

APPENDIX K
ROAD ACCESS
DOCUMENTATION

United States Forest
Department of Service
Agriculture

Siskiyou
National
Forest

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Reply to: NICORE Road Alternatives

Date: April 12, 1999

Subject: Documentation

To: The Files

The transportation routes for access to the four planned mining sites is included in the Proposed Action (PA) and six alternatives. These routes utilize the existing roads as much as feasible. The existing roads have been used in the past by miners to access the claims and haul out samples. There are other routes that have been considered to access some of the sites, but it would mean building new roads in the area. Building new roads for the ten years planned for the project did not seem reasonable except to avoid especially steep sections, to avoid routes in actual creek channels and riparian areas, or to avoid where the channel normally floods.

Trucks planned by the operator to haul the ore are 25 ton articulated off-highway trucks. This size of truck is no longer in common use but some can probably be found. 30 ton articulated trucks are available. Some alternatives also use standard dump trucks which are highway legal. Due to the weight of the ore, the trucks will be only 1/2 to 2/3 full, so there should be little problem of ore dribbling over the truck beds. The estimated haul would be 15 to 20 vehicles per day, plus about 20% additional service vehicles.

Rough and Ready Creek has been found to be eligible for Wild and Scenic River classification and the Botanical land allocation in the bottom reaches. Some recommended new routes would have to go through the botanical lands or would be within the scenic section of the proposed W&S River and possibly visible from a section of Rough and Ready Creek which was found to be eligible for "wild" classification. These other new routes were not included in order to not impact sensitive areas.

Most of the roads for this project already exist, including those in the South Kalmiopsis Roadless Area. Not all of the roads are on the Forest road inventory. These are mining roads that were built prior to forming the roadless area. The planned mining areas have been disturbed and sampled in the past. The disturbed areas may not cover the entire areas planned in this operation.

The following is documentation of criteria and components used in the alternatives for this project.

Utilities -- The Rough and Ready Creek Road has an overhead power line, a buried telephone line, and an irrigation canal along and parallel to the road. The irrigation canal is along only a portion of the road, and a feeder line crosses the road in one location. The power line and buried telephone line go to the last residence prior to the Forest Boundary. Unless this road is reconstructed to a double lane standard, the power line should not be affected (S&G 9-6). In widening the road from existing 10' to 12', the irrigation canal could require some sections to be

shifted, and the phone line could be affected where existing culverts need extended, including the culvert where the irrigation canal line feeder line crosses the road.

There is a primary power line crossing Section 13 and the southeast corner of Section 14. All alternatives follow portions of the line and use the work road for this line. The power line will not be affected by any alternative (S&G 9-6). The irrigation canal along the Rough and Ready Creek Road crosses this road at the southeast corner of Section 14 in Alternatives 6, 10, and 11. Widening the road may require extending the culvert at this crossing but would not affect the primary power line.

Land Line Boundaries -- Some property lines and corners would be located with all alternatives (S&G 9-7). The marking of these lines and corners would be the responsibility of the Plan of Operation holder (operator). These lines and corners are:

A property corner near the center of Section 14 on the north side of Rough and Ready Creek would be needed for the PA, or Alternatives 7, 8, or 10. A property corner west of the center of Section 14 should be marked for the PA. A property corner to the east of the west line of Section 14 and on the north side of Rough and Ready Creek should be marked for the PA. The south line of Section 14 and property corners along this line are needed for Alternatives 6 or 11. The west line of Section 14 needs to be marked where Rough and Ready Creek Road crosses the Forest boundary for Alternatives 6 or 11.

Haul Road Design -- The planned use of the roads for haul of minerals is June 15 to September 15, the dry season of the year. Use during wet periods within these dates would be managed (RF-7). The actual location, design, and staking of constructed roads would be engineered by the operator and approved by the Forest Service. Some criteria is used in the below data for the purpose of costing for comparison of alternatives which may not be the final design criteria.

