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SCALE: NONE

SEVIER COUNTY

FIGURE: 1

LOCATION AND VICINITY MAP

QUITCHUPAH CREEK ROAD

DRAWN: M.G.R. 12/06	PEN TBL: _1stndrd-ir2800.ctb	PROJECT: 0607-002	SHEET:
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Narrative Description for
Individual Department of the Army Permit
for
Quitcupah Creek Road
Sevier County, Utah

Prepared by Jones & DeMille Engineering
December 2006

I. Introduction

Sevier County (County), in conjunction with its Special Service District #1 (SSD), proposes to construct a public transportation facility stretching from the Acord Lakes Road (County Road #010) to SR-10 south of Emery Town in Emery County. The land ownership in this corridor is a combination of private, USFS, BLM, and SITLA properties.

The proposed road would be 11.5 miles long, with a 30-foot-wide paved surface, and an operational right-of-way of at least 66 feet. Six pullouts for parking off the road shoulder would be provided at various locations. The construction corridor would vary from 50-60 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.

The project would conform to the overall guidance of the Fishlake Land and Resource Management Plan (LRMP) and Final EIS, the Bureau of Land Management (BLM) San Rafael Resource Management Plan (RMP) and Final EIS, and the BLM Forest Planning Unit Management Framework Plan (FPUMFP). No plan amendments would be required for the United States Forest Service (USFS) Fishlake Plan, the BLM San Rafael Plan, or the BLM FPU MFP for the proposed project.

Right-of-way applications have been submitted to the USFS and BLM. Rights-of-way across private lands are dependent upon individual negotiations.

The Corps issued support for issuance of the Final Environmental Impact Statement (FEIS) Record of Decision (ROD) for the project on March 3, 2006. The ROD outlined issues to be addressed by the Individual Permit (IP). Each of these criteria has been or would be met by the IP. The FEIS and RODs can be found at <http://www.fs.fed.us/r4/fishlake/projects/quitcupah/index.shtml>.

Please see the maps in the appendices for additional geographic and introductory information. Much of the technical information contained in this IP application has been taken from the FEIS written under the direction of the USFS and BLM.

II. Purpose and Need

The purpose of the project is to construct a public road that would allow natural resources to be transported more efficiently and aid as a link to public lands within Sevier County. The Southern Utah Fuel Company Mine (SUFCO Mine) would 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 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 the road 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.

SUFCO Mine, operated by Arch Coal Company, 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.

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 current proposed roadway alignment has gone through in-depth evaluation and analysis during the recent environmental evaluations resulting in the referenced FEIS and ROD. There is no other more reasonable or feasible alternative based on these evaluations and the RODs as approved by the USFS and BLM.

III. Wetlands

A wetland delineation was performed by JBR Environmental Consultants in January and March of 1999 and an additional visit on September 17, 2002. The final report was revised and submitted in July 2003. The delineation and report were completed according to the 1987 Corps of Engineers Wetlands Delineation Manual and is included in the appendices.

Wetlands in the corridor consist of floodplains meeting the three criteria for Corps jurisdiction: hydric soils, hydrophytic vegetation, and hydrology. There are two jurisdictional wetlands within the project limits, located at approximate stations 48+00 and 68+00 as shown on the attached plan sheets. The Corps made two site visits in Fall 2006 to address the delineation. A potential wetland mapped by JBR and shown in the report at station 45+00 does not meet the vegetation criterion and, therefore, does not qualify for jurisdiction. Please see the attached site visit summary letter prepared by SWCA addressing this and related issues in the appendices.

The proposed project **would not impact jurisdictional wetlands**. A retaining wall would be installed near the wetland at station 48+00 to avoid impact. The roadway would be realigned to avoid the wetland near station 65+00. Best management practices (BMPs) would be used to protect wetlands during roadway construction.

IV. Waters of the US Affected by Project

General Description of Hydrologic Features:

Within the Fishlake National Forest, the upstream reaches of Convulsion Canyon/Quitcupah Creek and most of its tributaries are contained within narrow corridors between steep canyon walls. Functional floodplains 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, Quitcupah Creek appears to have been a small, narrow stream with adjacent floodplains that supported homesteading and farming activities.

Currently, Quitcupah 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 the 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. 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 Quitcupah Creek obtaining a true, dynamic equilibrium relatively unlikely without changes in land management (i.e. grazing) and the passage of time. Down cutting and headcutting 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.

Quitcupah 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 of the reaches 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.

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 provided an indication of the level of sediments Quitcupah Creek conveys. Highly erodible soils are present throughout much of the watershed 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.

Quitcupah Creek has been the subject of numerous studies where flow monitoring has occurred over recent years. Flow measurements near the upper end of Convulsion Canyon, made by Canyon Fuel Company on a quarterly schedule since 1983, 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 Quitcupah Creek above its confluence with the North Fork. The channel in East Spring Canyon drains an area of about 8.5 square miles. The SUFCO Mine records of quarterly flow monitoring since 1983 show flows at the mouth of East Spring Canyon ranging from 0.09 cfs to 1.1 cfs.

Water Hollow flows into upper Quitcupah Creek from the southwest. It flows perennially, but no stream flow or water quality records are available. The Water Hollow Benches, south of Quitcupah Creek and east of Water Hollow, are dissected by numerous ephemeral 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. 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.

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.

V. Description of Impacts to Waters of the US

The proposed project would impact Waters of the US due to stream relocations and roadway culvert crossings. The locations of these impacts are shown in Table 1 below. The FEIS stationing is correlated to the current roadway stationing as of December 2006. Impacts are summarized in Table 1. Tables 2 and 3 (attached) give more detail on proposed impacts and mitigation.

Table 1 – Impacts to Waters of the US

FEIS Station	Current Station	Channel Description	C=Culvert Crossing (length); CH=Channel Realignment (length)	Notes
11+00	11+00	Intermittent Section of Quitchupah Creek		<i>Not Jurisdictional</i>
	16+50 to 19+00	Intermittent Section of Quitchupah Creek	CH (250')	
18+00	19+50	Intermittent Section of Quitchupah Creek	C	
	20+50 to 31+00	Intermittent Section of Quitchupah Creek	CH (1050')	
	34+50 to 45+50	Intermittent Section of Quitchupah Creek	CH (1100')	
66+00	74+10	East Spring Creek Canyon (perennial)	C	
94+00	95+50	Ephemeral Tributary	C	
121+50	121+50	Quitchupah Creek	C	
	131+40	Unnamed Ephemeral Wash	C	
177+00	174+54	Water Hollow	C	
229+50	225+30	Unnamed Ephemeral Wash	C	
255+00	249+90	Unnamed Ephemeral Wash	C	
	329+48	Unnamed Ephemeral Wash	C	
338+00	337+71	Unnamed Ephemeral Wash	C	
339+50	339+43	Unnamed Ephemeral Wash	C	
341+50	341+44	Unnamed Ephemeral Wash	C	
	350+72	Unnamed Ephemeral Wash	C	
366+50	360+60	Unnamed Ephemeral Wash	C	
384+50	381+40	Unnamed Ephemeral Wash	C	
	405+21 to 407+30	Unnamed Ephemeral Wash	CH (209')	
412+50	ELIMINATED	Unnamed Ephemeral Wash		<i>Road does not cross</i>
419+00	ELIMINATED	Unnamed Ephemeral Wash		<i>Road does not cross</i>
432+00	409+76	Unnamed Ephemeral Wash	C	

FEIS Station	Current Station	Channel Description	C=Culvert Crossing (length); CH=Channel Realignment (length)	Notes
	417+03	Unnamed Ephemeral Wash	C	
463+00	469+50	Unnamed Ephemeral Wash	C	<i>Combined with 469+50</i>
471+00	469+50	Unnamed Ephemeral Wash	C	
	511+50	Unnamed Ephemeral Wash	C	
	514+00	Unnamed Ephemeral Wash	C	
	320+17	Unnamed Ephemeral Wash	C	<i>Widening along SR-10</i>
	323+13	Unnamed Ephemeral Wash	C	<i>Widening along SR-10</i>
	324+37	Unnamed Ephemeral Wash	C	<i>Widening along SR-10</i>
	327+04	Unnamed Ephemeral Wash	C	<i>Widening along SR-10</i>
	330+34	Unnamed Ephemeral Wash	C	<i>Widening along SR-10</i>

A. *Impacts to Quitchupah Creek in Convulsion Canyon*

Convulsion Canyon is a narrow, straight canyon with steep canyon walls on the north and south. The existing road is immediately north of the channel and the Acord Lakes Road accessing SUFCO Mine is above the steep slopes above the existing road. These factors severely limit the amount of adjustment that can be made to avoid the Quitchupah Creek channel.

Impacts consist of filling of the channel to accommodate the proposed roadway. Topsoil and vegetation would be removed and stockpiled prior to placement of roadway fill material and would be used to cover the finished fill slopes to aid in revegetation. Material excavated from other locations north of the Creek along the corridor would be used to construct the roadway fill. See the roadway cross-sections in the appendices for more detailed information about the configuration of the channel with relation to the road.

The channel would be relocated to the south border of the new roadway fill, nearer the south canyon wall. The natural channel geometry would be mimicked as much as possible. It is important the channel be returned to existing state or improved. As addressed above, the existing channel from Broad Hollow to station 48+00 is a deeply incised, steep channel that exhibits few riparian features. Its function and value is relatively low compared to the channel below station 48+00 and the spring that feeds the jurisdictional wetland at that station. The appendices include plan sheets and detail sheets showing the locations of the channel realignments as noted in Table 1 and the proposed treatments.

