	Glenys Sitterud Emery City	LE					X	X					
271	148	Jammi Siterud	I					X	X					
272	149	Scott Jensen	I							X				

Letter #	Page #	Name	Letter Category Section	Concerns										
				Editorial	Purpose & Need	Policies	Air & Noise	Cultural/ Paleo	Livestock Trail	Socio-Economic	TES/ Wildlife	Visual/ Recrea-tion	Water/ Soils/ Geology	Wetland/ Riparian/ Vegetation
275	150-153	Thomas C. Bunn	I						X					
276	78	Longwall West, Inc.	G							X				
299	154-155	Don W. and Bonnie P. Keele	I							X		X		
300	50	Sevier County Economic Development	LE							X				
301	156	Fred S. Jenkins	I										X	
302	38	Senator Leonard M. Blackham	SA							X				
303	51	Mayor Emery Town	LE		X					X				
337	79	Industrial Electric Motor Service	G							X				
338	80	RM Wilson Co.	G							X				
340	157-158	Larry D. Brown	I		X			X		X	X			
341	46	Paiute Indian Tribe of Utah	NA					X	X					
342	81	Tram Electric	G							X				
343	82	Tram Electric	G							X				
344	83	Tram Electric	G							X				
345	84	Tram Electric	G							X				
346	85	Tram Electric	G							X				

Letter #	Page #	Name	Letter Category Section	Concerns										
				Editorial	Purpose & Need	Policies	Air & Noise	Cultural/ Paleo	Livestock Trail	Socio-Economic	TES/ Wildlife	Visual/ Recrea-tion	Water/ Soils/ Geology	Wetland/ Riparian/ Vegetation
347	86	Tram Electric	G							X				
348	87	Tram Electric	G							X				
349	159	Michael Jewkes	I							X				
350-367	88	SUFCO subcontractors	G							X				
368	89	Custom Supply, Inc.	G							X				
369, 370	90-91	Barclay Mechanical Services, Inc.	G							X				
371	92-93	Utah Wildlife Federation	G							X	X			
372	160	Zanpher Farrer	I					X						
374	52	Salina City	LE							X				
375	94	Savage Industries Inc	G							X				
376	53	Jon Sundstrom Emery Town	LE		X									
377	95	DBT America	G							X				
378	161	Don Jamison	I							X				
379	162	Paula Wellnitz	I		X									
380	96	Joy Mining	G							X				
381-388	97	DBT America	G							X				

Letter #	Page #	Name	Letter Category Section	Concerns										
				Editorial	Purpose & Need	Policies	Air & Noise	Cultural/ Paleo	Livestock Trail	Socio-Economic	TES/ Wildlife	Visual/ Recrea-tion	Water/ Soils/ Geology	Wetland/ Riparian/ Vegetation
389	54	Sevier County SSD No. 1	LE						X					
390	39	Governor Michael Leavitt	SA							X				
391	55	Sevier County	LE							X				
392	56	Six County Assoc. Of Governments	LE							X				
393	163	Carolee Hammel	I							X				
394	57	Sevier County Public Lands Advisory Committee	LE							X				
395	164	J. Rick McEwen	I							X				
396	98-99	Canyon Fuel Company,LLC	G						X					
397	9-17	US EPA	FA	X	X	X	X	X	X	X	X	X	X	X
398	100-104	Utah Archaeological Research Institute	G					X						
399	165-168	David Sucec	I		X			X		X	X			
400	105-110	Castle Valley Ranches	G					X	X	X	X	X	X	
401	40-42	UDWR	SA		X						X		X	X
402	111-112	Utah Farm Bureau	G						X					

Letter #	Page #	Name	Letter Category Section	Concerns										
				Editorial	Purpose & Need	Policies	Air & Noise	Cultural/ Paleo	Livestock Trail	Socio-Economic	TES/ Wildlife	Visual/ Recrea-tion	Water/ Soils/ Geology	Wetland/ Riparian/ Vegetation
403	113-125	Utah Environmental Congress	G		X	X	X	X		X	X		X	X
404	126-127	Southern Utah Wilderness Alliance	G		X	X				X				
405	169	Kent Petersen	I					X		X				
406	128-129	Interwest Mining Company	G							X				
407		**Unassigned number**												
408		**Unassigned number**												
409	58-61	Emery County	LE	X	X				X	X			X	
410	47	Ute Indian Tribe	NA					X						
411	18-33	U.S. DOI	FA	X		X	X	X		X	X		X	X

FEDERAL AGENCY LETTERS

Letters Included:
Letter #397 - United States Environmental Protection Agency
Letter #411 - United States Department of the Interior

Letter #397

03/19/02 TUE 11:17 FAX 801 896 9347 FISH LAKE NTL. FOREST 009

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
999 18TH STREET - SUITE 300
DENVER, CO 80202-2466
Phone 800-227-8917
http://www.epa.gov/region08

FEB 22 2002

FISHLAKE NATIONAL FOREST RECEIVED FEB 28 2002

Ref: 8EPR-N

Linda L. Jackson
Public Affairs Officer
Fishlake National Forest
115 East 900 North
Richfield, Utah 84701

Kay Erickson
Realty Specialist
Bureau of Land Management
Richfield Field Office
150 East 900 North
Richfield, Utah 84701

Re: Fishlake National Forest - Richfield BLM Public Lands: Quitchupah Creek Road - Draft Environmental Impact Statement #10506

Dear Ms. Jackson and Ms. Erickson:

In accordance with our responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act, The U.S. Environmental Protection Agency (EPA) Region 8 has reviewed the *Quitchupah Creek Road Draft Environmental Impact Statement* (DEIS), dated November, 2001. The United States Forest Service (USFS) and the Bureau of Land Management (BLM) have submitted a request to grant a right-of-way through their lands, in response to an application submitted by the Sevier County Special Services District (SSD). The SSD proposes to construct a public road to be utilized primarily as a coal hauling route for the SUFCO mine.

397-1 This DEIS analyzes four alternate routes for the road, including the no-action alternative. The alternatives other than the no-action alternative would reduce the time and expense of hauling the coal by reducing the distance the trucks have to travel. Because of the lack of specific information on impacts, described in our comments below, we are unable to determine whether these resources will be significantly impacted. The economic and environmental costs of the project appear significant, and the impact to the affected local public also appears significant. We believe, therefore, that the costs of this project are not properly justified by the DEIS.

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Response 397-1

Impacts to resources have expanded text in the FEIS to further describe them, as described in responses below. Applicant committed measures described in Chapter 2 of the FEIS preclude many of the predicted impacts.

Economic benefits have been further documented in Section 3.15 in the FEIS

Letter #397

397-1 cont.

03/19/02 TUE 11:17 FAX 801 896 9347 FISH LAKE NTL. FOREST 010

Based on the procedures EPA uses to evaluate the potential effects of proposed actions and the adequacy of the information in the DEIS, EPA will rank this DEIS in the category of EO2. This rating means that the EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment, and that the draft EIS does not contain sufficient information to fully assess environmental impacts. EPA does not believe that the draft EIS is adequate for purposes of the National Environmental Policy Act, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. We have enclosed a summary of EPA's ratings criteria and definitions.

We offer these comments to assist the USFS and BLM in preparing a document that meets the full intent of NEPA, and that results in the best decision possible to protect the environment. If you have any questions concerning these comments, please contact Deborah Lebow at 303 312-6223 or lebow.deborah@epa.gov.

Sincerely

Elyana Sutin, Acting Director
NEPA Program, Office of Ecosystems Protection
And Remediation

(Enclosures: 3)

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397

Response 397-1 cont.

The construction costs were supplied by Jones & DeMille Engineering. The maintenance costs were derived from the actual costs of maintaining the present coal transport road, the Acord Lakes Road. Table 2.6-1 in Chapter 2 includes costs to construct the proposed road and alternatives but the projected maintenance costs and BMP costs will be included in the FEIS.

Additional information and analysis has been provided in the FEIS for hydrology, soils, socioeconomics, cultural resources, and Native American concerns.

Letter #397

U.S. Environmental Protection Agency Rating System for Draft Environmental Impact Statements Definitions and Follow-Up Action*

Environmental Impact of the Action

LO - - Lack of Objections

The Environmental Protection Agency (EPA) review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC - - Environmental Concerns

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts.

EO - - Environmental Objections

The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU - - Environmentally Unsatisfactory

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1 - - Adequate

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis of data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

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Letter #397

Quitchupah Creek Road Draft EIS
Environmental Protection Agency Comments

397-2

Federal Lands Policy on Rights-of-Way

Section 1763 of the Federal Land Policy and Management Act of 1976 addressing Federal land right-of-way corridors states that "In order to minimize adverse environmental impacts and the proliferation of separate rights-of-way, the utilization of rights-of-way in common shall be required to the extent practicable..." The decision-maker should weigh this policy carefully, given the significant adverse environmental impacts to multiple resources associated with the action alternatives for this right-of-way. While the decision maker may have the discretion to override this policy, this EIS does not lead the reader to the conclusion that it is "impractical" for this mine to continue to utilize its existing right-of-way given that the mine is currently profitable, and likely to remain so.

397-3

Economic Analysis, supporting the Purpose and Need

The public purposes for this project are to save fuel and to promote national efficiency. An additional public purpose may be to provide a secondary route to and from the mine in the event of an emergency. The private purpose is to provide the SUFCO mine a less expensive way to haul coal than the current route, to allow the mine to be more competitive in the coal market. Since this project is a request for a right of way on public land, and there is already access to the mine, the private purpose is less relevant to this project. The fuel savings and other benefits from this project should be balanced with its economic and environmental costs and impacts.

The documented economic costs of the road appear to range from $6.1 million (Alt. B plus passing lane on SR-10) to $14.1 million (Alt. D plus passing lane on SR-10). These road building costs seem conservative, and do not appear to take into account the costs of maintenance on the new road, the impacts to the livestock industry (not quantified in the DEIS), cultural impacts, habitat fragmentation (not discussed in the DEIS, but a major impact of roads to the ecosystem), riparian impacts, and visual/aesthetic impacts. The cost of mitigation for cultural and grazing issues alone could be substantial and are not clearly taken into account.

The benefits in terms of fuel cost savings appear to range from 1,194,667 gallons per year (Alt. D) to 1,507,556 gallons per year (Alt. C). Benefits also include improved access for the public to these public lands, minimal benefits to commuters from Emery County, an alternative route in case of emergencies, and the savings in costs of improvements on SR-10 (they range from $63,636 (Alt. D) to $918,181 (Alt. C) --SR-10 will need to be upgraded for the coal traffic no matter which alternative is selected. The savings comes in having to improve less of SR-10 with some of the alternatives because of the shortened trip).

It is not clear from this document whether the economic and environmental costs of this project outweigh the benefits. The document does not address how long the mine will be in operation. The fact that the mine has contracts extending out several years indicates that they do not need the road to maintain viability, but are interested in increasing their profit margin. The

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Response 397-2
The reference to FLPMA is noted under Alternative A; the FEIS discusses complications in maintaining the current road system under increased production and transport. See the discussion in Section 2.1 in the EIS (Alternative A -No Action) where it discusses the complications in maintaining the existing road system due to increased truck traffic, especially Acord Lakes Road and SR10. Periodic traffic congestion is expected on Acord Lakes Road if all the truck traffic has to use this road in the upcoming years of increased production at the SUFCO Mine.

Response 397-3
The costs for the road in the DEIS are construction costs; maintenance would be the responsibility of the county (SCSSD). The tolls from coal trucks would reimburse the SCSSD for all the costs of the road. The mitigation costs will not be known until the decision notice is issued detailing required mitigation but are estimated to be $0.4 to $0.6 million. The savings on transporting coal would easily pay for the road, road maintenance, and mitigation. The mine will operate 15-20 years on present known reserves but potential for additional reserves exists adjacent to the mine operating area.

The SUFCO Mine was Utah's largest coal producer in 2004. SUFCO and dependant trucking companies provided 20 percent of the non-farm employment and 28 percent of the personal income in Sevier County in 2002. The mine is an important component of local economies. The presence and stability of the SUFCO Mine, and the families that support it, guarantee a continued demand in both Sevier and Emery counties for bank loans, mortgages, utilities, and other goods and services. This adds to the economic stability of both counties.

The construction costs were supplied by Jones & DeMille Engineering. The maintenance costs were derived from the actual costs of maintaining the present coal transport road, the Acord Lakes Road. Table 2.6-1 in Chapter 2 includes costs to construct the proposed road and alternatives but the projected maintenance costs and BMP costs will be included in the FEIS.

The competitive bids to transport coal forces the trucking firms to use the most fuel-efficient truck. The SUFCO Mine has a very high efficiency rating far out producing other coal mines on a per unit of labor basis, see Section 2.1 Alternative A - No Action. The proposed road is at a lower elevation for most of its length than the Acord Lakes Road so generally it would be more likely to be open in the winter when the other roads are blocked by storms.

However, in an effort to lessen impacts additional mitigation measures will be incorporated into the FEIS as Applicant-Committed Environmental Protection Measures. The response 397-1also explains the economic benefits.

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397-3 cont.

document must explain better why it is the public's interest to grant a right-of-way for a road that will have significant environmental impacts.

To provide a clearer picture of the economic costs and benefits, we recommend that the DEIS provide information on how long the mine intends to be viable, the maintenance costs of the new road, and the costs of mitigating for impacts. We believe mitigation may be required for cultural, water quality, wetland, wildlife, and aesthetic/visual impacts, at a minimum. It is also unclear how much of the cost of this project the mine will pay back in tolls. Will the tolls cover the entire cost of the project, including maintenance costs, or are the County and Federal government picking up some of the costs?

397-4

For both legitimate public purposes, i.e., reducing fuel usage and allowing a second road for emergencies, there may be other alternatives that meet the purpose that do not involve building roads. For example, in section 2-21, there is a short discussion on conveyor systems to convey coal, but it is ruled out as economically infeasible. It would be useful to know how expensive the conveyor system might be, and whether there are any other options. There should be some discussion about ways SUFCO could cut costs, e.g., whether more efficient trucks are an option, efficiency techniques to reduce energy usage at the mine itself, which would serve the same purpose as building a new road. In terms of an emergency, the DEIS does not explain what this entails. Would helicopters work in an emergency? Is the need to rescue miners from underground shafts, and if so, how would emergency crews get there faster from one of these alternate routes, or is there a better option? Where would they be coming from? Why is the one existing road not adequate for emergencies? How often is I-70 completely closed in this area for weather or accidents necessitating the need for an alternate route? Information answering these questions would be helpful in assessing whether there are other alternatives to meet this purpose, and whether this is a legitimate purpose.

397-5

Cultural Impacts

The impacts to cultural resources appear to be major for all the alternatives except the no action alternative for this project. There appears to be no mitigation plan for preserving the rock art or any sites eligible for the National Register of Historic Places, and no obvious resolution with the Paiutes, who have expressed opposition to any project along Quitchupah Creek because human activity could impact the sacredness of the canyon. We suggest that if any of the build alternatives are considered, a mitigation plan needs to be developed far in advance for discussion so that all parties can consider the costs and time involved in mitigating for the cultural impacts of this project.

397-6

Water Quality

Downstream of the project area and upstream of its confluence with Ivie Creek, Quitchupah Creek is listed on Utah's 303(d) list as a total dissolved solids (TDS) limited stream segment. It appears quite likely that Alternatives A and B would contribute to the water quality

2

Response 397-3 cont.
Savings to SUFCO relate directly to long-term economic resilience of Sevier County. Many environmental protection measures (See Chapter 2 Alternatives) and mitigation measures (See resource sections in Chapter 3 of EIS) have been incorporated to reduce, minimize, and compensate for environmental impacts.

Response 397-4
Other alternatives to reduce fuel consumption may include a slurry line or other means of transport such as available. However, due to the remote and rugged location of this mine, trucking coal to loadouts is the simplest method of transportation. The conveyor and slurry systems require water in quantities that are not available and also are not feasible due to engineering constraints of the terrain indicating they are not economically feasible.

The SUFCO Mine has a very high efficiency rating far out producing other coal mines on a per unit of labor basis, see Section 2.1 Alternative A - No Action. It is outside the scope of this project to analyze efficiency techniques to reduce energy usage at the mine itself in comparison with reducing fuel and time costs to deliver coal.

I-70 has never been closed for a 24 period of time during the last 30 years (Washburn, 2002); the interstate has been closed for about 1-4 hours at a time during white-out snow conditions. Accidents along I-70 generally close the highway for no more than four hours at a time (Washburn, 2002). An additional transportation route is not the purpose of this project but rather a shorter route that provides cost savings.

Response 397-5
Alternative D avoids all known cultural resource sites near that route; therefore, there are no direct impacts to sites if that route is chosen. Due to the confines of the canyon, there are some cultural resource sites that could not be avoided along Alternatives B and C. Alternatives B and C have been rerouted in the area of the rock art in order to avoid direct impacts to it. Secondary impacts could still occur. The applicant-committed measures in Chapter 2 of the FEIS include processes to reduce or eliminate impacts to eligible cultural resources. Specific cultural mitigation is dependent on which alternative is chosen but may include avoidance, data recovery, intensive recordation/mapping, historic research, oral interviews, and/or public exhibits and education. After the ROD is issued, a site specific Mitigation Plan would be completed for the chosen alternative. The Mitigation Plan would have to be approved by the SHPO, the administering land agency, and consulting parties; a Memorandum of Agreement (MOA) would also be completed between the agencies and consulting parties. The tribes have been asked and accepted consulting party status. Consultation and resolution with the tribes is on-going. An ethnographic study was conducted with the Paiute Tribe (Stoffle 2004) and summarized in Section 3.13 of the EIS. The Quitchupah Creek canyon possesses sacred values for the Paiute Tribe.

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397-6 cont.

problem downstream, and it is possible that Alternative D would also contribute, but less so. Although it is stated in section 3.4 that an improved road design will slightly decrease sedimentation and salinity into the drainages from the existing environment, there is no data provided in support of that conclusion. We suggest more information on how the new road design would improve the situation. The existing unpaved jeep trail likely contributes to the TDS problem, as well as natural erosion, drainage from the mine and riparian area impacts from livestock. All of these should be evaluated to see where improvements can be made.

In addition, there is no information in the DEIS on whether the road will be sanded or chemicals used during the winter months as normal winter maintenance. Sand and chemicals will contribute to the impairment of the stream. Unless the existing jeep trail is taken out, it will still contribute to the problem, and the DEIS does not specifically say that it will be taken out. If the jeep trail will be coming out, please explain whether ATVs or mountain bikes are likely to make spur trails on their own in the area, in which case the problem of erosion and sedimentation from jeep trails persists. Please address whether this is an issue, and whether the existing jeep trail will be closed under each of the build alternatives.

397-6 cont.

EPA feels strongly that any action taken in this area should not further contribute to the TDS problem, and in fact the State of Utah has as a goal restoring the beneficial uses of all impaired water bodies. We suggest that in addition to best management practices taken during construction, which are mentioned in the document and all look appropriate, mitigation be taken to improve the problem in the 303(d) listed stream segment. Actions such as monitoring to assess the mine's contribution to the problem and addressing that, addressing grazing and instream cattle watering in proximity of the stream, using best management practices to control erosion while building and maintaining the road, as well as removing the existing jeep trail and stabilizing soils, no matter which alternative is selected, should be addressed. Any permit required for stream realignment should require these improvements. We suggest that at a minimum, SUFCO conduct a sediment analysis to see how much the mine is contributing to the problem.

It is not clear from the discussion what the state of the water was in this area, prior to mining. It is stated that Quitchupah Creek receives a significant amount of flow from mine discharges, but nowhere does it say what the impacts from those discharges might be or whether this project will or will not exacerbate these impacts.

Noise

397-7

The DEIS states that the increase in noise levels will affect wildlife, but there is no analysis of the impacts on wildlife, and no mitigation measures proposed for the impacts. This should be addressed in much greater detail.

Air Quality

397-8

The air quality analysis appears insufficient and makes no mention of the effect the change

3

Response 397-6
The final EIS has been revised to include a more extensive description of the BMPs associated with the proposed road design, construction, and maintenance. Further, it has been revised to include details on applicant-committed and agency-committed measures, which are intended to help minimize sediment/salinity impacts. Lastly, the EIS has incorporated an extensive monitoring plan which would ensure that chronic sedimentation/erosion sources associated with the road project are addressed, and that water quality goals are met. All of these measures combined would minimize the potential for increasing the amount of total dissolved solids in Quitchupah Creek above current levels, in spite of some localized areas of increased erosion due to increased areas of disturbance.

The final EIS has been revised to describe the potential impacts to Quitchupah Creek from using a sand/salt combination for winter deicing. These impacts would be minimized through the use of several specific BMPs, also included in the final EIS.

The final EIS has clarified the fact that under Alternatives B and C, most of the existing jeep road would be covered over by the new road alignment, or reclaimed. Very little of the existing road would remain, as shown in the EIS. Under Alternative D, most of the existing road would remain as is and subject to use, however the applicant has committed to installing and maintaining water bars on the existing road to provide a measure of runoff control.

As described in Section 3.3 of the EIS, the existing mine drainage from the SUFCO mine is permitted under the UPDES wastewater discharge program and is generally of better quality in regard to TDS that the receiving waters to which it discharges. The final EIS has an added discussion on this issue. Rehabilitating 303(d) waters is outside the scope of this proposal. BMPs, environmental protection measures, and mitigation will contribute to the overall improvement of the 303(d) sections of Quitchupah Creek.

Response 397-7
The impact analysis for noise and wildlife appears in the FEIS. See Response 411-5.

Response 397-8
There will be no air quality impacts under any of the build alternatives (See Section 3.1).

Letter #397

397-8 cont.

in air quality will have on wildlife in the vicinity of the new road. While it states that the net change in air emissions will decrease, it does not analyze effectively what the impact of the increase in air emissions in the vicinity of the action alternatives will be on wildlife and vegetation. The air emissions will increase over what there is today in the vicinity of the three action alternatives. In addition, since the project area is not that far from Class 1 areas (national parks), the air quality discussion should address visibility and haze issues in the area.

Cumulative Impacts

397-9

Information on the overall picture of the ecosystem in which this project is located would be helpful. A paragraph or two (not overloading the reader with detail) on what is happening to the Wasatch Plateau, and maybe the Colorado Plateau, and the Colorado River would be useful to put the impacts of this project in perspective. The impacts to resources from one small project may look insignificant, but when placed in the context of the region and other actions, the big picture clarifies what is happening to a resource. The overall impacts this project would have in the region is not something this document makes clear. In addition, assessment of the environmental impacts of a road in a largely undisturbed natural ecosystem should be done by placing it in the context of an ecosystem approach.

Although there are several mentions of cumulative impacts in the document, it does not appear that they have been analyzed sufficiently. We suggest that a list of past, present and future actions be included, and information on the temporal boundaries be discussed for each resource, and why the boundary was chosen. There is some information on the geographic boundaries in section 2.7, but no reason given for those boundaries. The section of the Quitchupah Creek watershed selected as the geographic boundary for addressing cumulative impacts might be fine, but the reasons for its selection should be explained. Why is that boundary sufficient, for example, for threatened and endangered species? A sufficient analysis may require looking at a species' entire habitat area. The cumulative impacts discussion on water resources should at least include the mine and its impacts, and start with whatever we know of the quality of the water before mining began here. The document should also discuss the cumulative impacts of hunting, particularly the impact in the future with increased access for hunters, as well as the impacts of grazing, the potential for future gas drilling in the area and coal bed methane, and the increased production of coal.

Indirect impacts also need to be documented, and separated from direct and cumulative impacts.

Habitat Fragmentation

397-10

In general, the fragmentation of habitats caused by roads is often severe. Transportation routes can be described as "disturbance corridors" that disrupt the natural, more homogeneous landscape. These disturbances can include physical disruption to the continuous vegetative community; disruption to the structure and function of habitat; and impacts to resident wildlife

4

Response 397-9

A general description of land use on the Wasatch Plateau and Muddy Creek drainage of the Colorado River has been inserted in Section 2.8 of the FEIS. The boundaries of the cumulative effects area coincide with the rugged physical boundaries of the watershed which naturally limit human activities and their effects. These boundaries serve as a general guideline as specific cumulative effects are discussed by the natural and man-made limits unique to that resource. As indicated in Appendix D, the actions are fairly limited for the cumulative effects area, as there are a lack of agency or other development actions planned for the future. The cumulative analysis has been revised for each resource in the FEIS. The rationale for the cumulative effects analysis areas is explained in the specialist reports included in the project record.

Response 397-10

We have reviewed the EPA document on highway development and refer to it in the revisions of some of the sections in the FEIS to better reflect the barrier and fragmentation potential of the proposed road. The revision is in the context that due to the poor quality of soils in the project area and the sparseness of the vegetation most of the habitats would be classified as low quality. The revision discusses the effects of noise in confined sites, the frequency of truck traffic, the human activity, and the physical barrier the road may be in the ecosystem.

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397-10 cont

which must negotiate, tolerate and cope with the habitat barriers. Specifically, coal trucks coming down at 3-minute intervals on a paved road provide such a disturbance, and should be evaluated in this EIS. Although this is not a highway, a good reference document for this type of analysis is "*Evaluation of Ecological Impacts from Highway Development*," EPA document, April 1994 (enclosed).

Fisheries

397-11

Given that the DEIS states that the aquatic community is under stress and that the macroinvertebrate community indicates the poor condition of the aquatic ecosystem of Quitchupah Creek (section 3.8), and information we have that a new species of insect was found in this drainage, we request that a complete, long-term (e.g., more than one sample) biological inventory be conducted in this area prior to any impact occurring. The studies should be designed and conducted by qualified biologists, experienced in the local ecological communities.

The document should address whether the FishLake National Forest has a forest standard for aquatic habitat capability. Typically Forest standards require 60-75% of availability habitat capability be maintained. It would be helpful to know whether the road project plus cumulative actions would cause an exeedence of available habitat capability.

Threatened and Endangered Species

397-12

There is insufficient information to determine whether the biological assessment is adequate. For example, for the Wright Fishhook Cactus, the field survey was done in May, but we have no information on whether that is when the species flowers, making it easier to detect. For the Last Chance Townsendia, it is stated that flowering occurs in April and May, but the survey was done in June of 2000. Why? For the Mexican Spotted Owl, no information is given on why it is not "expected to occur" in the general vicinity of the project (and what does general vicinity mean?). We suggest that more information from the FWS Biological Assessment be placed in this document.

Visual Resources

397-13

It appears that the aesthetic qualities of the canyon will be altered forever. We suggest more specific information on reclaiming acres that will be disturbed. Information on whether native species will be planted and the area returned to as natural a setting as possible would be advisable as mitigation for visual impacts.

In addition, it appears that a significant amount of fill and blasting will occur for Alternative D, which was analyzed thoroughly in the attachment. It would be helpful to identify places where bridges or culverts might not be a better practice both from an ecological and an aesthetic viewpoint.

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Response 397-11
Qualified biologists re-sampled Quitchupah Creek in 2002 for macroinvertebrates. On-going monitoring of macroinvertebrates is not part of the scope for this Project. There was little difference between previous sampling and sampling in 2000.

See Section 3.7 Fisheries and Aquatic Resources in the FEIS. The aquatic insects captured at Station Quitch-04 are rare, but these are not new species. This project complies with the Fishlake National Forest LRMP standards for the management area and aquatic wildlife monitoring.

Response 397-12
The additional information in the BA is included in the FEIS that details the survey methods and results, and clarifies the status of Northern Spotted Owl in the project area. The information on MIS species is included in the Wildlife Technical Report. USFWS has concurred with the determinations found in the BA.

Response 397-13
In Section 2.2, the reclamation plan is explained and two seed mixes are included, one for the higher elevations and one for the lower elevation saline soils. The seed mixes are agency specified and include native species. The acres to be reclaimed for each build alternative are included in this section of the FEIS.

Some of the terrain along Alternative D, Water Hollow, is so dissected by ephemeral drainages that even with bridges, cut and fill would be needed. A few bridges have been proposed as wildlife mitigation on Alternative D, in consultation with DWR to determine the best locations.

Letter #397

397-14

Environmental Justice

It appears that many in the agricultural community in these counties may be affected by the additional cost of trucking livestock from areas they now graze, as well as the anticipated road collisions of livestock with vehicles. These impacts should be analyzed and quantified. Information on the ranching community and how it will be affected by this project should be included in this document.

397-15

Consultation on 404

The DEIS states that 404 issues (wetlands, aquatic life and stream alteration) will be addressed later, once an alternative is selected. EPA recommends strongly that the 404 issues, particularly as they relate to impact avoidance through alignment modification, should be addressed prior to the ROD. There are many benefits to including information to support both the DEIS requirements and the CWA section 404 requirements in the same NEPA process in order to disclose all direct, indirect, and cumulative impacts to aquatic ecosystems, as well as to bring avoidance, minimization, and mitigation requirements (i.e., section 404 CWA requirements) early and consistently through the process. Should the USFS and BLM proceed with this project without the necessary information that the Corps and EPA require for full disclosure of wetlands impacts, the Corps may be faced with a decision to supplement the NEPA document which may result in additional costs and delays.

397-16

Mitigation

Mitigation for this project is extremely sparse. Impacts from the action alternatives appear to be significant and mitigation may be appropriate for cultural, water quality, wetlands, wildlife and aesthetic/visual impacts, at a minimum.

397-17

Connected Actions

There are several connected actions that should be discussed and evaluated in this DEIS. SR-10 has to be upgraded because of the increased coal traffic whether or not an action alternative is selected. It is a connected action, and should be discussed and evaluated in this DEIS. If our analysis is incorrect and it is not a connected action, it nonetheless should be discussed as a project in the cumulative impacts section. Widening bridges, repaving 20 miles of road and adding passing lanes are major actions that should be evaluated. In addition, any alternate jeep or ATV trails the USFS or BLM might put in to replace the jeep trail on Quitchupah Creek should be evaluated as either a connected action or in the cumulative effects section. It may be reasonably foreseeable that other ATV trails would materialize in the area, given increased public access to USFS and BLM lands.

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Response 397-14
No low income or minority populations have been identified in the Project Area; there are no environmental justice impacts.

Approximately 1.5 miles of fenced cattle trail would be constructed along the western end of the proposed road, where topography constraints limit free trailing outside the road corridor (See Sections 2.2, 2.3, and 2.4 and Section 3.8). A few selected underpassess would be constructed so cattle could move within the allotments for grazing and watering as planned in Alternative C.

The fall drift of cattle down East Spring Canyon would allow the cattle to move down Convulsion Canyon to Quitchupah Creek or be gathered at the east boundary fence. Cattle drifting down Broad Hollow would enter a gathering facility located on the north side of Accord Lakes Road then be trailed down Convulsion Canyon utilizing the fenced cattle trail. The SUFCO Mine would provide water when cattle are present in the holding corrals.

Response 397-15
The FEIS contains a full disclosure of impacts and mitigation for regulated waters. The mitigation will also be included as part of Chapter 2. The mitigation design for wetlands and riparian zones would meet of exceed a 3:1 replacement ratio and accommodate function and values needs as defined by the COE.

Response 397-16
Applicant committed measures for the resources including cultural, water quality, wetlands, wildlife, and visual, is included as design features which have been added as part of Chapter 2. Specific cultural mitigation is dependant on which alternative is chosen but may include data recovery, intensive recordation/mapping, historic research, oral interviews, and/or public exhibits and education. The mitigation required would compensate, reduce, or eliminate impacts to eligible cultural resources. After the ROD is issued, a site specific Mitigation Plan would be completed for the chosen alternative.

Response 397-17
The upgrade of SR-10 will occur because it is a substandard road and coal truck traffic will use it regardless of the alternative selected. The Alternative B, C, and D junctions with SR-10 and the needed modifications, such as additional lanes and bridge expansion, are discussed in the FEIS. There are no plans to include an ATV trail in Quitchupah Creek by either agency.

Letter #411

United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
Denver Federal Center, Building 56, Room 1003
P.O. Box 25007 (D-108)
Denver, Colorado

May 7, 2002

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ER 02/261

Mary C. Erickson
Forest Supervisor
Fishlake National Forest
115 East 900 North
Richfield, Utah 84701

Dear Ms. Erickson:

The Department of the Interior (DOI) has reviewed the Quitchupah Creek Road Draft Environmental Impact Statement (DEIS), and offers the following comments.

The document analyzes four alternatives:

- Alternative A - The No Action Alternative. Trucks would continue to travel the existing route via the Acord Lakes Road to I-70, then SR-10.
- Alternative B - The Proposed Action. Quitchupah Creek Road would be realigned and 9.2 miles of an existing road/trail would be converted to a paved road. There would be a steep grade ascent on SR-10. Disturbance by the footprint of the road corridor would be 88.4 acres, 17.4 acres temporarily, and 45 acres permanently.
- Alternative C - Alternate Junction with SR-10 and Alternate Design. Disturbance by the footprint of the road corridor would be 104.8 acres. Five livestock/game underpasses approximately 20 feet wide and 70 feet long, plus 16.3 miles of fencing would be incorporated into the design along Quitchupah Creek. Two other underpasses would be added, one under the existing Acord Lake Road and a second at Broad Hollow to facilitate spring and fall trailing.
- Alternative D - Water Hollow Alignment. Disturbance by the footprint of the road corridor would be 155.4 acres. This Alternative would leave Quitchupah Creek road after 2.0 miles and follow an existing jeep trail across Water Hollow Benches and then Salteratus Benches. It would require 9 crossings of perennial and ephemeral drainages that are tributary to Quitchupah Creek.

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Letter #411

Mary C. Erickson, Forest Supervisor 2

General Comments:

411-1 Consultation with the U.S. Fish and Wildlife Service (FWS) under section 7 of the Endangered Species Act (ESA) of 1973, 16 U.S.C. § 1536 has not been completed for this project, but is ongoing. We expect that this consultation will be completed prior to publication of the Final Environmental Impact Statement (FEIS) and the results of the consultation will be addressed in that document.

The analysis of impacts is somewhat general, which makes determination of significance difficult. The significance of impacts can only be determined through addition of context such as site-specific quantification of impacts and comparison of those impacts to conditions on a local, regional or national level. We believe that the analysis of habitat loss, road effects (direct mortality, habitat fragmentation, noise, long-term impacts), air and water quality, blasting disturbance, impacts to raptors, and cumulative effects from this proposal should be modified and expanded. Our concerns are presented in the following paragraphs.

Habitat Loss:

411-2 All the action alternatives would open extensive fish and wildlife habitat along the right-of-way and in the surrounding area to disturbance that is a marked departure from previous practice, and yet little mitigation is offered for this loss of habitat and habitat value. According to the document, between 45 and 54 acres of permanent disturbance to vegetation would occur from direct impacts (page 3-54, Irreversible or Irretrievable Commitment of Resources and Residual Adverse Impacts). Although 2.75 acres of 3.3 lost riparian vegetation would be restored in conjunction with Threatened and Endangered Species mitigation, there is no mitigation proposed for the remaining 0.55 acres. While riparian areas in Utah comprise only approximately 2% of the land, they provide essential habitat for approximately 70% of wildlife at some time in their life history, and any loss is significant. Additionally, we could find no mitigation offered for the loss of 60-70 acres of upland vegetation that the document states would not be reclaimed post-project. Depending on the alternative, approximately 73 acres of greasewood, 0.5 acre of Douglas-fir woodland, 25-44 acres of mountain brush, 1-85 acres of pinyon-juniper, or 23 acres of low shrub vegetation would be disturbed. The document does not specify the amount of reclamation by vegetation type. A significant loss of one vegetation type more than others may lead to a localized ecosystem shift and impacts to associated wildlife species. As noted in the document (page 3-56), the vegetation types within the project area provide habitats for many species of birds. Several neo-tropical migratory birds protected by the Migratory Bird Treaty Act (MBTA)(16 U.S.C. §703-712) and on the Partners in Flight Priority Species List may inhabit or migrate through the project area. Species utilizing pinyon-juniper include: gray vireo and Pinyon jay. Species which may utilize shrub habitats include: Virginia's warbler and sage sparrow. Therefore, we recommend that the FEIS: (1) specify how much of which vegetation type you will attempt to reclaim; (2) note what proportion of each vegetation type will be lost from the immediate system; and (3) develop mitigation for the loss of each type. Mitigation considerations include: restoration or replacement of lost habitat type to the extent practicable and where appropriate;

Response 411-1
Consultation with the U.S. Fish and Wildlife Service under section 7 of the Endangered Species Act was completed. USFWS has concurred with the determinations found in the BA (Appendix G). The subspecies of the southwest willow flycatcher in the project area is not the subspecies listed on the T&E species list.

Response 411-2
Applicant committed measures and mitigation measures would mitigate for the loss of wetlands and riparian zones. See Sections 2.2, 2.3, 2.4, and 3.5 in the FEIS for discussions on applicant committed measures and mitigation which include revegetation with native species. Applicant Committed measures include fencing of 4.7 miles of the riparian area to limit where livestock can water in the stream.

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411-2 cont.

restoration efforts will not prioritize habitat suitable for grazing at the cost of habitat for neo-tropical migratory birds; revegetation with native species to the extent practicable; a vigorous invasive weed program; and monitoring to determine efficacy of mitigation, with a commitment to redress insufficiencies.

411-3

A common error in the analysis of impacts to wildlife is the assumption that displaced wildlife will easily find forage, nesting and breeding habitat elsewhere. There is no analysis of: whether or not suitable alternative habitat is located within the range of displaced wildlife species; whether or not the habitat will already be occupied by competing individuals of its species or other species; if occupied, is the habitat capable of sustaining the increased numbers. It is just as likely that some or a significant portion of the displaced wildlife will suffer mortality or decreased reproductive ability.

Road Effects:

411-4

The impact analysis is substantially confined to the footprint of the road. Indirect impacts are cursorily mentioned in the DEIS as including barriers to wildlife movement and mortality from road kills, but are not fully explored. The document states that this road will experience one coal truck per every three minutes, and that increased mortality from vehicle collisions would likely occur. The significance of this impact cannot be determined because the analysis does not include numerical estimates. We believe the frequency of vehicle traffic from the proposed use of coal trucks along with increased public use of the road would result in significant loss of wildlife to vehicle collisions. Numerous studies have demonstrated the relationships between road types, traffic densities, and corresponding levels of road-kill wildlife for various species. Effects of wildlife road-kill can extend far beyond the effects to individual wildlife, with serious consequences to the population level of many wildlife species (Evink et. al, 1996, 1998, 1999). The FEIS should address this concern.

411-5

Other significant indirect impacts such as loss of habitat value, habitat fragmentation, disturbance from increased traffic and noise, harm to bald eagles that may feed on dead animals along the road and long term impacts to species populations are alluded to, but not analyzed. This road would make the area within the Quitchupah drainage more accessible to the public, but little if any analysis is done on the impact of public access on fuels, fire occurrence, sanitation, wildlife, aquatic species etc. Also, the noise discussion mentions an effect to wildlife, but it does not carry the subject forward for more analysis. This is an especially crucial omission in the areas where the road passes between narrow canyon walls where noise effects will be magnified. Even short term impacts are not discussed with any detail in the DEIS, yet there is a body of literature which would allow some prediction of potential results of highway construction and operation. We offer some examples in the following paragraphs.

Findlay and Bourdages (unpubl. rep., 1998) speculate that the full effects of road construction on birds and herptiles may not be realized for decades. Generally, habitat fragmentation and barrier effects of linear corridors can reduce usable ranges of wide-ranging habitat generalists and create

Response 411-3
EPA document on highway development has been reviewed and incorporated in Section 3.5 of the FEIS to better reflect the barrier and fragmentation potential of the proposed road. Due to the poor quality of soils in the project area and the sparseness of the vegetation, most of the habitats would be classified as low quality. Section 3.5 discusses the effects of noise in confined sites, the frequency of truck traffic, the human activity, and the physical barrier the road may be in the ecosystem.

Response 411-4
Impacts to wildlife species from vehicle collisions are included in the FEIS. The relationship between the proposed road type and traffic densities on wildlife populations is evaluated in Chapter 3 of the FEIS. Mitigation includes the fencing of the road. Applicant committed measures include underpasses and/or bridges for wildlife movement.

Response 411-5
See response 411-3.

Ambient or background noise levels along the proposed haul road and SR10 are typical for outdoor and rural locations. As stated in the DEIS, additional noise from construction and coal truck activity associated with the proposed action will impact area near the road. Noise levels of outdoor and rural areas of 35 and 56 dBA were measured in the Quitchupah Creek area and Emery Town, respectfully. Current noise levels in Emery Town would not increase as a result of the proposed road since the haul truck numbers and frequency would not increase.

Noise pollution=s effects on wildlife is not well studied, but recent research from the U.S. Air Force and U.S. Department of the Interior, relates given noise levels to the effects on certain types of animals. The most relevant published noise effects on animals are listed below:

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411-5 cont.

genetic isolation in populations of smaller, less mobile species (Harris 1988, Reh and Seiz 1990). The less mobile species tend to have specific habitat requirements and may derive all of their resource requirements from a single wetland or habitat type. Different classes of wildlife have varying needs to move between habitats. For instance, amphibian life cycles require migration between habitats with different ecological properties. Highways were shown to exhibit a significant barrier effect to populations of the common frog within 1.5-2.5 miles of the road (Reh and Seiz 1990) as well as to populations of rodents, arthropods, and beetles (Kozel and Fleharty 1979, Mader 1984, Mader et al. 1990).

The extent of the barrier effect may be determined to some extent by the right-of-way vegetation and its similarity or dissimilarity to the natural vegetation of the local area (Wilkins 1982). Habitat changes could encourage establishment of competitors or predators more adept at living in human-altered environments, such as starlings, brown-headed cowbirds, and raccoons (Harris 1988).

411-5 cont.

Studies have indicated that wildlife are disturbed over surprisingly long distances from rural roads and highway corridors. Disturbance to wildlife has generally been inferred from relative densities of a species or group of animals at varying distances from a road. For instance, Van der Zande et al. (1980) confirmed earlier conclusions of Veen (1973) and showed that lapwings and godwits were disturbed to distances up to 1.24 miles from a highway located in the Netherlands. Similarly, plant, bird, and herptile species richness was observed to diminish with increasing density of paved roads, out to a distance of again at least 1.24 miles from the road (Findlay and Houlahan 1996). Based on their statistical models, a 2m/ha increase in total paved road density was assumed to have the same impact on herptile and mammal species richness as the loss of 50% of the wetland proper. In forested habitats, road noise reduced bird population density and breeding success within 0.3 to 0.6 miles of roadways. Breeding dispersal patterns were indicative that roadside areas provided lower quality habitats (Reijnen and Foppen 1994, Foppen and Reijnen 1994, Reijnen et al. 1995). While highway right-of-ways can certainly create habitats for some species and consequently increase their densities adjacent to the road corridor (Adams and Geis 1983, Clark and Karr 1979), this potential benefit should be evaluated in context with indications that right-of-way corridors can also facilitate the movement of diseases, predators, exotic wildlife species, noxious weeds, and fire (Mann and Plummer 1995).

Thus, the DEIS does not adequately address potential indirect impacts of the highway as they relate to wildlife disturbance and subsequent potential effects to populations since the analysis is confined to a relatively narrow study corridor and does not provide context in terms of local and regional impacts. We recommend the FEIS address the potential indirect impacts and, depending on the level of impact, develop suitable mitigation.

Cultural Resources:

411-6a

Our first comment is regarding the eligibility status of both Convulsion Canyon and Quitchupah Creek for the National Register of Historic Places as Traditional Cultural Properties (TCP's).

Documented Sound Levels on Animals

Noise Source	Noise Level	Subjective Description
Pronghorn	77 dBA	Escape and Running
Various Species	132 dBA	Anxiety-like behavior
Rats, rodents	105 dBA (continuous)	
	95 dBA	Hearing loss; Suppressed thyroid activity
Mouse	110 dBA (intermittent noise)	decreased in circulating eosinophils; adrenal activation
	105 dB (continuous)	longer time intervals between litters; miscarriages, lower weight gain

While none of these limited studies relate directly to the study area, pronghorn behavior with 77 dBA are directly affected by noise levels of that magnitude. Similar results can be assumed to occur for large game animals indigenous to the canyon area.

Noise levels will likely double 200 meters away, where haul truck noise is allowed to dissipate in all directions. An increase in these predicted levels would be experienced if noise is prohibited from dissipating such as having a canyon wall immediately to one side of the haul road. See section 3.5 of the FEIS.

Response 411-6a

Consultation with the Paiute, Hopi, and Ute tribes is on-going. The Paiute and Ute tribes accepted consulting party status and would participate in any agreement to resolve adverse effects to Native American Concerns and cultural resources. The Paiute tribe has claimed the area to be a sacred site. An ethnographic study was conducted (Stoffle et al. 2004) with the Paiute Tribe of Utah. No Traditional Cultural Properties (as defined in the NHPA) have been nominated in the Project Area but Quitchupah Creek canyon does contain values sacred to the Paiute Tribe (EO13007). See Section 3.13 of the FEIS for a summary of the findings of the ethnographic study.

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411-6a cont.

Has a formal determination of eligibility been made by the two agencies? Either way, we would encourage the Agencies to continue to consult with those Indian Tribes that attach religious or cultural significance to the subject locations.

We have had communications with the Ute Tribe, Paiute Indian Tribe of Utah, and the Hopi Tribe and they have expressed concerns regarding the construction of the Quitchupah Creek road project and public access to petroglyphs (i.e. rock art sites) and other significant archeological sites in the area. The three Tribes are concerned that the various cultural resources would be impacted and that an alternate route should be implemented that avoids Quitchupah Creek. This is also addressed in Chapter 3.14 Native American Religious Concerns as documented in the DEIS.

In all the alternatives, with the exception of the No Action alternative, it seems possible that a determination of adverse effect pursuant to 36 CFR 800.5 will be made by the Agency Official regarding Convulsion Canyon and Quitchupah Creek as TCP's. Should this situation arise, we would suggest that the Agencies invite the Tribes to be Consulting Parties to any agreement to resolve the effects to the historic properties. Such agreement might involve closing the haul road during certain times of the year to accommodate an Indian Tribe's ceremonial or religious activities. We also would suggest the agreement, in consultation with the appropriate Indian Tribes, contemplate complete removal and reclamation of the proposed road once hauling ceases.

411-6b

As the Agencies proceed with evaluation of the proposed action, we also would encourage referral to Executive Orders 13175---*Consultation and Coordination with Indian Tribal Governments* (November 6, 2000), 13007---*Indian Sacred Sites* (May 24, 1996), and 12898—*Environmental Justice* (February 11, 1994) and Secretarial Order 3206 *American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act* (June 5, 1997).

We agree with the Tribes' concerns regarding the proposed action and recommend that the Agencies continue to consult with the Tribes to resolve any outstanding issues.

411-7

Cumulative Effects:

The cumulative effects discussions of all the action alternatives are incomplete. They mention but do not account for impacts from the increased traffic due to proposed oil and coal bed methane exploration and development. Discussion of Alternative B fails to mention that a request for a replacement ATV trail parallel to road has been made, which if constructed could result in even more loss of habitat and disturbance of wildlife. The analysis should explain how additional traffic would affect wildlife as well as all other resources in the area.

The analysis should present all lost habitat in units of area, such as acres rather than by linear foot. The use of linear foot measure is especially limiting to the discussion of stream and riparian habitat that may be impacted by relocation of streams.

Response 411-6a continued

The proposed Alternative B, Quitchupah Creek Road, and Alternative C, Alternate Junction, route near the rock art sites has been realigned and moved to the other side of the creek. This reroute would place the road about 300 feet away from the rock art panels and the creek would be a physical barrier between them, making it more difficult to access the petroglyphs. The new alignment would also avoid impacting known cultural sites located within the previous alignment.

The existing road that currently is routed between the creek and the panels would not be used for access. This would tend to limit access for casual visitors.

This modification to Alternatives B&C would preclude the direct impacts of a busy public road next to the rock art.

Response 411-6b

Executive Orders 13175 --- *Consultation and Coordination with Indian Tribal Governments* (November 6, 2000) applies to developing federal regulations and is not applicable to the proposed road. 13007 --- *Indian Sacred Sites* (May 24, 1996) is part of the Native American Concerns analysis in Section 3.13. It was determined that no low-income or minority populations would be disproportionately impacted by the project (EO 12898 --- *Environmental Justice* (February 11, 1994)) as discussed in Section 3.15. The project area does not contain tribal lands nor is it subject to any treaty delineating rights or trust resources; therefore Secretarial Order 3206 *American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act* (June 5, 1997) is not applicable.

Response 411-7

The cumulative effects discussion has been revised and expanded. Neither an ATV nor a cattle trail are proposed; therefore there will be no additional impacts due to a trail. There is a paucity of proposed future actions to provide information on additional impacts.

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Maps

411-8 The Geology Map (Figure 3-1) and Soils Map (Figure 3-4) are inadequate. Neither provides the information needed to assess the geologic hazards inherent to this project. In addition, the random and non-standard scales of all the maps create confusion. The maps need to be of sufficient quality with standard scales in order to permit a reasonable scientific examination of the project.

Page-Specific Comments

411-9 Figure 1-2 does not include the No Action Alternative, giving the impression the decision has already been made. A footnote indicating that with No Action, none of the routes would be constructed should be added to the figure. Also, the scale of the map is not detailed enough to permit a careful comparison of the alternatives.

411-10 Page 1-10, *Threatened, Endangered, and Sensitive Species (TES)*: This section is inconsistent with the TES discussion beginning on page 3-67. For example, page 1-10 mentions a potential for seven T/E species occurring in the project area, while page 3-67 discusses twelve T/E species as having potential of occurring in the area. The two sections need to agree.

411-11 Page 2-4, *Alternatives Including the Proposed Action, Section Alternative A – No Action*: An economic justification is included in the discussion of the No Action alternative and the eliminated alternatives (page 2-21, 2.5); however, there is no economic appraisal in the text for Alternatives A, B, and C. The construction and maintenance costs of the four alternatives presented in Table 2.6-1 Comparison of Alternatives (Page 2-23 – 2-29) are uncorroborated. For example, maintenance costs for SR-10 are considered high because of the presence of Mancos shale-derived soils and yet no equivalent analysis was prepared for the possible shale soils and subsoils under the newly constructed Quitchupah Creek Road.

Supporting information is needed that explains all the factors analyzed for construction costs (page 2-23) and maintenance costs (page 2-29) presented in Table 2.6-1. Of concern are the costs associated with the Best Management Practices Report (page 3-7, Mitigation and Monitoring) that had not been developed during this NEPA process, and therefore, the costs are not included in Table 2.6-1.

The costs for construction and road maintenance need to address shale soils (buckling, warping, slumping, and offsetting of the road), engineered stabilization of mass wasting (soil creep, slump, and landslides including the large mapped landslide), engineered stabilization and prevention of rock fall, and sediment-runoff and debris-flow maintenance in culverts and on roads. Construction costs for widening the bridge in Alternative B, if chosen, to International Building Code (ICC 2000) seismic standards should also be included.

Response 411-8

The map scales were dictated by the format of the document and the limit on overall map size. The Geology Map is the only one available for the area at this time. This map has been removed from the EIS as there will be no impacts to geology (See Section 3.1). Further, the soils map was created by available NRCS field inventories data that was provided ahead of the scheduled release of the official survey. Currently, the official survey for that area has not been published and there is no better official information than what is in the FEIS.

Response 411-9 and Response 411-10

Editorial changes have been made.

Response 411-11

The following information was developed for the DEIS but was not included at the agencies request. This information is included in Section 3.15 Socioeconomics of the FEIS. Although costs change over time, the overall trends remain.

Annual Haul Cost Savings

Year	Eastern Markets mmtpy	No. Of Hauls per year	Alt A savings per haul $0.00	Alt B savings per haul $75.25	Alt C savings per haul $79.76	Alt D savings per haul $63.21
2001	2.0	52,632	$0.00	$3,960,558	$4,197,283	$4,016,927
2002	2.5	78,947	$0.00	$4,950,698	$5,247,410	$4,138,586
2003 or max.	5.5	144,737	$0.00	$10,891,459	$11,544,223	$9,148,825

1. 1.0 mmtpy to Savage Loadout + 1.0 mmtpy to Hunter Plant in 2001, 3.1 mmtpy in 2002, 4.5 mmtpy or maximum in 2003
2. Mmtpy divided by 38 ton standard haul load
3. 0 miles less travel x $3.01/load/mile savings (based on industry cost of $0.07/ton/mile) = $0.00
4. 25.0 miles less travel loaded x $3.01/load/mile = $75.25 savings per load
5. 26.5 miles less travel loaded x $3.01/load/mile = $79.76 savings per load
6. 21.0 miles less travel loaded x $3.01/load/mile = $63.21 savings per load

The haul distance to Hunter Power Generating Plant from the SUFCO Mine is 62 miles, at a cost $0.07/mile/ton the cost for hauling one ton is $4.34(62 x $0.07 = $4.34). The average price for coal in 2001 is $17.54 per ton (Utah Mining Association reports, 2001), so the $4.34 hauling costs represents 25 percent of the value of a ton of coal in 2001. The proposed Quitchupah Creek Road would reduce the haul distance by 25 miles or by 40 percent, and the cost to haul one ton would be reduced by $1.75 or 10 percent of the value of the ton of coal.

		Response 411-11 continued The value of the proposed Quitchupah Creek Road to the SUFCO Mine is measured in the reduction in hauling costs and the reduced effort to haul coal. The 50+ miles less to travel means the round trip from the SUFCO Mine to the Hunter Generating Power Plant is reduced 40 percent, or from 124 miles round trip to 74 miles round trip. This would save about 75 minutes on the round trip. The cost to haul one ton of coal on the 62 mile loaded haul is 25 percent of the market value of a ton of coal in 2001. The 40 percent reduction in mileage would save 10 percent of the market value of a ton of coal, thus potentially increasing profits by 10 percent. The 10 percent savings for an annual haul of 2-4.5 mmtpy means a considerable cost advantage for the coal producer. For Alternative C, the cost advantage would increase to 10.5 percent. For Alternative D, the cost advantage would decrease to 8.4 percent. The costs were supplied by Jones & DeMille Engineering, the engineering design firm for the project. They will be cited in the FEIS. See Chapter 2 of FEIS under *Borrow Material Areas* for design feature that negates the affects of building on shale-affected soils. SR-10 does not have this feature which is the reason it will require a re-design of the highway to make it suitable for transporting heavy loads. The construction costs were supplied by Jones & DeMille Engineering. The maintenance costs were derived from the actual costs of maintaining the present coal transport road, the Acord Lakes Road. And will be included in the FEIS. Table 2.6-1 only includes cost to construct the proposed road and alternatives but the projected maintenance costs and BMP costs will be included in the FEIS. The shale soils are not projected to cause a problem for the proposed road due to design features that negate the affects of these soils (Chapter 2). The construction costs include the stabilization and drainage control features. An economic analysis was not produced but estimated costs are on file at the agency offices.

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411-12 Page 2-12, Table 2.2-3: The DEIS indicates that proposed vegetative reclamation of disturbed areas will occur through the application of a seed mixtures and mulch. However, the DEIS also mentions, repeatedly, that a significant environmental feature of the proposed Alternative B route is that soils throughout much of the watershed are highly erodible (page 3-22, Section 3.4 Water Resources, Stream Channel Descriptions, paragraph 7), especially along the creek bed. Furthermore, the Quitchupah Creek site seems to be a former habitat for the southwest willow flycatcher (page 1-10, Section 1.6 Issues, Threatened, Endangered, and Sensitive Species).

There are adequate supplies of native grasses and forb species available for revegetation purposes. The proposed seed mix contains very few native species. Yellow sweet clover should be eliminated from the mix because it will serve to attract wildlife to the disturbed area. Crested wheatgrass and Luna pubescent wheatgrass should also be eliminated unless it can be shown that native species cannot be reestablished on the site.

We suggest that native willow (*Salix*, perhaps *amygdaloides*, *caudata* or *exigua*) be considered as part of the reclamation mix identified in table 2.2-3. The deep roots of willow will help to stabilize wetland and riparian zones along the creek, and the mature plants will provide potential nesting habitat for the remnant Federally listed southwest willow flycatcher population. Planting with willow saplings rather than seeds would facilitate plant maturation and provide some erosion protection for seeds sown as mentioned in tables 2.2-3 and 2.2-4.

411-13a Page 3-3, *Topography, Geology, And Minerals*: Faulting and fracturing are mentioned in the second paragraph on this page, but no seismic hazard evaluation is included in the DEIS. Figure 3-1, Geology Map, appears to show that the road will be crossing mapped faults and that mapped faults are in close proximity to the SR-10 bridge that will be widened. The FEIS should include an analysis of and mitigation plan for the impacts of these mapped faults on the proposed road and bridge. The bridge will be built on alluvium, and therefore, liquefaction hazards should also be examined. A seismic event can trigger landslides and other mass-wasting events and thus should be included in the landslide review (see below).

411-13b Page 3-4, *Landslide Review*: The analysis of mass wasting (landslides, soil creep, slumps, and mass movement) and rock fall is insufficient. Considerable construction activity, which includes extensive blasting and a proposed staging area (Appendix B; Quitchupah Creek Road Alignment Plan and Profile, Strip Map1), will take place at the toe of the mapped landslide, potentially endangering its stability. The statement, "this landslide appears to be inactive and poses no threat to the proposed haul road route," is not substantiated in the DEIS.

411-13c The alignment of the road, with the corresponding blasting, blading, and normal construction activities, through geologic strata that are prone to "slumping, soil creep, and rock fall" enhance the mass-wasting hazard, present and future, to this project. This hazard not only causes expensive long-term maintenance costs but also considerable safety concerns, especially to the increased traffic of recreationists that the new paved road will bring. A detailed study of the areas of mass wasting and rock fall and a comprehensive mitigation plan that includes engineered

Response 411-12
Native species, in agency specified seed mixes, would be used in reseeding (Section 3.4). Willow plantings could be used adjacent to the creek where disturbance might occur due to stabilization of fill slopes or fill at crossings but willow plantings would not survive outside the riparian zone due to xeric conditions. The subspecies of southwest willow flycatcher in the Project Area is not the listed subspecies (See Section 3.7).

Response 411-13a
The proposed Quitchupah Creek Road project and alternatives lie within a IIb seismic region (UBC, 1997) extending from the Arizona border with Mexico up to the Canadian Border. About 12 earthquake epicenters capable of damaging structures (greater than 5.0 on the Richter Scale) have occurred in this seismic region from 1884-2001 (UUSC, 2002). Earth quake activity in the near-future would probably be similar to those observed in the past 100 years. Additional information is provided in Section 2.5 of the FEIS.

Response 411-13b
Liquefaction is a hazard whenever a structure is constructed on unconsolidated sedimentary deposits in an area that has the potential of seismic activity. The engineering design of the road will take into account that portions of this road and the SR-10 bridge will be built on these deposits.

The discussion in Section 3.1 of the FEIS clearly states that the landslide feature is not within the proposed road corridor and that the Acord Lakes Road intersects the toe of the mapped landslide feature. The Acord Lakes Road does not indicate movement or topple on the mapped landslide; thus, indicating some stability.

The maintenance costs from the Acord Lakes Road, which traverses similar terrain and formations, will provide an indication of relative maintenance costs for the proposed road. Many public and private roads and highways have been built on the Wasatch Plateau in similar geologic formations, and much experience has been gained from the construction and maintenance of these roads. See Appendix B for design features to deal with steep slopes and rock fall.

Response 411-13c
The geologic formations in the project area are prone to the mass wasting processes of slumping, rockfall/topple, and soil creep. Engineered solutions will be designed and implemented to help stabilize the unstable areas and will be incorporated into the final design.

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411-13d stabilization of these areas need to be included in the FEIS. An economic analysis of the mitigation plan and long-term road maintenance would also be helpful.

411-14 Page 3-8, *Air Quality*: The analysis should be revised to indicate that there are potential impacts to fish and wildlife resources from vehicle exhaust. The potential impacts should then be analyzed in Section 3.7, Wildlife Resources. This is of particular concern in the more confined reaches of Quitchupah Creek where dispersal of emissions may be restricted. There is evidence that sulfur dioxide (SO_2) and nitrogen compound (NOx) deposition from vehicles and other anthropogenic sources can have detrimental ecological consequences. These changes can include: localized acid rain effects, changes in the N-cycle, alteration of the C:N ration, shifts in structure of biological communities and alteration of the decomposition process and microbial activity (Lee 1998). The overall effect on fish and wildlife could include: localized and seasonal algal blooms in small pools and eddies resulting in hypoxia which could kill larval fish and amphibians; shift in algal community to higher proportion of cyanobacteria which could produce toxic blooms; localized loss of forage types or forage quality for grazers; and increased vulnerability of plants to stresses such as drought and disease.

411-15 Pages 3-28 through 3-33, *Water Quality*: The document asserts that culverts and drainage control associated with the project "would result in reductions in the amount of total dissolved solids within Quitchupah Creek" (See also p. xii). Other cited contributors to the sediment load in Quitchupah Creek include livestock grazing, instream cattle watering, and All-Terrain Vehicle (ATV) crossings, yet the document includes no estimation of the relative contribution of each factor. This makes it difficult to estimate the amount of reduction in TDS and its significance. In addition, livestock grazing and instream cattle watering are expected to continue, but the Cumulative Effects analysis does not address the question of what may occur regarding ATV use. We believe the analysis presented is insufficient to determine what benefits to water quality may accrue from the construction of a road along Quitchupah Creek. We recommend the FEIS expand the analysis accordingly. Any plans to go forward with construction in this area should include mitigation that would reduce sedimentation, including restrictions on livestock and ATV use of the creek and riparian area, particularly during restoration.

411-16 Page 3-30, Table 3.4-4: No units of measure are listed for the columns titled Existing Road (Same as Alternative A), Alternative B, Alternative C, and Alternative D.

411-17 Page 3-31, paragraph. 2, sentence 3: "However, as noted above, salinity greatly increases…." The word "greatly" should be defined and supported from either data that were collected by your agency or a reference to a report done by another source. Would the Thiros and Cordy, 1991 or Mayo and Associates, 1997 reference fit here with some numbers that define "greatly" (reference page 3-23)?

Also in this sentence, "…and any incremental additions to salinity loading would not necessarily be identifiable." This is probably arguable and, again, it would be best to support this statement with a reference from either your own data or data/interpretations from another source.

Response 411-13d
An economic analysis was not prepared, however estimated mitigation costs are on file at the agency offices.

Response 411-14
Climate in the study area shows measurable winds 75 percent of the time (greater than 3.5 mph). The average wind speed is documented to be approximately 9 mph. Dispersion of pollutants is not likely to be inhibited, except for occasional inversion conditions (i.e calm winds). Inversions have not been documented in the canyon study area. Drainage flows (winds) occur on a regular basis in the canyon. Dispersion of combustion pollutants is likely to occur even on calm days, mainly during dawn and dusk hours.

Sulfur dioxide and Nitrogen dioxide are gases. Emissions shown in Table 3.2-1 show total emissions from all haul trucks over the entire course of travel. On a per mile basis the emission rate for nitrogen dioxide is only 0.03 pounds/mile. To our knowledge, acid rain effects, changes in the N-cycle, alterations in the C:N ratio, and shifts in structure of biological communities, and alteration of the decomposition process and microbial activity are not documented to occur at these levels of emissions. EPA has not published emission factors from mobile diesel engines. The sulfur content of the diesel fuel directly effects the rate of SO2 emissions. Comparing stationary internal combustion emission factors of NOx and SO2, SO2 emissions are likely to be one half to one third of NOx emission rates.

Response 411-15
The section has been revised. Please see Responses 397-5 (Federal), 400-3 (Group), and 401-2 (State).

Response 411-16
Editorial changes have been made.

Response 411-17
The referenced sentence has been expanded upon to provide support for the conclusions. Also, please see Response 397-5.

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411-18 Page 3-34, *Soils, Irreversible or Irretrievable Commitment of Resources and Residual Adverse Impacts*, Page 3-50: The document states: the Proposed Action, Alt. B, would cross 600 feet of irrigated and 14,600 feet of non-irrigated Prime Farmland; Alt. C would cross 600 feet of irrigated Prime and Unique Farmland, but 10,400 feet of non-irrigated; and Alt. D would cross 2,300 feet of non-irrigated Prime and unique Farmland. It is important to remember that this is also wildlife habitat for small mammals, rodents and small birds which provide bio-diversity as well as a prey base for raptors. The soils section should make note of potential impacts of occupation of farmland on wildlife species, and the impacts should be analyzed in Section 3.7, Wildlife Resources.

411-19 Page 3-51, *Vegetation and Wetlands*: There is no discussion of the riparian community. As a substantial portion of the proposal would lie in riparian areas, the document should discuss impacts to this crucial community. In addition, the FEIS should describe any mitigation for direct and indirect loss of riparian habitat along Quitchupah Creek.

411-20 Although the DEIS states that "soils on many areas of this route are cryptogamic", no further mention is made of this soil resource, which is valuable for its soil moisture retention capabilities. The we suggest that the cryptogamic soil crusts at the project site be conserved and used where possible as innoculum where soils and vegetation will be reclaimed.

Information about the significance of cryptobiotic soils can be assessed from the USGS URL at www.biology.usgs, under **Biological Resources Locations**, **Forest and Rangeland Ecosystem Science Center**, **Canyonlands Field Station Research Projects**. Particular projects include:

Effects of Disturbance on Cryptobiotic Soil Crusts, and

Restoration of Cryptobiotic Soil Crusts

411-21 Page 3-53, *Wetlands, Potential Impacts*: Only the direct impact, loss of acreage, is mentioned. Other impacts to any remaining wetlands, e.g., runoff from increased traffic and road maintenance activities (especially de-icing) and particulate deposition from exhaust and braking, should be discussed and mitigation offered.

411-22 Pages 3-55 through 3-78, *Wildlife, Fisheries, Threatened, Endangered and Sensitive Species*: Blasting effects to fish and wildlife are not analyzed in the document. As the short-term impacts from blasting during crucial breeding periods can be significant, the FEIS should address this issue. Suitable monitoring and mitigation, including avoidance, should be developed in coordination with the FWS and Utah Division of Wildlife Resources (UDWR).

We have serious concerns about the potential for impacts to the raptors that utilize the numerous nests (up to 13, 9 of which are golden eagle) cited in the DEIS, in all alternatives but the No Action alternative. There may also be significant interruptions to raptor breeding and

Response 411-18
Big game have been observed utilizing the Prime and Unique farmland found on the eastern portion of the Alternative B alignment. This area would be minimally impacted during construction activities, only 1.4 acres out of approximately 150 acres of pasture (less than 1 percent).

Response 411-19
The impact to riparian zone is discussed in Section 3.4. Fencing to exclude livestock on 4.7 miles of riparian corridor would improve the habitat. The impacts to wetlands is confined to filling; sedimentation and emissions are not a factor.

Response 411-20
Although cryptogamic soil crust has been observed in areas along the proposed route and alternatives, no information is available on their extent; the high soil erodibility and the high use by livestock minimizes formation of these crusts over much of the area. Further, the success of restoration of crusts through salvage and innoculation is not well documented at this time and may not be warranted for the small areas affected by this project. However, the salvage and reuse of cryptogamic soils could be done at the direction of the individual land managing agencies/private landowners responsible for the given sections of the project in which these soils may occur in sufficient quantities for salvage; that will be left up to the relevant entities to determine.

Response 411-21
Wetlands present in the Quitchupah Creek area are currently subject to an environment where dust, sediments, and salts are present. Further, road runoff would be controlled and managed much more extensively than present conditions. See Section 3.4.

Response 411-22
No construction activities or blasting would be allowed within 0.5 mile of any active golden eagle nests and seasonal restrictions would be imposed (See Section 3.5). Mitigation measures from the *Utah Field Guidelines for Raptor Protection from Human and Land Use Disturbances* (Romin and Muck, January 2002) have been included in the FEIS.

Letter #411

Mary C. Erickson, Forest Supervisor 10

411-22 cont.

reproductive success due to impacts from blasting. The DEIS says that buffer zones and seasonal construction restrictions would likely be required by UDWR. The FEIS should make a commitment to mitigation measures, including avoidance.

We recommend use of the *Utah Field Office Guidelines for Raptor Protection from Human and Land Use Disturbances* (Romin and Muck, January 2002), which were developed in part to provide consistent application of raptor protection measures statewide and provide full compliance with environmental laws regarding raptor protection. Raptor surveys and mitigation measures are provided in the Raptor Guidelines as recommendations to ensure that proposed projects will avoid adverse impacts to raptors, including the peregrine falcon. Additionally, surveys and mitigation measures, or any modifications thereof, should be developed in consultation with the UDWR and the FWS. A commitment to employ the Guideline recommendations, including seasonal and spatial nest buffers should be included in the FEIS. Long-term impacts from the operation of the road should also be addressed. As you are aware, raptors are protected under the authority of the Migratory Bird Treaty Act (MBTA)(16 U.S.C. § 703-712) which makes it unlawful to take, kill, or possess migratory birds, their parts, nests, or eggs. The Eagle Protection Act (16 U.S.C. § 668) provides additional protection for bald and golden eagles.

411-23 Page 3-56, *Upland Game Birds*: In the first sentence, change "are" to " have".

411-24 Page 3-57, *Potential Impacts No Action - Alternative A*: The last sentence in the paragraph could be improved to more clearly state that existing conditions would remain unchanged for the near future and that current uses would be expected to continue.

411-25 Page 3-58, *Mammals, Big Game*: Third Paragraph. The new road could cause habitat fragmentation, or a disruption of daily or annual travel or migration corridors. The analysis should explain how the direct loss of 45 acres of habitat would affect the deer and elk herds. There also could be additional indirect effects caused by the road, such as a reduction in habitat value in the area adjacent to the road.

411-26 Page 3-58, Fourth Paragraph: The current agency-specified seed mix will not reduce the attraction of big game to the right-of-way. Species such as alfalfa, yellow sweet clover, and crested wheatgrass, at particular times of the year, will serve to attract big game animals to the road side.

411-27 Pages 3-58 and 3-59, *Birds*: Impacts to migratory birds need to be further analyzed relative to the Migratory Bird Treaty Act and Executive Order 13186. How much habitat will be lost and in what habitat types? Will incidental take occur? The document states that construction activities would cause displacement of birds to similar adjacent areas and would likely have minor impacts to the displaced birds. We disagree that this is the only possible scenario. If the areas to which the birds are displaced are already occupied and they are unable to sustain the increased numbers, there may be noticeable reduction in bird populations in the canyons.

Response 411-23
Editorial change has been made.

Response 411-24
Editorial change has been made.

Response 411-25
Analysis of habitat fragmentation, or disruption of daily or annual travel or migration corridors, is in the FEIS (Section 3.5). Information applicable to the Project from the *Evaluation of Ecological Impacts from Highway Development*, EPA document, April, 1994 has been included in the FEIS.

Response 411-26
The area is utilized by big game for winter range up on Water Hollow and spring and summer range along Quitchupah Creek. It is true that the agency-specified seed mix would create an attraction for big game. The seed mixes would be specified by the agencies.

Response 411-27
Habitat types affected by the Project Alternatives have been addressed in the FEIS (Section 3.5). There is a potential for a reduction of migratory bird populations if the adjacent habitat cannot support the displaced bird species.

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Mary C. Erickson, Forest Supervisor 11

411-28 Page 3-59, *Amphibians*: The document fails to specify how much of the suitable amphibian habitat would be impacted. If a substantial percentage of suitable habitat is lost, population isolation from habitat fragmentation could result. The document also should address impacts on amphibians from runoff from all alternatives. The analysis should state whether the impacts would be temporary or permanent.

411-29a Page 3-60, *Mitigation and Monitoring*: The Section contains Mitigation procedures, but contains no Monitoring examples. Fencing may not necessarily be a mitigation measure for big game. Fencing may actually cause additional impacts to wildlife which also should be analyzed.

411-29b Page 3-69, *Threatened, Endangered and Candidate Wildlife*: The first sentence should be corrected to read "Three federally-listed wildlife species and one candidate wildlife species were identified by the FWS as having the potential to occur within the project area".

411-29c Page 3-69, *Bald Eagle (Haliaeetus leucocephalus)*: The analysis should note that increased road kills along the new road may attract bald eagles to the site, increasing the chances of bald eagle/vehicle collisions.

411-29d Page 3-69, *Mexican Spotted Owl (MSO, Strix occidentalis lucida)*: There needs to be a discussion as to why surveys for MSO's were deemed unnecessary. It is not sufficient simply to state that one was deemed not to be necessary.

411-30a Page 3-70, *Southwestern Willow Flycatcher (Empidonax traillii extimus)*: Second Paragraph, Second sentence from end of paragraph. Change to .... "presumably it was a breeding bird in a territory". Were additional surveys conducted in 2001?

The discussion should be amended to include the most current information available for southwestern willow flycatcher distribution, including the following:

- The willow flycatcher subspecies inhabiting the riparian corridor in the project proximity is located at the extreme northern boundary of *E.t. extimus*, but within the known range of *E.t. adastus*, (an unlisted species). Experts suggest that the central part of the State of Utah is more likely an area of intergradation between *E.t. extimus* and *E.t. adastus* (Behle, 1985).
- Genetic analysis to date has shown that the willow flycatcher population in central Utah does not have the genetic markers of *E.t. extimus* and is more closely related to *E.t. adastus* (Paxton, 2000).
- Analysis of willow flycatcher vocalizations in central Utah suggest association with *E.t. adastus* (Sedgewick, 2001).

Response 411-28
There will be no loss of amphibian habitat due to mitigation of wetlands and riparian zones, see Chapter 2 in FEIS.

Response 411-29a
Monitoring will be implemented after completion of the Proposed Action or Alternatives. Impacts of fencing of the roadway have been analyzed in the FEIS.

Response 411-29b
The sentence on Page 3-69of the DEIS has been corrected in the FEIS.

Response 411-29c
The FEIS has been amended to include the increased possibility of bald eagle/vehicle collisions with the increase in roadkill. Mitigation measures such as removal of big game road kills has been included in the FEIS.

Response 411-29d
Surveys for the Mexican spotted owl were initiated in the Project Area in the spring of 2002. No Mexican spotted owls were observed or heard during surveys. Results of the surveys have been included in Chapter 3 of the FEIS.

Response 411-30a
A more thorough discussion of willow flycatcher subspecies distribution was included in the Biological Assessment for the Project. The USFWS has determined that the subspecies found in the project area is not the listed subspecies. This information has been included in the FEIS.

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Mary C. Erickson, Forest Supervisor 12

411-30b Page 3-70, *Yellow-billed cuckoo*: Is there cuckoo habitat in the project area or not? The statements that habitat is "essentially nonexistent" and "extremely limited" in the area indicate that some habitat must exist and that the necessary inventories must be conducted.

411-30c Page 3-72, *Spotted Bat*: Second Paragraph. Is there suitable habitat for spotted bats within the project area? If so, would impacts be anticipated?

411-31 Page 3-73, *Bicknell Milkvetch* and Page 3-74, *Basalt Milkvetch*: This document should analyze the potential for impact to these species. It is not sufficient to simply state that surveys will be conducted prior to construction. What actions would be taken if the species are found and construction would severely impact them? Surveys need to be conducted in time to provide an appropriate analysis.

411-32 Page 3-74, *UDWR Utah Sensitive Species List*: We suggest this heading be eliminated and the discussion following included on the previous pages under the Sensitive Species discussion. These species should also be added to Table 3.9-2., QUITCHUPAH CREEK ROAD DEIS. There is no mention of the Utah BLM Sensitive Animal Species List as identified in BLM Instruction Memorandum No. UT 2001-081. This is the official Utah BLM sensitive animal species list and should be cited in the FEIS.

411-33 Page 3-105: The Numic Expansion is at this point a theory, and not a fact. Many archaeologists believe that the Numic peoples (which would have included ancestors of current Ute, Paiute, Shoshone, Goshute and Comanche) advanced from a point of origin in the southwestern Great Basin, possibly southeastern California after 1000 AD and moved north and east as populations grew. If true, they would have arrived in Utah around 1300 AD, which is consistent with some archaeological data. But there are other theories that dispute the concept of a Numic Expansion, and many of the tribes in question state that their oral histories are as valid or more valid than archaeological theory. They have been here for thousands of years. A few words should be added to indicate that current theories "suggest" that these emigrations/immigrations took place.

Page 3-106: The final rulemaking for the latest regulations at 36 CFR 800 were published in the Federal Register on December 12, 2000, and made effective January 11, 2001 (see F.R. 77725-77739). The document referenced here was most likely the proposed draft rule.

Page 3-107 and 108: On page 3-107, Alternative A is described as the No Action Alternative, with no impacts. Alternative B is described as the action likely to impact resources of concern to tribes. On page 3-108, however, the text says that impacts of Alternatives C and D follow from Alternative A. This is either a typographical error, or reflects a change in order of the alternatives that was not properly edited. Both Alternatives C and D should reference the impacts to sacred values, etc., from Alternative B rather than A.

411-34 Figure 3-1, Geology Map: The Geology Map is difficult to read and does not provide the information needed to assess the geologic hazards inherent to this project. The various surficial units are poorly differentiated by the various shades of light green; the symbols for the geologic

Response 411-30b
Suitable habitat for the yellow-billed cuckoo is extremely limited within the Project Area. There is a narrow riparian corridor consisting of cottonwood trees in the eastern portion of the Alternative B that is bordered by sagebrush/juniper and agricultural fields. This habitat would not be impacted by the proposed road.

Response 411-30 c
Suitable foraging and roosting habitat for spotted bats does exist within the Project Area. No surveys for this species were requested by the Forest Service. Impacts to foraging habitat (by Alternative) for sensitive bat species have been addressed within the Wildlife Resources, Section 3.5 of the FEIS.

Response 411-31
See Section 3.7 Threatened, Endangered, and Sensitive Species. Preconstruction surveys for these two sensitive species would be conducted to record locations in the selected road construction corridor and specific mitigation measures made to protect these plants should they be present.

Response 411-32
Editorial changes have been made.

Response 411-33
Editorial changes have been made.

Response 411-34
There is no Quitchupah Canyon, the correct USGS designated name is Quitchupah Creek and will be corrected in text. The impact to or from certain geologic formations is not considered a significant impact due to design of proposed road so cross-sections of the geologic formations throughout the project area would seem redundant.

The Geology Map used in the DEIS is the only one available for the area. This map is not included in the FEIS.

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Mary C. Erickson, Forest Supervisor 13

411-34 cont.

units, especially in the canyon where the road will be built, are too small to read and often obscured by the topographic lines; geologic contacts are poorly or incorrectly drawn; and the line symbols in the legend are the same for syncline, anticline, monocline, geologic unit contact and fault, most of which do not relate to the line symbols drawn on the map. The cross section example (section 22) needs to be for a section that is actually on the map. The various canyons and washes are not adequately labeled, and Quitchupah Canyon, which is discussed in the text, does not appear on any of the maps. Because of the random and repeated scale changes from map to map in the DEIS, comparisons among the maps to assess the surficial relations of each map's subject are limited.

In addition, geologic cross sections from the top of the canyon to depth for 1) the beginning of the road and 2) end of the road in Convulsion Canyon would be helpful to assess the geologic problems and hazards that will be associated with this project.

411-35

Figure 3-4, Soils Map: The soils map is inadequate for use in soil analysis related to the road. The northern section of the map is not included so that those sections cannot be evaluated. These north sections relate to geologic hazards associated with the north canyon walls. The soils section in the text (3.5 SOILS, page 3-34 – 3-50) and the tables of soil types do not include descriptions of many of the important soils, such as soil types 57, 58, 73, 77, all of which are associated with the mapped landslide area. Also, it is difficult to relate the salinity values of the soils shown on the map to the underlying geologic shale units, Mansuk Shale and Blue Gate Shale, for sections of the proposed road. The Mansuk Shale and Blue Gate Shale are members of the Mancos Shale Formation that is repeatedly mentioned in the text as causing construction, maintenance, and salinity problems in this area.

Thank you for this opportunity to comment. We look forward to future cooperation in the analysis and decision making process for the proposed road.

Sincerely,

Robert F. Stewart
Regional Environmental Officer

Enclosure - Literature Referenced

Response 411-34 cont.
A sizeable amount of research went into the creation of the maps in the EIS. The maps that are in the EIS are the best and in some instances are the only available maps that could be obtained.

Response 411-35
The soils descriptions given in the EIS are for areas directly affected by the proposed project. The landslide area and the related soils noted in the comment are outside of this area, and the landslide potential is described in the geology section of the EIS and does not need to be repeated in the soils section. Further, the USFS soil survey has not been finalized and detailed soils descriptions are not available beyond those developed through taxonomic classifications.

Parent materials for the soils mapped on the non-forest lands are given in the Soils Technical Report for this project, which is referenced in the EIS soils section.

The landslide feature is not considered a threat to the road so the soils outside the road corridor are not included because no impacts are associated with these soils. Soils 57,58,73, and 77 are not within the road corridor and will not be impacted by the road construction.

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STATE AGENCY LETTERS

Letters Included:
Letter #4 - Utah Division of Oil, Gas and Mining
Letter #101 - Utah State Representative, Bradley T. Johnson
Letter #105 - Utah Department of Transportation
Letter #302 - Utah State Senate, Leonard M. Blackham
Letter #390 - State of Utah Office of the Governor, Michael O. Leavitt
Letter #401 - Utah Division of Wildlife Resources

Letter #4

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
Governor
Kathleen Clarke
Executive Director
Lowell P. Braxton
Division Director

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January 22, 2002

Linda L. Jackson, Public Affairs Officer
Fishlake National Forest
115 East 900 North
Richfield, Utah 84701

Kay Erickson, Realty Specialist
Bureau of Land Management
Richfield Field Office
150 East 900 North
Richfield, Utah 84701

RE: Comments on Quitchupah Creek Road, Draft Environmental Impact Statement,

Dear Ms. Jackson and Mr. Erickson:

The Division of Oil, Gas, and Mining received a copy of the Quitchupah Creek Road Draft Environmental Impact Statement on December 7, 2001. We offer the following comment:

4-1 The Division of Oil, Gas and Mining is the agency responsible for permitting coal mining and reclamation operations within the State of Utah. Such permitting actions may or may not include public roads or portions of public roads. In order to make such permitting decisions concerning roads or portions of roads, OGM analyzes written information and data. In reading the DEIS, it has been noted that in a number of places throughout the document, the terms "coal hauling route" or "coal haul traffic" are used (Abstract, Executive Summary p. vii, 1-1, 1-13). Since 'coal haulage' is a term often associated with on-site mining activities, the use of this type of terminology has the potential for confusing the reader and may make it difficult to distinguish where mining activities end and public transportation begins. Thus, OGM encourages the writers of this EIS to carefully evaluate its current descriptions of the proposed activities for the road and to consider the use of language or descriptions in the final EIS that 1) is as precise as possible to the exact activities, i.e., the transportation of coal, and 2) that includes descriptions of all proposed activities and uses of the road.

Thank you for the opportunity to comment on this project. Please call if you have questions.

Sincerely,

Lowell P. Braxton
Director

vs
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4

Response 4-1
Editorial comments addressed. The terminology was changed to "coal transport route" and "coal truck traffic."

Letter #101

HOUSE OF REPRESENTATIVES
STATE OF UTAH

REPRESENTATIVE BRADLEY T. JOHNSON
70TH DISTRICT
(EMERY, SANPETE AND SEVIER COUNTIES)
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STANDING COMMITTEES: NATURAL RESOURCES, AGRICULTURE AND ENVIRONMENT. CHAIR; EDUCATION
APPROPRIATIONS: NATURAL RESOURCES; ETHICS

January 30, 2002

Ms. Linda L. Jackson
Public Affairs Officer
Fishlake National Forest
115 East 900 North
Richfield, Utah 84701

Dear Ms. Jackson

101-1 I would like to voice my support for the Water Hollow Road Route (Alternative D) of the Quitchupah Creek Road Proposal. Based on my understanding of the project, the Water Hollow Road route (Alternative D) is the option with the least conflict with local private landowners and important cultural resources.

As a representative of this area in the Utah State Legislature, I would like to commend the Sevier County Special Services District and the SUFCO Mine for this innovative public/private partnership. The Special Services District would be responsible for the construction of the road, and the trucks that haul coal would be assessed a toll to pay for and maintain the road. This partnership has resulted in a project that makes both economic and environmental sense.