All roads would be designed for the high clearance vehicles used in this project except along Rough and Ready Creek Road to 100 feet past the last residence access. A high clearance vehicle design will permit use by both sizes of haul trucks and by service vehicles. All roads would be designed with a 12 foot (plus 1 foot tolerance) running surface except the Wimer Rd which would use the existing width. A greater running surface could be required in agreement with the landowners along the Rough and Ready Creek Road should either Alternative 6 or 11 be used. Turnouts would not be constructed except along the Rough and Ready Creek Road and where only clearing, and possibly use of borrow, is required along the other roads (existing turnouts on the Wimer Rd would be kept). Where feasible, "J holes" could be placed to allow traffic to pass on the narrow miner roads. "J holes" are spots where a vehicle could get off the road just enough to allow passing and then return to the road by backing up. "J holes" are minimum impact and could have surfacing where needed. Communications between trucks would be desirable for safety.

During storms when water is actually running on the road surface, all haul should stop to reduce sediment runoff.

Some sections would be reconstructed to obtain the necessary width. Other sections would be relocated or a new route constructed to avoid steep grades, to get the road out of the flood zone, and to avoid especially bad sections of the road in the various alternatives. All cut and fill slopes on new road sections would be at the steepest possible consistent with being stable and for safety of planned vehicles. Steep cuts and fills would reduce the exposure of mineral soil to erosion but

could increase the amount of ravel and slides on cut slopes until they stabilize. All new construction would avoid wetlands. Other design and location criteria are:

Grades up to 25% with short pitches up to 200 ft. over 25% grade but under 30% grade permitted.

Waterbars or cross ditches in grades above 10% would be built in where feasible. If not feasible, these would be put in at the end of each season at about 150 ft. interval above 15% and at increased spacing below 15%.

In all live drainages, except in the PA, culverts or bridges would be placed during use. Alternative 11 would have a permanent bridge at Rough and Ready Creek crossing #5, but all other bridges and culverts would be removed each season (except in the Wing & Faren ditch which would remain until the end of the project, culverts placed in the Rough & Ready Creek Road up to the junction with Rd 445, and at the entrance to Highway 199) and at end of planned use. Bridges would permit fish passage at all times and reduce sediment and oil droppings from reaching the water. Most structures are not sized or installed to be permanent. The sizes and approaches for permanent structures would be economically unneeded for this project, although the permanent structures could be considered if the proponent wished to install them. Culverts at the ramp to Hwy 199 and on the Rough and Ready Creek Road would remain in place, even following the project.

Washed rock is used for surfacing across main drainages and for approaches to temporary bridges. The depth of this rock is greater on R&R Creek crossings #5 and #6 due to the water depth. No salvage is planned for the washed rock so the cost of replacing this rock each season is used. Any rock that could be salvaged at the end of a season would include fines from the crushing effect of the haul vehicles, and these fines would not be rewashed out for use the following season. Salvaged rock could be used on other portions of the access roads.

Culverts and bridges would not be adequate in size for winter flows (except the permanent bridge in Alternative 11) as this would require major fills and abutments that would be subject to erosion. These roads are expected to have little or no use following this project.

Temporary bridges may not eliminate all fording of Rough and Ready Creek or the South Fork. It is possible the surface of approaches to the structures may not be entirely out of the water. The depth of water at crossings #5 and #6 could leave parts of the road surface under water, and the road surface could be under water at high flow periods, especially early in the season and during periods of summer storms.

Other crossing options were discussed but not used such as:

Concrete fords and with culverts - These would be more expensive initially and could introduce impurities into the water while being constructed. Annual maintenance of these crossings could be cheaper than replacing the culverts or washed rock. It would be more expensive to remove these at the end of the project.

Bailey Bridges and other portable bridges - Much more expensive than railroad flat cars and require more substantial abutments. Removal and replacement each year would be more expensive. The bridges would have a high salvage value at end of the project.

Road surfaces would be outsloped except on flats and side hill road sections on the route to Site B. Site B can be accessed from outside the drainage and further protection for POC is required, so the road surface would be insloped with waterbars or cross ditches to control where the water leaves the road. There are no live streams on this route. If necessary, culverts could be used to get inslope water across the road, then removed at end of the project. Sections of outslope that also require a berm will need breaks in the berm where cross ditches are placed for winter to allow water to get off the road. These breaks should be armored with added rock in the cross ditch bottom and at the outdrain to reduce erosion.