Efforts have been made during the design process to minimize or avoid impacts to the channel that were accounted for in the FEIS. It is important to note that 350 feet of retaining wall would be constructed from station 31+00 to station 34+50 to avoid impacts to the channel. Fill slopes have been addressed to ensure they would be stable, minimize erosion, and allow proper reconstruction

of the channel within the constraints presented by the terrain. Drop structures, meandering of the channel, floodplain construction, ponding, revegetation, plantings, and other reasonable approaches would be utilized to return the channel to its existing function and value or improve it.

The roadway would finally cross Quitchupah Creek at Station 121+50. It is proposed a 108-inch-diameter, 230-foot-long culvert be installed at this location in order to pass the 100-year storm event generated on the terrain west of this crossing. The culvert installation would reduce the existing channel length by 100 feet due to elimination of meanders. Efforts would be made to minimize harm to the channel and the corresponding riparian habitat and also minimize sediment transport downstream. BMPs would be implemented and include the use of silt fence or wattles, revegetation, use of culvert end sections, riprap and drainage geotextile at the outlet, and other reasonable approaches.

B. Impacts to East Spring Canyon Creek

The FEIS demonstrates that East Spring Creek would be relocated in order to accommodate the roadway north of the Mine's water pump house at the mouth of the canyon. However, the roadway has been moved south of the pump house to avoid this channel relocation. The plan and profile sheets in the appendices show the proposed location of the roadway and the referenced avoidance.

East Spring Creek would still be passed under the proposed roadway through a 120-foot-long, 84-inch-diameter round pipe culvert as shown on the plan sheets. Material excavated from other locations along the corridor would be used to construct the roadway fill. BMPs would be utilized to minimize disturbance, retain the constructed fill material, and minimize impacts to the channel downstream. These BMPs include the use of silt fence or wattles, revegetation, use of culvert end sections, riprap and drainage geotextile at the outlet, and other reasonable approaches. Avoiding the channel realignment as currently proposed would greatly benefit the riparian channel.

C. Impacts to Water Hollow Creek

Water Hollow Creek would be crossed by the proposed roadway as shown on the maps and plans in the appendices. As explained in Section IV above, Water Hollow Creek flows perennially into upper Quitchupah Creek from the southwest.

The proposed project would require construction of a concrete arch culvert structure that would be approximately 25 feet wide and 29 feet tall and 376 feet long. Please see the detail for the structure in the appendices. Headwalls and wingwalls would be installed at the inlet and outlet of the arch culvert. Design analyses demonstrate that an arch structure must be used in order to best withstand the vertical and horizontal forces from the 110-foot-deep fill that must be constructed to cross Water Hollow Creek. It is estimated to be the most

economical approach as well. Installation of the arch culvert to pass water under the proposed roadway would eliminate a meander, thereby reducing the existing channel length by approximately 375 feet. Material excavated from other locations along the corridor would be used to construct the roadway fill.

Fish passage is required by the FEIS. Natural substrate would be installed within the concrete structure and held in place by concrete channels installed perpendicular to the stream flowline. The flowline of the concrete floor would be installed a minimum of 1 foot below the existing channel flowline on each end of the arch culvert. Concrete baffles would also be installed in the culvert to retain as much sediment and substrate inside the culvert as possible and provide for fish passage. BMPs would be utilized to minimize disturbance, retain the constructed fill material, and minimize impacts to the channel downstream. These BMPs include the use of silt fence or wattles, revegetation, headwalls and wingwalls, riprap and drainage geotextile at the outlet, and other feasible approaches.

D. Channel Realignment of Ephemeral Wash from Stations 405+20 to 407+30)

The Water Hollow Alignment (Alternative D in the FEIS) was originally shown to cross this same dry ephemeral wash. In order to minimize the amount of total disturbance and the number of curves the coal truck would have to negotiate, the FEIS alignment was altered to the current location. The FEIS alignment would have taken the roadway across the referenced ephemeral wash instead of along side it as currently proposed and would have disturbed several more acres of land.

Due to the rugged, jagged terrain in this area, the number of alternative alignments is very limited. The proposed alignment is most feasible and prudent based on design analyses, grade projections, maintenance issues, minimized environmental impact, and drivability.

It is proposed that a segment of this ephemeral wash be realigned through a rock cut trending north/south that would be constructed by the project. This would reduce the length of the channel by approximately 115 feet due to the shortcutting of a meander. Please see the realignment detail in the appendices for this station range. Riprap with geotextile would be used to armor the fill slope of the roadway that would project down into the ephemeral channel. BMPs would also be used to minimize sediment transport and encourage vegetation growth at this barren location.

E. Culvert Crossings at Unnamed Ephemeral Washes

The project corridor crosses several streams and unnamed ephemeral washes. These locations are shown in Table 1 and on the maps in the appendices. This is typical of any roadway project.

The majority of the culvert crossings are shown in Chapter 3 of the FEIS. There have been a few additions to address unnamed ephemeral washes that are shown with blue flow lines on the USGS quadrangle maps and are addressed by this Individual Permit application.

In general, the culverts would be installed within the existing channels. Culvert lengths would be minimized due to environmental and economic factors. Each culvert end would be fitted with an end section or with headwalls and wingwalls. Minor surface ditching may be required at inlets or outlets to allow water to flow freely and pass under the roadway. BMPs would be utilized to minimize disturbance, retain the constructed fill material, and minimize impacts to the channel downstream. These BMPs include the use of silt fence or wattles, revegetation, headwalls and wingwalls, riprap and drainage geotextile at the outlet, and other feasible approaches.

VI. Proposed Project Schedule

Construction on the Quitcupah Creek Road would commence as soon as the Individual Permit is approved. The USFS and BLM would issue right-of-way permits to the County as soon as the IP approval is in place. It is estimated construction could begin in Spring 2007 and potentially finish by late Fall 2007 under the best conditions. However, it is more likely it would take two construction seasons to complete the roadway due to the size of the project, contractor scheduling, and economic factors. Final completion would likely occur in Fall 2008.

It is a very large project with several major work items, including: roadway excavation, rock excavation, drainage structures, wildlife crossings, retaining walls, granular borrow, untreated base course, hot mix asphalt, sediment control measures, seeding, and related items. The County and prime contractor would work together to complete the project as quickly as feasible and ensure it is constructed according to applicable specifications, plans, laws, and regulations.

VII. Alternatives to Proposed Impacts to Waters of the US

The FEIS process has required analysis of alternatives to the proposed roadway project. These analyses can be found in Chapter 2 of the FEIS. In summary, there were four alternatives considered: Alternative A – No Action; Alternative B

– Quitchupah Creek Road Alignment; Alternative C – Alternate Junction with SR-10 and Alternate Design; and Alternative D – Water Hollow Road Alignment. Each build alternative would have impacted Waters of the US to varying degrees. As outlined in the BLM and USFS Records of Decision, Alternative D was selected as the preferred alternative.

Other alternatives were analyzed but dismissed from detailed study as also outlined in Chapter 2 of the FEIS. These were the Alternate Road Access (Link Canyon Road), Conveyor Systems, and Muddy Creek Portal alternatives. Maps of these alternatives are found in the appendices.

A. Alternate Road Access Alternative:

This alternative considered constructing a road across the Old Woman Plateau or through Link Canyon. As stated in the FEIS: “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.”

Even though this alternative was considered, it is important to note it would have impacted Waters of the US in a fashion comparable to the proposed project. Multiple stream crossings would be required, along with culvert replacements and channel relocations.

B. Conveyor Systems Alternative:

As stated in the FEIS: “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 and 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."

This alternative would still require construction of a roadway from SR-10 to East Spring Creek Canyon. This alternative would avoid relocation of the channel west of East Spring Creek Canyon, but would require channel relocations and culvert crossings to the east to SR-10. It also does not meet the project purpose and need of a public transportation corridor from Acord Lakes Road to SR-10. The Conveyor Systems Alternative is not feasible and prudent.

C. Muddy Creek Portal Alternative:

The FEIS also addresses an alternative in which a portal would be established at Muddy Creek Canyon, north of the Pines Tract and SUFCO Mine. However, the two primary concerns with this alternative are: the roadway in the canyon would be steep and adjacent to a stream that supplies culinary drinking water; and the mine plan demonstrates this alternative is not economically feasible.

As with the Link Canyon alternative, it is important to note it would have impacted Waters of the US in a fashion comparable to the proposed project. Multiple stream crossings would be required, along with culvert replacements and channel relocations.

VIII. Cumulative Impacts

Cumulative impacts to Waters of the US due to the proposed project should be considered minor. Wetlands would not be directly impacted by the project but may be indirectly and temporarily impacted by increased sedimentation. This would occur until the new cut and fill slopes are revegetated.

Quitcupah Creek, East Spring Creek, and Water Hollow have sections of functioning riparian habitat, although the value may be relatively low. These drainages are damaged but are recovering. Unnamed ephemeral washes that would be crossed by the project carry water only during storms or snow melt and do not provide habitat.

The proposed on-site mitigation efforts, as described in the following section, would improve the overall function and value of the watershed system. Best management practices would be implemented during and after construction to ensure success criteria are met and impacts to the environment are minimized.

Long term, cumulative function and value of the Waters of the US in the area would be increased when considering the proposed mitigation with the corresponding monitoring commitments.

It is also important to note the specific cumulative benefits of the project as outlined in the project purpose and need statements in this IP application and the FEIS. The project has gone through numerous reviews and in-depth coordination with affected agencies for over a decade. The Records of Decision by the USFS and BLM recognize the benefits of the project as well as the issues that need to be addressed by the County.