101-2 From a legislative standpoint, a privately funded road reduces the demand for State highway transportation dollars, and in this case eliminates coal truck traffic on about 50 miles (roundtrip) of SR-10 and I-70. The Water Hollow Creek Road option has also been designed to avoid the Native American cultural sites in the area.

It is important to remember that coal contracts have been signed, and that coal will be delivered via the I-70 and SR-10 route, or by use of the Water Hollow Creek Road. With the environmental aspects of this project having been minimized, it makes sense to use this new route as the primary coal haulage route.

Thank you for the opportunity to comment on the Quitchupah Creek Road proposal.

Sincerely,

Bradley T. Johnson
70th District

101

Response 101-1
Comments noted. Alternative D is the only alignment that does not directly impact any known cultural resource sites.

Response 101-2
The proposed road, which would be a public highway, would be 100 percent construction and maintenance funded by tolls on the transport of coal by the SUFCO Mine during the life of the mine. After closure of the mine, maintenance of the road would be funded by public transportation funds (i.e. state, county).

Letter #105

UDOT DOING THE EXTRA MILE

Michael O. Leavitt
Governor
John R. Njord
Executive Director
Carlos M. Braceras
Deputy Director

State of Utah
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Hal M. Clyde
Stephen M. Bodily
Jan C. Wells
Bevan K. Wilson
Kenneth L. Warnick

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FEB 0 0 2002
Bureau of Land Management SRRA

February 4, 2002

Kay Erickson
Realty Specialist
Bureau of Land Management
Richfield Field Office
150 East 900 North
Richfield, Utah 84701

Dear Mr. Erickson,

The Price District Office of the Utah Department of Transportation has reviewed the DEIS for the Quitchupah Creek Road. We support Alternative C for the following reasons:

- Meets the purpose and need.
- Is the shortest route for coal hauling, employees, and suppliers, thus providing the greatest fuel savings and the least vehicle emissions.
- 105-1 Provides the greatest protection to livestock. We have found livestock collisions to be of great concern to local citizens and the highway users.
- Avoids the steep grade up Quitchupah Hill that slows northbound trucks and interferes with regular traffic movement. It avoids the frustration of motorists forced to follow real slow loaded trucks up the hill.
- 105-2 Eliminates the need to widen or reconstruct the SR-10 bridge over Quitchupah Creek that would be required with alternative B.
- Avoids the landslide on Quitchupah Hill. We believe the weight and vibration of the loads could accelerate the movement of that slide.

We appreciate the opportunity to respond to the DEIS and would like to continue to be included in further discussions regarding this project.

Sincerely,

Kleston H Laws

Kleston H. Laws
Price District Engineer

105

Response 105-1
Under Alternatives A and D the coal truck traffic would slow northbound traffic on Quitchupah Hill because there are presently no passing lanes on this steep grade. Under Alternative B, additional lanes, including an acceleration lane up Quitchupah Hill, would be constructed at the junction with SR-10. Under Alternative C the junction with SR-10 would be north of Quitchupah Hill so coal trucks would not be a hindrance to northbound traffic. See Section 3.14 Transportation.

Response 105-2
Liquefaction is a hazard whenever a structure is constructed on unconsolidated sedimentary deposits in an area that has the potential of seismic activity. The engineering design of the road will have to take into account that portions of this road and the SR-10 bridge will be built on these deposits.

There is no mapped landslide feature on Quitchupah Hill (Harty 1993). The known landslide feature is located on Acord Lakes Road. The discussion on page 3-4 of the DEIS clearly states that the landslide feature is not within the proposed road corridor and that the Acord Lakes Road intersects the toe of the mapped landslide feature. The Acord Lakes Road does not indicate movement or topple on the mapped landslide; thus indicating some stability.

Letter #302

UTAH STATE SENATE

319 STATE CAPITOL • SALT LAKE CITY, UTAH 84114
(801) 538-1035 • FAX (801) 538-1414

SENATOR
LEONARD M. BLACKHAM

TWENTY-EIGHTH DISTRICT
JUAB, SANPETE, SEVIER, MILLARD,
PIUTE, WAYNE, BEAVER and
GARFIELD COUNTIES

P.O. BOX 337
MORONI, UT 84646
(H) (435) 436-8489
(O) (435) 436-8125
FAX (435) 436-8600

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REMARKS:

February 7, 2002

Ms. Linda L. Jackson
Public Affairs Officer
Fishlake National Forest
115 East 900 North
Richfield, UT 84701

Dear Ms. Jackson:

302-1 Thank you for the opportunity to provide comment on the Quitchupah Creek Road Environmental Impact Statement. As a Utah State Senator that represents this area, I support the unique public/private partnership that has developed to address the efficient, safe and environmentally responsible delivery of coal in this region. In particular, I would like to support Alternative D of the Quitchupah Creek Road EIS, which is the Water Hollow Road Route option. I base this recommendation on the fact that it has the support of the only private landowner in this area, and also an important Native American cultural site.

It is important to keep in mind that low-sulfur coal from the SUFCO Mine will be delivered to the Hunter Power Plant, with or without the construction of the Quitch Creek Road. However, if this road project is not constructed, the trucks will travel over approximately 50 miles of I-70 And SR-10 (round trip). By approving the Hollow Creek Road option, construction and maintenance costs will be born by a toll assessed on the trucks hauling the coal. With any private land ownership and cultural resource issues having been mitigated under the Water Hollow Creek Road option, this project simply makes economic and environmental sense.

Thank you for the opportunity to comment on this proposal.

Sincerely,

Leonard M. Blackham
Senator

302

Response 302-1
Comments noted.

Letter #390

STATE OF UTAH
OFFICE OF THE GOVERNOR
SALT LAKE CITY
84114-0601

MICHAEL O. LEAVITT
GOVERNOR

OLENE S. WALKER
LIEUTENANT GOVERNOR

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February 22, 2002

Ms. Linda Jackson
Public Affairs Officer
Fishlake National Forest
115 East 900 North
Richfield, Utah 84701

Dear Ms. Jackson,

The State of Utah would like to go on record in support of the Quitchupah Creek Road proposal, Alternative D (Water Hollow Road) route. This alternative has the support of Castle Valley Ranches, which is the sole private land owner along the route. It has the support of the locally elected officials in the legislature and the county commissioners. It also avoids the cultural resources that are found in that area.

390-1

This alternative will reduce truck traffic on I-70 and SR-10 by approximately 50 miles per round trip. The road will be built and maintained through tolls assessed to the large coal haulage trucks. The SUFCO mine that will be the main user of the road, hauling coal from the mine to the Hunter Power Plant, is totally supportive of this solution. This a very creative and innovative solution by a public/private partnership wherein all parties are to be congratulated and supported.

I enthusiastically lend my support to this effort. Please feel free to contact me if additional information is desired.

Sincerely,

Michael O. Leavitt
Governor

390

Response 390-1
Comments noted.

Letter #401

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WILDLIFE RESOURCES

Michael O. Leavitt
Governor
Kathleen Clarke
Executive Director
John Kimball
Division Director

Southeastern Region
475 West Price River Drive, Suite C
Price, Utah 84501-2860
435-636-0260
435-637-7361 (Fax)

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Feb. 26, 2002

Linda L. Jackson
Fishlake National Forest
115 East 900 North
Richfield, Utah 84701

Re: Quitchupah Creek Road Draft Environmental Impact Statement

Dear Ms. Jackson:

After careful review of the Quitchupah Creek Road Draft Environmental Impact Statement (DEIS), Utah Division of Wildlife Resources (UDWR) has many concerns with this document's assessment of wildlife impacts and proposed mitigation. With so much at stake (loss of wildlife and wildlife habitat, impacts to the fishery, water quality, wetlands and riparian, wildlife-vehicle collisions, to name just a few), we request careful consideration of the need for this project.

401-1 We are concerned about the potential impacts to fish and wildlife, their habitat, and lost opportunities for their harvest and enjoyment by the public. Each of the proposed routes dissect deer and elk summer and winter ranges and increase the chances for deer/elk vehicle collisions. This results in decreased animal abundance and escalates liability discourse. Demolition of distinctive wetlands and riparian may be the most insidious result of this project, and wasn't satisfactorily addressed in the document.

401-2 An issue raised during initial scoping was that "water quality of the stream may be impacted due to disturbance of erosive soils introducing sediments into the creek" (pg ix). Comments stated that "changes may occur to the water quality in Quitchupah Creek and other creeks within the project area due to rerouting the headwaters and eliminating some of the stream-side hydric fringe and wetlands. Water quality may also diminish due to increased sedimentation from disturbed erosive soil sections. The increase in sedimentation in these creeks may increase salinity due to the highly saline soils in the Quitchupah Creek drainage. The increase in salinity may affect the salinity management of the Colorado River system" (pg 1-9). The DEIS responds to these scoping comments by stating that "improvements in roadway design for the Quitchupah Creek Road, specifically improvements in drainage and runoff control, would result in reductions in the amount of total dissolved solids within Quitchupah Creek" (pg xii). The DEIS goes on to state that "salinity in the creek would decrease slightly due to less sedimentation, positively

401

Response 401-1
The impact analysis for wildlife has been revised in the FEIS with expanded detail on impacts to big game. The mitigation design for wetlands and riparian zones would replace functions and values of these areas, and wetlands would have at least a 3:1 area replacement ratio.

Response 401-2
Please see responses to 397-5 (EPA) and 400-3 (Castle Valley Ranches). In addition, the quoted sentences on page xii have been rewritten.

The reclaimed areas will be protected either by monitoring, fencing, or by regulating grazing.

Letter #401

401-2 cont.

affecting the 303d category for the lower creek and discharges to the Colorado River" (pg xii). The DEIS notes that Quitchupah Creek downstream of the project area is listed on the State of Utah's 303d list as an impaired water due to high levels of total dissolved solids (pg 3-20).

At first glance, assertions of improved water quality appear to be accurate because the new road would have fewer stream crossings than the existing road, and culvert crossings would replace ford crossings. However, after a close inspection of the DEIS we disagree and believe that water quality would be negatively impacted by selecting any of the action alternatives. The reason the project will decrease water quality as planned is that seeding/revegetation of disturbed and reclaimed areas will not be successful without strict protection from livestock impacts. There are apparently no plans to provide the fencing necessary for suitable revegetation of disturbed, erosive soils. Trailing of livestock along the stream would still be allowed. The DEIS notes that a substantial proportion of the route of the new road under Alternatives B and C would be in erodible soils adjacent to the stream, and admits that "grazing [and] instream cattle watering...are...potential sources of sediment...[which] must also be considered as sources of TDS" (pg 3-23).

401-3

The possibility of water quality impacts as a result of truck accidents and resulting chemical spills is also a concern. Such accidents have resulted in fish kills in other streams. The likelihood of an accident causing such an event along the new road is high because of the proximity of the stream along most of the road's length. The fish species present in Quitchupah Creek, particularly valuable ones on the state sensitive species list, need protection from any toxic chemicals which could enter the stream.

Another issue raised during scoping was that "wetlands associated with upper Quitchupah Creek could be filled during road construction" (pg ix). The DEIS notes that there would be "impacts to jurisdictional wetlands [and] riparian zones" (pg xii). An issue carried forward in the analysis is that "some wetlands associated with Quitchupah Creek would be filled during construction of the road. The filled wetlands would not function to filter sediments or absorb flood flows for the creek flow regime. Most of the proposed filled wetlands are at the head of these creeks where they presently function as a sediment filter to preserve the water quality of the creek and as flood basins to absorb excess waters and regulate the flows in the channel. The filled wetlands would need to be mitigated by constructing wetlands at other sites along the creek" (pg 1-9). Table 2.6-1 notes that one wetland totaling 0.07 acres would be filled (pg 2-24).

A related issue carried forward is that "riparian zones within the project area and those associated with wetlands would be impacted due to construction of the road. The loss of riparian vegetation could impact wildlife and could cause increased sedimentation in the stream...Increased sedimentation and destabilization of Quitchupah Creek and other creeks in the project area could impact fisheries and aquatic macroinvertebrates in the stream. The loss of the hydric fringe and stream-side wetlands could affect the reproductive success of fish species and some macroinvertebrate species that depend on vegetation for cover and prey" (pg 1-10). Table 2.6-1 notes that approximately 1.7 acres of riparian zone would be filled (pg 2-25), whereas another statement in the DEIS indicates that 3.2 acres of riparian habitat would be disturbed (pg 3-53).

401

Response 401-3

The impacts of spills were previously addressed in the Draft EIS in Section 3.8 Fisheries, see page 3-65, 2nd paragraph. To elaborate: truck accidents would be a possibility on the proposed road, as they are on any road or highway where trucks travel. As stated in the EIS, a spill of coal, fuel, or other materials could occur as a result of such an accident and these substances could enter the stream. Standard response and cleanup to this type of spill would occur, but there could be some short term effects on water quality and biotic stream components. However, the potential for such accidents to occur would be slight. According to SUFCO, over the past five years, only two truck accidents have occurred on the steep, winding Acord Lakes road, out of an estimated 50 trucks per hour at peak times. Alt. D would reduce the risk of spills due to reduced length of road in proximity to the creek.

Wetland mitigation is described in the Monitoring Plan and the 404 Mitigation Plan.

Letter #401

401-4

Wetland and riparian losses need to mitigated to a greater extent than proposed to fix problems associated with this project. The DEIS proposes that 2.75 acres of riparian vegetation be restored. We believe additional wetlands should be created to filter the additional sediments expected when runoff and flood flows increase erosion of streambanks slow to revegetate due to continuing livestock impacts.

401-5

Check dams should be built throughout the fishless portion of Quitchupah Creek to create wetlands and pools to trap sediments. This would help amphibian populations persist and would benefit water quality in the fish-bearing portion of the stream. Additional check dams should be constructed in the north and south forks of Quitchupah Creek above USFS Road 007 as additional mitigation to offset impacts to Quitchupah Creek. Livestock exclosure fences should be installed to protect some of the newly-created wetland areas on each stream.

(401-2)

Livestock-proof fencing should be built and maintained to protect all vegetative planting areas associated with this project. This should include the reclaimed existing road and all disturbed soil around the new road. Without such fencing, suitable restoration of vegetation and protection of streambanks from erosion will not be possible.

401-6

For these reasons, coupled with an unconvincing argument for the necessity of this road, UDWR supports the No Action Alternative (Alternative A) proposed in this DEIS. Mitigation suggestions proposed in this letter may alleviate some impacts to wildlife, however, other impacts cannot be properly mitigated due to the nature and complexity of a wetland ecosystem in an arid climate.

Thanks for the opportunity to review the Quitchupah Creek Road DEIS. If you have any questions, please call Leroy Mead in our Price office at (435) 636-0274.

Sincerely,

Derris R Jones

Derris Jones
Acting Regional Supervisor

DJ/lm

cc: Kay Erickson, Bureau of Land Management
Diana Whittington, U.S. Fish and Wildlife Service

401

Response 401-4
The mitigation for wetlands and riparian has been better developed to fully compensate for these losses. Chapter 2 of the FEIS contains the applicant committed measures that consist of mitigations as part of the road design. Fencing to exclude livestock on 4.7 miles of riparian corridor would improve riparian habitat.

Response 401-5
In the upper section of Convulsion Canyon and in East Spring Canyon where stream realignment would be required, grade control would be used where appropriate to provide for vertical stability of the channel. Similarly, the two, on-stream wetland mitigation sites include a grade control component through the use of low-head dikes to impound water and stop active headcutting. Further, there is no evidence that Quitchupah Creek=s ability to meet aquatic water quality standards would be compromised with proposed project. The State, (via its 303d program) has indicated that Quitchupah Creek meets its beneficial use standards for aquatic habitat; TDS is the only listed parameter of concern, and that is an agricultural standard, not an aquatic one.

Response 401-6
All impacts cannot be mitigated. However, additional mitigation measures have been included in the FEIS with the goal of reducing the extent of impacts and mitigating completely for some impacts. These mitigation measures, discussed in Chapter 2 as applicant-committed measures for road design, apply to wetlands, riparian zones, winter range, sedimentation, rock art, and livestock trailing.

NATIVE AMERICAN LETTERS

Letters Included:
Letter #268 - The Hopi Tribe
Letter #341 - The Paiute Indian Tribe of Utah
Letter #410 - Ute Indian Tribe

Letter #268

THE HOPI TRIBE

Wayne Taylor, Jr.
CHAIRMAN

Phillip R. Quochytewa, Sr.
VICE-CHAIRMAN

January 2, 2002

Mary C. Erickson, Forest Supervisor
Attention: Linda L. Jackson, Public Affairs Officer
Fishlake National Forest
115 East 900 North
Richfield, Utah 84701

Jerry Meredith, Acting Field Manager
Attention: Kay Erickson, Realty Specialist
Bureau of Land Management, Richfield Field Office
150 East 900 North
Richfield, Utah 84701

Dear Ms. Erickson, Ms. Jackson, Ms. Erickson, and Mr. Meredith,

This letter is in response to your correspondence dated December 3, 2001, with an enclosed Draft Environmental Impact Statement by the Bureau of Land Management (BLM), Richfield Field Office and the Fishlake National Forest, regarding a road construction project proposed by Sevier County and Canyon Fuels, Inc., in Sevier and Emory Counties. As you know from our attached letter dated December 18, 2000, and our March 21, 2001, administrative meeting on this proposal, the Hopi Tribe claims cultural affiliation to the Fremont prehistoric cultural group in Utah, and therefore we appreciate the BLM and U.S. Forest Service's continuing solicitation of our input and your efforts to address our concerns.

268-1

The Hopi Cultural Preservation Office understands that there are numerous prehistoric/Fremont archaeological sites located along the route of the Quitchupah Creek Road, several containing rock marking panels, and that many of these sites are significant in terms of their eligibility for nomination to the National Register of Historic Places. In our December 18, 2000, letter on this proposal, we stated that because the Water Hollow alternative would avoid archaeological sites in that right-of-way by virtue of re-routes, we supported the Water Hollow alternative to the Quitchupah Creek Road. We also stated that we support site avoidance for this proposal because we oppose the BLM policy that forbids reburial of human remains and funerary objects subject to the Native American Graves Protection and Repatriation Act (NAGPRA) from BLM lands on BLM lands. We further stated that until this policy is revised, we oppose any BLM proposal involving activities with the potential to disturb the remains of our ancestors on BLM lands.

268

P.O. BOX 123— KYKOTSMOVI, AZ. — 86039 — (520) 734-3000

Response 268-1
Comments noted.

Letter #268

Mary C. Erickson, Jerry Meredith
January 2, 2002
Page 2

268-2

Hopi Cultural Preservation Office has reviewed the *Quitchupah Creek Road Draft Environmental Impact Statement.* We support the right of other Tribes to identify Traditional Cultural Properties, and therefore we support the Paiute opposition to any project along Quitchupah Creek because human activity could impact the sacredness of the canyon. And therefore, the Hopi Cultural Preservation Office supports Alternative A, No Action in this Draft Environmental Impact Statement. If any other alternative is selected we request to continue to be consulted on this proposal.

If you have any questions or need additional information, please contact Terry Morgart at the Cultural Preservation Office at 928-734-3767. Thank you for your consideration.

Respectfully,

Leigh J Kuwanwisiwma, Director
Cultural Preservation Office

xc: Utah State Historic Preservation Office
Paiute Tribe of Utah

268

Response 268-2

An ethnographic study of the Quitchupah Creek area was conducted with the Paiute Tribe (Stoffle et al. 2004). The Paiute Tribe has identified the Quitchupah Creek canyon as sacred; this is summarized in Section 3.13. Therefore some resolution with the tribes will need to be reached before any action is taken. Consultation with the tribes (Paiute, Hopi, and Ute) has been and will be on-going throughout the EIS process.

Letter #341

THE PAIUTE INDIAN TRIBE OF UTAH
440 North Paiute Drive • Cedar City, Utah 84720 • (435) 586-1112

February 13, 2001

Re: Quitchupah Creek Road

To Whom It May Concern:

On behalf of the Paiute Indian Tribe of Utah, we acknowledge the public comment deadline of February 15, 2002 and wish to express our opinion regarding this proposed project. During the past year I had the opportunity to travel to Quitchupah Creek Road to view the rock art panels and rock shelters which contain prehistoric petroglyphs and pictographs which were done in red ochre.

341-1

It is evident that the selected route for the SUFCO trucks would destroy many of the cultural sites we believe to be significant. It would erase the past and make only a statement of profit for SUFCO Coal Mine, ignoring the impact it may have on the cattle and ranchers of that area and most importantly the history which will be lost forever due to this endeavor.

The Paiute Tribe of Utah adamantly objects to the selection of Quitchupah Creek Road for the purpose of providing a route for transporting coal from the SUFCO Coal Mine.

Sincerely,

Lora E. Tom, Chairwoman
Paiute Social Services

LET/mwk

341

Response 341-1
Comments noted. Section 106 of the National Historic Preservation Act regulations require federal agencies to determine whether a federal action will adversely affect cultural resources and consult to avoid, minimize, or mitigate adverse effects

An ethnographic study of the Quitchupah Creek area was conducted with the Paiute Tribe (Stoffle et al. 2004) and is summarized in Section 3.13 of the FEIS.

Letter #410

04/12/2002 14:34 FAX 435 896 1550 BLM RICHFIELD 003

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APR 12 2002
Bureau of Land Management SRRA

April 11, 2002

Kay Erickson
Bureau of Land Management
Richfield Field Office
150 East 900 North
Richfield, Utah 84701

Dear Ms. Erickson:

410-1 I have reviewed the Draft Environmental Impact Statement on the Quitchupah Creek Road and I agree with the Alternatives that was suggested by the Ute Tribe Cultural Rights Director, Betsy Chapoose. The only way to protect the petroglyphs in that particular area, would be to eliminate public access to the canyon this would preserve the historic sites in that area. The other alternative would be to use the Water Hollow area.

If you should have any questions please contact me at the Ute Tribe Resource Department 722-3970 or 722-3972.

Thank you.

Jonas Grant Sr., Director
Ute Indian Tribe
Natural Resource Department

cc: Resource file

410

Response 410-1
Comments noted. The proposed alignment for Alternative B, Quitchupah Creek Road, and Alternative C, Alternate Junction, was shifted south. This alignment would place the proposed road about 300 feet away and across the creek from the rock art panels which are located north of the creek. The new alignment would also avoid impacting known cultural sites located within the previous alignment. No additional sites would be impacted by the reroute.

The existing road routed between the creek and the panels would be blocked for access. This would tend to limit access for casual visitors.

This modification to Alternatives B&C would avoid the direct impacts of a busy public road next to the rock art

LOCAL ENTITY LETTERS

Letters Included:

Letter #270 - Emery City Councilperson
Letter #300 - Sevier County Economic Development
Letter #303 - Emery Town
Letter #374 - Salina City Corporation
Letter #376 - Emery Town Councilperson
Letter #389 - Sevier County Special Service District No. 1
Letter #391 - Sevier County
Letter #392 - Six County Association of Governments
Letter #394 - Sevier County Public Lands Advisory Committee
Letter #409 - Emery County Public Lands Department

Letter #270

Linda L. Jackson
Public Affairs Officer
Fishlake National Forest
115 East 900 North
Richfield, Utah 84701

January 17, 2002

Linda:

After reading the Quitchupah Creek Road Draft Environmental Impact Statement, rereading parts of it, talking with others and reading the article in the Emery County Progress following your presentation to the county commissioners, I have decided that I am leaning toward the Water Hollow option.

This option will cost more money, but then that's not the main issue. It will not impact any archaeological sites, and I feel that is important. These sites are hundreds of years old and need to be preserved. We enjoy going to the sites that we know about, looking at them, teaching our children and grandchildren about them. This is part of our heritage and needs to be preserved.

270-1 I would like to see a 4-wheeler/cattle trail go along side the road as it goes on up through the canyon. We enjoy riding this area, using it to go up onto the Old Woman through Jolley Mill, or going on up to the Acord Lake area, my parents have a cabin at Acord Lake and we love going there. We like to travel on over to the Duncan Mountains and then dropping off Link Canyon. We have made these loops on our 4-wheelers many times and for many years.

270-2 We also own horses and enjoy riding them and would like to see a corridor open for us to ride up through this canyon.

Access to this area for these forms of recreation needs to be preserved. I don't feel that it would add anything to the cost of building this roadway.

Sincerely,

Glenys C. Sitterud

Glenys C. Sitterud
Emery City Councilperson
Emery Co. Panning & Zoning Boardmember
Southeastern UT OHV Club Boardmember

270

Response 270-1
A fenced livestock trail would be constructed along 1.5 miles of the proposed road in Convulsion Canyon where the topography limits free movement of livestock. East of this, livestock would trail outside of the fenced corridor.

Response 270-2
Currently there is not a designated ATV trail in the canyon. There will be no ATV trail constructed beside the proposed road.

Letter #300

Sevier County Economic Development
250 N. Main • Richfield, UT 84701
Phone: 435-893-0454 • Fax: 435-893-0495
Email: sevierutah@hotmail.com

February 6, 2002

Ms. Linda Jackson
Public Affairs Officer
Fishlake National Forest
115 East 900 North
Richfield, UT 84701

Dear Ms. Jackson:

This letter is to express my support for the Quitchupah Creek Road proposal, specifically, Alternative D in the study draft.

300-1 Alternative D appears to carry the best balance of impact and mitigation to meet the needs of all parties involved. This office supports the effort to safely and efficiently move coal from the mine to its customers in Emery County. As you know, the coal mine operation is a major employer and provides a higher wage job than most other organizations. At the same time, this project and Alternative D protects important cultural sites and the environment.

Sincerely,

Malcolm R. Nash
Director

300

Response 300-1
Comments noted.

Letter #303

EMERY TOWN
P.O. BOX 108
EMERY, UTAH 84522

RECEIVED
FEB 1 2002

February 11, 2002

Kay Erickson
Bureau of Land Management
150 East 900 North
Richfield, Utah 84701

Dear Mr. Erickson:

The purpose of this letter is to offer comments on behalf of Emery Town regarding the proposed Quitchupah Creek Road.

303-1 It is the position of the majority of the citizens of this town that Alternative A, No Action, is the preferred alternative. They feel that this is a very permanent solution to support an industry that will only be operating for the next 30 years or so. The destruction of archeological sites, disruption of wildlife, requiring trucking of cattle, and the general degradation of a beautiful pristine canyon are too high a price to pay when a perfectly acceptable alternative already exists, i.e., the Convulsion Canyon road down to I-70.

303-2 It is the opinion of many in this town that road down that unstable canyon would be at best difficult and very expensive to maintain. And long after mining ceases, the road would be a permanent scar on the landscape.

303-3 An alternative presented by a town councilman concerns the Muddy Creek area. He feels that since the mine wishes to put an opening into this area to drain water from the mine, he asks if a portal could be opened there and a road built from there down to Hwy 10. The road would be all on Forest Service or BLM land, bypassing the Hinkins property. It would also then bypass Emery Town. This would shorten coal haul even more.

This concludes our comments. Thank you for the opportunity to present our views.

Michael J. Williams, Mayor
Emery Town

303

Response 303-1
Comments noted.

Response 303-2
The design of the road would utilize additional granular fill to mitigate for the unstable soils per UDOT recommendations, see Borrow Material Areas in Chapter 2 of FEIS. This design should make for a stable road base. The scar from construction of the proposed road would be readily visible within Quitchupah Creek but would not be readily apparent from SR-10. The visual intrusion of the proposed road would meet visual standards for the Fishlake National Forest and the BLM Richfield Field Office. See Section 3.10 Visual Resources, Recreation, and Wilderness, in the FEIS for explanation of visual impact.

Response 303-3
A portal loadout facility in Muddy Creek is not feasible for the SUFCO Mine because the interior mine coal transport system is aligned west and south away from Link Canyon and Muddy Creek. See Section 2.6 of the FEIS.

Letter #374

SALINA CITY CORPORATION

90 WEST MAIN · P.O. BOX 69 · SALINA, UTAH · 84654 · (435) 5297304
FAX (435) 529-1235

RICHFIELD RANGER DISTRICT
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TIMBER
WILDLIFE

February 13, 2002

Ms. Linda L. Jackson
Public Affairs Officer
Fishlake National Forest
115 East 900 North
Richfield, UT 84701

Dear Ms. Jackson:

My office would like to enter our support for the Quitchupah Creek Road proposal. Based on our understanding of the project, the Water Hollow Road route (Alternative D) is the option with the lease conflict, and also has support of the only private landowner in the area.

374-1 We wish to express our admiration of the public-private nature of this proposal. Under the plan, the Sevier County Special Services District would construct this public road. The SUFCO Mine would then be a toll user of the public road in order to pay for the construction and maintenance of the road. The end result is that the project is beneficial for several reasons:

1) The Quitchupah Creek Road reduces the total amount of trucks on roughly 50 miles (round trip) of SR-10 and I-70.
2) It is given that the coal contracts have been signed and the coal will be delivered to the Hunter Power Plant and the Savage loadout. The Quitchupah Creek Road directly addresses the efficiency and safety of the delivery of the coal along a portion of the route.
3) The State of Utah is blessed with some of the lowest cost electricity in the United States, as well as providing low cost power to Nevada and California. This is due to the availability of Utah's high quality, low sulfur coal. However, the rail system in central Utah is relatively undeveloped, and the delivery of Utah coal is largely dependent on the highway system. Again, the Quitchupah Creek Road directly addresses the efficiency of coal delivery with a relatively unique public/private partnership.

Thank you for the opportunity to comment on the Quitchupah Creek Road proposal.

Sincerely,

Marilyn S. Anderson
Salina City Mayor

374

Response 374-1
Comments noted.

Letter #376

03/19/02 TUE 11:15 FAX 801 896 9347 FISH LAKE NTL. FOREST 002

February 15, 2002

Linda L. Jackson
Public Affairs Officer, Fishlake National Forest
115 East, 900 North
Richfield, Utah 84701

Subject: Proposed coal haul road down the Quitchempah canyon.

The town of Emery is against the construction of any coal haul road down the Quitchempah Canyon because we are tried of all the truck traffic through town, and we believe that if the proposed road was built down the Muddy Creek canyon it would be beneficial to Sufco and the Town of Emery.

376-1

We understand that the Sufco Mine proposes to portal out in the Muddy Creek to de-water the mine. We think that this is the right thing to do because at the present time the normal flow of surface and ground water is being diverted in the Wildcat Knolls and Pines areas to the Quitchempah creek from the Muddy creek drainage. This will correct this problem caused by the mining of coal, and put the water in the mine back where it belongs.

376-2

I also feel that the area where this new portal will be would be an excellent place to load trucks taking coal to points east of the Sufco mine. There is a mild grade down the Muddy creek and the only Indian writings would not be impacted by a road as they are up on the side of the canyon. We also believe there would be little if not any public resistance to this road because there is a very old road there now that was used to access the old Reece Mine. Also this canyon is not used to move cattle to and from the mountains. If this road was routed slightly north of east near the mouth of the Muddy creek canyon it would intersect with SR-10 on the Moore flat and miss the ranch in the mouth of the canyon owned by David Hinkins hence staying on Forest Service and BLM public land the entire route. I have no idea as to the coal quantity or quality on the north side of the canyon where the old Reece Mine was located but a load-out facility located in the Muddy Creek would give Sufco the option of mining coal on the North side of Muddy creek canyon.

One of the proposed routes for a railroad line from south of Emery to Price is shown to cross to the west side of SR-10 just north of Emery and running parallel with SR-10 to an area near the Ferron dugway where it crosses back across SR-10 and is routed east of Ferron to points north. A road down the Muddy creek would intersect with this railroad route on the Moore Flat also.

I urge that this alternate plan be considered because I see this benefiting everyone.

Jon H. Sundstrom
Emery town council person
P.O. Box 562, Emery, Utah 84522

376

Response 376-1
Comments noted.

Response 376-2
Muddy Creek, a deep canyon on the north side of the Pines Tract, which is now being mined through the SUFCO Mine, was also considered as a possible portal site and coal transport route. The SUFCO Mine has applied for treated mine water discharge into Muddy Creek via a small portal located on the side of the canyon. There are two problems with enlarging this portal for loadout, 1) a route in the canyon is very rough and steep and would be located adjacent to a stream that provides culinary water, a problem for maintaining water quality, and 2) the mine plan as explained in the preceding discussion on a portal in Link Canyon makes this portal site economically unfeasible. See Section 2.6 in the FEIS.

Letter #389

FEB.26.2002 11:48AM SUFCO MINE NO.145 P.2/2

SEVIER COUNTY SPECIAL SERVICE DISTRICT NO. 1
250 NORTH MAIN
RICHFIELD, UT 84701

February 26, 2002

Ms. Mary C. Erickson
Forest Supervisor
Fishlake National Forest
115 East 900 North
Richfield, UT 84701

RE: Quitchupah Creek Road EIS

Dear Ms Erickson:

Sevier County Special Service District No.1 requested right-of-ways from both the USFS and BLM for improvement of an existing dirt road down Quitchupah Canyon. We appreciate the cooperation of the USFS and the BLM in the NEPA process and wish to express our opinion as to the desired coarse of action.

We initiated the activity on the Quitchupah Road NEPA process about four years ago. This project will provide benefit to the Sufco mine, trucking companies, counties and citizens of the area. Although the Water Hollow Alternative costs additional money, we believe it is the best route and support its selection as the preferred alternative for the EIS. This route mitigates most of the concerns of the private landowners and the Native Americans and still meets most of the needs of the mine and trucking operations. It would also avoid known cultural resources sites and allow traditional uses of Quitchupah Canyon. A cattle trail should be included in the design of the road on the Forest Service Lands to allow the traditional trailing of cattle. This trail could be located north of the road with the north side of the road being fenced from Broad Hollow to Water Hollow thus separating the trailing cattle and road traffic. 389-1

Sevier County Special Service District No. 1 strongly suggests selection of Alternative D, Water Hollow Route as the preferred alternative for the EIS.

Sincerely,

Wesley K. Sorensen
Chairman

Ralph Okerlund
Secretary

Duane D. Bresee
Treasurer

389

Response 389-1
A fenced cattle trail would be constructed on 1.5 miles of the west end of the road where topography limits free trailing movement. East of this, livestock would trail outside the fenced road corridor. See Section 3.8 of the FEIS.

Letter #391

Sevier County

COMMISSIONERS:
Tex R. Olsen
Gary B. Mason
Ralph Okerlund

Administration Building
250 North Main
Richfield, Utah 84701
(435) 893-0400
FAX (435) 896-8888

Steven C. Wall - Clerk/Auditor
Gail DeMille - Assessor
Shawn M. Fuellenbach - Treasurer
Jayrene B. Nielsen - Recorder

February 26, 2002

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Ms. Linda L. Jackson
Public Affairs Officer
Fishlake National Forest
115 East 900 North
Richfield, UT 84701

Dear Ms. Jackson,

391-1

The Sevier County Commission has, and will continue to support the idea of a developed road from the Convulsion Canyon Mine in Sevier County to State Route 10. We see a definite need for the road, which will be a county road, and a great opportunity to get it built without the use of public funds. We believe this to be a win-win situation for our public because of the willingness of the mine management to charge a toll for the construction of the road and the ability of the public to use the road for access to the Accord Lakes area, as well as access for employees and service personnel from Emery and Carbon Counties.

Our County Commission supports Alternative D, the Water Hollow route, and we encourage your agencies to look closely at this alternative. As you know, it is a longer and more expensive route but we believe the benefits outweigh the costs. The obvious benefits are, less archeological disturbance, and greater acceptance by private landowners and Native American groups. We believe this route will enhance the scenic opportunities, as it gets out of the bottom of the canyon and may well compliment the eventual development of the rock art sites along Quitchupah Creek.

The Commission believes that the impact to public lands (approximately 150 acres) is well worth the benefits of public safety, emergency response capability, economic benefits, greater convenience of travel for the public and new scenery availability. We believe that these opportunities fit well into the governance of the multiple use policy for public land management. The economic benefit alone is extremely important to our county and is well documented in the draft E.I.S.

We wish to thank you for the opportunity we have had to work with you on this project and to comment on this draft. We offer our availability and willingness to continue to work together to get this important project completed.

Sincerely,

Tex R. Olsen
Commissioner

Ralph Okerlund
Commissioner

Gary Mason
Commissioner

391

Visit Sevier County – The Hub of Scenic Southern Utah

Response 391-1
Comments noted.

Letter #392

SIX COUNTY ASSOCIATION OF GOVERNMENTS

Sevier County Courthouse
250 North Main
Richfield, Utah 84701
Telephone: (435) 896-9222
Fax: (435) 896-6951

OFFICE OF EXECUTIVE DIRECTOR
PLANNING AND COMMUNITY DEVELOPMENT
AGING/HUMAN RESOURCES
ADMINISTRATIVE SERVICES

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February 26, 2002

Ms. Linda L. Jackson
Public Affairs Officer
Fishlake National Forest
115 East 900 North
Richfield, UT 84701

Dear Ms. Jackson:

392-1 As you are aware the Six County Association of Governments comprise local officials of Juab, Millard, Piute, Sanpete, Sevier and Wayne counties. Through a united voice we would like to submit our support for the Quitchupah Creek Road proposal.

After a review of the project, we believe that the Water Hollow Road route, or Alternative D, is the option with the least conflict. This alternative also has the support of the only private landowner in the area.

We commend the public-private partnership of this project. It is our understanding that Sevier County would construct a public road, and after construction, SUFCO Mine would be a toll user of the road. Proceeds from the toll collection would be used to offset road construction and maintenance costs of the road. The end results of the project will be most beneficial.

The Quitchupah Creek Road reduces the amount of trucks on SR-10 and I-70 on a 50 mile round trip coal haul. With signed contracts, SUFCO will deliver coal to the Hunter Power Plant and Savage Load-out. The Quitchupah Creek Road directly addresses the safety of delivery along portions of the route. Additionally, the Road provides for much more efficient means of delivery. Finally, Utah has a high quality, low sulfur coal, and utilization of this coal in power generation has resulted in some of the lowest electricity costs in the United States. This low cost power also benefits Nevada and California. Because the rail system in central Utah is underdeveloped and no alternative means of transportation is available, coal must be transported on Utah's highway system. Again the Quitchupah Creek Road addresses this concern and provides a means of efficiency through a very unique public/private partnership.

We commend the efforts of those involved in developing this project. We feel the Quitchupah Creek Road project is a necessary project which will help a major industry of the area remain viable and profitable.

We appreciate the opportunity of providing these favorable comments on the Quitchupah Creek Road proposal. Should you need additional information or comments, please feel free to contact Mr. Russ Cowley, Executive Director at (435) 896-9222 Ext. 12.

Sincerely yours,

Joseph Bernini

Commissioner Joseph Bernini
SCAOG Chair

392

Juab • Millard • Piute • Sanpete • Sevier • Wayne

Response 392-1
Comments noted.

Letter #394

Sevier County Public Lands Advisory Committee
250 North Main
Richfield, Utah 84701
435-893-0458

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February 26, 2002

Ms. Linda L. Jackson
Public Affairs Officer
Fishlake National Forest
115 East 900 North
Richfield, UT 84701

Dear Ms. Jackson,

Our Committee would like to enter our support for the Quitchupah Creek Road proposal. Based on our understanding of the project, the Water Hollow Road route (Alternative D) is the option with the least conflict, and also has support of the only private landowner in the area.

394-1

We wish to express our admiration of the public-private nature of this proposal. Under the plan, the Sevier County Special Services District would construct this public road. The SUFCO Mine would then be a toll user of the public road in order to pay for the construction and maintenance of the road. The end result is that the project is beneficial for several reasons:

1. The Quitchupah Creek Road reduces the total amount of trucks on roughly 50 miles (round trip) of SR-10 and I-70.
2. It is a given that the coal contracts have been signed and the coal will be delivered to the Hunter Power Plant and the Savage loadout. The Quitchupah Creek Road directly addresses the efficiency and safety of the delivery of the coal along a portion of the route.
3. The State of Utah is blessed with some of the lower cost electricity in the United States, as well as providing low cost power to Nevada and California. This is due to the availability of Utah's high quality, low sulfur coal. However, the rail system in central Utah is relatively undeveloped, and the delivery of Utah coal is largely dependent on the highway system. Again, the Quitchupah Creek Road directly addresses the efficiency of coal delivery with a relatively unique public/private partnership.

Thank you for the opportunity to comment on the Quitchupah Creek Road proposal.

Sincerely,

Ralph Okerlund, Co-chair

Gary Mason, Co-chair

394

Response 394-1
Comments noted.

Letter #409

EMERY COUNTY

Public Lands Department
Val Payne, Director

February 26, 2002

RICHFIELD RANGER DISTRICT
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WILDLIFE

Linda L. Jackson
Public Affairs Officer
Fishlake National Forest
115 East 900 North
Richfield, Utah 84701

Kay Erickson
Realty Specialist
Bureau of Land Management
Richfield Field Office
150 East 900 North
Richfield, Utah 84701

RE: Draft Environmental Impact Statement (DEIS) for the proposed Quitchupah Creek Road

On behalf of Emery County, I appreciate the opportunity to comment on the above referenced DEIS. Emery County acknowledges the stated purposes and needs for the proposed road, as defined in the DEIS. Additionally, the county is aware of the concerns associated with the project involving livestock operations, private property, cultural resources, wildlife, water resources, traditional recreational uses including OHV/ATV access, and the natural and historic ambiance of Quitchupah. Emery County recognizes that the major portion of the proposed project is outside of the county; however, the impacts resulting from the project and the associated transportation of coal directly effects Emery County and its citizens.

409-1 Emery County strongly supports the established livestock operations and activities associated with the allotments in Qutichupah and the surrounding area. The county is equally supportive of protection of private property interests, cultural resources and traditional uses related to the Quitchupah area. Therefore, Emery County recommends modification of Alternative D to include fencing and underpasses for livestock and wildlife, as described in the DEIS. Additionally, a fenced livestock trail should be established along the western portion of the project, in Convulsion Canyon, to facilitate movement of livestock and wildlife. As the DEIS states, "... ATV activity occurs in the

P.O. Box 1298, Castle Dale, Utah 84513 • Telephone (435) 381-5552 • Fax (435) 381-5644

409

Response 409-1
A fenced cattle trail would be constructed along 1.5 miles of the western portion of the proposed road where topography prohibits free movement of the cattle. From there the cattle would trail outside the fenced road corridor.

The livestock trail would not accommodate ATV traffic, nor would ATVs be able to utilize the area outside the fence.

Letter #409

409-1 cont.

canyon although this area is not currently regulated as an official ATV use area by either the Forest Service or BLM." The livestock trail could accommodate ATV use if the regulatory agencies allow such use. Drift fences and corrals should be constructed as necessary to address the needs of the livestock permittees. Impacts unique to an individual permittee should be appropriately mitigated. Selection of a modified Alternative D will allow the traditional uses associated with Quitchupah to continue and will eliminate or greatly reduce the potential impacts to cultural resources. Alternative D involves only two parcels of private property and a single private property owner. The county believes that the concerns regarding private property will be addressed through the modified Alternative D.

409-2

Emery County concludes that Alternative D, modified as described herein, is the only alternative which satisfies the purposes and needs identified in the DEIS while addressing the concerns which have been brought before the County regarding the proposed project.

The following additional comments are offered:

409-3

Statement at page xi regarding Alternative C reads, "This route.....allow loaded coal trucks to utilize their momentum gained while descending Quitchupah Creek Road to ascend the 0.6 percent grade." Statement at page xiv regarding Alternative C reads, "The route....loaded haul trucks would use the momentum gained descending Quitchupah Creek to ascend the 2.5 percent maximum grade....".

409-4

The DEIS contains Statements, at page xiii and elsewhere, regarding reduced total dissolved solids (TDS), or decreased salinity in Quitchupah Creek resulting from the improved road. However, the DEIS does not address the potential for TDS and salinity to increase due to salt used during winter road maintenance operations.

409-5

The discussion at page xiv, comparing Alternative C to Alternative B is confusing. Regarding Alternative B, the DEIS reads, "The route would reduce the round-trip haul by 50 miles...". Regarding Alternative C the DEIS reads, "Impacts are similar to those summarized under Alternative B, except the route would be slightly longer; however, it would save an additional 53 miles on the round-trip haul...". If the route is "slightly longer", additional miles cannot be saved. Also, the miles saved by the "longer" route would be a total of 53 miles, or an additional 3 miles, not be an additional 53.

409-6

The information, at page 2-3, regarding the increase in the percentage of coal truck traffic on SR-10 (from 20% to 60%) should be included at page 3-110, rather than the current statement which simply indicates that recent percentage figures "have/will become inaccurate" due to "additional haul truck traffic to SR-10".

409-7

The property owner identified at page 2-2 as Thomas C. Bunn, et al conflicts with Figure 2-2 which shows the property owner as Thomas E. Bunn, et al.

409

Response 409-2
Comments noted.

Response 409-3
Editorial changes made.

Response 409-4
The final EIS has been revised to include a more extensive description of the BMPs associated with the proposed road design, construction, and maintenance. Further, it has been revised to include details on applicant-committed and agency-committed measures, which would help to reduce existing sediment/salinity impacts. Lastly, the EIS has incorporated an extensive monitoring plan, which would ensure that chronic sedimentation/erosion sources associated with the road project are fixed. All of these measures combined would minimize the potential for increasing the amount of total dissolved solids in Quitchupah Creek above current levels, in spite of some localized areas of increased erosion due to increased disturbance.

Further, It is important to note that the Utah Division of Water Quality, in its West Colorado Watershed Management Unit Water Quality Assessment Report (Dec 2000), states that the probable sources for TDS in the 303(d) listed stretch of Quitchupah Creek downstream of the project area were natural and agricultural practices, not roads. While there are other contributors to watershed erosion and salinity loading to Quitchupah Creek, there is no intent in this project, nor does there need to be, to fix all prior existing problems in the Quitchupah Creek watershed. The existing character of the water, riparian, soil conditions, upland watershed uses (including ATV and livestock), and instream water rights were all documented in the affected environment section of the Draft EIS.

The existing mine drainage from the SUFCO Mine is permitted under the The existing mine drainage from the SUFCO Mine is permitted under the UPDES wastewater discharge program and is generally of better quality in regard to TDS than the receiving waters it discharges to.

However, the net effects of the proposed project on the stream would be monitored, and mitigation implemented as necessary should impacts be noted.

Livestock impacts on riparian areas were noted in the Draft EIS, but given the primacy of the private landowners and the valid in-stream stockwatering rights, it is difficult to see how to mitigate TDS impacts by changing this. The proposed riparian fencing of several miles of Quitchupah Creek would, over time, help to reduce livestock impacts to riparian areas. Further, mitigation measures to reduce overall watershed erosion and stream sedimentation would require large scale watershed projects that would be beyond the scope of this road project. The old road would be reclaimed under Alternatives B&C as previously stated on page 2-12 in Section 2.2, Alternative B of the Draft EIS.

Letter #409

409-8

Page 3-54, reference to Section 4.9 should be 3.9.

Page 3-67, reference to Table 3.8-1 should be 3.9-1.

Page 3-70, reference to Table 3.8-2 should be 3.9-2.

At page 3-89, the reader is referred to Appendix B regarding the irrigation canal that would be affected at various locations between Stations 290+00 and 350+00. However, the location of the canal is not identified on Strip Maps 10 through 12 in the Appendix. Therefore, the reader must discern the location of the canal based on contour lines.

Page 3-98, references to Table 3.12-1 should be 3.13-1.

Page 3-108, references to Alternative A are incorrect.

Page 3-110, Table 3.15-1, reference to SR-122 should be SR-155. The information presented at page 3-110 should indicate that the traffic volumes projected for the year 2020 will possibly occur much sooner, as discussed at pages xii and 3-114.

Page 3-114, reference to Table 3.14-1 should be 3.15-1.

409-9

Regarding the socioeconomic analysis of impacts to SR-10, Emery County understands the rationale stated at page 3-124, "In order to accurately compare the costs among alternatives associated with upgrading SR-10, it is necessary to focus on the segment of road, and associated costs, that would experience differences attributable to the four alternatives." Namely, the segment of SR-10 from I-70 to the northernmost junction of the proposed Qutichupah road. However, as the DEIS also states, "Any impacts occurring to the north of that point would be common to all alternatives." Therefore, a more complete and meaningful assessment of socioeconomic impacts to SR-10 should address the projected increase in coal truck volumes identified in the DEIS and the resultant impacts to SR-10.

409-10

The DEIS states at page 3-122, "SR-10 is an old road built on poor soil materials that is narrow, follows the contour of the land in hilly terrain, and has weak to medium strength pavement structure. Under existing traffic the years to fatigue average nine with four years being the worst case." The DEIS also indicates, at page 2-3, that SR-10 north to Muddy Creek would need to be rebuilt and bridges replaced to accommodate the projected level of coal truck traffic which may reach 128,000 trips per year, as much as a 25% increase over existing traffic volumes. The projected fatigue of SR-10 from the proposed intersection of the Qutichupah road to the Hunter Plant should be addressed in the DEIS.

409-11

The socioeconomic section of the DEIS is deficient in that the discussion of the "negative impacts to the these ranching operations", at page 3-128, does not

409

Response 409-4 cont.
A sand/salt mix would be used for winter maintenance. Chemicals, such as commonly used road salt, would be needed during the winter to insure safe driving conditions. However, best management practices would be applied to insure that they are used in an appropriate manner to minimize contributions to stream salinity. Newer chemical alternatives to salt, such as calcium magnesium acetate, have not been used extensively in Utah, but could be a possibility for use in the future should cost, safety, and environmental concerns allow.

Response 409-5
Editorial changes made.

Response 409-6
Editorial changes made.

Response 409-7
Editorial changes made.

Response 409-8
Editorial changes made.

Response 409-9
Some of the work has been completed to maintain and upgrade SR10 to accommodate the increased coal truck traffic. This information is discussed in Alternative A No Action in Section 2.1. A more detailed discussion is included in Section 3.14 of the FEIS.

Response 409-10
Information regarding SR-10 has been revised in Chapter 2 and Section 3.14.

Response 409-11
The loss of AUMs is insignificant. About 1.5 miles of fenced livestock trail would be constructed on the west end of the proposed road where topography limits free trailing movement. East of this, livestock would trail outside the fenced corridor.

Letter #409

409-11 cont.

409-12

adequately address the socioeconomic impacts to the livestock operators. Impacts should be quantified.

Figure 3-6, the explanation info for Elk Habitat is incorrectly labeled.

Appendix B, Strip Maps are titled Plan and Profile; however, the profile view is not shown.

Strip Map 7, an area between Stations 220+00 and 224+50 is delineated. It appears that it may be proposed as a potential staging area; however, it is not consistent with the Explanation provided on the map.

Thank you for the opportunity to participate in the review of the DEIS. If you have questions, please call me at (435) 381-5552.

Sincerely,

Val Payne, Director
Emery County Public Lands Department

409

Response 409-12
Editorial changes made.

GROUP LETTERS

Letters Included:

Letter #3, 12-95, 273, 373 - Robinson Transport
Letter #6-10 - Barney Trucking
Letter #98, 148, 274 - Triune, Inc.
Letter #100 - RMA Sales Management Co.
Letter #102 - Forest Guardians
Letter #107 - Western Mine Tools, Inc.
Letter #108-179 - Local Citizens
Letter #147 - Southeastern Utah Off-Highway Vehicle Club
Letter #149 - Morgantown Machine & Hydraulics of Utah Inc.
Letter #180-267, 277-298, 304-336, 339 - SUFCO Mine
Letter #276 - Longwall West, Inc.
Letter #337 - Industrial Electric Motor Service
Letter #338 - RM Wilson Co.
Letter #342 - Tram Electric Inc.
Letter #343 - Tram Electric Inc.
Letter #344 - Tram Electric Inc.
Letter #345 - Tram Electric Inc.
Letter #346 - Tram Electric Inc.
Letter #347 - Tram Electric Inc.
Letter #348 - Tram Electric Inc.
Letter #368 - Custom Supply, Inc.
Letter #369, 370 - Barclay Mechanical Services, Inc.
Letter #371 - Utah Wildlife Federation
Letter #375 - Savage Industries Inc.
Letter #377 - DBT America Inc.
Letter #380 - Joy Mining Machinery
Letter #381-388 - DBT America Inc.
Letter #396 - Canyon Fuel Company, LLC
Letter #398 - Utah Archaeological Research Institute
Letter #400 - Castle Valley Land and Livestock
Letter #402 - Utah Farm Bureau Federation
Letter #403 - Utah Environmental Congress
Letter #404 - Southern Utah Wilderness Alliance
Letter #406 - Interwest Mining Company

Letters #3,12 - 95, 273, 373

Robinson Transport Inc.

(435) 529-7472 • Fax (435) 529-7820

850 West Main • Salina, Utah 84654

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January 28, 2002

Mary C. Erickson
Forest Supervisor
USDA Forest Service
Fishlake National Forest
115 East 900 North
Richfield, Utah 84701

RE: Quitchupah Creek Road EIS

Dear Ms. Erickson:

3-1 The development of a shorter route between the SUFCO Mine and Highway 10 would reduce the time and fuel consumption for the hauling of coal to the Hunter Power Plant and Savage Coal Terminal. In addition, it would reduce the potential for accidents with

3-2 other motorists using the same roads as trucks hauling coal. We are in favor of the construction of the proposed Quitchupah Creek Road with the Alternative D alignment as our preference.

Thank you for your consideration and review of the information concerning the construction of the Quitchupah Creek Road Project.

As an employee of a trucking firm I would propose the Alternative D alignment as my preference.

Sincerely,

Address:
Travis Harvey
1070 North State
Sigurd UT
84657

3

Response 3-1
The fuel savings are described in Section 3.15 Socioeconomic Resources.

Response 3-2
The presence of an alternate route to SUFCO Mine would aid in rendering assistance by outside agencies during an emergency. The proposed road would eliminate the possibility of traffic collisions with coal trucks from the SUFCO Mine east on I-70 to Fremont Junction and north on SR-10 to Quitchupah Creek Bridge.

This letter also signed by: Jeff Leavitt, Cody K. Bradshaw, Teddy Anderson, Terry Harvey, Will E. Dob, Scott L. Malmgren, Brent C. Lawson, Randy Elmer, Rodney Nielson, Lawrence Wichael, Dan Chavis, George Allen, Jacob Leavitt, Gerry W. Hansen, Roger Otis, Chuck Roberts, Scott Hall, Kristoffer G. Noyes, Shawn Edwards, Mitchell Anderson, Michael J. Brandon, Tim Snow, Burke Barton, Jeff Devereaux, Michael Pendleton, Jerry Nebeker, Michael Jensen, Ronnie Lund, F. LaMar Christensen, Jeremy M. Roberts, Lewis Robinson, Troy Torgason, Brandon J. Mason, H. Kim Gramse, Mark E. Miller, Robert C. Banks, Kerry Ball, Eric Lenth, Scott A. Beckstead, Rodney Butcher, Cody Christensen, Yanell P. Synder, Delmar T. Overall, Edwin O Heath, Brady Barton, Billy A. Pay, Jack B. Robins, Dillan Hutchings, Dustin Malmgren, Steven Rasmussen, J.W. Anderson, Tony Barney, Marty Lewis, Jeff Leavitt, J.R. France, Larry Gregerson, Joseph Udy, Harold Kim Gramse, Dave Torgason, Darwin Brown, Cory Piep, Grant Bastian, Harold Harrison, Ellis Miller, Rex Barney, Blaine Buchanon, Evan Leavitt, Steve Smith, Charles Black, Kevin Williams, Jerry Mason, Rick Holliday, Lester Neffsinger, Matt Long, Jason Willder, Kim Curtis, Neil Beach, Dan Poulson, Kim Robinson, Shane C. Barrow, Travis Harvey and six illegible names.

Letter #6-9

BARNEY TRUCKING

January 28, 2002

Mary C. Erickson
Forest Supervisor
USDA Forest Service
Fishlake National Forest
115 East 900 North
Richfield, UT 84701

RE: Quitchupah Creek Road EIS

Dear Ms. Erickson:

6-1 The development of a shorter route between the SUFCO Mine and Highway 10 would reduce the time and fuel consumption for the hauling of coal to the Hunter Power Plant and Wellington. In addition, it would reduce the potential for accidents with other motorists using the same roads as trucks hauling coal. We are in favor of the construction of the proposed Quitchupah Creek Road with the Alternative D alignment as our preference.

Thank you for your considration and review of the information concerning the construction of the Quitchupah Creek Road Project.

Sincerely,

Address:

495 E 3rd N
Salina, Utah
84654

6

Barney Trucking Inc.
195 South 800 West • Salina, Utah 84654 • (435) 529-3701 Office • (435) 529-7314 Fax

Response 6-1
Comments noted.

This letter also signed by: Brad Barney, Lane Barney, and Glen M. Barney.

Letter #10

BARNEY TRUCKING

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January 28, 2002

Ms. Linda L. Jackson
Public Affiairs Officer
Fishlake National Forest
115 East 900 North
Richfield, UT 84701

Dear Ms. Jackson,

My office would like to enter our support for the Quitchupah Creek Road proposal. Based on our understanding of the project, the Water Hollow Road route (Alternative D) is the option with the least conflict, and also has support of the only private landowner in the area.

We wish to express our admiration of the public-private nature of this proposal. Under the plan, the Sevier County Special Services District would construct this public road. The SUFCO Mine would then be a toll user of the public road in order to pay for the construction and maintenance of the road. The end result is that the project is beneficial for several reasons:

10-1

1. The Quitchupah Creek Road reduces the total amount of trucks on roughly 50 miles (roundtrip) of SR-10 and I-70.
2. It is a given that the coal contracts have been signed and the coal will be delivered to the Hunter Power Plant and the Savage loadout. The Quitchupah Creek Road directly addresses the efficiency and safety of the delivery of the coal along a portion of the route.

10-2

3. The State of Utah is blessed with some of the lowerst cost electricity in the United States, as well as providing low cost power to Nevada and California. This is due to the availability of Utah's high quality, low sulfur coal. However, the rail system in central Utah is relatively undeveloped, and the delivery of Utah coal is largely dependent on the highway system. Again, the Quitchupah Creek Road directly addresses the efficiency of coal delivery with a relatively unique public/private partnership.

Thank you for the opportunity to comment on the Quitchupah Creek Road proposal.

Sincerely,

Brad Barney – Barney Trucking Inc.

10

Barney Trucking Inc.
195 South 800 West • Salina, Utah 84654 • (435) 529-3701 Office • (435) 529-7314 Fax

Response 10-1
Comments noted.

Response 10-2
The I-70 and SR-10 road systems presently are the only route for transporting coal east from the SUFCO Mine, a rail system does not exist nor is one planned for eastern Sevier County.

Letter #98, 104, 148, 274

TRIUNE, INC.

Selected Products and Systems for Mining

GENERAL OFFICES:
2328 I-70 Frontage Road
Grand Junction,
Colorado 81505
(970) 242-2200
FAX: (970) 241-4198

January 31, 2002

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Mary C. Erickson
Forest Supervisor
USDA Forest Service
Fishlake National Forest
115 East 900 North
Richfield, UT 84701

RE: Quitchupah Creek Road EIS

Dear Ms. Erickson:

As part of my business, I frequently travel to the SUFCO mine. I support the construction of the Quitchupah Creek Road for the following reasons:

98-1

1. It will provide a shorter route from Emery County to the SUFCO Mine and the Acord Lakes area thus saving time and fuel;
2. Create a lower probability of accidents with passenger vehicles by reducing traffic on I-70 and the Acord Lakes Road;
3. Saves wear and tear on existing highways;
4. Provides alternative route from Emery County to the Salina area, and
5. Employment opportunities at the SUFCO Mine would be more appealing to Carbon and Emery County residents.

We would appreciate your consideration and approval of the proposed Quitchupah Creek Road specifically Water Hollow, Alternative D.

Sincerely,

Thomas L. Wojcik

Address:
Triune, Inc.
2328 I-70 Frontage Rd.
Grand Junction, CO 81505

98

PRICE, UTAH (435) 637-4836 | ROCK SPRINGS, WY (307) 875-2220 | GILLETTE, WY (307) 686-1515 | HENDERSON, KY (270) 869-0246 | CARLSBAD, NM (505) 887-7600

Response 98-1

Comments noted.

This letter also sent and signed by Tod Woomer (#148), Derrel Curtis (#274), and one illegible signature (#104).

Letter #100

RMA
SALES MANAGEMENT CO.
RANDY M. ANDERSON
P.O. Box 77 - EMERY, UTAH 84522
(435) 286-2281

January 31, 2002

Linda L. Jackson
Public Affairs Officer
Fishlake National Forest
115 East 900 North
Richfield, Utah 84701

TO WHOM IT MAY CONCERN:

This letter is in response to the environmental impact statement referring to the Quitchupah Creek Road.

100-1 The cattle and livestock operators that depend on the usage of this canyon for their livelihood which they have done for several years, even before the Sufco Mine ever came into existance, was not given much consideration. The disregard for the cattle and livestock people was very evident right from the beginning of this EIP. On page 1-14 it states "issues not analysed in detail". Issue 1: It states that trucking cattle is not a viable option". The reasoning behind this statement was stated as "trucking cattle is a commonly used method in Utah to move cattle to and from summer ranges." This same scenario should also have been applied for the coal mines as well as trucking coal is a commonly used practice of moving their coal to markets throughout the state of Utah as well as the nation. So therefore, there was never a need for an EIP. The only difference between these to scenarios is that trucking cattle is not a commonly used practice in this area or any place else that I am aware of other than a few isolated cases. But every coal mine either transports their coal out either by truck or rail. This is a fact. Another fact is that Sufco Coal Mine will not be forced out of business if this road is not constructed as many ranchers may be forced out due to the building of this road. Cattle have been trailed to and from the summer range through this canyon for approximately 100 years. Long before there was even a mine in this canyon.

100-2 On page 3-131, the EIP states that 10 AUMS would be lost during construction. It also states that this is an insignificant loss of AUMS. I wonder to whom this would be an insignificant loss - to the person who wrote this EIP? To the Sufco Mine? I'll guarantee this loss is very significant to the people who depend on these AUMS for a living. The AUMS lost would be a lot more than projected in this EIP. In fact, if there are no fencing or trailways provided and maintained, it could force the cattlemen clear out of business as they could not stand the losses of the coal truck/livestock collisions that will surely result in the construction of such a road.

100-3 Never once did I read where Sufco would be responsible for any type of compensation to the ranchers for their losses and extra expenses that would burden these

100

Response 100-1
A fenced livestock trail would be constructed along 1.5 miles of the western portion of the proposed road where topography limits free trailing movement. East of this area, livestock would trail outside of the fenced road corridor.

Response 100-2
The net loss of AUMS is 4 under Alternative B, 4 under Alternative C, and 5 under Alternative D. In addition, 5 AUMs would be lost under all build alternatives due to 4.7 miles of riparian fencing along Quitchupah Creek. See Section 3.8 for additional information.

Response 100-3
The Sevier County Special Service District would provide loading/unloading/holding facilities for the ranchers trailing livestock along Quitchupah Creek and in Convulsion Canyon. The compensation for livestock involved in collisions with coal trucks or other vehicles would be guided by the Utah State open range law. See Section 3.8 of the FEIS.

Letter #100 cont.

-2-

100-3 Cont.

ranchers due to the building of this road. Not only would the construction of this road cost the ranchers a lot of increased expenses but also would make their ranches go down in value. Again proving that this EIP was not giving the cattlemen/livestock people much consideration at all.

On page 3-82 it states that "cattle trailing and gathering around lower Water Hollow Creek would need to be scheduled for weekends when coal hauling is not scheduled." It is necessary for the cattle to water at this point daily. And since the new proposed road will go right up the only trail into water which is currently being used by the cattle and wildlife, they would virtually be eliminated from accessing the only water source in the area for animals utilizing the Water Hollow benches.

100-4

Also on page 3-82, it states that "much of the proposed route through the Saleratus allotment is in rugged terrain where there is little use of forage by cattle". The EIP statement failed to state, or I missed it, that the proposed road runs right through several acres of land that the BLM removed all the pinions and cedar trees off of and reseeded this ground with new grasses. It is now established and utilized by the cattle and wildlife.

100-5

On page 2-23 the EIP states that the coal hauling would increase the noise level from faint to moderate in the town of Emery. Apparently the people who wrote this EIP doesn't live on Highway 10 that runs through the town of Emery. And its apparent that they never talked to anyone that does. How would they like to live right next to a road that will have several hundred loaded coal trucks rolling past their homes day and night? Not only is the noise very bad but the vibrations that these heavy trucks produce could also cause homes a lot of damage. I don't believe that anyone business should have the right to ruin other peoples business or their lives without any thought of compensation or respect.

100-6

I'm sure that this letter will be put with the rest and given the same consideration as the ranches/livestockmen and everyone else who presently utilizes this beautiful and beneficial canyon.

Sincerely,

Randy M. Anderson

100

Response 100-4

See Response 100-1. As described in Section 3.8, there would be specific areas for livestock to water along Quitchupah Creek. Water would be trucked up to the allotments on the Water Hollow and Saleratus Benches where the road has bisected the allotment, separating it from the water source.

Response 100-5

The road alignment for Alt. D traverses the more rugged portions of Saleratus Bench and about 25 acres of the seeding on Water Hollow Bench. There are several areas that could be seeded to compensate for the AUMs lost by road construction.

Response 100-6

With the contracts at Hunter Power Plant, a two to three fold increase in coal transport has already occurred in the Town of Emery (see Transportation 3.15). There would be no increase in coal truck traffic in Emery as a result of the proposed road.

Noise produced from coal trucks is an episodic event. Noise measurement taken in the Town of Emery resulted in a Slow-A noise level of 56 dBA (typical of small rural towns). Using the Federal Highway Administration subjective classification, the noise level will likely increase to a Slow A of between 60 to 74 dBA. This is classified by FHWA to be moderate sound impact. Noise is measured in logarithmic scale, so a noise increase near 3 times current levels was estimated.

Vibration from the coal trucks was experienced by the noise sampling technician. Seismic analyses were not part of this study. Sound pressure levels were discussed and resulted in the assumption that sound pressure would double at a distance of 200 meters away from the transport road.

Letter #102

FOREST GUARDIANS

Linda L. Jackson
Public Affairs Officer
Fishlake National Forest
115 East 900 North
Richfield, Utah 84701

January 30, 2002

VIA FACSIMILE: (435) 896-9347 and mail

RE: Comments on Proposal to Upgrade Quitchupah Creek Road

Dear Ms. Jackson:

The following constitutes Forest Guardians' comments on the proposed project named above. Forest Guardians and it's members have strong concerns over projects that have potential to effect water quality on rivers and streams, especially those found in National Forests. Our membership regularly visits and recreates on and around these sensitive waterbodies, and therefore we appreciate the opportunity to participate in the public comment process for this project.

I. STATE CLASSSIFICATION OF THE WATER

According to Utah's Water Quality Standards (Rule R317-2. Et seq., Standards of Quality for Waters of the State), the segment of Quitchupah Creek which directly parallels the road proposed for construction here, is a High Quality Water, Category I. This category of surface water is defined in R317-2-12.1 as follows: "All surface waters geographically located within the outer boundaries of U.S. National Forests whether on public or private lands with the following exceptions: All High Quality Waters - Category 2 as listed in R317-2-12.2. Weber River, a tributary to the Great Salt Lake, in the Weber River Drainage from Uintah to Mountain Green." Since Quitchupah Creek is located in the Fishlake National Forest and is not listed as a Category II High Quality Water, it is a Category I High Quality Water for purposes of the State's Water Quality Standards.

The directly downstream segement of Quitchupah Creek is listed on the State of Utah's Year 2000 303(d) list as impaired for Total Dissolved Sloids (TDS). There is currently no TMDL in place for this segemnt of Quitchupah Creek.

II ANTIDEGRADATION POLICY

102-1

303(d) Listed Waters (Tier I):
As noted above, segments of Quitchupah Creek downstream of the constrcution site are listed on the State of New Utah's Year 2000 303(d) list as impaired by the above-listed pollutants, and are therefore considered Tier I waters. The action proposed by your agency will allow for further degradation of streams that are already 303(d) listed as Water Quality Limited Segment (WQLS) streams for the pollutants listed above, in clear violation of the Clean Water Act and the State's antidegradation policy. WQLS designation clearly and absolutely prohibits any further degradation of stream quality and impairment of designated uses. 40 CFR 131.12(a)(1). Once a waterway is designated as a WQLS, a Total Maximum Daily Load (TMDL) must be developed and implemented to address the sources of pollution which cause the water to be so listed. 33 U.S.C 1313(d). There are no TMDLs for these waters (with the exception of Rio de las Vacas for temperature) and road construction has the potential to contribute significant pollution to it and further impair its designated uses; therefore it may not be allowed to further degrade the water quality of this already impaired stream/river and may not be authorized until a TMDL is developed and this action is properly accounted for in the TMDL. Ibid.

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102

See next page

Letter #102

102-1 cont.

The antidegradation policy precludes further discharges of loads of pollutants for which the waterbody is water quality limited in the absence of an implemented plan to bring the waterbody into conformance with the standard (a Total Maximum Daily Load or TMDL). This is because the uses are by definition not fully supported if the numeric criterion has been violated and the water has been deemed "water quality limited" and subsequently 303(d) listed. 303(d) listing means that the waterbody is not achieving Tier I status, which is the absolute floor of water quality standards (the so-called "fishable/swimmable" use), below which a State cannot let water quality fall. When the receiving stream is water quality limited, no additional pollutant loads can be allowed unless there are other loads of the same pollutants which are being reduced sufficient to leave assimilative capacity available for use, a determination that is made during development of a TMDL. Absent TMDL development or other similar formal analysis of the effects of your proposed activity on this impaired water, you cannot begin this project and still comply with § 303 of the CWA. Application of the anti-degradation policy is especially important where discharge is to 303(d) listed waters that are already so polluted that they are formally recognized by the State as such, as is the case for these waters.

ONRW's (Tier III):
According to the State's antidegradation policy, "Waters of high quality which have been determined by the Board to be of exceptional recreational or ecological significance or have been determined to be a State or National resource requiring protection shall be maintained at existing high quality through designation, by the Board after public hearing, as High Quality Waters - Category 1. New point source discharges of wastewater treated or otherwise, are prohibited in such segments after the effective date of designation. Protection of such segments from pathogens in diffuse, underground sources is covered in R317-5 and R317-7 and the Regulations for Individual Wastewater Disposal Systems (R317-501 through R317-515). Other diffuse sources (nonpoint sources) of wastes shall be controlled to the extent feasible through implementation of best management practices or regulatory programs. Projects such as, but not limited to, *construction of dams or roads* will be considered where pollution will result only during the actual construction activity, and where best management practices will be employed to minimize pollution effects". The construction and upgrade of the Quitchupah Creek Road that you have proposed obviously falls into the category of activities of "construction of roads" that may not occuur absent proof that the construction will only effect water quality during construction and not after. You therefore must provide these assurances before moving forward with the proposal.

III. SECTION 313 OF THE CLEAN WATER ACT

Under section 313 of the CWA, federal agencies are responsible for compliance with *all* State requirements for water pollution control, including a State's antidegradation policies: "Each department, agency, or instrumentality of the executive, legislative, and judicial branches of the Federal Government…shall be subject to, and comply with, all Federal, State, interstate, and local requirements, administrative authority, and process and sanctions respecting the control and abatement of water pollution..." 33 U.S.C §1323(a). Courts have also found the CWA to be directly applicable to National Forest activities like road construction and maintenance, where the Forest Service must comply with State water quality standards when permitting activities on National Forest lands. See Marble Mountain Audubon Society v. Rice, 914 F.2d 179, 182 (9th Cir. 1990); Northwest Indian Cemetery Protective Assn v. Peterson, 795 F.2d 688 (9th Cir. 1986), accord Oregon Natural Resources Council v. U.S. Forest Service, 832 F.2d 1489 (9th Cir. 1987).

CWA §303 places directly on Federal agencies the responsibility to comply with all federal, state, and local requirements for water pollution control and it explicitly applies to "runoff" as well as "discharge" of pollutants. As noted by the court in the ONDA v. Dombeck (151 F.3d 945, 9th Cir. 1998) decision, section 313 "plainly applies to nonpoint sources on Federal land." And, "State standards adopted pursuant to § 303 are among the "other limitations" with which a State may ensure compliance through the § 401 certification process. 33 U.S.C 1341 (d). Although § 303 is not specifically listed in § 401(d), the statute allows States to impose limitations to ensure compliance with § 301 of the Act, and § 301 in turn incorporates § 303 by reference. EPA's view supports this interpretation. Such limitations are also permitted by § 401(d)"s reference to "any other appropriate" state law requirement." PUD No. 1 of Jefferson County v. Washington Department of Ecology, 114 S.Ct. 1900 (1994).

102

Response 102-1
The State of Utah does not follow EPA=s Tier nomenclature, although it does have an antidegradation policy, contained at R317-2-3. To reflect this policy, as it applies to the proposed project, a statement has been added to Chapter 3 of the Final EIS in order to indicate that the approximately 2.5-mile stretch of Convulsion Canyon Creek that parallels the proposed road within the boundaries of the Fishlake National Forest is categorized by the State of Utah as a ACategory 1 High Quality Water@ as defined at R317-2-12.1 in the Utah Water Quality Standards. The fact that the segment of Quitchupah Creek downstream of the proposed project is on the State of Utah=s Year 2000 303(d) list was reported previously in the Draft EIS. The implications of the Quitchupah Creek reach downstream of the project having a 303(d) listing and the uppermost part of Quitchupah Creek within the project area being a Category 1 stream have been expanded upon in the Final EIS. Potential temporary, construction related impacts are allowed to occur in streams with both these designations, as permitted and regulated through the Utah Division of Water Quality=s storm water permit program.

Letter #102

102-1cont.

Therefore, before this project is undertaken, your agency must ensure that no degradation of this high quality water will occur, including but not limited to non-point source pollutants, or risk running afoul of the CWA's clear legal requirements.

IV. SECTION 401 OF THE CLEAN WATER ACT

States are required by CWA § 401 to provide a water quality certification before a federal license or permit can be issued for any activity that may result in a discharge into navigable waters. 33 U.S.C § 1341. The certification must "set forth any effluent limitations…necessary to assure that any applicant" will comply with various provisions of the Act and "any other appropriate" state law requirement. Ibid at (d). This is an affirmative duty imposed on the State by the CWA, and clearly any action undertaken by a Federal agency must have an accompanying State 401 certification before the Federal agency can begin the activity. The antidegradation policy of the State, as mandated by the CWA, requires the State to impose conditions or limitations when issuing the certification that provide the proper level of protection to the water and thereby prevent lowering of water quality and protect designated uses.

EPA's regulations implementing this section of the CWA likewise require the State to complete § 401 certification. When doing so, State are required to find that "there is a reasonable assurance that the activity will be conducted in a manner which will not violate applicable water quality standards." 40 CFR § 121.2(a)(3).

Because a Federal license or permit is required before this activity can take place on National Forest land, and because the activity will result in discharges to Mammoth Creek, your agency is required to obtain State certification of the activity pursuant to § 401 of the CWA, 33 U.S.C § 1341.

V. ENDANGERED SPECIES ACT

The purpose of the Endangered Species Act (ESA) is to "provide a program for the conservation of…endangered species and threatened species" and to "provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved." 16 U.S.C. § 1531(b). The overarching policy of the ESA is that all federal departments and agencies must use their authorities to conserve species that the Secretary of Interior or Commerce lists as threatened or endangered. 16 U.S.C. § 1531(c)(1). The terms "conserve" and "conservation" are defined as "to use and the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this chapter are no longer necessary." 16 U.S.C. § 1532(3).

Section 7 of the ESA enumerates the substantive and procedural obligations of federal agencies with respect to listed species. 16 U.S.C. § 1536. First, all federal agencies are under an affirmative duty to use their authorities in consultation with the Secretary of Interior or Commerce to conserve listed species. Second, all federal agencies are under an obligation to insure that "any action authorized, funded, or carried out by such agency…is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of critical habitat of such species…." 16 U.S.C. § 1536(a)(2). In meeting this duty to prevent jeopardy, each agency is required to use the best scientifically and commercially available data. *Id.*

Whenever an "action agency" determines that a proposed action may affect one or more listed species, it must consult with the National Marine Fisheries Service (NMFS) and/or the Fish and Wildlife Service (FWS), depending on the species present. 50 C.F.R. § 402.14(a). The relevant agency must then prepare a formal Biological Opinion discussing the effects of the proposed action on the listed species or critical habitat. 50 C.F.R. § 402.14(h). The Biological Opinion must include the Service's opinion on whether the action is likely to jeopardize the continued existence of any listed species or adversely modify any critical habitat. *Id.* If jeopardy or adverse modification is found, the relevant Service must suggest reasonable and prudent alternatives which it believes would avoid either of these outcomes. 16 U.S.C. § 1536(b). In the end, however, the action agency has an independent duty to ensure that its action will neither jeopardize any listed species nor adversely modify any critical habitat. 16 U.S.C. § 1536(b).

102-2

Pursuant to section 7(a)(2) of the ESA (16 U.S.C. 1656 et seq.), federal agencies must initiate consultation with the FWS and assure that their actions are unlikely to jeopardize the continued existence of listed threatened or

102

Response 102-2

Consultation with the U.S. Fish and Wildlife Service under section 7 of the Endangered Species Act was completed. The results of the consultation are included in Chapter 3 of the FEIS and the concurrence with the determinations of the BA is found in Appendix G. The subspecies of the southwest willow flycatcher in the project area is not the listed subspecies. See Section 3.7 of the FEIS.

Letter #102

102-2 cont.

endangered species or adversely affect designated critical habitat of such species. Several endangered or threatened birds, mammals, amphibians and reptiles are fully or partially dependent upon Quitchupah Creek's aquatic habitat and riparian area..

Section 7(a)(1) of the ESA requires all federal agencies to use their authorities in consultation with the Secretary of Interior or Commerce to further the goals of the ESA by developing and implementing programs for the conservation of endangered and threatened species. 16 U.S.C. § 1536(a)(1). The program must be species-specific, addressing the biological requirements of each individually-listed species. Further, the program must aim towards achieving the eventual recovery of threatened aquatic species in Utah. Section 7(a)(1) therefore imposes a separate (from § 7(a)(2)), mandatory duty on the Forest Service to consult with FWS on the development and implementation of a species-specific conservation plan.

VI. CONCLUSION

While we are aware that the proposed project has the potential to have beneficial effects to Quitchupah Creek, we write these comments to serve as a reminder to your agency as to what your legal obligations are in order to ensure that the very real potential negative effects are properly accounted for before undertaking this project.

Since segements of Quitchupah Creek are in the highest classification of waters in the State of Utah, and others are 303(d) listed as impaired for TDS, they must receive the highest level of protection. The State's antidegradation policy does not allow for any but the slightest degradation of high quality waters or low quality watres, and this policy applies to your agency through CWA section 313. Likewise, your agency must apply for and obtain a CWA section 401 certification from the State before this project can be approved and undertaken, where you must delineate the steps you will take to avoid degradation of this pristine water.

Again, we appreciate the opportunity to comment on this project, and wish to be kept informed of future projects, especially those that have the potential to effect surface waters. Thank you for your time in considering our comments, which speak not only for our organization, but also for our membership.

Sincerely,

Scott C. Cameron
Clean Water Coordinator
Forest Guardians

102

Letter #107

WESTERN MINE TOOLS, INC.

P O Box 756 ✯ 1384 West 1955 North ✯ Price, Utah 84501
PH# 435-637-5711 ✯ FAX# 435-637-5716

2002

y C. Erickson
.est Supervisor
SDA Forest Service
.ishlake National Forest

RE: Quitchupah Creek Road EIS

Dear Ms. Erickson:

As a business owner located in Price, Ut. I frequently travel to the Sufco mine. I support the construction of the Quitchupah Creek Road for the following reasons:

107-1

1. It will provide a shorter route from Price to the mine site thus saving time and fuel.
2. Create a lower probability of accidents with passenger cars by reducing traffic on I-70 and the Accord Lakes road.
3. Saves wear and tear on existing highways.
4. Provides alternative route from Price, and Emery County to the Salina area.
5. Employment opportunities at the Sufco Mine would be more appealing to Carbon and Emery County residents.

I would appreciate your consideration and approval of the proposed Quitchupah Creek Road specifically Water Hollow, Alternative D.

Sincerely,

Douglas J Simkins

107

Response 107-1
Comments noted.

Letter #108-146, 150-179

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Date: 2-5-02

Mary C. Erickson
Forest Supervisor
USDA Forest Service
Fishlake National Forest
115 East 900 North
Richfield, UT 84701

RE: Quitchupah Creek Road EIS

Dear Ms. Erickson:

108-1 The development of a shorter route between the SUFCO Mine and Highway 10 would reduce the time and fuel consumption for the hauling of coal to the Hunter Power Plant and Wellington. In addition, it would reduce the potential for accidents with other motorists using the same roads as trucks hauling coal. We are in favor of the construction of the proposed Quitchupah Creek Road with the Alternative D alignment as our preference.

Thank you for your considration and review of the information concerning the construction of the Quitchupah Creek Road Project.

Sincerely,

Address:
Craig Pape
210 S 200 W.
Centerfield, Ut. 84622

10

Response 108-1
Comments noted.

This letter also received from: Kirk Kirman, Dan S. Chidester, Kelly Crofts, Jerry Lopshire, Brandon Griffith, Beth Hammond, Leo Averett, Steven J. Jensen, Brett Shaw, Shay Fielding, Andy Rasmussen, Dave Holman, Dave Roberts, Caroline Sewfad, Boyd Bizllow, Bert Rasmusen, Reese Summarell, Leslie Gramse, Bill E. Anderson, Dirk Christiansen, Richard Zufelt, Jerrad Jensen, Jeff Kouns, Travis Otten, Ryan Rickenbach, Odis Bess, Dustin Sudweeks, Gary Nielsen, Jody Borwn, Cameron Hallows, Greg R. Larsen, Shon Spencer, Dan Cook, Terry Hansen, Charles Ogden, Kade Mickelson, Brian A. Menmonatt, Richard Phillips, Wesley Burr, Bronson Hallows, Ray Price, Ned J. Grace, Lance Christensen, Shane Elmer, Craig A. Williams, Skip D. Brown, Lucinda P. Hess, Cal Phillips, Rick Johnson, Owen B. Hunt, Wilford L. Nielson, Jared Johnson, Ryan Colby, Joe Mickelson, Jebb Heaps, Steven Grundy, Dale P. Brown, Rusty Healey, Jonathan Taylor, Troy Fielding, Kenny McEown, Michael J. Kailey Jr., Norman R. Hutchings, Jef Lampulot, Richard Mickelsen, Brock Robinson, Rodney Hall, Paul Caldwell, Jay C. Minor, Mark T. Mortensen, Jan Quarnberg, Arvin Billings, Kenny Teepler, Shawn Munk, Zane Vincent, Patrick Sullivan, Ronald Dommich, Richard K. Wright, Ryan Tobler, Wayne L. Anderson, and Mark A. Hansen.

Letter #147

SOUTHEASTERN UTAH OFF-HIGHWAY VEHICLE CLUB
P.O. BOX 382 CASTLE DALE, UTAH 84513 (435) 381-2493 alkali@etv.net
www.seuohvclub.org

02-04-02

Linda L. Jackson
Public Affairs Officer
Fishlake National Forest
115 East 900 North
Richfield, Utah 84701

Re: Quitchupah Creek Road DEIS

Ms. Jackson,
The SouthEastern Utah Off-Highway Vehicle (SEUOHV) club would like to provide you with our official comments on your DEIS for the Quitchupah Creek Road project.
In our original comments provided to you during 1999, we asked for an OHV trail to be constructed parallel to the road project in order to provide continued access for non highway licensed vehicles. While we disagree with your reasons for refusing to pursue this parallel route we realize that we are powerless to change your opinion.
Therefore the SEUOHV club finds itself in a position of having to support the Water Hollow Alternative "D" which we find to be the lesser of all evils.
We feel that Alternative "D" would best protect the priceless archaeological sites found throughout the project area. Alternative "D" would also provide the most protection for the rugged roadway which is of great value to OHV recreationists. The existing dirt road may not be recognized as an official OHV route by the land managers today, but as long as the road is not destroyed we have a chance for it's recognition in the future. If this proposed road construction project destroys the existing dirt road then OHV access will be lost forever just as the archaeological sites would be lost.
Sincerely,
Alan J. Peterson
Alan J. Peterson
SEUOHV board member

147-1

147

Response 147-1
A designated ATV trail would not be possible should Alternatives B, Quitchupah Creek Road, or Alternative C, Alternate Junction, be selected. The portions of the existing road not included within the construction of the proposed road would be reclaimed to help control sediment release to Quitchupah Creek. The reclaimed portions of the existing road would not be contiguous so travel would no longer be possible under Alternative B or C. Should Alternative D, Water Hollow Route, be selected then the existing road would not be blocked and would remain open for use from SR-10 to the forest boundary where the proposed road would block access to upper Convulsion Canyon. SEUOHV=s concern about the archaeological sites is noted.