Surfacing would be used on all roads, except in the PA, up to and past the private land parcels to Road 438 or to the junction of Roads 442 and 445. Thereafter, spot rocking is planned over reconstructed sections and on rough sections. All rock is planned as 3"-, except on Rough and Ready Creek Road to 100 feet past the last residence driveway, between Highway 199 and the stockpile sites, on Wimer Rd #4402, and on Alternative 6, and Rd. 461 of Alternative 10 where an aggregate size of 1 1/2"- would be used for highway legal trucks. Pit run rock can be used in lieu of the 3"- if a suitable source is available. On Alternatives 6 and 11, the Rough and Ready Creek Road would be single lane paved with turnouts for cost calculations in lieu of rock and dust abatement for comparison of the alternatives, but the actual surfacing will be based on the agreement between the landowners and the operator. Paving Rough and Ready Creek Road would reduce noise and additional traffic from watering and blading. Dust abatement and surface blading would make the costs of paving or aggregate somewhat comparable.

Wimer Rd #4402 is to be paved in Alternative 10 in lieu of aggregate surfacing and a wash station for POC protection. A paved road to Rd 4400461 would not require a separate vehicle washing to access Site B and the Cable Landing from Site D. A cost analysis of aggregate and a washing station vs. paving the Wimer Rd shows the paving to be the least cost.

Borrow material is used with the PA in exceptionally rough sections of the Alberg Road (grid roller with a Cat to break down the boulders might also be feasible), to widen the Rough and Ready Creek Road in spots, and as needed elsewhere to reduce excavation and build up the road surface. The actual location for this material would be from sites with rock from the R&R Creek drainage so as to not introduce other soils and rock into the drainage. The source could be waste or oversize material from crushing the surfacing material, from mining operations, or from old crushing sites on the delta.

Clearing associated with construction and reconstruction would be just enough to do the necessary construction or reconstruction and to keep the roads clear with site distance during haul.

On flats and side slopes where possible, no excavation would be done except to remove or break down larger rocks and boulders. Borrow and surfacing would fill over stumps and smaller boulders without removing them. Also, sections of road that are now badly washed would be filled in to at least the original ground surface with borrow to facilitate drainage across the road rather than down the road as is presently happening.

Excavation would be kept to a minimum. Where full bench excavation is required (slopes over about 55-60%), the excavation would be hauled to flatter slopes and used to build the road without excavation, or used as borrow to build up sections of existing roads as indicated above. Initial cuts and finishing on steep ground would lose materials down the hill. In some areas, this loss could enter creeks and riparian areas. Loss could be reduced to a great extent by using logs to catch rock and soil, or an excavator to build the pioneer

road in full bench and near full bench sections. Use of an excavator could double the cost of these sections.

Road sections where the slope immediately downhill from the road exceeds 35% will need a berm the height of the axle of the largest vehicle traveling the road. These sections will require a wider subgrade to place the berm. The added width could be built using borrow material or by excavating about three feet into the cut slope, using the excavated width and the excavated material to widen on the fill side to get needed additional width. (Discussions with MSHA identified that berms are needed for safety.)

Helicopter Flight Route -- The route used by the helicopter(s) will be chosen so the closest approach to any building not associated with the mine is at least 1000 feet. This route will most likely pass over or near Site C from the other Sites, then to the stockpile site. The return route will be in the opposite direction. The road to the Mars swimming site will need to be signed or blocked to traffic during periods of the helicopter flights for safety.

Spill Plan -- There will be a certain amount of automotive oils that will drip from vehicles on the route. There is nothing planned to stop/reduce this normal loss except possibly some surfacing options would reduce the amounts that would go into drainages. There does need to be some plan to reduce damage from larger spills that may take place from broken lines and vehicle accidents.

A spill plan will need to be developed by the operator that is approved by the Forest Service. This plan would include equipment and material on site (possibly near the stockpile site and near crossings) for sponging up or limiting flow of spills in creeks. Communications in each vehicle should be planned so word can be spread quickly to get spills cleaned up immediately. The storage of petroleum products in containers of 660 gallon or greater will need to be in designed holding areas to keep spills from leaving the site.