IX. Compensatory Mitigation

A. On Site Mitigation

Mitigation for impacts to Waters of the US would be accomplished on site utilizing four specific mitigation sites: (a) the reconstructed channels where Quitchupah Creek is filled, (b) Water Hollow in the vicinity of the roadway crossing, (c) a broad floodplain area adjacent to Quitchupah Creek, and (d) riparian fencing along approximately 4.7 miles of Quitchupah Creek.

The proposed mitigation seeks to replace the functions and values lost due to filling Quitchupah Creek in the reconstructed reaches of the stream to the extent possible. Areas that cannot be fully mitigated through replacement or reestablishment, such as culverted areas (on the three crossings of perennial streams or the 22 crossings of ephemeral washes) or areas with deep fill that are no longer capable of supporting riparian vegetation, would be mitigated through enhancement of riparian resources and creation of wetland resources in the project area. Constructed wetlands would mitigate impacts to the limited hydric fringe in Convulsion Canyon. They would also reduce impacts to water quality by acting as sediment traps and nutrient filters below the reconstructed reaches upstream in Convulsion Canyon.

B. Goals of Mitigation Efforts

The long-term goals of these mitigation sites are to: (i) recreate a functional channel in upper Convulsion Canyon capable of conveying up to the 100 year water and sediment loads; (ii) reestablish both riparian and upland vegetation along this new channel; (iii) enhance the functions and values of the riparian zone along Water Hollow in the vicinity of the road crossing; (iv) establish a successful and diverse wetland habitat along Quitchupah Creek between stations 58+00 and 62+00; (v) protect and enhance the riparian functions and values, and reduce bank erosion and stream sedimentation, by excluding livestock from along approximately 4.7 miles of lower Quitchupah Creek. Habitat goals include

establishing site appropriate vegetation with structure to support wildlife while providing adequate buffer from human activity.

Mitigation sites are shown on the plan sheets in Appendix XX. The following mitigation site summaries are excerpts from the Draft Mitigation and Monitoring Plan that would be approved by the Corps prior to issuance of the IP:

C. *Reconstructed Channel at Convulsion Canyon*

This site would replace an ephemeral channel that provides (no more than) negligible aquatic functions and does not support fish or year-round aquatic macroinvertebrates. Thus, this mitigation project would primarily replace (and in some cases improve) aspects of water storage, water quality filtration, and wildlife habitat. Reestablishing connectivity with a constructed floodplain between stations 22+00 and 26+00 would allow for increased water storage capacity and flood attenuation along the Quitchupah Creek. The creek would remain ephemeral and would not support fish or year-round macroinvertebrate life following mitigation.

The reconstructed channel would remain an ephemeral channel sized to safely convey the estimated 100-year flood and its associated sediment load without incising. It is expected that periods of flow would be no more than several days to weeks per year. Periods of peak flow would generally be caused by convective thunderstorm-related rainfall, and would have peak flow durations of minutes or hours. Where possible between stations 22+00 and 26+00, a smaller channel and associated floodplain would be constructed, with the channel designed so that flow begins to spill onto the floodplain at approximately the 2-year discharge. This segment is deeply incised into an abandoned terrace, so creation of a functional floodplain would be an improvement to the floodplain functions of flood attenuation, storage, and filtering. The channel profile of the reconstructed channel would match the original profile to the extent possible. Where it deviates, a pool-drop structure would be imposed. Pool areas would allow for the retention of fine sediment and ephemeral flows, helping to reestablish riparian and floodplain functions in these areas. Drops would be designed as grade control, ensuring that the channel would not incise. Channel banks would be graded to no more than a 2:1 slope, enhancing stability and reducing sediment input to the creek.

The channel bed substrate would vary between pools and drop in the reconstructed channel. Native soils salvaged from existing riparian areas would be utilized in the constructed floodplain between stations 22+00 and 26+00 and in pool segments elsewhere to encourage riparian reestablishment and utilize the seedbed and mychorrizae present in the soil. Pool areas would have substrate similar to their current sandy size and would be allowed to accumulate additional sediment during seasonal flow events. Drops would be armored with larger substrate than the reference conditions to prevent incision of these steep

segments of rapid elevation loss between pools. Soil suitability for riparian establishment would be enhanced in pool (low gradient) areas by allowing sediment to accumulate naturally.

Plant selection for riparian mitigation is guided by a list of native or desired riparian and upland plant species listed in the EIS and identified during field reconnaissance at the project site. Within Convulsion Canyon, the two planting zones include mountain brush and high elevation riparian which can be differentiated in the field based on topography and depth to water. Taken into consideration when selecting appropriate species are characteristics such as plant structure, wildlife habitat value, soil stabilization value, drought tolerance, and availability. As part of ongoing project monitoring and maintenance, the created and restored habitat would be comparatively free of invasive plant species and managed to control weed populations.

D. Water Hollow Enhancements

Water Hollow currently supports fish and macroinvertebrates and this mitigation project would enhance the habitat quality and productivity in the area. As a headwater stream, Water Hollow's food chain and productivity are likely dominated by allochthonous inputs such as coarse particulate organic matter supplied by riparian vegetation. Removing invasive species (such as tamarisk and phragmites) and planting additional native woody riparian vegetation (such as Booth willow and yellow willow) would improve riparian conditions and aquatic functions in this reach. Fish passage through the Water Hollow crossing would be maintained by installing baffles or large rip rap inside of an oversized culvert, setting the culvert so that natural bed sediment can move through it and accumulate on the bottom of the pipe, and ensuring that the culvert meets grade at its downstream end without a pour-off.

There would be no alteration to the hydrology of Water Hollow due to this mitigation. Any increase in velocity in the stream due to placement of the culvert would be mitigated through downstream bioengineering and grade control. Banks that are over-steepened and exhibit mass wasting into the creek would be stabilized through a combination of bioengineering and soft armor approaches (such as constructing vegetated soil lifts, backsloping and planting slopes, etc). These small changes to topography would create a more stable planting substrate for additional riparian vegetation.

Exclusively native soils would be used in this mitigation area. Enhancement would be achieved by planting native woody vegetation and limited bioengineering to reduce erosion at suitable locations. Soil disturbance or manipulation would be limited to bank stabilization measures such as the creation of vegetated soil lifts, backsloping, and use of erosion control fabrics.

This project would enhance the riparian vegetation in the mitigation area by replacing invasive species with native riparian vegetation (willow and cottonwood), as well as creating a denser riparian community than currently exists by planting additional native vegetation and excluding livestock from the mitigation area.

E. Wetland Creation at Willow Area (between Stations 58+00 and 62+00)

Following mitigation of this site, a variety of wetland and riparian habitat types would be present, enhancing a site that currently has little diversity. Overbank flooding and floodplain access would be improved through removal of berms that currently limit the width of aquatic habitat possible. This section of Quitchupah Creek flows perennially and would be impounded by low weirs to provide diverse habitat including emergent marsh wetland, wet meadow wetland, and limited open water. The creek would still flow perennially through the created wetland "cells". No fish are present in this reach, making fish passage a non-issue. Widening the active channel width and enhancing floodplain connection would trap sediment, creating fresh deposits for colonization by wetland and riparian vegetation that can replace the decadent stand currently present. It would also increase the stream's productivity and create hydrologically connected wetlands adjacent to the channel.

The hydrology of this mitigation site would be characterized by a gradation from ponded flow to seasonally saturated soil conditions farther away from the center of the channel and weir controlling the water surface elevation of each wetland cell. Quitchupah Creek would continue to maintain a small perennial flow spilling over the weirs, but ponding above each weir would saturate the soil in a much larger area than currently borders the narrow channel. In order to protect existing vegetation, the cells would not be graded beyond the installation of weirs and low impoundment berms perpendicular to the channel. The existing topography would generally produce cells that are gently sloped toward the channel, which should produce a gradient in soil saturation and water depth along the slope. Berms that currently prevent the creek from inundating the floodplain would be removed to allow better floodplain access.

Evapotranspiration from inundated areas, saturated soils, and wetland vegetation would consume some of the water supplied to the wetlands by Quitchupah Creek. Assuming that approximately 0.5 acres would be inundated on an average annual basis and 1 acre would have saturated soil conditions, and that the average annual flow of Quitchupah Creek in the mitigation site is only 0.05 cfs, the created wetlands would only consume approximately 5% of the mean annual flow (or about 1.9 acre feet per year) in evapotranspirative losses.

Existing soils currently support a variety of woody riparian vegetation, including dogwood and at least two willow species. Soils within this area are sandy alluvium. The examination of a soil pit during field reconnaissance showed no

evidence of hydric soil indicators such as organic streaking in the upper horizons, low chroma colors, or mottling. Following impoundment, the depth to saturation should decrease toward the center of the channel and weir in each cell, with year-round saturation and inundation in the areas closest to the weir.

The mitigation goal of this area is to maintain willow and dogwood shrubs while enhancing the understory with sedges, rushes, and grasses in places where stem density and canopy cover do not prohibit plant establishment.

F. Lower Quitchupah Creek Riparian Zone

Aquatic functions would remain largely the same as current conditions, but would be enhanced by the improvement in riparian quality, enhanced shading and input of organic matter, bank stabilization, and reduced sediment inputs.

Riparian exclusion fencing would improve water quality and stabilize banks, and thus have indirect impacts to water resources (water temperature and quality) and topography (bank stability).

Riparian fencing would reduce livestock-caused soil erosion along the banks of Quitchupah Creek

The quality, density, and health of riparian vegetation would be improved by excluding livestock from the riparian zone.