Letter #149

149-1

Morgantown Machine & Hydraulics of Ut. Inc.

Box 176H • Highway 50 & 6
Helper, UT 84526
Phone: (435) 472-3452 • Fax: (435) 472-8779

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Feb. 6, 2002

Mary C. Erickson
Forest Supervisor
USDA Forest Service
Fishlake National Forest

RE: Quitchupah Creek Road EIS

Dear Ms. Erickson:

As a business owner located in Price, Ut. I frequently travel to the Sufco mine. I support the construction of the Quitchupah Creek Road for the following reasons:

1. It will provide a shorter route from Price to the mine site thus saving time and fuel.
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3. Saves wear and tear on existing highways.
4. Provides alternative route from Price, and Emery County to the Salina area.
5. Employment opportunities at the Sufco Mine would be more appealing to Carbon and Emery County residents.

I would appreciate your consideration and approval of the proposed Quitchupah Creek Road specifically Water Hollow, Alternative D.

Sincerely,

Douglas J Simkins

149

Response 149-1
Comments noted.

Letter #180-267, 277-298, 304-336, 339

January , 2002

Mary C. Erickson
Forest Supervisor
USDA Forest Service
Fishlake National Forest
115 East 900 North
Richfield, UT 84701

RE: Quitchupah Creek Road EIS

Dear Ms. Erickson:

180-1 Although, the construction of the Quitchupah Creek Road would not effect my current route to work, it does have the potential to relieve some of the congestion on the Acord Lakes Road. In addition, the road would provide an alternative route for emergency vehicles and an alternative route from the SUFCO mine if there were an emergency or accident on the Acord Lakes Road. As an employee at the SUFCO mine, I appreciate the advantages the construction of this road would provide and am in favor of the development of the Quitchupah Creek Road (Alternative D).

Thank you for your time and consideration of this letter.

Sincerely,

Address:

95 North 100 West
Centerfield, Ut 84622
P.O Box 220305

180

Response 180-1
Comments noted.

This letter also signed by: Matthew C. Long, Danny H. Albrecht, Glen Lois, Jana Roberts, Jon DeLange, Gladys Snyder, Jerry Adams, A. Quay Mecham, Gary Leaming, Brian Dumas, Fred Veater, Ellis LeNay, Fred McCoard, Audie Ekker, Fred St. Prince, Troy L. Hatch, Brad Duffni, Scott Stevart, Jeffrey D. Anderson, Boyd Kennedy, Steve M. Otto, Tom Dano, Justin Marsh, Ellis Peterson, Von D. Olsen, Paul H. Erickson, Glen A. Lewis, Kyle Meacham, Troy Jensen, Gordon Oldroyd, Stephen L. Hansen, Jill White, Jeff B. John, Fred L Rosquist, David Hill, Brent Mellor, Mary Ann Hatch, Ronnie J. Torgerson, Jody K. Malmgren, Paul Bowen, James A. Randles, Gordon S. Johnson, Royal Reed Jensen, Michael Davis, Steven K. Nielson, Joe Heath, Stan Adam, Jason Peterson, Shirece C. Owens, Carrie Brotherson, Trent Hone, John S. Jones, Terry Abraham, Mark M. Stapel, Mark E. Chatson, Dennis Patterson, Graig H. Ogden, Randy Young, Thayne Larsen, Dick A. Bills, John M. Black, Brian Fredrickson, Boyd Jewkes, Michael L. Davis, Bob Dickinson, Dana L. Sorenson, Ray Farrington, Melvin Yardley, Royce A. Mason, Robert Dickinson, Glen D. Hunt, Richard M. Smith, Ken Buckland, Jimmy L. Hanson, Dwayne K. Brown, Clay C. Jalt, Scott Gates, Glen Peters, Daryl Bagley, Douglas C Harward, Sam Brown, Shane Kit, Russel Mason, Donald R. Ervine, Shannon Heaps, Glade Foatz, David C. Edwards, Mark Allen, Brent Fairbanks, Mark C. Jensen, Casey Allred, Albert Rogers, Edward S. Maelen, Bill Anderson, Kevin Hooky, Mike Jensen, Mike Allred, Tyler Minchey, Arty Balatas, Gale Kesler, Joseph R. Dak, Jeff Noyes, Blake W. Sorensen, Clint C. Ellner, Guy Allred, Adam L. Guymon, Lynn Hansen, Cash Veater, Louis Vanderherp, Dan R. Young, Caroline F. Clayton, Kent Worthington, and several illegible signators.

Letter #276

LONGWALL WEST, INC.

401 N. Carbonville Road • P.O. Box 973 Price, Utah 84501 • (435) 637-5002 • E-mail: longwall@afnetinc.com

February 5, 2002

Mary C. Erickson
Forest Supervisor
USDA Forest Service
Fishlake National Forest
115 East 900 North
Richfield, UT 84701

RE: Quitchupah Creek Road EIS

Dear Ms. Erickson:

As part of my business, my employees and I frequently travel to the SUFCO Mine. I support the construction of the Quitchupah Creek Road for the following reasons:

1) It will provide a shorter route from Emery County to the SUFCO Mine and the Acord Lakes area thus saving time and fuel;

276-1

2) Create a lower probability of accidents with passenger vehicles by reducing traffic on I-70 and the Acord Lakes Road;

3) Saves wear and tear on existing highways;

4) Provides alternative routes from Emery County to the Salina area, and;

5) Employment opportunities at the SUFCO Mine would be more appealing to Carbon and Emery residents.

We would appreciate your consideration and approval of the proposed Quitchupah Creek Road specifically Water Hollow, Alternative D.

Sincerely,

Kent D. Shiner

Kent D. Shiner, President

276

Response 276-1
Comments noted.

Letter #337

Industrial Electric Motor Service

P.O. Box 340
Orangeville, Utah 84537
Telephone: (801) 748-2828
FAX: (801) 748-2089

JANUARY 30, 2002

FISHLAKE NATIONAL FOREST
RECEIVED
FEB 11 2002

MARY C. ERICKSON
FOREST SUPERVISOR
USDA FOREST SERVICE
FISHLAKE NATIONAL FOREST
115 EAST 900 NORTH
RICHFIELD, UTAH 84701

RE: QUITCHUPAH CREEK ROAD EIS

DEAR MS. ERICKSON:

AS PART OF MY BUSINESS, I FREQUENTLY TRAVEL TO THE SUFCO MINE. I SUPPORT THE CONSTRUCTION OF THE QUITCHUPAH CREEK ROAD FOR THE FOLLOWING REASONS:

337-1

1. IT WILL PROVIDE A SHORTER ROUTE FROM EMERY COUNTY TO THE SUFCO MINE AND THE ACORD LAKES AREA THUS SAVING TIME AND FUEL;
2. CREATE A LOWER PROBABILITY OF ACCIDENTS WITH PASSENGER VEHICLES BY REDUCING TRAFFIC ON I-70 AND THE ACORD LAKES ROAD;
3. SAVES WEAR AND TEAR ON EXISTING HIGHWAYS;
4. PROVIDES ALTERNATIVE ROUTE FROM EMERY COUNTY TO THE SALINA AREA;
5. EMPLOYMENT OPPORTUNITIES AT THE SUFCO MINE WOULD BE MORE APPEALING TO CARBON AND EMERY RESIDENTS.

WE WOULD APPRECIATE YOUR CONSIDERATION AND APPROVAL OF THE PROPOSED QUITCHUPAH CREEK ROAD SPECIFICALLY WATER HOLLOW, ALTERNATIVE D.

SINCERELY,
DAVID HINKINS
PRESIDENT

337

Response 337-1
Comments noted.

Letter #338

Mine Productivity Systems and Equipment

rm wilson co.

PO Box 973, Price, UT 84501 Feb. 5, 2002

R. M. Wilson Co., Inc.
Box 6274 3434 Market Street
Wheeling, West Virginia 26003

FISHLAKE NATIONAL FOREST
RECEIVED
FEB 11 2002

Mary C. Erickson
Forest Supervisor
USDA Forest Service
Fishlake National Forest
115 East 900 North
Richfield, UT 84701

RE: Quitchupah Creek Road EIS

Dear Ms. Erickson:

As part of my business, I frequently travel to the SUFCO mine. I support the construction of the Quitchupah Creek Road for the following reasons:

338-1

1. It will provide a shorter route from Emery County to the SUFCO mine and the Acord Lakes area thus saving time and fuel;
2. Create a lower probability of accidents with passenger vehicles by reducing traffic on I-70 and the Acord Lakes Road;
3. Saves wear and tear on existing highways;
4. Provides alternative route from Emery County to the Salina area, and
5. Employment opportunities at the SUFCO Mine would be more appealing to Carbon and Emery County residents.

We at RM Wilson Co. would appreciate your consideration and approval of the proposed Quitchupah Creek Road specifically Water Hollow, Alternative D.

Sincerely,

Jud Siekmann
Western Sales Manager

rm wilson co.

JUD SIEKMANN
Western Sales Manager
Mine Productivity Systems and Equipment

PO Box 973
401 N. Carbonville Rd.
Price, Utah 84501
435/637-6950 Phone

Home 435/472-5061
Fax 435/637-5123
Cell 801/368-3875
1-800/624-5460

338

Response 338-1
Comments noted.

Letter #342

TRAM ELECTRIC INC. PRICE, UTAH

FISHLAKE NATIONAL FOREST RECEIVED FEB 14 2002

P.O. Box 1626 · South of Price · Price, Utah 84501 · Telephone (435) 637-7291 · Fax (435) 637-4663

February 8, 2002

Mary C. Erickson
Forest Supervisor
USDA Forest Service
Fishlake National Forest
115 East 900 North
Richfield, UT 84701

RE: Quitchupah Creek Road EIS

Dear Ms. Erickson,

There are many positive reasons for granting the proposed annex for the Southern Utah Fuels Company (SUFCO) mining operations. First this will enable people who have been out of work from Carbon and Emery counties to seek employment.

342-1 Next, the completion of the roadway will also keep the tandem trucks off of Interstate 70 which many visitors to our state travel on. Also, the distance traveled to the mine site will be reduced saving wear and tear on vehicles, quicker service times, and less congestion.

The main purpose of granting the construction of the Quitchupah Creek Road - Alternative D is for coal haulage. However, this road would not be closed to the public and they would be able to enjoy new scenery.

We appreciate your consideration of the proposed Quitchupah Creek Road specifically Water Hollow, Alternative D.

Sincerely,

Anthony Martines
Accounts Manager

342

Response 342-1
Comment noted. See Section 3.14 Transportation. The proposed road would remove coal truck traffic from the SUFCO Mine on I-70 east to Fremont Junction and on SR-10 north to Quitchupah Creek Bridge.

Letter #343

TRAM ELECTRIC INC. PRICE, UTAH

P.O. Box 1626 • South of Price • Price, Utah 84501 • Telephone (435) 637-7291 • Fax (435) 637-4663

FISHLAKE NATIONAL FOREST RECEIVED FEB 14 2002 AO B & F GIS HR PURCH RES COM COPIES SENT TO REMARKS:

February 6th, 2002

Mary C. Erickson
Forest Supervisor
USDA Forest Service
Fish Lake National Forest
115 East 900 North
Richfield, Utah

Ms. Erickson:

As an Account Manager for Tram Electric, SUFCO mine is one of my sales accounts. I travel to SUFCO every Monday which means a 200 mile round trip. This also means traveling Salina Canyon during the winter months which we all know can be an adventure.

343-1 I strongly support the proposed Quitchupah Creek, Water Hollow, alternative D road. This would help minimize the safety concern of not driving Salina Canyon as well as allowing us to service this customer more effectively and efficiently in reducing the time and money now being spent.

Sincerely

Ronnie A. Jewkes
Account Manager

343

Response 343-1
Comments noted.

Letter #344

TRAM ELECTRIC INC. PRICE, UTAH

FISHLAKE NATIONAL FOREST RECEIVED FEB 14 2002 AO ___ R&F ___ RANGE ___ REC ___ TIMBER ___ WTSHD ___ RES ___ ENTR ___ COPIES SENT TO ___ REMARKS: ___

P.O. Box 1626 · South of Price · Price, Utah 84501 · Telephone (435) 637-7291 · Fax (435) 637-4663

February 8, 2002

Mary C. Erickson
Forest Supervisor
USDA Forest Service
Fish Lake National Forest
115 East 900 North
Richfield, Utah

Dear Ms. Erickson,

344-1 Our facility travels to SUFCO mine several times a week. I beleive that the shorter route from Emery county would benefit every vendor that services SUFCO mine, with less fuel cost, labor costs and wear and tear on vehicles.

This would also provide more versatile employment opportunities for the small communities in our area and an alternative route to the Salina area.

I support the proposed Quitchupah Creek road specifically the Water Hollow, alternative D and would appreciate your consideration and approval.

Sincerely, Robert McKendrick

Robert L. McKendrick
Director of Operations

344

Response 344-1
Comments noted.

Letter #345

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FEB 14 2002
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TRAM ELECTRIC INC. PRICE, UTAH

P.O. Box 1626 • South of Price • Price, Utah 84501 • Telephone (435) 637-7290 Fax (435) 637-4663

February 08, 2002

Mary C. Erickson
Forest Supervisor
USDA Forest Service
Fishlake National Forest
115 East 900 North
Richfield, Ut. 84701

RE: Quitchpah Creek Road EIS

Dear Ms. Erickson:

As part of my duties as the Director of Sales and Marketing. I have a sales representative of Tram Electric Inc. visiting the Sufco mine at least once a week. I am also in charge of the fleet which involves all deliveries to this facility on a weekly basis. We stand to benefit greatly with the proposed Quitchupah Creek Road, specifically Water Hollow, Alternative D.

345-1 This alternate route will greatly reduce the likeliness of an accident because of the elimination for the need to travel Interstate 70, and also through the reduced miles.

This route will enhance our profitability by decreasing our travel time to and from the Sufco mine. This greatly reduces the wear and tear on the vehicles and allows a quicker response to our customers needs.

I feel that the Quitchupah Road will benefit not only Tram Electric, but the entire area in the future by making the entire Salina area more accessable.

I support the proposed Quitchupah Creek Road, specifically the Water Hollow, alternative D and would appreciate your consideration for approval.

Sincerely,

Cardell Mortensen
Director of Sales and Marketing

345

Response 345-1
Comments noted.

Letter #346

TRAM ELECTRIC INC. PRICE, UTAH

FISHLAKE NATIONAL FOREST RECEIVED FEB 14 2002

P.O. Box 1626 · South of Price · Price, Utah 84501 · Telephone (435) 637-7291 · Fax (435) 637-4663

February 8, 2002

Mary C. Erickson
Forest Supervisor
U.S. Department of Agriculture
Fishlake National Forest
115 East, 900 North
Richfield, Utah, 84701

Re: Quitchupah Creek Road EIS

Dear Ms. Erickson:

As Director of Technical Services here at Tram Electric Inc., I as well as many members of our staff travel to the SUFCO mine very frequently in response to customer service needs, technical assistance, electrical apparatus repair and the like.

For obvious economic reasons, we would favor the construction of the proposed Quitchupah Creek Road as it would shorten the distance and thus our response time to a highly valued customer.

As we respond to calls 24 hours a day, it would also lower the probability of accidents with passenger vehicles that travel I-70 and the Acord lakes road. It would also provide an alternative route to Salina from the Emery County road Highway 10, saving wear and tear on the existing highway 10 as well as the interstate.

346-1 The construction of this road could heighten the employment opportunities for people from our Carbon and Emery county areas at the Sufco Mine.

We therefore support the construction of this road, and would appreciate your consideration for the approval of the proposed Quitchupah Creek Road, specifically Water Hollow, Alternative D.

Sincerely,
Tram Electric Inc.

K.R. Robb - Director of Technical Services

346

Response 346-1
Comments noted.

Letter #347

TRAM ELECTRIC INC. PRICE, UTAH

FISHLAKE NATIONAL FOREST RECEIVED FEB 14 2002

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P.O. Box 1626 • South of Price • Price, Utah 84501 • Telephone (435) 637-7291 • Fax (435) 637-4663

February 09, 2002

Mary C. Erickson
Forest Supervisor
USDA Forest Service
Fishlake National Forest
115 East 900 North
Richfield, Utah 84701

RE: Quitchupah Creek Road EIS

Dear Ms. Erickson,

Being located in the center of Utah's coal mining and in traveling great distances on a daily basis over the last 20 years, I was extremely excited to here about the possibilities of a new access to Southern Utah Fuel through Water Hollow. We have traveled highway 10 and interstate 70 many times through all kinds of weather in day or night. With each trip we eagerly await the verified return of our representative from their trip and require up dates and calls from them until their return. Due to the length of time to complete this trip and return, the cost to provide our service has been immense. With the new access I feel that this issue and as well as the following would benefit not only our company, but also all of us in southeastern Utah.

347-1

1. Reduced time on the highway would lessen potential highway accidents caused by fatigue.
2. Increasing efficiency and profit at Sufco through better response times by vendors, would provide increased support from Sufco for these vendors.
3. The construction would also aid in allowing Carbon and Emery county miners a better opportunity for employment at SUFCO. I believe the shorter distance would decrease potential absenteeism, increase individual production, thus helping develop a better work image for our miners.
4. Increasing overheard costs, mounting pressure for profits, and the ever changing technologies in mining has placed a larger demand for better trained employees. These higher costs as well as increased investment in test and production equipment have placed a huge financial burden on our company. It is imperative for us to continue being a viable vendor for our customers. The only way we can accomplish this is to take advantage of any and all situations that might add profits to our bottom line. We feel this is one of those opportunities.

It is with deep appreciation and sincerity that I request a positive consideration of the approval of the proposed Quitchupah Creek Road specifically Water Hollow, Alternative D.

Sincerely,

David L. Zaccaria

President.

(347)

Response 347-1
Comments noted.

Letter #348

FISHLAKE NATIONAL FOREST
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TRAM ELECTRIC INC. PRICE, UTAH

P.O. Box 1626 • South of Price • Price, Utah 84501 • Telephone (435) 637-2[illegible] • Fax (435) 637-4663

February 8, 2002

Mary C. Erickson
Forest Supervisor
USDA Forest Service
Fishlake National Forest
115 East 900 North
Richfield, UT 84701

RE: Quitchupah Creek Road EIS

Dear Ms. Erickson,

Our company representatives, from Tram Electric Inc. travel from Price Utah to the Sufco mine several times weekly, all year round. Top performing companies that apply best practices invest heavily in developing and improving customer satisfaction and work off a very small profit margin.

348-1 By understanding the driver of customer satisfaction, specific product and service characteristics that meet not only our customers needs, but small and large companies needs of our area, can focus on eliminating added fuel, vehicle wear, man hour costs, and reducing traffic on I-70 and the Acord Lakes Road with the probability of lowering accidents and essentially creating companies such as ours to, number one, deliver more safety, more customer value, and more company profit by reducing operating costs.

Our company and I support the construction of the Quitchupah Creek Road for the above reasons. Tram Electric Inc. would appreciate your consideration on the proposed Quitchupah Creek Road approval. Specifically Water Hollow, Alternative D.

If I can be of any assistance on the above subject, please feel free to contact me anytime.

Sincerely,

Tim L. Harper
General Manager/VP

348

Response 348-1
Comments noted.

Letter #350 through #367

January , 2002

RECEIVED
FEB 14 2002

Mary C. Erickson
Forest Supervisor
USDA Forest Service
Fishlake National Forest
115 East 900 North
Richfield, UT 84701

RE: Quitchupah Creek Road EIS

Dear Ms. Erickson:

As part of my business, I frequently travel to the SUFCO mine. I support the construction of the Quitchupah Creek Road for the following reasons:

350-1

1. It will provide a shorter route from Emery County to the SUFCO Mine and the Acord Lakes area thus saving time and fuel;
2. Create a lower probability of accidents with passenger vehicles by reducing traffic on I-70 and the Acord Lakes Road;
3. Saves wear and tear on existing highways;
4. Provides alternative route from Emery County to the Salina area, and
5. Employment opportunities at the SUFCO Mine would be more appealing to Carbon and Emery County residents.

We would appreciate your consideration and approval of the proposed Quitchupah Creek Road specifically Water Hollow, Alternative D.

Sincerely,

Gary Fulcis

Address:

836 N. Pinewood Circle
Price Ut 84501

350

Response 350-1
Comments noted.

Letter #368

CUSTOM SUPPLY, INC.

42 South Carbon Avenue
P.O. Box 911
Price, Utah 84501
Phone (435) 637-5770
FAX (435) 637-9766

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February 13, 2002

Mary C. Erickson
Forest Supervisor
USDA Forest Service
Fishlake National Forest
115 East 900 North
Richfield, UT 84701

RE: Quitchupah Creek Road EIS

Dear Ms. Erickson:

As part of my business, I frequently travel to the SUFCO mine. I support the construction of the Quitchupah Creek Road for the following reasons:

368-1

1. It will provide a shorter route from Emery County to the SUFCO Mine and the Acord Lakes area thus saving time and fuel;
2. Create a lower probability of accidents with passenger vehicles by reducing traffic on I-70 and the Acord Lakes Road.
3. Saves wear and tear on existing highways;
4. Provides alternative route from Emery County to the Salina area, and
5. Employment opportunities at the SUFCO Mine would be more appealing to Carbon and Emery County residents.

We would appreciate your consideration and approval of the proposed Quitchupah Creek Road specifically Water Hollow, Alternative D.

Sincerely,

Julie A. Moretti
President
CUSTOM SUPPLY, INC.

368

Response 368-1
Comments noted.

Letter #369

Barclay Mechanical Services, Inc.
595 West 100 North
Manti, UT 84642
435-835-5084
Toll Free 1-877-835-5084

February 7, 2002

Mary C. Erickson
Forest Supervisor
USDA Forest Service
Fishlake National Forest
115 East 900 North
Richfield, Utah 84701

RE: Quitchupah Creek Road EIS

Dear Ms. Erickson:

As part of my business, I frequently travel to the SUFCO mine. I support the construction of the Quitchupah Creek Road for the following reasons:

369-1

1. It will provide a shorter route from Emery County to the SUFCO mine and the Acord Lakes area thus saving time and fuel;
2. Create a lower probability of accidents with passenger vehicles by reducing traffic on I-70 and the Acord lakes Road;
3. Saves wear and tear on existing highways;
4. Provides alternative route from Emery County to the Salina area, and
5. Employment opportunities at the SUFCO mine would be more appealing to Carbon and Emery County residents.

We would appreciate your consideration and approval of the proposed Quitchupah Creek Road specifically Water Hollow, Alternative D.

Sincerely,
Barclay Mechanical Services, Inc.

Michael D. Barclay
Owner

369

Response 369-1
Comments noted.

Letter #370

Barclay Mechanical Services, Inc.
595 West 100 North
Manti, UT 84642
435-835-5084
Toll Free 1-877-835-5084

February 7, 2002

Mary C. Erickson
Forest Supervisor
USDA Forest Service
Fishlake National Forest
115 East 900 North
Richfield, Utah 84701

RE: Quitchupah Creek Road EIS

Dear Ms. Erickson:

As part of my business, I frequently travel to the SUFCO mine. I support the construction of the Quitchupah Creek Road for the following reasons:

370-1

1. It will provide a shorter route from Emery County to the SUFCO mine and the Acord Lakes area thus saving time and fuel;
2. Create a lower probability of accidents with passenger vehicles by reducing traffic on I-70 and the Acord lakes Road;
3. Saves wear and tear on existing highways;
4. Provides alternative route from Emery County to the Salina area, and
5. Employment opportunities at the SUFCO mine would be more appealing to Carbon and Emery County residents.

We would appreciate your consideration and approval of the proposed Quitchupah Creek Road specifically Water Hollow, Alternative D.

Sincerely,
Barclay Mechanical Services, Inc.

Lorin Sanders

370

Response 370-1
Comments noted.

Letter #371

Utah Wildlife Federation
Post Office Box 526367
Salt Lake City, Utah 84152-6367
Phone 801 487-1946

February 8, 2002

Ms. Linda L. Jackson
Public Affairs Officer
Fishlake National Forest
115 East 900 North
Richfield, UT 84701

Subject: Quitchupah Creek Road Project Draft Environmental Impact Statement (EIS)

Dear Ms. Jackson,

Thank you for providing us a copy of the EIS and for requesting our comments. Our detailed comments are provided on the attached pages.

371-1
371-2

In summary, we cannot support implementation of either Alternative B, C, or D. Regardless of which one of the three alternatives would be implemented, there would be a direct loss of wildlife habitat and high potential for losses of big game and other wildlife species due to wildlife and vehicle collisions. The alternatives do not provide compensation for those losses. The habitat and the wildlife species discussed in the EIS are publically owned and we believe the public deserves compensation for those losses.

Should you have any questions regarding our response, feel free to contact me at 435 882-2023. My fax number is 435 843-0486 and my email address is gerald@aros.net.

We thank you for the opportunity to comment on this important public lands management proposal.

Please keep us advised on the progress of this proposed project.

Sincerely,

Gerald E. Gordon
Chair, Habitat Committee

371

Response 371-1
See Responses 411-3 (Federal) and 403-11. Potential impacts to wildlife and wildlife habitat are presented in Section 3.5 of the FEIS.

Response 371-2
Analysis of potential impacts to wildlife from vehicle collisions is included in the FEIS. Mitigation includes fencing of the road to exclude wildlife. Applicant committed measures include underpasses, fence crossings, and/or bridges to facilitate wildlife movement.

Letter #371

The EIS does not discuss any proposed action to offset the losses of wildlife habitat.

E. Will the proposed action contribute to the restoration of native fish and wildlife species to their historic habitat ranges?

Alternative B. No.
Alternative C. No.
Alternative D. No

371-3 Implementation of either of the three proposals will adversely affect wildlife movement to their historic ranges in various ways such as:

(1) Fencing the paved road (even though underpasses may be provided for wildlife movement, it is not natural for wildlife to use underpasses).

(2) The level of human activity will increase which will tend to discourage wildlife movement.

(3) Increased number of coal carrying vehicles and increases in the number of visitor vehicles will increase noise levels. Such noise will discourage wildlife movement.

(4) The increase in motorized vehicles using the paved road will increase the potential for wildlife/vehicle collisions and wildlife losses.

F. Will the proposed action sustain, or create additional public hunting and fishing opportunities?

The answer to this question is no. As currently written, Proposals B, C, and D do not offer the opportunity for additional public hunting and/or fishing opportunities.

3. Conclusions.

371-3 A. In reviewing the draft EIS we could not find any discussion that the loss of wildlife habitat and losses of wildlife would be compensated.

371-3 B. We cannot support implementation of Alternatives B, C, or D, unless there are compensations for the loss of wildlife habitat and losses of wildlife resulting from wildlife/vehicle collisions.

End of comments

Page 2

371

Response 371-3
See Responses 411-3, 411-4, 411-25 (Federal), and 403-11. There are no sport fisheries in the Project Area. The wildlife section of the FEIS analyzes the impacts of fencing, increased activity, and wildlife/vehicle collisions (See Section 3.5). Fencing will generally preclude wildlife from the roadway and lessen wildlife/vehicle collisions. The Project would enable better access for hunting opportunities.

Applicant committed measures have been included in the design of the three build alternatives to replace wetland and riparian habitats lost to road construction, to replace filled stream channels, and to seed big game winter range.

Letter #375

Neal Savage
Chairman

RICHFIELD RANGER DISTRICT
RECEIVED
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RANGER
BUSINESS MGMT
RECREATION
RANGE
TIMBER
WILDLIFE

Savage Industries Inc.
5250 South Commerce Drive
Suite 200
Salt Lake City, Utah 84107
(801) 263-9400
(801) 261-8766 FAX

February 14, 2002

Ms. Linda L. Jackson
Public Affairs Officer
Fishlake National Forest
115 East 900 North
Richfield, UT 84701

Dear Ms. Jackson:

Savage Industries would like to take this opportunity to support the Quitchupah Creek Road proposal, and specifically Alternative D – Water Hollow Road route. Our understanding is that this route provides the least amount of conflict or controversy with landowners, local Native American tribes and environmental groups.

The truck traffic would be re-directed to the Quitchupah Creek Road, which would be built and maintained through tolls assessed on the coal haulage trucks.

375-1 The Quitchupah Creek Road reduces, by approximately 50 miles roundtrip, the impact on the State Highways and particularly avoids the southern most portion of SR-10, which is in poor repair. From the Sufco Mine the gradient is generally down hill, which is a significant improvement when compared to the substantial grades encountered on the Acord Lake road and on I-70.

The development of a shorter route between the SUFCO Mine and Highway 10 would reduce the time and fuel consumption for the hauling of coal to the Hunter Power Plant and the Savage Coal Terminal near Wellington. In addition, it considerably reduces the truck traffic on I-70 and the most southern portion of SR-10, thus reducing the potential for accidents with other motorists using the same roads as the trucks hauling coal.

The simple fact is that a shorter and improved route to SR-10 is a positive improvement for coal haulage. Coal will be hauled from the SUFCO Mine to the Hunter Power Plant and Savage Coal Terminal. The question is how to best manage the truck traffic. The new Quitchupah Road, Water Hollow Alternative D, should be constructed and the "No Action" alternative is not acceptable.

Thank you for the opportunity to comment on the Quitchupah Creek Road proposal.

Sincerely,

Neal Savage

The Materials Management and Transportation Systems Company

375

Response 375-1
The proposed road in Quitchupah Creek would be a downhill run for loaded coal trucks to SR-10, no summits or steep grades. The proposed road would remove coal truck traffic from the SUFCO Mine on I-70 east to Fremont Junction and on SR-10 north to Quitchupah Creek Bridge.

Letter #377

03/19/02 TUE 11:15 FAX 801 896 9347 FISH LAKE NTL. FOREST 003

DBT America
P.O. Box 1190
Route 10, 1 Mile North
Huntington, UT 84528
PH: (435) 687-9831 FX: (435) 687-2522

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REMARKS:

DBT

February 18, 2002

Mary C. Erickson
Forest Supervisor
USDA Forest Service
115 East 900 North
Richfield, UT 84701

Dear Ms. Erickson:

DBT America Inc. Western Region currently has a base location in Price and one in Huntington. I, along with our service engineers and account managers, frequently travel to the SUFCO mine. I am in support of the construction of the Quitchupah Creek Road for the following reasons:

377-1

1. Save time and fuel by providing a shorter route from Emery and Carbon counties to the SUFCO Mine
2. Reduce traffic on heavily traveled I-70
3. Save wear and tear on existing highways
4. Provides an alternate route to the Salina area

We would appreciate your consideration for approval of the proposed Quitchupah Creek Road, specifically Water Hollow, alternative D.

Sincerely,

DBT AMERICA INC.

Tim McCallum
Vice President
Western Region

TPM:lc

377

Response 377-1
Comments noted.

Letter #380 (also #382 through #388)

JOY MINING MACHINERY
A Joy Global Inc. Company

February 20, 2002

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Mary C. Erickson
Forest Supervisor
USDA Forest Service
Fishlake National Forest
115 East 900 North
Richfield, UT 84701

RE: Quitchupah Creek Road EIS

Dear Ms. Erickson:

As part of my business, I frequently travel to the SUFCO Mine. I support the construction of the Quitchupah Creek Road for the following reasons:

380-1

1. It will provide a shorter route from Emery County to the SUFCO Mine saving time and fuel;
2. Create a lower probability of accidents with passenger vehicles by reducing traffic on I-70;
3. Save wear and tear on existing highways;
4. Provide alternative route from Emery County to the Salina area;
5. Employment opportunities at the SUFCO Mine would be more appealing to Carbon and Emery County residents.

We would appreciate your consideration and approval of the proposed Quitchupah Creek Road specifically Water Hollow, Alternative D.

Sincerely,
JOY MINING MACHINERY

John Grako
Sales Manager
Western Region

380

JOY MINING MACHINERY, 1275 Ridge Road Wellington, Utah (435) 637-6161

Response 380-1
Comments noted.

Letter #381-388

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DBT

DBT America
P.O. Box 1016
1814 North 1500 West
Price, Utah
Telephone (435)-637-3930
Telefax (435)-637-9754

February 15, 2002

Mary C. Erickson
Forest Supervisor
USDA Forest Service
115 East 900 North
Richfield, UT 84701

Dear Ms. Erickson:

As part of my business, I frequently travel to the SUFCO mine. I support the construction of the Quitchupah Creek Road for the following reasons:

381-1

1. It will provide a shorter route from Emery and Carbon county to the SUFCO mine thus saving time and fuel.
2. Create a lower probability of accidents with passenger vehicles by reducing traffic on I-70.
3. The shorter route save wear and tear on existing highways.
4. Provides alternative route from Emery County to the Salina area.

We would appreciate your consideration and approval of the proposed Quitchupah Creek Road specifically Water Hollow, Alternative D.

Sincerely,

Title: Sr. Service Engineer

DBT AMERICA INC.

381

Response 381-1
Comments noted.

This letter also signed by: Vickie Shreve, Dan Taping, Sean E. Anderson, Mike Dammian, Paul Chacar, Dustin Anderson, and one illegible signature.

Letter #396

03/19/02 TUE 11:16 FAX 801 896 9347 FISH LAKE NTL. FOREST 007

Canyon Fuel Company, LLC
SUFCO Mine
397 South 800 West
Salina, Utah 84654
(435) 283-4880 Fax: (435) 286-4499

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Ms. Mary C. Erickson
Forest Supervisor
USDA Forest Service
Fishlake National Forest
115 East 900 North
Richfield, UT 84701

RE: Quitchupah Creek Road Draft Environmental Impact Statement

Dear Ms. Erickson:

Canyon Fuel Company, LLC (CFC) and the Sufco Mine appreciate this opportunity to comment on the Quitchupah Creek Road Draft Environmental Impact Statement (DEIS). This DEIS represents the culmination of several years of cooperative effort by the Fishlake National Forest (Forest), Bureau of Land Management (BLM), Sevier and Emery Counties, the local landowners, and Sufco to improve the local economies and safety of the regional public roads. We appreciate the effort that all interested parties have made in finding a workable solution to building this road.

CFC and Sufco would like to express their support for the Alternative "D" public road right-of-way, referred to as the Water Hollow Road Alignment in the DEIS. This alternative would bypass the historical and prehistoric cultural resource sites and the wetlands associated with Quitchupah Creek. While the costs of construction would be greater, this route mitigates the impact to critical wildlife habitat, concerns of the private landowners and Native American tribes.

The Alternative "D" route meets the needs of the mine as a second access for transporting coal while accommodating emergency services. Because of its location away from Quitchupah Creek, any potential stream degradation from road construction and use would be reduced when compared to Alternative B and C.

396-1 The historic use of the Quitchupah Canyon for driving cattle between winter and summer ranges should be protected. Road designs could include allowances for the driving of cattle adjacent to the road through the narrow sections of the Quitchupah Canyon. The mine is more than willing to work with the cattlemen on the scheduling of coal shipments to allow for the safe passage of livestock through these areas, but road design and construction could allow for cattle movement without impact from coal transportation. Sufco believes that an equitable solution can be found for this problem with minimal additional effort during the design and construction phase of this project.

396

Response 396-1
A fenced cattle trail would be constructed along 1.5 miles of the western end of the proposed road where topography limits free movement of livestock. East of that, the cattle would trail outside the fenced road corridor.

Letter #396

03/19/02 TUE 11:17 FAX 801 896 9347 FISH LAKE NTL. FOREST 008

Again, CFC and Sufco appreciate the Forest's and BLM's efforts in preparing the DEIS. We are looking forward to the completion of the final EIS, the construction of the Water Hollow Alternative "D" Road, and preserving the long-term benefits from the Sufco Mine to the residents of both Sevier and Emery Counties.

Sincerely,
CANYON FUEL COMPANY, LLC
SUFCO Mine

Kenneth E. May
Mine Manager

KEM:kb

396

Letter #398

Utah Archaeological Research Institute
791 Nancy Way
North Salt Lake, Utah 84054
(801) 936-4630
www.UtahRockArt.info

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Marty C. Erickson
Forest Supervisor
Fishlake National Forest
115 E. 900 North
Richfield, Utah 84701

We would like to comment on the Draft Environmental Impact Statement (DEIS) issued jointly by the BLM and Forest Service concerning the SUFCO coal haul road through Quitchupah Creek and Convulsion Canyon.

We have concerns that the degree to which the archaeological sites in the canyon will be adversely impacted by the proposed project have neither been adequately stated nor discussed in the DEIS. The uniqueness and value of these archaeological sites to provide scientific information has not been adequately described.

398-1

At the junction of Quitchupah Canyon with the North Fork, there are about 10 panels of rock art (pictographs and petroglyphs) with another 4 or 5 panels in the vicinity. Some of these will be destroyed by construction of the proposed road if either alternative B or C is selected.

The largest numbers of images in this area are the uncommon Barrier Canyon Style and Glen Canyon Style 5. Glen Canyon Style 5 is the oldest style of rock art yet identified in Utah. It dates from the Archaic Period, which began about 7,000 years go and lasted up to about 2,000 years ago. The Barrier Canyon style may also have begun in this period, but it lasted much longer. There are also Fremont and Ute images in the panels. The Barrier Canyon Style and Glen Canyon Style 5 images in the panels are important because of their extreme age. They also are excellent examples of their style types, and embody distinctive characteristics that are rare in their styles.

The Glen Canyon Style 5 images in this location are one of the most northwestern sites of this style, and are important because of this fact. (The highest concentration of these images is in southeastern Utah and northeastern Arizona.) These, and all other images in this location, are important because of their potential to provide information concerning the movement over time and through space of the people in the prehistoric cultures who created them. These images have the potential to answer the questions of why these people were at this extreme northern location in their range and when the cultures were present in the canyon.

Additionally, there are images at this location that appear to be combinations of Barrier Canyon Style and Fremont Style. These are of critical importance to understanding the relationships between the prehistoric rock art styles and the interactions of various cultures. Furthermore,

398

Response 398-1
The FEIS text in Section 3.12 regarding the cultural resources within the project area has been revised to better describe the uniqueness and significance of the sites. The proposed road through Quitchupah Creek canyon has been rerouted in the area of the rock art sites in order to avoid possible impacts from road construction activities.

Letter #398

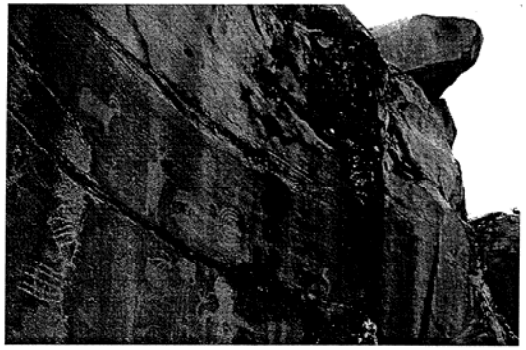
since these combinations exist, the panels have the potential to provide information on determining when the relationships took place and how they changed over time. The potential for obtaining this important information in the Quitchupah Creek and Convulsion Canyon area is unique to these sites. This significance needs to be discussed in the EIS.

398-2

These panels are unique. In our experience, we have found no other rock art panels that are exactly like these anywhere in Utah. This fact needs to be discussed in the EIS. (As evidence from which to draw this conclusion, please see the attached map of rock art sites located by the Utah Archaeological Research Institute over the past 30 years.)

No one knows what these images mean, or why they were placed at this location. Research is currently being conducted at these locations to determine answers to these, and other questions. Since the meaning, function and purpose of these images has not yet been discovered, no adverse impacts to these figures are acceptable, or important and significant information may be lost. This should be also stated in the EIS.

Furthermore, preliminary research at these panels has shown that the images have the potential to provide important information about the archaeoastronomical beliefs and practices of these ancient people. On the north facing side of the large rock at the junction of Quitchupah Canyon and North Fork, there is a unique panel of spectacular petroglyphs. It is unusual for panels to be placed on north facing rock surfaces. This placement suggests that the panel may have unusual properties. Overhanging this panel is a pointed rock that casts a sundial-like shadow across the panel as the sun moves across the sky. See photographs below. There is a possibility that this shadow may align with features of the panel at various times of the year and act as a calendar.



Photograph showing shadow casting rock above panel.

398-3

If the road is built past this feature, there is a very real possibility that the vibrations from construction and/or operation of the heavy coal trucks will move this rock and destroy any

Comments of the Utah Archaeological Research Institute concerning Quitchupah DEIS, Page 2

398

Response 398-2

The FEIS contains a more detailed description of the rock art in Quitchupah Creek canyon. The presence of several rock art styles indicates that the area was utilized for thousands of years. The styles exhibited and the groups affiliated illustrate a common attraction and uniqueness to the area. The impact analysis has been revised to reflect the unique nature of these sites.

Response 398-3

Vibrations due to construction activities, blasting, and coal truck traffic would not adversely affect the cultural resource sites, specifically the rock art sites. The proposed road corridor down Quitchupah Creek canyon was rerouted to the south side of the creek in order to avoid the rock art and other cultural resources in that area. Rock art and structural cultural resources are the site types potentially most susceptible to impacts from minimal movement/damage to structural failure and loss of the resource. As presented in the BLM Handbook H-3150, illustration 10, the BLM has determined that peak velocities at the base of standing cultural structures and rock art should not exceed 0.75 inches per second. The BLM's distance of set-back, for example, is 205 feet for a 10 lb charge buried 10 feet. The set-back for a 10 lb charge at the surface increases to 1,013 feet. There are no proposed blasting areas within 1,200 feet of the rock art complex. BLM guidelines for blasting set-backs would be utilized.

Normal environmental conditions to which these resources are subjected on a daily basis and which cause similar effects include wind, temperature changes, humidity changes, and vibrations from aircraft and vehicles. Failures of prehistoric structures and rock art occur as natural events, a function of ever-present forces of erosion and decay. Precipitation combined with freeze-thaw cycles and other natural processes can impact the stability of these sites.

Letter #398

potential for determining the astronomical functioning of the site. Even the slightest movement may be detrimental. Thus, important information may be lost. The potential for loss of this important information needs to be discussed in the EIS.

Photographs showing the movement of the shadow across the panel.
Photographs taken in June 1981.

398-4

Research conducted by Jesse Warner (Utah Rock Art Volume VIII, Section 4, "Solar Observations at Quitchupah, Utah 1988-1989") also indicates that other panels in the area, including one that may be destroyed if the road is built, also have archaeoastronomical significance.

Comments of the Utah Archaeological Research Institute concerning Quitchupah DEIS, Page 3

398

Response 398-4

Although archaeoastronomical significance of the rock art in the Quitchupah Creek area has been examined (Warner, 1989), this area of study is inconclusive and therefore not included in the analysis. These sites are unique and eligible for the National Register of Historic Places.

The proposed alignment for Alternative B, Quitchupah Creek Road, and Alternative C, Alternate Junction, has been shifted south from the alignment in the DEIS (which was about 60 feet from the panels). This new alignment would place the proposed road about 300 feet away and across the creek from the panels. The new alignment would also avoid impacting some other known cultural sites located within the previous alignment. No additional eligible sites are within this modified route.

The existing road currently routed between the creek and the panels would not be used for access. This would tend to limit access for casual visitors.

This modification to Alternatives B&C will lessen the potential for impacts of a busy public road next to the rock art site.

Letter #398

Because the prehistoric images along Quitchupah Creek are both unique and have the potential to provide significant and important information about the prehistory of the area and about archaeoastronomy, they are eligible for inclusion in the National Register of Historic Places. This should be discussed in the EIS.

398-5

Because of the information presented here, the significance of secondary impacts to the archaeological sites and panels of rock art and resulting loss of important information, should be discussed further and evaluated in the EIS.

Furthermore, impacts from road construction, diesel fuel exhaust and coal dust need to be discussed and determined. The impacts of these substances may make future dating of the rock art impossible. This needs to be stated in the EIS.

398-2 cont.

In conclusion, we know that these images are unique. This cannot be stressed enough. No other rock art panels exactly like these exist anywhere else in Utah and anywhere else in the entire world. At no other locations were the combinations of cultures, time periods and meanings of rock art present that would lead to the creation of these rock art panels. The potential for discovering significant and important information about the prehistory of the area, and about the prehistory of the western United States, from these images is unquestionable. These facts must be clearly stated in the EIS.

Primary impacts as discussed in Alternative B and C indicate that damage, even destruction of some of these significant rock art panels, will occur. The only acceptable alternative, given the above information, is action A – no action.

Sincerely,

Steven J. Manning

Steven J. Manning
Director and Principal Investigator

Comments of the Utah Archaeological Research Institute concerning Quitchupah DEIS, Page 4

398

Response 398-5

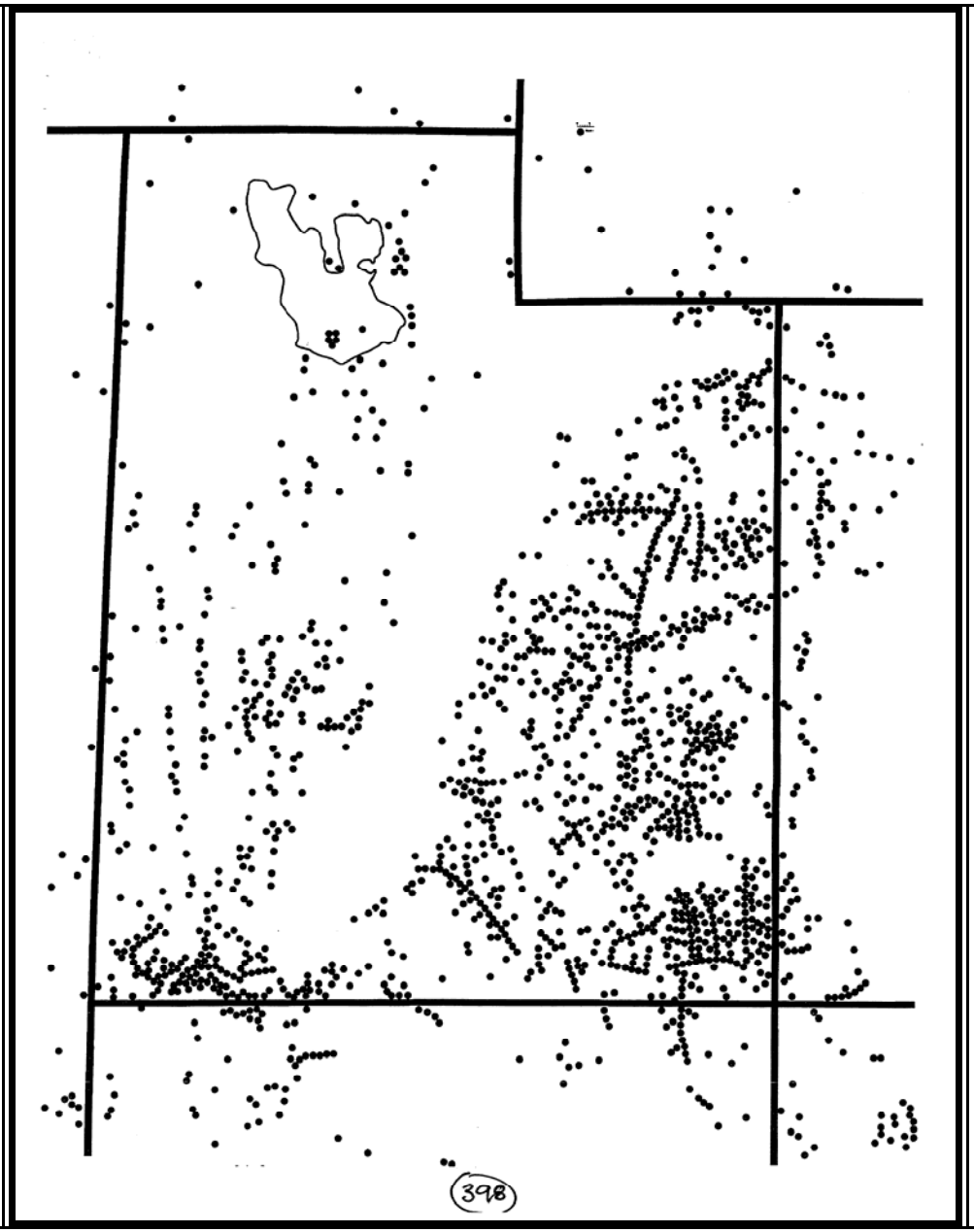
The FEIS text in Section 3.12 regarding possible impacts, including indirect impacts, to cultural resource sites has been revised. Direct impacts, depending on the alternative chosen, could include site destruction, loss of integrity, and increased erosion. Indirect impacts include possible vandalism from increased accessibility and use of the area for recreation.

Vibrations during construction and produced by coal transport trucks could cause impacts to the rock art sites. Dust from road construction would be suppressed through use of water or an approved dust suppressant. There is no conclusive evidence that emissions would impact the rock art.

Quantifying air pollution damage is difficult. The damage function is the quantitative relationship relating the influence of a pollutant, such as diesel emissions, on a receptor-like stone. The mathematical form of the damage function depends on whether the ambient air concentration or deposition rate is the measure of pollution and also on the measure of damage, such as surface loss or chemical denudation (Livingston 2002). Air pollution standards are created for human health protection utilizing ambient air quality standards. A measure of deposition rate would be more appropriate in determining the affects on rock art.

Motor vehicles generate three major pollutants: hydrocarbons, nitrogen oxides, and carbon monoxide. Nitrogen oxides are produced from buring fuels, including gasoline and coal. Ground-level ozone is a product of reactions between chemicals that are produced by burning coal, gasoline, other fuels, and chemicals. Vehicles and industries are the major sources of ground-level ozone. Particulate Matter is any type of solid in the air in the form of smoke, dust, and vapors, which can remain suspended for extended periods. Particulates are produced by many sources, including burning of diesel fuels by trucks, fossil fuels, road construction, and industrial processes such as mining. Volatile Organic Compounds (VOCs) are organic chemicals, many of which are hazardous air pollutants. Vehicle emissions are an important source of VOCs. As stated above, these are human health standards which do not apply readily to the damage function. Therefore stating that these emissions/pollutants are within or out of acceptable range does not imply the same in regards to affects to rock art in the area. Sufficient data to analyze pollutant damage to the rock art does not exist and therefore does not appear in the analysis.

Letter #398



Letter #400

JOHN F. BATES
ATTORNEY AT LAW
455 SOUTH 300 EAST, SUITE 200
SALT LAKE CITY, UTAH 84111

TELEPHONE (801) 539-8776
FAX: (801) 539-8779

February 11, 2002

Linda L. Jackson
Public Affairs Officer
Fishlake National Forest
115 East 900 North
Richfield, UT 84701

Kay Erickson
Realty Specialist
Bureau of Land Management
Richfield Field Office
150 East 900 North
Richfield, UT 84701

Re: Draft Environmental Impact Statement - Quitchupah Creek Road

Dear Ms. Jackson and Mr. Erickson,

As Castle Valley has previously stated, it strongly opposes Alternatives B and C of the Draft Environmental Impact Statement ("DEIS").

Nevertheless, after a thorough review, in depth discussions with many of the parties and others submitting comments on the proposal, and serious, thoughtful consideration of the social, cultural, environmental, and economic needs of the region, Castle Valley is prepared to support the Alternative D, the Water Hollow Route, as identified in the DEIS. Castle Valley believes that this Alternative best protects the irreplaceable cultural, environmental, aesthetic, and social values of Quitchupah Canyon, while adequately providing for the economic requirements underlying the proposal for the construction of the road.

Castle Valley's Interests:

Castle Valley owns approximately 16,000 acres of land in Emery County, plus approximately 2,000 acres in Sevier County. In addition, it leases several thousand fee acres in Emery County, and has grazing permits on several thousand additional acres of State, Forest Service, and BLM land in Emery, Sevier, and Wayne Counties. It runs almost 2,000 cows, 200 bulls, and over 100 horses on its lands. It is also actively involved in developing its lands for other outdoor activities such as bird and big game hunting, as well as providing the public with general out-door experience opportunities under the guidance of trained outdoorsmen, which Castle Valley believes will bring additional employment, recognition, and economic activity to the area, which is not dependent on the minerals extraction industry.

While most of Castle Valley's land is located within the Emery/Moore area, it has significant land holdings in the immediate vicinity of Quitchupah Canyon and is the principal

1

400

Letter #400

user of the water in the Quitchupah Creek. Its fee land holdings include two plots of land directly in Quitchupah Canyon, which will be directly and negatively impacted by the Alternatives B and C rights-of-way. One of these plots is a choice piece of tillable acreage currently used for raising alfalfa and other cattle feed in the summer and winter pasture in the winter. This acreage also provides valuable winter range for the wild ungulate population of the area, and supports prey species for the Raptores and small predator species the live in or migrate into and out of the Canyon. These values, as well as the cultural and aesthetic treasures of the Canyon, figure largely in Castle Valley's attraction to Quitchupah Canyon and its planned development of light-impact outdoor activities development. These values will be largely destroyed by any development of the proposed road along the Alternative B or C routes.

400-1 In addition to its land holdings and water interests in and around the Quitchupah Canyon, Castle Valley uses the Canyon for access to and from its summer range for a portion of its cattle. Losing the use of the Canyon for its spring and fall cattle drives would add significant cost to the already cost-strapped cattle business of Castle Valley and the other local cattlemen. As noted in the DEIS, construction of the road under Alternatives B or C would render most of the Canyon livestock trail unusable, and the road would pose a substantial hazard for livestock in the Canyon.

Thus, Castle Valley's interests in the outcome of this proposal are both direct and substantial.

Values to Be Protected:

Quitchupah Canyon is a unique segment of the heritage of Utah. Castle Valley has expended considerable effort to properly identify and evaluate this heritage. Based on the information produced through its contacts, Castle Valley submits that the Canyon should receive active protection from all levels of government to preserve its many singular values, among which are the following:

Cultural:

It seems to Castle Valley that the DEIS is almost sterile and devoid of real analysis in its discussion of the cultural values of the Canyon. Castle Valley's efforts to understand the cultural heritage of the Canyon indicate that the Quitchupah Canyon has played a significant part in the lives of the Native Americans of the region for several thousand years, and may be one of the few locations in Utah, if not the lone location, where representative examples of the art of all of Utah's principal prehistoric cultures are present. Castle Valley has been advised that Native American rock art dating back almost 5,000 years is not only present in the Canyon, but that it is present in an uniquely confined area.

400-2 It is feared that some of this unique heritage may have already been covered or otherwise disturbed by the limited road building and maintenance conducted in the Canyon in the past.

2

400

Response 400-1
A cattle trail would be constructed along 1.5 miles of the western portion of the proposed road where topography limits free movement of the livestock. East of that, the cattle would trail outside the fenced road corridor. Livestock trailing through the Quitchupah Creek area would continue. See Section 3.8 for additional information.

Response 400-2
The FEIS contains revised sections for cultural resources and Native American Concerns (Sections 3.12 and 3.13). Should Alternative B or C be selected then mitigation would be developed and approved by the appropriate agencies for impacted cultural resource sites, including potential indirect impacts to the rock art sites. The tribes, as consulting parties, would be involved in resolving and approving mitigation measures.

An ethnographic study (Stoffle et al. 2004) of the Quitchupah Creek area was conducted with the Paiute Tribe. This is summarized in Section 3.13.

Letter #400

Castle Valley has been advised, however, that the portions covered or disturbed by this past human activity may be recoverable.

400-2 cont.

Not only is there unique rock art value to the Canyon, which Alternatives B and C would at best threaten, and at worst destroy, a number of other cultural and archeologic sites, both prehistoric and historic, have been identified. The DEIS itself notes that there is no way to avoid negative impacts to the sacred nature of the Canyon for Native Americans or to avoid negative impacts to rock art and other cultural sites if Alternatives B or C are selected. Its conclusion that "[t]he sacredness of the canyon...would be irretrievably violated by the construction and operation of a public haul road[, and e]ligible prehistoric sites not excavated for salvage would be unmitigated residual impacts due to the road construction[,]" cannot be emphasized strongly enough. In fact, Castle Valley believes that instead of attempting to determine whether these resources should be permitted to be negatively impacted or destroyed, the BLM and Forest Service should be evaluating the method and timing of preserving these unique resources for future generations.

Taking the long-term view, Castle Valley believes that over time these cultural treasures represent a valuable resource which can form the basis for regional economic growth. Without protection these assets will be lost to future generations and will never reach their full cultural and economic potential.

Castle Valley submits that Alternatives B and C should be rejected solely because of their destructive potential to valuable cultural resources.

Nevertheless, while rejecting Alternatives B and C because of the extremely negative impact on the cultural resources of the Canyon, Castle Valley recognizes that economic development should not be sacrificed if a reasonable alternative is available. Therefore, on balance Castle Valley supports the construction of the haul road under the Alternative D proposal, because of Alternative D's avoidance of the cultural resources of Quitchupah Canyon.

Environmental :

400-3

The Quitchupah Canyon is a steep, narrow, canyon with a small stream running in its bottom. Although the stream is generally small, in times of peak runoff in the spring or following thunderstorm events, the stream can become quite violent and erosive. This, coupled with the fact that the soils in the Canyon are easily eroded, means that the route to be followed by Alternatives B and C is extremely unstable. The instability of the route, along with the gated nature of the road over the private lands in the canyon, is a major reason that the Quitchupah Canyon road is little traveled. In addition to the other impacts from heavy traffic in the Canyon, it is to be expected that the vibrations and emissions from the blasting and construction work, followed by those from the heavy trucks moving regularly up and down the road, will inevitably, unnecessarily, and irretrievably damage such cultural resources as are left otherwise undestroyed in the Canyon.

3

400

Response 400-3

We agree that Quitchupah Creek=s flow is flashy and erosive, and that the upland watershed contains erodible soils; those characteristics were described in the Draft EIS. While there is no doubt that the existing road is unstable, the road design features, BMPs, and monitoring program for the proposed routes B and C would alleviate many of the problems of the current road. In addition, the applicant and agency-committed measures would help to compensate for any increased erosion or sedimentation from the project.

The barrier affect of the proposed road and habitat fragmentation will be detailed in the FEIS. There is critical big game winter range on Water Hollow and Saleratus Benches that would be impacted by construction of Alt. D. The mitigation would include additional seedings for big game winter range, fencing of the road, and a warning system when elk are crossing the road.

The proposed route near the rock art was shifted south and across the creek. No blasting would occur within 1200 feet of the rock art (see Response 398-3).

Letter #400

400-4

The construction necessary to put a road of the size proposed for Alternatives B and C in the Canyon will cause excessive silting and erosion in the Quitchupah Creek, and cannot help but physically alter the natural creek flow and alignment. These impacts will have a seriously negative outcome on the fragile riparian ecosystems in the Canyon. Additionally, the high traffic volume, noise, and emissions will undoubtedly inhibit, if not remove, the availability of this important water source for the fauna normally utilizing the Canyon's water.

Putting a high-volume, heavy-vehicle road down through the middle of the Canyon will without doubt negatively impact the wintering grounds for the wild ungulates in the area. It will also unquestionably drive the majority of the resident and seasonal mammals, both prey and predator, as well as the birds, including raptores, from the Canyon, and cause an unnecessary risk for the domestic animals using the Canyon.

Castle Valley submits that with the possible exception of the impact on wintering elk, which impact is speculative in the DEIS, substantially all of the negative environmental impacts of Alternatives B and C can be avoided or significantly reduced by the selection of Alternative D, the Water Hollow Route. It also appears from the DEIS that the Water Hollow Route has the additional advantage of making existing oil and gas leases more readily available to exploration and development without the need for as much additional road creation. The positive result of reducing the number of additional roads and tracks in the area alone would seem to dictate the selection of Alternative D.

400-5

Aesthetic:

Quitchupah Canyon is an aesthetic treasure appreciated by almost everyone who has the good fortune to visit it. Part of this aesthetic value is the isolation and quiet the Canyon offers to visitors. Constructing the proposed road in the Canyon would completely destroy the Canyon's aesthetic value in a way which would be irreversible and incapable of mitigation.

400-6

Social:

The Emery area is in need of resource development, which will provide the potential for long-term economic growth. While the activity in the Sufco Mine can be expected to provide short-term economic benefit to the Emery area, there is no pretense that this benefit is anything other than a one- or two-generation benefit. The real potential for long-term economic growth and stability in the Emery area rests with the development of its latent tourist appeal. Nothing should be done, which has the potential for destroying this economic growth potential.

For the past several years Castle Valley has been actively working at developing a tourist business with its lands. These activities have included the restoration of the Castle Valley Ranch facilities, the preservation of old pioneer buildings located on Castle Valley lands, and the conversion of an old farm house into an appealing retreat for hunters and others seeking uplifting outdoor experiences. Castle Valley has set up a sister entity, Castle Valley Outdoors, LLC,

4

400

Response 400-4

While there may be some temporary, localized sources of sediment during the construction of the proposed road, these would be minimized by the construction techniques and best management practices that would be implemented. An additional discussion of these has been added to the Final EIS.

Quitchupah Creek=s flow and alignment is already affected by the flashy nature of the runoff and the already high sediment loads conveyed to and through the stream system (as the commentor previously stated). The Afragile riparian ecosystem@ noted by the commentor has already been severely compromised by livestock and natural erosion/sedimentation. Both plant and animal life currently present in the stream/riparian corridor has to be adapted to high sediment loads and changing erosion/deposition of bed/bank materials. Any short term, minor sediment loads added to the stream as a result of construction would not further change this status quo. The final EIS has been revised to include a more extensive description of the BMPs associated with the proposed road design, construction, and maintenance. Further, it has been revised to include details on applicant- and agency-committed measures to reduce livestock impacts on Quitchupah Creek), all of which would reduce existing sediment/salinity impacts. Lastly, the EIS has incorporated an extensive monitoring plan which would ensure that chronic sedimentation/erosion sources associated with the road project are fixed, and that water quality goals are met. All of these measures combined would minimize the potential for water quality or riparian ecosystem impacts.

Alternative D, the Water Hollow Route, would provide access into essentially roadless terrain for the exploration and development of other resources such as oil and gas.

Response 400-5

See Section 3.10, Visual Resources. The changes brought by the proposed road or alternatives are within the criteria for the visual class ratings used by the BLM and FS for these areas. The visual class ratings used by the agencies are for development of the area and not for preservation of aesthetic values.

Letter #400

400-6 cont.

which is actively raising upland game birds, developing bird hunting areas, hosting bird and big game hunts, and offering horse and ATV tours into the enchanting landscape of the region. Because of their isolation and location, Castle Valley's lands in the Canyon are an integral part of these development plans and activities.

Castle Valley has also been in contact with a European tour agency, which specializes in providing European and Asian customers with American West adventures. This tour agency is very interested in the uniqueness of the Quitchupah Canyon, and is presently working on the possible inclusion of Quitchupah and other Castle Valley Ranches lands in its tours.

In addition to the hunting and outdoor adventure business, it is quite clear that as the taste of international tourists is developed for the prehistoric rock art of the Native Americans, the cultural heritage and resources in Quitchupah Canyon will become a valued attraction. Castle Valley submits that for this reason alone the government's efforts should be to protect this resource from short-term development, which will lead to irretrievable damage to and loss of the resource. Alternatives B and C destroy the opportunity to build a long-term economic benefit for the impacted portion of Emery County utilizing this valuable and unique resource.

Response 400-6
See Response #400-5 and Section 3.15, Socioeconomics. The economy of Emery County is based on mining, power plants, and agriculture. Emery County wages and household income are above state averages.

Project Costs:

400-7

Project costs should not be limited to those directly associated with the project, but should include the collateral costs which will be experienced by others adversely affected by the project. An example of the collateral costs is the impact on the cattlemen who utilize the Quitchupah Canyon for trailing cattle to and from summer range on the national forest.

Just as the construction of the proposed road will lead to reductions in the transportation costs of coal from the Sufco Mine, the failure to give adequate consideration to the other users of the Canyon can have a catastrophic cost impact on the cattlemen using the Canyon. The cattle business is already marginal, and it does not take much to tip the scale from profit or break-even to destructive loss. There does not appear to be any analysis of the impact of trucking costs and livestock loss resulting from the proposal on the cattlemen who have used Quitchupah Canyon for decades. Even for the larger ranchers using the Canyon, trucking costs and livestock loss could well prove ruinous. These costs for the various alternatives should also be quantified and placed in the balance. No alternative should be permitted to go forward, which does not adequately protect the cattlemen's long-existing rights to the use of the Canyon, and which does not eliminate or substantially minimize the potentially destructive impact of trucking costs and cattle loss to the cattlemen.

Castle Valley believes that the DEIS unfairly presents the project costs in a manner which appears to give the nod to Alternatives B and C, to the disadvantage of Alternative D. Although Castle Valley has made no attempt, and in fact does not have the resources readily available, to quantify the magnitude of the costs not reflected in the costs presented for Alternatives B and C, Castle Valley believes that all costs associated with those Alternatives should be fairly presented

5

400

Response 400-7
About 1.5 miles of livestock trail would be constructed. There would not be costs to the cattleman. All costs for livestock facilities associated with the proposed road would be paid for by the SUFCO mine.

See Section 3.8. Livestock would be fenced out of the road corridor. Any losses of cattle due to vehicle collision would be compensated for under the State's open range law.

Costs related to the different alternatives are analyzed in Section 3.15 Socioeconomics.

Letter #400

in order to avoid skewing the presentation in favor of Alternatives B and C, even though some of those costs may be ultimately pushed off onto other entities, such as Sevier County and UDOT .

400-7 cont.

In the early days of the floating of this proposal there were some very large numbers given for the changes that would be required in the vicinity of the junction of Alternative B with Highway 10. These numbers resulted from the changes necessary to the Quitchupah Creek bridge, and the construction of start-up and slow-down lanes leading from and to the junction. Castle Valley is not convinced that the true costs of Alternative B have been fairly presented.

400-8

Additionally, it does not appear to Castle Valley that the safety issues regarding the junction of Alternative B with Highway 10 have been considered at all.

RECOMMENDATION:

Castle Valley's efforts to fully understand the needs for the project and to balance those needs with the legitimate concerns of others to be impacted by it have lead Castle Valley and its owners to the conclusion that the best alternative is that represented by Alternative D. Therefore, Castle Valley and its owners are prepared to support the selection and construction of the road on the route proposed for Alternative D.

400-9

Castle Valley is pleased and heartened by the recognition of the interests of the cattlemen by Canyon Fuel Company and the Sufco Mine, and their willingness to take the necessary steps to mitigate the negative impact on the cattlemen resulting from the proposed road. Castle Valley supports Sufco's suggestion that an equitable solution can be found for the problem, and is willing to work with Sufco and the other cattlemen during the design and construction phases of the project to assure the safe and economic use of the lands for the movement and maintenance of livestock by the involved cattlemen over the life of the road.

Castle Valley appreciates the opportunity to comment on this project, and urges the Decision Maker(s) to adopt Alternative D, incorporating provisions for the cattlemen's protection.

Respectfully submitted

John F. Bates, Attorney for
Castle Valley Ranches, LLC

6

400

Response 400-8
See Table 2.7-1 and Section 3.15 in the FEIS for revised cost figures.

Response 400-9
Comment noted, see Response 400-1.

Letter #402

Utah Farm Bureau Federation
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Administration (801) 233-3000
Accounting (801) 233-3008
Public Policy (801) 233-3004
Farm Safety (801) 233-3006
Water Quality (801) 233-3014
Communications (801) 233-3005
Member Relations (801) 233-3010

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3/01/02

Linda L. Jackson, Public Affairs Officer
Fishlake National Forest
115 E. 900 N.
Richfield, Utah 84701

Dear Linda,

On behalf of the Utah Farm Bureau Federation which represents farmers and ranchers in Utah, and specifically in Sevier and Emery Counties, we take this opportunity to respond to the Quitchupah Creek Road Draft EIS.

The Farm Bureau has represented the interests of farmers and ranchers for over 85 years and held to strong private property rights, water rights and grazing rights (which the federal government refers to as "privileges").

402-1 One of the major concerns we have with the Quitchupah DEIS is that it completely neglected the livestock trailing issue. On page 1-14, "Issues not analyzed in detail", Trucking cattle was mentioned. Trailing livestock is another issue. Livestock trailways are long established and time honored. Government has a responsibility to provide trailways for livestock to get to and from allotments. Trucking may be an alternative for some operators but certainly not for all and the federal government shouldn't force operators to truck their livestok. Also if you talk to any producer they will tell you there are injuries and stress to livestock associated with trucking as well as the additional costs. The Forest Service has the responsibility to require the Quitchupah Road remain a livestock driveway like it has been for many years.

402-2 Another concern we see is the proposed road eliminating acres that provide forage to livestock. BLM has done some reseeding of lands that the proposed road would go through or near to during construction, thus taking forage from livestock. This loss along with others, such as disrupted water improvements, must be mitigated.

We understand that there has been some discussion regarding fencing the proposed road and keeping the livestock on one side of the fence and off of the road. If this is a reasonable alternative, then the cost of this fence must also be mitigated.

402

Response 402-1
A livestock trail would be constructed along 1.5 miles of the west end of the proposed road where topography restricts free trailing movement. East of that, livestock would trail outside of the fenced road corridor. A good portion of the existing road could be utilized under Alternative D.

Response 402-2
The loss of forage in the allotments on Water Hollow Bench would be five AUMs most in the G.L. Olson Allotment. Mitigation in this allotment includes a water system for better distribution of cattle which means better use of forage in seedings now far removed from water. See Section 3.8.

The cost of constructing livestock fence would be covered by the proponent and ultimately the toll user of the road.

Letter #402

Livestock production is a basic industry in Emery and Sevier Counties just as is coal production. Both are needed and provide economic activity for the state and local communities. For those persons who are involved in either of these two industries, one is no more important than the other. If the proposed road is approved it should only be on the condition that the livestock operators can continue to trail their livestock and the impacts to their operations, due to the proposed road, are mitigated.

The Farm Bureau feels very strongly about these livestock driveways. There were problems when I-70 was built through Clear Creek Canyon where the Fremont Indian State Park is now located. It has taken years to correct the failure to provide an alternate livestock driveway through this area. We would hope this kind of problem can be avoided.

Thank you for the opportunity to provide input.

Sincerely,

John

John B. Keeler
Southern Regional Manager
Utah Farm Bureau Federation

402

Letter #403

Utah Environmental Congress

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February 1, 2002

Mary Erickson
Fishlake National Forest
115 East 900 North
Richfield, UT 84701

Dear Mary,

The UEC appreciates the opportunity to comment on the DEIS Quitchupah Creek Road proposal. This is a proposal for a coal haul road that would benefit the SUFCO mine. As part of our comments on the DEIS, the UEC incorporates by reference its previous comments dated January 28, 1999 and August 10, 1999. The UEC also incorporates by reference the comments submitted by the USFWS, the EPA, the SHPO, and the UDWR for the DEIS. We have contacted these agencies and requested copies of their comments. The UEC shares many of the same concerns stated by these agencies. The UEC also incorporates by reference the comments of Ms. Carolee Hammel and Mr. Thomas Bunn.

403-1

Purpose and Need

The primary purpose of the road is to provide an additional coal-hauling route for the SUFCO Mine. According to the DEIS, the use of the road by the SUFCO mine for coal hauling would reduce hauling times and increase revenues for the coal mine. The DEIS states that the secondary purpose of the road is to provide an alternate access to the mine for safe conduct of traffic and rescue units in the event of a mine emergency. It is apparent that the mine company, BLM and Forest Service have only considered the proposed project as a means to make the mine more competitive. Why haven't other viable methods been considered to make the mine more competitive?

It is not a public purpose to make SUFCO more profitable which is the primary reason for this project. Regarding the safety issue, it is UEC's understanding that the SUFCO mine is rated one of the safest mining operations in the world. The DEIS failed to cite even one serious incident during the 60+- year lifespan of the mine that would require the need for this additional access road. The secondary purpose carries little weight as the mine has been running for years with no incidents and apparently content with current access.

It is difficult to imagine a more ridiculous project than the Quitchupah Creek road project. Apparently, the only entities that want it are the SUFCO mine and Sevier County. In an unlikely alliance, the majority of state and federal agency comments, Native American tribes, ranchers, private landowners, and many in the environmental community all believe this is a terrible project that will only benefit the SUFCO mine, and which will not be in the long-term best interest of the public.

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403

Response 403-1

The Purpose and Need has been updated. The road will contribute to the competitive productivity of the SUFCO Mine, as a source of economic stability for Sevier County, a potential source of additional income for Emery County, and a source of high quality coal for power plants (See Section 1.1). In addition, the project supports the National Energy Policy Act which promotes such improvements in the productive and efficient use of energy. Safety is a secondary benefit.

Letter #403

Permits Required

403-2

The UEC believes the Forest Service has put the cart before the horse or is demonstrating biased decision-making in putting out a DEIS in which permits have not been secured for the project. Namely, if this project is to proceed, a section 7 consultation with the USFWS will be required, as well as a 404 Permit from the Army Corps of Engineers, which are not guaranteed. In addition, the ROW of landowners has not been secured and to the best of our knowledge, they remain firmly opposed to this project. Without these permits the project can't proceed, and if the coal mine and agencies pursue it, it will likely end up in litigation. The most cost effective method would be to abandon this project in its entirety.

Economics

403-3a

The DEIS notes that the road is not necessary to increase coal production; this increase will take place regardless of the presence of a road as the contracts are already in place.[1] Consequently, employment and payroll at the SUFCO mine would not change as a direct result of any of the alternatives. Regardless of the alternative selected (including No Action), it is expected that SUFCO employment would increase from the current level of 276 to approximately 310 over the next several years.[2] This also means that proposed economic benefits to the local counties will not occur as the mine does not intend to raise payroll or share the additional profits created by a shorter haul route with employees of the mine or the local counties.

Under Alternative B on page xiv of the DEIS, the statement is made, "Economic benefits would accrue to the SUFCO mine from the cost savings and to the economy of Sevier County due to the increased profitability of the mine". This is a broad statement that is not substantiated in the DEIS and is negated by the language in the DEIS on pages 3-123 and 3-124.

The economy of Sevier County will not necessarily benefit due to the cost-cutting efforts of SUFCO mine. Further the language concerning alternatives on pages 3-123 and 3-124 of the DEIS confirm that the mine intends to absorb the profits, and that all contracts are already in place for future production. It is more likely that the beneficiaries of the money saved from shorter haul routes will be solely SUFCO profit margins, which will not necessarily serve as a positive effect for the economy of Sevier County.

In addition, the Economic section of the DEIS failed to analyze the economics of heavy loaded trucks on steep grades and the relationship to fuel usage. The fuel savings of over 1 million gallons appears to be substantially inflated. The analysis needs to include fuel consumption based on flat terrain versus steep grades for each section of road.

403b

Furthermore, it is our understanding that the mining company now prefers Alt. D (due to heavy opposition of Alt. B & C), which is the most expensive alternative to implement. The road alone would cost $13.5 million and an additional $600,000 would be needed for the passing lane to SR 10. The DEIS has not demonstrated that the benefits outweigh the costs. It would take SUFCO between 10 and 12 years to simply break even. These types of issues must be included in the Economics analysis.

[1] Quitchupah Creek DEIS Page 3-123.
[2] Ibid., Page 3-124.

Response 403-2
The Section 7 Consultation has concluded. The USFWS concurred with the determination of the BA (Appendix G). The Sevier County Special Service District will apply for any 404 permits when the final selection of route and design is completed and the road design can be submitted to the COE. The federal agencies will not issue a right-of-way until all the right-of-ways for state and private lands are secured. Alternative C route has been modified so that it no longer requires a right-of-way through one landowners property.

Response 403-3a
The SUFCO Mine was Utah's largest coal producer in 2004. SUFCO and dependant trucking companies provided 20 percent of the non-farm employment and 28 percent of the personal income in Sevier County in 2002. The mine is an important component of local economies. The presence and stability of the SUFCO Mine, and the families that support it, guarantee a continued demand in both Sevier and Emery counties for bank loans, mortgages, utilities, and other goods and services. This adds to the economic stability of both counties.

Profitability of the SUFCO Mine over time ensures that funds are available for further exploration, and maintains the SUFCO Mine's level of production and competitive edge in the marketplace. The added profits, due to reduced transport costs, substantially lower risk of failure for the SUFCO Mine and provide a buffer to economic consequences for Sevier County and to a lesser extent Emery County. See Section 3.15 Socioeconomics.

Response 403b
The socioeconomic section, Section 3.15, has been modified.

Letter #403

Public Involvement Process

403-4

The DEIS addresses public involvement: "Public involvement is an important part of the environmental analysis process. The public involvement plan describes the methods and techniques used to involve the public in the environmental analysis. It allows the public to participate actively in the NEPA process and to communicate their concerns regarding the Proposed Actions."[3]

Castle Valley Ranches, Carolee Hammel, and Thomas C. Bunn are landowners in Quitchupah Canyon; none were involved in the NEPA process. These landowners do not appear on the mailing list for the Quitchupah Creek DEIS. This exclusion demonstrates a failure to involve the public (and directly impacted landowners) in the proposed action. There is no excuse for this curious exclusion as these persons are listed in the DEIS as landowners (page 2-5, 2-7, 2-15). What other landowners or interested members of the public have been left out of the public process regarding Quitchupah Creek? Public involvement in the evaluation of scope and impact is an inseparable part of the NEPA process. For the Quitchupah Creek Road Proposal, this process is incomplete and has been compromised.

Furthermore, several federal agencies required to comment on this project were not sent all of the relevant documents for this project, specifically those reports developed by JBR consultants. The public scoping process for this project is one of the more egregious the UEC has ever witnessed.

Alternatives

403-5

The DEIS demonstrates a strong bias and predetermined decision to not consider the possibility of No Action. All statements concerning the No Action alternative on pages 2-3 and 2-4 are in favor of the SUFCO mine and fail to objectively consider the benefit of no road in the canyon. The No Action alternative does not evaluate the benefits of an undisturbed environment, cultural sites, and habitat for wildlife.

Alternative D is not developed at all. It appears the Forest Service and BLM placed more development on Alternative B and failed to substantively analyze Alternative D, which now appears to be favored by SUFCO. If this project is to proceed, the FEIS needs to fully analyze Alternative D, although the UEC recommends dropping it as a viable alternative. In addition, there was absolutely no analysis of the proposed ATV route that would run parallel to the road in Alternative B.

Alternative C is in Travel Area C in the Forest Plan, which are lands closed year-round to all motorized vehicle travel. The DEIS further states that road expansion to accommodate mining activity is allowed. If this alternative is pursued the FEIS must document how Alt. C conforms to the Forest Plan. Is the exception specifically geared to a major road construction such as the one proposed?

None of the alternatives analyze the direct or indirect impacts of blasting on any resources. This must be completed for all alternatives in the FEIS.

[3] Quitchupah Creek DEIS, Page 1-7.

Response 403-4

See Section 1.6, Issues, and Chapter 4.0, Consultation and Coordination. Public involvement began during the EA process and has continued through the EIS with scoping meetings, agency field visits, public notices, and tours. The DEIS was published with an extended comment period. The FEIS/ROD will also have a comment period.

Carolee Hammel and Thomas C. Bunn were mailed a DEIS late in the comment period to correct an oversight. Castle Valley Ranches received a DEIS through John F. Bates, their representative.

Response 403-5

Refer to Chapter 2 for explanation of impacts due to Alternative A including the statements that the existing environment in Quitchupah Creek would not be affected. Alternative D is analyzed in all the impact analysis for each resource in the Chapter 3 of the FEIS. There is no proposed ATV travel route for any of the alternatives or as mitigation. Alternative C does not traverse any Travel Plan C area closed to motorized use as these are restricted to Old Woman Plateau RNA and the trail up Water Hollow, see Section 1.3. The impacts of blasting are discussed in Section 3.5 Wildlife Resources. In regard to blasting, see also Response 398-3.

Letter #403

Affected Environment

Old Woman Plateau

403-6

The Fishlake National Forest does not allow motorized vehicle travel in an area that coincides with the Old Woman Research Natural Area (RNA), located about ½ mile west of the Water Hollow alternate alignment. The UEC has also been told that the Water Hollow route is within about ¼ mile of the Old Woman Plateau rather than ½ mile. This discrepancy needs to be remedied in the FEIS. The DEIS does not consider the negative impacts of noise and traffic on this RNA, nor does it analyze ANY indirect impacts. This area must receive evaluation for impacts due to noise and traffic, and improved access. ATV users often create illegal trails, and signage and enforcement must be part of any proposal that creates a road near this area. The Old Woman Plateau must receive further analysis in the FEIS.

Water Resources

403-7

Quitchupah Creek flows perennially from the south end of the Wasatch Plateau. This creek receives significant amounts of flow from mine discharge into its North Fork, as well as irrigation return flow near the eastern project boundary. The discharge of water from the SUFCO mine is an impact that was not assessed in the DEIS. The UEC requests that the FEIS disclose the impacts on water quality from the SUFCO mine discharge point on the North Fork of Quitchupah Creek.

Quitchupah Creek is on the state 303d list at the boundary of the project area. What impacts from the project area contribute to this listing? The DEIS lists grazing, instream cattle watering, and the proximity of the "unstable" Quitchupah Creek Road as potential sources of sediment. It fails however, to mention subsidence and the mine water discharge as part of the contribution to the "unstable" creek.

The language in the DEIS (page 3-23) indicates that additional point sources of a listed parameter are not "typically" allowable under the UPDES program administered by the State Division of Water Quality. Is the construction of a road an "additional point source"? Is an increase in discharge from SUFCO mine an "additional point source"? The UEC is strongly opposed to any "atypical" actions concerning water quality on Quitchupah Creek, including the increase of mine water discharge due to increased coal production. Further, the DEIS must consider the impact of discharge from the mine as part of the cumulative impacts on the project area.

The DEIS attempts to make the argument that a road in Quitchupah Canyon will "improve" water quality.[4] This argument consists of the idea that placing culverts in the stream course will eliminate stream crossings and these culverts will "reduce" sedimentation. This argument fails however to evaluate the current light use of the corridor with stream crossings versus trucks loaded with 42 tons of coal 24 hours a day five days a week—traffic the road will receive upon completion. The erosion impacts of trucks on the Quitchupah road are not considered in the DEIS, they are dismissed as "not expected during the normal course of use"[5]. The UEC requests that the EIS include evidence and analysis of this argument.

[4] Quitchupah Creek DEIS, Page 3-30.
[5] Ibid. Page 3-31.

Response 403-6
The 0.25 mile is a correction that has been entered in Section 3.11, however because of the physical separation of 1600 feet at the cliffs, there would be no indirect impacts to the RNA since there is no access between Alternative D, the Water Hollow Route, and the RNA. There is no trail up Water Hollow creek for ATV access and there would be no parking for recreationists to unload and travel up the creek.

Response 403-7
Please see responses to comments 102-1 (Forest Guardians) and 397-6 (EPA). In addition, note that, where possible, refinement in the conceptual designs has been completed subsequent to the Final EIS that minimizes straightening and realignment. However, some alterations are necessary given the topographic confines. Where crossings occur, existing gradient would be maintained, or alternatively, if that is not possible, velocity controls will be implemented so that acceleration due to steepening does not occur. Further, the applicant has committed to the BMPs given in the EIS as part of design, therefore these are requirements of the project and are not voluntary by any means.

Letter #403

The DEIS fails to consider the impact of road construction on the Quitchupah Creek in its proposal to straighten six sites for 1100 feet.[6] The increase of gradient due to stream straightening will enhance erosion in the creek system. Straight channels will contribute to sediment delivery and additional erosion due to faster flows. Due to the 303d listing, the Utah Department of Water Quality cannot allow additional impacts (point sources) to occur on the stream. How will the proposed mitigation plan of implementing BMP's to control erosion be effective, when BMP's are strictly voluntary in Utah. What assurance does the public have that these mitigation measures will work, and is the funding for implementing them assured? Please include this information in the FEIS. The UEC requests that details of BMP's[7] in the proposed road design be included in the final EIS.