Road Closures -- All routes except the PA will have road closures (gates were used in the costs) to prevent use during operations and during the off-season so as to reduce the chance of introducing POC root rot into the area. The closure would be at crossing #1 in the PA and Alternatives #7,8, & 10, and near the Forest Boundary in Alternatives 6 and 11. Another closure would be needed above Site B to keep traffic from getting into the area from the west. Following the project, most roads on National Forest lands (except the Wimer Road # 4402) will be waterbarred to provide drainage and blocked.

Road Maintenance -- All routes except the Rough and Ready Creek Road to 100 feet past the last residence driveway and the Wimer Road would be maintained to maintenance level 2 standards (high clearance vehicle). The Rough and Ready Creek Road to the last residence and the Wimer Road would be maintained to maintenance level 3 (suitable for passenger cars).

A road maintenance plan would be required as part of the Plan of Operation to be approved annually by the District Ranger to include the following criteria. Maintenance of the surfacing and drainages will be required each season, during and after summer storms, and during the haul (RF-7). Use during wet periods would be halted to prevent damage to riparian resources (RF-7). Installed culverts and bridges would be removed at the end of each season (except the culvert in the Wing & Faren Ditch, the permanent bridge in Alternative 11, the culvert at the ramp to Hwy

199, and those on the Rough and Ready Creek Road to the junctions with Rd 445). These structures would be put back in place at the start of each season. Much of the washed rock surfacing over live crossings will be pulled out of the drainage but some is expected to be lost during the winter and all will be replaced each season. Some of the other surfacing will also need replaced each season. The buildup of boulders for temporary bridge approaches will probably need to be replaced each season. Some road work to replace the road template will be needed each season due to wash and erosion from heavy winter rains.

Dust Abatement -- In the lower reaches of the project where the haul route is adjacent to private residences or in the view area of the residences and Highway 199, dust is to be abated. The haul through private land in Alternatives 6 and 11 is costed as pavement in lieu of rock and dust abatement for comparison of the alternatives. The planned surfacing on the rest of the lower reaches routes would have fines and, along with the breakdown of the surfacing due to haul, would produce dust. All options of dust abatement is costed with the use of water so as to not introduce any new materials into the area. The operator would acquire any necessary water rights. The amount of water used for dust abatement, if taken out of Rough and Ready Creek in the sections with flowing water, would probably not be noticeable in the downstream flow. Several types of dust abatement are available:

Petroleum products - Initial cost of these materials is high, but maintenance and replacement are more reasonable. This would introduce oils or asphalts in the botanical area that do not now exist. There is the chance of getting some of this material in the streams during placement. A lighter application would be needed at the start of each season and possibly during haul. Water is required to prepare the surface and mixing of the asphalt if it is an emulsion.

Salt products - Initial cost of these materials is high, but maintenance and replacement are more reasonable. Replacement of these materials are at a much reduced rate from the initial application and would most likely be needed each season and possibly during haul. Some watering would need to be used in conjunction with these materials to prepare the surface, to mix with the salts, and following application to keep the surface moist. Use of this material would introduce salts in the botanical area that do not now exist. There is the chance of getting some of this material in the streams during placement and there will be some kill of vegetation immediately adjacent to the road from the spray during placement. This material can become slick where there are a lot of fines with the surfacing.

Lignin - This is a byproduct of the paper making process and has been used successfully on many Forest roads. The material has been found to be nontoxic to fish. The use of this product would introduce chemicals into the botanical area that is not now present. The product is water soluble and can wash away from the road. Water is required in the preparation of the surface and in mixing with the product. A reduced application would be needed each season, and possibly during the season if there are heavy summer rains or as needed during haul. This material can build up a residue from repeated applications.

Water - The application of water can be readily used to abate the dust and is the material costed in the alternatives. The water would need to be from a clean source and could come from Rough and Ready Creek to eliminate the chance of introducing POC root rot spores into the area.