G. Mitigation Alternatives Investigated but Eliminated from Further Analysis

1. In-Lieu-Fee Mitigation

The Corps prefers on-site mitigation with similar functions and values restored to the applicable watershed. However, discussions took place with the Natural Resource Conservation Service (NRCS) and Corps to determine the feasibility of assembling an in-lieu-fee agreement within the desired project timeframe that would provide adequate function and value to mitigate for the proposed impacts. The NRCS has been working on stream enhancement projects with at least one private entity in the Muddy Creek watershed. Results of these discussions indicate it is not feasible to assemble an in-lieu-fee agreement in a timely manner. On-site mitigation is possible with moderate risk. In-lieu-fee mitigation is not feasible and prudent when compared to the on-site mitigation alternative.

2. Wetland Creation as Outlined in the FEIS

The FEIS discusses mitigation by creating wetlands through the willow area at the convergence of East Spring Creek and Quitchupah Creek. It was estimated 1.2 acres of wetlands could be created at this location and 1.0 acres of sagebrush community would be created due to the realignment of East Spring Creek.

Due to the grades of the existing topography and channel, there is only a small portion of this willow-filled area that would be suitable for feasible wetland creation. Wetland creation is possible between stations 58+00 and 62+00 along the Quitchupah Creek alignment. Grades east of this section are much steeper and the channel geometry is not suitable for wetland creation to the convergence of Quitchupah Creek and East Spring Creek.

As outlined above, the roadway alignment was moved south of the pump house at the creek convergence so as to avoid realignment of East Spring Creek.

Wetland creation remains an aspect of the proposed mitigation plan but is not the major component or strategy as shown in the FEIS. This mitigation alternative would likely have to be combined with other on site mitigation efforts in order to fully mitigate for impacts.

H. Mitigation Credit and Ratios

Overall, mitigation efforts would provide a credit-to-impact ratio of 1.19 assuming the mitigation ratios and impacts as outlined in Appendix C (total impact length = 10,082 feet; total mitigation length = 32,470 feet; total credit length = 11,995 feet). This provides a safety factor in the event a mitigation approach does not function as designed. Assumed mitigation ratios range from 1:1 for channel reconstruction to 5:1 for riparian fencing.

X. Monitoring, Success Criteria, and Maintenance

A Mitigation and Monitoring Plan (Plan) would be prepared prior to IP approval. The Plan would commit the County to monitoring of the mitigation sites and overall project for a period of 5 years. The goal of the success criteria and performance standards is that within 5 years the applicant will demonstrate that the success criteria have been maintained without human manipulation for three consecutive years. Monitoring reports would be completed on an annual basis and would summarize the mitigation status and outline any issues or needed correctional tasks.

The Plan would be prepared with the following goals in mind:

Goal 1:

Reestablish the physical and biological processes of an ephemeral channel where the channel is reconstructed in upper Convulsion Canyon. This would be accomplished by restoring 900 linear feet of alder-dominated riparian habitat, and 200 linear feet of willow and dogwood-dominated riparian habitat; restoring the natural hydrology to support these riparian plant communities' establishment and recruitment; and restoration of a stable channel capable of conveying infrequent flood flows without incising or unnaturally eroding banks or hillsides.

Goal 2:

Reestablish the physical and biological processes of upland buffer/habitat where the channel is reconstructed in upper Convulsion Canyon. This would be accomplished by restoring an upland buffer between the constructed channel and Quitchupah Creek Road and restoring the soil conditions necessary to support upland plant community establishment and recruitment.

Goal 3:

Establish the physical and biological processes of natural wet meadow habitat along Quitchupah Creek between stations 58+00 and 62+00. This would be accomplished by creating 0.5 acres of wet meadow habitat and providing the hydrology to support diverse wet meadow plant community establishment and recruitment.

Goal 4:

Establish the physical and biological processes of wetland mosaic habitat along Quitchupah Creek between stations 58+00 and 62+00. This would be accomplished by creating 0.5 acre of wetland mosaic habitat and providing the hydrology to support diverse wetland plant community establishment and recruitment.

Goal 5:

Improve the physical and biological processes of riparian habitat along Water Hollow. This would be accomplished by reducing the density of invasive species in the reach to improve wildlife habitat, reducing the amount of eroding banks to improve downstream water quality and stability for vegetative establishment, and enhancing the riparian condition by increasing the density of native woody riparian vegetation in the reach.

Maintenance would be conducted during the monitoring period to insure mitigation goals and success criteria are met. Standard roadway maintenance would be completed on a regular basis (at least monthly). Monitoring would take place after large storm events to insure that all aspects of the site are functioning properly and that no damage from blockage, erosion, or predation has occurred.

XI. Summary and Conclusion

The proposed project is the least damaging practicable alternative to achieve the basic project purpose and need. Mitigation efforts would be on site, in kind, economically feasible, prudent, and enhance the overall function and value of wetlands and Waters of the US along the project corridor.

Table 2
Quitcupah Creek Road
Impacts to Waters of the US
 12/26/2006

No.	FEIS Station	Current Station	Channel Description	Crossing or* Re-alignment	Channel Length w/in Project Footprint, ft.	Proposed Crossing/ Disturbance Length, ft.	Approx. Reduction in Channel Length, ft.	Culvert Diameter, in	Riprap Volume Below OHWM, CY	TOTAL Riprap Volume, CY	Culvert Disturbance Area, Acre	Relocated Channel: Riprap Volume, CY	Notes
1	11+00	11+00	Vegetated swale										
2	16+50 to 19+00	11+00	Intermittent Section of Quitcupah Creek	CH	280	250	30		50		0.08	200	Not Jurisdictional
3	18+00	19+50	Intermittent Section of Quitcupah Creek	C	157	152	5	72	10.56	32			
4	20+50 to 31+00	19+50	Intermittent Section of Quitcupah Creek	CH	1090	1050	40		210			840	
5	34+50 to 45+50	20+50	Intermittent Section of Quitcupah Creek	CH	1150	1100	50		220			880	
6	66+00	74+10	East Spring Creek Canyon (perennial)	C	140	120	20	84	6.93	40	0.03		
7	94+00	93+00	Ephemeral Tributary	C	84	84	0	54	19.8	21	0.02		
8	121+50	121+50	Quitcupah Creek (perennial)	C	330	230	100	108	4.95	60	0.07		
9	131+40	131+40	Unnamed Ephemeral Wash	C	156	136	20	42	66	15	0.05		
10	177+00	174+54	Water Hollow (perennial)	C	376	376	375	25x29' Arch	42.9	200	0.25		
11	229+50	225+30	Unnamed Ephemeral Wash	C	140	110	30	24x16' Arch	130	130	0.11		
12	255+00	249+90	Unnamed Ephemeral Wash	C	180	170	10	20x18' Arch	33	100	0.14		
13	329+48	329+48	Unnamed Ephemeral Wash	C	255	220	35	42	4.95	15	0.07		
14	337+71	337+71	Unnamed Ephemeral Wash	C	230	200	30	42	4.95	15	0.07		
15	339+50	339+43	Unnamed Ephemeral Wash	C	127	122	5	24	2.31	7	0.04		
16	341+50	341+44	Unnamed Ephemeral Wash	C	135	130	5	24	2.31	7	0.04		
17	360+72	360+60	Unnamed Ephemeral Wash	C	370	340	30	42	4.95	15	0.11		
18	366+50	366+50	Unnamed Ephemeral Wash	C	188	188	0	24	2.31	7	0.05		
19	384+50	381+40	Unnamed Ephemeral Wash	C	376	286	90	20x18' Arch	33	100	0.14	135	Road does not cross Road does not cross
20	405+21 to 407+30	405+21 to 407+30	Unnamed Ephemeral Wash	CH	335	220	115		34				
21	412+50	ELIMINATED	Unnamed Ephemeral Wash		0	0	0						
22	419+00	ELIMINATED	Unnamed Ephemeral Wash		0	0	0						
23	432+00	409+76	Unnamed Ephemeral Wash	C	329	314	15	72	10.56	32	0.11		
24	417+03	417+03	Unnamed Ephemeral Wash	C	346	336	10	96	16.5	50	0.15		
25	463+00	469+50	Unnamed Ephemeral Wash	C	0	0	0						
26	471+00	469+50	Unnamed Ephemeral Wash	C	115	70	45	30	2.97	9	0.03		Combined with 469+50
27		511+50	Unnamed Ephemeral Wash	C	70	70	0	24	2.31	7	0.02		
28		514+27	Unnamed Ephemeral Wash	C	80	80	0	(4) 60	31.68	96	0.19		Widening along SR-10
29		320+17	Unnamed Ephemeral Wash	C	24	24	0	36	3.96	12	0.002		Widening along SR-10
30		323+13	Unnamed Ephemeral Wash	C	28	28	0	36	3.96	12	0.003		Widening along SR-10
31		324+37	Unnamed Ephemeral Wash	C	32	32	0	24	2.31	7	0.004		Widening along SR-10
32		327+04	Unnamed Ephemeral Wash	C	28	28	0	30	2.97	9	0.003		Widening along SR-10
33		330+34	Unnamed Ephemeral Wash	C	36	36	0	36	3.96	12	0.004		Widening along SR-10
							1060		847.3	1010	1.786	2055	

* - C = culvert crossing; CH = channel re-alignment

Channel Impacts Summary**			
	Existing channel w/in footprint	Culvert crossing/ realign lengths	Reduction in channel length
Culvert Crossings:	3329	3004	325
Ephemeral	157	5	5
Intermittent	1221	726	495
Perennial	4707	3882	825
Total	335	2400	115
Channel Re-alignments:	2520	2620	100
Ephemeral	2855	6502	235
Intermittent	7562	1060	1060
Grand Totals:			