Soil Resources

403-8 Alternative B and D both propose to cross soils that are rated for moderate to severe erodibility. The incorporation of BMP's for drainage and erosion control must be detailed further in the FEIS. The potential for a new road to be unstable appears to be quite high, and mitigation must be proposed to conserve and protect soils.

Vegetation and Wetlands

403-9 The discussion of effects to wildlife by changes in riparian habitat should be substantially expanded. Most wildlife species in Quitchupah Canyon rely on riparian vegetation, and the potential for loss merits exhaustive examination. All proposed alignments will severely impact the riparian zone and will lead to the likely extirpation of most riparian guild species in Quitchupah Canyon. There are few intact wetland and riparian areas in the canyon due to the incision of the creek, and the road proposal will pass through and alter all of these remaining (intact) areas permanently. The upper elevation wetlands and riparian areas consist of herbaceous grasses, sedge, watercress, and willows. This habitat is critical for the Southwest willow flycatcher as well as most wildlife in the canyon. The road proposal notes that approximately .076 acres of wetland and 3.2 acres of riparian habitat in the upper Quitchupah Creek drainage will be removed by road construction. These wetland impacts are common to all alternatives proposed in the DEIS.

The short paragraph on mitigation and monitoring of wetland/riparian areas on page 3-54 is grossly insufficient. The presence of an endangered species should be at the forefront of all concerns in the upper drainage. The proposed mitigation references a need to contact the "Corps" (presumably the Army Corps of Engineers) during the permitting process. The Corps of Engineers should already be involved in the planning process of stream alterations. Plans for the mitigation of riparian impacts must involve the USFWS, as well as the Corps of Engineers and State of Utah water quality officials.

Further, the DEIS makes a conclusion that "No residual adverse impacts were identified for vegetation or wetland resources within the Proposed Action area."[8] How was this preposterous determination made? The general lack of specific information concerning wetland destruction and mitigation in the EIS make it difficult for the reader to determine the basis for this decision. The

[6] Ibid. Page 3-32
[7] Ibid. Page 3-46
[8] Ibid. Page 3-54

Response 403-8
The final EIS has been revised to include a more extensive description of the BMPs associated with the proposed road design, construction, and maintenance. See Appendix B.

A design feature, borrowed from UDOT, of an extra three feet of granular borrow allows roadbases to be stable on unstable soils, such as erodible soils. See Section 2.2 Alternative B, in the FEIS.

Response 403-9
The FEIS includes specific Applicant committed measures as part of the road design for impacts to wetlands and for replacement of the riparian zone. The applicant committed measures in Chapter 2 incorporate mitigation into the road design. One measure is to fence 4.7 miles of riparian corridor to exclude livestock. This will have a beneficial effect on the riparian habitat. These measures in conjunction with the monitoring plans would preclude any residual adverse impacts to vegetation and wetland resources.

The FEIS has been designed to fulfill the NEPA process for the COE permit system. All wetlands and riparian habitats will be compensated by construction of new wetlands and riparian zones.

Letter #403

construction of this road has immitigable effects on the riparian area. All three of the road alternatives in the upper reaches of Quitchupah Canyon are aligned directly through the wetlands. These alignments all result in adverse impacts, which merit detailed analysis and mitigation with the aid of outside agencies.

Wildlife Resources

403-10

The following section will review the impacts to wildlife, as well as issues not addressed adequately in the DEIS. The effort to obtain quantifiable data for wildlife species generally lacks vigor throughout the DEIS. While the DEIS provides a few surveys or notes on a handful of species, the proposed action is insufficient to protect wildlife resources. This lack of effort to appropriately monitor and propose meaningful and viable mitigation for species (including MIS/TES) sets up said species for failure. The UEC reminds the Forest Service that they are obligated to "obtain and keep current inventory data appropriate for planning and managing the resources under [its] administrative jurisdiction."[9] The citation of "potential" habitat does not take the place of surveys and monitoring on the Forest. No viability determinations can be substantiated without specific quantifiable data pertaining to the species in the project area. The UEC requests that the Forest Service perform the proper surveys for wildlife populations in the project area, and that mitigation plans for the loss of riparian areas and wildlife species be included as part of the final EIS. In addition, the agencies have failed completely to assure that the Migratory Bird Treaty Act will not be violated. This issue was not even discussed in the DEIS. Further , the issue of habitat fragmentation, which will be substantial and significant under all action alternatives is not sufficiently analyzed.

A common shortcoming of the DEIS is the evaluation of the cumulative effects of the road construction proposal in Quitchupah Canyon. In the sections for the present species, there may be a mention of one or possibly two impacts in the document. This is not sufficient to evaluate and analyze the species viability under stress from the impacts of road construction. Some of the UEC's concerns are mentioned in the Wildlife Resources section of this letter and the remainder are addressed in the Cumulative Effects portion of this letter.

Big Game

403-11

The upper elevations of Quitchupah Canyon are critical habitat for deer and elk. Extensive areas in the Quitchupah drainage are described as winter range for deer herds. The Water Hollow (alternative D) Benches are listed as high value winter range for deer and elk.[10] The impacts to big game herds will be substantial, as the road will create a barrier and fragmentation in an area that is largely undisturbed. These impacts will be greater on the Saleratus Benches (alternative D), "impacts to [elk] may be greater for this alternative than B or C"[11]. All proposed roads cross wildlife corridors directly, and divide rangelands and habitat. The proposed road (all alternatives) will decrease the health and size of herds as the road serves as a barrier and deaths occur due to collision. Mitigation for these impacts is not described in detail in the DEIS. The UEC requests that a mitigation plan be created for alternative B and D. This should include underpasses to create corridors for the large mammals. The UEC requests that surveys be used to make a viability determination concerning the herds in the project area; no surveys or monitoring are included in the DEIS for elk and deer.

[9] 36 C.F.R. 219.9(a)(6)
[10] Ibid. Figure 3-6
[11] Ibid. Page 3-59

Response 403-10

Additional data and discussion on wildlife populations, habitat fragmentation, and surveys in the Project Area has been included in the FEIS (See Section 3.5).

The UDWR is the agency responsible for surveying wildlife; the FS and the BLM are responsible for the habitat on the lands they each administer. Another search of the UDWR records was conducted to discover any old records that would provide additional survey information on big game and upland game. Section 3.5 Wildlife Resources includes the additional data and specifically analyzes the impact of Alternative D Water Hollow Road to wintering big game on Water Hollow and Saleratus benches. The underpasses for wildlife are included in Alternative C Alternate Junction and Alternate Design. Big game underpasses are included in Alternative D Water Hollow Route. There are no records of sage grouse in or near the project area. An amphibian survey was conducted for the project area, see Wildlife Technical Report, January 2001. Reptiles were recorded incidental to other field work in the project area, see Wildlife Technical Report, January 2001.

A baseline fisheries study was completed, see Section 3.6 Fisheries and Aquatic Resources. Also see Aquatic Resources Technical Report, June 2001 for all the field data. The Water Resources section (Section 3.2) of the FEIS discusses the sediment-laden nature of Quitchupah Creek as it exists now, and the potential for additional sediment loading to occur as a result of the proposed road. Fish inhabiting Quitchupah Creek already experience turbid conditions during runoff events, and this condition would continue. Stream crossings would be designed for fish passage, as discussed in the EIS. The potential for pollutants entering the stream due to truck accidents is minimal, but could occur under rare conditions, as discussed in the EIS.

Surveys for MIS species were completed in May 2002 and this information was used in the impact analysis in the FEIS.

Response 403-11

The Water Hollow route (Alternative D) does bisect the migration route for big game, therefore impacts to big game movement would be mitigated through big game underpasses as discussed in Section 3.5. Recent herd data in the area has also been included in the FEIS. Mitigation measures for big game such as fencing have been included in the design of alternative D in the FEIS.

Letter #403

Raptors

403-12 The Utah Division of Wildlife Resources (DWR) completed surveys for raptors in 2000. The surveys identified numerous nests for all proposed road alignments. The Golden eagle occurs throughout the project area, with twelve Golden eagle nests reported for Alternative B and an additional four more nests for Alternative D[12]. The DEIS misinterprets the USFWS guidelines for raptor spatial buffer zones. These zones should have absolutely no direct disturbance within .5 miles of the nests. Nine nests mentioned in the DEIS are "within" .5 mile of the proposed road. Further, roads and road kill are not beneficial to raptors. The DEIS mentions that raptors may be hit in collisions with coal hauling trucks. These collisions will include Bald eagles in the winter months, a species not evaluated in the DEIS. Collisions will impact the large raptors significantly, and no mitigation for the eagles is proposed in the DEIS. The UEC requests that the Forest Service evaluate the impacts to winter populations of Bald eagle, and that mitigation be created to protect these species. Mitigation for the species should include the removal of large mammal roadkill from the proposed road to an area that is safe for large raptors. The UEC requests that road impacts to raptors be reevaluated using the proposed guidelines for raptors from the USFWS.

Upland Game Bird

403-13 No surveys were completed for Ruffed grouse, Sage grouse, or Chukar. Are Sage grouse present on Water Hollow Bench, and have surveys been performed on Water Hollow Bench? No viability determinations are made in the DEIS concerning the upland game bird populations. The UEC requests that surveys for these species are completed as part of the final EIS, and that viability determinations be made for Sage grouse.

Amphibians/Reptiles

403-14 Surveys were performed in some areas of Quitchupah Creek for amphibians, and DWR identified seven amphibian species that may occur in the project area. These species will be heavily impacted by road building and stream bed altering construction. The road will cause direct impacts to amphibian populations as the road will be used by all species. The UEC requests that surveys be performed in the upper elevations of Quitchupah Canyon, and that viability determinations be made for these impacted species.
All observations in the DEIS concerning reptiles were based solely on habitat, there were no surveys performed for reptiles in the project area. Due to the "potential" for a variety of species, the UEC requests that surveys be completed in order to determine what species exist in Quitchupah Canyon.

Fisheries and Aquatic Resources

403-15 Filling in wetlands, streambed alteration, and additional impacts to water quality[13] will severely impact a creek and "aquatic environment that is under stress"[14]. Two fish species listed on the DWR Utah Sensitive Species List were caught during the surveys on Quitchupah Creek. These species are the flannelmouth sucker and the leatherside chub. No mitigation or viability determinations are made concerning these fish populations, even with the surveys that were completed. The UEC

[12] Ibid., Page 3-56
[13] See generally Quitchupah Creek Road DEIS,Page 3-64.
[14] Quitchupah Creek DEIS, Page 3-64

Response 403-12
Nine golden eagle nests are within 0.5 miles of Alternatives B and C and four active raptor nests (2 golden eagle) within 0.5 miles of Alternative D. Buffer zones of 0.5 mile from nests are for nesting eagles. Road construction activities would not take place within 0.5 mile of any active golden eagle nest per seasonal restrictions or until the young have fledged. Bald eagle collisions with vehicles, due to the eagle attraction to road kill in the winter months, have been addressed in the FEIS. Mitigation for raptors includes removal of road kill from the roadway. See Section 35.

Response 403-13
No surveys were conducted for ruffed grouse, sage grouse, or chukar. The Water Hollow bench contains sagebrush, however, a majority of the habitat is sparsely vegetated with low sage and no sage grouse or sign were observed during general wildlife surveys. Sage grouse surveys were completed in April-May 2002 on Water Hollow Bench with negative results. The upper portion of the Project Area does contain suitable habitat for ruffed grouse, however, the habitat is constricted to the narrow riparian corridor. A greater amount of suitable habitat exists along the current haul route to the west. Chukar habitat is extremely limited in the area and chukars were not observed or heard during numerous wildlife surveys in the area.

Response 403-14
Of the seven amphibian species listed by the UDWR that have the potential to occur within the Project Area, only the Great Basin spadefoot toad was observed during surveys. As noted in the Section 3.4 of the EIS, the wetland area where this species was observed would not be impacted by the Project. Impact to amphibians, including habitat fragmentation has been addressed in the FEIS.

Specific surveys for reptiles were not conducted, however, no sensitive reptile species were observed during general wildlife surveys.

Response 403-15
Quitchupah Creek is currently an active stream that conveys significant amounts of sediment and dissolved solids, as discussed in Section 3.2. The two sensitive species listed by the UDWR are found in the lowest portion of the Alternative B proposed alignment. There are currently at least three water diversions of Quitchupah Creek for adjacent or nearby agricultural fields near the lower portion of the Alternative B alignment. As a result of decreased water flows of the creek, as well as cattle grazing within the streambed at the lower portions, a much greater potential of sediment loads and habitat destruction exists for Alternative B than any of the proposed road alternatives.

Letter #403

403-15 cont.

requests a complete evaluation of these fish species and an analysis of the additional impacts on water quality as they apply to the sensitive populations.

MIS and Threatened, Endangered and Sensitive Species

Last Chance Townsendia

403-16a

The evaluation of Last Chance Townsendia in the DEIS is the model of failure on behalf of responsible agencies. The evaluation of the all impacts for cumulative effects of the proposal on the plant is incomplete. This species is present in the project area, directly adjacent to the road according to the Vegetation Map figure 3-5. It is dismissed, as it is not in the "project corridor". Not in the "project corridor" means that it will not be paved over. However, the presence of the threatened species in the project area merits further scrutiny, rather than a quick dismissal. The proposed road sharply increases the likelihood of noxious weed infestations, which will occur primarily along the course of the road. ATV use may leave the path of the road and venture along the sides on illegal user created roads. The cumulative effects of road construction and in turn use will have a negative effect on plant populations along the road. The UEC requests that the negative impacts on Last Chance Townsendia be assessed as part of the FEIS. Furthermore, the BLM & USFS indicated the habitat potential for six additional TES plants that were categorically dismissed in the DEIS. All of the plants need to be substantively analyzed in the FEIS.

Southwest Willow Flycatcher

403-16b

Surveys were completed for Southwest willow flycatcher in the upper reaches of Quitchupah Canyon. The presence of a male flycatcher in suitable habitat demonstrates the value of the upper wetlands and the need to protect these wetlands from any impact. Were additional surveys conducted in 2001 for the federally endangered species? Based upon known populations of the species, this male is markedly close to known locations, and all steps must be taken to protect this population. The DEIS arrives at the conclusion that "it will be assumed that the lone male southwestern willow flycatcher observed during the 1999 surveys is the federally endangered subspecies"[15]. What is the status of the consultation with the USFWS? Further, the road proposal still plans on filling in the areas and building a road over the critical habitat. The UEC requests that the FEIS review and include extensive measures to avoid all riparian areas in the upper drainage. Road alignments must be changed in order to preserve the species. The UEC also requests that the Forest Service include all information and consultation with the USFWS on the Southwestern willow flycatcher as part of the FEIS.

Mitigation proposed for the flycatcher includes the proposal to halt work during nesting and breeding times for the species. The DEIS states that 2.75 acres of habitat will be restored as per section 7 of the ESA. The FEIS should develop this proposal for protection of habitat in more detail.

Bald Eagle

403-16c

As previously mentioned the Bald Eagle is not adequately addressed in the DEIS. The DEIS states on page 3-69 that the "bald eagles are not expected to occur in the area except as transient birds,

[15] Ibid., Page 3-70

Response 403-16a

Noxious weeds would be controlled in the reclaimed areas as mitigation for disturbance to vegetation, see Section 3.4 Vegetation and Wetlands. ATVs currently use the existing road but would not be legal on a public highway, so disturbance by ATVs should decrease under the proposed road. See Section 3.10 Visual Resources, Recreation, and Wilderness for full discussion of ATV use.

According to the Heritage database, *Townsendia aprica* has been documented previously in the area, however it was not recorded on site during 1999 and 2003 surveys. It was addressed in the Biological Assessment under a May Affect – Not Likely to Affect (MANLAA) determination. Road construction and use would affect vegetation in the right-of-way, but the population status of *Townsendia aprica* is not expected to be affected as a result of this project. The MANLAA determination applies to Alternative C only. The other alignments would not disturb known habitats for *Townsendia aprica*. The BA addresses remaining TES species. See Appendix G for USFWS concurrence with the BA.

Response 403-16b

The flycatcher subspecies is not the listed Southwestern Willow Flycatcher subspecies (See Section 3.7). Consultation with the USFWS has been conducted and concurrence received on the determinations of the BA (Appendix G). See also Response 411-30a (DOI).

The impact to riparian zones will be minimized and losses will be mitigated by creating other riparian zones and the fencing of 4.7 miles of riparian corridor to exclude livestock. See Applicant Committed Measures in Chapter 2.

Response 403-16c

The BA approved by the U.S. Fish and Wildlife Service designates a May Affect Not Likely to Affect situation for bald eagles (Appendix G). Environmental Protection Measures include removal of animal carcasses from the roadway and disposal according to regulations of the State Board of Health. In addition, the roadway would be fenced, restricting wildlife access to the road. This would minimize the draw of Bald Eagles to the roadway. See Response 411-29c (DOI).

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most commonly occurring in the winter months". The occurrence of Bald Eagles in the winter months is of specific concern of the UEC. The presence of roadkill deer and elk will draw more Bald Eagles to the project area, and this issue was not analyzed in the DEIS. There must be an analysis and mitigation for the Bald Eagle, which is particularly susceptible to vehicle collision due its size. Mitigation must include the prompt removal of all roadkill from the travel corridor in order to avoid Bald Eagle/vehicle collisions.

Mexican Spotted Owl

403-16d There were no surveys performed for Mexican spotted owl. "Dedicated surveys for the Mexican spotted owl were deemed unnecessary, thus were not conducted"[16]. Quitchupah Canyon fits the description for MSO habitat under the DWR habitat description. The DWR notes, "Canyons where nests occur are usually part of a rugged, complex canyon system which has several side canyons and hanging canyons. All known nesting sites in Utah are below 8000 feet elevation. Winter habitat is essentially the same as breeding habitat, though owls may seek warmer, more open canyons in the winter.[17]" The same document notes, "potential threats to the owl include human disturbance associated with activities in canyon habitats, overgrazing and timber harvest in foraging areas, road development in canyons"[18].

Quitchupah Canyon falls within the described habitat conditions for Mexican spotted owl, and the UEC requests that surveys be completed to confirm the presence or absence of this species. The Forest Service cannot substantiate the dismissal of the owl from further consideration. Habitat citations are not adequate to dismiss the owls presence in this canyon, as many positive habitat characteristics are present. Surveys for Mexican spotted owl must be completed as part of a proper evaluation in the FEIS.

Bats

403-16e The proposed construction will eliminate the upper wetlands and riparian areas on Quitchupah Creek. These areas are crucial foraging areas for Townsend's big-eared bat and Spotted bat. Construction activities will directly impact bat species. There is no viability determination for the sensitive bat species in the project area. Surveys and monitoring have not been performed for these sensitive species. No mitigation is proposed for the bat species in the DEIS. The UEC requests that the Forest Service collect the proper information in order to make a viability determination for the sensitive species that are in the project area.

Flammulated Owl

403-16f The Flammulated owl is present in the project area, according to the DEIS. This owl is present in the Quitchupah Creek drainage and on the Old Woman Plateau. Suitable habitat for the owl also exists within the project area. No surveys were performed for this sensitive species, and there is no analysis of impacts on the owl in the DEIS. Blasting, road construction, and the continuous noise and presence of coal hauling equipment will impact potential nesting and foraging habitat for

[16] Quitchupah Creek DEIS, Page 3-69
[17] Endangered and Threatened Animals of Utah, Page 25. Utah State University Extension Service, DWR, and USFWS, 1998.
[18] Ibid., Page 26

Response 403-16d
The application of model by a JBR MSO-certified biologist located suitable habitat which was surveyed in May and June 2002 (JBR 2002) with no indication of owls. Surveys for the Mexican Spotted Owl were initiated in the spring of 2002 according to USFWS protocol. No Mexican Spotted Owls were observed or heard during surveys.

Response 403-16e
The wetlands and riparian zone losses will be mitigated as part of the road design. See Chapter 2 for applicant-committed measures. The FS expects to continue to update its sensitive species database.

Response 403-16f
Dedicated surveys for flammulated owls were not requested by the USFS due to the small area of suitable habitat near the Project Area. Any owls present in the suitable habitat at the upper reaches of the Convulsion Canyon drainage would likely be displaced onto adjacent habitat in the area, including the Old Woman plateau which is screened from the proposed road alignment by topography. It is possible that the adjacent habitat would not support additional displaced flammulated owls. The only impact identified is loss and disturbance to foraging areas in wetlands and riparian zones which will be mitigated. See Section 3.7.

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Flammulated owls. There was no analysis concerning the cumulative impacts of all of these activities, in addition to more human disturbance due to recreation. The UEC requests a complete analysis of the all impacts on the Flammulated owl population in Quitchupah Canyon. This should include a viability determination and plans for mitigation of the negative effects.

Peregrine Falcon

403-16g Surveys performed in Quitchupah Canyon did not find Peregrine falcon eyries. Were these surveys performed for the areas on the Water Hollow Benches? The species may be present in areas not covered as part of Alternative D.

Cultural Resources

The UEC does not support entry into or through cultural sites in the Quitchupah Canyon Road Proposal. Numerous surveys for cultural sites have been performed in Quitchupah Canyon. At least 21 sites have been identified in the canyon as cultural resources, and 13 of these sites are eligible for inclusion on the National Register of Historic Places (NHRP) under criterion D of 36 C.F.R. 60.6.

403-17a Alternative B proposes to "effect" six sites that are eligible for NHRP listing. This proposal also improves access and visibility in an area that is considered sacred by Native Americans. The sacred nature of the canyon will be disrupted every one and half minutes by coal trucks. The DEIS states, "The tribes involved in the Native American consultation have expressed that they would like all of the identified cultural resource sites within the project left alone and intact". The statement that follows this notes that it will not be achieved, "Under 36 CFR 800 regulations, data recovery is not available to achieve a no adverse effect". The UEC requests clarification of this statement, as 36 CFR 800 does not apply in any way to cultural sites. What is the legal interpretation that the DEIS is using for this regulation and how does it apply to data recovery and no adverse effect?

403-17b Alternative D compromises 10 of 19 cultural sites. The majority of these sites are congregated around the Water Hollow/Quitchupah junction. Will these sites at the junction be impacted by the road? Again, no mitigation measures have been considered to preserve any of the cultural resources. This deficiency must be addressed in the FEIS.

403-17c 403-17d The Forest Service and BLM should also analyze the legal implications of cultural resource destruction under the Native American Religious Act. Please include the SHPOs comments for this project in the FEIS.

Cumulative Effects of Impacts

403-18 It is simply mind boggling that in Chapter 3 (Environmental Consequences), the entire cumulative effects analysis is reduced to one sentence stating "Based on past, present, or reasonably foreseeable future actions, no cumulative impacts are anticipated to occur" (DEIS 3-14). This legally indefensible statement is nothing short of complete idiocy. Indeed, the DEIS failed to even include a cumulative effects analysis area and confined its one sentence 'analysis' to the project area.

The DEIS fails entirely to assess the cumulative impacts of the proposed actions on the affected environment in Quitchupah Canyon and the Water Hollow Benches. The impacts of proposed road alignments considered are inexact and incomplete for all species affected by the road construction

Response 403-16g
There is suitable nesting habitat for peregrine falcons on the Water Hollow Benches (Alternative D), however, no peregrine falcons or eyries were observed during numerous general wildlife surveys, and UDWR aerial surveys in the Water Hollow Benches area. See Section 3.5 Wildlife Resources.

Response 403-17a
Section 106 Regulations 36 CFR 800.5 and 800.6 detail the process by which agencies determine whether undertakings will adversely affect historic properties and how the agencies consult to avoid, minimize, or mitigate the adverse effects in order to meet Section 106 requirements. The Advisory Council on Historic Preservation Section 106 Regulations Archeology Guidance document states: AMethods for recovering information from archeological sites, particularly large-scale excavation, are by their nature destructive. The site is destroyed as it is excavated. Therefore management of archaeological sites should be conducted in a spirit of stewardship for future generations, with full recognition of their non-renewable nature and their potential multiple uses and public values...Given the non-renewable nature of archeological sites, it follows that if an archeological site can be practically preserved in place for future study or other use, it usually should be...@ (www.achp.gov/archguide.html). The interpretation that the DEIS was trying to express was that data recovery in the form of excavation or artifact collection is considered an adverse effect. Therefore, data recovery may not be considered a viable mitigation possibility for impacts to eligible cultural resource sites.

Response 403-17b
Alternative D would not impact cultural resources located near the Water Hollow/Quitchupah junction. The road corridor inventoried was purposely wide (500 to 1000 feet wide) so that the route could be aligned in this area to avoid cultural resource sites.

Response 403-17c
The American Indian Religious Freedom Act states A...henceforth it shall be the policy of the United States to protect and preserve for American Indians their inherent right to freedom to believe, express, and exercise the traditional religions of the American Indian, Eskimo, Aleut, and Native Hawaiians, including but not limited to access to sites, use and possession of sacred objects, and the freedom to worship through ceremonial and traditional rites [42 United States Code (U.S.C.) 1996].@ Agencies are required to review their policies and procedures in consultation with traditional native religious leaders. Consultation with Native American tribes has been on-going throughout the NEPA process and the Paiute and Ute tribes accepted consulting party status. See Section 3.13.

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403-18 cont.

proposal. A "meaningful" and substantial analysis of impacts "should identify (1) the area in which effects of the proposed project will be felt; (2) the impacts that are expected in the area from the proposed project; (3) other actions - past, proposed, and reasonably foreseeable future – that have had or are expected to have impacts on the same area; (4) the impacts or expected impacts from these other actions; and (5) the overall impact that can be expected if the individual impacts are allowed to accumulate."[19] The DEIS failed to raise numerous impacts that are present in or related to the project area and there is a general lack of meaningful analysis for the entire project. The impacts of a road should be carefully quantified and evaluated, specifically in high impact areas such as riparian zones.

403-19

The UEC requests that the following direct and indirect impacts be evaluated and analyzed as they pertain to impacts on wildlife species and other resources in Quitchupah Canyon. The cumulative effects analysis for the FEIS must evaluate and include the following (which does not claim to be an exhaustive list):

- Additional evaluation of impacts from actual road construction: this includes habitat directly impacted, as well as indirectly (noise from blasting); work focused in one area for a long time period; and sediment discharges into streams. Golden eagles will abandon nests and territories due to the presence of construction and the resulting traffic. What other species will be negatively affected? Mitigation must be the result of the determined impacts.
- Impacts from improved access: human disturbance of high value wildlife habitat (big game dispersal), nesting disturbances, and loss of riparian habitat. Human disturbance will further contribute to Golden eagle nest abandonment, which was not evaluated in the DEIS. The DEIS is incomplete without a full evaluation of the species that will be further impacted by human disturbance.
- Impacts from SUFCO mine: almost constant noise from coal trucks, constant hazard from trucks on road, possible accidents on road, road kill and wildlife hazards (opportunistic feeders). Elk, deer, Golden Eagle and Bald Eagle will be threatened due to traffic in the canyon. Why was this major impact not assessed in regard to Bald Eagle? Numerous other species will be exposed to collision hazards as well as noise impacts. Many species will abandon the area due to the noise and constant hazard from trucks. This must be explored further and mitigation should be proposed to curb negative effects for all impacted species.
- Indirect and direct impacts to wildlife from entire shifts in populations. The DEIS states wildlife that may be impacted can simply move. While the UEC strongly disagrees with this feeble assertion, the agencies must examine the impacts of entire wildlife populations dispersing. In addition, there was no evaluation to wildlife for noise and air quality impacts.
- SUFCO mine already discharges a considerable amount of mine pollution water into the North Fork of Quitchupah Creek. How is the discharge being mitigated? How does this contribute to the 303d stream conditions downstream and how will the impacts broaden with introduction of a new road? How will continuing discharge further impact the environment particularly relative to macro invertebrates?
- What timber sales or prescribed burns will be disturbing habitat adjacent to the project area? What species habitat will be affected by these activities?
- What will the direct and indirect impacts for air quality, noise production increase, and soil erosion be due to an additional demand in coal production for the area in general

[19] City of Carmel-By-The-Sea v. U.S. Department of Transportation, 95 F.2d 892, 902 (9th Cir. 1996)

Response 403-17d
SHPO comments and concurrence with determinations of eligibility specific to the cultural resource inventories are part of the approved cultural resource report files located at the appropriate land managing agency and the Division of State History. SHPO has not provided comments specific to the EIS.

Response 403-18
The cumulative effects have been further analyzed and revised for the FEIS and an updated table of past, present, and reasonably foreseeable actions appears in Appendix D.

Response 403-19
Road construction impacts are direct impacts and mitigation is set to compensate for wetlands, riparian habitats, and upland habitats, as described in the applicant-committed measures section of the EIS.

Human disturbances are indirect impacts associated with access and are evaluated in the FEIS.

It is proposed as mitigation that all animal carcasses (large and small) be removed from the road to reduce scavenging by eagles and vultures (see Section 2.2). Bald eagles have not been documented in the project area.

Population shifts must be considered in the context that the upland habitats are low quality with low densities of wildlife so shifts would be minor. See Response 411-5 regarding impacts of noise. There is no data on the effects of emission to wildlife at the level expected along the proposed road.

The mine discharge into North Fork provides additional flows and the TDS is usually less than the natural flows in Quitchupah Creek. The impact of this discharge will be considered in the cumulative analysis.

No timber sales or prescribed burns are planned in the vicinity of the project by the agencies.

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403-19 cont.

(reasonably foreseeable)? Coal production is intended to increase significantly in the future based upon the DEIS projections and secured contracts. This should trigger a further review of increased impacts for all resources.

- How will impacts from ATV use change resulting from road construction? ATV users have demanded to keep their use of the canyon so what are the future impacts of these machines in Quitchupah Canyon? ATV use and increased ATV use due to improved access will negatively affect Golden Eagle, other raptor populations, big game species, as well as many other species on the forest. Use of these vehicles will further prompt abandonment by wildlife species in the canyon. This impact must be evaluated in the FEIS.
- Subsidence and its impacts on watersheds and water quality is not evaluated in the DEIS. What is the relationship of subsidence from SUFCO mine and water quality? The resulting sediment from erosion pollutes the creek further, contributing to a high TDS rating in Quitchupah Creek. What impacts does this have on aquatic species? What species are specifically affected? How does this relate to the 303d listing for the creek?
- UP&L operates a power line in the canyon. What negative effects occur due to the presence of the power lines? This was not evaluated in the DEIS. These powerlines impact raptor populations and already contribute to loss of individuals in the population. Has mitigation been proposed to retrofit the power lines to reduce this impact in the presence of numerous new impacts?
- Grazing must be considered as a cumulative impact in the project area. The proposal involves impacts to numerous ranchers who graze cattle in Quitchupah Canyon. Any road proposal must include the removal of cattle to regenerate vegetation on steep slopes and around roads. The reluctance of the Forest Service, BLM and road proponents on this issue is obvious due to the controversial nature of the road with ranchers, nonetheless the grazing must stop for a revegetation period as part of mitigation for water quality and soils.
- Gas drilling may occur at any time and may affect up to 78 acres at one time. A paved road only increases the possibilities for additional gas drilling. According to the DEIS, Texaco and SITLA have oil and gas leases in the area (please include a map with these sites in the FEIS). Will the proposed road facilitate future exploration? This massive impact is no more than mentioned in the DEIS. Mitigation must be pre-planned for this foreseeable impact.
- Fencing and under/overpasses create additional impacts to wildlife. What species will be affected by additional barriers?

Mitigation

403-20

The DEIS is replete with impacts to virtually all resources, yet fails to provide meaningful mitigation measures to alleviate the detrimental consequences of this project. The CEQ regulations implementing NEPA require that agencies analyze possible mitigation measures in defining the scope of the EIS. In addition, a mere listing of mitigation measures is inadequate. The FEIS must include an analysis of the effectiveness of each mitigation measure proposed for all resources.

Conclusion

While the SUFCO coal mine may stand to gain from the building of the proposed road, the public and environment will be significant losers. Indeed, the costs far outweigh the benefits to the public. The Forest Service and BLM should kill this project outright. Neither agency has the information required to make a legally defensible decision for this project. Considering the admission that

Response 403-19 cont.

The ATV use may decline in Quitchupah Creek because the proposed road is not a legal trail for ATVs and no ATV trail will be constructed adjacent to the proposed road.

Subsidence impact analysis is not part of this project, see Pines Tract EIS for discussion of subsidence.

The affects of the powerline are discussed under land use. There is no documentation of raptor losses for this powerline which was built under the guidelines for protecting raptors.

The livestock use in Quitchupah Creek will be part of the cumulative analysis. The reclaimed areas will be protected from livestock grazing. The riparian area along Quitchupah Creek will be fenced for protection.

The cumulative impact of foreseeable oil and gas exploration is covered in the DEIS. The mitigation for exploration activity would be documented in the NEPA document for exploration permits. The oil and gas lease on SITLA land was cancelled in 2004.

The direct and indirect impacts of fencing will be analyzed in the FEIS.

Response 403-20

Chapter 2 of the FEIS includes the applicant-committed measures. These applicant committed measures incorporate mitigation measures as part of the road design thereby precluding adverse impacts to the resources. Additional mitigation measures are included in the resource sections.

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regardless of which alternative is chosen, coal production will increase, suggests the No Action Alternative should clearly be chosen.

The UEC requests to be kept on the mailing list for this project as it continues through the NEPA process. Please forward the FEIS (if the project proceeds) to our office.

Sincerely,

Denise Boggs
Executive Director

Dave Bell
Resource Specialist

cc: Ray Vaughan, WildLaw

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southern utah wilderness alliance

March 1, 2002

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RE: Quitchupah Creek Road DEIS

Dear Ms. Jackson and Mr. Erickson:

Thank you for providing the Quitchupah Creek Draft EIS to the Southern Utah Wilderness Alliance (SUWA) for review and further comment. As you know, SUWA has been an interested party and has been participating in this proposed project and NEPA process since 1999. SUWA wishes to incorporate by reference, the comments submitted by the Utah Environmental Congress (UEC) to you on this DEIS. In addition to UEC's comments, SUWA submits the following comments.

404-1 This proposal is being reviewed for the sole purpose of allowing a commercial coal-mining operation to shave a few miles off of its haul route in order to save a few dollars over the next several years. However, since there is an adequate, and in reality, an incredibly high-quality, road system for these trucks to use for travel to and from the mine, the request to institute a huge construction project to improve and construct a major road in Quitchupah Canyon cannot be said to meet any ***real need***. There is no mention in the DEIS how this new road will benefit the American people. Natural resources will forever be damaged, obliterated, and impacted from

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Response 404-1

The primary purpose of the proposed Quitchupah Creek Road is to ensure the competitive productivity of the SUFCO Mine, as a source of economic stability for Sevier County, a potential source of additional income and revenue for Emery County, and a source of high quality coal for power plants (See Section 1.1, Purpose and Need).

The 2005 National Energy Policy Act seeks to provide reliable, affordable energy to our nation's consumers, and to lessen the impact on Americans of energy price volatility and supply uncertainty. Access to coal reserves via any of the road alternatives proposed in the EIS would help to maintain supplies of diverse and traditional forms of energy; the National Energy Policy promotes such improvements in the productive and efficient use of energy.

Letter #404

02/26/2002 17:25 8650/01 SUWA PAGE 02/02

2

this purely bottom-line request by a private coal company. Allowing such a project to proceed could be deemed nothing less than a breach of the public trust under which both the USFS and the BLM are mandated to manage these public lands.

404-2 The DEIS, while it includes discussions of impacts to riparian areas and wetlands, water quality, soils, air quality, cultural resources, wildlife and fishes, wildlife habitat, sensitive plant species, visual resources, and socioeconomic resources, the analyses does not sufficiently address the extent of the impacts to these natural resources in this generally pristine canyon.

404-3 The fuel savings of the haul trucks was one of the major factors listed as a "reason" for this project proposal. Yet, none of the alternatives analyzed considered using trucks with better fuel efficiency. Why was this alternative not considered? Neither the public nor the decision makers have been informed as to cost savings to the company, let alone to the natural resources and the environment, if the coal-hauling trucks were required to get better fuel efficiencies. Rather than wreck and ruin a beautiful canyon and creek with construction and a new road for huge trucks, why not consider trucks that get better gas mileage? If SUFCO would improve the fuel efficiency of their trucks, the trucks could continue to use the existing and safe roads that they already use, and still recognize a cost savings due to the better fuel efficiency. Please address this alternative, including a cost analysis, in the amended/supplemental DEIS.

Based on the concerns of the public and federal and state agencies that have submitted comments on this project, it appears that BLM and USFS must deny the proposal and the various alternatives to allow any modifications to the Quitchupah Creek road in order to accommodate huge coal-hauling trucks traveling to and from the SUFCO mine. If any proposed changes to the Quitchupah Creek road are to be considered, the DEIS must be re-issued so that the impacts to the natural resources (as discussed above, in UEC's comment letter, and in federal and state agency letters) can be adequately analyzed and assessed.

I look forward to receiving all future documents relating to this proposed project.

Sincerely,

Liz Thomas
Staff attorney
SUWA

404

2

Response 404-2
The impact analysis has been revised and updated in the FEIS.

Response 404-3
The competitive coal market conditions force the coal truck contractors to use the most efficient trucks to maximize their profit margins. It is outside the scope of this project to analyze the fuel efficiency of coal trucks.

Letter #406

DEE W. JENSE
President

INTERWEST MINING COMPANY
A Subsidiary of PacifiCorp

One Utah Center
201 South Main Street, Suite 2100
Salt Lake City, Utah 84140-0021
(801) 220-4140 • FAX (801) 220-4725

RICHFIELD RANGER DISTRICT
RECEIVED
MAR - 4 2002
RANGER
BUSINESS MGMT
RECREATION
RANGE
TIMBER
WILDLIFE

February 27, 2002

Linda L. Jackson
Public Affairs Officer
U.S. Department of Agriculture
Fishlake National Forest
115 East 900 North
Richfield, UT 84701

RE: Quitchupah Creek Road

Dear Ms. Jackson,

On behalf of PacifiCorp, we would like to offer our support towards the Quitchupah Creek Road project. It is our understanding that a very thorough environmental review process has taken place and various alternatives are being considered. After reviewing the four (4) alternatives being considered, we support alternative D (Water Hollow Route). This alternative appears to have the least amount of conflict and stimulates both environmental and rural integrity.

As an integral business partner in the State of Utah, with power supply operations throughout its rural communities of which PacifiCorp serves and operates, we wish to applaud the efforts of the public and private sectors together with the regulatory process in considering the merits of this road project.

With the closure of our Trail Mountain Coal Mine near Orangeville, Utah, it became necessary to secure alternative fuel sources for our Hunter Power Plant near Castle Dale, Utah. As a result, a coal supply contract was secured with the SUFCO Mine to deliver coal to the Hunter Power Plant. Should this road project come to fruition, it is our understanding that the Sevier County Special Services District will construct this public road and invoke a user's fee to the SUFCO Mine as a toll user of this public road in order to pay for its construction and maintenance.

406-1

We believe the end results of constructing this road will provide mutual benefits to the many various stakeholders. Benefits including, but not necessarily limited to the following:

1. The Quitchupah Creek Road reduces the total amount of coal haul trucks on nearly 50 miles of road (roundtrip) involving SR-10 and I-70, enhancing travel safety by reducing overall length of haul distance.

406

Response 406-1
Comments noted.

Letter #406

406-1 cont.

Linda L. Jackson
February 27, 2002
Page 2

2. Allows for a more efficient route for coal deliveries to the Hunter Power Plant and SUFCO's other delivery destinations beyond this point.

3. Alternative coal transport methods including the railroad system in central Utah is nonexistent or undeveloped and the delivery of central Utah coal is largely dependent on the existing highway systems.

4. The State of Utah and its neighboring states are fortunate to have and produce some of the lowest cost electricity in the United States. This is partly due to the availability of Utah's high quality, low sulfur coal. The construction of the Quitchupah Creek Road directly addresses some of the efficiency, reliability and safety concerns of coal delivery to our Hunter Power Plant for energy production.

Again, we reiterate our support for the Quitchupah Creek Road project and appreciate the opportunity to comment on this proposal.

Respectfully,

Dee W. Jense
President

SMC\MyDocuments\QuitchupahRoad.wpd

406

INDIVIDUAL LETTERS

This section includes the following letters:
Letter #1 - Mark Belles
Letter #2 - Merlin H. Christiansen
Letter #5 - Thomas C. Bunn
Letter #11 - Thomas C. Bunn
Letter #96 - Jeannine Baker
Letter #97 - Morgan Robertson
Letter #99 - Robert E. Anderson
Letter #103 - Paul Niemeyer
Letter #104 - M.K. Axelgard
Letter #106 - Wesley K. Sorensen
Letter #146 - Kathy Bastian
Letter #269 - Ken Christiansen
Letter #271 - Jammi Sitterud
Letter #272 - Scott Jensen
Letter #275 - Thomas C. Bunn
Letter #299 - Don W. And Bonnie P. Keele
Letter #301 - Fred S. Jenkins
Letter #340 - Larry D. Brown
Letter #349 - Michael Jewkes
Letter #372 - Zanpher Farrer
Letter #378 - Don Jamison
Letter #379 - Paula Wellnitz
Letter #393 - Carolee Hammel
Letter #395 - J. Rick McEwen
Letter #399 - David Sucec
Letter #405 - Kent Petersen

Letter #1

Mark Belles
9318 Willard Street
Rowlett, Texas 75088

Linda L. Jackson
Public Affairs Officer
Fishlake National Forest
115 East 900 North
Richfield, Utah 84701

11 December 2001

Dear Fishlake NF,

1-1 Thank you for the draft EIS for the Quitchupah Creek Road project. I agree with the proposed action.

Thank you for the opportunity to comment,

Mark Belles

1

Response 1-1
Comment noted.

Letter #2

Linda L. Jackson
Public Affairs Officer
Fishlake National Forest
155 East 900 North
Richfield, Utah 84701

Linda:

I read the Quitchupah Creek Road Draft Environmental Impact Statement, and decided to make a comment or two about it.

2-1 I think the original plan is the better route to go with, however I think a trail should be made along side the road that livestock could travel on, also since quite a number of people now use this route as an R.V. trail it should be constructed to allow this type of recreation to continue to take place.

I do hope you will consider these things in the plan.

Sincerely,

Merlin H Christiansen

P.O. Box 36
Emery, Utah 84522

2

Response 2-1

A cattle trail would be constructed on 1.5 miles of the western end of the proposed road in order to facilitate trailing where topography is restrictive. East of this, livestock would trail outside the fenced road corridor.

Although used by recreationists, the existing road/trail is not managed for off-highway vehicle (OHV) use.

The BLM Travel Plan, due out in 2006 after the release of the final RMP, will designate a system of trails for OHVs. The Richfield RMP will designate areas where proposed projects, such as OHV sites, are acceptable on BLM land.

The Fishlake National Forest OHV Route Designation Plan is scheduled to be implemented in the summer of 2006. This Plan will designate roads, trails, and open areas for the use of OHVs. The rules and designations in the Plan will close the Forest to off-route motorized cross-country travel by OHVs, except in the designated areas. This plan will improve management and enforcement of OHV use on Forest land.

Letter #5

January, 25, 2002

Thomas C. Bunn
88 west 500 south
Wellsville, UT 84339
435 245 4987
volvox@cache.net

Dear Ms. Jackson,

5-1 On or about May 9, 1999, I received a package from Jones and Demille Engineering of Richfield, UT. This engineering company apparently represents the SUFCO Coal mining business. Their package contained a topo map of the SUFCO Coal interests, locations of their access routes, and details of a proposed new road and modifications of the old dirt road down the Quitchupah Creek. It also contained a Quit-Claim Deed granting 1.682 acres of my ranch to the county (I read this as SUFCO Coal company). Far more disturbing than these items is a letter advising me to accept $500.00 per acre: "... [Sevier County] recommends that you diligently consider this offer and avoid both the county and yourself the expense associated with condemnation proceedings." The land in question is MY ONLY access to the creek and the road ... $500 is not even close to covering the impacts.

But the hidden impacts affect all citizens. On their proposed routes are significant archeological sites and petroglyphs. This is where collective voices are needed.

I received a letter from Kent R. Petersen, Chairman of the Emery County Commission, on June 1, 1999. Mr. Petersen stated the Emery Country has no plans to initiate condemnation proceedings for improving Quitchupah Creek Road. I hope this continues to be the sentiment. I have no expectation of a similar letter of assurances from Sevier County.

5-2 When I called Jones and Demille and asked about the significant archeological sites that would be in the way of their new road, they replied that, "The petroglyphs would be moved to a museum." This, I believe, is against the Antiquities Act, a Federal law.

In a recent newspaper article, The Emery County Progress, January 15, 2002, it identified "seven significant archeological sites" being in harm's way if this road is to built. David Sucec, Director, BCS Project, stated in the May 16, 2000 The Emery County Progress that the "`Quitchupah Creek Junction Rock Art Site' will be destroyed if the proposed coal haul road is allowed to be built in the canyon."

5

Response 5-1
The Quit-Claim Deed process by Jones & DeMille Engineering was prior to the EIS, and the proposed action in the EIS does not contain any condemnation process. The EIS only evaluates the right-of-way needed for the road. Rights-of-way are not granted on public lands until all of the right-of-ways are acquired to complete the road.

Response 5-2
Cultural resource inventories (Hauck, 1995; Billat and Crosland, 2001; Patterson and Montgomery, 2001) were performed on all of the proposed alternative routes (See Section 3.12). The cultural resource sites, including the rock art sites, are protected by the National Historic Preservation Act and the Archeological Resources Protection Act.

The proposed alignment for Alternative B, Quitchupah Creek Road, and Alternative C, Alternate Junction, was shifted south about 250 feet. This alignment would place the proposed road about 300 feet away and across the creek from the rock art panels. The new alignment would also avoid impacting known cultural sites located within the previous alignment. No additional cultural resource sites would be impacted by this reroute.

The existing road routed between the creek and the panels would be blocked and not used for access. This would tend to limit access for casual visitors

Letter #5

5-2 cont.

The second alternative follows Quitchupah Road but meets Highway 10 at a different point; where, I do not know. Quoting the same January 2002 article: "This route involves fencing along the road with five underpasses for cattle and game. ... This route has 29 archeological sites with 11 that will be impacted and six of these are considered significant." The third plan is the Water Hollow route includes, " 19 archeological sites all of which can be avoided." I have serious doubts that these sites will not be impacted. The sites encompass everything in sight and within hearing distance.

5-3

To add to the consternation, I have not received a copy of the proposals due all affected landowners. Were it not my subscription to the Progress, I would have no idea what was going on. My lands could be taken away without comment or notification; so much for due process.

5-4

Try as I may to see the coal mines perspective, it comes down to just money; fifty cents a ton to be exact. There is no evidence that the known (and heaven forbid unknown) historical sites figure in any positive way with the coal mine's plans. Our heritage and pre-history are just irritants and impediments to their profits. SUFCO's apparent hiring of an engineering company to employ scare tactics by sending threatening letters does not impress me. This sets the tones of their plan and it reads like a bad western novel: Intimidate the landowners off their property and those who don't sell out and move on will face a "hip pocket" government commission and have their lands condemned. Either way, you lose. And we all lose!

This coal mine will be played out or made obsolete sometime in the near future. We will be stuck with permanent scars on our land, the loss of prehistorical artifacts and perspectives, and bad memories of the big company inciting division of the peaceful citizens by pushing its way towards profits. It is time for putting your feet down and taking at stand.
Just Say "NO" to SUFCO.

Sincerely,
Thomas C. Bunn

5

Response 5-3
The absence of your name from our mailing list was an oversight and has been corrected. We apologize for the inconvenience.

Response 5-4
The predicted life of the mine is currently about 25 years. This could be extended if additional coal reserves are leased. Mine reclamation would minimize scars on the land. The road would become the responsibility of the county and would remain a permanent feature. Impacts to cultural resources would be minimized or mitigated prior to construction of the road.

Letter #11

January 27, 2002

Thomas C. Bunn
88 west 500 south
Wellsville, UT 84339
435 245 4987
volvox@cache.net

Dear Ms. Jackson,

I finally received the Quitchupah Creek Road Draft Environmental Impact Statement. Having read through it I am compelled to write this addendum to my earlier letter of January 25, 2002. To sum up my thoughts, it is easy to say that this EIS is rife with errors such that I have doubts about the credibility of the entire document. And the Alternate Proposals "C" and "D" are so poorly described and are a product of such imagination that I can only assume that are only there to make the original "B" plan appear as the best choice. "No Action" is the only best choice.

Let's look at some of the errors I found by a quick read. I assume there are others:

11-1
- Land Status and Ownership Map, fig. 2-2, has 360 acres attributed to "Thomas E. Bunn" (cf. p. 3-84). I am "Thomas C. Bunn," thank you.
- 160 of the acres in section 18 are given to Castle valley ranches that belong to me, "Thomas C. Bunn et al."
- A forty-acre piece also in Section 18 is attributed to "Thomas C. Bunn, Carole Hammel." Her name on the deed, plat maps and taxes is "Carolee."

11-2
- Under Cultural and Paleontological Resources (p. 3-103) it is stated, "No known fossil locations have been identified into the project area." You should ask someone who has actually been on my property about the fossils there. I have found hundreds of fossils in that area and friends have found what are believed to be vertebrate fossils.

11-3

My receipt of the ESI confirmed my suspicions that Alternate "C" was coming directly across my property. This splits my property into 1.25 miles to the north and 1.5 miles to the south. This plan effectively destroys my family's plans to establish more formalized camping sites. You can find our primitive but supplied camping site at the end of the "Jeep Trail" directly in the path of the proposed coal-haul road. We purchased this property with funds we gained when we sold our property in the Teasdale/Grover area that we have bought for the solitude. It soon became overrun with wealthy developers and the peaceful beauty was ruined.

11

Response 11-1
Editorial changes have been made.

Response 11-2
A paleontological inventory was completed in July of 2002. The inventory resulted in the recordation of 10 fossil localities. Nine of these are considered *insignificant* while one is rated as *important.* The fossil locality rated *important* is no longer in-situ and represents fossils from outside the project corridor. This data has been added to Section 3.12 of the FEIS.

Response 11-3
The Alternative C route was subsequently realigned to avoid this parcel of private land.

Letter #11

11-4

If any of the engineers had actually visited the Alternate "C" area, not that I am condoning in any way trespassing on my property, they would see an area with a wash some 100 feet deep and over a quarter mile in width. Their simple solution of a couple of underpasses is suspicious. Vast amounts of fill materials or a substantial bridge would be needed to keep their trucks at 40 mph up to the intersection with SR10. The environment will not tolerate changes on this large a scale.

Much the same is true about Alternate Plan "D." This is severe topography and it is constantly changing. Two years ago a thunderstorm caused a terrific flash flood. The existing Quitchupah Road was washed out near the historic ruins, east of the petroglyphs. On my land, flood heights were near 20 feet. As complex as the Plan "D" lands are, one decent flood could cut off the road.

To reiterate; this EIS has significant data errors. The EIS also does not exhibit sufficient details in the engineering to convince me that it has been very well thought out or practical solutions designed. The two alternatives, "C" and "D," appear to be embedded distracters from the major thrust of the Plan "B," their original plan. Plan "C" destroys my family's plans for a heritage of a common place where our children, their children, and generations to come can assemble to renew relationships and revel in the beauty of this place, its geological and archeological history.

Plan "B" was the focus of my first letter and this letter is to be considered a part of it.

Just Say "NO" to SUFCO.

Sincerely,
Thomas C. Bunn

11

Response 11-4
The road designers are well aware of the flashy and often extreme nature of flood flows in Quitchupah Creek and its tributaries, and have accounted for that nature in their design of channel crossings. However, should a very extreme event occur, and Acut off the road@, the proposed high-use of the road would necessitate immediate repair, which would put the road back into service as quickly as possible, and would also minimize any resource damage due to the failure. This is in contrast to the existing road, where flood damages go unnoticed and unrepaired for extended periods of time.

Letter #96

30 January 2002

Dear Fishlake National Forest,

96-1 I am writing to voice my opinion that the proposed roads for SUFCO proposal are anathema to my people. I am a resident of Joseph in Sevier County and of Native American descent so the possibility that more of our ancestors will be disturbed through roadwork is likewise troubling to me. There are likely to be found archeological sites if you build more roads, and some are already protected. In particular, the Quitchupah Creek Junction Art Site", is threatened, as well as others.

96-2 When the idea of a coal processing plant was first introduced, I was disturbed for the pollution that will result. But when I heard the proposed routes, my disturbance grew. For my people, the Earth is sacred. I hope that you consider this viewpoint kindly and deny permission to desecrate any more of our beloved ground.

Thank you,

Jeannine Baker

40 North State St
Joseph UT 84739

527-3738

96

Response 96-1
Cultural resource sites are protected under the National Historic Preservation Act and the Archeological Resources Protection Act. Consultation with tribal representatives (Paiute, Hopi, and Ute) is on-going (see Section 3.13). Impacts to cultural resource sites would be mitigated as approved by the SHPO, land administering agency, and the consulting parties.

Response 96-2
The processing of coal was not included in this study. The annual air pollution resulting from coal truck combustion of diesel fuel would decrease. This is based on vehicle miles traveled. The local air quality along the proposed transport route would meet air quality standards. Mitigative measures for dust control are required by Utah State regulation, during construction activities.

Letter #97

cattle trailing

JAN. 31, 2002

DEAR Fish Lake Forest,

ON JAN. 29, 2002 I ATTENED A Meeting IN your building CONCERNING the road construction of the road from Sufco Mine to Hwy 10, and the Impact of it concerning cattle trails through the canyon.

IN ATTENDANCE were Linda Jackson Fishlake Forest, Wes Sorsen Sufco Mine Ralph Okerland Sevier County, Morgan Robertson, Wayne Gremil, Cy & Marie Eardley Quitchupah Cattle Assn.

97-1 This CANYON HAS been primarily USED AS A cattle trail to & from the Mountain through out History. It is imperative that this usage Not be disturbed, it would be

(97)

Response 97-1
A cattle trail would be constructed on 1.5 miles of the western end of the proposed road where movement is restricted by topography. Livestock would trail outside the fenced corridor on the remainder of the proposed road, or in the case of Alternative D, along the existing road in Quitchupah Creek canyon.

Letter #97

97-1 cont.

Desatorious to stop these cattle Somewhere along the way and Hall 850 Head of Cow's & Calve's without Separating babies to there Mothers, Having cattle seaching the canyon, & Hwy for there lost babies.

After reviewing Appendix B Impact Statement the conclusion that only 1/4 mile of the road would have to be adjusted to accommodate a passable trail, Fenced off with underpasses.

It was the consent of all that a cattle trail would not interfere with the road, and concession's could be made so cattle

(97)

Letter #97

would have the right-of-way from Broad Hollow to the Bottom of Quitchumpah Canyon.

97-2 It would cause extreme hardships to the Cattle & operator's to take our right to trail cattle through the Canyon.

I have no objection's to the road, as long as it doesn't interfere with the rights of other's.

Thank You

Sincerely,

Morgan Robertson

MORGAN ROBERTSON

97

Response 97-2
The right to trail cattle in the canyon would not be affected; see Section 3.8.

Letter #99

January 31, 2002

Linda L. Jackson
Public Affairs Officer
Fishlake National Forest
115 East 900 North
Richfield, Utah 84701

Dear Kay Erickson:

This letter is in response to the Environmental Impact Statement on the Quitchupah road.

I am 83 years old and I was born and raised right on the Quitchupah ranch. This ranch is located right at the base of the canyon. It is presently owned by the Johnson's. All of my growing up years we herded sheep and cattle in Quitchupah, Convulsion Canyon and across the Water Hollow benches.

After returning from World War II, I was able to obtain the grazing rights on the Saleratus allotment plus the GL Olsen allotment and several State School sections within the Quitchupah drainage which I depend on for a big portion of my living.

I have spent a lifetime in this canyon and feel as though my knowledge of this canyon is as vast as the people who created this EIP. There is not a rock in this canyon that I haven't crawled over. My family has over a 100 years of living in and working in this canyon.

99-1 If by chance this proposed road does go through and it takes the alternative route, it will virtually cut off the only trail off into the Water Hollow Creek from the Water Hollow Benches. Our livestock depend on this creek for water every day, not just on weekends as the EIP suggests. This would make the Water Hollow Benches on the G.L. Olsen allotment useless to us as far as being able to graze this area. This would virtually eliminate all of our spring grazing which would be very costly to our business. We

99-2 depend on this for our livelihood. The only way any proposed route could be feasible would be for the road to be fenced and under passes provided and a trail to and from the summer range. It would be impossible to schedule the fall gathering on weekends and holidays to fit Sufco Mines schedule as is suggested in the EIP. The cattle coming off the summer range will drift off this natural migration route any day of the week they choose. Cattle don't use calendars. This canyon has been used for a driveway to and from the summer range for a lot longer than the Sufco Mine has been in existence. I may be mistaken but I believe that if a driveway has been used for this long uncontested, it becomes a right of way. If we are forced to truck our cattle to and from the summer

99-3 range, the additional costs would be very detrimental to our livestock operations and the actual value of our ranches will depreciate.

99-4 The EIP states several times that in building this road it would create extra expenses for the cattlemen. If they are aware that this is the case, then I believe that the

99

Response 99-1
Mitigation for the G.L. Olson Allotment will be found in Section 2.4 of the FEIS. The road would be fenced and a water system developed to supply troughs out on the bench for the cattle. See Section 3.8 Range Resources.

Response 99-2
A cattle trail would be constructed along 1.5 miles of the western portion of the proposed road where movement is restricted by topography. Livestock would trail outside the fenced road corridor for the remainder of the road, or in the case of Alternative D, along the existing road in Quitchupah Creek canyon.

Response 99-3
The road design was modified to include a fenced cattle trail where needed. Ranchers would not be forced to truck livestock. Trailing would continue normally.

Letter #99

-2-

99-4 cont.

cattlemen should be compensated for the feed and AUMS that would be lost plus the expense of the shipping and the losses that will occur with coal truck and livestock collisions.

99-5

The EIP also states that the noise level in the town of Emery would be moderate. I live a block off main street and the noise that these coal trucks roaring through town has already made it almost impossible to sleep. The coal company is projecting the numbers to multiply several times in the next few years. I really don't think this noise that is being generated from these loaded coal trucks could be defined as moderate. The noise is loud as hell in my house, I can only imagine how the people who live on main street sleep.

99-6

The Quitchupah has been home to me my whole life and this Quitchupah Canyon will be around for a long time yet. I hate to see it permanently scarred by a road that is being built to accommodate a coal company that will only be in existence until their coal supply runs out. Then who will maintain this road? Or will it be abandoned and an ugly scar left to remind everyone of just how much money Sufco Coal made from this and how many cattlement was put out of business.

Sincerely,

Robert E. Anderson

Robert E. Anderson

99

Response 99-4
Costs of mitigation and the livestock facilities would be the responsibility of the proponent. The Sevier County Special Service District would provide loading/unloading/holding facilities for the ranchers trailing livestock along Quitchupah Creek and in Convulsion Canyon. The compensation for livestock involved in collisions with coal trucks or other vehicles would be guided by the open range law of Utah.

Response 99-5
There would be no increase in noise in the town of Emery as a result of the proposed road. The amount of trucks heading north through Emery will continue at current levels.

Response 99-6
The proposed road would be a county road to be paid for by the toll user (SUFCO Mine). It will not be abandoned after the mine is closed. The road will remain open to the public for recreation and travel through the area. Ranchers will have continued access to the allotments in the area. After the closure of the mine, the road would then be maintained by public (county) road funds.

Letter #103

January 31, 2002

Mary C. Erickson
Forest Supervisor
Fishlake National Forest
115 East 900 North
Richfield, UT 84701

RE: Quitchupah Creek Road EIS

Dear Ms. Erickson,

I am a member of several wildlife groups in Utah and one of our main goals is to help the mule deer herds in Utah recover from their present low numbers.

103-1 In the past when deer numbers were at a higher level, the deer that were killed on I-70 between Salina and the Emery turnoff was estimated to be between 450 and 500 deer a year.

Road kill is just one of the factors that adversely affect deer, but is one we need to address. It looks like the Quitchupah Creek Road would eliminate approximately 50 miles of round trip travel for a coal truck going to Emery county. The fewer miles that we can keep these trucks from traveling in deer country the lower chance they will have to kill a deer on the highway.

I am totally in support of building the Quitchupah Creek Road.

Sincerely,

Paul Niemeyer

Paul Niemeyer
Box 954
Richfield, UT 84701

103

Response 103-1
Potential impacts to wildlife species from vehicle collisions are included in the FEIS (See Section 3.5).

Letter #104

January , 2002

Mary C. Erickson
Forest Supervisor
USDA Forest Service
Fishlake National Forest
115 East 900 North
Richfield, UT 84701

RE: Quitchupah Creek Road EIS

Dear Ms. Erickson:

As part of my business, I frequently travel to the SUFCO mine. I support the construction of the Quitchupah Creek Road for the following reasons:

104-1

1. It will provide a shorter route from Emery County to the SUFCO Mine and the Acord Lakes area thus saving time and fuel;
2. Create a lower probability of accidents with passenger vehicles by reducing traffic on I-70 and the Acord Lakes Road;
3. Saves wear and tear on existing highways;
4. Provides alternative route from Emery County to the Salina area, and
5. Employment opportunities at the SUFCO Mine would be more appealing to Carbon and Emery County residents.

We would appreciate your consideration and approval of the proposed Quitchupah Creek Road specifically Water Hollow, Alternative D.

Sincerely,

Address:

N. K. Oldroyd
615 E. 3RD No.
Price, Utah 84501
c/o Dinosaur tire Inc.

104

Response 104-1
Comments noted.

Letter #106

February 6, 2002

Ms. Mary C. Erickson
Forest Supervisor
Fishlake National Forest
115 East 900 North
Richfield, UT 84701

RE: Quitchupah Creek Road EIS

Dear Ms Erickson:

106-1 I am an employee of Canyon Fuel Company, LLC at the Sufco Mine. I regularly travel to Price, Utah as part of my job responsibilities. The road would benefit me personally in less travel time. It would also benefit others that travel to the mine or the Accord Lakes Area from Emery and Carbon counties in a similar manner. The most significant benefit would be to the mine and the trucking companies because of the decreased haul distance. The trucking route to the east would also be safer during the winter months because two icy summits that must be crossed using the present eastern route would be avoided.

I have been intimately involved with the Quitchupah Road since its need was determined almost ten years ago. I personally can see the benefit of the road to the mine, trucking companies, counties and citizens of the area. Although the Water Hollow Alternative costs additional money, I believe it is the best route and support its selection as the preferred alternative for the EIS. This route mitigates the concerns of the private landowners and the Native Americans and still meets most of the needs of the mine and trucking operations. Because of its location away from Quitchupah Creek, sediment load into the creek would be reduced over those alternatives down the canyon along side the creek. It would also avoid known cultural resources sites and allow traditional uses of Quitchupah Canyon. 106-2 A cattle trail should be included in the design of the road on the Forest Service Lands. This trail could be located north of the road with the north side of the road being fenced from Broad Hollow to Water Hollow thus separating the trailing cattle and road traffic.

In summary I strongly support selection of Alternative D, Water Hollow Route as the preferred alternative for the EIS.

Sincerely,

Wesley K. Sorensen

FISHLAKE NATIONAL FOREST
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INTRP

P.O. BOX 195 • SALINA, UTAH • 84654
PHONE: (435) 529-7601

106

Response 106-1
Comment noted.

Response 106-2
A fenced cattle trail would be constructed along 1.5 miles of the western end of the proposed road, where topography restricts trailing options. East of that, livestock would trail outside the fenced road corridor. Livestock trailing would not be impeded by the proposed road.

Letter #146

KATHY BASTIAN
P. O. BOX 394
AURORA, UT 84620

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FEBRUARY 6, 2002

MS. MARY ERICKSON
FOREST SUPERVISOR
FISHLAKE NATIONAL FOREST
115 EAST 900 NORTH
RICHFIELD, UT 84701

RE: QUITCHUPAH ROAD

DEAR MS. ERICKSON:

I AM A SECRETARY AT THE SUFCO MINE. I WOULD LIKE TO EXPRESS MY SUPPORT FOR THE ROAD FROM SUFCO TO EMERY COUNTY. THE WATER HOLLOW ALTERNATIVE WOULD BE THE MOST FAVORABLE ROAD SINCE IT WOULD AVOID DISTURBING THE NATIVE AMERICAN SITES.

146-1

THIS ROAD WOULD LESSEN THE DENSE AMOUNT OF TRAFFIC ON THE CURRENT MINE ACCESS ROAD. IT WOULD ALSO BENEFIT THE EMPLOYEES WHO TRAVEL TO THE MINE FROM EMERY COUNTY BY SAVING THEM SIGNIFICANT TRAVEL TIME. THE ROAD WOULD ALSO BENEFIT THE VENDORS WHO SERVICE THE MINE FROM EMERY AND CARBON COUNTIES. HAULING SUFCO COAL TO THE HUNTER POWER PLANT WOULD ALSO BE SAFER AND SAVE VALUABLE TIME FOR THE TRUCKERS.

I OBVIOUSLY HAVE A VESTED INTEREST IN THE SUCCESS OF SUFCO. SEVIER COUNTY HAS LOST SEVERAL BUSINESSES THIS PAST YEAR THAT CONTRIBUTED TO THE AREA IN EMPLOYMENT, SALES AND PROPERTY TAXES, AND OTHER RELATED BUSINESS CONNECTIONS. SUPPORTING THE BUSINESSES WE HAVE IN SEVIER COUNTY BENEFITS EVERY CITIZEN AS WELL.

HAVING BEEN BORN AND RAISED IN THIS BEAUTIFUL AREA, I MARVEL AT THE WONDERFUL SCENERY WE ENJOY. JUST TAKING A RIDE ON THE WEEKEND AFFORDS US BREATHTAKING VIEWS. WHERE ELSE CAN YOU ENJOY MOUNTAINS, DESERTS, FISHING AND HUNTING ONLY MINUTES FROM YOUR HOME?

OUR AREA RESIDENTS REALIZE THAT WE MUST BE RESPONSIBLE STEWARDS OF THIS GREAT STATE WHILE BEING SUPPORTIVE OF ECONOMIC OPPORTUNITIES FOR BUSINESS DEVELOPMENT AND GROWTH.

THANK YOU FOR YOUR SUPPORT OF OUR AREA AS WELL.

SINCERELY,

Kathy Bastian

KATHY BASTIAN

146

Response 146-1
Comments noted.

Letter #269

Mary C. Erickson
Forest Supervisor
Fishlake National Forest

Jan. 18, 2002

This letter is in regards to the Quitchupah Creek Road.

269-1 I'm in favor of Alternative B or Alternative C, with two modifications. These modifications are, #1 A cattle trail should be built along side the road so that the cattlemen can trail their cattle to and from the Forest Allotments. #2 An ATV trail needs to be incorporated with this cattle trail so that the ATV enthusiasts still have access to the forest. These two trails could and should be together with notices placed on it that the cattle have the right-of-way.

It was said that there is not enough room in the canyon for such a trail and the new road. I say ~~if they can build a dam and a bridge across Glen Can~~yon they can surely build a road and trail up Convulsion Canyon.

269-2 As for Alternative D, why waste money on such an expensive rout. Spend some money on the Native American concerns and help enhance the prehistoric sites.

Ken Christiansen
Ken Christiansen
Emery Stock Growers
P.O. Box 552
Emery, Utah 84522

269

Response 269-1
A fenced cattle trail would be built along 1.5 miles of the western end of the proposed road, where topography restricts trailing options. East of that, livestock would trail outside the fenced road corridor. Livestock trailing would not be impeded by the proposed road.

Response 269-2
The money saved by using a shorter haul route would still be substantial for Alternative D. See Section 3.15, Socioeconomics.

Letter #271

Linda L. Jackson
Public Affairs Officer
Fishlake National Forest
115 East 900 North
Richfield, Utah 84701

January 17, 2002

Linda:

After reading the Quitchupah Creek Road Draft Environmental Impact Statement, rereading parts of it, talking with others and reading the article in the Emery County Progress following your presentation to the county commissioners, I have decided that I am leaning toward the Water Hollow option.

271-1 This option will cost more money, but then that's not the main issue. It will not impact any archaeological sites, and I feel that is important. These sites are hundreds of years old and need to be preserved. We enjoy going to the sites that we know about, looking at them, teaching our children and grandchildren about them. This is part of our heritage and needs to be preserved.

271-2 I would like to see a 4-wheeler/cattle trail go along side the road as it goes on up through the canyon. We enjoy riding this area, using it to go up onto the Old Woman through Jolley Mill, or going on up to the Acord Lake area, my parents have a cabin at Acord Lake and we love going there. We like to travel on over to the Duncan Mountains and then dropping off Link Canyon. We have made these loops on our 4-wheelers many times and for many years.

We also own horses and enjoy riding them and would like to see a corridor open for us to ride up through this canyon.

Access to this area for these forms of recreation needs to be preserved. I don't feel that it would add anything to the cost of building this roadway.

Lanni Stillman

271

Response 271-1
See Cultural Resources Section 3.12. Cultural resource sites are protected under the National Historic Preservation Act and the Archeological Resources Protection Act. Section 106 Regulations 36CFR 800.5 and 800.6 detail the process by which agencies determine whether an undertaking will adversely affect historic properties (NRHP eligible cultural resources) and how agencies consult to avoid, minimize, or mitigate adverse effects.

Response 271-2
There will be no ATV trail beside the proposed road.

A fenced cattle trail would be built along 1.5 miles of the western end of the proposed road, where topography restricts trailing options. East of that, livestock would trail outside the fenced road corridor. The proposed road would not impede livestock trailing.

Letter #272

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January 25, 2002

Mary C. Erickson
Forest Supervisor
USDA Forest Service
Fishlake National Forest
115 East 900 North
Richfield, UT 84701

RE: Quitchupah Creek Road EIS

Dear Ms. Erickson:

As part of my business, I frequently travel to the SUFCO mine. I support the construction of the Quitchupah Creek Road for the following reasons:

272-1

1. It will provide a shorter route from Emery County to the SUFCO Mine and the Acord Lakes area thus saving time and fuel;
2. Create a lower probability of accidents with passenger vehicles by reducing traffic on I-70 and the Acord Lakes Road;
3. Saves wear and tear on existing highways;
4. Provides alternative route from Emery County to the Salina area, and
5. Employment opportunities at the SUFCO Mine would be more appealing to Carbon and Emery County residents.

I would appreciate your consideration and approval of the proposed Quitchupah Creek Road Alternative D (Water Hollow Bench Route).

Sincerely,

Scott Jensen

Scott Jensen, Manager
Gary's Shoes
126 North Main Street
Richfield, UT 84701

272

Response 272-1
Comments noted.

Letter #275

t&c
<volvox@cache.net>
02/05/02 06:21 PM

To: Linda L Jackson/R4/USDAFS <lljackson@fs.fed.us>
cc:
Subject: quitchupah: the story never ends

Hello Linda,

I well used Sunday to better document the historic artifacts along and near the Quitchupah Creek. It is so beautiful and peaceful there. I also took the opportunity to post, on my property, signs reflecting my opinion of this issue (see attached). These too I photographed and distributed via e-mail to various interested and should be interested parties.

275-1 Another look at the DEIS reveals problems with the Grazing Allotments (fig. 3-7). These rights belong to me, not E. Olsen, and are reserved for my use as I see fit. In fact, I have had discussions with local ranchers in an effort to keep unwanted and not permitted livestock off my property. I have arrangements with a nearby rancher for him in my stead to maintain the fences, postings, and utilize the property for our privately held stock.

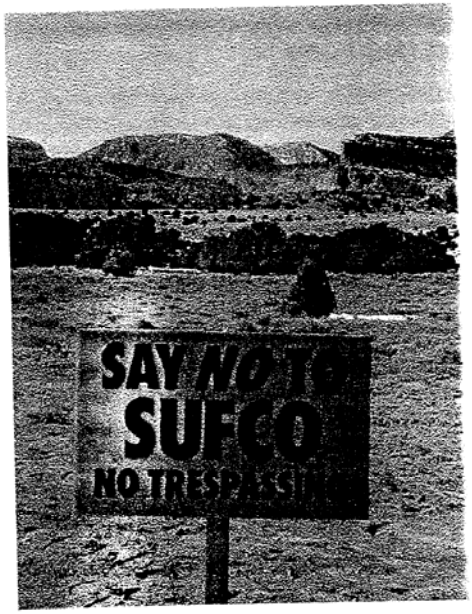
I hope this information is applicable and useful to the EIS.

Sincerely,
Tom

275

Response 275-1
Editorial changes have been made.

Letter #275



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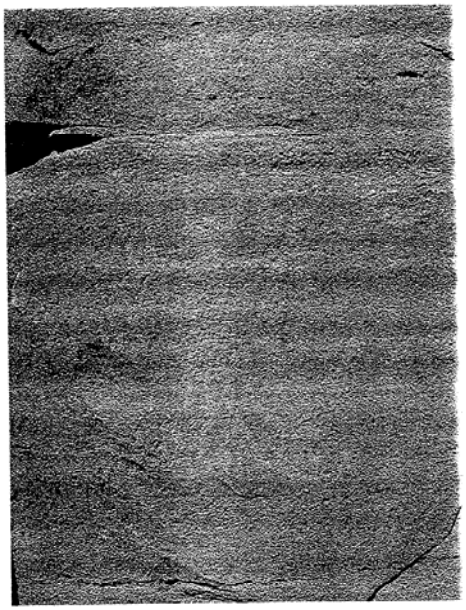
Letter #275



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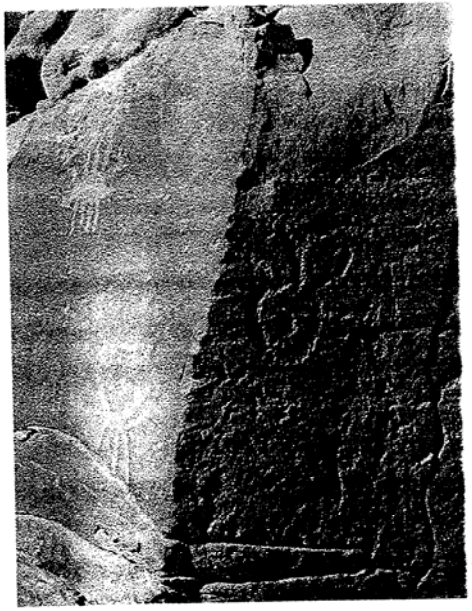
Letter #275



275

Letter #299

2/6/02

To: Linda Jackson
Public Affair Officer
Fishlake Naional Forest

Re: Quitchupah Creek Road

299-1 At the Jan.8,02 Public Lands Council the BLM representative stated that Quitchupah Creek was not used much by A,T.V.s/ Where is the monoriting data to back up this claim?

299-2 You claim there isn't enough room in the upper 2 miles to allow an A.T.V. trail, but a four lane interstate was built through Spotted Wolf.

Geographically, A.T.V. access to the mountain in this area is very limited. We need A.T.V. access in Quitchupah Creek because loop trails are important for A.T.V. trails management.

A.T.V.s are an important part of this areas lifestyle and economy. If anybody knows the economic value of A.T.V.s it is Sevier County. We are not at that stage yet, but we do have the nucleus of a trails system and are hoping to expand it using existing roads and trails.

299-3 You didn't address an Alternative that would by-pass the towns in Emery County. U-10 is overloaded with local traffic. U-10 was not designed and built for this increased truck traffic. How

299-4 None of your Alternatives address the problem of trucks speeding through Emery County towns. scope

Barney and Robinson, alohg with Utah Highway Partol and the Emery County Sheriff Dept. are not enforcing posted speed limits. Fully one half of the empty south bound coal trucks are exceeding the 45 mph speed limit in Ferron by 20mph.

When was the last time you saw an officer pull over a coal truck?

Barney or Bobinson trucking are not controlling their employees.

299-5 You can't destroy historic or prehistoric sites. you can't build a road without fences. A coal haul road in Quitchupah Creek will destroy

(299)

Response 299-1
There are no designated ATV trails in or adjacent to the project area so no data has been collected on ATV use. See Section 3.10 Visual Resources, Recreation, and Wilderness for explanation of current ATV use in Quitchupah Creek.

Response 299-2
A fenced cattle trail would be built along 1.5 miles of the western portion of the proposed road, where topography restricts trailing options. East of that, livestock would trail outside the fenced road corridor. Livestock trailing would not be impeded by the proposed road.

This trail would not be available for ATV use.

Response 299-3
An alternative that included a portal loadout facility in Muddy Creek was considered but is not feasible for the SUFCO Mine because the interior mine coal transport system is aligned west and south away from Link Canyon and Muddy Creek. See Section 2.6.

Response 299-4
Analyzing the potential for speeding trucks is outside the scope of this project.

Response 299-5
Section 106 Regulations 36CFR 800.5 and 800.6 detail the process by which agencies determine whether an undertaking will adversely affect historic properties (NRHP eligible cultural resources) and how agencies consult to avoid, minimize, or mitigate adverse effects. See Section 3.12.

Fences will be constructed. See alternative discussions in Sections 2.2, 2.3, and 2.4.

Letter #299

2

an area that is used for family recreation. Leavitt should build roads not Monuments.

299-6

Your Draft E.S. is totaly based on menetary consideration for SUFCO Mine. It is not right for Sevier County to reap all the positive benefits and Emery County all the negitive.

Until the above is addressed, keep your coal in Seiver County.

Don W. and Bonnie P. Keele
PO Box 217
Ferron, Ut. 84523

299

Response 299-6

The primary purpose of the proposed Quitchupah Creek Road is to ensure the competitive productivity of the SUFCO Mine, as a source of economic stability for Sevier County and a potential source of additional income and revenue for Emery County, as well as provide a source of high quality coal for power plants (See Section 1.1, Purpose and Need).

The Mine is an important component of local economies. The presence and stability of the SUFCO Mine, and the families who support it, guarantee a continued demand in both Sevier and Emery counties for bank loans, mortgages, utilities, and other goods and services. This adds to the economic stability of both counties. See Section 3.15, Socioeconomics.

Letter #301

Linda L. Jackson
Public Affairs Officer
Fishlake National Forest
115 East 900 North
Richfield, UT 84701

February 6, 2002

Dear Ms. Jackson:

I have reviewed the DEIS for Quitchupah Creek Road and have reached the following conclusions on specific topics addressed by the DEIS:

301-1

Geology; minimal differences between Alternatives B, C, and D;
Air Quality: minimal differences between Alternatives B, C, and D;
Noise; minimal differences between Alternatives B, C, and D;
Water Quality: given the vertical relief of all the terrain in this area, it is unlikely that the change in water quality could be quantified after the construction on any alternative;
Wildlife; minimal differences between Alternatives B, C, and D;
Land Use; Alternate D preferred;
Visual; Alternate D preferred;
Cultural; Alternate D preferred;
Native American; Alternate D preferred;
Private Land Owners; Alternate D preferred;
UDOT Impact; minimal, comparing removing 6 miles of SR-10 from the coal haul to 10 miles;
Cost to SUFCO; Alternates B or C preferred.

Given that alternates B, C and D will meet the Purpose and Need, it appears that the Water Canyon route, Alternate D, provides the least impact to archaeologic sites and private interests. I suggest that when public goodwill is given the same weight as large industry, Alternate D is the preferred alternative.

Sincerely,

Fred S. Jenkins, P.E.

Fred S. Jenkins, P.E.
880 North 200 East
Price, UT 84501

301

Response 301-1

The final EIS includes discussions using several ways to contrast alternatives in regard to water resources. These include: number of stream crossings, risk of culvert failure, and proximity of road to perennial stream reaches. Many of the BMPs, applicant-committed measures, agency-committed measures, and general construction/design components of proposed project are similar for all alternatives. Thus, in regard to water resources, impact comparison among alternatives is primarily a function of the alignment-specific details listed above.

Letter #340

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COPY TO BE SENT TO
REMARKS:

Ms. Linda Jackson
Public Lands Officer
Fishlake national forest
115 east 900 north
Richfield Utah 84701

Comments on Quitchpah canyon,

Ms, Jackson,

I appreciate the opportunity to express my opinion on the proposed quitchpah road construction. I want to express that in my opinion option A is the only option.Please allow me to state my case.

340-1 #1. Sufco mine has flatly stated (In the proposal book) That they are going to produce up to eight and a half million tons of coal a year irregardless,If they get a shorter route they will make more money, But they will still make alot of money without it (the road). EMPLOYMENT IS NOT AFFECTED!!!

340-2 #2. Near the bottom of convulsion canyon is a set of ancient petroglyphs and pictographs, This camp was thought to be a major migration camp for anywhere from 2500 to 6000 years. The Anazazi,the desert culture,the fremont and the shoshone ute are all thought to have used this particular camp regularly.Options B and option C would definitely place an unacceptable impact on this site.To desecrate this site I believe would be not only an act of ignorance but criminal!

340-3 #3.On option D (Which is the best of the worst)Meaning most acceptable if the money and the power behind this project areoverwhelming and option a is realy not an option. A large wintering herd of both deer and elk use this bench (Water hollow)Heavy coal truck traffic would undoubtably raise havoc and the mortality of wintering animals would be unbelievable.(But animals can someday rebuild a herd, The indian sites once they are gone will be gone forever).I don't believe there has been any archaeological sites of any real significance, But there has been some and given the known heavy use of this area by the ancients and the little explored area I believe a real professional review and study of the area would be in order.

340-4

340-5 #4. Option E. Yes you read this right. One option that should be looked at very seriously is the use of a conveyor belt.Conveyor belts can be very enviromentally friendly,(leaving no permanent scarring on the land and as animals learn quite

340

Response 340-1
The SUFCO Mine was Utah's largest coal producer in 2004. SUFCO and dependant trucking companies provided 20 percent of the non-farm employment and 28 percent of the personal income in Sevier County in 2002. The mine is an important component of local economies. The presence and stability of the SUFCO Mine, and the families that support it, guarantee a continued demand in both Sevier and Emery counties for bank loans, mortgages, utilities, and other goods and services. This adds to the economic stability of both counties. See Section 3.15 Socioeconomic Resources.

Response 340-2
The alignment for Alternative B, Quitchupah Creek Road, and Alternative C, Alternate Junction, was shifted south about 250 feet. This alignment would place the proposed road about 300 feet away and across the creek from the rock art panels. The new alignment would also avoid impacting known cultural sites in that area located within the previous alignment. No additional cultural resource sites would be impacted by this reroute.

The existing road routed between the creek and the panels would be blocked and not used for access. This would tend to limit access for casual visitors.

This modification to Alternatives B&C will preclude the direct impacts of a busy public road next to the rock art sites.

Response 340-3
The design of Alternative D in the FEIS includes fences along the road to mitigate the impact of the proposed road across the benches. See Section 2.4 and Section 3.5.

Response 340-4
A cultural resource inventory (Billat and Crosland, 2001) was conducted on the Water Hollow route (Alternative D). The proposed right-of-way corridor was routed to avoid cultural resource sites. See Section 3.12.

Letter #340

340-5 cont.

340-6

rapidly to adjust to the low noise.)I looks to me that the only reason Sufco would not want a conveyor belt is they would actually have to pay for its installation and maintenance. The options on the road, Sufco has someone else flipping the bill. They are wanting to do this on the cheap. Which is understandable from their perspective, But as a tax payer is unnacceptable.Conveyor belts are feasable and if they say different,
they are only attempting to spin the story to their own benefit.

In summing up my statement I would like to say please let's be very careful in what we do right now. Posterity will hold us accountable for any mistakes we make.The Quitchpah road is not needed!Seveir County does not want to build it up to udot standards.

Larry D. Brown

Larry Brown
p.o.box 221 Orangeville Utah
84537

Feb. 8 2002

340

Response 340-5
The terrain below the mine is too steep for a conveyor system, see Section 2.6. A portal loadout facility in Muddy Creek is not feasible for the SUFCO Mine because the interior mine coal transport system is aligned west and south away from Link Canyon and Muddy Creek.

Response 340-6
See Section 2.2 Alternative B. The proposed road would be built to AASHTO and UDOT standards.