Vehicle Washing -- All vehicles used in this project would require washing prior to entering the project area and each time they return to the project area. This washing is to remove all mud and

dirt which could hold POC root rot spores and noxious weed seeds. Washing can be done at facilities prior to returning to the project with clean water (free from POC root rot spores) available or at a washing station set up at the start of the project using clean water. This washing would reduce contamination by the root rot disease and also reduce noxious weed seeds that need to be kept out of the project area.

Use of State of Oregon and Josephine County Roads -- County and State roads will not be used to haul ore to the stockpile site, except on Alternatives 6 and 11 where the end of County Road 5552 will be crossed, and in Alternative 10 which uses County Roads 5550 and 5552. The use of County Roads may require a County permit which would be obtained by the proponent. County Roads 5550 and 5552 would also be used to haul asphalt, aggregate, and borrow materials for Alternatives 6, 10, and 11.

The Rough and Ready Creek Road is not claimed by the County as their road. This road is in effect owned by each landowner, although some of the deeds do mention "rights of the public within the limits of public roadways," and prescriptive rights may be available due to the long use of the road by miners and others to reach the existing routes on the middle section of Rough and Ready Creek.

State Highway 199 would be used eventually to haul ore to a smelter, or to haul the finished product if a smelter were built near the stockpile or mill site. This highway would also be used to haul aggregate and borrow materials for the PA and all Alternatives except the No Action Alternative, and asphalt for Alternatives 6, 10, and 11. The amount of use added to Highway 199 by haul of the ore and construction materials is considered insignificant to existing traffic by the State and would have little effect on the highway. Also, a wash station could be developed on State lands near the beginning of the project requiring crossing the highway to get to the project roads.

Crushing and Borrow Sites -- These materials should come from sites in the R&R Creek drainage. This would tend to not introduce soil, rock, and POC root rot from outside the drainage preserving the botanical integrity of the drainage. There are four sites on the R&R Creek fan that would satisfy this need. All four sites have been used in the past (one being currently used) so the sites are already in a disturbed condition.

A. The first is a site between R&R Creek and the PA stockpile site. High water from R&R Creek could get to the site but probably not overtop it. The site would be visible from Hwy 199 and by people visiting the R&R Creek Wayside, but not from the parking area which has vegetation and a low ridge at the Wayside, which hides the area. People could see the site by walking along Hwy 199 or upstream from the parking area. Water for washing rock could be readily obtained from R&R Creek. This site being adjacent to the project roads could have the least amount of road to construct/reconstruct.

B. The second site is across R&R Creek (the north side) from the PA stockpile site and upstream 1/4 to 1/2 mile. The site is an island during high water, but access to the site is dry during the summer. Extreme high water could inundate most of the site, and once the material is used may lower the island so extreme high water could inundate the whole site. The area is visible from a short section of Hwy 199 at and near the bridge crossing R&R Creek, and by some people hiking out from R&R Creek Wayside. Water for washing rock would be readily available from R&R Creek. The haul route would be to Airport Way (north of the airport) to Hwy 199, or a shorter route following the Power Line

road crossing R&R Creek (this would be an additional crossing of R&R Creek) to the project roads.

C. The third site is along the north side of R&R Creek and downstream just over a 1/4 mile from Hwy 199 bridge. The site is covered during extreme high water and is visible from a short section of Hwy 199 at and near the bridge crossing R&R Creek. Water for washing rock would be readily available from R&R Creek. The haul route to project roads is shorter than from Site B and would access Hwy 199 just across from R&R Creek Wayside.

D. The fourth site is on private land (Rough & Ready Lumber Co.) in an area used for rock in the past and has recently been used as a crushing site by the State of Oregon. This site east of Hwy 199 is generally not subject to flooding, and is not easily seen (the equipment and stockpiles can be seen, but not the site) from Hwy 199. Water for washing rock would need to be hauled to the site unless existing ponds at the site are a suitable water source.

Another possible site is on the ridge above mining Site C. The section of the ridge that becomes very rocky could be used as a rock and borrow source. This site would be difficult to see, except some dust rising into the air may be seen at times during the crushing operations. Water for washing rock would have to be hauled to the site.

/s/ Robert E. O'Leary

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