** - all values expressed in linear feet

Table 3. Mitigation Summary

Impact sites	Impact Type	Impact Length (ft)	Mitigation Sites	Station	Mitigation Type	Mitigation Length (ft) -Actual-	Mitigation Ratio (X:1)	Mitigation Length (ft) -Credit-
Convulsion Canyon	Channel fill (or culvert)	2,677	Convulsion Canyon	16+50 to 45+50	Channel Reconstruction	2,400	1	2,400
				Part of 4.7 miles in and downstream of project area	Riparian fencing**	2,000	5	400
		Total: 2,677			Total: 4,400		Total: 2,800	
Quitchupah Cr, Water Hollow, & East Spring Cr. Crossings	Culvert and riparian vegetation removal	1,221	Water Hollow	174+00	Riparian enhancement	300	3	100
				Part of 4.7 miles in and downstream of project area	Riparian fencing**	2,000	5	400
				Convulsion Canyon	Upland Buffer	2,400	3	800
				Quitchupah Floodplain	Wetland creation	150	1	150
		Total: 1,221			Total: 4,850		Total: 1,450	
Convulsion Canyon	Riparian vegetation removal (alder)	1,867	Convulsion Canyon	22+00 to 29+00	Alder replacement	1,050	1	1,050
				39+50 to 42+00				
				43+50				
Convulsion Canyon	Riparian vegetation removal (willow/dogwood)	653	Quitchupah Creek	Part of 4.7 miles in and downstream of project area	Riparian fencing**	4,000	5	800
				174+00	Riparian enhancement	700	3	233
				34+50 to 35+50	Willow replacement	100	1	100
		Total: 1,867			Total: 5,750		Total: 2,083	
Unnamed Ephemeral Washes	Culvert only	3,329	Quitchupah Creek	Part of 4.7 miles in and downstream of project area	Riparian fencing**	3,000	5	600
				58+00 to 62+00	Wetland creation	150	2	75
				405+21 to 407+30	Channel reconstruction	220	1	220
		Total: 3,664			Total: 14,220		Total: 4,887	
		Total impact length*: 10,082			Total mitigation length*: 32,470			Total credit length*: 11,995
								Credit/Impact Ratio (safety factor): 1.19

* Impact and mitigation "lengths" overlap in Convulsion Canyon, where the channel is filled and riparian vegetation is removed. The total impact length therefore includes 2520 ft of impacts twice, and the total length impacted is actually 7562 ft.)
 **We assume a 5:1 mitigation ratio for riparian fencing where it mitigates riparian vegetation removal, and a 3:1 ratio where it mitigates culverted crossings of ephemeral washes with extremely low riparian function



Photo 1 – Quitchupah Creek, east view near the project beginning (Acord Lakes Road).



Photo 2 – Quitchupah Creek, east view near the project beginning (Acord Lakes Road).



Photo 3 – Quitchupah Creek, looking west near proposed roadway crossing.



Photo 4 – Quitchupah Creek, looking east near proposed roadway crossing.



Photo 5 – Water Hollow near proposed roadway crossing.



Photo 6 – Water Hollow, looking downstream from proposed roadway crossing.



Photo 7 – Looking west across Water Hollow toward project beginning.



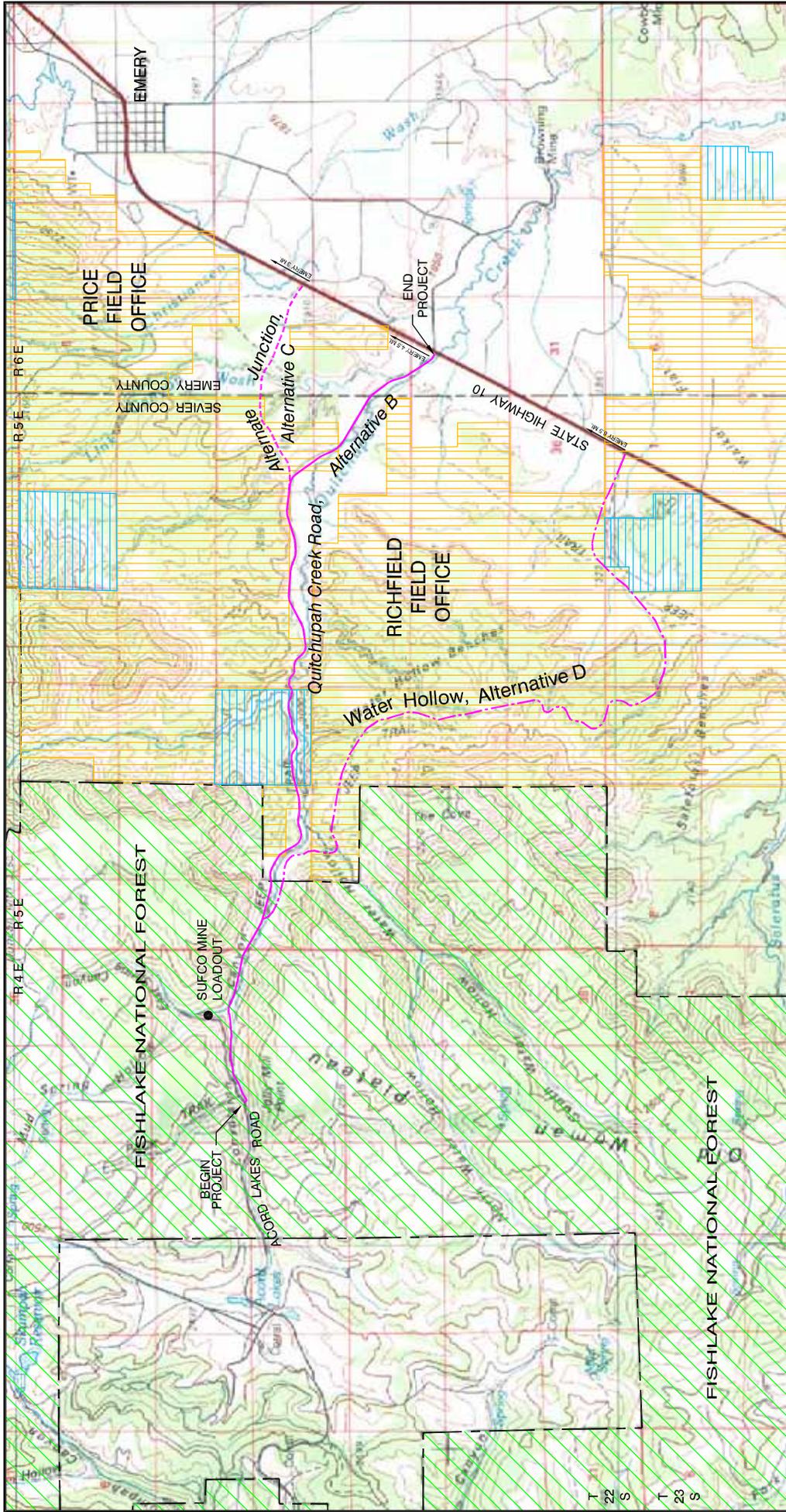
Photo 8 – Looking south along Water Hollow Bench before decent to SR-10.



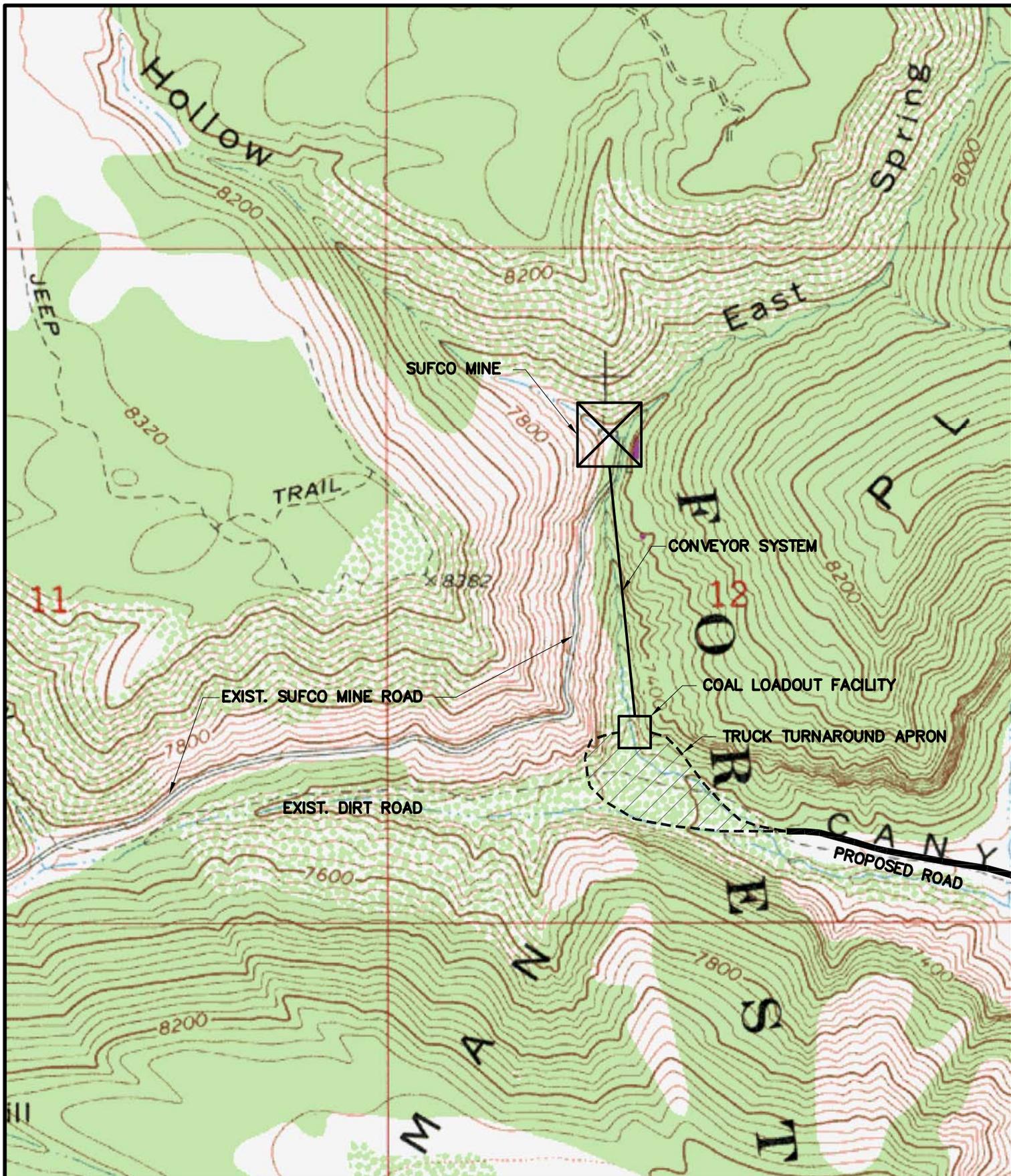
Photo 9 – Looking southwesterly near Station 365+00