Letter #349

January , 2002

FISHLAKE NATIONAL FOREST
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Mary C. Erickson
Forest Supervisor
USDA Forest Service
Fishlake National Forest
115 East 900 North
Richfield, UT 84701

RE: Quitchupah Creek Road EIS

Dear Ms. Erickson:

As part of my business, I frequently travel to the SUFCO mine. I support the construction of the Quitchupah Creek Road for the following reasons:

349-1

1. It will provide a shorter route from Emery County to the SUFCO Mine and the Acord Lakes area thus saving time and fuel;
2. Create a lower probability of accidents with passenger vehicles by reducing traffic on I-70 and the Acord Lakes Road;
3. Saves wear and tear on existing highways;
4. Provides alternative route from Emery County to the Salina area, and
5. Employment opportunities at the SUFCO Mine would be more appealing to Carbon and Emery County residents.

We would appreciate your consideration and approval of the proposed Quitchupah Creek Road specifically Water Hollow, Alternative D.

Sincerely, Michael U Jeukes

Address:

Box 216
Orangeville, Ut 84537
Michael U Jeukes.

349

Response 349-1
Comments noted.

Letter #372

February 11 2002

Zanpher Farrer
pobox 46 350 south main
Orangeville Utah
84537

Linda Jackson
public affairs officer
Fishlake National Forest
115 east 900 north
Richfield Utah 84701

In Regards to the survey on the proposed coal haul route in quitchpah canyon I want to voice my firm opposal to this project. I am a native american a proud member of the sheshone tribe. But my mother is Ute. And many members of my family are Ute, So you see this project is personal to me, Being that many of the Archaelogical sites in this particular canyon are of the sheshone ute cultures. Most of the sites in the nearby San Rafael are of the fremont or the desert cultures. Shoshone ute are much rarer in this area. Although we know this area was a very important and vital area to my people.

372-1 I find it very hard to believe that in this day and age that the federal government would even consider placing this kind of heavy impact, and damaging who knows how much priceless history. It should be so obvious to anyone that the main writings from the ancient ones in the canyon are truly significant. This camp was used for thousands of years by all the different tribes that were in this area. And they left their markings on the wall. I believe this indeed is a sacred place.

372-2 So option A to me is the only option. Option d is much better than b or c but without an extensive environmental impact study. And an extensive search for all unknown significant archalegical sites in the area option d should not be considered either. Please realize how special this canyon is, How one can touch the past, the solitude of the canyon today with the silence only broken by the occasional scream of a red hawk, or call of a blue jay as one ponders to oneself of how it must have been to the ancient ones that left their marks on the walls.

Sincerely,

Zanpher Farrer
Shoshone tribal member

Zanpher Farrer

372

Response 372-1
Cultural resource sites are protected under the National Historic Preservation Act and the Archeological Resources Protection Act. Section 106 Regulations 36CFR 800.5 and 800.6 detail the process by which agencies determine whether an undertaking will adversely affect historic properties (NRHP eligible cultural resources) and how agencies consult to avoid, minimize, or mitigate adverse effects. Consultation with tribal representatives (Paiute, Hopi, and Ute) is on-going. The Paiute and Ute tribes have accepted consulting party status and would assist in determining mitigation measures for impacts to cultural resource sites and Native American concerns.

Response 372-2
All of the proposed alternatives are analyzed in the EIS. A cultural resource inventory (Billat and Crosland, 2001) was conducted on the Water Hollow route (Alternative D); see Section 3.12. The proposed right-of-way corridor for Alternative D was routed to avoid cultural resource sites.

Letter #378

03/19/02 TUE 11:15 FAX 801 896 9347 FISH LAKE NTL. FOREST 004

Don Jamison
155 E. 100 S.
Venice, Ut. 84701 9392

Fishlake National Forest
Supervisor's Office
115E. 900 N.
Richfield, Ut. 84701

Attn: Linda Jackson
Subject: Quitchumpah Creek Rd. (SUFCO MINE)

Dear Linda;

378-1 I fully support proper planning and care for our precious resources. I also fully support using the resources we have in a thoughtful and conservative way. I do not believe it is in the best interest for anyone or anything for us not to proceed with this road which would contribute so much in savings and safety.

I therefore support having this road developed.

Thank You
Don Jamison

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378

Response 378-1
Comments noted.

Letter #379

03/19/02 TUE 11:16 FAX 801 896 9347 FISH LAKE NTL. FOREST 005

P.O. Box 3
Orangeville, UT 84537
Feb. 19, 2002

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REMARKS Quitchupah Creek Rd.

Linda L. Jackson, P.A.O
Fishlake National Forest
Richfield, UT 84701

Dear Mr. Jackson:

Regarding the road from the mine down Sevier County proposed originally on the Quitchupah Creek Rd. what follows is what seems right to me.

379-1 Neither Alternatives B or C seem right to me because of the archeological remains and Native American concerns there. Alternative D seems to be a waste of money since it wouldn't give much better advantage to access the mine, though I believe nothing should be done (Alternative A) unless they can come up with a

379-2 route that does not have the above serious problems, or others. A route that would enter Hwy 10 further north would be better.

I can imagine a reason for proposing D but that reason isn't given.

Sincerely,
Paula Helling

379

Response 379-1
Section 106 Regulations 36CFR 800.5 and 800.6 detail the process by which agencies determine whether an undertaking will adversely affect historic properties (NRHP eligible cultural resources) and how agencies consult to avoid, minimize, or mitigate adverse effects. See Section 3.12 for cultural resources and Section 3.13 for Native American Concerns.

Response 379-2
Alternative C does provide a junction with SR-10 further north than Quitchupah Creek. See Section 2.5 Other Scenarios Considered But Eliminated From Detailed Study.

Letter #393

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Linda Jackson
Public Affairs Officer
Fishlake National Forest
115 E. 900 N.
Richfield, UT 84701

Dear Linda,

This letter is in regards to the EIS documents that were compiled to discuss several proposals made to pave a short cut road from the SUFCO mine to Highway 10. Although two of these proposals involve property owned by myself and Thomas Bunn, I would like this letter to be more than just a "not in my own back yard" view point.

I am a native Utahn born in Sevier County. Although most of my life has been spent north of Sevier County, the deserts of Utah have become the place where I truly belong. I understand why the citizens of Sevier County want to accommodate the SUFCO mine as it employs many from the county. But does this new road bring in any new revenue or jobs? As an ordinary citizen I cannot understand why Sevier County is in favor of this road. It is true that the coal will be delivered sooner to the power plant, but won't that only mean the mine itself will be played out sooner? If the amount of coal is a finite number, eventually Sevier County will be left with the upkeep on a road that will not be bringing in revenue, only taking it away. It would seem to me that the money spent for the proposed road would be better spent addressing new forms of clean energy and jobs for our progeny. The road is very short-sighted and not for the common good of the Citizens of Sevier County.

Of course much could be written about how this new road would affect the flora and fauna and destroy the ancient artifacts, but I will leave those writings for the experts. As a Utahn who loves the undisturbed desert, I am opposed to Proposal B, C and D. The only proposal that will serve the common good of all Utah citizens is A, "no action" and this is the only proposal in this EIS document that I am in favor of.

Sincerely,

Carolee Hammel 2-23-02

Carolee Hammel
88 West 500 South
Wellsville, UT 84339

393

393-1

393-2

392-3

Response 393-1
See Section 3.15 in the FEIS for socioeconomic impacts of the proposed road.

Response 393-2
The coal from SUFCO Mine is high quality and low sulphur and should be used in existing coal-fired power generation to lower emissions.

Response 393-3
Comment noted.

Letter #395

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January 27, 2002

Mary C. Erickson
Forest Supervisor
USDA Forest Service
Fishlake National Forest
115 East 900 North
Richfield, UT 84701

RE: Quitchupah Creek Road EIS

Dear Ms. Erickson:

395-1 Although, the construction of the Quitchupah Creek Road would not effect my current route to work, it does have the potential to relieve some of the congestion on the Acord Lakes Road. In addition, the road would provide an alternative route for emergency vehicles and an alternative route from the SUFCO mine if there were an emergency or accident on the Acord Lakes Road. As an employee at the SUFCO mine, I appreciate the advantages the construction of this road would provide and am in favor of the development of the Quitchupah Creek Road (Alternative D).

Thank you for your time and consideration of this letter.

Sincerely,

J. Rick McEwen

Address:

J. Rick McEwen
475 west 600 So.
Richfield Ut.
84701

395

Response 395-1
Comments noted.

Letter #399

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COMMENTS AND RECOMMENDATIONS
David Sucec

QUITCHUPAH CREEK ROAD PROJECT DRAFT
ENVIRONMENTAL IMPACT STATEMENT

After reviewing the Draft EIS and some early correspondence from SUFCO to the private land owners in Quitchupah, attending a couple of hearings, and talking with SUFCO's representative, it is apparent to me that the road SUFCO is requesting is not critical and certainly not worth its costs to the public lands, the wildlife and the cultural resources.

Therefore, I ask that you choose Alternative A, No Action.

As I understand the proposal, SUFCO is asking for a permit(s) to sacrifice a canyon, some of its wild and domestic life and degrade and destroy some irreplaceable and significant prehistoric panels of rock art just so that they can increase their profit.

If SUFCO does not get a new road, their only consequence is that their profit margin will not be quite as generous...they will still turn a profit under the no action alternative.

While the DEIS seems to present SUFCO interests in detail, I feel that it does not address some critical issues adequately—issues that should be fully considered in making your choice of Alternatives.

SOCIOECONOMIC

399-1 Under all alternatives, the DEIS lists a key socioeconomic issue to be an increase in mine production, employment and revenues (presumably for SUFCO) with increased economic stimulus for Emery County.

However, the economic reality is that SUFCO's good fortune comes at the expense of Emery County—the coal mines, miners, and truckers as well as its tax base from the loss of the Hunter contract. There is a chance in the future that Carbon County mines may also lose market share to SUFCO. Even SUFCO's considerable projected savings in fuel costs (an admirable goal) would result in a loss of income to fuel distributors and truckers as well as taxes.

Because it is only a matter of a few decades until the coal seams are exhausted, short-term economic schemes, such as SUFCO's, must be closely questioned when they result in the destruction of the long-term cultural and economic benefits. Benefits that may well be sustained over hundreds of years if the natural resources and rock art are protected (Fremont Indian State Park had more than 94,000 visitors in year 2000).

399

Response 399-1

The SUFCO Mine was Utah's largest coal producer in 2004. The mine is an important component of local economies. The presence and stability of the SUFCO Mine, and the families that support it, guarantee a continued demand in both Sevier and Emery counties for bank loans, mortgages, utilities, and other goods and services. This adds to the economic stability of both counties. There is assertion that it would be an economic stimulus for Emery County since there is an anticipated need for truck service in Emery due to the proximity to the SUFCO Mine. See Section 3.15 of the FEIS.

Letter #399

399-2

TRANSPORTATION

Regardless of which Alternative is selected, the drivers using SR-10 in Emery County will have to further suffer the inconvenience of the heavy two-trailer truck two-way traffic. And, as indicated in the DEIS, the wear and tear from the increased and frequent heavy trucks (43 tons filled) will necessitate a significant upgrade of SR-10.

Rather than spend the money to build a destructive new road to facilitate SUFCO's coal trucks and profit increase, the better solution would be to upgrade and add truck lanes to SR-10 from Fremont Junction at I-70 to the turnoff for the load out near Wellington. This would allow citizens a less stressful drive on SR-10 and, since the road is already established, would result in far less damage to the environmental and cultural resources.

SUFCO should not ask the citizens of Utah to pay for the upgrade and lane addition because the road-work would be for SUFCO's economic benefit and are required because of the heavy impact of their coal haul trucks. SUFCO should provide the funding (tolls) for the upgrade, addition and maintenance of SR-10 (as they do for the Acords Lake road and will do for the proposed roads).

399-3

WILDLIFE RESOURCES

The DEIS indicates that each road alternative will impact wildlife and domestic livestock beginning with the construction and continuing for the life of the road with truck–wildlife encounters.

A major wildlife concern, not addressed in the DEIS, is the fragmentation of the large mammal habitat by the Quitchupah or the Water Hollow roads. The Wasatch Plateau has already been carved into smaller sections by the Huntington Canyon coal haul road (SR-31), the Joe's Valley Road (SR-29), and the Ferron Canyon Road (FR-701/022).

A heavy traffic road in Quitchupah (Alternatives B and C) would create an imposing physical and noise barrier, 24 hours a day, 250 days a year—seriously fragmenting the habitat of large mammals (elk, deer, moose, bear and mountain lion) from I-70 to Ferron Canyon Road by about 40 %. The Water Hollow Road (Alternative D) would result in less fragmentation (about 20%) but will result, as indicated by the DEIS, in even greater numbers of truck/wildlife and livestock encounters.

The narrow range of benefits, for a very few, does not justify the loss of vital habitat, critical and high value winter and summer range for elk and deer, the disruption of raptor nesting, certain deaths of all species from truck encounters, and the threats to unknown and known threatened and sensitive species such as the leatherside chub and the flannelmouth sucker.

2 399

Response 399-2

Under all the alternatives SR-10 will need an upgrade to facilitate continued public use and truck traffic, but the build alternatives remove the impact of coal truck traffic on the south portion of SR-10. SR-10 is under the authority of UDOT and they would decide how to upgrade SR-10 and whether to add truck lanes. The SR-10 project would be a separate project from the proposed road.

Response 399-3

We have reviewed the EPA document on highway development and refer to it in the revised sections of the FEIS to better reflect the barrier and fragmentation potential of the proposed road. The revision will be in the context that due to the poor quality soils in the project area and the sparseness of the vegetation most of the habitats would be classified as low quality. The revision discusses the effects of noise in confined sites, the frequency of truck traffic, the human activity, and the physical barrier the road may be in the ecosystem.

Ambient or background noise levels along the proposed haul road and SR10 are typical for outdoor and rural locations. As stated in the DEIS, additional noise from construction and haul truck activity associated with the proposed action will impact area near the haul truck route. Noise levels of outdoor and rural areas of 35 and 56 dBA were measured, respectfully. Future noise level estimates of 60 and 74dBA were noted in the DEIS.

Noise pollution=s effects on wildlife is not well studied, but recent research from the U.S. Air Force and U.S. Department of the Interior, relates given noise levels to the effects on certain types of animals. The most relevant published noise effects on animals are listed below:

Noise Source	Noise Level	Subjective Description
Pronghorn	77 dBA	Escape and Running
Various species	132 dBA	Anxiety-like behavior
Rats, rodents	105 dBA (continuous)	Hearing loss;
	95 dBA	Suppressed thyroid activity
Mouse	110 dBA (intermittent)	decreased in circulating eosinophils; adrenal activation
	105 dB(continuous)	longer time intervals between litters; miscarriages, lower weight gain

While none of these limited studies relate directed to the study area, pronghorn behavior with 77 dBA are directly effected by noise levels of that magnitude. Similar results can be assumed to occur for large game animals indigenous to the canyon area.

The noise section addresses canyon walls inasmuch as saying, noise levels will likely double 200 meters away, where haul truck noise is allowed to dissipate in all directions. Further, AAn increase in these predicted levels would be experienced is noise is prohibited ... such as, having a canyon wall immediately to one side of the haul road.@

Letter #399

399-4

CULTURAL RESOURCES

While the DEIS represents the Native American relationship with the cultural and natural resources (all strongly against any degradation), it is less adequate in its description and discussion of the prehistoric rock art, particularly the North Fork site.

The North Fork rock art site centers on the large outcropping at the junction of North Fork and Quitchupah Creek. The site area also includes the West Point site (across North Fork runoff, up canyon) and extends, along the rock wall north of the creek, about 300 yards down canyon, to the Ghost Figure site.

The North Fork site is a major rock art outdoor museum in the area and one of the most important multi-cultural sites in Utah. A unique rock art site, images are found on three sides of the outcropping. Also unusual for Utah rock art, the major panel of prehistoric images is on north side and were mostly created in variations of Archaic period forms, particularly the Barrier Canyon and Glen Canyon Linear styles. Both ancient styles, the Barrier Canyon style may be Utah's longest-lived image-making style (ca. 5,600 BCE – CE 300).

The most typical Fremont images appear on the south facing walls. There are a smaller number of pecked and painted or drawn images in the Ute and, perhaps, Paiute styles—although there are some images, whose style is atypical, that could very well be from their hands.

Another unusual feature of this site is a few pecked and painted figures that are defined with elements from different styles (Barrier Canyon – Fremont). These mixed-style, or transitional, figures may well prove to be critical in tracing the transformation of a people from hunting and gathering to a more settled lifeway.

Judging from the style and levels of image repatination (a more recent pecking is dated 1903), the Quitchupah Creek North Fork site may have been a repository for sacred images for, conservatively, four or five thousand years. And, indeed, Southern Paiute and Ute bands maintain that Quitchupah Creek is still a sacred place for them, with specific reference to the rock art.

The DEIS indicates that North Fork is marked as a pullout site during the construction of the proposed road. Considering the expanse of the North Fork site, a pullout, with parking of equipment and deposits of supplies, would severely degrade the environment of the site. The construction vibrations and blasting would threaten the rock art site (particularly the West End of the outcropping that is unstable).

The proposed road would, most likely, destroy the Ghost Figure ridge and its two or three panels. In addition, it has been reported that two additional red ghost figures have been covered over by the present road that cuts across the ridge. It is likely these two figures can be recovered if the present road is rerouted or deconstructed.

Although the DEIS does acknowledge the certain possibility of increased vandalism because of the easier access the proposed road would provide; it does not address the serious

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Response 399-4

The North Fork rock art site, as well as other cultural resource sites in the area, have been further detailed and analyzed in the FEIS. The North Fork site represents several cultural periods. The text in Section 3.12 regarding the cultural resources within the project area has been expanded to better describe the uniqueness and significance of the sites, as well as possible impacts, including secondary impacts, to cultural resource sites. The realignment of the proposed road in the area of the rock art sites now precludes the North Fork site area as a pullout during construction.

The proposed alignment for Alternative B, Quitchupah Creek Road, and Alternative C, Alternate Junction, was shifted south about 250 feet. This alignment would place the proposed road about 300 feet away and across the creek from the panels. The new alignment would also avoid impacting known cultural sites located within the previous alignment.

The existing road routed between the creek and the panels would be blocked and not used for access. This would tend to limit access for casual visitors. This modification to Alternatives B&C would preclude the direct impacts of a busy public road next to the rock art site.

Vibrations due to construction activities, blasting, and coal truck traffic would not adversely affect the cultural resource sites, specifically the rock art sites. The proposed road route was realigned about 300 feet away from the rock art complex. Rock art and structural cultural resources are the site types potentially most susceptible to impacts from minimal movement/damage that could possibly lead to structural failure and loss of the resource. As presented in the BLM Handbook H-3150, illustration 10, the BLM has determined that peak velocities at the base of standing cultural structures and rock art should not exceed 0.75 inches per second. The BLM's distance of set-back, for example, is 205 feet for a 10 lb charge buried 10 feet. The set-back for a 10 lb charge at the surface increases to 1,013 feet. There are no proposed blasting areas within 1,200 feet of the rock art complex. BLM guidelines for blasting set-backs would be utilized.

Normal environmental conditions to which these resources are subjected on a daily basis and which cause similar effects include wind, temperature changes, humidity changes, and vibrations from aircraft and vehicles. Failures of prehistoric structures and rock art occur as natural events a function of ever-present forces of erosion and decay. Precipitation combined with freeze-thaw cycles and other natural processes can impact the stability of these sites.

Dust from road construction would be suppressed through use of water or an approved dust suppressant. There is no conclusive evidence that emissions would impact the rock art.

Letter #399

399-4 cont.

consequences of the heavy truck traffic will have for the rock art images.

A very significant threat to the rock art, although not addressed in the DEIS, is the oily diesel exhaust and coal dust blow-off, which would settle on the surface of the rock art panels.

Given the heavy truck traffic (1000 plus trips every 24 hours, 250 days a year) and the close proximity of the road to the rock art (survey stakes within 35 feet of the outcropping); it is absurd to imagine that the rock art images would not suffer from fallout.

Art conservators have known, for half a century, that many granite and marble monuments are seriously degraded from the effects of smog, airborne particles, and in a surprisingly short period of a few decades (since sandstone is much softer than granite, the degradation here could well be quicker). The dissolution of the rock surface cannot be reversed or corrected. Neither would cleaning be possible because of the fragility of the paintings and sandstone surface.

Finally, the environment/atmosphere that is necessary to experience the aesthetics and sacredness of this site must be natural and peaceful—whether the visitor is an admirer of rock art or a Native American pilgrim. The presence of a paved road and the attendant noise and impact of the large trucks would be grossly inappropriate.

Considering how narrow the benefits would be for a very few, how great the loss to a relatively pristine canyon and wildlife population, and the level of degradation and destruction of significant and irreplaceable prehistoric rock art sites (and the diminishing of their long-term cultural and economic value); the appropriate choice is Alternative A, No Action.

Thank you or your consideration.

David Sucec
832 Sego Avenue
Salt Lake City, Utah 84102
801-359-6904
davidsu@slkc.uswest.net

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399

Response 399-4 cont.

Coal truck trailers would be covered and subjected to an air bath after loading to minimize fugitive coal dust. Quantifying air pollution damage is difficult. The damage function is the quantitative relationship relating the influence of a pollutant, such as diesel emissions, on a receptor-like stone. The mathematical form of the damage function depends on whether the ambient air concentration or deposition rate is the measure of pollution and also on the measure of damage, such as surface loss or chemical denudation (Livingston 2002). Air pollution standards are created for human health protection utilizing ambient air quality standards. A measure of deposition rate would be more appropriate in determining the affects on rock art.

Motor vehicles generate three major pollutants: hydrocarbons, nitrogen oxides, and carbon monoxide. Nitrogen oxides are produced from buring fuels, including gasoline and coal. Ground-level ozone is a product of reactions between chemicals that are produced by burning coal, gasoline, other fuels, and chemicals. Vehicles and industries are the major sources of ground-level ozone. Particulate Matter is any type of solid in the air in the form of smoke, dust, and vapors, which can remain suspended for extended periods. Particulates are produced by many sources, including burning of diesel fuels by trucks, fossil fuels, road construction, and industrial processes such as mining. Volatile Organic Compounds (VOCs) are organic chemicals, many of which are hazardous air pollutants. Vehicle emissions are an important source of VOCs. As stated above, these are human health standards which do not apply readily to the damage function. Therefore stating that these emissions/pollutants are within or out of acceptable range does not imply the same in regards to affects to rock art in the area. Sufficient data does not exist and therefore does not appear in the analysis.

Letter #405

RICHFIELD RANGER DISTRICT
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March 1, 2002

Linda L. Jackson
Public Affairs Officer
Fishlake National Forest
115 East 900 North
Richfield, Utah 84701

Subject: Quicthupah Creek Road Draft Environmental Impact Statement

Dear Linda:

I have reviewed the subject document and I appreciate the opportunity to comment on the document.

I did not find any defects in the document and would recommend it be issued as the final EIS.

I recommend Alternative D - Water Hollow Alignment be adopted. Even though it is the more expensive alignment it eliminates the most important problems while still providing significant economic benefits. I will list the major problems I see with the other alternatives.

Alternative B - Quicthupah Creek Road:

405-1 The road will have significant impact on the major rock art panel which is very important to the people of Emery County. The amount of truck traffic using the road and passing so close to the panel will make it very difficult to enjoy the panel.

405-2 The junction with SR 10 will be at the bottom of a very steep hill and will probably cause significant traffic delays.

Alternative C - Alternate Junction with SR 10

The road will have the same impact on the rock art as Alternative B but the junction with SR 10 will be much improved.

Thank you for the opportunity to make these comments.

Kent Petersen
PO Box 935
Ferron, UT 84523

405

Response 405-1
The proposed Alternate B and C road corridor has been realigned in the area of the rock art panels. This new alignment would place the proposed road about 300 feet away and across the creek from the panels. The alignment would also avoid impacting known cultural sites located within the previous alignment. This modification to Alternatives B&C would preclude the direct impacts of a busy public road next to the rock art sites.

Response 405-2
See Section 3.14, Transportation. Currently traffic congestion due to coal trucks is experienced on the Acord Lakes Road and SR-10 at the steep grade on Quitchupah Hill. The proposed road would alleviate traffic congestion on Acord Lakes Road and SR-10 from Fremont Junction to Quitchupah Creek Bridge. The Alternative B junction with SR-10 would include modifications such as turn lanes, expansion of the bridge across Quitchupah Creek, and an acceleration lane up Quitchupah Hill in order to alleviate traffic congestion. Alternative C would alleviate traffic congestion on Quitchupah Hill as it junctions with SR-10 to the north.

Chapter 7

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Chapter 8

Glossary

8.0 GLOSSARY

Action: All activities or programs of any kind authorized, funded or carried out, in whole or in part, by Federal agencies in the United States or upon the high seas. An action includes the granting of permits, contracts, or leases.

Action Area: All areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action.

Affected Environment: Surface resources (including Socioeconomic elements) within or adjacent to a geographic area that could potentially be affected by proposed activities. The environment of the area to be affected by the Alternatives under consideration.

Air Quality Classes: Classifications established under the Prevention of Significant Deterioration portion of the Clean Air Act that limits the amount of air pollution considered significant within an area. Class I applies to areas where almost any change in air quality would be significant, Class II applies to areas where the deterioration normally accompanying moderate, well-controlled growth would be permitted, and Class III applies to areas where industrial deterioration would generally be allowed.

Airshed: A volume of air defined by geographical boundaries.

Alignment: The specific, surveyed route of the road.

Alluvial Material: Material transported and deposited by running water in riverbeds, lakes, alluvial fans and valleys. Includes clay, silt, sand, gravel, and mud.

Alternative: A combination of management prescriptions applied in specific amounts and locations to achieve a desired management emphasis as expressed in goals and objectives. One of several policies, plans, or projects proposed for decision making. One Alternative need not substitute for another in all respects.

Analysis Area: A delineated area of land subject to analysis.

Animal Unit Month: The amount of forage necessary to sustain one cow and one calf or its equivalent for one month.

Applicant Committed Measures: Steps planned or taken toward the accomplishment of a purpose.

Aquatic Ecosystem: All organisms in a water-based community plus the associated environmental factors.

Aquatic Wildlife: Animals who live in a water-based ecosystem.

Aquifer: A layer of geologic material that contains water.

Attainment Area: An airshed or volume of air defined primarily by geographical boundaries in which the concentrations of criteria pollutants do not exceed the National Ambient Air Quality Standards.

Average Annual Daily Traffic: The total volume passing a point or segment of a highway facility, in both directions, for one year, divided by the number of days in the year.

Beneficial Effect: A "Beneficial Effect" decision is warranted when a project or activity will substantially improve the habitat or status of a listed species or its habitat.

Best Management Practices: Best management practices (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices. BMPs also include treatment requirements, operating procedures, and practices.

Big Game Winter Range: The area available to and used by big game (large mammals normally managed for sport hunting) through the winter season.

Big Game: Larger species of wildlife that are hunted such as elk, deer, moose, and mountain lion.

Biological Diversity: The diversity or numbers of species that collectively represent the living plants and animals within a local, regional, or continental landscape.

Biological Assessment: Information prepared by or under the direction of the Federal agency concerning listed species that may be present in the action area and the evaluation of potential effects of the action on such species and habitats. The purpose of the biological assessment is to evaluate the potential effects of the action on listed or proposed species or designated or proposed critical habitat, and determine whether any such species and habitats are likely to be adversely affected by the action. Biological Assessments are conducted for major Federal construction projects requiring an EIS.

Biological Evaluation: A documented Forest Service activities in sufficient detail to determine how an action or Proposed Action may affect any threatened, endangered, proposed, or sensitive species.

Biological Opinion: An official report by the USFWS or National Marine Fisheries Service (NMFS) issued in response to a formal Forest Service request for consultation or conference. It states whether an action is likely to result in jeopardy to a listed species or adverse modification of its critical habitat.

Biotic Condition Index: Relative values of a biological community based on a comparison of the observed to an “expected” community at the area of interest.

Broadcast Seeding: Distribution of seed by a fan or hand spreading.

Browse: That part of the current leaf and twig growth of shrubs, wood vines, and trees available for animal consumption.

Bureau of Land Management: The U.S. Department of the Interior agency responsible for managing most Federal government subsurface minerals. It has surface-management responsibility for Federal lands designated under the Federal Land Policy and Management Act of 1976.

Candidate Species: Any species not yet officially listed but that are undergoing a status review or are proposed for listing according to the *Federal Register* notices published by the Secretary of the Interior or the Secretary of Commerce.

Contrast: The effect of a striking difference in the form, line, color, or texture of an area being viewed.

Colluvial: Consisting of a mixture of soil and angular fragments of rock which have accumulated at the foot and on slopes of mountainsides under the influence of gravity.

Council on Environmental Quality: An advisory council to the President established by the National Environmental Policy Act of 1969. It reviews Federal programs for their affect on the environment, conducts environmental studies, and advises the President on environmental matters.

Critical Habitat: Specific areas within the geographical area occupied by the species on which are found those physical and biological features (1) essential to the conservation of the species; and (2) which may require special management considerations or protection. Critical habitat shall not include the entire geographic area which can be occupied by the threatened and endangered species.

Crucial Habitat: A biological feature that, if lost, would adversely affect the species.

Cultural Resources Inventory: A field inventory designed to locate cultural resource sites within an area.

Cultural Resources Inventory Classes:
Class I - An existing data survey (i.e. file search). This is an inventory of a study area to (1) provide a narrative overview of cultural resources by using existing information; and (2) compile existing cultural resource site record data on which to base the development of the research designs and studies.
Class II - A sampling field inventory designed to locate, from surface and exposed profile indications, all cultural resource sites within a portion of an area so that an estimate can be made of the cultural resources for the entire area.
Class III - An intensive field inventory designed to locate, from surface and exposed profile indicators, all cultural resource sites within a portion of an area.

Cultural Resources: Those fragile and nonrenewable remains of human activity, occupation, or endeavor reflected in districts, sites, structures, buildings, objects, artifacts, ruins, works or art, architecture, and natural features that were of importance in human events.

Cumulative Impact: The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time.

dBA - The sound pressure levels in decibels measured with a frequency weighing network corresponding to the A-scale on a standard sound level meter. The A-scale tends to suppress lower frequency that occur below 1,000 Hz.

Decibels - Units for describing amplitude of sound frequencies to which the human ear is sensitive.

Dispersed Recreation: That portion of outdoor recreation use that occurs outside of developed sites in the unroaded and roadbed Forest environment (i.e., hunting, backpacking, and camping).

Displacement: As applied to wildlife, forced shifts in the patterns of wildlife use either in location or timing of use.

Diversity: (1) The relative abundance of wildlife species, plant species, communities, habitats, or habitat features per unit of area; or (2) The distribution and abundance of different plant and animal communities and species within the area covered by a Land Resource Management Plan (36 CFR Part 219.3).

Duration: The length of time an activity and its impacts will be taking place.

Ecosystem: All organisms in a community plus the associated environmental factors.

Effects (also see Impacts):
Direct Effects - Caused by the action and occur at the same time and place.
Indirect Effects - Caused by the action later in time or farther removed in distance but still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related affects on air and water and other natural systems, including ecosystems.

Endangered Species: Any species in danger of extinction throughout all or a significant portion of its range.

Environmental Analysis: An analysis of Alternative actions and their predictable short and long-term environmental effects that include physical, biological, economic, social, and environmental design factors and their interactions.

Environmental Assessment: A concise public document prepared to provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a FONSI. It includes a brief discussion of the need for the proposal, Alternatives considered, environmental impact of the Proposed Action and Alternatives, and a list of agencies and individuals consulted. Prepared by the responsible Federal agency consistent with 40 CFR 1508.9.

Environmental Impact Statement: A formal public document prepared to analyze the impacts on the environment of the proposed project or action and released for comment and review. An EIS must meet the requirements of NEPA, CEQ guidelines, and directives of the agency responsible for the proposed project or action.

Erosion Hazard: The probability of soil loss resulting from complete removal of vegetation and litter. It is an interpretation based on potential soil loss in relation to tolerance values.

Ephemeral stream. Typically dry, except during direct and short-term response to storm runoff or snowmelt; is not influenced by the water table.

Erosion: (1) The wearing away of the land surface by running water, wind, ice, or other geological agents including such processes as gravitational creep; or (2) Detachment and movement of soil or rock fragments by water, wind, ice, or gravity.

Exotic: Foreign, not native

Exploration: Drilling, excavating, and geological, geophysical or geochemical surveying operations designed to obtain detailed data on the physical and chemical characteristics of Federal coal and its environment including the strata below the Federal coal, overburden, and strata above the Federal coal, and the hydrologic conditions associated with the Federal coal.

Fault: A fracture in bedrock along which there has been vertical and/or horizontal movement caused by differential forces in the earth's crust.

Faulting: Relative displacement of adjacent bedrock along a fracture.

Federal Land Policy and Management Act of 1976: Public Law 94-579 signed by the President on Management October 21, 1976. Established public land policy; to establish guidelines for its administration; to protect for the management, protection, development, and enhancement of the public lands; and for other purposes.

Federal Lands: Lands owned by the United States, without references to how the lands were acquired or what Federal agency administers the land, including surface estate, mineral estate and coal estate, but excluding lands held by the United States in trust for Indians, Aleuts or Eskimos.

Floodplain: The lowland and relatively flat area adjoining inland waters including, at a minimum, that area subject to a one percent or greater chance of flooding in any given year.
Fluvial: A comprehensive term describing river processes.

Forage: All browse and herbaceous foods that are available to grazing/browsing animals.

Forest Service: The agency of the United States Department of Agriculture responsible for managing National Forests and Grasslands under the Multiple Use and Sustained Yield Act of 1960.

Fossil: The remains or traces of an organism or assemblage of organisms that have been preserved by natural processes in the earth's crust exclusive of organisms that have been buried since the beginning of historical time.

Fracture: A crack, joint, fault, or other break in rocks.

Fugitive Dust - Dust particles suspended randomly in the air from road travel, excavation, and other similar types of operations.

Game Species: Any species of wildlife or fish for which seasons and bag limits have been prescribed and that are normally harvested by hunters, trappers, and fishermen under State or Federal laws, codes, and regulations.

Graben: An elongate, relatively depressed crustal unit or block that is bounded by faults on its long sides.

Gradient: The slope (rise/run) of a surface or stream profile.

Habitat Type: An aggregation of all land areas potentially capable of producing similar plan communities at climax.

Habitat: A specific set of physical conditions that surround a single species, a group of species, or a large community. In wildlife management, the major components of habitat are considered to be food, water, cover, and living space.

Human Environment: The factors that include, but are not limited to, biological, physical, social, economic, cultural, and aesthetic factors that interrelate to form the environment.

Impact (See Effects): The effect, influence, alteration, or imprint caused by an action.

Indirect Effects: Secondary effects that occur in locations other than the initial action or significantly later in time.

Intermittent stream. Flows are generally sustained for 6 months or more during the year, and are dry or have very diminished flow seasonally. During a portion of the year, flows are influenced by direct interaction with the water table.

Invertebrate: An animal lacking a spinal column.

Irretrievable: Use or consumption of a resource that is neither renewable nor recoverable for use by future generations.

Irreversible: A primary or secondary impact that limits the future options for a resource.

Key Observation Point: Critical viewpoints that are usually along commonly traveled routes or at other likely observation points.

Landslide: A perceptible downhill sliding or falling of a mass of soil and rock lubricated by moisture or snow.

Leasable Minerals: Minerals acquired only by lease and generally include oil, gas, coal, oil shale, sodium, potassium, phosphate, native asphalt, solid and semi-solid bitumen, and deposits of sulfur.

Lease: A Federal lease, issued under the coal leasing provisions of the mineral leasing laws, which grants the exclusive right to explore for and extract coal. In provisions of this group that also refer to Federal leases for minerals other than coal, the term Federal coal lease may apply.

License to Mine: A license issued under the provisions of 43 CFR Part 3440 to mine coal for domestic use.

Licensee: The holder of an exploration license.

Long-Term: Describes impacts that would occur over a 20-year period or more.

May Affect - Likely to Adversely Affect: A "May Affect - Likely to Adversely Affect" determination is warranted when it is found a project or activity will have effects on a listed species or critical habitat, and those effects are likely to adversely affect listed species or critical habitat.

May Affect - Not Likely to Adversely Affect: A "May Affect - Not Likely to Adversely Affect" determination is warranted when it is found a project or activity will have effects on a listed species or critical habitat, but those effects are not likely to adversely affect listed species or critical habitat.

Mitigation: Includes:
(a) Avoiding the impact altogether by not taking a certain action or parts of an action.
(b) Minimizing impacts by limiting the degree of magnitude of the action and its implementation.
(c) Rectifying the impact of repairing, rehabilitating, or restoring the affected environment.

(d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
(e) Compensating for the impact by replacing or providing substitute resources or environments.

Multiple-Use: Management of the surface and subsurface resources so that they are jointly used in the manner that will best meet the present and future needs of the public without permanent impairment of the productivity of the land or the quality of the environment.

National Environmental Policy Act of 1969: Public Law 91-190. Established environmental policy for the nation. Among other items, NEPA requires Federal agencies to consider environmental values in decision-making processes.

National Forest Management Act: A law passed in 1976 as amendments to the Forest and Rangeland Renewable Resources Planning Act that requires the preparation of Regional and Forest plans and the preparation of regulations to guide that development.

National Forest System: All National Forest Systems lands reserved or withdrawn from the public domain of the United States; all National Forest System lands acquired through purchase, exchange, donation, or other means the National Grasslands and land use projects administered under Title III of the Bankhead-Jones Farm Tenant Act (7 U.S.C. 1010 et seq.); and other lands, waters, or interests therein which are administered by the U.S.D.A. Forest Service or are designated for administration through the U.S.D.A. Forest Service as a part of the system (16 U.S.C. 1609).

National Historic Preservation Act: An act passed in 1966 to establish a program for the preservation of Historic Properties throughout the Nation.

National Register of Historic Places: A listing of architectural, historical, archaeological, and cultural sites of local, state, or national significance established by the Historic Preservation Act of 1966.

No Action Alternative: No action or activity would take place. Another definition is where ongoing programs described within the existing Land Management Plan continue. No decision would be made and no leases would be offered.

No Effect: A "No Effect" determination is warranted when a project or activity will not have any effect on a listed species or its critical habitat.

Non-attainment Area: for any regulated air pollutant, an area for (1) which is shown by monitored data or is calculated by air quality modeling or any other method determined by the administrator to be reliable, to exceed any national standard of ambient air quality for the regulated air pollutant; (2) which is designated as a non-attainment area by the governor; and (3) which is promulgated as a non-attainment area by the administrator.

Noxious Weeds: Rapidly spreading plants that cause a variety of major ecological impacts to both agriculture and wild lands.

Off-Road Vehicle: Any motorized vehicle designed for or capable of cross-country travel on or immediately over land, water, snow, ice, marsh, swampland or other natural terrain. It includes, but is not limited to, four-wheel drive or low-pressure-tire vehicles, motorcycles and related two-wheel vehicles, amphibious machines, ground-effect, air-cushion, or ATVs.

Overstory: The portion of a plant community consisting of the taller plants on the site; the forest or woodland canopy.

Paleontology: The branch of geology concerned with the study of the fossil remains of animal and plant life of past geological periods.

Particulates: Small particles suspended in the air and generally considered pollutants.

Perennial Stream. Flows approximately 90-100 percent of the time; has a significant base flow component derived from groundwater sources.

Prehistoric Site: Archaeologic sites associated with American Indians and usually occurring before contact with Europeans.

Prevention of Significant Deterioration: A classification established to preserve, protect, and enhance the air quality in National Wilderness Preservation System areas in existence prior to August 1977 and other areas of National significance while ensuring economic growth can occur in a manner consistent with the preservation of existing clean air resources. Specific emission limitations and other measures, by class, are detailed in the Clean Air Act (42 U.S.C. 1875, et seq.).

Prime Farmland: Land that is best suited to producing food, feed, forage, fiber, and oilseed crops. It has the soil quality, growing season, and moisture supply needed to economically produce sustained high crop yields if acceptable farming methods are used. Prime farmland produces the highest yields with minimal inputs of energy and money, and farming it result in the least damage to the environment.

Proposed Endangered Species: A taxon which has already been formally proposed to be listed as endangered.

Range Allotment: A designated area of land available for livestock grazing upon which a specified number and kind of livestock may be grazed under an allotment management plan. It is the basic land unit used to facilitate management of the range resource on National Forest System lands administered by the U.S.D.A. Forest Service.

Rare Species: A plan or wildlife species, or subspecies, that is limited to a restricted geographic range or one that occurs sparsely over a wider area.

Reasonably Foreseeable Development Scenario: The prediction of potentially future actions, occurring in within the cumulative assessment area, within a designated period of time.

Reclamation: Returning disturbed lands to a form and productivity that will be ecologically balanced and in conformity with a predetermined land management plan.

Record of Decision: A document separate from, but associated with, an environmental impact statement that publicly and officially discloses the responsible official's decision on the Proposed Action.

Recreation Opportunity Spectrum: Land delineations that identify a variety of recreation experience opportunities in six classes along a continuum from primitive to urban. Each class is defined in terms of natural resource settings, activities and experience opportunities. The six classes are: Urban, Rural,

Roadbed, Natural, Semiprimitive Motorized, Semiprimitive Nonmotorized, and Primitive.
Research Natural Area: An area in a natural condition which exemplifies typical or unique vegetation and associated biotic, soil, geologic, and aquatic features. The area is set aside to preserve a representative sample of an ecological community primarily for scientific and educational purposes.

Residual Adverse Impacts: Those effects remaining after implementation of mitigation measures.

Restore: To bring back landscape to a former or original condition or appearance.

Revegetation: The reestablishment and development of self-sustaining plant cover. On disturbed sites, this normally requires human assistance such as seed bed preparation, reseeding, and mulching.

Riffle: A shallow section of stream with rapid current and a surface broken by gravel, rubble, or boulders.

Right-of-way: An accurately located strip of land with a defined width, point of beginning, and point of ending. It is the area within which the user has authority to conduct operations approved or granted by the landowner in an authorizing document, such as a permit, easement, lease, license, or Memorandum of Understanding.

Riparian: Riparian areas consist of terrestrial and aquatic ecosystems, those lands in a position to directly influence water quality and water resources, whether or not free water is available. This would include all lands in the active flood channel and lands immediately upslope of stream banks. These areas may be associated with lakes, reservoirs, estuaries, potholes, marshes, streams, bogs,, wet meadows, and intermittent or permanent streams where free and unbound water is available.

Roadbed, Natural: A recreation opportunity classification term describing a land area that has been predominately a natural appearing environment with moderate evidence of sights and sounds of humans. Concentration of users is moderate to low. Roads of better than primitive class are usually with 0.5 mile. A broad range of motorized and nonmotorized activity opportunities are available. Management activities, including timber harvest, are present and harmonize with the natural environment.

Roadless: Refers to the absence of roads that have been constructed and maintained by mechanical means to ensure regular and continuous use.

Scenic Quality Classes: The designation (A, B, or C) assigned a scenic quality rating unit to indicate the visual importance or quality of a unit relative to other units within the same physiographic province.

Scoping Process: An early and open public participation process for determining particular issues to be addressed in an environmental document and for identifying the significant issues related to a Proposed Action.

Sensitive Species: Those plant or animal species that are susceptible or vulnerable to activity impacts or habitat alterations.

Significant: An effect that is analyzed in the context of the Proposed Action to determine the importance of the effect either beneficial or adverse. The degree of significance is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment and when the affects on the quality of the human environment are likely to be highly controversial.

Subgrade Strength: The portion of the roadway below the base and surface and its ability to carry loads.
Surface Strength: The portion of the roadway that includes the pavement and base material and its ability to carry loads.

Terrestrial Wildlife: Animals who live in a land-based ecosystem, as opposed to water or air.

Threatened Species: Any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Total Dissolved Solids: Salt or an aggregate of carbonates, bicarbonates, chlorides, sulfates, phosphates, and nitrates of calcium, magnesium, manganese, sodium, potassium, and other cations that form salts that are dissolved or present in water.

Track-out: The particles, such as coal dust, left behind along the road as a truck travels through an area. These particles settle on the truck or are picked up on the tires during loading activities.

Vibration: The simple periodic to-and-fro motion of a body, etc.

Visual Quality Objectives: Based upon variety class, sensitivity level, and distance zone determinations. Each objective describes a different level of acceptable alteration based on aesthetic importance. The degree of alteration is based on contrast with the surrounding landscape.
Preservation: In general, human activities are not detectable to the visitor.
Retention: Human activities are not evident to the casual Forest visitor.
Partial Retention: Human activities may be evident, but must remain subordinate to the characteristic landscape.
Modification: Human activity may dominate the characteristic landscape, but must, at the same time, use naturally established form, line, color, and texture. It should appear as a natural occurrence when viewed in middleground or background.
Maximum Modification: Human activity may dominate the characteristic landscape but should appear as a natural occurrence when viewed as background.
Enhancement: A short-term management alternative that is completed with the express purpose of increasing positive visual variety where little variety now exists.

Visual Resource: The composite of basic terrain, geologic features, water features, vegetative patterns, and land use effects that typify a land unit and influence the visual appeal of the unit.

Visual Resource Management System: The BLM system for evaluating and classifying visual resources. The system uses line, form, color, texture, scale, and space to categorize lands into one of four classes:

Class I: Preservation
Class II: Retention
Class III: Partial Retention
Class IV: Modification

Watershed: An entire area that contributes water to a drainage system or stream.

Wilderness: An area designated by congressional action under the 1964 Wilderness Act. Wilderness is defined as undeveloped Federal land retaining its primeval character and influence without permanent improvements or human habitation.

Wind Erodibility Group: Indicates a soil's susceptibility to wind erosion based upon its particle resistance as described by the percentage of dry soil aggregates larger than 0.033 inches. These values range from 1 to 8 with 1 being the most erodible.

Wetlands: Lands where saturation with water is the primary factor determining the nature of soil development and the kinds of animal and plant communities living under or on it surface.

Chapter 9

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APPENDIX A

LEGAL DESCRIPTIONS OF EACH BUILD ALTERNATIVE

Appendix A

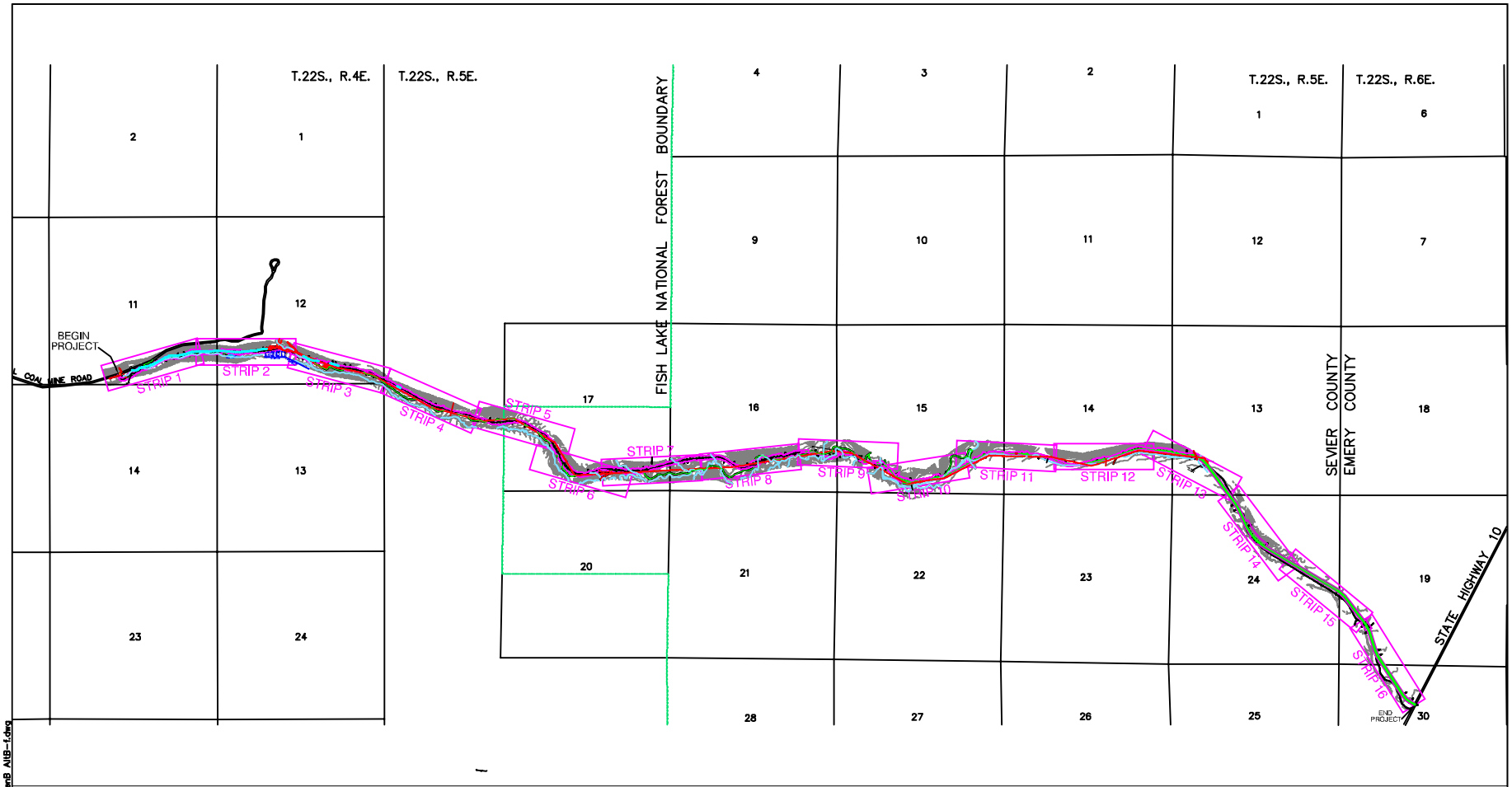
Legal Descriptions
of the Quitchupah Creek Road Project Area

Quitchupah Creek Road Alignment - Alternative B:	
Junction Acord Lakes Road: through: Junction SR 10:	SW1/4 of Section 11, T.22 South, R.4 East, SLBM Section 12, T.22 South, R.4 East, SLBM Sections 18, 17, 16, 15, 14, 13, 24, T.22 South, R.5 East, SLBM Section 19, T.22 South, R.6 East, SLBM NW1/4 of Section 30, T.22 South, R.6 East, SLBM
Alternate Junction and Alternate Design - Alternative C:	
Junction Quitchupah Creek Road: through: Junction SR 10:	SW1/4 of Section 13, T.22 South, R.5 East, SLBM Section 18, T.22 South, R.6 East, SLBM SW1/4 of Section 17, T.22 South, R.6 East, SLBM
Water Hollow Alternate Alignment - Alternative D:	
Junction Quitchupah Creek Road: through: Junction SR10:	SE1/4 of Section 18, T.22 South, R.5 East, SLBM Sections 18, 17, 20, 21, 28 and 33, T.22 South, R.5 East, SLBM Sections 1, 2, 3, 4, T.23 South, R.5 East, SLBM Section 35, T.22 South, R.5 East, SLBM NW1/4 of Section 1, T.23 South, R.5 East, SLBM

APPENDIX B

ENGINEERING DESIGN
AND
BEST MANAGEMENT PRACTICES (BMPs)

Strip Maps



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QUITCHUPAH CREEK ROAD EIS

QUITCHUPAH CREEK ROAD – ALTERNATE B STRIP MAP INDEX

jbr environmental consultants, inc.
Salt Lake City, Utah Cedar City, Utah Reno, Nevada Elko, Nevada

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LM	CP		as shown	1/29/01	6/18/03

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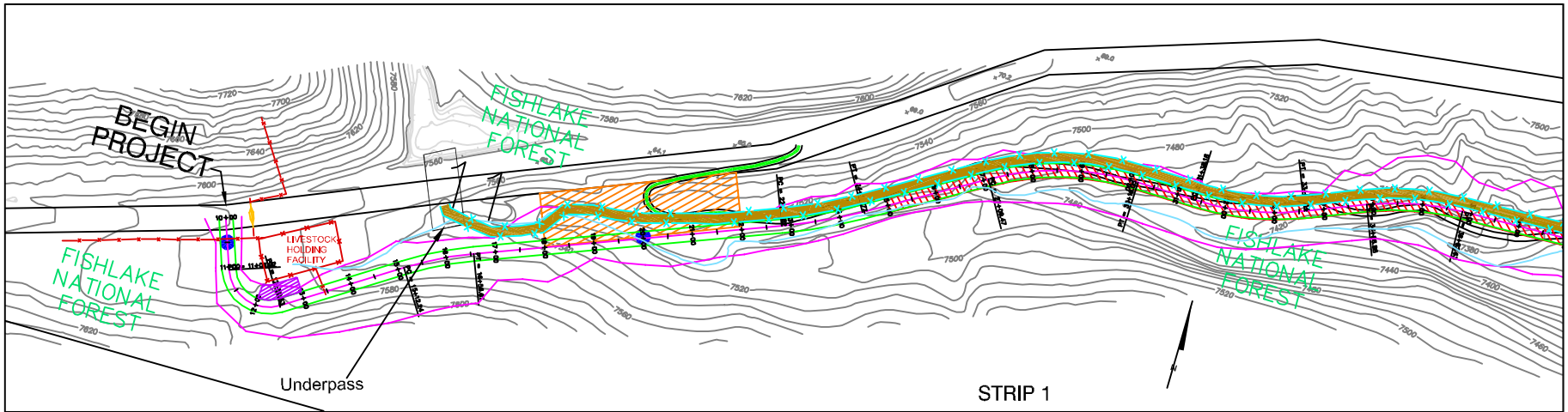

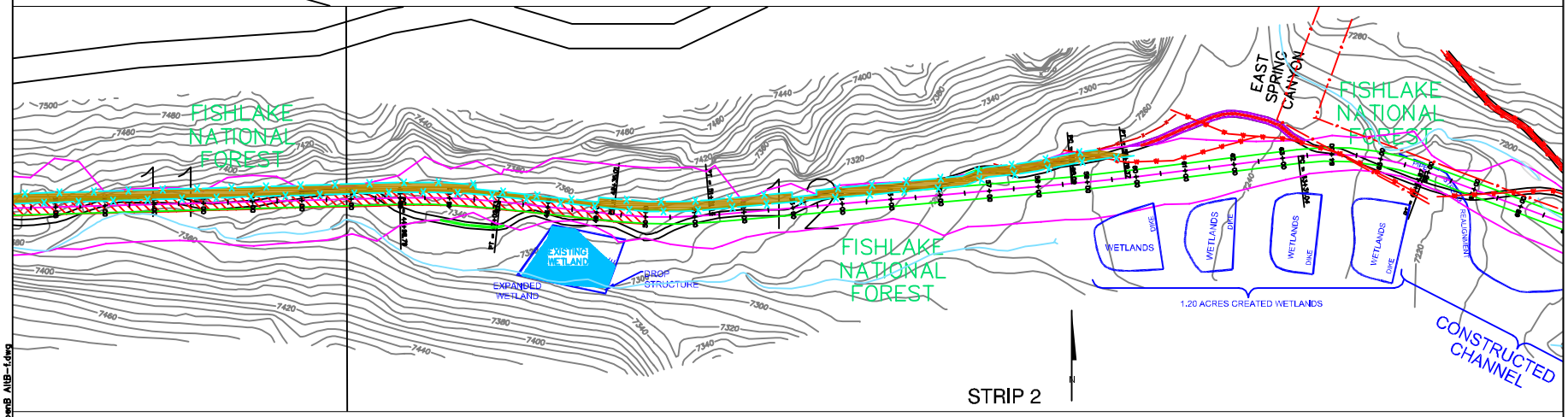

LAND STATUS

- BLM LANDS
- STATE LANDS
- U.S. FOREST SERVICE
- PRIVATE LANDS

EXPLANATION

- EXISTING ROAD
- PROPOSED ALIGNMENT W/ENGINEERING STATIONS (41+00, 42+00)
- CUT AND FILL LINES
- EARTHWORK CORRIDOR
- FENCE
- CORRAL
- POTENTIAL STAGING AREAS (ACTUAL AREA YET TO BE DETERMINED)
- POTENTIAL BLASTING AREAS
- STREAM REALIGNMENT SECTIONS
- STREAM CROSSINGS
- CATTLE TRAIL
- PULLOUTS
- EXISTING ROAD TO BE RECLAIMED
- EXISTING ROAD TO REMAIN
- POWER POLE AND POWER LINE
- WATER LINE

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QUITCHUPAH CREEK ROAD EIS

QUITCHUPAH CREEK ROAD, ALTERNATE B STRIP MAPS 1 AND 2

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	6/18/03
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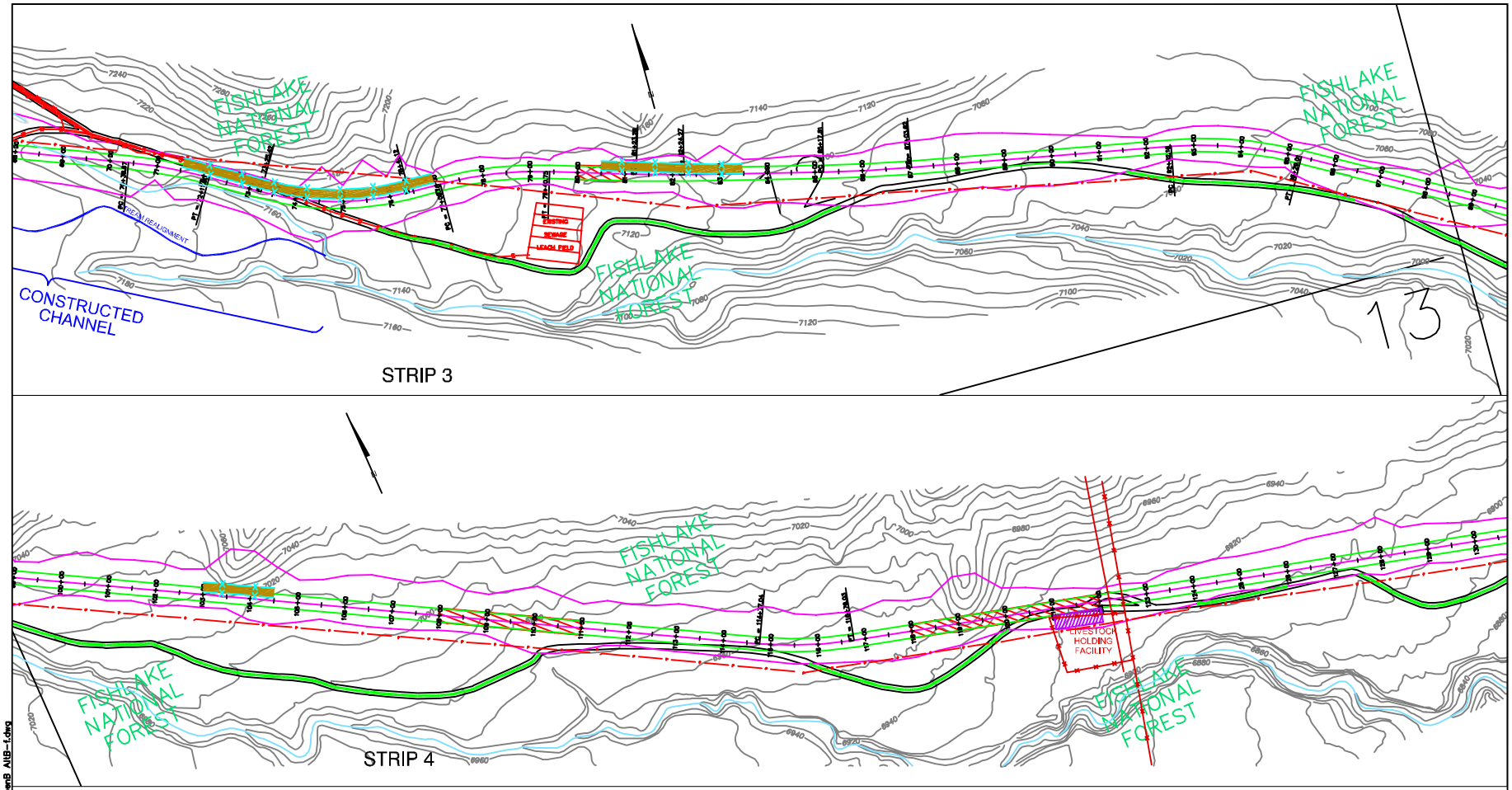

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EXPLANATION

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QUITCHUPAH CREEK ROAD EIS

QUITCHUPAH CREEK ROAD, ALTERNATE B STRIP MAPS 3 AND 4

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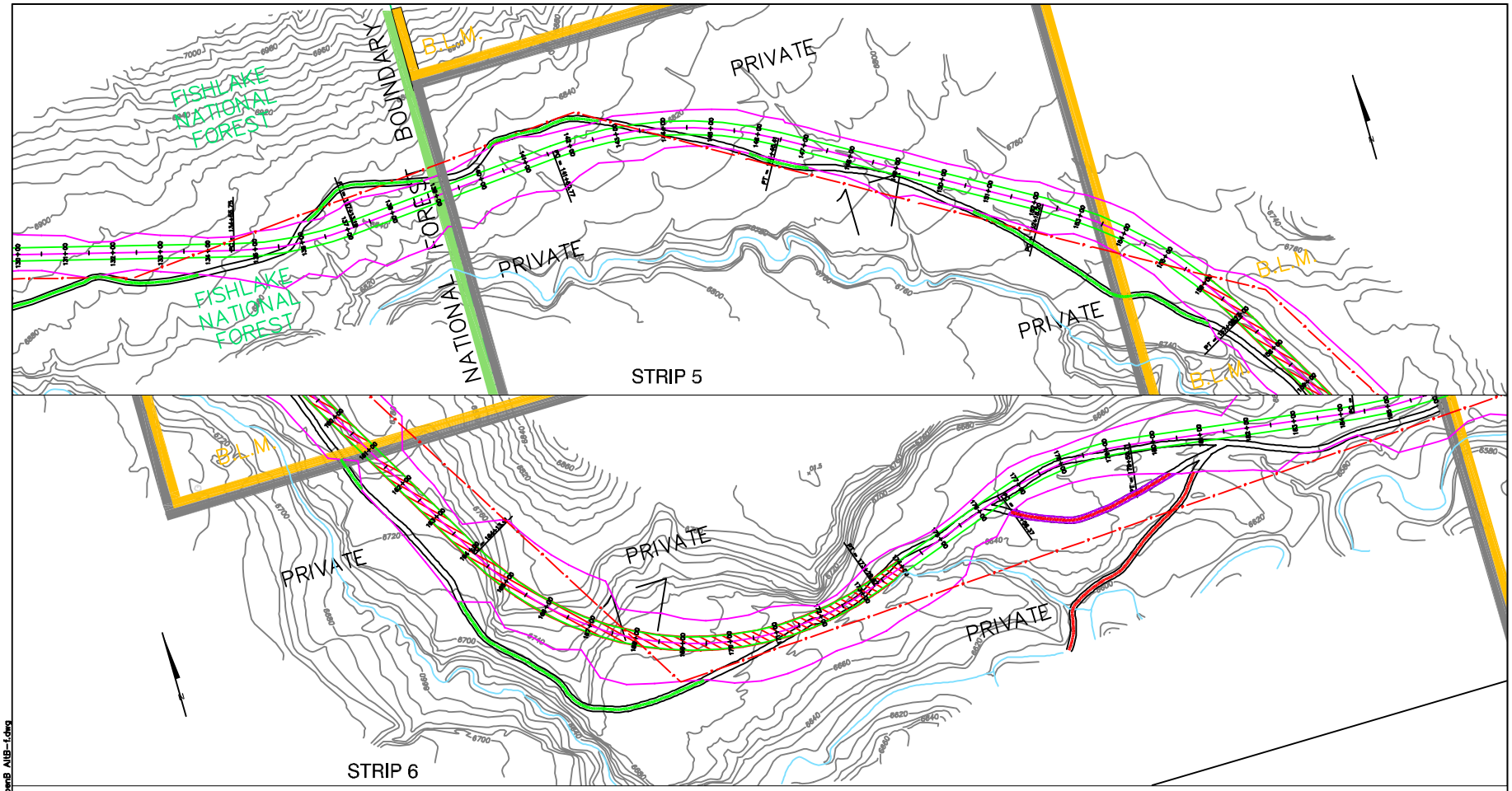

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- STATE LANDS
- U.S. FOREST SERVICE
- PRIVATE LANDS

EXPLANATION

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- PROPOSED ALIGNMENT W/ENGINEERING STATIONS (41+00, 42+00)
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- CATTLE TRAIL
- PULLOUTS
- EXISTING ROAD TO BE RECLAIMED
- EXISTING ROAD TO REMAIN
- POWER POLE AND POWER LINE
- WATER LINE

200 0 200 FEET

QUITCHUPAH CREEK ROAD EIS

QUITCHUPAH CREEK ROAD, ALTERNATE B STRIP MAPS 5 AND 6

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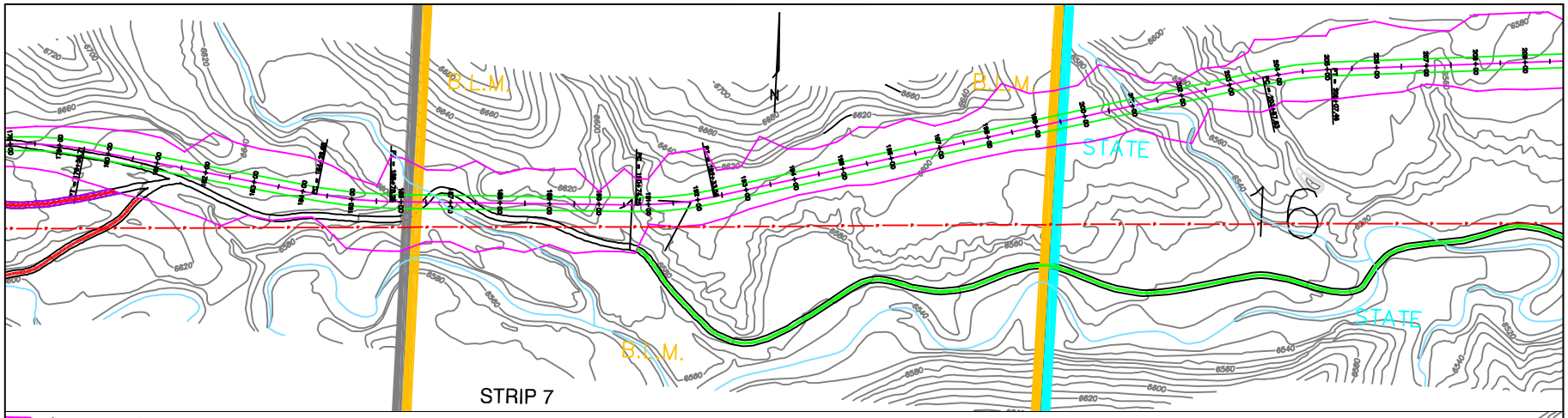

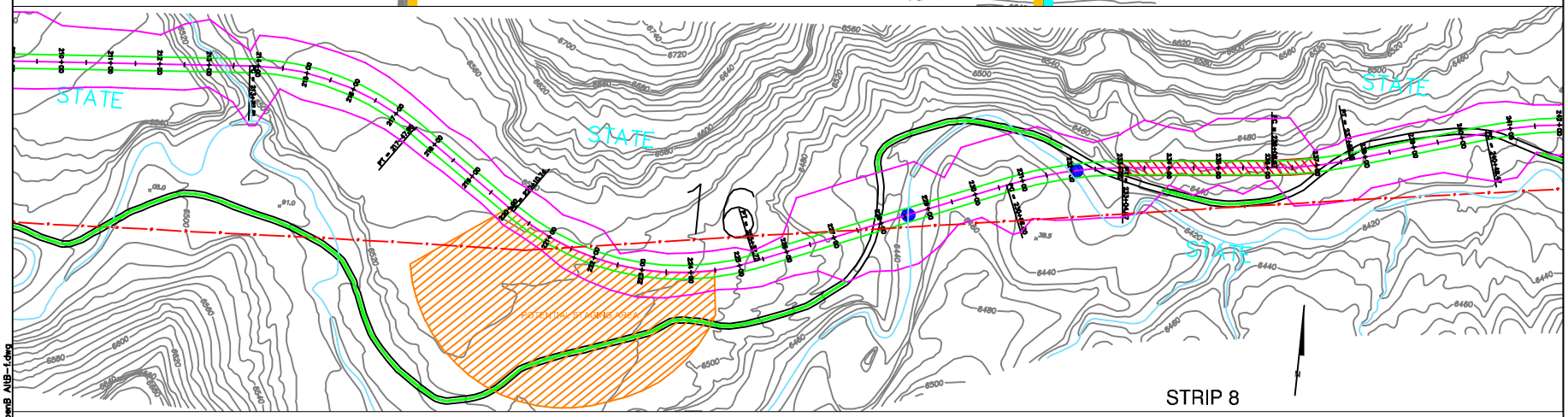

LAND STATUS

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- PRIVATE LANDS

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- EXISTING ROAD
- PROPOSED ALIGNMENT W/ENGINEERING STATIONS (41+00, 42+00)
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- STREAM REALIGNMENT SECTIONS
- STREAM CROSSINGS
- CATTLE TRAIL
- PULLOUTS
- EXISTING ROAD TO BE RECLAIMED
- EXISTING ROAD TO REMAIN
- POWER POLE AND POWER LINE
- WATER LINE

200 0 200 FEET

QUITCHUPAH CREEK ROAD EIS

QUITCHUPAH CREEK ROAD, ALTERNATE B
STRIP MAPS 7 AND 8

jbr environmental consultants, inc.
Salt Lake City, Utah Cedar City, Utah Reno, Nevada Elko, Nevada

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LM	CP		As Shown

REVISION	DATE DRAWN
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	4/28/03
	6/18/03
	7/14/05

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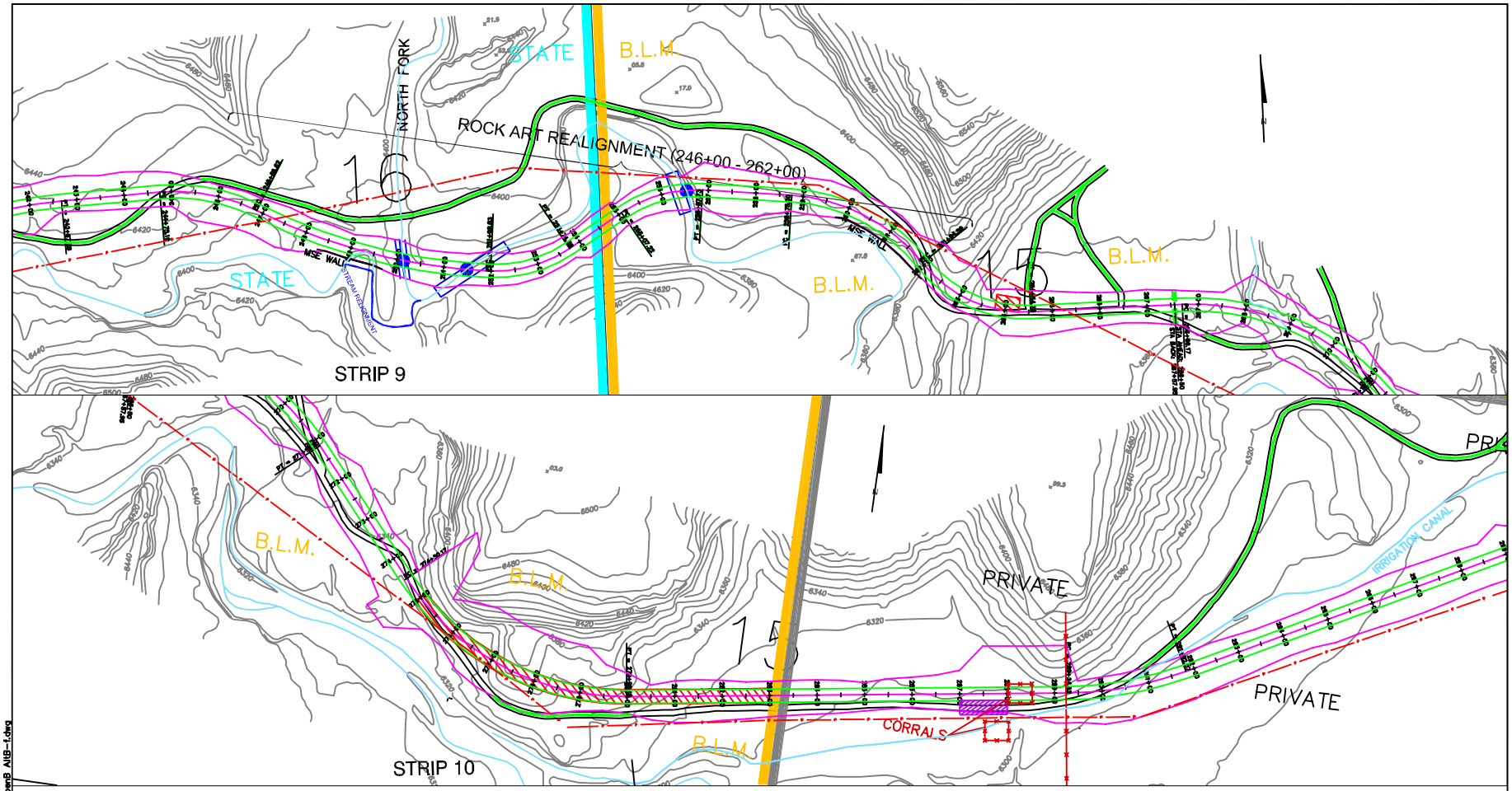

LAND STATUS

- BLM LANDS
- STATE LANDS
- U.S. FOREST SERVICE
- PRIVATE LANDS

EXPLANATION

- EXISTING ROAD
- PROPOSED ALIGNMENT W/ENGINEERING STATIONS (41+00, 42+00)
- CUT AND FILL LINES
- EARTHWORK CORRIDOR
- FENCE
- CORRAL
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- WATER LINE

200 0 200 FEET

QUITCHUPAH CREEK ROAD EIS

QUITCHUPAH CREEK ROAD, ALTERNATE B STRIP MAPS 9 AND 10

jbr environmental consultants, inc.
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	6/18/03
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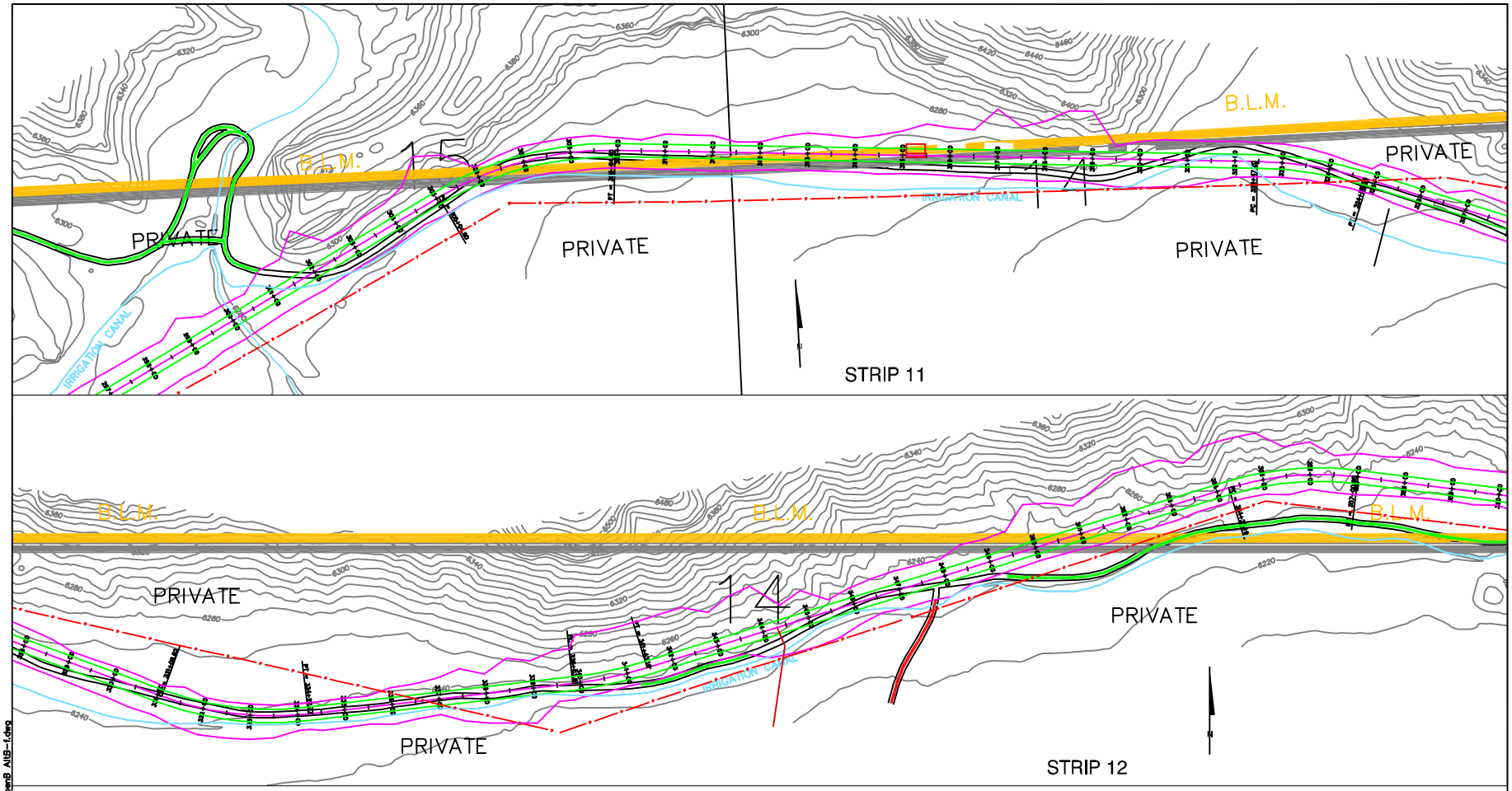

LAND STATUS

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200 0 200 FEET

QUITCHUPAH CREEK ROAD EIS

QUITCHUPAH CREEK ROAD, ALTERNATE B
STRIP MAPS 11 AND 12

jbr environmental consultants, inc.
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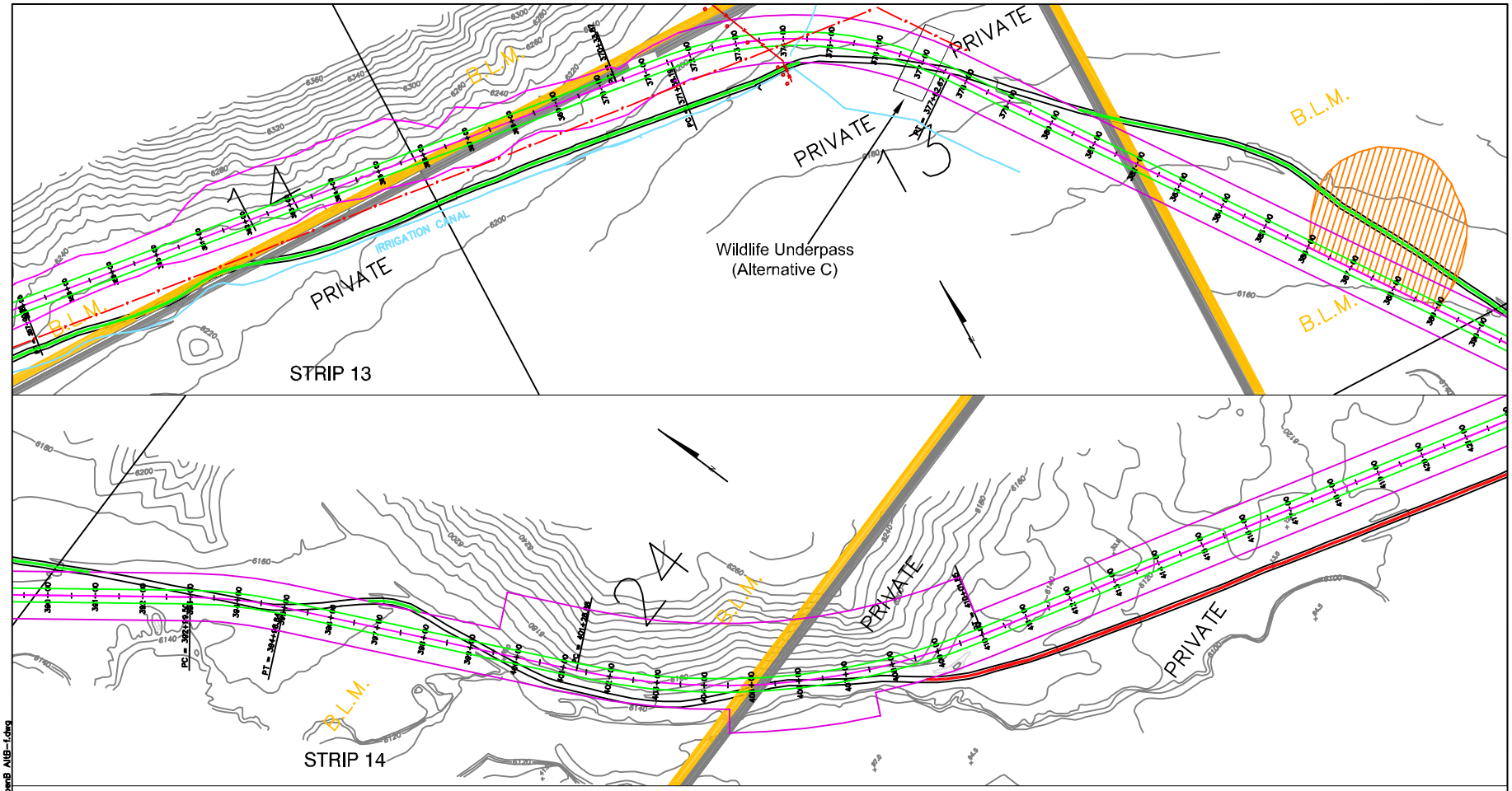

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200 0 200 FEET

QUITCHUPAH CREEK ROAD EIS

QUITCHUPAH CREEK ROAD, ALTERNATE B STRIP MAPS 13 AND 14

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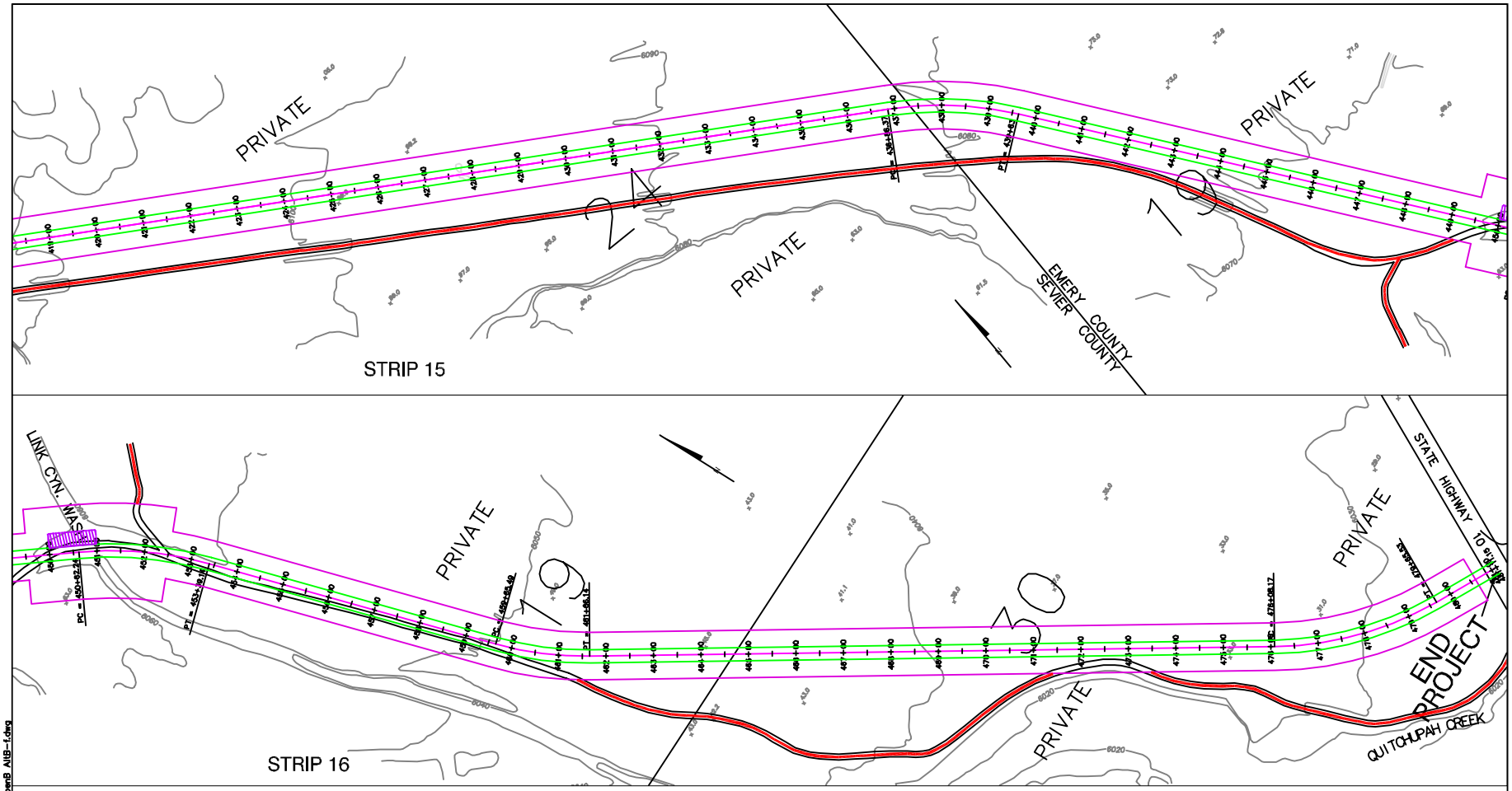

