(5) PROJECT IMPACTS AND ALTERNATIVES

Alternatives Analysis:

Describe alternative sites and project designs that were considered to avoid or minimize impacts to the waterway or wetland. *(Include alternative design(s) with less impact and reasons why the alternative(s) were not chosen. Reference OAR 141-085-0025 (3(j)) and 141-085-0029 (4through 6) for more information.*)*

Alternatives considered were low water fords. However, this alternative is not suitable for year around access, which would limit greatly the development potential of the property and the landowner's ability to use and enjoy his property. Further, low water fords could have the potential for far more impact to the water, riparian, and wetlands resources than bridges. Because year around access is required a bridge is the best option for permanent access.

Access from the south is not feasible. Mr. Wharton does not have an easement across any of the lands that border his property to the south. Further, the topography to the south consists of extremely steep slopes characterized by rocky rims and is not suitable for road construction. Roads constructed to the south would have the potential to provide far more sediment to the Middle Fork John Day River over time due to the ongoing erosion in these steep areas. Roads up draw bottoms are not desirable due to the potential for sediment delivery to the river and the constant maintenance required.

Measures to minimize impacts:

Describe what measures you will use (before and after construction) to minimize impacts to the waterway or wetland. These may include but are not limited to the following:

For projects with ground disturbance include an erosion control plan or description of other best management practices (BMP's) as appropriate. (For more information on erosion control practices see DEQ's Oregon Sediment and Erosion Control Manual)

- ☐ *For work in waterways where fish or flowing water are likely to be present, discuss how the work area will be isolated from the flowing water.*
- ☐ *If native migratory fish are present (or were historically present) and you are installing, replacing or abandoning a culvert or other potential obstruction to fish passage, complete and attach a statement of how the Fish Passage Requirements, set by the Oregon Department of Fish and Wildlife will be met.*

A minor amount of ground disturbance will be present in the upland area above the wetlands when the excavator trenches out the area for the forms that will be used to pour the concrete abutments. Any excess excavated material will be hauled off-site to upland areas. Disturbed areas will be contoured and planted with native grass species immediately after completion of bridge installation. If ground conditions are dry during the initial grass seeding, the area will be reseeded in the fall when desirable moisture conditions are present.

Construction of concrete forms, fording the river with the excavator and various vehicles such as a concrete truck, can be timed to take place during August when river levels are generally lowest and impacts to anadramous fish can be minimized.