Photo 10 – Looking south near Station 375+00.

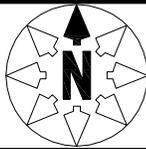


<p>EXPLANATION</p> <ul style="list-style-type: none"> --- FISHLAKE NATIONAL FOREST BOUNDARY — QUITCHUPAH CREEK ROAD, ALTERNATIVE B --- ALTERNATE JUNCTION, ALTERNATIVE C --- WATER HOLLOW, ALTERNATIVE D 		<p>LANDSTATUS</p> <ul style="list-style-type: none"> FISHLAKE NATIONAL FOREST BOUNDARY BLM LAND STATE LAND PRIVATE LAND 	
<p>NOTE: WITH NO ACTION, NONE OF THE ROUTES WOULD BE CONSTRUCTED.</p>		<p>1 1 0 1 MILE</p>	
<p>QUITCHUPAH CREEK ROAD EIS</p>		<p>FIGURE 1-2 PROJECT AREA AND ALTERNATIVES</p>	
<p>jbr Environmental Consultants, Inc. Suzanne J. Brumby, P.E., EIS Director BY: [Signature] DATE: 8/05/02</p>		<p>DATE DRAWN: 8/05/02 DATE REVISION: 11/15/02 DATE APPROVAL: 9/13/02 SCALE: 1"=1 MILE</p>	



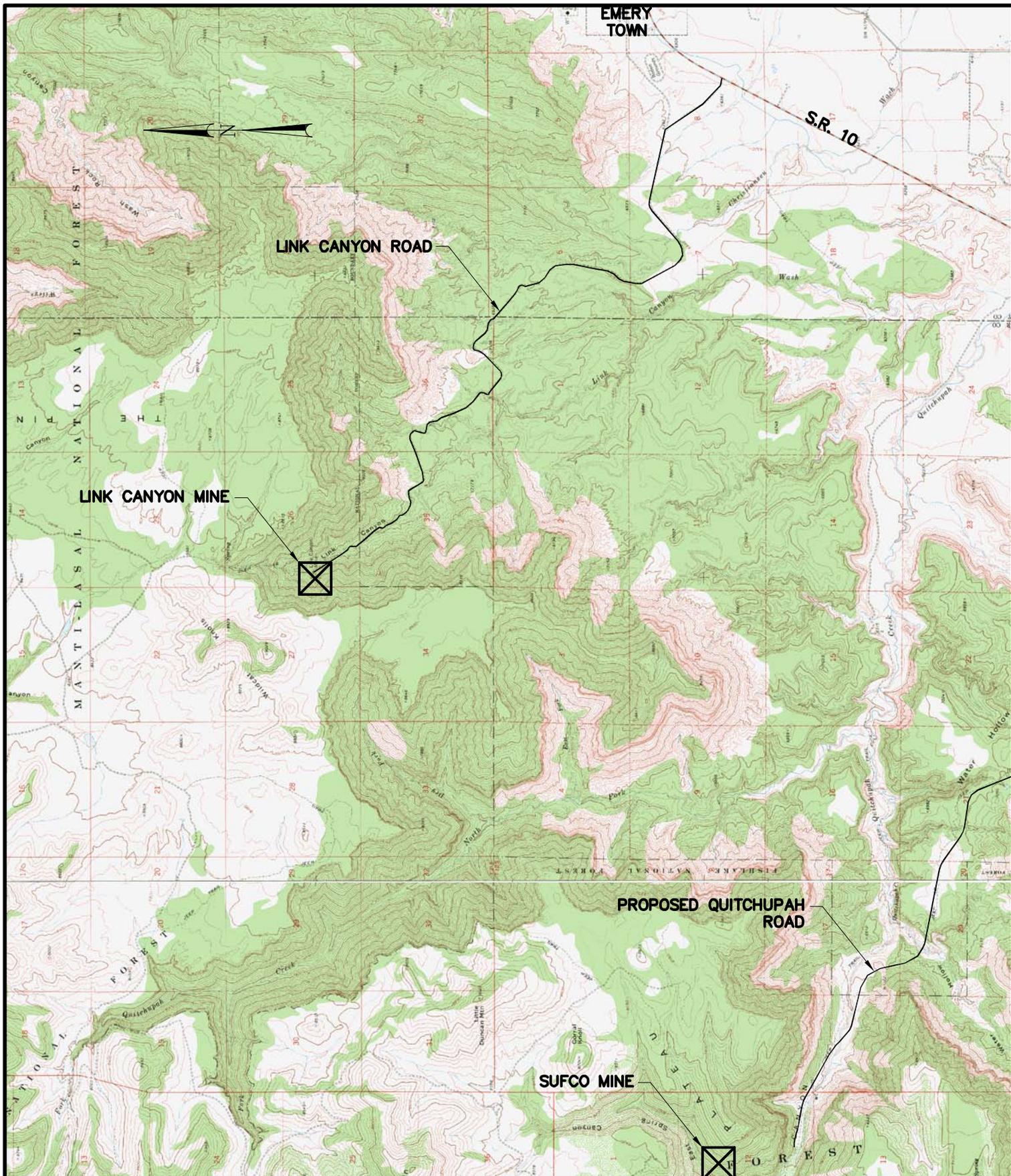
Jones & DeMille Engineering

1535 South 100 West - Richfield, Utah 84701
 Phone (435) 896-8268 Fax (435) 896-8268
 www.jonesanddemille.com



SCALE: 1"=1,000'

SEVIER COUNTY		FIGURE: 1
CONVEYOR SYSTEMS ALTERNATIVE		
QUITCHUPAH CREEK ROAD		
DRAWN: M.R. 12/06	PEN TBL: _1stndrd-hp2600.ctb	PROJECT: 0607-002
CHECK: B.L. 12/06	FILE: AVD_EXHIBIT	LAST UPDATE: 12/28/2006
		SHEET: 1



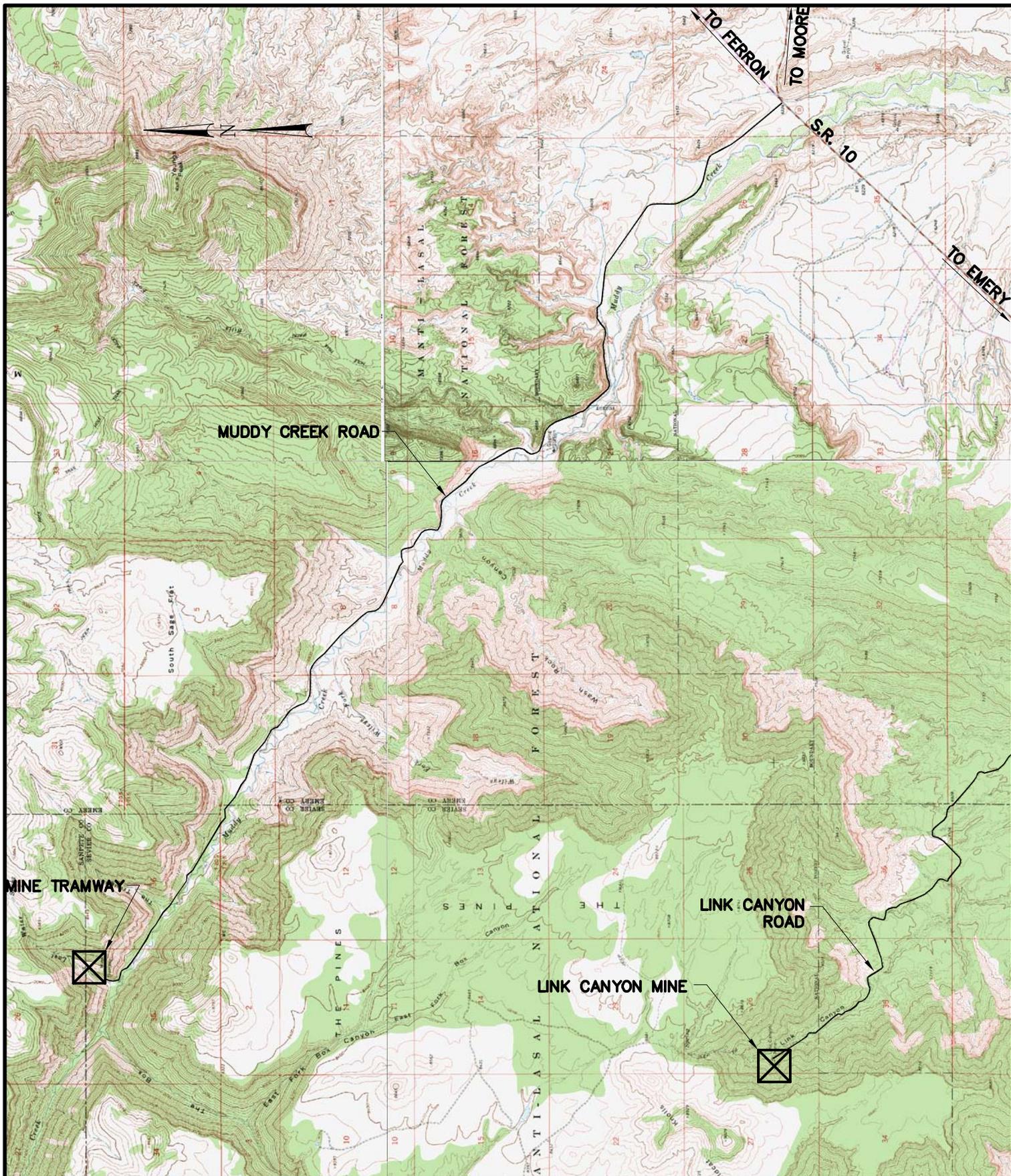
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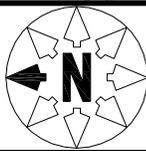
SCALE: 1"=5,000'