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200 0 200 FEET

QUITCHUPAH CREEK ROAD EIS

QUITCHUPAH CREEK ROAD, ALTERNATE B STRIP MAPS 15 AND 16

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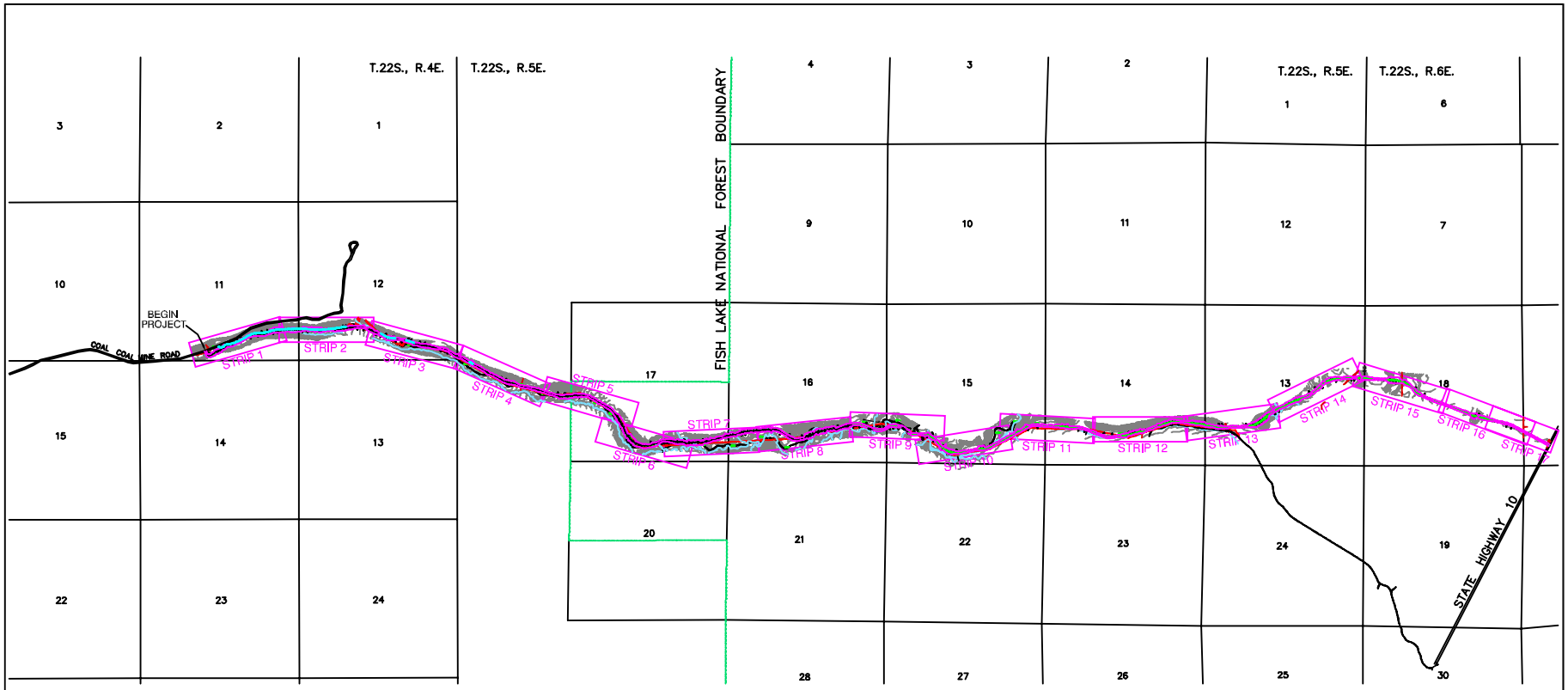

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3000 0 3000 FEET

QUITCHUPAH CREEK ROAD EIS

ALTERNATIVE JUNCTION – ALTERNATE C STRIP MAP INDEX

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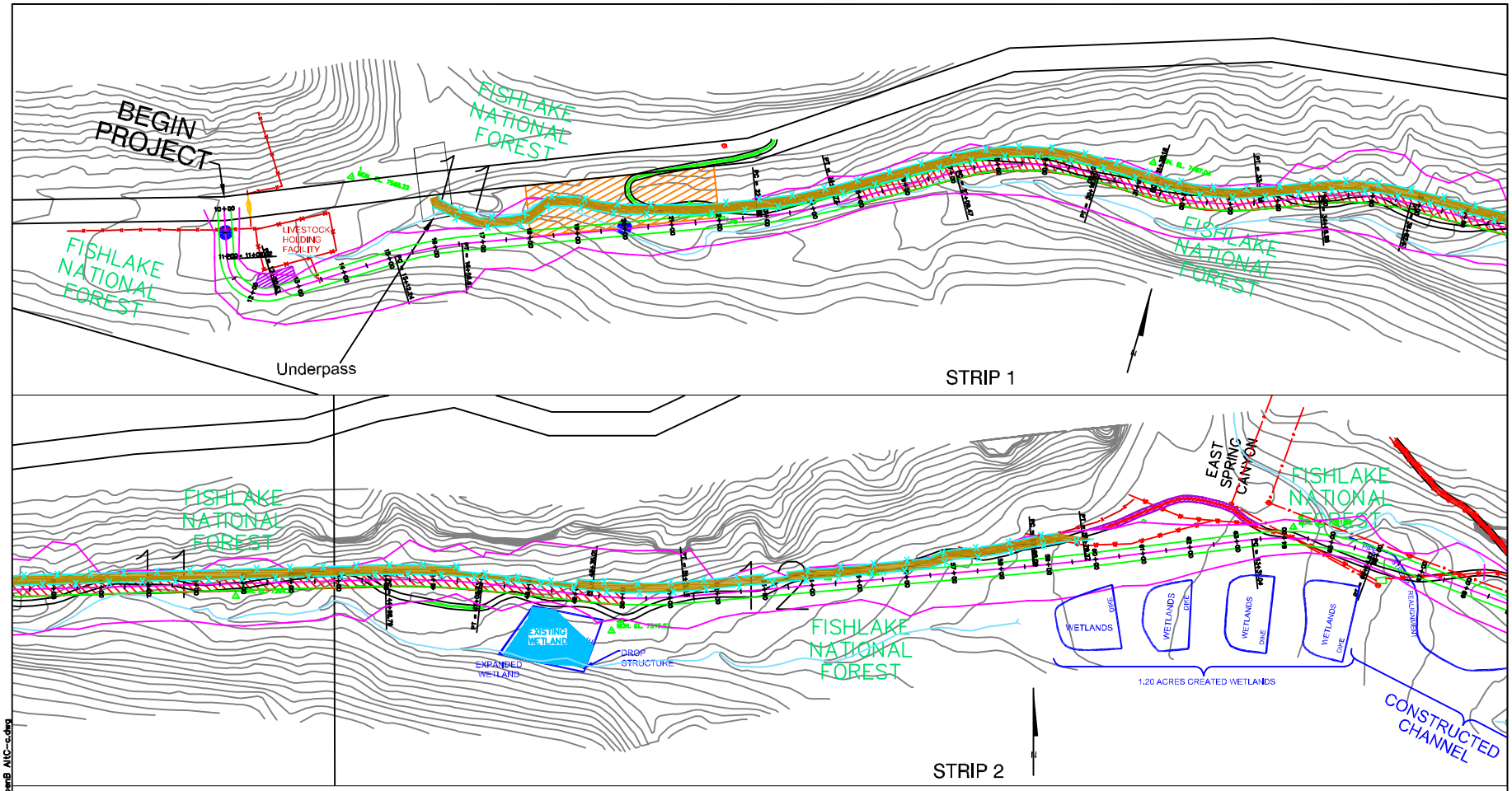

LAND STATUS

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EXPLANATION

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200 0 200 FEET

QUITCHUPAH CREEK ROAD EIS

ALTERNATIVE JUNCTION, ALTERNATE C STRIP MAPS 1 AND 2

jbr environmental consultants, inc.
Salt Lake City, Utah Cedar City, Utah Reno, Nevada Elko, Nevada

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	6/17/03
	7/14/05

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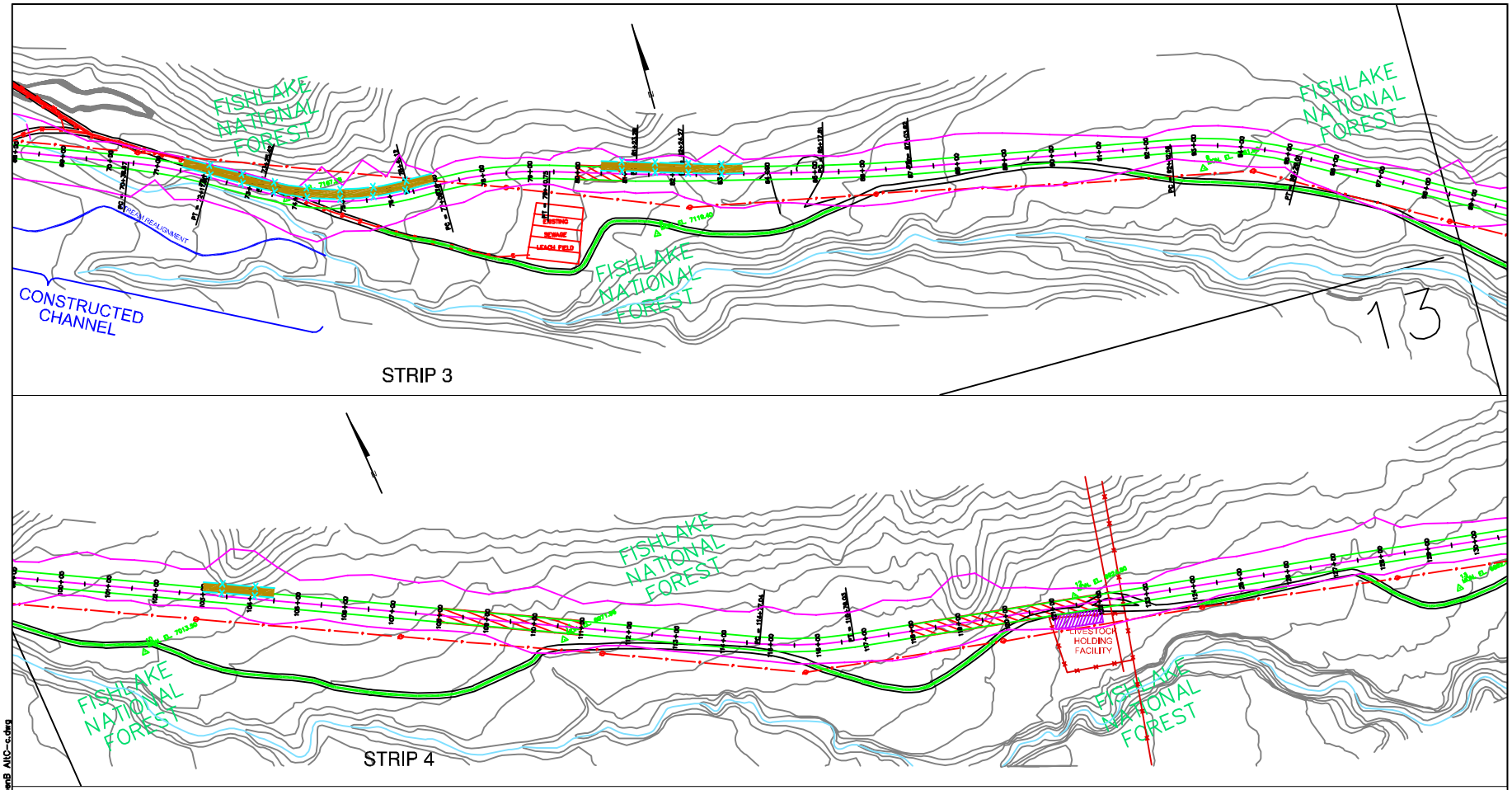

LAND STATUS

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200 0 200 FEET

QUITCHUPAH CREEK ROAD EIS

ALTERNATIVE JUNCTION, ALTERNATE C STRIP MAPS 3 AND 4

jbr environmental consultants, inc.
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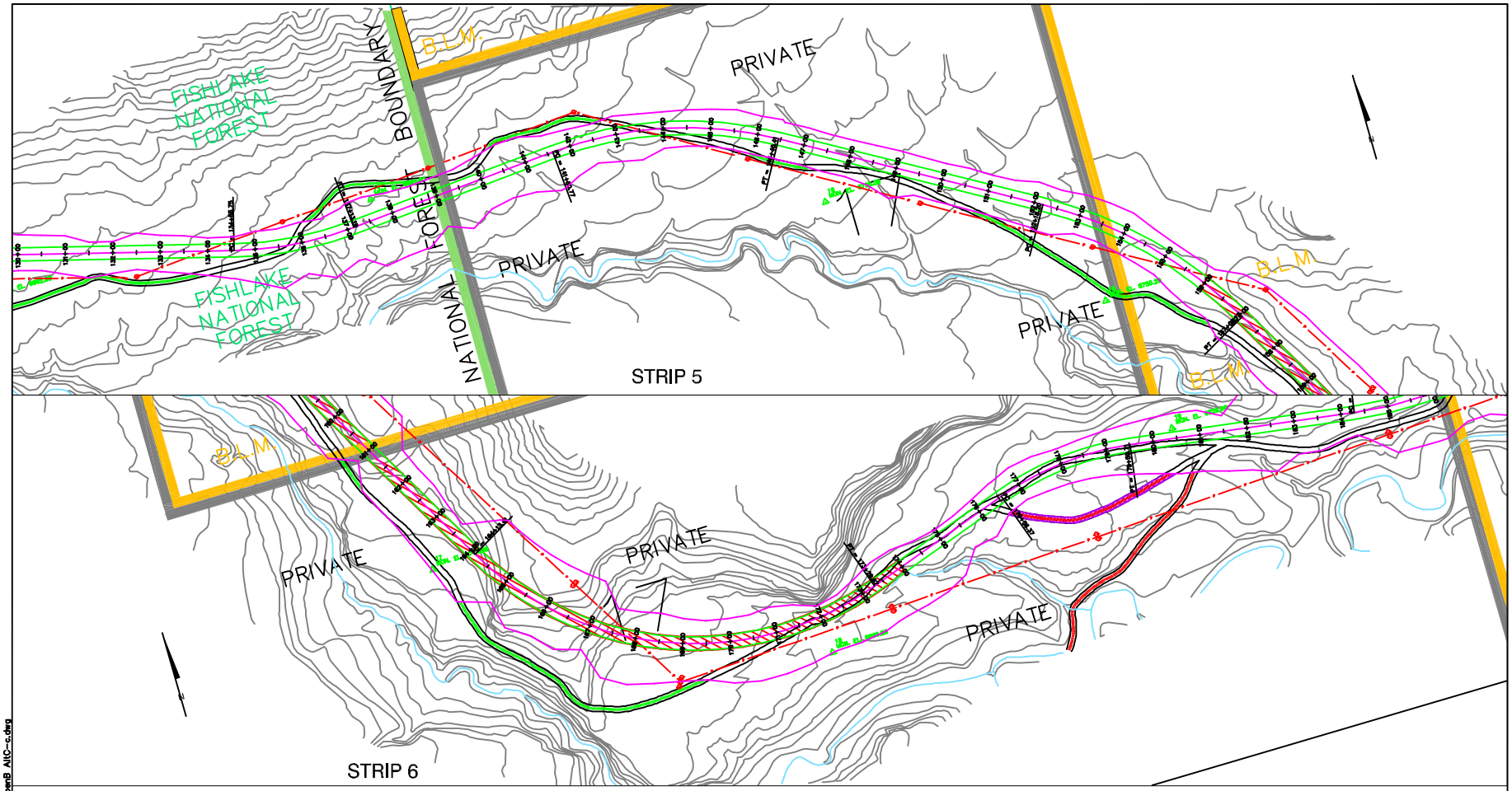

LAND STATUS

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200 0 200 FEET

QUITCHUPAH CREEK ROAD EIS

ALTERNATIVE JUNCTION, ALTERNATE C STRIP MAPS 5 AND 6

jbr environmental consultants, inc.
Salt Lake City, Utah Cedar City, Utah Reno, Nevada Elko, Nevada

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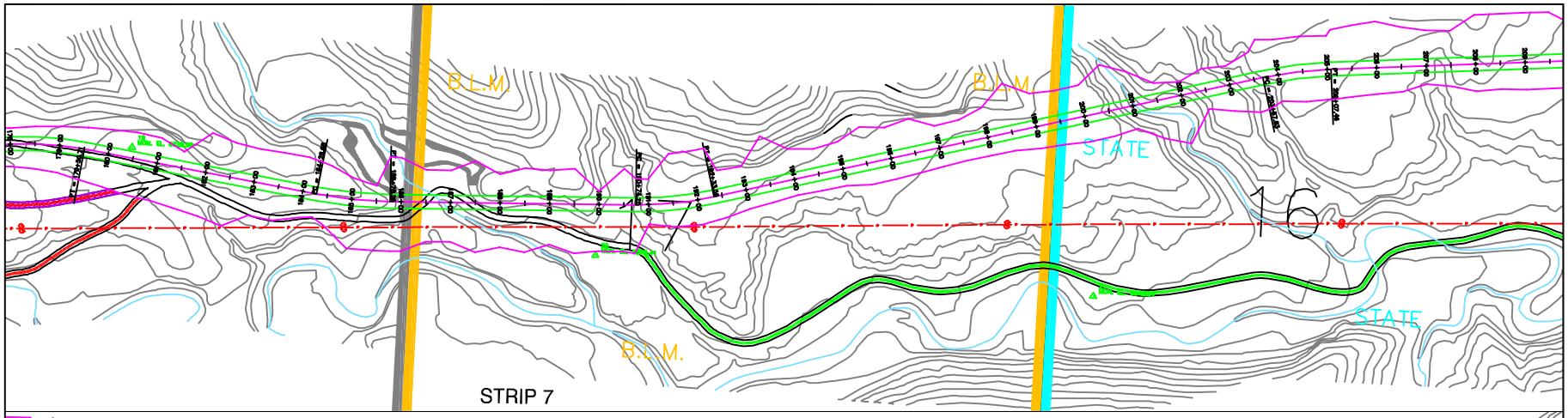

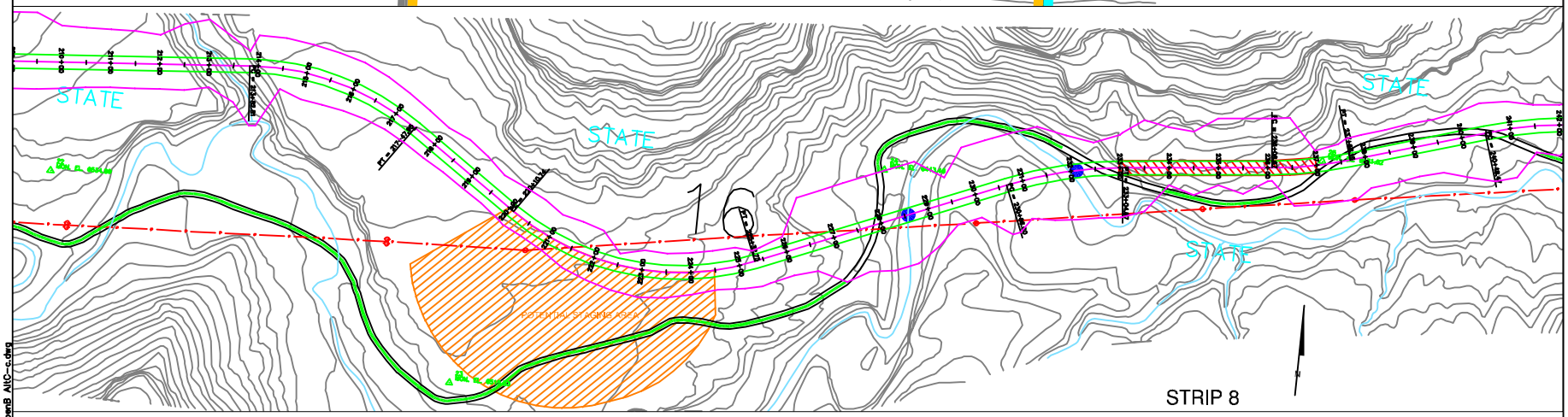

LAND STATUS

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200 0 200 FEET

QUITCHUPAH CREEK ROAD EIS

ALTERNATIVE JUNCTION, ALTERNATE C STRIP MAPS 7 AND 8

jbr environmental consultants, inc.
Salt Lake City, Utah Cedar City, Utah Reno, Nevada Elko, Nevada

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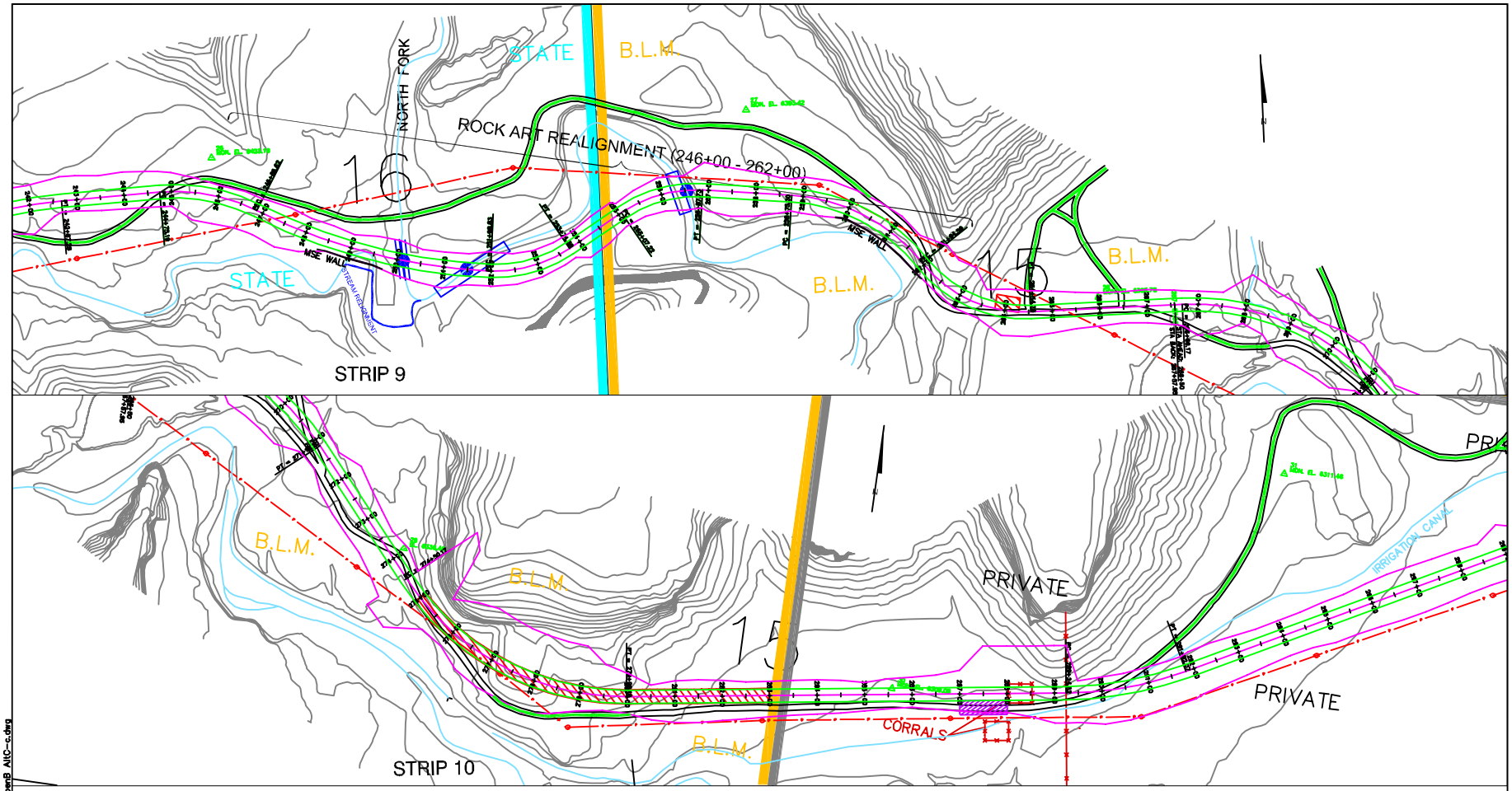

LAND STATUS

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200 0 200 FEET

QUITCHUPAH CREEK ROAD EIS

ALTERNATIVE JUNCTION, ALTERNATE C STRIP MAPS 9 AND 10

jbr environmental consultants, inc.
Salt Lake City, Utah Cedar City, Utah Reno, Nevada Elko, Nevada

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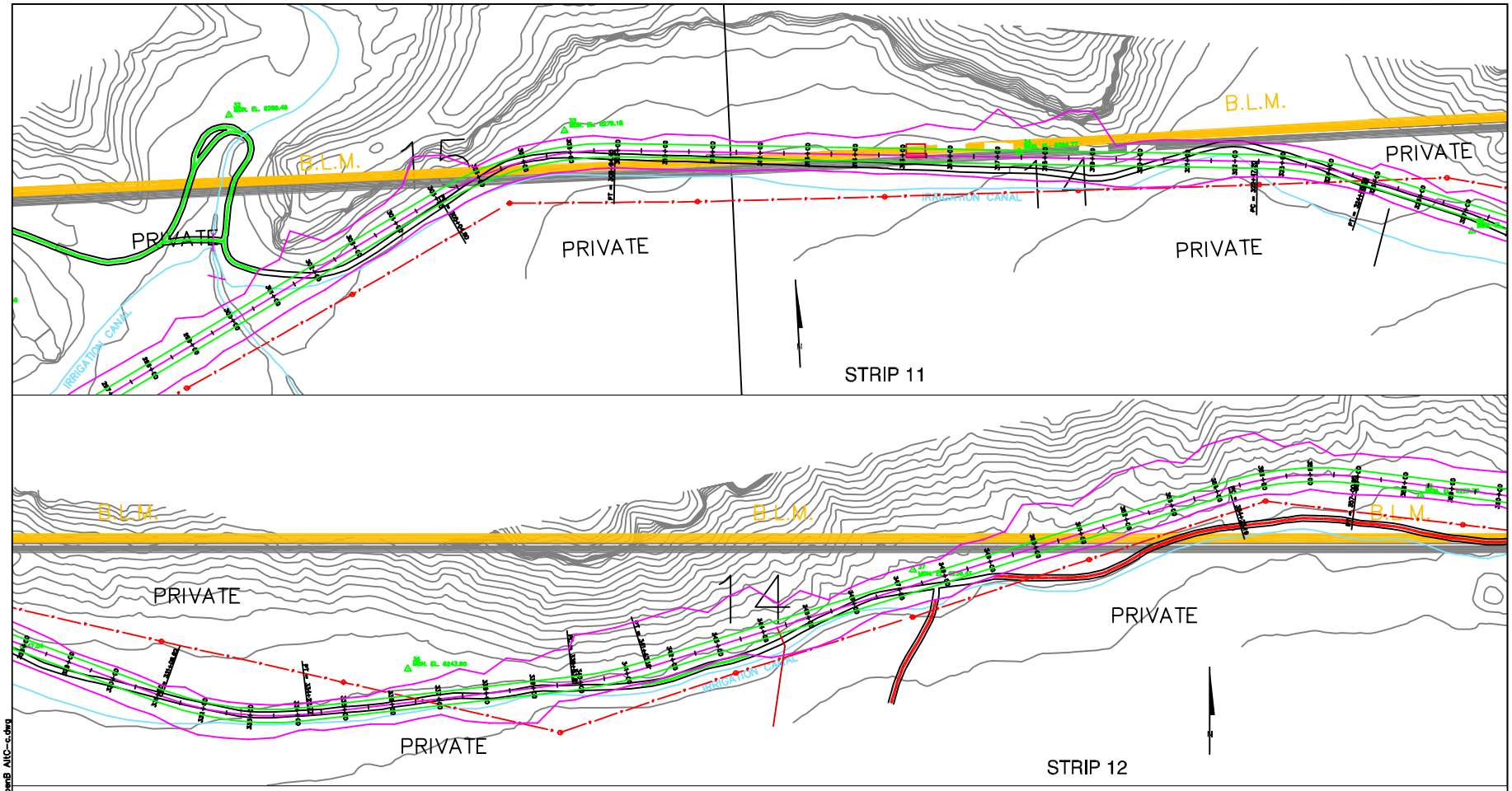

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200 0 200 FEET

QUITCHUPAH CREEK ROAD EIS

ALTERNATIVE JUNCTION, ALTERNATE C STRIP MAPS 11 AND 12

jbr environmental consultants, inc.
Salt Lake City, Utah Cedar City, Utah Reno, Nevada Elko, Nevada

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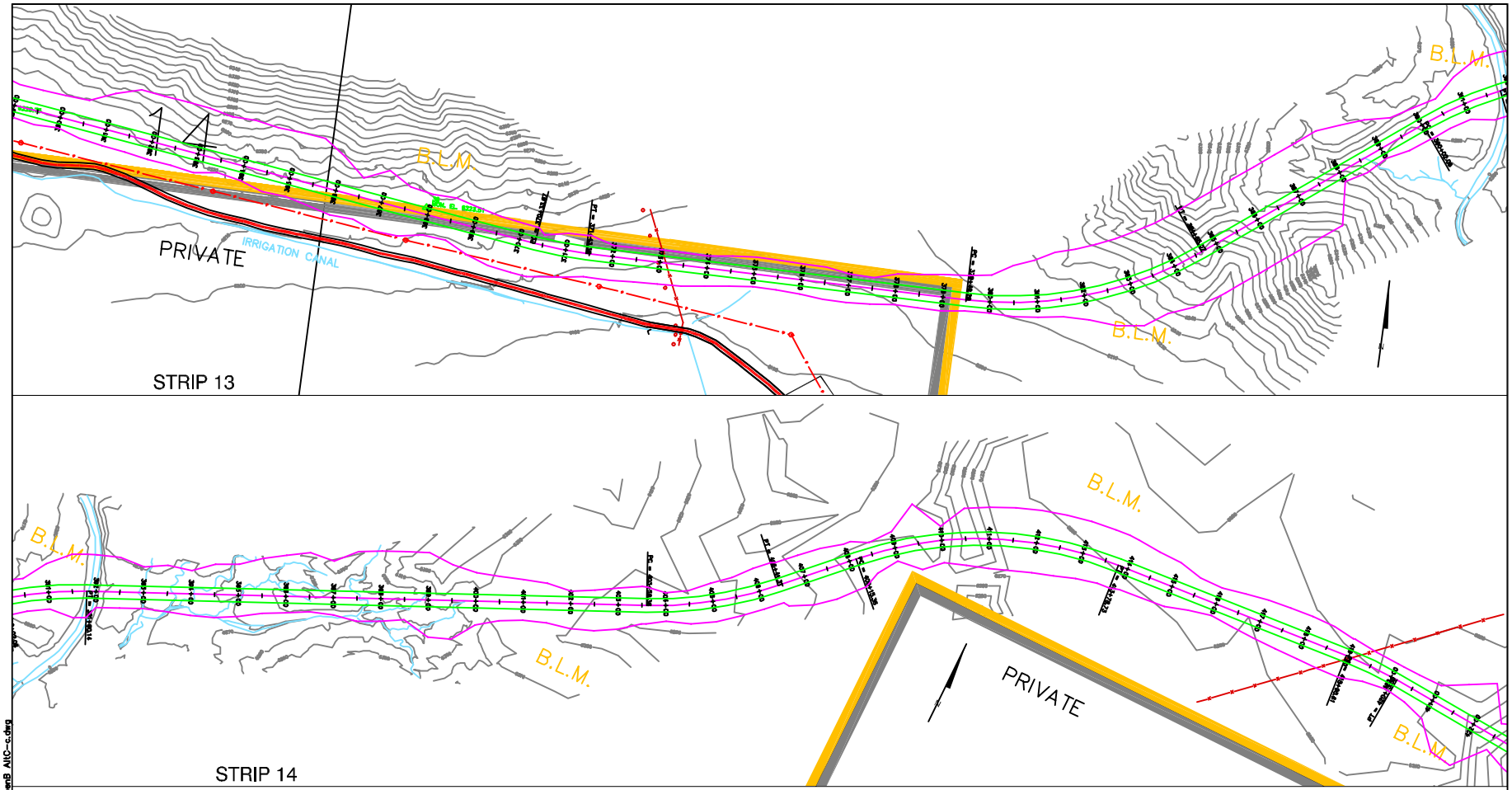

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200 0 200 FEET

QUITCHUPAH CREEK ROAD EIS

ALTERNATIVE JUNCTION, ALTERNATE C STRIP MAPS 13 AND 14

jbr environmental consultants, inc.
Salt Lake City, Utah Cedar City, Utah Reno, Nevada Elko, Nevada

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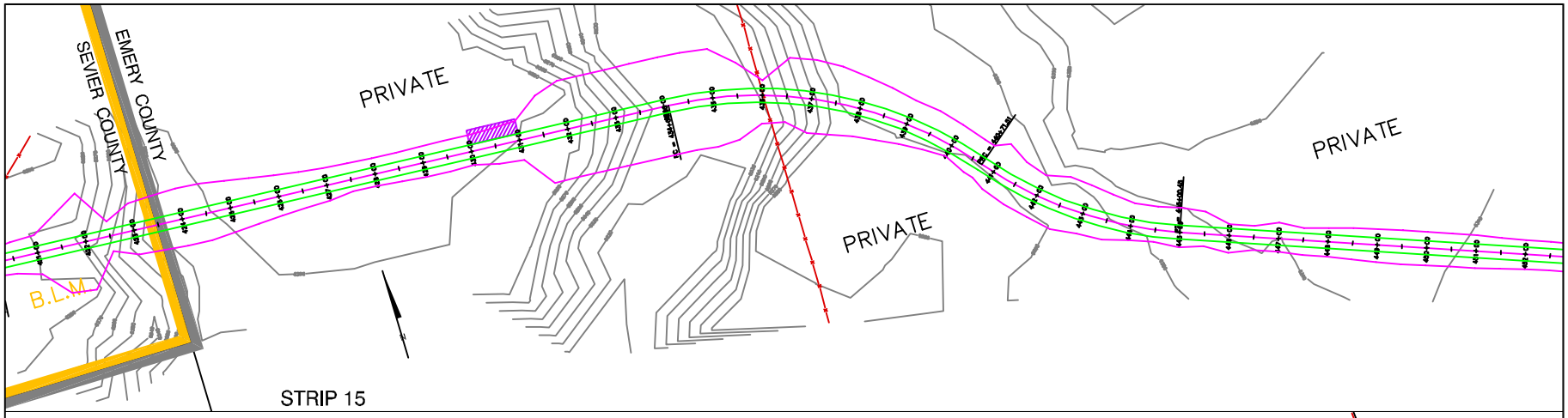

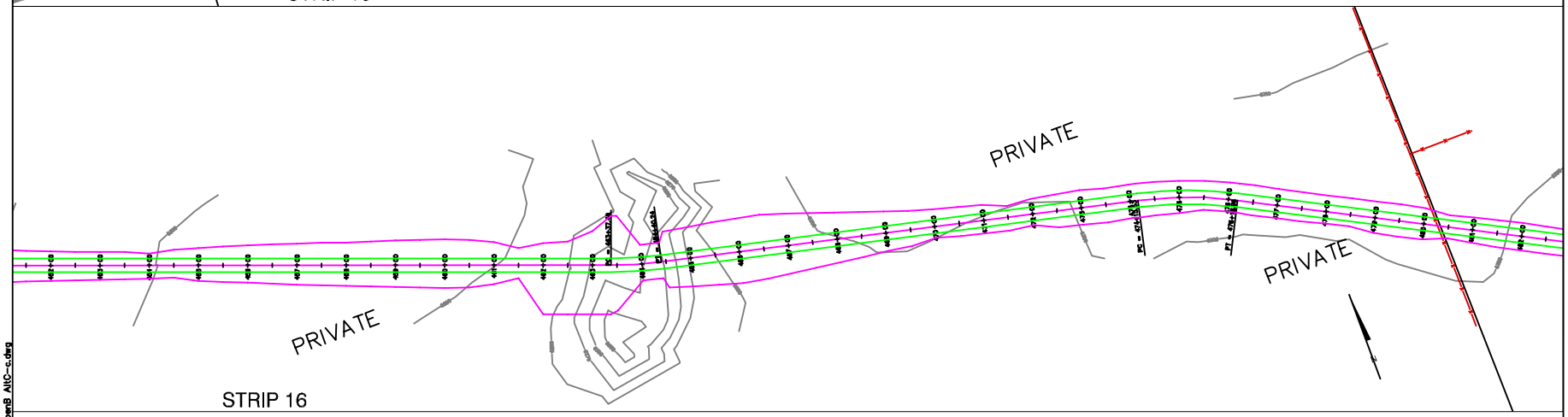

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200 0 200 FEET

QUITCHUPAH CREEK ROAD EIS

ALTERNATIVE JUNCTION, ALTERNATE C STRIP MAPS 15 AND 16

jbr environmental consultants, inc.
Salt Lake City, Utah Cedar City, Utah Reno, Nevada Elko, Nevada

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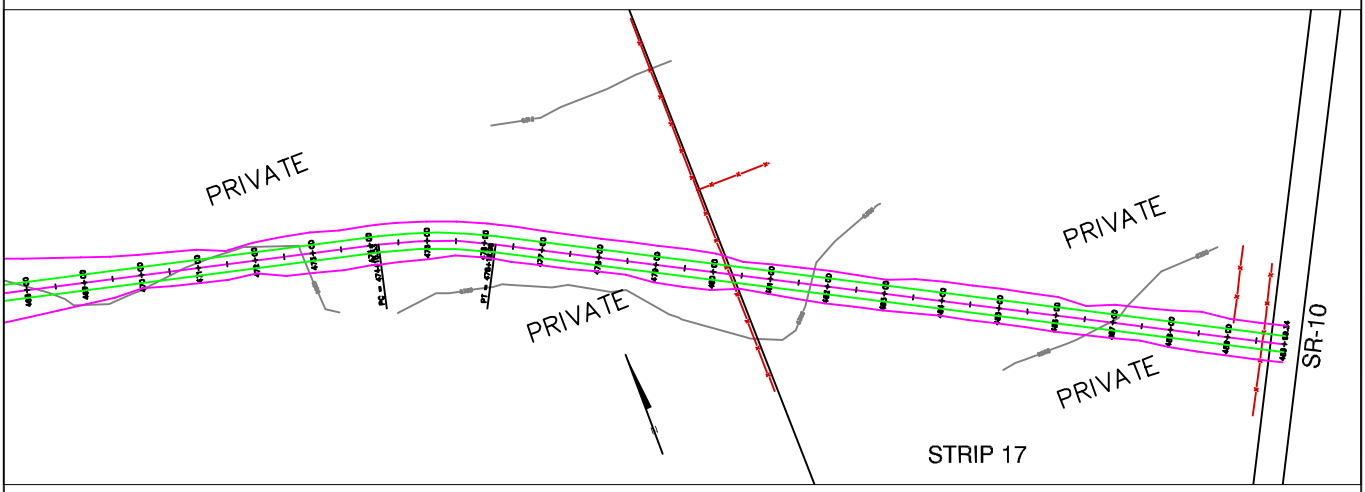

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200 0 200 FEET

QUITCHUPAH CREEK ROAD
EIS

ALTERNATIVE JUNCTION, ALTERNATE C
STRIP MAP 17

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Salt Lake City, Utah Cedar City, Utah Reno, Nevada Elko, Nevada

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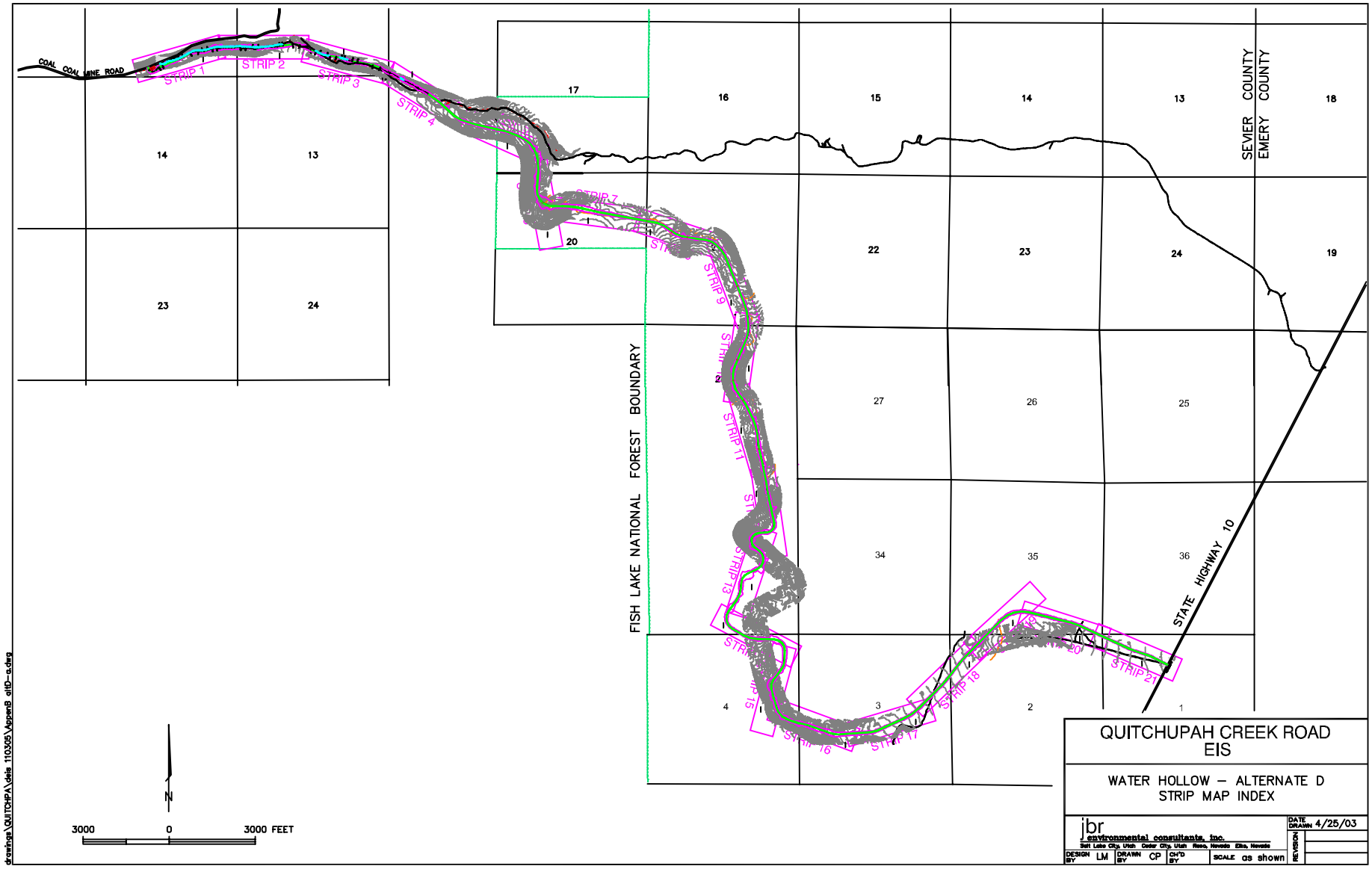
COAL COAL MINE ROAD
STRIP 1
STRIP 2
STRIP 3
STRIP 4
STRIP 7
STRIP 9
STRIP 11
STRIP 13
STRIP 15
STRIP 16
STRIP 17
STRIP 18
STRIP 20
STRIP 21
FISH LAKE NATIONAL FOREST BOUNDARY
SEVIER COUNTY
EMERY COUNTY
STATE HIGHWAY 10
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16
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EIS
WATER HOLLOW – ALTERNATE D
STRIP MAP INDEX
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environmental consultants, inc.
Salt Lake City, Utah Cedar City, Utah Reno, Nevada Elko, Nevada
DESIGN BY LM
DRAWN BY CP
CH'D BY
SCALE as shown
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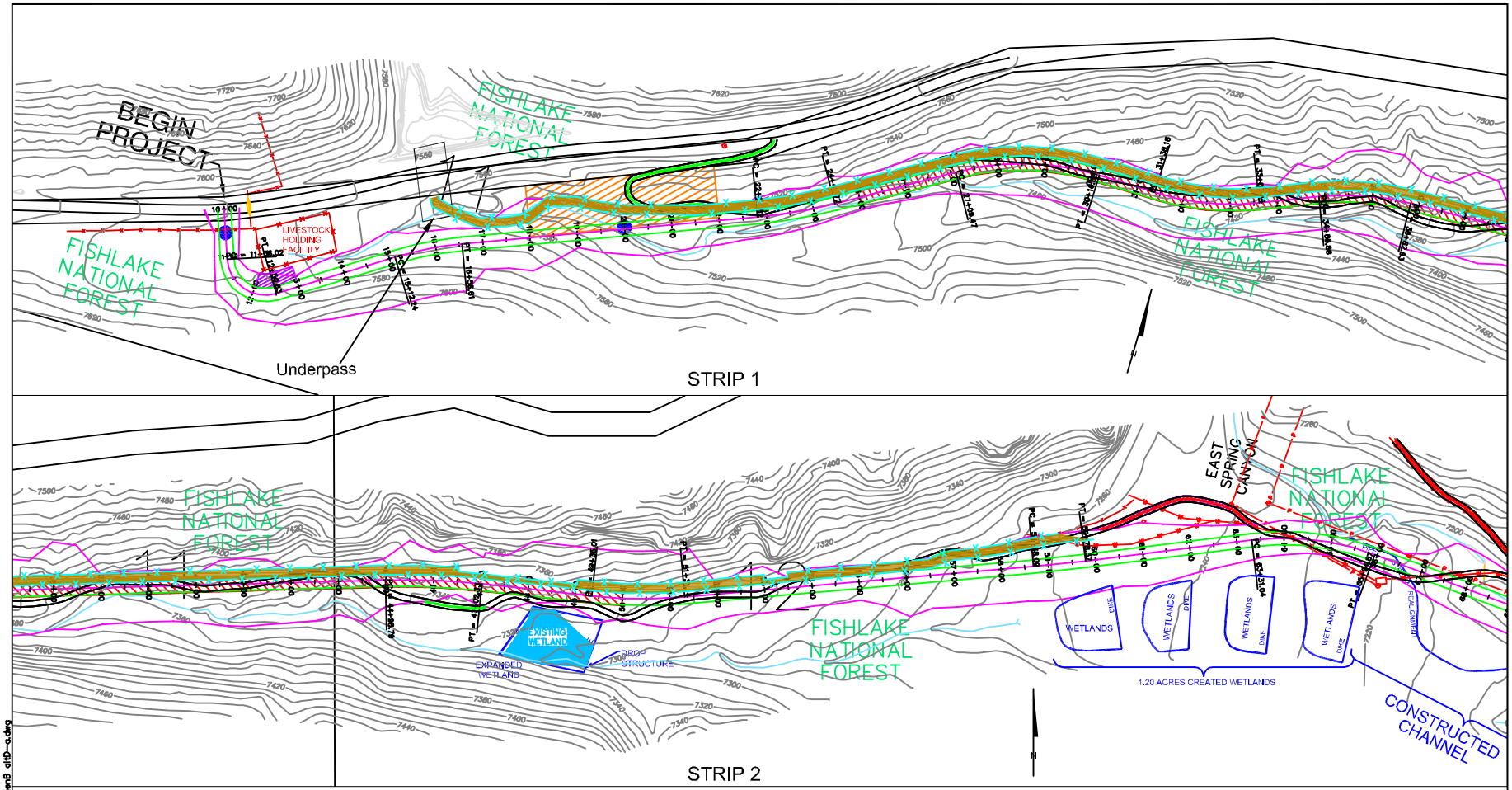

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200 0 200 FEET

QUITCHUPAH CREEK ROAD EIS

WATER HOLLOW ALIGNMENT, ALTERNATE D STRIP MAPS 1 AND 2

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Salt Lake City, Utah Cedar City, Utah Reno, Nevada Elko, Nevada

DESIGN BY	DRAWN BY	CH'D BY	SCALE	DATE DRAWN	REVISION
LM	CP		As Shown	4/25/03	7/14/05

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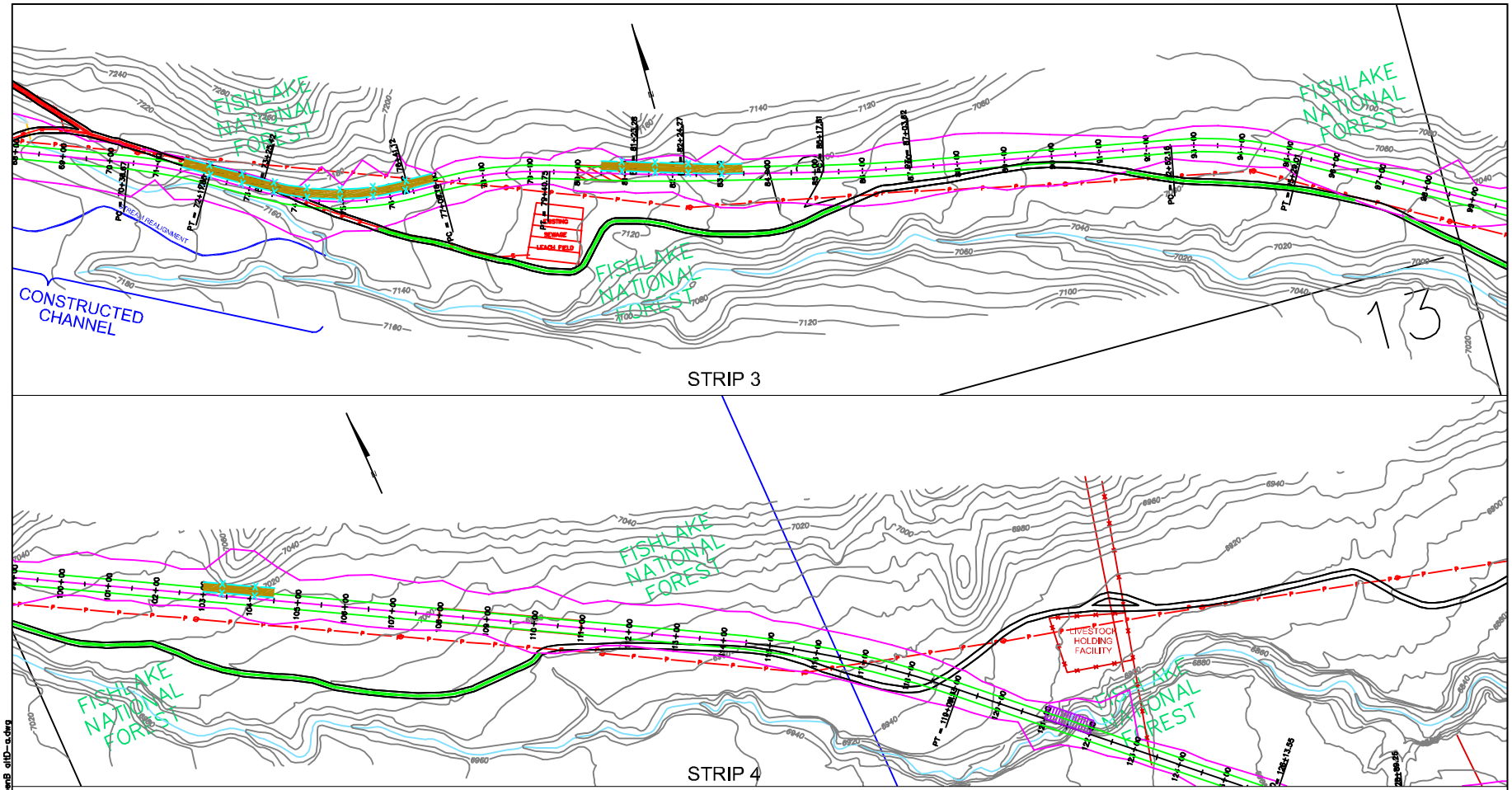

LAND STATUS

- BLM LANDS
- STATE LANDS
- U.S. FOREST SERVICE
- PRIVATE LANDS

EXPLANATION

- EXISTING ROAD
- EXISTING TRAIL
- PROPOSED ALIGNMENT W/ENGINEERING STATIONS (41+00, 42+00)
- CUT AND FILL LINES
- FENCE
- CORRAL
- POTENTIAL STAGING AREAS (ACTUAL AREA YET TO BE DETERMINED)
- POTENTIAL BLASTING AREAS
- STREAM REALIGNMENT SECTIONS
- STREAM CROSSINGS
- CATTLE TRAIL
- POTENTIAL ELK CROSSING
- PULLOUTS
- EXISTING ROAD TO BE RECLAIMED
- EXISTING ROAD TO REMAIN
- POWER POLE AND POWER LINE
- WATER LINE

200 0 200 FEET

QUITCHUPAH CREEK ROAD EIS

WATER HOLLOW ALIGNMENT, ALTERNATE D STRIP MAPS 3 AND 4

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Salt Lake City, Utah Cedar City, Utah Reno, Nevada Elko, Nevada

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REVISION 7/14/05

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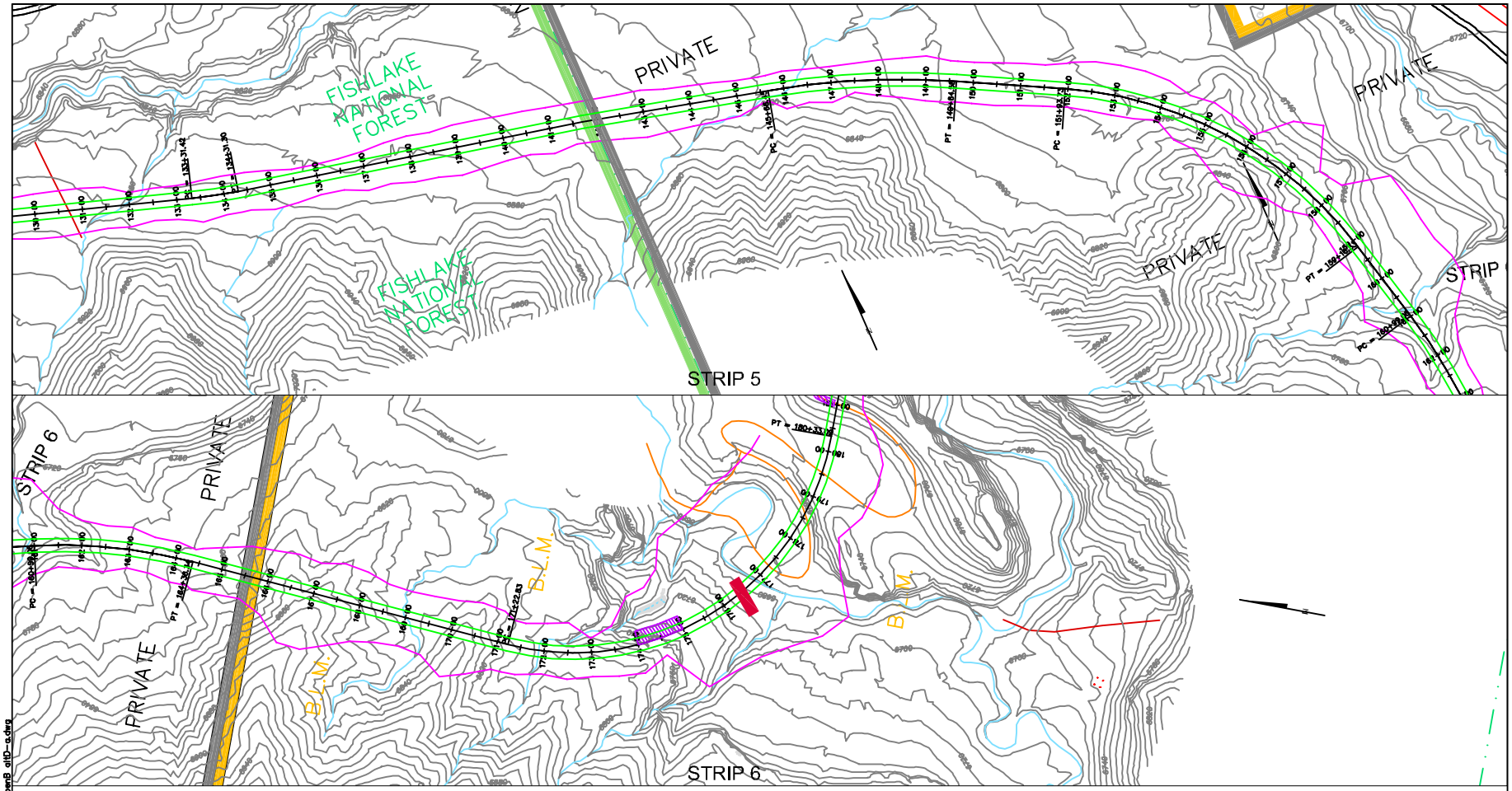

LAND STATUS

- BLM LANDS
- STATE LANDS
- U.S. FOREST SERVICE
- PRIVATE LANDS

EXPLANATION

- EXISTING ROAD
- EXISTING TRAIL
- PROPOSED ALIGNMENT W/ENGINEERING STATIONS (41+00, 42+00)
- CUT AND FILL LINES
- FENCE
- CORRAL
- POTENTIAL STAGING AREAS (ACTUAL AREA YET TO BE DETERMINED)
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- STREAM CROSSINGS
- CATTLE TRAIL
- POTENTIAL ELK CROSSING
- PULLOUTS
- EXISTING ROAD TO BE RECLAIMED
- EXISTING ROAD TO REMAIN
- POWER POLE AND POWER LINE
- WATER LINE

200 0 200 FEET

QUITCHUPAH CREEK ROAD EIS

WATER HOLLOW ALIGNMENT, ALTERNATE D STRIP MAPS 5 AND 6

jbr environmental consultants, inc.
Salt Lake City, Utah Cedar City, Utah Reno, Nevada Elko, Nevada

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REVISION 7/14/05

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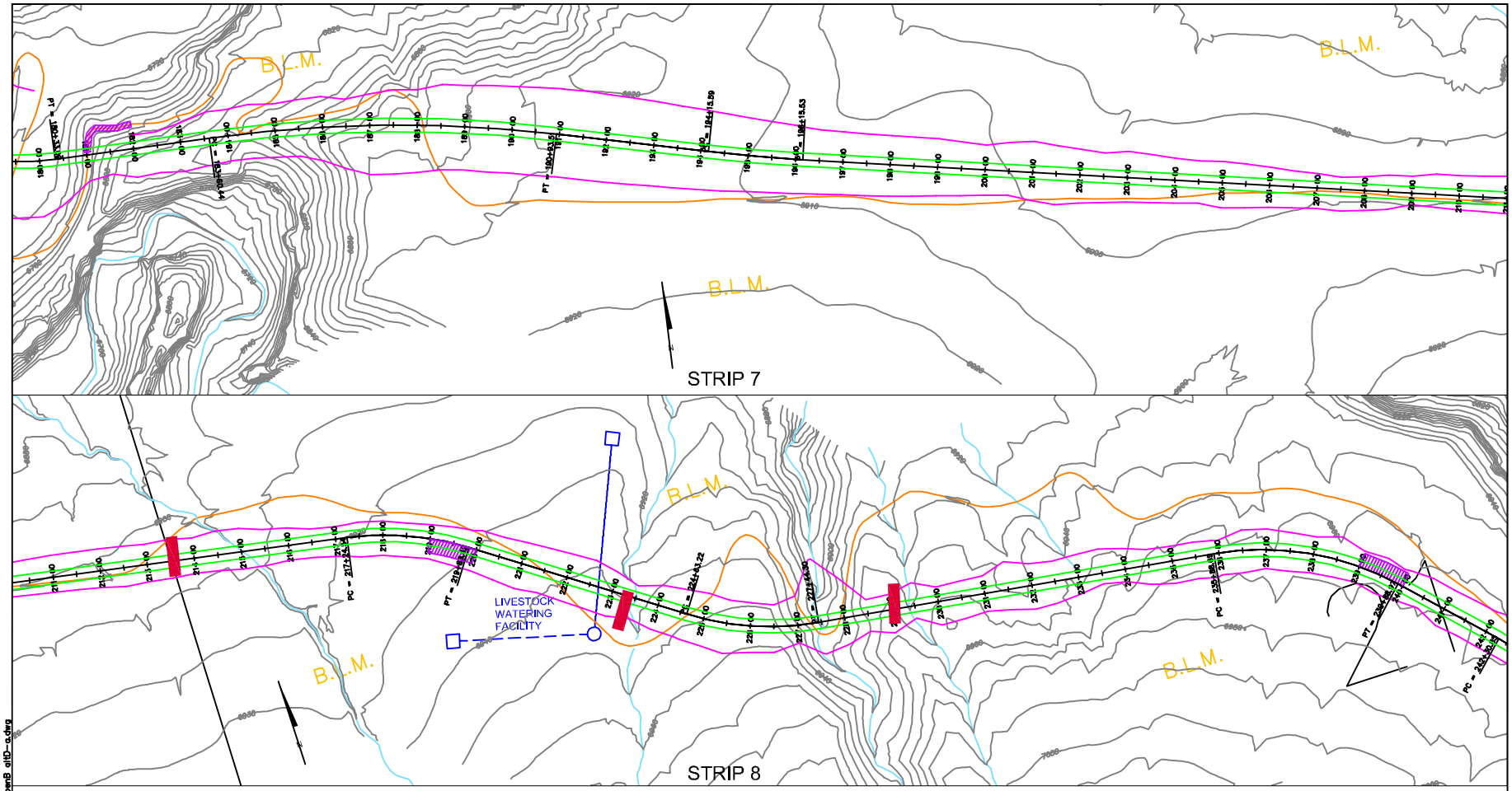

LAND STATUS

- BLM LANDS
- STATE LANDS
- U.S. FOREST SERVICE
- PRIVATE LANDS

EXPLANATION

- EXISTING ROAD
- EXISTING TRAIL
- PROPOSED ALIGNMENT W/ENGINEERING STATIONS (41+00, 42+00)
- CUT AND FILL LINES
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- CORRAL
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- STREAM REALIGNMENT SECTIONS
- STREAM CROSSINGS
- CATTLE TRAIL
- POTENTIAL ELK CROSSING
- PULLOUTS
- EXISTING ROAD TO BE RECLAIMED
- EXISTING ROAD TO REMAIN
- POWER POLE AND POWER LINE
- WATER LINE

200 0 200 FEET

QUITCHUPAH CREEK ROAD EIS

WATER HOLLOW ALIGNMENT, ALTERNATE D STRIP MAPS 7 AND 8

jbr environmental consultants, inc.
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DATE DRAWN	4/25/03
REVISION	7/14/05

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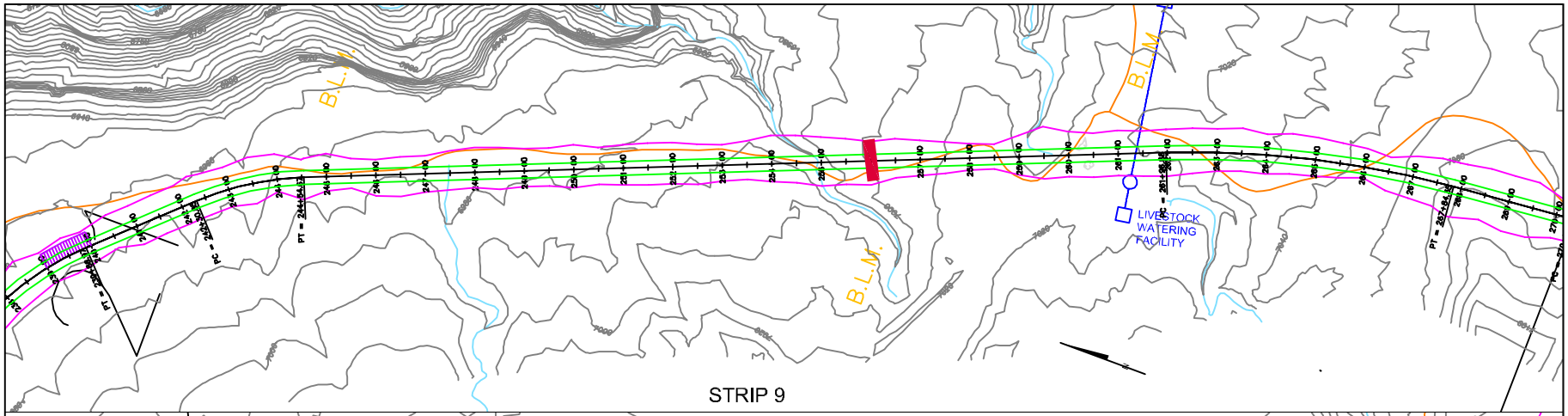
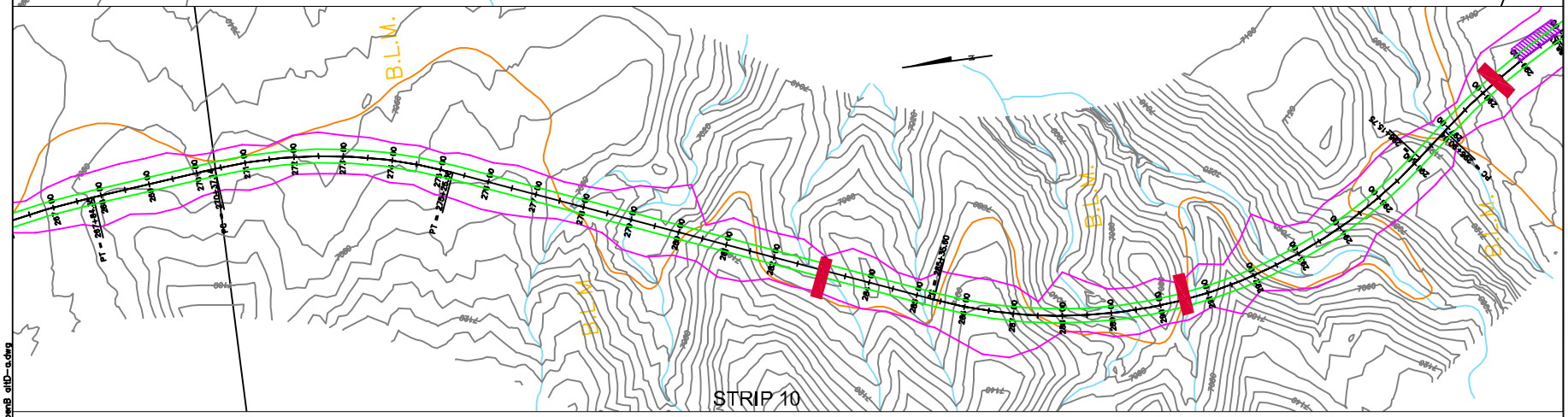


STRIP 9



STRIP 10

LAND STATUS

- BLM LANDS
- STATE LANDS
- U.S. FOREST SERVICE
- PRIVATE LANDS

EXPLANATION

- EXISTING ROAD
- EXISTING TRAIL
- PROPOSED ALIGNMENT W/ENGINEERING STATIONS (41+00, 42+00)
- CUT AND FILL LINES
- FENCE
- CORRAL
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- STREAM CROSSINGS
- CATTLE TRAIL
- POTENTIAL ELK CROSSING
- PULLOUTS
- EXISTING ROAD TO BE RECLAIMED
- EXISTING ROAD TO REMAIN
- POWER POLE AND POWER LINE
- WATER LINE

200 0 200 FEET

QUITCHUPAH CREEK ROAD EIS

WATER HOLLOW ALIGNMENT, ALTERNATE D STRIP MAPS 9 AND 10

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REVISION	7/14/05

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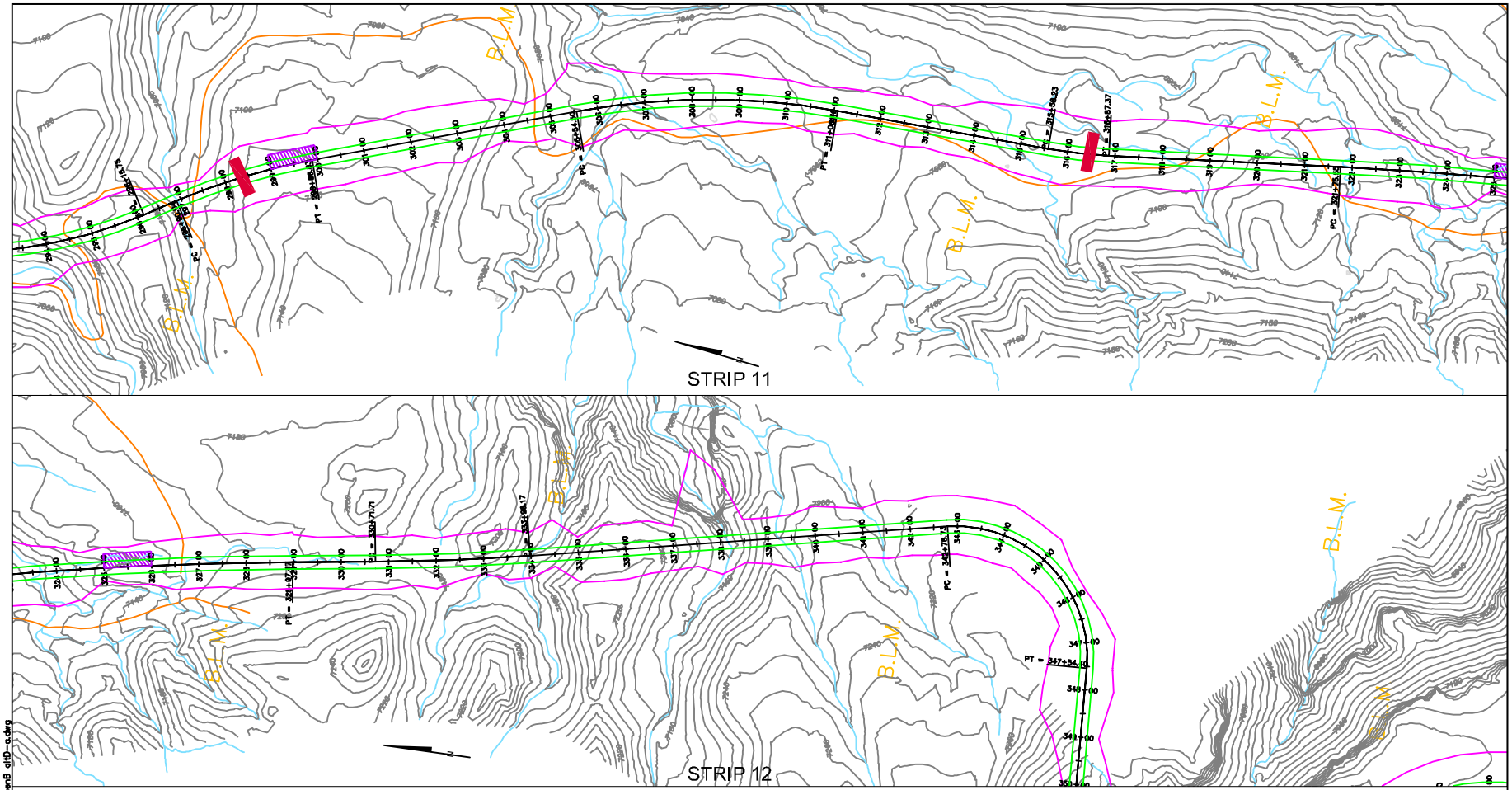

LAND STATUS

- BLM LANDS
- STATE LANDS
- U.S. FOREST SERVICE
- PRIVATE LANDS

EXPLANATION

- EXISTING ROAD
- EXISTING TRAIL
- PROPOSED ALIGNMENT W/ENGINEERING STATIONS (41+00, 42+00)
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- CATTLE TRAIL
- POTENTIAL ELK CROSSING
- PULLOUTS
- EXISTING ROAD TO BE RECLAIMED
- EXISTING ROAD TO REMAIN
- POWER POLE AND POWER LINE
- WATER LINE

200 0 200 FEET

QUITCHUPAH CREEK ROAD EIS

WATER HOLLOW ALIGNMENT, ALTERNATE D STRIP MAPS 11 AND 12

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Salt Lake City, Utah Cedar City, Utah Reno, Nevada Elko, Nevada

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LM	CP		As Shown	4/25/03	7/14/05

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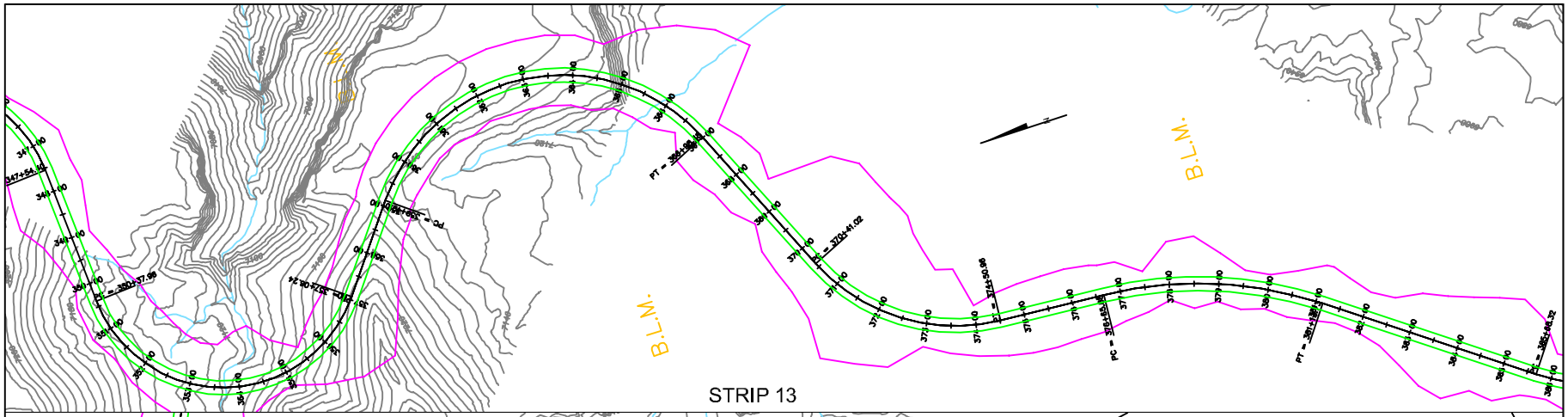
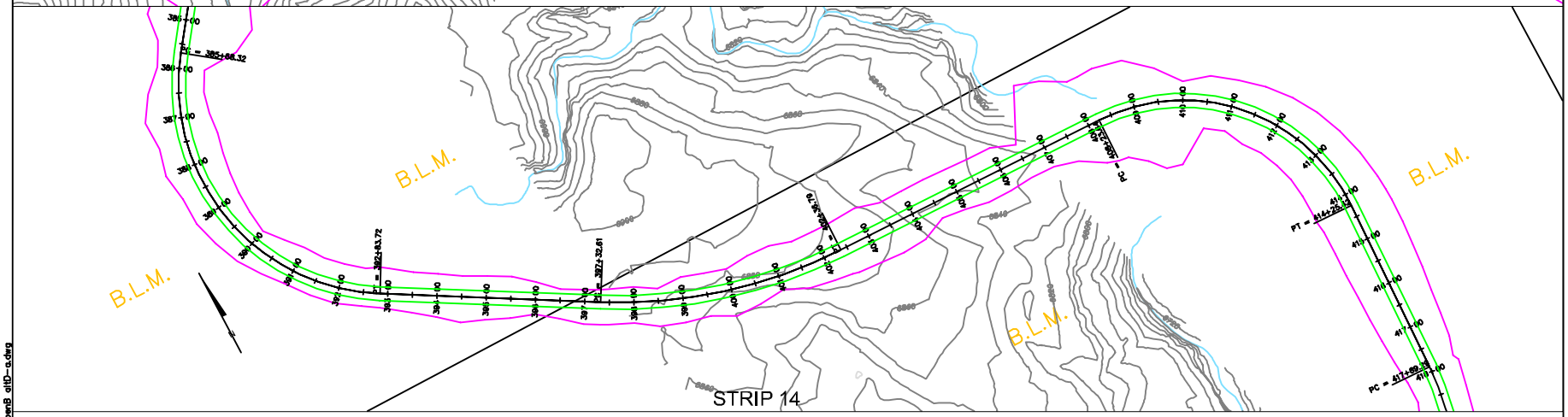


STRIP 13



STRIP 14

LAND STATUS

- BLM LANDS
- STATE LANDS
- U.S. FOREST SERVICE
- PRIVATE LANDS

EXPLANATION

- EXISTING ROAD
- EXISTING TRAIL
- PROPOSED ALIGNMENT W/ENGINEERING STATIONS (41+00, 42+00)
- CUT AND FILL LINES
- FENCE
- CORRAL
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- STREAM CROSSINGS
- CATTLE TRAIL
- POTENTIAL ELK CROSSING
- PULLOUTS
- EXISTING ROAD TO BE RECLAIMED
- EXISTING ROAD TO REMAIN
- POWER POLE AND POWER LINE
- WATER LINE

200 0 200 FEET

QUITCHUPAH CREEK ROAD EIS

WATER HOLLOW ALIGNMENT, ALTERNATE D STRIP MAPS 13 AND 14

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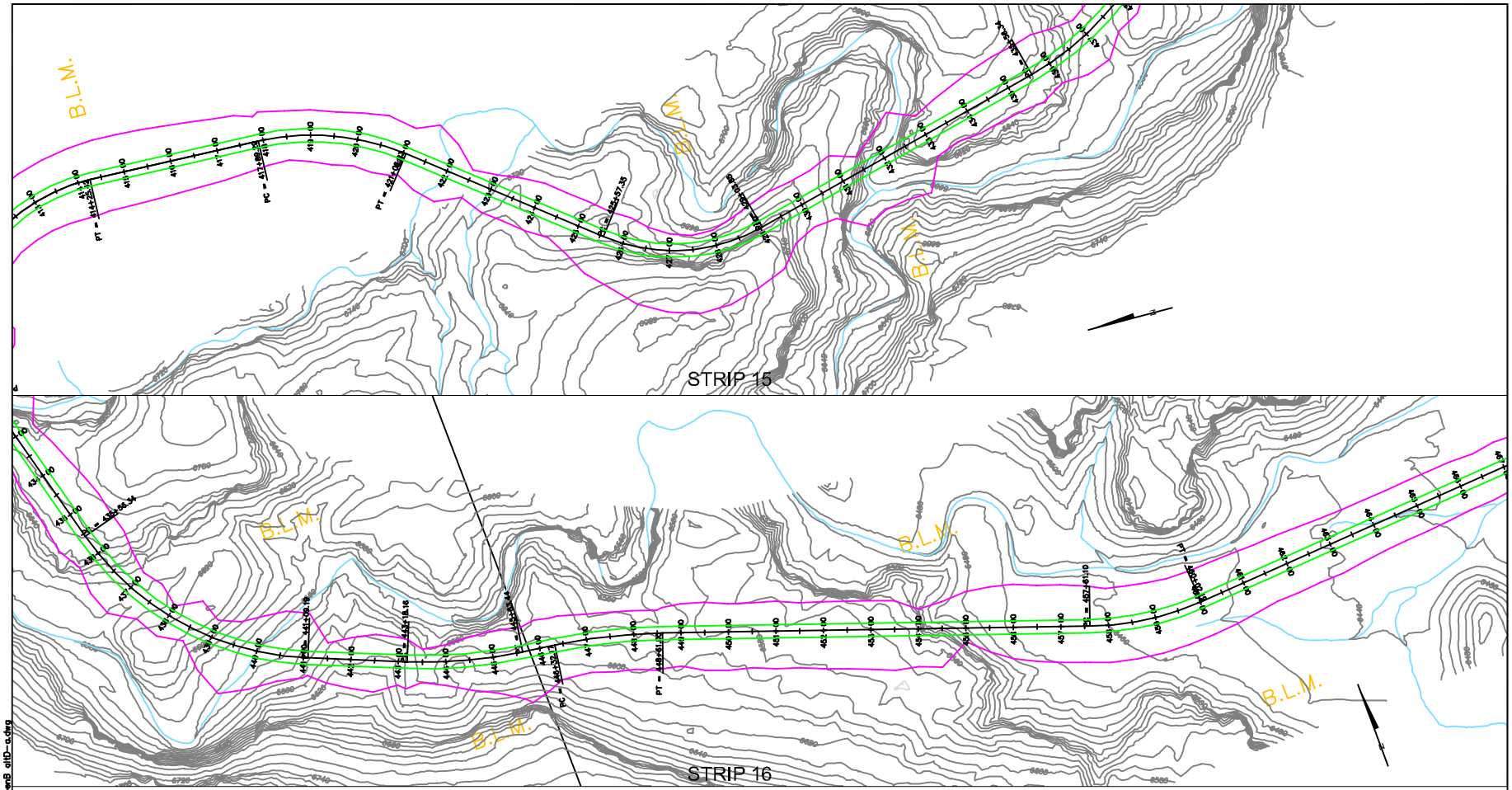

LAND STATUS

- BLM LANDS
- STATE LANDS
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- PRIVATE LANDS

EXPLANATION

- EXISTING ROAD
- EXISTING TRAIL
- PROPOSED ALIGNMENT W/ENGINEERING STATIONS (41+00, 42+00)
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- EXISTING ROAD TO REMAIN
- POWER POLE AND POWER LINE
- WATER LINE

200 0 200 FEET

QUITCHUPAH CREEK ROAD EIS

WATER HOLLOW ALIGNMENT, ALTERNATE D STRIP MAPS 15 AND 16

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Salt Lake City, Utah Cedar City, Utah Reno, Nevada Elko, Nevada

DESIGN BY	LM	DRAWN BY	CP	CH'D BY		SCALE	As Shown

DATE DRAWN	4/25/03
REVISION	7/14/05

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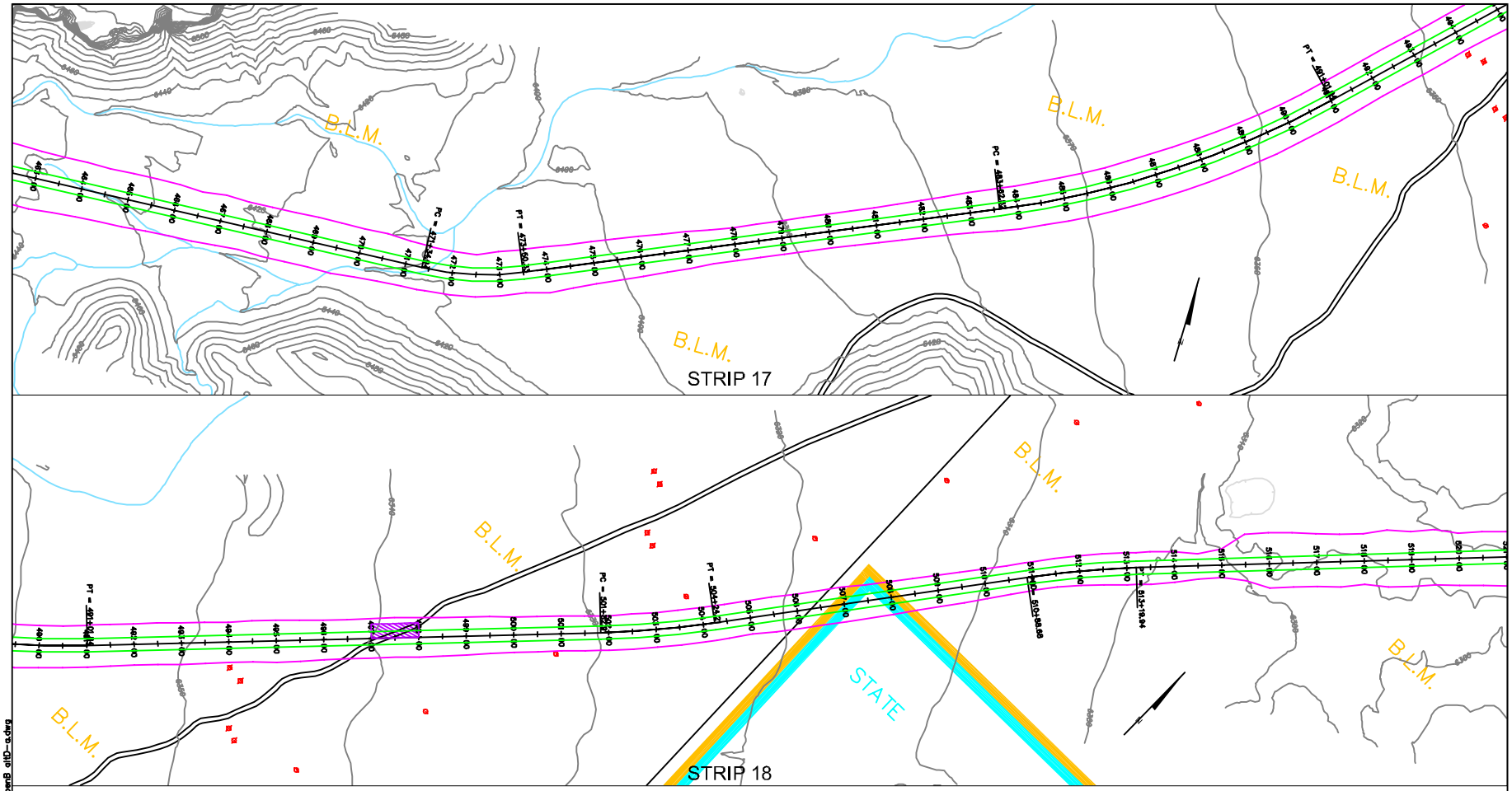

LAND STATUS

- BLM LANDS
- STATE LANDS
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- PRIVATE LANDS

EXPLANATION

- EXISTING ROAD
- EXISTING TRAIL
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- EXISTING ROAD TO REMAIN
- POWER POLE AND POWER LINE
- WATER LINE

200 0 200 FEET

QUITCHUPAH CREEK ROAD EIS

WATER HOLLOW ALIGNMENT, ALTERNATE D STRIP MAPS 17 AND 18

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LM	CP		As Shown	4/25/03	7/14/05

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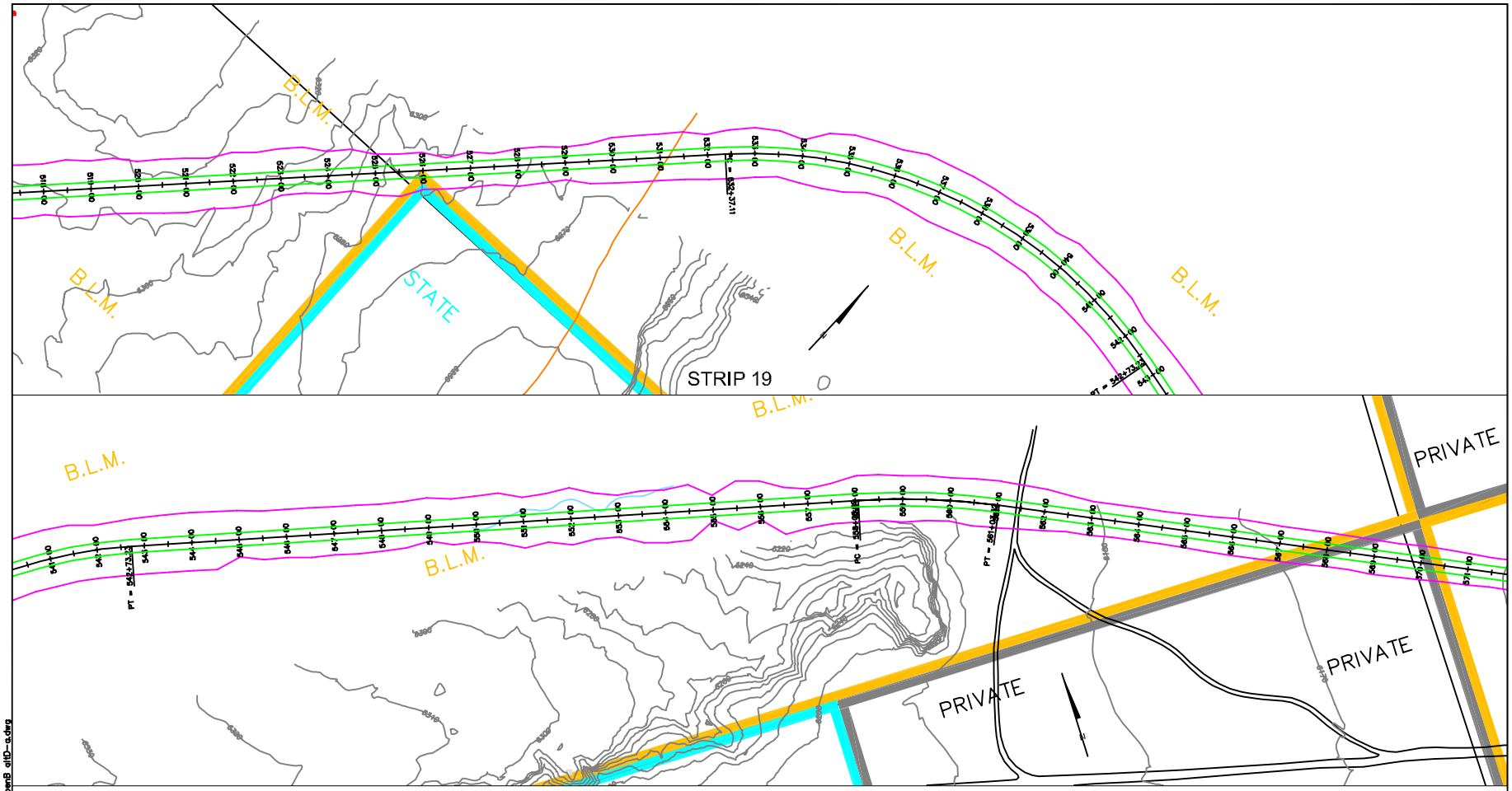

LAND STATUS

- BLM LANDS
- STATE LANDS
- PRIVATE LANDS

EXPLANATION

- EXISTING ROAD
- EXISTING TRAIL
- PROPOSED ALIGNMENT W/ENGINEERING STATIONS (41+00, 42+00)
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- PULLOUTS
- EXISTING ROAD TO BE RECLAIMED
- EXISTING ROAD TO REMAIN
- POWER POLE AND POWER LINE
- WATER LINE

200 0 200 FEET

QUITCHUPAH CREEK ROAD EIS

WATER HOLLOW ALIGNMENT, ALTERNATE D STRIP MAPS 19 AND 20

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DATE DRAWN 4/25/03
REVISION 7/14/05

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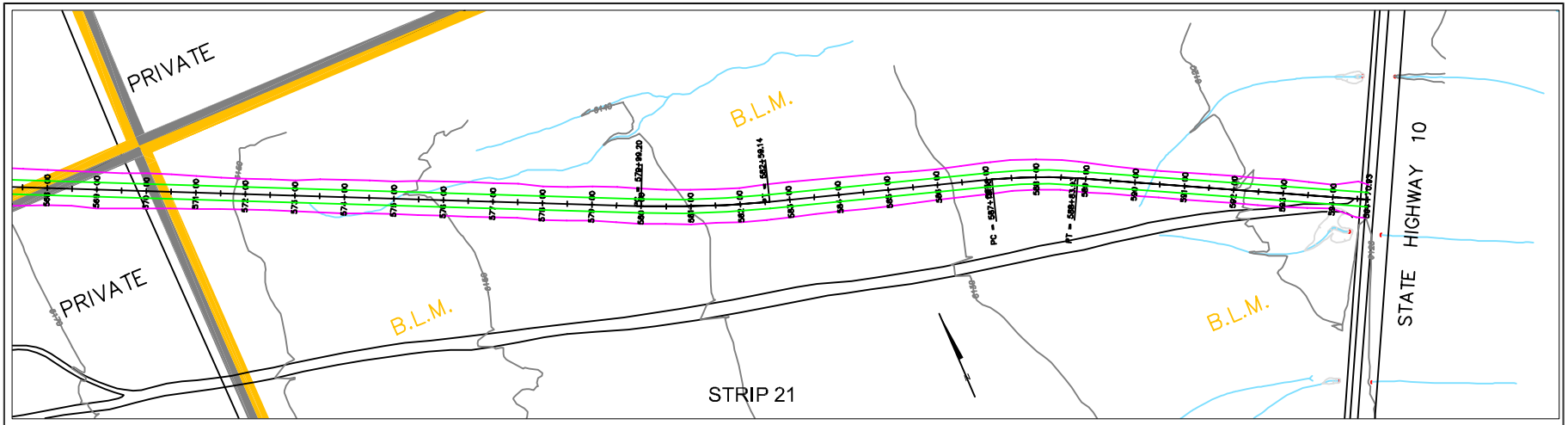

LAND STATUS

- BLM LANDS
- STATE LANDS
- U.S. FOREST SERVICE
- PRIVATE LANDS

EXPLANATION

- EXISTING ROAD
- EXISTING TRAIL
- PROPOSED ALIGNMENT W/ENGINEERING STATIONS (41+00, 42+00)
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- PULLOUTS
- EXISTING ROAD TO BE RECLAIMED
- EXISTING ROAD TO REMAIN
- POWER POLE AND POWER LINE
- WATER LINE

200 0 200 FEET

QUITCHUPAH CREEK ROAD EIS

WATER HOLLOW ALIGNMENT, ALTERNATE D STRIP MAPS 21

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DATE DRAWN	4/25/03
REVISION	7/14/05

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Best Management Practices (BMPs)

Best Management Practices
to
Insure That Water Quality is Maintained

Along with standard engineering designs and special construction methods for the types of substrate encountered along the proposed alignment or alternatives, additional design, construction, and maintenance commitments would be made to protect stream, soil, and aquatic resources. These commitments take the form of environmental protection measures and/or Best Management Practices (BMPs) that would be implemented where applicable. They are based upon sound, tested techniques from established sources, including, but not limited to, Utah Department of Transportation Road Drainage Manual (UDOT,); various U.S. Forest Service Road-Water Interaction publications (Furniss, 1997; Copstead, 1998; Flanagan, 1998; Moll, 1999); BLM (undated); Wasatch-Cache National Forest BMPs (USFS, 2001); State of Utah (1995); and local USFS personnel.

DESIGN BMPS

Drainage Crossings

- Proper engineering design would insure that the existing channel configurations immediately up- and downstream of culverts are maintained to the maximum extent possible. This would include maintenance of cross sectional dimensions, profile, velocity, and flow patterns. Removal of existing riparian vegetation would be restricted to the minimum necessary for the maneuvering of equipment and the actual disturbed footprint.

- Channel crossing culverts would be designed to pass the peak flow, sediment, and debris associated with the 100-year event without headwater allowances greater than the culvert diameter. For example, where a crossing culvert is 36 inches, headwater depth would be less than or equal to 36 inches.

- Culvert crossings in streams where fisheries have been identified would be designed to pass appropriate species and life-stages during appropriate times of the years during both high and low flow conditions. The relevant design criteria and final designs would be determined through consultation with DWR and USFS fisheries biologists. Flow depth, flow velocity, and grade would be among the items the final design would take into consideration.

- In the interest of passing sediment and debris, and facilitating maintenance, minimum culvert diameter would be 24 inches. This would apply to channel crossings, ditch relief culverts, irrigation canal crossings, and all other culverts used in the project.

- Culvert inverts would be placed a couple of inches under the bed surface, along grade, whenever possible. This would allow a natural substrate to bed the culvert to provide aquatic benefits as well as reduce the potential for up- and downstream channel changes.

- Road fills at culvert inlets would be protected through the use of wing walls or similar structures such as vegetation, boulders, shotcrete, gunnite, or molded steel plate culvert ends, for flow depths up to those associated with the 100-year peak flow.

- Energy dissipating rock aprons would be used at culvert outlets to return flows to an acceptable velocity and depth as they exit the culvert. The distance downstream that the aprons would extend would be based upon site conditions as modeled by standard UDOT engineering design techniques to calculated outflow distances.

- Unless specific conditions are prohibitive, culverted crossings would be placed perpendicular to the roadway, in other words with the road approaching the natural channel alignment at a 90 degree angle. However, where the road alignment cannot accommodate this, the channel would not be realigned, and thus the angle would not be perpendicular.

- The width of the road fill at the crossing would be limited to the minimum necessary for the crossing. For example, pull out lanes, wide shoulders, etc. would not occur in these areas unless required for safety.

- All terms and requirements of the relevant Corps of Engineers Nationwide Permit for Road Crossings (NWP 14) would be followed at crossings for which it applies. These are not repeated here, but are incorporated by reference.

- Culverts would be installed and maintained to avoid inlet scouring and to prevent erosion of downstream banks. This includes such items as use of rock aprons, protected fills, installation along grade but slightly below bed elevation and other items discussed in this section.

- Crossings would be designed such that, if failure occurs due to blockage or capacity exceedance, flow would be returned to the natural channel and would not continue along the roadway toward another channel or an overland areas (least consequence flow path during overtopping). In many cases, this would be done simply by installing a slight depression in the crossing vicinity that does not interfere with traffic speeds.

Road Drainage Network

- Ditch relief culverts would be installed at spacings adequate to manage runoff, generally no more than 500 feet apart. The spacing of ditch relief culverts would not exceed 250 feet in locations where the road is within 500 feet of perennial streams. As with all culverts used in the project, the minimum ditch relief culvert diameter would be 24 inches in order to prevent plugging by passing sediment and debris, and to facilitate maintenance.

- Rerouting or transferring of up-gradient runoff water via roadside ditches to adjacent basins, even on a small sub-basin scale, which would result in a cross-basin diversions that could alter natural flow and sediment regimes, would be avoided. This would be done by properly locating and spacing ditch relief culverts.

- Runoff from road surfaces would be discharged in a manner so as to avoid directly converging with stream channels wherever possible, minimizing or eliminating hydrologic connectivity between the road drainage network and the stream channels. This would be done by: (1) properly locating ditch lines and ditch relief culverts; (2) by grading slopes away from channel networks; and/or (3) by allowing sufficient distance for flows leaving a ditch relief culvert to re-infiltrate and deposit sediments. Where it is not possible to prevent a ditch or cross drain from draining more or less directly to a channel, the ditchline would be armored until reaching the next upstream ditch relief.

- Where possible, cross drains and ditch turn outs would be sites on gently sloping, stable terrain such as where rock or stable vegetation is found. Discharge areas would be located to release water on convex slopes where possible, so that water would be dispersed rather than channeled; concave slopes would be avoided wherever possible.

- As needed, ditch relief culvert outflow areas would be armored with loose riprap, grouted riprap, shotcrete, gunnite, turf reinforcement mate, gabions, or similar types of materials and configured to reduce velocity by providing dispersal and velocity reduction for at least 50 feet downstream. This armoring would occur wherever needed due to grade and/or substrate characteristics. Further, wherever ditch lines and ditch relief culverts are located within 500 feet of perennial stream, the ditchline and the ouflow area would be similarly armored.

Channel Realignment or Roadfill/channel interactions

- Any in-channel work, whether related to stream bank realignment, crossing, or other purpose would result in reestablishment of original channel gradient, bank width, bank slope, and bankfull depth. As necessary, this would involve accurate surveying of existing, predisturbance conditions and follow up surveys after the work has occurred.

- Where channel realignment cannot be avoided, such as at East Spring Canyon, the rock art site, and the upper narrow Convulsion Canyon reach, the natural channel's pattern and geometry would be mimicked where possible, including radius of curvature of meanders, bed profile, bank slope, substrate diameter, habitat feature. A hydrologist would assist in the design and implementation of channel realignment and design projects.

- Realigned or reconstructed streams would be designed to carry bank full flows in-channel, with flood flows dispersed on floodplains or in a widening channel appropriate for the given valley type present.

- At the upstream and downstream ends of realigned reaches, appropriate transitions to the undisturbed channel reaches would be designed.

- Where appropriate, low-stage grade control structures would be incorporated into the designs to prevent vertical migration of entrenched channels. Typically, these structures would be keyed into the bed and banks, with the top elevations at the same elevation as the channel bottom or no higher than 1.5 feet above the bed. Specific designs for each structure would insure that erosion around the ends of the structures would not occur during higher flows, and that gradient stability would be maintained by properly spacing the structures.

- Where appropriate, rather than using riprap, new channel banks would be treated with burlap bag soil pillows, willow soil-root plugs, cuttings or similar bioengineering treatments from on-site to encourage and enhance both herbaceous and woody vegetation growth. This would occur where banks have non-rocky substrate that would allow such treatments to be effective and develop natural functioning deformable banks.

- As required, conditions of the State General Permit 40 for Stream Alterations would be followed. Conditions are not listed in entirety here, but are incorporated by reference.

Fill Slopes and Cut Slopes

- Where cut or fill slopes are steep (2.5:1 or steeper) and sufficient soil substrate (i.e. not too rocky, bouldery, or in bedrock) allows for eventual revegetation, synthetic turf reinforcement mats (TRMs), rolled coir logs, or similar products would be used to provide erosion protection and hold soil/seed in place. Any such products would be installed following the specific manufacturer's specifications.

- Where cut or fill slopes are 2.5:1 or steeper and are longer than 100 feet, benched slopes would be used when feasible from an engineering standpoint in order to reduce runoff velocities, prevent erosion, maximize infiltration, and facilitate revegetation.

- Where long, steep fill slopes (greater than 200 feet long and steeper than 2:1) would be needed within 50 feet of perennial streams, vertical retaining walls would used to eliminate the chronic erosion/sedimentation potential for these areas.

- Where construction activities result in exposure of large boulders (2 feet or more in diameter), these would be placed or left on cut or fill slopes in a secure manner to mimic natural micro-topography, thus somewhat controlling runoff/erosion and providing niches for vegetative growth.

- Revegetated road fills and slopes would be permanently protected from livestock through fencing with cow-proof barbed wire, or management controls such as herding restrictions.

- Where fill slopes toe out within or close to the floodplain, the toes would be adequately protected with rock rip-rap sized to withstand expected velocities without movement, and will be sub-excavated to prevent undercutting.

CONSTRUCTION BMPS

- Construction would be timed to occur so as to minimize the time of exposure of bare soils before reseeding or other reclamations techniques are implemented. Specific revegetation treatments are discussed in Chapter 2.

- Construction near or in drainages would be restricted to normal low flow seasons (late June through October) and would be temporarily halted during flash flood or other runoff events, which are most common in late summer. During construction the channel would be lined or water would be pumped to prevent increases in turbidity from channel excavations.

- Length of construction time in/near the stream channel would be minimized by segregating that work task to occur as rapidly as possible in a sequential manner; area of disturbance would also be minimized, by restricting equipment to a narrow construction corridor.

- As construction within 50 feet of a stream channel is completed, loose material would be removed from outside the flow path of flood events.

- Where a fill slopes toes out within 50 feet of Quitchupah Creek, a wetland area, or other perennial water, silt fences or similar sediment collection treatments, such as sediment traps, straw bales, coir wattles would be used during construction.

- Riparian vegetation would remain undisturbed wherever possible, and would be limited to that necessary in the actual footprint as well as the minimum necessary for equipment work in the established construction corridor.

- Silt fences or similar sediment collection treatments such as hay bales, coir wattles, small retention basins, pre-made vendor marketed sediment collection traps would be used when the construction activity occurs within 300 feet of Quitchupah Creek, a wetland area, or other perennial water.

- A Storm Water Pollution Prevention Plan would be prepared and followed, according to all the terms and requirements of the Utah Pollutant Discharge Elimination System (UPDES) Permit for Storm Water Discharges from Construction Activities. These are not reproduced here, but are incorporated by reference.

- Contractors responsible for constructing the road would be responsible for maintaining spill kits on site and would train their personnel on how to respond to an emergency spill.

- Equipment and construction materials would not be stored, stockpiled, or maintained within 200 feet of perennials streams.

RECLAMATION BMPS

Road Corridor and Cut/Fill Slopes

- All areas of the constructions corridor, and surfaces not associated with drainage, safety or travelways would be reclaimed as described in Chapter 2. Road cuts and fill would be included within the reclaimed corridor.

- Once reclamation treatments have occurred, they would be monitored and maintained as discussed in the monitoring/maintenance plan until they are deemed successful. A higher level of vegetative success would be applied for road cuts and fills within 500 feet of channels.

- Larger stumps and slash that are by necessity removed during road clearing would be used as temporary sediment filter windrow barriers at the base of road fill slopes or below ditch relief culverts or other locations to provide sediment trapping and runoff velocity control.

Existing Jeep Trail

- Under Alternatives B and C, the existing jeep trail, where it remains exposed but is no longer needed due to the new road, would be fully reclaimed. This would include substrate preparation and surface roughening including deep ripping, furrowing and introduction of organic matter; reseeding with an appropriate seed mix as specified in Chapter 2 and as approved by the appropriated land managing entity; fertilizing or adding inocculants to encourage growth; mulching with rock or other suitable material such as straw or matting; traffic barriers such as boulders, fencing, or steep berms; and follow up monitoring/maintenance, as specified in the monitoring and maintenance plans. The reclaimed road area would be protected from livestock grazing until the plants are sufficiently established such that soil protection would be assured even if grazed.

- Where the existing jeep trail includes cut and fill slopes, obliteration would be accomplished by decompacting the inner ½ of the prism to a minimum of 14 inches. The fill material would then be replaced against the cutslope to restore the natural outslope as much as possible.

- Where the existing jeep trail crosses watercourses, channel width, gradient, and side slope would be reinstated to match conditions above and below the crossing. If follow-up monitoring notes that an equilibrium gradient cannot be maintained, low stage grade control would be installed.

Staging, Borrow, and Miscellaneous Areas

- All staging and on-site borrow areas would be graded gently to minimize offsite erosion, and where needed, sediment control via silt fences, berms, straw wattles, sediment basins, etc. would be placed. When completed, these areas would also be reclaimed to the same standards as other reclamation areas described in Chapter 2, including follow up maintenance and monitoring. These sites would be protected from livestock grazing until the plants are sufficiently established such that soil protection would be assured even if grazed.

- The Broad Hollow holding facility would be graveled and graded so as to minimize erosion.

OPERATIONAL BMPS

Winter Deicing BMPs

- Sand with added salt or salt substitutes would be used when necessary to provide safe winter driving conditions, using criteria that are acceptable and standard for the State of Utah. The source and quality of the sand would be chosen such as to minimize contributions of salt into the watershed.

- Salt storage facilities would be sited on flat areas, at least 500 feet away from streams and other water sources, would be roofed, and drainage would be directed away from the area via grading, ditching, berming or other means.

- Springs, wetlands and other sensitive areas would be marked with visible fluorescent flagging and extra care taken during application to insure that salt is not added to those areas either directly or via runoff.

- Operators would be trained when hired and training would be repeated annually in proper application rates, techniques, etc. to insure both safe conditions and minimal environmental harm.

Miscellaneous

- Truck drivers would be trained to properly respond to and report spills of fuel, coal, or other materials. Trucks would be equipped to enable them to properly do so.

- Air or water baths would be used after loading coal trucks to prevent coal from falling off the trucks during transport.

- Large animal carcasses would be disposed of where they cannot be delivered or dragged to dry or wet channels.

- Monitoring of all site reclamation would continue for as long as it takes to assure that the reclamation measures have been effective. If reclamation is not effective or if there are unintended and unforeseen erosional or water quality impacts, additional treatments and/or mitigation measures would be applied to alleviate the impact. See the monitoring plan.

- Inspection, maintenance and/or repairs to drainage crossings, slopes, road drainage network, etc. would occur in a timely manner to prevent continuing or extensive erosion/sedimentation problems. This BMP is described more fully in the Monitoring Plan document, which is incorporated by reference.

References:

Bureau of Land Management. Undated. Internal Document, Price Field Office Hydrologic Modification Standards for Roads.

Copstead, Ronald L., PE, et al. September 1998. Water/Road Interaction Technology Series: Introduction to Surface Cross Drains.

Flanagan, Sam A. December 1998. Water/Road Interaction Technology Series: Methods for Inventory and Environmental Risk Assessment of Road Drainage Crossings.

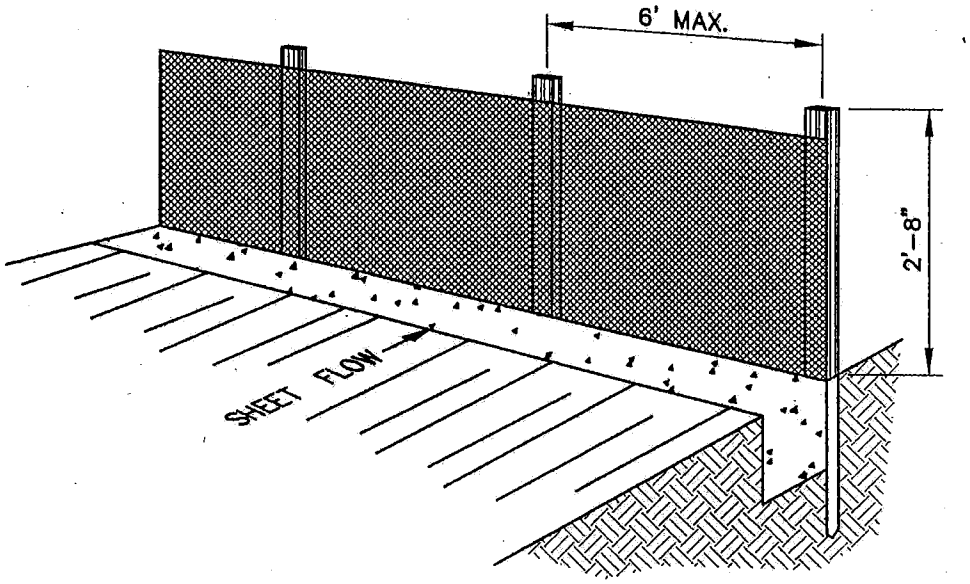
Furniss, Michael J. et al. December 1997. Water/Road Interaction Technology Series: Diversion Potential at Road-Stream Crossings.

Moll, Jeffry E., P.E. August 1999. Water/Road Interaction Technology Series: Minimizing Low Volume Road Water Displacement.

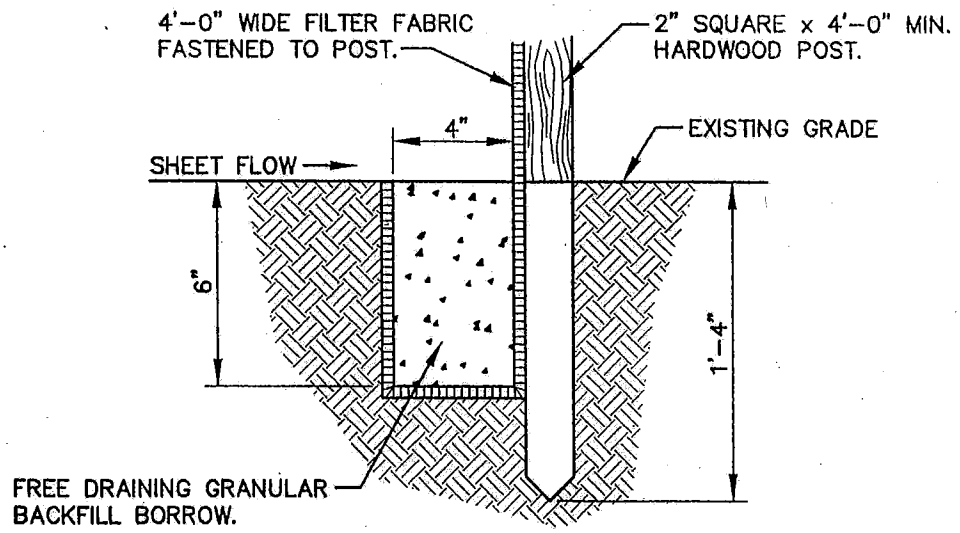
State of Utah, March 1995. Nonpoint Source Management Plan for Hydrologic Modifications.

USFS, 2001. Ski Area BMPS (Best Management Practices): Guidelines for Planning, Erosion Control, and Reclamation. Prepared by Wasatch-Cache National Forest.

Engineering Designs for Water Features

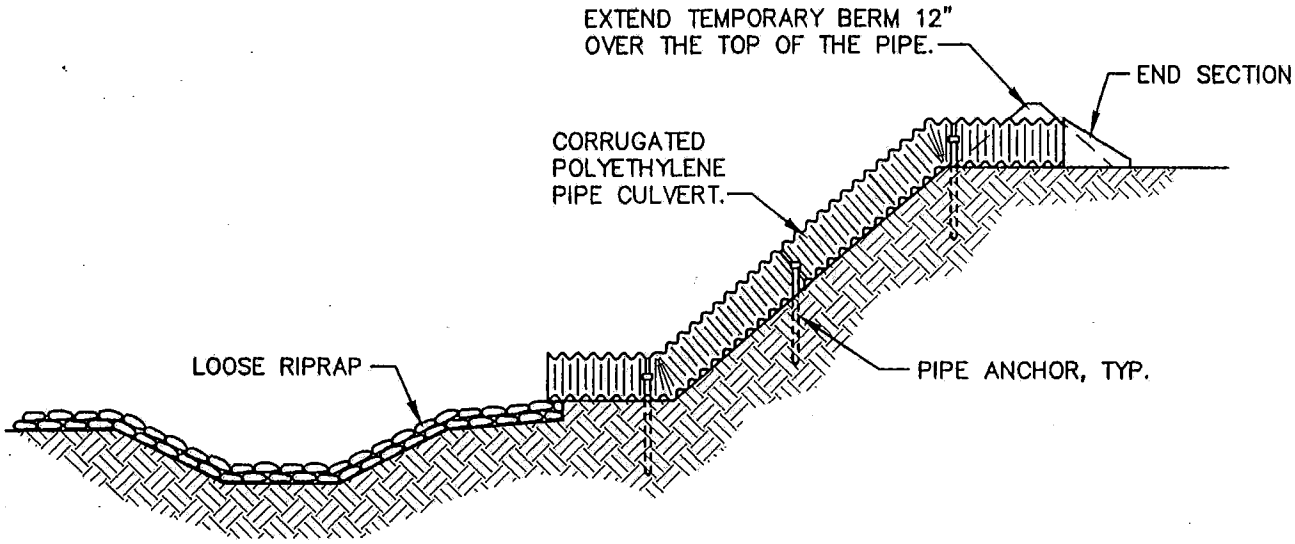


PERSPECTIVE VIEW

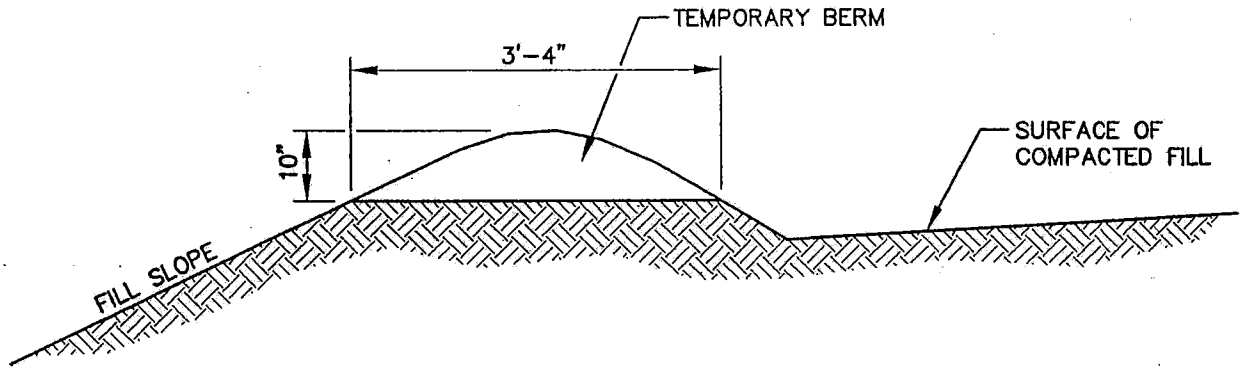


SECTION

TYPICAL SILT FENCE INSTALLATION



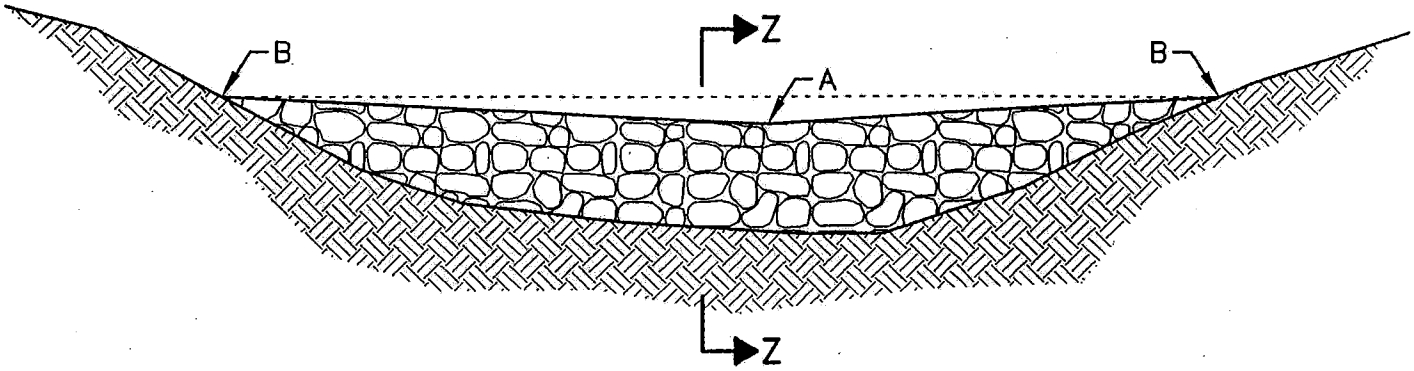
SLOPE DRAIN SECTION



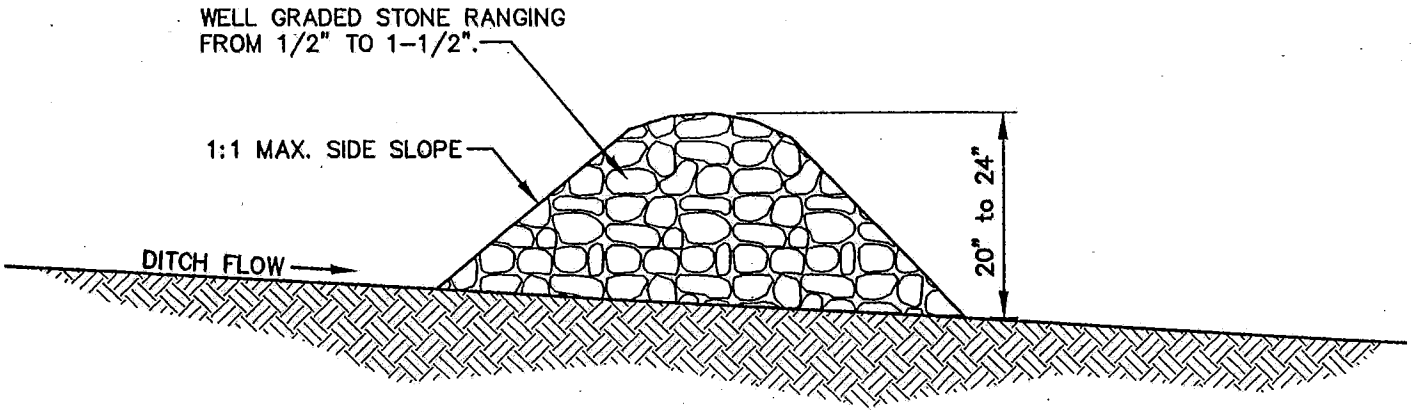
TEMPORARY BERM

TYPICAL SLOPE DRAIN INSTALLATION

CONSTRUCT THE CHECK DAM SO THAT POINT "A"
IS APPROXIMATELY 4" LOWER THAN POINT "B".

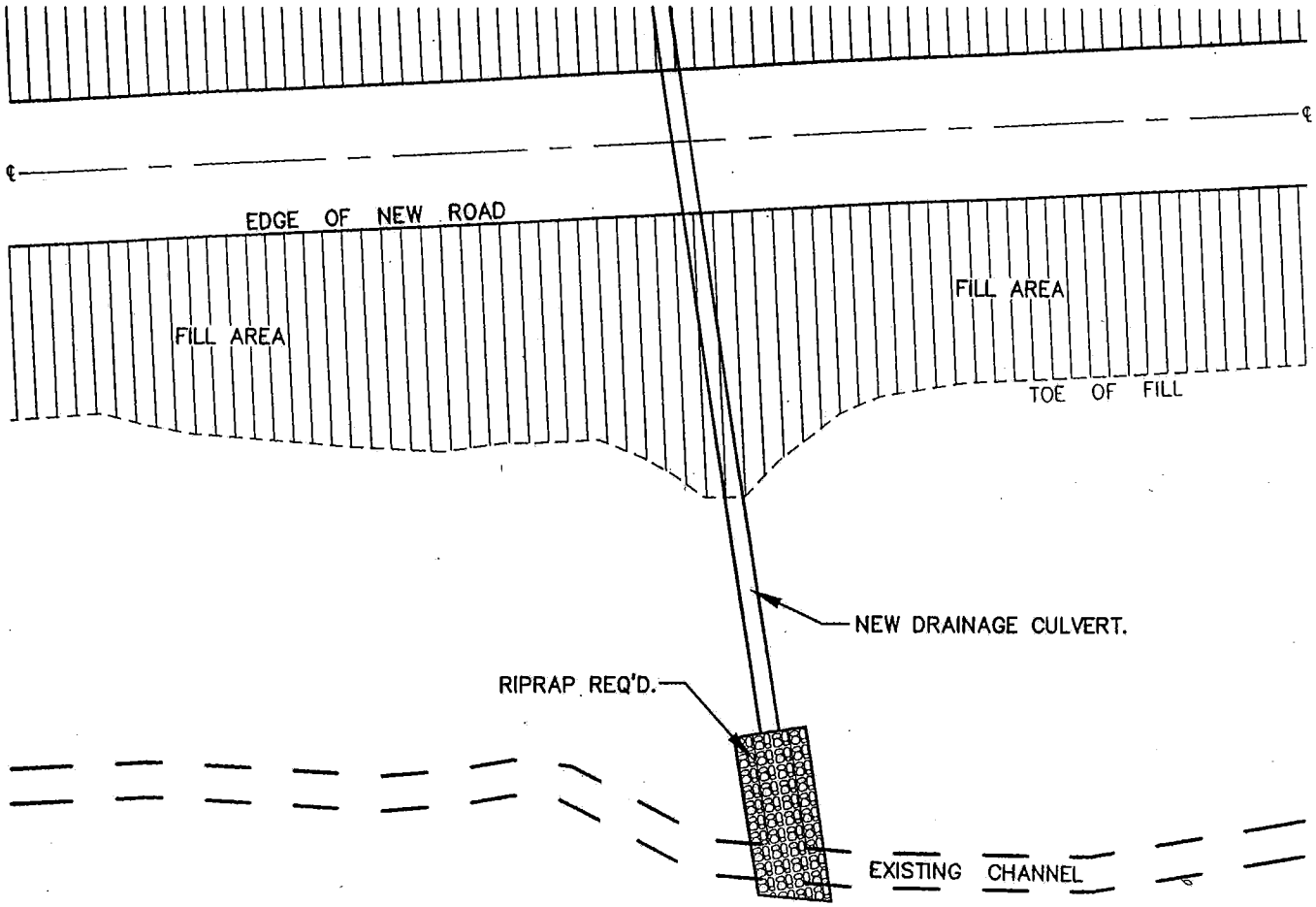


LONGITUDINAL SECTION

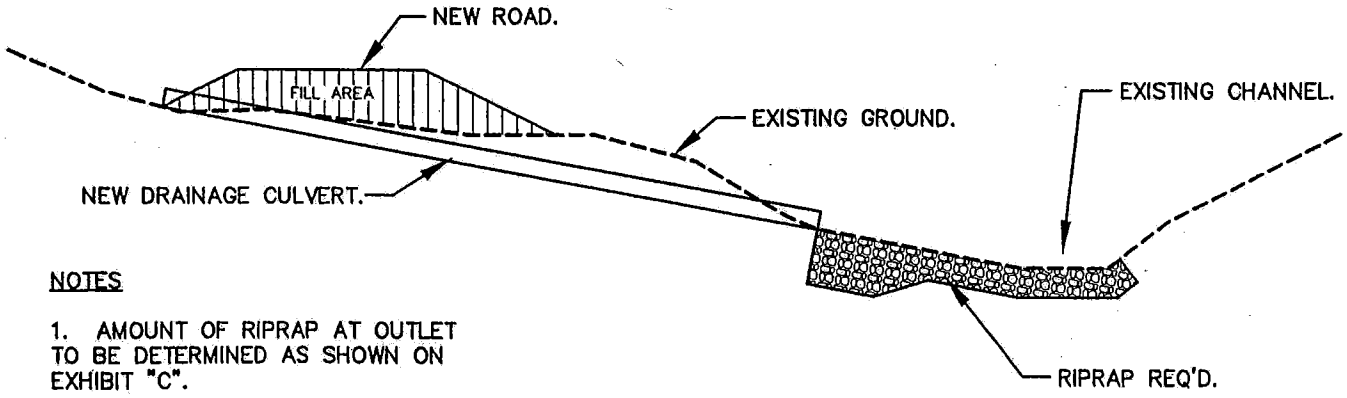


SECTION Z-Z

TYPICAL STONE CHECK DAM



PLAN



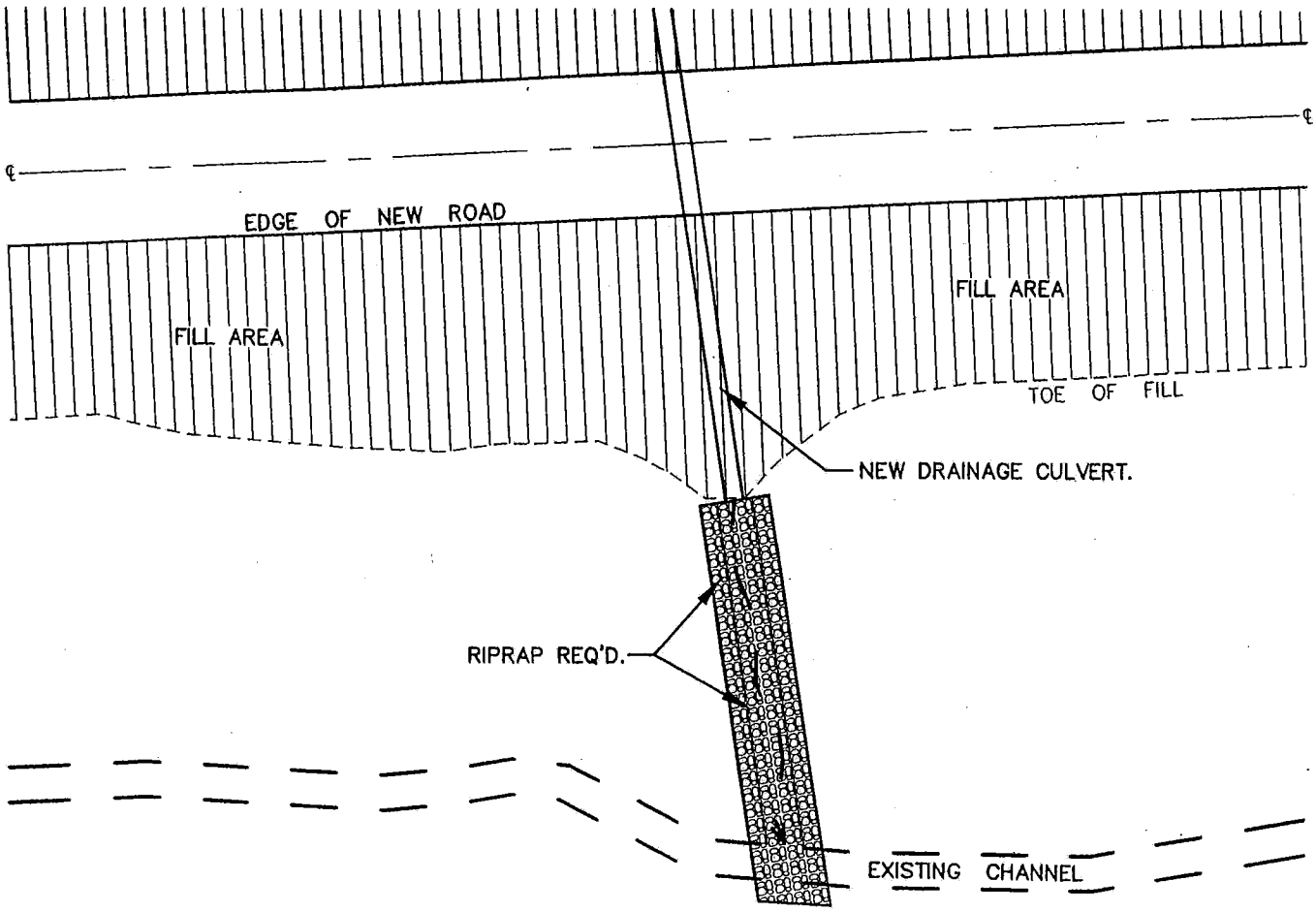
NOTES

1. AMOUNT OF RIPRAP AT OUTLET TO BE DETERMINED AS SHOWN ON EXHIBIT "C".

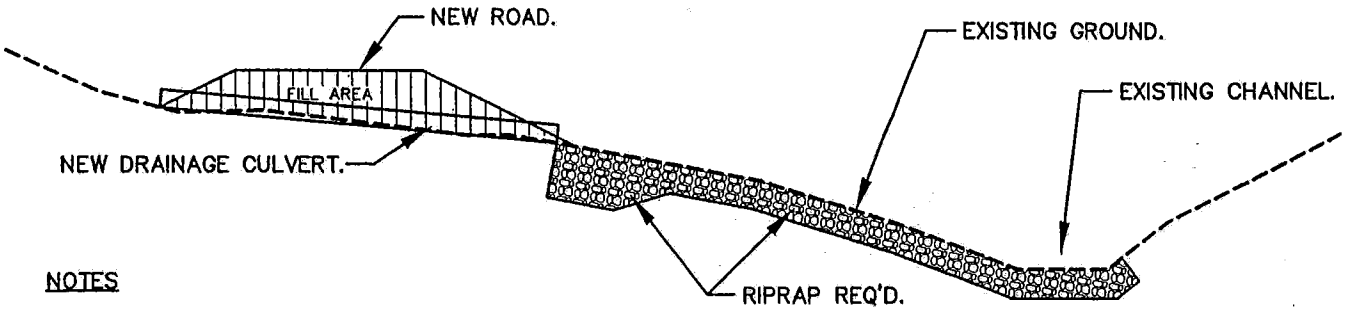
2. CULVERT MAY REQUIRE VERTICLE BENDS IF CULVERT EXCAVATION IS OVER FIVE FEET DEEP.

PROFILE

EXHIBIT "B-1"
TYPICAL CULVERT INSTALLATION – UNSTABLE DRAINAGES



PLAN



NOTES

1. AMOUNT OF RIPRAP AT OUTLET TO BE DETERMINED AS SHOWN ON EXHIBIT "C".

2. CULVERT MAY REQUIRE VERTICLE BENDS IF CULVERT EXCAVATION IS OVER FIVE FEET DEEP.

PROFILE

EXHIBIT "B-2"
TYPICAL CULVERT INSTALLATION – STABLE DRAINAGES

V = Velocity at the outlet of culvert.

T (thickness) = $D/4 + 1/2\ V_o^2/2G$

T min. = 1.0' and T max. = 4.0'

L (length) = $2D + 4\ V_o^2/2G$

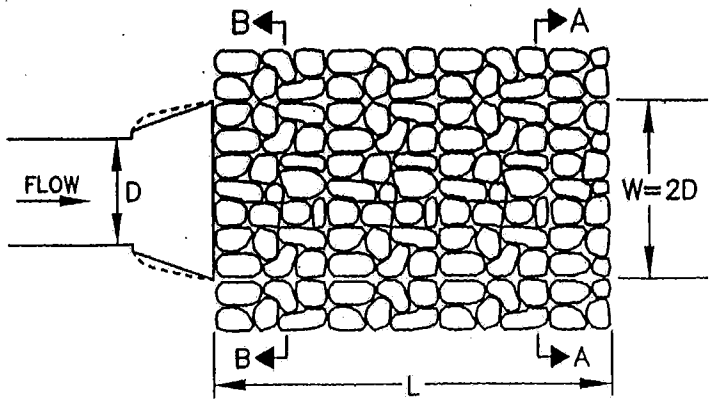
L min. = 10' Desirable

L max. = 30' Desirable

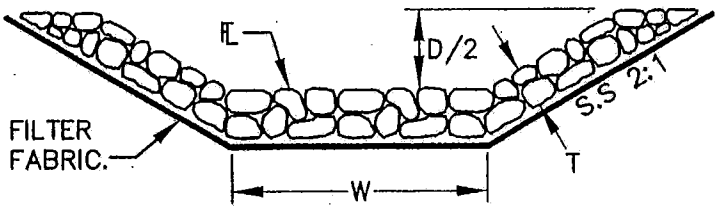
K min. = 3.0' and K max. = 6.0'

NOTES AND LIMITATIONS:

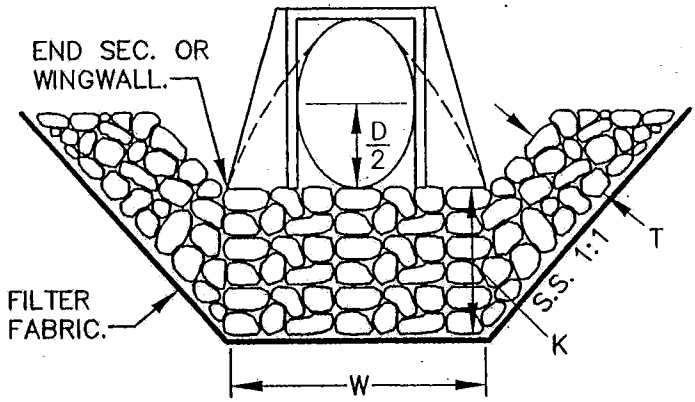
1. In areas where the soil is erodible and the sign of scouring is present, the riprap can be used when $V_o \geq 4.0$ FPS and $V_o \leq 15$ FPS.
2. For $V_o > 15$ FPS, other means of energy dissipators shall be considered.
3. In areas where the soil conditioning is stable or the bed material is rocky, riprap might not be needed. The judgement and discretion of design is of vital importance in the implementation of riprap.
4. In case of R/W restriction or any other constraints, the length of riprap can be shorter than shown above.
5. In extreme cases, the minimum and maximum values of T and K could be different from the specified values above.



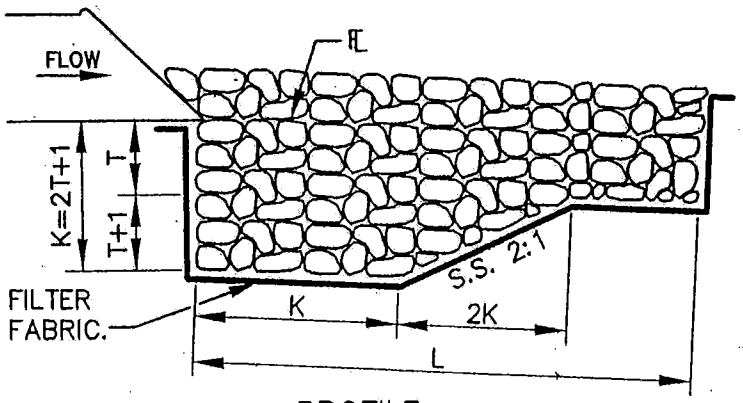
PLAN VIEW



SECTION A–A



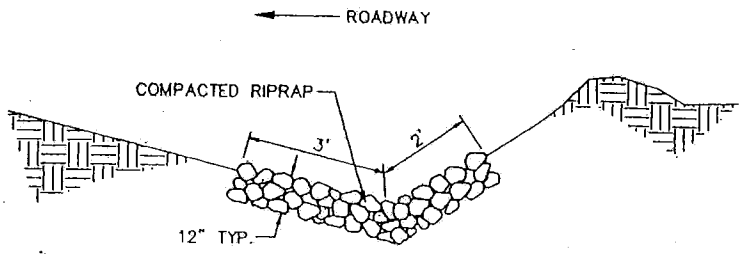
SECTION B–B



PROFILE

EXHIBIT "C"

GUIDELINE FOR LOOSE RIPRAP AT THE OUTLET OF DRAINAGE CULVERTS



RIPRAP LINED CUT DITCH

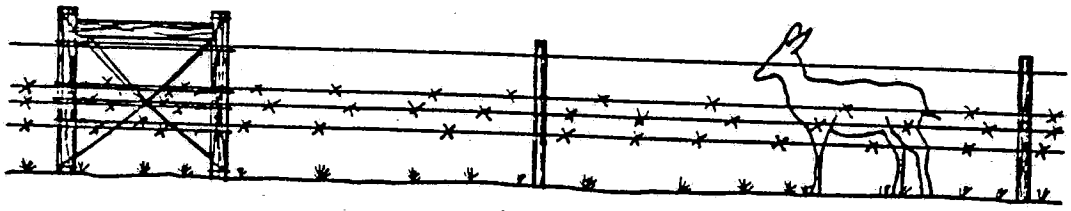
Engineering Designs for Fencing Features

EXAMPLES OF

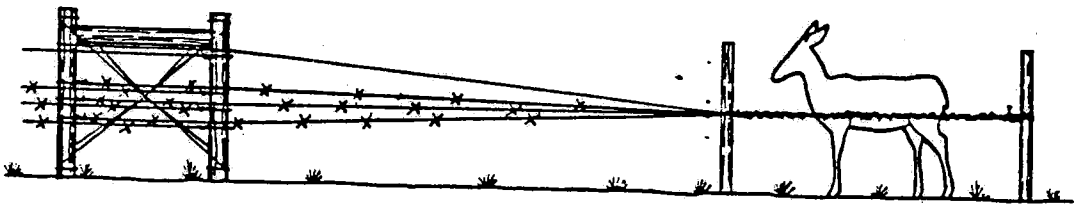
ADJUSTABLE FOUR-STRAND 42-INCH HIGH FENCE

FOR DEER

NOT TO SCALE



STANDARD CONFIGURATION

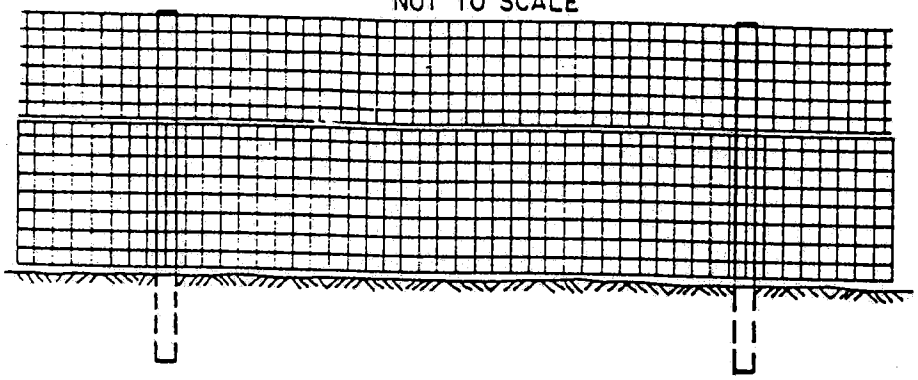


MODIFICATION ALLOWING NEARLY FREE MOVEMENT

EXAMPLES OF BIG GAME PROOF FENCING

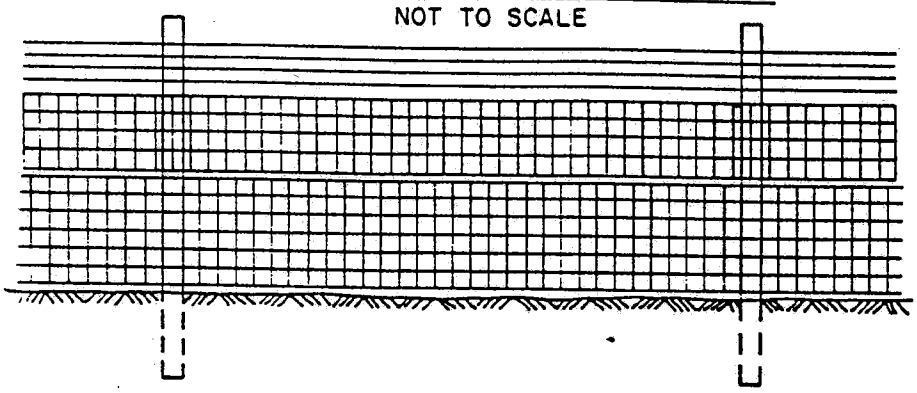
8'-0" HIGH WOVEN WIRE FENCE

NOT TO SCALE



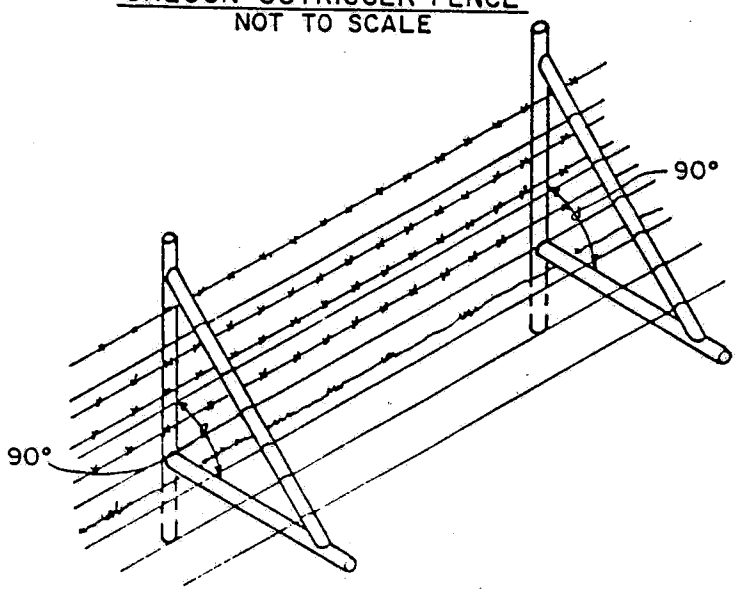
8'-0" HIGH WOVEN/SMOOTH WIRE FENCE

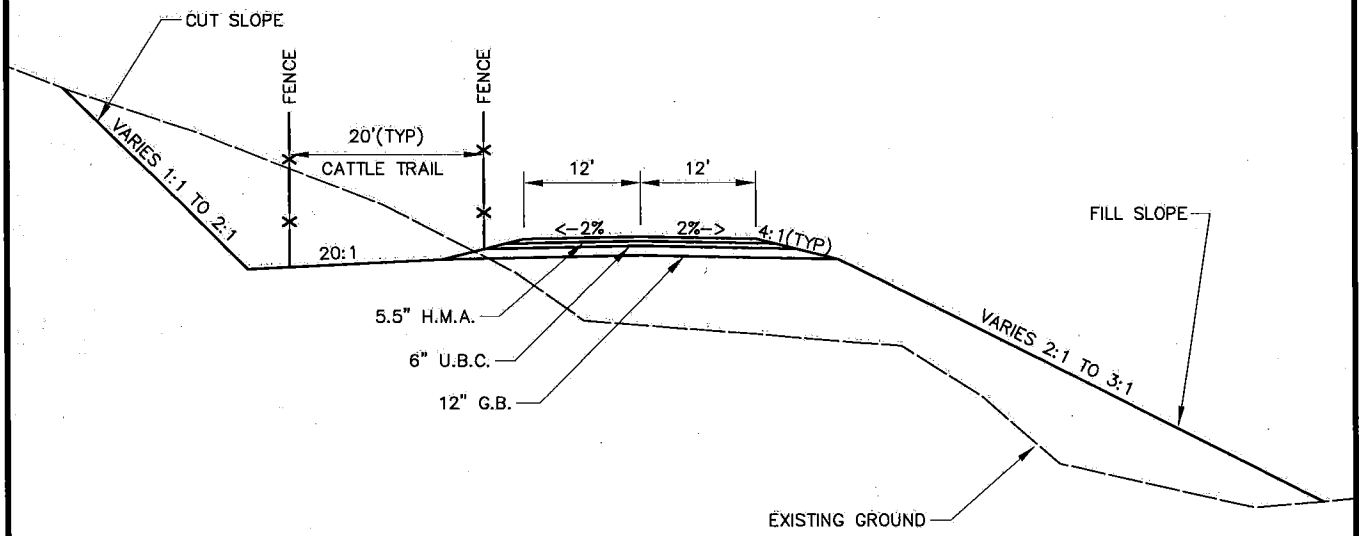
NOT TO SCALE



OREGON OUTRIGGER FENCE

NOT TO SCALE





CATTLE TRAIL TYPICAL SECTION

NO SCALE

STA 21+50 TO STA 46+50
STA 46+50 TO STA 49+00 (TRAIL = 10' WIDTH)
STA 49+00 TO STA 53+00
STA 53+00 TO STA 53+50 (TRAIL = 10' WIDTH)
STA 53+50 TO STA 56+50
STA 71+50 TO STA 77+00 (OPTIONAL)
STA 80+50 TO STA 83+50 (OPTIONAL)
STA 103+00 TO STA 104+50 (OPTIONAL)

Jones & DeMille Engineering
1535 South 100 West – Richfield, Utah 84701
(435) 896-8266 Phone
(435) 896-8268 Fax
www.jonesanddemille.com

Sevier County		
Quitchupah Road		
Cattle Trail Typical Section		
SCALE: NONE	ENG.: B.R.B.	PROJ.#: 9801-059
DATE: 05/31/2005	DWG.BY: B.L.L.	DWG.NAME: TS-cattle

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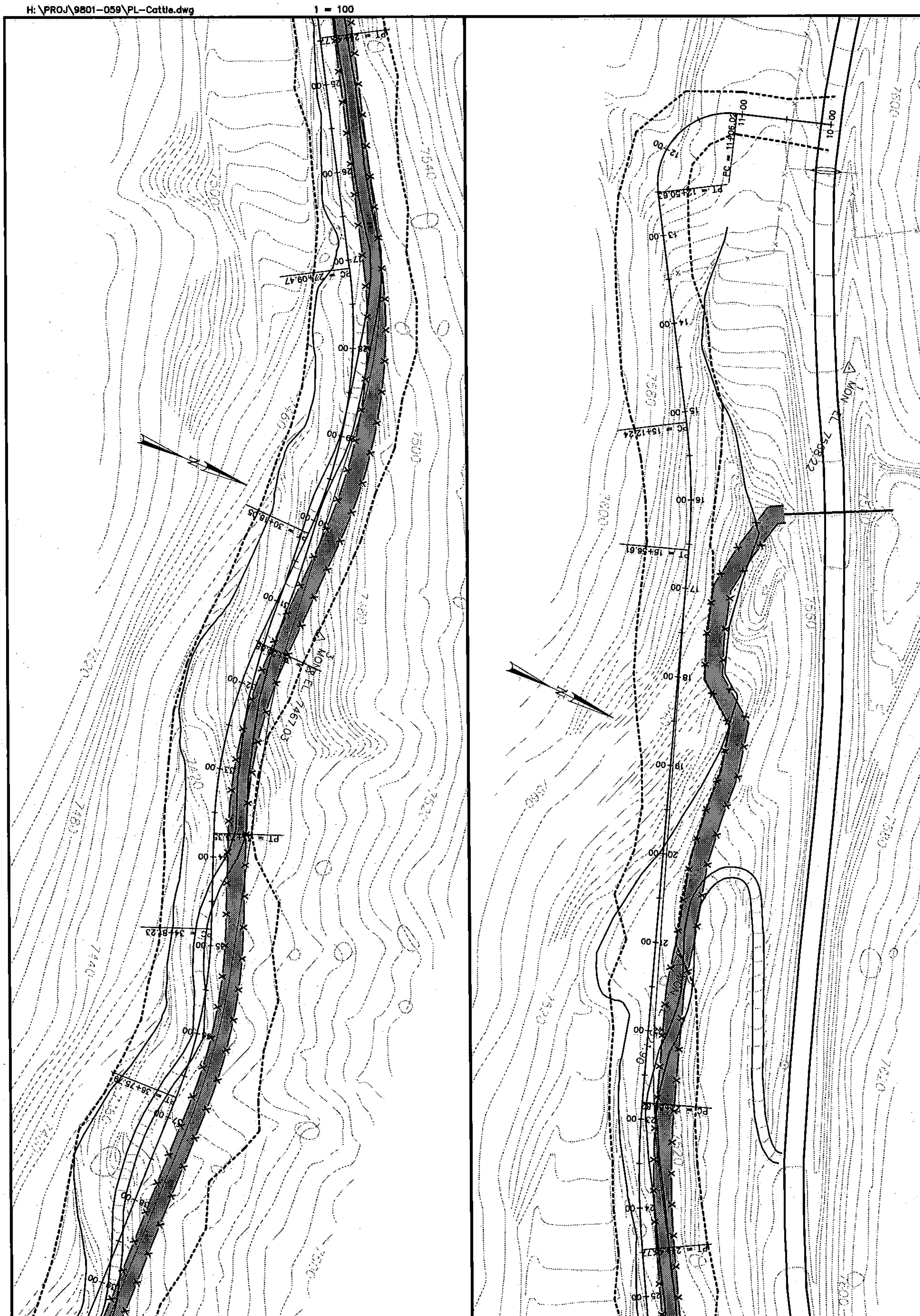

SEVIER COUNTY

QUITCHUPAH ROAD

PLAN SHEET

PROJECT NUMBER 9801-059

SHEET NO. 01 — SEVIER COUNTY

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APPROVAL RECOMM. ____ DATE ____ PROJECT DESIGN ENGINEER	DESIGN B.R.B.00-00	CHECK T.D.D.00-00	REVIEW
	DRAWN B.L.L.00-00	CHECK G.L.M.00-00	DATE
APPROVED ____ DATE ____	QUANT. J.L.A.00-00	CHECK G.L.M.00-00	BY

NO.	DATE	DESIGN REV. BY	MAPS CORR. BY	PARCELS AFFECTED	REQUEST BY	REMARKS
		ORIGINAL SUBMISSION FOR AUTHORIZATION				

REVISIONS

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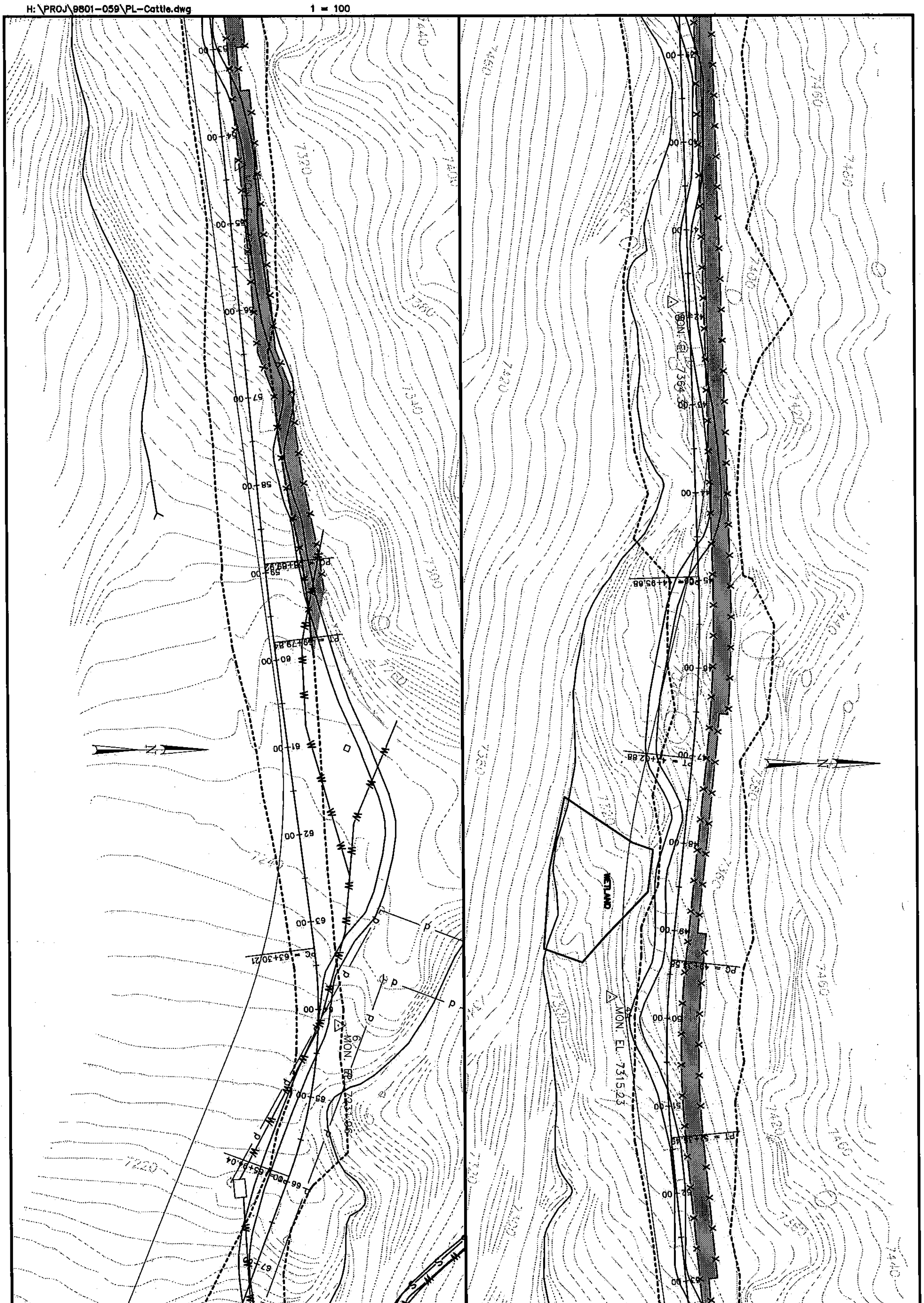

SHEET NO. 02	SEVIER COUNTY

SEVIER COUNTY

QUITCHUPAH ROAD

PLAN SHEET

PROJECT NUMBER 9801-059

APPROVAL RECOMM. ____ DATE ____ PROJECT DESIGN ENGINEER

APPROVED ____ DATE

Jones & DeMille Engineering
1535 South 100 West - Richfield, Utah
(435) 896-8266
www.jonesanddemille.com

DESIGN B.R.B.00-00 CHECK T.D.D.00-00 REVIEW

DRAWN B.L.L.00-00 CHECK G.L.M.00-00 DATE

QUANT. J.L.A.00-00 CHECK G.L.M.00-00 BY

NO	DATE	DESIGN REV. BY	MAPS CORR. BY	PARCELS AFFECTED	REQUEST BY	REMARKS
		ORIGINAL SUBMISSION FOR AUTHORIZATION				

REVISIONS

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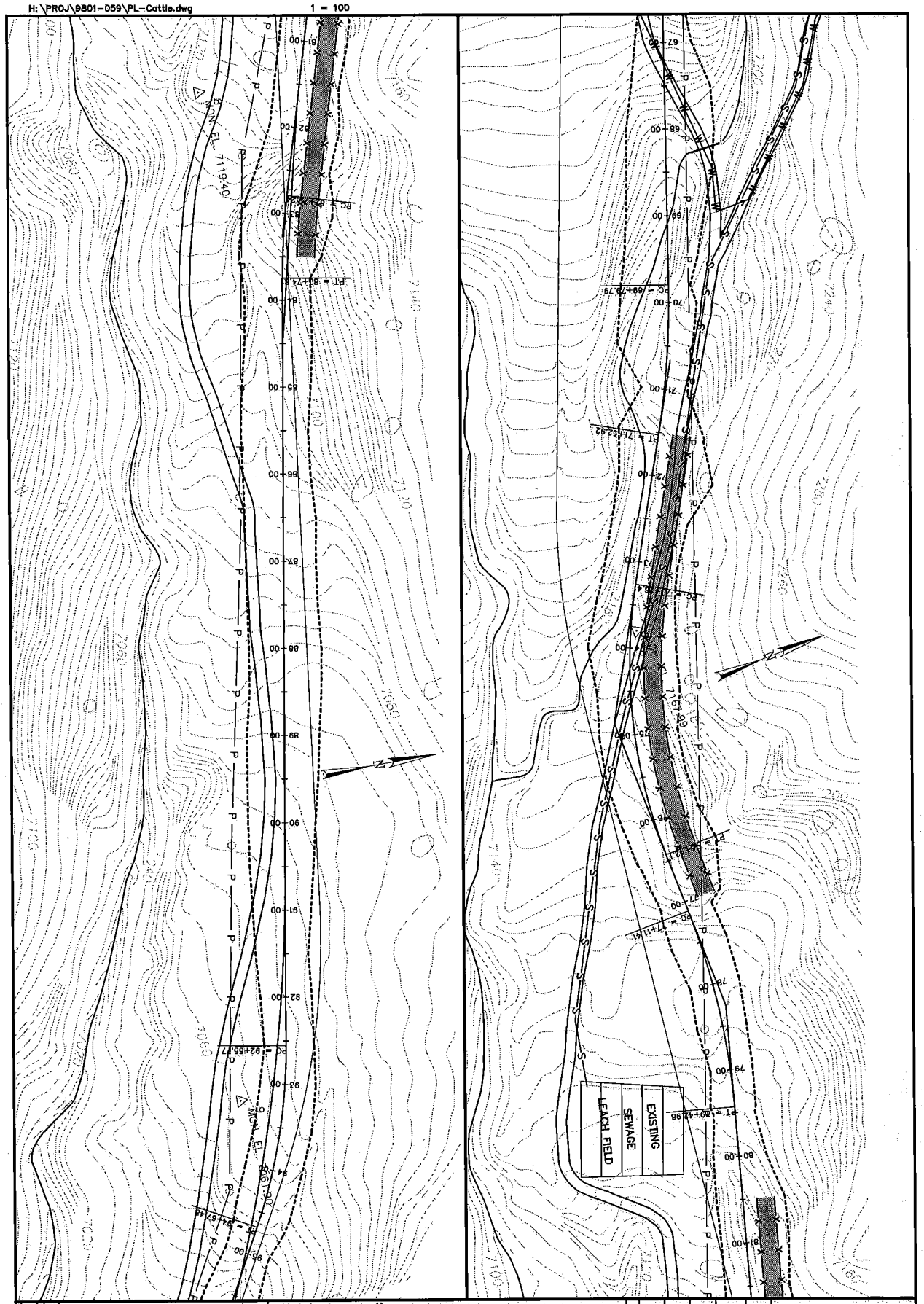

SEVER COUNTY	SEVIER COUNTY	Jones & DeMille Engineering 1535 South 100 West – Richfield, Utah (435) 896-8266 www.jonesanddemille.com			
SHEET NO. 03					
	SEVIER COUNTY QUITCHUPAH ROAD PLAN SHEET	APPROVAL RECOMM. DATE PROJECT DESIGN ENGINEER	DESIGN B.R.B. 00-00 CHECK T.D.D. 00-00	REVIEW	
	PROJECT NUMBER 9801-059	APPROVED DATE	DRAWN B.L.L. 00-00 CHECK G.L.M. 00-00	DATE	
			QUANT. J.L.A. 00-00 CHECK G.L.M. 00-00	BY	

NO	DATE	DESIGN REV. BY	MAPS BOMB. IN	PARCELS AFFECTED	REVIEST BY	REMARKS
						ORIGINAL SUBMISSION FOR AUTHORIZATION

REVISIONS

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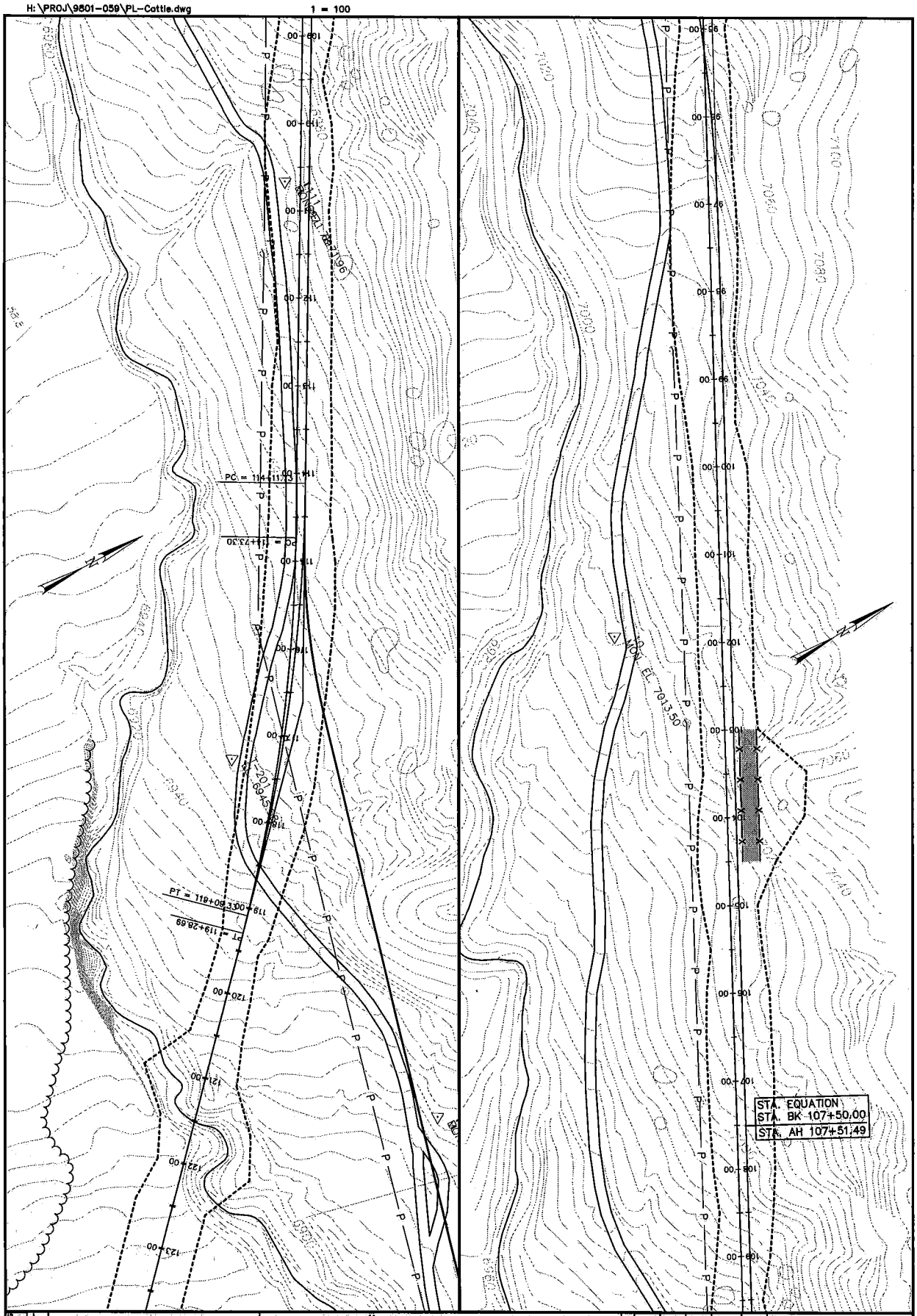

SHEET NO. 04	SEVIER COUNTY	SEVIER COUNTY	Jones & DeMille Engineering 1535 South 100 West - Richfield, Utah (435) 896-8266 www.jonesanddemille.com						
		QUITCHUPAH ROAD							
		PLAN SHEET	APPROVAL RECOMM. DATE PROJECT DESIGN ENGINEER	DESIGN B.R.B. 00-00	CHECK T.D.D. 00-00	REVIEW	NO.	DATE	DESIGN REV. BY	MAPS DOB. BY	PARCELS AFFECTED	REQUEST BY	REMARKS
		PROJECT NUMBER 9801-059	APPROVED DATE	DRAWN B.L.L. 00-00	CHECK G.L.M. 00-00	DATE			ORIGINAL SUBMISSION FOR AUTHORIZATION				
				QUANT. J.L.A. 00-00	CHECK G.L.M. 00-00	BY			REVISIONS				

APPENDIX C

LINK CANYON
ALTERNATIVE DECISION

Department of Agriculture
Forest Service
Fishlake National Forest
115 East 900 North
Richfield, Utah 84701
(435) 896-9233

Department of the Interior
Bureau of Land Management
Richfield Field Office
150 East 900 North
Richfield, Utah 84701
(435) 896-1500

File Code: 1950/Quitchupah Creek Rd EIS
Route To:

Date: June 26, 2000

Subject: Link Canyon Alternative Decision

To: Files

On June 23, 2000, Rob Mrowka, Fishlake National Forest Supervisor; Jerry Goodman, Richfield Field Manager, BLM; and Dick Manus, Price Field Manager, BLM determined that the Link Canyon Alternative is not economically viable and decided not to carry the alternative through the Environmental Impact Statement (EIS) process for further analysis. The Link Canyon Alternative is one of four alternatives being considered in the Quitchupah Creek Road EIS.

In addition to Mrowka, Goodman, and Manus, the responsible officials for this project, others attending the June 23 meeting were George Tetrault, Price BLM Mining Engineer; Jeff DeFreest, Ferron-Price and Sanpete Ranger District Geologist for the Manti LaSal National Forest; Jeanne Higgins, Fishlake National Forest Richfield District Ranger; Linda Jackson, Fishlake NF Strategic Communications Officer and project leader; and Stan Perkes and Max Nielsen, BLM State Office Coal Economists.

a prior project meeting on May 31, Stan Perkes and Max Nielson were asked to review the economic material presented by Canyon Fuel Co. and prepare an assessment of the economic viability of the Link Canyon alternative for review by the responsible officials. This analysis was presented at the June 23 meeting. The review showed that the Link Canyon Alternative is not economically feasible and does not fully meet the EIS Purpose and Need. As a result of this information, the responsible officials decided that the Link Canyon Alternative would not be considered for further analysis in the EIS process.

/s/ Linda L. Jackson

LINDA L. JACKSON
Project Manager Quitchupah Creek Road EIS

APPENDIX D

CUMULATIVE EFFECTS
PAST, PRESENT, AND REASONABLY FORESEEABLE ACTIONS

Appendix D

Past, Present, and Reasonably Foreseeable Future Actions

Table D.1 Summary of Past Actions

Past Actions	Implementation Dates (Begin and End)	Residual Effects
RANGELAND		
Livestock grazing occurred as allowed under the federal permit system.	Yearly	Grazing caused vegetative impacts, and most plant communities remain in early- to mid-seral stage. The riparian community has been heavily impacted in early-seral stage.
The Saleratus Bench Reservoir was constructed.	1981	The water source affects livestock distribution.
The Saleratus Drift Fence was installed.	1942	The fence affects livestock distribution.
Areas of the Water Hollow Benches were seeded.	1968	The plant community changed from disclimax pinyon-juniper to mid-seral shrub/grass community.
Walker Flat Well #2E was capped and the associated pipeline was removed.	1998	The livestock dispersal within the Saleratus allotment was reduced due to water source elimination.
The portion of SR-10 that lay within the Saleratus and M&O allotments was fenced by UDOT. Underpasses were built along mileposts 0.65, 4.05, 6.43 to facilitate cattle movement under the highway.	2001	The fencing and underpasses provide livestock control and increased safety along the highway.
WILDLIFE		
Areas of the Water Hollow Benches were seeded.	1968	The plant community changed from disclimax pinyon-juniper to mid-seral shrub/grass community, but poor distribution of livestock has impacted portions of seedings.