SEVIER COUNTY		FIGURE: 1
LINK CANYON ROAD ALTERNATIVE		
QUITCHUPAH CREEK ROAD		
DRAWN: K.J. 12/06	PEN TBL: _1stndrd-hp2600.ctb	PROJECT: 0607-002
CHECK: B.L. 12/06	FILE: AVD_EXHIBIT	LAST UPDATE: 12/29/2006
		SHEET: 1



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 Phone (435) 896-8268 Fax (435) 896-8268
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SCALE: 1"=5,000'

SEVIER COUNTY		FIGURE: 1
MUDDY CREEK ROAD ALTERNATIVE		
QUITCHUPAH CREEK ROAD		
DRAWN: K.J. 12/06	PEN TBL: _1stndrd-hp2600.ctb	PROJECT: 0607-002
CHECK: B.L. 12/06	FILE: AVD_EXHIBIT	LAST UPDATE: 12/29/2006
		SHEET: 1

**STATE PROTOCOL AGREEMENT BETWEEN
THE UTAH STATE DIRECTOR OF THE BUREAU OF LAND MANAGEMENT
AND THE UTAH STATE HISTORIC PRESERVATION OFFICER (SHPO)
REGARDING THE MANNER IN WHICH THE BUREAU OF LAND MANAGEMENT
(BLM) WILL MEET ITS RESPONSIBILITIES UNDER THE NATIONAL HISTORIC
PRESERVATION ACT (NHPA) AND THE NATIONAL PROGRAMMATIC
AGREEMENT (PA) AMONG THE BLM, THE ADVISORY COUNCIL ON HISTORIC
PRESERVATION (COUNCIL), AND THE NATIONAL CONFERENCE OF STATE
HISTORIC PRESERVATION OFFICERS (NCSHPO)**

This Protocol Agreement (Protocol) supplements the above-referenced national PA, and pertains to Sections 106, 110, 111 (a) and 112 (a) of the NHPA. It describes specific procedures regarding how the Utah SHPO and the BLM will interact and cooperate under the national PA. The goals of this Protocol and the national PA are to enhance planning for and management of historic properties under the BLM's jurisdiction or control and to ensure appropriate consideration of historic properties outside BLM's jurisdiction, but which may be affected by its actions. Undertakings involving non-federal lands for which BLM is considered the lead agent shall be considered federal actions and will be subject to requirements outlined in this Protocol. This agreement does not apply to tribal lands as defined in NHPA. The following are the agreed-upon procedures of the Protocol.

I. RELATIONSHIP OF THIS PROTOCOL AGREEMENT TO OTHER AGREEMENTS

All general compliance agreements not including on-going project specific programmatic agreements or MOAs, are terminated. Any BLM manager in Utah who elects not to follow the process set forth in this Protocol will comply with 36 CFR 800 procedures regarding individual undertakings until his or her difficulties with applying the Protocol are resolved following procedures detailed in Section IX (A), after which use of this Protocol will resume.

SHPO and BLM agree that (1) BLM conducts continuing programs and carries out specific undertakings that involve land disturbance and modification of the built and natural environments, and; (2) BLM bears legal responsibility for carrying out such undertakings consistent with the National Historic Preservation Act (NHPA), and that; (3) BLM's undertakings, including actions assisted, licensed, permitted, approved, funded, or authorized by BLM, being "undertakings" as defined in the Code of Federal Regulations [36 CFR 800.16(y)], are numerous, complex and far-reaching in their effects on lands and properties in Utah.

The following procedures will be implemented by the BLM under this Protocol to fulfill its responsibilities under the above-mentioned authorities.

II. ADMINISTRATIVE INTERACTION AND REPORTING PROCEDURES

BLM will send project logs (Attachment A) to the SHPO at the time BLM prepares its annual report to the Secretary of the Interior, usually in November or December. BLM will also prepare a summary report (Attachment B) that describes the implemented actions taken in the previous fiscal year and actions that are anticipated in the coming fiscal year. This report will be due to the SHPO by October 30th of each year, and will include information as outlined in Attachment B. By November 30th of each year, the SHPO will prepare a report that assesses the overall effectiveness of BLM's implementation of this Protocol and makes recommendations for actions to be taken by BLM. The

BLM will consider SHPO's assessments and recommendations for future actions and will apply them to the plan for the following fiscal year, as appropriate. If SHPO is not satisfied with BLM's response, procedures Section IX (A), below may be followed.

The SHPO, a BLM line manager, BLM's Deputy Preservation Officer for Utah, and the BLM Utah Cultural Resources Specialists will meet annually in November, or more often as needed, to discuss pertinent issues. The Council will be invited to participate. At the Annual meeting, the SHPO and BLM will exchange information relevant to the goals and objectives set forth in this Protocol. Other meetings to address emerging issues and their effects on historic properties may be arranged as necessary.

III. BLM AND SHPO INVOLVEMENT IN THE BLM STATE MANAGEMENT PROCESSES

BLM shall provide the SHPO the opportunity to participate at the development stage and all subsequent phases of land use planning in accordance with 43 CFR 1610.3 (Coordination with Other Federal Agencies, State and Local Governments, and Indian Tribes). BLM will provide the SHPO with all land management plans (e.g., Resource Management Plans, Cultural Resource Management Plans), special use plans (e.g., Fire Management Plans) and appropriate NEPA documents. Such plans will document methods to gain public input.

IV. COOPERATIVE PROGRAM DEVELOPMENT AND ACTIVITIES

A. Data Sharing and Information Management

1. Reporting. BLM will document all Undertakings. BLM will submit to the SHPO copies of all fieldwork reports for historic property inventories and Intermountain Antiquities Computer Site Forms (IMACS) as soon as possible after completion of the work, but not later than three months following completion of the fieldwork. If a final report will not arrive at the SHPO's office within the three month deadline, the BLM will notify the SHPO in writing, and will include in the correspondence a plan for completion and the expected date of submission.

BLM will review the work of permitted contractors and will ensure that Utah State Report Guidelines and the Secretary of the Interior's Standards and Guidelines (Secretary's Standards) are met in all documentation prepared by contractors and by all BLM staff.

All "backlog" documentation that exists in BLM files and which predates the signing of this Protocol will be submitted to the SHPO within twelve months of the implementation of this Protocol. Elimination of the backlog documentation is a condition of continuing field office certification. If the documentation will not arrive at the SHPO's office before the deadline, BLM will notify SHPO in writing, and will include in the correspondence a plan for completion and the expected date of submission.

2. Data exchange. The SHPO and BLM shall exchange information on a constant basis regarding the location and evaluation of cultural resources. Each agency will assure that such locational information is protected from unauthorized use. As appropriate, information exchange will be through the development of an automated database, managed by the SHPO. BLM will assist the SHPO in developing the system by providing financial, personnel, hardware and software resources, as funding becomes available (Memorandum of Understanding, February of 1996).

The SHPO will provide the BLM with automated cultural resources information and with reasonable amounts of hard copy information not yet available in the database, as requested by the BLM. Charges may be assessed and are subject to negotiation at the annual November meeting.

3. Maintenance of files. BLM and SHPO will support and maintain a fully compatible and up-to-date database. The BLM and SHPO will incorporate the results of project-specific surveys into the database as the results are produced. The review and analysis will be performed by BLM and SHPO annually, in time for the yearly meeting.

B. State-Level Historic Preservation Training

The SHPO will be offered the opportunity to assist the BLM in on-going training of field managers and supervisors, as well as of cultural resources staff, for certification purposes. Training resources might include, but are not limited to: Section 106 and Section 110 Training, planning documents, NAGPRA, and other training as necessary.

C. Public Outreach and Participation

BLM will develop and implement plans in support of public education and community outreach, along with cooperative stewardship and site protection, in consultation with SHPO. BLM will continue with its Project Archaeology Program and other Heritage Education efforts.