Past Actions	Implementation Dates (Begin and End)	Residual Effects
TRANSPORTATION		
The road in Quitchupah Creek was initially constructed to access the coal mine in Convulsion Canyon.	1940-50's	The road surface remains unstable in many areas and about 12 acres of un-maintained road is located in close proximity to streams.
The Acord Lakes Road, a ten-mile-long county road off of Interstate 70, was paved in 1977 for coal transport.	1977	The road continues to provides easy access to Acord Lakes area and SUFCO Mine.
The Consol Mine reopened and upgraded a road to facilitate coal truck traffic from the mine to SR-10 and the Town of Emery.	2002	The Consol Mine adds more coal truck traffic on SR-10 in the vicinity of Emery.
RECREATION		
The general area has been used for dispersed camping and hunting.	Since 1930s	Some dispersed campsites remain visible.
The general area has been used dispersed hunting and ATV travel.	Since 1930s (ATV use since 1980's)	Some ATV tracks and trails remain visible.
CULTURAL RESOURCES		
There have been unauthorized excavations of archeological sites.	1980s - 1990s?	Some vandalism of sites has occurred.
Various cultural resource surveys have been conducted.	1950's - present	24+ archeological and historical sites, some recommended eligible for the NRHP, have been located.
Cultural resources have been impacted by:		
Livestock Trailing/Grazing	since ca.1880s	Sites may have been eroded away and/or destroyed.
Farming/Agriculture	since ca.1890s	Sites may have been eroded away and/or destroyed.
Recreation	1950s? - present	Sites have been vandalized.
Road construction and maintenance	ca.1890s - present	Sites have been adversely impacted and/or destroyed.
Powerline construction and maintenance	1970s - present	Sites have been adversely impacted.
Mining	1940s - present	Sites have been adversely impacted and/or destroyed.

Past Actions	Implementation Dates (Begin and End)	Residual Effects
ADMINISTRATIVE LAND USES		
Utah Power constructed three overhead power lines in the area in addition to one adjacent to the proposed road in Quitchupah Creek Canyon.	Approximately 1977	Residual disturbances consists of the old construction roads. The poles and structures are highly visible.
Telephone cable was buried beside the road and strung from power poles next to the road to provide service for SUFCO Mine.	2000	No residual effects have been noted.

Table D.2 Summary of Present Actions

Present Actions	Date	Current Effects
MINERALS Canyon Fuel Company, LLC, SUFCO Coal Mine has been in operation since 1941. Portal and coal handling facilities are located on the Fishlake National Forest (Section 23, T. 22 S., R. 4 E., SLM). Mine access is via paved Accord Lakes road (County Road 40010) from I-70. The road is under Sevier County jurisdiction and will remain after the mine is reclaimed for access to fee lands and recreational properties. Disturbance for surface facilities totals 70 acres, which includes the Quitchupah Canyon portal/breakout on fee land. The existing permit area totals 17,308 acres, including 16,618 acres of Federal coal leases, 640 acres fee coal leases, and the waste rock disposal site (40 acres), and 10 acres under FS special use permits. Most of the areas has been mined and subsided (see SUFCO MRP and Annual Subsidence Monitoring reports). Mine production life as presently permitted would extend beyond 2013.	1941-present	See existing NEPA documents. Mining and Reclamation Plan (mine permit), Annual Subsidence and Hydrologic Monitoring Reports, and Cumulative Hydrologic Impact Assessment.
TIMBER There have been no Recent Actions.		There are no current effects.
CULTURAL RESOURCES An Ethnographic Study was recently completed in Quitchupah Canyon.	2004	The study documented Native American significance of the area.
Cultural resources are currently impacted by:		
Livestock Trailing/Grazing	ca.1880s-present	There may be some on-going erosion and destruction.
Farming/Agriculture	ca.1890s-present	There may be some on-going erosion and destruction.
Recreation	1950s?-present	The potential remains for vandalism .
Road maintenance	ca.1890s-present	Sites continue to be adversely impacted and/or destroyed.
Powerline maintenance	1970s-present	Sites continue to be adversely impacted.
Mining	1940s-present	Sites continue to be adversely impacted and/or destroyed.

Present Actions	Date	Current Effects
RANGELAND Livestock grazing occurs as allowed under the federal permit system.	Yearly	Grazing continues to cause vegetative impacts, and most plant communities remain in early- to mid-seral stage. The riparian community continues to be heavily impacted in early-seral stage.
WILDLIFE An annual raptor survey is conducted by UDWR.	on-going	The survey data improves the database for raptors.
RECREATION There is continued dispersed camping/hunting and ATV use. In 1997, about 100 recreation visitor days/year (RVD/Yr) were estimated.	On-going	Some dispersed campsites are visible.
ADMINISTRATIVE LAND USES The powerline is maintained as needed.	On-going	Maintenance access via two-track roads causes some erosion.
TRANSPORTATION Pavement rehabilitation has been done on SR10 – Fremont Junction to Quitchupah Hill. The SR10 Bridge north of Emery was replaced.	2005 2005	Work results in road improvement which increases safety and traffic flow. The bridge replacement increases safety and traffic flow.

Table D.3 Summary of Reasonably Foreseeable Future Actions (within ten years, 2005-2015)

Future Actions	Date	Anticipated Effects
MINERALS		
The Muddy Coal Lease Tract, which lies directly north-northwest of the Pines Coal Lease Tract, may be applied for at some time in the foreseeable future.	Not possible to determine	Mining in the tract would use underground methods, and would likely be accessed from existing underground system. Surface disturbance would continue at portal. The mine water discharge would continue in North Fork.
Exploratory drilling for methane gas on Section 16 as authorized by SITLA may occur.	near future	Exploration activities would require improvement of the existing road to access Section 16, and short trails would be developed within the section.
TIMBER		
No Planned Sales or Actions.		There are no anticipated effects.
RECREATION		
There will continue to be dispersed camping/hunting and ATV use, predicted at about 100 recreation visitor days/year.	On-going	There will continue to be some evidence of dispersed use.
The BLM Travel Plan will be completed and implemented.	2006	The plan will establish goals, objectives, and policies for land use management. It may restrict or alter OHV use on public lands in Quitchupah Creek area.
The FS OHV Route Designation Plan will be completed and implemented.	2006-2007	The plan will establish management standards and guidelines for OHV use on the forest. It will close the upper area of existing Quitchupah Creek road on Forest Lands to OHVs. This would impact the proposed SEUOHV Castle Valley Trail system.
RANGELAND		
Livestock grazing will continue to occur as allowed under the federal permit system.	Yearly	Grazing will continue to cause vegetative impacts, and most plant communities are likely to remain in early- to mid-seral stage. The riparian community will continue to be heavily impacted in early-seral stage.

Future Actions	Date	Anticipated Effects
AGRICULTURE		
Farmed lands along Quitchupah Creek are likely to be converted from flood irrigation to pressure pipe sprinkler irrigation.	Near future	The NRCS has completed an EA to fund and implement irrigation conversion measures to reduce salt loading in the Muddy Creek Unit of the Colorado Salinity Control Program, which includes Quitchupah Creek. Members of the Muddy Creek Irrigation Company, which includes landowners along Quitchupah Creek, requested the NRCS assistance. The program would reduce salt loading to Quitchpah Creek due to irrigation by 78 %, from 923 tons annually to 720 tons annually.
WILDLIFE		
Annual raptor inventories will continue.	on-going	The spring helicopter surveys to monitor raptor use of area will continue, and may expand to include additional survey areas agreed upon by the agencies.
Big game counts will occur.	on-going	Winter counts will monitor big game populations and use on Water Hollow and Saleratus benches
The Salina Creek Vegetation Management Project will likely be implemented.	near future	The purpose of the proposed project is to reduce the threat of wildfire to private homes and property, restore ecosystem function by moving toward the desired vegetation condition, re-initiate fire as a disturbance within the analysis area, and improve forage for wildlife. Within the Quitchupah Creek watershed approximately 1300 acres would be treated by prescribed burning within three units in the Broad Hollow, Mud Springs Hollow, and upper East Spring Canyon areas. The objective is to burn approximately 50-70 percent of each unit in a mosaic pattern that will create a diversity of structural stages, age classes and species composition.

Future Actions	Date	Anticipated Effects
TRANSPORTATION		
New road construction associated with exploratory drilling for coal-bed methane gas may occur.	Possible sometime during project life	Temporary roads would be developed on Water Hollow and Saleratus Benches. All roads and pads would be reclaimed. Also see discussion under Minerals.
Preliminary Engineering of SR-10 improvements will be done by UDOT from Emery to Muddy Creek.	2008	Any resultant road improvements would help to meet traffic demands, roadway access, and improved safety.
UDOT will rehabilitate pavement on SR10 from Muddy Creek to Ferron.	2008	Pavement rehabilitation would improve traffic flow and provide increased safety. Construction periods would constrain traffic movement, including coal trucks transporting SUFCO Mine coal.
The Moore Road is likely to be upgraded to AASHTO standards to serve as rural collector road from SR-10 to I-70.	2002-2030	The road, when completed, would provide another access for eastbound traffic to I-70 from SR-10, possibly relieving traffic on SR-10 for 16 miles from Moore Junction to Fremont Junction.
CULTURAL RESOURCES		
Cultural resources could continue to be impacted by:		
Unauthorized collection of artifacts	Sporadic	This would result in data loss, compromised integrity of sites.
Powerline maintenance	on-going	There could be erosion and possible adverse impacts.
Livestock Trailing/Grazing	on-going	There could be erosion and adverse impacts.
Recreation	on-going	There could be unauthorized collection and vandalism.
Proposed Road Construction	Project life (2006?)	There could be adverse impacts to eligible sites.
Farming and Agriculture	On-going	There could be erosion and adverse impacts.
Mining	On-going	There could be adverse impacts to eligible sites.
Potential further research conducted at archeological sites in area.	Possible sometime during project life	This would require separate NEPA analysis, permits and compliance with appropriate laws.
ADMINISTRATIVE LAND USES		
The BLM Resource Management Plan (RMP) will be completed.	2006	The RMP will provide guidelines for management of public lands and designate land uses.

APPENDIX E

NATIVE AMERICAN CONSULTATION

NATIVE AMERICAN CONSULTATION

On March 19, 1999, representatives from JBR, the SHPO, Jones & DeMille Engineering and the BLM met on the site of the proposed Quitchupah Creek Road to discuss the archaeological sites located on the proposed route. Official Native American consultation had not started because the proposal was still in the conceptual stage. Following the March 19th meeting, the archaeologist from the BLM Richfield Field Office was assigned as the joint agency cultural specialist for this project. Coordination with the cultural representative from the Koosharem Band of the Paiute Tribe began on March 19, 1999. Over the next few months, representatives from the Paiutes visited the Quitchupah Creek area several times to become familiar with the project and examine the proposal and Alternatives being considered. The Paiutes expressed opposition to any project along Quitchupah Creek because of their claim that the canyon is sacred and human activity could impact this value. The Tribe also expressed opposition to any excavation of archaeological sites; a process they view as destructive. The Paiute Tribe of Utah made this position known to the FS/BLM in a letter submitted on July 22, 1999.

Efforts were also underway during this time to identify other tribes who might have a historical interest in the general area involved in this project. On June 23, 1999, contact was made with Ms. Betsy Chapoose of the Uintah & Ouray Tribal Committee Cultural Rights & Protection Department in Ft. Duchesne, Utah. A field tour of the Quitchupah Creek Road was subsequently completed with a Tribe representative. The Ute's concern extends to all sites in the canyon, but focuses on the rock art. The Tribe has expressed that at least a ½-mile buffer around rock art sites - preferably one mile buffer, would be necessary to protect rock art sites.

On July 12, 1999, contact was made with the Navajo Nation in Window Rock, Arizona. A representative in the Navajo Nation Cultural Preservation Office indicated they had no interest in this project.

On July 13, 1999, the Hopi Cultural Preservation Office was contacted. Mr. Leigh Kuwanwisiwma, head of the Hopi Cultural Preservation Office, stated that the Hopi are very interested in Fremont archaeological sites and projects that may affect them. Accordingly, the BLM Richfield Field Office opened formal consultation with the Hopi Tribe on the Quitchupah Creek Road project. On November 21, 2000, a letter was sent to the Hopi Tribe requesting comments or concerns the Tribe may have with the project.

A written response was received from the Hopi Tribe in December 2000 claiming affiliation with the Fremont and asking for copies of all pertinent materials on the Quitchupah Creek Road project; these materials were forwarded to the Tribe. After the Tribe had reviewed the Quitchupah Creek Road material, the BLM Richfield Field Office received an invitation to attend an upcoming Tribal Administrative Meeting. In the invitation, the Tribe stated interest in the Quitchupah Creek Road project and expressed that it seemed a non-controversial issue since the sites on the main Quitchupah Creek route (Alternative B and C) could be avoided by implementing the Water Hollow Alternative (Alternative D).

On March 21, 2001, representatives from the BLM Richfield Field Office spoke at the Hopi Administrative meeting at Hopi Tribal Headquarters in Kykotsmovi, Arizona. Mr. Leigh Kuwanwisiwma and Clay Hamilton represented the Hopi Tribe. As per the Tribe's request, the BLM presented a briefing on the Quitchupah Creek Road Project and Alternatives. Copies of the cultural inventory reports on the Quitchupah Creek Road and Water Hollow routes were provided to the Tribe. The Tribe stated that as long as the sites on the Quitchupah Creek route

could be avoided by implementing another Alternative route, the Tribe would have no issue with the project. They understood that avoidance would not be an option along Quitchupah Creek because of the confines of the canyon and therefore would not support it. At that time, the Hopi approved of the Water Hollow Alternative. The Hopi also stated that they would defer to the Paiute Tribe of Utah on any Quitchupah matters.

August 22, 2001, the Ute Tribe inquired as to any new developments on the project and reiterated their opposition to the project in Quitchupah proper.

A meeting at the Paiute Tribal Headquarters in Cedar City took place on September 18, 2001 and a tour of the project area was set up for October. The Paiute tour took place on October 17, 2001. At this time, the Paiute representative expressed opposition to the project within the Quitchupah Creek corridor but accepted the Water Hollow Alternative on the condition of cultural site avoidance. A comment letter formally communicating the tribe's position was received by the BLM on February 15, 2002.

In letters dated October 24 and October 31, 2002, the Hopi, Paiute, and Ute Tribes were asked to participate as Consulting Parties on this project. As a Consulting Party, the tribes would actively participate in analyzing the impacts of the alternatives, seeking acceptable mitigation of impacts, and resolving adverse effects. The Paiute and Ute tribes accepted the Consulting Party invitation. The Navajo stated their area of concern was further south and deferred to the Paiute. The Hopi deferred to the Paiute.

On November 5, 2002, a meeting between the agencies and the BLM Utah State Office was held to discuss the Native American Consultation. It was agreed upon that a meeting would be held with each participating tribe to discuss the role of Consulting Party, discuss Traditional Cultural Properties and sacred sites, and update them on the project.

The agencies attended the January 2, 2003 Paiute Tribal Council meeting to make a presentation on the Quitchupah Road project. On April 28, 2003, the agencies met with the Utes. An additional field tour was requested at that time.

A formal letter dated April 29, 2003 from the Paiute Indian Tribe of Utah stated their opposition to the Quitchupah Creek Road Project due to "the need to destroy culturally significant objects which we consider sacred to our tribe."

On August 18, 2003, the BLM Richfield Field Office archaeologist toured the Project Area with Dorena Martineau, Cultural Resource Director of the Paiute Tribe. The Paiute Tribal representative was interested in seeing the canyon and some of the archaeological sites there. Sacred issues were discussed.

On August 20, 2003, the BLM Richfield Field Office archaeologist and the BLM State Office archaeologist met with the Paiutes at their tribal office in Cedar City. The Paiutes stated that although they may regard a wider area as being sacred, a boundary to the sacred site could be drawn using the physical canyon from the headwaters to the terminus at the bottom. This is the core area of concern. Further, a Paiute representative stated there is at least one place in the canyon used traditionally for religious ceremonies; building a road would interfere with, compromise, or destroy the ability of tribal members to continue with these traditions. At this time, it was stated that the Tribe was opposed to all build alternatives since they all require construction within the sacred site; adversely affecting sacred values by further disturbing the

location and setting. Heavy and loud truck traffic, increased recreational traffic, camping, and vandalism would also cause disturbance to the sacred site.

For a period of several months between December 17, 2003, and September 14, 2004, there were innumerable contacts between the Richfield Field Office BLM and the Paiute Tribe discussing and coordinating the ethnography in Quitchupah Canyon. Dr. Richard Stoffle of the University of Arizona at Tucson was retained to conduct the study mainly because of existing relationships he had established with the Paiute people. Mr. Stoffle and the BLM reviewed the Quitchupah area on April 23 and 24, 2004, to select the sites that would be used for the field interviews with the Paiute participants in the study. The field portion of the ethnographic study was conducted on May 19 and 20, 2004. The preliminary ethnographic report was submitted in June 2004 and the final report arrived in September 2004.

On September 14, 2004, Dorena Martineau and Arthur Richards (both Paiute tribe) along with the BLM Richfield Field Office archaeologist flew the Water Hollow Alternative route in a helicopter just to make sure that tribal representatives had seen the entire route. After seeing the route, the Paiute Tribe of Utah agreed that a road on the Water Hollow Bench was their preferred alternative.

The Paiutes' provided a letter, dated October 5, 2004, which expressed their satisfaction with the ethnographic work conducted by Richard Stoffle. In this letter, the Paiute also stated their support of the Water Hollow route.

During an October 19, 2004 meeting at the Navajo Nation Window Rock Office, Marklyn Chee expressed that the Navajo Nation currently is very interested in actions that take place in this part of Utah. Regarding Quitchupah specifically, the Navajo support the claims of the Paiute and Hopi in this area. They have no concerns about sacred sites in the Quitchupah area, but certainly support other tribes in their claims. The Navajo are mainly interested in the nearby Henry Mountains, which they claim as a traditional cultural property. The Navajo defer to the Paiute.

The Paiute Tribe provided a letter dated February 24, 2005 regarding their approval of the riparian fencing mitigation along Quitchupah Creek. At this time the Tribe also stated that they did not want the rock art and other cultural sites to be fenced. The Tribe expressed that protective barriers or fencing would draw attention to the sites and likely cause the very thing it was designed to prevent.

A letter dated August 2, 2005 from the Paiute Indian Tribe of Utah to the Richfield BLM acknowledged the Tribe's review of the Draft Final EIS and their satisfaction with the preferred alternative.

APPENDIX F

USFWS CORRESPONDENCE

United States Department of the Interior
FISH AND WILDLIFE SERVICE
UTAH FIELD OFFICE
2369 WEST ORTON CIRCLE, SUITE 50
WEST VALLEY CITY, UTAH 84119

In Reply Refer To
FWS/R6
ES/UT
05-0777

October 24, 2005

Mary Erickson
Forest Supervisor
Fishlake National Forest
U.S. Department of Agriculture
115 East 900 North
Richfield, Utah 84701

RE: Informal Section 7 Consultation for Quitchupah Creek Road Project

Dear Ms. Erickson:

The U. S. Fish and Wildlife Service (USFWS) has reviewed the Biological Assessment for the Quitchupah Creek Road project. We apologize for the delay in responding to your request for concurrence. The project involves the upgrade in Quitchupah Creek of 9.2 miles of an existing road/trail, which connects Acord Lakes Road with State Road SR-10 in Emery County. The completed road would be a 29-foot wide paved surface, with an operational right-of-way of 66 feet. No facilities would be built in association with this alignment.

Conservation measures committed to in the proposal include:

- An eight (8) feet high fence, complete with big game escape structures and migration underpass, and daily carcass monitoring, would be employed to prevent big game crossing the road and minimize the potential for bald eagle foraging.

Based on the aforementioned conservation measure, on information provided in your letter of April 29, 2005, a revised Biological Assessment of May 25, emails to our office from May 15, June 2, and October 13, 2005, and conversations between our offices on May 19 and October 12, 2005, the USFWS concurs with your "not likely to adversely affect" determination for the Last Chance Townsendia, Winkler cactus, San Rafael cactus, and bald eagle. No critical habitat has been designated for any of these species. Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered.

We base our concurrence primarily on the following:

- Human disturbances within 0.25 miles of bald eagle winter roost sites and within 1.0 miles of nest sites are considered a potential impact by the Utah Field Office, depending in part, on activity type, duration, timing, and topography [*Utah Field Office Guidelines for Raptor Protection from Human and Land Use Disturbances* (2002)]. No known bald eagle roost sites occur within, or within one-half mile of the project area. In addition, no bald eagle nest sites are known to occur within one mile of the project area.

- Wintering eagles occur in Utah from November 1 through March 31, and may infrequently travel through or forage in the project area. However, the project area does not contain habitat suitable for winter roost sites within 0.25 miles of project activities. Noise or activities associated with road construction and operation will, therefore, not affect eagle behavior at winter roost sites.

- An eight (8) feet high fence, complete with big game escape structures and migration underpass, and daily carcass monitoring and removal, would be employed to prevent big game crossing the road. This measure would avoid creation of an attractive nuisance for bald eagles and minimize to insignificant the risk of bald eagles foraging on carcasses.

Based upon the lack of nests or winter roost sites in the area; incorporation of fencing and migration underpass measures to significantly minimize big game mortality; and the commitment to daily carcass monitoring and removal, we believe the potential for impact to the bald eagle from the project is remote and insignificant. Therefore, we concur that the proposed action may affect, but is not likely to adversely affect the bald eagle.

We appreciate your interest in conserving endangered species. If further assistance is needed or you have any questions, please contact Diana M. Whittington, Fish and Wildlife Biologist, at (801) 975-3330 extension 128.

Sincerely,

Henry R. Maddux
Utah Field Supervisor

RICHFIELD RANGER DISTRICT
FISHLAKE NATIONAL FOREST

BIOLOGICAL ASSESSMENT
for FEDERALLY LISTED
PLANT AND ANIMAL SPECIES

QUITCHUPAH CREEK ROAD PROJECT

Prepared by:
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(801) 943-4144

(revised from March 2003 and January 2002 version)
August 2003
Revised December 2004

May 2005

Approved by:

_____ _____

Fishlake National Forest Date

_____ _____

BLM, Richfield Field Office Date

_____ _____

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BIOLOGICAL ASSESSMENT
QUITCHUPAH CREEK ROAD PROJECT

1.0 INTRODUCTION

The Sevier County Special Services District (SSD) has submitted right-of-way applications to the USFS (US Forest Service) and the BLM (Bureau of Land Management) for the upgrade of 9.2 miles of an existing road/trail in the Quitchupah Creek drainage. The road segment connects the Acord Lakes Road (Sevier County Road 010), with State Route (SR) 10 in Emery County. The road would connect with SR-10 in the N½ of Section 30, Township 22 South, Range 6 East. To the northwest into Sevier County, and then westward, the road would generally follow an existing trail along Quitchupah Creek, into Convulsion Canyon, where it would connect with the paved Acord Lakes Road in SW¼ of Section 11, Township 22 South, Range 4 East. Figure 1 presents the project's regional location. The land ownership in this corridor is a combination of private, BLM, USFS, and Utah State School and Institutional Trust Lands Administration (SITLA). The project area embodies a fairly diverse set of climatic, geologic, physiographic, and ecosystem characteristics.

Section 7 of the Endangered Species Act (ESA) of 1973, as amended, stipulates that no federal action shall jeopardize the continued existence of any threatened or endangered species or adversely modify their critical habitat. Because the project area lands are federally administered, road construction on these lands is considered a federal action. A Biological Assessment (BA) evaluates the potential effects of a proposed action on federally listed threatened, endangered, proposed, and candidate species (collectively referred to herein as listed species), and determines whether any such species or their habitats are likely to be adversely affected by the action. The purpose of this BA is to evaluate the potential impacts of road construction activities associated with the Quitchupah Creek Road Project on those listed plant and animal species that could occur within the project area.

The species accounts and discussion of potential impacts on those species resulting from the Alternatives, as discussed below, have been extracted from information contained in the technical reports associated with the Quitchupah Creek Road Project EIS.

FIGURE 1

2.0 PROJECT AREA DESCRIPTION

2.1 REGIONAL CHARACTERISTICS

From a regional perspective, the project area is predominantly located within the High Plateaus Section of the Colorado Plateau Physiographic Province. The High Plateaus are marked by gently rolling or near-flat surfaces, through which drainages have dissected the otherwise gentle topography. The drainages typically form steep canyons cut through sedimentary rock. Adjacent to the High Plateaus, the eastern end of the project area is located within the Mancos Shale Lowlands Subsection of the Canyonlands Section of the Colorado Plateau Province. Topography in this Subsection is influenced by the weak sedimentary rock at the eastern base of the High Plateaus.

According to the modified Köppen System, the majority of the project area can be classed as a Steppeland climate. Steppelands are located between the true desert areas and the higher mountains. They are generally semi-arid, with annual evaporation exceeding annual precipitation; a summer moisture deficit is typical. The western-most edge of the project area borders on Undifferentiated Highlands, according to the modified Köppen System, and has a less significant moisture deficit.

The regional physiography and climate influence vegetation characteristics. Located within the Upper Sonoran and Transition Vegetation Zones, the area contains a variety of vegetative types and habitats ranging from forest to brush-dominated communities to sparse small desert shrublands. The presence of water further modifies these vegetative types, and localized areas of riparian and wetland communities are also found.

2.2 LOCAL CHARACTERISTICS

The upper, western end of the project area is located near the top of the north-south trending Wasatch Plateau. Following along a major dissection in the Plateau, the Convulsion Canyon/Quitchupah Creek drainage traverses across the east side of the Plateau and out of canyon confines. The Water Hollow Benches are south of Quitchupah Creek; they are highly dissected with numerous ephemeral drainages that cut through the bench surfaces. The eastern portion of the project area crosses shale flats to the alignments' terminus at SR-10. As the alignments drop from the high plateau country to the flatland, project area characteristics vary significantly.

As mentioned above, the project area is associated with a canyon complex that dissects the plateau surface. The proposed Quitchupah Creek Road alignment traverses, and cuts through, numerous sedimentary geologic formations as it makes its way eastward across the plateau. These formations include the Mesaverde Group and the Mancos Shale Group.

The horizontally bedded nature of these formations, as well as their component range of texture classes, is evident from the steep canyon walls, escarpments, and badlands visible in the project area. Flat ledges, vertical cliffs, and sloping erosional and depositional surfaces all contribute to the varied relief in the project area. Faulting and fracturing also

affect the local topography, and in fact, the location of Quitchupah Canyon and its tributaries are likely dictated by the geologic structure.

The project area is located in the Quitchupah Creek watershed, which is part of the Colorado River system. At its upper end, where it is known as Convulsion Canyon, the watershed collects flows from small tributaries. Water Hollow, The North Fork of Quitchupah Creek, and Link Canyon Wash are three of the larger tributary channels that drain toward the project area. The Water Hollow Benches area to the south of Quitchupah Creek has numerous ephemeral drainages that head primarily southeast toward the creek. These drainages and tributaries have had a major influence on the area's topography as they cut down through, and laterally across, the valley bottom sediments.

The climate and physiography within the majority of the project area has generally not been conducive to extensive soil development; as such, vegetation is sparse over much of the project area. However, at the upper, westernmost end, where climate and topography are more amenable, soils with defined horizons and an organic component have developed over time and have not eroded away. They support pine (*Pinus spp.*), aspen (*Populus tremuloides*), scrub oak (*Quercus spp.*), and mountain mahogany (*Cercocarpus spp.*), as well as significant understory vegetation.

Over most of the rest of the area, extensive exposed bedrock occurs adjacent to the proposed and alternate road alignments. Many other areas where soil development has occurred have been subject to extensive erosion by wind and water. These areas support only sparse vegetation, ranging from scattered pinyon (*Pinus edulis*) and juniper (*Juniperus spp.*) woodlands with sparse understory to low-density desert brush lands where shadscale (*Atriplex confertifolia*) and other saltbush communities dominate. The former floodplain (now terrace) of Quitchupah Creek contains well-developed soils that support sagebrush/grass vegetation communities. The perennially flowing stream corridors of Quitchupah Creek and Water Hollow Creek support a varying mixture of riparian species.

In addition to the function of the project area in filling various habitat niches for wildlife, cattle grazing has occurred within the bounds of the project area for many years. These land uses are the predominant ones within the sparsely populated region.

3.0 ALTERNATIVES

The formulation of alternatives was guided by the focus issues; purpose and need; land use objectives of the BLM San Rafael Resource Management Plan (RMP)(BLM 1991) and Forest Planning Unit Management Framework Plan (FPU MFP) (1982) and the Fishlake National Forest (FLNF) Land and Resource Management Plan (LRMP) (USFS 1986); and the need to comply with Federal, State, and local laws, regulations, and policies. The potential alternatives were evaluated by the Interdisciplinary Team (IDT) to determine whether they addressed the focus issues, met the purpose and need of the project, and were technically and economically feasible. During the alternatives development process, the IDT reviewed a reasonable range of potential alternatives. The alternatives developed encompass the complete spectrum of possible decisions that range from no action to selection of one of three alignment alternatives. A variety of factors were examined during the development of the alternatives for the DEIS. Consideration was given to avoidance and/or minimization of effects to water (surface and groundwater), wetlands, vegetation, wildlife, special status species, range/livestock, cultural resources, public safety, and aesthetics. However, the steep natural terrain between the Acord Lakes Road and SR10 limits the options available for locating roads and other surface facilities. The final alternatives range from not allowing any of the proposed actions (No Action), to selecting one of three alignment alternatives (Figure 2):

Alternative A - No Action
Alternative B - Quitchupah Creek Road Alignment
Alternative C - Alternate Junction with SR-10 and Alternate Design of Quitchupah Route
Alternative D - Water Hollow Route

Under all the action alternatives (Alternatives B, C, and D), the finished road would be a 28-foot wide paved surface; with an operational right-of-way (ROW) of 66 feet. Three pullouts for parking off the road shoulder would be provided at the Link Canyon channel crossing, North Fork, and at East Springs Creek Canyon. The construction corridor would vary from 50 feet to 60 feet on flatter ground (eastern end) to an average of 100 feet for the remainder of the route. The road would be designed for a speed of 40 miles per hour, and would be constructed according to the standards of the American Association of State Highway and Transportation Officials (AASHTO) and the Utah Department of Transportation (UDOT) 2004 (or most current) Standard Specifications for Road and Bridge Construction. In addition, approximately 1.7 acres of riparian habitat would be filled under all the action alternatives. No support facilities would be built under any of the alternatives.

FIGURE 2

3.1 ALTERNATIVE A - NO ACTION ALTERNATIVE

Under the No Action Alternative, coal would continue to be hauled from the SUFCO Mine to markets east and west via the Acord Lakes Road, I-70, and SR10. In 2003, approximately 3.8 million tons of coal was hauled to Pacificorp's Hunter Power Plant. An increasing reliance on SUFCO coal is expected in 2004, to 4.5 million tons. This equates to approximately 118,421 truck loads hauled in 2004. An additional indeterminate amount will be hauled to the railroad loadouts in Carbon County for shipment to eastern customers.

A public road for the purposes of transporting coal or providing alternate access to the SUFCO Mine would not be built in Convulsion Canyon/Quitchupah Creek area. The existing transport route of Acord Lakes Road to I-70 to SR-10 to power plants and railroad loadouts would continue. The entire existing two-track road would remain in place and in use as conditions/ maintenance allow. Also the current land uses in the Quitchupah Creek area would continue.

Under this alternative, the existing uses and environment in the Quitchupah Creek and Water Hollow would continue unchanged in the foreseeable future.

3.2 ALTERNATIVE B - QUITCHUPAH CREEK ROAD ALIGNMENT

The proposed Quitchupah Creek Road would be located along an existing route through Quitchupah Canyon from a point on SR10 in the north half of Section 30, T. 22 South, R. 6 East in Emery County, to a paved mine road in Convulsion Canyon, Sevier County (SW 1/4 Section 11, T. 22S, R. 4E). The road would generally follow an existing trail along Quitchupah Creek and into Convulsion Canyon (Figure 2). Under Alternative B, the road would be 8.9 miles in length with a total new disturbance of approximately 92.3 acres.

3.3 ALTERNATIVE C - ALTERNATE JUNCTION WITH SR10 AND ALTERNATE DESIGN

Under this alternative, the alignment would deviate from Alternative B in the southwest quarter of Section 13, Township 22 South, Range 5 East and proceed east across Section 18, Township 22 South, Range 6 East to the junction with SR10 in the southwest corner of Section 17, Township 22 South, Range 6 East. This alternative would be approximately 9.1 miles in length, but it would bypass the grade on SR10 that now slows loaded coal trucks and potentially slows all northbound traffic on SR10. The acreage impacted would be approximately 96.3 acres.

This alternative would also incorporate features to Alternative B to facilitate livestock movements and trailing, and also facilitate wildlife movements to and from the winter range. The livestock facilities would include fencing portions of the road to keep the livestock off the roadway during the grazing season and during spring and fall trailing. Approximately 16.3 miles of fence would be installed under this alternative design. It is also proposed that five underpasses, approximately 20 feet wide and 70 feet long, would be incorporated in the proposed road to facilitate livestock access to both sides of the fenced road for grazing purposes. Two additional underpasses would be constructed, one under the existing Acord Lakes Road adjacent to the intersection with the proposed Quitchupah Creek Road, and a second under the Quitchupah Creek Road to allow livestock to cross

under both roads at Broad Hollow during spring and fall trailing. To facilitate big game movements in the central canyon, additional underpasses suitable for wildlife may need to be constructed.

3.4 ALTERNATIVE D - WATER HOLLOW ROAD

Water Hollow is a large northeast-southwest trending drainage that cuts through Old Woman Plateau on FLNF. The Water Hollow Route begins at about 7,550 feet AMSL and follows the Alternative B alignment for 2.01 miles of the western-most portion of its alignment. At this point, it crosses Quitchupah Creek and runs approximately parallel to and south of this drainage to Water Hollow. This alternative continues in an easterly direction along an existing jeep trail to Water Hollow Benches where it then turns south to Saleratus Benches. From Saleratus Benches, the Water Hollow alternative then turns northward to connect with SR-10 (Figure 2). Under Alternative D, the road would be 11.3 miles long, with a 1,430 foot overall drop in elevation for an average grade of 2.5 percent. The descent into Water Hollow itself has an average grade of four percent, and the ascent out of Water Hollow onto Water Hollow Bench is seven percent. This alignment crosses several perennial and ephemeral tributary drainages, with extensive cuts and fills necessary to accommodate road construction. The total new surface disturbance would be approximately 146 acres.

3.5 ENVIRONMENTAL PROTECTION/ENHANCEMENT MEASURES

Measures for All Action Alternatives

Riparian Fencing

The riparian zones of Quitchupah Creek and Convulsion Canyon are now and have been degraded by livestock grazing within the stream bottoms over the years. To alleviate this condition and restore the riparian zones, livestock grazing would be eliminated by the agencies on approximately 4.5 miles of stream through a combination of permit actions, fencing along the proposed road, and cross-fencing where necessary, under any of the action alternatives. The proposed road would become the trail for moving livestock within allotments and between allotments. Fenced watering points would be provided where underpasses allow livestock to pass under the proposed road and access the stream.

The restoration of the riparian zones would improve wildlife and aquatic habitats, reduce sediment discharge to the stream, improve aesthetics, and stabilize the stream channel.

Big Game Fencing

In addition, 8-foot high woven wire fence would be installed on both sides of the route under any of the action alternatives, to prevent big game access to the road. Escape structures would be provided every mile.

Removal of Carcasses from Road

The haul route would be patrolled twice weekly, on Mondays and Thursdays, during daylight hours, to pick up and dispose of all animal carcasses (wild and domestic, large

and small) in order to keep the road surface clear. This would reduce scavenging on the road surface by raptors and vultures. The concern is that scavengers feeding on larger carcasses that aren't readily removed from the road would be subject to coal truck-wildlife collisions. Scavengers present on the road while feeding could cause unnecessary mortality among the protected raptors. The Sevier County Special Services District would be responsible for removing carcasses to a specified disposal area in accordance with the regulations of the State Board of Health. This would continue for the duration of the life of the mine. The SSD or the SSD's contractor would secure and maintain any necessary license or permits required by State or local authorities to perform this service.

Measures for Alternative D Only – Water Hollow Route

Big Game Seedings

Under Alternative D, big game critical winter range would be improved with seedings on the upper benches. The existing chainings and seedings completed in the 1950's on Water Hollow and Saleratus Benches are in poor condition and do not support any more forage for elk than the adjacent unseeded sagebrush and pinyon-juniper communities. Proper management and manipulation of vegetation would improve forage for wildlife as well as livestock, while improving soil erosion and watershed conditions (BLM, 1991). BLM prescriptions for mechanical and burning treatments of vegetation as well as seeding can be found in the Final Environmental Impact Statement Vegetation Treatment on BLM Lands in Thirteen Western States (BLM, 1991). The proposed road on Water Hollow Benches would divide many of the old seedings on the winter range. The proposed additional seedings would move the elk and deer away from the road and provide adequate forage to maintain the present herds during winters of heavy snow.

Underpasses

Under Alternative D, in order to maintain passage of big game from one side of the road to the other, three to five open bridge-style structures would be installed over selected drainages across the Water Hollow benches. The location and design of these structures would follow Utah Division of Wildlife Resources recommendations.

4.0 SPECIES ACCOUNTS

The USFWS, the Utah Natural Heritage Program (administered by the Utah Department of Wildlife Resources (UDWR) and the Nature Conservancy), and the BLM maintain occurrence records of listed species. These agencies were contacted in order to determine which federally listed species might occur in the project area. It was determined that the BA should address the listed species shown in Table 1. As a note, suitable habitat for the willow flycatcher (*Empidonax traillii*) does occur within the project area on the Fishlake National Forest. The federally listed southwestern willow flycatcher (*E.T. extimus*) was originally listed in Table 1 (January 2002 version) and was discussed in that document. However, the southwestern willow flycatcher is no longer considered to occur on the Fishlake National Forest (USFWS 2002). Therefore, potential impacts to this species are no longer discussed for this project.

A literature search reviewed the preferred habitats, elevational ranges, and occurrence records for each of these species. Dedicated surveys were conducted in the project area to search for these and other listed species. Based upon this information, a determination was made regarding the potential for each species to occur within the project area, or to be directly or indirectly affected by the alternatives. The basis for these determinations is presented in the following discussion.

TABLE 1. FEDERALLY LISTED THREATENED, ENDANGERED, AND CANDIDATE SPECIES POTENTIALLY OCCURRING WITHIN THE QUITCHUPAH CREEK ROAD PROJECT AREA.

Common Name	Specific Name	Federal Status
Jones Cycladenia	*Cycladenia humilis* var. *jonesii*	T
Maguire Daisy	*Erigeron maguirei*	T
Last Chance Townsendia	*Townsendia aprica*	T
Barneby Reed-Mustard	*Schoenocrambe barnebyi*	E
San Rafael Cactus (Despain Footcactus)	*Pediocactus despainii*	E
Winkler Cactus (Winkler Footcactus)	*Pediocactus winkleri*	T
Wright Fishhook Cactus	*Sclerocactus wrightiae*	E
Heliotrope Milkvetch	*Astragalus montii*	T
Bald Eagle	*Haliaeetus leucocephalus*	T
Mexican Spotted Owl	*Strix occidentalis lucida*	T
Western Yellow-Billed Cuckoo	*Coccyzus americanus occidentalis*	C
T = Threatened E = Endangered C = Candidate		

4.1 PLANTS

Several of the listed plant species that have the potential to occur in the project area are restricted to, or most commonly occur on, particular soil types. Soils in the area are generally derived by deposits of quaternary alluvium and gravel deposits. The Project Area cuts through numerous sedimentary geologic formations that include the Mesaverde Group and the Mancos Shale.

Jones Cycladenia (*Cycladenia humilis* var. *jonesii*) - Threatened

Welsh et al. (1987) refer to this species as a "gypsophile" (occurring on gypsum-derived soils), found on "semibarren tracts on geological formations with poor water relationships." The species occurs in Eriogonum-Ephedra mixed desert shrub, and juniper communities at 4,400 to 6,000 feet. As Welsh suggests, the species is found in gypsiferous, saline soils of

the Cutler, Summerville and Chinle formations. Flowering occurs in May and June. This species occurs at lower elevations than those found in the project area (4,400 to 6,000 feet vs. 6,000 to 7,600 feet in the project area) and on formations and soil types which do not occur in the area. This species would not be expected to occur in the project area. Thus, implementation of any of the Alternatives would have ***No Effect*** on Jones cycladenia.

Maguire Daisy (*Erigeron maguirei*) - Threatened
This perennial daisy grows in canyon bottoms in Wingate and Navajo formations, at elevations of 5,380 to 5,700 feet (Welsh et al., 1987). Atwood et al. (1991) cite a higher elevational range of between 5,600 and 7,200 feet. Cronquist et al. (1994) state that the species grows in cliff crevices and the sandy bottoms of washes. Flowering occurs in June and July. The upper elevational range of this species, as reported by Cronquist (7,200 feet), is within the elevations of the project area. Potential habitat for this species (cliff crevices and the sandy bottoms of washes) does occur within the project area, but the geologic formations from which the species has been reported (Wingate, Chinle, and Navajo sandstone formations) are not found in the area. This species is believed to be absent from the project area. Thus, implementation of any of the Alternatives would have ***No Effect*** on Maguire daisy.

Last Chance Townsendia (*Townsendia aprica*) - Threatened
This species grows in salt desert shrub and pinyon-juniper habitats on clay or clay-silt exposures of the Arapien and the Blue Gate member of the Mancos Shale, at elevations between 6,100 to 8,000 feet (Welsh et al., 1987; Atwood et al., 1991). Flowering occurs in April and May. This species is known from locations near the project area (Section 13 of Township 22 South, Range 5 East) and habitat exists in portions of the project corridor. Field surveys in May 1999 and May 2003, however, did not find any occurrence of this species within the project corridor. Implementation of Alternatives B and C would have a ***May Affect – Not Likely to Adversely Affect*** impact on last chance townsendia. Implementation of Alternatives A or D would have ***No Effect*** on this species.

Barneby Reed-Mustard (*Schoenocrambe barnebyi*) - Endangered
Welsh et al. (1987) report that the Barneby reed-mustard occurs in mixed shadscale, *Eriogonum* and *Ephedra* communities in the Chinle Formation between approximately 5,600 and 5,700 feet. Flowering occurs in May. This species occurs at elevations below those found in the project area (5,600 to 5,700 feet vs. 6,000 to 7,600 feet in the project area) and on soils derived from the Chinle Formation. This formation does not occur in the project area. The species is not expected to occur within the project area, thus implementation of any of the Alternatives would have ***No Effect*** on Barneby reed-mustard.

San Rafael Cactus (*Pediocactus despainii*) – Endangered
This species is generally solitary, though it may occur in colonies. Habitat for this cactus is open pinyon-juniper communities on limestone gravels, at an elevation of approximately 6,000 to 6,200 feet (Welsh et al., 1987; Atwood et al., 1991). Flowering occurs from late April to early May. The species occurs at elevations within those found in the project area (6,000 to 6,200 feet compared to 6,000 to 7,600 feet in the project area). Conversations

with the Botanist for the BLM's Richfield Field Office, indicate that this species has the potential to occur within the project area (Armstrong, personal communication June 15, 1999); however, none were located during a May 1999 field visit. As potential habitat occurs, but no plants have been found, implementation of any of the action Alternatives would have a ***May Affect – Not Likely to Adversely Affect*** on the San Rafael cactus.

Winkler Cactus (*Pediocactus winkleri*) - Threatened
This diminutive species, also known as the Winkler footcactus, is usually solitary and occurs in salt desert shrub communities in fine textured, poor-quality saline substrates (Welsh et al., 1987). Flowering occurs in late March to mid-May. The Winkler cactus generally occurs at elevations below those found in the project area (4,800 to 5,200 feet compared to 6,000 to 7,600 feet in the project area). Although this species may be found near the lower boundary of the project area (Armstrong, personal communication June 15, 1999), May 1999 field survey confirmed none were located within the project area. As potential habitat occurs, but no plants have been found implementation of any of the action Alternatives would have a ***May Affect – Not Likely to Adversely Affect*** on Winkler cactus.

Wright Fishhook Cactus (*Sclerocactus wrightiae*) - Endangered
Habitat for this species is salt desert shrub and shrub-grass to juniper communities on the Mancos Shale (Blue Gate, Tununk, Emery and Ferron members), Dakota, Morrison, Summerville and Entrada formations, at elevations of between 4,800 to 6,100 feet (Welsh et al., 1987). Flowering occurs in April to May. This species has been found in soils not in the project area, but at elevations that coincide with the project area elevation (4,800 to 6,100 feet vs. 6,000 to 7,600 feet in the project area). However, the Wright fishhook cactus was not observed during a May 1999 field survey, and it is expected that implementation of any of the Alternatives would have ***No Effect*** on Wright fishhook cactus.

Heliotrope Milkvetch (*Astragalus montii*) - Threatened
Welsh et al. (1987) state that the heliotrope milkvetch is known only from the Flagstaff Limestone on the Wasatch Plateau, at an elevation of approximately 11,000 feet. Atwood et al. (1991) cite the habitat for this species as being alpine areas in a mixed grass-forb community on windblown ridges and snowdrift sites, at elevations of 10,500 to 11,000 feet. Flowering occurs in July to August and the species occurs at elevations approximately 2,900 feet higher than those found in the project area. As an alpine species, it is not expected to occur in the (non-alpine) project area. Thus, implementation of any of the Alternatives would have ***No Effect*** on heliotrope milkvetch.

4.2 WILDLIFE

Bald Eagle (*Haliaeetus leucocephalus*) - Threatened
During the breeding season, bald eagles are closely associated with water occurring along coasts, lakeshores, or riverbanks, where they feed primarily on fish. Bald eagles typically nest in large trees, primarily cottonwoods (*Populus* sp.) and conifers, although they have

also been known to nest on projections or ledges of cliff faces (Call, 1978). Due to the large size of their nests, bald eagles usually build these structures in a tree which is the largest or stoutest in the immediate vicinity (Call, 1978). Two characteristics common to most nesting sites are a clear flight path to at least one side of the nest and excellent visibility, often with an unobstructed view of water. Most nests are in the top third of a living tree, with live foliage above the nest providing shade and protection during poor weather (Green, 1985). Breeding territories, including the nest tree and favored nearby perches, are defended against other eagles. Alternate nests are also common within the territory. Breeding territories are typically 250 to 500 acres in size (Swenson et al., 1986).

During winter, bald eagles concentrate wherever food is available. Areas of open water, where fish and waterfowl can be caught, are common wintering sites. Root (1988) notes that Christmas Bird Count data show concentrations of bald eagles occur near rivers, particularly near wildlife refuges where eagles prey on waterfowl, and near power plants, where cooling water discharges tend to keep some waters open (ice-free). Upland areas are also used in winter, where eagles feed on small mammals and deer carrion. Communal winter roosts are common and located in forested stands that provide protection from the weather. Bald eagles can live away from water and in the absence of fish. In such cases, they feed on carrion or hunt terrestrial prey. Black-tailed jackrabbits taken as carrion can be quite important in these situations (Ryser, 1985).

No bald eagle nests have been found near the project area. Most sightings have been made in the Joes Valley Reservoir and Huntington Canyon areas, the closest of which (Joes Valley Reservoir) is approximately 17 miles north of the project area (USDA-FS Files). A bald eagle nest has been reported in the vicinity of Castle Dale, over 20 miles northeast of the project area boundary. No roost sites have been found in the project area, and bald eagles are not expected to occur in the area except as transient birds. Even though big game fencing and bi-weekly carcass removal would be part of the mitigation requirements, it is possible that bald eagles may land on the roadway and be killed by vehicle traffic. Thus, implementation of any of the Alternatives would have a ***May Affect – Not Likely to Adversely Affect*** on bald eagles.

Mexican Spotted Owl (*Strix occidentalis lucida*) - Threatened

The Mexican spotted owl (MSO) is the only subspecies of spotted owl that occurs in Utah. The owl is known to nest only in steep-walled canyons of the Colorado Plateau ecoregion and adjacent portions of the Utah Mountains ecoregion. The closest known nest site to the area is located approximately 40 miles east, at the north end of Capitol Reef National Park. According to the 14 August 2002 federally protected species by county list for Utah, MSOs are not listed in Sevier County, but are listed in Emery County. Potentially suitable habitat does occur within portions of the project area within Sevier County, but not within the portions of the project area within Emery County. Nonetheless, dedicated surveys for the MSO were conducted a total of four times in May and June of 2002. No MSOs were detected during these surveys. Implementation of any of the Alternatives would have ***No Effect*** on MSOs.

Western Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*) - Candidate
In Utah, the yellow-billed cuckoo was historically uncommon to rare. Habitat for this species in Utah typically consists of large blocks of riparian habitat that include cottonwood trees below an elevation of 6,000 feet (personal communication between Fishlake National Forest and USFWS on September 5, 2001). Two recent breeding records in Utah have been documented: one on the Green River in 1992 and the second within the Matheson Wetland Preserve near Moab in 1994 (USFWS 12-month petition finding July 25, 2001). Three yellow-billed cuckoos were also recorded during an intensive survey effort conducted throughout the Salt Lake Valley prior to 1998. Habitat for this species is essentially nonexistent or extremely limited within the project area; thus, dedicated surveys for the yellow-billed cuckoo were deemed unnecessary. The yellow-billed cuckoo is not expected to occur in the project area or general vicinity. Implementation of any of the Alternatives would have ***No Effect*** on the species.

5.0 SUMMARY

This BA evaluates the potential for each listed species to be directly or indirectly impacted by any of the Alternatives. This assessment is based on a review of the species' preferred habitats (as described above) and its recorded occurrence locations in the area. Based upon this information, a determination was made regarding the potential for each species to be directly or indirectly affected by the Alternatives. Table 2 summarizes the effects analysis for the federally listed species potentially occurring in the project area. This table includes the rationale for the determinations related to each alternative.

In the case of species which clearly do not occur in the area and have no potential to be directly or indirectly impacted by the project (e.g., plant species occurring at elevations outside that of the Project Area), a "No Effect" determination was made. In the case of species which occur or may occur in the area and which may be directly or indirectly affected by an Alternative, a further evaluation of potential impacts follows.

Alternatives A, B, C, and D
Under Alternatives B and C, a *May Affect – Not Likely to Adversely Affect* determination was made for the Last Chance Townsendia as it is known to occur near the project area and habitat exists within the project corridor. Under any action alternative, a determination of *May Affect – Not Likely to Adversely Affect* was made for San Rafael CactusWinkler Cactus as potential habitat occurs, but the species was not found during surveys. Under any action alternative, a determination of *May Affect – Not Likely to Adversely Affect* was made for bald eagle, because wintering migratory eagles may be found on the newly constructed road in search for carrion. No impacts to any of the other listed species were identified for any of the action alternatives or the No Action Alternative. The future status of each of the listed species is not expected to be influenced by this Project.

TABLE 2 POTENTIAL OCCURRENCE AND EFFECTS ANALYSIS OF FEDERALLY LISTED THREATENED, ENDANGERED, PROPOSED, AND CANDIDATE PLANT AND ANIMAL SPECIES IN THE QUITCHUPAH CREEK ROAD PROJECT AREA.

Species	ALT A	ALT B	ALT C	ALT D	RATIONALE
Jones Cycladenia	NE	NE	NE	NE	Not known to occur in the Action Area[1]; occurs at lower elevations and on formations and soils not in the area.
Maguire Daisy	NE	NE	NE	NE	Not known to occur in the Action Area; occurs on geologic formations not found in the area.
Last Chance Townsendia	NE	MA-NLAA	MA-NLAA	NE	Not discovered during surveys; occurs in the area and habitat is present within the project corridor.
Barneby Reed-Mustard	NE	NE	NE	NE	Not known to occur in the Action Area; occurs at lower elevations and on different geologic formations than those found in the area.
San Rafael Cactus (Despain footcactus)	NE	MA-NLAA	MA-NLAA	MA-NLAA	Not discovered during surveys, but potential habitat occurs.
Winkler Cactus	NE	MA-NLAA	MA-NLAA	MA-NLAA	Not discovered during surveys, but potential habitat occurs.
Wright Fishhook Cactus	NE	NE	NE	NE	Not known to occur in the Action Area.
Heliotrope Milkvetch	NE	NE	NE	NE	Not known to occur in the Action Area; occurs in alpine habitats not found in the area.
Bald Eagle	NE	MA-NLAA	MA-NLAA	MA-NLAA	Does not make regular use of the Action Area; however wintering migratory eagles may utilize road corridor in foraging.
Mexican Spotted Owl	NE	NE	NE	NE	Not known to occur in or near Action Area.
Yellow-billed Cuckoo	NE	NE	NE	NE	Not known to occur in or near Action Area.

NE = No Effect
MA-LAA = May Affect -Likely to Adversely Affect
MA-NLAA= May Affect -Not Likely to Adversely Affect
BE = Beneficial Effect

[1] The Action Area includes all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action.

6.0 CUMULATIVE EFFECTS

Cumulative effects analysis for a BA addresses "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation (50 CFR Page 377)." No known cumulative effects on federally listed species are expected as a result of past, present, or reasonably foreseeable actions.

7.0 LITERATURE CITED

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APPENDIX G

SOILS TABLE

SOIL RESOURCES IN THE PROJECT AREA

FOREST SERVICE SOILS										
USFS Map Symbols	**Soil Series components and Inclusions**	**Taxonomic Classifications**	**Landscape Position and Slope3**	**Elevation AMSL4 (feet)**	**Water Erodibility (K Factor)**	**Wind Erodibility**	**Salinity**	**Drainage Class8**	**Permeability**	**Erosion Hazards**
21A	(component - 50%)	Lithic Ustic Torriorthents	Ridgetops 15 - 60% slopes	7,280 to 8,425	0.15	8	Non-saline	Well drained	Moderately rapid	High
	(component - 30%)	Ustic Torriorthents	Mountansides 15 - 60% slopes		0.17	8	Non-saline	Well drained	Moderately rapid	Moderate
	(component - 10%)	Rock Outcrops	Intermixed		–	--	--	--	--	--
57	(component - 80%)	Typic Argiustolls	Hillsides 10 - 40% slopes	7,400 to 8,200	0.28	6	Non-saline	Well drained	Moderately slow	Slight to Moderate
58	(component - 50%)	Lithic Ustorthents	Ridgetops 25 - 60 % slopes	7,300 to 8,400	0.15	8	Non-saline	Well drained	Moderately rapid	High
	(component - 30%)	Typic Ustorthents	Mountainsides 25 - 60% slopes		0.20	8	Non-saline	Well drained	Moderately rapid	Moderate to high
69	(component - 50%)	Cumulic Haplustolls	Riparian Areas 0 - 8% slopes	6,880 to 7,360	0.32	6	Non-saline	Well drained	Moderate	None to slight
	(component - 30%)	Fluvaquentic Haplustolls	Riparian Areas 0 - 8% slopes		0.37	6	Non-saline	Moderately well drained	Moderately slow	None
73	(component - 50%)	Ustic Haplocryalfs	Mountainsides 25 - 60% slopes	6,950 to 8,257	0.28	6	Non-saline	Well drained	Moderate	Moderate
	(component - 25%)	Ustic Eutrochrepts	Mountainsides 25 - 60% slopes		0.24	5	Non-saline	Somewhat excessively	Rapid	Moderate to high
74	(component - 50%)	Ustic Haplargids	Mountainsides 25 - 60% slopes	6,995 to 8,250	0.28	6	Non-saline	Well drained	Moderately slow	Moderate
	(component - 25%)	Typic Haplustalfs	Mountainsides 15 - 60% slopes		0.32	6	Non-saline	Well drained	Moderately slow	Moderate
	(component - 15%)	Lithic Ustic Haplargids	Ridgetops 15 - 60% slopes		0.17	6	Non-saline	Well drained	Moderate	Moderate to high

FOREST SERVICE SOILS										
USFS Map Symbols	**Soil Series components and Inclusions**	**Taxonomic Classifications**	**Landscape Position and Slope3**	**Elevation AMSL4 (feet)**	**Water Erodibility (K Factor)**	**Wind Erodibility**	**Salinity**	**Drainage Class8**	**Permeability**	**Erosion Hazards**
77	(component - 65%) (component - 25%)	Ustic Haplocryalfs Ustollic Haplocryalfs	Hillsides 8 - 25% slopes Hillsides 8 - 25% slopes	7,250 to 8,000	0.28 0.28	6 6	Non-saline Non-saline	Well drained Well drained	Moderately slow Moderately slow	Slight Slight
78	Undifferentiated Group	Typic Ustorthents & Rubblelands	Hillsides and Mountainsides (very steep)	6,925 to 7,850	0.20	6 / 8	Non-saline	Variable	Moderate	Slight to high
Gerst-Travessilla-Chupadera Association 1 to 15% slopes 254	Gerst Series	Ustic Torriorthents	sides of mesas, benches, terraces, and canyons; mountain and hill slopes 3-70% slopes	5,500-7,500	0.05-0.24	8	non-saline	well drained	moderately slow	severe
	Travessilla Series	Lithic Ustic Torriorthents	mesas, benches, canyon sides; mountain and foot slopes 1-80% slopes	5,500-7,500	0.28	3	non-saline	well drained	moderately rapid	high
	Chupadera	Ustollic Calciorthids	benches and terraces 1-15% slopes	5,600-7,400	0.32	3	non-saline	well drained	moderately rapid	moderate
Gerst-Travessilla-Strych-Rock Outcrop complex, 1 to 30% slopes 255	Gerst Series	Ustic Torriorthents	sides of mesas, benches, terraces, and canyons; mountain and hill slopes 3-70% slopes	5,500-7,500	0.05-0.24	8	non-saline	well drained	moderately slow	severe
	Travessilla Series	Lithic Ustic Torriorthents	mesas, benches, canyon sides; mountain and foot slopes 1-80% slopes	5,500-7,500	0.28	3	non-saline	well drained	moderately rapid	high
	Strych Series	Ustic Haplocalcids	canyon and escarpments sideslopes, generally on toeslopes and south aspects 20-80% slopes	5,500-7,500	0.2	8	non-saline	well drained	moderately rapid	moderate to high

FOREST SERVICE SOILS										
NRCS Map Unit	**Soil Series components and Inclusions**	**Taxonomic Classifications**	**Landscape Position and Slope3**	**Elevation AMSL4 (feet)**	**Water Erodibility (K Factor)**	**Wind Erodibility**	**Salinity**	**Drainage Class8**	**Permeability**	**Erosion Hazards**
Cabba-Strych-Badland complex, 3 to 70 percent slopes 261	Cabba Series	Typic Ustorthents	benches, canyon rims, steep canyon sides 3-70% slopes	5,000-8,200	0.17	8	non-saline	well drained	moderately permeable	moderate
	Strych Series	Ustic Haplocalcids	canyon and escarpments sideslopes, generally on toeslopes and south aspects 20-80% slopes	5,000-8,200	0.2	8	non-saline	well drained	moderately rapid	moderate to high
Moffat fine sandy loam, 1 to 6 percent slopes 522	Moffat Series	Typic Haplocalcids	alluvial fans and benches 1-6% slopes	5,400-5,600	0.24	3	non-saline	well drained	moderately rapid	moderate
Strych very stony loam, dry, 3 to 30 percent slopes 534	Strych Series	Ustic Haplocalcids	canyon and escarpments sideslopes, generally on toeslopes and south aspects 20-80% slopes	5,400-6,400	0.2	8	non-saline	well drained	moderately rapid	moderate to high
Gerst-Strych-Badland complex, 3 to 50 percent slopes 569	Gerst Series	Ustic Torriorthents	sides of mesas, benches, terraces, and canyons; mountain and hill slopes 3-70% slopes	6,100-7,200	0.05-0.24	8	non-saline	well drained	moderately slow	severe
	Strych Series	Ustic Haplocalcids	canyon and escarpments sideslopes, generally on toeslopes and south aspects 20-80% slopes	6,100-7,200	0.2	8	non-saline	well drained	moderately rapid	moderate to high
Hernandez-Chupadera complex, 1 to 8 percent slopes AKC2	Hernandez Series	Ustollic Calciorthids	fan terraces 1-8% slopes	5,600-7,400	0.28	4L	non-saline	well drained	moderate	moderate
	Chupadera Series	Ustollic Calciorthids	benches and terraces 1-15% slopes	5,600-7,400	0.32	3	non-saline	well drained	moderately rapid	moderate
Beebe loamy fine sand, 1 to 3 percent slopes BeB	Beebe Series	Typic Torrifluvents	alluvial fans and flood plains 0-6% slopes	4,000-6,500	0.49	2	moderate to very strongly	well drained	rapid	high

FOREST SERVICE SOILS										
NRCS Map Unit	**Soil Series components and Inclusions**	**Taxonomic Classifications**	**Landscape Position and Slope3**	**Elevation AMSL4 (feet)**	**Water Erodibility (K Factor)**	**Wind Erodibility**	**Salinity**	**Drainage Class8**	**Permeability**	**Erosion Hazards**
Badland-Rubbleland-Rock Outcrop complex, 50 to 80 percent slopes BY	N/A*	N/A*	N/A*	N/A*	N/A*	N/A*	N/A*	N/A*	N/A*	N/A*
Chipeta-Badland complex, 3 to 20 percent slopes CBF2	Chipeta Series	Typic Torriorthents	hills 1-20% slopes	5,400-6,100	0.43	4L	moderate to strong	well drained	slow	very high
Shupert-Winetti complex, 1 to 8 percent slopes CIC	Shupert Series	Typic Ustifluvents	narrow valley and canyon floors 1-8% slopes	4,600-7,200	0.24	8	non-saline	well drained	slow	moderate
	Winetti Series	Typic Ustifluvents	narrow valley and canyon floors 1-8% slopes	4,600-7,200	0.2	8	non-saline	well drained	moderately rapid	slight
Persayo-Greybull-Utaline complex, 5 to 15 percent slopes COD2	Persayo Series	Typic Torriorthents	hillslopes 1-30% slopes	5,400-5,700	0.10-0.37	4L-8	slightly to strongly	well drained	moderately permeable	moderate
	Greybull Series	Typic Torriorthents	foot slopes of shale hills 3 to 8% slopes	5,400-5,700	0.37	4L	non-saline	well drained	moderately slow	moderate
	Utaline Series	Typic Haplocalcids	mesas, high terraces, and fan remnants 1-25% slopes	5,400-5,700	0.28	8	non-saline	well drained	moderate	moderate to high
Comodore-Datino Variant complex, 40 to 60 percent slopes DHG2	Comodore Series	Lithic Haploborolls	mountain slopes 50-70% slopes	6,800-8,100	0.10	8	non-saline	well drained	moderate	high
	Datino Variant	Typic Haploborolls	mountain slopes 15-80% slopes	6,800-8,100	0.02	8	non-saline	well drained	moderate	high
Ferron silt loam, 0 to 3 percent slopes Fr	Ferron Series	Typic Fluvaquents	alluvial fans and alluvial valley bottoms 0-3% slopes	5,400-5,700	0.49	8	slight to strong	poorly drained	moderate	slight

FOREST SERVICE SOILS										
NRCS Map Unit	**Soil Series components and Inclusions**	**Taxonomic Classifications**	**Landscape Position and Slope3**	**Elevation AMSL4 (feet)**	**Water Erodibility (K Factor)**	**Wind Erodibility**	**Salinity**	**Drainage Class8**	**Permeability**	**Erosion Hazards**
Glenberg-Pherson-Colorow Complex, 0 to 15 percent slopes GLC	Glenberg Series	Ustic Torrifluvents	flood plains, valley floors, and low terraces 1-6% slopes	5,000-7,000	0.32	2	non-saline	well drained	moderately rapid	moderate
	Pherson Series	Ustic Torrifluvents	drainageways 2-15% slopes	5,000-7,000	0.25-0.34	4	non-saline	well drained	moderately rapid	slight
	Colorow Series	Oxyaquic Torrifluvents	floodplains, fans, low terraces 0-4% slopes	5,000-7,000	0.32	2	non-saline	moderately well drained	moderately rapid	moderate
Ravola-Gullied Land-Libbings-Hunting (saline) complex, 0 to 10 percent slopes Gu	Ravola Series	Typic Torrifluvents	alluvial fans and narrow valley floors 1-6% slopes	5,300-6,000	0.49	4L	non- to moderate	well drained	moderately permeable	moderate
	Gullied Land Series	N/A*	N/A*	5,300-6,000	N/A*	N/A*	N/A*	N/A*	N/A*	N/A*
	Libbings Series	Gypsic Aquisalids	foot slopes or shale hills 0-3% slopes	5,300-6,000	0.43	4L	strongly saline	poorly drained	slow	moderate
	Hunting Series	Aquic Torrifluvents	alluvial fans and valley floors 1-3% slopes	5,300-6,000	0.43	4L	slight to strong	somewhat poorly drained	moderate	slight
Hunting loam, 1 to 3 percent slopes Hn	Hunting Series	Hunting Series	Aquic Torrifluvents	alluvial fans and valley floors 1-3% slopes	5,400-5,700	0.43	4L	slight to strong	somewhat poorly drained	moderate
Persayo-Greybull complex, 3 to 8 percent slopes KAC	Persayo Series	Typic Torriorthents	hillslopes 1-30% slopes	5,400-5,700	0.10-0.37	4L-8	slightly to strongly	well drained	moderately permeable	moderate
	Greybull Series	Typic Torriorthents	foot slopes of shale hills 3 to 8% slopes	5,400-5,700	0.37	4L	non-saline	well drained	moderately slow	moderate
Podo-Rock Outcrop complex, 50 to 70 percent slopes KXH	Podo Series	Lithic Ustorthents	canyon slopes 30-80% slopes	5,200-8,900	0.15	8	non-saline	well drained	moderately rapid	moderate

FOREST SERVICE SOILS										
NRCS Map Unit	**Soil Series components and Inclusions**	**Taxonomic Classifications**	**Landscape Position and Slope3**	**Elevation AMSL4 (feet)**	**Water Erodibility (K Factor)**	**Wind Erodibility**	**Salinity**	**Drainage Class8**	**Permeability**	**Erosion Hazards**
Minchey-Clifsand complex, 0-30 percent slopes MsB	Minchey Series	Typic Haplocalcids	benches and mesas 1-3% slopes	5,500-6,000	0.37	4L	non-saline	well drained	moderate	moderate
	Clifsand Series	Typic Haplocalcids	mesas and benches 3-10% slopes	5,500-6,000	0.28	8	non-saline	well drained	rapid	moderate to high
Podo-Cabba-Doney Family complex, 2 to 70 percent slopes MUE	Podo Series	Lithic Ustorthents	canyon slopes 30-80% slopes	5,900-9,000	0.15	8	non-saline	well drained	moderately rapid	moderate
	Cabba Series	Typic Ustorthents	benches, canyon rims, steep canyon sides 3-70% slopes	5,900-9,000	0.17	8	non-saline	well drained	moderately permeable	moderate
	Doney Family Series	Typic Haplocryalfs	mountain sideslope, generally north aspect or in draws 20-80% slopes	5,900-9,000	0.2	8	non-saline	well drained	moderate	moderate
Lazear-Pinon-Gerst complex, 5 to 30 percent slopes NFE	Lazear Series	Lithic Ustic Torriorthents	ridges and edges of mesas 0-35% slopes	5,200-8,000	0.2-0.28	4L	non-saline	well drained	moderately permeable	severe
	Pinon Series	Lithic Ustollic Calciorthids	knolls, ridges, mesas and hillslopes 1-30% slopes	5,200-8,000	0.2-2.8	4L	non-saline	well drained	moderately slow	N/A*
	Gerst Series	Ustic Torriorthents	sides of mesas, benches, terraces, and canyons; mountain and hill slopes 3-70% slopes	5,200-8,000	0.05-0.24	8	non-saline	well drained	moderately slow	severe
Gerst-Lazear-Badland complex, 2 to 65 percent slopes NNE2	Gerst Series	Ustic Torriorthents	sides of mesas, benches, terraces, and canyons; mountain and hill slopes 3-70% slopes	5,200-8,000	0.05-0.24	8	non-saline	well drained	moderately slow	severe
	Lazear Series	Lithic Ustic Torriorthents	ridges and edges of mesas 0-35% slopes	5,200-8,000	0.2-0.28	4L	non-saline	well drained	moderately permeable	severe
Haverdad loam, alkali, 0 to 3 percent slopes OCA2	Haverdad Series	Ustic Torrifluvents	alluvial fans, fan terraces, and valley floors 1-8% slopes	5,600-6,200	0.32	4L	non-saline	well drained	moderately permeable	moderate

FOREST SERVICE SOILS										
NRCS Map Unit	**Soil Series components and Inclusions**	**Taxonomic Classifications**	**Landscape Position and Slope3**	**Elevation AMSL4 (feet)**	**Water Erodibility (K Factor)**	**Wind Erodibility**	**Salinity**	**Drainage Class8**	**Permeability**	**Erosion Hazards**
Penoyer Variant loam, 1 to 3 percent slopes PeB	Penoyer Variant Series	Typic Torriorthents	alluvial fans and valley floors 1-6% slopes	5,400-6,000	0.43	4L	non- to slighty saline	well drained	moderate	moderate
Penoyer Variant loam, 3 to 6 percent slopes PeC2	Penoyer Variant Series	Typic Torriorthents	alluvial fans and valley floors 1-6% slopes	5,400-5,900	0.43	4L	non- to slighty saline	well drained	moderate	moderate
(Similar to) Penoyer Variant loam, 3 to 6 percent slopes PsC2	Penoyer Variant Series	Typic Torriorthents	alluvial fans and valley floors 1-6% slopes	5,400-5,900	0.43	4L	non- to slighty saline	well drained	moderate	moderate
Ravola-Toddler complex, 1 to 6 percent slopes RIA2	Ravola Series	Typic Torrifluvents	alluvial fans and narrow valley floors 1-6% slopes	4,550-5,800	0.49	4L	non- to moderate	well drained	moderately permeable	moderate
	Toddler Series	Typic Torrifluvents	lake terraces and fans 1-6% slopes	4,550-5,800	0.24	5	strongly saline	well drained	moderate	moderate
Ravola loam, 1 to 3 percent slopes RIB	Ravola Series	Typic Torrifluvents	alluvial fans and narrow valley floors 1-6% slopes	5,400-5,800	0.49	4L	non- to moderate	well drained	moderately permeable	moderate
Ravola loam, 1 to 6 percent slopes, eroded RIC2	Ravola Series	Typic Torrifluvents	alluvial fans and narrow valley floors 1-6% slopes	5,300-6,000	0.49	4L	non- to moderate	well drained	moderately permeable	moderate
Ravola-Slickspots complex, 0 to 10 percent slopes RuB2	Ravola Series	Typic Torrifluvents	alluvial fans and narrow valley floors 1-6% slopes	5,300-5,900	0.49	4L	non- to moderate	well drained	moderately permeable	moderate
Clifsand, 1 to 8 percent slopes SID2	Clifsand Series	Typic Haplocalcids	mesas and benches 3-10% slopes	5,000-6,500	0.28	8	non-saline	well drained	rapid	moderate to high

FOREST SERVICE SOILS										
NRCS Map Unit	**Soil Series components and Inclusions**	**Taxonomic Classifications**	**Landscape Position and Slope3**	**Elevation AMSL4 (feet)**	**Water Erodibility (K Factor)**	**Wind Erodibility**	**Salinity**	**Drainage Class8**	**Permeability**	**Erosion Hazards**
Stormitt-Minchey complex, 1 to 10 percent slopes SMD2	Stormitt Series	Ustic Haplocalcids	hillslopes, benches, and mesas 3-30% slopes	5,500-6,000	0.15	8	non-saline	well drained	moderate	medium
	Minchey Series	Typic Haplocalcids	benches and mesas 1-3% slopes	5,500-6,000	0.37	4L	non-saline	well drained	moderate	moderate
Lazear-Pinon-Rock Outcrop complex, 0 to 30 percent slopes THD2	Lazear Series	Lithic Ustic Torriorthents	ridges and edges of mesas 0-35% slopes	5,200-7,200	0.2-0.28	4L	non-saline	well drained	moderately permeable	severe
	Pinon Series	Lithic Ustollic Calciorthids	knolls, ridges, mesas and hillslopes 1-30% slopes	5,200-7,200	0.2-2.8	4L	non-saline	well drained	moderately slow	N/A*
Trook gravelly fine sandy loam, 2 to 6 % slopes TrC	Trook Series	Typic Calciorthids	fan pediments 2-6% slopes	6,000-8,000	0.32	3	non-saline	well drained	moderate to rapid	slight
Green River-Juva Variant complex, 0 to 5 percent slopes TY	Green River	Aquic Ustifluvents	flood plains 0-2% slopes	4,600-5,900	0.43	4L	none to slight	moderately well drained	moderate	slight
	Juva Variant	Typic Torrifluvents	alluvial fans and valley floors 1-5% slopes	4,600-5,900	0.37	3	non-saline	well drained	moderately rapid	slight

*N/A is not available, the data or information for this soil parameter is not available.

[1]Soil series is an official map unit for mapping and describing soils, either mapped as a single series or combined with other series into associations and complexes.

[2]Soil taxonomy is the establishment of hierarchies of classes that permit us to understand, as fully as possible, the relationship among soils and between soils.

[3]The position in the landforms that the soil series occupies. The slope or grade is expressed in a percentage as an inclination above horizontal (0%).

[4]AMSL is above mean sea level or elevation in feet above seal level (0 feet).

[5]The susceptibility of soil surface to erosion by the action of water.

[6]A set of classes given integer designations for 1 to 8 based on properties of surface horizon that affect susceptibility to wind erosion.

[7]The relative amount of soluble salts in the soil as measured by electrical conductivity.

[8]The relative wetness of the soil under natural conditions as it pertains to wetness due to water table.

[9]The classes are based on the amount of water that would move downward through a saturated in-place soil.

[10]The is the probability that erosion damage may occur as a result of site preparation and construction.

APPENDIX H

VEGETATION LISTS

Plant Communities and Vegetation Lists by Alternative

Greasewood Community

The greasewood community is present throughout the lower elevation portions of the project area, in combination with shadscale and/or sagebrush, rabbitbrush, and patchy understory grasses. Included in this type are pockets of a low shrub community (shadscale and sagebrush) where greasewood is lacking. Species include:

big sagebrush	*Artemisia tridentata*
cheat grass	*Bromus tectorum*
greasewood	*Sarcobatus vermiculatus*
horsebrush	*Tetradymia spinosa*
Mormon tea	*Ephedra viridis*
prickly pear	*Opuntia* sp
shadscale	*Atriplex confertifolia*
snakeweed	*Guiterrezia sarothrae*

Low Shrub Community

This low, desert shrub community occurs as inclusions in the greasewood community and is also found on the gently sloping bench at the junction of Alternative C and SR-10. Species may include:

Castle Valley saltbush	*Atriplex gardneri* var. *cuneata*
cryptanth	*Cryptantha flava*
desert buckwheat	*Eriogonum ovalifolium*
fishhook cactus	*Sclerocactus whipplei*
fringed sage	*Artemisia frigida*
galleta grass	*Hilaria jamesii*
Jones townsendia	*Townsendia jonesii*
low sage	*Artemisia arbuscula*
Mormon tea	*Ephedra viridis*
prickly pear	*Opuntia polyacantha*
scarlet globemallow	*Sphaeralcea coccinea*
snakeweed	*Guiterrezia sarothrae*
winterfat	*Ceratoides lanata*

Pinyon-Juniper Community

The pinyon-juniper community type includes areas of sparse juniper on the steep, rocky slopes above Quitchupah Creek Road, as well as pinyon and juniper present on slopes in the upper parts of the canyon.

bluebunch wheatgrass	*A. spicatum*
claretcup cactus	*Echinocereus triglochidatus*
greasewood	*Sarcobatus vermiculatus*
Indian ricegrass	*Oryzopsis hymenoides*
pinyon	*Pinus edulis*
sagebrush	*Artemisia tridentata*
shadscale	*Atriplex confertifolia*
twinpod	*Physaria acutifoia*
Utah juniper	*Juniperus osteosperma*
western wheatgrass	*Agropyron smithii*
white cryptanth	*Cryptantha* sp.
yucca	*Yucca* sp.

Mountain Brush Community

The mountain brush community occurs in the bottom areas of the upper canyon and includes patches of gambel's oak as well as bigtooth maple, serviceberry, woods rose, Oregon grape, sagebrush, rabbitbrush, and manzanita.

bigtooth maple	*Acer grandidentatum*
burdock	*Arctium* sp.
chokecherry	*Prunus virginiana*
Gambel's oak	*Quercus gambellii*
Indian ricegrass	*Oryzopsis hymenoides*
manzanita	*Arctostaphylos patula*
Mountain big sagebrush	*Artemisia tridentata* var. *Vaseyana*
Oregon grape	*Mahonia repens*
rabbitbrush	*Chrysothamnus nauseosus*
sagebrush	*Artemisia tridentata*
Salina wildrye	*Elymus salinus*
serviceberry	*Amelanchier utahensis*
willow	*Salix* sp.
woods rose	*Rosa woodsii*

Douglas Fir Woodland

Near the junction of Quitchupah Creek Road and Acord Lakes Road at about 7,600 feet elevation, the vegetation on the north facing slopes transitions to a Douglas Fir Woodland, with Mountain Brush in the drainage bottom. Across the Acord Lakes Road on south facing slopes, the pinyon-juniper community predominates, and includes mountain mahogany.

On north facing slope:

aspen	*Populus tremuloides*
bigtooth maple	*Acer grandidentatum*
Douglas fir	*Pseudotsuga menziesii*
Engelmann spruce	*Picea engelmannii*
Gambel oak	*Quercus gambelii*
subalpine fir	*Abies lasiocarpa*
White fir	*Abies concolor*

On south facing slope:

mountain mahogany	*Cercocarpus ledifolius*
pinyon	*Pinus edulis*
Utah juniper	*Juniperus occidentalis*

Following is a list of plant species identified during review of Alternative B - Quitchupah Creek Road.

QUITCHUPAH CREEK ROAD ALTERNATIVE B

Common Name	**Scientific Name**
aspen	*Populus tremuloides*
basin big sagebrush	*A. tridentata* var. *tridentata*
bigtooth maple	*Acer grandidentatum*
birchleaf mountain mahogany	*Cercocarpus montanus*
bluebunch wheatgrass	*Agropyron spicatum*
burdock	*Arctium* sp.
Castle Valley saltbush	*Atriplex gardneri* var. *cuneata*
cheat grass	*Bromus tectorum*
chokecherry	*Prunus virginiana*
claretcup cactus	*Echinocereus triglochidiatus*
Cryptanth	*Cryptantha* sp.
curlleaf mountain mahogany	*Cercocarpus ledifolius*
dock	*Rumex* sp.
Douglas fir	*Pseudotsuga menziesii*
Eaton penstemon	*Penstemon eatonii*
Engelmann spruce	*Picea engelmannii*
erigeron	*Erigeron* sp.
fishhook cactus	*Sclerocactus parviflorus*
fringed sage	*A. frigida*
galleta grass	*Hilaria jamesii*
Gambel's oak	*Quercus gambelii*
gooseberry	*Ribes* sp.
greasewood	*Sarcobatus vermiculatus*
hairy grama grass	*Bouteloua hirsuta*
horsebrush	*Tetradymia spinosa*
horsetail	*Equisetum* sp.
hymenoxys	*Hymenoxys* sp.
Indian paintbrush	*Castilleja exilis*
Indian ricegrass	*Oryzopsis hymenoides*
Jones' townsendia	*Townsendia jonesii* var. *jonesii*
low sagebrush	*A. arbuscula*
manzanita	*Arctostaphylos patula*
Mormon tea	*Ephedra* sp.
Oregon grape	*Mahonia repens*
pinyon pine	*Pinus edulis*
pricklypear cactus	*Opuntia polyacantha*
serviceberry	*Amelanchier alnifolia*
rabbitbrush	*Chrysothamnus nauseosus*
red-osier dogwood	*Cornus stolonifera*
rubber rabbitbrush	*Chrysothamnus nauseosus*
rush	*Juncus articus*
Russian olive	*Eleagnus angustifolia*
saltgrass	*Distichlis spicata*

QUITCHUPAH CREEK ROAD ALTERNATIVE B

Common Name	Scientific Name
sedge	*Carex aquatilis*
shadscale	*Atriplex confertifolia*
snakeweed	*Gutierrezia sarothrae*
spring-parsley	*Cymopterus* sp.
squawbush	*Ribes cereum*
tamarisk	*Tamarix pentandra*
thistle	*Cirsium* sp.
Twistflower	*Streptanthus cordatus*
Utah juniper	*Juniperus osteosperma*
Uinta groundsel	*Senecio multilobatus*
watercress	*Rorripa nasturtium-aguaticum*
western wheatgrass	*Agropyron smithii*
white fir	*Abies concolor*
white virgin's bower	*Clematis liguisticifolia*
wild rose	*Rosa woodsii*
willow	*Salix exigua*
winterfat	*Ceratoides lanata*
Wyoming sagebrush	*Artemisia tridentata* var. *wyomingensis*
yellow sweetclover	*Melilotus officinalis*
yucca	*Yucca* sp.

In addition to the plant species listed above for Alternate B, the Alternate Junction, Alternative C species list includes the following:

ALTERNATE JUNCTION/ALTERNATE DESIGN ALTERNATIVE C

Common Name	Scientific Name
curlycup gumweed	*Grindelia squarrosa*
desert buckwheat	*Eriogonum* sp.
hairy plantain	*Plantago patigonica*
needle and thread grass	*Stipa comata*
prickly sandwort	*Arenaria aculeata*
stemless woollybase	*Hymenoxys acaulis*
sunray	*Enceliopsis nudicaulis*
thrifty goldenweed	*Happlopappus armeroides*
white tufted evening primrose	*Oenothera caespitosa*

Following is a list of plant species identified during review of Water Hollow - Alternative D.

WATER HOLLOW ROUTE ALTERNATIVE D

Common Name	**Scientific Name**
basin big sagebrush	*A. tridentata* var. *tridentata*
birchleaf mountain mahogany	*Cercocarpus montanus*
black sagebrush	*A. nova*
bladder-pod	*Physaria* spp.
Castle Valley saltbush	*Atriplex cuneata*
claretcup cactus	*Echinocereus triglochidiatus*
Cryptanth	*Cryptantha* sp.
Eaton penstemon	*Penstemon eatonii*
erigeron	*Erigeron* sp.
fishhook cactus	*Sclerocactus parviflorus*
fringed sage	*A. frigida*
Gambel oak	*Quercus gambellii*
hairy grama grass	*Bouteloua hirsuta*
honeysuckle	*Lonicera utahensis*
hymenoxys	*Hymenoxys* sp.
Indian paintbrush	*Castilleja exilis*
Indian ricegrass	*Oryzopsis hymenoides*
Jones' townsendia	*Townsendia jonesii var. jonesii*
kentrophyta	*Astragalus kentrophyta*
Mormon tea	*Ephedra torreyana*
pallid milkweed	*Asclepias cryptoceras*
pinyon pine	*Pinus edulis*
pricklypear cactus	*Opuntia polyacantha*
rubber rabbitbrush	*Chrysothamnus nauseosus*
serviceberry	*Amelanchier alnifolia*
Simpson footcactus	*Pediocactus simpsonii*
slender wheatgrass	*Elymus trachycaulus*
snakeweed	*Gutierrezia sarothrae*
spring-parsley	*Cymopterus* sp.
tamarisk	*Tamarix chinensis*
Twistflower	*Streptanthus cordatus*
Uinta groundsel	*Senecio multilobatus*
Utah juniper	*Juniperus osteosperma*
white snowberry	*Symphoricarpos albus*
woolly locoweed	*Astragalus mollissimus*
Wyoming sagebrush	*Artemisia tridentata* var. *wyomingensis*
yucca	*Yucca* sp.