BLM will seek and consider the views of the public and Indian Tribes when carrying out the actions under the terms of this Protocol. BLM may coordinate this public participation requirement with those of the NEPA and the Federal Land Policy and Management Act of 1976 (FLPMA), along with other pertinent statutes. Interested parties shall be invited to consult in the review process [Section VII (B) below] if they have interests in a BLM undertaking or action on historic properties. Such interested parties may include, but are not limited to, local governments, especially those with historic preservation ordinances or resolutions (Attachment D); grantees, permittees, or owners of affected lands or land surfaces; and other interested parties, as determined by the BLM and SHPO.

V. NATIVE AMERICAN PARTICIPATION

BLM will comply with the NHPA, and the Native American Graves Protection Act (NAGPRA) and other applicable statutes if a property is subject to those laws. BLM will seek and consider the views of Indian tribes in accordance with the requirements of these and other statutes, regulations and policy directives including Executive Orders, Manuals, and memoranda.

VI. IDENTIFICATION AND EVALUATION OF HISTORIC PROPERTIES

A. Identification

BLM will make reasonable efforts to identify all historic properties and sacred sites on BLM-administered lands and private lands where a BLM undertaking will occur within Utah. BLM will ensure that project-specific surveys and other efforts to identify historic properties are conducted in accordance with appropriate professional standards, as defined in the Secretary's Standards, and the BLM's 8100 Manual.

B. Evaluation

During all inventories, BLM will ensure that historic properties identified are evaluated in a manner consistent with the Secretary's Standards, 36 CFR Part 60.4 and BLM's 8100 Manuals.

VII. SHPO Review Parameters

BLM shall complete inventory, evaluation and assessment of effects and the written documentation of these findings before proceeding with project implementation. Most of BLM's undertakings are routine in nature, and will normally be permitted to proceed and will not await submission of formal documentation to SHPO. For other undertakings, as described in Section V11 (A), below, BLM will consult with SHPO prior to implementation of the action. BLM will discuss the issue with SHPO in cases where there is any uncertainty.

A. Review Thresholds

A. At a minimum, the BLM will request the review of the SHPO along with the Council (as determined by the national PA) in the following situations:

- (1) non-routine interstate and/or interagency projects or programs;
- (2) undertakings that directly and adversely affect National Historic Landmarks or National Register eligible properties of national significance.
- (3) highly controversial undertakings, when Council review is requested by the BLM, SHPO, an Indian Tribe, a local government, or an applicant for a BLM authorization.

B. The BLM will request the review of SHPO in the following situations:

- (1) undertakings affecting National Register eligible or listed properties.
- (2) land exchanges, land sales, Recreation and Public Purpose leases, and transfers.
- (3) when BLM professional staff lack the appropriate regional experience or professional expertise, and until performance is mutually acceptable to the BLM Deputy Preservation Officer and SHPO.
- (4) when BLM's professional cultural resources staff wishes to bring a particular project to the attention of SHPO.

C. At a minimum, the BLM will not request the review of the SHPO in the following situations (except for the four circumstances at (B)above):

- (1) No Potential to Effect determinations by qualified BLM staff.
- (2) No Historic Properties Affected; no sites present, determined by qualified BLM staff.
- (3) No Historic Properties Affected; no eligible sites present, determined by qualified BLM staff.
- (4) No Historic Properties Affected; eligible sites present, but not affected as defined by 36CFR800.4.

When the above review thresholds are met, the following process will be undertaken.

B. Review Process

BLM will make determinations of eligibility according to 36 CFR Part 60.4 and effects according to criteria set forth in 36 CFR 800.5. BLM will confer with SHPO whenever questions about eligibility and/or effect arise. As appropriate, BLM shall invite interested parties to consult.

BLM will provide documentation in the form of complete and accurate IMACS site forms and inventory reports, as appropriate, to the SHPO, on all projects and undertakings. An informational letter (Attachment D, informational) will accompany this documentation. The SHPO may comment, in writing, on BLM's findings. The BLM will respond, in writing, to any SHPO comments. Both parties will include such comments and responses in the annual report that assesses effectiveness of the Protocol under Section 11.

Inventory will be documented following the Secretary's Standards, BLM procedures and 8100 Manual. Prompt transmission of this documentation will assure an updated database and will occur no later than three months after completion of fieldwork as described in Part IV (A) (1) above.

If a historic property will be affected, BLM will determine whether an MOA or a Treatment Plan is appropriate, in consultation with SHPO, and will document this in the concurrence letter (Attachment D, concurrence). When an adverse effect cannot be avoided through project redesign, BLM will prepare and implement an MOA or Treatment Plan for each property, group of properties, or class of properties that have been determined eligible for inclusion in the NRHP. The Treatment Plan or MOA will take into account the national policies set forth in Section 2 of the NHPA, as amended, and current professional standards. BLM and SHPO will jointly prepare MOAs. BLM will afford the SHPO 15 working days in which to comment upon Treatment Plans. If the SHPO and the BLM cannot reach agreement, dispute resolution procedures will be followed [Part IX (A)].

C. BLM Review

Within six months after signing of this Protocol, BLM and SHPO will meet to review the implementation of this Protocol.

BLM's Deputy Preservation Officer will conduct reviews of each field office (Attachment E), at least annually, in sufficient detail, to determine:

- (1) whether a qualified professional cultural resources staff is present;
- (2) whether undertakings are receiving appropriate cultural resource consideration;
- (3) whether project documentation is being completed and sent to SHPO in a timely manner;
- (4) whether cultural resource identification, evaluation and treatment has occurred before undertakings proceed;
- (5) whether final reports of treatment are being completed and sent to the SHPO; (7) whether follow-up monitoring, where required by avoidance stipulations, MOA or treatment plan specifications, is being completed.

D. Monitoring

The SHPO may monitor projects through field visits and inspection of records. The BLM will cooperate with the SHPO's monitoring activities.

E. Discoveries

In the event that potentially eligible historic properties are discovered during the course of ground disturbance and cannot be avoided, work in the immediate vicinity of the discovery will cease. BLM will evaluate the site and, in consultation with the SHPO, select the appropriate mitigation option. The BLM will implement the mitigation in a timely manner. The process will be fully documented (in reports, site forms and photographs), and the documentation will be forwarded to the SHPO. Large-scale projects will include a discovery process in the treatment plan. If any discovery involves NAGPRA materials, BLM will follow specific requirements of NAGPRA (43 CFR 10).

VIII. STAFFING

A. BLM will strive to hire professional staff that meet manual requirements. Field offices will employ at least one full-time, permanent professional, or will make arrangements to have their workload covered by a qualified professional from another office, or will work with Utah State Office and the SHPO to agree on temporary measures to cover the professional staffing needs of that office.

B. State Certification

BLM-Utah will ensure that expertise in prehistoric archaeology, historic archaeology, industrial archaeology, history, architectural history, historic architecture, Native American coordination, public outreach/heritage education and Traditional Cultural Properties (identification, evaluation and treatment) is available to all BLM-Utah staff (Attachment F). If BLM determines that it does not employ a staff member with a particular skill, it will obtain that expertise for the purpose of determining National Register eligibility, effects, and treatment for the cultural resources in question. The BLM may request the assistance of SHPO staff in such cases or may obtain the necessary expertise through contracts, BLM personnel from other states, or cooperative arrangements with other agencies.

When personnel changes occur, e.g., staff specialists or managers leave, field office certification will be reviewed. Until positions are filled and training is completed, BLM will ensure that qualified personnel are available to conduct the tasks outlined in this Protocol. If decertification is a possibility, the procedures in Section 8 of the national PA will be followed. Certification training topics will include, at a minimum, the national PA, the Protocol, and a review of the Handbook.

IX. DISPUTE RESOLUTION PROCEDURES, AMENDMENTS, AND TERMINATION

A. Dispute Resolution Procedures

Should the BLM or the SHPO object, in writing, within 30 days, to an action taken by the other party to this Protocol, they will consult to resolve the objection. If the dispute cannot be resolved, BLM and SHPO will mutually determine a course of action. Options might include consultation with the National Preservation Board, the Council or alternative dispute resolution procedures. If alternative arrangements are not mutually agreeable, the dispute will be referred to the Council.

B. Amendments to the Protocol

The BLM or the SHPO may request amendment of this Protocol at any time, whereupon the parties will consult to consider such amendment. Amendments will become effective upon signature of both parties and will be attached hereto.

C. Termination of the Protocol

The BLM or the SHPO may terminate this Protocol by providing thirty (30) days written notice to the other party, providing that the parties consult during this period to seek agreement on amendments or other actions that would avoid termination. Either may request the assistance of State Director, the Preservation Board, and/or the Council. In the event of termination, the BLM will operate under the provisions of 36 CFR Part 800 as described in Section 1.

X. OTHER STATE-SPECIFIC PROCEDURES

BLM will follow procedures and adhere to policies detailed in BLM Utah Manual Guidance: the Procedures (Attachment C) and other supplemental manual guidance, along with IMACS site forms. BLM and SHPO will jointly develop and revise handbooks and other guidance as necessary.

XI. ATTACHMENTS

Attachments may be added to this Protocol with the mutual approval of the SHPO and the BLM. Referenced attachments are:

- A. Example Project Log Page
- B. Outline of Topics Covered in Utah BLM/SHPO Annual Report
- C. Procedures for Professionals
- D. Cover Letters
- E. BLM Review Form
- F. Professional Certification Information

BUREAU OF LAND MANAGEMENT



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